

**CARLO GAVAZZI**  
Automation Components



**Our Products**

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## A complete product range

### ABOUT CARLO GAVAZZI

Carlo Gavazzi Automation is a multinational electronics group active in the design, manufacture and marketing of electronic equipment targeted at the global markets of industrial and building automation.

Our history is full of firsts and our products are installed in a huge number of applications all over the world. With more than 80 years of successful operation, our experience is unparalleled.

We have our headquarters in Europe and numerous offices around the world.

Our R&D competence centres and production sites are located in Denmark, Italy, Lithuania, Malta and the People's Republic of China.

We operate worldwide through 22 of our own sales companies and also selected representatives in more than 65 countries, from the United States in the West to the Pacific Rim in the East.

Our core competence in automation spans three product lines: Sensors, Switches and Controls.

Our wide array of products includes sensors, monitoring relays, timers, energy management systems, solid state relays, safety devices and fieldbus systems.

We focus our expertise on offering state-of-the-art product solutions in selected market segments.

Our customers include original equipment manufacturers of packaging machines, plastic-injection moulding machines, food and beverage production machines, conveying and materials handling equipment, door and entrance control systems, lifts and escalators, as well as heating, ventilation and air-conditioning devices.





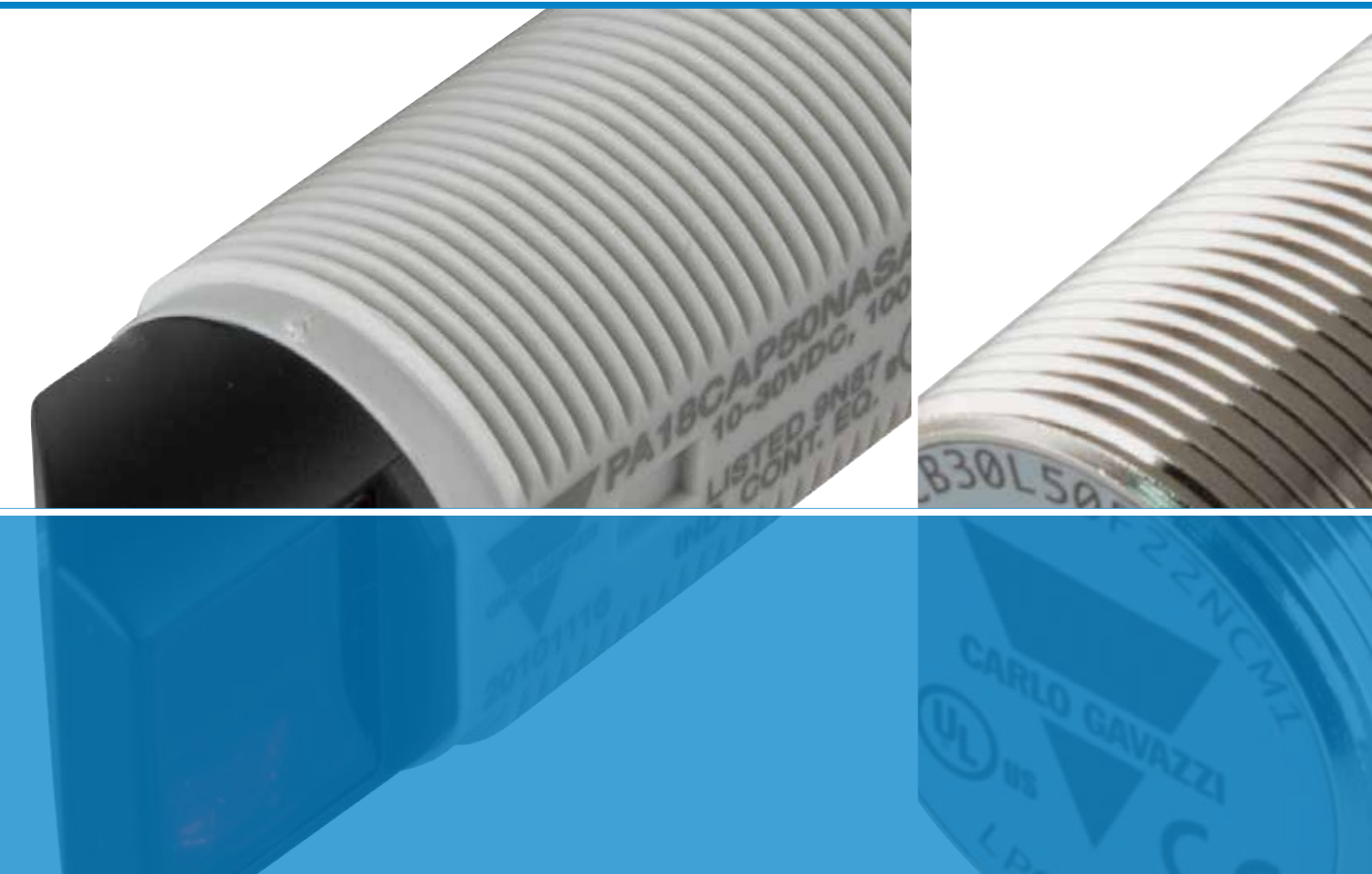
## A guarantee of reliability

Carlo Gavazzi products earned the independent approval of the relevant bodies which govern our industry and the many markets we serve.

They are developed and manufactured in full compliance with the most important international standard regulations.

Carlo Gavazzi manufacturing facilities operates in line with the requirements of ISO9001:2008 Quality Management Systems and ISO14001:2008 Environmental Management System standard.





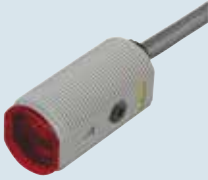
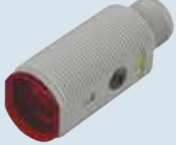

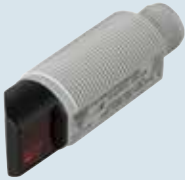
# Sensors



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# Photoelectric sensors

	M18, DC, axial type		M18, DC, radial type	
Types	PA18CA.	PA18CA.	PA18CR.	PA18CR.
Connections	2 m cable	M12 connector	2 m cable	M12 connector
				
Dimensions (mm)	M18 x 40	M18 x 44	M18 x 50	M18 x 54
<b>Diffuse reflective</b>				
Sensing distance (Sn)	50 - 1000 mm	50 - 1000 mm	50 - 800 mm	50 - 800 mm
NPN NO+NC	PA18CAD10NASA	PA18CAD10NAM1SA	PA18CRD08NASA	PA18CRD08NAM1SA
PNP NO+NC	PA18CAD10PASA	PA18CAD10PAM1SA	PA18CRD08PASA	PA18CRD08PAM1SA
<b>Diffuse reflective WS</b>				
Sensing distance (Sn)	0 - 400 mm	0 - 400 mm		
NPN NO+NC	PA18CAD04NAWS	PA18CAD04NAM1WS		
PNP NO+NC	PA18CAD04PAWS	PA18CAD04PAM1WS		
<b>Retro reflective polarized</b>				
Sensing distance (Sn)	5 - 500 cm	5 - 500 cm	5 - 400 cm	5 - 400 cm
NPN NO+NC	PA18CAP50NASA	PA18CAP50NAM1SA	PA18CRP40NASA	PA18CRP40NAM1SA
PNP NO+NC	PA18CAP50PASA	PA18CAP50PAM1SA	PA18CRP40PASA	PA18CRP40PAM1SA
<b>Retro reflective</b>				
Sensing distance (Sn)	5 - 650 cm	5 - 650 cm	5 - 500 cm	5 - 500 cm
NPN NO+NC	PA18CAR65NASA	PA18CAR65NAM1SA	PA18CRR50NASA	PA18CRR50NAM1SA
PNP NO+NC	PA18CAR65PASA	PA18CAR65PAM1SA	PA18CRR50PASA	PA18CRR50PAM1SA
<b>Through-beam emitter (E)</b>				
Sensing distance (Sn)	1 - 20 m	1 - 20 m	1 - 16 m	1 - 16 m
	PA18CAT20	PA18CAT20M1	PA18CRT16	PA18CRT16M1
<b>Through-beam receiver (R)</b>				
Sensing distance (Sn)	1 - 20 m	1 - 20 m	1 - 16 m	1 - 16 m
NPN NO+NC	PA18CAT20NASA	PA18CAT20NAM1SA	PA18CRT16NASA	PA18CRT16NAM1SA
PNP NO+NC	PA18CAT20PASA	PA18CAT20PAM1SA	PA18CRT16PASA	PA18CRT16PAM1SA
<b>Background suppression (BGS)</b>				
Sensing distance (Sn)	10 - 200 mm	10 - 200 mm		
NPN NO+NC	PA18CAB20NASA	PA18CAB20NAM1SA		
PNP NO+NC	PA18CAB20PASA	PA18CAB20PAM1SA		
<b>Specifications</b>				
Operating frequency	500 Hz	500 Hz	500 Hz	500 Hz
Rated operating voltage	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
Voltage drop	≤ 2.0 VDC @ 100 mA	≤ 2.0 VDC @ 100 mA	≤ 2.0 VDC @ 100 mA	≤ 2.0 VDC @ 100 mA
Degree of protection	IP 67 + IP 69K	IP 67 + IP 69K	IP 67 + IP 69K	IP 67 + IP 69K
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Supply current	≤ 25 mA @ 24 VDC	≤ 25 mA @ 24 VDC	≤ 25 mA @ 24 VDC	≤ 25 mA @ 24 VDC
BGS, E + R	≤ 40 mA @ 24 VDC	≤ 40 mA @ 24 VDC	≤ 40 mA @ 24 VDC	≤ 40 mA @ 24 VDC
Housing material	ABS, PMMA, PBTB	ABS, PMMA, PBTB	ABS, PMMA, PBTB	ABS, PMMA, PBTB
Operating temperature	-25°C to +60°C	-25°C to +60°C	-25°C to +60°C	-25°C to +60°C
LED colour	Yellow, Green	Yellow, Green	Yellow, Green	Yellow, Green
Approvals/Marks	CE - cULus - ECOLAB	CE - cULus - ECOLAB	CE - cULus - ECOLAB	CE - cULus - ECOLAB

# Photoelectric sensors

## M18, DC, square type

Types	PH18.	PH18.	PH18.
Connections	2 m cable	M12 connector	Pigtail M12
			
Dimensions (mm)	15 x 21 (31.5) x 35	15 x 21 (31.5) x 35	15 x 21 (31.5) x 35
<b>Diffuse reflective</b>			
Sensing distance (Sn)	50 - 1000 mm	50 - 1000 mm	50 - 1000 mm
NPN NO+NC	<b>PH18CND10NASA</b>	<b>PH18CND10NAM1SA</b>	<b>PH18CND10NAT1SA</b>
PNP NC+NC	<b>PH18CND10PASA</b>	<b>PH18CND10PAM1SA</b>	<b>PH18CND10PAT1SA</b>
<b>Retro reflective polarized</b>			
Sensing distance (Sn)	5 - 500 cm	5 - 500 cm	5 - 500 cm
NPN NO+NC	<b>PH18CNP50NASA</b>	<b>PH18CNP50NAM1SA</b>	<b>PH18CNP50NAT1SA</b>
PNP NO+NC	<b>PH18CNP50PASA</b>	<b>PH18CNP50PAM1SA</b>	<b>PH18CNP50PAT1SA</b>
<b>Retro reflective</b>			
Sensing distance (Sn)	5 - 650 cm	5 - 650 cm	5 - 650 cm
NPN NO+NC	<b>PH18CNR65NASA</b>	<b>PH18CNR65NAM1SA</b>	<b>PH18CNR65NAT1SA</b>
PNP NO+NC	<b>PH18CNR65PASA</b>	<b>PH18CNR65PAM1SA</b>	<b>PH18CNR65PAT1SA</b>
<b>Through-beam emitter (E)</b>			
Sensing distance (Sn)	1 - 20 m	1 - 20 m	1 - 20 m
	<b>PH18CNT20</b>	<b>PH18CNT20M1</b>	<b>PH18CNT20T1</b>
<b>Through-beam receiver (R)</b>			
Sensing distance (Sn)	1 - 20 m	1 - 20 m	1 - 20 m
NPN NO+NC	<b>PH18CNT20NASA</b>	<b>PH18CNT20NAM1SA</b>	<b>PH18CNT20NAT1SA</b>
PNP NO+NC	<b>PH18CNT20PASA</b>	<b>PH18CNT20PAM1SA</b>	<b>PH18CNT20PAT1SA</b>
<b>Background suppression (BGS)</b>			
Sensing distance (Sn)	8 - 200 mm	8 - 200 mm	8 - 200 mm
NPN NO+NC	<b>PH18CNB20NASA</b>	<b>PH18CNB20NAM1SA</b>	<b>PH18CNB20NAT1SA</b>
PNP NO+NC	<b>PH18CNB20PASA</b>	<b>PH18CNB20PAM1SA</b>	<b>PH18CNB20PAT1SA</b>
<b>Specifications</b>			
Operating frequency	500 Hz	500 Hz	500 Hz
Rated operating voltage	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
Voltage drop	≤ 2.0 VDC @ 100 mA	≤ 2.0 VDC @ 100 mA	≤ 2.0 VDC @ 100 mA
Degree of protection	IP 67 + IP 69K	IP 67 + IP 69K	IP 67 + IP 69K
Protection short-circuit (S)			
Reverse polarity (P)	SPT	SPT	SPT
Transients (T)			
Supply current	≤ 25 mA @ 24 VDC	≤ 25 mA @ 24 VDC	≤ 25 mA @ 24 VDC
BGS, E + R	≤ 40 mA @ 24 VDC	≤ 40 mA @ 24 VDC	≤ 40 mA @ 24 VDC
Housing material	ABS, PMMA	ABS, PMMA	ABS, PMMA
Operating temperature	-25°C to +60°C	-25°C to +60°C	-25°C to +60°C
LED colour	Yellow, Green	Yellow, Green	Yellow, Green
Approvals/Marks	CE - cULus - ECOLAB	CE - cULus - ECOLAB	CE - cULus - ECOLAB

# Photoelectric sensors

## M18 metal, DC, integrated amplifier

Types	E.18..	E.18..-1
Connections	2 m cable	M12 connector



Dimensions (mm)	M18 x 55	M18 x 67
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### Diffuse reflective

Operating frequency	120 Hz	120 Hz
Sensing distance (Sn)	400 mm, adjustable	400 mm, adjustable
NPN NO+NC	<b>EO1804NPAS</b>	<b>EO1804NPAS-1</b>
PNP NC+NC	<b>EO1804PPAS</b>	<b>EO1804PPAS-1</b>

### Retro reflective polarized

Operating frequency	100 Hz	100 Hz
Sensing distance (Sn)	2 m, adjustable	2 m, adjustable
NPN NO+NC	<b>EP1820NPAS</b>	<b>EP1820NPAS-1</b>
PNP NO+NC	<b>EP1820PPAS</b>	<b>EP1820PPAS-1</b>

### Retro reflective

Operating frequency	120 Hz	120 Hz
Sensing distance (Sn)	3 m, adjustable	3 m, adjustable
NPN NO+NC	<b>ER1830NPAS</b>	<b>ER1830NPAS-1</b>
PNP NO+NC	<b>ER1830PPAS</b>	<b>ER1830PPAS-1</b>

### Through-beam emitter

Sensing distance (Sn)	20 m	20 m
	<b>ET1820</b>	<b>ET1820-1</b>

### Through-beam receiver

Operating frequency	170 Hz	170 Hz
Sensing distance (Sn)	20 m, adjustable	20 m, adjustable
NPN NO+NC	<b>ET1820NPAS</b>	<b>ET1820NPAS-1</b>
PNP NO+NC	<b>ET1820PPAS</b>	<b>ET1820PPAS-1</b>

### Fiber optic


Operating frequency	120 Hz	120 Hz
Sensing distance (Sn)	Fibre dependent	Fibre dependent
NPN NO+NC	<b>EF1801NPAS</b>	<b>EF1801NPAS-1</b>
PNP NO+NC	<b>EF1801PPAS</b>	<b>EF1801PPAS-1</b>

### Specifications

Rated operating voltage	10 - 40 VDC	10 - 40 VDC
Voltage drop	≤ 2.5 VDC	≤ 2.5 VDC
Degree of protection	IP 67	IP 67
Protection short-circuit (S)		
Rev. polarity (P)	SPT	SPT
Transients (T)		
Load current	< 200 mA	< 200 mA
Housing material	Nickel-plated brass	Nickel-plated brass
Operating temperature	-20°C to +60°C	-20°C to +60°C
LED colour	Yellow	Yellow
Approvals/Marks	CE	CE







# Photoelectric sensors




	M18 plastic, AC, integrated amplifier		M18 metal, AC, integrated amplifier	
Types	PA18CL	PA18CL.M6	PA18AL	PA18AL..M6
Connections	2 m cable	M12 connector	2 m cable	M12 connector
				
Dimensions (mm)	M18 x 71.5	M18 x 83.5	M18 x 71.5	M18 x 83.5
<b>Diffuse reflective</b>				
Operating frequency	20 Hz	20 Hz	20 Hz	20 Hz
Sensing distance (Sn)	100 mm, fixed	100 mm, fixed		
Thyristor (SCR) NC	PA18CLD01TC	PA18CLD01TCM6		
Thyristor (SCR) NO	PA18CLD01TO	PA18CLD01TOM6		
Sensing distance (Sn)	200 mm, fixed	200 mm, fixed		
Thyristor (SCR) NC	PA18CLD02TC	PA18CLD02TCM6		
Thyristor (SCR) NO	PA18CLD02TO	PA18CLD02TOM6		
Sensing distance (Sn)	400 mm, fixed	400 mm, fixed		
Thyristor (SCR) NC	PA18CLD04TC	PA18CLD04TCM6		
Thyristor (SCR) NO	PA18CLD04TO	PA18CLD04TOM6		
Sensing distance (Sn)	400 mm, adjustable	400 mm, adjustable	400 mm, adjustable	400 mm, adjustable
Thyristor (SCR) NC	PA18CLD04TCSA	PA18CLD04TCM6SA	PA18ALD04TCSA	PA18ALD04TCM6SA
Thyristor (SCR) NO	PA18CLD04TOSA	PA18CLD04TOM6SA	PA18ALD04TOSA	PA18ALD04TOM6SA
<b>Retro reflective polarized</b>				
Operating frequency	25 Hz	25 Hz	25 Hz	25 Hz
Sensing distance (Sn)	2 m, fixed	2 m, fixed	2 m, adjustable	2 m, adjustable
Thyristor (SCR) NC	PA18CLP20TC	PA18CLP20TCM6	PA18ALP20TCSA	PA18ALP20TCM6SA
Thyristor (SCR) NO	PA18CLP20TO	PA18CLP20TOM6	PA18ALP20TOSA	PA18ALP20TOM6SA
<b>Retro reflective</b>				
Operating frequency	20 Hz	20 Hz	20 Hz	20 Hz
Sensing distance (Sn)	3 m, fixed	3 m, fixed	3 m, adjustable	3 m, adjustable
Thyristor (SCR) NC	PA18CLR30TC	PA18CLR30TCM6	PA18ALR30TCSA	PA18ALR30TCM6SA
Thyristor (SCR) NO	PA18CLR30TO	PA18CLR30TOM6	PA18ALR30TOSA	PA18ALR30TOM6SA
<b>Specifications</b>				
Rated operating voltage	20 - 250 VAC	20 - 250 VAC	20 - 250 VAC	20 - 250 VAC
Voltage drop	≤ 10 VAC	≤ 10 VAC	≤ 10 VAC	≤ 10 VAC
Off state current	≤ 5 mA AC	≤ 5 mA AC	≤ 5 mA AC	≤ 5 mA AC
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S)				
Reverse polarity (P)	PT	PT	PT	PT
Transients (T)				
Load current	< 500 mA	< 500 mA	< 500 mA	< 500 mA
Housing material	Polyester (PBTP)	Polyester (PBTP)	Nickel-plated brass	Nickel-plated brass
Operating temperature	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA

# Photoelectric sensors

## Integrated amplifier

Types	PD30 Stainless Steel AISI 316L		PD30 ABS Housing Back Potentiometer	
Connections	2 m cable	M8 connector	2 m cable	M8 connector
				
Dimensions (mm)	11 x 31.5 x 21	11 x 31.5 x 21	10 x 30 x 20	10 x 30 x 20
<b>Diffuse reflective</b>				
Operating frequency / Sensing distance (Sn)	1000 Hz / 1 m	1000 Hz / 1 m	1000 Hz / 1 m	1000 Hz / 1 m
NPN NO+NC	<b>PD30ETD10NASA</b>	<b>PD30ETD10NAM5SA</b>	<b>PD30CND10NASA</b>	<b>PD30CND10NAM5SA</b>
PNP NO+NC	<b>PD30ETD10PASA</b>	<b>PD30ETD10PAM5SA</b>	<b>PD30CND10PASA</b>	<b>PD30CND10PAM5SA</b>
<b>Diffuse reflective, extremely wide angle, infrared light</b>				
Operating frequency / Sensing distance (Sn)	1000 Hz / 200 mm	1000 Hz / 200 mm	1000 Hz / 200 mm	1000 Hz / 200 mm
NPN NO+NC	<b>PD30ETD02NAWE</b>	<b>PD30ETD02NAM5WE</b>		
PNP NO+NC	<b>PD30ETD02PAWE</b>	<b>PD30ETD02PAM5WE</b>		
<b>Diffuse reflective background suppression, red light</b>				
Operating frequency / Sensing distance (Sn)	500 Hz / 200 mm	500 Hz / 200 mm	500 Hz / 200 mm	500 Hz / 200 mm
NPN NO+NC	<b>PD30ETB20NASA</b>	<b>PD30ETB20NAM5SA</b>	<b>PD30CNB20NASA</b>	<b>PD30CNB20NAM5SA</b>
PNP NO+NC	<b>PD30ETB20PASA</b>	<b>PD30ETB20PAM5SA</b>	<b>PD30CNB20PASA</b>	<b>PD30CNB20PAM5SA</b>
<b>Diffuse reflective background suppression, infrared light</b>				
Operating frequency / Sensing distance (Sn)	500 Hz / 200 mm	500 Hz / 200 mm	500 Hz / 200 mm	500 Hz / 200 mm
NPN NO+NC	<b>PD30ETB20NAIS</b>	<b>PD30ETB20NAM5IS</b>	<b>PD30CNB20NAIS</b>	<b>PD30CNB20NAM5IS</b>
PNP NO+NC	<b>PD30ETB20PAIS</b>	<b>PD30ETB20PAM5IS</b>	<b>PD30CNB20PAIS</b>	<b>PD30CNB20PAM5IS</b>
<b>Retro reflective</b>				
Operating frequency / Sensing distance (Sn)	1000 Hz / 6 m	1000 Hz / 6 m	1000 Hz / 6 m	1000 Hz / 6 m
NPN NO+NC	<b>PD30ETR60NASA</b>	<b>PD30ETR60NAM5SA</b>	<b>PD30CNR60NASA</b>	<b>PD30CNR60NAM5SA</b>
PNP NO+NC	<b>PD30ETR60PASA</b>	<b>PD30ETR60PAM5SA</b>	<b>PD30CNR60PASA</b>	<b>PD30CNR60PAM5SA</b>
<b>Retro reflective polarized</b>				
Operating frequency / Sensing distance (Sn)	1000 Hz / 6 m	1000 Hz / 6 m	1000 Hz / 6 m	1000 Hz / 6 m
NPN NO+NC	<b>PD30ETP60NASA</b>	<b>PD30ETP60NAM5SA</b>	<b>PD30CNP60NASA</b>	<b>PD30CNP60NAM5SA</b>
PNP NO+NC	<b>PD30ETP60PASA</b>	<b>PD30ETP60PAM5SA</b>	<b>PD30CNP60PASA</b>	<b>PD30CNP60PAM5SA</b>
<b>Through-beam emitter</b>				
Sensing distance (Sn)	15 m	15 m	15 m	15 m
	<b>PD30ETT15</b>	<b>PD30ETT15M5</b>	<b>PD30CNT15</b>	<b>PD30CNT15M5</b>
<b>Through-beam receiver</b>				
Operating frequency / Sensing distance (Sn)	500 Hz / 15 m	500 Hz / 15 m	500 Hz / 15 m	500 Hz / 15 m
NPN NO/NC	<b>PD30ETT15NASA</b>	<b>PD30ETT15M5NASA</b>	<b>PD30CNT15NASA</b>	<b>PD30CNT15NAM5SA</b>
PNP NO/NC	<b>PD30ETT15PASA</b>	<b>PD30ETT15M5PASA</b>	<b>PD30CNT15PASA</b>	<b>PD30CNT15PAM5SA</b>
<b>Specifications</b>				
Rated operating voltage	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
Voltage drop	≤ 2.0 VDC @ 100 mA	≤ 2.0 VDC @ 100 mA	≤ 2.0 VDC @ 100 mA	≤ 2.0 VDC @ 100 mA
Degree of protection	IP 68, IP69K	IP 68, IP69K	IP 67	IP 67
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Load current	≤ 100 mA	≤ 100 mA	≤ 100 mA	≤ 100 mA
Housing material	Stainless Steel AISI 316L	Stainless Steel AISI 316L	ABS	ABS
Operating temperature	-40 (-25)°C to +60°C	-40 (-25)°C to +60°C	-25°C to +60°C	-25°C to +60°C
LED colour	Yellow + Green	Yellow + Green	Yellow + Green	Yellow + Green
Approvals/Marks UL508	CE - cULus - ECOLAB	CE - cULus - ECOLAB	CE - cULus	CE - cULus

# Photoelectric sensors

Integrated amplifier			
Types	PD30 PointSpot Back Potentiometer		PD30 Top Potentiometer
Connections	2 m cable	M8 connector	2 m cable
			
Dimensions (mm)	10 x 30 x 20	10 x 30 x 20	10 x 30 x 20
<b>Diffuse reflective</b>			
Operating frequency / Sensing distance (Sn)			1000 Hz / 1 m
NPN NO+NC			<b>PD30CTD10NASA</b>
PNP NO+NC			<b>PD30CTD10PASA</b>
<b>Diffuse reflective, extremely wide angle, infrared light</b>			
Operating frequency / Sensing distance (Sn)			1000 Hz / 200 mm
NPN NO+NC			<b>PD30CTD02NAWE</b>
PNP NO+NC			<b>PD30CTD02PAWE</b>
<b>Diffuse reflective background suppression, red light</b>			
Operating frequency / Sensing distance (Sn)	500 Hz / 250 mm	500 Hz / 250 mm	500 Hz / 200 mm
NPN NO+NC	<b>PD30CNB25NAPS</b>	<b>PD30CNB25NAM5PS</b>	<b>PD30CTB20NASA</b>
PNP NO+NC	<b>PD30CNB25PAPS</b>	<b>PD30CNB25PAM5PS</b>	<b>PD30CTB20PASA</b>
<b>Diffuse reflective background suppression, infrared light</b>			
Operating frequency / Sensing distance (Sn)			500 Hz / 200 mm
NPN NO+NC			<b>PD30CTB20NAIS</b>
PNP NO+NC			<b>PD30CTB20PAIS</b>
<b>Retro reflective polarized</b>			
Operating frequency / Sensing distance (Sn)	1000 Hz / 6 m	1000 Hz / 6 m	
NPN NO+NC	<b>PD30CNP50NAPS</b>	<b>PD30CNP50NAM5PS</b>	
PNP NO+NC	<b>PD30CNP50PAPS</b>	<b>PD30CNP50PAM5PS</b>	
<b>Specifications</b>			
Rated operating voltage	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
Voltage drop	≤ 2.0 VDC @ 100 mA	≤ 2.0 VDC @ 100 mA	≤ 2.0 VDC @ 100 mA
Degree of protection	IP 67	IP 67	IP 67
Protection short-circuit (S)			
Reverse polarity (P)	SPT	SPT	SPT
Transients (T)			
Load current	≤ 100 mA	≤ 100 mA	≤ 100 mA
Housing material	ABS	ABS	ABS
Operating temperature	-25°C to +60°C	-25°C to +60°C	-25°C to +60°C
LED colour	Yellow + Green	Yellow + Green	Yellow + Green
Approvals/Marks UL508	CE - cULus	CE - cULus	CE - cULus



# Photoelectric sensors

## Integrated amplifier

### Types

### PD30 - Advanced with teach-in

#### Connections

#### 2 m cable

#### M8 connector

#### 2 m cable

#### M8 connector



Dimensions (mm)

10 x 30 x 20

10 x 30 x 20

10 x 30 x 20

10 x 30 x 20

### Retro reflective

### Retro reflective - transparent objects

Operating frequency / Sensing distance (Sn)

1000 Hz / 6 m, Teach-in

1000 Hz / 6 m, Teach-in

1000 Hz / 2 m, Teach-in

1000 Hz / 2 m, Teach-in

Mute NPN NO/NC

PD30CNR06NPMU

PD30CNR06NPM5MU

PD30CNG02NPMU

PD30CNG02NPM5MU

Mute PNP NO/NC

PD30CNR06PPMU

PD30CNR06PPM5MU

PD30CNG02PPMU

PD30CNG02PPM5MU

Dust NPN NO/NC

PD30CNR06NPDU

PD30CNR06NPM5DU

Dust PNP NO/NC

PD30CNR06PPDU

PD30CNR06PPM5DU

Remote NPN NO/NC

PD30CNR06NPRT

PD30CNR06NPM5RT

PD30CNG02NPRT

PD30CNG02NPM5RT

Remote PNP NO/NC

PD30CNR06PPRT

PD30CNR06PPM5RT

PD30CNG02PPRT

PD30CNG02PPM5RT

### Retro reflective polarized

### Diffuse Reflective

Operating frequency / Sensing distance (Sn)

1000 Hz / 6 m, Teach-in

1000 Hz / 6 m, Teach-in

1000 Hz / 1 m, Teach-in

1000 Hz / 1 m, Teach-in

Mute NPN NO/NC

PD30CNP06NPMU

PD30CNP06NPM5MU

Mute PNP NO/NC

PD30CNP06PPMU

PD30CNP06PPM5MU

Dust NPN NO/NC

PD30CNP06NPDU

PD30CNP06NPM5DU

PD30CND10NPDU

PD30CND10NPM5DU

Dust PNP NO/NC

PD30CNP06PPDU

PD30CNP06PPM5DU

PD30CND10PPDU

PD30CND10PPM5DU

Remote NPN NO/NC

PD30CNP06NPRT

PD30CNP06NPM5RT

PD30CND10NPRT

PD30CND10NPM5RT

Remote PNP NO/NC

PD30CNP06PPRT

PD30CNP06PPM5RT

PD30CND10PPRT

PD30CND10PPM5RT

### Through-beam emitter

Sensing distance (Sn)

15 m, Teach-in

15 m, Teach-in

NPN

PD30CNT15NMU

PD30CNT15NM5MU

PNP

PD30CNT15PMU

PD30CNT15PM5MU

### Through-beam receiver mute function

Operating frequency / Sensing distance (Sn)

1000 Hz / 15 m, Teach-in

1000 Hz / 15 m, Teach-in

1000 Hz / 150 mm, Teach-in

1000 Hz / 150 mm, Teach-in

Remote NPN NO/NC

PD30CNT15NPRT

PD30CNT15NPM5RT

PD30CNB15NPRT

PD30CNB15NPM5RT

Remote PNP NO/NC

PD30CNT15PPRT

PD30CNT15PPM5RT

PD30CNB15PPRT

PD30CNB15PPM5RT

Dust NPN NO/NC

PD30CNT15NPDU

PD30CNT15NPM5DU

Dust PNP NO/NC

PD30CNT15PPDU

PD30CNT15PPM5DU

### Specifications

Rated operating voltage

10 - 30 VDC

10 - 30 VDC

10 - 30 VDC

10 - 30 VDC

Voltage drop

≤ 2.4 VDC @ 100 mA

≤ 2.4 VDC @ 100 mA

≤ 2.4 VDC @ 100 mA

≤ 2.4 VDC @ 100 mA

Degree of protection

IP 67

IP 67

IP 67

IP 67

Protection short-circuit (S)

SPT

SPT

SPT

SPT

Reverse polarity (P)

Transients (T)

Load current

≤ 100 mA

≤ 100 mA

≤ 100 mA

≤ 100 mA

Housing material

ABS

ABS

ABS

ABS

Operating temperature

-25°C to +55°C

-25°C to +55°C

-25°C to +55°C

-25°C to +55°C

LED colour

Yellow + Green

Yellow + Green

Yellow + Green

Yellow + Green

Approvals/Marks UL508





CE - cULus

CE - cULus

CE - cULus





CE - cULus

# Photoelectric sensors

	Laser miniature, DC, integrated amplifier		Fiber optic sensor	Integrated amplifier colour sensors
Types	LD32	LD32	FA1	PD12CNC..BPT
Connections	2 m cable	M8 connector	2m cable	M12 connector
				
Dimensions (mm)	12 x 20 x 32	12 x 20 x 32	10 x 33 x 80	61 x 26 x 115
<b>Diffuse reflective</b>				
Operating frequency	4000 Hz	4000 Hz	200, 500, 1000, 5000 µS	500 Hz
Sensing distance (Sn)	150 mm, Teach-in	150 mm, Teach-in	Fiber dependent	2 to 60 mm (fiber depend.)
NPN NO+NC	<b>LD32CND15NPT</b>	<b>LD32CND15NPM5T</b>	<b>FA1-N</b>	
PNP NO+NC	<b>LD32CND15PPT</b>	<b>LD32CND15PPM5T</b>	<b>FA1-P</b>	
NPN/PNP NO+PC				<b>PD12CNC01BPM1T 1 Output</b>
NPN/PNP NO+PC				<b>PD12CNC04BPM1T 4 Output</b>
<b>Diffuse reflective background suppression</b>				
Operating frequency	4000 Hz	4000 Hz		
Sensing distance (Sn)	60 mm, Teach-in	60 mm, Teach-in		
NPN NO+NC	<b>LD32CNB06NPT</b>	<b>LD32CNB06NPM5T</b>		
PNP NO+NC	<b>LD32CNB06PPT</b>	<b>LD32CNB06PPM5T</b>		
<b>Retro reflective polarized</b>				
Operating frequency	4000 Hz	4000 Hz		
Sensing distance (Sn)	1 m, Teach-in	1 m, Teach-in		
NPN NO+NC	<b>LD32CNP10NPT</b>	<b>LD32CNP10NPM5T</b>		
PNP NO+NC	<b>LD32CNP10PPT</b>	<b>LD32CNP10PPM5T</b>		
<b>Accessories: fibres</b>				
Dist. 18 mm				<b>FPDC 01 SCC 100</b>
Dist. 40-60 mm				<b>FPDC 02 SCC 100</b>
Dist. 4-6 mm				<b>FPDC 03 SCC 100</b>
Dist. 2-6 mm				<b>FPDC 04 SCC 100</b>
Dist. 4 mm				<b>FPDC 05 SCC 100</b>
<b>Specifications</b>				
Rated operating voltage	10 - 30 VDC	10 - 30 VDC	12 to 24 VDC	24 VDC
Voltage drop	≤ 2.4 VDC	≤ 2.4 VDC	≤ 1.5 VDC	≤ 2.2 VDC
Degree of protection	IP 67	IP 67	IP 40	IP 65
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Load current	≤ 100 mA	≤ 100 mA	≤ 100 mA	< 100 mA
Housing material	ABS	ABS	ABS	Polycarbonate
Operating temperature	-25°C to +60°C	-25°C to +60°C	0°C to +60°C	0°C to +40°C
LED colour	Yellow + Green	Yellow + Green	Red + Green	Yellow + Green
Approvals/Marks	CE	CE	CE	CE - cUL
UL508			cULus (UL508)	
Light Source	Laser Class 2	Laser Class 2	Red LED 660 nm	
Plastic Fiber unit			FUR (reflective) & FUT (through beam) series. Please refer to FUR FUT specifications datasheets	

# Photoelectric sensors

## Through-beam, transistor output

Types	PB10..	PA12	PB18..	PE12..
Connections	5 m cable	M12 connector	5 m cable	5 m cable
				
Dimensions (mm)	Ø10	M12	Ø18	Ø12
<b>Through-beam emitter</b>				
Sensing distance (Sn)	20 m	20 m	15 m	15 m
Single channel	<b>PB10CNT20</b>	<b>PA12BNT20</b>	<b>PB18CNT15</b>	<b>PE12CNT15</b>
Channel 1	<b>PB10C1T20</b>	<b>PA12B1T20</b>		<b>PE12C1T15</b>
Channel 2	<b>PB10C2T20</b>	<b>PA12B2T20</b>		<b>PE12C2T15</b>
Channel 3	<b>PB10C3T20</b>	<b>PA12B3T20</b>		<b>PE12C3T15</b>
<b>Through-beam receiver</b>				
Operating frequency	100 Hz (for 3 ch 30 Hz)	100 Hz (for 3 ch 30 Hz)	100 Hz	100 Hz
Sensing distance (Sn)	25 m	25 m	15 m	15 m
NPN NO Single channel	<b>PB10CNT20NO</b>	<b>PA12BNT20NO</b>	<b>PB18CNT15NO</b>	<b>PE12CNT15NO</b>
NPN NC Single channel	<b>PB10CNT20NC</b>	<b>PA12BNT20NC</b>	<b>PB18CNT15NC</b>	<b>PE12CNT15NC</b>
PNP NO Single channel	<b>PB10CNT20PO</b>	<b>PA12BNT20PO</b>	<b>PB18CNT15PO</b>	<b>PE12CNT15PO</b>
PNP NC Single channel	<b>PB10CNT20PC</b>	<b>PA12BNT20PC</b>	<b>PB18CNT15PC</b>	<b>PE12CNT15PC</b>
NPN NO Channel 1	<b>PB10C1T20NO</b>	<b>PA12B1T20NO</b>		<b>PE12C1T15NO</b>
NPN NC Channel 1	<b>PB10C1T20NC</b>	<b>PA12B1T20NC</b>		<b>PE12C1T15NC</b>
PNP NO Channel 1	<b>PB10C1T20PO</b>	<b>PA12B1T20PO</b>		<b>PE12C1T15PO</b>
PNP NC Channel 1	<b>PB10C1T20PC</b>	<b>PA12B1T20PC</b>		<b>PE12C1T15PC</b>
NPN NO Channel 2	<b>PB10C2T20NO</b>	<b>PA12B2T20NO</b>		<b>PE12C2T15NO</b>
NPN NC Channel 2	<b>PB10C2T20NC</b>	<b>PA12B2T20NC</b>		<b>PE12C2T15NC</b>
PNP NO Channel 2	<b>PB10C2T20PO</b>	<b>PA12B2T20PO</b>		<b>PE12C2T15PO</b>
PNP NC Channel 2	<b>PB10C2T20PC</b>	<b>PA12B2T20PC</b>		<b>PE12C2T15PC</b>
NPN NO Channel 3	<b>PB10C3T20NO</b>	<b>PA12B3T20NO</b>		<b>PE12C3T15NO</b>
NPN NC Channel 3	<b>PB10C3T20NC</b>	<b>PA12B3T20NC</b>		<b>PE12C3T15NC</b>
PNP NO Channel 3	<b>PB10C3T20PO</b>	<b>PA12B3T20PO</b>		<b>PE12C3T15PO</b>
PNP NC Channel 3	<b>PB10C3T20PC</b>	<b>PA12B3T20PC</b>		<b>PE12C3T15PC</b>
<b>Specifications</b>				
Rated operating voltage	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
Voltage drop	≤ 1.5 VDC	≤ 1.5 VDC	≤ 1.5 VDC	≤ 1.5 VDC
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Load current	≤ 100 mA	≤ 100 mA	≤ 100 mA	≤ 100 mA
Housing material	PC	PC	PTE	PC
Operating temperature	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C
LED colour	Green (E), Yellow (R)	Green (E), Yellow (R)		Green (E), Yellow (R)
Approvals/Marks	CE	CE	CE	CE
UL 508	cULus	UL - cUL	cULus	cULus
UL 325	cURus	UR - cURus	cURus	cURus

NB! For pig-tail connector versions add C2 after the part number



# Photoelectric sensors

## DC, integrated amplifier

Types	PD70	PD112	PA.	PB.
Connections	2 m cable or connector		2 m cable or connector	
				
Dimensions (mm)	11.6 x 11.6 x 70	112 x 45 x 25	36 x 18 x 63	18 x 75 x 36

### Diffuse reflective background suppression

Operating frequency		Door mode 16.7 Hz Industri mode 250 Hz	1000 Hz	1000 Hz
Sensing distance (Sn)		2.5 m, adjustable	150 mm, adjustable	150 mm, adjustable
Cable		2 m	2 m	2 m
NPN/PNP, NO+NC		-	PA15INPA/PA15IPPA	PB15INPA/PB15IPPA
NPN+PNP, NO/NC		PD112CNB25BP	-	-
Connector		M12	M12	M12
NPN/PNP, NO+NC		-	PA15INPA-1/PA15IPPA-1	PB15INPA-1/PB15IPPA-1
NPN+PNP, NO/NC		PD112CNB25BPM1		

### Retro reflective polarized

Operating frequency			1000 Hz	1000 Hz
Sensing distance (Sn)			3 m, adjustable	3 m, adjustable
Cable			2 m	2 m
NPN/PNP, NO+NC			PA3PNPA/PA3PPPA	PB3PNPA/PB3PPPA
Connector			M12	M12
NPN/PNP, NO+NC			PA3PNPA-1/PA3PPPA-1	PB3PNPA-1/PB3PPPA-1

### Through-beam




Operating frequency	100 Hz			
Sensing distance (Sn)	12 m, adjustable			
Cable	2 m			
NPN NO (Receiver)	PD70CNT12NO			
NPN NC (Receiver)	PD70CNT12NC			
PNP NO (Receiver)	PD70CNT12PO			
PNP NC (Receiver)	PD70CNT12PC			
Mute High (Emitter)	PD70CNT12MH			
Mute Low (Emitter)	PD70CNT12ML			
Connector	M8			
NPN NO (Receiver)	PD70CNT12NOM5			
NPN NC (Receiver)	PD70CNT12NCM5			
PNP NO (Receiver)	PD70CNT12POM5			
PNP NC (Receiver)	PD70CNT12PCM5			
Mute High (Emitter)	PD70CNT12M5MH			
Mute Low (Emitter)	PD70CNT12M5ML			

### Specifications





Rated operating voltage	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
Voltage drop	≤ 1.8 VDC	≤ 2.5 VDC	≤ 2.5 VDC	≤ 2.5 VDC
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Load current	≤ 100 mA	< 200 mA	< 200 mA	< 200 mA
Housing material	PC Black	PC Black	Aluminium	Reinforced ABS
Operating temperature	-25°C to +55°C	-25°C to +55°C	-25°C to +60°C	-25°C to +60°C
LED colour	Yellow, Receiver output Green, Emitter power ON	Yellow, Output Green, Power ON	Yellow	Yellow
Approvals/Marks	CE - cURus	CE - cULus	CE	CE

# Photoelectric sensors





## Integrated amplifier

Types	PC50	PC50..M1	PC50
Connections	2 m cable	M12 connector	2 m cable
			
Dimensions (mm)	17 x 50 x 50	17 x 50 x 50	17 x 50 x 50
<b>Diffuse reflective</b>			
Operating frequency	500 Hz	500 Hz	20 Hz
Sensing distance (Sn)	1 m, adjustable	1 m, adjustable	
NPN/PNP NO+NC	<b>PC50CND10BA</b>	<b>PC50CND10BAM1</b>	
Sensing distance (Sn)	2 m, adjustable	2 m, adjustable	
NPN/PNP NO+NC	<b>PC50CND20BA</b>	<b>PC50CND20BAM1</b>	
Sensing distance (Sn)			1 m, adjustable
Relay SPDT Multivoltage			<b>PC50CND10RP</b>
Sensing distance (Sn)			2 m, adjustable
Relay SPDT Multivoltage			<b>PC50CND20RP</b>
<b>Diffuse reflective background suppression</b>			
Operating frequency	250 Hz	250 Hz	
Sensing distance (Sn)	500 mm, adjustable	500 mm, adjustable	
NPN/PNP NO+NC	<b>PC50CNB50BA</b>	<b>PC50CNB50BAM1</b>	
<b>Retro reflective polarized</b>			
Operating frequency	500 Hz	500 Hz	20 Hz
Sensing distance (Sn)	6 m, adjustable	6 m, adjustable	6 m, adjustable
NPN/PNP NO+NC	<b>PC50CNP06BA</b>	<b>PC50CNP06BAM1</b>	
Mute High	<b>PC50CNP06BAMH</b>	<b>PC50CNP06BAM1MH</b>	
Mute Low	<b>PC50CNP06BAML</b>	<b>PC50CNP06BAM1ML</b>	
Relay SPDT Multivoltage			<b>PC50CNP06RP</b>
<b>Retro reflective</b>			
Operating frequency	500 Hz	500 Hz	20 Hz
Sensing distance (Sn)	10 m, adjustable	10 m, adjustable	10 m, adjustable
NPN/PNP NO+NC	<b>PC50CNR10BA</b>	<b>PC50CNR10BAM1</b>	
Relay SPDT Multivoltage			<b>PC50CNR10RP</b>
<b>Through-beam emitter</b>			
Sensing distance (Sn)	20 m	20 m	20 m
	<b>PC50CNT20B</b>	<b>PC50CNT20BM1</b>	<b>PC50CNT20R</b>
<b>Through-beam receiver</b>			
Operating frequency	500 Hz	500 Hz	20 Hz
Sensing distance (Sn)	20 m, adjustable	20 m, adjustable	20 m, adjustable
NPN/PNP NO+NC	<b>PC50CNT20BA</b>	<b>PC50CNT20BAM1</b>	-
Relay SPDT Multivoltage			<b>PC50CNT20RP</b>
<b>Specifications</b>			
Rated operating voltage	10 - 30 VDC	10 - 30 VDC	12 - 240 VDC / 24 - 240 VAC
Voltage drop	≤ 2.5 VDC	≤ 2.5 VDC	Relay SPDT
Degree of protection	IP 67	IP 67	IP 67
Protection short-circuit (S)			
Reverse polarity (P)	SPT	SPT	PT
Transients (T)			
Load current	≤ 200 mA	≤ 200 mA	≤ 3 mA
Housing material	Reinforced ABS/PC	Reinforced ABS/PC	Reinforced ABS/PC
Operating temperature	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
LED colour	Yellow + Green	Yellow + Green	Yellow + Green
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA

# Photoelectric sensors



	Integrated amplifier		Fork sensor	
Types	PD60..	PD60..M5	PF80..	PF74..
Connections	2 m cable	M8 connector	M8 connector	5 m cable
				
Dimensions (mm)	13 x 30 x 60	13 x 30 x 60	12 x 37.5 x 80	15 x 60 x 74
<b>Transparent detection</b>				
Operating frequency	1000 Hz	1000 Hz		
Sensing distance (Sn)	0.8 m, Teach-in	0.8 m, Teach-in		
NPN/PNP NO+NC	<b>PD60CNG08BPT</b>	<b>PD60CNG08BPM5T</b>		
Sensing distance (Sn)	1.4 m, Teach-in	1.4 m, Teach-in		
NPN/PNP NO+NC	<b>PD60CNG14BPT</b>	<b>PD60CNG14BPM5T</b>		
<b>Contrast sensor</b>				
Operating frequency	20 kHz	20 kHz		
Sensing distance (Sn)	18 mm (fibre depend.)	18 mm (fibre depend.)		
NPN/PNP NO+NC	<b>PD60CNK18BPT</b>	<b>PD60CNK18BPM5T</b>		
<b>Fork sensor</b>				
Operating frequency			10 kHz	≤ 1100 Hz
Sensing distance (Sn)			3 mm, slot width	30 mm, slot width
NPN/PNP NO+NC			<b>PF80FNT03BPM5T</b>	
PNP N.O., NPN N.C.				<b>PF74CNT30BC</b>
PNP N.C., NPN N.O.				<b>PF74CNT30BO</b>
<b>General specifications</b>				
Rated operating voltage	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC	19.2 - 28.8 VDC
Voltage drop	≤ 2.0 VDC	≤ 2.0 VDC	≤ 2.0 VDC @ 100 mA ≤ 1.0 VDC @ 10 mA	≤ 1.5 VDC @ 100 mA
Degree of protection	IP 65 (IP 67 CNG type)	IP 65 (IP 67 CNG type)	IP 65	IP 65
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	ST	SPT
Transients (T)				
Load current	≤ 100 mA	≤ 100 mA	≤ 40 mA	≤ 30 mA
Housing material	PC	PC	Aluminium, black	PC, black
Operating temperature	0°C to +60°C	0°C to +60°C	-20°C to +60°C	-25°C to +60°C
LED colour	Red	Red	Yellow + Red	Yellow + Green
Approvals/Marks	CE - UL - cUL	CE - UL - cUL	CE	CE

## Photoelectric sensors

	Integrated amplifier relay output			Through-beam relay output
Types	PM..	PM..	PD86	PD98
Connections	Terminals single relay	Terminal block mute input	Terminal block mute input	Terminal block mute input
				
Dimensions (mm)	25 x 65 x 81	25 x 65 x 81	86 x 44 x 39	98 x 56 x 37
<b>Diffuse reflective</b>				
Oper. freq. / Sens. dist. (Sn)	20 Hz			
Sensing distance (Sn)	0.8 m, adjustable			
Relay SPDT Multivoltage	<b>PMD8RG / RGT</b> <b>PMD8RI / RIT</b>			
<b>Retro reflective polarized</b>				
Oper. freq. / Sens. dist. (Sn)	20 Hz / 12 m, fixed	20 Hz / 12 m, fixed	20 Hz / 12 m, fixed	
Relay SPDT Multivoltage	<b>PMP12RG / PMP12RI</b>			
Relay SPST (PC)	<b>PMP12RGM / PMP12RIM</b>		<b>PD86CNP12QPMU</b>	
Relay SPST (ZAMAK)	<b>PD86HNP12QPMU-01C</b>			
<b>Retro reflective</b>				
Oper. freq. / Sens. dist. (Sn)	20 Hz / 10 m, fixed			
Relay SPDT Multivoltage	<b>PMR10RG / RGT</b>			
Relay SPST	<b>PMR10RI / RIT</b>			
<b>Through-beam emitter</b>				
Sensing distance (Sn)	20 m	20 m	30 m (15 m default)	
	<b>PMT20G / PMT20I</b>	<b>PMT20GM / PMT20IM</b>	<b>PD98CNT30QMU*</b>	
<b>Through-beam receiver</b>				
Oper. freq. / Sens. dist. (Sn)	20 Hz / 20 m, fixed	20 Hz / 20 m, fixed	25 Hz / 30 m (15 m default)	
Relay SPDT Multivoltage	<b>PMT20RG / RGT</b> <b>PMT20RI / RIT</b>			
Relay SPST				
<b>General specifications</b>				
Rated operating voltage	12 - 240 VDC / 24 - 240 VAC	24 VAC/DC ±20%	24 VAC/DC ±20%	12 V to 24 VAC/DC
Voltage drop	Relay SPDT	Relay SPST	Relay SPST	Relay DPDT
Degree of protection	IP 67	IP 67	IP 66	IP 54
Protection short-circuit (S)				
Reverse polarity (P)	PT	PT	PT	PT
Transients (T)				
Load current	≤ 3 A	≤ 3 A	1 A (AC), 0.5 A (DC)	1 A (AC), 0.5 A (DC)
Housing material	PC/ABS	PC/ABS	PD86C.. : PC + PMMA PD86H.. : ZAMAK + PMMA	PC/ABS
Operating temperature	-25°C to +55°C	-25°C to +55°C	-25°C to +60°C	-25°C to +60°C
LED colour	Yellow	Yellow	Yellow + Green	Yellow (receiver)
Approvals/Marks	CE - UL - CSA	CE - UL325 - UL508	CE - UL325 - UL508	CE - UL325
Remarks	G = PG 13.5 Outlet I = ½"NPT Outlet T = Timer	G = PG 13.5 Outlet I = ½"NPT Outlet Mute input	Mute input	Mute input





\* Item number set, emitter + receiver.

# Photoelectric sensors

	Heavy duty infrared barrier	Through-beam relay output
Types	PD140	PD180
Connections	Terminal block	Terminal block
		
Dimensions (mm)	140 x 51 x 46	180 x 51 x 49
<b>Through-beam range</b>		
Indoor sensing distance (max)	60 m outdoor	15 / 30 m
<b>General specifications</b>		
Technology	Infrared	Infrared
Supply voltage Receiver or Emitter	12...24 VAC/VDC	12 + 24 VAC/DC
Battery Supply Emitter		2 x 3,6 VDC, 2100 mAh Lithium Batteries size AA
Consumption	155 mA to 24 VAC (Emitter and receiver)	35 mA DC (55 mA DC with low battery alarm)
Output	SPDT	2 x SPST
Contact rating	1 A /@ 30 VDC, 0.5 A @ 50 VAC (resistive load)	1 A @ 30 VDC (resistive load)
Approvals	CE - UL325 - UL508	CE - UL325
Conformity	EN 12445, EN 12453, EN12978, EN/ISO 13849-1 ESPE2, RoHS	EN 12445, EN12453, EN12978, RoHS
Test input	Emitter test input	Emitter test input
<b>Environmental specifications</b>		
Wavelength	850 nm	850 nm
Operating temperature	-20°C to +60°C	-25°C to +55°C
Degree of protection	IP 65	IP 55
<b>Mechanical specifications</b>		
LED transmitter	Power signal	None (energy saving)
LED receiver	Signal for alignment with transmitter	Power ON - Green LED Output - Yellow LED
Optical adjustment	Horizontal 200° Vertical ±15°	Horizontal 200° Vertical ±30°
Mounting	Wall mounted type	Wall mounted type
Material	Aluminium, PC	PC
Weight	460 g (set)	Emitter 270 g Receiver 230 g
Comments	ESPE Category 2, EN 61496-2 Accessory: Laser alignment tool	Emitter is supplied with 2 x 3.6 VDC 2100 mAh Lithium Batteries
Accessories	APD140-LA01 APD140-LA02 APD140-TC01	







## Photoelectric sensors

	Sensors	Amplifier 1-channel	Amplifier 2-channel	Amplifier 3-channel
<b>Types</b>	<b>MPF..</b>	<b>MPF1..</b>	<b>MPF2..</b>	<b>MPF3..</b>
<b>Connections</b>	<b>10 m cable</b>	<b>Terminals</b>	<b>Terminals</b>	<b>Terminals</b>
				
Dimensions (mm)	See sensor type	70 x 57 x 86	70 x 57 x 86	70 x 57 x 86
<b>Amplifier</b>				
		1-Channel	2-Channel	3-Channel
12-24 VAC/DC ±15% Low current		<b>MPF1-912RSL</b>	<b>MPF2-912RSL</b>	<b>MPF3-912RSL</b>
12-24 VAC/DC ±15%		<b>MPF1-912RS</b>	<b>MPF2-912RS</b>	<b>MPF3-912RS</b>
115 VAC ±15%		<b>MPF1-115RS</b>	<b>MPF2-115RS</b>	<b>MPF3-115RS</b>
230 VAC ±15%		<b>MPF1-230RS</b>	<b>MPF2-230RS</b>	<b>MPF3-230RS</b>
<b>Through-beam emitter</b>		<b>Output and function selection</b>		
Sensing distance (Sn)	15 m	No Dist Adjust		Dist Adjust
Ø12 x 20	<b>MPFT15-4 (C)</b>	Normal Mute	Inverted Mute	Normal Mute Inverted Mute
D11 x 24.5	<b>MPFT15-D11-4</b>			
D18 x 25	<b>MPFT15-D18-4 (C)</b>	RS	RSI	RSA RSAI
M14 x 23	<b>MPFT15-M14-4 (C)</b>	RSL	RSLI	RSLA RSLAI
<b>Through-beam receiver</b>				
Sensing distance (Sn)	15 m			
Ø12 x 20	<b>MPFR-4 (C)</b>			
D11 x 24.5	<b>MPFR-D11-4</b>			
D18 x 25	<b>MPFR-D18-4 (C)</b>			
M14 x 23	<b>MPFR-M14-4 (C)</b>			
<b>General specifications</b>				
Rated operating voltage	Powered by amplifier	See amplifier reference	See amplifier reference	See amplifier reference
Output		1 x 2 SPST in series	2 x 2 SPST in series	3 x 2 SPST in series
Low current resistive load		RS type: 2 A @ 240 VAC / 30 VDC RSL type: 0.5 A @ 50 VAC / 30 VAC	RS type: 2 A @ 240 VAC / 30 VDC RSL type: 0.5 A @ 50 VAC / 30 VAC	RS type: 2 A @ 240 VAC / 30 VDC RSL type: 0.5 A @ 50 VAC / 30 VAC
Operating frequency	Amplifier dependent	10 Hz	10 Hz	10 Hz
Degree of protection	IP 67	IP 40	IP 40	IP 40
Protection short-circuit (S) Reverse polarity (P) Transients (T)	SPT	PT	PT	PT
Housing material - Amplifier - Sensor Ø12+D11+D18 - Sensor	PC + ABS PC + Stainless steel	PC	PC	PC
Operating temperature	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
LED colour		Yellow	Yellow	Yellow
Approvals/Marks	CE - UL325 - UL508	CE - UL325 - UL508	CE - UL325 - UL508	CE - UL325 - UL508
Remarks	C = Pigtail connector version			
Optical angle (degrees)	±5			

# Photoelectric sensors

## Sensors for amplifiers

Types	MOF..	MOF.. ATEX	MNF..	MDF..
Connections	10 m cable	Terminals	Terminals	Terminals
				
Dimensions (mm)	Ø 10 x 42	Ø 10 x 42	Ø 20 x 80	Ø 13.5 x 55
<b>Through-beam emitter</b>				
Sensing distance (Sn)	20 m	20 m		
Max. ±2° optical angle	<b>MOFT20</b> <b>MOFT20-M12-2</b>	<b>MOFT20AX</b> <b>MOFT20-M12-2AX</b>		
Sensing distance (Sn)	50 m			
Max. ±2° optical angle	<b>MOFT50</b> <b>MOFT50-M12-2</b>			
Sensing distance (Sn)	20 m	20 m		
Max. ±5° optical angle	<b>MOFT20-5</b> <b>MOFT20-M12-5</b>	<b>MOFT20-5AX</b> <b>MOFT20-M12-5AX</b>		
Sensing distance (Sn)	20 m	20 m	15 m	30 m
Max. ±8° optical angle	<b>MOFT20-8</b> <b>MOFT20-M12-8</b> <b>MOFT20-M14-8</b>	<b>MOFT20-8AX</b> <b>MOFT20-M12-8AX</b> <b>MOFT20-M14-8AX</b>	<b>MNFT15</b>	<b>MDFT30</b>
<b>Through-beam receiver</b>				
Operating frequency	Amplifier dependent	Amplifier dependent	Amplifier dependent	Amplifier dependent
Sensing distance (Sn)	See emitter	See emitter	See emitter	See emitter
Max. ±2° optical angle	<b>MOFR</b> <b>MOFR-M12-2</b>	<b>MOFRAX</b> <b>MOFR-M12-2AX</b>		
Max. ±5° optical angle	<b>MOFR-5</b> <b>MOFR-M12-5</b>	<b>MOFR-5AX</b> <b>MOFR-M12-5AX</b>		
Max. ±8° optical angle	<b>MOFR-8</b> <b>MOFR-M12-8</b> <b>MOFR-M14-8</b>	<b>MOFR-8AX</b> <b>MOFR-M12-8AX</b> <b>MOFR-M14-8AX</b>	<b>MNFR15</b>	<b>MDFR30</b>
<b>General specifications</b>				
Rated operating voltage	Powered by Amplifier	Powered by Amplifier	Powered by Amplifier	Powered by Amplifier
Output	On Amplifier	On Amplifier	On Amplifier	On Amplifier
Operating frequency	See Amplifier type: S142.. - S143.. - PAM..	See Amplifier type: S142.. - S143.. - PAM..	See Amplifier type: S142.. - S143.. - PAM..	See Amplifier type: S142.. - S143.. - PAM..
Degree of protection	IP 66 - IP 67	IP 66 - IP 67	IP 67	IP 67
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Housing material sensor	Ø10: PC M14 + M14: PC + SS	Ø10: PC M14 + M14: PC + SS	PC M14 + M14: PC + SS	Acetal, glass reinforced
Operating temperature	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
LED colour	None	None	None	None
Approvals/Marks	CE	CE - ATEX	CE	CE

# Photoelectric sensors

## Types

## Amplifiers for sensors

### Connections

### 1 1-pole plug

### 1 1-pole plug

### 1 1-pole plug



Dimensions (mm)

35 x 80 x 81.5

35 x 80 x 81.5

35 x 80 x 81.5

Description

Standard amplifier with Sensor diagnostics and adjustable sensing distance

As S142A but with adjustable time delay

As S142A but with Master / Slave function for high neighbour immunity

### References amplifier

1 x SPDT relay

**S142ARNN924**

**S142BRNN924**

1 x NPN Output

**S142ARNN024**

**S142BRNN024**

1 x NPN Alarm Output

**S142ARNN115**  
**S142ARNN230**

**S142BRNN115**  
**S142BRNN230**

1 x SPDT relay

**S142ARNT924**

**S142BRNT924**

1 x NPN Output or alarm

**S142ARNT024**

1 x Emitter mute input

**S142ARNT115**  
**S142ARNT230**

**S142BRNT115**  
**S142BRNT230**

1 x PNP Output

**S142APPT924**

**S142BPPT924**

1 x PNP Alarm Output

**S142APPT115**

**S142BPPT115**

1 x Emitter mute input

**S142APPT230**

**S142BPPT230**

1 x SPDT relay

**S142CRXA924**

A - Auto distance adjustment

**S142CRXA115**  
**S142CRXA230**

M - Manual distance adjustment

**S142CRXM924**  
**S142CRXM115**  
**S142CRXM230**

### General specifications

Rated operating voltage

924  
115  
230

24 VAC/DC  
115 VAC  
230 VAC

24 VAC/DC  
115 VAC  
230 VAC

24 VAC/DC  
115 VAC  
230 VAC

Relay load current  
resistive load

10 A @ 250 VAC / 25 VDC SPD

10 A @ 250 VAC / 25 VDC SPD

10 A @ 250 VAC / 25 VDC SPD

Transistor load current

100 mA 40 VDC

100 mA 40 VDC

Operation frequency

20 Hz

20 Hz, no timer

15 Hz @ 2 systems  
4 Hz @ 6 systems

Degree of protection

IP 20

IP 20

IP 20

Protection short-circuit (S)  
Reverse polarity (P)  
Transients (T)

SPT

SPT

S

Housing material

Noryl SE1, Light grey

Noryl SE1, Light grey

Noryl SE1, Light grey

Operating temperature

-20°C to +50°C

-20°C to +50°C

-20°C to +50°C

Approvals/Marks

CE - UL - CSA

CE - UL - CSA

CE - UL - CSA

# Photoelectric sensors

Types	S1430 UAP..	S1430 RAL..	S1430 ROS..	PAM...
Connections	11-pole plug	11-pole plug	11-pole plug	Terminals
				

Dimensions (mm)	35 x 80 x 81.5	35 x 80 x 81.5	35 x 80 x 81.5	2, 3, 4, 5, 6 DIN housing
Description	3 input 3 transistors outputs	3 input 3 transistors outputs	3 input 3 double relay outputs	2-4-6-8 or 10 channel modular system

## References amplifier

12-30 VAC/DC ±15%	<b>S1430UAP912</b>			
15-30 VAC/DC ±10%		<b>S1430RAL915</b>	<b>S1430ROS915</b>	
No. of channels				2 channels
- NPN output, NO				<b>PAM02AN3ANO/NC</b>
- PNP output, NO				<b>PAM02AN3APO/PC</b>
No. of channels				4 channels
- NPN output, NO				<b>PAM04AN3ANO/NC</b>
- PNP output, NO				<b>PAM04AN3APO/PC</b>
No. of channels				6 channels
- NPN output, NO				<b>PAM06AN3ANO/NC</b>
- PNP output, NO				<b>PAM06AN3APO/PC</b>

## References extension modules

No. of channels				2 channels
- NPN output, NO				<b>PAM02CN3ANO</b>
- NPN output, NC				<b>PAM02CN3ANC</b>
- PNP output, NO				<b>PAM02CN3APO</b>
- PNP output, NC				<b>PAM02CN3APC</b>
No. of channels				4 channels
- NPN output, NO				<b>PAM04CN3ANO</b>
- NPN output, NC				<b>PAM04CN3ANC</b>
- PNP output, NO				<b>PAM04CN3APO</b>
- PNP output, NC				<b>PAM04CN3APC</b>

## General specifications

Rated operating voltage	See Amplifier type	See Amplifier type	See Amplifier type	18 - 33 VDC
Output	3 x Transistor NPN/PNP/NO/NC	3 x SPST	3 x SPST	One output per channel
Load current resistive load	100 mA, 40 VDC, NPN	1.5 A @ 100 VAC / 30 VDC	1.5 A @ 100 VAC / 30 VDC	20 mA, 33 VDC, NPN / PNP 8 A @ 250 VAC / 24 VDC SPDT resistive load
Operation frequency	16 Hz	12.5 Hz	12.5 Hz	30 Hz @ 6 channels
Degree of protection	IP 20	IP 20	IP 20	IP 20
Protection short-circuit (S)				
Reverse polarity (P)	SPT	PT	PT	SPT
Transients (T)				
Housing material	Noryl SE1, Light grey	Noryl SE1, Light grey	Noryl SE1, Light grey	
Operating temperature	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C
LED colour	Yellow + Green + Red	Yellow + Green + Red	Yellow + Green + Red	Yellow + Green + Red
Approvals/Marks	Multiplexed system	Multiplexed system	Multiplexed system	Multiplexed system, Test functions, bargraph, mute input etc.

# Photoelectric sensors

**Types** Wireless entrapment protection device for industrial doors ESPE

**Connections** Main controller Subcontroller PB 11



Dimensions (mm) 35 x 35 x 125 26 x 242 x 45 Ø11 x 24.5

Description The Carlo Gavazzi main controller can control up to 4 subcontrollers This flexible Carlo Gavazzi subcontroller can handle 2 safety edges and 1 door-in-door limit switch

## References

Main controller	<b>WSM 2 B A 2 D24</b>		
Subcontroller		<b>WSS 2 B A 2 BAT</b>	
Photoelectric sensor Emitter			<b>PB 11 CNT 15 WE</b>
Photoelectric sensor Receiver			<b>PB 11 CNT 15 WR</b>

## General specifications

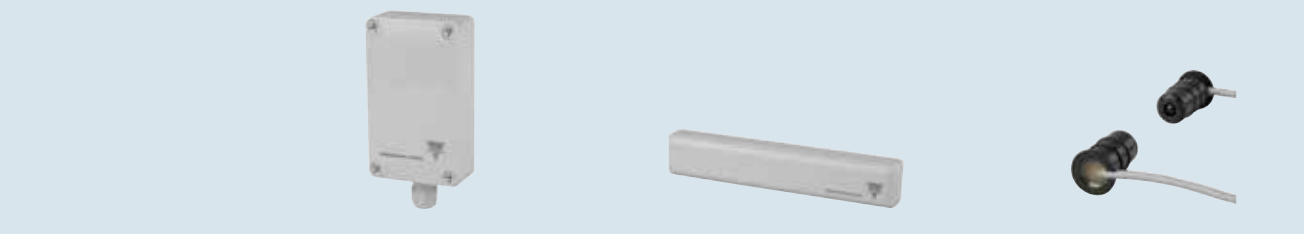
Rated operating voltage	12 - 24 VAC/DC	1 - 4 Lithium 3.6 VDC size AA batteries	From sub controller
Supply current	< 50 mA		
Relay load current resistive load	1A / 30 VDC 0.5 A / 30 VAC		
Communication frequency	2.4 GHz Duplex	2.4 GHz Duplex	
Response time	120 mS	120 mS	
Number of channels	16	16	
Communication distance	10 m wireless	10 m wireless	
Sensing distance			15 m
Subcontroller up-time		10 - 80 sec	
Test input	On main module		
Degree of protection	IP 66	IP 66	IP 67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	PT	P	
Housing material	ABS, Light grey	PC, Light grey	PA6 Glass reinforced
Operating temperature	-25°C to +55°C	-25°C to +55°C	-25°C to +55°C
LED colour	Green, Yellow, Red	Yellow	-
Approvals/Marks	CE - UL - FCC	CE - UL - FCC	CE - UL



# Photoelectric sensors

## Types **Wireless entrapment protection device for industrial gates ESPE**

### Connections **Main controller      Subcontroller      PB 11**



Dimensions (mm)	35 x 35 x 125	26 x 242 x 45	Ø11 x 24.5
Description	The Carlo Gavazzi main controller can control up to 6 subcontrollers	This flexible Carlo Gavazzi subcontroller can handle one opening safety edge and one closing edge	

### References

Main controller (N.O. 8.2 kohm output)	<b>WSM6GAOOD24</b>		
Main controller (N.C. output)	<b>WSM6GACCD24</b>		
Subcontroller		<b>WSS2GA2BAT</b>	
Photoelectric sensor Emitter			<b>PB 11 CNT 15 WE</b>
Photoelectric sensor Receiver			<b>PB 11 CNT 15 WR</b>

### General specifications

Rated operating voltage	12 - 24 VAC/DC	1 - 4 Lithium 3.6 VDC size AA batteries	From sub controller
Supply current	< 50 mA		
Relay load current resistive load	1 A / 30 VDC 0.5 A / 30 VAC		
Communication frequency	2.4 GHz Duplex	2.4 GHz Duplex	
Response time	From 15 to 100 ms	From 15 to 100 ms	
Number of channels	16	16	
Communication distance	15 m wireless	15 m wireless	
Sensing distance			2.5 m
Subcontroller up-time		15 – 105 s, fixed time or infinite	
Test input	On main module		
Degree of protection	IP 66	IP 66	IP 67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	PT	P	
Housing material	ABS, Light grey	PC, Light grey	PA6 Glass reinforced
Operating temperature	-25°C to +55°C	-25°C to +55°C	-25°C to +55°C
LED colour	Green, Yellow, Red	Yellow	-
Approvals/Marks	CE - UL - FCC - TÜV	CE - UL - FCC - TÜV	CE - UL

# Photoelectric level sensors

## Integrated amplifier

Types	VPO.E.	VP ATEX	VP E.M
Connections	2 m cable	2 m cable	2 m cable
			

Dimensions (mm)	3/8" x 74	3/8" x 74	3/8" x 74
Light type	Unmodulated	Unmodulated	Unmodulated

### References optical level sensor

Operating frequency	30 Hz	30 Hz	30 Hz
Sensing dist. (Sn), Hor.	± 5 mm, fixed	± 5 mm, fixed	± 5 mm, fixed
Sensing dist. (Sn), Ver.	± 2.5 mm, fixed	± 2.5 mm, fixed	± 2.5 mm, fixed
Housing material	Polysulphone	Polysulphone	Polysulphone
NPN NO	<b>VP02E</b>		<b>VP02EM</b>
NPN NC	<b>VP01E</b>		<b>VP01EM</b>
PNP NO	<b>VP02EP</b>	<b>VP02EPAX</b>	<b>VP02EPM</b>
PNP NC	<b>VP01EP</b>	<b>VP01EPAX</b>	<b>VP01EPM</b>
Housing material	Polyamide 12	Polyamide 12	Polyamide 12
NPN NO	<b>VP04E</b>		<b>VP04EM</b>
NPN NC	<b>VP03E</b>		<b>VP03EM</b>
PNP NO	<b>VP04EP</b>	<b>VP04EPAX</b>	<b>VP04EPM</b>
PNP NC	<b>VP03EP</b>	<b>VP03EPAX</b>	<b>VP03EPM</b>
Housing material	Polysulphone		
SCR NO	<b>VP02-110TB</b>		
SCR NC	<b>VP01-110TB</b>		
SCR NO	<b>VP02-230TB</b>		
SCR NC	<b>VP01-230TB</b>		

### DC-types

Rated operating voltage	10 - 40 VDC	10 - 40 VDC	10 - 40 VDC
Voltage drop	≤ 1.0 VDC	≤ 1.0 VDC	≤ 1.0 VDC
Off-state current	≤ 12 mA	≤ 12 mA	≤ 12 mA
Load current	< 200 mA	< 200 mA	< 200 mA

### AC-types (SCR)



Rated operating voltage	110 or 230 VAC	110 or 230 VAC	110 or 230 VAC
Voltage drop	≤ 9 VAC	≤ 9 VAC	≤ 9 VAC
Off-state current	≤ 7 mA	≤ 7 mA	≤ 7 mA
Load current	< 10 - 100 mA	< 10 - 100 mA	< 10 - 100 mA

### General specifications

Degree of protection	IP 67	IP 67	IP 67
Protection short-circuit (S)			
Reverse polarity (P)	PT	PT	PT
Transients (T)			
Operating temperature	-20°C to +80°C	-20°C to +80°C	-20°C to +80°C
LED colour	Yellow	Yellow	Yellow
Pressure	10 bar @ +60°C	10 bar @ +60°C	10 bar @ +60°C
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA

# Photoelectric level sensors

## Integrated amplifier

Types	VPA..../VPB....	VPA....-1/VPB....-1
Connections	2 m cable	M12 connector
		
Dimensions (mm)	3/8" x 70.5	3/8" x 90.5
Light type	Modulated	Modulated
<b>References optical level sensor</b>		
Operating frequency	30 Hz	30 Hz
Sensing dist. (Sn), Hor.	± 5 mm, fixed	± 5 mm, fixed
Sensing dist. (Sn), Ver.	± 2.5 mm, fixed	± 2.5 mm, fixed
Housing material	Stainless steel/polysulphone	Stainless steel/polysulphone
NPN NO+NC	<b>VPA1MNA</b>	<b>VPA1MNA-1</b>
PNP NO+NC	<b>VPA1MPA</b>	<b>VPA1MPA-1</b>
Housing material	Stainless steel and glass	Stainless steel and glass
NPN NO+NC	<b>VPA2MNA</b>	<b>VPA2MNA-1</b>
PNP NO+NC	<b>VPA2MPA</b>	<b>VPA2MPA-1</b>
Housing material	Nickel-pl. brass/polysulphone	Nickel-pl. brass/polysulphone
NPN NO+NC	<b>VPB1MNA</b>	<b>VPB1MNA-1</b>
PNP NO+NC	<b>VPB1MPA</b>	<b>VPB1MPA-1</b>
Housing material	Nickel-plated brass and glass	Nickel-plated brass and glass
NPN NO+NC	<b>VPB2MNA</b>	<b>VPB2MNA-1</b>
PNP NO+NC	<b>VPB2MPA</b>	<b>VPB2MPA-1</b>
<b>DC-types</b>		
Rated operational voltage	10 - 40 VDC	10 - 40 VDC
Voltage drop	≤ 2.5 VDC	≤ 2.5 VDC
Off-state current	≤ 7 mA	≤ 7 mA
Load current	< 200 mA	< 200 mA
<b>General specifications</b>		
Degree of protection	IP 67	IP 67
Protection short-circuit (S)		
Reverse polarity (P)	SPT	SPT
Transients (T)		
Operating temperature	-20°C to +80°C	-20°C to +80°C
LED colour	Yellow	No LED
Pressure	10 bar @ +60°C	10 bar @ +60°C
Approvals/Marks	CE - UL - CSA	CE - UL - CSA

# Motion and presence sensors

## Combined motion and presence detectors for pedestrian doors

Types	GUARDIAN 1	GUARDIAN 2
Connections	Terminal block	Terminal block
 		
Dimensions (mm)	210 x 77 x 58	210 x 77 x 58
Technology	Digital video camera technology 640 x 480	Digital video camera technology 640 x 480
Door types	Straight sliding doors	Curved and Straight sliding doors

**Features** The Guardian sensor is a unique motion and presence detector that provides maximum safety and protection in pedestrian sliding door installations. Equipped with the latest digital video camera technology, Guardian watches over the entrance and exit area safeguarding people within, while at the same time controlling the doors. Guardian is able to ignore cross traffic, and it has a brilliant capability of self-adjusting to changes in the environment and weather conditions

### Input specifications

Mounting height	180 cm to 300 cm	180 cm to 300 cm
Motion zone sensing area	Height 180 cm = 246 x 204 cm Height 220 cm = 300 x 249 cm Height 300 cm = 410 x 340 cm	Height 180 cm = 246 x 204 cm Height 220 cm = 300 x 249 cm Height 300 cm = 410 x 340 cm
Presence zone sensing area	Height 180 cm = 42 cm x door width Height 220 cm = 51 cm x door width Height 300 cm = 70 cm x door width	Height 180 cm = 42 cm x door width Height 220 cm = 51 cm x door width Height 300 cm = 70 cm x door width
Maximum door radius vs. Mounting height		Height 180 cm = Radius 130 cm Height 220 cm = Radius 170 cm Height 300 cm = Radius 200 cm
Sensitivity	Adjusting in 7 steps	Adjusting in 7 steps
Presence time	7 step rotary switch: (10, 30 sec.) 1 min, 5 min (Not accordance to DIN18650)	7 step rotary switch: (10, 30 sec.) 1 min, 5 min (Not accordance to DIN18650)
Ambient light	10 lux - 50.000 lux	10 lux - 50.000 lux

### Output specifications

Output function	Safety and Motion Zone: Relay - SPST Common relay data: 1 A DC 30 VDC 600.000 cycles @ 0.5 A, 50 VAC/30 VDC	Safety and Motion Zone: Relay - SPST Common relay data: 1 A DC 30 VDC 600.000 cycles @ 0.5 A, 50 VAC/30 VDC
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### General specifications

Rated operating voltage	12 - 24 VAC	12 - 24 VAC
No load supply current	Max. 230 mA	Max. 230 mA
Test input. Active high	ON > 9 VAC/VDC OFF < 6 VAC/VDC	ON > 9 VAC/VDC OFF < 6 VAC/VDC
Test input. Active low	ON < 6 VAC/VDC OFF > 9 VAC/VDC	ON < 6 VAC/VDC OFF > 9 VAC/VDC
Type of ESPE	Type 2	Type 2
Degree of protection	IP 64	IP 64
TÜV	In acc. with machinery directive 2006/42/EC, annex I DIN 18650-1 § 5.7.4, edition 2005 (prEN16005), EN13241-1, EN 12978	In acc. with machinery directive 2006/42/EC, annex I DIN 18650-1 § 5.7.4, edition 2005 (prEN16005), EN13241-1, EN 12978
UL-approved	cURus: UL325, CSA-C22.2 No. 247	cURus: UL325, CSA-C22.2 No. 247
Marking	CE	CE

### References

Marking	GUARDIAN 1	GUARDIAN 2
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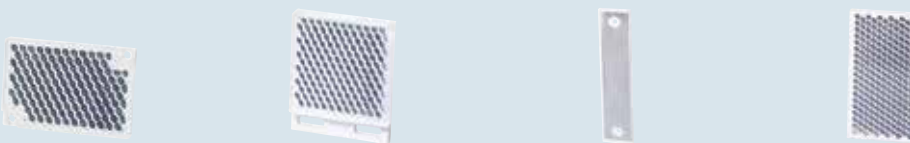
# Photoelectric sensors accessories

## Reflectors, rectangular



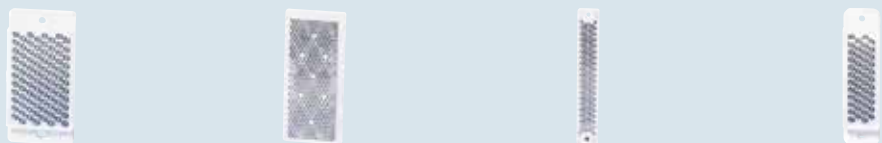
Item Number	<b>ER100</b>	<b>ER840</b>	<b>ER681</b>	<b>ER686</b>
Dimensions (mm)	100 x 100 x 9.2	84.5 x 84.5 x 9	52 x 119 x 27	55.3 x 126 x 9
Mounting (screws not incl.)	2 x M3 screws	2 x M3.5 screws	4 x M4 screws	2 x M6 screws
Reduction factor	1.2	0.96	0.92	0.92

## Reflectors, rectangular



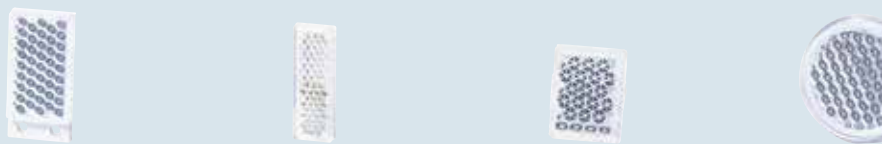
Item Number	<b>ER4060</b>	<b>ER5060</b>	<b>ER42182</b>	<b>ER5080</b>
Dimensions (mm)	60 x 41 x 8	55.5 x 61 x 8	186 x 46.5 x 8	80 x 54 x 8
Mounting (screws not incl.)	2 x M3.5 screws	2 x M4 screws	2 x M6 screws	Adhesive
Reduction factor	0.81	0.80	0.65	0.60

## Reflectors, rectangular



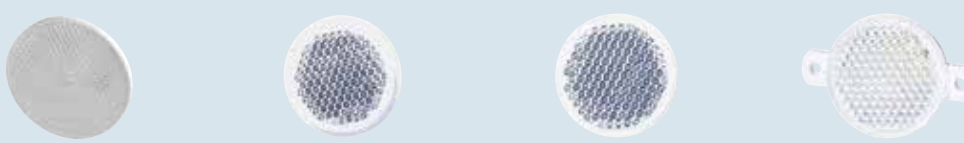
Item Number	<b>ER483</b>	<b>ER8</b>	<b>ER665</b>	<b>ER530</b>
Dimensions (mm)	32.5 x 65 x 8	82 x 37 x 5.5	18.5 x 120 x 65	19 x 72.5 x 8.4
Mounting (screws not incl.)	2 x M3.5 screws	Adhesive	2 x M4 screws	2 x M3.5 screws
Reduction factor	0.55	0.51	0.45	0.45

## Reflectors, rectangular



Item Number	<b>ER390</b>	<b>ER1</b>	<b>ER640</b>	<b>ER692</b>
Dimensions (mm)	23.5 x 47.5 x 8	51 x 17.5 x 5	13 x 17 x 5	Ø 35 x 5.5
Mounting (screws not incl.)	2 x M3.5 screws	Adhesive	Adhesive	Adhesive
Reduction factor	1.39	0.20	0.16	0.53

## Reflectors, cylindrical



Item Number	<b>ER4</b>	<b>ER460</b>	<b>ER420</b>	<b>ER423</b>
Dimensions (mm)	Ø 84 x 7.4	Ø 46 x 6.5	Ø 42 x 6.3	Ø 41.5 x 6
Mounting (screws not incl.)	1 x M4 screw	Adhesive	Adhesive	2 x M3 screws
Reduction factor	1	0.55	0.54	0.54



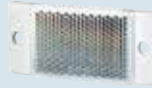
# Photoelectric sensors accessories

## Reflectors, cylindrical



Item Number	<b>ER689</b>
Dimensions (mm)	Ø 25 x 5.5
Mounting (screws not incl.)	Adhesive
Reduction factor	0.39

## Micro cube reflectors for LD32



Item Number	<b>EM 130-20</b>
Dimensions (mm)	20 x 43
Mounting (screws not incl.)	2 x M3 screws
Reduction factor	1 (Micro Cube)



Item Number	<b>EM 120-20</b>
Dimensions (mm)	20 x 32
Mounting (screws not incl.)	2 x M3.5 screws
Reduction factor	1 (Micro Cube)



Item Number	<b>EM 123-70</b>
Dimensions (mm)	13.7 x 23
Mounting (screws not incl.)	2 x M2 screws
Reduction factor	1 (Micro Cube)

## Reflectors, tape



Item Number	<b>ERT25</b>
Dimensions (mm)	25 mm x 45.7 m
Mounting (screws not incl.)	Adhesive
Reduction factor	0.23 (25 x 25 mm)



Item Number	<b>EM 111-40</b>
Dimensions (mm)	10.5 x 10.5
Reduction factor	1 (Micro Cube)



Item Number	<b>EM 121-41</b>
Dimensions (mm)	Ø20
Reduction factor	1 (Micro Cube)



Item Number	<b>EM 110-40</b>
Dimensions (mm)	Ø10
Reduction factor	1 (Micro Cube)

## Reflectors, tape



Item Number	<b>ERT50</b>
Dimensions (mm)/Used for	50 mm x 45.7 m
Mounting (screws not incl.)	Adhesive
Reduction factor/Description	0.34 (50 x 50 mm)



Item Number	<b>AMPF-MB1</b>
Dimensions (mm)/Used for	MPFT1 5-4 & MPFR-4
Reduction factor/Description	Plastic mounting bracket for wall mounting



Item Number	<b>AMPF-MB2</b>
Dimensions (mm)/Used for	MPFT1 5-4 & MPFR-4
Reduction factor/Description	Adaptor for fitting to an Ø18 mm rubber profile



Item Number	<b>AMPF-MB3</b>
Dimensions (mm)/Used for	MPFT1 5-4 & MPFR-4
Reduction factor/Description	Metal mounting bracket for harsh environment

## Accessories, photoelectric sensors



Item Number	<b>APA18-AK</b>
Used for	M18 photoelectrics
Description	Ø2, Ø4, and Ø8 mm aperture



Item Number	<b>APA18-RAR</b>
Used for	M18 photoelectrics
Description	90° mirror for angle detection



Item Number	<b>6IODC</b>
Used for	S1430...
Description	Plug conversion



Item Number	<b>APA3</b>
Used for	PA.. sensors
Description	Mounting bracket in anodized aluminium

## Accessories, photoelectric sensors



Item Number	<b>MB-M01</b>
Used for	MOF.. sensors
Description	Ball mounting bracket for flexible mounting



Item Number	<b>MB18A</b>
Used for	M18 sensors
Description	Mounting bracket in plast



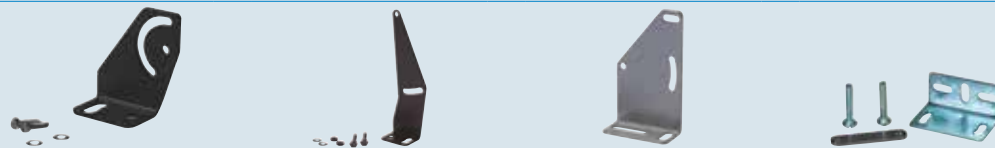
Item Number	<b>APA18-MB1</b>
Used for	PA18 sensors
Description	Mounting bracket in plast



Item Number	<b>APH18-MB1</b>
Used for	PH18 sensors
Description	Mounting bracket in plast

# Photoelectric sensors accessories

## Brackets



Item Number	<b>APA-2</b>	<b>APB-1</b>	<b>MB02</b>	<b>APD32-MB3</b>
Used for	PA.. sensors	PB	PM	PD32 - LD32
Description	Mounting bracket in steel, black	Mounting bracket in steel, black	Long mounting bracket for wall mounting in steel, chromated	Mounting bracket in steel, chromated

## Brackets



Item Number	<b>APD30 MB1</b>	<b>APD30 MB2</b>	<b>ACP50-1</b>
Used for	PD.. sensors	PD.. sensors	PC50.. sensors
Description	Mounting bracket in steel, chromated	Mounting bracket in steel, chromated	Mounting bracket in steel, chromated

## Alignment tools



Item Number	<b>APD140-LA01</b>	<b>APD140-LA02</b>	<b>APD140-TC01</b>
Used for	PD140.. Heavy duty infrared barrier	PD140.. Heavy duty infrared barrier	PD140.. Heavy duty infrared barrier
Description	Laser alignment tool	Laser alignment tool without batteries (Battery: DL1/3N, CR1/3N 3V - Lithium)	Alignment test cable

# Capacitive proximity sensors, TRIPLESIELD™

## Types

### M18-AC TRIPLESIELD™

#### Connections

#### 2 m cable

#### M12 connector

#### Flush mountable



Dimensions (mm)

M18 x 71.5

M18 x 83.5

Thread (mm)

M18 x 1 x 46.5

M18 x 1 x 46.5

Operating frequency

10 Hz

10 Hz

Sensing distance (Sn)

3 - 8 mm (adjustable)

3 - 8 mm (adjustable)

#### References

Thyristor (SCR) NO

CA18CLF08TO

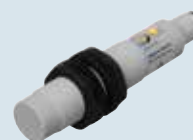
CA18CLF08TOM6

Thyristor (SCR) NC

CA18CLF08TC

CA18CLF08TCM6

#### Non-flush mountable



Dimensions (mm)

M18 x 79.5

M18 x 91.5

Thread (mm)

M18 x 1 x 46.5

M18 x 1 x 46.5

Operating frequency

10 Hz

10 Hz

Sensing distance (Sn)

3 - 12 mm (adjustable)

3 - 12 mm (adjustable)

#### References

Thyristor (SCR) NO

CA18CLN12TO

CA18CLN12TOM6

Thyristor (SCR) NC

CA18CLN12TC

CA18CLN12TCM6

#### Characteristics flush and non-flush mountable

Rated operating voltage

20 - 250 VAC

20 - 250 VAC

Voltage drop

≤ 10 VAC

≤ 10 VAC

Degree of protection

IP 67

IP 67

Protection short-circuit (S)

T

T

Reverse polarity (P)

Transients (T)

Output current

< 500 mA

< 500 mA

Housing material

Thermoplastic polyester

Thermoplastic polyester

Operating temperature

-25°C to +80°C

-25°C to +80°C

LED colour

Yellow


Yellow

Approvals/Marks

CE - UL - CSA

CE - UL - CSA

## Capacitive proximity sensors, 4<sup>th</sup> Generation TRIPLESIELD™

Types	M18-DC 4 <sup>th</sup> Generation TRIPLESIELD™ Flush mountable		M18-DC 4 <sup>th</sup> Generation TRIPLESIELD™ Non-flush mountable	
Connections	2 m cable	M12 connector	2 m cable	M12 connector
				
Dimensions (mm)	M18 x 70	M18 x 85	M18 x 70	M18 x 85
Thread (mm)	M18 x 1.0 x 55	M18 x 1.0 x 55	M18 x 1.0 x 55	M18 x 1.0 x 55
Operating frequency	50 Hz	50 Hz	50 Hz	50 Hz
Sensing distance (Sn)	2 - 10 mm (adjustable)	2 - 10 mm (adjustable)	3 - 15 mm (adjustable)	3 - 15 mm (adjustable)
<b>References</b>				
Standard				
NPN - NO and NC	CA18CAF08NA	CA18CAF08NAM1	CA18CAN12NA	CA18CAN12NAM1
PNP - NO and NC	CA18CAF08PA	CA18CAF08PAM1	CA18CAN12PA	CA18CAN12PAM1
Dust alarm				
PNP - NO	CA18CAF08PODU		CA18CAN12PODU	
PNP - NC	CA18CAF08PCDU		CA30CN25PCDU	
Temperature alarm				
PNP - NO	CA18CAF08POTA		CA18CAN12POTA	
PNP - NC	CA18CAF08PCTA		CA18CAN12PCTA	
<b>Characteristics flush and non-flush mountable</b>				
Rated operating voltage	10 - 40 VDC	10 - 40 VDC	10 - 40 VDC	10 - 40 VDC
Voltage drop	≤ 2.0 VDC	≤ 2.0 VDC	≤ 2.0 VDC	≤ 2.0 VDC
Degree of protection	IP 67, IP 68, IP 69K	IP 67, IP 68, IP 69K	IP 67, IP 68, IP 69K	IP 67, IP 68, IP 69K
Protection short-circuit (S) Reverse polarity (P) Transients (T)	SPT	SPT	SPT	SPT
Output current	< 200 mA	< 200 mA	< 200 mA	< 200 mA
Housing material	PBT	PBT	PBT	PBT
Operating temperature	-30°C to +85°C	-30°C to +85°C	-30°C to +85°C	-30°C to +85°C
LED colour	Yellow and Green	Yellow and Green	Yellow and Green	Yellow and Green
Approvals/Marks	CE - cULus - ECOLAB	CE - cULus - ECOLAB	CE - cULus - ECOLAB	CE - cULus - ECOLAB

# Capacitive proximity sensors, TRIPLESIELD™

## Types

### M30-DC TRIPLESIELD™

#### Connections

#### 2 m cable

#### M12 connector

#### Flush mountable



Dimensions (mm)

M30 x 63.6

M30 x 63.6

Thread (mm)

M30 x 1.5 x 50

M30 x 1.5 x 50

Operating frequency

50 Hz

50 Hz

Sensing distance (Sn)

2 - 16 mm (adjustable)

2 - 16 mm (adjustable)

#### References

NPN - NO and NC

EC3016NPASL

EC3016NPASL-1

PNP - NO and NC

EC3016PPASL

EC3016PPASL-1

#### Non-flush mountable



Dimensions (mm)

M30 x 75.6

M30 x 75.6

Thread (mm)

M30 x 1.5 x 50

M30 x 1.5 x 50

Operating frequency

50 Hz

50 Hz

Sensing distance (Sn)

4 - 25 mm (adjustable)

4 - 25 mm (adjustable)

#### References

NPN - NO and NC

EC3025NPASL

EC3025NPASL-1

PNP - NO and NC

EC3025PPASL

EC3025PPASL-1

#### Characteristics flush and non-flush mountable

Rated operating voltage

10 - 40 VDC

10 - 40 VDC

Voltage drop

≤ 2.5 VDC

≤ 2.5 VDC

Degree of protection

IP 67

IP 67

Protection short-circuit (S)  
Reverse polarity (P)  
Transients (T)

SPT

SPT

Output current

< 200 mA

< 200 mA

Housing material

Stainless steel

Stainless steel

Operating temperature

-25°C to +80°C

-25°C to +80°C

LED colour

Yellow

Yellow

Approvals/Marks

CE - UL - CSA

CE - UL - CSA



# Capacitive proximity sensors, 4<sup>th</sup> Generation TRIPLESIELD™

## M30-DC 4<sup>th</sup> Generation TRIPLESIELD™

Types	Flush mountable		Non-flush mountable	
	2 m cable	M12 connector	2 m cable	M12 connector



Dimensions (mm)	M30 x 81	M30 x 74	M30 x 81	M30 x 74
Thread (mm)	M30 x 1.5 x 59.5	M30 x 1.5 x 59.5	M30 x 1.5 x 45.5	M30 x 1.5 x 45.5
Operating frequency	50 Hz	50 Hz	50 Hz	50 Hz
Sensing distance (Sn)	2 - 20 mm (adjustable)	2 - 20 mm (adjustable)	4 - 30 mm (adjustable)	4 - 30 mm (adjustable)

### References

Standard				
NPN - NO and NC	CA30CAF16NA	CA30CAF16NAM1	CA30CAN25NA	CA30CAN25NAM1
PNP - NO and NC	CA30CAF16PA	CA30CAF16PAM1	CA30CAN25PA	CA30CAN25PAM1
Dust alarm				
PNP - NO	CA30CAF16PODU		CA30CAN25PODU	
PNP - NC	CA30CAF16PCDU		CA30CAN25PCDU	
Temperature alarm				
PNP - NO	CA30CAF16POTA		CA30CAN25POTA	
PNP - NC	CA30CAF16PCTA		CA30CAN25PCTA	

### Characteristics flush and non-flush mountable

Rated operating voltage	10 - 40 VDC	10 - 40 VDC	10 - 40 VDC	10 - 40 VDC
Voltage drop	≤ 2.0 VDC	≤ 2.0 VDC	≤ 2.0 VDC	≤ 2.0 VDC
Degree of protection	IP 67, IP 68, IP 69K	IP 67, IP 68, IP 69K	IP 67, IP 68, IP 69K	IP 67, IP 68, IP 69K
Protection short-circuit (S) Reverse polarity (P) Transients (T)	SPT	SPT	SPT	SPT
Output current	< 200 mA	< 200 mA	< 200 mA	< 200 mA
Housing material	PBT	PBT	PBT	PBT
Operating temperature	-30°C to +85°C	-30°C to +85°C	-30°C to +85°C	-30°C to +85°C
LED colour	Yellow and Green	Yellow and Green	Yellow and Green	Yellow and Green
Approvals/Marks	CE - cULus - ECOLAB	CE - cULus - ECOLAB	CE - cULus - ECOLAB	CE - cULus - ECOLAB

## Capacitive proximity sensors, TRIPLESIELD™

### Types

### M30-AC TRIPLESIELD™

Connections      2 m cable      M12 connector      2 m cable      M12 connector

#### Flush mountable



Dimensions (mm)	M30 x 63.6	M30 x 63.6	M30 x 63.6	M30 x 63.6
Thread (mm)	M30 x 1.5 x 50	M30 x 1.5 x 50	M30 x 1.5 x 50	M30 x 1.5 x 50
Operating frequency	10 Hz	10 Hz	10 Hz	10 Hz
Sensing distance (Sn)	2 - 16 mm (adjustable)	2 - 16 mm (adjustable)	2 - 16 mm (adjustable)	2 - 16 mm (adjustable)

#### References

Thyristor (SCR) NO or NC	EC3016TBAPL	EC3016TBAPL-6	EC3016TBASL	EC3016TBASL-6
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#### Non-flush mountable



Dimensions (mm)	M30 x 75.6	M30 x 75.6	M30 x 75.6	M30 x 75.6
Thread (mm)	M30 x 1.5 x 50	M30 x 1.5 x 50	M30 x 1.5 x 50	M30 x 1.5 x 50
Operating frequency	10 Hz	10 Hz	10 Hz	10 Hz
Sensing distance (Sn)	4 - 25 mm (adjustable)	4 - 25 mm (adjustable)	4 - 25 mm (adjustable)	4 - 25 mm (adjustable)


#### References

Thyristor (SCR) NO or NC	EC3025TBAPL	EC3025TBAPL-6	EC3025TBASL	EC3025TBASL-6
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#### Characteristics flush and non-flush mountable

Rated operating voltage	20 - 250 VAC	20 - 250 VAC	20 - 250 VAC	20 - 250 VAC
Voltage drop	< 10 VAC	< 10 VAC	< 10 VAC	< 10 VAC
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S)				
Reverse polarity (P)	T	T	T	T
Transients (T)				
Output current	< 500 mA	< 500 mA	< 500 mA	< 500 mA
Housing material	Thermoplastic polyester	Thermoplastic polyester	Stainless steel	Stainless steel
Operating temperature	-25°C to +80°C	-25°C to +80°C	-25°C to +80°C	-25°C to +80°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA

## Capacitive proximity sensors, TRIPLESIELD™

Types	M12 Teach-in TRIPLESIELD™		M18 Teach-in TRIPLESIELD™		
Connections	2 m cable	M12 connector	2 m cable	M12 connector	
Flush mountable					
	Dimensions (mm)	M12 x 82.4	M12 x 84.7	M18 x 89.55	M18 x 89.2
	Thread (mm)	M12 x 1 x 50	M12 x 1 x 50	M18 x 1 x 50	M18 x 1 x 50
	Operating frequency	15 Hz	15 Hz	15 Hz	15 Hz
	Sensing distance (Sn)	0.5 - 8 mm (Teach-in)	0.5 - 8 mm (Teach-in)	0.2 - 12 mm (Teach-in)	0.2 - 12 mm (Teach-in)
<b>References</b>					
NPN/PNP, NO/NC	CA12CLC08BP	CA12CLC08BPM1	CA18CLC12BP	CA18CLC12BPM1	
<b>Characteristics flush and non-flush mountable</b>					
Rated operating voltage	10 - 40 VDC	10 - 40 VDC	10 - 40 VDC	10 - 40 VDC	
Voltage drop	< 2.5 VDC	< 2.5 VDC	< 2.5 VDC	< 2.5 VDC	
Degree of protection	IP 68	IP 68	IP 68	IP 68	
Protection short-circuit (S) Reverse polarity (P) Transients (T)	SPT	SPT	SPT	SPT	
Output current	< 250 mA	< 250 mA	< 250 mA	< 250 mA	
Housing material	Thermoplastic polyester	Thermoplastic polyester	Thermoplastic polyester	Thermoplastic polyester	
Operating temperature	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	
Special features	Teach-in, humidity compensation NPN/PNP auto detection, remote setup, alarm output. On request: dirt and moisture compensation	Teach-in, humidity compensation NPN/PNP auto detection, remote setup, alarm output. On request: dirt and moisture compensation	Teach-in, humidity compensation NPN/PNP auto detection, remote setup, alarm output. On request: dirt and moisture compensation	Teach-in, humidity compensation NPN/PNP auto detection, remote setup, alarm output. On request: dirt and moisture compensation	
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA	

# Capacitive proximity sensors, TRIPLESIELD™

Types	M30 Teach in TRIPLESIELD™		M30 AC/DC TRIPLESIELD™	
Connections	2 m cable	M12 connector	2 m cable	M12 connector

## Flush mountable



Dimensions (mm)	M30 x 99.2	M30 x 90.45	M30 x 63.6	M30 x 75.6
Thread (mm)	M30 x 1.5 x 50	M30 x 1.5 x 50	M30 x 1.5 x 50	M30 x 1.5 x 50
Operating frequency	15 Hz	15 Hz	10 Hz	10 Hz
Sensing distance (Sn)	0.5 - 30 mm (adjustable)	0.5 - 30 mm (adjustable)	2 - 16 mm (adjustable)	2 - 16 mm (adjustable)

## References

NPN/PNP, NO/NC	CA30CLC30BP	CA30CLC30BPM1		
Power MOFSET			CA30CLF16CP	CA30CLF16CPM6

## Non-flush mountable



Dimensions (mm)			M30 x 71.6	M30 x 83.6
Thread (mm)			M30 x 1.5 x 50	M30 x 1.5 x 50
Operating frequency			10 Hz	10 Hz
Sensing distance (Sn)			2 - 25 mm (adjustable)	2 - 25 mm (adjustable)




## References

Power MOFSET			CA30CLN25CP	CA30CLN25CPM6
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## Characteristics flush and non-flush mountable





Rated operating voltage	10 - 40 VDC	10 - 40 VDC	20 - 250 VAC/DC	20 - 250 VAC/DC
Voltage drop	< 2.5 VDC	< 2.5 VDC	< 5.5 VAC/DC	< 5.5 VAC/DC
Degree of protection	IP 68	IP 68	IP 67	IP 67
Protection short-circuit (S)			PT	PT
Reverse polarity (P)	SPT	SPT		
Transients (T)				
Output current	< 250 mA	< 250 mA	< 250 mA DC < 350 mA AC	< 250 mA DC < 350 mA AC
Housing material	Thermoplastic polyester	Thermoplastic polyester	Thermoplastic polyester	Thermoplastic polyester
Operating temperature	-20°C to +85°C	-20°C to +85°C	-25°C to +80°C	-25°C to +80°C
LED colour	Yellow	Yellow	Yellow	Yellow
Special features	Teach-in, humidity compensation NPN/PNP auto detection, remote setup, alarm output. On request: dirt and moisture compensation	Teach-in, humidity compensation NPN/PNP auto detection, remote setup, alarm output. On request: dirt and moisture compensation		
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA

## Capacitive proximity sensors, TRIPLESIELD™




Types	M18 TRIPLESIELD™, chemical resistant		
Connections	2 m cable	2 m cable	2 m cable
<b>Flush mountable</b>			
Dimensions (mm)	M18 x 71.5	M18 x 71.5	M18 x 71.5
Thread (mm)	M18 x 1 x 46.5	M18 x 1 x 46.5	M18 x 1 x 46.5
Operating frequency	30 Hz	30 Hz	30 Hz
Sensing distance (Sn)	3 - 8 mm (adjustable)	3 - 8 mm (adjustable)	3 - 8 mm (adjustable)
<b>References</b>			
NPN-NO/NC	CA18HLF08NA	CA18GLF08NA	CA18FLF08NA
PNP-NO/NC	CA18HLF08PA	CA18GLF08PA	CA18FLF08PA
<b>Non-flush mountable</b>			
Dimensions (mm)	M18 x 71.5		
Thread (mm)	M18 x 1 x 46.5		
Operating frequency	30 Hz		
Sensing distance (Sn)	3 - 12 mm (adjustable)		
<b>References</b>			
NPN-NO/NC	CA18HLN12NA		
PNP-NO/NC	CA18HLN12PA		
<b>Characteristics flush and non-flush mountable</b>			
Rated operating voltage	10 - 40 VDC	10 - 40 VDC	10 - 40 VDC
Voltage drop	≤ 2.5 VDC	≤ 2.5 VDC	≤ 2.5 VDC
Degree of protection	IP 67	IP 67	IP 67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	SPT	SPT	SPT
Output current	< 200 mA	< 200 mA	< 200 mA
Housing material	Polypropylene	PVC	Teflon
Operating temperature	-25°C to +80°C	-25°C to +80°C	-25°C to +80°C
LED colour	Yellow	Yellow	Yellow
Approvals/Marks	CE	CE	CE





## Capacitive proximity sensors, TRIPLESIELD™

Types	VC5510	VC5510 Time delay	CD50	CD50
Connections	1.5 m cable	1.5 m cable	2 m cable	2 m cable
Flush mountable				
Dimensions (mm)	55 x 35 x 15	55 x 35 x 15	50 x 30 x 7	50 x 30 x 7
Operating frequency	> 15 Hz	> 0.1 Hz	10 Hz	10 Hz
Sensing distance (Sn)	10 mm	10 mm	6 mm	5 mm
<b>References</b>				
NPN - NO	VC5510NNOP	VC5510NNOPT	CD50CNF06NO	CD50CNF05NO
NPN - NC	VC5510NNCP	VC5510NNCPT		
PNP - NO	VC5510PNOP	VC5510PNOPT		
PNP - NC	VC5510PNCP	VC5510PNCPT		
Sensing distance (Sn)			7 mm	
PNP - NO			CD50CNF07PO	
NPN - NC			CD50CNF07NC	
Sensing distance (Sn)			10 mm	
PNP - NO			CD50CNF10PO	
NPN - NC			CD50CNF10NC	
<b>Characteristics flush and non-flush mountable</b>				
Rated operating voltage	5 - 30 VDC	5 - 30 VDC	10 - 30 VDC	5 VDC
Voltage drop	≤ 1.5 VDC	≤ 1.5 VDC	≤ 1.5 V	≤ 1.5 V
Degree of protection	IP65	IP 65	IP 67	IP 67
Output current	≤ 100 mA	≤ 100 mA	≤ 50 mA	≤ 50 mA
Housing material	PC/ABS	PC/ABS	Noryl, grey	Noryl, grey
Operating temperature	0°C to +50°C	0°C to +50°C	0°C to +60°C	0°C to +60°C
LED colour	Red	Red		
Approvals/Marks	CE - UL	CE - UL	CE	CE



## Capacitive proximity sensors, TRIPLESIELD™

Types	CD46 Teach-in TRIPLESIELD™	EC 5525 TRIPLESIELD™	
Connections	2 m cable	2 m cable	M12 connector
Flush or Non-flush mountable			
	Dimensions short body (mm)	46 x 28 x 5.5	55 x 35 x 15
Operating frequency	10 Hz	50 Hz	50 Hz
Sensing distance (Sn)	1.0 - 10 mm (Teach-in)	4 - 25 mm	4 - 25 mm
<b>References</b>			
NPN-NO/NC	CD46CNC10NP	EC5525NPAP	EC5525NPAP-1
PNP-NO/NC	CD46CNC10PP	EC5525PPAP	EC5525PPAP-1
<b>Characteristics flush and non-flush mountable</b>			
Rated operating voltage	10 - 30 VDC	10 - 40 VDC	10 - 40 VDC
Voltage drop	≤ 2.5 VDC	≤ 2.5 VDC	≤ 2.5 VDC
Degree of protection	IP 68	IP 67	IP 67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	SPT	SPT	SPT
Output current	≤ 200 mA	≤ 200 mA	≤ 200 mA
Housing material	PBT	Polycarbonate	Polycarbonate
Operating temperature	-25°C to +80°C	-25°C to +80°C	-25°C to +80°C
LED colour	Yellow, Green	Yellow	Yellow
Special features	Teach-in, remote setup, alarm output		
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA





## Capacitive proximity sensors, TRIPLESIELD™

Types	M18 Teach-in TRIPLESIELD™		M30 Teach-in TRIPLESIELD™	
Connections	2 m cable	M12 connector	2 m cable	M12 connector
<b>Flush or Non-flush mountable</b>				
Dimensions (mm)	M18 x 89.55	M18 x 89.2	M30 x 99.2	M30 x 99.45
Thread (mm)	M18 x 1 x 50	M18 x 1 x 50	M30 x 1.5 x 50	M30 x 1.5 x 50
Operating frequency	5 Hz	5 Hz	5 Hz	5 Hz
Sensing distance (Sn)	0.5 - 12 mm (Teach-in)	0.5 - 12 mm (Teach-in)	0.5 - 30 mm (Teach-in)	0.5 - 30 mm (Teach-in)
<b>References</b>				
NPN/PNP, NO/NC	<b>CA18CLL12BP</b>	<b>CA18CLL12BPM1</b>	<b>CA30CLL30BP</b>	<b>CA30CLL30BPM1</b>
<b>Characteristics flush and non-flush mountable</b>				
Rated operating voltage	10 - 40 VDC	10 - 40 VDC	10 - 40 VDC	10 - 40 VDC
Voltage drop	≤ 2.5 VDC	≤ 2.5 VDC	≤ 2.5 VDC	≤ 2.5 VDC
Degree of protection	IP 68	IP 68	IP 68	IP 68
Output current	≤ 250 mA	≤ 250 mA	≤ 250 mA	≤ 250 mA
Housing material	Thermoplastic polyester	Thermoplastic polyester	Thermoplastic polyester	Thermoplastic polyester
Operating temperature	-20°C to +85°C	-20°C to +85°C	-20°C to +85°C	-20°C to +85°C
Max. temperature on sensing face	120°C (248°F)	120°C (248°F)	120°C (248°F)	120°C (248°F)
LED colour	Yellow	Yellow	Yellow	Yellow
Special features	Single-step Teach-in, humidity compensation NPN/ PNP auto detection, remote setup, alarm output. On request: dirt and moisture compensation	Single-step Teach-in, humidity compensation NPN/ PNP auto detection, remote setup, alarm output. On request: dirt and moisture compensation	Single-step Teach-in, humidity compensation NPN/ PNP auto detection, remote setup, alarm output. On request: dirt and moisture compensation	Single-step Teach-in, humidity compensation NPN/ PNP auto detection, remote setup, alarm output. On request: dirt and moisture compensation
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA


# Capacitive level sensors

Types	Capacitive liquid level sensors	
Connections	2 m cable	M8, 4-pin pig-tail
		
Dimensions (mm)	34 x 16 x 8 mm	34 x 16 x 8 mm
Operating frequency	10 Hz	10 Hz
Tank wall thickness (out-of-the-box)	0.5 to 6 mm plastic, 0.5 to 4 mm glass	0.5 to 6 mm plastic, 0.5 to 4 mm glass
Teach-in	Empty or full tank	Empty or full tank
<b>References</b>		
NPN - NC	CD34CNFLFNCP2	CD34CNFLFNCT5
NPN - NO	CD34CNFLFNOP2	CD34CNFLFNOT4
PNP - NC	CD34CNFLFP2	CD34CNFLFPCT5
PNP - NO	CD34CNFLFPOP2	CD34CNFLFPOT5
<b>Specifications</b>		
Rated operating voltage	10 - 30 VDC	10 - 30 VDC
Voltage drop	≤ 1.5 VDC	≤ 1.5 VDC
Degree of protection	IP 65, IP66, IP67, IP68 (1.3 m @ 24h), IP69K NEMA 1, 2, 4, 4X, 5, 12	IP 65, IP66, IP67, IP68 (1.3 m @ 24h), IP69K NEMA 1, 2, 4, 4X, 5, 12
Protection short-circuit (S) Reverse polarity (P) Transients (T)	SPT	SPT
Output current	< 100 mA	< 100 mA
Housing material	PBT	PBT
Operating temperature	-25°C to +80°C	-25°C to +80°C
LED colour	Yellow and Green	Yellow and Green
Special features	Designed to eliminate tank walls and build-up foam or film on tank walls. Detection liquids: water-based liquids such as water, milk, syrup, milkshakes, lubricants, acids, alkaline, body fluids and highly conductive liquids up to 50 ms	Designed to eliminate tank walls and build-up foam or film on tank walls. Detection liquids: water-based liquids such as water, milk, syrup, milkshakes, lubricants, acids, alkaline, body fluids and highly conductive liquids up to 50 ms
Approvals/Marks	CE - cULus - ECOLAB	CE - cULus - ECOLAB
Accessories	Mounting Bracket ACD34-MB01	Mounting Bracket ACD34-MB01

## Capacitive level sensors

Types	Capacitive level sensors for solid, fluid and granulated substances			
Connections	2 m cable	2 m cable	2 m cable	2 m cable
				
Dimensions (mm)	Ø32 x 101	Ø32 x 101	Ø32 x 101	M30 x 101
Thread	Smooth	Smooth	Smooth	M30 (with 2 nuts)
Operating frequency	1 Hz	1 Hz	1 Hz	1 Hz
Sensing distance (Sn)	4 - 12 mm (adjustable)	4 - 12 mm (adjustable)	4 - 12 mm (adjustable)	4 - 12 mm (adjustable)
<b>References with ON delay</b>				
Time delay	1 s - 10 m			1 s - 10 m
120 VAC	<b>VC11RT12010M</b>			
230 VAC	<b>VC11RT23010M</b>			
24 VAC/DC	<b>VC11RT92410M</b>			
24-230 VAC/DC	<b>VC11RTM2410M</b>			<b>CA30CLN12MU10M</b>
<b>References with OFF delay</b>				
Time delay	1 s - 10 m			1 s - 10 m
120 VAC	<b>VC12RT12010M</b>			
230 VAC	<b>VC12RT23010M</b>			
24 VAC/DC	<b>VC12RT92410M</b>			
24-230 VAC/DC	<b>VC12RTM2410M</b>			<b>CA30CLN12MV10M</b>
<b>References without delay</b>				
120 VAC	<b>VC12RN120</b>			
230 VAC	<b>VC12RN230</b>			
24 VAC/DC	<b>VC12RN924</b>			
24-230 VAC/DC	<b>VC12RNM24</b>			<b>CA30CLN12MT</b>
<b>Specifications</b>				
Consumption	≤ 1.5 W	≤ 1.5 W	≤ 1.5 W	≤ 2.5 W
Consumption M24 versions	≤ 2.5 W	≤ 2.5 W	≤ 2.5 W	
Hysteresis	1.5 mm at 7 mm sensing distance	1.5 mm at 7 mm sensing distance	1.5 mm at 7 mm sensing distance	3 - 20%
Output	Relay SPDT 2 A / 240 VAC	Relay SPDT 2 A / 240 VAC	Relay SPDT 2 A / 240 VAC	Relay SPDT 2 A / 240 VAC
Degree of protection	IP 67	IP 67	IP 67	IP 67
Housing material	Thermoplastic polyester	Thermoplastic polyester	Thermoplastic polyester	PBTP, grey
Operating temperature	-20°C to +70°C	-20°C to +70°C	-20°C to +70°C	-20°C to +70°C
LED colour	Red	Red	Red	Yellow
Approvals/Marks UL508 NEMA	CE cULus (M24 versions)	CE - CSA cULus (M24 versions)	CE cULus (M24 versions)	CE, CSA cULus 1, 2, 4, 4X, 5, 6, 6P, 12

# Capacitive level sensors

	Ø18 Sensors for solid, fluid and granulated substances		Ø32 Sensors
Types	2-wire, AC	3-wire, DC	2-wire, AC
Connections	2 m cable	2 m cable	2 m cable
			
Dimensions (mm)	Ø18 x 86	Ø18 x 86	Ø32 x 101
Thread	Smooth	Smooth	Smooth
Operating frequency	10 Hz	30 Hz	10 Hz
Sensing distance (Sn)	3 - 12 mm (adjustable)	3 - 12 mm (adjustable)	2 - 20 mm (adjustable)
<b>References</b>			
Thyristor (SCR) NO	CB18CLN12TOFT		
Thyristor (SCR) NO ATEX	CB18CLN12TOFTAX		
Thyristor (SCR) NC	CB18CLN12TCFT		
Thyristor (SCR) NC ATEX	CB18CLN12TCFTAX		
NPN - NO/NC		CB18CLN12NA	
NPN - NO/NC ATEX		CB18CLN12NAAX	
PNP - NO/NC		CB18CLN12PA	
PNP - NO/NC ATEX		CB18CLN12PAAX	
ON-delay			No
Thyristor (SCR) NO			CB32CLN20TO
Thyristor (SCR) NO ATEX			CB32CLN20TOAX
Thyristor (SCR) NC			CB32CLN20TC
Thyristor (SCR) NC ATEX			CB32CLN20TCAX
ON-delay			Yes
Thyristor (SCR) NO			CB32CLN20TOFT
Thyristor (SCR) NO ATEX			CB32CLN20TOFTAX
Thyristor (SCR) NC			CB32CLN20TCFT
Thyristor (SCR) NC ATEX			CB32CLN20TCFTAX
<b>Specifications</b>			
Rated operating voltage	20 - 250 VAC	10 - 40 VDC	20 - 250 VAC
Voltage drop	≤ 10 VAC	≤ 10 VAC	≤ 10 VAC
Time delay	30 s ON-delay		30 s ON-delay
Degree of protection	IP 67	IP 67	IP 67
Protection short-circuit (S)			
Reverse polarity (P)	T	SPT	T
Transients (T)			
Output current	≤ 500 mA	≤ 200 mA	≤ 500 mA
Housing material	Thermoplastic polyester	Thermoplastic polyester	Thermoplastic polyester
Operating temperature	-25°C to +80°C	-25°C to +80°C	-20°C to +70°C
LED colour	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL - CSA - ATEX	CE - UL - CSA - ATEX	CE - UL - CSA - ATEX



## Capacitive level sensors

### Types

### Ø32 Level sensors TRIPLESIELD™ - ATEX

#### Connections

#### With ON delay

#### With OFF delay

#### Without time delay



Dimensions (mm)	Ø32 x 101	Ø32 x 101	Ø32 x 101
Thread	Smooth	Smooth	Smooth
Operating frequency	5 Hz	5 Hz	5 Hz
Sensing distance (Sn)	4 - 20 mm (adjustable)	4 - 20 mm (adjustable)	4 - 20 mm (adjustable)

### References

Cable length	2 m	2 m	2 m
120 VAC	<b>CB32CLN20SUAX</b>	<b>CB32CLN20SVAX</b>	<b>CB32CLN20STAX</b>
230 VAC	<b>CB32CLN20RUAX</b>	<b>CB32CLN20RVAX</b>	<b>CB32CLN20RTAX</b>
24 VAC/DC	<b>CB32CLN20QUAX</b>	<b>CB32CLN20QVAX</b>	<b>CB32CLN20QTAX</b>
Cable length	5 m	5 m	5 m
120 VAC	<b>CB32CLN20SUAX5M</b>	<b>CB32CLN20SVAX5M</b>	<b>CB32CLN20STAX5M</b>
230 VAC	<b>CB32CLN20RUAX5M</b>	<b>CB32CLN20RVAX5M</b>	<b>CB32CLN20RTAX5M</b>
24 VAC/DC	<b>CB32CLN20QUAX5M</b>	<b>CB32CLN20QVAX5M</b>	<b>CB32CLN20QTAX5M</b>
Cable length	10 m	10 m	10 m
120 VAC	<b>CB32CLN20SUAX10M</b>	<b>CB32CLN20SVAX10M</b>	<b>CB32CLN20STAX10M</b>
230 VAC	<b>CB32CLN20RUAX10M</b>	<b>CB32CLN20RVAX10M</b>	<b>CB32CLN20RTAX10M</b>
24 VAC/DC	<b>CB32CLN20QUAX10M</b>	<b>CB32CLN20QVAX10M</b>	<b>CB32CLN20QTAX10M</b>

### Specifications

Consumption	< 1.5 W	< 1.5 W	< 1.5 W
Hysteresis	3 to 20% of sensing distance	3 to 20% of sensing distance	3 to 20% of sensing distance
Output	Relay SPDT, 2 A / 240 VAC	Relay SPDT, 2 A / 240 VAC	Relay SPDT, 2 A / 240 VAC
Time delay	1 s - 10 m	1 s - 10 m	
Degree of protection	IP 67	IP 67	IP 67
Housing material	PBT	PBT	PBT
Operating temperature	-20°C to +70°C	-20°C to +70°C	-20°C to +70°C
LED colour	Yellow	Yellow	Yellow
Approvals/Marks	CE - ATEX	CE - ATEX	CE - ATEX

# Inductive proximity sensors, 3-wire, DC

Types	M12 Standard - Short body		M12 Standard - Long body	
Connections	2 m cable	M12 connector	2 m cable	M12 connector
<b>Flush mountable</b>				

Dimensions (mm)	M12 x 47	M12 x 50	M12 x 67	M12 x 70
Thread (mm)	M12 x 1 x 30	M12 x 1 x 30	M12 x 1 x 50	M12 x 1 x 50
Operating frequency	2 kHz	2 kHz	2 kHz	2 kHz
Sensing distance (Sn)	2 mm	2 mm	2 mm	2 mm

## References

NPN-NO	ICB12S30F02NO	ICB12S30F02NOM1	ICB12L50F02NO	ICB12L50F02NOM1
PNP-NO	ICB12S30F02PO	ICB12S30F02POM1	ICB12L50F02PO	ICB12L50F02POM1
NPN-NC	ICB12S30F02NC	ICB12S30F02NCM1	ICB12L50F02NC	ICB12L50F02NCM1
PNP-NC	ICB12S30F02PC	ICB12S30F02PCM1	ICB12L50F02PC	ICB12L50F02PCM1

<b>Non-flush mountable</b>				
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Dimensions (mm)	M12 x 51	M12 x 54	M12 x 71	M12 x 74
Thread (mm)	M12 x 1 x 30	M12 x 1 x 30	M12 x 1 x 50	M12 x 1 x 50
Operating frequency	2 kHz	2 kHz	2 kHz	2 kHz
Sensing distance (Sn)	4 mm	4 mm	4 mm	4 mm






## References






NPN-NO	ICB12S30N04NO	ICB12S30N04NOM1	ICB12L50N04NO	ICB12L50N04NOM1
PNP-NO	ICB12S30N04PO	ICB12S30N04POM1	ICB12L50N04PO	ICB12L50N04POM1
NPN-NC	ICB12S30N04NC	ICB12S30N04NCM1	ICB12L50N04NC	ICB12L50N04NCM1
PNP-NC	ICB12S30N04PC	ICB12S30N04PCM1	ICB12L50N04PC	ICB12L50N04PCM1

## Characteristics flush and non-flush mountable

Rated operating voltage	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC
Voltage drop	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	SPT	SPT	SPT	SPT
Output current	< 200 mA @ 50°C ≤ 150 mA @ 50-70°C	< 200 mA @ 50°C ≤ 150 mA @ 50-70°C	< 200 mA @ 50°C ≤ 150 mA @ 50-70°C	< 200 mA @ 50°C ≤ 150 mA @ 50-70°C
Housing material	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2

# Inductive proximity sensors, 3-wire, DC, extended range







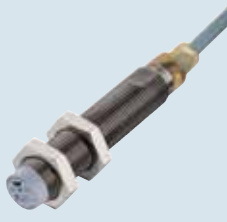

Types	M12 Extended - Extra-short body	M12 Extended - Short body		M12 Extended - Long body	
Connections	2 m cable	2 m cable	M12 connector	2 m cable	M12 connector
<b>Flush mountable</b>					
Dimensions (mm)	M12 x 25.4	M12 x 47	M12 x 50	M12 x 67	M12 x 70
Thread (mm)	M12 x 1 x 23.4	M12 x 1 x 30	M12 x 1 x 30	M12 x 1 x 50	M12 x 1 x 50
Operating frequency	2 kHz	2 kHz	2 kHz	2 kHz	2 kHz
Sensing distance (Sn)	4 mm	4 mm	4 mm	4 mm	4 mm
<b>References</b>					
NPN-NO	ICB12S23F04NO	ICB12S30F04NO	ICB12S30F04NOM1	ICB12L50F04NO	ICB12L50F04NOM1
PNP-NO	ICB12S23F04PO	ICB12S30F04PO	ICB12S30F04POM1	ICB12L50F04PO	ICB12L50F04POM1
NPN-NC	ICB12S23F04NC	ICB12S30F04NC	ICB12S30F04NCM1	ICB12L50F04NC	ICB12L50F04NCM1
PNP-NC	ICB12S23F04PC	ICB12S30F04PC	ICB12S30F04PCM1	ICB12L50F04PC	ICB12L50F04PCM1

<b>Non-flush mountable</b>					
Dimensions (mm)	M12 x 29.4	M12 x 51	M12 x 54	M12 x 71	M12 x 74
Thread (mm)	M12 x 1 x 23.4	M12 x 1 x 30	M12 x 1 x 30	M12 x 1 x 50	M12 x 1 x 50
Operating frequency	2 kHz	2 kHz	2 kHz	2 kHz	2 kHz
Sensing distance (Sn)	8 mm	8 mm	8 mm	8 mm	8 mm
<b>References</b>					
NPN-NO	ICB12S23N08NO	ICB12S30N08NO	ICB12S30N08NOM1	ICB12L50N08NO	ICB12L50N08NOM1
PNP-NO	ICB12S23N08PO	ICB12S30N08PO	ICB12S30N08POM1	ICB12L50N08PO	ICB12L50N08POM1
NPN-NC	ICB12S23N08NC	ICB12S30N08NC	ICB12S30N08NCM1	ICB12L50N08NC	ICB12L50N08NCM1
PNP-NC	ICB12S23N08PC	ICB12S30N08PC	ICB12S30N08PCM1	ICB12L50N08PC	ICB12L50N08PCM1





## Characteristics flush and non-flush mountable





Rated operating voltage	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC
Voltage drop	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA
Degree of protection	IP 67	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	SPT	SPT	SPT	SPT	SPT
Output current	≤ 200 mA	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C
Housing material	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass
Operating temperature	-25°C to +80°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
LED colour	Yellow	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2

# Inductive proximity sensors, 3-wire, DC, increased range

Types	M12 Increased - Short body		M12 Increased - Long body	
Connections	2 m cable	M12 connector	2 m cable	M12 connector
<b>Quasi-flush mountable</b>				
Dimensions (mm)	M12 x 48	M12 x 51	M12 x 68	M12 x 71
Thread (mm)	M12 x 1 x 30	M12 x 1 x 30	M12 x 1 x 50	M12 x 1 x 50
Operating frequency	2 kHz	2 kHz	2 kHz	2 kHz
Sensing distance (Sn)	6 mm	6 mm	6 mm	6 mm
<b>References</b>				
NPN-NO	ICB12S30F06NO	ICB12S30F06NOM1	ICB12L50F06NO	ICB12L50F06NOM1
PNP-NO	ICB12S30F06PO	ICB12S30F06POM1	ICB12L50F06PO	ICB12L50F06POM1
NPN-NC	ICB12S30F06NC	ICB12S30F06NCM1	ICB12L50F06NC	ICB12L50F06NCM1
PNP-NC	ICB12S30F06PC	ICB12S30F06PCM1	ICB12L50F06PC	ICB12L50F06PCM1
<b>Non-flush mountable</b>				
Dimensions (mm)	M12 x 51	M12 x 54	M12 x 71	M12 x 74
Thread (mm)	M12 x 1 x 30	M12 x 1 x 30	M12 x 1 x 50	M12 x 1 x 50
Operating frequency	2 kHz	2 kHz	2 kHz	2 kHz
Sensing distance (Sn)	10 mm	10 mm	10 mm	10 mm
<b>References</b>				
NPN-NO	ICB12S30N10NO	ICB12S30N10NOM1	ICB12L50N10NO	ICB12L50N10NOM1
PNP-NO	ICB12S30N10PO	ICB12S30N10POM1	ICB12L50N10PO	ICB12L50N10POM1
NPN-NC	ICB12S30N10NC	ICB12S30N10NCM1	ICB12L50N10NC	ICB12L50N10NCM1
PNP-NC	ICB12S30N10PC	ICB12S30N10PCM1	ICB12L50N10PC	ICB12L50N10PCM1
<b>Characteristics quasi-flush and non-flush mountable</b>				
Rated operating voltage	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC
Voltage drop	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Output current	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C
Housing material	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2





## Inductive proximity sensors, 3-wire, DC





Types	M18 Standard - Short body		M18 Standard - Long body	
Connections	2 m cable	M12 connector	2 m cable	M12 connector
<b>Flush mountable</b>				
Dimensions (mm)	M18 x 53	M18 x 54	M18 x 73	M18 x 74
Thread (mm)	M18 x 1 x 30	M18 x 1 x 30	M18 x 1 x 50	M18 x 1 x 50
Operating frequency	1.5 kHz	1.5 kHz	1.5 kHz	1.5 kHz
Sensing distance (Sn)	5 mm	5 mm	5 mm	5 mm
<b>References</b>				
NPN-NO	ICB18S30F05NO	ICB18S30F05NOM1	ICB18L50F05NO	ICB18L50F05NOM1
PNP-NO	ICB18S30F05PO	ICB18S30F05POM1	ICB18L50F05PO	ICB18L50F05POM1
NPN-NC	ICB18S30F05NC	ICB18S30F05NCM1	ICB18L50F05NC	ICB18L50F05NCM1
PNP-NC	ICB18S30F05PC	ICB18S30F05PCM1	ICB18L50F05PC	ICB18L50F05PCM1

<b>Non-flush mountable</b>				
Dimensions (mm)	M18 x 63	M18 x 64	M18 x 83	M18 x 84
Thread (mm)	M18 x 1 x 30	M18 x 1 x 30	M18 x 1 x 50	M18 x 1 x 50
Operating frequency	1.5 kHz	1.5 kHz	1.5 kHz	1.5 kHz
Sensing distance (Sn)	8 mm	8 mm	8 mm	8 mm
<b>References</b>				
NPN-NO	ICB18S30N08NO	ICB18S30N08NOM1	ICB18L50N08NO	ICB18L50N08NOM1
PNP-NO	ICB18S30N08PO	ICB18S30N08POM1	ICB18L50N08PO	ICB18L50N08POM1
NPN-NC	ICB18S30N08NC	ICB18S30N08NCM1	ICB18L50N08NC	ICB18L50N08NCM1
PNP-NC	ICB18S30N08PC	ICB18S30N08PCM1	ICB18L50N08PC	ICB18L50N08PCM1

<b>Characteristics flush and non-flush mountable</b>				
Rated operating voltage	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC
Voltage drop	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	SPT	SPT	SPT	SPT
Output current	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C
Housing material	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2

# Inductive proximity sensors, 3-wire, DC, extended range


Types	M18 Extended - Short body		M18 Extended - Long body	
Connections	2 m cable	M12 connector	2 m cable	M12 connector
<b>Flush mountable</b>				
Dimensions (mm)	M18 x 53	M18 x 54	M18 x 73	M18 x 74
Thread (mm)	M18 x 1 x 30	M18 x 1 x 30	M18 x 1 x 50	M18 x 1 x 50
Operating frequency	1.5 kHz	1.5 kHz	1.5 kHz	1.5 kHz
Sensing distance (Sn)	8 mm	8 mm	8 mm	8 mm
<b>References</b>				
NPN-NO	ICB18S30F08NO	ICB18S30F08NOM1	ICB18L50F08NO	ICB18L50F08NOM1
PNP-NO	ICB18S30F08PO	ICB18S30F08POM1	ICB18L50F08PO	ICB18L50F08POM1
NPN-NC	ICB18S30F08NC	ICB18S30F08NCM1	ICB18L50F08NC	ICB18L50F08NCM1
PNP-NC	ICB18S30F08PC	ICB18S30F08PCM1	ICB18L50F08PC	ICB18L50F08PCM1


<b>Non-flush mountable</b>				
Dimensions (mm)	M18 x 63	M18 x 64	M18 x 83	M18 x 84
Thread (mm)	M18 x 1 x 30	M18 x 1 x 30	M18 x 1 x 50	M18 x 1 x 50
Operating frequency	1.5 kHz	1.5 kHz	1.5 kHz	1.5 kHz
Sensing distance (Sn)	14 mm	14 mm	14 mm	14 mm
<b>References</b>				
NPN-NO	ICB18S30N14NO	ICB18S30N14NOM1	ICB18L50N14NO	ICB18L50N14NOM1
PNP-NO	ICB18S30N14PO	ICB18S30N14POM1	ICB18L50N14PO	ICB18L50N14POM1
NPN-NC	ICB18S30N14NC	ICB18S30N14NCM1	ICB18L50N14NC	ICB18L50N14NCM1
PNP-NC	ICB18S30N14PC	ICB18S30N14PCM1	ICB18L50N14PC	ICB18L50N14PCM1

<b>Characteristics flush and non-flush mountable</b>				
Rated operating voltage	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC
Voltage drop	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	SPT	SPT	SPT	SPT
Output current	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C
Housing material	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2



## Inductive proximity sensors, 3-wire, DC, increased range

Types	M18 Increased - Short body		M18 Increased - Long body	
Connections	2 m cable	M12 connector	2 m cable	M12 connector
<b>Quasi-flush mountable</b>				
Dimensions (mm)	M18 x 54	M18 x 55	M18 x 74	M18 x 75
Thread (mm)	M18 x 1 x 30	M18 x 1 x 30	M18 x 1 x 50	M18 x 1 x 50
Operating frequency	1 kHz	1 kHz	1 kHz	1 kHz
Sensing distance (Sn)	12 mm	12 mm	12 mm	12 mm
<b>References</b>				
NPN-NO	ICB18S30F12NO	ICB18S30F12NOM1	ICB18L50F12NO	ICB18L50F12NOM1
PNP-NO	ICB18S30F12PO	ICB18S30F12POM1	ICB18L50F12PO	ICB18L50F12POM1
NPN-NC	ICB18S30F12NC	ICB18S30F12NCM1	ICB18L50F12NC	ICB18L50F12NCM1
PNP-NC	ICB18S30F12PC	ICB18S30F12PCM1	ICB18L50F12PC	ICB18L50F12PCM1

<b>Non-flush mountable</b>				
Dimensions (mm)	M18 x 63	M18 x 64	M18 x 83	M18 x 84
Thread (mm)	M18 x 1 x 30	M18 x 1 x 30	M18 x 1 x 50	M18 x 1 x 50
Operating frequency	1 kHz	1 kHz	1 kHz	1 kHz
Sensing distance (Sn)	20 mm	20 mm	20 mm	20 mm
<b>References</b>				
NPN-NO	ICB18S30N20NO	ICB18S30N20NOM1	ICB18L50N20NO	ICB18L50N20NOM1
PNP-NO	ICB18S30N20PO	ICB18S30N20POM1	ICB18L50N20PO	ICB18L50N20POM1
NPN-NC	ICB18S30N20NC	ICB18S30N20NCM1	ICB18L50N20NC	ICB18L50N20NCM1
PNP-NC	ICB18S30N20PC	ICB18S30N20PCM1	ICB18L50N20PC	ICB18L50N20PCM1

### Characteristics quasi-flush and non-flush mountable

Rated operating voltage	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC
Voltage drop	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	SPT	SPT	SPT	SPT
Output current	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C
Housing material	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2

## Inductive proximity sensors, 3-wire, DC

Types	M30 Standard - Short body		M30 Standard - Long body	
Connections	2 m cable	M12 connector	2 m cable	M12 connector
<b>Flush mountable</b>				

Dimensions (mm)	M30 x 43.6	M30 x 55	M30 x 63.6	M30 x 75
Thread (mm)	M30 x 1.5 x 30	M30 x 1.5 x 30	M30 x 1.5 x 50	M30 x 1.5 x 50
Operating frequency	1 kHz	1 kHz	1 kHz	1 kHz
Sensing distance (Sn)	10 mm	10 mm	10 mm	10 mm

### References

NPN-NO	ICB30S30F10NO	ICB30S30F10NOM1	ICB30L50F10NO	ICB30L50F10NOM1
PNP-NO	ICB30S30F10PO	ICB30S30F10POM1	ICB30L50F10PO	ICB30L50F10POM1
NPN-NC	ICB30S30F10NC	ICB30S30F10NCM1	ICB30L50F10NC	ICB30L50F10NCM1
PNP-NC	ICB30S30F10PC	ICB30S30F10PCM1	ICB30L50F10PC	ICB30L50F10PCM1

<b>Non-flush mountable</b>				
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Dimensions (mm)	M30 x 55.6	M30 x 67	M30 x 75.6	M30 x 87
Thread (mm)	M30 x 1.5 x 30	M30 x 1.5 x 30	M30 x 1.5 x 50	M30 x 1.5 x 50
Operating frequency	1 kHz	1 kHz	1 kHz	1 kHz
Sensing distance (Sn)	15 mm	15 mm	15 mm	15 mm





### References





NPN-NO	ICB30S30N15NO	ICB30S30N15NOM1	ICB30L50N15NO	ICB30L50N15NOM1
PNP-NO	ICB30S30N15PO	ICB30S30N15POM1	ICB30L50N15PO	ICB30L50N15POM1
NPN-NC	ICB30S30N15NC	ICB30S30N15NCM1	ICB30L50N15NC	ICB30L50N15NCM1
PNP-NC	ICB30S30N15PC	ICB30S30N15PCM1	ICB30L50N15PC	ICB30L50N15PCM1

### Characteristics flush and non-flush mountable

Rated operating voltage	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC
Voltage drop	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	SPT	SPT	SPT	SPT
Output current	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C
Housing material	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass
Operating temperature	-25°C to +70°C	-40°C to +70°C	-25°C to +70°C	-40°C to +70°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2

## Inductive proximity sensors, 3-wire, DC, extended range





Types	M30 Extended - Short body		M30 Extended - Long body	
Connections	2 m cable	M12 connector	2 m cable	M12 connector
<b>Flush mountable</b>				
Dimensions (mm)	M30 x 43.6	M30 x 55	M30 x 63.6	M30 x 75
Thread (mm)	M30 x 1.5 x 30	M30 x 1.5 x 30	M30 x 1.5 x 50	M30 x 1.5 x 50
Operating frequency	1 kHz	1 kHz	1 kHz	1 kHz
Sensing distance (Sn)	15 mm	15 mm	15 mm	15 mm
<b>References</b>				
NPN-NO	ICB30S30F15NO	ICB30S30F15NOM1	ICB30L50F15NO	ICB30L50F15NOM1
PNP-NO	ICB30S30F15PO	ICB30S30F15POM1	ICB30L50F15PO	ICB30L50F15POM1
NPN-NC	ICB30S30F15NC	ICB30S30F15NCM1	ICB30L50F15NC	ICB30L50F15NCM1
PNP-NC	ICB30S30F15PC	ICB30S30F15PCM1	ICB30L50F15PC	ICB30L50F15PCM1





<b>Non-flush mountable</b>				
Dimensions (mm)	M30 x 55.6	M30 x 67	M30 x 75.6	M30 x 87
Thread (mm)	M30 x 1.5 x 30	M30 x 1.5 x 30	M30 x 1.5 x 50	M30 x 1.5 x 50
Operating frequency	1 kHz	1 kHz	1 kHz	1 kHz
Sensing distance (Sn)	22 mm	22 mm	22 mm	22 mm
<b>References</b>				
NPN-NO	ICB30S30N22NO	ICB30S30N22NOM1	ICB30L50N22NO	ICB30L50N22NOM1
PNP-NO	ICB30S30N22PO	ICB30S30N22POM1	ICB30L50N22PO	ICB30L50N22POM1
NPN-NC	ICB30S30N22NC	ICB30S30N22NCM1	ICB30L50N22NC	ICB30L50N22NCM1
PNP-NC	ICB30S30N22PC	ICB30S30N22PCM1	ICB30L50N22PC	ICB30L50N22PCM1

### Characteristics flush and non-flush mountable

Rated operating voltage	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC
Voltage drop	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	SPT	SPT	SPT	SPT
Output current	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C
Housing material	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass
Operating temperature	-25°C to +70°C	-40°C to +70°C	-25°C to +70°C	-40°C to +70°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2





## Inductive proximity sensors, 3-wire, DC, increased range





Types	M30 Increased - Short body		M30 Increased - Long body	
Connections	2 m cable	M12 connector	2 m cable	M12 connector
<b>Quasi-flush mountable</b>				
Dimensions (mm)	M30 x 35	M30 x 60	M30 x 50	M30 x 75
Thread (mm)	M30 x 1.5 x 35	M30 x 1.5 x 35	M30 x 1.5 x 50	M30 x 1.5 x 50
Operating frequency	100 Hz	100 Hz	100 Hz	100 Hz
Sensing distance (Sn)	22 mm	22 mm	22 mm	22 mm
<b>References</b>				
NPN-NO	ICB30S35F22NO	ICB30S35F22NOM1	ICB30L50F22NO	ICB30L50F22NOM1
PNP-NO	ICB30S35F22PO	ICB30S35F22POM1	ICB30L50F22PO	ICB30L50F22POM1
NPN-NC	ICB30S35F22NC	ICB30S35F22NCM1	ICB30L50F22NC	ICB30L50F22NCM1
PNP-NC	ICB30S35F22PC	ICB30S35F22PCM1	ICB30L50F22PC	ICB30L50F22PCM1

<b>Non-flush mountable</b>				
Dimensions (mm)	M30 x 47	M30 x 72	M30 x 62	M30 x 87
Thread (mm)	M30 x 1.5 x 35	M30 x 1.5 x 35	M30 x 1.5 x 50	M30 x 1.5 x 50
Operating frequency	100 Hz	100 Hz	100 Hz	100 Hz
Sensing distance (Sn)	40 mm	40 mm	40 mm	40 mm
<b>References</b>				
NPN-NO	ICB30S35N40NO	ICB30S35N40NOM1	ICB30L50N40NO	ICB30L50N40NOM1
PNP-NO	ICB30S35N40PO	ICB30S35N40POM1	ICB30L50N40PO	ICB30L50N40POM1
NPN-NC	ICB30S35N40NC	ICB30S35N40NCM1	ICB30L50N40NC	ICB30L50N40NCM1
PNP-NC	ICB30S35N40PC	ICB30S35N40PCM1	ICB30L50N40PC	ICB30L50N40PCM1

<b>Characteristics quasi-flush and non-flush mountable</b>				
Rated operating voltage	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC
Voltage drop	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Output current	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C
Housing material	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2	CE - UL - Cl. I Div. 2

## Inductive proximity sensors, 3-wire, DC, washdown IP69K

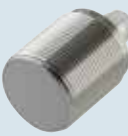
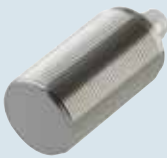
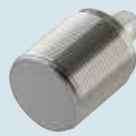
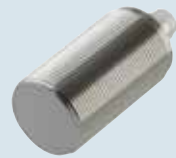
Types	M12 Standard - Long body	M12 Extended - Long body	M18 Standard - Long body	M18 Extended - Long body
Connections	M12 connector	M12 connector	M12 connector	M12 connector
<b>Flush mountable</b>				
Dimensions (mm)	M12 x 64.8	M12 x 64.8	M18 x 63	M18 x 63
Thread (mm)	M12 x 1 x 38.7	M12 x 1 x 38.7	M12 x 1 x 35	M12 x 1 x 35
Operating frequency	2 kHz	2 kHz	1.5 kHz	1.5 kHz
Sensing distance (Sn)	2 mm	4 mm	5 mm	8 mm
<b>References</b>				
NPN-NO	ICS12LF02NOM1-FB	ICS12LF04NOM1-FB	ICS18LF05NOM1-FB	ICS18LF08NOM1-FB
PNP-NO	ICS12LF02POM1-FB	ICS12LF04POM1-FB	ICS18LF05POM1-FB	ICS18LF08POM1-FB
NPN-NC	ICS12LF02NCM1-FB	ICS12LF04NCM1-FB	ICS18LF05NCM1-FB	ICS18LF08NCM1-FB
PNP-NC	ICS12LF02PCM1-FB	ICS12LF04PCM1-FB	ICS18LF05PCM1-FB	ICS18LF08PCM1-FB


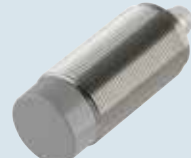

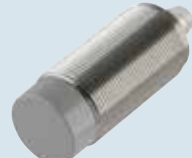
<b>Non-flush mountable</b>				
Dimensions (mm)	M12 x 64.8	M12 x 64.8	M18 x 63	M18 x 63
Thread (mm)	M12 x 1 x 32.5	M12 x 1 x 32.5	M12 x 1 x 27	M12 x 1 x 27
Operating frequency	2 kHz	2 kHz	1.5 kHz	1.5 kHz
Sensing distance (Sn)	4 mm	8 mm	8 mm	12 mm
<b>References</b>				
NPN-NO	ICS12LN04NOM1-FB	ICS12LN08NOM1-FB	ICS18LN08NOM1-FB	ICS18LN12NOM1-FB
PNP-NO	ICS12LN04POM1-FB	ICS12LN08POM1-FB	ICS18LN08POM1-FB	ICS18LN12POM1-FB
NPN-NC	ICS12LN04NCM1-FB	ICS12LN08NCM1-FB	ICS18LN08NCM1-FB	ICS18LN12NCM1-FB
PNP-NC	ICS12LN04PCM1-FB	ICS12LN08PCM1-FB	ICS18LN08PCM1-FB	ICS18LN12PCM1-FB

### Characteristics flush and non-flush mountable

Rated operating voltage	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC
Voltage drop	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA
Degree of protection	IP 67, IP68, IP69K	IP 67, IP68, IP69K	IP 67, IP68, IP69K	IP 67, IP68, IP69K
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Output current	≤ 200 mA @ 50°C ≤ 150 mA @ 50-80°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-80°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-80°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-80°C
Housing material	Stainless steel (AISI 316L)	Stainless steel (AISI 316L)	Stainless steel (AISI 316L)	Stainless steel (AISI 316L)
Front cap material	PPS grey - FDA certified	PPS grey - FDA certified	PPS grey - FDA certified	PPS grey - FDA certified
Operating temperature	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL - ECOLAB - Cl. I Div. 2	CE - UL - ECOLAB - Cl. I Div. 2	CE - UL - ECOLAB - Cl. I Div. 2	CE - UL - ECOLAB - Cl. I Div. 2

# Inductive proximity sensors, 3-wire, DC, washdown IP69K




Types	M30 Standard		M30 Extended	
	Short body	Long body	Short body	Long body
Connections	M12 connector	M12 connector	M12 connector	M12 connector
<b>Flush mountable</b>				
Dimensions (mm)	M30 x 47	M30 x 67.5	M30 x 47	M30 x 67.5
Thread (mm)	M30 x 1.5 x 30	M30 x 1.5 x 50	M30 x 1.5 x 30	M30 x 1.5 x 50
Operating frequency	1 kHz	1 kHz	1 kHz	1 kHz
Sensing distance (Sn)	10 mm	10 mm	15 mm	15 mm
<b>References</b>				
NPN-NO	ICS30SF10NOM1-FB	ICS30LF10NOM1-FB	ICS30SF15NOM1-FB	ICS30LF15NOM1-FB
PNP-NO	ICS30SF10POM1-FB	ICS30LF10POM1-FB	ICS30SF15POM1-FB	ICS30LF15POM1-FB
NPN-NC	ICS30SF10NCM1-FB	ICS30LF10NCM1-FB	ICS30SF15NCM1-FB	ICS30LF15NCM1-FB
PNP-NC	ICS30SF10PCM1-FB	ICS30LF10PCM1-FB	ICS30SF15PCM1-FB	ICS30LF15PCM1-FB

<b>Non-flush mountable</b>				
Dimensions (mm)	M30 x 59.5	M30 x 79.5	M30 x 59.5	M30 x 79.5
Thread (mm)	M30 x 1.5 x 30	M30 x 1.5 x 50	M30 x 1.5 x 30	M30 x 1.5 x 50
Operating frequency	1 kHz	1 kHz	1 kHz	1 kHz
Sensing distance (Sn)	15 mm	15 mm	22 mm	22 mm
<b>References</b>				
NPN-NO	ICS30SN15NOM1-FB	ICS30LN15NOM1-FB	ICS30SN22NOM1-FB	ICS30LN22NOM1-FB
PNP-NO	ICS30SN15POM1-FB	ICS30LN15POM1-FB	ICS30SN22POM1-FB	ICS30LN22POM1-FB
NPN-NC	ICS30SN15NCM1-FB	ICS30LN15NCM1-FB	ICS30SN22NCM1-FB	ICS30LN22NCM1-FB
PNP-NC	ICS30SN15PCM1-FB	ICS30LN15PCM1-FB	ICS30SN22PCM1-FB	ICS30LN22PCM1-FB

<b>Characteristics flush and non-flush mountable</b>				
Rated operating voltage	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC
Voltage drop	≤ 2 VDC @ 200 mA	≤ 2 VDC @ 200 mA	≤ 2 VDC @ 200 mA	≤ 2 VDC @ 200 mA
Degree of protection	IP67, IP68, IP69K	IP67, IP68, IP69K	IP67, IP68, IP69K	IP67, IP68, IP69K
Protection short-circuit (S) Reverse polarity (P) Transients (T)	SPT	SPT	SPT	SPT
Output current	≤ 200 mA @ 50°C ≤ 150 mA @ 50-80°C ≤ 100 mA @ 80-85°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-80°C ≤ 100 mA @ 80-85°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-80°C ≤ 100 mA @ 80-85°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-80°C ≤ 100 mA @ 80-85°C
Housing material	Stainless steel (AISI 316L)	Stainless steel (AISI 316L)	Stainless steel (AISI 316L)	Stainless steel (AISI 316L)
Front cap material	PPS grey - FDA certified	PPS grey - FDA certified	PPS grey - FDA certified	PPS grey - FDA certified
Operating temperature	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL - ECOLAB - Cl. I Div. 2	CE - UL - ECOLAB - Cl. I Div. 2	CE - UL - ECOLAB - Cl. I Div. 2	CE - UL - ECOLAB - Cl. I Div. 2



## Inductive proximity sensors, 3-wire, DC

Types	M5 Standard - Short body		M8 Standard - Short body	
Connections	2 m cable	M8 connector	2 m cable	M8 connector
<b>Flush mountable</b>				
Dimensions (mm)	M5 x 26.5	M5 x 40	M8 x 30	M8 x 45
Thread (mm)	M5 x 1 x 20.5	M5 x 1 x 21	M8 x 1 x 30	M8 x 1 x 25
Operating frequency	2 kHz	2 kHz	2 kHz	2 kHz
Sensing distance (Sn)	1 mm (0.8 mm for IA05BSF10NCP)	1 mm	1.5 mm	1.5 mm
<b>References</b>				
NPN-NO	IA05BSF10NOP	IA05BSF10NOM5P	IA08BSF15NO	IA08BSF15NOM5
PNP-NO	IA05BSF10POP	IA05BSF10POM5P	IA08BSF15PO	IA08BSF15POM5
NPN-NC	IA05BSF10NCP	IA05BSF10NCM5P	IA08BSF15NC	IA08BSF15NCM5
PNP-NC	IA05BSF10PCP	IA05BSF10PCM5P	IA08BSF15PC	IA08BSF15PCM5
<b>Non-flush mountable</b>				
Dimensions (mm)			M8 x 30	M8 x 45
Thread (mm)			M8 x 1 x 27	M8 x 1 x 22
Operating frequency			2 kHz	2 kHz
Sensing distance (Sn)			2.5 mm	2.5 mm
<b>References</b>				
NPN-NO			IA08BSN25NO	IA08BSN25NOM5
PNP-NO			IA08BSN25PO	IA08BSN25POM5
NPN-NC			IA08BSN25NC	IA08BSN25NCM5
PNP-NC			IA08BSN25PC	IA08BSN25PCM5
<b>Characteristics flush and non-flush mountable</b>				
Rated operating voltage	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
Voltage drop	< 1.0 VDC (@ I <sub>max</sub> )	< 1.0 VDC (@ I <sub>max</sub> )	≤ 2.5 VDC (@ I <sub>max</sub> )	≤ 2.5 VDC (@ I <sub>max</sub> )
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S)			SP	SP
Reverse polarity (P)			SP	SP
Transients (T)			SP	SP
Output current	≤ 200 mA	≤ 200 mA	≤ 200 mA @ 25°C	≤ 200 mA @ 25°C
Housing material	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE	CE	CE - UL - CSA	CE - UL - CSA

# Inductive proximity sensors, 3-wire, DC

Types	M8 Standard - Long body		
Connections	2 m cable	M8 connector	M12 connector
<b>Flush mountable</b>			

Dimensions (mm)	M8 x 45	M8 x 60	M12 x 70
Thread (mm)	M8 x 1 x 45	M8 x 1 x 40	M8 x 1 x 43
Operating frequency	2 kHz	2 kHz	2 kHz
Sensing distance (Sn)	1.5 mm	1.5 mm	1.5 mm

## References

NPN-NO	<b>IA08BLF15NO</b>	<b>IA08BLF15NOM5</b>	<b>IA08BLF15NOM1</b>
PNP-NO	<b>IA08BLF15PO</b>	<b>IA08BLF15POM5</b>	<b>IA08BLF15POM1</b>
NPN-NC	<b>IA08BLF15NC</b>		<b>IA08BLF15NCM1</b>
PNP-NC	<b>IA08BLF15PC</b>	<b>IA08BLF15PCM5</b>	<b>IA08BLF15PCM1</b>

## Non-flush mountable

Dimensions (mm)	M8 x 45	M8 x 60	M12 x 70
Thread (mm)	M8 x 1 x 42	M8 x 1 x 37	M8 x 1 x 40
Operating frequency	2 kHz	2 kHz	2 kHz
Sensing distance (Sn)	2.5 mm	2.5 mm	2.5 mm

## References

NPN-NO	<b>IA08BLN25NO</b>	<b>IA08BLN25NOM5</b>	<b>IA08BLN25NOM1</b>
PNP-NO	<b>IA08BLN25PO</b>	<b>IA08BLN25POM5</b>	<b>IA08BLN25POM1</b>
NPN-NC	<b>IA08BLN25NC</b>		<b>IA08BLN25NCM1</b>
PNP-NC	<b>IA08BLN25PC</b>	<b>IA08BLN25PCM5</b>	<b>IA08BLN25PCM1</b>

## Characteristics flush and non-flush mountable

Rated operating voltage	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
Voltage drop	≤ 2.5 VDC (@ I <sub>max</sub> )	≤ 2.5 VDC (@ I <sub>max</sub> )	≤ 2.5 VDC (@ I <sub>max</sub> )
Degree of protection	IP 67	IP 67	IP 67
Protection short-circuit (S)	S	S	S
Reverse polarity (P)			
Transients (T)			
Output current	< 200 mA @ 25°C	< 200 mA @ 25°C	< 200 mA @ 25°C
Housing material	Stainless steel	Stainless steel	Stainless steel
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
LED colour	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA

## Inductive proximity sensors, 3-wire, DC, extended range

### Types

### M8 Extended - Short body

#### Connections

#### 2 m cable

#### M8 connector

#### Flush mountable



Dimensions (mm)

M8 x 35

M8 x 50

Thread (mm)

M8 x 1 x 35

M8 x 1 x 30

Operating frequency

2 kHz

2 kHz

Sensing distance (Sn)

2 mm

2 mm

#### References

NPN-NO

IA08BSF20NO

IA08BSF20NOM5

PNP-NO

IA08BSF20PO

IA08BSF20POM5

NPN-NC

IA08BSF20NC

IA08BSF20NCM5

PNP-NC

IA08BSF20PC

IA08BSF20PCM5

#### Non-flush mountable



Dimensions (mm)

M8 x 35

M8 x 50

Thread (mm)

M8 x 1 x 32

M8 x 1 x 27

Operating frequency

1 kHz

1 kHz

Sensing distance (Sn)

4 mm

4 mm

#### References

NPN-NO

IA08BSN40NO

IA08BSN40NOM5

PNP-NO

IA08BSN40PO

IA08BSN40POM5

NPN-NC

IA08BSN40NC

IA08BSN40NCM5

PNP-NC

IA08BSN40PC

IA08BSN40PCM5

#### Characteristics flush and non-flush mountable

Rated operating voltage

10 - 30 VDC

10 - 30 VDC

Voltage drop

≤ 2.5 VDC @ 200 mA

≤ 2.5 VDC @ 200 mA

Degree of protection

IP 67

IP 67

Protection short-circuit (S)

Reverse polarity (P)

Transients (T)

SPT

SPT

Output current

< 200 mA @ 25°C

< 200 mA @ 25°C

Housing material

Stainless steel

Stainless steel

Operating temperature

-25°C to +70°C

-25°C to +70°C

LED colour

Yellow





Yellow





Approvals/Marks

CE - UL - CSA

CE - UL - CSA

# Inductive proximity sensors, 4-wire, DC

Types	M12 Standard - Short body		M12 Standard - Long body	
Connections	2 m cable	M12 connector	2 m cable	M12 connector
<b>Flush mountable</b>				
Dimensions (mm)	M12 x 47	M12 x 50	M12 x 67	M12 x 70
Thread (mm)	M12 x 1 x 30	M12 x 1 x 30	M12 x 1 x 50	M12 x 1 x 50
Operating frequency	2 kHz	2 kHz	2 kHz	2 kHz
Sensing distance (Sn)	2 mm	2 mm	2 mm	2 mm
<b>References</b>				
NPN-NO+NC	ICB12S30F02NA	ICB12S30F02NAM1	ICB12L50F02NA	ICB12L50F02NAM1
PNP-NO+NC	ICB12S30F02PA	ICB12S30F02PAM1	ICB12L50F02PA	ICB12L50F02PAM1

<b>Non-flush mountable</b>				
Dimensions (mm)	M12 x 51	M12 x 54	M12 x 71	M12 x 74
Thread (mm)	M12 x 1 x 30	M12 x 1 x 30	M12 x 1 x 50	M12 x 1 x 50
Operating frequency	2 kHz	2 kHz	2 kHz	2 kHz
Sensing distance (Sn)	4 mm	4 mm	4 mm	4 mm
<b>References</b>				
NPN-NO+NC	ICB12S30N04NA	ICB12S30N04NAM1	ICB12L50N04NA	ICB12L50N04NAM1
PNP-NO+NC	ICB12S30N04PA	ICB12S30N04PAM1	ICB12L50N04PA	ICB12L50N04PAM1

<b>Characteristics flush and non-flush mountable</b>				
Rated operating voltage	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC
Voltage drop	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Output current	< 200 mA @ 50°C ≤ 150 mA @ 50-70°C	< 200 mA @ 50°C ≤ 150 mA @ 50-70°C	< 200 mA @ 50°C ≤ 150 mA @ 50-70°C	< 200 mA @ 50°C ≤ 150 mA @ 50-70°C
Housing material	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL	CE - UL	CE - UL	CE - UL

# Inductive proximity sensors, 4-wire, DC, extended range

Types	M12 Extended - Short body		M12 Extended - Long body	
Connections	2 m cable	M12 connector	2 m cable	M12 connector

## Flush mountable



Dimensions (mm)	M12 x 47	M12 x 50	M12 x 67	M12 x 70
Thread (mm)	M12 x 1 x 30	M12 x 1 x 30	M12 x 1 x 50	M12 x 1 x 50
Operating frequency	2 kHz	2 kHz	2 kHz	2 kHz
Sensing distance (Sn)	4 mm	4 mm	4 mm	4 mm

## References

NPN-NO+NC	ICB12S30F04NA	ICB12S30F04NAM1	ICB12L50F04NA	ICB12L50F04NAM1
PNP-NO+NC	ICB12S30F04PA	ICB12S30F04PAM1	ICB12L50F04PA	ICB12L50F04PAM1

## Non-flush mountable



Dimensions (mm)	M12 x 51	M12 x 54	M12 x 71	M12 x 74
Thread (mm)	M12 x 1 x 30	M12 x 1 x 30	M12 x 1 x 50	M12 x 1 x 50
Operating frequency	2 kHz	2 kHz	2 kHz	2 kHz
Sensing distance (Sn)	8 mm	8 mm	8 mm	8 mm

## References

NPN-NO+NC	ICB12S30N08NA	ICB12S30N08NAM1	ICB12L50N08NA	ICB12L50N08NAM1
PNP-NO+NC	ICB12S30N08PA	ICB12S30N08PAM1	ICB12L50N08PA	ICB12L50N08PAM1

## Characteristics flush and non-flush mountable

Rated operating voltage	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC
Voltage drop	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Output current	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C
Housing material	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL	CE - UL	CE - UL	CE - UL

# Inductive proximity sensors, 4-wire, DC

Types	M18 Standard - Short body		M18 Standard - Long body	
Connections	2 m cable	M12 connector	2 m cable	M12 connector



Dimensions (mm)	M18 x 53	M18 x 54	M18 x 73	M18 x 74
Thread (mm)	M18 x 1 x 30	M18 x 1 x 30	M18 x 1 x 50	M18 x 1 x 50
Operating frequency	1.5 kHz	1.5 kHz	1.5 kHz	1.5 kHz
Sensing distance (Sn)	5 mm	5 mm	5 mm	5 mm

**References**

NPN-NO+NC	ICB18S30F05NA	ICB18S30F05NAM1	ICB18L50F05NA	ICB18L50F05NAM1
PNP-NO+NC	ICB18S30F05PA	ICB18S30F05PAM1	ICB18L50F05PA	ICB18L50F05PAM1



Dimensions (mm)	M18 x 63	M18 x 64	M18 x 83	M18 x 84
Thread (mm)	M18 x 1 x 30	M18 x 1 x 30	M18 x 1 x 50	M18 x 1 x 50
Operating frequency	1.5 kHz	1.5 kHz	1.5 kHz	1.5 kHz
Sensing distance (Sn)	8 mm	8 mm	8 mm	8 mm





**References**





NPN-NO+NC	ICB18S30N08NA	ICB18S30N08NAM1	ICB18L50N08NA	ICB18L50N08NAM1
PNP-NO+NC	ICB18S30N08PA	ICB18S30N08PAM1	ICB18L50N08PA	ICB18L50N08PAM1

**Characteristics flush and non-flush mountable**

Rated operating voltage	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC
Voltage drop	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Output current	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C
Housing material	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL	CE - UL	CE - UL	CE - UL

## Inductive proximity sensors, 4-wire, DC, extended range

Types	M18 Extended - Short body		M18 Extended - Long body	
Connections	2 m cable	M12 connector	2 m cable	M12 connector
<b>Quasi-flush mountable</b>				
Dimensions (mm)	M18 x 53	M18 x 54	M18 x 73	M18 x 74
Thread (mm)	M18 x 1 x 30	M18 x 1 x 30	M18 x 1 x 50	M18 x 1 x 50
Operating frequency	1.5 kHz	1.5 kHz	1.5 kHz	1.5 kHz
Sensing distance (Sn)	8 mm	8 mm	8 mm	8 mm
<b>References</b>				
NPN-NO+NC	ICB18S30F08NA	ICB18S30F08NAM1	ICB18L50F08NA	ICB18L50F08NAM1
PNP-NO+NC	ICB18S30F08PA	ICB18S30F08PAM1	ICB18L50F08PA	ICB18L50F08PAM1





<b>Non-flush mountable</b>				
Dimensions (mm)	M18 x 63	M18 x 64	M18 x 83	M18 x 84
Thread (mm)	M18 x 1 x 30	M18 x 1 x 30	M18 x 1 x 50	M18 x 1 x 50
Operating frequency	1.5 kHz	1.5 kHz	1.5 kHz	1.5 kHz
Sensing distance (Sn)	14 mm	14 mm	14 mm	14 mm
<b>References</b>				
NPN-NO+NC	ICB18S30N14NA	ICB18S30N14NAM1	ICB18L50N14NA	ICB18L50N14NAM1
PNP-NO+NC	ICB18S30N14PA	ICB18S30N14PAM1	ICB18L50N14PA	ICB18L50N14PAM1





### Characteristics quasi-flush and non-flush mountable

Rated operating voltage	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC
Voltage drop	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Output current	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C
Housing material	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL	CE - UL	CE - UL	CE - UL







# Inductive proximity sensors, 4-wire, DC





Types	M30 Standard - Short body		M30 Standard - Long body	
Connections	2 m cable	M12 connector	2 m cable	M12 connector
<b>Flush mountable</b>				
Dimensions (mm)	M30 x 43.6	M30 x 55	M30 x 63.6	M30 x 75
Thread (mm)	M30 x 1.5 x 30	M30 x 1.5 x 30	M30 x 1.5 x 50	M30 x 1.5 x 50
Operating frequency	1 kHz	1 kHz	1 kHz	1 kHz
Sensing distance (Sn)	10 mm	10 mm	10 mm	10 mm
<b>References</b>				
NPN-NO+NC	ICB30S30F10NA	ICB30S30F10NAM1	ICB30L50F10NA	ICB30L50F10NAM1
PNP-NO+NC	ICB30S30F10PA	ICB30S30F10PAM1	ICB30L50F10PA	ICB30L50F10PAM1

<b>Non-flush mountable</b>				
Dimensions (mm)	M30 x 55.6	M30 x 67	M30 x 75.6	M30 x 87
Thread (mm)	M30 x 1.5 x 30	M30 x 1.5 x 30	M30 x 1.5 x 50	M30 x 1.5 x 50
Operating frequency	1 kHz	1 kHz	1 kHz	1 kHz
Sensing distance (Sn)	15 mm	15 mm	15 mm	15 mm
<b>References</b>				
NPN-NO+NC	ICB30S30N15NA	ICB30S30N15NAM1	ICB30L50N15NA	ICB30L50N15NAM1
PNP-NO+NC	ICB30S30N15PA	ICB30S30N15PAM1	ICB30L50N15PA	ICB30L50N15PAM1

<b>Characteristics flush and non-flush mountable</b>				
Rated operating voltage	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC
Voltage drop	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Output current	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C
Housing material	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass
Operating temperature	-25°C to +70°C	-40°C to +70°C	-25°C to +70°C	-40°C to +70°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL	CE - UL	CE - UL	CE - UL

## Inductive proximity sensors, 4-wire, DC, extended range





Types	M30 Extended - Short body		M30 Extended - Long body	
Connections	2 m cable	M12 connector	2 m cable	M12 connector
<b>Flush mountable</b>				
Dimensions (mm)	M30 x 43.6	M30 x 55	M30 x 63.6	M30 x 75
Thread (mm)	M30 x 1.5 x 30	M30 x 1.5 x 30	M30 x 1.5 x 50	M30 x 1.5 x 50
Operating frequency	1 kHz	1 kHz	1 kHz	1 kHz
Sensing distance (Sn)	15 mm	15 mm	15 mm	15 mm
<b>References</b>				
NPN-NO+NC	ICB30S30F15NA	ICB30S30F15NAM1	ICB30L50F15NA	ICB30L50F15NAM1
PNP-NO+NC	ICB30S30F15PA	ICB30S30F15PAM1	ICB30L50F15PA	ICB30L50F15PAM1





<b>Non-flush mountable</b>				
Dimensions (mm)	M30 x 55.6	M30 x 67	M30 x 75.6	M30 x 87
Thread (mm)	M30 x 1.5 x 30	M30 x 1.5 x 30	M30 x 1.5 x 50	M30 x 1.5 x 50
Operating frequency	1 kHz	1 kHz	1 kHz	1 kHz
Sensing distance (Sn)	22 mm	22 mm	22 mm	22 mm
<b>References</b>				
NPN-NO+NC	ICB30S30N22NA	ICB30S30N22NAM1	ICB30L50N22NA	ICB30L50N22NAM1
PNP-NO+NC	ICB30S30N22PA	ICB30S30N22PAM1	ICB30L50N22PA	ICB30L50N22PAM1

### Characteristics flush and non-flush mountable









Rated operating voltage	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC	10 - 36 VDC
Voltage drop	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA	≤ 2.5 VDC @ 200 mA
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Output current	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C	≤ 200 mA @ 50°C ≤ 150 mA @ 50-70°C
Housing material	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass
Operating temperature	-25°C to +70°C	-40°C to +70°C	-25°C to +70°C	-40°C to +70°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL	CE - UL	CE - UL	CE - UL

## Inductive proximity sensors, high temperature

Types	M5	M8	M12	
Connections	2 m cable	2 m cable	2 m cable or M12 connector	
Flush or non-flush mountable				
Dimensions (mm)	M5 x 30	M8 x 45	M12 x 40	M12 x 40
Thread (mm)	M5 x 0.5 x 25	M8 x 1 x 40	M12 x 1 x 40	M12 x 1 x 34
Sensing distance (Sn)	0.8 mm	1 mm	2 mm	4 mm
Output	≤ 5 mA	≤ 5 mA	≤ 20 mA	≤ 20 mA
<b>References</b>				
NPN-NO Cable	IA05BSF08NOHT-K	IA08BSF10NOHT-K		
PNP-NO Cable	IA05BSF08POHT-K	IA08BSF10POHT-K	IA12ASF02POHT-K	IA12ASN04POHT-K
PNP-NO Plug			IA12ASF02POM1HT-K	IA12ASN04POM1HT-K
<b>Specifications</b>				
Rated operating voltage	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	SP	SP	S	S
Housing material	Stainless steel	Stainless steel	Nickel-plated brass	Nickel-plated brass
Operating temperature	-25°C to +120°C	-25°C to +120°C	-40°C to +100°C	-40°C to +100°C
Approvals/Marks	CE	CE	CE	CE

Types	M18		M30	
Connections	2 m cable or M12 connector		2 m cable or M12 connector	
Flush or non-flush mountable				
Dimensions (mm)	M18 x 40	M18 x 40	M30 x 40	M30 x 40
Thread (mm)	M18 x 1 x 40	M18 x 1 x 32	M30 x 1.5 x 40	M30 x 1.5 x 28
Sensing distance (Sn)	5 mm	8 mm	10 mm	15 mm
Output	≤ 25 mA	≤ 25 mA	≤ 25 mA	≤ 25 mA
<b>References</b>				
PNP-NO Cable	IA18ASF05POHT-K	IA18ASN08POHT-K	IA30ASF10POHT-K	IA30ASN15POHT-K
PNP-NO Plug	IA18ASF05POM1HT-K	IA18ASN08POM1HT-K	IA30ASF10POM1HT-K	IA30ASN15POM1HT-K
<b>Characteristics flush and non-flush mountable</b>				
Rated operating voltage	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	S	S	S	S
Housing material	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass
Operating temperature	-40°C to +100°C	-40°C to +100°C	-40°C to +100°C	-40°C to +100°C
Approvals/Marks	CE	CE	CE	CE

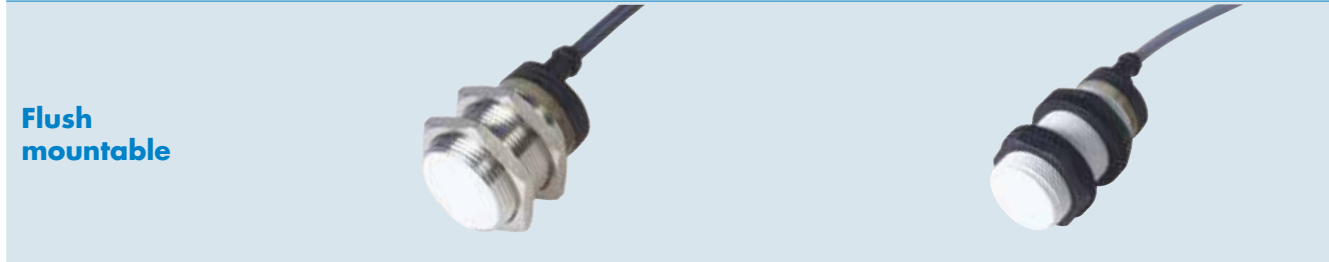
# Inductive proximity sensors, NAMUR, DC

Types	M12		M18	
Housing	Steel	Plastic	Steel	Plastic
<b>Flush mountable</b>				
Dimensions short body (mm)	Cable: M12 x 41 Plug (M12): M12 x 54.5	Cable: M12 x 41 Plug (M12): M12 x 54.5	Cable: M18 x 41.6 Plug (M12): M18 x 55	Cable: M18 x 41.6 Plug (M12): M18 x 55
Dimensions long body (mm)	Cable: M12 x 61 Plug (M12): M12 x 74.5	Cable: M12 x 61 Plug (M12): M12 x 74.5	Cable: M18 x 61.6 Plug (M12): M18 x 75	Cable: M18 x 61.6 Plug (M12): M18 x 75
Thread (mm)	Short: M12 x 1 x 30 Long: M12 x 1 x 50	Short: M12 x 1 x 30 Long: M12 x 1 x 50	Short: M18 x 1 x 30 Long: M18 x 1 x 50	Short: M18 x 1 x 30 Long: M18 x 1 x 50
Operating frequency	1.4 kHz	1.4 kHz	500 Hz	500 Hz
Sensing distance (Sn)	2 mm	2 mm	5 mm	5 mm
<b>References</b>				
Short body cable	<b>IA12ESF02UC</b>	<b>IA12CSF02UC</b>	<b>IA18ESF05UC</b>	<b>IA18CSF05UC</b>
Long body cable	<b>IA12ELF02UC</b>	<b>IA12CLF02UC</b>	<b>IA18ELF05UC</b>	<b>IA18CLF05UC</b>
Short body plug	<b>IA12ESF02UCM1</b>	<b>IA12CSF02UCM1</b>	<b>IA18ESF05UCM1</b>	<b>IA18CSF05UCM1</b>
Long body plug	<b>IA12ELF02UCM1</b>	<b>IA12CLF02UCM1</b>	<b>IA18ELF05UCM1</b>	<b>IA18CLF05UCM1</b>
<b>Non-flush mountable</b>				
Dimensions short body (mm)	Cable: M12 x 45 Plug (M12): M12 x 58.5	Cable: M12 x 45 Plug (M12): M12 x 58.5	Cable: M18 x 49.6 Plug (M12): M18 x 63	Cable: M18 x 49.6 Plug (M12): M18 x 63
Dimensions long body (mm)	Cable: M12 x 65 Plug (M12): M12 x 78.5	Cable: M12 x 65 Plug (M12): M12 x 78.5	Cable: M18 x 69.6 Plug (M12): M18 x 83	Cable: M18 x 69.6 Plug (M12): M18 x 83
Thread (mm)	Short: M12 x 1 x 30 Long: M12 x 1 x 50	Short: M12 x 1 x 30 Long: M12 x 1 x 50	Short: M18 x 1 x 30 Long: M18 x 1 x 50	Short: M18 x 1 x 30 Long: M18 x 1 x 50
Operating frequency	1.2 kHz	1.2 kHz	200 Hz	200 Hz
Sensing distance (Sn)	4 mm	4 mm	8 mm	8 mm
<b>References</b>				
Short body cable	<b>IA12ESN04UC</b>	<b>IA12CSN04UC</b>	<b>IA18ESN08UC</b>	<b>IA18CSN08UC</b>
Long body cable	<b>IA12ELN04UC</b>	<b>IA12CLN04UC</b>	<b>IA18ELN08UC</b>	<b>IA18CLN08UC</b>
Short body plug	<b>IA12ESN04UCM1</b>	<b>IA12CSN04UCM1</b>	<b>IA18ESN08UCM1</b>	<b>IA18CSN08UCM1</b>
Long body plug	<b>IA12ELN04UCM1</b>	<b>IA12CLN04UCM1</b>	<b>IA18ELN08UCM1</b>	<b>IA18CLN08UCM1</b>
<b>Characteristics flush and non-flush mountable</b>				
Rated operating voltage	7 - 9 VDC	7 - 9 VDC	7 - 9 VDC	7 - 9 VDC
Degree of protection	IP 67	IP 67	IP 67	IP 67
Housing material	Stainless steel	Thermoplastic polyester	Stainless steel	Thermoplastic polyester
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA

# Inductive proximity sensors, NAMUR, DC

**Types** **M30**

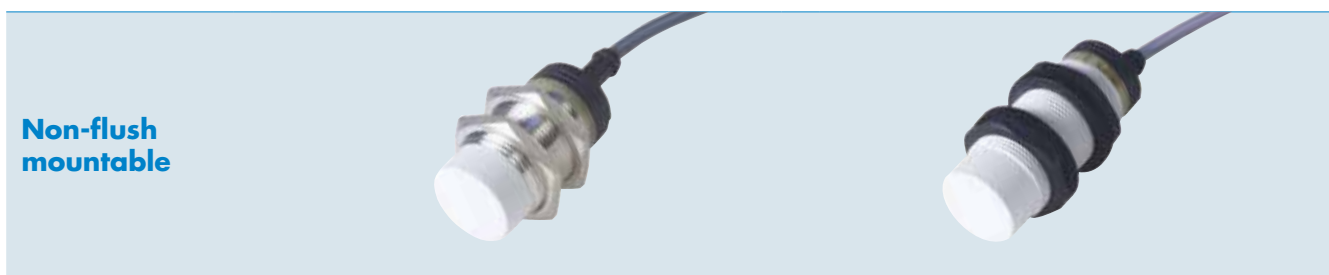
**Housing** **Steel** **Plastic**



Dimensions short body (mm)	Cable: M30 x 43.6 Plug (M12): M30 x 55.5	Cable: M30 x 43.6 Plug (M12): M30 x 55.5
Dimensions long body (mm)	Cable: M30 x 63.6 Plug (M12): M30 x 75.5	Cable: M30 x 63.6 Plug (M12): M30 x 75.5
Thread (mm)	Short: M30 x 1.5 x 30 Long: M30 x 1.5 x 50	Short: M30 x 1.5 x 30 Long: M30 x 1.5 x 50
Operating frequency	300 Hz	300 Hz
Sensing distance (Sn)	10 mm	10 mm

**References**

Short body cable	<b>IA30ESF10UC</b>	<b>IA30CSF10UC</b>
Long body cable	<b>IA30ELF10UC</b>	<b>IA30CLF10UC</b>
Short body plug	<b>IA30ESF10UCM1</b>	<b>IA30CSF10UCM1</b>
Long body plug	<b>IA30ELF10UCM1</b>	<b>IA30CLF10UCM1</b>



Dimensions short body (mm)	Cable: M30 x 55.6 Plug (M12): M30 x 67.5	Cable: M30 x 55.6 Plug (M12): M30 x 67.5
Dimensions long body (mm)	Cable: M30 x 75.6 Plug (M12): M30 x 87.5	Cable: M30 x 75.6 Plug (M12): M30 x 87.5
Thread (mm)	Short: M30 x 1.5 x 30 Long: M30 x 1.5 x 50	Short: M30 x 1.5 x 30 Long: M30 x 1.5 x 50
Operating frequency	100 Hz	100 Hz
Sensing distance (Sn)	15 mm	15 mm




**References**




Short body cable	<b>IA30ESN15UC</b>	<b>IA30CSN15UC</b>
Long body cable	<b>IA30ELN15UC</b>	<b>IA30CLN15UC</b>
Short body plug	<b>IA30ESN15UCM1</b>	<b>IA30CSN15UCM1</b>
Long body plug	<b>IA30ELN15UCM1</b>	<b>IA30CLN15UCM1</b>

**Characteristics flush and non-flush mountable**

Rated operating voltage	7 - 9 VDC	7 - 9 VDC
Degree of protection	IP 67	IP 67
Housing material	Stainless steel	Thermoplastic polyester
Operating temperature	-25°C to +70°C	-25°C to +70°C
LED colour	Yellow	Yellow
Approvals/Marks	CE - UL - CSA	CE - UL - CSA

## Inductive proximity sensors, 2-wire, DC, extended range





Types	M8 Extended Short body	M12 Extended - Short body	
Connections	2 m cable	2 m cable	M12 connector
<b>Flush mountable</b>			
Dimensions (mm)	M8 x 30	M12 x 49	M12 x 63
Thread (mm)	M8 x 1 x 30	M12 x 1 x 38	M12 x 1 x 38
Operating frequency	2 kHz	1 kHz	1 kHz
Sensing distance (Sn)	2 mm	4 mm	4 mm
<b>References</b>			
NO	IA08BSF02DO	IA12DSF04DO	IA12ASF04DOM1
NC	IA08BSF02DC	IA12DSF04DC	IA12ASF04DCM1





<b>Non-flush mountable</b>			
Dimensions (mm)	M8 x 30	M12 x 53	M12 x 67
Thread (mm)	M8 x 1 x 26	M12 x 1 x 38	M12 x 1 x 38
Operating frequency	2 kHz	800 Hz	800 Hz
Sensing distance (Sn)	4 mm	8 mm	8 mm
<b>References</b>			
NO	IA08BSN04DO	IA12DSN08DO	IA12ASN08DOM1
NC	IA08BSN04DC	IA12DSN08DC	IA12ASN08DCM1

### Characteristics flush and non-flush mountable

Rated operating voltage	10 - 30 VDC	10 - 40 VDC	10 - 40 VDC
Voltage drop	≤ 8 VDC @ max. load	≤ 3 VDC @ max. load	≤ 3 VDC @ max. load
Degree of protection	IP 67	IP 67	IP 67
Protection short-circuit (S)			
Reverse polarity (P)	SPT	SPT	SPT
Transients (T)			
Output current	3 - 100 mA	5 - 100 mA	5 - 100 mA
Housing material	Stainless steel	Nickel-plated brass	Nickel-plated brass
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
LED colour	Yellow	Yellow	Yellow
Approvals/Marks	CE - CSA	CE - UL - CSA	CE - UL - CSA

# Inductive proximity sensors, 2-wire, DC, extended range

Types	M18 Extended - Short body		M30 Extended - Short body	
Connections	2 m cable	M12 connector	2 m cable	M12 connector
<b>Flush mountable</b>				
Dimensions (mm)	M18 x 42	M18 x 55	M30 x 44	M30 x 55
Thread (mm)	M18 x 1 x 30	M18 x 1 x 30	M30 x 1.5 x 30	M30 x 1.5 x 30
Operating frequency	500 Hz	500 Hz	400 Hz	400 Hz
Sensing distance (Sn)	8 mm	8 mm	15 mm	15 mm
<b>References</b>				
NO	IA18DSF08DO	IA18ASF08DOM1	IA30DSF15DO	IA30ASF15DOM1
NC	IA18DSF08DC	IA18ASF08DCM1	IA30DSF15DC	IA30ASF15DCM1

<b>Non-flush mountable</b>				
Dimensions (mm)	M18 x 50	M18 x 63	M30 x 56	M30 x 67
Thread (mm)	M18 x 1 x 30	M18 x 1 x 30	M30 x 1.5 x 30	M30 x 1.5 x 30
Operating frequency	400 Hz	400 Hz	200 Hz	200 Hz
Sensing distance (Sn)	14 mm	14 mm	22 mm	22 mm
<b>References</b>				
NO	IA18DSN14DO	IA18ASN14DOM1	IA30DSN22DO	IA30ASN22DOM1
NC	IA18DSN14DC	IA18ASN14DCM1	IA30DSN22DC	IA30ASN22DCM1

<b>Characteristics flush and non-flush mountable</b>				
Rated operating voltage	10 - 40 VDC	10 - 40 VDC	10 - 40 VDC	10 - 40 VDC
Voltage drop	≤ 3 VDC @ max. load	≤ 3 VDC @ max. load	≤ 3 VDC @ max. load	≤ 3 VDC @ max. load
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S)				
Reverse polarity (P)	SPT	SPT	SPT	SPT
Transients (T)				
Output current	5 - 100 mA	5 - 100 mA	5 - 100 mA	5 - 100 mA
Housing material	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA



# Inductive proximity sensors, 2-wire, AC

## Types

### M12 Standard - Long body

#### Connections

#### 2 m cable

#### M12 connector

#### Flush mountable



Dimensions (mm)

M12 x 66

M12 x 74.5

Thread (mm)

M12 x 1 x 50

M12 x 1 x 50

Operating frequency

25 Hz

25 Hz

Sensing distance (Sn)

2 mm

2 mm

#### References

SCR-NO

EI1202TBOSL

EI1202TBOSL-6

SCR-NC

EI1202TBCSL

#### Non-flush mountable



Dimensions (mm)

M12 x 70

M12 x 78.5

Thread (mm)

M12 x 1 x 50

M12 x 1 x 50

Operating frequency

25 Hz

25 Hz

Sensing distance (Sn)

4 mm

4 mm

#### References

SCR-NO

EI1204TBOSL

EI1204TBOSL-6

SCR-NC

EI1204TBCSL

#### Characteristics flush and non-flush mountable

Rated operating voltage

20 - 265 VAC

20 - 265 VAC

Voltage drop

≤ 8 VAC

≤ 8 VAC

Degree of protection

IP 67

IP 67

Protection short-circuit (S)

T

T

Reverse polarity (P)

Transients (T)

Output current

< 500 mA

< 500 mA

Housing material

Stainless steel

Stainless steel

Operating temperature

-25°C to +70°C

-25°C to +70°C

LED colour

Yellow





Yellow





Approvals/Marks

CE - UL - CSA

CE - UL - CSA

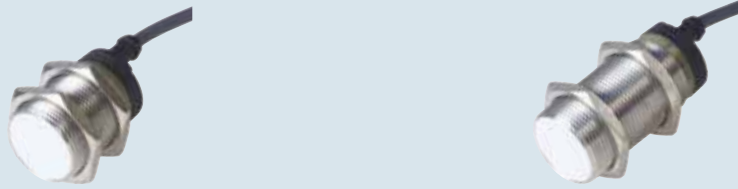



# Inductive proximity sensors, 2-wire, AC

Types	M18 Standard - Short body		M18 Standard - Long body	
Connections	2 m cable	M12 connector	2 m cable	M12 connector
<b>Flush mountable</b>				
Dimensions (mm)	M18 x 57	M18 x 55	M18 x 77	M18 x 75
Thread (mm)	M18 x 1 x 30	M18 x 1 x 30	M18 x 1 x 50	M18 x 1 x 50
Operating frequency	25 Hz	25 Hz	25 Hz	25 Hz
Sensing distance (Sn)	5 mm	5 mm	5 mm	5 mm
<b>References</b>				
SCR-NO	EI1805TBOSS	EI1805TBOSS-6	EI1805TBOSL	EI1805TBOSL-6
SCR-NC	EI1805TBCSS		EI1805TBCSL	

<b>Non-flush mountable</b>				
Dimensions (mm)	M18 x 65	M18 x 63	M18 x 85	M18 x 83
Thread (mm)	M18 x 1 x 30	M18 x 1 x 30	M18 x 1 x 50	M18 x 1 x 50
Operating frequency	25 Hz	25 Hz	25 Hz	25 Hz
Sensing distance (Sn)	8 mm	8 mm	8 mm	8 mm
<b>References</b>				
SCR-NO	EI1808TBOSS	EI1808TBOSS-6	EI1808TBOSL	EI1808TBOSL-6
SCR-NC	EI1808TBCSS		EI1808TBCSL	EI1808TBCSL-6

<b>Characteristics flush and non-flush mountable</b>				
Rated operating voltage	20 - 265 VAC	20 - 265 VAC	20 - 265 VAC	20 - 265 VAC
Voltage drop	≤ 8 VAC	≤ 8 VAC	≤ 8 VAC	≤ 8 VAC
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S)				
Reverse polarity (P)	T	T	T	T
Transients (T)				
Output current	< 500 mA	< 500 mA	< 500 mA	< 500 mA
Housing material	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA

## Inductive proximity sensors, 2-wire, AC

Types	M30 Standard - Short body		M30 Standard - Long body	
Connections	2 m cable	M12 connector	2 m cable	M12 connector
<b>Flush mountable</b>				
Dimensions (mm)	M30 x 59		M30 x 79	M30 x 75.5
Thread (mm)	M30 x 1.5 x 30		M30 x 1.5 x 50	M30 x 1.5 x 50
Operating frequency	25 Hz		25 Hz	25 Hz
Sensing distance (Sn)	10 mm		10 mm	10 mm
<b>References</b>				
SCR-NO	EI3010TBOSS		EI3010TBOSL	EI3010TBOSL-6
SCR-NC	EI3010TBCSS		EI3010TBCSL	
<b>Non-flush mountable</b>				
Dimensions (mm)	M30 x 87.5	M30 x 67.5	M30 x 91	M30 x 71
Thread (mm)	M30 x 1.5 x 30	M30 x 1.5 x 30	M30 x 1.5 x 50	M30 x 1.5 x 50
Operating frequency	25 Hz	25 Hz	25 Hz	25 Hz
Sensing distance (Sn)	15 mm	15 mm	15 mm	15 mm
<b>References</b>				
SCR-NO	EI3015TBOSS	EI3015TBOSS-6	EI3015TBOSL	EI3015TBOSL-6
SCR-NC	EI3015TBCSS		EI3015TBCSL	
<b>Characteristics flush and non-flush mountable</b>				
Rated operating voltage	20 - 265 VAC	20 - 265 VAC	20 - 265 VAC	20 - 265 VAC
Voltage drop	≤ 8 VAC	≤ 8 VAC	≤ 8 VAC	≤ 8 VAC
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S)				
Reverse polarity (P)	T	T	T	T
Transients (T)				
Output current	< 500 mA	< 500 mA	< 500 mA	< 500 mA
Housing material	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA

# Inductive proximity sensors, 2-wire, AC

Types	M18 Standard Short body	M18 Standard - Long body		M30 Standard Long body
Connections	2 m cable	2 m cable	M12 connector	2 m cable



Dimensions (mm)	M18 x 57	M18 x 77		M30 x 79
Thread (mm)	M18 x 1 x 30	M18 x 1 x 50		M30 x 1.5 x 50
Operating frequency	25 Hz	25 Hz		25 Hz
Sensing distance (Sn)	5 mm	5 mm		10 mm

References				
SCR-NO	EI1805TBOPS	EI1805TBOPL		EI3010TBOPL



Dimensions (mm)		M18 x 85	M18 x 83	M30 x 91
Thread (mm)		M18 x 1 x 50	M18 x 1 x 50	M30 x 1.5 x 50
Operating frequency		25 Hz	25 Hz	25 Hz
Sensing distance (Sn)		8 mm	8 mm	15 mm

References				
SCR-NO		EI1808TBOPL		EI3015TBOPL
SCR-NC		EI1808TBCPL	EI1808TBCPL-6	

## Characteristics flush and non-flush mountable

Rated operating voltage	20 - 265 VAC	20 - 265 VAC	20 - 265 VAC	20 - 265 VAC
Voltage drop	≤ 8 VAC	≤ 8 VAC	≤ 8 VAC	≤ 8 VAC
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S)				
Reverse polarity (P)	T	T	T	T
Transients (T)				
Output current	< 500 mA	< 500 mA	< 500 mA	< 500 mA
Housing material	Thermoplastic polyester	Thermoplastic polyester	Thermoplastic polyester	Thermoplastic polyester
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
LED colour	Yellow	Yellow	Yellow	Yellow
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA

# Inductive proximity sensors, micro switch 2-wire DC

**Types** Micro switch

**Connections** 2 m cable



Dimensions body (mm) 30 x 19 x 15

Thread (mm) Ø 12 x 16

Sensing distance (Sn) 1 kHz

Output 4 mm

## References

NO IG12FSF04DO

NC IG12FSF04DC

## Specifications

Rated operating voltage 10 to 40 VDC

Voltage drop ≤ 3 VDC at max. load

Degree of protection IP67

Protection short-circuit (S)  
Reverse polarity (P)  
Transients (T) SPT

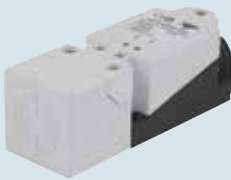

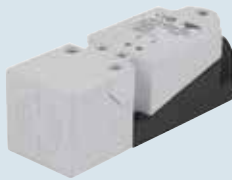
Output current ≤ 5 - 100 mA

Housing material Anodized aluminium



Operating temperature -25°C to +70°C

Approvals/Marks CE

# Inductive proximity sensors, switch, polyester housing


Types	Transistor NPN/PNP		Power MOSFET output AC/DC
Connections	Terminals		Terminals
<b>Non-flush mountable</b>			
Dimensions (mm)	40 x 40 x 118	40 x 40 x 118	40 x 40 x 118
Operating frequency	≤ 100 Hz	≤ 25 Hz AC; 40 Hz DC	≤ 25 Hz
Sensing distance (Sn)	30 mm	30 mm	30 mm
<b>References</b>			
NPN - NO / NC	IC40CNN30NAT1		
PNP - NO / NC	IC40CNN30PAT1		
AC / DC - NO		IC40CNN30COT1	
AC / DC - NC		IC40CNN30CCT1	
AC - NO / NC			IC40CNN30TAT1
<b>Specifications</b>			
Rated operating voltage	10 - 30 VDC	20 - 250 VAC/DC	20 - 250 VAC
Degree of protection	IP 67	IP 67	IP 67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	SP	S	
Output current	≤ 200 mA	5 - 200 mA @ 25°C	5 - 200 mA @ 25°C
Housing material	Thermoplastic polyester	Thermoplastic polyester	Thermoplastic polyester
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
LED colour	Red, Green	Red, Green	Red, Green
Approvals/Marks	CE	CE	CE

## Inductive proximity sensors, loop detector


Types	Single loop	Dual loop
Connections	Plug 11 pin circular	Plug 11 pin circular
		
Dimensions HxWxD (mm)	80 x 35.5 x 63	80 x 35.5 x 63
Adjustment	Auto	Auto
Manual fine-tune	Yes	Yes
Loop inductance	15-1500 $\mu$ H	15-1500 $\mu$ H
Input	1 Loop	2 Loop
Output	1 x SPDT, 1 A / 250 VAC	2 x SPST, 1 A / 250 VAC
<b>References</b>		
24 VAC / DC	<b>LDP1SA1BM24</b>	<b>LDP2TA2BM24</b>
115 VAC	<b>LDP1SA1B115</b>	<b>LDP2TA2B115</b>
230 VAC	<b>LDP1SA1B230</b>	<b>LDP2TA2B230</b>
<b>Specifications</b>		
Operating temperature	-40°C to +70°C	-40°C to +70°C
Degree of protection	IP20	IP20
Mounting	11 pin circular plug	11 pin circular plug
Approvals/Marks	CE - UL	CE - UL




## Ultrasonic sensors, 1 x digital output - Short body

Types	UA18CSD..TI	UA18CSD..MITI	UA18ESD..TI	UA18ESD..MITI
Connections	2 m cable	M12 connector	2 m cable	M12 connector
				
Dimensions (mm)	M18 x 53	M18 x 60	M18 x 53	M18 x 60
<b>References</b>				
Sensing distance (Sn)	40 - 300 mm	40 - 300 mm	40 - 300 mm	40 - 300 mm
Operating frequency	≤ 8 Hz	≤ 8 Hz	≤ 8 Hz	≤ 8 Hz
Blind zone	≤ 40 mm	≤ 40 mm	≤ 40 mm	≤ 40 mm
1 x NPN	<b>UA18CSD03NPTI</b>	<b>UA18CSD03NPM1TI</b>	<b>UA18ESD03NPTI</b>	<b>UA18ESD03NPM1TI</b>
1 x PNP	<b>UA18CSD03PPTI</b>	<b>UA18CSD03PPM1TI</b>	<b>UA18ESD03PPTI</b>	<b>UA18ESD03PPM1TI</b>
Sensing distance (Sn)	80 - 800 mm	80 - 800 mm	80 - 800 mm	80 - 800 mm
Operating frequency	≤ 5 Hz	≤ 5 Hz	≤ 5 Hz	≤ 5 Hz
Blind zone	≤ 80 mm	≤ 80 mm	≤ 80 mm	≤ 80 mm
1 x NPN	<b>UA18CSD08NPTI</b>	<b>UA18CSD08NPM1TI</b>	<b>UA18ESD08NPTI</b>	<b>UA18ESD08NPM1TI</b>
1 x PNP	<b>UA18CSD08PPTI</b>	<b>UA18CSD08PPM1TI</b>	<b>UA18ESD08PPTI</b>	<b>UA18ESD08PPM1TI</b>
<b>Specifications</b>				
Rated operating voltage	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
Voltage drop	≤ 2.2 VDC	≤ 2.2 VDC	≤ 2.2 VDC	≤ 2.2 VDC
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	SPT	SPT	SPT	SPT
Load current	< 100 mA	< 100 mA	< 100 mA	< 100 mA
Housing material	PBT	PBT	Stainless steel AISI 316L	Stainless steel AISI 316L
Operating temperature	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
LED colour	Yellow (output), Green (Echo ON)	Yellow (output), Green (Echo ON)	Yellow (output), Green (Echo ON)	Yellow (output), Green (Echo ON)
Approvals/Marks	CE - cULus	CE - cULus	CE - cULus	CE - cULus



## Ultrasonic sensors, analogue output - Short body

Types	UA18CSD..TI	UA18CSD..M1TI	UA18ESD..TI	UA18ESD..M1TI
Connections	2 m cable	M12 connector	2 m cable	M12 connector
				
Dimensions (mm)	M18 x 53	M18 x 60	M18 x 53	M18 x 60
<b>References</b>				
Sensing distance (Sn)	40 - 300 mm	40 - 300 mm	40 - 300 mm	40 - 300 mm
Response time	≤ 400 mS	≤ 400 mS	≤ 400 mS	≤ 400 mS
Blind zone	≤ 40 mm	≤ 40 mm	≤ 40 mm	≤ 40 mm
4-20 mA	<b>UA18CSD03AGTI</b>	<b>UA18CSD03AGM1TI</b>	<b>UA18ESD03AGTI</b>	<b>UA18ESD03AGM1TI</b>
0-10 V	<b>UA18CSD03AKTI</b>	<b>UA18CSD03AKM1TI</b>	<b>UA18ESD03AKTI</b>	<b>UA18ESD03AKM1TI</b>
Sensing distance (Sn)	80 - 800 mm	80 - 800 mm	80 - 800 mm	80 - 800 mm
Response time	≤ 400 mS	≤ 400 mS	≤ 400 mS	≤ 400 mS
Blind zone	≤ 80 mm	≤ 80 mm	≤ 80 mm	≤ 80 mm
4-20 mA	<b>UA18CSD08AGTI</b>	<b>UA18CSD08AGM1TI</b>	<b>UA18ESD08AGTI</b>	<b>UA18ESD08AGM1TI</b>
0-10 V	<b>UA18CSD08AKTI</b>	<b>UA18CSD08AKM1TI</b>	<b>UA18ESD08AKTI</b>	<b>UA18ESD08AKM1TI</b>
<b>Specifications</b>				
Rated operating voltage NG or PG NK or PK	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	Supply: PT Analogue output: P	Supply: PT Analogue output: P	Supply: PT Analogue output: P	Supply: PT Analogue output: P
Housing material	PBT	PBT	Stainless Steel AISI 316L	Stainless Steel AISI 316L
Operating temperature	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
LED colour	Yellow (output), Green (Echo ON)	Yellow (output), Green (Echo ON)	Yellow (output), Green (Echo ON)	Yellow (output), Green (Echo ON)
Approvals/Marks	CE - cULus	CE - cULus	CE - cULus	CE - cULus



## Ultrasonic sensors, 2 x digital outputs

Types	UA18CAD..TI	UA18CAD..MITI	UA30CAD35..TI	UA30CAD35..MITI
Connections	2 m cable	M12 connector	2 m cable	M12 connector
				
Dimensions (mm)	M18 x 85	M18 x 85	M30 x 90	M30 x 90
<b>References</b>				
Sensing distance (Sn)	50 - 400 mm	50 - 400 mm	250 - 3500 mm	250 - 3500 mm
Operating frequency	≤ 10 Hz	≤ 10 Hz	≤ 2 Hz	≤ 2 Hz
Blind zone	≤ 50 mm	≤ 50 mm	≤ 250 mm	≤ 250 mm
2 x NPN	<b>UA18CAD04NPTI</b>	<b>UA18CAD04NPM1TI</b>	<b>UA30CAD35NPTI</b>	<b>UA30CAD35NPM1TI</b>
2 x PNP	<b>UA18CAD04PPTI</b>	<b>UA18CAD04PPM1TI</b>	<b>UA30CAD35PPTI</b>	<b>UA30CAD35PPM1TI</b>
Sensing distance (Sn)	100 - 900 mm	100 - 900 mm		
Operating frequency	≤ 4 Hz	≤ 4 Hz		
Blind zone	≤ 100 mm	≤ 100 mm		
2 x NPN	<b>UA18CAD09NPTI</b>	<b>UA18CAD09NPM1TI</b>		
2 x PNP	<b>UA18CAD09PPTI</b>	<b>UA18CAD09PPM1TI</b>		
Sensing distance (Sn)	200 - 2200 mm	200 - 2200 mm		
Operating frequency	≤ 1 Hz	≤ 1 Hz		
Blind zone	≤ 200 mm	≤ 200 mm		
2 x NPN	<b>UA18CAD22NPTI</b>	<b>UA18CAD22NPM1TI</b>		
2 x PNP		<b>UA18CAD22PPM1TI</b>		
<b>Specifications</b>				
Rated operating voltage	15 - 30 VDC	15 - 30 VDC	12 - 30 VDC	12 - 30 VDC
Voltage drop	≤ 2.2 VDC	≤ 2.2 VDC	≤ 2.2 VDC	≤ 2.2 VDC
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	SPT	SPT	SPT	SPT
Load current	< 500 mA	< 500 mA	< 300 mA	< 300 mA
Load current - UL	< 100 mA	< 100 mA	< 100 mA	< 100 mA
Housing material	PBT	PBT	PBT	PBT
Operating temperature	-20°C to +60°C	-20°C to +60°C	-20°C to +70°C	-20°C to +70°C
LED colour	Yellow	Yellow	Yellow, Green	Yellow, Green
Approvals/Marks	CE - cULus	CE - cULus	CE - cULus	CE - cULus


## Ultrasonic sensors, 2 x digital outputs

Types	UA30CAD60..TI	UA30CAD60..MITI
Connections	2 m cable	M12 connector
		
Dimensions (mm)	M30 (Ø40) x 90	M30 (Ø40) x 90
<b>References</b>		
Sensing distance (Sn)	350 - 6000 mm	350 - 6000 mm
Operating frequency	≤ 1 Hz	≤ 1 Hz
Blind zone	≤ 350 mm	≤ 350 mm
2 x NPN	<b>UA30CAD60NPTI</b>	<b>UA30CAD60NPM1TI</b>
2 x PNP	<b>UA30CAD60PPTI</b>	<b>UA30CAD60PPM1TI</b>
<b>Specifications</b>		
Rated operating voltage	12 - 30 VDC	12 - 30 VDC
Voltage drop	≤ 2.2 VDC	≤ 2.2 VDC
Degree of protection	IP 67	IP 67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	SPT	SPT
Load current	< 300 mA	< 300 mA
Load current - UL	< 100 mA	< 100 mA
Housing material	PBT	PBT
Operating temperature	-20°C to +70°C	-20°C to +70°C
LED colour	Yellow, Green	Yellow, Green
Approvals/Marks	CE - cULus	CE - cULus



## Ultrasonic sensors, 2 x digital outputs

Types	UA18EAD..TI	UA18EAD..MITI	UA30EAD35..TI	UA30EAD35..MITI
Connections	2 m cable	M12 connector	2 m cable	M12 connector
				
Dimensions (mm)	M18 x 85	M18 x 85	M30 x 90	M30 x 90
<b>References</b>				
Sensing distance (Sn)	50 - 400 mm	50 - 400 mm	350 - 3500 mm	350 - 3500 mm
Operating frequency	≤ 10 Hz	≤ 10 Hz	≤ 2 Hz	≤ 2 Hz
Blind zone	≤ 50 mm	≤ 50 mm	≤ 350 mm	≤ 350 mm
2 x NPN	<b>UA18EAD04NPTI</b>	<b>UA18EAD04NPM1TI</b>	<b>UA30EAD35NPTI</b>	<b>UA30EAD35NPM1TI</b>
2 x PNP	<b>UA18EAD04PPTI</b>	<b>UA18EAD04PPM1TI</b>	<b>UA30EAD35PPTI</b>	<b>UA30EAD35PPM1TI</b>
Sensing distance (Sn)	100 - 900 mm	100 - 900 mm		
Operating frequency	≤ 4 Hz	≤ 4 Hz		
Blind zone	≤ 100 mm	≤ 100 mm		
2 x NPN	<b>UA18EAD09NPTI</b>	<b>UA18EAD09NPM1TI</b>		
2 x PNP	<b>UA18EAD09PPTI</b>	<b>UA18EAD09PPM1TI</b>		
Sensing distance (Sn)	200 - 1500 mm	200 - 1500 mm		
Operating frequency	≤ 1 Hz	≤ 1 Hz		
Blind zone	≤ 200 mm	≤ 200 mm		
2 x NPN	<b>UA18EAD15NPTI</b>	<b>UA18EAD15NPM1TI</b>		
2 x PNP	<b>UA18EAD15PPTI</b>	<b>UA18EAD15PPM1TI</b>		
<b>Specifications</b>				
Rated operating voltage	15 - 30 VDC	15 - 30 VDC	12 - 30 VDC	12 - 30 VDC
Voltage drop	≤ 2.2 VDC	≤ 2.2 VDC	≤ 2.2 VDC	≤ 2.2 VDC
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	SPT	SPT	SPT	SPT
Load current	< 500 mA	< 500 mA	< 300 mA	< 300 mA
Load current - UL	< 100 mA	< 100 mA	< 100 mA	< 100 mA
Housing material	AISI 316L	AISI 316L	AISI 316L	AISI 316L
Operating temperature	-20°C to +60°C	-20°C to +60°C	-20°C to +70°C	-20°C to +70°C
LED colour	Yellow	Yellow	Yellow, Green	Yellow, Green
Approvals/Marks	CE - cULus	CE - cULus	CE - cULus	CE - cULus

## Ultrasonic sensors, analogue and digital output





Types	UA18CAD..TI	UA18CAD..MITI	UA30CAD35..TI	UA30CAD35..MITI
Connections	2 m cable	M12 connector	2 m cable	M12 connector
				
Dimensions (mm)	M18 x 85	M18 x 85	M30 x 90	M30 x 90
<b>References</b>				
Sensing distance (Sn)	50 - 400 mm	50 - 400 mm	250 - 3500 mm	250 - 3500 mm
Operating frequency	≤ 10 Hz	≤ 10 Hz	≤ 2 Hz	≤ 2 Hz
Blind zone	≤ 50 mm	≤ 50 mm	≤ 250 mm	≤ 250 mm
NPN, 4-20 mA	<b>UA18CAD04NGTI</b>	<b>UA18CAD04NGM1TI</b>	<b>UA30CAD35NGTI</b>	<b>UA30CAD35NGM1TI</b>
PNP, 4-20 mA	<b>UA18CAD04PGTI</b>	<b>UA18CAD04PGM1TI</b>	<b>UA30CAD35PGTI</b>	<b>UA30CAD35PGM1TI</b>
NPN, 0-10 V	<b>UA18CAD04NKTI</b>	<b>UA18CAD04NKM1TI</b>	<b>UA30CAD35NKTI</b>	<b>UA30CAD35NKM1TI</b>
PNP, 0-10 V	<b>UA18CAD04PKTI</b>	<b>UA18CAD04PKM1TI</b>	<b>UA30CAD35PKTI</b>	<b>UA30CAD35PKM1TI</b>
Sensing distance (Sn)	100 - 900 mm	100 - 900 mm		
Operating frequency	≤ 4 Hz	≤ 4 Hz		
Blind zone	≤ 100 mm	≤ 100 mm		
NPN, 4-20 mA	<b>UA18CAD09NGTI</b>	<b>UA18CAD09NGM1TI</b>		
PNP, 4-20 mA	<b>UA18CAD09PGTI</b>	<b>UA18CAD09PGM1TI</b>		
NPN, 0-10 V	<b>UA18CAD09NKTI</b>	<b>UA18CAD09NKM1TI</b>		
PNP, 0-10 V	<b>UA18CAD09PKTI</b>	<b>UA18CAD09PKM1TI</b>		
Sensing distance (Sn)	200 - 2200 mm	200 - 2200 mm		
Operating frequency	≤ 1 Hz	≤ 1 Hz		
Blind zone	≤ 200 mm	≤ 200 mm		
NPN, 4-20 mA	<b>UA18CAD22NGTI</b>	<b>UA18CAD22NGM1TI</b>		
PNP, 4-20 mA	<b>UA18CAD22PGTI</b>	<b>UA18CAD22PGM1TI</b>		
NPN, 0-10 V	<b>UA18CAD22NKTI</b>	<b>UA18CAD22NKM1TI</b>		
PNP, 0-10 V	<b>UA18CAD22PKTI</b>	<b>UA18CAD22PKM1TI</b>		
<b>Specifications</b>				
Rated operating voltage NG or PG NK or PK	15 - 30 VDC 15 - 30 VDC	15 - 30 VDC 15 - 30 VDC	12 - 30 VDC 15 - 30 VDC	12 - 30 VDC 15 - 30 VDC
Voltage drop	≤ 2.2 VDC	≤ 2.2 VDC	≤ 2.2 VDC	≤ 2.2 VDC
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	Digital output: SPT Supply: PT Analogue output: P	Digital output: SPT Supply: PT Analogue output: P	Digital output: SPT Supply: PT Analogue output: P	Digital output: SPT Supply: PT Analogue output: P
Load current	< 500 mA	< 500 mA	< 100 mA	< 100 mA
Load current - UL	< 100 mA	< 100 mA	< 100 mA	< 100 mA
Housing material	PBT	PBT	PBT	PBT
Operating temperature	-20°C to +60°C	-20°C to +60°C	-20°C to +70°C	-20°C to +70°C
LED colour	Yellow	Yellow	Yellow, Green	Yellow, Green
Approvals/Marks	CE - cULus	CE - cULus	CE - cULus	CE - cULus

## Ultrasonic sensors, analogue and digital output

Types	UA30CAD60..TI	UA30CAD60..MITI
Connections	2 m cable	M12 connector
		
Dimensions (mm)	M30 (Ø40) x 90	M30 (Ø40) x 90
<b>References</b>		
Sensing distance (Sn)	350 - 6000 mm	350 - 6000 mm
Operating frequency	≤ 1 Hz	≤ 1 Hz
Blind zone	≤ 350 mm	≤ 350 mm
NPN, 4-20 mA	<b>UA30CAD60NGTI</b>	<b>UA30CAD60NGM1TI</b>
PNP, 4-20 mA	<b>UA30CAD60PGTI</b>	<b>UA30CAD60PGM1TI</b>
NPN, 0-10 V	<b>UA30CAD60NKTI</b>	<b>UA30CAD60NKM1TI</b>
PNP, 0-10 V	<b>UA30CAD60PKTI</b>	<b>UA30CAD60PKM1TI</b>
<b>Specifications</b>		
Rated operating voltage NG or PG NK or PK	12 - 30 VDC 15 - 30 VDC	12 - 30 VDC 15 - 30 VDC
Voltage drop	≤ 2.2 VDC	≤ 2.2 VDC
Degree of protection	IP 67	IP 67
Protection short-circuit (S) Reverse polarity (P) Transients (T)	Digital output: SPT Supply: PT Analogue output: P	Digital output: SPT Supply: PT Analogue output: P
Load current	< 100 mA	< 100 mA
Load current - UL	< 100 mA	< 100 mA
Housing material	PBT	PBT
Operating temperature	-20°C to +70°C	-20°C to +70°C
LED colour	Yellow, Green	Yellow, Green
Approvals/Marks	CE - cULus	CE - cULus



## Ultrasonic sensors, analogue and digital output

Types	UA18EAD..TI	UA18EAD..MITI	UA30EAD35..TI	UA30EAD35..MITI
Connections	2 m cable	M12 connector	2 m cable	M12 connector
				
Dimensions (mm)	M18 x 85	M18 x 85	M30 x 93	M30 x 100
<b>References</b>				
Sensing distance (Sn)	50 - 400 mm	50 - 400 mm	350 - 3500 mm	350 - 3500 mm
Operating frequency	≤ 10 Hz	≤ 10 Hz	≤ 2 Hz	≤ 2 Hz
Blind zone	≤ 50 mm	≤ 50 mm	≤ 350 mm	≤ 350 mm
NPN, 4-20 mA	<b>UA18EAD04NGTI</b>	<b>UA18EAD04NGM1TI</b>	<b>UA30EAD35NGTI</b>	<b>UA30EAD35NGM1TI</b>
PNP, 4-20 mA	<b>UA18EAD04PGTI</b>	<b>UA18EAD04PGM1TI</b>	<b>UA30EAD35PGTI</b>	<b>UA30EAD35PGM1TI</b>
NPN, 0-10 V	<b>UA18EAD04NKTI</b>	<b>UA18EAD04NKM1TI</b>	<b>UA30EAD35NKTI</b>	<b>UA30EAD35NKM1TI</b>
PNP, 0-10 V	<b>UA18EAD04PKTI</b>	<b>UA18EAD04PKM1TI</b>	<b>UA30EAD35PKTI</b>	<b>UA30EAD35PKM1TI</b>
Sensing distance (Sn)	100 - 900 mm	100 - 900 mm		
Operating frequency	≤ 4 Hz	≤ 4 Hz		
Blind zone	≤ 100 mm	≤ 100 mm		
NPN, 4-20 mA	<b>UA18EAD09NGTI</b>	<b>UA18EAD09NGM1TI</b>		
PNP, 4-20 mA	<b>UA18EAD09PGTI</b>	<b>UA18EAD09PGM1TI</b>		
NPN, 0-10 V	<b>UA18EAD09NKTI</b>	<b>UA18EAD09NKM1TI</b>		
PNP, 0-10 V	<b>UA18EAD09PKTI</b>	<b>UA18EAD09PKM1TI</b>		
Sensing distance (Sn)	200 - 1500 mm	200 - 1500 mm		
Operating frequency	≤ 1 Hz	≤ 1 Hz		
Blind zone	≤ 200 mm	≤ 200 mm		
NPN, 4-20 mA	<b>UA18EAD15NGTI</b>	<b>UA18EAD15NGM1TI</b>		
PNP, 4-20 mA	<b>UA18EAD15PGTI</b>	<b>UA18EAD15PGM1TI</b>		
NPN, 0-10 V	<b>UA18EAD15NKTI</b>	<b>UA18EAD15NKM1TI</b>		
PNP, 0-10 V	<b>UA18EAD15PKTI</b>	<b>UA18EAD15PKM1TI</b>		
<b>Specifications</b>				
Rated operating voltage				
NG or PG	15 - 30 VDC	15 - 30 VDC	12 - 30 VDC	12 - 30 VDC
NK or PK	15 - 30 VDC	15 - 30 VDC	15 - 30 VDC	15 - 30 VDC
Voltage drop	≤ 2.2 VDC	≤ 2.2 VDC	≤ 2.2 VDC	≤ 2.2 VDC
Degree of protection	IP 67	IP 67	IP 67	IP 67
Protection short-circuit (S)	Digital output: SPT	Digital output: SPT	Digital output: SPT	Digital output: SPT
Reverse polarity (P)	Supply: PT	Supply: PT	Supply: PT	Supply: PT
Transients (T)	Analogue output: P	Analogue output: P	Analogue output: P	Analogue output: P
Load current	< 100 mA	< 100 mA	< 100 mA	< 100 mA
Load current - UL	< 100 mA	< 100 mA	< 100 mA	< 100 mA
Housing material	AISI 316L	AISI 316L	AISI 316L	AISI 316L
Operating temperature	-20°C to +60°C	-20°C to +60°C	-20°C to +70°C	-20°C to +70°C
LED colour	Yellow	Yellow	Yellow, Green	Yellow, Green
Approvals/Marks	CE - cULus	CE - cULus	CE - cULus	CE - cULus

# Ultrasonic sensors, DC, analogue, remote teach

	Programmable RS232	Integrated amplifier
<b>Types</b>	<b>UA30CLD..M7</b>	<b>UA12BLD..M1TR</b>
<b>Connections</b>	<b>M16 connector</b>	<b>M12 connector</b>



Dimensions (mm)	M30 x 136	M12 x 79
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## References diffuse reflective

Operating frequency	5 - 30 Hz Programmable	20 Hz
Sensing distance (Sn)	150 - 1500 mm adj.	25 - 200 mm adj.
0-10 VDC	<b>UA30CLD15FKM7</b>	
4-20 mA	<b>UA30CLD15FGM7</b>	
NPN-NO/NC		<b>UA12BLD02NPM1TR</b>
PNP-NO/NC		<b>UA12BLD02PPM1TR</b>
Sensing distance (Sn)	250 - 2000 mm adj.	
0-10 VDC	<b>UA30CLD20FKM7</b>	
4-20 mA	<b>UA30CLD20FGM7</b>	
Sensing distance (Sn)	350 - 3500 mm adj.	
0-10 VDC	<b>UA30CLD35FKM7</b>	
4-20 mA	<b>UA30CLD35FGM7</b>	

## Specifications

Rated operating voltage	19 - 30 VDC	10 - 30 VDC
Voltage drop	≤ 2.5 VDC	≤ 4.5 V
Degree of protection	IP 67	IP 65
Protection short-circuit (S)		
Reverse polarity (P)	SPT	SPT
Transients (T)		
Load current	< 100 mA Analogue see type	< 100 mA
Housing material	PBTB	Stainless Steel
Operating temperature	-15°C to +70°C	-20°C to +70°C
LED colour	Yellow + Green	
Remarks	Hold/sync. input RS232	
Approvals/Marks	CE - UL - cUL	CE

	Adapters
<b>Types</b>	<b>AUA - RT</b>
<b>Connections</b>	<b>M12 connector</b>




Dimensions (mm)	17 x 56
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## Specifications

Programming adapter for remote teach sensors ending with "RT"

## Conductive level sensors

Types	VN / VNI		VNY / VNYI		VPC		VPP	
Connections	Cable (PVC) 2 m		Screw connection		Screw connection		Screw connection	
								
<b>Electrodes</b>								
Number of electrodes	1, 2, 3 or 4		1, 2, 3 or 4		1, 2 or 3		1, 2 or 3	
Diameter/length (mm)	D5/1000		D5/1000		D4/500		D4/500	
Material	Stainless steel		Stainless steel		Stainless steel		Stainless steel	
Isolation of electrodes	Yes (VNI)		Yes (VNYI)		Yes		Yes	
Isolation	Polyethylene		Polyethylene		Polyethylene		PVDF	
<b>Housing</b>								
Pipe thread	1½"		1½"		½" [VPC x05] or 1" [VPC x10]		½" [VPC x05] or 1" [VPC x10]	
Material	Nylon 6		Nylon 6		PVC		Polypropylene	
<b>References</b>								
1 electrode	<b>VN1</b>	<b>VNI1</b>	<b>VNY1</b>	<b>VNYI1</b>	<b>VPC105</b>	<b>VPC110</b>	<b>VPP105</b>	<b>VPP110</b>
2 electrodes	<b>VN2</b>	<b>VNI2</b>	<b>VNY2</b>	<b>VNYI2</b>	<b>VPC205</b>	<b>VPC210</b>	<b>VPP205</b>	<b>VPP210</b>
3 electrodes	<b>VN3</b>	<b>VNI3</b>	<b>VNY3</b>	<b>VNYI3</b>	<b>VPC310</b>		<b>VPP310</b>	
4 electrodes	<b>VN4</b>	<b>VNI4</b>	<b>VNY4</b>	<b>VNYI4</b>				
<b>Specifications</b>								
Degree of protection	IP 67		IP 67		IP 67		IP 67	
Operating temperature	0°C to +90°C		0°C to +90°C		0°C to +60°C		0°C to +100°C	
Approvals/Marks	CE		CE		CE		CE	

## Conductive level sensors

Types	VT / VTI	CLH	VH	A 94-10
Connections	Cable (Silicone)	Screw connection	Cable (Neoprene)	Cable (PVC)
				

### Electrodes

Number of electrodes	1, 2, 3 or 4	2 or 4 + reference	1 (hanging)	2 (hanging)
Diameter/length (mm)	D5/1000	D4	D18/36.5 or D32/75.5	D22/75.0
Material	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Isolation of electrodes	Yes [VTI]	Yes	No [VH1,VH3,VH4] - Yes [VH2]	No
Isolation	Teflon	Kynar, Polyolefine	Nylon 6	

### Housing

Pipe thread	1½"	1½"		
Material	Teflon	Polypropylene	Nylon 6 [VH1,VH2] Polycarbonate [VH3, VH4]	Polyester

### References

1 electrode	<b>VT1</b>	<b>VTI1</b>		
1 electrode with Neoprene cable			<b>VH1 or VH2</b>	
1 electrode with UV resistant PVC cable			<b>VH3</b>	
1 electrode without cable			<b>VH4</b>	
2 electrodes	<b>VT2</b>	<b>VTI2</b>		<b>A 94-10</b>
3 electrodes	<b>VT3</b>	<b>VTI3</b>	<b>CLH3*</b>	
4 electrodes	<b>VT4</b>	<b>VTI4</b>		
5 electrodes			<b>CLH5*</b>	

### Specifications





Degree of protection	IP 67	IP 65	IP 67	IP 67
Operating temperature	0°C to +145°C	-20°C to +90°C	0°C to +90°C	0°C to +60°C
Approvals/Marks	CE	CE	CE	CE

### Electrodes (Stainless steel ANSI316)





No Insulation				
1 m		<b>CLE1</b>		
2 m		<b>CLE2</b>		
Extension 1 m		<b>CLE1X</b>		
Kynar (DVDP) Insulation				
1 m		<b>CLE1K</b>		
2 m		<b>CLE2K</b>		
Extension 1 m		<b>CLE1KX</b>		
Polyolefine Insulation				
1 m		<b>CLE1P</b>		
2 m		<b>CLE2P</b>		
Extension 1 m		<b>CLE1PX</b>		

\* Electrodes shall be ordered separately


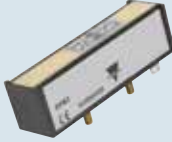

## Conductive level sensors

Level controller				
Types	CLD1	CLD2	CLP2 Basic	CLP2
Connections	DIN-rail	DIN-rail	Plug 11 pin circular	Plug 11 pin circular
				
Function	Filling or emptying. Selectable by rotary switches. Conductive liquids	Filling or emptying. Selectable by rotary switches. Conductive liquids	Filling or emptying. Selectable by rotary switches. Conductive liquids	Filling or emptying. Selectable by rotary switches. Conductive liquids
Adjustable	Yes, Potentiometer	Yes, Potentiometer	Yes, Potentiometer	Yes, Potentiometer
Sensitivity	5 K $\Omega$ to 150 K $\Omega$	250 $\Omega$ to 500 K $\Omega$	5 K $\Omega$ to 150 K $\Omega$	250 $\Omega$ to 500 K $\Omega$
Functions switch	- Timer 1 to 30 sec. delay on filling or/and emptying	- Filling / Emptying - 3-levels: Low, Standard and High	- Filling / Emptying	- Filling / Emptying - 3-levels: Low, Standard and High
Input	1 + reference	2 + reference	2 + reference	2 + reference
Output	8 A / 250 VAC SPST	8 A / 250 VAC SPDT	8 A / 250 VAC SPDT	8 A / 250 VAC DPDT
Power Supply	24 V AC/DC	24 - 240 VAC/DC	24 VDC, 24 VAC, 115 VAC or 230 VAC	24 VAC/DC, 115 VAC or 230 VAC
<b>References</b>				
24 240 VAC/DC		<b>CLD2EB1BU24</b>		
24 VDC			<b>CLP2EB1B724</b>	
24 VAC			<b>CLP2EB1B024</b>	
24 VAC/DC	<b>CLD1EA1CM24</b>			<b>CLP2EA1CM24</b>
115 VAC			<b>CLP2EB1B115</b>	<b>CLP2EA1C115</b>
230 VAC			<b>CLP2EB1B230</b>	<b>CLP2EA1C230</b>
<b>Specifications</b>				
Time delay	< 300 mS	< 2S	< 2S	< 300 mS
Housing material	ABS VO	PA66	NORYL PPO	NORYL PPO
Operating temperature	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C
Output LED colour	Yellow	Yellow	Yellow	Yellow
Power LED colour	Green	Green	Green	Green
Approvals/Marks	CE - UL - CSA	CE - cULus	CE - UL - CSA	CE - UL - CSA

# Conductive level sensors

Level controller				
Types	CLD2	CLP2 Master-Slave	CLD4	CLP4
Connections	DIN-rail	Plug 11 pin circular	DIN-rail	Plug 11 pin circular
				
Function	Filling or emptying. Selectable by rotary switches. Conductive liquids	Filling or emptying. Selectable by rotary switches. Conductive liquids Master - Slave system	Filling, emptying or combinations. Selectable by rotary switches. Conductive liquids	Filling, emptying or combinations. Selectable by rotary switches. Conductive liquids
Adjustable	Yes, Potentiometer	Yes, Potentiometer	Yes, Potentiometer	Yes, Potentiometer
Sensitivity	250 Ω to 500 KΩ	250 Ω to 500 KΩ	250 Ω to 500 KΩ	250 Ω to 500 KΩ
Functions switch	- Filling / Emptying - 3-levels: Low, Standard and High	- Filling / Emptying - 3-levels: Low, Standard and High	- Tank - well - Direct in to out 2 probe - Low and High alarm - 2 system in one, filling and/ or emptying - 3-levels: Low, Standard and High	- Tank - well - Direct in to out 2 probe - Low and High alarm - 2 system in one, filling and/ or emptying - 3-levels: Low, Standard and High
Input	2 + reference	2 + reference	2 to 4 + reference	2 to 4 + reference
Output	8 A / 250 VAC DPDT	8 A / 250 VAC SPDT	8 A / 250 VAC SPDT, SPST	8 A / 250 VAC 2 X SPST
Power Supply	24 VAC/DC, 115 VAC or 230 VAC	24 VAC/DC, 115 VAC or 230 VAC	24 VAC/DC, 115 VAC or 230 VAC	24 VAC/DC, 115 VAC or 230 VAC
<b>References</b>				
24 VAC/DC	<b>CLD2EA1CM24</b>	<b>CLP2FA1BM24</b>	<b>CLD4MA2DM24</b>	<b>CLP4MA2AM24</b>
115 VAC	<b>CLD2EA1C115</b>	<b>CLP2FA1B115</b>	<b>CLD4MA2D115</b>	<b>CLP4MA2A115</b>
230 VAC	<b>CLD2EA1C230</b>	<b>CLP2FA1B230</b>	<b>CLD4MA2D230</b>	<b>CLP4MA2A230</b>
<b>Specifications</b>				
Time delay	< 300 mS	< 300 mS	< 300 mS	< 300 mS
Housing material	ABS VO	NORYL PPO	ABS VO	NORYL PPO
Operating temperature	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C
Output LED colour	Yellow	Yellow	Yellow	Yellow
Power LED colour	Green	Green	Green	Green
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA

# Proximity magnetic sensors, rectangular

Rectangular			
Types	S series	SPB2 series	SPA1 series
			
Dimensions (mm)	11.5 x 79 x 21.2	25.5 x 85 x 24	16 x 90 x 20
<b>Electrical specifications</b>			
Max. switch. voltage contact	250 VAC [SA / SC 2, SB2 / -S5] 1500 VAC [SA / SC 8] 230 VAC [SS2, S.BS.2]	250 VAC	24 VDC [output 1 and 2]
Max. switch. current contact	1 A [SS2, S.BS.2] 3 A [SA2, SC2, SB2, SB2S5, SA8, SC8]	3 A	0.5 A [output 1] 4 A [output 2]
Max. switch. power contact	100 VA [SA / SC 2, SB2 / -S5] 120 VA [SA / SC 8] 60 VA [SS2, S.BS.2]	100 VA	5 VA [output 1] 100 VA [output 2]
Power supply			24 VDC
<b>General specifications</b>			
Operating distance	5 - 32 mm	5 - 30 mm	12 mm
Output connection	PVC cable, 0.5 m (0.24 m Type S5)	Faston [SPB2] 2 m PVC Cable [SPB22MT]	PVC cable, 19 cm Pig-tail
Degree of protection	IP 67	IP 67 [SPB22MT] IP 65 [SPB2]	IP 67
Operating temperature	-25°C to +75°C	-25°C to +75°C	-25°C to +80°C
Housing material	Plastic	Plastic	ABS class V0
<b>References</b>			
Normally open	<b>SA2</b> <b>SA8</b>		
Normally closed	<b>SC2</b> <b>SC8</b>		
Change - Over	<b>SS2</b>		
Bistable	<b>SB2</b> <b>SB2S5</b>	<b>SPB2</b> <b>SPB22MT</b>	
Bistable CO	<b>S.BS.2</b>		
Normally closed, 2 outputs			<b>SPA1S2</b> <b>SPA1S3</b>



# Proximity magnetic sensors, rectangular

## Rectangular

Types	M and MS series	MM series
		

Dimensions (mm)	8.3 x 37 x 16	6.1 x 23.5 x 14 [A6] 7 x 27 x 11 [A3, S1]
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### Electrical specifications

Max. switch. voltage contact	100 VAC [MS1] 230 VAC [MSA1] 500 VAC [MA3, MC3]	100 VAC [S1, A6] 500 VAC [A3]
Max. switch. current contact	0.25 A [MS1] 0.5 A [MA3, MC3] 0.75 A [MSA1]	0.25 A [S1] 0.5 A [A3, A6]
Max. switch. power contact	5 VA [MS1] 10 VA [MSA1, MA3, MC3]	5 VA [S1] 10 VA [A3, A6]

### General specifications

Operating distance	7 - 35 mm	10 - 40 mm
Output connection	PVC cable, 0.5 m (2 m, Type MSA1)	PVC cable [A3, S1] Twin lead cable [A6]
Degree of protection	IP 67	IP 67
Operating temperature	-25°C to +75°C	-25°C to +75°C
Housing material	Plastic	Plastic

### References

Normally open	<b>MSA1</b> <b>MA3</b>	<b>MMA3</b> <b>MMA6</b>
Normally closed	<b>MC3</b>	
Change - Over	<b>MS1</b>	<b>MMS1</b>

# Proximity magnetic sensors, cylindrical

## Cylindrical

Types	FM... series	FMM... series	FMMP... series
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Dimensions (mm)	Ø 9.3 [A3, C3, S1] M10 x 0.75 [A3S5, A6] M12 x 1 [C3S1, A9S1]	M8 x 1	Ø 6 x 25 [L25] Ø 6 x 33 [L33] Ø 6 x 38 [L38]
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### Electrical specifications

Max. switch. voltage contact	100 VAC [S1, A6] 230 VAC [A9S1] 500 VAC [A3, C3, A3S5, C3S1]	100 VAC [A6, S1] 500 VAC [A3]	140 VAC
Max. switch. current contact	0.25 A [S1] 0.5 A [A3, C3, A6, A3S5, C3S1] 3 A [A9S1]	0.25 A [S1] 0.5 A [A3, A6]	1 A
Max. switch. power contact	5 VA [A3, C3, A3S5, C3S1] 60 VA [A9S1] 100 VA [S1, A6]	5 VA [S1] 10 VA [A3, A6]	10 VA
Max carry current			1.2 A

### General specifications

Operating distance	5 - 36 mm	8 - 27 mm	> 8 mm
Output connection	PVC cable 0.5 m for Ø 9.3 2 m for M10 and M12	PVC cable, 2 m	Twin lead cable, 0.5 m
Degree of protection	IP 67	IP 67	IP 67
Operating temperature	-25°C to +75°C	-25°C to +70°C	-20°C to +75°C
Housing material	Plastic [A3, C3, S1] Nickel plated brass [A6] Brass [A3S5, C3S1, A9S1]	Stainless steel [A3, S1] Nickel plated brass [A6]	Plastic

### References

Normally open	<b>FMA3</b> <b>FMA3S5</b> <b>FMA6</b> <b>FMA9S1</b>	<b>FMMA3</b> <b>FMMA6</b>	<b>FMMPA7L25</b> <b>FMMPA7L33</b> <b>FMMPA7L38</b>
Normally closed	<b>FMC3</b> <b>FMC3S1</b>		
Change - Over	<b>FMS1</b>	<b>FMMS1</b>	

# Proximity magnetic sensors, cylindrical

## Cylindrical

Types	FMP... series	FS... series	FSLP... series	FSM... series
				

Dimensions (mm)	M12 x 1 x 100	Ø 13.5 [A2, A8, C2, C8, S2] M10 x 1.25 [A2S3, S2S1] M12 x 1 [A2S4, S2S4] M16 x 1.5 [B2]	Ø 16	M12 x 1 [A2, A7, S2] M16 x 1 [S2S2AT]
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### Electrical specifications

Max. switch. voltage contact	120 VAC / DC [C7] 175 VDC, 120 VAC [S1] 200 VDC, 140 VAC [A7] 230 VAC / DC [A9, C9, A9S1] 250 VAC / DC [B2]	230 VAC [S2, S2S1, S2S4] 250 VAC [A2, B2, C2, A2S3, A2S4] 1500 VAC [A8, C8]	100 VAC [A7] 250 VAC [B2]	24 VDC [A7] 230 VAC [S2, S2S2AT] 250 VAC [A2]
Max. switch. current contact	0.25 A [S1] 0.5 A [C7] 1 A [A7] 3 A [B2, A9, C9, A9S1]	1 A [S2, S2S4, S2S1] 3 A [A2, B2, C2, A8, C8, A2S3, A2S4]	0.4 A [A7] 3 A [B2]	0.5 A [S2S2AT] 1 A [S2] 3 A [A2] 50 mA [A7]
Max. switch. power contact	5 VA [S1] 10 VA [A7, C7] 60 VA [A9, C9, A9S1] 120 VA [B2]	60 VA [S2S1, S2S4, S2] 100 VA [A2, B2, C2, A2S3, A2S4] 120 VA [A8, C8]	10 VA [A7] 120 VA [B2]	30 VA [S2S2AT] 60 VA [S2] 100 VA [A2] (A7 negligible)



### General specifications




Operating distance	7 - 26 mm	3 - 32 mm	18 - 25 mm (front); >10 - >15 mm (side)	2 - 19 mm
Output connection	PVC cable, 2 m	PVC cable, 2 m 0.5 m for Ø 13.5	PVC cable, 2 m	Silicone cable, 2 m [A7] Silicone cable, 0.5 m [S2S2AT] PVC cable, 2 m [A2, S2]
Degree of protection	IP 67	IP 67	IP 67	IP 67
Operating temperature	-25°C to +75°C	-25°C to +75°C	-30°C to +80°C	-25°C to +75°C [A2, A7, S2] -20°C to +150°C [S2S2AT]
Housing material	Plastic	Plastic [A2, A8, C2, C8, S2, B2] Brass [A2S3 / S4, S2S1 / S4]	Plastic	Brass [S2S2, S2S2AT] Nickel plated brass [A2, A7, S2]

### References



Normally open	<b>FMPA7</b> [black] <b>FMPA9</b> [black] <b>FMPA9S1</b> [black]	<b>FSA2</b> <b>FSA8</b> <b>FSA2S32MT</b> <b>FSA2S42MT</b>	<b>FSLPA7</b>	<b>FSMA2</b> <b>FSMA7</b>
Normally closed	<b>FMPC7</b> [red] <b>FMPC9</b> [red]	<b>FSC2</b> <b>FSC8</b>		
Change - Over	<b>FMP51</b> [blue]	<b>FSS2</b> <b>FSS2S12MT</b> <b>FSS2S42MT</b>		<b>FSMS2</b> <b>FSMS2S2AT</b>
Bistable	<b>FMPB2</b> [grey]	<b>FSB22MT</b>	<b>FSLPB2</b>	

# Proximity magnetic sensors, slot

Slot		
Types	ISY series	IM series
		
Dimensions (mm)	10 x 45 x 37	7 x 28 x 18.5
<b>Electrical specifications</b>		
Max. switch. voltage contact	100 VAC [S1] 500 VAC [C3]	100 VAC [S1] 500 VAC [C3]
Max. switch. current contact	0.25 A [S1] 0.5 A [C3]	0.25 A [S1] 0.5 A [C3]
Max. switch. power contact	5 VA [S1] 10 VA [C3]	5 VA [S1] 10 VA [C3]
<b>General specifications</b>		
Output connection	PVC cable, 0.5 m	PVC cable, 0.5 m
Degree of protection	IP 67	IP 67
Operating temperature	-25°C to +75°C	-25°C to +75°C
Housing materials	Plastic	Plastic
<b>References</b>		
Normally closed	<b>ISYC3</b>	<b>IMC3</b>
Change - Over	<b>ISYS1</b>	<b>IMS1</b>

Magnetic units CL series				
Types				
Shapes	Rectangular	Trapezoidal	Cylindrical	
				
<b>General specifications</b>				
Minimum separation:	Dimensions (mm)	References		
10	25 x 14 x 8	<b>CL1</b>		
20	44.5 x 12 x 9	<b>CL2</b>		
30	59 x 18 x 9	<b>CL3</b>		
50	76 x 25 x 18	<b>CL4</b>		
Not mandatory		Dimensions (mm)	References	Dimensions (mm)      References
		90 x 31 x 22.5	<b>CL90</b>	Ø 9.3 x 32 <b>CL10</b>
				Ø 13.5 x 65 <b>CL11</b>
				Ø 18 x 6 <b>CL18</b>
				Ø 23 x 9 <b>CL23</b>
				Ø 31 x 10 <b>CL31</b>
				Ø 20 x 10 <b>CL20S1</b>
				Ø 22.1 x 11.3 <b>CL20S3</b>

# Level magnetic sensors

Cylindrical			
Types	ILM series	ILMM series	ILMP series
			

Float Diameter (mm)	Ø 53	Ø 28	Ø 25
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## Output functions

	Normally open, Normally closed [2, 8] Change-over [S2]	Normally open and normally closed [5, 590, 5ATS1] Normally open [5S1] Normally closed [5S2, 5S2AT]	Normally open, normally closed
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## Electrical specifications

Max. switch. voltage contact	230 VAC [S2] - 250 VAC [2] 1500 VAC [8]	240 VAC, 220 VDC	240 VAC, 200 VDC
Max. switch. current contact	1 A [S2] 3 A [2, 8]	0.5 A	0.5 A
Max. switch. power contact	60 VA [S2] - 100 VA [2] 120 VA [8]	50 VA	50 VA


## General specifications

Output connection	Silicone cable, 0.5 m	XLPE cable, 0.3 m 1,1 m [ATS1]	PVC cable, 0.3 m
Min. liquid specific gravity	0.75 kg / dm <sup>3</sup>	0.75 kg / dm <sup>3</sup>	
Max. pressure	20 kg / cm <sup>2</sup>	10 kg / cm <sup>2</sup>	2 kg / cm <sup>2</sup>
Degree of protection	IP 67	IP 67	IP 67
Operating temperature	-25°C to +120°C [2, 8, S2]	-10°C to +120°C [5, 590] -10°C to +200°C [5ATS1, 5S2AT] -20°C to +120°C [5S1, 5S2]	-20°C to +80°C
Housing materials	AISI 316 stainless steel	AISI 304 stainless steel [5, 590 5ATS1] AISI316 stainless steel [5S2AT, 5S1, 5S2]	Plastic

## References

Normally open / Normally closed	<b>ILM.2</b> <b>ILM8</b>	<b>ILMM5</b> <b>ILMM590</b> <b>ILMM5ATS1</b>	<b>ILMP5</b> <b>ILMP5P</b>
Change - Over	<b>ILMS2</b>		
Normally closed		<b>ILMM5S2AT</b> <b>ILMM5S2</b>	
Normally open		<b>ILMM5S1</b>	

# Level magnetic sensors

				Cylindrical		
Types	ILMPU - ILU - ILMU series		ILSP series	FLM series - Flux Sensors		
						
Float Diameter (mm)	Ø 17.5 [ILMPU] Ø 31 [ILMU] Ø 45 [ILU]		Ø 44	Ø 20		
<b>Electrical specifications</b>						
Max. switch. voltage contact	230 VAC [ILUS2] 240 VAC, 200 VDC [ILMPU5, ILMU5] 250 VAC [ILU2] 1000 VAC [ILU8]		230 VAC [S2] 250 VAC [2] 1500 VAC [8]	100 VAC		
Max. switch. current contact	0.5 A [ILMP, ILM] 1 A [ILUS2] 3 A [ILU2, ILU8]		1 A [S2] 3 A [2, 8]	0.4 A		
Max. switch. power contact	50 VA [ILMP, ILM] 60 VA [ILUS2] 100 VA [ILU2] 120 VA [ILU8]		60 VA [S2] 100 VA [2] 120 VA [8]	10 VA		
<b>General specifications</b>						
Output connection	XLPE cable, 0.3 m [ILMPU5] PVC cable, 0.3 m [ILMU5] Silicone cable, 0.5 m [ILU2, ILU8, ILUS2]		Silicone cable, 0.5 m	HT105 PVC cable ended with 6.35 mm female faston		
Operating distance Don				+5 mm		
Release distance Doff				Don - 2 mm		
Min. liquid specific gravity	0.70 kg / dm <sup>3</sup> [ILMPU, ILMU] 0.75 kg / dm <sup>3</sup> [ILU]		0.75 kg / dm <sup>3</sup>			
Max. pressure	2 kg / cm <sup>2</sup> [ILMPU, ILMU] 100 kg / cm <sup>2</sup> [ILU]		0.6 kg / cm <sup>2</sup>			
Degree of protection	IP 68		IP 67	IP 67		
Operating temperature	-20°C to +80°C [ILMPU, ILMU] -25°C to +100°C [ILU]		-25°C to +100 °C	-30°C to +105°C		
Housing materials	Non toxic polypropylene or plastic		Plastic	Stainless steel		
<b>References</b>						
Normally open / Normally closed	<b>ILMPU5</b> <b>ILMU5</b>		<b>ILSP2</b> <b>ILSP8</b>			
Normally open	<b>ILU2</b> <b>ILU8</b>			<b>FLMA1S1</b>		
Change - Over	<b>ILUS2</b>		<b>ILSPS2</b>			

# Configurable safety modules

## Types **CERTUS Master module**

### CMM



Dimensions HxWxD (mm)	108 x 22.5 x 114.5
Safety Level	Safety Integrity Level SIL 3, according to EN 61508 Safety Integrity Level SIL CL 3, according to EN 62061 Performance Level PL e and Cat. 4, according to ISO/EN 13489-1:2015
Function	Can stand-alone managing and monitoring different safety sensors and commands at the same time. Manages up to 14 expansion units leaving out C2 R/C4 R modules

### Safety inputs and outputs specifications

CMM as a stand alone unit	- 8 digital inputs, PNP active high according to EN 61131-2 - 2 pairs of solid state programmable safety outputs (OSSD), PNP active high 400 mA at 24 VDC max
Max. digital inputs with expansion modules	128
Max. digital outputs with expansion modules	16 pairs (OSSD)
Max. n° of expansion modules	14, leaving out C2 R/C4 R modules

### Non-Safety inputs and outputs specifications

Test outputs	4
Programmable digital signal outputs	2
Input for Start/Restart interlock and EDM	2

### General specifications

Rated voltage	24 VDC ±20% / supply from Class II
Digital inputs	PNP active high, according to EN 61131-2
OSSD	PNP active high - 400 mA @ 24 VDC (every OSSD)
Enclosure protection class	IP 20
Terminal blocks protection class	IP 2x

## Types

## I/O Expansion modules

### C 8I 2O



### C 8I / C 16I



### C 12I 8TO





Dimensions HxWxD (mm)	108 x 22.5 x 114.5	108 x 22.5 x 114.5	108 x 22.5 x 114.5
Performance Level	Cat. 4, PL e (EN ISO 13849-1:2015)	Cat. 4, PL e (EN ISO 13849-1:2015)	Cat. 4, PL e (EN ISO 13849-1:2015)
Safety Integrity Level	SIL 3 (EN 61508)	SIL 3 (EN 61508)	SIL 3 (EN 61508)
Function	Expansion modules	Expansion modules	Expansion modules

### General specifications

PFHd (IEC 61508:1998)	5.72E-9	5.75E-9 [C 8I] 7.09E-9 [C 16I]	3.24E-9
Rated voltage	24 VDC ±20%	24 VDC ±20%	24 VDC ±20%
Dissipated power	3 W max	3 W max	3 W max
Digital inputs	8 / PNP active high according to EN 61131-2 [C 8I 2O]	PNP active high according to EN 61131-2 8 [C 8I] / 16 [C 16I]	12 / PNP active high according to EN 61131-2 [C 12I 8TO]
Digital output	2 OSSD pairs with 400 mA output current		
Test output	4 for sensor monitoring and checking short-circuits and overloads	4 for sensor monitoring and checking short-circuits and overloads	8 for sensor monitoring and checking short-circuits and overloads

## Configurable safety modules

	OSSD	Standard relay expansion modules
Types	C 2OSSD / C 4OSSD	C 2R / C 4R
		
Dimensions HxWxD (mm)	108 x 22.5 x 114.5	108 x 22.5 x 114.5
Performance Level	Cat. 4, PL e (EN ISO 13849-1:2015)	Cat. 4, PL e (EN ISO 13849-1:2015)
Safety Integrity Level	SIL 3 (EN 61508)	SIL 3 (EN 61508)
Rated voltage	24 VDC ±20%	24 VDC ±20%
Function	Expansion modules	Expansion modules

### General specifications

PHFd (IEC 61508:1998)	3.16E-9 [C 2OSSD] / 3.44E-9 [C 4OSSD]	
Dissipated power	3 W max	3 W max
Digital output	PNP active high 2 [C 2OSSD]; PNP active high 4 [C 4OSSD]	
Switching voltage		240 VAC
Switching current		6 A max
Contacts		2 NO + 1 NC [C 2R] connectable to 1 OSSD pair 4 NO + 2 NC [C 4R] connectable to 2 OSSD pairs
Feedback contacts		1 NC [C 2R] / 2 NC [C 4R]

### Speed monitoring modules



	C PSS	C ES1 / C ES2
		
Dimensions HxWxD (mm)	108 x 22.5 x 114.5	108 x 22.5 x 114.5
Performance Level	Cat. 4, PL e (EN ISO 13849-1:2015)	Cat. 4, PL e (EN ISO 13849-1:2015)
Safety Integrity Level	SIL 3 (EN 61508)	SIL 3 (EN 61508)
Rated voltage	24 VDC ±20%	24 VDC ±20%
Function	Can be used to control the following: <ul style="list-style-type: none"> <li>• Zero speed, Max. speed, Speed range;</li> <li>• Direction of movement, rotation/translation;</li> </ul> Up to 4 speed thresholds can be set for each logic output (axis). Each unit incorporates two logic outputs that can be configured using the software and is thus capable of controlling up to two independent axes	Can be used to control the following: <ul style="list-style-type: none"> <li>• Zero speed, Max. speed, Speed range;</li> <li>• Direction of movement, rotation/translation;</li> </ul> Up to 4 speed thresholds can be set for each logic output (axis). Each unit incorporates two logic outputs that can be configured using the software and is thus capable of controlling up to two independent axes

### General specifications

Dissipated power	3 W max	3 W max
Max number of axis	2	2
2 proximity inputs	1 encoder Sin/Cos + 1 or 2 proximity [C PSS]	
1 encoder e 2 proximity inputs		1 encoder TTL 5V + 1 or 2 proximity [C ES1T] 1 encoder HTL + 1 or 2 proximity [C ES1H]
2 encoder e 2 proximity inputs		2 encoder TTL + 1 or 2 proximity [C ES2T] 2 encoder HTL + 1 or 2 proximity [C ES2H] 2 encoder Sin/Cos + 1 or 2 proximity [C ES2S]







# Configurable safety modules





	Data and diagnostics communication modules	Bus transfer expansion modules
Types	C DDC	C BT
		
Dimensions HxWxD (mm)	108 x 22.5 x 114.5	108 x 22.5 x 114.5
Performance Level	Cat. 4, PL e (EN ISO 13849-1:2015)	Cat. 4, PL e (EN ISO 13849-1:2015)
Safety Integrity Level	SIL 3 (EN 61508)	SIL 3 (EN 61508)
Rated voltage	24 VDC ±20%	24 VDC ±20%
Function	Communication with most common industrial fieldbus system	Interface expansion module allowing the connection of remote expansions. Ideal solution for the interconnection of the safety functions of several machines in a production line
<b>General specifications</b>		
Connection		Shielded cable compatible with RS485
Max connection distance		50 m
Max number of CBT modules per system		6
References	Profibus [C PFBUS] DeviceNET [C DNET] CANopen [C CAN] Ethernet IP [C EIP] EtherCAT [C ECAT] PROFINET [C PFNET] Universal Serial Bus [C OMMS]	1 connection (1 input or 1 output) [C BT1] 2 connections (1 input and 1 output) [C BT2]  The C BT1 is placed at the beginning or at the end of the network connected with a single cable, whilst the C BT2 goes in the middle.

# Safety modules

## Certus Multifunction

Types	CM22D0A	CM40D0A	CM30D1A	CL20D2A
				
Dimensions HxWxD (mm)	63 x 18 x 90	63 x 18 x 90	63 x 18 x 90	63 x 18 x 90
Safety Integrity Level (EN 62061)	SILCL 3	SILCL 3	SILCL 3	SILCL 3
Safety Integrity Level (EN 61058)	SIL 3	SIL 3	SIL 3	SIL 3
Performance Level (EN ISO 13849-1:2015)	Cat 4, PL e	Cat 4, PL e	Cat 4, PL e	Cat 4, PL e
Lift Standards	-	-	-	EN 81-20:2014 EN 81-50:2014
Function	Selectable delay time. Can be easily set-up through the hex-switch, selected from a choice of 15 pre-set configurations, from 0 to 30 sec. 4 LEDs on the front panel indicate the status and any errors during operation	The correct opening and closing of the safety function OSSD is tested automatically. 4 LEDs on the front panel indicate the status and any errors during operation	The correct opening and closing of the safety function OSSD is tested automatically. 4 LEDs on the front panel indicate the status and any errors during operation	Control of levelling, re-levelling and preliminary operation with doors not closed and locked
<b>Output specifications</b>				
Safety Output / Auxiliary Output	2 x OSSD direct + 2 x OSSD delayed	4 x OSSD (NO)	3 x OSSD (NO) + 1 OSSD Auxiliary (1 NC)	2 x OSSD Safety (NO) + 2 OSSD Auxiliary (1 NC and 1 NO)
Max. load DC24	≤400 mA	≤400 mA	≤400 mA	≤400 mA
<b>Input specifications</b>				
Type	Certus modules can be connected with different types of input: E-stop, E-gate, limit switch, non-contact switch, safety light curtains (ESPE Type 4, Type 2), safety light beam (single beam), safety mat, levelling	Certus modules can be connected with different types of input: E-stop, E-gate, limit switch, non-contact switch, safety light curtains (ESPE Type 4, Type 2), safety light beam (single beam), safety mat, levelling	Certus modules can be connected with different types of input: E-stop, E-gate, limit switch, non-contact switch, safety light curtains (ESPE Type 4, Type 2), safety light beam (single beam), safety mat, levelling	Possibility of connecting mechanical or magnetic switches (reed contact)
<b>General specifications</b>				
Power supply	24 VDC ± 20%	24 VDC ± 20%	24 VDC ± 20%	24 VDC ± 20%
Screw terminals	Fixed	Fixed	Fixed	Fixed
Start	Manual or automatic start selectable	Manual or automatic start selectable	Manual or automatic start selectable	Manual or automatic start selectable
Approvals/Marks	CE - TÜV - UL - RoHS	CE - TÜV - UL - RoHS	CE - TÜV - UL - RoHS	CE - TÜV - UL - RoHS
<b>References</b>				
	CM22D0A	CM30D1A	CM40D0A	CL20D2A

# Safety modules

	Emergency stop and safety gates			Two hand device
Types	NES02D	NES13D	NA13D	ND12D
				
Dimensions HxWxD (mm)	99 x 22.5 x 114	99 x 22.5 x 114	99 x 22.5 x 114	99 x 22.5 x 114
Performance Level	Cat. 4, PL e (EN ISO 13849-1:2015)	Cat. 4, PL e (EN ISO 13849-1:2015)	Cat. 4, PL e (EN ISO 13849-1:2015)	Cat. 4, PL e (EN ISO 13849-1:2015)
Function	Category 0 emergency stop module safety gates (mech. switches)	Category 0 emergency stop module safety gates (mech. switches)	Category 0 emergency stop module safety gates (mech. switches)	Two hand device

## Output specifications

	2 x NO safety relay	3 x NO safety relay + 1 NC relay	3 x NO safety relay + 1 NC relay	2 x NO safety relay + 1 NC relay, 1 NO PNP
Max. load AC1	6 A @ 230 VAC	6 A @ 230 VAC	6 A @ 230 VAC	6 A @ 230 VAC
Max. load DC12	6 A @ 24 VDC	6 A @ 24 VDC	6 A @ 24 VDC	6 A @ 24 VDC
Electrical life	> 10 <sup>5</sup> operations	> 10 <sup>5</sup> operations	> 10 <sup>5</sup> operations	> 10 <sup>5</sup> operations

## Input specifications

Type	2 x NO, voltage free	2 x NO, voltage free	2 x NO, voltage free	2 x NO, 2 x NC, voltage free
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## General specifications

Power supply	24 VAC / DC -15% +10%	24 VAC / DC -15% +10%	24 VAC/DC -15% +10% 110 VAC -15% +10% [110CG] 230 VAC -15% +10% [230CG]	24 VAC/DC -15% +10% 110 VAC -15% +10% [110CG] 230 VAC -15% +10% [230CG]
Screw terminals	Fixed [SA, SC] Detachable [DA, DC]	Fixed [SA, SC] Detachable [DA, DC]	Fixed	Fixed
Start	Automatic / Manual [SA, DA] Monitored manual [SC, DC]	Automatic / Manual [SA, DA] Monitored manual [SC, DC]	Automatic / Manual	Automatic
Approvals/Marks	CE - UL - TÜV	CE - UL - TÜV	CE	CE - UL - TÜV

## References

	<b>NES02DB24SA</b>	<b>NES13DB24SA</b>	<b>NA13D</b>	<b>ND12D</b>
	<b>NES02DB24SC</b>	<b>NES13DB24SC</b>	<b>NA13D110CG</b>	<b>ND12D110CG</b>
	<b>NES02DB24DA</b>	<b>NES13DB24DA</b>	<b>NA13D230CG</b>	<b>ND12D230CG</b>
	<b>NES02DB24DC</b>	<b>NES13DB24DC</b>		

# Safety modules

	Safety mat & edge		Safety light curtains
Types	NSE02C	NST02C	NLG02D / NLG13D
			
Dimensions HxWxD (mm)	84 x 22.5 x 100	84 x 22.5 x 100	99 x 22.5 x 114
Safety category	Category 3 (EN ISO 13849-1: 2008)	Category 3 (EN ISO 13849-1: 2008)	Category 4 (EN ISO 13849-1:2008)
Performance Level	PLd (EN ISO 13849-1:2008)	PLd (EN ISO 13849-1:2008)	PLe (EN ISO 13849-1:2008)
Function	Safety mat & edge module	Safety mat module	Light curtains safety modules

## Output specifications

	2 x NO safety relay	2 x NO safety relay	2 x NO safety relay [NLG02] 3 x NO safety relay + 1 NC relay [NLG13]
Max. load AC1	5 A @ 230 VAC	5 A @ 230 VAC	6 A @ 230 VAC
Max. load DC12	5 A @ 24 VDC	5 A @ 24 VDC	6 A @ 24 VDC
Electrical life	> 10 <sup>5</sup> operations	> 10 <sup>5</sup> operations	> 10 <sup>5</sup> operations

## Input specifications

Type	2-wire mats or safety edges	4-wire mats (SM...)	2 x NO min 10 mA / 17 V max 60 mA / 38 V [NLG02] max 30 mA / 38 V
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## General specifications





Power supply	24 VAC/DC ±15%	24 VAC/DC ±15%	24 VDC - 15% +10%
Screw terminals	Fixed	Fixed	Fixed [SA, SC] Detachable [DA, DC]
Start	Automatic / Manual [SA] Monitored manual [SC]	Automatic / Manual [SA] Monitored manual [SC]	Automatic / Manual [SA, DA] Monitored manual [SC, DC]
Approvals/Marks	CE - TÜV	CE - TÜV	CE - UL - TÜV

## References

	<b>NSE02CB24SA</b>	<b>NST02CB24SA</b>	<b>NLG02D724SA</b>
	<b>NSE02CB24SC</b>	<b>NST02CB24SC</b>	<b>NLG02D724SC</b>
			<b>NLG02D724DA</b>
			<b>NLG02D724DC</b>
			<b>NLG13D724SA</b>
			<b>NLG13D724SC</b>
			<b>NLG13D724DA</b>
			<b>NLG13D724DC</b>

# Safety modules

## Safety gates (magnetic sensors)

Types	NSO02	NSO13	NSC02	NSC13
				
Dimensions HxWxD (mm)	99 x 22.5 x 114	99 x 22.5 x 114	99 x 22.5 x 114	99 x 22.5 x 114
Safety category	Category 4 (EN ISO 13849-1:2008)	Category 4 (EN ISO 13849-1:2008)	Category 4 (EN ISO 13849-1:2008)	Category 4 (EN ISO 13849-1:2008)
Performance Level	PLe (EN ISO 13849-1:2008)	PLe (EN ISO 13849-1:2008)	PLe (EN ISO 13849-1:2008)	PLe (EN ISO 13849-1:2008)
Function	Safety gates module	Safety gates module	Safety gates module	Safety gates module
<b>Output specifications</b>				
	2 x NO safety relay	3 x NO safety relay + 1 NC relay	2 x NO safety relay	3 x NO safety relay + 1 NC relay
Max. load AC1	6 A @ 230 VAC	6 A @ 230 VAC	6 A @ 230 VAC	6 A @ 230 VAC
Max. load DC12	6 A @ 24 VDC	6 A @ 24 VDC	6 A @ 24 VDC	6 A @ 24 VDC
Electrical life	> 10 <sup>5</sup> operations	> 10 <sup>5</sup> operations	> 10 <sup>5</sup> operations	> 10 <sup>5</sup> operations
<b>Input specifications</b>				
Type	2 x NO, SMS or mechanical	2 x NO, SMS or mechanical	1 x NO, 1 x NC, SMS or mechanical	1 x NO, 1 x NC, SMS or mechanical
<b>General specifications</b>				
Power supply	24 VAC/DC -15% +10%	24 VAC/DC -15% +10%	24 VAC/DC -15% +10%	24 VAC/DC -15% +10%
Screw terminals	Fixed [SA, SC] Detachable [DA, DC]	Fixed [SA, SC] Detachable [DA, DC]	Fixed [SA, SC] Detachable [DA, DC]	Fixed [SA, SC] Detachable [DA, DC]
Start	Automatic / Manual [SA, DA] Monitored manual [SC, DC]	Automatic / Manual [SA, DA] Monitored manual [SC, DC]	Automatic / Manual [SA, DA] Monitored manual [SC, DC]	Automatic / Manual [SA, DA] Monitored manual [SC, DC]
Approvals/Marks	CE - UL - TÜV	CE - UL - TÜV	CE - UL - TÜV	CE - UL - TÜV
<b>References</b>				
	<b>NSO02DB24SA</b>	<b>NSO13DB24SA</b>	<b>NSC02DB24SA</b>	<b>NSC13DB24SA</b>
	<b>NSO02DB24SC</b>	<b>NSO13DB24SC</b>	<b>NSC02DB24SC</b>	<b>NSC13DB24SC</b>
	<b>NSO02DB24DA</b>	<b>NSO13DB24DA</b>	<b>NSC02DB24DA</b>	<b>NSC13DB24DA</b>
	<b>NSO02DB24DC</b>	<b>NSO13DB24DC</b>	<b>NSC02DB24DC</b>	<b>NSC13DB24DC</b>

# Safety modules

## Lift levelling

### Types

**NA12DLIFT**

**NXL12DG**



Dimensions HxWxD (mm)

99 x 22.5 x 114

99 x 22.5 x 114

Function

Lift levelling module  
(EN 81-20, 81-50, EN 12015, EN 12016)

Lift levelling module  
(EN 81-20, 81-50, EN 12015, EN 12016)

### Output specifications

2 x NO safety relay

[NXL12DG002]  
2 x NO safety relay  
[NXL12DG020]  
2 x NO safety relay + 1 x NC auxiliary output

Max. load AC1

6 A @ 230 VAC

6 A @ 230 VAC

Max. load DC12

Electrical life

> 10<sup>5</sup> operations

> 10<sup>5</sup> operations

### Input specifications

Type

4-wire  
2 NO Channel with short-circuit detection

[NXL12DG002]  
3-wire, 2 NO 1 common terminal  
[NXL12DG020]  
4-wire, 2 NO channel with short-circuit detection

### General specifications

Power supply

[NA12D12LIFT]  
12 VAC/DC -15% +10%  
[NA12DLIFT]  
24 VAC/DC -15% +10%

24 VAC/DC -15% +10%

Screw terminals

Fixed

Fixed

Approvals/Marks

CE - TÜV

CE - TÜV

### References

**NA12D12LIFT**

**NXL12DG002**

**NA12DLIFT**

**NXL12DG020**

# Safety magnetic sensors

## Safety magnetic sensors

### Types

#### SMS...

#### CLS...



### Electrical specifications

Max. switch. voltage	100 VAC
Max. switch. power	5 VA
Max. switch. current	0.25 A

### General specifications

External dimensions (mm)	88 x 25 x 13; M18x1 SMSA2; M30x1.5 SMSA3P
Suitable magnetic unit	CLS; CLSA2 (SMSA2P); CLSA2M (SMSA2M); CLSA3 (SMSA3P)
Output connection	Cable (PVC, AWG 22 to 26, L=2 m.); pig tail with M12 connector, L=0.3 m
Degree of protection	IP 67
Operating temperature	-25°C to +70°C
Housing material	Plastic; PBT + 30 % glass (SMSA2P and SMSA3P); Stainless steel (SMSA2M)
Approvals/Marks	CE - (UL version is available for some items with different codification)

### References

	Safety Outputs	Aux. Outputs	REFERENCES	Dimensions	REFERENCES		
Housing type: Rectangular Material: Plastic	1NO		<b>SMS10</b>	88 x 25 x 13	<b>CLS</b>		
	1NO	1NC	<b>SMS10NC</b>				
	1NO	1NC	<b>SMS10CCM1</b> 0.3 m cable with M12 conn.				
	1NO+1NC		<b>SMS01</b>				
	1NO+1NC		<b>SMS02</b>				
	1NO+1NC		<b>SMS02LD</b> LED on NC contact				
	1NO+1NC		<b>SMS02S1</b> Resistor on NO contact				
	2NO		<b>SMS03</b>				
	2NO		<b>SMS03+ CM1A4/03MT</b> 0.3 m cable with M12 conn.				
	2NO	1NC	<b>SMS03NC</b>				
Housing type: Cylindrical Material: Plastic	1NO+1NC		<b>SMSA2P02</b>	Ø25.1 x 9.3	<b>CLSA2</b>		
	1NO+1NC		<b>SMSA2P02LD</b> LED on NC contact				
	2NO		<b>SMSA2P03</b>				
	1NO		<b>SMSA2P10</b>				
	2NO		<b>SMSA2P30</b>				
	1NO+1NC		<b>SMSA3P02</b>			Ø30 x 16	<b>CLSA3</b>
	2NO		<b>SMSA3P03</b>				
Housing type: Cylindrical Material: Stainless steel	2NO		<b>SMSA3P30</b>	Ø25.1 x 9.3	<b>CLSA2M</b>		
	1NO+1NC		<b>SMSA2M02</b>				
	1NO		<b>SMSA2M10</b>				

# Safety switches - Electromagnetic safety interlock

## Interlock types

### Electrical

### Mechanical



## Family: ESI

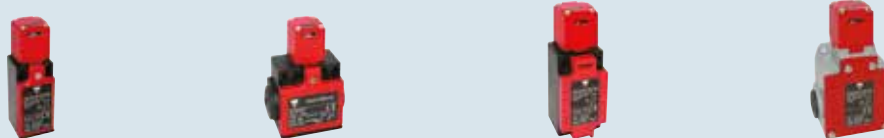
	ESI Electrical Interlock	ESI Mechanical Interlock
Material body	Polimeric	Polimeric
Dimensions WxHxD (mm)	40 x 190 x 42	40 x 190 x 42
<b>References contact block</b>		
1NO + 2NC (Coil) + 1NC (Actuator)	<b>ESI31xE024</b>	<b>ESI31xM024</b>
1NO + 2NC (Coil) + 1NO (Actuator)	<b>ESI22xE024</b>	<b>ESI22xM024</b>
2NC (Coil) + 1NO + 1NC (Actuator)	<b>ESI13xE024</b>	<b>ESI13xM024</b>
1NO + 2NC (Coil) + 1NC (Actuator)	<b>ESI31xE120</b>	<b>ESI31xM120</b>
1NO + 2NC (Coil) + 1NO (Actuator)	<b>ESI22xE120</b>	<b>ESI22xM120</b>
2NC (Coil) + 1NO + 1NC (Actuator)	<b>ESI13xE120</b>	<b>ESI13xM120</b>
1NO + 2NC (Coil) + 1NC (Actuator)	<b>ESI31xE230</b>	<b>ESI31xM230</b>
1NO + 2NC (Coil) + 1NO (Actuator)	<b>ESI22xE230</b>	<b>ESI22xM230</b>
2NC (Coil) + 1NO + 1NC (Actuator)	<b>ESI13xE230</b>	<b>ESI13xM230</b>
<b>General specifications (for all types)</b>		
Conformance	Low Voltage Directive 2014/35/EU in accordance with EN/IEC 60947-5-1	Low Voltage Directive 2014/35/EU in accordance with EN/IEC 60947-5-1
	Machinery Directive 2006/42/CE in accordance with EN ISO 14119	Machinery Directive 2006/42/CE in accordance with EN ISO 14119
	SIL 3 in accordance with EN 62061	SIL 3 in accordance with EN 62061
	PL e in accordance with EN ISO 13849-1	PL e in accordance with EN ISO 13849-1
	Interlock type 2 in accordance with EN ISO 14119	Interlock type 2 in accordance with EN ISO 14119
Max actuating speed	20 m/min	20 m/min
Switching frequency	600 cycles/h	600 cycles/h
Load factor	0.5	0.5
Retention force at locked actuator	1200 N	1200 N
Mechanical durability	1,000,000 operations	1,000,000 operations
B10d	4,000,000 operations	4,000,000 operations
Rated operating current AC-15	24 V - 10 A	24 V - 10 A
Rated operating current AC-15	230 V - 4 A	230 V - 4 A
Rated operating current DC-13	24 V - 4 A	24 V - 4 A

X must be replaced depending on the head orientation:  
1: 0°    2: 90°    3: 180°    4: 270°



# Limit switches - Safety type

## Head types Key Actuator 90° adj. head (key must be ordered separately)



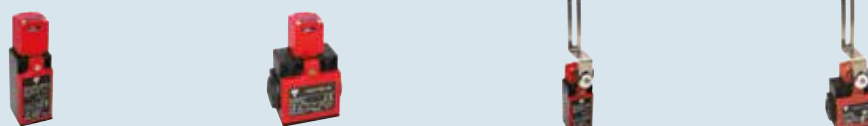
### Family: S

	PS21	PS42	PS31	PS43
	Thermoplastic*	Thermoplastic*	Thermoplastic*	Metal
Dimensions WxHxD (mm)	30.3 x 90 x 30	57 x 83 x 33	41.3 x 109.5 x 41	43 x 104.5 x 66

### References contact block

Snap 1NO+1NC	↔ PS21S-PS1105-T00	PS42S-PS1105-T00	PS31S-PS1105-T00	PS43S-PS1105-Y00
Snap 2NC	↔ PS21S-PS0205-T00	PS42S-PS0205-T00	PS31S-PS0205-T00	PS43S-PS0205-Y00
Slow 1NO+1NC	↔ PS21S-PT1105-T00	PS42S-PT1105-T00	PS31S-PT1105-T00	PS43S-PT1105-Y00
Slow Ov.**1NO+1NC	↔ PS21S-PO1105-T00	PS42S-PO1105-T00	PS31S-PO1105-T00	PS43S-PO1105-Y00
Slow 2NC	↔ PS21S-PT0205-T00	PS42S-PT0205-T00	PS31S-PT0205-T00	PS43S-PT0205-Y00
Slow 2NO+1NC	↔		PS31S-PT2105-T00	PS43S-PT2105-Y00
Slow 1NO+2NC	↔		PS31S-PT1205-T00	PS43S-PT1205-Y00
Slow 3NC	↔		PS31S-PT0305-T00	PS43S-PT0305-Y00

## Head types Key actuator fully turnable head (key must be ordered separately) Hinge Switch Operated lever\*



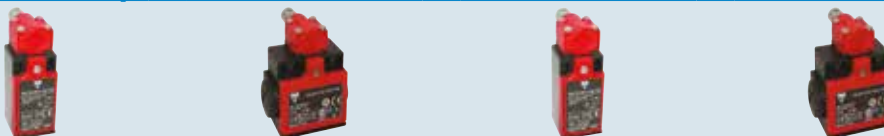
### Family: S / H

	PS21	PS42	PS21	PS42
	Thermoplastic*	Thermoplastic*	Thermoplastic*	Thermoplastic*
Dimensions WxHxD (mm)	30.3 x 98.6 x 30	57 x 91.5 x 33	30.3 x 157 x 42	57 x 150 x 42

### References contact block

Snap 1NO+1NC	↔ PS21S-PS1109-T00	PS42S-PS1109-T00	PS21H-PS11HC-T00	PS42H-PS11HC-T00
Snap 2NC	↔ PS21S-PS0209-T00	PS42S-PS0209-T00	PS21H-PS02HC-T00	PS42H-PS02HC-T00
Slow 1NO+1NC	↔ PS21S-PT1109-T00	PS42S-PT1109-T00	PS21H-PT11HC-T00	PS42H-PT11HC-T00
Slow Ov.**1NO+1NC	↔ PS21S-PO1109-T00	PS42S-PO1109-T00	PS21H-PO11HC-T00	PS42H-PO11HC-T00
Slow 2NC	↔ PS21S-PT0209-T00	PS42S-PT0209-T00	PS21H-PT02HC-T00	PS42H-PT02HC-T00

## Head types Hinge shaft Zinc plated steel Hinge Shaft Stainless steel



### Family: H

	PS21	PS42	PS21	PS42
	Thermoplastic*	Thermoplastic*	Thermoplastic*	Thermoplastic*
Dimensions WxHxD (mm)	30.3 x 79.5 x 51.2	57 x 72.5 x 52.5	30.3 x 79.5 x 51.2	30.3 x 72.5 x 52.5

### References contact block

Snap 1NO+1NC	↔ PS21H-PS11HZ-T00	PS42H-PS11HZ-T00	PS21H-PS11HS-T00	PS42H-PS11HS-T00
Snap 2NC	↔ PS21H-PS02HZ-T00	PS42H-PS02HZ-T00	PS21H-PS02HS-T00	PS42H-PS02HS-T00
Slow 1NO+1NC	↔ PS21H-PT11HZ-T00	PS42H-PT11HZ-T00	PS21H-PT11HS-T00	PS42H-PT11HS-T00
Slow Ov.**1NO+1NC	↔ PS21H-PO11HZ-T00	PS42H-PO11HZ-T00	PS21H-PO11HS-T00	PS42H-PO11HS-T00
Slow 2NC	↔ PS21H-PT02HZ-T00	PS42H-PT02HZ-T00	PS21H-PT02HS-T00	PS42H-PT02HS-T00

### General specifications (for all types)

Degree of protection	IP 65 (plastic body) IP 66 (metal body)	Rated operational current	
Rated insulation voltage plastic body	(U <sub>i</sub> )	le/AC-15 230 VAC	3.1 A
according to IEC 60947-1 and EN 60947-1	500 V	le/DC-13 24 VDC	2.8 A
according to UL 508, CSA C22-2 n°14	A 600, Q 600	Electrical durability (according to IEC 60947-5-1 annex C)	
Rated insulation voltage metal body	(U <sub>i</sub> )	max. switching frequency Cycles/h	3600
according to IEC 60947-1 and EN 60947-1	400 V (PS21, PS42)	load factor	0.5
	500 V (PS31, PS43)	Air temperature near the device	
according to UL 508, CSA C22-2 n°14	A 300, Q 300 (PS21, PS42)	during operation	-25 to +70°C
	A 600, Q 600 (PS31, PS43)	for storage	-30 to +80°C
Rated impulse withstand voltage U <sub>imp</sub>	6 kV	Approvals	CE - UL - CSA

\* also available in metal (M type) \*\* Ov.: overlapping travel paths

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# Limit switches - Safety type

## Head types

### Pull wire activated head - 16 m cable max

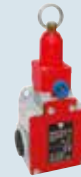


## Family: R

	PS31 Metal	PS43 Metal
Dimensions WxHxD (mm)	40 x 162.75 x 43	63 x 158.25 x 43.3
<b>References contact block</b>		
Snap 1NO+1NC	PS31R-PS11N7-Y00	PS43R-PS11N7-Y00
Snap 2NC	PS31R-PS02N7-Y00	PS43R-PS02N7-Y00
Slow 1NO+1NC	PS31R-PT11N7-Y00	PS43R-PT11N7-Y00
Slow Ov.**1NO+1NC	PS31R-PO11N7-Y00	PS43R-PO11N7-Y00
Slow 2NC	PS31R-PT02N7-Y00	PS43R-PT02N7-Y00
Slow 2NO+1NC	PS31R-PT21N7-Y00	PS43R-PT21N7-Y00
Slow 1NO+2NC	PS31R-PT12N7-Y00	PS43R-PT12N7-Y00
Slow 3NC	PS31R-PT03N7-Y00	PS43R-PT03N7-Y00

## Head types

### Pull wire activated head with pull button reset - 16 m cable max



## Family: H

	PS31 Metal	PS43 Metal
Dimensions WxHxD (mm)	40 x 162.75 x 43	63 x 158.25 x 44
<b>References contact block</b>		
Snap 1NO+1NC	PS31R-PS11N7-YK0	PS43R-PS11N7-YK0
Snap 2NC	PS31R-PS02N7-YK0	PS43R-PS02N7-YK0
Slow 1NO+1NC	PS31R-PT11N7-YK0	PS43R-PT11N7-YK0
Slow Ov.**1NO+1NC	PS31R-PO11N7-YK0	PS43R-PO11N7-YK0
Slow 2NC	PS31R-PT02N7-YK0	PS43R-PT02N7-YK0
Slow 2NO+1NC	PS31R-PT21N7-YK0	PS43R-PT21N7-YK0
Slow 1NO+2NC	PS31R-PT12N7-YK0	PS43R-PT12N7-YK0
Slow 3NC	PS31R-PT03N7-YK0	PS43R-PT03N7-YK0

## General specifications (for all types)

Degree of protection	IP 65 (plastic body) IP 66 (metal body)	Rated operational current	
Rated insulation voltage plastic body <small>according to IEC 60947-1 and EN 60947-1</small>	(U <sub>i</sub> )	I <sub>e</sub> /AC-15 230 VAC	3.1 A
	500 V	I <sub>e</sub> /DC-13-24 VDC	2.8 A
Rated insulation voltage metal body <small>according to IEC 60947-1 and EN 60947-1</small>	(U <sub>i</sub> )	<b>Electrical durability</b> (according to IEC 60947-5-1 annex C)	
	400 V (PS21, PS42) 500 V (PS31, PS43)	max. switching frequency Cycles/h	3600
Rated impulse withstand voltage U <sub>imp</sub>	A 300, Q 300 (PS21, PS42) A 600, Q 600 (PS31, PS43)	load factor	0.5
		<b>Air temperature near the device</b>	
		during operation	-25 to +70°C
		for storage	-30 to +80°C
		Approvals	CE - UL - CSA

\* also available in metal (Y type) \*\* Ov.: overlapping travel paths

# Limit switches - Safety type with pull button reset

Head Types	PO Steel plunger	PR Steel plunger with nylon roller	R3 Plastic roller lever on metal plunger	RT Lever with nylon roller
				

## Family: K

	PS21 Thermoplastic*	PS21 Thermoplastic*	PS21 Thermoplastic*	PS21 Thermoplastic*
Dimensions WxHxD (mm)	30.3 x 88 x 36.5	30.3 x 99 x 36.5	30.3 x 107 x 36.5	39 x 106 x 45

## References contact block

Snap 1NO+1NC	↔ PS21K-PS11P0-T00	PS21K-PS11PR-T00	PS21K-PS11R3-T00	PS21K-PS1105-T00
Snap 2NC	↔ PS21K-PS02P0-T00	PS21K-PS02PR-T00	PS21K-PS02R3-T00	PS21K-PS0205-T00
Slow 1NO+1NC	↔ PS21K-PT11P0-T00	PS21K-PT11PR-T00	PS21K-PT11R3-T00	PS21K-PT1105-T00
Slow 2NC	↔ PS21K-PT02P0-T00	PS21K-PT02PR-T00	PS21K-PT02R3-T00	PS21K-PT02RT-T00





## Family: K

	PS42 Thermoplastic*	PS42 Thermoplastic*	PS42 Thermoplastic*	PS42 Thermoplastic*
Dimensions WxHxD (mm)	57 x 81 x 36.5	57 x 92 x 36.5	57 x 100 x 36.5	57 x 99 x 45

## References contact block

Snap 1NO+1NC	↔ PS42K-PS11P0-T00	PS42K-PS11PR-T00	PS42K-PS11R3-T00	PS42K-PS11RT-T00
Snap 2NC	↔ PS42K-PS02P0-T00	PS42K-PS02PR-T00	PS42K-PS02R3-T00	PS42K-PS02RT-T00
Slow 1NO+1NC	↔ PS42K-PT11P0-T00	PS42K-PT11PR-T00	PS42K-PT11R3-T00	PS42K-PT11RT-T00
Slow 2NC	↔ PS42K-PT02P0-T00	PS42K-PT02PR-T00	PS42K-PT02R3-T00	PS42K-PT02RT-T00

Head Types	R4 Roller Lever, external side actuation	LR Roller Lever Ø22, side actuation
		

## Family: K

	PS21 Thermoplastic*	PS42 Thermoplastic*
Dimensions WxHxD (mm)	44 x 107 x 36.5	57 x 112 x 36.5

## References contact block

Snap 1NO+1NC	↔ PS21K-PS11R4-T00	PS42K-PS11LR-T00
Snap 2NC	↔ PS21K-PS02R4-T00	PS42K-PS02LR-T00
Slow 1NO+1NC	↔ PS21K-PT11R4-T00	PS42K-PT11LR-T00
Slow 2NC	↔ PS21K-PT02R4-T00	PS42K-PT02LR-T00

## General specifications (for all types)

Degree of protection	IP 65	Rated operational current	
Rated insulation voltage plastic body	(U <sub>i</sub> )	le/AC-15 230 VAC	3.1 A
according to IEC 60947-1 and EN 60947-1	500 V	le/DC-13-24 VDC	2.8 A
according to UL 508, CSA C22-2 n°14	A 600, Q 600	Electrical durability (according to IEC 60947-5-1 annex C)	
Rated insulation voltage metal body	(U <sub>i</sub> )	max. switching frequency Cycles/h	3600
according to IEC 60947-1 and EN 60947-1	400 V	load factor	0.5
	500 V	Air temperature near the device	
according to UL 508, CSA C22-2 n°14	A 300, Q 300 (PS21, PS42)	during operation	-25 to +70°C
	A 600, Q 600 (PS31, PS43)	for storage	-30 to +80°C
Rated impulse withstand voltage U <sub>imp</sub>	6 kV	Approvals	CE - UL - CSA

\* Also available in metal (Y type) other types available

## Limit switches - Safety hinge

### Head types

### Safety hinge

### Safety hinge

### Safety hinge



### Family: PS38H

	PS38H M12 connector	PS38H 2 m cable	PS38H 2 m cable back output
Material body	Thermoplastic	Thermoplastic	Thermoplastic
Dimensions WxHxD (mm)	60 x 110 x 15	60 x 110 x 15	60 x 110 x 15

### References contact block

Slow action T22: 2NO + 2NC	<b>PS38H-IT2205-T01</b>	<b>PS38H-CT2205-T01</b>	<b>PS38H-CT2205-T02</b>
Slow action T13: 1NO + 3NC	<b>PS38H-IT1305-T01</b>	<b>PS38H-CT1305-T01</b>	<b>PS38H-CT1305-T02</b>

### General specifications (for all types)

Conformance	IEC 947-5-1 and European EN 60947-5-1 standards. Safety system of machinery up to SIL 3 or PLe according to EN ISO 13849-1	IEC 947-5-1 and European EN 60947-5-1 standards. Safety system of machinery up to SIL 3 or PLe according to EN ISO 13849-1	IEC 947-5-1 and European EN 60947-5-1 standards. Safety system of machinery up to SIL 3 or PLe according to EN ISO 13849-1
Air temperature near the device	Operation - 20°C to + 80°C Storage - 20°C to + 80°C	Operation - 20°C to + 80°C Storage - 20°C to + 80°C	Operation - 20°C to + 80°C Storage - 20°C to + 80°C
Degree of protection	IP 67	IP 67	IP 67
Mechanical durability	1,000,000 operations	1,000,000 operations	1,000,000 operations
Operation frequency	1,200 cycles/h	1,200 cycles/h	1,200 cycles/h
B10d	2,000,000 cycles	2,000,000 cycles	2,000,000 cycles
Positive opening operation (according to IEC 947-5-1)	All NC contacts are positive opening operation (min. actuating torque 0.5 Nm)	All NC contacts are positive opening operation (min. actuating torque 0.5 Nm)	All NC contacts are positive opening operation (min. actuating torque 0.5 Nm)
Rated insulation voltage Ui	30 V	400 V	400 V
Protection against electrical shocks (according to IEC 536)	Class II	Class II	Class II
Thermal current Ith	2 A	4 A	4 A
Rated operational current	24 VDC - 2 A	24 - 120 - 250 - 400 VCA 4 A 24 VDC 2 A / 125 VDC 0.4 A / 250 VDC 0.3 A	24 - 120 - 250 - 400 VAC 4 A 24 VDC 2 A / 125 VDC 0.4 A / 250 VDC 0.3 A
Approvals	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA

# Limit switches - Miniature type

Head Types	<b>PO</b> Plain plunger	<b>PY</b> Nylon roller plunger	<b>P8</b> Cross nylon roller plunger	<b>RT</b> Ø14 Nylon roller lever
				

Dimensions WxHxD (mm)	35 x 60 x 16 1 m PVC cable	35 x 70 x 16 1 m PVC cable	35 x 70 x 16 1 m PVC cable	35 x 92 x 29.5 1 m PVC cable
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## PS31M (metal\*) References contact block

Snap 1NO+1NC	⊕	<b>PS31M-CS11P0-M00</b>	<b>PS31M-CS11PY-M00</b>	<b>PS31M-CS11P8-M00</b>	<b>PS31M-CS11RT-M00</b>
Slow 1NO+1NC	⊕	<b>PS31M-CT11P0-M00</b>	<b>PS31M-CT11PY-M00</b>	<b>PS31M-CT11P8-M00</b>	<b>PS31M-CT11RT-M00</b>

				
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Dimensions WxHxD (mm)	31.5 x 60 x 16 1 m PVC cable	31.5 x 70 x 16 1 m PVC cable	31.5 x 70 x 16 1 m PVC cable	31.5 x 92 x 29.5 1 m PVC cable
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## PS21M (metal\*) References contact block

Snap 1NO+1NC	⊕	<b>PS21M-CS11P0-M00</b>	<b>PS21M-CS11PY-M00</b>	<b>PS21M-CS11P8-M00</b>	<b>PS21M-CS11RT-M00</b>
Slow 1NO+1NC	⊕	<b>PS21M-CT11P0-M00</b>	<b>PS21M-CT11PY-M00</b>	<b>PS21M-CT11P8-M00</b>	<b>PS21M-CT11RT-M00</b>

Head Types	Plain plunger with fixing nuts	Roller plunger with fixing nuts	Cross roller plunger with fixing nuts	<b>R1</b> Adjustable lever with Ø18 nylon roller
				

Dimensions (mm) WxHxD	35 x 74 x 16 1 m PVC cable	35 x 84.8 x 16 1 m PVC cable	35 x 84.8 x 16 1 m PVC cable	35 x 86...158 x 38.9 1 m PVC cable
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## PS31M (metal\*) References contact block

Snap 1NO+1NC	⊕	<b>PS31M-CS11P0-M0L</b>	<b>PS31M-CS11PY-M0L</b>	<b>PS31M-CS11P8-M0L</b>	<b>PS31M-CS11RT-M0L</b>
Slow 1NO+1NC	⊕	<b>PS31M-CT11P0-M0L</b>	<b>PS31M-CT11PY-M0L</b>	<b>PS31M-CT11P8-M0L</b>	<b>PS31M-CT11RT-M0L</b>

				
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Dimensions WxHxD (mm)	31.5 x 74 x 16 1 m PVC cable	31.5 x 84.8 x 16 1 m PVC cable	31.5 x 84.8 x 16 1 m PVC cable	31.5 x 86...158 x 38.9 1 m PVC cable
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## PS21M (metal\*) References contact block

Snap 1NO+1NC	⊕	<b>PS21M-CS11P0-M0L</b>	<b>PS21M-CS11PY-M0L</b>	<b>PS21M-CS11P8-M0L</b>	<b>PS21M-CS11RT-M0L</b>
Slow 1NO+1NC	⊕	<b>PS21M-CT11P0-M0L</b>	<b>PS21M-CT11PY-M0L</b>	<b>PS21M-CT11P8-M0L</b>	<b>PS21M-CT11RT-M0L</b>

## General specifications (for all types)

Mechanical life	>10 000 000 cycles	Rated thermal current (I <sub>th</sub> )	10 A (IEC947-5-1)
Operating frequency	3600 cycles/h	Rated insulation voltage (U <sub>i</sub> )	400 VAC (IEC947-5-1)
Rated operating current (I <sub>e</sub> )	1.5 A/230 V (Cat. AC15)	Degree of protection	IP 67
	1.1 A/24 V (Cat. DC13)	Approvals	CE - UL (upon request)

\* Also available in thermoplastic (T type)

# Limit switches - Limit type

## Head Types

**PO**  
Plain plunger

**PR**  
Roller plunger

**RH**  
Plastic roller plunger

**RT**  
Nylon roller lever



## Family: L

	PS21	PS21	PS21	PS21
	Thermoplastic*	Thermoplastic*	Thermoplastic*	Thermoplastic*
Dimensions WxHxD (mm)	30.3 x 73 x 30	30.3 x 84 x 30	30.3 x 92 x 30	30.3 x 106 x 45
<b>References contact block</b>				
Snap 1NO+1NC	PS21L-PS11PO-T00	PS21L-PS11PR-T00	PS21L-PS11RH-T00	PS21L-PS11RT-T00
Slow 1NO+1NC	PS21L-PT11PO-T00	PS21L-PT11PR-T00	PS21L-PT11RH-T00	PS21L-PT11RT-T00
Slow Ov.**1NO+1NC	PS21L-PO11PO-T00	PS21L-PO11PR-T00	PS21L-PO11RH-T00	PS21L-PO11RT-T00
Slow 2NO	PS21L-PT20PO-T00	PS21L-PT20PR-T00	PS21L-PT20RH-T00	PS21L-PT20RT-T00
Slow 2NC	PS21L-PT02PO-T00	PS21L-PT02PR-T00	PS21L-PT02RH-T00	PS21L-PT02RT-T00
Snap 2NC	PS21L-PS02PO-T00	PS21L-PS02PR-T00	PS21L-PS02RH-T00	PS21L-PS02RT-T00



## Family: L

	PS42	PS42	PS42	PS42
	Thermoplastic*	Thermoplastic*	Thermoplastic*	Thermoplastic*
Dimensions WxHxD (mm)	57 x 66 x 33	57 x 77 x 33	57 x 85 x 33	57 x 99 x 45
<b>References contact block</b>				
Snap 1NO+1NC	PS42L-PS11PO-T00	PS42L-PS11PR-T00	PS42L-PS11RH-T00	PS42L-PS11RT-T00
Slow 1NO+1NC	PS42L-PT11PO-T00	PS42L-PT11PR-T00	PS42L-PT11RH-T00	PS42L-PT11RT-T00
Slow Ov.**1NO+1NC	PS42L-PO11PO-T00	PS42L-PO11PR-T00	PS42L-PO11RH-T00	PS42L-PO11RT-T00
Slow 2NO	PS42L-PT20PO-T00	PS42L-PT20PR-T00	PS42L-PT20RH-T00	PS42L-PT20RT-T00
Slow 2NC	PS42L-PT02PO-T00	PS42L-PT02PR-T00	PS42L-PT02RH-T00	PS42L-PT02RT-T00
Snap 2NC	PS42L-PS02PO-T00	PS42L-PS02PR-T00	PS42L-PS02RH-T00	PS42L-PS02RT-T00

## General specifications (for all types)

Degree of protection	IP 65 (plastic body) IP 66 (metal body)	Rated operational current	
Rated insulation voltage plastic body	(U <sub>i</sub> )	I <sub>e</sub> /AC-15 230 VAC	3.1 A
according to IEC 60947-1 and EN 60947-1	500 V	I <sub>e</sub> /DC-13-24 VDC	2.8 A
according to UL 508, CSA C22-2 n°14	A 600, Q 600	Electrical durability (according to IEC 60947-5-1 annex C)	
Rated insulation voltage metal body	(U <sub>i</sub> )	max. switching frequency Cycles/h	3600
according to IEC 60947-1 and EN 60947-1	400 V (PS21, PS42)	load factor	0.5
according to UL 508, CSA C22-2 n°14	500 V (PS31, PS43)	Air temperature near the device	
	A 300, Q 300 (PS21, PS42)	during operation	-25 to +70°C
	A 600, Q 600 (PS31, PS43)	for storage	-30 to +80°C
Rated impulse withstand voltage U <sub>imp</sub>	6 kV	Approvals	CE - UL - CSA

\* also available in metal (Y type) \*\* Ov.: overlapping travel paths

# Limit switches - Limit type

Head types	W1 Adjustable lever with Ø50 rubber roller	R1 Adjustable lever with Ø18 nylon roller	BE Ø18 nylon roller lever	LW Stainless steel spring cat whisker
				

## Family: L

	PS21	PS21	PS21	PS21
	Thermoplastic*	Thermoplastic*	Thermoplastic*	Thermoplastic*
Dimensions WxHxD (mm)	30.3 x (126.5-186.5) x 52	30.3 x (98.5-170.5) x 45.5	30.3 x 114 x 33	30.3 x 188 x 30

### References contact block

Snap 1NO+1NC	⊕	PS21L-PS11W1-T00	PS21L-PS11R1-T00	PS21L-PS11BE-T00	PS21L-PS11LW-T00
Slow 1NO+1NC	⊕	PS21L-PT11W1-T00	PS21L-PT11R1-T00	PS21L-PT11BE-T00	PS21L-PT11LW-T00
Slow Ov.**1NO+1NC	⊕	PS21L-PO11W1-T00	PS21L-PO11R1-T00	PS21L-PO11BE-T00	PS21L-PO11LW-T00
Slow 2NO		PS21L-PT20W1-T00	PS21L-PT20R1-T00	PS21L-PT20BE-T00	PS21L-PT20LW-T00
Slow 2NC	⊕	PS21L-PT02W1-T00	PS21L-PT02R1-T00	PS21L-PT02BE-T00	PS21L-PT02LW-T00
Snap 2NC	⊕	PS21L-PS02W1-T00	PS21L-PS02R1-T00	PS21L-PS02BE-T00	PS21L-PS02LW-T00

			
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## Family: L

	PS42	PS42	PS42	PS42
	Thermoplastic*	Thermoplastic*	Thermoplastic*	Thermoplastic*
Dimensions WxHxD (mm)	57 x (118.5-177) x 33	57 x (91.5-163.5) x 33	57 x 107 x 33	57 x 181 x 45

### References contact block

Snap 1NO+1NC	⊕	PS42L-PS11W1-T00	PS42L-PS11R1-T00	PS42L-PS11BE-T00	PS42L-PS11LW-T00
Slow 1NO+1NC	⊕	PS42L-PT11W1-T00	PS42L-PT11R1-T00	PS42L-PT11BE-T00	PS42L-PT11LW-T00
Slow Ov.**1NO+1NC	⊕	PS42L-PO11W1-T00	PS42L-PO11R1-T00	PS42L-PO11BE-T00	PS42L-PO11LW-T00
Slow 2NO		PS42L-PT20W1-T00	PS42L-PT20R1-T00	PS42L-PT20BE-T00	PS42L-PT20LW-T00
Slow 2NC	⊕	PS42L-PT02W1-T00	PS42L-PT02R1-T00	PS42L-PT02BE-T00	PS42L-PT02LW-T00
Snap 2NC	⊕	PS42L-PS02W1-T00	PS42L-PS02R1-T00	PS42L-PS02BE-T00	PS42L-PS02LW-T00

### General specifications (for all types)

Degree of protection	IP 65 (plastic body) IP 66 (metal body)	Rated operational current	
Rated insulation voltage plastic body	(Ui)	le/AC-15 230 VAC	3.1 A
according to IEC 60947-1 and EN 60947-1	500 V	le/AC-13 24 VDC	2.8 A
according to UL 508, CSA C22-2 n°14	A 600, Q 600	Electrical durability (according to IEC 60947-5-1 annex C)	
Rated insulation voltage metal body	(Ui)	max. switching frequency Cycles/h	3600
according to IEC 60947-1 and EN 60947-1	400 V (plastic body)	load factor	0.5
	500 V (PS31, PS43)	Air temperature near the device	
according to UL 508, CSA C22-2 n°14	A 300, Q 300 (PS21, PS42)	during operation	-25 to +70°C
	A 600, Q 600 (PS31, PS43)	for storage	-30 to +80°C
Rated impulse withstand voltage U <sub>imp</sub>	6 kV	Approvals	CE - UL - CSA

\* also available in metal (M type) \*\* Ov.: overlapping travel paths



# Limit switches - Limit type

## Head types

**PO**  
Plain plunger

**PR**  
Roller plunger

**RH**  
Plastic roller lever

**RT**  
Nylon roller lever



## Family: L

	PS43 Metal	PS43 Metal	PS43 Metal	PS43 Metal
Dimensions WxHxD (mm)	66 x 102.5 x 43	66 x 115.5 x 43	67 x 129.5 x 43	66 x 128.5 x 61.5

## References contact block

Snap 1NO+1NC	⊕	PS43L-PS11PO-M00	PS43L-PS11PR-M00	PS43L-PS11RH-M00	PS43L-PS11RT-M00
Slow 1NO+1NC	⊕	PS43L-PT11PO-M00	PS43L-PT11PR-M00	PS43L-PT11RH-M00	PS43L-PT11RT-M00
Slow Ov.**1NO+1NC	⊕	PS43L-PO11PO-M00	PS43L-PO11PR-M00	PS43L-PO11RH-M00	PS43L-PO11RT-M00
Slow 2NO		PS43L-PT20PO-M00	PS43L-PT20PR-M00	PS43L-PT20RH-M00	PS43L-PT20RT-M00
Slow 2NC	⊕	PS43L-PT02PO-M00	PS43L-PT02PR-M00	PS43L-PT02RH-M00	PS43L-PT02RT-M00
Snap 2NC	⊕	PS43L-PS02PO-M00	PS43L-PS02PR-M00	PS43L-PS02RH-M00	PS43L-PS02RT-M00
Slow 1NO+2NC	⊕	PS43L-PT12PO-M00	PS43L-PT12PR-M00	PS43L-PT12RH-M00	PS43L-PT12RT-M00
Slow 2NO+1NC	⊕	PS43L-PT21PO-M00	PS43L-PT21PR-M00	PS43L-PT21RH-M00	PS43L-PT21RT-M00
Slow 3NC	⊕	PS43L-PT03PO-M00	PS43L-PT03PR-M00	PS43L-PT03RH-M00	PS43L-PT03RT-M00
Slow 3NO		PS43L-PT30PO-M00	PS43L-PT30PR-M00	PS43L-PT30RH-M00	PS43L-PT30RT-M00



## Family: L

	PS31 Thermoplastic*	PS31 Thermoplastic*	PS31 Thermoplastic*	PS31 Thermoplastic*
Dimensions WxHxD (mm)	41 x 104 x 40.5	41 x 117 x 40.5	41 x 121 x 40.5	41 x 130 x 59

## References contact block

Snap 1NO+1NC	⊕	PS31L-PS11PO-T00	PS31L-PS11PR-T00	PS31L-PS11RH-T00	PS31L-PS11RT-T00
Slow 1NO+1NC	⊕	PS31L-PT11PO-T00	PS31L-PT11PR-T00	PS31L-PT11RH-T00	PS31L-PT11RT-T00
Slow Ov.**1NO+1NC	⊕	PS31L-PO11PO-T00	PS31L-PO11PR-T00	PS31L-PO11RH-T00	PS31L-PO11RT-T00
Slow 2NO		PS31L-PT20PO-T00	PS31L-PT20PR-T00	PS31L-PT20RH-T00	PS31L-PT20RT-T00
Slow 2NC	⊕	PS31L-PT02PO-T00	PS31L-PT02PR-T00	PS31L-PT02RH-T00	PS31L-PT02RT-T00
Snap 2NC	⊕	PS31L-PS02PO-T00	PS31L-PS02PR-T00	PS31L-PS02RH-T00	PS31L-PS02RT-T00
Slow 1NO+2NC	⊕	PS31L-PT12PO-T00	PS31L-PT12PR-T00	PS31L-PT12RH-T00	PS31L-PT12RT-T00
Slow 2NO+1NC	⊕	PS31L-PT21PO-T00	PS31L-PT21PR-T00	PS31L-PT21RH-T00	PS31L-PT21RT-T00
Slow 3NC	⊕	PS31L-PT03PO-T00	PS31L-PT03PR-T00	PS31L-PT03RH-T00	PS31L-PT03RT-T00
Slow 3NO	⊕	PS31L-PT30PO-T00	PS31L-PT30PR-T00	PS31L-PT30RH-T00	PS31L-PT30RT-T00

## General specifications (for all types)

Degree of protection	IP 65 (plastic body) IP 66 (metal body)		Rated operational current	
Rated insulation voltage plastic body	(U <sub>i</sub> )		I <sub>e</sub> /AC-15 230 VAC	3.1 A
according to IEC 60947-1 and EN 60947-1	500 V		I <sub>e</sub> /DC-13-24 VDC	2.8 A
according to UL 508, CSA C22-2 n°14	A 600, Q 600		Electrical durability (according to IEC 60947-5-1 annex C)	
Rated insulation voltage metal body	(U <sub>i</sub> )		max. switching frequency Cycles/h	3600
according to IEC 60947-1 and EN 60947-1	400 V (PS21, PS42)		load factor	0.5
according to UL 508, CSA C22-2 n°14	500 V (PS31, PS43)		Air temperature near the device	
	A 300, Q 300 (PS21, PS42)		during operation	-25 to +70°C
	A 600, Q 600 (PS31, PS43)		for storage	-30 to +80°C
Rated impulse withstand voltage U <sub>imp</sub>	6 kV		Approvals	CE - UL - CSA

\* also available in metal (M type) \*\* Ov.: overlapping travel paths

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Illustrations are for example only.



# Limit switches - Limit type

Head types	W1 Adjustable lever with Ø50 rubber roller	R1 Adjustable lever with Ø18 nylon roller	BE Ø50 nylon roller lever	LW Stainless steel spring cat whisker
				

## Family: L

	PS43 Metal	PS43 Metal	PS43 Metal	PS43 Metal
Dimensions WxHxD (mm)	62 x (147.5-203.5) x 62.5	62 x (133.5-189.5) x 60	62 x 142.5 x 66	62 x 195,5 x 43

References contact block				
Snap 1NO+1NC	↔ PS43L-PS11W1-M00	PS43L-PS11R1-M00	PS43L-PS11W0-M00	PS43L-PS11LW-M00
Slow 1NO+1NC	↔ PS43L-PT11W1-M00	PS43L-PT11R1-M00	PS43L-PT11W0-M00	PS43L-PT11LW-M00
Slow Ov.**1NO+1NC	↔ PS43L-PO11W1-M00	PS43L-PO11R1-M00	PS43L-PO11W0-M00	PS43L-PO11LW-M00
Slow 2NO	PS43L-PT20W1-M00	PS43L-PT20R1-M00	PS43L-PT20W0-M00	PS43L-PT20LW-M00
Slow 2NC	↔ PS43L-PT02W1-M00	PS43L-PT02R1-M00	PS43L-PT02W0-M00	PS43L-PT02LW-M00
Snap 2NC	↔ PS43L-PS02W1-M00	PS43L-PS02R1-M00	PS43L-PS02W0-M00	PS43L-PS02LW-M00
Slow 1NO+2NC	↔ PS43L-PT12W1-M00	PS43L-PT12R1-M00	PS43L-PT12W0-M00	PS43L-PT12LW-M00
Slow 2NO+1NC	↔ PS43L-PT21W1-M00	PS43L-PT21R1-M00	PS43L-PT21W0-M00	PS43L-PT21LW-M00
Slow 3NC	↔ PS43L-PT03W1-M00	PS43L-PT03R1-M00	PS43L-PT03W0-M00	PS43L-PT03LW-M00
Slow 3NO	PS43L-PT30W1-M00	PS43L-PT30R1-M00	PS43L-PT30W0-M00	PS43L-PT30LW-M00



## Family: L

	PS31 Thermoplastic*	PS31 Thermoplastic*	PS31 Thermoplastic*	PS31 Thermoplastic*
Dimensions WxHxD (mm)	50 x (149-205) x 65	41 x (135-191) x 60	50 x 144 x 64.5	41 x 195 x 40.5

References contact block				
Snap 1NO+1NC	↔ PS31L-PS11W1-T00	PS31L-PS11R1-T00	PS31L-PS11W0-T00	PS31L-PS11LW-T00
Slow 1NO+1NC	↔ PS31L-PT11W1-T00	PS31L-PT11R1-T00	PS31L-PT11W0-T00	PS31L-PT11LW-T00
Slow Ov.**1NO+1NC	↔ PS31L-PO11W1-T00	PS31L-PO11R1-T00	PS31L-PO11W0-T00	PS31L-PO11LW-T00
Slow 2NO	PS31L-PT20W1-T00	PS31L-PT20R1-T00	PS31L-PT20W0-T00	PS31L-PT20LW-T00
Slow 2NC	↔ PS31L-PT02W1-T00	PS31L-PT02R1-T00	PS31L-PT02W0-T00	PS31L-PT02LW-T00
Snap 2NC	↔ PS31L-PS02W1-T00	PS31L-PS02R1-T00	PS31L-PS02W0-T00	PS31L-PS02LW-T00
Slow 1NO+2NC	↔ PS31L-PT12W1-T00	PS31L-PT12R1-T00	PS31L-PT12W0-T00	PS31L-PT12LW-T00
Slow 2NO+1NC	↔ PS31L-PT21W1-T00	PS31L-PT21R1-T00	PS31L-PT21W0-T00	PS31L-PT21LW-T00
Slow 3NC	↔ PS31L-PT03W1-T00	PS31L-PT03R1-T00	PS31L-PT03W0-T00	PS31L-PT03LW-T00
Slow 3NO	↔ PS31L-PT30W1-T00	PS31L-PT30R1-T00	PS31L-PT30W0-T00	PS31L-PT30LW-T00














## General specifications (for all types)

Degree of protection	IP 65 (plastic body) IP 66 (metal body)	Rated operational current	
Rated insulation voltage plastic body	(U <sub>i</sub> )	le/AC-15 230 VAC	3.1 A
according to IEC 60947-1 and EN 60947-1	500 V	le/DC-13-24 VDC	2.8 A
according to UL 508, CSA C22-2 n°14	A 600, Q 600	Electrical durability (according to IEC 60947-5-1 annex C)	
Rated insulation voltage metal body	(U <sub>i</sub> )	max. switching frequency Cycles/h	3600
according to IEC 60947-1 and EN 60947-1	400 V (PS21, PS42)	load factor	0.5
	500 V (PS31, PS43)	Air temperature near the device	
according to UL 508, CSA C22-2 n°14	A 300, Q 300 (PS21, PS42)	during operation	-25 to +70°C
	A 600, Q 600 (PS31, PS43)	for storage	-30 to +80°C
Rated impulse withstand voltage U <sub>imp</sub>	6 kV	Approvals	CE - UL - CSA

\* also available in metal (M type) \*\* Ov.: overlapping travel paths

# Intrinsic safety

## Explosion proof sensors

Types	Cylindrical series FSQ	Rectangular series MQ	Level series ILM
			
Exter. Dimensions (mm) Float Dimensions (mm)	Ø16 x 110	37 x 16 x 8.3	Spherical Ø 53 [S], Cylindrical Ø 45x55 [C]
Category	2G, 2D	2G, 2D [MQx1EX] 1G, 1D [MQA0EX]	2G, 2D [ILMx2] 1G, 1D [ILMx0]
EX Identification	 II2GExmbIICT5Gb  II2DExmbIICT100°CDbIP67	 II2GExmbIICT5Gb [MQx1EX]  II2DExmbIICT100°CDbIP67 [MQx1EX]  II1GExialIICT6Ga [MQA0EX]  II1DExialIICT100°CDaIP67 [MQA0EX]	 II2GExmbIICT5Gb [ILMx2]  II2DExmbIICT100°CDbIP67 [ILMx2]  II1GExialIICT6Ga [ILMx0]  II1DExialIICT100°CDaIP67 [ILMx0]

## General specifications

Max. switch. voltage contact	250 VAC	230 VAC/DC [MQA1EX, MQC1EX] 30 VAC/DC [MQA0EX] 150 VAC/DC [MQS1EX]	250 VAC/DC [ILMA2] 230 VAC/DC [ILMS2] 30 VAC/DC [ILMx0]
Max. switch. current contact	3 A	0.25 to 0.75 A [MQx1EX] 120 mA [MQA0EX]	3 A [ILMA2]; 1A [ILMS2] 120 mA [ILMx0]
Max. switch. power contact	100 VA	5 to 10 VA [MQx1EX] - [MQA0EX]	100 VA [ILMA2] 60 VA [ILMS2]
Operating distance	8 - 30 mm	10 - 35 mm	-
Degree of protection	IP 67 IP66 (FSQA2HFEX)	IP 67	IP 67
Temperature Class	T5	T5 [MQx1EX] T6 [MQA0EX]	T5 [ILMx2] T6 [ILMx0]
Body material	Stainless steel AISI 303	Self-exting. PP + 30% glass fiber	Stainless steel AISI 316
Approvals/Mark	CE - TÜV Sud	CE - TÜV Sud	CE - TÜV Sud

## References

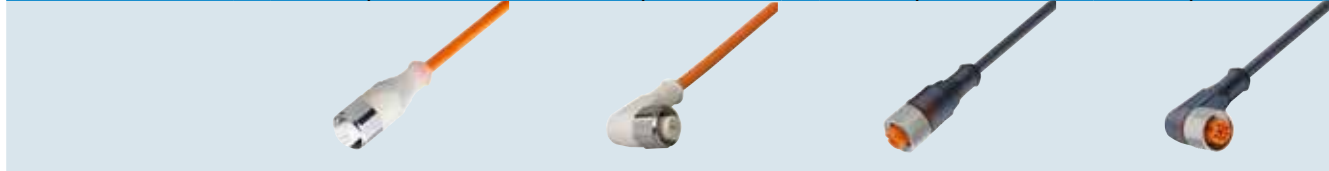
Normally open	<b>FSQA2B01SLEX</b> <b>FSQA2HFEX</b>	<b>MQA1EX</b> <b>MQA0EX</b>	<b>ILMA2SSLEX</b> <b>ILMA2CSLEX</b> <b>ILMA0SSLEX</b> <b>ILMA0CSLEX</b>
Normally closed		<b>MQC1EX</b>	
Change - Over		<b>MQS1EX</b>	<b>ILMS2SEX</b> <b>ILMS2CEX</b> <b>ILMS0SEX</b> <b>ILMS0CEX</b>

# Connectors and brackets

## General Accessories, sensors



Dimensions (mm)	Straight M8 connector PVC cable	Angled M8 connector PVC cable	Straight M8 connector PVC cable	Angled M8 connector PVC cable
Used for	3-wire DC Sensors	3-wire DC Sensors	4-wire DC Sensors	4-wire DC Sensors
2 m cable	<b>CONB53NF-S2</b>	<b>CONB53NF-A2</b>	<b>CONB54NF-S2</b>	<b>CONB54NF-A2</b>
5 m cable	<b>CONB53NF-S5</b>	<b>CONB53NF-A5</b>	<b>CONB54NF-S5</b>	<b>CONB54NF-A5</b>
10 m cable	<b>CONB53NF-S10</b>	<b>CONB53NF-A10</b>	<b>CONB54NF-S10</b>	<b>CONB54NF-A10</b>
15 m cable	<b>CONB53NF-S15</b>	<b>CONB53NF-A15</b>	<b>CONB54NF-S15</b>	<b>CONB54NF-A15</b>
Degree of protection	IP 67	IP 67	IP 67	IP 67
PUR version	Add "P" at the end of the part number	Add "P" at the end of the part number	Add "P" at the end of the part number	Add "P" at the end of the part number



Dimensions (mm)	Straight M12 connector TPE cable	Angled M12 connector TPE cable	Straight M12 connector PVC cable	Angled M12 connector PVC cable
Used for	4-wire DC	4-wire DC	3-, 4- or 5-wire DC	3-, 4- or 5-wire DC
2 m cable, 3-pin			<b>CONB13NF-S2</b>	<b>CONB13NF-A2</b>
5 m cable, 3-pin			<b>CONB13NF-S5</b>	<b>CONB13NF-A5</b>
10 m cable, 3-pin			<b>CONB13NF-S10</b>	<b>CONB13NF-A10</b>
15 m cable, 3-pin			<b>CONB13NF-S15</b>	<b>CONB13NF-A15</b>
2 m cable, 4-pin	<b>CONB14NF-S2W</b>	<b>CONB14NF-A2W</b>	<b>CONB14NF-S2</b>	<b>CONB14NF-A2</b>
5 m cable, 4-pin	<b>CONB14NF-S5W</b>	<b>CONB14NF-A5W</b>	<b>CONB14NF-S5</b>	<b>CONB14NF-A5</b>
10 m cable, 4-pin			<b>CONB14NF-S10</b>	<b>CONB14NF-A10</b>
15 m cable, 4-pin			<b>CONB14NF-S15</b>	<b>CONB14NF-A15</b>
2 m cable, 5-pin			<b>CONB15NF-S2</b>	<b>CONB15NF-A2</b>
5 m cable, 5-pin			<b>CONB15NF-S5</b>	<b>CONB15NF-A5</b>
10 m cable, 5-pin			<b>CONB15NF-S10</b>	<b>CONB15NF-A10</b>
15 m cable, 5-pin			<b>CONB15NF-S15</b>	<b>CONB15NF-A15</b>
Degree of protection	IP69K	IP69K	IP 67	IP 67
PUR version			Add "P" at the end of the part number	Add "P" at the end of the part number



Dimensions (mm)	-	65 x 27 x 130	Straight M12 connector	Angled M12 connector
Used for	Cylindrical 4 - 30 mm sensor	Testing sensor	4-wire DC	4-wire DC
Item number	<b>AMB4-30</b>	<b>ST-03</b>		
No cable 4-pin			<b>CONB14NF-S</b>	<b>CONB14NF-A</b>
Description	Universal sensor mounting bracket	Sensor tester for: NAMUR and 2-, 3- or 4-wire DC NPN/PNP and NO/NC with LED and Buzzer	Terminal connection	Terminal connection
Degree of protection			IP 67	IP 67

# Connectors and brackets

## Brackets angled



Steel, galvanized	<b>AMB8-A</b>	<b>AMB12-A</b>	<b>AMB18-A</b>	<b>AMB30-A</b>
Stainless steel AISI316L	-	<b>AMB12-A316L</b>	<b>AMB18-A316L</b>	-
Used for	M8 sensors	M12 sensors	M18 sensors	M30 sensors
Description	Mounting bracket	Mounting bracketd	Mounting bracket	Mounting bracket




## Brackets straight



Steel, galvanized	<b>AMB8-S</b>	<b>AMB12-S</b>	<b>AMB18-S</b>	<b>AMB30-S</b>
Stainless steel AISI316L	-	<b>AMB12-S316L</b>	<b>AMB18-S316L</b>	-
Used for	M8 sensors	M12 sensors	M18 sensors	M30 sensors
Description	Mounting bracket	Mounting bracket	Mounting bracket	Mounting bracket




# Environmental sensors

## Environmental sensors - ES series



Types	ESCO2THWxxDM	ESTHD50X ESTHW50X	ESAV
			
Dimensions (mm)	85 x 85 x 30.2	85 x 85 x 30.2	80 x 80 x 38 (cable length 2 m - remote type)
Function	CO <sub>2</sub> , Humidity and Temperature	Humidity and Temperature	Air Velocity and Temperature
Mounting	Wall mounting	Wall or Duct mounting	Remote or Duct mounting
<b>Input specifications</b>			
Relative humidity			
Working range	0 to 100%	0 to 95%	
Accuracy @ 23°C	±3% RH	Wall: ±5%; Duct: ±3%	
Temperature			
Sensor	Pt1000, 0...50°C (32...122°F)	Pt100; 0...50°C (32 -122°F)	PT1000, 0...50°C (32...122°F)
Accuracy @ 23°C	±0.5°C	±0.3°C+0.002°C x t actual	±0.3%°C
Air Velocity			
Working range	0-5000 ppm		0.2...20 m/s
Accuracy @ 23°C	±40 ppm +3%		±3% of F.S.
<b>Electrical specifications</b>			
Output	0-10 V and 4-20 mA	0-10 V or 4-20 mA	0-10 V or 4-20 mA
Supply Voltage	24 VAC ±10% / 12-36 VDC	19-29 VAC / 15-35 VDC	8...35 VDC / 12...30 VAC
Consumption @ 24V			
DC supply	150 mA	Wall: 15 mA / Duct: 56 mA	100 mA
AC supply	120 mA	Wall: 40 mA / Duct: 150 mA	180 mA
<b>General specifications</b>			
Electrical connections	Screw terminals	Screw terminals	Screw terminals
Working temperature range	0°C...50°C (+32°F...+122°F)	0°C...+50°C (+32°F...+122°F)	0°C...+50°C (+32°F...+122°F)
Storage temperature range	-20°C... +60°C (+-4°F...+140°F)	-25°C...+60°C (-13°F...+140°F)	-20°C...+60°C (-4°C...+140°F)
Degree of protection	IP20	Wall: IP20; Duct: IP 54	IP 54
Display	Standard; LCD double line character Up array CO <sub>2</sub> / down array temp. and humidity interchange	No	Optional; LCD Module with green back light. Double line character (up: velocity, down: temp.)
Modbus Communication	Standard	No	Optional
Approvals/Marks	CE - RoHS	CE - RoHS	CE - RoHS
<b>References</b>			
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>			

# Environmental sensors

## Environmental sensors - ES series

Types	ESCO	ESCO2	ESTxW50xxM ESTxD50xxM
			
Dimensions (mm)	80 x 80 x 38	80 x 80 x 38	80 x 80 x 38
Function	CO	CO <sub>2</sub>	Humidity, Temperature and Dew Point
Mounting	Wall or Duct mounting	Wall or Duct mounting	Wall or Duct mounting
<b>Input specifications</b>			
Relative humidity Working range Accuracy @ 20°C			0...100% RH ±2% RH
Temperature Sensor Accuracy @ 20°C			Wall: 0°C...50°C (32°F...122°F); Duct: -40°C...100°C (-40°F...212°F) ±0.15°C+0.002°C x t actual
CO <sub>2</sub> Working range Accuracy @ 25°C ±2°C, 40 ±10% RH	0 to 300 ppm / 0 to 500 ppm ±3% of FS	0 to 2000 ppm / 0 to 5000 ppm < ± 40 ppm	
<b>Electrical specifications</b>			
Output	0-10 V or 4-20 mA or switching	0-10 V or 4-20 mA	0-10 V or 4-20 mA
Supply Voltage	12-30 VAC / 8-35 VDC	24 VAC / 12-36 VDC	12-30 VAC / 8-35 VDC
Consumption @ 24V DC supply AC supply	60 mA 140 mA	37 mA 70 mA	60 mA 140 mA
<b>General specifications</b>			
Electrical connections	M12 x 1 connector	M12 x 1 connector	Screw terminals
Working temperature range	0°C...+50°C (32°F...+122°F)	0°C...+50°C (32°F...+122°F)	0°C...+50°C (32°F...+122°F)
Storage temperature range	-10°C...+60°C (14°F...+140°F)	-20°C...+60°C (-4°F...+158°F)	-25°C...+60°C (-4°F...+158°F)
Degree of protection	IP 65	IP 64 (duct) IP54 (wall)	IP 65
Display	No	No	Wall: Optional; Duct: No
Modbus	Optional	Optional	Standard
Approvals/Marks	CE - RoHS	CE - RoHS	CE - RoHS
<b>References</b>			
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>			

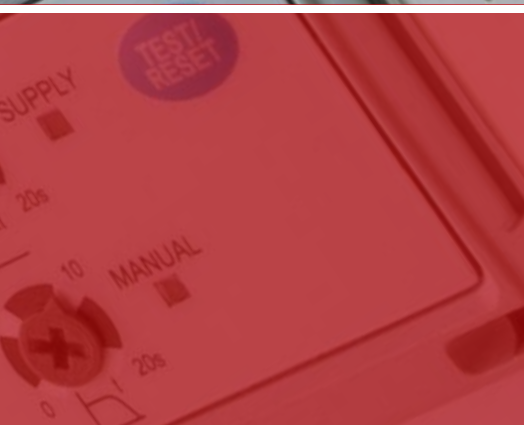
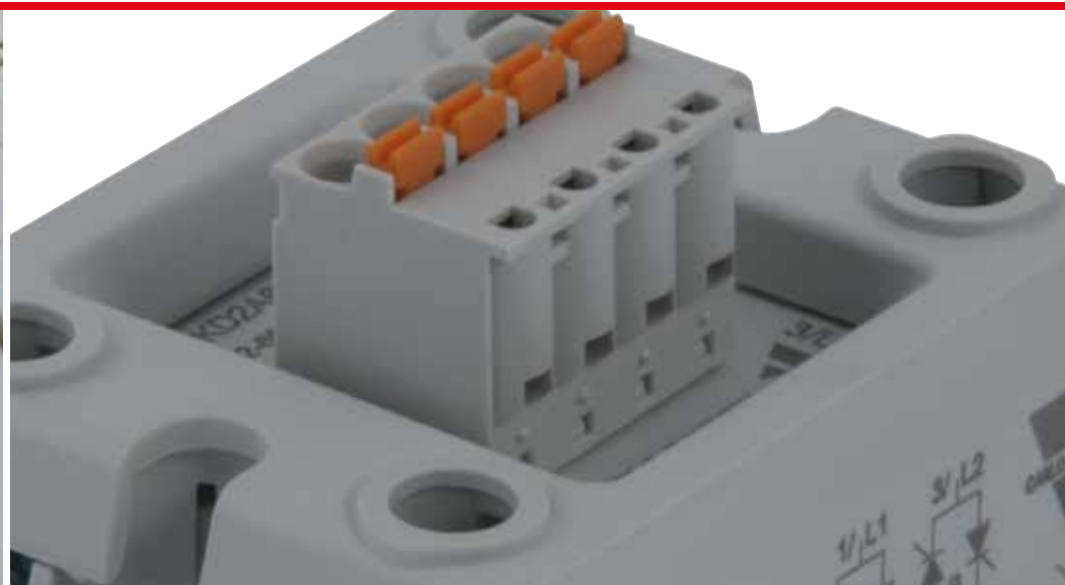
## Environmental sensors

	Wind vane	Cup anemometer
<b>Types</b>	<b>DWS-D-D...</b>	<b>DWS-V-D...</b>
<b>Connections</b>	<b>2 m cable</b>	<b>2 m cable</b>
		
Dimensions (mm)	207 x 174	183 x 145
Function	Wind direction	Wind speed
<b>References wind vane</b>		
Wind indication	0° and 90° intervals	
	<b>DWS-D-DAC13</b>	
Wind indication	±7° and left/right	
	<b>DWS-D-DDC13</b>	
<b>References cup anemometer</b>		
Operating temperature		-20°C to 60°C
Heating		Yes
Air Velocity		from 1.5 m/s to 30 m/s
		<b>DWS-V-DAC13</b>
Operating temperature		0°C to 60°C
Heating		No
Air Velocity		from 1.5 m/s to 30 m/s
		<b>DWS-V-DBC05</b>
<b>General specifications</b>		
Rated operating voltage	12 - 24 VDC	12 - 24 VDC
Voltage drop	Typ. 4.9 VDC	Typ. 4.9 VDC
Degree of protection	IP 54	IP 54
Output frequency		10 Hz pr. m/s
Signal	NPN/PNP square wave 12.5 mA ± 2 mA	
Housing material	Body: Black PVC Rotor: Stainless steel	Body: Black PVC Rotor: Stainless steel
Approvals/Marks	CE	CE






# Switches





Solid state relays	128
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# Solid state relays PCB type, 1-phase

	AC output		DC output
Types	RP1A - RP1B 3/5/5.5 AAC	RP.10 10 AAC	RP1D 1/4/8 ADC
PCB mounting SSRs, AC and DC operating. Rated isolation voltage $\geq 4000$ Vrms.			
Dimensions H x W x D (mm)	25.4 x 43 x 10.5	37 x 43 x 22	25.4 x 43 x 10.5
Features	Standard AC switching SSR	With integral heatsink	DC switching SSR
<b>Input specifications</b>			
Control input range	3-32 VDC [RP1A23..] 3-32 VDC [RP1A40..] 4-32 VDC [RP1A48..] 15-32 VAC [RP1A23A6]	3-32 VDC [RP1A23..] 4-32 VDC [RP1A40..] 4-32 VDC [RP1A48..]	4.5 - 32 VDC
Max. input current	10 mA	10 mA	15 mA
<b>Output specifications</b>			
Rated operational current			DC1: 1/4/8 ADC
AC 51 @ Ta=25°C	3 A [RP1...3] 5 A [RP1...5] 5.5 A [RP1...6]	10 A	
AC 53a @ Ta=25°C	2 A [RP1...3] 3 A [RP1...5] 5 A [RP1...6]	7 A	
Min. operational current	20 mA	10 mA	1 mADC
Non rep. surge current (t=20 ms)	65 Ap [RP1...3] 80 Ap [RP1...5] 250 Ap [RP1...6]	250 Ap	
Off-state leakage current	$\leq 1$ mA	$\leq 3$ mA	0.01 mADC
I <sup>2</sup> t for fusing (t=10 ms)	20 A <sup>2</sup> s [RP1...3] 50 A <sup>2</sup> s [RP1...5] 340 A <sup>2</sup> s [RP1...6]	340 A <sup>2</sup> s	
Critical dV/dt off-state	250 V/ $\mu$ s [RP1...3] 500 V/ $\mu$ s [RP1...5] 500 V/ $\mu$ s [RP1...6]	1000 V/ $\mu$ s	
<b>General specifications</b>			
Operational voltage range	12-265 Vrms [RP1A23..] 20-440 Vrms [RP1A40..] 20-530 Vrms [RP1A48..]	12-265 Vrms [RP1A23..] 20-440 Vrms [RP1A40..] 20-530 Vrms [RP1A48..]	1 - 60 VDC [RP1D060...] 1 - 350 VDC [RP1D350...]
Blocking voltage	650 Vp [RP1A23..] 850 Vp [RP1A40..] 1000 Vp [RP1A48..]	650 Vp [RP1A23..] 850 Vp [RP1A40..] 1000 Vp [RP1A48..]	
Power factor	0.5	0.5	0.5
Operating temperature	-20°C to +70°C	-30°C to +80°C	-20°C to +80°C
Terminals	4 pins x $\varnothing$ 0.1 mm	4 pins x $\varnothing$ 0.1 mm	4 pins x $\varnothing$ 0.1 mm
Approvals/Marks	CE - UR - cUR - VDE	CE - UR - cUR	CE - UR - cUR
<b>References</b>			
	3 A	10 A	1 A
	RP1A23D3	RP1A23D10	RP1D350D1
	RP1A40D3	RP1A40D10	
	RP1A48D3	RP1A48D10	4 A
	5 A		RP1D060D4
	RP1A23D5		
	RP1A40D5		8 A
	RP1A48D5		RP1D060D8
	5.5 A		
	RP1A23D6		
	RP1A23A6		
	RP1A40D6		
	RP1A48D6		

\* Other options available on request: Instant-on switching (RP1B..), see Accessories for DIN-rail adaptor.

# Solid state relays, 1-phase

## Slimline - AC output

Types	<b>RGS1A..KKE</b> 25/50/75/90 AAC	<b>RGS1A..KGE</b> 50/90 AAC	<b>RGS1A..MKE</b> 25/50/90 AAC
Single-phase, chassis mounting with LED for control status indication, IP20 protection, 45-65 Hz operating frequency, $\geq 4000$ VACrms isolation voltage, 100 kArms short circuit current rating, certified motor ratings.			
Dimensions (mm)	90 x 17.8 x 50.6	90 x 17.8 x 50.6	90 x 17.8 x 63.6
Features	17.8 mm wide solid state relay with integrated varistor on output, AC or DC control range, screw terminals with captivated clamp for power and control connections, E-type layout	17.8 mm wide solid state relay with integrated varistor on output, AC or DC control range, box clamp for power connections (up to 25 mm <sup>2</sup> /AWG3), screw for control connections, E-type layout	17.8 mm wide solid state relay with integrated varistor on output, AC or DC control range, screw terminals with captivated clamp for power connections and pluggable spring for control, E-type layout

### Input specifications

Control input range	3-32 VDC [RG.23D.] / 4-32 VDC [RG.60D.] 20-275 VAC, 24-190 VDC [RG..A.]	4-32 VDC [RG..D.] 20-275 VAC, 24-190 VDC [RG..A.]	3-32 VDC [RG..23D..], 4-32 VDC [RG..60D..] 20-275 VAC, 24-190 VDC [RG..A.]
Max. input current	11 mADC [RG..D.] 30 mAAC [RG..A.]	11 mADC [RG..D.] 30 mAAC [RG..A.]	11 mADC [RG..D.] 30 mAAC [RG..A.]

### Output specifications

Rated operational current AC-51 @ Ta=40°C	25 AAC [RG..25] / 50 AAC [RG..50/51] 75 AAC [RG..75] / 90 AAC [RG..90/91/92]	50 AAC [RG..50] 90 AAC [RG..92]	25 AAC [RG..25] / 50 AAC [RG..50] 90 AAC [RG..90/92]
AC-53a @ Ta=40°C	5 AAC [RG..25] / 10 AAC [RG..50/51] 14.8 AAC [RG..75] / 18 AAC [RG..90/91/92]	10 AAC [RG..50] 18 AAC [RG..92]	5 AAC [RG..25] / 10 AAC [RG..50] 18 AAC [RG..90/92]
Min. operational current	150 mAAC [RG..25] / 250 mAAC [RG..50/51] 400 mAAC [RG..75] / 500 mAAC [RG..90/91/92]	250 mAAC [RG..50] 500 mAAC [RG..92]	150 mAAC [RG..25] / 250 mAAC [RG..50] 500 mAAC [RG..90/92]
Non rep. surge current (t=10 ms)	325 Ap [RG..25] / 600 Ap [RG..50/51] 800 Ap [RG..75] / 1150 Ap [RG..90/91] 1900 Ap [RGS..92]	600 Ap [RG..50] 1900 Ap [RG..92]	325 Ap [RG..25] / 600 Ap [RG..50] 1150 Ap [RG..90] / 1900 Ap [RG..92]
Max. Off-state leak current	3 mAAC	3 mAAC	3 mAAC
I <sup>2</sup> t for fusing (t=10 ms)	525 A <sup>2</sup> s [RG..25] / 1800 A <sup>2</sup> s [RG..50/51] 3200 A <sup>2</sup> s [RG..75] / 6600 A <sup>2</sup> s [RG..90/91] 18000 A <sup>2</sup> s [RGS..92]	1800 A <sup>2</sup> s [RG..50] 18000 A <sup>2</sup> s [RG..92]	525 A <sup>2</sup> s [RG..25] / 1800 A <sup>2</sup> s [RG..50] 6600 A <sup>2</sup> s [RG..90] / 18000 A <sup>2</sup> s [RG..92]
Critical dV/dt (@ Tj init=40°C)	1000 V/μs	1000 V/μs	1000 V/μs

### General specifications

Operational voltage range	24-240 VAC +10% [RG.23..] 42-600 VAC +10% [RG.60...] 42-690 VAC + 10% [RG..69..]*	42-600 VAC +10%	24-240 VAC +10% [RG..23..] 42-600 VAC +10% [RG..60..]
Blocking voltage	800 Vp [RG..23..] 1200 Vp [RG..60..] 1600 Vp [RG..60..51/91]	1200 Vp	800 Vp [RG..23..] 1200 Vp [RG..60..]
Power factor	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage
Operating temperature	-40°C to 80°C	-40°C to +80°C	-40°C to +80°C
Approvals/Marks	CE - cURus - CSA - EAC - VDE	CE - cURus - CSA - EAC - VDE	CE - cURus - CSA - EAC - VDE

### References

230 VAC, 800 Vp	25 AAC: <b>RGS1A23X25KKE</b>	25 AAC: <b>RGS1A23X25MKE</b>
	50 AAC: <b>RGS1A23X50KKE</b>	50 AAC: <b>RGS1A23X50MKE</b>
600 VAC, 1200 Vp	25 AAC: <b>RGS1A60X25KKE</b>	25 AAC: <b>RGS1A60X25MKE</b>
	50 AAC: <b>RGS1A60X50KKE</b>	50 AAC: <b>RGS1A60X50MKE</b>
	75 AAC: <b>RGS1A60X75KKE</b>	
	90 AAC: <b>RGS1A60X90KKE</b>	90 AAC: <b>RGS1A60X90MKE</b>
600 VAC, 1600 Vp	90 AAC: <b>RGS1A60X92KKE</b>	90 AAC: <b>RGS1A60X92MKE</b>
	50 AAC: <b>RGS1A60X51KKE</b>	
690 VAC, 1600 Vp	90 AAC: <b>RGS1A60X91KKE</b>	
	90 AAC: <b>RGS1A69X91KKE*</b>	

X must be replaced with D for DC control 3-32 VDC, 4-32 VDC (for 600 VAC versions)

X must be replaced with A for AC control 20-275 VAC, 24-190 VDC

RGS1B.. models for Instant On (Random) switching are available on request

\*690VAC variants are CE marked only and do not include a varistor across the output

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Illustrations are for example only.

# Solid state relays, 1-phase

## Slimline - AC output

Types	<b>RGS1A..MGE</b> 50/90 AAC	<b>RGS1A..KGU</b> 30 AAC	<b>RGS1A..DIN</b> 10/12 AAC
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Single-phase, chassis mounting with LED for control status indication, IP20 protection, 45-65 Hz operating frequency,  $\geq 4000$  VACrms isolation voltage, 100 kArms short circuit current rating, certified motor ratings.



Dimensions (mm)	90 x 17.8 x 63.6	90 x 17.8 x 50.6	106 x 17.8 x 65
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Features	17.8 mm wide solid state relay with integrated varistor on output, AC or DC control range, box clamps for power connections (25 mm <sup>2</sup> / AWG3) and pluggable spring for control, E-type layout	17.8 mm wide solid state relay with integrated varistor on output, AC or DC control range, box clamps for power and control connections, U-type layout	17.8 mm wide solid state relay mounted on DIN mountable module
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### Input specifications

Control input range	4-32 VDC [RG..D..] 20-275 VAC, 24-190 VDC [RG..A..]	4-32 VDC [RG..D..] 20-275 VAC, 24-190 VDC [RG..A..]	3-32 VDC [RG..23D..] 4-32 VDC [RG..60D..] 20-275 VAC, 24-190 VDC [RG..A..]
Max. input current	11 mADC [RG..D..] 30 mAAC [RG..A..]	11 mADC [RG..D..] 30 mAAC [RG..A..]	11 mADC [RG..D..] 30 mAAC [RG..A..]

### Output specifications

Rated operational current AC-51 @ Ta=40°C	50 AAC [RG..50] 90 AAC [RG..92]	30 AAC	10 AAC [RG..20/25..DIN] 12 AAC [RG..50/90..DIN]
AC-53a @ Ta=40°C	10 AAC [RG..50] 18 AAC [RG..92]	8 AAC	5 AAC [RG..20/25..DIN] 5 AAC [RG..50/90..DIN]
Min. operational current	250 mAAC [RG..50] 500 mAAC [RG..92]	250 mAAC	150 mAAC [RG..20/25..DIN] 250 mAAC [RG..50..DIN] 400 mAAC [RG..90..DIN]
Non rep. surge current (t=10 ms)	600 Ap [RG..50] 1900 Ap [RG..92]	600 Ap	325 Ap [RG..20/25..DIN] 600 Ap [RG..50..DIN] 1150 Ap [RG..90..DIN]
Max. Off-state leak current	3 mAAC	3 mAAC	3 mAAC
I <sup>2</sup> t for fusing (t=10 ms)	1800 A <sup>2</sup> s [RG..50] 18000 A <sup>2</sup> s [RG..92]	1800 A <sup>2</sup> s	525 A <sup>2</sup> s [RG..20/25..DIN] 1800 A <sup>2</sup> s [RG..50..DIN] 6600 A <sup>2</sup> s [RG..90..DIN]
Critical dV/dt (@ Tj init=40°C)	1000 V/μs	1000 V/μs	1000 V/μs

### General specifications




Operational voltage range	42-600 VAC +10%	42-600 VAC +10%	24-240 VAC +10% [RG..23..] 42-600 VAC +10% [RG..60..]
Blocking voltage	1200 Vp	1200 Vp	800 Vp [RG..23..] 1200 Vp [RG..60..]
Power factor	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage
Operating temperature	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C
Approvals/Marks	CE - cURus - CSA - EAC - VDE	CE - cURus - CSA - EAC - VDE	CE - cURus - CSA - EAC - VDE

### References

230 VAC, 800 Vp, E-type		10 AAC: <b>RGS1A23X25KKEDIN</b> 12 AAC: <b>RGS1A23X50KKEDIN</b>
600 VAC, 1200 Vp, E-type	50 AAC: <b>RGS1A60X50MGE</b> 90 AAC: <b>RGS1A60X92MGE</b>	10 AAC: <b>RGS1A60X25KKEDIN</b> 12 AAC: <b>RGS1A60X50KKEDIN</b> 12 AAC: <b>RGS1A60D90KKEDIN</b>
600 VAC, 1200 Vp, U-type		30 AAC: <b>RGS1A60X30KGU</b> 10 AAC: <b>RGS1A60D20KGUDIN</b>

X must be replaced with D for DC control 3-32 VDC, 4-32 VDC (for 600 VAC versions)  
X must be replaced with A for AC control 20-275 VAC, 24-190 VDC  
RGS1B.. models for Instant On (Random) switching are available on request





# Solid state relays, 1-phase

	<b>Slimline - DC output</b>	<b>Slimline - AC output, Integrated current measurement</b>	
<b>Types</b>	<b>RGS1D..KKE</b> 15/25 ADC	<b>RGS1S..EP</b> 30/90 AAC	<b>RGS1S..UP</b> 65 AAC
<p>Single-phase, chassis mounting industrial relays with LED for control status indication and IP20 protection, Rated isolation voltage <math>\geq 4000</math> Vrms, 100 kArms short circuit current rating for AC switching versions.</p>			
<b>Dimensions HxWxD (mm)</b>	90 x 17.8 x 50.6	90 x 22.5 x 78	90 x 35.6 x 78
<b>Features</b>	<p>17.8 mm wide solid state relay with IGBT output, integrated free wheeling diode, DC control voltage, screw terminals with captivated clamp, E-type layout</p>	<p>22.5 mm wide solid-state relay with thyristor output, integrated varistor, DC control, local or remote TEACH, detection of partial load failure (1/6), SSR and load malfunction, SSR overheat protection.</p>	<p>35 mm wide solid-state relay with thyristor output, integrated varistor, DC control, local or remote TEACH, detection of partial load failure (1/6), SSR and load malfunction, SSR overheat protection.</p>
<b>Input specifications</b>			
Control input range	4.5-32 VDC	4-32 VDC	4-32 VDC
Max. input current	13.7 mA DC	10 mA DC at 24 VDC	10 mA DC at 24 VDC
Supply voltage		24 VDC -15%, +20%	24 VDC -15%, +20%
Max. supply current		50 mA DC	50 mA DC
<b>Alarm specifications</b>			
Output type		NC PNP open collector max. 35 VDC / 50 mA	NC PNP open collector max. 35 VDC / 50 mA
Alarm Indication		Red LED (flash rate)	Red LED (flash rate)
<b>Output specifications</b>			
Rated operational current AC-51 @ Ta=40°C		30 AAC [RGS1S..30] 90 AAC [RGS1S..92]	65 AAC
DC Rated operational current	15 ADC [RGS1D..15.] 25 ADC [RGS1D..25.]		
Minimum TEACH / operational current	20 mA	1.2 AAC [RGS1S..30] 5 AAC [RGS1S..92]	5 AAC
Minimum partial load current		0.2 AAC [RGS1S..30] 0.83 AAC [RGS1S..92]	0.83 AAC
Detectable partial load failure		$>16.67\%$ from current setpoint	$>16.67\%$ from current setpoint
Non rep. surge current (I <sub>tsm</sub> ) (t=10 ms)	200 ADC [10µs]	600 A <sub>p</sub> [RGS1S..30] 1900 A <sub>p</sub> [RGS1S..92]	1900 A <sub>p</sub>
Max. Off-state leak current	1.5 mA DC	3 mA AC	3 mA AC
I <sup>2</sup> t for fusing (t=10 ms)		1800 A <sup>2</sup> s [RGS1S..30] 18000 A <sup>2</sup> s [RGS1S..92]	18000 A <sup>2</sup> s
Critical dV/dt (@ T <sub>j</sub> init=40°C)		1000 V/µs	1000 V/µs
<b>General specifications</b>			
Operational voltage range	24-1000 VDC [CE] 24-600 VDC [UL508]	42-600 VAC +10%	42-600 VAC +10%
Blocking voltage	1200 VDC	1200 V <sub>p</sub>	1200 V <sub>p</sub>
Power factor		$\geq 0.9$ at rated voltage	$\geq 0.9$ at rated voltage
Operating temperature	-40°C to +80°C	-25°C to +70°C	-25°C to +70°C
Approvals/Marks	CE - cURus - CSA	CE - cURus - CSA	CE - cURus - CSA
<b>References</b>			
1000 VDC	15 ADC: <b>RGS1D1000D15KKE</b> 25 ADC: <b>RGS1D1000D25KKE</b>		
600 VAC, 1800 A <sup>2</sup> s, E-type		30 AAC: <b>RGS1S60D30GKEP</b>	
600 VAC, 18000 A <sup>2</sup> s, E-type		90 AAC: <b>RGS1S60D92GGEP</b>	
600 VAC, 18000 A <sup>2</sup> s, U-type			65 AAC: <b>RGS1S60D61GGUP</b>

KK = screws for control terminals, screws for power terminals  
 GK = box clamps for control terminals, screws for power terminals  
 GG = box clamps for control terminals, box clamps for power terminals

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Illustrations are for example only.

# Solid state relays, 1-phase

Types	Slimline - Soft start switching		Slimline - Proportional controllers	
	RGS1P..K.. 50 AAC	RGS1P..K.. 90 AAC	RGS1P..AA.. / V.. 50 AAC	RGS1P..AA.. / V.. 90 AAC
Single-phase, chassis mounting industrial relays with integrated overvoltage protection, LED for control and load status indication, IP20 protection, rated isolation voltage $\geq 4000$ Vrms, 100 kArms short circuit current rating.				
Dimensions HxWxD (mm)	90 x 35.8 x 51	90 x 35.8 x 51	90 x 35.8 x 51	90 x 35.8 x 51
Features	DC control input solid state relay with soft starting feature for short wave infrared heaters.	DC control input solid state relay with soft starting feature for short wave infrared heaters.	Analog input (current or voltage), selectable modes for output switching - phase angle, full cycle distributed firing, advanced full cycle and soft starting	Analog input (current or voltage), selectable modes for output switching - phase angle, full cycle distributed firing, advanced full cycle and soft starting
<b>Supply specifications</b>				
Supply voltage	24 VDC -15%, +20% 24 VAC -15%, +15%	24 VDC -15%, +20% 24 VAC -15%, +15%	24 VDC -15%, +20% (RG..V.ED) 24 VAC -15%, +15% (RG..V.ED) 90-250 VAC (RG..V.EA)	24 VDC -15%, +20% (RG..V.ED) 24 VAC -15%, +15% (RG..V.ED) 90-250 VAC (RG..V.EA)
Max. supply current	30 mA	30 mA	30 mA (RG..V.ED) 14 mA (RG..V.EA)	30 mA (RG..V.ED) 14 mA (RG..V.EA)
<b>Control specifications</b>				
Control input range	19.2 - 28.8 VDC	19.2 - 28.8 VDC	4-20 mA (RG..AA..) 0-10V, 0-5V, 1-5V, POT (RG..V.)	4-20 mA (RG..AA..) 0-10V, 0-5V, 1-5V, POT (RG..V.)
Input impedance	100 k $\Omega$	100 k $\Omega$	500 $\Omega$ (RG..AA..) 100 k $\Omega$ (RG..V.)	500 $\Omega$ (RG..AA..) 100 k $\Omega$ (RG..V.)
<b>Output specifications</b>				
Rated operational current AC-51 @ 40°C	50 AAC	90 AAC	50 AAC	90 AAC
Minimum operational current	250 mAAC	500 mAAC	250 mAAC	500 mAAC
Non rep. surge current (I <sub>tsm</sub> ) (t=10 ms)	600 Ap	1900 Ap	600 Ap	1900 Ap
I <sup>2</sup> t for fusing (t=10 ms)	1800 A <sup>2</sup> s	18000 A <sup>2</sup> s	1800 A <sup>2</sup> s	18000 A <sup>2</sup> s
Max. Off-state leakage current	5 mAAC	5 mAAC	5 mAAC	5 mAAC
Critical dV/dt (@ T <sub>j</sub> init=40°C)	1000 V/ $\mu$ s	1000 V/ $\mu$ s	1000 V/ $\mu$ s	1000 V/ $\mu$ s
<b>General specifications</b>				
Operational voltage range	85 - 265 VAC (RGS1P23..) 190 - 550 VAC (RGS1P48..) 410 - 660 VAC (RGS1P60..)	85 - 265 VAC (RGS1P23..) 190 - 550 VAC (RGS1P48..) 410 - 660 VAC (RGS1P60..)	85 - 265 VAC (RGS1P23..) 190 - 550 VAC (RGS1P48..) 410 - 660 VAC (RGS1P60..)	85 - 265 VAC (RGS1P23..) 190 - 550 VAC (RGS1P48..) 410 - 660 VAC (RGS1P60..)
Blocking voltage	800 V <sub>P</sub> (RGS1P23..) 1200 V <sub>P</sub> (RGS1P48..) 1200 V <sub>P</sub> (RGS1P60..)	800 V <sub>P</sub> (RGS1P23..) 1200 V <sub>P</sub> (RGS1P48..) 1200 V <sub>P</sub> (RGS1P60..)	800 V <sub>P</sub> (RGS1P23..) 1200 V <sub>P</sub> (RGS1P48..) 1200 V <sub>P</sub> (RGS1P60..)	800 V <sub>P</sub> (RGS1P23..) 1200 V <sub>P</sub> (RGS1P48..) 1200 V <sub>P</sub> (RGS1P60..)
Power factor	> 0.7	> 0.7	> 0.7	> 0.7
Terminals	Screw with captive clamp	Box clamp	Screw with captive clamp	Box clamp
Operating temperature	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C
Approvals/Marks	CE - cURus - CSA	CE - cURus - CSA	CE - cURus - CSA	CE - cURus - CSA
<b>References</b>				
External supply 24 VDC/AC				
Operational output 85 - 265 VAC	<b>RGS1P23K50ED</b>	<b>RGS1P23K92ED</b>		
Operational output 190 - 550 VAC	<b>RGS1P48K50ED</b>	<b>RGS1P48K92ED</b>		
Operational output 410 - 660 VAC	<b>RGS1P60K50ED</b>	<b>RGS1P60K92ED</b>		
Control input				
4-20 mA			<b>RGS1PxxAA50E</b>	<b>RGS1PxxAA92E</b>
0-10 VDC, 0-5 VDC, 1-5 VDC, POT				
External supply 24 VDC/AC			<b>RGS1PxxV50ED</b>	<b>RGS1PxxV92ED</b>
External supply 90-250 VAC			<b>RGS1PxxV50EA</b>	<b>RGS1PxxV92EA</b>

xx = 23 for operational voltage range 85 - 265 VAC  
 xx = 48 for operational voltage range 190 - 550 VAC  
 xx = 60 for operational voltage range 410 - 660 VAC



# Solid state relays, 1-phase

## Industrial housing - AC output

Types	<b>RF1A</b> 25 AAC	<b>RS1A</b> 10/25/40 AAC	<b>RAM1A</b> 25/50/75/100/125 AAC	<b>RAM1A..G</b> 25/50/100/125 AAC
Single-phase, chassis mounting, industrial relays with LED status indication and IP 20 protection. AC operating frequency range 45-65 Hz. Rated isolation voltage ≥4000 Vrms.				

Dimensions HxWxD (mm)	36 x 21 x 24	58.2 x 44.8 x 28.8	58.2 x 44.8 x 28.8	58.2 x 44.8 x 28.8
Features	Zero Cross or Instant ON, Built-in transit, VDE, Glow wire acc. to IEC/EN 60335-1	Zero Cross, Ideal for Ohmic loads	Zero Cross or Instant ON, Built-in snubber, VDE	Zero Cross, Built-in varistor, VDE, Glow wire acc. to IEC/EN 60335-1

### Input specifications

Control input range	4.25 - 9 VDC [RF1A..L] 9 - 18 VDC [RF1A..M] 18 - 28.8 VDC [RF1A..D]	3-32 VDC [RS1A23D] 4-32 VDC [RS1A....D] 18-36 VAC/DC [RS1A...LA] 80-130 VAC [RS1A..A1-] 200-260 VAC [RS1A..A2-] 360-440 VAC [RS1A..A4-]	3-32 VDC [RAM1A23D...] 4-32 VDC [RAM1A60D...] 20-280 VAC / 22-48 VDC [RAM1A..A.]	3-32 VDC [RAM1A23D..] 4-32 VDC [RAM1A60D..] 20-280 VAC / 22-48 VDC [RAM1A..A.]
Max. input current	15 mA [RF1A..L] 12 mA [RF1A..M] 12.5 mA [RF1A..D]	12 mA [RS1A..D] 15 mA [RS1A..LA] 13 mA [RS1A...A1- /A2- /A4-]	12 mA [RAM1A..D.] 20 mA [RAM1A..A.]	12 mA [RAM1A..D.] 20 mA [RAM1A..A.]

### Output specifications

	RF1A	RS1A..10 / 25 / 40	RAM1A..25 / 50 / 75 / 100 / 125	RAM1A..25/50/51/100/125
Rated operational current				
AC 51 @ Ta=25°C	25 AAC	10 / 25 / 40 AAC	25 / 50 / 75 / 100 / 125 AAC	25 / 50 / 50 / 100 / 125 AAC
AC 53a @ Ta=25°C			5 / 15 / 17 / 20 / 30 AAC	5 / 15 / 15 / 20 / 30 AAC
Min. operational current	150 mAAC	150 / 150 / 250 mAAC	150 / 250 / 400 / 400 / 500 mAAC	150 / 250 / 400 / 400 / 500 mAAC
Non rep. surge current (t=10 ms)	325 Ap	100 / 325 / 600 Ap	325 / 600 / 800 / 1150 / 1900 Ap	325 / 600 / 800 / 1150 / 1900 Ap
Off-state leakage current	< 3 mA	< 3 mA	< 3 mA	< 3 mA
I <sup>2</sup> t for fusing (t=10 ms)	525 A <sup>2</sup> s	50 / 525 / 1800 A <sup>2</sup> s	525 / 1800 / 3200 / 6600 / 18000 A <sup>2</sup> s	525 / 1800 / 3200 / 6600 / 18000 A <sup>2</sup> s
Critical dV/dt	1000 V/μs	500 V/μs	1000 V/μs	1000 V/μs

### General specifications

Operational voltage range	24 - 280 VAC	42-265 VAC [RS1A23..] 42-440 VAC [RS1A40..] 42-530 VAC [RS1A48..]	24-265 VAC [RAM1A23..] 42-660 VAC [RAM1A60..] 42-760 VAC [RAM1A69..]	24-265 VAC [RAM1A23..] 42-660 VAC [RAM1A60..]
Blocking voltage	600Vp	650 Vp [RS1A23..] 850 Vp [RS1A40..] 1200 Vp [RS1A48..]	650 Vp [RAM1A23..] 1200 Vp [RAM1A60..] 1600 Vp [RAM1A69..]	650 Vp [RAM1A23..] 1200 Vp [RAM1A60..]
Power factor	≥ 0.9	≥ 0.95	≥ 0.5	≥ 0.5
Operating temperature	-30°C to +80°C	-20°C to +70°C	-40°C to +80°C	-40°C to +80°C
Terminals	FASTONS	Screw type with clamp	Screw type with clamp	Screw type with clamp
Approvals/Marks	CE - UR - CSA - VDE	CE - UR - CSA - EAC	CE - UR - CSA - CCC - VDE* - EAC	CE - UR - CSA - CCC - VDE - EAC

### References




	RF1A	RS1A	RAM1A	RAM1A..G
230 VAC	25 AAC <b>RF1A23L25</b> <b>RF1A23M25</b> <b>RF1A23D25</b>	10 / 25 / 40 AAC <b>RS1A23X10</b> (X = D, LA only) <b>RS1A23X25</b> <b>RS1A23X40</b>	25 / 50 / 75 / 100 / 125 AAC <b>RAM1A23DYY</b> <b>RAM1A23AYY</b>	25 / 50 / 100 / 125 AAC <b>RAM1A23DYYG</b> <b>RAM1A23AYYG</b>
400 VAC		<b>RS1A40X10</b> (X = D, LA only) <b>RS1A40X25</b> <b>RS1A40X40</b>		
480 VAC		<b>RS1A48X10</b> (X = D, LA only) <b>RS1A48X25</b> (X = D, LA only) <b>RS1A48X40</b> (X = D, LA only)		
600 VAC			<b>RAM1A60DYY</b> <b>RAM1A60AYY</b>	<b>RAM1A60DYYG</b> <b>RAM1A60AYYG</b>
690 VAC			<b>RAM1A69DYY</b> <b>RAM1A69AYY</b>	

RF1B.., RAM1B.. Instant On switching versions available on request.  
\* 690 VAC CE marked only.

X = D for DC control = 3-32VDC (RS1A23..), 4-32VDC (RS1A40.., RS1A48..)  
X = A1- for AC control = 18-36VAC/DC  
X = A2- for AC control = 200-260VAC  
X = A4- for AC control = 360-440VAC  
YY = 25 for 25AAC  
YY = 50 for 50AAC

YY = 51 for 50AAC high I<sup>2</sup>t (RAM1A60..G only)  
YY = 75 for 75AAC  
YY = 100 for 100AAC (not available for RAM1A23..G)  
YY = 125 for 125AAC (not available for RAM1A23..G)

# Solid state relays, 1-phase

	Industrial housing AC output	Industrial housing peak switching	Industrial housing phase angle switching
Types	RM1A 25/50/75/100 AAC	RM1C 25/50/75/100 AAC	RM1E 25/50/100 AAC
Single-phase, chassis mounting, industrial relays with LED status indication and IP20 protection AC operating frequency range 45-65 Hz. Rated isolation voltage $\geq 4000$ Vrms.			
Dimensions HxWxD (mm)	58.2 x 44.8 x 28.8	58.2 x 44.8 x 28.8	58.2 x 44.8 x 28.8
Features	Zero Cross or Instant ON, Built-in varistor	Ideal for transformers	Analogue phase-angle control

## Input specifications

Control input range	3-32 VDC [RM1A23D.] 4-32 VDC [RM1A60D.] 20-280 VAC / 22-48 VDC [RM1A..A.] 4.25-36 VDC / 4.25-27 VAC [RM1A..M.]	4.25-32 VDC	4-20 mA [RM1E..AA.] 0-10 VDC [RM1E..V.]
Max. input current	12 mA [RM1A..D.] 20 mA [RM1A..A.] 18 mA [RM1A..M.]	18 mA	0.15 mA [RM1E..V.]
Supply voltage range			24 VDC [RM1E..V.]
Max. supply input current			20 mA [RM1E..V.]

## Output specifications

	RM1A..25 / 50 / 75 / 100	RM1C..25 / 50 / 75 / 100	RM1E..25 / 50 / 100
Rated operational current			
AC 51 @ Ta=25°C	25 / 50 / 75 / 100 AAC	25 / 50 / 75 / 100 AAC	25 / 50 / 100 AAC
AC 53a @ Ta=25°C	5 / 15 / 20 / 30 AAC		5 / 15 / 20 AAC
AC 56a @ Ta=25°C		10 / 20 / 25 / 30 AAC	
Min. operational current	150 / 250 / 400 / 500 mAAC	150 / 250 / 400 / 500 mAAC	150 / 250 / 400 mAAC
Non rep. surge current (t=10 ms)	325 / 600 / 1150 / 1900 Ap	325 / 600 / 1150 / 1900 Ap	325 / 600 / 1150 Ap
Off-state leakage current	< 3 mA	< 3 mA	< 3 mA
I <sup>2</sup> t for fusing (t=10 ms)	525 / 1800 / 6600 / 18000 A <sup>2</sup> s	525 / 1800 / 6600 / 18000 A <sup>2</sup> s	525 / 1800 / 6600 A <sup>2</sup> s

## General specifications

Operational voltage range	24-265 VAC [RM1A23..] 42-440 VAC [RM1A40..] 42-530 VAC [RM1A48..] 42-660 VAC [RM1A60..]	100-440 VAC [RM1C40D.] 340-660 VAC [RM1C60D.]	90-280 VAC [RM1E23AA..] 340-460 VAC [RM1E40AA..] 200-550 VAC [RM1E48AA..] 410-660 VAC [RM1E60AA..] 90-265 VAC [RM1E23V..] 200-550 VAC [RM1E48V..] 410-660 VAC [RM1E60V..]
Blocking voltage	650 Vp [RM1A23..] 850 Vp [RM1A40..] 1200 Vp [RM1A48..] 1400 Vp [RM1A60..]	850 Vp [RM1C40D..] 1400 Vp [RM1C60D..]	650 Vp [RM1E23..] 850 Vp [RM1E40..] 1200 Vp [RM1E48..] 1400 Vp [RM1E60..]
Power factor	$\geq 0.5$	$\geq 0.5$	$\geq 0.75$
Operating temperature	-20°C to +70°C	-30°C to +80°C	-20°C to +70°C
Terminals	Screw type with clamp	Screw type with clamp	Screw type with clamp
Approvals/Marks	CE - UR - CSA - CCC - EAC	CE - UR - CSA - EAC	CE - UR - CSA - EAC

## References 1-phase:

	25 / 50 / 75 / 100 AAC	25 / 50 / 75 / 100 AAC	25 / 50 / 100 AAC
230 Vrms	<b>RM1A23XYY</b>		<b>RM1E23X25</b> (X = AA or V) <b>RM1E23X50</b> (X = AA or V) <b>RM1E23X100</b> (X = AA or V)
400 Vrms	<b>RM1A40XYY</b>	<b>RM1C40D25</b> <b>RM1C40D50</b> <b>RM1C40D75</b>	<b>RM1E40AA25</b> <b>RM1E40AA50</b> <b>RM1E40AA100</b>
480 Vrms	<b>RM1A48XYY</b>		<b>RM1E48X25</b> (X = AA or V) <b>RM1E48X50</b> (X = AA or V) <b>RM1E48X100</b> (X = AA or V)
600 Vrms	<b>RM1A60XYY</b>	<b>RM1C60D25</b> <b>RM1C60D50</b> <b>RM1C60D100</b>	<b>RM1E60X25</b> (X = AA or V) <b>RM1E60X50</b> (X = AA or V) <b>RM1E60X100</b> (X = AA or V)

RM1B.. Instant On switching versions available on request

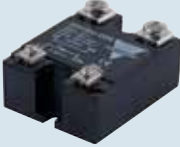


X = D for DC control = 3-32VDC (RM1A23..), 4-32VDC (RM1A40.., RM1A48.., RM1A60..)  
X = A for AC control = 20-280VAC / 22-48VDC

X = M for low AC control = 4.25-36VDC / 4.25-27VAC  
YY = 25 for 25 AAC  
YY = 50 for 50 AAC



YY = 75 for 75 AAC  
YY = 100 for 100 AAC



# Solid state relays, 1-phase

		Industrial housing AC output		
Types	RA 25/50/90/110 AAC	RA Sense 25/50/90/110 AAC	RA Low Noise 10/25 AAC	
Single-phase relays, chassis mounting, variants with special functions. 2-phase industrial relays.				
Dimensions HxWxD (mm)	58.2 x 44.8 x 28.8	58.2 x 44.8 x 28.8	58.2 x 44.8 x 28.8	
Features	General purpose	Detects supply and load failure	Complies with EN55022	
<b>Input Specifications</b>				
Control input range	3-32 VDC [RA..D..] 10-90 VAC / DC [RA..LA..] 90-280 VAC / DC [RA..HA..]	7-32 VDC	3-32 VDC	
Max. input current	22 mA [RA..D..] 17 mA [RA..LA..] 6.5 mA [RA..HA..]	4 mA	32 mA	
Control supply		20-32 VDC (40 mA)		
Alarm output	PNP NPN	VCC - 2 VDC (100 mA) 2 VDC (100 mA)		
<b>Output specifications</b>				
Rated operational current				
AC 51 @ Ta=25°C	25 / 50 / 90 / 110 AAC	25 / 50 / 90 / 110 AAC	10 / 25 AAC	
AC 53a @ Ta=25°C	5/15/ 20/30 AAC			
Min. operational current	20 mA	200 mArms	2 Arms	
Non rep. surge current (t=10 ms)	325 Ap [RA..25.] 600 Ap [RA..50.] 1150 Ap [RA..90.] 1900 Ap [RA..110.]	325 Ap [RA..25..S] 600 Ap [RA..50..S] 1150 Ap [RA..90..S] 1900 Ap [RA..110..S]	90 Ap, t=20 ms [RA..10..L] 200 Ap, t=20 ms [RA..25..L]	
Off-state leakage current	< 3 mA	< 6 mArms	< 1 mArms	
I <sup>2</sup> t for fusing (t=10 ms)	<525 A <sup>2</sup> s [RA..25.] <1800 A <sup>2</sup> s [RA..50.] <6600 A <sup>2</sup> s [RA..90.] <18000 A <sup>2</sup> s [RA..110.]	525 A <sup>2</sup> s [RA..25..S] 1800A <sup>2</sup> s [RA..50..S] 6600 A <sup>2</sup> s [RA..90..S] 18000 A <sup>2</sup> s [RA..110..S]	120 A <sup>2</sup> s [RA..10..L] 200 A <sup>2</sup> s [RA..25..L]	
<b>General specifications</b>				
Operational voltage range	24-280 Vrms [RA24.06..] 42-480 Vrms [RA44.08..] 42-530 Vrms [RA48.12..] 24-690 Vrms [RA60.16..]	60-140 Vrms [RA12..S] 170-250 Vrms [RA23..S] 150-440 Vrms [RA40..S] 180-530 Vrms [RA48..S]	180-265 Vrms [RA24..L] 340-530 Vrms [RA40..L]	
Blocking voltage	<650 Vp [RA24.06..] <850 Vp [RA44.08..] <1200 Vp [RA48.12..] <1600 Vp [RA60.16..]	650 Vp [RA12..S] 650 Vp [RA23..S] 1000 Vp [RA40..S] 1200 Vp [RA48..S]	650 Vp [RA24..L] 850 Vp [RA40..L]	
Power factor	≥ 0.5	≥ 0.5	1	
Operating temperature	-20°C to +70°C	-20°C to +70°C	-20°C to +70°C	
Terminals	Screw type with clamp	Screw / 5 way plug	Screw type with clamp	
Approvals/Marks	CE - UR - CSA	CE - UR - CSA	CE - UR - CSA - VDE	
<b>References</b>				
	25 / 50 / 90 / 110 AAC	25 / 50 / 90 / 110 AAC	10 / 25 AAC	
120 Vrms		RA12..06..S		
230 Vrms	RA24..-D..	RA23..06..S	RA2410-D06L	
	RA24..LA..		RA2425-D06L	
	RA24..HA..			
400 Vrms	RA44..-D..	RA40..10..S	RA4010-D08L	
	RA44..LA..		RA4025-D08L	
	RA44..HA..			
480 Vrms	RA48..-D..	RA48..12..S		
	RA48..LA..			
	RA48..HA..			
600 Vrms	RA60..-D..			


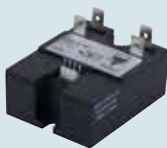
## Solid state relays, 1 / 3-phase

	Industrial housing DC output	Industrial housing AC output, 3 poles
Types	<b>RD</b> 1/5 ADC	<b>RZ3A</b> 25/55/75 AAC
Single-phase and 3-phase industrial relays.		
Dimensions HxWxD (mm)	58.2 x 44.8 x 28.8	74 x 103 x 41
Features	Ideal for DC valve coils	3-phase switching
<b>Input Specifications</b>		
Control input range	3-32 VDC	4-32 VDC [RZ3A..D.] 24-275 Vrms [RZ3A..A.]
Max. input current	32 mA	23 / 15 mA
<b>Output specifications</b>		
Rated operational current		
AC 51 @ Ta=25°C	DC1: 1 A / 5 A	25 / 55 / 75 AAC
AC 53a @ Ta=25°C		5 / 15 / 20 AAC
Min. operational current	1 mA	150 mArms [RZ3..25] 250 mArms [RZ3..55] 400 mArms [RZ3..75]
Non rep. surge current (t=10 ms)		325 Ap [RZ3A..25..] 600 Ap [RZ3A..55..] 1150 Ap [RZ3A..75..]
Off-state leakage current	< 1 mA	< 3 mA
I <sup>2</sup> t for fusing (t=10 ms)		525 A <sup>2</sup> s [RZ3A..25..] 1800 A <sup>2</sup> s [RZ3A..55..] 6600 A <sup>2</sup> s [RZ3A..75..]
<b>General specifications</b>		
Operational voltage range	3-60 VDC [RD0605..D] 3-200 VDC [RD2001..D] 3-350 VDC [RD3501..D]	24-440 Vrms [RZ3A40..] 42-530 Vrms [RZ3A48..] 42-660 Vrms [RZ3A60..]
Blocking voltage		<850 Vp [RZ3A40..] <1200 Vp [RZ3A48..] <1600 Vp [RZ3A60..]
Operating temperature	-20°C to +70°C	-30°C to +80°C
Terminals	Screw type with clamp	Screw type with clamp
Approvals/Marks	CE - CSA	CE - UR - CSA
<b>References</b>		
	1 / 5 ADC	25 / 55 / 75 AAC per pole
230 Vrms	200 VDC: <b>RD2001-D</b> 350 VDC: <b>RD3501-D</b>	<b>RZ3A40D..*</b> <b>RZ3A40A..*</b>
400 Vrms	60 VDC: <b>RD0605-D</b>	<b>RZ3A48D..*</b> <b>RZ3A48A..*</b>
480 Vrms		<b>RZ3A60D..*</b> <b>RZ3A60A..*</b>
600 Vrms		<b>RZ3A60A..*</b>

\* Add suffix 'P' for additional integrated Over Temperature Protection

# Solid state relays, 2-poles

## Industrial housing - AC output

Types	<b>RA2A</b> 25/40 AAC	<b>RA2A..C</b> 25/40 AAC
2-pole industrial solid state relays.		
Dimensions HxWxD (mm)	57.8 x 44.5 x 31.7	57.8 x 44.5 x 34.8
Features	Two independent poles, RA2A..M for inductive loads	Two independent poles with integrated varistor on output
<b>Input specifications</b>		
Control input range	4.5-32 VDC	4.5-32 VDC
Max. input current	2 x 10 mA	2x 10 mA
<b>Output specifications</b>		
Rated operational current		
AC 51 @ Ta=25°C	25 / 40 AAC per pole	25 / 40 AAC per pole
AC 53a @ Ta=25°C	5 / 15 AAC per pole [RA2A..M]	
Min. operational current	150 mArms [RA2A...25] 250 mArms [RA2A...40]	150 mArms [RA2A...25C] 250 mArms [RA2A...40C]
Non rep. surge current (t=10 ms)	325 Ap [RA2A..25] 600 Ap [RA2A..40]	325 Ap [RA2A...25C] 600 Ap [RA2A...40C]
Off-state leakage current	< 3 mArms	< 3 mArms
I <sup>t</sup> for fusing (t=10 ms)	525 A <sup>2</sup> s [RA2A..25] 1800 A <sup>2</sup> s [RA2A..40]	525 A <sup>2</sup> s [RA2A..25C] 1800 A <sup>2</sup> s [RA2A..40C]
<b>General specifications</b>		
Operational voltage range	24-265 Vrms [RA2A23..] / 42-440 Vrms [RA2A40..] 42-530 Vrms [RA2A48..] / 42-660 Vrms [RA2A60..]	24-265 Vrms [RA2A23..] 42-660 Vrms [RA2A60..]
Blocking voltage	650 Vp [RA2A23..] / 850 Vp [RA2A40..] 1200 Vp [RA2A48..] / 1200 Vp [RA2A60..]	650 Vp [RA2A23..] 1200 Vp [RA2A60..]
Power factor	≥0.95 [RA2A...]/ ≥0.50 [RA2A...M]	≥ 0.95
Operating temperature	-20°C to +70°C	-20°C to +70°C
Terminals	FASTONS 6.35 mm	FASTONS 6.35 mm / 4 way plug
Approvals/Marks	CE - UR - CSA	CE - cURus
<b>References</b>		
	25 / 40 AAC per pole	25 / 40 AAC per pole
230 Vrms	25 AAC: <b>RA2A23D25</b> <b>RA2A23D25M</b>	25 AAC: <b>RA2A23D25C</b>
	40 AAC: <b>RA2A23D40</b> <b>RA2A23D40M</b>	40 AAC: <b>RA2A23D40C</b>
	25 AAC: <b>RA2A40D25</b> <b>RA2A40D25M</b>	
	40 AAC: <b>RA2A40D40</b> <b>RA2A40D40M</b>	
400 Vrms	25 AAC: <b>RA2A48D25</b> <b>RA2A48D25M</b>	
	40 AAC: <b>RA2A48D40</b> <b>RA2A48D40M</b>	
480 Vrms	25 AAC: <b>RA2A60D25</b> <b>RA2A60D25M</b>	
	40 AAC: <b>RA2A60D40</b> <b>RA2A60D40M</b>	
600 Vrms	25 AAC: <b>RA2A60D25</b> <b>RA2A60D25M</b>	25 AAC: <b>RA2A60D25C</b>
	40 AAC: <b>RA2A60D40</b> <b>RA2A60D40M</b>	40 AAC: <b>RA2A60D40C</b>

# Solid state relays, 2-poles

## Industrial housing - AC output

### Types

**RKD2..C / RK2..C**  
50 / 75 AAC

**RKD2..P / RK2..P**  
50 / 75 AAC

2-pole industrial solid state relays.



Dimensions HxWxD (mm)

45 x 53 x 33

45 x 58 x 33 (w/o plug)  
45 x 58 x 44 (incl. plug)

Features

2-poles with independent control (RKD2) or common control (RK2), control connection via connector pins

2-poles with independent control (RKD2) or common control (RK2), control connection via provided spring plug

### Input specifications

Control input range

4 - 32 VDC

4 - 32 VDC

Max. input current

2 x 12 mA (RKD2..)  
1 x 24 mA (RK2..)

2 x 12 mA (RKD2..)  
1 x 24 mA (RK2..)

### Output specifications

Rated operational current

50 AAC per pole [RK..50/51]  
75 AAC per pole [RK..75]

50 AAC per pole [RK..50/51]  
75 AAC per pole [RK..75]

AC 51 @ Ta=25°C

12 AAC

12 AAC

Min. operational current

250 mArms [RK..50]  
400 mArms [RK..51/75]

250 mArms [RK..50]  
400 mArms [RK..51/75]

Non rep. surge current  
(t=10 ms)

500 Ap [RK..50]  
775 Ap [RK..51]  
1400 Ap [RK..75]

500 Ap [RK..50]  
775 Ap [RK..51]  
1400 Ap [RK..75]

Off-state leakage current

≤ 3 mArms

≤ 3 mArms

I<sup>2</sup>t for fusing  
(t=10 ms)

1500 A<sup>2</sup>s [RK..50]  
3000 A<sup>2</sup>s [RK..51]  
9800 A<sup>2</sup>s [RK..75]

1500 A<sup>2</sup>s [RK..50]  
3000 A<sup>2</sup>s [RK..51]  
9800 A<sup>2</sup>s [RK..75]

### General specifications

Operational voltage range

24 - 265 Vrms [RK..23..]  
42 - 660 Vrms [RK..60]

24 - 265 Vrms [RK..23]  
42 - 660 Vrms [RK..60]

Blocking voltage

600 Vp [RK..23..]  
1200 Vp [RK..60..]

600 Vp [RK..23..]  
1200 Vp [RK..60..]

Power factor

≥ 0.5

≥ 0.5

Operating temperature

-40°C to +80°C

-40°C to +80°C

Terminals

M4 screw / Control pins

M4 screw / Plug terminal

Approvals/Marks

CE - UR - CSA - VDE

CE - UR - CSA - VDE





### References

	50 / 75 AAC per pole	50 / 75 AAC per pole
230 Vrms	50 AAC: <b>RKD2A23D50C</b>	50 AAC: <b>RKD2A23D50P</b>
	50 AAC: <b>RKD2A23D51C</b>	50 AAC: <b>RKD2A23D51P</b>
	75 AAC: <b>RKD2A23D75C</b>	75 AAC: <b>RKD2A23D75P</b>
600 Vrms	50 AAC: <b>RKX2Y60D50C</b>	50 AAC: <b>RKX2Y60D50P</b>
	50 AAC: <b>RKX2A60D51C</b>	50 AAC: <b>RKX2A60D51P</b>
	75 AAC: <b>RKX2Y60D75C</b>	75 AAC: <b>RKX2Y60D75P</b>

X = must be replaced with 'D' for dual control, blank for common control  
Y = must be replaced with 'A' for zero cross switching, 'B' for instant on switching

# Solid state contactors, 1-phase

## Slimline, DIN-rail mounting - AC output

Types	<b>RGC..15KKE RGH..15KKE</b> 20/23 AAC	<b>RGC..25KKE RGC..32KKE</b> 25/30 AAC	<b>RGC..32KGE</b> 37 AAC	<b>RGC..30KKE RGH..31KKE</b> 30 AAC
Single-phase, semiconductor contactors with integrated heatsink, LED indication and IP20 protection, AC operating frequency 45-65 Hz, rated isolation voltage $\geq 4000$ Vrms, 100 kArms short circuit current rating, motor ratings according to UL508, integrated varistor on output.				
Dimensions HxWxD (mm)	110 x 17.8 x 103.5	110 x 17.8 x 103.5	110 x 17.8 x 103.5	110 x 22.5 x 141
Features	17.8 mm wide solid state contactor, DC or AC control voltage, screw terminals for power and control, E-type layout	17.8 mm wide solid state contactor, DC or AC control voltage, screw terminals for power and control, E-type layout	17.8 mm wide solid state contactor, DC control voltage, box clamps for power terminals and screw terminals for control, E-type layout	22.5 mm wide solid state contactor, DC or AC control voltage, screw terminals for power and control, E-type layout

### Input specifications

Control input range	3-32 VDC [RG.23D.] 4-32 VDC [RG.60D.] 20-275 VAC 24-190 VDC [RG..A.]	3-32 VDC [RG.23D.] 4-32 VDC [RG.60D.] 20-275 VAC 24-190 VDC [RG..A.]	4-32 VDC	3-32 VDC [RG.23D.] 4-32 VDC [RG.60D.] 20-275 VAC 24-190 VDC [RG..A.]
Max. input current	11 mA DC [RG..D.] 30 mA AC [RG..A.]	11 mA DC [RG..D.] 30 mA AC [RG..A.]	11 mA DC	11 mA DC [RG..D.] 30 mA AC [RG..A.]

### Output specifications

Rated operational current AC 51 @ $T_a=40^\circ\text{C}$	20 AAC [RGC..15.] 23 AAC [RGH..15.]	25 AAC [RGC..25.] 30 AAC [RGC..32.]	37 AAC	30 AAC
AC 53a @ $T_a=40^\circ\text{C}$	5 AAC	5 AAC	5 AAC	8 AAC [RGC..30.] 10 AAC [RGH..31.]
Min. operational current	150 mA [RGC..15.] 400 mA [RGH..15.]	250 mA [RGC..25.] 500 mA [RGC..32.]	500 mA	250 mA [RGC..30.] 400 mA [RGH..31.]
Non rep. surge current ( $t=10$ ms)	325 A <sub>p</sub> [RGC..15.] 1150 A <sub>p</sub> [RGH..15.]	600 A <sub>p</sub> [RGC..25.] 1900 A <sub>p</sub> [RGC..32.]	1150 A <sub>p</sub>	600 A <sub>p</sub> [RGC..30.] 1150 A <sub>p</sub> [RGH..31.]
Off-state leakage current	3 mA AC	3 mA AC	3 mA AC	3 mA AC
I <sup>2</sup> t for fusing ( $t=10$ ms)	525 A <sup>2</sup> s [RGC..15.] 6600 A <sup>2</sup> s [RGH..15.]	1800 A <sup>2</sup> s [RGC..25.] 18000 A <sup>2</sup> s [RGC..32.]	18000 A <sup>2</sup> s	1800 A <sup>2</sup> s [RGC..30.] 6600 A <sup>2</sup> s [RGH..31.]
Critical dV/dt (@ $T_j$ init= $40^\circ\text{C}$ )	1000 V/ $\mu\text{s}$	1000 V/ $\mu\text{s}$	1000 V/ $\mu\text{s}$	1000 V/ $\mu\text{s}$

### General specifications

Operational voltage range	24-240 VAC +10% [RG.23..] 42-600 VAC +10% [RG.60..]	24-240 VAC +10% [RG.23..] 42-600 VAC +10% [RG.60..]	42-600 VAC +10%	24-240 VAC +10% [RG.23..] 42-600 VAC +10% [RG.60..]
Blocking voltage	800 V <sub>p</sub> [RGC.23.] 1200 V <sub>p</sub> [RGC.60.] 1600 V <sub>p</sub> [RGH.60.]	800 V <sub>p</sub> [RGC.23.] 1200 V <sub>p</sub> [RGC.60.]	1200 V <sub>p</sub>	800 V <sub>p</sub> [RGC.23.] 1200 V <sub>p</sub> [RGC.60.] 1600 V <sub>p</sub> [RGH.60.]
Power factor	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage
Operating temperature	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C
Approvals/Marks	CE - cULus - VDE - EAC - GL [RGC..15.]	CE - cULus - VDE* - EAC - GL*	CE - cULus - EAC	CE - cULus - VDE - EAC - GL [RGC..30.]





### References

DC control voltage				
230 VAC, 800 V <sub>p</sub>	20 AAC: RGC1A23D15KKE	25 AAC: RGC1A23D25KKE		30 AAC: RGC1A23D30KKE
600 VAC, 1200 V <sub>p</sub>	20 AAC: RGC1A60D15KKE	25 AAC: RGC1A60D25KKE		30 AAC: RGC1A60D30KKE
600 VAC, 1200 V <sub>p</sub> , 18000 A <sup>2</sup> s		30 AAC: RGC1A60D32KKE	37 AAC: RGC1A60D32KGE	
600 VAC, 1600 V <sub>p</sub> , 6600 A <sup>2</sup> s	23 AAC: RGH1A60D15KKE			30 AAC: RGH1A60D31KKE
AC/DC control voltage				
230 VAC, 800 V <sub>p</sub>	20 AAC: RGC1A23A15KKE	25 AAC: RGC1A23A25KKE		30 AAC: RGC1A23A30KKE
600 VAC, 1200 V <sub>p</sub>	20 AAC: RGC1A60A15KKE	25 AAC: RGC1A60A25KKE		30 AAC: RGC1A60A30KKE
600 VAC, 1600 V <sub>p</sub> , 6600 A <sup>2</sup> s	23 AAC: RGH1A60A15KKE			30 AAC: RGH1A60A31KKE

Instant On (Random) Switching available on request (RGC1B60D...)  
\* not applicable to RGC..32

# Solid state contactors, 1-phase

## Slimline, DIN-rail mounting - AC output

Types	RGC..15MKE RGH..15MKE 20/23 AAC	RGC..25MKE RGC..32MKE 25/30 AAC	RGC..32MGE 37 AAC	RGC..30MKE RGH..31MKE 30 AAC
Single-phase, semiconductor contactors with integrated heatsink, LED indication and IP20 protection, AC operating frequency 45-65 Hz, rated isolation voltage $\geq 4000$ Vrms, 100 kArms short circuit current rating, motor ratings according to UL508, integrated varistor on output.				
Dimensions HxWxD (mm)	110 x 17.8 x 114.5	110 x 17.8 x 114.5	110 x 17.8 x 114.5	110 x 22.5 x 152
Features	17.8 mm wide solid state contactor, DC or AC control voltage range, screw terminals with captivated clamp for power terminals and spring plug for control, E-type layout	17.8 mm wide solid state contactor, DC or AC control voltage range, screw terminals with captivated clamp for power terminals and spring plug for control, E-type layout	17.8 mm wide solid state contactor, DC control voltage range, box clamps for power terminals and spring plug for control, E-type layout	22.5 mm wide solid state contactor, DC or AC control voltage range, screw terminals with captivated clamp for power terminals and spring plug for control, E-type layout

### Input specifications

Control input range	3-32 VDC [RG.23D.] / 4-32 VDC [RG.60D.] 20-275 VAC, 24-190 VDC [RG..A.]	3-32 VDC [RG.23D.] / 4-32 VDC [RG.60D.] 20-275 VAC, 24-190 VDC [RG..A.]	4-32 VDC	3-32 VDC [RG.23D.] / 4-32 VDC [RG.60D.] 20-275 VAC, 24-190 VDC [RG..A.]
Max. input current	11 mA DC [RG..D.] 30 mA AC [RG..A.]	11 mA DC [RG..D.] 30 mA AC [RG..A.]	11 mA DC	11 mA DC [RG..D.] 30 mA AC [RG..A.]

### Output specifications

Rated operational current				
AC 51 @ Ta=40°C	20 AAC [RGC..15.] 23 AAC [RGH..15.]	25 AAC [RGC..25.] 30 AAC [RGC..32.]	37 AAC	30 AAC
AC 53a @ Ta=40°C	5 AAC	5 AAC	5 AAC	8 AAC [RGC..30.] 10 AAC [RGH..31.]
Min. operational current	150 mA [RGC..15.] 400 mA [RGH..15.]	250 mA [RGC..25.] 500 mA [RGC..32.]	500 mA	250 mA [RGC..30.] 400 mA [RGH..31.]
Non rep. surge current (t=10 ms)	325 Ap [RGC...15..] 1150 Ap [RGH...15..]	600 Ap [RGC..25.] 1900 Ap [RGC..32.]	1900 Ap	600 Ap [RGC..30.] 1150 Ap [RGH..31.]
Off-state leakage current	3 mA AC	3 mA AC	3 mA AC	3 mA AC
I <sup>2</sup> t for fusing (t=10 ms)	525 A <sup>2</sup> s [RGC..15.] 6600 A <sup>2</sup> s [RGH..15.]	1800 A <sup>2</sup> s [RGC..25.] 18000 A <sup>2</sup> s [RGC..32.]	18000 A <sup>2</sup> s	1800 A <sup>2</sup> s [RGC..30.] 6600 A <sup>2</sup> s [RGH..31.]
Critical dV/dt (@ Tj init=40°C)	1000 V/ $\mu$ s	1000 V/ $\mu$ s	1000 V/ $\mu$ s	1000 V/ $\mu$ s

### General specifications

Operational voltage range	24-240 VAC +10% [RG.23..] 42-600 VAC +10% [RG.60..]	24-240 VAC +10% [RG.23..] 42-600 VAC +10% [RG.60..]	42-600 VAC +10%	24-240 VAC +10% [RG.23..] 42-600 VAC +10% [RG.60..]
Blocking voltage	800 Vp [RGC.23.] 1200 Vp [RGC.60.] 1600 Vp [RGH.60.]	800 Vp [RGC.23.] 1200 Vp [RGC.60.]	1200 Vp	800 Vp [RGC.23.] 1200 Vp [RGC.60.] 1600 Vp [RGH.60.]
Power factor	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage
Operating temperature	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C
Approvals/Marks	CE - cULus - VDE - EAC - GL [RGC..15.]	CE - cULus - VDE* - EAC - GL*	CE - cULus - EAC	CE - cULus - VDE - EAC - GL [RGC..30.]




### References

DC control voltage				
230 VAC, 800 Vp	20 AAC: RGC1A23D15MKE	25 AAC: RGC1A23D25MKE		30 AAC: RGC1A23D30MKE
600 VAC, 1200 Vp	20 AAC: RGC1A60D15MKE	25 AAC: RGC1A60D25MKE		30 AAC: RGC1A60D30MKE
600 VAC, 1200 Vp, 18000 A <sup>2</sup> s		30 AAC: RGC1A60D32MKE	37 AAC: RGC1A60D32MGE	
600 VAC, 1600 Vp, 6600 A <sup>2</sup> s	23 AAC: RGH1A60D15MKE			30 AAC: RGH1A60D31MKE
AC/DC control voltage				
230 VAC, 800 Vp	20 AAC: RGC1A23A15MKE	25 AAC: RGC1A23A25MKE		30 AAC: RGC1A23A30MKE
600 VAC, 1200 Vp	20 AAC: RGC1A60A15MKE	25 AAC: RGC1A60A25MKE		30 AAC: RGC1A60A30MKE
600 VAC, 1600 Vp, 6600 A <sup>2</sup> s	23 AAC: RGH1A60A15MKE			30 AAC: RGH1A60A31MKE

Instant On (Random) Switching available on request (RGC1B60D...)  
\* not applicable to RGC..32

# Solid state contactors, 1-phase

## Slimline, DIN-rail mounting - AC output





Types	RGC..15KGU 20 AAC	RGC..25KGU 25 AAC	RGC..30KGU 30 AAC
Single-phase, semiconductor contactors with integrated heatsink, LED indication and IP20 protection, AC operating frequency 45-65 Hz, rated isolation voltage $\geq 4000$ Vrms, 100 kArms short circuit current rating, motor ratings according to UL508.			
Dimensions HxWxD (mm)	110 x 17.8 x 103.5	110 x 17.8 x 103.5	110 x 22.5 x 141
Features	17.8 mm wide solid state contactor, integrated varistor for overvoltage protection, DC or AC control voltage range, screw terminals with captivated clamp for connection of control terminals and box clamps for power terminals, U-type layout	17.8 mm wide solid state contactor, integrated varistor for overvoltage protection, DC or AC control voltage range, screw terminals with captivated clamp for connection of control terminals and box clamps for power terminals, U-type layout	22.5 mm wide solid state contactor, integrated varistor for overvoltage protection, DC or AC control voltage range, screw terminals with captivated clamp for connection of control terminals and box clamps for power terminals, U-type layout
<b>Input specifications</b>			
Control input range	3-32 VDC [RG.23D.] 4-32 VDC [RG.60D.] 20-275 VAC, 24-190 VDC [RG..A.]	3-32 VDC [RG.23D.] 4-32 VDC [RG.60D.] 20-275 VAC, 24-190 VDC [RG..A.]	3-32 VDC [RG.23D.] 4-32 VDC [RG.60D.] 20-275 VAC, 24-190 VDC [RG..A.]
Max. input current	11 mADC [RG..D.] 30 mAAC [RG..A.]	11 mADC [RG..D.] 30 mAAC [RG..A.]	11 mADC [RG..D.] 30 mAAC [RG..A.]
<b>Output specifications</b>			
Rated operational current			
AC 51 @ $T_a=40^\circ\text{C}$	20 AAC	25 AAC	30 AAC
AC 53a @ $T_a=40^\circ\text{C}$	5 AAC	5 AAC	8 AAC
Min. operational current	150 mA	250 mA	250 mA
Non rep. surge current (t=10 ms)	325 Ap	600 Ap	600 Ap
Off-state leakage current	3 mAAC	3 mAAC	3 mAAC
I <sup>2</sup> t for fusing (t=10 ms)	525 A <sup>2</sup> s	1800 A <sup>2</sup> s	1800 A <sup>2</sup> s
Critical dV/dt (@ T <sub>j</sub> init=40°C)	1000 V/μs	1000 V/μs	1000 V/μs
<b>General specifications</b>			
Operational voltage range	24-240 VAC +10% [RG.23..] 42-600 VAC +10% [RG.60..]	24-240 VAC +10% [RG.23..] 42-600 VAC +10% [RG.60..]	24-240 VAC +10% [RG.23..] 42-600 VAC +10% [RG.60..]
Blocking voltage	800 V <sub>P</sub> [RGC.23.] 1200 V <sub>P</sub> [RGC.60.]	800 V <sub>P</sub> [RGC.23.] 1200 V <sub>P</sub> [RGC.60.]	800 V <sub>P</sub> [RGC.23.] 1200 V <sub>P</sub> [RGC.60.]
Power factor	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage
Operating temperature	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C
Approvals/Marks	CE - cULus - VDE - EAC - GL	CE - cULus - VDE - EAC - GL	CE - cULus - VDE - EAC - GL
<b>References</b>			
DC control voltage			
230 VAC, 800 V <sub>P</sub>	20 AAC: <b>RGC1A23D15KGU</b>	25 AAC: <b>RGC1A23D25KGU</b>	30 AAC: <b>RGC1A23D30KGU</b>
600 VAC, 1200 V <sub>P</sub>	20 AAC: <b>RGC1A60D15KGU</b>	25 AAC: <b>RGC1A60D25KGU</b>	30 AAC: <b>RGC1A60D30KGU</b>
AC/DC control voltage			
230 VAC, 800 V <sub>P</sub>	20 AAC: <b>RGC1A23A15KGU</b>	25 AAC: <b>RGC1A23A25KGU</b>	30 AAC: <b>RGC1A23A30KGU</b>
600 VAC, 1200 V <sub>P</sub>	20 AAC: <b>RGC1A60A15KGU</b>	25 AAC: <b>RGC1A60A20KGU</b>	30 AAC: <b>RGC1A60A30KGU</b>

Instant On (Random) Switching available on request (RGC1B60D...)



# Solid state contactors, 1-phase

## Slimline, DIN-rail mounting - AC output

Types	RG..40/41/42KGE 40/43 AAC	RG..40/41/42MGE 40/43 AAC	RG..60/62KGE 60/65 AAC	RG..62MGE 65 AAC
Single-phase, semiconductor contactors with integrated heatsink, LED indication and IP20 protection, AC operating frequency 45-65 Hz, rated isolation voltage $\geq 4000$ Vrms, 100 kArms short circuit current rating, motor ratings according to UL508.				
Dimensions HxWxD (mm)	110 x 35.6 x 141	110 x 35.6 x 152	110 x 69.1 x 141	110 x 69.1 x 152
Features	35 mm wide solid state contactor, integrated varistor, DC or AC control voltage, screw terminals for control, box clamp for power terminals, E-type layout	35 mm wide solid state contactor, integrated varistor, DC or AC control voltage, spring plug for control, box clamp for power terminals, E-type layout	70 mm wide solid state contactor, integrated varistor, DC or AC control voltage, screw terminals for control, box clamp for power terminals, E-type layout	70 mm wide solid state contactor, integrated varistor, DC or AC control voltage, spring plug for control, box clamp for power terminals, E-type layout

### Input specifications

Control input range	3-32 VDC [RG..23D..] 4-32 VDC [RG..60D..] 20-275 VAC, 24-190 VDC [RG..A..]	4-32 VDC [RG..D..] 20-275 VAC, 24-190 VDC [RG..A..]	3-32 VDC [RG..23D..] 4-32 VDC [RG..60D..] 20-275 VAC, 24-190 VDC [RG..A..]	4-32 VDC [RG..D..] 20-275 VAC, 24-190 VDC [RG..A..]
Max. input current	11 mADC [RG..D..] 30 mAAC [RG..A..]	11 mADC [RG..D..] 30 mAAC [RG..A..]	11 mADC [RG..D..] 30 mAAC [RG..A..]	11 mADC [RG..D..] 30 mAAC [RG..A..]

### Output specifications

Rated operational current AC 51 @ Ta=40°C	40 / 43 AAC [RGC..40/42] 40 AAC [RGH..41]	40 / 43 AAC [RGC..40/42] 40 AAC [RGH..41]	60 / 65 AAC [RGC..60/62] 60 AAC [RGH..60]	65 AAC
AC 53a @ Ta=40°C	13 / 16 AAC [RGC..40/42] 13 AAC [RGH..41]	13 / 16 AAC [RGC..40/42] 13 AAC [RGH..41]	14.8 / 20 AAC [RGC..60/62] 18 AAC [RGH..60]	20 AAC
Min. operational current	400 / 500 mAAC [RGC..40/42] 400 mAAC [RGH..41]	400 / 500 mAAC [RGC..40/42] 400 mAAC [RGH..41]	400 / 500 mAAC [RGC..60/62] 400 mAAC [RGH..60]	500 mAAC
Non rep. surge current (t=10 ms)	800 / 1900 Ap [RGC..40/42] 1150 Ap [RGH..41]	800 / 1900 Ap [RGC..40/42] 1150 Ap [RGH..41]	800 / 1900 Ap [RGC..60/62] 1150 Ap [RGH..60]	1900 Ap
Off-state leakage current	3 mAAC	3 mAAC	3 mAAC	3 mAAC
I <sup>2</sup> t for fusing (t=10 ms)	3200 / 18000 A <sup>2</sup> s [RGC..40/42] 6600 A <sup>2</sup> s [RGH..41]	3200 / 18000 A <sup>2</sup> s [RGC..40/42] 6600 A <sup>2</sup> s [RGH..41]	3200 / 18000 A <sup>2</sup> s [RGC..60/62] 6600 A <sup>2</sup> s [RGH..60]	18000 A <sup>2</sup> s
Critical dV/dt (@ Tj init=40°C)	1000 V/μs	1000 V/μs	1000 V/μs	1000 V/μs

### General specifications

Operational voltage range	24-240 VAC +10% [RG..23..] 42-600 VAC +10% [RG..60..] 42-690 VAC +10% [RG..69..]*	42-600 VAC +10%	24-240 VAC +10% [RG..23..] 42-600 VAC +10% [RG..60..] 42-690 VAC +10% [RG..69..]*	42-600 VAC +10%
Blocking voltage	800 Vp [RGC..23..] 1200 Vp [RGC..60..] 1600 Vp [RGH..60/69..]	1200 Vp [RGC..60..] 1600 Vp [RGH..60..]	800 Vp [RGC..23..] 1200 Vp [RGC..60..] 1600 Vp [RGH..60/69..]	1200 Vp
Power factor	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage
Operating temperature	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C
Approvals/Marks	CE - cULus - VDE - EAC	CE - cULus - VDE - EAC	CE - cULus - VDE - EAC	CE - cULus - VDE - EAC

### References



230 VAC, 800 Vp, 3200 A <sup>2</sup> s	40 AAC: <b>RG1A23X40KGE</b>	60 AAC: <b>RG1A23X60KGE</b>		
230 VAC, 800 Vp, 18000 A <sup>2</sup> s	43 AAC: <b>RG1A23X42KGE</b>	65 AAC: <b>RG1A23X62KGE</b>		
600 VAC, 1200 Vp, 3200 A <sup>2</sup> s	40 AAC: <b>RG1A60X40KGE</b>	40 AAC: <b>RG1A60X40MGE</b>	60 AAC: <b>RG1A60X60KGE</b>	
600 VAC, 1200 Vp, 18000 A <sup>2</sup> s	43 AAC: <b>RG1A60X42KGE</b>	43 AAC: <b>RG1A60X42MGE</b>	65 AAC: <b>RG1A60X62KGE</b>	65 AAC: <b>RG1A60X62MGE</b>
600 VAC, 1600 Vp, 6600 A <sup>2</sup> s	40 AAC: <b>RG1A60X41KGE</b>	40 AAC: <b>RG1A60X41MGE</b>	60 AAC: <b>RG1A60X60KGE</b>	
690 VAC, 1600 Vp, 6600 A <sup>2</sup> s	40 AAC: <b>RG1A69X41KGE*</b>	60 AAC: <b>RG1A69X60KGE*</b>		

X must be replaced with D for DC control 3-32 VDC, 4-32 VDC (for 600 VAC versions)  
 X must be replaced with A for AC control 20-275 VAC, 24-190 VDC  
 RGC1B.. models for Instant On (Random) switching are available on request  
 \*690VAC variants are CE marked only and do not include a varistor across the output



# Solid state contactors, 1-phase





## Slimline, DIN-rail mounting - AC output

Types	<b>RG..40/42KGU</b> 40/43 AAC	<b>RG..60/62KGU</b> 60/65 AAC
Single-phase, semiconductor contactors with integrated heatsink, LED indication and IP20 protection, rated isolation voltage $\geq 4000$ Vrms, 100 kArms short circuit current rating and motor ratings according to UL508 for AC output switching.		
Dimensions HxWxD (mm)	110 x 35.6 x 141	110 x 69.1 x 141
Features	35 mm wide solid state contactor, integrated varistor, DC or AC control voltage, screw terminals for control, box clamp for power terminals, U-type layout	70 mm wide solid state contactor, integrated varistor, DC or AC control voltage, screw terminals for control, box clamp for power terminals, U-type layout
<b>Input specifications</b>		
Control input range	4-32 VDC [RG..D..] 20-275 VAC, 24-190 VDC [RG..A..]	4-32 VDC [RG..D..] 20-275 VAC, 24-190 VDC [RG..A..]
Max. input current	11 mADC [RG..D..] 30 mAAC [RG..A..]	11 mADC [RG..D..] 30 mAAC [RG..A..]
<b>Output specifications</b>		
Rated operational current		
AC-51 @ $T_a=40^\circ\text{C}$	40/43 AAC [RGC..40/42] 40 AAC [RGH..41]	60 / 65 AAC [RGC..60/62] 60 AAC [RGH..60]
AC-53a @ $T_a=40^\circ\text{C}$	13/16 AAC [RGC..40/42] 13 AAC [RGH..41]	14.8 / 20 AAC [RGC..60/62] 18 AAC [RGH..60]
Min. operational current	400 / 500 mAAC [RGC..40/42] 400 mAAC [RGH..41]	400 / 500 mAAC [RGC..60/62] 400 mAAC [RGH..60]
Non rep. surge current (t=10 ms)	800 / 1900 A <sub>p</sub> [RGC..40/42] 1150 A <sub>p</sub> [RGH..41]	800 / 1900 A <sub>p</sub> [RGC..60/62] 1150 A <sub>p</sub> [RGH..60]
Off-state leakage current	3 mAAC	3 mAAC
I <sup>2</sup> t for fusing (t=10 ms)	3200 / 18000 A <sup>2</sup> s [RGC..40/42] 6600 A <sup>2</sup> s [RGH..41]	3200 / 18000 A <sup>2</sup> s [RGC..60/62] 6600 A <sup>2</sup> s [RGH..60]
Critical dV/dt (@ T <sub>j</sub> init= 40°C)	1000 V/μs	1000 V/μs
<b>General specifications</b>		
Operational voltage range	42-600 VAC +10% [RG..60..]	42-600 VAC +10% [RG..60..]
Blocking voltage	1200 V <sub>p</sub> [RGC..60..] 1600 V <sub>p</sub> [RGH..60..]	1200 V <sub>p</sub> [RGC..60..] 1600 V <sub>p</sub> [RGH..60..]
Power factor	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage
Operating temperature	-40°C to +80°C	-40°C to +80°C
Approvals/Marks	CE - cULus - VDE - EAC	CE - cULus - VDE - EAC
<b>References</b>		
600 VAC, 1200 V <sub>p</sub> , 3200 A <sup>2</sup> s	40 AAC: <b>RGCTA60X40KGU</b>	60 AAC: <b>RGCTA60X60KGU</b>
600 VAC, 1200 V <sub>p</sub> , 18000 A <sup>2</sup> s	43 AAC: <b>RGCTA60X42KGU</b>	65 AAC: <b>RGCTA60X62KGU</b>
600 VAC, 1600 V <sub>p</sub> , 6600 A <sup>2</sup> s	40 AAC: <b>RGH1A60X41KGU</b>	60 AAC: <b>RGH1A60X60KGU</b>

X must be replaced with D for DC control 4-32 VDC. X must be replaced with A for AC control 20-275 VAC, 24-190 VDC  
RGCTB.. models for Instant On (Random) switching are available on request

# Solid state contactors, 1-phase

## DIN-rail mounting - AC output with over temperature protection

Types	RG..30..P 30 AAC	RG..40/42..P 40/43 AAC	RG..60/62..P 60/65 AAC	RG..90/92..P 85 AAC
Single-phase, semiconductor contactors with integrated heatsink, LED indication and IP 20 protection, AC operating frequency 45-65 Hz, rated isolation voltage $\geq 4000$ Vrms, 100 kArms short circuit current rating, motor ratings according to UL508.				
Dimensions HxWxD (mm)	110 x 22.5 x 168	110x 35.6 x 168	110 x 69.1 x 168	126 x 69.1 x 168 (with fan)
Features	Integrated over temperature for protection against over heating, screw terminals with captivated clamp for connection of power terminals and box clamps for control terminals	Integrated over temperature for protection against over heating, box clamps for connection of power and control terminals	Integrated over temperature for protection against over heating, box clamps for connection of power and control terminals	Integrated over temperature for protection against over heating, box clamps for connection of power and control terminals

### Input specifications

Control input range	5-32 VDC [RG.D.] 20-275 VAC, 24-190 VDC [RG..A.]	5-32 VDC [RG.D.] 20-275 VAC, 24-190 VDC [RG..A.]	5-32 VDC [RG.D.] 20-275 VAC, 24-190 VDC [RG..A.]	5-32 VDC [RG.D.] 20-275 VAC, 24-190 VDC [RG..A.]
Max. input current	24 mADC [RG..D.] 35 mAAC [RG..A.]	24 mADC [RG..D.] 35 mAAC [RG..A.]	23 mADC [RG..D.] 35 mAAC [RG..A.]	23 mADC [RG..D.] 35 mAAC [RG..A.]

### Supply voltage

Rated supply voltage	24 VDC -15%, +20%	24 VDC -15%, +20%	24 VDC -15%, +20%	24 VDC -15%, +20%
Max. current rating	50 mADC	50 mADC	50 mADC	50 mADC (fan rating 24 VDC/50 mA)

### Over temperature alarm

Alarm output	PNP open collector normally closed, max. 24 VDC / 50 mA [RGC.D.P] Potential free normally closed, max. 24 VDC / 50 mA [RGC.A.P]	PNP open collector normally closed, max. 24 VDC / 50 mA [RGC.D.P] Potential free normally closed, max. 24 VDC / 50 mA [RGC.A.P]	PNP open collector normally closed, max. 24 VDC / 50 mA [RGC.D.P] Potential free normally closed, max. 24 VDC / 50 mA [RGC.A.P]	PNP open collector normally closed, max. 24 VDC / 50 mA [RGC.D.P] Potential free normally closed, max. 24 VDC / 50 mA [RGC.A.P]
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### Output specifications

Rated operational current				
AC 51 @ Ta=40°C	30 AAC	40 AAC [RGC..40], 43 AAC [RGC..42]	60 AAC [RGC..60] 65 AAC [RGC..62]	85 AAC
AC 53a @ Ta=40°C	8 AAC	13 AAC [RGC..40], 16 AAC [RGC..42]	14.8 AAC [RGC..60] 20 AAC [RGC..62]	18 AAC [RGC..90] 20 AAC [RGC..92]
Min. operational current	250 mA	400 mAAC [RGC..40], 500 mAAC [RGC..42]	400 mA [RGC..60] 500 mA [RGC..62]	400 mA [RGC..90] 500 mA [RGC..92]
Non rep. surge current (t=10 ms)	600 A <sub>p</sub>	800 A <sub>p</sub> [RGC..40] 1900 A <sub>p</sub> [RGC..42]	800 A <sub>p</sub> [RGC..60] 1900 A <sub>p</sub> [RGC..62]	1150 A <sub>p</sub> [RGC..90] 1900 A <sub>p</sub> [RGC..92]
Off-state leakage current	3 mAAC	3 mAAC	3 mAAC	3 mAAC
I <sup>2</sup> t for fusing (t=10 ms)	1800 A <sup>2</sup> s	3200 A <sup>2</sup> s [RGC..40], 18000 A <sup>2</sup> s [RGC..42]	3200 A <sup>2</sup> s [RGC..60] 18000 A <sup>2</sup> s [RGC..62]	6600 A <sup>2</sup> s [RGC..90] 18000 A <sup>2</sup> s [RGC..92]
Critical dV/dt off-state (@ T <sub>j</sub> init=40°C)	1000 V/μs	1000 V/μs	1000 V/μs	1000 V/μs




### General specifications

Operational voltage range	42-600 VAC +10%	42-600 VAC +10%	42-600 VAC +10%	42-600 VAC +10%
Blocking voltage	1200 V <sub>p</sub>	1200 V <sub>p</sub>	1200 V <sub>p</sub>	1200 V <sub>p</sub>
Power factor	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage
Operating temperature	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C
Approvals/Marks	CE - cULus - VDE	CE - cULus - VDE	CE - cULus - VDE	CE - cULus - VDE

### References




DC control voltage				
600 VAC, 1200 V <sub>p</sub> , U-type		40 AAC: RGC1A60D40GGUP	60 AAC: RGC1A60D60GGUP	85 AAC: RGC1A60D90GGUP
600 VAC, 1200 V <sub>p</sub> , E-type	30 AAC: RGC1A60D30GKEP	43 AAC: RGC1A60D42GGEP	65 AAC: RGC1A60D62GGEP	85 AAC: RGC1A60D90GGEP
600 VAC, 1200 V <sub>p</sub> , E-type, high I <sup>2</sup> t				85 AAC: RGC1A60D92GGEP
AC/DC control voltage				
600 VAC, 1200 V <sub>p</sub> , U-type		40 AAC: RGC1A60A40GGUP	60 AAC: RGC1A60A60GGUP	85 AAC: RGC1A60A90GGUP
600 VAC, 1200 V <sub>p</sub> , E-type	30 AAC: RGC1A60A30GKEP	43 AAC: RGC1A60A42GGEP	65 AAC: RGC1A60A62GGEP	85 AAC: RGC1A60A90GGEP
600 VAC, 1200 V <sub>p</sub> , E-type, high I <sup>2</sup> t				85 AAC: RGC1A60A92GGEP

# Solid state contactors, 1-phase

	DIN-rail mounting		
	DC output	AC output with integrated fuse	AC output with integrated fuse and monitoring
Types	RGC1D..15KKE 15 ADC	RGC1FA 20/30/40 AAC	RGC1FS 20/30/40 AAC
Single-phase, semiconductor contactors with integrated heatsink, LED indication and IP20 protection, rated isolation voltage $\geq 4000$ Vrms, 100 kArms short circuit current rating, motor ratings according to UL508.			
Dimensions HxWxD (mm)	110 x 17.8 x 141	110 x 35.6 x 168	110 x 35.6 x 168
Features	17.8 mm wide solid state contactor for DC switching with integrated free wheeling diode, DC control, screw terminals for power and control, E-type layout	35 mm wide solid state contactor with integrated fuse, DC control voltage range, box clamps for connection of power & control terminals	35 mm wide solid state contactor with integrated fuse, monitoring for SSR, load & fuse failure detection, DC control voltage range, box clamps for connection of power & control terminals
<b>Input specifications</b>			
Control input range	4.5-32 VDC	3-32 VDC [RGC1F..23.] 4.5-32 VDC [RGC1F..60.]	3-32 VDC [RGC1F..23.] 4.5-32 VDC [RGC1F..60.]
Max. input current	13.7 mADC	12 mADC	12 mADC
<b>Supply voltage</b>			
Rated supply voltage			24 VDC -15%, +20%
Max. current rating			80 mADC
<b>Over temperature alarm</b>			
Alarm output			PNP open collector normally closed, max. 24 VDC / 50 mA
<b>Output specifications</b>			
Rated operational current			
AC 51 @ Ta=40°C		20 AAC [RGC1F..20.] 30 AAC [RGC1F..30.] 40 AAC [RGC1F..40.]	20 AAC [RGC1F..20.] 30 AAC [RGC1F..30.] 40 AAC [RGC1F..40.]
AC 53a @ Ta=40°C		4.7 AAC [RGC1F..20.] 6 AAC [RGC1F..30.] 8 AAC [RGC1F..40.]	4.7 AAC [RGC1F..20.] 6 AAC [RGC1F..30.] 8 AAC [RGC1F..40.]
DC 1 @ 40°C	15 ADC		
Min. operational current	20 mADC	200 mAAC	200 mAAC
Non rep. surge current (I <sub>tsm</sub> ) (t=10 ms)	200 ADC (10us)	Integrated fuse	Integrated fuse
Off-state leakage current	1.5 mADC		
I <sup>2</sup> t for fusing (t=10 ms)		Fuse - 740 A <sup>2</sup> s [RGC1F..20..] Fuse - 1400 A <sup>2</sup> s [RGC1F..30..] Fuse - 3100 A <sup>2</sup> s [RGC1F..40..]	Fuse - 740 A <sup>2</sup> s [RGC1F..20..] Fuse - 1400 A <sup>2</sup> s [RGC1F..30..] Fuse - 3100 A <sup>2</sup> s [RGC1F..40..]
Critical dV/dt off-state (@ T <sub>j</sub> init=40°C)		1000 V/μs	1000 V/μs
<b>General specifications</b>			
Operational voltage range	24-1000 VDC [CE] 24-600 VDC [UL508]	24-240 VAC +10% [RG.23..] 42-600 VAC +10% [RG.60..]	24-240 VAC +10% [RG.23..] 42-600 VAC +10% [RG.60..]
Blocking voltage	1200 V <sub>p</sub>	1200 V <sub>p</sub>	1200 V <sub>p</sub>
Power factor		$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage
Operating temperature	-40°C to +80°C	-40°C to +70°C	-40°C to +70°C
Approvals/Marks	CE - cULus	CE - cULus (up to 30 AAC)	CE - cULus (up to 30 AAC)
<b>References</b>			
DC control voltage			
230 VAC, 800 V <sub>p</sub>		20 AAC: RGC1FA23D20GGE 30 AAC: RGC1FA23D30GGE 40 AAC: RGC1FA23D40GGE	20 AAC: RGC1FS23D20GGE 30 AAC: RGC1FS23D30GGE 40 AAC: RGC1FS23D40GGE
600 VAC, 1200 V <sub>p</sub>		20 AAC: RGC1FA60D20GGE 30 AAC: RGC1FA60D30GGE 40 AAC: RGC1FA60D40GGE	20 AAC: RGC1FS60D20GGE 30 AAC: RGC1FS60D30GGE 40 AAC: RGC1FS60D40GGE
1000 VDC	15 ADC: RGC1D1000D15KKE		

# Solid state contactors, 1-phase

## DIN-rail mounting - AC output, Integrated current measurement




Types	RGC1S..20/30/31GKEP 23/30 AAC	RGC1S..25GKEP 25 AAC	RGC1S..26GGEP 25 AAC
Single-phase, semiconductor contactors with integrated current measurement, E-type configuration, LED indication and IP20 protection, AC operating frequency 45-65 Hz, rated isolation voltage $\geq 4000$ Vrms, 100 kArms short circuit current rating.			
Dimensions HxWxD (mm)	110 x 22.5 x 163	110 x 22.5 x 126	110 x 22.5 x 126
Features	22.5 mm wide solid state contactor, integrated varistor, DC control, local or remote TEACH, detection of partial load failure (1/6), SSR and load malfunction, SSR overheat protection	22.5 mm wide solid state contactor, integrated varistor, DC control, local or remote TEACH, detection of partial load failure (1/6), SSR and load malfunction, SSR overheat protection	22.5 mm wide solid state contactor, integrated varistor, DC control, local or remote TEACH, detection of partial load failure (1/6), SSR and load malfunction, SSR overheat protection
<b>Input specifications</b>			
Control input range	4-32 VDC	4-32 VDC	4-32 VDC
Max. input current	10 mADC at 24 VDC	10 mADC at 24 VDC	10 mADC at 24 VDC
<b>Supply voltage</b>			
Rated supply voltage	24 VDC -15%, +20%	24 VDC -15%, +20%	24 VDC -15%, +20%
Max. current rating	50 mADC	50 mADC	50 mADC
<b>Alarm specifications</b>			
Output type	NC PNP open collector max. 35 VDC/50 mA	NC PNP open collector max. 35 VDC/50 mA	NC PNP open collector max. 35 VDC/50 mA
Alarm Indication	Red LED (flash rate)	Red LED (flash rate)	Red LED (flash rate)
<b>Output specifications</b>			
Rated operational current			
AC 51 @ Ta=40°C	23 AAC [RGC1S..20] 30 AAC [RGC1S..30] 30 AAC [RGC1S..31]	25 AAC	25 AAC
Minimum TEACH / operational current	1.2 AAC	1.2 AAC	1.2 AAC
Minimum partial load current	0.2 AAC	0.2 AAC	0.2 AAC
Detectable partial load failure	>16.67% from current setpoint	>16.67% from current setpoint	>16.67% from current setpoint
Non. rep. surge current I <sub>tsm</sub> (t=10ms)	325 A <sub>p</sub> [RGC1S..20] 600 A <sub>p</sub> [RGC1S..30] 1150 A <sub>p</sub> [RGC1S..31]	600 A <sub>p</sub>	1900 A <sub>p</sub>
Max. off state leakage current	3 mAAC	3 mAAC	3 mAAC
I <sup>2</sup> t for fusing (t=10ms)	525 A <sup>2</sup> s [RGC1S..20] 1800 A <sup>2</sup> s [RGC1S..30] 6600 A <sup>2</sup> s [RGC1S..31]	1800 A <sup>2</sup> s	18000 A <sup>2</sup> s
Critical dV/dt (@ T <sub>j</sub> init=40°C)	1000 V/μs	1000 V/μs	1000 V/μs
<b>General specifications</b>			
Operational voltage range	42-600 VAC +10%	42-600 VAC +10%	42-600 VAC +10%
Blocking voltage	1200 V <sub>p</sub>	1200 V <sub>p</sub>	1200 V <sub>p</sub>
Power factor	≥ 0.9 at rated voltage	≥ 0.9 at rated voltage	≥ 0.9 at rated voltage
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
Approvals/Marks	CE - cULus	CE - cULus	CE - cULus
<b>References</b>			
600 VAC, 1200 V <sub>p</sub> , 525A <sup>2</sup> s	23 AAC: <b>RGC1S60D20GKEP</b>		
600 VAC, 1200 V <sub>p</sub> , 1800A <sup>2</sup> s	30 AAC: <b>RGC1S60D30GKEP</b>	25 AAC: <b>RGC1S60D25GKEP</b>	
600 VAC, 1200 V <sub>p</sub> , 6600A <sup>2</sup> s	30 AAC: <b>RGC1S60D31GKEP</b>		
600 VAC, 1200 V <sub>p</sub> , 18000A <sup>2</sup> s			25 AAC: <b>RGC1S60D26GGEP</b>

GK = screws for control terminals, box clamps for power terminals  
GG = box clamps for control terminals, box clamps for power terminals

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# Solid state contactors, 1-phase

## DIN-rail mounting - AC output, Integrated current measurement




Types	<b>RGC1S..41GG.P</b> 43 AAC	<b>RGC1S..61GG.P</b> 65 AAC	<b>RGC1S..90GGEP</b> 85 AAC
Single-phase, semiconductor contactors with integrated heatsink, LED indication and IP20 protection, AC operating frequency 45-65 Hz, Rated isolation voltage $\geq 4000$ Vrms, 100 kArms short circuit current rating, motor ratings according to UL508.			
Dimensions HxWxD (mm)	110 x 35.6 x 163	110 x 69.1 x 163	126 x 69.1 x 163 (with fan)
Features	35 mm wide solid-state contactor, integrated varistor, DC control, local or remote TEACH, detection of partial load failure (1/6), SSR and load malfunction, SSR overheat protection	70 mm wide solid-state contactor, integrated varistor, DC control, local or remote TEACH, detection of partial load failure (1/6), SSR and load malfunction, SSR overheat protection	70 mm wide solid-state contactor with, integrated varistor, DC control, local or remote TEACH, detection of partial load failure (1/6), SSR and load malfunction, SSR overheat protection
<b>Input specifications</b>			
Control input range	4-32 VDC	4-32 VDC	4-32 VDC
Max. input current	10 mADC at 24 VDC	10 mADC at 24 VDC	10 mADC at 24 VDC
<b>Supply voltage</b>			
Supply voltage	24 VDC -15%, +20%	24 VDC -15%, +20%	24 VDC -15%, +20%
Max. current rating	50 mADC	50 mADC	50 mADC (fan rating 24 VDC / 50 mA)
<b>Alarm specifications</b>			
Output type	NC PNP open collector max. 35 VDC / 50 mA	NC PNP open collector max. 35 VDC / 50 mA	NC PNP open collector max. 35 VDC / 50 mA
Alarm Indication	Red LED (flash rate)	Red LED (flash rate)	Red LED (flash rate)
<b>Output specifications</b>			
Rated operational current			
AC 51 @ $T_a=40^\circ\text{C}$	43 AAC	65 AAC	85 AAC
Minimum TEACH / operational current	1.2 AAC	5 AAC	5 AAC
Minimum partial load current	0.2 AAC	0.83 AAC	0.83 AAC
Detectable partial load failure	>16.67% from current setpoint	>16.67% from current setpoint	>16.67% from current setpoint
Non. rep. surge current $I_{tsm}$ (t=10ms)	1900 A <sub>p</sub>	1900 A <sub>p</sub>	1900 A <sub>p</sub>
Max. off state leakage current	3 mAAC	3 mAAC	3 mAAC
$I^2t$ for fusing (t=10 ms)	18000 A <sup>2</sup> s	18000 A <sup>2</sup> s	18000 A <sup>2</sup> s
Critical dV/dt (@ $T_j$ init=40°C)	1000 V/ $\mu$ s	1000 V/ $\mu$ s	1000 V/ $\mu$ s
<b>General specifications</b>			
Operational voltage range	42-600 VAC +10%	42-600 VAC +10%	42-600 VAC +10%
Blocking voltage	1200 V <sub>p</sub>	1200 V <sub>p</sub>	1200 V <sub>p</sub>
Power factor	$\geq 0.9$ at rated voltage	$\geq 0.9$ at rated voltage	$\geq 0.9$ at rated voltage
Operating temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
Approvals/Marks	CE - cULus	CE - cULus	CE - cULus
<b>References</b>			
600 VAC, 1200 V <sub>p</sub> , E-type	43 AAC: <b>RGC1S60D41GGEP</b>	65 AAC: <b>RGC1S60D61GGEP</b>	85 AAC: <b>RGC1S60D90GGEP</b>
600 VAC, 1200 V <sub>p</sub> , U-type	43 AAC: <b>RGC1S60D41GGUP</b>	65 AAC: <b>RGC1S60D61GGUP</b>	

GG = box clamps for control terminals, box clamps for power terminals

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# Solid state contactors, 1-phase

## DIN-rail mounting - Soft start switching

Types	RGC1P..K.. 30 AAC	RGC1P..K.. 43 AAC	RGC1P..K.. 63 AAC
Single-phase, solid state relay with integrated heatsink, with integrated overvoltage protection, LED for control and load status indication, IP20 protection, Rated isolation voltage $\geq 4000$ Vrms, 100 kArms short circuit current rating.			
Dimensions HxWxD (mm)	110 x 35.8 x 104	110 x 35.8 x 104	110 x 72 x 126
Features	DC control input solid state contactor with soft starting feature for short wave infrared heaters	DC control input solid state contactor with soft starting feature for short wave infrared heaters	DC control input solid state contactor with soft starting feature for short wave infrared heaters
<b>Supply specifications</b>			
Supply voltage	24 VDC -15%, +20% 24 VAC -15%, +15%	24 VDC -15%, +20% 24 VAC -15%, +15%	24 VDC -15%, +20% 24 VAC -15%, +15%
Max. supply current	30 mA	30 mA	30 mA
<b>Control specifications</b>			
Control input	19.2 - 28.8 VDC	19.2 - 28.8 VDC	19.2 - 28.8 VDC
Input impedance	100 k $\Omega$	100 k $\Omega$	100 k $\Omega$
<b>Output specifications</b>			
Rated operational current AC-51 @ 40°C	30 AAC	43 AAC	63 AAC
Minimum operational current	250 mAAC	500 mAAC	500 mAAC
Non rep. surge current (I <sub>tsm</sub> ) (t=10 ms)	600 Ap	1900 Ap	1900 Ap
I <sup>2</sup> t for fusing (t=10 ms)	1800 A <sup>2</sup> s	18000 A <sup>2</sup> s	18000 A <sup>2</sup> s
Max. Off-state leakage current	5 mAAC	5 mAAC	5 mAAC
Critical dV/dt (@ T <sub>j</sub> init=40°C)	1000 V/ $\mu$ s	1000 V/ $\mu$ s	1000 V/ $\mu$ s
<b>General specifications</b>			
Operational voltage range	85 - 265 VAC (RGC1P23..) 190 - 550 VAC (RGC1P48..) 410 - 660 VAC (RGC1P60..)	85 - 265 VAC (RGC1P23..) 190 - 550 VAC (RGC1P48..) 410 - 660 VAC (RGC1P60..)	85 - 265 VAC (RGC1P23..) 190 - 550 VAC (RGC1P48..) 410 - 660 VAC (RGC1P60..)
Blocking voltage	800 V <sub>P</sub> (RGC1P23..) 1200 V <sub>P</sub> (RGC1P48..) 1200 V <sub>P</sub> (RGC1P60..)	800 V <sub>P</sub> (RGC1P23..) 1200 V <sub>P</sub> (RGC1P48..) 1200 V <sub>P</sub> (RGC1P60..)	800 V <sub>P</sub> (RGC1P23..) 1200 V <sub>P</sub> (RGC1P48..) 1200 V <sub>P</sub> (RGC1P60..)
Power factor	> 0.7	> 0.7	> 0.7
Terminals	Screw with captive clamp	Box clamp	Box clamp
Operating temperature	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C
Approvals/Marks	CE - UL - cUL	CE - UL - cUL	CE - UL - cUL
<b>References</b>			
External supply 24 VDC/AC			
Operational output 85 - 265 VAC	RGC1P23K30ED	RGC1P23K42ED	RGC1P23K62ED
Operational output 190 - 550 VAC	RGC1P48K30ED	RGC1P48K42ED	RGC1P48K62ED
Operational output 410 - 660 VAC	RGC1P60K30ED	RGC1P60K42ED	RGC1P60K62ED

# Solid state contactors, 1-phase

## DIN-rail mounting - Proportional controllers

Types	RGC1P..AA.. / V.. 12 AAC	RGC1P..AA.. / V.. 30 AAC	RGC1P..AA.. / V.. 43 AAC	RGC1P..AA.. / V.. 50 / 63 AAC
Single-phase, solid state relay with integrated heatsink, with integrated overvoltage protection, LED for control and load status indication, IP20 protection, rated isolation voltage $\geq 4000$ Vrms, 100 kArms short circuit current rating.				
Dimensions HxWxD (mm)	106 x 35.8 x 65	110 x 35.8 x 104	110 x 35.8 x 104	110 x 72 x 126
Features	Analog input (current or voltage), selectable modes for output switching - phase angle, full cycle distributed firing, advanced full cycle and soft starting	Analog input (current or voltage), selectable modes for output switching - phase angle, full cycle distributed firing, advanced full cycle and soft starting	Analog input (current or voltage), selectable modes for output switching - phase angle, full cycle distributed firing, advanced full cycle and soft starting	Analog input (current or voltage), selectable modes for output switching - phase angle, full cycle distributed firing, advanced full cycle and soft starting
<b>Supply specifications</b>				
Supply voltage	24 VDC -15%, +20% (RG..V.ED) 24 VAC -15%, +15% (RG..V.ED) 90-250 VAC (RG..V.EA)	24 VDC -15%, +20% (RG..V.ED) 24 VAC -15%, +15% (RG..V.ED) 90-250 VAC (RG..V.EA)	24 VDC -15%, +20% (RG..V.ED) 24 VAC -15%, +15% (RG..V.ED) 90-250 VAC (RG..V.EA)	24 VDC -15%, +20% (RG..V.ED) 24 VAC -15%, +15% (RG..V.ED) 90-250 VAC (RG..V.EA)
Max. supply current	30 mA (RG..V.ED) 14 mA (RG..V.EA)	30 mA (RG..V.ED) 14 mA (RG..V.EA)	30 mA (RG..V.ED) 14 mA (RG..V.EA)	30 mA (RG..V.ED) 14 mA (RG..V.EA)
<b>Control specifications</b>				
Control input range	4-20 mA (RG..AA..) 0-10 V, 0-5 V, 1-5 V, POT (RG..V..)	4-20 mA (RG..AA..) 0-10 V, 0-5 V, 1-5 V, POT (RG..V..)	4-20 mA (RG..AA..) 0-10 V, 0-5 V, 1-5 V, POT (RG..V..)	4-20 mA (RG..AA..) 0-10 V, 0-5 V, 1-5 V, POT (RG..V..)
Input impedance	500 $\Omega$ (RG..AA..) 100 k $\Omega$ (RG..V..)	500 $\Omega$ (RG..AA..) 100 k $\Omega$ (RG..V..)	500 $\Omega$ (RG..AA..) 100 k $\Omega$ (RG..V..)	500 $\Omega$ (RG..AA..) 100 k $\Omega$ (RG..V..)
<b>Output specifications</b>				
Rated operational current AC-51 @ 40°C	15 AAC	30 AAC	43 AAC	50 AAC (RG..50) 63 AAC (RG..62)
Minimum operational current	250 mAAC	250 mAAC	500 mAAC	500 mAAC
Non rep. surge current (I <sub>tsm</sub> ) (t=10 ms)	600 Ap	600 Ap	1900 Ap	800 Ap (RG..50) 1900 Ap (RG..62)
I <sup>2</sup> t for fusing (t=10 ms)	1800 A <sup>2</sup> s	1800 A <sup>2</sup> s	18000 A <sup>2</sup> s	3200 A <sup>2</sup> s (RG..50) 18000 A <sup>2</sup> s (RG..62)
Max. Off-state leakage current	5 mAAC	5 mAAC	5 mAAC	5 mAAC
Critical dV/dt (@ T <sub>j</sub> init=40°C)	1000 V/ $\mu$ s	1000 V/ $\mu$ s	1000 V/ $\mu$ s	1000 V/ $\mu$ s
<b>General specifications</b>				
Operational voltage range	85 - 265 VAC (RGC1P23..) 190 - 550 VAC (RGC1P48..)	85 - 265 VAC (RGC1P23..) 190 - 550 VAC (RGC1P48..) 410 - 660 VAC (RGC1P60..)	85 - 265 VAC (RGC1P23..) 190 - 550 VAC (RGC1P48..) 410 - 660 VAC (RGC1P60..)	85 - 265 VAC (RGC1P23..) 190 - 550 VAC (RGC1P48..) 410 - 660 VAC (RGC1P60..)
Blocking voltage	800 V <sub>F</sub> (RGC1P23..) 1200 V <sub>F</sub> (RGC1P48..)	800 V <sub>F</sub> (RGC1P23..) 1200 V <sub>F</sub> (RGC1P48..) 1200 V <sub>F</sub> (RGC1P60..)	800 V <sub>F</sub> (RGC1P23..) 1200 V <sub>F</sub> (RGC1P48..) 1200 V <sub>F</sub> (RGC1P60..)	800 V <sub>F</sub> (RGC1P23..) 1200 V <sub>F</sub> (RGC1P48..) 1200 V <sub>F</sub> (RGC1P60..)
Power factor	> 0.7	> 0.7	> 0.7	> 0.7
Terminals	Screw with captive clamp	Screw with captive clamp	Box clamp	Box clamp
Operating temperature	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C
Approvals/Marks	CE - UL - cUL	CE - UL - cUL	CE - UL - cUL	CE - UL - cUL
<b>References</b>				
Control input				
4-20 mA	RGC1PyyAA12E	RGC1PxxAA30E	RGC1PxxAA42E	50 AAC: RGC1PyyAA50E 63 AAC: RGC1PxxAA62E
0-10 VDC, 0-5 VDC, 1-5 VDC, POT				
External supply 24 VDC/AC	RGC1PyyV12ED	RGC1PxxV30ED	RGC1PxxV42ED	50 AAC: RGC1PyyV50ED 63 AAC: RGC1PxxV62ED
External supply 90-250 VAC	RGC1PyyV12EA	RGC1PxxV30EA	RGC1PxxV42EA	63 AAC: RGC1PxxV62EA

xx = 23 for operational voltage range 85 - 265 VAC  
 48 for operational voltage range 190 - 550 VAC  
 60 for operational voltage range 410 - 660 VAC  
 yy = 23 for operational voltage range 85 - 265 VAC  
 48 for operational voltage range 190 - 550 VAC

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# Solid state contactors, 1-phase

## AC output - MODBUS RTU

## AC output - System monitoring

### Types

**RJ1P MB**  
50 AAC

**RN1S Sense**  
30/50 AAC

Semiconductor contactors with integrated heatsink.  
AC operating frequency range 45-65 Hz.  
Rated isolation voltage  $\geq 4000$  Vrms.



Dimensions HxWxD (mm)

103 x 45 x 122

120 x 45 x 110 (30 A)  
120 x 90 x 110 (50 A)

Features

SSR with fieldbus communication interface

High precision economy switching

### Control specifications

Control input range

2-wire Modbus RTU

7-32 VDC

Max. input current

4 mA

Control supply

20-32 VDC ( $\leq 40$  mA)

Alarm output

PNP: VCC - 2 VDC ( $\leq 100$  mA) / NPN: 2 VDC @ ( $\leq 100$  mA)

### Output specifications

Rated operational current

AC 51 @  $T_a=25^\circ\text{C}$

50 AACrms

30 Arms [RN1S...30..]  
50 Arms [RN1S...50..]

AC 51 @  $T_a=40^\circ\text{C}$

40 AACrms

30 Arms [RN1S...30..]  
50 Arms [RN1S...50..]

AC 53a @  $T_a=25^\circ\text{C}$

6 Arms [RN1S...30..]  
12 Arms [RN1S...50..]

Min. operational current

500 mAACrms

200 mArms

Non-repet. surge current  
( $t=10$  ms)

1900 A<sub>p</sub>

325 A<sub>p</sub> [RN1S...30..]  
600 A<sub>p</sub> [RN1S...50..]

Off-state leakage current

$< 3$  mArms

$< 6$  mAAC

I<sup>2</sup>t for fusing (t=10 ms)

18000 A<sup>2</sup>s

525 A<sup>2</sup>s [RN1S...30..]  
1800 A<sup>2</sup>s [RN1S...50..]

On state voltage drop

1.6 Vrms

Critical dV/dt off-state

1000 V/ $\mu$ s

500 V/ $\mu$ s

### General specifications

Operational voltage range

90-265 VAC [RJ1P23..]  
200-500 VAC [RJ1P48..]  
410-660 VAC [RJ1P60..]

120-265 VAC [RN1S23..]  
150-440 VAC [RN1S40..]  
180-530 VAC [RN1S48..]

Blocking voltage

650 V<sub>p</sub> [RJ1P23..]  
1200 V<sub>p</sub> [RJ1P48..]  
1200 V<sub>p</sub> [RJ1P60..]

800 V<sub>p</sub> [RN1S23..]  
1000 V<sub>p</sub> [RN1S40..]  
1200 V<sub>p</sub> [RN1S48..]

Power factor

$\geq 0.9$

$\geq 0.5$

Operating temperature

-30°C - +70°C

-20°C - +70°C

Terminals

Box clamp

Box clamp

Approvals/Marks

CE - UR - cUR



CE - UR - CSA

### References

230 VAC	RJ1P23MBT50EBC	30 AAC: RN1S23H30NO
	RJ1P23MBT50ECS	30 AAC: RN1S23H30PO
	RJ1P23MBT50ECV	50 AAC: RN1S23H50NO 50 AAC: RN1S23H50PO
400 VAC		30 AAC: RN1S40H30NO
		30 AAC: RN1S40H30PO
		50 AAC: RN1S40H50NO 50 AAC: RN1S40H50PO
480 VAC	RJ1P48MBT50EBC	30 AAC: RN1S48H30NO
	RJ1P48MBT50ECS	30 AAC: RN1S48H30PO
	RJ1P48MBT50ECV	50 AAC: RN1S48H50NO 50 AAC: RN1S48H50PO
600 VAC	RJ1P60MBT50EBC	
	RJ1P60MBT50ECS	
	RJ1P60MBT50ECV	



# Solid state relays with fieldbus, 1-phase

	NRG Controller	NRG BUS cables
<b>Types</b>	<b>NRGC</b>	<b>RCRGN..</b>
Solid state solutions with real-time monitoring. The NRG controller and NRG BUS cables are required for the operation of the NRG solid state relays.		
Dimensions HxWxD (mm)	90 x 38.5 x 64 (without plugs) 107 x 38.5 x 64 (with plugs)	
	Controller of the NRG BUS chain with Modbus RTU over RS485 interface connected to the PLC of the system. The NRGC is the master of the BUS chain when configuration is required for the NRG solid state relays. It acts as a gateway when the PLC needs to access the NRG solid state relays. Each NRGC can handle a maximum of 48 NRG solid state relays	Terminated proprietary cables for the NRG internal BUS connecting respective RG..N solid state relays and RG..N solid state relays to the NRG controller. The BUS terminator terminates the internal BUS
<b>Supply specifications</b>		
Supply voltage	19.2 - 32 VDC	
Power consumption	<5 W	
<b>Auxiliary output specifications</b>		
Relay output	EMR, 3 pins (1 Form C)	
Relay output function	Configurable as an auxiliary output or an alarm output. Default is set as an alarm output (operates in case of NRGC related alarms)	
Relay output ratings	2 A, 250 VAC / 30 VDC	
<b>Alarm specifications</b>		
Alarm output	Red LED, Relay output if set to operate as an alarm output, status register of the NRGC	
<b>General specifications</b>		
Communication protocol	Modbus RTU, 2-wire half duplex	
Baud rate	Baudrate: 115200 bits/s (selectable 9600, 19200, 38400, 57600)	
Modbus physical interface	2x RJ45 plugs	
Approvals/Marks	CE - cULus - EAC	
<b>References</b>		
NRG controller	<b>NRGC</b>	
NRG BUS cables	10 cm: <b>RCRGN-010-2</b> 75 cm: <b>RCRGN-075-2</b> 150 cm: <b>RCRGN-150-2</b> 350 cm: <b>RCRGN-350-2</b> 500 cm: <b>RCRGN-500-2</b>	
NRG internal BUS termination	<b>RGN-TERMRES*</b>	

\* 1x RGN-TERMRES is provided with each NRGC

# Solid state relays with fieldbus, 1-phase

## NRG Solid state relays

Types	RGS..N 50/90 AAC	RGC..N 25/30/37 AAC	RGC..N 43/65 AAC
Switching components within the NRG system; Single-phase, AC operating frequency 45-65 Hz, rated isolation $\geq 4000$ Vrms, IP20 protection, 100 kArms short circuit current rating according to UL508, integrated varistor on output.			

Dimensions HxWxD (mm)	90 x 17.8 x 82	110 x 17.8 x 134	110 x 35 x 172 [RGC..42..] 110 x 70 x 172 [RGC..62..]
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Features

Apart from the switching function, the NRG solid state relays integrate monitoring and a communication interface to provide data of monitored variables through an internal BUS such as: Current, Voltage, Frequency, Power, Energy Consumption and Running hours. Interface to the PLC is done through the NRGC that can link a maximum of 48 RG..N solid state relays. The communication and the switching functions of the RG..N are independent. The RG..Ns are switched with a DC control voltage

### Control specifications

Control input range	4-32 VDC	4-32 VDC	4-32 VDC
Max. input current	12.5 mA	12.5 mA	12.5 mA

### Supply specifications

Supply voltage Provided through internal BUS using cables RCRGN...

### Alarm specifications

Alarm output Red LED on the RG..N, alarm presence is identified through the status register of the solid state relay. Alarms that can be detected include: system failure (mains loss, load loss, SSR open circuit), SSR short circuit, current out of range, voltage out of range, frequency out of range, over-temperature protection, communication and internal errors

### Output specifications

Rated operational current			
AC 51 @ Ta=40°C	50 AAC [RGS..50..] 90 AAC [RGS..92..]"	25 AAC [RGC..25KEN] 30 AAC [RGC..32KEN] 37 AAC [RGC..32GEN]	43 AAC [RGC..42..] 65 AAC [RGC..62..]
Min. operational current	250 mAAC [RGS..50..] 500 mAAC [RGS..92..]	250 mAAC [RGC..25..] 500 mAAC [RGC..32..]	500 mAAC
Non-rep. surge current (t=10 ms)	600 Ap [RGS..50..] 1900 Ap [RGS..92..]	600 Ap [RGC..25..] 1900 Ap [RGC..32..]	1900 Ap
Off-state leakage current	< 5 mAAC	< 5 mAAC	< 5 mAAC
I <sup>2</sup> t for fusing (t=10 ms)	1800 A <sup>2</sup> s [RGS..50..] 18000 A <sup>2</sup> [RGS..92..]	1800 A <sup>2</sup> s [RGC..25..] 18000 A <sup>2</sup> s [RGC..32..]	18000 A <sup>2</sup> s
Critical dV/dt off-state	1000 V/μs	1000 V/μs	1000 V/μs



### General specifications

Operational voltage range	42 - 600 VAC +10%	42 - 600 VAC +10%	42 - 600 VAC +10%
Blocking voltage	1200 Vp	1200 Vp	1200 Vp
Power factor	$\geq 0.9$	$\geq 0.9$	$\geq 0.9$
Operating temperature	-20°C to +65°C	-20°C to +65°C	-20°C to +65°C
Output terminals	Screw [RG..KEN] Box clamp [RG..GEN]	Screw [RG..KEN] Box clamp [RG..GEN]	Box clamp
Approvals/Marks	CE - UR - CSA - EAC	CE - cULus - EAC	CE - cULus - EAC

### References





DC control			
600 VAC, 1200 Vp, Screw	50 AAC: RGS1A60D50KEN 90 AAC: RGS1A60D92KEN	25 AAC: RGC1A60D25KEN 30 AAC: RGC1A60D32KEN	
600 VAC, 1200 Vp, Box clamps	90 AAC: RGS1A60D92GEN	37 AAC: RGC1A60D32GEN	43 AAC: RGC1A60D42GEN 65 AAC: RGC1A60D62GEN

# Solid state contactors, 45 mm, 3-phase

	DIN-rail mounting - AC output, 2 + 1 poles	DIN-rail mounting - AC output, 3 poles
<b>Types</b>	<b>RGCM2A..20..</b> 20 AAC	<b>RGCM3A..15..</b> 15 AAC
Semiconductor contactors with integrated heatsink. AC operating frequency range 45-65 Hz. Rated isolation voltage $\geq 4000$ Vrms.		
Dimensions HxWxD (mm)	105 x 45 x 105	105 x 45 x 105
Features	45 mm solid state contactor, enclosed heatsink, integrated varistors for over-voltage protection, 5 kArms SCCR, screw with clamp for power connection	45 mm solid state contactor, enclosed heatsink, integrated varistors for over-voltage protection, 5 kArms SCCR, screw with clamp for power connection
<b>Control specifications</b>		
Control input range	5-32 VDC [RGC..D.] 20-275 VAC, 24-190 VDC [RGC..A.]	5-32 VDC [RGC..D.] 20-275 VAC, 24-190 VDC [RGC..A.]
Input current @ max. control voltage	31.5 mADC [RG..D.] 19 mAAC [RG..A.]	31.5 mADC [RG..D.] 19 mAAC [RG..A.]
<b>Output specifications</b>		
Rated operational current AC-51 @ $T_a=40^\circ\text{C}$	20 AAC	15.5 AAC
AC-53a @ $T_a=40^\circ\text{C}$	7.6 AAC	5.8 AAC
Motor rating	3 kW @ 400 VAC 5 HP @ 600 VAC	2.2 kW @ 400 VAC 3 HP @ 600 VAC
Minimum operational current	250 mAAC	250 mAAC
Non. rep. surge current $I_{tsm}$ (t=10 ms)	600 A <sub>p</sub>	600 A <sub>p</sub>
$I^2t$ for fusing (t=10 ms)	1800 A <sup>2</sup> s	1800 A <sup>2</sup> s
Off-state leakage current	3 mAAC	3 mAAC
Critical dV/dt (@ $T_j$ init=40°C)	1000 V/ $\mu$ s	1000 V/ $\mu$ s
<b>General specifications</b>		
Operational voltage range	42-600 VAC +10%	42-220 VAC + 10% [RG..22.] 42-600 VAC +10% [RG..60.]
Blocking voltage	1200 V <sub>p</sub>	800 V <sub>p</sub> [RG..22.] 1200 V <sub>p</sub> [RG..60.]
Power factor	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage
Operating temperature	-40°C to +70°C	-40°C to +70°C
Approvals/Marks	CE - cULus	CE - cULus
<b>References</b>		
DC control voltage		
220 VAC, 800 V <sub>p</sub>		<b>RGCM3A22D15GKE</b>
600 VAC, 1200 V <sub>p</sub>	<b>RGCM2A60D20GKE</b>	<b>RGCM3A60D15GKE</b>
AC control voltage		
220 VAC, 800 V <sub>p</sub>		<b>RGCM3A22A15GKE</b>
600 VAC, 1200 V <sub>p</sub>	<b>RGCM2A60A20GKE</b>	<b>RGCM3A60A15GKE</b>




# Solid state contactors, 3-phase

## DIN-rail mounting - AC output, 2 + 1 poles

Types	RGC2A..10.. 10 AAC	RGC2A..25.. 27 AAC	RGC2A..40.. 40 AAC	RGC2A..75..F 75 AAC
Semiconductor contactors with integrated heatsink, AC operating frequency range 45-65 Hz. Rated isolation voltage 4000 Vrms.				
Dimensions HxWxD (mm)	106 x 54 x 65	110 x 54 x 103	110 x 72 x 126	141 x 72 x 141 (with fan)
Features	54 mm solid state contactor, integrated varistors for over-voltage protection, 100 kArms SCCR, screw with clamp for power connection	54 mm solid state contactor, integrated varistors for over-voltage protection, 100 kArms SCCR, screw with clamp for power connection	72 mm solid state contactor, integrated varistors for over-voltage protection, 100 kArms SCCR, box clamp for power connection	72 mm solid state contactor, integrated overheat protection with EMR alarm output, 100 kArms SCCR, box clamp for power connection
<b>Input specifications</b>				
Control input range	5-32 VDC [RGC..D.] 20-275 VAC 24-190 VDC [RGC..A.]	5-32 VDC [RGC..D.] 20-275 VAC 24-190 VDC [RGC..A.]	5-32 VDC [RGC..D.] 20-275 VAC 24-190 VDC [RGC..A.]	5-32 VDC [RG..D..DF] 5-32 VDC [RG..D..AF] 20-275 VAC [RG..A..AF]
Input current @ max. control voltage	31.5 mADC [RG..D.] 19 mAAC [RG..A.]	31.5 mADC [RG..D.] 19 mAAC [RG..A.]	31.5 mADC [RG..D.] 19 mAAC [RG..A.]	12.5 mADC [RG..D..DF] 5.5 mADC [RG..D..AF] 4.3 mAAC [RG..A..AF]
External supply voltage				24 VDC [RG..D..DF] 90-250 VAC [RG..D..AF] 90-250 VAC [RG..A..AF]
Max. supply current				150 mADC [RG..D..DF] 80 mADC [RG..D..AF] 80 mAAC [RG..A..AF]
<b>Alarm specifications</b>				
Alarm output				EMR: 2 A 230 VAC / 30 VDC
Alarm condition				Over Temperature
<b>Output specifications</b>				
Rated operational current AC-51 @ Ta=40°C	10 AAC	27 AAC	40 AAC	75 AAC
AC-53a @ Ta=40°C	5 AAC	11.5 AAC	16.5 AAC	28 AAC
Motor rating	1.5 kW @ 400 VAC 3 HP @ 600 VAC VAC	5.5 kW @ 400 VAC 10 HP @ 600 VAC	7.5 kW @ 400 VAC 15 HP @ 600 VAC	11 kW @ 400 VAC 25 HP @ 600 VAC
Minimum operational current	250 mAAC	250 mAAC	400 mAAC	500 mAAC
Non. rep. surge current I <sub>sm</sub> (t=10 ms)	600 A <sub>p</sub>	600 A <sub>p</sub>	1150 A <sub>p</sub>	1750 A <sub>p</sub>
I <sup>2</sup> t for fusing (t=10 ms)	1800 A <sup>2</sup> s	1800 A <sup>2</sup> s	6600 A <sup>2</sup> s	15000 A <sup>2</sup> s
<b>General specifications</b>				
Operational voltage range	42-600 VAC +10%	42-220 VAC +10% [RG..22.] 42-600 VAC +10% [RG..60.]	42-600 VAC +10%	42-600 VAC +10%
Blocking voltage	1200 V <sub>p</sub>	800 V <sub>p</sub> [RG..22.] 1200 V <sub>p</sub> [RG..60.]	1200 V <sub>p</sub>	1200 V <sub>p</sub>
Power factor	≥ 0.5 at rated voltage	≥ 0.5 at rated voltage	≥ 0.5 at rated voltage	≥ 0.5 at rated voltage
Operating temperature	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C	-40°C to +70°C [RG...DF] -40°C to +60°C [RG...AF]
Approvals/Marks	CE - cULus - EAC - VDE - CCC	CE - cULus - EAC - CCC	CE - cULus - EAC - CCC	CE - cULus - EAC - CCC
<b>References</b>				
DC control voltage				
220 VAC, 800 V <sub>p</sub>		RGC2A22D25KKE		
600 VAC, 1200 V <sub>p</sub>	RGC2A60D10KKE	RGC2A60D25KKE	RGC2A60D40KGE	
AC/DC control voltage				
220 VAC, 800 V <sub>p</sub>		RGC2A22A25KKE		
600 VAC, 1200 V <sub>p</sub>	RGC2A60A10KKE	RGC2A60A25KKE	RGC2A60A40KGE	
DC control voltage, DC external supply				RGC2A60D75GGEDF
DC control voltage, AC external supply				RGC2A60D75GGEAF
AC control voltage, AC external supply				RGC2A60A75GGEAF




# Solid state contactors, 3-phase

## DIN-rail mounting - AC output with monitoring, 2 + 1 poles

Types	<b>RGC2A..25..M</b> 27 AAC	<b>RGC2A..40..M</b> 40 AAC	<b>RGC2A..75..FM</b> 75 AAC
Semiconductor contactors with integrated heatsink, AC operating frequency 45-65 Hz. Rated isolation voltage output to heatsink of 4000 Vrms, 100 kArms Short Circuit Current Rating.			
Dimensions HxWxD (mm)	110 x 54 x 118	110 x 72 x 141	141 x 72 x 141 (with fan)
Features	54 mm solid state contactor, EMR alarm output and electronic auxiliary output, screw with clamp for power connection	72 mm solid state contactor, EMR alarm output and electronic auxiliary output, box clamp for power connection	72 mm solid state contactor, EMR alarm output and electronic auxiliary output, box clamp for power connection
<b>Input specifications</b>			
Control input range	5-32 VDC [RG..D..DM] 5-32 VDC [RG..D..AM] 20-275 VAC [RG..A..AM]	5-32 VDC [RG..D..DM] 5-32 VDC [RG..D..AM] 20-275 VAC [RG..A..AM]	5-32 VDC [RG..D..DFM] 5-32 VDC [RG..D..AFM] 20-275 VAC [RG..A..AFM]
Control current @ max. control voltage	12.5 mADC [RG..D..DM] 5.5 mADC [RG..D..AM] 4.3 mAAC [RG..A..AM]	12.5 mADC [RG..D..DM] 5.5 mADC [RG..D..AM] 4.3 mAAC [RG..A..AM]	12.5 mADC [RG..D..DFM] 5.5 mADC [RG..D..AFM] 4.3 mAAC [RG..A..AFM]
External supply voltage	24 VDC [RG..D..DM] 90-250 VAC [RG..D..AM] 90-250 VAC [RG..A..AM]	24 VDC [RG..D..DM] 90-250 VAC [RG..D..AM] 90-250 VAC [RG..A..AM]	24 VDC [RG..D..DFM] 90-250 VAC [RG..D..AFM] 90-250 VAC [RG..A..AFM]
Max. supply current	60 mADC [RG..D..DM] 60 mAAC [RG..D..AM] 60 mAAC [RG..A..AM]	60 mADC [RG..D..DM] 60 mAAC [RG..D..AM] 60 mAAC [RG..A..AM]	150 mADC [RG..D..DFM] 80 mAAC [RG..D..AFM] 80 mAAC [RG..A..AFM]
<b>Alarm specifications</b>			
Alarm output	EMR; 2 A 250 VAC / 30 VDC	EMR; 2 A 250 VAC / 30 VDC	EMR; 2 A 250 VAC / 30 VDC
Alarm condition	Mains loss, Load loss, SSR open cct., SSR short cct., SSR over temperature	Mains loss, Load loss, SSR open cct., SSR short cct., SSR over temperature	Mains loss, Load loss, SSR open cct., SSR short cct., SSR over temperature
<b>Output specifications</b>			
Rated operational current AC-51 @ Ta=40°C	27 AAC	40 AAC	75 AAC
Minimum operational current	250 mAAC	400 mAAC	500 mAAC
Non. rep. surge current I <sub>tsm</sub> (t=10 ms)	600 Ap	1150 Ap	1750 Ap
I <sup>2</sup> t for fusing (t=10 ms)	1800 A <sup>2</sup> s	6600 A <sup>2</sup> s	15000 A <sup>2</sup> s
Off-state leakage current	3 mAAC	3 mAAC	3 mAAC
<b>General specifications</b>			
Operational voltage range	90-600 VAC +10%	90-600 VAC +10%	90-600 VAC +10%
Blocking voltage	1200 Vp	1200 Vp	1200 Vp
Operating temperature	-40°C to +80°C [RG...DM] -40°C to +60°C [RG...AM]	-40°C to +80°C [RG...DM] -40°C to +60°C [RG...AM]	-40°C to +70°C [RG...DFM] -40°C to +60°C [RG...AFM]
Approvals/Marks	CE - cULus - EAC - CCC	CE - cULus - EAC - CCC	CE - cULus - EAC - CCC
<b>References</b>			
600 VAC, 1200 Vp			
DC control voltage, DC external supply	<b>RGC2A60D25GKEDM</b>	<b>RGC2A60D40GGEDM</b>	<b>RGC2A60D75GGEDFM</b>
DC control voltage, AC external supply	<b>RGC2A60D25GKEAM</b>	<b>RGC2A60D40GGEAM</b>	<b>RGC2A60D75GGEAFM</b>
AC control voltage, AC external supply	<b>RGC2A60A25GKEAM</b>	<b>RGC2A60A40GGEAM</b>	<b>RGC2A60A75GGEAFM</b>



# Solid state contactors, 3-phase

## DIN-rail mounting - AC output, 3 poles

Types	RGC3A..10.. 10 AAC	RGC3A..20.. 20 AAC	RGC3A..25.. / 30.. 28/30 AAC
Semiconductor contactors with integrated heatsink, AC operating frequency 45-65 Hz. Rated isolation voltage output to heatsink of 4000 Vrms.			
Dimensions HxWxD (mm)	110 x 54 x 63.5	110 x 54 x 103	110 x 72 x 126
Features	54 mm solid state contactor, integrated varistors for over-voltage protection, 100 kArms SCCR, screw with clamp for power connection	54 mm solid state contactor, integrated varistors for over-voltage protection, 100 kArms SCCR, screw with clamp for power connection	72 mm solid state contactor, integrated varistors for over-voltage protection, 100 kArms SCCR, screw with clamp or box clamp for power connection
<b>Input specifications</b>			
Control input range	5-32 VDC [RGC..D.] 20-275 VAC, 24-190 VDC [RGC..A.]	5-32 VDC [RGC..D.] 20-275 VAC, 24-190 VDC [RGC..A.]	5-32 VDC [RGC..D.] 20-275 VAC, 24-190 VDC [RGC..A.]
Input current @ max. control voltage	31.5 mADC [RG..D.] 19 mAAC [RG..A.]	31.5 mADC [RG..D.] 19 mAAC [RG..A.]	31.5 mADC [RG..D.] 19 mAAC [RG..A.]
<b>Output specifications</b>			
Rated operational current AC-51 @ Ta=40°C	10 AAC	20 AAC	28 AAC [RGC3..25] 30 AAC [RGC3..30]
AC-53a @ Ta=40°C	5 AAC	10 AAC	11 AAC [RGC3..25] 14 AAC [RGC3..30]
Motor rating	1.5 kW @ 400 VAC 3 HP @ 600 VAC	4 kW @ 400 VAC 10 HP @ 600 VAC	4 kW @ 400 VAC [RGC3..25] 5.5 kW @ 400 VAC [RGC3..30] 10 HP @ 600 VAC [RGC3..25] 15 HP @ 600 VAC [RGC3..30]
Minimum operational current	250 mAAC	250 mAAC	250 mAAC [RGC3..25] 400 mAAC [RGC3..30]
Non. rep. surge current I <sub>tsm</sub> (t=10 ms)	600 Ap	600 Ap	600 Ap [RGC3..25] 1150 Ap [RGC3..30]
I <sup>2</sup> t for fusing (t=10 ms)	1800 A <sup>2</sup> s	1800 A <sup>2</sup> s	1800 A <sup>2</sup> s [RGC3..25] 6600 A <sup>2</sup> s [RGC3..30]
Off-state leakage current	3 mAAC	3 mAAC	3 mAAC
Critical dV/dt (@ T <sub>j</sub> init=40°C)	1000 V/μs	1000 V/μs	1000 V/μs
<b>General specifications</b>			
Operational voltage range	42-220 VAC + 10% [RG..22.] 42-600 VAC +10% [RG..60.]	42-220 VAC + 10% [RG..22.] 42-600 VAC +10% [RG..60.]	42-600 VAC +10%
Blocking voltage	800 V <sub>p</sub> [RG..22.] 1200 V <sub>p</sub> [RG..60.]	800 V <sub>p</sub> [RG..22.] 1200 V <sub>p</sub> [RG..60.]	1200 V <sub>p</sub>
Power factor	≥ 0.5 at rated voltage	≥ 0.5 at rated voltage	≥ 0.5 at rated voltage
Operating temperature	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C
Approvals/Marks	CE - cULus - EAC - VDE - CCC	CE - cULus - EAC - CCC	CE - cULus - EAC - CCC
<b>References</b>			
DC control voltage			
220 VAC, 800 V <sub>p</sub>	RGC3A22D10KKE	RGC3A22D20KKE	
600 VAC, 1200 V <sub>p</sub>	RGC3A60D10KKE	RGC3A60D20KKE	28 AAC: RGC3A60D25KKE 30 AAC: RGC3A60D30KGE
AC/DC control voltage			
220 VAC, 800 V <sub>p</sub>	RGC3A22A10KKE	RGC3A22A20KKE	
600 VAC, 1200 V <sub>p</sub>	RGC3A60A10KKE	RGC3A60A20KKE	28 AAC: RGC3A60A25KKE 30 AAC: RGC3A60A30KGE

# Solid state contactors, 3-phase




## DIN-rail mounting - AC output, 3 poles

Types	<b>RGC3A..40..F</b> 42 AAC	<b>RGC3A..65..F</b> 66 AAC
Semiconductor contactors with integrated heatsink, AC operating frequency 45-65 Hz. Rated isolation voltage output to heatsink of 4000 Vrms, 100 kArms short circuit current rating.		
Dimensions HxWxD (mm)	135 x 54 x 118 (with fan)	141 x 72 x 141 (with fan)
Features	54 mm solid state contactor + fan, integrated overheat protection with EMR alarm output, box clamp for power connection	72 mm solid state contactor + fan, integrated overheat protection with EMR alarm output, box clamp for power connection
<b>Input specifications</b>		
Control input range	5-32 VDC [RG..D..DF] 20-275 VAC [RG..A..AF]	5-32 VDC [RG..D..DF] 5-32 VDC [RG..D..AF] 20-275 VAC [RG..A..AF]
Input current @ max. control voltage	12.5 mADC [RG..D..DF] 4.3 mAAC [RG..A..AF]	12.5 mADC [RG..D..DF] 5.5 mADC [RG..D..AF] 4.3 mAAC [RG..A..AF]
External supply voltage	24 VDC [RG..D..DF] 90-250 VAC [RG..A..AF]	24 VDC [RG..D..DF] 90-250 VAC [RG..D..AF] 90-250 VAC [RG..A..AF]
Max. supply current	150 mADC [RG..D..DF] 80 mAAC [RG..A..AF]	150 mADC [RG..D..DF] 80 mAAC [RG..D..AF] 80 mAAC [RG..A..AF]
<b>Alarm specifications</b>		
Alarm output	EMR; 2 A 250 VAC / 30 VDC	EMR; 2 A 250 VAC / 30 VDC
Alarm condition	Over temperature	Over temperature
<b>Output specifications</b>		
Rated operational current AC-51 @ Ta=40°C	42 AAC	66 AAC
AC-53a @ Ta=40°C	17 AAC	25 AAC
Motor rating	7.5 kW @ 400 VAC 15 HP @ 600 VAC	11 kW @ 400 VAC 25 HP @ 600 VAC
Minimum operational current	400 mAAC	500 mAAC
Non. rep. surge current I <sub>tsm</sub> (t=10 ms)	1150 A <sub>p</sub>	1750 A <sub>p</sub>
I <sup>2</sup> t for fusing (t=10 ms)	6600 A <sup>2</sup> s	15000 A <sup>2</sup> s
Off-state leakage current	3 mAAC	3 mAAC
Critical dV/dt (@ T <sub>j</sub> init=40°C)	1000 V/μs	1000 V/μs
<b>General specifications</b>		
Operational voltage range	42-600 VAC +10%	42-600 VAC +10%
Blocking voltage	1200 V <sub>p</sub>	1200 V <sub>p</sub>
Power factor	≥ 0.5 at rated voltage	≥ 0.5 at rated voltage
Operating temperature	-40°C to +70°C [RGC..D..DF] -40°C to +60°C [RGC..A..AF]	-40°C to +70°C [RGC..DF] -40°C to +60°C [RGC..AF]
Approvals/Marks	CE - cULus - EAC - CCC	CE - cULus - EAC - CCC
<b>References</b>		
600 VAC, 1200 V <sub>p</sub>		
DC control voltage, DC external supply	<b>RGC3A60D40GGEDF</b>	<b>RGC3A60D65GGEDF</b>
DC control voltage, AC external supply	<b>RGC3A60A40GGEAF</b>	<b>RGC3A60A65GGEAF</b>
AC control voltage, AC external supply	<b>RGC3A60A40GGEAF</b>	<b>RGC3A60A65GGEAF</b>



# Solid state contactors, 3-phase

DIN-rail mounting - AC output with monitoring, 3 poles

Types	RGC3A..20..M 20 AAC	RGC3A..25/30..M 28/30 AAC	RGC3A..65..FM 66 AAC
Semiconductor contactors with integrated heatsink, AC operating frequency 45-65 Hz. Rated isolation voltage output to heatsink of 4000 Vrms, 100 kArms SCCR.			
Dimensions HxWxD (mm)	110 x 54 x 118	110 x 72 x 141	141 x 72 x 141 (with fan)
Features	54 mm solid state contactor, EMR alarm output and electronic auxiliary output, screw with clamp for power connection	72 mm solid state contactor, EMR alarm output and electronic auxiliary output, screw with clamp or box clamp for power connection	72 mm solid state contactor + fan, EMR alarm output and electronic auxiliary output, box clamp for power connection

## Input specifications

Control input range	5-32 VDC [RG..D..DM] 5-32 VDC [RG..D..AM] 20-275 VAC [RG..A..AM]	5-32 VDC [RG..D..DM] 5-32 VDC [RG..D..AM] 20-275 VAC [RG..A..AM]	5-32 VDC [RG..D..DFM] 5-32 VDC [RG..D..AFM] 20-275 VAC [RG..A..AFM]
Control current @ max. control voltage	12.5 mADC [RG..D..DM] 5.5 mADC [RG..D..AM] 4.3 mAAC [RG..A..AM]	12.5 mADC [RG..D..DM] 5.5 mADC [RG..D..AM] 4.3 mAAC [RG..A..AM]	12.5 mADC [RG..D..DFM] 5.5 mADC [RG..D..AFM] 4.3 mAAC [RG..A..AFM]
External supply voltage	24 VDC [RG..D..DM] 90-250 VAC [RG..D..AM] 90-250 VAC [RG..A..AM]	24 VDC [RG..D..DM] 90-250 VAC [RG..D..AM] 90-250 VAC [RG..A..AM]	24 VDC [RG..D..DFM] 90-250 VAC [RG..D..AFM] 90-250 VAC [RG..A..AFM]
Max. supply current	60 mADC [RG..D..DM] 60 mAAC [RG..D..AM] 60 mAAC [RG..A..AM]	60 mADC [RG..D..DM] 60 mAAC [RG..D..AM] 60 mAAC [RG..A..AM]	150 mADC [RG..D..DFM] 80 mAAC [RG..D..AFM] 80 mAAC [RG..A..AFM]

## Alarm specifications

Alarm output	EMR; 2 A 250 VAC / 30 VDC	EMR; 2 A 250 VAC / 30 VDC	EMR; 2 A 250 VAC / 30 VDC
Alarm condition	Mains loss, Load loss, SSR open cct., SSR short cct., SSR over temperature	Mains loss, Load loss, SSR open cct., SSR short cct., SSR over temperature	Mains loss, Load loss, SSR open cct., SSR short cct., SSR over temperature

## Output specifications

Rated operational current AC-51 @ Ta=40°C	20 AAC	28 AAC [RGC3..25] 30 AAC [RGC3..30]	66 AAC
Minimum operational current	250 mAAC	250 mAAC [RGC3..25] 400 mAAC [RGC3..30]	500 mAAC
Non. rep. surge current I <sub>ism</sub> (t=10 ms)	600 A <sub>p</sub>	600 A <sub>p</sub> [RGC3..25] 1150 A <sub>p</sub> [RGC3..30]	1750 A <sub>p</sub>
Off-state leakage current	3 mAAC	3 mAAC	3 mAAC
I <sup>2</sup> t for fusing (t=10 ms)	1800 A <sup>2</sup> s	1800 A <sup>2</sup> s [RGC3..25] 6600 A <sup>2</sup> s [RGC3..30]	15000 A <sup>2</sup> s
Critical dV/dt (@ T <sub>j</sub> init=40°C)	1000 V/μs	1000 V/μs	1000 V/μs

## General specifications

Operational voltage range	90-600 VAC +10%	90-600 VAC +10%	90-600 VAC +10%
Blocking voltage	1200 V <sub>p</sub>	1200 V <sub>p</sub>	1200 V <sub>p</sub>
Operating temperature	-40°C to +80°C [RG..DM] -40°C to +60°C [RG...AM]	-40°C to +80°C [RG..DM] -40°C to +60°C [RG...AM]	-40°C to +70°C [RG...DFM] -40°C to +60°C [RG...AFM]
Approvals/Marks	CE - cULus - EAC - CCC	CE - cULus - EAC - CCC	CE - cULus - EAC - CCC




## References

DC control voltage, DC external supply	RGC3A60D20GKEDM	28AAC: RGC3A60D25GKEDM 30AAC: RGC3A60D30GGEDM	RGC3A60D65GGEDFM
DC control voltage, AC external supply	RGC3A60D20GKEAM	28AAC: RGC3A60D25GKEAM 30AAC: RGC3A60D30GGEAM	RGC3A60D65GGEAFM
AC control voltage, AC external supply	RGC3A60A20GKEAM	28AAC: RGC3A60A25GKEAM 30AAC: RGC3A60A30GGEAM	RGC3A60A65GGEAFM






# Solid state contactors, 3-phase

## 4-20 mA Proportional controllers, 2 + 1 poles

Types	<b>RGC2P60AA15C1</b> 15 AAC	<b>RGC2P60AA25C1</b> 27 AAC	<b>RGC2P60AA40C1</b> 40 AAC
3-phase semiconductor proportional controllers with integrated heatsink, AC operating frequency range 45-65 Hz. Rated isolation voltage 4000 Vrms, 100 kArms short circuit current rating.			
Dimensions HxWxD (mm)	110 x 54 x 103	110 x 54 x 103	110 x 72 x 126
Features	54 mm solid state contactor with integrated varistors for over-voltage protection, screw with clamp for power connection	54 mm solid state contactor with integrated varistors for over-voltage protection, screw with clamp for power connection	72 mm solid state contactor, integrated varistors for over-voltage protection, box clamp for power connection
<b>Input specifications</b>			
Control input	4-20 mADC	4-20 mADC	4-20 mADC
Voltage drop	<10 VDC @ 20 mADC	<10 VDC @ 20 mADC	<10 VDC @ 20 mADC
<b>Types</b>			
Switching mode	1 Full Cycle [RGC..C1..]	1 Full Cycle [RGC..C1..]	1 Full Cycle [RGC..C1..]
<b>Output specifications</b>			
Rated operational current AC-51 @ Ta=40°C	15 AAC	27 AAC	40 AAC
Minimum operational current	500 mAAC	500 mAAC	500 mAAC
Non. rep. surge current I <sub>tsm</sub> (t=10 ms)	600 Ap	600 Ap	1150 Ap
I <sup>2</sup> t for fusing (t=10 ms)	1800 A <sup>2</sup> s	1800 A <sup>2</sup> s	6600 A <sup>2</sup> s
Off-state leakage current	5 mAAC	5 mAAC	5 mAAC
Critical dV/dt (@ T <sub>j</sub> init=40°C)	1000 V/μs	1000 V/μs	1000 V/μs
<b>General specifications</b>			
Operational voltage range	180-600 VAC +10%	180-600 VAC +10%	180-600 VAC +10%
Blocking voltage	1200 V <sub>P</sub>	1200 V <sub>P</sub>	1200 V <sub>P</sub>
Power factor	≥ 0.7 at rated voltage	≥ 0.7 at rated voltage	≥ 0.7 at rated voltage
Operating temperature	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C
Approvals/Marks	CE - cULus - EAC -CCC	CE - cULus - EAC -CCC	CE - cULus - EAC -CCC
<b>References</b>			
Control Input:	4-20 mADC	4-20 mADC	4-20 mADC
1 Full Cycle	<b>RGC2P60AA15C1</b>	<b>RGC2P60AA25C1</b>	<b>RGC2P60AA40C1</b>



# Solid state contactors, 3-phase

## Proportional controllers with monitoring, 2 + 1 poles

Types	<b>RGC2P..25..M</b> 27 AAC	<b>RGC2P..40..M</b> 40 AAC	<b>RGC2P..75..FM</b> 75 AAC
Semiconductor contactors with integrated heatsink, AC operating frequency 45-65 Hz. Rated isolation voltage output to heatsink of 4000 Vrms, 100 kArms short circuit current rating.			
Dimensions HxWxD (mm)	110 x 54 x 118	110 x 72 x 141	141 x 72 x 141 (with fan)
Features	54 mm solid state contactor with integrated varistors for over-voltage protection, system monitoring, screw with clamp for power connection	72 mm solid state contactor with integrated varistors for over-voltage protection, system monitoring, box clamp for power connection	72 mm solid state contactor with fan and system monitoring, integrated varistors for over-voltage protection, box clamp for power connection
<b>Input specifications</b>			
Control input	0-20, 4-20, 12-20 mADC [RGC..I..] 0-10, 0-5, 1-5 VDC [RGC..V..] External potentiometer [RGC..V..]	0-20, 4-20, 12-20 mADC [RGC..I..] 0-10, 0-5, 1-5 VDC [RGC..V..] External potentiometer [RGC..V..]	0-20, 4-20, 12-20 mADC [RGC..I..] 0-10, 0-5, 1-5 VDC [RGC..V..] External potentiometer [RGC..V..]
Input impedance	<250 ohms [RGC..I..] 100k ohms [RGC..V..]	<250 ohms [RGC..I..] 100k ohms [RGC..V..]	<250 ohms [RGC..I..] 100k ohms [RGC..V..]
External supply voltage	24 VDC/AC	24 VDC/AC	24 VDC/AC [RGC..DFM] 90-250 VAC [RGC..AFM]
Max. supply current	90 mADC/AC	90 mADC/AC	175 mADC/AC [RGC..DFM] 60 mAAC [RGC..AFM]
<b>Alarm specifications</b>			
Alarm output	EMR; 2 A 250 VAC / 30 VDC	EMR; 2 A 250 VAC / 30 VDC	EMR; 2 A 250 VAC / 30 VDC
Alarm condition	Mains loss, Load loss, SSR open cct., SSR short cct., SSR over temperature	Mains loss, Load loss, SSR open cct., SSR short cct., SSR over temperature	Mains loss, Load loss, SSR open cct., SSR short cct., SSR over temperature
<b>Types</b>			
Switching mode	1 Full Cycle [RGC..C1..] 4 Full Cycles [RGC..C4..]	1 Full Cycle [RGC..C1..] 4 Full Cycles [RGC..C4..]	1 Full Cycle [RGC..C1..] 4 Full Cycles [RGC..C4..]
<b>Output specifications</b>			
Rated operational current AC-51 @ Ta=40°C	27 AAC	40 AAC	75 AAC
Minimum operational current	500 mAAC	500 mAAC	500 mAAC
Non. rep. surge current I <sub>tsm</sub> (t=10 ms)	600 A <sub>p</sub>	1150 A <sub>p</sub>	1750 A <sub>p</sub>
I <sup>2</sup> t for fusing (t=10 ms)	1800 A <sup>2</sup> s	6600 A <sup>2</sup> s	15000 A <sup>2</sup> s
Off-state leakage current	5 mAAC	5 mAAC	5 mAAC
Critical dV/dt (@ T <sub>j</sub> init=40°C)	1000 V/μs	1000 V/μs	1000 V/μs
<b>General specifications</b>			
Operational voltage range	180-600 VAC +10%	180-600 VAC +10%	180-600 VAC +10%
Blocking voltage	1200 V <sub>p</sub>	1200 V <sub>p</sub>	1200 V <sub>p</sub>
Power factor	≥ 0.7 at rated voltage	≥ 0.7 at rated voltage	≥ 0.7 at rated voltage
Operating temperature	-40°C to +70°C max. +60°C for 24 VAC supply	-40°C to +70°C max. +60°C for 24 VAC supply	-40°C to +70°C max. +60°C for 24 VAC supply
Approvals/Marks	CE - cULus - EAC - CCC	CE - cULus - EAC - CCC	CE - cULus - EAC - CCC
<b>References</b>			
Control Input:	0-20, 4-20, 12-20 mADC	0-20, 4-20, 12-20 mADC	0-20, 4-20, 12-20 mADC
1 Full Cycle, DC external supply	<b>RGC2P60I25C1DM</b>	<b>RGC2P60I40C1DM</b>	<b>RGC2P60I75C1DFM</b>
1 Full Cycle, AC external supply			<b>RGC2P60I75C1AFM</b>
4 Full Cycles, DC external supply	<b>RGC2P60I25C4DM</b>	<b>RGC2P60I40C4DM</b>	<b>RGC2P60I75C4DFM</b>
4 Full Cycles, AC external supply			<b>RGC2P60I75C4AFM</b>
Control Input:	0-10, 0-5, 1-5 VDC, Pot	0-10, 0-5, 1-5 VDC, Pot	0-10, 0-5, 1-5 VDC, Pot
1 Full Cycle, DC external supply	<b>RGC2P60V25C1DM</b>	<b>RGC2P60V40C1DM</b>	<b>RGC2P60V75C1DFM</b>
1 Full Cycle, AC external supply			<b>RGC2P60V75C1AFM</b>




# Solid state contactors, 3-phase

## 4-20 mA Proportional controllers, 3 poles

Types	<b>RGC3P60AA20..</b> 20 AAC	<b>RGC3P60AA30..</b> 30 AAC
3-phase semiconductor proportional controllers with integrated heatsink, AC operating frequency range 45-65 Hz. Rated isolation voltage 4000 Vrms, 100 kArms short circuit current rating.		
Dimensions HxWxD (mm)	110 x 54 x 103	110 x 72 x 126
Features	54 mm solid state contactor with integrated varistors for over-voltage protection, screw with clamp for power connection	72 mm solid state contactor, integrated varistors for over-voltage protection, box clamp for power connection
<b>Input specifications</b>		
Control input	4-20 mADC	4-20 mADC
Voltage drop	<10 VDC @ 20 mADC	<10 VDC @ 20 mADC
<b>Types</b>		
Switching mode	Phase Angle [RGC..E] 1 Full Cycle [RGC..C1]	Phase Angle [RGC..E] 1 Full Cycle [RGC..C1]
<b>Output specifications</b>		
Rated operational current AC-51 @ Ta=40°C	20 AAC	30 AAC
Minimum operational current	500 mAAC	500 mAAC
Non. rep. surge current I <sub>sm</sub> (t=10 ms)	600 A <sub>p</sub>	1150 A <sub>p</sub>
I <sup>2</sup> t for fusing (t=10 ms)	1800 A <sup>2</sup> s	6600 A <sup>2</sup> s
Off-state leakage current	5 mAAC	5 mAAC
Critical dV/dt (@ T <sub>j</sub> init=40°C)	1000 V/μs	1000 V/μs
<b>General specifications</b>		
Operational voltage range	180-600 VAC +10%	180-600 VAC +10%
Blocking voltage	1200 V <sub>p</sub>	1200 V <sub>p</sub>
Power factor	≥ 0.7 at rated voltage	≥ 0.7 at rated voltage
Operating temperature	-40°C to +70°C	-40°C to +70°C
Approvals/Marks	CE - cULus - EAC - CCC	CE - cULus - EAC - CCC
<b>References</b>		
Control Input:	4-20 mADC	4-20 mADC
Phase Angle	<b>RGC3P60AA20E</b>	<b>RGC3P60AA30E</b>
1 Full Cycle	<b>RGC3P60AA20C1</b>	<b>RGC3P60AA30C1</b>

# Solid state contactors, 3-phase




## Proportional controllers with monitoring, 3 poles

Types	RGC3P..20..EP RGC3P..20..M 20 AAC	RGC3P..30..EP RGC3P..30..M 30 AAC	RGC3P..65..EPF RGC3P..65..FM 66 AAC
Semiconductor contactors with integrated heatsink, AC operating frequency 45-65 Hz. Rated isolation voltage output to heatsink of 4000 Vrms, 100 kArms short circuit current rating.			
Dimensions HxWxD (mm)	110 x 54 x 118	110 x 72 x 141	141 x 72 x 141 (with fan)
Features	54 mm solid state contactor with integrated varistors for over-voltage protection, system monitoring, screw with clamp for power connection	72 mm solid state contactor with integrated varistors for over-voltage protection, system monitoring, box clamp for power connection	72 mm solid state contactor with fan and system monitoring, integrated varistors for over-voltage protection, box clamp for power connection
<b>Input specifications</b>			
Control input	0-20, 4-20, 12-20 mADC [RGC..I..] 0-10, 0-5, 1-5 VDC [RGC..V..] External potentiometer [RGC..V..]	0-20, 4-20, 12-20 mADC [RGC..I..] 0-10, 0-5, 1-5 VDC [RGC..V..] External potentiometer [RGC..V..]	0-20, 4-20, 12-20 mADC [RGC..I..] 0-10, 0-5, 1-5 VDC [RGC..V..] External potentiometer [RGC..V..]
Input impedance	<250 ohms [RGC..I..] 100k ohms [RGC..V..]	<250 ohms [RGC..I..] 100k ohms [RGC..V..]	<250 ohms [RGC..I..] 100k ohms [RGC..V..]
External supply voltage	24 VDC/AC [RGC..DM] 90-250 VAC [RGC..AM]	24 VDC/AC [RGC..DM] 90-250 VAC [RGC..AM]	24 VDC/AC [RGC..DFM] 90-250 VAC [RGC..AFM]
Max. supply current	90 mADC/AC [RGC..DM] 30 mAAC [RGC..AM]	90 mADC/AC [RGC..DM] 30 mAAC [RGC..AM]	175 mADC/AC [RGC..DFM] 60 mAAC [RGC..AFM]
<b>Alarm specifications</b>			
Alarm output	EMR; 2 A 250 VAC / 30 VDC	EMR; 2 A 250 VAC / 30 VDC	EMR; 2 A 250 VAC / 30 VDC
Alarm condition	Mains loss, Load loss, SSR open cct., SSR short cct., SSR over temperature	Mains loss, Load loss, SSR open cct., SSR short cct., SSR over temperature	Mains loss, Load loss, SSR open cct., SSR short cct., SSR over temperature
<b>Types</b>			
Switching mode	Phase Angle [RGC..E..] 1 Full Cycle [RGC..C1..] 4 Full Cycles [RGC..C4..] 16 Full Cycles [RGC..C16..] Softstart [RGC..S..]	Phase Angle [RGC..E..] 1 Full Cycle [RGC..C1..] 4 Full Cycles [RGC..C4..] 16 Full Cycles [RGC..C16..] Softstart [RGC..S..]	Phase Angle [RGC..E..] 1 Full Cycle [RGC..C1..] 4 Full Cycles [RGC..C4..] 16 Full Cycles [RGC..C16..] Softstart [RGC..S..]
<b>Output specifications</b>			
Rated operational current AC-51 @ Ta=40°C	20 AAC	30 AAC	66 AAC
Minimum operational current	500 mAAC	500 mAAC	500 mAAC
Non. rep. surge current I <sub>tsm</sub> (t=10ms)	600 Ap	1150 Ap	1750 Ap
I <sup>2</sup> t for fusing (t=10 ms)	1800 A <sup>2</sup> s	6600 A <sup>2</sup> s	15000 A <sup>2</sup> s
Off-state leakage current	5 mAAC	5 mAAC	5 mAAC
Critical dV/dt (@ Tj init=40°C)	1000 V/μs	1000 V/μs	1000 V/μs
<b>General specifications</b>			
Operational voltage range	180-600 VAC +10%	180-600 VAC +10%	180-600 VAC +10%
Blocking voltage	1200 Vr	1200 Vr	1200 Vr
Power factor	≥ 0.7 at rated voltage	≥ 0.7 at rated voltage	≥ 0.7 at rated voltage
Operating temperature	-40°C to +70°C max. +60°C for 24 VAC supply	-40°C to +70°C max. +60°C for 24 VAC supply	-40°C to +70°C max. +60°C for 24 VAC supply
Approvals/Marks	CE - eULus - EAC - CCC	CE - eULus - EAC - CCC	CE - eULus - EAC - CCC
<b>References</b>			
Phase Angle, DC external supply	RGC3P60Y20EDP	RGC3P60Y30EDP	RGC3P60Y65EDFP
Phase Angle, AC external supply	RGC3P60Y20EAP	RGC3P60Y30EAP	RGC3P60Y65EAFP
X Full Cycle, DC external supply	RGC3P60Y20CXDM (X = 1/4/16)	RGC3P60Y30CXDM (X = 1/4/16)	RGC3P60Y65CXDFM (X = 1/4/16)
X Full Cycle, AC external supply	RGC3P60Y20CXAM (X = 1/4/16)	RGC3P60Y30CXAM (X = 1/4/16)	RGC3P60Y65CXAFM (X = 1/4/16)
Softstart + 16 Full Cycles, DC external supply	RGC3P60V20S16DM	RGC3P60V30S16DM	RGC3P60V65S16DFM
Digital Control Input (5-10VDC):	5-10VDC	5-10VDC	5-10VDC
Softstart + ON/OFF, DC external supply	RGC3P60V20SDM	RGC3P60V30SDM	RGC3P60V65SDFM

Y = 'I' for 0-20 mA, 4-20 mA or 12-20 mA or 'V' for 0-10 V, 0-5 V, 1-5 V or pot

# 45 mm Solid state contactors for motor switching, 3-phase

## DIN-rail mounting - AC output

Types	<b>REC2B</b> 4 kW	<b>REC3B</b> 3 kW	<b>REC2R</b> 3 kW
Semiconductor contactors with integrated heatsink. AC operating frequency range 45-65 Hz. Rated isolation voltage $\geq 4000$ Vrms.			
Dimensions HxWxD (mm)	105 x 45 x 99.4	105 x 45 x 99.4	105 x 45 x 99.4
Features	2-phase switching electronic motor contactor	3-phase switching electronic motor contactor	2-phase switching electronic motor contactor for reversing
<b>Control specifications</b>			
Control input range	15-32 VDC [REC..D] 90-253 VAC [REC..A]	15-32 VDC [REC..D] 90-253 VAC [REC..A]	15-32 VDC [REC..D] 90-253 VAC [REC..A]
Max. input current	10 mADC [REC..D] 15 mAAC [REC..A]	10 mADC [REC..D] 15 mAAC [REC..A]	10 mADC [REC..D] 15 mAAC [REC..A]
<b>Output specifications</b>			
Rated operational current AC53a @ Ta= 40°C, 400 VAC	6.2 AAC [REC2B..20] 7.6 AAC [REC2B..30] 9.2 AAC [REC2B..40]	5.8 AAC [REC3B..20] 5.8 AAC [REC3B..21] 7.6 AAC [REC3B..30]	6.2 AAC [REC2R..20] 7.6 AAC [REC2R..30]
Motor Rating @ 400 VAC UL508/IEC60947-4-2 @ 40°C	3 HP / 2.2 kW [REC2B.20] 3 HP / 3.0 kW [REC2B.30] 3 HP / 4.0 kW [REC2B.40]	2 HP / 2.2 kW [REC3B.20] 2 HP / 2.2 kW [REC3B.21] 3 HP / 3.0 kW [REC3B.30]	3 HP / 2.2 kW [REC2R.20] 3 HP / 3.0 kW [REC2R.30]
Min. operational current	150 mA [RECB.20]	150 mA [REC3B..20]	150 mA [REC2R..20]
Non repet. surge current (I <sub>tsm</sub> ) (t=10 ms)	325 A <sub>p</sub> [REC2B.20] 600 A <sub>p</sub> [REC2B.30] 800 A <sub>p</sub> [REC2B.40]	325 A <sub>p</sub> [REC3B48..20] 600 A <sub>p</sub> [REC3B60..20] 600 A <sub>p</sub> [REC3..21] 800 A <sub>p</sub> [REC3..30]	600 A <sub>p</sub>
Max. Off-state leak current	< 3 mAAC	< 3 mAAC	< 3 mAAC
I <sup>2</sup> t for fusing (t=10 ms)	525 A <sup>2</sup> s [REC2.20] 525 A <sup>2</sup> s [REC2.48..30] 1800 A <sup>2</sup> s [REC2.60..30] 3200 A <sup>2</sup> s [REC2.40]	525 A <sup>2</sup> s [REC3B48..20] 1800 A <sup>2</sup> s [REC3B60..20] 1800 A <sup>2</sup> s [REC3..21] 3200 A <sup>2</sup> s [REC3.40]	1800 A <sup>2</sup> s
Critical dV/dt (@ T <sub>j</sub> init=40°C)	1000 V/μs	1000 V/μs	1000 V/μs
<b>General specifications</b>			
Operational voltage range	48 - 530 VAC [REC..48..] 48 - 600 VAC [REC..60..]	48 - 530 VAC [REC..48..] 48 - 600 VAC [REC..60..]	48 - 530 VAC [REC..48..] 48 - 600 VAC [REC..60..]
Blocking voltage	1200 V <sub>p</sub> [REC..48..] 1600 V <sub>p</sub> [REC..60..]	1200 V <sub>p</sub> [REC..48..] 1600 V <sub>p</sub> [REC..60..]	1200 V <sub>p</sub> [REC..48..] 1600 V <sub>p</sub> [REC..60..]
Power factor	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage	$\geq 0.5$ at rated voltage
Operating temperature	-25°C to +60°C	-25°C to +60°C	-25°C to +60°C
Terminals	Input screw/spring, output screw	Input screw/spring, output screw	Input screw/spring, output screw
Approvals/Marks	CE - cULus	CE - cULus	CE - cULus
<b>References</b>			
	2.2 kW	2.2 kW	2.2 kW
	<b>REC2B48D20GKE</b>	<b>REC3B48D20GKE</b>	<b>REC2R48D20GKE</b>
	<b>REC2B48A20GKE</b>	<b>REC3B48A20GKE</b>	<b>REC2R48A20GKE</b>
	3.0 kW	<b>REC3B60D20GKE</b>	3.0 kW
	<b>REC2B48D30GKE</b>	<b>REC3B60A20GKE</b>	<b>REC2R48D30GKE</b>
	<b>REC2B48A30GKE</b>	2.2 kW (high I <sub>tsm</sub> )	<b>REC2R48A30GKE</b>
	<b>REC2B60D30GKE</b>	<b>REC3B48D21GKE</b>	<b>REC2R60D30GKE</b>
	<b>REC2B60A30GKE</b>	3.0 kW	<b>REC2R60A30GKE</b>
	4.0 kW	<b>REC3B48D30GKE</b>	
	<b>REC2B48D40GKE</b>	<b>REC3B48A30GKE</b>	
	<b>REC2B48A40GKE</b>		

# Hybrid relays, 1 / 3-phase

## DIN-rail mounting - AC output

Types	RMD1H 20 AAC	RMD2H 30/40 AAC	RMD3H 30/40 AAC
-------	-----------------	--------------------	--------------------

Hybrid relays.  
AC operating frequency range  
45-65 Hz.



Dimensions HxWxD (mm)	81 x 17.5 x 67.2	97 x 140.7 x 50.7	97 x 140.7 x 50.7
Features	Hybrid relay	2-pole switching hybrid relay	3-pole switching hybrid relay

### Input specifications

Control input range	4-32 VDC [RMD...D20] 24-275 VAC [RMD...A20]	24 VAC/DC +10/-15% [RMD2..LA..] 120 VAC/DC +10/-15% [RMD2..MA..] 240 VAC/DC +10/-15% [RMD2..HA..]	24 VAC/DC +10/-15% [RMD3..LA..] 120 VAC/DC +10/-15% [RMD3..MA..] 240 VAC/DC +10/-15% [RMD3..HA..]
Max. input current	5 mA [RMD..D20] 3 mA [RMD..A20]	400 mA	400 mA

### Output specifications

Rated operational current			
AC 51 @ Ta=25°C	20 AAC	30 AAC [RMD2..30] 40 AAC [RMD2..40]	30 AAC [RMD3..30] 40 AAC [RMD3..40]
Min. operational current	100 mA	150 mA	150 mA

### General specifications





Operational voltage range	195-253 Vrms	240 VAC -15% /+10% [RMD..24..] 277 VAC -15% /+10% [RMD..48..]	240 VAC -15% /+10% [RMD..24..] 277 VAC -15% /+10% [RMD..48..] 480 VAC + N [RMD..48..]
Power factor	≥ 0.9	≥ 0.9 at rated voltage	≥ 0.9 at rated voltage
Operating temperature	-5°C to +55°C	0°C to 70°C	0°C to 70°C
Terminals	Box clamp	Input 6.35 mm FASTON, Output screw	Input 6.35 mm FASTON, Output screw
Approvals/Marks	CE - cURus	CE - cURus	CE - cURus

### References

	20 AAC	30 AAC	30 AAC
	<b>RMD1H23D20</b>	<b>RMD2H24LA30</b>	<b>RMD3H24LA30</b>
	<b>RMD1H23A20</b>	<b>RMD2H24MA30</b>	<b>RMD3H24MA30</b>
		<b>RMD2H24HA30</b>	<b>RMD3H24HA30</b>
		40 AAC	<b>RMD3H48LA30</b>
		<b>RMD2H24LA40</b>	<b>RMD3H48MA30</b>
		<b>RMD2H24MA40</b>	<b>RMD3H48HA30</b>
		<b>RMD2H24HA40</b>	40 AAC
			<b>RMD3H24LA40</b>
			<b>RMD3H24MA40</b>
			<b>RMD3H24HA40</b>
			<b>RMD3H48LA40</b>
			<b>RMD3H48MA40</b>
			<b>RMD3H48HA40</b>





# Solid state relays accessories

## General accessories

Types	RPM1	RPM1P	RPM1V	RPM2
				
Dimensions HxWxD (mm)	84 x 12.5 x 42	84 x 12.5 x 42	84 x 12.5 x 42	82 x 25 x 39
Description	Din-rail adaptor for PCB relays. (Relay excluded)	Din-rail adaptor with sockets for plug-in PCB relays. (Relay excluded)	DIN-rail adaptor for PCB relays with LED and varistor across output terminals. (Relay excluded)	Din-rail adaptor for PCB relays with an operational voltage $\geq 230$ V. (Relay excluded)
Pack quantity	1	1	1	2
<b>References</b>	<b>RPM1</b>	<b>RPM1P (no LED)</b> <b>RPM1PD (with LED)</b>	<b>RPM1V</b>	<b>RPM2</b>




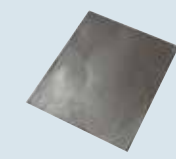
## Selection guide for SSR assemblies\*

<b>RP...M1</b>	<b>RP...M1P (no LED)</b> <b>RP...M1PD (with LED)</b>	<b>RP...M1V</b>	<b>RP...M2</b>
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Types	DIN adaptor	DIN adaptor RG	Protection cover RM/RA/RK	Tamper proof cover RGS1P, RGC1P
				
Dimensions HxWxD (mm)	81 x 44 x 13.5	106 x 17.8 x 14	58 x 45 x 9 / 26	59 x 45 x 25.5
Description	DIN-rail adaptor for 1-phase SSR & heatsink assemblies. Integrated in heatsink kits	DIN-rail adaptor for RGS relays	Clip-on IP20 protection Cover	Tamper proof protection cover for RGS1P, RGC1P
Pack quantity	1	1	10 (RK)/20 (RMIP20)/25 (BBR..)	5
<b>References</b>	<b>RHS00</b>	<b>RGS1DIN</b>	<b>RMIP20</b> (for RM, RS, RAM series) <b>RKIP20</b> (for RK series) <b>BBR</b> (for RA, RD series) <b>BBR-S</b> (for RA...S series)	<b>RGTMP</b>

## Selection guide for SSR assemblies\*

<b>R...H8</b>	<b>RGS...DIN</b>
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Types	Thermal paste	Thermal pad Slim SSRs	Thermal pad RM, RA	Thermal pad RZ3
				
Dimensions HxWxD (mm)		34.6 x 14 x 0.13 (RG) 21 x 19 x 0.13 (RF)	42 x 35 x 0.25	70 x 77 x 0.25
Description	2 ml syringe silicon based thermal compound	Thermal pad for RG and RF series	Graphite thermal pad for RA, RD, RM, RAM, RS series	Graphite thermal pad for RZ3 series
Pack quantity	1	10	50	10
<b>References</b>	<b>HTS02S</b>	<b>RGHT</b> (for RG series) <b>RFHT</b> (for RF series)	<b>KK071CUT</b>	<b>RZHT</b>





\* Conditions may apply. Please ask your Sales representative for further details.







# Solid state relays accessories

## General accessories

Types	RM fork terminal	RM FASTON terminals	RM spacers	Overload relay adaptor
				
Dimensions HxWxD (mm)	35 x 16.5 x 25 / 29	4.8 / 6.3	M3 x 12	
Description	RM, RS, RK and RAM terminal adaptor for 16 mm <sup>2</sup> and 35 mm <sup>2</sup> cable	Screw FASTON terminals, flat or 45° angled for output (6.3 mm) and input (4.8 mm) RM, RS, RAM terminals	Standoff spacer for RM, RS, RAM series M3 control terminals	Overload Relay Adaptor for REC and RGCM3 series
Pack quantity	10	20	20	5
<b>References</b>	<b>RM625FK</b> (16 mm <sup>2</sup> ) <b>RM635FK</b> (35 mm <sup>2</sup> ) <b>RM635FKP</b> (35 mm <sup>2</sup> )	<b>RM48F0</b> (4.8 mm, flat) <b>RM48F4</b> (4.8 mm, 45°) <b>RM63F0</b> (6.3 mm, flat) <b>RM63F4</b> (6.3 mm, 45°)	<b>RMSPO3</b>	<b>REC3ADAPTOR</b>










Types	RG plug terminals	RGCM plug terminals	RK plug terminals	Varistors
				
Description	2-pole spring loaded plug terminal, 2.5 mm <sup>2</sup> for RG series	3 way, 2-pole box clamp plug terminal, 2.5 mm <sup>2</sup> for RGCM3 series	4 way, 4-pole/2-pole spring loaded plug terminal, 5.08 mm for RK series	Surge / transient voltage protection for SSRs
Pack quantity	10	10	10	10
<b>References</b>	<b>RGM25</b> <b>RGMREF</b> (for RG..N)	<b>RG3G25</b>	<b>RK4MT</b> (4 way, 4-pole) <b>RK2MT</b> (4 way, 2-pole)	275 V: <b>RV02</b> 420 V: <b>RV04</b> 510 V: <b>RV05</b> 625 V: <b>RV06</b> 680 V: <b>RV07</b>

Types	Cables	Fans	Screw kits	Temperature limit switches
				
Dimensions HxWxD (mm)		40 x 40 x 20 (RHSF40) 60 x 60 x 20 (RHSF60) 120 x 120 x 38 (RHS301F)		6.5 x 5.5 x 3
Description	Cable for RM1E...V, RA2A...C, RK...C and RA...S models with one-end terminated with a female plug for mounting on the SSR	RHSF40-24 to be mounted with RHS45C, RHS45B, RHS540, RHS542 RHSF60-24/240 to be mounted with RHS90A, RHS112A, RHS703 RHS301F115/230 to be mounted with RHS301 incl. bracket	Screw kits for assembling SSRs to heatsinks. M5 x 10 mm to be used with RA, RD, RM, RAM, RS, RK and RZ3 series. M4 x 15 mm used for RHS38AD heatsink. M5 x 23 / 30 mm to be used with RG series	Temperature limit switches that may be fitted in the RZ3 housing between SSR and heatsink
	1	1	20	1
<b>References</b>	<b>RCS3-100-1</b> [RM1E..V] <b>RCS4-100-1</b> [RA2A..C] <b>RCS4-400-1</b> [RA2A..C] <b>RCS5-200-1</b> [RA..S] <b>RCK4-100-1</b> [RKD2..C] <b>RCK2-100-1</b> [RK2..C]	<b>RHSF40-24</b> (24 VDC) <b>RHSF60-24</b> (24 VDC) <b>RHSF60-230</b> (240 VAC) <b>RHS301F115</b> (115 VAC) <b>RHS301F230</b> (230 VAC)	<b>SRWKITM5X10MM</b> <b>SRWKITM4X15MM</b> <b>SRWKITM5X23MM</b> <b>SRWKITM5X30MM</b>	<b>UP62-70</b> <b>UP62-80</b> <b>UP62-90</b>



# Solid state relays accessories

## DIN mount heatsinks for solid state relays

Types	RHS300	RHS37A	RHS10015
			
Dimensions HxWxD (mm) (SSR not included)	105 x 82 x 20	18 x 110 x 52	100 x 82 x 29
Description	Heatsink for 1x 3-phase RZ3 series	Heatsink for 1x 1-phase RG series	Heatsink for max. 2x 1-phase RA, RD, RM, RAM, RS and RK series
<b>Thermal resistance**</b>			
Without fan	5.40°C/W (>30 W)	4.00°C/W (>20 W)	4.00°C/W (>30 W)
With fan	Not available	Not available	Not available
<b>Selection guide for heatsink assemblies*</b>			
Without fan	R...H1	R...H51	R...H47
With fan	Not available	Not available	Not available
Types	RHS100	RHS45C	RHS52A
			
Dimensions HxWxD (mm) (SSR not included)	44 x 82 x 48	45 x 103 x 55	22.5 x 110 x 90
Description	Heatsink for 1x 1-phase RA, RD, RM, RAM, RS and RK series	Heatsink for 1x 1-phase RA, RD, RM, RAM, RS and RK series	Heatsink for 1x 1-phase RG series
<b>Thermal resistance**</b>			
Without fan	3.10°C/W (>25 W)	2.20°C/W (>45 W)	2.00°C/W (>45 W)
With fan	Not available	Not available	Not available
<b>Selection guide for heatsink assemblies*</b>			
Without fan	R...H0	R...H15	R...H61
With fan	Not available	Not available	Not available
Types	RHS45B	RHS54..(F)	RHS703..(F)
			
Dimensions HxWxD (mm) (SSR not included)	45 x 103 x 80	54 x 110 x 51 54 x 135 x 51 (with fan)	72 x 110 x 75 72 x 141 x 75 (with fan)
Description	Heatsink for 1x 1-phase RA, RD, RM, RAM, RS and RK series	Heatsink for max. 3x 1-phase RG series, 1x 1-phase RA, RD, RM, RAM, RS and RK series: RHS540 (no fan) RHS540F40-24 (24 VDC fan) Heatsink for max. 2x 1-phase RG series: RHS542 (no fan) RHS542F40-24 (24 VDC fan)	Heatsink for max. 3x 1-phase RG series, 1x 1-phase RA, RD, RM, RAM, RS and RK series: RHS703 (no fan) RHS703F60-24 (24 VDC fan) RHS703F60-230 (240 VAC fan)
<b>Thermal resistance**</b>			
Without fan	1.85°C/W (>50 W)	1.85°C/W (>60 W)	1.10°C/W (>60 W)
With fan	Not available	0.65°C/W	0.37°C/W
<b>Selection guide for heatsink assemblies*</b>			
Without fan	R...H5	R...H65 [RHS540] R...H66 [RHS542]	R...H75 [RHS703]
With fan	Not available	R...H67 [RHS540F40-24] R...H68 [RHS542F40-24]	R...H76 [RHS703F60-24] R...H77 [RHS703F60-230]



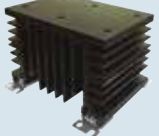
\* Conditions may apply. Please ask your Sales representative for further details.

\*\* Refer to specific heatsink datasheet for further details on heatsink characteristics and assemblies.

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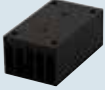

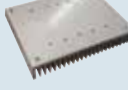
# Solid state relays accessories

## DIN mount heatsinks for solid state relays

Types	RHS90A	RHS301.. (F)	RHS112A.. (F)
			
Dimensions HxWxD (mm) (SSR not included)	90 x 103 x 80	119 x 82 x 94 124 x 146 x 122 (with fan)	112 x 103 x 80 112 x 120 x 80 (with fan)
Description	Heatsink for 1x 1-phase RA, RD, RM, RAM, RS and RK series	Heatsink for 1x 3-phase RZ3, 2x 1-phase RA, RD, RM, RAM, RS and RK series: <b>RHS301</b> [no fan] <b>RHS301F115C</b> [115 VAC fan] <b>RHS301F230C</b> [230 VAC fan]	Heatsink for 1x 3-phase RZ3, 2x 1-phase RA, RD, RM, RAM, RS and RK series: <b>RHS112A</b> [no fan] <b>RHS112AF60-24</b> [24 VDC fan] <b>RHS112AF60-230</b> [230 VAC fan]
<b>Thermal resistance**</b>			
Without fan	0.97°C/W (>60 W)	0.82°C/W (> 80W)	0.76°C/W (>100 W)
With fan	Not available	0.28°C/W	0.35°C/W
<b>Selection guide for heatsink assemblies*</b>			
Without fan	<b>R...H16</b>	<b>R...H2</b> [RHS301]	<b>R...H7</b>
With fan	Not available	<b>R...H10</b> [RHS301F115C] <b>R...H12</b> [RHS301F230C]	<b>R...H18</b> [RHS112AF60-24] <b>R...H52</b> [RHS112AF60-230]

Types	RHS11267DIND	RHS28009F80-24P	RHS28011F80-24P
			
Dimensions HxWxD (mm) (SSR not included)	119 x 125 x 94	280 x 87 x 122	280 x 87 x 122
Description	Heatsink for 1x 3-phase RZ3 series, max 3x 1-phase RG series, 2x 1-phase RA, RD, RM, RAM, RS and RK series	Heatsink for max. 9x 1-phase RG series or 4x 1-phase RA, RD, RM, RAM, RS and RK series with integrated fan and overtemperature protection	Heatsink for max. 11x 1-phase RG series or 3x 1-phase RA, RD, RM, RAM, RS and RK series with integrated fan and overtemperature protection
<b>Thermal resistance**</b>			
Without fan	0.54°C/W (>150 W)	Not available	Not available
With fan	Not available	0.12°C/W (24 VDC)	0.12°C/W (24 VDC)
<b>Selection guide for heatsink assemblies*</b>			
Without fan	<b>R...H78D</b>	Not available	Not available
With fan	Not available	<b>R...H41</b>	<b>R...H44</b>

## Thru wall mount heatsinks for solid state relays


Types	RHS38ARFD	RHS10025D	RHS16225D
			
Dimensions HxWxD (mm) (SSR not included)	46 x 76 x 33	100 x 100 x 25	162 x 100 x 25
Description	Heatsink for 1x 1-phase RF series	Heatsink for max. 3x 1-phase RG series, 1x 1-phase RA, RD, RM, RAM, RS and RK series	Heatsink for 1x 3-phase RZ3 series, max. 3x 1-phase RA, RD, RM, RAM, RS, RK and RG series
<b>Thermal resistance**</b>			
Without fan	2.85°C/W (>40 W)	1.85°C/W (>60 W)	1.30°C/W (>90 W)
With fan	Not available	Not available	Not available
<b>Selection guide for heatsink assemblies*</b>			
Without fan	<b>R..H53</b>	<b>R...H49</b>	<b>R...H55</b>
With fan	Not available	Not available	Not available

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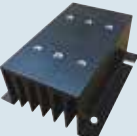
\*\* Refer to specific heatsink datasheet for further details on heatsink characteristics and assemblies.


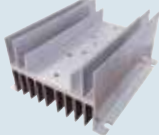
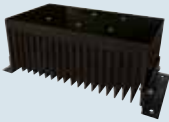
# Solid state relays accessories

## Thru wall mount heatsinks for solid state relays

Types	RHS16225LD	RHS11267D	RHS30040D
			
Dimensions HxWxD (mm) (SSR not included)	162 x 250 x 25	112 x 125 x 67	300 x 200 x 40
Description	Heatsink for 1x 3-phase RZ3 series, max. 3x 1-phase RA, RD, RM, RAM, RS, RK and RG series	Heatsink for max. 3x 1-phase RG series or 1x 1-phase RA, RD, RM, RAM, RS and RK series	Heatsink for max. 12x 1-phase RG series or 8x 1-phase RA, RD, RM, RAM, RS and RK series
<b>Thermal resistance**</b>			
Without fan	0.84°C/W (>120 W)	0.54°C/W (>150 W)	0.40°C/W (>180 W)
With fan	Not available	Not available	Not available
<b>Selection guide for heatsink assemblies*</b>			
Without fan	R...H55L	R...H78	R...H57
With fan	Not available	Not available	Not available

## Panel mount heatsinks for solid state relays

Types	RHS5050..	RHS38A..	RHS5840D
			
Dimensions HxWxD (mm) (SSR not included)	80 x 50 x 51	46 x 76 x 33	81 x 100 x 40
Description	<b>RHS5050D:</b> Heatsink for 1x 1-phase RA, RD, RM, RAM, RS and RK series <b>RHS5050RFD:</b> Heatsink for 1x 1-phase RF series	<b>RHS38AD:</b> Heatsink for 1x 1-phase RA, RD, RM, RAM, RS and RK series <b>RHS38ARFD:</b> Heatsink for 1x 1-phase RF series	Heatsink for max. 3x 1-phase RG series, 1x 1-phase RA, RD, RM, RAM, RS and RK series
<b>Thermal resistance**</b>			
Without fan	3.50°C/W (>25 W)	2.85°C/W (>40 W)	1.80°C/W (>60 W)
With fan	Not available	Not available	Not available
<b>Selection guide for heatsink assemblies*</b>			
Without fan	R...H60	R...H53	R...H48
With fan	Not available	Not available	Not available

Types	RHS10067D	RHS10067LD	RHS320
			
Dimensions HxWxD (mm) (SSR not included)	121 x 76 x 67	121 x 140 x 67	240 x 100 x 93
Description	Heatsink for 1x 1-phase RA, RD, RM, RAM, RS and RK series	Heatsink for 2x 1-phase RA, RD, RM, RAM, RS, RK and RG series	Heatsink for 1x 3-phase RZ3 series, max. 3x 1-phase RA, RD, RM, RAM, RS, RK and RG series
<b>Thermal resistance**</b>			
Without fan	1.70°C/W (>20 W)	0.88°C/W (>80 W)	0.40°C/W (>120 W)
With fan	Not available	Not available	Not available
<b>Selection guide for heatsink assemblies*</b>			
Without fan	R...H58	R...H58L	R...H13
With fan	Not available	Not available	Not available




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\*\* Refer to specific heatsink datasheet for further details on heatsink characteristics and assemblies.

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# Soft starters

## Scroll compressor soft starters

Types	RSBS	RSBD 45 & 75 mm	RSBT 45 & 120 mm
Soft starting of 1-phase (RSBS) and 3-phase (RSBD, RSBT) scroll compressors			
Dimensions (mm)	60.4* x 137 x 81.4	12 A to 45 A: 106 x 45 x 125 55 A to 95 A: 150 x 75 x 170	16 A to 32 A (no relay output): 81 x 45 x 125 16 A to 32 A (with relay output): 97.5 x 45 x 125 55 A to 95 A: 150 x 120 x 170
Features	Internally bypassed, current limit start optional auxiliary relay output (Option V22), HP algorithm for high pressure starts	Compact 2- (RSBD) controlled soft starter for scroll compressors. Patented auto-adapt function for reduction of inrush current and for current balancing. No user settings required with HP algorithm optimised for multi-compressor systems	3-phase (RSBT) Controlled solution with internal bypass. Patented self-learning algorithm for optimal current reduction. Compliant to Class B (residential limits) for EMC emissions (16 A to 32 A). Optional serial communication for energy variables, alarms, start/stop

### Control specifications

Control input range	230 VAC	Option E: 110 - 400 VAC Option F: 24 VAC / DC	Option E: 110 - 400 VAC [RSBT 45 mm] Option C: 24 VAC / DC & 110-400 VAC [RSBT 120 mm]
Controlled phases	1	2	3

### Output specifications

Rated operational current (Ie)	RSBS2325...: 25 A RSBS2332...: 32 A	RSBD 45 mm: 12/16/25/32/37/45A RSBD 75 mm: 55/70/95 A	RSBT 45 mm: 16/25/32A RSBT 120 mm: 55/70/95A
Operational voltage	230 VAC (-15%, +10%)	RSBD 45 mm: 220 - 400 VAC (-15%, +10%) RSBD 75 mm: 220 - 600 VAC (-15%, +10%)	RSBT 45 mm: 220/400 VAC (-15%, +10%) RSBT 120 mm: 220 - 480 VAC (-15%, +10%)
Number of starts per hour	12 (evenly distributed)	12 (evenly distributed)	12 (evenly distributed)
Assigned compressor rating @ 400 V	RSBS2325... / RSBS2332...**** 3.7 kW (5 HP) / 4 kW (5 HP)	RSBD 45 mm: 5.5 kW (5 HP) to 22 kW (25 HP) RSBD 75 mm: 30 kW (30 HP) to 55 kW (50 HP)	RSBT 45 mm: 7.5 kW (7.5 HP) to 15 kW (15 HP) RSBT 120 mm: 22 kW (30 HP) to 45 kW (50 HP)

### General specifications

Internally bypassed	Yes	Yes	Yes
Operational frequency	50/60 Hz ±10%	50/60 Hz +/- 10 Hz	50/60 Hz +/- 10 Hz
Ramp up/Ramp down	< 600 ms / 0 s	<1 s / 0 s	<1 s / 0 s
Default Current limit	RSBS2325...V.2...: 40 Arms RSBS2332...V.2...: 45 Arms	3.5xIe	RSBT 45 mm RSBT..16: 40 A, RSBT..25: 90 A, RSBT..32: 110 A RSBT 120 mm: 3.5xIe
Operating temperature	-20°C to +65°C (-4°F to +149°F)	-20°C to +60°C (-4°F to +140°F)	RSBT..16: -20°C to 60°C (-4°F to +140°F) RSBT..25: -20°C to 55°C (-4°F to +131°F) RSBT..32: -20°C to 50°C (-4°F to +122°F)
Storage temperature	-30°C to +70°C (-22°F to +158°F)	-40°C to +80°C (-40°F to +176°F)	-40°C to +85°C (-40°F to +185°F)
Wrong phase sequence indication	N/A	Yes	Yes
Degree of protection	IP 20	RSBD 45 mm: IP20 RSBD 75 mm: IP 20 (Housing) / IP 10 (Terminals)	RSBT 45 mm: IP20 RSBT 120 mm: IP 20 (Housing) / IP 10 (Terminals)
Approvals	CE - UL - cUL	RSBD 45 mm: CE - cULus - CCC - EAC RSBD 75 mm: CE - cULus - CCC - EAC	RSBT 45 mm: CE - cULus** - VDE*** - CCC RSBT 120 mm: CE - cULus - CCC

\* For RSBS23...V22... auxiliary terminal is 10.5 mm protruding

\*\* For options V50/ V51/ V61

\*\*\* Up to 15 AAC (Up to 32 AAC for RSBT..HPV models only)

\*\*\*\* Assigned compressor rating @ 230 V

# Soft starters

## Centrifugal pump and ventilators soft starters

### Types

#### RSWT 45 mm

#### RSWT 75 & 120 mm

Soft-starters with dedicated, self-learning algorithm for centrifugal pumps.



#### Dimensions (mm)

RSWT4012/RSWT4016: 130 x 45 x 125  
RSWT4025: 157 x 45 x 125

RSWT 75 mm: 177 x 75 x 206  
RSWT 120 mm: 177 x 120 x 206

#### Features

3-phase controlled, internally bypassed. Self-learning algorithm dedicated to centrifugal pumps and ventilators. Integrated overload protection (Class 10). RSWT40 versions - internally supplied

3-phase controlled and internally bypassed. Integrated overload protection, PTC i/p, remote alarm reset. RSWT40 versions - internally supplied. 3 output relays for alarm, top of ramp and run indication

### Control specifications

#### Control input range

Option E: 110 - 400 VAC  
Option F: 24 VAC/DC  
Option G: 100 - 240 VAC [RSWT60..]

Option E: 110 - 400 VAC [RSWT40..]  
Option F: 24 VAC/DC [RSWT40....]  
Option G: 100 - 240 VAC [RSWT60..]

#### Controlled phases

3

3

### Output specifications

#### Rated operational current AC 53b

12/16/25 A

32/37/45/55/70/90 A

#### Operational voltage

RSWT40: 220 - 400 VAC (-15%, +10%)  
RSWT60: 220 - 600 VAC (-15%, +10%)

RSWT40: 220 - 400 VAC (-15%, +10%)  
RSWT60: 220 - 600 VAC (-15%, +10%)

#### Number of starts per hour @ 40°C

20

20

#### Assigned motor rating @ 400 V

RSWTxx12: 5.5 kW (5 HP)  
RSWTxx16: 7.5 kW (7.5 HP)  
RSWTxx25: 11 kW (10 HP)

RSWTxx32: 15 kW (20 HP)  
RSWTxx37: 18.5 kW (25 HP)  
RSWTxx45: 22 kW (30 HP)  
RSWTxx55: 25 kW (35 HP)  
RSWTxx70: 37 kW (40 HP)  
RSWTxx90: 45 kW (50 HP)

### General specifications

#### Internally bypassed

Yes

Yes

#### Operational frequency

50/60 Hz +/- 10%

50/60 Hz +/- 10%

#### Ramp up/Ramp down

1-20 s / 0-20 s

1-20 s / 0-20 s

#### Initial torque

Self-adjusted by RSWT

Self-adjusted by RSWT

#### Operating temperature

-20°C to 60°C (-4°F to +140°F)

-20°C to 60°C (-4°F to +140°F)

#### Storage temperature

-40°C to +80°C (-40°F to +176°F)

-40°C to +80°C (-40°F to +176°F)

#### Integrated overload protection

Yes

Yes

#### Degree of protection

IP 20

IP 20 (control circuit)  
IP 10 (power terminals)

#### Approvals

CE - cULus - CCC - EAC

CE - cULus - CCC - EAC

xx = 40 or 60

# Soft starters

## General purpose soft starters

Types	RSHR 3-phase	RSGD 45 mm	RSGD 75 mm
Soft starting and stopping of 3-phase motors. Self-learning algorithms on RSGD series for better ease of use.			
Dimensions (mm)	158.5 x 90 x 90	106 x 45 x 125 [RSGD..VD2.0] 137 x 45 x 137 [RSGD..VX2.0]	177 x 75 x 206 [RSGD..55.. - RSGD..85..] 177 x 75 x 221 [RSGD..100..]
Features	3-phase controlled. In Line or In Delta (6-wire) connection. Wrong Phase sequence detection. Motor PTC protection. Phase Loss Detection	Self-learning 2-phase controlled general purpose soft starter. Improved current reduction capability. 2-relay outputs for top of ramp and alarm indication. Optional motor overload protection (Class 10). QR code for quicker troubleshooting	Self-learning 2-phase controlled general purpose soft starter. Intergrated motor overload protection (Class 10) and serial communication (Modbus RS485)

### Control specifications

Control input range	24-550 VAC/DC (Option "C") 24-600 VAC/DC (Option "D")	Option E0: 110 - 400 VAC [RSGD40..] Option F0: 24 VAC/DC [RSGD40..] Option GG: 100 - 240 VAC [RSGD60..]	Option E0: 110 - 400 VAC [RSGD40..] Option F0: 24 VAC/DC [RSGD40..] Option FF: 24VAC/DC [RSGD60..] Option GG: 100 - 240 VAC [RSGD60..]
Controlled phases	3	2	2



### Output specifications

Rated operational current AC 53b	25 A [RSHR..25...] 32 A [RSHR..32...]	12/16/25/32/45 A	55/70/85/100 A
Operational voltage	127/220 VAC [RSHR22..] 230/400 VAC [RSHR40..] 277/480 VAC [RSHR48..] 346/600 VAC [RSHR60..] 220-480 VAC [RSHRM ] 400-480 VAC [RSHRM]	RSGD40: 220 - 400 VAC (-15%, +10%) RSGD60: 220 - 600 VAC (-15%, +10%)	RSGD40: 220 - 400 VAC (-15%, +10%) RSGD60: 220 - 600 VAC (-15%, +10%)
Number of starts per hour @ 40°C	7 [RSHR2225.../RSHR4025...] 3 [RSHR4825.../RSHR6025.../RSHRM] 50 [RSHR..32...]	20 [RSGD..12, RSGD..16, RSGD..25..VX210, RSGD..32] 10 [RSGD..25..VD200, RSGD..45]	10
Assigned motor rating @ 400 V	In Line Connection/In Delta Connection RSHR4025CV. 11 kW [10 HP] / 20 kW [20 HP] RSHR4032CV. 15 kW [20 HP] / 22kW [30 HP]	RSGD..12: 5.5 kW/5 HP RSGD..16: 7.5 kW/7.5 HP RSGD..25: 11 kW/10 HP RSGD..32: 15 kW/15 HP RSGD..45: 22 kW/25 HP	RSGD..55: 30 kW/30 HP RSGD..70: 37 kW/40 HP RSGD..85: 45 kW/50 HP RSGD..100: 55 kW/50 HP

### General specifications

Internally bypassed	No	Yes	Yes
Operational frequency	50/60 Hz ±10%	50/60 Hz ± 10%	50/60 Hz ± 10%
Ramp up/Ramp down	1-10 s / 0-30 s; 0-1 s / 0-1 s [RSHR...V38]	1 - 20 s / 0 - 20 s	1 - 30 s / 0 - 30 s
Initial torque	0-70%	Not required	Not required
Operating temperature	-20°C to +60°C (-4°F to +140°F)	-20°C to 60°C (-4°F to +140°F)	-20°C to 60°C (-4°F to +140°F)
Storage temperature	-50°C to +85°C (-58°F to +185°F)	-40°C to +80°C (-40°F to +176°F)	-40°C to +80°C (-40°F to +176°F)
Wrong phase sequence indication	Yes	Yes	Yes
Motor overload protection	No	V.200: No V.210: Yes (Class 10)	Yes (Class 10)
PTC input	Yes	No	Yes
Degree of protection	IP 20	IP 20	IP 20 (control circuit) IP 10 (power terminals)
Approvals	CE - UL - cUL	CE - cULus - CCC - EAC	CE - cULus - CCC - EAC

# Soft starters

	Proportional controller	Motor reversing
Types	RSC..AA..+RSO...	RR2A
Phase angle control of 3-phase motors (AC53a) and heaters (AC51a). Reversing motor relay (RR..)		
Dimensions (mm)	65 x 103 x 74	41 x 103 x 74
Features	Proportional output for motor/heater control according to user controlled analogue input	Reversing with interlock, optoisolation 2-pole change-over, built-in transient overvoltage protection, interlocking reversing, LED status indication
<b>Control specifications</b>		
Control input range	0-20 mA (A-input) 4-20 mA (B-input)	10-40 VDC
Max. input current	20 mA	20 mA
Control supply	10 - 32 VDC	-
Max. supply current	180 mA	-
<b>Output specifications</b>		
Rated operational current		
AC 51a	16 Arms [RSO..10] 25 Arms [RSO..25] 50 Arms [RSO..50] 90 Arms [RSO..90] 110 Arms [RSO..110]	-
AC 53a	5 Arms [RSO..25] 15 Arms [RSO..50] 30 Arms [RSO..90] 40 Arms [RSO..110]	5 Arms [RR2A40D150/RR2A48D220] 11 Arms [RR2A40D400/RR2A48D550]
Operational voltage	150-250 Vrms [RSO22..] 220-420 Vrms [RSO40..] 400-510 Vrms [RSO48..] 400-625 Vrms [RSO60..]	400 Vrms [RR2A40D...] 480 Vrms [RR2A48D...]
<b>General specifications</b>		
Connections	Screw type with clamp	Screw type with clamp
Operating temperature	-20°C to +70°C	-20°C to +80°C
Storage temperature	-40°C to +100°C	-40°C to +100°C
Approvals/Marks	CE - UL - CSA	CE - UL - cUL
<b>Reference</b>		
	Control module	5 A
	<b>RSC-AAM60</b>	<b>RR2A40D150</b> (1.5 kW)
	Output module: 400 VAC	<b>RR2A40D400</b> (4.0 kW)
	25 A: <b>RSO4025</b> (4 kW*)	11 A
	50 A: <b>RSO4050</b> (11 kW*)	<b>RR2A48D220</b> (2.2 kW)
	90 A: <b>RSO4090</b> (15 kW*)	<b>RR2A48D550</b> (5.5 kW)
	110 A: <b>RSO40110</b> (22 kW*)	

\* Output module can be 200, 400, 480, 600 VAC

\*\* Correct heatsink assembly required. For further details please consult datasheet.

\*\* Applicable when device is mounted to heatsink type RHS301



# Variable frequency drives

## VariFlex<sup>3</sup> variable frequency drives - RVLf series

Types	Size A	Size B	Size C	Size D
Drives, Inverters				
Dimensions HxWxD (mm)	141 x 72 x 139	144 x 118 x 147	197 x 129 x 148	273 x 187 x 190

Features	V/F and Sensorless vector control algorithm. Conform to EMC standard EN 61800-3. In-built PTC and PID functions. In-built RJ45 for Modbus and BACnet communication. Additional communication protocol via add-on modules.			
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### Technical specifications

AC Supply voltage	1-ph: 100 - 120 VAC 1-ph: 200 - 240 VAC 3-ph: 200 - 240 VAC	1-ph: 200 - 240 VAC 3-ph: 200 - 240 VAC 3-ph: 380 - 480 VAC	3-ph: 380 - 480 VAC	3-ph: 380 - 480 VAC
AC Supply frequency	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Output voltage	3-ph: 0 - 240 VAC [RVLFA1../RVLFA320...]	3-ph: 0 - 240 VAC [RVLFB1../RVLFB320...] 3-ph: 0 - 480 VAC [RVLFB340...]	3-ph: 0 - 480 VAC [RVLFC340...]	3-ph: 0 - 480 VAC [RVLFD340...]
Output frequency	0.01 - 599 Hz	0.01 - 599 Hz	0.01 - 599 Hz	0.01 - 599 Hz
Rated output current	2.6 A [RVLFA..040..] 4.3 A [RVLFA..075..] 7.5 A [RVLFA..150..]	7.5 A [RVLFB..150..] 10.5 A [RVLFB..220..] 2.3 A [RVLFB34..075..] 3.8 A [RVLFB34..150..] 5.2 A [RVLFB34..220..]	9.2 A [RVLFB34..370..] 13.0 A [RVLFB34..550..]	17.5 A [RVLFB34..750..] 24.0 A [RVLFB34..1100..]
Allowable momentary power loss	1.0 s	2.0 s	2.0 s	2.0 s

### General specifications

Operating temperature	-10°C to +50°C	-10°C to +50°C	-10°C to +50°C	-10°C to +50°C
Storage temperature	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
Ingress protection	IP20	IP20	IP20	IP20
Power connections	Screw terminals	Screw terminals	Screw terminals	Screw terminals
Control connections	Screw terminals	Screw terminals	Screw terminals	Screw terminals
Mounting	Panel mount DIN-rail (with accessory)	Panel mount DIN-rail (with accessory)	Panel mount	Panel mount
Integrated cooling fan	No	No	Yes	Yes
Switching frequency	1 to 16 kHz	1 to 16 kHz	1 to 16 kHz	1 to 16 kHz
Approvals	CE - cULus	CE - cULus	CE - cULus	CE - cULus




### References

100 - 120 VAC, 1-phase	<b>RVLFA110040A</b> [0.4kW] <b>RVLFA110075A</b> [0.75kW]			
200 - 240 VAC, 1-phase	<b>RVLFA120040FA</b> [0.4kW] <b>RVLFA120075FA</b> [0.75kW]	<b>RVLFB120150FA</b> [1.5kW] <b>RVLFB120220FA</b> [2.2kW]		
200 - 240 VAC, 3-phase	<b>RVLFA320040A</b> [0.4kW] <b>RVLFA320075A</b> [0.75kW]	<b>RVLFB320150A</b> [1.5kW] <b>RVLFB320220A</b> [2.2kW]		
380 - 480 VAC, 3-phase		<b>RVLFB340075FA</b> [0.75kW] <b>RVLFB340150FA</b> [1.5kW] <b>RVLFB340220FA</b> [2.2kW]	<b>RVLFC340370FA</b> [3.7kW] <b>RVLFC340550FA</b> [5.5kW]	<b>RVLFC340750FA</b> [7.5kW] <b>RVLFC3401100FA</b> [11kW]



# Variable frequency drives

## VariFlex<sup>3</sup> variable frequency drives - RVFF series

Types	Size A	Size B	Size C
Drives, Inverters			
Dimensions HxWxD (mm)	385 x 140 x 177	416 x 210 x 215	500 x 265 x 225
Features	V/F control, SLV, PM SLV with PWM mode, 32bit processor, overload 120% for 60sec, built-in filter (up to 55 kw), simple PLC capability, 2 sets of PID functions, multi-pumps control, 6 multi-functions DI, 3 multi-functions relay outputs, 2 Analogue inputs and 2 Analogue outputs, built-in RS485 modbus communication.		
<b>Technical specifications</b>			
AC supply voltage	3-ph: 380-480 VAC	3-ph: 380-480 VAC	3-ph: 380-480 VAC
AC supply frequency	50/60 Hz	50/60 Hz	50/60 Hz
Output voltage	3-ph: 380-480 VAC	3-ph: 380-480 VAC	3-ph: 380-480 VAC
Output frequency	0.1 ~ 400.0 Hz	0.1 ~ 400.0 Hz	0.1 ~ 400.0 Hz
100% RMS output current	9.2 A [RVFFA3400400F] 12.1 A [RVFFA3400550F] 17.5 A [RVFFA3400750F]	23 A [RVFFB3401100F] 31 A [RVFFB3401500F]	38 A [RVFFC3401850F] 44 A [RVFFC3402200F] 54 A [RVFFC3403000F]
<b>General specifications</b>			
Operating temperature	-10°C to +50°C	-10°C to +50°C	-10°C to +50°C
Storage temperature	-20°C to +70°C	-20°C to +70°C	-20°C to +70°C
Degree of protection	IP 20	IP 20	IP 20
Power connections	Screw terminals	Screw terminals	Screw terminals
Control connections	Screw terminals	Screw terminals	Screw terminals
Drive connections	Screw terminals	Screw terminals	Screw terminals
Mounting	Panel mounting	Panel mounting	Panel mounting
Integrated cooling fan	Yes	Yes	Yes
Switching frequency	2 to 16 kHz	2 to 16 kHz	2 to 16 kHz
Approvals	CE - cULus	CE - cULus	CE - cULus
<b>References</b>			
380 - 480 VAC, 3-phase	<b>RVFFA3400400F</b> [4 kW - 5 HP] <b>RVFFA3400400F</b> [5.5 kW - 7.5 HP] <b>RVFFA3400750F</b> [7.5 kW - 10 HP]	<b>RVFFB3401100F</b> [11 kW - 15 HP] <b>RVFFB3401500F</b> [15 kW - 20 HP]	<b>RVFFC3401850F</b> [18.5 kW - 25 HP] <b>RVFFC3402200F</b> [22 kW - 30 HP] <b>RVFFC3403000F</b> [30 kW - 40 HP]

# Variable frequency drives

## VariFlex<sup>3</sup> variable frequency drives - RVFF series

Types	Size D	Size E	Size F
Drives, Inverters			

Dimensions HxWxD (mm)	679 x 284 x 252	740 x 349 x 300	1105 x 463 x 325
Features	V/F control, SLV, PM SLV with PWM mode, 32bit processor, overload 120% for 60sec, built-in filter (up to 55 kw), simple PLC capability, 2 sets of PID functions, multi-pumps control, 6 multi-functions DI, 3 multi-functions relay outputs, 2 Analogue inputs and 2 Analogue outputs, built-in RS485 modbus communication.		

### Technical specifications

AC supply voltage	3-ph: 380 - 480 VAC;	3-ph: 380 - 480 VAC;	3-ph: 380 - 480 VAC;
AC supply frequency	50/60 Hz	50/60 Hz	50/60 Hz
Output voltage	3-ph: 380 - 480 VAC	3-ph: 380 - 480 VAC	3-ph: 380 - 480 VAC
Output frequency	0.1 ~ 400.0 Hz	0.1 ~ 400.0 Hz	0.1 ~ 400.0 Hz
100% RMS output current	73 A [RVFFD3403700F] 88 A [RVFFD3404500F] 103 A [RVFFD3405500F]	145 A [RVFFE3407500] 168 A [RVFFE3409000]	208 A [RVFFF34011000] 250 A [RVFFF34013200] 296 A [RVFFF34016000]

### General specifications





Operating temperature	-10°C to +50°C	-10°C to +50°C	-10°C to +50°C
Storage temperature	-20°C to +70°C	-20°C to +70°C	-20°C to +70°C
Degree of protection	IP 20	IP 20	IP 20
Power connections	Screw terminals	Screw terminals	Screw terminals
Control connections	Screw terminals	Screw terminals	Screw terminals
Drive connections	Screw terminals	Screw terminals	Screw terminals
Mounting	Panel mounting	Panel mounting	Panel mounting
Integrated cooling fan	Yes	Yes	Yes
Switching frequency	2 to 16 kHz	2 to 16 kHz	2 to 16 kHz
Approvals	CE - cULus	CE - cULus	CE - cULus

### References



380 - 480 VAC, 3-phase	<b>RVFFD3403700F</b> [37 kW - 50 HP] <b>RVFFD3404500F</b> [45 kW - 60 HP] <b>RVFFD3405500F</b> [55 kW - 75 HP]	<b>RVFFE3407500</b> [75 kW - 100 HP] <b>RVFFE3409000</b> [90 kW - 125 HP]	<b>RVFFF34011000</b> [110 kW - 150 HP] <b>RVFFF34013200</b> [132 kW - 175 HP] <b>RVFFF34016000</b> [160 kW - 215 HP]
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# Variable frequency drives





## Accessories





Types	DNET Module	Profibus Module	CAN Module	TCP-IP Module
				
Dimensions HxWxD (mm)	106 x 38 x 59.3	106 x 38 x 59.3	106 x 38 x 59.3	106 x 38 x 59.3
Features	DeviceNET communication module	Profibus communication module	CANopen communication module	TCP-IP communication module
<b>Technical specifications</b>				
Supply voltage	24 VDC, 50 mA	24 VDC, 50 mA	24 VDC, 50 mA	24 VDC, 50 mA
<b>General specifications</b>				
Operating temperature	-10°C to +50°C	-10°C to +50°C	-10°C to +50°C	-10°C to +50°C
Storage temperature	-20°C to +70°C	-20°C to +70°C	-20°C to +70°C	-20°C to +70°C
Degree of protection	IP 20	IP 20	IP 20	IP 20
Connections	Screw terminals	Screw terminals	Screw terminals	Screw terminals
Mounting	DIN-rail or panel mounting	DIN-rail or panel mounting	DIN-rail or panel mounting	DIN-rail or panel mounting
<b>References</b>				
	<b>RV-DNET</b>	<b>RV-PDP</b>	<b>RV-CAN</b>	<b>RV-TCP/IP</b>

## Accessories

Types	Multi-pump card	Copy module
		
Dimensions HxWxD (mm)		85 x 62 x 14.2
Features	Controls up to 8 DO for multi pump/fan control	Use to duplicate parameters settings
<b>General specifications</b>		
Operating temperature	-10°C to +50°C	-10°C to +50°C
Storage temperature	-20°C to +70°C	-20°C to +70°C
Degree of protection		IP20
Connection	Plug-in to RVFF	RJ-45 to Drives
<b>References</b>		
	<b>RV-IO-8DO</b>	<b>RV-CU</b>





# Industrial and Midi industrial relays

	Industrial relays		Midi industrial relays	
Types	RCP 8 (2 Poles)	RCP 11 (3 Poles)	RMI 2-10 (2 Poles)	RMI 4-5 (4 Poles)
				
Dimensions HxWxD (mm)	56 x 35.5 x 35.5	56 x 35.5 x 35.5	36 x 21.5 x 28	36 x 21.5 x 28
No. of Contacts	2 Change-over (octal)	3 Change-over (undecal)	2 Change-over	4 Change-over
Contact rating	10 A	10 A	10 A	5 A
Features	Test button / Flag / LED	Test button / Flag / LED	Test button / Flag / LED	Test button / Flag / LED
<b>Output specifications</b>				
Max. load AC1	12 A / 250 VAC	12 A / 250 VAC	12 A / 250 VAC	6 A / 250 VAC
Min. load	100 mA / 12 VDC	100 mA / 125 VDC	100 mA / 5 VDC	100 mA / 5 VDC
Electrical life	> 100.000 cycles	> 100.000 cycles	> 100.000 cycles	> 100.000 cycles
Switching power	2500 VA (resistive)	2500 VA (resistive)	2500 VA (resistive)	1250 VA (resistive)
<b>General specifications</b>				
Voltage ranges VDC	6 - 12 - 24 - 48 - 60 - 110	6 - 12 - 24 - 48 - 60 - 110	12 - 24 - 48 - 60 - 110	12 - 24 - 48 - 60 - 110
Voltage ranges VAC	6 - 12 - 24 - 48 - 115/120 - 230	6 - 12 - 24 - 48 - 115/120 - 230	12 - 24 - 48 - 115/120 - 230	12 - 24 - 48 - 115/120 - 230
Insulation according to	EN 61810-5	EN 61810-5	EN 61810-5	EN 61810-5
Consumption	1.5 W DC-2.5 VA AC	1.5 W DC-2.5 VA AC	1 W DC-1.5 VA AC	1 W DC-1.5 VA AC
Approvals / Conformity	cURus - CSA - IMQ - RINA	cURus - CSA - IMQ - RINA	cURus - CSA - TÜV - CQC	cURus - CSA - TÜV - CQC
<b>References</b>				
6 VDC	RCP80026 VDC	RCP110036 VDC		
12 VDC	RCP800212 VDC	RCP1100312 VDC	RMIA21012 VDC	RMIA4512 VDC
24 VDC	RCP800224 VDC	RCP1100324 VDC	RMIA21024 VDC	RMIA4524 VDC
48 VDC	RCP800248 VDC	RCP1100348 VDC	RMIA21048 VDC	RMIA4548 VDC
60 VDC	RCP800260 VDC	RCP1100360 VDC	RMIA21060 VDC	RMIA4560 VDC
100 VDC	RCP8002100 VDC	RCP11003100 VDC		
11 0VDC	RCP8002110 VDC	RCP11003110 VDC	RMIA210110 VDC	RMIA45110 VDC
6 VAC	RCP80026 VAC	RCP110036 VAC		
12 VAC	RCP800212 VAC	RCP1100312 VAC	RMIA21012 VAC	RMIA4512 VAC
24 VAC	RCP800224 VAC	RCP1100324 VAC	RMIA21024 VAC	RMIA4524 VAC
48 VAC	RCP800248 VAC	RCP1100348 VAC	RMIA21048 VAC	RMIA4548 VAC
115/120 VAC	RCP8002115/120 VAC	RCP11003115/120 VAC	RMIA210115/120 VAC	RMIA45115/120 VAC
230 VAC	RCP8002230 VAC	RCP11003230 VAC	RMIA210230 VAC	RMIA45230 VAC
Options	Consult your Carlo Gavazzi partner or distributor			

	Industrial relays sockets		Midi industrial relays sockets	
Types	ZPD 8XA ZPD 11XA	ZPD 8A ZPD 11A	ZMI 2NA ZMI 4NA	ZMI 2 / 3 / 4SA
				
<b>General specifications</b>				
Dimensions HxWxD (mm)	65 X 27 X 38	65 X 27 X 38	42.5 x 75 x 27	42.5 x 75 x 27
Rated volt. / Rated curr.	10 A @ 400 VAC	10 A @ 400 VAC	10 A @ 300 VAC	10/12 A @ 300 VAC
Insulation voltage	> 3 kV	> 3 kV	> 4 kV	> 4 kV
Socket material	Self-ext. PA6 + GF (V1)	Self-ext. PA6 + GF (V1)	Self-ext. PA6 + GF (V2)	Self-ext. PA6 + GF (V2)
Mounting	DIN-rail	DIN-rail	DIN-rail	DIN-rail
Degree of protection	IP 20	IP 20	IP 20	IP 20
Approvals	CE - cURus - CSA (10 A 300 VAC)	CE - cURus - CSA - IMQ	CE - cURus - CSA	CE - cURus - CSA
<b>References</b>				
For RCP 8 / RCP 11	ZPD 8XA / ZPD 11XA	ZPD 8A / ZPD 11A		
For RMI2-10 / RMI4-5			ZMI 2NA / ZMI 4NA	ZMI 2 / 3 / 4SA

# Midi industrial relays

## Midi industrial relays

Types	RPY 1	RPY 2	RPY 3	RPY 4
				
Dimensions HxWxD (mm)	36 x 21.5 x 28	36 x 21.5 x 28	36 x 31.5 x 28	36 x 41.5 x 28
No. of Contacts	1 Change-over	2 Change-over	3 Change-over	4 Change-over
Contact rating	16 A	10 A	10 A	10 A
Terminal types	Faston or PCB	Faston or PCB	Faston or PCB	Faston or PCB

### Output specifications

Max. load AC1	16 A	10 A	10 A	10 A
Electrical life	1 x 10 <sup>5</sup>	1 x 10 <sup>5</sup>	1 x 10 <sup>5</sup>	1 x 10 <sup>5</sup>
Switching power	1 HP at 240 VAC 1/2 HP at 120 VAC	3/4 HP at 240 VAC 1/3 HP at 120 VAC	3/4 HP at 240 VAC 1/3 HP at 120 VAC	3/4 HP at 240 VAC 1/3 HP at 120 VAC



### General specifications

Voltage ranges VDC	6 - 12 - 24 - 36 - 48 - 110	6 - 12 - 24 - 36 - 48 - 110	6 - 12 - 24 - 36 - 48 - 110	6 - 12 - 24 - 36 - 48 - 110 - 220
Voltage ranges VAC	6 - 12 - 24 - 120 - 230	6 - 12 - 24 - 120 - 230	6 - 12 - 24 - 120 - 230	6 - 12 - 24 - 120 - 230
Insulation Coil / Contact	2000/1200 VAC	2000/1200 VAC	2000/1200 VAC	2000/1200 VAC
Consumption	DC=0.9 W - AC=1.2 VA	DC=0.9 W - AC=1.2 VA	DC=1.4 W - AC=2 VA	DC=1.5 W - AC=2.5 VA
Approvals / Conformity	cURus - CSA - TÜV	cURus - CSA - TÜV	cURus - CSA - TÜV	cURus - CSA - TÜV

### References

6 VDC	RPYA0016	RPYA0026	RPYA0036	RPYA0046
12 VDC	RPYA00112	RPYA00212	RPYA00312	RPYA00412
24 VDC	RPYA00124	RPYA00224	RPYA00324	RPYA00424
36 VDC	RPYA00136	RPYA00236	RPYA00336	RPYA00436
48 VDC	RPYA00148	RPYA00248	RPYA00348	RPYA00448
110 VDC	RPYA001110	RPYA002110	RPYA003110	RPYA004110
6 VAC	RPYA001A6	RPYA002A6	RPYA003A6	RPYA004A6
12 VAC	RPYA001A12	RPYA002A12	RPYA003A12	RPYA004A12
24 VAC	RPYA001A24	RPYA002A24	RPYA003A24	RPYA004A24
120 VAC	RPYA001A120	RPYA002A120	RPYA003A120	RPYA004A120
230 VAC	RPYA001A230	RPYA002A230	RPYA003A230	RPYA004A230
Options	Consult your Carlo Gavazzi partner or distributor			

## Midi industrial relays sockets

Types	ZPY08A	ZPY11A	ZPY14A
			

### General specifications

Dimensions HxWxD (mm)	27.8 x 30 x 69.8	27.8 x 40 x 69.8	27.8 x 50.5 x 69.8
Rated volt. / Rated curr.	10 A @ 300 VAC	10 A @ 300 VAC	10 A @ 300 VAC
Insulation voltage	> 4 kW	> 4 kW	> 4 kW
Socket material	PA6 - V2	PA6 - V2	PA6 - V2
Mounting	DIN-rail	DIN-rail	DIN-rail
Degree of protection	IP 00	IP 00	IP 00
Approvals	cURus - CSA	cURus - CSA	cURus - CSA

### References

Consult your Carlo Gavazzi Partner or Distributor	For Relays: RPYA 001 and RPYA 002	For Relays: RPYA 003	For Relays: RPYA 004
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# Slim industrial relays

## Slim industrial relays

### Types

**RSLM100**

**RSLM001**



Dimensions HxWxD (mm)	15 x 28 x 5	15 x 28 x 5
No. of Contacts	1 Normally open	1 Change-over
Contact rating	6 A	6 A

### Output specifications

Max. load AC1	6 A / 250 VAC	6 A / 250 VAC
Min. load	170 mW / 24 VDC 210 mW / 48~60 VDC	170 mW / 24 VDC 210 mW / 48~60 VDC
Mechanical endurance	> 100,000 cycles	> 100,000 cycles
Switching power	1500 VA	1500 VA

### General specifications

Voltage ranges VDC	12 - 24 - 48 - 60	12 - 24 - 48 - 60
Consumption	170 mW ~ 210 mW	170 mW ~ 210 mW
Approvals / Conformity	cURus - CSA - VDE - CQC	cURus - CSA - VDE - CQC

### References

12 VDC	<b>RSLM100012</b>	<b>RSLM001012</b>
24 VDC	<b>RSLM100024</b>	<b>RSLM001024</b>
48 VDC	<b>RSLM100048</b>	<b>RSLM001048</b>
60 VDC	<b>RSLM100060</b>	<b>RSLM001060</b>

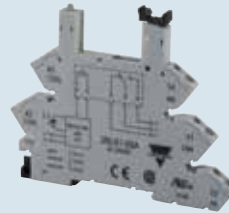
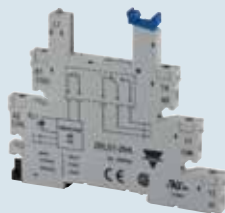
## Slim relay sockets

### Types

**ZRLS1.NA**

**ZRLS1.GA**

**ZRLP**



### General specifications

Dimensions HxWxD (mm)	88 x 55 x 6	101 x 80 x 6	33 x 30 x 6
Rated volt. / Rated curr.	6 A @ 300 VAC	6 A @ 300 VAC	6 A @ 300 VAC
Insulation voltage	> 3 kV	> 3 kV	> 3 kV
Socket material	PA66 + GF (VO)	PA66 + GF (VO)	PA66 + GF (VO)
Mounting	DIN-rail	DIN-rail	PCB
Terminal Type	Screw cage	Spring loaded	
Approvals	CE - cURus - CSA	CE - cURus - CSA	CSA - cURus




### References

Input Voltage 6~24 VAC/VDC	<b>ZRLS12NA</b>	<b>ZRLS12GA</b>
Input Voltage 48~60 VAC/VDC	<b>ZRLS13NA</b>	<b>ZRLS13GA</b>
Input Voltage 110~125 VAC/VDC	<b>ZRLS14NA</b>	<b>ZRLS14GA</b>
Input Voltage 220~240 VAC/VDC	<b>ZRLS15NA</b>	<b>ZRLS15GA</b>

**ZRLP**

# Power relays

## Power relays

Types	NB (1/2 Poles)	NF (1/2 Poles)	NP (1/2 Poles)			
						
Dimensions HxWxD (mm)	55 x 50.5 54.5	36 x 50.5 x 54.5	36 x 50.5 x 33.5			
No. of Contacts	1 Normally open 2 Normally open	1 Normally open 2 Normally open	1 Normally open 2 Normally open			
Contact rating	30 A	30 A	30 A			
Terminal types	Bolt	Faston	PCB			
<b>Output specifications</b>						
Max. load AC1	30 A (1NO) - 25 A (2NO)	30 A (1NO) - 25 A (2NO)	30 A (1NO) - 25 A (2NO)			
Electrical life	1 x 10 <sup>5</sup>	1 x 10 <sup>5</sup>	1 x 10 <sup>5</sup>			
Switching power	7500 VA / 840 W	7500 VA / 840 W	7500 VA / 840 W			
<b>General specifications</b>						
Voltage ranges VDC	6 - 12 - 24 - 48 - 100 - 110	6 - 12 - 24 - 48 - 100 - 110	6 - 12 - 24 - 48 - 100 - 110			
Voltage ranges VAC	12 - 24 - 48 - 115 - 230	12 - 24 - 48 - 115 - 230	12 - 24 - 48 - 115 - 230			
Insulation according to	4000 VAC	4000 VAC	4000 VAC			
Consumption	DC=1.9 W - AC=2.7 VA	DC=1.9 W - AC=2.7 VA	DC=1.9 W - AC=2.7 VA			
Approvals / Conformity	cURus	cURus	cURus			
<b>References</b>						
	1NO Contact	2NO Contact	1NO Contact	2NO Contact	1NO Contact	2NO Contact
6 VDC	<b>NBD 100 6</b>	<b>NBD 200 6</b>	<b>NFD 100 6</b>	<b>NFD 200 6</b>	<b>NPD 100 6</b>	<b>NPD 200 6</b>
12 VDC	<b>NBD 100 12</b>	<b>NBD 200 12</b>	<b>NFD 100 12</b>	<b>NFD 200 12</b>	<b>NPD 100 12</b>	<b>NPD 200 12</b>
24 VDC	<b>NBD 100 24</b>	<b>NBD 200 24</b>	<b>NFD 100 24</b>	<b>NFD 200 24</b>	<b>NPD 100 24</b>	<b>NPD 200 24</b>
48 VDC	<b>NBD 100 48</b>	<b>NBD 200 48</b>	<b>NFD 100 48</b>	<b>NFD 200 48</b>	<b>NPD 100 48</b>	<b>NPD 200 48</b>
100 VDC	<b>NBD 100 100</b>	<b>NBD 200 100</b>	<b>NFD 100 100</b>	<b>NFD 200 100</b>	<b>NPD 100 100</b>	<b>NPD 200 100</b>
12 VAC	<b>NBA 100 12</b>	<b>NBA 200 12</b>	<b>NFA 100 12</b>	<b>NFA 200 12</b>	<b>NPA 100 12</b>	<b>NPA 200 12</b>
24 VAC	<b>NBA 100 24</b>	<b>NBA 200 24</b>	<b>NFA 100 24</b>	<b>NFA 200 24</b>	<b>NPA 100 24</b>	<b>NPA 200 24</b>
48 VAC	<b>NBA 100 48</b>	<b>NBA 200 48</b>	<b>NFA 100 48</b>	<b>NFA 200 48</b>	<b>NPA 100 48</b>	<b>NPA 200 48</b>
115 VAC	<b>NBA 100 115</b>	<b>NBA 200 115</b>	<b>NFA 100 115</b>	<b>NFA 200 115</b>	<b>NPA 100 115</b>	<b>NPA 200 115</b>
230 VAC	<b>NBA 100 230</b>	<b>NBA 200 230</b>	<b>NFA 100 230</b>	<b>NFA 200 230</b>	<b>NPA 100 230</b>	<b>NPA 200 230</b>
Options	Consult your Carlo Gavazzi partner or distributor					

# Power relays

## Power relays

### CF (2 Poles)

### CS (2 Poles)



Dimensions (mm) WxHxD	26.42 x 68.58 x 34.54	26.42 x 52.32 x 34.54
No. of Contacts	2 Normally open 2 Change-over	2 Normally open 2 Change-over
Contact rating	30 A	30 A
Terminal types	Faston	PCB

### Output specifications

Max. load AC1	30 A (2NO) - 30 A (2CO)	30 A (2NO) - 30 A (2CO)
Electrical life	1 x 10 <sup>5</sup>	1 x 10 <sup>5</sup>
Switching power	8310 VA / 840 W	8310 VA / 840 W

### General specifications

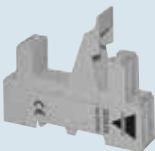
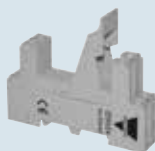


Voltage ranges VDC	5 - 6 - 12 - 24 - 48 - 110	5 - 6 - 12 - 24 - 48 - 110
Voltage ranges VAC	24 - 120 - 208 - 240 - 277	24 - 120 - 208 - 240 - 277
Insulation according to	4000 VAC	4000 VAC
Consumption	DC=1.7 W - AC=4 VA	DC=1.7 W - AC=4 VA
Approvals / Conformity	cURus	cURus

### References























	2NO Contact	2CO Contact	2NO Contact	2CO Contact
5 VDC	<b>CF30 D2005</b>	<b>CF30 D0025</b>	<b>CS30 D2005</b>	<b>CS30 D0025</b>
6 VDC	<b>CF30 D2006</b>	<b>CF30 D0026</b>	<b>CS30 D2006</b>	<b>CS30 D0026</b>
12 VDC	<b>CF30 D20012</b>	<b>CF30 D00212</b>	<b>CS30 D20012</b>	<b>CS30 D00212</b>
24 VDC	<b>CF30 D20024</b>	<b>CF30 D00224</b>	<b>CS30 D20024</b>	<b>CS30 D00224</b>
48 VDC	<b>CF30 D20048</b>	<b>CF30 D00248</b>	<b>CS30 D20048</b>	<b>CS30 D00248</b>
110 VDC	<b>CF30 D200110</b>	<b>CF30 D002110</b>	<b>CS30 D200110</b>	<b>CS30 D002110</b>
24 VAC	<b>CF30 A20024</b>	<b>CF30 A00224</b>	<b>CS30 A20024</b>	<b>CS30 A00224</b>
120 VAC	<b>CF30 A200120</b>	<b>CF30 A002120</b>	<b>CS30 A200120</b>	<b>CS30 A002120</b>
208 VAC (only 60Hz)	<b>CF30 A200208</b>	<b>CF30 A002208</b>	<b>CS30 A200208</b>	<b>CS30 A002208</b>
220 VAC (only 50Hz)	<b>CF30 A200220</b>	<b>CF30 A002220</b>	<b>CS30 A200220</b>	<b>CS30 A002220</b>
240 VAC	<b>CF30 A200240</b>	<b>CF30 A002240</b>	<b>CS30 A200240</b>	<b>CS30 A002240</b>
277 VAC	<b>CF30 A200277</b>	<b>CF30 A002277</b>	<b>CS30 A200277</b>	<b>CS30 A002277</b>
Options	Consult your Carlo Gavazzi partner or distributor			



# Sockets for electromechanical relays

Types	ZD 35/2A	ZD 50/2A	ZD 35/3A	ZD 50/3A
				
<b>General specifications</b>				
Rated volt. / Rated curr.	12 A @ 300 VAC	12 A @ 300 VAC	12 A @ 300 VAC	12 A @ 300 VAC
Insulation voltage	> 5 kV	> 5 kV	> 5 kV	> 5 kV
Socket material	Self-ext. PA6 + GF (V1)	Self-ext. PA6 + GF (V1)	Self-ext. PA6 + GF (V1)	Self-ext. PA6 + GF (V1)
Mounting	DIN-rail	DIN-rail	DIN-rail	DIN-rail
Degree of protection	IP 20	IP 20	IP 20	IP 20
Approvals	CE - cURus - CSA (12 A, 300 VAC)	CE - cURus - CSA (12 A, 300 VAC)	CE - cURus - CSA (12 A, 300 VAC)	CE - cURus - CSA (12 A, 300 VAC)
<b>References</b>				
For relay:	MZ 1P 5/10 A	MZ B 1P 5/10 A	MZ 1P 5/10 A	MZ B 1P 5/10 A
	M15 M 8 A	MZ 2P 5/10 A	M15 M 8 A	MZ 2P 5/10 A
	M25 1P 12 A	MZ 1P 16 A	M25 1P 12 A	MZ 1P 16 A
	LC 10 A	M15 M 8 A	LC 10 A	M15 M 8 A
		M25 1P 16 A		M25 1P 16 A
		M25 2P 8 A		M25 2P 8 A
	LC 5/16 A		LC 5/16 A	
For detailed informations consult your Carlo Gavazzi Partner or Distributor	Hold down spring to be ordered separately: • SZD15 for M15/M25 relays • SZD20 for LC relays • SZD25 for MZ relays	Hold down spring to be ordered separately: • SZD15 for M15/M25 relays • SZD20 for LC relays • SZD25 for MZ relays	Hold down spring to be ordered separately: • SZD15 for M15/M25 relays • SZD20 for LC relays • SZD25 for MZ relays	Hold down spring to be ordered separately: • SZD15 for M15/M25 relays • SZD20 for LC relays • SZD25 for MZ relays

## Types Additional modules for ZMI and ZD sockets

				
				
				
				
				
				
<b>General specifications</b>				
Dimensions (mm) WxHxD	23 x 12.5 x 8.5			
Terminal material	CuSn			
Degree of protection	IP 40			
Operating temperature	-40°C to +70°C			
Ambient humidity	85RH non condensing			
Approvals / Conformity	No approvals			
<b>References</b>				
Consult your Carlo Gavazzi Partner or Distributor				

# Switching power supplies

## Single-phase switching power supplies

### Types SPD 5 / 10 / 18 W SPD 30 / 60 W SPD 90 / 100 W



Dimensions HxWxD (mm)	90 x 22.5 x 114				90 x 40.5 x 114			90 x 54 x 114		
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### Output specifications

Voltage	5 VDC	12 VDC	15 VDC	24 VDC	12 VDC	24 VDC	48 VDC	12 VDC	24 VDC	48 VDC
Current SPD 5 W	1 A	420 mA	340 mA	210 mA						
Current SPD 10 W	2 A	840 mA	670 mA	420 mA						
Current SPD 18 W	3 A	1.5 A	1.2 A	750 mA						
Current SPD 30 W					2.5 A	1.25 A	625 mA			
Current SPD 60 W					5 A	2.5 A	1.25 A			
Current SPD 90 W									3.8 A	
Current SPD 100 W								8.4 A	4.2 A	2.1 A
Line regulation		±1%			±0.5%			±1%		
Load regulation		±2%			±0.5%			±1%		
Efficiency	75%	77%	77%	77%	86%	89%	89%		85%	

### Input specifications

Voltage range	Multi voltage: 90 to 265 VAC or 120 to 370 VDC				Multi voltage: 85 to 264 VAC or 90 to 375 VDC			Multi voltage: 90 to 264 VAC or 120 to 375 VDC		
Frequency range	47 to 63 Hz				47 to 63 Hz			47 to 63 Hz		

### General specifications

Ambient temperature	-40°C to +71°C				-40°C to +71°C			-35°C to +71°C		
Storage	-40°C to +85°C				-40°C to +85°C			-40°C to +85°C		
Derating (>60°C)	3 % / °C				2.5 % / °C			2.5 % / °C		
Approvals/Marks	cULus - TÜV - CE - UL Class 2 - Class I DIV2				cULus - TÜV - CE - UL Class 2 - Class I DIV2			cULus - TÜV - CE - UL Class 2 (90 W) - Class I DIV2		
Installation	DIN-rail				DIN-rail			DIN-rail		
Connection	Screw terminals / Spring terminals (B)				Screw terminals / Spring terminals (B)			Screw terminals / Spring terminals (B)		

### Main features




	Adjustable output voltage. Internal noise filter. Short circuit protection. Overload protection (110-135%)	Adjustable output voltage. Internal noise filter. Short circuit protection. Overload protection (110-135%). Output "Power ready" signal VDC (only model 24 VDC)	Adjustable output voltage. Internal noise filter. Short circuit protection. Overload protection (102-108%), PFC. Overvoltage protection (102-106%). Output "Power ready" signal VDC
LED indicator for "power on"	Yes	Yes	Yes
LED indicator for DC "too low"	Yes	No - SPD24 with transistor output	Yes with relay output

### References



<b>5 VDC</b>			
Screw terminals	SPD05051 / SPD05101 SPD05181		
Spring terminals	SPD05051B / SPD05101B SPD05181B		
<b>12 VDC</b>			
Screw terminals	SPD12051 / SPD12101 SPD12181	SPD12301 / SPD12601	SPD121001
Spring terminals	SPD12051B / SPD12101B SPD12181B	SPD12301B / SPD12601B	
<b>24 VDC</b>			
Screw terminals	SPD24051 / SPD24101 SPD24181	SPD24301 / SPD24601	SPD24901L / SPD241001
Spring terminals	SPD24051B / SPD24101B SPD24181B	SPD24301B / SPD24601B	
<b>48 VDC</b>			
Screw terminals		SPD48301 / SPD48601	SPD481001
Spring terminals		SPD48301B / SPD48601B	

# Switching power supplies

## Single-phase switching power supplies





Types	SPD 120 W(N)			SPD 240 W		SPD 300 W	
							
Dimensions HxWxD (mm)	124.5 x 64 x 123.6			124.5 x 83.5 x 123.6		124.5 x 83.5 x 123.6	
<b>Output specifications</b>							
Voltage	12 VDC	24 VDC	48 VDC	24 VDC	48 VDC	24 VDC	48 VDC
Current	10 A	5 A	2.5 A	10 A	5 A	12.5 A	6.25 A
Line regulation		±0.5%	±0.5%		±0.5%		±0.5%
Load regulation		±1%	±1%		±1%		±1%
Efficiency	84%	86%	86%	89%	90%	89%	90%
<b>Input specifications</b>							
Voltage range	Autoselect: 90 to 132 VAC, 180 to 264 VAC, 120 to 375 VDC			Autoselect: 90 to 132 VAC, 180 to 264 VAC, 120 to 375 VDC		Autoselect: 90 to 132 VAC, 180 to 264 VAC, 120 to 375 VDC	
Frequency range	47 to 63 Hz			47 to 63 Hz		47 to 63 Hz	
PFC	0.7			0.75		0.75	
<b>General specifications</b>							
Ambient temperature	-35°C to +71°C			-40°C to +71°C		-30°C to +71°C	
Storage	-40°C to +85°C			-40°C to +85°C		-40°C to +85°C	
Derating (>60°C)	2.5 % / °C			2.5 % / °C		2.5 % / °C	
Approvals/Marks	cULus - TÜV - CE - Class I DIV2			cULus - TÜV - CE - Class I DIV2		cULus - TÜV - CE - Class I DIV2	
Installation	DIN-rail			DIN-rail		DIN-rail	
Connection	Screw terminals / Detach screw terminals (B)			Screw terminals / Detach screw terminals (B)		Screw terminals / Detach screw terminals (B)	
<b>Main features</b>							
	Adjustable output voltage. Internal noise filter. Short circuit protection. Overload protection (110-145%). Parallel connection up to 3 supplies and PFC function on (N) model only			Adjustable output voltage. Internal noise filter. Short circuit protection. Overload protection (110-145%). Parallel connection up to 3 supplies standard. PFC function integrated		Parallel function, PFC and Output ready	
LED indicator for "power on"	Yes			Yes		Yes, 24 V with output ready	
LED indicator for DC "too low"	Yes - with relay output (SPD24 only)			Yes - with relay output (SPD24 only)		Yes	
<b>References</b>							
<b>12 VDC</b>							
Screw terminals	<b>SPD121201N</b>						
Detach. screw terminals	<b>SPD121201BN</b>						
<b>24 VDC</b>							
Screw terminals	<b>SPD241201N</b>			<b>SPD242401</b>		<b>SPD243001</b>	
Detach. screw terminals	<b>SPD241201BN</b>			<b>SPD242401B</b>		<b>SPD243001B</b>	
<b>48 VDC</b>							
Screw terminals	<b>SPD481201N</b>			<b>SPD482401</b>		<b>SPD483001</b>	
Detach. screw terminals	<b>SPD481201BN</b>			<b>SPD482401B</b>		<b>SPD483001B</b>	

# Switching power supplies

	Single-phase switching power supplies		Bi-phase switching power supplies		
Types	SPD 480 W		SPD 100 W		
					
Dimensions HxWxD (mm)	124.5 x 175.5 x 123.6		90 x 54 x 114		
<b>Output specifications</b>					
Voltage	24 VDC	48 VDC	12 VCC	24 VCC	48 VCC
Current	20 A	10 A	8.4 A	4.2 A	2.1 A
Line regulation	±0.5%		±1.0%		
Load regulation	±1%		±1.0%		
Efficiency (typ)	89%	90%	86%	87%	89%
<b>Input specifications</b>					
Voltage range	Autoselect: 90 to 132 VAC, 186 to 264 VAC, 120 to 370 VDC		340 to 575 VAC, 480 to 820 VAC		
Frequency range	47 to 63 Hz		47 to 63 Hz		
PFC	0.99		0.55		
<b>General specifications</b>					
Ambient temperature	-40°C to +71°C		-40°C to +71°C		
Storage	-40°C to +85°C		-40°C to +85°C		
Derating (>60°C)	2.5 % / °C > 56°C		2.5% / °C		
Approvals/Marks	cULus - TÜV - CE - Class I DIV2		cULus - TÜV - CE - Class I DIV2		
Installation	DIN-rail		DIN-rail		
Connection	Screw terminals / Detach screw terminals (B)		Screw terminal		
<b>Main features</b>					
	Adjustable output voltage. Internal noise filter. Short circuit protection. Overload protection (120-140%). Parallel connection up to 3 supplies standard. PFC function integrated		Parallel function, PFC and Output ready		
LED indicator for "power on"	Yes		Yes - with relay output (SPD24 only)		
LED indicator for DC "too low"	Yes - with relay output (SPD24 only)		Yes		
<b>References</b>					
<b>12 VDC</b>					
Screw terminals			SPD 121002		
<b>24 VDC</b>					
Screw terminals	SPD244801		SPD 241002		
Detach. screw terminals	SPD244801B				
<b>48 VDC</b>					
Screw terminals	SPD482401		SPD 481002		
Detach. screw terminals	SPD482401B				





# Switching power supplies

## Three-phase switching power supplies

Types	SPD 120 W 3-ph		SPD 240 W 3-ph		SPD 480 W 3-ph		SPD 960 W 3-ph	
								
Dimensions HxWxD (mm)	124 x 74.3 x 118.8		124 x 89.0 x 118.8		124 x 150 x 118.8		126.2 x 275.8 x 118.8	
<b>Output specifications</b>								
Voltage	12 VDC	24 VDC	24 VDC	48 VDC	24 VDC	48 VDC	24 VDC	48 VDC
Current	10 A	5 A	10 A	5 A	20 A	10 A	40 A	20 A
Line regulation	±1%		±1%		±1%		±1%	
Load regulation	±1%		±1%		±1%		±1%	
Efficiency	87%	89%	90%	91%	90%	91%	92%	93%
<b>Input specifications</b>								
Voltage range	340 to 575 VAC 480 to 820 VDC		340 to 575 VAC 480 to 820 VDC		340 to 575 VAC 480 to 820 VDC		340 to 575 VAC 480 to 820 VDC	
Frequency range	47 to 63 Hz		47 to 63 Hz		47 to 63 Hz		47 to 63 Hz	
PFC	0.55		0.55		0.65		0.80	
<b>General specifications</b>								
Ambient temperature	-40°C to +71°C		-25°C to +71°C		-30°C to +71°C		-40°C to +71°C	
Storage	-40°C to +85°C		-25°C to +85°C		-40°C to +85°C		-40°C to +85°C	
Derating	2.5 % / °C > 61°C		2.5 % / °C > 61°C		2.5 % / °C > 61°C		3.5 % / °C > 61°C	
Approvals/Marks	cULus - TÜV - CE - Class I Div 2		cULus - TÜV - CE - Class I Div 2		cULus - TÜV - CE - Class I Div 2		cULus - TÜV - CE - Class I Div 2	
Installation	DIN-rail		DIN-rail		DIN-rail		DIN-rail	
Connection	Screw terminals		Screw terminals		Screw terminals / Detach conn.		Screw terminals	
<b>Main features</b>								
	Can be used as Bi or Three-phase, Parallel function and PFC		Can be used as Bi or Three-phase, Parallel function and PFC		Can be used as Bi or Three-phase, Parallel function and PFC		Can be used as Bi or Three-phase. Active parallel function and PFC	
LED indicator for "power on"	Yes, 24 V with output ready		Yes, 24 V with output ready		Yes, 24 V with output ready		Yes, 24 V with output ready	
LED indicator for DC "too low"	Yes		Yes		Yes		Yes	
<b>References</b>								
<b>12 VDC</b>								
Screw terminals	SPD121203							
<b>24 VDC</b>								
Screw terminals	SPD241203	SPD242403	SPD244803	SPD249603 SPD249603L (without parallel function and output ready)				
<b>48 VDC</b>								
Screw terminals	SPD482403		SPD484803		SPD489603			

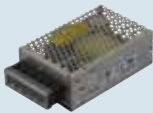
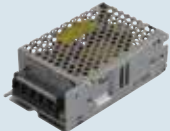

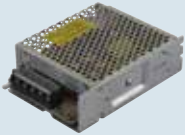
# Switching power supplies

## Low profile DIN-rail mounting

Types	<b>SPM 1</b> 7.5 W to 10 W	<b>SPM 3</b> 15 W to 30 W	<b>SPM 4</b> 35 W to 60 W	<b>SPM 5</b> 60 W to 100 W
				
Dimensions HxWxD (mm)	91 x 18 x 55.5	91 x 52 x 55.5	91 x 71 x 55.5	91 x 90 x 55.5
<b>Output specifications</b>				
Voltage	5 VDC, 12 VDC, 15 VDC, 24 VDC	5 VDC, 12 VDC, 15 VDC, 24 VDC	5 VDC, 12 VDC, 15 VDC, 24 VDC	5 VDC, 12 VDC, 15 VDC, 24 VDC, 24 VDC (S ver.)
Current	1.5 A - 0.83 A 0.67 A - 0.42 A	3.0 A - 2.1 A 2.0 A - 1.3 A	7.0 A - 4.5 A 4.0 A - 2.5 A	12 A - 6 A - 5 A 4.2 A - 3.8 A
Output Power	5 V - 7.5 W 12 V, 15 V, 24 V - 10 W	5 V - 15 W 12 V - 25 W 15 V, 24 V - 30 W	5 V - 35 W 12 V - 54 W 15 V, 24 V - 60 W	5 V - 60 W 12 V - 72 W 15 V - 75 W 24 V - 100 W or 24 V - 91 W (for class 2 compliance)
Line regulation	±1%	±1%	±1%	±1%
Load regulation	±1%	±1%	±1%	±1%
<b>Input specifications</b>				
Voltage range	90 to 264 VAC, 120 to 370 VDC	90 to 264 VAC, 120 to 370 VDC	90 to 264 VAC, 120 to 370 VDC	90 to 264 VAC, 120 to 370 VDC
Frequency range	47 to 63 Hz	47 to 63 Hz	47 to 63 Hz	47 to 63 Hz
<b>General specifications</b>				
Ambient temperature	-25°C to +71°C	-25°C to +71°C	-25°C to +71°C	-25°C to +71°C
Storage	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C
Derating (>60°C)	2.5 % / °C	2.5 % / °C	2.5 % / °C	2.5 % / °C
Approvals/Marks	cULus - TÜV - CE - UL Class 2 - Class I DIV2	cULus - TÜV - CE - UL Class 2 - Class I DIV2	cULus - TÜV - CE - UL Class 2 - Class I DIV2	cULus - TÜV - CE - UL Class 2 (up to 91 W) - Class I DIV2
Installation	DIN-rail	DIN-rail	DIN-rail	DIN-rail
Connection	Screw terminals	Screw terminals	Screw terminals	Screw terminals
<b>Main features</b>				
		Adjustable output voltage	Adjustable output voltage	Adjustable output voltage
LED indicator for "power on"	Yes	Yes	Yes	Yes
LED indicator for DC "too low"	Yes	Yes	Yes	Yes
<b>References</b>				
5 VDC	<b>SPM1051</b>	<b>SPM3051</b>	<b>SPM4051</b>	<b>SPM5051</b>
12 VDC	<b>SPM1121</b>	<b>SPM3121</b>	<b>SPM4121</b>	<b>SPM5121</b>
15 VDC	<b>SPM1151</b>	<b>SPM3151</b>	<b>SPM4151</b>	<b>SPM5151</b>
24 VDC	<b>SPM1241</b>	<b>SPM3241</b>	<b>SPM4241</b>	<b>SPM5241</b>
24 VDC (Not UL Class 2)				<b>SPM5241S</b>

# Switching power supplies

## Enclosed switching power supplies

Types	SPPC 25 W	SPPC 35 W	SPPC 50 W	SPPC 75 W
				
Dimensions HxWxD (mm)	79 x 51 x 28.8	101.6 x 63.5 x 33	99 x 82 x 35	129 x 98 x 38
<b>Output specifications</b>				
Voltage	5 V, 12 V, 24 V	5 V, 12 V, 24 V	5 V, 12 V, 15 V, 24 V, 48 V	5 V, 12 V, 24 V, 48 V
Current	5 A, 2.1 A, 1.1 A	6 A, 3 A, 1.5 A	8 A, 4.2 A, 3.4 A, 2.2 A, 1.12 A	12 A, 6 A, 3.2 A, 1.62 A
Line regulation	±0.5%	±0.5%	±0.5%	±0.5%
Load regulation	±2.0%, ±1.0%, ±1.0%	±1.0%	±1.0%	±2.0%
Efficiency (typ)	115 VAC 230 VAC	76%, 80%, 84% 78%, 82%, 85%	79%, 83%, 86% 80%, 84%, 87%	79%, 84%, 87%, 88% 80%, 85%, 88%, 89%
<b>Input specifications</b>				
Voltage range	90 to 264 VAC 127 to 370 VDC	90 to 264 VAC 127 to 370 VDC	90 to 264 VAC 27 to 370 VDC	90 to 264 VAC 127 to 370 VDC
Frequency range	47 to 63 Hz	47 to 63 Hz	47 to 63 Hz	47 to 63 Hz
<b>General specifications</b>				
Ambient temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
Storage	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C;
Derating (>50°C)	2% / °C	2% / °C	1.5% / °C	1.5% / °C
Cooling	Free air convection	Free air convection	Free air convection	Free air convection
Approvals/Marks	CE - cURus	CE - cURus	CE - cURus	CE - cURus
Installation	Screw terminal	Screw terminal	Screw terminal	Screw terminal
<b>Main features</b>				
Mounting	Horizontal and Vertical (DIN-rail mounting accessories available)	Horizontal and Vertical (DIN-rail mounting accessories available)	Horizontal and Vertical (DIN-rail mounting accessories available)	Horizontal and Vertical (DIN-rail mounting accessories available)
<b>References</b>				
5 VDC	SPPC 525 1	SPPC 535 1	SPPC 550 1	SPPC 575 1
12 VDC	SPPC 1225 1	SPPC 1235 1	SPPC 1250 1	SPPC 1275 1
15 VDC			SPPC 1550 1	
24 VDC	SPPC 2425 1	SPPC 2435 1	SPPC 2450 1	SPPC 2475 1
48 VDC			SPPC 4850 1	SPPC 4875 1

# Switching power supplies

## Compact enclosed switching power supplies

Types	SPPC 100 W	SPPC 150 W	SPPC 150 W (PFC) Power Factor Correction	SPPC 150 W PFC Compact
				

Dimensions HxWxD (mm)	129 x 98 x 38	199 x 98 x 38	194 x 99 x 50	160 x 98 x 38
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### Output specifications

Voltage	5 V, 12 V, 24 V, 48 V	5 VDC, 12 VDC, 15 VDC, 24 VDC, 48 VDC	5 VDC, 12 VDC, 15 VDC, 24 VDC, 48 VDC	5 VDC, 12 VDC, 15 VDC, 24 VDC, 48 VDC
Current	20 A, 8.5 A, 4.2 A, 2.2 A	26 A, 12.5 A, 10 A, 6.5 A, 3.3 A	30 A, 12.5 A, 10 A, 6.3 A, 3.2 A	12.5 A, 10 A, 6.3 A, 3.2 A
Line regulation	±0.5%	±0.5%	±0.5%	±0.5%
Load regulation	±2% (5, 12 V) ±1% (24, 48 V)	±1%	±1%	±2%, ±2%, ±1%, ±1%
Efficiency (typ)	84%, 87%, 88%, 88%	up to 85%	up to 87%	86%, 87%, 87%, 88%
Built-in active PFC			PFC > 0.98 @ 115 VAC; PFC > 0.95 @ 230 VAC	Active PFC, PF > 0.95

### Input specifications

Voltage range	90 to 264 VAC 127 to 370 VDC	88 to 132 VAC 176 to 264 VAC 124 to 186 VDC 248 to 370 VDC	88 to 264 VAC 124 to 370 VDC	90 to 264 VAC 120 to 370 VDC
Frequency range	47 to 63 Hz	47 to 63 Hz	47 to 63 Hz	47 - 63 VAC

### General specifications

Ambient temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-20°C to +70°C
Storage	-40°C to +85°C	-40°C to +85°C	-30°C to +85°C	-30°C to +85°C
Output short circuit		Long-term, Auto recovery	Long-term, Auto recovery	Long-term, Auto recovery
Derating (>50°C)	See derating curve	2.5% / °C	2.5% / °C	Refer to derating diagram
Cooling	Free air convection	Free air convection	Free air convection	Free air convection
Approvals/Marks	CE - cURus	CE - cURus	CE - cURus	CE - cURus
Installation	Screw terminal	Screw terminal	Screw terminal	Screw terminal

### Main features

Mounting	Horizontal and Vertical (DIN-rail mounting accessories available)	Horizontal and Vertical (DIN-rail mounting accessories available)	Horizontal and Vertical (DIN-rail mounting accessories available)	Horizontal and Vertical (DIN-rail mounting accessories available)
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### References

5 VDC	SPPC5100 1	SPPC5150 1	SPPC5150 1F	
12 VDC	SPPC12100 1	SPPC12150 1	SPPC12150 1F	SPPC12150 1FC
15 VDC		SPPC15150 1	SPPC15150 1F	SPPC15150 1FC
24 VDC	SPPC24100 1	SPPC24150 1	SPPC24150 1F	SPPC24150 1FC
48 VDC	SPPC48100 1	SPPC48150 1	SPPC48150 1F	SPPC48150 1FC





# Switching power supplies

## Compact enclosed switching power supplies

Types	SPPC 200 W	SPPC 240 W	SPPC 320 W	SPPC 480 W
				
Dimensions HxWxD (mm)	199 x 99 x 50	199 x 99 x 50	199 x 99 x 50	218 x 116.5 x 41
<b>Output specifications</b>				
Voltage	5 V, 12 V, 24 V, 48 V	12 V, 24 V	5 V, 12 V, 24 V, 48 V	12 V, 24 V, 36 V, 48 V
Current	40 A, 16.7 A, 8.4 A, 4.2 A	20 A, 10 A	55 A, 25 A, 13 A, 6.7 A	34 A, 22 A, 14 A, 11 A
Line regulation	±0.5%	±0.5%	±0.5%	±0.5%, ±0.5%, ±0.5%, ±0.2%
Load regulation	±1.0%	±1.0%	±1.0%	±1.0%
Efficiency (typ)	79%, 84%, 86%, 87.5%	84%, 86%	79%, 84.5%, 87%, 87.5%	88%, 89%, 90%, 90%
Built-in active PFC	(115 VAC): PF>0.98 (230 VAC): PF>0.96	(115 VAC): PF>0.98 (230 VAC): PF>0.96	(115 VAC): PF>0.98 (230 VAC): PF>0.96	(115 VAC): PF>0.98 (230 VAC): PF>0.96
<b>Input specifications</b>				
Voltage range	85 to 264 VAC 120 to 370 VDC	85 to 264 VAC 120 to 370 VDC	85 to 264 VAC 120 to 370 VDC	90 to 264 VAC 127 to 370 VAC
Frequency range	47 to 63 Hz	47 to 63 Hz	47 to 63 Hz	47 to 63 Hz
<b>General specifications</b>				
Ambient temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-30°C to +70°C
Storage	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
Output short circuit	Long-term, Auto recovery	Long-term, Auto recovery		
Derating (>50°C)	2% / °C	2% / °C	2% / °C	2% / °C
Cooling	Forced air (built-in DC fan controlled by load and internal temperature)	Forced air (built-in DC fan controlled by load and internal temperature)	Forced air (built-in DC fan controlled by load and internal temperature)	Forced air (built-in DC fan controlled by load and internal temperature)
Approvals/Marks	CE - cURus	CE - cURus	CE - cURus	CE - cURus
Installation	Screw terminal	Screw terminal	Screw terminal	Screw terminal
<b>Main features</b>				
Mounting	Horizontal and Vertical (DIN-rail mounting accessories available)	Horizontal and Vertical (DIN-rail mounting accessories available)	Horizontal and Vertical (DIN-rail mounting accessories available)	Horizontal and Vertical (DIN-rail mounting accessories available)
<b>References</b>				
5 VDC	SPPC5200 1FC		SPPC5320 1FC	
12 VDC	SPPC12200 1FC	SPPC12240 1FC	SPPC12320 1FC	SPPC12480 1FC
15 VDC				SPPC24480 1FC
24 VDC	SPPC24200 1FC	SPPC24240 1FC	SPPC24320 1FC	SPPC36480 1FC
48 VDC	SPPC48200 1FC		SPPC48320 1FC	SPPC48480 1FC





# Switching power supplies

## Compact enclosed switching power supplies





Types	SPPC 600 W	SPPC 800 W
		
Dimensions HxWxD (mm)	218 x 116.5 x 41	226 x 116.5 x 41
<b>Output specifications</b>		
Voltage	12 V, 24 V, 36 V, 48 V	24 V, 48 V
Current	(100 to 127 VAC): 34 A, 22 A, 14 A, 11 A (128 to 264 VAC): 42 A, 26.5 A, 17.5 A, 13.6 A	(100 to 127 VAC): 27 A, 14 A (128 to 264 VAC): 33 A, 16.5 A
Line regulation	±0.5%	±0.5%
Load regulation	±1.0%	±1.0%
Efficiency (typ)	88%, 89%, 90%, 90%	88%, 89%
Built-in active PFC	(115 VAC VAC): PF>0.98 (230 VCA): PF>0.96	(115 VAC): PF>0.98 (230 VAC): PF>0.96
<b>Input specifications</b>		
Voltage range	90 to 264 VAC 127 to 370 VAC	90 to 264 VAC 127 to 370 VAC
Frequency range	47 to 63 Hz	47 to 63 Hz
<b>General specifications</b>		
Ambient temperature	-30°C to +70°C	-30°C to +70°C
Storage	-40°C to +85°C	-40°C to +85°C
Output short circuit	Yes	Yes
Derating (>50°C)	2% / °C	2% / °C
Cooling	Forced air (built-in DC fan controlled by load and internal temperature)	Forced air (built-in DC fan controlled by load and internal temperature)
Approvals/Marks	CE - cURus	CE - cURus
Installation	Screw terminal	Screw terminal
<b>Main features</b>		
Mounting	Horizontal and Vertical (DIN-rail mounting accessories available)	Horizontal and Vertical (DIN-rail mounting accessories available)
<b>References</b>		
12 VDC	SPPC12600 1FC	
15 VDC	SPPC24600 1FC	SPPC 24800 1FC
24 VDC	SPPC36600 1FC	
48 VDC	SPPC48600 1FC	SPPC 48800 1FC

# Switching power supplies





## Compact DIN-rail power supplies

Types	SPDM 30W	SPDM 50W	SPDM 75W	SPDM 120W
				
Dimensions HxWxD (mm)	90 x 22.4 x 100	90 x 30 x 100	90 x 40.5 x 100	124 x 45 x 119
<b>Output specifications</b>				
Voltage	12 V, 24 V	12 V, 24 V	12 V, 24 V	24 V
Current	2 A (12 V) 1.25 A (24 V)	4 A (12 V) 2.1 A (24 V)	5.5 A (12 V) 3 A (24 V)	5 A
Line regulation	±1.0%	±1.0%	±1.0%	±0.5%
Load regulation	±1.0%	±1.0%	±1.0%	±1.0%
Efficiency (typ)	85% to 89%	85% to 89%	85% to 89%	88%
<b>Input specifications</b>				
Voltage range	85 to 264 VAC 120 to 375 VDC	85 to 264 VAC 120 to 375 VDC	85 to 264 VAC 120 to 375 VDC	90 to 264 VAC 127 to 375 VDC
Frequency range	47 to 63 Hz	47 to 63 Hz	47 to 63 Hz	47 to 63 Hz
<b>General specifications</b>				
Ambient temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
Storage	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
Output short circuit	Yes	Yes	Yes	Yes
Derating (>50°C)	Refer to datasheet	Refer to datasheet	Refer to datasheet	Refer to datasheet
Cooling	Natural air convection	Natural air convection	Natural air convection	Natural air convection
Approvals/Marks	CE - cURus - UL Class 2	CE - cURus - UL Class 2	CE - cURus - UL Class 2	CE - UR
Installation	DIN-rail	DIN-rail	DIN-rail	DIN-rail
Connection	Screw or Spring terminals	Screw or Spring terminals	Screw or Spring terminals	Screw terminals
<b>Main features</b>				
LED indicator for "DC OK"	Yes	Yes	Yes	Yes
<b>References</b>				
12 VDC	<b>SPDM12301</b>	<b>SPDM12601</b>	<b>SPDM12751</b> (Not UL Class 2)	
24 VDC	<b>SPDM24301</b>	<b>SPDM24601</b>	<b>SPDM24751</b>	<b>SPDM241201</b>

# Switching power supplies, redundancy modules

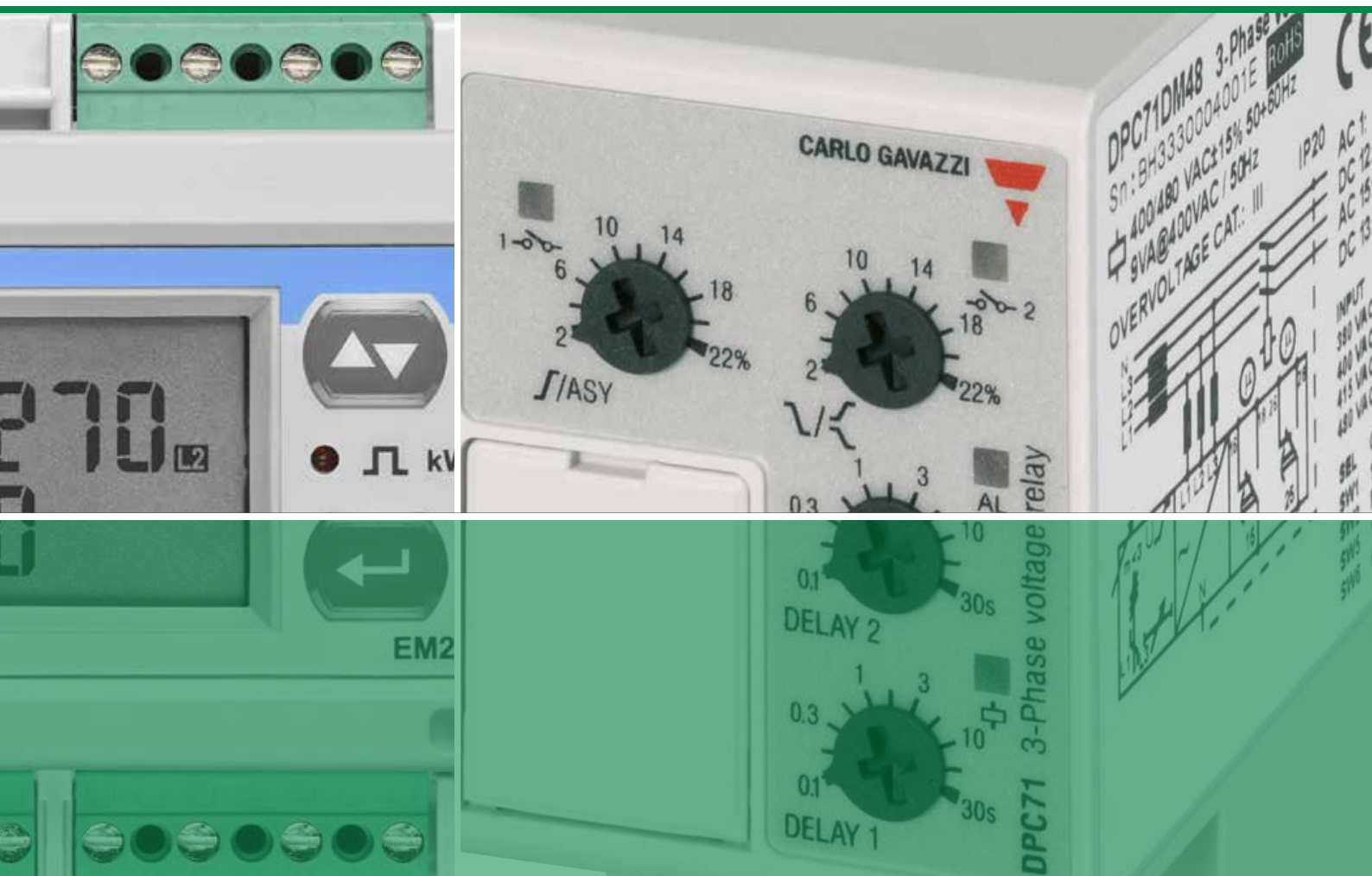
	High Compactness DIN-rail power supplies		Redundancy modules	
Types	SPDC 120 W	SPDC 240 W	SPD Redundancy Module	SPM Redundancy Module
				
Dimensions HxWxD (mm)	124 x 32 x 119	124 x 45 x 119	90 x 54 x 114	91 x 35 x 56
<b>Output specifications</b>				
Voltage	12 V, 24 V	24 V	24 VDC	24 VDC
Current	10 A, 5 A	10 A	20 A	10 A
Line regulation	±0.5%	±0.5%		
Load regulation	±1.0%	±1.0%		
Efficiency (typ)	from 89.5% to 91%	88%		
Built-in active PFC	>0.95	>0.95		
<b>Input specifications</b>				
Rated input voltage	110 VAC - 240 VAC	110 VAC - 240 VAC		
Voltage range	90 to 264 VAC 127 to 370 VDC	90 to 264 VAC 127 to 370 VDC	21 to 28 VDC	21 to 48 VDC
Frequency range	47 to 63 Hz	47 to 63 Hz		
<b>General specifications</b>				
Ambient temperature	-25°C to 70°C	-25°C to 70°C	-40°C to +71°C	
Storage	-40°C to 85°C	-40°C to 85°C	-40°C to +85°C	
Output short circuit	Yes	Yes		
Derating (>50°C)	Refer to datasheet diagram	Refer to datasheet diagram		
Cooling	Free air convection	Free air convection		
Approvals/Marks	CE - cULus	CE - cULus	cULus - TÜV - CE	CE
Installation	DIN-rail	DIN-rail	DIN-rail	DIN-rail
Connection	Screw terminals	Screw terminal	Screw terminals	Screw terminals
<b>Main features</b>				
DC OK Out	SPST relay	SPST relay		
LED indicator for "power on"			Yes - with relay output (SPD24 only)	
Features			2 Relay outputs for remote monitoring	
<b>References</b>				
12 VDC	SPDC121201			
24 VDC	SPDC241201	SPDC242401	SPD24RM20	SPM2RM2410

# Switching power supplies, backup systems

	UPS controller	Switching power supply and UPS	Low profile DIN battery charger	Battery Racks for UPS and chargers
Types	SPUC	SPUBC	SPM5BC	SPUBAT 24V
				
Dimensions HxWxD (mm)	90 x 54 x 114	115 x 65 x 135	91 x 90 x 57	175 x 62 x 120 200 x 82 x 160 210 x 145 x 130 210 x 210 x 210
<b>Output specifications</b>				
Voltage	12 / 24 VDC	24 VDC	12 V / 24 V	24 VDC
Charging voltage	12 V Model: Min. 9.1 VDC ~ 13.75 VDC Max. 24 V Model: Min. 18.7 VDC ~ 28 VDC Max.	27.5 VDC (Std.), 28.8 VDC (Boost)	13.6 VDC / 27.2 VDC	
Power supply Current	30 A	5 A + 5 A with battery charged + 5 A for 4 s	30 W / 60 W	
Charging current max	2.5 A	5 A	1.25 A - 2.5 A 30 W / 2.5 A - 5 A 60 W	120 mA, 320 mA, 720 mA, 1.2 A
Battery Capacity				1.2 / 3.2 / 7.2 / 12 Ah
Battery Type				AGM VRLA
<b>Input specifications</b>				
Rated Voltage input	12 / 24 VDC	115 VAC, 230 VAC, 277 VAC	110 VAC / 240 VAC	24 V
Voltage range	12 V Model: 11 VDC to 14 VDC 24 V Model: 22.5 VDC to 28 VDC	90 to 305 VAC	90 to 264 VAC 120 to 375 VDC	27.5 @ 20°C 26.8 @ 30°C 26.1 @ 40°C VDC End of charge voltage (trickle)
Frequency range		47 to 63 Hz	47 to 63 Hz	
Max Charging Current				0.36 / 0.9 / 2.16 A
<b>General specifications</b>				
Ambient temperature	-40°C to +71°C	-25°C to +70°C	-40°C to +51°C	0°C to +40°C
Storage	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	0°C to +40°C
Derating (+51°C to +70°C)	2.5% /°C	Refer to datasheet diagram	Refer to datasheet diagram	
Cooling	Free air convection	Free air convection	Free air convection	Free air convection
Approvals/Marks	CE - cURus - TÜV	CE - cURus	CE - TÜV	CE
Installation	Screw terminal	Screw terminal	Screw terminal	Screw terminal
<b>Main features</b>				
Mounting	DIN-rail mounting	DIN-rail mounting	Horizontal and Vertical (DIN-rail mounting accessories available)	Wall / DIN-rail mounting
Battery diagnosys	No	Yes	No	
DC OK Out	Yes	Yes	No	
Battery OK Out	Yes	Yes	No	
Mains / Backup Out	Yes	Yes	Yes	
<b>References</b>				
12 V 30 A max	<b>SPUC12360</b>			
24 V 30 A max	<b>SPUC24720</b>			
PS + UPS 24V 120W		<b>SPUBC24120</b>		
12V 30W			<b>SPM5BC 1230</b>	
24V 30W			<b>SPM5BC 2430</b>	
12V 60W			<b>SPM5BC 1260</b>	
24V 60W			<b>SPM5BC 2460</b>	
24 V 1.2 Ah Battery				<b>SPUBAT241A2</b>
24 V 3.2 Ah Battery				<b>SPUBAT243A2</b>
24 V 7.2 Ah Battery				<b>SPUBAT247A2</b>
24 V 12 Ah Battery				<b>SPUBAT2412A</b>



# Controls






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# Digital panel meters

## Ammeters, voltmeters and frequency meters

Types	DI3 DIN	DI3 72	LDI 3
			
Dimensions HxWxD (mm)	89 x 52.5 x 58.5	72 x 72 x 75.5	48 x 96 x 83
Function	3-digit meter. 1-phase AC, DC. Voltmeter, ammeter frequency meter	Microprocessor based indicator. AC / DC Ammeter, Voltmeter. Freq. meter 3-digit display red LED. Height: 14.2 mm	Microprocessor based indicator. AC / DC Ammeter, Voltmeter. Freq. meter 3-digit display
<b>Input specifications</b>			
Range code	1 A / 100 VAC [AV1] 5 A / 500 VAC [AV5] 1 A / 60 mV / 100 V / 500 VDC [AV6] 1 Hz to 1000 Hz [F1K]	[AV1]: 1 AAC / 100 VAC [AV5]: 5 AAC / 500 VAC [AV6]: 1 ADC / 60 mV / 100 V / 500 VDC	[AV1]: 1 AAC / 100 VAC [AV5]: 5 AAC / 500 VAC [AV6]: 1 ADC / 60 mV / 100 V / 500 VDC [F1K]: 1 to 1000 Hz
Accuracy	0.5% FS (0.1% FS frequency meter)	±0.5% FS	±0.5% FS (±0.3% FS frequency meter)
Indication	Max.	999 [AV1 / AV5], 000 [AV1 / AV5]"	999
	Min.	000 [AV1 / AV5] -99 [AV6]	000 [AV1 / AV5] -99 [AV6]
Range selection / decimal point pos.	Selectable by DIP-switch	Selectable by DIP-switch	Selectable by DIP-switch
Display refresh time	1 time/s	1 time/s	1 time/s
<b>General specifications</b>			
Power supply	24 VAC [A] 48 VAC [B] 115 VAC [C] 230 VAC [D]	24 VAC [A], 48 VAC [B], 115 VAC [C], 230 VAC [D]	24 VAC [A], 48 VAC [B], 115 VAC [C], 230 VAC [D]
Option		IP65[EX]	IP65[IX], tropicalization [XT]
Safety Standards	EN 61010-1, IEC 61010-1, VDE0411	EN 61010-1, IEC 61010-1, VDE0411	EN 61010-1, IEC 61010-1, VDE0411
Approvals/Marks	CE - CSA	CE - CSA	CE - c CSA us
<b>References</b>			
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>			



# Digital panel meters

	Ammeters and voltmeters		Thermometer and ohmmeter
Types	LDI 35 AV0	LDI 35 AV2	LDI 35 CF
			
Dimensions HxWxD (mm)	48 x 96 x 83	48 x 96 x 83	48 x 96 x 83
Function	Microprocessor based indicator/controller, AC / DC ammeter, voltmeter, 3½-digit or 3-digit + dummy zero display	Microprocessor based indicator/controller, AC / DC ammeter, voltmeter, 3½-digit or 3-digit + dummy zero display	Microprocessor based indicator/controller, Temperature resistance Measur. in C° or F° 3½-digit or 3-digit + dummy zero display
<b>Input specifications</b>			
Range code	Current: 2 mA DC, 20 mA DC Voltage: 200 mV DC, 20 VDC, 200 VDC [AV0]	Current: 2 AAC/DC, 5 AAC/DC Voltage: 200 VAC/DC, 500 VAC/DC [AV2]	Pt100, Ni100 [CFX]; Pt1000 [CFP]; TC-J-LK-S-T [CFX/CFP]; 200.0Ω [CFX]; 2000Ω [CFP]
Accuracy	±0.3% FS	DC: ±0.3% FS, AC: ±0.5% FS	TC, PT100/1000, resistance ±0.3% FS Ni 100 ±0.5% FS
Indication	Max. 3½-dgt: 1999, 3+0-dgt: 9990 Min. 3½-dgt: -1999, 3+0-dgt: -1990	3½-dgt: 1999, 3+0-dgt: 9990 3½-dgt: -1999 (DC), 0 (AC), 3+0-dgt: -1990 (DC), 0 (AC)	Depending on range and type of the temperature probe
Resistance			0 to 200 Ω (2000 Ω)
Range election / decimal point pos.	Programmable	Programmable	Programmable
Display refresh time	4 times/s	4 times/s	4 times/s
<b>Functions</b>			
	Password protection. Scaling factor. Diagnostics. Digital filter programm. Max. data hold.	Password protection. Scaling factor. Diagnostics. Digital filter programm. Max. data hold.	Password protection. Scaling factor. Diagnostics. Digital filter programm. Max. data hold.
<b>Output specifications</b>			
Setpoints	1 optional alarm [1] 5 A / 250 VAC / DC Excit. output 40 mA / 15 VDC [AX]	1 optional alarm [1] 5 A / 250 VAC / DC Excit. output 40 mA / 15 VDC [AX]	1 optional alarm [1] 5 A / 250 VAC / DC Excit. output 40 mA / 15 VDC [AX]
<b>General specifications</b>			
Power supply	120 [E], 230 [D], 240 [F], 24 [A], 48 [B], 115 [C] VAC, 9 - 32 [3] VDC, 40 - 150 [6] VDC	120 [E], 230 [D], 240 [F], 24 [A], 48 [B], 115 [C] VAC, 9 - 32 [3] VDC, 40-150 [6] VDC	120 [E], 230 [D], 240 [F], 24 [A], 48 [B], 115 [C] VAC, 9 - 32 [3] VDC, 40-150 [6] VDC
Option	IP65[IX], excit. out [AX], tropicalization [XT]	IP65[IX], excit. out [AX], tropicalization [XT]	IP65[IX], excit. out [AX], tropicalization [XT]
Safety Standards	EN 61010-1, IEC 61010-1, VDE0411	EN 61010-1, IEC 61010-1, VDE0411	EN 61010-1, IEC 61010-1, VDE0411
Approvals/Marks	CE - c CSA us	CE - c CSA us	CE - c CSA us
<b>References</b>			
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>			

# Digital panel meters

## Ammeters and voltmeters

### Types

#### LDM 30

#### LDM 35 H

#### LDM 40



Dimensions HxWxD (mm)

48 x 96 x 83

48 x 96 x 83

48 x 96 x 83

Function

3-digit + dummy 0  $\mu$ P-based indicator, red LED display

3 1/2-digit  $\mu$ P-based indicator and controller, 3 1/2-DGT or 3-DGT + dummy 0 red LED display

4-digit  $\mu$ P-based indicator and controller

### Input specifications

Range code

1A / 100 VAC [AV1];  
5A / 500 VAC [AV5]

(0.2-2-20 mA, 0.2-2-20 V) [LSE];  
(0.2- 2-5 A, 20-200-500 V) [HSX];  
DC and AC TRMS

(0.2-2-20 mA, 0.2-2-20 V) [LSE];  
(0.2- 2-5 A, 20-200-500 V) [HSX];  
DC and AC TRMS

Accuracy

$\pm 0.5\%$ FS,  $\pm 1$ DGT

DC:  $\pm(0.3\%$ RDG + 3DGT)  
AC:  $\pm(0.5\%$ RDG + 3DGT)

DC:  $\pm(0.1\%$ RDG + 2DGT)  
AC:  $\pm(0.3\%$ RDG + 2DGT)

Indication

Max.

9990

9999

Min.

000

0 (AC) -9999 (DC)  
4-digit LED red

Range selection / decimal point pos.

Selectable by dipswitch

Programmable

Programmable

Display refresh time

2 times/s

5 times/s

5 times/s

### Functions

Signal / display scaling.  
Digital filter. Peak and valley.

Signal / display scaling.  
Digital filter. Peak and valley.

### Output specifications

Up to 2 Alarm relay, [1-2]

Up to 2 Alarm relay, [1-2],  
Analogue 0 to 20 mA,  
0 to 10 V [AV],  
RS485

### General specifications

Power supply

24 / 48 VAC [B],  
115 / 230 VAC [D]

90 to 260 VAC / DC [H],  
18 to 60 VAC / DC [L]

90 to 260 VAC / DC [H],  
18 to 60 VAC / DC [L]

Option

Tropicalization [XT],  
IP 65 [IX]

Tropicalization [TX]

Tropicalization [T]

Safety Standards

EN61010-1  
IEC61010-1

EN61010-1  
IEC61010-1

EN61010-1  
IEC61010-1

Approvals/Marks

CE - c UR us - c CSA us

CE - c UR us - c CSA us




CE - c UR us - c CSA us

### References





For ordering key details, please refer to [www.gavazziautomation.com](http://www.gavazziautomation.com)

# Digital panel meters





## Modular meter and conditioner

Types	UDM 35	UDM40/USC	UDM 60
			
Dimensions HxWxD (mm)	48 x 96 x 105	44 x 113 x 107 (USC) 48 x 96 x 105 (UDM40)	48 x 96 x 105
Function	MODULAR Microprocessor-based indicator / controller AC/DC Ammeter / Voltmeter / Resistance / temperature measurement	MODULAR Microprocessor-based indicator / controller AC/DC Ammeter / Voltmeter / Resistance / temperature measurement	MODULAR 6-DGT $\mu$ P-based controller
<b>Input specifications</b>			
Range code	0.2-2-20 mA DC/AC 0.2-2-20 VDC/AC [LSX] + AUX 13 VDC [LSE] or 25 VDC [LSF]; 0.2-2-5 A DC/AC; 20-200-500 V DC/AC [HSX]; TC: J-K-S-T-E, Pt100-250-500- 1000 [TRX]; 0.02-0.2-2-20 k $\Omega$ [TRX] 0.001 Hz to 50 Hz for DC signal [TF1] 0.001 Hz to 50 Hz for AC signal [TF2]	0.2-2-20 mA DC/AC 0.2-2-20 VDC/AC [LSX] + AUX 13 VDC [LSE] or 25 VDC [LSF]; 0.2-2-5 A DC/AC; 20-200-500 VDC/AC [HSX]; TC: J-K-S-T-E, Pt100-250-500- 1000 [TRX]; 0.02-0.2-2-20 k $\Omega$ [TRX] 0.001 Hz to 50 Hz for DC signal [TF1] 0.001 Hz to 50 Hz for AC signal [TF2]	Speed, frequency, rate, period, totalizer 0.001 Hz to 50 Hz for DC signal [TF1] 0.001 Hz to 50 Hz for AC signal [TF2]
Accuracy	0.1% RDG	0.1% RDG	$\pm(0.001\%RDG + 3DGT)$
Indication	Max. 1999 Min. 0 (AC) -1999 (DC), 3 1/2-DGT LED red	9999 0 (AC) -9999 (DC), 4-DGT LED. Colours: red, green, orange	9 999 999 0 6-DGT, LCD backlighted display
Range election / decimal	Programmable	Programmable	Programmable
Display refresh time	5 times/s	5 times/s	
<b>Functions</b>			
	Password protection. Scaling factor. Min Max data storage. Programmable digital filter Analog signal re-transmission Range selection. Programmable via PC.	Password protection. Scaling factor. Min Max data storage. 16 linearization points. Programmable digital filter. Analog signal re-transmission Range selection. Programmable via PC.	Signal/display scaling. Analogue output scaling. Digital filter. Peak and valley. Linearization. Combination of the inputs according to predefined functions. Pulse metering and totalizing.
<b>Output specifications</b>			
Setpoints	Analogue 0 to 20 mA, 0 to 10 V [AV] Serial RS485 [SX], Serial RS232 [SY], Single relay output [R1], Dual relay output [R2], Dual relay + dual open coll. output [R4], Four relay output [R5]	Analogue 0 to 20 mA, 0 to 10 V [AV] Serial RS485 [SX], Serial RS232 [SY], Single relay output [R1], Dual relay output [R2], Dual relay + dual open coll. output [R4], Four relay output [R5]	Analogue 0 to 20 mA, 0 to 10 V [AV] Serial RS485 [SX], Serial RS232 [SY], Single relay output [R1], Dual relay output [R2], Dual relay + dual open coll. output [R4], Four relay output [R5]
<b>General specifications</b>			
Power supply	90 to 260 AC/DC [H], 18 to 60 VAC/DC [L] 10 to 28 VDC [3]	90 to 260 AC/DC [H], 18 to 60 VAC/DC [L] 10 to 28 VDC [3]	90 to 260 AC/DC [H], 18 to 60 VAC/DC [L] 10 to 28 VDC [3]
Option	Tropicalization [TX]	Tropicalization [TX]	Tropicalization [TX]
Safety Standards	EN 61010-1, IEC 61010-1	EN 61010-1, IEC 61010-1	EN 61010-1, IEC 61010-1
Approvals/Marks	CE - c UR us - c CSA us	CE - c UR us - c CSA us	CE - c UR us - c CSA us
<b>References</b>			
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>			

# Energy analyzers

	Energy meters/ analyzers	Energy meters	Energy analyzers	
Types	EM10 DIN/ EM11 DIN	EM110	EM111	EM112
				
Dimensions HxWxD (mm)	90 x 18 x 67	90 x 18 x 63	90 x 18 x 63	90 x 36 x 63
Description	1-phase energy meter analyzer 1-DIN module	1-phase kWh meter 1-DIN module	1-phase energy analyzer with Touch Tech technology 1-DIN module	1-phase energy analyzer with Touch Tech technology 2-DIN modules
Function	kWh TRMS method [EM10] V, A, Hz, W, W <sub>dmd</sub> , var, PF, kWh, kvarh TRMS method [EM11]	kWh	VLN, A, Hz, ±W, W <sub>dmd</sub> , W <sub>dmd</sub> <sub>max</sub> , ±var, PF, ±kWh, ±kvarh, kWh+ by tariff (2) TRMS method	VLN, A, Hz, ±W, W <sub>dmd</sub> , W <sub>dmd</sub> <sub>max</sub> , ±var, PF, ±kWh, ±kvarh, kWh+ by tariff (2) TRMS method
<b>Input specifications</b>				
Range code	120 VAC [AV7] 230 VAC [AV8] Ib: 5 A, I <sub>max</sub> : 32 AAC	120 VAC [AV7] 230 VAC [AV8] Ib: 5 A, I <sub>max</sub> : 45 AAC; 1-phase	120 VAC [AV7] 230 VAC [AV8] Ib: 5 A, I <sub>max</sub> : 45 AAC; 1-phase	120 VAC [AV1] 230 VAC [AV0] Ib: 5 A, I <sub>max</sub> : 100 AAC; 1-phase
Accuracy	±0.5% RDG (V, A) [EM11]	n.a.	±0.5% RDG (V, A)	±0.5% RDG (V, A)
Active energy	Class 1 (EN62053-21) Class B (EN50470-3)	Class 1 (EN62053-21) Class B (EN50470-3)	Class 1 (EN62053-21) Class B (EN50470-3)	Class 1 (EN62053-21) Class B (EN50470-3)
Reactive energy	Class 2 (EN62053-23) [EM11]	n.a.	Class 2 (EN62053-23)	Class 2 (EN62053-23)
Display	LCD 4 DGT (inst. variables) 4+2, 5+1, 6 DGT (energies)	Electromechanical 6+1 DGT (energy)	Backlit LCD with touch keypad 4 DGT (inst. variables) 5+2, 6+1, 7 DGT (energies)	Backlit LCD with touch keypad and supercapacitor backup (up to 48h) up to 2 x 4 DGT (inst. variables) 6+2, 7+1, 8 DGT (energies)
<b>Output specifications</b>				
Pulse output	1-open collector	1-open collector [O1]	1-open collector [O1]	1-open collector [O1]
Alarm output	1-relay [EM11]			
Communication			Modbus RTU [S1] M-bus [M1]	Modbus RTU [S1] M-bus [M1]
Inputs			1 (dual tariff management)	1 (dual tariff management)
<b>General specifications</b>				
Power supply	Self power supply [X]	Self power supply [X]	Self power supply [X]	Self power supply [X]
Approvals/Marks	CE - cULus - MID [AV8]	CE - MID - cULus [AV7 only]	CE - MID - cULus [AV7 only]	CE - MID - cULus [AV1 only]
<b>References</b>				
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>				

# Energy analyzers

Energy analyzers				
Types	EM330	EM340	EM24 DIN	EM26 96
				
Dimensions HxWxD (mm)	90 x 54 x 63	90 x 54 x 63	90 x 72 x 67	96 x 96 x 61
Description	3-phase energy analyzer with Touch Tech technology and wrong connection detection 3-DIN modules	3-phase energy analyzer with Touch Tech technology and wrong connection detection 3-DIN modules	3-phase energy analyzer 4 DIN modules	3-phase power analyzer 96 x 96 panel mounting
Function	System: $\pm$ kWh, $\pm$ kvarh, kWh+ by tariff (2), $V_{LN}$ , $V_{LL}$ , PF, Hz, $\pm$ W, $W_{dmd}$ , $W_{dmd\ max}$ , $\pm$ var, VA, h Single-phase: kWh, $V_{LN}$ , $V_{LL}$ , A, PF, W, var, VA TRMS method	System: $\pm$ kWh, $\pm$ kvarh, kWh+ by tariff (2), $V_{LN}$ , $V_{LL}$ , PF, Hz, $\pm$ W, $W_{dmd}$ , $W_{dmd\ max}$ , $\pm$ var, VA Single-phase: kWh, $V_{LN}$ , $V_{LL}$ , A, PF, W, var, VA TRMS method	System: $\pm$ kWh, $\pm$ kvarh, $V_{LN}$ , var, VA, $W_{dmd}$ , W, $V_{Admd}$ , Hz, hour counter, gas and water Max: $A_{dmd}$ , $W_{dmd}$ , $V_{Admd}$ Single-phase: $V_{LL}$ , $V_{LN}$ , A, W, var, VA, PF, kWh, kvarh TRMS method	System: $\pm$ kWh, $\pm$ kvarh, $V_{LN}$ , var, VA, W, $W_{dmd}$ , $V_{Admd}$ , VA, PF, Hz, THD, hour counter, gas and water Max: $A_{dmd}$ , $W_{dmd}$ , $V_{Admd}$ Single-phase: $V_{LL}$ , $V_{LN}$ , A, W, var, VA, PF, $A_{dmd}$ , kWh, kvarh TRMS method
Input specifications				
Range code	3-phase 400-480 $V_{LL}$ AC [AV5] 3-phase 208-240 $V_{LL}$ AC [AV6] Ib: 5 A, I <sub>max</sub> : 6 AAC; 3-phase	3-phase 208-400 $V_{LL}$ ac [AV2] Ib: 5 A, I <sub>max</sub> : 65 AAC; 3-phase	120 / 208 $V_{LL}$ [AV6]; 400 $V_{LL}$ [AV5] In: 1 / 5 A, I <sub>max</sub> : 10 AAC [AV5 and AV6]; 208/400 $V_{LL}$ [AV2] Ib: 10A, I <sub>max</sub> : 65AAC [AV2]	120 / 208 $V_{LL}$ AC [AV6], 400 / 660 $V_{LL}$ AC [AV5], In: 1 / 5A, I <sub>max</sub> : 10 Aca
Accuracy	$\pm$ 0.5% RDG (V, A)	$\pm$ 0.5% RDG (V, A)	$\pm$ 0.5% RDG (V, A)	$\pm$ 0.5% RDG (V, A)
Active energy	Class 1 (EN62053-21) Class B (EN50470-3)	Class 1 (EN62053-21) Class B (EN50470-3)	Class 1 (EN62053-21) Class B (EN50470-3)	Class 1 (EN62053-21) Class B (EN50470-3)
Reactive energy	Class 2 (EN62053-23)	Class 2 (EN62053-23)	Class 2 (EN62053-23)	Classe 2 (EN62053-23)
Display	Backlit LCD with touch keypad 3x 4 DGT (inst. variables) 3x 6+2, 7+1, 8 DGT (energies)	Backlit LCD with touch keypad 3x 4 DGT (inst. variables) 3x 6+2, 7+1, 8 DGT (energies)	LCD 3x 4 DGT (inst. variables) 6+2, 7+1, 8 DGT (energies)	LCD backlight 3x 4 DGT (inst. variables) 6+2, 7+1, 8 DGT (energies)
Output specifications				
Pulse output	1-open collector [O1]	1-open collector [O1]	2-open collector [O2]; Relay [R2]	3-open collector [O3]; Relay [R2]
Alarm output			2-open collector [O2]; Relay [R2]	2-relay [R2]; Open collector [O3]
Communication	Modbus RTU [S1] M-bus [MT]	Modbus RTU [S1] M-bus [MT]	Modbus RTU [IS] M-BUS [MX] Dupline [DP]	RS485 (2-wire) [S1] M-BUS by means of VMU-B
Inputs	1 (dual tariff management)	1 (dual tariff management)	3 digital input [IS]	3 digital inputs [I3]
General specifications				
Power supply	90 to 260 VAC/DC [H]	Self power supply [X]	Self power supply [X]. Auxiliary power supply: 18 to 60 VAC/DC [L], 115 / 230 VAC [D], according to the model [AV5, AV6]	90 to 260 VAC/DC [H]
Approvals/Marks	CE	CE - MID	CE - cULus [AV5 and AV6] - MID [X..PE.]	CE - cULus - MID
References				
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>				

# Energy analyzers

	Energy transducers		Compact transducers	
Types	ET112	ET340	CPT DIN	CPT DIN Advanced
				

Dimensions HxWxD (mm)	90 x 36 x 63	90 x 54 x 63	83.5 x 45 x 98.5	83.5 x 45 x 98.5
Description	1-phase energy transducer 2-DIN modules	3-phase energy transducer with wrong connection detection 3-DIN modules	3-phase compact power transducer	3-phase compact power transducer
Function	$V_{LN}$ , A, Hz, $\pm W$ , $W_{dmd}$ , $W_{dmd}$ max, $\pm var$ , PF, $\pm kWh$ , $\pm kvarh$ , $kWh+$ by tariff (2) TRMS method	System: $\pm kWh$ , $\pm kvarh$ , $kWh+$ by tariff (2), $V_{LN}$ , $V_{LL}$ , PF, Hz, $\pm W$ , $W_{dmd}$ , $W_{dmd}$ max, $\pm var$ , VA Single-phase: $kWh$ , $V_{LN}$ , $V_{LL}$ , A, PF, W, var, VA, THD TRMS method	4-digit data format instantaneous variable, 8+1-digit format energy variables, 5+2-digit data format hours TRMS method System: $kWh$ , $kvarh$ , $V_{LL}$ , An, PF, W, var, VA, $W_{dmd}$ , $V_{Admd}$ , Hz, hour meter Max: $W_{dmd}$ Single-phase: $V_{LL}$ , $V_{LN}$ , A, $A_{dmd}$ , PF, W, var, VA	4-digit data format instantaneous variable, 8+1-digit format energies, 5+2-digit format hours TRMS method System: $kWh$ , $kvarh$ , $V_{LL}$ , $V_{LN}$ , An, PF, W, var, VA, $W_{dmd}$ , $V_{Admd}$ , Hz, hour meter Max: $W_{dmd}$ , $V_{Admd}$ Single-phase: $V_{LL}$ , $V_{LN}$ , A, $A_{dmd}$ , PF, W, var, VA, THD, (A, V) Max: $V_{LN}$ , A, $A_{dmd}$ , W Min: $V_{LN}$ , A, PF

## Input specifications

Range code	120 VAC [AV1] 230 VAC [AV0] Ib: 5 A, I <sub>max</sub> : 100 AAC; 1-phase	3-phase 208-400 $V_{LL}$ AC [AV2] Ib: 5 A, I <sub>max</sub> : 65 AAC; 3-phase	120 / 208 VAC [AV6], 400 / 690 VAC [AV5], 1 AAC and 5 AAC	120 / 208 VAC [AV6], 400 / 690 VAC [AV5], 1 AAC and 5 AAC
Accuracy	$\pm 0.5\%$ RDG (V, A)	$\pm 0.5\%$ RDG (V, A)	$\pm 0.5\%$ RDG (A, V)	$\pm 0.5\%$ RDG (A, V)
Active energy	Class 1 (EN62053-21)	Class 1 (EN62053-21)	kWh: Class 1 (EN62053-21)	kWh: Class 1 (EN62053-21)
Reactive energy	Class 2 (EN62053-23)	Class 2 (EN62053-23)	kvarh: Class 2 (EN62053-23)	kvarh: Class 2 (EN62053-23)

## Output specifications

Pulse output				2 (open collector) [O2]
Alarm output				2 (relays) with PLC-type control function on 16 variables (AND / OR) [R2]
Analogue output				Up to 3: 20 mA [A1-3], 10 VDC [V1-3]
Communication	Modbus RTU [S1]	Modbus RTU [S1]	RS422/485 [S1], RS232 [S2]	RS422/485 [S1], RS232 [S2]
Inputs	1 (dual tariff management)	1 (dual tariff management)		




## General specifications

Power supply	Self power supply [X]	Self power supply [X]	18 to 60 VAC/DC [L], 90 to 260 VAC/DC [H]	18 to 60 VAC/DC [L], 90 to 260 VAC/DC [H]
Approvals/Marks	CE	CE	CE - cURus - CSA	CE - cURus - CSA




## References

For ordering key details, please refer to [www.gavazziautomation.com](http://www.gavazziautomation.com)

# Energy analyzers





	Energy meters		Energy analyzers	
Types	EM21 72R		EM210 AV	
			EM210 MV	
				
				
Dimensions HxWxD (mm)	72 x 72 x 65		72 x 72 x 65	
Description	3-phase energy meter 4-DIN modules and 72 x 72 panel mounting		3-phase energy analyzer 4-DIN modules and 72 x 72 panel mounting	
Function	System: kWh, kvarh, W, var, PF, Hz, Phase sequence Single-phase: V <sub>LN</sub> , V <sub>LL</sub> , A, PF TRMS method		System: ±kWh, kvarh, W, var, PF, An and h-meter (only [X]), Phase-sequence Single-phase: V <sub>LN</sub> , V <sub>LL</sub> , A, PF, THD (V, A, up to 15th H. THD only [X]) TRMS method	
<b>Input specifications</b>				
Range code	120 / 230 VAC, 400 VAC 3-phase current input by included current sensors (three ranges available: 90 A - 150 A - 250 A)		120 / 230 VAC, 400 VAC In: 5 A; I <sub>max</sub> : 6 A (current connection by CT)	
Accuracy	±0.5% RDG (V) ±1% RDG (A)		±0.5% RDG (V, A)	
Active energy	Class 2 (EN62053-21)		Class 1 (EN62053-21) Class B (EN50470-3)	
Reactive energy			Class 2 (EN62053-23)	
Display	LCD 3 DGT (inst. variables) 6+1, 7 DGT (energies)		LCD 3 DGT (inst. variables) 5+2, 6+1, 7 DGT (energies)	
<b>Output specifications</b>				
Pulse output	1 static opto-mosfet		1 static opto-mosfet	
Communication	RS485 (2-wire, Modbus) M-BUS by means of VMU-B		RS485 (2-wire, Modbus)	
<b>General specifications</b>				
Power supply	Self power supply		Self power supply [X] Universal power supply 90-260 VAC/DC [H] (MID version)	
Approvals/Marks	CE - cULus		CE - cULus - MID [PF]	
<b>References</b>				
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>				

# Quick-fit energy meters




	Quick-fit dual energy meters	3-phase current transformers	Panel adapter for energy meters
Types	EM270	TCD X	EM200-96 Adapter
			
Dimensions HxWxD (mm)	72 x 72 x 65	TCD1X: 72 x 75 x 66.8 TCD2X: 72 x 105 x 50 TCD3X: 78 x 135 x 50	96 x 96 x 41.4
Description	3-phase energy meter 4-DIN modules and 72 x 72 panel mounting	3-phase current transformers for EM270 quick fit meter. Connection to the meter by means of RJ11 connector (included).	Adapter frame from 72 x 72 mm to 96 x 96 mm panel mounting. Installation by fixing brackets included in the meter.
Function	System: kWh, kvarh, kW, kvar Single-phase: kWh, W, W <sub>dmd</sub> , W <sub>dmd max</sub> , A, V <sub>LL</sub> , V <sub>LN</sub> Virtual sum of the two 3-phase or six 1-phase loads TRMS method	Suitable to be installed downstream the circuit breakers (same width). Automatic setting of the CT ratio in the meter	Suitable for EM210, EM270, EM271, EM280, EM21-72D, EM21-72R, EM21-72V
<b>Input specifications</b>			
Range	120 / 230 VAC, 400 VAC In: from 160 to 630 A by TCD X	TCD1X: 160 A TCD2X: 250 A TCD3X: 630 A	
Accuracy	±0.5% RDG (V, A)	Equivalent to Class 0.5 (IEC61869-2)	
Active energy	Equivalent to Class 1 (EN62053-21)		
Reactive energy	Equivalent to Class 2 (EN62053-23)		
Display	LCD 3 DGT (inst. variables) 6+1, 7 DGT (energies)		
<b>Output specifications</b>			
Pulse output	2 static opto-mosfet		
Communication	RS485 (2-wire, Modbus) M-BUS by means of VMU-BM2...B		
<b>General specifications</b>			
Power supply	Self power supply	n.a.	
Approvals/Marks	CE - cULus	CE - cULus (with EM 270)	CE
<b>References</b>			
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>			






# Quick-fit energy meters

	Quick-fit dual energy meters	3-phase current transformers	Quick-fit 6-channel energy meters	6-channel current transformer blocks
Types	EM271	TCD M	EM280	TCD06B
				
Dimensions HxWxD (mm)	72 x 72 x 65	TCD0M: 3 by 26 x 40 x 26, hole 9.6 TCD1M: 3 by 31 x 46 x 31, hole 15.7 TCD2M: 3 by 41 x 66 x 38, hole 15.5 TCD3M: 3 by 50 x 78 x 39, hole 20.5	72 x 72 x 65	TCD06BX (solid core): 118 x 53 x 34, hole 7.0, hole centre distance 17.5  TCD06BS (split core): 118 x 45 x 59, hole 8.5, hole centre distance 17.5
Description	Quick-fit energy meter with daisy chaining of voltage and serial connections and fast RJ connection of TCD M 3-phase split-core current sensors, for retrofit applications. Managing of two 3-phase or six 1-phase loads. 4-DIN modules and 72 x 72 panel mounting	TCD M: 3-phase split core current sensors for EM271 quick-fit meter. Connection to the meter by means of RJ11 connector (included). TCDMM: adaptor for 3 CT by 333 mV up to 10000 A	Quick-fit energy meter with daisy chaining of voltage and serial connections and fast RJ connection of TCD06B 6-channel current transformer block. Managing of two 3-phase or six 1-phase loads. 4-DIN modules and 72 x 72 panel mounting	6-channel current transformer blocks with hole centre distance 17.5 mm (same of miniature circuit breakers) for EM280 quick-fit meter. Connection to the meter by means of RJ11 connector (included)
Function	System: kWh, kvarh, kW, kvar Single-phase: kWh, W, W <sub>dmd</sub> , W <sub>dmd max</sub> , A, V <sub>LL</sub> , V <sub>LN</sub> Virtual sum of the two 3-phase or six 1-phase loads TRMS method	Suitable to be installed in any existing installation. Automatic setting of the CT ratio in the meter	System: kWh, kvarh, kW, kvar Single-phase: kWh, W, W <sub>dmd</sub> , W <sub>dmd max</sub> , A, V <sub>LL</sub> , V <sub>LN</sub> Virtual sum of the two 3-phase or six 1-phase loads TRMS method	Suitable to be installed in any new and existing installation. Automatic setting of the CT ratio in the meter
<b>Input specifications</b>				
Range	120 / 230 VAC, 400 VAC In: from 60 to 400 A by TCD M	TCD0M: 60 A TCD1M: 100 A TCD2M: 200 A TCD3M: 400 A TCDMM: suitable to be connected to standard CT up to 10 kA	120 / 230 VAC, 400 VAC In: 32 A by TCD06BX and TCD06BS	TCD06B: 32 A
Accuracy	±0.5% RDG (V, A)	Equivalent to Class 1 (IEC61869-2)	±0.5% RDG (V, A)	Equivalent to Class 0.5 (IEC61869-2)
Active energy	Equivalent to Class 1 (EN62053-21)		Equivalent to Class 1 (EN62053-21)	
Reactive energy	Equivalent to Class 2 (EN62053-23)		Equivalent to Class 2 (EN62053-23)	
Display	LCD 3 DGT (inst. variables) 6+1, 7 DGT (energies)		LCD 3 DGT (inst. variables) 6+1, 7 DGT (energies)	
<b>Output specifications</b>				
Pulse output	2 static opto-mosfet		2 static opto-mosfet	
Communication	RS485 (2-wire, Modbus)		RS485 (2-wire, Modbus)	
<b>General specifications</b>				
Power supply	Self power supply		Self power supply	
Approvals/Marks	CE - cULus	CE - cULus (with EM271)	CE - cULus	CE - cULus (with EM280)
<b>References</b>				
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>				




# Power analyzers

	Self-addressing Quick-fit energy transducers	Multifunction meters	Power analyzers
Types	ET272	WM12	WM14 Basic/Profibus/Advanced
			
Dimensions HxWxD (mm)	72 x 72 x 65	96 x 96 x 46 [96] or 90 x 108 x 64.5 [DIN]	96 x 96 x 46 [96] or 90 x 108 x 64.5 [DIN]
Description	Self-addressing quick-fit energy transducer with fast RJ connection of TCD M 3-phase split-core current sensors, for retrofit or new applications. Managing of two 3-phase or six 1-phase loads. 4-DIN modules mounting	3-phase multifunction meter 96 x 96 panel mounting [96] or 6-DIN modules [DIN]	3-phase power analyzer 96 x 96 panel mounting [96] or 6-DIN modules [DIN]
Function	Innovative self-addressing Modbus function (it requires VMU-C EM) System: kWh, kvarh, kW, kvar Single-phase: kWh, W, W <sub>dmd</sub> , W <sub>dmd</sub> max, A, V <sub>LL</sub> , V <sub>LN</sub> Virtual sum of the two 3-phase or six 1-phase loads TRMS method	System: V <sub>LL</sub> , V <sub>LN</sub> , A, An, VA, VA <sub>dmd</sub> , W, W <sub>dmd</sub> , var, PF, Hz Max: A, W <sub>dmd</sub> Single-phase: V <sub>LL</sub> , V <sub>LN</sub> , A, VA, W, var, PF	System: kWh, kvarh, V <sub>LL</sub> , V <sub>LN</sub> , An, PF, W, var, VA, W <sub>dmd</sub> , VA <sub>dmd</sub> , Hz, hour meter Max: A, A <sub>dmd</sub> , W <sub>dmd</sub> Single-phase: V <sub>LL</sub> , V <sub>LN</sub> , A, A <sub>dmd</sub> , PF, W, var, VA, THD (AX) Max: V <sub>LN</sub> , A, A <sub>dmd</sub> , W (AX) Min: V <sub>LN</sub> , A, PF (AX)
<b>Input specifications</b>			
Range code	230 VAC, 400 VAC In: from 60 to 400 A by TCD M up to 10000 A by TCDMM	400 / 660 V <sub>LL</sub> AC 5(6) AAC [AV5], 100 / 208 V <sub>LL</sub> AC 5(6) AAC [AV6] (current connection by CT)	400 / 660 V <sub>LL</sub> AC 5(6) AAC [AV5], 100 / 208 V <sub>LL</sub> AC 5(6) AAC [AV6] (current connection by CT)
Accuracy	±0.5% RDG (V, A)		
Active energy	Equivalent to Class 1 (EN62053-21)		Class 1
Reactive energy	Equivalent to Class 2 (EN62053-23)		Class 2
Display	LED 3x 3 DGT		LED 3x 3-DGT 8+1 DGT (energies)
<b>Output specifications</b>			
Pulse output			2 open collector [O2AX]
Alarm output			2 relays with PLC-type control function on 16 variables (AND / OR) [R2AX]
Communication	RS485 (2-wire, Modbus)	RS485 port [S]	RS485 port [S] Profibus DP port [DG], only on [96] model
<b>General specifications</b>			
Power supply	Self power supply	24 VAC [A] 48 VAC [B] 115 VAC [C] 230 VAC [D] 18 to 60 VDC [3]	24 VAC [A] 48 VAC [B] 115 VAC [C] 230 VAC [D] 18 to 60 VDC [3] 90 to 260 AC/DC [H DG] 18 to 60 VAC/DC [L AX] 90 to 260 VAC/DC [H AX]
Approvals/Marks	CE - cULus	CE - cULus	CE - cULus Advanced version [AX]
<b>References</b>			
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>			




# Power analyzers

	Modular power quality analyzers		Modular power quality transducers
Types	WM3 96	WM5 96	PQT H
			
Dimensions HxWxD (mm)	96 x 96 x 124	96 x 96 x 124	90 x 90 x 140
Description	3-phase modular power quality analyzer 96 x 96 panel mounting	3-phase modular smart power quality analyzer 96 x 96 panel mounting	3-phase modular smart power quality transducer 96 x 96 DIN-rail mounting
Function	System: total/partial $\pm$ kWh, $\pm$ kvarh (4 tariff), $V_{LN}$ , $V_{LL}$ , An, VA, $V_{Admd}$ , W, $W_{dmd}$ , var, PF, Hz, THD Single-phase: $V_{LN}$ , $V_{LL}$ , A, W, var, PF, THD	System: kWh, kvarh, $V_{LN}$ , $V_{LL}$ , An, W, var, VA, PF, Hz Single-phase: $V_{LN}$ , $V_{LL}$ , A, W, var, VA, PF, THD and single H up to the 63 <sup>rd</sup> H (V, A)	System: kWh, kvarh, $V_{LN}$ , $V_{LL}$ , An, W, var, VA, PF, Hz Single-phase: $V_{LN}$ , $V_{LL}$ , A, W, var, VA, PF, THD and single H up to the 63 <sup>rd</sup> H (V, A)
<b>Input specifications</b>			
Range code	400 VAC-1/5 AAC [AV5] 690 VAC-1/5 AAC [AV7] In: 1/5 A, I <sub>max</sub> : 6 AAC	120/208 $V_{LL}$ [AV6], 400/690 $V_{LL}$ [AV5] In: 1/5 A, I <sub>max</sub> : 10 AAC	120/208 $V_{LL}$ [AV6], 400/690 $V_{LL}$ [AV5] In: 1/5 A, I <sub>max</sub> : 10 AAC
Accuracy	$\pm$ 0.5% RDG (V, A)	$\pm$ 0.2% RDG (V, A)	$\pm$ 0.2% RDG (V, A)
Active energy	Class 1 (EN62053-21)	Class 0.5S (EN62053-22)	Class 0.5S (EN62053-22)
Reactive energy	Class 2 (EN62053-23)	Class 2 (EN62053-23)	Class 2 (EN62053-23)
	Matrix LCD backlight 4x 4 DGT (instantaneous variables) 4x 7+2, 8+1, 9 DGT (energies)	Matrix LCD backlight 4x 4 DGT (instantaneous variables) 4x 7+2, 8+1, 9 DGT (energies)	
<b>Output specifications</b>			
Pulse output	Up to 2 single / dual open collector or relay modules	Up to 16, by: single / dual or quadruple open collector or relay modules	Up to 16, by: single / dual or quadruple open collector or relay modules
Alarm output	Up to 2 single / dual open collector or relay modules	Up to 16, by: single / dual or quadruple open collector or relay modules	Up to 16, by: single / dual or quadruple open collector or relay modules
Communication	RS422 / 485 port RS232 port + RTC	RS422 / 485, RS232+RTC modules. Optical port (ANSI C12.18/Modbus) Internet / Ethernet comm. [E2]	RS422 / 485, RS232+RTC modules. Optical port (ANSI C12.18/Modbus) Internet / Ethernet comm. [E2]
Analogue output	Up to 2 single / dual analog output modules	Up to 8, by single / dual (mA/V) output modules	Up to 8, by single / dual (mA/V) output modules
Inputs	Up to 3 digital inputs	Up to 12 ( $W_{dmd}$ , $V_{Admd}$ sync.; tariff, contact status reading)	Up to 12 ( $W_{dmd}$ , $V_{Admd}$ sync.; tariff, contact status reading)
<b>General specifications</b>			
Power supply	18 to 60 VAC/DC [L] 90 to 260 VAC/DC [H]	18 to 60 VAC/DC [L] 90 to 260 VAC/DC [H]	18 to 60 VAC/DC [L] 90 to 260 VAC/DC [H]
Approvals/Marks	CE - cURus - CSA	CE - cURus - CSA	CE - cURus - CSA
<b>References</b>			
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>			




# Power analyzers

	Modular power analyzers	Modular power quality analyzers	
Types	WM20 96	WM30 96	WM40 96
			
Dimensions HxWxD (mm)	96 x 96 x 50	96 x 96 x 50	96 x 96 x 50
Description	3-phase modular power quality analyzer 96 x 96 panel mounting	3-phase modular power quality analyzer 96 x 96 panel mounting	3-phase modular power quality analyzer 96 x 96 panel mounting
Function	System: total/partial $\pm$ kWh and $\pm$ kvarh, $V_{LN}$ , $V_{LL}$ , VA, W, var, PF, Hz, THD (V,A) Single-phase: $V_{LN}$ , $V_{LL}$ , VA, AL, An, W, var, PF, THD Phase-sequence-asymmetry loss	System: total/partial $\pm$ kWh and $\pm$ kvarh, $V_{LN}$ , $V_{LL}$ , VA, W, var, PF, Hz, THD (V,A) Single-phase: $V_{LN}$ , $V_{LL}$ , VA, AL, An, W, var, PF, THD Phase-sequence-asymmetry loss	System: Total/partial $\pm$ kWh and $\pm$ kvarh (multi-tariff), $V_{LN}$ , $V_{LL}$ , VA, W, var, PF, Hz, THD, K-factor Single-phase: $V_{LN}$ , $V_{LL}$ , VA, AL, An (calculated or measured), W, var, PF, THD, TDD; Phase sequence-asymmetry-loss Load profile, event stamping, data logger, utility and hour counters
<b>Input specifications</b>			
Range code	400 / 690 V <sub>LL</sub> AC 1(2) AAC [AV4] 400 / 690 V <sub>LL</sub> AC 5(6) AAC [AV5] 100 / 208 V <sub>LL</sub> AC 5(6) AAC [AV6] 100 / 208 V <sub>LL</sub> AC 1(2) AAC [AV7]	400 / 690 V <sub>LL</sub> AC 1(2) AAC [AV4] 400 / 690 V <sub>LL</sub> AC 5(6) AAC [AV5] 100 / 208 V <sub>LL</sub> AC 5(6) AAC [AV6] 100 / 208 V <sub>LL</sub> AC 1(2) AAC [AV7]	400 / 690 V <sub>LL</sub> AC 1(2) AAC [AV4] 400 / 690 V <sub>LL</sub> AC 5(6) AAC [AV5] 100 / 208 V <sub>LL</sub> AC 5(6) AAC [AV6] 100 / 208 V <sub>LL</sub> AC 1(2) AAC [AV7]
Accuracy	$\pm$ 0.2% RDG (V, A)	$\pm$ 0.2% RDG (V, A)	$\pm$ 0.2% RDG (V, A)
Active energy	Class 0.5S according to EN62053-22	Class 0.5S according to EN62053-22	Class 0.5S according to EN62053-22
Reactive energy	Class 2 according to EN62053-23	Class 2 according to EN62053-23	Class 2 according to EN62053-23
Display	LCD backlight 3x 4 DGT (inst. variables) 8+2, 9+1, 10 DGT (energies)	LCD backlight 4x 4 DGT (inst. variables) 8+2, 9+1, 10 DGT (energies)	LCD backlight 4x 4 DGT (inst. variables) 8+2, 9+1, 10 DGT (energies)
<b>Output specifications</b>			
Pulse output	Up to 2 digital outputs	Up to 2 digital outputs	Up to 8 digital outputs
Alarm output	Up to 4 freely configuration virtual alarms	Up to 4 freely configuration virtual alarms	Up to 16 freely configuration virtual alarms
Communication	Optical port Modbus RS485/232 port, BACnet SMTP [B3], Modbus TCP Ethernet port [E2], BACnet-IP [B1], Profibus [P1]	Optical port Modbus RS485/232 port, BACnet SMTP [B3], Modbus TCP Ethernet port [E2], BACnet-IP [B1], Ethernet/IP [E6], Profibus [P1]	Optical port Modbus RS485/232 port, BACnet SMTP [B3], Modbus TCP Ethernet port [E2], BACnet-IP [B1], Ethernet/IP [E6], Profibus [P1]
Analogue output		up to 2	up to 4
Inputs			up to 6 digital inputs
<b>General specifications</b>			
Power supply	18 to 60 VAC/DC [L] 90 to 260 VAC/DC [H]	18 to 60 VAC/DC [L] 90 to 260 VAC/DC [H]	18 to 60 VAC/DC [L] 90 to 260 VAC/DC [H]
Approvals/Marks	CE - cULus	CE - cULus	CE - cULus
<b>References</b>			
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>			




# Power analyzers

	Modular branch circuit analyzers	12-channel current transformer blocks	Wiring system for WM50
Types	WM50 96	TCD12 BS	TCD12 WS
			
Dimensions HxWxD (mm)	96 x 96 x 50	221 x 58 x 49,50	
Description	96-channel branch circuit analyzer 96 x 96 panel mounting	Split-core CT block for WM50: hole 8.5, hole centre distance 17.5	Wires system for WM50 branch circuit monitoring system
Function	Mains power analysis and single branch circuit measurement Mains, system: Total/partial $\pm$ kWh and $\pm$ kvarh (multi-tariff), $V_{LN}$ , $V_{LL}$ , VA, W, var, PF, Hz, THD, K-factor Mains, Single-phase: $V_{LN}$ , $V_{LL}$ , VA, $A_L$ , $A_n$ (calculated or measured), W, var, PF, THD, TDD; Phase sequence-asymmetry-loss, event stamping, utility and hour counters Single branch channels: A, W, var, VA, PF, kWh, THD (A), daily min and max for 1 of the above variables	12-channel current transformer blocks with hole centre distance 17.5 mm (same of miniature circuit breakers) for WM50 branch circuit analyzer. Connection to the meter by means of dedicated cable [TCD12WS]	Set of cables to connect WM50 with TCD12BS and 2 consecutive TCD12BS)
<b>Input specifications</b>			
Range code	208..480 V <sub>LL</sub> AC 5(6) AAC [AV5]	32 AAC	[030]: 30 cm length cable [050]: 50 cm length cable [100]: 100 cm length cable [200]: 200 cm length cable [500]: 500 cm length cable
Accuracy	$\pm$ 0.2% RDG (V, A), mains	$\pm$ 0.5% RDG (A), branch channels	
Active energy	Mains: Class 0.5S according to EN62053-22 Branch channels: Class 2 according to EN62053-21		
Reactive energy	Class 2 according to EN62053-23		
Display	LCD backlight 4x 4 DGT (inst. variables) 8+2, 9+1, 10 DGT (energies), only mains		
<b>Output specifications</b>			
Pulse output	Up to 6 digital outputs		
Alarm output	Up to 16 freely configuration virtual alarms		
Communication	Optical port Modbus RS485/232 port [S1], Modbus TCP Ethernet port [E2],	High speed communication to WM50	
Inputs	Up to 6 digital inputs		
<b>General specifications</b>			
Power supply	100 to 277 VAC/DC	Power supply from WM50	
Approvals/Marks	CE - cULus	CE - cULus (with WM50)	CE - cULus (with WM50)
<b>References</b>			
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>			

# DC Energy meters

	Contactless power analyzers		Energy analyzers	
Types	CPA050/CPA300	CPA300-V	VMU-E	VMU-X
				
Dimensions HxWxD (mm)	CPA050 63x46x25 (without connectors) CPA300 99x89x30 (without connectors)	99x89x30 (without connectors)	1-DIN module	1-DIN module
Description	Contactless power analyzers	Contactless current transducer for PV installations up to 1500 VDC	DC energy analyzer: V, A, W, kWh	Power supply module for VMU-E unit
Function	CPA monitors electrical variables (V, A, W, var, VA, kWh, PF, HZ, THD) in 1-phase AC (from 1 to 400 Hz) or DC systems	CPA monitors electrical variables (A, Ah) in 1-phase AC (from 1 to 400 Hz) or DC systems		
<b>Input specifications</b>				
Range code	One current input (Hall effect): 50 AAC/50 ADC [CPA300] 300 AAC/400 ADC One voltage input: 800 VAC/1000 VDC	One current input (Hall effect): 300 AAC/400 ADC	400 VDC 20 ADC [AV00] (up 1000 ADC by external shunt 120 mV) 400 VDC 1000 ADC [AV10] (by 10 VDC current sensor)	
Accuracy	±0.5%F.S. (V, A, W)	±0.5%F.S. (A)	±0.5% RDG (V, A)	
Active energy			Class 1	
Display	Front LED to show the Power-ON status of the device	Front LED to show the Power-ON status of the device	LCD 6 DGT	
<b>Output specifications</b>				
Pulse output				1 opto-mosfet
Alarm output	Virtual alarm detection of voltage over-range and current over-range	Virtual alarm detection of current over-range		1 opto-mosfet
Communication	RS485 Modbus RTU	RS485 Modbus RTU		RS485 Modbus RTU
Analogue output		Programmable scale 0-10 Vdc		
<b>General specifications</b>				
Power supply	9 to 30 VDC power supply	9 to 30 VDC power supply	Self power supply through VMU-X unit [X]	38 to 265 VAC/DC [U]
Approvals/Marks	CE - cURus	CE - cURus	CE	CE
<b>References</b>				
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>				

# Current transformers

Current transformers												
Types	CTD 1Z			CTD 2Z			CTD 3Z					
												
Dimensions HxWxD (mm)	76 x 44 x 31			86 x 56 x 42			99 x 75 x 45					
Input specifications												
	Current transformer 1-phase AC				Current transformer 1-phase AC				Current transformer 1-phase AC			
Operating frequency	48 to 62 Hz				48 to 62 Hz				48 to 62 Hz			
Max. system voltage	0.72 kV				0.72 kV				0.72 kV			
Rated insulation level	3 kV / 1 min @ 50 Hz				3 kV / 1 min @ 50 Hz				3 kV / 1 min @ 50 Hz			
Security factor	≤ 5				≤ 5				≤ 5			
Output specifications												
Secondary current	5 A				5 A				5 A			
General specifications												
Class	1 / 3				0.5 / 1 / 3				0.5 / 1 / 3			
Bus-bar size (mm) [diameter]	[22]				30 x 10 / 25 x 20 [28]				40 x 10 / 30 x 20 / 25 x 25 [33]			
Standards	EN 61869-2				EN 61869-2				EN 61869-2			
Primary current												
Accuracy class depending on the burden of the secondary circuit	Burden (VA)				Burden (VA)				Burden (VA)			
	Class	0.5	1	3	Class	0.5	1	3	Class	0.5	1	3
	50 A			1.5	40 A			2.5	100 A	1.5		
	60 A		1.5		50 A			2.5	150 A	1.5		
	75 A		1.5		100 A	2.5			200 A	1.5		
	80 A		1.5		150 A	2.5			250 A	2.5		
	100 A		2.5		200 A	3.75			300 A	2.5		
	125 A		2.5		250 A	5			400 A	5		
	150 A		2.5		300 A	5			500 A	5		
	200 A		3.75		400 A	5			600 A	5		
	250 A		3.75		500 A	5						
300 A		3.75		600 A	5							
References												
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>												

# Current transformers

## Current transformers

Types	TADK	TADK2	CTD 1X	CTD 2X
				

Dimensions HxWxD (mm)	115.5 x 75 x 44	115.5 x 75 x 44	66 x 46 x 30	86 x 56 x 42
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### Input specifications

	Current transformer 1-phase AC	Current transformer 1-phase AC	Current transformer 1-phase AC	Current transformer 1-phase AC
Operating frequency	48 to 62 Hz	48 to 62 Hz	48 to 62 Hz	48 to 62 Hz
Max. system voltage	0.72 kV	0.72 kV	0.72 kV	0.72 kV
Rated insulation level	3 kV/1 min @ 50 Hz	3 kV/1 min @ 50 Hz	3 kV/1 min @ 50 Hz	3 kV/1 min @ 50 Hz
Security factor	≤ 5	≤ 5	≤ 5	≤ 5

### Output specifications

Secondary current	5 A standard (1 A on request)	5 A standard (1 A on request)	5 A 1 A	5 A 1 A
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### General specifications

Class	0.5	0.5	0.5 / 1 / 3	0.5 / 1 / 3
Bus-bar size (mm) [diameter]	no (wounded primary)	25 x 5 (fixed bar)	20 x 5 [23]	32 x 5 / 30 x 10 / 25 x 20 / 25 x 12 [24]
Standards	IEC 60185	IEC 60185	EN 61869-2, cURus	EN 61869-2, cURus

### Primary current

	Burden (VA)			Burden (VA)			Burden (VA)			Burden (VA)						
	Class	0.5	1	3	Class	0.5	1	3	Class	0.5	1	3	Class	0.5	1	3
Accuracy class depending on the burden of the secondary circuit	1 A	10			1 A	10			50 A		1	1.25	40 A			1.25
	5 A	10			5 A	10			60 A		1	1.25	50 A			1.5
	10 A	10			10 A	10			70 A		1.5	1.75	60 A			2
	15 A	10			15 A	10			75 A	1	1.25	1.75	70 A			2.5
	25 A	10			25 A	10			80 A	1.25	1.5	2	75 A		1.75	2.5
	40 A	10			40 A	10			100 A	1.5	1.75	2.25	80 A		2	2.75
					50 A	10			120 A	1.75	2	2.5	100 A		2.5	3
					60 A	10			125 A	2	2.25	2.75	120 A		2.75	3.75
					80 A	10			150 A	2.25	2.5	3	125 A	2	2.75	3.75
					100 A	10			160 A	2.5	2.75	3.25	150 A	3	4	5
					150 A	10			200 A	3	3.25	3.75	160 A	3	4	5
					200 A	10			250 A	4.5	4.75	5.25	200 A	4	5	6.5
					250 A	10			300 A	5	5.5	6	250 A	5.5	7	8
													300 A	7	8.5	9.5
													400 A	12	13.5	14.5
													500 A	14	15.5	16.5
												600 A	17.5	19	20	



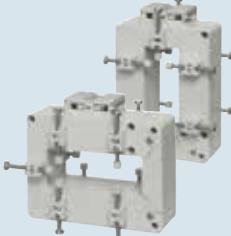

### References

For ordering key details, please refer to [www.gavazziautomation.com](http://www.gavazziautomation.com)



# Current transformers

## Current transformers

Types	CTD 3X	CTD 4X	CTD 8V CTD 8H	CTD 8Q
				
Dimensions HxWxD (mm)	109 x 77 x 42	113 x 90 x 42	133 x 87 x 40 104 x 117 x 40	144 x 129 x 40

Input specifications				
	Current transformer 1-phase AC	Current transformer 1-phase AC	Current transformer 1-phase AC	Current transformer 1-phase AC
Operating frequency	48 to 62 Hz	48 to 62 Hz	48 to 62 Hz	48 to 62 Hz
Max. system voltage	0.72 kV	0.72 kV	0.72 kV	0.72 kV
Rated insulation level	3 kV/1 min @ 50 Hz	3 kV/1 min @ 50 Hz	3 kV/1 min @ 50 Hz	3 kV <sub>RMS</sub> , 50 Hz, 1 min
Security factor	≤ 5	≤ 5	≤ 5	≤ 5

Output specifications				
Secondary current	5 A 1 A	5 A 1 A	5 A 1 A	5 A 1 A

General specifications				
Class	0.5 / 1 / 3	0.5 / 1 / 3 / 5P5	0.5 / 1 / 3	0.5
Bus-bar size (mm) [diameter]	51 x 15 / 40 x 20 / 32 x 32 / 40 x 20 [41]	64 x 20 / 51 x 43 / [51]	80 X 30	55 x 100
Standards	EN 61869-2, cURus	EN 61869-2, cURus	EN 61869-2, cURus	EN 60044-1

Primary current														
Accuracy class depending on the burden of the secondary circuit	Burden (VA)			Burden (VA)			Burden (VA)			Burden (VA)				
	Class	0.5	1	3	Class	0.50	1	3	Class	0.5	1			
	50 A			1.75	150 A			2.5	5	150 A		2	1000 A	15
	60 A			2	200 A			3.25	6	200 A		4	1500 A	15
	70 A			2.25	250 A	2.5	4.5			250 A		5	2000 A	15
	75 A			3	300 A	3	4			300 A		2	2500 A	15
	80 A			3	400 A	6	9			400 A	3	5	3000 A	15
	100 A		2	3.5	500 A	10	12.5			500 A	5	7	4000 A	15
	120 A		2.25	4	600 A	11	13.5			600 A	6	10		
	125 A		2.5	4.5	700 A	12.5	15			700 A	6	10		
	150 A	2.25	3	6	750 A	13	15.5			750 A	8	12		
	160 A	2.5	3.5	6.5	800 A	14	16.5			800 A	8	12		
	200 A	3	4.5	8.5	1000 A	17.5	20			1000 A	10	15	20	
	250 A	3.5	6.5	10.5	1200 A	20	22.5			1200 A	12	15	20	
	300 A	7	10	13	1250 A	20	22.5			1250 A	12	15	20	
	400 A	9	14	17	1500 A	27.5	30			1500 A	15	20	25	
	500 A	14	18	21	1600 A	27.5	30			1600 A	15	20	25	
	600 A	17	21	24						2000 A	20	25	30	
	700 A	22	26	29						2500 A	25	30	40	
	750 A	24	28	31										
	800 A	25	29	32										

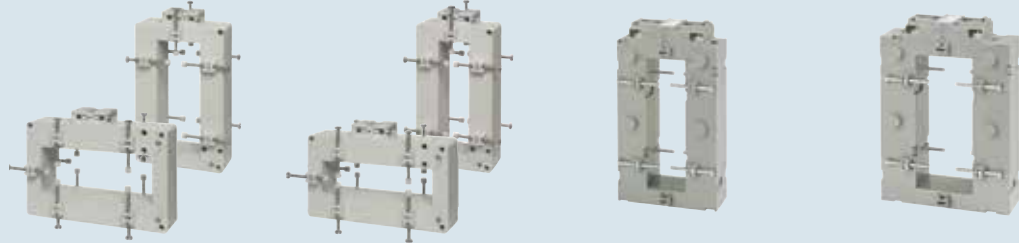
**References**

For ordering key details, please refer to [www.gavazziautomation.com](http://www.gavazziautomation.com)

# Current transformers

## Current transformers

Types	CTD 9V CTD 9H	CTD 10V CTD 10H	CTD 11V CTD 11H	CTD 12V CTD 12H
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Dimensions HxWxD (mm)	178 x 92 x 40 109 x 162 x 40	178 x 107 x 40 124 x 162 x 40	178 x 98 x 40 115 x 160 x 40	178 x 125 x 40 140 x 157 x 40
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### Input specifications

	Current transformer 1-phase AC	Current transformer 1-phase AC	Current transformer 1-phase AC	Current transformer 1-phase AC
Operating frequency	48 to 62 Hz	48 to 62 Hz	48 to 62 Hz	48 to 62 Hz
Max. system voltage	0.72 kV	0.72 kV	0.72 kV	0.72 kV
Rated insulation level	3 kV / 1 min @ 50 Hz	3 kV / 1 min @ 50 Hz	3 kV <sub>RMS</sub> , 50 Hz	3 kV <sub>RMS</sub> , 50 Hz
Security factor	≤ 5	≤ 5	≤ 5	≤ 5

### Output specifications

Secondary current	5 A 1 A	5 A 1 A	5 A 1 A	5 A 1 A
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### General specifications

Class	0.5 / 1 / 3	0.5 / 1 / 3	0.5	0.5
Bus-bar size (mm)	125 x 35	125 x 50	125 x 37	125 x 53
Standards	EN 61869-2, cURus	EN 61869-2, cURus	EN 60044-1	EN 60044-1

### Primary current




	Burden (VA)			Burden (VA)			Burden (VA)		Burden (VA)	
	Class	0.5	1	3	Class	0.50	1	3	Class	0.5
Accuracy class depending on the burden of the secondary circuit	400 A		3	6	400 A	1	7	10	1000 A	15
	500 A	2	4	8	500 A	3	10	14	1500 A	15
	600 A	4	6	10	600 A	5	12	17	2000 A	15
	700 A	4	8	10	700 A	8	15	20	2500 A	15
	750 A	4	8	10	750 A	10	15	20	3000 A	15
	800 A	4	8	10	800 A	10	15	20	4000 A	15
	1000 A	6	10	13	1000 A	12	20	25		
	1200 A	8	12	15	1200 A	15	25	30		
	1250 A	8	12	15	1250 A	15	25	30		
	1500 A	10	15	18	1500 A	20	30	40		
	1600 A	10	15	18	1600 A	20	30	40		
	2000 A	15	20	24	2000 A	25	40	50		
	2500 A	20	25	30	2500 A	30	50	60		
	3000 A	25	30	35	3000 A	30	50	60		
	3200 A	25	30	35	3200 A	30	50	60		

### References

For ordering key details, please refer to [www.gavazziautomation.com](http://www.gavazziautomation.com)

# Current transformers

## Split core current transformers

Types	CTD 5S	CTD 6S	CTD 8S
			

Dimensions HxWxD (mm)	94 x 83 x 40	114 x 107 x 40	133 x 87 x 40
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### Input specifications

	Split core current transformer 1-phase AC	Split core current transformer 1-phase AC	Split core current transformer 1-phase AC
Operating frequency	48 to 62 Hz	48 to 62 Hz	48 to 62 Hz
Max. system voltage	0.72 kV	0.72 kV	0.72 kV
Rated insulation level	3 kV <sub>RMS</sub> , 50 Hz, 1 min	3 kV <sub>RMS</sub> , 50 Hz, 1 min	3 kV <sub>RMS</sub> , 50 Hz, 1 min
Security factor	≤ 5	≤ 5	≤ 5

### Output specifications

Secondary current	5 A 1 A	5 A 1 A	5 A 1 A
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### General specifications

Class	1	1	1
Bus-bar size (mm)	27 x 32	52 x 51	81 x 31
Standards	EN 61869-2, cURus	EN 61869-2, cURus	EN 61869-2, cURus




### Primary current

Accuracy class depending on the burden of the secondary circuit	Burden (VA)			Burden (VA)			Burden (VA)		
	Class	1	3	Class	1	3	Class	1	3
	100 A		1.5		150 A		1.5	150 A	
125 A	1.5	1.5		200 A	1.5	2	200 A		1.5
150 A	1.5	2.5		250 A	1.5	3.75	250 A		2
200 A	1.5	5		300 A	1.5	5	300 A		2
250 A	1.5	5		400 A	2.5	5	400 A	3	5
300 A	2.5	7.5		500 A	5	10	500 A	5	7
400 A	5	10		600 A	7.5	15	600 A	6	10
				700 A	7.5	15	700 A	6	10
				750 A	7.5	15	750 A	8	12
				800 A	10	15	800 A	8	12
				1000 A	10	15	1000 A	10	15
							1200 A	12	15
							1250 A	12	15
							1500 A	15	20
							1600 A	15	20
							2000 A	20	25
							2500 A	25	30

### References

For ordering key details, please refer to [www.gavazziautomation.com](http://www.gavazziautomation.com)

# Current transformers

	Split core current transformers		Active current sensor			
Types	CTD 9S	CTD 10S	ROG 400			
						
Dimensions HxWxD (mm)	178 x 92 x 40	178 x 107 x 40	54 x 29 x 17			
<b>Input specifications</b>						
	Split core current transformer 1-phase AC	Split core current transformer 1-phase AC	Split core AC current sensor 1-phase AC			
Operating frequency	48 to 62 Hz	48 to 62 Hz	45 to 65 Hz			
Max. system voltage	0.72 kV	0.72 kV				
Rated insulation level	3 kV <sub>RMS</sub> , 50 Hz, 1 min	3 kV <sub>RMS</sub> , 50 Hz, 1 min	3 kV <sub>RMS</sub> , 50 Hz			
Security factor	≤ 5	≤ 5				
<b>Output specifications</b>						
Secondary current	5 A 1 A	5 A 1 A	4 to 20 mA DC			
<b>General specifications</b>						
Class	1	1				
Bus-bar size (mm) [diameter]	125 x 35	125 x 50	[40]			
Standards	EN 61869-2, cURus	EN 61869-2, cURus				
<b>Primary current</b>						
Accuracy class depending on the burden of the secondary circuit	Burden (VA)		Burden (VA)			
	Class	1	3	Class	1	3
	400 A		3	400 A	1	7
	500 A	2	4	500 A	3	10
	600 A	4	6	600 A	5	12
	700 A	4	8	700 A	8	15
	750 A	4	8	750 A	10	15
	800 A	4	8	800 A	10	15
	1000 A	6	10	1000 A	12	20
	1200 A	8	12	1200 A	15	25
	1250 A	8	12	1250 A	15	25
	1500 A	10	15	1500 A	20	30
	1600 A	10	15	1600 A	20	30
	2000 A	15	20	2000 A	25	40
	2500 A	20	25	2500 A	30	50
	3000 A	25	30	3000 A	30	50
3200 A	25	30	3200 A	30	50	
						400 AAC
<b>References</b>						
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>						

# Current transformers

## Split core and Rogowski current sensors for EM210\_MV

Types	CTV-1X	CTV-2X	CTV-3X
			

Input / output specifications			
Primary current 50/60 Hz	60 A (1-70 A)	100 A (1-120 A)	200 A
Secondary output	333 mV	333 mV	333 mV
General specifications			
Accuracy	1%	1%	1%
Linearity	0.5%	0.5%	0.5%
Phase error at nominal current	≤4°	≤2°	≤2°
Max. system voltage	660 V	660 V	660 V
Opening angle	180°	180°	180°
Certifications	CE - cURus	CE - cURus	CE - cURus
References			
	CTV1X60A333MV	CTV2x100A333MV	CTV3X200A333MX

Types	CTV-4X	CTV-8X	ROG4K
			

Input / output specifications			
Primary current 50/60 Hz	400 A (20-480 A max)	800 A (1-1000 A max)	4000 A
Secondary output	333 mV	333 mV	
General specifications			
Accuracy	1%	1%	1%
Linearity	0.5%		
Phase error at nominal current	≤2°	≤2°	
Max. system voltage	660 V	660 V	600 V (cat III)
Opening angle	180°		
Coil length			400, 600 or 900 [XXX]
Certifications	CE - cURus	CE - cURus	CE - cURus
References			
	CTV4X400A333MV	CTV8X800A333MV	ROG4K1002M [XXX] 3X

# Current transformers

## Current transformers for monitoring relays

Types	MI	MP	A 82	E 83
				

Dimensions HxWxD (mm)	45 x 52 x 16 [5 / 20] 67.5 x 95 x 20 [100 / 500]	45 x 120 x 16 [5 / 20] 114 x 150 x 23 [100 / 500]	67.5 x 95 x 20	56 x 22.5 x 49
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Function	1-phase AC. Output voltage. Cable hole.	3-phase AC. Output voltage. Cable hole.	1-phase AC. Output 0 / 4-20 mA DC, 0-10 VDC (A82-30). Cable hole. Led indication.	1-phase AC. Output 4-20 mA DC. Cable hole. DIN-rail mounting.
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### Input specifications

Input current	0.5 - 5 AAC [5] 2 - 20 AAC [20] 10 - 100 AAC [100] 50 - 500 AAC [500]	0.5 - 5 AAC [5] 2 - 20 AAC [20] 10 - 100 AAC [100] 50 - 500 AAC [500]	0 - 25 AAC [25] 0 - 50 AAC [50] 0 - 100 AAC [100] 0 - 250 AAC [250] 0 - 500 AAC [500]	0 - 5 AAC 0 - 10 AAC 0 - 15 AAC 0 - 20 AAC 0 - 25 AAC 0 - 30 AAC 0 - 50 AAC
Max. current continuously	20 AAC [5] 50 AAC [20] 250 AAC [100] 750 AAC [500]	20 AAC [5] 50 AAC [20] 250 AAC [100] 750 AAC [500]	600 AAC	100 AAC
Dielectric voltage	6 kV ACrms	6 kV ACrms	6 kV ACrms	

### Output specifications

Output value	0.4 - 4 Vp The output voltage is proportional to the input current	0.4 - 4 Vp The output voltage is proportional to the highest current value in the 3 conductors which are drawn through the holes of the current metering transformer	A82 - 10: 0-20 mA DC A82 - 20: 4-20 mA DC A82 - 30: 0-10 VDC The output current (A82-10, A82-20) and voltage (A82-30) are proportional to the input current	4 - 20 mA DC The output current is proportional to the input current
Output tolerance	± 5% @ I <sub>n</sub>	± 5% @ I <sub>n</sub>	± 2% @ 50 Hz	± 2% @ 50 Hz
Rated insulation voltage (cable)	250 VACrms	250 VACrms	250 VACrms	

### General specifications



Cable hole diameter	10.5 mm [5 / 20] 27 mm [100 / 500]	3 x 12 mm [5 / 20] 3 x 27 mm [100 / 500]	27 mm	12 mm
Connection cable	2 m PVC 2 x 0.5 mm <sup>2</sup>	2 m PVC 2 x 0.5 mm <sup>2</sup>	A82-10, A82-30: 2 m, 3x0.25 m <sup>2</sup> A82-20: 2 m, 2x0.25 m <sup>2</sup>	Screw terminal 2 x 1.5 mm <sup>2</sup>
Operating temperature	-20°C to +60°C	-20°C to +60°C	-20°C to +50°C	-20°C to +50°C

### References

	<b>MI 5</b>	<b>MP 3005</b>	<b>A 82-XX 25</b>	<b>E 83-20 50</b>
	<b>MI 20</b>	<b>MP 3020</b>	<b>A 82-XX 50</b>	
	<b>MI 100</b>	<b>MP 3100</b>	<b>A 82-XX 100</b>	
	<b>MI 500</b>	<b>MP 3500</b>	<b>A 82-XX 250</b>	
			<b>A 82-XX 500</b>	




XX = 10: 0-20 mA DC  
= 20: 4-20 mA DC  
= 30: 0-10 VDC

# Data aggregation solutions

	Web-server	USB dongle connection module
Types	VMU-C EM	VMU-D
		
Dimensions HxWxD (mm)	2-DIN module	2-DIN module
Description	Web-server which controls and supervises any electrical installation acquiring information from energy meters, power analyzers and VMU I/O modules. It provides information via Internet, so data are available anywhere	Accessory module for connecting third party USB dongle modems (3G or 4G) approved by Carlo Gavazzi to VMU-C systems
Type	Micro PC	USB dongle connection module
Storage memory	4 GB	
Back-up memory	Micro-SD / Micro-SDHC / USB	
<b>Mobile communication specifications</b>		
SIM card		Depending on the modem unit
Compatibility		Compatible with USB modems (3G or 4G) approved by Carlo Gavazzi
Supported services		Internet communication; SMS
<b>LED</b>		
Status and colour	One LED with different colours for internal BUS communication, communication ports, alarms and power supply	Single colour green for power supply status
<b>Communication port and Output specifications</b>		
RS485	1 port for VMU I/O modules, 1 port for power analyzers, energy meters and Modbus devices	
Ethernet	1 port for Internet / LAN connection and Modbus/TCP devices	
USB	1 USB "A" (for USB stick) and 1 USB "mini-A" (service port)	1 USB "A" (for USB dongle modem connection)
<b>Antenna</b>		
Connector		Depending on the modem unit
Type		Depending on the modem unit
<b>Connections</b>		
RS485	3 screw terminals per port	
Ethernet	RJ-45 connector (10 / 100 Base-T)	
USB	High Speed USB 2.0	
<b>General specifications</b>		
Voltage supply	From 12 to 28 VDC	From 12 to 28 VDC
Power consumption	≤ 5 W	IN/OUT connection to supply also the VMU-C / VMU-Y unit; consumption depending on the connected optional modules (range: from 8.6 W to 18.6 W)
Approvals/Marks	CE - cULus listed	CE - cULus listed
<b>References</b>		
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>		




# Data aggregation solutions

## VMU I/O optional modules




Types	VMU-M EM	VMU-P EM	VMU-O EM
			
Dimensions	1-DIN module	1-DIN module	1-DIN module
Description	Master unit 6-DGT readout	Environment variable measurement unit	Inputs / outputs unit
Function	VMU-M performs the local bus management of VMU-P both measuring units and VMU-O I/O unit	2 temperatures, 1 analogue and 1 pulse rate output	VMU-O allows to add, for every single unit, available in the local bus two digital inputs and two relay outputs
<b>Input specifications</b>			
Range code	2 Pt100 or Pt1000, 3-wires (-50.0 to +200.0°C) or one digital input and one pulse input, for local management	2 Pt100 or Pt1000, 3-wires 1 analogue input (20 mA or 120 mV). 1 pulse rate input (0 to 1000 Hz max.) [2TIW]	2 digital inputs for Protection trip detection or others"
Accuracy	±(0.5%RDG + 5DGT)	±(0.2%RDG + 1DGT)	
<b>Output specifications</b>			
Alarm	Real and virtual alarm management of all variables coming from VMU-M and VMU-P with local event logging		2 digital outputs for alarm notification of local alarms or as a digital input status changing. SPST relay type
Serial communication	Local bus: up to 1 VMU-P and 3 VMU-O units RS485 communication port (Modbus)	Local bus: one VMU-P unit per bus	Local bus: up to 3 VMU-O units
Others		Front multicolour LED to show the status of the unit	Front multicolour LED to show the status of the unit
<b>General specifications</b>			
Power supply	12 to 28 VDC power supply	Self-power supply from VMU-M unit	Self-power supply from VMU-M unit
Approvals/Marks	cULus approved	cULus approved	cULus approved
<b>References</b>			
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>			





# Data aggregation solutions

	Pulse counters concentrators		Aggregation server
Types	VMU-MC	VMU-OC	Em <sup>2</sup> -Server
			
Dimensions	1-DIN module	1-DIN module	
Description	Pulse counter concentrator	Pulse input extender	Em <sup>2</sup> -Server is a cloud solution capable of aggregating information from up to 100 installations powered by VMU-C EM units. Data from the plants are transmitted through Internet, stored inside the embedded database and presented by the integrated web interface. Em <sup>2</sup> -Server + VMU-C EM is a solid, reliable and plug'n play architecture aimed at managing multiple sites projects
Function	VMU-MC concentrates 2 pulse counter inputs (up to 11 with optional VMU-OC extender), and makes the relevant totalizers available via Modbus/RTU	3 additional SO pulse counter inputs	
Type			Virtual Machine Software
<b>Input specifications</b>			
Range code	2 SO inputs (either pulse for pulse counting or ON/OFF status monitoring)	3 SO inputs (either pulse for pulse counting or ON/OFF status monitoring)	
Pulse frequency	Max 100 Hz	Max 100 Hz	
<b>Output specifications</b>			
Serial communication	Local bus: up to 3 VMU-OC units RS485 communication port (Modbus)	Local bus: up to 3 VMU-OC units	
Others	LCD for Status, totalizers, active tariff display Front multicolor LED for power, MODBUS communication, local bus alert	Front multicolour LED to show the status of the unit	
<b>Compatibility</b>			
Host operating system			Operating system compatible with VMWARE 64 bit technology
Virtual Machine compatibility			VMWARE 64 bit
Hardware compatibility			64 bit architecture compatible with VMWARE 64 bit
Cloud compatibility			Hosting providers compatible with VMWARE technology
<b>Software/Firmware specification</b>			
Data acquisition			By means of Carlo Gavazzi's DP (Data push) protocol
Integrated operating system			64 bit Linux
Integrated data base			Industrial class SQL relational database
User interface			Integrated multi-user, multilingual web interface
<b>General specifications</b>			
Power supply	15 to 24 VDC power supply	Self-power supply from VMU-MC unit	
Approvals/Marks	cULus approved	cULus approved	
Managed VMU-C PV units			From 20 to 100
Software installation			By DVD or USB stick containing the Em <sup>2</sup> -Server Virtual machine
Licensing			Perpetual license based on connected VMU-C EM units
<b>References</b>			
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>			

# Data aggregation solutions





	Serial converter	Ethernet gateway	M-bus converter
Types	SIU-PC3	SIU-TCP	VMU-B
			
Dimensions HxWxD (mm)	Front: 60 x 37.5	Front: 78 x 65	Front: 90 x 17.5
Function	RS422 / RS485 to USB converter	[SIU TCP2] RS232 / 485 to Ethernet Gateway [SIU TCP3] RS232 / 485 to Ethernet Modbus Gateway	Modbus to M-bus converter
<b>Port 1</b>			
Port connections	USB type A	Ethernet, 10 / 100 Mbps RJ45	RS485
Baud rate	Max 961.6 kBaud	Max 230400 Baud	
<b>Port 2</b>			
Port connections	RS232, RS485 2-wire communication	[SIU TCP2] RS232, RS485 2-wire and 4-wire communication [SIU TCP3] RS232, RS485 2-wire communication	M-bus
<b>General specifications</b>			
Power supply	Self supplied by USB port	9 to 30 VDC AD5V1A: AC / DC power supply adapter (on request)	18 to 260 VAC/DC
Approvals/Marks	CE - FCC	CE	CE
<b>References</b>			
	<b>SIU PC3</b>	<b>SIU TCP2</b>	<b>VMUBM2US1B1A</b> (for EM210, EM26)
		<b>SIU TCP3</b>	<b>VMUBM2US1B1B</b> (for EM27x, EM280)

# PV monitoring solutions

	Web-server	USB dongle connection module
Types	VMU-C PV	VMU-D
		
Dimensions HxWxD (mm)	2-DIN module	2-DIN module
Description	VMU-C is a Web-server which controls and supervises a photovoltaic installation acquiring information from Eos-Array groups, inverters and energy meters. The VMU-C provides information via Internet so data are available wherever you are. VMU-C is also capable of M2M communication by scheduling FTP uploads or by interacting with its HTTP API.	Accessory module for connecting third party USB dongle modems (3G or 4G) approved by Carlo Gavazzi to VMU-C systems
Type	Micro PC	USB dongle connection module
Storage memory	4 GB	
Back-up memory	Micro-SD / Micro-SDHC / USB	
<b>Mobile communication specifications</b>		
SIM card		Depending on the modem unit
Compatibility		Compatible with USB modems (3G or 4G) approved by Carlo Gavazzi
Supported services		Internet communication; SMS
<b>LED</b>		
Status and colour	One led with different colors for internal BUS communication, communication ports, alarms and power supply	Single colour green for Power supply status
<b>Communication port and Output specifications</b>		
RS485	1 port for Eos-Arrays, 1 port for inverters and energy meters	
Ethernet	1 port for Internet / LAN connection	
USB	1 USB "A" (for USB stick) and 1 USB "mini-A" (service port)	1 USB "A" (for USB dongle modem connection)
<b>Antenna</b>		
Connector		Depending on the modem unit
Type		Depending on the modem unit
<b>Connections</b>		
RS485	3 screw terminals per port	
Ethernet	RJ-45 connector (10 / 100 Base-T)	
USB	High Speed USB 2.0	
<b>General specifications</b>		
Voltage supply	From 12 to 28 VDC	From 12 to 28 VDC
Power consumption	≤ 5 W	IN/OUT connection to supply also the VMU-C unit; consumption depending on the connected optional modules (range: from 8.6 W to 18.6 W)
Approvals/Marks	CE - cULus listed	CE - cULus listed
<b>References</b>		
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>		




# PV monitoring solutions

## EOS-Array solar control solution




Types	VMU-M	VMU-S	VMU-P	VMU-O
				
Dimensions HxWxD (mm)	1-DIN module	1-DIN module	1-DIN module	1-DIN module
Description	Master unit 6-DGT readout	String unit, with built-in protection fuseholder	Environment variable measurement unit	Inputs/outputs unit
Function	VMU-M performs the local bus management of VMU-S, VMU-P both measuring units and VMU-O I/O unit	Variables measuring unit, DC current, voltage, power and energy metering. String control and efficiency measurement	PV module temperature, air temperature, sun irradiance and wind speed metering	VMU-O allows to add, for every single unit, available in the local bus two digital inputs and two relay outputs
<b>Input specifications</b>				
Range code	2 Pt100 or Pt1000, 3-wire (-50.0°C to +200.0°C) or one digital input and one pulse input. [T2]	Direct connections 16 A / 1000 VDC [AV10]. Measurements: V, A, W, Wh	2 Pt100 or Pt1000, 3-wire (PV and air temperature). 1 irradiance input (up to 120 mV [2TIW] or 4-20 mA [2TCW]). 1 wind speed input (0 to 1000 Hz max.)	2 digital inputs for "Protection trip detection or others" [I2]
Accuracy	±(0.5% RDG + 5DGT)	±(0.5% RDG + 2DGT)	±(0.2% RDG + 1DGT)	
<b>Output specifications</b>				
Alarm	Real and virtual alarm management of all variables coming from VMU-M, VMU-S, and VMU-P with event logging			2 digital outputs for alarm notification as string alarm or as a digital input status changing. SPST relay type. [R2]
Serial communication	Local bus: up to 15 mixed VMU-S, VMU-P and VMU-O units RS485 communication port (Modbus) [S1]	Local bus: up to 15 VMU-S units in the same bus [S]	Local bus: one VMU-P unit per bus [S]	Local bus: up to 7 VMU-O units
Others	Data logger (V, A, W, PV cell and air temperature, irradiation, wind speed) DC/AC efficiency	Diagnostics functions: antiheft control, fuse blow detection, wrong PV panel connection. Front multicolour LED to show the status of the unit	Front multicolour LED to show the status of the unit	Front multicolour LED to show the status of the unit
<b>General specifications</b>				
Power supply	12 to 28 VDC power supply [A]	Self-power supply from VMU-M unit [X]	Self-power supply from VMU-M unit [X]	Self-power supply from VMU-M unit [X]
Approvals/Marks	CE - cULus Listed	CE - cULus Listed	CE - cULus Listed	CE - cULus Listed
<b>References</b>				
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>				

# PV monitoring solutions





## EOS-Array Lite solar control solution

Types	VMU-ML	VMU-S0	VMU-P
			
Dimensions HxWxD (mm)	1-DIN module	1-DIN module	1-DIN module
Description	Master unit 6-DGT readout	String unit, with built-in protection fuseholder	Environment variable measurement unit
Function	VMU-ML performs the local bus management of VMU-S0, VMU-P both measuring units and VMU-O output unit	Variables measuring unit, DC current and voltage	PV module temperature, air temperature, sun irradiance
<b>Input specifications</b>			
Range code		Direct connections 16 A / 1000 VDC [AV10]. Measurements: V, A	1 Pt100 or Pt1000, 3-wire (PV and air temperature). 1 irradiation input (up to 120 mV [1TI] or 4 - 20 mA [2TCW])
Accuracy		$\pm(0.5\%RDG + 2DGT)$	$\pm(0.2\%RDG + 1DGT)$
<b>Output specifications</b>			
Alarm	Single real or virtual alarm management of all variables coming from VMU-ML, VMU-S0, and VMU-P		
Serial communication	Local bus: up to 15 mixed VMU-S0, VMU-P and VMU-O units RS485 communication port (Modbus) [S1]	Local bus: up to 15 VMU-S0 units in the same bus [S]	Local bus: one VMU-P unit per bus [S]
Others	Front dual colour LED to show the status of the unit	Diagnostics functions: wrong PV panel connection	Front multicolor LED to show the status of the unit
<b>General specifications</b>			
Power supply	12 to 28 VDC power supply [A]	Self-power supply from VMU-ML unit [X]	Self-power supply from VMU-ML unit [X]
Approvals/Marks	CE - cULus Listed	CE - cULus Listed	CE - cULus Listed
<b>References</b>			
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>			

# PV monitoring solutions





	Solar irradiance sensor		Pyranometer
Types	PVS-1V	PVS-1A	PVS-2A
			
Dimensions (mm)	57 x 48 x 15 (not including clamp)	62 x 48 x 15 (not including clamp)	162 x 215 x 40
Description	Solar irradiance sensor based on photovoltaic technology built with a solid aluminium case and anti-UV encapsulating resin	Solar irradiance sensor based on photovoltaic technology built with a solid aluminium case and anti-UV encapsulating resin	Global solar radiation sensor based on a thermopile transducer compliant with WMO (World Meteorological Organization) standards for environmental monitoring, provided with worldwide valid calibration certificate
<b>Environmental specification</b>			
Operating temperature	-10°C to 80°C	-10°C to 80°C	-40°C to 80°C
Degree of protection	IP 67	IP 67	IP 67
<b>General specification</b>			
Technology	Crystalline calibrated cell	Crystalline calibrated cell	2nd Class Thermopile Pyranometer according to ISO9060
Output	80 mV @ 1000 W/m <sup>2</sup> STC	4-20 mA	4-20 mA
Calibration	According to IEC 60904-2 and 60904-4 (calibration certificate as option)	According to IEC 60904-2 and 60904-4 (calibration certificate as option)	According to ISO9847 (calibration certificate included)
Solar irradiance range	0-1250 W/m <sup>2</sup>	0-1250 W/m <sup>2</sup>	0-2000 W/m <sup>2</sup>
Connector	3 PIN Phoenix M8 IP67 connector (male and female included)	3 PIN Phoenix M8 IP67 connector (male and female included)	7 pin IP68 connector (male, female and 10 meters cable included)
Housing material	Aluminium	Aluminium	Aluminium
Power Supply	Self-powered	Powered by VMU-P module through the 4-20 mA current loop	10-28 VDC, power consumption < 0.1 W
Approvals/Marks	CE	CE	CE
<b>References</b>			
For ordering key details, please refer to <a href="http://www.gavazziautomation.com">www.gavazziautomation.com</a>			

# Building automation

Controller			
Function	Home	Building	Hotel
		 	
Dimensions (mm)	2-DIN module	2-DIN module	2-DIN module
Functions	Controller with home/building automation functions and energy data logging configurable by software	BACnet controller, BTL certified, converting Dupline® and Energy Meter data points to BACnet/IP objects	Room controller for hotel application. Programmable light functions to control DALI lamps
<b>Electrical specifications</b>			
Power supply	24 VDC ± 20%	24 VDC ± 20%	24 VDC ± 20%
<b>General specifications</b>			
LEDs	Green, yellow, blue, red	Green, yellow, blue, red	Green, yellow, blue, red
Mounting	DIN-rail (2 modules)	DIN-rail (2 modules)	DIN-rail (2 modules)
Degree of protection	Front: IP 40 Screw terminal: IP 20	Front: IP 40, Screw terminal: IP 20	Front: IP 40, Screw terminal: IP 20
Pollution degree	2 (IEC 60664-1, par. 4.6.2)		2 (IEC 60664-1, par. 4.6.2)
Operating temperature	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C
Storage temperature	-30°C to +70°C	-30°C to +70°C	-30°C to +70°C
Humidity (non condensing)	90% @ 40°C	90% @ 40°C	90% @ 40°C
Main features	Home automation master unit with datalogging capability. Linux based PC with 2 USB ports, ethernet port, 2 RS485 ports, local bus	Automatically creates BACnet/IP objects for all Dupline and energy meter data points. Ethernet port for BACnet/IP communication	Programmable room controller for hotels/homes. Linux based PC with 2 USB ports, ethernet port, local bus
<b>References</b>			
	SH2WEB24	SB2WEB24	SA2WEB24





# Building automation

## Bus generators




Function	Wired	Wired	Wireless	DALI Master
				
Dimensions (mm)	2-DIN module	2-DIN module	2-DIN module	2-DIN module
Functions	Smart Dupline® generator	Dupline® generator	Wireless base unit for generating wireless network	DALI Master and DALI Power supply
<b>Electrical specifications</b>				
Power supply	24 VDC ± 20%	24 VDC ± 20%	24 VDC, 115-240 VAC	230 VAC
<b>General specifications</b>				
LEDs	Green, yellow	Green, yellow	Green, yellow, blue	Green, yellow, yellow
Mounting	DIN-rail (2 modules)	DIN-rail (2 modules)	DIN-rail (2 modules)	DIN-rail (2 modules)
Degree of protection	Front: IP 40, Screw terminal: IP 20	Front: IP 40, Screw terminal: IP 20	Front: IP 40, Screw terminal: IP 20	Front: IP 40, Screw terminal: IP 20
Pollution degree	2 (IEC 60664-1, par. 4.6.2)	2 (IEC 60664-1, par. 4.6.2)	2 (IEC 60664-1, par. 4.6.2)	2 (IEC 60664-1, par. 4.6.2)
Operating temperature	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C
Storage temperature	-50°C to +85°C	-50°C to +85°C	-50°C to +85°C	-40°C to +70°C
Humidity (non condensing)	20 to 80 %	20 to 80 %	20 to 80 %	20 to 80 %
Main features	Smart Dupline® bus generator. Connection of up to 250 slave modules	Dupline® bus generator	Wireless bus generator. Connection of up to 250 slave modules. Based on IEEE 802.15.4, @ 2.4 GHz. Range up to 700 m	Acts as a gateway between Smart Dupline® and DALI. Enables the use of DALI lighting actuators in the system - Tunable white management
<b>References</b>				
	SH2MCG24	SH2DUG24	SH2WBU230N	SB2DALIT8230






# Building automation

	Network module	USB dongle connection module	Relay modules	
Function	Repeater		SPST relay	Bistable relay
				
Dimensions (mm)	2-DIN module	2-DIN module	2-DIN module	2-DIN module
Functions	Repeater and isolator	Remote access by Internet when a wired connection is not available Plug'n'play configuration SMS alerting SMS commands Email alertin	Four-relay output module	Four-relay output module
<b>Electrical specifications</b>				
Outputs			4	4
Power supply	230 VAC	12 to 28 VDC	24 VDC	Bus
<b>General specifications</b>				
LEDs	Green, yellow, yellow	Green	Green, yellow, red	Green, yellow, red
Mounting	DIN-rail (2 modules)	DIN-rail (2 modules)	DIN-rail (2 modules)	DIN-rail (2 modules)
Degree of protection	Front: IP 40, Screw terminal: IP 20	Front: IP 40, Screw terminal: IP 20	Front: IP 40, Screw terminal: IP 20	Front: IP 40, Screw terminal: IP 20
Pollution degree	2 (IEC 60664-1, par. 4.6.2)		2 (IEC 60664-1, par. 4.6.2)	2 (IEC 60664-1, par. 4.6.2)
Operating temperature	0°C to +50°C	-25°C to +65°C	-20°C to +50°C	-20°C to +50°C
Storage temperature	-50°C to +85°C	-30°C to +70°C	-50°C to +85°C	-50°C to +85°C
Humidity (non condensing)	20 to 90 %		20 to 80 %	20 to 80 %
Main features	Extends the transmission distance by regenerating the carrier signal and providing 300 mA bus output. Acts as an isolator between primary and secondary Dupline®	Compatible with Sx2WEB system Mobile Internet connection Compatible with USB dongle modems. Watchdog features to prevent common mobile network hassles	Load: 5 A, voltage free x 4 Local bus	Load: 16 A, 230 VAC x 4 Local bus
<b>References</b>				
	<b>SB2REP230</b>	<b>SH2DSP24</b>	<b>SH2RE1A424</b>	<b>SH2RE16A4</b>





## Building automation

Relay modules			
Output type	Bistable relay	Bistable relay	Wireless relay
			
Dimensions (mm)	2-DIN module	26 x 39 x 17	40 x 45 x 31
Functions	Two-relay output module with energy measurement	Small sized remote relay output	Wireless relay output module with energy measurement
Electrical specifications			
Outputs	2	1	1
Power supply	230 VAC	Bus	230/110 VAC
General specifications			
LEDs	Green, yellow, red		Green, blue
Mounting	DIN-rail (2 modules)	Decentralized	
Degree of protection	Front: IP 40, Screw terminal: IP 20		
Pollution degree	2 (IEC 60664-1, par. 4.6.2)	3 (IEC 60664)	2 (IEC 60664-1, par. 4.6.2)
Operating temperature	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C
Storage temperature	-50°C to +85°C	-50°C to +85°C	-50°C to +85°C
Humidity (non condensing)	20 to 80 %	20 to 80 %	20 to 80 %
Main features	Load: 16 A, 230 VAC x 2 Energy reading, Local bus	Load: 13 A, 250 VAC	Load: 10 A, 250 VAC Energy reading, Wireless
References			
	<b>SH2RE16A2E230</b>	<b>BDA-RE13A-U</b>	
230 VAC			<b>SHJWRE10AE230</b>
115 VAC			<b>SHJWRE10AE115</b>
Capacitive push buttons			<b>SHJWRE10AExLS230</b>





# Building automation

		Roller blind modules		
Output type	SPST relay	SPST relay	SPST relay	SPST relay
				
Dimensions (mm)	50 x 50 x 30	2-DIN module	2-DIN module	
Functions	Decentralized module for up/down control of one rollerblind motor	Relay output module for up/down control of two AC rollerblind motors	Relay output module for up/down control of two DC rollerblind motors	
<b>Electrical specifications</b>				
Outputs	1 SPST relay & 1 SPDT relay	2 SPST + 2 SPDT relay	2 SPST + 2 SPDT relay	
Inputs	AC	AC	DC	
Power supply	230 VAC ± 15%	24 VDC ± 20%	24 VDC ± 20%	
<b>General specifications</b>				
LEDs		Green, yellow, red	Green, yellow, red	
Mounting	Eurobox	DIN-rail (2 modules)	DIN-rail (2 modules)	
Degree of protection		Front: IP 40, Screw terminal: IP 20	Front: IP 40, Screw terminal: IP 20	
Pollution degree	3 (IEC 60664)	2 (IEC 60664-1, par. 4.6.2)	2 (IEC 60664-1, par. 4.6.2)	
Operating temperature	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C	
Storage temperature	-50°C to +85°C	-50°C to +85°C	-50°C to +85°C	
Humidity (non condensing)	20 to 80 %	20 to 80 %	20 to 80 %	
Main features	Up/down control, tilting, local bus	Up/down control, tilting, local bus	Up/down control, tilting, local bus	
<b>References</b>				
	SHDRODC230	SH2ROAC224	SH2RODC224	





# Building automation

		Dimmer modules		Output modules	
Output type	Power mosfet	Wireless dimmer	1 to 10 V output	Solid state relay	
					
Dimensions (mm)	2-DIN module	40 x 45 x 31	2-DIN module	2-DIN module	
Functions	Power dimmer up to 500 W for R, L, C load and LED lamps	Power dimmer up to 200 W for R, L, C load and LED lamps	Analogue output dimmer for adjustable ballast with 1 to 10 V input	Four-solid-state relay output module	
<b>Electrical specifications</b>					
Outputs	1	1	4	4	
Power supply	230 VAC	230/110 VAC	24 VDC ± 20%	24 VDC ± 20%	
<b>General specifications</b>					
LEDs	Green, yellow, red	Green, blue	Green, yellow, red	Green, yellow, red	
Mounting	DIN-rail (2 modules)		DIN-rail (2 modules)		DIN-rail (2 modules)
Degree of protection	Front: IP 40, Screw terminal: IP 20		Front: IP 40, Screw terminal: IP 20		Front: IP 40, Screw terminal: IP 20
Pollution degree	2 (IEC 60664-1, par. 4.6.2)	2 (IEC 60664-1, par. 4.6.2)	2 (IEC 60664-1, par. 4.6.2)	2 (IEC 60664-1, par. 4.6.2)	
Operating temperature	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C	
Storage temperature	-50°C to +85°C	-50°C to +85°C	-50°C to +85°C	-50°C to +85°C	
Humidity (non condensing)	20 to 80 %		20 to 80 %		20 to 80 %
Main features	Local bus / Energy reading	Wireless universal dimmer with energy reading		Load: 10 W x 4 Local bus	
<b>References</b>					
With energy reading	<b>SH2D500WE230</b>				
Without energy reading	<b>SH2D500W1230</b>				
230 VAC	<b>SHJWD200WE230</b>				
115 VAC	<b>SHJWD200WE115</b>				
Capacitive push buttons	<b>SHJWD200WExLS230</b>				
			<b>SH2D10V424</b>	<b>SH2SSTRI424</b>	

## Building automation





	Energy meter modules		Digital input module	Fire damper
Function	Dupline® connection	Wireless	4 inputs	I/O module
				
Dimensions (mm)	2-DIN module	40 x 45 x 31	2-DIN module	150x110x70
Functions	Energy meter with direct connection up to 16 A	Energy meter with direct connection up to 16 A	Input module, configurable as contact or pulse counter	I/O-module for control of two fire dampers
<b>Electrical specifications</b>				
Inputs			4	4
Outputs				2
Power supply	115...240 VAC	115...240 VAC	24 VDC ± 20%	24...230 VAC
<b>General specifications</b>				
LEDs	Green, yellow, red	Green, blue	Green, yellow, red	Green, yellow (3)
Mounting	DIN-rail (2 modules)		DIN-rail (2 modules)	Box ready for wall mounting
Degree of protection	Front: IP 40, Screw terminal: IP 20		Front: IP 40, Screw terminal: IP 20	IP50
Pollution degree	2 (IEC 60664-1, par. 4.6.2)	2 (IEC 60664-1, par. 4.6.2)	2 (IEC 60664-1, par. 4.6.2)	2 (IEC 60664-1, par. 4.6.2)
Operating temperature	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C	0°C to +50°C
Storage temperature	-50°C to +85°C	-50°C to +85°C	-50°C to +85°C	-50°C to +85°C
Humidity (non condensing)	20 to 80 %	20 to 80 %	20 to 80 %	20 to 90 %
Main features	Values readout: A, V, W, Wdmd, VA, var, PF, kWh	Values readout: A, V, W, Wdmd, VA, var, PF, kWh	Voltage free, NPN, PNP, counter	Box ready for decentral mounting near dampers
<b>References</b>				
			<b>SH2INDI424</b>	
115...230 VAC	<b>SH2EM16A230</b>			
230 VAC		<b>SHJWEM16A230</b>		<b>SBB4I20230</b>
115 VAC		<b>SHJWEM16A115</b>		
24 VAC				<b>SBB4I2024</b>

## Building automation





	Transparent module	Analogue output modules	Analogue input modules	
Function		0 to 10 V output	Input module	Pulse counter
				
Dimensions (mm)	8.5 x 90 x 67	50 x 30 x 18	50 x 30 x 18	28 x 14 x 10
Functions	Transparent module for simplifying the wiring of the smart-house installation	Output module with 2 analogue outputs	Input module with 2 analogue inputs	Decentral 4 input pulse counter module
<b>Electrical specifications</b>				
Inputs			2 x 0-20 / 4-20 mA inputs	
Outputs		2 x 0-10 VDC		
Power supply	No power supply needed	24 VDC	24 VDC	Powered by bus
<b>General specifications</b>				
Mounting	DIN-rail	Inside wall box or environmental sensor housings	Inside wall box or environmental sensor housings	small sized plug-in
Degree of protection	Front: IP 40 Screw terminal: IP 20	IP 20	IP 20	IP 20
Pollution degree	2 (IEC 60664-1, par. 4.6.2)	2(IEC 60664-1, par. 4.6.2)	2 (IEC 60664-1, par. 4.6.2)	
Operating temperature	-20°C to +50°C	0°C to +50°C	0°C to +50°C	0°C to +50°C
Storage temperature	-30°C to +70°C	-50°C to +85°C	-50°C to +85°C	-50°C to +70°C
Humidity (non condensing)	20 to 80 %	20 to 90 %	20 to 90 %	20 to 90%
<b>References</b>				
	<b>SH1DUPFT</b>	<b>SHPOUTV224</b>	<b>SHPINA224</b>	
50 inputs				<b>SHPINCTS04</b>
Contact inputs				<b>SHPINCNT4</b>

# Building automation

## Analogue input modules


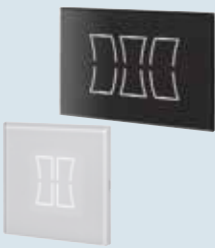


Function	Input module	Input module	Input module	Input module
				
Dimensions (mm)	50 x 30 x 18	50 x 30 x 18	50 x 30 x 18	50 x 30 x 18
Functions	Input module with 3 analogue inputs	Input module with 4 analogue inputs	Input module with 2 analogue inputs	Input module with 2 analogue inputs
<b>Electrical specifications</b>				
Inputs	3 x 0-10 VDC	2 x 0-10 VDC, 1 x thermistor 10K3 input 1 x variable resistor 1-11 K $\Omega$	1 x thermistor 10K3 1 x variable resistor 1-11 K $\Omega$	2* Ni1000/Pt1000 inputs
Power supply	24 VDC	24 VDC	Bus	Bus
<b>General specifications</b>				
Mounting	Inside wall box or environmental sensor housings	Inside wall box or environmental sensor housings	Inside wall box or environmental sensor housings	Inside wall box or environmental sensor housings
Degree of protection	IP 20	IP 20	IP 20	IP 20
Pollution degree	2 (IEC 60664-1, par. 4.6.2)	2 (IEC 60664-1, par. 4.6.2)	2 (IEC 60664-1, par. 4.6.2)	2 (IEC 60664-1, par. 4.6.2)
Operating temperature	0°C to +50°C	0°C to +50°C	0°C to +50°C	0°C to +50°C
Storage temperature	-50°C to +85°C	-50°C to +85°C	-50°C to +85°C	-50°C to +85°C
Humidity (non condensing)	20 to 90 %	20 to 90 %	20 to 90 %	20 to 90 %
<b>References</b>				
	<b>SHPINV324</b>	<b>SHPINV2T1P124</b>	<b>SHPINT1P1</b>	<b>SHPINNI2</b>

# Building automation

Light switch interfaces		Input modules		
Function	Input module	Input/output	Digital	Voltage
				
Dimensions (mm)	28 x 28 x 10	28 x 28 x 10	89 x 66 x 29	28 x 28 x 10
Functions	Input module for voltage free outputs	Input / output module for voltage free outputs and PNP transistor inputs	Input module for voltage free outputs or NPN transistor outputs	Opto-isolated input voltage module, 90-265 VAC
<b>Electrical specifications</b>				
Inputs	4/8	4	4-contact or NPN transistor inputs	90 - 265 VAC
Outputs		4 PNP		
Power supply	Powered by bus	Powered by bus	Powered by bus	Powered by bus
<b>General specifications</b>				
LEDs			Green, yellow, red	
Mounting	In a junction box or behind a switch/pushbutton input	In a junction box or behind a switch/pushbutton input		
Degree of protection	IP 20	IP 20	IP 20	IP 20
Pollution degree				3 (IEC 60664)
Operating temperature	0°C to +50°C	0°C to +50°C	-20°C to +50°C	-20°C to +50°
Storage temperature	-20°C to +70°C	-20°C to +70°C	-50°C to +85°C	-50° to +70°C
Humidity (non condensing)	20 to 80%	20 to 80 %	20 to 80%	20 to 80%
<b>References</b>				
			<b>BDD-INCON4-U</b>	<b>BDA-INVOL-U</b>
4 contacts	<b>BDB-INCON4-U</b>			
8 contacts	<b>BDB-INCON8-U</b>			
Output voltage 3.3 V		<b>BDB-IOCP8-U</b>		
Output voltage 8 V		<b>BDB-IOCP8A-U</b>		



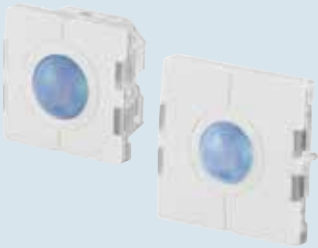


# Building automation

Input modules		Glass switches			
Function	Wireless	Switch	Dimming	Temperature	
					
Dimensions (mm)	40 x 45 x 31	120 x 80 x 27.2 80 x 80 x 27.9	120 x 80 x 27.2 80 x 80 x 27.9	120 x 80 x 27.2 80 x 80 x 27.9	
Functions	Decentral 4 input and pulse counter module. Operating distance 700m open space	Programmable glass touch switch	Programmable glass touch switch for dimming control	Programmable glass touch switch for temperature control	
<b>Electrical specifications</b>					
Number of switches		4/6	4	4	
Power supply	115...240 VAC	24 VDC	24 VDC	24 VDC	
<b>General specifications</b>					
Colour		Black/white	Black/white	Black/white	
LEDs	Green, blue	Blue/white	Blue/white	Blue/white	
Mounting		Ø60 box, 503 box	Ø60 box, 503 box	Ø60 box, 503 box	
Degree of protection		IP 20	IP 20	IP 20	
Pollution degree	2 (IEC 60664-1, par. 4.6.2)	3 (IEC 60664)	3 (IEC 60664)	3 (IEC 60664)	
Operating temperature	-20°C to +50°C	-10°C to +50°C	-10°C to +50°C	-10°C to +50°C	
Storage temperature	-50°C to +85°C	-20°C to +70°C	-20°C to +70°C	-20°C to +70°C	
Humidity (non condensing)	20 to 80 %	20 to 80%	20 to 80%	20 to 80%	
Remarks		Approved according to UL60950, integrated temperature probe	Approved according to UL60950	Approved according to UL60950, integrated temperature probe	
<b>References</b>					
4 contacts	SHJWINS04230, SHJWINS04115				
4 push buttons, Ø60 box		SHG060WLS4, SHG060BLS4			
6 push buttons, 503 box		SHG503WLS6, SHG503BLS6			
Display for dimming, Ø60 box			SHG060WSLD, SHG060BSLD		
Display for dimming, 503 box			SHG503WSLD, SHG503SLD		
Temperature display, Ø60 box				SHG060WSLT, SHG060BSLT	
Temperature display, 503 box				SHG503WSLT, SHG503BSLT	

# Building automation

## Light switches

Function	4 pushbutton	4 pushbutton	4 pushbutton + PIR + Luxmeter
			
Dimensions (mm)	44 x 44 / 55 x 55	44 x 44 / 55 x 55	44 x 44 / 55 x 55
Functions	Light switch for building automation applications	Wireless light switch for building automation applications	Light switch and PIR sensor for detecting presence and/or movement in indoor installations

### Electrical specifications

Number of switches	4	4	4
Power supply	Powered by bus	Supplied by battery, type Lithium button 2450 3V	Powered by bus




### General specifications

Colour	Black/white	Black/white	Black/white
LEDs	White/blue	Red/blue	White/blue
Mounting	Compatible with many types of wall boxes see datasheet	Compatible with many types of wall boxes see datasheet	Compatible with many types of wall boxes see datasheet
Degree of protection	IP 20	IP 20	IP 20
Pollution degree	3 (IEC 60664)	3 (IEC 60664)	3 (IEC 60664)
Operating temperature	-20°C to +50°C	-20°C to +50°C	0°C to +50°C
Storage temperature	-30°C to +60°C	-30°C to +60°C	-20°C to +70°C
Humidity (non condensing)	20 to 80%	20 to 80%	20 to 80%
Other functions	Humidity and temperature sensor (...TH)	55x55: Flat design, mountable on any surface, embedded temperature sensor	Operating distance: 8 m Angle: 90°
Remarks	Approved according to UL60950	Approved according to UL60950	Approved according to UL60950

### References

44 x 44 Wallbox Btcino, Niko, Fuga	<b>B4X-LS4-U</b>	<b>SHA4XWLS4</b>	<b>SHA4XLS4P90L</b>
55 x 55 Compatible with many types of wall boxes - see datasheet	<b>B5X-LS4-U</b>	<b>SHE5XWLS4WF</b> <b>SHE5XWLS4BF</b>	<b>SHE5XLS4P90L</b>
55 x 55 Compatible with many types of wall boxes - see datasheet Temperature		<b>SHE5XWLS4WFT</b> <b>SHE5XWLS4BFT</b>	
44 x 44 Wallbox Btcino, Niko, Fuga Temperature and humidity	<b>SHA4XLS4TH</b>		
55 x 55 Compatible with many types of wall boxes - see datasheet Temperature and humidity	<b>SHE5XLS4TH</b>		

# Building automation

	Temperature display	Movement / Presence sensors	
Function		150° PIR /Luxmeter	90° PIR/Luxmeter
			
Dimensions (mm)	44 x 44 / 55 x 55	44 x 44 / 55 x 55	44 x 44 / 55 x 55
Functions	Temperature controller with display	PIR sensor for detecting presence and/or movement in indoor installations	PIR sensor for detecting presence and/or movement in indoor installations

## Electrical specifications

Number of switches	4		
Power supply	Powered by bus	Powered by bus	Powered by bus

## General specifications





Colour	White/black	White/black	White/black
LEDs	White/blue	White/blue	White/blue
Mounting	Wallbox Btcino, Niko, Fuga / Elko, Gira, Jung	Wallbox Btcino, Niko, Fuga / Elko, Gira, Jung	Wallbox Btcino, Niko, Fuga / Elko, Gira, Jung
Degree of protection	IP 20	IP 20	IP 20
Pollution degree	3 (IEC 60664)	3 (IEC 60664)	3 (IEC 60664)
Operating temperature	-10°C to +50°C	-20°C to +50°C	0°C to +50°C
Storage temperature	-20°C to +70°C	-30°C to +70°C	-20°C to +70°C
Humidity (non condensing)	20 to 80%	20 to 80%	20 to 80%
Remarks	Approved according to UL60950	Operating distance: 8 m angle: 150°	Operating distance: 8 m Angle: 90°

## References

44 x 44 Wallbox Btcino, Niko, Fuga	<b>SHA4XTEMDIS</b> <b>SHA4XLS2TEMDIS</b>	<b>SHA4XP150/SHA4XP150L</b>	<b>B4X-PIR90-U</b>
55 x 55 Compatible with many types of wall boxes - see datasheet	<b>SHE5XTEMDIS</b> <b>SHE5XLS2TEMDIS</b>	<b>SHE5XP150/SHE5XP150L</b>	<b>B5X-PIR90-U</b>
44 x 44 Wallbox Btcino, Niko, Fuga + luxmeter			<b>SHA4XP90L</b>
55 x 55 Compatible with many types of wall boxes - see datasheet + luxmeter			<b>SHE5XP90L</b>

## Building automation

### Movement / Presence sensors

Function	90° PIR/ Luxmeter	90° PIR/ Luxmeter	90° PIR/ Luxmeter	360° PIR/ Luxmeter
				
Dimensions (mm)	104 x 55 x 57	Ø 76 x 25	67 x 52 x 34	Ø 90 x 40
Functions	PIR sensor for detecting presence and/or movement in indoor installations	PIR sensor for detecting presence and/or movement in indoor installations	PIR sensor for detecting presence and/or movement in indoor /outdoor installations	PIR sensor for detecting presence and/or movement in indoor installations with a built-in luxmeter

### Electrical specifications

Power supply	Powered by bus	Powered by bus	Powered by bus	Powered by bus
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### General specifications

Colour	White	White	White	White
LEDs	Red	Blue	Red	Blue
Mounting	Wall mounting	LK ceilingbox PL52 or PL55	Wall mounting	Ceiling mounting
Degree of protection	IP 40	IP 20	IP 64 / IP 20	IP 20
Pollution degree	3 (IEC 60664)	3 (IEC 60664)	3 (IEC 60664)	3 (IEC 60664)
Operating temperature	0°C to +50°C	0°C to +50°C	-20°C to +50°C	0°C to +50°C
Storage temperature	-20°C to +70°C	-20°C to +70°C	-30°C to +70°C	-20°C to +70°C
Humidity (non condensing)	20 to 80%	20 to 80%	20 to 80%	20 to 80%
Main features	Operating distance: 12 m Angle: 90°	Operating distance: ≤ 8 m Angle: 90°	Operating distance: 0.5 - 15 m Angle: 90°	Operating distance: ≤ 7.5 m Angle: 360° Lens: dual detecting zones





### References

	<b>BSD-PIR90-U</b>	<b>BSB-PIR90-U</b>	<b>SHSQP360L</b>
Luxmeter	<b>SHSDP90L</b>	<b>SHSBP90L</b>	
Outdoor			<b>BSP-PIR90-U</b>
Indoor			<b>BSP-PIR90A-U</b>
Outdoor + luxmeter			<b>SHSPP90L</b>
Indoor + luxmeter			<b>SHSPP90LA</b>





# Building automation

	Touch displays		Environmental sensors	
Function	Graphical display	Display	RGB LED	Blind
				
Dimensions (mm)	187 x 147 / 147 x 107	80 x 90 x 26	80 x 90 x 26	80 x 90 x 26
Functions	High definition 7" and 4.3" colour touchscreens, BACnet, Modbus and KNX gateway	Room sensors for CO <sub>2</sub> , temperature and %RH measurement - with display	Room sensors for CO <sub>2</sub> , temperature and %RH measurement - with LED indication	Room sensors for CO <sub>2</sub> , temperature and %RH measurement
<b>Electrical specifications</b>				
Power supply	24 VDC ± 20%	Bus	Bus	Bus
<b>General specifications</b>				
Mounting	Wall mounting	Wall mounting	Wall mounting	Wall mounting
Indication	Display	Display	Red, green, blue	None
Degree of protection	Front: IP66 Rear: IP20	IP 20	IP 20	IP 20
Pollution degree		2 (IEC 60664-1, par. 4.6.2)	2 (IEC 60664-1, par. 4.6.2)	2 (IEC 60664-1, par. 4.6.2)
Operating temperature	0°C to +50°C	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C
Storage temperature	-20°C to +70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C
Humidity (non condensing)	5 to 85% RH	0 to 90 %	0 to 90 %	0 to 90 %
Main features	Windows CE, 7", 800 x 480 pixel / 4.3", 480 x 272 pixel, Ethernet port, BACnet, Modbus, KNX, data logging, configurable graphical display and alarms management	CO <sub>2</sub> measuring range: 0 to 2000 ppm CO <sub>2</sub> measurement: Dual source infrared NDIR technology Temperature measuring range: -20°C to +50°C (-4 to 122°F) Humidity measuring range: 0 to 100 %RH	CO <sub>2</sub> measuring range: 0 to 2000 ppm CO <sub>2</sub> measurement: Dual source infrared NDIR technology Temperature measuring range: -20°C to +50°C (-4 to 122°F) Humidity measuring range: 0 to 100 %RH	CO <sub>2</sub> measuring range: 0 to 2000 ppm CO <sub>2</sub> measurement: Dual source infrared NDIR technology Temperature measuring range: -20°C to +50°C (-4 to 122°F) Humidity measuring range: 0 to 100 %RH
<b>References</b>				
7", 800 x 480 pixel	<b>BTM-T7-24</b>			
4.3", 480 x 272 pixel	<b>BTM-T4-24</b>			
Display, CO <sub>2</sub> + temperature		<b>SHSUCOTD</b>		
Display, CO <sub>2</sub> + temperature + humidity		<b>SHSUCOTH</b>		
Display, temperature + humidity		<b>SHSUTH</b>		
Display, temperature		<b>SHSUTD</b>		
RGB Led, CO <sub>2</sub> + temperature			<b>SHSUCOTL</b>	
RGB Led, temperature + humidity			<b>SHSUCOHL</b>	
CO <sub>2</sub> + temperature				<b>SHSUCOT</b>
CO <sub>2</sub> + temperature + humidity				<b>SHSUCOTH</b>
Temperature + humidity				<b>SHSUTH</b>
Temperature				<b>SHSUT</b>


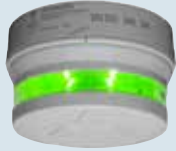

## Building automation

	Smoke	Water	Window	Alarm
Function	Smoke detector	Water sensor	Wireless sensor	Keypad
				
Dimensions (mm)	Ø 100 x 54	70 x 39 x 15.5	sensor: 60 x 30 x 15.5, magnet: 32 x 10.2 x 11.5	130 x 50 x 8
Functions	Smoke detector for home/ building applications	Water detection sensor for home/building applications	Wireless, battery powered reed sensor with additional input	Programmable keypad for building access control and alarm control in indoor and outdoor applications
<b>Electrical specifications</b>				
Inputs			Reed, voltage free	12 pushbuttons
Power supply	Powered by bus / 9 VDC battery	Powered by bus	Battery	9-17 VDC
<b>General specifications</b>				
Colour	White	White	White	Black / white
LEDs	Red		Red/blue	Yellow, red, green, programmable
Mounting	Ceiling mounting	Wall mounting	Wall mounting, screw and double side tape	Wall box mounting
Degree of protection	IP 43	IP 67	IP20	IP 67
Pollution degree			2 (IEC 60664-1, par. 4.6.2)	
Operating temperature	0°C to +50°C	-20°C to +50°C	-20°C to +50°C	-15°C to +60°C
Storage temperature	-5°C to +85°C	-50°C to +85°C	-30°C to +85°C	-30° to 80°C
Humidity (non condensing)	20 to 80%	20 to 80 %	20 to 80 %	100%
Main features	Detection area: 60 m <sup>2</sup>	Input for Felson probe		28 user-programmable codes, Buzzer output
<b>References</b>				
		<b>BSF-WAT-U</b>		<b>BACC-KEYPAD-DC-U</b>
Battery backup	<b>BSG-SMOA-U</b>			
No battery backup	<b>BSG-SMO-U</b>			
Reed contact			<b>SHDWWISEN</b>	
Reed contact + voltage free			<b>SHDWWISENIN1</b>	

# Building automation





	Environmental sensor		Light	Temperature
Function	Weather station	Anemometer	Luxmeter	Outdoor
				
Dimensions (mm)	96 x 77 x 118	183 x 137 x 145	55 x 53 x 36	67 x 35 x 15
Functions	Weather station for measurement of temperature, wind speed, brightness and precipitation	Anemometer for building automation applications	Luxmeter for indoor / outdoor installations	Temperature sensor for indoor and outdoor applications
<b>Electrical specifications</b>				
Power supply	12 to 40 VDC / 12 to 28 VAC	Powered by bus	Powered by bus	Powered by bus
<b>General specifications</b>				
Colour	White		White	Light grey
Mounting	Wall mounting	Wall mounting	Wall mounting	Direct wall mounting
Connection				Cable / plug
Degree of protection	IP 44	IP 54	IP 44	IP 67
Pollution degree		2 (IEC 60664-1, par. 4.6.2)		
Operating temperature	-30°C to +50°	-20°C to +60°C	-30°C to +60°C	-40°C to +60°C
Storage temperature	-30°C to +70°C	-20°C to +60°C		-55°C to +85°C
Humidity (non condensing)	5 to 95%	20 to 80%		20 to 80%
Main features	GPS receiver	Measuring range: 2 to 25 m/s Heating system	Measuring range: 0 to 20 kLux	
Remarks				Approved according to UL60950
<b>References</b>				
	<b>SHOWEAGPS</b>	<b>BSN-ANE-U</b>	<b>BSH-LUX-U</b>	
Cable, 2 m				<b>BSI-TEMANAB-U</b>
Plug, M12				<b>BSI-TEMANA-U</b>

# Parking guidance system


	Sensor	LED indicator	Baseholder
<b>Types</b>	<b>SBPSUSLxx</b>	<b>SBPILED</b>	<b>SBPBASEx</b>
			
<b>Dimensions (mm)</b>	Ø116 x 78	Ø116 x 50	Ø116 x 26 / Ø116 x 44
<b>Functions</b>	Ultrasonic sensors for detection of cars and with RGB LED indication	LED indicator with RGB LED indication	Baseholder for Carpark sensors and LED indicator
<b>Housing type</b>	Direct mounting on base holder to rail, ceiling or conduit/pipe	Direct mounting on base holder to rail, ceiling or conduit/pipe	Direct mounting of base holder on rail, ceiling or conduit/pipe
<b>Electrical specifications</b>			
<b>Features/Signal types</b>	3-wire sensor with built-in RGB LEDs. Programmable from the SBP2WEB configuration software. Can detect available or occupied spaces or be used in count systems	3-wire LED indicator with built-in RGB LEDs. Programmable from the SBP2WEB24 configuration software. To be mounted outside the parking space	Baseholder for sensors and LED indicators. No programming. Only wire connected
<b>Power supply</b>	3-wire system with Dupline <sup>®</sup> and sensor supply	3-wire system with Dupline <sup>®</sup> and sensor supply	
<b>General specifications</b>			
<b>Degree of protection</b>	IP 34	IP 34	IP 34
<b>Operating temperature</b>	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C
<b>Storage temperature</b>	-40°C to +85°C	-50°C to +85°C	-50°C to +85°C
<b>References</b>			
45 degree sensor	<b>SBPSUSL45</b>		
Vertical sensor	<b>SBPSUSL</b>		
Counting sensor	<b>SBPSUSCNT</b>		
LED indicator		<b>SBPILED</b>	
Baseholder for cable tray / conduit			<b>SBPBASEA</b>
Baseholder for ceiling			<b>SBPBASEB</b>





# Parking guidance system

	<b>Carpark Master generator</b>	<b>Carpark Controller</b>	<b>Carpark Server</b>	<b>Carpark Display interface</b>
<b>Types</b>	<b>SBP2MCG324</b>	<b>SBP2WEB24</b>	<b>SBP2CPY24</b>	<b>SBP2DI48524</b>
				
<b>Dimensions</b>	2-DIN module	2-DIN module	2-DIN module	2-DIN module
<b>Functions</b>	The Carpark Master Generator provide 28 VDC power and bus on a 3-wire connection with up to 90 sensors	Programmable controller with functions for parking guidance, booking, energy saving. One controller can manage up to 7 Dupline® networks (630 spaces)	Carpark server to link together up to 10 carpark controllers SBP2WEB24 in a TCP/IP network to manage large networks (up to 6300 spaces)	Module which interface between Dupline and Modbus RTU for Carpark displays
<b>Housing type</b>	Mounting on DIN-rail	Mounting on DIN-rail	Mounting on DIN-rail	Mounting on DIN-rail
<b>Electrical specifications</b>				
<b>Features/Signal types</b>	3-wire master generator for carpark sensors and LED indicators. Other smartbuilding components such as PIR, CO sensors and HVAC modules can be connected to the same bus	Various I/O's and function parameters are available as BACnet/IP objects through the Ethernet port, thereby allowing seamless integration with any building management system, thereby allowing energy saving functions for lighting and ventilation	The webserver aggregates data from multiple carpark controllers in a single centralized database, allowing the user to access them as a graphical user interface through a PC with a standard Web-browser	Interface module between Dupline® and Modbus RTU. RS485 to display. Up to 300 m
<b>Power supply</b>	28 VDC	24 VDC	24 VDC	24 VDC
<b>General specifications</b>				
<b>Degree of protection</b>	IP 20	IP 20	IP 20	IP20
<b>Pollution degree</b>	-20°C to +50°C	-25°C to +50°C	-25°C to +50°C	-20°C to +50°C
<b>Operating temperature</b>	-50°C to +85°C	-30°C to +70°C	-30°C to +70°C	-50°C to +85°C
<b>References</b>				
Carpark master generator	<b>SBP2MCG324</b>			
Carpark controller		<b>SBP2WEB24</b>		
Carpark server			<b>SBP2CPY24</b>	
Display interface				<b>SBP2DI48524</b>

# Parking guidance system

				Displays		
Types	SBPDISxxxxT	SBPDISxT	SBPDIS9x			
						
Dimensions (mm)	215 x 215 x 45 215 x 535 x 45 215 x 358 x 45 215 x 428 x 45 215 x 464 x 45	215 x 253 x 45 215 x 360 x 45 215 x 467 x 45	215 x 950 x 45			
Functions	Displays with: green arrow or red cross, disabled sign and up to 3 clear white digits. Programmable from Carpark software	Displays with: 2 - 4 clear white digits. Programmable from Carpark software	9 character matrix display with clear white LED. Can combine text and digits. Programmable from Carpark software			
Housing type	Black aluminium box with acrylic glass front	Black aluminium box with acrylic glass front	Black aluminium box with acrylic glass front			
Electrical specifications						
Power supply	24 VDC / 5-25 W (40- 60 W heated version)	24 VDC / 14-30 W (50-65 W heated version)	24 VDC / 62 W (120 W heated version)			
Features						
	Guides the driver by showing moving green arrow or red cross as well as number of free spaces for a lane or area in the carpark. Blue sign for disabled can be added. RS485 communication	Guides the driver by showing number of free spaces for a lane or area in the carpark by the use of clear white digits. RS485 communication	Show a text or a combination with up to 4 digits on max. 9 character. The text is of costumers own choice. RS485 communication			
General specifications						
Degree of protection	IP 54	IP 54	IP 54			
Pollution degree	3 (IEC 60664)	3 (IEC 60664)	3 (IEC 60664)			
Operating temperature	-20°C to +50°C -40°C to + 50°C (heated version)	-20°C to +50°C -40°C to + 50°C (heated version)	-20°C to +50°C -40°C to + 50°C (heated version)			
Humidity	5 to 90% non condensing	5 to 90% non condensing	5 to 90% non condensing			
References						
Arrow	SBPDISA (T)					
Arrow / disabled	SBPDISARH (T) / SBPDISALH (T)					
Arrow / disabled / 1 digit	SBPDIS1ARH (T) / SBPDIS1ALH (T)					
Arrow / 2 digit	SBPDIS2AR (T) / SBPDIS2AL (T)					
Arrow / 3 digit	SBPDIS3AR (T) / SBPDIS3AL (T)					
2 digit	SBPDIS2 (T)					
3 digit	SBPDIS3 (T)					
4 digit	SBPDIS4 (T)					
9 digit	SBPDIS9 (T)					

# DuplineSafe

	Input module	Output module
<b>Types</b>	<b>GS7510 2101</b>	<b>GS3830 0143</b>
		
Dimensions (mm)	57.5 x 36.0 x 16.4	144 x 77 x 70
Functions	Bus-powered safety input module	DuplineSafe relay output module. Monitors up to 63 DuplineSafe inputs
Housing type		DIN-rail mounting H8
<b>Electrical specifications</b>		
Number of channels	2	2
Features/Signal types	1 x NC contact	2 x NO Relays Force Guided contact
Power supply	Powered through the Dupline® network	230 VAC ± 15%
<b>General specifications</b>		
Degree of protection	IP 67	IP 20
Pollution degree	3 (IEC 60664)	3 (IEC 60664)
Operating temperature	-40°C to +50°C	-25°C to +50°C
Storage temperature	-40°C to +70°C	-30°C to +70°C
Humidity (non condensing)	20 to 80%	20 to 80%
Remarks	Approved according to IEC/EN 61508, EN 62061 and ISO/EN 13849-1 PL e	Approved according to IEC/EN 61508, EN 62061 and ISO/EN 13849-1 PL e
<b>References</b>		
Cable connection	<b>GS7510 2101</b>	
Cable connection cULus approved	<b>GS7510 2192</b>	
Plug connector	<b>GS7510 2101-1</b>	
Plug connector cULus approved	<b>GS7510 2192-1</b>	
Output relay		<b>GS3830 0143</b>
Gateway / interface		

# DuplineSafe

## Gateway / interface

Types	GS33910060800	GS3891 0125	GSTI 50
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Dimensions (mm)	90 x 35 x 58.5	144 x 77 x 70	55 x 70 x 15
Functions	Profinet gateway with function as slave. Up to 7 master generators can be connected via the HS RS485 bus. All Dupline signals from master generators are available on Profinet	Profibus-DP Gateway passive with Safety mapping	Dupline® Modbus interface module with Safety mapping
Housing type	DIN-rail mounting H2	DIN-rail mounting H8	Compact plastic housing

### Electrical specifications

Features/Signal types	Reads/controls up to 7 Dupline networks through Profinet. Miniwebserver for diagnostics of Profinet and Dupline networks available.	Reads/controls up to 128 inputs/outputs through Profibus-DP. Communication speed up to 12 MBaud	
Power supply	24VDC	115 = 115 VAC 230 = 230 VAC	Powered by the RS485 com port





### General specifications

Degree of protection	IP 20	IP 20	IP 20
Operating temperature	-20°C to +50°C	0°C to +50°C	-20°C to +60°C
Storage temperature	-30°C to +85°C	-20°C to +85°C	-30°C to +85°C
Humidity (non condensing)	20 to 80%	20 to 80%	
Remarks		Certified by PNO	Supports Modbus RTU function code 3 and code 16

### References

GS33910060800	GS3891 0125	GSTI 50
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# DuplineSafe

	Optical fibre converter	Repeater	Configuration tool	
Types	GS3492/GS3493	GS3892 0000	GS7380 0080	GS7380 0081
				
Dimensions (mm)	77 x 72 x 70	77 x 144 x 70	28 x 90 x 145	25 x 50 x 100
Functions	Optical repeater for converting DuplineSafe from electrical to optical transmission media	DuplineSafe signal repeater for extension of transmission distance	Configuration and test unit for DuplineSafe	USB Configuration unit for DuplineSafe
Housing type	DIN-Rail, H4	DIN-Rail H8	Handheld	Handheld
<b>Electrical specifications</b>				
Number of channels	Adjusts automatically	Adjusts automatically		
Features/Signal types	All Dupline® signal types	Regenerates the Dupline® signal carrier through channel generator output		Windows based programming tool for safety output relay module and safety input modules
Power supply	230 = 115/230 VAC	024 = 024 VAC 115 = 115 VAC 230 = 230 VAC	9 V battery 6LR61	Supplied by the USB port
<b>General specifications</b>				
Degree of protection	IP 20	IP 40	IP 40	IP 40
Pollution degree				3 (IEC 60664)
Operating temperature	0°C to +50°C	0°C to +50°C	0°C to +50°C	0°C to +50°C
Storage temperature	-20°C to +85°C	-50°C to +85°C	-20°C to +70°C	-20°C to +60°C
Remarks	Operates pair-wise. Runs on 50/125, 62.5/125 or 100/140 micro m with STN connectors		Adapt 7380 is included	
<b>References</b>				
		<b>GS3892 0000</b>	<b>GS7380 0080</b>	<b>GS7380 0081</b>
Optical/electrical converter	<b>GS3492 0000</b>			
Electrical/optical converter	<b>GS3493 0000</b>			

# DuplineSafe

## Master Generator

### Types

**GS33900000800**



Dimensions (mm)	90 x 35 x 58.5
Functions	Master channel generator which provide Dupline bus carrier with power and communication for the connected Dupline units
Housing type	DIN-rail mounting H2

### Electrical specifications

Number of channels	128
Features/Signal types	The unit supports Digital in/out, Analink in/out, Mux BCD in/out, 8 bit in/out and Dupline safe in High Dupline current output (450mA)
Power supply	24 VDC

### General specifications




Degree of protection	IP 20
Operating temperature	-20°C to +50°C
Storage temperature	-50°C to +85°C
Humidity (non condensing)	20 to 80%

### References





Dupline Master Channel Generator	<b>GS33900000800</b>
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# Fieldbuses - Industrial

## Channel generators/interfaces

Types	G3490	G3496	G3800
			
Dimensions (mm)	77 x 72 x 70	77 x 72 x 70	77 x 144 x 70
Functions	Standard channel generator	Plug & Play RS232/RS485 Interface with built-in protocols for specific PLC brands and Modbus	Controller and Modbus Interface with built-in GSM Modem (option) or external Radio Modem Logger (option)
Housing type	DIN-Rail, H4	DIN-Rail, H4	DIN-Rail, H8
<b>Electrical specifications</b>			
Number of channels	Selectable	Selectable	Selectable
Features/Signal types		Possibility for 3-wire operation with DC-power on the 3 <sup>rd</sup> wire	4 x Contact/PNP input +4 x PNP 10-30 VDC output 2 x RS232+1 x RS485. Possibility for alarms, monitoring and control via SMS messages
Power supply	024 = 24 VAC 115 = 115 VAC 230 = 230 VAC 824 = 15-30 VDC	700 = 20-30 VDC	800 = 10-30 VDC 230 = 115-230 VAC
<b>General specifications</b>			
Degree of protection	IP 20	IP 20	IP 20
Operating temperature	-20°C to +50°C	0°C to +50°C	0°C to +50°C
Storage temperature	-50°C to +85°C	-50°C to +85°C	-20°C to +85°C
Remarks		Built-in protocol for specific PLC brands for easy interfacing	Up to 32 controllers can be networked together via RS485 or Ethernet via converter module
<b>References</b>			
Channel Generator	<b>G3490 0000</b>		
Mitsubishi	<b>G3496 0003</b>		
Omron	<b>G3496 0004</b>		
Modbus	<b>G3496 0005</b>		
Allen-Bradley	<b>G3496 0006</b>		
Schneider	<b>G3496 0007</b>		
Matsushita	<b>G3496 0009</b>		
-GSM Modem, -RS485			<b>G3800 0015</b>
+GSM Modem, -RS485			<b>G3800 1015</b>
-GSM Modem, +RS485			<b>G3800 0016</b>
+GSM Modem, +RS485			<b>G3800 1016</b>




## Fieldbuses - Industrial

	Channel generators/interfaces		Digital input modules	
Types	G3891	GTI50	G3410 5501	G3420
				
Dimensions (mm)	77 x 144 x 70	55 x 70 x 15 mm	77 x 72 x 70	77 x 72 x 70
Functions	Gateways to Fieldbus systems (Profibus-DP, DeviceNet etc.)	Dupline® Modbus RTU Interface module for Text Displays and Touch screens	Dupline® powered transmitter with 8 monostable volt-free contacts	Input module for external supply with optoisolated inputs
Housing type	DIN-Rail, H8	Closed plastic housing with 25p male sub-D	DIN-Rail, H4	DIN-Rail, H4
<b>Electrical specifications</b>				
Number of channels	Selectable		8	8
Features/Signal types		Supports Modbus RTU function code 3 and code 16	Volt-free input contacts	Contact/NPN Voltage (6-265 VAC/DC)
Power supply	230 = 115/230 VAC	Powered by RS485 port	Powered by Dupline®	024 = 24 VAC 115 = 115 VAC 230 = 230 VAC 800 = 10-30 VDC
<b>General specifications</b>				
Degree of protection	IP 20	IP 20	IP 20	IP 20
Operating temperature	0°C to +50°C	-20°C to +60°C	-20°C to +50°C	-20°C to +50°C
Storage temperature	-20°C to +85°C	-50°C to +85°C	-50°C to +85°C	-50°C to +85°C
Remarks			Low power consumption	
<b>References</b>				
	<b>GTI50</b>			
Profibus-DP with C. G.	<b>G3891 0020</b>			
Profibus-DP analogue output multiplex	<b>G3891 0021</b>			
DeviceNet	<b>G3891 0050</b>			
Lonworks	<b>G3891 0051</b>			
Modbus / TCP	<b>G3891 0052</b>			
Profibus-DP passive	<b>G3891 0120</b>			
8 channel	<b>G3410 5501</b>			
Contact/NPN	<b>G3420 5501</b>			
Voltage	<b>G3420 5502</b>			







# Fieldbuses - Industrial

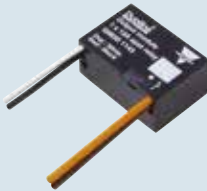



## Digital input modules

Types	G4420 7401	G5010	G8810 2201
			
Dimensions (mm)	36 x 85 x 58	49 x 22.5 x 56	28 x 14 x 10
Functions	Input module for counting of pulses from energy meters, item detectors etc	Dupline® powered single input Module	Small-sized 2-channel monostable transmitter
Housing type	DIN-Rail, H2	DIN-Rail, Mini-E	Plug-in
<b>Electrical specifications</b>			
Number of channels	4	1	2
Features/Signal types	Contact input (DIN 43 864). Max. count frequency: 14 Hz	Contact input	2 contact inputs for push buttons cULus approved
Power supply	230 = 230 VAC 724 = 15-30 VDC	Powered through the Dupline® network	Supplied by Dupline®
<b>General specifications</b>			
Degree of protection	IP 40	IP 20	IP 65
Operating temperature	-20°C to +60°C	-20°C to +50°C	-40°C to +70°C
Storage temperature	-20°C to +85°C	-50°C to +85°C	-40°C to +70°C
Remarks	Decentral counting. Counter values stored in non-volatile memory		Address coding by GAP 1605
<b>References</b>			
4 channel Counter	<b>G4420 7401</b>		
1 channel		<b>G5010 1106</b>	
2 channels		<b>G5010 2206</b>	<b>G8810 2201</b>





## Fieldbuses - Industrial

	Digital I/O modules		Digital output modules	
Types	G3440 4443	G3440 5543	G3430 / G3830	G34305545
				
Dimensions (mm)	77 x 72 x 70	77 x 72 x 70	77 x 72 x 70 77 x 144 x 70 (H8)	77 x 72 x 70
Functions	Combined I/O module for external supply with optoisolated inputs and relay outputs	I/O module for digital signals	Output modules for external supply with isolated outputs	Central relay module with 8 x SPST relays for resistive loads
Housing type	DIN-Rail, H4	DIN-Rail, H4	DIN-Rail, H4 DIN-Rail, H8 (G3830 5543)	DIN-Rail, H4
<b>Electrical specifications</b>				
Number of channels	4	6	1, 2, 4, 8	8
Features/Signal types	2 x 6-265 VAC/DC inputs + 2 x SPST relay outputs	4 opto isolated inputs and 2 SPST relay outputs	10 A SPDT relay 10 A SPST relay 0.7 A NPN transistor 0.7 A PNP transistor	8 x 16 A/250 VAC relays Inrush current: <130 A
Power supply	024 = 24 VAC 115 = 115 VAC 230 = 230 VAC 824 = 15-30 VDC	230 = 230 VAC	024 = 24 VAC 115 = 115 VAC 230 = 230 VAC 800 = 10-30 VDC 824 = 15-30 VDC	024 = 24 VAC 115 = 115 VAC 230 = 230 VAC
<b>General specifications</b>				
Degree of protection	IP 20	IP 20	IP 20	IP 20
Operating temperature	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C	-5°C to +50°C
Storage temperature	-50°C to +85°C	-50°C to +85°C	-50°C to +85°C	-50°C to +85°C
Remarks				Total module load max. 32 A
<b>References</b>				
2 input + 2 output SPST	<b>G3440 4443</b>			
4 input + 2 output SPST		<b>G3440 5543</b>		
1 x 10 A SPDT			<b>G3430 1149</b>	
2 x 10 A SPDT			<b>G3430 2249</b>	
4 x 5 A SPST			<b>G3430 4443</b>	
4 x 16 A SPST			<b>G3430 4445</b>	
8 x 5 A SPST			<b>G3830 5543</b>	
8 x 0.7 A NPN			<b>G3430 5511</b>	
8 x 0.7 A PNP			<b>G3430 5521</b>	
8 x 16 A SPST (Max. 32 A)				<b>G3430 5545</b>




## Fieldbuses - Industrial

	Digital output modules		Analogue input modules	
Types	G8830 1143	G3429 6470	G3210 1161	G3210 1111
				
Dimensions (mm)	26 x 39 x 17	77 x 72 x 70	77 x 36 x 70	77 x 36 x 70
Functions	Decentral relay module with 1 x SPST relay for control of lights	Universal analogue input module for external supply	Analogue input module powered from Dupline® and input signal	Dupline®- powered Analogue input module for Pt100 temperature sensor
Housing type	Compact regular, with solid cables. For decentral installation	DIN-Rail, H4	DIN-Rail, H2	DIN-Rail, H2
<b>Electrical specifications</b>				
Number of channels	1	Selectable	1	1
Features/Signal types	1 x 13 A/250 VAC relay Inrush current: <130 A	4 x isolated analogue input. Input type individually configurable (0-20 mA, 4-20 mA, 0-10 VDC)	1 x 4-20 mA input	1 x Pt100 3-wire input Ranges: (-50°C to +40°C) (+30°C to +120°C) (-10°C to +100°C)
Power supply	Powered through the Dupline® network	024 = 24 VAC 115 = 115 VAC 230 = 230 VAC 800 = 10-30 VDC	Powered through the Dupline® network and 4-20 mA input signal	Powered through the Dupline® network
<b>General specifications</b>				
Degree of protection	IP 20	IP 20	IP 20	IP 20
Operating temperature	0°C to +50°C	0°C to +50°C	0°C to +50°C	0°C to +50°C
Storage temperature	-50°C to +85°C	-20°C to +85°C	-50°C to +85°C	-50°C to +85°C
Remarks	Recommended minimum load 100 mA / 12 V	Protocol freely selectable (Analink, Multiplexed BCD or 8-bit)	Uses Analink 8-bit protocol	Uses Analink 8-bit protocol. Built-in cable compensation
<b>References</b>				
Universal analogue output	<b>G3429 6470</b>			
Dupline® powered analogue input	<b>G3210 1161</b>			
-50°C to +40°C	<b>G3210 1111</b>			
+30°C to +120°C	<b>G3210 1112</b>			
-10°C to +100°C	<b>G3210 1113</b>			
1 x 13 A SPST	<b>G8830 1143</b>			




# Fieldbuses - Industrial

	Analogue output modules	Decentral analogue input modules		
Types	G3439 6470	G8810 6265	G8810 6311	G8810 6312
				
Dimensions (mm)	77 x 72 x 70	50 X 30 X 18	50 X 30 X 18	50 X 30 X 18
Functions	Universal analogue output module for external supply	Decentral analogue module with 3 x 0-10 VDC inputs designed for HVAC systems	Decentral analogue module with 2 x 0-10 VDC, 1 x thermistor and 1 x variable resistor inputs designed for HVAC systems	Decentral analogue module with 1 x thermistor and 1 x variable resistor inputs designed for HVAC systems
Housing type	DIN-Rail, H4	Compact housing for decentral installation	Compact housing for decentral installation	Compact housing for decentral installation
<b>Electrical specifications</b>				
Number of channels	Selectable	3	4	2
Features/Signal types	4 x analogue outputs. Output type configurable for 0-20 mA, 4-20 mA or 0-10 VDC	3 x 0-10 VDC input	2 x 0-10 VDC input 1 x thermistor 10k3 input 1 x variable resistor 1 - 11 KΩ input	1 x thermistor 10k3 input 1 x variable resistor 1 - 11 KΩ input
Power supply	024 = 24 VAC 115 = 115 VAC 230 = 230 VAC 800 = 10-30 VDC	Powered from external 15 - 30 VDC	Powered from external 15 - 30 VDC	Dupline® powered
<b>General specifications</b>				
Degree of protection	IP 20	IP 20	IP 20	IP 20
Operating temperature	0°C to +50°C	0°C to +50°C	0°C to +50°C	0°C to +50°C
Storage temperature	-20°C to +85°C	-20°C to +85°C	-20°C to +85°C	-20°C to +85°C
Remarks	Protocol freely selectable (Analink, Multiplexed BCD or 8-bit)	Analink protocol 8 bit resolution	Analink protocol 8 bit resolution	Analink protocol 8 bit resolution
<b>References</b>				
Universal analogue output	<b>G3439 6470</b>			
Decentral 3 x input		<b>G8810 6265</b>		
Decentral 4 x input			<b>G8810 6311</b>	
Decentral 2 x input Bus powered				<b>G8810 6312</b>



# Fieldbuses - Industrial

	Digital sensors		Temperature sensor
Types	G6110 1145	G8910 1101	G8911 1010
			
Dimensions (mm)	M18 x 55	Ø11 x 68	67 x 35 x 15
Functions	Dupline® powered inductive proximity switch	Dupline® powered magnet proximity switch	Temperature sensor for outdoor use. With built-in PT1000 transducer
Housing type	M18	Cylindrical	Flat pack sensor housing
<b>Electrical specifications</b>			
Number of channels	1	1	1
Features/Signal types	Detects proximity of metal objects	Detects proximity of magnet	1 x Analink Range: -30°C to +60°C
Power supply	Powered through the Dupline® network	Powered through the Dupline® network	Powered through the Dupline® network
<b>General specifications</b>			
Degree of protection	IP 67	IP 67	IP 67
Operating temperature	-25°C to +70°C	-20°C to +50°C	-25°C to +70°C
Storage temperature	-30°C to +80°C	-20°C to +70°C	-55°C to +85°C
Remarks	Available with cable or M12 connector. Flush mounting	Available in Ø 11 plastic housing or with M14 metal thread	8-bit resolution
<b>References</b>			
Cable	G6110 1145		
M12 plug	G6110 1145-1		G8911 1010
Ø11		G8910 1101	
M14		G8910 1101-G	

## Fieldbuses - Industrial




Types	Repeater		Converters	
Housing	D3892 0000	G3491 0040	G3492 / G3493	
				
Dimensions (mm)	77 x 144 x 70	77 x 72 x 70	77 x 72 x 70	
Functions	Dupline® signal Repeater for extension of transmission distance	Private line Modem for long distance transmission of Dupline® signals	Optical repeater for converting Dupline® from electrical to optical transmission media	
Housing type	DIN-Rail, H8	DIN-Rail, H4	DIN-Rail, H4	
<b>Electrical specifications</b>				
Number of channels	Adjusts automatically	Adjusts automatically	Adjusts automatically	
Features/Signal types	All Dupline® signal types. Regenerates the Dupline® signal carrier through channel-generator output	Digital, 8-bit analogue, non-multiplexed 3 1/2 digit BCD analogue	All Dupline® signal types	
Power supply	024 = 24 VAC 115 = 115 VAC 230 = 230 VAC	024 = 24 VAC 115 = 115 VAC 230 = 230 VAC	230 = 115/230 VAC	
<b>General specifications</b>				
Degree of protection	IP 20	IP 20	IP 20	
Operating temperature	0°C to +50°C	0°C to +50°C	0°C to +50°C	
Storage temperature	-50°C to +85°C	-20°C to +85°C	-20°C to +85°C	
Remarks		Operates pair-wise	Operates pair-wise. Runs on 0/125, 62.5/125 or 100/140 micro m with STN connectors	
<b>References</b>				
Repeater (Booster)	<b>D3892 0000</b>			
Long distance modem			<b>G3491 0040</b>	
Optical/electrical converter			<b>G3492 0000</b>	
Electrical/optical converter			<b>G3493 0000</b>	

# Fieldbuses - Industrial

	Display modules	Power supply
<b>Types</b>	<b>G5460 6606</b>	<b>G3485 0000</b>
		
<b>Dimensions (mm)</b>	96 x 96 x 78	77 x 72 x 70
<b>Functions</b>	LED status indicator for 16 Dupline® channels	3-wire power supply, used when multiple Dupline® modules are supplied through a DC-bus
<b>Housing type</b>	Panel mounting	DIN-Rail, H4
<b>Electrical specifications</b>		
<b>Number of channels</b>	16	Selectable
<b>Features/Signal types</b>	Each of the 16 LED's indicates the status of the digital channels assigned to it	Supply current ≤ 4 A (up to 25°C) or ≥ 3 A (up to 50°C)
<b>Power supply</b>	115 = 115 VAC 230 = 230 VAC	15-30 VDC
<b>General specifications</b>		
<b>Degree of protection</b>	IP 40	IP 20
<b>Operating temperature</b>	0°C to +50°C	0°C to +50°C
<b>Storage temperature</b>	-20°C to +60°C	-20°C to +85°C
<b>Remarks</b>		Multiple units can be connected in parallel to increase length and size of a Dupline® system
<b>References</b>		
LED indicator for Dupline®	<b>G5460 6606</b>	
3-wire power supply		<b>G3485 0000 700</b>





## Fieldbuses - Industrial

### Accessories





Types	GAP1605	GTU8	G3282 2002 230
			
Dimensions (mm)	120 x 65 x 22	145 x 90 x 28	77 x 36 x 70
Functions	Dupline® coding device for assigning addresses to Dupline® I/O modules and sensors	Dupline® test unit for monitoring and control of Dupline® channels	Dupline® bus separator
Housing type	Handheld	Handheld	H2 Housing
<b>Electrical specifications</b>			
Number of channels	NA	Adjusts automatically	2
Features/Signal types		Digital, multiplexed BCD, 8-bit analogue signals and split I/O. Also prepared to calibrate sensors in Carpark system	Disconnect the secondary side of the Dupline® bus when a short-circuit is detected
Power supply	9 V battery	Powered through the Dupline® network	230 V
<b>General specifications</b>			
Degree of protection	IP 40	IP 40	IP 20
Operating temperature	0°C to +50°C	0°C to +50°C	0°C to +50°C
Storage temperature	-20°C to +60°C	-20°C to +85°C	-20°C to +85°C
Remarks		Options for latching digital signals and for reading multiplexed BCD values	
<b>References</b>			
Programmer	<b>GAP1605</b>		
Monitoring and control unit	<b>GTU8</b>		
Bus separator	<b>G3282 2002 230</b>		



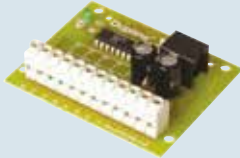


# Fieldbuses - Industrial

Accessories				
Types	ADAPT 1605	ANT1	ANT2	DT01/DT02
				
Dimensions (mm)	25 x 50 x 100		15 x 35 x 120	17.5 x 70 x 77
Functions	Codings adaptor between GAP1605 and Dupline® modules without standard connection plug	GSM antenna 900 MHz	Active antenna used for radio controlled clock	Cable termination unit
Housing type	Handheld box		Glued plastic casing	H1 housing
Electrical specifications				
Features/Signal types	4 clip-on terminals for Dupline® modules. Includes a M12 plug for modules like G8911 1010		Input signal is 77.5 kHz	Removes distortion caused by reflection
Power supply		Powered by G3800 XXXX	Powered by G3800 XXXX	No power needed
General specifications				
Degree of protection	IP 20	IP 67	IP 40	IP 20
Operating temperature	0°C to +50°C	-25°C to +60°C	0°C to +50°C	-20°C to +50°C
Storage temperature	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-50°C to +85°C
References				
Adaptor	ADAPT 1605			
Antenna		ANT1	ANT2	
Standard Dupline®				DT01
Hi-line Dupline®				DT02



## Fieldbuses - Irrigation

	Digital I/O modules		Converter	Tools
Types	GH3440 4412	GH6440 4412	GH3485 0000	GHTU8
				
Dimensions (mm)	77 x 72 x 70	80 x 77 x 50	77 x 72 x 70	145 x 90 x 28
Functions	I/O module for irrigation valve control	I/O module for irrigation valve control	Dupline® to Hi-Line converter	Dupline® test unit for monitoring and control of Dupline® channels. Used for Hi-line modules
Housing type	DIN-Rail, H4	Fully molded housing for under ground installation	DIN-Rail, H4	Handheld
<b>Electrical specifications</b>				
Number of channels	4	4	Adjusts automatically	Adjusts automatically
Features/Signal types	2 outputs for control of 3-wire 12 VDC latching valve, and 2 contact inputs	2 outputs for control of 3-wire 12 VDC latching valve, and 2 contact inputs	Converts the Dupline® signal to Hi-Line 28 VDC level for control of irrigation valves (see GH3440 4412 and GH6440 4412)	Digital, multiplexed BCD and 8-bit analogue signals
Power supply	Powered through Hi-Line signal (see GH34850000)	Powered through Hi-Line signal (see GH34850000)	724 = 20-30 VDC	Powered through the Dupline® network
<b>General specifications</b>				
Degree of protection	IP 20	IP 67	IP 20	IP 40
Operating temperature	0°C to +50°C	0°C to +50°C	0°C to +50°C	0°C to +50°C
Storage temperature	-50°C to +85°C	-50°C to +85°C	-50°C to +85°C	-20°C to +85°C
Remarks				Options for latching digital signals and for reading multiplexed BCD values
<b>References</b>				
2 outputs and 2 inputs	GH3440 4412	GH6440 4412		
Converter			GH3485 0000	
Monitoring and control unit				GHTU8




# Fieldbuses - Elevator

	Input module	Output module	Input/output module
<b>Types</b>	<b>G2120</b>	<b>G2130</b>	<b>G2140 4421</b>
			
<b>Dimensions (mm)</b>	Open PCB 72.3 x 59	Open PCB 74 x 59	Open PCB 54 x 40
<b>Functions</b>	8 contact inputs for push buttons or transistors. LED indications for supply and carrier	8 outputs for control of floor indicators and lamps. LED indications for supply and carrier	2 push button inputs. 2 PNP-transistor outputs. LED indications for supply and carrier
<b>Housing type</b>	Snap locks or DIN-rail (vertical or horizontal)	Snap locks or DIN-rail (vertical or horizontal)	Snap locks or DIN-rail (vertical or horizontal)
<b>Electrical specifications</b>			
<b>Number of channels</b>	8	8	4
<b>Features/Signal types</b>	3-wire operation with DC-power on wire 3	3-wire operation with DC-power on wire 3	3-wire operation with DC-power on wire 3
<b>Power supply</b>	700 = 10 - 30 VDC	700 = 10 - 30 VDC	700 = 10 - 30 VDC
<b>General specifications</b>			
<b>Operating temperature</b>	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C
<b>References</b>			
<b>NPN</b>	<b>G2120 5501 700</b>	<b>G2130 5511 700</b>	
<b>PNP</b>	<b>G2120 5502 700</b>	<b>G2130 5521 700</b>	<b>G2140 4421 700</b>

# Fieldbuses - Elevator

	Input/output module		Master modules	
Types	G2140 55.0		G2196	G3496
				
Dimensions (mm)	Open PCB 74 x 59		Open PCB 86 x 54	77 x 72 x 70
Functions	4 push-button inputs 4 transistor outputs LED indications for supply and carrier		128 signals RS 485/RS 232 interface to control system LED indications for supply, carrier and RS485Tx	Plug & Play RS232/RS485 Interface with built-in protocols for specific PLC brands and Modbus
Housing type	Snap locks or DIN-rail (vertical or horizontal)		Snap locks or DIN-rail (vertical or horizontal)	DIN-rail, H4
<b>Electrical specifications</b>				
Number of channels	8		128 inputs and 128 outputs	Selectable
Features/Signal types	3-wire operation with DC-power on 3 wires		3-wire operation with DC-power on 3 wires	Possibility for 3-wire operation with DC-power on 3 wires
Power supply	700 = 10 - 30 VDC		700 = 20 - 30 VDC	700 = 20 - 30 VDC
<b>General specifications</b>				
Degree of protection				IP 20
Operating temperature	-20°C to +50°C		-20°C to +60°C	0°C to +50°C
Storage temperature				-50°C to +85°C
Remarks				Built-in protocol for specific PLC brands for easy interfacing
<b>References</b>				
NPN	G2140 5510 700			
PNP	G2140 5520 700			
Mitsubishi FX & A-series			G2196 0003 700	G3496 0003 700
Omron			G2196 0004 700	G3496 0004 700
Modbus RTU Slave			G2196 0005 700	G3496 0005 700
Allen-Bradley				G3496 0006 700
Matsushita				G3496 0009 700

# Monitoring relays

Current relays			
Types	DIA 01 PIA 01	DIA 53	DIB 01 PIB 01
			
Dimensions HxWxD (mm)	80 x 22.5 x 99.5 [D] 80 x 36 x 94 [P]	81 x 17.5 x 67.2 (Mini-D)	80 x 22.5 x 99.5 [D] 80 x 36 x 94 [P]
DIN-rail housing			
Plug-in housing			
Function	Over current monitoring relay. 1-phase AC / DC. Direct input or on CT 5A. Setpoint adjustable. Hysteresis adjustable.	Over current monitoring relay. 1-phase AC. Setpoint adjustable. 2-wire connection. Reaction time < 50 ms for F versions. 12 mm hole for insulated current carrying wire.	Over or under current monitoring relay. 1-phase AC / DC TRMS. Direct input or on CT 10A. Setpoint adjustable. Hysteresis adjustable. Delay time adjustable. 12 mm hole for insulated current carrying wire [100 A].

## Input specifications

Measuring range	0.5 - 5 AAC/DC	2 - 20 AAC [20A] 5 - 50 AAC [50A] 10 - 100 AAC [100A]	0.1 - 5 mAAC/DC [5 MA] 1 - 50 mAAC/DC [50 MA] 10-500 mAAC/DC [500 MA] 0.1-5 AAC/DC [5 A] 1-10 AAC/DC [10 A] 2-100 AAC [100 A]
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## Output specifications

	1 x SPDT relay	Static output	1 x SPDT relay
Max. load AC1	8 A / 250 VAC		8 A / 250 VAC
Max. load DC12	5 A / 24 VDC	100 mA	5 A / 24 VDC
Electrical life	>1 x 10 <sup>5</sup> operations		>1 x 10 <sup>5</sup> operations

## General specifications

Power supply	24-48 VAC/DC [D48] 115 / 230 VAC [B23]	40 VDC max. Powered by the measured current	24-48 VAC/DC [D48] 115 / 230 VAC [B23] 24 VDC / 24-240 VAC [M24]
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA

## References

	DIA01C D48 5A	DIA53S 724 20A	DIB01C ... 5MA
	PIA01C D48 5A	DIA53S 724 50A	DIB01C ... 50MA
	DIA01C B23 5A	DIA53S 724 100A	DIB01C ... 500MA
	PIA01C B23 5A	DIA53S 724 20A F	DIB01C ... 5A
		DIA53S 724 50A F	DIB01C ... 10A
		DIA53S 724 100A F	DIB01C M24 100A
			PIB01C ... 5MA
			PIB01C ... 50MA
			PIB01C ... 500MA
			PIB01C ... 5A
			PIB01C ... 10A
			... = insert code for Power Supply

# Monitoring relays

## Current relays

Types	DIB 71	DIB 02 PIB 02	DIC 01 PIC 01
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Dimensions HxWxD (mm)	81 x 35.5 x 67.2 [Mini-D]	80 x 22.5 x 99.5 [D] 80 x 36 x 94 [P]	80 x 45 x 99.5 [D] 80 x 36 x 94 [P]
DIN-rail housing			
Plug-in housing			
Function	Over or under current monitoring relay. 1-phase AC/DC TRMS. Direct input or on CT 5 A. Setpoint adjustable. Hysteresis adjustable. Delay time adjustable.	Over or under current monitoring relay. 1-phase AC/DC TRMS. Input on shunt or CT MI / MP. Setpoint adjustable. Hysteresis adjustable. Delay time adjustable.	Process signal monitoring relay. 1-phase AC/DC TRMS. Direct input, CT A82 or CT MI / MP. 2 setpoints separately adjustable. Hysteresis adjustable. 2 delay functions separately adjustable.

### Input specifications

Measuring range	0.1 - 5 mAAC/DC [5MA] 1 - 50 mAAC/DC [50MA] 10 - 500 mAAC/DC [500 MA] 0.1 - 5 AAC/DC [5A]	6 - 150 mVAC/DC 0.4 - 4 V <sub>P</sub>	0.5 - 20 mAAC/DC 0.1 - 10 VAC/DC 0.4 - 4 V <sub>P</sub>
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### Output specifications

	1 x SPDT relay	1 x SPDT relay	1 x SPDT relay [P] 2 x SPDT relays [D]
Max. load AC1	5 A / 250 VAC	8 A / 250 VAC	5 A / 250 VAC
Max. load DC12	5 A / 24 VDC	5 A / 24 VDC	5 A / 24 VDC
Electrical life	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations

### General specifications





Power supply	24 / 48 VAC [B48] 115 / 230 VAC [B23]	24 - 48 VAC/DC [D48] 115 / 230 VAC [B23]	24 - 48 VAC/DC [D48] 115 / 230 VAC [B23]
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA

### References

DIB71C B48 5MA	DIB02C D48 150MV	DIC01D D48 AV0
DIB71C B48 50MA	PIB02C D48 150MV	PIC01C D48 AV0
DIB71C B48 500MA	DIB02C B23 150MV	DIC01D B23 AV0
DIB71C B48 5A	PIB02C B23 150MV	PIC01C B23 AV0
DIB71C B23 5MA		
DIB71C B23 50MA		
DIB71C B23 500MA		
DIB71C B23 5A		





# Monitoring relays

## Voltage relays

Types	DUA 01 PUA 01	DUA 52	DUA 55	DUB 01 PUB 01
				
Dimensions HxWxD (mm)	80 x 22.5 x 99.5 [D]	81 x 17.5 x 67.2 [Mini-D]	81 x 17.5 x 67.2 [Mini-D]	80 x 22.5 x 99.5 [D]
DIN-rail housing	80 x 36 x 94 [P]			80 x 36 x 94 [P]
Plug-in housing				
Function	Over current and voltage monitoring relay. 1-phase AC/DC. Setpoint adjustable. Hysteresis adjustable.	Under voltage monitoring relay for DC battery. Setpoint adjustable. Hysteresis adjustable. Measures its own power supply.	Over and under voltage monitoring relay. 1-phase (measures its own power supply) AC TRMS.	Over or under voltage monitoring relay. 1-phase AC/DC TRMS. Setpoint adjustable. Hysteresis adjustable. Delay time adjustable.
<b>Input specifications</b>				
Measuring range	2 - 500 VAC/DC 0.4 - 4 V <sub>P</sub>	8 - 28 VDC [724] 38 - 58 VDC [748]	208 / 220 / 230 / 240 VAC	0.1 - 10 VAC/DC [10 V] 2-500 VAC/DC [500 V]
<b>Output specifications</b>				
	1 x SPDT relay	1 x SPDT relay	1 x SPDT relay	1 x SPDT relay
Max. load AC1	8 A / 250 VAC	5 A / 250 VAC	5 A / 250 VAC	8 A / 250 VAC
Max. load DC12	5 A / 24 VDC	5 A / 24 VDC	5 A / 24 VDC	5 A / 24 VDC
Electrical life	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations
<b>General specifications</b>				
Power supply	24 - 48 VAC/DC [D48] 115 / 230 VAC [B23]	8 - 28 VDC [724] 38 - 58 VDC [748]	208 - 480 VAC	24-48 VAC/DC [D48] 115 / 230 VAC [B23]
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA
<b>References</b>				
	DUA01C D48 500V	DUA52 C724	DUA55 CM44	DUB01C D48 10V
	PUA01C D48 500V	DUA52 C748		DUB01C D48 500V
	DUA01C B23 500V			PUB01C D48 10V
	PUA01C B23 500V			PUB01C D48 500V
				DUB01C B23 10V
				DUB01C B23 500V
				PUB01C B23 10V
				PUB01C B23 500V

# Monitoring relays





## Voltage relays

Types	DUB 71	DUB 02 PUB 02	DUB 03 PUB 03	DUC 01 PUC 01
				
Dimensions HxWxD (mm)	81 x 35.5 x 67.2 [Mini-D]	80 x 22.5 x 99.5 [D] 80 x 36 x 94 [P]	80 x 22.5 x 99.5 [D] 80 x 36 x 94 [P]	80 x 45 x 99.5 [D] 80 x 36 x 94 [P]
DIN-rail housing				
Plug-in housing				
Function	Over or under voltage monitoring relay. 1-phase AC/DC TRMS. Setpoint adjustable. Hysteresis adjustable. Delay time adjustable.	Over and under voltage monitoring relay. 1-phase (measures its own power supply) AC TRMS. Over and under voltage setpoints separately adjustable. Hysteresis adjustable. Delay time adjustable (ON/OFF).	Over or under voltage monitoring relay. 1-phase (measures its own power supply) AC/DC TRMS. Setpoint adjustable. Hysteresis adjustable. Delay time adjustable.	Over and under voltage monitoring relay. 1-phase AC/DC TRMS. 2 setpoints separately adjustable. Hysteresis adjustable. 2 delay functions separately adjustable.
<b>Input specifications</b>				
Measuring range	0.1 - 10 VAC/DC [10 V] 2-500 VAC/DC [500 V]	24/115/230 VAC	24/48/115/240 VAC/DC	2 - 500 VAC/DC [500 V]
<b>Output specifications</b>				
	1 x SPDT relay	1 x SPDT relay	1 x SPDT relay [P]	1 x SPDT relay [C] 2 x DPDT relay [D]
Max. load AC1	5 A / 250 VAC	8 A / 250 VAC	8 A / 250 VAC	8 A / 250 VAC
Max. load DC12	5 A / 24 VDC	5 A / 24 VDC	5 A / 24 VDC	5 A / 24 VDC
Electrical life	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations
<b>General specifications</b>				
Power supply	24/48 VAC [B48] 115 / 230 VAC [B23]	24/115/230 VAC	12 - 240 VAC/DC	24 - 48 VAC/DC [D48] 115 / 230 VAC [B23]
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA
<b>References</b>				
	<b>DUB71C B48 10V</b>	<b>DUB02C T23</b>	<b>DUB03C W24</b>	<b>DUC01D D48 500V</b>
	<b>DUB71C B48 500V</b>	<b>PUB02C T23</b>	<b>PUB03C W24</b>	<b>PUC01C D48 500V</b>
	<b>DUB71C B23 10V</b>			<b>DUC01D B23 500V</b>
	<b>DUB71C B23 500V</b>			<b>PUC01C B23 500V</b>



# Monitoring relays

## 3-phase voltage relays

Types	DPA 01 PPA 01	DPA 51 DPA 71	DPA 03 PPA 03	DPA 53
				
Dimensions HxWxD (mm)				
DIN-rail housing	80 x 22.5 x 99.5 [D]	81 x 17.5 x 67.2 <sup>[Mini-D]</sup> 81 x 35.5 x 67.2 <sup>[Mini-D]</sup>	80 x 22.5 x 99.5 [D]	81 x 17.5 x 67.2 <sup>[Mini-D]</sup>
Plug-in housing	80 x 36 x 94 [P]		80 x 36 x 94 [P]	
Function	Phase sequence, total and partial phase loss monitoring relay. 3-phase AC (measures its own power supply). Regenerated voltage detection.	Phase sequence, total and partial phase loss monitoring relay. 3-phase AC (measures its own power supply). Regenerated voltage detection.	Under voltage, phase sequence, total and partial phase loss monitoring relay. 3-phase AC TRMS (measures its own power supply). Regenerated voltage detection.	Under voltage, phase sequence, total and partial phase loss monitoring relay. 3-phase AC TRMS (measures its own power supply). Regenerated voltage detection.

### Input specifications

Measuring range	208 - 240 VAC [M23] 208 - 415 VAC [P] [M44] 208 - 480 VAC [D] [M44] 380 - 415 VAC [P] [M48] 380 - 480 VAC [D] [M48] 380 - 600 VAC [M60] 380 - 690 VAC [M69]	208 - 240 VAC [M23] 208 - 480 VAC [M44] 380 - 480 VAC [M48]	208 - 240 VAC [M23] 380 - 415 VAC [P] [M48] 380 - 480 VAC [D] [M48] 600 - 690 VAC [M69]	208 - 240 VAC [M23] 380 - 480 VAC [M48]
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### Output specifications

	1 x SPDT relay [C] 1 x DPDT relay [D]	1 x SPDT relay [C] 1 x DPDT relay [D]	1 x SPDT relay	1 x SPDT relay
Max. load AC1	8 A / 250 VAC	5 A / 250 VAC	8 A / 250 VAC	5 A / 250 VAC
Max. load DC12	5 A / 24 VDC	5 A / 24 VDC	5 A / 24 VDC	5 A / 24 VDC
Electrical life	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations

### General specifications




Power supply	208 - 240 VAC [M23] 208 - 415 VAC [P] [M44] 208 - 480 VAC [D] [M44] 380 - 415 VAC [P] [M48] 380 - 480 VAC [D] [M48] 380 - 600 VAC [M60] 380 - 690 VAC [M69]	208 - 240 VAC [M23] 208 - 480 VAC [M44] 380 - 480 VAC [M48]	208 - 240 VAC [M23] 380 - 415 VAC [P] [M48] 380 - 480 VAC [D] [M48] 600 - 690 VAC [M69]	208 - 240 VAC [M23] 380 - 480 VAC [M48]
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA

### References

	DPA01D M23	DPA51C M44	DPA03C M23	DPA53C M23
	PPA01D M23	DPA71D M23	PPA03C M23	DPA53C M48
	DPA01C M44	DPA71D M48	DPA03C M48	
	PPA01C M44		PPA03C M48	
	DPA01D M48		DPA03C M69	
	PPA01D M48			
	DPA01C M60			
	DPA01C M69			





# Monitoring relays

## 3-phase voltage relays

Types	DPA 55	DPB 01 PPB 01	DPB 51
			
Dimensions HxWxD (mm) DIN-rail housing Plug-in housing	81 x 17.5 x 67.2 (Mini-D)	80 x 22.5 x 99.5 [D] 80 x 36 x 94 [P]	90 x 17.5 x 67.2 (Mini-D)
Function	Over and under voltage, phase sequence, total and partial phase loss monitoring relay. 3-phase (measures its own power supply) AC TRMS. Two tolerance voltage windows. Regenerated voltage detection.	Over and under voltage, phase sequence, total and partial phase loss. 3-phase+N AC TRMS (measures its own power supply). N versions without phase sequence detection. W4 versions supplied between L and N. Regenerated voltage detection 2 setpoints separately adjustable. Delay time adjustable.	Over and under voltage monitoring phase sequence, total and partial phase loss, neutral loss monitoring relay. 3-phase+N AC TRMS (measures its own power supply). Regenerated voltage detection 2 setpoints separately adjustable. Delay time adjustable.
<b>Input specifications</b>			
Measuring range	208 - 480 VAC	208 - 240 VAC [M23] 380 - 415 VAC [P] [M48] 380 - 480 VAC [D] [M48]	208 - 480 VAC
<b>Output specifications</b>			
	1 x SPDT relay	1 x SPDT relay	1 x SPDT relay
Max. load AC1	5 A / 250 VAC	8 A / 250 VAC	5 A / 250 VAC
Max. load DC12	5 A / 24 VDC	5 A / 24 VDC	5 A / 24 VDC
Electrical life	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations
<b>General specifications</b>			
Power supply	208 - 480 VAC	208 - 240 VAC [M23] 380 - 415 VAC [P] [M48] 380 - 480 VAC [D] [M48] [W]	208 - 480 VAC
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA
<b>References</b>			
	DPA55C M44	DPB01C M23	DPB51C M44
		PPB01C M23	DPB51C M44T
		DPB01C M23 N	DPB51C M44B006
		PPB01C M23 N	DPB51C M44B006T
		DPB01C M48	
		PPB01C M48	
		DPB01C M48 W4	
		PPB01C M48 W4	
		DPB01C M48 N	
		PPB01C M48 N	
		DPB01C M48 N W4	
		PPB01C M48 N W4	

# Monitoring relays

## 3-phase voltage relays

Types	DPA52	DPB52	DPB 02 PPB 02	DPC 01 PPC 01
				
Dimensions HxWxD (mm) DIN-rail housing Plug-in housing	81 x 17.5 x 67.2 (Mini-D)	81 x 17.5 x 67.2 (Mini-D)	80 x 22.5 x 99.5 [D] 80 x 36 x 94 [P]	80 x 45 x 99.5 [D] 80 x 36 x 94 [P]
Function	Phase sequence, total and partial phase loss monitoring relay. 3-phase AC TRMS (measures its own power supply), switching power supply. Regenerated voltage detection	Over and under voltage, phase sequence, total and partial phase loss monitoring 3-phase (measures its own power supply), switching power supply. Regenerated voltage detection. 2 setpoints separately adjustable. Delay time adjustable.	Asymmetry monitoring relay, phase sequence, total and partial phase loss monitoring relay. 3-phase +N AC TRMS (measures its own power supply). Adjustable asymmetry. Delay time adjustable.	Over and under voltage, asymmetry and tolerance, phase sequence, total and partial phase loss monitoring relay. 3-phase+N AC TRMS (measures its own power supply). Setpoint separately adjustable by function.

## Input specifications

Measuring range	208 - 480 VAC	208 - 480 VAC	208 - 240 VAC [M23] 380 - 415 VAC [P] [M48] 380 - 480 VAC [D] [M48]	208 - 240 VAC [M23] 380 - 415 VAC [P] [M48] 380 - 480 VAC [D] [M48] 600 - 690 VAC [M69] Frequency 50 - 60 Hz 100 - 115 VAC [M11 400Hz] 208 - 240 VAC [M23 400Hz] 380 - 415 VAC [M48 400Hz] 440 - 480 VAC [M49 400Hz] 600 - 690 VAC [M69 400Hz] Frequency 50 - 400 Hz
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## Output specifications

	1 x SPDT relay	1 x SPDT relay	1 x SPDT relay	2 x SPDT relay
Max. load AC1	5 A / 250 VAC	5 A / 250 VAC	8 A / 250 VAC	8 A / 250 VAC
Max. load DC12	5 A / 24 VDC	5 A / 24 VDC	5 A / 24 VDC	5 A / 24 VDC
Electrical life	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations

## General specifications




Power supply	208 - 480 VAC	208 - 480 VAC	208 - 240 VAC [M23] 380 - 415 VAC [P] [M48] 380 - 480 VAC [D] [M48]	100 - 115 VAC [M11] 208 - 240 VAC [M23] 380 - 415 VAC [P] [M48] 380 - 480 VAC [D] [M48] 440 - 480 VAC [M49] 600 - 690 VAC [M69]
Approvals/Marks	CE - UL - CCC	CE - UL - CCC	CE - UL - CSA	CE - UL - CSA

## References

	DPA52CM44	DPB52CM44	DPB02C M23 PPB02C M23 DPB02C M48 PPB02C M48	DPC01D M23 PPC01D M23 DPC01D M48 PPC01D M48 DPC01D M69 DPC01D M11 400HZ DPC01D M23 400HZ DPC01D M48 400HZ DPC01D M49 400HZ DPC01D M69 400HZ
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# Monitoring relays

## 3-phase multifunction voltage relays

Types	DPC 71 PPC 71	DPC 02	DPD
			
Dimensions (mm) HxWxD DIN-rail housing Plug-in housing	81 x 35.5 x 67.2 [D] 81.2 x 35.5 x 75 [P]	80 x 45 x 99.5 [D]	80 x 22.5 x 99.5 [D]
Function	Over and under voltage, asymmetry and tolerance, phase sequence, total and partial phase loss monitoring relay. 3-phase+N AC TRMS (measures its own power supply). Setpoints separately adjustable by function.	Over and under voltage, over and under frequency, phase sequence, total and partial phase loss monitoring relay. 3-phase+N AC TRMS (measures its own power supply). Regenerated voltage detection. Setpoints separately adjustable. Separately adjustable delay times. Adjustable frequency range.	Over and under voltage, over and under frequency, asymmetry detection, total and partial phase loss and phase sequence monitoring relay. NFC Communication 3-phase / 3-phase+N AC TRMS (measures its own power supply), switching power supply. Digital settings, Setpoints separately adjustable. Separately adjustable delay times. Adjustable frequency range.

### Input specifications

Measuring range	208 - 240 VAC [M23] 380 - 415 VAC [P] [M48] 380 - 480 VAC [D] [M48]	Voltage: 208 - 240 VAC [M23] 380 - 415 VAC [M48] 440 - 480 VAC [M49] 600 - 690 VAC [M69] Frequency: 50 / 60 Hz	Voltage: 102 V <sub>LN</sub> to 318 V <sub>LN</sub> 176 V <sub>LL</sub> to 552 V <sub>LL</sub> Frequency: 45 Hz to 440 Hz
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### Output specifications

Max. load AC1	2 x SPDT relays 5 A / 250 VAC	2 x SPDT relays 8 A / 250 VAC	2 x SPDT relays 8 A / 250 VAC
Max. load DC12	5 A / 24 VDC	5 A / 24 VDC	5 A / 24 VDC
Electrical life	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations

### General specifications



Power supply	208 - 240 VAC [M23] 380 - 415 VAC [P] [M48] 380 - 480 VAC [D] [M48]	208 - 240 VAC [M23] 308 - 415 VAC [M48] 440 - 480 VAC [M49] 600 - 690 VAC [M69]	120 V <sub>LN</sub> to 277 V <sub>LN</sub> 208 V <sub>LL</sub> to 480 V <sub>LL</sub> Frequency: 50 Hz to 400 Hz
Approvals/Marks	CE - UL - CSA	CE - UL - CSA ENEL DK 5950 [B003]	CE - cULus - CCC

### References




DPC71D M23	DPC02D M23	DPD02D M44
PPC71D M23	DPC02D M48	DPD02D M44B
DPC71D M48	DPC02D M49	
PPC71D M48	DPC02D M69	
	DPC02D M23 B003	
	DPC02D M48 B003	

# Monitoring relays

## Interface protection relays




Types	DPC 72	PI-DIN
		
Dimensions HxWxD (mm)	90 x 71.6 x 66.3 [D]	90 x 71.6 x 66.3
Description	<p>Digital interface protection relay with over and under voltage, over and under frequency, phase sequence, total or partial phase loss. Frequency derivative monitoring, voltage quality, RS485 port, event counter, datastamping and auto-test function.</p> <p>3-phase (measures its own power supply) AC TRMS.</p> <p>Setpoints separately adjustable. Separately adjustable delay times. Programmable via PC (DpcSoft free configuration software).</p>	1- or 3-phase systems monitoring relay interface protection.
<b>Measuring input</b>		
Voltage range	380-415 VAC [M48]	230 V <sub>LN</sub> , 400 V <sub>LL</sub>
Frequency range	45-65 Hz	47.5 to 51.5 Hz
Display	LCD, 2 lines 4 DGT, 1 line 8 DGT	LCD, 2 lines 4 DGT, 1 line 8 DGT
<b>Input specifications</b>		
VDE-AR-N-4105		2 digitals
CEI 0-21		4 digitals
<b>Output specifications</b>		
Type	1 x DPDT relays	2 x SPDT relays
Max. load AC1	8 A / 250 VAC	8 A @ 250 VAC
Max. load DC12	5 A / 24 VDC	5 A / 24 VDC
Electrical life	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations
Serial communication protocol	RS485	RS485
Protocol	Modbus RTU	Modbus RTU
<b>General specifications</b>		
Power supply	308 - 415 VAC	115..230 VCA -20% +15% (48..62 Hz) Option 24 VDC -20% +10%
Approvals/Marks	CE	CE - VDE V 0126-1-1:2013 - VDE AR N 4105 - CEI 0 - 21
<b>References</b>		
	<b>DPC72D M48</b>	
CEI 0-21 (AC aux power)		<b>PIDIN0021HI4R2S1XX</b>
CEI 0-21 (DC aux power)		<b>PIDIN0021LI4R2S1XX</b>
VDE V 0126-1-1:2013 (AC aux power) VDE AR N 4105 (AC aux power)		<b>PIDIN0126HI2R2S1XX</b>
VDE V 0126-1-1:2013 (DC aux power) VDE AR N 4105 (DC aux power)		<b>PIDIN0126LI2R2S1XX</b>

# Monitoring relays





	Frequency relays		Cosφ relays
Types	DFB 01 PFB 01	DFC 01	DWA 01 PWA 01
			
Dimensions HxWxD (mm)			
DIN-rail housing	80 x 22.5 x 99.5 [D]	80 x 45 x 99.5 [D]	80 x 22.5 x 99.5 [D]
Plug-in housing	80 x 36 x 94 [P]		80 x 36 x 94 [P]
Function	Frequency monitoring relay. 1-phase AC (measures its own power supply). 2 setpoints separately adjustable. Delay time adjustable.	Frequency monitoring relay. 1-phase AC (measures its own power supply). 2 setpoints separately adjustable. 2 separately adjustable delay times. 2 separate relay outputs.	Cosφ monitoring relay. 1- or 3-phase AC (measures its own power supply). Direct input or through external CT. Power ON delay adjustable.
<b>Input specifications</b>			
Measuring range	50 / 60 Hz	50 / 60 Hz	cosφ: 0.1-0.99
<b>Output specifications</b>			
	1 x SPDT relay	2 x SPDT relay	1 x SPDT relay
Max. load AC1	8 A / 250 VAC	8 A / 250 VAC	8 A / 250 VAC
Max. load DC12	5 A / 24 VDC	5 A / 24 VDC	5 A / 24 VDC
Electrical life	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations
<b>General specifications</b>			
Power supply	24 - 240 VAC	24 - 48 VAC [B48] 115 - 230 VAC [B23]	208 - 240 VAC [M23] 380 - 415 VAC [P] [M48] 380 - 480 VAC [D] [M48]
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA
<b>References</b>			
	<b>DFB01C M24</b>	<b>DFC01D B48</b>	<b>DWA01C M23 5A</b>
	<b>PFB01C M24</b>	<b>DFC01D B23</b>	<b>PWA01C M23 5A</b>
			<b>DWA01C M48 5A</b>
			<b>PWA01C M48 5A</b>

# Monitoring relays

## Power and power factor relays

Types	DWB 01 PWB 01	DWB 02 PWB 02	DWB 03 PWB 03
			
Dimensions HxWxD (mm)	80 x 45 x 99.5 [D] 80 x 36 x 94 [P]	80 x 45 x 99.5 [D] 80 x 36 x 94 [P]	80 x 45 x 99.5 [D] 80 x 36 x 94 [P]
DIN-rail housing			
Plug-in housing			
Function	Power factor monitoring relay. 1- or 3-phase (measures its own power supply) AC TRMS. Direct input or through external CT. 2 separately adjustable setpoints. Delay time adjustable. Power ON delay adjustable.	Active power monitoring relay. 1- or 3-phase (measures its own power supply) AC TRMS. Direct input or through external CT. 2 separately adjustable setpoints. Delay time adjustable. Power ON delay adjustable.	Active power, with power direction, monitoring relay. 1- or 3-phase AC TRMS (measures its own power supply). Direct input or through external CT. 2 separately adjustable setpoints. Delay time adjustable. Power ON delay adjustable.
<b>Input specifications</b>			
Measuring range	cosφ: 0.1 - 0.99	208 - 690 VAC 0.5 - 5 AAC 1 - 10 AAC 0.4 - 4 V <sub>P</sub>	208 - 690 VAC 0.5 - 5 AAC 1 - 10 AAC 0.4 - 4 V <sub>P</sub>
<b>Output specifications</b>			
	1 x SPDT relays	1 x SPDT relays	1 x SPDT relays
Max. load AC1	8 A / 250 VAC	8 A / 250 VAC	8 A / 250 VAC
Max. load DC12	5 A / 24 VDC	5 A / 24 VDC	5 A / 24 VDC
Electrical life	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations
<b>General specifications</b>			
Power supply	208 - 240 VAC [M23] 380 - 415 VAC [P] [M48] 380 - 480 VAC [D] [M48] 600 - 690 VAC [M69]	208 - 240 VAC [M23] 380 - 415 VAC [P] [M48] 380 - 480 VAC [D] [M48] 600 - 690 VAC [M69]	208 - 240 VAC [M23] 380 - 415 VAC [P] [M48] 380 - 480 VAC [D] [M48] 600 - 690 VAC [M69]
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA
<b>References</b>			
	DWB01C M23 10A	DWB02C M23 10A	DWB03C M23 10A
	PWB01C M23 10A	PWB02C M23 10A	PWB03C M23 10A
	DWB01C M48 10A	DWB02C M48 10A	DWB03C M48 10A
	PWB01C M48 10A	PWB02C M48 10A	PWB03C M48 10A
	DWB01C M69 10A	DWB02C M69 10A	DWB03C M69 10A





# Monitoring relays

	Motor thermistor relays			Pump alternating relays
Types	PTA 01 PTA 02	DTA 71 DTA 72	DTA 04	DLA 71 DLA 73
				
Dimensions HxWxD (mm) DIN-rail housing Plug-in housing	80 x 36 x 94	81 x 35.5 x 67.2 [Mini-D]	80 x 22.5 x 99.5 [D]	81 x 35.5 x 67.2 [Mini-D]
Function	Motor temperature monitoring relays. PTC insulated input. Automatic set-point. Short circuit detection. Latch, test and reset function (PTA02).	Motor Thermistor relays. PTC insulated input. Automatic set-point. Short circuit and Open Circuit detection. Automatic Reset (DTA71) Latch, test, reset, ready for reset functions. (DTA02).	Motor Thermistor relays. PTC insulated input. Automatic set-point. Short circuit and Open Circuit detection. Automatic or manual Reset, test, ready for reset functions.	Pump alternating relay. For 2 or 3 pumps. Differential or sequential mode. Automatic rotation of the pumps. Output relay managed by one independent input contact (DLA73).
<b>Output specifications</b>				
	1 x SPDT relay	1 x SPDT relay [DTA01] 2 x SPDT relay [DTA01]	2 x SPST relays	2 x SPST relay [DLA71] [2P] 3 x SPST relay [DLA71] [3P] 3 x SPST relay [DLA73]
Max. load AC1	8 A / 250 VAC	8 A / 250 VAC	8 A / 250 VAC	5 A / 250 VAC
Max. load DC12	5 A / 24 VDC	5 A / 24 VDC	5 A / 24 VDC	5 A / 24 VDC
Electrical life	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations
<b>General specifications</b>				
Power supply	24 - 48 VAC/DC [D48] 115 VAC [115] 230 VAC [230]	24 - 240 VAC/DC	24 - 240 VAC/DC	24 / 48 VAC [B48] 115 / 230 VAC [B23]
Approvals/Marks	CE - UL - CSA	CE - UL	CE - UL	CE - UL - CSA
<b>References</b>				
	PTA01C D48	DTA71CM24	DTA04CM24	DLA71D B48 2P
	PTA01C 115	DTA72DM24		DLA71T B48 3P
	PTA01C 230			DLA71D B23 2P
	PTA02C D48			DLA71T B23 3P
	PTA02C 115			DLA73T B23 2P
	PTA02C 230			DLA73T B48 2P



# Surge arresters

## Surge arresters for AC lines

Types	DSF A/P	DSB A 52	DSB P 53	DSB P 54
				
Dimensions HxWxD (mm)	90 x 18 x 72 [51] 90 x 36 x 72 [52] 90 x 54 x 72 [53] 90 x 72 x 72 [54]	90 x 36 x 72	90 x 54 x 72	90 x 72 x 72
Description	No backup fuse Surge arresters for AC lines single or three-phase network types TN-S; TT; IT; TN-C Removable cartridges No leakage current	Surge arresters for AC lines single-phase. Removable cartridges	Surge arresters for AC lines three-phase Removable cartridges	Surge arresters for AC lines three-phase Removable cartridges
<b>Output specifications</b>				
Out (Alarm)	1 x SPDT relay	1 x SPDT relay (option)	1 x SPDT relay (option)	1 x SPDT relay (option)
<b>General specifications</b>				
SPD class	Class II	Class II	Class II	Class II
Max. continuous voltage U <sub>c</sub>	150 VAC 300 VAC 385 VAC 460 VAC 550 VAC 750 VAC	275 VAC / 350 VDC 385 VAC / 500 VDC	275 VAC / 350 VDC 385 VAC / 500 VDC 440 VAC / 580 VDC	275 VAC / 350 VDC 385 VAC / 500 VDC 440 VAC / 580 VDC
I <sub>n</sub> (8/20)	20 kA 10 kA [DSF5xCA750]	20 kA / pole	20 kA / pole	20 kA / pole
I <sub>max</sub> (8/20)	50 kA 25 kA [DSF5xCA750]	40 kA / pole	40 kA / pole	40 kA / pole
I <sub>imp</sub> (10/350)	-	-	-	-
Response time	< 25 ns	< 25 ms with GDT 25 ms (L-N), 100 ms (N-PE) without GDT	< 25 ms	< 25 ms with GDT 25 ms (L-N), 100 ms (N-PE) without GDT
Back-up fuse	Not required up to 200 kArms	125 A gL	125 A gL	125 A gL
Mounitng	DIN-rail	DIN-rail	DIN-rail	DIN-rail
Temperature range	-40°C to +80°C -40°F to +176°F	-40°C to +80°C -40°F to +176°F	-40°C to +80°C -40°F to +176°F	-40°C to +80°C -40°F to +176°F
Approvals/Marks	CE, UR (UL 1449 3rd ED.), CSA	CE: IEC61643	CE: IEC61643	CE: IEC61643

## References

For ordering key details, please refer to [www.gavazziautomation.com](http://www.gavazziautomation.com)

# Surge arresters

	Surge arresters for PV systems		Surge arresters for communication lines	
Types	DSF D	DSC	DSB S	DSB DP
				
Dimensions HxWxD (mm)	90 x 36 x 72 [52] 90 x 54 x 72 [53]	90 x 72 x 72	90 x 12 x 71.5	90 x 12 x 71.5

Description	No backup fuse, 2-pole [52] or 3-pole [53] surge arresters for P.V. installations No leakage	Class I and II Surge arresters for DC systems	Surge arresters for RS485 communication lines Removable cartridges	Surge arresters for Dupline® and Smarthouse communication lines Removable cartridges
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## Output specifications

Out (Alarm)	1 x SPDT relay	1 x SPDT relay	None	None
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## General specifications





SPD class	Class II	Class I, II	Class C1/C2/C3 (IEC 60643-21)	Class C1/C2/C3 (IEC 60643-21)
Max. continuous voltage U <sub>c</sub>	600 VDC [600, 1200] 1000 VDC [1000] 1200 VDC [1200]	1000 V	6 VDC	18 VDC
I <sub>n</sub> (8/20)	20 kA [600, 1200] 12.5 kA [1000]	20 kA / pole	10 kA / pole	10 kA / pole
I <sub>max</sub> (8/20)	40 kA [600, 1200] 25 kA [1000]	40 kA / pole	20 kA / pole	20 kA / pole
I <sub>imp</sub> (10/350)	-	12.5 kA / pole	-	-
Response time	< 25 ns	<25 ns	<1 ns	<1 ns
Back-up fuse	Not required up to 200 kArms	N.A.		
Mounting	DIN-rail	DIN-rail	DIN-rail	DIN-rail
Temperature range	-40°C to +80°C -40°F to +176°F	-40°C to +80°C -40°F to +176°F	-40°C to +80°C -40°F to +176°F	-40°C to +80°C -40°F to +176°F
Approvals/Marks	CE, UR (UL 1449 3 <sup>rd</sup> ED.), UTE C 61-740-51, CSA	CE: IEC616431; UTE C61-740-51	CE: IEC 60643-21	CE: IEC 60643-21

## References

	DSF52XD600PV	DSC54CD1000PV	DSB51XXS	DSB51XXDP
	DSF52CD600PV	DSC54XD1000PV		
	DSF52XD1000PV			
	DSF52CD1000PV			
	DSF53XD1200PV			
	DSF53CD1200PV			





# Motor protection units

## DMPU series

Types	Main module	Measurement module (5 A)	Measurement module (65 A)	I/O module
				
Dimensions HxWxD (mm)	90 x 35.5 x 63.2	90 x 53.5 x 63.2	90 x 53.5 x 92	90 x 17.5 x 63.2
Features	Motor start/stop, reverse, start/delta, ANSI motor protection functions, remote control and management, warning, dataloggers	3-phase voltage and split-core current measurement	3-phase voltage and pass through current measurement	Connected to DMPUC-PRB or DMPUC-MBT adds 2 inputs and 2 outputs to the system. Up to 10 modules can be used
<b>Technical specifications</b>				
Power supply	24 VDC $\pm 20\%$	24 VDC from the main module	24 VDC from the main module	24 VDC from the main module
Inputs	3, configurable as contact or temperature	3-phase voltage: 100 to 690 V 3-phase current: 5 A (for higher current use CTD currents transformers series)	3-phase voltage: 100 to 690 V 3-phase current: up to 65 A	2, configurable as contact or temperature
Outputs		2 x SPST relay	2 x SPST relay	2 x SPST relay
Communication	Profibus DPV1 (DMPUC-PRB), Modbus TCP/IP (DMPUC-MBT), Modbus RTU (all)	Via cable to the main module	Via cable to the main module	Plugged in to the main module
<b>General specifications</b>				
Operating temperature	-25°C to +55°C (-13°F to 131°F)	-25°C to +55°C (-13°F to 131°F)	-25°C to +55°C (-13°F to 131°F)	-25°C to +55°C (-13°F to 131°F)
Degree of protection	IP 20	IP 20	IP 20	IP 20
Mounting	DIN-rail	DIN-rail	DIN-rail	DIN-rail
Approvals	CE - cULus listed - C-TIC	CE - cULus listed - C-TIC	CE, cULus listed, C-TIC	CE - cULus listed - C-TIC
<b>References</b>				
	DMPUC-PRB DMPUC-MBT	DMPUC-05	DMPUC-65	DMPUC-R2

# Motor protection units

## DMPU series

Types	Operator interface	Earth leakage module	Core balance current transformer	Programming software
				
Dimensions HxWxD (mm)	48 x 96 x 88.5	90 x 17.5 x 63.2	Hole Ø 35, 50, 70, 120, 160 or 210mm	
Features	Provides 2x8 characters lines display and 4 fully programmable keys	Connected to DMPUC-PRB or DMPUC-MBT adds direct earth leakage measurement and protection according to EN 60947-2. Ranges: 30 mA to 30 A	Core balance transformers for DMPUC-EL	Set parameters, program the control and monitoring functions of the system, monitor data, download dataloggers. Program operator interface pages and key functions

### Technical specifications

Power supply	24 VDC ±20%	24 VDC from the main module	None	
Inputs		Earth leakage, for transformers 250/1 to 1000/1, 3 as contact		Motor data, desired functions
Outputs		1 x SPST relay dedicated to earth leakage alarm		Configuration file, dataloggers in Excel format files
Communication	RS485 Modbus RTU ports	Plugged in to the main module		Using Modbus RTU or TCP/IP port of the main module

### General specifications




Operating temperature	-25°C to +60°C (-13°F to 140°F)	-25°C to +55°C (-13°F to 131°F)		
Degree of protection	Front: IP 65 Connections: IP 20	IP 20		
Mounting	Front panel	DIN-rail	Back panel	Windows XP, Windows Vista, Windows 7
Approvals	cULus listed	CE - cULus - C-TIC (with CTG)	CE - cULus - C-TIC (with DMPUC-EL)	

### References

DMPUC-HMI	DMPUC-EL	CTG035 CTG050 CTG070 CTG120 CTG160 CTG210	DMPU-PS DMPU-PSHMI
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# Timers

## Delay on operate

Types	DAA 01 PAA 01	DAA 51 DAA 71	FAA 01 FAA 08
			
Dimensions HxWxD (mm)			
DIN-rail housing	80 x 22.5 x 99.5 [D] 80 x 36 x 94 [P]	81 x 17.5 x 67.2 [Mini-D] 81 x 35.5 x 67.2 [Mini-D]	
Plug-in housing			48 x 48 x 83.4
Function	Delay on operate (manual start).	Delay on operate (automatic start).	Delay on operate. Symmetrical recycler. Interval. One shot.

## Input specifications

Time range	0.1 s - 1 s 1 s - 10 s 6 s - 60 s 60 s - 600 s 0.1 h - 1 h 1 h - 10 h 10 h - 100 h	0.1 s - 1 s 1 s - 10 s 6 s - 60 s 60 s - 600 s 0.1 h - 1 h 1 h - 10 h 10 h - 100 h	Full scale 12 0.02 - 1.2 s 0.2 - 12 s 2 - 120 s 0.2 - 12 m 2 - 120 m 0.2 - 12 h 2 - 120 h	Full scale 30 0.05 - 3 s 0.5 - 30 s 5 - 300 s 0.5 - 30 m 5 - 300 m 0.5 - 30 h 5 - 300 h
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## Output specifications

	1 x SPDT relay [C] 2 x SPDT relays [D]	1 x SPDT relay [C] 1 x DPDT relay [D]	1 x DPDT relay 11-pin [01] 8-pin [08]
Max. load AC1	8 A / 250 VAC	5 A / 250 VAC	5 A / 250 VAC
Max. load DC12	5 A / 24 VDC	5 A / 24 VDC	5 A / 24 VDC
Electrical life	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations




## General specifications

Power supply	24 VDC / 24 - 240 VAC [C] 24 - 240 VAC/DC [D]	24 VDC / 24-240 VAC [CM24] 24-240 VAC / DC [DM24] 12-240 VAC / DC [DW24]	12-240 VAC / DC
Approvals/Marks	CE - UL - CSA	CE - UL - CSA - RINA [DAA51 only] - CCC [DAA51_B001 only]	CE - UL - CSA





## References

DAA01C M24	DAA51C M24	FAA01D W24
PAA01C M24	DAA71D M24	FAA08D W24
DAA01D M24	DAA71D W24	
PAA01D M24		

# Timers





	Delay on operate	Delay on release	
Types	HAA 08 HAA 14	DBA 02 PBA 02	DBA 52
			
Dimensions HxWxD (mm)			
DIN-rail housing		80 x 22.5 x 99.5 [D]	81 x 17.5 x 67.2 (Mini-D)
Plug-in housing	28 x 21.5 x 64	80 x 36 x 94 [P]	
Function	Delay on operate. Symmetrical recycler with ON or OFF first. Interval.	Delay on release.	Delay on release.
<b>Input specifications</b>			
Time range	0.1 s - 1 s 1 s - 10 s 6 s - 60 s 60 s - 600 s 0.1 h - 1 h 1 h - 10 h 10 h - 100 h	0.1 s - 1 s / 1 s - 10 s 6 s - 60 s / 60 s - 600 s 0.1 h - 1 h / 1 h - 10 h 10 h - 100 h	0.1 s - 1 s / 1 s - 10 s 6 s - 60 s / 60 s - 600 s 0.1 h - 1 h / 1 h - 10 h 10 h - 100 h
<b>Output specifications</b>			
	1 x 4PDT relay [Q] 1 x DPDT relay [D] 14-pin [14] 8-pin [08]	1 x SPDT relay	1 x SPDT relay
Max. load AC1	5 A / 250 VAC	8 A / 250 VAC	5 A / 250 VAC
Max. load DC12	5 A / 24 VDC	5 A / 24 VDC	5 A / 24 VDC
Electrical life	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations
<b>General specifications</b>			
Power supply	24-240 VAC / DC	24 VDC / 24-240 VAC	24 VDC / 24-240 VAC
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA
<b>References</b>			
	HAA14Q M24	DBA02C M24	DBA52C M24
	HAA08D M24	PBA02C M24	

# Timers

	True delay on release		Recycler	
Types	D/PBB 01 D/PBB 02	DBB 51	DCB 01 PCB 01	DCB 51
				
Dimensions HxWxD (mm)				
DIN-rail housing	80 x 22.5 x 99.5 [D]	81 x 17.5 x 67.2 [Mini-D]	80 x 22.5 x 99.5 [D]	81 x 17.5 x 67.2 [Mini-D]
Plug-in housing	80 x 36 x 94 [P]		80 x 36 x 94 [P]	
Function	True delay on release.	True delay on release.	Asymmetrical recycler with ON and OFF time first. One shot. Two state delay on operate.	Asymmetrical recycler with ON or OFF first.
<b>Input specifications</b>				
Time range	D/PBB01: 0.1 s - 1 s / 1 s - 10 s 6 s - 60 s / 60 s - 600 s D/PBB02: 60 s - 600 s / 0.1 h - 1 h 1 h - 10 h	1 s - 10 s [10S] 6 s - 60 s [1M] 60 s - 600 s [10M]	0.1 - 1 s / 1 - 10 s 6 - 60 s / 60 s - 600 s 0.1 h 1 h / 1 h - 10 h 10 h - 100 h	0.1 - 1 s / 1 - 10 s 6 - 60 s / 60 s - 600 s 0.1 h 1 h / 1 h - 10 h 10 h - 100 h
<b>Output specifications</b>				
	1 x SPDT relay [C] 1 x DPDT relay [D]	1 x SPDT relay	1 x SPDT relay [C] 2 x SPDT relays [D]	1 x SPDT relay
Max. load AC1	8 A / 250 VAC	5 A / 250 VAC	8 A / 250 VAC	5 A / 250 VAC
Max. load DC12	5 A / 24 VDC	5 A / 24 VDC	5 A / 24 VDC	5 A / 24 VDC
Electrical life	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations
<b>General specifications</b>				
Power supply	24-240 VAC / DC [M24] 12-24 VDC [724]	24 VDC / 24-240 VAC	24 VDC / 24-240 VAC [C] 24-240 VAC / DC [D]	24 VDC / 24-240 VAC
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA
<b>References</b>				
	<b>DBB01C M24</b>	<b>DBB51C M24 10S</b>	<b>DCB01C M24</b>	<b>DCB51C M24</b>
	<b>PBB01C M24</b>	<b>DBB51C M24 1M</b>	<b>PCB01C M24</b>	
	<b>DBB01D M24</b>	<b>DBB51C M24 10M</b>	<b>DCB01D M24</b>	
	<b>PBB01D M24</b>		<b>PCB01D M24</b>	
	<b>DBB01C 724</b>			
	<b>PBB01C 724</b>			
	<b>DBB01D 724</b>			
	<b>PBB01D 724</b>			
	<b>DBB02C M24</b>			
	<b>PBB02C M24</b>			
	<b>DBB02D M24</b>			
	<b>PBB02D M24</b>			

# Timers

## Multifunction

Types	DMB 01 PMB 01	DMB 51 DMB 71	FMB 01	DMC 01 PMC 01
				
Dimensions HxWxD (mm)	80 x 22.5 x 99.5 [D]	81 x 17.5 x 67.2 [Mini-D] 81 x 35.5 x 67.2 [Mini-D]	48 x 48 x 83.4	80 x 22.5 x 99.5 [D] 80 x 45 x 99.5 [D] 80 x 36 x 94 [P]
DIN-rail housing				
Plug-in housing				
Function	Multifunction: <ul style="list-style-type: none"> <li>• Delay on operate - manual start</li> <li>• Delay on release</li> <li>• Interval - manual start</li> <li>• Symmetrical recycler</li> <li>• Double interval</li> <li>• Interval on trigger open</li> </ul>	Multifunction: <ul style="list-style-type: none"> <li>• Delay on operate - manual start</li> <li>• Delay on release</li> <li>• Interval - manual start</li> <li>• Symmetrical recycler</li> <li>• Double interval</li> <li>• Interval on trigger open</li> </ul>	Multifunction: (Trigger, Gate and Reset inputs) <ul style="list-style-type: none"> <li>• Delay on operate - manual start</li> <li>• Delay on release</li> <li>• Interval - manual start</li> <li>• Symmetrical recycler</li> <li>• Double interval</li> <li>• Interval on trigger open</li> </ul>	Multifunction: <ul style="list-style-type: none"> <li>• Delay on operate - manual start</li> <li>• Delay on operate - automatic and manual start</li> <li>• Delay on release</li> <li>• Interval - manual start</li> <li>• Interval - automatic and manual start</li> <li>• Interval - manual start with no time reset</li> <li>• Interval - automatic and manual start with no time reset</li> </ul>

## Input specifications

Time range	0.1 s - 1 s / 1 s - 10 s 6 s - 60 s / 60 s - 600 s 0.1 h - 1 h / 1 h - 10 h 10 h - 100 h	0.1 s - 1 s / 1 s - 10 s 6 s - 60 s / 60 s - 600 s 0.1 h - 1 h / 1 h - 10 h 10 h - 100 h	Full scale: 12 0.02 - 1.2 s / 0.2 - 12 s 2 - 120 s / 0.2 - 12 m 2 - 120 m / 0.2 - 12 h 2 - 120 h Full scale: 30 0.05 - 3 s / 0.5 - 30 s 5 - 300 s / 0.5 - 30 m 5 - 300 m / 0.5 - 30 h 5 - 300 h	0.1 s - 1 s / 1 s - 10 s 6 s - 60 s / 60 s - 600 s 0.1 h - 1 h / 1 h - 10 h 10 h - 100 h
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## Output specifications

	1 x SPDT relay [C] 1 x DPDT relay [D]	1 x SPDT relay [C] 1 x DPDT relay [D]	1 x DPDT relay	1 x SPDT relay [C] 2 x SPDT relay [D]
Max. load AC1	8 A / 250 VAC	5 A / 250 VAC	5 A / 250 VAC	8 A / 250 VAC
Max. load DC12	5 A / 24 VDC	5 A / 24 VDC	5 A / 24 VDC	5 A / 24 VDC
Electrical life	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations

## General specifications

Power supply	24 VDC & 24-240 VAC [C] 24-240 VAC/DC [D]	24 VDC & 24-240 VAC [M24] 12-240 VAC/DC [W24]	12-240 VAC/DC	24 VDC [724] 24 / 48 VAC [B48] 115 / 230 VAC [B23] 24 VAC [024] 115 VAC [115] 230 VAC [230]
Approvals/Marks	CE - UL - CSA - RINA [DMB01 only]	CE - UL - CSA - RINA [DMB51 only] - CCC [DMB51_B006 only]	CE - UL - CSA	CE - UL - CSA




## References

	DMB01C M24	DMB51C M24	FMB01D W24	DMC01C xxx
	PMB01C M24	DMB51C W24		PMC01C yyy
	DMB01D M24	DMB71D M24		DMC01D xxx
	PMB01D M24	DMB71D W24		PMC01D yyy

xxx= 724, 823, B48  
yyy= 724, 024, 115, 230







# Timers





	Mini-E timers	Star delta	
Types	EAS EBS ECS	DAC 01/PAC 01	DAC 51
			
Dimensions HxWxD (mm)	56 x 22.5 x 49 <sup>[Mini-E]</sup>	80 x 22.5 x 99.5 <sup>[D]</sup>	81 x 17.5 x 67.2 <sup>[Mini-D]</sup>
DIN-rail housing	56 x 22.5 x 44 <sup>[Mini-E] [F]</sup>		
Plug-in housing		80 x 36 x 94 <sup>[P]</sup>	
Function	EAS - Delay on operate (automatic start). EBS - Interval (automatic start). ECS - Symmetrical recycler (ON/OFF automatic start) thyristor output. Screw or fast-ON connection. DIN-rail or chassis mounting	Star delta	Star delta
<b>Input specifications</b>			
Time range	[10S]: 0.5 s - 10 s [1M]: 0.1 m - 1 m [10M]: 1 m - 10 m	0.1 s - 1 s / 1 s - 10 s 6 s - 60 s / 60 s - 600 s	0.1 s - 1 s / 1 s - 10 s 6 s - 60 s / 60 s - 600 s
Star to delta relay (neutral centre position)		50 - 130 ms between star to delta position	50 - 130 ms between star to delta position
<b>Output specifications</b>			
	Static output 500 mA, 700 mA <sup>[F]</sup>	1 x SPDT relay (with neutral centre position)	1 x SPDT relay (with neutral centre position)
Max. load AC1		8 A / 250 VAC	5 A / 250 VAC
Max. load DC12		5 A / 24 VDC	5 A / 24 VDC
Electrical life		>1 x 10 <sup>5</sup> operations	>1 x 10 <sup>5</sup> operations
<b>General specifications</b>			
Power supply	24-230 VAC / DC <sup>[EAS]</sup> 24-230 VAC <sup>[EBS], [ECS]</sup>	24-240 VAC / DC <sup>[M24]</sup> 380-415 VAC <sup>[M40]</sup>	24-240 VAC / DC
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA
<b>References</b>			
	EAS S M23 ...	DAC01C M24	DAC51C M24
	EAS S M23 ... F	PAC01C M24	
	EBS S M23 ...	DAC01C M40	
	EBS S M23 ... F	PAC01C M40	
	ECS S M23 A ...		
	ECS S M23 B ...		
	ECS S M23 A ... F		
	ECS S M23 B ... F		
	... = insert code for Time Range		

# Counters

## Electromechanical counters



Types	EMCT46/EMCT47	E2CT4	E1CT4	ECH4
				
Version	Micro	Mini	Standard	Combination time and energy meter
Dimensions HxWxD (mm)	13.8 x 25x 35.2 20 x 30 x 36.2	24 x 48 x 53.8	24 x 48 x 49	48 x 48 x 38
<b>Technical data</b>				
Number of digit	6/7	5	6	7/8
Reset	No	Yes	No	No
Digit height, visible (mm)	4 x 1.7 / 4 x 1.2	4 x 1.7	4 x 1.7	4 x 1.7
Panel cut-out (mm)	e.g. 27 x 14	45 x 22 / 31 x 20	45 x 22 / 31 x 20	46 x 46 X Ø50.5
Mounting type	Panel / PCB	Panel / base mount / PCB	Panel / base mount / PCB	Panel / DIN-rail
Degree of protection	up to IP 65	IP 41	IP 41	IP 52 front side
Pulse voltage min. / max.	1.5 to 24 VDC	24 to 230 VAC 12 to 24 VDC	24 to 230 VAC 12 to 24 VDC	0 to 260 VAC 0 to 260 VDC
Max. count frequency	10 Hz	10 Hz	10 Hz	10 Hz
Min. power consumption	70 mW	0.75 VA (115 VAC) 1.5 VA (230 VAC) 130 mW VDC	0.75 VA (115 VAC) 1.5 VA (230 VAC) 50 mW VDC	1 W / 1.43 VA
<b>References</b>				
	EMCT46xxxxxx EMCT47xxxxxx	E2CT4xxxxxx	E1CT4xxxxxx	ECH4

## Electronic counters





Types	FKA	DCT86	DMF861	DMF862
				
Version	LCD-Panel mount	LED-Panel mount	LED-Panel mount	LED-Panel mount
Dimensions HxWxD (mm)	DIN 48 x 24	DIN 48 x 24	DIN 48 x 24	DIN 48 x 24
<b>Function</b>				
Totaliser	Yes			
Pulse counter		Yes	Yes	2 pulse counters, Pulse counter and timer, Pulse and frequency meter or 2 timers
Position display for encoders			Yes	
Frequency meter/Tachometer			Yes	
Timer			Yes	
<b>Technical data</b>				
Number of digit	8	6	6	6
Reset	Manual / Electric	Manual / Electric	Manual / Electric	Manual / Electric
Digit height, visible (mm)	8	8	8	8
Panel cut-out(mm)	45 x 22	45 x 22	45 x 22	45 x 22
Degree of protection	IP 65 front side	IP 65 front side	IP 65 front side	IP 65 front side
Power supply	Lithium battery	10 to 30 VDC	10 to 30 VDC	10 to 30 VDC
Count inputs	NPN/PNP 10 to 260 VAC/DC	NPN/PNP	NPN/PNP	NPN/PNP
<b>References</b>				
	FKAxxxxxx	DCT86xxxxxx	DMF861xxxxxx	DMF862xxxxxx

# Counters




## Digital multifunction

Types	DMF1461	DMF1462
		
Version	LED - Panel mount	LED - Panel mount
Dimensions HxWxD (mm)	DIN 96 x 48	DIN 96 x 48
<b>Function</b>		
Pulse counter	Yes	2 pulse counters, Pulse counter and timer, Pulse and frequency meter or 2 timers
Position display for encoders	Yes	
Frequency meter / Tachometer	Yes	Yes
Timer	Yes	Yes
<b>Technical data</b>		
Number of digit	6	6
Reset	Manual / Electric	Manual / Electric
Preset	-	-
Digit height, visible (mm)	14	14
Panel cut-out (mm)	92 x 45	92 x 45
Degree of protection	IP 65 front side	IP 65 front side
Max. count frequency (Hz)	60000	60000
Supply voltage	90...260 VAC / 10...30 VDC	90...260 VAC / 10...30 VDC
Count inputs	Schmitt-Trigger	Schmitt-Trigger
<b>References</b>		
	DMF1461xxx0	DMF1462xx0

## Hour meter electromechanical

Types	E1HM4	E2HM4	E2HM35	E1HM35
				
Version	Panel mount	Panel mount	Panel mount	DIN-rail
Dimensions HxWxD (mm)	DIN 48 x 24 - DIN 28 x 53	DIN 48 x 48	Ø71.1 - Ø58,7	90 x 36 x 66
<b>Technical data</b>				
Number of digit	7/8	7/8	6	7
Time range	0.01~99999.99h	0.01~99999.99h	0.01~99999.9h	0.01~99999.99h
Digit height, visible (mm)	4	4	3.5	3.5
Panel cut-out (mm)	45 x 22 / 50 x 25	46 x 46	Ø50.08	-
Degree of protection	IP 65 front side	IP 65 front side	IP 65 front side	IP 65 front side
Min. power consumption (W/VA)	0.5 / 1.2	0.5 / 1.2	0.7 / 0.4	1 / 2.5
Voltage range	20...264 VAC 10...130 VDC	20...440 VAC 10...30 VDC	115...230 VAC 10...80 VDC	24 / 115 / 230 VAC 10...27 VDC
<b>References</b>				
	E1HM4xxxxxx	E2HM4xxxxxx	E2HM35xxxxxx	E1HM35xxxxxx

# Counters

	Hour meter electronic LCD		Electronic multifunction counters
Types	FSA01	FSA02	DMF61 / DMF62
			
Version	LCD panel mount	LCD panel mount	LCD panel mount
Dimensions HxWxD (mm)	DIN 24 x 48	DIN 24 x 48	DIN 48 x 48
<b>Technical data</b>			
Number of digit	7	8	2 x 6
Time range	0.01 h; h.min	0.01 h; h.min	
Max. Count frequency (Hz)			50000
Preset			61: 1 / 62: 2
Reset	Manual / Electrical	Manual / Electrical	Electronic
Digit height, visible (mm)	8	8	
Panel cut-out (mm)	45 x 22	45 x 22	45 x 45
Mounting type	Panel mount	Panel mount	Panel mount
Degree of protection	IP 65 front side	IP 65 front side	IP 65 front side
Power supply	Lithium battery (>8 years)	Lithium battery (>8 years)	90 to 260 VAC 10 to 30 VDC
Output			Relay or Optocoupler
Input			2 count inputs, gate, reset, lock, MPI, 4 optional inputs
<b>References</b>			
	FSA01xxxxxx	FSA02xxxxxx	DMF6101xxxx0 DMF6201xxxx0











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