

FIELD SWITCHING & SENSING

K

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new



AB1/AP-3A



AD1/AP-3A



AE1/CP-1A



AE6/AP-3A



AM6/AP-3H

Inductive sensors are used to sense metal objects and can be utilised in very difficult applications, even in the presence of oils, powders, liquids and vibrations. They are commonly mounted on machine tools, textile machines, transport systems, packaging machines and all automation applications.

- Protection degree: IP67
- Ambient limits: -25 ... +70°C
- LED indication: Incorporated
- Housing: Nickel-plated brass (PFM/PFK - AISI 316L stainless steel housing)
- Short circuit and polarity reversal protection

type	supply voltage	flush	non flush	sensing distance	NPN	PNP	NO	NC	connector	body length
M4 proximity switches (long sensing distance)										
Long sensing range		cable connection (2 m)								
AB1/AP-3A	10 - 30 VDC	•		1 mm	•	•	•		cable	22 mm
AB1/CP-3A	10 - 30 VDC	•		1 mm		•	•	•	cable	22 mm
M5 proximity switches (long sensing distance)										
Long sensing range		cable connection (2 m)								
AD1/AP-3A	10 - 30 VDC	•		1.5 mm		•	•		cable	30 mm
AD1/CP-3A	10 - 30 VDC	•		1.5 mm		•	•	•	cable	30 mm
M8 proximity switches										
Standard sensing range		cable connection (2 m)								
AE1/AP-1A	10 - 30 VDC	•		1.5 mm		•	•		cable	46 mm
AE1/CP-1A	10 - 30 VDC	•		1.5 mm		•	•	•	cable	46 mm
AE1/AP-2A	10 - 30 VDC		•	2.5 mm		•	•		cable	46 mm
AE1/CP-2A	10 - 30 VDC		•	2.5 mm		•	•	•	cable	46 mm
Long sensing range										
AE6/AP-3A*	10 - 30 VDC	•		2 mm		•	•		cable	36 mm
AE6/CP-3A*	10 - 30 VDC	•		2 mm		•	•	•	cable	36 mm
AE6/AP-4A*	10 - 30 VDC		•	4 mm		•	•		cable	36 mm
AE6/CP-4A*	10 - 30 VDC		•	4 mm		•	•	•	cable	36 mm
		M8 (4pin) plug connection								
AE6/AP-3F*	10 - 30 VDC	•		2 mm		•	•		M8 plug	40 mm
AE6/CP-3F*	10 - 30 VDC	•		2 mm		•	•	•	M8 plug	40 mm
AE6/AP-4F*	10 - 30 VDC		•	4 mm		•	•		M8 plug	40 mm
AE6/CP-4F*	10 - 30 VDC		•	4 mm		•	•	•	M8 plug	40 mm
M12 proximity switches										
Standard sensing range		cable connection (2 m)							standard body	
AM1/AP-1A	10 - 30 VDC	•		2 mm		•	•		cable	50 mm
AM1/CP-1A	10 - 30 VDC	•		2 mm		•	•	•	cable	50 mm
AM1/AN-1A	10 - 30 VDC	•		2 mm		•	•		cable	50 mm
AM1/CN-1A	10 - 30 VDC	•		2 mm		•	•	•	cable	50 mm
AM1/AP-2A	10 - 30 VDC		•	4 mm		•	•		cable	50 mm
AM1/CP-2A	10 - 30 VDC		•	4 mm		•	•	•	cable	50 mm
AM1/AN-2A	10 - 30 VDC		•	4 mm		•	•		cable	50 mm
AM1/CN-2A	10 - 30 VDC		•	4 mm		•	•	•	cable	50 mm
Long sensing range										
AM6/AP-3A*	10 - 30 VDC	•		4 mm		•	•		cable	40 mm
AM6/CP-3A*	10 - 30 VDC	•		4 mm		•	•	•	cable	40 mm
AM6/AP-4A*	10 - 30 VDC		•	8 mm		•	•		cable	40 mm
AM6/CP-4A*	10 - 30 VDC		•	8 mm		•	•	•	cable	40 mm
		M12 (4pin) plug connection								
AM6/AP-3H*	10 - 30 VDC	•		4 mm		•	•		M12 plug	53 mm
AM6/CP-3H*	10 - 30 VDC	•		4 mm		•	•	•	M12 plug	53 mm
AM6/AP-4H*	10 - 30 VDC		•	8 mm		•	•		M12 plug	53 mm
AM6/CP-4H*	10 - 30 VDC		•	8 mm		•	•	•	M12 plug	53 mm
2 wire version		M12 (4pin) plug connection								
AM1/A0-1H	10 - 30 VDC	•		2 mm		•	•	•	M12 plug	75 mm
AM1/A0-2H	10 - 30 VDC		•	4 mm		•	•	•	M12 plug	75 mm
AM1/A0-3H*	10 - 30 VDC	•		4 mm		•	•	•	M12 plug	75 mm
AM1/A0-4H*	10 - 30 VDC		•	8 mm		•	•	•	M12 plug	75 mm
NO + NC output		M12 (4pin) plug connection								
AM1/BP-1H	10 - 30 VDC	•		2 mm		•	•	•	M12 plug	65 mm
AM1/BP-2H	10 - 30 VDC		•	4 mm		•	•	•	M12 plug	75 mm

* Long sensing range

Note: For NPN version, replace the "P" with "N" Cables and M8/12 connectors (see page K-27 / 28)

Inductive proximity sensors - Ø M12 and M18

type	supply voltage	flush	non flush	sensing distance	NPN	PNP	NO	NC	connector	body length
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M12 proximity switches

Decout version **NPN/PNP/NO/NC** (on one sensor) **M12 (4pin) plug connection**

PM3/00-1H	10 - 30 VDC	•		2 mm	•	•	•	•	M12 plug	74 mm
PM3/00-2H	10 - 30 VDC		•	4 mm	•	•	•	•	M12 plug	74 mm

AC version **cable connection**

VM2/A0-1B	20 - 253 VAC	•		2 mm	TRIAC	•			cable	72 mm
VM2/C0-1B	20 - 253 VAC	•		2 mm	TRIAC		•		cable	72 mm
VM2/A0-2B	20 - 253 VAC		•	4 mm	TRIAC	•			cable	72 mm
VM2/C0-2B	20 - 253 VAC		•	4 mm	TRIAC		•		cable	72 mm

For food and beverage applications

M12 (4pin) plug connection

- AISI 316L (DIN 1.4404) stainless steel housing
- IP67 (EN60529) - IP68 (1m - 7 days) - IP69K protection degree
- -40...+80°C (up to 100°C for short exposure during cleaning process)

PFM1/BP-3H*	10 - 30 VDC	•		4 mm		•	•	•	M12 plug	65 mm
PFM1/BP-4H*	10 - 30 VDC		•	8 mm		•	•	•	M12 plug	65 mm

Cables and M12 connectors (see page K-27 / 28)

M18 cylindrical proximity switches

Standard sensing range

cable connection (3 wire)

AK1/AP-1A	10 - 30 VDC	•		5 mm		•	•		cable	50 mm
AK1/CP-1A	10 - 30 VDC	•		5 mm		•		•	cable	50 mm
AK1/AN-1A	10 - 30 VDC	•		5 mm	•		•		cable	50 mm
AK1/CN-1A	10 - 30 VDC	•		5 mm	•			•	cable	50 mm
AK1/AP-2A	10 - 30 VDC		•	8 mm		•	•		cable	50 mm
AK1/CP-2A	10 - 30 VDC		•	8 mm		•		•	cable	50 mm
AK1/AN-2A	10 - 30 VDC		•	8 mm	•		•		cable	50 mm
AK1/CN-2A	10 - 30 VDC		•	8 mm	•			•	cable	50 mm

Short body - NO + NC

cable connection (4 wire)

AK6/BP-1A	10-30 VDC	•		5 mm		•	•	•	cable	39 mm
AK6/BN-1A	10-30 VDC	•		5 mm	•		•	•	cable	39 mm
AK6/BP-2A	10-30 VDC		•	8 mm		•	•	•	cable	39 mm
AK6/BN-2A	10-30 VDC		•	8 mm	•		•	•	cable	39 mm

Long sensing range - NO + NC

M12 (4pin) plug connection

AK6/BP-3H*	10 - 30 VDC	•		8 mm		•	•	•	M12 plug	49 mm
AK6/BN-3H*	10 - 30 VDC	•		8 mm	•		•	•	M12 plug	49 mm
AK6/BP-4H*	10 - 30 VDC		•	12 mm		•	•	•	M12 plug	49 mm
AK6/BN-4H*	10 - 30 VDC		•	12 mm	•		•	•	M12 plug	49 mm

2 wire version

M12 (4pin) plug connection

AK1/A0-1H	10 - 30 VDC	•		5 mm	•	•	•		M12 plug	64 mm
AK1/A0-2H	10 - 30 VDC		•	8 mm	•	•	•		M12 plug	64 mm
AK1/A0-3H*	10 - 30 VDC	•		8 mm	•	•		•	M12 plug	64 mm
AK1/A0-4H*	10 - 30 VDC		•	12 mm	•	•		•	M12 plug	64 mm

Decout version **NPN/PNP/NO/NC** (on one sensor)

M12 (4pin) plug connection

PK3/00-1H	10 - 30 VDC	•		5 mm	•	•	•	•	M12 plug	72 mm
PK3/00-2H	10 - 30 VDC		•	8 mm	•	•	•	•	M12 plug	72 mm

AC version

cable connection

VK2/A0-1B	20 - 253 VAC	•		5 mm	TRIAC	•			cable	77 mm
VK2/C0-1B	20 - 253 VAC	•		5 mm	TRIAC		•		cable	77 mm
VK2/A0-2B	20 - 253 VAC		•	8 mm	TRIAC	•			cable	77 mm
VK2/C0-2B	20 - 253 VAC		•	8 mm	TRIAC		•		cable	77 mm

For food and beverage applications

M12 (4pin) plug connection

- AISI 316L (DIN 1.4404) stainless steel housing
- IP67 (EN60529) - IP68 (1m - 7 days) - IP69K protection degree
- -40...+80°C (up to 100°C for short exposure during cleaning process)

PFK1/BP-3H*	10 - 30 VDC	•		8 mm		•	•	•	M12 plug	63 mm
PFK1/BP-4H*	10 - 30 VDC		•	12 mm		•	•	•	M12 plug	63 mm

* Long sensing range

Cables and M12 connectors (see page K-27 / 28)



PM3/00-1H



AK1/CP-1A



PK3/00-1H

new



AT6/BP-3H



AT6/BP-4H



IL8/AP-3A



IL1/AP-3A

Inductive sensors are used to sense metal objects and can be utilised in very difficult applications, even in the presence of oils, powders, liquids and vibrations. They are commonly mounted on machine tools, textile machines, transport systems, packaging machines and all automation applications.

- Protection degree: IP67
- Ambient limits: -25 - +70°C
- LED indication: Incorporated
- Short circuit and polarity reversal protection

type	supply voltage	flush	non flush	sensing distance	NPN	PNP	NO	NC	connector	body length
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M30 cylindrical proximity switches**Standard sensing range**

AT1/AP-1A	10 - 30 VDC	•		10 mm		•	•		cable	60 mm
AT1/CP-1A	10 - 30 VDC	•		10 mm		•		•	cable	60 mm
AT1/AN-1A	10 - 30 VDC	•		10 mm		•	•		cable	60 mm
AT1/CN-1A	10 - 30 VDC	•		10 mm	•			•	cable	60 mm
AT1/AP-2A	10 - 30 VDC		•	15 mm		•	•		cable	60 mm
AT1/CP-2A	10 - 30 VDC		•	15 mm		•		•	cable	60 mm
AT1/AN-2A	10 - 30 VDC		•	15 mm	•		•		cable	60 mm
AT1/CN-2A	10 - 30 VDC		•	15 mm	•			•	cable	60 mm

Long sensing range - NO + NC

AT6/BP-3H*	10 - 30 VDC	•		15 mm		•	•	•	M12 plug	44 mm
AT6/BP-4H*	10 - 30 VDC		•	20 mm		•	•	•	M12 plug	44 mm
AT6/BN-3H*	10 - 30 VDC	•		15 mm	•		•	•	M12 plug	44 mm
AT6/BN-4H*	10 - 30 VDC		•	20 mm	•		•	•	M12 plug	44 mm

2 wire version

AT1/A0-1H	10 - 30 VDC	•		10 mm		•	•	•	M12 plug	76 mm
AT1/A0-2H	10 - 30 VDC		•	15 mm		•	•	•	M12 plug	76 mm
AT1/A0-3H*	10 - 30 VDC	•		15 mm		•	•	•	M12 plug	76 mm
AT1/A0-4H*	10 - 30 VDC		•	20 mm		•	•	•	M12 plug	76 mm

AC version

VT2/A0-1B	20 - 253 VAC	•		10 mm	TRIAC	•			cable	80 mm
VT2/C0-1B	20 - 253 VAC		•	10 mm	TRIAC		•		cable	80 mm
VT2/A0-2B	20 - 253 VAC		•	15 mm	TRIAC	•			cable	80 mm
VT2/C0-2B	20 - 253 VAC		•	15 mm	TRIAC		•		cable	80 mm

* Long sensing range

Cables and M12 connectors (see page K-27 / 28)

Analog output proximity switches

1 x 0-10V and 1 x 4-20mA output

- Voltage 0 - 10 VDC and Current 4 - 20mA outputs (*in the same device*)
- Wide usable sensing ranges: M12 (6 mm) and M18 (10 mm)
- Excellent resolution (*no digitalization*)

M12 proximity switches

AM1/D2-5H	15 - 30 VDC	•		0...6 mm	0-10V	4-20mA			M12 plug	60 mm

M18 proximity switches

AK6/D2-5H	15 - 30 VDC	•		0...10 mm	0-10V	4-20mA			M12 plug	49 mm

Rectangular housing inductive proximity switches**8 x 8 x 40 mm rectangular body**

IL8/AP-3A	10 - 30 VDC	•		2 mm		•	•		cable	40 mm
IL8/CP-3A	10 - 30 VDC		•	2 mm		•		•	cable	40 mm
IL8/AN-3A	10 - 30 VDC	•		2 mm	•		•		cable	40 mm
IL8/CN-3A	10 - 30 VDC		•	2 mm	•			•	cable	40 mm

28 x 10 x 16 mm rectangular body

(aligns with standard mechanical micro switch)

IL1/AP-3A	10 - 30 VDC	•		3 mm		•	•		cable	28 mm
IL1/CP-3A	10 - 30 VDC		•	3 mm		•		•	cable	28 mm
IL1/AN-3A	10 - 30 VDC	•		3 mm	•		•		cable	28 mm
IL1/CN-3A	10 - 30 VDC		•	3 mm	•			•	cable	28 mm

new



C12P/00-3E



C30P/BN-1E



CQ55/BP-3E



INC1/D0-3A

Capacitive proximity sensors are used to sense any material, solid or liquid (*water, wood, metals, granules, powders, etc...*) even through plastic or glass walls. They feature extremely high electromagnetic compatibility (EMC), with high shock/vibration resistance and minimal sensitivity to dust and moisture, ensuring reliable object detection in harsh industrial environments.

- Detects powders, granulates, liquids and solids
- Sensitivity adjustment
- Short circuit and polarity reversal protection
- Protection degree: IP67/68/69K
- Ambient limits: -20 ... +85°C
- LED indication: Incorporated
- Housing material: Thermoplastic polyester

type	supply voltage	flush non flush	sensing distance	NPN	PNP	NO	NC	connector	body length
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M12 Capacitive proximity switches

M12 (4pin) plug connection

- Adjustable sensitivity via Teach-in button
- Automatic detection of NPN or PNP load

C12P/00-3E	10 - 40 VDC	• □	0.5...8 mm	• • • •				M12 plug	80 mm
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M18 Capacitive proximity switches

M12 (4pin) plug connection

- Adjustable sensitivity via potentiometer
- Standard output: NO and NC

C18P/BP-1E	10 - 40 VDC	• □	3...8 mm	• • • •				M12 plug	84 mm
C18P/BN-1E	10 - 40 VDC	• □	3...8 mm	• • • •				M12 plug	84 mm
C18P/BP-2E	10 - 40 VDC	□ •	3...12 mm	• • • •				M12 plug	92 mm
C18P/BN-2E	10 - 40 VDC	□ •	3...12 mm	• • • •				M12 plug	92 mm

AC version

cable connection

C18P/A0-1A	20 - 250 VAC	• □	3...8 mm	SCR	• •			cable	87 mm
C18P/C0-1A	20 - 250 VAC	• □	3...8 mm	SCR		•		cable	87 mm
C18P/A0-2A	20 - 250 VAC	□ •	3...12 mm	SCR	• •			cable	95 mm
C18P/C0-2A	20 - 250 VAC	□ •	3...12 mm	SCR		•		cable	95 mm

M30 Capacitive proximity switches

M12 (4pin) plug connection

- Adjustable sensitivity via potentiometer
- Standard output: NO and NC

C30P/BP-1E	10 - 40 VDC	• □	2...16 mm	• • • •				M12 plug	79 mm
C30P/BN-1E	10 - 40 VDC	• □	2...16 mm	• • • •				M12 plug	79 mm
C30P/BP-2E	10 - 40 VDC	□ •	4...25 mm	• • • •				M12 plug	91 mm
C30P/BN-2E	10 - 40 VDC	□ •	4...25 mm	• • • •				M12 plug	91 mm

AC version

cable connection

C30P/00-1A	20 - 250 VAC	• □	2...16 mm	SCR	• •			cable	79 mm
C30P/00-2A	20 - 250 VAC	□ •	4...25 mm	SCR	• •			cable	91 mm

Cubic capacitive sensors (flat pack housing)

- Adjustable sensitivity via potentiometer
- Standard output: NO and NC

CQ55 series cubic sensors (flat body)	M12 (4pin) plug connection	58 x 35 x 15 mm
CQ55/BP-3E	10 - 40 VDC	• □ 4...25 mm • • • • M12 plug 58 mm
CQ55/BN-3E	10 - 40 VDC	□ • 4...25 mm • • • • M12 plug 58 mm

VBR/INC series - vibration and inclination sensor M18 IP67

New VBR series shock and vibration sensor incorporates a MEMS 3-axis accelerometer to monitor all accelerations and vibrations. Designed to be easy to use without any special training for operators.

- Programmable operating range:
- Reference axis:
- Frequency range:

VBR
±2g, ±4g, ±8g, ±16g
3 (X, Y, Z)
0 ... 400Hz

INC
360° - 0.025° resolution
1 direction
< 3 msec

- Fully programmable in all its functions, thresholds, alarms and node addresses
- 1 output RS485 (*addressable*) 57600 Baud rate - 1 bit stop - parity
- 1 analogue output (*programmable voltage or current*)

VBR1/D0-3A	24 VDC	vibration sensor	0 - 10V 4-20mA	cable	40.5 mm
INC1/D0-3A	24 VDC	inclination sensor	0 - 10V 4-20mA	cable	50.5 mm

Mounting accessories for VBR/INC sensors

ST18-S	bracket	M18 mounting bracket/housing for above VBR/INC sensor
ST18-V	bracket	M18 metal mounting bracket for above VBR/INC sensor



FAI2/BP-0A



FAI6/BN-2E

new



MV2/A0-0A



MVC/A0-0A

Photoelectric sensors transmit a beam which is reflected back from a detected object (*diffused*) or from a reflector (*retro-reflective*) or can be used with a separate transmitter and receiver (*through-beam*), typically used for longer distance sensing.

- Protection degree: IP67 (EN60529)
- Ambient limits: -25 ... +70°C
- Supply protection: Polarity reversal, transient, short circuit
- LED indication: Incorporated
- Housing material: PBT (*plastic*) available in metal (*on request only*)

type	supply voltage	sensitivity adj.	diffused	retro-reflective	polarised retro	through-beam	sensing distance (mm)	NPN	PNP	NO	NC	connector
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M18 FA series axial beam 10 - 30 VDC IP67 (EN60529) Ø18 mm x 65/80 mm

Diffuse reflection

proximity type detection (no transmitter or reflector required)

FAR2/BN-0A	10 - 30 VDC		•				100 mm		•	•	•	cable
FAR2/BP-0A	10 - 30 VDC		•				100 mm		•	•	•	cable
FAI6/BN-0A	10 - 30 VDC		•				400 mm	•		•	•	cable
FAI6/BP-0A	10 - 30 VDC		•				400 mm		•	•	•	cable
FAI6/BN-2E*	10 - 30 VDC		•				400 mm	•		•	•	M12 plug
FAI6/BP-2E*	10 - 30 VDC		•				400 mm		•	•	•	M12 plug
FAI7/BN-0E	10 - 30 VDC	•	•				400 mm	•		•	•	M12 plug
FAI7/BP-0E	10 - 30 VDC	•	•				400 mm		•	•	•	M12 plug
FAI8/BN-2E*	10 - 30 VDC	•	•				800 mm	•		•	•	M12 plug
FAI8/BP-2E*	10 - 30 VDC	•	•				800 mm		•	•	•	M12 plug
FAI8/BN-0E	10 - 30 VDC	•	•				1000 mm	•		•	•	M12 plug
FAI8/BP-0E	10 - 30 VDC	•	•				1000 mm		•	•	•	M12 plug

With adjustable background suppression

FARS/BP-0E	10 - 30 VDC	•	•				30...130		•	•	•	M12 plug
FARW/BP-0E	10 - 30 VDC	•	•				35...300		•	•	•	M12 plug

Retro-reflective

used together with a reflector

FAIC/BN-0A	10 - 30 VDC			•			5 meters	•		•	•	cable
FAIC/BP-0A	10 - 30 VDC			•			5 meters		•	•	•	cable
FAIC/BN-2E*	10 - 30 VDC			•			4 meters	•		•	•	M12 plug
FAIC/BP-2E*	10 - 30 VDC			•			4 meters		•	•	•	M12 plug

Retro-reflective (polarised)

used together with a reflector

FARP/BN-0A	10 - 30 VDC				•		4 meters	•		•	•	cable
FARP/BP-0A	10 - 30 VDC				•		4 meters		•	•	•	cable

Through beam (receiver)

requires a emitter and receiver

FAI2/BN-0A	10 - 30 VDC					•	20 meters	•		•	•	cable
FAI2/BP-0A	10 - 30 VDC					•	20 meters		•	•	•	cable
FAI2/BP-2E*	10 - 30 VDC					•	15 meters		•	•	•	M12 plug
FAIH/00-0A	10 - 30 VDC					•	20 meters		emitter			cable
FAIH/00-2E*	10 - 30 VDC					•	15 meters		emitter			M12 plug

* Radial optic (90° sensing)

M18 MV series axial beam 20 - 253 VAC IP67 (EN60529) Ø18 mm x 79 mm

Diffuse reflection

proximity type detection (no transmitter or reflector required)

MV2/A0-0A	20 - 253 VAC		•				100 mm	TRIAC	•			cable
MV2/C0-0A	20 - 253 VAC		•				100 mm	TRIAC		•		cable
MV4/A0-0A	20 - 253 VAC		•				200 mm	TRIAC	•			cable
MV4/C0-0A	20 - 253 VAC		•				200 mm	TRIAC		•		cable
MV6/A0-0A	20 - 253 VAC		•				400 mm	TRIAC	•			cable
MV6/C0-0A	20 - 253 VAC		•				400 mm	TRIAC		•		cable

Retro-reflective

used together with a reflector

MVC/A0-0A	20 - 253 VAC			•			4 meters	TRIAC	•			cable
MVC/C0-0A	20 - 253 VAC			•			4 meters	TRIAC		•		cable

Through beam (receiver)

requires a transmitter and receiver

MVR/A0-0A	20 - 253 VAC					•	16 meters	TRIAC	•			cable
MVR/C0-0A	20 - 253 VAC					•	16 meters	TRIAC		•		cable
MVE/00-0A	20 - 253 VAC					•	16 meters		emitter			cable

Mounting accessories (see page K-8) Cables and M8/12 connectors (see page K-27 / 28)

Note: Reflectors sold separately, see page K-8



QMR7/0P-0F



QMRN/0N-0F



QMIC/0N-0F

new



QFI4/BP-1F

Photo switches transmit a beam which is reflected back from a detected object (*diffused*) or from a reflector (*retro-reflective*) or can be used with a separate transmitter and receiver (*through beam*), typically used for longer distance sensing.

- Sensitivity: Adjustable (*trimmer*)
- Ambient limits: -25 ... +70°C
- Supply protection: Polarity reversal, impulse overvoltage, short circuit
- LED indication: Yellow (*output status*) / green (*supply present*)

type	supply voltage	diffused	retro-reflective	polarised retro	through-beam	sensing distance (mm)	NPN	PNP	NO	NC	connector
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QM series - Miniature cubic sensor IP67 (EN60529) 13 x 21 x 31.2 mm

- Miniaturize high performance photoelectric sensors
- 2 kHz switching frequency
- Selectable LO/DO output state
- M8 (4pin) plug connection

Diffuse reflection*proximity type detection (no transmitter or reflector required)*

QMR5/0P-0F*	10 - 30 VDC	•				30...200	•	•	•	•	M8 plug
QMR7/0N-0F	10 - 30 VDC	•				400 mm	•		•	•	M8 plug
QMR7/0P-0F	10 - 30 VDC	•				400 mm		•	•	•	M8 plug
QMR8/0N-0F	10 - 30 VDC	•				1 meter	•		•	•	M8 plug
QMR8/0P-0F	10 - 30 VDC	•				1 meter		•	•	•	M8 plug
QMI9/0P-0F	10 - 30 VDC	•				1.5 meters		•	•	•	M8 plug

* With adjustable background suppression

Retro-reflective*used together with a reflector*

QMIC/0N-0F	10 - 30 VDC		•			7 meter	•		•	•	M8 plug
QMIC/0P-0F	10 - 30 VDC		•			7 meter		•	•	•	M8 plug

Retro-reflective (polarised)*used together with a reflector*

QMRN/0N-0F	10 - 30 VDC			•		5 meter	•		•	•	M8 plug
QMRN/0P-0F	10 - 30 VDC			•		5 meter		•	•	•	M8 plug

Retro-reflective*(transparent objects)*

QMRL/0N-0F	10-30 VDC		•			0.4...4 met	•		•	•	M8 plug
QMRL/0P-0F	10-30 VDC		•			0.4...4 met		•	•	•	M8 plug

Through beam*(transmitter and receiver kit)*

QMRHD/0N-0F	10 - 30 VDC				•	20 meter	•		•	•	M8 plug
QMRHD/0P-0F	10 - 30 VDC				•	20 meter		•	•	•	M8 plug

QF series - For food and beverage applications

11 x 21 x 31.4 mm

- M8 (4pin) plug connection
- -26...+60°C (*without freeze*)
- IP67 (EN60529) - IP68 (1m - 7 days) - IP69K protection degree
- AISI 316L (DIN 1.4404) stainless steel housing - Active head PPSU
- Approvals: CE cULus, ECOLAB, IEC60947-5-2

Diffuse reflection*proximity type detection (no transmitter or reflector required)*

QFI4/BP-1F	10 - 30 VDC	•				20...200	•	•	•	•	M8 plug
QFR5/BP-1F*	10 - 30 VDC	•				25...200		•	•	•	M8 plug
QFR8/BP-1F	10 - 30 VDC	•				0.1...1met		•	•	•	M8 plug

* With adjustable background suppression

Retro-reflective (polarised)*used together with a reflector*

QFRN/BP-1F	10 - 30 VDC			•		6 meter		•	•	•	M8 plug
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Mounting accessories (see page K-8) Cables and M8/12 connectors (see page K-27 / 28)

Note: Reflectors sold separately, see page K-8

Photo switches transmit a beam which is reflected back from a detected object (diffused) or from a reflector (retro-reflective) or can be used with a separate transmitter and receiver (through beam) typically used for longer distance sensing.

type	supply voltage	diffused	retro-reflective	polarised retro	through-beam	sensing distance (mm)	NPN	PNP	NO	NC	connector
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Q50 - Compact cubic 50 x 50 mm universal photoelectric sensor

- Universal photoelectric sensor, excellent performance and high versatility
- Totally protected against electrical damage
- Sensitivity: Adjustable
- Dimensions: 50 x 50 x 17 mm
- Protection degree: IP67 (EN60529)

DC supply 10...30 VDC

- Revolving M12 (4 pin) connector (for rear or bottom cable entry)

Diffuse reflection proximity type detection (no transmitter or reflector required)

Q50I8/B0-0E	10 - 30 VDC	☐	☐	☐	0.3 - 2 m	☐	☐	☐	☐	M12 plug
Q50IS/B0-0E*	10 - 30 VDC	☐	☐	☐	120...500	☐	☐	☐	☐	M12 plug

* With adjustable background suppression

Retro-reflective - (polarised) used together with a reflector

Q50RN/B0-0E	10-30 VDC	☐	☐	☐	0.2 - 6 m	☐	☐	☐	☐	M12 plug
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Through beam (receiver) requires a transmitter and receiver

Q50ID/B0-0E	10 - 30 VDC	☐	☐	☐	20 meter	☐	☐	☐	☐	M12 plug
Q50IH/00-0E	10 - 30 VDC	☐	☐	☐	20 meter	☐	☐	☐	emitter	M12 plug

Multi-voltage supply 12...240 VDC / 24...240 VAC

- Relay - SPDT output (3A 240 VAC)

Diffuse reflection proximity type detection (no transmitter or reflector required)

Q50I8/0T-0A	multi-voltage	☐	☐	☐	0.3 - 2 m	☐	☐	☐	SPDT	cable
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Retro-reflective - (polarised) used together with a reflector

Q50RN/0T-0A	multi-voltage	☐	☐	☐	0.3 - 6 m	☐	☐	☐	SPDT	cable
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Through beam (receiver) requires a transmitter and receiver

Q50ID/0T-0A	multi-voltage	☐	☐	☐	20 meter	☐	☐	☐	SPDT	cable
Q50IH/0T-0A	multi-voltage	☐	☐	☐	20 meter	☐	☐	☐	emitter	cable

RX series (rectangular) 20 - 60 VDC / 20 - 253 VAC IP65 (EN60529)

- Sensitivity: Adjustable
- Connector: M12 (4pin) plug
- AC/DC supply: 20 - 60 VDC / 20 - 253 VAC
- Relay output: Selectable NO or NC
- LED indication: Output state, alignment, stable signal
- Supply protection: Transient (AC), over voltage (DC), short circuit
- Dimensions: (H) 61 x (W) 26 x (D) 92 mm

Diffuse reflection proximity type detection (no transmitter or reflector required)

RX8/00-3B	multi-voltage	☐	☐	☐	2 meter	☐	☐	☐	☐	M12 plug
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Retro-reflective used together with a reflector

RXC/00-3B	multi-voltage	☐	☐	☐	12 meter	☐	☐	☐	☐	M12 plug
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Retro-reflective (polarised) used together with a reflector

RXP/00-3B	multi-voltage	☐	☐	☐	6 meter	☐	☐	☐	☐	M12 plug
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Through beam (receiver) requires a transmitter and receiver

RXR/00-3B	multi-voltage	☐	☐	☐	32 meter	☐	☐	☐	☐	M12 plug
RXE/00-3B	multi-voltage	☐	☐	☐	32 meter	☐	☐	☐	emitter	M12 plug

Mounting accessories (see page K-8) Cables and M8/12 connectors (see page K-27 / 28)

Note: Reflectors sold separately, see page K-8



Q50I8/B0-0E



Q50RN/0T-0A



RX8/00-3B



RXC/00-3B



QX3/A0-1A



QXR/A0-1A



BS8/00-0C

new



ST300D



RL 110

type	supply voltage	diffused	retro-reflective	polarised retro	through-beam	sensing distance (mm)	NPN	PNP	NO	NC	connector
QX series (rectangular)		IP65 (EN60529)						40 x 15 x 23 mm			
Diffuse reflection		<i>proximity type detection (no transmitter or reflector required)</i>									
QX3/A0-1A	10 - 30 VDC	•				300 mm	•	•	•		cable
QX3/C0-1A	10 - 30 VDC	•				300 mm	•	•		•	cable
Retro-reflective		<i>used together with a reflector</i>									
QXC/A0-1A	10 - 30 VDC		•			5 meter	•	•	•		cable
QXC/C0-1A	10 - 30 VDC		•			5 meter	•	•		•	cable
Through beam (receiver)		<i>requires a transmitter and receiver</i>									
QXR/A0-1A	10 - 30 VDC				•	8 meter	•	•	•		cable
QXR/C0-1A	10 - 30 VDC				•	8 meter	•	•		•	cable
QXX/00-1A	10 - 30 VDC				•	8 meter	emitter				cable
BS/BV series (rectangular) cubic photoelectric sensors		37 x 16 x 64/70 mm									
• Sensitivity:		Adjustable									
• LED indication:		Incorporated									
• Protection degree:		IP65 (EN60529)									
• Supply protection:		Transient, short circuit (BS)									
Diffuse reflection		<i>proximity type detection (no transmitter or reflector required)</i>									
BS6/00-0C	10 - 30 VDC	•				400 mm	•	•	•	•	cable
BS8/00-0C	10 - 30 VDC	•				1.6 meter	•	•	•	•	cable
BV4/00-0C	20 - 253 VAC	•				200 mm	TRIAC	•	•		cable
BV6/00-0C	20 - 253 VAC	•				400 mm	TRIAC	•	•		cable
Retro-reflective		<i>used together with a reflector</i>									
BSC/00-0C	10 - 30 VDC		•			8 meter	•	•	•	•	cable
BVC/00-0C	20 - 253 VAC		•			8 meter	TRIAC	•	•		cable
<i>Mounting accessories - (below) Cables and M8/12 connectors (see page K-27 / 28)</i>											
Accessories for proximity / photoelectric / ultrasonic sensor											
ST300D	tester	device for all DC proximity/photoelectric/ultrasonic devices									
Mounting accessories for sensors											
ST 02	plastic	adjustable swivel mounting bracket for all								M18 sensors	
ST 18-A	metal	axial mounting bracket for all								M18 sensors	
ST 18-C	metal	right angled mounting bracket for all								M18 sensors	
ST 30-A	metal	axial mounting bracket for all								M30 sensors	
ST 30-C	metal	right angled mounting bracket for all								M30 sensors	
ST 01	metal	mounting bracket for rectangular sensors								BS - BV	
ST 80	metal	top mount bracket for rectangular sensors								RX	
ST 81	metal	side mount bracket for rectangular sensors								RX	
ST 101	metal	vertical mounting L shaped bracket for sensors								QM/QF	
ST 102	metal	side mounting vertical L bracket for sensors								QM/QF	
ST 103	metal	vertical mount with protective cover bracket for								QM/QF	
ST 104	metal	horizontal mount protective cover bracket for								QM/QF	
STQMO	adaptor	vertical/horizontal diaphragms (0.5-1-2) for								QM/QF	
ST 03	adaptor	right angled beam adaptor for photoelectric								M18 sensors	
ST 03U	adaptor	right angled beam deflector for ultrasonic								M18 sensors	
Reflectors for photoelectric switches							(D)	(H)	(W)	Ø	
RL 103	02232510	round	reflector	7.4	—	—	34.5				
RL 104	02292510	round	reflector	6.5	—	—	46				
RL 110	80392510	round	reflector	7.3	—	—	84				
RL 113G	00042510	square	reflector	8	61	51	—				
RL 107	03132510	square	reflector	9	100	100	—				
RL 112G	03312510	rectangular	reflector	8.2	73	19	—				
RL 116	00082510	rectangular	reflector	8	60	40	—				

Ultrasonic transducer emits an ultrasonic signal which is reflected back by the target towards the sensor. The trigger circuit measures the time between the emission and the detection of the signal. Since the speed of the ultrasonic beam in air is known, it is easy to have an indication of the presence of the target, as well as a measure of the distance between sensor and target.

A Teach-in button is used to set working distance, output status (NO/NC) and slope of analog output and to change the function. All models are temperature compensated to ensure reliability throughout the entire detection range and are totally resin filled for applications subject to vibration offering an IP67 protection degree.

Ultrasonic sensors IP67 (EN60529)

- Sensitivity: Adjustable (via external Teach-in)
- Ambient limits: -20 ... +70°C
- Supply protection: Polarity reversal, transient, short circuit
- LED indication: Orange (output/regulation), green (echo reception)
- Housing material: PBT plastic (AISI 316L stainless steel available on request only)

type	supply voltage	sensing distance (mm)	description	NPN	PNP	NO	NC	0...10V	4...20mA	connector
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M18 UQ1 series - Cubic ultrasonic sensor with head

(H) 53 x (W) 20 x (D) 38 mm

Analog + Digital NO/NC output

M12 (4pin) plug connection

UQ1A/G6-0E	10 - 30 VDC	40...300	ultrasonic sensor		•	•	•	•		M12 plug
UQ1C/G6-0E	10 - 30 VDC	60...800	ultrasonic sensor		•	•	•	•		M12 plug
UQ1D/G6-0E	10 - 30 VDC	80...1.200	ultrasonic sensor		•	•	•	•		M12 plug
UQ1A/G7-0E	10 - 30 VDC	40...300	ultrasonic sensor		•	•	•	•		M12 plug
UQ1C/G7-0E	10 - 30 VDC	60...800	ultrasonic sensor		•	•	•	•		M12 plug
UQ1D/G7-0E	10 - 30 VDC	80...1.200	ultrasonic sensor		•	•	•	•		M12 plug

M18 UK6 series - Cylindrical ultrasonic sensors

UK6 series - M18 short body

M12 (4pin) plug connection

M18 x 60.3 mm

Digital NO/NC output

UK6A/HP-0EUL	10 - 30 VDC	40...300	ultrasonic sensor		•	•	•			M12 plug
UK6C/HP-0EUL	10 - 30 VDC	60...800	ultrasonic sensor		•	•	•			M12 plug
UK6D/HP-0EUL	10 - 30 VDC	80...1.200	ultrasonic sensor		•	•	•			M12 plug

Analog output

UK6A/H1-0EUL	10 - 30 VDC	40...300	ultrasonic sensor					•		M12 plug
UK6C/H1-0EUL	10 - 30 VDC	60...800	ultrasonic sensor					•		M12 plug
UK6D/H1-0EUL	10 - 30 VDC	80...1.200	ultrasonic sensor					•		M12 plug
UK6A/H2-0EUL	10 - 30 VDC	40...300	ultrasonic sensor					•		M12 plug
UK6C/H2-0EUL	10 - 30 VDC	60...800	ultrasonic sensor					•		M12 plug
UK6D/H2-0EUL	10 - 30 VDC	80...1.200	ultrasonic sensor					•		M12 plug

UK1 series - M18 standard body

M12 (4pin) plug connection

M18 x 91.6 mm

Analog + Digital NO/NC output

UK1D/G6-0ESY	10 - 30 VDC	150...1.600	ultrasonic sensor		•	•	•	•		M12 plug
UK1D/G7-0ESY	10 - 30 VDC	150...1.600	ultrasonic sensor		•	•	•	•		M12 plug
UK1F/G6-0ESY	10 - 30 VDC	200...2.200	ultrasonic sensor		•	•	•	•		M12 plug
UK1F/G7-0ESY	10 - 30 VDC	200...2.200	ultrasonic sensor		•	•	•	•		M12 plug

M30 UT series - Standard body (with larger heads for longer distance sensing)

M30 x 99 mm

- M30 - standard body UT1 or with larger head - UT2 (38.8 mm) UT5 (61 mm)
- Synchronism - up to 10 sensors connected on the same SYNC wire

Analog + Digital NO/NC output

M12 (5pin) plug connection

UT1B/G6-0ESY	10 - 30 VDC	250...3.500	ultrasonic sensor		•	•	•	•	•	M12 plug
UT1B/G7-0ESY	10 - 30 VDC	250...3.500	ultrasonic sensor		•	•	•	•	•	M12 plug
UT2F/G6-0ESY	10 - 30 VDC	350...6.000	ultrasonic sensor		•	•	•	•	•	M12 plug
UT2F/G7-0ESY	10 - 30 VDC	350...6.000	ultrasonic sensor		•	•	•	•	•	M12 plug
UT5L/G6-1ESY	10 - 30 VDC	600...8.000	ultrasonic sensor		•	•	•	•	•	M12 plug
UT5L/G7-1ESY	10 - 30 VDC	600...8.000	ultrasonic sensor		•	•	•	•	•	M12 plug

Mounting accessories (see page K-8)

Cables and M8/12 connectors (see page K-27 / 28)



new



CR0/0B-1V



BX10SR/0A-HB

new



FC5R/DP-0506-1F



FC6I/0B-0506-1F



FC7I/0B-M304-0F

Photoelectric area and fork sensors

type	supply voltage	slit/fork				sensing distance (mm)	NPN	PNP	NO	NC	connector
		diffused	retro-reflective	polarised retro	through-beam						

CR0 series - Area sensors

CR0 series retroreflective polarised area sensors

IP67 (EN60529)

CR0 area sensors are retroreflective and work in junction with RL106G reflector (*supplied*). Made up of an array of synchronised photo elements in order to avoid mutual interference.

- Nominal sensing distance: 0.2 ... 4.5 meters
- Controlled height: 69 mm
- Minimum detectable object: 3...6 mm @ 2m - 3...10 mm @ 4.5m
- Connection: 25 cm pigtail with M12 5pin plug
- Dimensions: (H) 107 X (W) 20 X (D) 36 mm

CR0/0B-1V 16...30 VDC ☐ ☐ ☒ ☐ 0.2...4.5 met ☒ ☒ ☒ ☒ M12 plug

BX series - Through-beam area sensors

(H) 145 x (W) 20 x (D) 45 mm

BX area sensors are supplied with two parts - an emitter and a receiver element. The optical side is made up of an array of synchronised photo elements in order to avoid mutual interference. Ideal solution for detecting irregular shaped objects

- Nominal sensing distance: 0.3... 2 meters
- Controlled height: 90 mm
- Minimum detectable object: **BX4** Ø15 mm / **BX10** Ø5 mm
- Sensitivity: Adjustable (*trimmer*)
- LED indication: Green (*supply*) - red (*alarm sync.*) - yellow (*area stable*)
- Supply protection: Polarity reversal, transient, short circuit (*auto reset*)
- Protection degree: IP67 (EN60529)

BX04 area sensor 4 optics - 30 mm optic step

BX04SR/0A-HB 10... 26 VDC ☐ ☐ ☐ ☒ 0.3...2 met ☒ ☒ ☒ ☒ M12 plug

BX10 area sensor 10 optics - 10 mm optic step

BX10SR/0A-HB 10... 26 VDC ☐ ☐ ☐ ☒ 0.3...2 met ☒ ☒ ☒ ☒ M12 plug

Available with 4 and 6 meter sensing distances on request.

Note: Available in IP69K version (food and beverage) on request
Cables and M8/12 connectors (see page K-27 / 28)

FC series - Fork sensors

type	supply voltage	slit/fork		NPN	PNP	NO	NC	connector
		depth	width					

FC5 series - for object detection without regulation

- Minimum size object detection: 0.8 mm
- Switching frequency: 4 KHz
- Connector: M8 plug connection (3 pin)

FC5R/DP-0506-1F 12...24 VDC 60 mm ☒ 50 mm ☐ ☒ ☒ M8 plug
 FC5R/DP-0806-1F 12...24 VDC 60 mm ☒ 80 mm ☐ ☒ ☒ M8 plug
 FC5R/DP-1212-1F 12...24 VDC 124 mm ☒ 120 mm ☐ ☒ ☒ M8 plug

FC6 series - for object detection with regulation

- Minimum size object detection: 0.2 mm
- Switching frequency: 10 KHz
- Connector: M8 plug connection (4 pin)

FC6I/0B-0304-1F 12...24 VDC 42 mm ☒ 30 mm ☒ ☒ ☒ M8 plug
 FC6I/0B-0306-1F 12...24 VDC 59 mm ☒ 30 mm ☒ ☒ ☒ M8 plug
 FC6I/0B-0506-1F 12...24 VDC 59 mm ☒ 50 mm ☒ ☒ ☒ M8 plug
 FC6I/0B-0510-1F 12...24 VDC 95 mm ☒ 50 mm ☒ ☒ ☒ M8 plug
 FC6I/0B-0806-1F 12...24 VDC 59 mm ☒ 80 mm ☒ ☒ ☒ M8 plug
 FC6I/0B-0810-1F 12...24 VDC 95 mm ☒ 80 mm ☒ ☒ ☒ M8 plug

FC7 series - fork sensors for label detection

- Minimum object detection: 2 mm (*gap between labels*) / 2 mm (*label size*)

FC7I/0B-M304-0F 12...24 VDC 42 mm ☒ 3 mm ☒ ☒ ☒ M8 plug

Cables and M8/12 connectors (see page K-27 / 28)

Inductive sensors are used to sense metal objects and can be utilised in very difficult applications, even in the presence of oils, powders, liquids and vibrations. They are commonly mounted on machine tools, textile machines, transport systems, packaging machines and all automation applications.

- Protection degree: IP65/67
- Ambient limits: -25 ... +70°C
- LED indication: Incorporated
- Short circuit and polarity reversal protection

type	supply voltage	flush	non flush	sensing distance	NPN	PNP	NO	NC	connector	body length
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Rectangular housing inductive proximity switches (IP65)

40 x 40 rectangular body

terminal block connection

DC version

SIP40-C15 NPN	10 - 55 VDC	•		15 mm	•		•	•	terminal	114 mm
SIP40-C15 PNP	10 - 55 VDC	•		15 mm	•	•	•	•	terminal	114 mm
SIP40-CE20 NPN	10 - 55 VDC		•	20 mm	•		•	•	terminal	114 mm
SIP40-CE20 PNP	10 - 55 VDC		•	20 mm		•	•	•	terminal	114 mm

AC version

SIP40-A15	20 - 250 VAC	•		15 mm			•	•	terminal	114 mm
SIP40-AE20	20 - 250 VAC		•	20 mm			•	•	terminal	114 mm

80 x 80 x 50 mm square body K plug connection (IP65)

DC version

K plug connection

SIQ80-CE50 NPN K	10 - 55 VDC		•	10 - 60 mm	•		•	•	K plug	120 mm
SIQ80-CE50 PNP K	10 - 55 VDC		•	10 - 60 mm		•		•	K plug	120 mm

AC version

SIQ80-AE50K	20 - 250 VAC		•	10 - 60 mm			•	•	K plug	120 mm
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NAMUR proximity switches (ATEX approved)

Namur inductive sensors are two-wire non amplified D.C. sensors containing only the oscillator and are adapted to control an electronic amplified threshold circuit and can be utilised in hazardous areas

M12 cylindrical body

SI12-N2	5...30 VDC	•		2 mm				•	cable	41 mm
SI12-NE4	5...30 VDC		•	4 mm				•	cable	45 mm

M18 cylindrical body

SI18-N5	5...30 VDC	•		5 mm				•	cable	47 mm
SI18-NE8	5...30 VDC		•	8 mm				•	cable	54 mm

M30 cylindrical body

SI30-N10	5...30 VDC	•		10 mm				•	cable	43 mm
SI30-NE15	5...30 VDC		•	15 mm				•	cable	58 mm

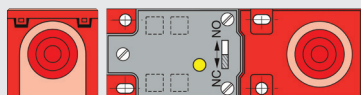
Capacitive proximity sensors nickel plated brass body

M18 capacitive proximity sensors

SC18SM-C5 NPN	10 - 40 VDC	•		0...5 mm	•		•	•	cable	90 mm
SC18SM-C5 PNP	10 - 40 VDC	•		0...5 mm		•	•	•	cable	90 mm
SC18SM-CE10 NPN	10 - 40 VDC		•	0...10 mm	•		•	•	cable	96 mm
SC18SM-A5	20 - 250 VAC	•		0...5 mm			•	•	cable	92 mm
SC18SM-AE10	20 - 250 VAC		•	0...10 mm			•	•	cable	95 mm

M30 capacitive proximity sensors

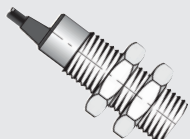
SC30SM-C20 NPN	10 - 60 VDC	•		0...20 mm	•		•	•	cable	101 mm
SC30SM-C20 PNP	10 - 60 VDC	•		0...20 mm		•	•	•	cable	101 mm
SC30SM-CE25 NPN	10 - 60 VDC		•	0...25 mm	•		•	•	cable	101 mm
SC30SM-CE25 PNP	10 - 60 VDC		•	0...25 mm		•	•	•	cable	101 mm
SC30SM-A20	20 - 250 VAC	•		0...20 mm			•	•	cable	101 mm
SC30SM-AE25	20 - 250 VAC		•	0...25 mm			•	•	cable	101 mm



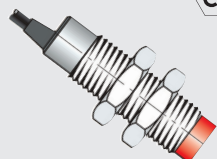
SIP40-C15 NPN



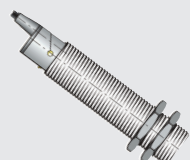
SIQ80-AE50K



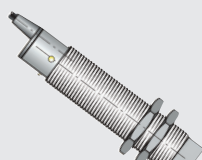
SI12-N2



SI12-NE4



SC18SM-C5 NPN



SC18SM-CE10 NPN



IS-E1204-BPOB2



IS-N1208-BPOB2



IS-E1808-BPOB2



IS-N1812-BPCB2



PS-FR2-NDB2



PS-RL4-NS12



PS-MR3-US22

new

Inductive proximity sensors

Inductive sensors are used to sense metal objects and can be utilised in very difficult applications, even in the presence of oils, powders, liquids and vibrations. They are commonly mounted on machine tools, textile machines, transport systems, packaging machines and all automation applications.

- LED indication: Incorporated
- Supply protection: Polarity reversal, short circuit, power surge
- Ambient limits: -25 ... +70°C
- Housing material: Nickel-plated brass; PBT sensing surface

type	supply voltage	flush	non-flush	sensing distance (mm)	PNP	NPN	NO	NC	body length / thread (mm)
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Inductive proximity sensors *longer detection range with same dimensions*

- Standard sensors for detecting ferrous metals
- Supplied standard with cable connection

M12 cylindrical housing*with 2 meter cable connection*

IS-E1204-BPOB2	12 - 24 VDC	•		4 mm	•		•		54
IS-E1204-BPCB2	12 - 24 VDC	•		4 mm	•			•	54
IS-N1208-BPOB2	12 - 24 VDC		•	8 mm	•		•		53
IS-N1208-BPCB2	12 - 24 VDC		•	8 mm	•			•	53

M18 cylindrical housing*with 2 meter cable connection*

IS-E1808-BPOB2	12 - 24 VDC	•		8 mm	•		•		60
IS-E1808-BPCB2	12 - 24 VDC	•		8 mm	•			•	60
IS-N1812-BPOB2	12 - 24 VDC		•	12 mm	•		•		60
IS-N1812-BPCB2	12 - 24 VDC		•	12 mm	•			•	60

For NPN version change "BP" in part number to "BN"

Photoelectric sensors *IP67 (EN60529) (retro-reflective models include reflector)*

Photo sensors transmit a beam which is reflected back from a detected object (*diffused*) or from a reflector (*retro-reflective*), or with a separate transmitter and receiver (*through beam*) typically used for longer distance sensing.

- Supply protection: Polarity reversal, impulse, over current, short circuit
- LED indication: Orange (*output status*) / green (*supply present*)

type	supply voltage	diffused	retro-reflective	through-beam	sensing distance (mm)	PNP	NPN	light-on	dark-on	connector
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PS-F series - Flat sensor*fixed sensitivity**30 x 16 x 6.8 mm*

PS-FR2-PLB2	12 - 24 VDC	•			5...50 mm	•		•		cable
PS-FR2-PDB2	12 - 24 VDC	•			5...50 mm	•			•	cable
PS-FL3-PLB2	12 - 24 VDC		•		1000 mm	•		•		cable
PS-FL3-PDB2	12 - 24 VDC		•		1000 mm	•			•	cable

For NPN version change "PL/PD" in part number to "NL/ND"

PS-L series - Lateral sensor*IP67 (EN60529)**28 x 14 x 7.7 mm*

• Output type:	Push-Pull	• Light-ON/Dark-ON:	Selectable (<i>switched by white wire</i>)		
PS-LR2-USB2	12 - 24 VDC	•	5...50 mm	• • • •	cable
PS-LL3-USB2	12 - 24 VDC	•	1000 mm	• • • •	cable

PS-R series - Rectangular sensor *IP67 (EN60529)**31 x 21 x 11.2 mm*

• Sensitivity:	Adjustable (potentiometer)				
• Output type:	Push-Pull	• Light-ON/Dark-ON:	Selectable		
• Mounting:	Supplied complete with metallic mounting bracket				
PS-RR3-PS12	12 - 24 VDC	•	300 mm	• • • •	cable
PS-RR9-PS12	12 - 24 VDC	•	1000 mm	• • • •	cable
PS-RL4-PS12	12 - 24 VDC	•	4.2 meters	• • • •	cable
PS-RT9-PS12	12 - 24 VDC	•	12 meters	• • • •	cable

PS-M series - Cylindrical photoelectric sensor *(with teach button)**M18 Ø x 51 mm*

PS-MR3-US22	12 - 24 VDC	•		300 mm	•	•	•	•	cable
PS-MR9-US22	12 - 24 VDC	•		1000 mm	•	•	•	•	cable
PS-ML4-US22	12 - 24 VDC		•	4.2 meters	•	•	•	•	cable

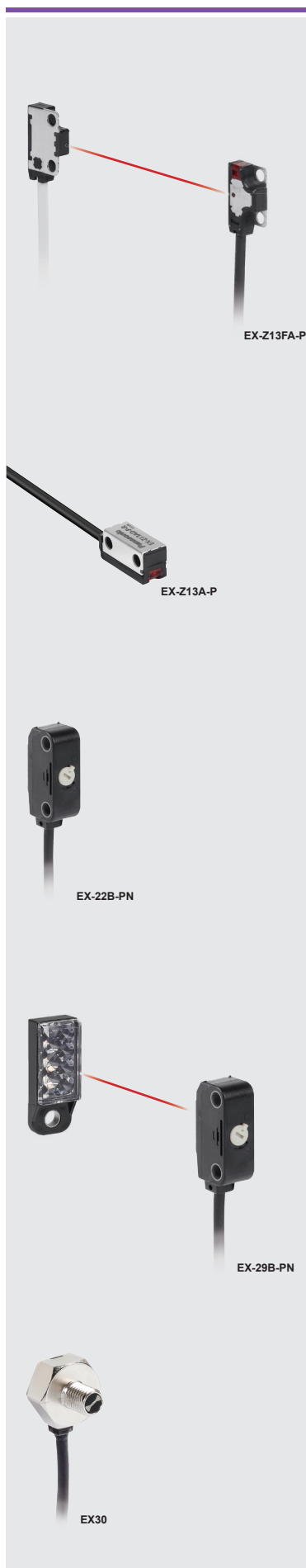


Photo switches transmit a beam which is reflected back from a detected object (*diffused*) or from a reflector (*retro-reflective*) or can be used with a separate transmitter and receiver (*through-beam*) typically used for longer distance sensing.

type	supply voltage	diffused	retro-reflective	polarised retro	through-beam	max. sensing distance (mm)	PNP	NPN	light-on	dark-on	connector
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EX-Z series - World's smallest sensor 12 - 24 VDC

IP67 (EN60529)

Ultra-minute photoelectric sensor (amplifier built-in)

- Output: PNP/NPN open-collector transistor max. 20mA
- LED indication: Orange (*operation*) / green (*stability*)

Through beam (supplied as a set with transmitter and receiver)

- Detects objects breaking the beam between the transmitter and the receiver

Front sensing 14 x 8 x 3 mm

EX-Z11FA-P	12 - 24 VDC				•	50	•		•		cable
EX-Z11FB-P	12 - 24 VDC				•	50	•			•	cable
EX-Z12FA-P	12 - 24 VDC				•	200	•		•		cable
EX-Z12FB-P	12 - 24 VDC				•	200	•			•	cable
EX-Z13FA-P	12 - 24 VDC				•	500	•		•		cable
EX-Z13FB-P	12 - 24 VDC				•	500	•			•	cable

Side sensing 15.5 x 5.5 x 6.5 mm

EX-Z11A-P	12 - 24 VDC				•	50	•		•		cable
EX-Z11B-P	12 - 24 VDC				•	50	•			•	cable
EX-Z12A-P	12 - 24 VDC				•	200	•		•		cable
EX-Z12B-P	12 - 24 VDC				•	200	•			•	cable
EX-Z13A-P	12 - 24 VDC				•	500	•		•		cable
EX-Z13B-P	12 - 24 VDC				•	500	•			•	cable

Accessories for above EX-Z sensors

MS-EXZ-1 L-shaped mounting bracket for front and side sensing EX-Z

EX-20 series - Miniature sensor 12 - 24 VDC

IP67 (EN60529)

- Output: PNP open-collector transistor max. 50mA
- LED indication: Orange (*operation*) / green (*stability*)

Diffuse reflective Proximity type detection (no transmitter or reflector required)

- Photo switch transmits a beam which is reflected back from a detected object

Side sensing 25 x 12.3 x 8.2 mm

EX-22A-PN*	12 - 24 VDC	•				5...160	•		•		cable
EX-22B-PN*	12 - 24 VDC	•				5...160	•			•	cable

Retro-reflective (supplied with RF200 reflector)

- Photo switch transmits a beam which is reflected back by a reflector

EX-29A-PN*	12 - 24 VDC		•			30...200	•		•		cable
EX-29B-PN*	12 - 24 VDC		•			30...200	•			•	cable

Through beam (supplied as a set with transmitter and receiver) 22 x 10.5 x 8.2 mm

- Detects objects breaking the beam between the transmitter and the receiver

EX-23-PN*	12 - 24 VDC				•	2 met	•		•	•	cable
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Accessories for above photo switches

MSEX202 metallic right angled sensor mounting bracket 20 series

EX-30 series - Threaded miniature "sensor in a screw" IP67 (EN60529)

- Alternative to fibre sensors
- Output: PNP open-collector transistor max. 50mA
- LED indication: Orange (*operation*) / green (*stability*)
- Dimensions: 15.6 x 14 x 18 mm (*mounting: diffused M6, through-beam M4*)

Diffuse reflective Proximity type detection (no transmitter or reflector) M6 mounting

- Photo switch transmits a beam which is reflected back from a detected object

EX-32A-PN*	12 - 24 VDC	•				50	•		•		cable
EX-32B-PN*	12 - 24 VDC	•				50	•			•	cable

Through beam (supplied as a set with transmitter and receiver) M4 mounting

- Detects objects breaking the beam between the transmitter and the receiver

EX-33-PN*	12 - 24 VDC				•	800	•		•	•	cable
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* With sensitivity adjustment **NPN** available on request (remove "-P" from the part number)



PM-K45-P



PM-L45-P



PM2-LH10



CY-121B-P-Z



CY-191A-P-Z

Photoelectric sensor transmit a beam which is reflected back from a detected object (*diffused*) or from a reflector (*retro-reflective*) or can be used with a separate transmitter and receiver (*through beam*), typically used for longer distance sensing.

type	supply voltage	diffused	retro-reflective	polarised retro	through-beam	max. sensing distance (mm)	PNP	NPN	light-on	dark-on	connector
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PM series - U type miniature sensor cable connection (1 meter) Ø18 mm x 60 mm

- Output: PNP/NPN open-collector transistor max. 50mA
- LED indication: Orange (*light received*)

Thru U beam	detects objects breaking the beam between the U beam						shape
PM-K45-P	5 - 24 VDC				•	6 mm	K type
PM-T45-P	5 - 24 VDC				•	6 mm	T type
PM-L45-P	5 - 24 VDC				•	6 mm	L type

PM-2 Convergent reflection sensing miniature sensor 25 x 26 x 8.4 mm

Proximity type detection (*no transmitter or reflector required*)

- Output: NPN open-collector transistor max. 50mA
- LED indication: Orange (*operation*) / green (*stability*)
- Transmits a beam which is reflected back from a detected object (*convergent point: 5 mm*)
- LH10 *top sensing* - LF10 *front sensing*

PM2-LH10	5 - 24 VDC	•				2.5 - 8 mm	•		•		solder
PM2-LH10B	5 - 24 VDC	•				2.5 - 8 mm	•		•		solder
PM2-LF10	5 - 24 VDC	•				2.5 - 8 mm	•		•		solder
PM2-LF10B	5 - 24 VDC	•				2.5 - 8 mm	•		•		solder

CN-13 plug-in connector (*solder terminal*) for PM2 sensors PM2

M18 CY-100 series - Cylindrical sensors Ø18 mm x 60 mm

- Protection degree: IP67 (EN60529)
- Supply protection: Polarity reversal, Transient, Short circuit
- LED indication: Power and Operation indication
- Connection: M12 - 4-pin connector

Diffuse reflective proximity type detection (*no transmitter or reflector required*)

Sensor transmits a beam which is reflected back from a detected object

CY-121A-P-Z	12 - 24 VDC	•				100 mm	•		•		M12 plug
CY-121B-P-Z	12 - 24 VDC	•				100 mm	•		•		M12 plug
CY-122A-P-Z*	12 - 24 VDC	•				600 mm	•		•		M12 plug
CY-122B-P-Z*	12 - 24 VDC	•				600 mm	•		•		M12 plug

* With sensitivity adjustment

Retro-reflective used together with a reflector (*supplied separately*)

Sensor transmits a beam which is reflected back by a reflector

CY-192A-P-Z	12 - 24 VDC		•			4 meters	•		•		M12 plug
CY-192B-P-Z	12 - 24 VDC		•			4 meters	•		•		M12 plug

Retro-reflective (polarised) used together with a reflector (*supplied separately*)

Transmitted beam is only received by reflector (*unaffected by reflection from shiny surfaces*)

CY-191A-P-Z	12 - 24 VDC			•		2 meters	•		•		M12 plug
CY-191B-P-Z	12 - 24 VDC			•		2 meters	•		•		M12 plug

Thru-beam (long range) supplied as a set with transmitter and receiver

Detects objects breaking the beam between the transmitter and the receiver

CY-111A-P-Z	12 - 24 VDC				•	15 meters	•		•		M12 plug
CY-111B-P-Z	12 - 24 VDC				•	15 meters	•		•		M12 plug

Note: NPN available on request (*remove "-P" from the part number*)

Accessories

MS-CY1-1		metallic right angled sensor mounting bracket	CY sensors
MS-CY1-2		adjustable (15°) right angled sensor mounting bracket	CY sensors
RF-410	50 x 47 mm	surface mounting reflector for photo sensors	CY sensors
RF-420	24 x 21 mm	surface mounting reflector for photo sensors	CY sensors

Cables and M8/12 connectors (see page K-27 / 28)



NX5-D700A

Photo switches transmit a beam which is reflected back from a detected object (*diffused*) or from a reflector (*retro-reflective*) or can be used with a separate transmitter and receiver (*through-beam*), typically used for longer distance sensing.

type	supply voltage	diffused	retro-reflective	polarised retro	through-beam	max. sensing distance (mm)	PNP	NPN	light-on	dark-on	connector
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Photoelectric sensors (IP66) (EN60529) 2 meter cable connection

NX5 series (rectangular) multi-voltage

- Multi-voltage: 24 - 240 VAC / 12 - 240 VDC
- Sensitivity: Continuously adjustable
- Relay output: 1A 250 VAC (*hermetically sealed*)
- LED indication: Red: (power ON) Green: (stable light received)
- Dimensions: 62 x 18 x 35 mm

Diffuse reflective

proximity type detection (no transmitter or reflector required)

NX5-D700A	24 - 240 VAC/DC	•				700			•		cable
NX5-D700B	24 - 240 VAC/DC	•				700				•	cable

Retro-reflective

used together with a reflector (includes RF-230)

Sensor transmits a beam which is reflected back by a reflector

NX5-RM7A	24 - 240 VAC/DC		•			7 met			•		cable
NX5-RM7B	24 - 240 VAC/DC		•			7 met				•	cable

Retro-reflective (polarised)

used together with a reflector (includes RF-230)

Transmitted beam is only received by reflector (unaffected by reflection from shiny surfaces)

NX5-PRVM5A	24 - 240 VAC/DC			•		5 met			•		cable
NX5-PRVM5B	24 - 240 VAC/DC			•		5 met				•	cable

Thru-beam

supplied as a set with transmitter and receiver

Detects objects breaking the beam between the transmitter and the receiver

NX5-M10RA	24 - 240 VAC/DC				•	10 met			•		cable
NX5-M10RB	24 - 240 VAC/DC				•	10 met				•	cable
NX5-M30A	24 - 240 VAC/DC				•	30 met			•		cable
NX5-M30B	24 - 240 VAC/DC				•	30 met				•	cable

Accessories for above NX5 photo switches

Mounting brackets

- MSN51** metallic right angled foot mounting bracket for NX5 retro-reflective sensors
MSN53 metallic right angled rear mounting bracket for NX5 retro-reflective sensors

Reflectors for retro-reflective sensors

- RF-230** standard reflector 59 x 50.3 mm for retro-reflective sensors

Fibre-optic sensors

Fibre-optic amplifiers transmit and receive signal via an attached fibre-optic cable with an optic sensor on the end. The fibre sensor determines the type of sensing as well as the distance it can sense. Totally unaffected by any source of electrical noise.

type	supply voltage	max. sensing distance (mm)	PNP	NPN	light-on	dark-on	connector
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FX series - Fibre-optic amplifiers

- Mounting: DIN rail mounting or side mounting with 3.2 mm screws
- Sensitivity setting: 2-point teaching / limit teaching / Full-auto teaching
- Timer function: ON-delay, OFF-delay, no timer (*selectable*) 1 - 1000 ms
- LED indication: Orange LED when output is ON / Red and Green 4 digit display
- Connection: M8 - 4-pin connector (*supplied separately*)
- Dimensions: 32 x 9 x 66.4 mm

FX102P-Z	12 - 24 VDC	dependant on fibre used	•	•	•	•	M8 plug
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Cables and M8/12 connectors (see page K-27 / 28)



FX102P-Z



FX-551P

FX-551 series - Advanced fibre optic amplifier*DIN rail mounting*

Significantly improved stability and operation ease, due to industry's top emission power.

- 3 times higher emission power and 1.6 times longer sensing range than conventional models
- Simplified functions for improved operation ease

- Connection: Connector with cable (*supplied separately*)
- Sensitivity setting: 2-point teaching / limit teaching / Full-auto teaching / manual setting
- Timer function: ON-delay, OFF-delay, One shot, no timer (*selectable*) 0.1ms - 32sec
- Dimensions: 32 x 10 x 75 mm

type	supply voltage	max. sensing distance (mm)	PNP	NPN	light-on	dark-on	connector
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Amplifier for optical fibres

FX-551P	12 - 24 VDC	dependant on fibre used	☒	☐	☐	☐	connector
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Accessories for above FX551 amplifiers

CN-73-C2	main cable with connector for above amplifier (2 meter)						connector
CN-73-C5	main cable with connector for above amplifier (5 meter)						connector
CN-71-C2	sub cable with connector for above amplifier (2 meter)						connector

Optical fibre sensors for above amplifiers

Due to the vast range of optical fibres available, we illustrate a basic range (*indicated below*).
Vast range of available optical fibre sensors available, request fibre guide, available as a PDF file.

type	supply voltage	diffused	retro-reflective	polarised retro	through-beam	max. sensing distance(mm)		cuttable fibre	head type	fibre length
						FX102	FX551 hyper mode			

Reflective types *proximity type detection (no transmitter or reflector required)***Cylindrical threaded body (straight)***(IP67)*

FD-31	M3	☒	☐	☐	☐	140	515	yes	cylindrical	2 met
FD-41	M4	☒	☐	☐	☐	140	515	yes	cylindrical	2 met
FD-61	M6	☒	☐	☐	☐	410	1400	yes	cylindrical	2 met

Square threaded body (right angled)

FD-R31G	M3	☒	☐	☐	☐	150	530	yes	square	2 met
FD-R41	M4	☒	☐	☐	☐	170	710	yes	square	2 met

Protective tube (for FD series reflective fibres)

FDP-N500	M4	non-corrosive stainless steel protective tube for								0.5 met
FDP-N1000	M4	non-corrosive stainless steel protective tube for								1.0 met
FDP-N1500	M4	non-corrosive stainless steel protective tube for								1.5 met

Thru-beam types*supplied as a set with transmitter and receiver***Cylindrical threaded body (straight)**

FT-31	M3	☐	☐	☐	☒	340	1200	yes	cylindrical	2 met
FT-42	M4	☐	☐	☐	☒	800	3600	yes	cylindrical	2 met

Square threaded body (right angled)

FT-R31	M3	☐	☐	☐	☒	340	1000	yes	square	2 met
FT-R43	M4	☐	☐	☐	☒	640	3000	yes	square	2 met

High temperature fibres

FT-H20-WM1	+200°C	☐	☐	☐	☒	300	1600	no	cylindrical	1 met
FT-H35-M2S6	+350°C	☐	☐	☐	☒	490	1200	no	cylindrical	2 met

Expansion lenses (for thru-beam type fibres)*-60 to +350°C*

For fibres: FT-42/43, FT-H20-WM1, FT-H35-M2S6

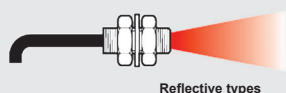
FX-LE1	M4	fibre expansion lens side view 90° beam axis								FT-42/43
FX-SV1	M4	fibre expansion lens (5 times increased sensing)								FT-42/43

Protective tube (for FT series thru-beam fibres)

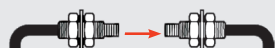
FTP-500	M4	non-corrosive stainless steel protective tube for								0.5 met
FTP-1000	M4	non-corrosive stainless steel protective tube for								1.0 met
FTP-1500	M4	non-corrosive stainless steel protective tube for								1.5 met

Fibre accessories

FX-CT1	fibre cutting tool (<i>to cut fibres to desired length</i>)									
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Reflective types



Thru-beam types

Photo switches transmit a beam which is reflected back from a detected object (*diffused*) or from a reflector (*retro-reflective*) or can be used with a separate transmitter and receiver (*through-beam*), typically used for longer distance sensing.

type	supply voltage	diffused	retro-reflective	polarised retro	through-beam	max. sensing distance (mm)	PNP	NPN	light-on	dark-on	connector
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CX-400 series - Standard compact sensors**M8 - 4-pin connector**

CX-400 series has a high level of functionality and excellent cost performance. Moreover, a wide number of variations offering a sensor to fit all needs.

- Selectable: Light-ON or Dark-ON
- LED indication: Red: (*output ON*) Green: (*stable light received*)
- Dimensions: 31 x 11.2 x 20 mm

Diffuse reflective*proximity type detection (no transmitter or reflector required)*

CX-421-P-Z 12 - 24 VDC

•			
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 300 mm

•		•	•
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 M8 plug

Retro-reflective*used together with a reflector (supplied with reflector)*

CX-491-P-Z* 12 - 24 VDC

		•	
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 3 meters

•		•	•
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 M8 plug

CX-493-P-Z 12 - 24 VDC

	•		
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 5 meters

•		•	•
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 M8 plug

CX-483-P-Z❖ 12 - 24 VDC

	•		
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 1 meters

•		•	•
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 M8 plug

* With polarizing filter

❖ For sensing transparent objects - adjustable sensing range

Thru-beam (long range)*supplied as a set with transmitter and receiver*

CX-411-P-Z 12 - 24 VDC

			•
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 10 meters

•		•	•
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 M8 plug

CX-413-P-Z 12 - 24 VDC

			•
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 30 meters

•		•	•
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 M8 plug

CX-400 series - Triangulation sensors (IP67) (EN60529)**M8 - 4-pin connector**

Due to their advanced optical system, Triangulation sensors are not effected by variances in the targets angle or colour. Due to the 2-segment photo-diode adjustable range system, the sensor does not detect objects outside the preset sensing distance.

- Unaffected by colour, material or background
- BGS background suppression (or) FGS foreground suppression
- Long sensing range (*adjustable via 2-turn mechanical adjuster*)
- Improved detectability even when lens is contaminated by dirt, dust, mist or smoke
- High level of basic functionality with excellent cost performance

CX-400 series - Compact triangular sensors**31 x 11.2 x 20 mm****Triangulation sensing***for high precision detection and repeatability*

CX-441-P-Z 12 - 24 VDC

•			
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 2...50 mm

•		•	•
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 M8 plug

CX-444-P-Z 12 - 24 VDC

•			
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 15...100 mm

•		•	•
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 M8 plug

CX-442-P-Z 12 - 24 VDC

•			
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 20...300 mm

•		•	•
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 M8 plug

EQ-30 series - Triangulation sensors (IP67) (EN60529)**M12 - 4-pin connector**

Featuring a 2-segment photodiode as receiving element with unique circuitry, they detect objects at the same distance regardless of colour or background beyond the adjusted sensing range.

- Sensitivity: Adjustable (*2 turn mechanical adjuster*)
- Selectable: Light-ON or Dark-ON
- LED indication: Red: (*output ON*) Green: (*stable light received*)
- Dimensions: 68 x 20 x 40 mm

Triangulation sensing*for high precision detection and repeatability*

EQ-34 10 - 30 VDC

•			
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 2 meters

	•	•	•
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 M12 plug

EQ-34-PN 10 - 30 VDC

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 2 meters

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 M12 plug

EQ-500 series**(IP67) (EN60529)****convenient screw terminal block**

- Multi-voltage: 24 - 240 VAC / 12 - 240 VDC
- Relay output: 3A 250V - selectable: Detection-ON or Detection-OFF
- Sensitivity: Adjustable (*2 turn mechanical adjuster*)
- Timing function: 0.1 - 5s ON/OFF delay, one shot (*selectable*) "T" version only
- LED indication: Red: (*output ON*) Green: (*stable light received*)
- Dimensions: 68 x 26 x 68 mm

Triangulation sensing*for high precision detection and repeatability*

EQ-501 24 - 240 VAC/DC

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 0.2...2.5 m

		•	•
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 screw term.

EQ-501T 24 - 240 VAC/DC

•			
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 0.2...2.5 m

		•	•
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 screw term.

MS-EQ501

metallic right angled foot mounting bracket

EQ-501

MSCX21

L shaped metallic mounting bracket for sensor

CX4...

Cables and M8/12 connectors (see page K-27 / 28)



CX-493-P-Z



CX-442-P-Z



EQ-34



EQ-501



LX-101-P-Z

LX-100 - Mark sensor (can detect any mark)

The **LX-100** mark sensor detects any marking or colour, the sensor is equipped with red, green and blue LED. In addition, it utilises a coaxial reflective optics system to realise high precision sensing when used with 1/4000 resolution 12-bit A/D converter.

type	supply voltage	diffused	retro-reflective	polarised retro	through-beam	max. sensing distance (mm)	PNP	NPN	light-on	dark-on	connector
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LX-100 series - Mark/colour sensor

- Sensing: 3 LEDs: red, green, blue
- Sensing modes: 2 (selectable): Mark mode and Colour mode
- Sensitivity: 2-level teaching/Limit teaching - Mark / 1-level teaching - colour
- LED indication: 4-digit red LED display and various LED indicators
- Dimensions: 35 x 24 x 57 mm
- Response time: Mark mode - 45 µs \ Colour mode 150 µs

Mark/colour sensor M12 - 4-pin connector (supplied separately)

LX-101-P-Z 12 - 24 VDC 10...±3 mm ☐ ☐ ☐ ☐ M12 plug

MSLX1 bracket metallic (side mount) mounting bracket for above LX-101

Note: LX-101 can be used in conjunction with ASDA-A2 for high speed mark position applications.

EX-L200 series - Miniature laser sensor (ultra compact) - amplifier integrated

Due to the customised IC and optical design, high precision detection is fulfilled with directivity and visibility achievable only by laser. Class 1 (IEC / JIS / FDA) laser is safe to use, no need to separate the area of sensor usage.

- Sensing: Minute object detection (high precision - high accuracy)
- Easy beam-axis alignment Visible beam
- Sensitivity: Adjustable (to eliminate background detection)
- Supply protection: Short-circuit / inverse polarity protection
- LED indication: Orange and green LED indicators
- Ultra compact: 29.9 x 8.2 x 13 mm

Spot reflective type (Ø1 mm at a sensing distance of 300 mm)

- Minimum sensing object - 0.01 mm

EX-L221-P 12 - 24 VDC ☐ ☐ ☐ ☐ 45...300 mm ☐ ☐ ☐ ☐ cable

Thru-beam supplied as a set with transmitter and receiver

- Minimum sensing object - 0.03 mm

EX-L211-P 12 - 24 VDC ☐ ☐ ☐ ☐ 1 meter ☐ ☐ ☐ ☐ cable

NPN output available on request (remove "-P" from the part number)

MS-EX201 bracket L shaped metallic mounting bracket for sensor EX-L2...

HG-C series - Micro laser distance/measurement sensor (with built-in amplifier) (IP67)

HG-C measurement sensors measure and indicate measured values in mm as well as analog voltage outputs. The data can be used for various calculations and storage (logging) when the output is sent to a PLC + analog unit.

- Reliable detection in 10 µm precision (for HG-C1030)
- Indicates real measurements
- Equipped with 0 - 5V analog output
- Compact and light weight: 44 x 20 x 25 mm

type	supply voltage	repeatability	measurement center distance (mm)	measurement range (mm)	PNP	NPN	light-on	dark-on	connector
HG-C1030-P	12 - 24 VDC	10 µm	30	±5	☐	☐	☐	☐	cable
HG-C1050-P	12 - 24 VDC	30 µm	50	±15	☐	☐	☐	☐	cable
HG-C1100-P	12 - 24 VDC	70 µm	100	±35	☐	☐	☐	☐	cable
HG-C1200-P	12 - 24 VDC	200 µm	200	±80	☐	☐	☐	☐	cable
HG-C1400-P	12 - 24 VDC	300 µm	400	±200	☐	☐	☐	☐	cable

MS-HG-01 bracket for above HG-C micro laser sensors

NPN available on request (remove "-P" from the part number)

Note: I/O link available on request

Cables and M8/12 connectors (see page K-27 / 28)



HG-C1050-P



Your future's safe!



Safety Light Curtains
Safety Controllers and Relays
Magnetic and RFID Safety Switches

SAFETY LEVEL

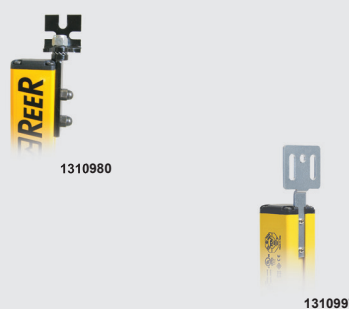
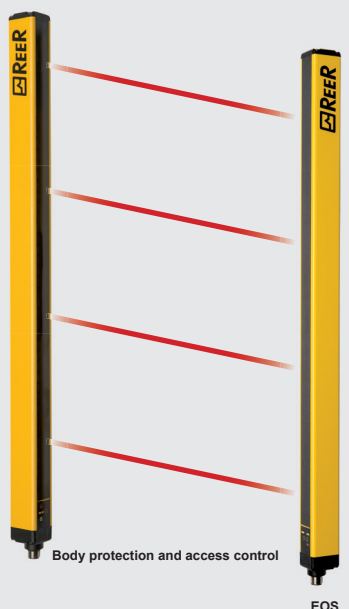
TYPE 4

SIL 3 - SILCL 3
PL e - Cat. 4

SAFETY LEVEL

TYPE 2

SIL 1 - SILCL 1
PL c - Cat. 2



EOS series - Safety light curtains

With its compact, robust housing EOS series is ideal for the protection of any machine tool, in particular where space restrictions exist. Its zero-dead-zone on one side, allows EOS to keep its original resolution when installed on a plane and up to 40 mm when installed at 90° against another EOS unit. The hardware configuration feature does not require any programming allowing easy installation and replacement.

- Power supply: 24 VDC $\pm$ 20%
- Dimensions: (W) 28 x (D) 30 mm
- Restart: Selectable manual/automatic Start/Restart
- Status display: LEDs for light curtain's status and diagnostic
- Integrated function: Integrated External Device Monitoring (EDM) function
- Mounting: Via back slot with provided standard mounting brackets
- Connection: Emitter: M12 5-pin - Receiver: M12 8-pin (see pages K-27 / 28)
- OSSD safety outputs: 2 PNP - 400 mA at 24 VDC with short-circuit, overload, polarity reversal protection



Scan to watch video

type	resolution	protected height	No. beams	description	overall height	connection type
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For finger and hand protection - Safety light curtains

(IP65/67)

EOS2 X - Safety light curtain with built-in control functions - Type 2

- Detection: Hand protection (30 mm resolution) • Maximum range: Selectable 4/12 meter
- Safety Level: Type 2, SIL 1/SILCL 1, PL c, Cat. 2

1321200	30 mm	260 mm	13	safety light curtain	313 mm	M12 plug
1320211	30 mm	310 mm	16	safety light curtain	363 mm	M12 plug
1320212	30 mm	460 mm	23	safety light curtain	513 mm	M12 plug
1320213	30 mm	610 mm	31	safety light curtain	663 mm	M12 plug
1320214	30 mm	760 mm	38	safety light curtain	813 mm	M12 plug
1320215	30 mm	910 mm	46	safety light curtain	963 mm	M12 plug
1320216	30 mm	1060 mm	53	safety light curtain	1113 mm	M12 plug

EOS4 X - Safety light curtain with built-in control functions - Type 4

- Detection: Finger protection (14 mm resolution) • Maximum range: Selectable 3/6 meter
- Safety Level: Type 4, SIL 3/SILCL 3, PL e, Cat. 4

1310010	14 mm	160 mm	15	safety light curtain	213 mm	M12 plug
1310011	14 mm	310 mm	30	safety light curtain	363 mm	M12 plug
1310012	14 mm	460 mm	45	safety light curtain	513 mm	M12 plug
1310013	14 mm	610 mm	60	safety light curtain	663 mm	M12 plug
1310014	14 mm	760 mm	75	safety light curtain	813 mm	M12 plug
1310015	14 mm	910 mm	90	safety light curtain	963 mm	M12 plug

- Detection: Hand protection (30 mm resolution) • Maximum range: Selectable 4/12 meter
- Safety Level: Type 4, SIL 3/SILCL 3, PL e, Cat. 4

1310211	30 mm	310 mm	16	safety light curtain	363 mm	M12 plug
1310212	30 mm	460 mm	23	safety light curtain	513 mm	M12 plug
1310213	30 mm	610 mm	31	safety light curtain	663 mm	M12 plug
1310214	30 mm	760 mm	38	safety light curtain	813 mm	M12 plug
1310215	30 mm	910 mm	46	safety light curtain	963 mm	M12 plug
1310216	30 mm	1060 mm	53	safety light curtain	1113 mm	M12 plug
1310217	30 mm	1210 mm	61	safety light curtain	1263 mm	M12 plug

Note: Heights (up to 2.2 meters) and extended range up to 20 meters available on request.

For Body protection and access control - Safety light curtains

(IP65/67)

- Detection: Body protection / Access control • Maximum range: Selectable 4/12 meter

EOS2 X - Safety light curtain with built-in control functions - Type 2

1320610	—	510	2	safety light curtain	653 mm	M12 plug
1320611	—	810	3	safety light curtain	953 mm	M12 plug
1320612	—	910	4	safety light curtain	1053 mm	M12 plug

EOS4 X - Safety light curtain with built-in control functions - Type 4

1310610	—	510	2	safety light curtain	653 mm	M12 plug
1310611	—	810	3	safety light curtain	953 mm	M12 plug
1310612	—	910	4	safety light curtain	1053 mm	M12 plug

Mounting accessories for safety light curtains (std L-shaped brackets included with light curtains)

1310980	SFB E180	brackets	set of (4) x 180° swivel brackets for	EOS2/4
1310997	FE 4	brackets	set of (4) flat brackets for	EOS2/4
1310973	SAV 8E	dampers	set of (8) vibration dampers for	EOS2/4

Special versions available on request:

- IP69K Models** - Watertight enclosed, ideal for harsh working environments and Food & Beverage industry where frequent wash down procedures are required (ECOLAB rated)
- T Models** - Textile resistant to high vibrations for applications in the Textile industry



MOSAIC - A unique safety controller: Modular, Expandable, Configurable

MOSAIC is a modular configurable safety controller capable of managing all safety functions of machinery or plants. Made up of a Master unit which can operate as a stand-alone device or control up to 14 expansion units in a system.

Capable of monitoring several safety sensors and signals such as: light curtains - photocells - laser scanners - emergency stops - electromechanical switches - safety door switches - magnetic switches - safety mats and edges - two-hand controls - hand grip switches - encoders and proximities for safety speed control - load cells - pressure switches - temperature, flow and level measurements.

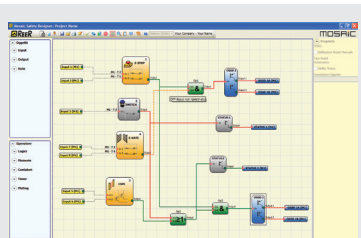
- Power supply: 24V DC $\pm$ 20%
- Safety level: SIL 3, PL e, SILCL 3, Cat. 4
- Connections: Removable (screw terminal) blocks
- Mounting: DIN rail mounting according to EN 50022-35 standard
- Dimensions: (H) 99 x (W) 22.5 x (D) 114 mm



Scan to watch video

Advantages

- Tamper-proof system configuration
- Reduced control panel dimension, design and construction time
- Logic configured via graphic interface, eliminating laborious wiring as with traditional solutions
- **Simulation function** allows to validate system functionality without connecting to a machine



FREE DESIGNER SOFTWARE included with M1/M1S units



1100000



1100043

new



1100050

type	model	digital inputs	Start / Restart inputs	OSSD safety outputs	status outputs	description
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MOSAIC master units

Master units can operate as stand-alone device or expanded with additional I/O modules.

M1 - Standard master unit

- 8 digital inputs
- 2 pairs SIL 3 OSSD safety outputs (PNP 400 mA)
- 2 inputs for Start/Restart interlock and external device monitoring (EDM)
- 2 programmable digital status outputs (PNP 100 mA)
- 4 test outputs (for sensor monitoring)

1100000	M1	8	2	2 pairs	2	standard master controller
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M1S - Enhanced master unit

- 8 digital inputs
- 4 single SIL 3 OSSD or (2 pairs) safety outputs (PNP 400 mA)
- 4 inputs for Start/Restart interlock and external device monitoring (EDM)
- 4 programmable digital status outputs (PNP 100 mA)
- 4 test outputs (for sensor monitoring)

1100003	M1S	8	4	4 or (2 pairs)	4	enhanced master controller
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Accessories for M1/M1S master units

1100060	MCM	memory card to store or duplicate master unit configuration as a backup
1100061	MSC	rear bus connector required to connect to any expansion module
1100062	USB	USB configuration cable (A-mini B, length 1.8 m)

MOSAIC - Expansion modules

Input/output expansion modules provides additional digital inputs and outputs to the master unit

1100010	MI8O2	2x pairs SIL 3 OSSD safety outputs, 8x digital inputs, 2x status outputs
1100011*	MI8O4	4x single SIL 3 OSSD safety outputs, 8x digital inputs, 4x status outputs
1100021	MI16	16x digital inputs and 4x test outputs (for sensor monitoring)
1100025*	MA4	4x 4-20mA (or 0-10V) analogue inputs (for analogue sensors)

* Only compatible with M1S enhanced Master unit.

1100031	MO4	4x pairs SIL 3 OSSD safety outputs, 4x status output
1100032	MO4LHC	4x single high current SIL 3 OSSD safety outputs (2A), 8x status output

Status outputs provides additional non-safety outputs to the master unit

1100092	MOS16	16x programmable digital (non-safety) signal outputs
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Safety relays provides safety relay outputs with guided contacts

1100041	MR4	4x safety relay outputs with guided contacts (6A 250 VAC)
1100043	MOR4S8	4x configurable safety relay outputs with guided contacts

Communication for connection to the most common industrial Field-bus systems

1100050	MBP	Profibus DP	module for diagnostics and data communication
1100051	MBD	DeviceNET	module for diagnostics and data communication
1100052	MBC	CANopen	module for diagnostics and data communication
1100054	MBEI	EtherNET IP	module for diagnostics and data communication
1100082	MBMR	Modbus RTU	module for diagnostics and data communication



1330900

new



1330904



1292000



1291001



1291011

Safety interfaces and relays

- Power supply: 24 VDC $\pm$ 20%
- Electrical connection: On terminal block
- Mounting: DIN rail mounting according to EN 50022-35 standard
- Dimensions: Relays - (H) 101 x (W) 35 x (D) 120 mm
Interfaces - (H) 99 x (W) 22.5 (35 mm - ADSRM) x (D) 114 mm

type	description	
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Safety interfaces and relays

Safety interface for safety light curtains Type 4 - SIL 3 - SILCL 3 - PL e - Cat. 4

- 1330900** ADSR1 with EDM and Start/Restart for safety light curtains and RFID switches
- 1330904** ADSRM safety interface with integrated muting for safety light curtains

Safety interface for emergency stop buttons and safety switches PL e - Cat. 4

- 1330913** ADSRE4 with automatic/manual start/restart
- 1330914** ADSRE4C with manual monitored start/restart

Safety interface for two-hand control PL e - Cat. 4 Type III C (EN574)

- 1330915** ADSRT safety interface for two-hand control

Safety speed monitoring interface (H) 108 x (W) 22.5 x (D) 114.5 mm SIL 3 - SILCL 3 - PL e - Cat. 4

- 1100078** SVMR0 safety speed monitoring relay for overspeed and zero speed control
- 1100088** SVMR0U safety speed monitoring relay for underspeed control

Safety relay modules for devices with integrated feedback input for EDM

- 1330902** ADSR0 2 NO + 1 NC - 2A 250 VAC
- 1330903** ADSR0A 2 NO - 2A 250 VAC

RFID safety switches 24 VDC SIL 3 - SILCL 3 - PL e - Cat. 4

Magnus RFID non-contact safety sensors provide highly-reliable, tamper-proof personnel protection for monitoring protective doors, gates and guards. It uniquely identifies passive RFID transponders ensuring high coding levels and effective protection against manipulation with easy installation and safety system integration to PL e/SIL 3. Sensors can be individually coded in two different ways for appropriate tampering protection in all applications.

Actuator coded: The actuator is free and not specifically assigned to the sensor
(one actuator can work with multiple sensors)

Individual coding: Programmed via teach-in and permanently assigned to sensor during set-up
(the process can be repeated up to 8 times if necessary)

- Indication: LED status indicators for fast diagnostics
- Output: 2 safety inputs and outputs and 1 diagnostic output
- Connection type: M12 connector - (Pigtail M12/8-pin - 150 mm)
- Mounting: Screw mounting **S** - inter-axis 22 mm / **B** - inter-axis 78 mm
- Tampering protection in accordance with DIN EN 14119, the highest in its class
- Can be installed individually or in series with up to 30 units (accessories required)
- High EMC immunity and IP67 protection ensure excellent reliability in harsh environments
- Resistant to aggressive media, e.g. cleaning agents used in the food and packaging industry

type	sensing distance (mm)	description		dimensions (mm)		
				(H)	(W)	(D)

RFID safety switches supplied as sensor/actuator combination

- 1292000** CSCAM 8 ... 18 **S** actuator coding RFID safety switch 26 36 13
- 1292010** CSIAM 8 ... 18 **S** individual coding RFID safety switch 26 36 13

Accessories

- 1292401** SPS spacers for **S** series (recommended for mounting on metal surfaces)
- 1292400** SPB spacers for **B** series (recommended for mounting on metal surfaces)

Magnetic safety switches 24 VDC

- Compact and robust thermoplastic enclosure (PBT)
- Coded magnetic operation – Tamper resistant
- Sensor with M8/4pin connector: 2 NO contacts
- Connected to Mosaic safety controller provides a certified PL e safety system

- 1291000** MGS20 3...10 MGS compact magnetic safety switches 36 13 26
- 1291001** MGSM 3...10 MGS magnet unit for above switches 36 13 26
- 1291010** MGB20 4...16 MGB rectangular mag. safety switches 88 25 14
- 1291011** MGBM 4...16 MGB magnet unit for above switches 88 25 14

Pressure transmitters/sensors (IP67)

- Compact, rugged construction
- Accuracy: $\pm 0.3\%$ fs
- Medium temperature range: $-15 \dots +125\text{ }^{\circ}\text{C}$
- Response time: $< 2\text{ ms}$, (1 ms typical)
- Material: Connection stainless steel 1.4404 / AISI 316L
- Conformity: EN 61326-2-3 / IEC 68-2-27 / IEC 68-2-29 / IEC 68-2-6 / UL E325110

type	pressure range (bar) ¹⁾	power supply	output DC ²⁾	electrical connection ³⁾	description	pressure connection ⁴⁾
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Type 525/28 compact pressure transmitter based on well proven ceramic technology developed by Huba Control. These transmitters are suitable for applications across a broad spectrum of industries.

- Medium: Liquids and gases

Type 528 pressure range: $-1 \dots 0 - 60\text{ BAR}$ $\varnothing 24 \times 40.9\text{ mm}$

528.9010033411	-1 ... 0	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
528.9120033411	0 ... 1.6	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
528.9140033411	0 ... 2.5	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
528.9150033411	0 ... 4	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
528.9170033411	0 ... 6	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
528.9300033411	0 ... 10	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
528.9310033411	0 ... 16	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
528.9320033411	0 ... 25	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
528.9330033411	0 ... 40	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
528.9400033411	0 ... 60	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"

Type 525 low pressure range: $0 \dots 0.05 - 0.6\text{ BAR}$ $\varnothing 26.5 \times 46.4\text{ mm}$

525.9230033111	0 ... 0.16	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
525.9240033111	0 ... 0.20	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
525.9260033111	0 ... 0.30	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
525.9270033111	0 ... 0.40	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
525.9280033111	0 ... 0.60	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"

Type 520 pressure range: $0 - 1000\text{ BAR}$ $\varnothing 24 \times 46.7\text{ mm}$

Huba Control developed thick film technology with fully welded pressure measurement cell. **Meets high burst protection demands.** Ideal for refrigeration applications including ammonia.

- Welded without sealing parts (*no elastomer seals*)
- Medium: Liquids, gases and refrigerants (*including ammonia*)

520.906S033401	-1 ... 9	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
520.917S033401	0 ... 6	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
520.930S033401	0 ... 10	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
520.931S033401	0 ... 16	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
520.932S033401	0 ... 25	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
520.933S033401	0 ... 40	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
520.940S033401	0 ... 60	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
520.941S033401	0 ... 100	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
520.942S033401	0 ... 160	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
520.943S033401	0 ... 250	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
520.954S033401	0 ... 400	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
520.955S033401	0 ... 600	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"

Explosion proof version EC type examination certificate: SEV 10 ATEX 0145

- Intrinsic safety: Ex II 1/2 G Ex ia IIC T4 Ga/Gb / Ex II 1/2 D Ex ia IIC T125°C Da/Db

520.917S043401	0 ... 6	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
520.930S043401	0 ... 10	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
520.931S043401	0 ... 16	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
520.932S043401	0 ... 25	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
520.933S043401	0 ... 40	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"
520.934S043401	0 ... 60	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"

Accessories for transmitters other connectors and cables see page K- 27 / 28

120104-02-024	M12 (4 PIN) assembly connectors for above transmitters	90°
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Heat Sink for high temperature applications

Heat sink effectively reduces temperatures of hot media, permitting usage of transmitters in applications with temperatures in excess of 200°C .

105074 G 1/4" heat sink for transmitters in high temperature applications (L +101 mm)

¹⁾ Other pressure ranges available on request

²⁾ Other outputs available on request: 0 - 5V, 0 - 10V, Radiometric 10 ... 90%

³⁾ Other electrical connections available: DIN EN 175301-803-A/C, RAST2.5, Swift, M12 x 1, with cable

⁴⁾ Pressure connections: inside/outside thread: 1/4"-18NPT, 1/2"-14NPT, G1/4", G1/2", M20 x 1.5, R 1/4 to DIN 2999





548.9300152401



540.943S052401

Pressure transmitter with display and programmable switching outputs

The 548/540 series μ P-regulated, programmable pressure transmitter has a robust industry design, easily adjustable parameters (via function keys in the configuration menu) with up to two programmable switching points. All units are equipped with a large 4 digit display assuring reliable, accurate readings.

- Compact, rugged construction
- Clearly readable display (*rotatable 180°*) - 7 segment LED, 4 digits for pressure and parameter values
- Programmable time delay functions rise and switch off delay 0 - 50 s, response time 5 ... 500 ms
- Electrical connection: M12 x 1 (5 pin) connectors and cables *see page K-27 / 28*
- 1 x Analog signal output 4 ... 20 mA (0 ... 10 V *available on request*)
- 2 x programmable switching outputs NO or NC (250 mA)
- Medium: Liquids and gases -20 ... +80 °C
- Protection standard: IP67 - IEC 60529
- Conformity: EN 61326-2-3 / IEC 68-2-27 / IEC 68-2-6 / UL 61610-1

type	pressure range (bar) ¹⁾	power supply VDC	output DC ²⁾	electrical connection ³⁾	description	pressure connection ⁴⁾
Type 548 pressure range: 0 - 40 BAR (H) 73 x (W) 41 x (D) 42 mm						
Based on the well proven ceramic technology developed by Huba Controls.						
• Accuracy:		$\pm 0.3\%$ fs				
• Overload:		≤ 10 bar 4 x fs > 10 BAR 3.5 x fs				
548.9300152401	0 ... 10	17 - 33	4 - 20 mA	M12x1 PNP	transmitter	G 1/4"
548.9310152401	0 ... 16	17 - 33	4 - 20 mA	M12x1 PNP	transmitter	G 1/4"
548.9320152401	0 ... 25	17 - 33	4 - 20 mA	M12x1 PNP	transmitter	G 1/4"
548.9330152401	0 ... 40	17 - 33	4 - 20 mA	M12x1 PNP	transmitter	G 1/4"

Type 540 pressure range: 0 - 600 BAR (H) 73 x (W) 41 x (D) 42 mm						
Based on Huba Control developed thick film technology with fully welded pressure measurement cell.						
• Accuracy:		$\pm 0.3\%$ fs				
• Overload:		3 x fs (<i>max. 1500 BAR</i>) rupture pressure 6 x fs (<i>max. 2500 BAR</i>)				
540.941S052401	0 ... 100	17 - 33	4 - 20 mA	M12x1 PNP	transmitter	G 1/4"
540.943S052401	0 ... 250	17 - 33	4 - 20 mA	M12x1 PNP	transmitter	G 1/4"
540.955S052401	0 ... 600	17 - 33	4 - 20 mA	M12x1 PNP	transmitter	G 1/4"
<i>Other pressure ranges available on request.</i>						

Level sensing pressure transmitters

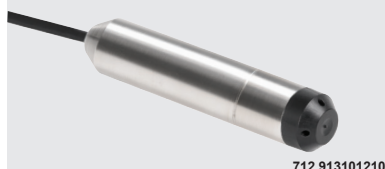
- Medium temperature range: -20 ... +80 °C
- Accuracy: $\pm 0.25\%$ fs
- Drinking water approval: KTW, W270, WRAS, ACS
- Protection class: (IP68) Cable PE-HD
- Material: Stainless Steel 1.4404 / AISI 316L - Ceramic sensor Al₂O₃ (99.6%)

type	pressure range (bar) ¹⁾	supply VDC	output DC ²⁾	electrical connection ³⁾	description	cable length
Type 712 - Level sensing pressure transmitters Ø23.4 x 116 mm						
Type 712 level sensing pressure transmitters are manufactured using an absolute pressure measuring cell with an adjusted and amplified sensor signal.						
• Medium:		Fuel oil, ultra-light/heavy - SN 181 160-2, Diesel oil, Drinking water				
712.913101210	0.0 ... 0.3	10 - 30	4 - 20 mA	cable	transmitter	5 met.
712.911103210	0.0 ... 1.0	10 - 30	4 - 20 mA	cable	transmitter	15 met.
712.912104210	0.0 ... 1.6	10 - 30	4 - 20 mA	cable	transmitter	20 met.

Type 713 - Level sensing pressure transmitters Ø18.5 x 138 mm						
Type 713 pressure level transmitter used for continuous fluid level measurement of ground and drinking water. The compact design permits use in applications with restricted access as small as 20 mm i.d. pipes. Available with enhanced energy efficient ratiometric and digital outputs, for battery powered applications.						

- Continuous level measurement
- Excellent linearity and long term stability
- Medium: Liquids (*suitable for drinking water and borehole application*)
- Suitable for ground and drinking water
- Applicable in 3/4 inch pipes

713.9301013111	0 ... 10	10 - 30	4 - 20 mA	cable	transmitter	80 met.
713.9301015111	0 ... 10	10 - 30	4 - 20 mA	cable	transmitter	100 met.
713.9301016111	0 ... 10	10 - 30	4 - 20 mA	cable	transmitter	125 met.
713.9301017111	0 ... 10	10 - 30	4 - 20 mA	cable	transmitter	150 met.
713.9301018111	0 ... 10	10 - 30	4 - 20 mA	cable	transmitter	175 met.
713.9311018111	0 ... 16	10 - 30	4 - 20 mA	cable	transmitter	175 met.



712.913101210



713.9301013111



Differential pressure transmitter

Type 699 transmitters are available in switchable pressure ranges, with or without digital display. They include customer specific adjustment possibilities. Specially developed sensors for each pressure range ensure accurate long term stable measurement and provide the perfect platform for use in air conditioning technology.

- Fast, easy mounting. (*housing incorporates integral wall or ceiling mount bracket*)
- Switchable response curve (*linear or root-extracted*)
- Adjustable measurement range
- Switchable output signals
- Resettable Zero Point (*reset button*)
- Full scale adjustable

Application fields

- Measuring slightest differential pressures in ventilation and air conditioning ducts
 - Check air flows
 - Monitor filters and fan systems
- Pressure supervision in labs, production, storage and clean rooms



699.931014010

type	pressure range (mbar) ¹⁾	supply VDC	output DC ²⁾	electrical connection ³⁾	description	pressure connection ⁴⁾
Type 699 - Differential pressure transmitter (H) 75 x (W) 92 x (D) 47.9 mm						
• Medium:		Air and neutral gases - temperature range: 0 ... 70 °C				
• Response time:		< 20 ms				
• Output:		4 ... 20 mA ²⁾ (others available on request 0 ... 5/10V)				
• Degree of protection:		IP54 according to EN 60529				
• Conformity:		EN 61326-1, UL 60730-1, UL 60730-2-6				
699.931014010	0.3/0.5/1	13 - 33	4 - 20 mA	screw term.	transmitter	Ø6.2 mm
699.913014010	1/3/5	13 - 33	4 - 20 mA	screw term.	transmitter	Ø6.2 mm
699.915014010	5/10/16	13 - 33	4 - 20 mA	screw term.	transmitter	Ø6.2 mm
699.931011010	0.3/0.5/1	13 - 33	0 - 10V	screw term.	transmitter	Ø6.2 mm
699.913011010	1/3/5	13 - 33	0 - 10V	screw term.	transmitter	Ø6.2 mm
699.915011010	5/10/16	13 - 33	0 - 10V	screw term.	transmitter	Ø6.2 mm

As above with LCD Digital display

699.931024110	0.3/0.5/1	13 - 33	4 - 20 mA	screw term.	transmitter	Ø6.2 mm
699.913024110	1/3/5	13 - 33	4 - 20 mA	screw term.	transmitter	Ø6.2 mm
699.915024110	5/10/16	13 - 33	4 - 20 mA	screw term.	transmitter	Ø6.2 mm
699.931021110	0.3/0.5/1	13 - 33	0 - 10V	screw term.	transmitter	Ø6.2 mm
699.913021110	1/3/5	13 - 33	0 - 10V	screw term.	transmitter	Ø6.2 mm
699.915021110	5/10/16	13 - 33	0 - 10V	screw term.	transmitter	Ø6.2 mm

¹⁾ Other pressure ranges available on request ²⁾ Other outputs available on request (0 ... 5/10V)

Accessories for type 699 above

104312	connection kit for vent duct (metal) 90° angled - including 2 m long tube
100064	connection kit for vent duct (plastic) straight - including 2 m long tube



699.931024110

Type 692 - Differential pressure sensor (H) 95 x (Ø) 44 mm

Type 692 pressure transmitters feature unique, well proven ceramic technology. The wide pressure range together with several standard output signals make these transmitters ideal for applications across a broad spectrum of industries. For the measurement of pressure differentials in HVAC systems.

- Robust stainless steel enclosure
- High resistance to extreme temperatures
- High measurement accuracy
- Very low temperature sensitivity

Type 692 - Differential pressure transmitter EN 61326-2-3 compact design

- Response time: < 5 ms
- Medium: Liquids and neutral gases -15 ... +85 °C
- Output: 4 ... 20 mA²⁾ (others available on request 0 ... 5/10V)
- Electrical connection: DIN EN 175301-803-A connector (female not supplied with transmitter)
- Degree of protection: IP65 according to EN 60529

type	range BAR	max BAR	power supply	output (DC) ²⁾	electrical connection ³⁾	description	screw fitting
692.912007141	0...1	5	11-33	4 - 20 mA	DIN plug	transmitter	Ø6 mm
692.916007141	0...2.5	12	11-33	4 - 20 mA	DIN plug	transmitter	Ø6 mm
692.919007141	0...6	12	11-33	4 - 20 mA	DIN plug	transmitter	Ø6 mm
692.930007141	0...10	20	11-33	4 - 20 mA	DIN plug	transmitter	Ø6 mm

Accessories for above 692 transmitters

103510	DIN EN 175301-803-A female connector for type 692 transmitters
101999	mounting bracket (including screws) for type 692 transmitters



692.912007141



210.906441K



210...



236...

new



604.9000000

Flow sensors for liquid medium

Huba Control flow sensors are based on the Karman Vortex trail principle and are available in various options. No moving parts, the flow sensor is not sensitive to debris with marginal pressure loss combined with high accuracy.

- Measuring principle: Vortex - Piezoelectric sensor element
- Excellent media resistance: Measuring element not in contact with the media
- Drinking water approval: KTW, W270, WRAS, ACS
- Accuracy at < 50% fs: < 1 % fs (>50% - 2% measuring value)
- Flow medium: Heating water with standard additives, drinking water
- Medium temperature: < +125 °C
- Flow pipe connection: External thread K connection G½ ... G1¼" (others on request)
- Electrical connection: M12 x 1 - 3 pin (supplied separately - see page K-27 / 28)
- Material: Fibreglass-reinforced plastic, sensor paddle ETFE
- Protection class: (IP65)

type	nominal diameter	measuring range (l/min)	power supply	output DC ²⁾	description	connect
Type 210 - Fibreglass-reinforced plastic				PA6T/6I (40% GF)		
Type 210 flow sensor for liquid media						
210.906441K	DN 6	0.5 ... 10	8 - 33 VDC	4 - 20 mA	flow sensor	G ½"
210.908441K	DN 8	0.9 ... 15	8 - 33 VDC	4 - 20 mA	flow sensor	G ½"
210.910441K	DN 10	1.8 ... 32	8 - 33 VDC	4 - 20 mA	flow sensor	G ½"
210.915441K	DN 15	3.5 ... 50	8 - 33 VDC	4 - 20 mA	flow sensor	G ¾"
210.920441K	DN 20	5.0 ... 85	8 - 33 VDC	4 - 20 mA	flow sensor	G 1"
210.925441K	DN 25	9.0 ... 150	8 - 33 VDC	4 - 20 mA	flow sensor	G 1¼"
²⁾ other outputs available on request 0 - 10V, Frequency square pulse output						
Above flow switches can be provided with additional internal PT1000 temperature sensor						

²⁾ other outputs available on request 0 - 10V, Frequency square pulse output

Above flow switches can be provided with additional internal PT1000 temperature sensor

Type 236 - Brass bodied flow sensors

The Type 236 is based on the Type 210 but incorporates a brass housing. The vortex sensor has a rugged construction of brass connection.

- Brass (CuZn40PbZ), PA6T/6I (40% GF)

Type 236 Brass bodied flow sensors

236.910441K	DN 10	1.8 ... 32	8 - 33 VDC	4 - 20 mA	flow sensor	G ½"
236.911441K	DN 10	2.0 ... 40	8 - 33 VDC	4 - 20 mA	flow sensor	G ½"
236.932441K	DN 32	14 ... 240	8 - 33 VDC	4 - 20 mA	flow sensor	G 1½"

Above flow switches can be provided with additional internal PT1000 temperature sensor.

For M12 connectors and cables see page K- 27 / 28

Type 604 - Mechanical pressure switches

Type 604 pressure switch is used as a Δp flow switch in ventilation ducts for the control of filters and fans in primary and secondary control systems for the control of air dampers. Ideally suited to protect heating coils from overheating and for monitoring industrial air cooling circuits.

- Easy to install, user friendly snap cover
- Case geometry permits easy cable entry - cable strain relief integrated
- Supplied with Combi-bracket for vertical or horizontal installation
- For ventilation and air conditioning plants (monitor differential pressure under/over pressure)
- To monitor air filters and air flow
- Medium: Air and neutral gases -30 ... +85 °C
- Electrical contact: 1 x changeover contact - 5A 250 VAC (resistive)
- Protection class: (IP54) (with cover)
- Conformity: EN 61326-2-3, EN 60730-1

type	pressure range ¹⁾		switch	electrical connection ³⁾	description	pressure connection ⁴⁾
	mbar	Pa				
Type 604 - Mechanical pressure switch				(H) 52 x (Ø) 81		
• Tolerable overload on one side:			50 mbar			
• Pressure connection:			PVC nipples - Ø6.2 mm			
604.9000000	0.2 ... 3	20 ... 300	1 ch/over	screw term.	pressure switch	Ø6.2 mm
604.9100000	0.5 ... 5	50 ... 500	1 ch/over	screw term.	pressure switch	Ø6.2 mm
604.9200000	1 ... 10	100 ... 1000	1 ch/over	screw term.	pressure switch	Ø6.2 mm
604.9400000	5 ... 20	500 ... 2000	1 ch/over	screw term.	pressure switch	Ø6.2 mm
604.9500000	10 ... 50	1000 ... 5000	1 ch/over	screw term.	pressure switch	Ø6.2 mm

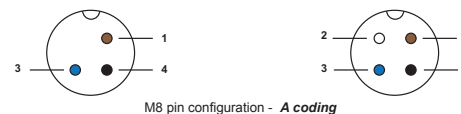
Note: Other pressure ranges available on request

Accessories for type 604 above

- 104312 connection kit for vent duct (metal) 90° angled - including 2 m long tube
- 100064 connection kit for vent duct (plastic) straight - including 2 m long tube

M8 and M12 - Round sensor connectors

- Contact resistance: $\geq 10\text{m}\Omega$
- Protection degree: IP67/68
- Operating temperature: $-25^{\circ}\text{C} \dots +85^{\circ}\text{C}$
- Termination: Screw clamp terminal
- Contact material: Gold plated Phosphor Brass/Bronze



type	gender	No. pins	term.	plug angle	nominal current	rated voltage AC/DC	description
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M8 assembly connectors**(A coding)**

IP67/68

- Plastic body: Insulation PA66+GF
- Cable Ø: Ø 3...5.5 mm

080103-02-001	female	3	screw	straight	4A	60V	M8 connector
080104-02-001	female	4	screw	straight	4A	60V	M8 connector
080103-01-001	male	3	screw	straight	4A	60V	M8 connector
080104-01-001	male	4	screw	straight	4A	60V	M8 connector

M12 assembly connectors**(A coding)**

IP67/68

- Plastic body: PA66+GF
- Cable Ø: Ø 3...8 mm

120103-02-022	female	3	screw	straight	4A	250V	M12 connector
120104-02-022	female	4	screw	straight	4A	250V	M12 connector
120105-02-022	female	5	screw	straight	4A	60V	M12 connector
120108-02-022	female	8	screw	straight	2A	30V	M12 connector
120104-02-024	female	4	screw	90°	4A	250V	M12 connector
120105-02-024	female	5	screw	90°	4A	60V	M12 connector
120108-02-024	female	8	screw	90°	2A	30V	M12 connector
120103-01-022	male	3	screw	straight	4A	250V	M12 connector
120104-01-022	male	4	screw	straight	4A	250V	M12 connector
120105-01-022	male	5	screw	straight	4A	60V	M12 connector
120108-01-022	male	8	screw	straight	2A	30V	M12 connector
120104-01-024	male	4	screw	90°	4A	250V	M12 connector
120105-01-024	male	5	screw	90°	4A	60V	M12 connector

M12 metallic body assembly connectors**(A coding)**

- Gland: PG9 with shield
- Cable Ø: Ø 6...8 mm
- Termination: Solder terminal

120104-02-006	female	4	solder	straight	4A	250V	M12 connector
120105-02-006	female	5	solder	straight	4A	60V	M12 connector
120108-02-006	female	8	solder	straight	2A	30V	M12 connector
120104-01-006	male	4	solder	straight	4A	250V	M12 connector
120105-01-006	male	5	solder	straight	4A	60V	M12 connector
120108-01-006	male	8	solder	straight	2A	30V	M12 connector

M12 circular panel mount connectors**(A coding)**

IP67/68

- Metallic panel mount circular connectors
- M16 x 1.5 rear mounting

120104-04-001	female	4	solder	straight	4A	250V	M12 panel mount
120105-04-001	female	5	solder	straight	4A	60V	M12 panel mount
120108-04-001	female	8	solder	straight	2A	30V	M12 panel mount
120104-03-001	male	4	solder	straight	4A	250V	M12 panel mount
120105-03-001	male	5	solder	straight	4A	60V	M12 panel mount
120108-03-001	male	8	solder	straight	2A	30V	M12 panel mount

Cable multi-core sensor cable - PUR (Polyurethane)

- High flexibility, oil and abrasion resistant
- Operating temperature: $-25 - 85^{\circ}\text{C}$

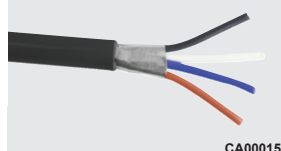
type	(mm ²)	cores	colour	insul.	material	wire colours
CA00142	0.34	3	black	cable	PUR	brown-blue-black
CA00015	0.34	4	black	cable	PUR	brown-white-blue-black
CA00148	0.34	5	black	cable	PUR	brown-white-blue-black-grey
CA00103	0.25	8	black	cable	PUR	pnk-red-yel-bm-wht-blu-grn-gry



new

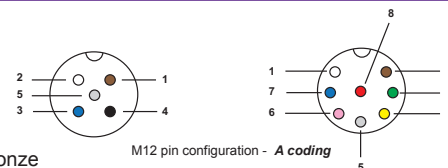


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M8 and M12 - Round sensor connectors

- Contact resistance: $\geq 10\text{m}\Omega$
- Protection degree: IP67/68
- Operating temperature: $-25^{\circ}\text{C} \dots +85^{\circ}\text{C}$
- Termination: Moulded on cable
- Contact material: Gold plated Phosphor Brass/Bronze
- PUR cable: High flexibility, oil and abrasion resistant

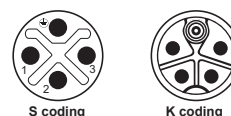


type	gender	No. pins	colour	plug angle	cable material	cable length	description
M8 sensor cable with female connector (A coding)							
080103-06-027	female	3	black	straight	PUR	2 met.	M8 sensor cable
080103-06-020	female	3	black	straight	PUR	5 met.	M8 sensor cable
080103-06-058	female	3	black	90°	PUR	2 met.	M8 sensor cable
080103-06-024	female	3	black	90°	PUR	5 met.	M8 sensor cable
080104-06-054	female	4	black	straight	PUR	2 met.	M8 sensor cable
080104-06-029	female	4	black	straight	PUR	5 met.	M8 sensor cable
080104-06-063	female	4	black	90°	PUR	2 met.	M8 sensor cable
080104-06-036	female	4	black	90°	PUR	5 met.	M8 sensor cable

M12 sensor cable with female connector (A coding)							
120104-06-053	female	4	black	straight	PUR	2 met.	M12 sensor cable
120104-06-061	female	4	black	straight	PUR	5 met.	M12 sensor cable
120104-06-624	female	4	black	straight	PUR	7.5 met.	M12 sensor cable
120104-06-625	female	4	black	straight	PUR	10 met.	M12 sensor cable
120104-06-017	female	4	black	90°	PUR	2 met.	M12 sensor cable
120104-06-010	female	4	black	90°	PUR	5 met.	M12 sensor cable
120104-06-923	female	4	black	90°	PUR	7.5 met.	M12 sensor cable
120104-06-924	female	4	black	90°	PUR	10 met.	M12 sensor cable
120105-06-075	female	5	black	straight	PUR	2 met.	M12 sensor cable
120105-06-053	female	5	black	straight	PUR	5 met.	M12 sensor cable
120105-06-127	female	5	black	90°	PUR	2 met.	M12 sensor cable
120105-06-055	female	5	black	90°	PUR	5 met.	M12 sensor cable
120108-06-008	female	8	black	straight	PUR	2 met.	M12 sensor cable
120108-06-009	female	8	black	straight	PUR	5 met.	M12 sensor cable
120108-06-115	female	8	black	90°	PUR	2 met.	M12 sensor cable
120108-06-119	female	8	black	90°	PUR	5 met.	M12 sensor cable

M12 round connectors - for power applications (S & K coding)

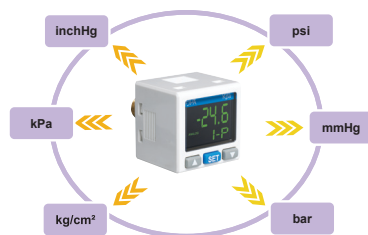
- Contact resistance: $\geq 3\text{m}\Omega$
- Protection degree: IP67/68
- Operating temperature: $-25^{\circ}\text{C} \dots +85^{\circ}\text{C}$
- Termination: Solder terminal



type	gender	No. pins	poles	contact coding	nominal current	rated voltage	description
M12 power assembly connectors (S & K coding)							IP67/68
• Plastic body: Insulation PA66+GF • Wire gauge: max. 1.5 mm² • Cable Ø: Ø 3...8 mm							
120504-01-001	male	4	3+PE	S	12A	630 VAC	M12 connector
121105-01-001	male	5	4+PE	K	12A	630 VAC	M12 connector
120504-02-001	female	4	3+PE	S	12A	630 VAC	M12 connector
121105-02-001	female	5	4+PE	K	12A	630 VAC	M12 connector
M12 metallic panel mount power connectors (S & K coding)							IP67/68
• Metallic panel mount circular connectors • M16 x 1.5 rear mounting							
120504-03-001	male	4	3+PE	S	12A	630 VAC	M12 connector
121105-03-001	male	5	4+PE	K	12A	630 VAC	M12 connector
120504-04-001	female	4	3+PE	S	12A	630 VAC	M12 connector
121105-04-001	female	5	4+PE	K	12A	630 VAC	M12 connector

new





Various Unit Conversion

DPA series - Compact miniature pressure/vacuum sensors

Delta's new-generation and slim pressure sensor is small in size and light, supporting many installation methods. DPA features high measurement accuracy, excellent stability, high shock and vibration resistance, good over-load capacity, anti-corrosion and heat resistance, and can work with all Delta's industrial automation products in hi-tech electronics industry, general processing industry, food packaging industry and automatic assembly industry.

Various unit conversion

The DPA series offers 6 kinds of globally adopted pressure units for measurement and display.

3-colour LCD display (green, red, orange)

The large LCD with a green, red and orange 3-colour LCD display allows users to set the display colour according to the ambient environment, such as when the pressure is within normal range or exceeds the allowed range. The display's colour is orange when in parameter setup mode. This makes it easy for reading and reduces operation errors.

Safety control mode

The safety control mode prevents operators from carelessly touching relevant parameters and affecting the operation and production of the equipment.

Functions:

- 2 x digital outputs (NPN or PNP) and 1 x analog output (1 - 5V or 4 - 20mA)
- Various unit conversion functions (kPa, kg/cm², bar, mmHg, psi, inchHg)
- Selectable LED (3 colours) set different colours for different parameters
- 10 sets of output response times available (2ms - 5.000ms)
- Connection: 1/8 PT, inner pore M5
- Safety control function (to prevent unwanted parameter changes)

type	pressure	output type		description
	range (kPa)	2 x digital	1 x analog	

Multifunction small pressure sensor (H)30 x (W)30 x (D)26 mm

2 x digital and 1 x 4 - 20mA output

DPA01P-P	-100 - 100kPa	PNP	+4 - 20mA	mini pressure sensor
DPA10P-P	-100 - 1000kPa	PNP	+4 - 20mA	mini pressure sensor
DPA01N-P	-100 - 100kPa	NPN	+4 - 20mA	mini pressure sensor
DPA10N-P	-100 - 1000kPa	NPN	+4 - 20mA	mini pressure sensor

2 x digital and 1 x 1 - 5V

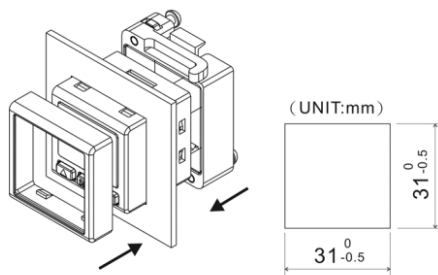
DPA01Q-P	-100 - 100kPa	PNP	+1 - 5V	mini pressure sensor
DPA01M-P	-100 - 100kPa	NPN	+1 - 5V	mini pressure sensor
DPA10M-P	-100 - 1000kPa	NPN	+1 - 5V	mini pressure sensor

Accessories for pressure sensors

DPA-PFKIT	panel mount accessory	(31 x 31 mm cut-out)
DPA-FMKIT	surface mount support bracket	(all sides mounting)



- Panel: Use optional accessory DPA-PFKit.



- To install fixing frame, purchase the optional OPA - FMKit accessory.

Miniature snap-action micro switches

- Snap-action micro switch with wiping contacts, silver alloy

type	current Ith	actuator	length	description	contacts
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CMV series - Snap-action micro switches**10A 250 VAC changeover**

- Mounting: Ø3 mm - 22.2 x 10.3 mm apart (*diagonal*)
- Terminals: Fast-on 187 (4.8 x 0.5 mm)

CMV100D	10A	0	standard plunger	—	miniature micro switch	SPDT
CMV101D	10A	1	short plain lever	35.6 mm	miniature micro switch	SPDT
CMV105D	10A	5	long plain lever	62.2 mm	miniature micro switch	SPDT
CMV104D	10A	4	short roller lever	20.1 mm	miniature micro switch	SPDT
CMV103D	10A	3	long roller lever	34.0 mm	miniature micro switch	SPDT

16A 250 VAC changeover

- Terminals: Fast-on 250 (6.35 x 0.8 mm)

CMV16001C	16A	0	standard plunger	—	miniature micro switch	SPDT
CMV16011C	16A	1	short plain lever	35.6 mm	miniature micro switch	SPDT
CMV16051C	16A	5	long plain lever	62.2 mm	miniature micro switch	SPDT
CMV16041C	16A	4	short roller lever	20.1 mm	miniature micro switch	SPDT
CMV16031C	16A	3	long roller lever	34.0 mm	miniature micro switch	SPDT

KW3 series - Snap-action micro switches**16A 250 VAC changeover**

- Approvals: UL, cUL, VDE, Semko, Demko, Femko, Nemko, CE, CQC
- Terminals: Fast-on 250 (6.35 x 0.8 mm)

KW3A-16Z0B	16A	0	standard plunger	—	miniature micro switch	SPDT
KW3A-16Z3	16A	1	short plain lever	35.6 mm	miniature micro switch	SPDT
KW3A-16Z2	16A	5	long plain lever	59.4 mm	miniature micro switch	SPDT
KW3A-16Z4	16A	4	short roller lever	20.2 mm	miniature micro switch	SPDT
KW3A-16Z5	16A	3	long roller lever	34.0 mm	miniature micro switch	SPDT

CM series - Standard snap-action micro switch

- Mounting: Ø4 mm - 25.4 mm apart (*horizontal*)
- Terminals: Screw-type terminals

CM1300	15A	F	pin plunger		standard micro switch	SPDT
CM1305	15A	G	extended plunger		standard micro switch	SPDT
CM1306	15A	H	button plunger		standard micro switch	SPDT
CM1307	15A	I	ext. panel mnt plunger		standard micro switch	SPDT
CM1308	15A	J	ext. panel mnt roller plunger		standard micro switch	SPDT
CM1309	15A	K	ext. p/mnt roller plunger 90°		standard micro switch	SPDT
CM1701	15A	L	long plain lever		standard micro switch	SPDT
CM1703	15A	M	long roller lever		standard micro switch	SPDT
CM1704	15A	N	short roller lever		standard micro switch	SPDT
CM1705	15A	P	long wire lever		standard micro switch	SPDT
CM1743	15A	O	short roller (<i>collapsible</i>)		standard micro switch	SPDT

CAP-Y

CM switch terminal cover

CZ-7 series - Micro switch 10A 250 VAC

- Rated thermal current: 10A (Ith IEC94751) 250 VAC
- Rated insulated voltage: Ui-380V
- Mounting: Ø4 mm - 25.4 mm apart (*horizontal*)
- Terminals: Screw terminals (IP40)

CZ-7310	10A	I	ext. panel mnt plunger		standard micro switch	SPDT
CZ-7311	10A	J	ext. panel mnt roller plunger		standard micro switch	SPDT
CZ-7312	10A	K	ext. p/mnt roller plunger 90°		standard micro switch	SPDT
CZ-7120	10A	L	long plain lever		standard micro switch	SPDT
CZ-7121	10A	M	long roller lever		standard micro switch	SPDT
CZ-7141	10A	N	short roller lever		standard micro switch	SPDT
CZ-7144	10A	O	short roller (<i>collapsible</i>)		standard micro switch	SPDT



KB A1 S11

KB B2 S11

KB C2 S11



KB E2 S11

KB F2 S11

KB M1 S11



KN E1 S11



KM H1 S11



KM E2 S11



KX B S11



KB N1 L11



KX N2



RS11310



RS131310

Limit switches designed to satisfy all requirements comprising quick installation, easy wiring and simple setup. The innovative locking bayonet mechanism permits to remove and reposition the operating head in the required configuration with no tools. The auxiliary contact blocks are removable assuring remarkable wiring ease.

- Replaceable actuator heads, 45° axial rotation of operating heads
- Direct operating operation; safety function according to IEC/EN 60947-5-1
- Ith 10A – IP65 – Ui 690 VAC – M20 cable entry

type	description		contacts
KB series - Plastic body bottom entry (1 x M20) (IP65)			
- Body dimensions: (H) 69 x (W) 30 x (D) 30 mm fixing hole distance:			20 mm
KB A1 S11	top plunger	industrial limit switch	1NO + 1NC
KB B2 S11	top roller plunger (metal)	industrial limit switch	1NO + 1NC
KB C2 S11	top plunger roller lever (metal)	industrial limit switch	1NO + 1NC
KB D2 S11	roller side push level (metal)	industrial limit switch	1NO + 1NC
KB E2 S11	rotating roller lever (metal)	industrial limit switch	1NO + 1NC
KB F2 S11	rotating roller lever (adjustable)	industrial limit switch	1NO + 1NC
KB H1 S11	ceramic rotating rod roller lever	industrial limit switch	1NO + 1NC
KB L2 S11	rotating rod lever (adjustable)	industrial limit switch	1NO + 1NC
KB M1 S11	omni-directional wobble stick	industrial limit switch	1NO + 1NC
KB P1 L11	hinge operating (short cylinder)	industrial limit switch	1NO + 1NC
KB P2 L11	hinge operating (long cylinder)	industrial limit switch	1NO + 1NC
KN series - Metallic body side entry (2 x M20) (IP65)			
- Body dimensions: (H) 58 x (W) 60 x (D) 30 mm fixing hole distance:			40/20 mm
KN A1 S11	top plunger	industrial limit switch	1NO + 1NC
KN B1 S11	top roller plunger	industrial limit switch	1NO + 1NC
KN C1 S11	top plunger roller lever	industrial limit switch	1NO + 1NC
KN E1 S11	rotating roller lever	industrial limit switch	1NO + 1NC
KN F1 S11	rotating roller lever (adjustable)	industrial limit switch	1NO + 1NC
KN H1 S11	ceramic rotating rod roller lever	industrial limit switch	1NO + 1NC
KN L2 S11	rotating rod lever (adjustable)	industrial limit switch	1NO + 1NC
KN M1 S11	omni-directional wobble stick	industrial limit switch	1NO + 1NC
KM series - Metallic body bottom entry (1 x M20) (IP65)			
- Body dimensions: (H) 69 x (W) 30 x (D) 30 mm fixing hole distance:			20 mm
KM A1 S11	top plunger	industrial limit switch	1NO + 1NC
KM B2 S11	top roller plunger	industrial limit switch	1NO + 1NC
KM C2 S11	top plunger roller lever	industrial limit switch	1NO + 1NC
KM E2 S11	rotating roller lever	industrial limit switch	1NO + 1NC
KM F2 S11	rotating roller lever (adjustable)	industrial limit switch	1NO + 1NC
KM H1 S11	ceramic rotating rod roller lever	industrial limit switch	1NO + 1NC
KM L2 S11	rotating rod lever (adjustable)	industrial limit switch	1NO + 1NC
KM M1 S11	omni-directional wobble stick	industrial limit switch	1NO + 1NC
Spare – contact blocks (interchangeable) - excluding KB Q1 L11			
KX B S11	contact block	snap action	1NO + 1NC
KX B S02	contact block	snap action	2 NC
KX B A11	contact block	slow break (make before break)	1NO + 1NC
KX B L11	contact block	slow break	1NO + 1NC

Safety limit switches (slow break)

KB Q1 L11	slotted lever actuator	safety limit switch	1 NO + 1 NC
KB N1 L11	key operated (straight key)	safety limit switch	1 NO + 1 NC
KB N2 L11	key operated (angled key)	safety limit switch	1 NO + 1 NC

Spare keys for safety limit switches

KX N1	straight key	for safety limit switches	–
KX N2	angled key	for safety limit switches	–
KX N3	straight "T" key	for safety limit switches	–
KX N4	angled "T" key	for safety limit switches	–

RS1 series - Rope operated limit switches (H) 104 x (W) 30.5 x (D) 35 mm (IP65)

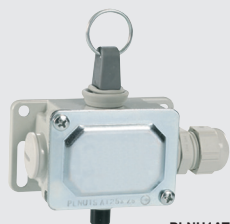
- Double-insulated housing glass fibre-reinforced self extinguishing
- Self-cleaning silver-alloy contacts, Snap action contacts
- Thermal current: Ith:10A Ui: 250 VAC

Non-latching rope operated limit switches (snap action)

RS11310	rope operated limit switch (non latching)	25N	1NO + 1NC
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Latching (hand reset) limit switches EN 418 compliant

RS131310	rope operated limit switch (latching/hand reset)	25N	1NO + 1NC
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PLNU1AT25W



PLN131311

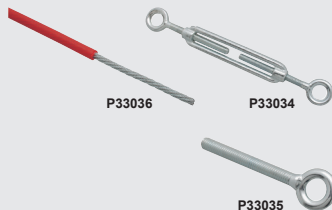


P2L131312



P33032

P33033



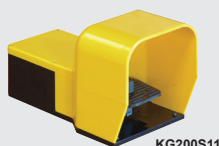
P33036

P33034

P33035



KG100S11



KG200S11



KR200S11

Rope-operated pull lever limit switches

- Heavy-duty metal body
- Supplied with cable gland (PG11)
- Protection degree: IP65

type	description	operating force (N)	contacts
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PLNU series - Heavy-duty non-latching rope-operated limit switches

- Direct (*positive*) opening action - safety function according to IEC/EN 60947-5-1
- Thermal current: lth: 10A Ui: 400 VAC
- Dimensions: (H) 89 x (W) 84 x (D) 40.5 mm

PLNU1AT25W	rope operated limit switch	(non-latching)	25N	1NO + 1NC
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P2LU series - Heavy-duty latching rope-operated limit switches

Latching (*hand reset*) limit switches EN 418 compliant

- Latching with push button "Reset" facility on switch
- Thermal current: lth: 6A Ui: 400 VAC
- Dimensions: (H) 175 x (W) 85 x (D) 47 mm

P2LU series (H) 175 x (W) 85 x (D) 47 mm

P2LU1SAT75AG	rope operated limit switch	(latching/hand reset)	7.5 kg	1NO + 1NC
P2LU1SAT15AG	rope operated limit switch	(latching/hand reset)	15 kg	1NO + 1NC

Heavy duty rope-operated limit switches with pre-tensioning facility

- Latching (*hand reset*) limit switches EN418 compliant
- 2 NC contacts (*when pre-tensioned*) 1 opens if rope breaks the other opens when rope is pulled
- Green indicator for correct pre-tensioning adjustment
- Large field of overlap for easier regulation of pre-tensioning
- Latching with push button "Reset" facility on switch
- Thermal current: lth: 6A Ui: 400 VAC

with pre tensioned rope

PLN series - 60N (H) 82 x (W) 104 x (D) 40.5 mm

PLN131311	rope operated limit switch	(latching/hand reset)	60N - 6kg	1NO + 1NO
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P2L series - 120N (H) 161 x (W) 100 x (D) 48.5 mm

P2L131312	rope operated limit switch	(latching/hand reset)	120N - 12kg	1NO + 1NO
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Accessories for rope-operated switches

P33032	adjustable rope terminal clamp Ø 5 mm
P33033	rope eye of Ø 5 mm (<i>cable end thimble</i>)
P33034	turn buckle M6 x 60 for rope tensioning
P33035	threaded eye bolt M8 guide for rope
P33036	steel rope 0.5 mm PVC sheathed (<i>red insulated</i>) (100met)

Industrial foot switches thermoplastic and metallic (IP54)

- Self-extinguishing double insulation polymer thermoplastic
- Cable entry: M20 x 1.5

KG series - Thermoplastic foot switches

- Self-extinguishing double insulation thermoplastic

KG100S11	open-type industrial foot switch	thermoplastic	1NO + 1NC
KG200S11	closed-type industrial foot switch	thermoplastic	1NO + 1NC

KR series - Metallic foot switches

- Aluminium zinc alloy body

KR100S11	open-type industrial foot switch	diecast	1NO + 1NC
KR200S11	closed-type industrial foot switch	diecast	1NO + 1NC

Additional charges

KGX01	kit for adding a second contact block to foot switches	—
KGX02	contact block mounting bracket	—
KX B S11	additional contact block for above foot switches	1NO + 1NC

		E series industrial limit switches are suitable for most environmental conditions due to their solid construction, IP66 certification and proven reliability over decades of fieldwork.			
		- Protection degree: IP66 - Rated thermal current: 10A (Ith IEC947-5-1) - Conformity: EN 50047, UNI EN 1088, EN ISO 12100-1, IEC529 - Contact blocks with positive opening of the NC contact according to IEC/EN 60947-5-1, VDE 0660-200			
 E10100BI	A				
	B				
	C				
	E				
 E30100EMRA	F				
	L				
 E40100AM					
		E series industrial limit switches are suitable for most environmental conditions due to their solid construction, IP66 certification and proven reliability over decades of fieldwork.			
		- Protection degree: IP66 - Rated thermal current: 10A (Ith IEC947-5-1) - Conformity: EN 50047, UNI EN 1088, EN ISO 12100-1, IEC529 - Contact blocks with positive opening of the NC contact according to IEC/EN 60947-5-1, VDE 0660-200			
		type	actuator type	description	contact
		E100 series - Industrial limit switches		(IP66)	CENELEC EN50047
		Body dimensions:	(H) 77.5 x (W) 30.5 x (D) 33 mm	fixing hole distance: 20/22 mm	
		Cable entry:	1 x bottom entry - M20 x 1.5		
		Thermoplastic body (IP66)			
		E10100AI	top steel plunger actuator	limit switch	1NO + 1NC
		E10100BI	top steel roller plunger actuator	limit switch	1NO + 1NC
		E10100CI	roller lever side action	limit switch	1NO + 1NC
		E10100DI	roller lever vertical action	limit switch	1NO + 1NC
		E10100EI	rotary roller arm lever	limit switch	1NO + 1NC
		E10100EI50	rotary Ø50 mm rubber roller arm lever	limit switch	1NO + 1NC
		E10100II	offset rotary roller arm lever	limit switch	1NO + 1NC
		E10100FI	adjustable length rotary roller arm lever	limit switch	1NO + 1NC
		E10100HI	adjustable rotary Ø6 mm rod lever	limit switch	1NO + 1NC
		E10100LI	flexible spring rod actuator rod	limit switch	1NO + 1NC
		E10100LSI	Cats whisker actuator	limit switch	1NO + 1NC
		E10101SCI	safety switch for hinges	limit switch	1NO + 1NC
		Diecast metal body (IP66)			
		E10100AM	top steel plunger actuator	limit switch	1NO + 1NC
		E10100BM	top steel roller plunger actuator	limit switch	1NO + 1NC
		E10100CM	roller lever side action	limit switch	1NO + 1NC
		E10100DM	roller lever vertical action	limit switch	1NO + 1NC
		E10100EMRA	rotary (metal) roller arm lever	limit switch	1NO + 1NC
		E10100IMRA	offset rotary (metal) roller arm lever	limit switch	1NO + 1NC
		E10100IM50	rotary Ø50 mm rubber roller arm lever	limit switch	1NO + 1NC
		E10100FM	adjustable length rotary roller arm lever	limit switch	1NO + 1NC
		E10100HM	adjustable rotary Ø6 mm rod lever	limit switch	1NO + 1NC
		E10100LM	flexible spring rod actuator rod	limit switch	1NO + 1NC
		E10100LSM	Cats whisker actuator	limit switch	1NO + 1NC
		E300 series - Industrial limit switches		(IP66)	diecast metal body
		Body dimensions:	(H) 89.5 x (W) 52 x (D) 33.5 mm	fixing hole distance: 40 mm	
		Cable entry:	2 side + 1 x bottom entry - M20 x 1.5		
		E30100AM	top steel plunger actuator	limit switch	1NO + 1NC
		E30100BM	top steel roller plunger actuator	limit switch	1NO + 1NC
		E30100CM	roller lever side action	limit switch	1NO + 1NC
		E30100DM	roller lever vertical action	limit switch	1NO + 1NC
		E30100EMRA	rotary (metal) roller arm lever	limit switch	1NO + 1NC
		E30100IMRA	offset rotary (metal) roller arm lever	limit switch	1NO + 1NC
		E30100IM50	rotary Ø50 mm rubber roller arm lever	limit switch	1NO + 1NC
		E30100FM	adjustable length rotary roller arm lever	limit switch	1NO + 1NC
		E30100HM	adjustable rotary Ø6 mm rod lever	limit switch	1NO + 1NC
		E30100LM	flexible spring rod actuator rod	limit switch	1NO + 1NC
		E30100LSM	Cats whisker actuator	limit switch	1NO + 1NC
		E400 series - Industrial limit switches		(IP66)	diecast metal body - CENELEC EN50041
		Body dimensions:	(H) 89.5 x (W) 52 x (D) 33.5 mm	fixing hole distance: 2 x 30 mm	
		Cable entry:	1 x bottom entry - M20 x 1.5		
		E40100AM	top steel plunger actuator	limit switch	1NO + 1NC
		E40100BM	top steel roller plunger actuator	limit switch	1NO + 1NC
		E40100CM	roller lever side action	limit switch	1NO + 1NC
		E40100DM	roller lever vertical action	limit switch	1NO + 1NC
		E40100EMRA	rotary (metal) roller arm lever	limit switch	1NO + 1NC
		E40100IMRA	offset rotary (metal) roller arm lever	limit switch	1NO + 1NC
		E40100IM50	rotary Ø50 mm rubber roller arm lever	limit switch	1NO + 1NC
		E40100FM	adjustable length rotary roller arm lever	limit switch	1NO + 1NC
		E40100HM	adjustable rotary Ø6 mm rod lever	limit switch	1NO + 1NC
		E40100LM	flexible spring rod actuator rod	limit switch	1NO + 1NC
		E40100LSM	Cats whisker actuator	limit switch	1NO + 1NC



E40108TBM



E10101SCI



ELEM00



Z5



PDNS11BX10



PPKS11BX10



PDKS11BX10



LK20K13

Safety limit switches

- Protection degree: IP66
- Body Material: Plastic or Metal body limit switches
- Rated thermal current: 10A lthe (IEC947-5-1)
- Mechanical life: 20 million operations

type	actuator type	description	contact
Pull wire safety switches guarantee the safety of operator who is able to control the immediate stop of machinery at any point in the operating zone. 1) Tension wire until both contacts are in the closed position 2) When wire is pulled one contact (A) opens and switch is latched (<i>resettable via front button</i>) 3) If wire breaks, the other contact (B) opens <i>Both contacts should be wired in series</i>			
E10108TBI	latching (<i>resettable by button</i>) pull wire	plastic limit switch	1NO + 1NC
E40108TBM	latching (<i>resettable by button</i>) pull wire	metal limit switch	1NO + 1NC
Key actuated switches 5 way key actuated switches are used on gates, sliding doors and other devices to protect access to dangerous parts of machines. The key is applied to the moving protection barrier and has to be removed from the switch on every opening thus operating a positive opening or the NC contact.			
E10101S5I	key actuated safety switch	plastic limit switch	1NO + 1NC
Hinge operated switches used to guarantee operator safety, applied to machinery fitted with protection barriers with application directly to the hinge of the enclosure. The switches hinged socket accepts an 8 mm shaft.			
E10101SCI	safety switch for hinges	plastic limit switch	1NO + 1NC
Spare contact blocks for all limit switches			
ELEM00	standard snap action	contact block	1NO+1NC
ELEM03	slow action	contact block	2NO

Accessories for above limit switches

- Z5 angled key for key actuated safety limit switches
- Z51 straight key for key actuated safety limit switches
- Z52 adjustable key for key actuated safety limit switches

Note: For pull wire switch accessories (see page K-32)



Industrial foot switches (IP65)

EMAS foot operated switches are ideal for all industrial applications. They are supplied as open type or with plastic or diecast foot protection, preventing inadvertent operation. Internal cams are provided to accommodate up to 3 x contact blocks, two with simultaneous operation and one with delayed switching, ideal for two speed operations.

- Mechanical life: 1.000.000 operations
- Electrical life: 100.000 operations min.
- Operating temperature: -5° - +60°C
- Rated thermal current: 10A lthe (IEC 947-51)
- Conformity to Standards: EN 60947-5-1, VDE0660, UL508

type	description	protection cover	contact configuration
Open type foot switch (IP65)			
PDNS11BX10	open type industrial foot switch	no	1NO + 1NC
Protected foot switches (IP65)			
PPKS11BX10	protected type industrial foot switch	thermoplastic	1NO + 1NC
PDKS11BX10	protected type industrial foot switch	diecast	1NO + 1NC

Contact blocks for above foot switches

Up to two additional contact blocks can added to foot switches: 1 x simultaneous operation and 1 x with delayed switching for two speed operations.

LK20K13	snap action contact block for foot switches	1NO + 1NC
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ACD...



AAB...



AEA...



AFA...



AGD...



FBA315



EDA



FAB15

type	supply voltage	max. pressure	max. temp	description
FLOW MATIC Flow switches for circulation and centrifugal pumps				
FLOW MATIC/V				<i>in-line flow switch</i>
For the control of electric pumps connected to accumulation tanks to increase flow or pressure. Controls the start-up or switching off of the motor in correspondence to water requirements, assuring a constant flow. The highly sensitive switch permits control of flow as low as three litres per minute. When a tap is opened and water flows at over three litres per minute, it starts the motor and if flow drops below three litres per minute (<i>due to closing tap or empty accumulation tank</i>) it stops the motor. Manufactured entirely of glass reinforced polyamide with brass threaded input/output joint G1 for vertical in-line connection to liquid piping. • Incorporated start button • Minimum flow: 3 litres/min. (<i>max. 90 litres/min.</i>) • Relay: 10 (4) A 250 VAC NO + NC • Start-up delay: 0...10 sec (<i>adjustable</i>)				
FBA315	220 VAC	8 BAR	85°C	in-line flow switch 1" inch pipe thread
FLOW MATIC/H10AR paddle-type flow switch				
Designed for the control of fluid movement by circulator or centrifugal electric pumps. The high sensitivity switch permits control of flow as low as 20 litres per minute. They incorporate a brass threaded G1 joint for piping from one inch and over. The electric contact is housed externally to the flow switch and is moved by a magnet located on the head of the switch. The glass reinforced polyamide paddle can be cut to size in 25 mm segments to the diameter of pipe. • Incorporated test button • Minimum flow: 20 litres/min. • Relay: 10 (4) A 250 VAC NO + NC • Start-up delay: 0...10 sec (<i>adjustable</i>)				
EDA	250 VAC	10 BAR	100°C	paddle flow switch 1" screw connection
JOLLY PUMP in-line booster pump				
JOLLY PUMP12 is a super-silent automatic electric pump designed to boost water flow to various outlets, featuring automatic starting, stopping and dry running protection in gravity feed or pressure tank systems. Installed in line with the main supply pipe to boost water flow and pressure without having to alter the main system. When a tap is turned on and flow in the pipe reaches 3 L/min the motor starts automatically, resulting in increased flow constantly until the tap is turned off. • Dimensions: (H) 272 x (W) 130 x (D) 158 mm • Minimum flow: 3 litres / min. (<i>switches pump on</i>) • Maximum flow: 20 litres / min. • Supply: 1Phase 250 VAC - 245W				
FAB15	230 VAC	1.2 BAR	60°C	245W booster pump



LS-264



LS-317



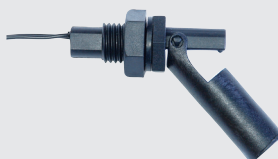
LS-064A



LS-318-1



LS-052-1



LS-147



LS-148



LS-055-1

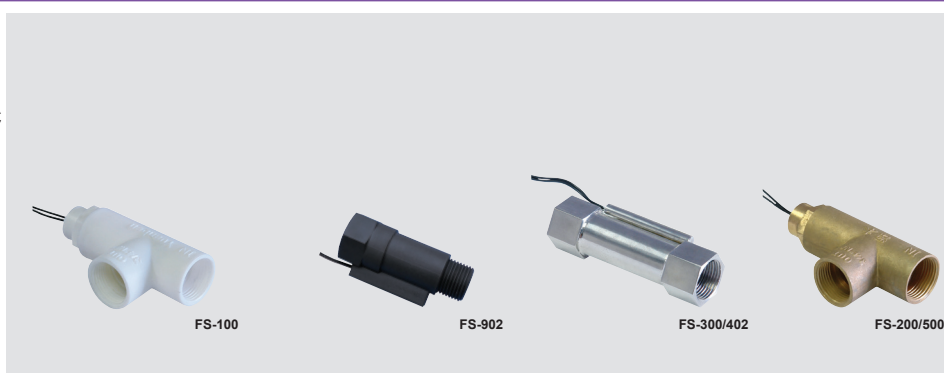
When the magnetic field (*caused by an internal permanent magnet*) is moved into the proximity of the sealed reed switch inside the stationary stem, the reed switch contacts close the electrical circuit. When the magnet is moved away from the reed switch the circuit is opened. The float switches are extremely compact, simple and easy to install and not effected by electrical interference and withstands chemicals.

Safe – convenient – low cost

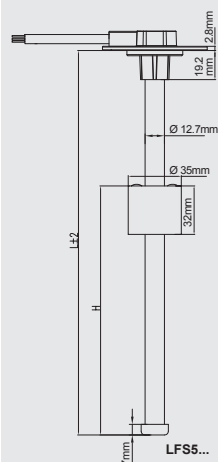
Electrical connection:	300 mm cable
Switch current:	70 VA
Switch voltage:	250 VAC / 200 VDC
Switch contact:	N.O. (<i>reversible by reversing float</i>)
Accuracy:	± 2 mm in water

type	mounting	thread size (mm)	pressure withstand	internal/ external	description
Plastic (top/bottom mount)					
- Float size: (H) 24 mm (Ø)20 mm - Material: PVC - Operating temperature: -10°C - +70°C					
Short stem float switch 36 mm internal mounting					
LS-264	top or bottom	M10	8 BAR	internal	vertical mount float switch
Long stem float switch 55 mm internal mounting					
LS-297	top or bottom	M10	8 BAR	internal	vertical mount float switch
Stainless steel - vertically mount float switches					
- Float size: (H) 28 mm (Ø)28 mm - Material: SUS 304 stainless steel - Operating temperature: -30°C - +125°C					
Short stem float switch 40 mm internal mounting					
LS-317	top or bottom	G1/8"	20 BAR	internal	vertical mount float switch
Long stem float switch 100 mm internal mounting					
LS-064A	top or bottom	G1/8"	20 BAR	internal	vertical mount float switch
Long stem float switch 100 mm external mounting					
LS-318-1	top or bottom	NPT 1"	20 BAR	external	vertical mount float switch
Bent stem (90°) float switch 75 mm internal mounting					
LS-052-1	side mount	G1/8"	20 BAR	internal	horizontal mount float switch
Nylon (side mount) hinged type					
Can be used for "high" or "low" level sensing (<i>by turning float direction "up" or "down"</i>).					
- Float size: (L) 47 mm (Ø)17 mm - Material: nylon - Operating temperature: -10°C - +75°C					
LS-147	side mount	M16	8 BAR	internal	horizontal mount float switch
LS-148	side mount	NPT 1/2"	8 BAR	external	horizontal mount float switch
Stainless steel (side mount) hinged type					
Can be used for "high" or "low" level sensing (<i>by turning float direction "up" or "down"</i>).					
- Float size: (L) 47 mm (Ø) 17 mm - Material: SUS 304 stainless steel - Operating temperature: -30°C - +125°C - Viscosity: water viscosity = 1					
LS-154-1	side mount	M16	10 BAR	internal	horizontal mount float switch
LS-055-1	side mount	NPT 1/2"	10 BAR	external	horizontal mount float switch

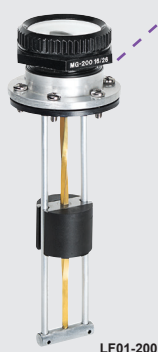
Electrical connection: 300 mm cable
Switch rating: 0.8A max
Switch current: 1.5A
Switch voltage: 250 VAC / 200 VDC
Material: Plastic
 Brass
 Stainless
Liquid medium: Clean water



type	for domestic use	heavy duty	for domestic use	heavy duty	heavy duty	heavy duty
Model	FS-100	FS-200	FS-902	FS-300	FS-402	FS-500
Fitting	NPT3/4"	NPT3/4"	1/2"NPT for inlet 1/2" NPT for outlet	NPT3/4"	NPT1/2"	NPT1/2"
Flow switches housing	plastic PPR	brass - C37700	plastic PBT	SUS304	SUS304	brass - C37700
Operating pressure	120 PSI max	150 PSI max	140 PSI max	250 PSI max	250 PSI max	150 PSI max
Temperature range	-10 - 80°C	-10 - 120°C	-10 - 105°C	-20 - 120°C	-20 - 120°C	-10 - 120°C
Medium (liquid)	clean water	clean water	clean water	clean water	clean water	clean water
Contact form	form A S.P.S.T.	form A S.P.S.T.	form A S.P.S.T.	form A S.P.S.T.	form A S.P.S.T.	form A S.P.S.T.
Canv current	1.5A	1.5A	1.0A	1.5A	1.5A	1.5A
Switch current	0.8A max	0.8A max	0.7A max	0.8A max	0.8A max	0.8A max
Switch voltage	220 VAC/DC	220 VAC/DC	220 VAC/DC	220 VAC/DC	220 VAC/DC	220 VAC/DC
Power rating	50VA	50VA	50VA	50VA	50VA	50VA
Lead wire	AWG 22, 300 mm length, U1430 lead wire free terminal	AWG 22, 300 mm length, U1430 lead wire free terminal	AWG 22, 300 mm length, U1430 lead wire free terminal	AWG 22, 300 mm length, U1430 lead wire free terminal	AWG 22, 300 mm length, U1430 lead wire free terminal	AWG 22, 300 mm length, U1430 lead wire free terminal
Operating flow rating	1.5L/min	1.10 - 8L/min	0.75 - 2L/min	1.0 - 8L/min	1.2 - 4L/min	1 - 4L/min
Setting flow value accuracy	±10%	±10%	±10%	±10%	±10%	±10%
Mounting orientation (vertical or horizontal)	As signal of flow direction mounting orientation	As signal of flow direction mounting orientation	As signal of flow direction mounting orientation at any orientation	As signal of flow direction mounting orientation	As signal of flow direction mounting orientation	As signal of flow direction mounting orientation
Maximum flow	15L/min (pressure drop is 10 PIS)	25L/min (pressure drop is 10 PIS)	10L/min (pressure drop is 10 PIS)	10L/min (pressure drop is 10 PIS)	10L/min (pressure drop is 10 PIS)	15L/min (pressure drop is 10 PIS)
Wire colour	black colour	black colour	black colour	black colour	black colour	black colour
Mounting shock	30g for 11ms duration	30g for 11ms duration	30g for 11ms duration	30g for 11ms duration	30g for 11ms duration	30g for 11ms duration
Mounting vibration	35 to 500Hz	35 to 500Hz	35 to 500Hz	35 to 500Hz	35 to 500Hz	35 to 500Hz
Duration of cycle	100.000 cycles	100.000 cycles	100.000 cycles	100.000 cycles	100.000 cycles	100.000 cycles



Red	Signal (out)
Black	Common (input)
White	Low level alarm output



LFS5 series - Fuel level sensor (IP67)

S5 series level sensors employ a magnetic field principle to sense the fuel level depth and to operate the low level alarm signal. The sensors feature long life, unaffected by vibration and are anti explosive.

- Low level alarm contact: 500 mA
- Output signal: 0 - 190 Ω or 4-20mA
- Accuracy: 12 mm

Material: Main body made of SU316 stainless steel

Mounting: Standard SAE 5 hole mounting flange (supplied with M5 screws and NBR gasket)

type	sensor length	output signal	supply	description
0 - 190Ω resistance output		-40°C - +85°C		
LFS5-150	150 mm	0 - 190 Ω	—	magnetic fuel level sensor
LFS5-200	200 mm	0 - 190 Ω	—	magnetic fuel level sensor
LFS5-250	250 mm	0 - 190 Ω	—	magnetic fuel level sensor
LFS5-300	300 mm	0 - 190 Ω	—	magnetic fuel level sensor
LFS5-350	350 mm	0 - 190 Ω	—	magnetic fuel level sensor
LFS5-400	400 mm	0 - 190 Ω	—	magnetic fuel level sensor
LFS5-500	500 mm	0 - 190 Ω	—	magnetic fuel level sensor
LFS5-600	600 mm	0 - 190 Ω	—	magnetic fuel level sensor
LFS5-800	800 mm	0 - 190 Ω	—	magnetic fuel level sensor
LFS5-1000	1000 mm	0 - 190 Ω	—	magnetic fuel level sensor
LFS5-1200	1200 mm	0 - 190 Ω	—	magnetic fuel level sensor
LFS5-1400	1400 mm	0 - 190 Ω	—	magnetic fuel level sensor
LFS5-1600	1600 mm	0 - 190 Ω	—	magnetic fuel level sensor
LFS5-2000	2000 mm	0 - 190 Ω	—	magnetic fuel level sensor

4 - 20mA output		supply voltage: 24 - 32V		-40°C - +85°C
LFS5-150/4-20	150 mm	4 - 20mA	24 VDC	magnetic fuel level sensor
LFS5-200/4-20	200 mm	4 - 20mA	24 VDC	magnetic fuel level sensor
LFS5-300/4-20	300 mm	4 - 20mA	24 VDC	magnetic fuel level sensor
LFS5-400/4-20	400 mm	4 - 20mA	24 VDC	magnetic fuel level sensor
LFS5-500/4-20	500 mm	4 - 20mA	24 VDC	magnetic fuel level sensor
LFS5-600/4-20	600 mm	4 - 20mA	24 VDC	magnetic fuel level sensor
LFS5-800/4-20	800 mm	4 - 20mA	24 VDC	magnetic fuel level sensor
LFS5-1000/4-20	1000 mm	4 - 20mA	24 VDC	magnetic fuel level sensor
LFS5-1200/4-20	1200 mm	4 - 20mA	24 VDC	magnetic fuel level sensor
LFS5-1400/4-20	1400 mm	4 - 20mA	24 VDC	magnetic fuel level sensor
LFS5-1600/4-20	1600 mm	4 - 20mA	24 VDC	magnetic fuel level sensor
LFS5-2000/4-20	2000 mm	4 - 20mA	24 VDC	magnetic fuel level sensor

Other lengths available on request

LFTN series - Fuel tank level sensors (IP67)

LFTN series sensors employ a magnet field principle to sense fuel level depth and to operate a low level alarm signal. The sensor also incorporates a suction pipe, return pipe and breather pipe into the same mounting flange as the sensor.

type	sensor length	output signal	fuel pipes (bulge fitting)			description
			suction	return	breather	
LFTN-150	150 mm	0 - 190 Ω	10 mm	10 mm	6 mm	fuel level sensor
LFTN-200	200 mm	0 - 190 Ω	10 mm	10 mm	6 mm	fuel level sensor
LFTN-250	250 mm	0 - 190 Ω	10 mm	10 mm	6 mm	fuel level sensor
LFTN-300	300 mm	0 - 190 Ω	10 mm	10 mm	6 mm	fuel level sensor
LFTN-400	400 mm	0 - 190 Ω	10 mm	10 mm	6 mm	fuel level sensor
LFTN-500	500 mm	0 - 190 Ω	10 mm	10 mm	6 mm	fuel level sensor
LFTN-600	600 mm	0 - 190 Ω	10 mm	10 mm	6 mm	fuel level sensor
LFTN-700	700 mm	0 - 190 Ω	10 mm	10 mm	6 mm	fuel level sensor

LF01 series - Mechanical fuel level gauges (aluminium alloy) -40°C - +85°C

LF01 mechanical fuel gauges work on a float connected to a swivel rod which indicates fuel level as the float adjusts to the fuel level.

- Mounting: 6 hole mounting flange (M45x2 thread to accept gauge)

LF01-150	150 mm	gauge	mechanical fuel level gauge
LF01-200	200 mm	gauge	mechanical fuel level gauge
LF01-250	250 mm	gauge	mechanical fuel level gauge
LF01-300	300 mm	gauge	mechanical fuel level gauge
LF01-400	400 mm	gauge	mechanical fuel level gauge
LF01-500	500 mm	gauge	mechanical fuel level gauge
LF01-600	600 mm	gauge	mechanical fuel level gauge
LF01-700	700 mm	gauge	mechanical fuel level gauge

LF10 series - Air pressure switches (IP20)

Pressure switches used to regulate tank pressures between two preset values on small (up to 200psi) electrically driven air compressors. Supplied with unloader valve (preventing starting under load) and manual auto-off override switch.

- Visible contact / no wire looping / ample wiring space
- Automatic unloader valve / manual "auto-off" override facility
- 2 x NC contacts 12A 240 VAC

type	operating pressure		differential range	factory setting	pipe fitting	contact rating	
	min ON	max OFF					
	PSI	PSI	PSI	PSI	female ¹⁾	240V	
LF10-1H11123-80	25	100	20-35	55-80	1/4 NPT	12A	
LF10-1H11123-115	35	150	30-40	85-115	1/4 NPT	12A	
LF10-1H11123-150	50	175	35-55	110-150	1/4 NPT	12A	

LF16 series - Water pump pressure switch (IP20)

LF16 pressure switches provide time tested, reliable control for automatic water systems. Universally accepted for use as original equipment on water well pumps or pumping systems.

- Visible contact / no wire looping / ample wiring space
- Automatic unloader valve / manual "auto-off" override facility
- 2 x NC contacts 16A 240 VAC

LF16-111-40PSI	20	80	15-30	20-40	1/4 NPT	16A	
LF16-111-50PSI	20	80	15-30	30-50	1/4 NPT	16A	
LF16-111-60PSI	20	80	15-35	40-60	1/4 NPT	16A	

LF19/18 series - Air compressor pressure switch (IP44)

Designed to regulate tank pressure between two preset values on three-phase electrically driven compressors.

- Non-metallic, corrosion-resistant cover
- Automatic unloader valve / manual "auto-off" override facility

	BAR	BAR	BAR	BAR	BAR		
LF19 - 1 phase pressure switch	2 x NC contacts 16A 250 VAC						
LF19-111121-3BAR	1	6	2.0-4.0	1-3	G1/4"	16A	
LF19-111121-4BAR	5	14	8.0-10.0	1.8-4	G1/4"	16A	
LF18 - 3 phase pressure switch	3 x NC contacts 16A 400 VAC						
LF18-111121-5BAR	2	8	1.0-3.0	3.8-5	G1/4"	16A	
LF18-111121-7BAR	3	11	1.4-4.0	5.6-7	G1/4"	16A	
LF18-111121-10BAR	4	16	1.8-4.5	8-10	G1/4"	16A	

Note: 1 BAR = 14.5 PSI

¹⁾ Other pipe fittings available on request

LF55 series - Pressure switch for refrigeration systems

LF55 series pressure switches are used with fluorinated refrigerants to control the pressure of compressors in refrigeration system, can also used in air and water applications.

- Medium: Refrigerant, air, water, oil -10 - +100°C
- Contact: SPDT 10A 250 VAC

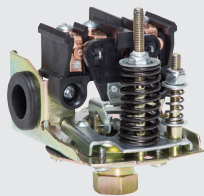
	BAR	BAR	BAR	BAR		fitting	250V	
				OFF	ON			
LF5503	-0.5	3	0.35-1.5	2.0	1.0	M12 X 1.25	10A	
LF5506	-0.5	6	0.6-4	3.0	2.0	M12 X 1.25	10A	
LF5510	1	10	1-3	6.0	5.0	M12 X 1.25	10A	
LF5516	3	16	1-4	10.0	8.0	M12 X 1.25	10A	
LF5520	5	20	2-5	16.0	13.0	M12 X 1.25	10A	

FS series - Liquid flow switches (paddle type)

Designed for managing liquid flow changes of water, ethylene glycol or other non-hazardous liquids in pipes. When liquid flow is higher or lower than pre-set value a SPDT switch operates.

- Supplied with 3 fitted paddles for Ø25 - 75 mm pipes + spare for pipes up to Ø 200 mm
- Adjustable flow setting for different requirements
- Brass 1" NPT connection (available in stainless steel for ammonia and other medium)
- Max liquid pressure: 1 BAR - can be used in multiple applications

FS51	IP33	paddle type liquid flow switch	1" NPT	10A
FS52	IP55	paddle type liquid flow switch	1/2" NPT	10A



LF16-1...



LF18-1...



LF55...



FS52



Q01-4



Q05-4



8011-3



QA31-4



AH-0217



AH-03127-BS



NQ418

Photoelectric smoke detectors

type	supply voltage	standby current	alarm	description
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Q series smoke detectors

EN54 compliant

- Dual, bicolour LEDs (green: standby / red: alarm) offer 360° sensing
- Standard detector (4 wire) with relay output 0.8A - 30 VDC / 0.4A - 250 VAC
- Made of high endurance, solid and colour-fast fire-proof plastic
- Termination base (*with captive screws*) for easy installation
- Passed strict EMC tests, illuminating false alarms caused by interference from nearby devices

Smoke detector (Ø)102 mm x (H) 48 mm

Q01-4* 12 - 30 VDC 25 - 75µA 45 mA photoelectric smoke detector

Combination smoke and heat detector (Ø)102 mm x (H) 54 mm

Q05-4* 12 - 30 VDC 55 - 85µA 45 mA combination smoke + heat detector

8011 series smoke detectors

EN54 compliant

- Dual LEDs offer 360° sensing
- Standard detector 2 wire – available in 4 wire (relay output) on request
- Made of high endurance, solid and colour-fast fire-proof plastic
- Termination base (with captive screws) for easy installation

Smoke detector (Ø)102 mm x (H) 47 mm

8011-3* 12 - 30 VDC 25 - 75µA 40 mA photoelectric smoke detector

Accessories for above smoke detectors

06MB Flush mount frame for sensors Q01-4, Q05-4, 8011-3

QA31 series single station smoke detector

EN54 compliant

- Advanced photoelectric technology for precise detection
- Equipped with 9 VDC battery and 220 VAC power plug
- Low-battery warning (flashing LED indicates battery replacement)
- Built-in manual test button, buzzer (90dB/met.) and flashing LED
- Standard detector (4 wire) with relay output 0.8A- 30 VDC / 0.4A - 250 VAC
- Independent stand-alone device – can be installed without any wiring

Single station smoke detector (Ø)105 mm x (H) 40 mm

QA31-4 100 - 220 VAC and/or 9V battery supply photoelectric smoke detector

Manual call point “in case of fire” break-glass devices

- Surface mount with plastic film on glass (H) 88 x (W) 88 x (D) 52 mm
- Test key inserts from bottom
- Suitable for majority of conventional fire alarm systems
- Operating contact 6A 250 VAC

AH-0217* emergency “break glass” manual call point enclosure

Audible and visual indicating devices

Audible sounder and beacon IP44

Electronic sounder designed for use with fire alarm, security and industrial signalling systems.

- 32 - signal tones selectable by Dip switch
- High sound output with low current consumption
- Volume control as standard (0 - 20dB adjustable)
- Two sets of input and output terminals for easy installation

AH-03127-S* 24 VDC 14.5mA surface mount (Ø92.5 mm) electronic sounder

AH-03127-BS* 24 VDC 14.5mA electronic sounder and illuminated beacon

Fire alarm bell

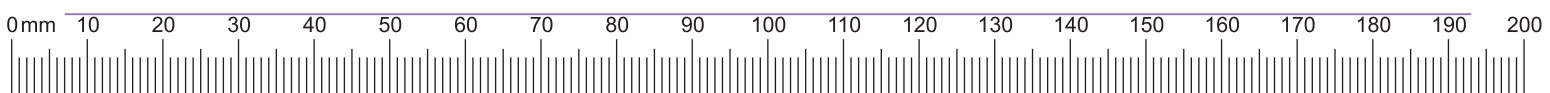
- Bell with ABS plastic base for easy mounting and total insulation from electricity
- Motor energised, low power consumption, long operating life

NQ418* 24 VDC 28mA 4" (100 mm) bell 90dB @1met

NQ618* 24 VDC 28mA 6" (152 mm) bell 90dB @1met

* Work in conjunction with fire control system

Notes

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



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EZI CANAL
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