

K

FIELD SWITCHING & SENSING

K

	Proximity sensors	K-1...4 K-11 K-12	MD EM Delta
	Photoelectric sensors	K-5...8/10 K-12 K-13...15/17	MD Delta Panasonic
	Vibration / Inclination sensors	K-4	MD
	Ultrasonic sensors	K-9	MD
	Fork sensors	K-10	MD
	Fibre-optic sensors	K-15...16	Panasonic
	Mark / Colour sensors	K-18	Panasonic
	Laser sensors / Distance measurement	K-18	Panasonic
	Pressure transmitters / Sensors	K-19...21 K-28 K-29	Huba Delta Lefoo
	Flow sensors / Switches	K-22 K-36 K-38	Huba Matic EM
	Sensor connectors and cables	K-23...24	EM
	Temperature controllers	K-25...26	Delta
	Thermocouples / RTD sensors	K-27	EM
	Micro switches / Limit switches	K-30 K-31 K-33...34	EM Lovato Ersce
	Pull lever switch / Foot switch	K-32 K-34	Lovato Emas
	Float switches	K-35	Matic
	Liquid / Fuel level sensors	K-37/39	EM
	Occupancy sensors	K-40	Hager

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



AB1/AP-3A



AD1/AP-3A



AE1/CP-1A



AE6/AP-3A



AM6/AP-3H

type	supply voltage	flush		sensing distance	NPN	PNP	NO	NC	connector	body length (mm)	price
		flush	non flush								
M4 proximity switches (long sensing distance)											
Long sensing range											
cable connection (2 m)											
AB1/AP-3A	10 - 30 VDC	•		1 mm		•	•		cable	22	1 289.20
AB1/CP-3A	10 - 30 VDC	•		1 mm		•		•	cable	22	1 289.20
M5 proximity switches (long sensing distance)											
Long sensing range											
cable connection (2 m)											
AD1/AP-3A	10 - 30 VDC	•		1.5 mm		•	•		cable	30	828.03
AD1/CP-3A	10 - 30 VDC	•		1.5 mm		•		•	cable	30	868.28
M8 proximity switches											
Standard sensing range											
cable connection (2 m)											
AE1/AP-1A	10 - 30 VDC	•		1.5 mm		•	•		cable	46	486.47
AE1/CP-1A	10 - 30 VDC	•		1.5 mm		•		•	cable	46	486.47
AE1/AP-2A	10 - 30 VDC		•	2.5 mm		•	•		cable	46	486.47
AE1/CP-2A	10 - 30 VDC		•	2.5 mm		•		•	cable	46	486.47
Long sensing range											
AE6/AP-3A*	10 - 30 VDC	•		2 mm		•	•		cable	36	587.67
AE6/CP-3A*	10 - 30 VDC	•		2 mm		•		•	cable	36	587.67
AE6/AP-4A*	10 - 30 VDC		•	4 mm		•	•		cable	36	587.67
AE6/CP-4A*	10 - 30 VDC		•	4 mm		•		•	cable	36	587.67
M8 (3pin) plug connection											
AE6/AP-3F*	10 - 30 VDC	•		2 mm		•	•		M8 plug	40	627.92
AE6/CP-3F*	10 - 30 VDC	•		2 mm		•		•	M8 plug	40	627.92
AE6/AP-4F*	10 - 30 VDC		•	4 mm		•	•		M8 plug	40	627.92
AE6/CP-4F*	10 - 30 VDC		•	4 mm		•		•	M8 plug	40	627.92
M12 proximity switches											
Standard sensing range											
cable connection (2 m)											
AM1/AP-1A	10 - 30 VDC	•		2 mm		•	•		cable	50	446.22
AM1/CP-1A	10 - 30 VDC	•		2 mm		•		•	cable	50	446.22
AM1/AN-1A	10 - 30 VDC	•		2 mm		•	•		cable	50	446.22
AM1/CN-1A	10 - 30 VDC	•		2 mm		•		•	cable	50	446.22
AM1/AP-2A	10 - 30 VDC		•	4 mm		•	•		cable	50	446.22
AM1/CP-2A	10 - 30 VDC		•	4 mm		•		•	cable	50	446.22
AM1/AN-2A	10 - 30 VDC		•	4 mm		•	•		cable	50	446.22
AM1/CN-2A	10 - 30 VDC		•	4 mm		•		•	cable	50	446.22
Long sensing range											
AM6/AP-3A*	10 - 30 VDC	•		4 mm		•	•		cable	40	547.42
AM6/CP-3A*	10 - 30 VDC	•		4 mm		•		•	cable	40	547.42
AM6/AP-4A*	10 - 30 VDC		•	8 mm		•	•		cable	40	547.42
AM6/CP-4A*	10 - 30 VDC		•	8 mm		•		•	cable	40	547.42
M12 (4pin) plug connection											
AM6/AP-3H*	10 - 30 VDC	•		4 mm		•	•		M12 plug	53	587.67
AM6/CP-3H*	10 - 30 VDC	•		4 mm		•		•	M12 plug	53	587.67
AM6/AP-4H*	10 - 30 VDC		•	8 mm		•	•		M12 plug	53	587.67
AM6/CP-4H*	10 - 30 VDC		•	8 mm		•		•	M12 plug	53	587.67
2 wire version											
M12 (4pin) plug connection											
AM1/A0-1H	10 - 30 VDC	•		2 mm		•	•	•	M12 plug	75	583.07
AM1/A0-2H	10 - 30 VDC	•	•	4 mm		•	•	•	M12 plug	75	583.07
AM1/A0-3H*	10 - 30 VDC	•		4 mm		•	•	•	M12 plug	75	729.13
AM1/A0-4H*	10 - 30 VDC	•		8 mm		•	•	•	M12 plug	75	729.13
NO + NC output											
M12 (4pin) plug connection											
AM1/BP-1H	10 - 30 VDC	•		2 mm		•	•	•	M12 plug	65	588.82
AM1/BP-2H	10 - 30 VDC	•		4 mm		•	•	•	M12 plug	75	588.82

* Long sensing range

Note: For NPN version, replace the "P" with "N" Cables and M8/12 connectors (see page K-23 / 24)

Inductive proximity sensors - Ø M12 and M18

type	supply voltage	flush	non flush	sensing distance	NPN	PNP	NO	NC	connector	body length (mm)	price
------	----------------	-------	-----------	------------------	-----	-----	----	----	-----------	------------------	-------

M12 proximity switches

Decout version	NPN/PNP/NO/NC (on one sensor)	M12 (4pin) plug connection	body length (mm)	price
PM3/00-1H	10 - 30 VDC	•	74	917.73
PM3/00-2H	10 - 30 VDC	•	74	917.73
AC version				
		cable connection		
VM2/A0-1B	20 - 253 VAC	•	72	1 112.09
VM2/C0-1B	20 - 253 VAC	•	72	1 112.09
VM2/A0-2B	20 - 253 VAC	•	72	1 112.09
VM2/C0-2B	20 - 253 VAC	•	72	1 112.09



PM3/00-1H

For food and beverage applications

			M12 (4pin) plug connection	body length (mm)	price
PFM1/BP-3H*	10 - 30 VDC	•	M12 plug	65	1 095.99
PFM1/BP-4H*	10 - 30 VDC	•	M12 plug	65	1 139.69

Cables and M12 connectors (see page K-23 / 24)

M18 cylindrical proximity switches

Standard sensing range		cable connection - 3 wire (2m)	body length (mm)	price
AK1/AP-1A	10 - 30 VDC	•	50	526.72
AK1/CP-1A	10 - 30 VDC	•	50	526.72
AK1/AN-1A	10 - 30 VDC	•	50	526.72
AK1/CN-1A	10 - 30 VDC	•	50	526.72
AK1/AP-2A	10 - 30 VDC	•	50	526.72
AK1/CP-2A	10 - 30 VDC	•	50	526.72
AK1/AN-2A	10 - 30 VDC	•	50	526.72
AK1/CN-2A	10 - 30 VDC	•	50	526.72



AK1/CP-1A

Short body - NO + NC		cable connection - 4 wire (2m)	body length (mm)	price
AK6/BP-1A	10-30 VDC	•	39	600.32
AK6/BN-1A	10-30 VDC	•	39	600.32
AK6/BP-2A	10-30 VDC	•	39	672.78
AK6/BN-2A	10-30 VDC	•	39	672.78

Long sensing range - NO + NC		M12 (4pin) plug connection	body length (mm)	price
AK6/BP-3H*	10 - 30 VDC	•	49	777.43
AK6/BN-3H*	10 - 30 VDC	•	49	777.43
AK6/BP-4H*	10 - 30 VDC	•	49	777.43
AK6/BN-4H*	10 - 30 VDC	•	49	777.43

2 wire version		M12 (4pin) plug connection	body length (mm)	price
AK1/A0-1H	10 - 30 VDC	•	64	670.48
AK1/A0-2H	10 - 30 VDC	•	64	670.48
AK1/A0-3H*	10 - 30 VDC	•	64	809.63
AK1/A0-4H*	10 - 30 VDC	•	64	809.63

Decout version	NPN/PNP/NO/NC (on one sensor)	M12 (4pin) plug connection	body length (mm)	price
PK3/00-1H	10 - 30 VDC	•	72	1 001.69
PK3/00-2H	10 - 30 VDC	•	72	1 001.69

AC version		cable connection	body length (mm)	price
VK2/A0-1B	20 - 253 VAC	•	77	1 059.19
VK2/C0-1B	20 - 253 VAC	•	77	1 059.19
VK2/A0-2B	20 - 253 VAC	•	77	1 059.19
VK2/C0-2B	20 - 253 VAC	•	77	1 059.19



PK3/00-1H

For food and beverage applications

			M12 (4pin) plug connection	body length (mm)	price
PFK1/BP-3H*	10 - 30 VDC	•	M12 plug	63	1 334.05
PFK1/BP-4H*	10 - 30 VDC	•	M12 plug	63	1 404.20

* Long sensing range

Cables and M12 connectors (see page K-23 / 24)

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°C...+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 (mm)	price
------	----------------	-------	-----------	------------------	-----	-----	----	----	-----------	------------------	-------

M30 cylindrical proximity switches

Standard sensing range

type	supply voltage	flush	non flush	sensing distance	NPN	PNP	NO	NC	connector	body length (mm)	price
AT1/AP-1A	10 - 30 VDC	•		10 mm		•	•		cable	60	658.98
AT1/CP-1A	10 - 30 VDC	•		10 mm		•		•	cable	60	658.98
AT1/AN-1A	10 - 30 VDC	•		10 mm	•		•		cable	60	658.98
AT1/CN-1A	10 - 30 VDC	•		10 mm	•			•	cable	60	658.98
AT1/AP-2A	10 - 30 VDC		•	15 mm		•	•		cable	60	658.98
AT1/CP-2A	10 - 30 VDC		•	15 mm		•		•	cable	60	658.98
AT1/AN-2A	10 - 30 VDC		•	15 mm	•		•		cable	60	658.98
AT1/CN-2A	10 - 30 VDC		•	15 mm	•			•	cable	60	658.98

Long sensing range - NO + NC

type	supply voltage	flush	non flush	sensing distance	NPN	PNP	NO	NC	connector	body length (mm)	price
AT6/BP-3H*	10 - 30 VDC	•		15 mm		•	•	•	M12 plug	44	936.13
AT6/BP-4H*	10 - 30 VDC		•	20 mm		•	•	•	M12 plug	44	936.13
AT6/BN-3H*	10 - 30 VDC	•		15 mm	•		•	•	M12 plug	44	936.13
AT6/BN-4H*	10 - 30 VDC		•	20 mm	•		•	•	M12 plug	44	936.13

2 wire version

type	supply voltage	flush	non flush	sensing distance	NPN	PNP	NO	NC	connector	body length (mm)	price
AT1/A0-1H	10 - 30 VDC	•		10 mm	•	•	•		M12 plug	76	1 032.74
AT1/A0-2H	10 - 30 VDC		•	15 mm	•	•		•	M12 plug	76	1 032.74
AT1/A0-3H*	10 - 30 VDC	•		15 mm	•	•	•		M12 plug	76	1 113.24
AT1/A0-4H*	10 - 30 VDC		•	20 mm	•	•	•		M12 plug	76	1 113.24

AC version

type	supply voltage	flush	non flush	sensing distance	NPN	PNP	NO	NC	connector	body length (mm)	price
VT2/A0-1B	20 - 253 VAC	•		10 mm	TRIAC		•		cable	80	1 444.45
VT2/C0-1B	20 - 253 VAC	•		10 mm	TRIAC			•	cable	80	1 444.45
VT2/A0-2B	20 - 253 VAC		•	15 mm	TRIAC		•		cable	80	1 444.45
VT2/C0-2B	20 - 253 VAC		•	15 mm	TRIAC			•	cable	80	1 444.45

* Long sensing range Cables and M12 connectors (see page K-23 / 24)

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 digitalisation)

M12 proximity switches

type	supply voltage	flush	non flush	sensing distance	0-10V	4-20mA	connector	body length (mm)	price
AM1/D2-5H	15 - 30 VDC	•		0...6 mm	0-10V	4-20mA	M12 plug	60	3 512.21

M18 proximity switches

type	supply voltage	flush	non flush	sensing distance	0-10V	4-20mA	connector	body length (mm)	price
AK6/D2-5H	15 - 30 VDC	•		0...10 mm	0-10V	4-20mA	M12 plug	49	3 682.42

Rectangular housing inductive proximity switches

8 x 8 x 40 mm rectangular body

type	supply voltage	flush	non flush	sensing distance	NPN	PNP	NO	NC	connector	body length (mm)	price
IL8/AP-3A	10 - 30 VDC	•		2 mm		•	•		cable	40	740.63
IL8/CP-3A	10 - 30 VDC	•		2 mm		•		•	cable	40	740.63
IL8/AN-3A	10 - 30 VDC	•		2 mm	•		•		cable	40	740.63
IL8/CN-3A	10 - 30 VDC	•		2 mm	•			•	cable	40	740.63

28 x 10 x 16 mm rectangular body

(aligns with standard mechanical micro switch)

type	supply voltage	flush	non flush	sensing distance	NPN	PNP	NO	NC	connector	body length (mm)	price
IL1/AP-3A	10 - 30 VDC	•		3 mm		•	•		cable	28	624.47
IL1/CP-3A	10 - 30 VDC	•		3 mm		•		•	cable	28	624.47
IL1/AN-3A	10 - 30 VDC	•		3 mm	•		•		cable	28	624.47
IL1/CN-3A	10 - 30 VDC	•		3 mm	•			•	cable	28	624.47



AT6/BP-3H



AT6/BP-4H



AM1/D2-5H



IL8/AP-3A



IL1/AP-3A



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°C...+85°C
- LED indication: Incorporated
- Housing material: Thermoplastic polyester

type	supply voltage	flush	non flush	sensing distance	NPN	PNP	NO	NC	connector	body length (mm)	price						
M12 Capacitive proximity switches M12 (4pin) plug connection																	
<ul style="list-style-type: none"> • 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	1 650.31						
M18 Capacitive proximity switches M12 (4pin) plug connection																	
<ul style="list-style-type: none"> • Adjustable sensitivity via potentiometer • Standard output: NO and NC 																	
C18P/BP-1E	10 - 40 VDC	•		3...8 mm		•	•	•	M12 plug	84	1 588.20						
C18P/BN-1E	10 - 40 VDC		•	3...8 mm	•		•	•	M12 plug	84	1 588.20						
C18P/BP-2E	10 - 40 VDC		•	3...12 mm		•	•	•	M12 plug	92	1 516.90						
C18P/BN-2E	10 - 40 VDC	•		3...12 mm	•		•	•	M12 plug	92	1 516.90						
AC version cable connection																	
C18P/A0-1A	20 - 250 VAC	•		3...8 mm	SCR		•		cable	87	2 012.57						
C18P/C0-1A	20 - 250 VAC		•	3...8 mm	SCR		•		cable	87	2 012.57						
C18P/A0-2A	20 - 250 VAC		•	3...12 mm	SCR		•		cable	95	1 941.27						
C18P/C0-2A	20 - 250 VAC	•		3...12 mm	SCR		•		cable	95	1 941.27						
M30 Capacitive proximity switches M12 (4pin) plug connection																	
<ul style="list-style-type: none"> • Adjustable sensitivity via potentiometer • Standard output: NO and NC 																	
C30P/BP-1E	10 - 40 VDC	•		2...16 mm		•	•	•	M12 plug	79	1 941.27						
C30P/BN-1E	10 - 40 VDC		•	2...16 mm	•		•	•	M12 plug	79	1 941.27						
C30P/BP-2E	10 - 40 VDC		•	4...25 mm		•	•	•	M12 plug	91	1 834.31						
C30P/BN-2E	10 - 40 VDC	•		4...25 mm	•		•	•	M12 plug	91	1 834.31						
AC version cable connection																	
C30P/00-1A	20 - 250 VAC	•		2...16 mm	SCR		•	•	cable	79	2 393.23						
C30P/00-2A	20 - 250 VAC		•	4...25 mm	SCR		•	•	cable	91	2 214.97						
Cubic capacitive sensors (flat pack housing)																	
<ul style="list-style-type: none"> • 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	2 131.02						
CQ55/BN-3E	10 - 40 VDC		•	4...25 mm	•		•	•	M12 plug	58	2 131.02						
M18 VBR/INC series - Vibration and inclination sensor IP67																	
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.																	
<ul style="list-style-type: none"> • Programmable operating range: <table border="1" style="display:inline-table; vertical-align:middle;"><tr><td>VBR</td></tr><tr><td>±2g, ±4g, ±8g, ±16g</td></tr></table> • Reference axis: <table border="1" style="display:inline-table; vertical-align:middle;"><tr><td>INC</td></tr><tr><td>360° - 0.025° resolution</td></tr></table> • Frequency range: <table border="1" style="display:inline-table; vertical-align:middle;"><tr><td>3 (X, Y, Z)</td></tr><tr><td>0 ... 400Hz</td></tr></table> • Fully programmable in all its functions, thresholds, alarms and node addresses • 1 output RS485 (<i>addressable</i>) 57600 Baud rate - 1 bit stop - parity • 1 analogue output (<i>programmable voltage or current</i>) 												VBR	±2g, ±4g, ±8g, ±16g	INC	360° - 0.025° resolution	3 (X, Y, Z)	0 ... 400Hz
VBR																	
±2g, ±4g, ±8g, ±16g																	
INC																	
360° - 0.025° resolution																	
3 (X, Y, Z)																	
0 ... 400Hz																	
VBR1/D0-3A	24 VDC	vibration sensor			0 - 10V	4-20mA	cable		40.5	5 429.32							
INC1/D0-3A	24 VDC	inclination sensor			0 - 10V	4-20mA	cable		50.5	6 539.11							
Mounting accessories for VBR/INC sensors																	
ST18-S	bracket	M18 mounting bracket/housing for above VBR/INC sensor									119.61						
ST18-V	bracket	M18 metal mounting bracket for above VBR/INC sensor									92.01						

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°C...+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	price
------	----------------	------------------	----------	------------------	-----------------	--------------	-----------------------	-----	-----	----	----	-----------	-------

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	978.69
FAR2/BP-0A	10 - 30 VDC	•					100 mm		•	•	•		cable	978.69
FAI6/BN-0A	10 - 30 VDC	•					400 mm	•		•	•		cable	1 076.44
FAI6/BP-0A	10 - 30 VDC	•					400 mm		•	•	•		cable	1 076.44
FAI6/BN-2E*	10 - 30 VDC	•					400 mm	•		•	•		M12 plug	1 267.34
FAI6/BP-2E*	10 - 30 VDC	•					400 mm		•	•	•		M12 plug	1 267.34
FAI7/BN-0E	10 - 30 VDC	•	•				400 mm	•		•	•		M12 plug	1 267.34
FAI7/BP-0E	10 - 30 VDC	•	•				400 mm		•	•	•		M12 plug	1 267.34
FAI8/BN-2E*	10 - 30 VDC	•	•				800 mm	•		•	•		M12 plug	1 610.06
FAI8/BP-2E*	10 - 30 VDC	•	•				800 mm		•	•	•		M12 plug	1 610.06
FAI8/BN-0E	10 - 30 VDC	•	•				1000 mm	•		•	•		M12 plug	1 381.20
FAI8/BP-0E	10 - 30 VDC	•	•				1000 mm		•	•	•		M12 plug	1 381.20

With adjustable background suppression														
FARS/BP-0E	10 - 30 VDC	•	•				30...130		•	•	•		M12 plug	2 097.67
FARW/BP-0E	10 - 30 VDC	•	•				35...300		•	•	•		M12 plug	2 545.03

Retro-reflective		used together with a reflector												
FAIC/BN-0A	10 - 30 VDC			•			5 meters	•		•	•		cable	1 005.14
FAIC/BP-0A	10 - 30 VDC			•			5 meters		•	•	•		cable	1 005.14
FAIC/BN-2E*	10 - 30 VDC			•			4 meters	•		•	•		M12 plug	1 196.04
FAIC/BP-2E*	10 - 30 VDC			•			4 meters		•	•	•		M12 plug	1 196.04

Retro-reflective (polarised)		used together with a reflector												
FARP/BN-0A	10 - 30 VDC				•		4 meters	•		•	•		cable	1 183.39
FARP/BP-0A	10 - 30 VDC				•		4 meters		•	•	•		cable	1 183.39

Through beam (receiver)		requires a emitter and receiver												
FAIZ/BN-0A	10 - 30 VDC					•	20 meters	•		•	•		cable	937.28
FAIZ/BP-0A	10 - 30 VDC					•	20 meters		•	•	•		cable	937.28
FAIZ/BP-2E*	10 - 30 VDC					•	15 meters		•	•	•		M12 plug	1 104.04
FAIH/00-0A	10 - 30 VDC					•	20 meters		emitter			cable	806.18	
FAIH/00-2E*	10 - 30 VDC					•	15 meters		emitter			M12 plug	998.24	

* 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	1 861.91
MV2/C0-0A	20 - 253 VAC	•					100 mm	TRIAC		•			cable	1 861.91
MV4/A0-0A	20 - 253 VAC	•					200 mm	TRIAC	•				cable	1 861.91
MV4/C0-0A	20 - 253 VAC	•					200 mm	TRIAC		•			cable	1 861.91
MV6/A0-0A	20 - 253 VAC	•					400 mm	TRIAC	•				cable	1 947.02
MV6/C0-0A	20 - 253 VAC	•					400 mm	TRIAC		•			cable	1 947.02

Retro-reflective		used together with a reflector												
MVC/A0-0A	20 - 253 VAC			•			4 meters	TRIAC	•				cable	1 947.02
MVC/C0-0A	20 - 253 VAC			•			4 meters	TRIAC		•			cable	1 947.02

Through beam (receiver)		requires a transmitter and receiver												
MVR/A0-0A	20 - 253 VAC					•	16 meters	TRIAC	•				cable	1 743.46
MVR/C0-0A	20 - 253 VAC					•	16 meters	TRIAC		•			cable	1 743.46
MVE/00-0A	20 - 253 VAC					•	16 meters		emitter			cable	1 405.35	

Mounting accessories (see page K-8) Cables and M8/12 connectors (see page K-23 / 24)
 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.

- Sensitivity: Adjustable (*trimmer*)
- Ambient limits: -25°C...+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	price
------	----------------	----------	------------------	-----------------	--------------	-----------------------	-----	-----	----	----	-----------	-------

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)

QMRS/0P-0F*	10 - 30 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	30...200	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M8 plug	1 990.72
QMR7/0N-0F	10 - 30 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	400 mm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M8 plug	1 606.61
QMR7/0P-0F	10 - 30 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	400 mm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M8 plug	1 606.61
QMR8/0N-0F	10 - 30 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 meter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M8 plug	1 676.76
QMR8/0P-0F	10 - 30 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 meter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M8 plug	1 676.76
QMI9/0P-0F	10 - 30 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.5 meters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M8 plug	1 774.51

* With adjustable background suppression

Retro-reflective

used together with a reflector

QMIC/0N-0F	10 - 30 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7 meter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M8 plug	1 788.31
QMIC/0P-0F	10 - 30 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7 meter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M8 plug	1 788.31

Retro-reflective (polarised)

used together with a reflector

QMRN/0N-0F	10 - 30 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5 meter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M8 plug	1 788.31
QMRN/0P-0F	10 - 30 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5 meter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M8 plug	1 788.31

Retro-reflective

(transparent objects)

QMRL/0N-0F	10 - 30 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0.4...4 met	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M8 plug	2 108.02
QMRL/0P-0F	10 - 30 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0.4...4 met	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M8 plug	2 108.02

Through beam

(transmitter and receiver kit)

QMRHD/0N-0F	10 - 30 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20 meter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M8 plug	2 741.69
QMRHD/0P-0F	10 - 30 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20 meter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M8 plug	2 741.69

QF series - For food and beverage applications 11 x 21 x 31.4 mm

- M8 (4pin) plug connection
- -26°C...+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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20...200	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M8 plug	2 326.53
QFRS/BP-1F*	10 - 30 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	25...200	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M8 plug	2 954.45
QFR8/BP-1F	10 - 30 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0.1...1met	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M8 plug	2 371.38

* With adjustable background suppression

Retro-reflective (polarised)

used together with a reflector

QFRN/BP-1F	10 - 30 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6 meter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M8 plug	2 371.38
-------------------	-------------	--------------------------	--------------------------	--------------------------	--------------------------	---------	--------------------------	--------------------------	--------------------------	--------------------------	---------	-----------------

Accessories for above QM / QF series

ST 101	metal	vertical mounting L shaped bracket for sensors	QM/QF	132.26
ST 102	metal	side mounting vertical L bracket for sensors	QM/QF	132.26
ST 103	metal	vertical mount with protective cover bracket for	QM/QF	323.17
ST 104	metal	horizontal mount protective cover bracket for	QM/QF	250.71
STQMO	adaptor	vertical/horizontal diaphragms (0.5-1-2) for	QM/QF	424.37

Mounting accessories (see page K-8) Cables and M8/12 connectors (see page K-23 / 24)

Note: Reflectors sold separately, see page K-8



QMR7/0P-0F



QMRN/0N-0F



QMIC/0N-0F



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.

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

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)
- Mounting: Bracket included

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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0.3...2 m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	M12 plug	1 735.41
Q50IS/B0-0E*	10 - 30 VDC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120...500	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	M12 plug	3 162.60

* With adjustable background suppression

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

Q50RN/B0-0E	10-30 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0.2...6 m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	M12 plug	1 941.27
--------------------	-----------	--------------------------	--------------------------	-------------------------------------	--------------------------	-----------	-------------------------------------	-------------------------------------	-------------------------------------	-------------------------------------	----------	-----------------

Through beam *(receiver) requires a transmitter and receiver*

Q50ID/B0-0E	10 - 30 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20 meter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	M12 plug	1 582.45
Q50IH/00-0E	10 - 30 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20 meter	emitter			M12 plug	1 334.05	

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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0.3...2 m	SPDT			cable	2 093.07
--------------------	---------------	-------------------------------------	--------------------------	--------------------------	--------------------------	-----------	------	--	--	-------	-----------------

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

Q50RN/0T-0A	multi-voltage	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0.3...6 m	SPDT			cable	2 297.78
--------------------	---------------	--------------------------	--------------------------	-------------------------------------	--------------------------	-----------	------	--	--	-------	-----------------

Through beam *(receiver) requires a transmitter and receiver*

Q50ID/0T-0A	multi-voltage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20 meter	SPDT			cable	2 042.47
Q50IH/0T-0A	multi-voltage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20 meter	emitter			cable	1 381.20



Q50I8/B0-0E



Q50RN/0T-0A

type	supply voltage	diffused	retro-reflective	polarised retro	through-beam	sensing distance (mm)	NPN	PNP	NO	NC	connector	price	
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	2 739.39	
QX3/C0-1A	10 - 30 VDC	•				300 mm	•	•		•	cable	2 739.39	
Retro-reflective		<i>used together with a reflector</i>											
QXC/A0-1A	10 - 30 VDC		•			5 meter	•	•	•		cable	2 794.59	
QXC/C0-1A	10 - 30 VDC		•			5 meter	•	•		•	cable	2 794.59	
Through beam (receiver)		<i>requires a transmitter and receiver</i>											
QXR/A0-1A	10 - 30 VDC				•	8 meter	•	•	•		cable	2 739.39	
QXR/C0-1A	10 - 30 VDC				•	8 meter	•	•		•	cable	2 739.39	
QXX/00-1A	10 - 30 VDC				•	8 meter	emitter				cable	1 826.26	
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	2 202.32	
BS8/00-0C	10 - 30 VDC	•				1.6 meter	•	•	•	•	cable	2 269.03	
BV4/00-0C	20 - 253 VAC	•				200 mm	TRIAC		•	•	cable	2 743.99	
BV6/00-0C	20 - 253 VAC	•				400 mm	TRIAC		•	•	cable	2 845.19	
Retro-reflective		<i>used together with a reflector</i>											
BSC/00-0C	10 - 30 VDC		•			8 meter	•	•	•	•	cable	2 202.32	
BVC/00-0C	20 - 253 VAC		•			8 meter	TRIAC		•	•	cable	2 845.19	
<i>Mounting accessories - (below) Cables and M8/12 connectors (see page K-23 / 24)</i>													
Accessories for proximity / photoelectric / ultrasonic sensor													
ST300D	tester	device for all DC proximity/photoelectric/ultrasonic devices										2 693.39	
Mounting accessories for sensors													
ST 02	plastic	adjustable swivel mounting bracket for all									M18 sensors	238.06	
ST 18-A	metal	axial mounting bracket for all									M18 sensors	33.24	
ST 18-C	metal	right angled mounting bracket for all									M18 sensors	44.86	
ST 30-A	metal	axial mounting bracket for all									M30 sensors	89.71	
ST 30-C	metal	right angled mounting bracket for all									M30 sensors	111.56	
ST 01	metal	mounting bracket for rectangular sensors									BS - BV	43.71	
ST 80	metal	top mount bracket for rectangular sensors									RX	93.16	
ST 81	metal	side mount bracket for rectangular sensors									RX	93.16	
ST 101	metal	vertical mounting L shaped bracket for sensors									QM/QF	132.26	
ST 102	metal	side mounting vertical L bracket for sensors									QM/QF	132.26	
ST 103	metal	vertical mount with protective cover bracket for									QM/QF	323.17	
ST 104	metal	horizontal mount protective cover bracket for									QM/QF	250.71	
STQMO	adaptor	vertical/horizontal diaphragms (0.5-1-2) for									QM/QF	424.37	
ST 03	adaptor	right angled beam adaptor for photoelectric									M18 sensors	296.71	
ST 03U	adaptor	right angled beam deflector for ultrasonic									M18 sensors	810.78	
Reflectors for Photoelectric switches													
							(H)	(W)	(D)	Ø			
RL 103	02232510	round	reflector	-	7.4	-	-	-	-	34.5		158.71	
RL 104	02292510	round	reflector	-	-	6.5	46					173.66	
RL 110	80392510	round	reflector	-	-	7.3	84					187.46	
RL 113G	00042510	square	reflector	61	51	8	-					201.26	
RL 107	03132510	square	reflector	100	100	9	-					373.77	
RL 112G	03312510	rectangular	reflector	73	19	8.2	-					201.26	
RL 116	00082510	rectangular	reflector	60	40	8	-					244.96	

Field switching & sensing



UQ1A/G6-0E



UK6A/HP-0EUL



UK6A/H1-0EUL



UK1D/G6-0ESY



UT2F/G6-0ESY



UT5L/G6-1ESY

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°C... +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	price
------	----------------	-----------------------	-------------	-----	-----	----	----	---------	----------	-----------	-------

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	3 568.57
UQ1C/G6-0E	10 - 30 VDC	60...800	ultrasonic sensor		•	•	•		•	M12 plug	3 770.97
UQ1D/G6-0E	10 - 30 VDC	80...1.200	ultrasonic sensor		•	•	•		•	M12 plug	4 242.49
UQ1A/G7-0E	10 - 30 VDC	40...300	ultrasonic sensor	•	•	•	•			M12 plug	3 568.57
UQ1C/G7-0E	10 - 30 VDC	60...800	ultrasonic sensor		•	•	•		•	M12 plug	3 770.97
UQ1D/G7-0E	10 - 30 VDC	80...1.200	ultrasonic sensor		•	•	•		•	M12 plug	4 242.49

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	3 251.16
UK6C/HP-0EUL	10 - 30 VDC	60...800	ultrasonic sensor		•	•				M12 plug	3 373.06
UK6D/HP-0EUL	10 - 30 VDC	80...1.200	ultrasonic sensor		•	•				M12 plug	3 820.42

Analog output

UK6A/H1-0EUL	10 - 30 VDC	40...300	ultrasonic sensor					•		M12 plug	3 563.97
UK6C/H1-0EUL	10 - 30 VDC	60...800	ultrasonic sensor					•		M12 plug	3 684.72
UK6D/H1-0EUL	10 - 30 VDC	80...1.200	ultrasonic sensor					•		M12 plug	4 133.23
UK6A/H2-0EUL	10 - 30 VDC	40...300	ultrasonic sensor						•	M12 plug	3 563.97
UK6C/H2-0EUL	10 - 30 VDC	60...800	ultrasonic sensor						•	M12 plug	3 684.72
UK6D/H2-0EUL	10 - 30 VDC	80...1.200	ultrasonic sensor						•	M12 plug	4 133.23

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	6 417.21
UK1D/G7-0ESY	10 - 30 VDC	150...1.600	ultrasonic sensor		•	•	•		•	M12 plug	6 417.21
UK1F/G6-0ESY	10 - 30 VDC	200...2.200	ultrasonic sensor	•	•	•	•			M12 plug	7 474.09
UK1F/G7-0ESY	10 - 30 VDC	200...2.200	ultrasonic sensor		•	•	•		•	M12 plug	7 474.09

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	7 598.29
UT1B/G7-0ESY	10 - 30 VDC	250...3.500	ultrasonic sensor		•	•	•	•	•	M12 plug	7 598.29
UT2F/G6-0ESY	10 - 30 VDC	350...6.000	ultrasonic sensor	•	•	•	•	•		M12 plug	12 259.39
UT2F/G7-0ESY	10 - 30 VDC	350...6.000	ultrasonic sensor		•	•	•	•	•	M12 plug	12 259.39
UT5L/G6-1ESY	10 - 30 VDC	600...8.000	ultrasonic sensor	•	•	•	•	•		M12 plug	17 331.05
UT5L/G7-1ESY	10 - 30 VDC	600...8.000	ultrasonic sensor		•	•	•	•	•	M12 plug	17 331.05

Mounting accessories (see page K-8) Cables and M8/12 connectors (see page K-23 / 24)

Photoelectric area and fork sensors												
type	supply voltage	diffused	retro-reflective	polarised retro	through-beam	sensing distance (mm)	NPN	PNP	NO	NC	connector	price
CR0 series - Area sensors												
CR0 series retroreflective polarised area sensors						IP67 (EN60529)						
CR0 area sensors are retroreflective and work in junction with RL106G reflector (<i>supplied</i>). 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	4 779.55
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 (<i>trimmer</i>)								
		LED indication:		Green (<i>supply</i>) - red (<i>alarm sync.</i>) - yellow (<i>area stable</i>)								
		Supply protection:		Polarity reversal, transient, short circuit (<i>auto reset</i>)								
		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	7 275.13
		BX10 area sensor		10 optics - 10 mm optic step								
BX10SR/0A-HB	10... 26 VDC			•		0.3...2 met	•	•	•		M12 plug	9 314.15
Available with 4 and 6 meter sensing distances on request. <i>Note: Available in IP69K version (food and beverage) on request</i> Cables and M8/12 connectors (see page K-23 / 24)												
FC series - Fork sensors												
type	supply voltage	slit/fork		NPN	PNP	NO	NC	connector	price			
		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	2 479.48		
FC5R/DP-0806-1F	12...24 VDC	60 mm	•	80 mm		•	•		M8 plug	2 647.39		
FC5R/DP-1212-1F	12...24 VDC	124 mm	•	120 mm		•	•		M8 plug	3 067.15		
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	4 306.89		
FC6I/0B-0306-1F	12...24 VDC	59 mm	•	30 mm	•	•	•	•	M8 plug	4 411.54		
FC6I/0B-0506-1F	12...24 VDC	59 mm	•	50 mm	•	•	•	•	M8 plug	4 474.80		
FC6I/0B-0510-1F	12...24 VDC	95 mm	•	50 mm	•	•	•	•	M8 plug	5 041.76		
FC6I/0B-0806-1F	12...24 VDC	59 mm	•	80 mm	•	•	•	•	M8 plug	4 937.11		
FC6I/0B-0810-1F	12...24 VDC	95 mm	•	80 mm	•	•	•	•	M8 plug	5 252.22		
FC7/8 series - Fork sensors for label detection												
		Minimum object detection:		2 mm (<i>gap between labels</i>) / 2 mm (<i>label size</i>)								
		FC7: Photoelectric type label detection (<i>opaque labels</i>)										
		FC8: Ultrasonic type label detection (<i>transparent labels</i>)										
FC7I/0B-M304-0F	12...24 VDC	42 mm	•	3 mm	•	•	•	•	M8 plug	2 520.88		
FC8U/0B-M307-1F	12...24 VDC	69 mm	•	3 mm	•	•	•	•	M8 plug	12 305.39		
Cables and M8/12 connectors (see page K-23 / 24)												



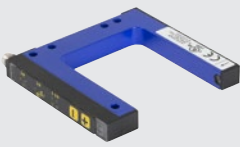
CR0/0B-1V



BX10SR/0A-HB



FC5R/DP-0506-1F



FC6I/0B-0506-1F



FC7I/0B-M304-0F

Field switching & sensing

new



LE40XZ...



LE40SZ...



LE80XZ...



LR12XA...



LR18XA...



CR18XSCN...

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 vibration. They are commonly mounted on machine tools, textile machines, transport systems, packaging machines and all automation applications.

- Protection degree: IP65/67
- Ambient limits: -25°C... +70°C
- LED indication: Incorporated
- Supply protection: Polarity reversal, short circuit, power surge

type	supply voltage	flush	non flush	sensing distance	PNP	NPN	NO	NC	connector	body length (mm)	price
------	----------------	-------	-----------	------------------	-----	-----	----	----	-----------	------------------	-------

Rectangular housing inductive proximity switches IP67

40 x 40 mm rectangular body

DC standard version

terminal block connection

LE40XZSF15DPR-D	10-30 VDC	•		15 mm	•	•	•	•	terminal	120	1 052.29
LE40XZSN20DPR-D	10-30 VDC		•	20 mm	•	•	•	•	terminal	129	1 052.29
LE40XZSN20DNR-D	10-30 VDC		•	20 mm		•	•	•	terminal	129	1 052.29

Short body version

M12 plug connection

LE40SZSN20DPR-E2	10-30 VDC		•	20 mm	•		•	•	M12 plug	66	1 052.29
------------------	-----------	--	---	-------	---	--	---	---	----------	----	----------

AC version

terminal block connection

LE40XZSN20ATO-D	20-250 VAC		•	20 mm			•		terminal	129	1 107.49
-----------------	------------	--	---	-------	--	--	---	--	----------	-----	----------

80 x 80 x 50 mm square body terminal block connection IP67

DC version

LE80XZSN50DPR-D	10-30 VDC		•	50 mm	•		•	•	terminal	98	2 226.47
-----------------	-----------	--	---	-------	---	--	---	---	----------	----	----------

AC version

LE80XZSN50ATO-D	20-250 VAC		•	50 mm			•	•	terminal	98	2 282.83
-----------------	------------	--	---	-------	--	--	---	---	----------	----	----------

NAMUR proximity switches (ATEX approved) IP67

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

LR12XAF02FLCN	8.2 VDC	•		2 mm				•	cable	31	660.13
LR12XAN04FLCN	8.2 VDC		•	4 mm				•	cable	35	660.13

M18 cylindrical body

LR18XAF05FLCN	8.2 VDC	•		5 mm				•	cable	32	716.48
LR18XAN08FLCN	8.2 VDC		•	8 mm				•	cable	40	716.48

Capacitive proximity sensors IP67

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.

M18 - Capacitive proximity sensors

CR18XSCF08DPRY-E2	10-30 VDC	•		0...8 mm			•	•	M12 plug	70	1 554.85
CR18XSCN12DPRY-E2	10-30 VDC		•	0...12 mm	•		•	•	M12 plug	84	1 554.85
CR18XSCN12DNRY-E2	10-30 VDC		•	0...12 mm			•	•	M12 plug	84	1 554.85
CR18SCF05ATO	20-250 VAC	•		0...5 mm			•	•	cable	70	1 443.30
CR18SCN08ATO	20-250 VAC		•	0...8 mm			•	•	cable	84	1 443.30

M30 - Capacitive proximity sensors

CR30XSCF15DPRY-E2	10-30 VDC	•		0...15 mm			•	•	M12 plug	62	1 611.21
CR30XSCN25DPRY-E2	10-30 VDC		•	0...25 mm	•		•	•	M12 plug	79	1 611.21
CR30XSCN25DNRY-E2	10-30 VDC		•	0...25 mm			•	•	M12 plug	79	1 611.21
SC30SM-AE25	20-250 VAC		•	0...15 mm			•	•	cable	79	2 711.38



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°C... +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)	price
------	----------------	-------	-----------	-----------------------	-----	-----	----	----	---------------------------	-------

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	422.07
IS-E1204-BPCB2	12 - 24 VDC	•		4 mm	•			•	54	422.07
IS-N1208-BPOB2	12 - 24 VDC		•	8 mm	•		•		53	422.07
IS-N1208-BPCB2	12 - 24 VDC		•	8 mm	•			•	53	422.07

M18 cylindrical housing

with 2 meter cable connection

IS-E1808-BPOB2	12 - 24 VDC	•		8 mm	•		•		60	465.77
IS-E1808-BPCB2	12 - 24 VDC	•		8 mm	•			•	60	465.77
IS-N1812-BPOB2	12 - 24 VDC		•	12 mm	•		•		60	465.77
IS-N1812-BPCB2	12 - 24 VDC		•	12 mm	•			•	60	465.77

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	price
------	----------------	----------	------------------	--------------	-----------------------	-----	-----	----------	---------	-----------	-------

PS-F series - Flat sensor

fixed sensitivity

30 x 16 x 6.8 mm

PS-FR2-PLB2	12 - 24 VDC	•			5...50 mm	•		•		cable	763.63
PS-FR2-PDB2	12 - 24 VDC	•			5...50 mm	•			•	cable	763.63
PS-FL3-PLB2	12 - 24 VDC		•		1000 mm	•		•		cable	799.28
PS-FL3-PDB2	12 - 24 VDC		•		1000 mm	•			•	cable	799.28

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 (*switched by white wire*)

PS-LR2-USB2	12 - 24 VDC	•			5...50 mm	•	•	•	•	cable	770.53
PS-LL3-USB2	12 - 24 VDC		•		1000 mm	•	•	•	•	cable	799.28

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 + reflector

PS-RR3-PS12	12 - 24 VDC	•			300 mm	•	•	•	•	cable	734.88
PS-RR9-PS12	12 - 24 VDC	•			1000 mm	•	•	•	•	cable	734.88
PS-RL4-PS12	12 - 24 VDC		•		4.2 meters	•	•	•	•	cable	908.53
PS-RT9-PS12	12 - 24 VDC			•	12 meters	•	•	•	•	cable	1 083.34

PS-M series - Cylindrical photoelectric sensor *(with teach button)*

M18 Ø x 51 mm

PS-MR3-US22	12 - 24 VDC	•			300 mm	•	•	•	•	cable	734.88
PS-MR9-US22	12 - 24 VDC	•			1000 mm	•	•	•	•	cable	770.53
PS-ML4-US22	12 - 24 VDC		•		4.2 meters	•	•	•	•	cable	879.78



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	price
------	----------------	----------	------------------	-----------------	--------------	----------------------------	-----	-----	----------	---------	-----------	-------

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	3 317.86
EX-Z11FB-P	12 - 24 VDC				•	50	•		•		cable	3 317.86
EX-Z12FA-P	12 - 24 VDC				•	200	•		•		cable	3 317.86
EX-Z12FB-P	12 - 24 VDC				•	200	•		•		cable	3 317.86
EX-Z13FA-P	12 - 24 VDC				•	500	•		•		cable	3 317.86
EX-Z13FB-P	12 - 24 VDC				•	500	•		•		cable	3 317.86

Side sensing 15.5 x 5.5 x 6.5 mm

EX-Z11A-P	12 - 24 VDC				•	50	•		•		cable	3 317.86
EX-Z11B-P	12 - 24 VDC				•	50	•		•		cable	3 317.86
EX-Z12A-P	12 - 24 VDC				•	200	•		•		cable	3 317.86
EX-Z12B-P	12 - 24 VDC				•	200	•		•		cable	3 317.86
EX-Z13A-P	12 - 24 VDC				•	500	•		•		cable	3 317.86
EX-Z13B-P	12 - 24 VDC				•	500	•		•		cable	3 317.86

Accessories for above EX-Z sensors

MS-EXZ-1	L-shaped mounting bracket for front and side sensing	EX-Z	126.51
----------	--	------	--------

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	2 811.84
EX-22B-PN*	12 - 24 VDC	•				5...160	•		•		cable	2 811.84

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	3 345.46
EX-29B-PN*	12 - 24 VDC		•			30...200	•		•		cable	3 345.46

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	3 711.17
-----------	-------------	--	--	--	---	-------	---	--	---	---	-------	----------

Accessories for above photo switches

MSEX202	metallic right angled sensor mounting bracket	20 series	140.31
---------	---	-----------	--------

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	2 504.78
EX-32B-PN*	12 - 24 VDC	•				50	•		•		cable	2 504.78

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	4 329.89
-----------	-------------	--	--	--	---	-----	---	--	---	---	-------	----------

* 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	price
------	----------------	----------	------------------	-----------------	--------------	----------------------------	-----	-----	----------	---------	-----------	-------

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	484.17
PM-T45-P	5 - 24 VDC				•	6 mm	•	•	•	•	T type	484.17
PM-L45-P	5 - 24 VDC				•	6 mm	•	•	•	•	L type	484.17

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	1 029.29
PM2-LH10B	5 - 24 VDC	•				2.5 - 8 mm	•	•	•		solder	1 029.29
PM2-LF10	5 - 24 VDC	•				2.5 - 8 mm	•	•	•		solder	1 029.29
PM2-LF10B	5 - 24 VDC	•				2.5 - 8 mm	•	•	•		solder	1 029.29

CN-13	plug-in	connector (<i>solder terminal</i>) for PM2 sensors		PM2								32.89
-------	---------	--	--	-----	--	--	--	--	--	--	--	-------

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	748.68
CY-121B-P-Z	12 - 24 VDC	•				100 mm	•	•	•		M12 plug	748.68
CY-122A-P-Z*	12 - 24 VDC	•				600 mm	•	•	•		M12 plug	1 296.10
CY-122B-P-Z*	12 - 24 VDC	•				600 mm	•	•	•		M12 plug	1 296.10

* 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	768.23
CY-192B-P-Z	12 - 24 VDC		•			4 meters	•	•	•		M12 plug	768.23

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	1 237.44
CY-191B-P-Z	12 - 24 VDC			•		2 meters	•	•	•		M12 plug	1 237.44

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

Detects objects breaking the beam between the transmitter and the receiver

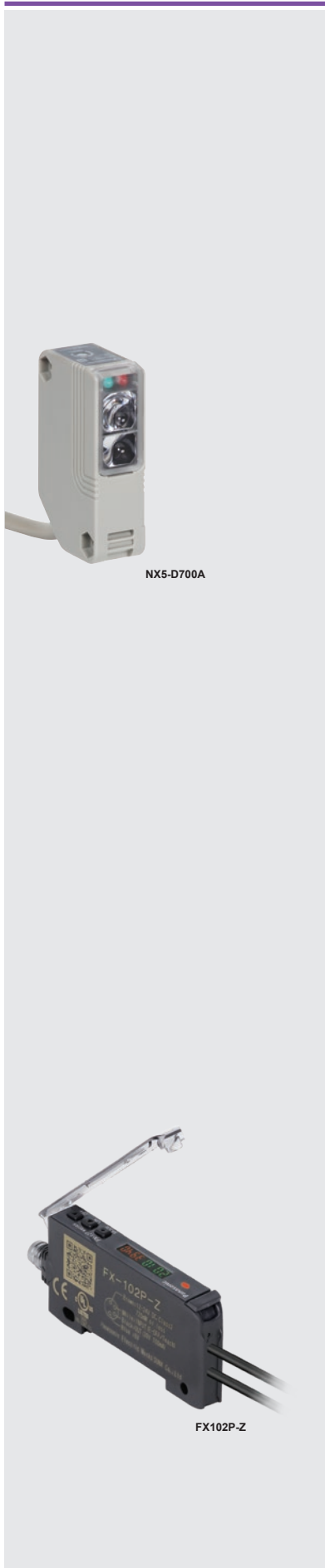
CY-111A-P-Z	12 - 24 VDC				•	15 meters	•	•	•		M12 plug	1 431.80
CY-111B-P-Z	12 - 24 VDC				•	15 meters	•	•	•		M12 plug	1 431.80

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

Accessories

MS-CY1-1		metallic right angled sensor mounting bracket	CY sensors	95.46
MS-CY1-2		adjustable (15°) right angled sensor mounting bracket	CY sensors	218.51
RF-410	50 x 47 mm	surface mounting reflector for photo sensors	CY sensors	72.46
RF-420	24 x 21 mm	surface mounting reflector for photo sensors	CY sensors	72.46

Cables and M8/12 connectors (see page K-23 / 24)



NX5-D700A

FX102P-Z

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	price
------	----------------	----------	------------------	-----------------	--------------	----------------------------	-----	-----	----------	---------	-----------	-------

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	2 504.78
NX5-D700B	24 - 240 VAC/DC	•				700			•		cable	2 504.78

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	2 730.19
NX5-RM7B	24 - 240 VAC/DC		•			7 met			•		cable	2 730.19

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	2 584.14
NX5-PRVM5B	24 - 240 VAC/DC			•		5 met			•		cable	2 584.14

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	2 730.19
NX5-M10RB	24 - 240 VAC/DC				•	10 met			•		cable	2 730.19
NX5-M30A	24 - 240 VAC/DC				•	30 met		•			cable	3 907.83
NX5-M30B	24 - 240 VAC/DC				•	30 met			•		cable	3 907.83

Accessories for above NX5 photo switches

Mounting brackets

MSNX51	metallic right angled foot mounting bracket for NX5 retro-reflective sensors	93.16
MSNX53	metallic right angled rear mounting bracket for NX5 retro-reflective sensors	93.16

Reflectors for retro-reflective sensors

RF-230	standard reflector 59 x 50.3 mm for retro-reflective sensors	235.76
---------------	--	---------------

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	price
------	----------------	----------------------------	-----	-----	----------	---------	-----------	-------

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	2 924.55
-----------------	-------------	-------------------------	---	---	---	---	---------	-----------------

Cables and M8/12 connectors (see page K-23 / 24)



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	price
------	----------------	----------------------------	-----	-----	----------	---------	-----------	-------

Amplifier for optical fibres

FX-551P	12 - 24 VDC	dependant on fibre used	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	connector	4 413.84
----------------	-------------	-------------------------	--------------------------	--------------------------	--------------------------	--------------------------	-----------	-----------------

Accessories for above FX551 amplifiers

CN-73-C2	main cable with connector for above amplifier (2 meter)						connector	382.97
CN-73-C5	main cable with connector for above amplifier (5 meter)						connector	445.07
CN-71-C2	sub cable with connector for above amplifier (2 meter)						connector	318.56

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	price
						FX102	FX551 hyper mode				

Reflective types *proximity type detection (no transmitter or reflector required)*

Cylindrical threaded body (straight) (IP67)

FD-31	M3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	140	515	yes	cylindrical	2 met	1 428.35
FD-41	M4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	140	515	yes	cylindrical	2 met	1 428.35
FD-61	M6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	410	1400	yes	cylindrical	2 met	1 428.35

Square threaded body (right angled)

FD-R31G	M3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	150	530	yes	square	2 met	2 347.23
FD-R41	M4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	170	710	yes	square	2 met	3 092.45

Protective tube (for FD series reflective fibres)

FDP-N500	M4	non-corrosive stainless steel protective tube for							0.5 met	672.78
FDP-N1000	M4	non-corrosive stainless steel protective tube for							1.0 met	770.53
FDP-N1500	M4	non-corrosive stainless steel protective tube for							1.5 met	883.23

Thru-beam types

supplied as a set with transmitter and receiver

Cylindrical threaded body (straight)

FT-31	M3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	340	1200	yes	cylindrical	2 met	1 428.35
FT-42	M4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	800	3600	yes	cylindrical	2 met	1 288.05

Square threaded body (right angled)

FT-R31	M3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	340	1000	yes	square	2 met	2 656.59
FT-R43	M4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	640	3000	yes	square	2 met	2 347.23

High temperature fibres

FT-H20-WM1	+200°C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	300	1600	no	cylindrical	1 met	8 771.33
FT-H35-M2S6	+350°C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	490	1200	no	cylindrical	2 met	12 903.41

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

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

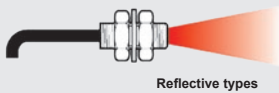
FX-LE1	M4	fibre expansion lens side view 90° beam axis							FT-42/43	338.12
FX-SV1	M4	fibre expansion lens (5 times increased sensing)							FT-42/43	546.27

Protective tube (for FT series thru-beam fibres)

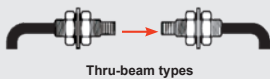
FTP-500	M4	non-corrosive stainless steel protective tube for							0.5 met	672.78
FTP-1000	M4	non-corrosive stainless steel protective tube for							1.0 met	770.53
FTP-1500	M4	non-corrosive stainless steel protective tube for							1.5 met	883.23

Fibre accessories

FX-CT1	fibre cutting tool (to cut fibres to desired length)								69.01
---------------	--	--	--	--	--	--	--	--	--------------



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	price
------	----------------	----------	------------------	-----------------	--------------	----------------------------	-----	-----	----------	---------	-----------	-------

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	<i>proximity type detection (no transmitter or reflector required)</i>											
CX-421-P-Z	12 - 24 VDC	•				300 mm	•		•	•	M8 plug	2 154.02

Retro-reflective	<i>used together with a reflector (supplied with reflector)</i>											
CX-491-P-Z*	12 - 24 VDC			•		3 meters	•		•	•	M8 plug	2 311.58
CX-493-P-Z	12 - 24 VDC		•			5 meters	•		•	•	M8 plug	2 311.58
CX-483-P-Z❖	12 - 24 VDC		•			1 meters	•		•	•	M8 plug	4 357.49

* With polarising filter ❖ For sensing transparent objects - adjustable sensing range

Thru-beam (long range)	<i>supplied as a set with transmitter and receiver</i>											
CX-411-P-Z	12 - 24 VDC				•	10 meters	•		•	•	M8 plug	2 527.78
CX-413-P-Z	12 - 24 VDC				•	30 meters	•		•	•	M8 plug	3 401.81

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	<i>for high precision detection and repeatability</i>											
CX-441-P-Z	12 - 24 VDC	•				2...50 mm	•		•	•	M8 plug	3 232.76
CX-444-P-Z	12 - 24 VDC	•				15...100 mm	•		•	•	M8 plug	3 232.76
CX-442-P-Z	12 - 24 VDC	•				20...300 mm	•		•	•	M8 plug	3 232.76

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	<i>for high precision detection and repeatability</i>											
EQ-34	10 - 30 VDC	•				2 meters	•		•	•	cable	3 991.78
EQ-34-PN	10 - 30 VDC	•				2 meters	•		•	•	cable	3 991.78

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	<i>for high precision detection and repeatability</i>											
EQ-501	24 - 240 VAC/DC	•				0.2...2.5 m	•		•	•	screw term.	4 639.25
EQ-501T	24 - 240 VAC/DC	•				0.2...2.5 m	•		•	•	screw term.	5 509.83

MS-EQ501	metallic right angled foot mounting bracket										EQ-501	155.26
MSCX21	L shaped metallic mounting bracket for sensor										CX4...	87.41

Cables and M8/12 connectors (see page K-23 / 24)



CX-493-P-Z



CX-442-P-Z



EQ-34



EQ-501



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	price
------	----------------	----------	------------------	-----------------	--------------	----------------------------	-----	-----	----------	---------	-----------	-------

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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M12 plug	8 639.08
MSLX1	bracket	metallic (side mount) mounting bracket for above									LX-101	649.78

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	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	45...300 mm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	cable	6 859.97
------------------	-------------	--------------------------	-------------------------------------	--------------------------	--------------------------	-------------	--------------------------	--------------------------	--------------------------	--------------------------	-------	-----------------

Thru-beam supplied as a set with transmitter and receiver

- Minimum sensing object - 0.03 mm

EX-L211-P	12 - 24 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1 meter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	cable	7 084.23
------------------	-------------	--------------------------	--------------------------	--------------------------	-------------------------------------	---------	--------------------------	--------------------------	--------------------------	--------------------------	-------	-----------------

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

MS-EX201	bracket	L shaped metallic mounting bracket for sensor									EX-L2...	140.31
-----------------	---------	---	--	--	--	--	--	--	--	--	----------	---------------

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-P)
- 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	price
------	----------------	---------------	----------------------------------	------------------------	-----	-----	----------	---------	-----------	-------

HG-C1030-P	12 - 24 VDC	10 µm	30	±5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	cable	21 597.68
HG-C1050-P	12 - 24 VDC	30 µm	50	±15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	cable	21 597.68
HG-C1100-P	12 - 24 VDC	70 µm	100	±35	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	cable	21 597.68
HG-C1200-P	12 - 24 VDC	200 µm	200	±80	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	cable	24 162.26
HG-C1400-P	12 - 24 VDC	300 µm	400	±200	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	cable	28 244.89

MS-HG-01 bracket for above HG-C micro laser sensors **450.82**

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-23 / 24)

Pressure transmitters/sensors *IP67*

- Compact, rugged construction
- Accuracy: $\pm 0.3\%$ fs
- Response time: < 2 ms, (1 ms typical)
- Medium temperature range: $-15^{\circ}\text{C} \dots +125^{\circ}\text{C}$ / 525 ($-15^{\circ}\text{C} \dots +85^{\circ}\text{C}$)
- 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⁾	price
------	------------------------------------	--------------	-------------------------	-------------------------------------	-------------	-----------------------------------	-------

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 ... 0 - 60 Bar (external thread)						Ø24 x 40.9 mm
528.9010033411	-1 ... 0	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	1 964.27
528.9120033411	0 ... 1.6	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	1 964.27
528.9140033411	0 ... 2.5	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	1 964.27
528.9150033411	0 ... 4	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	1 964.27
528.9170033411	0 ... 6	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	1 964.27
528.9300033411	0 ... 10	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	1 964.27
528.9310033411	0 ... 16	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	1 964.27
528.9320033411	0 ... 25	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	1 964.27
528.9330033411	0 ... 40	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	1 964.27
528.9400033411	0 ... 60	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	1 964.27

Type 525	low pressure range: 0 ... 0.05 - 0.6 Bar (internal thread)						Ø26.5 x 46.4 mm
525.9230033111	0 ... 0.16	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	4 094.13
525.9240033111	0 ... 0.20	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	4 094.13
525.9260033111	0 ... 0.30	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	4 094.13
525.9270033111	0 ... 0.40	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	4 094.13
525.9280033111	0 ... 0.60	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	4 094.13

Type 520	pressure range: 0 - 1000 Bar						Ø24 x 46.7 mm
----------	------------------------------	--	--	--	--	--	---------------

Type **520** compact pressure transmitter based on Huba Control developed thick film technology with fully welded pressure measurement cell. **Meets high burst protection demands** and is ideal for refrigeration applications suitable for use in all types of refrigerants 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"	2 162.07
520.917S033401	0 ... 6	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 162.07
520.930S033401	0 ... 10	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 162.07
520.931S033401	0 ... 16	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 162.07
520.932S033401	0 ... 25	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 162.07
520.933S033401	0 ... 40	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 162.07
520.940S033401	0 ... 60	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 162.07
520.941S033401	0 ... 100	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 628.99
520.942S033401	0 ... 160	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 628.99
520.943S033401	0 ... 250	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 628.99
520.954S033401	0 ... 400	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 628.99
520.955S033401	0 ... 600	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 628.99

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"	3 390.31
520.930S043401	0 ... 10	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	3 390.31
520.931S043401	0 ... 16	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	3 390.31
520.932S043401	0 ... 25	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	3 390.31
520.933S043401	0 ... 40	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	3 390.31
520.934S043401	0 ... 60	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	3 390.31

Accessories for transmitters *other connectors and cables see page K-23 / 24*

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)	2 463.38
---------------	--	-----------------

- 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, G1/2", G3/8", M20 x 1.5, R 1/4 to DIN 2999



528.9330033411



520.917S033401



520.917S043401



105074



548.9300152401



540.943S052401



712.913101210



713.9301013111

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-23 / 24*
- 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°C... +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⁾	price
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:		± 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"	5 719.13
548.9310152401	0 ... 16	17 - 33	4 - 20 mA	M12x1 PNP	transmitter	G 1/4"	5 719.13
548.9320152401	0 ... 25	17 - 33	4 - 20 mA	M12x1 PNP	transmitter	G 1/4"	5 719.13
548.9330152401	0 ... 40	17 - 33	4 - 20 mA	M12x1 PNP	transmitter	G 1/4"	5 719.13

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:		± 0.3 % fs					
• Overload:		3 x fs (max. 1500 Bar) rupture pressure 6 x fs (max. 2500 Bar)					
540.941S052401	0 ... 100	17 - 33	4 - 20 mA	M12x1 PNP	transmitter	G 1/4"	5 821.49
540.943S052401	0 ... 250	17 - 33	4 - 20 mA	M12x1 PNP	transmitter	G 1/4"	5 821.49
540.955S052401	0 ... 600	17 - 33	4 - 20 mA	M12x1 PNP	transmitter	G 1/4"	5 821.49

Other pressure ranges available on request.

Level sensing pressure transmitters

- Medium temperature range: -20°C... +80°C
- Accuracy: ± 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	price
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.	9 403.85
712.911103210	0.0 ... 1.0	10 - 30	4 - 20 mA	cable	transmitter	15 met.	8 047.96
712.912104210	0.0 ... 1.6	10 - 30	4 - 20 mA	cable	transmitter	20 met.	8 635.63

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.							
• Applicable in ¾ inch pipes							
• Continuous level measurement							
• Suitable for ground and drinking water							
• Excellent linearity and long term stability							
• Medium: Liquids		(suitable for drinking water and borehole application)					
713.9301013111	0 ... 10	10 - 30	4 - 20 mA	cable	transmitter	80 met.	19 964.63
713.9301015111	0 ... 10	10 - 30	4 - 20 mA	cable	transmitter	100 met.	21 563.18
713.9301016111	0 ... 10	10 - 30	4 - 20 mA	cable	transmitter	125 met.	23 541.24
713.9301017111	0 ... 10	10 - 30	4 - 20 mA	cable	transmitter	150 met.	25 530.80
713.9301018111	0 ... 10	10 - 30	4 - 20 mA	cable	transmitter	175 met.	27 543.37
713.9311018111	0 ... 16	10 - 30	4 - 20 mA	cable	transmitter	175 met.	27 543.37



699.931014010

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

- Check air flows, monitor filters and fan systems
- Measuring slightest differential pressures in ventilation and air conditioning ducts
- Pressure supervision in labs, production, storage and clean rooms (*conversion: 100 Pa = 1 mbar*)

type	pressure range (mbar) ¹⁾	supply VDC	output DC ²⁾	electrical connection ³⁾	description	pressure connection ⁴⁾	price
------	-------------------------------------	------------	-------------------------	-------------------------------------	-------------	-----------------------------------	-------

Type 699 - Differential pressure transmitter (H) 75 x (W) 92 x (D) 47.9 mm

- Medium: Air and neutral gases - temperature range: 0°C... 70°C
- Response time: < 20 ms
- Output: 4 ... 20 mA²⁾ (*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
- Supply: 13...33 VDC / 24 VAC ± 15%

699.931014010	0.3/0.5/1	13 - 33	4 - 20 mA	screw term.	transmitter	Ø6.2 mm	3 057.95
699.913014010	1/3/5	13 - 33	4 - 20 mA	screw term.	transmitter	Ø6.2 mm	3 057.95
699.915014010	5/10/16	13 - 33	4 - 20 mA	screw term.	transmitter	Ø6.2 mm	3 057.95
699.931011010	0.3/0.5/1	13 - 33	0 - 10V	screw term.	transmitter	Ø6.2 mm	3 057.95
699.913011010	1/3/5	13 - 33	0 - 10V	screw term.	transmitter	Ø6.2 mm	3 057.95
699.915011010	5/10/16	13 - 33	0 - 10V	screw term.	transmitter	Ø6.2 mm	3 057.95

As above with LCD Digital display

699.931024110	0.3/0.5/1	13 - 33	4 - 20 mA	screw term.	transmitter	Ø6.2 mm	4 388.54
699.913024110	1/3/5	13 - 33	4 - 20 mA	screw term.	transmitter	Ø6.2 mm	4 388.54
699.915024110	5/10/16	13 - 33	4 - 20 mA	screw term.	transmitter	Ø6.2 mm	4 388.54
699.931021110	0.3/0.5/1	13 - 33	0 - 10V	screw term.	transmitter	Ø6.2 mm	4 388.54
699.913021110	1/3/5	13 - 33	0 - 10V	screw term.	transmitter	Ø6.2 mm	4 388.54
699.915021110	5/10/16	13 - 33	0 - 10V	screw term.	transmitter	Ø6.2 mm	4 388.54

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



699.931024110

Accessories for type 699 above

104312	connection kit for vent duct (<i>metal</i>) 90° angled - including 2 m long tube	333.52
100064	connection kit for vent duct (<i>plastic</i>) straight - including 2 m long tube	220.81

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°C... +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	price
692.912007141	0...1	5	11-33	4 - 20 mA	DIN plug	transmitter	Ø6 mm	9 211.79
692.916007141	0...2.5	12	11-33	4 - 20 mA	DIN plug	transmitter	Ø6 mm	9 211.79
692.919007141	0...6	12	11-33	4 - 20 mA	DIN plug	transmitter	Ø6 mm	9 211.79
692.930007141	0...10	20	11-33	4 - 20 mA	DIN plug	transmitter	Ø6 mm	9 211.79

Accessories for above 692 transmitters

103510	DIN EN 175301-803-A female connector for type 692 transmitters	166.76
101999	mounting bracket (<i>including screws</i>) for type 692 transmitters	253.01



692.912007141 + 103510



210.906441K



210...



236...



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
- Flow pipe connection: External thread K connection G½ ... G1¼" (others on request)
- Electrical connection: M12 x 1 - 4 pin (supplied separately - see page K-24)
- Material: Fibreglass-reinforced plastic, sensor paddle ETFE
- Protection class: (IP65)
- Medium temperature: < +125 °C

type	nominal diameter	measuring range (l/min)	power supply	output DC ²⁾	description	connect	price
------	------------------	-------------------------	--------------	-------------------------	-------------	---------	-------

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"	3 167.20
210.908441K	DN 8	0.9 ... 15	8 - 33 VDC	4 - 20 mA	flow sensor	G ½"	3 167.20
210.910441K	DN 10	1.8 ... 32	8 - 33 VDC	4 - 20 mA	flow sensor	G ½"	3 167.20
210.915441K	DN 15	3.5 ... 50	8 - 33 VDC	4 - 20 mA	flow sensor	G ¾"	3 167.20
210.920441K	DN 20	5.0 ... 85	8 - 33 VDC	4 - 20 mA	flow sensor	G 1"	3 167.20
210.925441K	DN 25	9.0 ... 150	8 - 33 VDC	4 - 20 mA	flow sensor	G 1¼"	3 167.20

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

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

+ 470.00

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"	4 957.81
236.911441K	DN 10	2.0 ... 40	8 - 33 VDC	4 - 20 mA	flow sensor	G ½"	4 957.81
236.932441K	DN 32	14 ... 240	8 - 33 VDC	4 - 20 mA	flow sensor	G 1½"	6 455.16

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

For M12 connectors and cables see page K-24

+ 470.00

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°C...+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⁾ mbar	Pa	switch	electrical connection ³⁾	description	pressure connection ⁴⁾	price
------	-----------------------------------	----	--------	-------------------------------------	-------------	-----------------------------------	-------

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	732.58
604.9100000	0.5 ... 5	50 ... 500	1 ch/over	screw term.	pressure switch	Ø6.2 mm	732.58
604.9200000	1 ... 10	100 ... 1000	1 ch/over	screw term.	pressure switch	Ø6.2 mm	732.58
604.9400000	5... 20	500 ... 2000	1 ch/over	screw term.	pressure switch	Ø6.2 mm	732.58
604.9500000	10... 50	1000 ... 5000	1 ch/over	screw term.	pressure switch	Ø6.2 mm	732.58

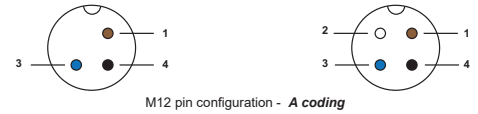
Note: Other pressure ranges available on request

Accessories for type 604 above

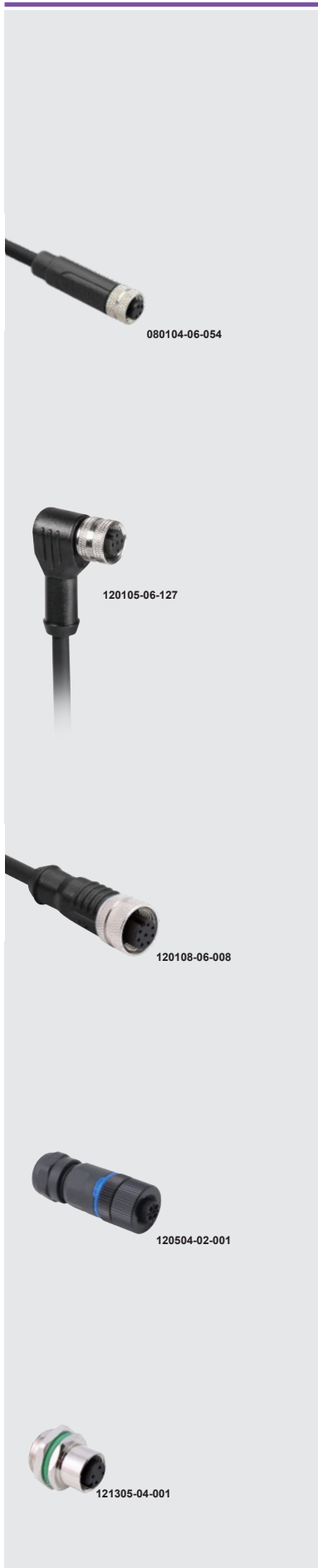
104312	connection kit for vent duct (metal) 90° angled - including 2 m long tube	333.52
100064	connection kit for vent duct (plastic) straight - including 2 m long tube	220.81

M8 and M12 - Round sensor connectors

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

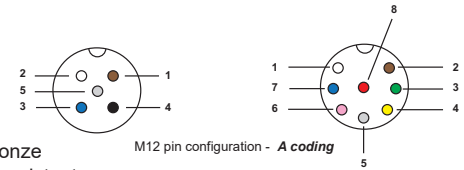


type	gender	No. pins	term.	plug angle	nominal current	rated voltage AC/DC	description	price
M8 assembly connectors (A coding) IP67/68								
• Plastic body:		PA66+GF	•		Cable Ø: Ø 3...5.5 mm			
080103-02-001	female	3	screw	straight	3A	60V	M8 connector	173.66
080104-02-001	female	4	screw	straight	3A	60V	M8 connector	177.11
080103-01-001	male	3	screw	straight	3A	60V	M8 connector	170.21
080104-01-001	male	4	screw	straight	3A	60V	M8 connector	173.66
M8 panel mount connectors (through hole) (A coding) IP67/68								
080103-04-004	female	3	cable	straight	3A	60V	M8 panel mount	181.71
080104-04-004	female	4	cable	straight	3A	60V	M8 panel mount	188.61
080103-03-003	male	3	solder	straight	3A	60V	M8 panel mount	181.71
080104-03-003	male	4	solder	straight	3A	60V	M8 panel mount	188.61
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	181.71
120104-02-022	female	4	screw	straight	4A	250V	M12 connector	186.31
120105-02-022	female	5	screw	straight	4A	60V	M12 connector	189.76
120108-02-022	female	8	screw	straight	2A	30V	M12 connector	201.26
120104-02-024	female	4	screw	90°	4A	250V	M12 connector	186.31
120105-02-024	female	5	screw	90°	4A	60V	M12 connector	189.76
120108-02-024	female	8	screw	90°	2A	30V	M12 connector	235.76
120103-01-022	male	3	screw	straight	4A	250V	M12 connector	178.26
120104-01-022	male	4	screw	straight	4A	250V	M12 connector	181.71
120105-01-022	male	5	screw	straight	4A	60V	M12 connector	186.31
120108-01-022	male	8	screw	straight	2A	30V	M12 connector	196.66
120104-01-024	male	4	screw	90°	4A	250V	M12 connector	181.71
120105-01-024	male	5	screw	90°	4A	60V	M12 connector	186.31
M12 metallic body assembly connectors (A coding) IP67/68								
• Gland:		PG9 with shield	•		Cable Ø: Ø 6...8 mm			
• Termination:		Solder terminal						
120104-02-006	female	4	solder	straight	4A	250V	M12 connector	251.86
120105-02-006	female	5	solder	straight	4A	60V	M12 connector	256.46
120108-02-006	female	8	solder	straight	2A	30V	M12 connector	272.56
120104-01-006	male	4	solder	straight	4A	250V	M12 connector	251.86
120105-01-006	male	5	solder	straight	4A	60V	M12 connector	256.46
120108-01-006	male	8	solder	straight	2A	30V	M12 connector	272.56
M12 metallic circular connectors (A coding) IP67/68								
• M16 x 1.5 rear mounting								
120104-04-001	female	4	solder	straight	4A	250V	M12 panel mount	220.81
120105-04-001	female	5	solder	straight	4A	60V	M12 panel mount	230.01
120108-04-001	female	8	solder	straight	2A	30V	M12 panel mount	254.16
120104-03-001	male	4	solder	straight	4A	250V	M12 panel mount	212.76
120105-03-001	male	5	solder	straight	4A	60V	M12 panel mount	220.81
120108-03-001	male	8	solder	straight	2A	30V	M12 panel mount	247.26
Cable multi-core sensor cable - PUR (Polyurethane)								
type	(mm ²)	cores	colour	insul.	material	wire colours	price per meter	
CA00142	0.34	3	black	cable	PUR	brown-blue-black	48.31	
CA00015	0.34	4	black	cable	PUR	brown-white-blue-black	50.61	
CA00148	0.34	5	black	cable	PUR	brown-white-blue-black-grey	54.06	
CA00103	0.25	8	black	cable	PUR	pnk-red-yel-brn-wht-blu-grm-gry	49.46	



M8 and M12 - Round sensor connectors

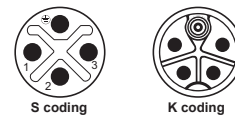
- Contact resistance: $\geq 10m\Omega$
- Protection degree: IP67/68
- Operating temperature: $-25^{\circ}C \dots +85^{\circ}C$
- Termination: Molded on cable
- Contact material: Gold plated Phosphor Brass/Bronze
- PUR cable: High flexibility, oil and abrasion resistant



type	gender	No. pins	colour	plug angle	cable material	cable length	description	price
M8 sensor cable with female connector (A coding)								
080103-06-027	female	3	black	straight	PUR	2 met.	M8 sensor cable	217.36
080103-06-020	female	3	black	straight	PUR	5 met.	M8 sensor cable	386.42
080103-06-058	female	3	black	90°	PUR	2 met.	M8 sensor cable	217.36
080103-06-024	female	3	black	90°	PUR	5 met.	M8 sensor cable	386.42
080104-06-054	female	4	black	straight	PUR	2 met.	M8 sensor cable	217.36
080104-06-029	female	4	black	straight	PUR	5 met.	M8 sensor cable	439.32
080104-06-063	female	4	black	90°	PUR	2 met.	M8 sensor cable	217.36
080104-06-036	female	4	black	90°	PUR	5 met.	M8 sensor cable	439.32
M12 sensor cable with female connector (A coding)								
120104-06-053	female	4	black	straight	PUR	2 met.	M12 sensor cable	217.36
120104-06-061	female	4	black	straight	PUR	5 met.	M12 sensor cable	439.32
120104-06-624	female	4	black	straight	PUR	7.5 met.	M12 sensor cable	531.32
120104-06-625	female	4	black	straight	PUR	10 met.	M12 sensor cable	677.38
120104-06-017	female	4	black	90°	PUR	2 met.	M12 sensor cable	217.36
120104-06-010	female	4	black	90°	PUR	5 met.	M12 sensor cable	439.32
120104-06-924	female	4	black	90°	PUR	7.5 met.	M12 sensor cable	531.32
120104-06-925	female	4	black	90°	PUR	10 met.	M12 sensor cable	677.38
120105-06-075	female	5	black	straight	PUR	2 met.	M12 sensor cable	217.36
120105-06-053	female	5	black	straight	PUR	5 met.	M12 sensor cable	439.32
120105-06-127	female	5	black	90°	PUR	2 met.	M12 sensor cable	217.36
120105-06-055	female	5	black	90°	PUR	5 met.	M12 sensor cable	439.32
120108-06-008	female	8	black	straight	PUR	2 met.	M12 sensor cable	281.76
120108-06-009	female	8	black	straight	PUR	5 met.	M12 sensor cable	476.12
120108-06-115	female	8	black	90°	PUR	2 met.	M12 sensor cable	281.76
120108-06-119	female	8	black	90°	PUR	5 met.	M12 sensor cable	476.12

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

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



type	gender	No. pins	poles	contact coding	nominal current	rated voltage	description	price
M12 power assembly connectors (S & K coding) IP67/68								
		Plastic body:		Insulation PA66+GF				
		Wire gauge:		max. 1.5 mm ²				
		Cable Ø:		Ø 3...8 mm				
120504-01-001	male	4	3+PE	S	12A	630 VAC	M12 connector	234.61
121305-01-001	male	5	4+PE	K	12A	630 VAC	M12 connector	393.32
120504-02-001	female	4	3+PE	S	12A	630 VAC	M12 connector	242.66
121305-02-001	female	5	4+PE	K	12A	630 VAC	M12 connector	420.92

M12 metallic panel mount power connectors (S & K coding) IP67/68

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

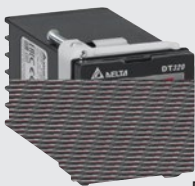
120504-03-001	male	4	3+PE	S	12A	630 VAC	M12 connector	234.61
121305-03-001	male	5	4+PE	K	12A	630 VAC	M12 connector	393.32
120504-04-001	female	4	3+PE	S	12A	630 VAC	M12 connector	242.66
121305-04-001	female	5	4+PE	K	12A	630 VAC	M12 connector	420.92



DT... series



DTK4848R01



DT320...



DT340...



DT360...

Temperature controllers

type	panel size (mm) W x H		description	output 1	output 2	price
DTK series "Economic" temperature controller			100 - 240VAC 50/60Hz	(60 mm deep)		
• Universal sensor inputs:	Thermocouple:	Type (K-J-T-E-N-R-S-B-L-U-TXK)				
	Platinum RTD:	Pt100, JPt100				
• LCD display:	Process Value (PV)	Red colour - Set point (SV) Green colour.				
• Control method:	PID, ON/OFF, Manual control mode					
• Alarms:	1 alarm output (9 selectable alarm modes)					
• Display:	High resolution LCD display					
• Speed:	High speed sampling time (100ms)					
DTK4848R01	48	48	economic temperature controller	relay (5A AC1)	-	1 140.84
DTK4848V01	48	48	economic temperature controller	12 VDC pulse	-	1 140.84
DTK4848C01	48	48	economic temperature controller	4-20mA	-	1 140.84
DTK4896R01	48	96	economic temperature controller	relay (5A AC1)	-	1 261.59
DTK4896V01	48	96	economic temperature controller	12 VDC pulse	-	1 261.59
DTK4896C01	48	96	economic temperature controller	4-20mA	-	1 261.59
DTK7272R01	72	72	economic temperature controller	relay (5A AC1)	-	1 408.80
DTK7272V01	72	72	economic temperature controller	12 VDC pulse	-	1 408.80
DTK9696R01	96	96	economic temperature controller	relay (5A AC1)	-	1 603.16
DTK9696V01	96	96	economic temperature controller	12 VDC pulse	-	1 603.16
DTA/DTB series temperature controllers						
DTA4896R0	48	96	standard temperature controller	relay	-	1 730.81
DTA9648R0	96	48	standard temperature controller	relay	-	1 730.81
DTB4824RR	48	24	advanced temperature controller	relay	relay	1 811.31

DT3 series - Advanced "high speed intelligent" temperature controller 100 - 240 VAC 50/60Hz

New DT3 series temperature controller designed with upgraded hardware and higher specifications offering smart operation, fast response, simple expandability and user-defined function keys.

- Built-in sensor input modes: Thermocouple: K, J, T, E, N, R, S, B, L, U, TXK
Platinum RTD: Pt100, JPt100, RTD: Cu50, Ni120
Analog input: 0-5 V, 0-10 V, 0-20 mA, 4-20 mA, 0-50 mV
- Various Control Modes: Auto Tuning, FUZZY, Manual, On/Off, PID Process Control, Self Tuning
- Various Output Modes: Relay, Voltage pulse, Current DC, Linear voltage
- Communication: RS-485 communication MODBUS ASCII / RTU protocol
- Display: Large 3-color LCD Display
- IP protection: IP66 protection level and CE, UL certified
- Output: Dual output control function for heating and cooling
- Detection: Heater disconnection detection
- Sampling rate: 100ms

				output 1	output 2	
DT320RA-0200	48	48	advanced temperature controller	relay		1 984.97
DT320VA-0200	48	48	advanced temperature controller	12 VDC pulse	see	1 984.97
DT340RA-0200	48	96	advanced temperature controller	relay	output 2 options (below)	2 220.72
DT340VA-0200	48	96	advanced temperature controller	12 VDC pulse		2 220.72
DT360RA-0200	96	96	advanced temperature controller	relay		2 441.53
DT360VA-0200	96	96	advanced temperature controller	12 VDC pulse		2 441.53

Note: 24 VDC (change 7th digit "A" of part number to "D" for 24 VDC application on request)

Expansion facilities and accessories for above DT3 controllers

- Max 1 extra output card
 - Max 2 optional cards
- Replace the **last 4 digits** for additional options: (first 2 digits identify the output - Last 2 digits the options)
 Example: **V213** = voltage output with event and remote set up input.
0233 = no extra control output but with retransmission output and remote set up input.

- R200	Relay output	(5A 250 VAC)	output card	DT3-R	255.31
- V200	Voltage pulse output	(14 VDC pulse)	output card	DT3-V	255.31
- C200	DC current output	(4 - 20mA)	output card	DT3-C	255.31
- L200	Linear voltage output	(0 - 10VDC)	output card	DT3-L	255.31
- 0210	Event input 1		option card	DT3-EVENT	255.31
- 0220	CT input 1		option card	DT3-CT1	255.31
- 0230	Retransmission output		option card	DT3-RETRANS	255.31
- 0203	Remote setup input		option card	DT3-REMOTE	255.31
DT3-CT30A	30A	current transformer for heater disconnection or overcurrent detection			369.17
DT3-CT100A	100A	current transformer for heater disconnection or overcurrent detection			496.82



DTM series



DTM series - Multi-Loop modular temperature controller

With increasingly complex temperature control application requirements, Delta introduces the DTM series, multi-loop modular temperature controller, designed for ease of application and installation. Data collection by host and total isolation between channels improves communication speed and stability. From hardware to software, the intuitive design enables a quick start, while advanced functions provide data management flexibility with communication address customisation.

The DTM series consists of host, measurement module, I/O module and extension cassette. A fully extended DTM group consists of a host plus 7 measurement modules and 8 I/O modules, for up to 64 points temperature control. Modules simply slide onto one another to expand the system to total user requirements for simplified wiring.

The DTM series controller is an ideal solution for advanced and complex temperature control applications, where several groups can be connected via RS-485 or Ethernet for temperature control of up to 1 000 points.

DTM series Multi-Loop modular temperature controller

type	supply voltage	temp control points	communication	description	price
Host Module CPU (H) 114 x (W) 71 x (D) 81 mm					
<ul style="list-style-type: none"> Supports up to 7 measurement modules + 8 I/O modules incorporates cassette slots to receive up to 2 extension cassettes (with 4 outputs each) Communication: RS-485 or RS-485 + Ethernet (model dependant) Internal interconnects for 24 V supply and communication signal transmission to other modules Input sensor support <ul style="list-style-type: none"> Thermocouple: K, J, T, E, N, R, S, B, L, U, TXK Platinum RTD: Pt100, JPt100, Ni120, Cu50 Analog input: 0-10 V, 0-5 V, 0-50 mV, 0-20 mA, 4-20 mA 					
DTMR04	24 VDC	4-channel	RS-485	host temperature module	5 312.02
DTMR08	24 VDC	8-channel	RS-485	host temperature module	8 020.36
DTME04	24 VDC	4-channel	RS-485 + Ethernet	host temperature module	8 202.06
DTME08	24 VDC	8-channel	RS-485 + Ethernet	host temperature module	10 910.40
UC-PRG015-01A	cable	Mini USB cable	for programming	(1.5 meter)	200.11

Measurement modules (H) 113 x (W) 70 x (D) 80 mm

DTMN04	fm host	4-channel	-	-	measurement module	5 090.06
DTMN08	fm host	8-channel	-	-	measurement module	7 799.55

I/O modules

Provide outputs for measurement modules, plug-into (cassettes) or slide-on (modules)

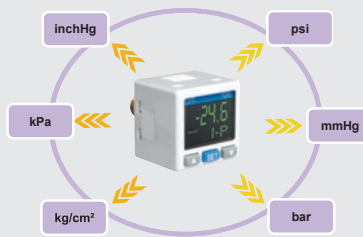
type	supply voltage	output points	outputs	description	price
Extension Cassettes - for measurement modules (H) 48 x (W) 25 x (D) 77 mm					
Plug into host and measurement modules, providing outputs (without increasing dimensions)					
DTM-BDV	fm host	4-channel	0/12 V pulse voltage	plug-in output cassette	845.28
DTM-BDR	fm host	4-channel	2 A relay contact	plug-in output cassette	845.28
DTM-BDC	fm host	4-channel	4 - 20 mA output	plug-in output cassette	845.28
DTM-BDL	fm host	4-channel	0 - 10 V output	plug-in output cassette	845.28
I/O Module clips onto host or measurement modules (H) 113 x (W) 30 x (D) 80 mm					
Slides onto right side of measurement modules, providing outputs					
DTM-DOV	fm host	8-channel	0/12 V pulse voltage	slide-on I/O Module	1 938.97
DTM-DOR	fm host	8-channel	2 A relay contact	slide-on I/O Module	1 938.97
DTM-DOC	fm host	8-channel	4 - 20 mA output	slide-on I/O Module	1 938.97
DTM-DOL	fm host	8-channel	0 - 10 V output	slide-on I/O Module	1 938.97

DTC series - "Modular" temperature controller (H) 90 x (W) 25.2 x (D) 60 mm

DTC features modular, wire-saving structure able to monitor multiple temperature points in parallel. Modular extensions, providing user configurable outputs according to actual requirements Programmable PID control allows users up to 64 groups of different temperature and control time.

<ul style="list-style-type: none"> PID, programmable PID, On/Off, Manual control Analog inputs: 0-5V, 0-10V, 0-20mA, 4-20mA, 0-50mA Communication: RS-485 communication, 2,400 - 38,400 bps 					
DTC1000R	24 VDC	2-channel	3A SPST relay	main unit temp controller	1 522.65
DTC1000C	24 VDC	2-channel	DC current, 4-20 mA	main unit temp controller	1 522.65
DTC2000R	24 VDC	2-channel	3A SPST relay	extension unit	1 522.65
DTC2000C	24 VDC	2-channel	DC current, 4-20 mA	extension unit	1 522.65

	type	sensor type	fitting type	probe type	type	cable length	description	probe dia. Ø	SUS304 length (mm)	price
(1) (2) (3)	RTD (PT100) sensors		<i>Sensor probe/tube: SUS304 material</i>							
	SJ-301/P505P	PT100	none	(1)	PVC	1 met	plain tube sensor	5	50	649.78
	SJ-301/P505P3	PT100	none	(1)	PVC	3 met	plain tube sensor	5	50	779.73
	SJ-301/P510T	PT100	none	(1)	teflon	1 met	plain tube sensor	5	100	737.18
	SJ-301/P510T3	PT100	none	(1)	teflon	3 met	plain tube sensor	5	100	931.53
	SJ-301/P520T	PT100	none	(1)	teflon	1 met	plain tube sensor	5	200	737.18
	SJ-301/P520T3	PT100	none	(1)	teflon	3 met	plain tube sensor	5	200	931.53
	SJ-302/P510T	PT100	M8 thread	(3)	teflon	1 met	threaded coupling	5	100	737.18
	SJ-302/P510T3	PT100	M8 thread	(3)	teflon	3 met	threaded coupling	5	100	931.53
	SJ-302/P520T	PT100	M8 thread	(3)	teflon	1 met	threaded coupling	5	200	737.18
SJ-302/P520T3	PT100	M8 thread	(3)	teflon	3 met	threaded coupling	5	200	931.53	
SJ-305/P520T	PT100	1/4" PT	(4)	teflon	1 met	threaded adj. coupling	5	200	1 386.95	
SJ-305/P520T3	PT100	1/4" PT	(4)	teflon	3 met	threaded adj. coupling	5	200	1 581.30	
KN-1/2PT-8-200-PT	PT100	1/2" PT	(6)	terminal box		screw terminal box	8	200	1 733.11	
KN-1/2PT-8-300-PT	PT100	1/2" PT	(6)	terminal box		screw terminal box	8	300	1 819.36	
(4) (6)	Type "J" thermocouples		<i>Sensor probe/tube: SUS304 material</i>							
	SJ-100/J505B	type J	none	(1)	braid	1 met	plain tube sensor	5	50	212.76
	SJ-100/J505B3	type J	none	(1)	braid	3 met	plain tube sensor	5	50	303.61
	SJ-100/J510B	type J	none	(1)	braid	1 met	plain tube sensor	5	100	212.76
	SJ-100/J510B3	type J	none	(1)	braid	3 met	plain tube sensor	5	100	303.61
	SJ-100/J520B	type J	none	(1)	braid	1 met	plain tube sensor	5	200	212.76
	SJ-100/J520B3	type J	none	(1)	braid	3 met	plain tube sensor	5	200	303.61
	SJ-105/J510B	type J	M8 thread	(3)	braid	1 met	threaded coupling	5	100	212.76
	SJ-105/J510B3	type J	M8 thread	(3)	braid	3 met	threaded coupling	5	100	303.61
	SJ-105/J520B	type J	M8 thread	(3)	braid	1 met	threaded coupling	5	200	212.76
SJ-105/J520B3	type J	M8 thread	(3)	braid	3 met	threaded coupling	5	200	303.61	
SJ-106/JM8B	type J	screw-in	(2)	braid	1 met	screw-in sensor	M8	-	129.96	
SJ-106/JM8B3	type J	screw-in	(2)	braid	3 met	screw-in sensor	M8	-	221.96	
SJ-107/J5BB	type J	bayonet	(5)	braid	1 met	bayonet fixing sensor	5	-	217.36	
SJ-107/J5BB3	type J	bayonet	(5)	braid	3 met	bayonet fixing sensor	5	-	308.21	
KN-1/2PT-8-200-J	type J	1/2" PT	(6)	terminal box		screw terminal box	8	200	1 559.45	
KN-1/2PT-8-300-J	type J	1/2" PT	(6)	terminal box		screw terminal box	8	300	1 645.71	
(5)	Type "K" thermocouples		<i>Sensor probe/tube: SUS304 material</i>							
	SJ-100/K505B	type K	none	(1)	braid	1 met	plain tube sensor	5	50	190.91
	SJ-100/K505B3	type K	none	(1)	braid	3 met	plain tube sensor	5	50	281.76
	SJ-100/K510B	type K	none	(1)	braid	1 met	plain tube sensor	5	100	190.91
	SJ-100/K510B3	type K	none	(1)	braid	3 met	plain tube sensor	5	100	281.76
	SJ-100/K520B	type K	none	(1)	braid	1 met	plain tube sensor	5	200	190.91
	SJ-100/K520B3	type K	none	(1)	braid	3 met	plain tube sensor	5	200	281.76
	SJ-105/K510B	type K	M8 thread	(3)	braid	1 met	threaded coupling	5	100	190.91
	SJ-105/K510B3	type K	M8 thread	(3)	braid	3 met	threaded coupling	5	100	281.76
	SJ-105/K520B	type K	M8 thread	(3)	braid	1 met	threaded coupling	5	200	190.91
SJ-105/K520B3	type K	M8 thread	(3)	braid	3 met	threaded coupling	5	200	281.76	
SJ-106/KM8B	type K	screw-in	(2)	braid	1 met	screw-in sensor	M8	-	129.96	
SJ-106/KM8B3	type K	screw-in	(2)	braid	3 met	screw-in sensor	M8	-	221.96	
SJ-107/K5BB	type K	bayonet	(5)	braid	1 met	bayonet fixing sensor	5	-	217.36	
SJ-107/K5BB3	type K	bayonet	(5)	braid	3 met	bayonet fixing sensor	5	-	308.21	
KN-1/2PT-8-200-K	type K	1/2" PT	(6)	terminal box		screw terminal box	8	200	1 559.45	
KN-1/2PT-8-300-K	type K	1/2" PT	(6)	terminal box		screw terminal box	8	300	1 645.71	
Thermocouple wire		<i>supplied in any length - priced per meter</i>								
RTD/T19W	PT100	teflon		teflon coated wire		19/0.13RTD-AFF-3C	(per meter)			129.96
TC-IC-H/S	type J	braided		steel braided covered		thermocouple wire	(per meter)			60.96
TC-CA-H/S	type K	braided		steel braided covered		thermocouple wire	(per meter)			60.96
Thermocouple connectors										
M-7-J	type J	male		thermocouple connector		plug	black			87.41
F-7-J	type J	female		thermocouple connector		socket	black			95.46
M-7-K	type K	male		thermocouple connector		plug	yellow			87.41
F-7-K	type K	female		thermocouple connector		socket	yellow			95.46
AC05-1/2		threaded sliding coupling for probe		1/2" PT		ID dia	5	-		867.13
AC05-1/4		threaded sliding coupling for probe		1/4" PT		ID dia	5	-		607.22



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.

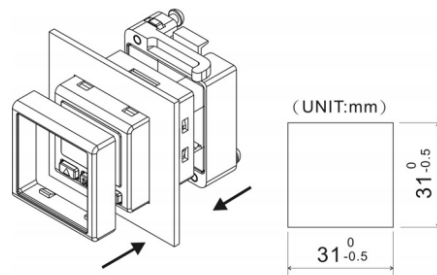
Functions:

- 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)
- **Note:** For air pressure applications only



type	pressure	output type		description	price
	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	2 042.47
DPA10P-P	-100 - 1000kPa	PNP	4 - 20mA	mini pressure sensor	2 042.47
DPA01N-P	-100 - 100kPa	NPN	4 - 20mA	mini pressure sensor	2 042.47
DPA10N-P	-100 - 1000kPa	NPN	4 - 20mA	mini pressure sensor	2 042.47
2 x digital and 1 x 1 - 5V					
DPA01Q-P	-100 - 100kPa	PNP	+1 - 5V	mini pressure sensor	2 042.47
DPA01M-P	-100 - 100kPa	NPN	+1 - 5V	mini pressure sensor	2 042.47
DPA10M-P	-100 - 1000kPa	NPN	+1 - 5V	mini pressure sensor	2 042.47
Accessories for pressure sensors					
DPA-PFKIT	panel mount accessory			(31 x 31 mm cut-out)	43.71
DPA-FMKIT	surface mount support bracket			(all sides mounting)	21.86

- Panel: Use optional accessory DPA-PFKit.



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



LF16-1...



LF18-1...



LF55...



FS52

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	price
	min ON	max OFF					
	PSI	PSI	PSI	PSI	female ¹⁾	240V	
LF10-1H11123-80	25	100	20-35	55-80	1/4 NPT	12A	345.02
LF10-1H11123-115	35	150	30-40	85-115	1/4 NPT	12A	345.02
LF10-1H11123-150	50	175	35-55	110-150	1/4 NPT	12A	345.02

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	345.02
LF16-111-50PSI	20	80	15-30	30-50	1/4 NPT	16A	345.02
LF16-111-60PSI	20	80	15-35	40-60	1/4 NPT	16A	345.02

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

type	Bar	Bar	Bar	Bar	Bar	240V	price
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	288.66
LF19-111121-4BAR	5	14	8.0-10.0	1.8-4	G1/4"	16A	288.66
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	384.12
LF18-111121-7BAR	3	11	1.4-4.0	5.6-7	G1/4"	16A	384.12
LF18-111121-10BAR	4	16	1.8-4.5	8-10	G1/4"	16A	384.12

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°C...+100°C
- Contact: SPDT 10A 250 VAC

type	Bar	Bar	Bar	Bar		fitting	250V	price
				OFF	ON			
LF5503	-0.5	3	0.35-1.5	2.0	1.0	M12 X 1.25	10A	560.07
LF5506	-0.5	6	0.6-4	3.0	2.0	M12 X 1.25	10A	560.07
LF5510	1	10	1-3	6.0	5.0	M12 X 1.25	10A	560.07
LF5516	3	16	1-4	10.0	8.0	M12 X 1.25	10A	560.07
LF5520	5	20	2-5	16.0	13.0	M12 X 1.25	10A	560.07

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	817.68
FS52	IP55	paddle type liquid flow switch	1/2" NPT	10A	1 075.29



Miniature snap-action micro switches

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

type	current lth	actuator	length	description	contacts	price
------	-------------	----------	--------	-------------	----------	-------

CMV series - Snap-action micro switches

10A 250 VAC changeover

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

CMV100D	10A	0	standard plunger	–	miniature micro switch	SPDT	24.50
CMV101D	10A	1	short plain lever	35.6 mm	miniature micro switch	SPDT	25.42
CMV105D	10A	5	long plain lever	62.2 mm	miniature micro switch	SPDT	25.42
CMV104D	10A	4	short roller lever	20.1 mm	miniature micro switch	SPDT	28.53
CMV103D	10A	3	long roller lever	34.0 mm	miniature micro switch	SPDT	27.49

16A 250 VAC changeover

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

CMV16001C	16A	0	standard plunger	–	miniature micro switch	SPDT	28.53
CMV16011C	16A	1	short plain lever	35.6 mm	miniature micro switch	SPDT	30.59
CMV16051C	16A	5	long plain lever	62.2 mm	miniature micro switch	SPDT	30.59
CMV16041C	16A	4	short roller lever	20.1 mm	miniature micro switch	SPDT	32.55
CMV16031C	16A	3	long roller lever	34.0 mm	miniature micro switch	SPDT	32.55

KW3 series - Snap-action micro switches

16A 250 VAC changeover

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

KW3A-16Z0B	16A	0	standard plunger	–	miniature micro switch	SPDT	32.21
KW3A-16Z3	16A	1	short plain lever	35.6 mm	miniature micro switch	SPDT	33.13
KW3A-16Z2	16A	5	long plain lever	59.4 mm	miniature micro switch	SPDT	33.13
KW3A-16Z4	16A	4	short roller lever	20.2 mm	miniature micro switch	SPDT	35.66
KW3A-16Z5	16A	3	long roller lever	34.0 mm	miniature micro switch	SPDT	35.66

CM series - Standard snap-action micro switch

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

CM1300	15A	F	pin plunger		standard micro switch	SPDT	89.71
CM1305	15A	G	extended plunger		standard micro switch	SPDT	112.71
CM1306	15A	H	button plunger		standard micro switch	SPDT	97.76
CM1307	15A	I	ext. panel mnt plunger		standard micro switch	SPDT	138.01
CM1308	15A	J	ext. panel mnt roller plunger		standard micro switch	SPDT	149.51
CM1309	15A	K	ext. p/mnt roller plunger 90°		standard micro switch	SPDT	148.36
CM1701	15A	L	long plain lever		standard micro switch	SPDT	97.76
CM1703	15A	M	long roller lever		standard micro switch	SPDT	104.66
CM1704	15A	N	short roller lever		standard micro switch	SPDT	105.81
CM1705	15A	P	long wire lever		standard micro switch	SPDT	105.81
CM1743	15A	O	short roller (collapsible)		standard micro switch	SPDT	103.51

CAP-Y

CM switch terminal cover **13.81**

CZ-7 series - Micro switch 10A 250 VAC

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

CZ-7310	10A	I	ext. panel mnt plunger		standard micro switch	SPDT	171.36
CZ-7311	10A	J	ext. panel mnt roller plunger		standard micro switch	SPDT	187.46
CZ-7312	10A	K	ext. p/mnt roller plunger 90°		standard micro switch	SPDT	187.46
CZ-7120	10A	L	long plain lever		standard micro switch	SPDT	138.01
CZ-7121	10A	M	long roller lever		standard micro switch	SPDT	140.31
CZ-7141	10A	N	short roller lever		standard micro switch	SPDT	140.31
CZ-7144	10A	O	short roller (collapsible)		standard micro switch	SPDT	148.36



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 cable according to IEC/EN 60947-5-1
- Ith 10A – IP65 – Ui 690 VAC – M20 cable entry

type	description		contacts	price
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	295.56
KB B2 S11	top roller plunger (metal)	industrial limit switch	1NO + 1NC	354.22
KB C2 S11	top plunger roller lever (metal)	industrial limit switch	1NO + 1NC	357.67
KB D2 S11	roller side push level (metal)	industrial limit switch	1NO + 1NC	357.67
KB E2 S11	rotating roller lever (metal)	industrial limit switch	1NO + 1NC	392.17
KB F2 S11	rotating roller lever (adjustable)	industrial limit switch	1NO + 1NC	409.42
KB H1 S11	ceramic rotating rod roller lever	industrial limit switch	1NO + 1NC	897.03
KB L2 S11	rotating rod lever (adjustable)	industrial limit switch	1NO + 1NC	379.52
KB M1 S11	omni-directional wobble stick	industrial limit switch	1NO + 1NC	388.72
KB P1 L11	hinge operating (short cylinder)	industrial limit switch	1NO + 1NC	1 093.69
KB P2 L11	hinge operating (long cylinder)	industrial limit switch	1NO + 1NC	1 138.54
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	394.47
KM B2 S11	top roller plunger	industrial limit switch	1NO + 1NC	453.12
KM C2 S11	top plunger roller lever	industrial limit switch	1NO + 1NC	457.72
KM E2 S11	rotating roller lever	industrial limit switch	1NO + 1NC	468.07
KM F2 S11	rotating roller lever (adjustable)	industrial limit switch	1NO + 1NC	485.32
KM H1 S11	ceramic rotating rod roller lever	industrial limit switch	1NO + 1NC	694.63
KM L2 S11	rotating rod lever (adjustable)	industrial limit switch	1NO + 1NC	477.27
KM M1 S11	omni-directional wobble stick	industrial limit switch	1NO + 1NC	487.62
Spare – contact blocks (interchangeable) - excluding KB Q1 L11				
KX B S11	contact block	snap action	1NO + 1NC	253.01
KX B S02	contact block	snap action	2 NC	397.92
KX B A11	contact block	slow break (make before break)	1NO + 1NC	218.51
KX B L11	contact block	slow break	1NO + 1NC	218.51
KX B L21	contact block	slow break	2NO + 1NC	442.77

N - Safety

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	–	see page N-11 for pricing.
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**

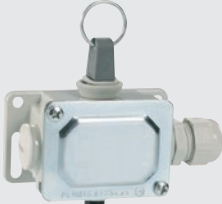







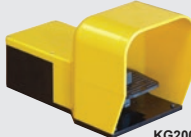

- Double-insulated housing glass fibre-reinforced self extinguishing
- Self-cleaning silver-alloy contacts; Snap action contacts
- Thermal current: Ith:10A Ui: 250 VAC

Non-latching rope operated limit switches (snap action)

RS11310	rope operated limit switch (non latching)	25N	1NO + 1NC
----------------	---	-----	-----------

Latching (hand reset) limit switches EN 418 compliant

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

N - Safety		Rope-operated pull lever limit switches																																																																																																																																																																																									
 <p>PLNU1AT25W</p>  <p>PLN131311</p>  <p>P2L131312</p>  <p>P33032</p>  <p>P33033</p>  <p>P33034</p>  <p>P33035</p>  <p>KG100S11</p>  <p>KG200S11</p>  <p>KR200S11</p>		<ul style="list-style-type: none"> • Heavy-duty metal body • Supplied with cable gland (PG11) • Protection degree: IP65 	<table border="1"> <thead> <tr> <th>type</th> <th>description</th> <th>operating force (N)</th> <th>contacts</th> <th>price</th> </tr> </thead> <tbody> <tr> <td colspan="5">PLNU series - Heavy-duty non-latching rope-operated limit switches</td> </tr> <tr> <td colspan="5"> <ul style="list-style-type: none"> • Direct (<i>positive</i>) opening action - safety function according to IEC/EN 60947-5-1 • Thermal current: Ith: 10A Ui: 400 VAC • Dimensions: (H) 89 x (W) 84 x (D) 40.5 mm </td> </tr> <tr> <td>PLNU1AT25W</td> <td>rope operated limit switch (<i>non-latching</i>)</td> <td>25N</td> <td>1NO + 1NC</td> <td></td> </tr> <tr> <td colspan="5">P2LU series - Heavy-duty latching rope-operated limit switches</td> </tr> <tr> <td colspan="5">Latching (<i>hand reset</i>) limit switches EN 418 compliant</td> </tr> <tr> <td colspan="5"> <ul style="list-style-type: none"> • Latching with push button "Reset" facility on switch • Thermal current: Ith: 6A Ui: 400 VAC • Dimensions: (H) 175 x (W) 85 x (D) 47 mm </td> </tr> <tr> <td>P2LU series</td> <td>(H) 175 x (W) 85 x (D) 47 mm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>P2LU1SAT75AG</td> <td>rope operated limit switch (<i>latching/hand reset</i>)</td> <td>7.5 kg</td> <td>1NO + 1NC</td> <td rowspan="2" style="border: 1px dashed black; padding: 5px;">see page N-11 for pricing.</td> </tr> <tr> <td>P2LU1SAT15AG</td> <td>rope operated limit switch (<i>latching/hand reset</i>)</td> <td>15 kg</td> <td>1NO + 1NC</td> </tr> <tr> <td colspan="5">Heavy duty rope-operated limit switches with pre-tensioning facility</td> </tr> <tr> <td colspan="5"> <ul style="list-style-type: none"> • Latching (<i>hand reset</i>) limit switches EN418 compliant • 2 NC contacts (<i>when pre-tensioned</i>) 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: Ith: 6A Ui: 400 VAC </td> </tr> <tr> <td colspan="5" style="text-align: right;">with pre tensioned rope</td> </tr> <tr> <td colspan="5">PLN series - 60N (H) 82 x (W) 104 x (D) 40.5 mm</td> </tr> <tr> <td>PLN131311</td> <td>rope operated limit switch (<i>latching/hand reset</i>)</td> <td>60N - 6kg</td> <td>1NO + 1NO</td> <td></td> </tr> <tr> <td colspan="5">P2L series - 120N (H) 161 x (W) 100 x (D) 48.5 mm</td> </tr> <tr> <td>P2L131312</td> <td>rope operated limit switch (<i>latching/hand reset</i>)</td> <td>120N - 12kg</td> <td>1NO + 1NO</td> <td></td> </tr> <tr> <td colspan="5">Accessories for rope-operated switches</td> </tr> <tr> <td>P33032</td> <td colspan="4">adjustable rope terminal clamp Ø 5 mm</td> </tr> <tr> <td>P33033</td> <td colspan="4">rope eye of Ø 5 mm (<i>cable end thimble</i>)</td> </tr> <tr> <td>P33034</td> <td colspan="4">turn buckle M6 x 60 for rope tensioning</td> </tr> <tr> <td>P33035</td> <td colspan="4">threaded eye bolt M8 guide for rope</td> </tr> <tr> <td>P33036</td> <td colspan="4">steel rope 0.5 mm PVC sheathed (<i>red insulated</i>) (100met)</td> </tr> <tr> <td colspan="5">Industrial foot switches thermoplastic and metallic IP54</td> </tr> <tr> <td colspan="5"> <ul style="list-style-type: none"> • Self-extinguishing double insulation polymer thermoplastic • Cable entry: M20 x 1.5 </td> </tr> <tr> <td colspan="5">KG series - Thermoplastic foot switches</td> </tr> <tr> <td colspan="5">• Self-extinguishing double insulation thermoplastic</td> </tr> <tr> <td>KG100S11</td> <td>open-type industrial foot switch</td> <td>thermoplastic</td> <td>1NO + 1NC</td> <td>1 228.24</td> </tr> <tr> <td>KG200S11</td> <td>closed-type industrial foot switch</td> <td>thermoplastic</td> <td>1NO + 1NC</td> <td>1 468.60</td> </tr> <tr> <td colspan="5">KR series - Metallic foot switches</td> </tr> <tr> <td colspan="5">• Aluminium zinc alloy body</td> </tr> <tr> <td>KR100S11</td> <td>open-type industrial foot switch</td> <td>diecast</td> <td>1NO + 1NC</td> <td>2 292.03</td> </tr> <tr> <td>KR200S11</td> <td>closed-type industrial foot switch</td> <td>diecast</td> <td>1NO + 1NC</td> <td>2 741.69</td> </tr> <tr> <td colspan="5">Additional charges</td> </tr> <tr> <td>KGX01</td> <td colspan="3">kit for adding a second contact block to foot switches</td> <td>57.51</td> </tr> <tr> <td>KGX02</td> <td colspan="3">contact block mounting bracket</td> <td>117.31</td> </tr> <tr> <td>KR B S11</td> <td colspan="3">additional contact block for above foot switches</td> <td>253.01</td> </tr> </tbody> </table>	type	description	operating force (N)	contacts	price	PLNU series - Heavy-duty non-latching rope-operated limit switches					<ul style="list-style-type: none"> • Direct (<i>positive</i>) opening action - safety function according to IEC/EN 60947-5-1 • Thermal current: Ith: 10A Ui: 400 VAC • Dimensions: (H) 89 x (W) 84 x (D) 40.5 mm 					PLNU1AT25W	rope operated limit switch (<i>non-latching</i>)	25N	1NO + 1NC		P2LU series - Heavy-duty latching rope-operated limit switches					Latching (<i>hand reset</i>) limit switches EN 418 compliant					<ul style="list-style-type: none"> • Latching with push button "Reset" facility on switch • Thermal current: Ith: 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 (<i>latching/hand reset</i>)	7.5 kg	1NO + 1NC	see page N-11 for pricing.	P2LU1SAT15AG	rope operated limit switch (<i>latching/hand reset</i>)	15 kg	1NO + 1NC	Heavy duty rope-operated limit switches with pre-tensioning facility					<ul style="list-style-type: none"> • Latching (<i>hand reset</i>) limit switches EN418 compliant • 2 NC contacts (<i>when pre-tensioned</i>) 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: Ith: 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 (<i>latching/hand reset</i>)	60N - 6kg	1NO + 1NO		P2L series - 120N (H) 161 x (W) 100 x (D) 48.5 mm					P2L131312	rope operated limit switch (<i>latching/hand reset</i>)	120N - 12kg	1NO + 1NO		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					<ul style="list-style-type: none"> • 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	1 228.24	KG200S11	closed-type industrial foot switch	thermoplastic	1NO + 1NC	1 468.60	KR series - Metallic foot switches					• Aluminium zinc alloy body					KR100S11	open-type industrial foot switch	diecast	1NO + 1NC	2 292.03	KR200S11	closed-type industrial foot switch	diecast	1NO + 1NC	2 741.69	Additional charges					KGX01	kit for adding a second contact block to foot switches			57.51	KGX02	contact block mounting bracket			117.31	KR B S11	additional contact block for above foot switches			253.01
type	description	operating force (N)	contacts	price																																																																																																																																																																																							
PLNU series - Heavy-duty non-latching rope-operated limit switches																																																																																																																																																																																											
<ul style="list-style-type: none"> • Direct (<i>positive</i>) opening action - safety function according to IEC/EN 60947-5-1 • Thermal current: Ith: 10A Ui: 400 VAC • Dimensions: (H) 89 x (W) 84 x (D) 40.5 mm 																																																																																																																																																																																											
PLNU1AT25W	rope operated limit switch (<i>non-latching</i>)	25N	1NO + 1NC																																																																																																																																																																																								
P2LU series - Heavy-duty latching rope-operated limit switches																																																																																																																																																																																											
Latching (<i>hand reset</i>) limit switches EN 418 compliant																																																																																																																																																																																											
<ul style="list-style-type: none"> • Latching with push button "Reset" facility on switch • Thermal current: Ith: 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 (<i>latching/hand reset</i>)	7.5 kg	1NO + 1NC	see page N-11 for pricing.																																																																																																																																																																																							
P2LU1SAT15AG	rope operated limit switch (<i>latching/hand reset</i>)	15 kg	1NO + 1NC																																																																																																																																																																																								
Heavy duty rope-operated limit switches with pre-tensioning facility																																																																																																																																																																																											
<ul style="list-style-type: none"> • Latching (<i>hand reset</i>) limit switches EN418 compliant • 2 NC contacts (<i>when pre-tensioned</i>) 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: Ith: 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 (<i>latching/hand reset</i>)	60N - 6kg	1NO + 1NO																																																																																																																																																																																								
P2L series - 120N (H) 161 x (W) 100 x (D) 48.5 mm																																																																																																																																																																																											
P2L131312	rope operated limit switch (<i>latching/hand reset</i>)	120N - 12kg	1NO + 1NO																																																																																																																																																																																								
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																																																																																																																																																																																											
<ul style="list-style-type: none"> • 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	1 228.24																																																																																																																																																																																							
KG200S11	closed-type industrial foot switch	thermoplastic	1NO + 1NC	1 468.60																																																																																																																																																																																							
KR series - Metallic foot switches																																																																																																																																																																																											
• Aluminium zinc alloy body																																																																																																																																																																																											
KR100S11	open-type industrial foot switch	diecast	1NO + 1NC	2 292.03																																																																																																																																																																																							
KR200S11	closed-type industrial foot switch	diecast	1NO + 1NC	2 741.69																																																																																																																																																																																							
Additional charges																																																																																																																																																																																											
KGX01	kit for adding a second contact block to foot switches			57.51																																																																																																																																																																																							
KGX02	contact block mounting bracket			117.31																																																																																																																																																																																							
KR B S11	additional contact block for above foot switches			253.01																																																																																																																																																																																							



E10100BI



E30100EMRA



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	price
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 - PG13.8			
Thermoplastic body		(IP66)		
E10000AI	top steel plunger actuator	limit switch	1NO + 1NC	347.32
E10000BI	top steel roller plunger actuator	limit switch	1NO + 1NC	399.07
E10000CI	roller lever side action	limit switch	1NO + 1NC	399.07
E10000DI	roller lever vertical action	limit switch	1NO + 1NC	381.82
E10000EI	rotary roller arm lever	limit switch	1NO + 1NC	424.37
E10000EI50	rotary Ø50 mm rubber roller arm lever	limit switch	1NO + 1NC	469.22
E10000II	offset rotary roller arm lever	limit switch	1NO + 1NC	424.37
E10000FI	adjustable length rotary roller arm lever	limit switch	1NO + 1NC	432.42
E10000HI	adjustable rotary Ø6 mm rod lever	limit switch	1NO + 1NC	546.27
E10000LI	flexible spring rod actuator rod	limit switch	1NO + 1NC	535.92
E10001SCI	safety switch for hinges	limit switch	1NO + 1NC	540.52
Diecast metal body		(IP66)		
E10000AM	top steel plunger actuator	limit switch	1NO + 1NC	525.57
E10000BM	top steel roller plunger actuator	limit switch	1NO + 1NC	576.17
E10000CM	roller lever side action	limit switch	1NO + 1NC	508.32
E10000DM	roller lever vertical action	limit switch	1NO + 1NC	534.77
E10000EMRA	rotary (metal) roller arm lever	limit switch	1NO + 1NC	684.28
E10000IMRA	offset rotary (metal) roller arm lever	limit switch	1NO + 1NC	788.93
E10000IM50	rotary Ø50 mm rubber roller arm lever	limit switch	1NO + 1NC	609.52
E10000FM	adjustable length rotary roller arm lever	limit switch	1NO + 1NC	565.82
E10000HM	adjustable rotary Ø6 mm rod lever	limit switch	1NO + 1NC	724.53
E10000LM	flexible spring rod actuator rod	limit switch	1NO + 1NC	684.28
E10000LSM	Cats whisker actuator	limit switch	1NO + 1NC	661.28
E300 series - Industrial limit switches		IP66	diecast metal body	
Body dimensions:	(H) 89.5 x (W) 52 x (D) 35.5 mm	fixing hole distance: 40 mm		
Cable entry:	2 side + 1 x bottom entry - PG13.8			
E30000AM	top steel plunger actuator	limit switch	1NO + 1NC	678.53
E30000BM	top steel roller plunger actuator	limit switch	1NO + 1NC	678.53
E30000CM	roller lever side action	limit switch	1NO + 1NC	713.03
E30000DM	roller lever vertical action	limit switch	1NO + 1NC	713.03
E30000EMRA	rotary (metal) roller arm lever	limit switch	1NO + 1NC	748.68
E30000IMRA	offset rotary (metal) roller arm lever	limit switch	1NO + 1NC	1 627.47
E30000FM	adjustable length rotary roller arm lever	limit switch	1NO + 1NC	785.48
E30000LM	flexible spring rod actuator rod	limit switch	1NO + 1NC	823.43
E400 series - Industrial limit switches		IP66	diecast metal body - CENELEC EN50041	
Body dimensions:	(H) 106.5 x (W) 40 x (D) 36 mm	fixing hole distance: 2 x 30 mm		
Cable entry:	1 x bottom entry - PG13.8			
E40000AM	top steel plunger actuator	limit switch	1NO + 1NC	661.28
E40000BM	top steel roller plunger actuator	limit switch	1NO + 1NC	684.28
E40000CM	roller lever side action	limit switch	1NO + 1NC	706.13
E40000DM	roller lever vertical action	limit switch	1NO + 1NC	765.93
E40000EMRA	rotary (metal) roller arm lever	limit switch	1NO + 1NC	602.62
E40000IMRA	offset rotary (metal) roller arm lever	limit switch	1NO + 1NC	1 187.99
E40000IM50	rotary Ø50 mm rubber roller arm lever	limit switch	1NO + 1NC	769.38
E40000FM	adjustable length rotary roller arm lever	limit switch	1NO + 1NC	695.78
E40000HM	adjustable rotary Ø6 mm rod lever	limit switch	1NO + 1NC	853.33
E40000LM	flexible spring rod actuator rod	limit switch	1NO + 1NC	773.98
E40000LSM	Cats whisker actuator	limit switch	1NO + 1NC	746.38



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	price
Pull wire safety switches				
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	916.58
E40108TBM	latching (<i>resettable by button</i>) pull wire	metal limit switch	1NO + 1NC	1 108.64
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	494.52
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	#N/A
Spare contact blocks for all limit switches				
ELEM00	standard snap action	contact block	1NO+1NC	140.31
ELEM03	slow action	contact block	2NO	152.96
Accessories for above limit switches				
Z5	angled key for key actuated safety limit switches			117.31
Z52	adjustable key for key actuated safety limit switches			156.41
<i>Note: For pull wire switch accessories (see page N-11)</i>				



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°C...+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	price
Open type foot switch IP65				
PDNS11BX10	open type industrial foot switch	no	1NO + 1NC	625.62
Protected foot switches IP65				
PPKS11BX10	protected type industrial foot switch	thermoplastic	1NO + 1NC	846.43
PDKS11BX10	protected type industrial foot switch	diecast	1NO + 1NC	1 243.19
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	141.46



ACB...



AAB...



AEA...



AFA...



AGD...

MATIC float switches feature a patented inner chamber filled with Polyurethane foam preventing ingress of humidity and water condensation within the switch.
IMQ, ECC-CENELC-VDE-CE approved.

type	cable length	differential degrees	contact rating	description	dimensions (mm) (H) (W/Ø) (D)			price
MICROSTART/C		level regulator for clean water						
<ul style="list-style-type: none"> • Can be used for emptying and filling (<i>SPDT contact</i>) • Counterweight: Supplied complete with cable fixing • Protection degree: IP68 • Max. water temperature: 55°C • Electrical contact: 10 (4) A 250 VAC (<i>rated voltage</i>) • Max working pressure: 10 Bar 								
ACB05P10	5 met	30°	10 (4) A	float switch for clean water	160	70	52	405.97
ACB10P10	10 met	30°	10 (4) A	float switch for clean water	160	70	52	592.27
Minimatic/C WRAS		WRAS approved for drinking water						
<ul style="list-style-type: none"> • Tested and certified by WRAS • Counterweight: Supplied complete with cable fixing 								
AAB05W10	5 met	30°	10 A	float switch for drinking water	172	80	56	761.33
AAB10W10	10 met	30°	10 A	float switch for drinking water	172	80	56	1 358.20
Little Mercury		submerged float switches for sewer water						
For regulation of particularly turbulent industrial waters containing residues of suspended agglomerates or of sewer waters.								
<ul style="list-style-type: none"> • Internal weight fixing the rotation centre (<i>gravity centre</i>) close to the cable connection. • Two switches used: 1 for high level and 1 for low level control • Protection degree: IP68 • Max. water temperature: 55°C • Electrical contact: 10 A 250 VAC (<i>rated voltage</i>) • Max working pressure: 10 Bar 								
Little Mercury MC		internal micro switch with self-cleaning contacts						
AEA05P00	5 met	15°	10 (4) A	float switch for sewer water	138	76	–	1 542.20
AEA10P00	10 met	15°	10 (4) A	float switch for sewer water	138	76	–	1 911.36
Little EX ATEX		float switch for use in Diesel oil						
For regulation of particularly diesel oil, water and hydrocarbon mixture, motor oils, tools machine oils, etc.								
<ul style="list-style-type: none"> • ATEX Certified: Group and category tool II 1G - Ex ia Group of striking IIC • Special blue cable for the immersion in hydrocarbons mixture (<i>3 x 1 NEOPREN</i>) 								
AHA05	5 met	15°	21.4 mA	float switch for diesel oil	138	76	–	1 780.26
AHA10	10 met	15°	21.4 mA	float switch for diesel oil	138	76	–	2 410.48
Matic V MC		level regulator for water up to 130°C						
Outer casing made in 304 AISI stainless steel and electric with outer SILICON sheath resistant to high temperatures.								
<ul style="list-style-type: none"> • ATEX Certified Group and category tool II 1G - Ex ia Group of striking IIC • Protection degree: IP68 • Electric contact: Max 0.25 A - 60 V (<i>rated voltage</i>) • Max working pressure: 4 Bar 								
AFA05S00	5 met	10°	0.25 A	float switch for clean water	–	75	–	2 837.14
AFA10S00	10 met	10°	0.25 A	float switch for clean water	–	75	–	3 562.82
Matic P/MC		float switch for autoclaves and pipings						
Due to its small diameter it can be introduced into a tank through a Ø30 mm hole and disposed either horizontally or vertically (<i>with counterweight</i>).								
<ul style="list-style-type: none"> • Protection degree: IP68 • Electric contact: Max 0.25 A - 60 V (<i>rated voltage</i>) • Max working pressure: 8 Bar 								
AGD05S00	5 met	5°	0.25 A	float level switch	182	28.5	–	2 163.22
AGD10S00	10 met	5°	0.25 A	float level switch	182	28.5	–	2 890.05
Accessories for float switches								
CNTRWT/100	100g	standard cable fixing counterweight for float switches						37.96
CNTRWT/360	360g	stainless steel cable fixing counterweight for float switches						324.32

	type	supply voltage	max. pressure	max. temp	description	price
 <p>FBA315</p>	FLOW Pump Flow switches for circulation and centrifugal pumps					
	<p>FLOW PUMP <i>in-line flow switch</i></p> <p>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.</p> <p>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.</p> <p>Manufactured entirely of glass reinforced polyamide with brass threaded input/output joint G1 for vertical in-line connection to liquid piping.</p> <ul style="list-style-type: none"> • Incorporated start button • Minimum flow: 3 litres/min. (<i>max. 80 litres/min.</i>) • Motor load: 10 (4) A 250 VAC • Start-up delay: 0...10 sec (<i>adjustable</i>) 					
	FBA315	220 VAC	8 Bar	85°C	in-line flow switch 1" inch pipe thread	1 477.80
 <p>EDA</p>	FLOW MATIC/H10AR paddle-type flow switch					
	<p>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.</p> <p>The electric contact is housed externally to the flow switch and is moved by a magnet located on the head of the switch.</p> <p>The glass reinforced polyamide paddle can be cut to size in 25 mm segments to the diameter of pipe.</p> <ul style="list-style-type: none"> • Incorporated test button • Minimum flow: 20 litres/min. • Relay: 10 (4) A 250 VAC NO + NC • Electric housing: IP54 • Start-up delay: 0...10 sec (<i>adjustable</i>) 					
	EDA	250 VAC	10 Bar	100°C	paddle flow switch 1" screw connection	1 974.62
 <p>FAB15</p>	JOLLY PUMP in-line booster pump					
	<p>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.</p> <p>Installed in line with the main supply pipe to boost water flow and pressure without having to alter the main system.</p> <p>When a tap is turned on and flow in the pipe reaches three litres per minute the motor starts automatically, resulting in increased flow constantly until the tap is turned off.</p> <ul style="list-style-type: none"> • 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	6 243.55



Optical level sensors emit an internal infrared light beam within a prism then measure the amount of light returned. In dry conditions the LED projects an infrared light beam which is fully reflected back to the receiver by the prism. Conversely, when the prism comes in contact with liquid, the light is dispersed with less light reaching the receiver, triggering the contacts. Benefits of Optical level sensors are the absence of moving parts, compact dimensions, very slight switching hysteresis ensuring high reliability and repeatability.

- Developed for monitoring the presence (or) absence of transparent liquids and chemicals.
- Extremely accurate for point level detection in high-stress environments in any sized tank
- Using infrared light and no moving parts whatsoever, Immune to electromagnetic interference
- Simply fit and forget

type	supply voltage	mounting thread	PNP		NPN		description	price
			NO	NC	NO	NC		
Optical level sensor IP67								
<ul style="list-style-type: none"> • Simple, compact, and robust, detects high/low levels in any sized container • Features transient over-voltage, short circuit protection, • LED Status indication • Dry run detection 								
Output current:		250mA						
Operating temp:		-20°C...+80°C						
Termination:		Cable (2 meter)						
Body Material:		PS (Polysulfone)						
FS-IR1902D-PNP NO	10 - 30 VDC	M12	•				optical liquid level sensor	407.12
FS-IR1902D-PNP NC	10 - 30 VDC	M12		•			optical liquid level sensor	407.12
FS-IR1902D-NPN NO	10 - 30 VDC	M12			•		optical liquid level sensor	407.12
FS-IR1902D-NPN NC	10 - 30 VDC	M12				•	optical liquid level sensor	407.12

Magnetic Float switches (reed type)

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. The float switches are extremely compact, simple and easy to install and not effected by electrical interference and withstand chemicals.

- Safe - Convenient - Low cost** *N.O. (reversible by reversing float)*
- Electrical connection: 300 mm cable
- Switch current/voltage: 70 VA
- Max voltage: 250 VAC / 200 VDC
- Accuracy: ± 2 mm in water

type	mounting	thread size (mm)	pressure withstand	description	price
Plastic (top/bottom mount)					
Float size:		(H) 24 x (Ø) 20 mm			
Operating temperature:		-10°C...+70°C			
Short stem - float switch 36 mm		<i>Internal mounting</i>			
LS-264	top/bottom	M10	8 Bar	vertical mount float switch	184.01
Long stem - float switch 55 mm		<i>Internal mounting</i>			
LS-297	top/bottom	M10	8 Bar	vertical mount float switch	200.11

Stainless steel - vertically mount float switches

Float size: (H) 28 mm (Ø) 28 mm

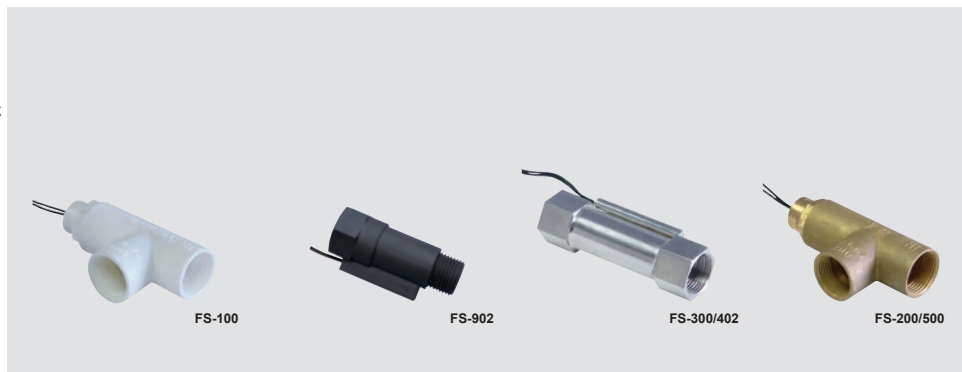
Operating temperature: -30°C...+125°C

Material: SUS 304 stainless steel

Short stem - float switch 40 mm		<i>Internal mounting</i>			
LS-317	top/bottom	G1/8"	20 Bar	vertical mount float switch	809.63
Long stem - float switch 100 mm		<i>Internal mounting</i>			
LS-064A	top/bottom	G1/8"	20 Bar	vertical mount float switch	809.63
Long stem - float switch 100 mm		<i>External mounting</i>			
LS-318-1	top/bottom	NPT 1"	20 Bar	vertical mount float switch	714.18
Bent stem (90°) - float switch 75 mm		<i>Internal mounting</i>			
LS-052-1	top/bottom	G1/8"	20 Bar	vertical mount float switch	748.68

Continue on the bottom of page K-38...

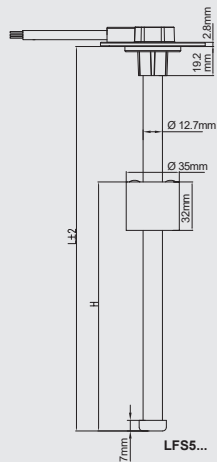
Electrical connection: 300 mm cable
Switch rating: 0.8A max
Switch current: 1.5A
Switch voltage: 250 VAC / 200 VDC
Material: Plastic
 Brass
 Stainless
Liquid medium: Clean water



type	for domestic use		heavy duty		
	FS-100	FS-902	FS-300	FS-402	FS-500
Model	FS-100	FS-902	FS-300	FS-402	FS-500
Fitting	NPT3/4"	1/2"NPT for inlet 1/2" NPT for outlet	NPT3/4"	NPT1/2"	NPT1/2"
Flow switches housing	plastic PPR	plastic PBT	SUS304	SUS304	brass - C37700
Operating pressure	120 PSI max	140 PSI max	250 PSI max	250 PSI max	150 PSI max
Temperature range	-10°C...80°C	-10°C...105°C	-20°C...120°C	-20°C...120°C	-10°C...120°C
Medium (liquid)	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.
Carry current	1.5A	1.0A	1.5A	1.5A	1.5A
Switch current	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
Power rating	50VA	50VA	50VA	50VA	50VA
Operating flow rating	1.5L/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%
Maximum flow	15L/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)
Mounting shock	30g for 11ms duration	30g for 11m 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
Duration of cycle	100.000 cycles	100.000 cycles	100.000 cycles	100.000 cycles	100.000 cycles
Price	497.97	516.37	1 205.24	1 243.19	1 083.34



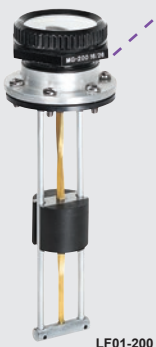
... Continued... Nylon (side mount) hinged type						
type	mounting size (mm)	thread withstand	pressure	mounting	description	price
Can be used for "high" or "low" level sensing (by turning float direction "up" or "down").						
Float size:		(L) 47 mm (Ø) 17 mm				
Operating temperature:		-10°C...+75°C				
Material:		Nylon				
LS-147	side mount	M16	8 Bar	internal	horizontal mount float switch	348.47
LS-148	side mount	NPT 1/2"	8 Bar	external	horizontal mount float switch	353.07
Stainless steel SUS 304 (side mount) hinged type						
Can be used for "high" or "low" level sensing (by turning float direction "up" or "down").						
Float size:		(L) 47 mm (Ø) 17 mm				
Operating temperature:		-30°C...+125°C				
LS-154-1	side mount	M16	10 Bar	internal	horizontal mount float switch	960.29
LS-055-1	side mount	NPT 1/2"	10 Bar	external	horizontal mount float switch	895.88



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



LFTN...



LF01-200

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 SU304 stainless steel
 Mounting: Standard SAE 5 hole mounting flange (supplied with M5 screws and NBR gasket)

type	sensor length	output signal	supply	description	price
0 - 190Ω resistance output		-40°C ... +85°C			
LFS5-150	150 mm	0 - 190Ω	-	magnetic fuel level sensor	1 158.09
LFS5-200	200 mm	0 - 190Ω	-	magnetic fuel level sensor	1 231.69
LFS5-250	250 mm	0 - 190Ω	-	magnetic fuel level sensor	1 326.00
LFS5-300	300 mm	0 - 190Ω	-	magnetic fuel level sensor	1 419.15
LFS5-350	350 mm	0 - 190Ω	-	magnetic fuel level sensor	1 662.96
LFS5-400	400 mm	0 - 190Ω	-	magnetic fuel level sensor	1 754.96
LFS5-500	500 mm	0 - 190Ω	-	magnetic fuel level sensor	2 059.72
LFS5-600	600 mm	0 - 190Ω	-	magnetic fuel level sensor	2 396.68
LFS5-800	800 mm	0 - 190Ω	-	magnetic fuel level sensor	3 205.16
LFS5-1000	1000 mm	0 - 190Ω	-	magnetic fuel level sensor	3 933.13
LFS5-1200	1200 mm	0 - 190Ω	-	magnetic fuel level sensor	4 688.70
LFS5-1400	1400 mm	0 - 190Ω	-	magnetic fuel level sensor	5 391.37
LFS5-1600	1600 mm	0 - 190Ω	-	magnetic fuel level sensor	6 518.41
LFS5-2000	2000 mm	0 - 190Ω	-	magnetic fuel level sensor	8 052.56

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	1 303.00
LFS5-200/4-20	200 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	1 377.75
LFS5-300/4-20	300 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	1 564.05
LFS5-400/4-20	400 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	1 899.86
LFS5-500/4-20	500 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	2 204.62
LFS5-600/4-20	600 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	2 541.58
LFS5-800/4-20	800 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	3 350.06
LFS5-1000/4-20	1000 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	4 078.03
LFS5-1200/4-20	1200 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	4 833.61
LFS5-1400/4-20	1400 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	5 536.28
LFS5-1600/4-20	1600 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	6 746.12
LFS5-2000/4-20	2000 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	8 576.97

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	price
			suction	return	breather		
LFTN-150	150 mm	0 - 190Ω	10 mm	10 mm	6 mm	fuel level sensor	1 467.45
LFTN-200	200 mm	0 - 190Ω	10 mm	10 mm	6 mm	fuel level sensor	1 707.81
LFTN-250	250 mm	0 - 190Ω	10 mm	10 mm	6 mm	fuel level sensor	1 938.97
LFTN-300	300 mm	0 - 190Ω	10 mm	10 mm	6 mm	fuel level sensor	2 113.77
LFTN-400	400 mm	0 - 190Ω	10 mm	10 mm	6 mm	fuel level sensor	2 470.28
LFTN-500	500 mm	0 - 190Ω	10 mm	10 mm	6 mm	fuel level sensor	2 902.70
LFTN-600	600 mm	0 - 190Ω	10 mm	10 mm	6 mm	fuel level sensor	3 037.25
LFTN-700	700 mm	0 - 190Ω	10 mm	10 mm	6 mm	fuel level sensor	3 374.21

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.

		6 hole mounting flange (M45x2 thread to accept gauge)			
• Mounting:		6 hole mounting flange (M45x2 thread to accept gauge)			
LF01-150	150 mm	gauge		mechanical fuel level gauge	768.23
LF01-200	200 mm	gauge		mechanical fuel level gauge	786.63
LF01-250	250 mm	gauge		mechanical fuel level gauge	821.13
LF01-300	300 mm	gauge		mechanical fuel level gauge	839.53
LF01-400	400 mm	gauge		mechanical fuel level gauge	922.33
LF01-500	500 mm	gauge		mechanical fuel level gauge	994.79
LF01-600	600 mm	gauge		mechanical fuel level gauge	1 064.94
LF01-700	700 mm	gauge		mechanical fuel level gauge	1 122.44

Other lengths available on request.

Occupancy sensors					
<ul style="list-style-type: none"> • Detect movement • Measure ambient light • Automatically switch lights "on" (if ambient is below pre-set level and movement is detected) • Automatically switch lights "off" (if no movement is detected after a pre-set time delay period) • Complies with: IEC 60669-1 and IEC 60669-2-1 		<ul style="list-style-type: none"> - Supply voltage: 230 VAC 50Hz - Switch current: 8/10/16A 230V (AC1) - Lux adjustment: 5 - 1000 lux 			
type	mounting	description		rated current	price
EE804A / EE805A series - Motion detectors					
EE804A and EE805A are 360° indoor movement detectors with a built-in light sensitive switching function. Ideal for use in interior circulation areas such as corridors, entrance halls, bathrooms etc.					
		- Operating time delay: 5s - 15 min			
		- Detection range: 6 meter radius (at 2.5 meters high) 360°			
EE804A	surface	105.5 mm dia.	economical motion detector	8A	680.83
EE805A	flush	75 mm hole	economical motion detector	8A	723.38
EE820 series - Basic motion detectors			IP55		
Wall mounting with numerous mounting possibilities for indoor or outdoor applications.					
		- Operating time delay: Pulse, 5s - 15 min			
		- Detection range: 16 met frontal / 8 met lateral (at 2.5 meters high)			
EE820	surface	140°	wall mnt. basic occupancy sensor	10A	894.73
EE860 - Enhanced motion detectors			IP55		
Offers vertical and horizontal adjustment and area limitation with shutters suitable for indoor or outdoor applications. Wall, inner/outer corner, ceiling mount. Setting and adjustments made via concealed potentiometers or remote control.					
		- Operating time delay: 5s - 15min			
		- Detection range: 16 met frontal / 10 met lateral (at 2.5 meters high)			
		- Sensitivity adjustment: 20%...100%			
EE860	surface	220°	wall mnt. basic occupancy sensor	16A	1 423.75
Accessories					
EE825	corner mount accessory (inner/outer)			EE820	98.91
EE827	ceiling mount accessory			EE820	128.81
EE855	corner mount accessory (inner/outer)			EE860	98.91
EE806	IR remote control for enhanced series			EE815/20	814.23
High-performance combined presence and motion detector					
High-performance presence detectors combine detection of both presence and motion in an area ideally suited for offices where human presence is detected to maintain lighting level.					
Motion detection enhances the overall sensing range of the detectors.					
EE815 series - Compact flush mount presence detector					
Compact super-flush device mounts through a 50 mm hole for very neat installation. Settings and adjustments made via concealed potentiometers or remote control.					
		- Operating time delay: 1 min - 1 hour			
		- Detection range: Presence 5 meter radius (at 2.5 meters high) Motion 7 meter radius (at 2.5 meters high)			
EE815	flush	60 mm hole	360° enhanced presence detector	16A	1 830.86
EE810 series - Surface flush mount presence detector					
		- Operating time delay: 1 min - 1 hour			
		- Detection range: Presence 7 meter radius (at 2.5 meters high) Motion 13 meter radius (at 2.5 meters high)			
		- Lux adjustment: 5 - 1200 lux			
EE810	flush	dual sensor	360° enhanced presence detector	16A	3 500.71

