



CSS 8-180-2P+D-E-LST

- Connector M12, 5-pole
- Comfortable diagnostics through sensor LED and electronic signalling output
- Thermoplastic enclosure
- Electronic contact-free, coded system
- Misaligned actuation possible
- High repeat accuracy of the switching points
- Max. length of the sensor chain 200 m
- Early warning when operating near the limit of the sensor's hysteresis range
- Self-monitoring series-wiring of 16 sensors
- 2 short-circuit proof PNP safety outputs

Data

Ordering code

Product type description	CSS 8-180-2P+D-E-LST
Article number (order number)	101169553
EAN (European Article Number)	4030661295978
eCl@ss number, version 12.0	27-27-46-01
eCl@ss number, version 11.0	27-27-24-03
eCl@ss number, version 9.0	27-27-24-03
ETIM number, version 7.0	EC001829
ETIM number, version 6.0	EC001829

Approvals - Standards

Certificates	UKCA
	cULus
	TÜV

General data

Standards	EN IEC 60947-5-3
	EN IEC 61508
Coding level according to EN ISO 14119	Low

General data

Working principle	inductive
Housing construction form	Cylinder, thread
Installation conditions (mechanical)	not flush
Sensor topology	Individual sensor or end sensor in a series
Housing material	Glass-fibre, reinforced thermoplastic
Active area	Glass-fibre, reinforced thermoplastic
Material of the nuts	Glass-fibre, reinforced thermoplastic
Reaction time, maximum	30 ms
Duration of risk, maximum	30 ms
Gross weight	145 g

General data - Features

Short circuit detection	Yes
Cross-circuit detection	Yes
Safety functions	Yes
Integral system diagnostics, status	Yes
Number of semi-conductor outputs with signaling function	1
Number of fail-safe digital outputs	2
Number of series-wiring of sensors	16

Safety classification

Standards	EN IEC 61508
	EN IEC 60947-5-3
	EN ISO 13849-1
Performance Level, up to	e
Category	4
PFH value	3.57×10^{-9} /h
Safety Integrity Level (SIL), suitable for applications in	3
Mission time	20 Year(s)

Mechanical data

Tightening torque of nuts, maximum	3 Nm
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Mechanical data - Switching distances

Switch distance, typical	8 mm
Assured switching distance "ON" Sao	7 mm
Assured switching distance "OFF" Sar	10 mm
Note (switching distance)	All switching distances in accordance EN IEC 60947-5-3
Hysteresis (Switching distance), maximum	0.7 mm
Repeat accuracy R	0.2 mm

Mechanical data - Connection technique

Length of cable	1 m
Termination	Connector M12, 5-pole, A-coded
Terminal connector, Output	M12 connector, 5 pole

Mechanical data - Dimensions

ISO thread of the sensor	M18
width across flats	24 BK
Length of sensor	92 mm

Ambient conditions

IP Degree of protection	IP67
	IP65
Ambient temperature	-25 ... +60 °C
Storage and transport temperature	-25 ... +85 °C
Resistance to vibrations	10 ... 55 Hz, amplitude 1 mm
Restistance to shock	30 g / 11 ms
Protection class	II

Ambient conditions - Insulation values

Rated insulation voltage Ui	32 VDC
Rated impulse withstand voltage Uimp	0.8 kV
Overvoltage category	III
Degree of pollution	3

Electrical data

Operating voltage	24 VDC -15 % / +10 %
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Electrical data

No-load supply current I ₀ , typical	50 mA
Rated operating voltage	24 VDC
Operating current	1,000 mA
Switching frequency, approx.	3 Hz

Electrical data - Safety digital outputs

Rated operating current (safety outputs)	500 mA
Output current, (fail-safe output), maximum	0.5 A
Design of control elements	p-type
Voltage drop U _d , maximum	0.5 V
Leakage current I _r , maximum	0.5 mA
Voltage, Utilisation category DC-12	24 VDC
Current, Utilisation category DC-12	0.5 A
Voltage, Utilisation category DC-13	24 VDC
Current, Utilisation category DC-13	0.5 A

Electrical data - Diagnostic outputs

Rated operating voltage	24 VDC
Design of control elements	p-type
Voltage drop U _d , maximum	4 V
Voltage, Utilisation category DC-12	24 VDC
Current, Utilisation category DC-12	0.05 A
Voltage, Utilisation category DC-13	24 VDC
Current, Utilisation category DC-13	0.05 A

Status indication

Note (LED switching conditions display)	Multi-coloured LED: Green, Red, Yellow
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Pin assignment

PIN 1	1A1 Ue: (1)
PIN 2	Y2 Safety output 2
PIN 3	A2 GND
PIN 4	Y1 Safety output 1
PIN 5	Signalling output

Scope of delivery

Scope of delivery	Actuator must be ordered separately.
Scope of delivery of mounting material	2x nuts M18 x 1

Accessory

Recommendation (actuator)	CST 180-2
	CST 180-1
Recommended safety switchgear	SRB-E-301ST
	SRB-E-201LC
	PROTECT PSC1

Note

Note (General)	Evaluation requirements: dual-channel safety input, suitable for p-type sensors with NO function. The safety-monitoring module must tolerate internal functional tests of the sensors with cyclic switch-off of the sensor outputs for max. 0.25 ms. Short-circ
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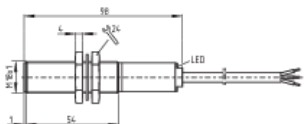
Pictures

Product picture (catalogue individual photo)



ID: kcs18f01
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| 22.3 KB | .jpg | 350 x 163 Pixel
| 21.49 KB | .png | 210 x 98 Pixel

Dimensional drawing basic component



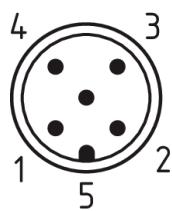
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| 4.85 KB | .png | 210 x 84 Pixel

Wiring example



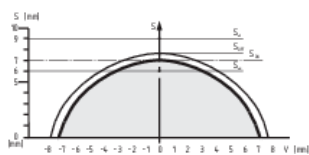
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Contact arrangement



ID: km12-k5d
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| 5.91 KB | .png | 210 x 274 Pixel

Characteristic curve



ID: kcsc1d03
| 83.45 KB | .jpg | 1000 x 477 Pixel
| 2.96 KB | .png | 210 x 100 Pixel

The details and data referred to have been carefully checked. Images may diverge from original. Further technical data can be found in the manual. Technical amendments and errors possible.
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