



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

- Cable with connector M12, 8-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 data

Product type description	CSS 8-180-2P+D-M-LST
Article number (order number)	101169560
EAN (European Article Number)	4030661296005
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

TÜV
cULus
UKCA

General data

Standards	EN IEC 60947-5-3 EN IEC 61508
Working principle	inductive
Housing construction form	Cylinder, thread
Installation conditions (mechanical)	not flush
Sensor topology	Sensor for series wiring 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	138 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 ISO 13849-1 EN IEC 60947-5-3 EN IEC 61508
Performance Level, up to	e
Category	4
PFH value	2.50×10^{-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 according EN IEC 60947-5-3

Switch distance, typical	8 mm
Assured switching distance "ON" S_{ao}	7 mm
Assured switching distance "OFF" S_{ar}	10 mm
Hysteresis (Switching distance), maximum	0.7 mm
Repeat accuracy R	0.2 mm

Mechanical data - Connection technique

Length of cable	2 m
Terminal connector, Input/Output	M12 connector, 8 pole

Mechanical data - Dimensions

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

Ambient conditions

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

Ambient conditions - Insulation values

Rated insulation voltage U_i	32 VDC
Rated impulse withstand voltage U_{imp}	0.8 kV
Overvoltage category	III
Degree of pollution	3

Electrical data

Operating voltage	24 VDC -15 % / +10 %
No-load supply current I_0 , typical	50 mA
Rated operating voltage	24 VDC
Operating current	1,000 mA
Switching frequency, approx.	3 Hz
Utilisation category DC-12	24 VDC / 0.05 A

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	X2 Safety input 2
PIN 3	A2 GND
PIN 4	Y1 Safety output 1
PIN 5	Signalling output
PIN 6	X1 Safety input 1
PIN 7	2 Safety output Y2
PIN 8	without function

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

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-circuit recognition by the evaluation is not necessary.
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Ordering code

Product type description:
CSS 8-180-(1)-(2)-(3)

(1)

2P	2 short-circuit proof PNP safety outputs
2P+D	2 short-circuit proof PNP safety outputs and diagnostic output
(2)	
E	Individual sensor or end sensor in a series
Y	Series-wiring
M	Multifunction connection
(3)	
L	Cable
LST	Cable with connector
ST	Connector plug

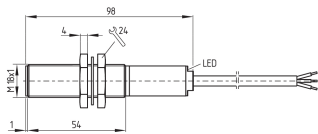
Pictures

Product picture (catalogue individual photo)



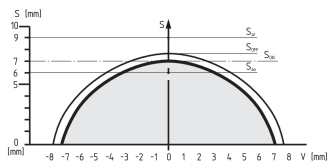
ID: kcs18f01
 | 188.8 kB | .jpg | 352.778 x 164.747 mm - 1000 x 467 px - 72 dpi
 | 15.4 kB | .png | 74.083 x 34.572 mm - 210 x 98 px - 72 dpi
 | 26.2 kB | .jpg | 123.472 x 57.503 mm - 350 x 163 px - 72 dpi

Dimensional drawing basic component



ID: 1css1g01
 | 24.2 kB | .cdr |
 | 4.9 kB | .png | 74.083 x 29.633 mm - 210 x 84 px - 72 dpi
 | 54.5 kB | .jpg | 352.778 x 140.758 mm - 1000 x 399 px - 72 dpi

Characteristic curve



ID: kcsc1d03
 | 3.0 kB | .png | 74.083 x 35.278 mm - 210 x 100 px - 72 dpi
 | 83.4 kB | .jpg | 352.778 x 168.275 mm - 1000 x 477 px - 72 dpi

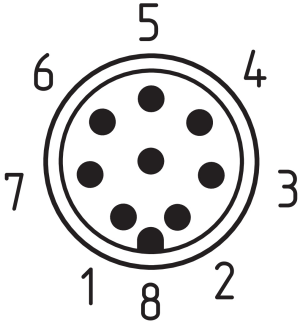
Family picture (group photo)



ID: kcs18f19

| 176.6 kB | .jpg | 352.778 x 222.603 mm - 1000 x 631 px - 72 dpi

Contact arrangement



ID: km23-k8b

| 5.3 kB | .png | 73.731 x 79.728 mm - 209 x 226 px - 72 dpi

| 139.8 kB | .jpg | 352.778 x 380.647 mm - 1000 x 1079 px - 72 dpi

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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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