



EX-CSS 8-180-2P+D-M-L-3G/D

- Pre-wired cable 7-pole
- Comfortable diagnostics through sensor LED and electronic signalling output
- Thermoplastic enclosure
- Electronic contact-free, coded system
- Ø M18
- 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
- Explosion protection for ATEX Zones 2 and 22

Data

Ordering data

Product type description	EX-CSS 8-180-2P+D-M-L-3G/D
Article number (order number)	101189302
EAN (European Article Number)	4030661347158
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	EC002714
ETIM number, version 6.0	EC002714

Explosion protection

Explosion protection: regulations	EN IEC 60079-0 EN IEC 60079-15 EN 60079-31
Explosion protection zones	2 22
Explosion protection category	3G 3D
Explosion protection designation	⊕ II 3G Ex nA IIB T6 Gc X ⊕ II 3G Ex nA IIC T6 Gc X ⊕ II 3D Ex tc IIIC T70°C Dc X
Manufacturer declaration	ATEX Zone 2 and 22

General data

Working principle	inductive
Housing construction form	Cylinder, thread
Installation conditions (mechanical)	not flush
Sensor topology	Sensor for series wiring
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	135 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 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

Impact energy, maximum 2 J

Tightening torque of nuts, maximum 3 Nm

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

Termination Cable

Terminal connector, Output 7-pole

Wire cross-section 0.25 mm²

Wire cross-section 23 AWG

Mechanical data - Dimensions

ISO thread of the sensor M18

width across flats 24 BK

Length of sensor 92 mm

Ambient conditions

Degree of protection IP65
IP67

Ambient temperature -25 ... +40 °C

Storage and transport
temperature, minimum -25 °C

Storage and transport
temperature, maximum +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 500 mA
Switching frequency, approx.	3 Hz
Utilisation category DC-12	24 VDC / 0.05 A

Electrical data - Safety digital outputs

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 - Digital Output

Design of control elements	p-type
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Electrical data - Diagnostic outputs

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

Pin assignment

PIN 1	A1 Ue Brown
PIN 2	Y2 Safety output 2 red
PIN 3	A2 GND Blue
PIN 4	Y1 Safety output 1 Black
PIN 5	X1 Safety input 1 violet
PIN 6	X2 Safety input 2 White
PIN 7	Signalling output Grey

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
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Note

Note (General)	<p>Series-wiring of sensors: 16 safety sensors can be switched in series with self-monitoring. In this case, the dual-channel output of a sensor is switched to/inserted into the input of the next sensor. This does not affect the category 4 in accordance with EN ISO 13849-1.</p> <p>The voltage drop over a long sensor chain should be taken into account when planning cable routing. Operating voltage, cross-section and length of the cable, temperature, number of sensors connected, but also the input load of the control monitor all affect the voltage drop over the sensor chain.</p>
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Pictures

Product picture (catalogue individual photo)



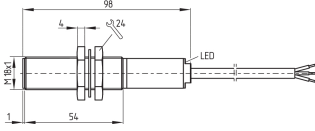
ID: kcs18f01

| 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



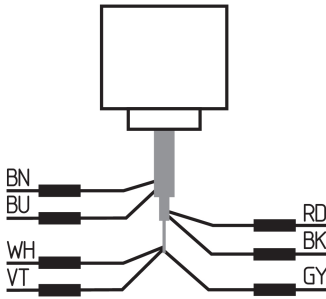
ID: 1css1g01

| 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

Diagram



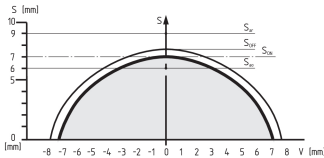
ID: kcss1k02

| 15.8 kB | .cdr |

| 77.8 kB | .jpg | 352.778 x 321.028 mm - 1000 x 910 px - 72 dpi

| 3.2 kB | .png | 74.083 x 67.381 mm - 210 x 191 px - 72 dpi

Characteristic curve



ID: kcss1d03

| 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: kcs18f14

| 182.9 kB | .jpg | 352.778 x 222.603 mm - 1000 x 631 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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