DATASHEET

EX-CSS 8-180-2P+D-M-L-3G/D 5,0M

- 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 hysteris 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 5,0M
Article number (order number)	101190269
EAN (European Article Number)	4030661349039
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	340 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 x 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	5 m
Termination	Cable
Terminal connector, Output	7-pole

Wire cross-section	0.25 mm^2
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
Restistance 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

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

Note

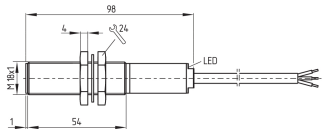
Note (General)	Series-wiring of sensors: 16 safety sensors can be switched in series with self-monitoring. In this case, the dual-channel output of a sensor is switched to/inserted into the input of the next sensor. This does not affect the category 4 in accordance with EN ISO 13849-1. The voltage drop 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.

Pictures

Product picture (catalogue individual photo)

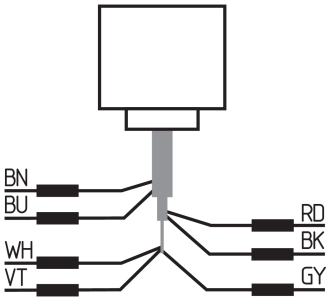
ID: kcs18f01
| 188.8 kB | .jpg | 352.778 x 164.747 mm - 1000 x 467 px - 72 dpi
| 15.4 kB | .png | 74.083 x 34.572 mm - 210 x 98 px - 72 dpi
| 26.2 kB | .jpg | 123.472 x 57.503 mm - 350 x 163 px - 72 dpi

Dimensional drawing basic component



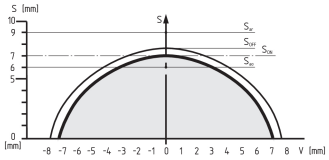
ID: 1css1g01
| 24.2 kB | .cdr |
| 4.9 kB | .png | 74.083 x 29.633 mm - 210 x 84 px - 72 dpi
| 54.5 kB | .jpg | 352.778 x 140.758 mm - 1000 x 399 px - 72 dpi

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