

## CSS8-180-2P-E-L



- Pre-wired cable 4-pole
- Thermoplastic enclosure
- Misaligned actuation possible
- Electronic contact-free, coded system
- Max. length of the sensor chain 200 m
- 2 short-circuit proof PNP safety outputs
- Self-monitoring series-wiring of 16 sensors
- High repeat accuracy of the switching points
- Early warning when operating near the limit of the sensor's hysteresis range

### Data

#### Ordering data

Product type description	CSS 8-180-2P-E-L
Article number (order number)	101167896
EAN (European Article Number)	4030661219509
eCl@ss number, Version 9.0	27-27-24-03

#### Certifications

Certificates	IFA cULus EAC
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#### General data

Product name	CSS 180
Standards	IEC 61508 IEC 60947-5-3
Active principle	inductive
Housing construction form	Cylinder, thread

Installation conditions (mechanical)	not flush
Sensor topology	Individual sensor or end sensor in a series
Enclosure material	Glass-fibre, reinforced thermoplastic
Active area	Glass-fibre, reinforced thermoplastic
Material of the nuts	Glass-fibre, reinforced thermoplastic
Weight	137 g
Reaction time, maximum	30 ms
Duration of risk, maximum	30 ms

### General data - Features

Short circuit detection	Yes
Short-circuit recognition	Yes
Safety functions	Yes
Integral System	Yes
Diagnostics, status	Yes
Number of fail-safe digital outputs	2
Number of Series-wiring of sensors	16

### Safety appraisal

Standards	ISO 13849-1 IEC 60947-5-3 IEC 61508
Performance Level	e
Control category to EN13849	4
PFH-value	$2.50 \times 10^{-9} /h$
Safety Integrity Level (SIL)	3
Mission Time	20 Year(s)

### Mechanical data

Switch distance	8 mm
Ensured switch distance "ON" $S_{ao}$	7 mm
Ensured switch distance "OFF" $S_{ar}$	10 mm
Hysteresis (Switch distance), maximum	0.7 mm
Repeat accuracy R R	0.2 mm
Tightening torque of nuts, maximum	3 Nm

### Mechanical data - Connection technique

Terminal Connector	Cable
Length of cable	2 m
Terminal connector, Output	4-pole
Wire cross-section	0.5 mm <sup>2</sup>
Wire cross-section	20 AWG

### Mechanical data - Dimensions

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

### Ambient conditions

Protection class	IP 65 to IEC/EN 60529 IP 67 to IEC/EN 60529
Ambient temperature, minimum	-25 °C
Ambient temperature, maximum	+60 °C
Storage and transport temperature, minimum	-25 °C
Storage and transport temperature, maximum	+85 °C
Resistance to vibrations to EN 60068-2-6	10 ... 55 Hz, amplitude 1 mm
Resistance to shock	30 g / 11 ms II

### Ambient conditions - Insulation value

Rated impulse withstand voltage	0.8 kV III
Degree of pollution to VDE 0100	3

### Electrical data

Voltage type	DC (direct current)
Operating voltage, minimum	20.4 VDC
Operating voltage, maximum	26.4 VDC
No-load current	50 mA

Rated operating voltage	24 VDC
Operating current	1,000 mA
Switching frequency, approx.	3 Hz

### Electrical data - Fail-safe digital outputs

Rated operating current (safety outputs)	500 mA
Output current, (fail-safe output), maximum	0.5 A
	P-type
	0.5 V
Current leakage	0.5 mA

### Status indication

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

PIN 1	A1 Ue Brown
PIN 2	Y2 safety output 2: White
PIN 3	A2 GND Blue
PIN 4	Y1 Safety output 1 Black

### Scope of delivery

Included in delivery	Actuators must be ordered separately.
Delivery scope of Mounting material	2x nuts M18 x 1

### Accessory

Recommendation (actuator)	CST 180-1 CST 180-2 PROTECT PSC1 SRB-E-301ST SRB-E-201LC
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### Notes

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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## Documents

### **Wiring example (electr. wiring)**

### **Force-travel diagram**

(132,8 kB, 10.05.2019)

### **Operating instructions and Declaration of conformity**

(355,2 kB, 19.11.2019)

### **BG-test certificate**

(192,0 kB, 10.05.2019, Revision B)

### **UL Certificate**

(385,0 kB, 01.08.2019)

### **EAC certification**

### **Brochure**

(5,7 MB, 07.11.2019, Revision 09)

(505,5 kB, 07.11.2019, Revision A)

### **SISTEMA-VDMA library**

(134,9 kB, 19.06.2019)

## Pictures

## Product picture (catalogue individual photo)



ID: kcs18f01

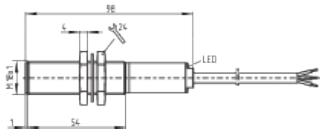
| 15,4 kB | .png | 74.083 x 34.572 mm - 210 x 98 Pixel - 72 dpi

| 2,0 kB | .jpg | 35.278 x 35.278 mm - 100 x 100 Pixel - 72 dpi

| 188,8 kB | .jpg | 352.778 x 164.747 mm - 1000 x 467 Pixel - 72 dpi

| 26,8 kB | .jpg | 26.737 x 12.449 mm - 320 x 149 Pixel - 304 dpi

## Dimensional drawing basic component



ID: 1css1g01

| 4,9 kB | .png | 74.083 x 29.633 mm - 210 x 84 Pixel - 72 dpi

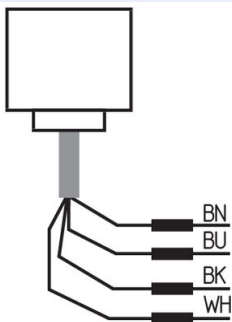
| 2,0 kB | .jpg | 35.278 x 35.278 mm - 100 x 100 Pixel - 72 dpi

| 24,2 kB | .cdr |

| 54,5 kB | .jpg | 352.778 x 140.758 mm - 1000 x 399 Pixel - 72 dpi

| 16,8 kB | .jpg | 112.889 x 45.156 mm - 320 x 128 Pixel - 72 dpi

## Diagram

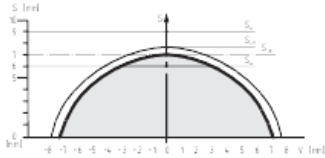


ID: kcsc1k06

| 14,9 kB | .cdr |

| 26,8 kB | .jpg | 112.889 x 158.75 mm - 320 x 450 Pixel - 72 dpi

## Characteristic curve



ID: kcsc1d03

| 3,0 kB | .png | 74.083 x 35.278 mm - 210 x 100 Pixel  
- 72 dpi

| 22,0 kB | .cdr |

| 21,9 kB | .jpg | 112.889 x 53.975 mm - 320 x 153  
Pixel - 72 dpi

## Wiring example



ID: kcs18f21

| 127,3 kB | .jpg | 352.778 x 178.858 mm - 1000 x 507  
Pixel - 72 dpi

## System components

### Actuator



101179574 CST180-2

- Front and lateral actuation of the sensor possible



101177198 CST180-1

- Front and lateral actuation of the sensor possible

**CLAMP H4, H6.5, H12, H18, H20, H30, H40**



101068879 H18

- For a smooth fitting of the proximity switches with cylindrical shape Ø 18 mm or thread M18

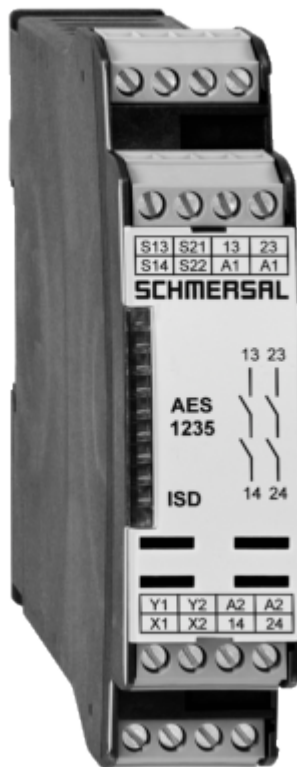
## AES 113x



101170036 AES1135 (24VDC)

- Monitoring of BNS range magnetic safety sensors
- 1 safety contact, STOP 0
- 2 Signalling outputs





101170049 AES1235 (24VDC)

- Monitoring of BNS range magnetic safety sensors
- 2 safety contacts, STOP 0
- 2 Signalling outputs

## Accessories



101173457 CSA-M-1

- Magnetic snap lock
- For play-free interlocking of light guards

K.A. Schmersal GmbH & Co. KG, Möddinghofe 3, D-42279 Wuppertal

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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