

Datasheet - CSS 11-30S-SD-M-ST

Safety sensors / CSS 30S



Preferred typ



(Minor differences between the printed image and the original product may exist!)

- Stainless steel enclosure
- Max. 31 sensors can be wired in series.
- Connector M12, 8-pole
- Ø M30
- High repeat accuracy of the switching points
- Max. length of the sensor chain 200 m
- 2 short-circuit proof PNP safety outputs
- Integral cross-short, wire-breakage and external voltage monitoring of the safety cables up to the control cabinet
- serial diagnostic output

Ordering details

Product type description	CSS 11-30S-SD-M-ST
Article number	101204613
EAN code	4030661381657

Approval

Approval




Classification

Standards	EN ISO 13849-1, IEC 61508, IEC 60947-5-3
PL	up e
Control category	bis 4
PFH	3.6 x 10 ⁻⁹ /h
SIL	bis 3
Mission time	20 Years
Classification	PDF-M

Global Properties

Product name	CSS 30S
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Standards	IEC 60947-5-3, IEC 61508
Compliance with the Directives (Y/N) 	Yes
Suitable for safety functions (Y/N)	Yes
Protection rating	II
Function	Sensor for series wiring
Series-wiring	up to 31 components
Length of the sensor chain	max. 200 m
Active principle	inductive
Materials	
- Material of the housings	Stainless steel
Housing construction form	cylinder, thread
Weight	248 g
Diagnostic output (Y/N)	Yes
Reaction time	< 60 ms
Duration of risk	< 60 ms
Cascadable (Y/N)	Yes
Recommended actuator	CST 30S-1

Mechanical data

mechanical installation conditions	not flush
Actuating planes	Actuation from top
Active area	front
Switch distance S_n	11 mm
Ensured switch distance ON S_{ao}	8 mm
Ensured switch distance OFF S_{ar}	15 mm
hysteresis	< 2 mm
Repeat accuracy R_R	< 1 mm
restistance to shock	30 g / 11 ms
Resistance to vibration	10 ... 55 Hz, Amplitude 1 mm

Ambient conditions

Ambient temperature	
- Min. environmental temperature	-25 °C
- Max. environmental temperature	+65 °C
Storage and transport temperature	
- Min. Storage and transport temperature	-25 °C
- Max. Storage and transport temperature	+85 °C
Protection class	IP65, IP67 to IEC/EN 60529 IP69K to DIN 40050-9
Air clearances and creepage distances To IEC/EN 60664-1	
- Rated impulse withstand voltage U_{imp}	0,8 kV
- Overvoltage category	III
- Degree of pollution	3

Electromagnetic compatibility (EMC)

EMC rating	to IEC 61000-6-2
Interfering radiation	to IEC 61000-6-4

Electrical data

Cross circuit/short circuit recognition possible (Y/N)	Yes
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Voltage type	DC
Switch frequency	3 Hz
Rated insulation voltage U_i	32 VAC/DC
Rated operating voltage U_e (stabilised PELV)	
- Min. Rated operating voltage	20.4 VDC
- Max. Rated operating voltage	26.4 VDC
Operating current I_e	0,6 A
No-load current I_0	0,1 A
Required rated short-circuit current	100 A
Device insulation (Circuit breaker)	2 A
notice	The cable section of the interconnecting cable must be observed for both wiring variants! Cable length and cable section alter the voltage drop depending on the output current

Electrical data - Safety inputs

Safety inputs	X1 and X2
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Electrical data - Safety outputs

Safety outputs	Y1 and Y2
Fuse rating	short-circuit proof
Design of control output	p-type
Number of secure semi-conductor outputs	2 piece
Voltage drop U_d	< 1 V
Max. output current at secured output	0,25 A
Rated operating voltage	min. (U_e & minus; 1 V)
Residual current I_r	< 0,5 mA
Operating current I_e	max. 0,25 A
Minimum operating current I_m	0,5 mA
Utilisation category	DC-12: 24 V / 0,25 A DC-13: 24 V / 0,25 A

Electrical data - Diagnostic output

Serial diagnostics (Y/N)	Yes
Fuse rating	short-circuit proof
Design of control output	p-type
Number of semi-conductor outputs with signaling function	1 piece
Voltage drop U_d	< 5 V
Rated operating voltage	min. (U_e & minus; 5 V)
Operating current I_e	max. 0,05 A
Utilisation category	DC-12: 24 V / 0,05 A DC-13: 24 V / 0,05 A
Wiring capacitance for serial diagnostics	max. 50 nF

LED switching conditions display

LED switching conditions display (Y/N)	Yes
Number of LED's	2 piece

ATEX

Explosion protection categories for gases	None
Explosion protected category for dusts	None

Dimensions

Dimensions of the sensor

- Length of sensor	99.5 mm
- Diameter of sensor	M30

Pin assignment

1 - A1 Ue	(1)
2 - X1 Safety input 1	(2)
3 - A2 GND	(3)
4 - Y1 Safety output 1	(4)
5 - SD serial diagnostic output	(5)
6 - X2 Safety input 2	(6)
7 - Y2 Safety output 2	(7)
8 - IN serial diagnostic input	(8)

notice

Requirements for the safety monitoring module

The safety monitoring module must tolerate internal functional tests of the safety outputs for 250 μ s –1500 μ s.

The 250 μ s switch-off time of the safety sensor additionally will be extended depending on the cable length and the capacity of the cable used. Typically, a switch-off time of 500 μ s is reached with a 100 m connecting cable.

Included in delivery

Actuators must be ordered separately.

Mounting accessories Nuts M 18 x 1 2 piece

Indication legend

see drawing: Characteristic curve

S	Switch distance
V	Axial offset
S _{on}	Switch-on distance
S _{off}	Switch-off distance
S _h	Hysteresis area
S _{ao}	Ensured switch distance ON
S _{ar}	Ensured switch distance OFF

Ordering code

CSS 30S-(1)-M-ST

(1)

D with Diagnostic output
SD serial diagnostic output

Documents

Operating instructions and Declaration of conformity (es) 727 kB, 21.12.2011

Code: mrl css30s es

Operating instructions and Declaration of conformity (en) 737 kB, 19.02.2010

Code: mrl_css30s_en

Operating instructions and Declaration of conformity (de) 644 kB, 08.10.2010

Code: mrl_css30s_de

Operating instructions and Declaration of conformity (it) 429 kB, 15.06.2010

Code: mrl_css30s_it

Operating instructions and Declaration of conformity (jp) 792 kB, 21.12.2011

Code: mrl_css30s_jp

Operating instructions and Declaration of conformity (fr) 719 kB, 05.08.2011

Code: mrl_css30s_fr

Operating instructions and Declaration of conformity (nl) 472 kB, 22.08.2011

Code: mrl_css30s_nl

BG-test certificate (de, en) 220 kB, 09.02.2010

Code: z_cssp03

Brochure (de) 9 MB, 15.10.2012

Code: b_csap01

Brochure (es) 2 MB, 26.08.2009

Code: b_csap09

Brochure (fr) 1 MB, 18.01.2007

Code: b_csap03

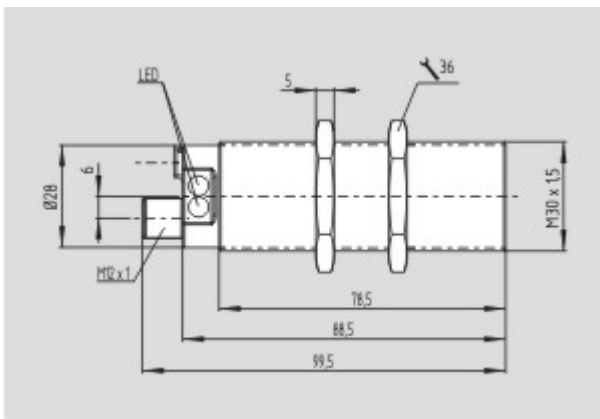
Brochure (it) 2 MB, 24.09.2008

Code: b_csap05

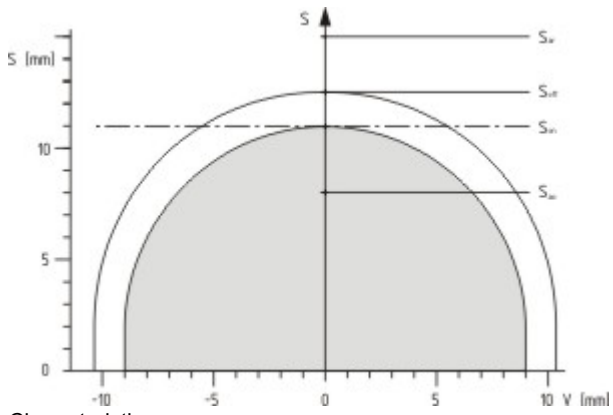
Brochure (en) 9 MB, 15.10.2012

Code: b_csap02

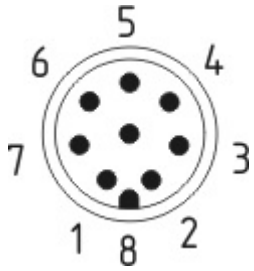
Images



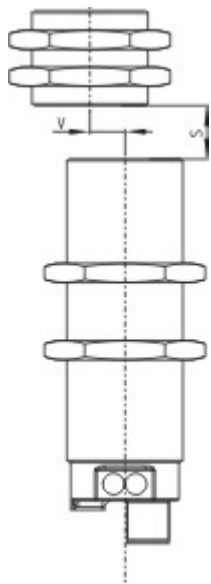
Dimensional drawing (basic component)



Characteristic curve



Contact arrangement



Operating principle

System components

Actuator



101193607 - CST 30S-1

- Stainless steel enclosure

Safety control modules

SRB 031MC



- Fit for signal evaluation of outputs of safety magnetic switches
- Drop-out delay can be set between 0,4 to 1,5 s
- 3 safety contacts, STOP 1
- 1 Signalling output
- Suitable for signal processing of potential-free outputs, e.g. emergency stop command devices, position switches and solenoid interlocks
- Suitable for signal processing of outputs connected to potentials (AOPDs), e.g. safety light grids/curtains



SRB 301LC/B

- Fit for signal evaluation of outputs of safety magnetic switches (to this end, integrated current and voltage limiters)
- Suitable for signal processing of potential-free outputs, e.g. emergency stop command devices, position switches and solenoid interlocks
- Suitable for signal processing of outputs connected to potentials (AOPDs), e.g. safety light grids/curtains
- 3 safety contacts, STOP 0
- 1 Signalling output



SRB 301MC

- Fit for signal evaluation of outputs of safety magnetic switches
- 3 safety contacts, STOP 0
- 1 Signalling output
- Suitable for signal processing of potential-free outputs, e.g. emergency stop command devices, position switches and solenoid interlocks



SRB 301ST

- Suitable for signal processing of potential-free outputs, e.g. emergency stop command devices, position switches and solenoid interlocks
- Suitable for signal processing of outputs connected to potentials (AOPDs), e.g. safety light grids/curtains
- Fit for signal evaluation of outputs of safety magnetic switches
- 3 safety contacts, STOP 0
- 1 Signalling output



SRB 304ST

- Suitable for signal processing of potential-free outputs, e.g. emergency stop command devices, position switches and solenoid interlocks
- Suitable for signal processing of outputs connected to potentials (AOPDs), e.g. safety light grids/curtains
- Fit for signal evaluation of outputs of safety magnetic switches
- 3 safety contacts, STOP 0
- 4 Signalling outputs



SRB 324ST

- Suitable for signal processing of potential-free outputs, e.g. emergency stop command devices, position switches and solenoid interlocks
- Suitable for signal processing of outputs connected to potentials (AOPDs), e.g. safety light grids/curtains
- 3 safety contacts, STOP 0;
- 2 safety contacts, STOP 1 (adjustable 1 ... 30 s)
- 4 Signalling outputs
- Optional: Short-circuit recognition, Manual reset with edge detection in fail-safe circuit, Automatic reset function

101170036 - AES 1135

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



- 2 Signalling outputs



101170049 - AES 1235

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

Mounting accessories



101068520 - MOUNTING CLAMP H 30

- For a smooth fitting of the proximity switches with cylindric shape \varnothing 30 mm or thread M30

K.A. Schmersal GmbH & Co. KG, Mödinghofe 30, D-42279 Wuppertal

The data and values have been checked thoroughly. Technical modifications and errors excepted.

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