

## Datasheet - CSS 11-30S-D-M-ST

Safety sensors / CSS 30S



Preferred typ



- 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

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

### Ordering details

Product type description	CSS 11-30S-D-M-ST
Article number	101204612
EAN code	4030661381664

### 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 <sup>-9</sup> /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	245 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

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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

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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)

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

### Electrical data

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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

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Safety inputs	X1 and X2
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### Electrical data - Safety outputs

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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

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Serial diagnostics (Y/N)	No
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

### LED switching conditions display

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

### ATEX

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

## Dimensions

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### Dimensions of the sensor

- Length of sensor	99.5 mm
- Diameter of sensor	M30

## Pin assignment

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1 - A1 Ue	(1)
2 - X1 Safety input 1	(2)
3 - A2 GND	(3)
4 - Y1 Safety output 1	(4)
5 - OUT Diagnostic output	(5)
6 - X2 Safety input 2	(6)
7 - Y2 Safety output 2	(7)
8 - IN without function	(8)

## notice

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### Requirements for the safety monitoring module

The safety monitoring module must tolerate internal functional tests of the safety outputs for 250  $\mu$ s –1500  $\mu$ s.  
The 250  $\mu$ 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  $\mu$ s is reached with a 100 m connecting cable.

## Included in delivery

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Actuators must be ordered separately.

Mounting accessories Nuts M 18 x 1	2 piece
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## Indication legend

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see drawing: Characteristic curve

S	Switch distance
V	Axial offset
S <sub>on</sub>	Switch-on distance
S <sub>off</sub>	Switch-off distance
S <sub>h</sub>	Hysteresis area
S <sub>ao</sub>	Ensured switch distance ON
S <sub>ar</sub>	Ensured switch distance OFF

## Ordering code

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CSS 30S-(1)-M-ST

(1)

D	with Diagnostic output
SD	serial diagnostic output

## Documents

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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

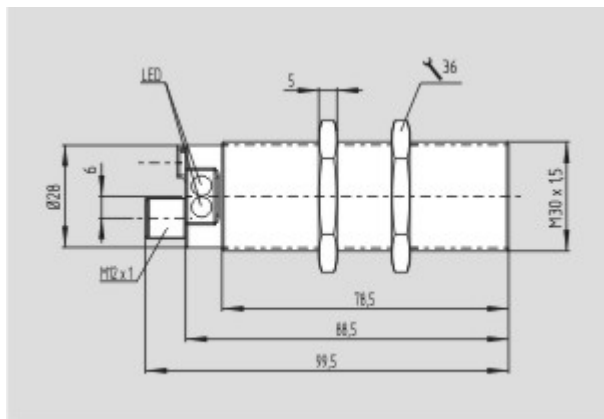
Code: b\_csap05

**Brochure (en)** 9 MB, 15.10.2012

Code: b\_csap02

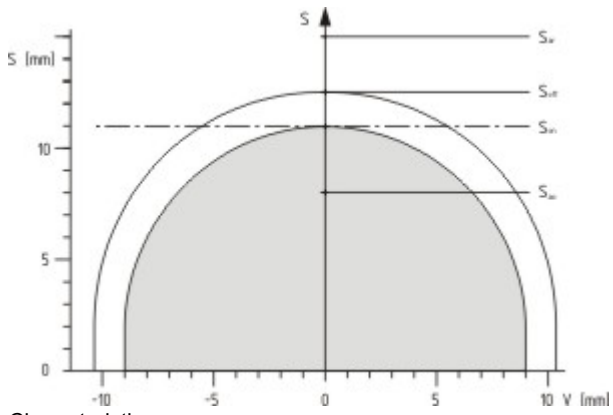
## Images

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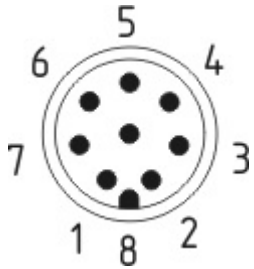


Dimensional drawing (basic component)

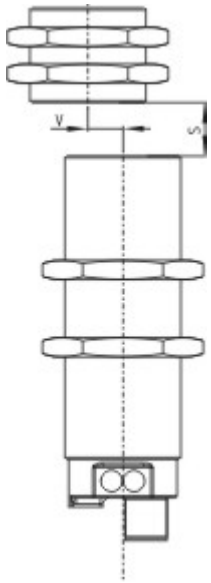
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Characteristic curve



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

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

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