

## Datasheet - CSS 14-34-S-SD-M-ST

Safety sensors / CSS 34

Preferred typ



- Thermoplastic enclosure
- Electronic contact-free, coded system
- Misaligned actuation possible
- 27 mm x 108.2 mm x 35 mm
- 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
- 1 x connector plug M12, 8-pole
- Actuation from side
- serial diagnostic output
- Max. 31 sensors can be wired in series.

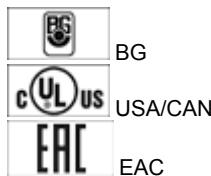
(Minor differences between the printed image and the original product may exist!)

### Ordering details

Product type description	CSS 14-34-S-SD-M-ST
Article number	101181066
EAN Code	4030661314891
eCl@ss	27-27-24-01

### Approval

Approval



### Classification

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

### Global Properties

Permanent light	CSS 34
Standards	IEC 60947-5-3
Compliance with the Directives (Y/N)	Yes

Suitable for safety functions (Y/N)	Yes
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	Plastic, glass-fibre reinforced thermoplastic
- Material of the active surface	Plastic, glass-fibre reinforced thermoplastic
Housing construction form	Block
Weight	140
Input for enabling pushbutton, suitable for automatic start (Y/N)	No
Input for reset pushbutton, with edge monitoring (Y/N)	No
Diagnostic output (Y/N)	Yes
Reaction time	< 30
Duration of risk	< 60
Cascadable (Y/N)	Yes
Recommended actuator	CST 34-S-1, CST 34-S-2, CST 34-S-3, CST 180-1, CST 180-2

## Mechanical data

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Design of electrical connection	connector plug M12, 8-pole
mechanical installation conditions	not flush
Actuating planes	Actuation from side
Active area	lateral
Switch distance $S_n$	10 mm / 14 mm
- Actuator <b>CST 34-S-1</b>	14
- Actuator <b>CST 34-S-2</b>	14
- Actuator <b>CST 34-S-3</b>	14
- Actuator <b>CST 180-1 / CST 180-2</b>	10
Ensured switch distance ON $S_{ao}$	8 mm / 12 mm
- Actuator <b>CST 34-S-1</b>	12
- Actuator <b>CST 34-S-2</b>	12
- Actuator <b>CST 34-S-3</b>	12
- Actuator <b>CST 180-1 / CST 180-2</b>	8
Ensured switch distance OFF $S_{ar}$	13 mm / 17 mm
- Actuator <b>CST 34-S-1</b>	17
- Actuator <b>CST 34-S-2</b>	17
- Actuator <b>CST 34-S-3</b>	17
- Actuator <b>CST 180-1 / CST 180-2</b>	13
hysteresis	max. 1.5 mm
Repeat accuracy $R_R$	$\leq 0.5$ mm
notice	<b>Axial offset:</b> The long side allows for a maximum height misalignment (x) of sensor and actuator of 36 mm (e.g. mounting tolerance or due to guard door sagging). Increased misalignment, max. 53 mm, possible when the CST 34-S-2 actuator is used. The axial misalignment (y) is max. $\pm 10$ mm. see drawing: Operating principle
resistance 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
- Max. environmental temperature	+70
Storage and transport temperature	

- Min. Storage and transport temperature	-25
- Max. Storage and transport temperature	+85
Protection class	IP65, IP67 to IEC/EN 60529
Protection rating	II
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
Voltage type	DC
Switch frequency	3
Rated insulation voltage $U_i$	32 VDC
Rated operating voltage $U_e$ (stabilised PELV)	
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
Max. output current at secured output	0,25 A
Rated operating voltage	min. ( $U_e - 1$ V)
Residual current $I_r$	$\leq 0,5$ mA
Operating current $I_e$	max. 0,25 A
- Ambient temperature: $-25$ °C ... $+70$ °C	$\leq 0,1$ A
Minimum operating current $I_m$	0,5 mA
- Ambient temperature: $-25$ °C ... $+65$ °C	$\leq 0,25$ A
Utilisation category	DC-12: 24 V / 0,25 A DC-13: 24 V / 0,25 A
Voltage drop $U_d$	$< 1$ V

## Electrical data - Diagnostic output

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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
Rated operating voltage	min. ( $U_e - 5$ V)
Operating current $I_e$	max. 0,05 A
Voltage drop $U_d$	< 5 V
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

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LED switching conditions display (Y/N)	Yes
Number of LED's	3

## 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	
- Width of sensor	27
- Height of sensor	108.2
- Length of sensor	35

## Pin assignment

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1 - A1 $U_e$	(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

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Requirements for the safety monitoring module	2-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. 0,5 ms. The safety monitoring module does not need to have a cross-wire short monitoring function.
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## Included in delivery

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Actuators must be ordered separately.

## Ordering code

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CSS (1)-34-(2)-(3)-(4)-M-(5)

(1)

12

14

Actuation from top

Actuation from side

<b>(2)</b>		
<b>without</b>		Included in standard version
<b>F0</b>		Input for enabling pushbutton, suitable for automatic start
<b>F1</b>		Input for reset pushbutton, with edge monitoring
<b>(3)</b>		
<b>S</b>	Active area lateral	
<b>V</b>	Active area front	
<b>(4)</b>		
<b>D</b>	with Diagnostic output	
<b>SD</b>	serial diagnostic output	
<b>(5)</b>		
<b>L</b>	with Pre-wired cable	
<b>ST</b>	with Connector	

## Documents

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### **Operating instructions and Declaration of conformity (en)** 454 kB, 21.11.2016

Code: mrl\_css34\_en

### **Operating instructions and Declaration of conformity (it)** 374 kB, 14.06.2017

Code: mrl\_css34\_it

### **Operating instructions and Declaration of conformity (pt)** 380 kB, 05.04.2017

Code: mrl\_css34\_pt

### **Operating instructions and Declaration of conformity (nl)** 446 kB, 27.11.2009

Code: mrl\_css34\_nl

### **Operating instructions and Declaration of conformity (es)** 380 kB, 12.12.2016

Code: mrl\_css34\_es

### **Operating instructions and Declaration of conformity (de)** 439 kB, 21.11.2016

Code: mrl\_css34\_de

### **Operating instructions and Declaration of conformity (jp)** 645 kB, 15.05.2017

Code: mrl\_css34\_jp

### **Operating instructions and Declaration of conformity (da)** 373 kB, 22.08.2012

Code: mrl\_css34\_da

### **Operating instructions and Declaration of conformity (fr)** 457 kB, 01.02.2017

Code: mrl\_css34\_fr

### **Operating instructions and Declaration of conformity (pl)** 397 kB, 16.02.2017

Code: mrl\_css34\_pl

### **Wiring example (de)** 148 kB, 29.09.2009

Code: kcss3p02

### **Brochure (it)** 2 MB, 24.09.2008

Code: b\_csap05

### **Brochure (de)** 6 MB, 15.02.2018

Code: b\_css\_brosch09\_de

**Brochure (en)** 6 MB, 15.02.2018

Code: b\_css\_brosch09\_en

**Brochure (es)** 2 MB, 26.08.2009

Code: b\_csap09

**Brochure (fr)** 1 MB, 18.01.2007

Code: b\_csap03

**TÜV certification (en, de)** 599 kB, 26.03.2015

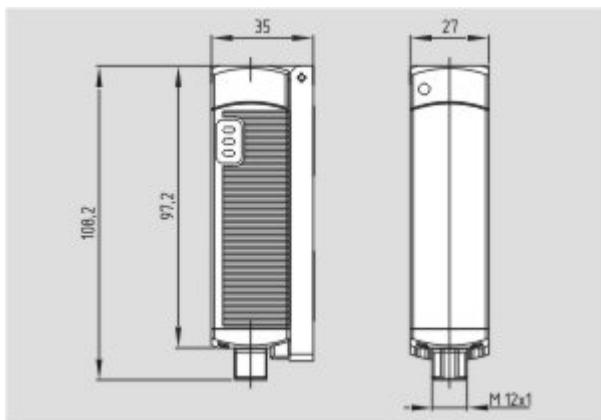
Code: z\_cssp08

**EAC certification (ru)** 747 kB, 05.10.2015

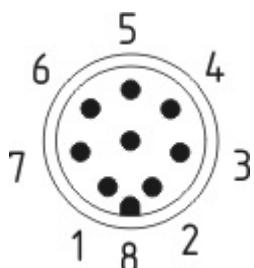
Code: q\_6396p17\_ru

## Images

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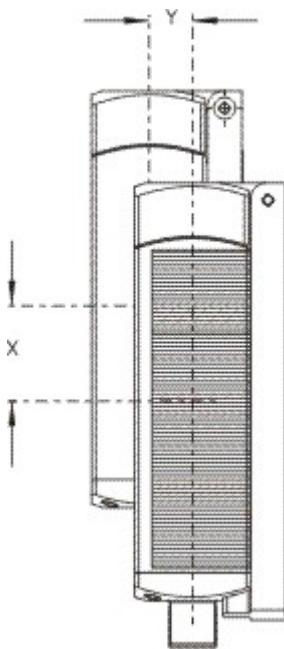


Dimensional drawing (basic component)



Contact arrangement

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Operating principle



Clipart

## System components

### Actuator

**101181085 - CST 34-S-1**

- Actuation from side



**101196101 - CST 34-S-2**

- Actuator with double solenoid
- for increased misalignment
- Front and lateral actuation of the sensor possible



**101203434 - CST 34-S-3**

- Front and lateral actuation of the sensor possible
- Small body



## 101177198 - CST 180-1

- Front and lateral actuation of the sensor possible



## 101179574 - CST 180-2

- Front and lateral actuation of the sensor possible



## Safety control modules



### SRB031MC

- 1 Signalling output
- 3 safety contacts, STOP 1
- Drop-out delay can be set between 0,4 to 1,5 s
- 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



### 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 outputs connected to potentials (AOPDs), e.g. safety light grids/curtains
- Suitable for signal processing of potential-free outputs, e.g. emergency stop command devices, position switches and solenoid interlocks



### SRB301ST

- 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

### SRB304ST

- 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



#### **SRB324ST**

- 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

### **Connector**



#### **101190025 - CSS-T-A**

- Accessories for series-wiring with serial diagnostics
- for CSS 34



#### **101190026 - CSS-T**

- Accessories for series-wiring with serial diagnostics
- for Sensors