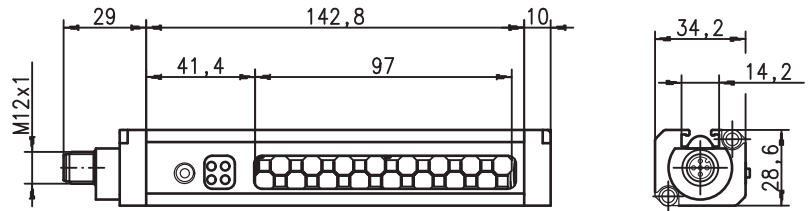


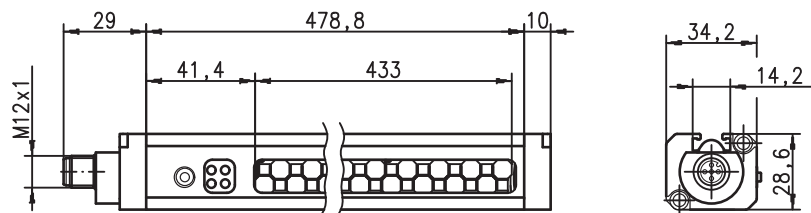
CSR 780

Switching Retro-Reflective Light Curtain

Dimensioned drawing

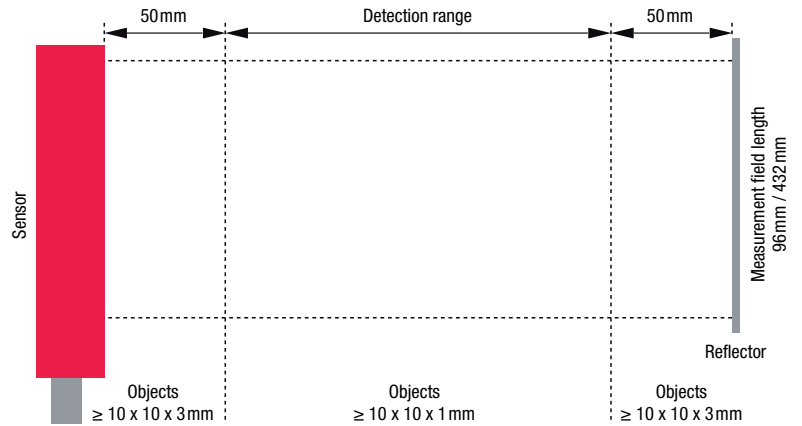


CSR 780-01-96/...WHE-M12

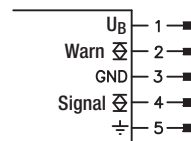


CSR 780-01-432/...WHE-M12

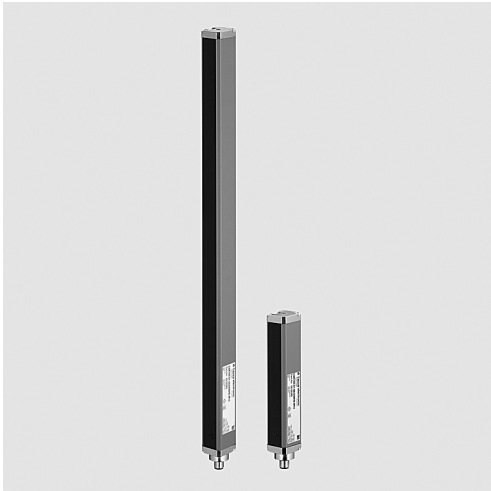
Measurement window



Electrical connection



en 01-2015/05 50128401



0 ... 700mm



18 - 30 V
DC

- Complete detection of small objects ($\geq 10\text{mm} \times 10\text{mm} \times 1\text{mm}$)
- Object speed $\leq 3.5\text{m/s}$
- Readjustment when soiled
- Warning output for prefailure message
- Time-saving adjustment by means of teach-in

We reserve the right to make changes • DS_CSR780_en_50128401_fm



Accessories:

(available separately)

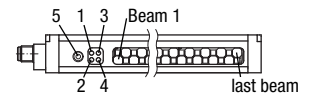
- Reflector OCS 110x80mm-M
Part No.: 50111155
- Reflector OCS 450x80mm-M
Part No.: 50111154
- Additional fastening sliding blocks BT-NC,
Part No.: 425720
- Standard cable with M12 connector, e.g.:
K-D M12W-5P-2m-PVC
Part No.: 50104556

Specifications

	CSR 780-01-96/...WHE-M12	CSR 780-01-432/...WHE-M12
Optical data		
Typ. operating range limit	0 ... 800mm	
Operating range	0 ... 700mm	
Light source	LED infrared	
Wavelength	850nm	
Min. object resolution ¹⁾	1mm	
Measurement field length	96mm	432mm
Timing		
Response time pin 4 (signal)	> 2ms	
Readiness delay	≤ 1s	
Electrical data		
Operating voltage U_B ²⁾	18 ... 30VDC (incl. residual ripple)	
Residual ripple	≤ 15% of U_B	
Max. open-circuit current (excl. switching current)	70mA	150mA
Signal voltage high/low	≥ ($U_B - 2V$) / ≤ 2V	
Output current	max. 100 mA	
Switching output ³⁾	CSR 780.../6... CSR 780.../G...	1 push-pull, light switching 1 push-pull, dark switching
Warning output ³⁾		1 push-pull, active-high
Indicators		
Green/red LED		ready/warning
Yellow LED		object detected/not detected
2x green LED ⁴⁾		alignment status of first beam alignment status of last beam (counting from connector edge)
Mechanical data		
Housing		continuous-cast aluminum
Fastening		M6 screw over sliding blocks with thread depth 5 ... 6mm with a max. tightening torque of 3.5Nm
Optics cover		plastic (PMMA)
Weight	0.22kg	0.53kg
Connection type		M12 connector, metal
Environmental data		
Ambient temp. (operation/storage)		-0°C ... +55°C / -30°C ... +70°C
Protective circuit ⁵⁾		2, 3
VDE safety class		III
Degree of protection		IP 65
Light source		exempt group (in acc. with EN 62471)
Standards applied		IEC 60947-5-2
Certifications		UL 508, C22.2 No.14-13 ^{2) 6)}

- 1) When using High Gain 7610 highly reflective foil, objects at minimum distance of 50mm from sensor and reflector
- 2) For UL applications: for use in class 2 circuits according to NEC only
- 3) The push-pull switching outputs must not be connected in parallel
- 4) Only active in alignment mode
- 5) 2=polarity reversal protection, 3=short circuit protection for all outputs
- 6) These proximity switches shall be used with UL Listed Cable assemblies rated 30V, 0.5A min, in the field installation, or equivalent (categories: CYJV/CYJV7 or PVVA/PVVA7)

Indicator and operating elements of the



LED/button	Meaning	
1	Green	operation
	Red	warning
2	Yellow	object detected/not detected
	Yellow flashing	teach event
3	Green, flashing	alignment of beam 1 ok
4	Green, flashing	alignment of last beam ok
5	Button	operational control

Remarks

Operate in accordance with intended use!	
⚠	This product is not a safety sensor and is not intended as personnel protection.
⚠	The product may only be put into operation by competent persons.
⚠	Only use the product in accordance with the intended use.

Alignment

1. Switch to **alignment mode:**
Press the button (5) > 7s;
LEDs (1) and (2) flash alternately.
2. LEDs (3) and (4) indicate whether the first or last beam of the light curtain is being reflected by the reflector.
3. Mechanically align the light curtain or reflector until the two green LEDs (3) and (4) flash as quickly as possible.
4. Screw down the light curtain and reflector using a lock washer.
5. Check whether the LEDs (3) and (4) are still flashing.
6. Switch to **normal operation:**
Press the button (5).

CSR 780

Switching Retro-Reflective Light Curtain

Part number code

C S R 7 8 0 - 0 1 - 4 3 2 / 6 W H E - M 1 2

Operating principle

CSR Switching retro-reflective light curtain

Series

780 Series 780, operating range 700mm, cycle time > 2ms

Parameterization

01 Standard

Measurement field length

96 Measurement field length 96mm

432 Measurement field length 432mm

Switching output (pin 4)

6 Switching output push-pull, light switching

G Switching output push-pull, dark switching

Warning output (Pin 2)

WH Warning output push-pull, active-high

Functional earth (pin 5)

E Connection for functional earth

Electrical connection

M12 M12 connector, 5-pin

Order guide

	Designation	Part no.
Measurement field length 96 mm		
Push-pull switching output, light switching ; warning output active-high	CSR780-01-96/6WHE-M12	50128287
Push-pull switching output, dark switching ; warning output active-high	CSR780-01-96/GWHE-M12	50128288
Measurement field length 432 mm		
Push-pull switching output, light switching ; Warning output active-high	CSR780-01-432/6WHE-M12	50128289
Push-pull switching output, dark switching ; warning output active-high	CSR780-01-432/GWHE-M12	50128290
Accessories		
Reflector for CSR780 with measurement field length 96 mm	OCS110x80mm-M	50111155
Reflector for CSR780 with measurement field length 432 mm	OCS450x80mm-M	50111154
Additional fastening sliding blocks	BT-NC	425720
Connection cable with M12 connector, angled, 5-pin, length 2 m, PVC sheathing (other connection cables are available)	K-D M12W-5P-2m-PVC	50104556

CSR 780

Switching Retro-Reflective Light Curtain

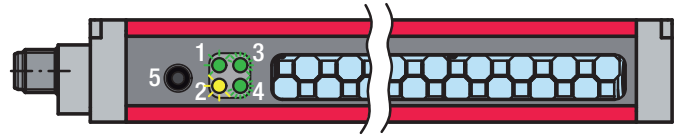
Possible operating states

Alignment mode

Activate by pressing the control button (5) > 7s;
LEDs (1) and (2) flash alternately.

Alignment of the complete system; LED (3) and (4) show the alignment quality (higher flashing frequency = better).

Exit via control button (5).



After each switch-on, the teach-in function is activated automatically.

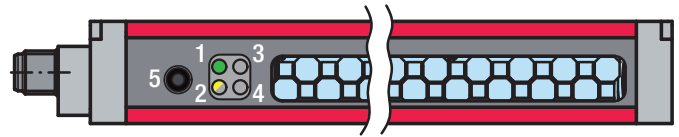
In addition, the teach-in function can be activated by pressing the control button (5) for 2 ... 7s; during this process, LEDs (1) and (2) flash synchronously.

The following operating states may then occur:

Normal operation

LED (1): continuous light **green** -> normal operation.
LED (2): **yellow** -> object detected / not detected.

Fault-free operation, no action required



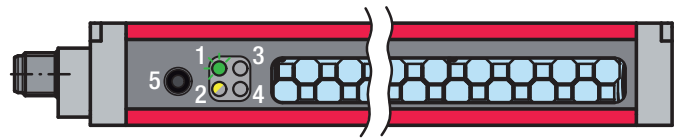
Normal operation with soiling

Fault-free operation. However, a gradual soiling of the optics or the reflector was detected.

LED (1): **flashing green** -> normal operation with soiling.
LED (2): **yellow** object detected / not detected.

Remedy:

- Clean reflector and sensor at the next opportunity.



Possible error states

If a sensor problem is detected during the teach-in function (LEDs (1) and (2) continuously flash synchronously), the sensor switches to one of the following operating modes after the control button is pressed (5):

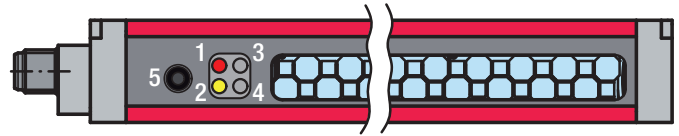
Case of error

Faulty beams ($> \text{Max_Defect}$) detected during automatic readjustment or teach-in function
 -> **no object detection possible.**

LED (1): continuous light **red** -> no object detection.
 LED (2): continuous state "Object detected"

Remedy:

- Check for parts that may extend into the measuring field.
- Check reflector for damage.
- Check sensor screen for damage.
- Check alignment.



Emergency operation

Faulty beams ($\leq \text{Max_Defect}$) detected during automatic readjustment or teach-in function
 -> **object detection with restricted measuring field.**

LED (1): continuous light **red** -> limited object detection.
 LED (2): **yellow** -> object detected / not detected.

Remedy:

- Check for parts that may extend into the measuring field.
- Check reflector for damage.
- Check sensor screen for damage.
- Check alignment.

