



Figure can vary

Part no.: 50128950
CSL710-R20-470.A/L-M12
Light curtain receiver



Contents

- Technical data
- Dimensioned drawings
- Electrical connection
- Operation and display
- Suitable transmitters
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Technical data

| Basic data | |
|---------------------|--------------------------|
| Series | 710 |
| Operating principle | Throughbeam principle |
| Device type | Receiver |
| Contains | 2x BT-NC sliding block |
| Application | Precise object detection |

| Optical data | |
|--------------------------|----------------------------|
| Operating range | Guaranteed operating range |
| Operating range | 0.3 ... 7 m |
| Operating range limit | Typical operating range |
| Operating range limit | 0.2 ... 9 m |
| Measurement field length | 470 mm |
| Number of beams | 24 Piece(s) |
| Beam spacing | 20 mm |

| Measurement data | |
|-------------------------|-------|
| Minimum object diameter | 30 mm |

| Electrical data | |
|------------------------|---|
| Protective circuit | Polarity reversal protection Short circuit protected Transient protection |

| Performance data | |
|-------------------------|--|
| Supply voltage U_B | 18 ... 30 V, DC |
| Residual ripple | 0 ... 15 %, From U_{B_B} |
| Open-circuit current | 0 ... 165 mA, The specified values refer to the entire package consisting of transmitter and receiver. |

| Inputs/outputs selectable | |
|-------------------------------------|-----------------------------------|
| Output current, max. | 100 mA |
| Input resistance | 6,000 Ω |
| Number of inputs/outputs selectable | 4 Piece(s) |
| Voltage type, outputs | DC |
| Switching voltage, outputs | Typ. U_{B_B} / 0 V |
| Voltage type, inputs | DC |
| Switching voltage, inputs | high: $\geq 6V$ low: $\leq 4V$ |

| Input/output 1 | |
|--------------------------|------------|
| Activation/disable delay | 0 ... 1 ms |

| Timing | |
|------------------------|------------|
| Readiness delay | 400 ms |
| Cycle time | 1.12 ms |
| Response time per beam | 30 μs |

| Interface | |
|------------------|---------|
| Type | IO-Link |

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IO-Link

| | |
|-----------------|----------------|
| COM mode | COM2 COM3 |
| Specification | V1.0.1 V1.1 |
| Min. cycle time | COM2 = 2.3 ms |

Service interface

| | |
|------|---------|
| Type | IO-Link |
|------|---------|

IO-Link

| | |
|----------|---------------------------------------|
| Function | Configuration via software Service |
|----------|---------------------------------------|

Connection

| | |
|-----------------------|------------|
| Number of connections | 2 Piece(s) |
| Plug outlet | Axial |

Connection 1

| | |
|--------------------|--|
| Type of connection | Connector |
| Function | Configuration interface Signal IN Signal OUT Voltage supply |
| Thread size | M12 |
| Type | Male |
| Material | Metal |
| No. of pins | 8 -pin |
| Encoding | A-coded |

Connection 2

| | |
|--------------------|---------------------------|
| Type of connection | Connector |
| Function | Connection to transmitter |
| Thread size | M12 |
| Type | Female |
| Material | Metal |
| No. of pins | 5 -pin |
| Encoding | A-coded |

Mechanical data

| | |
|-----------------------|---|
| Design | Cubic |
| Dimension (W x H x L) | 29 mm x 54.8 mm x 553 mm |
| Housing material | Metal, Aluminum |
| Lens cover material | Plastic / PMMA |
| Net weight | 650 g |
| Housing color | Red |
| Type of fastening | Groove mounting Via optional mounting device |

Operation and display

| | |
|-----------------------|----------------------|
| Type of display | LED OLED display |
| Number of LEDs | 2 Piece(s) |
| Type of configuration | Software Teach-in |
| Operational controls | Membrane keyboard |

Environmental data

| | |
|--------------------------------|---------------|
| Ambient temperature, operation | -30 ... 60 °C |
| Ambient temperature, storage | -40 ... 70 °C |

Certifications

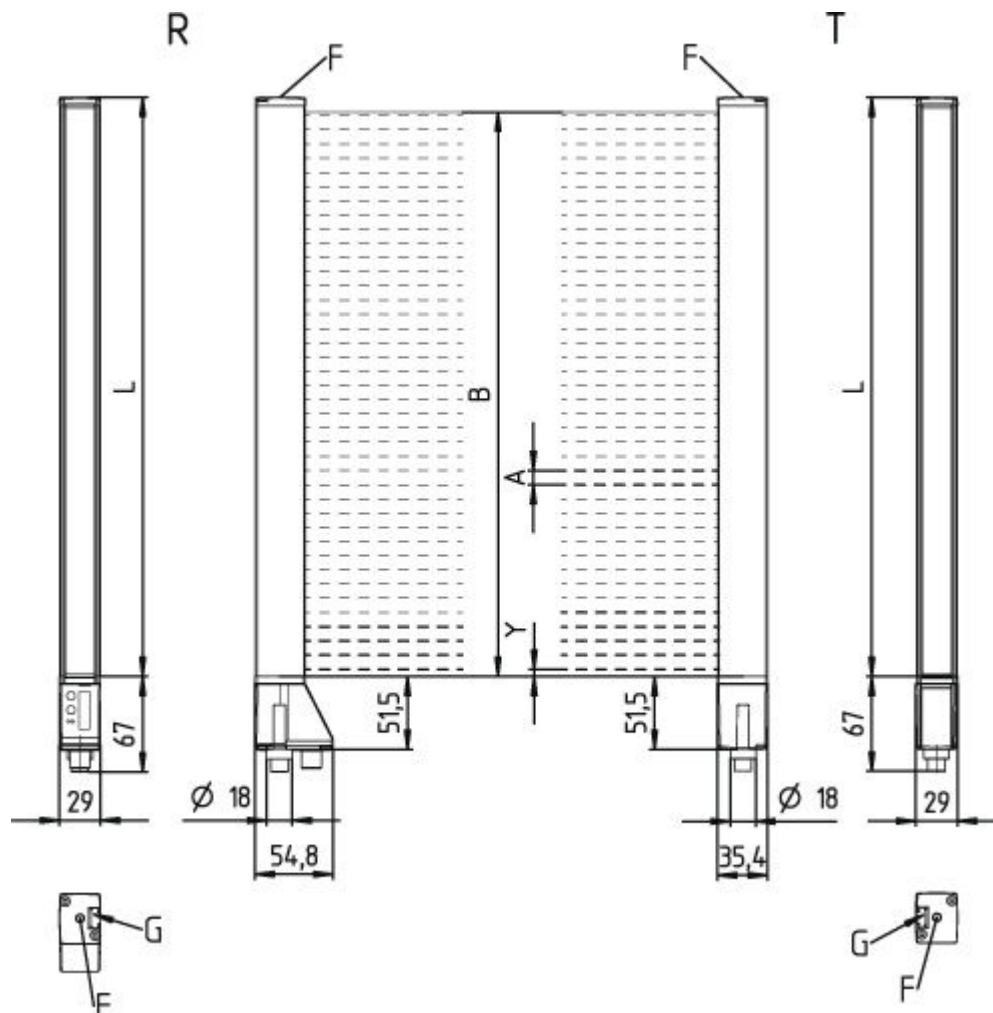
| | |
|----------------------|---------------|
| Degree of protection | IP 65 |
| Protection class | III |
| Certifications | c CSA US |
| Standards applied | IEC 60947-5-2 |

Classification

| | |
|-----------------------|----------|
| Customs tariff number | 90314990 |
| eCl@ss 8.0 | 27270910 |
| eCl@ss 9.0 | 27270910 |
| ETIM 5.0 | EC002549 |
| ETIM 6.0 | EC002549 |

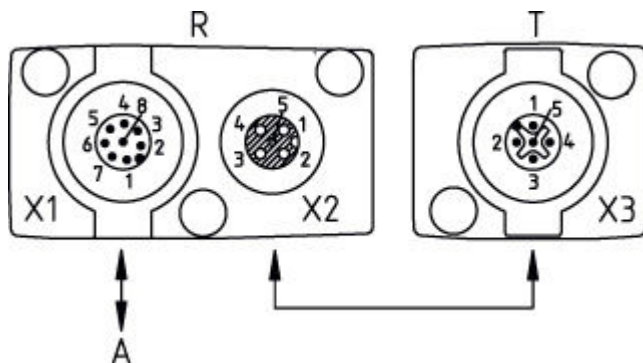
Dimensioned drawings

All dimensions in millimeters



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- A Beam spacing 20 mm
- B Measurement field length 470 mm
- F M6 thread
- G Fastening groove
- L Profile length 488 mm
- T Transmitter
- R Receiver
- Y

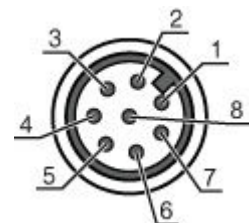


A PWR / SW IN/OUT

Electrical connection

| Connection 1 | |
|--------------------|--|
| Type of connection | Connector |
| Function | Configuration interface Signal IN Signal OUT Voltage supply |
| Thread size | M12 |
| Type | Male |
| Material | Metal |
| No. of pins | 8 -pin |
| Encoding | A-coded |

| Pin | Pin assignment |
|-----|----------------|
| 1 | V+ |
| 2 | IO1 |
| 3 | GND |
| 4 | IO-Link |
| 5 | IO2 |
| 6 | IO3 |
| 7 | IO4 |
| 8 | GND |



| Connection 2 | |
|--------------------|---------------------------|
| Type of connection | Connector |
| Function | Connection to transmitter |
| Thread size | M12 |
| Type | Female |

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| Connection 2 | |
|--------------|---------|
| Material | Metal |
| No. of pins | 5 -pin |
| Encoding | A-coded |

| Pin | Pin assignment |
|-----|----------------|
| 1 | FE/SHIELD |
| 2 | V+ |
| 3 | GND |
| 4 | RS 485 Tx+ |
| 5 | RS 485 Tx- |




Operation and display

LEDs

| LED | Display | Meaning |
|-----|--------------------------|--|
| 1 | Green, continuous light | Operational readiness |
| | Green, flashing | Teach / error |
| 2 | Yellow, continuous light | Light path free, with function reserve |
| | Yellow, flashing | No function reserve |
| | Off | Object detected |

Suitable transmitters

| | Part no. | Designation | Article | Description |
|---|----------|----------------------|---------------------------|---|
|  | 50129033 | CSL710-T20-470.A-M12 | Light curtain transmitter | Application: Precise object detection Operating range: 0.3 ... 7 m Connection: Connector, M12, 5 -pin |

Part number code

Part designation: **CSL710-XXY-ZZZZ.A/B-CCC**

| | |
|--------|---|
| CSL710 | Operating principle: CSL: switching light curtain of the 710 series |
| X | Function classes: T: transmitter R: receiver |
| YY | Beam spacing: 05: 5 mm 10: 10 mm 20: 20 mm 40: 40 mm |
| ZZZZ | Measurement field length [mm], dependent on beam spacing: Value, see technical data |

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| | |
|-----|---|
| A | Equipment: A: connector outlet, axial |
| B | Interface: /L: IO-Link |
| CCC | Electrical connection: M12: M12 connector |

Note

A list with all available device types can be found on the Leuze electronic website at www.leuze.com.

Notes
Observe 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 its intended use.

For UL applications:

- For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code).
- 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)

Accessories
Connection technology - Connection cables

| | Part no. | Designation | Article | Description |
|---|----------|--------------------|------------------|---|
|  | 50135127 | KD S-M12-8A-P1-020 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin Connection 2: Open end Shielded: Yes Cable length: 2,000 mm Sheathing material: PUR |
|  | 50135128 | KD S-M12-8A-P1-050 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin Connection 2: Open end Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR |
|  | 50135129 | KD S-M12-8A-P1-100 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin Connection 2: Open end Shielded: Yes Cable length: 10,000 mm Sheathing material: PUR |

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Connection technology - Interconnection cables

| | Part no. | Designation | Article | Description |
|---|----------|---------------------------------|--------------------------|---|
|  | 50120999 | K-DS M12A-8P-4P-2m- L-PUR | Interconnection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin Connection 2: Connector, M12, Axial, Male, A-coded, 4 -pin Shielded: Yes Cable length: 2,000 mm Sheathing material: PUR |
|  | 50121000 | K-DS M12A-8P-4P-5m- L-PUR | Interconnection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin Connection 2: Connector, M12, Axial, Male, A-coded, 4 -pin Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR |
|  | 50114691 | KB DN/CAN-1000 SBA | Interconnection cable | Suitable for interface: DeviceNet, CANopen Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin Shielded: Yes Cable length: 1,000 mm Sheathing material: PUR |
|  | 50122338 | KB DN/ CAN-10000 SBA | Interconnection cable | Suitable for interface: DeviceNet, CANopen Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin Shielded: Yes Cable length: 10,000 mm Sheathing material: PUR |
|  | 50114694 | KB DN/CAN-2000 SBA | Interconnection cable | Suitable for interface: DeviceNet, CANopen Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin Shielded: Yes Cable length: 2,000 mm Sheathing material: PUR |
|  | 50122339 | KB DN/ CAN-20000 SBA | Interconnection cable | Suitable for interface: CANopen, DeviceNet Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin Shielded: Yes Cable length: 20,000 mm Sheathing material: PUR |
|  | 50114698 | KB DN/CAN-5000 SBA | Interconnection cable | Suitable for interface: DeviceNet, CANopen Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR |
|  | 50129779 | KDS DN-M12-5A- M12-5A-P3-010 | Interconnection cable | Suitable for interface: IO-Link, DeviceNet, CANopen Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin Shielded: Yes Cable length: 1,000 mm Sheathing material: PUR |
|  | 50129780 | KDS DN-M12-5A- M12-5A-P3-020 | Interconnection cable | Suitable for interface: IO-Link, DeviceNet, CANopen Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin Shielded: Yes Cable length: 2,000 mm Sheathing material: PUR |

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| | Part no. | Designation | Article | Description |
|---|----------|-----------------------------|-----------------------|--|
|  | 50129781 | KDS DN-M12-5A-M12-5A-P3-050 | Interconnection cable | Suitable for interface: IO-Link, DeviceNet, CANopen Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR |
|  | 50129782 | KDS DN-M12-5A-M12-5A-P3-100 | Interconnection cable | Suitable for interface: IO-Link, DeviceNet, CANopen Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin Shielded: Yes Cable length: 10,000 mm Sheathing material: PUR |
|  | 50129783 | KDS DN-M12-5A-M12-5A-P3-200 | Interconnection cable | Suitable for interface: IO-Link, DeviceNet, CANopen Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin Shielded: Yes Cable length: 20,000 mm Sheathing material: PUR |

Mounting technology - Mounting brackets

| | Part no. | Designation | Article | Description |
|---|----------|-------------|----------------------|--|
|  | 429056 | BT-2L | Mounting bracket set | Design of mounting device: Angle, L-shape Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type Material: Metal |
|  | 429057 | BT-2Z | Mounting bracket set | Design of mounting device: Angle, Z-shape Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type Material: Metal |

Mounting technology - Swivel mounts

| | Part no. | Designation | Article | Description |
|---|----------|-------------|----------------------|---|
|  | 429046 | BT-2R1 | Mounting bracket set | Contains: 2x BT-R swivel mount, 1 cylinder for mounting on the light curtain Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable Type of mounting device: Turning, 360° Material: Metal, Plastic |

Mounting technology - Other

| | Part no. | Designation | Article | Description |
|---|----------|-------------|-------------------|---|
|  | 425740 | BT-10NC60 | Sliding block set | Contains: 10x BT-NC sliding block Bore hole 1: Ø 4.7 mm Bore hole 2: M6 Design of mounting device: Sliding block Fastening, at system: Mounting thread Mounting bracket, at device: Groove mounting Material: Metal |

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| | Part no. | Designation | Article | Description |
|---|----------|-------------|----------------------|---|
|  | 425741 | BT-10NC64 | Sliding block set | Contains: 10x BT-NC-M4-M6 sliding block Bore hole 1: M4 Bore hole 2: M6 Design of mounting device: Sliding block Fastening, at system: Mounting thread Mounting bracket, at device: Groove mounting Material: Metal |
|  | 425742 | BT-10NC65 | Sliding block set | Contains: 10x BT-NC-M5-M6 sliding block Bore hole 1: M5 Bore hole 2: M6 Design of mounting device: Sliding block Fastening, at system: Mounting thread Mounting bracket, at device: Groove mounting Material: Metal |
|  | 424417 | BT-2P40 | Mounting bracket set | Contains: BT-P40 clamp bracket, 2x Bore hole 1: M6 Bore hole 2: M6 Design of mounting device: Mounting clamp Fastening, at system: Groove mounting Mounting bracket, at device: Groove mounting Type of mounting device: Clampable Material: Metal |
|  | 424422 | BT-2SB10 | Mounting bracket set | Contains: 2x BT-SB10 Design of mounting device: Mounting clamp Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable, On the lateral C-groove Type of mounting device: Swiveling Swivel range: -8 ... 8 ° Material: Metal |
|  | 424423 | BT-2SB10-S | Mounting bracket set | Contains: 2x BT-SB10-S Design of mounting device: Mounting clamp Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable, On the lateral C-groove Type of mounting device: Swiveling with vibration damper Swivel range: -8 ... 8 ° Material: Metal Shock absorber: Yes |
|  | 429058 | BT-2SSD | Mounting bracket set | Fastening, at system: Through-hole mounting Mounting bracket, at device: Groove mounting, Clampable, Screw type Type of mounting device: Swiveling Material: Metal |
|  | 429049 | BT-2SSD-270 | Mounting bracket set | Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type, Clampable, Groove mounting Type of mounting device: Swiveling Material: Metal |
|  | 425725 | BT-4NC | Sliding block set | Contains: 4x BT-NC sliding block Bore hole 1: Ø 4.7 mm Bore hole 2: M6 Design of mounting device: Sliding block Fastening, at system: Mounting thread Mounting bracket, at device: Groove mounting Material: Metal |
|  | 429059 | BT-4SSD | Mounting bracket set | Contains: 4x Fastening, at system: Through-hole mounting Mounting bracket, at device: Groove mounting, Clampable, Screw type Type of mounting device: Swiveling Material: Metal |

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| | Part no. | Designation | Article | Description |
|---|----------|---------------------------------|------------------|--|
|  | 50131483 | MD 248i-12-8K/ L4-2R2K | Distribution box | Type: IO-Link master Supply voltage: 18 ... 30 V Switching outputs for each sensor connection: 1 Piece(s) Switching output: Transistor, PNP / NPN reversible Interface: PROFINET, IO-Link Connections: 14 Piece(s) Sensor connections: 8 Piece(s) Connections for voltage supply: 4 Piece(s) Interface connections: 2 Piece(s) Degree of protection: IP 67 |
|  | 50131485 | MD 258i-12-8K/ L4-2R2K | Distribution box | Type: IO-Link master Supply voltage: 18 ... 30 V Switching outputs for each sensor connection: 1 Piece(s) Switching output: Transistor, PNP / NPN reversible Interface: EtherNet IP, IO-Link, Modbus TCP Connections: 14 Piece(s) Sensor connections: 8 Piece(s) Connections for voltage supply: 4 Piece(s) Interface connections: 2 Piece(s) Degree of protection: IP 67 |
|  | 50131482 | MD 748i-11-42/ L5-2222 | Distribution box | Type: IO-Link master Supply voltage: 18 ... 30 V Switching outputs for each sensor connection: 1 Piece(s) Switching output: Transistor, PNP / NPN reversible Interface: PROFINET, IO-Link Connections: 8 Piece(s) Sensor connections: 4 Piece(s) Connections for voltage supply: 2 Piece(s) Interface connections: 2 Piece(s) Degree of protection: IP 67 |
|  | 50131484 | MD 758i-11-42/ L5-2222 | Distribution box | Type: IO-Link master Supply voltage: 18 ... 30 V Switching outputs for each sensor connection: 1 Piece(s) Switching output: Transistor, PNP / NPN reversible Interface: EtherNet IP, IO-Link, Modbus TCP Connections: 8 Piece(s) Sensor connections: 4 Piece(s) Connections for voltage supply: 2 Piece(s) Interface connections: 2 Piece(s) Degree of protection: IP 67 |
|  | 50121098 | SET MD12-US2-IL1.1 + Zub. | Diagnostics set | Interface: USB Connections: 2 Piece(s) Degree of protection: IP 20 |