



Figure can vary

**Part no.: 50128967**  
**CSL710-R40-290.A/L-M12**  
**Light curtain receiver**



## Contents

- Technical data
- Dimensioned drawings
- Electrical connection
- Operation and display
- Suitable transmitters
- Part number code
- Notes
- Accessories

## Technical data

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

| <b>Optical data</b>      |                            |
|--------------------------|----------------------------|
| 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 | 290 mm                     |
| Number of beams          | 8 Piece(s)                 |
| Beam spacing             | 40 mm                      |

| <b>Measurement data</b> |       |
|-------------------------|-------|
| Minimum object diameter | 50 mm |

| <b>Electrical data</b> |   |
|------------------------|---|
| Protective circuit     | Polarity reversal protection<br>Short circuit protected<br>Transient protection |

| <b>Performance data</b> |  |
|-------------------------|--|
| Supply voltage $U_B$    | 18 ... 30 V, DC  |
| Residual ripple         | 0 ... 15 %, From $U_{B<sub>B</sub>}$   |
| Open-circuit current    | 0 ... 135 mA, The specified values refer to the entire package consisting of transmitter and receiver. |

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

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

| <b>Timing</b>          |            |
|------------------------|------------|
| Readiness delay        | 400 ms     |
| Cycle time             | 1 ms       |
| Response time per beam | 30 $\mu s$ |

| <b>Interface</b> |         |
|------------------|---------|
| Type             | IO-Link |

**Part no.: 50128967 – CSL710-R40-290.A/L-M12 – Light curtain receiver**
**IO-Link**

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

**Service interface**

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

**IO-Link**

|          |                                       |
|----------|---------------------------------------|
| Function | Configuration via software<br>Service |
|----------|---------------------------------------|

**Connection**

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

**Connection 1**

|                    |  |
|--------------------|--|
| Type of connection | Connector  |
| Function           | Configuration interface<br>Signal IN<br>Signal OUT<br>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 393 mm                        |
| Housing material      | Metal, Aluminum                                 |
| Lens cover material   | Plastic / PMMA                                  |
| Net weight            | 500 g   |
| Housing color         | Red   |
| Type of fastening     | Groove mounting<br>Via optional mounting device |

**Operation and display**

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

**Environmental data**

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

**Certifications**

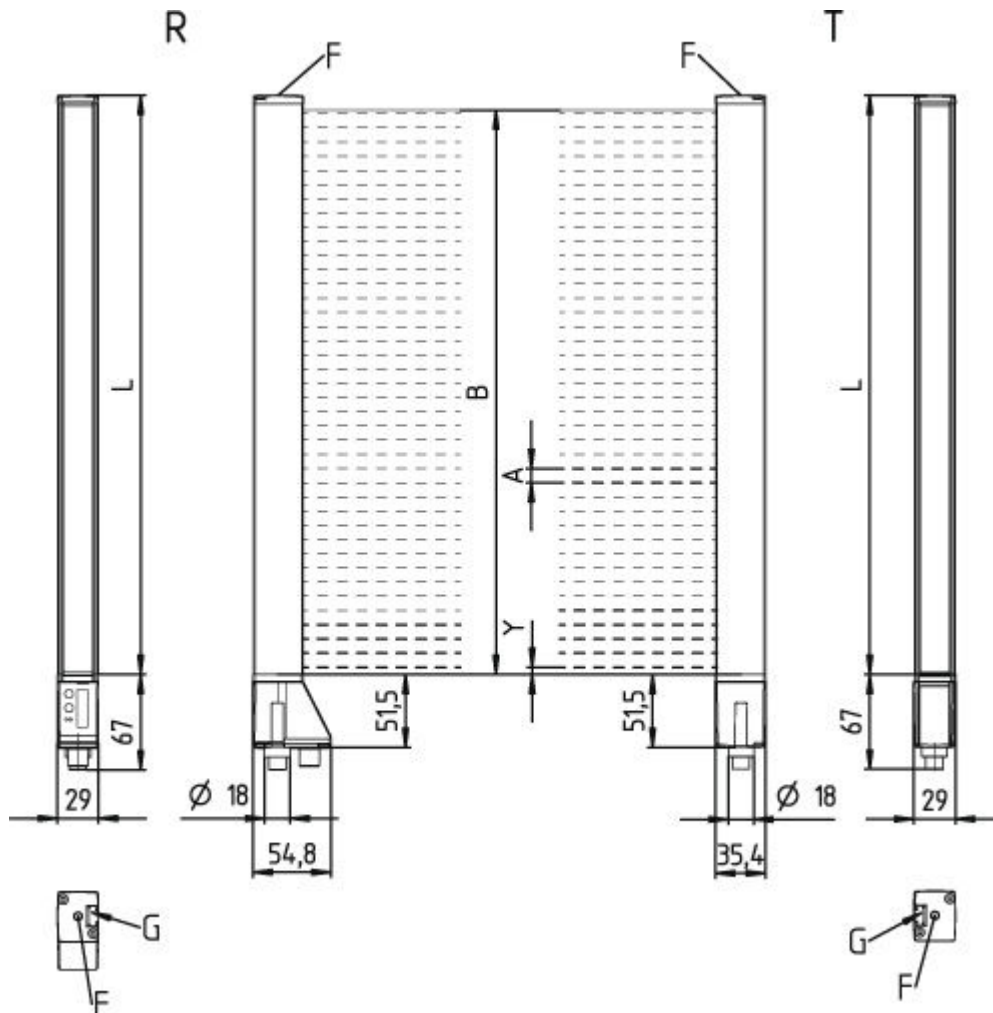
|                      |               |
|----------------------|---------------|
| Degree of protection | IP 65         |
| Protection class     | III           |
| Certifications       | c CSA US      |
| Standards applied    | IEC 60947-5-2 |

**Classification**

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

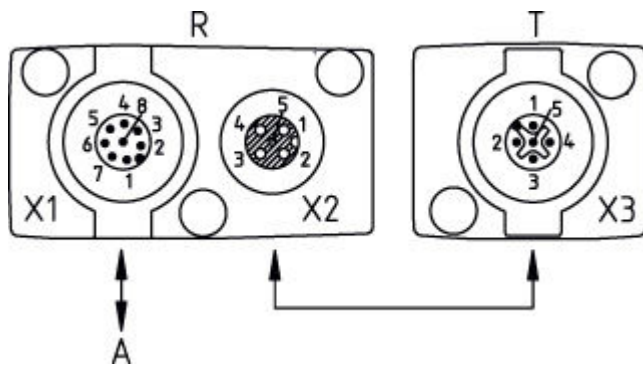
**Dimensioned drawings**

All dimensions in millimeters



Part no.: 50128967 – CSL710-R40-290.A/L-M12 – Light curtain receiver

- A Beam spacing 40 mm
- B Measurement field length 290 mm
- F M6 thread
- G Fastening groove
- L Profile length 328 mm
- T Transmitter
- R Receiver
- Y

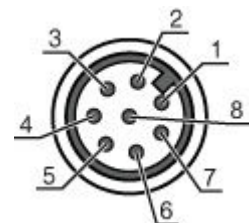


A PWR / SW IN/OUT

## Electrical connection

| Connection 1       |  |
|--------------------|--|
| Type of connection | Connector  |
| Function           | Configuration interface<br>Signal IN<br>Signal OUT<br>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                    |

Part no.: 50128967 – CSL710-R40-290.A/L-M12 – Light curtain receiver

| 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   |
|---|----------|----------------------|---------------------------|---|
|  | 50129049 | CSL710-T40-290.A-M12 | Light curtain transmitter | Application: Precise object detection<br>Operating range: 0.3 ... 7 m<br>Connection: Connector, M12, 5 -pin |

## Part number code

Part designation: CSL710-XYX-ZZZZ.A/B-CCC

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

Part no.: 50128967 – CSL710-R40-290.A/L-M12 – Light curtain receiver

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

|   |
|---|
| <b>Note</b>   |
| A list with all available device types can be found on the Leuze electronic website at <a href="http://www.leuze.com">www.leuze.com</a> . |


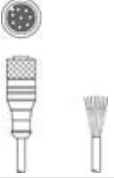
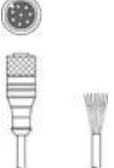
## Notes

|   |
|---|
| <b>Observe intended use!</b>  |
| <ul style="list-style-type: none"> <li>This product is not a safety sensor and is not intended as personnel protection.</li> <li>The product may only be put into operation by competent persons.</li> <li>Only use the product in accordance with its intended use.</li> </ul> |

|  |
|--|
| <b>For UL applications:</b>  |
| <ul style="list-style-type: none"> <li>For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code).</li> <li>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)</li> </ul> |

## Accessories

### Connection technology - Connection cables

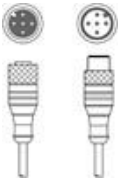
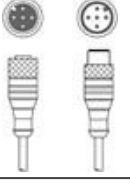
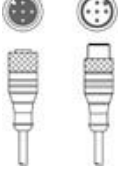
|   | Part no. | Designation        | Article          | Description   |
|---|----------|--------------------|------------------|---|
|  | 50135127 | KD S-M12-8A-P1-020 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin<br>Connection 2: Open end<br>Shielded: Yes<br>Cable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

Part no.: 50128967 – CSL710-R40-290.A/L-M12 – Light curtain receiver



## Connection technology - Interconnection cables

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


**Part no.: 50128967 – CSL710-R40-290.A/L-M12 – Light curtain receiver**

|   | Part no. | Designation                 | Article               | Description  |
|---|----------|-----------------------------|-----------------------|--|
|  | 50129781 | KDS DN-M12-5A-M12-5A-P3-050 | Interconnection cable | Suitable for interface: IO-Link, DeviceNet, CANopen<br>Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin<br>Shielded: Yes<br>Cable length: 5,000 mm<br>Sheathing material: PUR  |
|  | 50129782 | KDS DN-M12-5A-M12-5A-P3-100 | Interconnection cable | Suitable for interface: IO-Link, DeviceNet, CANopen<br>Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin<br>Shielded: Yes<br>Cable length: 10,000 mm<br>Sheathing material: PUR |
|  | 50129783 | KDS DN-M12-5A-M12-5A-P3-200 | Interconnection cable | Suitable for interface: IO-Link, DeviceNet, CANopen<br>Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin<br>Shielded: Yes<br>Cable length: 20,000 mm<br>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<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Screw type<br>Material: Metal |
|  | 429057   | BT-2Z       | Mounting bracket set | Design of mounting device: Angle, Z-shape<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Screw type<br>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<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Clampable<br>Type of mounting device: Turning, 360°<br>Material: Metal, Plastic |

**Mounting technology - Other**

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

**Part no.: 50128967 – CSL710-R40-290.AL-M12 – Light curtain receiver**

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

**Part no.: 50128967 – CSL710-R40-290.A/L-M12 – Light curtain receiver**

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