



Figure can vary

**Part no.: 50126384**  
**CML720i-R20-2210.A/CN-M12-EX**  
**Light curtain receiver**



## Contents

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



## Technical data

| <b>Basic data</b>   |                        |
|---------------------|------------------------|
| Series              | 720                    |
| Operating principle | Throughbeam principle  |
| Device type         | Receiver               |
| Contains            | 2x BT-NC sliding block |
| Application         | Object measurement     |

| <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 | 2.210 mm                   |
| Number of beams          | 111 Piece(s)               |
| Beam spacing             | 20 mm                      |

| <b>Measurement data</b> |       |
|-------------------------|-------|
| Minimum object diameter | 30 mm |

| <b>Timing</b>          |         |
|------------------------|---------|
| Readiness delay        | 450 ms  |
| Cycle time             | 3.76 ms |
| Response time per beam | 30 µs   |

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

| <b>Performance data</b> |  |
|-------------------------|--|
| Supply voltage          | 18 ... 30 V, DC  |
| Residual ripple         | 0 ... 15 %, From $U_B$   |
| Open-circuit current    | 0 ... 435 mA, The specified values refer to the entire package consisting of transmitter and receiver. |

| <b>Inputs/outputs selectable</b>    |                                  |
|-------------------------------------|----------------------------------|
| Switching voltage, inputs           | high: $\geq 6V$ , low: $\leq 4V$ |
| Voltage type                        | DC                               |
| Number of inputs/outputs selectable | 2 Piece(s)                       |
| Voltage type                        | DC                               |
| Switching voltage, outputs          | Typ. $U_B / 0 V$                 |
| Current, max.                       | 100 mA                           |
| Input resistance                    | 6.000 $\Omega$                   |

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

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

| <b>IO-Link</b> |              |
|----------------|--------------|
| COM mode       | COM2         |
| Specification  | V1.1, V1.0.1 |

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**CANopen**

|          |         |
|----------|---------|
| Function | Process |
|----------|---------|

**Connection**

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

**Connection 1**

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

**Connection 2**

|                    |                 |
|--------------------|-----------------|
| Type of connection | Connector       |
| Function           | BUS IN, BUS OUT |
| 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) | 30.7 mm x 54.8 mm x 2.263 mm                  |
| Housing material      | Metal, Aluminum                               |
| Lens cover material   | Plastic                                       |
| Housing color         | Silver  |
| 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          |
| Operational controls  | Membrane keyboard |

**Environmental data**

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

**Ex specification**

|                 |       |
|-----------------|-------|
| Ex-zone         | 2, 22 |
| Ex device group | II    |

**Certifications**

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

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#### Special design

Special design

Crossed-beam scanning, Ex-protected, Diagonal-beam scanning, Parallel-beam scanning

#### Classification

eCl@ss 8.0

27270910


eCl@ss 9.0

27270910

ETIM 5.0

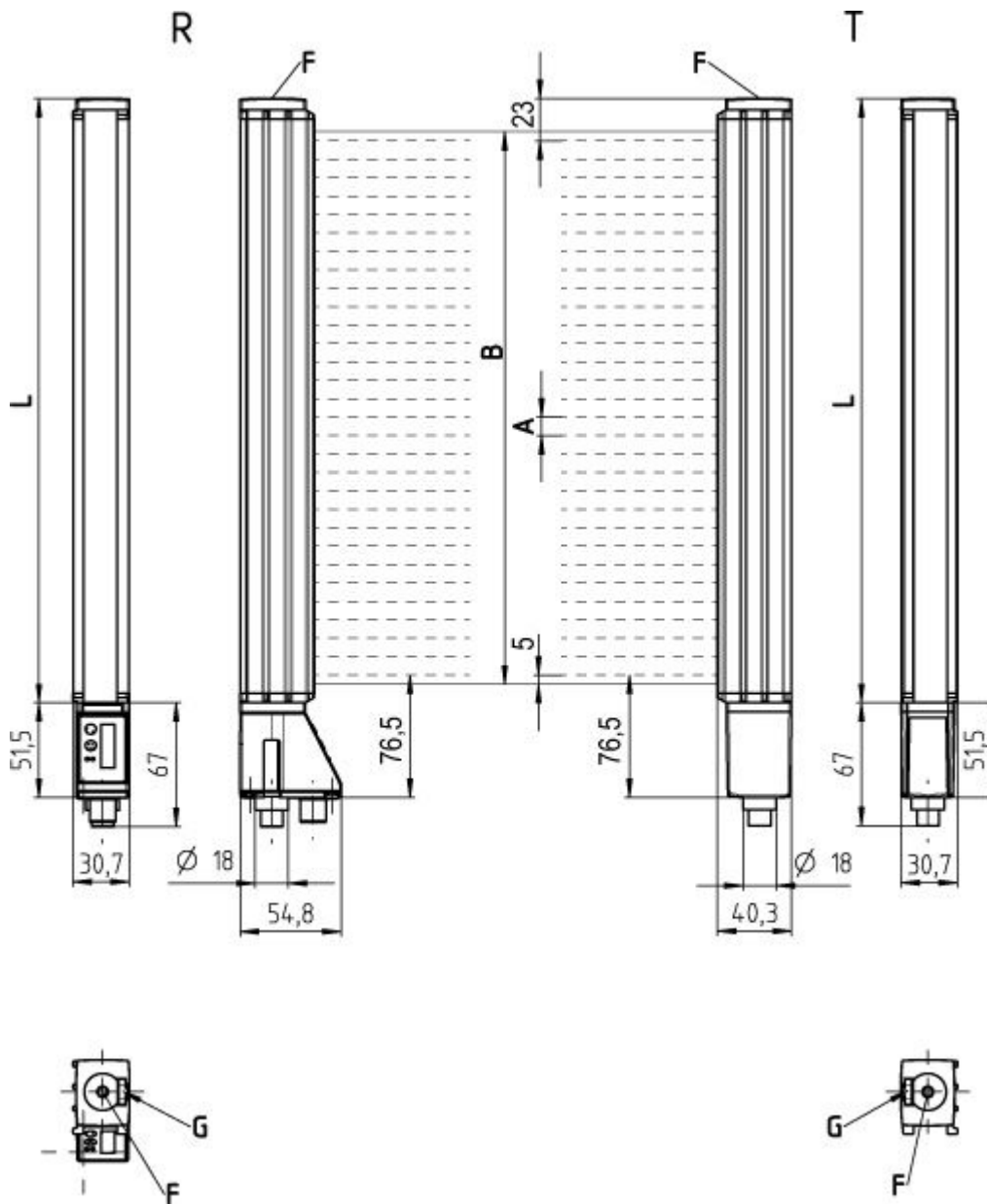
EC002549

## Suitable transmitters

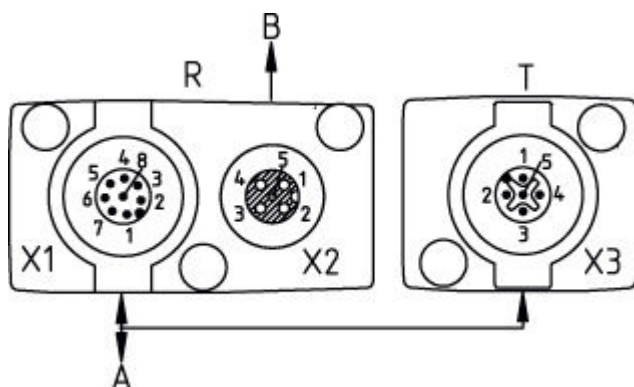
|   | Part no. | Designation               | Article                   | Description   |
|---|----------|---------------------------|---------------------------|---|
|  | 50126415 | CML720i-T20-2210.A-M12-EX | Light curtain transmitter | Operating range: 0.3 ... 6 m<br>Connection: Connector, M12, Axial, 5 -pin |

## Dimensioned drawings

All dimensions in millimeters



- A Beam spacing 20 mm
- B Measurement field length 2210 mm
- F M6 thread
- G Fastening groove
- L Profile length 2248 mm
- T Transmitter
- R Receiver

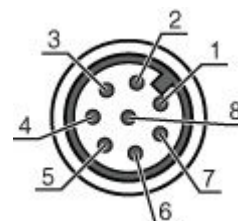


A PWR / SW IN/OUT  
B BUS IN / OUT

## Electrical connection

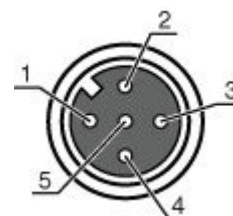
| Connection 1       |   |
|--------------------|---|
| Type of connection | Connector   |
| Function           | Voltage supply, Signal OUT, Connection to transmitter, Configuration interface, Signal IN |
| Thread size        | M12   |
| Type               | Male  |
| Material           | Metal   |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

| Pin | Pin assignment |
|-----|----------------|
| 1   | V+             |
| 2   | I/O 1          |
| 3   | GND            |
| 4   | IO-Link        |
| 5   | I/O 2          |
| 6   | RS 485 Tx-     |
| 7   | RS 485 Tx+     |
| 8   | FE/SHIELD      |



| Connection 2       |                 |
|--------------------|-----------------|
| Type of connection | Connector       |
| Function           | BUS IN, BUS OUT |
| Thread size        | M12             |
| Type               | Female          |
| Material           | Metal           |
| No. of pins        | 5 -pin          |
| Encoding           | A-coded         |

| Pin | Pin assignment |
|-----|----------------|
| 1   | FE/SHIELD      |
| 2   | n.c.           |
| 3   | CAN GND        |
| 4   | CAN H          |
| 5   | CAN L          |




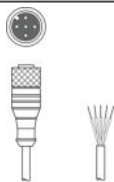
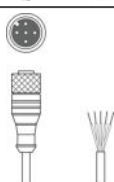

## Operation and display

### LEDs


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

## Accessories

### Connection technology - Connection cables

|   | Part no. | Designation        | Article          | Description   |
|---|----------|--------------------|------------------|---|
|  | 50133839 | KD U-M12-5A-P1-020 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 2,000 mm<br>Sheathing material: PUR |
|  | 50133841 | KD U-M12-5A-P1-050 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5,000 mm<br>Sheathing material: PUR |
|  | 50132077 | KD U-M12-5A-V1-020 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 2,000 mm<br>Sheathing material: PVC |
|  | 50132079 | KD U-M12-5A-V1-050 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5,000 mm<br>Sheathing material: PVC |

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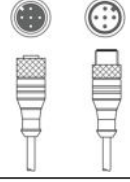
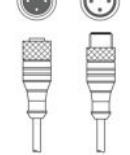
|   | Part no. | Designation        | Article          | Description  |
|---|----------|--------------------|------------------|--|
|  | 50132080 | KD U-M12-5A-V1-100 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 10,000 mm<br>Sheathing material: PVC |

**Connection technology - Interconnection cables**

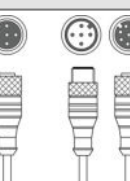
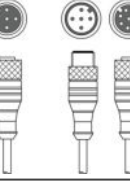
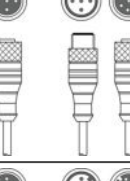
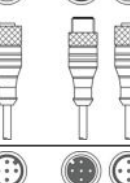
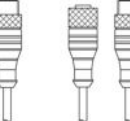
|   | Part no. | Designation                 | Article               | Description   |
|---|----------|-----------------------------|-----------------------|---|
|    | 50114691 | KB DN/CAN-1000 SBA          | Interconnection cable | Suitable for interface: DeviceNet, CANopen<br>Connection 1: Connector, 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/CAN-10000 SBA         | Interconnection 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 SBA          | Interconnection 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/CAN-20000 SBA         | Interconnection 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 SBA          | Interconnection 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-M12-5A-P3-010 | 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: 1,000 mm<br>Sheathing material: PUR |
|  | 50129780 | KDS DN-M12-5A-M12-5A-P3-020 | 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: 2,000 mm<br>Sheathing material: PUR |
|  | 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 |



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|   | Part no. | Designation                 | Article               | Description  |
|---|----------|-----------------------------|-----------------------|--|
|  | 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 |
|  | 50132438 | KDS U-M12-4A-M12-4A-V1-020  | Interconnection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin<br>Connection 2: Connector, M12, Axial, Male, A-coded, 4 -pin<br>Shielded: No<br>Cable length: 2,000 mm<br>Sheathing material: PVC  |

**Connection technology - Y distribution box cables**



|   | Part no. | Designation              | Article               | Description   |
|---|----------|--------------------------|-----------------------|---|
|   | 50122336 | K-Y1 M12A-10m-M12A-S-PUR | Interconnection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin<br>Connection 3: Connector, M12, Axial, Female, A-coded, 8 -pin<br>Shielded: Yes<br>Cable length fork 1: 10,000 mm<br>Cable length fork 2: 150 mm<br>Sheathing material: PUR                               |
|  | 50122337 | K-Y1 M12A-20m-M12A-S-PUR | Interconnection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin<br>Connection 3: Connector, M12, Axial, Female, A-coded, 8 -pin<br>Shielded: Yes<br>Cable length fork 1: 20,000 mm<br>Cable length fork 2: 150 mm<br>Sheathing material: PUR                               |
|  | 50118182 | K-Y1 M12A-2m-M12A-S-PUR  | Interconnection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin<br>Connection 3: Connector, M12, Axial, Female, A-coded, 8 -pin<br>Shielded: Yes<br>Cable length fork 1: 2,000 mm<br>Cable length fork 2: 150 mm<br>Sheathing material: PUR                                |
|  | 50118183 | K-Y1 M12A-5m-M12A-S-PUR  | Interconnection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connection 2: Connector, M12, Axial, Male, A-coded, 5 -pin<br>Connection 3: Connector, M12, Axial, Female, A-coded, 8 -pin<br>Shielded: Yes<br>Cable length fork 1: 5,000 mm<br>Cable length fork 2: 150 mm<br>Sheathing material: PUR                                |
|  | 50118185 | K-YCN M12A-M12A-S-PUR    | Interconnection cable | Suitable for interface: CANopen<br>Connection 1: Connector, M12, Axial, Male, A-coded, 5 -pin<br>Connection 2: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connection 3: Connector, M12, Axial, Male, A-coded, 5 -pin<br>Shielded: Yes<br>Cable length fork 1: 250 mm<br>Cable length fork 2: 350 mm<br>Sheathing material: PUR |

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## Connection technology - Terminating resistors

|   | Part no. | Designation | Article         | Description   |
|---|----------|-------------|-----------------|---|
|  | 50040099 | TS 01-5-SA  | Terminator plug | Suitable for: DeviceNet, CANopen<br>Connection 1: Connector, M12, Axial, Male, A-coded, 5 -pin<br>Function: Bus termination |





## Mounting technology - Mounting brackets

|   | Part no. | Designation | Article              | Description   |
|---|----------|-------------|----------------------|---|
|  | 429056   | BT-2L       | Mounting bracket set | Design of mounting device: Angle, L-shape<br>Mounting bracket, 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>Mounting bracket, 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>Mounting bracket, 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>Mounting bracket, at system: Mounting thread<br>Mounting bracket, at device: Groove mounting<br>Material: Metal |
|  | 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>Mounting bracket, 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>Mounting bracket, at system: Mounting thread<br>Mounting bracket, at device: Groove mounting<br>Material: Metal |
|  | 424417   | BT-2P40     | Mounting bracket set | Design of mounting device: Mounting clamp<br>Mounting bracket, at system: Groove mounting<br>Mounting bracket, at device: Groove mounting<br>Type of mounting device: Clampable<br>Material: Metal   |

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|  | Part no. | Designation | Article              | Description  |
|--|----------|-------------|----------------------|--|
|   | 424422   | BT-2SB10    | Mounting bracket set | Contains: 2x BT-SB10<br>Design of mounting device: Mounting clamp<br>Mounting bracket, at system: Through-hole mounting<br>Mounting bracket, at device: Clampable<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>Mounting bracket, at system: Through-hole mounting<br>Mounting bracket, at device: Clampable<br>Swivel range: -8 ... 8 °<br>Material: Metal<br>Shock absorber: Yes              |
|   | 429058   | BT-2SSD     | Mounting bracket set | Mounting bracket, 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 | Mounting bracket, at system: Through-hole mounting<br>Mounting bracket, at device: Screw type, Clampable, Groove mounting<br>Type of mounting device: Swiveling<br>Material: Metal   |
|  | 429059   | BT-4SSD     | Mounting bracket set | Contains: 4x<br>Mounting bracket, at system: Through-hole mounting<br>Mounting bracket, at device: Groove mounting, Clampable, Screw type<br>Type of mounting device: Swiveling<br>Material: Metal   |

## General

|   | Part no. | Designation | Article               | Description                   |
|---|----------|-------------|-----------------------|-------------------------------|
|  | 50109217 | K-V M12-Ex  | Safety locking device | Housing material: Plastic, PA |

## Notes

| Observe intended use!   |
|---|
| <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> |

| For UL applications:   |
|--|
| <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> |