



# C2MT-09014BBC03FE0

miniTwin

SAFETY LIGHT CURTAINS

**SICK**  
Sensor Intelligence.



Illustration may differ

### Ordering information

miniTwin2 as a standalone device, miniTwin2 as last guest for 2- or 3-device cascade

| System connection         | Resolution | Length of cable | Protective field height | Type               | Part no. |
|---------------------------|------------|-----------------|-------------------------|--------------------|----------|
| Male connector M12, 5-pin | 14 mm      | 700 mm          | 900 mm                  | C2MT-09014BBC03FE0 | 1207816  |

This article includes 1 twin stick. Please order 2 for a functioning miniTwin2 system. Important notes: 1.) Concerns installation as a spare part: This type 2 device may be used as per section 1, paragraph (2a) of Machinery Directive 2006/42/EC within the EU as a spare part for identical PL d/SIL2 devices only if the machine was put on the market before May 10, 2015. Keep this note with your machine documentation. If the machine is resold, this note must be passed on to the next buyer. 2.) Concerns installation in new machines: Due to the amendment to the EN/IEC 61496-1 standard, this type 2 device may only be installed on new machines up to PLc/SIL1 as of May 10, 2015.

Other models and accessories → [www.sick.com/miniTwin](http://www.sick.com/miniTwin)



### Detailed technical data

#### Features

|                                |   |
|--------------------------------|---|
| <b>System part</b>             | 1 Twin-Stick  |
| <b>Usage</b>                   | miniTwin2 as a standalone device<br>miniTwin2 as last guest for 2- or 3-device cascade  |
| <b>Mounting system type</b>    | C-fix or L-fix bracket  |
| <b>Resolution</b>              | 14 mm   |
| <b>Scanning range</b>          | Minimum 0 m ... 6 m<br>Typical 0 m ... 8 m  |
| <b>Protective field height</b> | 900 mm  |
| <b>Response time</b>           | ≤ 17 ms <sup>1)</sup>   |
| <b>Synchronization</b>         | Optical, without separate synchronization   |
| <b>Items supplied</b>          | Twin stick<br>System plug<br>C-Fix and L-Fix bracket, 2 pieces each<br>Test rod with diameter corresponding to the resolution of the safety light curtain<br>Safety instruction<br>Mounting instructions<br>Operating instructions for download |

<sup>1)</sup> Standalone devices, no cascaded systems. Other response times can be found in the operating instructions.

#### Safety-related parameters

|                                  |                           |
|----------------------------------|---------------------------|
| <b>Type</b>                      | Type 2 (IEC 61496-1)      |
| <b>Safety integrity level</b>    | SIL 1 (IEC 61508)         |
| <b>Category</b>                  | Category 2 (EN ISO 13849) |
| <b>Test rate (internal test)</b> | 58 /s                     |

<sup>1)</sup> Between two requirements on a safety-related response of the device, at least 100 internal or external tests must be carried out.

<sup>2)</sup> The performance level does not include any specific requirements regarding aspects such as optical performance features. For more information, see page xx.

|   |  |
|---|--|
| <b>Maximum demand rate</b>  | 34 min <sup>-1</sup> (EN ISO 13849) <sup>1)</sup>                            |
| <b>Performance level</b>  | PL c (EN ISO 13849), Pay attention to optical characteristics! <sup>2)</sup> |
| <b>PFH<sub>D</sub> (mean probability of a dangerous failure per hour)</b> | Standalone system: 2.4 x 10 <sup>-8</sup> (EN ISO 13849)                     |
| <b>T<sub>M</sub> (mission time)</b>                                       | 20 years (EN ISO 13849)  |
| <b>Safe state in the event of a fault</b>                                 | At least one OSSD is in the OFF state.                                       |

<sup>1)</sup> Between two requirements on a safety-related response of the device, at least 100 internal or external tests must be carried out.

<sup>2)</sup> The performance level does not include any specific requirements regarding aspects such as optical performance features. For more information, see page xx.

## Functions

|   | Functions | Delivery status |
|---|-----------|-----------------|
| <b>Restart interlock</b>                | ✓         | Deactivated     |
| <b>External device monitoring (EDM)</b> | ✓         | Deactivated     |
| <b>Beam coding</b>                      | Automatic |                 |

## Interfaces

|                             |                           |
|-----------------------------|---------------------------|
| <b>System connection</b>    | Male connector M12, 5-pin |
| Length of cable             | 700 mm                    |
| Conductor cross section     | 0.34 mm <sup>2</sup>      |
| Permitted cable length      | ≤ 20 m <sup>1)</sup>      |
| <b>Configuration method</b> | Hard wired                |
| <b>Display elements</b>     | LEDs                      |

<sup>1)</sup> Depending on load, power supply and wire cross-section. The technical specifications must be observed.

## Electrical data

|  |  |
|--|--|
| <b>Protection class</b>                        | III (EN 61140)   |
| <b>Supply voltage V<sub>S</sub></b>            | 24 V DC (19.2 V DC ... 28.8 V DC)  |
| <b>Ripple</b>                                  | ≤ 10 % <sup>1)</sup>   |
| <b>Power consumption</b>                       | ≤ 3 A <sup>2)</sup>  |
| <b>Output signal switching devices (OSSDs)</b> |  |
| Type of output                                 | PNP semiconductors, short-circuit protected, cross-circuit monitored <sup>3)</sup> |
| ON state, switching voltage HIGH               | 24 V DC (V <sub>S</sub> - 2.25 V DC ... V <sub>S</sub> )                           |
| OFF state, switching voltage LOW               | ≤ 2 V DC   |
| Current-carrying capacity per OSSD             | ≤ 300 mA   |

<sup>1)</sup> Within the limits of V<sub>S</sub>.

<sup>2)</sup> Maximum power consumption of a host/guest/guest system with 1,200 mm protective field height and a resolution of 14 mm.

<sup>3)</sup> Applies to the voltage range between -30 V and +30 V.

## Mechanical data

|  |                           |
|--|---------------------------|
| <b>Housing cross-section (incl. system connection)</b> | 15 mm x 32 mm             |
| <b>Housing material</b>                                | Aluminum alloy ALMGSI 0.5 |
| <b>Weight</b>  | 320 g                     |

## Ambient data

|                                      |                                     |
|--------------------------------------|-------------------------------------|
| <b>Enclosure rating</b>              | IP65 (EN 60529)                     |
| <b>Ambient operating temperature</b> | -20 °C ... +55 °C                   |
| <b>Storage temperature</b>           | -25 °C ... +70 °C                   |
| <b>Air humidity</b>                  | 15 % ... 95 %, Non-condensing       |
| <b>Vibration resistance</b>          | 5 g, 10 Hz ... 55 Hz (EN 60068-2-6) |
| <b>Shock resistance</b>              | 10 g, 16 ms (EN 60068-2-27)         |

## Other information

|                    |        |
|--------------------|--------|
| <b>Wave length</b> | 850 nm |
|--------------------|--------|

## Classifications

|                       |          |
|-----------------------|----------|
| <b>ECLASS 5.0</b>     | 27272704 |
| <b>ECLASS 5.1.4</b>   | 27272704 |
| <b>ECLASS 6.0</b>     | 27272704 |
| <b>ECLASS 6.2</b>     | 27272704 |
| <b>ECLASS 7.0</b>     | 27272704 |
| <b>ECLASS 8.0</b>     | 27272704 |
| <b>ECLASS 8.1</b>     | 27272704 |
| <b>ECLASS 9.0</b>     | 27272704 |
| <b>ECLASS 10.0</b>    | 27272704 |
| <b>ECLASS 11.0</b>    | 27272704 |
| <b>ECLASS 12.0</b>    | 27272704 |
| <b>ETIM 5.0</b>       | EC002549 |
| <b>ETIM 6.0</b>       | EC002549 |
| <b>ETIM 7.0</b>       | EC002549 |
| <b>ETIM 8.0</b>       | EC002549 |
| <b>UNSPSC 16.0901</b> | 46171620 |

Dimensional drawing (Dimensions in mm (inch))



S = protective field height = housing length

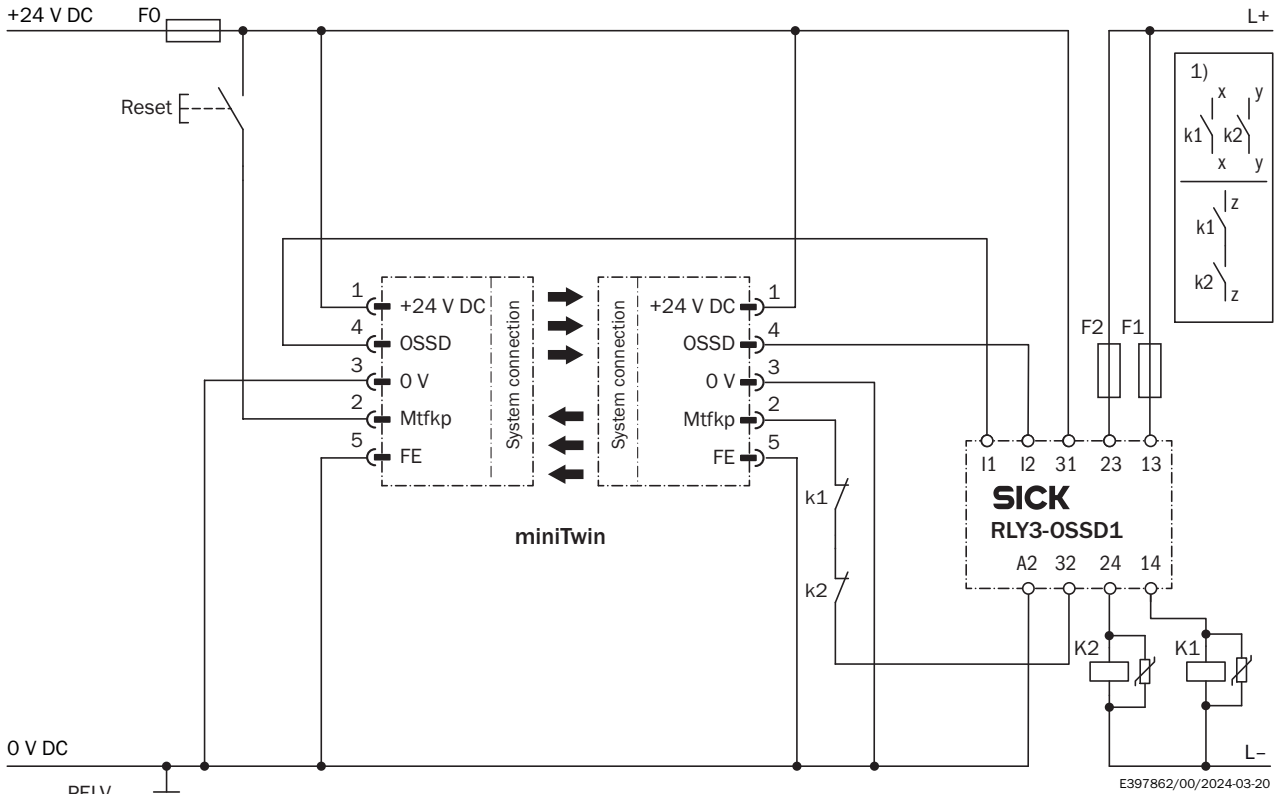
### Connection diagram

miniTwin safety light curtain to RLY3-OSSD2 safety relay with restart interlock and external device monitoring



① Output circuits: These contacts must be incorporated into the control such that the dangerous state is brought to an end if the output circuit is open. For categories 4 and 3, they must be incorporated on dual-channels (x, y paths). Single-channel incorporation into the control (z path) is only possible with a single-channel control and taking the risk analysis into account.





miniTwin safety light curtain to RLY3-OSSD1 safety relay with restart interlock and external device monitoring



① Output circuits: These contacts must be incorporated into the control such that the dangerous state is brought to an end if the output circuit is open. For categories 4 and 3, they must be incorporated on dual-channels (x, y paths). Single-channel incorporation into the control (z path) is only possible with a single-channel control and taking the risk analysis into account.

### Recommended accessories

Other models and accessories → [www.sick.com/miniTwin](http://www.sick.com/miniTwin)

|   | Brief description  | Type                   | Part no. |
|---|--|------------------------|----------|
| <b>Alignment aids</b>   |  |                        |          |
|  | Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam!, 19 mm x 67.3 mm x 66.9 mm                                    | AR60                   | 1015741  |
|  | Adapter AR60 for miniTwin4 and miniTwin2   | AR60 adapter, miniTwin | 4064710  |
| <b>Test and monitoring tools</b>  |  |                        |          |
|  | 14 mm diameter, 250 mm length  | Test rod 14 mm         | 2022599  |
| <b>Mounting brackets and plates</b>   |  |                        |          |
|  | 2 pieces, Bracket for miniTwin, for all protective field heights, scope of delivery: 2 C-Fix brackets and 2 L-Fix brackets (suitable for 2 miniTwin devices) | BEF-3AAA0MKU2S04       | 2045843  |

|   | Brief description   | Type                    | Part no. |
|---|---|-------------------------|----------|
|    | 2 pieces, O-Fix bracket, 2 pieces, for all sizes, for all protective field heights  | BEF-3SHAEMKU2           | 2045835  |
| Others  |   |                         |          |
|    | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Description:</b> Unshielded</li> <li>• <b>Connection systems:</b> Screw-type terminals</li> <li>• <b>Permitted cross-section:</b> ≤ 0.75 mm<sup>2</sup></li> <li>• <b>Note:</b> Test voltage 1.0 kV eff/60 s, insulation group C to VDE 0110</li> </ul>   | DOS-1205-GX             | 6047950  |
|    | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Description:</b> Unshielded, Head A: male connector, M12, 5-pin, straight, unshielded, for cable diameter 4 mm ... 6 mm Head B: -</li> <li>• <b>Connection systems:</b> Screw-type terminals</li> <li>• <b>Permitted cross-section:</b> ≤ 0.75 mm<sup>2</sup></li> <li>• <b>Note:</b> For field bus technology</li> </ul>                                       | STE-1205-G              | 6022083  |
|    | <ul style="list-style-type: none"> <li>• <b>Cable:</b> 160 mm</li> <li>• <b>Description:</b> Unshielded, miniTwin system plug for cascade, system connection: Cable with M12 male connector, 5-pin, extension connection: Cable with M12 female connector, 5-pin, length of cable: 160 mm each</li> </ul>   | Cascade system plug     | 2046452  |
|    | <ul style="list-style-type: none"> <li>• <b>Cable:</b> 350 mm</li> <li>• <b>Description:</b> Unshielded, miniTwin system plug for cascade, system connection: Cable with M12 male connector, 5-pin, extension connection: Cable with M12 female connector, 5-pin, length of cable: 350 mm each</li> </ul>   | Cascade system plug     | 2046454  |
|    | <ul style="list-style-type: none"> <li>• <b>Cable:</b> 700 mm</li> <li>• <b>Description:</b> Unshielded, miniTwin system plug for cascade, system connection: Cable with M12 male connector, 5-pin, extension connection: Cable with M12 female connector, 5-pin, length of cable: 700 mm each</li> </ul>   | Cascade system plug     | 2046456  |
|  | <ul style="list-style-type: none"> <li>• <b>Cable:</b> 10 m</li> <li>• <b>Description:</b> Unshielded, miniTwin system plug for standalone, system connection: Cable, flying leads, 5-wire, length of cable: 10 m</li> </ul>  | Stand-alone system plug | 2051290  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Description:</b> Unshielded, Head A: female connector, M12, 5-pin, straight, unshielded, for cable diameter 4 mm ... 6 mm Head B: -</li> <li>• <b>Connection systems:</b> Screw-type terminals</li> <li>• <b>Permitted cross-section:</b> ≤ 0.75 mm<sup>2</sup></li> </ul>  | DOS-1205-G              | 6009719  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Male connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 1 m, 5-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Zones with oils and lubricants, Drag chain operation, Robot</li> </ul> | YF2A15-010UB5M2A15      | 2096007  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Male connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 2 m, 5-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Zones with oils and lubricants, Drag chain operation, Robot</li> </ul> | YF2A15-020UB5M2A15      | 2096009  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 5 m, 5-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Zones with chemicals</li> </ul>   | YF2A15-050VB5XLEAX      | 2096240  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 10 m, 5-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Zones with chemicals</li> </ul>  | YF2A15-100VB5XLEAX      | 2096241  |



|   | Brief description   | Type               | Part no. |
|---|---|--------------------|----------|
|  | <ul style="list-style-type: none"><li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li><li>• <b>Connection type head B:</b> Flying leads</li><li>• <b>Signal type:</b> Sensor/actuator cable</li><li>• <b>Cable:</b> 15 m, 5-wire, PVC</li><li>• <b>Description:</b> Sensor/actuator cable, unshielded</li><li>• <b>Application:</b> Zones with chemicals</li></ul> | YF2A15-150VB5XLEAX | 2096242  |

## SICK AT A GLANCE

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