



# M20S-081A3A222

M2000 Cascadable

**MULTIPLE LIGHT BEAM SAFETY DEVICES**

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

| System part | Type           | Part no. |
|-------------|----------------|----------|
| Sender      | M20S-081A3A222 | 1018234  |

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 10/5/2015. 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 5/10/2015.

Other models and accessories → [www.sick.com/M2000\\_Cascadable](http://www.sick.com/M2000_Cascadable)

### Detailed technical data

#### Safety-related parameters

|                                                                           |                                                    |
|---------------------------------------------------------------------------|----------------------------------------------------|
| <b>Type</b>                                                               | Type 2 (IEC 61496-1)                               |
| <b>Safety integrity level</b>                                             | SIL1 (IEC 61508)<br>SILCL1 (EN 62061)              |
| <b>Category</b>                                                           | Category 2 (EN ISO 13849)                          |
| <b>Test rate (internal test)</b>                                          | 13 /s (EN ISO 13849) <sup>1)</sup>                 |
| <b>Maximum demand rate</b>                                                | ≤ 8 min <sup>-1</sup> (EN ISO 13849) <sup>2)</sup> |
| <b>Performance level</b>                                                  | PL c (EN ISO 13849)                                |
| <b>PFH<sub>D</sub> (mean probability of a dangerous failure per hour)</b> | 6.6 x 10 <sup>-9</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> Internal test. The test rate may not be exceeded if an external test is performed.

<sup>2)</sup> Between two requirements on a safety-related response of the device, at least 100 internal or external tests must be carried out.

#### Functions

|                                    |   |
|------------------------------------|---|
| <b>Beam coding</b>                 | ✓ |
| <b>Configurable scanning range</b> | ✓ |

#### Interfaces

|                                              |                                                  |
|----------------------------------------------|--------------------------------------------------|
| <b>System connection</b>                     | Male connector M12, 8-pin                        |
| Conductor cross-section                      | 0.25 mm <sup>2</sup>                             |
| <b>Configuration method</b>                  | Hard wired                                       |
| <b>Display elements</b>                      | LEDs<br>7-segment display                        |
| <b>Fieldbus, industrial network</b>          |                                                  |
| Integration via Flexi Soft safety controller | CANopen <sup>1)</sup><br>DeviceNet™<br>EtherCAT® |

<sup>1)</sup> For additional information on Flexi Soft → [www.sick.com/Flexi\\_Soft](http://www.sick.com/Flexi_Soft).

|                                                       |
|-------------------------------------------------------|
| EtherNet/IP™<br>Modbus TCP<br>PROFIBUS DP<br>PROFINET |
|-------------------------------------------------------|

<sup>1)</sup> For additional information on Flexi Soft -> [www.sick.com/Flexi\\_Soft](http://www.sick.com/Flexi_Soft).

## Electrical data

|                                     |                                                 |
|-------------------------------------|-------------------------------------------------|
| <b>Protection class</b>             | III (IEC 61140)                                 |
| <b>Supply voltage V<sub>s</sub></b> | 24 V DC (19.2 V DC ... 28.8 V DC) <sup>1)</sup> |

<sup>1)</sup> The external voltage supply must be capable of buffering brief mains voltage failures of 20 ms as specified in EN 60204-1. Suitable power supplies are available as accessories from SICK.

## Mechanical data

|                              |                         |
|------------------------------|-------------------------|
| <b>Dimensions</b>            | See dimensional drawing |
| <b>Housing cross-section</b> | 48 mm x 40 mm           |

## Ambient data

|                         |                               |
|-------------------------|-------------------------------|
| <b>Enclosure rating</b> | IP65 (EN 60529)               |
| <b>Air humidity</b>     | 15 % ... 95 %, Non-condensing |
| <b>Shock resistance</b> | 10 g, 16 ms (IEC 60068-2-29)  |

## Other information

|                    |        |
|--------------------|--------|
| <b>Wave length</b> | 950 nm |
|--------------------|--------|

## Classifications

|                       |          |
|-----------------------|----------|
| <b>ECI@ss 5.0</b>     | 27272703 |
| <b>ECI@ss 5.1.4</b>   | 27272703 |
| <b>ECI@ss 6.0</b>     | 27272703 |
| <b>ECI@ss 6.2</b>     | 27272703 |
| <b>ECI@ss 7.0</b>     | 27272703 |
| <b>ECI@ss 8.0</b>     | 27272703 |
| <b>ECI@ss 8.1</b>     | 27272703 |
| <b>ECI@ss 9.0</b>     | 27272703 |
| <b>ECI@ss 10.0</b>    | 27272703 |
| <b>ECI@ss 11.0</b>    | 27272703 |
| <b>ETIM 5.0</b>       | EC001832 |
| <b>ETIM 6.0</b>       | EC001832 |
| <b>ETIM 7.0</b>       | EC001832 |
| <b>UNSPSC 16.0901</b> | 46171620 |

Technical drawing of a 100mm diameter, 1000mm high fire-rated door assembly. The drawing includes a side elevation (left), a top view (middle), and a front elevation (right). The side elevation shows a door with a top handle (1), a top hinge (2), a bottom hinge (8), and a bottom handle (14.4). The top view shows a door with a top handle (3), a top hinge (6), a bottom hinge (7), and a bottom handle (14.4). The front elevation shows a door with a top handle (4), a top hinge (5), a bottom hinge (7), and a bottom handle (14.4). Dimensions include door height (1000mm), door width (1000mm), and various component dimensions.

## Recommended accessories

|                                                                                     | Brief description                                                                                 | Type           | Part no. |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------------|----------|
| Mounting brackets and plates                                                        |                                                                                                   |                |          |
|  | 4 pieces, Mounting kit 1, mounting bracket, rigid, L-shaped, including fixing screws and washers  | BEF-3WNGBAST4  | 7021352  |
| Terminal and alignment brackets                                                     |                                                                                                   |                |          |
|  | 4 pieces, Mounting kit 6, side bracket, rotatable, zinc diecast                                   | BEF-1SHABAZN4  | 2019506  |
|  | 4 pieces, Omega bracket, rotatable, fixable with only one screw, for mounting on the swivel mount | BEF-2SMMEAAAL4 | 2044847  |
|  | 4 pieces, Mounting kit 2, rotatable, swivel mount, Polyamide PA6                                  | BEF-2SMMEAKU4  | 2019659  |

|                                                                                   | Brief description                                                                              | Type                      | Part no. |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------------------|----------|
| Alignment aids                                                                    |                                                                                                |                           |          |
|  | Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam! | AR60                      | 1015741  |
|  | Adapter AR60 for housing cross-section 48 mm x 40 mm                                           | AR60 adapter, 48x40       | 4032461  |
|  | Adapter AR60 for housing cross-section 48 mm x 40 mm in PU3H device column                     | AR60 adapter, 48x40, PU3H | 4056731  |

## SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

**For us, that is “Sensor Intelligence.”**

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)