



# M20E-081A2A120

M2000 Standard

**SAFETY MULTIBEAM SENSORS**

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

| Type           | part no. |
|----------------|----------|
| M20E-081A2A120 | 1016439  |

Other models and accessories → [www.sick.com/M2000\\_Standard](http://www.sick.com/M2000_Standard)

### Detailed technical data

#### Features

|                                      |                            |
|--------------------------------------|----------------------------|
| <b>Scanning range</b>                | 0 m ... 25 m, configurable |
| <b>Low scanning range</b>            | 0 m ... 6 m                |
| <b>Great scanning range</b>          | 2 m ... 25 m               |
| <b>Number of beams</b>               | 8                          |
| <b>Beam separation or resolution</b> | 116 mm                     |
| <b>Response time</b>                 | 8 ms                       |
| <b>Synchronization</b>               | Optical synchronization    |

#### 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>                                          | 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

|                                    | Functions | Delivery status |
|------------------------------------|-----------|-----------------|
| <b>Beam coding</b>                 | ✓         | Uncoded         |
| <b>Configurable scanning range</b> | ✓         |                 |

## Interfaces

|                             |                           |
|-----------------------------|---------------------------|
| <b>System connection</b>    |                           |
| Permitted cable length      | 60 m <sup>1)</sup>        |
| Permitted cross-section     | ≥ 1 mm <sup>2</sup>       |
| <b>Configuration method</b> | Hard wired                |
| <b>Display elements</b>     | LEDs<br>7-segment display |

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

## Electronics

|                                                |                                                                                      |
|------------------------------------------------|--------------------------------------------------------------------------------------|
| <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>                                      |
| <b>Power consumption</b>                       | ≤ 5 W (DC)                                                                           |
| <b>Output signal switching devices (OSSDs)</b> | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored <sup>2)</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               | ≤ 1 V DC                                                                             |
| Current-carrying capacity per OSSD             | ≤ 500 mA                                                                             |

<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.

<sup>2)</sup> Applies to the voltage range between –30 V and +30 V.

## Mechanics

|                              |                         |
|------------------------------|-------------------------|
| <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>Ambient operating temperature</b> | 0 °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 (IEC 68-2-6) |
| <b>Shock resistance</b>              | 10 g/16 ms (IEC 68-2-29)         |

## Certificates

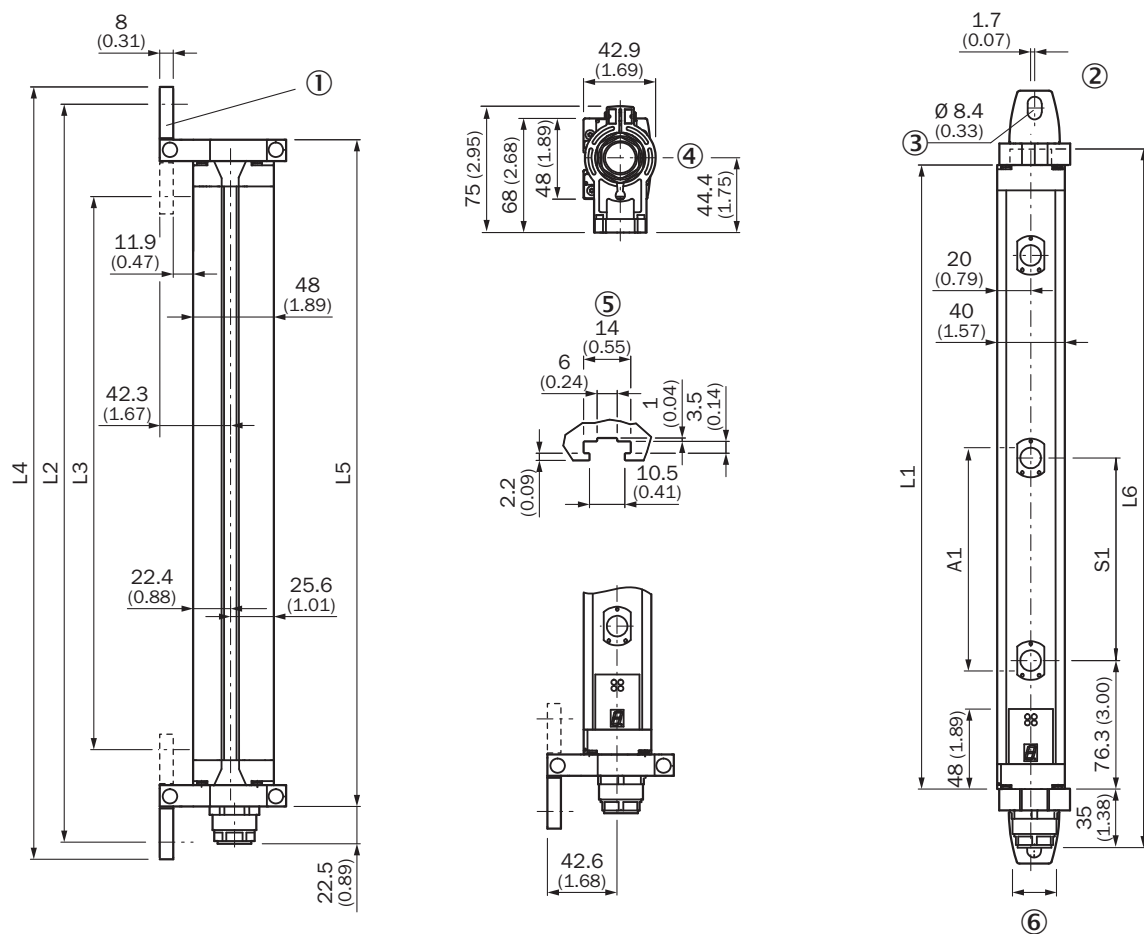
|                                       |   |
|---------------------------------------|---|
| <b>ACMA declaration of conformity</b> | ✓ |
| <b>China RoHS</b>                     | ✓ |
| <b>ULus approval</b>                  | ✓ |
| <b>cUL approval</b>                   | ✓ |

## Classifications

|                     |          |
|---------------------|----------|
| <b>ECLASS 5.0</b>   | 27272703 |
| <b>ECLASS 5.1.4</b> | 27272703 |
| <b>ECLASS 6.0</b>   | 27272703 |
| <b>ECLASS 6.2</b>   | 27272703 |
| <b>ECLASS 7.0</b>   | 27272703 |

|                       |          |
|-----------------------|----------|
| <b>ECLASS 8.0</b>     | 27272703 |
| <b>ECLASS 8.1</b>     | 27272703 |
| <b>ECLASS 9.0</b>     | 27272703 |
| <b>ECLASS 10.0</b>    | 27272703 |
| <b>ECLASS 11.0</b>    | 27272703 |
| <b>ECLASS 12.0</b>    | 27272703 |
| <b>ETIM 5.0</b>       | EC001832 |
| <b>ETIM 6.0</b>       | EC001832 |
| <b>ETIM 7.0</b>       | EC001832 |
| <b>ETIM 8.0</b>       | EC001832 |
| <b>UNSPSC 16.0901</b> | 46171620 |

### Dimensional drawing

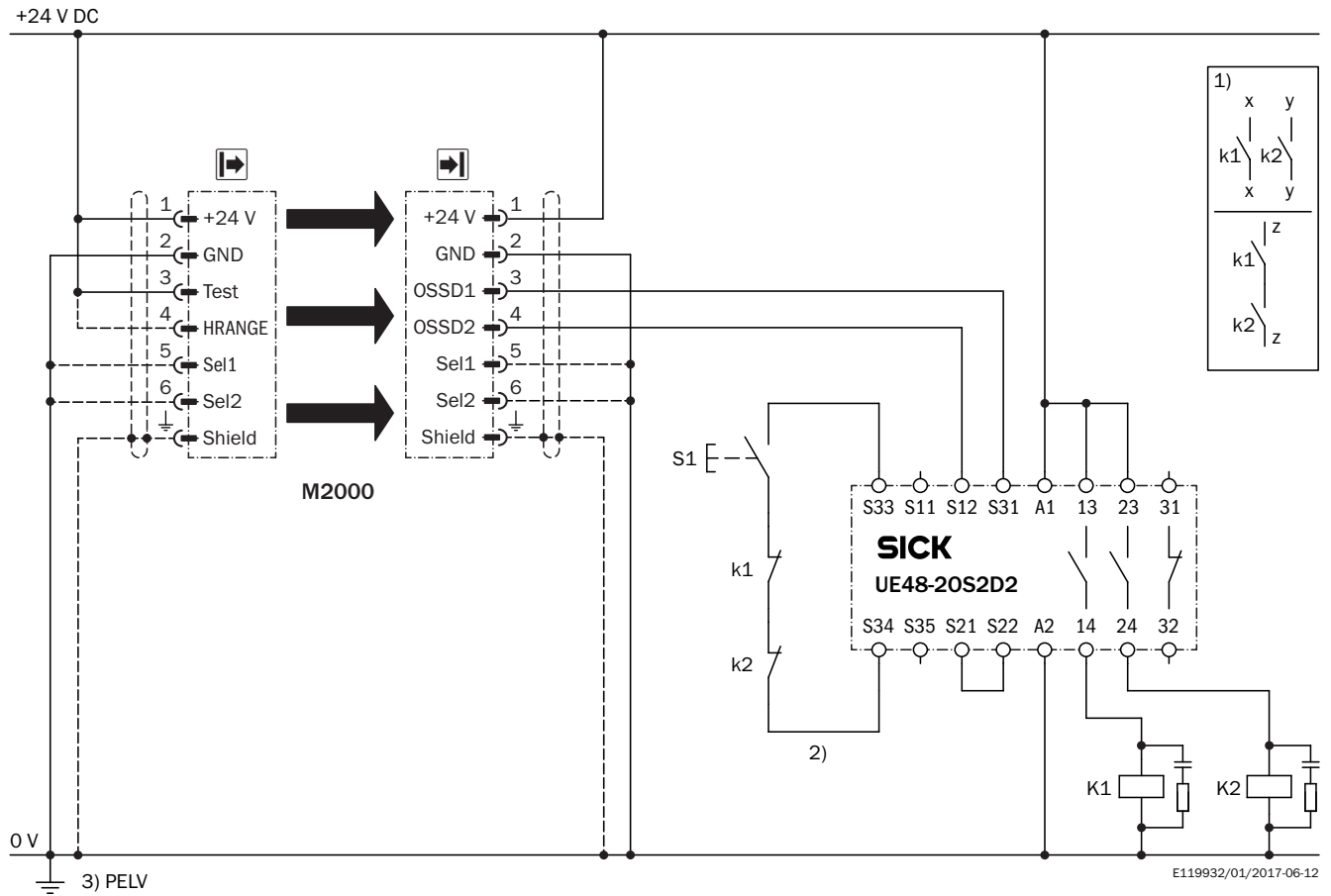


Dimensions in mm (inch)

|   |     |   | <b>L1</b> | <b>L2</b> | <b>L3</b> | <b>L4</b> | <b>L5</b> | <b>L6</b> |
|---|-----|---|-----------|-----------|-----------|-----------|-----------|-----------|
| 2 | 500 | - | 630       | 697       | 588       | 718       | 655       | 675       |
| 3 | 400 | - | 931       | 998       | 888       | 1,019     | 956       | 976       |
| 4 | 300 | - | 1,031     | 1,098     | 989       | 1,119     | 1,056     | 1,076     |

|   |   |     | L1    | L2    | L3    | L4    | L5    | L6    |
|---|---|-----|-------|-------|-------|-------|-------|-------|
| 6 | - | 170 | 916   | 983   | 874   | 1,004 | 941   | 960   |
| 7 | - | 170 | 1,073 | 1,140 | 1,031 | 1,161 | 1,098 | 1,118 |
| 8 | - | 116 | 851   | 919   | 809   | 939   | 877   | 896   |
| 8 | - | 170 | 1,231 | 1,298 | 1,189 | 1,319 | 1,256 | 1,275 |
| 9 | - | 170 | 1,388 | 1,455 | 1,346 | 1,476 | 1,413 | 1,433 |

Connection diagram M2000 Standard with 7-pin system connection for UE48-20S with restart interlock and external device monitoring



### Recommended accessories

Other models and accessories → [www.sick.com/M2000\\_Standard](http://www.sick.com/M2000_Standard)

|                                                                                     | Brief description                                                                                                                                                                                                                                                                            | Type                      | part no. |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------|
| Mounting systems                                                                    |                                                                                                                                                                                                                                                                                              |                           |          |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Mounting kit 2, rotatable, swivel mount</li> <li><b>Material:</b> Plastic</li> <li><b>Details:</b> Polyamide PA6</li> <li><b>Packing unit:</b> 4 pieces</li> <li><b>Suitable for:</b> All protective field heights</li> </ul>     | BEF-2SMMEAKU4             | 2019659  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Mounting kit 1, mounting bracket, rigid, L-shaped, including fixing screws and washers</li> <li><b>Packing unit:</b> 4 pieces</li> <li><b>Suitable for:</b> All protective field heights</li> </ul>                               | BEF-3WNGBAST4             | 7021352  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Omega bracket, rotatable, fixable with only one screw, for mounting on the swivel mount</li> <li><b>Packing unit:</b> 4 pieces</li> <li><b>Suitable for:</b> All protective field heights in large housing</li> </ul>             | BEF-2SMMEAAL4             | 2044847  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Mounting kit 6, side bracket, rotatable</li> <li><b>Material:</b> Zinc diecast</li> <li><b>Details:</b> Zinc diecast</li> <li><b>Packing unit:</b> 4 pieces</li> <li><b>Suitable for:</b> All protective field heights</li> </ul> | BEF-1SHABAZN4             | 2019506  |
| Commissioning aids and test equipment                                               |                                                                                                                                                                                                                                                                                              |                           |          |
|  | <ul style="list-style-type: none"> <li><b>Product:</b> Alignment aids</li> <li><b>Dimensions (W x H x L):</b> 19 mm 67.3 mm 66.9 mm</li> <li><b>Description:</b> Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam!</li> </ul>                   | AR60                      | 1015741  |
|  | <ul style="list-style-type: none"> <li><b>Product:</b> Alignment aids</li> <li><b>Description:</b> Adapter AR60 for housing cross-section 48 mm x 40 mm</li> </ul>                                                                                                                           | AR60 adapter, 48x40       | 4032461  |
|  | <ul style="list-style-type: none"> <li><b>Product:</b> Alignment aids</li> <li><b>Description:</b> Adapter AR60 for housing cross-section 48 mm x 40 mm in PU3H device column</li> </ul>                                                                                                     | 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)