

## Technical data sheet

### Safety sensor set

Part no.: 68602033

MLC520-S-24-330

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For illustration purposes only



## Technical data

### Basic data

|             |                                                                    |
|-------------|--------------------------------------------------------------------|
| Series      | MLC 520S                                                           |
| Device type | Set (transmitter and receiver)                                     |
| Contains    | 4x BT-MLC-S-C mounting brackets<br>4x BT-MLC-S-O mounting brackets |
| Application | Hand protection                                                    |

### Functions

|           |                                                                                        |
|-----------|----------------------------------------------------------------------------------------|
| Functions | Automatic start/restart<br>Contactor monitoring (EDM)<br>Start/restart interlock (RES) |
|-----------|----------------------------------------------------------------------------------------|

### Characteristic parameters

|                             |                          |
|-----------------------------|--------------------------|
| Type                        | 4, IEC/EN 61496          |
| SIL                         | 3, IEC 61508             |
| SILCL                       | 3, IEC/EN 62061          |
| Performance Level (PL)      | e, EN ISO 13849-1        |
| PFH <sub>D</sub>            | 2,64E-09 per hour        |
| Mission time T <sub>M</sub> | 20 years, EN ISO 13849-1 |
| Category                    | 4, EN ISO 13849          |

### Protective field data

|                         |             |
|-------------------------|-------------|
| Resolution              | 24 mm       |
| Protective field height | 330 mm      |
| Operating range         | 0.2 ... 6 m |

### Optical data

|                          |                                           |
|--------------------------|-------------------------------------------|
| Number of beams          | 17 Piece(s)                               |
| Synchronization          | Optical between transmitter and receiver  |
| Light source             | LED, Infrared                             |
| Wavelength               | 850 nm                                    |
| Transmitted-signal shape | Pulsed                                    |
| LED risk group           | Exempt group (in acc. with EN 62471:2008) |

### Electrical data

|                    |                                                   |
|--------------------|---------------------------------------------------|
| Protective circuit | Overvoltage protection<br>Short circuit protected |
|--------------------|---------------------------------------------------|

### Performance data

|                               |                        |
|-------------------------------|------------------------|
| Supply voltage U <sub>B</sub> | 24 V, DC, -20 ... 20 % |
|-------------------------------|------------------------|

### Outputs

|                                                    |            |
|----------------------------------------------------|------------|
| Number of safety-related switching outputs (OSSDs) | 2 Piece(s) |
|----------------------------------------------------|------------|

### Safety-related switching outputs

|                              |                                      |
|------------------------------|--------------------------------------|
| Type                         | Safety-related switching output OSSD |
| Switching voltage high, min. | 18 V                                 |
| Switching voltage low, max.  | 2.5 V                                |
| Switching voltage, type.     | 22.5 V                               |
| Voltage type                 | DC                                   |
| Load inductivity             | 2,000 µH                             |
| Load capacity                | 1 µF                                 |
| Residual current, max.       | 200 mA                               |
| Residual current, type.      | 2 mA                                 |

### Safety-related switching output 1

|                   |                                   |
|-------------------|-----------------------------------|
| Assignment        | Receiver device connection, pin 2 |
| Switching element | Transistor, PNP                   |

### Safety-related switching output 2

|                   |                                   |
|-------------------|-----------------------------------|
| Assignment        | Receiver device connection, pin 4 |
| Switching element | Transistor, PNP                   |

### Time behavior

|               |      |
|---------------|------|
| Response time | 8 ms |
|---------------|------|

### Connection

|                       |            |
|-----------------------|------------|
| Number of connections | 2 Piece(s) |
|-----------------------|------------|

#### Connection 1

|                    |                               |
|--------------------|-------------------------------|
| Function           | Transmitter device connection |
| Type of connection | Cable with connector          |
| Cable length       | 160 mm                        |
| Sheathing material | PUR                           |
| Thread size        | M12                           |
| Material           | Plastic                       |
| No. of pins        | 5 -pin                        |

#### Connection 2

|                    |                            |
|--------------------|----------------------------|
| Function           | Receiver device connection |
| Type of connection | Cable with connector       |
| Cable length       | 160 mm                     |
| Sheathing material | PUR                        |
| Thread size        | M12                        |
| Material           | Plastic                    |
| No. of pins        | 5 -pin                     |

### Mechanical data

|                       |                                                                                     |
|-----------------------|-------------------------------------------------------------------------------------|
| Dimension (W x H x L) | 15.4 mm x 330 mm x 32.6 mm                                                          |
| Housing material      | Metal                                                                               |
| Metal housing         | Aluminum                                                                            |
| Lens cover material   | Plastic / PMMA                                                                      |
| Material of end caps  | Plastic                                                                             |
| Net weight            | 1,700 g                                                                             |
| Housing color         | Yellow, RAL 1021                                                                    |
| Type of fastening     | C-shaped mounting bracket<br>L-shaped mounting bracket<br>O-shaped mounting bracket |

### Environmental data

|                                    |               |
|------------------------------------|---------------|
| Ambient temperature, operation     | -10 ... 55 °C |
| Ambient temperature, storage       | -30 ... 70 °C |
| Relative humidity (non-condensing) | 15 ... 95 %   |

### Certifications

|                      |                       |
|----------------------|-----------------------|
| Degree of protection | IP 65                 |
| Protection class     | III                   |
| Approvals            | TÜV Süd               |
| Vibration resistance | 50 m/s <sup>2</sup>   |
| Shock resistance     | 98.1 m/s <sup>2</sup> |
| US patents           | US 6,418,546 B        |

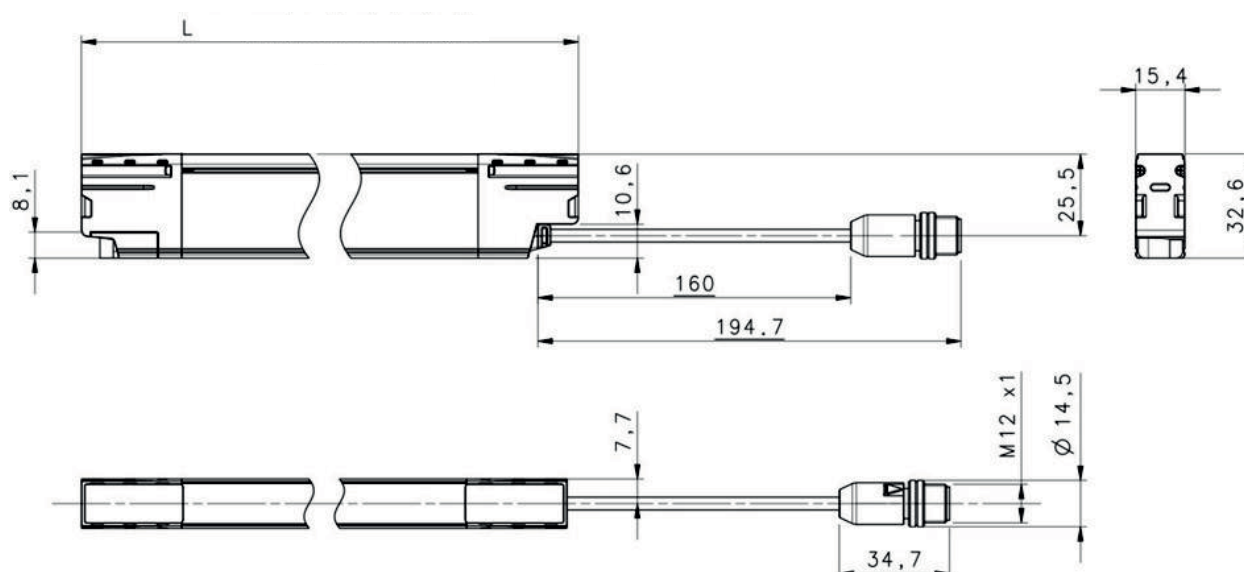
## Technical data

|                       |          |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| ECLASS 5.1.4          | 27272704 |
| ECLASS 8.0            | 27272704 |
| ECLASS 9.0            | 27272704 |
| ECLASS 10.0           | 27272704 |
| ECLASS 11.0           | 27272704 |
| ECLASS 12.0           | 27272704 |
| ECLASS 13.0           | 27272704 |
| ECLASS 14.0           | 27272704 |
| ECLASS 15.0           | 27272704 |
| ECLASS 16.0           | 27272704 |
| ETIM 5.0              | EC002549 |
| ETIM 6.0              | EC002549 |
| ETIM 7.0              | EC002549 |
| ETIM 8.0              | EC002549 |
| ETIM 9.0              | EC002549 |
| ETIM 10.0             | EC002549 |

## Dimensioned drawings

All dimensions in millimeters

### Dimensions of transmitter and receiver



L Length/protective field height

## Electrical connection

### Connection 1

### Transmitter

|                    |                               |
|--------------------|-------------------------------|
| Function           | Transmitter device connection |
| Type of connection | Cable with connector          |
| Cable length       | 160 mm                        |
| Sheathing material | PUR                           |
| Cable color        | Black                         |

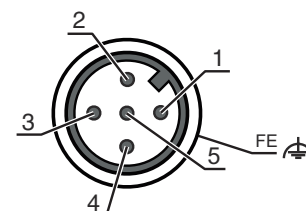
## Electrical connection

### Connection 1

### Transmitter

|                   |           |
|-------------------|-----------|
| Thread size       | M12       |
| Type              | Male      |
| Material          | Plastic   |
| No. of pins       | 5 -pin    |
| Encoding          | A-coded   |
| Connector housing | FE/SHIELD |

| Pin | Pin assignment    | Conductor color |
|-----|-------------------|-----------------|
| 1   | +24 V DC          | Brown           |
| 2   | RESTART SELECTION | White           |
| 3   | 0 V               | Blue            |
| 4   | n.c.              | Black           |
| 5   | RESTART SELECTION | Gray            |

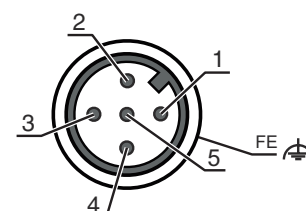


### Connection 2

### Receiver

|                    |                            |
|--------------------|----------------------------|
| Function           | Receiver device connection |
| Type of connection | Cable with connector       |
| Cable length       | 160 mm                     |
| Sheathing material | PUR                        |
| Cable color        | Black                      |
| Thread size        | M12                        |
| Type               | Male                       |
| Material           | Plastic                    |
| No. of pins        | 5 -pin                     |
| Encoding           | A-coded                    |
| Connector housing  | FE/SHIELD                  |

| Pin | Pin assignment    | Conductor color |
|-----|-------------------|-----------------|
| 1   | EDM               | Brown           |
| 2   | OSSD1             | White           |
| 3   | 0 V               | Blue            |
| 4   | OSSD2             | Black           |
| 5   | EDM FBK/SELECTION | Gray            |



## Part number code

Part designation: MLCxxx-ooo-aa-hhhh

### MLC Safety light curtain

|      |                                                                        |
|------|------------------------------------------------------------------------|
| xxx  | <b>Series</b><br>520: MLC 520S                                         |
| aa   | <b>Resolution</b><br>14: 14 mm<br>24: 24 mm                            |
| hhhh | <b>Protective field height</b><br>150 ... 1200: from 150 mm to 1200 mm |
| ooo  | <b>Option</b><br>S: Slimline version                                   |

### Note



A list with all available device types can be found on the Leuze website at [www.leuze.com](http://www.leuze.com).

## Accessories

### Connection technology - Connection cables

|                                                                                   | Part no. | Designation        | Article          | Description                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------|----------|--------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50133841 | KD U-M12-5A-P1-050 | Connection cable | Application: Oil and lubricant resistant<br>Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5,000 mm<br>Sheathing material: PUR |

## Services

|                                                                                    | Part no. | Designation | Article           | Description                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------|----------|-------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | S981050  | CS40-I-140  | Safety inspection | Details: Checking of a safety light barrier application in accordance with current standards and guidelines. Inclusion of the device and machine data in a database, production of a test log per application.<br>Conditions: It must be possible to stop the machine, support provided by customer's employees and access to the machine for Leuze employees must be ensured. |
|  | S981046  | CS40-S-140  | Start-up support  | Details: For safety devices including stopping time measurement and initial inspection.<br>Conditions: Devices and connection cables are already mounted, price not including travel costs and, if applicable, accommodation expenses.                                                                                                                                         |

### Note



↗ A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.