

# Safety Light Curtain

## Orion1 Base

### Approvals:



### Application:

- Finger and hand detection
- When the light guard should be close to the hazardous zone
- When repeated access to the machine is necessary, manually serviced machines for example
- For area protection (horizontal mounting) and limitation of work zones

### Features:

- Finger and hand detection
- 6 m and 19 m operating distances (finger and hand detection)
- Compact dimensions
- Local reset and EDM
- Type 4



The Orion1 Base light curtains are used for finger or hand detection, usually quite close to the dangerous machine.

#### Easy to use

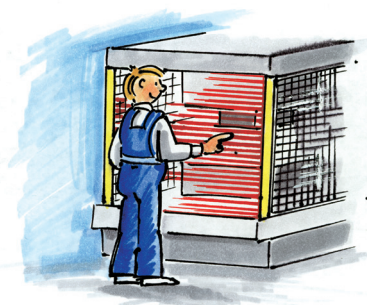
- No more functions or settings than necessary.
- A local reset button can be connected directly to the light curtain: no need for cable between the reset button and the electrical cabinet or for an extra control module.
- Each light curtain can monitor the actuators without any extra control module (EDM function).

#### Faster installation

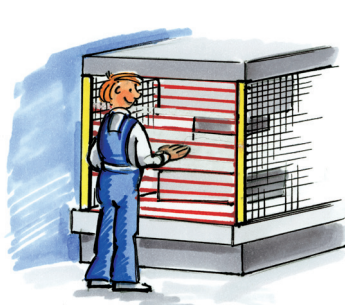
- Alignment help and a wide angle within the limits of a Type 4 device facilitate alignment.
- Rotation brackets simplify alignment too.
- M12 connectors speed up cabling.

#### Less downtime

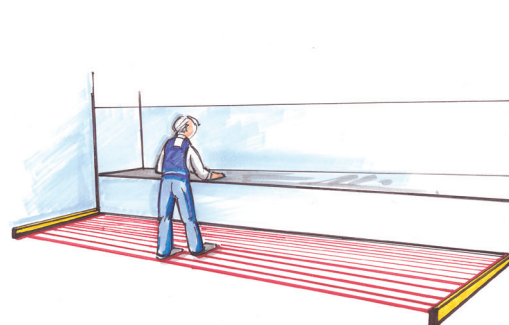
- The alignment level being displayed, the alignment can be improved before the occurrence of the unwanted stop.
- Extensive error indication reduces troubleshooting time.
- Protective tubes and lens shields protect the devices in harsh environments.



Finger detection



Hand detection



Area protection

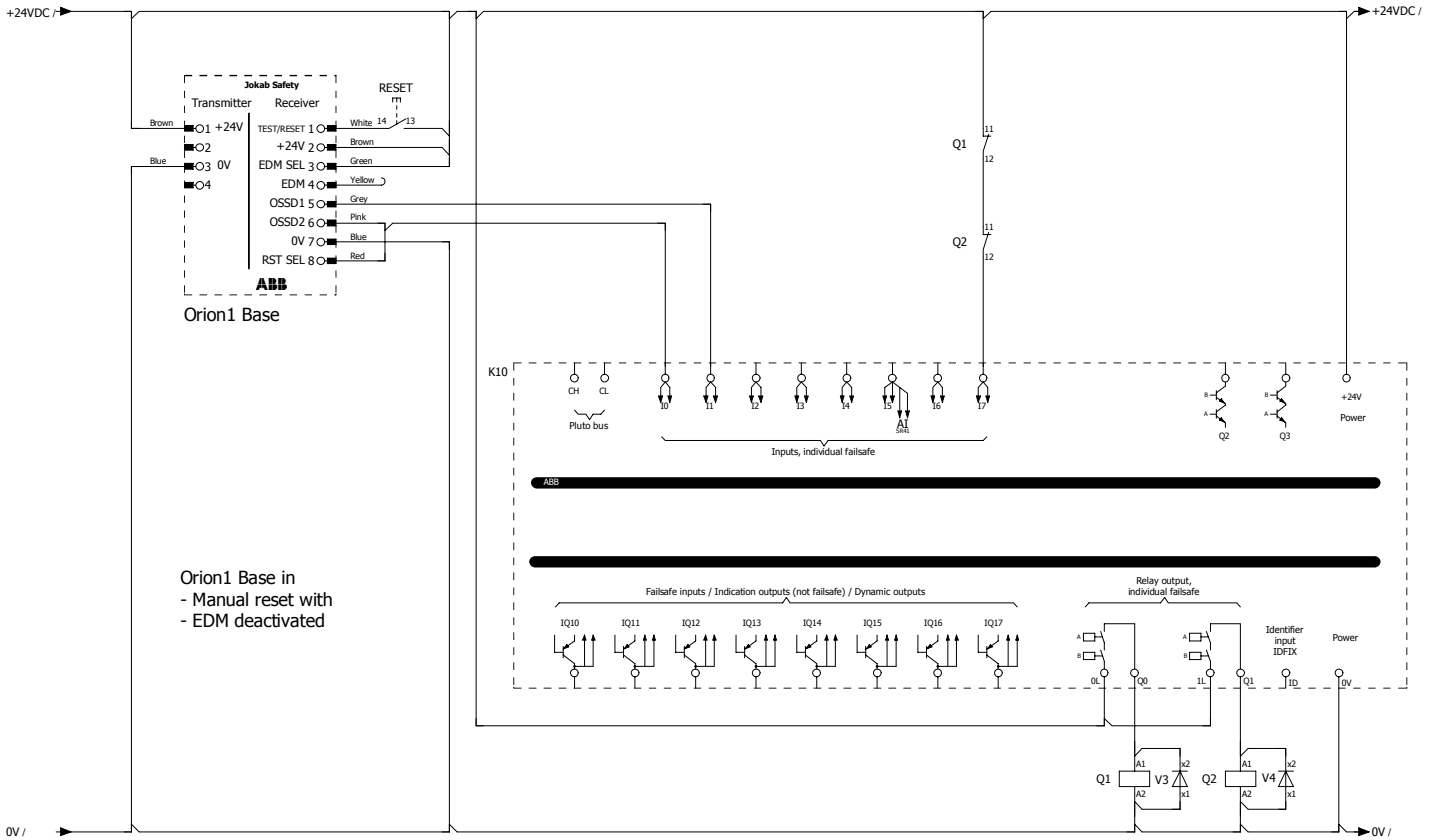
## Technical data

|  |  |
|--|--|
| <b>Functional Safety Data</b>          |  |
| EN ISO 13849-1:2008                    | PL e, Cat 4  |
| EN 61508-1..4:2010                     | SIL3; PFH <sub>d</sub> = 2.64 x10 <sup>-9</sup> ; HFT = 1; Mission time = 20 years |
| EN 62061:2005/A1:2013                  | SIL CL 3   |
| <b>Power supply</b>                    | +24 VDC ± 20 %   |
| <b>Power consumption</b>               |  |
| Transmitter                            | 1.5 W max  |
| Receiver                               | 4 W max (without load)   |
| <b>Outputs</b>                         |  |
| Short-circuit protection               | 1.4 A max  |
| Output current                         | 0.5 A max / output   |
| Output voltage – ON                    | Vdd -1 V min   |
| Output voltage – OFF                   | 0.2 V max  |
| Capacitive load                        | 2.2 µF at +24 VDC max  |
| <b>Connectors</b>                      |  |
|  | M12 - 4 pole male on transmitter (compatible with female M12-5 pole)               |
|  | M12 - 8 pole male on receiver  |
| <b>Cable length (for power supply)</b> | 50 m max   |
| <b>Light emission (λ)</b>              | Infrared, LED (950 nm)   |
| <b>Resolution</b>                      | 14 - 30 mm   |
| <b>Operating distance</b>              | 0.2...19 m for 30 mm<br>0.2...6 m for 14 mm  |
| <b>Ambient light rejection</b>         | According to IEC-61496-2:2013  |
| <b>Operating temperature</b>           | 0...+ 55 °C  |
| <b>Storage temperature</b>             | - 25...+ 70 °C   |
| <b>Humidity range</b>                  | 15...95 % (no condensation)  |
| <b>Protection class</b>                | IP 65 (EN 60529:2000)  |
| <b>Weight</b>                          | 1.3 kg / meter for each single unit  |
| <b>Housing material</b>                | Painted aluminium (yellow RAL 1003)  |
| <b>Front glass material</b>            | PMMA   |
| <b>Cap material</b>                    | PC MAKROLON  |
| <b>Connection Transmitter*</b>         |  |
| Brown (1)                              | +24 VDC  |
| White (2)                              | Test   |
| Blue (3)                               | 0 V  |
| Black (4)                              | <i>Not used</i>  |
| Grey (5)                               | <i>Not used</i>  |
| <b>Connection Receiver*</b>            |  |
| White(1)                               | Reset/Acknowledge - Automatic Reset if not connected                               |
| Brown (2)                              | +24 VDC  |
| Green (3)                              | EDM selection - Must be connected to +24 VDC to deactivate EDM                     |
| Yellow (4)                             | EDM  |
| Grey (5)                               | OSSD1  |
| Pink (6)                               | OSSD2  |
| Blue (7)                               | 0 V  |
| Red (8)                                | Reset mode selection: manual or automatic reset                                    |

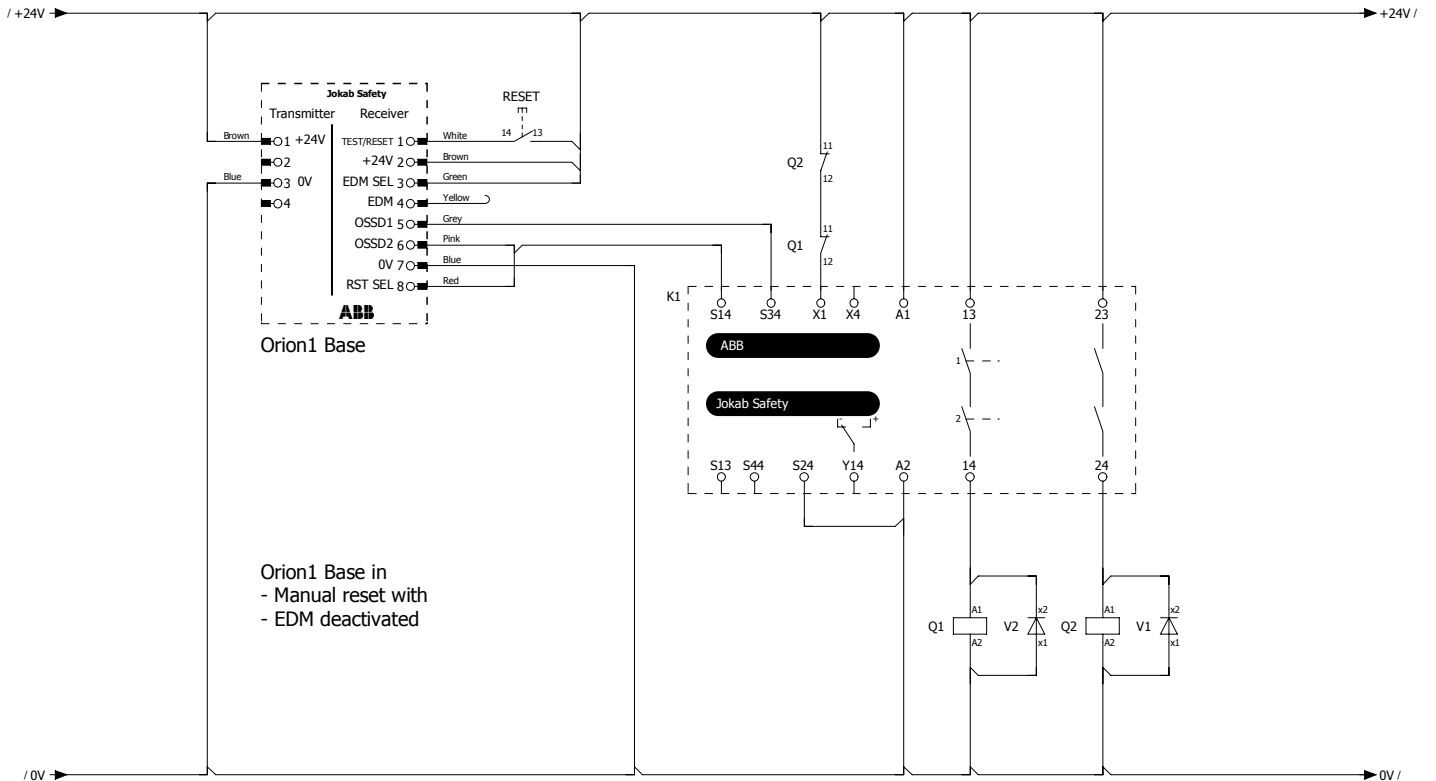
\* Colors according to ABB Jokab Safety standard cables

# Connection examples

## Connection to a Pluto B20 Safety PLC



## Connection to a RT9 safety relay



## Models and ordering information

|                   |                 |  |
|-------------------|-----------------|--|
| Orion1-4-14-015-B | 2TLA022300R0000 | Orion1 Base Transmitter + Receiver - R = 14 mm - H = 150 mm  |
| Orion1-4-14-030-B | 2TLA022300R0100 | Orion1 Base Transmitter + Receiver - R = 14 mm - H = 300 mm  |
| Orion1-4-14-045-B | 2TLA022300R0200 | Orion1 Base Transmitter + Receiver - R = 14 mm - H = 450 mm  |
| Orion1-4-14-060-B | 2TLA022300R0300 | Orion1 Base Transmitter + Receiver - R = 14 mm - H = 600 mm  |
| Orion1-4-14-075-B | 2TLA022300R0400 | Orion1 Base Transmitter + Receiver - R = 14 mm - H = 750 mm  |
| Orion1-4-14-090-B | 2TLA022300R0500 | Orion1 Base Transmitter + Receiver - R = 14 mm - H = 900 mm  |
| Orion1-4-14-105-B | 2TLA022300R0600 | Orion1 Base Transmitter + Receiver - R = 14 mm - H = 1050 mm |
| Orion1-4-14-120-B | 2TLA022300R0700 | Orion1 Base Transmitter + Receiver - R = 14 mm - H = 1200 mm |
| Orion1-4-14-135-B | 2TLA022300R0800 | Orion1 Base Transmitter + Receiver - R = 14 mm - H = 1350 mm |
| Orion1-4-14-150-B | 2TLA022300R0900 | Orion1 Base Transmitter + Receiver - R = 14 mm - H = 1500 mm |
| Orion1-4-14-165-B | 2TLA022300R1000 | Orion1 Base Transmitter + Receiver - R = 14 mm - H = 1650 mm |
| Orion1-4-14-180-B | 2TLA022300R1100 | Orion1 Base Transmitter + Receiver - R = 14 mm - H = 1800 mm |
| Orion1-4-30-015-B | 2TLA022302R0000 | Orion1 Base Transmitter + Receiver - R = 30 mm - H = 150 mm  |
| Orion1-4-30-030-B | 2TLA022302R0100 | Orion1 Base Transmitter + Receiver - R = 30 mm - H = 300 mm  |
| Orion1-4-30-045-B | 2TLA022302R0200 | Orion1 Base Transmitter + Receiver - R = 30 mm - H = 450 mm  |
| Orion1-4-30-060-B | 2TLA022302R0300 | Orion1 Base Transmitter + Receiver - R = 30 mm - H = 600 mm  |
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| Orion1-4-30-120-B | 2TLA022302R0700 | Orion1 Base Transmitter + Receiver - R = 30 mm - H = 1200 mm |
| Orion1-4-30-135-B | 2TLA022302R0800 | Orion1 Base Transmitter + Receiver - R = 30 mm - H = 1350 mm |
| Orion1-4-30-150-B | 2TLA022302R0900 | Orion1 Base Transmitter + Receiver - R = 30 mm - H = 1500 mm |
| Orion1-4-30-165-B | 2TLA022302R1000 | Orion1 Base Transmitter + Receiver - R = 30 mm - H = 1650 mm |
| Orion1-4-30-180-B | 2TLA022302R1100 | Orion1 Base Transmitter + Receiver - R = 30 mm - H = 1800 mm |

## Cables

|          |                 |  |
|----------|-----------------|--|
| M12-C61  | 2TLA020056R0000 | Straight M12-5 female connector with 6 m shielded cable  |
| M12-C101 | 2TLA020056R1000 | Straight M12-5 female connector with 10 m shielded cable |
| M12-C201 | 2TLA020056R1400 | Straight M12-5 female connector with 20 m shielded cable |
| M12-C63  | 2TLA020056R3000 | Straight M12-8 female connector with 6 m shielded cable  |
| M12-C103 | 2TLA020056R4000 | Straight M12-8 female connector with 10 m shielded cable |
| M12-C203 | 2TLA020056R4100 | Straight M12-8 female connector with 20 m shielded cable |

## Spare parts (delivered with products originally)

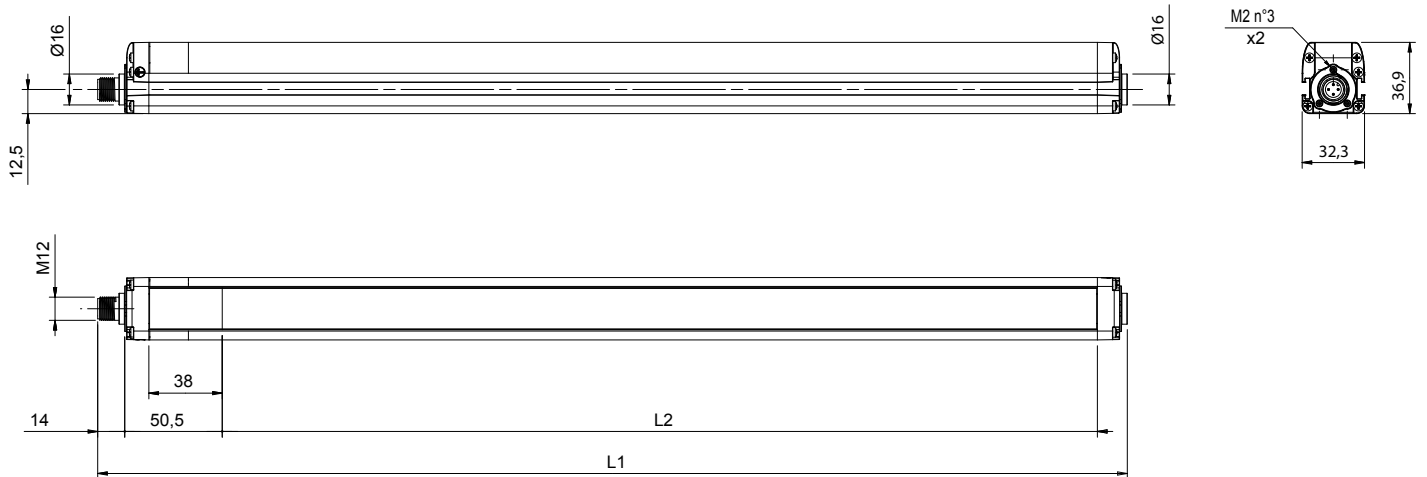
|             |                 |   |
|-------------|-----------------|---|
| JSM Orion01 | 2TLA022310R0000 | 4 standard brackets for Orion1 & Orion2 |
|-------------|-----------------|---|

## Accessories

|                   |                 |  |
|-------------------|-----------------|--|
| Orion TP-14       | 2TLA022310R5200 | Orion Test Piece 14 mm   |
| Orion TP-30       | 2TLA022310R5300 | Orion Test Piece 30 mm   |
| Orion Laser       | 2TLA022310R5000 | Orion Laser pointer  |
| JSM Orion03       | 2TLA022310R0100 | 4 rotation brackets for Orion1 Base                                  |
| JSM Orion06       | 2TLA022310R0400 | Kit for mounting of Orion1 & Orion2 in Stand (4 pieces)              |
| JSM Orion07       | 2TLA022310R0500 | Kit for mounting of Orion1 & Orion2 in Stand (6 pieces)              |
| JSM Orion11       | 2TLA022310R0900 | Kit for mounting of Orion1 Mirror in Stand                           |
| Orion Stand Plate | 2TLA022312R5000 | Orion Plate kit for adjustment of protective stand                   |
| Orion1 Mirror*    |                 | Deviating mirror to be mounted in Orion Stand with 1 kit JSM Orion11 |
| Orion Stand*      |                 | Protective stand   |
| Orion WET*        |                 | Protective tube  |
| Orion Shield*     |                 | Lens shield  |

\* These accessories are available in different sizes. More information on [www.abb.com/jokabsafety](http://www.abb.com/jokabsafety)

# Dimensions



All dimensions in millimeters

| Model             | Protected height (mm) | L1 (mm) | L2 (mm) |
|-------------------|-----------------------|---------|---------|
| Orion1-4-xx-015-B | 150                   | 233,30  | 153,30  |
| Orion1-4-xx-030-B | 300                   | 383,20  | 303,20  |
| Orion1-4-xx-045-B | 450                   | 533,20  | 453,30  |
| Orion1-4-xx-060-B | 600                   | 683,30  | 603,20  |
| Orion1-4-xx-075-B | 750                   | 833,20  | 753,30  |
| Orion1-4-xx-090-B | 900                   | 983,20  | 903,20  |
| Orion1-4-xx-105-B | 1050                  | 1133,20 | 1053,20 |
| Orion1-4-xx-120-B | 1200                  | 1283,20 | 1203,30 |
| Orion1-4-xx-135-B | 1350                  | 1433,20 | 1353,20 |
| Orion1-4-xx-150-B | 1500                  | 1583,30 | 1503,30 |
| Orion1-4-xx-165-B | 1650                  | 1733,30 | 1653,30 |
| Orion1-4-xx-180-B | 1800                  | 1883,30 | 1803,30 |

xx = Resolution

# Contact us

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