

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

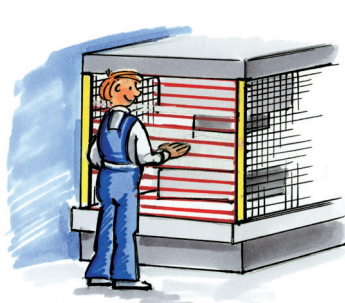
- Alignment help and a wide angle within the limits of a Type 4 device facilitate alignment.
- Rotation brackets simplify alignment too.
- M12 connectors speed up cabling.

Less downtime

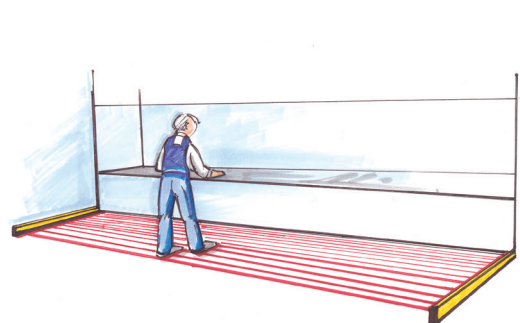
- The alignment level being displayed, the alignment can be improved before the occurrence of the unwanted stop.
- Extensive error indication reduces troubleshooting time.
- Protective tubes and lens shields protect the devices in harsh environments.



Finger detection



Hand detection



Area protection

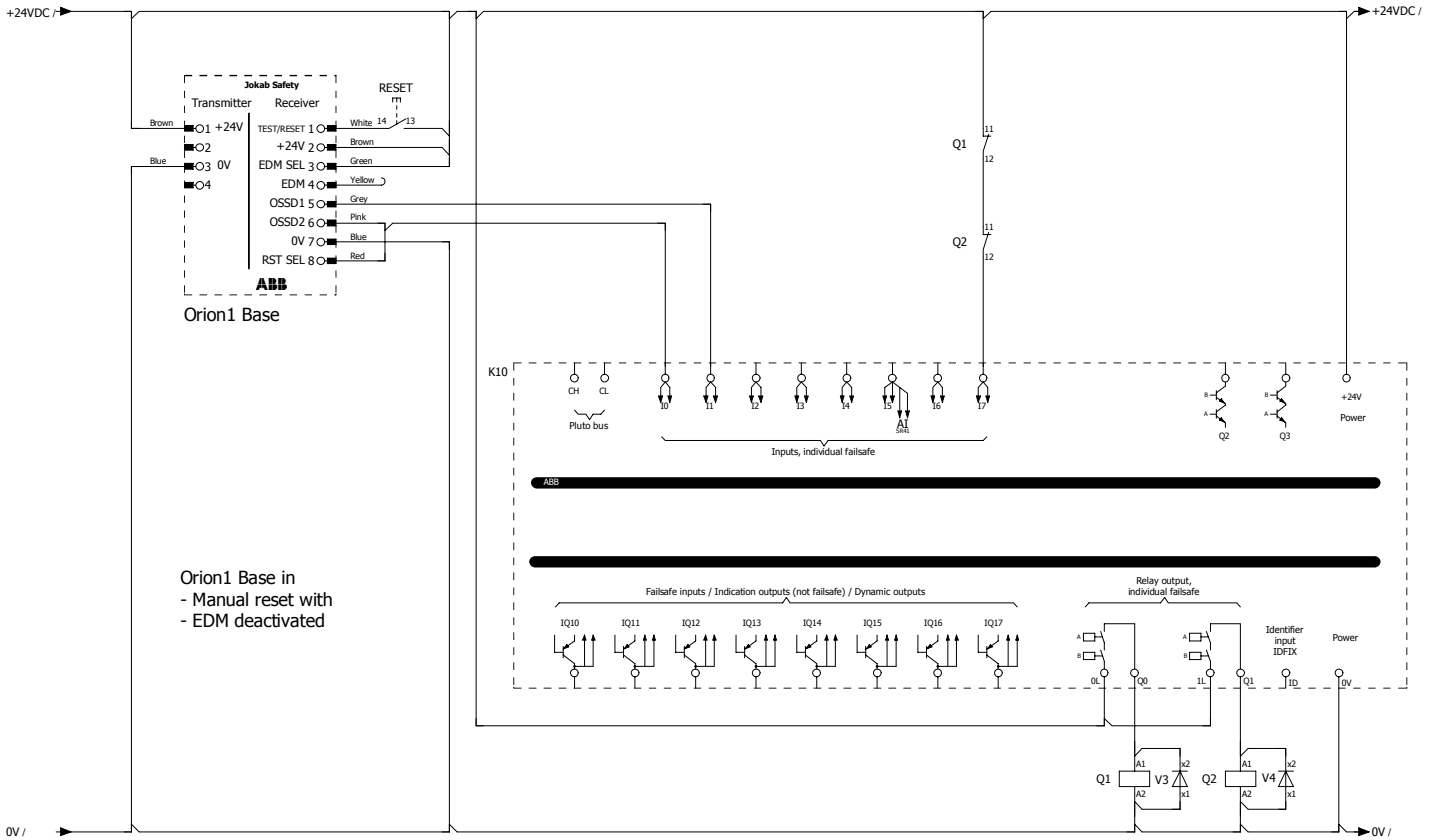
Technical data

Functional Safety Data	
EN ISO 13849-1:2008	PL e, Cat 4
EN 61508-1..4:2010	SIL3; PFH _d = 2.64 x10 ⁻⁹ ; HFT = 1; Mission time = 20 years
EN 62061:2005/A1:2013	SIL CL 3
Power supply	+24 VDC ± 20 %
Power consumption	
Transmitter	1.5 W max
Receiver	4 W max (without load)
Outputs	
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
Connectors	
	M12 - 4 pole male on transmitter (compatible with female M12-5 pole)
	M12 - 8 pole male on receiver
Cable length (for power supply)	50 m max
Light emission (λ)	Infrared, LED (950 nm)
Resolution	14 - 30 mm
Operating distance	0.2...19 m for 30 mm 0.2...6 m for 14 mm
Ambient light rejection	According to IEC-61496-2:2013
Operating temperature	0...+ 55 °C
Storage temperature	- 25...+ 70 °C
Humidity range	15...95 % (no condensation)
Protection class	IP 65 (EN 60529:2000)
Weight	1.3 kg / meter for each single unit
Housing material	Painted aluminium (yellow RAL 1003)
Front glass material	PMMA
Cap material	PC MAKROLON
Connection Transmitter*	
Brown (1)	+24 VDC
White (2)	Test
Blue (3)	0 V
Black (4)	<i>Not used</i>
Grey (5)	<i>Not used</i>
Connection Receiver*	
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

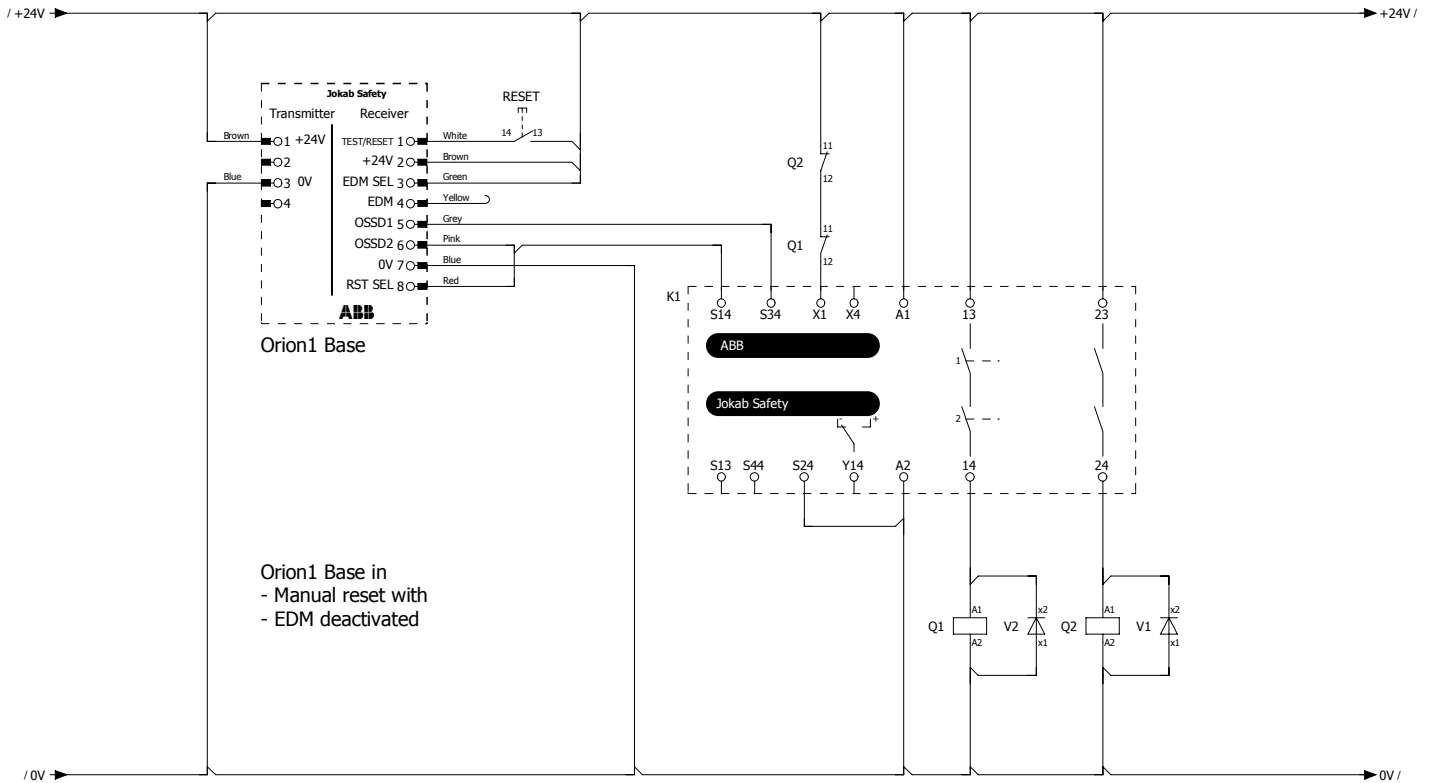
* Colors according to ABB Jokab Safety standard cables

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
Orion1-4-30-075-B	2TLA022302R0400	Orion1 Base Transmitter + Receiver - R = 30 mm - H = 750 mm
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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)

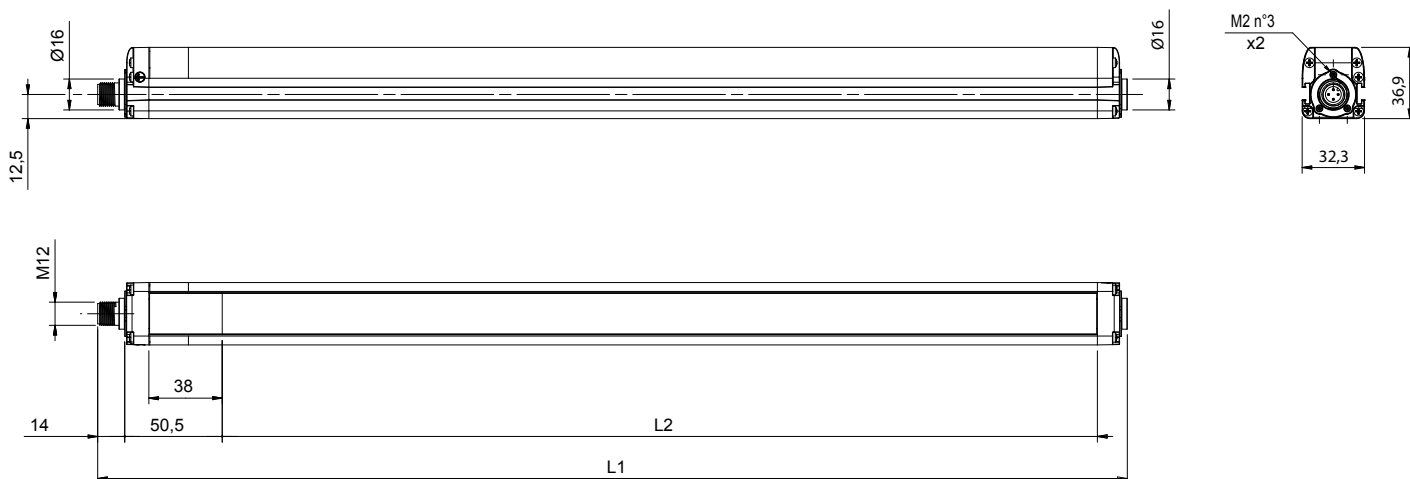
JSM Orion01	2TLA022310R0000	4 standard brackets for Orion1 & Orion2
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Accessories

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.

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