

Safety Light Curtain Orion1 Base

Orion1 Base is an easy to use light curtain with compact dimensions and two resolutions for detection of fingers and hands.

Light curtains are usually used closed to the hazardous zone when repeated access to the machine is necessary, for example manually serviced machines.

Light curtains can also be used to limit work zones inside the hazardous area and be mounted horizontally for area protection.



Cost effective solution

No more functions than necessary

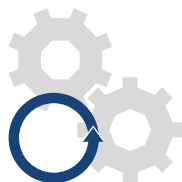
Orion1 Base comes with a minimum of advanced functionalities to save cost.

Minimized cabling

A local reset button can be connected directly to the light curtain. In this way there is no need for a cable between the reset button and the electrical cabinet or for an extra control module.

External device monitoring

Each light curtain can monitor the actuators without any extra control module (EDM function).



Continuous operation

Visible alignment level

Since the alignment level is displayed, the alignment can be improved before the occurrence of an unwanted stop.

Extensive error indication

Extensive error indication reduces troubleshooting time.

Protection against harsh environment

Protective tubes and lens shields protect the devices in harsh environments.



Easy to install

Easy to align

Alignment help and a wide angle within the limits of a Type 4 device facilitate alignment. Rotation brackets also simplify alignment.

Easy to connect

M12 connectors speed up cabling.

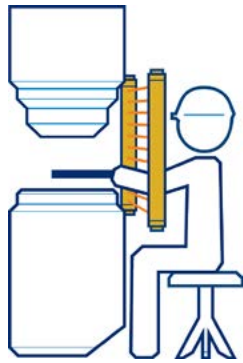
Applications and features

Orion1 Base

Applications

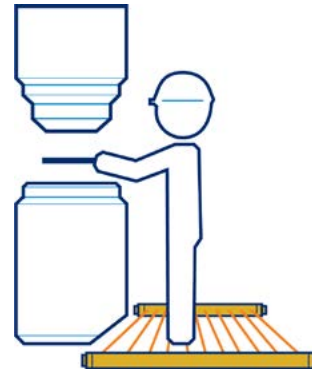
Vertical mounting

When using standard vertical mounting the light guard can be placed close to the hazard zone. This is suitable for applications where repeated access to the machine is necessary, e.g. manually serviced machines.



Horizontal mounting

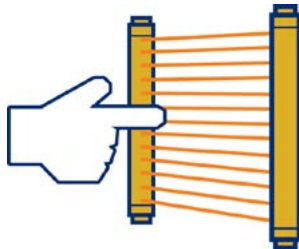
Horizontal mounting is mainly used for area protection and limitation of work zones.



Features

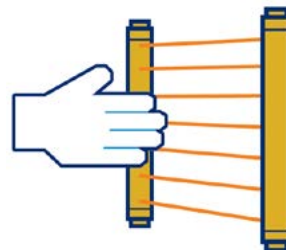
Finger detection

A 14 mm resolution is intended for finger detection when the light guard needs to be very close to the machine in order to give the operator a good view and easy accessibility to the machine. A 14 mm resolution enables a sensing range of 6 m.



Hand detection

A 30 mm resolution is intended for hand detection and area protection and is a good compromise between cost and accessibility to the machine. A 30 mm resolution enables a sensing range of 19 m.



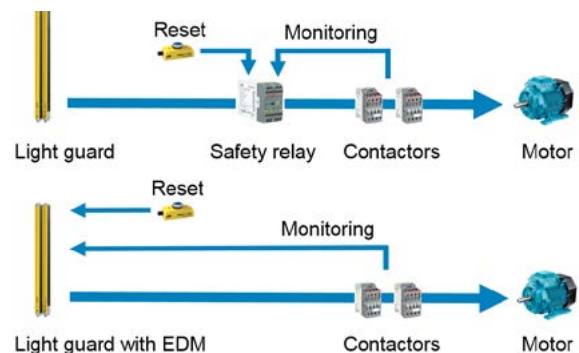
Local reset

A local reset button is connected directly to the light guard instead of to the safety control module in the electrical cabinet. This saves safety relays/PLC inputs and minimizes cabling to the electrical cabinet. Clever accessories makes the connection easier.



EDM

External Device Monitoring is a feature allowing the light guard to supervise the actuators in simpler applications, eliminating the need for a safety relay or programmable safety controller.



Ordering information

Orion1 Base



2TLC172781F0201

Orion1 Base

Ordering details

Detection (Resolution mm)	Protected height mm	Type (Transmitter + receiver)	Order code	
Finger (14)	150	Orion1-4-14-015-B	2TLA022300R0000	
	300	Orion1-4-14-030-B	2TLA022300R0100	
	450	Orion1-4-14-045-B	2TLA022300R0200	
	600	Orion1-4-14-060-B	2TLA022300R0300	
	750	Orion1-4-14-075-B	2TLA022300R0400	
	900	Orion1-4-14-090-B	2TLA022300R0500	
	1050	Orion1-4-14-105-B	2TLA022300R0600	
	1200	Orion1-4-14-120-B	2TLA022300R0700	
	1350	Orion1-4-14-135-B	2TLA022300R0800	
	1500	Orion1-4-14-150-B	2TLA022300R0900	
	1650	Orion1-4-14-165-B	2TLA022300R1000	
	1800	Orion1-4-14-180-B	2TLA022300R1100	
	Hand (30)	150	Orion1-4-30-015-B	2TLA022302R0000
		300	Orion1-4-30-030-B	2TLA022302R0100
450		Orion1-4-30-045-B	2TLA022302R0200	
600		Orion1-4-30-060-B	2TLA022302R0300	
750		Orion1-4-30-075-B	2TLA022302R0400	
900		Orion1-4-30-090-B	2TLA022302R0500	
1050		Orion1-4-30-105-B	2TLA022302R0600	
1200		Orion1-4-30-120-B	2TLA022302R0700	
1350		Orion1-4-30-135-B	2TLA022302R0800	
1500		Orion1-4-30-150-B	2TLA022302R0900	
1650		Orion1-4-30-165-B	2TLA022302R1000	
1800		Orion1-4-30-180-B	2TLA022302R1100	



2TLC172781F0201

JSM Orion01

Spare parts (included when ordering Orion)

Description	Type	Order code
4 standard brackets for Orion1 & Orion2	JSM Orion01	2TLA022310R0000

Accessories

Orion 1 Base



Orion Laser pointer

2TLC172816F0201



JSM Orion03

2TLC172785F0201



Smile 11 RB

2TLC172687F0201



M12-3R

2TLC172012V0201



Tina 10C

2TLC172477F0201

Accessories

Mounting accessories

Description	Type	Order code
Orion Test Piece 14 mm	Orion TP-14	2TLA022310R5200
Orion Test Piece 30 mm	Orion TP-30	2TLA022310R5300
Orion Laser pointer	Orion Laser	2TLA022310R5000
Screw MC6S M5x12 to be used with T-nut JSM M5B for mounting Orion on Quick-Guard	Screw MC6S	2TLA041012R0200
JSM M5B Special T-nut M5 to be used with screw MC6S for mounting Orion on Quick-Guard	T-nut JSM M5B	2TLA040035R0400
4 rotation brackets for Orion1 Base	JSM Orion03	2TLA022310R0100
Kit for mounting of Orion1 & Orion2 in Stand (4 pieces for lengths shorter than 1200 mm)	JSM Orion06	2TLA022310R0400
Kit for mounting of Orion1 & Orion2 in Stand (6 pieces for lengths of 1200 mm or more)	JSM Orion07	2TLA022310R0500
Kit for mounting of Orion1 Mirror in Stand	JSM Orion11	2TLA022310R0900
Orion Plate kit for adjustment of protective stand	Orion Stand Plate	2TLA022312R5000
Deviating mirror to be mounted in Orion Stand with one kit JSM Orion11	Orion1 Mirror*	
Protective stand	Orion Stand*	
Protective tube	Orion WET*	
Lens shield	Orion Shield*	

Connection accessories

Smile reset button with NO contact	Smile 11 RA	2TLA030053R0000
Smile reset button with NO contact for Pluto	Smile 11 RB	2TLA030053R0100
Smile reset button with NO contact for Orion1 Base	Smile 11R01	2TLA022316R3000
Y-connector for series connection of DYNlink devices with M12-5 connectors, e.g. Eden	M12-3A	2TLA020055R0000
Y-connector for connection of a Smile reset button to Orion	M12-3R	2TLA022316R0000
Y-connector for easy connection of a transmitter	M12-3D	2TLA020055R0300
Adaptation of OSSD to DYNlink. Two M12-5 connectors.	Tina 10A	2TLA020054R1200
Adaptation of OSSD to DYNlink with possibility to connect a local reset button. Three M12-5 connectors.	Tina 10B	2TLA020054R1300
Adaptation of OSSD to DYNlink with possibility to power the transmitter. Three M12-5 connectors.	Tina 10C	2TLA020054R1600
Safe AS-i input slave for OSSD, 3 non safe inputs and 1 reset input	Urax-D1R	2TLA020072R0500

*These accessories are available in different sizes.

For more information see:

Orion1 Mirror [2TLC172058L0201](#)

Orion Stand [2TLC172059L0201](#)

Orion WET [2TLC172061L0201](#)

Orion Shield [2TLC172071L0201](#)

For more information about the connection accessories, please see:

Orion connection accessories [2TLC172101L0201](#)

How to choose correct reset button

Local or global reset	Adaption to DYNlink	Safety controle module	Type	Useful connection accessories
Local reset button connected to the light guard	Yes	Vital or Pluto	Smile 11R01	Tina 10B: OSSD to DYNlink + local reset button M12-3A: Serial connection of DYNlink
(Orion in manual reset mode)	No	Any safety control module compatible with light guard	Smile 11R01	M12-3R: Easy connection of a local reset button
Global reset button connected to the control module	Yes	Vital	Smile 11 RA	Tina 10A: OSSD to DYNlink Tina 10C: OSSD to DYNlink + supply to transmitter
(Orion in automatic reset mode)		Pluto	Smile 11 RB	Tina 10A: OSSD to DYNlink Tina 10C: OSSD to DYNlink + supply to transmitter
	No	Any safety control module compatible with light guard	Smile 11 RA**	-

* The ABB Jokab Safety DYNlink solution offers the following advantages:

- Serial connection of safety devices while maintaining PLe/cat. 4, up to 25 Tina 10 per Vital and up to 5 Tina 10 per Pluto input.
- Only one safety input of the Pluto instead of two with the standard OSSD outputs.

** Smile 11 RA has one NO contact, which is the most common for reset buttons. Please check what is requested for the chosen safety control module.

Cables and connectors

Orion1 Base



M12-C61

2TLC172857F0201



M12-C61HE

2TLC010003F0201



M12-C334

2TLC172831F0201

Cable with connectors

Connector	Female/male	Length	Special feature	Type	Order code	
M12-5	Female	6 m		M12-C61	2TLA020056R0000	
			Harsh environment, halogen free	M12-C61HE	2TLA020056R8000	
		10 m		M12-C101	2TLA020056R1000	
			Harsh environment, halogen free	M12-C101HE	2TLA020056R8100	
		20 m		M12-C201	2TLA020056R1400	
		Female + male	0.3 m		M12-C0312	2TLA020056R5800
	0.06 m			M12-C00612	2TLA020056R6300	
	1 m			M12-C112	2TLA020056R2000	
	3 m			M12-C312	2TLA020056R2100	
	6 m			M12-C612	2TLA020056R2200	
	10 m			M12-C1012	2TLA020056R2300	
	16 m			M12-C1612	2TLA020056R5400	
	M12-8	Female	6 m		M12-C63	2TLA020056R3000
10 m				M12-C103	2TLA020056R4000	
20 m				M12-C203	2TLA020056R4100	
Female + male		0.06 m		M12-C00634 ¹	2TLA020056R6400	
		1 m		M12-C134	2TLA020056R5000	
		3 m		M12-C334	2TLA020056R5100	
		M12-8 male + female	Female + male	0.2	M12-CTO1BA ¹	2TLA022315R3000
		M12-8 male + female	Female + male	0.2	M12-CTO1BM ²	2TLA022315R3100
		M12-8 female - M12-5 male	Female + male	1	M12-CTURAX-01B ³	2TLA022315R3300

1) M12-CTO1BA can be used for:

- connection of Orion1 Base to Tina 10A/C
 - replacement of Focus II in automatic reset with Orion in automatic reset.
- The EDM function should be deactivated in all cases.

2) M12-CTO1BM can be used for:

- connection of Orion1 Base to Tina 10B or M12-3R for use of a local reset button, for example Smile 11ROx
 - replacement of Focus II in manual reset with Orion in manual reset.
- The EDM function should be deactivated in all cases.

3) M12-CTURAX-01B is used for:

- the connection of Orion1 Base to URAX-D1R.
- The light guard is automatically configured in automatic reset and the EDM function should be deactivated.

Separate cables and connectors



M12-C01

2TLC172857F0201



C5 cable

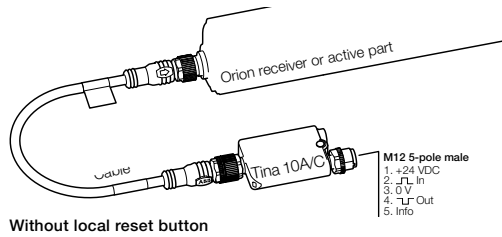
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Description	Type	Order code
Connectors		
M12-5 pole female, straight	M12-C01	2TLA020055R1000
M12-5 pole male, straight	M12-C02	2TLA020055R1100
M12-8 pole female, straight	M12-C03	2TLA020055R1600
M12-8 pole male, straight	M12-C04	2TLA020055R1700
Cable with 5 conductors		
10 m cable with 5 x 0.34 shielded conductors	C5 cable 10 m	2TLA020057R0001
50 m cable with 5 x 0.34 shielded conductors	C5 cable 50 m	2TLA020057R0005
100 m cable with 5 x 0.34 shielded conductors	C5 cable 100 m	2TLA020057R0010
200 m cable with 5 x 0.34 shielded conductors	C5 cable 200 m	2TLA020057R0020
500 m cable with 5 x 0.34 shielded conductors	C5 cable 500 m	2TLA020057R0050
Cable with 8 conductors		
50 m cable with 8 x 0.34 shielded conductors	C8 cable 50 m	2TLA020057R1005
100 m cable with 8 x 0.34 shielded conductors	C8 cable 100 m	2TLA020057R1010
200 m cable with 8 x 0.34 shielded conductors	C8 cable 200 m	2TLA020057R1020
500 m cable with 8 x 0.34 shielded conductors	C8 cable 500 m	2TLA020057R1050

Connection examples

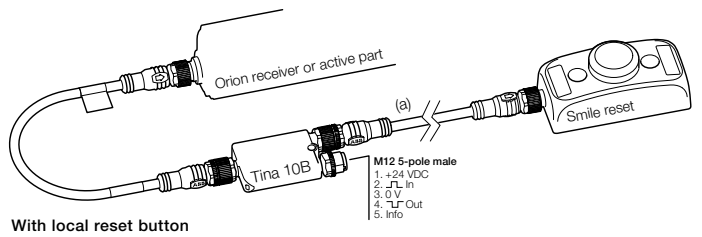
Orion 1 Base

Orion with Tina 10A/C



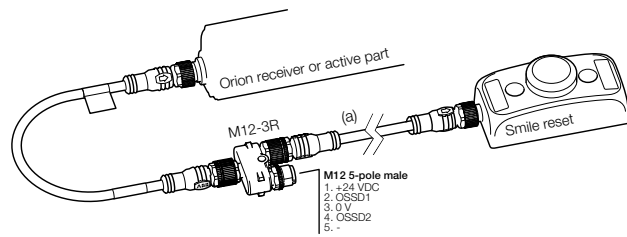
Connection to the ABB Jokab Safety DYNlink signal via Tina 10 A/C. To be used with Vital safety control module or Pluto programmable safety controller.

Reset to Orion with Tina 10B



Connection to the ABB Jokab Safety DYNlink signal via Tina 10B. To be used with Vital safety control module or Pluto programmable safety controller.

Reset to Orion with M12-3R




Connection of a local reset button via M12-3R.

Technical data

Orion 1 Base

Technical data

Approvals	
Conformity	CE 2006/42/EC - Machinery 2004/108/EC - EMC EN ISO 13849-1:2008, EN 62061:2005/A1:2013, EN 61496-1:2013, EN 61496-2, EN 61508-1:2010, EN 61508-2:2010, EN 61508-3:2010, EN 61508-4:2010
Functional safety data	
EN 61508:2010	SIL3, PFH _D = 2.64 x 10 ⁻⁹
EN 62061:2005+A1:2013	SILCL3, PFH _D = 2.64 x 10 ⁻⁹
EN ISO 13849-1:2008	PL e, Cat. 4, PFH _D = 2.64 x 10 ⁻⁹
Electrical data	
Power supply	+24 VDC ± 20 %
Power consumption, transmitter	1.5 W max
Power consumption, receiver	4 W max (without load)
Outputs	2 PNP
Short-circuit protection	1.4 A max
Output current	0.5 A max / output
Output voltage – ON	V _{dd} -1 V min
Output voltage – OFF	0.2 V max
Capacitive load	2.2 µF at +24 VDC max
Cable length (for power supply)	50 m max
Connectors	M12-4 pole male on transmitter (compatible with M12-5 pole female) M12-8 pole male on receiver
Optical data	
Light emission (λ)	Infrared, LED (950 nm)
Resolution	14 or 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
Mechanical data	
Operating temperature	0...+ 55 °C
Storage temperature	- 25...+ 70 °C
Humidity range	15...95 % (no condensation)
Protection class	IP65 (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

More information

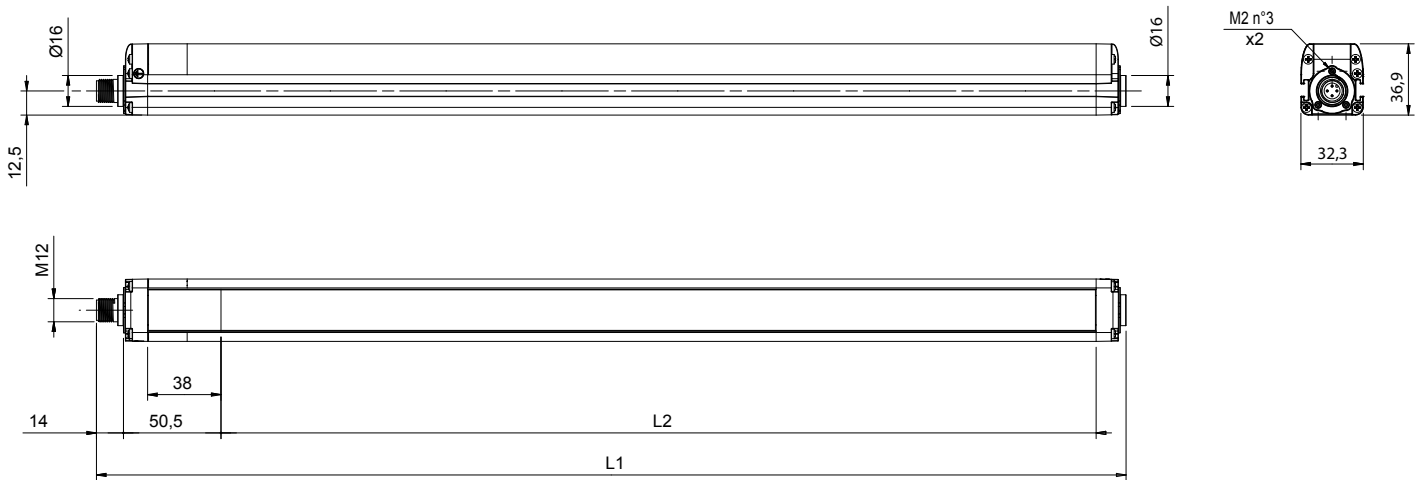
For more information, e.g. the complete technical information, please see product manual for:

Orion1 Base [2TLC172287M0201](#)

Dimension drawings

Orion 1 Base

Orion1 Base



All dimensions in mm

Dimension

Protected height mm	L1 mm	L2 mm	Type
150	233.3	153.3	Orion1-4-xx-015-B
300	383.2	303.2	Orion1-4-xx-045-B
450	533.2	453.3	Orion1-4-xx-045-B
600	683.3	603.2	Orion1-4-xx-060-B
750	833.2	753.3	Orion1-4-xx-075-B
900	983.2	903.2	Orion1-4-xx-090-B
1050	1133.2	1053.2	Orion1-4-xx-105-B
1200	1283.2	1203.3	Orion1-4-xx-120-B
1350	1433.2	1353.2	Orion1-4-xx-135-B
1500	1583.3	1503.3	Orion1-4-xx-150-B
1650	1733.3	1653.3	Orion1-4-xx-165-B
1800	1883.3	1803.3	Orion1-4-xx-180-B

xx = Resolution

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