

# Safety Light Grid Orion2 Base

Orion2 Base is a compact light grid for access protection.

The light grid has 2-4 beams and is intended for body detection.

With an operating distance of 50 m between transmitter and receiver the light grid is suitable for applications with deviating mirrors.



## Cost effective solution

### Minimized cabling

A local reset button can be connected directly to the light grid, eliminating the need for cable between the reset button and the electrical cabinet or for an extra control module.

### External device monitoring

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



## Easy to install

### Alignment help

Alignment help and a wide angle within the limits of a Type 4 device facilitate installation.

### Easy adjustment

Rotation brackets makes alignment easy.

### Fast connection

M12 connectors speed up cabling.



## Continuous operation

### Protection in harsh environments

The housing is IP65 rated, and protective tubes and lens shields are available to provide further protection for the device in harsh environments.

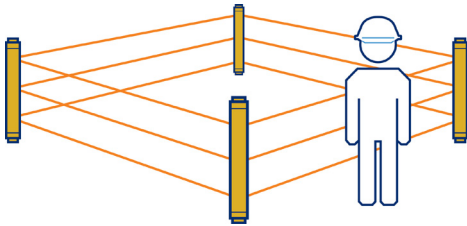
# Applications and features

## Orion2 Base

### Application

#### Body detection over long distances

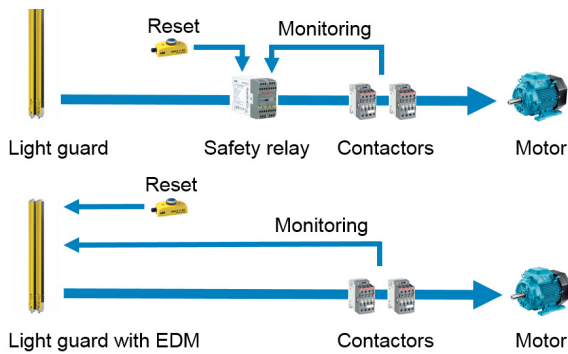
With 2-4 beams and a maximum sensing range of 50 m between transmitter and receiver, the light grid is intended for body detection and can be used with deviating mirrors to form a protective perimeter around a dangerous area.



### Features

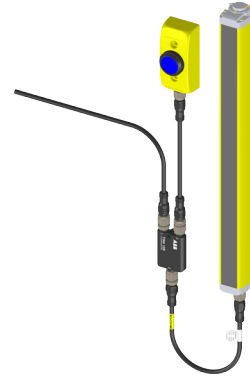
#### EDM

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.



#### 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/programmable inputs and minimizes cabling to the electrical cabinet. Clever accessories make the connection easier.



# Ordering information

## Orion2 Base



Orion2 Base

### Ordering details

Detection	Protected height mm	Type (Transmitter + receiver)	Order code
Body	500 (2 beams)	Orion2-4-K2-050-B	2TLA022304R0000
	800 (3 beams)	Orion2-4-K3-080-B	2TLA022304R0100
	900 (4 beams)	Orion2-4-K4-090-B	2TLA022304R0200
	1200 (4 beams)	Orion2-4-K4-120-B	2TLA022304R0300



JSM Orion01

### Spare parts (included when ordering Orion)

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

# Accessories Orion2 Base



JSM Orion 04

2TLC172776F0201



M12-3R

2TLC172012W0201



Smile 11 RB

2TLC17286F0201



Tina 10 C

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 Orion2	JSM Orion04	2TLA022310R0200
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
Orion Plate kit for adjustment of protective stand	Orion Stand Plate	2TLA022312R5000
Deviating mirror in stand for Orion 2 and 3	Orion 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 11RO1	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:

Orion Mirror [2TLC172060L0201](#)

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  (Orion in manual reset mode)	Yes	Vital or Pluto	Smile 11RO2	Tina 10B: OSSD to DYNlink + local reset button M12-3A: Serial connection of the DYNlink
	No	Any safety control module compatible with light guard	Smile 11RO2	M12-3R: Easy connection of a local reset button
Global reset button connected to the control module  (Orion in automatic reset mode)	Yes	Vital	Smile 11 RA	Tina 10A: OSSD to DYNlink Tina 10C: OSSD to DYNlink + supply to transmitter
		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 11RA has one NO contact, which is the most common for reset buttons. Please check what is requested for the chosen safety control module.

# Cables Orion2 Base



M12-C61

2TLC172895FC0201



M12-C61HE

2TLC0100038FC0201



M12-C334

2TLC172893FC0201

## 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
				M12-C0312	2TLA020056R5800
	Female + male	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	
		20 m	M12-C2012	2TLA020056R2400	
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 <sup>1</sup>	2TLA020056R6400	
		1 m	M12-C134 <sup>1</sup>	2TLA020056R5000	
		3 m	M12-C334 <sup>1</sup>	2TLA020056R5100	
M12-8 female + M12-5 male	Female + male	1	M12-CT132 <sup>2</sup>	2TLA020060R0600	

1) Used for the connection to Tina 10, M12-3D and M12-3R. Tina 10 can be connected directly to the light guard without cable, but will form an angle (i.e. not be aligned) with the light guard, which might be a problem if the light guard is mounted close to a wall/ aluminum profile.

2) M12-CT132 is used for the connection of Orion2 Base to URAX-D1R.

## Separate cables and connectors

Description	Type	Order code
<b>Connectors</b>		
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



M12-C01

2TLC172857FC0201



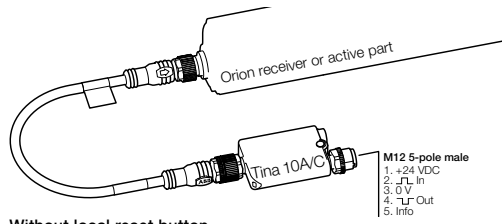
C5 cable

2TLC0100038FC0201

# Connection examples

## Orion2 Base

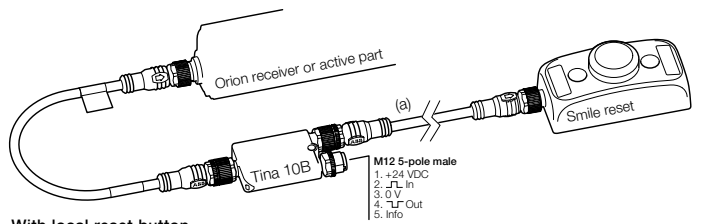
### Orion with Tina 10A/C



Without local reset button

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.

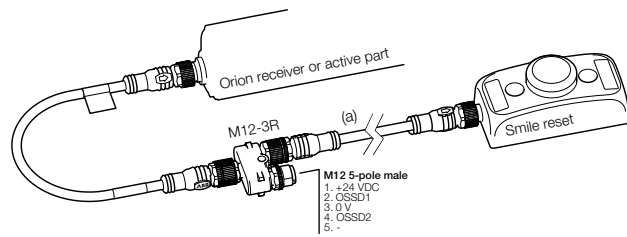
### Reset to Orion with Tina 10B



With local reset button

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

## Orion2 Base

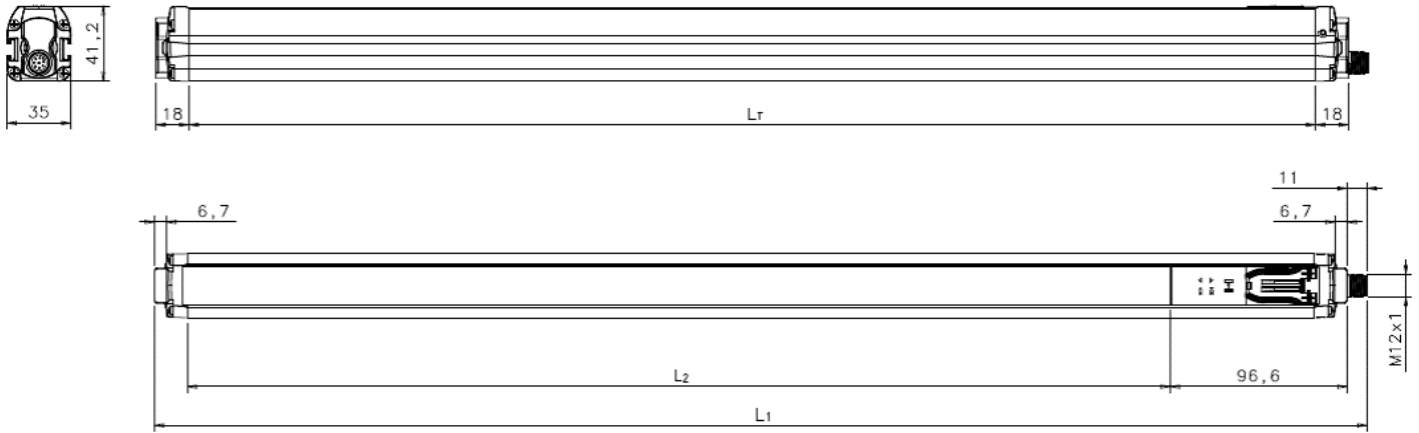
### Technical data

Approvals	 
Conformity	<b>CE</b> 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 <sub>D</sub> = 2.64 x 10 <sup>-9</sup>
EN 62061:2005+A1:2013	SILCL3, PFH <sub>D</sub> = 2.64 x 10 <sup>-9</sup>
EN ISO 13849-1:2008	PL e, Cat. 4, PFH <sub>D</sub> = 2.64 x 10 <sup>-9</sup>
Electrical data	
Power supply	+24 VDC ± 20 % (SELV/PELV)
Power consumption, Transmitter	30 mA max. / 0.9W
Power consumption, Receiver	75 mA max. (without load) / 2.2 W
Cable length (for power supply)	50 m max with 50 nF capacitive load and +24 VDC
Internal capacitance	23 nF (Transmitter) / 120 nF (Receiver)
Outputs	2 PNP
Short-circuit protection	Max 1.4 A at 55°C, min. 1.1 A at -10°C
Output current	0.5 A max / output
Leakage current	< 1 mA
Capacitive load (pure)	65 nF max at 25°C
Resistive load (pure)	56 Ω min at +24 VDC
Current for external lamp	20 mA min, 250 mA 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 (880 nm)
Resolution	315 - 515 mm
Operating distance	0.5...50 m
Ambient light rejection	According to IEC-61496-2:2013
Mechanical data	
Operating temperature	10...+ 55 °C
Storage temperature	- 25...+ 70 °C
Humidity range	15...95 % (no condensation)
Protection class	IP65 (EN 60529:2000)
Weight	1.2 kg max / meter for each single unit
Housing material	Painted aluminium (yellow RAL 1003)
Front glass material	PMMA
Cap material	PC Lexan 943A

# Dimension drawings

## Orion2 Base

### Orion2 Base



All dimensions in mm

### Dimension

Lr mm	L1 mm	L2 mm	Type
617	664	538.4	Orion2-4-K2-050-B
917	964	838.4	Orion2-4-K3-080-B
1017	1064	938.4	Orion2-4-K4-090-B
1317	1364	1238.4	Orion2-4-K4-120-B

xx = Resolution



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