

# Safety Light Grid

## Orion3 Base

Orion3 Base is a light grid with a sturdy profile for access protection.

Only one of the parts needs power supply, since both transmitter and receiver are in the same active part. The other part is passive with mirrors to reflect the beams.

With 2-4 beams and an operating range of up to 8 m, it is intended for body detection.



### 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.

#### Less cabling

Only the active part needs connecting.



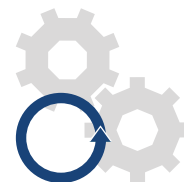
### Cost effective solution

#### 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).



### 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.

# Features

## Orion3 Base

### Features

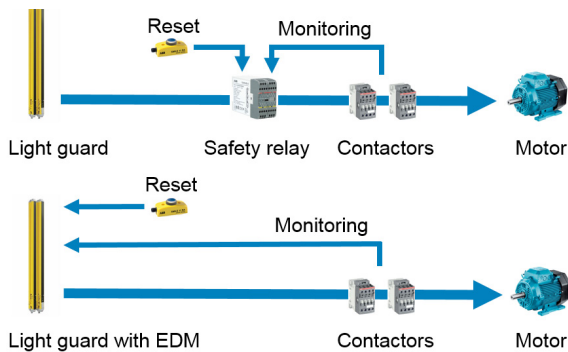
#### Sturdy profile for demanding applications

With its thicker and sturdier profile Orion3 is suitable for applications with tougher requirements.



#### EDM

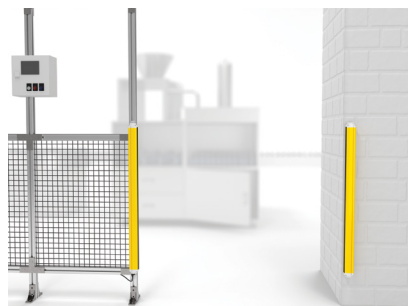
External Device Monitoring is a feature allowing the light guard to supervise the actuators in simpler applications, eliminating the need for a safety relay or programmable safety controller.



Light guard with EDM

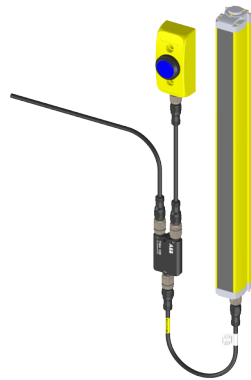
#### Power on one side

Both transmitter and receiver is in one active part, and the other part is passive containing mirrors. This simplifies installation and saves cables, making it easier to place in applications where cables needs to be avoided.



#### 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.



# Ordering information

## Orion3 Base



Orion3 Base



JSM Orion02

### Ordering details

Detection	Protected height mm	Active or passive part	Type	Order code
Body	500 (2 beams)	Active part	Orion3-4-K1C-050-B	2TLA022306R0000
		Passive part	Orion3-4-M1C-050	2TLA022306R1000
	800 (3 beams)	Active part	Orion3-4-K2C-080-B	2TLA022306R0100
		Passive part	Orion3-4-M2C-080	2TLA022306R1100
	900 (4 beams)	Active part	Orion3-4-K2C-090-B	2TLA022306R0200
		Passive part	Orion3-4-M2C-090	2TLA022306R1300
	1200 (4 beams)	Active part	Orion3-4-K2C-120-B	2TLA022306R0300
		Passive part	Orion3-4-M2C-120	2TLA022306R1400

### Spare parts (included when ordering Orion)

Description	Type	Order code
4 standard brackets for Orion3	JSM Orion02	2TLA022310R1000

# Accessories Orion3 Base



Orion Laser pointer

2TLC172816F0201



Smile 11 RB

2TLC172387F0201



M12-3R

2TLC172012A0201



Tina 10C

2TLC172477F0201

## Accessories

### Mounting accessories

Description	Type	Order code
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 standard brackets for Orion3	JSM Orion05	2TLA022310R0300
Kit for mounting of Orion3 in Stand (4 pieces for lengths shorter than 1200 mm)	JSM Orion08	2TLA022310R0600
Kit for mounting of Orion3 in Stand (6 pieces for lengths of 1200 mm or more)	JSM Orion09	2TLA022310R0700
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*	

### 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 NC contact for Orion3 Base	Smile 11 RO3	2TLA022316R3200
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](#)

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 11 RO3	Tina 10B: OSSD to DYNlink solution + local reset button M12-3A: Serial connection of the DYNlink solution
	No	Any safety control module compatible with light guard	Smile 11 RO3	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 solution Tina 10C: OSSD to DYNlink solution + supply to transmitter/active part
		Pluto	Smile 11 RB	Tina 10A: OSSD to DYNlink solution Tina 10C: OSSD to DYNlink solution + supply to transmitter/active part
	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

## Orion3 Base



M12-C61

2TLC172961F0201



M12-C61HE

2TLC010003F0201



M12-C334

2TLC172931F0201

### 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
	Female + male	20 m		M12-C201	2TLA020056R1400
		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
		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	2TLA020056R6400
		1 m		M12-C134	2TLA020056R5000
		3 m		M12-C334	2TLA020056R5100
		0.2 m		M12-CTO3B <sup>1</sup>	2TLA022315R3200
M12-8 female + M12-5 male	Female + male	1 m		M12-CTURAX-03B <sup>2</sup>	2TLA022315R3400

1) M12-CTO3B can be used for: - connection of Orion3 Base to Tina 10A/B/C.  
- connection of Orion 3 Base to M12-3R.

The EDM function is deactivated in all cases

2) M12-CTURAX-03B is used for: - connection of Orion3 Base to URAX-D1R.

The light guard is automatically configured in automatic reset and the EDM function is deactivated.

### 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

2TLC172857F0201



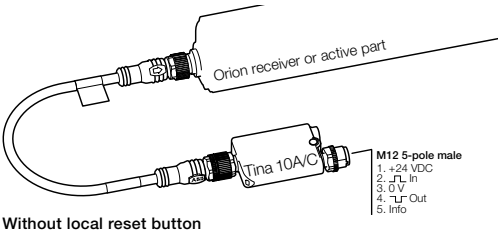
C5 cable

2TLC010038F0201

# Connection examples

## Orion3 Base

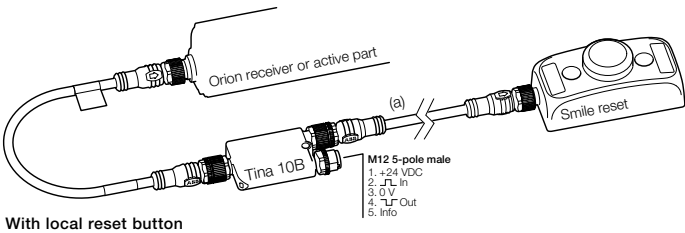
### Orion with Tina 10A/C



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.

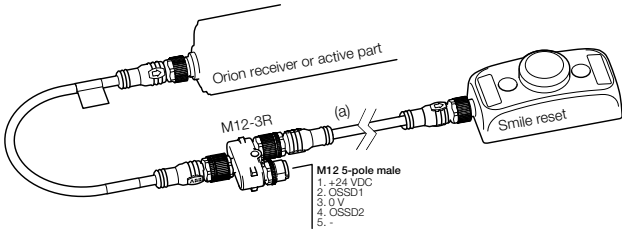
### Reset to Orion with Tina 10B



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

## Orion3 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> = 9.28 x 10 <sup>-9</sup>
EN 62061:2005+A1:2013	SILCL3, PFH <sub>D</sub> = 9.28 x 10 <sup>-9</sup>
EN ISO 13849-1:2008	PL e, Cat. 4, PFH <sub>D</sub> = 9.28 x 10 <sup>-9</sup>
Electrical data	
Power supply	+24 VDC ± 20 %
Power consumption, Active unit	6.5 W max (without load)
Cable length (for power supply)	70 m max
Outputs	2 PNP
Short-circuit protection	1.4 A max
Output current	0.5 A max / output
Output voltage – ON	Power supply value less 1 V (min)
Output voltage – OFF	0.2 V max
Capacitive load	2.2 µF at +24 VDC max
Cable length (for power supply)	70 m max
Connectors	M12-8 pole male on receiver
Optical data	
Light emission (λ)	Infrared, LED (950 nm)
Resolution	319.75 - 519.75 mm
Operating distance	0.5...8 m except K2C-090: 0.5...6.5 m
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	
Orion3-4-K1C-050-B	1.3 kg
Orion3-4-K2C-080-B	1.8 kg
Orion3-4-K2C-090-B	2.1 kg
Orion3-4-K2C-120-B	2.6 kg
Orion3-4-M1C-050 (passive)	1.2 kg
Orion3-4-M2C-080 (passive)	1.7 kg
Orion3-4-M2C-090 (passive)	1.9 kg
Orion3-4-M2C-120 (passive)	2.5 kg
Housing material	Painted aluminium (yellow RAL 1003)
Cap material	PBT Valox 508
Lens material	PMMA

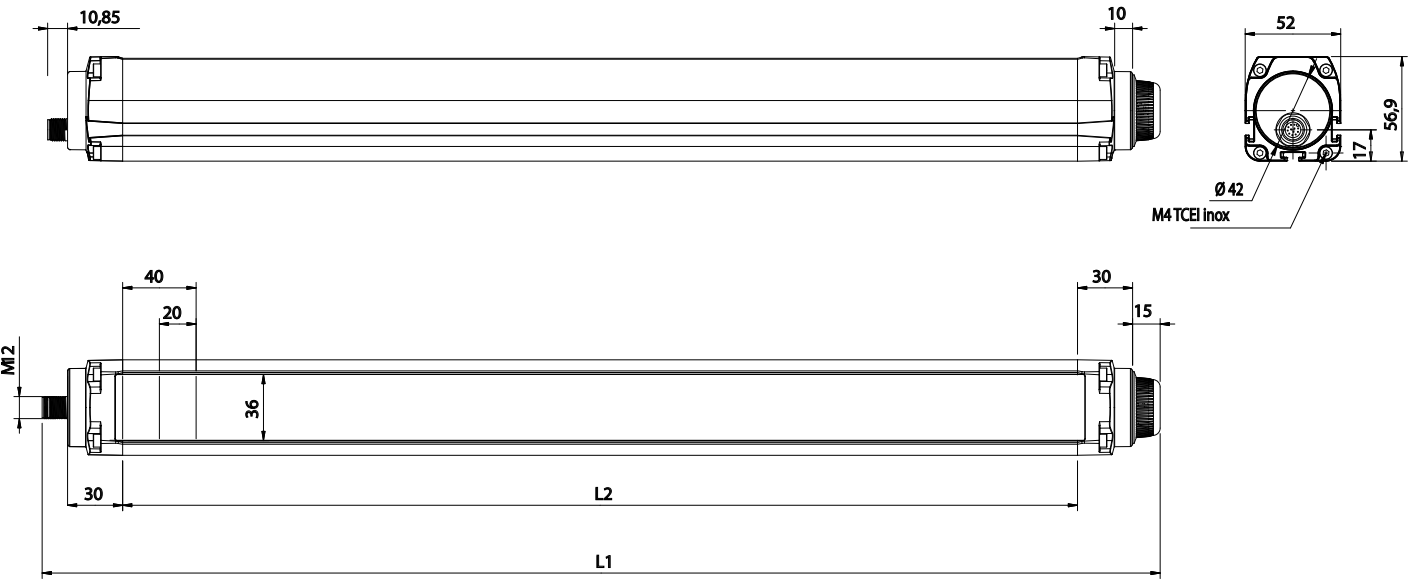
For more information about the connection accessories, see manual for:

Orion3 Base [2TLC172289M0201](#)

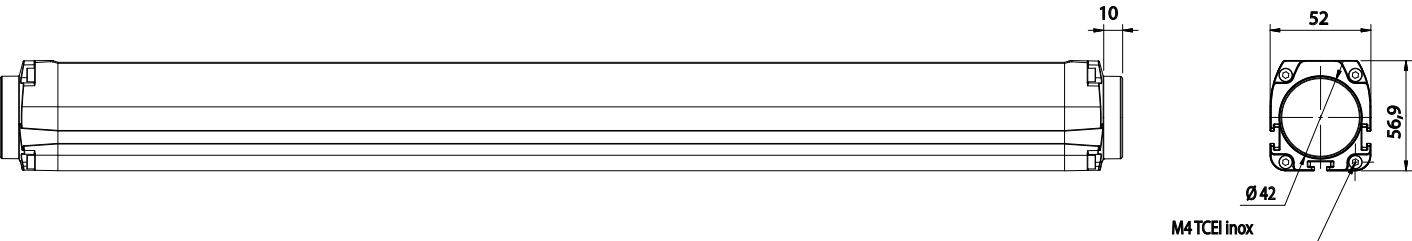
# Dimension drawings

## Orion3 Base

### Orion3 Base



Active part – All dimensions in mm



Passive part – All dimensions in mm

### Dimensions

L1 mm	L2 mm	Type
606.4	520.5	Orion3-4-K1C-050-B (active part)
906.4	820.5	Orion3-4-K2C-080-B (active part)
1006.4	920.5	Orion3-4-K2C-090-B (active part)
1306.4	1220.5	Orion3-4-K2C-120-B (active part)
580.5	520.5	Orion3-4-M1C-050 (passive part)
880.5	820.5	Orion3-4-M2C-080 (passive part)
980.5	920.5	Orion3-4-M2C-090 (passive part)
1280.5	1220.5	Orion3-4-M2C-090 (passive part)

xx = Resolution



# Contact us

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