

Safety Light Grid Orion3 Base

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

Only one of the units needs power supply, since both transmitter and receiver are in the same active unit. The other unit is a passive unit containing 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.

Power and productivity
for a better world™



Features

Orion3 Base

Features

Sturdy profile for demanding applications

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



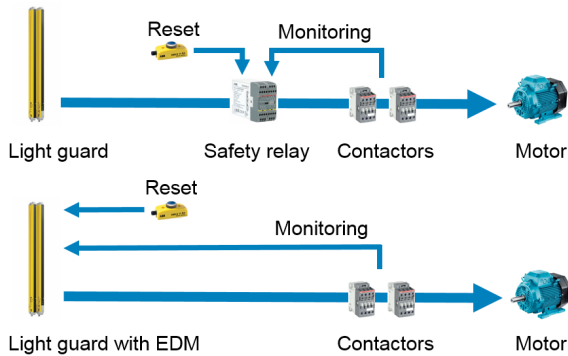
Power on one side

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



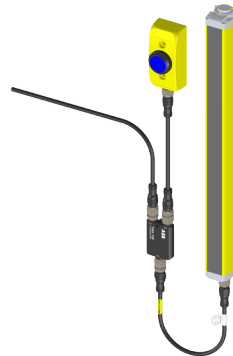
EDM

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 safety PLC.



Local reset

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



Orion3 Base, Light grid



Orion3 Base

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

Please note that active and passive parts are ordered separately and both are necessary for the Orion3 Base to function.

Spare parts (delivered with products originally)

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

Ordering information

Orion3 Base cables



M12-C61

2TLC172951FC001



M12-CTO3B

2TLC172008VC001

Cables

Description (letter refers to connection examples)	Length m	Angled connector	Type	Order code
M12-5 male + female (a)	1	No	M12-C112	2TLA020056R2000
	3	No	M12-C312	2TLA020056R2100
	6	No	M12-C612	2TLA020056R2200
	10	No	M12-C1012	2TLA020056R2300
	20	No	M12-C2012	2TLA020056R2400
M12-5 female single ended (b)	6	No	M12-C61	2TLA020056R0000
	6	Yes	M12-C61 V	2TLA020056R0100
	10	No	M12-C101	2TLA020056R1000
	10	Yes	M12-C101 V	2TLA020056R1100
	20	No	M12-C201	2TLA020056R1400
M12-5 male single ended (c)	6	No	M12-C62	2TLA020056R0200
	10	No	M12-C102	2TLA020056R1200
M12-8 female single ended (d)	6	No	M12-C63	2TLA020056R3000
	10	No	M12-C103	2TLA020056R4000
	20	No	M12-C203	2TLA020056R4100
M12-8 male + female (t ₁ , t ₂)	0.2	No	M12-CTO3B ¹	2TLA022315R3200
M12-8 female + M12-5 male (t ₂)	1	No	M12-CTURAX-03B ²	2TLA022315R3400

¹M12-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.

²M12-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.

* EDM function: See page 2.

Ordering information

Orion3 Base accessories



Orion Laser pointer

2TLC172816F0201



M12-3R

2TLC172012V0201



Tina 10A

2TLC172477F0201



Smile 11RB

2TLC172367F0201

Accessories

Description	Type	Order code
Orion Laser pointer	Orion Laser	2TLA022310R5000
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 length of 1200 mm	JSM Orion09	2TLA022310R0700
Deviating mirror in stand	Orion1 Mirror*	
Protective stand	Orion Stand*	
Orion Plate kit for adjustment of protective stand	Orion Stand Plate	2TLA022312R5000
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 serial connection of the dynamic signal	M12-3A	2TLA020055R0000
Y-connector for connection of a Smile reset button to Orion	M12-3R	2TLA022316R0000
Adaptation unit OSSD to dynamic signal	Tina 10A	2TLA020054R1200
Adaptation unit OSSD to dynamic signal + connector for reset button	Tina 10B	2TLA020054R1300
Adaptation unit OSSD to dynamic signal + supply to the transmitter	Tina 10C	2TLA020054R1600
Safe AS-i input slave for OSSD, 3 non safe inputs and one reset input	Urax-D1R	2TLA020072R0500

*These accessories are available in different sizes. More information on www.abb.com/jokabsafety

How to choose correct reset button

Local or global reset	Adaption to the dynamic signal*	Safety control module	Type	Suitable connection accessories
Local reset button connected to the light guard (Orion in manual reset mode)	Yes	Vital or Pluto	Smile 11RO3	Tina 10B: OSSD to dynamic signal + local reset button M12-3A: serial connection of the dynamic signal
	No	Any safety control module compatible with light guard	Smile 11RO3	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 11RA	Tina 10A: OSSD to dynamic signal Tina 10C: OSSD to dynamic signal + supply to transmitter
		Pluto	Smile 11RB	Tina 10A: OSSD to dynamic signal Tina 10C: OSSD to dynamic signal + supply to transmitter
	No	Any safety control module compatible with light guard	Smile 11RA**	-

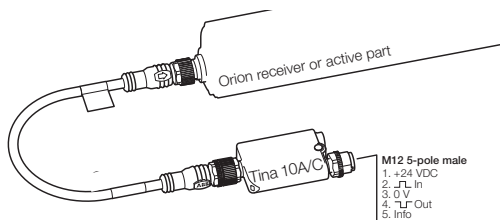
* The ABB Jokab safety dynamic signal offers the following advantages:

- 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.

Connection examples

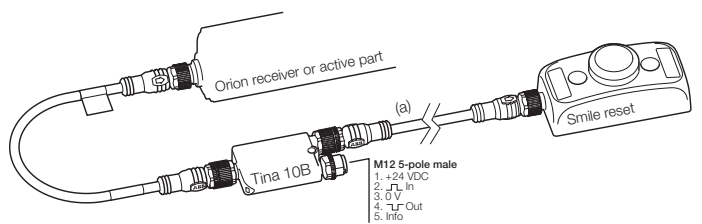
Orion with Tina 10A/C



Without local reset button

Connection to the ABB Jokab safety dynamic signal via Tina 10 A/C. To be used with Vital safety control module or Pluto safety PLC.

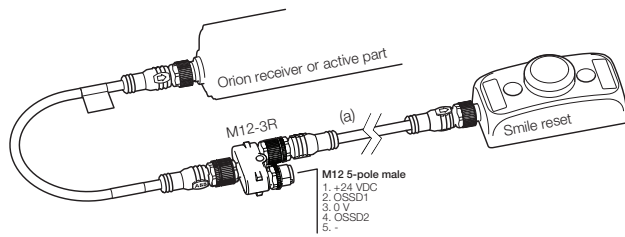
Reset to Orion with Tina 10B



With local reset button

Connection to the ABB Jokab safety dynamic signal via Tina 10B. To be used with Vital safety control module or Pluto safety PLC.

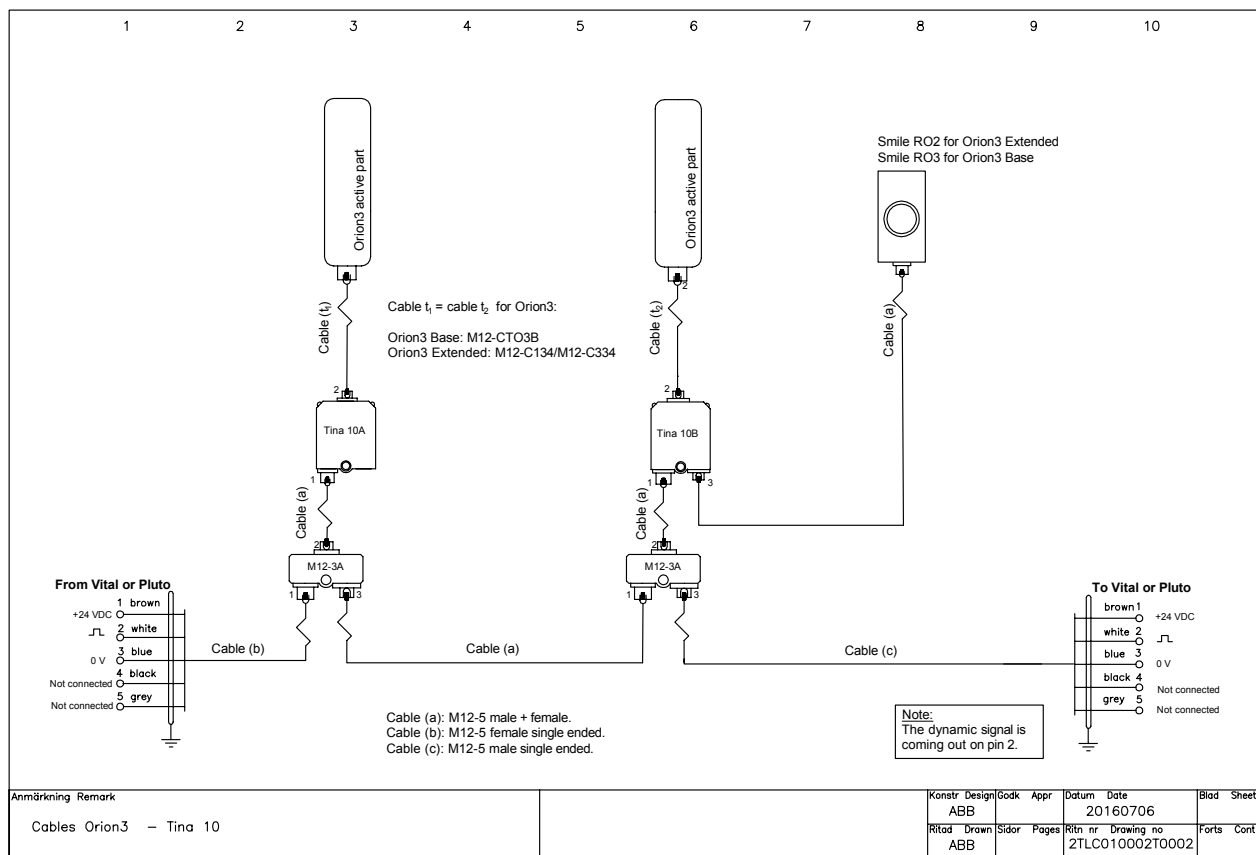
Reset to Orion with M12-3R



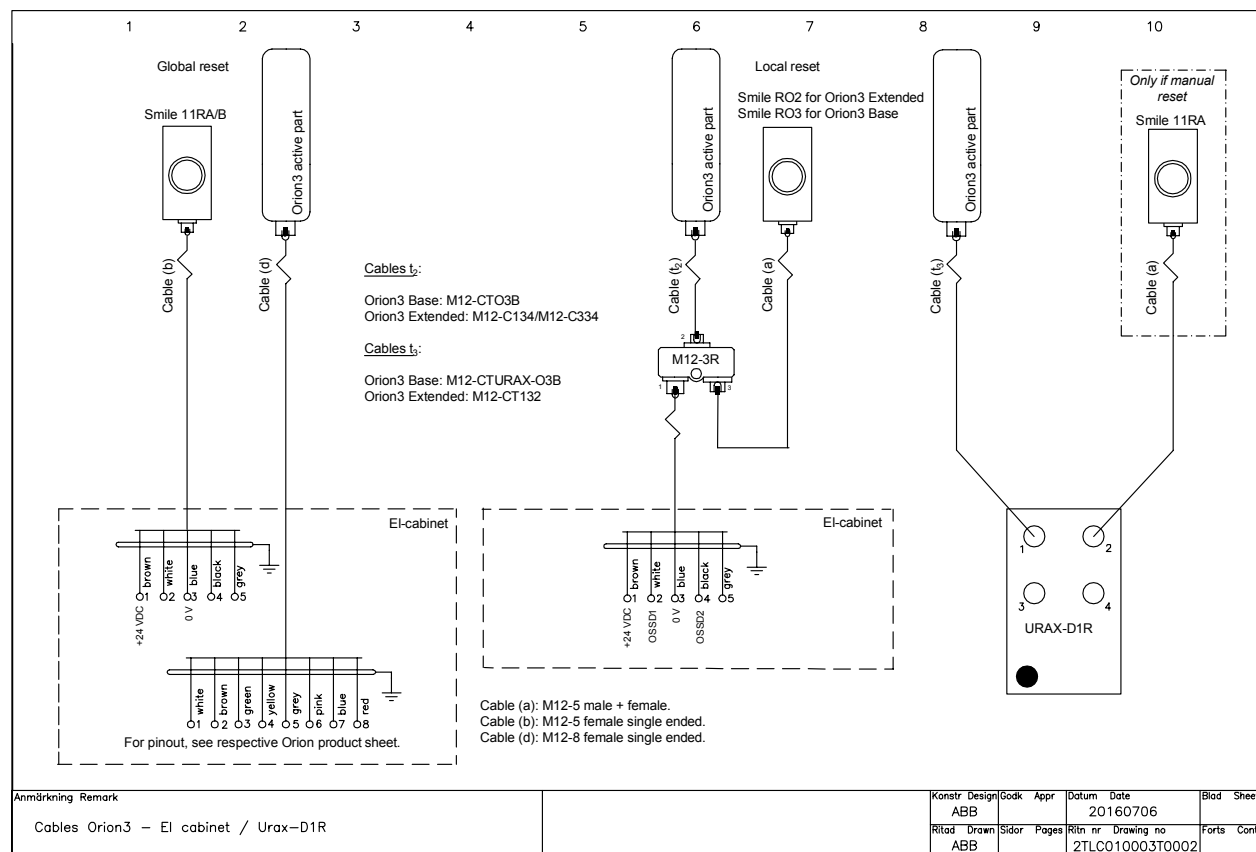
Connection of a local reset button via M12-3R.

Connection examples

Cables Orion3 to Tina 10

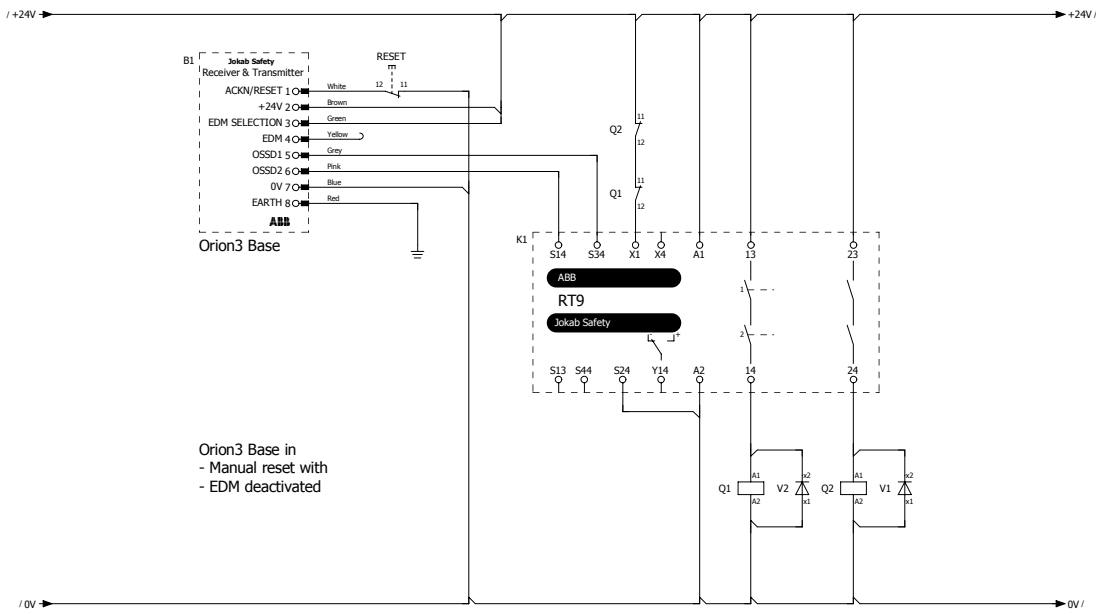


Cables Orion3 to electrical cabinet and Urax-D1R

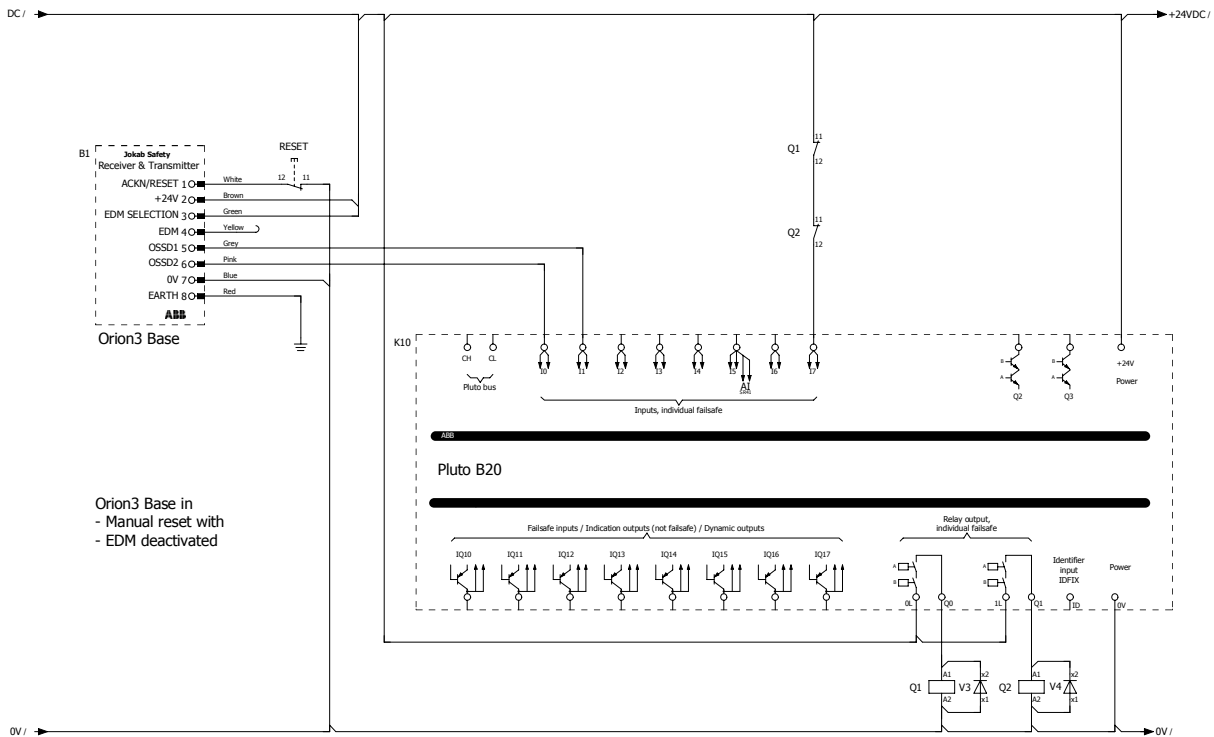


Connection examples




Connection of Orion3 Base to a RT9 safety relay



Connection of Orion3 Base to a Pluto B20 safety PLC



Technical data

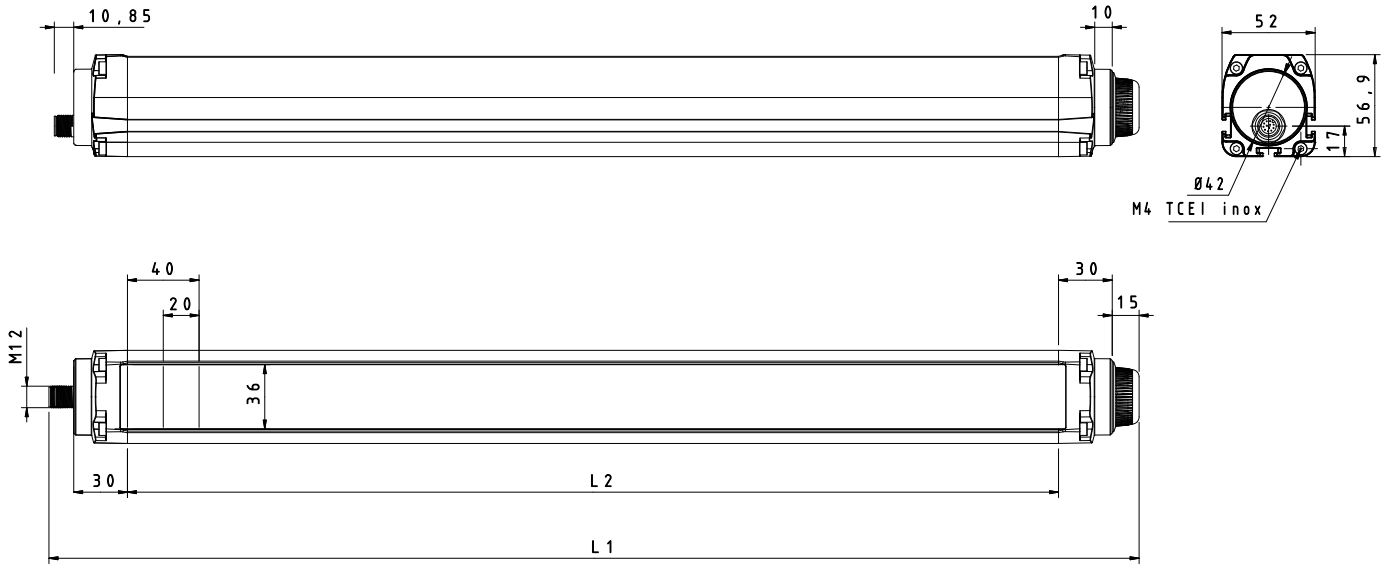
Approvals	  
Functional safety data	
EN ISO 13849-1:2008	PL e, Cat 4
EN 61508-1..4:2010	SIL3; PFH _D = 9.28 x10 ⁻⁹ ; HFT = 1; Mission time = 20 years
EN 62061:2005/A1:2013	SIL CL 3
Electrical data	
Power supply	+24 VDC ± 20 %
Power consumption, Active unit	6,5 W max (without load)
Cable length (for power supply)	70 m max
Outputs	2 PNP
Short-circuit protection	1.4 A at + 55°C
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
Connectors	M12-8 pole male connector
Optical data	
Light emission (λ)	Infrared (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)
Housing material	Painted aluminium (yellow RAL 1003)
Cap material	PBT Valox 508
Lens material	PMMA
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
Connection Active unit*	
White (1)**	Reset/Acknowledge/Reset mode - Must be connected to +24 VDC for Automatic reset or 0 V for Manual reset
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)	Earth

* Colors according to ABB Jokab Safety standard cables.

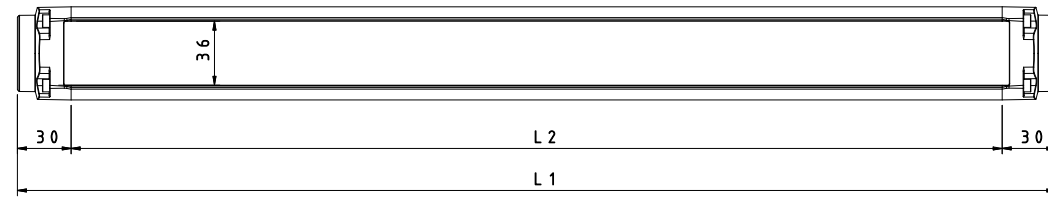
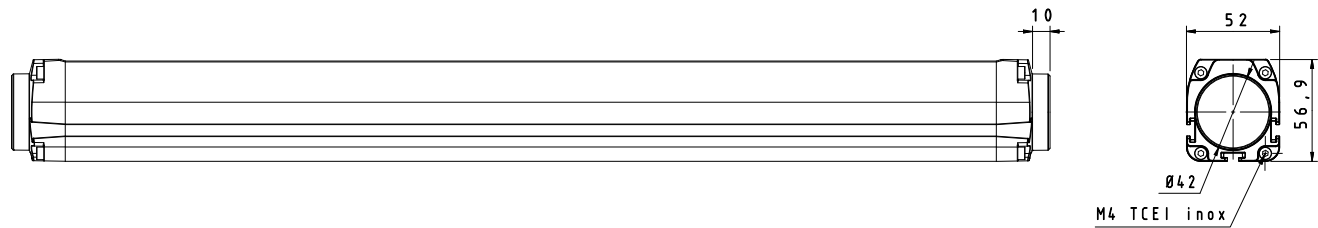
** The "RESET/ACKNOWLEDGE/RESET MODE" wire MUST be connected in order for the device to function. The other wires may be floating.

Dimension drawings

Orion3 Base



Active unit - All dimensions in mm



Passive unit - All dimensions in mm

Dimensions

Type	L ₁ mm	L ₂ mm
Orion3-4-K1C-050-B (active unit)	606.4	520.5
Orion3-4-K2C-080-B (active unit)	906.4	820.5
Orion3-4-K2C-090-B (active unit)	1006.4	920.5
Orion3-4-K2C-120-B (active unit)	1306.4	1220.5
Orion3-4-M1C-050 (passive unit)	580.5	520.5
Orion3-4-M2C-080 (passive unit)	880.5	820.5
Orion3-4-M2C-090 (passive unit)	980.5	920.5
Orion3-4-M2C-090 (passive unit)	1280.5	1220.5

Contact us

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