

Safety Light Curtain

Orion1 Extended

Approvals:



Application:

- For finger and hand detection
- When the light guard should be close to the hazardous zone
- When muting or blanking are necessary
- When several devices should be connected in series (cascading)
- When space is an issue (no dead zone)

Features:

- Finger and hand detection
- 7 m and 20 m operating distances (finger and hand detection)
- Compact dimensions
- Local reset and EDM
- Muting and Blanking
- Cascading
- No dead zone



The Orion1 Extended light curtains are used for finger or hand detection, usually quite close to the dangerous machine, when advanced functions like muting or cascading are necessary.

Easy to use

- Muting sensors are connected directly to the light curtain, with no need for a remote extra muting module.
- No dead zone: the resolution is guaranteed along the whole length of the light curtain with no need for extra mechanical guard.
- Cascading with the standard units, no separate slave or master units.

Faster installation

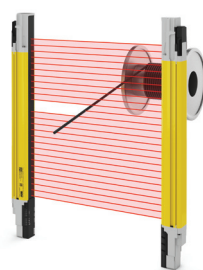
- Alignment help and a wide angle within the limits of a Type 4 device facilitate alignment.
- M12 connectors speed up cabling.

Less downtime

- Since the alignment level is displayed on the unit, the alignment can be improved before an unwanted stop occurs.
- Coding protects against mutual interferences.
- Extensive error indication reduces troubleshooting time.
- Protective tubes and lens shields protect the devices in harsh environments.



Muting: the machine stops when a person goes through but not when the cases go through.



Floating blanking: a hand through the detection zone will stop the machine and the moving wire will not.

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	3 W max
Receiver	5 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
Current for external lamp	20 mA min; 300 mA max
Connectors with specific cables	
	Transmitter with M12-C02PT2T: M12-5 pole male connector
	Receiver with M12-C02PT6RB: M12-12 pole male connector
	Receiver with M12-C02PT62RM: M12-12 pole male connector + M12-5 pole male connector
Cable length (for power supply)	50 m max
Light emission (λ)	Infrared, LED (950 nm)
Resolution	14 - 30 mm
Operating distance	0.2...20 m for 30 mm 0.2...7 m for 14 mm
Ambient light rejection	According to IEC-61496-2:2013
Operating temperature	0...+ 50 °C
Storage temperature	- 25...+ 70 °C
Humidity range	15...95 % (no condensation)
Protection class	IP65 (EN 60529:2000)
Weight	1.35 kg / meter for each single unit
Housing material	Painted aluminium (yellow RAL 1003)
Front side material	PMMA
Cap material	PBT Valox 508

Function settings at delivery

The functions are configured with push-buttons on the units.

No code
Muting
EDM enabled
Automatic Reset
T/X muting
10 min muting time-out
Override trigger = level

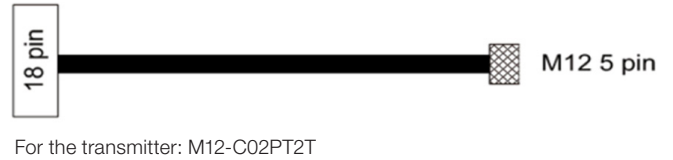
Long range

* Two specific cables must be ordered with Orion1 Extended, one for the transmitter and one for the receiver. See next page.

Connection

Connection transmitter

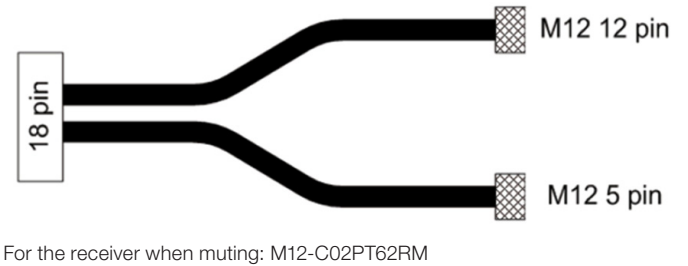
Brown (1)	+ 24 VDC
White (2)	Test
Blue (3)	0 V
Black (4)	Earth
Grey (5)	<i>Not used</i>



Connection receiver with muting cable M12-C02PT62RM

M12-12 connector

Brown (1)	+ 24 VDC
Blue (2)	0 V
White (3)	Reset/Acknowledge/Align
Green (4)	Override1
Pink (5)	OSSD2
Yellow (6)	EDM
Black (7)	Muting selection
Grey (8)	OSSD1
Red (9)	Override2
Violet (10)	Muting lamp
Grey-pink (11)	Override status
Red-blue (12)	Earth



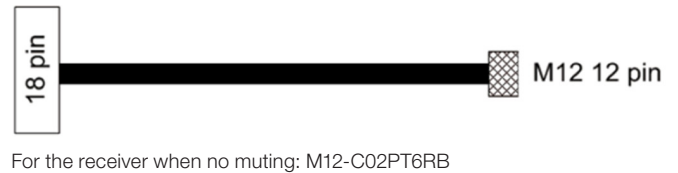
M12-5 connector

Brown (1)	+ 24 VDC
White (2)	Muting2
Blue (3)	0 V
Black (4)	Muting1
Grey (5)	<i>Not used</i>

Connection receiver with blanking cable M12-C02PT6RB, to be used whenever muting is not necessary.

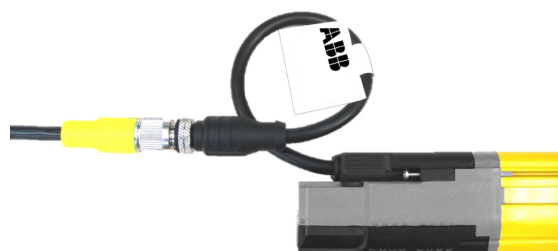
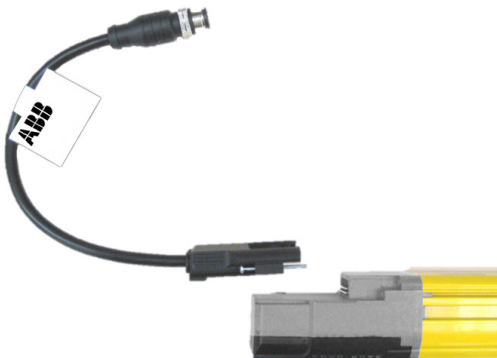
M12-12 connector

Brown (1)	+ 24 VDC
Blue (2)	0 V
White (3)	Reset/Acknowledge/Align
Green (4)	Teach in
Pink (5)	OSSD2
Yellow (6)	EDM
Black (7)	<i>Not used</i>
Grey (8)	OSSD1
Red (9)	Tolerance
Violet (10)	Lamp
Grey-pink (11)	<i>Not used</i>
Red-blue (12)	Earth



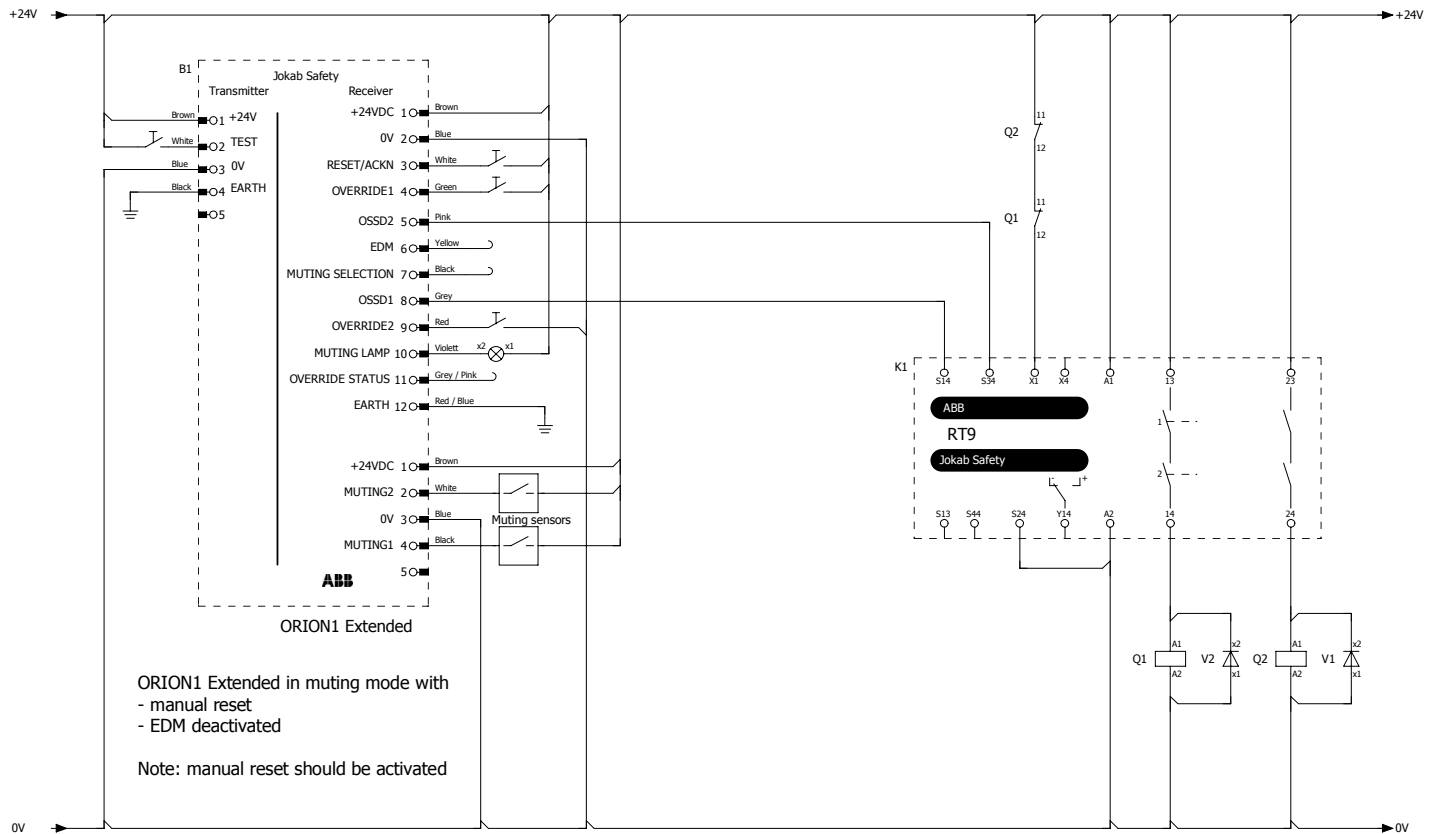
* Colors according to ABB Jokab Safety standard cables

Two specific cables must be ordered with Orion1 Extended, one for the transmitter and one for the receiver.

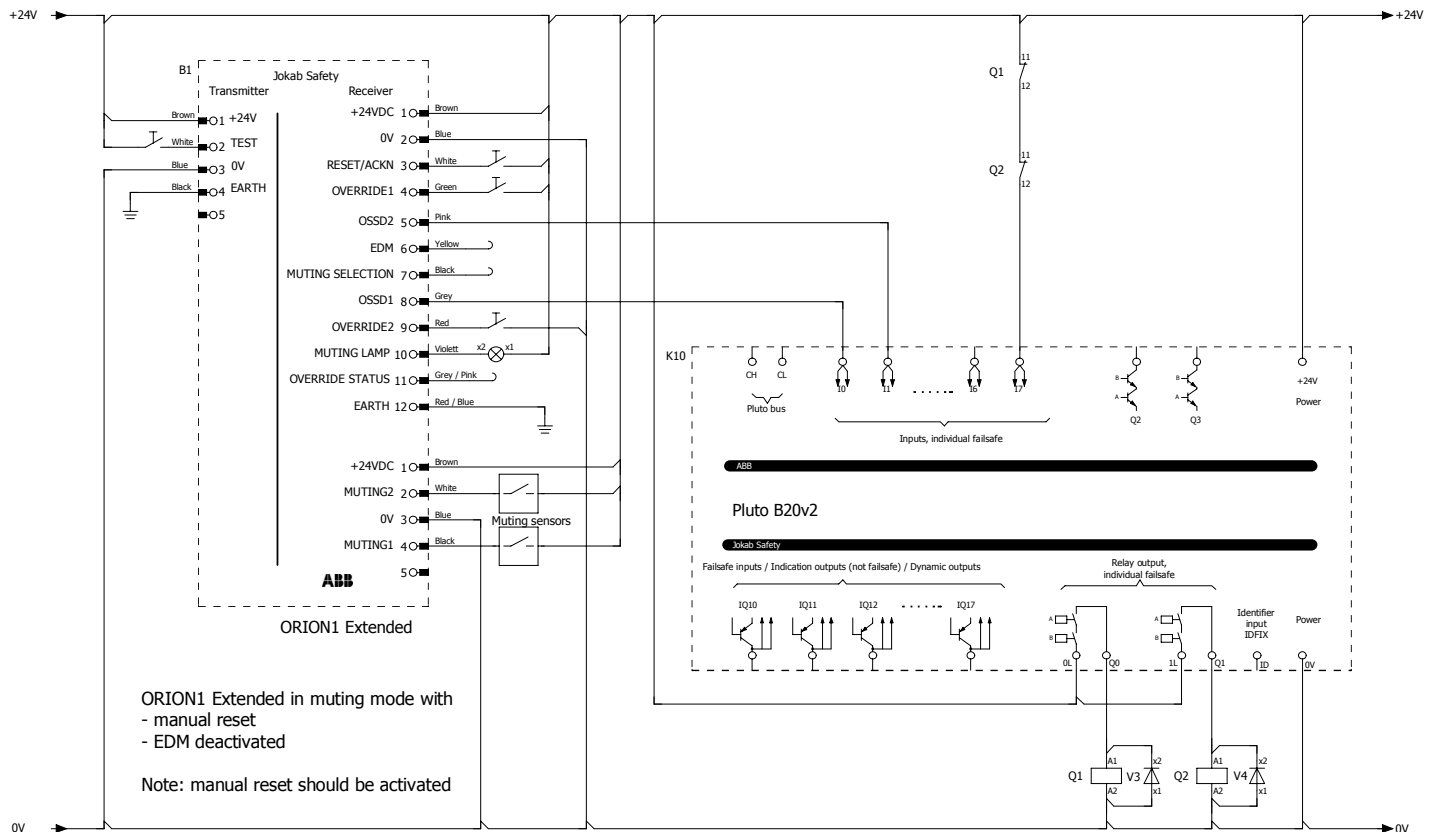


Connection examples

Connection to a RT9 safety relay



Connection to a Pluto B20 Safety PLC



Models and ordering information

Orion1-4-14-030-E	2TLA022301R0100	Orion1 Extended Transmitter + Receiver - R = 14 mm - H = 300 mm
Orion1-4-14-045-E	2TLA022301R0200	Orion1 Extended Transmitter + Receiver - R = 14 mm - H = 450 mm
Orion1-4-14-060-E	2TLA022301R0300	Orion1 Extended Transmitter + Receiver - R = 14 mm - H = 600 mm
Orion1-4-14-075-E	2TLA022301R0400	Orion1 Extended Transmitter + Receiver - R = 14 mm - H = 750 mm
Orion1-4-14-090-E	2TLA022301R0500	Orion1 Extended Transmitter + Receiver - R = 14 mm - H = 900 mm
Orion1-4-14-105-E	2TLA022301R0600	Orion1 Extended Transmitter + Receiver - R = 14 mm - H = 1050 mm
Orion1-4-14-120-E	2TLA022301R0700	Orion1 Extended Transmitter + Receiver - R = 14 mm - H = 1200 mm
Orion1-4-14-135-E	2TLA022301R0800	Orion1 Extended Transmitter + Receiver - R = 14 mm - H = 1350 mm
Orion1-4-14-150-E	2TLA022301R0900	Orion1 Extended Transmitter + Receiver - R = 14 mm - H = 1500 mm
Orion1-4-14-165-E	2TLA022301R1000	Orion1 Extended Transmitter + Receiver - R = 14 mm - H = 1650 mm
Orion1-4-14-180-E	2TLA022301R1100	Orion1 Extended Transmitter + Receiver - R = 14 mm - H = 1800 mm
Orion1-4-30-030-E	2TLA022303R0100	Orion1 Extended Transmitter + Receiver - R = 30 mm - H = 300 mm
Orion1-4-30-045-E	2TLA022303R0200	Orion1 Extended Transmitter + Receiver - R = 30 mm - H = 450 mm
Orion1-4-30-060-E	2TLA022303R0300	Orion1 Extended Transmitter + Receiver - R = 30 mm - H = 600 mm
Orion1-4-30-075-E	2TLA022303R0400	Orion1 Extended Transmitter + Receiver - R = 30 mm - H = 750 mm
Orion1-4-30-090-E	2TLA022303R0500	Orion1 Extended Transmitter + Receiver - R = 30 mm - H = 900 mm
Orion1-4-30-105-E	2TLA022303R0600	Orion1 Extended Transmitter + Receiver - R = 30 mm - H = 1050 mm
Orion1-4-30-120-E	2TLA022303R0700	Orion1 Extended Transmitter + Receiver - R = 30 mm - H = 1200 mm
Orion1-4-30-135-E	2TLA022303R0800	Orion1 Extended Transmitter + Receiver - R = 30 mm - H = 1350 mm
Orion1-4-30-150-E	2TLA022303R0900	Orion1 Extended Transmitter + Receiver - R = 30 mm - H = 1500 mm
Orion1-4-30-165-E	2TLA022303R1000	Orion1 Extended Transmitter + Receiver - R = 30 mm - H = 1650 mm
Orion1-4-30-180-E	2TLA022303R1100	Orion1 Extended Transmitter + Receiver - R = 30 mm - H = 1800 mm

Cables

M12-C02PT2T	2TLA022315R0100	Transmitter cable for Orion1 Extended
M12-C02PT6RB	2TLA022315R0200	Receiver cable for Orion1 Extended when no muting
M12-C02PT62RM	2TLA022315R0300	Receiver cable for Orion1 Extended when muting
PT-C1PT	2TLA022315R1000	Cascade cable for Orion1 Extended, 1 m
PT-C05PT	2TLA022315R1100	Cascade cable for Orion1 Extended, 0.5 m
PT-C005PT	2TLA022315R1200	Cascade cable for Orion1 Extended, 0.05 m
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-C65	2TLA020056R7200	Straight M12-12 female connector with 6 m shielded cable
M12-C105	2TLA020056R7300	Straight M12-12 female connector with 10 m shielded cable
M12-C205	2TLA020056R7500	Straight M12-12 female connector with 20 m shielded cable

Spare parts (delivered with products originally)

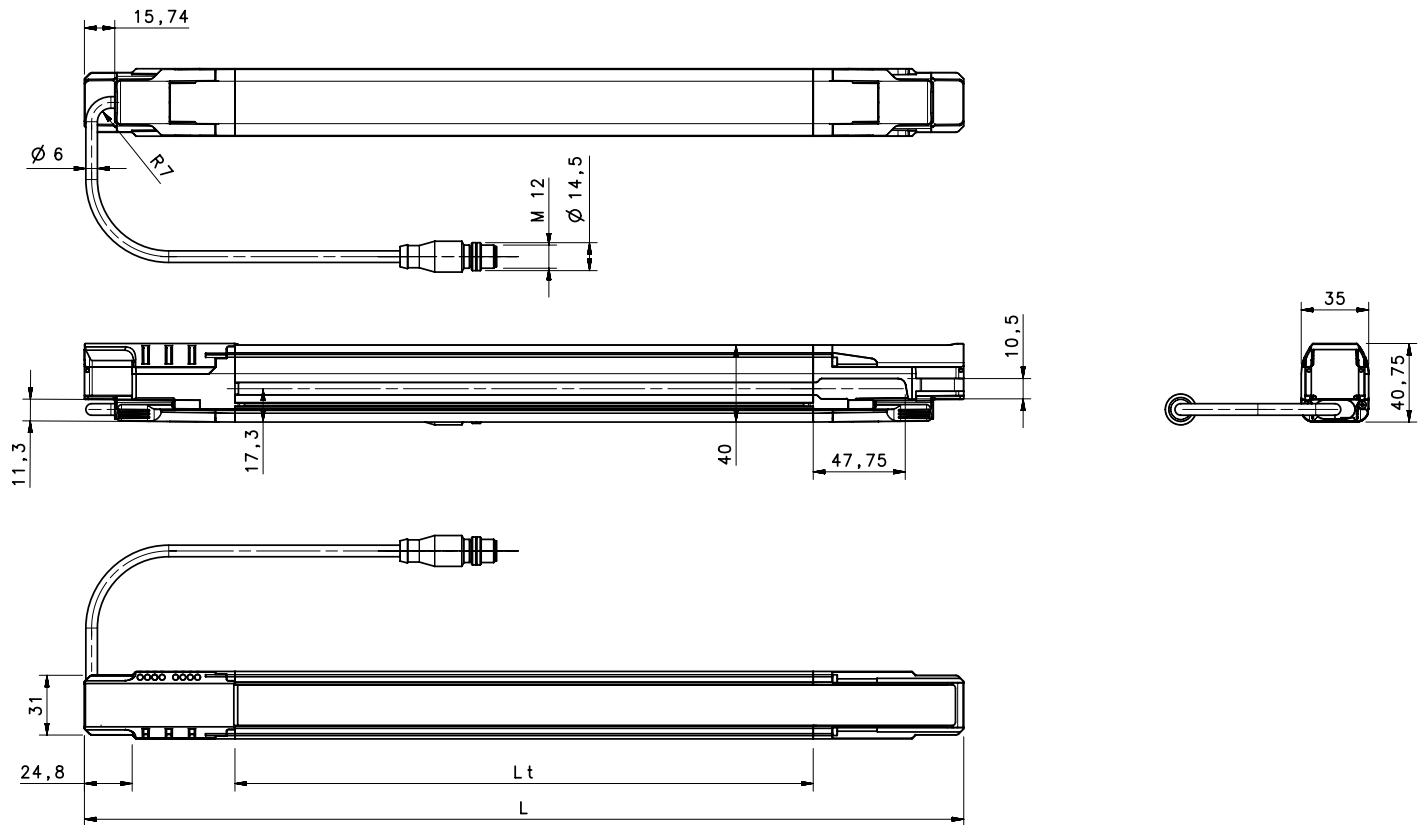
JSM Orion01	2TLA022310R0000	4 standard brackets for Orion1 & Orion2
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Accessories

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 Orion01	2TLA022310R0000	4 standard brackets for Orion1 & Orion2
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

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

Dimensions



All dimensions in millimeters

Model	Lt (mm)	L (mm)
Orion1-4-xx-030-E	150	306.30
Orion1-4-xx-045-E	300	456.30
Orion1-4-xx-060-E	450	606.30
Orion1-4-xx-075-E	600	756.30
Orion1-4-xx-090-E	750	906.30
Orion1-4-xx-105-E	900	1056.30
Orion1-4-xx-120-E	1050	1206.30
Orion1-4-xx-135-E	1200	1356.30
Orion1-4-xx-150-E	1350	1506.30
Orion1-4-xx-165-E	1500	1656.30
Orion1-4-xx-180-E	1650	1806.30

xx = Resolution (14 - 30 mm)

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