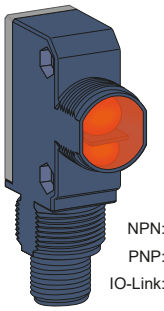
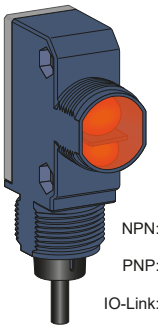
M18 Photo-electric sensors - Straight or 90° angled version



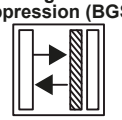
NPN: **XUN8ANXNM12**
PNP: **XUN8APXNM12**
IO-Link: **XUN8APYNM12**



NPN: **XUN8ANXNL2**
XUN8ANXSL2*
PNP: **XUN8APXNL2**
XUN8APXSL2*
IO-Link: **XUN2APYNM12**

*: 3 wires version = NO operation only

Background suppression (BGS)



Package Content
(Example)



To choose your sensor, scan the 2D code on the right



http://qr.tesensors.com/XU0007

Scan the code to access this Instruction Sheet and all product information in different languages or you can visit our website at:

www.telemecaniquesensors.com

We welcome your comments about this document. You can reach us through the customer support page on your local website.

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Disconnect all power before servicing equipment.
- Do not connect this device to AC power.
- The power voltage must not exceed the rated range.

Failure to follow these instructions will result in death or serious injury.

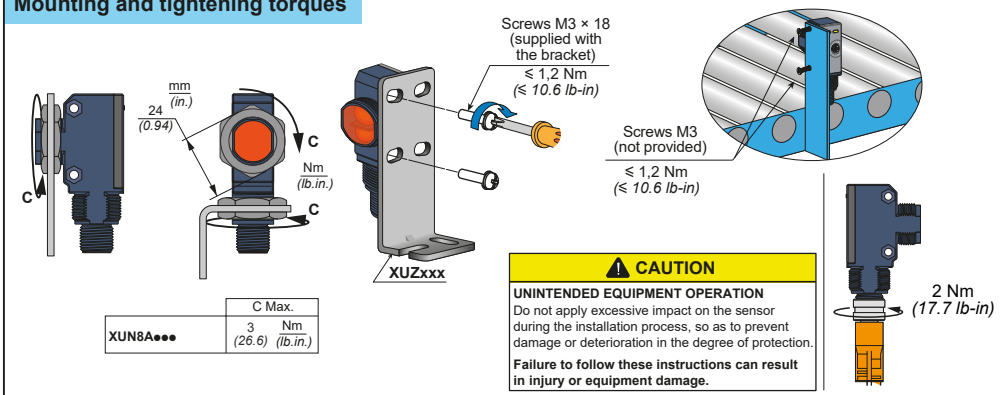
WARNING

IMPROPER SETUP OR INSTALLATION

- This equipment must only be installed and serviced by qualified personnel.
- Read, understand, and follow the compliance below, before installing the XU Photo-electric sensor.
- Do not tamper with or make alterations on the unit.
- Comply with the wiring and mounting instructions.
- Check the connections and fastening during maintenance operations.
- The proper functioning of the XU photoelectric sensor and its operating line must be checked regularly and according to the application (for example number of operations, level of environmental pollution, etc.).

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Mounting and tightening torques



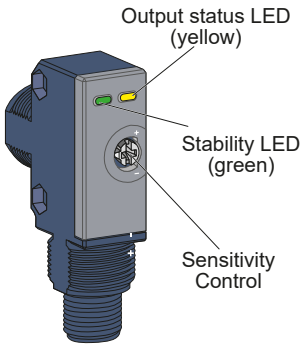
XUN8A●●●	C Max. 3 (26.6) Nm (lb.in.)

CAUTION

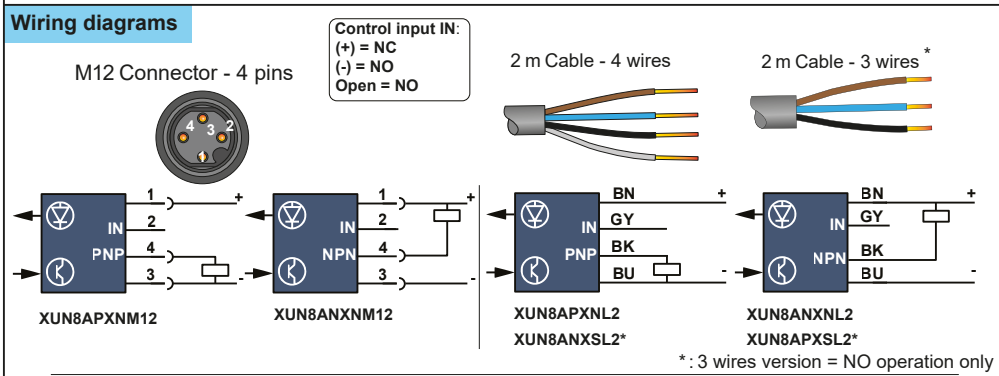
UNINTENDED EQUIPMENT OPERATION
Do not apply excessive impact on the sensor during the installation process, so as to prevent damage or deterioration in the degree of protection.

Failure to follow these instructions can result in injury or equipment damage.

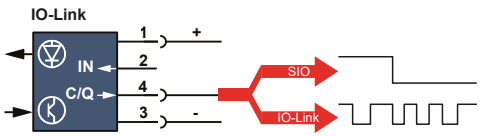
LEDs and settings



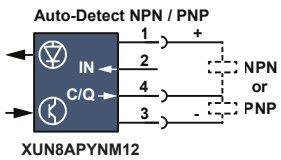
Wiring diagrams



*: 3 wires version = NO operation only



Pin	Signal	Definition
1	(+)	+ 24 Vdc
2	IN	(+) = NC (-) = NO Open = NO
3	(-)	0 Vdc
4	Q	Switching signal DI, DO (SIO)
	C	Coded switching signal (IO-Link)



CAUTION

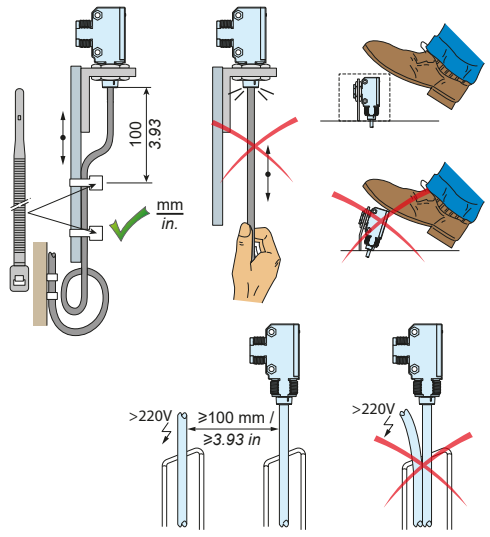
INOPERABLE EQUIPMENT DUE TO CYBER ATTACK ON IO-LINK

- Apply external cybersecurity protection on IO-Link Master device.
- Download IO-Link Description files only from these web servers: https://telemecaniquesensors.com/global/en/support/iolink or https://ioddfinder.io-link.com/#/

Failure to follow these instructions can result in injury or equipment damage.

IO-Link data tables and IODD files are online : Scan the 2D code, above

Mounting, wiring and maintenance precautions



NOTICE

UNINTENDED EQUIPMENT OPERATION

- Do not pull on the sensor cable so as to prevent damage or deterioration in the degree of protection.
- Add mechanical protection.
- Separate high and low voltage circuits.

Failure to follow these instructions can result in equipment damage.

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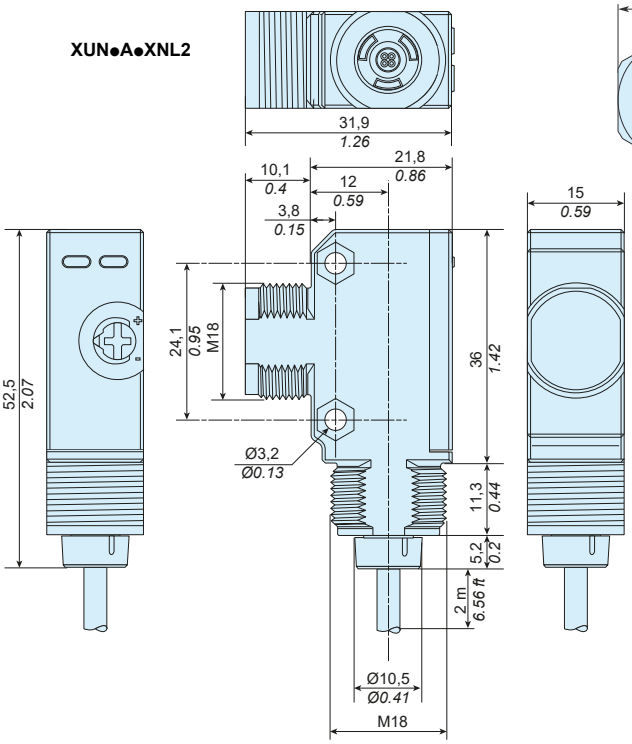
Telemecanique Sensors

Dimensions

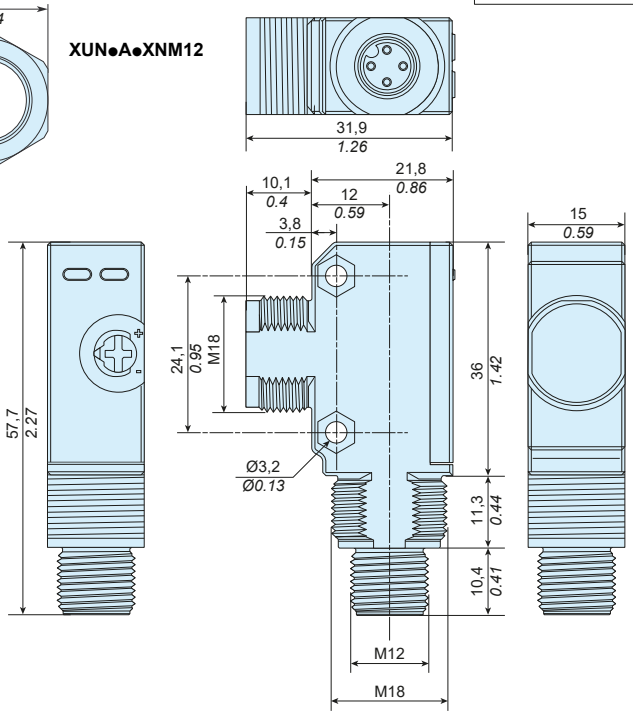
mm
in.

1 mm = *0.0394 in.*

XUN●A●XNL2



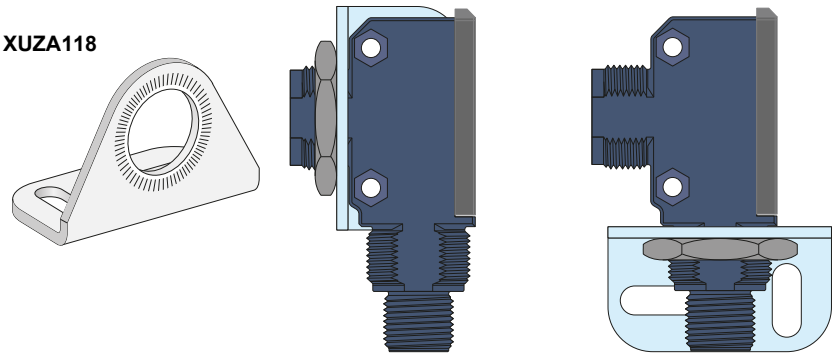
XUN●A●XNM12



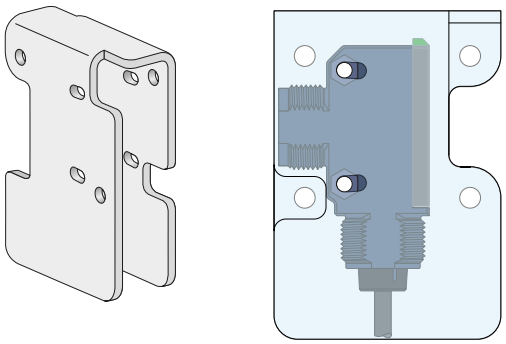
Accessories

Mounting brackets (to order separately)

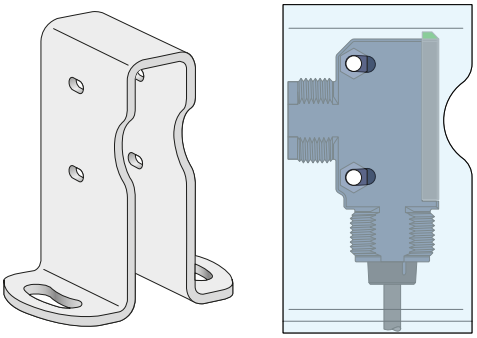
XUZA118



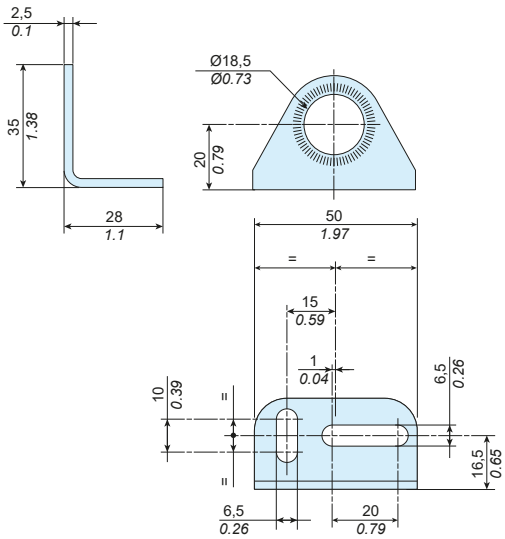
XUZASN001

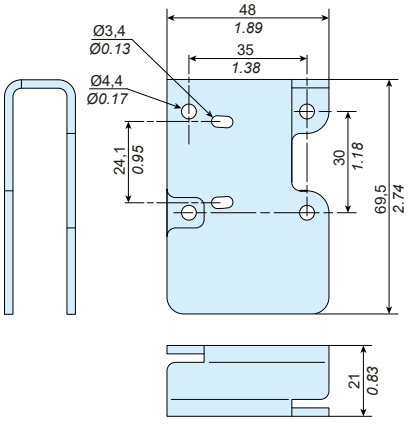


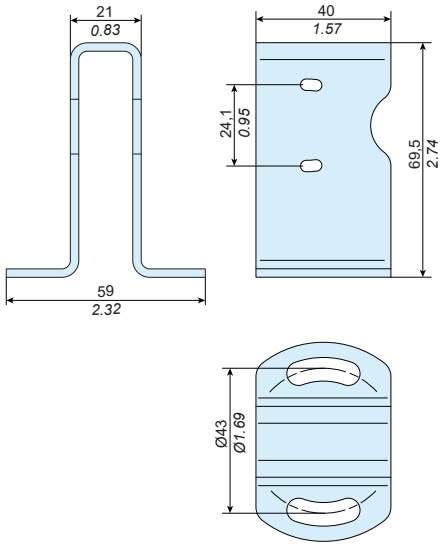
XUZASN002



XUZA118

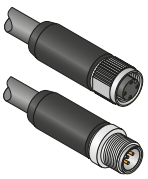
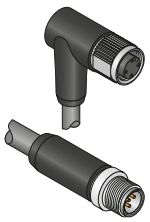






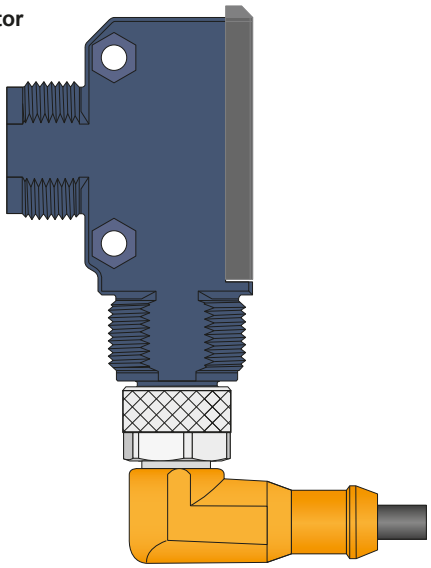
Pre-wired female connectors (examples)

PVC cable for general use
PUR cable for severe industrial environments

M12, 4 pins					M12 - M12, 4 pins				
									
Cable length	**PVC**	**PUR**	**PVC**	**PUR**	**Jumper length**	**PVC**	**PUR**	**PVC**	**PUR**
2 m / 6.56 ft.	XZCPV1141L2	XZCP1141L2	XZCPV1241L2	XZCP1241L2	1 m / *3.28 ft.*	XZCRV1511041C1	XZCR1511041C1	XZCRV1512041C1	XZCR1512041C1

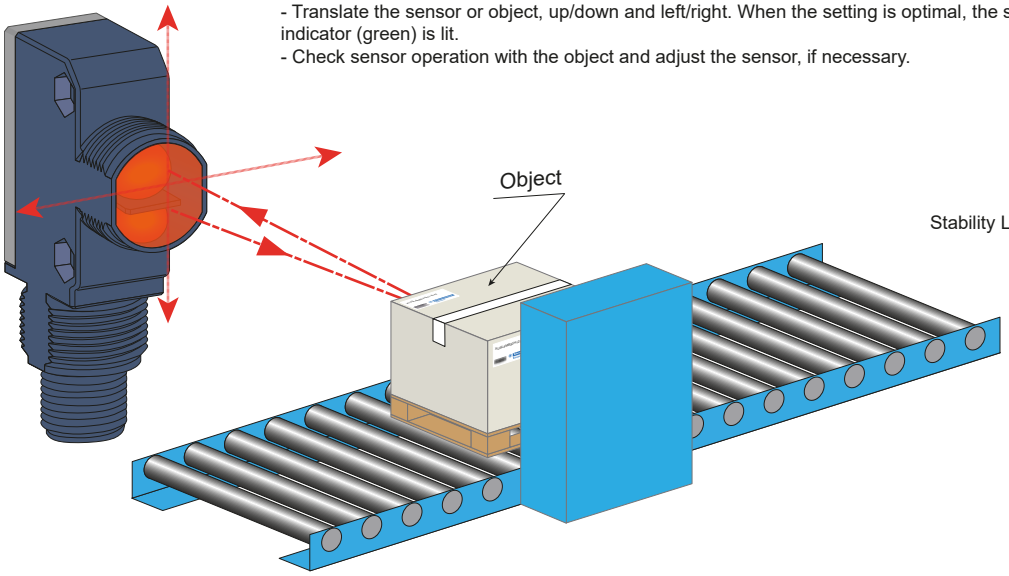
Other cable references are available in our online catalog. Please visit our website at: www.telemecaniquesensors.com
Or you can ask us through the customer support page on your local website.

Cable direction with angled connector

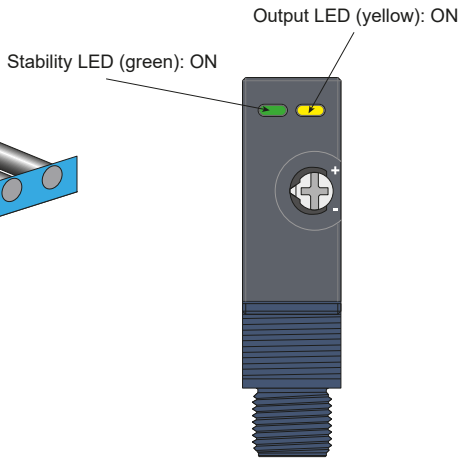


Sensors position adjustment

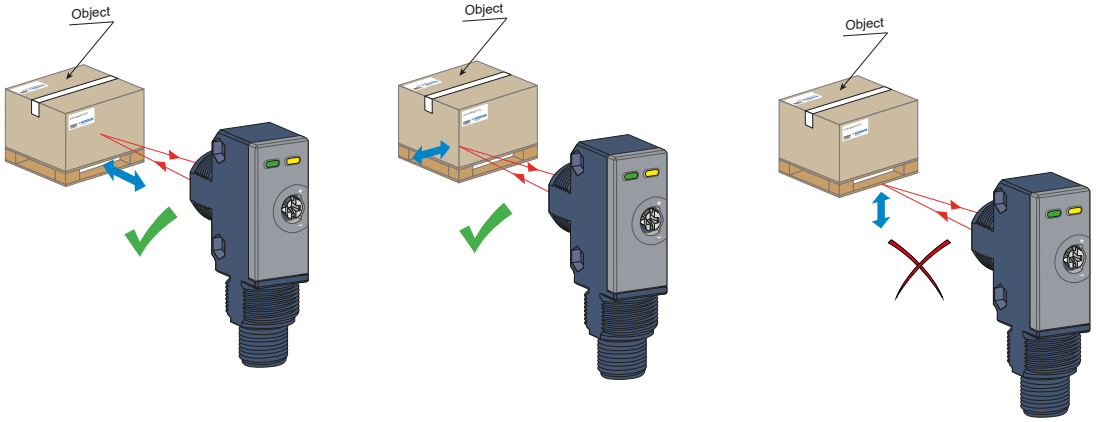
- Translate the sensor or object, up/down and left/right. When the setting is optimal, the stability indicator (green) is lit.
- Check sensor operation with the object and adjust the sensor, if necessary.



LED status with LO output function



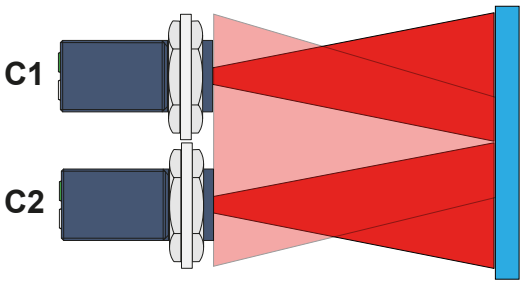
Install the sensor head perpendicular to the object transfer as shown below to ensure good detection.



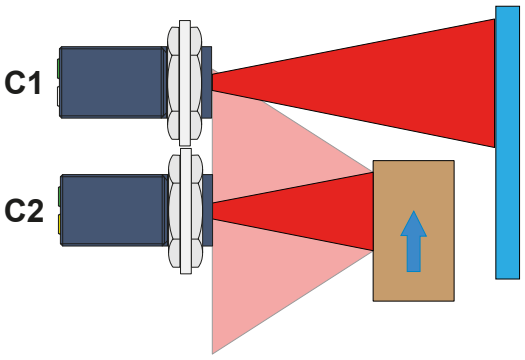
Anti-interference system (Between same detection mode)

Anti-interference system to ensure good detection even disturbed by another sensor.

Anti-interference system allows a side by side installation and ensures a reliable detection.



This Anti-interference system ensures an object detection in all conditions.



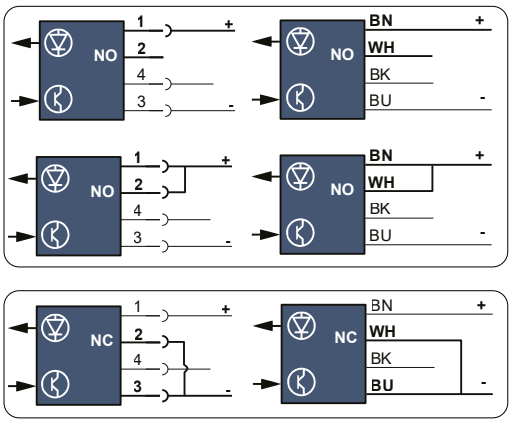
Diagnostic LEDs

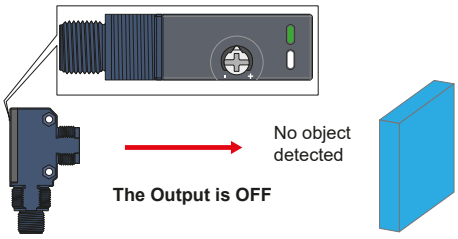
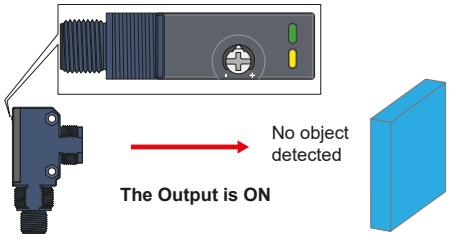
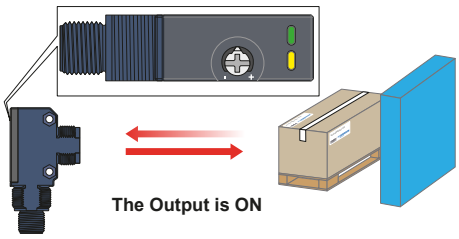
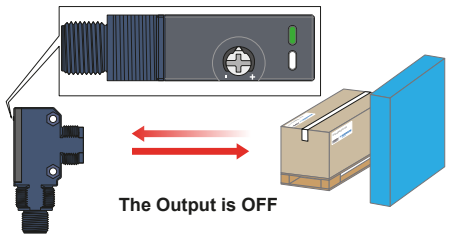
[1]: Only for IO-Link version



	LED		Description	Corrective Action
Output LED (yellow)	Blinking [1]	2 Hz	Communication issue detected	Perform a Power Off/Power On cycle. The sensor restarts with factory settings.
		3 Hz	Output short-circuit Output overload Undervoltage Overtemperature	Remove the short circuit Verify that the load current is < 100 mA Verify that the sensor power voltage is 12...24 Vdc Reduce ambient temperature of the sensor or replace the sensor.
	ON		Sensor output is ON	-
	OFF		Sensor output is OFF	
Stability LED (green)	OFF		Inconsistent quality of detection	Check the sensor sensitibity adjustment (See next page).
	Dim			
	Bright		Consistent quality of detection	-

Output mode setting: NO or NC (NO by default)

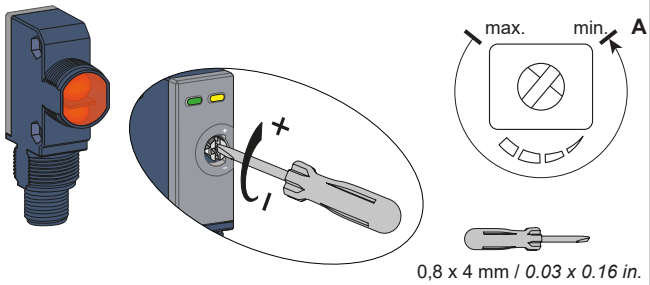
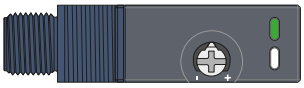
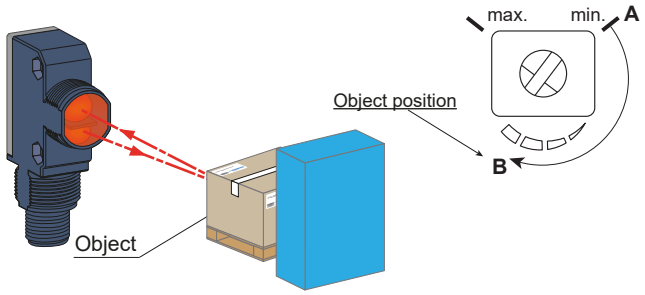
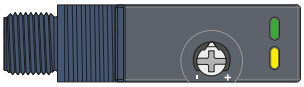
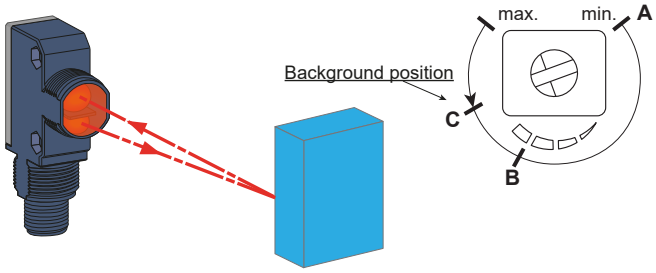
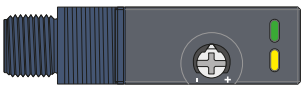
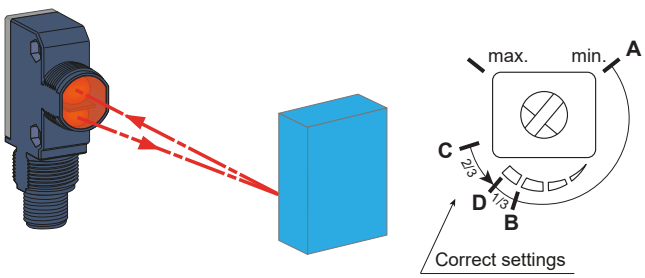
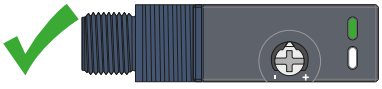
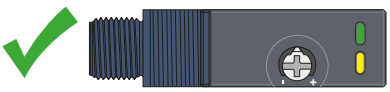


Light-On Normally Open (NO)	Dark-On Normally Closed (NC)
	
	

Sensor sensitivity adjustment

For an accurate detection, follow the set up below. (eg. Dark objects, with holes or with small size to reflect properly the light beam).

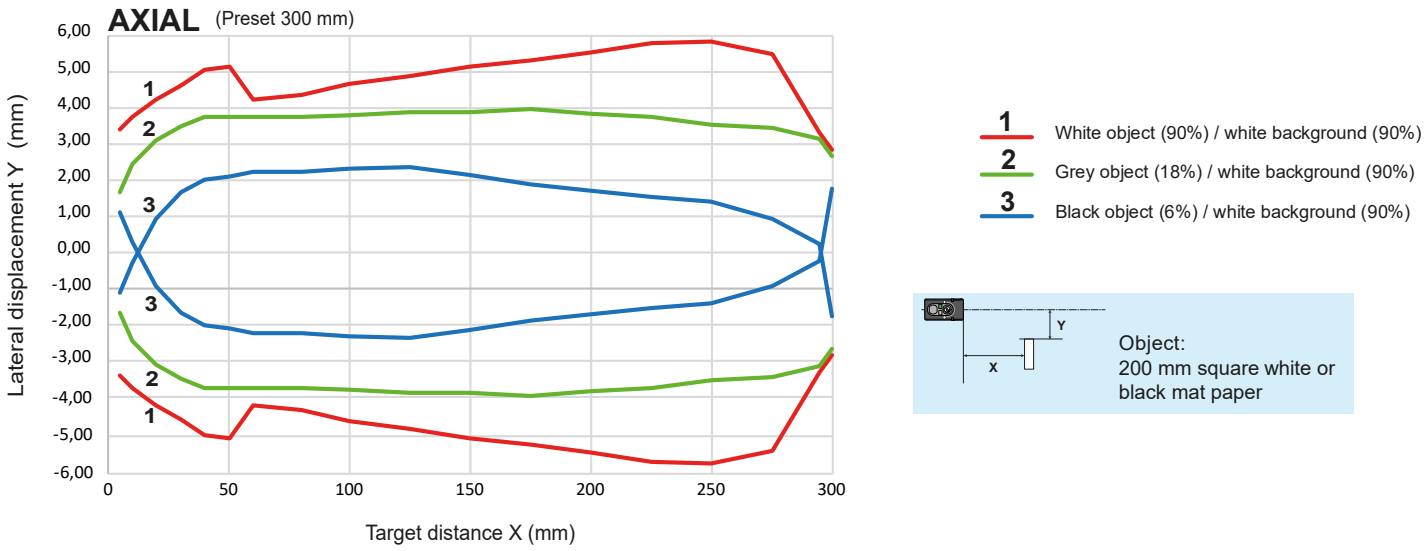
Note: How to install in video, scan the 2D code on the first page

	Light-On Normally Open (NO)	Dark-On Normally Closed (NC)
	1-Connect the sensor to the power supply *(see page 1 for the wire connection & page 8 for the power voltage).* Before settings, start with the potentiometer at the minimum position (resulting to point A). 	1-Connect the sensor to the power supply *(see page 1 for the wire connection & page 8 for the power voltage).* Before settings, start with the potentiometer at the minimum position (resulting to point A). 
	2-Put the object in front of the sensor. Turn the potentiometer clockwise until to detect the object. The output led (yellow) switches on (resulting to point B). Several turns can be done to adjust the detection. 	2-Put the object in front of the sensor. Turn the potentiometer clockwise until to detect the object. The output led (yellow) switches off (resulting to point B). Several turns can be done to adjust the detection. 
	3-Remove the object. Turn the potentiometer at the maximum position. Turn the potentiometer anticlockwise until not detecting the background. The output led (yellow) switches off (resulting to point C). 	3-Remove the object. Turn the potentiometer at the maximum position. Turn the potentiometer anticlockwise until not detecting the background. The output led (yellow) switches on (resulting to point C). 
	4-Set the intermediate point between the point B and C (resulting to point D). The sensor is set and ready to detect.  Test: The object is detected and the background is not. If there is a problem, move the object and background further apart and start the learning process all over again.	4-Set the intermediate point between the point B and C (resulting to point D). The sensor is set and ready to detect.  Test: The object is detected and the background is not. If there is a problem, move the object and background further apart and start the learning process all over again.

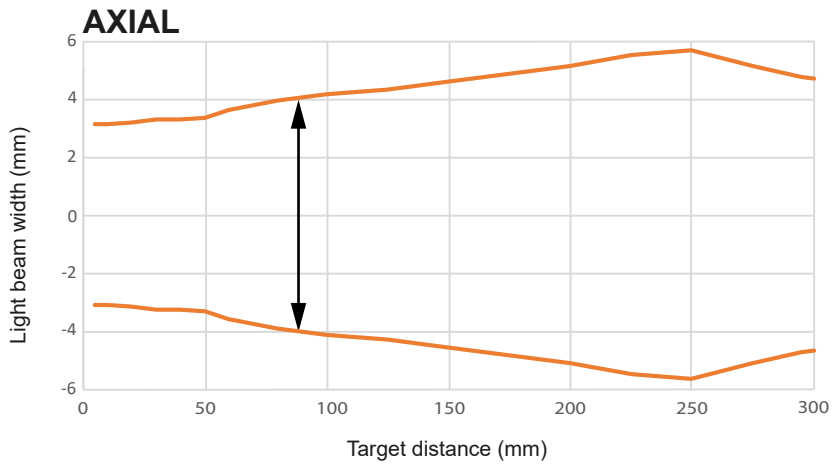
Detection curves

1 mm = *0.0394 in.*

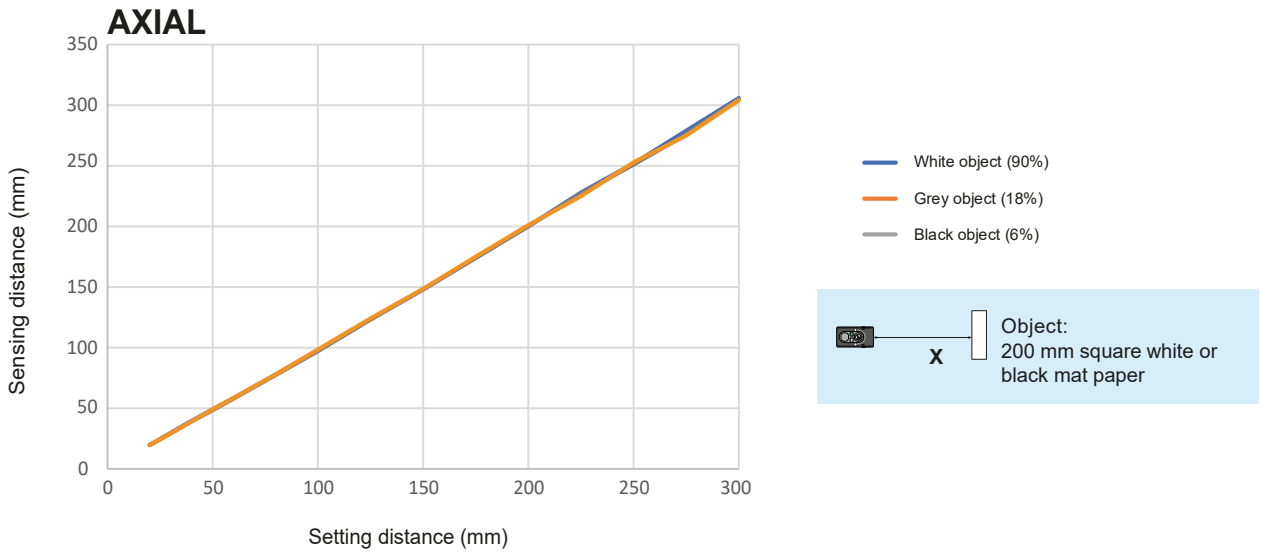
Lateral displacement



Light beam width

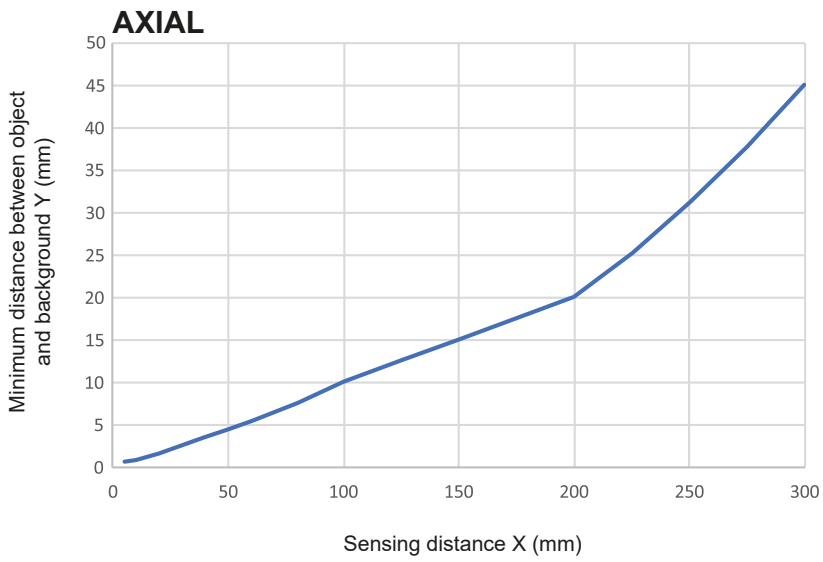


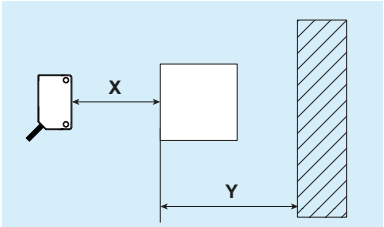
Sensing distance vs distance setting



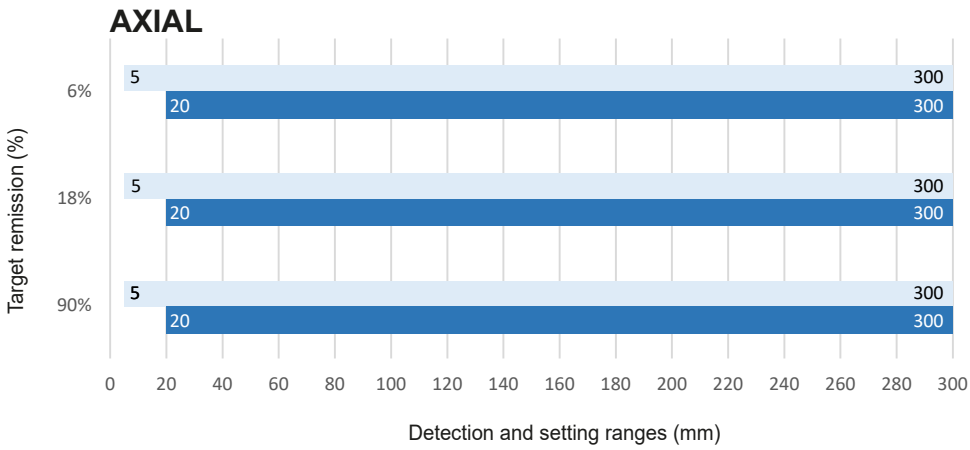
Minimum distance between the object to detect and white background (mm)

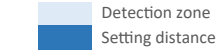
1 mm = *0.0394 in.*

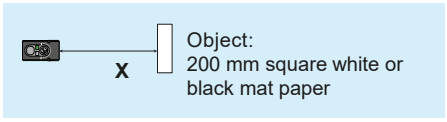




Detection and setting ranges (mm / *inch*) vs target remission (%)







Characteristics

1 mm = *0.0394 in.*

Certification	CE - UKCA - cULus - RCM
Setting Range Axial	20 mm...300 mm (From white object (90%) to black object (6%))
Blind zone	Axial: < 5 mm (< *0.197 in.*) See the graph page 7
Color of detection light beam	Red
Spot size of the light beam on the target	See the graph page 6
Hysteresis	2% < H < 20% at Sn
Sensing distance setting	Potentiometer 1 turn
Output type	PNP / NPN or Autodetect PNP / NPN (with IO-Link)
ON Voltage drop	< 2 V
Current consumption	< 30mA
Switching capacity	100 mA
First-up delay	< 300 ms
Response time	< 0.5 ms
Recovery time	< 0.5 ms
Switching frequency	1000 Hz
Electrostatic discharge immunity	4 kV (Contact), 8 kV (Air) conforming to **IEC 61000-4-2**
Electromagnetic field immunity	10 V/m conforming to **IEC 61000-4-3**
Fast transients immunity	Burst 2 kV - 5 kHz conforming to **IEC 61000-4-4**
Conducted disturbances immunity	10 V conforming to **IEC 61000-4-6**
Emissivity Radiated disturbances	Class A conforming to **EN 55011 / CISPR 11**
Electrical shock	1 kV 500 Ohm (1,2/50 µs)
Power Voltage	12...24 Vdc Ripple p-p 10% maximum Operating range 10...30 Vdc (including ripple)
Product protection	Power supply : Reverse polarity protection Output: Overload and short circuit protection Reverse polarity protection
Light Immunity	Sunlight 40 kLx max. Incandescent light 10 kLx max.
Artificial optical radiation	Class 0 (Risk exempt) conforming to **IEC 62471**
Ambient Temperature	Operating : - 30...+55 °C Storage : - 40...+70 °C
Ambient Humidity	Operating : 35...95% RH *(-22...+131 °F)* Storage : 35...95% RH *(-40...+158 °F)*
Degree of protection	IP65, IP67 conforming to IEC 60529 - IP69K conforming to DIN 40050-9 (only for M12 connector version)
Vibration resistance	Frequency range: 10 Hz ... 55 Hz Acceleration: 7 g_n
Shock resistance	Peak acceleration: 30 g_n Duration of the pulse: 11 ms
Material	Housing: PBT/PC or Brass, Transparent Cover: PMMA, Back cap: MABS, Potentiometer screw: PBT Cable: PVC (for cable version) Plug (cable version): PA66

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