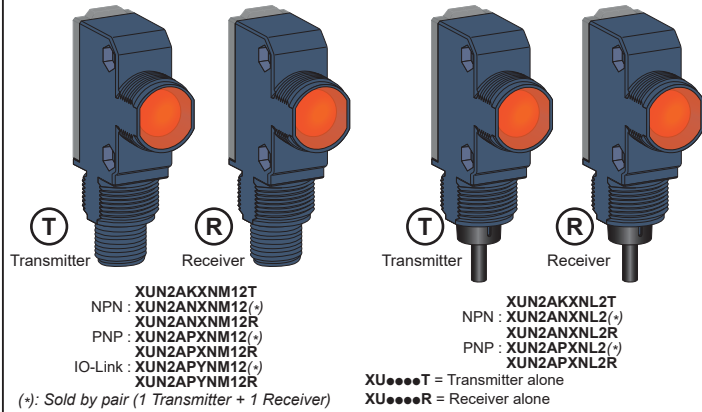


Photo-electric sensors - Hybrid version



Thru-beam



Package Content (Example)



<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.

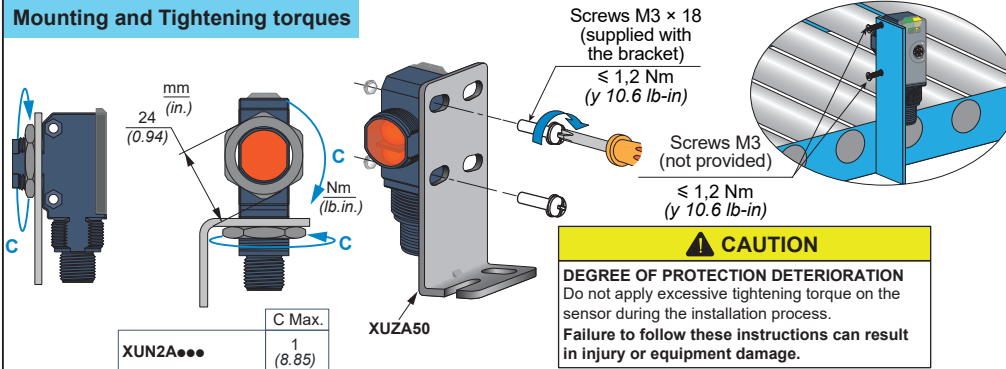
WARNING

IMPROPER SETUP OR INSTALLATION

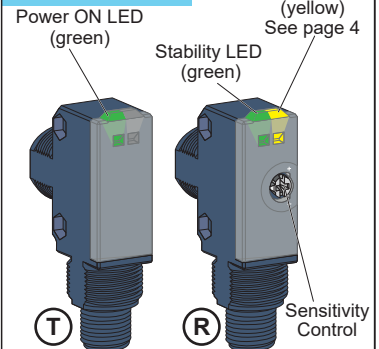
- This equipment must only be installed and serviced by qualified personnel.
- Read, understand, and follow the compliance below, before installing the XU Photo-electric sensor.
- Do not tamper with or make alterations on the unit.
- Comply with the wiring and mounting instructions.
- Check the connections and fastening during maintenance operations.
- The proper functioning of the XU Photo-electric 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.

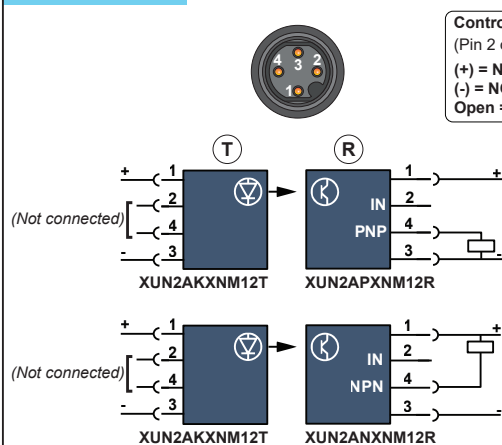
Mounting and Tightening torques



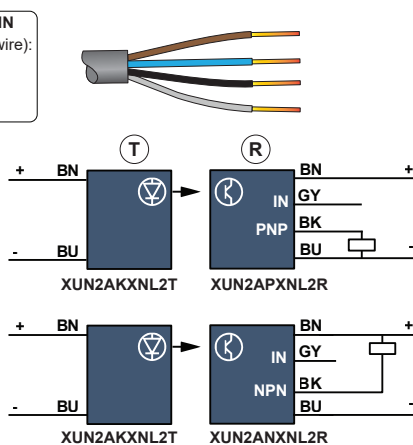
LEDs and Setting



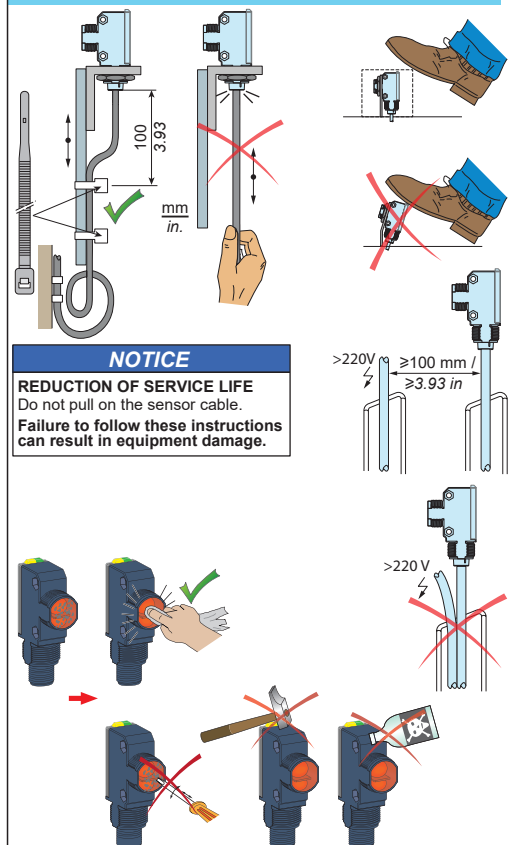
Wiring diagrams M12 Connector - 4 pins



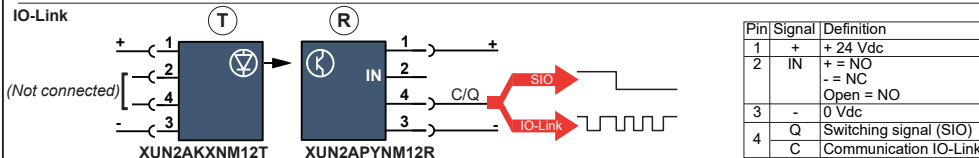
2 m Cable - 4 wires



Mounting, wiring and maintenance precautions



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/#/>

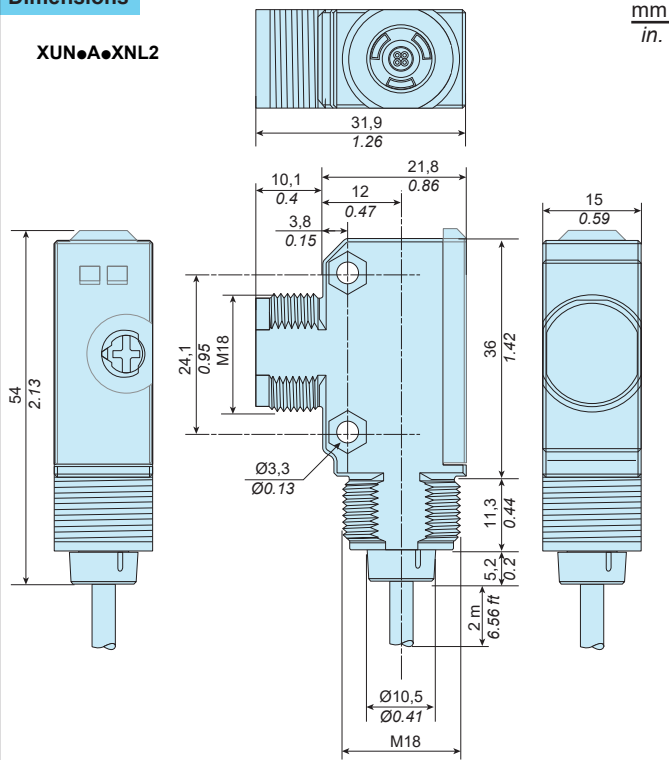
Failure to follow these instructions can result in injury or equipment damage.

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

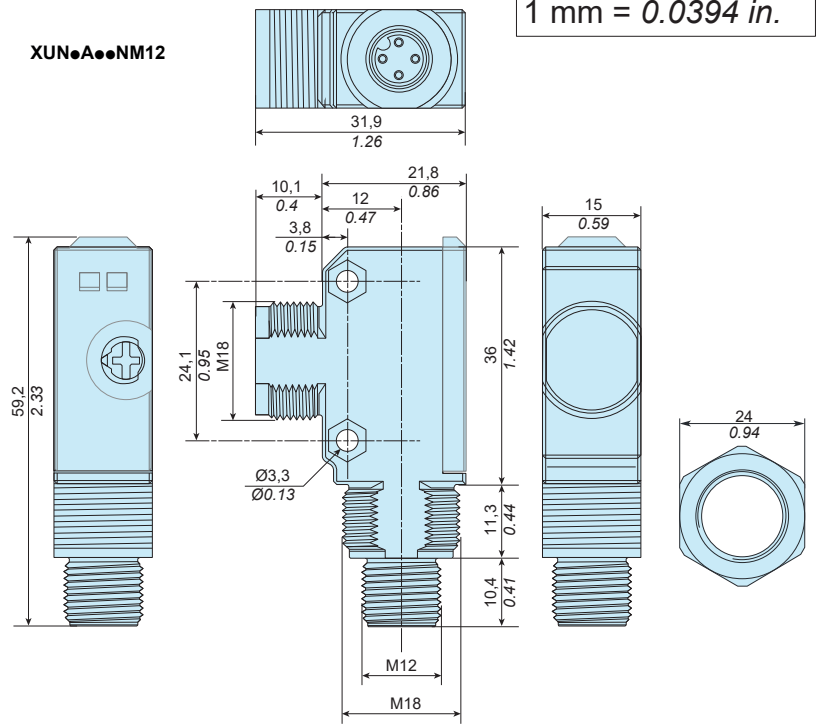
Our product should be installed, operated and maintained only by qualified personnel. Neither TMSS France nor any of its subsidiaries or other affiliated companies shall be responsible or liable for any consequences arising out of the use of this material. Telemecanique™ Sensors is a trademark of Schneider Electric Industries SAS used under license by TMSS France. Any other brands or trademarks referred to in this document are property of TMSS France or, as the case may be, of its subsidiaries or other affiliated companies. All other brands are trademarks of their respective owners.

Dimensions

XUN●A●XNL2


$$\frac{\text{mm}}{\text{in.}}$$

XUN●A●●NM12

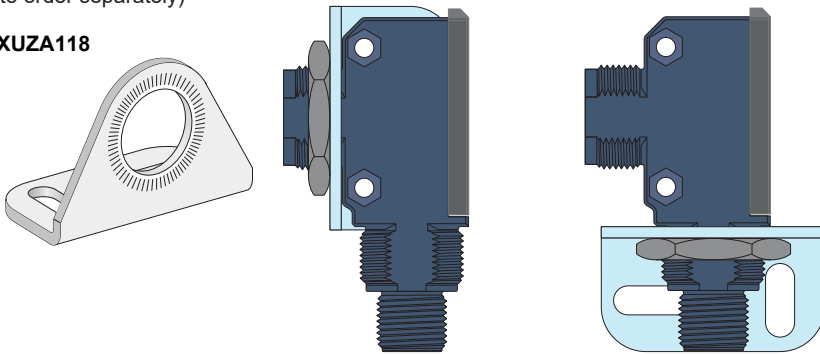


1 mm = 0.0394 in.

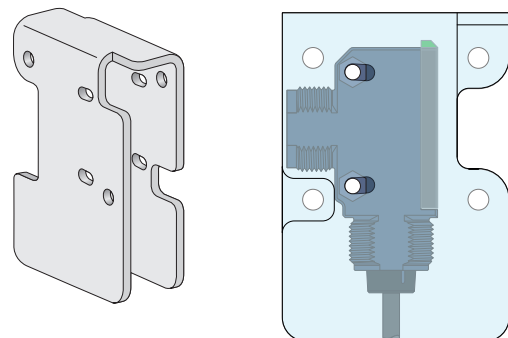
Accessories

Mounting brackets
(to order separately)

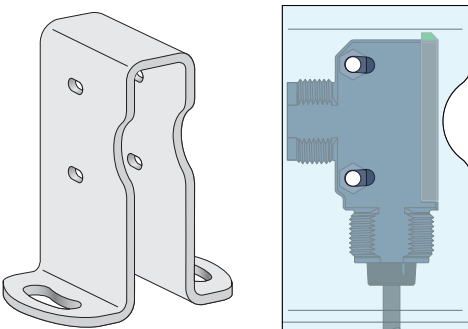
XUZA118



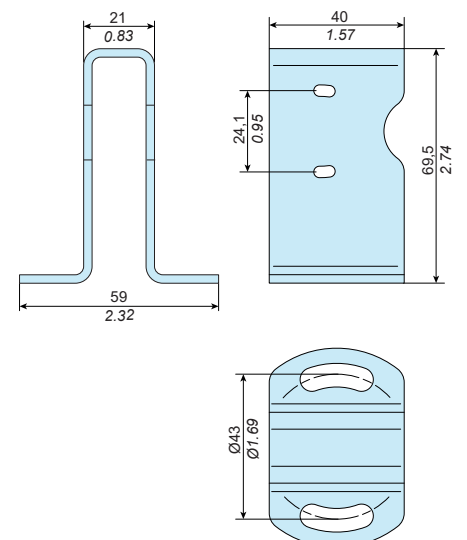
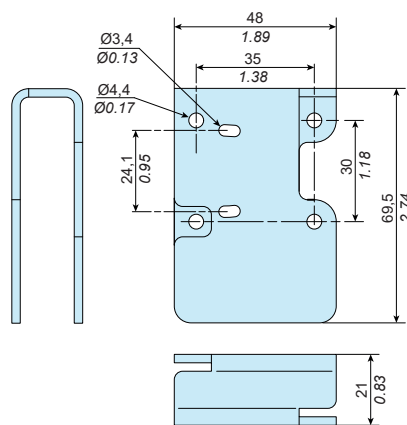
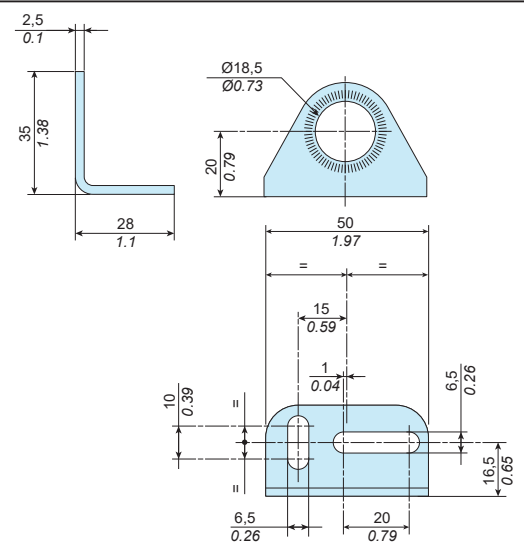
XUZASN001



XUZASN002

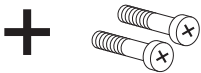
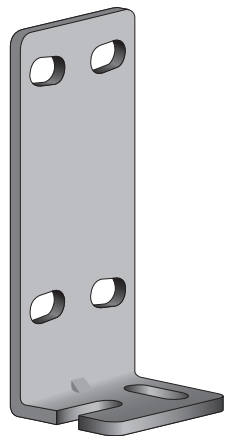


XUZA118

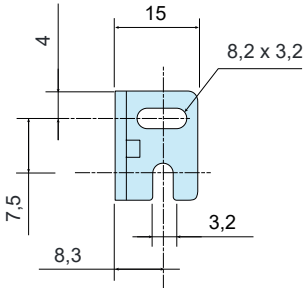
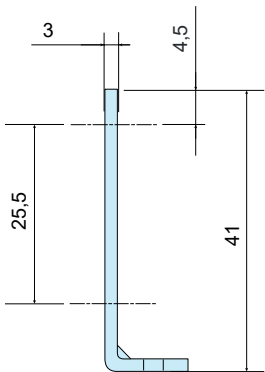
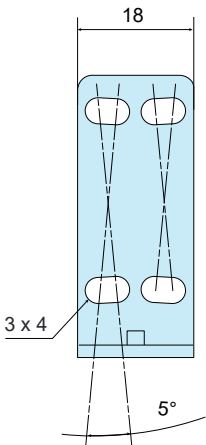
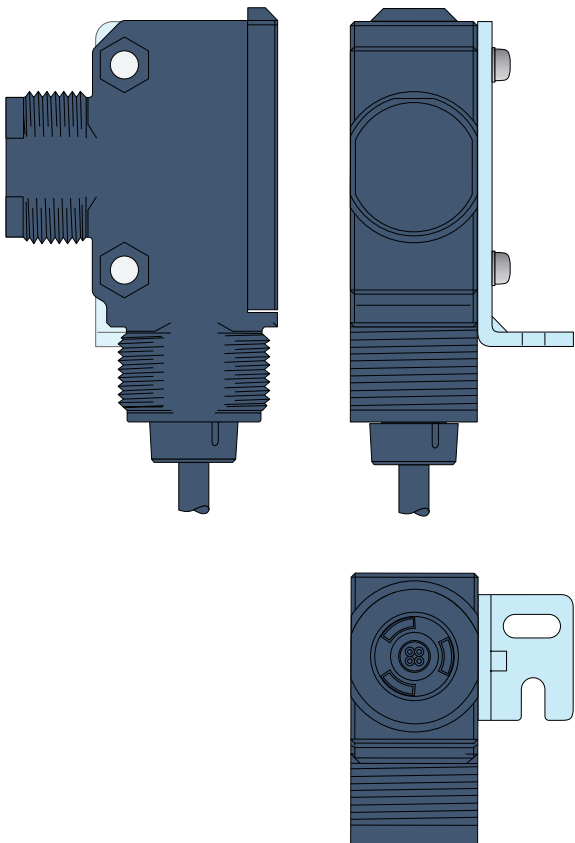


Accessories

XUZA50




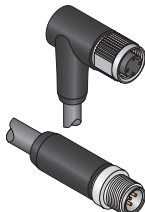


Screws M3 × 18



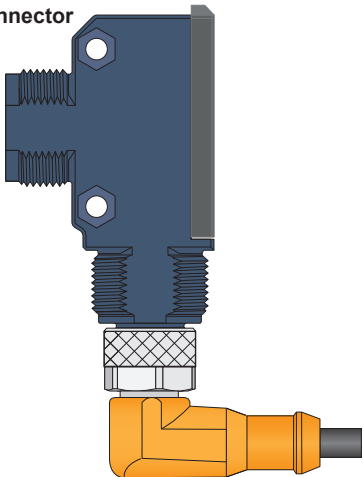
Pre-wired connectors (examples)

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

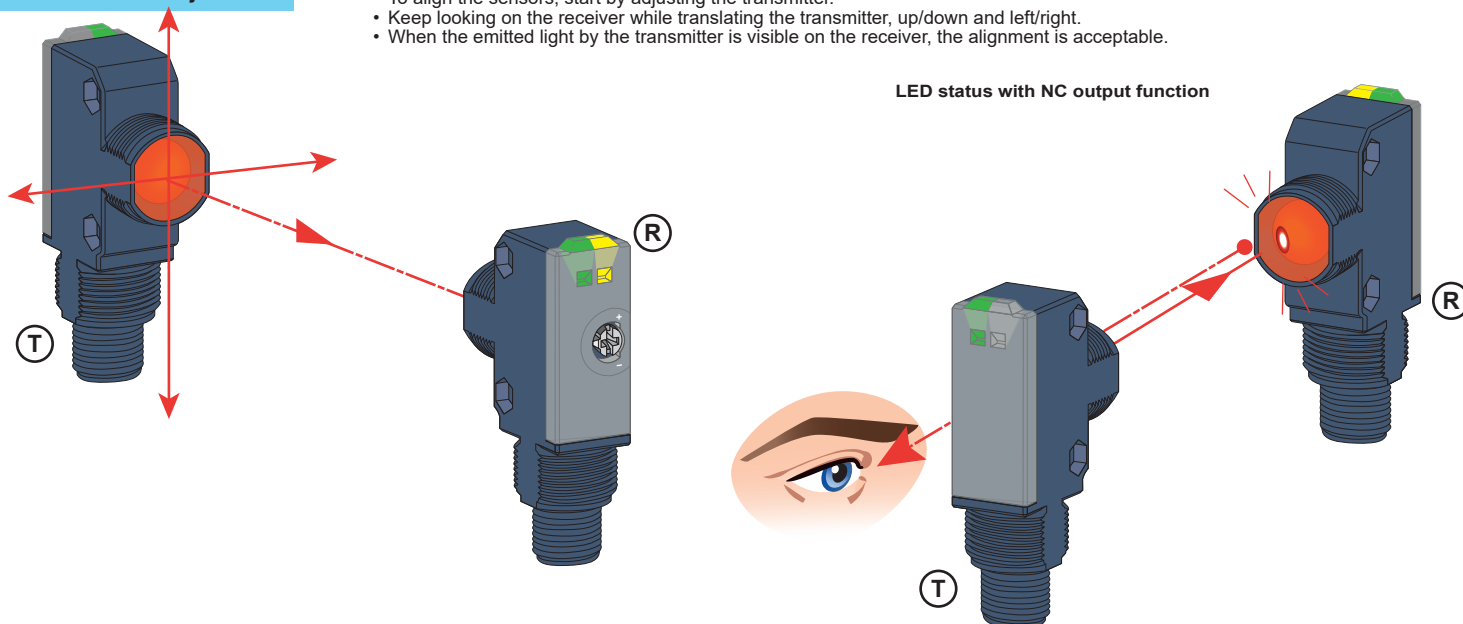
Other cable references are available in our online catalog. Please visit our website at: www.telemecaniquesensors.com
Or you can ask us through the customer support page on your local website.

Cable direction with angled connector



Sensor Position Adjustment

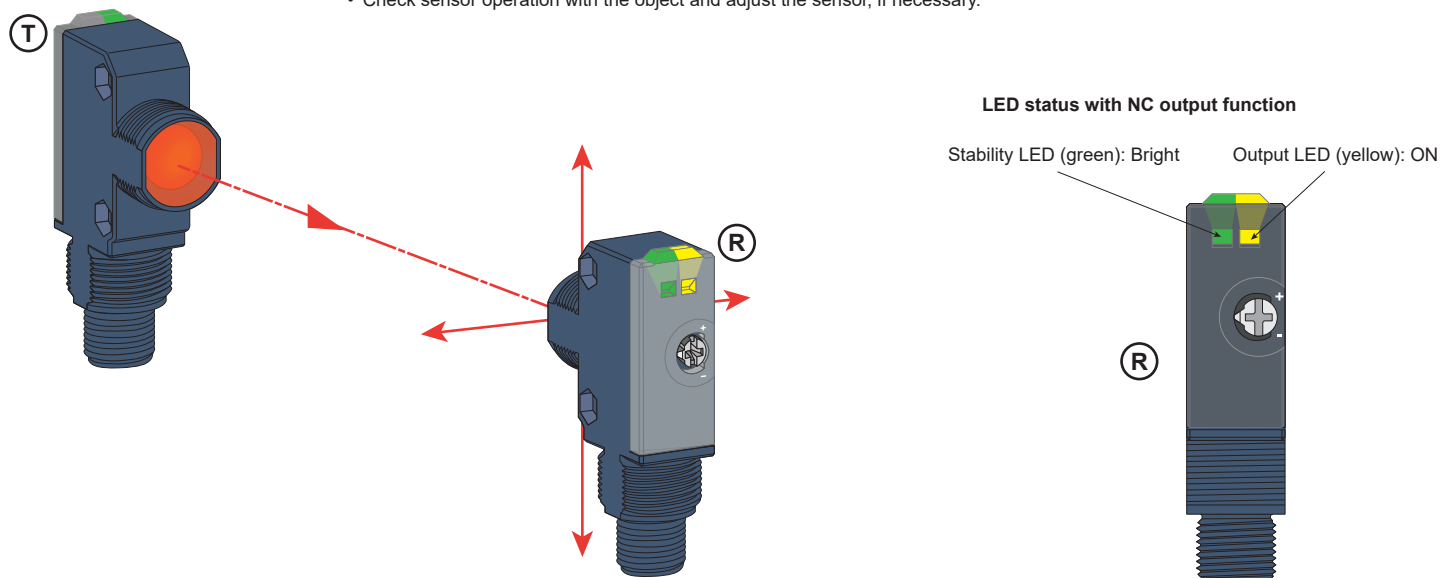
- To align the sensors, start by adjusting the transmitter.
- Keep looking on the receiver while translating the transmitter, up/down and left/right.
- When the emitted light by the transmitter is visible on the receiver, the alignment is acceptable.



LED status with NC output function

Sensor Position Adjustment

- For a stable detection, verify on the receiver if the green LED is on.
- If the green LED is Dim, translate the receiver up/down and left/right. When the setting is optimal, the Output LED (yellow) is On (Light-on mode) and the Stability LED (green) is Bright.
- Check sensor operation with the object and adjust the sensor, if necessary.












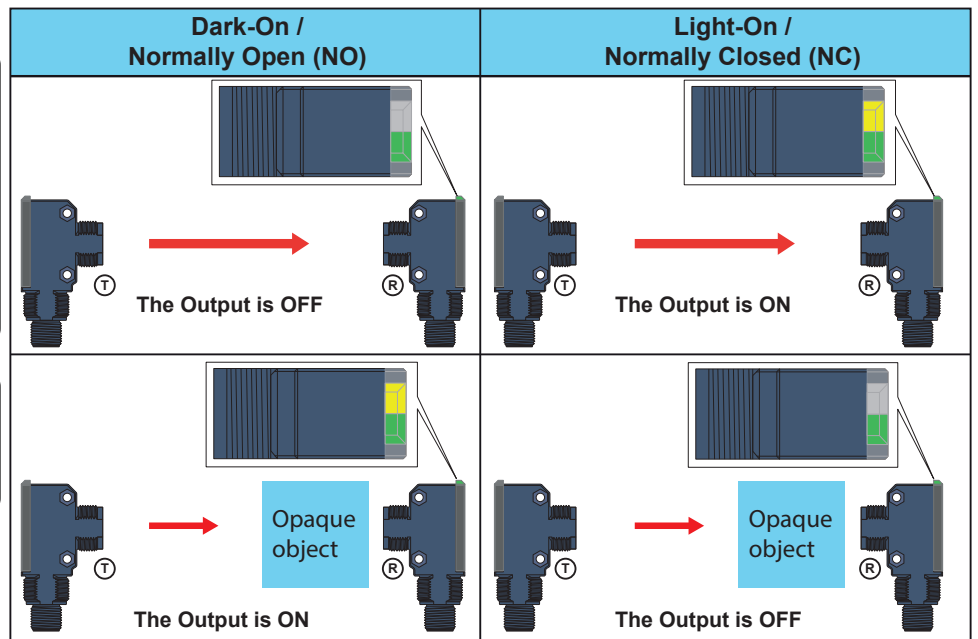
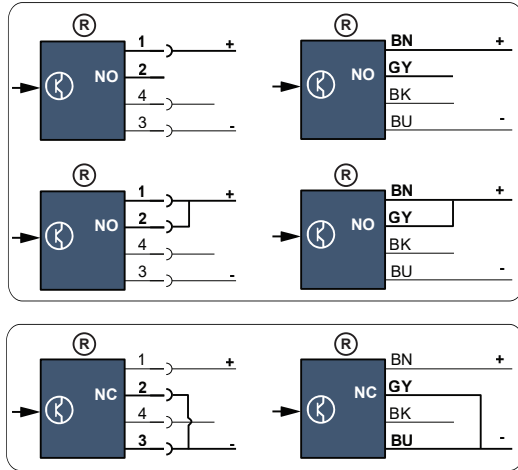
LED status with NC output function

Stability LED (green): Bright Output LED (yellow): ON

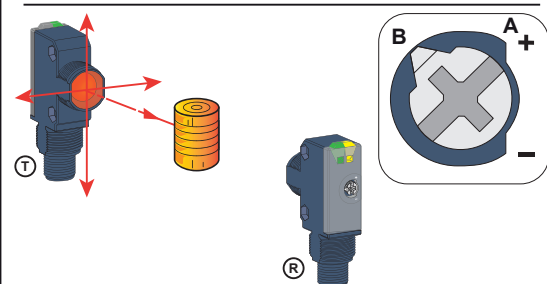
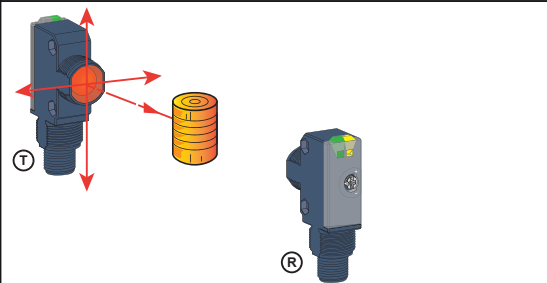
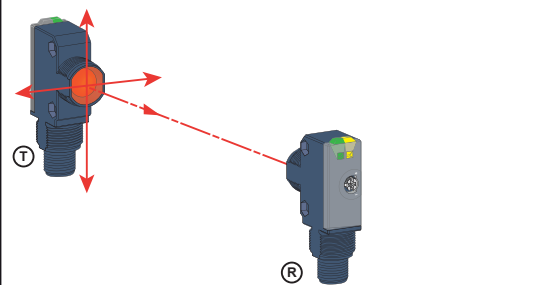
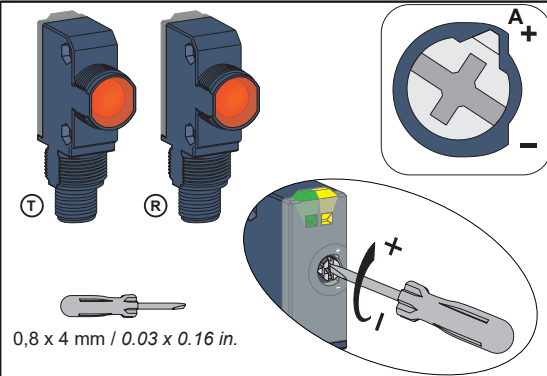
Diagnostic LEDs

¹: Only for IO-Link version

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

Output mode setting: NO or NC (NO by default)**Sensor Sensitivity Adjustment**

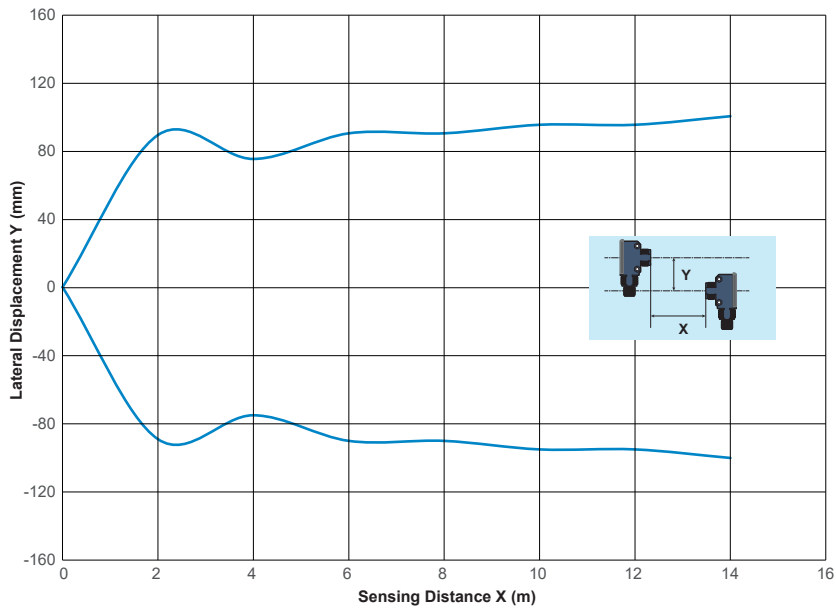
For accurate detection, follow the configuration below. (eg. Objects with holes or small size to obstruct the light beam).



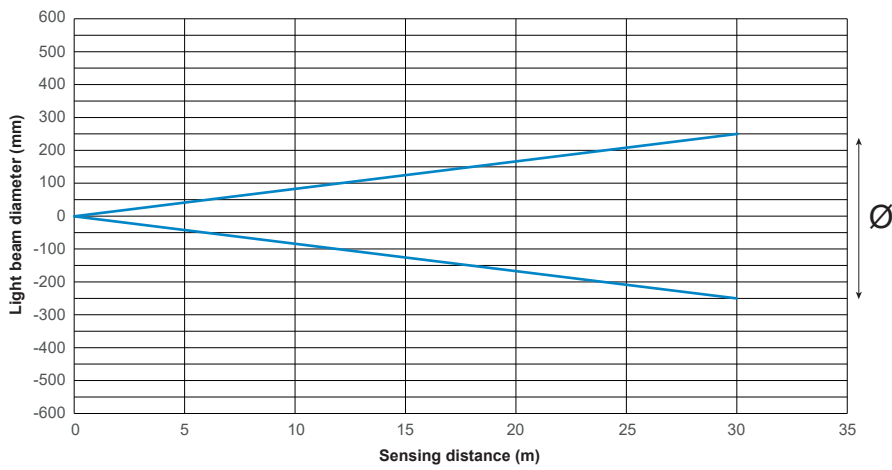
Dark-On / Normally Open (NO)	Light-On / Normally Closed (NC)
<p>1-Before settings, start with the receiver potentiometer at the maximum position (resulting to point A).</p>	<p>1-Before settings, start with the receiver potentiometer at the maximum position (resulting to point A).</p>
<p>2-Connect the two sensors to the power supply (see page 1 for the wire connection & page 7 for the power voltage), the power ON / Stability LED (green) switches on.</p> <p>Align the two sensors, as shown on the picture, until seeing the Output LED (yellow) switches off.</p> <p>Keep the two sensors within the sensing distance described in page 6.</p>	<p>2-Connect the two sensors to the power supply (see page 1 for the wire connection & page 7 for the power voltage), the power ON / Stability LED (green) switches on.</p> <p>Align the two sensors, as shown on the picture, until seeing the Output LED (yellow) switches on.</p> <p>Keep the two sensors within the sensing distance described in page 6.</p>
<p>3-Put the object to detect between the 2 sensors.</p> <ul style="list-style-type: none"> If the receiver Output LED (yellow) switches on, the object detection is set correctly. 	<p>3-Put the object to detect between the 2 sensors.</p> <ul style="list-style-type: none"> If the receiver Output LED (yellow) switches off, the object detection is set correctly.
<ul style="list-style-type: none"> If the receiver doesn't detect the object (Output LED remained off), turn the potentiometer anticlockwise until the Output LED (yellow) switches on (resulting to point B). 	<ul style="list-style-type: none"> If the receiver doesn't detect the object (Output LED remained on), turn the potentiometer anticlockwise until the Output LED (yellow) switches off (resulting to point B).
<p>4-The Sensor is set and ready to detect</p>	<p>4-The Sensor is set and ready to detect</p>

Detection curves

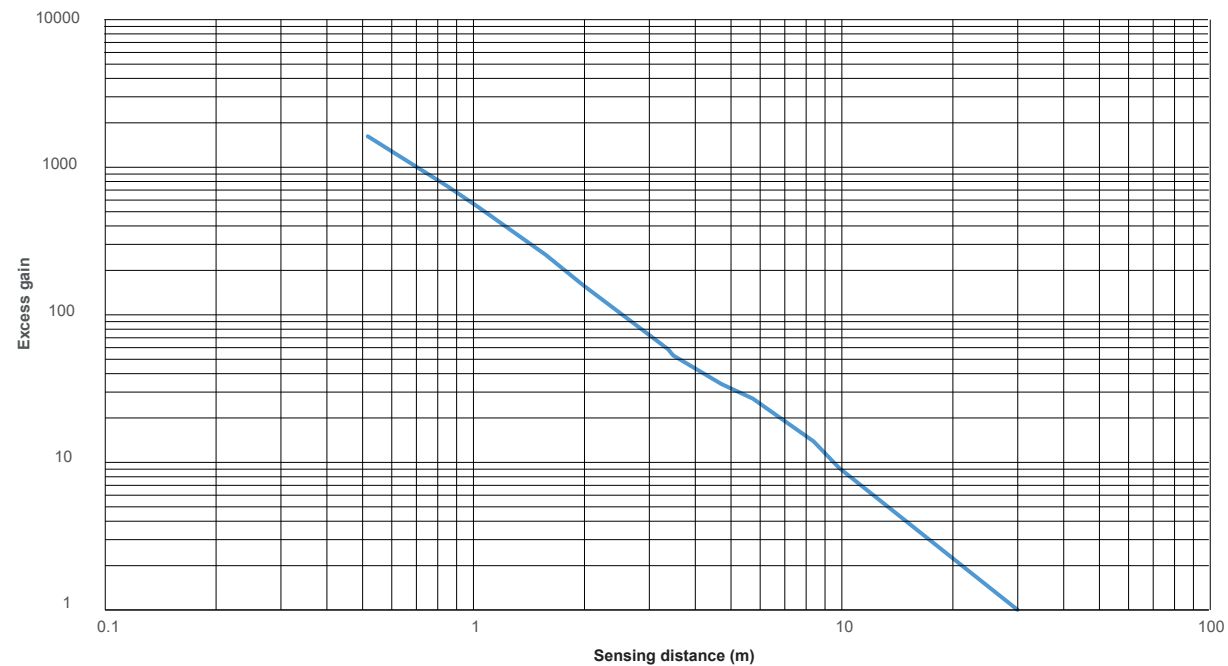
Lateral Displacement



Light beam diameter




Excess gain



Characteristics

1 mm = 0.0394 in.

Certification	CE - UKCA - cULus
Sensing Range (using a white paper 200 x 200) Max. sensing distance (excess gain=1)	30 m - excess gain = 1 20 m - excess gain = 2
Color of detection light beam	Red
Spot size of the light beam on the target	See light beam diameter curve
Hysteresis	2% < H < 20%
Sensing distance setting	Potentiometer 1 turn (~ 220 degrees) on the receiver
Output type	PNP / NPN or Autodetect PNP / NPN (with IO-Link)
ON Voltage drop	< 2 V
Current consumption	Transmitter: < 20 mA Receiver: < 20 mA / IO-Link: < 30 mA
Switching capacity	100 mA
First-up delay	< 100 ms / IO-Link: < 300 ms
Response time	0,5 ms max.
Recovery time	0,5 ms max.
Switching frequency	1000 Hz (In SIO Mode for IO-Link)
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
Radiated disturbances emissions	Class A conforming to EN 55011 / CISPR 11
Power Voltage	Rated operational voltage: 12...24 Vdc Operating range: 10...30 Vdc (including ripple p-p 10% maximum) 
Product Protection	Power supply : Reverse polarity protection Output: Short circuit protection Reverse polarity protection
Light Immunity	Sunlight 40 kLx max. Incandescent light 10 kLx max. (at the receiver surface)
Artificial optical radiation	Class 0 (Risk exempt) conforming to IEC 62471
Ambient Temperature	Operating : - 30...+55 °C (-22...+131 °F) Storage: - 40...+70 °C (-40...+158 °F)
Ambient Humidity	Operating : 35...95% RH Storage: 35...95% RH
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...55 Hz Acceleration: 7 g _n
Shock resistance	Peak acceleration: 30 g _n Duration of the pulse: 11 ms
Material	Housing: PBT/PC, Transparent cover: PMMA, Potentiometer screw: PBT Back cap (connector version): PBT/PC, Back cap (cable version): PA66 Cable: PVC (for cable version)



Manufacturer:
TMSS France
Tour Egho - 2 avenue Gambetta
92400 Courbevoie
France



UK Representative:
Yageo TMSS UK Limited
2 North Park Road
Harrogate, HG1 5PA
United Kingdom

