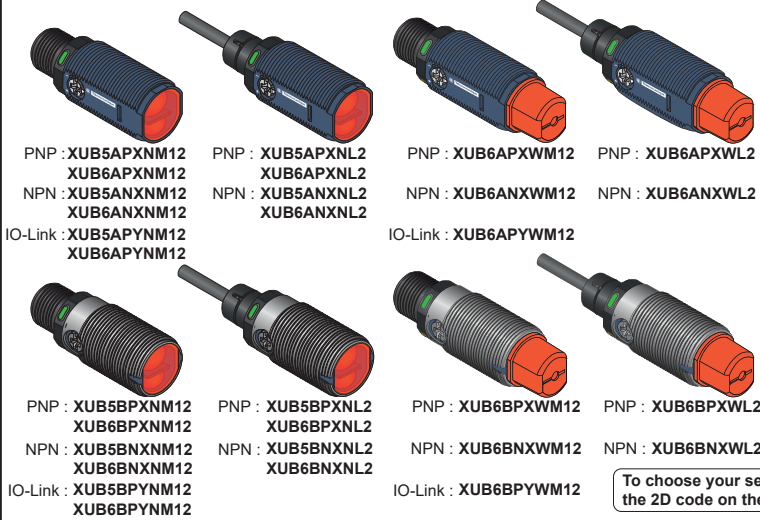


M18 Photo-electric sensors - Straight or 90° angled version



Diffuse

Model	Sensing distance D
XUB5●N●	1 m / 3.28 ft
XUB6●N●	0.6 m / 1.97 ft
XUB6●W●	0.5 m / 1.64 ft

Package Content



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



<http://qr.tesensors.com/XU0022>

Scan the code to access this Instruction Sheet in different languages and all the product information 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 our local website.

ECOLAB

IO-Link

**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.

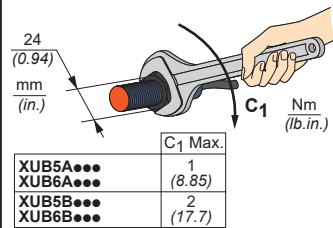
WARNING

IMPROPER SETUP OR INSTALLATION

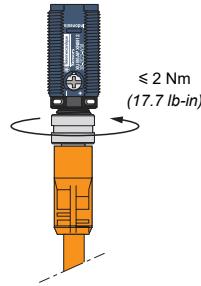
- This equipment must only be installed and serviced by qualified personnel.
- Read, understand, and follow the compliance below, before installing the XU Photo-electric sensor.
- Do not tamper with or make alterations on the unit.
- Comply with the wiring and mounting instructions.
- Check the connections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

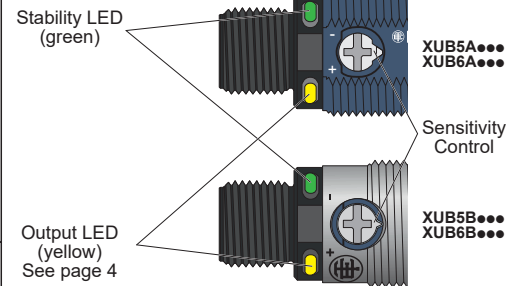
Mounting and tightening torques

**CAUTION**

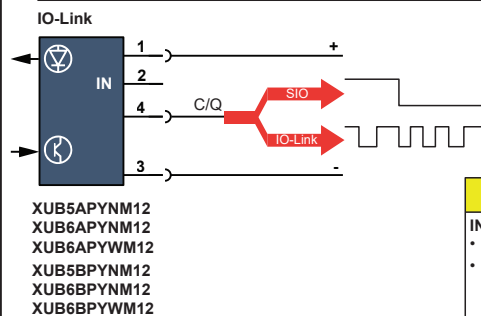
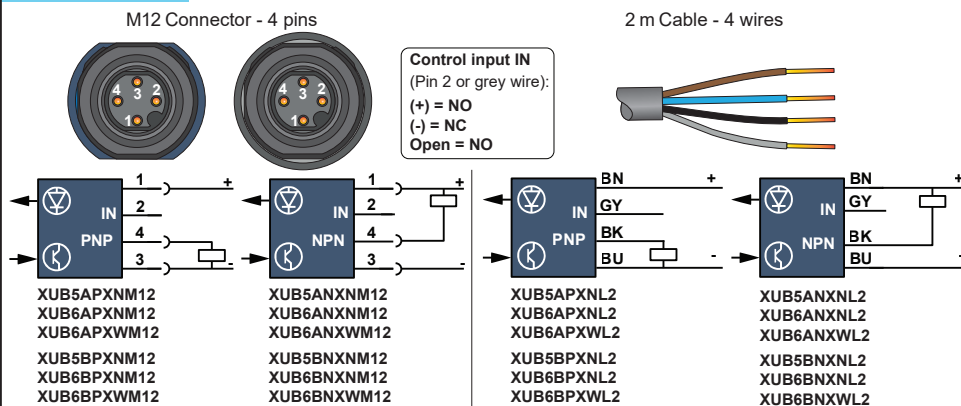
DEGREE OF PROTECTION DETERIORATION
Do not apply excessive tightening torque on the sensor during the installation process.
Failure to follow these instructions can result in injury or equipment damage.



LEDs and settings



Wiring diagrams



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

CAUTION

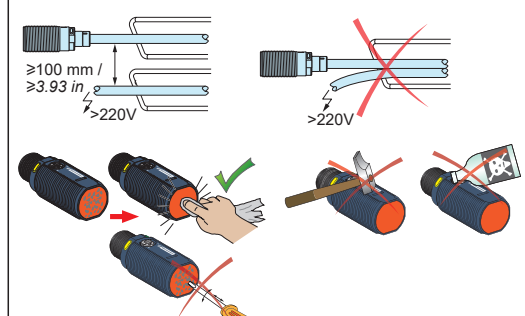
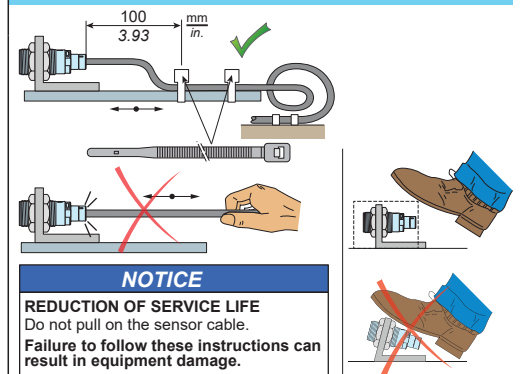
INOPERABLE EQUIPMENT DUE TO CYBER ATTACK ON IO-LINK

- 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/io-link> 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

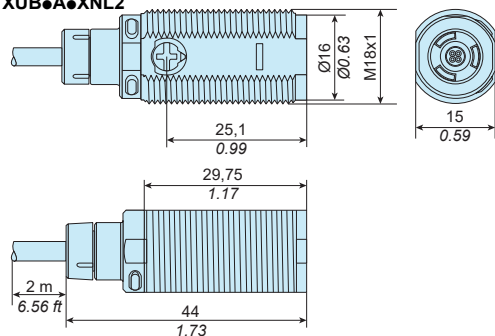
Mounting, wiring and maintenance precautions



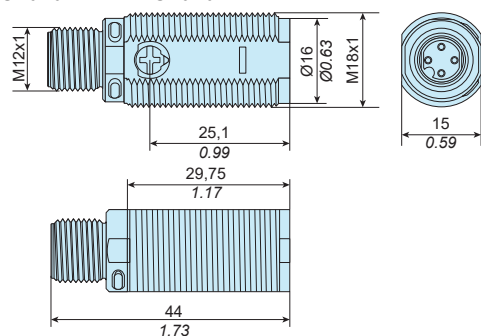
Our product should be installed, operated and maintained only by qualified personnel. Neither TMSS France nor any of its subsidiaries or other affiliated companies shall be responsible or liable for any consequences arising out of the use of this material. Telemecanique™ Sensors is a trademark of Schneider 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

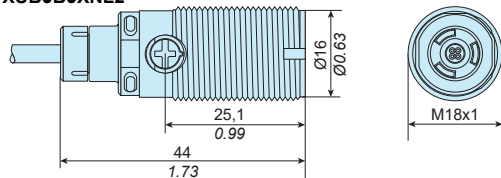
XUB●A●XNL2



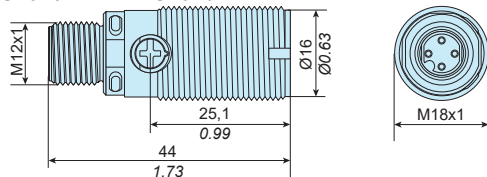
XUB●A●XNM12 / XUB●A●YNM12



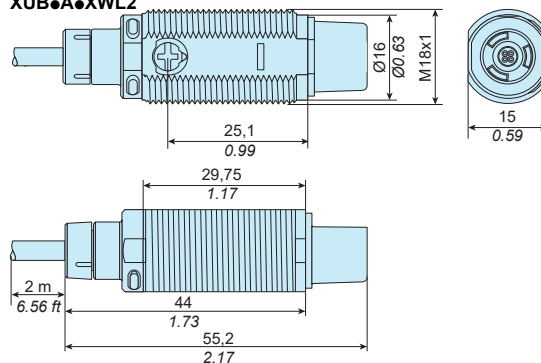
XUB●B●XNL2



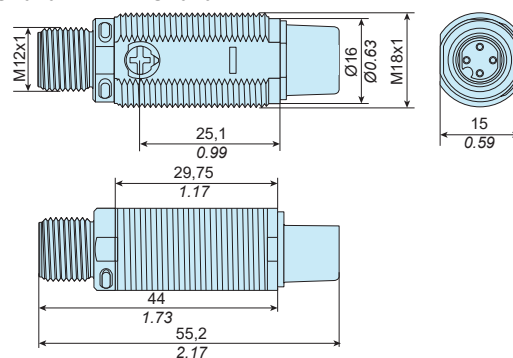
XUB●B●XNM12 / XUB●B●YNM12



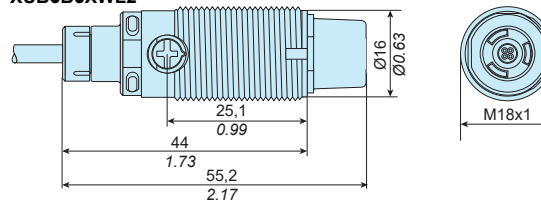
XUB●A●XWL2



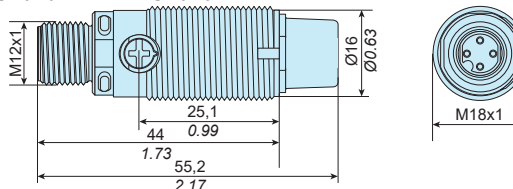
XUB●A●XWM12 / XUB●A●YWM12



XUB●B●XWL2

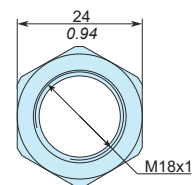


XUB●B●XWM12 / XUB●B●YWM12

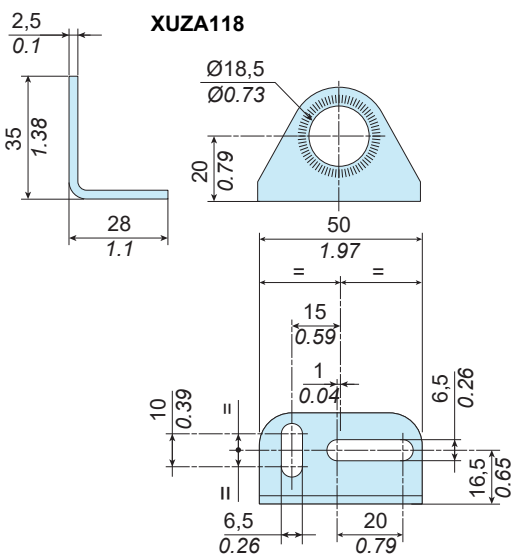


mm
in.

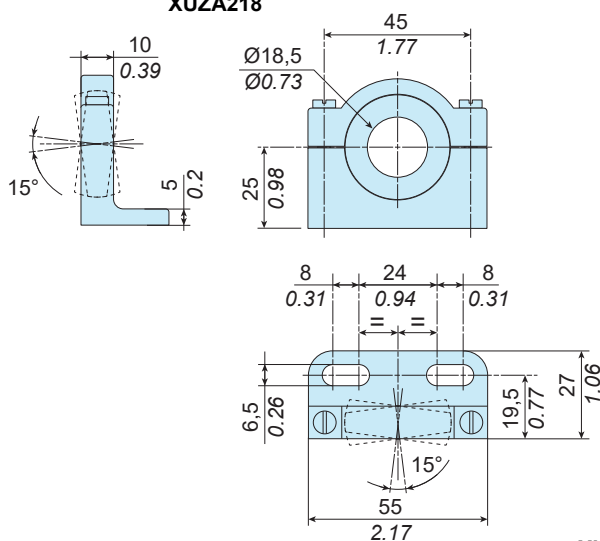
1 mm = 0.0393 in.



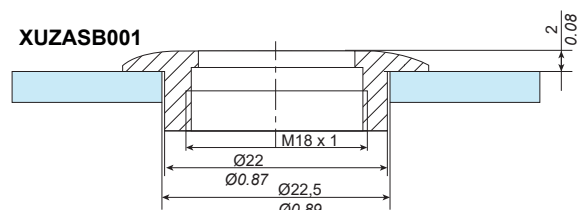
XUZA118



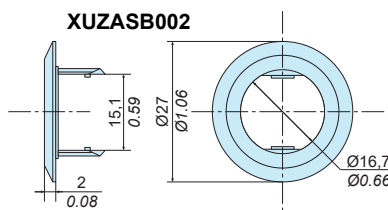
XUZA218



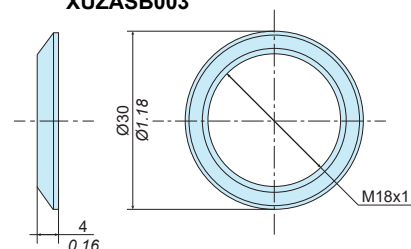
XUZASB001



XUZASB002



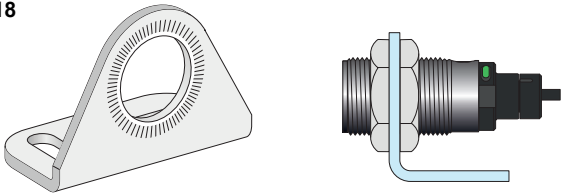
XUZASB003



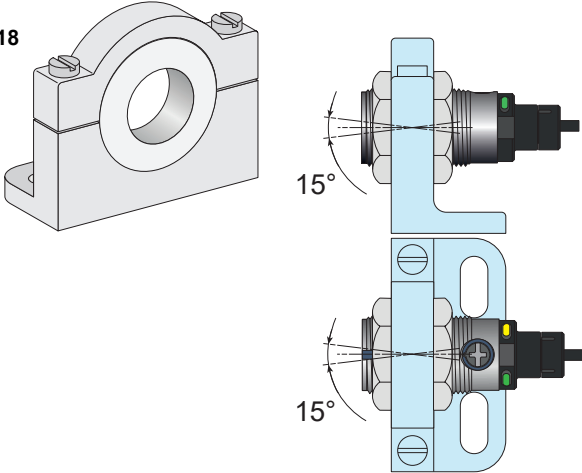
Accessories

Mounting brackets

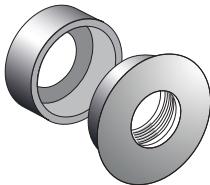
XUZA118



XUZA218



XUZASB001



XUZASB002



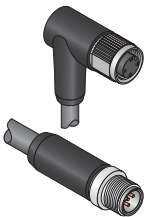
XUZASB003



(See Instruction Sheet: EAV2211101)

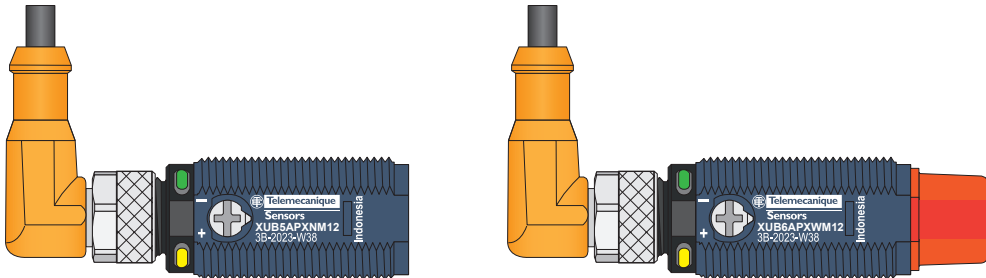
Pre-wired connectors examples

PVC cable for general use
PUR cable for severe industrial environments

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

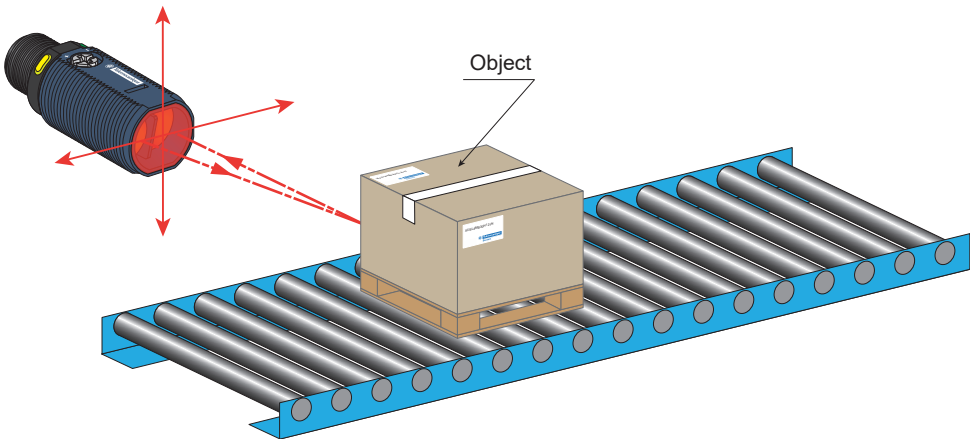
Other cable references are available in our online catalog. Please visit our website at: www.telemecaniquesensors.com
Or you can ask us through the customer support page on your local website.

Cable direction with angled connector

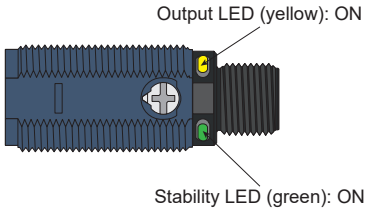


Sensors position adjustment

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



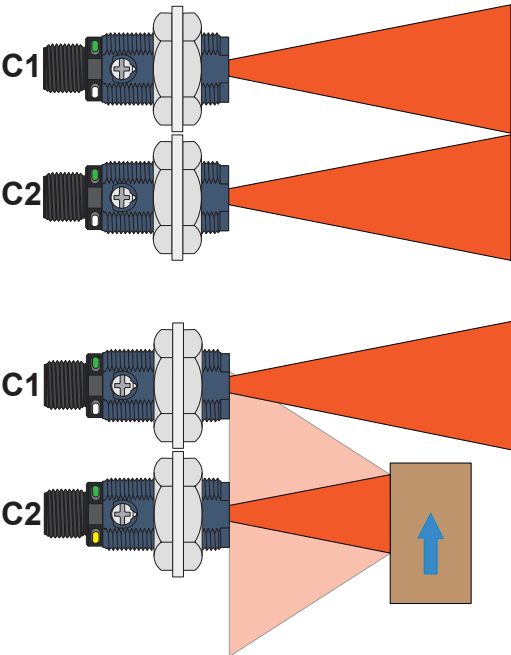
LED status with NO output function



Anti-interference for side by side mounting (Between same detection mode)

Anti-interference system to ensure good detection even disturbed by another sensor when mounted side by side

Note: For interference video, scan the 2D code in the first page



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.

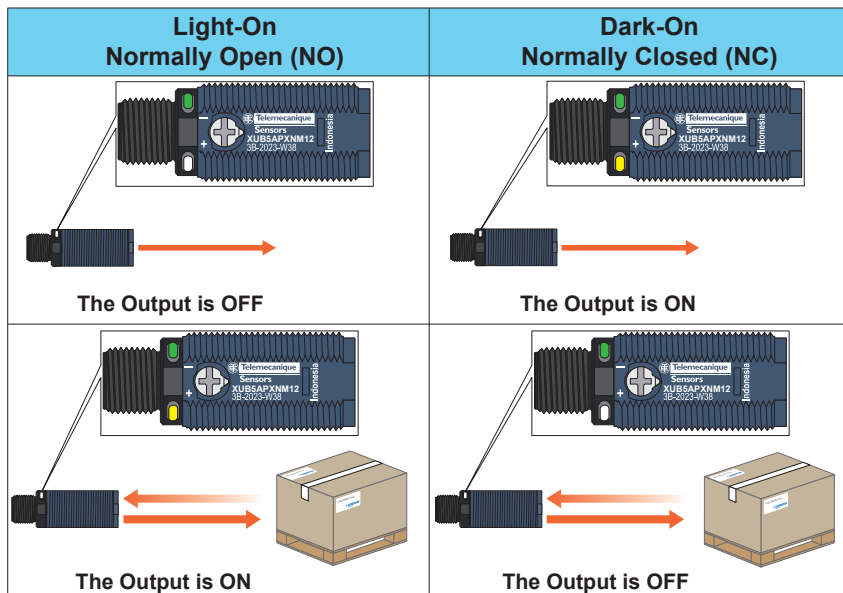
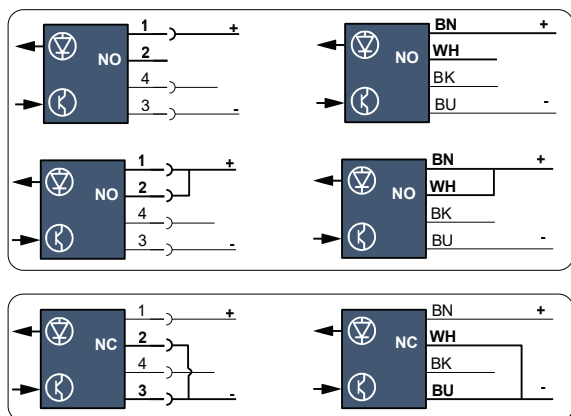
Diagnostic LEDs

¹: Only for IO-Link version



	LED	Description	Corrective Action
Output LED (yellow)	2 Hz	Communication issue detected	Perform a Power Off/Power On cycle. The sensor restarts with factory settings.
	Blinking ¹ 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	-
	OFF	-	-
Stability LED (green)	Dim	Inconsistent quality of detection	Check the sensor sensitivity adjustment (See next page).
	Bright	Consistent quality of detection	-

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



Sensor sensitivity adjustment

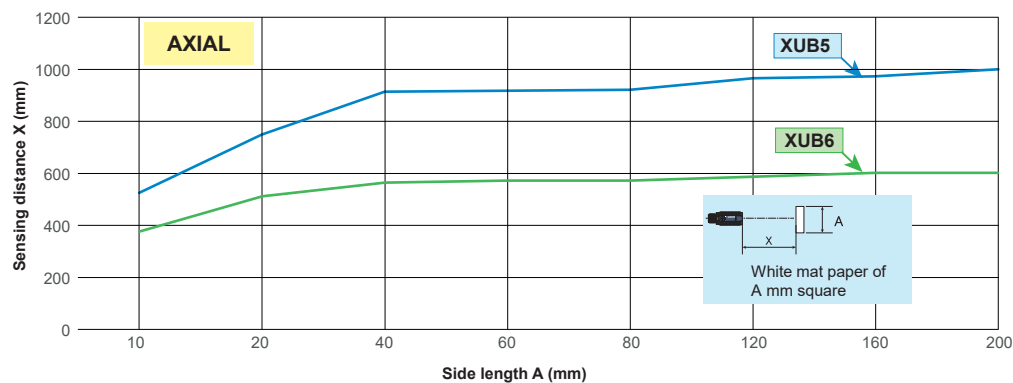
For an accurate detection, follow the set up below. (eg. Dark objects, with holes or with small size to reflect properly the light beam).

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

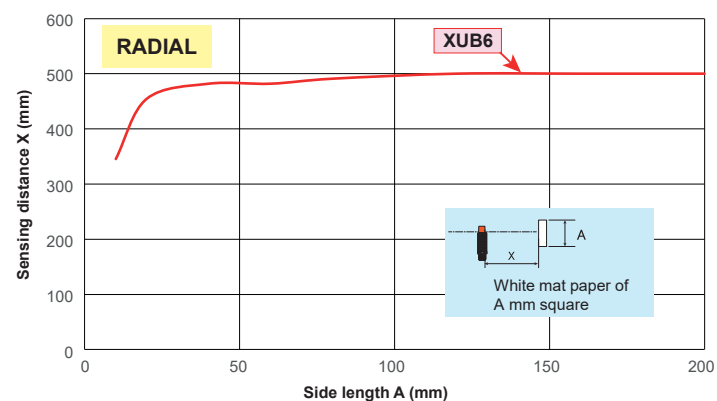
	Light-On Normally Open (NO)	Dark-On Normally Closed (NC)
0,8 x 4 mm / 0.03 x 0.16 in.	1-Connect the sensor to the power supply (see page 1 for the wire connection & page 7 for the power voltage). Before settings, start with the potentiometer at the minimum position (resulting to point A).	1-Connect the sensor to the power supply (see page 1 for the wire connection & page 7 for the power voltage). Before settings, start with the potentiometer at the minimum position (resulting to point A).
Object position Object	2-Put the object in front of the sensor. Turn clockwise the potentiometer until the Output LED (yellow) switches on (resulting to point B).	2-Put the object in front of the sensor. Turn clockwise the potentiometer until the Output LED (yellow) switches off (resulting to point B).
Correct settings Object	3-For a stable detection, turn the potentiometer clockwise until the Stability LED (green) switches on & the Output LED (yellow) remained on (resulting to point C).	3-For a stable detection, turn the potentiometer clockwise until the Stability led (green) switches on & the Output LED (yellow) remained off (resulting to point C).
Object	4-The sensor is set and ready to detect	4-The sensor is set and ready to detect

Detection curves

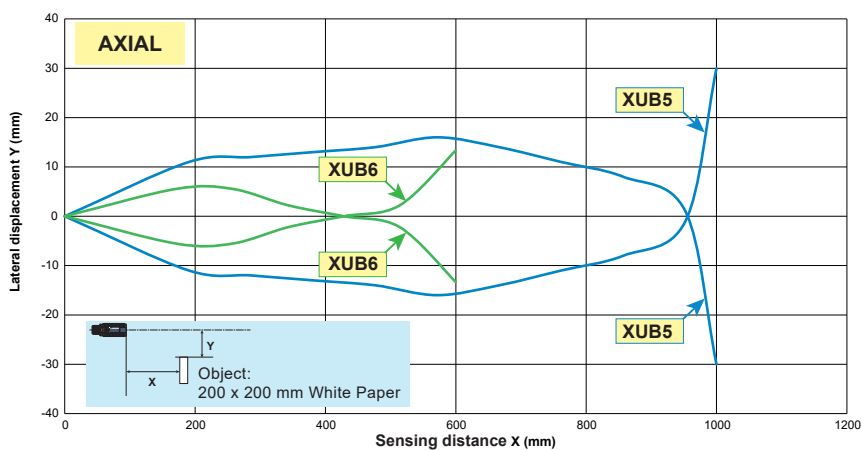
XUB5: Axial diffuse reflective (1 m) - Minimum object size / Sensing distance
XUB6: Axial diffuse reflective (0,6 m) - Minimum object size / Sensing distance



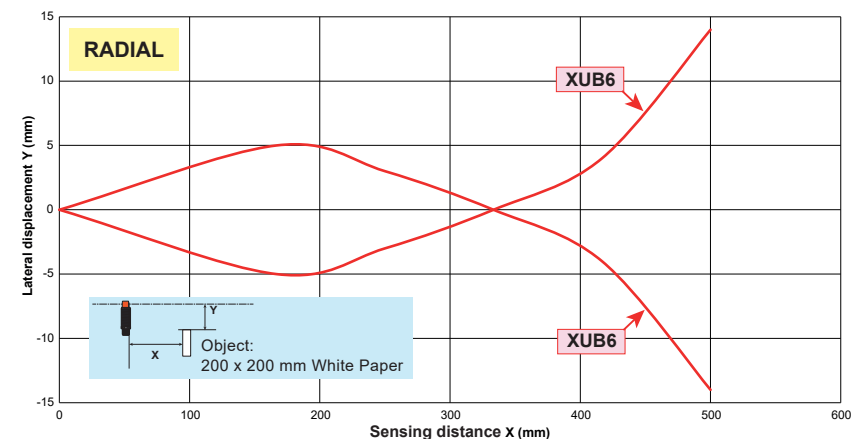
XUB6: Radial diffuse reflective (0,5 m) - Minimum object size / Sensing distance



XUB5: Axial diffuse reflective (1 m) - Lateral displacement
XUB6: Axial diffuse reflective (0,6 m) - Lateral displacement

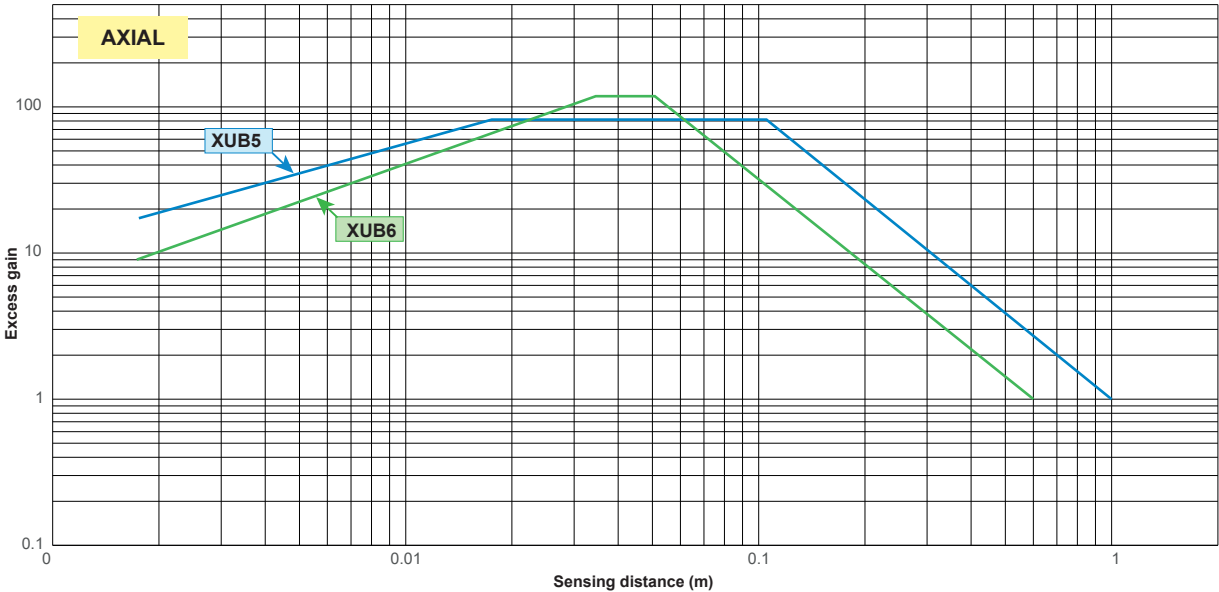


XUB6: Radial diffuse reflective (0,5 m) - Lateral displacement

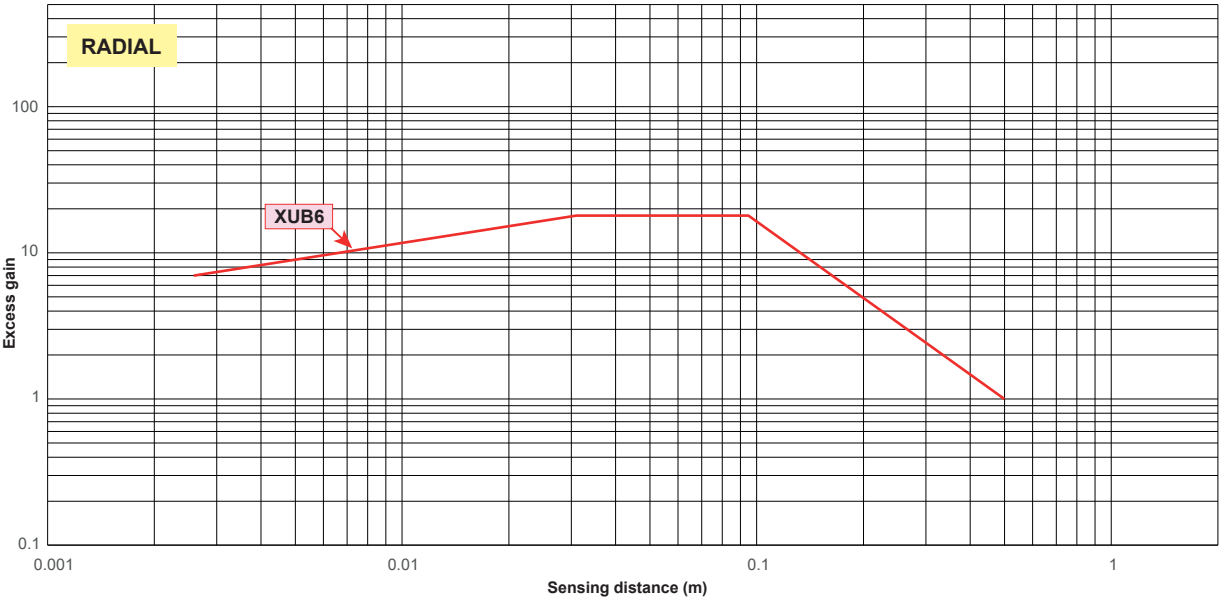


Detection curves

XUB5: Axial diffuse reflective (1 m) - Excess gain
XUB6: Axial diffuse reflective (0,6 m) - Excess gain



XUB6: Radial diffuse reflective (0,5 m) - Excess gain



Characteristics

1 mm = 0.0393 in.

Certification	CE - UKCA - cULus
Sensing Range (using a white paper 200 x 200) Max. sensing distance (excess gain=1)	Axial: XUB5 = 1 m - excess gain =1 XUB5 = 0,7 m - excess gain =2 XUB6 = 0,6 m - excess gain =1 XUB6 = 0,42 m - excess gain =2 Radial: XUB6 = 0,5 m - excess gain =1 XUB6 = 0,35 m - excess gain =2
Color of detection light beam	XUB5 / XUB6: Red
Blind zone (white object + potentiometer max.)	XUB5 / XUB6: 0 mm
Hysteresis	2% < H < 20% (at max sensitivity, white paper)
Sensing distance setting	Potentiometer 1 turn (~ 220 degrees)
Output type	PNP / NPN or Autodetect PNP / NPN (with IO-Link)
ON Voltage drop	2 V max. (30 Vdc 100 mA)
Current consumption	< 20 mA / IO-Link: <30mA
Switching capacity	100 mA
First-up delay	< 100ms / IO-Link: < 300ms
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 2kV - 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.
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 Hz to 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



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