Photo-electric sensors - Miniature design



NPN: **XUM9ANXBM8**
PNP: **XUM9APXBM8**
IO-Link: **XUM9APYBM8**



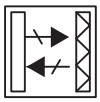
NPN: **XUM9ANXBL2**
PNP: **XUM9APXBL2**

IO-Link



Model	Sensing distance **D**
XUM9●●●	8 m / *26.25 ft*

Polarised reflex



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.

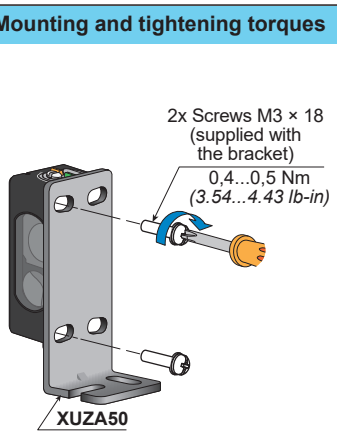
⚠ WARNING

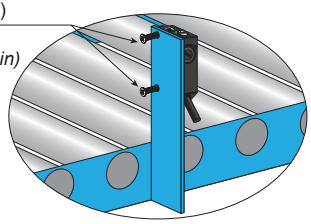
IMPROPER SETUP OR INSTALLATION

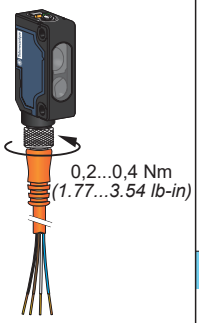
- This equipment must only be installed and serviced by qualified personnel.
- Read, understand, and follow the compliance below, before installing the XU Photo-electric sensor.
- Do not tamper with or make alterations on the unit.
- Comply with the wiring and mounting instructions.
- Check the connections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



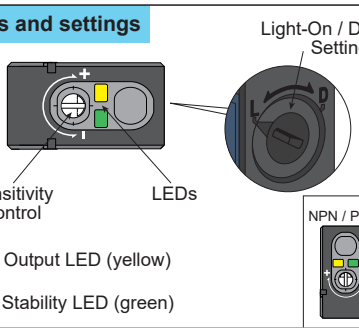




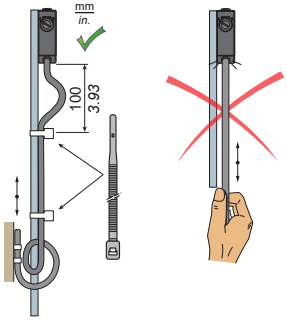
⚠ CAUTION

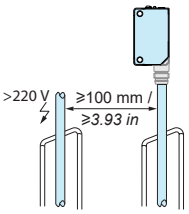
DEGREE OF PROTECTION DETERIORATION
Do not apply excessive tightening torque on the sensor during the installation process.
Failure to follow these instructions can result in injury or equipment damage.

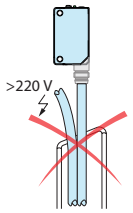
LEDs and settings



Wiring precaution

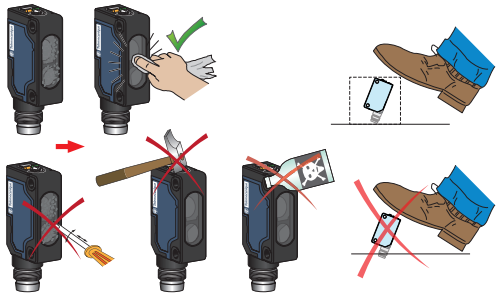






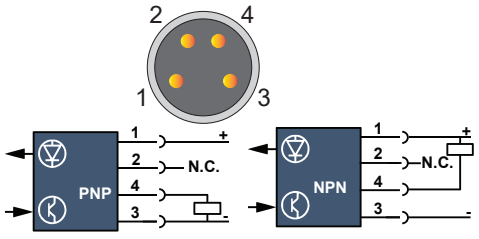
NOTICE

REDUCTION OF SERVICE LIFE
Do not pull on the sensor cable.
Failure to follow these instructions can result in equipment damage.

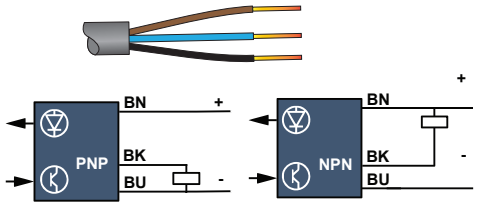


Wiring diagrams

M8 Connector - 4 pins

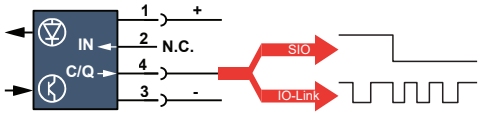


2 m Cable - 3 wires



N.C.: Not Connected

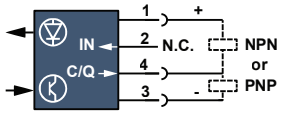
IO-Link



IO-Link: **XUM9APYBM8**

Pin	Signal	Definition
1	+	+ 24 Vdc
3	-	0 Vdc
4	Q	Switching signal (SIO)
	C	Communication IO-Link

Auto-Detect NPN / PNP



⚠ 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 severs: 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

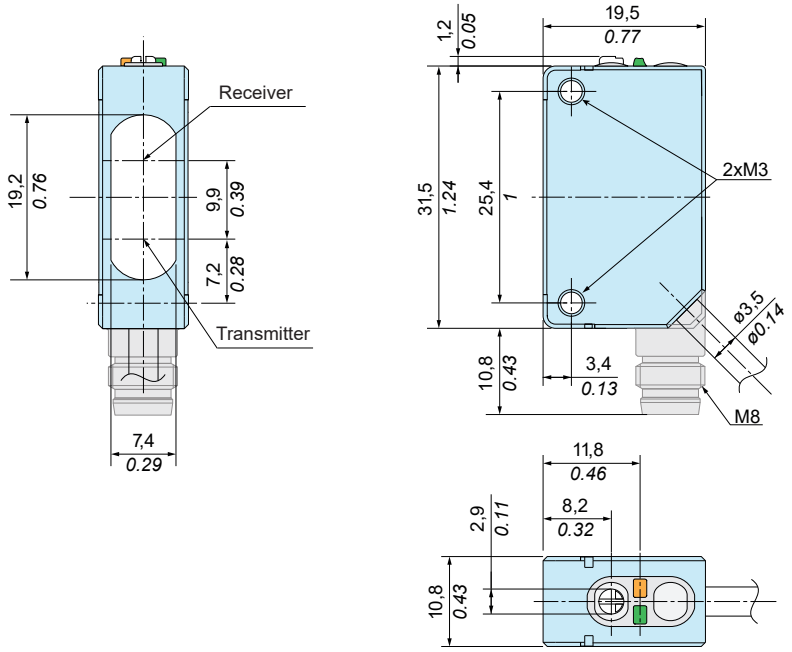
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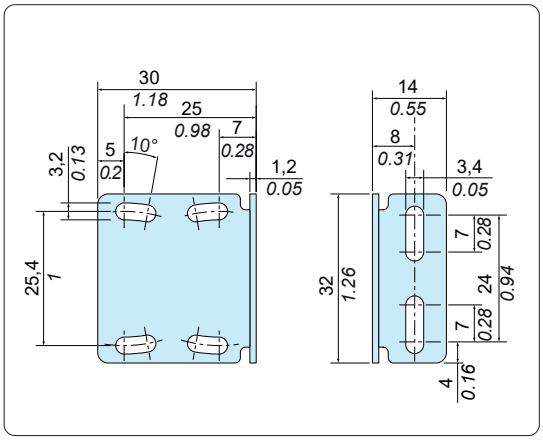
Dimensions

mm / in.

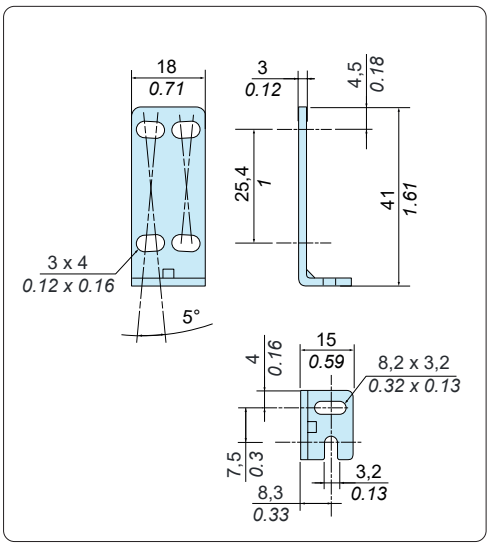
1 mm = *0.0394 in.*



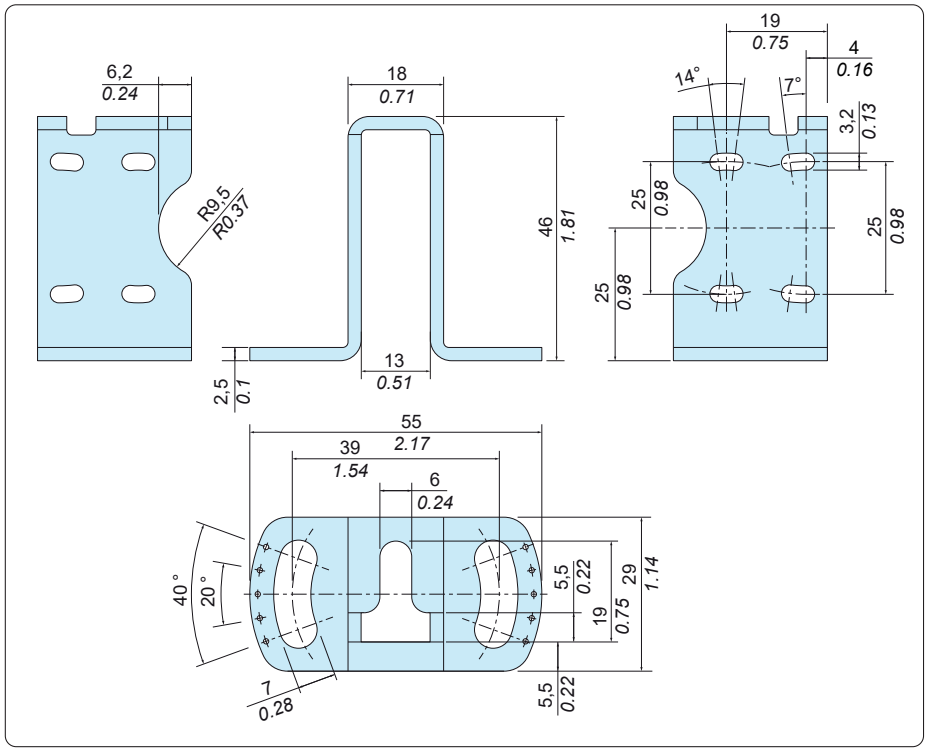
XUZASM04



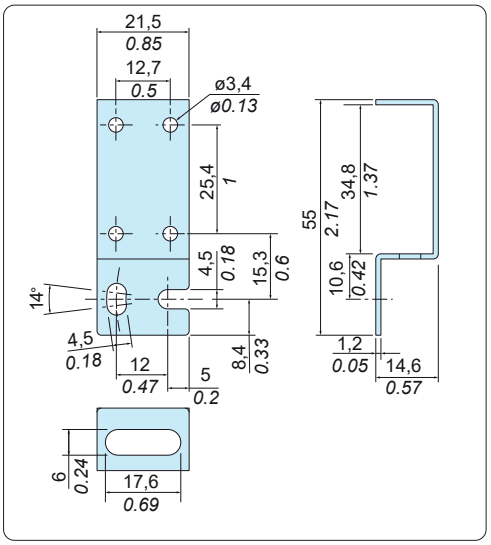
XUZA50



XUZASM03

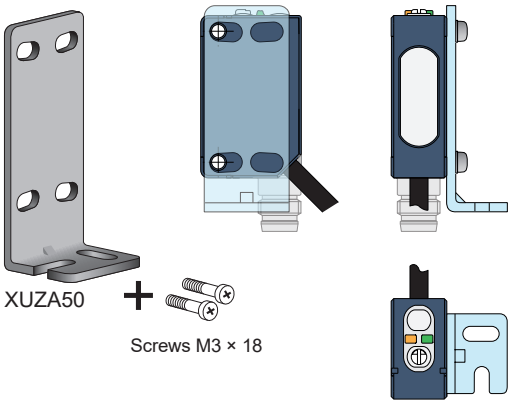


XUZASM02

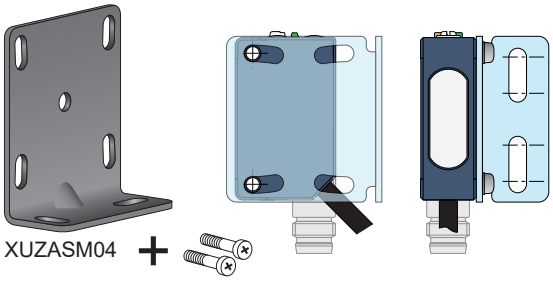


Accessories

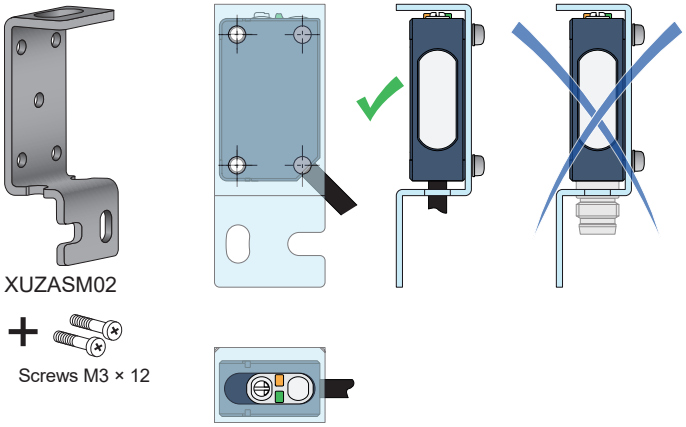
Mounting Brackets (to order separately)



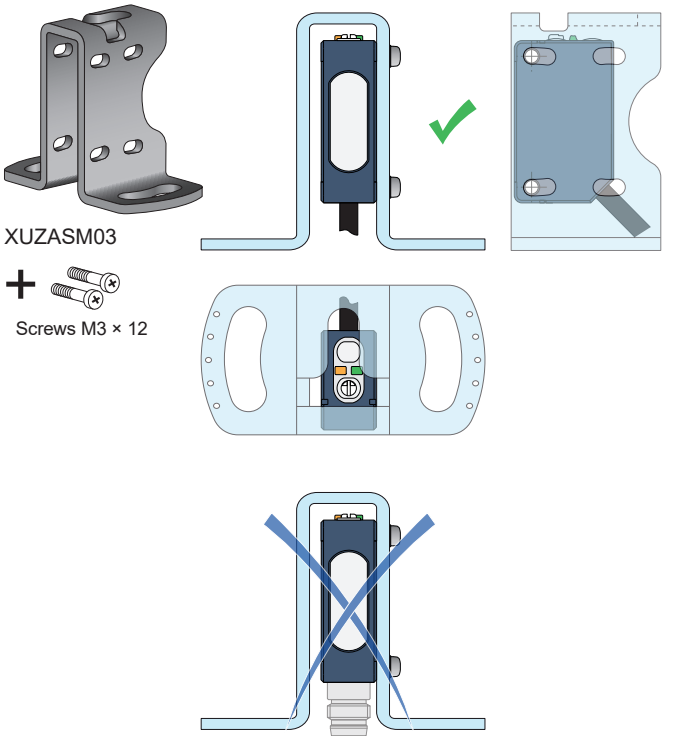
XUZA50 + Screws M3 × 18



XUZASM04 + Screws M3 × 12



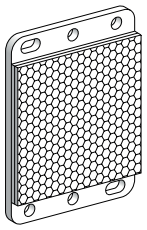
XUZASM02 + Screws M3 × 12



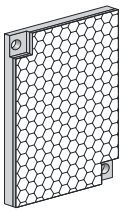
XUZASM03 + Screws M3 × 12

Reflector examples (to order separately)

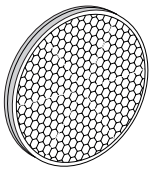
XUZC50



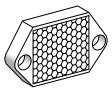
XUZC60S11



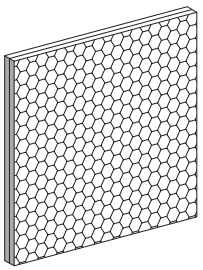
XUZC39



XUZC24



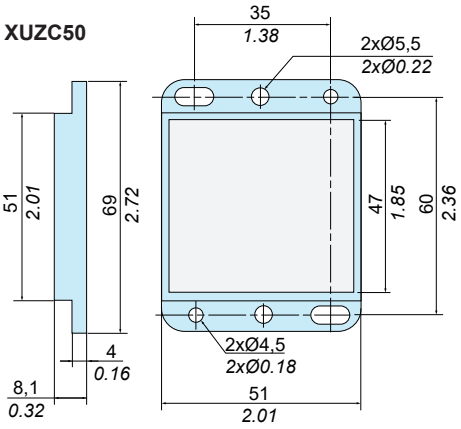
XUZC100



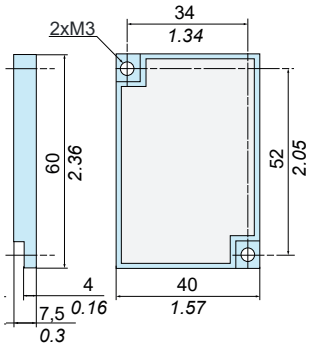
Reflectors Dimensions

mm / in.

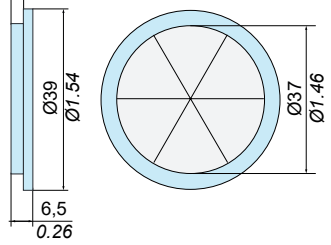
XUZC50



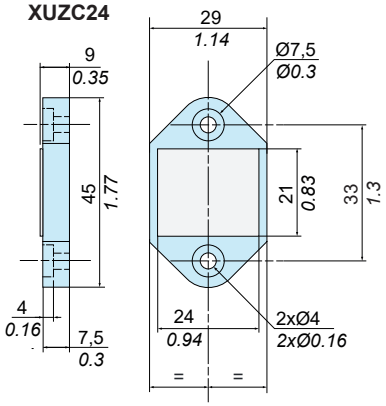
XUZC60S11



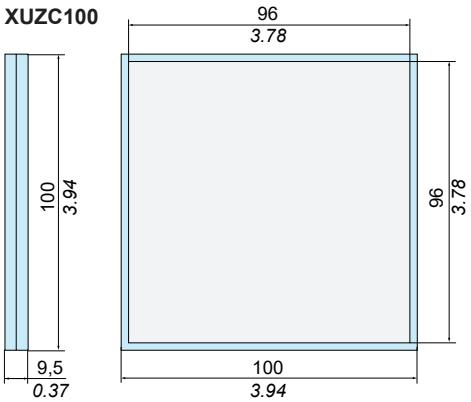
XUZC39



XUZC24



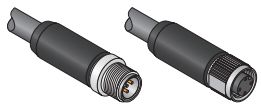
XUZC100



Pre-Wired connectors (examples)

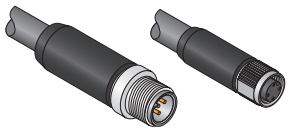
PVC cable for general use
PUR cable for severe industrial environments

Jumper



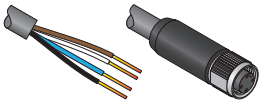
M8 - 4 pins plug
M8 - 4 pins socket
XZCR2609P2Y1 1m PUR
XZCR2609P2Y2 2m PUR

Jumper



M12 - 4 pins plug
M8 - 4 pins socket
XZCR1509041J1 1m PUR
XZCR1509041J2 2m PUR

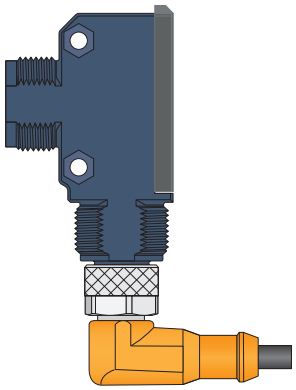
Cable



M8 - 4 pins socket
4 wires
XZCP0941L2 2m PUR
XZCP0941L5 5m PUR

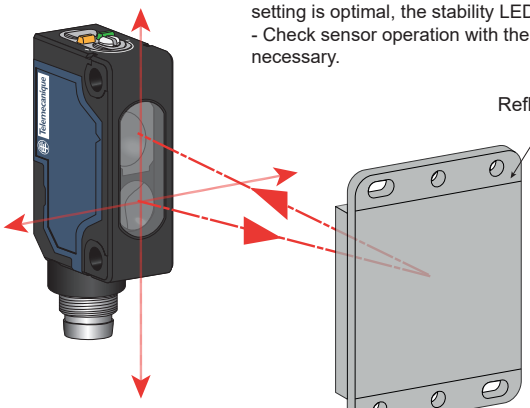
Other cable references are available in our online catalog.
Please visit our website at: **www.telemecaniquesensors.com**
Or you can ask us through the customer support page on your local website.

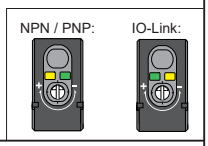
Cable direction with angled connector



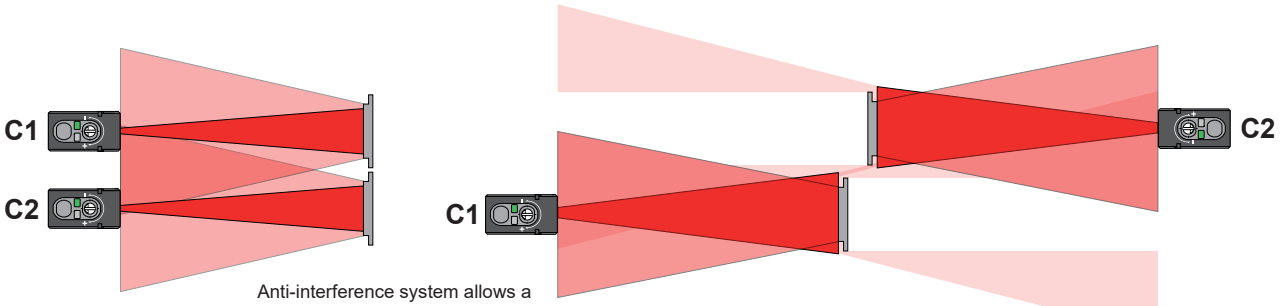
Sensor position adjustment

- Translate the sensor or reflector, 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.

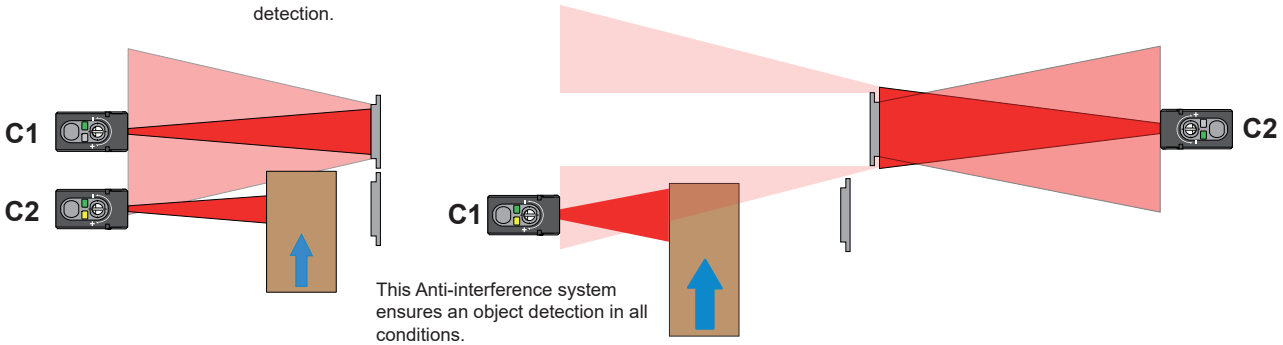




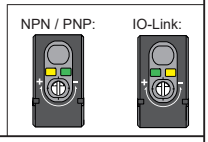
Anti-interference for side by side and face to face (only for reflex model) mounting



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

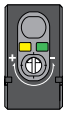
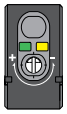


This Anti-interference system ensures an object detection in all conditions.

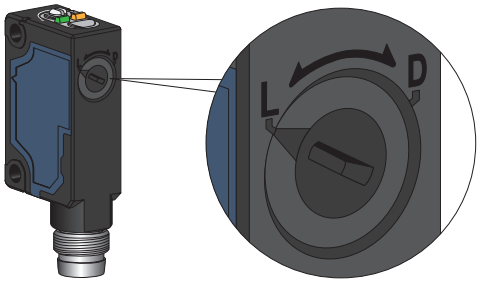


Diagnostic LEDs

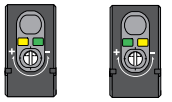
[1]: Only for IO-Link version

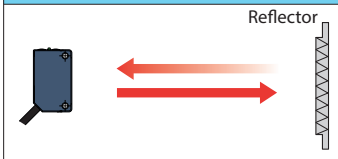
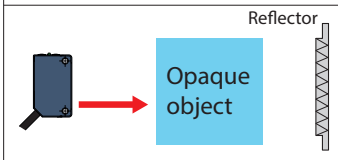
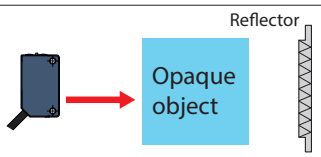
	LED		Description	Corrective Action
NPN / PNP:  IO-Link:  **Output LED (yellow)**	Blinking[1]	1 Hz	Communication issue detected	Perform a Power Off/Power On cycle. The sensor restarts with factory settings.
		3 Hz	Output short-circuit Output overload Undervoltage Overtemperature	Remove the short circuit 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: Light-On or Dark-On (Dark-On by default)



NPN / PNP: IO-Link:

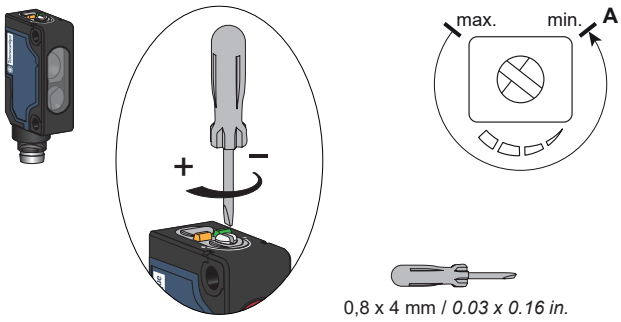
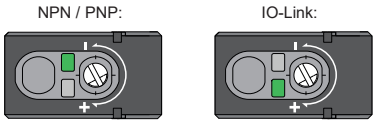
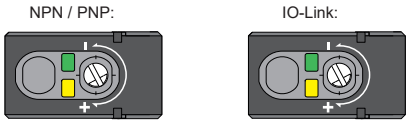
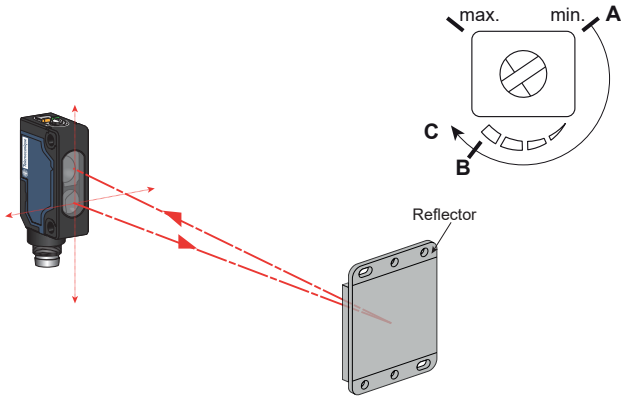
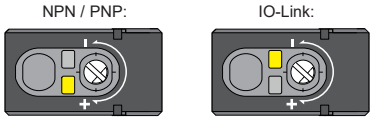
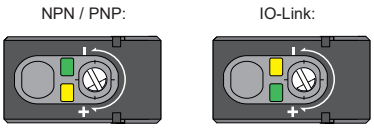
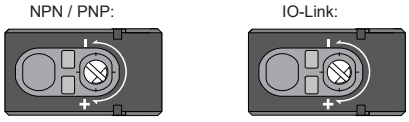
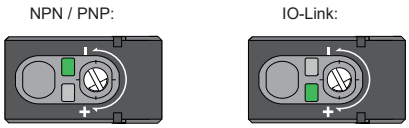
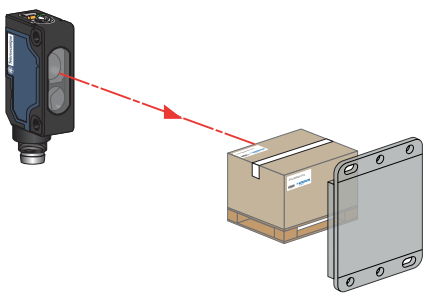
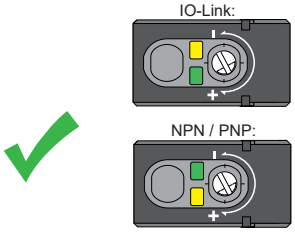
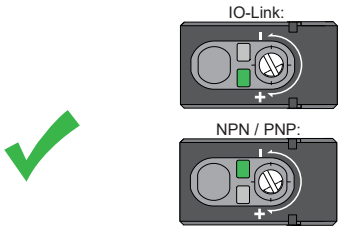


Dark-On / Normally Open (NO)	Light-On / Normally Closed (NC)
 The Output is OFF	 The Output is ON
 The Output is ON	 The Output is OFF

Sensor sensitivity adjustment

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

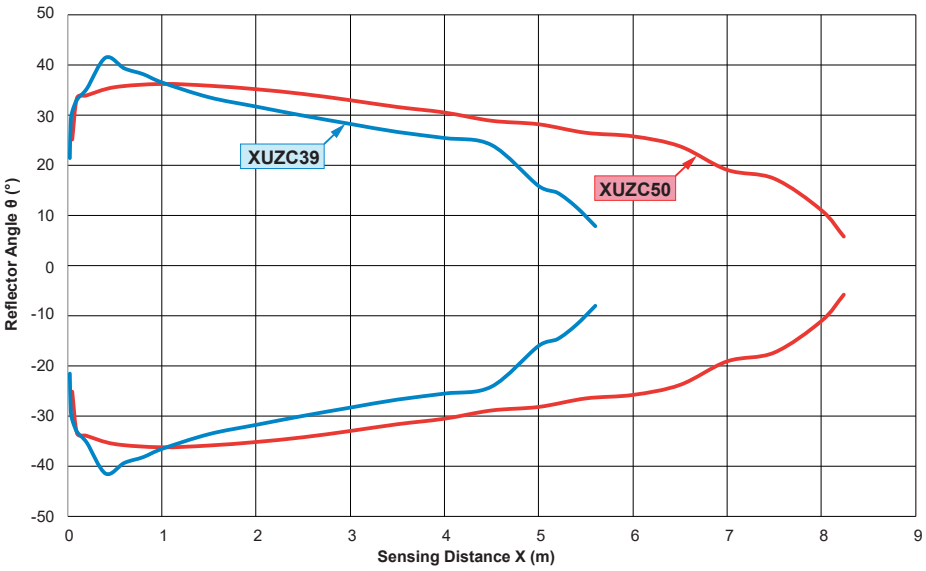
Note: For interference video, scan the code in the first page

	Dark-On / Normally Open (NO)	Light-On / Normally Closed (NC)
	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). 
	2-Put the reflector in front of the sensor. Turn the potentiometer clockwise until the Output LED (yellow) switches off: the reflector is detected (resulting to point B).  Continue to turn the potentiometer clockwise until the Stability LED (green) switches on (resulting to point C). 	2-Put the reflector in front of the sensor. Turn the potentiometer clockwise until the Output LED (yellow) switches on: the reflector is detected (resulting to point B).  Continue to turn the potentiometer clockwise until the Stability LED (green) switches on (resulting to point C). 
	3-Put the object between the sensor and the reflector. Make sure the Output LED (yellow) switches on and the Stability LED (green) is on. This ensures a good stability of detection. The Sensor is set and ready to detect. 	3-Put the object between the sensor and the reflector. Make sure the Output LED (yellow) switches off and the Stability LED (green) is on. This ensures a good stability of detection. The Sensor is set and ready to detect. 

During the set up process, the output is acting as the yellow led

Detection curves

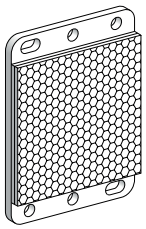
Angle - Polarized Retro-reflective XUM9

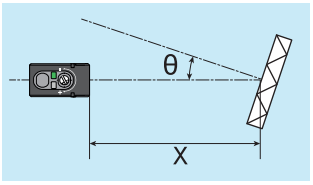


XUZC39

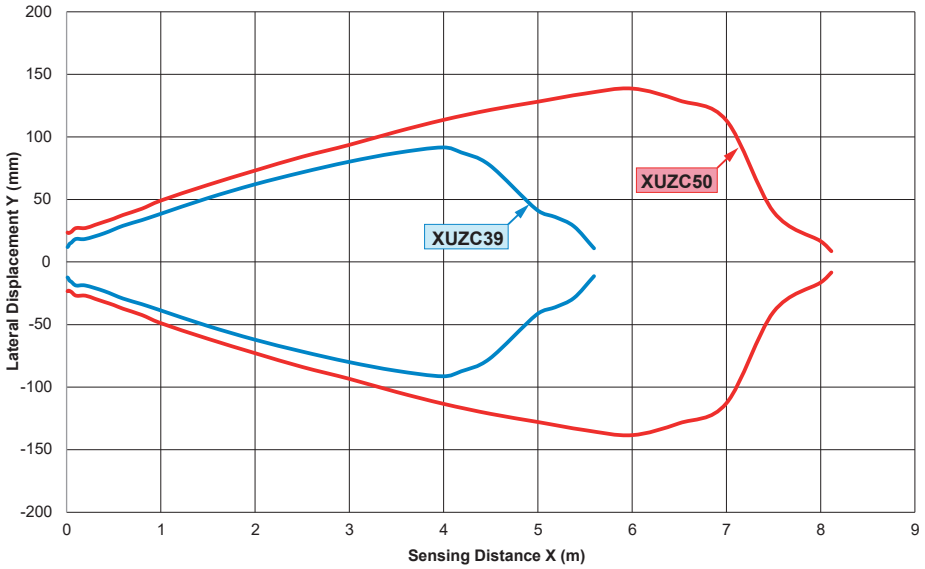


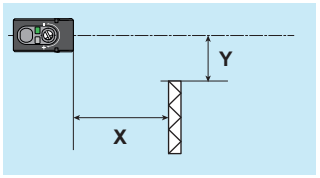
XUZC50



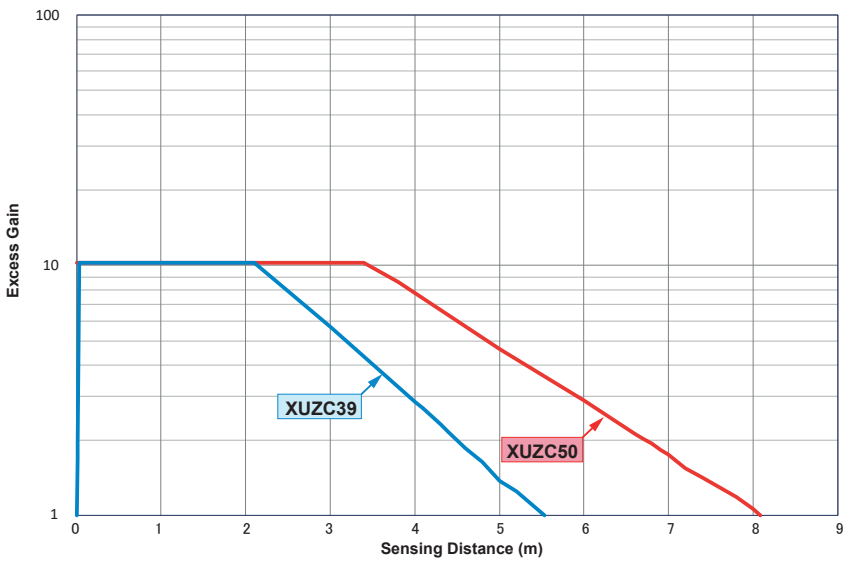


Lateral Displacement - Polarized Retro-reflective XUM9





Excess Gain - Polarized Retro-reflective XUM9



Characteristics

1 mm = *0.0394 in.*

Certification	CE - UKCA - cULus
Sensing Range (using a 50 mm x 50 mm reflector **XUZC50**) Excess gain = 1: Maximum sensing distance	8 m - excess gain = 1 6,7 m - excess gain = 2
Color of dectection light beam	Red
Blind zone	50 mm using a 50 mm x 50 mm reflector **XUZC50** (for the reflector - no blind zone for objects)
Sensing distance setting	Potentiometer 1 turn (~ 240 degrees)
Light-On/Dark-On selection	Switch (~ 120 degrees)
Output type	PNP / NPN or Autodetect PNP / NPN (with IO-Link)
ON Voltage drop	2 V max. (30 Vdc 100 mA) / 1,2 V max. (30 Vdc 10mA)
Current consumption	< 20 mA / IO-Link: <30mA
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 5 kHz - 2 kV 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**
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.
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**
Vibration resistance	Frequency range: 10 Hz to 500 Hz Acceleration: 9 g_n
Shock resistance	Peak acceleration: 100 g_n Duration of the pulse: 11 ms
Material	Housing: PBT, Lens: PMMA, Operation cover: PC, Adjustment potentiometer: PBT

Manufacturer :
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92400 Courbevoie
France

UK Representative :
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Harrogate, HG1 5PA
United Kingdom