

Photo-electric sensors - Miniature design



NPN: XUM4ANXB8
XUM5ANXB8
XUM6ANXB8

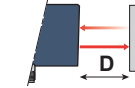
PNP: XUM4APXB8
XUM5APXB8
XUM6APXB8

IO-Link: XUM5APYB8
XUM6APYB8

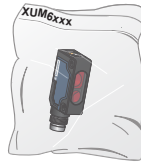
NPN: XUM4ANXBL2
XUM5ANXBL2
XUM6ANXBL2

PNP: XUM4APXBL2
XUM5APXBL2
XUM6APXBL2

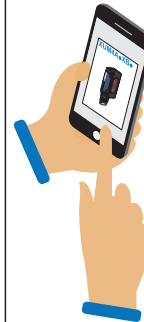
IO-Link



Diffuse

Package Content
(Example)

Model	Sensing distance D
XUM4A	0,25 m / 0.82 ft
XUM5A	1,9 m / 6.23 ft
XUM6A	1,1 m / 3.61 ft


<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.

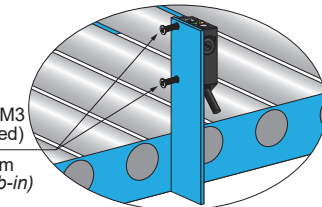
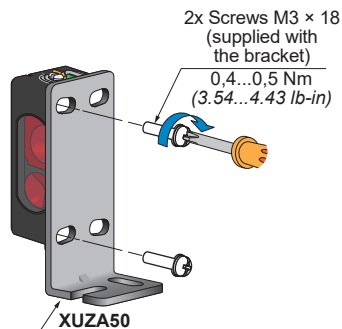
⚠ WARNING

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 XUM 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 XUM 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.).

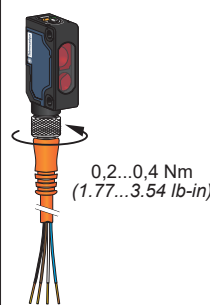
Failure to follow these instructions can result in death, serious injury, or equipment damage.

Mounting and tightening torques

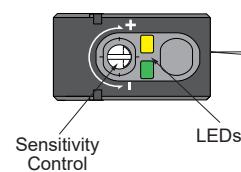


⚠ CAUTION

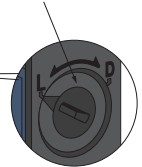
DEGREE OF PROTECTION DETERIORATION
Do not apply excessive tightening torque on the sensor during the installation process.
Failure to follow these instructions can result in injury or equipment damage.



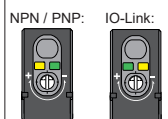
LEDs and settings



Light-On / Dark-On Setting

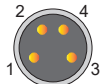


- Output LED (yellow)
- Stability LED (green)

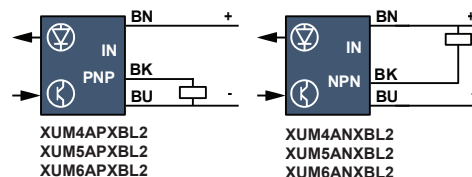
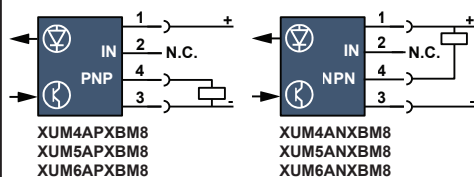


Wiring diagrams

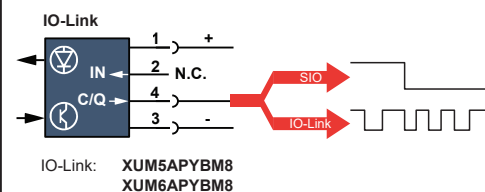
M8 Metal Connector - 4 pins



2 m Cable - 3 wires



N.C.: Not Connected



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

⚠ CAUTION

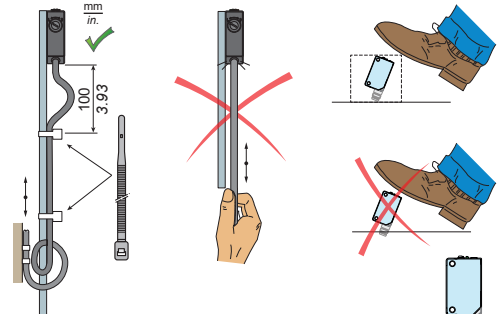
INOPERABLE EQUIPMENT DUE TO CYBER ATTACK ON IO-LINK

- 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/iolink> or
<https://ioddfinder.io-link.com/#/>

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

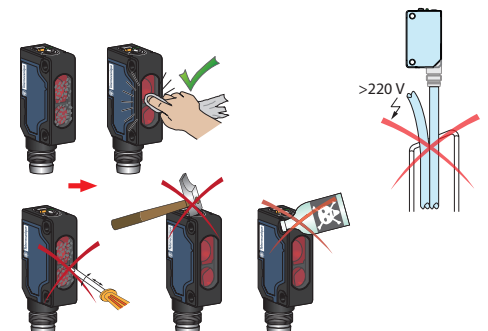
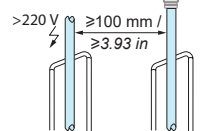
IO-Link data tables and IODD files are online : Scan the 2D code, above

Mounting, wiring and maintenance precautions



NOTICE

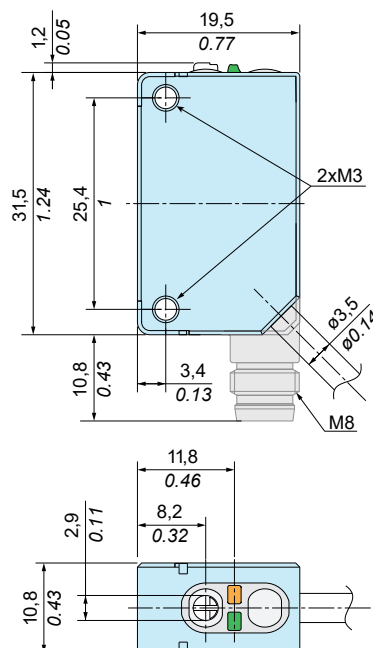
REDUCTION OF SERVICE LIFE
Do not pull on the sensor cable.
Failure to follow these instructions can result in equipment damage.



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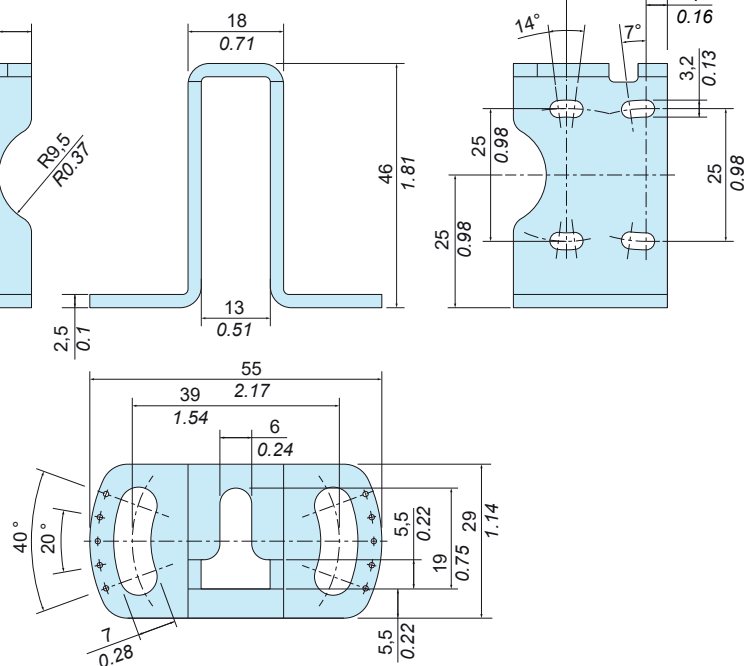
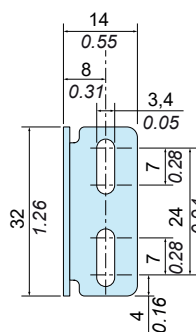
$$\frac{\text{mm}}{\text{in.}}$$

Technical drawing of the receiver-transmitter assembly (Fig. 1). The drawing shows a side view of the device. The receiver part is a light blue rectangular block with a central oval cutout. The transmitter part is a grey rectangular block at the bottom. Dimensions are given in mm. The total height is 19.2. The receiver height is 9.9, and the transmitter height is 7.2. The total width is 7.4. The receiver width is 0.76, and the transmitter width is 0.29. The receiver has a 0.39 offset from the top edge to the center of the oval cutout. The transmitter has a 0.28 offset from the bottom edge to the center of the oval cutout. The transmitter has a wavy line on its front face, indicating a flexible or moving part. Labels 'Receiver' and 'Transmitter' point to their respective parts.



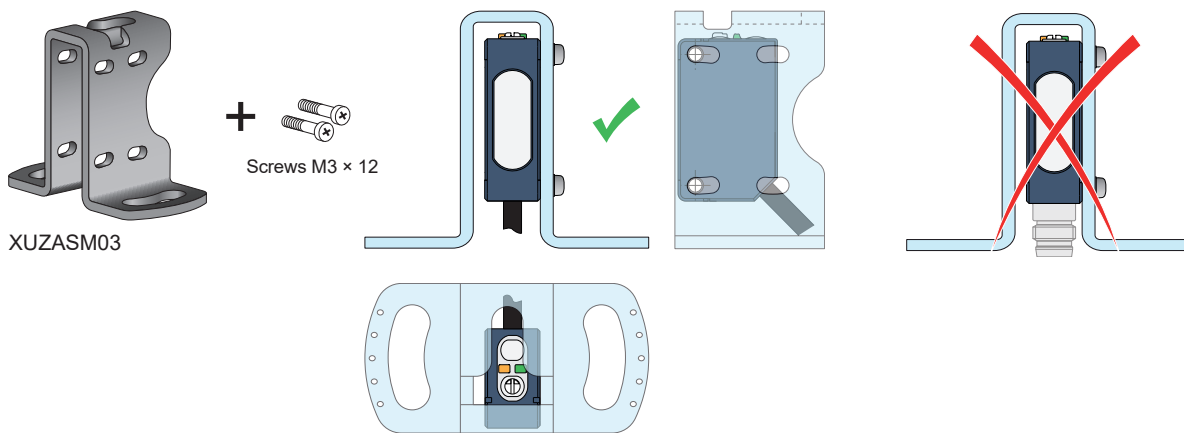
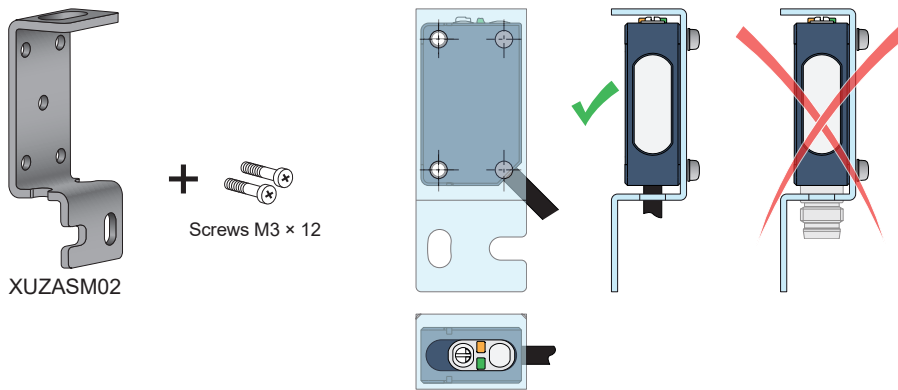
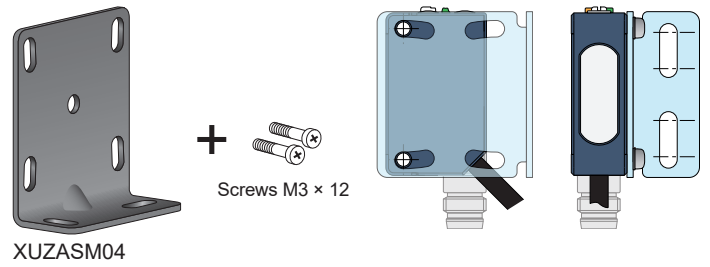
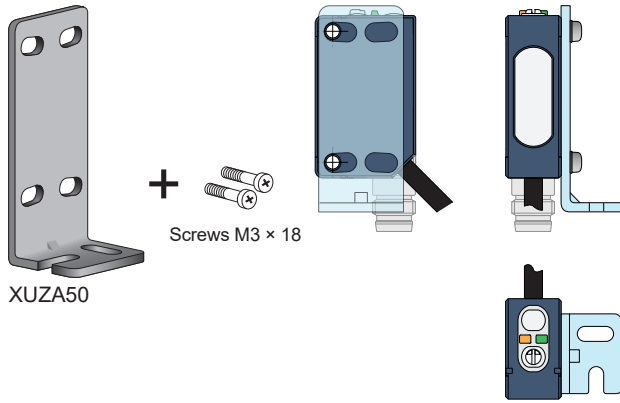
Technical drawing of a rectangular plate with the following dimensions and tolerances:

- Overall width: 30
- Overall height: 25.4
- Top edge features:
 - Left side: 1.18 (width), 0.13 (height), 0.2 (radius)
 - Right side: 25 (width), 0.98 (height), 0.28 (radius)
- Bottom edge features:
 - Left side: 5 (width), 10° (angle), 0.2 (radius)
 - Right side: 7 (width), 1.2 (height), 0.05 (radius)
- Internal features: Four circular holes, each with a diameter of 1.0.



Accessories

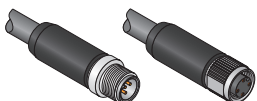
Mounting brackets (to order separately)



Pre-wired connectors (examples)

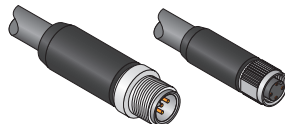
PVC cable for general use. PUR cable for severe industrial environments.

Jumper



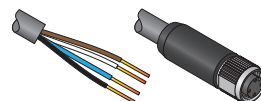
M8 - 4 pins plug
M8 - 4 pins socket
XZCR2609P2Y1 1m PUR
XZCR2609P2Y2 2m PUR

Jumper



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

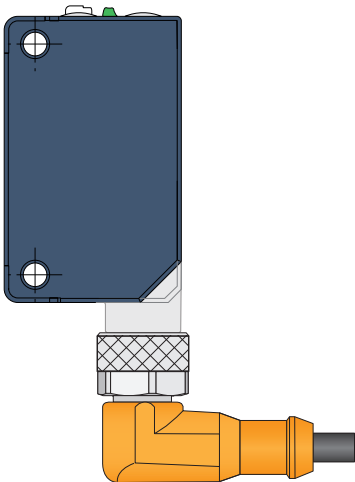
Cable



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

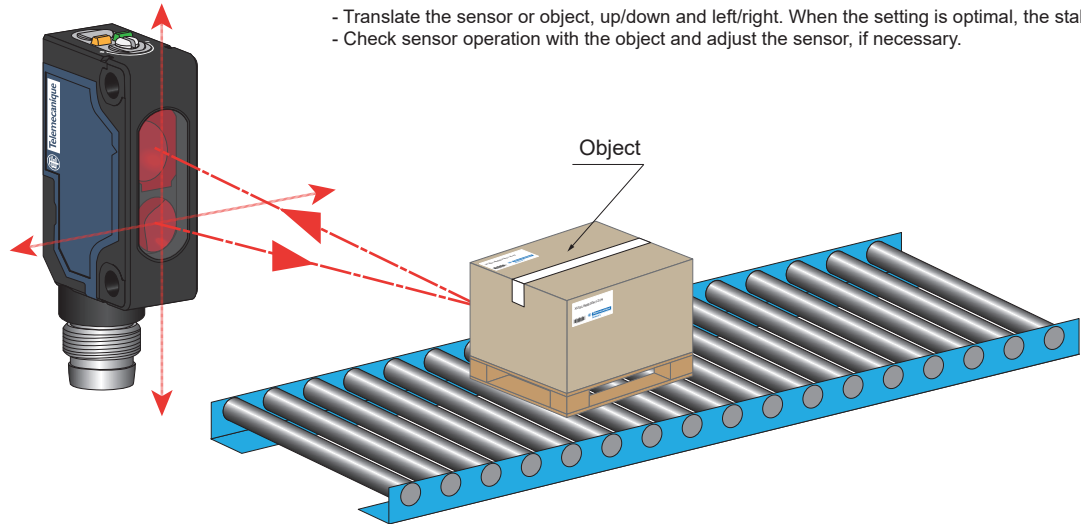
Other cable references are available in our online catalog. Please visit our website at: www.telemecaniquesensors.com
Or you can ask us through the customer support page on your local website.

Cable direction with angled connector

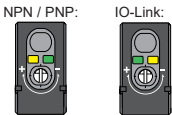
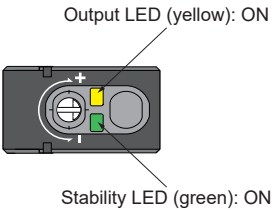


Sensors position adjustment

- 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.

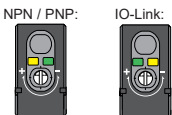
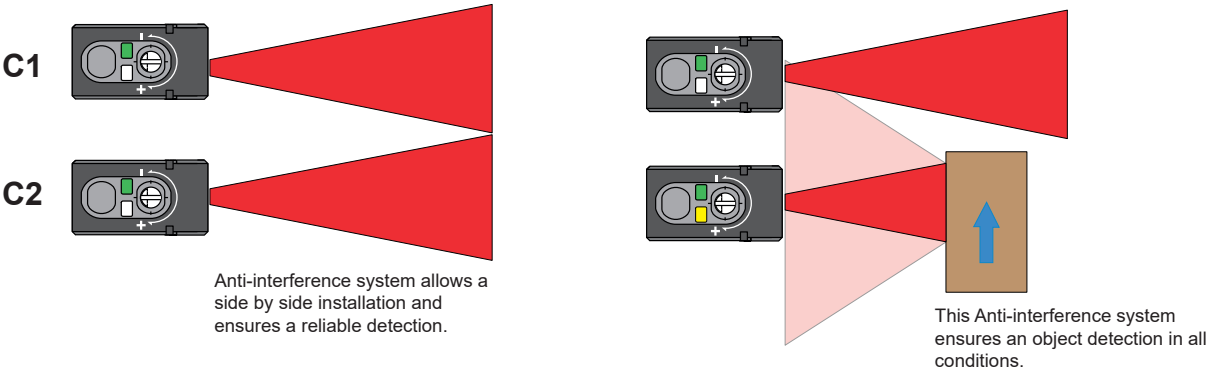


LED status with LO output function



Anti-interference for side by side mounting

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

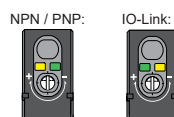
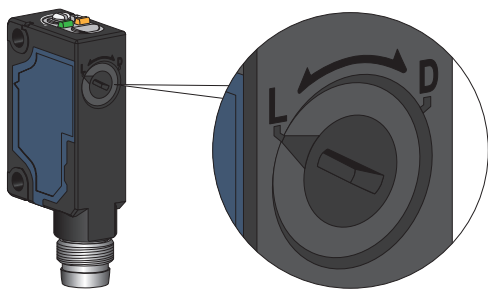


Diagnostic LEDs

¹: Only for IO-Link version

		LED	Description	Corrective Action
 NPN / PNP:	Output LED (yellow)	1 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.
 IO-Link:	Stability LED (green)	ON	Sensor output is ON	-
		OFF	Sensor output is OFF	-
		Dim	Inconsistent quality of detection	Check the sensor sensibility adjustment (See next page).
		Bright	Consistent quality of detection	-

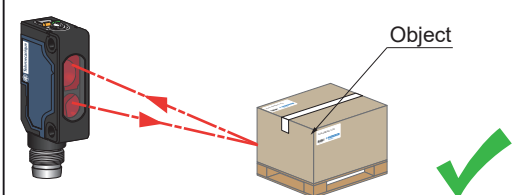
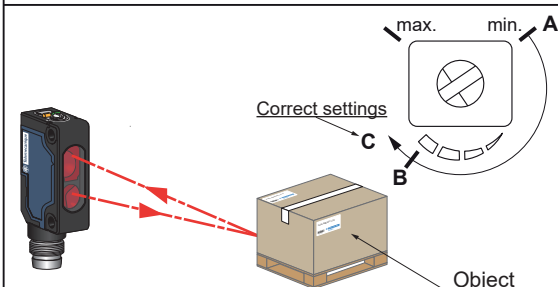
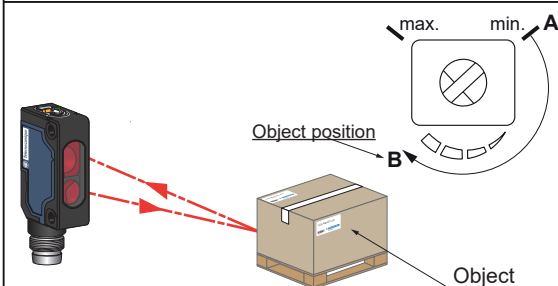
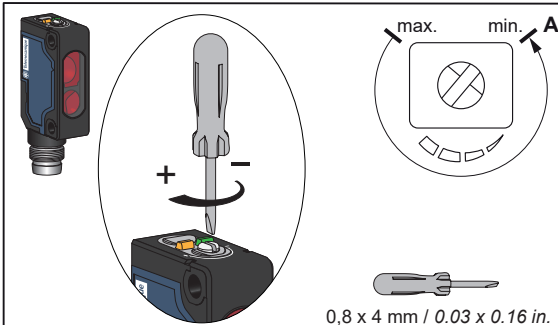
Output mode setting: Light-On or Dark-On (Light-On by default)



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

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).

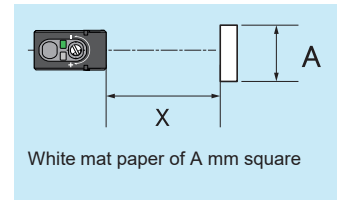
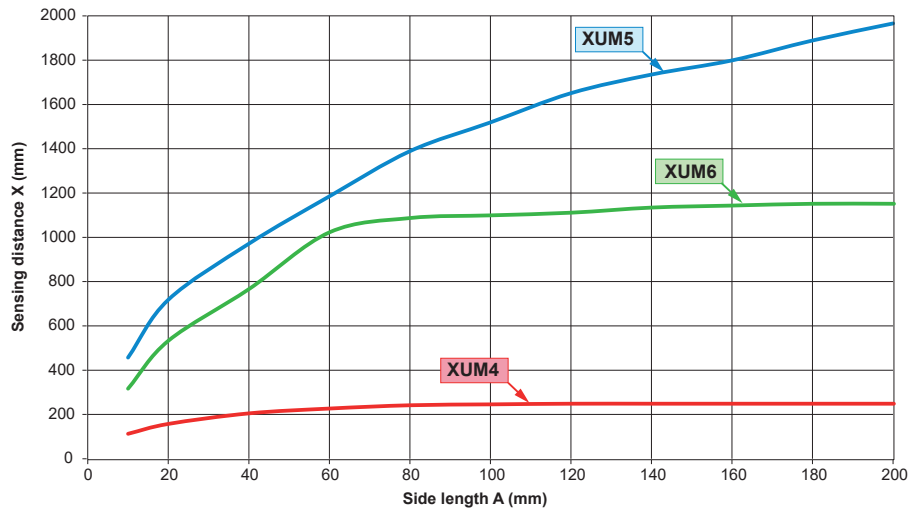


Light-On / Normally Open (NO)	Dark-On / Normally Closed (NC)
1-Connect the sensor to the power supply (see page 1 for the wire connection & page 7 for the power voltage). Before settings, start with the potentiometer at the minimum position (resulting to point A). NPN / PNP: IO-Link:	1-Connect the sensor 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 maximum position (resulting to point A). NPN / PNP: IO-Link:
2-Put the object in front of the sensor. Turn clockwise the potentiometer until the output led (yellow) switches on (resulting to point B). NPN / PNP: IO-Link:	2-Put the object in front of the sensor. Turn clockwise the potentiometer until the output led (yellow) switches off (resulting to point B). NPN / PNP: IO-Link:
3-For a stable detection, turn the potentiometer clockwise until the stability led (green) switches on & the output led (yellow) remains on (resulting to point C). NPN / PNP: IO-Link:	3-For a stable detection, turn the potentiometer clockwise until the stability led (green) switches on & the output led (yellow) remains off (resulting to point C). NPN / PNP: IO-Link:
4-The Sensor is set and ready to detect NPN / PNP: IO-Link:	4-The Sensor is set and ready to detect NPN / PNP: IO-Link:

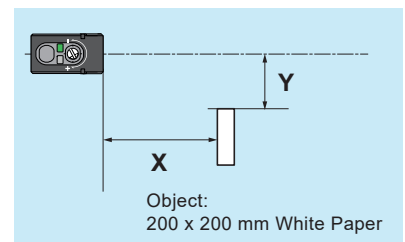
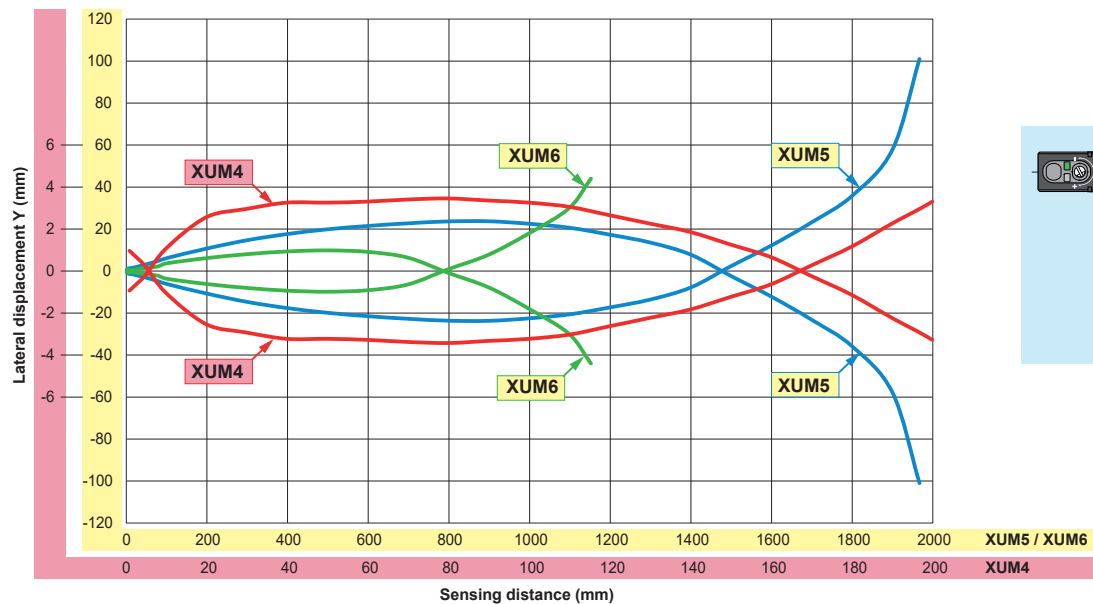
Detection curves

1 mm = 0.0394 in.

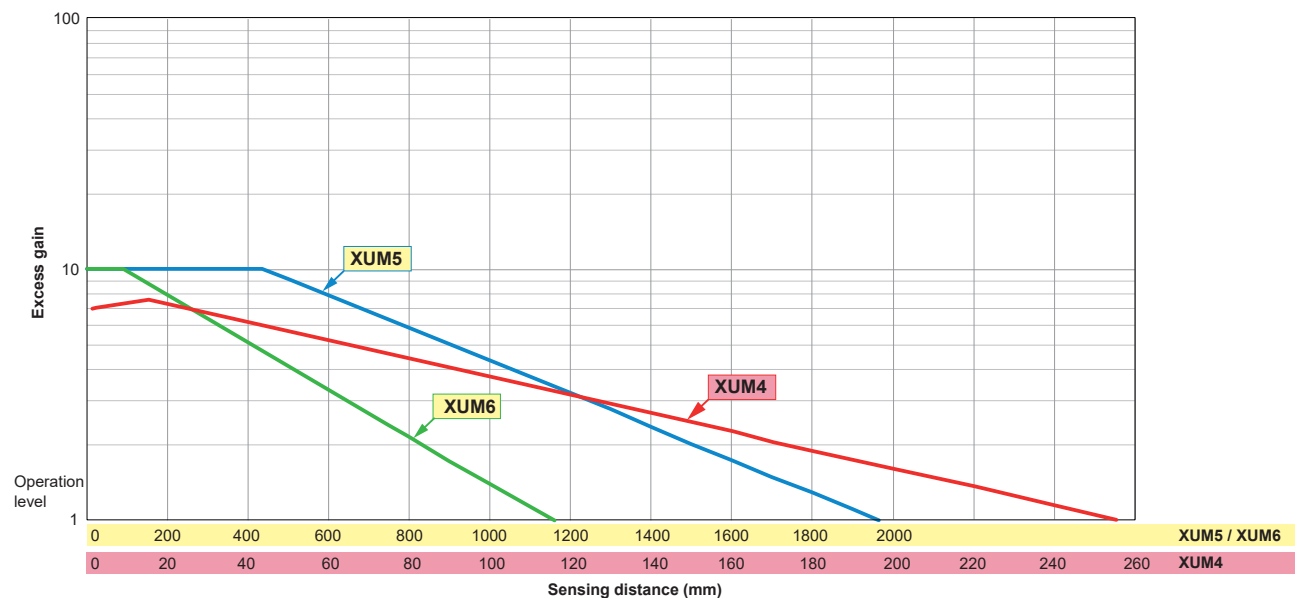
XUM4: Diffuse reflective (0,25 m) - Object size / Sensing distance
 XUM5: Diffuse reflective (1,9 m) - Object size / Sensing distance
 XUM6: Diffuse reflective (1,1 m) - Object size / Sensing distance



XUM4: Diffuse reflective (0,25 m) - Lateral displacement
 XUM5: Diffuse reflective (1,9 m) - Lateral displacement
 XUM6: Diffuse reflective (1,1 m) - Lateral displacement



XUM4: Diffuse reflective (0,25 m) - Excess gain
 XUM5: Diffuse reflective (1,9 m) - Excess gain
 XUM6: Diffuse reflective (1,1 m) - 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)	XUM5: 1,9 m - excess gain =1 1,5 m - excess gain=2 XUM6: 1,1 m - excess gain =1 0,8 m - excess gain=2 XUM4: 0,25 m - excess gain =1 0,17 m - excess gain=2
Color of detection light beam	XUM6: Red - XUM5 / XUM4: Infrared
Blind zone	XUM4 / XUM5 / XUM6: 10 mm
Hysteresis	2% < H < 20% (at most sensitivity, white paper)
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 < 30 mA
Switching capacity	100 mA
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 - 2kV 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 Ripple p-p 10% maximum Operating range: 10...30 Vdc (including ripple) 
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 EN/IEC 60529 IP69K conforming to DIN 40050-9 (only for M12 connector version)
Vibration resistance	Frequency range: 10 Hz to 500 Hz Acceleration: 9 g _r
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

