Photo-electric sensors - Miniature design

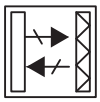




NPN - M8 Connector : **XUM9ANXBM8**
PNP - M8 Connector : **XUM9APXBM8**

NPN - 2 m Cable : **XUM9ANXBL2**
PNP - 2 m Cable : **XUM9APXBL2**

Polarised reflex



Package Content
(Example)





http://qr.tesensors.com/XU0007

Scan the Qr-code to access this Instruction Sheet in different languages or you can download it from our website at: **www.tesensors.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.

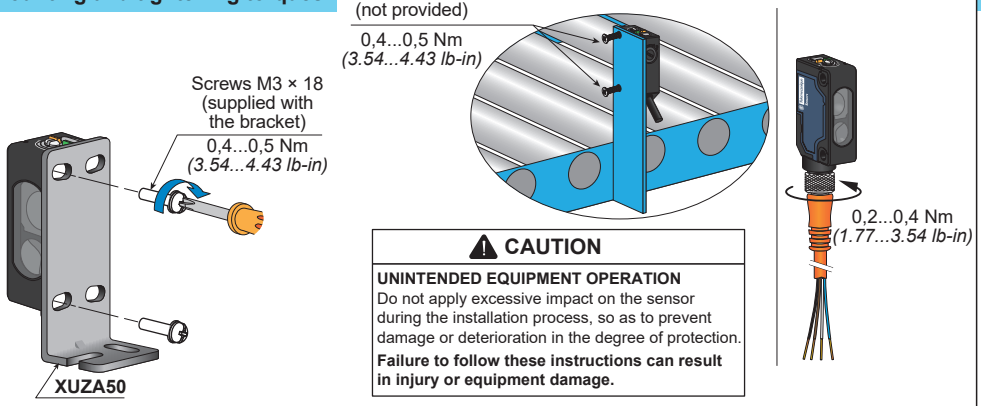
⚠ WARNING

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 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



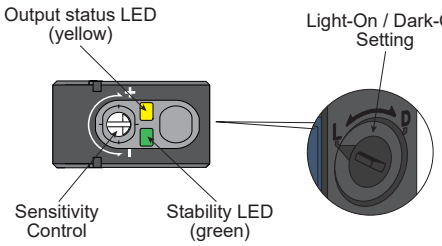
⚠ CAUTION

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.

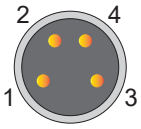
Failure to follow these instructions can result in injury or equipment damage.

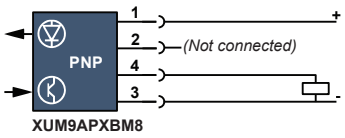
LEDs and settings



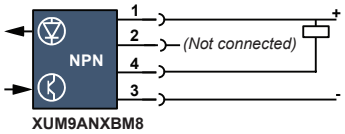
Wiring diagrams

M8 Connector - 4 pins





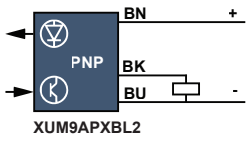
XUM9APXBM8



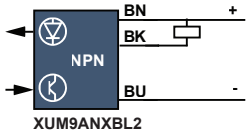
XUM9ANXBM8

2 m Cable - 3 wires



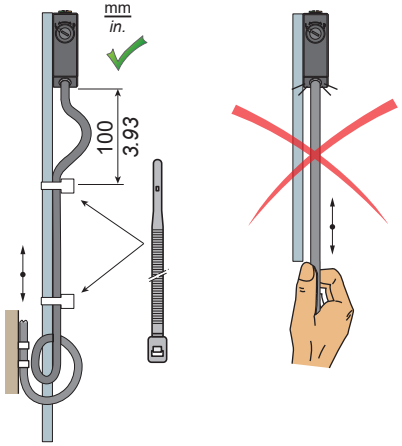


XUM9APXBL2



XUM9ANXBL2

Wiring precaution



NOTICE

UNINTENDED EQUIPMENT OPERATION

Do not pull on the sensor cable so as to prevent damage or deterioration in the degree of protection

Failure to follow these instructions can result in equipment damage.

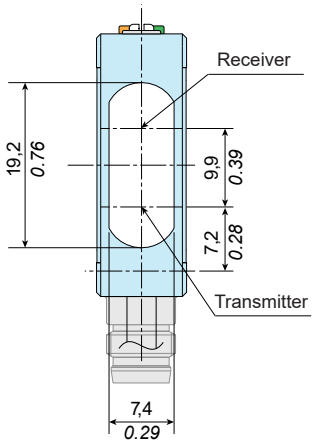
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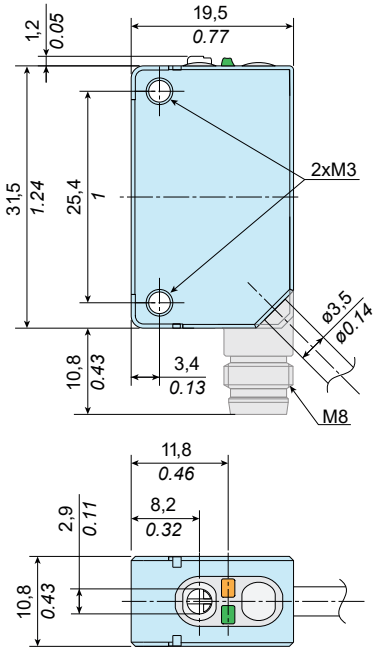
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Dimensions

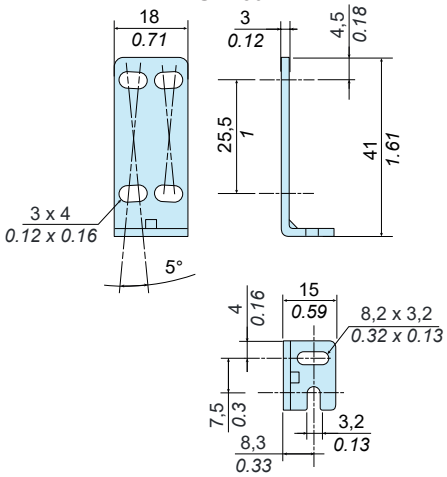
mm / in.

1 mm = *0.0397 in.*

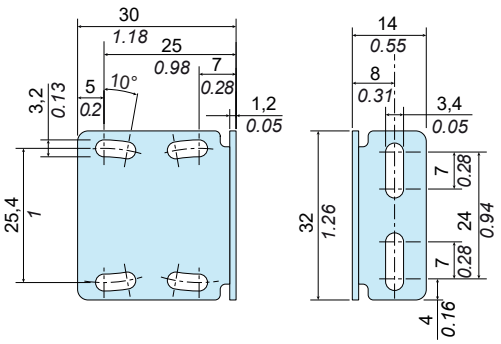




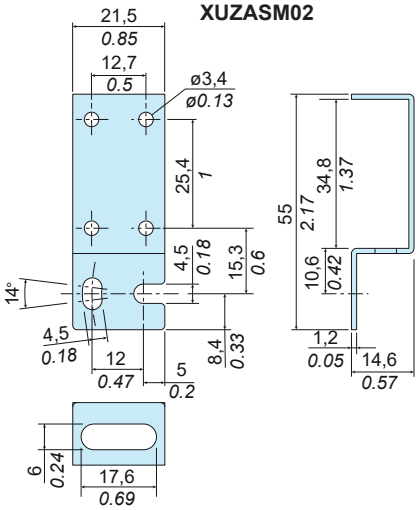
XUZA50



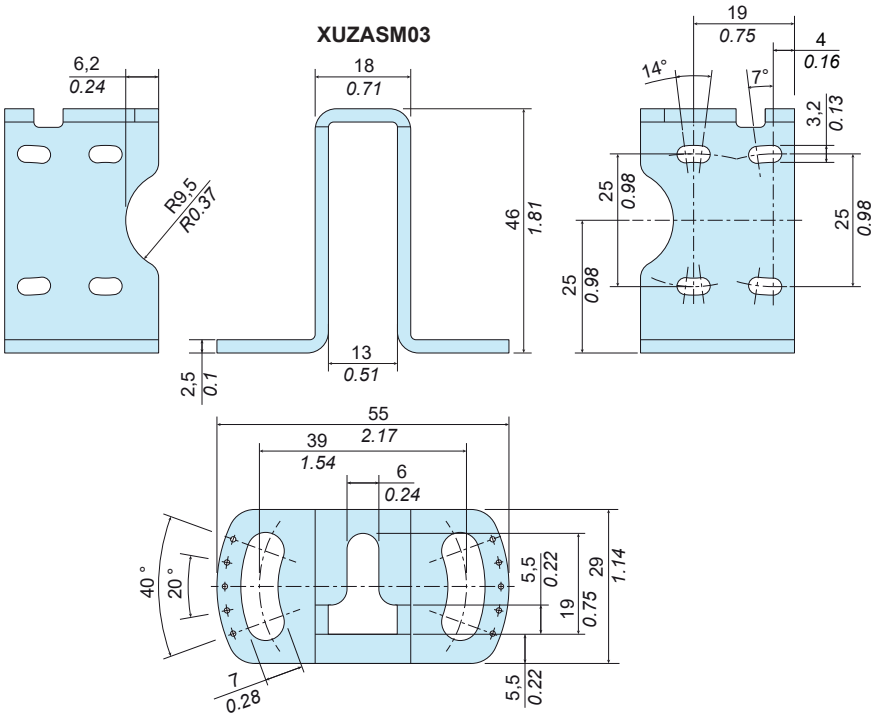
XUZASM04



XUZASM02

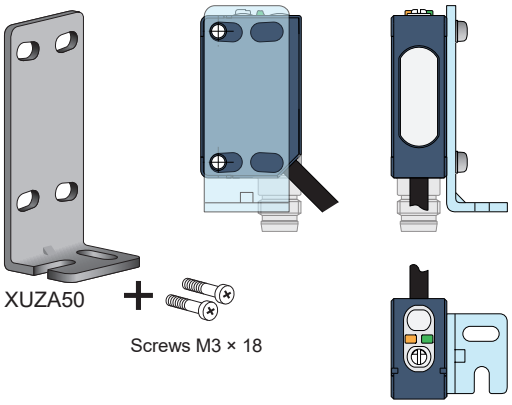


XUZASM03

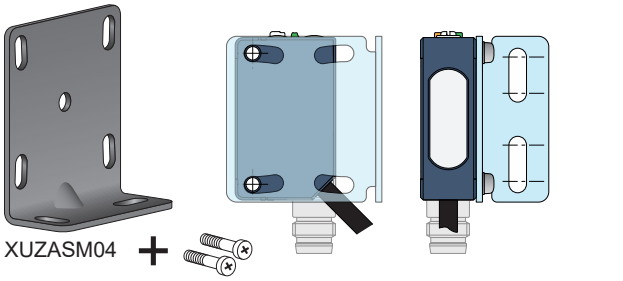


Accessories

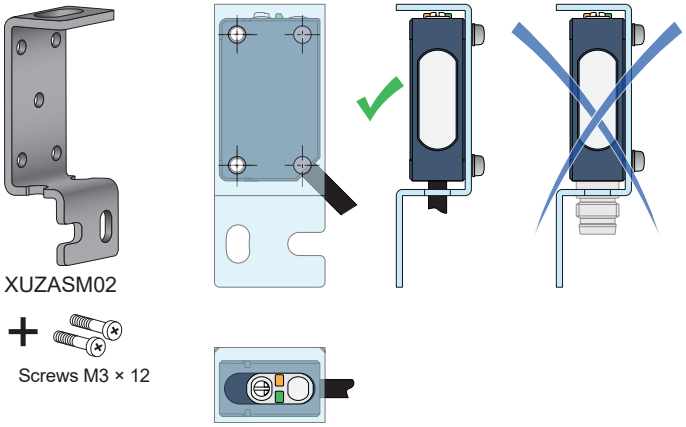
Mounting Brackets (to order separately)



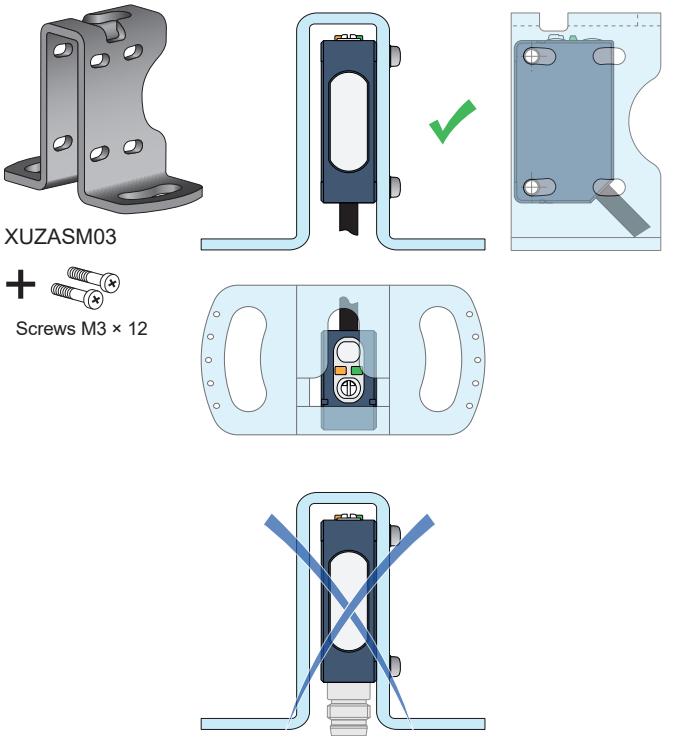
XUZA50 + Screws M3 × 18



XUZASM04 + Screws M3 × 12



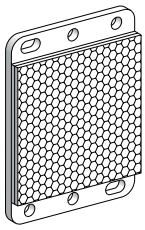
XUZASM02 + Screws M3 × 12



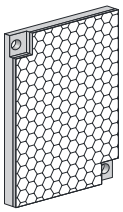
XUZASM03 + Screws M3 × 12

Reflector examples (to order separately)

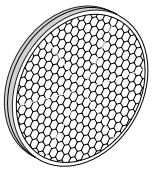
XUZC50



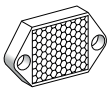
XUZC60S11



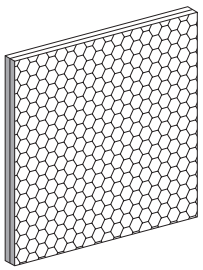
XUZC39



XUZC24



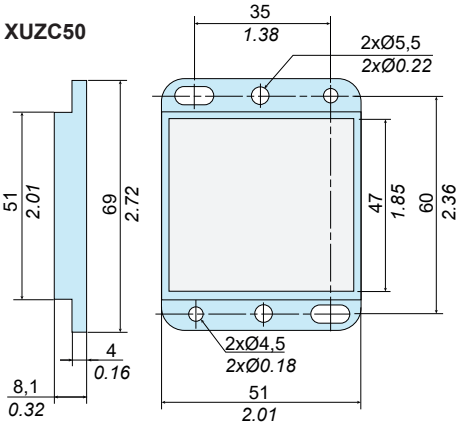
XUZC100



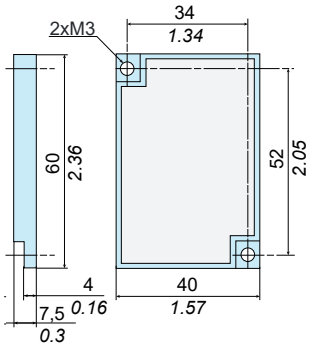
Reflectors Dimensions

mm
in.

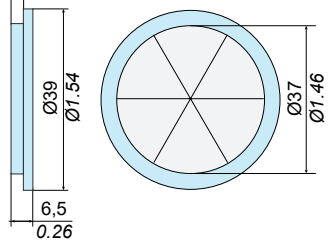
XUZC50



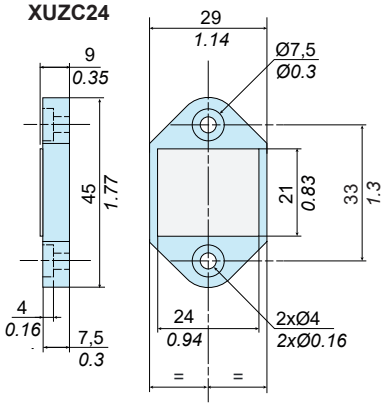
XUZC60S11



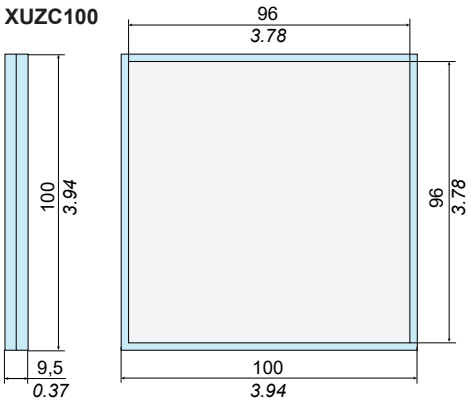
XUZC39



XUZC24

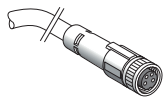
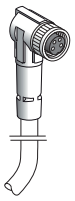
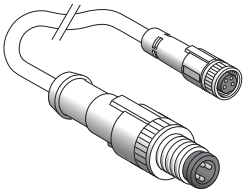
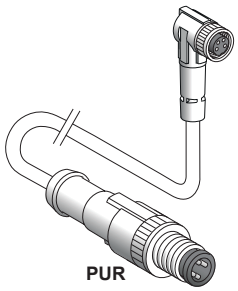


XUZC100

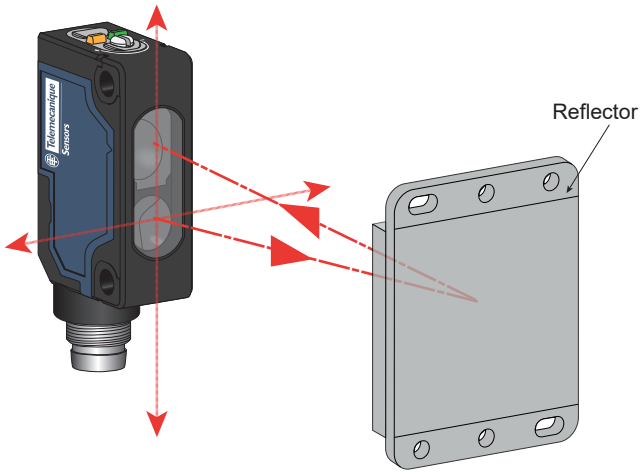


Pre-Wired connectors (examples)

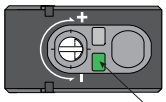
PVC cable for general use
PUR cable for severe industrial environments

M8, 4 pins					M8 - M12, 4 pins		
Cable length	**PVC**	**PUR**	**PVC**	**PUR**	**Jumper length**	**PUR**	**PUR**
2 m / *6.56 ft.*	XZCPV0941L2	XZCP0941L2	XZCPV1041L2	XZCP1041L2	1 m / *3.28 ft.*	XZCR1509041J1	XZ CR1510041J1
5 m / *16.4 ft.*	XZCPV0941L5	XZCP0941L5	XZCPV1041L5	XZCP1041L5	2 m / *6.56 ft.*	XZCR1509041J2	XZCR1510041J2
10 m / *32.8 ft.*	XZCPV0941L10	XZCP0941L10	XZCPV1041L10	XZCP1041L10			

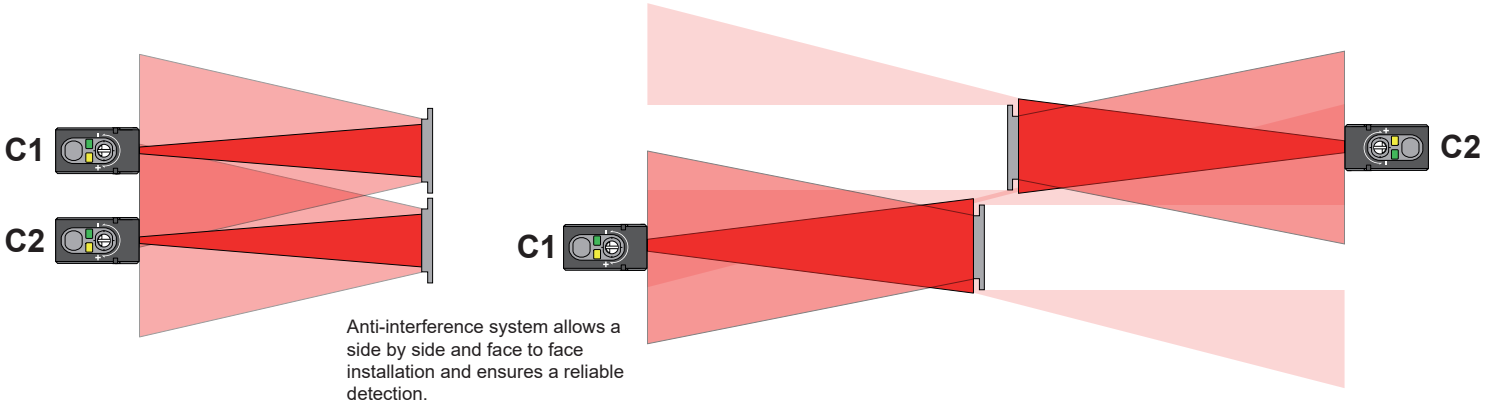
Sensor position adjustment



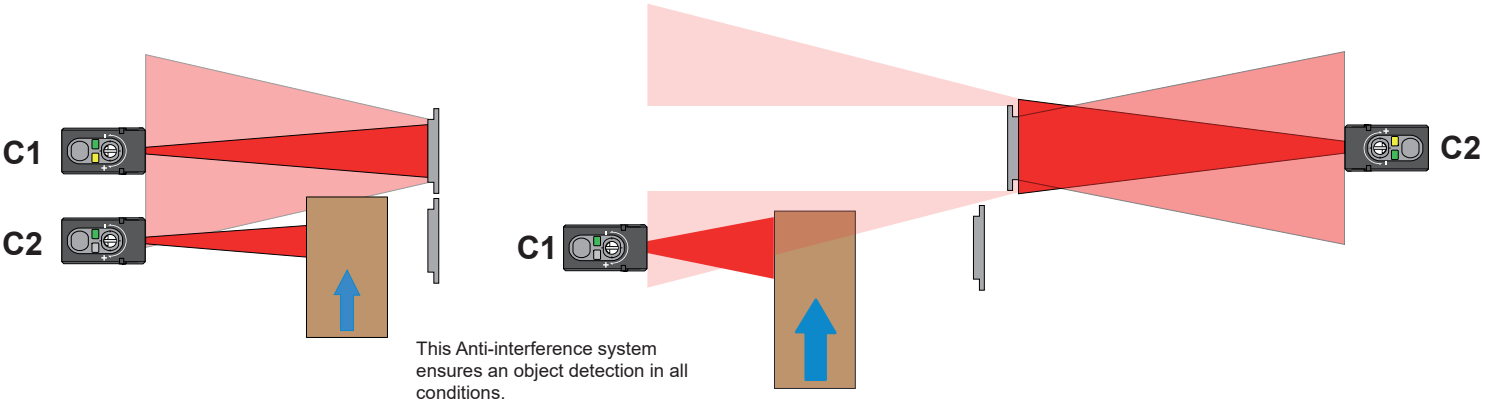
- Translate the sensor or reflector, up/down and left/right. When the setting is optimal, the stability indicator (green) is lit.
- Check sensor operation with the object and adjust the sensor, if necessary.



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

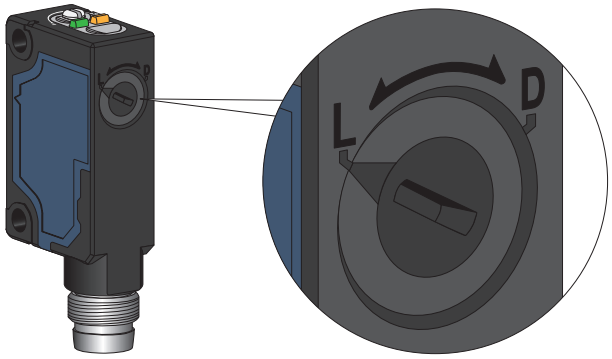


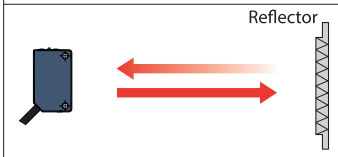
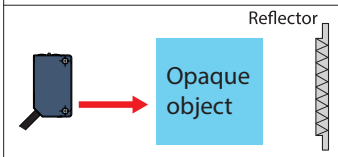
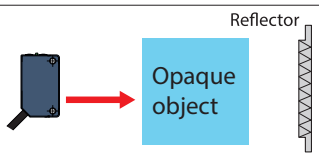
Anti-interference system allows a side by side and face to face installation and ensures a reliable detection.



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

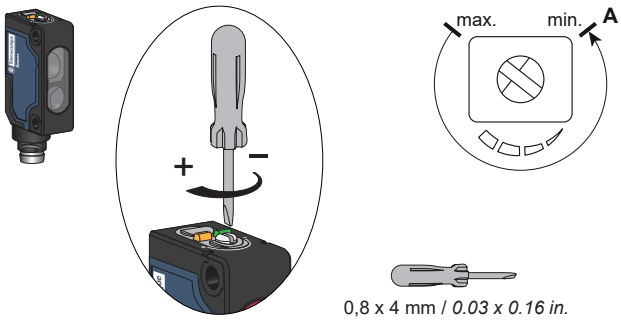
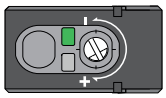
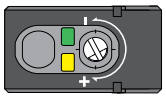
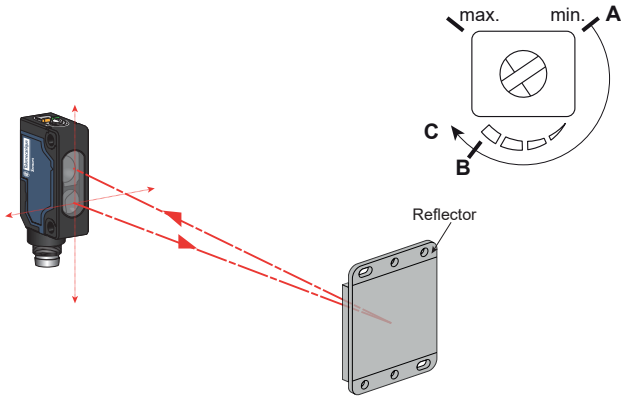
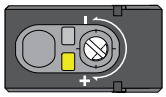
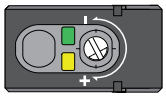
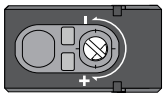
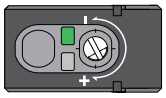
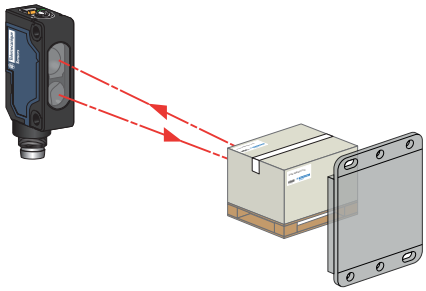
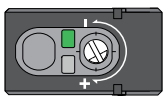
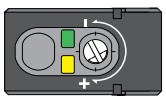
Output mode setting: Light-On or Dark-On (Light-On by default)



Light-On / Normally Closed	Dark-On / Normally Open
 The Output is ON	 The Output is OFF
 The Output is OFF	 The Output is ON

Sensor sensitivity adjustment

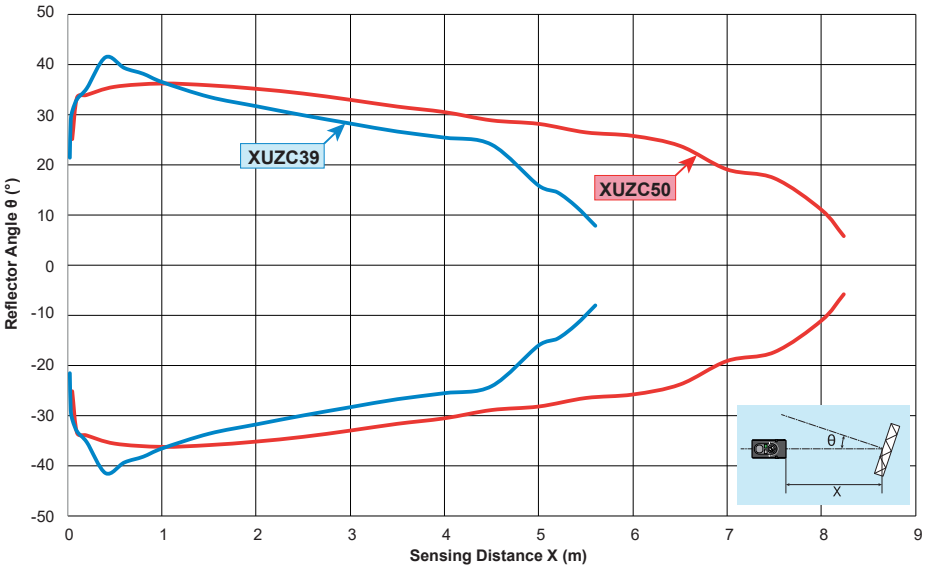
For accurate detection, follow the configuration below. (eg. Reflective objects, with holes or small size to obstruct the reflection of the light beam).

	Light-On	Dark-On
 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). 
	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). 	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). 
	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.  ✓	3-Put the object between the sensor and the reflector. Make sure the output led (yellow) switches on & the stability led (green) is on. This ensures a good stability of detection. The Sensor is set and ready to detect.  ✓

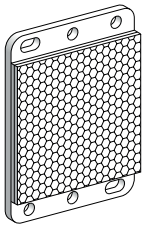
During the set up process, the output is acting as the yellow led

Detection curves

Angle - Polarized Retro-reflective XUM9



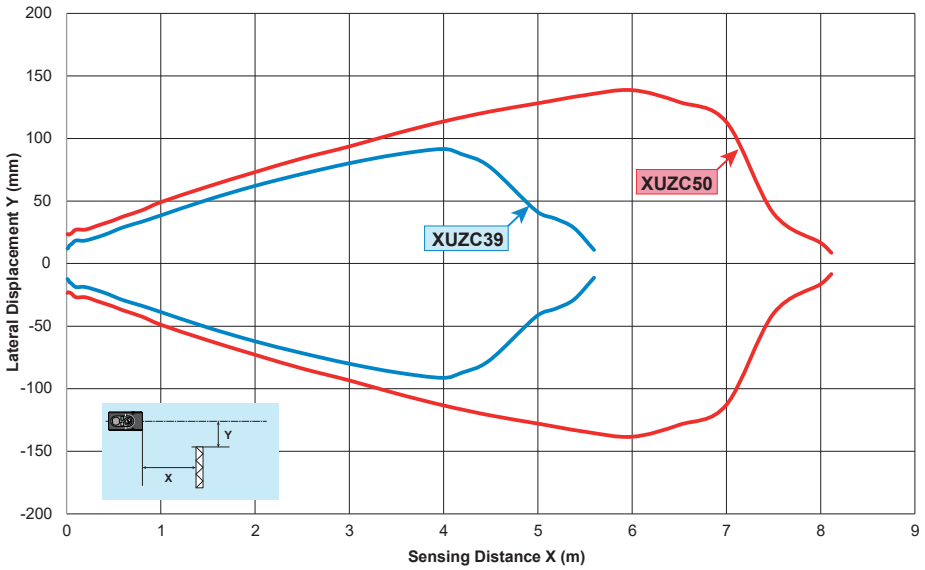
XUZC50



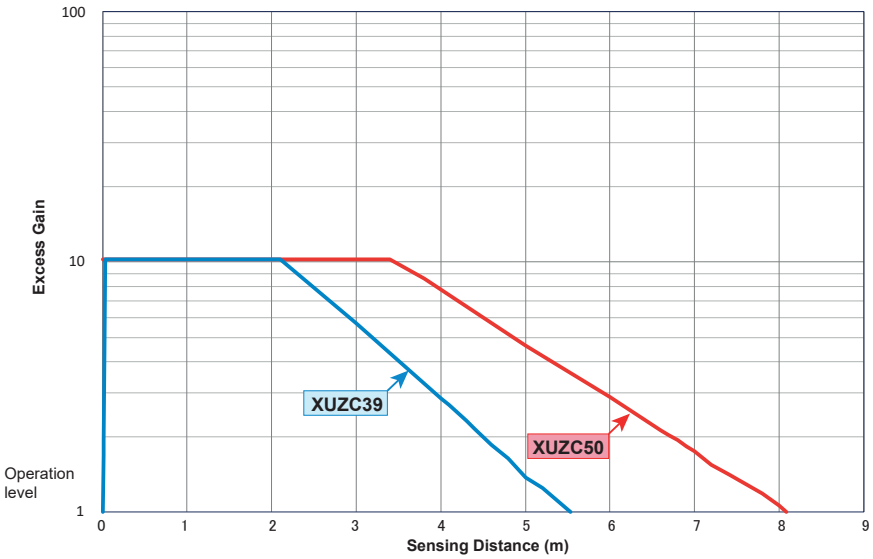
XUZC39



Lateral Displacement - Polarized Retro-reflective XUM9



Excess Gain - Polarized Retro-reflective XUM9



Characteristics

1 mm = *0.0397 in.*

Certification	CE - UKCA - cULus
Sensing Range (using a 50 mm x 50 mm reflector **XUZC50**) Excess gain = 1: Maximum sensing ditance	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	One open collector output, PNP or NPN
ON Voltage drop	2 V max. (30 Vdc 100 mA) / 1,2 V max. (30 Vdc 10mA)
Current consumption	< 20 mA max.
Switching capacity	100 mA
Response time	0,5 ms max.
Recovery time	0,5 ms max.
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 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 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	Operating atmosphere; Sunlight 40 kLx max. Incandescent light 10 kLx max. (at the receiver surface)
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**
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

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Manufacturer :
TMSS France
Tour Eqho, 2 avenue Gambetta
92400 Courbevoie – France

UK Representative :
YAGEO TMSS UK LIMITED
2 North Park Road
Harrogate, HG1 5PA, United Kingdom