

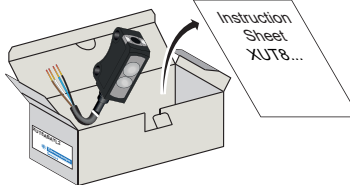
## Photo-electric sensors - Sub-miniature design



### Fixed Background suppression (BGS)



### Package Content (Example)



Scan the code to access this Instruction Sheet in different languages and all the product information or you can visit our website at: [www.tesensors.com](http://www.tesensors.com)

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## ⚠ 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.

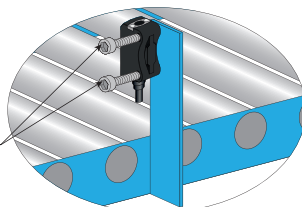
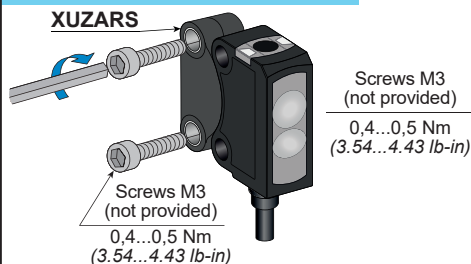
## ⚠ WARNING

### 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



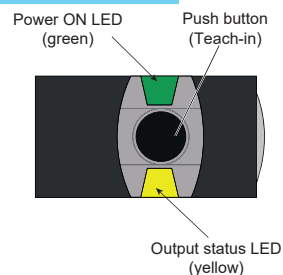
**⚠ CAUTION**

**DEGREE OF PROTECTION DETERIORATION**

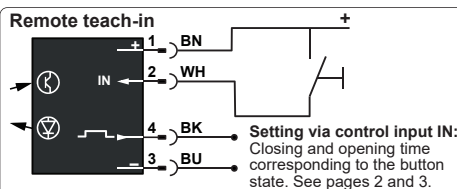
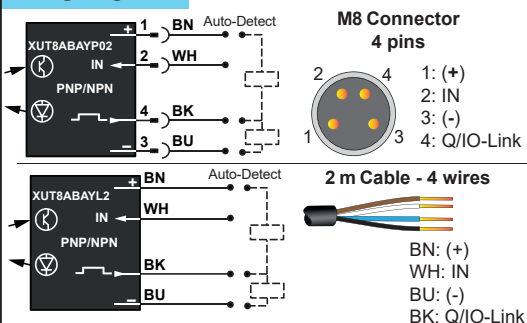
Do not apply excessive torque on the sensor during the installation process.

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

### LEDs and settings



### Wiring diagrams



**⚠ CAUTION**

**INOPERABLE EQUIPMENT DUE TO CYBER ATTACK ON IO-LINK**

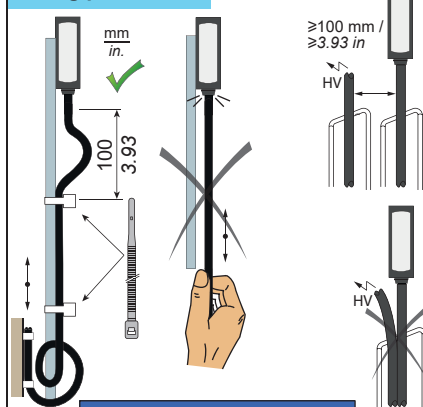
- Apply external cybersecurity protection on IO-Link Master device.
- Download IO-Link Description files only from these web servers: <https://tesensors.com/global/en/support/iolink> or <https://ioddfinder.io-link.com/#/>

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

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

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

### Wiring precaution



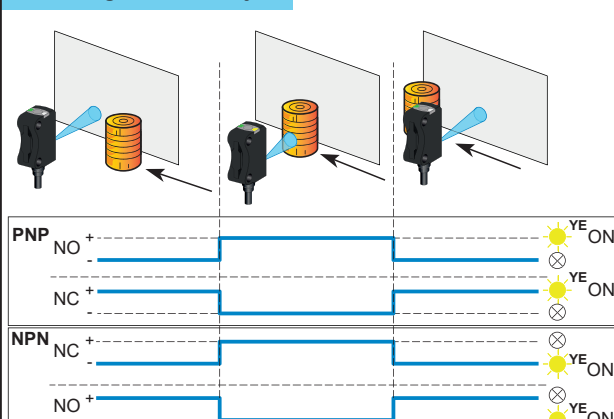
**NOTICE**

**REDUCTION OF SERVICE LIFE**

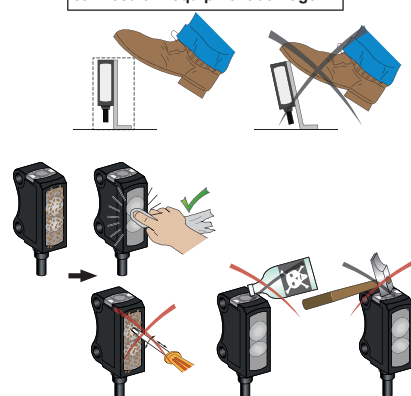
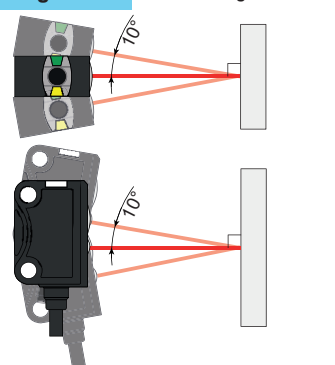
Do not pull on the sensor cable.

Failure to follow these instructions can result in equipment damage.

### Switching mode for object



### Alignment



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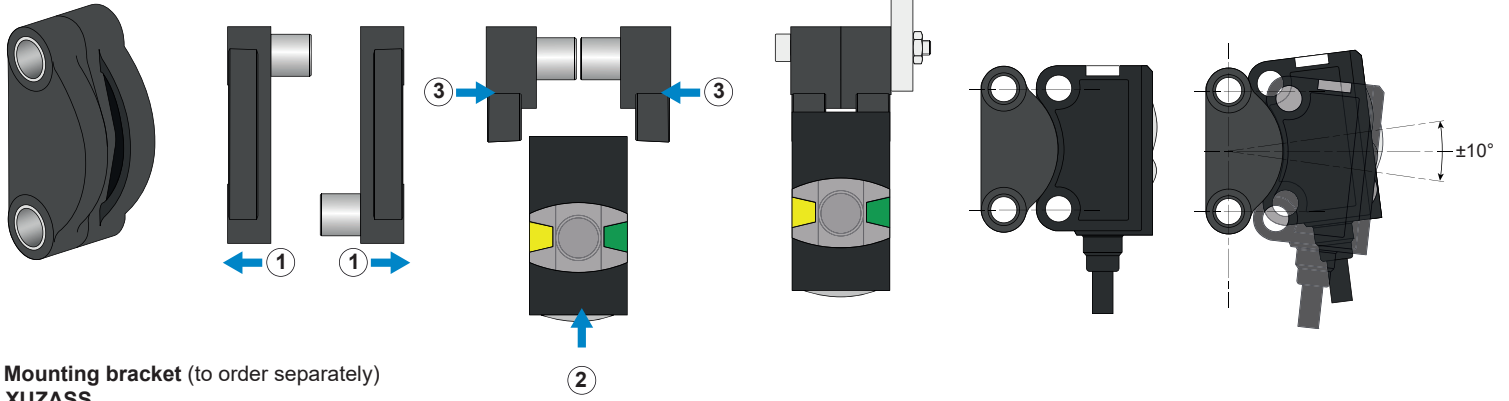


# XUT8ABAYP02 / XUT8ABAYL2

## Accessories

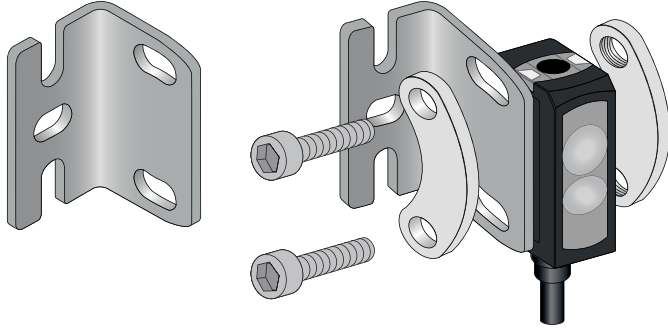
Dovetail clamp mounting (to order separately)

XUZARS



Mounting bracket (to order separately)

XUZASS



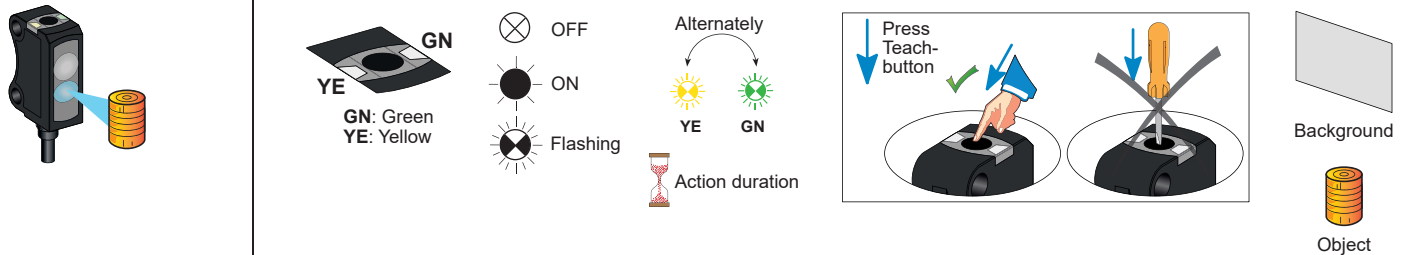
## Setting

The sensor has 3 different Teach-in modes:

**A-Standard Teach-in (STI):** is suited for nearly all applications. Setting is made on object and background (see illustration A).

**B-Object-Object Teach-in (OTI):** is suited for applications where the background cannot be taught in. Setting is made 2x on the object (see illustration B).

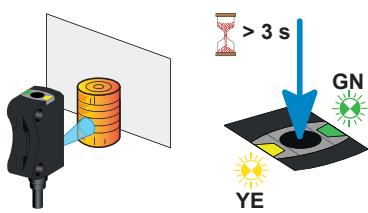
**C-Dynamic Teach-in (DTI):** is suited for setting the sensor in the running process, particularly for small objects (see illustration C).



### A Standard teach-in (STI)

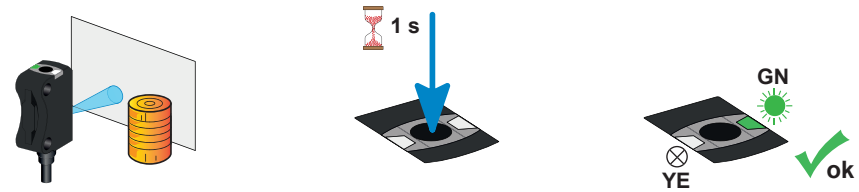
One point mode

Step 1: Teach-in object



Press teach button > 3 s  
The green and yellow LEDs flash at the same time.  
Release the button  
The green and yellow LEDs flash alternately.

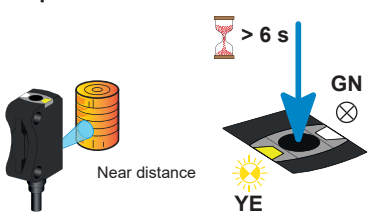
Step 2: Teach-in background



Press teach button 1 s  
The green LED is ON fixed and the yellow LED is OFF (no object detected)  
See the output graph in step D1

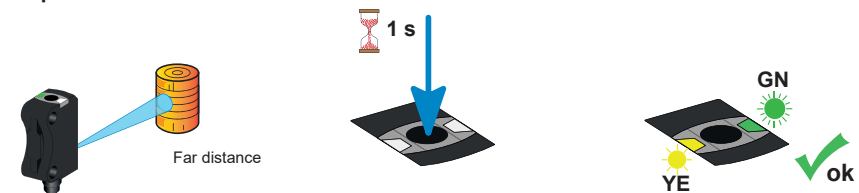
Window mode

Step 1: Teach-in near distance



Press teach button > 6 s  
until green LED OFF and yellow LED flashing.  
Release the button  
The green and yellow LEDs flash alternately.

Step 2: Teach-in far distance

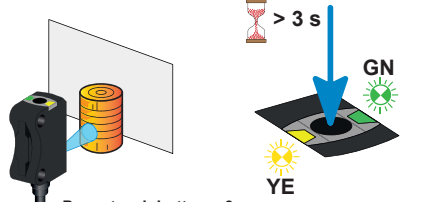


Press teach button 1 s  
The green LED is ON fixed and the yellow LED is ON (object detected)  
See the output graph in step D2

## B Object-Object Teach-in (OTI)

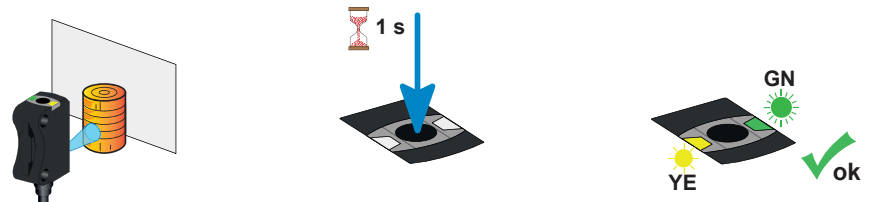
### One point mode

#### Step 1: Teach-in object



**Press teach button > 3 s**  
The green and yellow LEDs flash at the same time.  
**Release the button**  
The green and yellow LEDs flash alternatively.

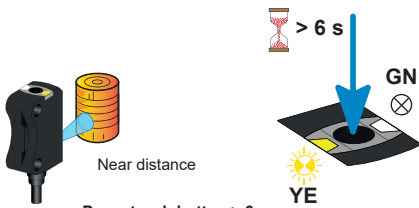
#### Step 2: Teach-in Object



**Press teach button 1 s**  
The green LED is ON fixed and the yellow LED is ON (object detected).  
See the output graph in step D1

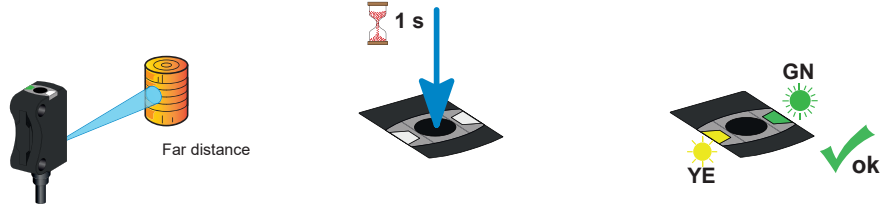
### Window mode

#### Step 1: Teach-in object (Teach 1)



**Press teach button > 6 s**  
until green LED OFF and yellow LED flashing.  
**Release the button**  
The green and yellow LEDs flash alternatively.

#### Step 2: Teach-in object (Teach 2)

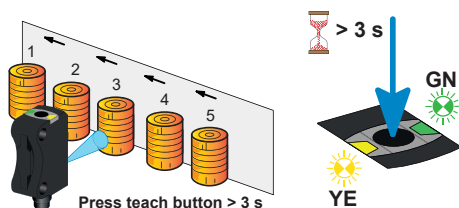


**Press teach button 1 s**  
The green LED is ON fixed and the yellow LED is ON (object detected)  
See the output graph in step D2

## C Dynamic Teach-in (DTI)

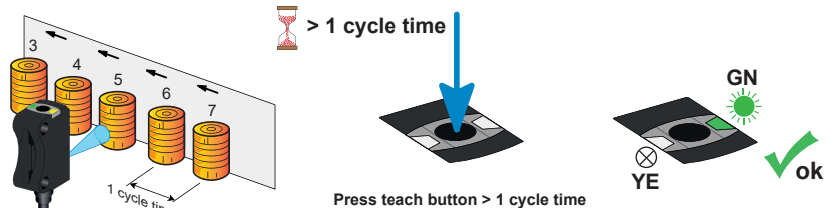
### One point mode

#### Step 1: During running process



**Press teach button > 3 s**  
The green and yellow LEDs flash at the same time.  
**Release the button**  
The green and yellow LEDs flash alternatively.

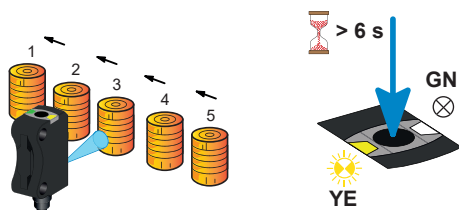
#### Step 2: Teach-in object during running process



**Press teach button > 1 cycle time**  
The green LED is ON fixed and the yellow LED is ON (object detected) or OFF (no object detected)  
See the output graph in step D1

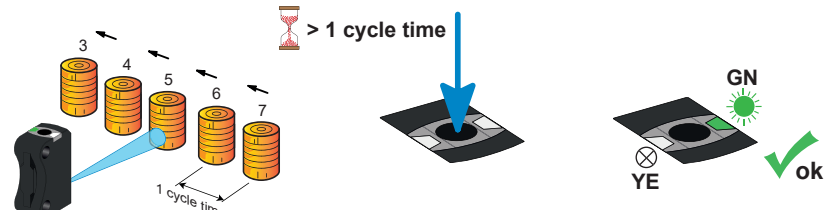
### Window mode

#### Step 1: During running process (Teach 1)



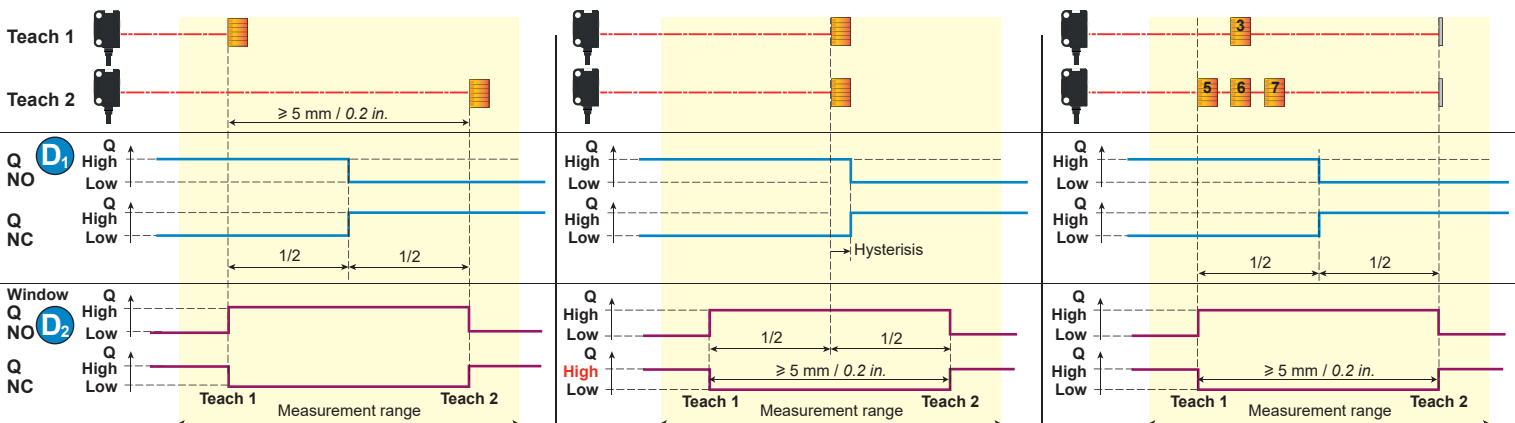
**Press teach button > 6 s**  
until green LED OFF and yellow LED flashing.  
**Release the button**  
The green and yellow LEDs flash alternatively.

#### Step 2: Teach-in object during running process (Teach 2)



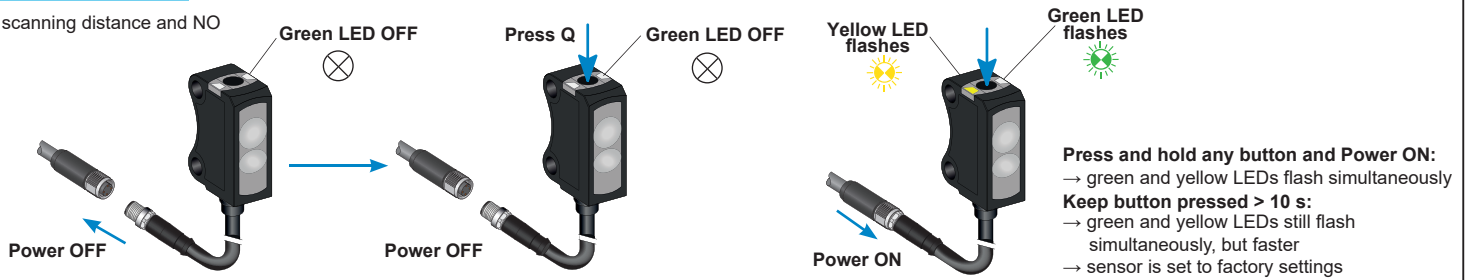
**Press teach button > 1 cycle time**  
The green LED is ON fixed and the yellow LED is ON (object detected) or OFF (no object detected)  
See the output graph in step D2

## D Setting modes

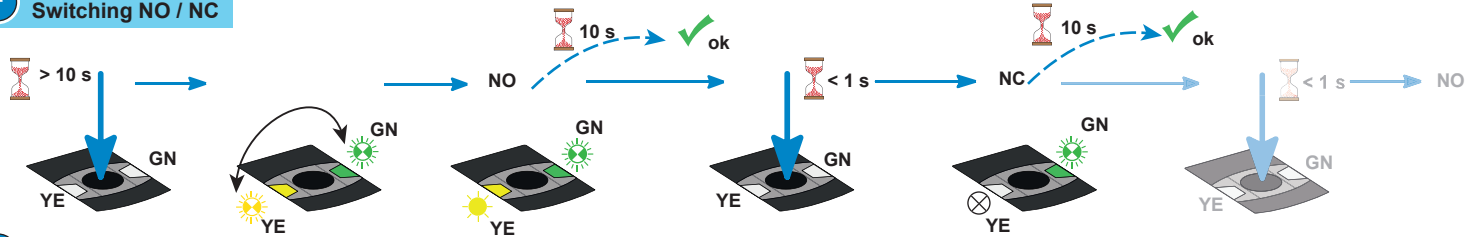


## E Factory Setting

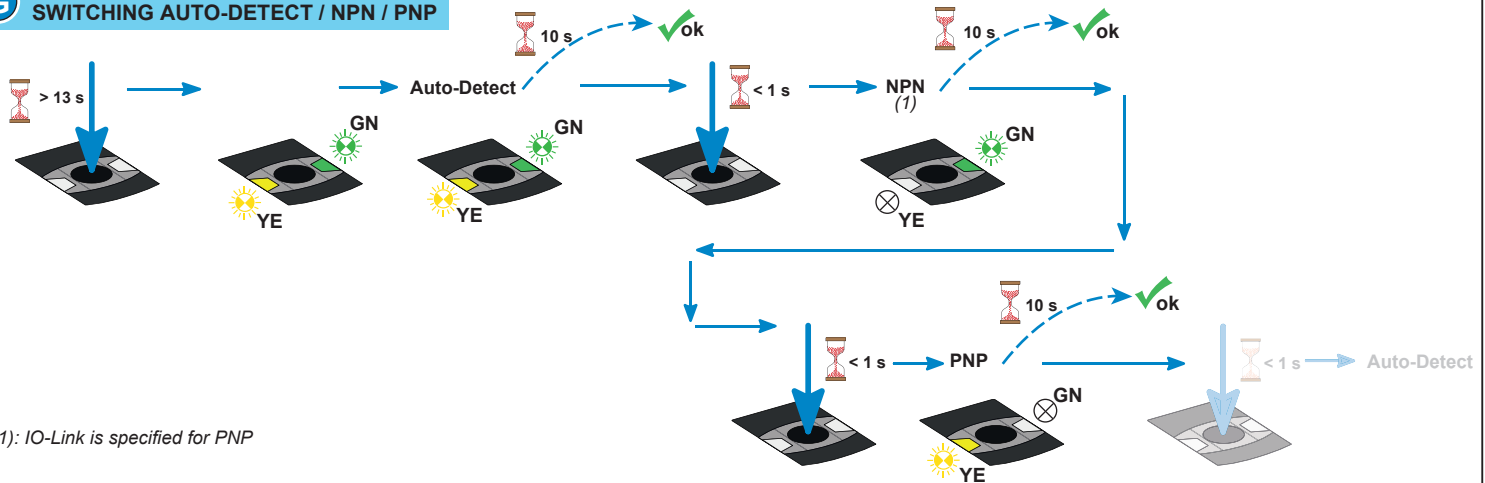
Max. scanning distance and NO



## F Switching NO / NC



## G SWITCHING AUTO-DETECT / NPN / PNP



## Characteristics

Certification	CE - UKCA - cULus - Ecolab
Sensing distance	3...100 mm / 0.12...3.94 in. (Reference material: white, 90 % reflectivity)
Adjustment range	10...100 mm / 0.39...3.94 in. (Reference material: white, 90 % reflectivity)
Hysteresis	≤ 1.2 mm (Reference material: white, 90 % reflectivity at max. sensing distance)
Detection light beam	LED, blue, 450 nm - Risk group 2 according to <b>EN62471</b>
Switching output Q	Auto-Detect - PNP/NPN (NO or NC) - IO-LINK
Control input IN (switching function Q):	(+) = teach-in / keylock / disabled (Adjustable via IO-Link, default: Teach-in) (-) = normal operation Open = normal operation
Current consumption	≤ 20 mA
Switching capacity	≤ 50 mA
Switching frequency	≤ 700 Hz
First-up delay	< 300 ms
Response time	700 μs
Recovery time	≤ 300 ms
Ambient Temperature	Operating : - 20...+60 °C (-4...+140 °F) - UL : - 20...+30 °C (-4...+86 °F) Storage : - 20...+80 °C (-4...+176 °F)
Power Voltage	Rated operational voltage: 24 Vdc Operating range: 13...30 Vdc (including ripple p-p 10% maximum)
Product protection	Power supply : Reverse polarity protection Output: Short circuit protection
Protection against electric shocks	<input type="checkbox"/> Protection class II
Degree of protection	IP67 conforming to <b>IEC 60529</b>
Vibration resistance	Conforming to <b>EN 60947-5-2</b>
Shock resistance	Conforming to <b>EN 60947-5-2</b>
Material	Housing: PUR, Front and Lens: PMMA



Risk group 2

### CAUTION

**EYE INJURY DUE TO HAZARDOUS OPTICAL RADIATION**

- Do not stare at the beam.
- Avoid any eye contact with the beam.

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

