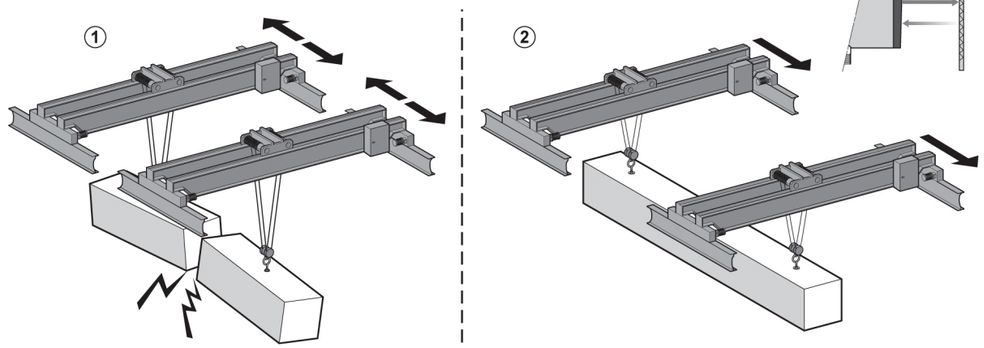
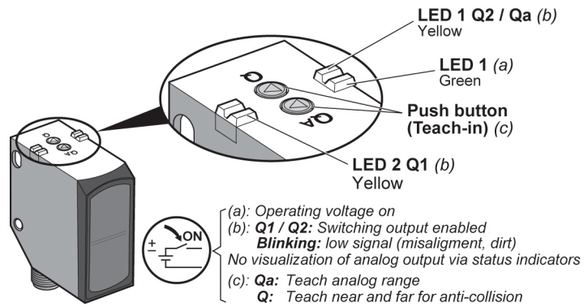
XUK9TAH2MM12 (50 x 23 x 50)

www.tesensors.com

XUK9TAH2MM12 IP 67 / IP 69K

Anti Collision (1) and Tandem Sensor (2) for Over-head Cranes.
Teach-in via external wire (IN) and Teach-in button on the device.





Push button (Teach-in)

Green
Yellow

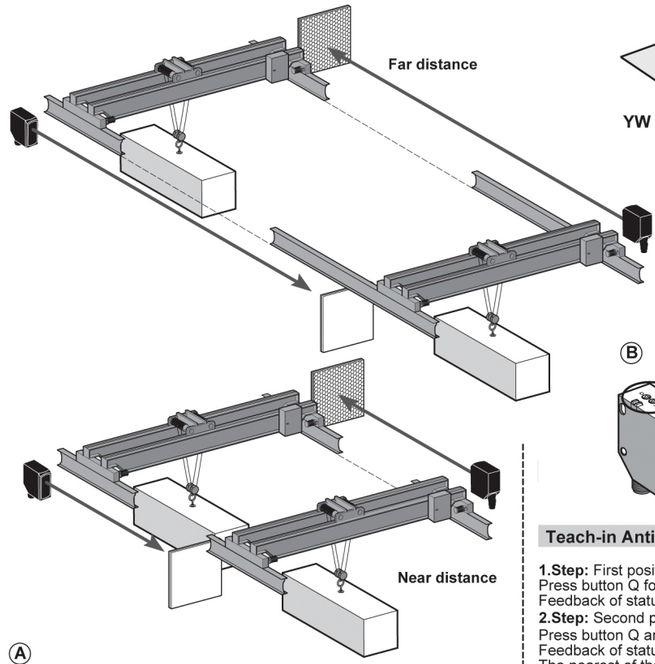
(a): Operating voltage on
(b): **Q1 / Q2:** Switching output enabled
Blinking: low signal (misaligment, dirt)
No visualization of analog output via status indicators
(c): **Qa:** Teach analog range
Q: Teach near and far for anti-collision

Technical data (typ.)

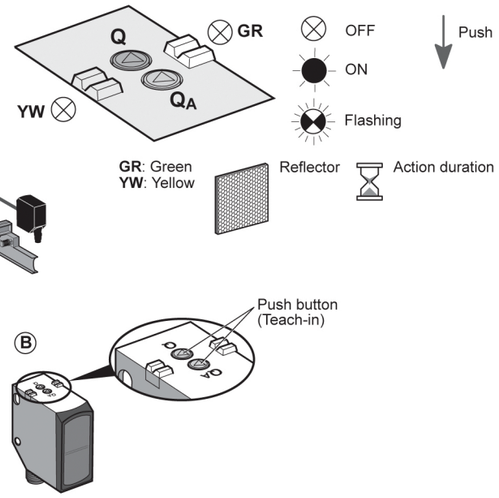
Measurement range:	0.3...70 m *0.98…230 ft*
Setting:	by push button or external wire (IN)
Light emitter / Used light:	Laser class 1, red, 650 nm
Size of light spot:	60 m : 120 mm
Wavelength Puls duration Frequency Limit of radiant power pulse	λ = 670 nm t = 0.8 µs f = 45 kHz Pp < 930 mW
Switching output:	PNP or NPN
Analog output Teachable only via button on the device	4…20 mA
Response time	≤ 10 ms
Power supply	⎓ 18 … 30 V
No-load supply current I0:	≤ 60 mA
Output current Ie **Q1** and **Q2**:	100 mA
Protection class:	⧈
Casing material:	PC-ABS, shock-resistant
Front screen material:	PMMA
Protection degree:	IP 67*(1)* / IP 69K *(1)*
Ambient air temperature: operation	*14...+ 122 °F*/ - 10...+ 50 °C
storage	*14...+ 140 °F*/ - 10...+ 60 °C
Weight:	125 g / *4.40 oz*

(1) With connected IP 67 / IP 69K plug.

Setting for Anti-collision mode



Setting



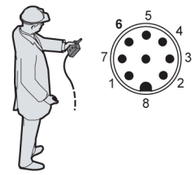
Teach-in Anti-Collision Mode by Push button

1.Step: First position
Press button Q for > 3 sec and release.
Feedback of status indicators.
2.Step: Second position
Press button Q and release
Feedback of status indicators
The nearest of the two positions is taken as NEAR, the other is taken as FAR.
Set points NEAR and FAR are stored permanently even if you return from "Tandem Mode" in "Anti-Collision Mode".

Teach-in of the distance is done when releasing the teach-in button.
During teach, Q1 and Q2 are in slow mode condition (Q1=1, Q2=0).
Time out to go back to operation mode between 1st step and 2nd step should be 5 minutes.
If NEAR and FAR are two close together: previous setting is kept.
No feedback via wire.

Teach-in Anti-Collision Mode through external wire

1.Step: First position
IN 1 = High > 3 sec and deactivation
2.Step: Second position
IN 1 = High > 32 ms and deactivation
The nearest of the two positions is taken as NEAR, the other is taken as FAR.
Set points NEAR and FAR are stored permanently even if you return from "Tandem Mode" in "Anti-Collision Mode".
Teach-in of the distance is done at the falling edge of the signal.
To set new distances for NEAR and FAR, a new complete teach-in needs to be done.
During teach, Q1 and Q2 are in slow mode condition (Q1=1, Q2=0)
If NEAR and FAR are two close together: previous setting is kept.
Time out to go back to operation mode between 1st step and 2nd step should be 30 minutes.



1 + UB
2 Q2 - PNP, NO
3 GND
4 Q1 - PNP, NO
5 QA - 4...20 mA
6 IN1 - Teach-in
7 IN2 - Teach and activated tandem
8 IN3 - Beam off

Feedback of teach-in via button

Teach Feedback:
- Feedback teach success:
  Synchronous blinking of LEDs for 3 s.
- Feedback NEAR and FAR are too close together:
  Fast asynchronous blinking of LEDs for 3 s.

If low signal function is activated
Q1 = Low / Q2 = High ➡ to less signal, reflector outside range or no reflector signal (*).

If low signal function is disabled
Q1 = high / Q2 = High ➡ to less signal, reflector outside range or no reflector signal.

(*) See Chapter B.

Output during anti-collision mode

Q1 = High / Q2 = High ➡ High speed
Q1 = High / Q2 = Low ➡ Slow
Q1 = Low / Q2 = Low ➡ Stop

Feedback of teach-in and wire brake check

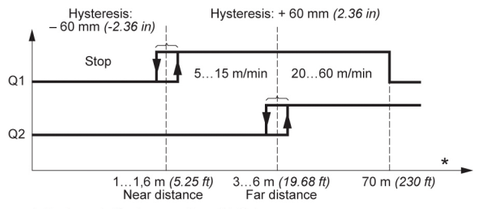
If low signal function activated
Response to check wires not cut and teach is completed via external wire:
Q1 = Q2 = 3 pulses 100 ms high / 100 ms low (600 ms)

Feedback NEAR and FAR are too close:
Q1 = Q2 = 6 pulses 100 ms high / 100 ms low.

If low signal function is disabled
No feed back on Q1 and Q2.

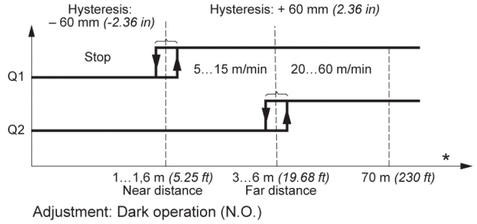
Anti-Collision Diagram

If low signal function is activated



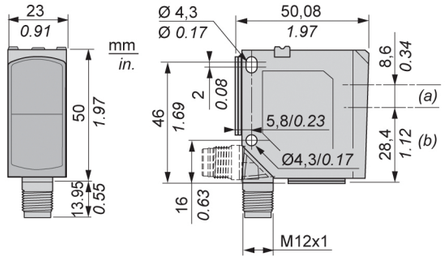
Adjustment: Dark operation (N.O.)

If low signal function is disabled



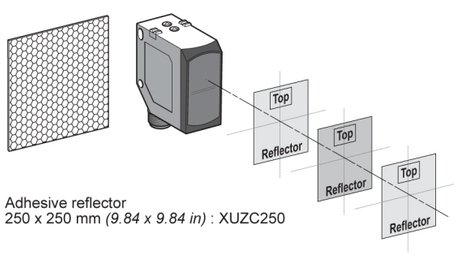
Adjustment: Dark operation (N.O.)

Dimensions



(a) Transmitter optical axis
(b) Receiver optical axis

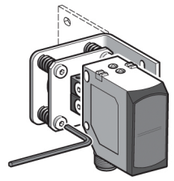
Aligning of reflector



Adhesive reflector
250 x 250 mm *(9.84 x 9.84 in)* : XUZC250

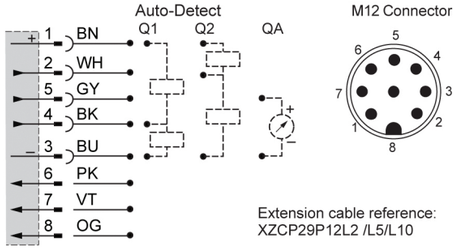
Adjustment

Adjustment of light spot position with optional mounting angle XUZASK004.



Align sensor to the target object.
Observe the preferential direction of proximity switches.

Wiring



Extension cable reference:
XZCP29P12L2 /L5/L10

1 + UB (BN)
2 Q2 - PNP, NO (WH)
3 – UB (BU)
4 Q1 - PNP, NO (BK)
5 QA - 4…20 mA (GY)
6 IN1 - Teach-in (PK)
7 IN2 - Teach and activated tandem (VT)
8 IN3 - Beam off (OG)

BN: Brown
WH: White
BU: Blue
BK: Black
GY: Grey
PK: Pink
VT: Purple
OG: Orange

⚠ CAUTION

UNINTENDED EQUIPMENT OPERATION

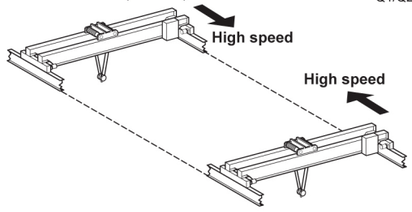
- Comply with the wiring and configuration instructions.
- Clean the lens regularly, taking care not to scratch it.
- Check the connections and fixings during maintenance operations.

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

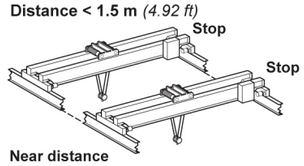
CLASS 1 LASER PRODUCT
(IEC 60825-1: 2008-05)

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel.
No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

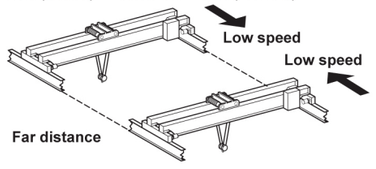
①
Distance > 6 m *(19.68 ft)*



③
Distance < 1.5 m *(4.92 ft)*



②
3 m *(9.84 ft)* **< Distance < 6 m** *(19.68 ft)*



① If the distance between cranes is big enough, the speed of each crane can be **high** (20 …60 m/min).
② If the distance is reduced (3 .. 6 m), the speed of each crane must be limited to **low** (5 …15 m/min).
③ If the distance is really too short (1 …1,5 m), then risk of collision so the 2 cranes must be **stopped**.

EAV83775 00
10 - 2014

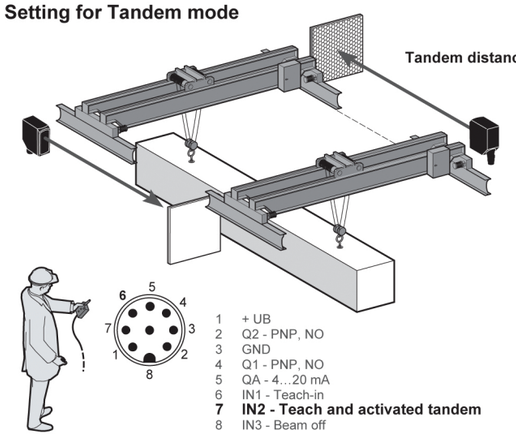
Printed

Telemecanique Sensors

XUK9TAH2MM12 (50 x 23 x 50)

www.tesensors.com

Setting for Tandem mode



Teach-in and activation of tandem mode through external wire

IN 2 = High
The sensor teaches the distance of the tandem when activating IN 2 for at least 32 ms. The sensor puts a window around the taught-in distance.

After deactivating IN 2 for at least 32 ms, the sensor goes back to anti-collision mode.
The distance of the tandem mode is not stored permanently.

Feedback of teach-in and wire brake check

If low signal function activated
Response that tandem mode is activated and to check that wires are not cut:

- If tandem teach is **successful**
  Q1 = Q2 = permanent pulses
  100 ms high /100 ms low (600 ms)
- If tandem teach is **not successful** (e.g no reflector present)
  Q1 = Q2 = 6 pulses
  100 ms high / 100 ms low (1200 ms)

If IN2 is deactivated during feedback, the feedback is stopped immediately.

If low signal function is disabled
No feed back on Q1 and Q2 for successful teach and not successful teach.

Tandem Mode

Q1 = Low / Q2 = Low ➡ Outside window and closer than window closest position of the window.
Q1 = High / Q2 = High ➡ Inside the window
Q1 = High / Q2 = Low ➡ outside the window and farer than the farest position of the window.

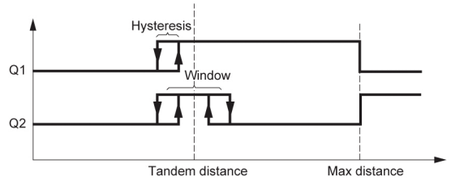
If low signal function (*) **is activated**
Q1 = Low / Q2 = High ➡ outside range ➡ to less signal, reflector outside range.

If low signal function (*) **is disabled**
Q1 = Low / Q2 = Low ➡ outside range ➡ to less signal, reflector outside range.

(*) This state can be disabled by pressing Q button for > 16 s See (D).

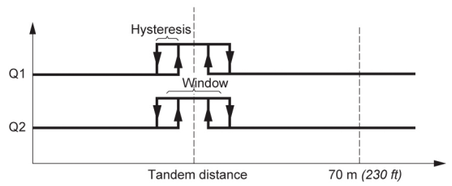
Tandem Diagram

If low signal function is activated



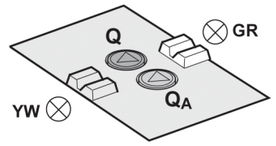
Adjustment: Dark operation (N.O.)

If low signal function is disabled



Adjustment: Dark operation (N.O.)

Setting



OFF
ON
Flashing

Push

GR: Green
YW: Yellow

Reflector

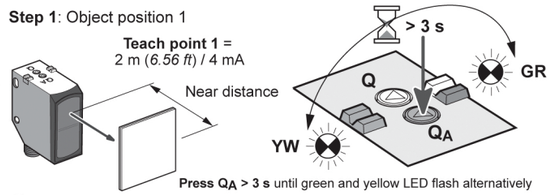
Action duration

A Analog Output (only via button Qa)

Step 1: Object position 1

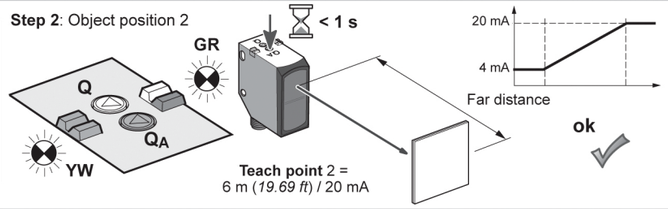
Teach point 1 =
2 m (*6.56 ft*) / 4 mA

Near distance



Press Q_A > 3 s until green and yellow LED flash alternatively

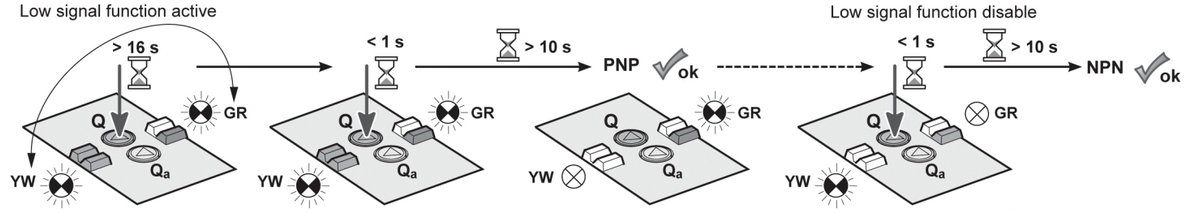
Step 2: Object position 2



Teach point 2 =
6 m (*19.69 ft*) / 20 mA

B Low signal disable in case of contactors use (otherwise the use is PLC)

Low signal function active



- Press Q >16 s until green and yellow LED flash flash alternatively.
- As long as the yellow and green LEDs are flashing, press the teach button for 1 s; the low signal function is active. The green LED shows the output status (PNP).
- When OK, do not push the button for 10 s. Setting is saved. Sensor is ready to operate.
- Press the teach button for 1 s; the low signal function is inactive. The yellow LED shows the output status (NPN).

Low signal function disable

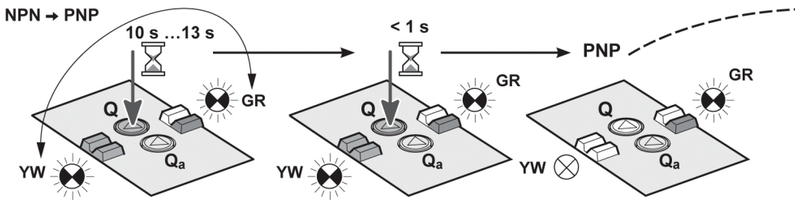
Every consecutive push/release will toggle the function, indicated by green or yellow LED.

To summarize:
If the low signal is disabled:

- no feed back on Q1, Q2 after anticollision external teach or tandem teach.
- Q1 and Q2 are modified, see “anticollision diagram” and “tandem diagram”.

D Switching NPN / PNP

NPN ➡ PNP

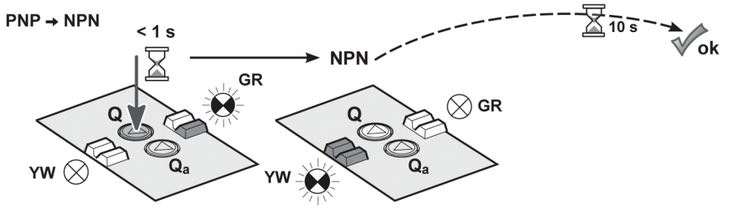


- Press Q 10 s…13 s until green and yellow LED flash alternatively.
- As long as the yellow and green LEDs are flashing, press the teach button for 1 s to invert the output.

The green LED shows the output status (PNP).

- When OK, do not push the button for 10 s. Setting is saved. Sensor is ready to operate.

PNP ➡ NPN

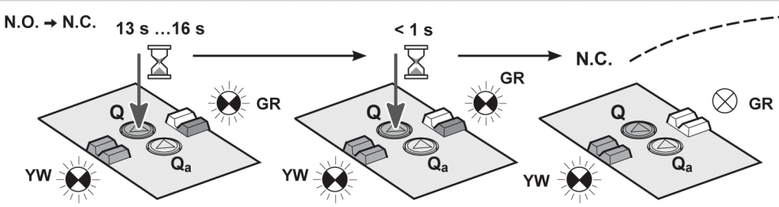


- Press the teach button for 1 s to invert the output. The yellow LED shows the output status (NPN).

Every consecutive push/release will toggle the function, indicated by green or yellow LED.

E Switching N.O./N.C.

N.O. ➡ N.C.

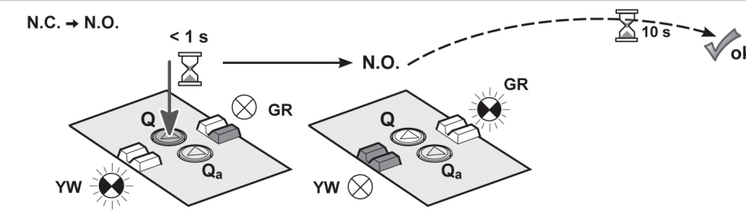


- Press Q 13 s…16 s until green and yellow LED flash at the same time.
- As long as the yellow and green LEDs are flashing, press the teach button for 1 s to invert the output.

The yellow LED shows the output status (N.O.).

- When OK, do not push the button for 10 s. Setting is saved. Sensor is ready to operate.

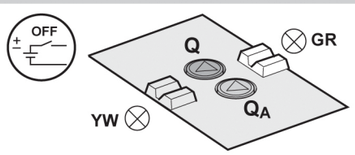
N.C. ➡ N.O.



- Press the teach button for 1 s to invert the output. The green LED shows the output status (N.C.).

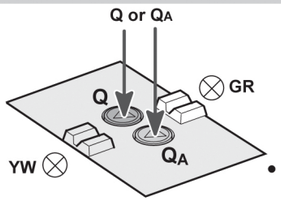
Every consecutive push/release will toggle the function, indicated by green or yellow LED.

F Default Setting

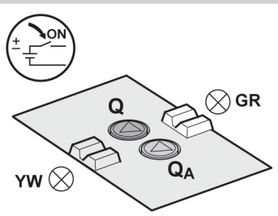


The sensor can be set back to the default setting.
The sensor must not be in tandem mode.

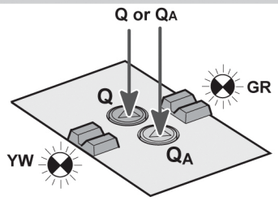
- Power supply OFF



- Press button Q or Qa

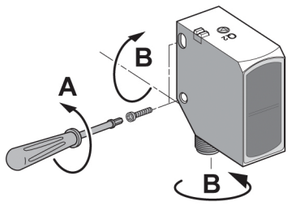


- Power supply ON

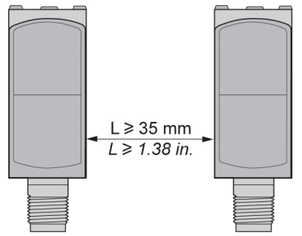


- Keep button pressed for 10 s until LEDs blink three times synchronously.

Mounting precautions



A < 1,5 Nm *(13 lb-in)*
B < 1 Nm *(8.85 lb-in)*



C Beam off Function

1 + UB
2 Q2 - PNP, NO
3 GND
4 Q1 - PNP, NO
5 QA - 4…20 mA
6 IN1 - Teach-in
7 IN2 - Teach and activated tandem
8 IN3 - Beam off

Activation:
IN 3 = Low ➡ Run (tandem or anti-collision)
IN 3 = High ➡ Diagnostic function, Laser off

Response, if IN3 switches to high:(*)

- If Q1 is high ➡ low (or low ➡ high)
- If Q2 is high ➡ low (or low ➡ high)
- Q_A must keep its values.

Before beam-off, the cranes should be in Stop Condition!

(*): The response time between activation (IN3) and response (Q1 or Q2) is less than 500 ms.

Telemecanique Sensors