
Photo-electric sensors for distance measurement

XUK8T and XUK9T ranges

Catalogue



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Photo-electric sensors for distance measurement

XUK8T and XUK9T ranges

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Photo-electric sensors

XU ranges Application, material handling and hoisting series.

With 4...20 mA and 0...10 V analog output signal. DC supply, solid-state output. "Time of flight" technology.

| Product type | Laser transmission sensors. Distance measurement | Laser transmission sensors. With background suppression |
|--|--|---|
| |  | |
| Applications | <ul style="list-style-type: none"> ■ Packaging and conveying. ■ Material handling. | |
| Range | 0.1... 5 m/0.33...16.40 ft | 0... 5 m/0...16.40 ft |
| Type of light | Class 1 laser, red, 650 nm | |
| Resolution | < 5 mm (12-bit) | – |
| Repeat accuracy | < 0.3% | – |
| Linearity | ± 30 mm | – |
| Differential travel | 40 mm | |
| Materials | Front panel (screen): PMMA. Casing: PC-ABS shock-resistant. M12 connectors: metal | |
| Degree of protection | IP 67 and IP 69K, depending on connector | |
| Operating temperature | - 40... + 60°C / - 40... + 140°F (- 40... + 50°C / - 40... + 117°F for XUK8TE2MM12) | |
| Storage temperature | - 40... + 80°C / - 40... + 176°F | |
| Dimensions (without connectors) | 50 x 50 x 23 mm / 1.97 x 1.97 x 0.91 in. | |
| Supply voltage + U_B | 18...30 V $\overline{=}$ | |
| No-load supply current | ≤ 60 mA | |
| Output current I_e | ≤ 100 mA | |
| Switching frequency f/Response time | ≤ 500 Hz | |
| Type of outputs | 1 x 4...20 mA and 0...10 V analog output + 1 auto-detect PNP switching output | 1 or 2 auto-detect PNP switching outputs |
| Certifications | ECOLAB, CE, cULus | |
| References | XUK8TAE1MM12 XUK8TAE2MM12 | XUK8TAKSMM12 XUK8TAKDMM12 |
| Pages | 5 | 5 |

| Product type | Laser transmission sensors. Anti-collision mode and tandem mode | Accessories |
|--|---|---|
| |  |  |
| Applications | <ul style="list-style-type: none"> ■ Hoisting and mobile equipment. | Brackets and clamps for fixing sensors. Connectors for connecting sensors. |
| Range | 0.3... 70 m/0.98...230 ft | |
| Type of light | Class 1 laser, red, 650 nm | |
| Resolution | < 17 mm (12-bit) for scaling the analog output between 1 and 70 m | |
| Repeat accuracy | < 11 mm (for the discrete outputs) | |
| Linearity | ± 70 mm | |
| Differential travel | 120 mm | |
| Materials | Front panel (screen): PMMA. Casing: PC-ABS shock-resistant. M12 connectors: metal | |
| Degree of protection | IP 67 and IP 69K, depending on connector | |
| Operating temperature | - 30... + 50°C / - 22... + 122°F | |
| Storage temperature | - 30... + 60°C / - 22... + 140°F | |
| Dimensions (without connectors) | 50 x 50 x 23 mm / 1.97 x 1.97 x 0.91 in. | |
| Supply voltage + U_B | 18...30 V $\overline{=}$ | |
| No-load supply current | ≤ 60 mA | |
| Output current I_e | 100 mA | |
| Switching frequency f/Response time | 10 ms | |
| Type of outputs | 1 x 4...20 mA analog output + 2 PNP or NPN switching outputs | |
| Certifications | CE, cULus | |
| References | XUK9TAH2MM12 | XUZAS●●● XUZCPV11V12●●● XUZCPV12V12●●● |
| Pages | 7 | 5 and 7 |

Photo-electric sensors

XU range Application, material handling series

“Time of flight” technology.

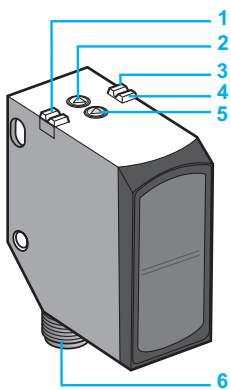
Distance measurement. Background suppression.



Certified



Class 1 laser
conforming to IEC 60825-1
Visible laser radiation:
do not stare into beam

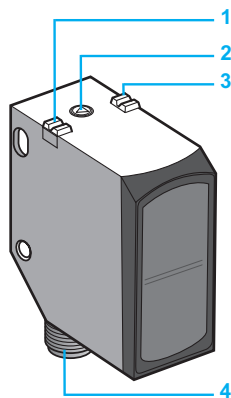


XUK8TAE1MM12 and XUK8TAE2MM12:

- 1 Yellow LED: switching output Q indicator
- 2 Push button (teach-in) Q: switching output
- 3 Yellow LED: switching output QA indicator
- 4 Green LED: operating voltage indicator
- 5 Push button (teach-in) QA: analog output
- 6 M12 connector

XUK8TAKDMM12:

- 1 Yellow LED: switching output Q1 indicator
- 2 Push button (teach-in) Q1: switching output
- 3 Yellow LED: switching output Q2 indicator
- 4 Green LED: operating voltage indicator
- 5 Push button (teach-in) Q2: switching output
- 6 M12 connector



XUK8TAKSMM12:

- 1 Yellow LED: switching output Q indicator
- 2 Push button (teach-in) Q: switching output
- 3 Green LED: operating voltage indicator
- 4 M12 connector

Presentation

XUK8T products are distance measurement sensors operating according to the Time of Flight (TOF) principle: light measured by time of flight.

These sensors are dedicated to tasks involving the measurement and control of objects with a variety of surfaces, over long distances. They provide reliable and accurate distance measurement, even with tilted, clear, reflective or luminous objects.

Thanks to the various output configurations, XUK8T sensors offer excellent flexibility in order to meet the highest number of requirements:

- reversible analog outputs, 4...20 mA or 0...10 V
- one or two switching outputs, 24 VDC, PNP/NPN type (1)

XUK8T sensor setting is simplified by three teach modes:

- background
- fixed object
- scrolling objects

The sensors can also be set by the external input: teach-in mode.

The visible laser radiation (class 1 laser) makes it easier to align and contributes to operator safety. With compact dimensions (50 x 50 x 23 mm), available in degrees of protection IP 67 and IP 69K, XUK8T sensors can easily be integrated to detect a variety of materials and surfaces:

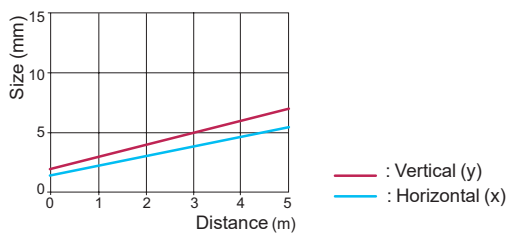
- metal
- plastic and rubber
- wood
- non-transparent liquids

They are therefore suitable for a number of sectors:

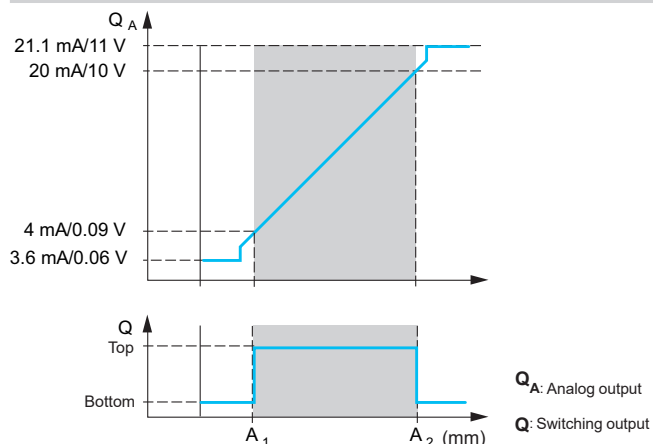
- the timber industry, sawmills, furniture making
- the automotive industry, assembly, detection of dark objects
- conveying and material handling
- the metallurgy industry, etc.

Curves

Size of light spot (typical)



Characteristic output curve



(1) For detailed characteristics, please visit our website www.tesensors.com.

Photo-electric sensors

XU range Application, material handling series
"Time of flight" technology.

Distance measurement. Background suppression.



XUK8TAE1MM12



XUK8TAE2MM12



XUK8TAKSMM12



XUK8TAKDMM12



XUZASK004



XUZASK001



XUZASW002



XUZA51S



XZCPV11V12L



XZCPV12V12L

Distance measurement sensors

Sensing distance (Sn): 0.1...5 m (white 90%), 3 m (black 6%)

| Connection method | Analog output type | Switching output type | Reference | Weight kg |
|----------------------|--------------------|-------------------------|--------------|-----------|
| M12, 5-pin connector | 0...10 V | 1 x auto-detect PNP/NPN | XUK8TAE1MM12 | 0.055 |
| | 4...20 mA | 1 x auto-detect PNP/NPN | XUK8TAE2MM12 | 0.055 |

Laser transmission proximity sensors with background suppression

Sensing distance (Sn): 0...5 m (white 90%), 3 m (black 6%)

| Connection method | Switching output type | Reference | Weight kg |
|----------------------|-------------------------|--------------|-----------|
| M12, 4-pin connector | 1 x auto-detect PNP/NPN | XUK8TAKSMM12 | 0.055 |
| M12, 5-pin connector | 2 x auto-detect PNP/NPN | XUK8TAKDMM12 | 0.055 |

Mounting accessories

| Description | Reference | Weight kg |
|--|-----------|-----------|
| Precision bracket with precise micrometric adjustment and locking by 3 screws in order to align the beam | XUZASK004 | 0.240 |
| Protective fixing bracket for the sensor 304 stainless steel, supplied with screws | XUZASK001 | 0.130 |
| Fixing bracket 316 stainless steel | XUZA51S | 0.050 |
| Simple metal fixing bracket | XUZASW002 | 0.017 |

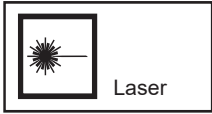
Cabling accessories

| Description | Type | Cable length | Reference | Weight |
|---|----------|--------------|---------------|--------|
| | | m | | kg |
| M12 female connectors, 5-pin, PVC cable | Straight | 2 | XZCPV11V12L2 | 0.090 |
| | | 5 | XZCPV11V12L5 | 0.201 |
| | | 10 | XZCPV11V12L10 | 0.360 |
| | Elbowed | 2 | XZCPV12V12L2 | 0.090 |
| | | 5 | XZCPV12V12L5 | 0.201 |
| | | 10 | XZCPV12V12L10 | 0.360 |

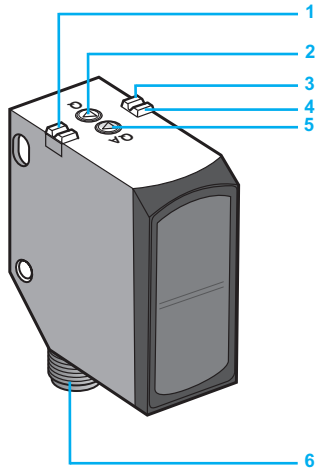
Photo-electric sensors

XU range Application, hoisting series

Anti-collision mode and tandem mode for overhead cranes



Class 1 laser, conforming to IEC 60825-1
Visible laser radiation: do not stare into beam



- 1 Yellow LED: switching output Q1 indicator.
- 2 Push button (teach-in) Q: teaches near and far distances for anti-collision mode.
- 3 Yellow LED: switching output Q2 or analog output QA indicator.
- 4 Green LED: operating voltage indicator.
- 5 Push button (teach-in) QA: teaches the analog range.
- 6 M12 connector.

Presentation

The **XUK9TAH2MM12** sensor is a distance measurement sensor operating according to the Time of Flight (TOF) principle: light measured by time of flight.

It is dedicated to tasks involving measurement and control over long distances. Robust and compact, operating from -10 to +60°C, it is specifically designed for overhead cranes (1).

The visible laser radiation (class 1 laser) makes it easier to align and contributes to operator safety.

Operating from 0.3 to 70 meters with great accuracy (60 mm differential travel), the sensor is set to detect the reflector located on a fixed object or another overhead crane.

The system thus allows two operating modes:

- anti-collision mode
- tandem mode

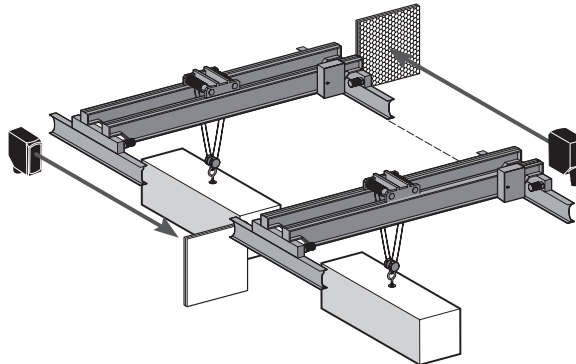
Anti-collision mode

Anti-collision mode is used to keep two overhead cranes a defined distance apart, in order to prevent equipment or loads bumping into one another.

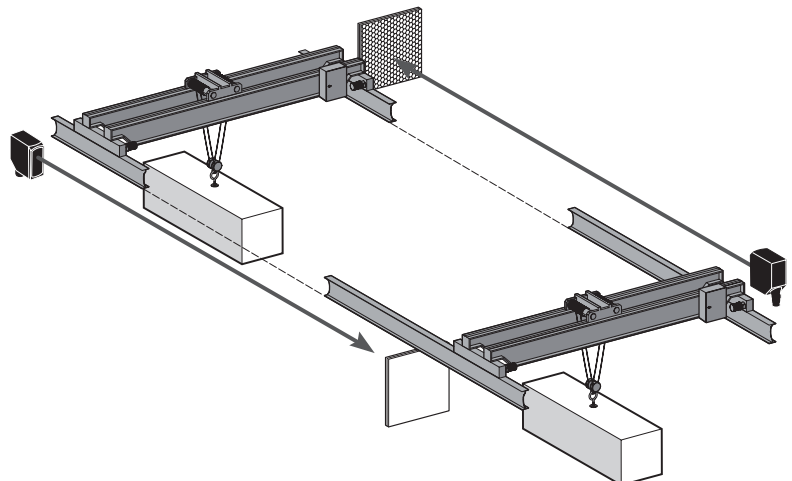
This mode can also be set by a push button on the sensor (item 2) or remotely, by the external input.

In both cases, the “near distance” and “far distance” positions (see below) are stored in the sensor. These distances can be modified by executing a new teach procedure.

Near distance



Far distance



(1) Detailed characteristics are available on our website www.tesensors.com.

Photo-electric sensors

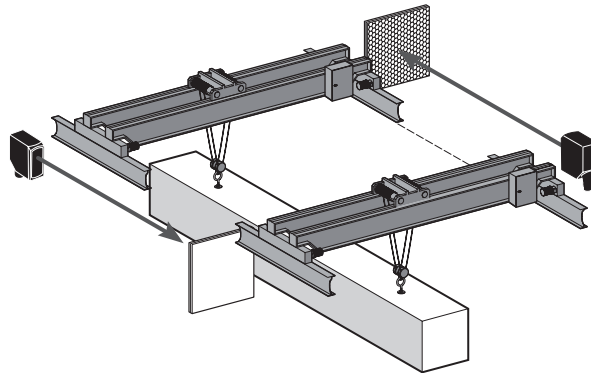
XU range Application, hoisting series

Anti-collision mode and tandem mode for overhead cranes

Presentation (continued)

Tandem mode

Tandem mode is used to split a load that cannot be supported by just one crane between two overhead cranes. When coupled together, overhead cranes can be used to transport long or heavy loads in the same bay of an industrial site. With this mode, a single operator can control two cranes simultaneously. Tandem mode is taught and activated by the external input.



The **XUK9TAH2MM12** sensor is also used for checking teaching and whether the cable has broken (1).

References

Sensing distance (Sn): 0.3...70 m with the XUZC250 reflector

| Connection method | Analog output type | Switching output type | Reference | Weight kg |
|----------------------|--------------------|-----------------------|--------------|-----------|
| M12, 8-pin connector | 4...20 mA | PNP or NPN | XUK9TAH2MM12 | 0.055 |

Mounting accessories

| Description | Reference | Weight kg |
|--|-----------|-----------|
| Precision bracket with precise micrometric adjustment and locking by 3 screws in order to align the beam | XUZASK004 | 0.240 |
| Protective fixing bracket for the sensor 304 stainless steel, supplied with screws | XUZASK001 | 0.130 |
| Fixing bracket 316 stainless steel | XUZA51S | 0.050 |
| Simple metal fixing bracket | XUZASW002 | 0.017 |
| 250 x 250 mm adhesive reflector | XUZC250 | - |

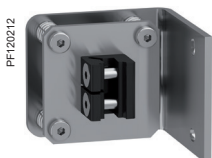
Connection accessories

| Description | Type | Cable length | Reference | Weight |
|--|----------|--------------|--------------|--------|
| | | m | | kg |
| M12 female connectors, 8-pin, PUR cable | Straight | 2 | XZCP29P12L2 | 0.100 |
| | | 5 | XZCP29P12L5 | 0.240 |
| | | 10 | XZCP29P12L10 | 0.470 |

(1) The additional functions are described in the sensor instruction sheet. Please visit our website www.tesensors.com.



XUK9TAH2MM12



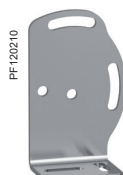
XUZASK004



XUZASK001



XUZASW002



XUZA51S



XZCP29P12L

| X | |
|---------------|--------|
| XUK8TAE1MM12 | 5 |
| XUK8TAE2MM12 | 5 |
| XUK8TAKDMM12 | 5 |
| XUK8TAKSMM12 | 5 |
| XUK9TAH2MM12 | 7 |
| XUZA51S | 5 7 |
| XUZASK001 | 5 7 |
| XUZASK004 | 5 7 |
| XUZASW002 | 5 7 |
| XUZC250 | 7 |
| XZCP29P12L2 | 7 |
| XZCP29P12L5 | 7 |
| XZCP29P12L10 | 7 |
| XZCPV11V12L2 | 5 |
| XZCPV11V12L5 | 5 |
| XZCPV11V12L10 | 5 |
| XZCPV12V12L2 | 5 |
| XZCPV12V12L5 | 5 |
| XZCPV12V12L10 | 5 |

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