# Photo-electric sensors
# XU range
## Material handling & working, packaging

## Catalogue



YAGEO GROUP Brings you | Telemecanique Sensors

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# Photo-electric sensors
XU range


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# Photo-electric sensors
## XU range General purpose
## Single mode function

| Format | | | Design 18, cylindrical miniature | | | |
|---|---|---|---|---|---|---|
| | | | Plastic | | Metal | |
| | | |  | | | |
| **Dimensions (Ø or w x h x d) in mm** | | | Ø 18, threaded M18 x 1 Length: 44 | Ø 18, threaded M18 x 1 Length: 55.2 | Ø 18, threaded M18 x 1 Length: 44 | Ø 18, threaded M18 x 1 Length: 55.2 |
| **Case (material)** | Plastic | PBT/PC | ✓ | | – | |
| | | ABS | – | | – | |
| | Metal | Nickel plated brass | – | | ✓ | |
| | | Stainless steel | – | | – | |
| **Sensing distance Sn (m) related to system** | | | *For straight light axis* | *For angled light axis* | *For straight light axis* | *For angled light axis* |
| | Thru-beam | XU●2 | 30 | 17 | 30 | 17 |
| | Diffuse short distance | XU●4 | – | | | |
| | Diffuse long distance | XU●5 | 1 | – | 1 | – |
| | Diffuse medium distance | XU●6 | 0.6 | 0.5 | 0.6 | 0.5 |
| | Background suppression | XU●8 | 0.3 from white object (90%) to black object (6%) | 0.15 from white object (90%) to black object (6%) | 0.3 from white object (90%) to black object (6%) | 0.15 from white object (90%) to black object (6%) |
| | Polarised reflex | XU●9 | 7 | 5.5 | 7 | 5.5 |
| **LED emission** | | | Red light *(1)* | | | |
| **Degree of protection** | | | All: IP65, IP67<br>M12 connector only: IP69K | | | |
| **Supply** | ⎓ 3-wire (PNP/NPN) | | – | | – | |
| | ⎓ 4-wire (PNP/NPN) | | ✓ | | ✓ | |
| | ∿ 5-wire, relay output | | – | | – | |
| **Function** | | NO | – | | – | |
| | | NC | – | | – | |
| | | NO/NC | ✓ | ✓ | ✓ | ✓ |
| | | NO + NC | – | – | – | – |
| **Connection** | Pre-cabled | (L = 2 m) | ✓ | ✓ | ✓ | ✓ |
| | Connector | M8 (4-pin) ⎓ 3-wire | – | | | |
| | | M12 (4-pin) ⎓ 4-wire | ✓ | ✓ | ✓ | ✓ |
| | Pigtail | 0.3 m | | | | |
| **Type reference** | | | **XUB** | | | |
| **Pages** | | | 22 | | | |

*(1) Infrared: Contact the Sensor Adaptation Center (SAC) adaptation@yageo.com*

| Miniature design | | Hybrid miniature design | |
|---|---|---|---|
| Plastic | | Plastic | |
|    | |   | |
| 19.5 x 31.5 x 10.8 | | 15 x 59.2 x 31.9 | |
| ✓ | | – | |
| – | | ✓ | |
| – | | – | |
| – | | – | |
| *With excess gain = 1* | *With excess gain = 2* | *With excess gain = 1* | *With excess gain = 2* |
| 30 | 24 | 30 | 20 |
| 0.25 | 0.17 | – | |
| 1.9 | 1.5 | 1 | 0.7 |
| 1.1 | 0.8 | 0.6 | 0.42 |
| 4...300: White paper or object. Sn (90%)<br>5...265: Grey object. Sn (18%)<br>8...200: Black object. Sn (6%) | | 0.3 from white object (90%) to black object (6%) | |
| 0.05...8 | 0.05...6.7 | 7 | 5 |
| Red light for: XUM2, XUM6, XUM8, XUM9<br>Infrared light for: XUM4, XUM 5 | | Red light | |
| All: IP65, IP67 | | All: IP65, IP67<br>M12 connector only: IP69K | |
| ✓ | | – | |
| – | | ✓ | |
| – | | – | |
| – | | – | |
| – | | – | |
| ✓ | | ✓ | |
| – | | – | |
| ✓ | | ✓ | |
| ✓ | | – | |
| – | | ✓ | |
| ✓ | | – | |
| **XUM** | | **XUN** | |
| 10 | | 46 | |

# Photo-electric sensors
## XU range Application
## For Material handling & working, Packaging

| | | | | | | |
|---|---|---|---|---|---|---|
| **Recommended applications** | | | | **Material handling, Material working, Packaging** | | |
| | | | | **Marking detection** | | |
| | | | |  |  |  |
| **Format** | | | | Miniature | | |
| **Dimensions (w x h x d) in mm** | | | | 12 x 34 x 20 | | 10.8 x 31.5 x 19.5 |
| **Case (material)** | Plastic | PBT/PC | | – | – | – |
| | | ABS | | ✓ | ✓ | – |
| | | ABS/PC | | – | – | – |
| | | PUR | | – | – | – |
| | | Glass-filled technopolymer | | – | – | ✓ |
| | Metal | Nickel plated brass | | – | – | – |
| | | Stainless steel | | – | – | – |
| | | Zinc die-cast | | – | – | – |
| **Technology** | | | | Contrast | | |
| **Sensing distance (Sn)** | | | XUKC | – | – | – |
| | | | XUMR | 12 mm | 12 mm | 12 mm |
| | | | XUMT | – | – | – |
| | Thru-beam | | XU●2 | – | – | – |
| | Diffuse short distance | | XU●4 | – | – | – |
| | Diffuse medium distance | | XU●5 | – | – | – |
| | Diffuse long distance | | XU●6 | – | – | – |
| | Background suppression fixed | | XU●7 | – | – | – |
| | Background suppression adjust. | | XU●8 | – | – | – |
| | Polarised reflex | | XU●9 | – | – | – |
| **LED emission** | | | | White light | RGB light | RGB light |
| **Degree of protection** | | | IP67 | ✓ | ✓ | ✓ |
| | | | IP69K | ✓ | ✓ | – |
| **Supply** | | | ⎓ | 12...24V | | |
| | | | ∿ | – | – | – |
| | | | ⎓ ∿ | – | – | – |
| **Output** | | | Autodetect PNP/NPN | ✓ | ✓ | ✓ |
| | | | PNP | – | – | – |
| | | | NPN | – | – | – |
| **Connection** | Pre-cabled | | L=2 m | – | – | – |
| | Connector | | M8 | ✓ | ✓ | ✓ |
| | | | M12 | – | – | – |
| | Pigtail | | L=0.15 m (M12) | ✓ | ✓ | – |
| | | | L=0.2 m (M8) | – | – | – |
| **Type reference** | | | | **XUMRAWAY●●** | **XUMRAGAY●● XUMRACAY●●** | **XUMRPGAYM8** |
| **Pages** | | | | 64 | | |

*(1) Depending on fibres used.*
*(2) Depending on model.*

| | | | | |
|---|---|---|---|---|
| **Format** | | | | Miniature |
| **Dimensions (w x h x d) in mm** | | | | 12 x 34 x 20 |
| **Case (material)** | Plastic | PBT/PC | | – |
| | | ABS | | ✓ |
| | | ABS/PC | | – |
| | | PUR | | – |
| | | Glass-filled technopolymer | | – |
| | Metal | Nickel plated brass | | – |
| | | Stainless steel | | – |
| | | Zinc die-cast | | – |
| **Technology** | | | | Contrast |
| **Sensing distance (Sn)** | | | XUKC | – |
| | | | XUMR | 12 mm |
| | | | XUMT | – |
| | Thru-beam | | XU●2 | – |
| | Diffuse short distance | | XU●4 | – |
| | Diffuse medium distance | | XU●5 | – |
| | Diffuse long distance | | XU●6 | – |
| | Background suppression fixed | | XU●7 | – |
| | Background suppression adjust. | | XU●8 | – |
| | Polarised reflex | | XU●9 | – |
| **LED emission** | | | | White light |
| **Degree of protection** | | | IP67 | ✓ |
| | | | IP69K | ✓ |
| **Supply** | | | ⎓ | 12...24V |
| | | | ∿ | – |
| | | | ⎓ ∿ | – |
| **Output** | | | Autodetect PNP/NPN | ✓ |
| | | | PNP | – |
| | | | NPN | – |
| **Connection** | Pre-cabled | | L=2 m | – |
| | Connector | | M8 | ✓ |
| | | | M12 | – |
| | Pigtail | | L=0.15 m (M12) | ✓ |
| | | | L=0.2 m (M8) | – |
| **Type reference** | | | | **XUM5ALAY●●** |
| **Pages** | | | | 64 |

## Material handling, Material working, Packaging

### Very dark object detection







| Compact | Miniature | Sub-miniature |
|---|---|---|
| 23 x 50 x 50 | 12 x 34 x 20 | 8 x 21.1 x 14.6 |
| – | – | – |
| ✓ | ✓ | – |
| – | – | – |
| – | – | ✓ |
| | | |
| – | – | – |
| – | – | – |
| – | – | – |
| BGS | | |
| – | – | – |
| – | – | – |
| – | – | – |
| – | – | – |
| – | – | – |
| – | – | – |
| – | – | – |
| – | 80 mm | 50 mm |
| 1200 mm | 200 mm | 100 mm |
| – | – | – |
| Blue light | | |
| ✓ | ✓ | ✓ |
| ✓ | ✓ | – |
| 12...24V | 12...24V | 12...24V for XUT7<br>24V for XUT8 |
| – | – | – |
| – | – | – |
| – | XUM8ABAY●● | XUT8ABAY●● |
| ✓ | XUM7ABPX●● | XUT7ABPX●● |
| – | – | – |
| – | XUM7ABPX●● | ✓ |
| – | ✓ | – |
| ✓ | – | – |
| – | XUM8ABAY●● | – |
| – | – | ✓ |
| **XUK8ABPX●●** | **XUM7ABPX●●**<br>**XUM8ABAY●●** | **XUT7ABPX●●**<br>**XUT8ABAY●●** |
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# Photo-electric sensors
## XU range Application
## For Material handling & working, Packaging

| | | | | | |
|---|---|---|---|---|---|
| **Recommended applications** | | | **Material handling, Material working, Packaging** | | |
| | | | **Accurate detection** | | |
| | | |  |  |  |
| **Format** | | | Miniature | | Sub-miniature |
| **Dimensions (w x h x d) in mm** | | | 12 x 34 x 20 | 10.8 x 31.5 x 19.5 | 8 x 21.1 x 14.6 |
| **Case (material)** | Plastic | PBT/PC | – | – | – |
| | | ABS | ✓ | – | – |
| | | ABS/PC | – | – | – |
| | | PUR | – | – | ✓ |
| | | Glass-filled technopolymer | – | ✓ | – |
| | Metal | Nickel plated brass | – | – | – |
| | | Stainless steel | – | – | – |
| | | Zinc die-cast | – | – | – |
| **Technology** | | | Diffuse, BGS, reflex | BGS, reflex | BGS, reflex |
| **Sensing distance (Sn)** | | XUKC | – | – | – |
| | | XUMR | – | – | – |
| | | XUMT | – | – | – |
| | Thru-beam | XU●2 | – | – | – |
| | Diffuse short distance | XU●4 | – | – | – |
| | Diffuse medium distance | XU●5 | 250 mm | – | – |
| | Diffuse long distance | XU●6 | – | – | – |
| | Background suppression fixed | XU●7 | – | – | – |
| | Background suppression adjust. | XU●8 | 150 mm | 200 mm | 100 mm |
| | Polarised reflex | XU●9 | 15 m | 200 mm | 4 m |
| **LED emission** | | | Laser light | | |
| **Degree of protection** | | IP65 | – | ✓ | – |
| | | IP67 | ✓ | ✓ | ✓ |
| | | IP69K | ✓ | – | – |
| **Supply** | | ⎓ | 12...24V | 10...30V | 12...24V |
| | | ∿ | – | – | – |
| | | ⎓ ∿ | – | – | – |
| **Output** | | Autodetect PNP/NPN | ✓ | – | XUT8ALAYL2 |
| | | PNP | – | ✓ | XUT9ALPX●● |
| | | NPN | – | – | – |
| **Connection** | Pre-cabled | L=2 m | ✓ | – | ✓ |
| | Connector | M8 | ✓ | ✓ | – |
| | | M12 | – | – | – |
| | Pigtail | L=0.15 m (M12) | ✓ | – | – |
| | | L=0.2 m (M8) | – | – | ✓ |
| **Type reference** | | | **XUM5ALAY●●<br>XUM8ALAY●●<br>XUM9ALAY●●<br>XUM●PLPXM8** | **XUM8PLPXM8<br>XUM9PLPXM8** | **XUT8ALAY●●<br>XUT9ALPX●●** |
| **Pages** | | | 74 | | |

## Material handling, Material working, Packaging

### Color object detection




### Transparent object detection






| | | | | | |
|---|---|---|---|---|---|
| Compact | Miniature | Compact | Miniature | | Sub-miniature |
| 3 x 50 x 250 | 8 x 21.1 x 14.6 | 23 x 50 x 50 | 12 x 34 x 20 | 10.8 x 31.5 x 19.5 | 8 x 21.1 x 14.6 |
| – | – | – | – | – | – |
| – | ✓ | – | ✓ | – | – |
| – | – | ✓ | – | – | – |
| – | – | – | – | – | ✓ |
| – | – | – | – | ✓ | – |
| – | – | – | – | – | – |
| – | – | – | – | – | – |
| ✓ | – | – | – | – | – |
| Color mode | | BGS | Reflex (polarized, transparent, BGS) | Transparent reflex | BGS |
| 60 mm XUKCBSAY<br>150 mm XUKCBLAY | ✓ | – | – | – | – |
| – | 12 mm | – | – | – | – |
| – | – | – | 2 m | | – |
| – | – | – | – | – | – |
| – | – | – | – | – | – |
| – | – | – | – | – | – |
| – | – | – | – | – | – |
| – | – | – | 100 mm | – | 50 mm |
| – | – | 1200 mm | 200 mm | – | 100 mm |
| – | – | – | – | – | – |
| White light | RGB light | Blue light | Red light for XUMTA<br>Blue light for XUM7 and XUM8 | Red light | Blue light |
| – | – | – | – | – | – |
| ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| ✓ | ✓ | ✓ | ✓ | – | ✓ (only XUT8) |
| 24V | 12...24V | 12...24V | 24V for XUMTA<br>12...24V for XUM8 and XUM7 | 10...30V | 24V |
| – | – | – | – | – | – |
| – | – | – | – | – | – |
| – | ✓ | – | XUM8ABAY●●<br>XUMTARAY●● | – | XUT8ABAY●● |
| – | – | ✓ | XUM7ABPX●● | ✓ | XUT7ABPX●● |
| – | – | – | – | – | – |
| – | – | – | XUMTARAY●●<br>XUM7ABPX●● | – | XUT7ABPX●●<br>XUT8ABAY●● |
| – | ✓ | – | XUMTARAY●●<br>XUM7ABPX●●<br>XUM8ABAY●● | ✓ | – |
| ✓ | – | ✓ | – | – | – |
| – | ✓ | – | XUMTARAY●●<br>XUM8ABAY●● | – | – |
| – | – | – | – | – | XUT7ABPX●●<br>XUT8ABAY●● |
| **XUKCB●AYM12** | **XUMRACAYM8** | **XUK8ABPXM12** | **XUMTARAY●●<br>XUM8ABAY●●<br>XUM7ABPX●●** | **XUMTPRPXM8** | **XUT7ABPX●●<br>XUT8ABAY●●** |
| 80 | | 82 | | | |

# Photo-electric sensors

## XUM, general purpose, single mode function
Miniature design, plastic
Three-wire DC, solid-state output

XU_CP21047



*XUM2A●XBL2, XUM2A●XBL03M8, XUM2A●XBL03M12*

XU_CP21048



*XUM2A●XBM8*

### Thru-beam system with adjustable sensitivity

| Max./operating sensing distance (Sn) | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **Transmitter + receiver** IO-Link | | | | | |
| **30 m/24 m** | NC/NO (Light ON/Dark ON) configuration by IO-Link and potentiometer | Autodetect PNP/NPN | M8 connector (4-pin) | **XUM2APYBM8** | 0.010 |
| | | | Pigtail M12 (4-pin) | **XUM2APYBL03M12** *(1)* | 0.023 |
| **Transmitter + receiver** | | | | | |
| **30 m/24 m** | NC/NO (Light ON/Dark ON) configuration by potentiometer | PNP | Pre-cabled (L = 2 m) | **XUM2APXBL2** | 0.096 |
| | | | M8 connector (4-pin) | **XUM2APXBM8** | 0.026 |
| | | | Pigtail M8 (4-pin) | **XUM2APXBL03M8** *(1)* | 0.016 |
| | | | Pigtail M12 (4-pin) | **XUM2APXBL03M12** *(1)* | 0.023 |
| | | NPN | Pre-cabled (L = 2 m) | **XUM2ANXBL2** | 0.096 |
| | | | M8 connector (4-pin) | **XUM2ANXBM8** | 0.026 |
| | | | Pigtail M8 (4-pin) | **XUM2ANXBL03M8** *(1)* | 0.016 |
| | | | Pigtail M12 (4-pin) | **XUM2ANXBL03M12** *(1)* | 0.023 |
| **Transmitter only** | | | | | |
| **30 m/24 m** | | | Pre-cabled (L = 2 m) | **XUM2AKXBL2T** | 0.063 |
| | | | M8 connector (4-pin) | **XUM2AKXBM8T** | 0.010 |
| | | | Pigtail M8 (4-pin) | **XUM2AKXBL03M8T** *(1)* | 0.016 |
| | | | Pigtail M12 (4-pin) | **XUM2AKXBL03M12T** *(1)* | 0.022 |
| **Receiver only** IO-Link | | | | | |
| **30 m/24 m** | NC/NO (Light ON/Dark ON) configuration by IO-Link and potentiometer | Autodetect PNP/NPN | M8 connector (4-pin) | **XUM2APYBM8R** | 0.010 |
| | | | Pigtail M12 (4-pin) | **XUM2APYBL03M12R** *(1)* | 0.022 |
| **Receiver only** | | | | | |
| **30 m/24 m** | NC/NO (Light ON/Dark ON) configuration by potentiometer | PNP | Pre-cabled (L = 2 m) | **XUM2APXBL2R** | 0.063 |
| | | | M8 connector (4-pin) | **XUM2APXBM8R** | 0.010 |
| | | | Pigtail M8 (4-pin) | **XUM2APXBL03M8R** *(1)* | 0.016 |
| | | | M12 connector (4-pin) | **XUM2APXBL03M12R** *(1)* | 0.022 |
| | | NPN | Pre-cabled (L = 2 m) | **XUM2ANXBL2R** | 0.063 |
| | | | M8 connector (4-pin) | **XUM2ANXBM8R** | 0.010 |
| | | | Pigtail M8 (4-pin) | **XUM2ANXBL03M8R** *(1)* | 0.016 |
| | | | Pigtail M12 (4-pin) | **XUM2ANXBL03M12R** *(1)* | 0.022 |

## Accessories

### For all XUM miniature sensors
See page 13.

### For thru-beam system
See page 13.

### IO-Link Master
See page 90.

### Fixing and other accessories
See page 94.

### Cabling accessories
See page 100.

*(1) Available 4th quarter 2026*

Characteristics: page 14
Schemes: page 15
Curves: page 16
Descriptions, dimensions: pages 20 and 21

# Photo-electric sensors

## XUM, general purpose, single mode function
## Miniature design, plastic
## Three-wire DC, solid-state output




*XUM4A●XBL2*




*XUM4A●XBM8*

### Diffuse system with adjustable sensitivity

| Max./operating sensing distance (Sn) | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **Diffuse short range** | | | | | |
| **0.25 m/0.17 m** | NO/NC (Light ON/Dark ON) configuration by potentiometer | PNP | Pre-cabled (L = 2 m) | **XUM4APXBL2** | 0.063 |
| | | | M8 connector (4-pin) | **XUM4APXBM8** | 0.010 |
| | | | Pigtail M8 (4-pin) | **XUM4APXBL03M8** *(1)* | 0.016 |
| | | | Pigtail M12 (4-pin) | **XUM4APXBL03M12** *(1)* | 0.023 |
| | | NPN | Pre-cabled (L = 2 m) | **XUM4ANXBL2** | 0.063 |
| | | | M8 connector (4-pin) | **XUM4ANXBM8** | 0.010 |
| | | | Pigtail M8 (4-pin) | **XUM4ANXBL03M8** *(1)* | 0.016 |
| | | | Pigtail M12 (4-pin) | **XUM4ANXBL03M12** *(1)* | 0.023 |
| **Diffuse long range IO-Link** | | | | | |
| **1.9 m/1.5 m** | NO/NC (Light ON/Dark ON) configuration by IO-Link and potentiometer | Autodetect PNP/NPN | M8 connector (4-pin) | **XUM5APYBM8** | 0.010 |
| | | | Pigtail M12 (4-pin) | **XUM5APYBL03M12** *(1)* | 0.023 |
| **Diffuse long range** | | | | | |
| **1.9 m/1.5 m** | NO/NC (Light ON/Dark ON) configuration by potentiometer | PNP | Pre-cabled (L = 2 m) | **XUM5APXBL2** | 0.063 |
| | | | M8 connector (4-pin) | **XUM5APXBM8** | 0.010 |
| | | | Pigtail M8 (4-pin) | **XUM5APXBL03M8** *(1)* | 0.016 |
| | | | Pigtail M12 (4-pin) | **XUM5APXBL03M12** *(1)* | 0.023 |
| | | NPN | Pigtail M8 (4-pin) | **XUM5ANXBL03M8** *(1)* | 0.016 |
| | | | M12 connector (4-pin) | **XUM5ANXBL03M12** *(1)* | 0.023 |
| | | | Pre-cabled (L = 2 m) | **XUM5ANXBL2** | 0.063 |
| | | | M8 connector (4-pin) | **XUM5ANXBM8** | 0.010 |
| | | | Pigtail M8 (4-pin) | **XUM5ANXBL03M8** *(1)* | 0.016 |
| | | | Pigtail M12 (4-pin) | **XUM5ANXBL03M12** *(1)* | 0.023 |
| **Diffuse medium range IO-Link** | | | | | |
| **1.1 m/0.8 m** | NO/NC (Light ON/Dark ON) configuration by IO-Link and potentiometer | Autodetect PNP/NPN | M8 connector (4-pin) | **XUM6APYBM8** | 0.010 |
| | | | Pigtail M12 (4-pin) | **XUM6APYBL03M12** *(1)* | 0.023 |
| **Diffuse medium range** | | | | | |
| **1.1 m/0.8 m** | NO/NC (Light ON/Dark ON) configuration by potentiometer | PNP | Pre-cabled (L = 2 m) | **XUM6APXBL2** | 0.063 |
| | | | M8 connector (4-pin) | **XUM6APXBM8** | 0.010 |
| | | | Pigtail M8 (4-pin) | **XUM6APXBL03M8** *(1)* | 0.016 |
| | | | Pigtail M12 (4-pin) | **XUM6APXBL03M12** *(1)* | 0.023 |
| | | NPN | Pre-cabled (L = 2 m) | **XUM6ANXBL2** | 0.063 |
| | | | M8 connector (4-pin) | **XUM6ANXBM8** | 0.010 |
| | | | Pigtail M8 (4-pin) | **XUM6ANXBL03M8** *(1)* | 0.016 |
| | | | Pigtail M12 (4-pin) | **XUM6ANXBL03M12** *(1)* | 0.023 |




*XUM5A●XBL2*




*XUM5A●XBM8*




*XUM6A●XBL2*




*XUM6A●XBM8*

## Accessories for XU sensors

### For all XUM miniature sensors

See page 13.

### IO-Link Master

See page 90.

### Fixing and other accessories

See page 94.

### Cabling accessories

See pages 100 to 105.

*(1) Available 4th quarter 2026*

# Photo-electric sensors
## XUM, general purpose, single mode function
## Miniature design, plastic
## Three-wire DC, solid-state output



XUM9A●XBL2



XUM9A●XBM8

### Diffuse system with background suppression and adjustable sensitivity

| Max./operating sensing distance (Sn) | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **300 mm/200 mm** (white object or paper) | NO/NC (Light ON/Dark ON) | PNP | Pre-cabled (L = 2 m) | **XUM8APXBL2** | 0.063 |
| | | | configuration by potentiometer | **XUM8APXBM8** | 0.010 |
| | | | Pigtail M8 (4-pin) | **XUM8APXBL03M8** *(1)* | 0.016 |
| | | | Pigtail M12 (4-pin) | **XUM8APXBL03M12** *(1)* | 0.023 |
| | | NPN | Pre-cabled (L = 2 m) | **XUM8ANXBL2** | 0.063 |
| | | | M8 connector (4-pin) | **XUM8ANXBM8** | 0.010 |
| | | | Pigtail M8 (4-pin) | **XUM8ANXBL03M8** *(1)* | 0.016 |
| | | | Pigtail M12 (4-pin) | **XUM8ANXBL03M12** *(1)* | 0.023 |

### Polarised reflex system with adjustable sensitivity

| Max./operating sensing distance (Sn) | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **Sensors IO-Link** | | | | | |
| **8 m/6.7 m** with reflector XUZC50 | NC/NO (Light ON/Dark ON) configuration by IO-Link and potentiometer | Autodetect PNP/NPN | M8 connector (4-pin) | **XUM9APYBM8** | 0.010 |
| | | | Pigtail M12 (4-pin) | **XUM9APYBL03M12** *(1)* | 0.023 |
| **Standard sensors** | | | | | |
| **8 m/6.7 m** with reflector XUZC50 | NC/NO (Light ON/Dark ON) configuration by potentiometer | PNP | Pre-cabled (L = 2 m) | **XUM9APXBL2** | 0.063 |
| | | | M8 connector (4-pin) | **XUM9APXBM8** | 0.010 |
| | | | Pigtail M8 (4-pin) | **XUM9APXBL03M8** *(1)* | 0.016 |
| | | | Pigtail M12 (4-pin) | **XUM9APXBL03M12** *(1)* | 0.023 |
| | | NPN | Pre-cabled (L = 2 m) | **XUM9ANXBL2** | 0.063 |
| | | | M8 connector (4-pin) | **XUM9ANXBM8** | 0.010 |
| | | | Pigtail M8 (4-pin) | **XUM9ANXBL03M8** *(1)* | 0.016 |
| | | | Pigtail M12 (4-pin) | **XUM9ANXBL03M12** *(1)* | 0.023 |



XUM8A●XBL2



XUM8A●XBM8

## Accessories

### For all XUM miniature sensors
See page 13.

### IO-Link Master
See page 90.

### Fixing and other accessories
See page 94.

### Cabling accessories
See page 100.

*(1) Available 4th quarter 2026*

Characteristics: page 14
Schemes: page 15
Curves: pages 17 and 18
Descriptions, dimensions: pages 20 and 21

# Photo-electric sensors
## XUM, general purpose, single mode function
## Accessories

XU_CP21045



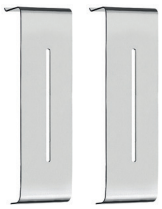
*XUZASM05*

## Accessories for all XUM miniature sensors

### Setting-up accessory

| Description | For use with sensors | Reference | Weight (kg) |
|---|---|---|---|
| **Air blower mounting block** *(1)*<br>for cleaning the sensitive face of the sensor, using compressed air.<br>Supplied with 2 mounting screws (M3 x 20), 1 air supply port plugging screw for the unused port (of 2 available) and 1 gasket. | XUM●A●XBL2<br>XUM●A●XBM8 | **XUZASM05** | 0.030 |

XU_CP21039



*XUZDVM●●*

XU_CP21040



*XUZDHM●●*

XU_CP21041



*XUZDRM●●*

## Accessories for thru-beam system

### Diaphragms

| Description | Dimensions (mm) | Sensing distance (m) | Reference | Weight (kg) |
|---|---|---|---|---|
| Vertical diaphragm<br>Sold in lots of 2 | 0.5 x 6.4 | 1 | **XUZDVM05** | 0.003 |
| | 1 x 6.4 | 1.5 | **XUZDVM10** | 0.003 |
| | 2 x 6.4 | 3.5 | **XUZDVM20** | 0.003 |
| Horizontal diaphragm<br>Sold in lots of 2 | 0.5 x 6.4 | 0.7 | **XUZDHM05** | 0.003 |
| | 1 x 6.4 | 1.5 | **XUZDHM10** | 0.003 |
| | 2 x 6.4 | 3 | **XUZDHM20** | 0.003 |
| Round diaphragm<br>Sold in lots of 2 | 0.5 x 6.4 | 0.08 | **XUZDRM05** | 0.003 |
| | 1 x 6.4 | 0.3 | **XUZDRM10** | 0.003 |
| | 2 x 6.4 | 1.2 | **XUZDRM20** | 0.003 |

## Accessories for XU sensors

### IO-Link Master

See page 90.

### Fixing and other accessories

See page 94.

### Cabling accessories

See pages 100 to 105.

*(1) To order these references, please contact our Customer Care Centre.*

# Photo-electric sensors

XUM, general purpose, single mode function
Miniature design, plastic
Three-wire DC, solid-state output

## Characteristics

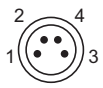
| Sensor type | | | | XUM●A●●BM8 | XUM●A●●BL03M● | XUM●A●XBL2 |
|---|---|---|---|---|---|---|
| **Product certifications** | | | | CE, UKCA, cULus | | |
| **Connection** | Connector | | | M8 | – | – |
| | Pigtail | | | – | Length: 0.3 m | – |
| | Pre-cabled | | | – | – | Length: 2 m |
| **Configuration** | | | | IO-Link<br>Potentiometer | IO-Link<br>Potentiometer | Potentiometer |
| **Nominal sensing distance Sn** | Thru-beam system | **XUM2** | **m** | 30 (with excess gain = 1)<br>24 (with excess gain = 2) | | |
| | Diffuse system (using a 200 x 200 mm white paper) | **XUM4** | **m** | 0.25 (with excess gain = 1)<br>0.17 (with excess gain = 2) | | |
| | | **XUM5** | **m** | 1.9 (with excess gain = 1)<br>1.5 (with excess gain = 2) | | |
| | | **XUM6** | **m** | 1.1 (with excess gain = 1)<br>0.8 (with excess gain = 2) | | |
| | Background suppression system | **XUM8** | **mm** | 4...300: White paper or object. Sn (90%)<br>5...265: Grey object. Sn (18%)<br>8...200: Black object. Sn (6%) | | |
| | Polarised reflex system (using a 50 x 50 mm reflector XUZC50) | **XUM9** | **m** | 0.05...8 (with excess gain = 1)<br>0.05...6.7 (with excess gain = 2) | | |
| **Hysteresis** | | | | 2% < H < 20% at Sn | | |
| **Type of transmission** | Red | **XUM2** | | Thru-beam system | | |
| | | **XUM6** | | Diffuse system | | |
| | | **XUM8** | | Background suppression system | | |
| | | **XUM9** | | Polarised reflex system | | |
| | Infrared | **XUM4** | | Diffuse system | | |
| | | **XUM5** | | Diffuse system | | |
| **Degree of protection** | Conforming to IEC 60529 | | | IP65, IP67 | | |
| **Storage temperature** | | | **°C** | -40…+70 | | |
| **Operating temperature** | | | **°C** | -30…+55 | | |
| **Materials** | Case | | | PBT | | |
| | Lens | | | PMMA | | |
| | Display | | | PC | | |
| | Cable | | | – | PVC | PVC |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | **Hz**<br>**gn** | Frequency range<br>Acceleration | 10 to 500<br>9 gn | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | **gn**<br>**ms** | Peak acceleration<br>Duration of the pulse | 100 gn<br>11 | |
| **Indicator lights** | Output state | | | Yellow LED | | |
| | Stability | | | Green LED (XUM4, XUM5, XUM6, XUM8, XUM9) | | |
| | Power on | | | Green LED (XUM2) | | |
| **Rated supply voltage** | | | **V** | 12...24 ⎓ with protection against reverse polarity | | |
| **Voltage limits (including ripple)** | | | **V** | 10...30 ⎓ | | |
| **Current consumption, no-load** | | | **mA** | < 20 max. | | |
| **Switching capacity** | | | **mA** | 100 | | |
| **Voltage drop, closed state** | | | **V** | ⩽ 2 | | |
| **Maximum switching frequency** | | | **Hz** | 1000 | | |
| **Delays** | First-up | | **ms** | < 100 | | |
| | Response | | **ms** | 0.5 | | |
| | Recovery | | **ms** | 0.5 | | |
| | IO-Link | | **ms** | < 300 | | |

# Photo-electric sensors
## XUM, general purpose, single mode function
Miniature design, plastic
Three-wire DC, solid-state output

## Wiring schemes

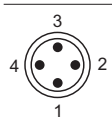
### Thru-beam system

#### M8 and M12 connectors - 4-pin IO-Link




**M8**

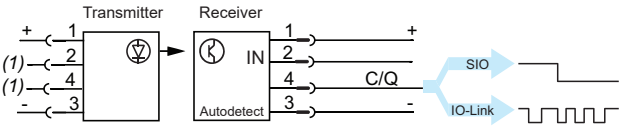
| Pin | Signal | Definition |
|---|---|---|
| 1 | + | + 24 V ⎓ |
| 2 | IN | + = NO<br>- = NC<br>Open = NO |
| 3 | - | 0 V ⎓ |
| 4 | Q | Switching signal (SIO) |
| | C | IO-Link communication |



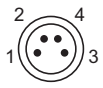

**M12**

**Autodetect PNP/NPN or by IO-Link**

**XUM2APYBM8, XUM2APYBM8R, XUM2APYBL03M12, XUM2APYBL03M12R**

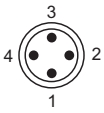



#### M8 and M12 connectors - 4-pin




**M8**

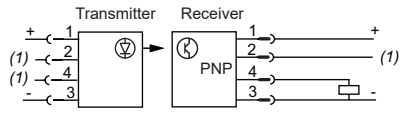
3 (-)
1 (+)
4 OUT/Output




**M12**

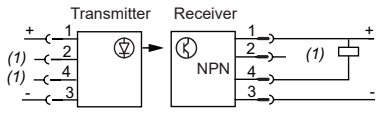
**PNP**

**XUM2APXBM8, XUM2APXBL03M8, XUM2AKXBM8T, XUM2AKXBL03M8T, XUM2APXBM8R, XUM2APXBL03M8R XUM2APXBL03M12, XUM2AKXBL03M12T, XUM2APXBL03M12R**




**NPN**

**XUM2ANXBM8, XUM2ANXBL03M8, XUM2ANXBM8R , XUM2ANXBL03M8R XUM2ANXBL03M12, XUM2ANXBL03M12R**

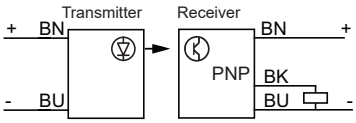



#### Pre-cabled - 3-wire

(-) BU (Blue)
(+) BN (Brown)
OUT/Output BK (Black)

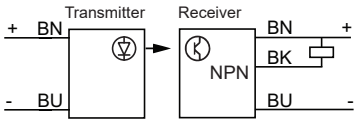
**PNP**

**XUM2APXBL2, XUM2AKXBL2T, XUM2APXBL2R**



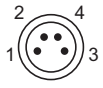

**NPN**

**XUM2ANXBL2, XUM2ANXBL2R**



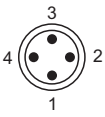

### Diffuse systems with or without background suppression and polarised reflex system

#### M8 and M12 connectors - 4-pin IO-Link



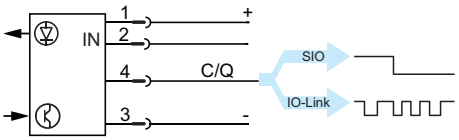

**M8**

| Pin | Signal | Definition |
|---|---|---|
| 1 | + | + 24 V ⎓ |
| 2 | IN | + = NO<br>- = NC<br>Open = NO |
| 3 | - | 0 V ⎓ |
| 4 | Q | Switching signal (SIO) |
| | C | IO-Link communication |

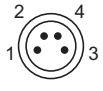



**M12**

**XUM●APYBL03M12, XUM●APYBM8**

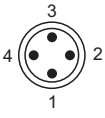



#### M8 and M12 connectors- 4-pin




**M8**

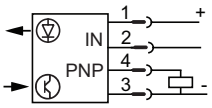
| Pin | Signal | Definition |
|---|---|---|
| 1 | + | + 24 V ⎓ |
| 2 | IN | + = NO<br>- = NC<br>Open = NO |
| 3 | - | 0 V ⎓ |
| 4 | Q | Switching signal (SIO) |




**M12**

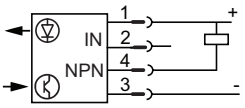
**PNP**

**XUM●APXBL03M12, XUM●APXBM8, XUM●APXBL03M8**




**NPN**

**XUM●ANXBL03M12**

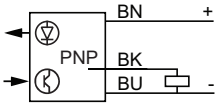



#### Pre-cabled - 3-wire

(-) BU (Blue)
(+) BN (Brown)
OUT/Output BK (Black)

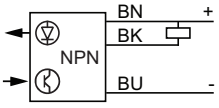
**PNP**

**XUM●APXBL2**




**NPN**

**XUM●ANXBL2**




*(1) Not connected.*

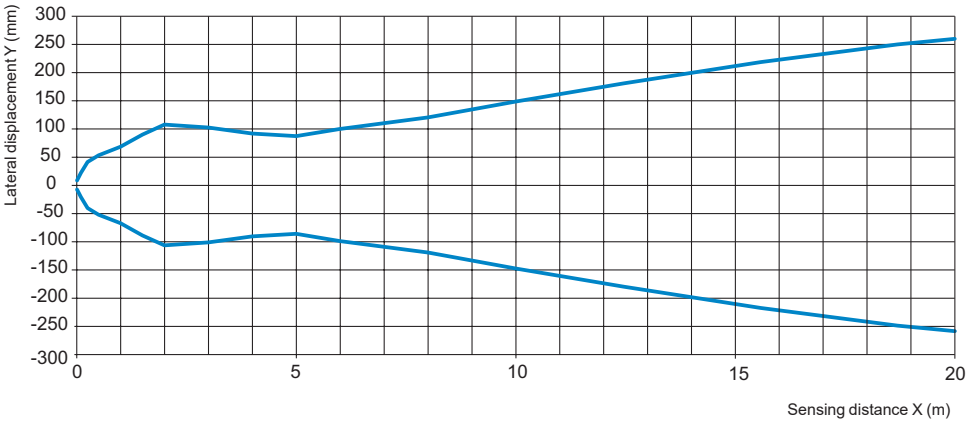
# Photo-electric sensors

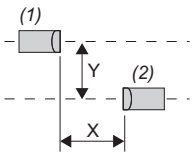
XUM, general purpose, single mode function
Miniature design, plastic
Three-wire DC, solid-state output

## Detection curves

### Thru-beam system

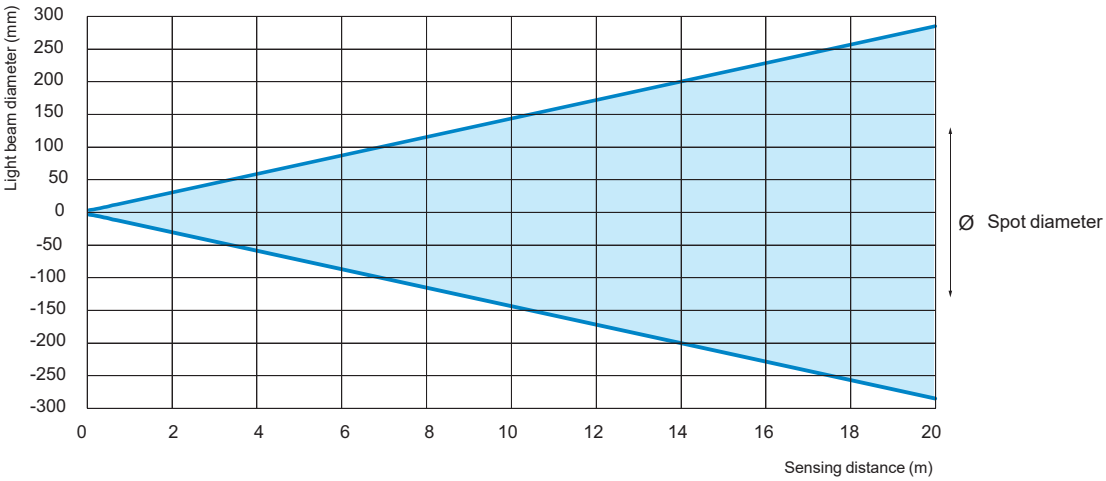
#### Lateral displacement



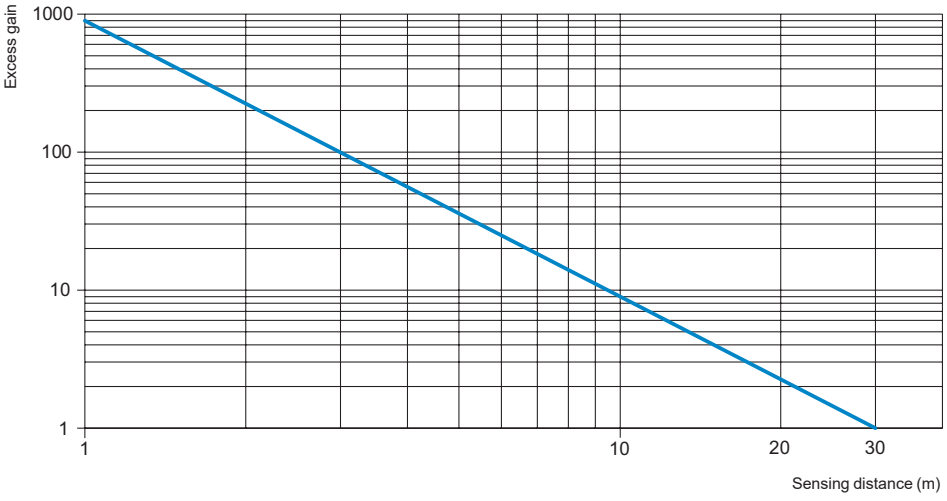




*(1): Transmitter*
*(2): Receiver*

#### Light beam diameter




#### Excess gain

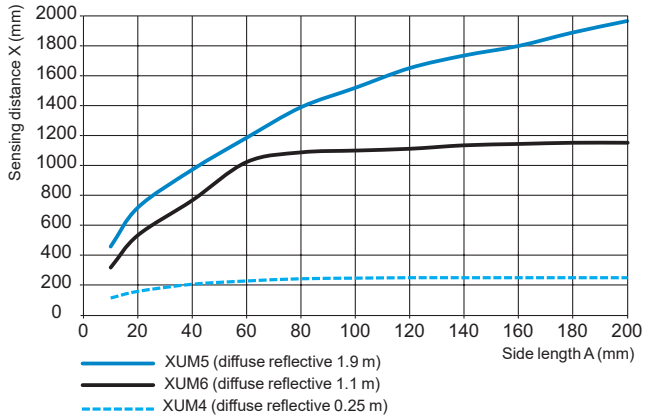


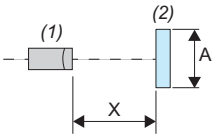
# Photo-electric sensors
XUM, general purpose, single mode function
Miniature design, plastic
Three-wire DC, solid-state output

## Detection curves (continued)

### Diffuse system: XUM4, XUM5 and XUM6

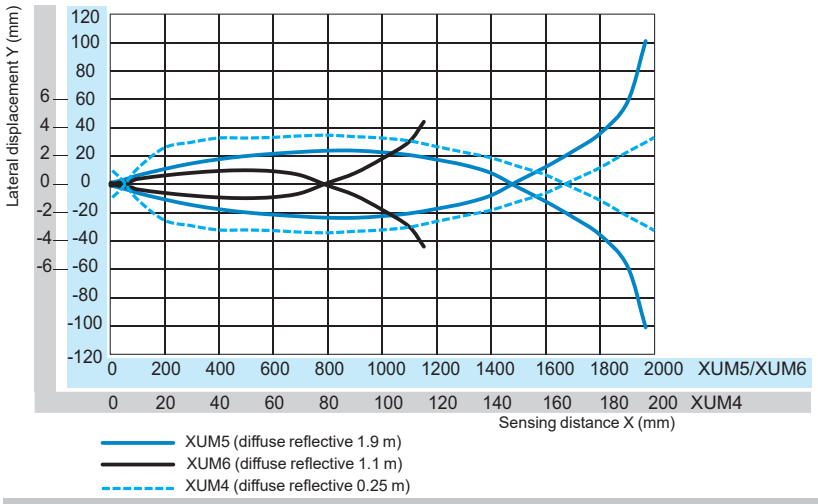
#### Object size/sensing distance

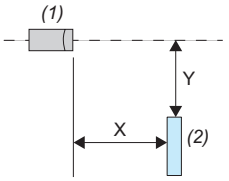



*(1): Sensor*
*(2): Object (white mat paper of A mm square)*
*A: Side length (mm)*
*X: Sensing distance (mm)*

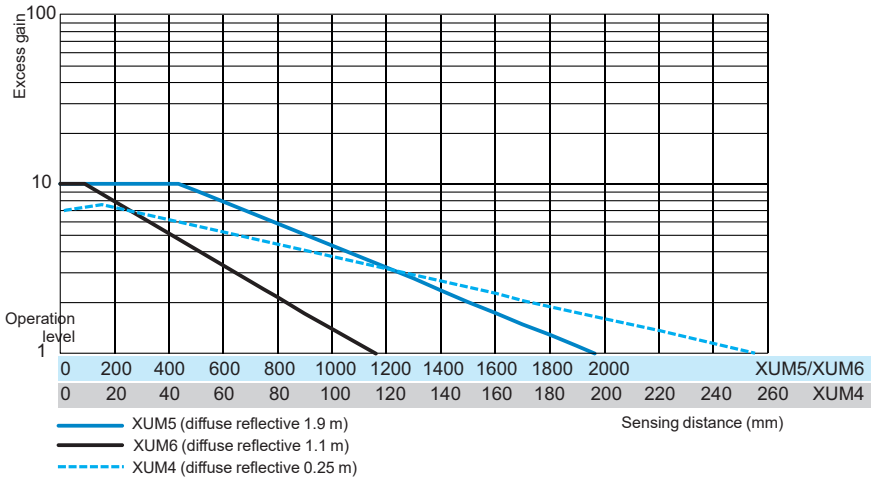
#### Lateral displacement




*(1): Sensor*
*(2): Object (200 x 200 mm square white paper)*
*X: Sensing distance (mm)*
*Y: Lateral displacement (mm)*

#### Excess gain

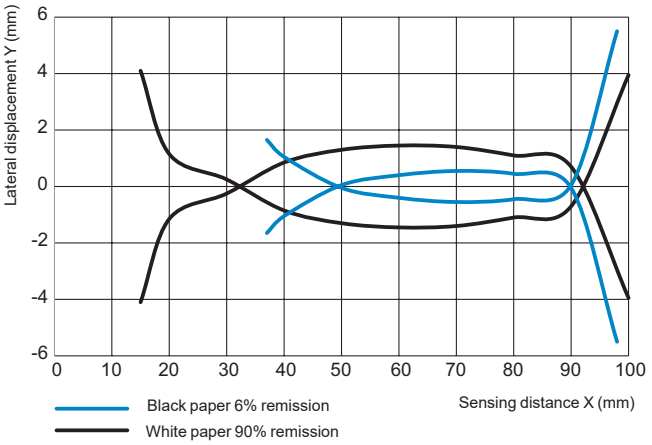


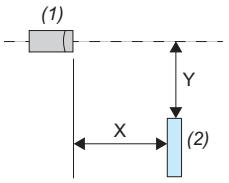
# Photo-electric sensors
XUM, general purpose, single mode function
Miniature design, plastic
Three-wire DC, solid-state output

## Detection curves (continued)

### Diffuse system with background suppression (BGS): XUM8

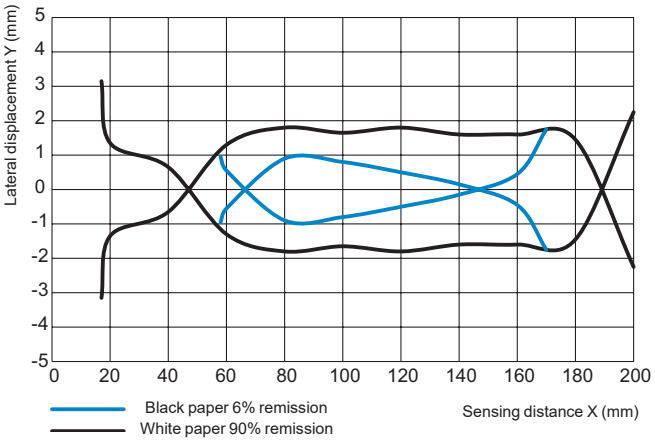
#### Lateral displacement (preset 100 mm)

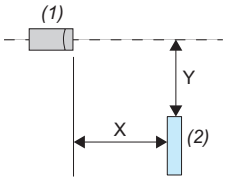



*(1): Sensor*
*(2): Object (200 mm square white and black mat paper)*
*X: Sensing distance (mm)*
*Y: Lateral displacement (mm)*

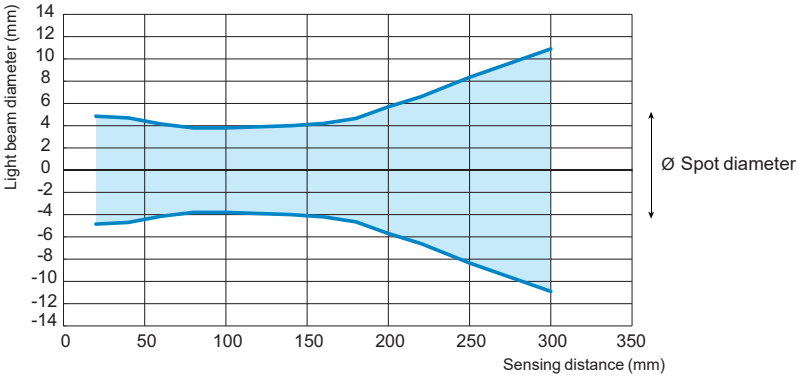
#### Lateral displacement (preset 200 mm)



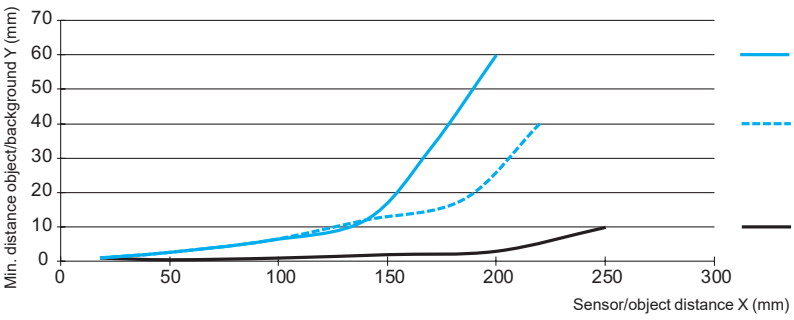



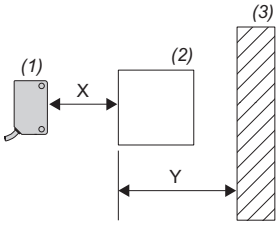

*(1): Sensor*
*(2): Object (200 mm square white and black mat paper)*
*X: Sensing distance (mm)*
*Y: Lateral displacement (mm)*

#### Light beam diameter




#### Minimum distance between the object to be detected and a white background



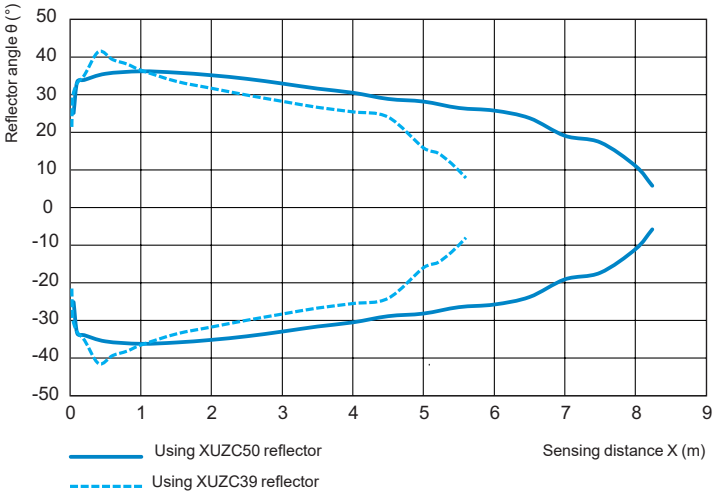

*(1): Sensor*
*(2): Object*
*(3): Background*
*X: Sensor/object distance (mm)*
*Y:* Min. distance object/ background (mm)

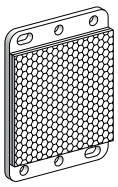
# Photo-electric sensors
XUM, general purpose, single mode function
Miniature design, plastic
Three-wire DC, solid-state output

## Detection curves

### Polarised reflex system

#### Reflector angle

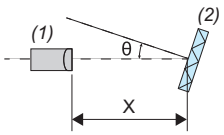


XUZC50

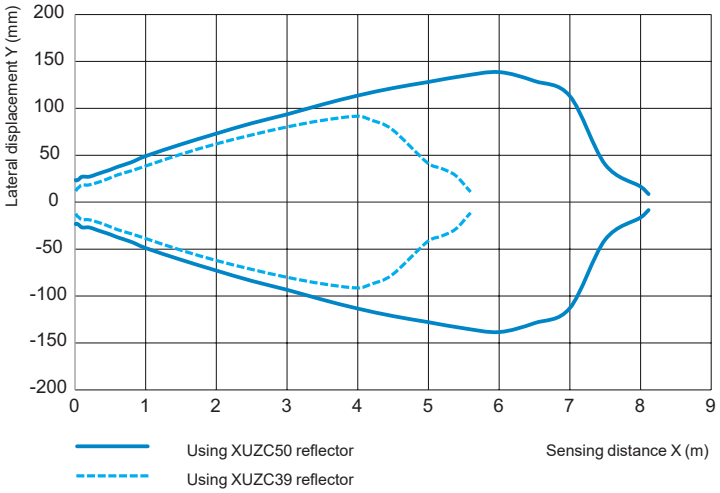


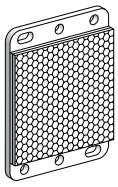
XUZC39




*(1): Sensor*
*(2): Reflector*
*θ: Reflector angle (°)*
*X: Sensing distance (m)*

#### Lateral displacement

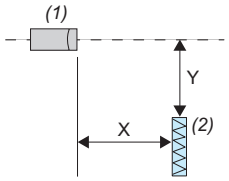


XUZC50

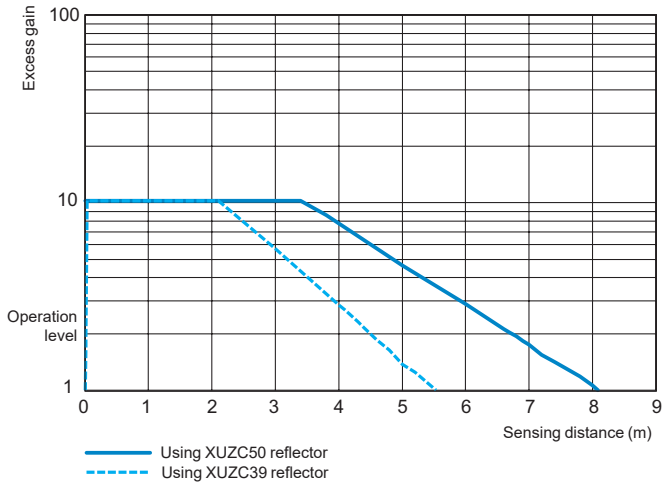


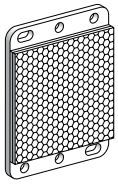
XUZC39




*(1): Sensor*
*(2): Reflector*
*Y: Lateral displacement (mm)*
*X: Sensing distance (m)*

#### Excess gain



XUZC50



XUZC39

# Photo-electric sensors

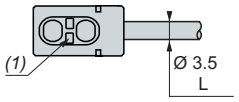
XUM, general purpose, single mode function
Miniature design, plastic
Three-wire DC, solid-state output

## Thru-beam system

### Pre-cabled and pigtail versions

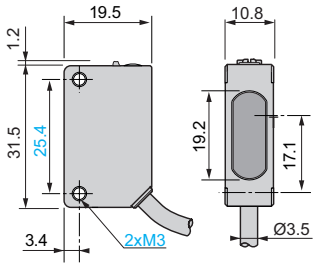
**Transmitter**

**Description - XUM2A●XBL2, XUM2A●●BL03●●●**



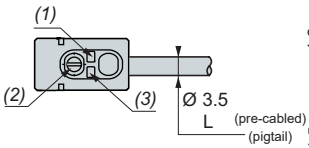

*L = 2 m (pre-cabled)*
*0.3 m (pigtail)*

**Dimensions - XUM2A●XBL2, XUM2A●●BL03●●●**

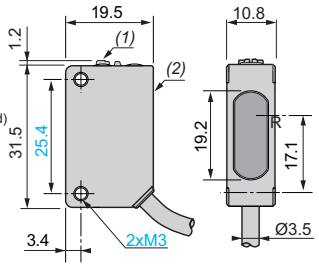



**Receiver**

**Description - XUM2A●XBL2, XUM2A●●BL03●●●**



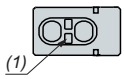

**Dimensions - XUM2A●XBL2, XUM2A●●BL03●●●**



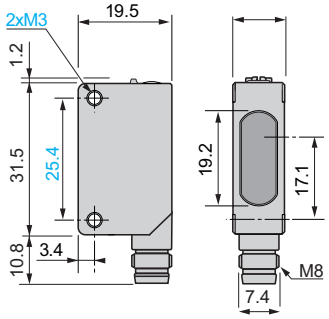

### M8 connector version

**Transmitter**

**Description - XUM2A●XBM8**

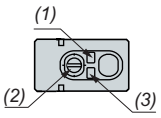



**Dimensions - XUM2A●XBM8**

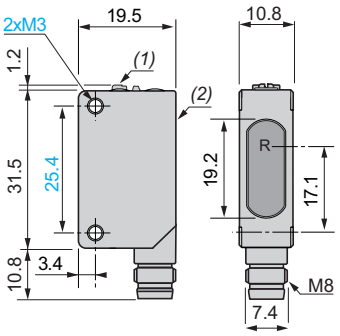



**Receiver**

**Description - XUM2A●XBM8**




**Dimensions - XUM2A●XBM8**




*(1) Power ON indicator (green)*

*T: Transmission*

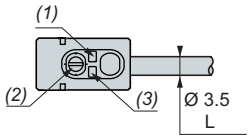
*(1) Output indicator (yellow)*
*(2) Setting potentiometer (sensitivity)*
*(3) Power ON indicator (green)*

*R: Reception*
*(1) Setting potentiometer (sensitivity)*
*(2) Setting potentiometer (NO/NC)*

## Diffuse system

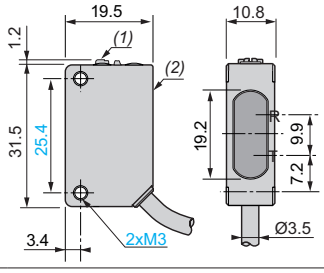
### Pre-cabled and pigtail versions

**Description - XUM5A●XBL2, XUM6A●XBL2, XUM4A●XBL2, XUM●A●●BL03●●**



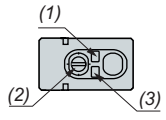

*L = 2 m (pre-cabled)*
*0.3 m (pigtail)*

**Dimensions - XUM5A●XBL2, XUM6A●XBL2, XUM4A●XBL2, XUM●A●●BL03●●**

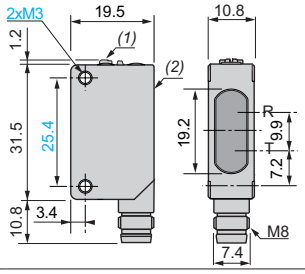



### M8 connector version

**Description - XUM5A●XBM8, XUM6A●XBM8, XUM4A●XBM8**




**Dimensions - XUM5A●XBM8, XUM6A●XBM8, XUM4A●XBM8**




*(1) Output indicator (yellow)*
*(2) Setting potentiometer (sensitivity)*
*(3) Stability indicator (green)*

*R: Reception*
*T: Transmission*
*(1) Setting potentiometer (sensitivity)*
*(2) Setting potentiometer (NO/NC)*

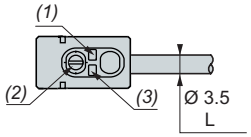
*(1) Output indicator (yellow)*
*(2) Setting potentiometer (sensitivity)*
*(3) Stability indicator (green)*

*R: Reception*
*T: Transmission*
*(1) Setting potentiometer (sensitivity)*
*(2) Setting potentiometer (NO/NC)*

## Diffuse system with background suppression

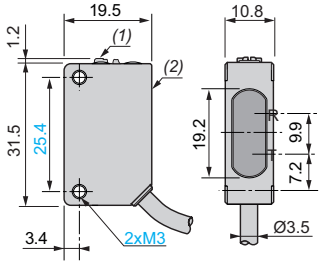
### Pre-cabled version

**Description - XUM8A●XBL2**



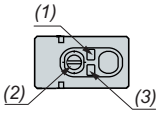

*L = 2 m (pre-cabled)*
*0.3 m (pigtail)*

**Dimensions - XUM8A●XBL2**

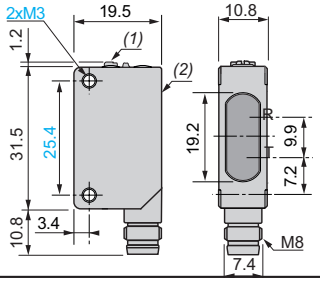



### M8 connector version

**Description - XUM8A●XBM8**




**Dimensions - XUM8A●XBM8**



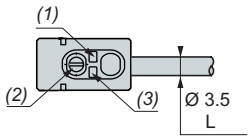
# Photo-electric sensors

XUM, general purpose, single mode function
Miniature design, plastic
Three-wire DC, solid-state output

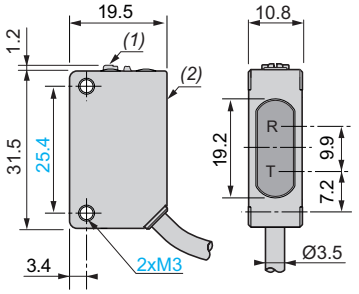
## Polarised reflex system

### Pre-cabled and pigtail versions

**Description - XUM9A●XBL2, XUM9A●●BL03●●**

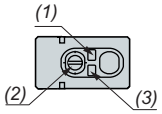



**Dimensions - XUM9A●XBL2, XUM9A●●BL03●●**

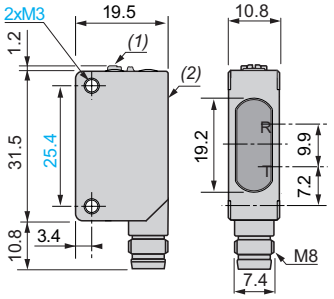



### M8 connector version

**Description - XUM9A●XBM8**



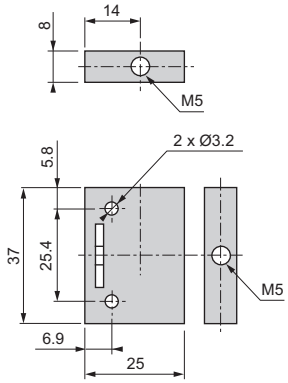

**Dimensions - XUM9A●XBM8**




## Accessories

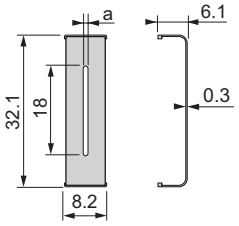
### Setting-up accessory

**XUZASM05**

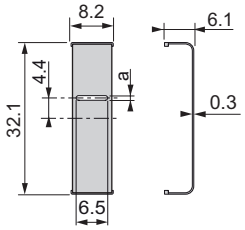



### Diaphragms

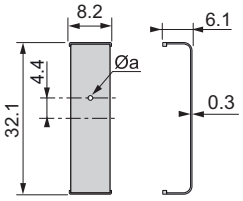
**XUZDVM●●**




**XUZDHM●●**




**XUZDRM●●**




| Reference | a (mm) |
|---|---|
| XUZDVM05 | 0.5 |
| XUZDVM10 | 1 |
| XUZDVM20 | 2 |
| XUZDHM05 | 0.5 |
| XUZDHM10 | 1 |
| XUZDHM20 | 2 |
| XUZDRM05 | Ø 0.5 |
| XUZDRM10 | Ø 1 |
| XUZDRM20 | Ø 2 |

# Photo-electric sensors

## XUB general purpose, single mode function
Cylindrical miniature design 18, plastic, kits
Four-wire DC, solid-state output
Wire setting for NO/NC




*XUB2APYNM12*
*XUB2ANXWM12*




*XUB2ANXNL2*




*XUB2ANXNM12*
*XUB2ANXWM12*




*XUB2APXNL2*

## Thru-beam system with adjustable sensitivity

| Max./operating sensing distance (Sn)/ Line of sight | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **Transmitter + receiver** IO-Link | | | | | |
| **15 m/20 m** Along case axis | NO/NC (Dark ON/Light ON) configuration by IO-Link and/or by wire on the receiver | Autodetect PNP/NPN | M12 connector (4-pin) | **XUB2APYNM12** | 0.060 |
| **12 m/12 m** 90° to case axis | NO/NC (Dark ON/Light ON) configuration by IO-Link and/or by wire on the receiver | | M12 connector (4-pin) | **XUB2APYWM12** | 0.060 |
| **Transmitter + receiver** | | | | | |
| **30 m/20 m** Along case axis | NO/NC (Dark ON/Light ON) configuration by wire on the receiver | NPN | Pre-cabled (L = 2 m) | **XUB2ANXNL2** | 0.171 |
| | NO/NC (Dark ON/Light ON) configuration by wire on the receiver | | M12 connector (4-pin) | **XUB2ANXNM12** | 0.060 |
| **17 m/12 m** 90° to case axis | NO/NC (Dark ON/Light ON) configuration by wire on the receiver | NPN | Pre-cabled (L = 2 m) | **XUB2ANXWL2** | 0.171 |
| | NO/NC (Dark ON/Light ON) configuration by wire on the receiver | | M12 connector (4-pin) | **XUB2ANXWM12** | 0.060 |
| **30 m/20 m** Along case axis | NO/NC (Dark ON/Light ON) configuration by wire on the receiver | PNP | Pre-cabled (L = 2 m) | **XUB2APXNL2** | 0.171 |
| | NO/NC (Dark ON/Light ON) configuration by wire on the receiver | | M12 connector (4-pin) | **XUB2APXNM12** | 0.060 |
| **17 m/12 m** 90° to case axis | NO/NC (Dark ON/Light ON) configuration by wire on the receiver | PNP | Pre-cabled (L = 2 m) | **XUB2APXWL2** | 0.171 |
| | NO/NC (Dark ON/Light ON) configuration by wire on the receiver | | M12 connector (4-pin) | **XUB2APXWM12** | 0.060 |

## Accessories

### IO-Link Master

See page 90.

### Fixing and other accessories

See page 94.

### Cabling accessories

See page 100.

# Photo-electric sensors

## XUB general purpose, single mode function
Cylindrical miniature design 18, plastic
Four-wire DC, solid-state output
Wire setting for NO/NC




*XUB2AKXNM12T*




*XUB2AKXWM12T*




*XUB2AKXNL2T*




*XUB2AKXWL2T*
*XUB2ANXNL2*




*XUB2APYNM12R*
*XUB2ANXNM12R*
*XUB2APXNM12R*




*XUB2APYWM12R*
*XUB2ANXWM12R*
*XUB2APXWM12R*




*XUB2ANXNL2R*
*XUB2APXNL2R*




*XUB2ANXWL2R*
*XUB2APXWL2R*

## Thru-beam system with adjustable sensitivity

| Max./operating sensing distance (Sn)/Line of sight | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **Transmitter only** *(1)* | | | | | |
| **30 m/20 m** Along case axis | – | – | Pre-cabled (L = 2 m) | **XUB2AKXNL2T** | 0.095 |
| | | | M12 connector (4-pin) | **XUB2AKXNM12T** | 0.040 |
| **17 m/12 m** 90° to case axis | – | – | Pre-cabled (L = 2 m) | **XUB2AKXWL2T** | 0.095 |
| | | | M12 connector (4-pin) | **XUB2AKXWM12T** | 0.040 |
| **Receiver IO-Link only** | | | | | |
| **30 m/20 m** Along case axis | NO/NC (Dark ON/Light ON) configuration by wire or IO-Link | Autodetect PNP/NPN | M12 connector (4-pin) | **XUB2APYNM12R** | 0.040 |
| **17 m/12 m** 90° to case axis | NO/NC (Dark ON/Light ON) configuration by wire or IO-Link | Autodetect PNP/NPN | M12 connector (4-pin) | **XUB2APYWM12R** | 0.040 |
| **Receiver only** | | | | | |
| **30 m/20 m** Along case axis | NO/NC (Dark ON/Light ON) configuration by wire | NPN | Pre-cabled (L = 2 m) | **XUB2ANXNL2R** | 0.095 |
| | | | M12 connector (4-pin) | **XUB2ANXNM12R** | 0.040 |
| | | PNP | Pre-cabled (L = 2 m) | **XUB2APXNL2R** | 0.095 |
| | | | M12 connector (4-pin) | **XUB2APXNM12R** | 0.040 |
| **17 m/12 m** 90° to case axis | NO/NC (Dark ON/Light ON) configuration by wire | NPN | Pre-cabled (L = 2 m) | **XUB2ANXWL2R** | 0.095 |
| | | | M12 connector (4-pin) | **XUB2ANXWM12R** | 0.040 |
| | | PNP | Pre-cabled (L = 2 m) | **XUB2APXWL2R** | 0.095 |
| | | | M12 connector (4-pin) | **XUB2APXWM12R** | 0.040 |

## Accessories

### IO-Link Master
See page 90.

### Fixing and other accessories
See page 94.

### Cabling accessories
See page 100.

*(1) All transmitters are compatible with the receivers listed below.*

# Photo-electric sensors

## XUB general purpose, single mode function
## Cylindrical miniature design 18, metal, kits
## Four-wire DC, solid-state output
## Wire setting for NO/NC




*XUB2BPYNM12*
*XUB2BNXNM12*
*XUB2BPXNM12*




*XUB2BPYWM12*
*XUB2BNXWM12*
*XUB2BPXWM12*




*XUB2BNXNL2*
*XUB2BPXNL2*




*XUB2BNXWL2*
*XUB2BPXWL2*

### Thru-beam system with adjustable sensitivity

| Max./operating sensing distance (Sn)/ Line of sight | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **Transmitter + receiver** IO-Link | | | | | |
| **12 m/12 m** Along case axis | NO/NC (Dark ON/Light ON) configuration by IO-Link and/or by wire on the receiver | Autodetect PNP/NPN | M12 connector (4-pin) | **XUB2BPYNM12** | 0.060 |
| **12 m/12 m** 90° to case axis | NO/NC (Dark ON/Light ON) configuration by IO-Link and/or by wire on the receiver | Autodetect PNP/NPN | M12 connector (4-pin) | **XUB2BPYWM12** | 0.060 |
| **Transmitter + receiver** | | | | | |
| **30 m/20 m** Along case axis | NO/NC (Dark ON/Light ON) configuration by wire on the receiver | NPN | Pre-cabled (L = 2 m) | **XUB2BNXNL2** | 0.192 |
| | NO/NC (Dark ON/Light ON) configuration by wire on the receiver | NPN | M12 connector (4-pin) | **XUB2BNXNM12** | 0.080 |
| **17 m/12 m** 90° to case axis | NO/NC (Dark ON/Light ON) configuration by wire on the receiver | NPN | Pre-cabled (L = 2 m) | **XUB2BNXWL2** | 0.192 |
| | NO/NC (Dark ON/Light ON) configuration by wire on the receiver | NPN | M12 connector (4-pin) | **XUB2BNXWM12** | 0.080 |
| **30 m/20 m** Along case axis | NO/NC (Dark ON/Light ON) configuration by wire on the receiver | PNP | Pre-cabled (L = 2 m) | **XUB2BPXNL2** | 0.192 |
| | NO/NC (Dark ON/Light ON) configuration by wire on the receiver | PNP | M12 connector (4-pin) | **XUB2BPXNM12** | 0.080 |
| **17 m/12 m** 90° to case axis | NO/NC (Dark ON/Light ON) configuration by wire on the receiver | PNP | Pre-cabled (L = 2 m) | **XUB2BPXWL2** | 0.192 |
| | NO/NC (Dark ON/Light ON) configuration by wire on the receiver | PNP | M12 connector (4-pin) | **XUB2BPXWM12** | 0.080 |

## Accessories

### IO-Link Master

See page 90.

### Fixing and other accessories

See page 94.

### Cabling accessories

See page 100.

# Photo-electric sensors

## XUB general purpose, single mode function
Cylindrical miniature design 18, metal
Four-wire DC, solid-state output
Wire setting for NO/NC




XUB2BKXNM12T




XUB2BKXWM12T



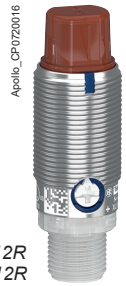

XUB2BKXNL2T




XUB2BKXWL2T




XUB2BPYNM12R
XUB2BNXNM12R
XUB2BPXNM12R




XUB2BPYWM12R
XUB2BNXWM12R
XUB2BPXWM12R




XUB2BNXNL2R
XUB2BPXNL2R




XUB2BNXWL2R
XUB2BPXWL2R

## Thru-beam system with adjustable sensitivity

| Max./operating sensing distance (Sn)/Line of sight | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **Transmitter only** *(1)* | | | | | |
| **30 m/20 m** Along case axis | – | – | Pre-cabled (L = 2 m) | **XUB2BKXNL2T** | 0.095 |
| | | | M12 connector (4-pin) | **XUB2BKXNM12T** | 0.040 |
| **17 m/12 m** 90° to case axis | – | – | Pre-cabled (L = 2 m) | **XUB2BKXWL2T** | 0.095 |
| | | | M12 connector (4-pin) | **XUB2BKXWM12T** | 0.040 |
| **Receiver IO-Link only** | | | | | |
| **30 m/20 m** Along case axis | NO/NC (Dark ON/Light ON) configuration by wire or IO-Link | Autodetect PNP/NPN | M12 connector (4-pin) | **XUB2BPYNM12R** | 0.040 |
| **17 m/12 m** 90° to case axis | NO/NC (Dark ON/Light ON) configuration by wire or IO-Link | Autodetect PNP/NPN | M12 connector (4-pin) | **XUB2BPYWM12R** | 0.040 |
| **Receiver only** | | | | | |
| **30 m/20 m** Along case axis | NO/NC (Dark ON/Light ON) configuration by wire | NPN | Pre-cabled (L = 2 m) | **XUB2BNXNL2R** | 0.095 |
| | | | M12 connector (4-pin) | **XUB2BNXNM12R** | 0.040 |
| | | PNP | Pre-cabled (L = 2 m) | **XUB2BPXNL2R** | 0.095 |
| | | | M12 connector (4-pin) | **XUB2BPXNM12R** | 0.040 |
| **17 m/12 m** 90° to case axis | NO/NC (Dark ON/Light ON) configuration by wire | NPN | Pre-cabled (L = 2 m) | **XUB2BNXWL2R** | 0.095 |
| | | | M12 connector (4-pin) | **XUB2BNXWM12R** | 0.040 |
| | | PNP | Pre-cabled (L = 2 m) | **XUB2BPXWL2R** | 0.095 |
| | | | M12 connector (4-pin) | **XUB2BPXWM12R** | 0.040 |

## Accessories

### IO-Link Master
See page 90.

### Fixing and other accessories
See page 94.

### Cabling accessories
See page 100.

*(1) All transmitters are compatible with the receivers listed below.*

# Photo-electric sensors

## XUB general purpose, single mode function
Cylindrical miniature design 18, plastic
Four-wire DC, solid-state output
Wire setting for NO/NC

Apollo_CP0720004



*XUB●APYNM12*
*XUB●ANXNM12*
*XUB●APXNM12*

Apollo_CP0720008



*XUB●APYWM12*
*XUB6●●●●*

Apollo_CP0720002



*XUB●ANXNL2*
*XUB●APXNL2*

Apollo_CP0720006



*XUB6●●●●*

### Diffuse system with adjustable sensitivity, IO-Link

| Max./operating sensing distance (Sn)/Line of sight | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **Long range, red LED emission** | | | | | |
| **1 m/0.7 m** Along case axis | NO/NC (Light ON/Dark ON) configuration by wire or IO-Link | Autodetect PNP/NPN | M12 connector (4-pin) | **XUB5APYNM12** | 0.040 |
| **Medium range, red LED emission** | | | | | |
| **0.6 m/0.42 m** Along case axis | NO/NC (Light ON/Dark ON) configuration by wire or IO-Link | Autodetect PNP/NPN | M12 connector (4-pin) | **XUB6APYNM12** | 0.040 |
| **0.5 m/0.35 m** 90° to case axis | NO/NC (Light ON/Dark ON) configuration by wire or IO-Link | Autodetect PNP/NPN | M12 connector (4-pin) | **XUB6APYWM12** | 0.040 |

### Diffuse system with adjustable sensitivity

| Max./operating sensing distance (Sn)/Line of sight | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **Long range, red LED emission** | | | | | |
| **1 m/0.7 m** Along case axis | NO/NC (Light ON/Dark ON) configuration by wire | NPN | Pre-cabled (L = 2 m) | **XUB5ANXNL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB5ANXNM12** | 0.040 |
| | | PNP | Pre-cabled (L = 2 m) | **XUB5APXNL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB5APXNM12** | 0.040 |
| **Medium range, red LED emission** | | | | | |
| **0.6 m/0.42 m** Along case axis | NO/NC (Light ON/Dark ON) configuration by wire | NPN | Pre-cabled (L = 2 m) | **XUB6ANXNL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB6ANXNM12** | 0.040 |
| | | PNP | Pre-cabled (L = 2 m) | **XUB6APXNL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB6APXNM12** | 0.040 |
| **0.5 m/0.35 m** 90° to case axis | NO/NC (Light ON/Dark ON) configuration by wire | NPN | Pre-cabled (L = 2 m) | **XUB6ANXWL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB6ANXWM12** | 0.040 |
| | | PNP | Pre-cabled (L = 2 m) | **XUB6APXWL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB6APXWM12** | 0.040 |

## Accessories

### IO-Link Master

See page 90.

### Fixing and other accessories

See page 94.

### Cabling accessories

See page 100.

# Photo-electric sensors

## XUB general purpose, single mode function
Cylindrical miniature design 18, metal
Four-wire DC, solid-state output
Wire setting for NO/NC




*XUB●BPYNM12*
*XUB●BNXNM12*
*XUB●BPXNM12*




*XUB6BPYWM12*
*XUB6BNXWM12*
*XUB6BPXWM12*




*XUB●BNXNL2*
*XUB●BPXNL2*




*XUB6BNXWL2*
*XUB6BPXWL2*

### Diffuse system with adjustable sensitivity, IO-Link

| Max./operating sensing distance (Sn)/Line of sight | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **Long range, red LED emission** | | | | | |
| **1 m/0.7 m**<br>Along case axis | NO/NC (Light ON/Dark ON) configuration by wire or IO-Link | Autodetect PNP/NPN | M12 connector (4-pin) | **XUB5BPYNM12** | 0.040 |
| **Medium range, red LED emission** | | | | | |
| **0.6 m/0.42 m**<br>Along case axis | NO/NC (Light ON/Dark ON) configuration by wire or IO-Link | Autodetect PNP/NPN | M12 connector (4-pin) | **XUB6BPYNM12** | 0.040 |
| **0.5 m/0.35 m**<br>90° to case axis | NO/NC (Light ON/Dark ON) configuration by wire or IO-Link | Autodetect PNP/NPN | M12 connector (4-pin) | **XUB6BPYWM12** | 0.040 |

### Diffuse system with adjustable sensitivity

| Max./operating sensing distance (Sn)/Line of sight | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **Long range, red LED emission** | | | | | |
| **1 m/0.7 m**<br>Along case axis | NO/NC (Light ON/Dark ON) configuration by wire | NPN | Pre-cabled (L = 2 m) | **XUB5BNXNL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB5BNXNM12** | 0.040 |
| | | PNP | Pre-cabled (L = 2 m) | **XUB5BPXNL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB5BPXNM12** | 0.040 |
| **Medium range, red LED emission** | | | | | |
| **0.6 m/0.42 m**<br>Along case axis | NO/NC (Light ON/Dark ON) configuration by wire | NPN | Pre-cabled (L = 2 m) | **XUB6BNXNL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB6BNXNM12** | 0.040 |
| | | PNP | Pre-cabled (L = 2 m) | **XUB6BPXNL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB6BPXNM12** | 0.040 |
| **0.5 m/0.35 m**<br>90° to case axis | NO/NC (Light ON/Dark ON) configuration by wire | NPN | Pre-cabled (L = 2 m) | **XUB6BNXWL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB6BNXWM12** | 0.040 |
| | | PNP | Pre-cabled (L = 2 m) | **XUB6BPXWL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB6BPXWM12** | 0.040 |

## Accessories

### IO-Link Master

See page 90.

### Fixing and other accessories

See page 94.

### Cabling accessories

See page 100.

# Photo-electric sensors

## XUB general purpose, single mode function
Cylindrical miniature design 18, plastic
Four-wire DC, solid-state output
Wire setting for NO/NC

Apollo_CP0720004



*XUB8APYNM12*
*XUB8ANXNM12*
*XUB8APXNM12*

Apollo_CP0720008



*XUB8APYWM12*
*XUB8ANXWM12*
*XUB8APXWM12*

### Diffuse system with background suppression (BGS), IO-Link

**Plastic, red LED emission**

| Max./operating sensing distance (Sn)/Line of sight | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **0.3 m/0.3 m** Along case axis | NO/NC (Dark ON/Light ON) configuration by wire or IO-Link | PNP | M12 connector (4-pin) | **XUB8APYNM12** | 0.040 |
| **0.15 m/0.15 m** 90° to case axis | NO/NC (Dark ON/Light ON) configuration by wire or IO-Link | | | **XUB8APYWM12** | 0.040 |

Apollo_CP0720002



*XUB8ANXNL2*
*XUB8APXNL2*

Apollo_CP0720006



*XUB8ANXWL2*
*XUB8APXWL2*

### Diffuse system with background suppression (BGS)

**Plastic, red LED emission**

| Max./operating sensing distance (Sn)/Line of sight | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **0.3 m/0.3 m** Along case axis | NO/NC (Dark ON/Light ON) configuration by wire | NPN | Pre-cabled (L = 2 m) | **XUB8ANXNL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB8ANXNM12** | 0.040 |
| | | PNP | Pre-cabled (L = 2 m) | **XUB8APXNL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB8APXNM12** | 0.040 |
| **0.15 m/0.15 m** 90° to case axis | NO/NC (Dark ON/Light ON) configuration by wire | NPN | Pre-cabled (L = 2 m) | **XUB8ANXWL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB8ANXWM12** | 0.040 |
| | | PNP | Pre-cabled (L = 2 m) | **XUB8APXWL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB8APXWM12** | 0.040 |

## Accessories

### IO-Link Master

See page 90.

### Fixing and other accessories

See page 94.

### Cabling accessories

See page 100.

# Photo-electric sensors

## XUB general purpose, single mode function
Cylindrical miniature design 18, metal
Four-wire DC, solid-state output
Wire setting for NO/NC

Apollo_CP0720012



*XUB8BPYNM12*
*XUB8BNXNM12*
*XUB8BPXNM12*

Apollo_CP0720016



*XUB8BPYWM12*
*XUB8BNXWM12*
*XUB8BPXWM12*

### Diffuse system with background suppression (BGS), IO-Link

**Metal, red LED emission**

| Max./operating sensing distance (Sn)/Line of sight | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **0.3 m/0.3 m** Along case axis | NO/NC (Dark ON/Light ON) configuration by wire or IO-Link | PNP | M12 connector (4-pin) | **XUB8BPYNM12** | 0,060 |
| **0.15 m/0.15 m** 90° to case axis | | | M12 connector (4-pin) | **XUB8BPYWM12** | 0,060 |

Apollo_CP0720010



*XUB8BNXNL2*
*XUB8BPXNL2*

Apollo_CP0720014



*XUB8BNXWL2*
*XUB8BPXWL2*

### Diffuse system with background suppression (BGS)

| Max./operating sensing distance (Sn)/Line of sight | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **Metal, red LED emission** | | | | | |
| **0.3 m/0.3 m** Along case axis | NO/NC (Dark ON/Light ON) configuration by wire | NPN | Pre-cabled (L = 2 m) | **XUB8BNXNL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB8BNXNM12** | 0.040 |
| | | PNP | Pre-cabled (L = 2 m) | **XUB8BPXNL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB8BPXNM12** | 0.040 |
| **0.15 m/0.15 m** 90° to case axis | NO/NC (Dark ON/Light ON) configuration by wire | NPN | Pre-cabled (L = 2 m) | **XUB8BNXWL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB8BNXWM12** | 0.040 |
| | | PNP | Pre-cabled (L = 2 m) | **XUB8BPXWL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB8BPXWM12** | 0.040 |

## Accessories

### IO-Link Master

See page 90.

### Fixing and other accessories

See page 94.

### Cabling accessories

See page 100.

# Photo-electric sensors

## XUB general purpose, single mode function
Cylindrical miniature design 18, plastic
Four-wire DC, solid-state output
Wire setting for NO/NC

Apollo_CP0720004



*XUB9APYNM12*
*XUB9ANXNM12*
*XUB9APXNM12*

Apollo_CP0720008



*XUB9APYWM12*
*XUB9ANXWM12*
*XUB9APXWM12*

### Polarised reflex system with adjustable sensitivity, IO-Link

**Plastic, red LED emission**

| Max./operating sensing distance (Sn)/Line of sight | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **7 m/5 m**<br>Along case axis | NO/NC (Dark ON/Light ON) configuration by wire or IO-Link | Autodetect PNP/NPN | M12 connector (4-pin) | **XUB9APYNM12** | 0.040 |
| **5.5 m/4 m**<br>90° to case axis | NO/NC (Dark ON/Light ON) configuration by wire or IO-Link | Autodetect PNP/NPN | M12 connector (4-pin) | **XUB9APYWM12** | 0.040 |

Apollo_CP0720002



*XUB9ANXNL2*
*XUB9APXNL2*

Apollo_CP0720006



*XUB9ANXWL2*
*XUB9APXWL2*

### Polarised reflex system with adjustable sensitivity

**Plastic, red LED emission**

| Max./operating sensing distance (Sn)/Line of sight | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **7 m/5 m**<br>Along case axis | NO/NC (Dark ON/Light ON) configuration by wire | NPN | Pre-cabled (L = 2 m) | **XUB9ANXNL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB9ANXNM12** | 0.040 |
| | | PNP | Pre-cabled (L = 2 m) | **XUB9APXNL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB9APXNM12** | 0.040 |
| **5.5 m/4 m**<br>90° to case axis | NO/NC (Dark ON/Light ON) configuration by wire | NPN | Pre-cabled (L = 2 m) | **XUB9ANXWL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB9ANXWM12** | 0.040 |
| | | PNP | Pre-cabled (L = 2 m) | **XUB9APXWL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB9APXWM12** | 0.040 |

## Accessories

### IO-Link Master

See page 90.

### Fixing and other accessories

See page 94.

### Cabling accessories

See page 100.

# Photo-electric sensors
## XUB general purpose, single mode function
## Cylindrical miniature design 18, metal
## Four-wire DC, solid-state output
## Wire setting for NO/NC




*XUB9BPYNM12*
*XUB9BNXNM12*
*XUB9BPXNM12*




*XUB9BPYWM12*
*XUB9BNXWM12*
*XUB9BPXWM12*

### Polarised reflex system with adjustable sensitivity, IO-Link

**Metal, red LED emission**

| Max./operating sensing distance (Sn)/Line of sight | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **7 m/5 m**<br>Along case axis | NO/NC (Dark ON/Light ON) configuration by wire or IO-Link | Autodetect PNP/NPN | M12 connector (4-pin) | **XUB9BPYNM12** | 0.040 |
| **5.5 m/4 m**<br>90° to case axis | NO/NC (Dark ON/Light ON) configuration by wire or IO-Link | Autodetect PNP/NPN | M12 connector (4-pin) | **XUB9BPYWM12** | 0.040 |




*XUB9BNXNL2*
*XUB9BPXNL2*




*XUB9BNXWL2*
*XUB9BPXWL2*

### Polarised reflex system with adjustable sensitivity

| Max./operating sensing distance (Sn)/Line of sight | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **Metal, red LED emission** | | | | | |
| **7 m/5 m**<br>Along case axis | NO/NC (Dark ON/Light ON) configuration by wire | NPN | Pre-cabled (L = 2 m) | **XUB9BNXNL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB9BNXNM12** | 0.040 |
| | | PNP | Pre-cabled (L = 2 m) | **XUB9BPXNL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB9BPXNM12** | 0.040 |
| **5.5 m/4 m**<br>90° to case axis | NO/NC (Dark ON/Light ON) configuration by wire | NPN | Pre-cabled (L = 2 m) | **XUB9BNXWL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB9BNXWM12** | 0.040 |
| | | PNP | Pre-cabled (L = 2 m) | **XUB9BPXWL2** | 0.095 |
| | | | M12 connector (4-pin) | **XUB9BPXWM12** | 0.040 |

## Accessories

### IO-Link Master

See page 90.

### Fixing and other accessories

See page 94.

### Cabling accessories

See page 100.

# Photo-electric sensors

XUB general purpose, single mode function
Cylindrical miniature design 18, plastic
Four-wire DC, solid-state output
Wire setting for NO/NC

## Characteristics

| | | | | | | |
|---|---|---|---|---|---|---|
| **Sensor type** | | | | **XUB2APY●M12, XUB2BPY●M12, XUB2A●X●M12, XUB2A●X●M12 XUB2APY●M12R, XUB2BPY●M12R, XUB2A●X●M12T, XUB2A●X●M12R, XUB2B●X●M12T, XUB2B●X●M12R, XUB5APYNM12, XUB5BPYNM12, XUB5A●X●M12, XUB5B●X●M12, XUB6APY●M12, XUB6APY●M12, XUB6A●X●M12, XUB6B●X●M12, XUB8APY●M12, XUB8BPY●M12 XUB8A●X●M12, XUB8B●X●M12 XUB9APY●M12, XUB9BPY●M12 XUB9A●X●M12, XUB9B●X●M12** | **XUB2A●X●L2, XUB2A●X●L2, XUB2B●X●L2, XUB2B●X●L2, XUB2A●X●L2T, XUB2A●X●L2R, XUB2B●X●L2T, XUB2B●X●L2R, XUB5A●X●L2, XUB5B●X●L2, XUB6A●X●L2, XUB6B●X●L2, XUB8A●X●L2, XUB8B●X●L2 XUB9A●X●L2, XUB9B●X●L2** |
| **Product certifications** | | **XUB8** | | CE, UKCA, cULus, ECOLAB, RCM | |
| | | **Others** | | CE, UKCA, cULus, ECOLAB | |
| **Connection** | Connector | | | M12 | – |
| | Pre-cabled | | | – | Length: 2 m |
| **Sensing distance** Excess gain = 1: maximum sensing distance Excess gain = 2 : nominal sensing distance | Thru-beam system **XUB2** | Along case axis (axial) | **m** | 30 (with excess gain = 1) 20 (with excess gain = 2) | |
| | | 90° to case axis (radial) | **m** | 17 (with excess gain = 1) 12 (with excess gain = 2) | |
| | Diffuse long dist. system **XUB5** (using a 200 x 200 mm white paper ) | Along case axis (axial) | **m** | 1 (with excess gain = 1) 0.7 (with excess gain = 2) | |
| | Diffuse med. dist. system **XUB6** (using a 200 x 200 mm white paper ) | Along case axis (axial) | **m** | 0.6 (with excess gain = 1) 0.42 (with excess gain = 2) | |
| | | 90° to case axis (radial) | **m** | 0.5 (with excess gain = 1) 0.35 (with excess gain = 2) | |
| | Diffuse BGS **XUB8** (using a 200 x 200 mm white or black mat paper) | Along case axis (axial) | **m** | 0.3 (from white object (90%) to black object (6%)) | |
| | | 90° to case axis (radial) | **m** | 0.15 (rom white object (90%) to black object (6%)) | |
| | Polarised reflex system **XUB9** (using a 50 x 50 mm reflector XUZC50) | Along case axis | **m** | 7 (with excess gain = 1) 5 (with excess gain = 2) | |
| | | 90° to case axis | **m** | 5.5 (with excess gain = 1) 4 (with excess gain = 2) | |
| **Blind zone** | | **XUB8** | **mm** | Axial: < 5, radial: < 13 | |
| | | Others | **mm** | 0 (white object and potentiometer max.) | |
| **Sensing distance setting** | | | | Potentiometer 1 turn (+/- 220 degrees) | |
| **Colour of detection light beam** | | | | Red | |
| **Output type** | | | | PNP/NPN (or autodetect PNP/NPN with IO-Link) | |
| **Hysteresis** | | | | 2% < H < 20% at Sn | |
| **Degree of protection** | Conforming to IEC 60529 | | | IP65, IP67 | |
| | Conforming to DIN 40050-9 | | | IP69K | N/A |
| **Artificial optical radiation** | Conforming to IEC 62471 | | | Class 0 (risk exempt) | |
| **Radiated disturbances emissions** | Conforming to EN 55011/CISPR 1 | | | Class A | |
| **Storage temperature** | | | **°C** | -40…+70 | |
| **Operating temperature** | | | **°C** | -30…+55 | |
| **Materials** | Case | **XUB●A** | | PBT/PC | |
| | | **XUB●B** | | Brass | |
| | Back cap | | | MABS | |
| | Potentiometer screw | | | PBT | |
| | Lens cover | | | PMMA | |
| | Cable | | | – | PVC |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | **Hz** **gn** | Frequency range 10 to 55 Acceleration 7 | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | **gn** **ms** | Peak acceleration 30 Duration of the pulse 11 | |
| **Rated supply voltage** | | | **V** | 12...24 ⎓ with protection against reverse polarity | |
| **Voltage limits (including ripple)** | | | **V** | 10...30 ⎓ | |
| **Current consumption, no-load** | | IO-Link, **XUB8** | **mA** | < 30 | |
| | | Others | **mA** | < 20 | |
| **Switching capacity** | | | **mA** | 100 | |
| **Voltage drop, closed state** | | | **V** | ≤ 2 | |
| **Maximum switching frequency** | | | **Hz** | 1000 | |
| **Delays** | First-up, **XUB8** and IO-Link | | **ms** | < 300 | |
| | Others | | **ms** | < 100 | |
| | Response | | **ms** | 0.5 max. | |
| | Recovery | | **ms** | 0.5 max | |

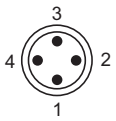
# Photo-electric sensors

## XUB general purpose, single mode function
Cylindrical miniature design 18
Four-wire DC, solid-state output
Wire setting for NO/NC

## Wiring schemes

### Thru-beam system

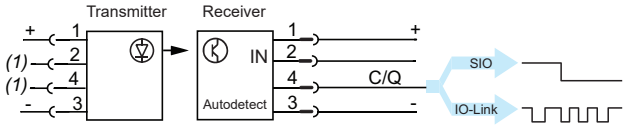
#### M12 connector - 4 pins, plastic and metal, IO-Link




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

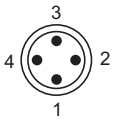
**Autodetect PNP/NPN or by IO-Link**

**XUB2●PYNM12R, XUB2●PYWM12R, XUB2●KXNM12T, XUB2●KXWM12T**




***Note**: IODD IO-Link files available on our website www.telemecaniquesensors.com/iolink*

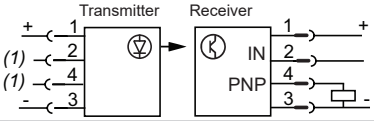
#### M12 connector - 4 pins, plastic and metal




| Pin | Signal | Definition |
|---|---|---|
| 1 | + | + 24 V ⎓ |
| 2 | IN | + = NO |
| | | - = NC |
| | | Open = NO |
| 3 | - | 0 V ⎓ |
| 4 | Q | Switching signal (SIO) |

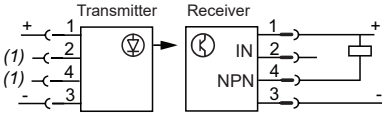
**PNP**

**XUB2●PXNM12R, XUB2●PXWM12R, XUB2●KXNM12T, XUB2●KXWM12T**




**NPN**

**XUB2●NXNM12R, XUB2●NXWM12R, XUB2●KXNM12T, XUB2●KXWM12T**

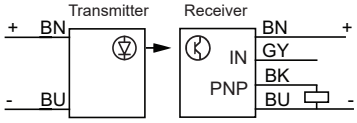



#### Pre-cabled - 4 wires, plastic and metal

+BN (Brown)
IN (input) GY (Grey)
OUT (output) BK (Black)
-BU (Blue)

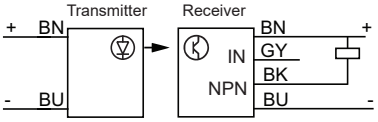
**PNP**

**XUB2●PXNL2R, XUB2●APXWL2R, XUB2●KXNL2T, XUB2●KXWL2T**



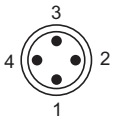

**NPN**

**XUB2●NXNL2R, XUB2●NXWL2R, XUB2●KXNL2T, XUB2●KXWL2T**




### Diffuse system

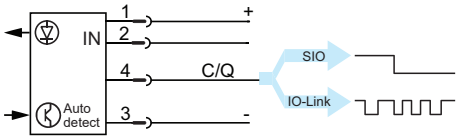
#### M12 connector - 4 pins, plastic and metal, IO-Link




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

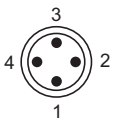
**Autodetect PNP/NPN or by IO-Link**

**XUB5APYNM12, XUB6APYNM12, XUB6APYWM12, XUB5BPYNM12, XUB6BPYNM12, XUB6BPYWM12**




***Note**: IODD IO-Link files available on our website www.telemecaniquesensors.com/iolink*

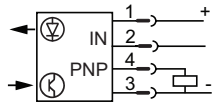
#### M12 connector - 4 pins, plastic and metal




| Pin | Signal | Definition |
|---|---|---|
| 1 | + | + 24 V ⎓ |
| 2 | IN | + = NO |
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| | | Open = NO |
| 3 | - | 0 V ⎓ |
| 4 | Q | Switching signal (SIO) |

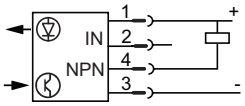
**PNP**

**XUB5APXNM12, XUB6APXNM12, XUB6APXWM12, XUB5BPXNM12, XUB6BPXNM12, XUB6BPXWM12,**




**NPN**

**XUB5ANXNM12, XUB6ANXNM12, XUB6ANXWM12, XUB5BNXNM12, XUB6BNXNM12, XUB6BNXWM12**

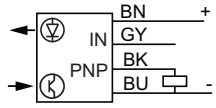



#### Pre-cabled - 4 wires, plastic and metal

+BN (Brown)
IN (input) GY (Grey)
OUT (output) BK (Black)
-BU (Blue)

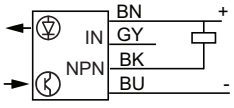
**PNP**

**XUB5APXNL2, XUB6APXNL2, XUB6APXWL2, XUB5BPXNL2, XUB6BPXNL2, XUB6BPXWL2**




**NPN**

**XUB5ANXNL2, XUB6ANXNL2, XUB6ANXWL2, XUB5BNXNL2, XUB6BNXNL2, XUB6BNXWL2**



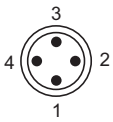

*(1) Not connected.*

# Photo-electric sensors
XUB general purpose, single mode function
Cylindrical miniature design 18
Four-wire DC, solid-state output
Wire setting for NO/NC

## Wiring schemes (continued)

### Diffuse system with background suppression

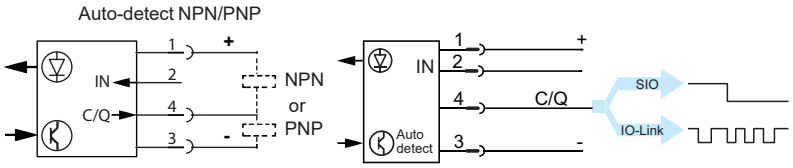
#### M12 connector - 4 pins, plastic and metal, IO-Link




| Pin | Signal | Definition |
|---|---|---|
| 1 | + | + 24 V ⎓ |
| 2 | IN | + = NC |
| | | - = NO |
| | | Open = NO |
| 3 | - | 0 V ⎓ |
| 4 | Q | Switching signal (SIO) |
| | C | Coded switching signal (IO-Link) |

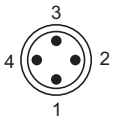
**Autodetect PNP/NPN or by IO-Link**

**XUB8APYNM12, XUB8APYWM12, XUB8BPYNM12, XUB8BPYWM12**




*Note: IODD IO-Link files available on our website www.telemecaniquesensors.com/iolink*

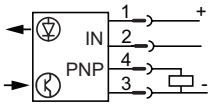
#### M12 connector - 4 pins, plastic and metal




| Pin | Signal | Definition |
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| 1 | + | + 24 V ⎓ |
| 2 | IN | + = NO |
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| | | Open = NO |
| 3 | - | 0 V ⎓ |
| 4 | Q | Switching signal (SIO) |

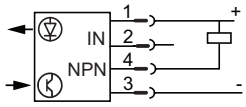
**PNP**

**XUB8APXNM12, XUB8APXWM12**
**XUB8BPXNM12, XUB8BPXWM12**




**NPN**

**XUB8ANXNM12, XUB8ANXWM12**
**XUB8BNXNM12, XUB8BNXWM12**

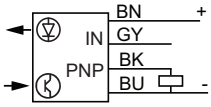



#### Pre-cabled - 4 wires, plastic and metal

+BN (Brown)
IN (input) GY (Grey)
OUT (output) BK (Black)
-BU (Blue)

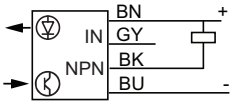
**PNP**

**XUB8APXNL2, XUB8APXWL2**
**XUB8BPXNL2, XUB8BPXWL2**



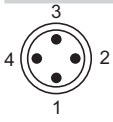

**NPN**

**XUB8ANXNL2, XUB8ANXWL2**
**XUB8BNXNL2, XUB8BNXWL2**




### Polarised reflex system

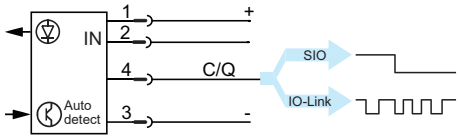
#### M12 connector - 4 pins, plastic and metal, IO-Link




| Pin | Signal | Definition |
|---|---|---|
| 1 | + | + 24 V ⎓ |
| 2 | IN | + = NC |
| | | - = NO |
| | | Open = NO |
| 3 | - | 0 V ⎓ |
| 4 | Q | Switching signal (SIO) |
| | C | Coded switching signal (IO-Link) |

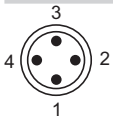
**Autodetect PNP/NPN or by IO-Link**

**XUB9APYNM12, XUB9APYWM12, XUB9BPYNM12, XUB9BPYWM12**




*Note: IODD IO-Link files available on our website www.telemecaniquesensors.com/iolink*

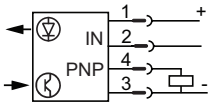
#### M12 connector - 4 pins, plastic and metal




| Pin | Signal | Definition |
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| 4 | Q | Switching signal (SIO) |
| | C | Coded switching signal (IO-Link) |

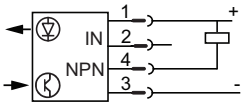
**PNP**

**XUB9APXNM12, XUB9APXWM12,**
**XUB9BPXNM12, XUB9BPXWM12**




**NPN**

**XUB9ANXNM12, XUB9ANXWM12,**
**XUB9BNXNM12, XUB9BNXWM12**

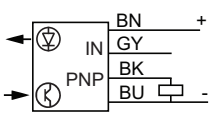



#### Pre-cabled, 4 wires, plastic and metal

+BN (Brown)
IN (input) GY (Grey)
OUT (output) BK (Black)
-BU (Blue)

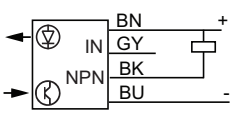
**PNP**

**XUB9APXNL2, XUB9BAPXWL2,**
**XUB9BPXNL2, XUB9BPXWL2**




**NPN**

**XUB9ANXNL2, XUB9ANXWL2,**
**XUB9BNXNL2, XUB9BNXWL2**



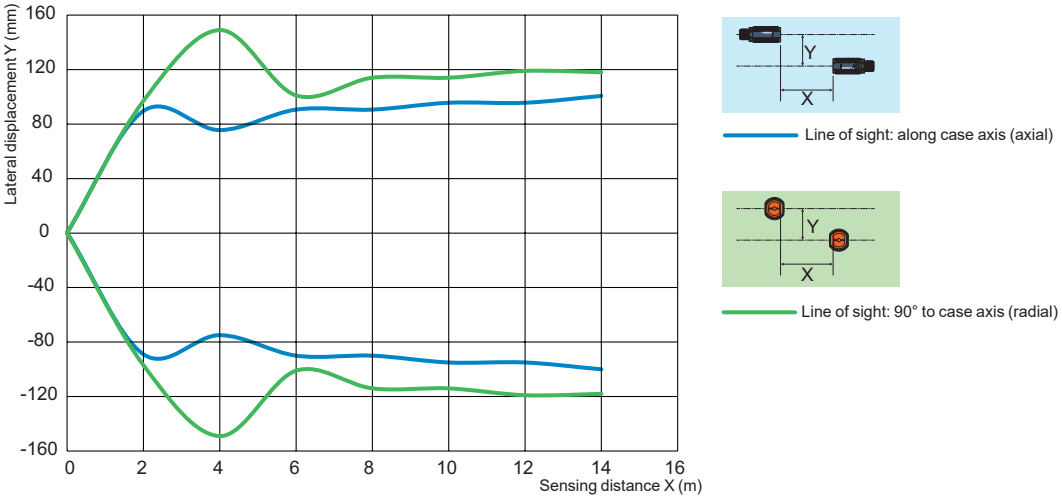
# Photo-electric sensors

XUB general purpose, single mode function
Cylindrical miniature design 18
Four-wire DC, solid-state output
Wire setting for NO/NC

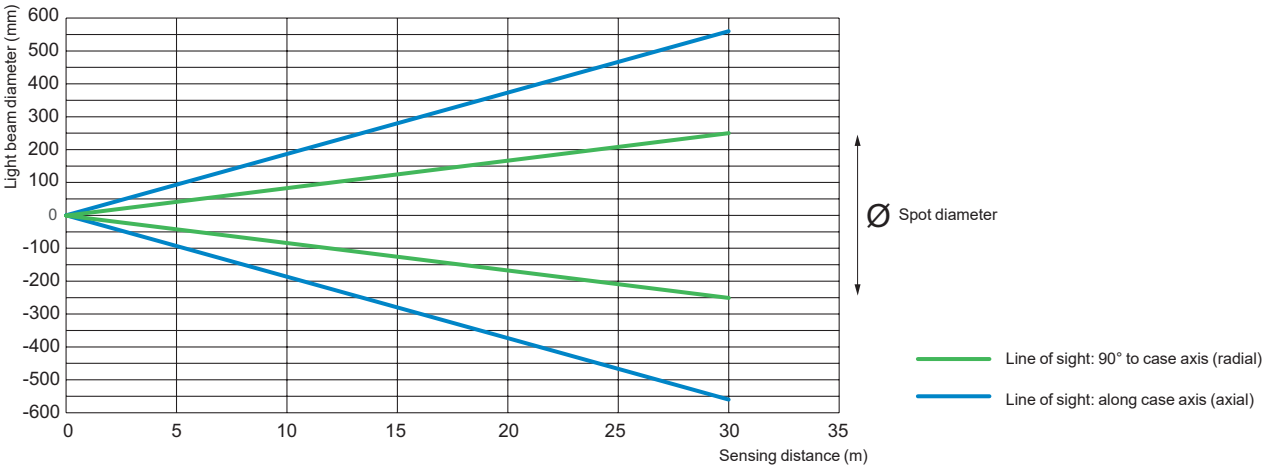
## Detection curves

### Thru-beam system

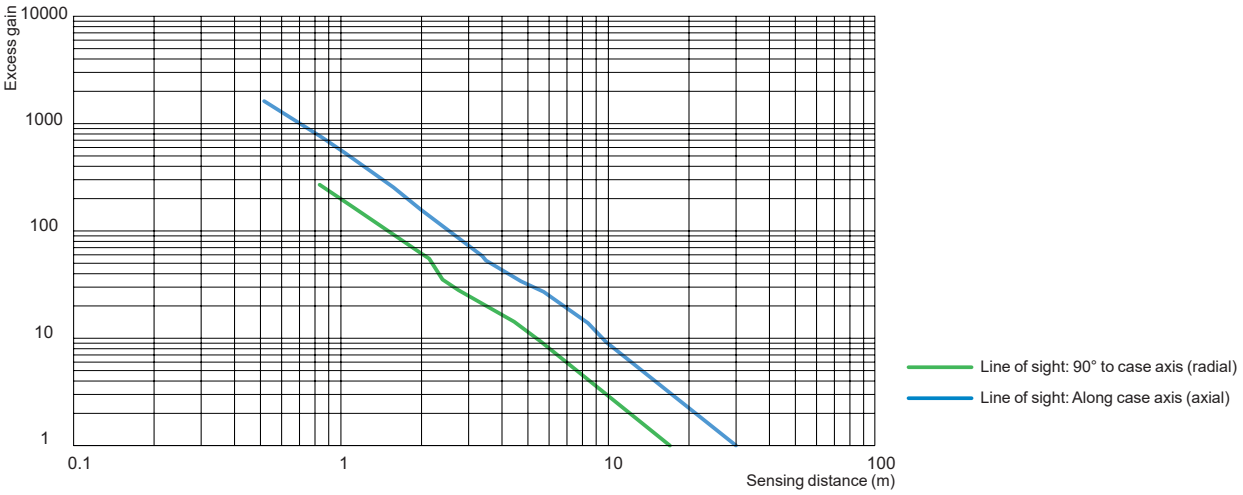
#### Lateral displacement




#### Light beam diameter




#### Excess gain

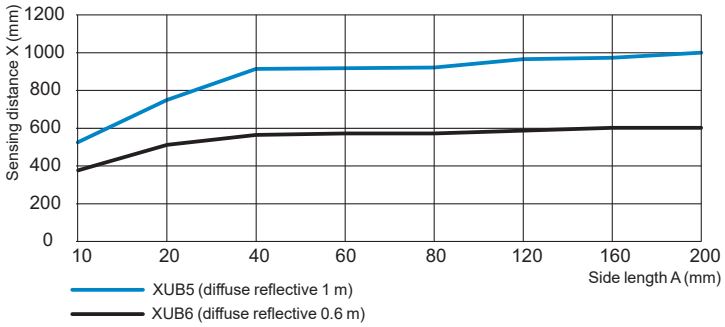


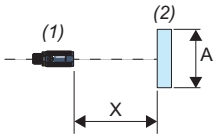
# Photo-electric sensors
XUB general purpose, single mode function
Cylindrical miniature design 18
Four-wire DC, solid-state output
Wire setting for NO/NC

## Detection curves *(continued)*

### Diffuse system

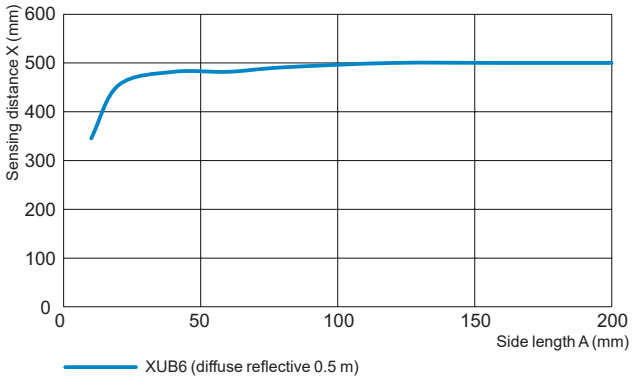
#### Minimum object size/sensing distance. Line of sight: along case axis (axial)

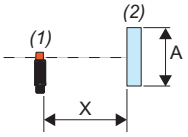



*(1): Sensor*
*(2): Object (white matt paper of A x A mm)*
*A: Side length (mm)*
*X: Sensing distance (mm)*

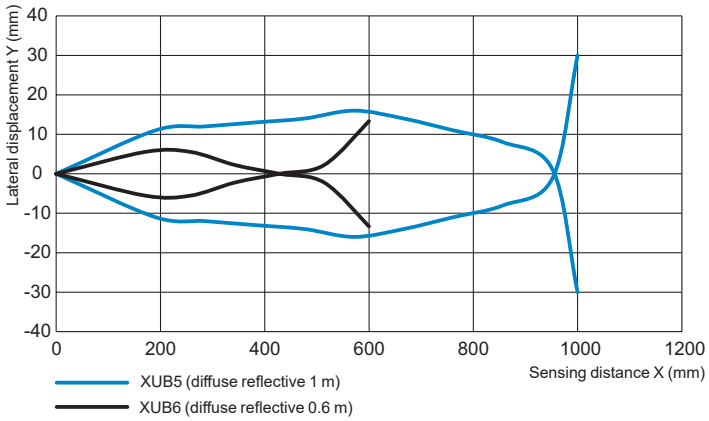
#### Minimum object size/sensing distance. Line of sight: 90° to case axis (radial)

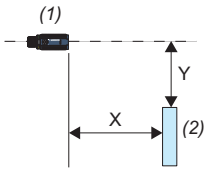



*(1): Sensor*
*(2): Object (white matt paper of A x A mm)*
*A: Side length (mm)*
*X: Sensing distance (mm)*

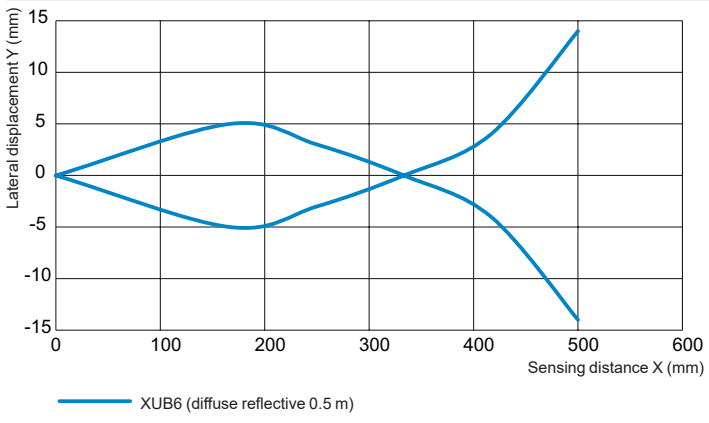
#### Lateral displacement. Line of sight: along case axis (axial)

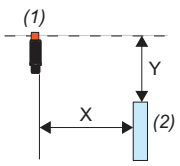



*(1): Sensor*
*(2): Object (200 x 200 mm white paper)*
*X: Sensing distance (mm)*
*Y: Lateral displacement (mm)*

#### Lateral displacement. Line of sight: 90° to case axis (radial)



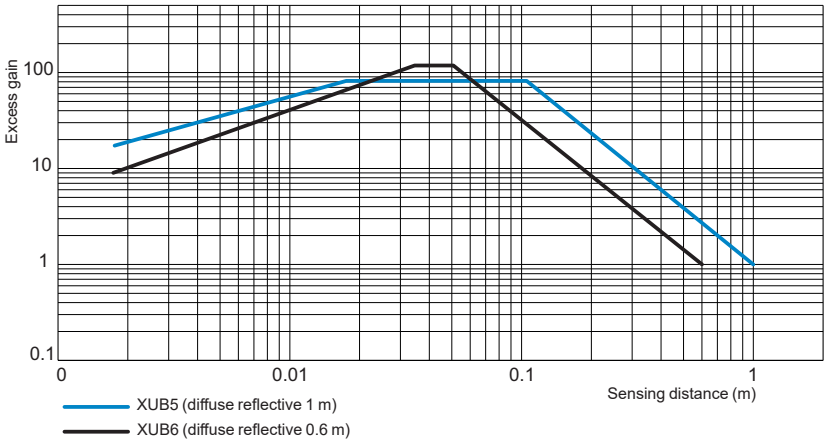




*(1): Sensor*
*(2): Object (200 x 200 mm white paper)*
*X: Sensing distance (mm)*
*Y: Lateral displacement (mm)*

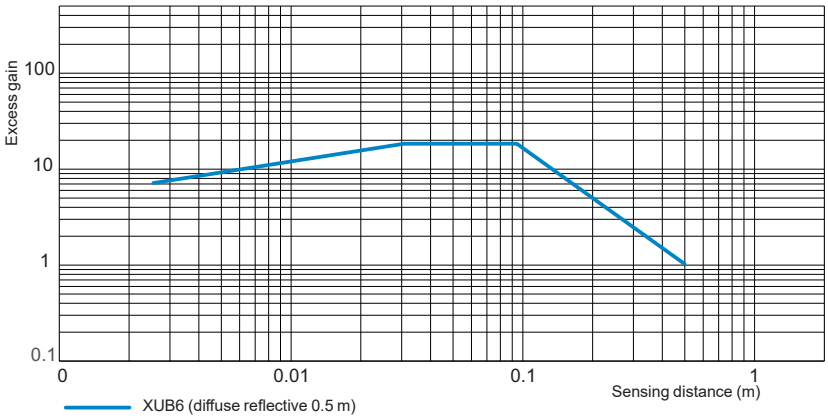
## Detection curves *(continued)*

### Diffuse system *(continued)*

**Excess gain. Line of sight: along case axis (axial)**




**Excess gain. Line of sight: 90° to case axis (radial)**



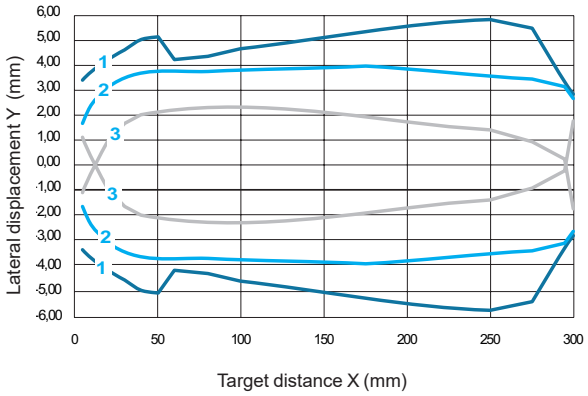
# Photo-electric sensors
XUB general purpose, single mode function
Cylindrical miniature design 18
Four-wire DC, solid-state output
Wire setting for NO/NC

## Detection curves (continued)

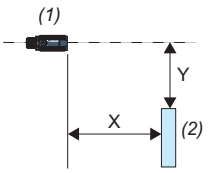
### Diffuse system with background suppression

#### Lateral displacement. Line of sight: along case axis (axial)

(Preset 300 mm)




Target distance X (mm)

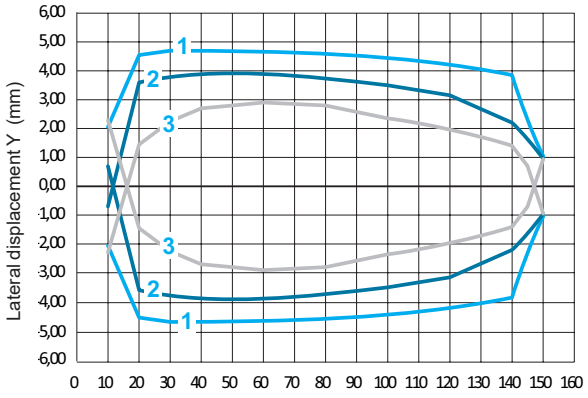



*(1): Sensor*
*(2): Object (200 x 200 mm white or black paper)*
*X: Sensing distance (mm)*
*Y: Lateral displacement (mm)*

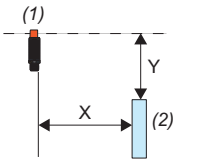
- *White object / white background(90%)*
- *Grey object / grey (background 90%)*
- *Black object / black background (90%)*

#### Lateral displacement. Line of sight: 90° to case axis (radial)

(Preset 150 mm)



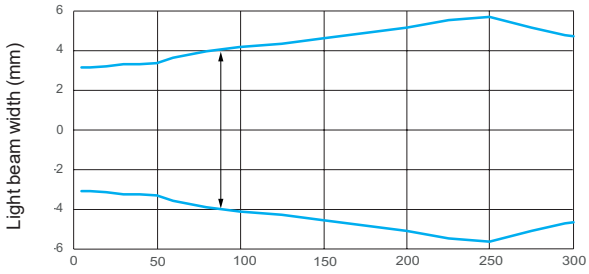

Target distance X (mm)




*(1): Sensor*
*(2): Object (200 x 200 mm white or black paper)*
*X: Sensing distance (mm)*
*Y: Lateral displacement (mm)*

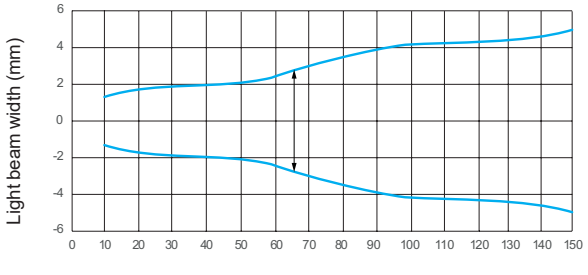
- *White object / white background(90%)*
- *Grey object / grey (background 90%)*
- *Black object / black background (90%)*

#### Light beam width. Line of sight: along case axis (axial)




Target distance X (mm)

#### Light beam width. Line of sight: 90° to case axis (radial)




Target distance X (mm)

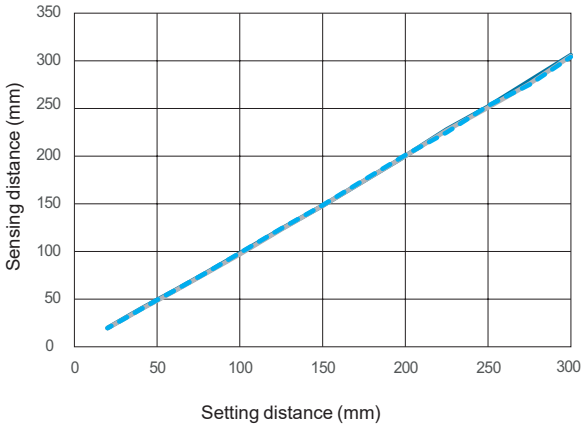
# Photo-electric sensors

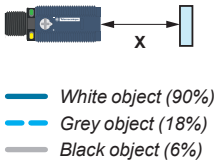
XUB general purpose, single mode function
Cylindrical miniature design 18, plastic
Four-wire DC, solid-state output
Wire setting for NO/NC

## Detection curves (continued)

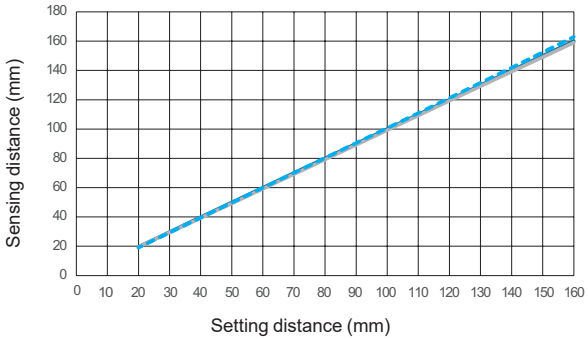
### Diffuse system with background suppression (continued)

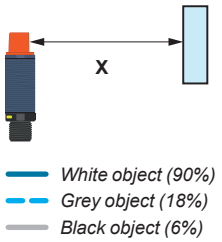
#### Sensing distance. Line of sight: along case axis (axial)



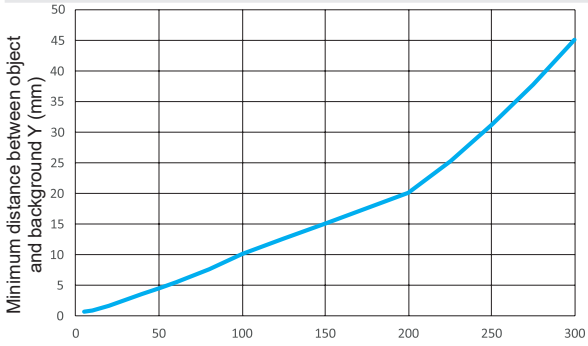



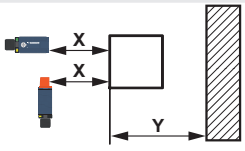

#### Sensing distance. Line of sight: 90° to case axis (radial)



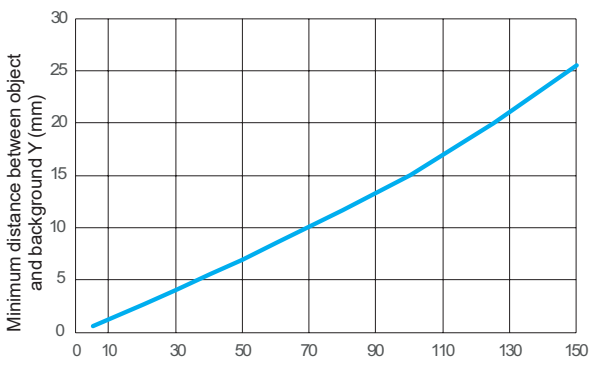



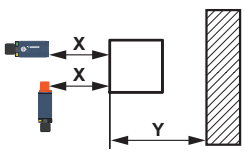

#### Minimum distance between the object to detect and white background (mm). Line of sight: along case axis (axial)




#### Minimum distance between the object to detect and white background (mm). Line of sight: 90° to case axis (radial)



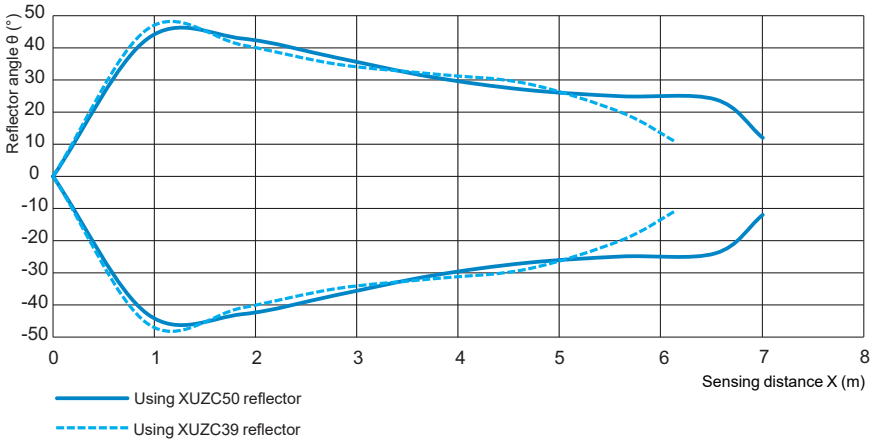



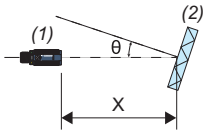
# Photo-electric sensors
XUB general purpose, single mode function
Cylindrical miniature design 18
Four-wire DC, solid-state output
Wire setting for NO/NC

## Detection curves (continued)

### Polarised reflex system

#### Reflector angle. Line of sight: along case axis (axial)




*(1): Sensor*
*(2): Reflector*
*θ: Reflector angle (°)*
*X: Sensing distance (m)*

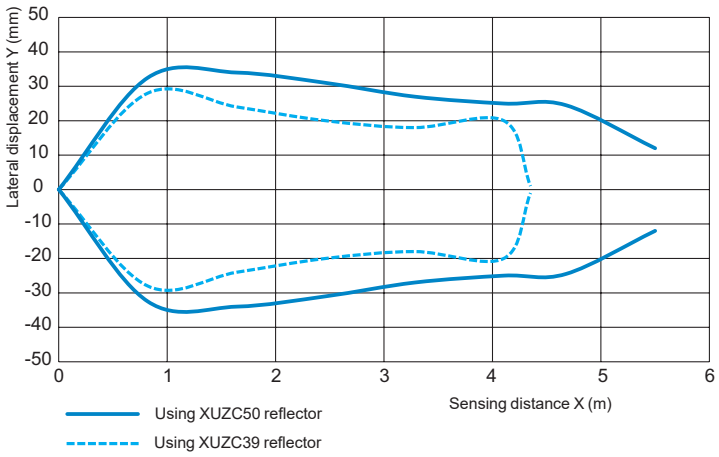


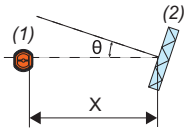
XUZC50



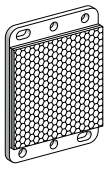
XUZC39

#### Reflector angle. Line of sight: 90° to case axis (radial)




*(1): Sensor*
*(2): Reflector*
*θ: Reflector angle (°)*
*X: Sensing distance (m)*

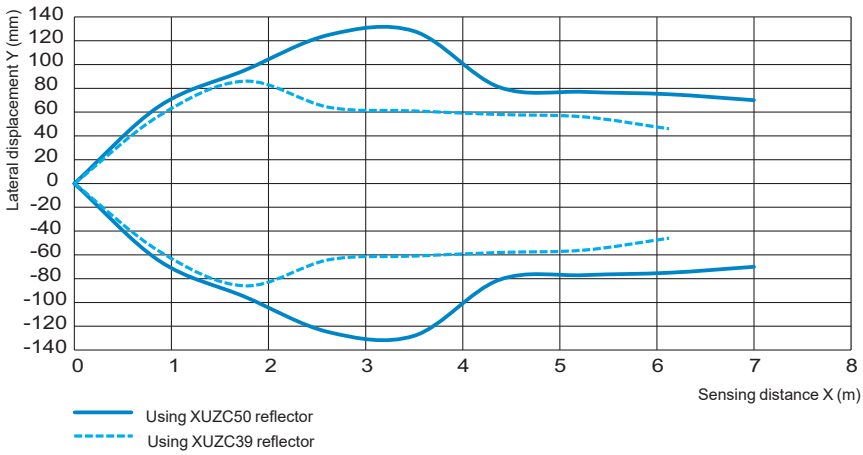


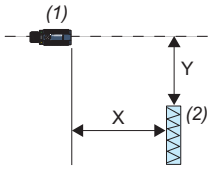
XUZC50



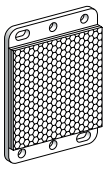
XUZC39

#### Lateral displacement. Line of sight: along case axis (axial)




*(1): Sensor*
*(2): Reflector*
*Y: Lateral displacement (mm)*
*X: Sensing distance (m)*



XUZC50

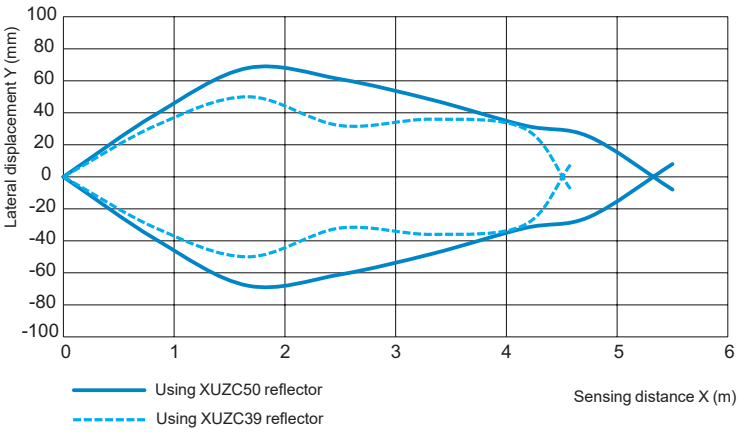


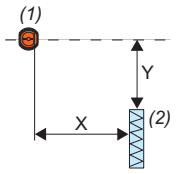
XUZC39

## Detection curves *(continued)*

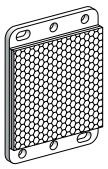
### Polarised reflex system *(continued)*

**Lateral displacement. Line of sight: 90° to case axis (radial)**




*(1): Sensor*
*(2): Reflector*
*Y: Lateral displacement (mm)*
*X: Sensing distance (m)*

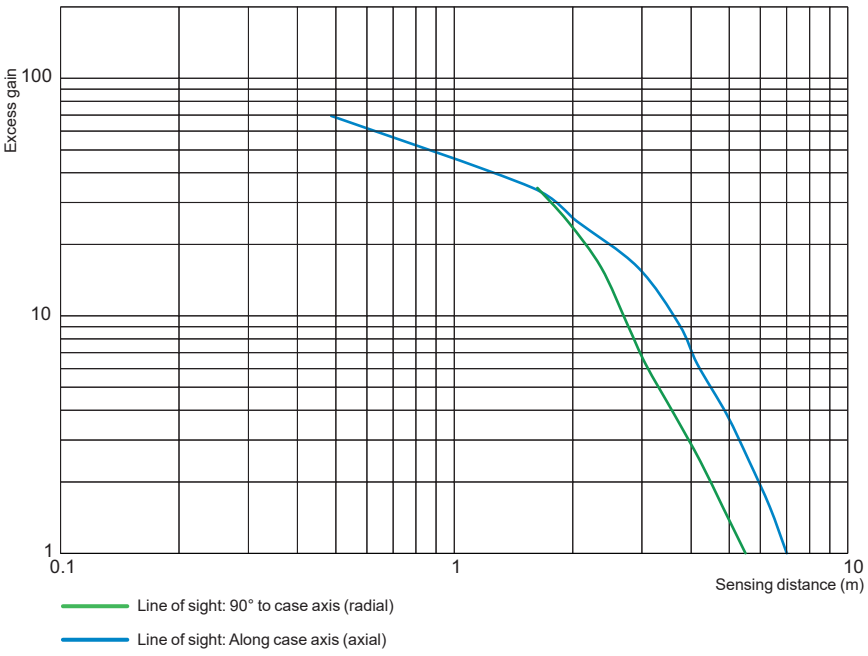


XUZC50



XUZC39

**Excess gain**



# Photo-electric sensors

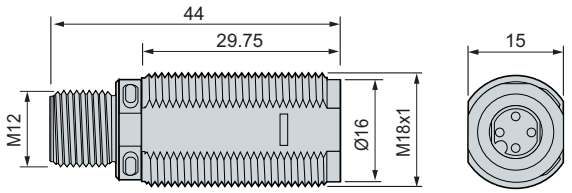
XUB general purpose, single mode function
Cylindrical miniature design 18, plastic
Four-wire DC, solid-state output
Wire setting for NO/NC

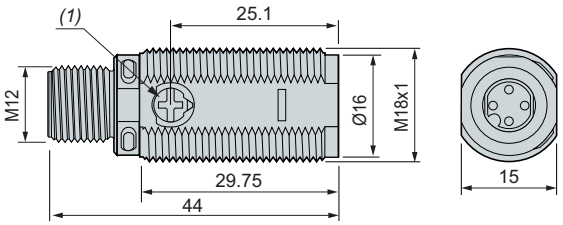
## Thru-beam system, plastic, M12 connector version

### Line of sight: along case axis (axial)

**Kits Transmitter + Receiver: XUB2ANXNM12, XUB2APXNM12, XUB2APYNM12**

| Transmitter | Receiver |
|---|---|
| XUB2AKXNM12T | XUB2APYNM12R, XUB2ANXNM12R, XUB2APXNM12R |

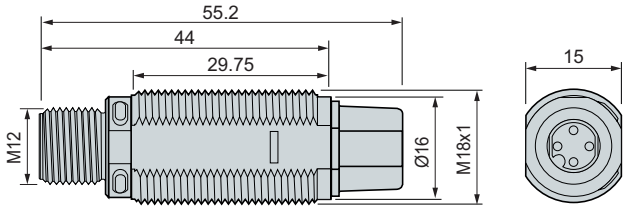


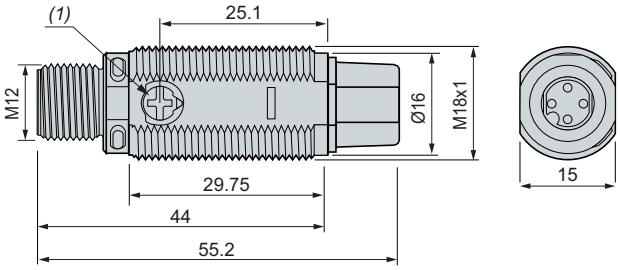




### Line of sight: 90° to case axis (radial)

**Kit Transmitter + Receiver: XUB2ANXWM12**

| Transmitter | Receiver |
|---|---|
| XUB2AKXWM12T | XUB2APYWM12R, XUB2ANXWM12R, XUB2APXWM12R |



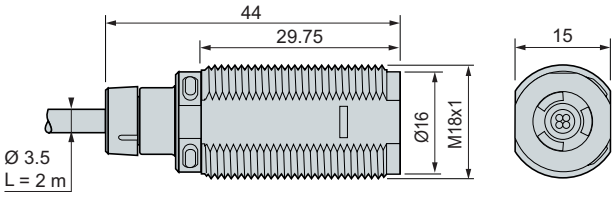



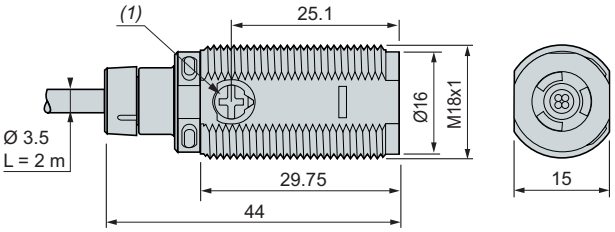

## Thru-beam system, plastic, pre-cabled version

### Line of sight: along case axis (axial)

**Kit Transmitter + Receiver: XUB2ANXNL2, XUB2APXNL2**

| Transmitter | Receiver |
|---|---|
| XUB2AKXNL2T | XUB2ANXNL2R, XUB2APXNL2R |

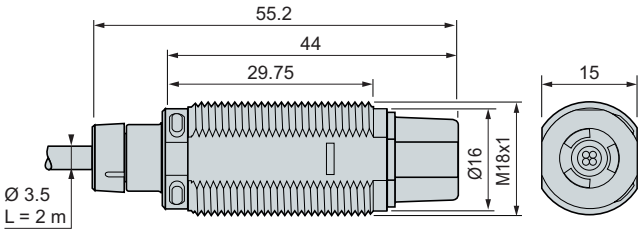


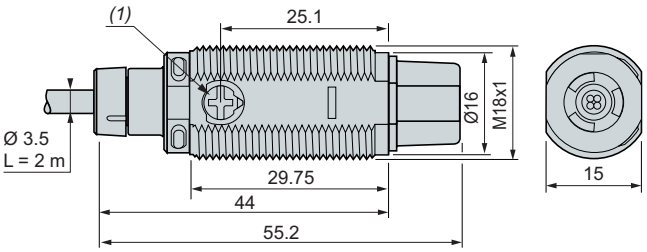




### Pre-cabled version, line of sight 90° to case axis

**Kits Transmitter + Receiver: XUB2APXWM12, XUB2APYWM12, XUB2ANXWL2, XUB2APXWL2**

| Transmitter | Receiver |
|---|---|
| XUB2AKXWL2T | XUB2ANXWL2R, XUB2APXWL2R |




*(1) Potentiomètre de réglage (sensibilité)*

# Photo-electric sensors

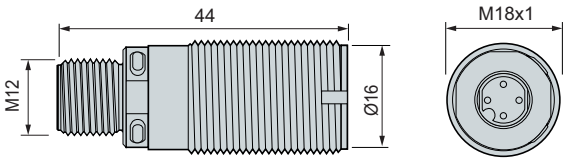
XUB general purpose, single mode function
Cylindrical miniature design 18, metal
Four-wire DC, solid-state output
Wire setting for NO/NC

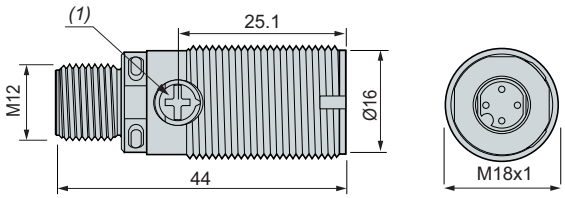
## Thru-beam system, metal, M12 connector version

**Line of sight: along case axis (axial)**

**Kits Transmitter + Receiver: XUB2BPXNM12, XUB2BNXNM12, XUB2BPYNM12**

| Transmitter | Receiver |
|---|---|
| XUB2BKXNM12T | XUB2BPYNM12R, XUB2BNXNM12R, XUB2BPXNM12R |

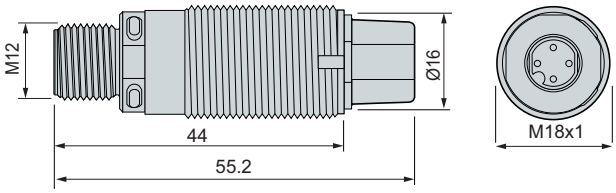


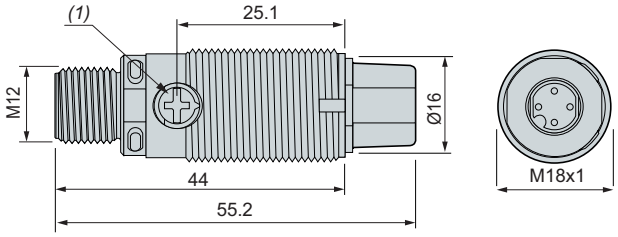




**Line of sight: 90° to case axis (radial)**

**Kits Transmitter + Receiver: XUB2BNXWM12, XUB2BPYWM12, XUB2BPXWM12**

| Transmitter | Receiver |
|---|---|
| XUB2BKXWM12T | XUB2BPYWM12R, XUB2BNXWM12R, XUB2BPXWM12R |



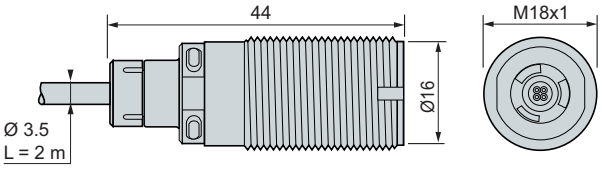



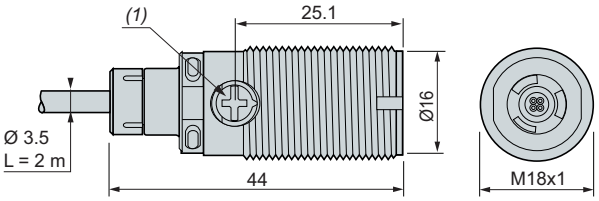

## Thru-beam system, metal, pre-cabled version

**Line of sight: along case axis (axial)**

**Kits Transmitter + Receiver: XUB2BNXNL2, XUB2BPXNL2**

| Transmitter | Receiver |
|---|---|
| XUB2BKXNL2T | XUB2BNXNL2R, XUB2BPXNL2R |

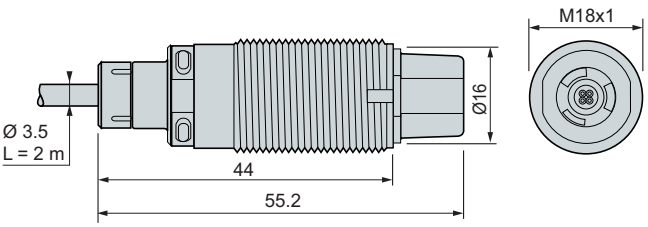


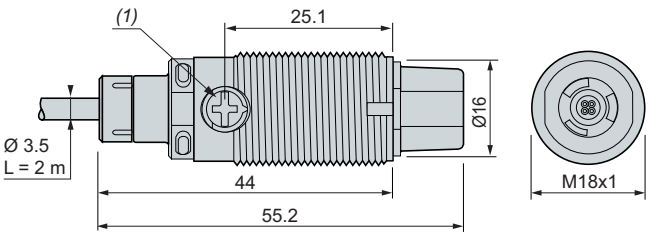




**Pre-cabled version, line of sight 90° to case axis**

**Kits Transmitter + Receiver: XUB2BNXWL2, XUB2BPXWL2**

| Transmitter | Receiver |
|---|---|
| XUB2BKXWL2T | XUB2BNXWL2R, XUB2BPXWL2R |




*(1) Potentiomètre de réglage (sensibilité)*

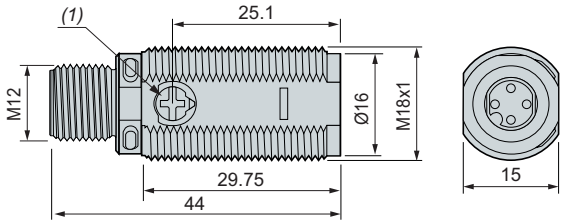
# Photo-electric sensors

XUB general purpose, single mode function
Cylindrical miniature design 18
Four-wire DC, solid-state output
Wire setting for NO/NC

## Diffuse system (with or without backgroung suppression), plastic, M12 connector version

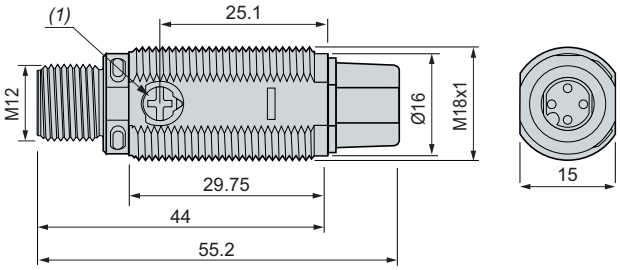
### Line of sight: along case axis (axial)

**XUB5ANXNM12, XUB5APXNM12, XUB5APYNM12, XUB6ANXNM12, XUB6APXNM12, XUB6APYNM12, XUB8ANXNM12, XUB8APXNM12, XUB8APYNM12**




### Line of sight: 90° to case axis (radial)

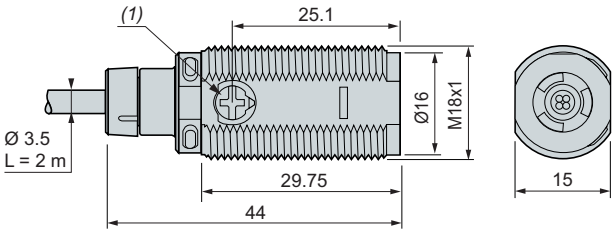
**XUB6ANXWM12, XUB6APXWM12, XUB6APYWM12, XUB8ANXWM12, XUB8APXWM12, XUB8APYWM12**




## Diffuse system (with or without backgroung suppression), plastic, pre-cabled version

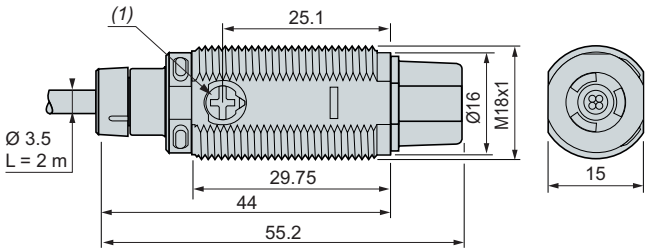
### Line of sight: along case axis (axial)

**XUB5ANXNL2, XUB5APXNL2, XUB6ANXNL2, XUB6APXNL2, XUB8ANXNL2, XUB8APXNL2**




### Line of sight: 90° to case axis (radial)

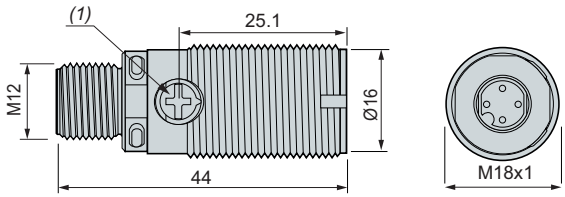
**XUB6ANXWL2, XUB6APXWL2, XUB8ANXWL2, XUB8APXWL2**




## Diffuse system (with or without backgroung suppression), metal, M12 connector version

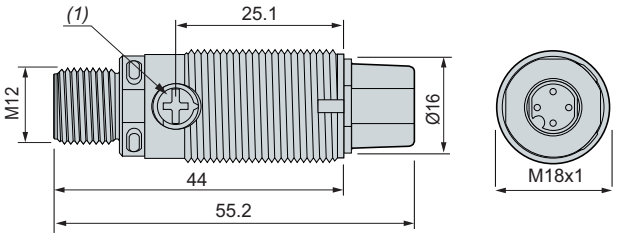
### Line of sight: along case axis (axial)

**XUB5BNXNM12, XUB5BPXNM12, XUB5BPYNM12, XUB6BNXNM12, XUB6BPXNM12, XUB6BPYNM12 XUB8BNXNM12, XUB8BPXNM12, XUB8BPYNM12**




### Line of sight: 90° to case axis (radial)

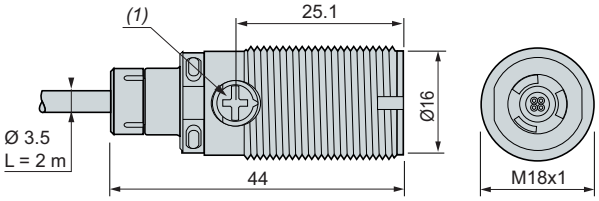
**XUB6BNXWM12, XUB6BPXWM12, XUB6BPYWM12, XUB8BNXWM12, XUB8BPXWM12, XUB8BPYWM12**




## Diffuse system (with or without backgroung suppression), metal, pre-cabled version

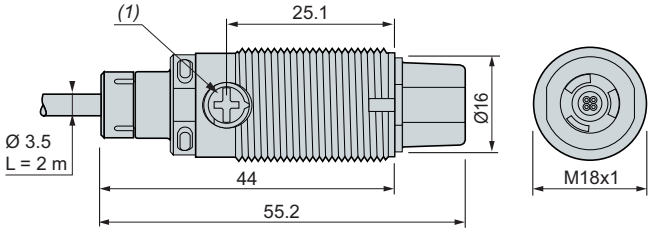
### Line of sight: along case axis (axial)

**XUB5BNXNL2, XUB5BPXNL2, XUB6BNXNL2, XUB6BPXNL2, XUB8BNXNL2, XUB8BPXNL2**




### Line of sight: 90° to case axis (radial)

**XUB6BNXWL2 ,XUB6BPXWL2, XUB8BNXWL2 ,XUB8BPXWL2**




*(1) Adjustment potentiometer (sensitivity).*

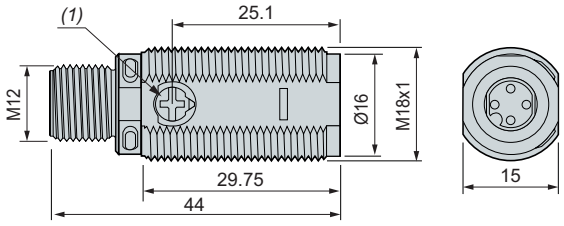
# Photo-electric sensors

XUB general purpose, single mode function
Cylindrical miniature design 18
Four-wire DC, solid-state output
Wire setting for NO/NC

## Polarised reflex system, plastic, M12 connector version

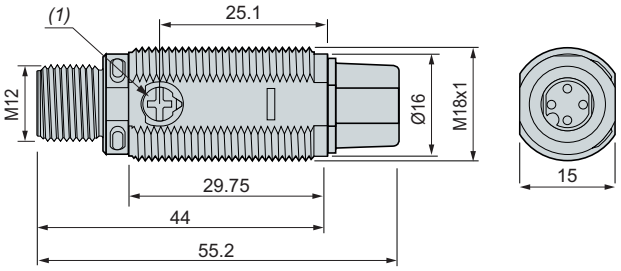
**Line of sight: along case axis (axial)**

**XUB9ANXNM12, XUB9APXNM12 and XUB9APYNM12**




**Line of sight: 90° to case axis (radial)**

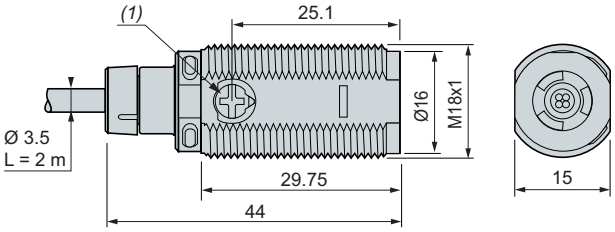
**XUB9ANXWM12, XUB9APXWM12 and XUB9APYWM12**




## Polarised reflex system, plastic, pre-cabled version

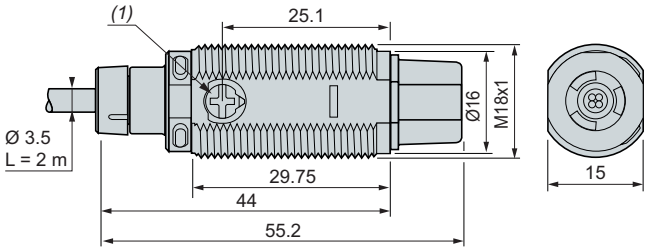
**Line of sight: along case axis (axial)**

**XUB9ANXNL2 and XUB9APXNL2**




**Line of sight: 90° to case axis (radial)**

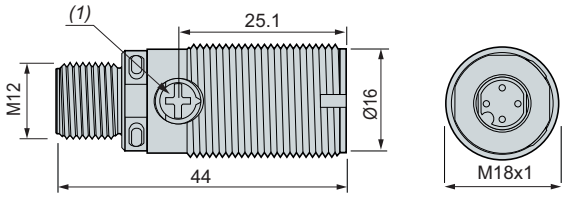
**XUB9ANXWL2 and XUB9APXWL2**




## Polarised reflex system, metal, M12 connector version

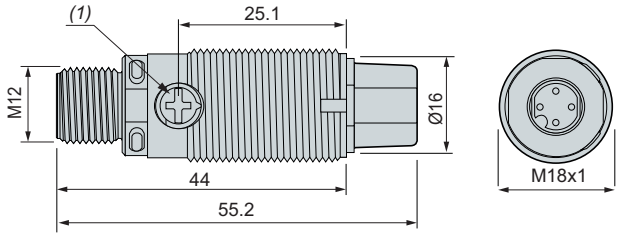
**Line of sight: along case axis (axial)**

**XUB9BNXNM12, XUB9BPXNM12 and XUB9BPYNM12**




**Line of sight: 90° to case axis (radial)**

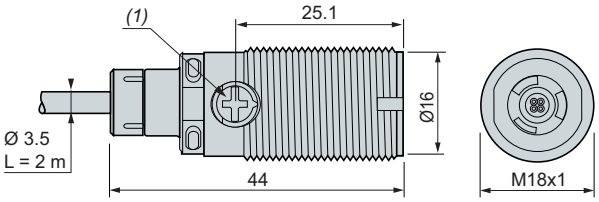
**XUB9BNXWM12, XUB9BPXWM12 and XUB9BPYWM12**




## Polarised reflex system, metal, pre-cabled version

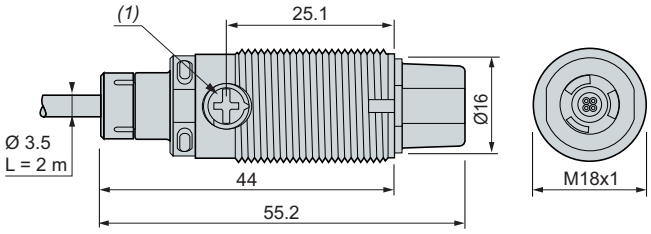
**Line of sight: along case axis (axial)**

**XUB9BNXNL2 and XUB9BPXNL2**




**Line of sight: 90° to case axis (radial)**

**XUB9BNXWL2 and XUB9BPXWL2**




*(1) Adjustment potentiometer (sensitivity).*

# Photo-electric sensors

## XUN general purpose, single mode function
Hybrid miniature design, plastic
Three- and four-wire DC, solid-state output,
Wire setting for NO/NC




*XUN2APYNM12*




*XUN2APYNM12R*




*XUN2ANXNL2, XUN2APXNL2,*
*XUN2ANXSL2, XUN2APXSL2*




*XUN2AKXNL2T*




*XUN2ANXNM12*
*XUN2APXNM12*




*XUN2AKXNM12T*




*XUN2ANXNL2R*
*XUN2APXNL2R*




*XUN2ANXNM12R*
*XUN2APXNM12R*

## Thru-beam system with adjustable sensitivity

| Max./operating sensing distance (Sn) | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **Transmitter + receiver** IO-Link | | | | | |
| **30 m/20 m** | NO/NC (Dark ON/Light ON) configuration by wire or IO-Link | Autodetect PNP/NPN | M12 connector (4-pin) | **XUN2APYNM12** | 0.013 |
| **Transmitter + receiver** | | | | | |
| **30 m/20 m** | NO/NC (Dark ON/Light ON) configuration by wire | NPN | Pre-cabled 4-wire (L = 2 m) | **XUN2ANXNL2** | 0.040 |
| | | | M12 connector (4-pin) | **XUN2ANXNM12** | 0.013 |
| | | PNP | Pre-cabled 4-wire (L = 2 m) | **XUN2APXNL2** | 0.040 |
| | | | M12 connector (4-pin) | **XUN2APXNM12** | 0.013 |
| | NO configuration by wire | NPN | Pre-cabled 3-wire (L = 2 m) | **XUN2ANXSL2** | 0.040 |
| | | PNP | Pre-cabled 3-wire (L = 2 m) | **XUN2APXSL2** | 0.040 |
| **Transmitter only** *(1)* | | | | | |
| **30 m/20 m** | | | Pre-cabled 4-wire (L = 2 m) | **XUN2AKXNL2T** | 0.040 |
| | | | M12 connector (4-pin) | **XUN2AKXNM12T** | 0.013 |
| **Receiver** IO-Link **only** | | | | | |
| **30 m/20 m** | NO/NC (Dark ON/Light ON) configuration by wire or IO-Link | Autodetect PNP/NPN | M12 connector (4-pin) | **XUN2APYNM12R** | 0.013 |
| **Receiver** | | | | | |
| **30 m/20 m** | NO/NC (Dark ON/Light ON) configuration by wire | NPN | Pre-cabled 4-wire (L = 2 m) | **XUN2ANXNL2R** | 0.040 |
| | | | M12 connector (4-pin) | **XUN2ANXNM12R** | 0.013 |
| | | PNP | Pre-cabled 4-wire (L = 2 m) | **XUN2APXNL2R** | 0.040 |
| | | | M12 connector (4-pin) | **XUN2APXNM12R** | 0.013 |

## Accessories

### IO-Link Master

See page 90.

### Fixing and other accessories

See page 94.

### Cabling accessories

See page 100.

*(1) All transmitters are compatible with the receivers listed below.*

# Photo-electric sensors

## XUN general purpose, single mode function
Hybrid miniature design, plastic
Three- and four-wire DC, solid-state output,
Wire setting for NO/NC




*XUN5APYNM12*
*XUN6APYNM12*




*XUN5ANXNL2, XUN5APXNL2,*
*XUN5ANXSL2, XUN5APXSL2*




*XUN5ANXNM12*
*XUN5APXNM12*




*XUN6ANXNL2*
*XUN6APXNL2*




*XUN6ANXNM12*
*XUN6APXNM12*

### Diffuse system with adjustable sensitivity IO-Link

| Max./operating sensing distance (Sn) | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **Long range, red LED emission** | | | | | |
| **1 m/0.7 m** | NO/NC (Light ON/Dark ON) configuration by wire or IO-Link | Autodetect PNP/NPN | M12 connector (4-pin) | **XUN5APYNM12** | 0.013 |
| **Medium range, red LED emission** | | | | | |
| **0.6 m/0.42 m** | NO/NC (Light ON/Dark ON) configuration by wire or IO-Link | Autodetect PNP/NPN | M12 connector (4-pin) | **XUN6APYNM12** | 0.013 |

### Diffuse system with adjustable sensitivity

| Max./operating sensing distance (Sn) | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **Long range, red LED emission** | | | | | |
| **1 m/0.7 m** | NO/NC (Light ON/Dark ON) configuration by wire | NPN | Pre-cabled 4-wire (L = 2 m) | **XUN5ANXNL2** | 0.040 |
| | | | M12 connector (4-pin) | **XUN5ANXNM12** | 0.013 |
| | | PNP | Pre-cabled 4-wire (L = 2 m) | **XUN5APXNL2** | 0.040 |
| | | | M12 connector (4-pin) | **XUN5APXNM12** | 0.013 |
| | NO configuration by wire | NPN | Pre-cabled 3-wire (L = 2 m) | **XUN5ANXSL2** | 0.040 |
| | | PNP | Pre-cabled 3-wire (L = 2 m) | **XUN5APXSL2** | 0.040 |
| **Medium range, red LED emission** | | | | | |
| **0.6 m/0.42 m** | NO/NC (Light ON/Dark ON) configuration by wire | NPN | Pre-cabled 4-wire (L = 2 m) | **XUN6ANXNL2** | 0.040 |
| | | | M12 connector (4-pin) | **XUN6ANXNM12** | 0.013 |
| | | PNP | Pre-cabled 4-wire (L = 2 m) | **XUN6APXNL2** | 0.040 |
| | | | M12 connector (4-pin) | **XUN6APXNM12** | 0.013 |
| | NO configuration by wire | NPN | Pre-cabled 3-wire (L = 2 m) | **XUN6ANXSL2** | 0.040 |
| | | PNP | Pre-cabled 3-wire (L = 2 m) | **XUN6APXSL2** | 0.040 |

## Accessories

### IO-Link Master

See page 90.

### Fixing and other accessories

See page 94.

### Cabling accessories

See page 100.

# Photo-electric sensors

## XUN general purpose, single mode function
Hybrid miniature design, plastic
Three- and four-wire DC, solid-state output,
Wire setting for NO/NC




*XUN8APYNM12*




*XUN8ANXNL2*




*XUN8ANXNM12*




*XUN8ANXNL2*
*XUN8APXSL2*
*XUN8ANXSL2*




*XUN8ANXNM12*

### Diffuse system with background suppression, IO-Link

**Plastic, red LED emission**

| Max./operating sensing distance (Sn) | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **0.03 m/0.022 m** | NO/NC (Light ON/Dark ON) configuration by wire or IO-Link | Autodetect PNP/NPN | M12 connector (4-pin) | **XUN8APYNM12** | 0.013 |

### Diffuse system with background suppression

**Plastic, red LED emission**

| | | | | | |
|---|---|---|---|---|---|
| **0.03 m/0.022 m** | NO/NC (Light ON/Dark ON) configuration by wire | NPN | Pre-cabled, 4-wire (L = 2 m) | **XUN8ANXNL2** | 0.040 |
| | | | M12 connector (4-pin) | **XUN8ANXNM12** | 0.013 |
| | | PNP | Pre-cabled, 4-wire (L = 2 m) | **XUN8APXNL2** | 0.040 |
| | | | M12 connector (4-pin) | **XUN8APXNM12** | 0.013 |
| | NO configuration by wire | NPN | Pre-cabled, 3-wire (L = 2 m) | **XUN8ANXSL2** | 0.040 |
| | | PNP | Pre-cabled, 3-wire (L = 2 m) | **XUN8APXSL2** | 0.040 |

## Accessories

### IO-Link Master

See page 90.

### Fixing and other accessories

See page 94.

### Cabling accessories

See page 100.

# Photo-electric sensors

## XUN general purpose, single mode function
## Hybrid miniature design, plastic
## Three- and four-wire DC, solid-state output, Wire setting for NO/NC




*XUN9APYNM12*




*XUN9ANXNL2*
*XUN9APXNL2*
*XUN9APXSL2*
*XUN9ANXSL2*




*XUN9ANXNM12*
*XUN9APXNM12*

### Polarised reflex system with adjustable sensitivity, IO-Link

**Plastic, red LED emission**

| Max./operating sensing distance (Sn) | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **7 m/5 m** | NO/NC (Dark ON/Light ON) configuration by wire or IO-Link | Autodetect PNP/NPN | M12 connector (4-pin) | **XUN9APYNM12** | 0.013 |

### Polarised reflex system with adjustable sensitivity

**Plastic, red LED emission**

| | | | | | |
|---|---|---|---|---|---|
| **7 m/5 m** | NO/NC (Dark ON/Light ON) configuration by wire | NPN | Pre-cabled 4-wire (L = 2 m) | **XUN9ANXNL2** | 0.040 |
| | | | M12 connector (4-pin) | **XUN9ANXNM12** | 0.013 |
| | | PNP | Pre-cabled 4-wire (L = 2 m) | **XUN9APXNL2** | 0.040 |
| | | | M12 connector (4-pin) | **XUN9APXNM12** | 0.013 |
| | NO configuration by wire | NPN | Pre-cabled, 3-wire (L = 2 m) | **XUN9ANXSL2** | 0.040 |
| | | PNP | Pre-cabled, 3-wire (L = 2 m) | **XUN9APXSL2** | 0.040 |

## Accessories

### IO-Link Master

See page 90.

### Fixing and other accessories

See page 94.

### Cabling accessories

See page 100.

# Photo-electric sensors

## XUN general purpose, single mode function
Hybrid miniature design, plastic
Three- and four-wire DC, solid-state output,
Wire setting for NO/NC

## Characteristics

| Sensor type | | | | XUN2APYNM12, XUN2APYNM12R, XUN2A●XNM12, XU2AKXNM12T, XUN2A●XNM12R, XUN5APYNM12, XUN5A●XNM12, XUN6APYNM12, XUN6A●XNM12, XUN8APYNM12, XUN8A●XNM12 XUN9APYNM12, XUN9A●XNM12 | XUN2A●XNL2, XUN2A●XNL2R, XUN2AKXNL2T, XUN5A●XNL2, XUN6A●XNL2, XUN8A●XNL2, XUN9A●XNL2 | XUN2A●XSL2, XUN5A●XSL2, XUN6A●XSL2, XUN8A●XSL2, XUN9A●XSL2 |
|---|---|---|---|---|---|---|
| **Product certifications** | | **XUN2, XUN5, XUN6, XUN9** | | CE, UKCA, cULus | | |
| | | **XUN8** | | CE, UKCA, cULus, RCM | | |
| **Connection** | | Connector | | M12 | – | |
| | | Pre-cabled, 2 m long | | – | 4-wire | 3-wire |
| **Sensing distance** Excess gain = 1: maximum sensing distance Excess gain = 2 : nominal sensing distance | Thru-beam system **XUN2** | | **m** | 30 (with excess gain = 1)<br>20 (with excess gain = 2) | | |
| | Diffuse long dist. system **XUN5** (using a white paper 200 x 200 mm) | | **m** | 1 (with excess gain = 1)<br>0.7 (with excess gain = 2) | | |
| | Diffuse medium dist. system **XUN6** (using a white paper 200 x 200 mm) | | **m** | 0.6 (with excess gain = 1)<br>0.42 (with excess gain = 2) | | |
| | Diffuse system with BGS **XUN8** (using a white or black paper 200 x 200 mm) | | **m** | 0.3 (from white object (90%) to black object (6%)) | | |
| | Polarised reflex system **XUN9** (using a 50 x 50 mm reflector XUZC50) | | **m** | 7 (with excess gain = 1)<br>5 (with excess gain = 2) | | |
| **Blind zone** | | **XUN2, XUN5, XUN6, XUN9** | **mm** | 0 (white object and potentiometer max.) | | |
| | | **XUN8** | **mm** | < 5 | | |
| **Sensing distance setting** | | | | Potentiometer 1 turn (+/- 220 degrees) | | |
| **Colour of detection light beam** | | | | Red | | |
| **Output type** | | | | PNP/NPN (or autodetect PNP/NPN with IO-Link) | | |
| **Hysteresis** | | | | 2 % < H < 20 % at Sn | | |
| **Degree of protection** | Conforming to IEC 60529 | | | IP65, IP67 | | |
| | Conforming to DIN 40050-9 | | | IP69K (M12 connector version only) | | |
| **Artificial optical radiation** | Conforming to IEC 62471 | | | Class 0 (risk exempt) | | |
| **Radiated disturbances emissions** | Conforming to EN 55011/CISPR 1 | | | Class A | | |
| **Storage temperature** | | | **°C** | -40…+70 | | |
| **Operating temperature** | | | **°C** | -30…+55 | | |
| **Materials** | Case | **XUN2, XUN5, XUN6, XUN9** | | PBT/PC | | |
| | | **XUN8** | | PBT/PC | | |
| | Lens cover | | | PMMA | | |
| | Transparent cover | **XUN2, XUN5, XUN6, XUN9** | | ABS | | |
| | | **XUN8** | | PMMA | | |
| | Potentiometer screw | **XUN2, XUN5, XUN6, XUN9** | | PA66 | | |
| | | **XUN8** | | PBT | | |
| | Cable | | | – | PVC | |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | **Hz**<br>**gn** | Frequency range 10 to 55<br>Acceleration 7 | | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | **gn**<br>**ms** | Peak acceleration 30<br>Duration of the pulse 11 | | |
| **Rated supply voltage** | | | **V** | 12...24 ⎓ with protection against reverse polarity | | |
| **Voltage limits (including ripple)** | | | **V** | 10...30 ⎓ | | |
| **Current consumption, no-load** | | **XUN2, XUN5, XUN6, XUN9** | **mA** | < 20 | | |
| | | **XUN8** | **mA** | < 30 | | |
| | | **IO-Link** | **mA** | < 30 | | |
| **Switching capacity** | | | **mA** | 100 | | |
| **Voltage drop, closed state** | | | **V** | < 2 max. | | |
| **Maximum switching frequency** | | | **Hz** | 1000 | | |
| **Delays** | First-up IO-Link, XUN8 | | **ms** | < 300 | | |
| | First-up, others | | **ms** | < 100 | | |
| | Response | | **ms** | 0.5 max. | | |
| | Recovery | | **ms** | 0.5 max | | |

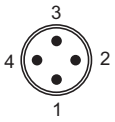
# Photo-electric sensors

## XUN general purpose, single mode function
Hybrid miniature design, plastic
Three- and four-wire DC, solid-state output,
Wire setting for NO/NC

## Wiring schemes

### Thru-beam system

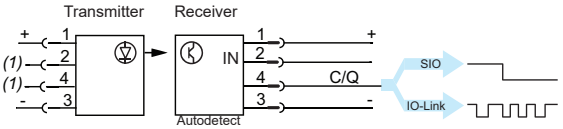
#### M12 connector - 4 pins - IO-Link




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

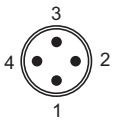
**Autodetect PNP/NPN or by IO-Link**

**XUN2APYNM12**




***Note**: IODD IO-Link files available on our website www.telemecaniquesensors.com/iolink*

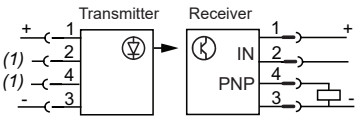
#### M12 connector - 4 pins




| Pin | Signal | Definition |
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| 1 | + | + 24 V ⎓ |
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| | | Open = NO |
| 3 | - | 0 V ⎓ |
| 4 | Q | Switching signal (SIO) |

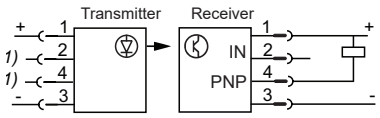
**PNP**

**XUN2APXNM12**




**NPN**

**XUN2ANXNM12**

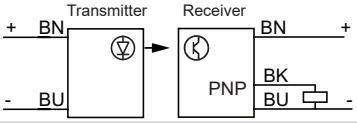



#### Pre-cabled - 3 wires

+BN (Brown)
OUT (output) BK (Black)
-BU (Blue)

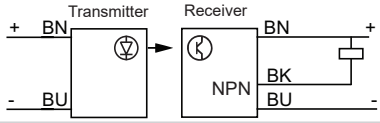
**PNP**

**XUN2APXSL2**




**NPN**

**XUN2ANXSL2**

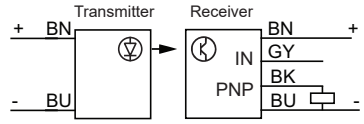



#### Pre-cabled - 4 wires

+BN (Brown)
IN (input) GY (Grey)
OUT (output) BK (Black)
-BU (Blue)

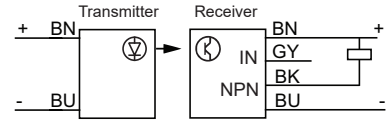
**PNP**

**XUN2APXNL2**



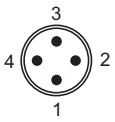

**NPN**

**XUN2ANXNL2**




### Diffuse system

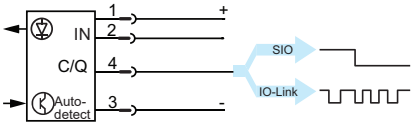
#### M12 connector - 4 pins - IO-Link




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

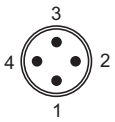
**Autodetect PNP/NPN or by IO-Link**

**XUN5APYNM12, XUN6APYNM12**




***Note**: IODD IO-Link files available on our website www.telemecaniquesensors.com/iolink*

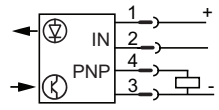
#### M12 connector - 4 pins




| Pin | Signal | Definition |
|---|---|---|
| 1 | + | + 24 V ⎓ |
| 2 | IN | + = NO |
| | | - = NC |
| | | Open = NO |
| 3 | - | 0 V ⎓ |
| 4 | Q | Switching signal (SIO) |

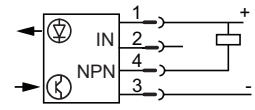
**PNP**

**XUN5APXNM12, XUN6APXNM12**




**NPN**

**XUN5ANXNM12, XUN6ANXNM12**



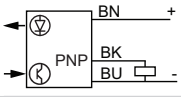

*(1) Not connected*

#### Pre-cabled - 3 wires

+BN (Brown)
OUT (output) BK (Black)
-BU (Blue)

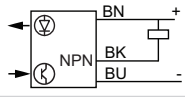
**PNP**

**XUN5APXSL2, XUN6APXSL2**




**NPN**

**XUN5ANXSL12, XUN6ANXSL2**

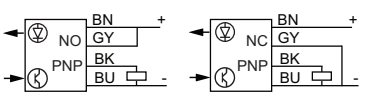



#### Pre-cabled - 4 wires

+BN (Brown)
IN (input) GY (Grey)
OUT (output) BK (Black)
-BU (Blue)

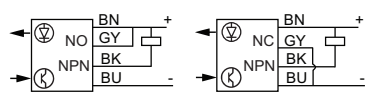
**PNP**

**XUN5APXNL2, XUN6APXNL2**




**NPN**

**XUN5ANXNL12, XUN6ANXNL2**

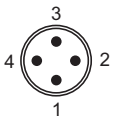


# Photo-electric sensors
## XUN general purpose, single mode function
Hybrid miniature design, plastic
Three- and four-wire DC, solid-state output,
Wire setting for NO/NC

## Wiring schemes (continued)

### Diffuse system with background suppression (BGS)

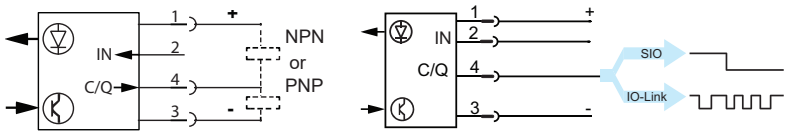
#### M12 connector - 4 pins - IO-Link




| Pin | Signal | Definition |
|---|---|---|
| 1 | + | + 24 V ⎓ |
| 2 | IN | + = NC<br>- = NO<br>Open = NO |
| 3 | - | 0 V ⎓ |
| 4 | Q | Switching signal (SIO) |
| | C | IO-Link communication |

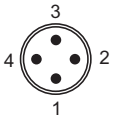
**Autodetect PNP/NPN or by IO-Link**

**XUN8APYNM12**




***Note**: IODD IO-Link files available on our website www.telemecaniquesensors.com/iolink*

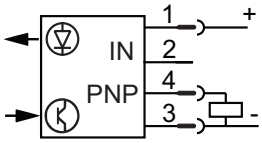
#### M12 connector - 4 pin




Control input IN:
(+) = NC
(-) = NO
Open = NO

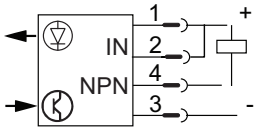
**PNP**

**XUN8APXNM12**




**NPN**

**XUN8ANXNM12**

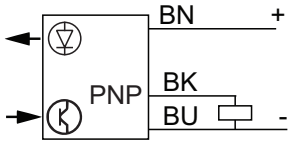



#### Pre-cabled 3 wires

+BN (Brown)
OUT (output) BK (Black)
-BU (Blue)

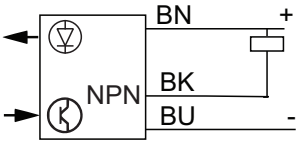
**PNP**

**XUN8APXSL2**




**NPN**

**XUN8ANXSL2**

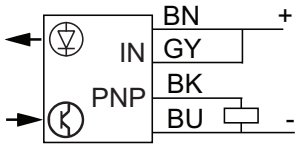



#### Pre-cabled 4 wires

+BN (Brown)
IN (input) GY (Grey)
OUT (output) BK (Black)
-BU (Blue)

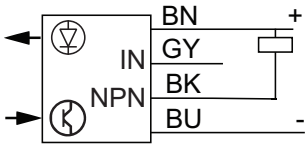
**PNP**

**XUN8APXNL2**




**NPN**

**XUN8ANXNL2**

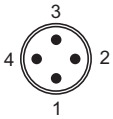


# Photo-electric sensors
XUN general purpose, single mode function
Hybrid miniature design, plastic
Three- and four-wire DC, solid-state output,
Wire setting for NO/NC

## Wiring schemes *(continued)*

### Polarised reflex system

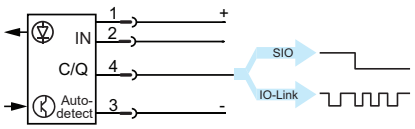
#### M12 connector - 4 pins - IO-Link




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

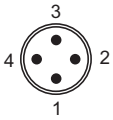
**Autodetect PNP/NPN or by IO-Link**

**XUN9APYNM12**




***Note**: IODD IO-Link files available on our website www.telemecaniquesensors.com/iolink*

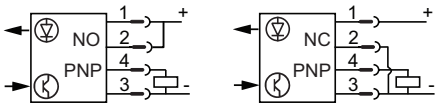
#### M12 connector - 4 pins




Control input IN:
(+) = NO
(-) = NC
Open = NO

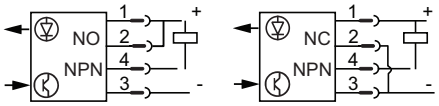
**PNP**

**XUN9APXNM12**




**NPN**

**XUN9ANXNM12**

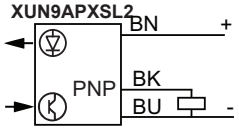



#### Pre-cabled - 3 wires

+BN (Brown)
OUT (output) BK (Black)
-BU (Blue)

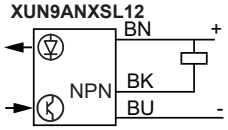
**PNP**

**XUN9APXSL2**




**NPN**

**XUN9ANXSL12**

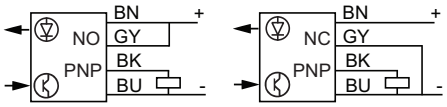



#### Pre-cabled - 4 wires

+BN (Brown)
IN (input) GY (Grey)
OUT (output) BK (Black)
-BU (Blue)

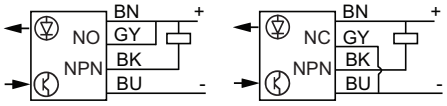
**PNP**

**XUN9APXNL2**




**NPN**

**XUN9ANXNL12**



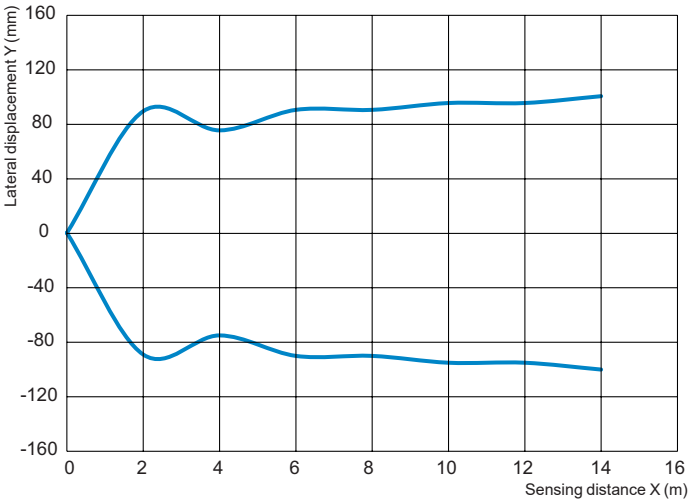
# Photo-electric sensors

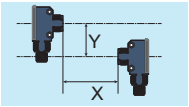
XUN general purpose, single mode function
Hybrid miniature design, plastic, thru-beam system
Three- and four-wire DC, solid-state output,
Wire setting for NO/NC

## Detection curves

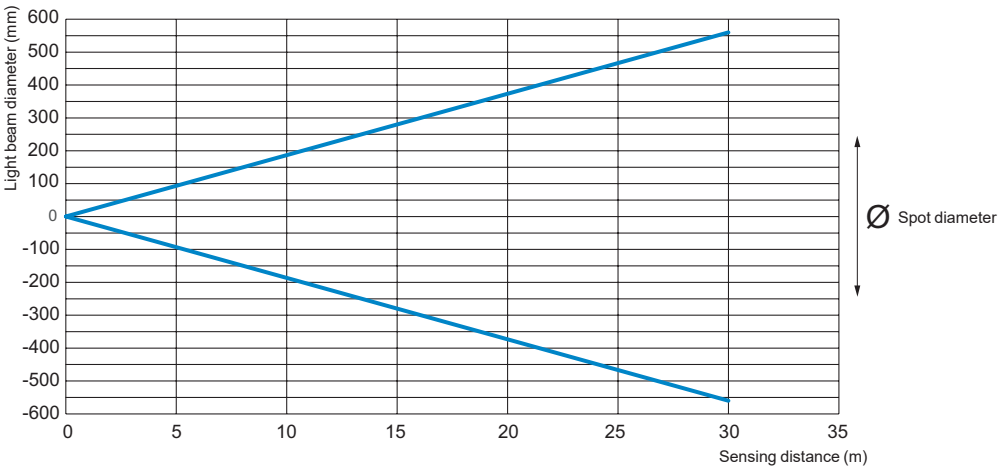
### Thru-beam system

#### Lateral displacement

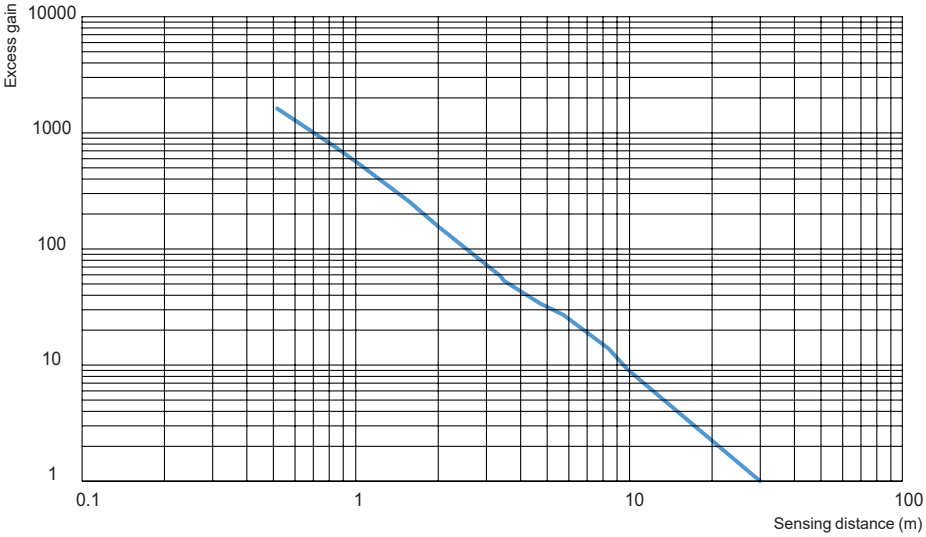



#### Light beam diameter




#### Excess gain



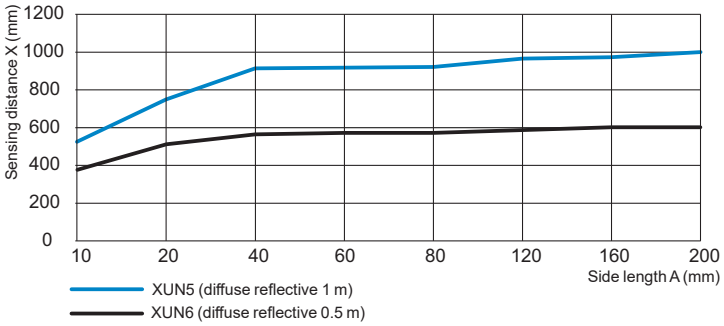
# Photo-electric sensors

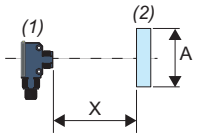
XUN general purpose, single mode function
Hybrid miniature design, plastic, diffuse system
Three- and four-wire DC, solid-state output,
Wire setting for NO/NC

## Detection curves (continued)

### Diffuse system

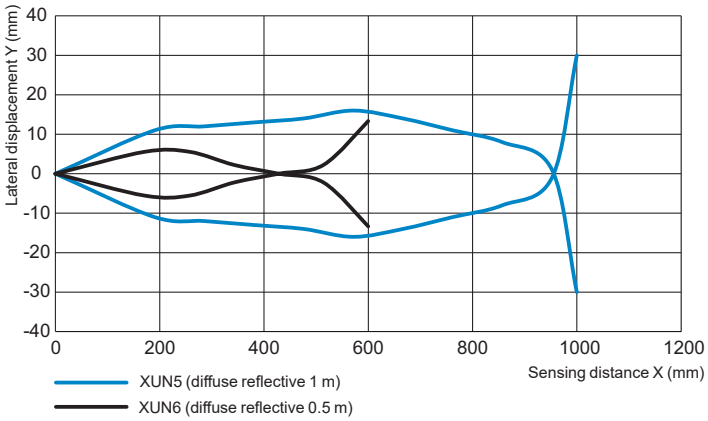
#### Minimum object size/sensing distance

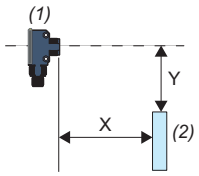



*(1): Sensor*
*(2): Object (white matt paper of A mm square)*
*A: Side length (mm)*
*X: Sensing distance (mm)*

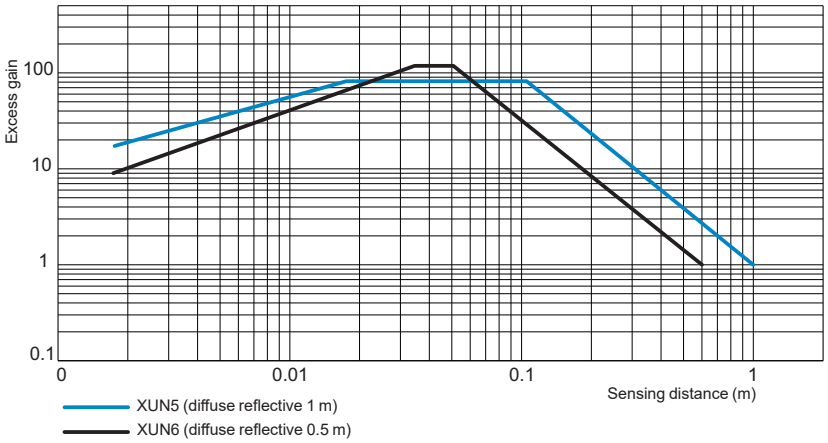
#### Lateral displacement




*(1): Sensor*
*(2): Object (200 mm square white paper)*
*X: Sensing distance (mm)*
*Y: Lateral displacement (mm)*

#### Excess gain

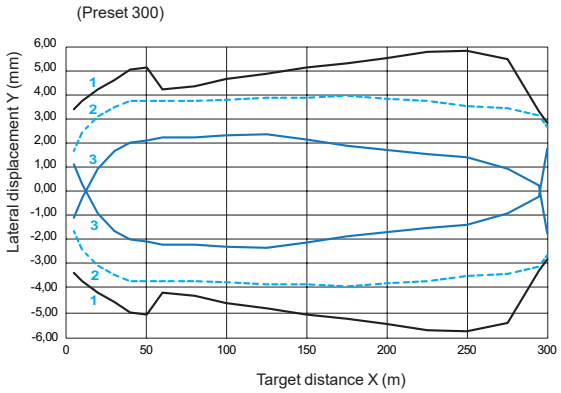


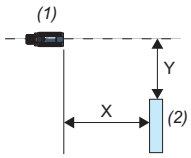
# Photo-electric sensors
XUN general purpose, single mode function
Hybrid miniature design, plastic,
Three- and four-wire DC, solid-state output,
Wire setting for NO/NC

## Detection curves (continued)

### Diffuse system with background suppression

#### Lateral displacement: along case axis (axial)

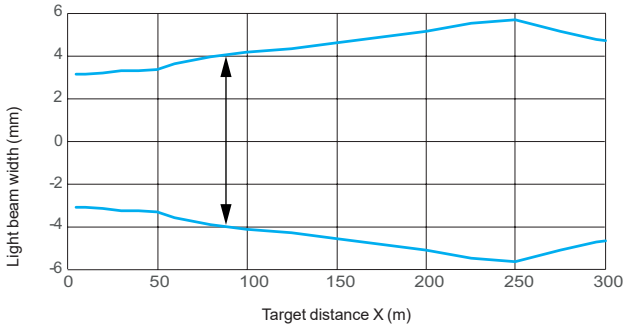


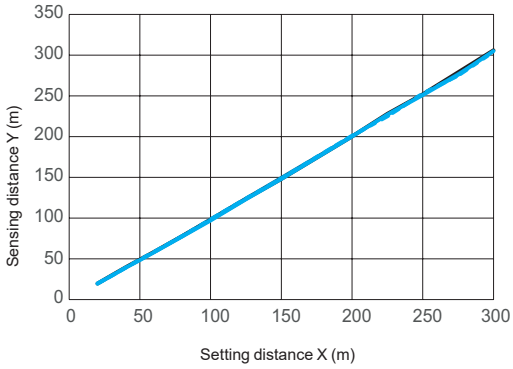

*(1): Sensor*
*(2): Object (200 x 200 mm white or black matt paper)*
*X: Sensing distance (mm)*
*Y: Lateral displacement (mm)*

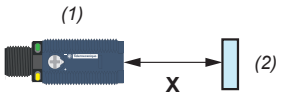
**1** White object (90%) / white background (90%)
**2** Grey object (18%) / white background (90%)
**3** Black object (6%) / white background (90%)

#### Light beam width: along case axis (axial)




#### Sensing distance vs distance setting: along case axis (axial)

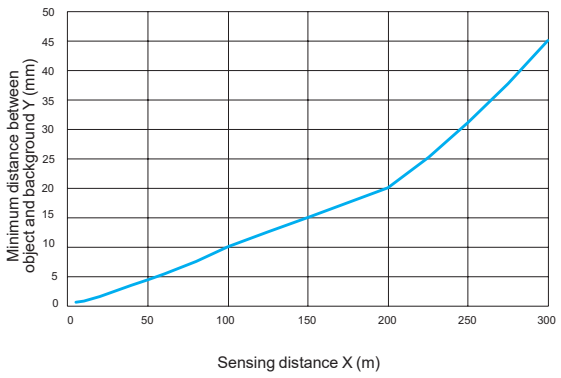


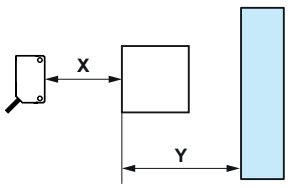




*(1): Sensor*
*(2): Object (200 x 200 mm white or black matt paper)*
*X: Sensing distance (mm)*

**1** White object (90%) / white background (90%)
**2** Grey object (18%) / white background (90%)
**3** Black object (6%) / white background (90%)

#### Minimum distance between the object to detect and white background: along case axis (axial)



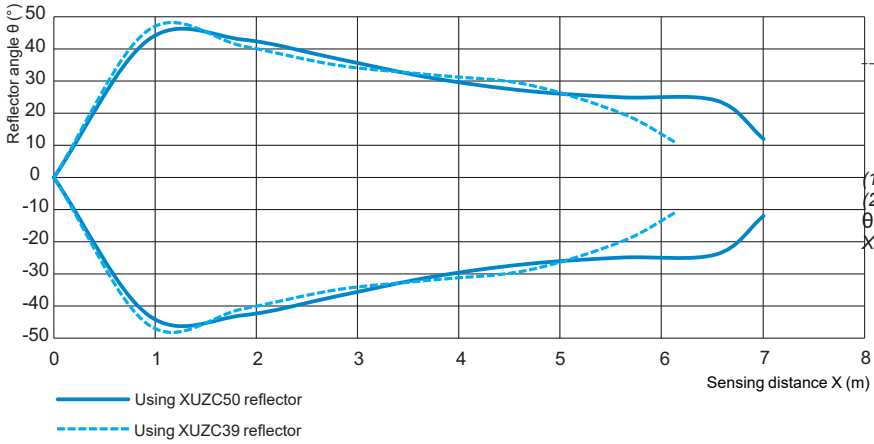
# Photo-electric sensors

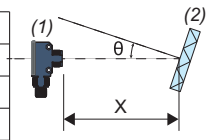
XUN general purpose, single mode function
Hybrid miniature design, plastic,
Three- and four-wire DC, solid-state output,
Wire setting for NO/NC

## Detection curves (continued)

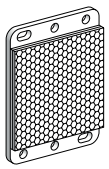
### Polarised reflex system

#### Reflector angle




(1): Sensor
(2): Reflector
θ: Reflector angle (°)
X: Sensing distance (m)

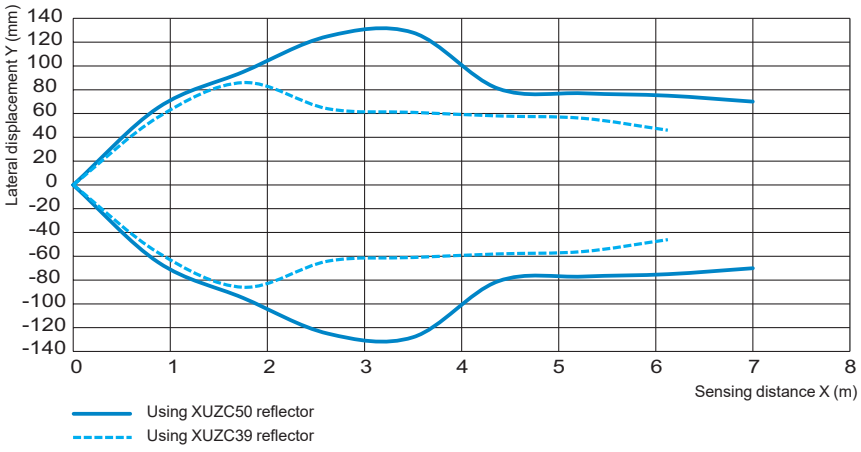


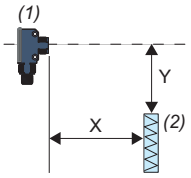
XUZC50



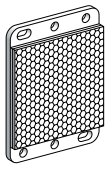
XUZC39

#### Lateral displacement




(1): Sensor
(2): Reflector
Y: Lateral displacement (mm)
X: Sensing distance (m)

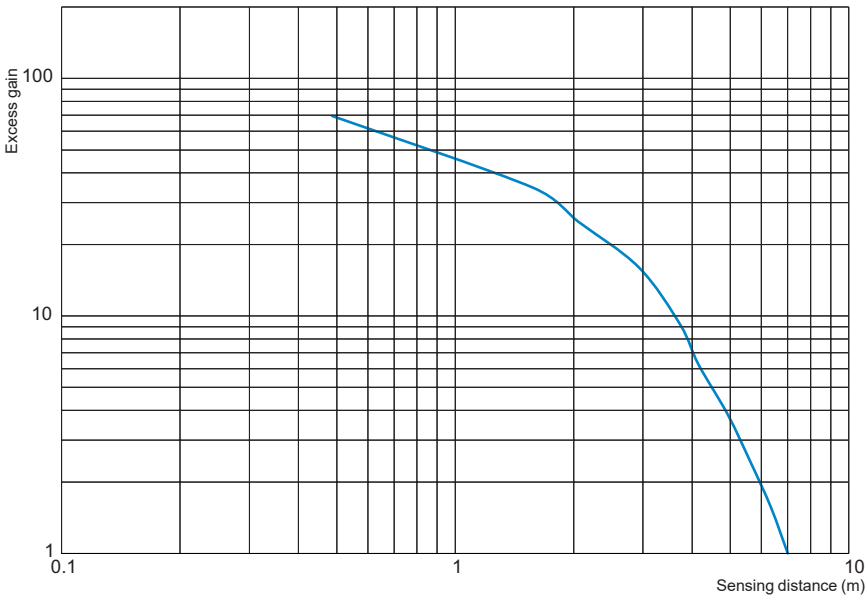


XUZC50



XUZC39

#### Excess gain



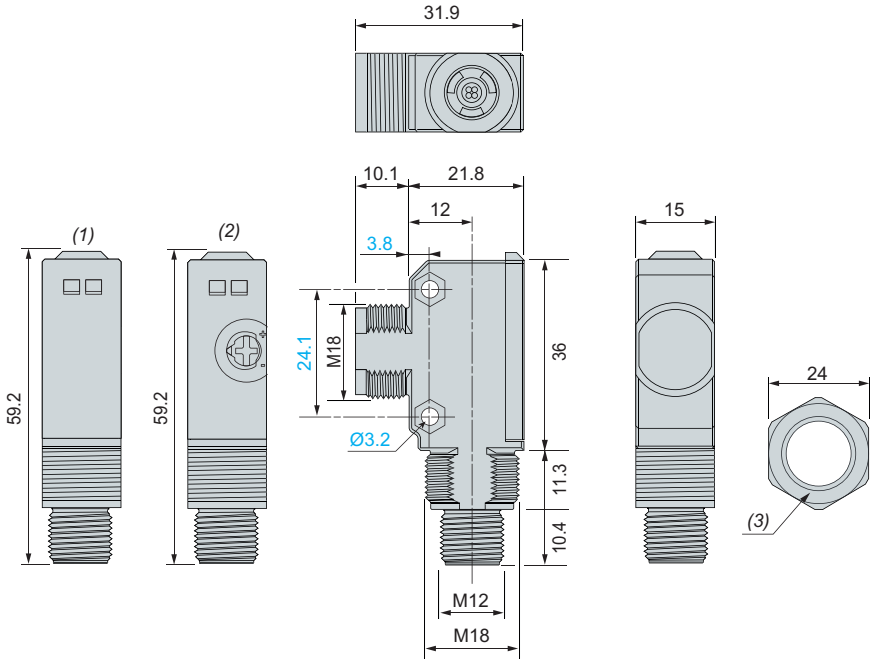
# Photo-electric sensors

XUN general purpose, single mode function
Hybrid miniature design, plastic,
Three- and four-wire DC, solid-state output,
Wire setting for NO/NC

## Thru-beam system, plastic, M12 connector version

**Transmitter + receiver** (common top, side and front views)

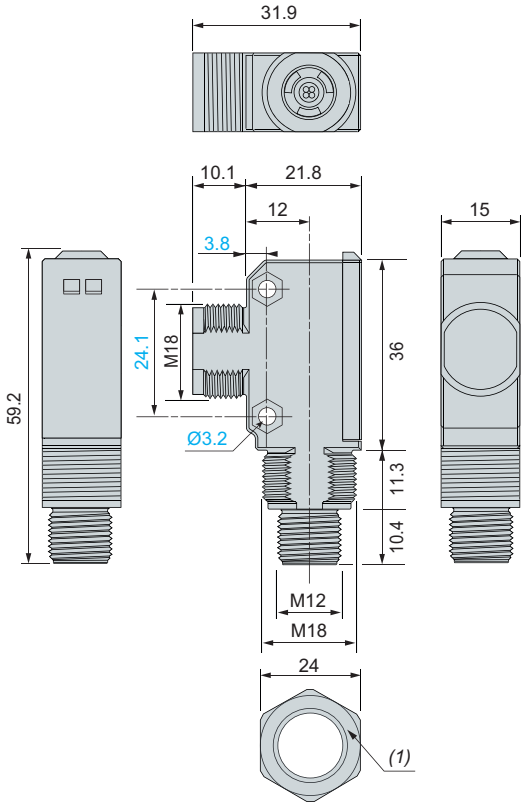
**XUN2APYNM12 , XUN2ANXNM12, XUN2APXNM12**




*(1) Transmitter*
*(2) Receiver*
*(3) 4 fixing nuts provided with the sensors*

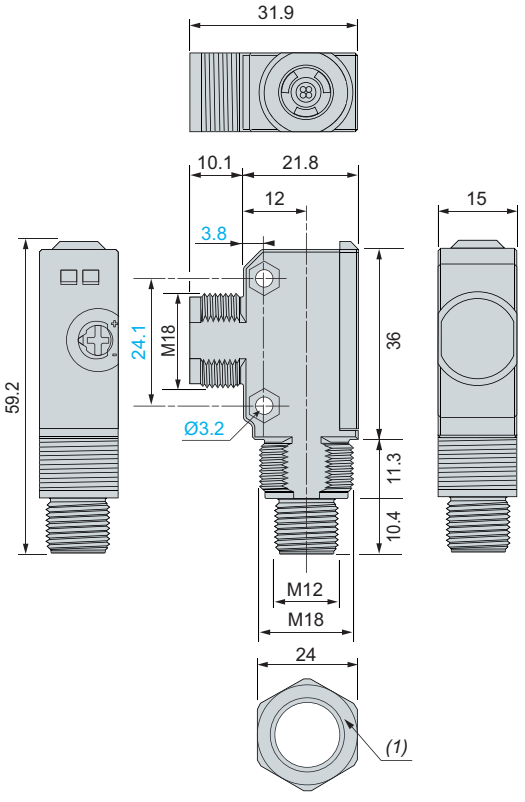
**Transmitter only**

**XUN2AKXNM12T**




**Receiver only**

**XUN2APYNM12R, XUN2ANXNM12R, XUN2APXNM12R**




*(1) 2 fixing nuts provided with the sensor.*

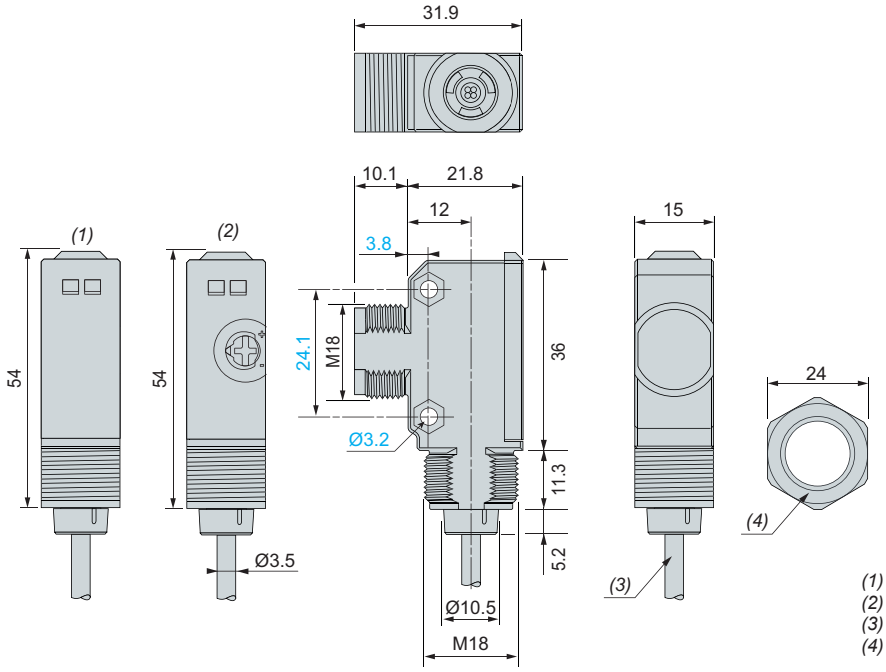
# Photo-electric sensors

XUN general purpose, single mode function
Hybrid miniature design, plastic,
Three- and four-wire DC, solid-state output,
Wire setting for NO/NC

## Thru-beam system, plastic, pre-cabled version

**Transmitter + receiver** (common top, side and front views)

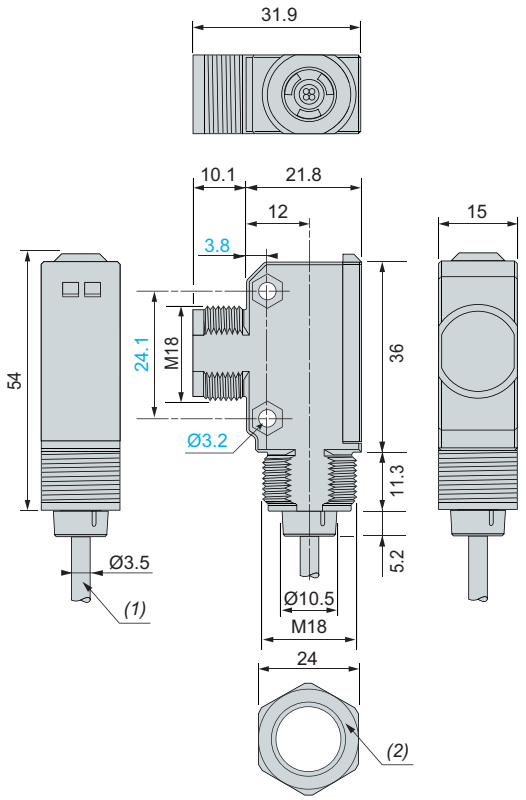
**XUN2ANXNL2, XUN2APXNL2, XUN2ANXSL2, XUN2APXSL2**




*(1) Transmitter*
*(2) Receiver*
*(3) 2 m long cable*
*(4) 4 fixing nuts provided with the sensors*

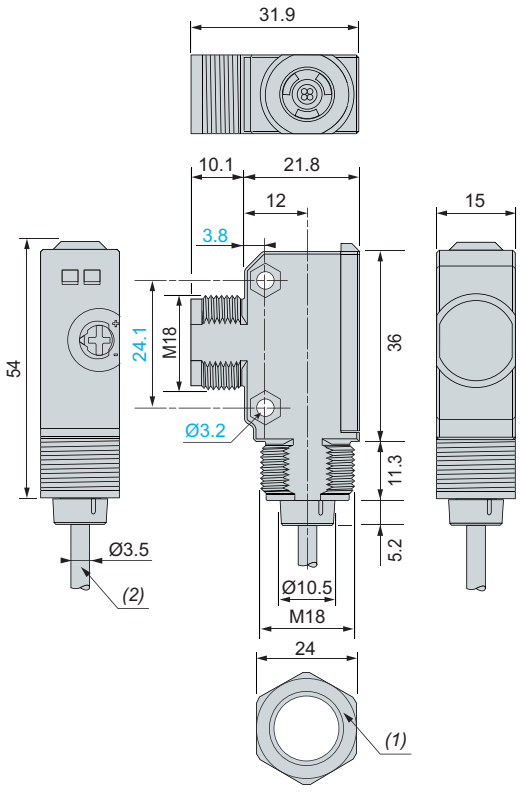
### Transmitter only

**XUN2AKXNL2T**




### Receiver only

**XUN2ANXNL2R, XUN2APXNL2R**




*(1) 2 m long cable.*
*(2) 2 fixing nuts provided with the sensor.*

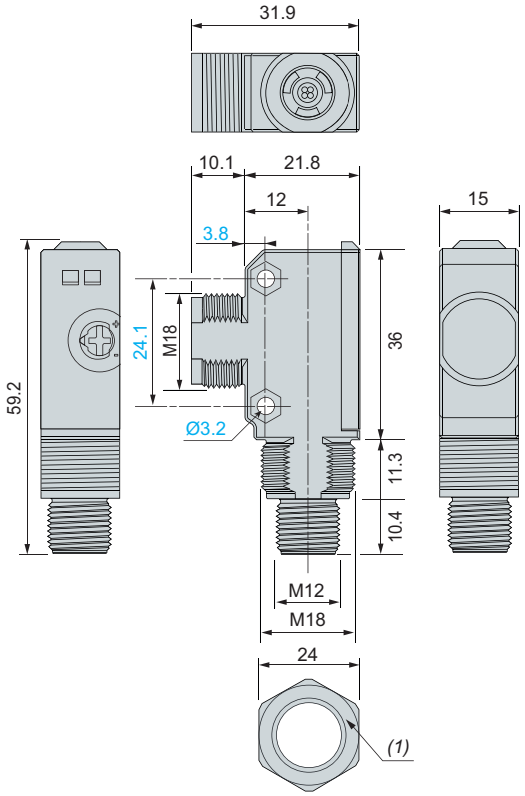
# Photo-electric sensors

XUN general purpose, single mode function
Hybrid miniature design, plastic,
Four-wire DC, solid-state output,
Wire setting for NO/NC

## Diffuse system

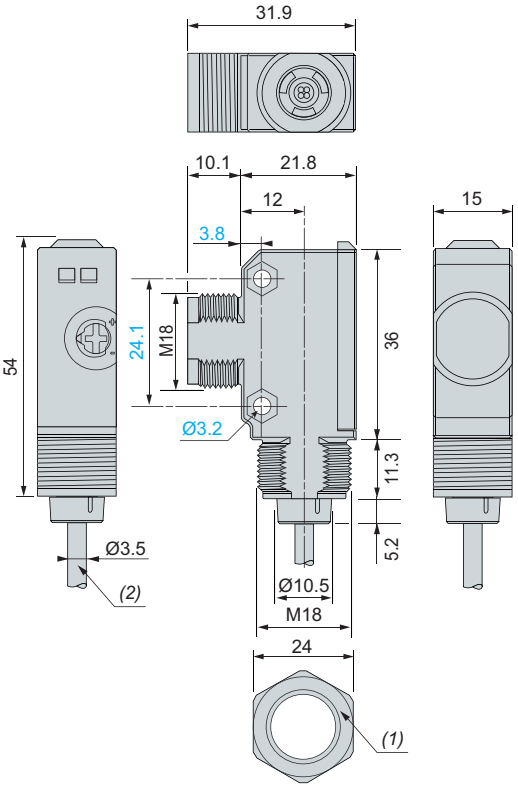
### M12 connector version

**XUN5APYNM12, XUN5ANXNM12, XUN5APXNM12,
XUN6APYNM12, XUN6ANXNM12, XUN6APXNM12
XUN8ANXNM12, XUN8APXNM12, XUN8APYNM12**




### Pre-cabled version

**XUN5ANXNL2, XUN5APXNL2, XUN5ANXSL2, XUN5APXSL2,
XUN6ANXNL2, XUN6APXNL2, XUN6ANXSL2, XUN6APXSL2,
XUN8ANXNL2, XUN8ANXSL2, XUN8APXNL2, XUN8APXSL2**




*(1) 2 fixing nuts provided with the sensor.*
*(2) 2 m long cable.*

# Photo-electric sensors

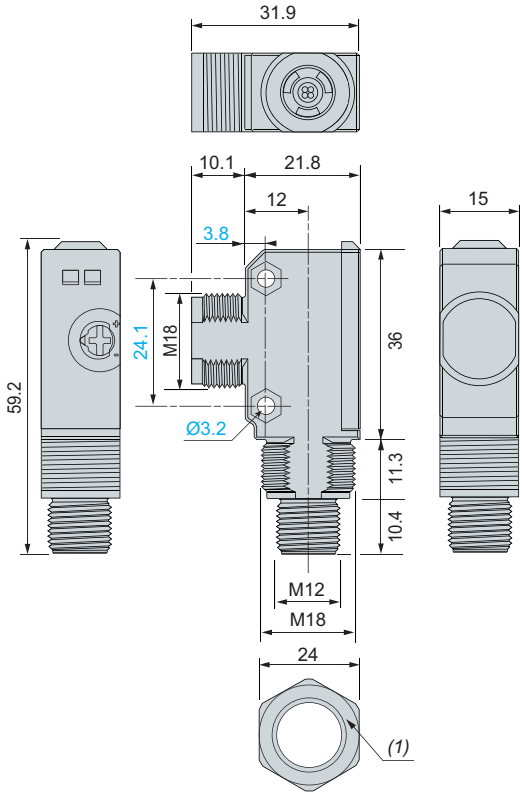
## XUN general purpose, single mode function

Hybrid miniature design, plastic,
Three- and four-wire DC, solid-state output,
Wire setting for NO/NC

## Polarised reflex system

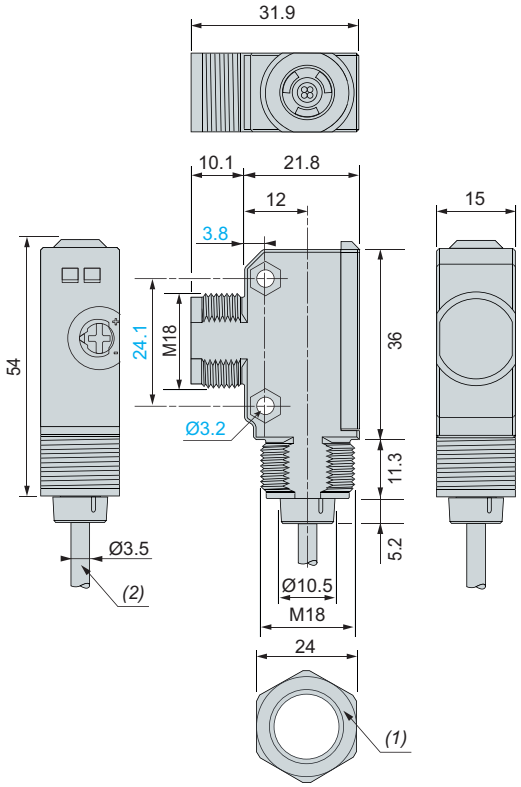
### M12 connector version

**XUN9APYNM12, XUN9ANXNM12, XUN9APXNM12**




### Pre-cabled version (3- and 4-wire)

**XUN9ANXNL2, XUN9APXNL2, XUN9ANXSL2, XUN9APXSL2**




*(1) 2 fixing nuts provided with the sensor.*
*(2) 2 m long cable.*

# Photo-electric sensors
## XU range application
## For material handling and working, packaging

**XU photo-electric sensors**
**for packaging, food & beverage**

Telemecanique Sensors presents an expanded XU range of application photo-electric sensors to be embedded in automated lines for the packaging market segment.

With their diverse technical characteristics, high performance and smart management capabilities, they are designed to address a wide scope of specific needs.

*Packaging* *Handling* *Food and Beverage*

*Fast object detection*

### Sensor family per application

> Marking detection

> Very dark object detection

> Accurate detection

> Colour object detection, from simple colour to very complex colour sorting






*Read the promotional video*

*Five detection types*

### Select the perfectly suitable light spot

> **Blue light**: for low-reflectivity objects, especially dark ones. Blue light short waves mean less penetration, resulting in higher surface reflection.

> **Red light**: for detecting objects at a long distance and/or transparent objects

> **Laser light**: to detect very small objects and contrast marks with pinpoint accuracy, even at a long sensing distance

> **White light**: for simple contrast detection (high contrast), short distances

> **RGB light** : for more accurate contrast in colour prints






*Blue light* *Red light* *Laser* *White light* *RGB*

# Photo-electric sensors

XU range application

For material handling and working, packaging

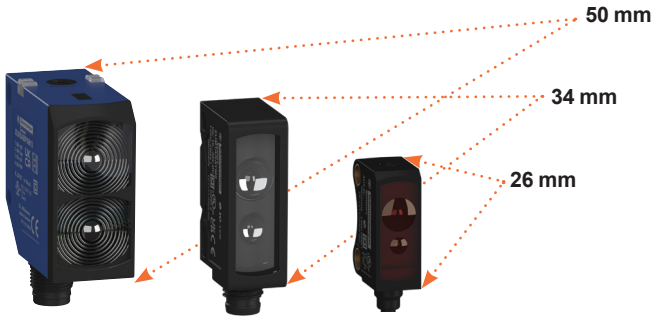
*Designed for small spaces in packaging machines*

## Choose the casing, connection type and size

> Plastic or metal *(1)* casing

> Pre-cabled, with pigtail or connector

> Compact, miniature, and sub-miniature size




*Simple communication with the PLC via Ethernet*

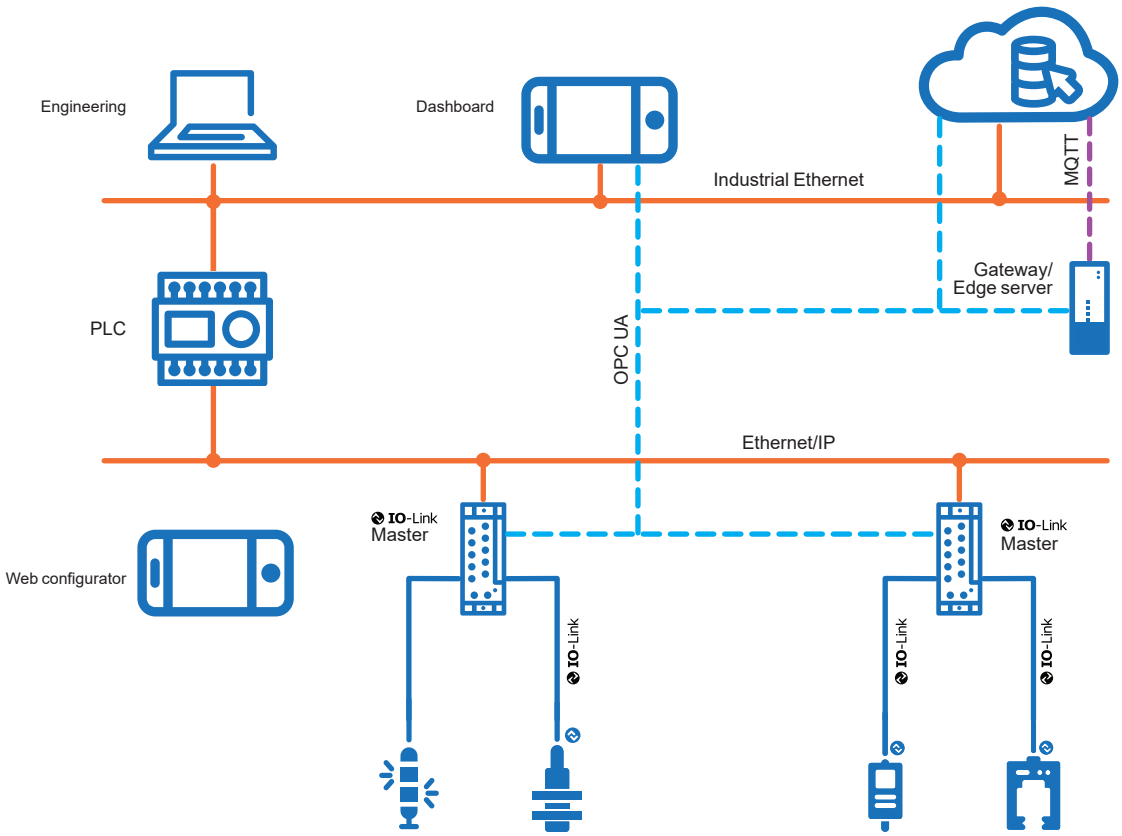
IO-Link

## Smart devices communicate via IO-Link protocol

> Install your new IO-Link sensor easily: automatic reading of the device identification file (IODD) and automatic detection of the sensor output mode

> Automated parameter settings: configure the detection parameters

> Extended diagnostics, with real-time information for optimised usage and maintenance




*(1) XUKC only has a metal casing.*

# Photo-electric sensors
## XU range application
## Constrast system for marking detection
### Miniature design, plastic




*XUMRAWAYM8*
*XUMRAGAYM8*
*XUMRACAYM8*




*XUMRAWAYP015*
*XUMRAGAYP015*



*XUMRPGAYM8*




*XUM5ALAYM8*




*XUM5ALAYL2*

## Contrast mark reader sensors IO-Link

| Max./operating sensing distance (Sn) | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **White light** | | | | | |
| **15 mm/12 mm** | NO/NC configuration via teach-in or IO-Link | Autodetect PNP/NPN | M8 connector (4-pin) | **XUMRAWAYM8** | 0.018 |
| | | Autodetect PNP/NPN | Pigtail M12 (L= 0.15 m) | **XUMRAWAYP015** | 0.027 |
| **RGB light** | | | | | |
| **15 mm/12 mm** | NO/NC configuration via Teach-in or IO-Link | Autodetect PNP/NPN | M8 connector (4-pin) | **XUMRAGAYM8** | 0.018 |
| | | Autodetect PNP/NPN | M8 connector (4-pin) | **XUMRACAYM8** | 0.018 |
| | | Autodetect PNP/NPN | Pigtail M12 (L= 0.15 m) | **XUMRAGAYP015** | 0.027 |
| | | Autodetect PNP/NPN | M8 connector (4-pin) | **XUMRPGAYM8** | 0.01 |
| **Laser light** | | | | | |
| **250 mm/150 mm** | NO/NC configuration via Teach-in or IO-Link | Autodetect PNP/NPN | Pre-cabled (L = 2 m) | **XUM5ALAYL2** | 0.045 |
| | | Autodetect PNP/NPN | M8 connector (4-pin) | **XUM5ALAYM8** | 0.018 |
| | | Autodetect PNP/NPN | Pigtail M12 (L= 0.15 m) | **XUM5ALAYP015** | 0.026 |

## Accessories

### IO-Link Master

See page 90.

### Fixing and other accessories

See page 94.

### Cabling accessories

See page 100.

# Photo-electric sensors
XU range application
Constrast system for marking detection
Miniature design, plastic

## Characteristics

| Sensor type | | | | XUMRA●AY●● | XUMRPGAYM8 | XUM5ALAY●● |
|---|---|---|---|---|---|---|
| **Product certifications** | | | | CE, UKCA, cULus, Ecolab | CE, UKCA, cULus | CE, UKCA, cULus, Ecolab |
| **Connection** | Connector | | | M8 | M8 | M8 |
| | Pigtail | Connector | | M12 | – | M12 |
| | | Length | **m** | 0.15 | – | 0.15 |
| | Pre-cabled | Length | | – | – | 2 |
| **Maximum sensing distance Smax** | Contrast mark reader | | **mm** | 15 | 15 | 250 |
| **Detection light beam colour** | | | | White LED<br>RGB (red, green, blue) | RGB (red, green, blue) | Red (laser class 1) |
| **Degree of protection** | Conforming to IEC 60529 | | | IP67 | | |
| | Conforming to DIN 40050-9 | | | IP69K | IP67 | IP69K |
| **Storage temperature** | | | **°C** | -20...+80 | -40...+70 | -20...+80 |
| **Operating temperature** | | | **°C** | -20...+55 | -25...+55 | -20...+60 |
| **Materials** | Case | | | ABS | Glass-filled technopolymer | ABS |
| | Lens | | | PMMA | | |
| | Front | | | PMMA | PMMA | PMMA |
| | Cable | | | PVC | – | PVC |
| **Rated supply voltage** | | | **V** | 12...24 ⎓ | | |
| **Voltage limits (including ripple)** | | | **V** | 10...30 ⎓ | | |
| **Current consumption, no-load** | | | **mA** | ≤ 30 for RGB<br>≤ 25 for white light | ≤ 40 (≤ 20 at 24V) | ≤ 30 |
| **Switching capacity** | | | **mA** | 100 | ≤100 | 100 |
| **Maximum switching frequency** | | XUMRAWAY●● | **Hz** | 10,000 | – | – |
| | | XUMRAGAY●● | **Hz** | 10,000 | – | – |
| | | XUMRACAY●● | **Hz** | 2500 | – | – |
| | | XUMRPGAYM8 | **Hz** | – | 30,000 (selectable by IO-Link)<br>60,000 (by default) | – |
| | | XUM5ALAY●● | **Hz** | – | – | 4000 |
| **Delays** | First-up | | **ms** | 300 | 0.08 | 300 |
| | Response | XUMRAWAY●● | **µs** | 50 | – | – |
| | | XUMRAGAY●● | **µs** | 50 | – | – |
| | | XUMRACAY●● | **µs** | 200 | – | – |
| | | XUMRPGAYM8 | **µs** | – | 16 | – |
| | | XUM5ALAY●● | **µs** | – | – | 125 |
| | Recovery | | **ms** | 300 | – | 300 |
| | IO-Link | | **ms** | > 230 | | |

# Photo-electric sensors
XU range application
Constrast system for marking detection
Miniature design, plastic

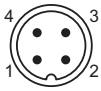
## Wiring schemes

### Contrast mark reader systems

#### M8 and M12 connectors – 4-pin – IO-Link




**M8**

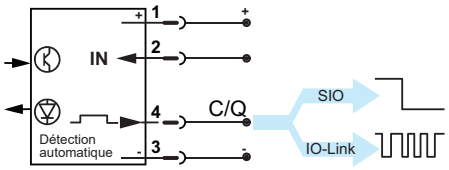



**M12**

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

**Autodetect PNP/NPN or by IO-Link**

**XUM●A●AYM8, XUM●A●AYP015 (white, RGB, and laser)**




*Note : IODD IO-Link files are available on our web site www.telemecaniquesensors.com/iolink*

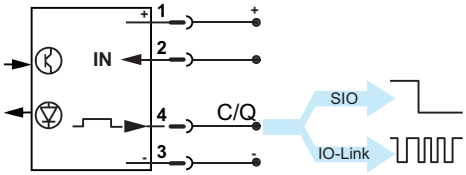
#### Pre-cabled – 4-wire – IO-Link




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

**Autodetect PNP/NPN or by IO-Link**

**XUM5ALAYL2 (laser)**




*Note : IODD IO-Link files are available on our web site www.telemecaniquesensors.com/iolink*

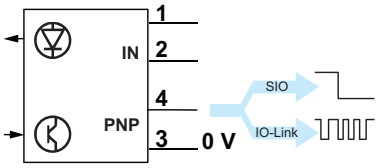
#### M8 connector – 4-wire – IO-Link




| Pin | Signal | Definition |
|---|---|---|
| 1 | + | + 24 V ⎓ |
| 2 | IN *(1)* | Teach-in |
| | | L/D (NO/NC) |
| | | Delay enable |
| 3 | - | 0 V ⎓ |
| 4 | Q | Switching signal (SIO) |
| | C | Communication (IO-Link) |

**PNP, potentiometer or by IO-Link**

**XUMRPGAYM8**




*Note : IODD IO-Link files are available on our web site www.telemecaniquesensors.com/iolink*

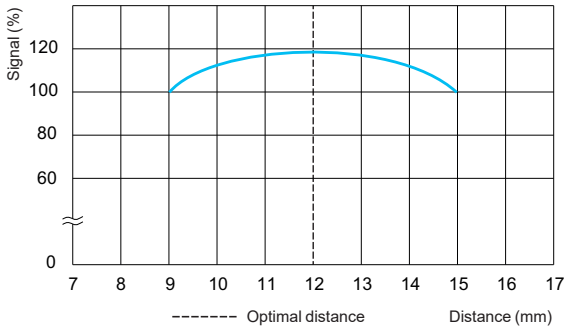
*(1) By default, pin 2 is configured as push-pull OUTPUT; it can be configured as INPUT with IO-Link.*

# Photo-electric sensors
XU range application
Constrast system for marking detection
Miniature design, plastic

## Detection curves

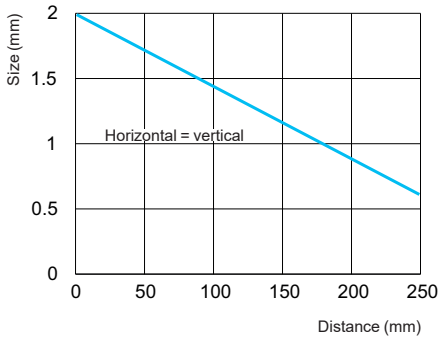
### Contrast mark reader: XUMRA●AYM8, XUMRA●AYP015, XUMRPGAYM8

**Signal process**

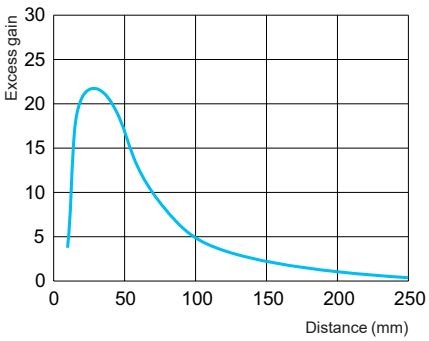



### Contrast mark reader: XUM5ALAY●●

**Light spot size**

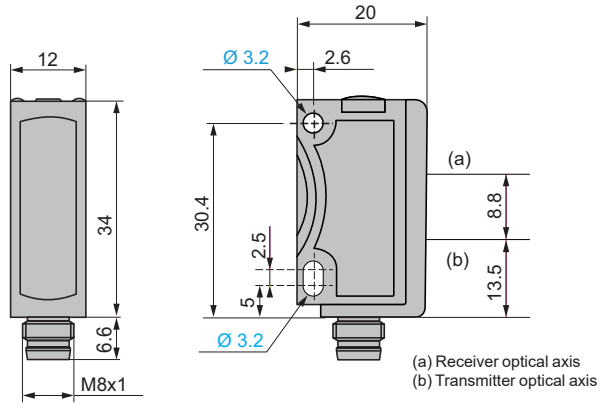


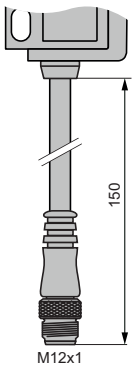

**Excess gain**

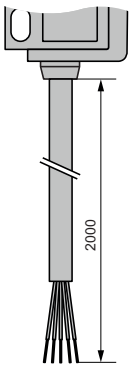



## Dimensions

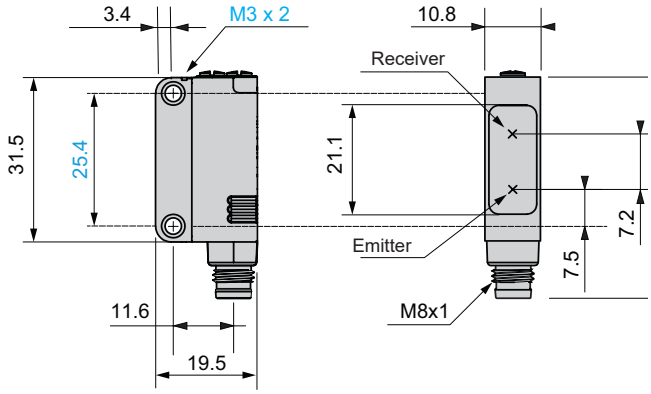
### Miniature format: XUM




### Miniature format: XUMRPGAYM8



# Photo-electric sensors

## XU range application

## Blue light sensors for very dark object detection

Compact, miniature, and sub-miniature design, plastic



*XUM8ABAYP015*



*XUM7ABPXL2*



*XUM7ABPXM8, XUM8ABAYM8*



*XUT7ABPXL2, XUT8ABAYL2*



*XUT7ABPXP02, XUT8ABAYP02*



*XUK8ABPXM12*




*Read the promotional video*

### Background suppression sensors IO-Link

| Max./operating sensing distance (Sn) | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **Adjustable blue light** | | | | | |
| **200 mm/200 mm** miniature format | NO/NC configuration via teach-in or IO-Link | Autodetect PNP/NPN | M8 connector (4-pin) | **XUM8ABAYM8** | 0.014 |
| | | Autodetect PNP/NPN | Pigtail M12 (L= 0.15 m) | **XUM8ABAYP015** | 0.027 |
| **100 mm/100 mm** sub-miniature format | NO/NC configuration via teach-in or IO-Link | Autodetect PNP/NPN | Pre-cabled (L = 2 m) | **XUT8ABAYL2** | 0.031 |
| | | Autodetect PNP/NPN | Pigtail M8 (L= 0.2 m) | **XUT8ABAYP02** | 0.019 |

### Background suppression sensors

| | | | | | |
|---|---|---|---|---|---|
| **Fixed blue light, miniature format** | | | | | |
| **100 mm/80 mm** | NO/NC configuration via teach-in or IO-Link | PNP | Pre-cabled (L = 2 m) | **XUM7ABPXL2** | 0.056 |
| | | PNP | M8 connector (4-pin) | **XUM7ABPXM8** | 0.017 |
| **Fixed blue light, sub-miniature format** | | | | | |
| **50 mm/50 mm** | NO/NC configuration via teach-in or IO-Link | PNP | Pre-cabled (L = 2 m) | **XUT7ABPXL2** | 0.031 |
| | | PNP | Pigtail M8 (L= 0.2 m) | **XUT7ABPXP02** | 0.022 |
| **Adjustable blue light (potentiometer)** | | | | | |
| **1200 mm/600 mm** | NO/NC configuration via teach-in or IO-Link | PNP | M12 connector (4-pin) | **XUK8ABPXM12** | 0.046 |

### Accessories

**IO-Link Master**

See page 90.

**Fixing and other accessories**

See page 94.

**Cabling accessories**

See page 100.

# Photo-electric sensors

XU range application

Blue light sensors for very dark object detection

Compact, miniature, and sub-miniature design, plastic

## Characteristics

| Sensor type | | | | | XU●7ABPX●● | XU●8ABAY●● | XUK8ABPXM12 |
|---|---|---|---|---|---|---|---|
| **Product certifications** | | | | | CE, UKCA, cULus, Ecolab | | |
| **Connection** | Connector | | | | M8 | M8 | M12 |
| | Pre-cabled | Length | | **m** | 2 | 2 | – |
| | Pigtail | Length | XUM8 | **m** | 0.2 | 0.15 | – |
| | | | XUT8 | **m** | | 0.2 | |
| **Maximum sensing distance Smax** | BGS, fixed blue light | | XUM7 | **mm** | 100 | – | – |
| | | | XUT7 | **mm** | 50 | – | – |
| | BGS, adjustable blue light | | XUM8 | **mm** | – | 200 | – |
| | | | XUT8 | **mm** | – | 100 | – |
| | | | XUK8 | **mm** | – | – | 1200 |
| **Detection light beam colour** | | | | | Blue | | |
| **Degree of protection** | Conforming to IEC 60529 | | | | IP67 | | |
| | Conforming to DIN 40050-9 | | | | IP69K for XUM7 only | IP69K for XUM8 only | IP69K |
| **Storage temperature** | | | | **°C** | -20...+80 | | |
| **Operating temperature** | | | XUM7 | **°C** | -20...+60 | -20...+60 | |
| | | | XUT7 | **°C** | -20...+50 | | |
| **Materials** | Case | | XUM | | ABS | ABS | ABS/PC |
| | | | XUT | | PUR | PUR | |
| | Lens | | | | PMMA | | |
| | Front | | | | PMMA | | – |
| | Cable | | | | PVC | | – |
| **Rated supply voltage** | | | XUM8 | **V** | 12...24 ⎓ | 12...24 | 12...24 ⎓ |
| | | | XUT8 | **V** | | 24 ⎓ | |
| **Voltage limits (including ripple)** | | | | **V** | 10...30 | 10...30 | 10...30 |
| **Current consumption, no-load** | | | XUM | **mA** | ≤ 30 | | ≤ 30 |
| | | | XUT | **mA** | ≤ 20 | | |
| **Switching capacity** | | | XUM | **mA** | ≤ 100 | | ≤ 100 |
| | | | XUT | **mA** | ≤ 50 | | |
| **Maximum switching frequency** | | | | **Hz** | 1000 | 700 | 600 |
| **Delays** | First-up | | | **ms** | < 300 | | |
| | Response | | XUM | **µs** | 500 | 500 | 830 max. |
| | | | XUT | **µs** | | 700 | |
| | Recovery | | | **ms** | < 300 | | 300 max. |
| | IO-Link | | | **ms** | > 230 | | |

# Photo-electric sensors
XU range application
Blue light sensors for very dark object detection
Compact, miniature, and sub-miniature design, plastic

## Wiring schemes

### Background suppression sensor

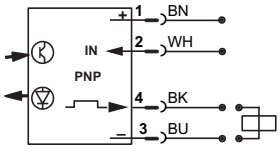
#### M8 connector (including pigtail) - 4-pin




| Pin | Signal | Definition |
|---|---|---|
| 1 | + | + 24 V ⎓ |
| 2 | IN | + = NC<br>- = NO<br>Open = NO |
| 3 | - | 0 V ⎓ |
| 4 | Q | Switching signal |

**PNP**

**XUM7ABPXM8, XUT7ABPXP02**

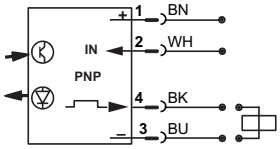



#### Pre-cabled - 4-wire

+BN (Brown)
IN (input) GY (Grey)
OUT (output) BK (Black)
-BU (Blue)

**PNP**

**XUT7ABPXL2, XUM7ABPXL2**




#### M8 and M12 connector - 4-pin IO-Link




M8

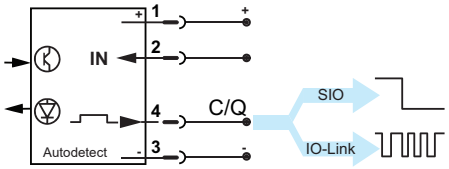



M12

| Pin | Signal | Definition |
|---|---|---|
| 1 | + | + 24 V ⎓ |
| 2 | IN | + = NO<br>- = NC<br>Open = NO |
| 3 | - | 0 V ⎓ |
| 4 | C | Communication (IO-Link) |

**Autodetect PNP/NPN or by IO-Link**

**XUM8ABAYM8, XUM8ABAYP015, XUT8ABAYP02**




***Note**: IODD IO-Link files available on our website www.telemecaniquesensors.com/iolink*

# Photo-electric sensors

XU range application

Blue light sensors for very dark object detection

Compact, miniature, and sub-miniature design, plastic

## Wiring schemes

### Background suppression sensor

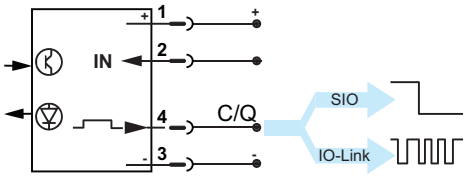
#### Pre-cabled - 4-wire IO-Link

+BN (Brown)
IN (input) GY (Grey)
OUT (output) BK (Black)
-BU (Blue)

| Pin | Signal | Definition |
|---|---|---|
| 1 | + | + 24 V ⎓ |
| 2 | IN | + = NO<br>- = NC<br>Open = NO |
| 3 | - | 0 V ⎓ |
| 4 | C | Switching signal (SIO)<br>Communication (IO-Link) |

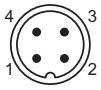
**Autodetect PNP/NPN or by IO-Link**

**XUT8ABAYL2**




***Note**: IODD IO-Link files available on our website www.telemecaniquesensors.com/iolink*

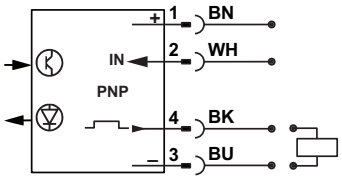
#### M12 connector - 4-pin




| Pin | Signal | Definition |
|---|---|---|
| 1 | + | + 24 V ⎓ |
| 2 | IN | + = NC<br>- = NO<br>Open = NO |
| 3 | - | 0 V ⎓ |
| 4 | C | Switching signal |

**PNP**

**XUK8ABPXM12**



# Photo-electric sensors

XU range application

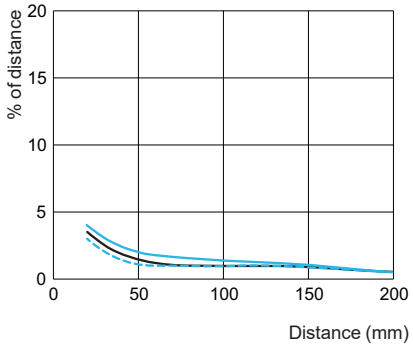
Blue light sensors for very dark object detection

Compact, miniature, and sub-miniature design, plastic

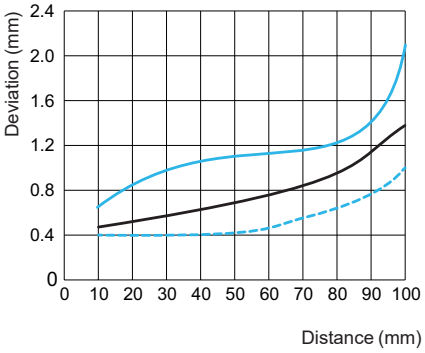
## Detection curves

### Background suppression sensor

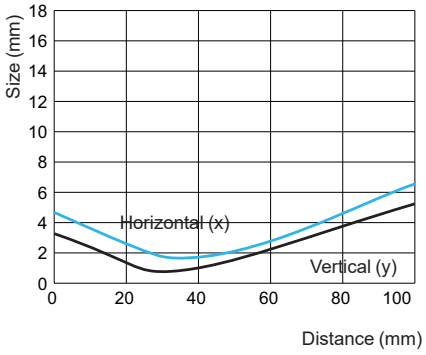
#### Scanning properties: XUM8ABAY●●




#### Scanning properties: XUT8ABAY●●

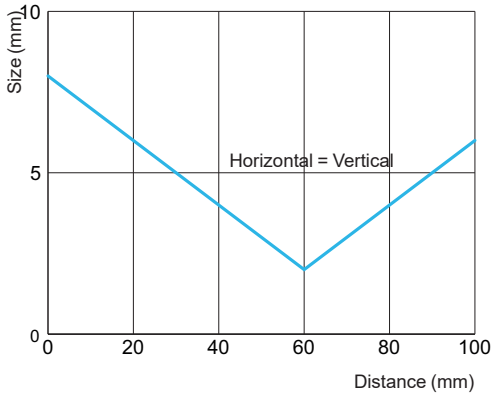



#### Light spot size: XUT8ABAY●●

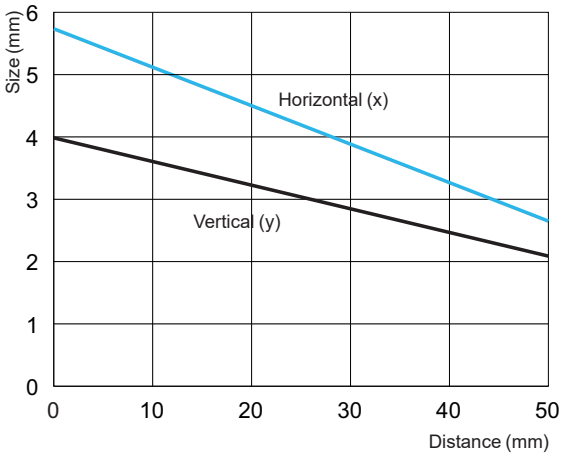



Min. distance white object (90%)/white background (90%) (mm)
Min. distance grey object (18%)/white background (90%) (mm)
Min. distance black object (6%)/white background (90%) (mm)

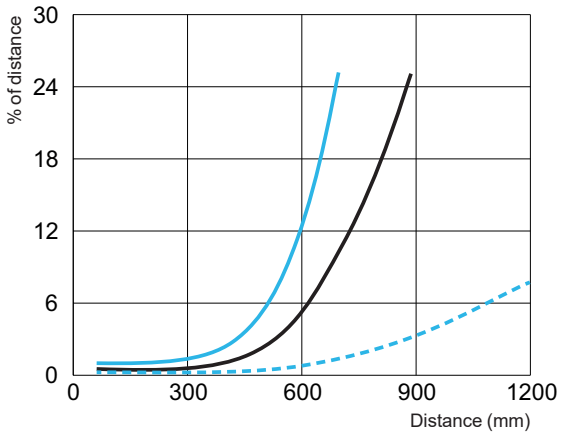
#### Light spot size: XUM7ABPX●●




#### Light spot size: XUT7ABPX●●

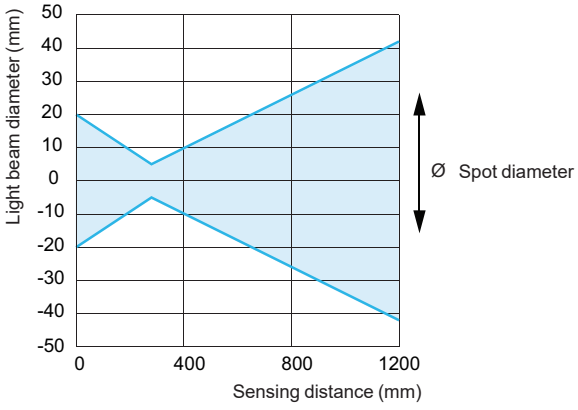



#### Scanning properties: XUK8ABPXM12




Min. distance white object (90%)/white background (90%) (mm)
Min. distance grey object (18%)/white background (90%) (mm)
Min. distance black object (6%)/white background (90%) (mm)

#### Light beam diameter: XUK8ABPXM12

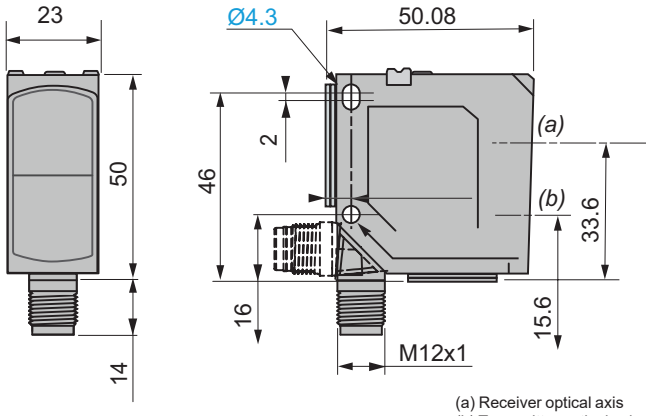


# Photo-electric sensors
XU range application
Blue light sensors for very dark object detection
Compact, miniature, and sub-miniature design, plastic

## Dimensions

### Compact format: XUK

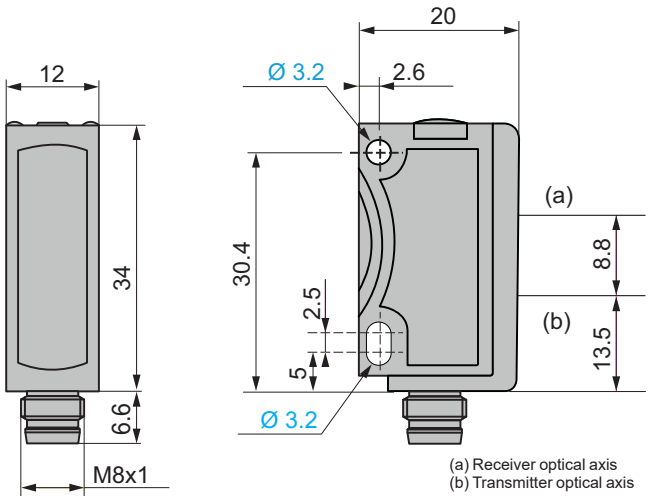
**XUK8ABPXM12**




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

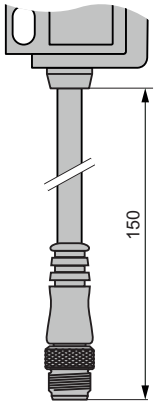
### Miniature format: XUM

**XUM7ABPXL2, XUM8ABAYM8**

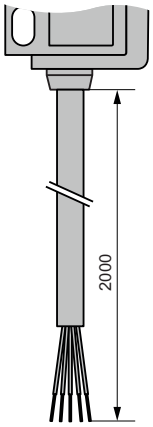



(a) Receiver optical axis
(b) Transmitter optical axis

**XUM8ABAYP015**

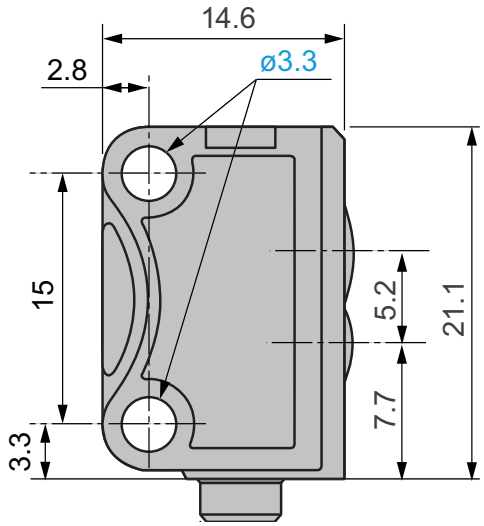



**XUM7ABPXL2**

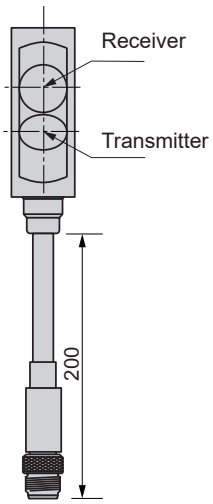



### Sub-miniature format: XUT

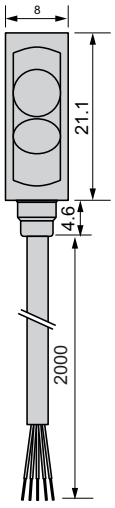
**XUT7ABPXP02, XUT7ABPXL2, XUT8ABAYP02, XUT8ABAYL2**




**XUT●●●●●P02**




**XUT●●●●L2**



# Photo-electric sensors
## XU range application
## Laser sensors for accurate detection
### Miniature and sub-miniature design, plastic



*XUM5ALAYM8, XUM8ALAYM8, XUM9ALAYM8*



*XUT8ALAYP02, XUT8ALAYL2, XUT9ALPXP02, XUT9ALPXL2*



*XUM8PLPXM8 XUM9PLPXM8*



*XUM5ALAYP015, XUM8ALAYP015, XUM9ALAYP015*



*XUM5ALAYL2, XUM8ALAYL2, XUM9ALAYL2*

## Laser sensors

| Max./operating sensing distance (Sn) | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **Diffuse mode detection IO-Link** | | | | | |
| **250 mm/150 mm** | NO/NC configuration via teach-in or IO-Link | Autodetect PNP/NPN | Pre-cabled (L = 2 m) | **XUM5ALAYL2** | 0.045 |
| | | Autodetect PNP/NPN | M8 connector (4-pin) | **XUM5ALAYM8** | 0.018 |
| | | Autodetect PNP/NPN | Pigtail M12 (L= 0.15 m) | **XUM5ALAYP015** | 0.026 |
| **BGS mode detection IO-Link** | | | | | |
| **150 mm/120 mm** | NO/NC configuration via teach-in or IO-Link | Autodetect PNP/NPN | Pre-cabled (L = 2 m) | **XUM8ALAYL2** | 0.056 |
| | | Autodetect PNP/NPN | M8 connector (4-pin) | **XUM8ALAYM8** | 0.018 |
| | | Autodetect PNP/NPN | Pigtail M12 (L= 0.15 m) | **XUM8ALAYP015** | 0.027 |
| **100 mm/70 mm** | NO/NC configuration via teach-in or IO-Link | Autodetect PNP/NPN | Pre-cabled (L = 2 m) | **XUT8ALAYL2** | 0.031 |
| | | Autodetect PNP/NPN | Pigtail M8 (L= 0.2 m) | **XUT8ALAYP02** | 0.019 |
| **BGS mode detection** | | | | | |
| **200 mm/130 mm** | NO/NC configuration via potentiometer | PNP | M8 connector (4-pin) | **XUM8PLPXM8** | 0.01 |
| **Reflex mode detection IO-Link** | | | | | |
| **15 m/13 m** | NO/NC configuration via teach-in or IO-Link | Autodetect PNP/NPN | Pre-cabled (L = 2 m) | **XUM9ALAYL2** | 0.056 |
| | | Autodetect PNP/NPN | M8 connector (4-pin) | **XUM9ALAYM8** | 0.018 |
| | | Autodetect PNP/NPN | Pigtail M12 (L= 0.15 m) | **XUM9ALAYP015** | 0.027 |
| **Reflex mode detection** | | | | | |
| **4 m/3 m** | NO/NC configuration via teach-in | PNP | Pre-cabled (L = 2 m) | **XUT9ALPXL2** | 0.031 |
| | | PNP | Pigtail M8 (L= 0.2 m) | **XUT9ALPXP02** | 0.019 |
| **12 m/10 m** | NO/NC configuration via potentiometer | PNP | M8 connector (4-pin) | **XUM9PLPXM8** | 0.01 |

## Accessories

### IO-Link Master

See page 90.

### Fixing and other accessories

See page 94.

### Cabling accessories

See page 100.

# Photo-electric sensors
## XU range application
## Laser sensors for accurate detection
### Miniature and sub-miniature design, plastic

## Characteristics

| Sensor type | | | | | XUM●ALAY●● | XUM●PLPXM8 |
|---|---|---|---|---|---|---|
| **Product certifications** | | | | | CE, UKCA, cULus, Ecolab | CE, UKCA, cULus |
| **Connection** | Connector | | | | M8 | M8 |
| | Pigtail | Length | XUM5, XUM8, XUM9 | **m** | 0.15 | – |
| | | | XUT8, XUT9 | **m** | 0.20 | – |
| | Pre-cabled | Length | | **m** | 2 | – |
| **Maximum sensing distance Smax** | Diffuse mode | | XUM5 | **mm** | 1...250 | – |
| | Background suppression system | | XUM8 | **mm** | 4...150 | 200 |
| | | | XUT8 | **mm** | 6...70 | – |
| | Reflex mode system | | XU●9 | **m** | 0.1...13 | 15 |
| **Detection light beam colour** | | | | | Laser class 1, red | |
| **Degree of protection** | Conforming to IEC 60529 | | | | IP67 for XUM5, XUT8, XUM8, XUT9, XUM9 | IP65/ IP67 |
| | Conforming to DIN 40050-9 | | | | IP69K for XUM5, XUM8, XUM9 | – |
| **Storage temperature** | | | | **°C** | -20...+80 | -40...+70 |
| **Operating temperature** | XUM5, XUM8, XUM9 | | | **°C** | -20...+60 | -20...+55 |
| | XUT8, XUT9 | | | **°C** | -20...+50 | – |
| **Materials** | Case | XUM5, XUM8, XUM9 | | | ABS | Glass filled technopolymer |
| | | XUT8, XUT9 | | | PUR | – |
| | Lens | | | | PMMA | |
| | Front | | | | PMMA | – |
| | Cable | | | | PVC | – |
| **Rated supply voltage** | | | | **V** | 12...24 ⎓ | 10...30 ⎓ |
| **Voltage limits (including ripple)** | | | | **V** | 10...30 ⎓ | |
| **Current consumption, no-load** | XUM5, XUM8, XUM9 | | | **mA** | ≤ 30 | ≤35 |
| | XUT8, XUT9 | | | **mA** | ≤ 12 | – |
| **Switching capacity** | XUM5, XUM8, XUM9 | | | **mA** | ≤ 100 | |
| | XUT8, XUT9 | | | **mA** | ≤ 50 | – |
| **Maximum switching frequency** | XUM5, XUM9 | | | **Hz** | 4000 | ≤2000 |
| | XUT8, XUM8, XUT9 | | | **Hz** | 1000 | ≤2000 |
| **Delays** | First-up | | | **ms** | < 300 | – |
| | Response | | XUM5 | **µs** | ≤ 125 | – |
| | | | XUM8 | **µs** | ≤ 500 | 250 |
| | | | XUM9 | **µs** | 125 | 250 |
| | | | XUT8, XUT9 | **µs** | 500 | – |
| | Recovery | | | **ms** | < 300 | – |
| | IO-Link | | | **ms** | > 230 | |

# Photo-electric sensors
## XU range application
## Laser sensors for accurate detection
### Miniature and sub-miniature design, plastic

## Wiring schemes

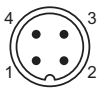
### Laser sensors

#### M8 and M12 connector - 4-pin - IO-Link




**M8**

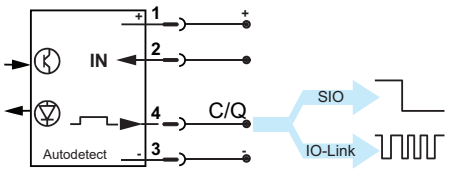
| Pin | Signal | Definition |
|---|---|---|
| 1 | + | + 24 V ⎓ |
| 2 | IN | + = NO<br>- = NC<br>Open = NO |
| 3 | - | 0 V |
| 4 | Q | Switching signal (SIO) |
| | C | Communication (IO-Link) |




**M12**

**Autodetect PNP/NPN or by IO-Link**

**XUM5ALAYM8, XUM5ALAYP015, XUM8ALAYM8, XUM8ALAYP015, XUT8ALAYP02, XUM9ALAYM8, XUM9ALAYP015**




*Note: IODD IO-Link files available on the website www.telemecaniquesensors.com/iolink*

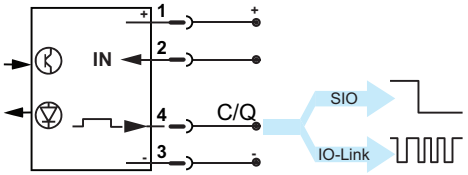
#### Pre-cabled - 4-wire - IO-Link




| Pin | Signal | Definition |
|---|---|---|
| 1 | + | + 24 V ⎓ |
| 2 | IN | + = NO<br>- = NC<br>Open = NO |
| 3 | - | 0 V ⎓ |
| 4 | C | Switching signal (SIO)<br>Communication (IO-Link) |

**Autodetect PNP/NPN or by IO-Link**

**XUM5ALAYL2, XUM8ALAYL2, XUT8ALAYL2, XUM9ALAYL2**




*Note: IODD IO-Link files available on the website www.telemecaniquesensors.com/iolink*

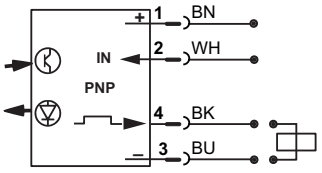
#### M8 connector - 4-pin



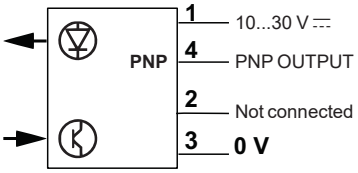

| Pin | Signal | Definition | |
|---|---|---|---|
| | | XUT9ALPX | XUM●PLPX |
| 1 | + | + 24 V ⎓ | 10...30 V ⎓ |
| 2 | IN | + = NC<br>- = NO<br>Open = NO | Not connected |
| 3 | - | 0 V ⎓ | 0 V ⎓ |
| 4 | Q | Switching signal | PNP output |

**PNP**

**XUT9ALPXL2, XUT9ALPXP02**




**XUM8PLPXM8, XUM9PLPXM8**



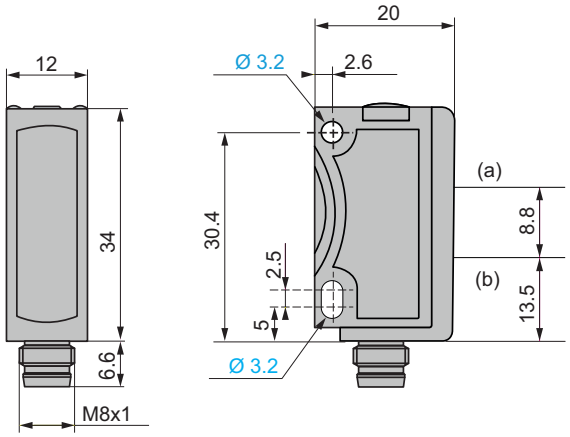

*Note: IODD IO-Link files available on the website www.telemecaniquesensors.com/iolink*

# Photo-electric sensors
XU range application
Laser sensors for accurate detection
Miniature and sub-miniature design, plastic

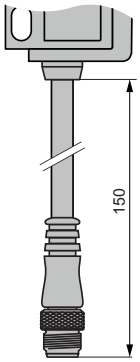
## Dimensions

### Miniature format: XUM

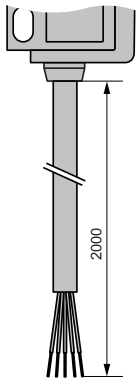
**XUM●ALAYM8**




**XUM●ALAYP015**

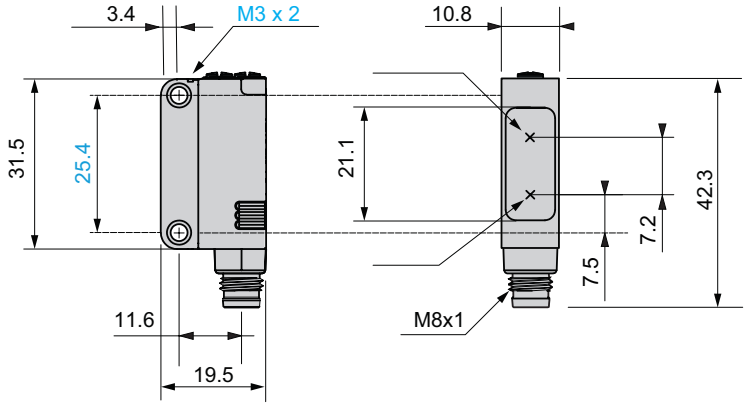



**XUM●ALAYL2**



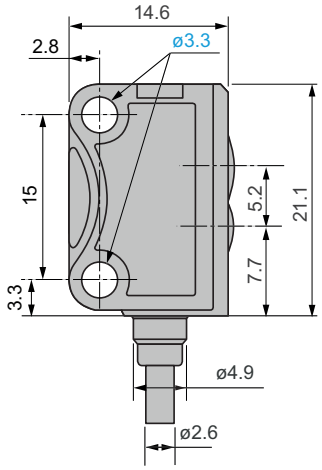

### Miniature format: XUM●PLPXM8

**XUM8PLPXM8, XUM9PLPXM8**

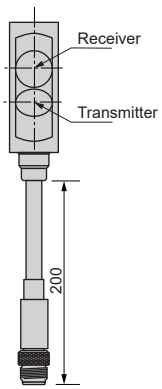



### Sub-miniature format: XUT

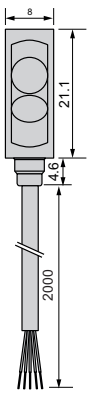
**XUT●●●●●●2**




**XUT●●●●●P02**




**XUT●●●●●L2**

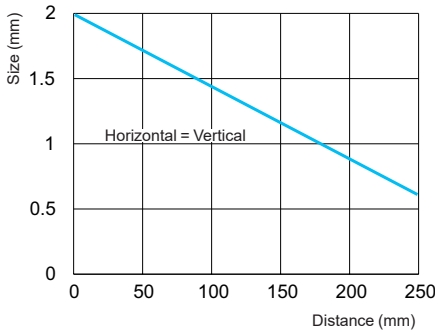


# Photo-electric sensors
XU range application
Laser sensors for accurate detection
Miniature and sub-miniature design, plastic

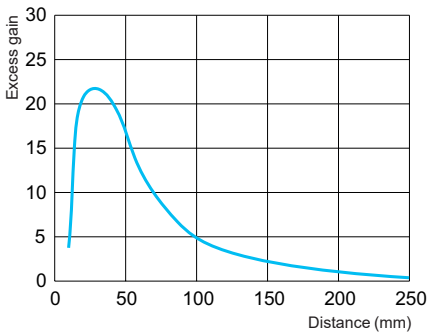
## Detection curves

### Laser sensor, diffuse mode detection

**Light spot size: XUM5ALAY●●**

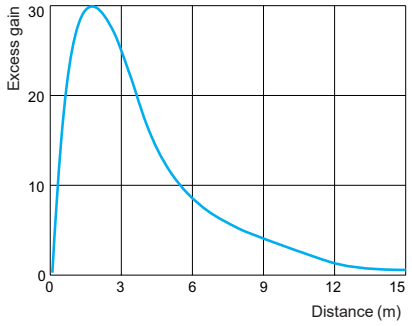



**Excess gain: XUM5ALAY●●**

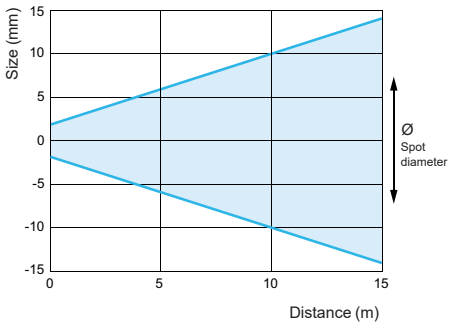



### Laser sensor, reflex mode detection: XU●9AL●●

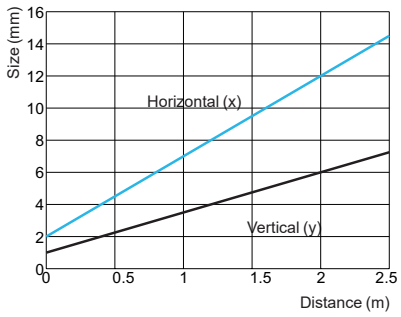
**Functional reserves: XUM9ALAY●●**




**Light spot diameter: XUM9ALAY●●**



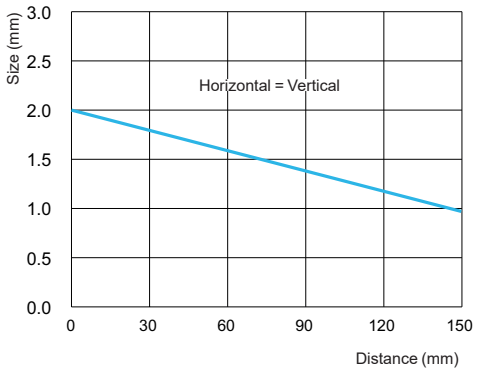

**Light spot size: XUT9ALPX●●**



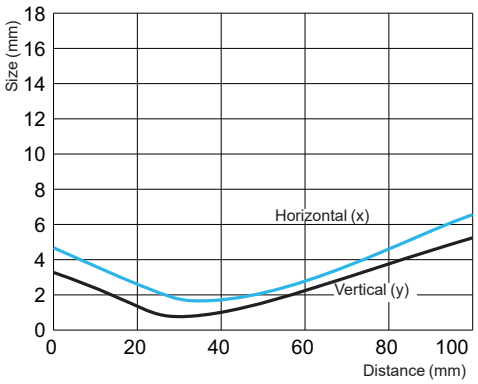
## Detection curves

### Laser sensor, background suppression mode

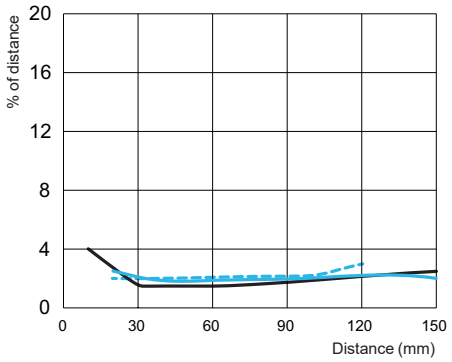
**Light spot size: XUM8ALAY●●**



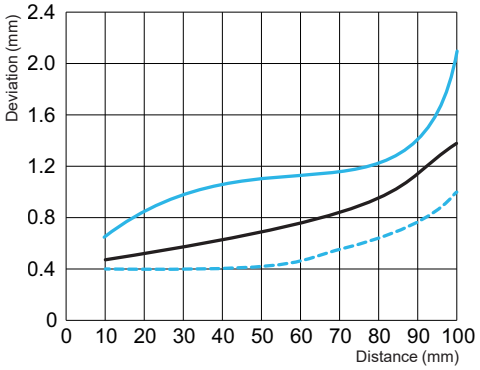

**Light spot size: XUT8ALAY●●**




**Scanning properties: XUM8ALAY●●**




**Scanning properties: XUT8ALAY●●**




Min. distance white object (90%)/white background (90%) (mm)
Min. distance grey object (18%)/white background (90%) (mm)
Min. distance black object (6%)/white background (90%) (mm)

# Photo-electric sensors
## XU range application
## Sensors for colour object detection
### Compact and miniature design, plastic



*XUKCBSAYM12*



*XUKCBLAYM12*



*XUMRACAYM8*

## Colour sensors IO-Link

| Max./operating sensing distance (Sn) | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **White light, multiple colour** | | | | | |
| **60 mm/30 mm** | NO/NC configuration via teach-in or IO-Link | Autodetect PNP/NPN | M12 connector (3-output) | **XUKCBSAYM12** | 0.017 |
| **150 mm/120 mm** | | Autodetect PNP/NPN | M12 connector (3-output) | **XUKCBLAYM12** | 0.017 |
| **RGB light, unique colour** | | | | | |
| **15 mm/12 mm** | NO/NC configuration via teach-in or IO-Link | Autodetect PNP/NPN | M8 connector (4-pin) | **XUMRACAYM8** | 0.018 |

## Accessories

### IO-Link Master

See page 90.

### Fixing and other accessories

See page 94.

### Cabling accessories

See page 100.

## Characteristics

| Sensor type | | | | XUKCB●AYM12 | XUMRACAYM8 |
|---|---|---|---|---|---|
| **Product certifications** | | | | CE, UKCA, cULus | CE, UKCA, cULus, Ecolab |
| **Connection** | Connector | | | M12 (5-pin) | M8 (4-pin) |
| **Maximum sensing distance Smax** | White light | XUKC short | **mm** | 60 | – |
| | | XUKC long | **mm** | 150 | – |
| | RGB light | XUMR | **mm** | – | 15 |
| **Detection light beam colour** | | | | White | Red, green and blue |
| **Degree of protection** | Conforming to IEC 60529 | | | IP67 | |
| | Conforming to DIN 40050-9 | | | IP69K | |
| **Storage temperature** | | | **°C** | -20...+80 | |
| **Operating temperature** | | | **°C** | -20...+55 | |
| **Materials** | Case | | | Zinc die-cast | ABS |
| | Lens | | | PMMA | PMMA |
| | Front | | | PMMA | PMMA |
| | Cable | | | | |
| **Rated supply voltage** | | | **V** | 24 ⎓ | 12...24 ⎓ |
| **Voltage limits (including ripple)** | | | **V** | 18...30 | 10...30 |
| **Current consumption, no-load** | | | **mA** | ≤ 60 | ≤ 30 |
| **Switching capacity** | | | **mA** | ≤ 100 | |
| **Maximum switching frequency** | | | **Hz** | 3000 | 2500 |
| **Delays** | First-up | | **ms** | 300 | |
| | Response | | **µs** | ≤ 180 | ≤ 200 |
| | Recovery | | **ms** | < 300 | – |
| | IO-Link | | **ms** | > 230 | |

# Photo-electric sensors
## XU range application
## Sensors for colour object detection
## Compact and miniature design, plastic

## Wiring schemes

### Colour detection system

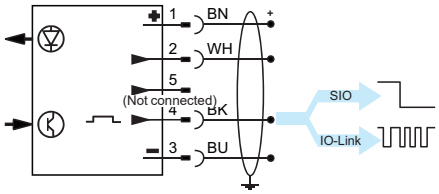
**M12 connector - 5-pin - IO-Link**




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

**Autodetect PNP/NPN or by IO-Link**

**XUKCB●AYM12, XUMRACAYM8**

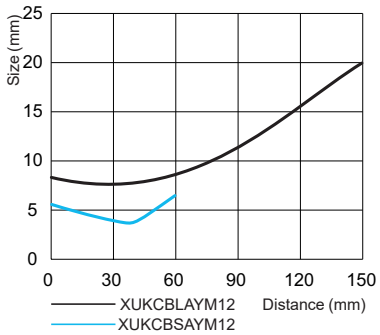



***Note**: IODD IO-Link files available on our website www.telemecaniquesensors.com/iolink*

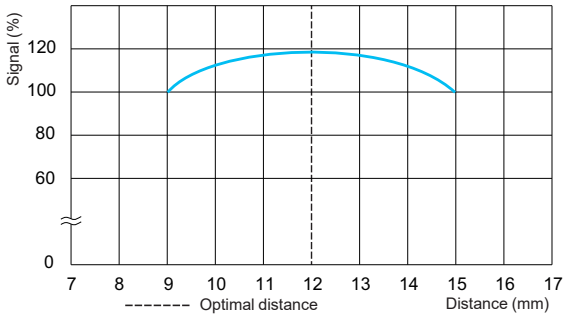
## Detection curves

### Colour detection system

**Light spot size: XUKCBSAYM12 and XUKCBLAYM12**

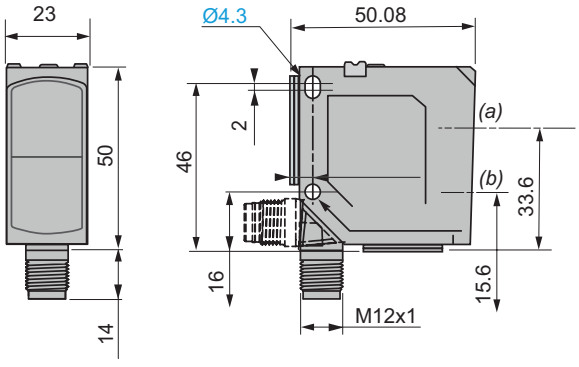



**Signal process: XUMRACAYM8**



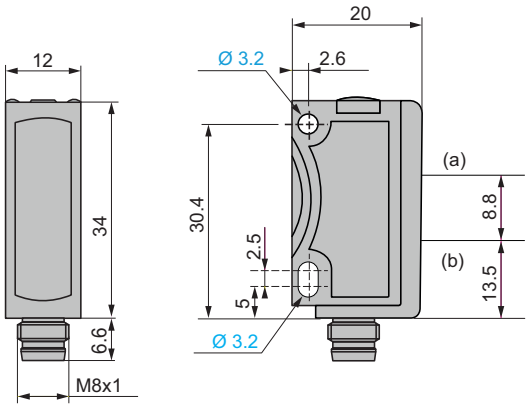

## Dimensions

**Compact format: XUKCB●AYM12**




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

**Miniature format: XUMRACAYM8**




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

# Photo-electric sensors
## XU range application
## Sensors for transparent object detection
### Miniature, sub-miniature, and compact design, plastic



*XUMTARAYM8, XUM7ABPXM8, XUM8ABAYM8*



*XUMTARAYL2, XUMTARAYP015, XUM7ABPXL2, XUM8ABAYP015*



*XUMTPRPXM8*



*XUT8ABAYL2, XUT8ABAYP02, XUT7ABPXL2, XUT7ABPXP02*



*XUK8ABPXM12*

## Sensors for transparent object detection

| Max./operating sensing distance (Sn) | Function | Output | Connection | Reference | Weight (kg) |
|---|---|---|---|---|---|
| **Polarised reflex system** IO-Link | | | | | |
| **2 m/2 m** | NO/NC configuration via teach-in or IO-Link | Autodetect PNP/NPN | Pre-cabled (L = 2 m) | **XUMTARAYL2** | 0.056 |
| | | Autodetect PNP/NPN | M8 connector (4-pin) | **XUMTARAYM8** | 0.018 |
| | | Autodetect PNP/NPN | Pigtail M12 (L= 0.15 m) | **XUMTARAYP015** | 0.027 |
| **Transparent reflex system** | | | | | |
| **2 m/2 m** | NO/NC configuration via potentiometer | PNP | M8 connector (4-pin) | **XUMTPRPXM8** | 0.01 |
| **BGS mode detection, adjustable** IO-Link | | | | | |
| **200 mm/200 mm** | NO/NC configuration via teach-in or IO-Link | Autodetect PNP/NPN | M8 connector (4-pin) | **XUM8ABAYM8** | 0.014 |
| | | Autodetect PNP/NPN | Pigtail M12 (L= 0.15 m) | **XUM8ABAYP015** | 0.027 |
| **100 mm/100 mm** | NO/NC configuration via teach-in or IO-Link | Autodetect PNP/NPN | Pigtail M8 (L= 0.2 m) | **XUT8ABAYP02** | 0.019 |
| | | Autodetect PNP/NPN | Pre-cabled (L = 2 m) | **XUT8ABAYL2** | 0.031 |
| **BGS mode detection, not adjustable** | | | | | |
| **100 mm/80 mm** | NO/NC configuration via teach-in | PNP | Pre-cabled (L = 2 m) | **XUM7ABPXL2** | 0.056 |
| | | PNP | M8 connector (4-pin) | **XUM7ABPXM8** | 0.017 |
| **50 mm/50 mm** | NO/NC configuration via teach-in | PNP | Pre-cabled (L = 2 m) | **XUT7ABPXL2** | 0.031 |
| | | PNP | Pigtail M8 (L= 0.2 m) | **XUT7ABPXP02** | 0.022 |
| **BGS mode detection, compact** IO-Link | | | | | |
| **1200 mm/1200 mm** | NO/NC configuration via teach-in or IO-Link | PNP | M12 connector (4-pin) | **XUK8ABPXM12** | 0.046 |

## Accessories

### IO-Link Master

See page 90.

### Fixing and other accessories

See page 94.

### Cabling accessories

See page 100.

# Photo-electric sensors

XU range application

Sensors for transparent object detection

Miniature, sub-miniature, and compact design, plastic

## Characteristics

| Sensor type | | | | | XUMTARAY•• | XU•7ABP•• | XUK8ABP•• | XU•8ABAY•• | XUMTPRPXM8 |
|---|---|---|---|---|---|---|---|---|---|
| **Product certifications** | | | | | CE, UKCA, cULus, Ecolab | | | | CE, UKCA, cULus |
| **Connection** | Connector | | | | M8 | M8 (for XUM7) | M12 | M8 | M8 |
| | Pigtail | Length | XUM8 | m | 0.15 | 0.2 | – | 0.15 | – |
| | | | XUT8 | m | | | | 0.2 | |
| | Pre-cabled | Length | | m | 2 | 2 | – | 2 | – |
| **Maximum sensing distance Smax** | Polarised reflex system | | XUMTA | m | 0...2 | – | – | – | – |
| | Transparent reflex system | | XUMTP | m | – | – | – | – | 2 |
| | BGS system, not adjustable | | XUM7 | mm | – | 0...80 | – | – | – |
| | BGS system, adjustable | | XUM8 | mm | – | – | White = 3...1200<br>Grey = 5...750<br>Black = 10...600 | 1...200 | – |
| | | | XUT8 | mm | | | | 3...100 | – |
| | BGS system, blue light | | XUT7 | mm | – | 2...50 | – | – | – |
| **Detection light beam colour** | | | | | Red (LED) | Blue (LED) | Blue (LED) | Blue (LED) | Red (LED) |
| **Degree of protection** | Conforming to IEC 60529 | | | | IP67 | | | | |
| | Conforming to DIN 40050-9 | | | | IP69K (except XUT) | | | | – |
| **Storage temperature** | | | | °C | -20...+80 | | | | -40...+70 |
| **Operating temperature** | | | | °C | -20...+60 | -20...+50 | -20...+60 | | -25...+55 |
| **Materials** | Case | | XUM | | ABS | ABS | ABS/PC | ABS | Glass-filled technopolymer |
| | | | XUT | | | PUR | | PUR | |
| | Lens | | | | PMMA | | | | |
| | Front | | | | PMMA | | | | – |
| | Cable | | | | PVC | PVC | – | PVC | – |
| **Rated supply voltage** | | | XUM | V | 24 ⎓ | 12...24 ⎓ | 12...24 ⎓ | 12...24 ⎓ | 10...30 ⎓ |
| | | | XUT | V | | | | 24 ⎓ | |
| **Voltage limits (including ripple)** | | | | V | 10...30 | | | | |
| **Current consumption, no-load** | | | XUM | mA | ≤ 30 | ≤ 30 | ≤ 30 | ≤ 30 | ≤35m |
| | | | XUT | mA | | ≤ 20 | | ≤ 20 | |
| **Switching capacity** | | | XUM | mA | ≤ 100 | ≤ 100 | ≤ 100 | ≤ 100 | ≤ 100 |
| | | | XUT | mA | | ≤ 50 | | ≤ 50 | |
| **Maximum switching frequency** | | | | Hz | 1000 | 1000 | 600 | 700 | 1000 |
| **Delays** | First-up | | | ms | < 300 | | | | – |
| | Response | | XUM | µs | 500 | | 830 | 500 | 500 |
| | | | XUT | µs | | | | 700 | |
| | Recovery | | | ms | < 300 | | | | – |
| | IO-Link | | | | > 230 | – | > 230 | > 230 | – |

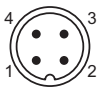
# Photo-electric sensors
XU range application
Sensors for transparent object detection
Miniature, sub-miniature, and compact design, plastic

## Wiring schemes

### Polarised reflex system

#### M8 and M12 connector - 4-pin - or pre-cabled - 4-wire IO-Link

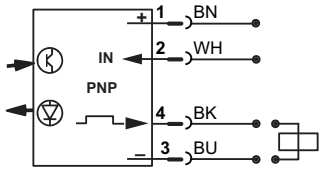


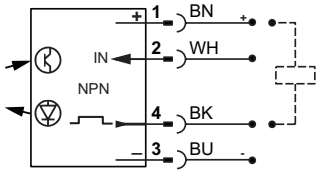

| Pin | Signal | Definition |
|---|---|---|
| 1 | + | + 24 V ⎓ |
| 2 | IN | + = NO<br>- = NC<br>Open = NO |
| 3 | - | 0 V |
| 4 | Q | Switching signal (SIO) |
| | C | Communication (IO-Link) |

**PNP**

**XUMTARAYL2, XUMTARAYM8, XUMTARAYP015**




**NPN**

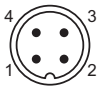



***Note**: IODD IO-Link files available on the website www.telemecaniquesensors.com/iolink*

#### BGS mode detection, adjustable IO-Link

#### M8 and M12 connector - 4-pin- or pre-cabled - 4-wire

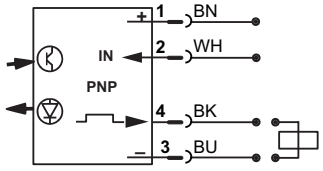


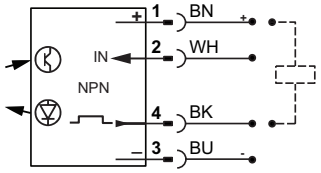

| Pin | Signal | Definition |
|---|---|---|
| 1 | + | + 24 V ⎓ |
| 2 | IN | + = NO<br>- = NC<br>Open = NO |
| 3 | - | 0 V ⎓ |
| 4 | Q | Switching signal (SIO) |
| | C | Communication (IO-Link) |

**PNP**

**XUM8ABAYM8, XUM8ABAYP015, XUT8ABAYP02, XUT8ABAYL2**




**NPN**




***Note**: IODD IO-Link files available on the website www.telemecaniquesensors.com/iolink*

### BGS mode detection, not adjustable

#### M8 connector - 4-pin- or pre-cabled - 4-wire

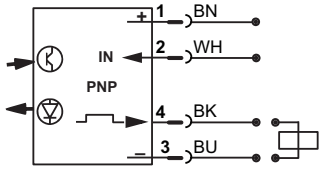



| Pin | Signal | Definition |
|---|---|---|
| 1 | + | + 24 V ⎓ |
| 2 | IN | + = NC<br>- = NO<br>Open = NO |
| 3 | - | 0 V ⎓ |
| 4 | Q | Switching signal |

**PNP**

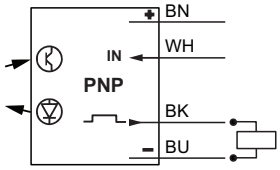
**M8 connector**

**XUM7ABPXM8, XUT7ABPXP02**



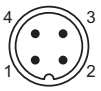

**Pre-cabled**

**XUM7ABPXL2, XUT7ABPXL2**




***Note**: IODD IO-Link files available on the website www.telemecaniquesensors.com/iolink*

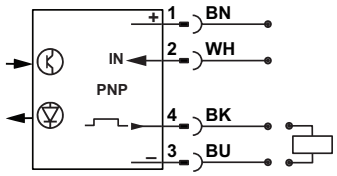
#### M12 connector - 4-pin




| Pin | Signal | Definition |
|---|---|---|
| 1 | + | + 24 V ⎓ |
| 2 | IN | + = NC<br>- = NO<br>Open = NO |
| 3 | - | 0 V ⎓ |
| 4 | Q | Switching signal |

**PNP**

**XUK8ABPXM12**




***Note**: IODD IO-Link files available on the website www.telemecaniquesensors.com/iolink*

### Transparent reflex

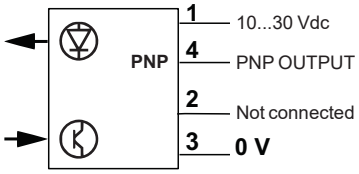
#### M8 connector - 4-pin




| Pin | Definition |
|---|---|
| 1 | 10...30 Vdc |
| 2 | Not connected |
| 3 | 0 V |
| 4 | PNP OUTPUT |

**PNP**

**XUMTPRPXM8**

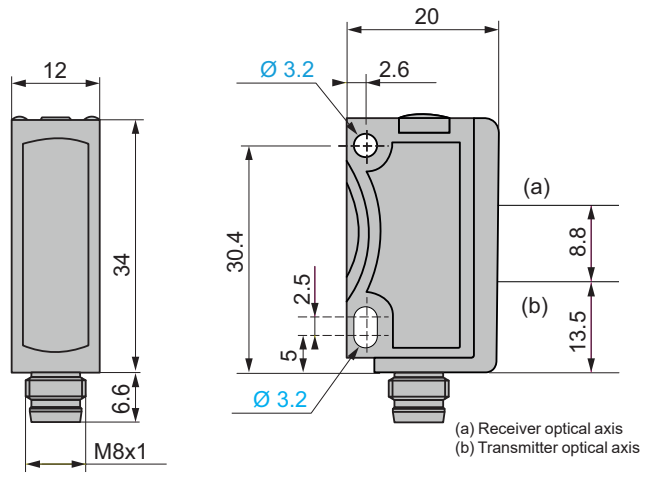


# Photo-electric sensors
XU range application
Sensors for transparent object detection
Miniature, sub-miniature, and compact design, plastic

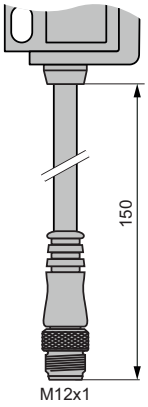
## Dimensions

### Miniature format: XUM

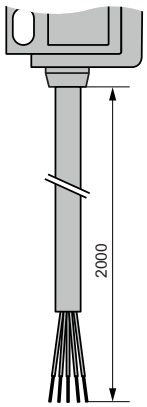
**XUM•A•AYM8, XUM•A•AYL2, XUM•A•AYP015, XUM•ABPX••**




**XUM••••••P015**

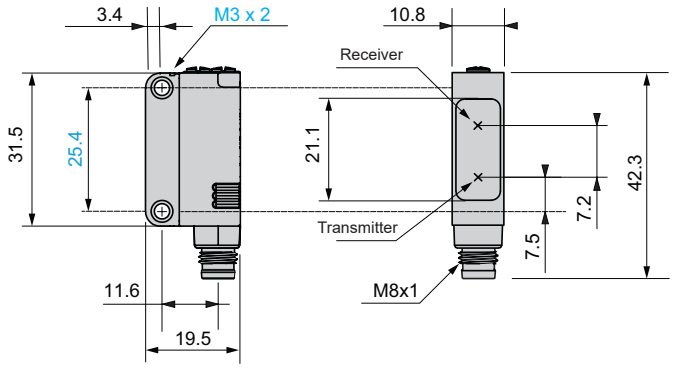



**XUM•••••L2**



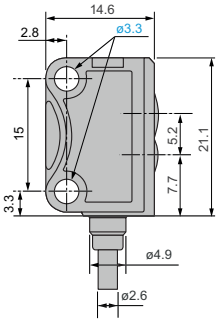

### Miniature format: XUM

**XUMTPRPXM8**

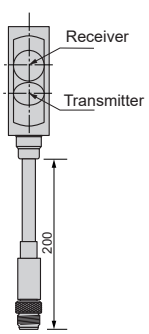



### Sub-miniature format: XUT

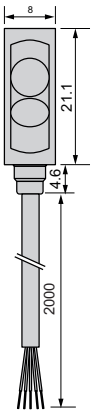
**XUT7ABPXP02, XUT7ABPXL2, XUT8ABAYL2, XUT8ABAYP02**




**XUT••••••P02**

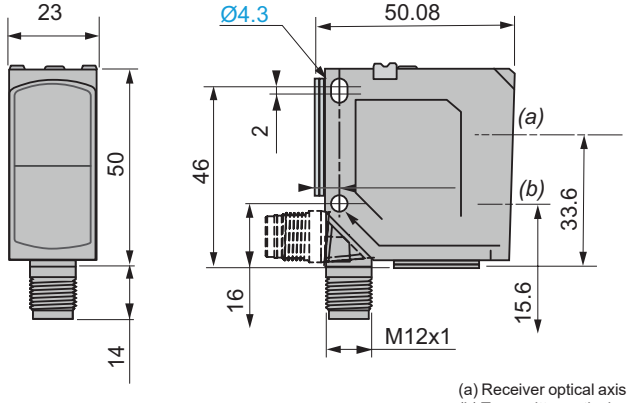



**XUT•••••L2**




### Compact format: XUK

**XUK8ABPXM12**

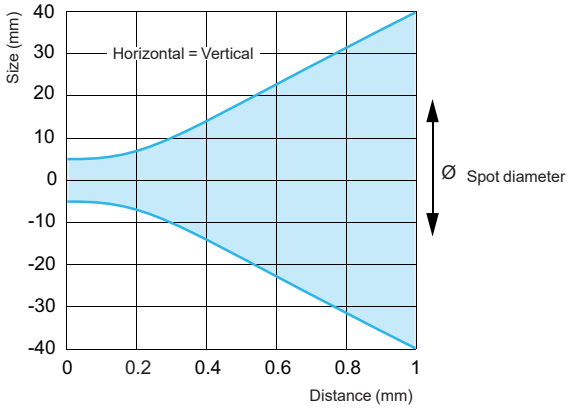


# Photo-electric sensors
XU range application
Sensors for transparent object detection
Miniature, sub-miniature, and compact design, plastic

## Detection curves

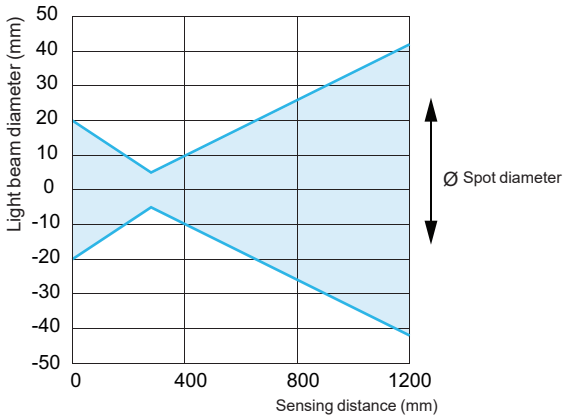
### Polarised reflex

**Light spot diameter: XUMTARAY●●**




### Background suppression mode

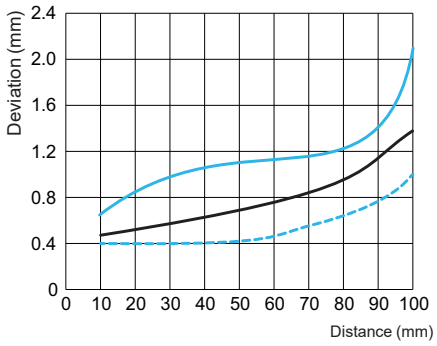
**Light spot diameter: XUK8ABPXM12**



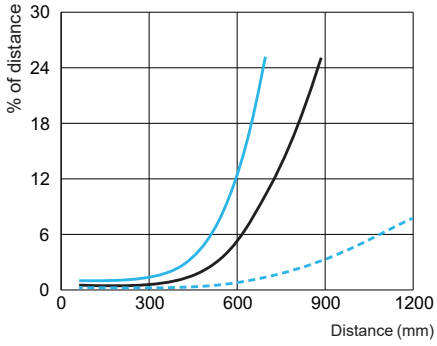
## Detection curves

### Background suppression mode

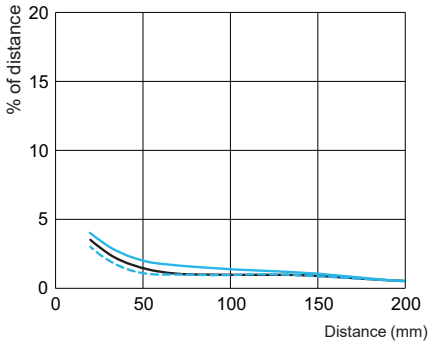
**Scanning properties: XUT8ABAY●●**




**Scanning properties: XUK8ABPXM12**

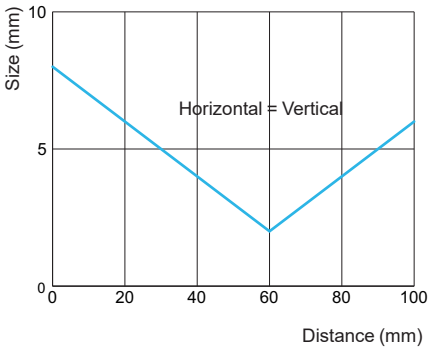



**Scanning properties: XUM8ABAY●●**

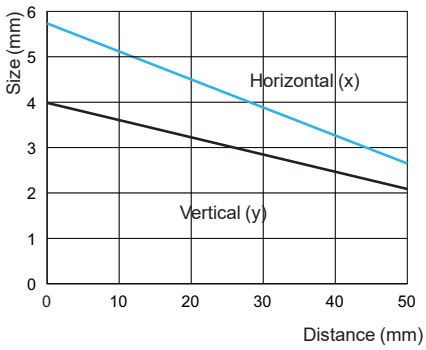



Min. distance white object (90%)/white background (90%) (mm)
Min. distance grey object (18%)/white background (90%) (mm)
Min. distance black object (6%)/white background (90%) (mm)

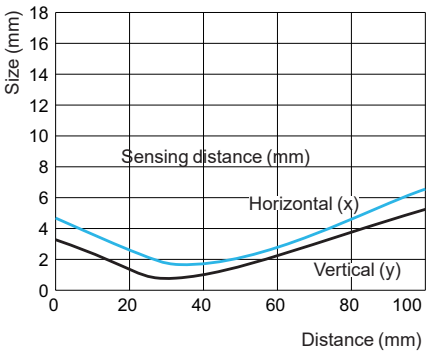
**Light spot size: XUM7ABPX●●**




**Light spot size: XUT7ABPX●●**




**Light spot size: XUT8ABAY●●**



# Ultrasonic sensors
## XUVU for packaging series
## Ultrasound fork for label detection

XUVU04M3BL02M12



*XUVU04M3●L2*

XUVU04M3BL2



*XUVU04M3●L02M12*

XUVU04M3BM8



*XUVU04M3●M8*

### Ultrasonic fork IO-Link

| Operating sensing distance (Sn) | Function | Connection | Reference | Weight (kg) |
|---|---|---|---|---|
| **2.6 mm** | Push/pull | M8 connector (4-pin) | **XUVU04M3BM8** | 0.095 |
| | | Pre-cabled (L = 2 m) | **XUVU04M3BL2** | 0.12 |
| | | Pigtail M12 (L= 0.2 m) | **XUVU04M3BL02M12** | 0.108 |
| | PNP | M8 connector (4-pin) | **XUVU04M3PM8** | 0.095 |
| | | Pre-cabled (L = 2 m) | **XUVU04M3PL2** | 0.12 |
| | | Pigtail M12 (L= 0.2 m) | **XUVU04M3PL02M12** | 0.108 |
| | NPN | M8 connector (4-pin) | **XUVU04M3NM8** | 0.095 |
| | | Pre-cabled (L = 2 m) | **XUVU04M3NL2** | 0.12 |
| | | Pigtail M12 (L= 0.2 m) | **XUVU04M3NL02M12** | 0.108 |

## Accessories

### IO-Link Master

See page 90

### Cabling accessories

See page 100

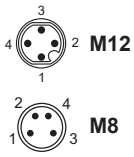
# Ultrasonic sensors
## XUVU for packaging series
## Ultrasound fork for label detection

## Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **System** | | | Thru-beam | | |
| **Type of transmission** | | | Ultrasonic | | |
| **Nominal sensing distance (Sn)** | | | 2.6 mm | | |
| **Depth** | | | 43 mm | | |
| **References** | | | **XUVU04M3B●** | **XUVU04M3P●** | **XUVU04M3N●** |
| **Remote adjustment** | | | Push-Pull | PNP | NPN |
| **Product certifications** | | | IEC 60947-5-2, CE, UKCA, cULus | | |
| **Materials** | | | Valox, Zamac | | |
| **Connection** | | | XUVU04M3●M8: 4-pin M8 connector<br>XUVU04M3●L2: 4-wire cable<br>XUVU04M3●L02M12: 4-pin M12 connector | | |
| **Detection performance** | Minimum length of label | mm | 2 | | |
| | Minimum distance between 2 labels | mm | 1 | | |
| | Maximum flow rate | m/s | 4 (240 m/min) | | |
| | Detection accuracy | mm | For v = 2 m/s: +/-0.25 | | |
| **Supply** | Rated supply voltage | **V** | **12-24 with protection against reverse polarity** | | |
| | Voltage limits | **V** | **10-30 (including ripple)** | | |
| | Current consumption, no-load | mA | <50 | | |
| **Protection class** | | | III | | |
| **Output** | Maximum rated current | mA | 100 | | |
| | Maximum switching frequency | kHz | **1.1** | | |
| | Indicator light | | | | |
| | LEDs Output state | | Yellow | | |
| | Quality of Teach/ Quality of Run | | 5-segment LED bar graph (green) | | |
| | Power | | Green | | |
| **Delay** | | µs | 440 | | |
| **Environment** | Operating temperature | °C | +5...+55 | | |
| | Storage temperature | °C | -20...+70 | | |
| | Degree of protection | | IP65 | | |

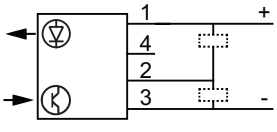
## Wiring schemes

### M12/M8 connector - 4 pins - pre-cabled

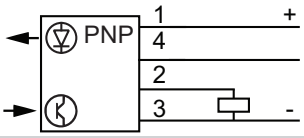



| Pin | Signal | Colour |
|---|---|---|
| 1 | + | Brown (BN) |
| 2 | MF | White (WH) |
| 3 | - | BU (Blue) |
| 4 | Q/C | Black (BK) |

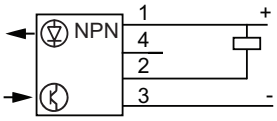
**Push/pull**
**XUVU04M3BM8, XUVU04M3BL2, XUVU04M3BL02M12**




**PNP**
**XUVU04M3PM8, XUVU04M3PL2, XUVU04M3PL02M12**

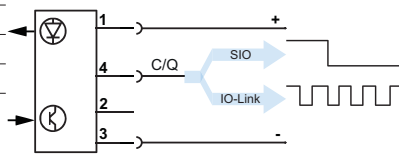



**NPN**
**XUVU04M3NM8, XUVU04M3NL2, XUVU04M3NL02M12**



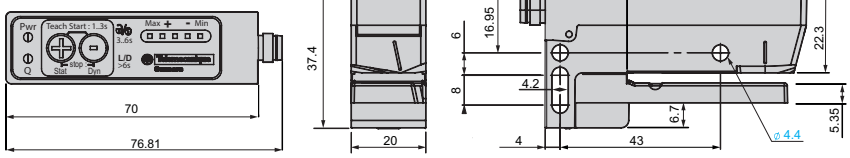

### Auto-detect by IO-Link

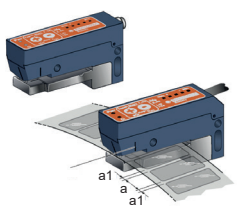
| Pin | Signal |
|---|---|
| 1 | + |
| 2 | MF |
| 3 | - |
| 4 | Q/C |




## Dimensions

**XUVU04M3●●●**




a1 ⩾1 mm (*0.039 in.*)
a ⩾ 2 mm (*0.078 in.*)

# Photo-electric sensors
## IO-Link Master



XZIOM8AM12PY

## Presentation

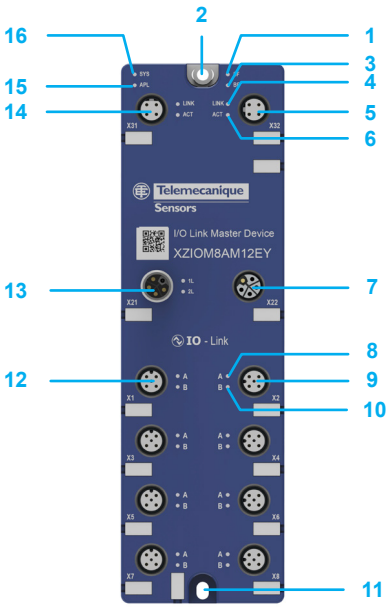
IO-Link is a point-to-point network communication protocol dedicated to sensors and actuators offering advantages such as increased productivity, simplified integration and reduced inventory.

It enables:
- Simplified connection of sensors and actuators to the upper-level control and monitoring system of an automated line
- Advanced diagnostic functions, through continuous monitoring of critical parameters such as signal quality and sensor status
- Reduced commissiong time due to fewer cables and hot swappable devices
- Integration with third-party devices, thanks to multiple fieldbus protocol support (PROFINET, Ethernet/IP)

Telemecanique Sensors offers a wide choice of IO-Link conformant devices, with various detection systems such as thru-beam, diffuse, polarised reflex, etc.

### IO-Link system

An IO-Link system consists of the following components:
- IO-Link Master
- IO-Link devices (sensors, RFID readers, valves, motor starters, I/O modules)
- Cabling
- Engineering tool for integration and configuration of IO-Link devices (Simply Config IO-Link Master software *(1)*)




1 For Ethernet, module status LED (MS)
For PROFINET, system error LED (SF)
2 Fixing hole and functional earth (FE)
3 For Ethernet, network status LED (NS)
For PROFINET, bus failure LED (BF)
4 Link LED X32
5 Ethernet interface, M12, D-coded, port 2
6 Activity LED X32
7 Power Out
8 IO-Link status LED, port 2, channel A
9 IO-Link, port 2, M12, A-coded
10 IO-Link status LED, port 2, channel B
11 Fixing hole
12 IO-Link, port 1, M12, A-coded
13 Power In
14 Ethernet interface, M12, D-coded, port 1
15 Application status LED
16 System status LED

## Description

### IO-Link Masters

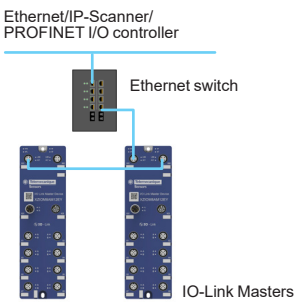
IO-Link Masters serve to capture digital inputs and outputs being conveyed between the PLC and the IO-Link devices.

Two types of IO-Link Master are available:
- **XZIOM8AM12EY** Ethernet Master, for devices connected to an Ethernet/IP network
- **XZIOM8AM12PY** PROFINET Master, for devices connected to a PROFINET network

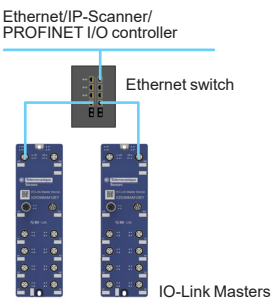
An IO-Link Master enables:
- On the sensor side: IODD file management, sensor configuration, port diagnosis
- On the Master side: Master configuration, firmware update, factory reset, Master diagnosis, MQTT setting

### Example of installation in line or star topology

**Line topology**




**Star topology**




*(1) Simply Config IO-Link software can be downloaded from our website.*

# Photo-electric sensors
## IO-Link Master

### IO-Link Master devices

| Description | Protocol | Power consumption | Number of ports | Connector | Reference | Weight (kg) |
|---|---|---|---|---|---|---|
| **IO-Link Master** | Ethernet/IP | 24V ⎓ | 8 class A | M12 | **XZIOM8AM12EY** | 0.405 |
| | PROFINET | 24V ⎓ | 8 class A | M12 | **XZIOM8AM12PY** | 0.405 |

### IO-Link cables

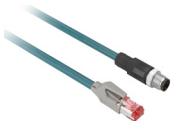


*XZCPK75●L*

*XZCR26K26●L*

#### Power cables

| Description | Type of connector | End fittings | Length m | | Reference | Weight (kg) |
|---|---|---|---|---|---|---|
| **Single-ended, pre-wired, L-coded power cable (PUR)** | Female | 5-pin (4+FE) | 2 | 1.5 mm² | **XZCPK75DL2** | 0.255 |
| | | | 5 | 1.5 mm² | **XZCPK75DL5** | 0.585 |
| | | | 2 | 1.5 mm² | **XZCPK75CL2** | 0.255 |
| | | | 5 | 1.5 mm² | **XZCPK75CL5** | 0.585 |
| **Jumper power cable (PUR)** | Male/ Female | M12 5-pin/M12 5-pin | 2 | 1.5 mm² | **XZCR25K25DL2** | 0.285 |
| | | | 5 | 1.5 mm² | **XZCR25K25DL5** | 0.615 |
| | | | 2 | 1.5 mm² | **XZCR26K26CL2** | 0.285 |
| | | | 5 | 1.5 mm² | **XZCR26K26CL5** | 0.615 |



*XGSZ12E45●●*



*XGSZ22E45●●*

#### Communication cables

| Description | Type of connector | Length (m) | Reference |
|---|---|---|---|
| **Ethernet copper cable** | M12 D-coded to RJ45, straight/straight | 3 | **XGSZ12E4503** |
| | | 10 | **XGSZ12E4510** |
| **Ethernet copper cable, shielded** | Jumper M12/RJ45, straight/elbowed | 3 | **XGSZ22E4503** |
| | | 10 | **XGSZ22E4510** |

### IO-Link connector

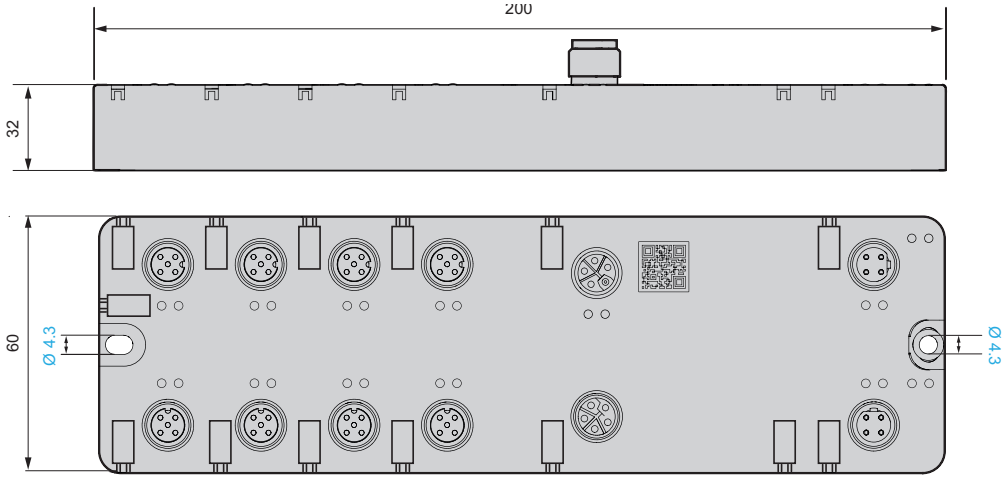


*TCSCTN011M11F*

| Description | Type of connector | End fittings | Reference | Weight (kg) |
|---|---|---|---|---|
| **A-coded M12 T-connector** | 1 Male/2 Female | M12 5-pin/M12 5-pin | **TCSCTN011M11F** | 0.035kg |

### Dimensions

**XZIOM8AM12●Y**



# Photo-electric sensors
IO-Link Master

## Product specifications

| Reference | | | XZIOM8AM12EY | XZIOM8AM12PY |
|---|---|---|---|---|
| **Function** | | | Ethernet/IP IO-Link Master | ProfiNet IO-Link Master |
| **Power supply 1L, 2L** | Supply voltage 1L, 2L | **V** | ⎓ 24, –25%/+30% (18…31.2) | |
| | Low voltage warning 1L | **V** | 18.0 (± 5% at 25 °C) notification on,18.3 (± 5% at 25 °C) notification off | |
| | Overvoltage warning 1L | **V** | 30.0 (± 5% at 25 °C) notification on, 29.7 (± 5% at 25 °C) notification off | |
| | Current consumption | **A** | 1L: 0.1...16 (at 24 V DC)<br>2L: 0.01...16 (at 24 V DC) | |
| | Current consumption of supply port | **A** | Max. 16 | |
| | Conductor cross-section | **mm²** | 0.5…2.5 | |
| | Connector | | PWR IN: M12 L-coded, 5-pin, male<br>PWR OUT: M12 L-coded, 5-pin, female | |
| | Torque | **Nm** | 1.0 | |
| | Reverse polarity protection | | Yes | |
| | Power supply | **V** | 24 ⎓ PELV (Protective Extra Low Voltage) or SELV (Safety Extra Low Voltage) | |
| **Total load** | Maximum total load current | **A** | 15.7 | |
| **Device** | Dimensions (L x W x H) | **mm** | 200 x 60 x 32 | |
| | Weight | **g** | 404 | |
| | Housing | | Plastic | |
| | Potting | | Solvent-free electro-casting resin system based on 2 K polyurethane | |
| | Degree of protection | | IP67 (EN 60529) | |
| | Protection class | | III (EN 61140) | |
| | Mounting | | Screw mounting on carrier, 2x M4 | |
| **Environmental conditions** | Location of operation | | Indoor | |
| | Ambient temperature (operation) | **°C** | -25...+70 | |
| | Ambient temperature (storage) | **°C** | -40...+80 | |
| | Maximum temperature change | **K/min** | 3 | |
| | Relative humidity | | 5%...95% | |
| | Degree of pollution | | 3 (EN 60664-1) | |
| | Altitude | **m** | 0…2000 | |
| | Overvoltage category | | II (EN 60664-1) | |
| | Degree of protection | | IP67 (EN 60529) | |
| | Protection class | | III (EN 61140) | |
| **Electrical characteristics** | Insulation resistance | **V** | 60 ⎓ | |
| | Test voltage | **V** | 550 ∿ RMS | |
| | Minimal creepage distance | **mm** | 0.7 | |
| **Ethernet connector** | Communication interface | | Ethernet | |
| | Autonegotiation, autocrossover | | Yes | |
| | Connector | | 2x M12, D-coded, female, 4-pin | |
| | Torque | **Nm** | 1.0 | |
| **IO-Link connector** | Connector | | 8x M12, A-coded, male, 5-pin | |
| | Torque | **Nm** | 1.0 | |
| | Operating modes | | Pin 2: DI or DO<br>Pin 4: IO-Link Master, DI or DO | |
| **LEDs** | SYS | | System status, green/yellow | |
| | APL | | Application status, red/green | |
| | MS | | Module status (EtherNet/IP), red/green | - |
| | SF | | - | System error (PROFINET), red |
| | NS | | Network status (EtherNet/IP), red/green | - |
| | BF | | - | Bus error (PROFINET), red |
| | LINK | | Link status, green | |
| | ACT | | Activity status, yellow | |
| | 1L, 2L | | Supply voltage status, red/green | |
| | A, B | | Port status: red/green/yellow (yellow by simultaneous red and green) | |
| **Compliance** | RoHS | | Yes | |
| **Compliance with EMC guidelines** | CE sign | | Yes | |
| | UKCA sign | | Yes | |
| | Emission | | EN 61000-6-4/BS EN 61000-6-4 | |
| | Immunity | | EN 61000-6-2/BS EN 61000-6-2 | |

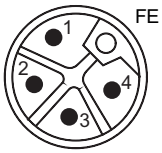
# Photo-electric sensors
IO-Link Master

## Wiring schemes

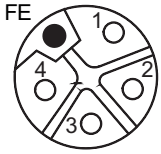
### Power supply

**M12 connector - 5 pins (4 + FE) - IO-Link**

**Supply voltage input**




**Supply voltage input**

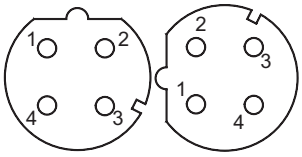



| Pin | Signal | Wire colour | Description |
|---|---|---|---|
| 1 | 1L+ | Brown | 24 V ⎓ |
| 2 | 2L- | White | Reference potential for 2L |
| 3 | 1L- | Blue | Reference potential for 1L |
| 4 | 2L+ | Black | 24 V ⎓ auxiliary/ control voltage U2L |
| FE | FE | Pink | Functional earth |

### Communication

**M12 connector - D-coded - socket - 4 pins**

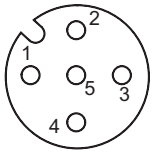
**Ethernet**




| Pin | Signal | Wire colour | Description |
|---|---|---|---|
| 1 | TX+ | Brown | Transmit data positive |
| 2 | RX+ | White | Receive data positive |
| 3 | TX- | Blue | Transmit data negative |
| 4 | RX- | Black | Receive data negative |

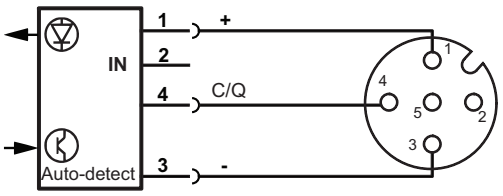
### IO-Link ports (Class A)

**M12 connector - 4 pins**



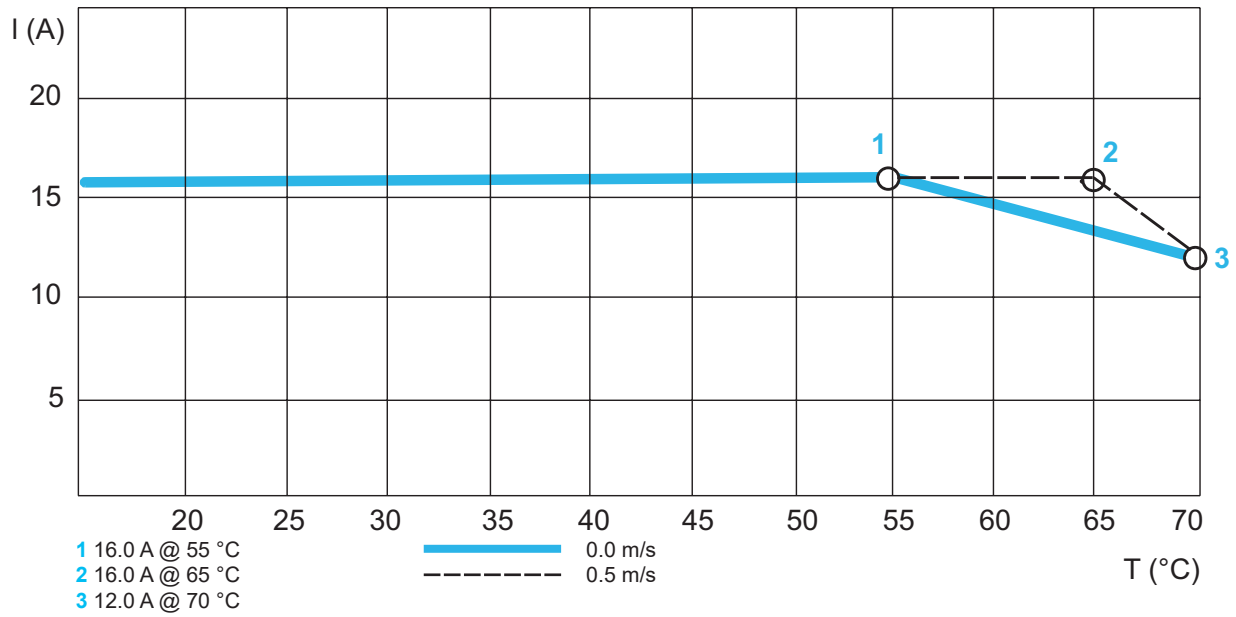

| Pin | Signal | Wire colour | Description |
|---|---|---|---|
| 1 | + | Brown | +24 V DC supply voltage U 1L for sensor/actuator |
| 2 | IN | White | Digital input/output channel B |
| 3 | - | Blue | Functional earth for 1L+ |
| 4 | Q | Black | IO-Link data or Digital input/output channel A |
| 5 | - | - | Not connected |

**Auto-detect PNP/NPN or by IO-Link**




## Derating curves

**XZIOM8AM12EY and XZIOM8AM12PY**



# Photo-electric sensors
## XU general purpose and Application Accessories
### Fixing brackets



XUZASM02



XUZASM03



XUZASM04



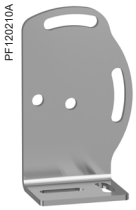
XUZASN001



XUZASN002



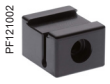
XUZA50



XUZA51S



XUZASK001



XUZASW001



XUZASW002



XUZA118



XUZA218



XUZARS



XUZASS



XUZARM



XUZARK



XUZASB001



XUZASB002



XUZASB003

## Fixing accessories

### Fixing brackets

| Description | For use with sensors | Reference | Weight kg |
|---|---|---|---|
| **Wrap-around horizontal mounting bracket**<br>for pre-cabled sensors<br>Supplied with 2 x M3 screws | XUM●A●XBL2 | **XUZASM02** | 0.030 |
| **Wrap-around vertical mounting bracket**<br>for pre-cabled sensors<br>Supplied with 2 x M3 screws | XUM●A●XBL2 | **XUZASM03** | 0.062 |
| **Rear mounting bracket**<br>Supplied with 2 x M3 screws | XUM●A●XBL2,<br>XUM●A●XBM8 | **XUZASM04** | 0.030 |
| **Stainless steel grade 316 fixing bracket**<br>Supplied with 2 x M3 screws | XUN | **XUZASN001** | 0.124 |
| **Wrap-around vertical mounting bracket**<br>for pre-cabled sensors<br>Supplied with 2 x M3 screws | XUN | **XUZASN002** | 0.133 |
| **Metal fixing bracket**<br>Supplied with 2 x M3 screws | XUM, XUT, XUK | **XUZA50** | 0.025 |
| **Stainless steel grade 316 fixing brackets**<br>Supplied with 2 x M3 screws | XUK8ABPXM12 | **XUZA51S** | 0.050 |
| **Stainless steel grade 304 fixing bracket**<br>for compact sensor 50 x 50 mm<br>Supplied with 2 x M3 screws | XUK8ABPXM12 | **XUZASK001** | 0.240 |
| **Metal dovetail fixing clamp, 1 axis**<br>Supplied with 1 x M3 screw | XUK8ABPXM12 | **XUZASW001** | 0.014 |
| **Simple metal fixing bracket**<br>Supplied with 2 x M3 screws | XUK8ABPXM12 | **XUZASW002** | 0.017 |
| **90° stainless steel fixing brackets** | XUB | **XUZA118** | 0.045 |
| **Plastic fixing bracket**<br>with adjustable ball joint | XUB | **XUZA218** | 0.035 |
| **Dovetail clamp**<br>Supplied with 2 x M3 screws | XUT7ABPX●●,<br>XUT8A●AY●●,<br>XUT9ABPX●● | **XUZARS** | 0.005 |
| **Mounting bracket**<br>Supplied with 2 x M3 screws | XUT7ABPX●●,<br>XUT8A●AY●●,<br>XUT9ABPX●● | **XUZASS** | 0.008 |
| **Dovetail clamp**<br>Supplied with 2 x M3 screws | XUM●A●AYM8,<br>XUM●A●AYP015,<br>XUM●A●AYL2,<br>XUM7ABPX●● | **XUZARM** | 0.017 |
| **Dovetail clamp**<br>Supplied with 1 x M3 screw | XUKCB●AYM12,<br>XUK8ABPXM12 | **XUZARK** | 0.026 |

### Mounting rings

| Description | For use with sensors | Reference | Weight kg |
|---|---|---|---|
| **Stainless steel flush mounting nut** | XUB | **XUZASB001** | 0.018 |
| **Plastic mounting ring**<br>**27 mm x 16.8 mm** | XUB | **XUZASB002** | 0.003 |
| **Metal mounting ring**<br>**30 mm x 18 mm** | XUB | **XUZASB003** | 0.011 |

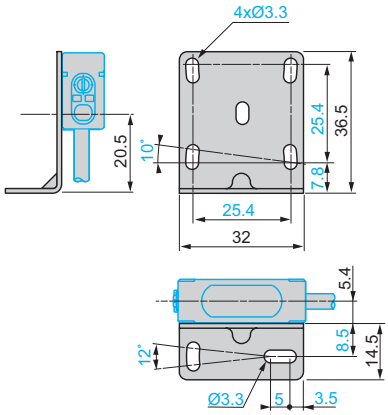
### Cabling accessories

See pages 100 to 105.

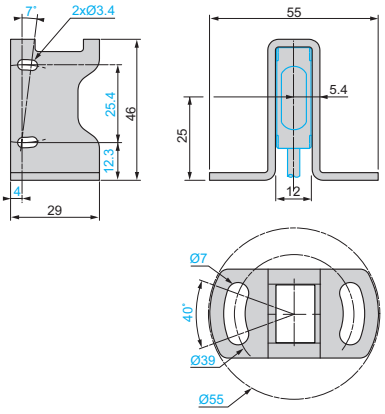
## Fixing accessories

### Fixing brackets

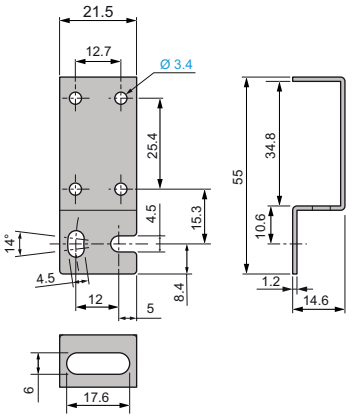
**XUZASM04**



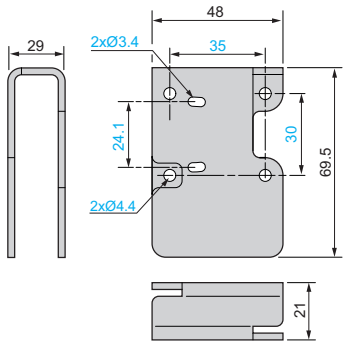

**XUZASM03**



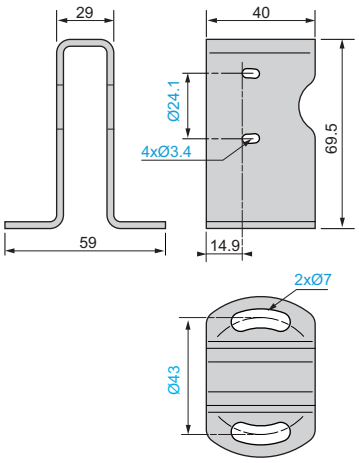

**XUZASM02**



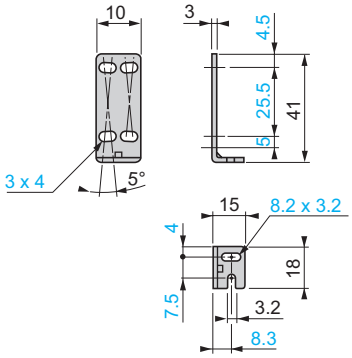

**XUZASN001**




**XUZASN002**



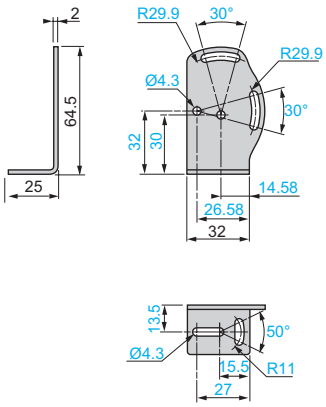

**XUZA50**



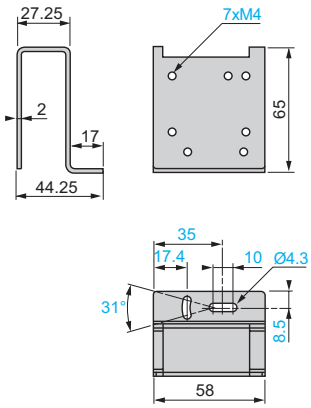
## Fixing accessories

### Fixing brackets

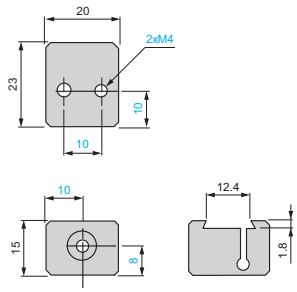
#### XUZA51S



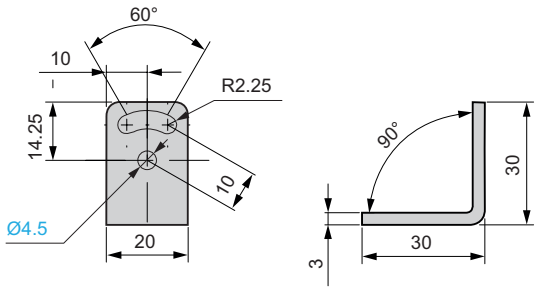

#### XUZASK001



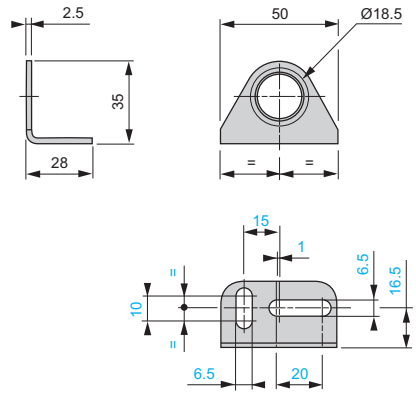

#### XUZASW001



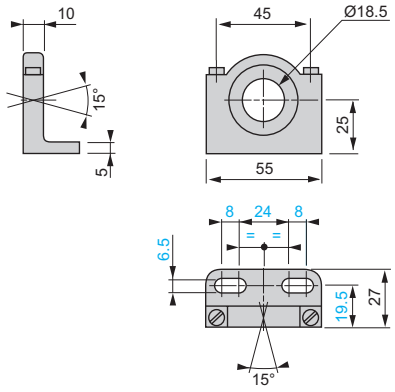

#### XUZASW002




#### XUZA118



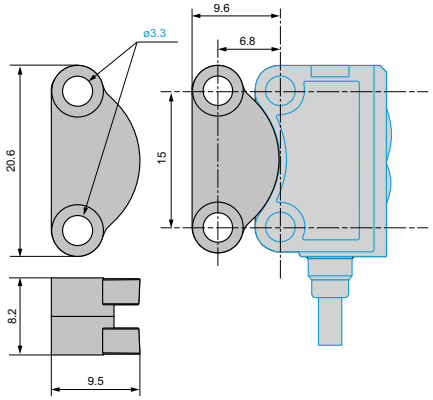

#### XUZA218



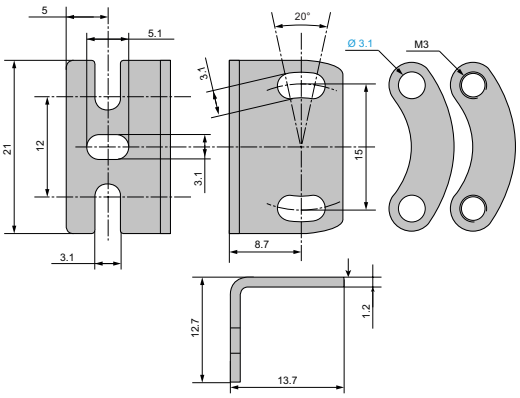
## Fixing accessories

### Fixing brackets

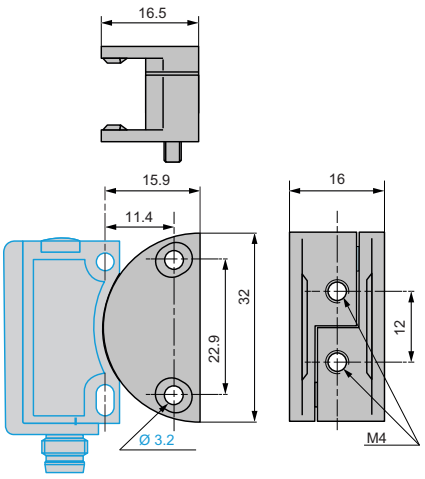
**XUZARS**



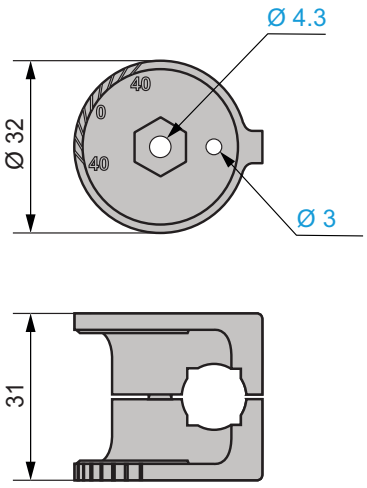

**XUZASS**




**XUZARM**

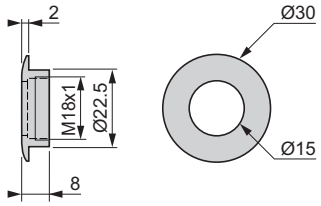



**XUZARK**

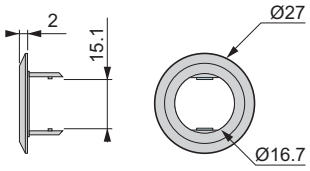



### Mounting rings

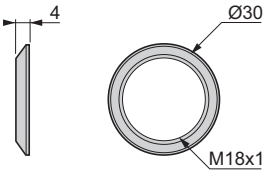
**XUZASB001**




**XUZASB002**




**XUZASB003**



# Photo-electric sensors
## XU general purpose and XU Application Accessories
### Reflectors

XUZC50_30



*XUZC50●●*

XU_511_PFJR18019



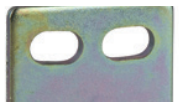
*XUZC60S11*

XU_511_PFJR18005



*XUZC39*

XU_511_CPODA2016073



*XUZCR0401●●*

## Reflectors

| Description | Size | Fixing mode | Chemical resistance | Reference | Weight kg |
|---|---|---|---|---|---|
| **Universal (generic) devices** | | | | | |
| Rigid square reflectors | 100 mm x 100 mm | 2 brackets (not provided) | No | **XUZC100** | 0.035 |
| | 51.5 mm x 69 mm | 6 holes | No | **XUZC50** | 0.020 |
| Rigid rectangle reflectors | 45 mm x 29 mm | 2 holes | No | **XUZC24** | 0.010 |
| | 40 mm x 60 mm | 2 holes | No | **XUZC60S11** | 0.022 |
| Rigid circular reflectors | Ø 39 mm | Adhesive | No | **XUZC39** | 0.008 |
| **For laser products** | | | | | |
| Rigid square reflectors | 50 mm x 50 mm | 6 holes | No | **XUZC50HP** | 0.020 |
| Rigid rectangle reflectors | 60 mm x 19 mm | 2 holes | No | **XUZCR0401HP** | 0.010 |
| | | 2 holes | Ecolab | **XUZCR0401CRHP** | 0.010 |
| **For food & beverage** | | | | | |
| Rigid square reflectors | 50 mm x 50 mm | 6 holes | Ecolab | **XUZC50CR** | 0.200 |

**Cabling accessories**

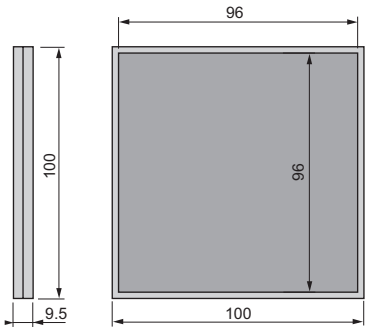
See pages 100 to 105.

# Photo-electric sensors
XU Range
Accessories
Reflectors

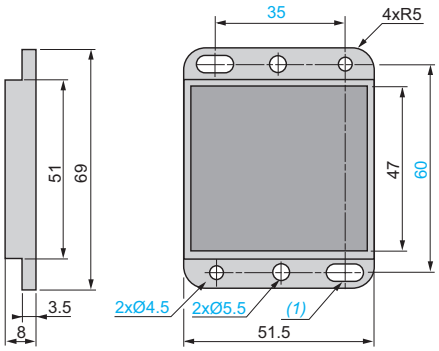
## Reflectors

### Dimensions

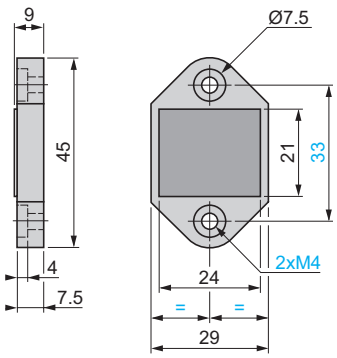
#### XUZC100



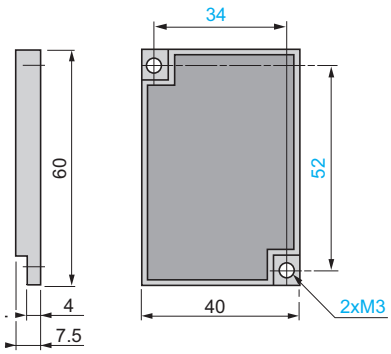

#### XUZC50, XUZC50HP, XUZC50CR



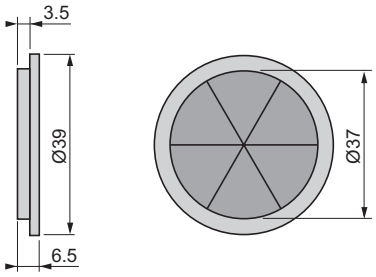

#### XUZC24



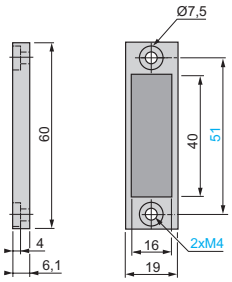

#### XUZC60S11




#### XUZC39



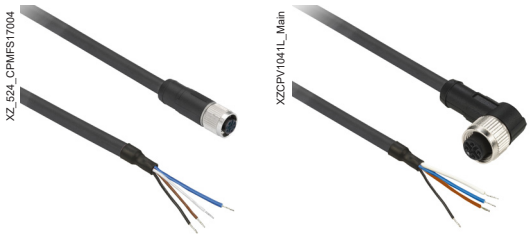

#### XUZCR0401HP, XUZCR0401CRHP




*(1)* 2 elongated holes Ø 4.5 x 8 for M4 screws

***Note**: All reflectors are IP 67 and IP 69K.*

# Photo-electric sensors
## Cables for sensors
## Pre-wired connectors




*Pre-wired M8 connector, 4 conductors*

### PVC cables with pre-wired connector

| Description | Connector type | End fittings | Length (m) | For use with sensor | Reference | Weight kg |
|---|---|---|---|---|---|---|
| **M8 connector** | | | | | | |
| Pre-wired M8 connectors | Female, straight | 4-pin | 2 | XUM●●●●M8, XUT●●●●M8 | **XZCPV0941L2** | 0.090 |
| | | | 5 | | **XZCPV0941L5** | 0.200 |
| | | | 10 | | **XZCPV0941L10** | 0.380 |
| | Female, elbowed | | 2 | | **XZCPV1041L2** | 0.090 |
| | | | 5 | | **XZCPV1041L5** | 0.200 |
| | | | 10 | | **XZCPV1041L10** | 0.380 |
| **M12 connector** | | | | | | |
| Pre-wired M12 connectors | Female, straight | 4-pin | 2 | XUM●●●●M12, XUM●●●●P015, XUN●●●●M12, XUB●●●●M12, XUT●●●●M12, XUVU04M3●● | **XZCPV1141L2** | 0.090 |
| | | | 5 | | **XZCPV1141L5** | 0.200 |
| | | | 10 | | **XZCPV1141L10** | 0.380 |
| | Female, elbowed | | 2 | | **XZCPV1241L2** | 0.090 |
| | | | 5 | | **XZCPV1241L5** | 0.200 |
| | | | 10 | | **XZCPV1241L10** | 0.380 |




*Pre-wired M12 connector, straight, 4 conductors (left) and 5 conductors (right)*

### PUR cables with pre-wired connector

| Description | Connector type | End fittings | Length (m) | For use with sensor | Reference | Weight kg |
|---|---|---|---|---|---|---|
| **M8 connector** | | | | | | |
| Pre-wired M8 connectors | Female, straight | 4-pin | 2 | XUM●●●●M8, XUT●●●●M8 | **XZCP0941L2** | 0.080 |
| | | | 5 | | **XZCP0941L5** | 0.180 |
| | | | 10 | | **XZCP0941L10** | 0.360 |
| | Female, elbowed | | 2 | | **XZCP1041L2** | 0.080 |
| | | | 5 | | **XZCP1041L5** | 0.180 |
| | | | 10 | | **XZCP1041L10** | 0.360 |
| **M12 connector** | | | | | | |
| Pre-wired M12 connectors | Female, straight | 4-pin | 2 | XUM●●●●M12, XUM●●●●P0●, XUN●●●●M12, XUB●●●●M12, XUK●●●●M12, XUVU04M3●● | **XZCP1141L2** | 0.090 |
| | | | 5 | | **XZCP1141L5** | 0.190 |
| | | | 10 | | **XZCP1141L10** | 0.370 |
| | Female, elbowed | | 2 | | **XZCP1241L2** | 0.090 |
| | | | 5 | | **XZCP1241L5** | 0.190 |
| | | | 10 | | **XZCP1241L10** | 0.370 |
| **M12 connector, shielded** | | | | | | |
| Shielded pre-wired M12 connectors | Female, straight | 4-pin | 2 | XUM●●●●M12, XUM●●●●P0●, XUN●●●●M12, XUB●●●●M12, XUK●●●●M12 | **XZCPB1141L2** | 0.200 |
| | | | 5 | | **XZCPB1141L5** | 0.350 |
| | | 5-pin | 2 | XUKC●●●● | **XZCPB1151L2** | 0.114 |
| | | | 5 | | **XZCPB1151L5** | 0.259 |
| | Female, elbowed | | 2 | | **XZCPB1251L2** | 0.113 |
| | | | 5 | | **XZCPB1251L5** | 0.258 |




*Pre-wired M12 connector, elbowed, 4 conductors (left) and 5 conductors (right)*

# Photo-electric sensors
## Cables for sensors
## Jumper cables




*Jumper cables, M12-M12 connectors, 4-pin/4-pin*

### PVC jumper cables

| Description | Connector type | | End fittings | Length (m) | For use with sensor | Reference | Weight kg |
|---|---|---|---|---|---|---|---|
| | Male | Female | | | | | |
| **M12-M12 connectors** | | | | | | | |
| PVC jumper cable XZ | M12, straight | M12, straight | 4-pin/ 4-pin | 1 | XUM●●●●M12, XUM●●●●P015, | **XZCRV1511041C1** | 0.070 |
| | | | | 2 | XUN●●●●M12, XUB●●●●M12, | **XZCRV1511041C2** | 0.110 |
| | | | | 5 | XUT●●●●M12, XUVU04M3●● | **XZCRV1511041C5** | 0.230 |
| | | M12, elbowed | | 1 | | **XZCRV1512041C1** | 0.070 |
| | | | | 2 | | **XZCRV1512041C2** | 0.110 |
| | | | | 5 | | **XZCRV1512041C5** | 0.230 |




*Shielded jumper cables, M12-M12 connectors, 5-pin/5-pin*

### PUR jumper cables

| Description | Connector type | | End fittings | Length (m) | For use with sensor | Reference | Weight kg |
|---|---|---|---|---|---|---|---|
| | Male | Female | | | | | |
| **Shielded, M12-M12 connectors** | | | | | | | |
| PUR jumper cable XZ | M12, straight | M12, straight | 5-pin/ 5-pin | 2 | XUCK●●●● | **XZCRB151151C2** | 0.123 |
| | | | | 5 | | **XZCRB151151C5** | 0.267 |




*Jumper cables, M12-M12 connectors, 4-pin/4-pin*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **M12-M12 connectors** | | | | | | | |
| PUR jumper cable XZ | M12, straight | M12, straight | 4-pin/ 4-pin | 1 | XUVU04M3●● | **XZCR1511041C1** | 0.065 |
| | | | | 2 | | **XZCR1511041C2** | 0.095 |
| | | M12, elbowed | | 1 | | **XZCR1512041C1** | 0.065 |
| | | | | 2 | | **XZCR1512041C2** | 0.095 |




*Jumper cables, M8-M8 connectors, 3-pin/3-pin*




*Jumper cables, M8-M8 connectors, 3-pin/4-pin or 4-pin/4-pin*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **M8-M8 connectors** | | | | | | | |
| PUR jumper cable XZ | M8, straight | M8, straight | 3-pin/ 3-pin | 1 | XUM●●●●M8, XUT●●●●M8 | **XZCR2705037R1** | 0.065 |
| | | | | 2 | | **XZCR2705037R2** | 0.090 |
| | | M8, elbowed | | 1 | | **XZCR2706037R1** | 0.065 |
| | | M8, straight | 3-pin/ 4-pin | 2 | | **XZCR2709037S2** | 0.090 |
| | | M8, straight | 4-pin/ 4-pin | 1 | | **XZCR2609P2Y1** | 0.065 |
| | | | | 2 | | **XZCR2609P2Y2** | 0.095 |




*Jumper cables, M8-M12 connectors, 3-pin/5-pin*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **M8-M12 connectors** | | | | | | | |
| PUR jumper cable XZ | M8, straight | M12, straight | 3-pin/ 5-pin | 1 | XUM●●●●M8, XUT●●●●M8 | **XZCR2711037T1** | 0.065 |
| | | | | 2 | | **XZCR2711037T2** | 0.093 |
| | | M12, elbowed | | 1 | | **XZCR2712037T1** | 0.065 |
| | | | | 2 | | **XZCR2712037T2** | 0.093 |

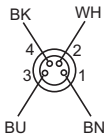
# Photo-electric sensors
## Cables for sensors, PVC
## Pre-wired connectors M8 and M12, 4-pin



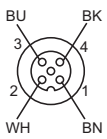

| | | | | | |
|---|---|---|---|---|---|
| **Connector type** | | Female, M8, straight | Female, M8, elbowed | Female, M12, straight | Female, M12, elbowed |
| **Number of conductors** | | 4 | | | |
| **References** | | | | | |
| **PVC cable** | L = 2 m | **XZCPV0941L2** | **XZCPV1041L2** | **XZCPV1141L2** | **XZCPV1241L2** |
| | L = 5 m | **XZCPV0941L5** | **XZCPV1041L5** | **XZCPV1141L5** | **XZCPV1241L5** |
| | L = 10 m | **XZCPV0941L10** | **XZCPV1041L10** | **XZCPV1141L10** | **XZCPV1241L10** |
| **Weight (kg)** | | 0.090 (L = 2 m)<br>0.200 (L = 5 m)<br>0.380 (L = 10 m) | | | |
| **Characteristics** | | | | | |
| **Certifications** | | cULus | | | |
| **Connection type** | | Screw threaded (metal clamping ring) | | | |
| **Cable material** | Sheath | PVC | | | |
| | Conductor insulation | PP | | | |
| **Degree of protection** | | IP65, IP67 | | | |
| **Ambient air temperature** | Static cable | -25…+80 °C | | | |
| | Flexing cable | -5…+80 °C | | | |
| **Conductor c.s.a** | | 4 x 0.25 $mm^2$ | | | |
| **Cable diameter** | | 4.6 mm | | | |
| **Nominal voltage** | | 60 V ∿, 75 V ⎓ | | 250 V ∿, 300 V ⎓ | |
| **Nominal current** | | 3 A | | | |
| **Insulation resistance** | | > $10^9$ Ω | | | |
| **Contact resistance** | | ≤ 5 m Ω | | | |

## Connections

**XZCPV0941L●, XZCPV1041L●**



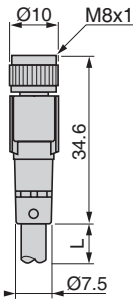

**XZCPV1141L●, XZCPV1241L●**



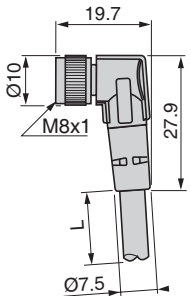

BN: Brown
WH: White
BU: Blue
BK: Black

## Dimensions

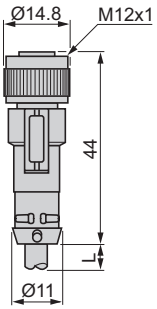
**XZCPV0941L●**



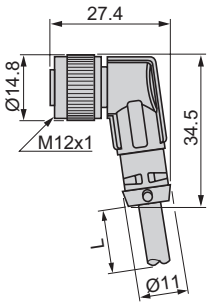

**XZCPV1041L●**




**XZCPV1141L●**




**XZCPV1241L●**




*L = 2, 5 or 10 m*

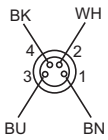
# Photo-electric sensors
## Cables for sensors, PVC
## Pre-wired connectors M8 and M12, 4-pin



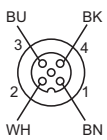

| | | | | | |
|---|---|---|---|---|---|
| **Connector type** | | Female, M8, straight | Female, M8, elbowed | Female, M12, straight | Female, M12, elbowed |
| **Number of conductors** | | 4 | | | |
| **References** | | | | | |
| **PUR cable** | L = 2 m | **XZCP0941L2** | **XZCP1041L2** | **XZCP1141L2** | **XZCP1241L2** |
| | L = 5 m | **XZCP0941L5** | **XZCP1041L5** | **XZCP1141L5** | **XZCP1241L5** |
| | L = 10 m | **XZCP0941L10** | **XZCP1041L10** | **XZCP1141L10** | **XZCP1241L10** |
| **Weight (kg)** | | 0.080 (L = 2 m)<br>0.180 (L = 5 m)<br>0.360 (L = 10 m) | | 0.090 (L = 2 m)<br>0.190 (L = 5 m)<br>0.370 (L = 10 m) | |
| **Characteristics** | | | | | |
| **Certifications** | | cULus | | | |
| **Connection type** | | Screw threaded (metal clamping ring) | | | |
| **Cable material** | Sheath | PUR | | | |
| | Conductor insulation | PP | | | |
| **Degree of protection** | | IP65, IP67, IP69K | | | |
| **Ambient air temperature** | Static cable | -40…+80 °C | | | |
| | Flexing cable | -5…+80 °C | | | |
| **Conductor c.s.a.** | | 4 x 0.34 $mm^2$ | | | |
| **Cable diameter** | | 5.2 mm | | | |
| **Nominal voltage** | | 60 V ∿, 75 V ⎓ | | 250 V ∿, 300 V ⎓ | |
| **Nominal current** | | 4 A | | | |
| **Insulation resistance** | | > $10^9$ Ω | | | |
| **Contact resistance** | | ≤ 5 m Ω | | | |

## Connections

**XZCP0941L●, XZCP1041L●**



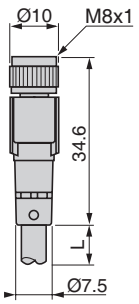

**XZCP1141L●, XZCP1241L●**



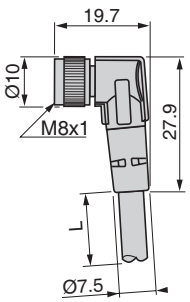

BN: Brown
WH: White
BU: Blue
BK: Black

## Dimensions

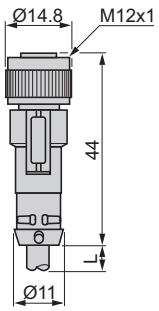
**XZCP0941L●**



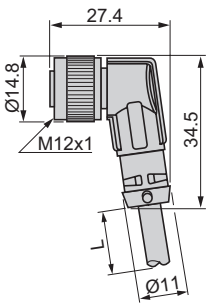

**XZCP1041L●**




**XZCP1141L●**




**XZCP1241L●**




*L = 2, 5 or 10 m*

# Photo-electric sensors
## Cables for sensors, PUR shielded
## Pre-wired connectors M12, 4-pin




| | | |
|---|---|---|
| **Connector type** | | Female, M12, straight |
| **Number of conductors** | | 4 |

## References

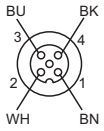
| | | |
|---|---|---|
| **PUR cable** | L = 2 m | **XZCPB1141L2** |
| | L = 5 m | **XZCPB1141L5** |
| **Weight (kg)** | | 0.200 (L = 2 m)<br>0.350 (L = 5 m) |

## Characteristics

| | | |
|---|---|---|
| **Certifications** | | cULus |
| **Connection type** | | Screw threaded (metal clamping ring) |
| **Cable material** | Sheath | PUR, shielded |
| | Conductor insulation | PP |
| **Degree of protection** | | IP65, IP67 |
| **Ambient air temperature** | Static cable | -25…+80 °C |
| | Flexing cable | -5… +80 °C |
| **Conductor c.s.a.** | | 4 x 0.34 mm² |
| **Cable diameter** | | 5.9 mm |
| **Nominal voltage** | | 250 V ∿, 300 V ⎓ |
| **Nominal current** | | 4 A |
| **Insulation resistance** | | 1 GΩ |
| **Contact resistance** | | 5000 µOhm |

## Connections

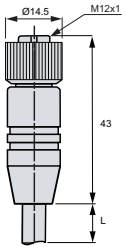
### XZCPB1141L●




BN: Brown
WH: White
BU: Blue
BK: Black

## Dimensions

### XZCPB1141L●




*L = 2 or 5 m*

# Photo-electric sensors
## Cables for sensors, PUR shielded
## Pre-wired connectors M12, 5-pin







| | | | |
|---|---|---|---|
| **Connector type** | | Female, M12, straight | Female, M12, elbowed |
| **Number of conductors** | | 5 | |

## References

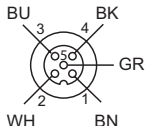
| | | | |
|---|---|---|---|
| **PUR cable** | L = 2 m | **XZCPB1151L2** | **XZCPB1251L2** |
| | L = 5 m | **XZCPB1151L5** | **XZCPB1251L5** |
| **Weight (kg)** | | 0.114 (L = 2 m)<br>0.259 (L = 5 m) | 0.113 (L = 2 m)<br>0.258 (L = 5 m) |

## Characteristics

| | | |
|---|---|---|
| **Certifications** | | cULus |
| **Connection type** | | Screw threaded (nickel clamping ring) |
| **Cable material** | Sheath | PUR, shielded |
| | Conductor insulation | PP |
| **Degree of protection** | | IP65, IP67, IP69K |
| **Ambient air temperature** | Static cable | -40…+90 °C |
| | Flexing cable | -25…+80 °C |
| **Conductor c.s.a.** | | 5 x 0.34 $mm^2$ |
| **Cable diameter** | | 5.85 mm |
| **Nominal voltage** | | 250 V ∿, 60 V ⎓ |
| **Nominal current** | | 4 A |
| **Insulation resistance** | | > $10^9$ Ω |
| **Contact resistance** | | ≤ 10 m Ω |

## Connections

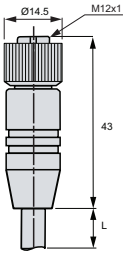
**XZCPB1●51L●**




BN: Brown
WH: White
BU: Blue
BK: Black
GR: Grey

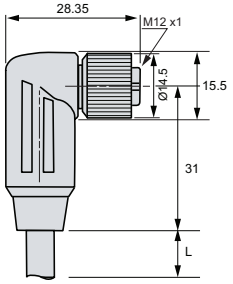
## Dimensions

**XZCPB1151L●**




*L = 2 or 5 m*

**XZCPB1251L●**



# Photo-electric sensors
## Cables for sensors, PVC
## Jumper cables M12-M12, 4-pin/4-pin







| | | | |
|---|---|---|---|
| **Male connector type** | | M12, 4-pin, straight | |
| **Female connector type** | | M12, 4-pin, straight | M12, 4-pin, elbowed |
| **Number of conductors** | | 4 | |

## References

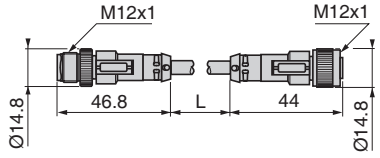
| | | | |
|---|---|---|---|
| **PVC cable** | L = 1 m | **XZCRV1511041C1** | **XZCRV1512041C1** |
| | L = 2 m | **XZCRV1511041C2** | **XZCRV1512041C2** |
| | L = 5 m | **XZCRV1511041C5** | **XZCRV1512041C5** |
| **Weight (kg)** | | 0.070 (L = 1 m)<br>0.110 (L = 2 m)<br>0.230 (L = 5 m) | |

## Characteristics

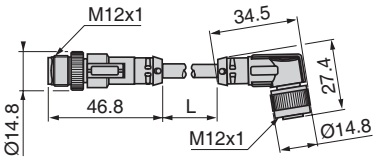
| | | |
|---|---|---|
| **Certifications** | | cULus |
| **Connection type** | Male and female | Screw threaded |
| **Cable material** | Sheath | PVC |
| | Conductor insulation | PP |
| **Degree of protection** | | IP65, IP67 |
| **Ambient air temperature** | Static cable | -25…+80 °C |
| | Flexing cable | -5…+80 °C |
| **Conductor c.s.a** | | 4 x 0.25 mm$^2$ |
| **Cable diameter** | | 4.6 mm |
| **Nominal voltage** | | 250 V ∿, 300 V ⎓ |
| **Nominal current** | | 3 A |
| **Insulation resistance** | | > $10^9$ Ω |
| **Contact resistance** | | ≤ 5 m Ω |

## Dimensions

**XZCRV1511041C1, XZCRV1511041C2, XZCRV1511041C5**



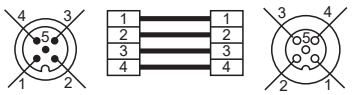

**XZCRV1512041C1, XZCRV1512041C2, XZCRV1512041C5**




*L = 2, 5 or 10 m*

## Connections

**XZCRV1511041C●, XZCRV1512041C●**




1: Brown
2: White
3: Blue
4: Black

# Photo-electric sensors

## Cables for sensors, PUR
## Jumper cables M12-M12
## Shielded 5-pin/5-pin and unshielded 4-pin/4-pin



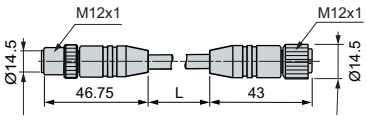




| | | | | |
|---|---|---|---|---|
| **Male connector type** | | M12, 5-pin, straight | M12, 4-pin, straight | |
| **Female connector type** | | M12, 5-pin, straight | M12, 4-pin, straight | M12, 4-pin, elbowed |
| **Number of conductors** | | 5 | 4 | |
| **References** | | | | |
| **PUR cable** | L = 1 m | – | **XZCR1511041C1** | **XZCR1512041C1** |
| | L = 2 m | **XZCRB151151C2** | **XZCR1511041C2** | **XZCR1512041C2** |
| | L = 5 m | **XZCRB151151C5** | – | – |
| **Weight (kg)** | | 0.123 (L = 2 m)<br>0.267 (L = 5 m) | 0.065 (L = 1 m)<br>0.095 (L = 2 m) | |
| **Characteristics** | | | | |
| **Certifications** | | cULus | | |
| **Connection type** | Male and female | Screw threaded | | |
| **Cable material** | Sheath | PUR, shielded | PUR | |
| | Conductor insulation | PP | – | – |
| **Degree of protection** | | IP65, IP67, IP69K | | |
| **Ambient air temperature** | Static cable | -40…+90 °C | -35…+90 °C | |
| | Flexing cable | -25…+80 °C | -5…+90 °C | |
| **Conductor c.s.a** | | 5 x 0.34 mm² | 4 x 0.34 mm² | |
| **Cable diameter** | | 5.85 mm ± 0.15 mm | 5.2 mm | |
| **Nominal voltage** | | 250 V ∿, 60 V ⎓ | 250 V ∿, 300 V ⎓ | |
| **Nominal current** | | 4 A | 4 A | |
| **Insulation resistance** | | > $10^9$ Ω | ⩾ $10^9$ Ω | |
| **Contact resistance** | | ⩽ 10 m Ω | 5000 m Ω | |

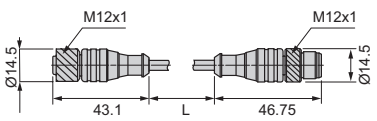
## Dimensions

**XZCRB151151C2, XZCRB151151C5**



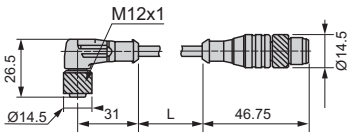

*L = 2 or 5 m*

**XZCR1511041C1, XZCR1511041C2**



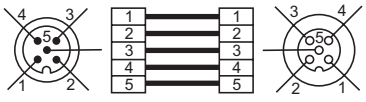

*L = 1 or 2 m*

**XZCR1512041C1, XZCR1512041C2**



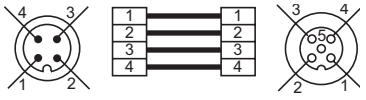

## Connections

**XZCRB151151C2, XZCRB151151C2**



1: Brown
2: White
3: Blue
4: Black
5: Grey

**XZCR1511041C1, XZCR1511041C2, XZCR1512041C1, XZCR1512041C2**



1: Brown
2: White
3: Blue
4: Black

# Photo-electric sensors

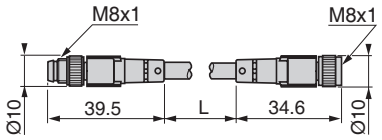
## Cables for sensors, PUR
## Jumper cables M8-M8,
## 3-pin/3-pin, 3-pin/4-pin, or 4-pin/4-pin



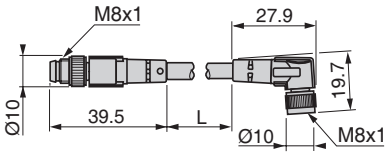

| | | | | | |
|---|---|---|---|---|---|
| **Male connector type** | | M8, 3-pin, straight | | | M8, 4-pin, straight |
| **Female connector type** | | M8, 3-pin, straight | M8, 3-pin, elbowed | M8, 4-pin, straight | M8, 4-pin, straight |
| **Number of conductors** | | 3 | | | |
| **References** | | | | | |
| **PUR cable** | L = 1 m | **XZCR2705037R1** | **XZCR2706037R1** | **–** | **XZCR2609P2Y1** |
| | L = 2 m | **XZCR2705037R2** | **–** | **XZCR2709037S2** | **XZCR2609P2Y2** |
| **Weight (kg)** | L = 1 m | 0.065 | | | |
| | L = 2 m | 0.090 | | | 0.095 |
| **Characteristics** | | | | | |
| **Certifications** | | cULus | | | |
| **Connection type** | Male | Screw threaded and clip. | | | |
| | Female | Screw threaded. Metal clamping ring. | | | |
| **Cable material** | Sheath | PUR | | | |
| | Conductor insulation | PP | | | |
| **Degree of protection** | | IP65, IP67, IP69K | | | |
| **Ambient air temperature** | Static cable | -35…+90 °C | | | |
| | Flexing cable | -5…+90 °C | | | |
| **Conductor c.s.a.** | | 3 x 0.34 mm² | | | |
| **Cable diameter** | | 5.2 mm | | | |
| **Nominal voltage** | | 60 V ∼, 45 V ⎓ | | | 30 V ∼, 36 V ⎓ |
| **Nominal current** | | 4 A | | | |
| **Insulation resistance** | | > $10^9$ Ω | | | |
| **Contact resistance** | | ≤ 5 mΩ | | | |

## Dimensions

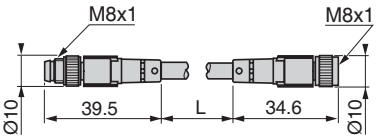
**XZCR2705037R1, XZCR2705037R2**




**XZCR2706037R1**



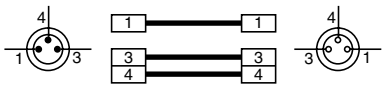

**XZCR2709037S2**



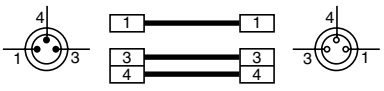

*L = 1 or 2 m*

## Connections

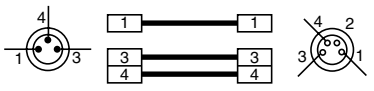
**XZCR2705037R1, XZCR2705037R2**




**XZCR2706037R1**




**XZCR2709037S2**



# Photo-electric sensors

## Cables for sensors, PUR
## Jumper cables M8-M12, 3-pin/5-pin










| | | | | |
|---|---|---|---|---|
| **Male connector type** | | M8, 3-pin, straight | | |
| **Female connector type** | | M8, 4-pin, elbowed | M12, 5-pin, straight | M12, 5-pin, elbowed |
| **Number of conductors** | | 3 | | |

## References

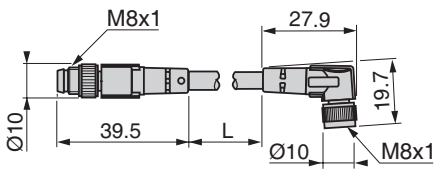
| | | | | |
|---|---|---|---|---|
| **PUR cable** | L = 1 m | **XZCR2710037S1** | **XZCR2711037T1** | **XZCR2712037T1** |
| | L = 2 m | **XZCR2710037S2** | **XZCR2711037T2** | **XZCR2712037T2** |
| **Weight (kg)** | L = 1 m | 0.065 | | |
| | L = 2 m | 0.090 | 0.093 | |

## Characteristics

| | | | | |
|---|---|---|---|---|
| **Certifications** | | cULus | | |
| **Connection type** | Male | Screw threaded and clip. | | |
| | Female | Screw threaded. Metal clamping ring. | | |
| **Cable material** | Sheath | PUR | | |
| | Conductor insulation | PP | | |
| **Degree of protection** | | IP65, IP67, IP69K | | |
| **Ambient air temperature** | Static cable | -35…+90 °C | | |
| | Flexing cable | -5…+90 °C | | |
| **Conductor c.s.a.** | | 3 x 0.34 mm² | | |
| **Cable diameter** | | 5.2 mm | | |
| **Nominal voltage** | | 60 V ∼, 45 V ⎓ | | |
| **Nominal current** | | 4 A | | |
| **Insulation resistance** | | > $10^9$ Ω | | |
| **Contact resistance** | | ≤ 5 m Ω | | |

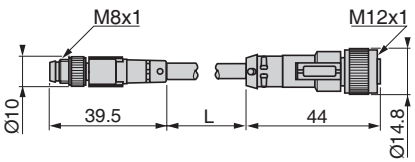
## Dimensions

### XZCR2710037S1, XZCR2710037S2

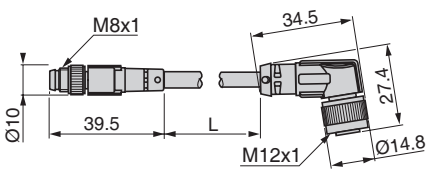



*L = 1 or 2 m*

### XZCR2711037T1, XZCR2711037T2

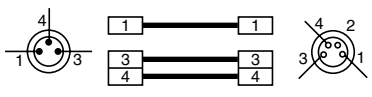



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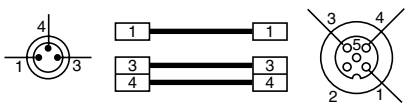



## Connections

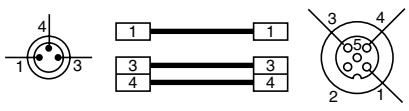
### XZCR2710037S1, XZCR2710037S2




### XZCR2711037T1, XZCR2711037T2




### XZCR2712037T1, XZCR2712037T2



# Product reference index


**T**

TCSCTN011M11F 91

**XG**

XGSZ12E4503 91
XGSZ12E4510 91
XGSZ22E4503 91
XGSZ22E4510 91

**XU**

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