

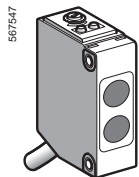
# Photo-electric sensors

OsiSense XU, general purpose, single mode function

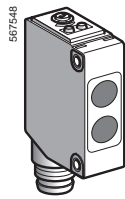
Miniature design, plastic

Three-wire DC, solid-state output

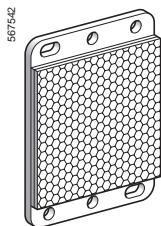
NO/NC configuration switch



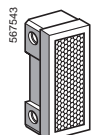
XUM5A●CNL2



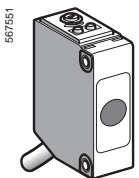
XUM5A●CNUM8



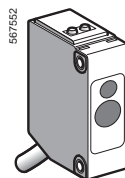
XUZC50



XUZC08



XUM2AKCNL2T



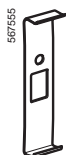
XUM2A●CNL2R



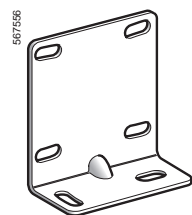
XUZMSV●●



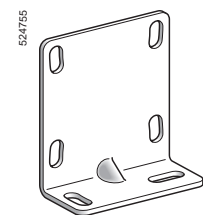
XUZMSH●●



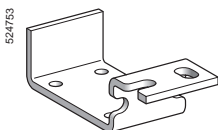
XUZMU01



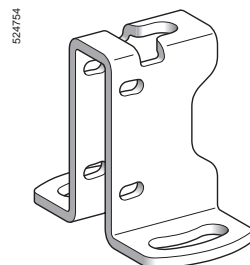
XUZAM01



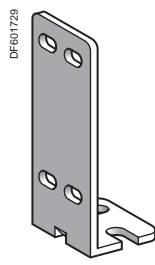
XUZAM04



XUZAM03



XUZAM02



XUZA50

Sensing distance (Sn)	Function	Output	Connection	Reference	Weight kg
<b>Diffuse system with adjustable sensitivity</b>					
1 m	NO/NC, configuration by switch	PNP	Pre-cabled (L = 2 m)	XUM5APCNL2	0.063
			M8 connector	XUM5APCNM8	0.010
	NPN	Pre-cabled (L = 2 m)	XUM5ANCNL2	0.063	
		M8 connector	XUM5ANCNM8	0.010	

<b>Polarised reflex system with adjustable sensitivity</b>					
5 m with reflector XUZC50	NO/NC, configuration by switch	PNP	Pre-cabled (L = 2 m)	XUM9APCNL2	0.063
			M8 connector	XUM9APCNM8	0.010
2 m with reflector XUZC08	NO/NC, configuration by switch	PNP	Pre-cabled (L = 2 m)	XUM9ANCNL2	0.063
			M8 connector	XUM9ANCNM8	0.010

<b>Reflectors</b>					
Universal reflector 50 x 50 mm	–	–		XUZC50	0.020
Lateral reflector 8.6 x 29.5 mm	–	–		XUZC08	0.006

<b>Thru-beam system (transmitter + receiver) with adjustable sensitivity</b>					
15 m	NO/NC, configuration by switch	PNP	Pre-cabled (L = 2 m)	XUM2APCNL2	0.119
			M8 connector	XUM2APCNM8	0.019
	NPN	Pre-cabled (L = 2 m)	XUM2ANCNL2	0.119	
		M8 connector	XUM2ANCNM8	0.019	

<b>Transmitter only</b>					
15 m			Pre-cabled (L = 2 m)	XUM2AKCNL2T	0.063
			M8 connector	XUM2AKCNM8T	0.010

<b>Receiver only</b>					
15 m	NO/NC, configuration by switch	PNP	Pre-cabled (L = 2 m)	XUM2APCNL2R	0.063
			M8 connector	XUM2APCNM8R	0.010
	NPN	Pre-cabled (L = 2 m)	XUM2ANCNL2R	0.063	
		M8 connector	XUM2ANCNM8R	0.010	

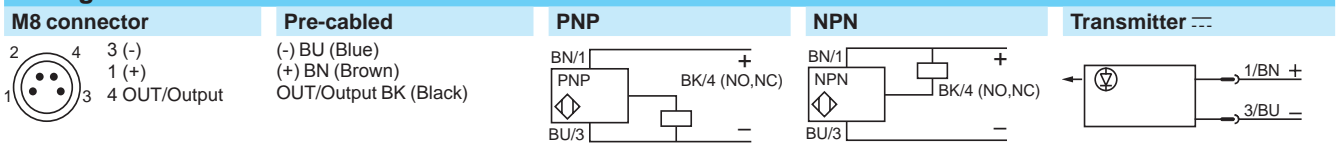
<b>Accessories for thru-beam system</b>					
Description	Dimensions mm	Sensing distance m	Reference	Weight kg	
Vertical diaphragm <i>Sold in lots of 2</i>	0.5 x 6.4	1.2	XUZMSV05	0.002	
	1 x 6.4	3	XUZMSV10	0.002	
	1.5 x 6.4	4	XUZMSV15	0.002	
	2 x 6.4	5	XUZMSV20	0.002	
Horizontal diaphragm <i>Sold in lots of 2</i>	0.5 x 6.4	1.2	XUZMSH05	0.002	
	1 x 6.4	3	XUZMSH10	0.002	
	1.5 x 6.4	4	XUZMSH15	0.002	
	2 x 6.4	5	XUZMSH20	0.002	
Anti-interference filter <i>Sold in lots of 4</i>	–	7	XUZMU01	0.006	

<b>Fixing accessories</b>		
Description	Reference	Weight kg
Base mounting fixing bracket	XUZAM01	0.017
Side mounting fixing bracket	XUZAM04	0.026
Vertical fixing bracket with protective cover (1)	XUZAM02	0.062
Horizontal fixing bracket with protective cover (1)	XUZAM03	0.026
Metal fixing bracket	XUZA50	0.025

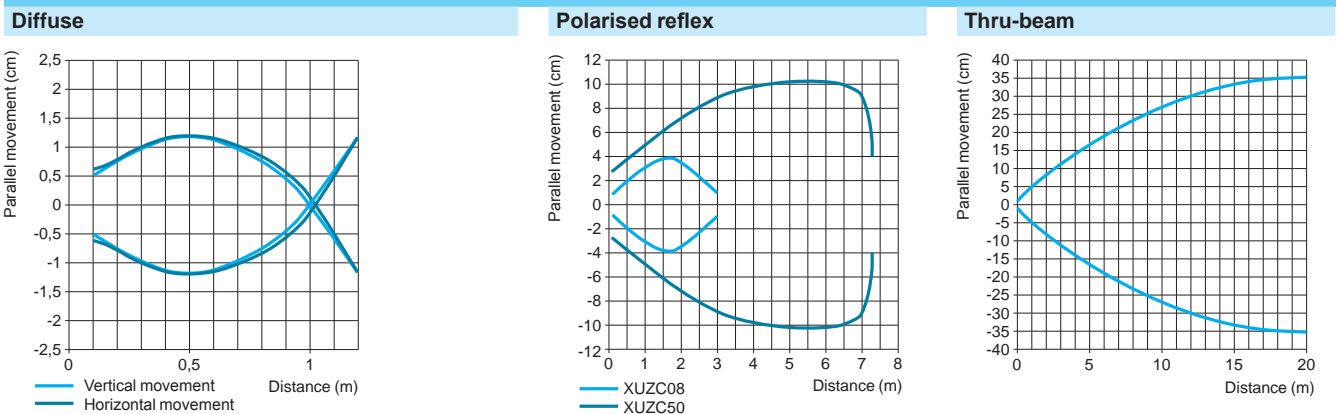
(1) For pre-cabled version

Characteristics		XUM●A●●●M8	XUM●A●●●L2
Sensor type		XUM●A●●●M8	
Product certifications		CE, cULus, CTick	
Connection	Connector	M8	–
	Pre-cabled	–	Length: 2 m
Nominal sensing distance Sn (excess gain = 2)	m	1 diffuse with adjustable sensitivity	
	m	5 polarised reflex with adjustable sensitivity	
	m	15 thru-beam with adjustable sensitivity	
Type of transmission		Red, except diffuse system (Infrared)	
Degree of protection	Conforming to IEC 60529	IP 65, IP 67	
Storage temperature		°C -40...+70	
Operating temperature		°C -30...+60	
Materials	Case	PBT	
	Lens	PMMA	
	Cable	–	PVC (black for transmitter, grey for other versions)
Vibration resistance	Conforming to IEC 60068-2-6	10 to 55 Hz, amplitude ± 1.5 mm, 2 hours in each direction X, Y and Z	
Shock resistance	Conforming to IEC 60068-2-27	500 m/s² 10 x in each direction X, Y and Z	
Indicator lights	Output state	Orange LED (excluding transmitter)	
	Stability	Green LED	
	Transmitter	Orange LED: supply on	
	Receiver	Red LED: light received; green LED: supply on	
Rated supply voltage		V --- 12...24 with protection against reverse polarity	
Voltage limits (including ripple)		V --- 10...30	
Current consumption, no-load		mA 16 for XUM5; 13 for XUM9; 11 for transmitter XUM2; 13 for receiver XUM2	
Switching capacity		mA ≤ 100 with overload and short-circuit protection	
Voltage drop, closed state		V ≤ √3	
Maximum switching frequency		Hz 1000	
Delays	First-up	ms < 100	
	Response	ms 0.5	
	Recovery	ms 0.5	

## Wiring schemes



## Curves



# Photo-electric sensors

OsiSense XU, general purpose, single mode function

Miniature design, plastic

Three-wire DC, solid-state output

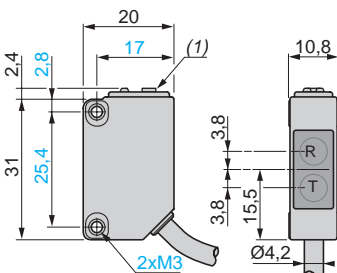
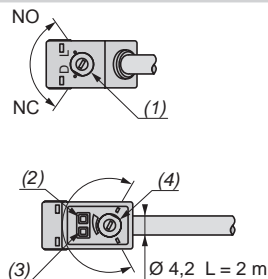
NO/NC configuration switch

## Diffuse system, polarised reflex system

### Pre-cabled version

Description - XUM5A●CNL2, XUM9A●CNL2

Dimensions - XUM5A●CNL2, XUM9A●CNL2



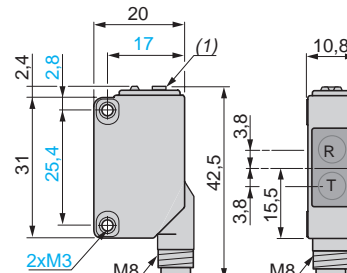
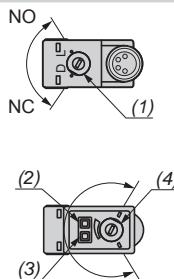
- (1) Configuration switch.
- (2) Output state LED.
- (3) Stability and power on LED.
- (4) Adjustment potentiometer.

R: Reception, T: Transmission.  
(1) Potentiometer.

### Connector version

Description - XUM5A●CNM8, XUM9A●CNM8

Dimensions - XUM5A●CNM8, XUM9A●CNM8



- (1) Configuration switch.
- (2) Output state LED.
- (3) Stability and power on LED.
- (4) Adjustment potentiometer.

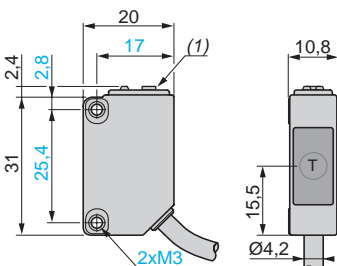
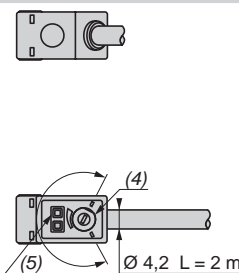
R: Reception, T: Transmission.  
(1) Potentiometer.

## Thru-beam system

### Pre-cabled version

Description - XUM2AKCNL2T

Dimensions - XUM2AKCNL2T

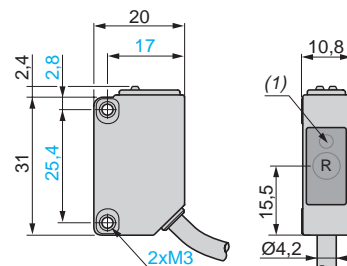
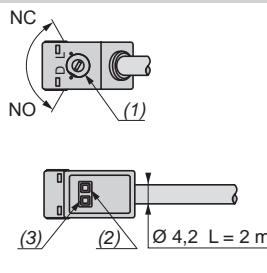


- (4) Adjustment potentiometer.
- (5) Power on LED.

T: Transmission.  
(1) Potentiometer.

Description - XUM2A●CNL2R

Dimensions - XUM2A●CNL2R



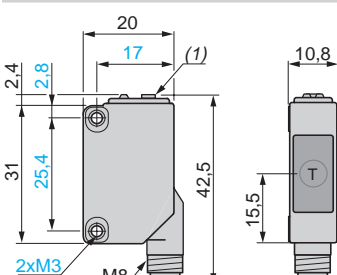
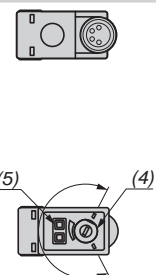
- (1) Configuration switch.
- (2) Output state LED.
- (3) Stability and power on LED.

R: Reception.  
(1) Output state LED on front face.

### Connector version

Description - XUM2AKCNM8T

Dimensions - XUM2AKCNM8T

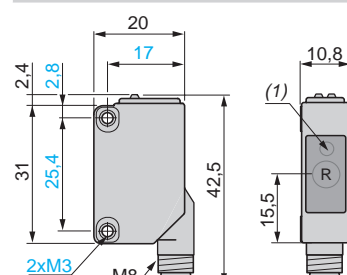
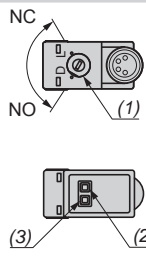


- (4) Adjustment potentiometer.
- (5) Power on LED.

T: Transmission.  
(1) Potentiometer.

Description - XUM2A●CNM8R

Dimensions - XUM2A●CNM8R



- (1) Configuration switch.
- (2) Output state LED.
- (3) Stability and power on LED.

R: Reception.  
(1) Output state LED on front face.

## Accessories

### Diaphragms

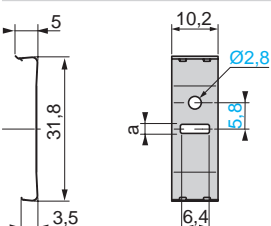
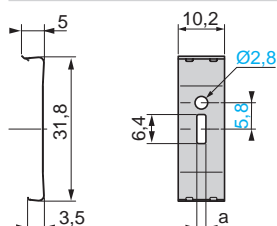
XUZMSV●●

XUZMSH●●

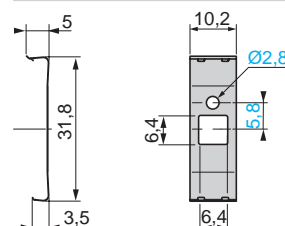
XUZ

### Filter

XUZMU01



XUZ	a
MSV05	0.5
MSV10	1
MSV15	1.5
MSV20	2
MSH05	0.5
MSH10	1
MSH15	1.5
MSH20	2



# Photo-electric sensors

OsiSense XU, general purpose, single mode function

Miniature design, plastic

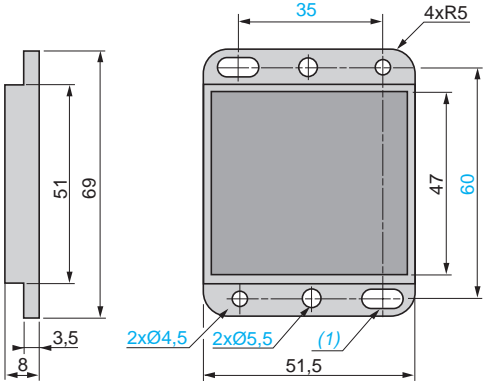
Three-wire DC, solid-state output

NO/NC configuration switch

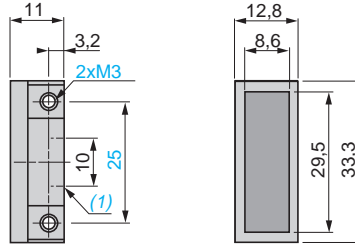
## Accessories

### Reflectors

#### XUZC50



#### XUZC08

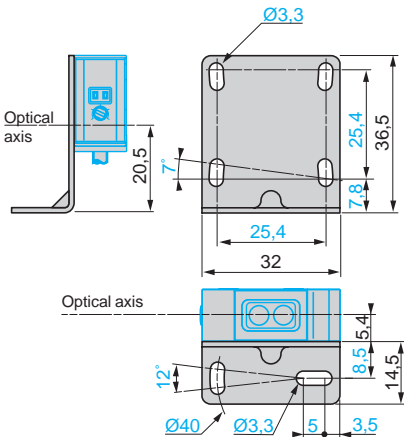


(1) 2 elongated holes Ø 4.5 x 8

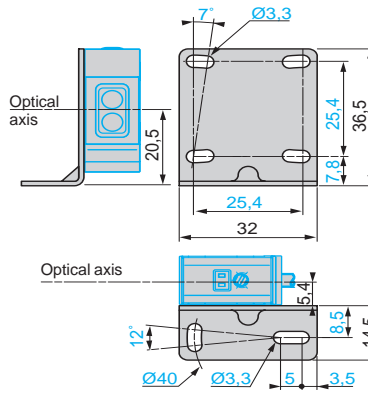
(1) 2 x M3

### Fixing brackets

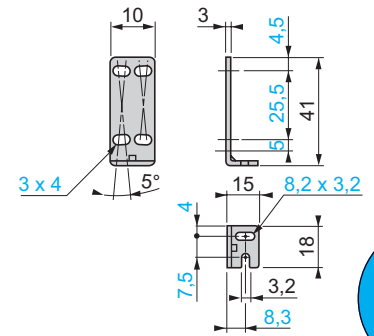
#### XUZAM04



#### XUZAM01

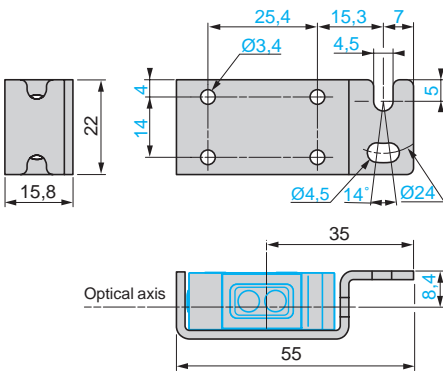


#### XUZA50

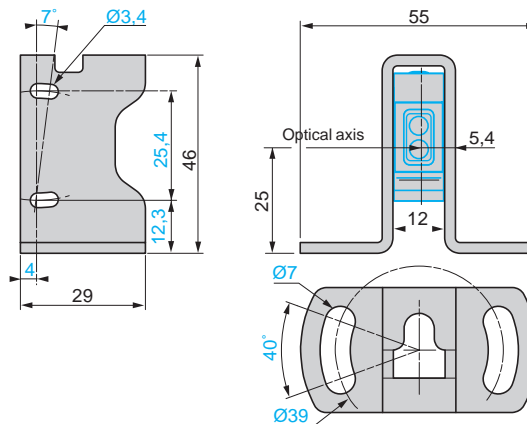


### Fixing bracket with protective cover

#### XUZAM03



#### XUZAM02





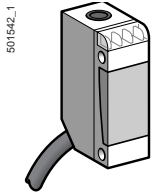
# Photo-electric sensors

OsiSense XU, general purpose

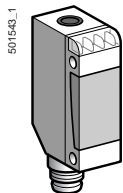
Multimode function

Miniature design

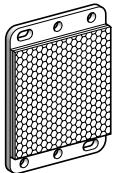
Three-wire DC, solid-state output



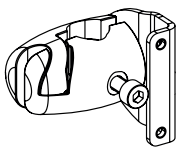
XUM0A...L2



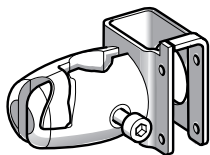
XUM0A...M8



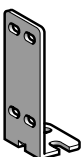
XUZC50



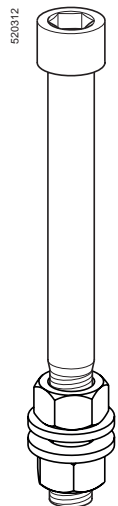
XUZM2003



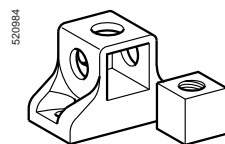
XUZM2004



XUZA50



XUZ2001



XUZA50

## Miniature design, DC

Sensing distance (Sn) m	Function	Output	Connection	Reference	Weight kg
0...10 depending on whether accessories are used	NO or NC, by programming	PNP	Pre-cabled (L = 2 m) (1)	XUM0APSAL2	0.050
			M8 connector	XUM0APSAM8	0.035
		NPN	Pre-cabled (L = 2 m) (1)	XUM0ANSAL2	0.050
			M8 connector	XUM0ANSAM8	0.035

## Accessories

Description	Connection	Reference	Weight kg
Thru-beam transmitter	Pre-cabled (L = 2 m) (1)	XUM0AKSAL2T	0.050
	M8 connector	XUM0AKSAM8T	0.035
Reflector 50 x 50 mm	–	XUZC50	0.020

## Fixing accessories (2)

Description	Reference	Weight kg
3D fixing kit for use on M12 rod, for XUM or XUZC50	XUZM2003	0.140
3D fixing kit for use on M12 rod and with protective cover for XUM	XUZM2004	0.155
M12 rod	XUZ2001	0.050
Support for M12 rod	XUZ2003	0.150
Fixing bracket	XUZA50	0.025

(1) For a 5 m long cable, replace L2 by L5.

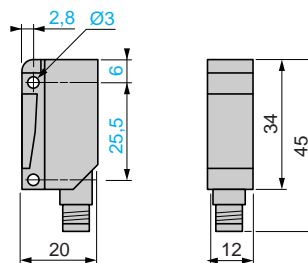
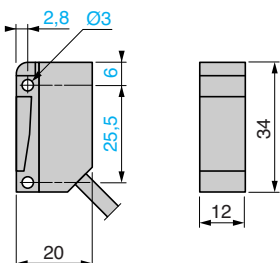
Example: XUM0APSAL2 becomes XUM0APSAL5.

(2) For further information, see page 5/158.

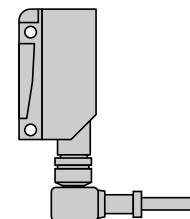
## Dimensions (mm)

XUM0A...L2

XUM0A...M8


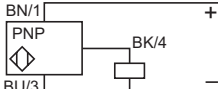
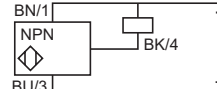
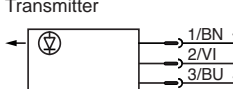


Possible orientation of elbowed connector

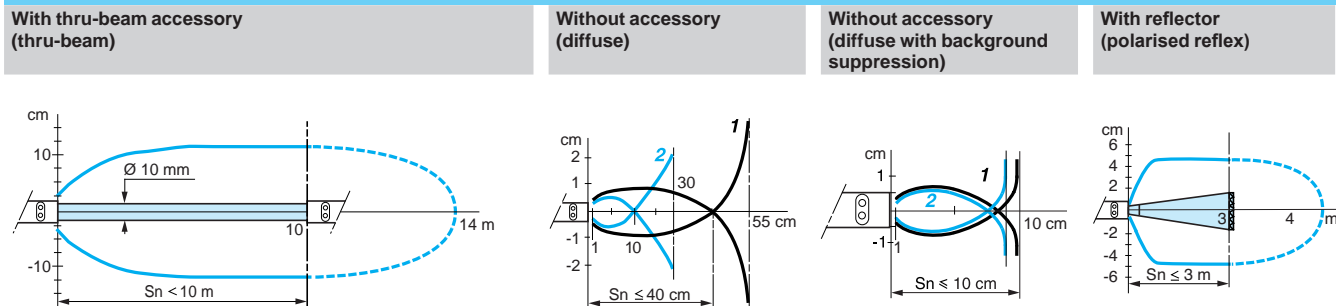


Characteristics		XUM●●●●●M8	XUM●●●●●L2
Sensor type			
Product certifications		UL, CSA, CE	
Connection	Connector	M8	—
	Pre-cabled	—	Length: 2 m
Nominal sensing distance $S_n$ (excess gain = 2)	m	0.11 / 0.11 without accessory (diffuse with background suppression)	
	m	0.4 / 0.55 without accessory (diffuse)	
	m	3 / 4 with reflector (polarised reflex)	
	m	10 / 14 with transmitter for thru-beam function (thru-beam)	
Type of transmission		Infrared, except polarised reflex (red)	
Degree of protection	Conforming to IEC 60529	IP 65, IP 67	IP 65, IP 67, double insulation $\square$
Storage temperature		°C	-40...+70
Operating temperature		°C	-25...+55
Materials	Case	PBT	
	Lens	PMMA	
	Cable	—	PvR
Vibration resistance	Conforming to IEC 60068-2-6	7 gn, amplitude $\pm 1.5$ mm (f = 10 to 55 Hz)	
Shock resistance	Conforming to IEC 60068-2-27	30 gn, duration 11 ms	
Indicator lights	Output state	Yellow LED (transmission present for XUM0●●●●●T)	
	Supply on	Green LED	
	Optical alignment aid/dirty	Red LED (except for XUM0●●●●●T)	
Rated supply voltage	V	12...24 with protection against reverse polarity	
Voltage limits (including ripple)	V	10...30	
Current consumption, no-load	mA	35 (20 for XUM0●●●●●T)	
Switching capacity	mA	$\leq 100$ with overload and short-circuit protection	
Voltage drop, closed state	V	$\leq 1.5$	
Maximum switching frequency	Hz	250 (200 for diffuse with background suppression)	
Delays	First-up	ms	< 200
	Response	ms	< 2 (< 2.5 for diffuse with background suppression)
	Recovery	ms	< 2 (< 2.5 for diffuse with background suppression)

**Wiring schemes**

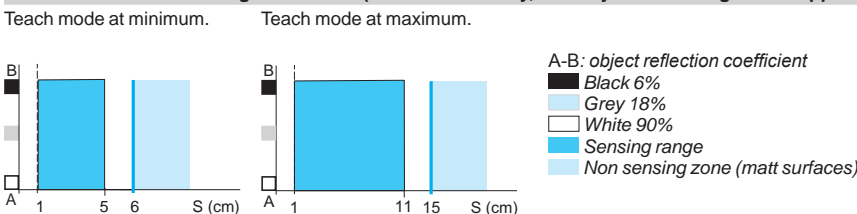
M8 connector	Pre-cabled	Receiver, PNP output	Receiver, NPN output	Thru-beam function transmitter
 <p>3 (-) 1 (+) 4 OUT/Output 2 Beam break input (1)</p>	<p>(-) BU (Blue) (+) BN (Brown) OUT/Output BK (Black) Beam break input VI (Violet) (1)</p>	 <p>BN/1 PNP BK/4 BU/3</p>	 <p>BN/1 NPN BK/4 BU/3</p>	 <p>Transmitter 1/BN + 2/VI 3/BU -</p> <p>Input 2/VI: - not connected: beam made - connected to -: beam broken</p>

**Detection curves**



Object: 10 x 10 cm, 1: white 90%, 2: grey 18%

**Variation of usable sensing distance  $S_u$  (without accessory, with adjustable background suppression)**



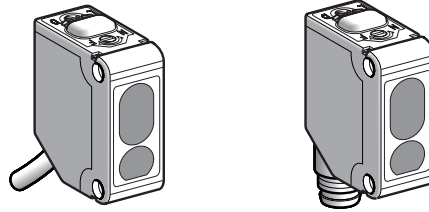
(1) Beam break input on thru-beam transmitter only.

# Photo-electric sensors

OsiSense XU, general purpose

With adjustable background and foreground suppression  
DC supply. Solid-state output

## Compact design



<b>System</b>	Diffuse with adjustable background and foreground suppression, long sensing distance with high accuracy
<b>Type of transmission</b>	Red
<b>Nominal sensing distance (S<sub>n</sub>)</b>	20...300 mm
<b>Differential travel</b>	5% or less of the sensing distance
<b>Adjustment</b>	Potentiometer with 5 turns

## References

3-wire	NO or NC programmable function	PNP	NPN	PNP	NPN	PNP
		XUM8APCNL2	XUM8ANCNL2	XUM8APCNM8	XUM8ANCNM8	XUM8APCNL03M12
Weight (kg)		0.065	0.065	0.020	0.020	0.035

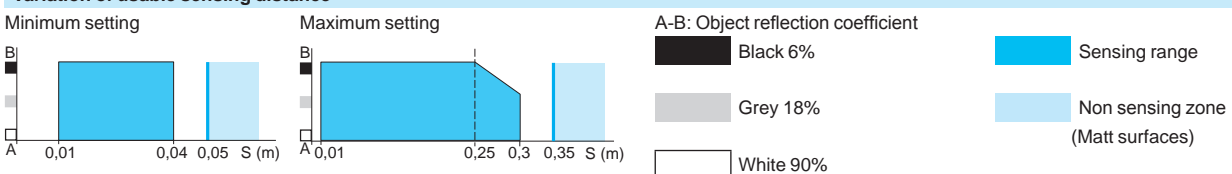
## Characteristics

<b>Product certifications</b>		CE, cURus		
<b>Ambient air temperature</b>		For operation: -25...+55°C For storage: -30...+70°C		
<b>Vibration resistance</b>	Conforming to IEC 60068-2-8	20 gn max, amplitude: 3 mm, frequency: 10... 500 Hz		
<b>Shock resistance</b>	Conforming to IEC 60068-2-27	50 gn		
<b>Degree of protection</b>	Conforming to IEC 60529	IP 67		
<b>Material</b>		Case: PBT Lenses: polycarbonate		
<b>Indicator lights</b>	Output state	Orange LED		
	Power on, help with setting	Green LED		
<b>Connection</b>		2 m cable Conductor c.s.a.: 0.2 mm <sup>2</sup>	M8 4-pin connector	Remote M12 connector, 0.3 m cable Conductor c.s.a.: 0.2 mm <sup>2</sup>
<b>Rated supply voltage</b>		12...24 V $\overline{\text{---}}$ with protection against reverse polarity		
<b>Voltage limits</b>		10...30 V $\overline{\text{---}}$ (including ripple)		
<b>Switching capacity</b>		$\leq 100$ mA with overload and short-circuit protection		
<b>Immunity to ambient light</b>	Natural light	3000 lux		
	Incandescent bulb	3000 lux		
<b>Voltage drop, closed state</b>		$< 2$ V		
<b>Current consumption</b>		$\leq 20$ mA		
<b>Response time</b>		$\leq 1$ ms		

Function table	Function	Diffuse system			
		No object present in the beam		Object present in the beam	
State of output (PNP or NPN) and orange LED (illuminated when sensor output is ON)	NO (position L)				
	NC (position D)				

## Detection curves

### Variation of usable sensing distance



# Photo-electric sensors

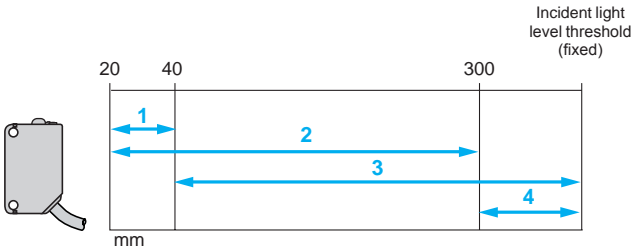
OsiSense XU, general purpose

With adjustable background and foreground suppression

DC supply. Solid-state output

## Detection curves

Adjustment ranges in background or foreground suppression mode



- 1 Background suppression (on minimum setting)
- 2 Background suppression (on maximum setting)
- 3 Foreground suppression (on minimum setting)
- 4 Foreground suppression (on maximum setting)

Adjustment in background or foreground suppression mode

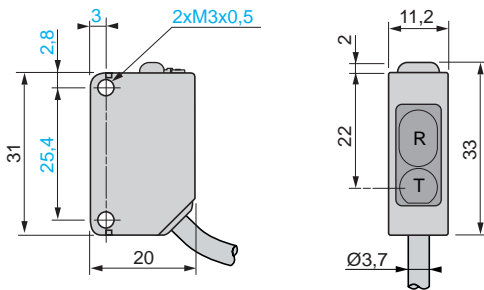
Cabling of pink wire determines the detection mode:

- Background detection mode, pink wire not connected to 0 V (blue wire)
- Foreground detection mode, pink wire connected to +V (brown wire)

Function	Cabling	Application
Background suppression	Pink wire to 0 V	To detect the object when it is detached from the background.
Foreground suppression	Pink wire to +V	To detect the object when it is in contact with the background or to suppress a foreground.

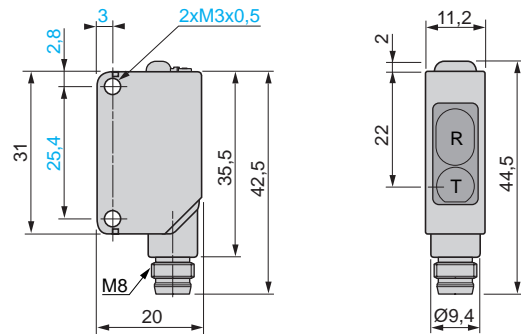
## Dimensions

XUM8APCNL2, XUM8ANCNL2 and XUM8APCNL03M12

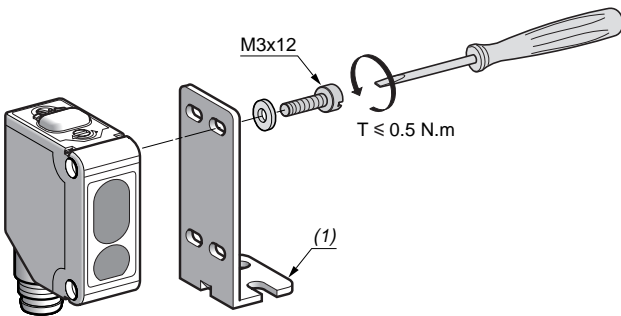


R: Reception, T: Transmission

XUM8APCNM8 and XUM8ANCNM8

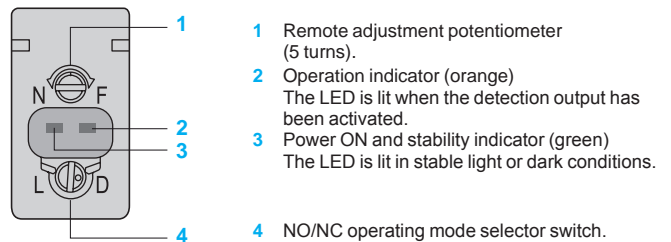


## Mounting



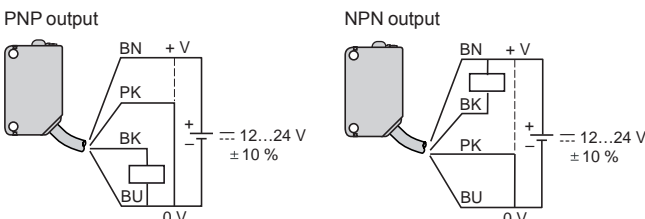
(1) XUZA50, XUZAM02 or XUZAM03 metal bracket (see pages 5/34 and 5/38).

## Functions



Selector switch	Function	Description
	NO (position L)	The NO output is activated when the selector switch is turned fully clockwise.
	NC (position D)	The NC output is activated when the selector switch is turned fully anticlockwise.

## Wiring schemes (3-wire ---)



**Note:** These schemes are represented in "background suppression" mode, cabling of pink (PK) wire to 0 V.

## Cable connections

XUM8A●CNL2

- (-) BU (Blue)
- (+) BN (Brown)
- (OUT) BK (Black)
- (MODE) PK (Pink)

## Connector schemes

XUM8A●CNM8

- M8 connector
- |   |              |          |
|---|--------------|----------|
| 2 | 4            | 3 (-)    |
| 1 | 1 (+)        | 4 Output |
| 3 | 2 Mode/Input |          |

XUM8APCNL03M12

- M12 connector
- |   |              |          |
|---|--------------|----------|
| 4 | 3            | 3 (-)    |
| 1 | 1 (+)        | 4 Output |
| 2 | 2 Mode/Input |          |

Please refer to our "Cabling accessories OsiSense XZ" catalogue.

# Photo-electric sensors

OsiSense XU, general purpose, single mode function

Compact design, 50 x 50

Five-wire AC or DC, 1 CO relay output

Three-wire DC, solid-state output

Sensing distance (Sn) m	Function	Output	Connection	Reference	Weight kg
<b>Diffuse system with adjustable sensitivity</b>					
<b>DC</b>					
1	NO	PNP	Pre-cabled (L = 2 m) (1)	<b>XUK5APANL2</b>	0.190
			M12 connector	<b>XUK5APANM12</b>	0.070
	NPN	PNP	Pre-cabled (L = 2 m) (1)	<b>XUK5ANANL2</b>	0.190
			M12 connector	<b>XUK5ANANM12</b>	0.070
	NC	PNP	Pre-cabled (L = 2 m) (1)	<b>XUK5APBNL2</b>	0.190
			M12 connector	<b>XUK5APBNM12</b>	0.070
NPN	PNP	Pre-cabled (L = 2 m) (1)	<b>XUK5ANBNL2</b>	0.190	
		M12 connector	<b>XUK5ANBNM12</b>	0.070	

Sensing distance (Sn) m	Function	Output	Connection	Reference	Weight kg
1	NO + NC	Relay	Pre-cabled (L = 2 m) (1)	<b>XUK5ARCNL2</b>	0.190

## Polarised reflex system

Sensing distance (Sn) m	Function	Output	Connection	Reference	Weight kg
<b>DC</b>					
6	NO	PNP	Pre-cabled (L = 2 m) (1)	<b>XUK9APANL2</b>	0.190
			M12 connector	<b>XUK9APANM12</b>	0.070
	NPN	PNP	Pre-cabled (L = 2 m) (1)	<b>XUK9ANANL2</b>	0.190
			M12 connector	<b>XUK9ANANM12</b>	0.070
	NC	PNP	Pre-cabled (L = 2 m) (1)	<b>XUK9APBNL2</b>	0.190
			M12 connector	<b>XUK9APBNM12</b>	0.070
NPN	PNP	Pre-cabled (L = 2 m) (1)	<b>XUK9ANBNL2</b>	0.190	
		M12 connector	<b>XUK9ANBNM12</b>	0.070	

Sensing distance (Sn) m	Function	Output	Connection	Reference	Weight kg
<b>DC or AC</b>					
6	NO + NC	Relay	Pre-cabled (L = 2 m) (1)	<b>XUK9ARCNL2</b>	0.190
	Reflector 50 x 50 mm (2)	–	–	<b>XUZC50</b>	0.020

## Reflex system

Sensing distance (Sn) m	Function	Output	Connection	Reference	Weight kg
<b>DC</b>					
7	NO	PNP	Pre-cabled (L = 2 m) (1)	<b>XUK1APANL2</b>	0.070
			M12 connector	<b>XUK1APANM12</b>	0.070
	NPN	PNP	Pre-cabled (L = 2 m) (1)	<b>XUK1ANANL2</b>	0.070
			M12 connector	<b>XUK1ANANM12</b>	0.070
	NC	PNP	Pre-cabled (L = 2 m) (1)	<b>XUK1APBNL2</b>	0.070
			M12 connector	<b>XUK1APBNM12</b>	0.070
NPN	PNP	Pre-cabled (L = 2 m) (1)	<b>XUK1ANBNL2</b>	0.070	
		M12 connector	<b>XUK1ANBNM12</b>	0.070	

Sensing distance (Sn) m	Function	Output	Connection	Reference	Weight kg
<b>AC or DC</b>					
7	NO + NC	Relay	Pre-cabled (L = 2 m) (1)	<b>XUK1ARCNL2</b>	0.175
	Reflector 50 x 50 mm (2)	–	–	<b>XUZC50</b>	0.020

## Thru-beam system

Sensing distance (Sn) m	Function	Output	Connection	Reference	Weight kg
<b>DC</b>					
30	–	–	Pre-cabled (L = 2 m) (1)	<b>XUK2AKSNL2T</b>	0.190
			M12 connector	<b>XUK2AKSNM12T</b>	0.070
30	NO	PNP	Pre-cabled (L = 2 m) (1)	<b>XUK2APANL2R</b>	0.140
			M12 connector	<b>XUK2APANM12R</b>	0.075
	NPN	PNP	Pre-cabled (L = 2 m) (1)	<b>XUK2ANANL2R</b>	0.140
			M12 connector	<b>XUK2ANANM12R</b>	0.075
	NC	PNP	Pre-cabled (L = 2 m) (1)	<b>XUK2APBNL2R</b>	0.140
			M12 connector	<b>XUK2APBNM12R</b>	0.075
NPN	PNP	Pre-cabled (L = 2 m) (1)	<b>XUK2ANBNL2R</b>	0.140	
		M12 connector	<b>XUK2ANBNM12R</b>	0.075	

Sensing distance (Sn) m	Function	Output	Connection	Reference	Weight kg
<b>AC or DC</b>					
30	–	–	Pre-cabled (L = 2 m) (1)	<b>XUK2ARCNL2T</b>	0.140
30	NO + NC	Relay	Pre-cabled (L = 2 m) (1)	<b>XUK2ARCNL2R</b>	0.070

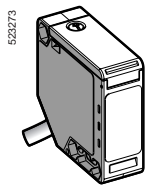
## Fixing accessories (2)

Description	Reference	Weight kg
3D fixing kit for use on M12 rod, for XUK or XUZC50	<b>XUZK2003</b>	0.170
3D fixing kit for use on M12 rod, with protective cover for XUK	<b>XUZK2004</b>	0.270
M12 rod	<b>XUZ2001</b>	0.050
Support for M12 rod	<b>XUZ2003</b>	0.150
Fixing bracket	<b>XUZA51</b>	0.050

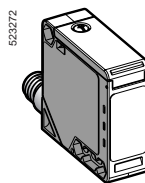
(1) For a 5 m long cable replace L2 by L5; for a 10 m long cable replace L2 by L10. Example: XUK5APANL2 becomes XUK5APANL5 or XUK5APANL10.

For availability, please consult our Customer Care Centre.

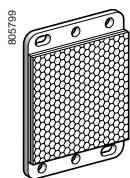
(2) For further information, see page 5/158.



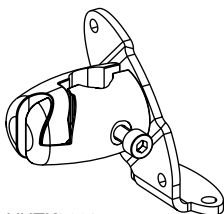
XUK●A●●●L2



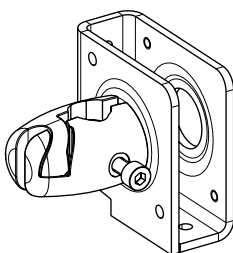
XUK●A●●●M12



XUZC50



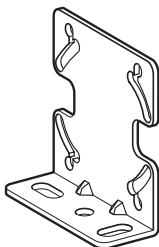
XUZK2003



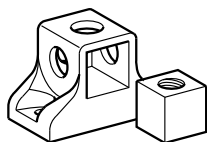
XUZK2004



XUZ2001



XUZA51



XUZ2003

# Photo-electric sensors

OsiSense XU, general purpose, single mode function

Compact design, 50 x 50

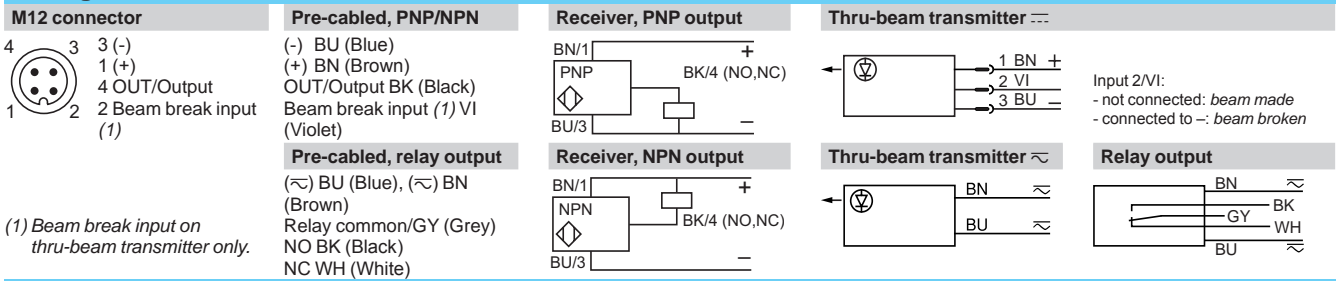
Five-wire AC or DC, 1 CO relay output

Three-wire DC, solid-state output

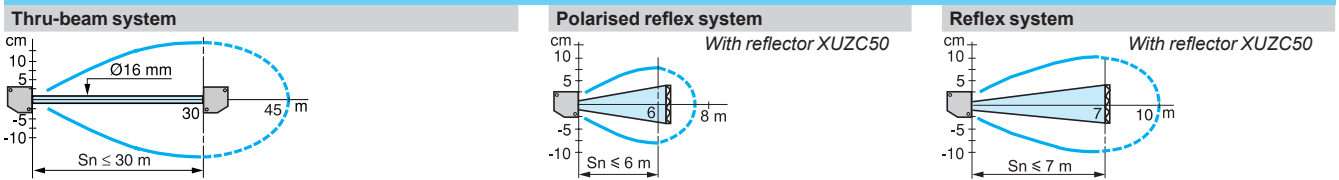
## Characteristics

Sensor type		XUK●●●●M12	XUK●●●●L2
Product certifications		UL, CSA, CE	
Connection		M12 connector	Pre-cabled, length: 2 m
Sensing distance nominal $S_n$ / maximum (excess gain = 2) (excess gain = 1)	m	PNP/NPN or relay output 1 / 1.5 diffuse	
	m	PNP/NPN or relay output 6 / 8 polarised reflex	
	m	PNP/NPN or relay output 7 / 10 reflex	
	m	PNP/NPN or relay output 30 / 45 thru-beam	
Type of transmission		Infrared, except polarised reflex (red)	
Degree of protection		Conforming to IEC 60529 IP 65, double insulation II	
Storage temperature		°C - 40...+ 70	
Operating temperature		°C - 25...+ 55	
Materials	Case	PBT	
	Lens	PMMA	
	Cable	-	PVC
Vibration resistance		Conforming to IEC 60068-2-6 7 gn, amplitude ± 1.5 mm (f = 10 to 55 Hz)	
Shock resistance		Conforming to IEC 60068-2-27 30 gn, duration 11 ms	
Indicator lights	Output state	Yellow LED (except for XUK2●●●●●T)	
	Supply on	Green LED (only for XUK2●●●●●T)	
Rated supply voltage	PNP/NPN	V	12...24 with protection against reverse polarity
	Relay output	V	-
Voltage limits (including ripple)	PNP/NPN	V	≈ 10...36
	Relay output	V	-
Current consumption, no-load	PNP/NPN	mA	≤ 35
	Relay output	W	-
Power consumption	PNP/NPN	W	-
	Relay output	W	≈ 2
Switching capacity	PNP/NPN	mA	≤ 100 with overload and short-circuit protection
	Relay output	A	-
Voltage drop, closed state	PNP/NPN	V	≤ 1.5
	Relay output	V	-
Maximum switching frequency	PNP/NPN	Hz	250
	Relay output	Hz	-
Delays	First-up	ms	< 15 (PNP/NPN); < 60 (relay output)
	Response	ms	< 2 (PNP/NPN); < 25 (relay output)
	Recovery	ms	< 2 (PNP/NPN); < 25 (relay output)

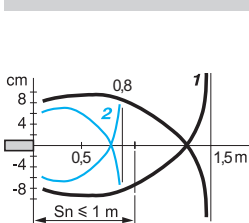
## Wiring schemes



## Detection curves

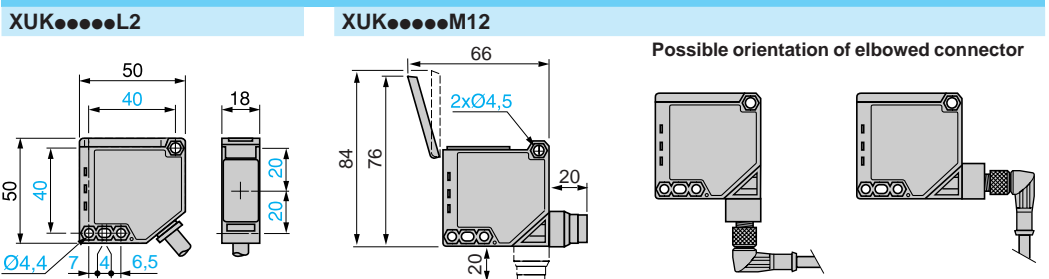


## Diffuse system



Object: 10 x 10 cm,  
1: white 90%, 2: grey 18%

## Dimensions





# Photo-electric sensors

OsiSense XU, general purpose, multimode

function. Compact design 50 x 50

Five-wire AC or DC, 1 CO relay output

Three-wire DC, solid-state output

## References

### DC

Sensing distance (Sn) m	Function	Output	Connection	Reference	Weight kg
0...30 depending on whether accessories are used	NO or NC, by programming	Time delay output	Pre-cabled (L = 2 m) (1)	<b>XUK0AKSAL2</b>	0.175
			M12 connector	<b>XUK0AKSAM12</b>	0.090

### Accessories

Description	Connection	Reference	Weight kg
Transmitter for thru-beam function	Pre-cabled (L = 2 m) (1)	<b>XUK0AKSAL2T</b>	0.140
	M12 connector	<b>XUK0AKSAM12T</b>	0.090
Reflector 50 x 50 mm (2)	–	<b>XUZC50</b>	0.020

### AC or DC

Sensing distance (Sn) m	Function	Output	Connection	Reference	Weight kg
0...30 depending on whether accessories are used	NO or NC, by programming	Time delay relay	Pre-cabled (L = 2 m) (1)	<b>XUK0ARCTL2</b>	0.175

### Accessories

Description	Connection	Reference	Weight kg
Transmitter for thru-beam function	Pre-cabled (L = 2 m) (1)	<b>XUK0ARCTL2T</b>	0.140
	–	<b>XUZC50</b>	0.020

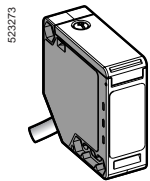
### Fixing accessories (2)

Description	Reference	Weight kg
<b>3D fixing kit</b> for use on M12 rod, for XUK or XUZC50	<b>XUZK2003</b>	0.170
<b>3D fixing kit</b> for use on M12 rod, with protective cover for XUK	<b>XUZK2004</b>	0.270
<b>M12 rod</b>	<b>XUZ2001</b>	0.050
<b>Support for M12 rod</b>	<b>XUZ2003</b>	0.150
<b>Fixing bracket</b>	<b>XUZA51</b>	0.050

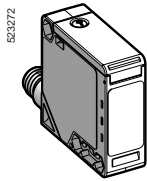
(1) For a 5 m long cable replace L2 by L5; for a 10 m long cable replace L2 by L10.

Example: XUK0AKSAL2 becomes XUK0AKSAL5 or XUK0AKSAL10.

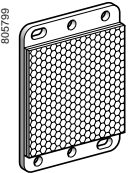
(2) For further information, see page 5/158.



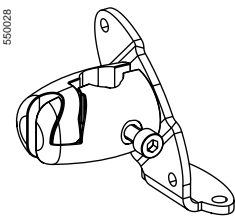
XUK0AKSAL2



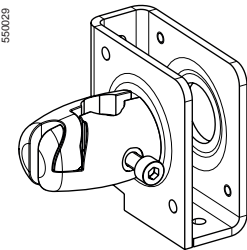
XUK0AKSAM12



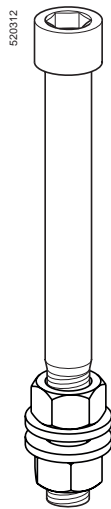
XUZC50



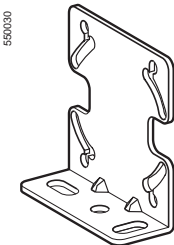
XUZK2003



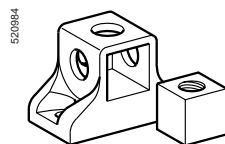
XUZK2004



XUZ2001



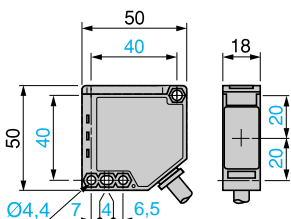
XUZA51



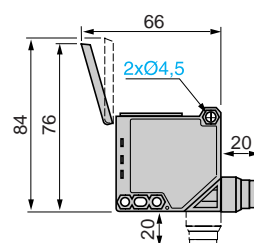
XUZ2003

## Dimensions (mm)

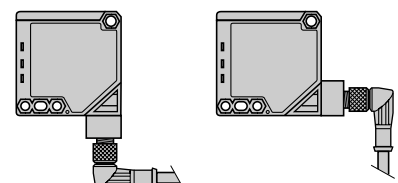
### XUK0A●●L2



### XUK0A●●M12



### Possible orientation of elbowed connector





# Photo-electric sensors

OsiSense XU, general purpose, multimode function. Compact design 50 x 50  
Five-wire AC or DC, 1 CO relay output  
Three-wire DC, solid state output

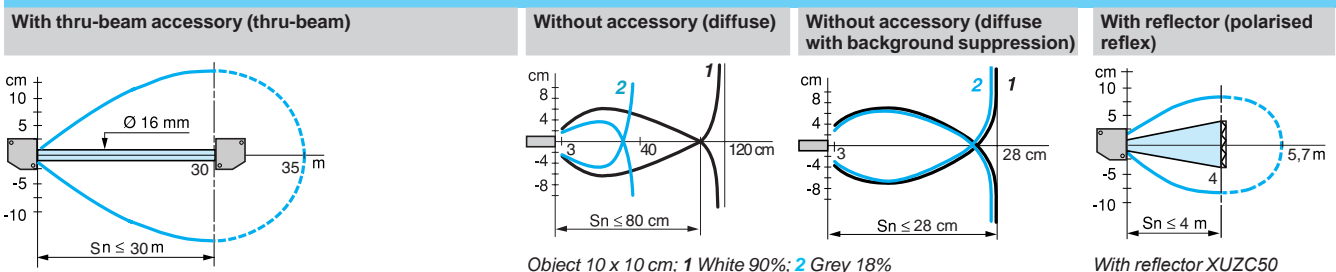
## Characteristics

Sensor type		XUK●●●●●M12	XUK●●●●●L2
Product certifications		UL, CSA, CE	
Connection		M12 connector	Pre-cabled, length: 2 m
Sensing distance		m 0.28 / 0.28 without accessory (diffuse with background suppression)	
nominal Sn / maximum (excess gain = 2) (excess gain = 1)		m 0.8 / 1.2 without accessory (diffuse)	
		m 4 / 5.7 with reflector (polarised reflex)	
		m 30 / 35 with transmitter for thru-beam function (thru-beam)	
Type of transmission		Infrared, except polarised reflex (red)	
Degree of protection		Conforming to IEC 60529 IP 65, double insulation □	
Storage temperature		°C -40...+70	
Operating temperature		°C -25...+55	
Materials		Case	PBT
		Lens	PMMA
		Cable	- PvR
Vibration resistance		Conforming to IEC 60068-2-6 7 gn, amplitude ± 1.5 mm (f = 10 to 55 Hz)	
Shock resistance		Conforming to IEC 60068-2-27 30 gn, duration 11 ms	
Indicator lights		Output state Yellow LED (transmission present for XUK0●●●●●T)	
		Supply on Green LED	
		Optical alignment aid/dirty Red LED (except for XUK0●●●●●T)	
Alarm output		mA ≤ 50 with overload and short-circuit protection (except XUK0ARCT●)	
Rated supply voltage		PNP/NPN	V 12...24 --- with protection against reverse polarity
		Relay output	V - ≈ 24...240
Voltage limits (including ripple)		PNP/NPN	V 10...36 ---
		Relay output	V - ≈ 20...264
Current consumption, no-load		PNP/NPN	mA ≤ 35; 20 for XUK0AK●●●●T
Power consumption		Relay output	W - 3 ~ or ---
Switching capacity		PNP/NPN	mA ≤ 100 with overload and short-circuit protection
		Relay output	A - 3 ~ or ---
Voltage drop, closed state		V ≤ 1.5	
Time delay		s 0...10 on-delay, off-delay, monostable	
Maximum switching frequency		PNP/NPN	Hz 250 (200 for diffuse with background suppression)
		Relay output	Hz - 20
Delays		First-up	ms < 200 (PNP/NPN); < 300 (relay output)
		Response	ms < 2 (PNP/NPN); < 25 (relay output) (< 2.5 for diffuse with background suppression)
		Recovery	ms < 2 (PNP/NPN); < 25 (relay output) (< 2.5 for diffuse with background suppression)

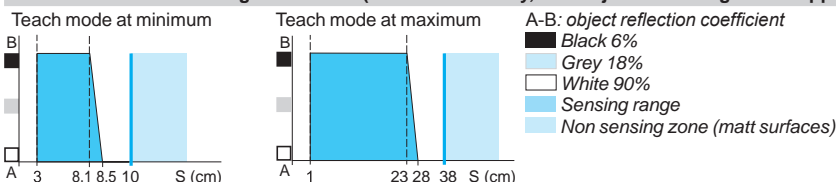
## Wiring schemes

M12 connector	Pre-cabled	Receiver, PNP output	Thru-beam transmitter ---
<p>4 3 3 (-) 3 1 (+) 1 2 4 OUT/Output 2 Alarm or beam break input (1)</p>	<p>(-) BU (Blue) (+) BN (Brown) OUT/Output BK (Black) Alarm/WH (White) Beam break input (1)VI (Violet)</p>	<p>BN/1 PNP BK/4 WH/2 BU/3</p>	<p>Transmitter 1/BN + 2/VI 3/BU -</p> <p>Input 2VI: - not connected: beam made - connected to -: beam broken</p>
Pre-cabled, relay output	Receiver, NPN output	Thru-beam transmitter ~	Relay output
<p>(1) Beam break input on thru-beam transmitter only.</p>	<p>(-) BU (Blue) (-) BN (Brown) Relay common/GY (Grey) NO BK (Black) NC WH (White)</p>	<p>BN/1 NPN BK/4 WH/2 BU/3</p>	<p>Transmitter BN ~ BU ~</p> <p>Relay output BN ~ BK ~ GY ~ WH ~ BU ~</p>

## Detection curves



### Variation of usable sensing distance Su (without accessory, with adjustable background suppression)



# Photo-electric sensors

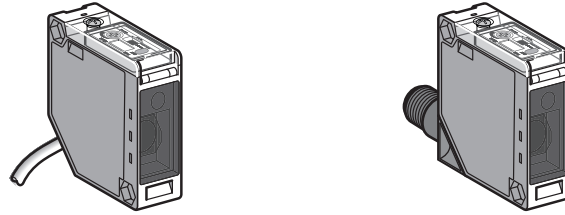
OsiSense XU, general purpose

With adjustable background suppression

Mechanical display of setting

DC supply. Solid-state output

## Compact design



<b>System</b>	Diffuse with adjustable background suppression, long sensing distance with high accuracy (size of object $\geq 2$ mm)
<b>Type of transmission</b>	Infrared
<b>Nominal sensing distance (Sn)</b>	1 m

## References

<b>3-wire, PNP or NPN programmable</b>	NO or NC programmable function	<b>XUK8AKSNL2</b>	<b>XUK8AKSNM12</b>
<b>Weight (kg)</b>		0.190	0.070

## Characteristics

<b>Product certifications</b>	CE, UL, CSA		
<b>Ambient air temperature</b>	For operation: - 25... + 55°C. For storage: - 30... + 70°C		
<b>Vibration resistance</b>	Conforming to IEC 60068-2-6	7 gn (f = 10...55 Hz)	
<b>Shock resistance</b>	Conforming to IEC 60068-2-27	10 gn, duration 11 ms	
<b>Degree of protection</b>	Conforming to IEC 60529	IP 65 (IP 30 with cover open). NEMA 4X indoor use, 12 and 13 double insulation	
<b>Materials</b>	Case: PC, lenses: PMMA, cable: PVC		
<b>Connection (1)</b>	Pre-cabled, diameter 6 mm, length 2 m, wire c.s.a.: 5 x 0.34 mm <sup>2</sup>	M12 male connector, 4-pin, can be set at 2 positions (suitable female connectors, including pre-wired versions, see page 5/28)	
<b>Rated supply voltage</b>	12...24 V $\overline{\text{DC}}$ with protection against reverse polarity		
<b>Voltage limits</b>	10...36 V $\overline{\text{DC}}$ (including ripple)		
<b>Switching capacity (sealed)</b>	$\leq 100$ mA with overload and short-circuit protection		
<b>Voltage drop, closed state</b>	$\leq 1.5$ V		
<b>Current consumption, no-load</b>	35 mA		
<b>Maximum switching frequency</b>	250 Hz		
<b>Delays</b>	First-up: $\leq 80$ ms; response: $\leq 2$ ms; recovery: $\leq 2$ ms		

Function table	Function	Diffuse system			
		No object present in the beam		Object present in the beam	
<b>Output state (PNP or NPN) indicator: yellow LED</b> (illuminated when sensor output is ON)	NO				
	NC				

(1) For a 10 m long cable replace L2 by L10.

# Photo-electric sensors

OsiSense XU, general purpose

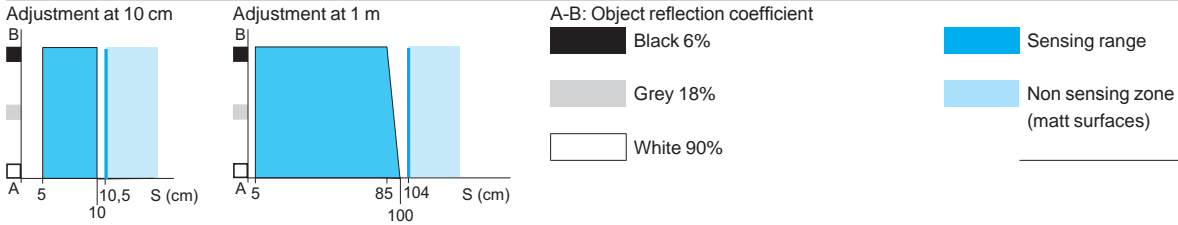
With adjustable background suppression

Mechanical display of setting

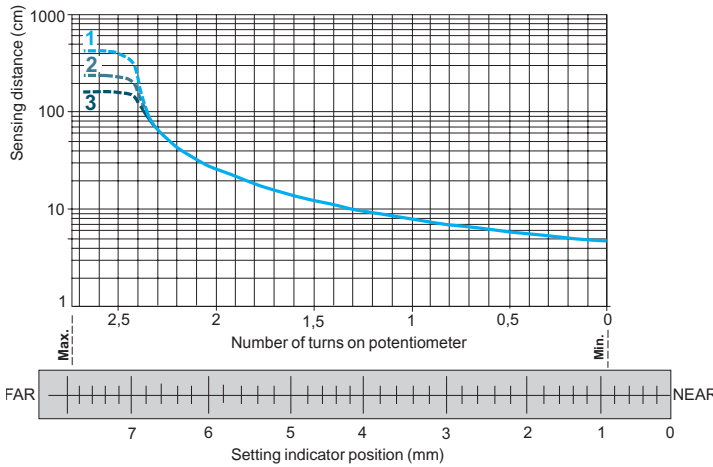
DC supply. Solid-state output

## Detection curves

### Variation of usable sensing distance $S_u$

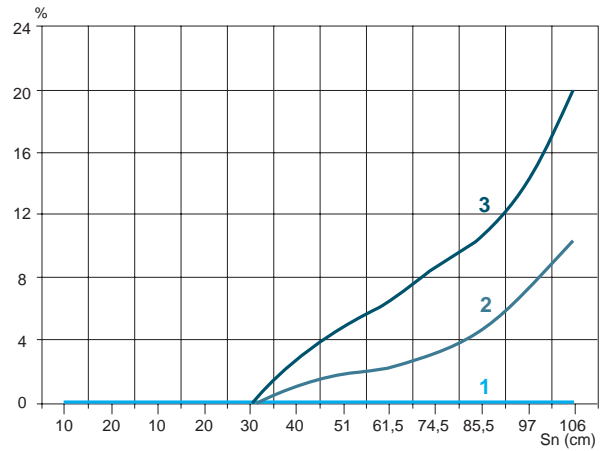


### Sensing distance adjustment



- 1 White 90%
- 2 Grey 18%
- 3 Black 6%

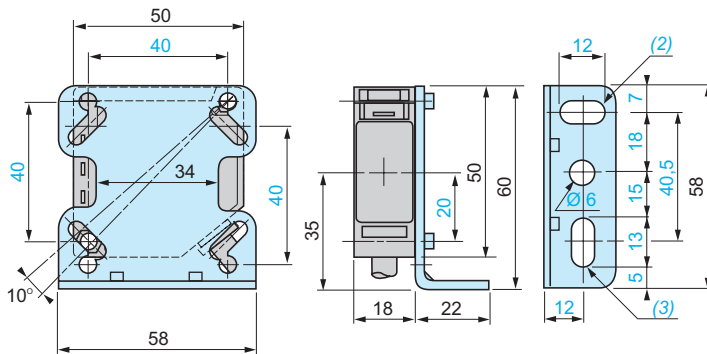
### Relative difference in sensing distances according to object colour



- 1 White 90%
- 2 Grey 18%
- 3 Black 6%

## Dimensions

### XUK8AKSNL2 (1)

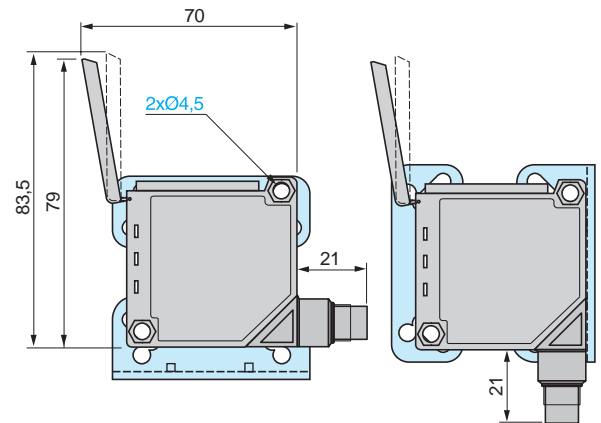


(1) The bracket **XUZA51** is included with the sensor.

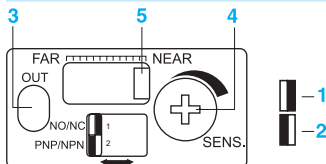
(2) 1 elongated hole  $\varnothing 6 \times 12$ .  
(3) 1 elongated hole  $\varnothing 6 \times 13$ .

### Bracket fixing (1)

### XUK8AKSNM12 with cover open (1)



## Functions



### Switches

- 1 NO/NC programming
- 2 PNP or NPN output

### LED

- 3 Yellow LED, output

### Potentiometer

- 4 Sensing distance adjustment

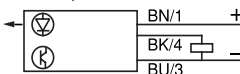
### Setting indicator

- 5 Potentiometer setting indication

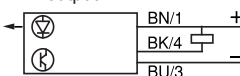
## Wiring schemes (3-wire ---)

### NO/NC programming

#### PNP output



#### NPN output



NO: detection of object presence  
NC: detection of object absence

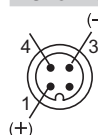
## Cable connections

### XUK8AKSNL2

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

## Connector schemes

### XUK8AKSNM12



# Photo-electric sensors

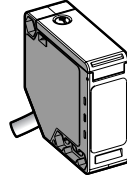
OsiSense XU, general purpose

With adjustable background suppression

Compact design, 50 x 50

Five-wire AC or DC, 1 "C/O" relay output

## Compact design



System	Diffuse with adjustable background suppression
Type of transmission	Infrared
Nominal sensing distance (S <sub>n</sub> )	0.75 m

## References

3-wire, PNP or NPN programmable	NO or NC programmable function	XUK8ARCTL2
Weight (kg)		0.190

## Characteristics

Product certifications		CE, UL, CSA
Ambient air temperature		For operation: - 25... + 55°C. For storage: - 30... + 70°C
Vibration resistance	Conforming to IEC 60068-2-6	7 gn (f = 10...55 Hz)
Shock resistance	Conforming to IEC 60068-2-27	10 gn, duration 11 ms
Degree of protection	Conforming to IEC 60529	IP 65 double insulation □ (IP 30 with cover open)
Materials		Case: PBT Lenses: PMMA Cable: PVC
Indicator lights	Output state	Yellow LED
	Supply on	Green LED
	Optical alignment aid/dirty	Red LED
Connection		Pre-cabled, diameter 6 mm, length 2 m, wire c.s.a.: 5 x 0.34 mm <sup>2</sup>
Rated supply voltage		24...240 V ~ or ☐
Voltage limits		20...264 V ~ or ☐ (including ripple)
Switching capacity		3 A: cos φ = 1 0.5 A: cos φ = 0.4
Voltage drop, closed state		≤ 1.5 V
Power consumption		3 W (~ or ☐)
Maximum switching frequency		200 Hz (☐); 20 Hz (~)
Time delay		0...15 s: on-delay, off-delay, monostable
Delays		First-up: ≤ 300 ms; response: ≤ 2 ms; recovery: ≤ 2 ms

Function table	Function	Diffuse system			
		No object present in the beam		Object present in the beam	
Output state (PNP or NPN) indicator: yellow LED (illuminated when sensor output is ON)	NO				
	NC				

# Photo-electric sensors

OsiSense XU, general purpose

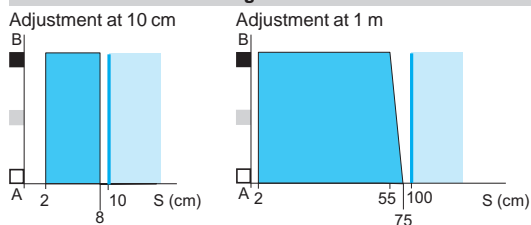
With adjustable background suppression

Compact design, 50 x 50

Five-wire AC or DC, 1 "C/O" relay output

## Detection curves

### Variation of usable sensing distance $S_u$



A-B: Object reflection coefficient

Black 6%

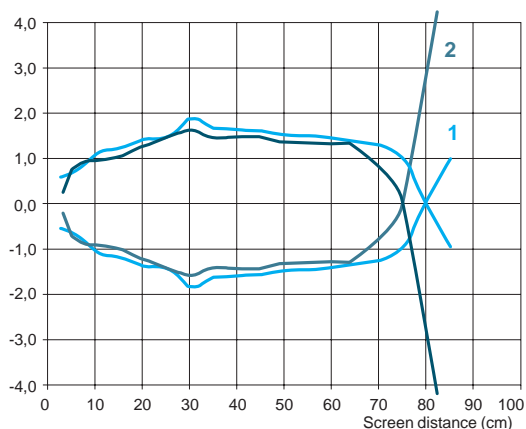
Grey 18%

White 90%

Sensing range

Non sensing zone  
(Matt surfaces)

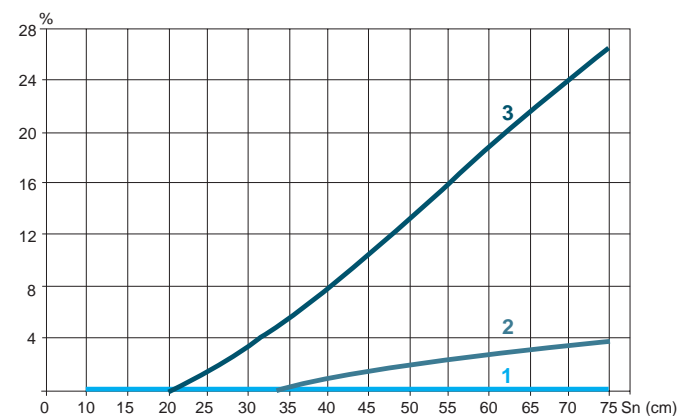
### Detection curves



Screen: 20 x 20 cm

- 1 White 90%
- 2 Grey 18%

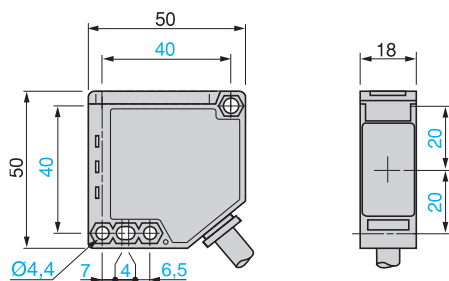
### Relative difference in sensing distances according to object colour



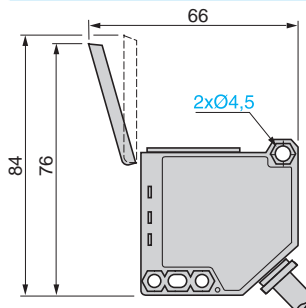
- 1 White 90%
- 2 Grey 18%
- 3 Black 6%

## Dimensions

### XUK8ARCTL2



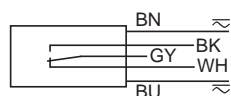
### XUK8ARCTL2 with cover open



## Connections

### Wiring scheme

Cable connection, relay output



⊃ : BU (Blue)

⊃ : BN (Brown)

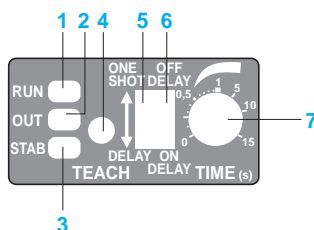
Relay common: GY (Grey)

NO: BK (Black), detection of object

NC: WH (White), detection of object absence

## Description

### Indicators and settings



- 1 RUN (Supply on): Green LED
- 2 OUT (Output state): Yellow LED
- 3 STAB (Optical alignment aid/dirty): Red LED
- 4 TEACH: Teach mode button
- 5 ONE SHOT or DELAY (monostable or time delay)
- 6 ON DELAY, OFF DELAY (on-delay, off-delay)
- 7 Time delay potentiometer (0..15 s)

# Photo-electric sensors

OsiSense XU, general purpose, single mode function. Compact design

Five-wire AC or DC, 1 CO relay output

Three-wire DC, solid-state output

Sensing distance (Sn) m	Function	Output	Connection	Reference	Weight kg
<b>Diffuse system (1)</b>					
<b>DC</b>					
2.1	NO	PNP	Screw terminals (3)	<b>XUX5APANT16</b>	0.200
			M12 connector	<b>XUX5APANM12</b>	0.200
			Screw terminals (3)	<b>XUX5ANANT16</b>	0.200
			M12 connector	<b>XUX5ANANM12</b>	0.200
	NC	PNP	Screw terminals (3)	<b>XUX5APBNT16</b>	0.200
			M12 connector	<b>XUX5APBNM12</b>	0.200
		NPN	Screw terminals (3)	<b>XUX5ANBNT16</b>	0.200
			M12 connector	<b>XUX5ANBNM12</b>	0.200

<b>AC or DC</b>					
2.1	NO + NC	Relay	Screw terminals (3)	<b>XUX5ARCNT16</b>	0.200

<b>Polarised reflex system (1)</b>					
<b>DC</b>					
11	NO	PNP	Screw terminals (3)	<b>XUX9APANT16</b>	0.200
			M12 connector	<b>XUX9APANM12</b>	0.200
			Screw terminals (3)	<b>XUX9ANANT16</b>	0.200
			M12 connector	<b>XUX9ANANM12</b>	0.200
	NC	PNP	Screw terminals (3)	<b>XUX9APBNT16</b>	0.200
			M12 connector	<b>XUX9APBNM12</b>	0.200
		NPN	Screw terminals (3)	<b>XUX9ANBNT16</b>	0.200
			M12 connector	<b>XUX9ANBNM12</b>	0.200

<b>AC or DC</b>					
11	NO + NC	Relay	Screw terminals (3)	<b>XUX9ARCNT16</b>	0.200
	Reflector 50 x 50 mm (2)	–	–	<b>XUZC50</b>	0.020

<b>Reflex system (1)</b>					
<b>DC</b>					
14	NO	PNP	Screw terminals (3)	<b>XUX1APANT16</b>	0.200
			M12 connector	<b>XUX1APANM12</b>	0.200
			Screw terminals (3)	<b>XUX1ANANT16</b>	0.200
			M12 connector	<b>XUX1ANANM12</b>	0.200
	NC	PNP	Screw terminals (3)	<b>XUX1APBNT16</b>	0.200
			M12 connector	<b>XUX1APBNM12</b>	0.200
		NPN	Screw terminals (3)	<b>XUX1ANBNT16</b>	0.200
			M12 connector	<b>XUX1ANBNM12</b>	0.200

<b>AC or DC</b>					
14	NO + NC	Relay	Screw terminals (3)	<b>XUX1ARCNT16</b>	0.200
	Reflector 50 x 50 mm (2)	–	–	<b>XUZC50</b>	0.020

<b>Thru-beam system (1)</b>					
<b>DC</b>					
<b>Transmitter</b> 40			Screw terminals (3)	<b>XUX0AKSAT16T</b>	0.200
			M12 connector	<b>XUX0AKSAM12T</b>	0.200
<b>Receiver</b> 40	NO	PNP	Screw terminals (3)	<b>XUX2APANT16R</b>	0.200
			M12 connector	<b>XUX2APANM12R</b>	0.200
			Screw terminals (3)	<b>XUX2ANANT16R</b>	0.200
			M12 connector	<b>XUX2ANANM12R</b>	0.200
	NC	PNP	Screw terminals (3)	<b>XUX2APBNT16R</b>	0.200
			M12 connector	<b>XUX2APBNM12R</b>	0.200
		NPN	Screw terminals (3)	<b>XUX2ANBNT16R</b>	0.200
			M12 connector	<b>XUX2ANBNM12R</b>	0.200

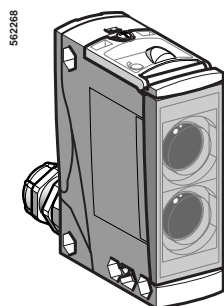
<b>AC or DC</b>					
<b>Transmitter</b> 40			Screw terminals (3)	<b>XUX0ARCTT16T</b>	0.200
<b>Receiver</b> 40	NO + NC	Relay	Screw terminals (3)	<b>XUX2ARCNT16R</b>	0.200

<b>Fixing accessories (2)</b>		
Description	Reference	Weight kg
3D fixing kit for use on M12 rod, for XUX or XUZC50	<b>XUXZ2003</b>	0.220
3D fixing kit for use on M12 rod, with protective cover for XUX	<b>XUXZ2004</b>	0.420
M12 rod	<b>XUZ2001</b>	0.050
Support for M12 rod	<b>XUZ2003</b>	0.150
Fixing bracket	<b>XUXZ2000</b>	0.120

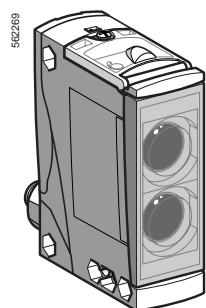
(1) With adjustable sensitivity.

(2) For further information, see page 5/158.

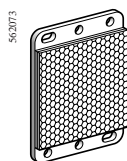
(3) Screw terminals with ISO 16 cable gland for cable Ø 7 to 10 mm.



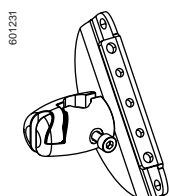
XUX●A●●●T16



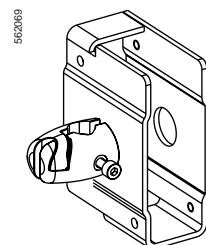
XUX●A●●●M12



XUZC50



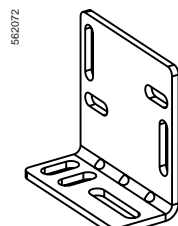
XUXZ2003



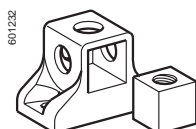
XUXZ2004



XUZ2001



XUXZ2000



XUZ2003



# Photo-electric sensors

OsiSense XU, general purpose,  
single mode function. Compact design  
Five-wire AC or DC, 1 CO relay output  
Three-wire DC, solid-state output

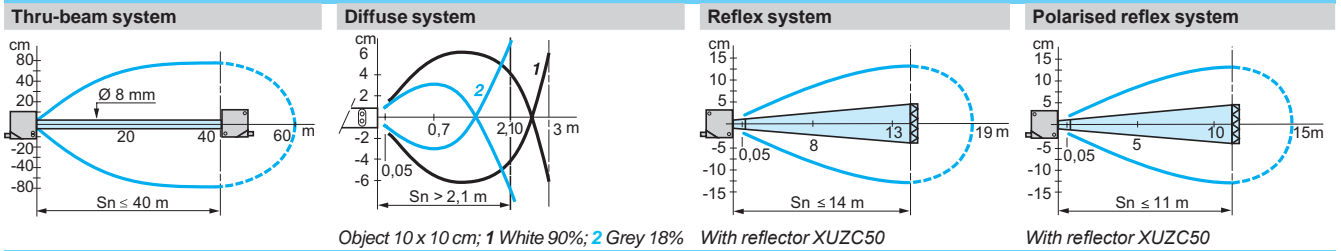
Characteristics		XUX●●●●●M12	XUX●AN●NT16, ●AP●NT16	XUX●ARC●T16
Sensor type				
Product certifications		UL, CSA, CE		
Connection		M12 connector	Screw terminals, ISO 16 cable gland	
Sensing distance nominal Sn / maximum (excess gain = 2) (excess gain = 1)		2.1 / 3 diffuse with adjustable sensitivity		
		11 / 15 polarised reflex with adjustable sensitivity (with reflector XUZC50)		
		14 / 19 reflex with adjustable sensitivity		
		40 / 60 thru-beam with adjustable sensitivity		
Type of transmission		Infrared, except polarised reflex (red)		
Degree of protection	Conforming to IEC 60529	IP 65, IP 67, double insulation □		
Storage temperature		°C -40...+70		
Operating temperature		°C -25...+55		
Materials	Case	PBT		
	Lens	PMMA		
Vibration resistance	Conforming to IEC 60068-2-6	7 gn, amplitude ± 1.5 mm (f = 10 to 55 Hz)		
Shock resistance	Conforming to IEC 60068-2-27	30 gn, duration 11 ms		
Indicator lights	Output state	Yellow LED (transmission present for XUX0●●●●●●T ---)		
	Supply on	Green LED		
	Instability	Red LED (for XUX9ARCNT16)		
Rated supply voltage	PNP/NPN	V	12...24 with protection against reverse polarity	
	Relay output	V	-	24...240 ~ or ---
Voltage limits (including ripple)	PNP/NPN	V		
	Relay output	V	-	20...264 ~ or ---
Current consumption, no-load	PNP/NPN	mA	≤ 35 (20 for XUX0●●●●●●T)	
Power consumption	Relay output	W	-	2 ~ or ---
Switching capacity	PNP/NPN	mA	≤ 100 with overload and short-circuit protection	
	Relay output	A	-	500 000 operating cycles 3 A: cos φ = 1/0.5 A: cos φ = 0.4
Voltage drop, closed state		V	≤ 1.5	
Maximum switching frequency	PNP/NPN	Hz	250	
	Relay output	Hz	-	20
Delays	First-up	ms	< 15 (PNP/NPN); < 60 (relay output)	
	Response	ms	< 2 (PNP/NPN); < 25 (relay output)	
	Recovery	ms	< 2 (PNP/NPN); < 25 (relay output)	

## Wiring schemes

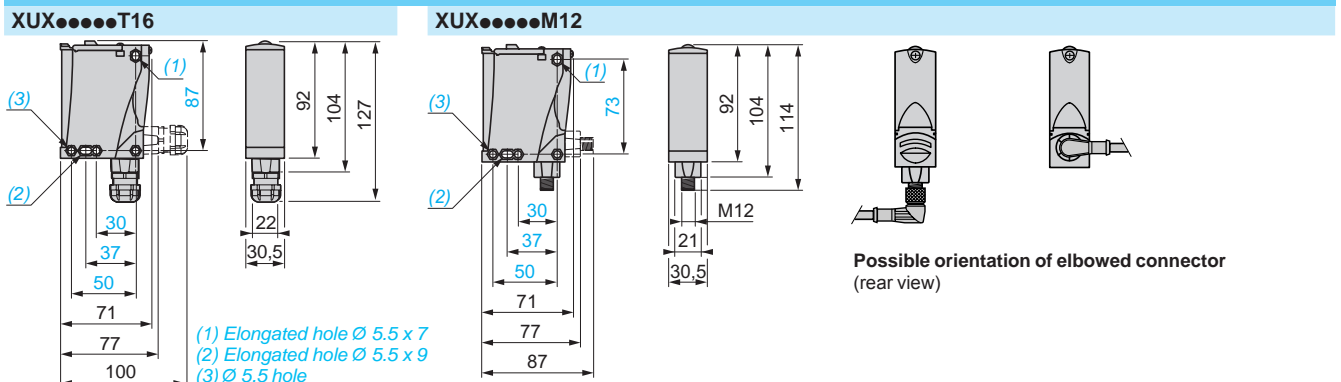
M12 connector	Relay output ~	PNP/NPN ---	Transmitter ---	Transmitter ~
	Terminals	M12 Terminals	M12 Terminals	Terminals
	1 ⊘ ~ 2 ⊘ ~ 3 ⊘ NO 4 ⊘ Relay common 5 ⊘ NC	1 ● 1 ⊘ + 3 ● 2 ⊘ - 4 ● 3 ⊘ Output	1 ● 1 ⊘ + 3 ● 2 ⊘ - 2 ● 3 ⊘ Beam break input (1)	1 ⊘ ~ 2 ⊘ ~
			(1) Input not connected: beam made. Input connected to -: beam broken.	

Maximum permissible conductor c.s.a.: 1 x 1.5 mm<sup>2</sup> or 1 x 0.75 mm<sup>2</sup> with cable end.

## Detection curves



## Dimensions





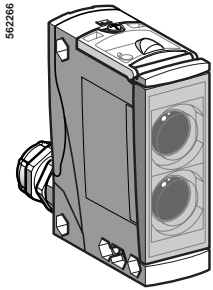
# Photo-electric sensors

OsiSense XU, general purpose, multimode function <sup>(1)</sup>

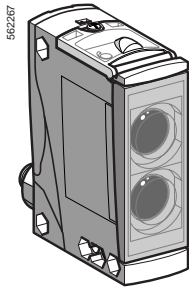
Compact design

Five-wire AC or DC, 1 CO relay output

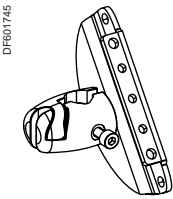
Three-wire DC, solid-state output



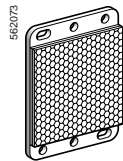
XUX0ARCTT16



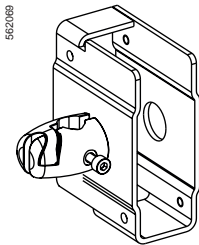
XUX0AKSAM12



XUZ2003



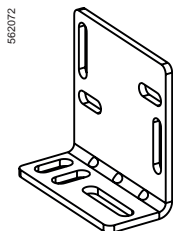
XUZC50



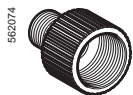
XUZ2004



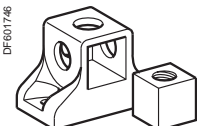
XUZ2001



XUZ2000



XUZ2001



XUZ2002

## References

### DC

Sensing distance (Sn) m	Function	Output	Connection	Reference	Weight kg
0...40 depending on whether accessories are used	NO or NC, by programming	PNP/NPN	Screw terminals, ISO 16 cable gland (3) M12 connector	XUX0AKSAT16 XUX0AKSAM12	0.200 0.200

### Accessories

Description	Connection	Reference	Weight kg
Transmitter for thru-beam function	Screw terminals, ISO 16 cable gland (3) M12 connector	XUX0AKSAT16T XUX0AKSAM12T	0.200 0.200
Reflector 50 x 50 mm	-	XUZC50	0.020

### AC or DC

Sensing distance (Sn) m	Function	Output	Connection	Reference	Weight kg
0...40 depending on whether accessories are used	NO or NC, by programming	Time delay relay	Screw terminals, ISO 16 cable gland (3)	XUX0ARCTT16	0.200

### Accessories

Description	Connection	Reference	Weight kg
Transmitter for thru-beam function	Screw terminals, ISO 16 cable gland (3)	XUX0ARCTT16T	0.200
Reflector 50 x 50 mm	-	XUZC50	0.020

### Fixing accessories (2)

Description	Reference	Weight kg
3D fixing kit for use on M12 rod, for XUX or XUZC50	XUZ2003	0.220
3D fixing kit for use on M12 rod, with protective cover for XUX	XUZ2004	0.420
M12 rod	XUZ2001	0.050
Support for M12 rod	XUZ2000	0.150
Fixing bracket	XUZ2000	0.120
Adaptor, ISO 16 - 1/2" NPT	XUZ2001	0.050
Adaptor, ISO 16 - ISO 20	XUZ2002	0.050

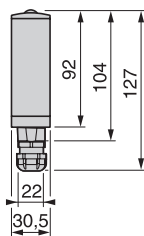
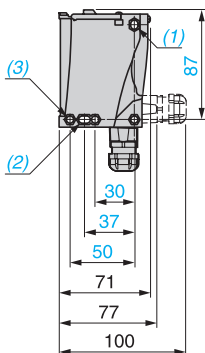
(1) For further information on **the multimode function**, see page 5/14.

(2) For further information, see page 5/158.

(3) For Ø 7 to 10 mm cable.

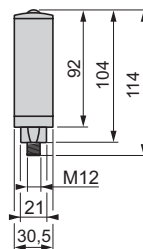
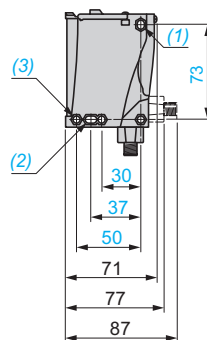
## Dimensions

### XUX●●●●●T16

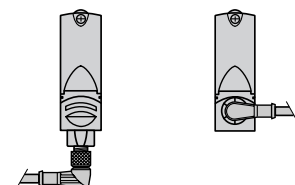


(1) Elongated hole Ø 5.5 x 7  
(2) Elongated hole Ø 5.5 x 9  
(3) Ø 5,5 hole

### XUX●●●●●M12



Possible orientation of elbowed connector (rear view)



# Photo-electric sensors

OsiSense XU, general purpose, multimode function

Compact design


Five-wire AC or DC, 1 CO relay output

Three-wire DC, solid-state output

## Characteristics

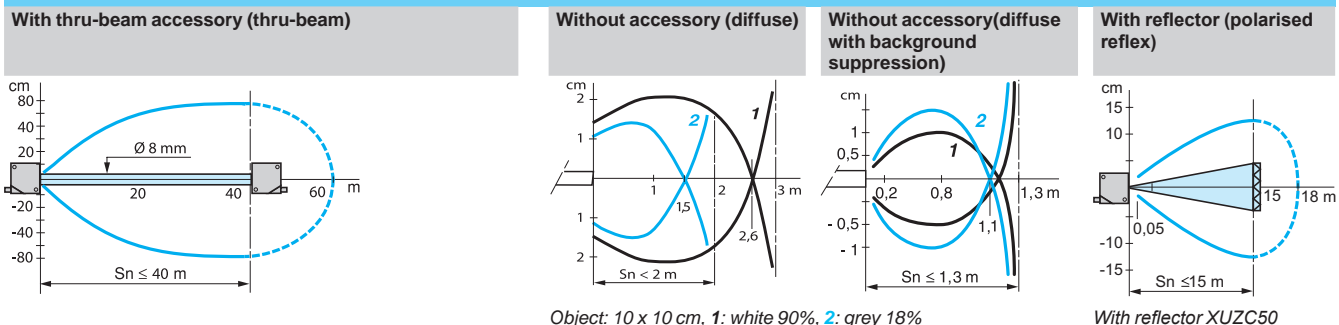
Sensor type		XUX●●●●●M12	XUX●●●●●T16
Product certifications		UL, CSA, CE	
Connection		M12 connector	Screw terminals, ISO 16 cable gland
Sensing distance nominal $S_n$ / maximum (excess gain = 2) (excess gain = 1)		<b>m</b> 1.3 / 1.3 without accessory (diffuse with background suppression)	
		<b>m</b> 2 / 3 without accessory (diffuse)	
		<b>m</b> 15 / 18 with reflector (polarised reflex)	
		<b>m</b> 40 / 60 with transmitter for thru-beam function (thru-beam)	
Type of transmission		Infrared, except for polarised reflex (red)	
Degree of protection		Conforming to IEC 60529 IP 65, IP 67, double insulation $\square$	
Storage temperature		°C -40...+70	
Operating temperature		°C -25...+55	
Materials		Case	PBT
		Lens	PMMA
Vibration resistance		Conforming to IEC 60068-2-6 7 gn, amplitude $\pm 1.5$ mm ( $f = 10$ to 55 Hz)	
Shock resistance		Conforming to IEC 60067-2-27 30 gn, duration 11 ms	
Indicator lights		Output state	Yellow LED (transmission present for XUX0●●●●●●●T)
		Supply on	Green LED
		Stability	Red LED (except for XUX0●●●●●●●T)
Rated supply voltage		PNP/NPN	V $\bar{\bar{}}$ 12...24 with protection against reverse polarity
		Relay output	V - 24...240 $\sim$ or $\bar{\bar{}}$
Voltage limits (including ripple)		PNP/NPN	V $\bar{\bar{}}$ 10...36
		Relay output	V - 20...264 $\sim$ or $\bar{\bar{}}$
Current consumption, no-load		PNP/NPN	mA $\leq 35$ (20 for XUX0●●●●●●●T)
Power consumption		Relay output	W - 2 $\sim$ or $\bar{\bar{}}$
Alarm output			mA $\leq 100$ with overload and short-circuit protection
Switching capacity		PNP/NPN	mA $\leq 100$ with overload and short-circuit protection
		Relay output	A - 500 000 operating cycles 3 A: $\cos \varphi = 1/0.5$ A: $\cos \varphi = 0.4$
Voltage drop, closed state			V $\leq 1.5$
Maximum switching frequency		PNP/NPN	Hz 240
		Relay output	Hz - 20
Time delay		Relay output	s - 0.02...15 on-delay, off-delay, monostable
Delays		First-up	ms $< 200$
		Response	ms $< 2$ (PNP/NPN); $< 25$ (relay output)
		Recovery	ms $< 2$ (PNP/NPN); $< 25$ (relay output)

## Wiring schemes

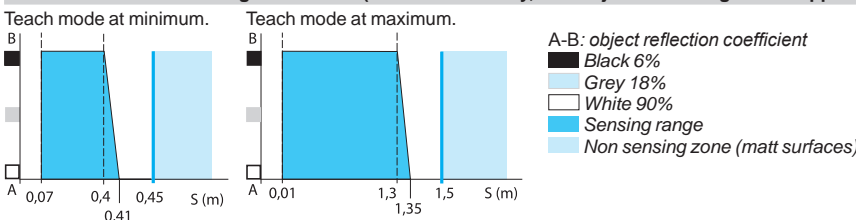
M12 connector	Relay output $\bar{\bar{}}$	PNP/NPN $\bar{\bar{}}$	Transmitter $\bar{\bar{}}$	Transmitter $\bar{\bar{}}$
	Terminals	M12 Terminals	M12 Terminals	Terminals
	1 $\bar{\bar{}}$ $\bar{\bar{}}$	1 ● 1 $\bar{\bar{}}$ +	1 ● 1 $\bar{\bar{}}$ +	1 $\bar{\bar{}}$ $\bar{\bar{}}$
	2 $\bar{\bar{}}$ $\bar{\bar{}}$	3 ● 2 $\bar{\bar{}}$ -	3 ● 2 $\bar{\bar{}}$ -	2 $\bar{\bar{}}$ $\bar{\bar{}}$
	3 NO	4 ● 3 Output	2 ● 3 Beam break input (1)	
	4 Relay common	2 ● 4 Alarm	(1) Input not connected: beam made. Input connected to -: beam broken.	
	5 NC			

Maximum permissible conductor c.s.a.: 1 x 1.5 mm<sup>2</sup> or 1 x 0.75 mm<sup>2</sup> with cable end.

## Detection curves



## Variation of usable sensing distance $S_u$ (without accessory, with adjustable background suppression)



# Photo-electric sensors

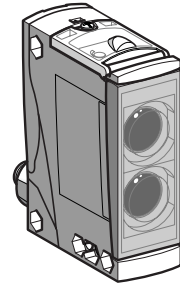
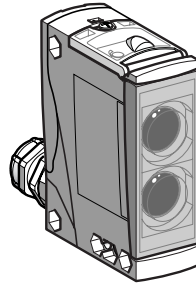
OsiSense XU, general purpose

With adjustable background suppression

Five-wire AC or DC, 1 CO relay output

Three-wire DC, solid-state output

## Compact design



System	Diffuse with adjustable background suppression, long sensing distance with high accuracy
Type of transmission	Infrared
Nominal sensing distance (Sn)	2 m

## References

5-wire, AC/DC with terminal connections and ISO 16 cable gland	NO or NC programmable function	XUX8ARCTT16	-	
3-wire, PNP or NPN programmable	NO or NC programmable function	-	XUX8AKSAT16	XUX8AKSAM12
Weight (kg)		0.200	0.200	0.200

## Characteristics

Product certifications		CE, UL, CSA
Ambient air temperature		For operation: - 25...+ 55 °C. For storage: - 40...+ 70 °C
Vibration resistance	Conforming to IEC 60068-2-6	7 gn (f = 10...55 Hz)
Shock resistance	Conforming to IEC 60068-2-27	10 gn, duration 11 ms
Degree of protection	Conforming to IEC 60529	IP 65, IP 67, double insulation (IP 30 with cover open)
Materials		Case: PC, lenses: PMMA
Connection		Terminal connections via ISO 16 cable gland (7 to 10 mm cable) M12 male connector, 4-pin, can be set at 2 positions
Rated supply voltage		~ or ≐ 24...240 V ≐ 12...24 V with protection against reverse polarity
Voltage limits		~ or ≐ 20...264 V (including ripple) ≐ 10...0.36V (including ripple)
Switching capacity (sealed)	Relay output	500 000 operating cycles; 3A Cos φ = 1; 0.5 A Cos φ = 0.4
	PNP/NPN	- ≤ 100 mA with overload and short-circuit protection
Indicator light	Output state	Yellow LED
	Supply on	Green LED
	Stability	Red LED
Voltage drop, closed state		≤ 1.5 V
Current consumption, no-load		35 mA
Maximum switching frequency	Relay output	20 Hz
	PNP/NPN	- 150 Hz
Time delay	Relay output	0.02...15 s monostable, on delay or off-delay
Delays	Relay output	First-up: ≤ 200 ms; response: ≤ 25 ms; recovery: ≤ 25 ms
	PNP/NPN	- First-up: ≤ 200 ms; response: ≤ 3.5 ms; recovery: ≤ 2.5 ms

Function table	Function	Diffuse system			
		No object present in the beam		Object present in the beam	
Output state (PNP or NPN) indicator: yellow LED (illuminated when sensor output is ON)	NO				
	NC				

# Photo-electric sensors

OsiSense XU, general purpose

With adjustable background suppression

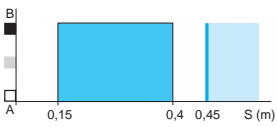
Five-wire AC or DC, 1 CO relay output

Three-wire DC, solid-state output

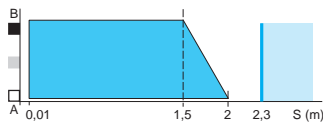
## Detection curves

### Variation of usable sensing distance $S_u$

Teach mode at minimum



Teach mode at maximum



A-B: Object reflection coefficient

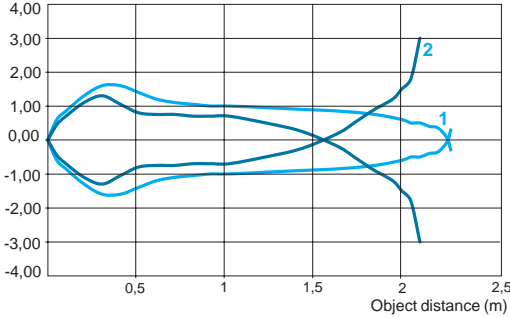
- Black 6%
- Grey 18%
- White 90%

Sensing range

Non sensing zone (Matt surfaces)

## Detection curves

Detection lobe (cm)

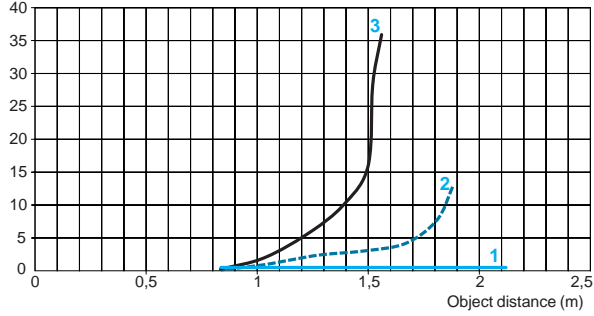


Object: 10 x 10 cm

- 1 white 90%
- 2 grey 18%

## Relative difference in sensing distances according to object colour

Relative error (%)

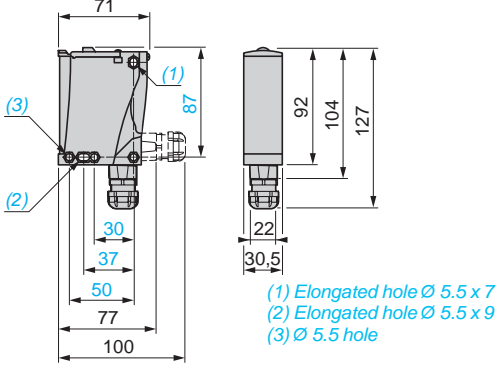


Object: 10 x 10 cm

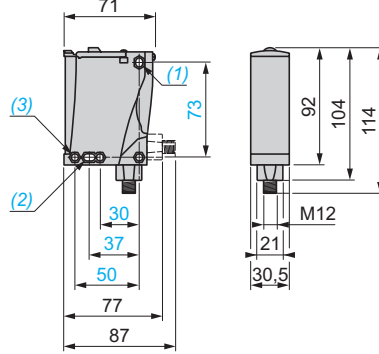
- 1 white 90%
- 2 grey 18%
- 3 black 6%

## Dimensions

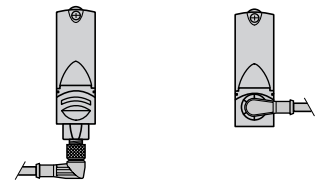
XUX●●●●T16



XUX●●●●M12



Possible orientation of elbowed connector (rear view)



## Wiring schemes

M12 connector



Relay output  $\sim$

Terminals

- 1  $\varnothing$   $\sim$
- 2  $\varnothing$   $\sim$
- 3  $\varnothing$  NO
- 4  $\varnothing$  Relay common
- 5  $\varnothing$  NC

PNP/NPN  $\text{---}$

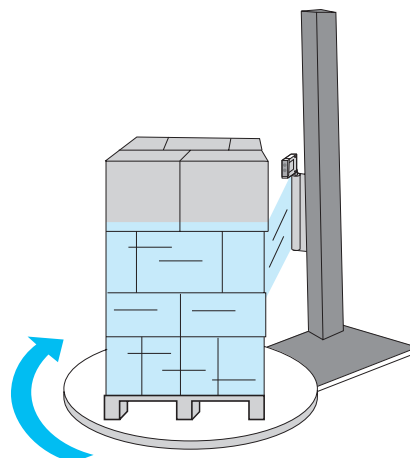
M12 Terminals

- |     |   |                              |
|-----|---|------------------------------|
| 1 ● | 1 | $\varnothing$ +              |
| 3 ● | 2 | $\varnothing$ -              |
| 4 ● | 3 | $\varnothing$ Output         |
| 2 ● | 4 | $\varnothing$ Alarm inactive |

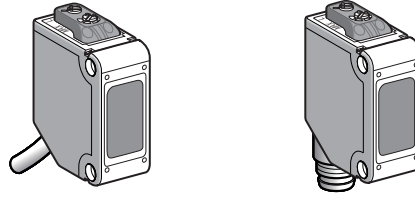
Maximum permissible conductor c.s.a.: 1 x 1.5 mm<sup>2</sup> or 1 x 0.75 mm<sup>2</sup> with cable end.

## Typical application

Wrapping system/outer wrapping



## Compact design



<b>System</b>	<b>Reflex</b>
<b>Type of transmission</b>	Infra-red
<b>Nominal sensing distance (Sn)</b>	<b>0.1...1 m with reflector XUZC50CR (1)</b> <b>0.8...2 m with reflector XUZC50 (1)</b>
<b>Adjustment</b>	270° potentiometer

## References

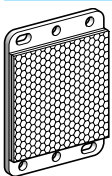
<b>3-wire</b>	NO or NC programmable function	PNP <b>XUMTAPCNL2</b>	NPN <b>XUMTANCNL2</b>	PNP <b>XUMTAPCNM8</b>	NPN <b>XUMTANCNM8</b>	PNP <b>XUMTAPCNL03M12</b>
<b>Weight (kg)</b>		0.155	0.155	0.055	0.055	0.055

## Characteristics

<b>Product certifications</b>		CE, cURus		
<b>Ambient air temperature</b>		For operation: -25...+55°C. For storage: -30...+70°C		
<b>Vibration resistance</b>	Conforming to IEC 60068-2-8	20 gn max., amplitude: 3 mm, frequency: 10...500 Hz		
<b>Shock resistance</b>	Conforming to IEC 60068-2-27	50 gn		
<b>Degree of protection</b>	Conforming to IEC 60529	IP 67		
<b>Material</b>		Case: PBT Lenses: polycarbonate		
<b>Indicator lights</b>	Output state Power on, help with setting	Orange LED Green LED		
<b>Connection</b>		2 m cable Conductor c.s.a.: 0.2 mm <sup>2</sup>	M8 4-pin connector	Remote M12 connector 0.3 m cable Conductor c.s.a.: 0.2 mm <sup>2</sup>
<b>Rated supply voltage</b>		<b>12...24 V <math>\overline{\text{DC}}</math> with protection against reverse polarity</b>		
<b>Voltage limits</b>		10...30 V $\overline{\text{DC}}$ (including ripple)		
<b>Switching capacity</b>		<b>≤ 100 mA with overload and short-circuit protection</b>		
<b>Immunity to ambient light</b>	Natural light	3000 lux		
	Incandescent bulb	3000 lux		
<b>Voltage drop, closed state</b>		< 2 V		
<b>Current consumption</b>		≤ 10 mA		
<b>Response time</b>		≤ 1 ms		

Function table	Function	Diffuse system	
		No object present in the beam	Object present in the beam
State of output (PNP or NPN) and orange LED (illuminated when sensor output is ON)	NO (position D)		
	NC (position L)		

## Accessories



XUZC50  
XUZC50CR

Description	Dimensions	Reference	Weight kg
<b>Standard reflector</b> Reflector distance from the product: 0.8 to 2 m	50 x 50 mm	<b>XUZC50</b>	0.020
<b>Application reflector</b> Reflector distance from the product: 0.2 to 1 m	50 x 50 mm	<b>XUZC50CR</b>	0.020

(1) Reflector to be ordered separately.

# Photo-electric sensors

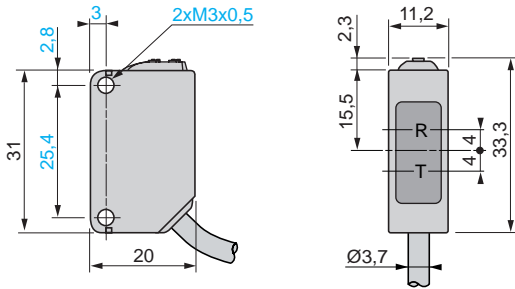
OsiSense XU, Application, packaging series

For detection of transparent materials

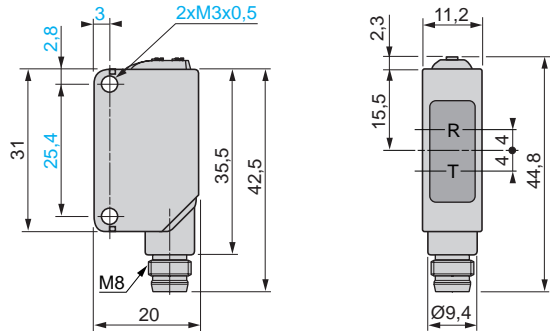
DC supply. Solid-state output

## Dimensions

XUMTAPCNL2, XUMTANCNL2 and XUMTAPCNL03M12

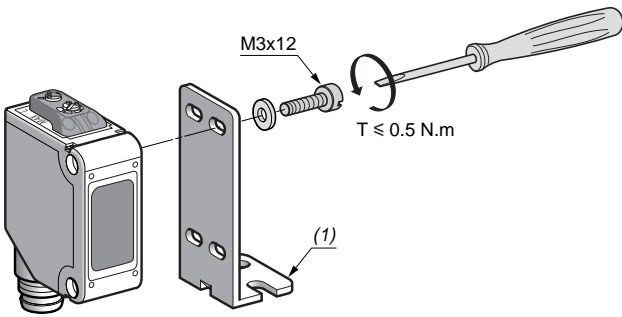


XUMTAPCNM8 and XUMTANCNM8



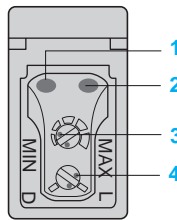
R: Reception, T: Transmission

## Mounting



(1) XUZ450, XUZAM02 or XUZAM03 metal bracket (see pages 5/34 and 5/38).

## Functions



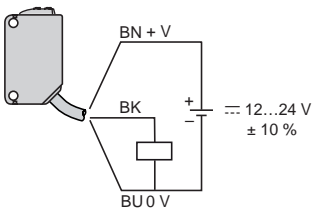
- 1 Stability indicator (green). LED on in stable detection conditions (NO or NC).
- 2 Change indicator (orange). LED lit when the detection output has been activated.
- 3 Sensitivity adjustment potentiometer.
- 4 NO/NC operating mode selector switch.

NO/NC selector switch	Function	Details
	NC (position L)	NC mode is obtained when the selector switch slot is fully turned to position L.
	NO (position D)	NO mode is obtained when the selector switch slot is fully turned to position D.

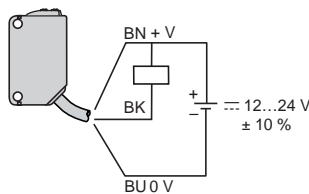
## Connections

### Wiring schemes (3-wire ---)

PNP output



NPN output



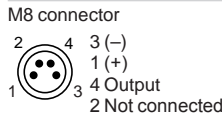
### Cable connections

XUMTA●CNL2

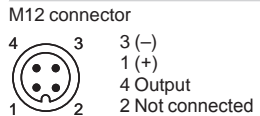
- (-) BU (Blue)
- (+) BN (Brown)
- (OUT) BK (Black)

### Connector schemes

XUMTA●CNM8



XUMTAPCNL03M12



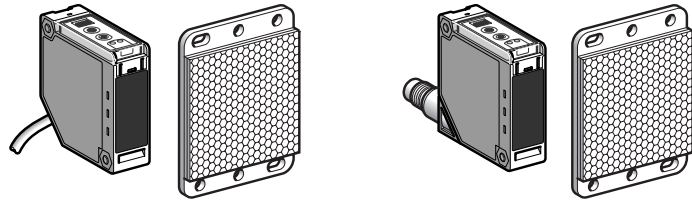
# Photo-electric sensors

OsiSense XU Application, packaging series

For detection of transparent materials, with teach mode and automatic compensation for accumulation of dirt (1)

**Solid-state** output

## Compact design



<b>System</b>	<b>Reflex</b>
<b>Type of transmission</b>	Red
<b>Nominal sensing distance (Sn)</b>	1.5 m (with 50 x 50 mm reflector)

## References

3-wire, PNP or NPN	NO or NC programmable function	<b>XUKT1KSML2 (2)</b>	<b>XUKT1KSMM12 (2)</b>
Weight (kg)		0.280	0.120

## Characteristics

<b>Product certifications</b>		CE, UL, CSA
<b>Ambient air temperature</b>	For operation	- 25...+ 55 °C
	For storage	- 30...+ 70 °C
<b>Vibration resistance</b>	Conforming to IEC 60068-2-6	7 gn (f = 10...55 Hz)
<b>Shock resistance</b>	Conforming to IEC 60068-2-27	10 gn, duration 11 ms
<b>Degree of protection</b>	Conforming to IEC 60529	IP 65
<b>Materials</b>	Case	PC
	Lenses	PMMA
	Cable	PVC
<b>Connection</b>	Pre-cabled, diameter 6 mm, length 2 m, wire c.s.a.: 4 x 0.34 mm <sup>2</sup>	M12 male connector, can be set at 2 positions (suitable female connectors, including pre-wired versions, see page 5/28)
<b>Rated supply voltage</b>	--- 12...24 V with protection against reverse polarity	
<b>Voltage limits</b>	--- 10...30 V (including ripple)	
<b>Switching capacity (sealed)</b>	≤ 100 mA with overload and short-circuit protection	
<b>Voltage drop, closed state</b>	≤ 2 V	
<b>Current consumption, no-load</b>	≤ 35 mA	
<b>Maximum switching frequency</b>	1500 Hz	
<b>Delays</b>	First-up	≤ 80 ms
	Response	≤ 0.3 ms
	Recovery	≤ 0.3 ms
<b>Time delay</b>	Monostable, on-delay or off-delay (programmable) adjustable from 0.1 to 5 seconds	

Function table	Function	Reflex system	
		No object present in the beam	Object present in the beam
Output state (PNP or NPN) indicator: yellow LED (illuminated when sensor output is ON)	NC		
	NO		

(1) Sensor memorises, in teach mode, the environmental conditions in which the object is to be detected and adapts to any variations.

(2) 50 x 50 mm reflector **XUZC50** included with the sensor.



# Photo-electric sensors

OsiSense XU Application, packaging series  
For detection of transparent materials, with teach mode  
and automatic compensation for accumulation of dirt  
Solid-state output

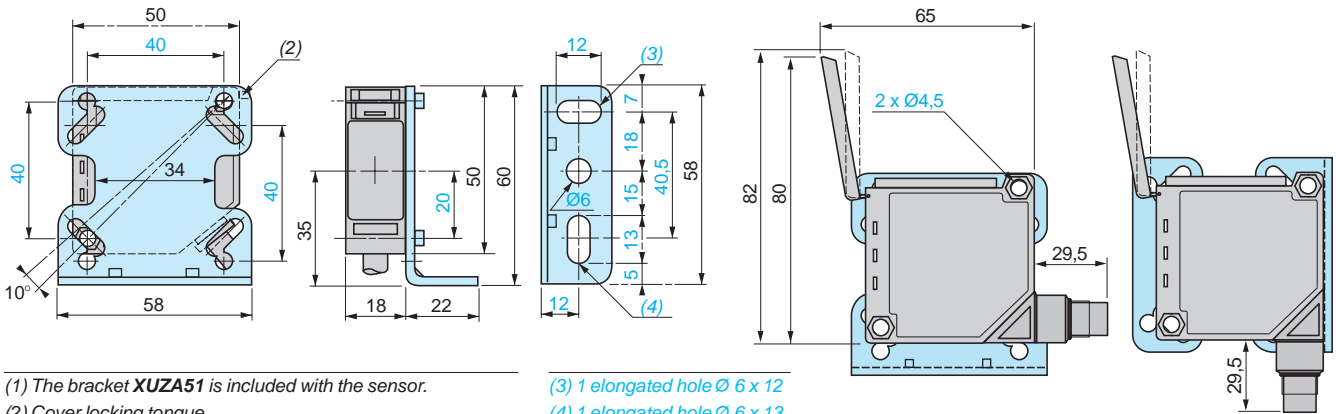
## Dimensions

XUKT1KSML2 (1)

Bracket fixing (1)

XUKT1KSMM12 with cover open

Fixing bracket mounting according to position of connector (1)



(1) The bracket XUZA51 is included with the sensor.

(2) Cover locking tongue

(3) 1 elongated hole  $\varnothing 6 \times 12$

(4) 1 elongated hole  $\varnothing 6 \times 13$

## Wiring schemes (3-wire ...)

### NC programmed

PNP programmed output

NPN programmed output

### NO programmed

PNP programmed output

NPN programmed output

### Alarm output

PNP programmed

NPN programmed

## Connection

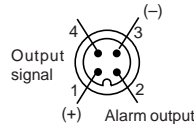
### Cable connections

XUKT1KSML2

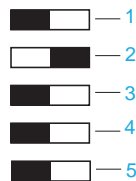
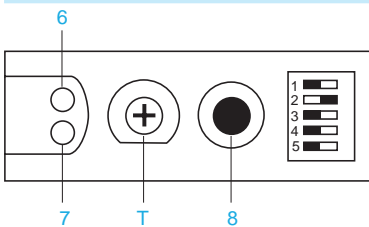
(-)	BU	(Blue)
(+)	BN	(Brown)
(OUT)	BK	(Black)
Alarm	WH	(White)

### Connector scheme

XUKT1KSMM12



## Functions



### Switches

- 1 NC/NO programming
- 2 Time delay activated or deactivated
- 3 Normal time delay or monostable
- 4 Normal time delay "On-delay" or "Off-delay"
- 5 PNP or NPN output

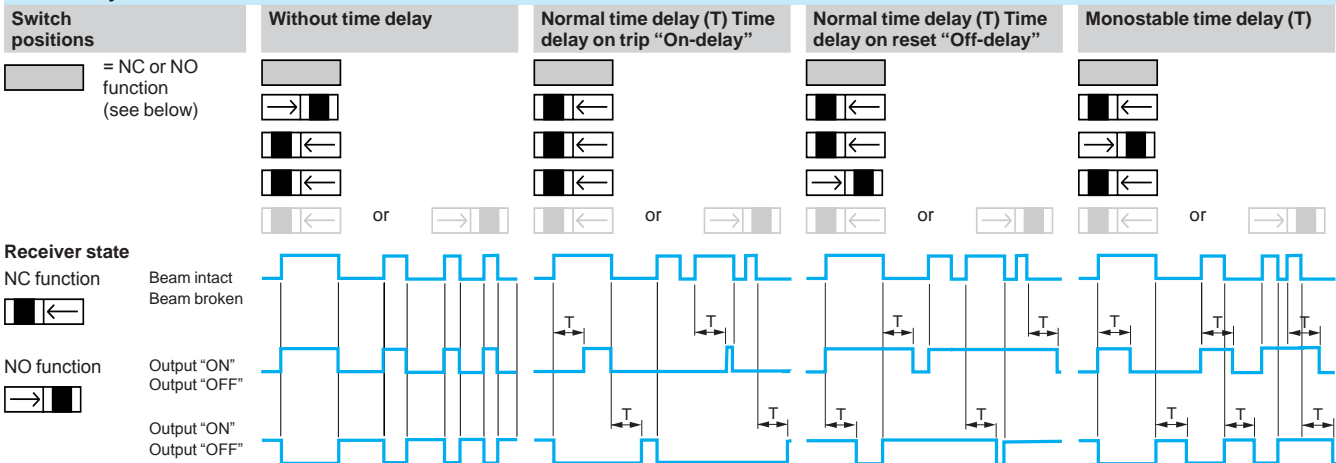
### LED

- 6 Yellow LED: output and teach mode aid
- 7 Red LED: alignment aid and alarm indicator

### Potentiometer and button

- T Time delay adjustment
- 8 Teach mode button

## Time delays



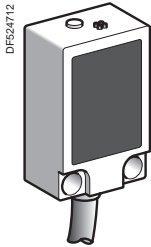
# Photo-electric sensors

## OsiSense XU Application

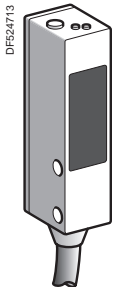
### Conveying and access control series

#### Miniature design

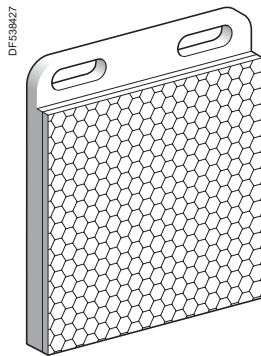
#### Four-wire DC, solid-state output



XUYPS989S●



XUYB989S●



XUY1111

Diffuse system with background suppression					
Sensing dist. (Sn) m	Function	Output	Connection	Reference	Weight kg
0.015...0.08	NO/NC depending on wiring	PNP	Pre-cabled (L = 2 m)	XUYPS989SP	0.075
			M8 connector	XUYPCO989SP	0.044
	NPN	Pre-cabled (L = 2 m)	XUYPS989SN	0.075	
		M8 connector	XUYPCO989SN	0.044	

Diffuse system with adjustable sensitivity					
Sensing dist. (Sn) m	Function	Output	Connection	Reference	Weight kg
0.03...0.25	NO/NC depending on wiring	PNP	Pre-cabled (L = 2 m)	XUYPS989SP	0.075
			M8 connector	XUYPCO989SP	0.044
	NPN	Pre-cabled (L = 2 m)	XUYPS989SN	0.075	
		M8 connector	XUYPCO989SN	0.044	

Polarised reflex system					
Sensing dist. (Sn) m	Function	Output	Connection	Reference	Weight kg
1 with 50 x 50 mm reflector	NO/NC depending on wiring	PNP	Pre-cabled (L = 2 m)	XUYB989SP (1)	0.093
			M8 connector	XUYBCO989SP (1)	0.061
	NPN	Pre-cabled (L = 2 m)	XUYB989SN (1)	0.093	
		M8 connector	XUYBCO989SN (1)	0.061	

(1) 50 x 50 mm reflector (XUY1111) and multi-adjustment fixing bracket included with sensor.

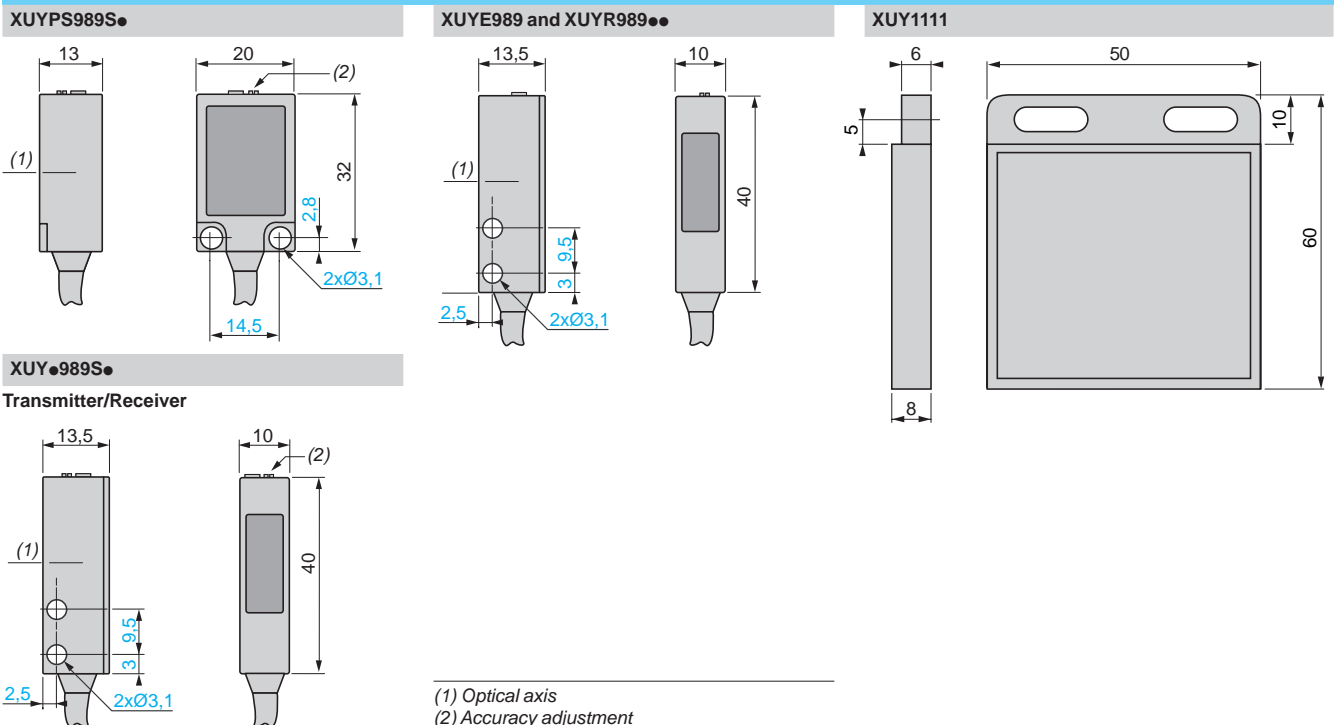
Accessory	For use with	Weight kg
Reflector, 50 x 50 mm	XUYB989S● XUY1111	0.018

Thru-beam system					
Sensing dist. (Sn) m	Function	Output	Connection	Reference	Weight kg
4 (Transmitter)	NO/NC depending on wiring	-	Pre-cabled (L = 2 m)	XUYE989	0.075
			M8 connector	XUYECO989	0.044
4 (Receiver)	NO/NC depending on wiring	PNP	Pre-cabled (L = 2 m)	XUYR989SP	0.075
			M8 connector	XUYRCO989SP	0.044
		NPN	Pre-cabled (L = 2 m)	XUYR989SN	0.075
			M8 connector	XUYRCO989SN	0.044

■ Applications:

- Monitoring position or presence of parts, with background suppression
- Detection of height of objects on a conveyor
- Detection of product, pellet, powder levels.

### Dimensions



Characteristics		XUY●●●●●	XUY●CO●●●●●
Sensor type			
Product certifications		CE, cULus (1)	
Connection	Connector	-	
	Pre-cabled	Length: 2 m	
Nominal sensing distance (Sn)		0.08 diffuse with background suppression	
		0.25 diffuse with adjustable sensitivity	
		1 polarised reflex (with 50 x 50 mm reflector)	
		4 thru-beam	
Type of transmission	LED	Red, pulsed	
	Modulation frequency	6 kHz (4 kHz for XUYPS●●989S●)	
Degree of protection		Conforming to IEC 60529 IP 65 and IP 67	
Ambient air temperature	For storage	°C	-20...+80
	For operation	°C	0...+50
Materials	Case	ABS	
	Lens	PMMA	
	Cable	PVC	PUR
Immunity to ambient light	Natural light	Lux	10 000 (insensitive for XUYPS●●989S●)
	Incandescent bulb	Lux	5000 (insensitive for XUYPS●●989S●)
Rated supply voltage		V --- 12...24 with protection against reverse polarity	
Voltage limits (including ripple)		V --- 10...30	
Current consumption, no-load		mA < 25	
Switching capacity per output		mA 100 with overload and short-circuit protection	
Voltage drop, closed state		V At 100 mA: < 2; at 10 mA: < 1	
Maximum switching frequency		Hz 500	
Delays	Response and recovery	ms	1

(1) This product is UL Listed if supplied by a class II or isolated supply delivering --- 30 V max. (isolated transformer for example) and protected by a UL fuse rated at 3 A max.

### Wiring scheme - connector

M8	Pin n° - colour
	1 BN: Brown
	2 WH: White
	3 BU: Blue
	4 BK: Black

### Transmitter

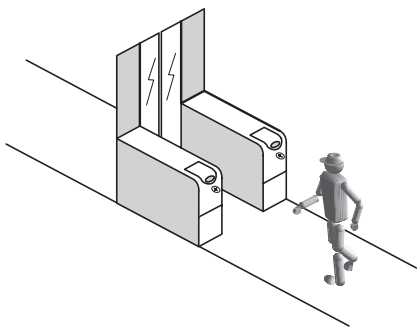
BN	--- 10-30 V	Nc: Not connected
BK	Nc	
WH	Nc	
BU	0 V	

### Wiring scheme - pre-cabled

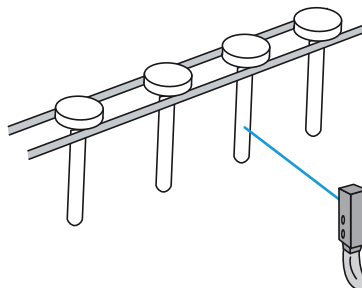
Diffuse		Polarised reflex and thru-beam	
PNP output		PNP output	
NPN output		NPN output	

### Application examples

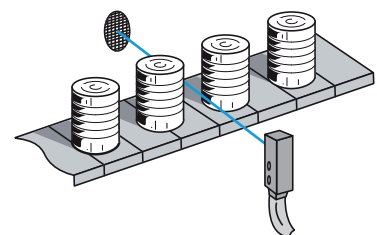
#### Access control



#### Monitoring metal rods



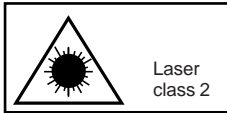
#### Detection of tin cans on a conveyor



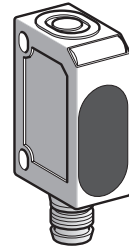
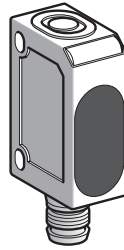
# Photo-electric sensors

OsiSense XU Application, assembly series  
Miniature design  
with laser transmission and teach mode  
Three-wire DC, solid-state output

## Miniature design



Laser class 2, conforming to IEC 825-1.  
Visible laser radiation: do not stare into beam.



<b>System</b>	<b>Polarised reflex</b>	<b>Diffuse with background suppression</b>		<b>Colour mark reader</b>
<b>Type of transmission</b>	Red laser, pulsed, Class 2, wavelength: 655 nm			
<b>Nominal sensing distance (Sn)</b>	100...1000 mm (1)	20...60 mm	30...110 mm	40...150 mm

## References

<b>4-wire, PNP output</b>	NO/NC function, selectable	<b>XUYBCO929LSP</b>	<b>XUYPSCO929L1SP</b>	<b>XUYPSCO929L2SP</b>	<b>XUYPCCO929LSP</b>
<b>Weight (kg)</b>		0.056	0.056	0.056	0.056

## Characteristics

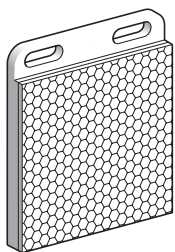
<b>Product certifications</b>		CE		
<b>Ambient air temperature</b>	For operation	- 20... + 60 °C		
	For storage	- 20... + 80 °C		
<b>Degree of protection</b>	Conforming to IEC 60529	IP 67		
<b>Connection</b>		M8, 4-pin male connector		
<b>Vibration resistance</b>	Conforming to IEC 60068-2-6	7 gn, amplitude ± 1.5 mm (f = 10 to 55 Hz)		
<b>Shock resistance</b>	Conforming to IEC 60068-2-27	30 gn, duration 11 ms		
<b>Materials</b>	Case	ABS		
<b>Rated supply voltage</b>		--- 12...24 V with protection against reverse polarity		
<b>Voltage limits (including ripple)</b>		--- 10...30 V		
<b>Immunity to ambient light</b>		5000 lux		
<b>Laser transmission</b>		T pulse: 3 µs, pulse frequency: 5 kHz		
<b>Spot diameter</b>		< 0.7 mm	< 0.3 ... 40 mm	< 0.7 mm
<b>Switching capacity</b>		100 mA with overload and short-circuit protection		
<b>Voltage drop, closed state</b>		< 2.4 V		
<b>Current consumption, no-load</b>		25 mA	30 mA	25 mA
<b>Maximum switching frequency</b>		1000 Hz		
<b>Indicator lights</b>	Supply on/Dirty	Green LED		
	Output signal	Yellow LED		
<b>Adjustment</b>		Using teach mode button or remote teaching (external input)		

(1) With 50 x 50 mm reflector, reference XUY1111.

### Applications

- Monitoring of small parts on production machines
- Setting-up of sensors

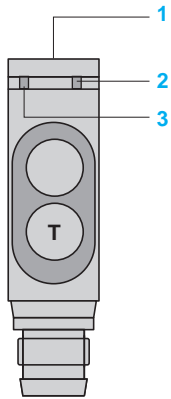
## Accessories



XUY1111

Description	Details	Length of cable	References	Weight
		m		kg
<b>Pre-wired M8 connector</b>	Straight	2	XZCP0941L2	0.080
	Elbowed (90°)	2	XZCP1041L2	0.080
	Straight	5	XZCP0941L5	0.180
	Elbowed (90°)	5	XZCP1041L5	0.180
<b>Reflector for XUYBCO929LSP</b>	50 x 50 mm	–	XUY1111	0.018
<b>Fixing bracket</b>			XUY929	0.013
<b>Protection bracket</b>	Vertical rear fixing		XUY9291	0.070
	Lower side fixing		XUY9292	0.061

### Description



#### XUYBC0929LSP

- 1 Teach In (T.I.)
- 2 Yellow LED: Detection LED (1)
- 3 Green LED: Supply on or fault due to accumulation of dirt (if LED off)

- **Teach mode** (yellow and green LEDs are on)
  - Line up with reflector, press T.I. for 3 seconds: both LEDs flash
  - Insert the object, press T.I. for 1 second: the green LED flashes then remains on (teaching completed).

#### XUYPSCO929L●SP, XUYPCCO929LSP

- 1 Teach In (T.I.)
- 2 Yellow LED: Detection LED
- 3 (2)  
Green LED: Supply on or fault due to accumulation of dirt (if LED off)

- **Teach mode** (yellow and green LEDs are on)
  - Line-up with object, press T.I. for 3 seconds: both LEDs flash
  - Insert the object, press T.I. for 1 second: the green LED flashes then remains on (teaching completed)

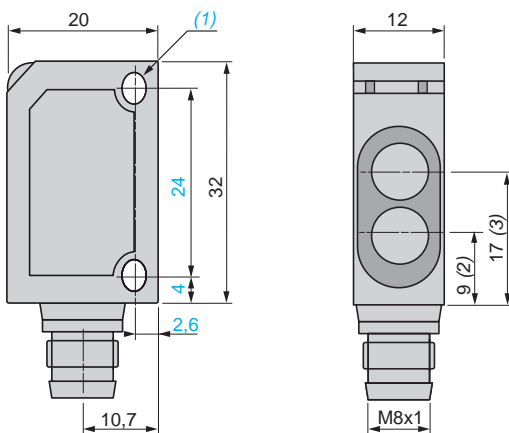
R: Receiver  
T: Transmitter

- NO/NC** ■ Press T.I. for 13 seconds: the two LEDs alternatively flash (on the release of T.I., the green LED remains on).  
 ■ Each press on T.I. changes the output state (NO, NC, NO, NC, ...). When T.I. is not pressed for 10 seconds, the green LED goes off: the selected state is memorised.

(1) Whether the output is direct or inverse, the "detection" LED goes off only on beam break.  
 (2) Whether the output is direct or inverse, the "detection" LED comes on only when an object is present.

### Dimensions

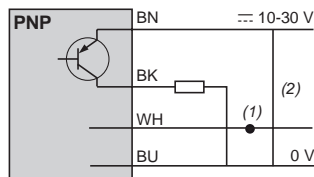
#### XUYBC0929LSP, XUYPSCO929L●SP



(1) 2 elongated holes  $\varnothing 3.2 \times 4.2$ .  
 (2) Transmitter optical axis.  
 (3) Receiver optical axis.

### Wiring schemes

#### Pre-cabled



(1) - Connected to +: external teaching,  
 - Connected to -: locking of functions  
 (2) Output 100 mA max.

#### M8 connector

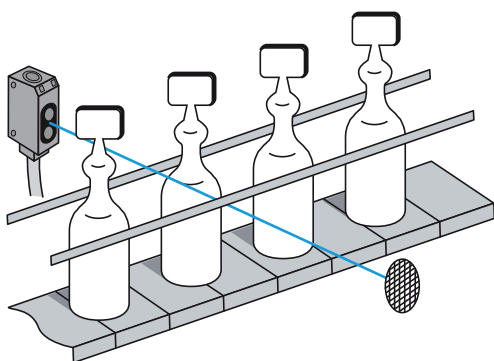


#### Pin n° - colour

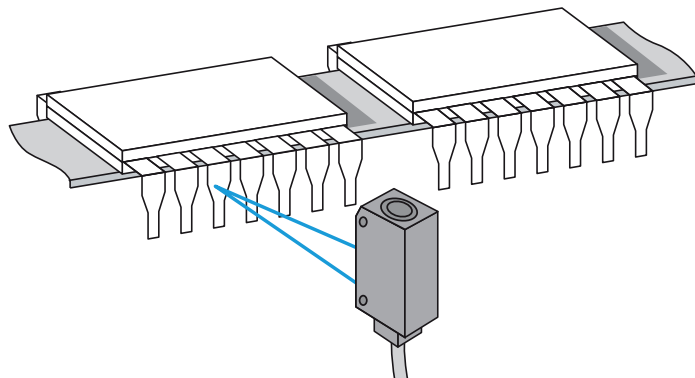
- 1 BN: Brown
- 2 WH: White
- 3 BU: Blue
- 4 BK: Black

### Application examples

#### Detection of pharmaceutical ampoules



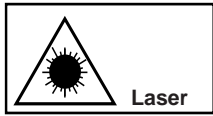
#### Detection of connection tags on integrated circuits passing on rail



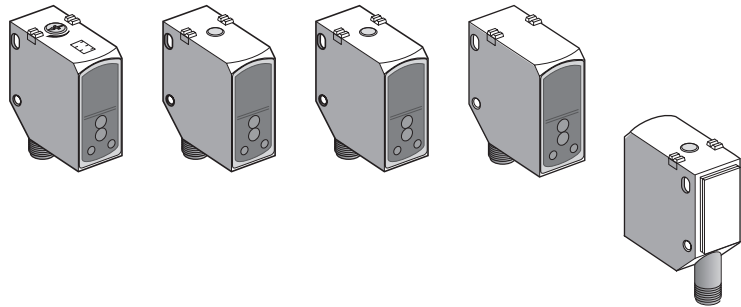
# Photo-electric sensors

OsiSense XU Application, single mode  
Assembly series  
Plastic, M12 connector  
DC

Compact design



Class 1 or class 2 laser,  
conforming to IEC 60825-1  
Visible laser radiation:  
do not stare into beam



System	Diffuse with background suppression	Diffuse	Polarized reflex	Thru-beam
Type of transmission	Red laser (655 nm) class 1	Red laser (650 nm) class 2	Red laser (655 nm) class 1	Red laser (655 nm) class 1
Nominal sensing distance (Sn)/Maximum sensing distance	5...800 mm, on white 90% (1) 10...600 mm, on grey 18% 30...500 mm, on black 6% (2)	5...1200 mm, on white 90% 10...700 mm, on grey 18% 100...400 mm, on black 6% (2)	0.3...12/14 m (with reflector XUZC50HP)	0...25/30 m

References

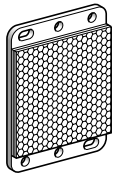
4-wire, PNP NO/NC programmable	XUK8LAPPNM12	XUK5LAPSMM12	XUK9LAPSMM12	Transmitter: XUK2LAKSMM12T	Receiver: XUK2LAPSMM12R
Weight (kg)	0.035	0.035	0.035	0.035	0.035

Characteristics

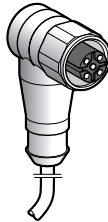
Product certifications	ECOLAB, CE, cULus					
Connection	M12, 4-pin connector					
Degree of protection	Conforming to IEC 60529	IP 67				
	Conforming to DIN 40050	IP 69K				
Ambient air temperature	For operation	-20...+60°C				
	For storage	-20...+80°C				
Material	Case	PC - ABS anti-shock				
	Lenses	PMMA				
Vibration resistance	Conforming to EN/IEC 60068-2-6	Amplitude ±0.5 mm (f = 10 to 55 Hz)				
Shock resistance	Conforming to EN/IEC 60068-2-27	30 gn, duration 11 ms				
Indicator lights	Output state	Yellow LED	Yellow LED	Yellow LED	–	Yellow LED
	Instability/alignment	Yellow LED, flashing/–			–/–	Yellow LED, flashing/ Red LED
	Supply on	Green LED				
Rated supply voltage	12...30 V $\overline{\text{DC}}$	10...30 V $\overline{\text{DC}}$				
Voltage limits (including ripple)	10.8...33 V $\overline{\text{DC}}$ /9...33 V $\overline{\text{DC}}$					
Current consumption, no-load	< 30 mA					
Switching capacity	≤ 100 mA, with protection against reverse polarity and short-circuit					
Test function	Breaking red beam	–	–	–	Yes	–
Voltage drop, closed state	≤ 2.4 V					
Maximum switching frequency	1000 Hz	600 Hz	2000 Hz	–	3500 Hz	
Delays	First-up	< 300 ms				
	Response	0.5 ms	0.8 ms	0.25 ms	–	0.14 ms
	Recovery	0.5 ms	0.8 ms	0.25 ms	–	0.14 ms

(1) On the minimum setting, the background suppression distance (white) is 70 mm.  
(2) % of object remission.

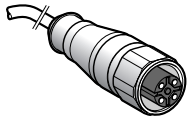
## References of accessories



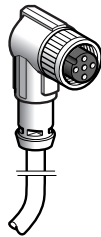
XUZC50HP



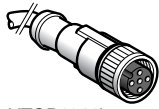
XZCPA1241L5



XZCPA1141L5



XZCPA1241L5



XZCP1141L5

Description	Dimensions	Reference	Weight kg
<b>Fixing bracket</b> 304 stainless steel	–	XUZA51S	0.050
<b>Protection bracket</b> 304 stainless steel	–	XUZASK001	0.210
<b>Mounting bracket on dovetail</b>	–	XUZASK002	0.050
<b>Rigid microprism reflector</b>	50 x 50 mm	XUZC50HP	0.020

### Pre-wired connectors with PVC cable for food and beverage applications

<b>Straight pre-wired connector</b> M12, 4-pin, female connector, stainless steel clamping ring	5 m	XZCPA1141L5	0.210
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<b>Elbowed pre-wired connector</b> M12, 4-pin, female connector, stainless steel clamping ring	5 m	XZCPA1241L5	0.210
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### Pre-wired connectors with PUR cable for industrial applications

<b>Straight pre-wired connector</b> M12, 4-pin, female connector, nickel-plated brass clamping ring	5 m	XZCP1141L5	0.210
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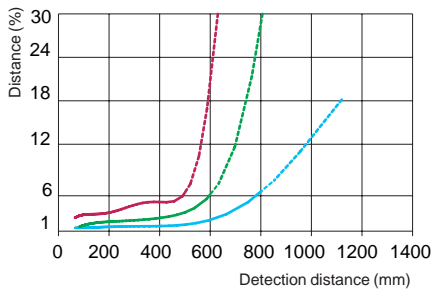
<b>Elbowed pre-wired connector</b> M12, 4-pin, female connector, nickel-plated brass clamping ring	5 m	XZCP1241L5	0.210
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**Note:** To find other connection accessories, please consult our catalogue "OsiSense XZ cabling accessories".

## Curves

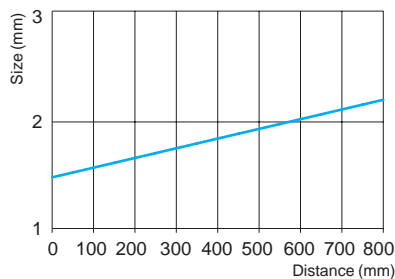
### XUK8LAPPNM12

#### Scanning properties



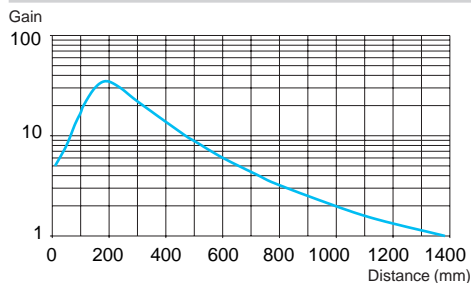
— Black/white 6%/90%  
— Grey/white 18%/90%  
— White/white 90%/90%

#### Size of luminous point

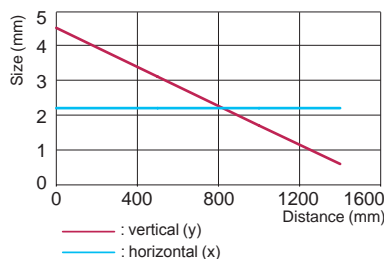


### XUK5LAPSM12

#### Excess gain curve



#### Size of luminous point



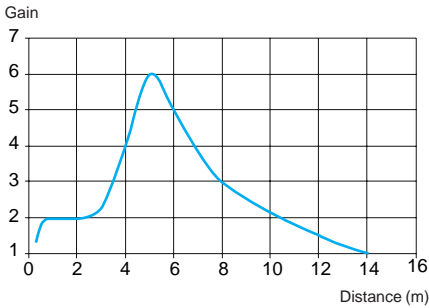
— : vertical (y)  
— : horizontal (x)



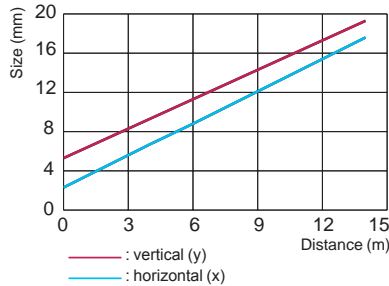
**Curves (continued)**

**XUK9LAPSMM12**

**Excess gain curve**

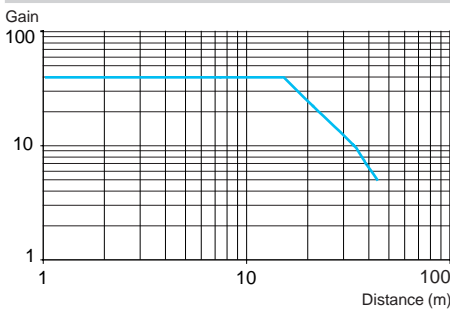


**Size of luminous point**

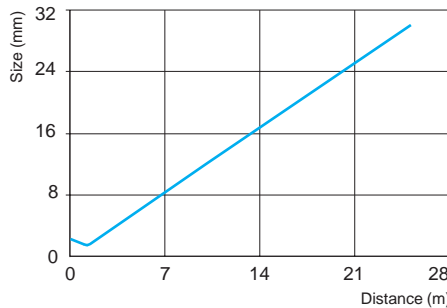


**XUK2LAKSMM12T and XUK2LAPSMM12R**

**Excess gain curve**



**Size of luminous point**



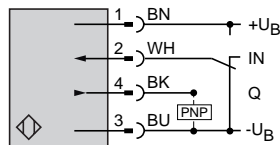
5

**Wiring schemes using M12 connector**

**XUK8LAPPNM12**



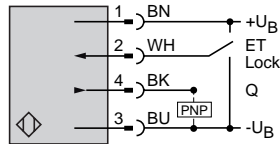
- 1 **BN**: Brown (+)
- 2 **WH**: White
- (+UB = NC, -UB = NO, not connected = NO)
- 3 **BU**: Blue (-)
- 4 **BK**: Black (Output)



**XUK5LAPSMM12, XUK9LAPSMM12 and XUK2LAPSMM12R**



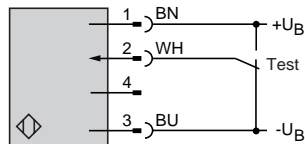
- 1 **BN**: Brown (+)
- 2 **WH**: White (ET/Lock) (1)
- 3 **BU**: Blue (-)
- 4 **BK**: Black (Output)



**XUK2LAPSMM12T**



- 1 **BN**: Brown (+)
- 2 **WH**: White (Test input) (2)
- 3 **BU**: Blue (-)
- 4 **BK**: Black (pin not connected)



(1) ET/Lock. ET: External Teach, Lock: pushbutton locking.

+UB: external teach. -UB: pushbutton locking.

Not connected: normal operation.

(2) Test input: +UB = test function (transmitter disconnected). -UB or not connected = normal operation.

# Photo-electric sensors

OsiSense XU Application, single mode

Assembly series

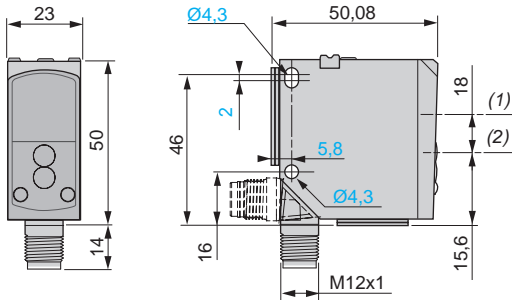
Plastic, M12 connector

DC

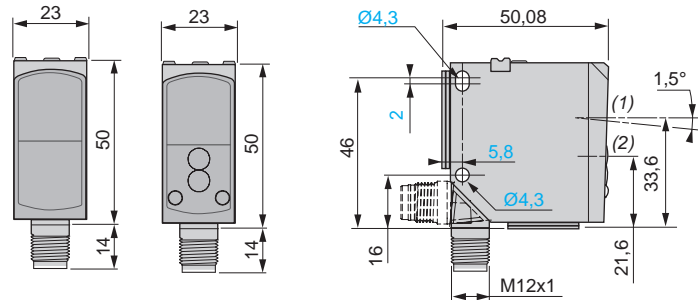
## Dimensions

### Sensors

#### XUK8LAPPNM12

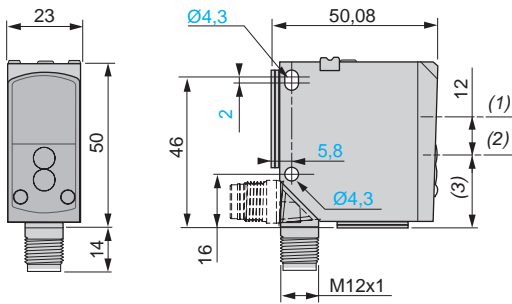


#### XUK2LAKSMM12T and XUK2LAPSMM12R



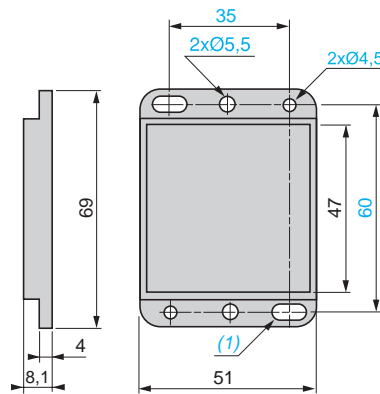
### Sensors (continued)

#### XUK5LAPSMM12 and XUK9LAPSMM12



### Reflector

#### XUZC50HP



- (1) Receiver optical axis.
- (2) Transmitter optical axis.
- (3) 21.4 mm for XUK5LAPSMM12,  
21.6 mm for XUK9LAPSMM12.

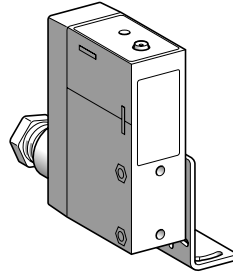
- (1) 2 elongated holes for M4 screws.

# Photo-electric sensors

OsiSense XU Application, material handling series

With analogue output signal 4...20 mA and 0...10 V <sup>(1)</sup>  
DC supply. Solid-state output

**Compact design**



System	Diffuse
Type of transmission	Infrared
Nominal sensing distance (Sn)	20...80 cm

**References**

3-wire	PNP	XUJK803538
Weight (kg)		0.200

**Characteristics**

Product certifications		CE, CSA, UL
Ambient air temperature	For operation	- 25...+ 60 °C
	For storage	- 40...+ 80 °C
Vibration resistance	Conforming to IEC 60068-2-6	7 gn, amplitude ± 1.5 mm (f = 10...55 Hz)
Shock resistance	Conforming to IEC 60068-2-27	20 gn, duration 11 ms
Degree of protection	Conforming to IEC 60529	IP 67
	Conforming to NF C 20-010	IP 671
Connection		Screw terminals, maximum capacity: 2 x 1.5 mm <sup>2</sup> or 1 x 2.5 mm <sup>2</sup>
Materials		Case: PEI (2)
Rated supply voltage		--- 24 V with protection against reverse polarity
Voltage limits (including ripple)		--- 20...30 V
Output current	Maximum	20 mA
	Minimum	4 mA
Output voltage (Vs)		--- 0...10 V
Output voltage drift in relation to temperature		< 10% between - 25 and + 60 °C
Output voltage drift in relation to object colour		< 10%
Current consumption, no-load		≤ 35 mA
Maximum switching frequency		10 Hz (for an output voltage variation of 1 V)
Delays	First-up	≤ 150 ms
Indicator light		The brightness of the LED is proportional to the output voltage

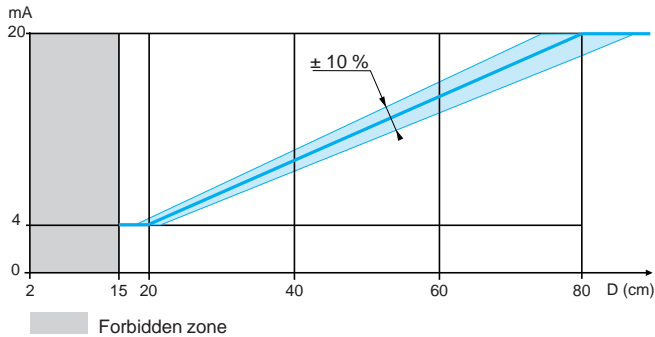
(1) Applications: position control, monitoring concentricity or eccentricity, closed loop regulation, monitoring displacement, etc.  
 (2) PEI: high quality synthetic resin providing excellent withstand to mechanical shocks, vibration and the effects of external agents frequently encountered in industry: alcohol, salts, petroleum, oils, greases, washing agents (diluted sodium carbonate 4%, nitric acid 2%), formaldehyde vapour, splashing lactic acid, etc.

5

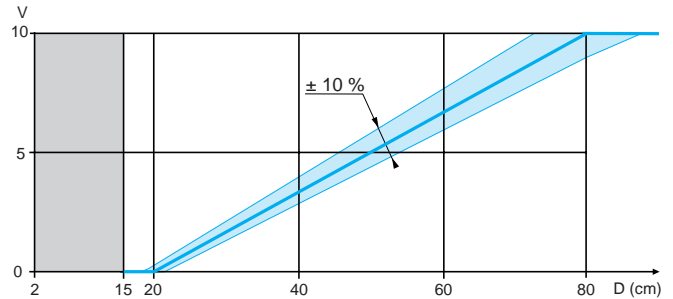
## Curves

Output signal (related to distance of object). Test performed with 20 x 20 cm, white 90% object

Output current

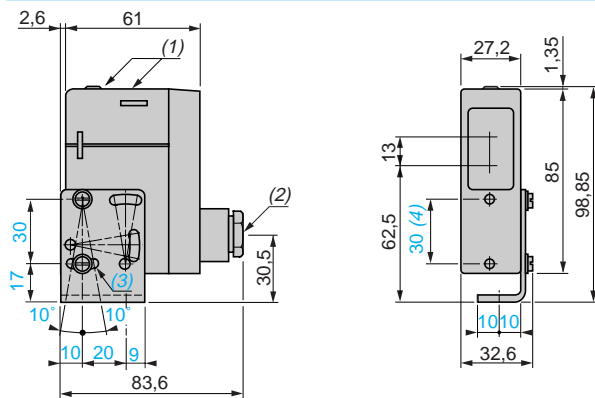


Output voltage



## Dimensions

Sensor XUJK803538 (the bracket XUZA41 is included with the sensor)



(1) LED.

(2) 11P cable gland.

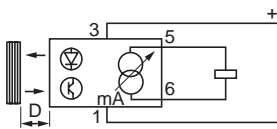
(3) 1 elongated hole  $\varnothing 4.2 \times 14$ .

(4) Front fixing ( $\varnothing 4$  screws and inserts included).

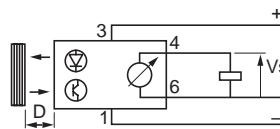
## Wiring schemes

Diffuse system

Current output



Voltage output



## Load characteristics

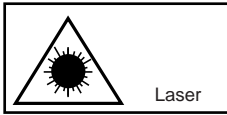
- Output current: the output current varies between 4 and 20 mA depending on the distance of the object and therefore, the load must be less than 1 k $\Omega$ .
- Voltage output: since the minimum rated output current of the sensor is 10 mA, the load must always have a resistive value of more than 1 k $\Omega$ .

## Terminal connections

- 1  $\varnothing$  - (-)
- 2  $\varnothing$
- 3  $\varnothing$  - (+)
- 4  $\varnothing$  - Output voltage
- 5  $\varnothing$  - Output current
- 6  $\varnothing$  - (-)

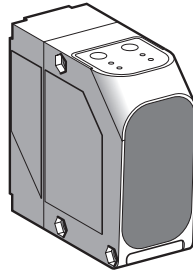
Terminals 1 and 6 connected internally.

#### Design 90 x 90 mm



Laser class 1, conforming to IEC 60825-1  
Laser class 2 pointer, conforming to IEC 60825-1

Visible laser radiation:  
do not stare into beam



System	Object distance sensor	Reflector distance sensor
Type of transmission	Infrared laser, class 1 (905 nm) Red laser pointer, class 2 (650 nm) (1)	
Measuring distance	0.2...6 m (on white 90%) 0.2...6 m (on grey 18%) 0.2...2.5 m (on black 6%) (2)	0.2...30 m (with reflector XUZC250)

#### References

5-wire solid-state outputs (x 2) analog output (x 1)	PNP, 4...20 mA	XUE5AA2NM12	XUE1AA2NM12
Weight (kg)		0.2	0.2

#### Characteristics

Product certifications	cULus, CE		
Connection	M12, 5-pin connector		
Degree of protection	Conforming to IEC 60529	IP 67	
Vibration resistance	Conforming to EN/IEC 60947-5-2 and IEC 60947-4-2	Amplitude $\pm 0.5$ mm (f = 10 to 55 Hz)	
Shock resistance	Conforming to EN/IEC 60947-5-2 and IEC 60947-4-1	30 gn, duration 11 ms	
Ambient air temperature	For operation	- 20...+ 50 °C	
	For storage	- 40...+ 80 °C	
Repeat accuracy (analog output) (3)		Fast mode: $\pm 15$ mm Slow mode: $\pm 10$ mm	Fast mode: $\pm 10$ mm Slow mode: $\pm 5$ mm
Fast mode/slow mode (response time)		13 ms/80 ms	30 ms/65 ms
Linearity		$\leq \pm 40$ mm	$\leq \pm 60$ mm
Materials	Case	ABS, mechanical shocks resistant	
	Lenses	PMMA	
Rated supply voltage	18...30 V $\overline{\text{---}}$		
Voltage limits (including ripple)	$\pm 10\%$ of rated operational voltage		
Immunity to ambient light	Conforming to EN/IEC 60947-5-2		
Output signal	Solid-state outputs: 2 x PNP analog output: 4...20 mA		
Light spot size		4 x 7 mm at 2 m 3 x 10 mm at 4 m 4 x 12 mm at 6 m	15 x 20 mm at 10 m 30 x 40 mm at 20 m 45 x 60 mm at 30 m
Switching capacity	100 mA, with protection against reverse polarity, overload and short-circuit		
Voltage drop, closed state	$\leq 2.4$ V		
Current consumption, no-load	$\leq 125$ mA on 24 V $\overline{\text{---}}$		
Maximum switching frequency	Fast mode: 38 Hz Slow mode: 16 Hz		
Indicator lights	Output state	2 yellow LEDs	
	Supply on	1 green LED	
	Slow mode	1 orange LED	
	Parametering	4 red LEDs	
Parametering	By 2 buttons: Set and Toggle		

(1) In operating mode, the red laser class 2 pointer can be stopped for working on infrared transmission.

(2) % of object remission.

(3) Information taken into account after 30 minutes.

# Photo-electric sensors

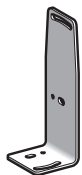
OsiSense XU Application

Material handling series

With solid-state and analogue output signal 4...20 mA

Laser transmission

## References of accessories



XUZA618



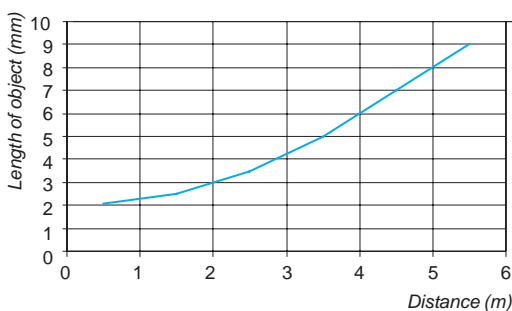
XZCC12FCM50B

Description	For use with	Dimensions (mm)	Reference	Weight kg
<b>Fixing bracket</b> (screws, nuts and washers included)	XUE5AA2NM12 XUE1AA2NM12	–	<b>XUZA618</b>	0.062
<b>Adhesive reflector</b>	XUE1AA2NM12	250 x 250	<b>XUZC250</b>	0.040
<b>Straight connector, wired by user</b> M12, 5-pin female	XUE5AA2NM12 XUE1AA2NM12	–	<b>XZCC12FDM50B</b>	0.020
<b>Elbowed connector, wired by user</b> M12, 5-pin female	XUE5AA2NM12 XUE1AA2NM12	–	<b>XZCC12FCM50B</b>	0.020

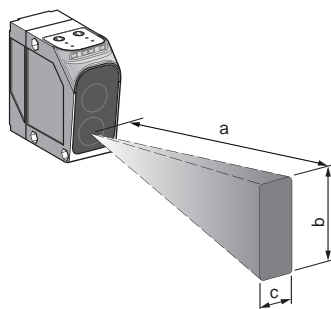
## Presentation

Minimum size of detectable object related to distance

XUE5AA2NM12



Light spot size (not visible)

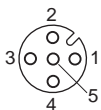


	XUE5AA2NM12				XUE1AA2NM12			
<b>a</b> (m)	0	2	4	6	0	10	20	30
<b>b</b> (mm)	10	7	10	12	10	20	40	60
<b>c</b> (mm)	5	4	3	4	5	15	30	45

Note: Typical values for application involving measurements on a square white object

## Wiring schemes

M12 connector



Pin n°/colour

1 BN: Brown

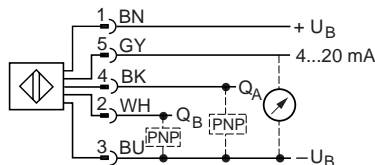
2 WH: White

3 BU: Blue

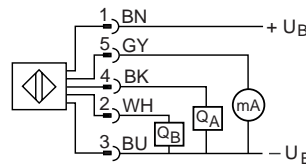
4 BK: Black

5 GY: Grey

XUE5AA2NM12

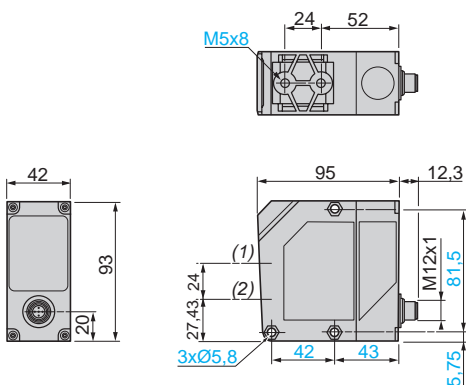


XUE1AA2NM12

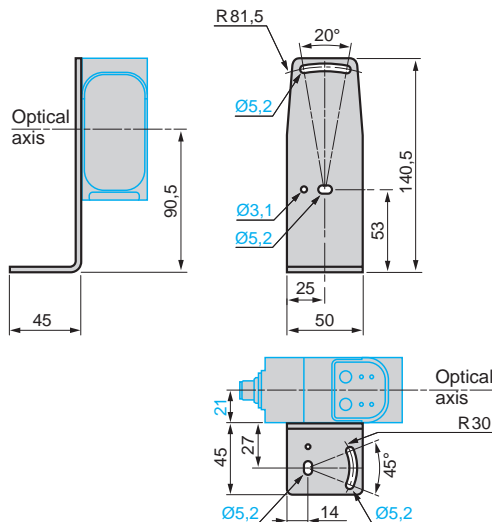


## Dimensions

XUE5AA2NM12 and XUE1AA2NM12



XUE5AA2NM12 and XUE1AA2NM12 with fixing bracket XUZA618



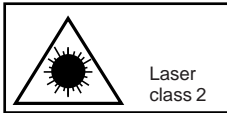
(1) Receiver optical axis.  
(2) Transmitter optical axis.

# Photo-electric sensors

OsiSense XU Application, material handling series

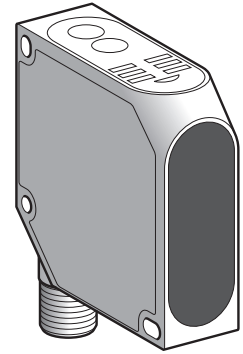
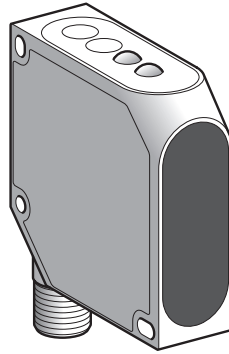
With analogue output signal 0...10 V or 4...20 mA  
Laser transmission

## Compact design, 50 x 50



Laser class 2, conforming to IEC 825-1

Visible laser radiation: do not stare into beam.



<b>System</b>	Diffuse		
<b>Type of transmission</b>	Red laser, pulsed, Class 2, wavelength: 670 nm		
<b>Measuring distance</b>	40...60 mm	45...85 mm	80...300 mm

## References

<b>3-wire, PNP output</b>	XUYPC0925L1ANSP	XUYPC0925L2ANSP	XUYPC0925L3ANSP
<b>Weight (kg)</b>	0.057	0.057	0.057

## Characteristics

<b>Product certifications</b>	CE		
<b>Ambient air temperature</b>	For operation	0...+45 °C	
	For storage	-20...+60 °C	
<b>Degree of protection</b>	Conforming to IEC 60529	IP 67	
<b>Resolution</b>		7 µm	20 µm
<b>Linearity</b>		< 1%	
<b>Temperature stability</b>		10 µm/K	18 µm/K
<b>Connection</b>	M12 male connector with alternative orientations		
<b>Vibration resistance</b>	Conforming to IEC 60068-2-6	7 gn, amplitude ± 1.5 mm (f = 10 to 55 Hz)	
<b>Shock resistance</b>	Conforming to IEC 60068-2-27	30 gn, duration 11 ms	
<b>Materials</b>	Case	ABS, anti-shock	
<b>Rated supply voltage</b>	⎓ 24 V with protection against reverse polarity		
<b>Voltage limits (including ripple)</b>	⎓ 18...28 V		
<b>Immunity to ambient light</b>	5000 lux		
<b>Output signal</b>		0...10 V	4...20 mA
<b>Output activation time (from 10...90%)</b>		30 ms	
		0.4 ms (fast speed mode) 40 ms (medium speed mode)	
<b>Laser transmission</b>	T pulse: 8 µs, pulse frequency: 6 kHz, time base: 250 ms		
<b>Spot diameter</b>	< 1 mm at 50 mm	< 0.8 mm at 65 mm	1.5 x 3.5 mm at 80 mm
<b>Switching capacity</b>	3 mA with overload and short-circuit protection		
<b>Voltage drop, closed state</b>	< 2.4 V		
<b>Current consumption, no-load</b>	35 mA		≤ 40 mA on ⎓ 24 V
<b>Maximum switching frequency</b>	40 Hz		
<b>Indicator lights</b>	Dirty	Red LED	
	Supply on	Green LED	
<b>Parametering</b>	-		By buttons

■ Applications: position control of robot arm, measuring thickness of mechanical parts.

## Accessories

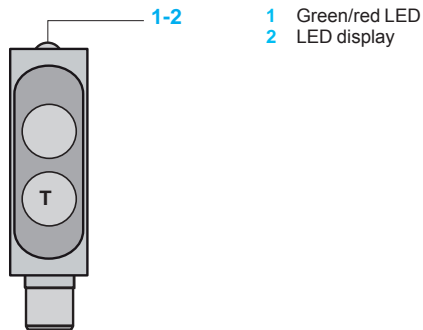
Description	Details	Length of cable m	References	Weight kg
<b>Pre-wired M12 connector</b>	Straight, 4-pin	2	XZCP1141L2	0.090
		5	XZCP1141L5	0.190
	Straight, 5-pin	2	XZCP1164L2	0.115
		5	XZCP1164L5	0.270
<b>Fixing bracket (1)</b>	Stainless steel 316	-	XUZA51S	0.050

(1) For further information, see page 5/160.



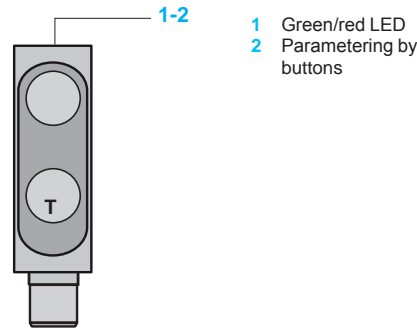
### Presentation

XUYPCO925L1ANSP, XUYPCO925L2ANSP



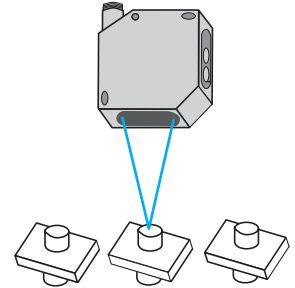
R: Receiver  
T: Transmitter

XUYPCO925L3ANSP



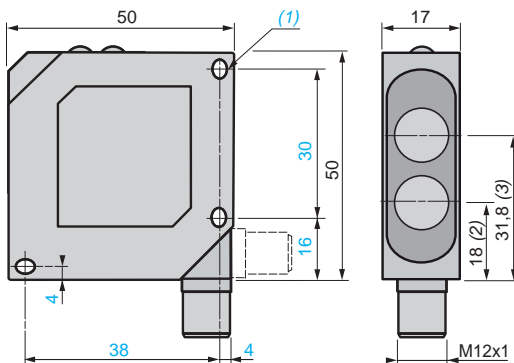
Application example

Monitoring dimensions in series

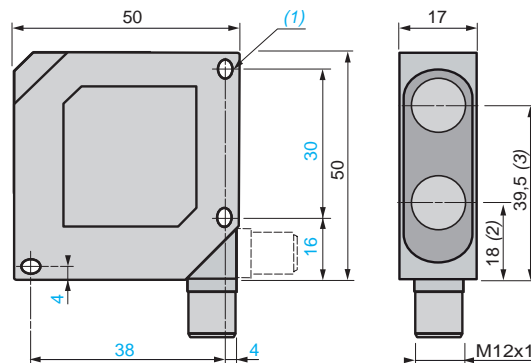


### Dimensions

XUYPCO925L1ANSP, XUYPCO925L2ANSP



XUYPCO925L3ANSP



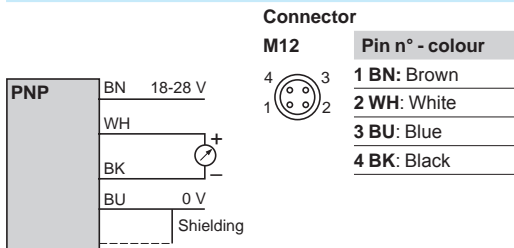
(1) 2 elongated holes  $\varnothing 4.3 \times 4$ .

(2) Transmitter optical axis.

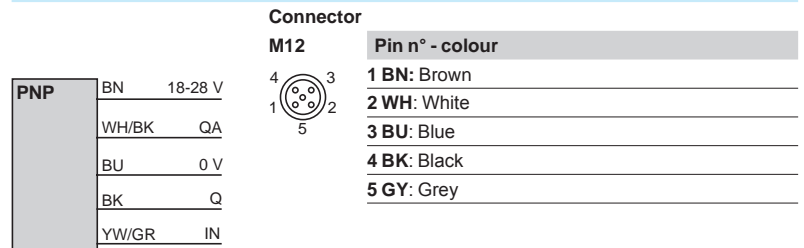
(3) Receiver optical axis.

### Wiring schemes

XUYPCO925L1ANSP, XUYPCO925L2ANSP



XUYPCO925L3ANSP



Note: Shielded cable recommended.

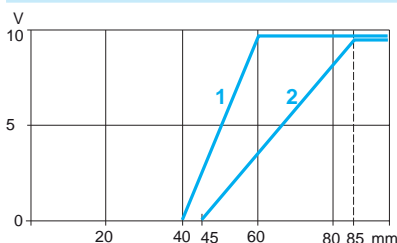
QA: 4-20 mA analogue output ( $R \leq 500 \Omega$ )

Q: Switching output

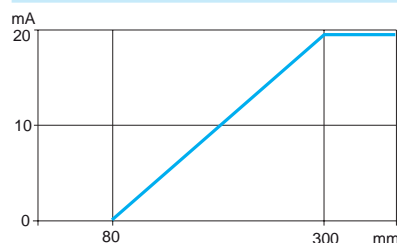
IN: Control input (YW/GR: Yellow/green)

### Adjustment curves

XUYPCO925L1ANSP, XUYPCO925L2ANSP



XUYPCO925L3ANSP



1 XUYPCO925L1ANSP  
2 XUYPCO925L2ANSP

# Photo-electric sensors

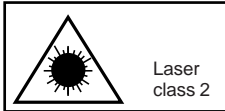
OsiSense XU Application, material handling series

Diffuse, with laser transmission

With background suppression

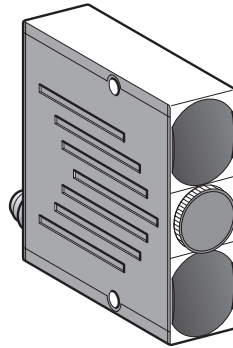
DC supply. Solid-state output

## Compact design



Laser class 2, conforming to IEC 60825-1

Visible laser radiation: do not stare into beam.



<b>System</b>	<b>Diffuse with background suppression</b>
<b>Type of transmission</b>	<b>Red laser, pulsed, Class 2, wavelength: 675 nm</b>
<b>Detection distance</b>	<b>Adjustable from 50 to 300 mm</b>
<b>Minimum size of object</b>	<b>0.5 mm</b>

## References

<b>4-wire, PNP and NPN output</b>	NO/NC depending on wiring	<b>XUYPS1LCO965S</b>
<b>Weight (kg)</b>		0.081

## Characteristics

<b>Product certifications</b>		CE, cULus (1)
<b>Ambient air temperature</b>	For operation	0...+ 50 °C
	For storage	- 20...+ 80 °C
<b>Degree of protection</b>	Conforming to IEC 60529	IP 65
<b>Connection</b>		M8, 4-pin male connector (for pre-cabled version please consult our Customer Care Centre)
<b>Materials</b>	Case	Glass impregnated nylon
	Lens	PMMA
<b>Rated supply voltage</b>		⎓ 12...24 V with protection against reverse polarity
<b>Voltage limits (including ripple)</b>		⎓ 10...30 V
<b>Immunity to ambient light</b>	Incandescent bulb	500 lux
	Natural light	10 000 lux
<b>Laser transmission</b>	Pulsed laser LED	T pulse: 6 µs, T period < 50 µs
<b>Spot size</b>		Manual adjustment of focusing
<b>Switching capacity</b>		<b>100 mA with overload and short-circuit protection</b>
<b>Voltage drop, closed state</b>		< 2 V
<b>Current consumption, no-load</b>		35 mA
<b>Maximum switching frequency</b>		<b>5 kHz</b>
<b>Delays</b>	Response and recovery	< 150 µs
<b>Indicator lights</b>	Time delay active	Red indicator
	Output state	Green indicator
	NO function	Red indicator
	NC function	Indicator off
<b>Output signal time delay</b>		40 ms, depending on wiring

(1) This product is UL Listed if supplied by a class II or isolated supply delivering ⎓ 30 V max. (isolated transformer for example) and protected by a UL fuse rated at 3 A max.

**Applications:** monitoring of small parts on production machine, detection of components on a printed circuit, monitoring for crack on a component, control of level, suppression of a background.

## Accessories

Description	Details	Length of cable	References	Weight
		m		kg
<b>Pre-wired M8 connector</b>	Straight	2	<b>XZCP0941L2</b>	0.080
	Elbowed (90°)	2	<b>XZCP1041L2</b>	0.080
	Straight	5	<b>XZCP0941L5</b>	0.180
	Elbowed (90°)	5	<b>XZCP1041L5</b>	0.180

# Photo-electric sensors

OsiSense XU Application, material handling series

Diffuse, with laser transmission

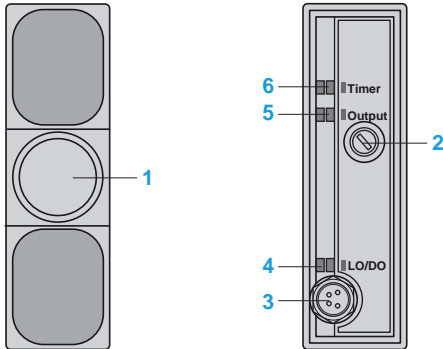
With background suppression

DC supply. Solid-state output

## Presentation

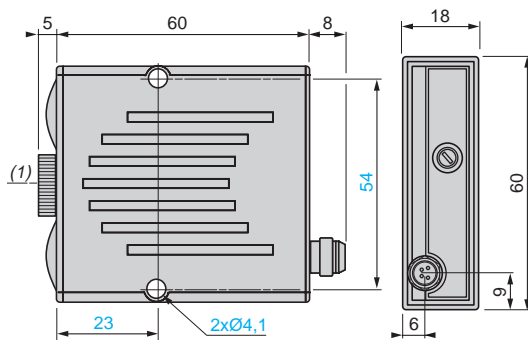
XUYPS1LCO965S

Rear view



- 1 Adjustment of spot size
- 2 Detection distance adjustment screw
- 3 M8 connector
- 4 On: NO function  
Off: NC function
- 5 Object detected
- 6 Time delay active

## Dimensions

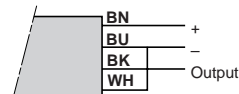


(1) Optical axis of laser

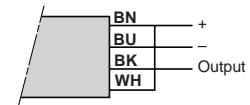
## Wiring schemes

### NO function

Without time delay

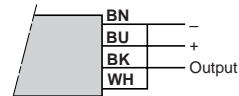


With 40 ms time delay

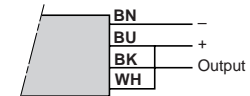


### NC function

Without time delay



With 40 ms time delay



### M8 connector



#### Pin n° - colour

1 BN: Brown

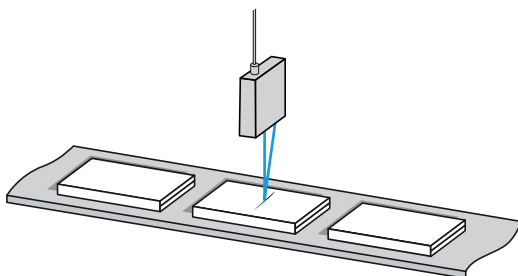
2 WH: White

3 BU: Blue

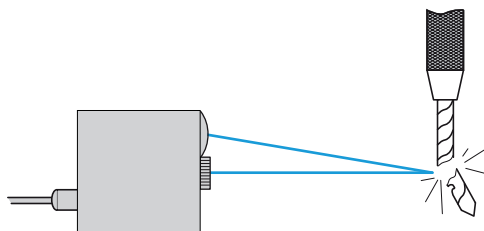
4 BK: Black

## Application examples

Monitoring for crack in a component



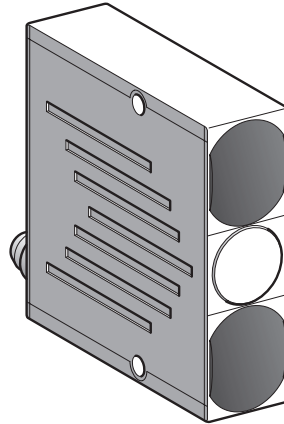
Monitoring for a broken punch on press tool



# Photo-electric sensors

OsiSense XU Application, material handling series  
Diffuse, with 2 channels using triangulation  
with background suppression  
DC supply. Solid-state output

## Compact design



System	Diffuse with background suppression
Type of transmission	Infrared LED, modulated, Ø 15 mm beam
Detection distance	Adjustable from 50 to 600 mm

## References

4-wire, PNP and NPN output	NO/NC programmable function	XUYPS2945S	XUYPS2C0945S
Weight (kg)		0.135	0.055

## Characteristics

Product certifications		CE, cULus (1)
Ambient air temperature	For operation	0...+ 50 °C
	For storage	- 20...+ 80 °C
Degree of protection	Conforming to IEC 60529	IP 65
Connection		Pre-cabled, length 2 m   M8, 4-pin male connector
Materials	Case	Glass impregnated nylon
Rated supply voltage		⎓ 12...24 V with protection against reverse polarity
Voltage limits (including ripple)		⎓ 10...30 V
Immunity to ambient light	Incandescent bulb	1300 lux
	Natural light	10 000 lux
Switching capacity		100 mA with overload and short-circuit protection
Voltage drop, closed state		< 2 V
Current consumption, no-load		< 1.5 W
Maximum switching frequency		370 Hz
Delay	Response and recovery	< 1.8 ms
Output signal time delay	For A and B/A or B (2)	Determined by wiring
Indicator light	Output signal	Green LED

(1) This product is UL Listed if supplied by a class II or isolated supply delivering ⎓ 30 V max. (isolated transformer for example) and protected by a UL fuse rated at 3 A max.

(2) See next page

- Applications:
- Control of filling, detection of object on conveyor against reflective background.

## Accessories

Description	Details	Length of cable	References	Weight
		m		kg
Pre-wired M8 connector	Straight	2	XZCP0941L2	0.080
	Elbowed (90°)	2	XZCP1041L2	0.080
	Straight	5	XZCP0941L5	0.180
	Elbowed (90°)	5	XZCP1041L5	0.180

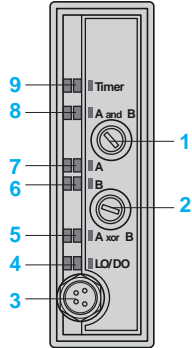
# Photo-electric sensors

OsiSense XU Application, material handling series  
Diffuse, with 2 channels using triangulation  
with background suppression  
DC supply. Solid-state output

## Presentation

XUYPS2945S, XUYPS2CO945S

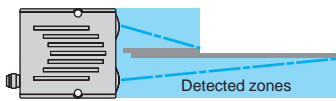
Rear view



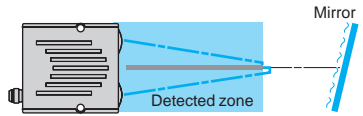
- 1 Adjustment of zone A detection distance
- 2 Adjustment of zone B detection distance
- 3 Pre-cabled connection (XUYPS2945S) or M8 connector (XUYPS2CO945S)
- 4 On in direct mode
- 5 Illuminates when the "exclusive OR" function between the two zones A and B is obtained
- 6 On when the object is present
- 7 in zone B
- 8 On when the object is present in zone A
- 9 Illuminates when the "AND" object logic function between the two zones A and B is obtained
- 5 & 8 obtained
- Indicates time delay mode
- Simultaneously on when the "OR" logic function between the 2 zones A or B is obtained

## Description (4 operating modes)

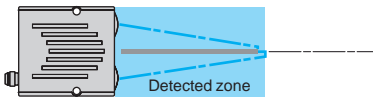
Two independent sensors with triangulation: A, B



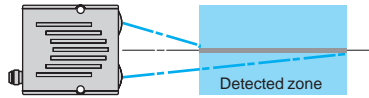
Immunity to reflection: A and B



Detection of contrasting objects: A or B

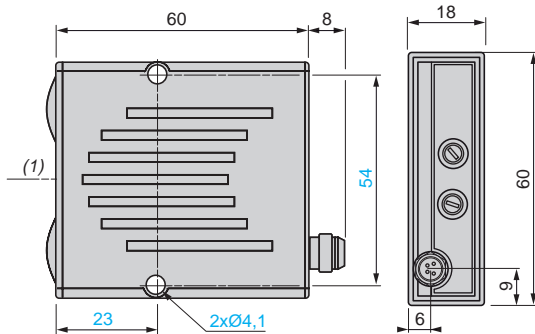


Monitoring of distance: A xor B



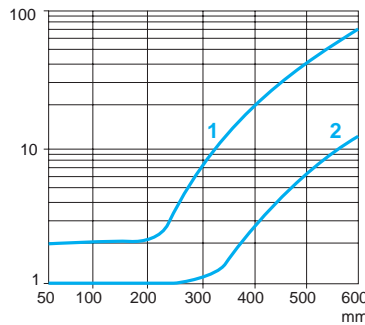
## Dimensions

XUYPS2945S, XUYPS2CO945S



## Detection curves (typical)

XUYPS2945S, XUYPS2CO945S



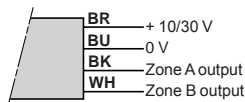
- 1 Black 6%
- 2 Grey 18% - Distance (mm) set on 92% (Kodak 1527795)

(1) Optical axis.

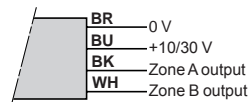
## Wiring schemes and outputs

Two independent sensors with triangulation: A, B

NO output



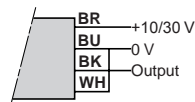
NC output



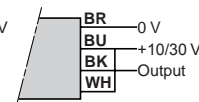
Immunity to reflection: A and B

Without time delay

NO output

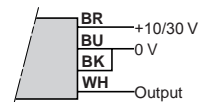


NC output

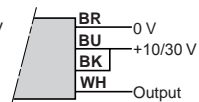


With 40 ms time delay

NO output

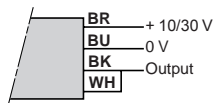


NC output

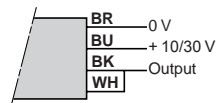


Detection of contrasting objects: A or B

NO output



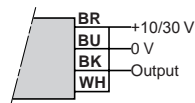
NC output



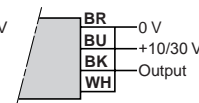
Monitoring of distance: A xor B

Without time delay

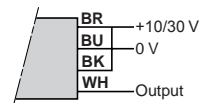
NO output



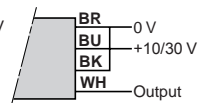
NC output



NO output



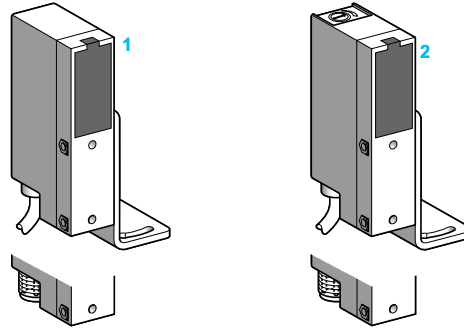
NC output



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

## Compact design

### Pre-cabled and connector versions



System	Reflex 1	Polarised reflex 1	Diffuse 2
Type of transmission	Infrared	Red	Infrared
Nominal sensing distance (Sn)	6 m (with Ø 80 mm reflector)	4 m (with Ø 80 mm reflector)	0.7 m

## References

2-wire	NC function	Connection	Pre-cabled	XULA06021	XULA040219	XULA700115
			Connector	XULA06021K	XULA040219K	XULA700115K
	NO function	Connection	Pre-cabled	XULA06011	XULA040119	XULA700215
			Connector	XULA06011K	XULA040119K	XULA700215K
Weight (kg)		Connection	Pre-cabled	0.195		
			Connector	0.135		

## Characteristics

Product certifications		CE, Special H7 version: UL, CSA	
Ambient air temperature	For operation	-25...+ 60 °C	
	For storage	-40...+ 80 °C	
Vibration resistance	Conforming to IEC 60068-2-6	7 gn, amplitude ± 2 mm (f = 10...55 Hz)	
Shock resistance	Conforming to IEC 60068-2-27	20 gn, duration 11 ms	
Degree of protection	Conforming to IEC 60529	IP 65	
	Conforming to NF C 20-010	IP 651	
Connection	Pre-cabled	Diameter 6 mm, length 2 m (1), wire c.s.a.: 2 x 0.34 mm <sup>2</sup>	
	Connector	1/2"-20UNF	
Materials	Case	ABS/PC	
	Lenses	PMMA	
	Cable	PVC	
Rated supply voltage		~ or --- 24...240 V	
Voltage limits		~ or --- 20...264 V	
Switching capacity (2)	Sealed	Maximum	~ 12 or --- 12 (resistive load): 0.5 A/240 V ~ 140 (inductive load): 0.3 A/240 V --- 13 (inductive load): 0.1 A/240 V; 0.2 A/110 V; 0.5 A/48 V
		Minimum	5 mA
Inrush		3000 mA	
Voltage drop, closed state		≤ 3 V (I = 0.1...0.5 A); ≤ 5.5 V (I = 10 mA); ≤ 10 V (I = 5 mA)	
Residual current, open state		≤ 1.7 mA (on ~); ≤ 1.5 mA (on ---)	
Maximum switching frequency		20 Hz	
Delays	First-up	≤ 300 ms	
	Response	≤ 20 ms	
	Recovery	≤ 20 ms	

Function table	Function	Reflex system		Diffuse system		
		No object present in the beam	Object present in the beam	No object present in the beam	Object present in the beam	
Output state indicator (illuminated when sensor output is ON)	NC			NO		
	NO			NC		

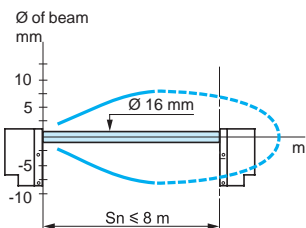
(1) For a sensor with a 5 m long cable add L05 to the end of the reference; for a 10 m long cable add L10 to the end of the reference.

Example: sensor XULA06021 with 5 m cable becomes XULA06021L05

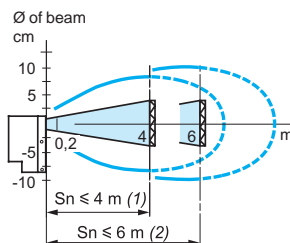
(2) These sensors do not incorporate overload or short-circuit protection and therefore, it is strongly advised to connect a "quick-blow" fuse in series with the load.

## Detection curves

### Thru-beam system

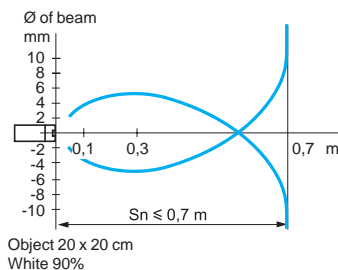


### Reflex system



(1) Polarised  
(2) Infrared

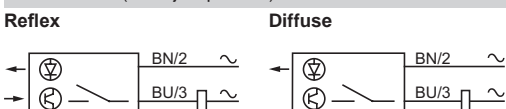
### Diffuse system



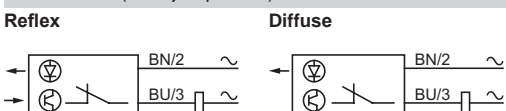
## Schemes

### Wiring schemes (2-wire ~)

#### NO function (no object present)



#### NC function (no object present)



**Attention:** it is essential to connect a load in series with the sensor

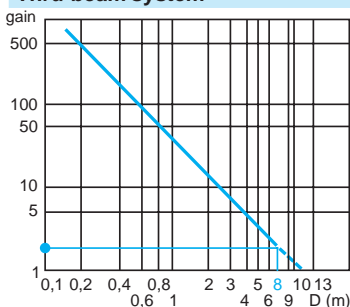
### Connector scheme (sensor connector pin view)

#### Solid-state output (reflex and diffuse system)

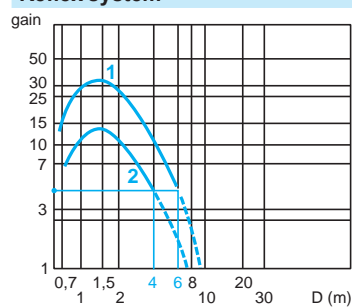


## Excess gain curves (ambient temperature: + 25 °C)

### Thru-beam system



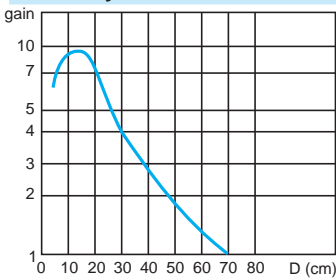
### Reflex system



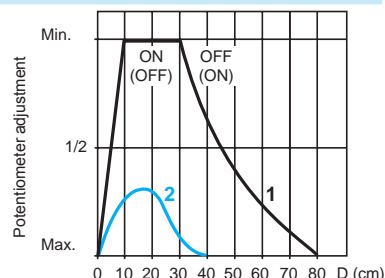
With reflector XUZC80

1 Infrared  
2 Polarised

### Diffuse system



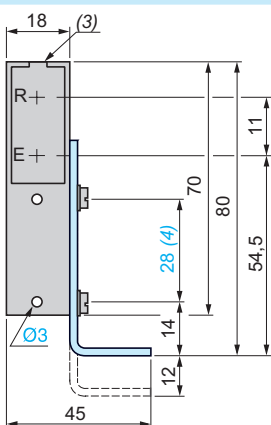
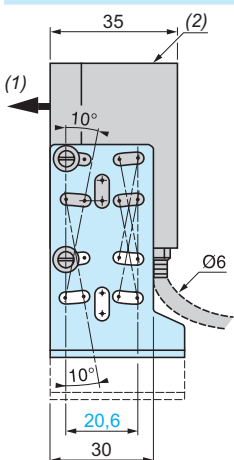
Object 20 x 20 cm  
White 90%



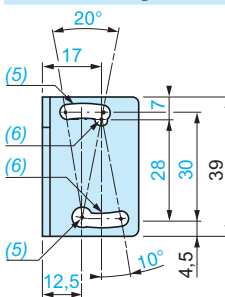
Object 20 x 20 cm  
1 White 90%  
2 grey 18%

## Dimensions (The bracket XULZ41 is included with the sensor)

### Sensor



### Bracket fixing



(1) Optical axis  
(2) Sensitivity potentiometer (diffuse model)  
(3) Output LED indicator

(4) Front fixing (Ø 3 screws and inserts included)  
(5) 1 elongated hole Ø 4.1 x 10 and 1 x Ø 4.1  
(6) 1 elongated hole Ø 3.1 x 10 and 1 x Ø 3.1



# Photo-electric sensors

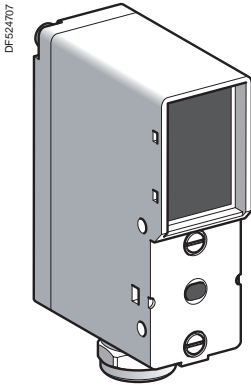
OsiSense XU Application

Conveying and access control series

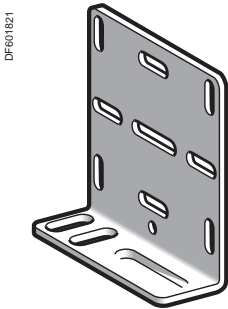
Compact design with teach mode adjustment

Five-wire AC or DC, 1 CO relay output

Three-wire DC, solid-state output



XUY●95●●



XUZA49

Diffuse system (1)				
Sensing distance (Sn) m	Function	Output	Reference	Weight kg
<b>DC</b>				
1.5	NO/NC programmable	PNP/NPN	XUYYP954S	0.130
4	NO/NC programmable	PNP/NPN	XUYYP952S	0.130
<b>AC or DC</b>				
1.5	NO/NC programmable	Relay	XUYYP954R	0.150
4	NO/NC programmable	Relay	XUYYP952R	0.150
Polarised reflex system (2)				
Sensing distance (Sn) m	Function	Output	Reference	Weight kg
<b>DC</b>				
6	NO/NC programmable	PNP/NPN	XUYB954S	0.130
10	NO/NC programmable	PNP/NPN	XUYB952S	0.130
<b>AC or DC</b>				
6	NO/NC programmable	Relay	XUYB954R	0.150
10	NO/NC programmable	Relay	XUYB952R	0.150
Fixing accessory				
Description			Reference	Weight kg
Metal fixing bracket			XUZA49	0.120

(1) On 300 x 300 mm white paper

(2) With Ø 84 mm reflector

## Characteristics

		XUY P954S	XUY P954R	XUY P952S	XUY P952R	XUY B954S	XUY B954R	XUY B952S	XUY B952R
<b>Product certifications</b>		CE, cULus for XUYP954S/952S and XUYB954S/952S							
<b>Connection</b>		Screw terminals							
<b>Nominal sensing distance (Sn)</b>	m	1.5		4		6		10	
Adjustment using teach (fine or standard mode)									
<b>Type of transmission</b>	LED	Infrared				Red			
<b>Degree of protection</b>	Conforming to IEC 60529	IP 65 and IP 67							
<b>Ambient air temperature</b>	For storage	°C - 20...+ 80							
	For operation	°C 0...+ 60							
<b>Materials</b>		Polycarbonate							
<b>Immunity to ambient light</b>	Incandescent bulb	Lux 10 000 at 5° to the optical axis							
	Natural light	Lux 20 000 at 5° to the optical axis							
<b>Indicator lights</b>	Green LED	Output signal							
	Red LED	Dirty optics, limit of detection, alignment assistance, time delay active, time function indicator							
<b>Voltage limits</b>	⎓ 10...30 V	●	–	●	–	●	–	●	–
(including ripple)	~ 20...250 V	–	●	–	●	–	●	–	●
<b>Current consumption, no-load</b>		<b>mA</b> 50	–	50	–	50	–	50	–
		<b>VA</b> –	2	–	2	–	2	–	2
<b>Type of output</b>		PNP/NPN Relay		PNP/NPN Relay		PNP/NPN Relay		PNP/NPN Relay	
<b>Switching capacity</b>	PNP/NPN Relay	<b>mA 100 with overload and short-circuit protection</b>							
		<b>A 3 (max. continuous)</b>							
<b>Voltage drop, closed state</b>	PNP/NPN	V At 100 mA: < 2; at 10 mA: < 1							
<b>Maximum switching frequency</b>		<b>Hz</b> 1000	25	60	25	1000	25	60	25
<b>Delays</b>	Response and recovery	ms 0.5		8		20		0.5	
		20		8		20		8	
<b>Test input</b>	Active	V < 1.4		–		< 1.4		–	
	Inactive	V > 3		–		> 3		–	
<b>Output time delay</b>	Type	Retriggerable: leading edge and/or trailing edge							
	Duration of each increment	ms 0 to 11 s in 23 adjustment increments of 50 ms, then 0.5 s per press							
<b>Adjustment</b>		Using teach mode and/or fine manual adjustment							

- Applications
- Detection of belt breakage
- Material handling
- Access control

# Photo-electric sensors

OsiSense XU Application

Conveying and access control series

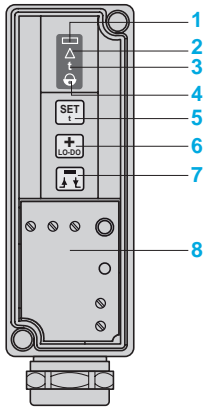
Compact design with teach mode adjustment

Five-wire AC or DC, 1 CO relay output

Three-wire DC, solid-state output

## Description

Rear view



Indicator lights

- Output signal: Green LED
- 1 - Dirty optics: Red LED
- Limit of detection: Red LED
- 2 - Alignment assistance: flashing red LED
- Activation/adjustment of time delay: Red LED
- 3 - Action keypad
- Keypad: Action/Locking
- 4

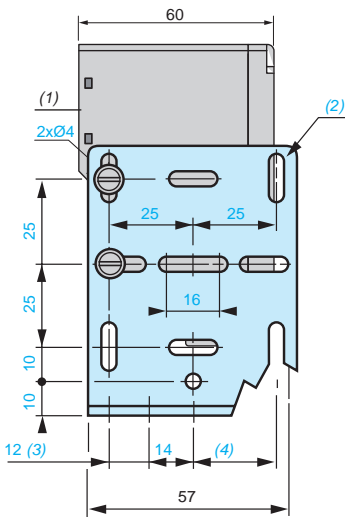
Controls

- 5 - Automatic adjustment of threshold
- Access to special functions
- Zero reset of time delay
- 6 - Sensitivity increase
- NO/NC programming
- Time delay increase
- 7 - Sensitivity decrease
- Inversion of time delay setting: On-delay, Off-delay
- Time delay decrease
- 8 - Access to terminals

**Note:** Both the red and green LEDs flash in the event of a short-circuit on the output (for XUYP●95●S and XUYB●95●S versions).

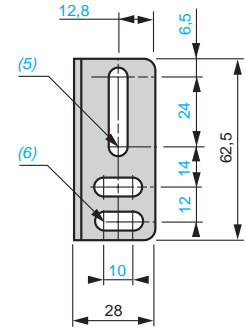
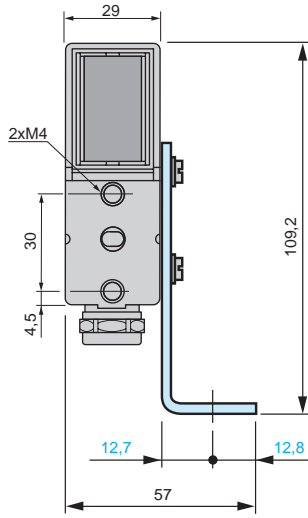
## Dimensions

Sensors XUY●95●S and XUY●95●R



- (1) Optical axis.
- (2) 8 elongated holes  $\varnothing 4.2 \times 10$ .
- (3) 2 elongated holes  $\varnothing 6.5 \times 10$ .
- (4) 1 elongated hole  $\varnothing 6.5 \times 24$ .

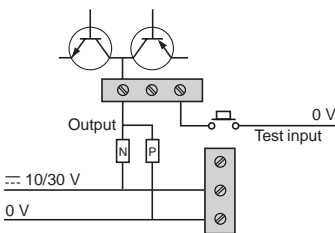
Bracket fixing XUZA49



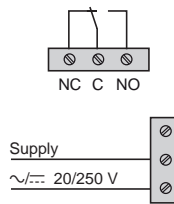
- (5) 2 elongated holes  $\varnothing 6.5 \times 16.5$ .
- (6) 1 elongated hole  $\varnothing 6.5 \times 30.5$ .

## Wiring schemes

XUY●95●S



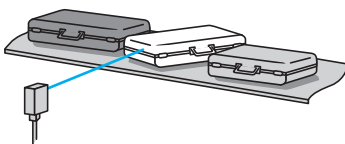
XUY●95●R



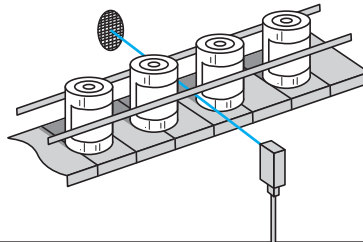
250 V, 1.5 mm<sup>2</sup> terminals.

## Application examples

Monitoring for blockages on a baggage conveyor



Monitoring of gluing, fastening or labelling operations



# Photo-electric sensors

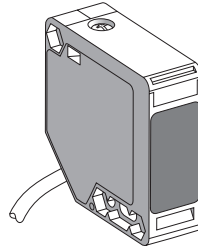
OsiSense XU Application, tertiary sector series

For access detection

AC or DC supply

1 CO relay output

## Compact design



System	Reflex
Type of transmission	Infrared
Nominal sensing distance (Sn)	7 m (with 50 x 50 mm reflector)

## References

5-wire	NC function	<b>XUK1ARCNL2H60</b> (supplied as kit comprising: sensor, fixing bracket, 50 x 50 mm reflector and mounting instructions in French and English)	<b>XUK1ARCNL2H61</b> (supplied as kit comprising: sensor, fixing bracket, 50 x 50 mm reflector and mounting instructions in French and German)
Weight (kg)		0.300	

## Characteristics

Product certifications		UL, CSA, CE
Ambient air temperature		For operation: - 25...+ 55 °C. For storage: - 40...+ 70 °C
Vibration resistance	Conforming to IEC 60068-2-6	7 gn, amplitude ± 1.5 mm (f = 10...55 Hz)
Shock resistance	Conforming to IEC 60068-2-27	30 gn, duration 11 ms
Degree of protection	Conforming to IEC 60529	IP 65, double insulation
Connection		Pre-cabled: diameter 6 mm, length 2 m, wire c.s.a.: 5 x 0.34 mm <sup>2</sup> / AWG 22
Materials		Case: PBT; lenses: PMMA; cable: PVC
Rated supply voltage		~ or --- 24...240 V
Voltage limits		~ or --- 20...264 V
Switching capacity		3 A
Maximum voltage on output relay contacts		~ 250 V
Power consumption, no-load		2 W (1)
Maximum switching frequency		20 Hz
Delays		First-up: ≤ 60 ms; response: ≤ 25 ms; recovery: ≤ 25 ms

Function table	Function	Reflex system	
		No object present in the beam	Object present in the beam
Output state of relay contact indicator (illuminated when relay energised)	NO or NC	 Relay de-energised	 Relay energised

(1) No-load current consumption at ~ 220 V: ≤ 25 mA.

# Photo-electric sensors

OsiSense XU Application, tertiary sector series

For access detection

AC or DC supply

1 CO relay output

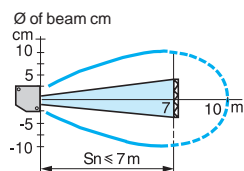
## Contents of kits XUK1ARCNL2H60 and XUK1ARCNL2H61

- reflex system photo-electric sensor,
- fixing bracket XUZASK003 (screws included),
- 50 x 50 mm reflector,
- mounting instructions
- in french and english for XUK1ARCNL2H60,
- in french and german for XUK1ARCNL2H61.



## Detection curve

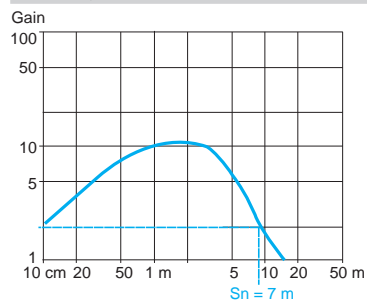
Reflex system ~ or ---



## Excess gain curve

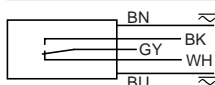
(ambient temperature: + 25 °C)

Reflex system ~ or ---



## Wiring scheme

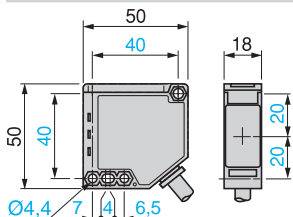
5-wire ~ or ---



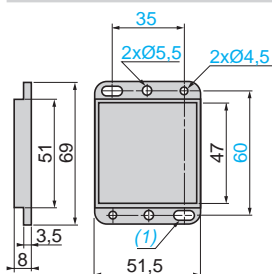
With reflector XUZC50

## Dimensions

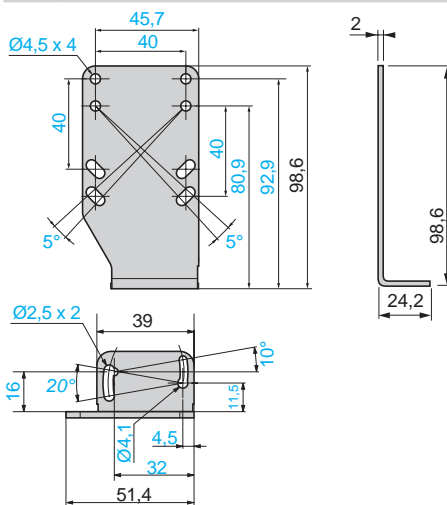
Sensor XUK1ARCNL2



Reflector XUZC50



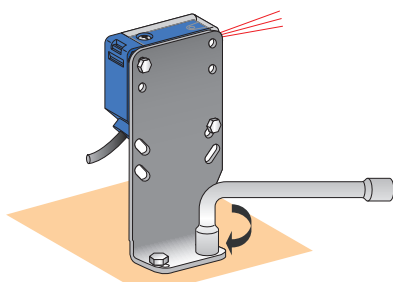
Fixing bracket XUZASK003



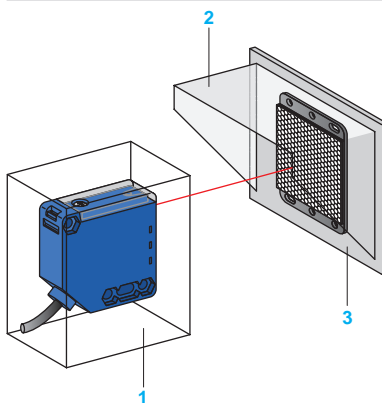
(1) 2 elongated holes Ø 4.5 x 8

## Mounting precautions

Rigid fixing for trouble free detection



Outdoor mounting under protective cover



- 1 Protective housing.
- 2 Lens hood.
- 3 Thermal insulator to avoid frost or condensation forming on the optical parts.

# Photo-electric sensors

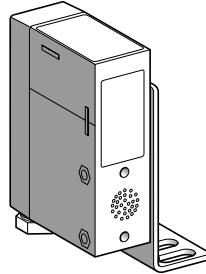
OsiSense XU Application, tertiary sector series

With integral buzzer

AC or DC supply

1 NO relay output

## Compact design







System	Reflex
Type of transmission	Infrared
Nominal sensing distance (Sn)	6 m (with Ø 80 mm reflector)
Cable gland	9P, mounted in base

## References

NO function	XUJB06031H60 (supplied as kit comprising: sensor, fixing bracket, Ø 80 mm reflector and mounting instructions)
Weight (kg)	0.330

## Characteristics

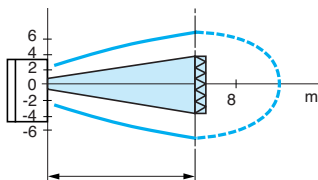
Product certifications	CE
Ambient air temperature	For operation: - 25...+ 55 °C. For storage: - 40...+ 70 °C
Vibration resistance	Conforming to IEC 60068-2-6 7 gn, amplitude ± 1.5 mm (f = 10...55 Hz)
Shock resistance	Conforming to IEC 60068-2-27 30 gn, duration 11 ms
Degree of protection	Conforming to IEC 60529 IP 40, double insulation □
Connection	Screw terminals, maximum capacity: 1 x 1.5 mm <sup>2</sup>
Materials	Case: PEI (1)
Rated supply voltage	~ 24...240 V or ~ 24...48 V
Voltage limits	~ 20...264 V or ~ 20...60 V (including ripple)
Switching capacity	2000 mA (cos φ = 1), 500 mA (cos φ = 0.4) for a contact life of 1 million operating cycles at an operating rate of 1 operating cycle per second, at 250 V
Maximum voltage on output relay contacts	~ 250 V or ~ 30 V
Current consumption, no-load	≤ 30 mA
Maximum switching frequency	20 Hz
Delays	First-up: ≤ 60 ms; response: ≤ 25 ms; recovery: ≤ 25 ms
Time delay	Adjustable from 0.3 to 3 seconds

Function table	Function	Reflex system	
		No object present in the beam	Object present in the beam
Output state of relay contacts indicator: yellow LED (illuminated when relay energised)	NO	 Relay de-energised	 yellow Relay energised
		 Relay energised	 yellow

(1) PEI: high quality synthetic resin providing excellent withstand to mechanical shocks, vibration and the effects of external agents frequently encountered in industry: alcohol, salts, petroleum, oils, greases, washing agents (diluted sodium carbonate 4%, nitric acid 2%), formaldehyde vapour, splashing lactic acid, etc.

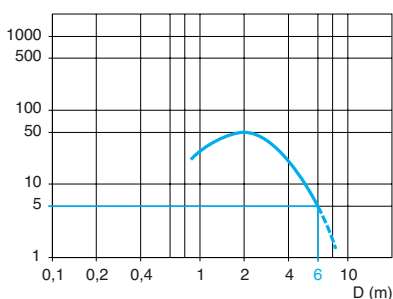
## Detection curve

### Reflex system



## Excess gain curve (ambient temperature: + 25 °C)

### Infrared reflex system



## Contents of kit XUJB06031H60

- reflex system photo-electric sensor,
- fixing bracket,
- Ø 80 mm reflector,
- mounting instructions.



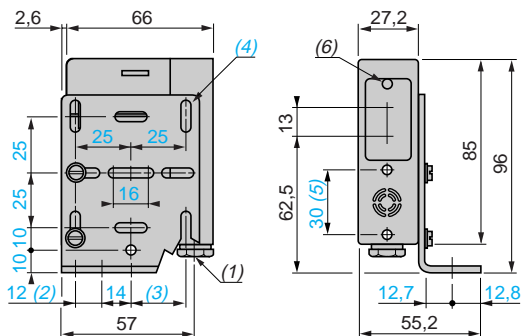
With reflector XUZC80

## Dimensions

### XUJB06031H60

### Face view

### Bracket fixing



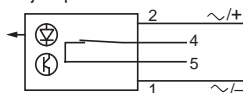
- (1) 9P cable gland.
- (2) 2 elongated holes Ø 6.5 x 10.
- (3) 1 elongated hole Ø 6.5 x 24.
- (4) 8 elongated holes Ø 4.2 x 10.
- (5) Front fixing (Ø 4 screws and inserts included).
- (6) Yellow LED.

- (7) 2 elongated holes Ø 6.5 x 16.5.
- (8) 1 elongated hole Ø 6.5 x 30.5.

## Wiring schemes (~ or ---)

### NO function

Object present



## Terminal connections

1 NO relay output

- 1 Ø - A1 (~/-)
- 2 Ø - A2 (~/+)
- 3 Ø -
- 4 Ø - ~ 250 V, 100 VA max.
- 5 Ø - --- 30 V, 2 A max.