Photo-electric miniature sensors OsiSense XUM

Catalogue

Telemecanique Sensors

OsiSense XUM, detect as you please

The new, even more compact and ingenious, **OsiSense™ XUM** miniature sensors feature standard fixings and dimensions.
Offering high level performance, including long sensing distances, together with resistance to interference and stray light sources, makes it one of the best products currently available.
Particularly suited to packaging and conveying applications involving small objects, their performance and accuracy provide the best solution for matching your needs.

> Optimum installation
Less electrical consumption for better performance

> Fully suitable
Flexible, they can be integrated in all detection environments

> Simple detection
High performance, featuring integrated BGS and FGS functions

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* BGS : Back Ground Suppression / Suppression d'arrière plan
* FGS : Fore Ground Suppression / Suppression d'avant plan

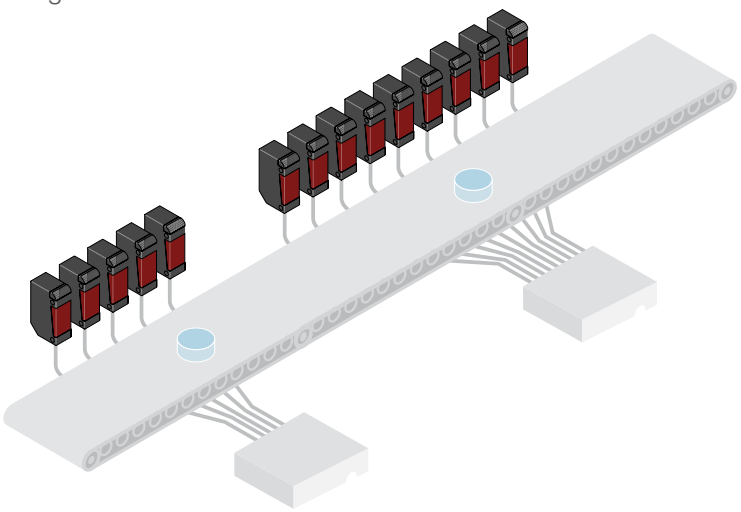
Making sense of sensors SM

Optimum installation

50% less
current consumption

With an electrical consumption which is half that of the old OsiSense XUM sensors you significantly reduce the power of the stabilised supplies for your equipment.
More savings for you, more environmentally friendly!

The filter accessory significantly reduces interference between sensors and avoids conflicts.
An output status LED on the front face of the thru-beam receiver assists alignment when installing.
A robust metal fixing bracket, shaped to form a protective cover against mechanical shock, is available to complement the traditional fixing brackets.



Fully suitable

OsiSense XUM sensors offer the longest sensing distances on the market: 0.3m in background suppression mode, 1m in diffuse mode, 5m in reflex system mode and 15m in thru-beam system mode.
Insensitive to spurious light sources, they withstand up to 40 000 lux natural light and 10 000 lux incandescent light.
The die-cast metal case and window protected lenses assure a temperature withstand of -30 to +60°C and an IP67 degree of protection for encapsulated models, making them particularly suited to severe environments

Simple detection

OsiSense XUM sensors offer both considerable freedom when installing on the machine and numerous functions in the minimum space.
Intuitive programming plus ergonomic design makes them easy to install and set-up by any user, electrician or automation engineer. Easy selection using a few references, which cover all standard requirements.

OsiSense XUM8,
packaging under control

Detecting a packed product, a letter or a parcel on a packaging line and overcoming various interference, such as the movement of operators and other conveyors in the background, is not an easy task.
The FGS (foreground suppression) or BGS (background suppression) functions, integrated in the OsiSense XUM8 photo-electric sensors, provide an ideal solution for this type of industrial application.
Setting-up is easily performed using its visible red beam and it is suitable for all types of packages, sizes, colours and ambient lighting conditions at a sensing distance from 20 to 300mm.
This is the ideal product for your conveying applications within the packaging sector.

Insensitive
to interference

OsiSense XUMT,
the transparent materials specialist

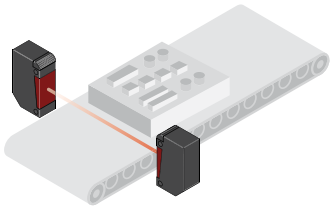
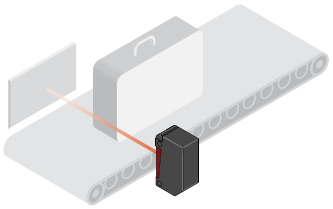
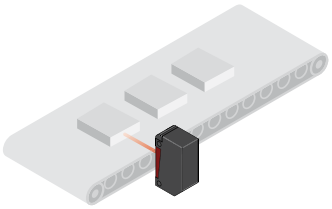
The OsiSense XUMT photo-electric sensor enables detection of bottles or any other transparent glass or plastic objects on conveyors used in all types of application.
A potentiometer enables simple adjustment of the beam accuracy.
It functions perfectly, without being affected by ambient light.
Comprising only 5 references, the OsiSense XUMT sensor is as easy to select as it is to install and set-up. Its compact format enables integration in all your machines.
An IP67 degree of protection assures interference free operation even in the most severe industrial environments.

Specialist
in transparent materials

100%
Availability throughout the world

Selection guide based on application

Standard conveying

Precision, positioning	Flow of large objects	Flow of small objects
On small conveyors - small components in the electronic industry and small mechanical parts	On conveyors of all sizes - average size objects, brilliance, colours and complex shapes	On conveyors of all sizes - flow of objects at short distance
Thru-beam	Polarised reflex	Diffuse

Single mode


XUM2


XUM9


XUM5


XUM8

Multimode

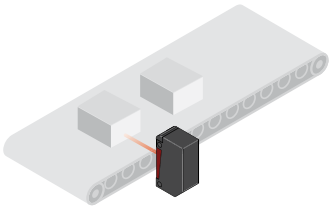

XUM0

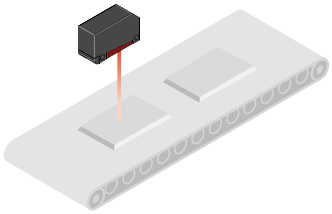

XUM0

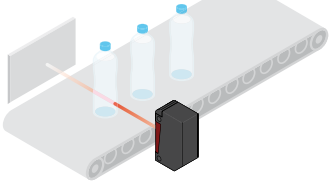

XUM0

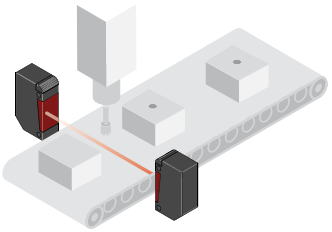
Conveying - packaging

Machine tools









Background suppression (BGS)	Foreground suppression (FGS)	Transparent materials	Severe environment
Applications with background or foreground suppression for specific applications		Applications involving transparent glass or plastic objects	Machine tool applications in severe industrial conditions

Diffuse
with background suppression

XUM8

Diffuse
with foreground suppression

XUM8

Reflex

XUMT

Thru-beam
XUM2B

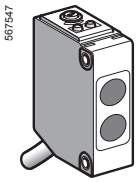
Polarised reflex
XUM5B

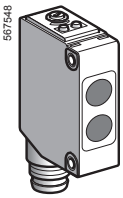
Diffuse
XUM9B

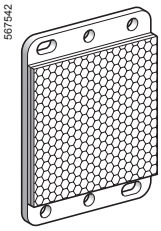
XUM0

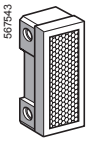
Photo-electric sensors

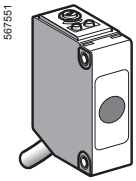
OsiSense XU, general purpose, single mode function
Miniature design, plastic
Three-wire DC, solid-state output
NO/NC configuration switch

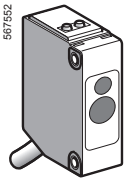

XUM 5A●CNL2


XUM 5A●CNM8

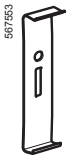

XUZ C50

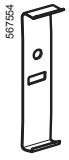

XUZ C08


XUM 2AKCNL2T

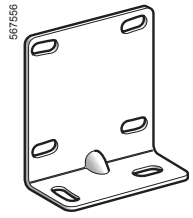

XUM 2A●CNL2R

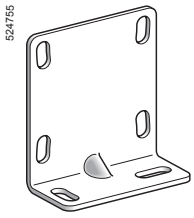
Sensing distance (Sn)	Function	Output	Connection	Reference	Weight kg
Diffuse system with adjustable sensitivity					
1 m	NO/NC, configuration by switch	PNP	Pre-cabled (L = 2 m)	**XUM 5APCNL2**	0.063
			M8 connector	**XUM 5APCNM8**	0.010
		NPN	Pre-cabled (L = 2 m)	**XUM 5ANCNL2**	0.063
			M8 connector	**XUM 5ANCNM8**	0.010
Polarised reflex system with adjustable sensitivity					
5 m with reflector XUZ C50 **2 m** with reflector XUZ C08	NO/NC, configuration by switch	PNP	Pre-cabled (L = 2 m)	**XUM 9APCNL2**	0.063
			M8 connector	**XUM 9APCNM8**	0.010
	NO/NC, configuration by switch	NPN	Pre-cabled (L = 2 m)	**XUM 9ANCNL2**	0.063
			M8 connector	**XUM 9ANCNM8**	0.010
Reflectors					
Universal reflector 50 x 50 mm		–	–	**XUZ C50**	0.020
Lateral reflector 8.6 x 29.5 mm		–	–	**XUZ C08**	0.006
Thru-beam system (transmitter + receiver) with adjustable sensitivity					
15 m	NO/NC, configuration by switch	PNP	Pre-cabled (L = 2 m)	**XUM 2APCNL2**	0.119
			M8 connector	**XUM 2APCNM8**	0.019
		NPN	Pre-cabled (L = 2 m)	**XUM 2ANCNL2**	0.119
			M8 connector	**XUM 2ANCNM8**	0.019
Transmitter only					
15 m			Pre-cabled (L = 2 m)	**XUM 2AKCNL2T**	0.063
			M8 connector	**XUM 2AKCNM8T**	0.010
Receiver only					
15 m	NO/NC, configuration by switch	PNP	Pre-cabled (L = 2 m)	**XUM 2APCNL2R**	0.063
			M8 connector	**XUM 2APCNM8R**	0.010
		NPN	Pre-cabled (L = 2 m)	**XUM 2ANCNL2R**	0.063
			M8 connector	**XUM 2ANCNM8R**	0.010

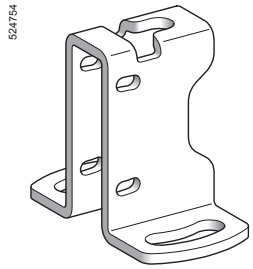

XUZMSV●●

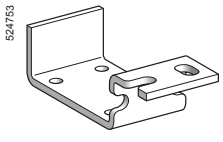

XUZ MSH●●


XUZ MU01


XUZ AM01


XUZ AM04


XUZ AM02


XUZ AM03

Accessories for thru-beam system

Description	Dimensions mm	Sensing distance m	Reference	Weight kg
Vertical diaphragm Sold in lots of 2	0.5 x 6.4	1.2	**XUZ MSV05**	0.002
	1 x 6.4	3	**XUZ MSV10**	0.002
	1.5 x 6.4	4	**XUZ MSV15**	0.002
	2 x 6.4	5	**XUZ MSV20**	0.002
Horizontal diaphragm Sold in lots of 2	0.5 x 6.4	1.2	**XUZ MSH05**	0.002
	1 x 6.4	3	**XUZ MSH10**	0.002
	1.5 x 6.4	4	**XUZ MSH15**	0.002
	2 x 6.4	5	**XUZ MSH20**	0.002
Anti-interference filter Sold in lots of 4	–	7	**XUZ MU01**	0.006

Fixing accessories

Description	Reference	Weight kg
Base mounting fixing bracket	**XUZ AM01**	0.017
Side mounting fixing bracket	**XUZ AM04**	0.026
Vertical fixing bracket with protective cover *(1)*	**XUZ AM02**	0.062
Horizontal fixing bracket with protective cover *(1)*	**XUZ AM03**	0.026

(1) For pre-cabled version

Photo-electric sensors

OsiSense XU, general purpose, single mode function
Miniature design, plastic
Three-wire DC, solid-state output
NO/NC configuration switch

Characteristics

Sensor type			XUM ●A●●●M8	XUM ●A●●●L2
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 **XUM 5**; 13 for **XUM 9**; 11 for transmitter **XUM 2**; 13 for receiver **XUM 2**	
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

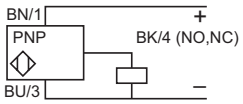
M8 connector

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

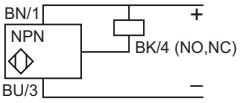
Pre-cabled

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

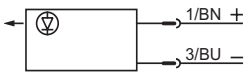
PNP



NPN



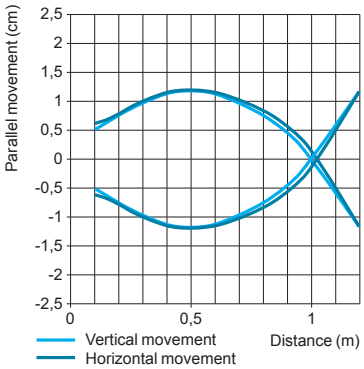
Transmitter ⎓



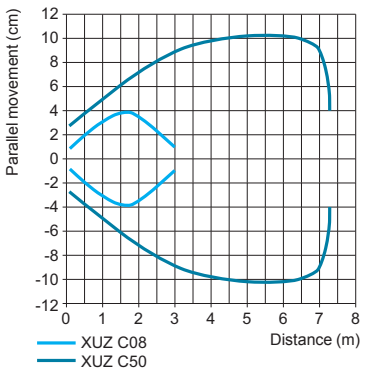
See connection on pages 20 and 21.

Curves

Diffuse



Polarised reflex



Thru-beam

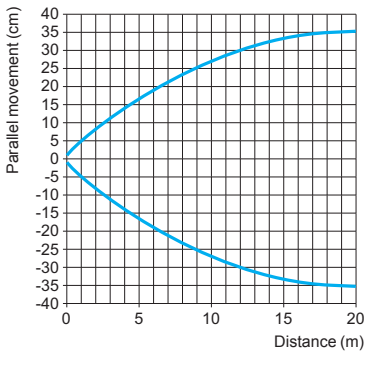


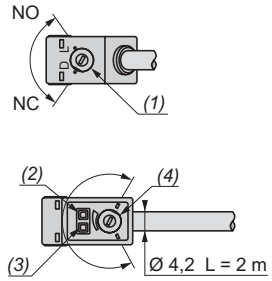
Photo-electric sensors

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

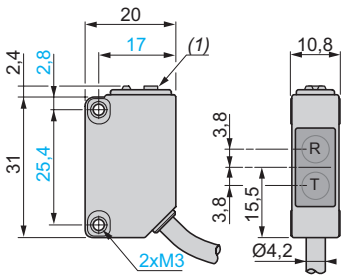
Pre-cabled version

Description - XUM 5A●CNL2, XUM 9A●CNL2



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

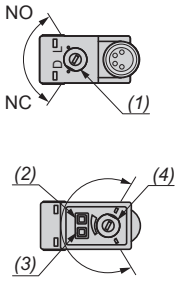
Dimensions - XUM 5A●CNL2, XUM 9A●CNL2



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

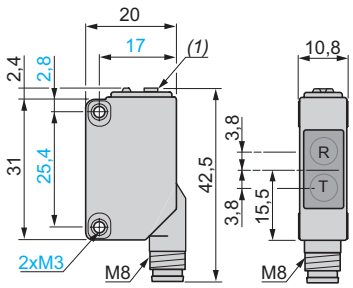
Connector version

Description - XUM 5A●CNM8, XUM 9A●CNM8



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

Dimensions - XUM 5A●CNM8, XUM 9A●CNM8

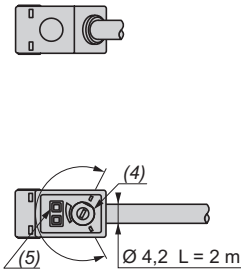


R: Reception, T: Transmission.
(1) Potentiometer.

Thru-beam system

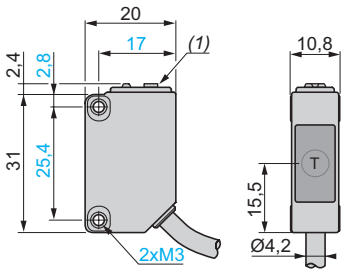
Pre-cabled version

Description - XUM 2AKCNL2T



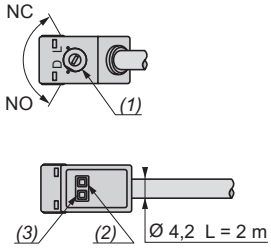
(4) Adjustment potentiometer.
(5) Power on LED.

Dimensions - XUM 2AKCNL2T



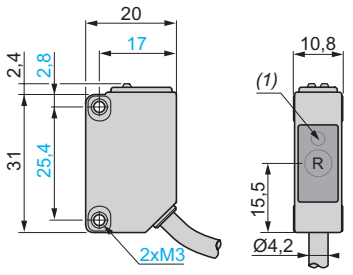
T: Transmission.
(1) Potentiometer.

Description - XUM 2A●CNL2R



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

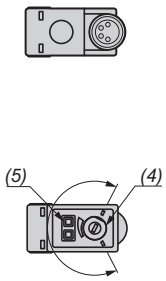
Dimensions - XUM 2A●CNL2R



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

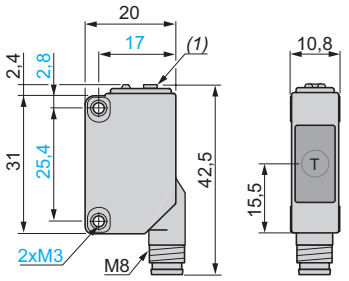
Connector version

Description - XUM 2AKCNM8T



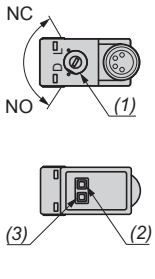
(4) Adjustment potentiometer.
(5) Power on LED.

Dimensions - XUM 2AKCNM8T



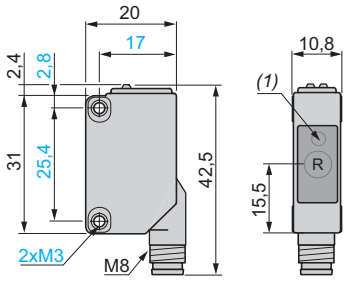
T: Transmission.
(1) Potentiometer.

Description - XUM 2A●CNM8R



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

Dimensions - XUM 2A●CNM8R



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

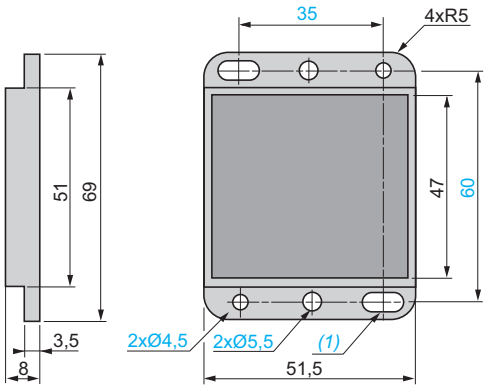
Photo-electric sensors

OsiSense XU, general purpose, single mode function
Miniature design, plastic
Three-wire DC, solid-state output
NO/NC configuration switch

Accessories

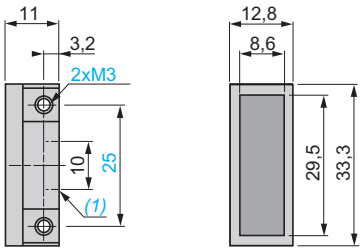
Reflectors

XUZ C50



(1) 2 elongated holes Ø 4.5 x 8

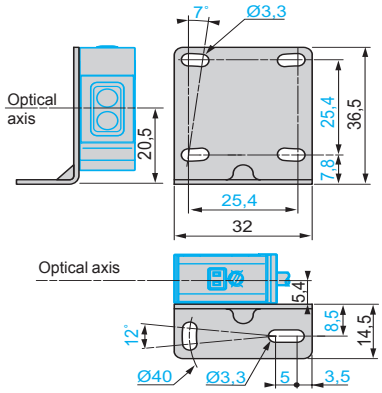
XUZ C08



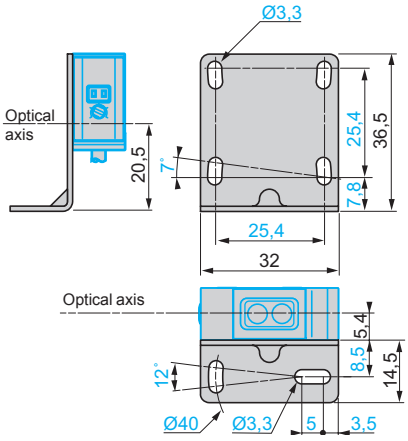
(1) 2 x M3

Fixing brackets

XUZ AM01

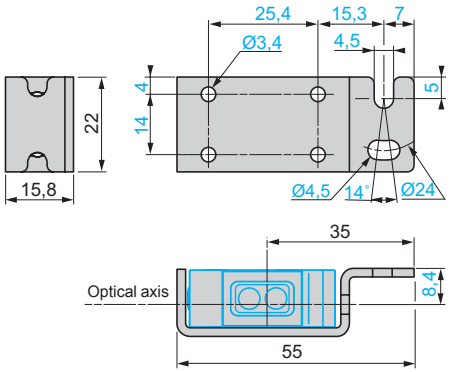


XUZ AM04

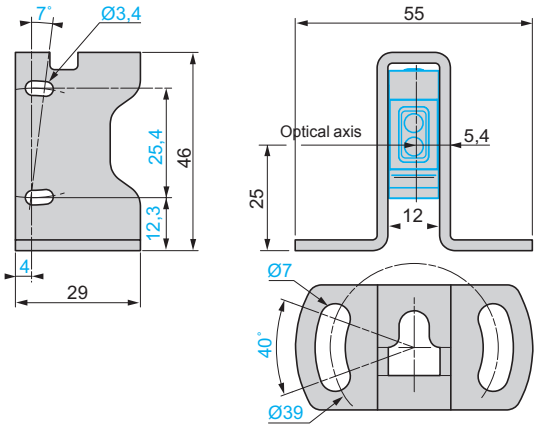


Fixing bracket with protective cover

XUZ AM03

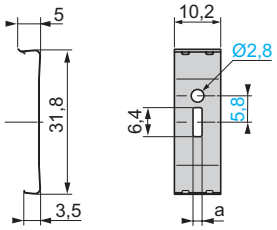


XUZ AM02

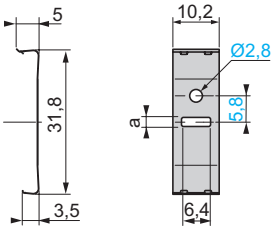


Diaphragms

XUZ MSV●●



XUZ MSH●●



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

Filter

XUZ MU01

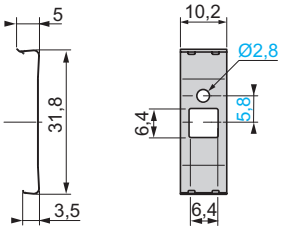
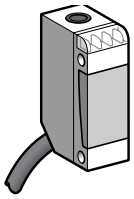


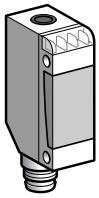
Photo-electric sensors
OsiSense XU, general purpose
Multimode function
Miniature design
Three-wire DC, solid-state output

501542_1

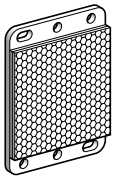


XUM 0A●●●L2

501543_1

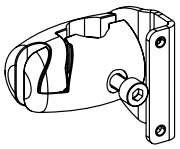


XUM 0A●●●M8



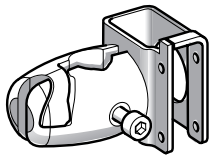
XUZ C50

560014



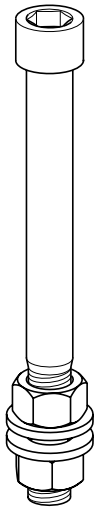
XUZ M2003

562213



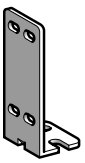
XUZ M2004

520312



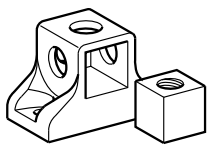
XUZ 2001

520960



XUZ A50

520984



XUZ 2003

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)*	**XUM 0APSAL2**	0.050
			M8 connector	**XUM 0APSAM8**	0.035
		NPN	Pre-cabled (L = 2 m) *(1)*	**XUM 0ANSAL2**	0.050
			M8 connector	**XUM 0ANSAM8**	0.035

Accessories

Description	Connection	Reference	Weight kg
Thru-beam transmitter	Pre-cabled (L = 2 m) *(1)*	**XUM 0AKSAL2T**	0.050
	M8 connector	**XUM 0AKSAM8T**	0.035
Reflector 50 x 50 mm	–	**XUZ C50**	0.020

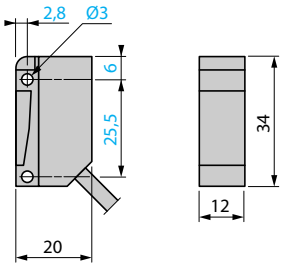
Fixing accessories *(2)*

Description	Reference	Weight kg
3D fixing kit for use on M12 rod, for XUM or XUZ C50	**XUZ M2003**	0.140
3D fixing kit for use on M12 rod and with protective cover for XUM	**XUZ M2004**	0.155
M12 rod	**XUZ 2001**	0.050
Support for M12 rod	**XUZ 2003**	0.150
Fixing bracket	**XUZ A50**	0.015

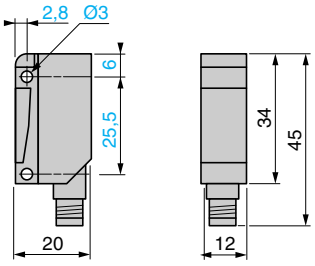
*(1) For a 5 m long cable, replace L2 by **L5**.*
*Example: XUM 0APSAL2 becomes **XUM 0APSAL5**.*
(2) For further information, please consult our catalogue "Detection for automation solutions OsiSense".

Dimensions (mm)

XUM 0A●●●L2



XUM 0A●●●M8



Possible orientation of elbowed connector

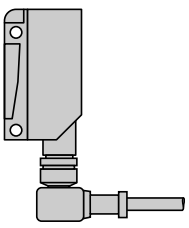


Photo-electric sensors
OsiSense XU, general purpose
Multimode function
Miniature design
Three-wire DC, solid-state output

Characteristics

Sensor type			XUM ●●●●●M8	XUM ●●●●●L2
Product certifications			UL, CSA, CE	
Connection	Connector		M8	–
	Pre-cabled		–	Length: 2 m
Nominal sensing distance Sn (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 ⧈
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 **XUM 0●●●●●●T**)	
	Supply on		Green LED	
	Optical alignment aid/dirty		Red LED (except for **XUM 0●●●●●●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 **XUM 0●●●●●●T**)	
Switching capacity		**mA**	⩽ 100 with overload and short-circuit protection	
Voltage drop, closed state		**V**	⩽ 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

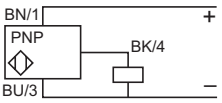
M8 connector

3 (-)
1 (+)
4 OUT/Output
2 Beam break input *(1)*

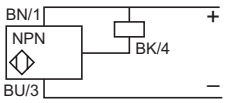
Pre-cabled

(-) BU (Blue)
(+) BN (Brown)
OUT/Output BK (Black)
Beam break input VI (Violet) *(1)*

Receiver, PNP output

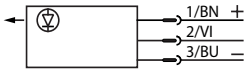


Receiver, NPN output



Thru-beam function transmitter

Transmitter

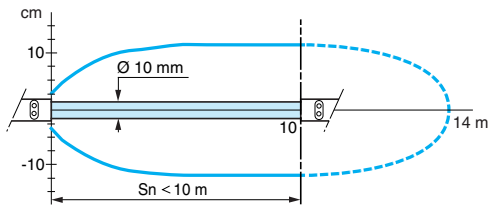


Input 2/VI:
- not connected: *beam made*
- connected to –: *beam broken*

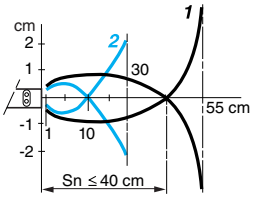
See connection on pages 20 and 21.

Detection curves

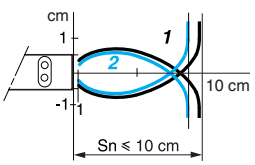
With thru-beam accessory (thru-beam)



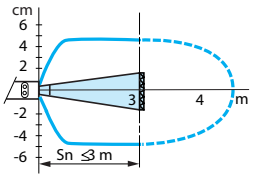
Without accessory (diffuse)



Without accessory (diffuse with background suppression)



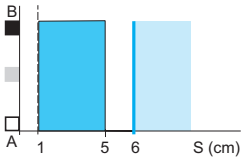
With reflector (polarised reflex)



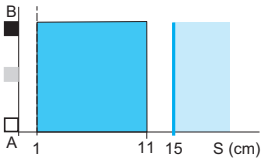
*Object: 10 x 10 cm, **1**: white 90%, 2: grey 18%*

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

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)*

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

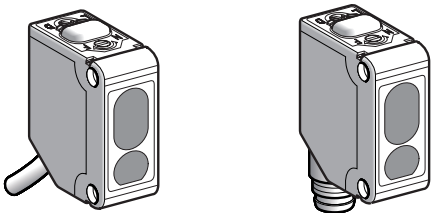
Photo-electric sensors

OsiSense XU, general purpose

With adjustable background and foreground suppression

DC supply. Solid-state output

Compact design



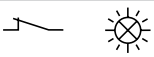
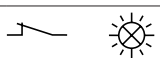
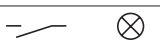
System	**Diffuse with adjustable background and foreground suppression, long sensing distance with high accuracy**
Type of transmission	Red
Nominal sensing distance (Sn)	**20…300 mm**
Differential travel	5% or less of the sensing distance
Adjustment	Potentiometer with 5 turns

References

3-wire, PNP or NPN programmable	NO or NC programmable function	PNP	NPN	PNP	NPN	PNP
		XUM 8APCNL2	**XUM 8ANCNL2**	**XUM 8APCNM8**	**XUM 8ANCNM8**	**XUM 8APCNL03M12**
Weight (kg)		0.065	0.065	0.020	0.020	0.035

Characteristics

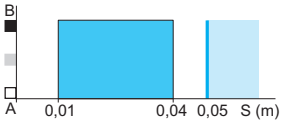
Product certifications		CE, cURus		
Ambient air temperature		For operation: - 25…+ 55°C For storage: - 30…+ 70°C		
Vibration resistance	Conforming to IEC 60068-2-8	20 gn max, amplitude: 3 mm, frequency: 10… 500 Hz		
Shock resistance	Conforming to IEC 60068-2-27	50 gn		
Degree of protection	Conforming to IEC 60529	IP 67		
Material		Case: PBT Lenses: polycarbonate		
Indicator lights	Output state	Orange LED		
	Power on, help with setting	Green LED		
Connection		2 m cable Conductor c.s.a.: 0.2 mm²	M8 4-pin connector	M12 connector offset by 0.3 m Conductor c.s.a.: 0.2 mm²
Rated supply voltage		**12…24 V ⎓ with protection against reverse polarity**		
Voltage limits		10…30 V ⎓ (including ripple)		
Switching capacity		**≤ 100 mA with overload and short-circuit protection**		
Immunity to ambient light	Natural light	3000 lux		
	Incandescent bulb	3000 lux		
Voltage drop, closed state		< 2 V		
Current consumption		≤ 20 mA		
Response time		≤ 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)		

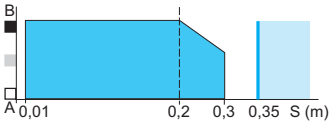
Detection curves

Variation of usable sensing distance

Minimum setting



Maximum setting



A-B: Object reflection coefficient

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

- Sensing range
- Non sensing zone (Matt surfaces)

Photo-electric sensors

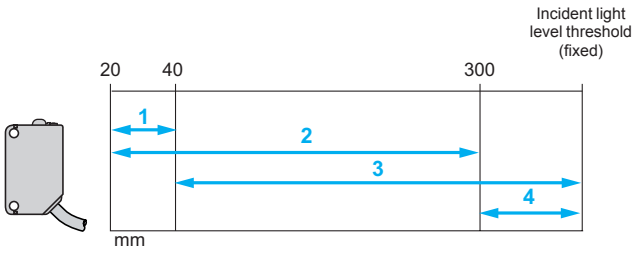
OsiSense XU, general purpose

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)

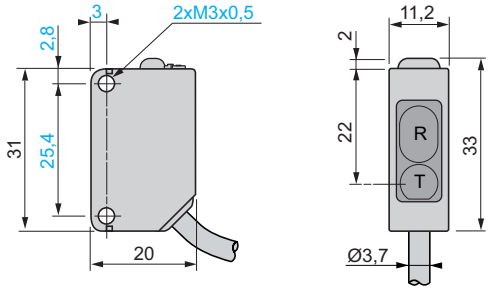
Adjustment in background or foreground suppression mode

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.

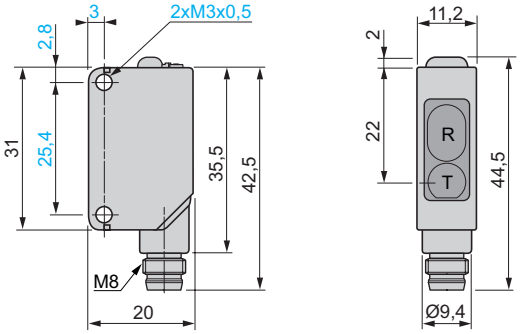
Dimensions

XUM 8APCNL2, XUM 8ANCNL2 and XUM 8APCNL03M12

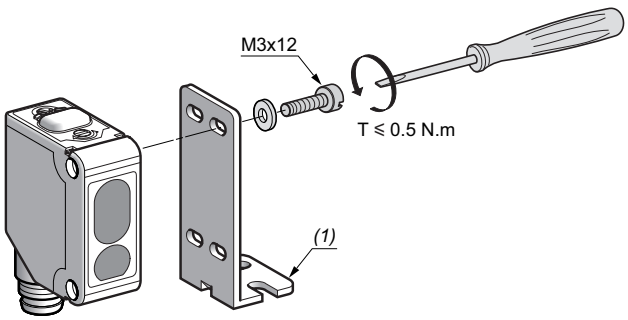


R: Reception, T: Transmission

XUM 8APCNM8 and XUM 8ANCNM8

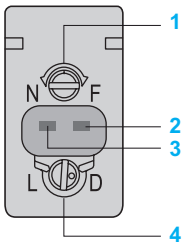


Mounting



*(1) **XUZ A50**, **XUZ AM02** or **XUZ AM03** metal bracket (see pages 6 and 10).*

Functions

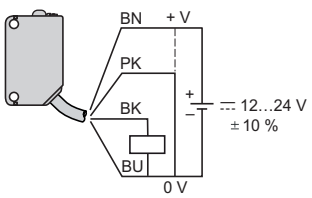


1 Remote adjustment potentiometer (5 turns).
2 Operation indicator (orange)
The LED is lit when the detection output has been activated.
3 Power ON and stability indicator (green)
The LED is lit in stable light or dark conditions.
4 NO/NC operating mode selector switch.

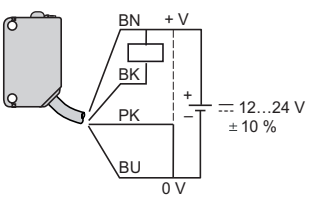
Selector switch	Function	Description
L D	NO (position L)	The NO output is activated when the selector switch is turned fully clockwise.
L D	NC (position D)	The NC output is activated when the selector switch is turned fully anticlockwise.

Wiring schemes (3-wire ⎓)

PNP output



NPN output



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

Cable connections

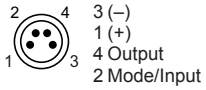
XUM 8A●CNL2

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

Connector schemes

XUM 8A●CNM8

M8 connector



3 (–)
1 (+)
4 Output
2 Mode/Input

XUM 8APCNL03M12

M12 connector

3 (–)
1 (+)
4 Output
2 Mode/Input

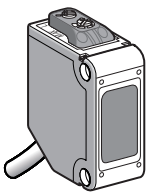
See connectors on pages 20 and 21.

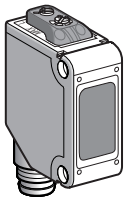
Photo-electric sensors

OsiSense XU, Application, packaging series

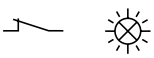
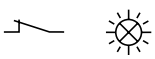
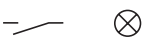
For detection of transparent materials
DC supply. Solid-state output

Compact design

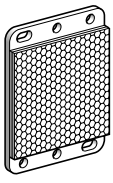




System		**Reflex**				
Type of transmission		Infra-red				
Nominal sensing distance (Sn)		**0.1…1 m with reflector XUZ C50CR** *(1)* **0.8…2 m with reflector XUZ C50** *(1)*				
Adjustment		270° potentiometer				
References						
3-wire, PNP or NPN programmable	NO or NC programmable function	PNP **XUM TAPCNL2**	NPN **XUM TANCNL2**	PNP **XUM TAPCNM8**	NPN **XUM TANCNM8**	PNP **XUM TAPCNL03M12**
Weight (kg)		0.155	0.155	0.055	0.055	0.055
Characteristics						
Product certifications		CE, cURus				
Ambient air temperature		For operation: - 25…+ 55°C. For storage: - 30…+ 70°C				
Vibration resistance	Conforming to IEC 60068-2-8	20 gn max., amplitude: 3 mm, frequency: 10…500 Hz				
Shock resistance	Conforming to IEC 60068-2-27	50 gn				
Degree of protection	Conforming to IEC 60529	IP 67				
Material		Case: PBT Lenses: polycarbonate				
Indicator lights	Output state	Orange LED				
	Power on, help with setting	Green LED				
Connection		2 m cable Conductor c.s.a.: 0.2 mm²		M8 4-pin connector		M12 connector offset by 0.3 m Conductor c.s.a.: 0.2 mm²
Rated supply voltage		**12…24 V ⎓ with protection against reverse polarity**				
Voltage limits		10…30 V ⎓ (including ripple)				
Switching capacity		**≤ 100 mA with overload and short-circuit protection**				
Immunity to ambient light	Natural light	3000 lux				
	Incandescent bulb	3000 lux				
Voltage drop, closed state		< 2 V				
Current consumption		≤ 10 mA				
Response time		≤ 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



XUZ C50/XUZ C50CR

Description	**Dimensions**	**Reference**	**Weight kg**
Standard reflector Reflector distance from the product: 0.8 to 2 m	50 x 50 mm	**XUZ C50**	0.020
Application reflector Reflector distance from the product: 0.2 to 1 m	50 x 50 mm	**XUZ C50CR**	0.020

(1) Reflector to be ordered separately.

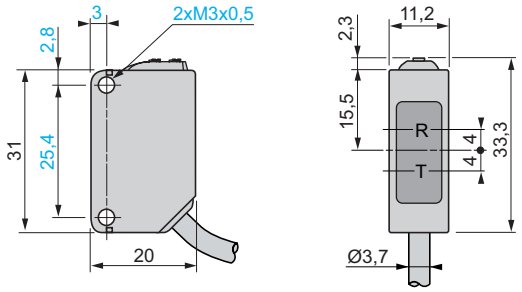
Photo-electric sensors

OsiSense XU, Application, packaging series

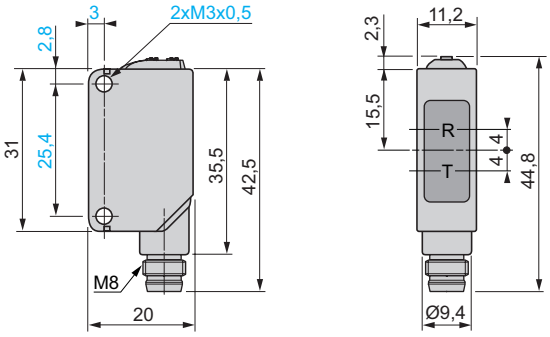
For detection of transparent materials
DC supply. Solid-state output

Dimensions

XUM TAPCNL2, **XUM TANCNL2** and **XUM TAPCNL03M12**

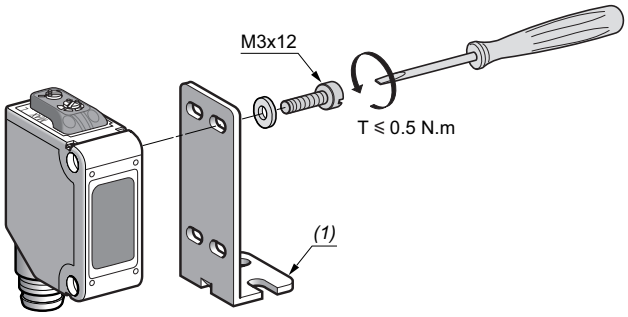


XUM TAPCNM8 and **XUM TANCNM8**



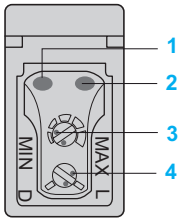
R: Reception, T: Transmission

Mounting



(1) ***XUZ A50***, ***XUZ AM02*** *or* ***XUZ AM03*** *metal bracket (see pages 6 and 10).*

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.

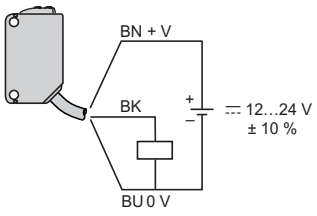
4 NO/NC operating mode selector switch.

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.

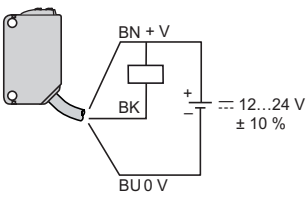
Connections

Wiring schemes (3-wire ⎓)

PNP output



NPN output



Cable connections

XUM TA●CNL2

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

Connector schemes

XUM TA●CNM8

M8 connector

3 (–)
1 (+)
4 Output
2 Not connected

XUM TAPCNL03M12

M12 connector

3 (–)
1 (+)
4 Output
2 Not connected

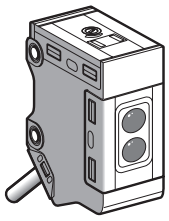
See connectors on pages 20 and 21.

Photo-electric sensors

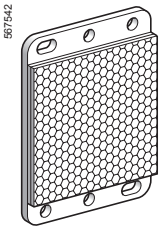
OsiSense XU Application, packaging and machine tool series

Miniature design, metal

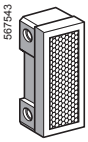
Three-wire DC, solid-state output



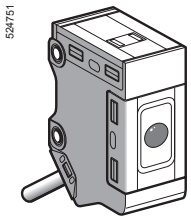
XUM 5B●●NL2



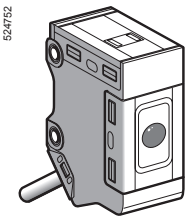
XUZ C50



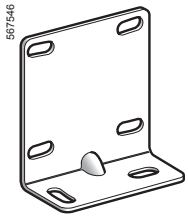
XUZ C08



XUM 2B2KCL2T



XUM 2B●●NL2R



XUZ AM81

Sensing distance (Sn)	Function	Output	Connection	Reference	Weight kg
Diffuse system with adjustable sensitivity					
0.77 m	NO	PNP	Pre-cabled (L = 2 m)	**XUM 5BPANL2**	0.128
		NPN	Pre-cabled (L = 2 m)	**XUM 5BNANL2**	0.128
	NC	PNP	Pre-cabled (L = 2 m)	**XUM 5BPBNL2**	0.128
		NPN	Pre-cabled (L = 2 m)	**XUM 5BNBNL2**	0.128
Polarised reflex system					
5 m with reflector XUZ C50 **2 m** with reflector XUZ C08	NO	PNP	Pre-cabled (L = 2 m)	**XUM 9BPANL2**	0.128
		NPN	Pre-cabled (L = 2 m)	**XUM 9BNANL2**	0.128
	NC	PNP	Pre-cabled (L = 2 m)	**XUM 9BPBNL2**	0.128
		NPN	Pre-cabled (L = 2 m)	**XUM 9BNBNL2**	0.128
Reflectors					
Universal reflector 50 x 50 mm		–	–	**XUZ C50**	0.020
Lateral reflector 8.6 x 29.5 mm		–	–	**XUZ C08**	0.006
Thru-beam system (transmitter + receiver)					
15 m	NO	PNP	Pre-cabled (L = 2 m)	**XUM 2BPANL2**	0.237
		NPN	Pre-cabled (L = 2 m)	**XUM 2BNANL2**	0.237
	NC	PNP	Pre-cabled (L = 2 m)	**XUM 2BPBNL2**	0.237
		NPN	Pre-cabled (L = 2 m)	**XUM 2BNBNL2**	0.237
Transmitter only					
15 m			Pre-cabled (L = 2 m)	**XUM 2BKCNL2T**	0.128
Receiver only					
15 m	NO	PNP	Pre-cabled (L = 2 m)	**XUM 2BPANL2R**	0.128
		NPN	Pre-cabled (L = 2 m)	**XUM 2BNANL2R**	0.128
	NC	PNP	Pre-cabled (L = 2 m)	**XUM 2BPBNL2R**	0.128
		NPN	Pre-cabled (L = 2 m)	**XUM 2BNBNL2R**	0.128

Fixing accessory		
Description	**Reference**	**Weight kg**
Base mounting fixing bracket	**XUZ AM81**	0.020

Photo-electric sensors

OsiSense XU Application, packaging and machine tool series

Miniature design, metal

Three-wire DC, solid-state output

Characteristics

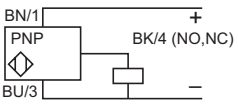
Sensor type			XUM ●B●●NL2	
Product certifications			CE, cULus, CTick	
Connection	Pre-cabled		Length: 2 m	
Sensing distance				
nominal Sn / **maximum**		**m**	**0.77 diffuse system with adjustable sensitivity**	
(excess gain = 2) (excess gain = 1)		**m**	**5 polarised reflex**	
		m	**15 thru-beam**	
Type of transmission			Infrared, except polarised reflex system (red)	
Degree of protection	Conforming to IEC 60529		IP 65, IP 67	
	DIN 40050		IP 69K	
Storage temperature		**°C**	- 40…+ 70	
Operating temperature		**°C**	- 30…+ 60	
Materials	Case		Zamack and stainless steel	
	Lens		Glass	
	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 **XUM 5**; 13 for **XUM 9**; 11 for transmitter **XUM 2**; 13 for receiver **XUM 2**	
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

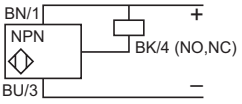
Pre-cabled

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

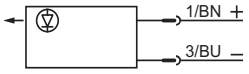
PNP



NPN

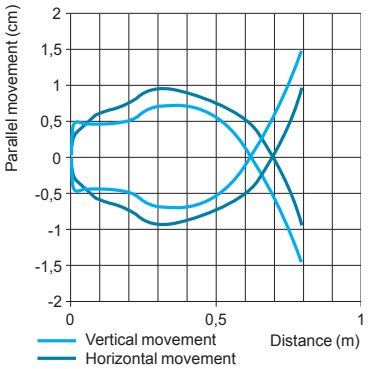


Transmitter ⎓

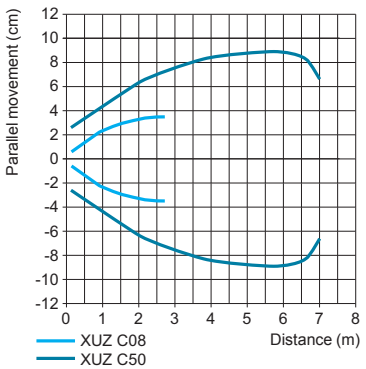


Curves

Diffuse



Polarised reflex



Thru-beam

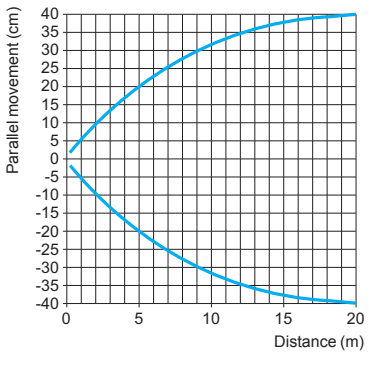


Photo-electric sensors

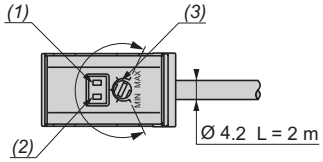
OsiSense XU Application, packaging and machine tool series

Miniature design, metal

Three-wire DC, solid-state output

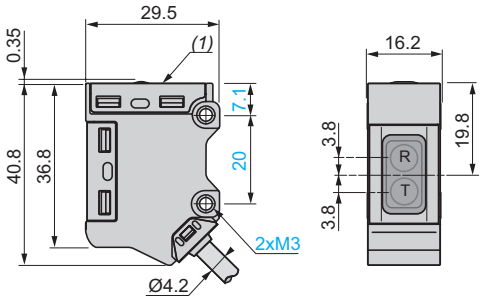
Diffuse system

Description - XUM 5B●●NL2



(1) Output state LED.
(2) Stability and power on LED.
(3) Adjustment potentiometer.

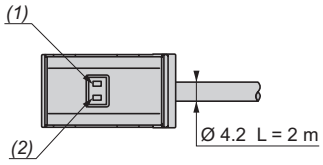
Dimensions - XUM 5B●●NL2



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

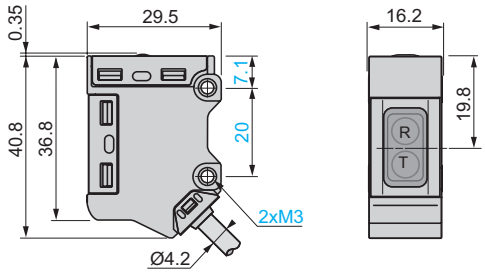
Polarised reflex system

Description - XUM 9B●●NL2



(1) Output state LED.
(2) Stability and power on LED.

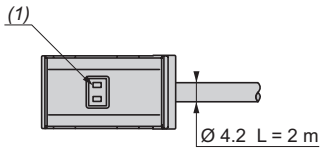
Dimensions - XUM 9B●●NL2



R: Reception, T: Transmission.

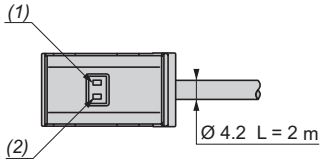
Thru-beam system

Description - XUM 2BKCNL2T



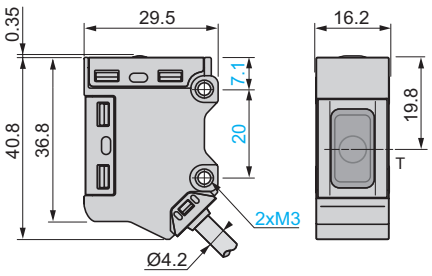
(1) Output state LED.

Description - XUM 2B●●NL2R



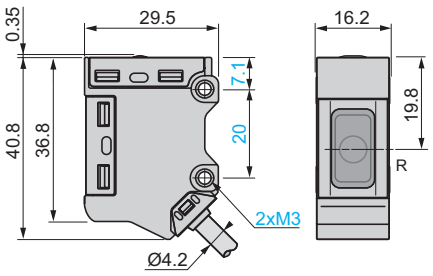
(1) Output state LED.
(2) Stability and power on LED.

Dimensions - XUM 2BKCNL2T



T: Transmission.

Dimensions - XUM 2B●●NL2R



R: Reception

Photo-electric sensors

OsiSense XU Application, packaging and machine tool series

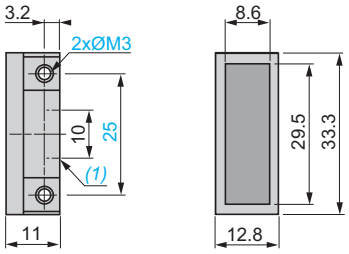
Miniature design, metal

Three-wire DC, solid-state output

Accessories

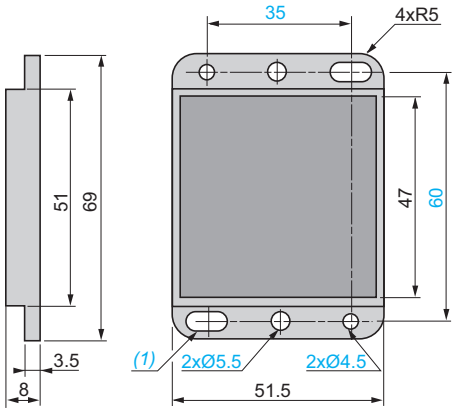
Reflectors

XUZ C08



(1) 2 x M3

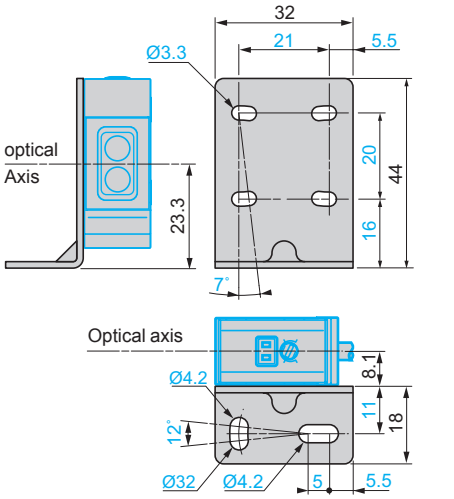
XUZ C50



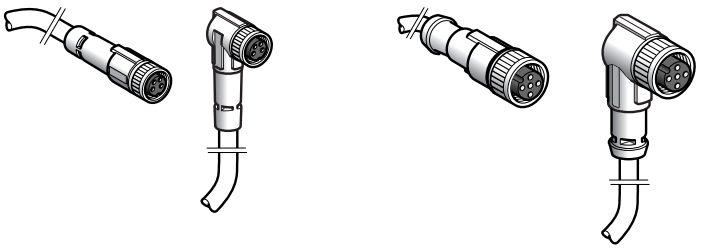
(1) Elongated holes Ø 4.5 x 8

Fixing bracket

XUZ AM81



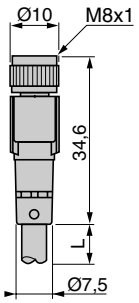
Machine cabling accessories
OsiSense XZ
Pre-wired connectors M8 and M12
PUR cable



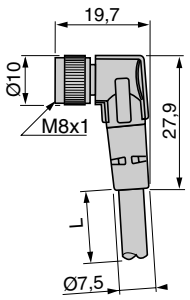
Connector type		Female, M8, straight	Female, M8, elbowed	Female, M12, straight	Female, M12, elbowed
Number of pins		4			
References					
PUR cable	L = 2 m	**XZ CP0941L2**	**XZ CP1041L2**	**XZ CP1141L2**	**XZ CP1241L2**
	L = 5 m	**XZ CP0941L5**	**XZ CP1041L5**	**XZ CP1141L5**	**XZ CP1241L5**
	L = 10 m	**XZ CP0941L10**	**XZ CP1041L10**	**XZ CP1141L10**	**XZ CP1241L10**
Weight (kg)		0.080 (L = 2 m), 0.180 (L = 5 m), 0.360 (L = 10 m)		0.090 (L = 2 m), 0.190 (L = 5 m), 0.370 (L = 10 m)	
Characteristics					
Certifications		UL		UL	
Connection type		Screw threaded (metal clamping ring)		Screw threaded (metal clamping ring)	
Degree of protection		IP 67 (with clamping ring correctly tightened)		IP 67 (with clamping ring correctly tightened)	
Ambiant air temperature	Static cable	- 35…+ 90 °C		- 35…+ 90 °C	
	Flexing cable	- 5…+ 90 °C		- 5…+ 90 °C	
Cabling		Ø 5.2 mm cable, conductor c.s.a.: 4 x 0.34 mm²		Ø 5.2 mm cable, conductor c.s.a.: 4 x 0.34 mm²	
LED indicators		–		–	
Nominal voltage		∼ 60 V, ⎓ 75 V		∼ 60 V, ⎓ 75 V	
Nominal current		4 A		4 A	
Insulation resistance		> 10^9 Ω		> 10^9 Ω	
Contact resistance		⩽ 5 m Ω		⩽ 5 m Ω	

Dimensions

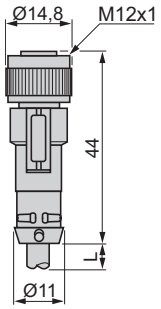
XZ CP0941L●



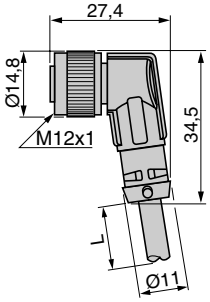
XZ CP1041L●



XZ CP1141L●



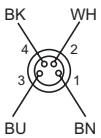
XZ CP1241L●



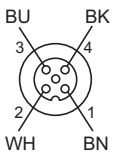
L = 2, 5 or 10 m

Connections

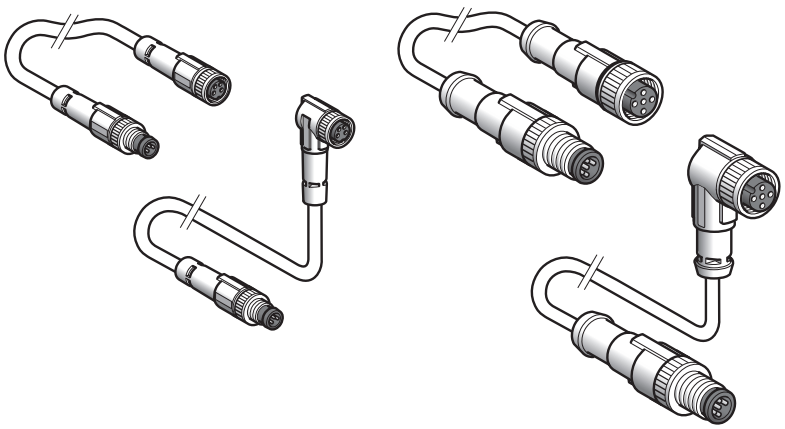
XZ CP0941L● and **XZ CP1041L●**



XZ CP1141L● and **XZ CP1241L●**



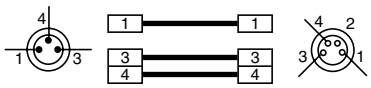
Machine cabling accessories
OsiSense XZ
Jumper cables, M8-M8 and M12-M12
PUR cable



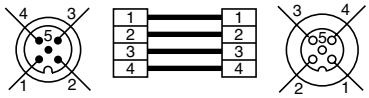
Male connector type		M8, 3-pin, straight		M12, 4-pin, straight	
Female connector type		M8, 4-pin, straight	M8, 4-pin, elbowed	M12, 4-pin, straight	M12, 4-pin, elbowed
Number of conductors		3		4	
References					
PUR cable	L = 1 m	**XZ CR2709037S1**	**XZ CR2710037S1**	**XZ CR1511041C1**	**XZ CR1512041C1**
	L = 2 m	**XZ CR2709037S2**	**XZ CR2710037S2**	**XZ CR1511041C2**	**XZ CR1512041C2**
Weight (kg)		0.060 (L = 1 m), 0.090 (L = 2 m)		0.065 (L = 1 m), 0.095 (L = 2 m)	
Characteristics					
Certifications		UL		UL	
Connection type		Male: screw threaded and clip Female: srew threaded. Metal clamping ring.		Male and female: screw threaded	
Degree of protection		IP 67		IP 67	
Ambiant air temperature	Static cable	- 35…+ 90 °C		- 35…+ 90 °C	
	Flexing cable	- 5…+ 90 °C		- 5…+ 90 °C	
Conductor c.s.a.		3 x 0.34 mm²		4 x 0.34 mm²	
Cable diameter		5.2 mm		5.2 mm	
Nominal voltage		∼ 60 V, ⎓ 45 V		∼ 250 V, ⎓ 300 V	
Nominal current		4 A		4 A	
Insulation resistance		> 10^9 Ω		> 10^9 Ω	
Contact resistance		≤ 5 mΩ		≤ 5 mΩ	

Connections

XZ CR2709037S● and **XZ CR2710037S●**

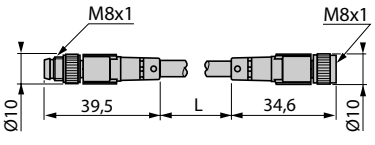


XZ CR1511041C● and **XZ CR1512041C●**

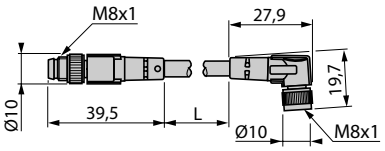


Dimensions

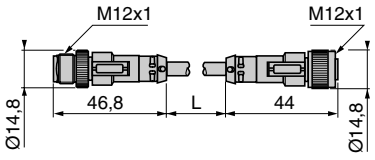
XZ CR2709037S●



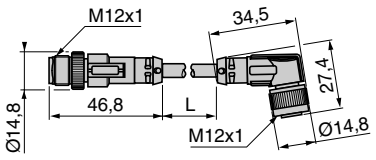
XZ CR2710037S●



XZ CR1511041C●



XZ CR1512041C●



L = 1 or 2 m

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