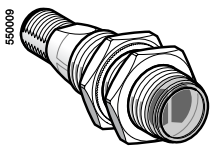
Photo-electric sensors

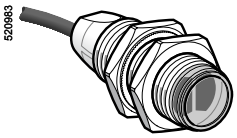
OsiSense XU, single mode function

Design 18, metal

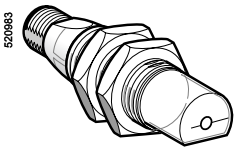
Three-wire DC, solid-state output



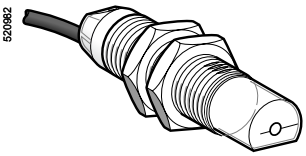
XUB ●B●●NM12



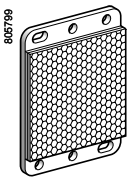
XUB ●B●●NL2



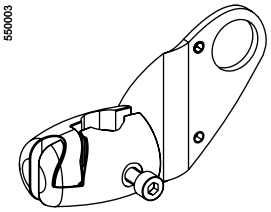
XUB ●B●●WM12



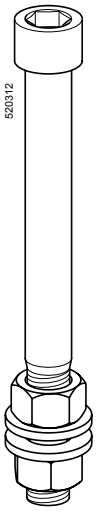
XUB ●B●●WL2



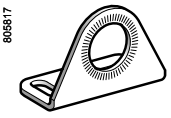
XUZ C50



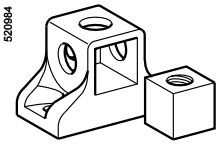
XUZ B2003



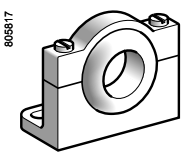
XUZ 2001



XUZ A118



XUZ 2003



XUZ A218

Connector

Sensing distance (Sn) m	Function	Output	Line of sight	Reference	Weight kg
Diffuse system					
0.1	NO	PNP	Along case axis	**XUB 4BPANM12**	0.050
			90° to case axis	**XUB 4BPAWM12**	0.050
		NPN	Along case axis	**XUB 4BNANM12**	0.050
			90° to case axis	**XUB 4BNAWM12**	0.050
	NC	PNP	Along case axis	**XUB 4BPBNM12**	0.050
			90° to case axis	**XUB 4BPBWM12**	0.050
		NPN	Along case axis	**XUB 4BNBNM12**	0.050
			90° to case axis	**XUB 4BNBWM12**	0.050
Diffuse system with adjustable sensitivity					
0.6	NO	PNP	Along case axis	**XUB 5BPANM12**	0.055
			90° to case axis	**XUB 5BPAWM12**	0.060
		NPN	Along case axis	**XUB 5BNANM12**	0.055
			90° to case axis	**XUB 5BNAWM12**	0.060
	NC	PNP	Along case axis	**XUB 5BPBNM12**	0.055
			90° to case axis	**XUB 5BPBWM12**	0.060
		NPN	Along case axis	**XUB 5BNBNM12**	0.055
			90° to case axis	**XUB 5BNBWM12**	0.060
Polarised reflex system					
2	NO	PNP	Along case axis	**XUB 9BPANM12**	0.050
			90° to case axis	**XUB 9BPAWM12**	0.050
		NPN	Along case axis	**XUB 9BNANM12**	0.050
			90° to case axis	**XUB 9BNAWM12**	0.050
	NC	PNP	Along case axis	**XUB 9BPBNM12**	0.050
			90° to case axis	**XUB 9BPBWM12**	0.050
		NPN	Along case axis	**XUB 9BNBNM12**	0.050
			90° to case axis	**XUB 9BNBWM12**	0.050
Reflector 50 x 50 mm	–	–	–	**XUZ C50**	0.020
Reflex system					
4	NO	PNP	Along case axis	**XUB 1BPANM12**	0.050
			90° to case axis	**XUB 1BPAWM12**	0.050
		NPN	Along case axis	**XUB 1BNANM12**	0.050
			90° to case axis	**XUB 1BNAWM12**	0.050
	NC	PNP	Along case axis	**XUB 1BPBNM12**	0.050
			90° to case axis	**XUB 1BPBWM12**	0.050
		NPN	Along case axis	**XUB 1BNBNM12**	0.050
			90° to case axis	**XUB 1BNBWM12**	0.050
Reflector 50 x 50 mm	–	–	–	**XUZ C50**	0.020
Thru-beam system					
Transmitter 15	–	–	Along case axis	**XUB 2BKSNM12T**	0.050
			90° to case axis	**XUB 2BKSWM12T**	0.050
Receiver 15	NO	PNP	Along case axis	**XUB 2BPANM12R**	0.050
			90° to case axis	**XUB 2BPAWM12R**	0.050
		NPN	Along case axis	**XUB 2BNANM12R**	0.050
			90° to case axis	**XUB 2BNAWM12R**	0.050
	NC	PNP	Along case axis	**XUB 2BPBNM12R**	0.050
			90° to case axis	**XUB 2BPBWM12R**	0.050
		NPN	Along case axis	**XUB 2BNBNM12R**	0.050
			90° to case axis	**XUB 2BNBWM12R**	0.050

Fixing accessories *(1)*

Description	Reference	Weight kg
3D fixing kit for use on M12 rod, for XUB or XUZ C50	**XUZ B2003**	0.170
M12 rod	**XUZ 2001**	0.050
Support for M12 rod	**XUZ 2003**	0.150
Stainless steel fixing bracket	**XUZ A118**	0.045
Plastic fixing bracket with adjustable ball-joint	**XUZ A218**	0.035

Pre-cabled

For a pre-cabled sensor, replace **M12** by **L2** for a 2 m long cable, or by **L5** for a 5 m long cable.
Example: **XUB 1BPANM12** becomes **XUB 1BPANL2** for a 2 m long cable and **XUB 1BPANL5** for a 5 m long cable.
For availability, please consult our Customer Care Centre.

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

Photo-electric sensors

OsiSense XU, single mode function
Design 18, metal
Three-wire DC, solid-state output

Characteristics

Sensor type			XUB 1, XUB 2, XUB 4, XUB 5, XUB 9	XUB 1, XUB 2, XUB 4, XUB 5, XUB 9
Product certifications			UL, CSA, CE	
Connection	Connector		M12	–
	Pre-cabled		–	Length: 2 m
Sensing distance		**m**	**0.1 / 0.15 diffuse**	
nominal Sn / maximum		**m**	**0.6 / 0.8 diffuse with adjustable sensitivity**	
(excess gain = 2) (excess gain = 1)		**m**	**2 / 3 polarised reflex**	
		m	**4 / 5.5 reflex**	
		m	**15 / 20 thru-beam**	
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		Nickel plated brass	
	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 (except for **XUB 2●●●●●●T**)	
	Supply on		Green LED (only for **XUB 2●●●●●●T**)	
Rated supply voltage		**V**	⎓ 12…24 with protection against reverse polarity	
Voltage limits (including ripple)		**V**	⎓ 10…36	
Current consumption, no-load		**mA**	35	
Switching capacity		**mA**	⩽ 100 with overload and short-circuit protection	
Voltage drop, closed state		**V**	1.5	
Maximum switching frequency		**Hz**	500	
Delays	First-up	**ms**	< 15	
	Response	**ms**	< 1	
	Recovery	**ms**	< 1	

Wiring schemes

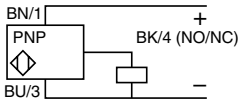
M12 connector

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

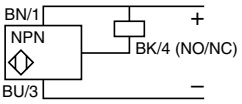
Pre-cabled

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

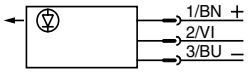
PNP



NPN



Transmitter

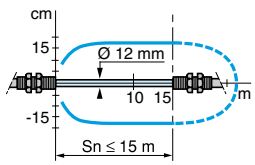


Input 2/VI:
- not connected: *beam made*
- connected to –: *beam broken*

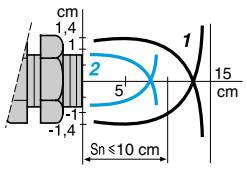
See connection on page 9/44

Detection curves

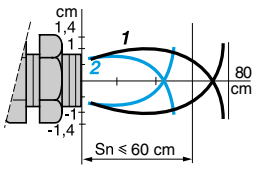
Thru-beam system



Diffuse system

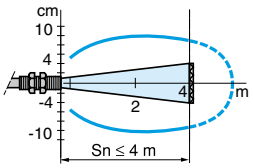


Diffuse system with adjustable sensitivity



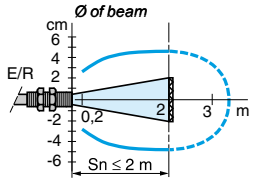
*Object 10 x 10 cm; **1** White 90%; **2** Grey 18%*

Reflex system



With reflector XUZ C50

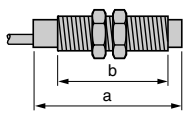
Polarised reflex system



With reflector XUZ C50

Dimensions

XUB



	Pre-cabled (mm)		Connector (mm)	
	a	**b**	**a**	**b**
Ø 18, line of sight along case axis	46 (2)	28	60 *(1)*	28
Ø 18, line of sight 90° to case axis	62	28	76	28
Ø 18, line of sight along case axis **XUB 5**	62	44	76	44
Ø 18, line of sight 90° to case axis **XUB 5**	78	44	92	44

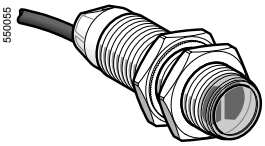
(1) Beam break input on thru-beam transmitter only.
*(2) For **XUB 9●●●●●●** (polarised reflex) 46 becomes 48 mm and 60 becomes 62 mm.*

Photo-electric sensors

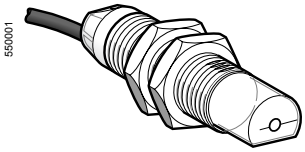
OsiSense XU multimode

Design 18, metal or plastic

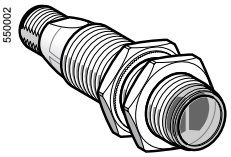
Three-wire DC, solid-state output



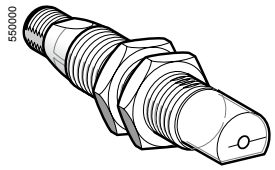
XUB 0●●●NL2



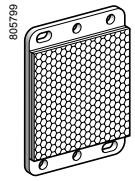
XUB 0●●●WL2



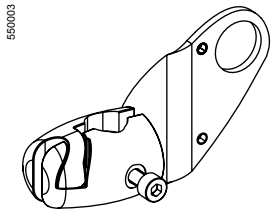
XUB 0●●●NM12



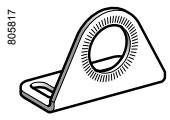
XUB 0●●●WM12



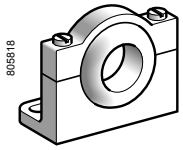
XUZ C50



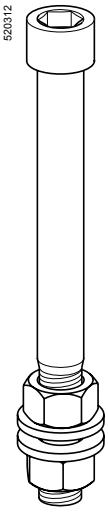
XUZ B2003



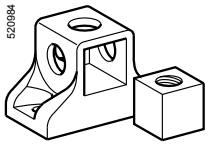
XUZ A118



XUZ A218



XUZ 2001



XUZ 2003

Ø 18 metal

Pre-cabled *(1)*

Sensing distance (Sn) *(2)* m	Function	Output	Line of sight	Reference	Weight kg
0…15 depending on whether accessories are used	NO or NC, by programming	PNP	Along case axis	**XUB 0BPSNL2**	0.105
			90° to case axis	**XUB 0BPSWL2** *(3)*	0.110
		NPN	Along case axis	**XUB 0BNSNL2**	0.105
			90° to case axis	**XUB 0BNSWL2** *(3)*	0.110

M12 connector

0…15 depending on whether accessories are used	NO or NC, by programming	PNP	Along case axis	**XUB 0BPSNM12**	0.055
			90° to case axis	**XUB 0BPSWM12** *(3)*	0.060
		NPN	Along case axis	**XUB 0BNSNM12**	0.055
			90° to case axis	**XUB 0BNSWM12** *(3)*	0.060

Accessories

Description	Connection	Line of sight	Reference	Weight kg
Thru-beam transmitter	Pre-cabled *(1)*	Along case axis	**XUB 0BKSNL2T**	0.105
		90° to case axis	**XUB 0BKSWL2T** *(3)*	0.110
	M12 connector	Along case axis	**XUB 0BKSNM12T**	0.055
		90° to case axis	**XUB 0BKSWM12T** *(3)*	0.060
Reflector 50 x 50 mm	–	–	**XUZ C50**	0.020

Ø 18 plastic

Pre-cabled *(1)*

Sensing distance (Sn) (3) m	Function	Output	Line of sight	Reference	Weight kg
0…15 depending on whether accessories are used	NO or NC, by programming	PNP	Along case axis	**XUB 0APSNL2**	0.095
			90° to case axis	**XUB 0APSWL2** *(3)*	0.100
		NPN	Along case axis	**XUB 0ANSNL2**	0.095
			90° to case axis	**XUB 0ANSWL2** *(3)*	0.100

M12 connector

0…15 depending on whether accessories are used	NO or NC, by programming	PNP	Along case axis	**XUB 0APSNM12**	0.045
			90° to case axis	**XUB 0APSWM12** *(3)*	0.050
		NPN	Along case axis	**XUB 0ANSNM12**	0.045
			90° to case axis	**XUB 0ANSWM12** *(3)*	0.050

Accessories

Description	Connection	Line of sight	Reference	Weight kg
Thru-beam transmitter	Pre-cabled *(1)*	Along case axis	**XUB 0AKSNL2T**	0.095
		90° to case axis	**XUB 0AKSWL2T** *(3)*	0.100
	M12 connector	Along case axis	**XUB 0AKSNM12T**	0.045
		90° to case axis	**XUB 0AKSWM12T** *(3)*	0.050
Reflector 50 x 50 mm	–	–	**XUZ C50**	0.020

Fixing accessories *(4)*

Description	Reference	Weight kg
3D fixing kit for use on M12 rod, for XUB or XUZ C50	**XUZ B2003**	0.170
M12 rod	**XUZ 2001**	0.050
Support for M12 rod	**XUZ 2003**	0.150
Stainless steel fixing bracket	**XUZ A118**	0.045
Plastic fixing bracket with adjustable ball-joint	**XUZ A218**	0.035

*(1) For a 5 m long cable, replace L2 by **L5**.*
*Example: XUB 0BPSNL2 becomes **XUB 0BPSNL5**.*
For availability, please consult our Customer Care Centre.
(2) For further information, see page 5/31.
(3) For line of sight 90° to case axis versions, see sensing distances on page5/31.
(4) For further information, see page 5/158.

Photo-electric sensors

OsiSense XU multimode

Design 18, metal or plastic

Three-wire DC, solid-state output

Characteristics

Sensor type			XUB 0●●●●M12, XUB 0●●●●M12T		XUB 0●●●●L2, XUB 0●●●●L2T
Product certifications			UL, CSA, CE		
Connection	Connector		M12		–
	Pre-cabled		–		Length: 2 m
Sensing distance nominal Sn / (excess gain = 2)	**maximum** (excess gain = 1)		**Line of sight along case axis**	**Line of sight 90° to case axis**	**Accessory**
		m	**0.12 / 0.12**	**0.11 / 0.11**	**Without (diffuse with background suppression)**
		m	**0.3 / 0.4**	**0.2 / 0.3**	**Without (diffuse)**
		m	**2 / 3**	**1.5 / 2**	**With reflector (polarised reflex)**
		m	**15 / 20**	**7 / 10**	**With thru-beam transmitter (thru-beam)**
Type of transmission			Infrared, except for 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: nickel plated brass for XUB 0B or PBT for XUB 0A; 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 **XUB 0●●●●●●T**)		
	Supply on		Green LED		
	Optical alignment aid/dirty		Red LED (except for **XUB 0●●●●●●T**)		
Rated supply voltage		**V**	⎓ 12…24 with protection against reverse polarity		
Voltage limits (including ripple)		**V**	⎓ 10…36		
Current consumption, no-load		**mA**	35 (20 for **XUB 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

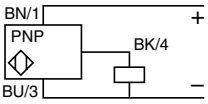
M12 connector

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

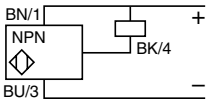
Pre-cabled

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

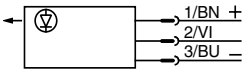
Receiver, PNP output



Receiver, NPN output



Thru-beam transmitter

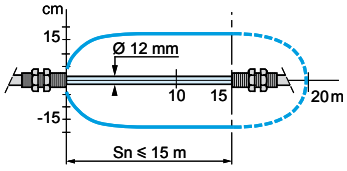


Input 2/VI:
- not connected: *beam made*
- connected to –: *beam broken*

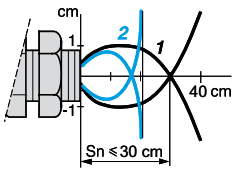
See connection on page 9/44.

Detection curves (line of sight along case axis)

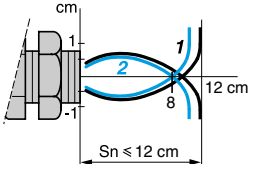
With thru-beam accessory (thru-beam)



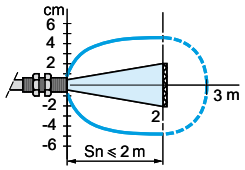
Without accessory (diffuse)



Without accessory (diffuse with background suppression)



With reflector (polarised reflex)

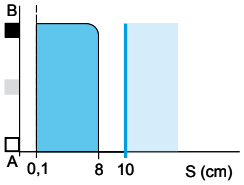


*Object: 10 x 10 cm, **1**: white 90%, **2** : grey 18%*

With reflector XUZ C50

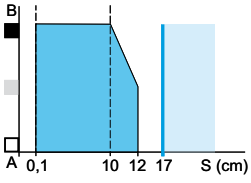
Variation of usable sensing distance Su (without accessory, with adjustable background suppression)

Teach mode at minimum.



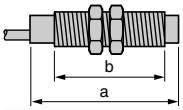
A-B: *object reflection coefficient*
- *Black 6%*
- *Grey 18%*
- *White 90%*
- *Sensing range*
- *Non sensing zone (matt surfaces)*

Teach mode at maximum.



Dimensions

XUB



	Pre-cabled (mm)		Connector (mm)	
	a	**b**	**a**	**b**
Ø 18, line of sight along case axis	64 *(2)*	44	78 *(2)*	44
Ø 18, line of sight 90° to case axis	78	44	92	44

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

*(2) For **XUB 0●●●●●●T**, 64 becomes 62 mm and 78 becomes 76 mm.*