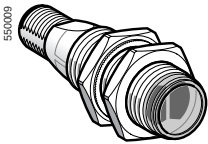
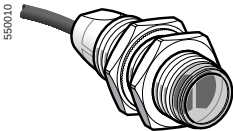


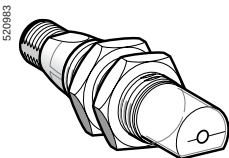
Photo-electric sensors
OsiSense XU, single mode function
Design 18, plastic
Three-wire DC, solid-state output



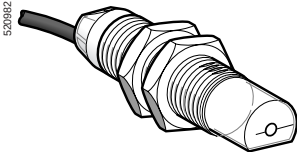
XUB●A●●NM12



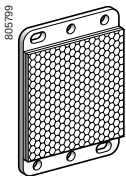
XUB●A●●NL2



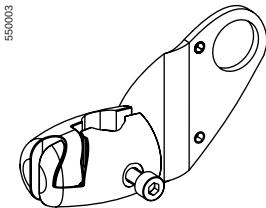
XUB●A●●WM12



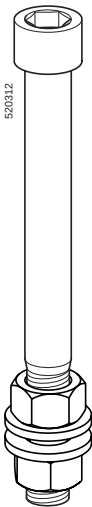
XUB●A●●WL2



XUZC50



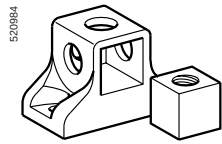
XUZB2003



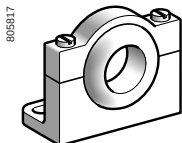
XUZ2001



XUZA118



XUZ2003



XUZA218

Connector					
Sensing distance (Sn) m	Function	Output	Line of sight	Reference	Weight kg
Diffuse system					
0.1	NO	PNP	Along case axis	XUB4APANM12	0.040
			90° to case axis	XUB4APAWM12	0.040
	NPN	Along case axis	XUB4ANANM12	0.040	
		90° to case axis	XUB4ANAWM12	0.040	
	NC	PNP	Along case axis	XUB4APBNM12	0.040
			90° to case axis	XUB4APBWM12	0.040
	NPN	Along case axis	XUB4ANBNM12	0.040	
		90° to case axis	XUB4ANBWM12	0.040	
Diffuse system with adjustable sensitivity					
0.6	NO	PNP	Along case axis	XUB5APANM12	0.045
			90° to case axis	XUB5APAWM12	0.050
	NPN	Along case axis	XUB5ANANM12	0.045	
		90° to case axis	XUB5ANAWM12	0.050	
	NC	PNP	Along case axis	XUB5APBNM12	0.045
			90° to case axis	XUB5APBWM12	0.050
	NPN	Along case axis	XUB5ANBNM12	0.045	
		90° to case axis	XUB5ANBWM12	0.050	
Polarised reflex system					
2	NO	PNP	Along case axis	XUB9APANM12	0.040
			90° to case axis	XUB9APAWM12	0.040
	NPN	Along case axis	XUB9ANANM12	0.040	
		90° to case axis	XUB9ANAWM12	0.040	
	NC	PNP	Along case axis	XUB9APBNM12	0.040
			90° to case axis	XUB9APBWM12	0.040
	NPN	Along case axis	XUB9ANBNM12	0.040	
		90° to case axis	XUB9ANBWM12	0.040	
Reflector 50 x 50 mm	–	–	–	XUZC50	0.020
Reflex system					
4	NO	PNP	Along case axis	XUB1APANM12	0.040
			90° to case axis	XUB1APAWM12	0.040
	NPN	Along case axis	XUB1ANANM12	0.040	
		90° to case axis	XUB1ANAWM12	0.040	
	NC	PNP	Along case axis	XUB1APBNM12	0.040
			90° to case axis	XUB1APBWM12	0.040
	NPN	Along case axis	XUB1ANBNM12	0.040	
		90° to case axis	XUB1ANBWM12	0.040	
Reflector 50 x 50 mm	–	–	–	XUZC50	0.020
Thru-beam system					
Transmitter 15	–	–	Along case axis	XUB2AKSNM12T	0.040
			90° to case axis	XUB2AKSWM12T	0.040
Receiver 15	NO	PNP	Along case axis	XUB2APANM12R	0.040
			90° to case axis	XUB2APAWM12R	0.040
	NPN	Along case axis	XUB2ANANM12R	0.040	
		90° to case axis	XUB2ANAWM12R	0.040	
	NC	PNP	Along case axis	XUB2APBNM12R	0.040
			90° to case axis	XUB2APBWM12R	0.040
	NPN	Along case axis	XUB2ANBNM12R	0.040	
		90° to case axis	XUB2ANBWM12R	0.040	
Fixing accessories (1)					
Description				Reference	Weight kg
3D fixing kit for use on M12 rod, for XUB or XUZC50				XUZB2003	0.170
M12 rod				XUZ2001	0.050
Support for M12 rod				XUZ2003	0.150
Stainless steel fixing bracket				XUZA118	0.045
Plastic fixing bracket with adjustable ball-joint				XUZA218	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: XUB1APANM12 becomes XUB1APANL2 for a 2 m long cable and XUB1APANL5 for a 5 m long cable.					
For availability, please consult our Customer Care Centre.					
(1) For further information, see page 5/158.					

Characteristics

Sensor type		XUB1, XUB2, XUB4, XUB5, XUB9		XUB1, XUB2, XUB4, XUB5, XUB9	
Product certifications		UL, CSA, CE			
Connection	Connector	M12		—	
	Pre-cabled	—		Length: 2 m	
Sensing distance nominal Sn / maximum (excess gain = 1) (excess gain = 2)		m	0.1 / 0.15 diffuse		
		m	0.6 / 0.8 diffuse with adjustable sensitivity		
		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 ☐			
	Conforming to DIN 40050	IP 69K for connector versions			
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 (except for XUB2●●●●●T)			
	Supply on	Green LED (only for XUB2●●●●●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	Pre-cabled	PNP	NPN	Transmitter
	(-) BU (Blue) (+) BN (Brown) (OUT/Output) BK (Black) Beam break input (1) VI (Violet)			
Input 2/VI: - not connected: beam made - connected to -: beam broken				

Detection curves

Thru-beam system	Diffuse system	Diffuse system with adjustable sensitivity	Reflex system	Polarised reflex system
Object 10 x 10 cm; 1 White 90%; 2 Grey 18%		With reflector XUZC50		With reflector XUZC50

Dimensions

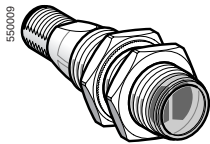
XUB		Pre-cabled (mm)		Connector (mm)	
		a	b	a	b
	Ø 18, line of sight along case axis	46 (2)	28	60 (1)	28
	Ø 18, line of sight 90° to case axis	62	28	76	28
	Ø 18, line of sight along case axis XUB5	62	44	76	44
	Ø 18, line of sight 90° to case axis XUB5	78	44	92	44

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

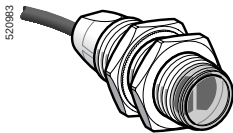
(2) For XUB9●●●●● (polarised reflex) 46 becomes 48 mm and 60 becomes 62 mm.

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

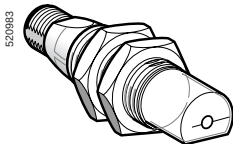
Connector					
Sensing distance (Sn) m	Function	Output	Line of sight	Reference	Weight kg
Diffuse system					
0.1	NO	PNP	Along case axis	XUB4BPANM12	0.050
			90° to case axis	XUB4BPAWM12	0.050
	NPN	Along case axis	XUB4BNANM12	0.050	
		90° to case axis	XUB4BNAWM12	0.050	
	NC	PNP	Along case axis	XUB4BPBNM12	0.050
			90° to case axis	XUB4BPBWM12	0.050
	NPN	Along case axis	XUB4BNBNM12	0.050	
		90° to case axis	XUB4BNBWM12	0.050	
Diffuse system with adjustable sensitivity					
0.6	NO	PNP	Along case axis	XUB5BPANM12	0.055
			90° to case axis	XUB5BPAWM12	0.060
	NPN	Along case axis	XUB5BNANM12	0.055	
		90° to case axis	XUB5BNAWM12	0.060	
	NC	PNP	Along case axis	XUB5BPBNM12	0.055
			90° to case axis	XUB5BPBWM12	0.060
	NPN	Along case axis	XUB5BNBNM12	0.055	
		90° to case axis	XUB5BNBWM12	0.060	
Polarised reflex system					
2	NO	PNP	Along case axis	XUB9BPANM12	0.050
			90° to case axis	XUB9BPAWM12	0.050
	NPN	Along case axis	XUB9BNANM12	0.050	
		90° to case axis	XUB9BNAWM12	0.050	
	NC	PNP	Along case axis	XUB9BPBNM12	0.050
			90° to case axis	XUB9BPBWM12	0.050
	NPN	Along case axis	XUB9BNBNM12	0.050	
		90° to case axis	XUB9BNBWM12	0.050	
Reflector 50 x 50 mm	–	–	–	XUZC50	0.020
Reflex system					
4	NO	PNP	Along case axis	XUB1BPANM12	0.050
			90° to case axis	XUB1BPAWM12	0.050
	NPN	Along case axis	XUB1BNANM12	0.050	
		90° to case axis	XUB1BNAWM12	0.050	
	NC	PNP	Along case axis	XUB1BPBNM12	0.050
			90° to case axis	XUB1BPBWM12	0.050
	NPN	Along case axis	XUB1BNBNM12	0.050	
		90° to case axis	XUB1BNBWM12	0.050	
Reflector 50 x 50 mm	–	–	–	XUZC50	0.020
Thru-beam system					
Transmitter 15	–	–	Along case axis	XUB2BKSNM12T	0.050
			90° to case axis	XUB2BKSWM12T	0.050
Receiver 15	NO	PNP	Along case axis	XUB2BPANM12R	0.050
			90° to case axis	XUB2BPAWM12R	0.050
	NPN	Along case axis	XUB2BNANM12R	0.050	
		90° to case axis	XUB2BNAWM12R	0.050	
	NC	PNP	Along case axis	XUB2BPBNM12R	0.050
			90° to case axis	XUB2BPBWM12R	0.050
	NPN	Along case axis	XUB2BNBNM12R	0.050	
		90° to case axis	XUB2BNBWM12R	0.050	
Fixing accessories (1)					
Description				Reference	Weight kg
3D fixing kit for use on M12 rod, for XUB or XUZC50				XUZB2003	0.170
M12 rod				XUZ2001	0.050
Support for M12 rod				XUZ2003	0.150
Stainless steel fixing bracket				XUZA118	0.045
Plastic fixing bracket with adjustable ball-joint				XUZA218	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: XUB1BPANM12 becomes XUB1BPANL2 for a 2 m long cable and XUB1BPANL5 for a 5 m long cable.					
For availability, please consult our Customer Care Centre.					
(1) For further information, see page 5/158.					



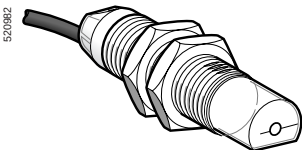
XUB4BPANM12



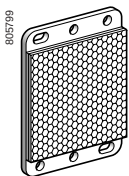
XUB5BPANM12



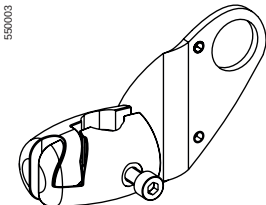
XUB9BPANM12



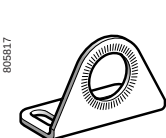
XUB1BPANM12



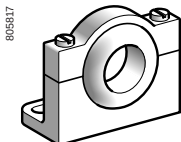
XUZC50



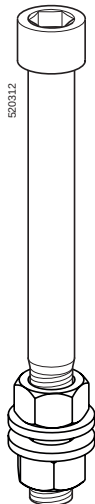
XUZA118



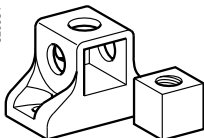
XUZA218



XUZA218



XUZ2001



XUZ2003

Characteristics

Sensor type		XUB1, XUB2, XUB4, XUB5, XUB9	XUB1, XUB2, XUB4, XUB5, XUB9
Product certifications		UL, CSA, CE	
Connection	Connector	M12	—
	Pre-cabled	—	Length: 2 m
Sensing distance nominal Sn / maximum (excess gain = 2) (excess gain = 1)		m	0.1 / 0.15 diffuse
		m	0.6 / 0.8 diffuse with adjustable sensitivity
		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 □	
	Conforming to DIN 40050	IP 69K for connector versions	
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 XUB2●●●●●T)	
	Supply on	Green LED (only for XUB2●●●●●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

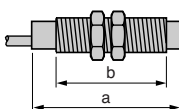
M12 connector	Pre-cabled	PNP	NPN	Transmitter
	(-) BU (Blue) 1 (+) (+) BN (Brown) (OUT/Output) BK (Black) Beam break input (1) VI (Violet)			
Input 2/VI: - not connected: beam made - connected to -: beam broken				

Detection curves

Thru-beam system	Diffuse system	Diffuse system with adjustable sensitivity	Reflex system	Polarised reflex system

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 XUB5	62	44	76	44
Ø 18, line of sight 90° to case axis XUB5	78	44	92	44

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

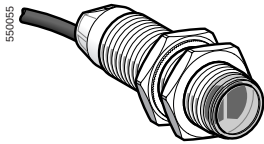
(2) For XUB9●●●●● (polarised reflex) 46 becomes 48 mm and 60 becomes 62 mm.

Photo-electric sensors

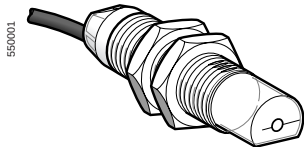
OsiSense XU multimode

Design 18, metal or plastic

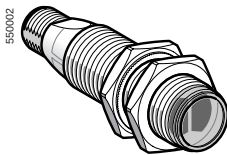
Three-wire DC, solid-state output



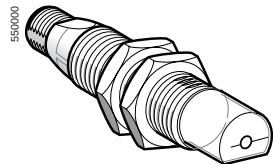
XUB0...NL2



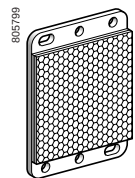
XUB0...WL2



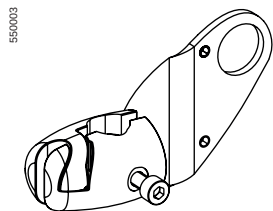
XUB0...NM12



XUB0...WM12



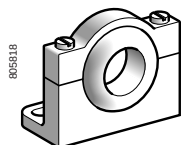
XUZC50



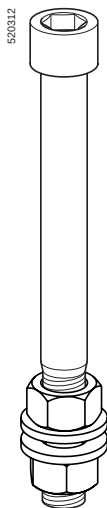
XUZB2003



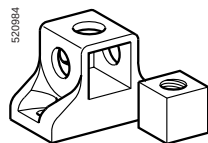
XUZA118



XUZA218



XUZ2001



XUZ2003

Ø 18 metal

Pre-cabled (1)

Sensing distance (Sn) (2) m	Function	Output	Line of sight	Reference	Weight kg
0...20 depending on whether accessories are used	NO or NC, by programming	PNP	Along case axis	XUB0BPSNL2	0.105
			90° to case axis	XUB0BPSWL2 (3)	0.110
	NPN		Along case axis	XUB0BNSNL2	0.105
			90° to case axis	XUB0BNSWL2 (3)	0.110

M12 connector

0...20 depending on whether accessories are used	NO or NC, by programming	PNP	Along case axis	XUB0BPSNM12	0.055
			90° to case axis	XUB0BPSWM12 (3)	0.060
	NPN		Along case axis	XUB0BNSNM12	0.055
			90° to case axis	XUB0BNSWM12 (3)	0.060

Accessories

Description	Connecti-on	Line of sight	Reference	Weight kg
Thru-beam transmitter	Pre-cabled (1)	Along case axis	XUB0BKSNL2T	0.105
		90° to case axis	XUB0BKSWL2T (3)	0.110
	M12 connector	Along case axis	XUB0BKSNM12T	0.055
		90° to case axis	XUB0BKSWM12T (3)	0.060
Reflector 50 x 50 mm	—	—	XUZC50	0.020

Ø 18 plastic

Pre-cabled (1)

Sensing distance (Sn) (3) m	Function	Output	Line of sight	Reference	Weight kg
0...20 depending on whether accessories are used	NO or NC, by programming	PNP	Along case axis	XUB0APSNL2	0.095
			90° to case axis	XUB0APSWL2 (3)	0.100
	NPN		Along case axis	XUB0ANSNL2	0.095
			90° to case axis	XUB0ANSWL2 (3)	0.100

M12 connector

0...20 depending on whether accessories are used	NO or NC, by programming	PNP	Along case axis	XUB0APSNM12	0.045
			90° to case axis	XUB0APSWM12 (3)	0.050
	NPN		Along case axis	XUB0ANSNM12	0.045
			90° to case axis	XUB0ANSWM12 (3)	0.050

Accessories

Description	Connecti-on	Line of sight	Reference	Weight kg
Thru-beam transmitter	Pre-cabled (1)	Along case axis	XUB0AKSNL2T	0.095
		90° to case axis	XUB0AKSWL2T (3)	0.100
	M12 connector	Along case axis	XUB0AKSNM12T	0.045
		90° to case axis	XUB0AKSWM12T (3)	0.050
Reflector 50 x 50 mm	—	—	XUZC50	0.020

Fixing accessories (4)

Description	Reference	Weight kg
3D fixing kit for use on M12 rod, for XUB or XUZC50	XUZB2003	0.170
M12 rod	XUZ2001	0.050
Support for M12 rod	XUZ2003	0.150
Stainless steel fixing bracket	XUZA118	0.045
Plastic fixing bracket with adjustable ball-joint	XUZA218	0.035

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

Example: XUB0BPSNL2 becomes XUB0BPSNL5.

For availability, please consult our Customer Care Centre.

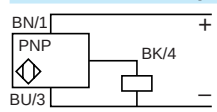
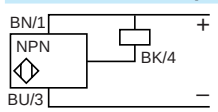
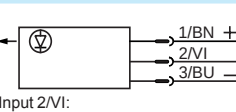
(2) For further information, see page 5/33.

(3) For line of sight 90° to case axis versions, see sensing distances on page 5/33.

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

Characteristics				
Sensor type		XUB0●●●●M12, XUB0●●●●M12T		XUB0●●●●L2, XUB0●●●●L2T
Product certifications		UL, CSA, CE		
Connection	Connector	M12		—
	Pre-cabled	—		Length: 2 m
Sensing distance maximum (excess gain = 1) nominal Sn / (excess gain = 2)		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	3 / 4	1.5 / 2	With reflector (polarised reflex)
	m	20 / 30	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 □		
	Conforming to DIN 40050	IP 69K for XUB0●●●●M12 and XUB0●●●●M12T		
Storage temperature		°C	- 40...+ 70	
Operating temperature		°C	- 25...+ 55	
Materials		Case: nickel plated brass for XUB0B or PBT for XUB0A; 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 XUB0●●●●●T)		
	Supply on	Green LED		
	Optical alignment aid/dirty	Red LED (except for XUB0●●●●●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 XUB0●●●●●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)	

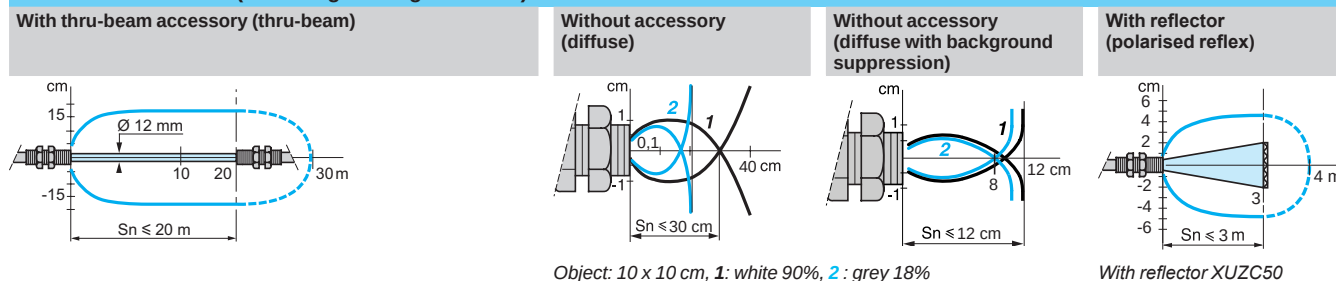
Wiring schemes

M12 connector	Pre-cabled	Receiver, PNP output	Receiver, NPN output	Thru-beam transmitter
 3 (-) 1 (+) 4 OUT/Output 2 Beam break input (1)	(-) BU (Blue) (+) BN (Brown) OUT/Output BK (Black) Beam break input (1) VI (Violet)	 BN/1 PNP BK/4 BU/3	 BN/1 NPN BK/4 BU/3	 1/BN + 2/VI 3/BU -

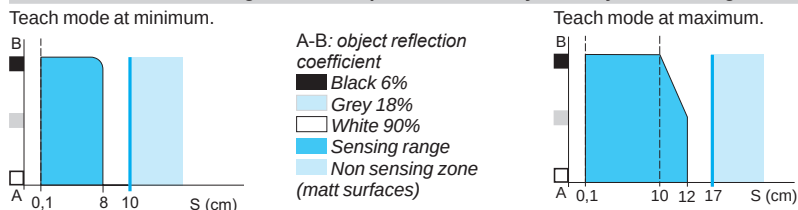
See connection on page 30210/2.

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

Detection curves (line of sight along case axis)



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



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 XUB0●●●●●T, 64 becomes 62 mm and 78 becomes 76 mm.

Photo-electric sensors
OsiSense XU Application, packaging series
For detection of transparent materials
Design 18, plastic or stainless steel
Three-wire DC, solid-state output

Ø 18 plastic, coaxial polarised reflex with teach mode					
Sensing distance (Sn) m	Function	Line of sight	Output	Reference	Weight kg
Pre-cabled (2)					
0...1.4 With reflector XUZC50/C50HP	NO or NC, by programming	Along case axis	PNP	XUBTAPSNL2 (1)	0.110
			NPN	XUBTANSNL2 (1)	0.110
0...0.8 With reflector XUZC50/C50HP	NO or NC, by programming	90° to case axis	PNP	XUBTAPSWL2 (1)	0.113
			NPN	XUBTANSWL2 (1)	0.113
M12 connector					
0...1.4 With reflector XUZC50/C50HP	NO or NC, by programming	Along case axis	PNP	XUBTAPSNM12 (1)	0.045
			NPN	XUBTANSNM12 (1)	0.045
0...0.8 With reflector XUZC50/C50HP	NO or NC, by programming	90° to case axis	PNP	XUBTAPSWM12 (1)	0.048
			NPN	XUBTANSWM12 (1)	0.048

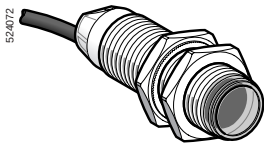
Ø 18 stainless steel, coaxial polarised reflex with teach mode					
Sensing distance (Sn) m	Function	Line of sight	Output	Reference	Weight kg
Pre-cabled (2)					
0...1.4 With reflector XUZC50/C50HP	NO or NC, by programming	Along case axis	PNP	XUBTSPSNL2 (1)	0.135
			NPN	XUBTSNSNL2 (1)	0.135
0...0.8 With reflector XUZC50/C50HP	NO or NC, by programming	90° to case axis	PNP	XUBTSPSWL2 (1)	0.138
			NPN	XUBTSNSWL2 (1)	0.138
M12 connector					
0...1.4 With reflector XUZC50/C50HP	NO or NC, by programming	Along case axis	PNP	XUBTSPSNM12 (1)	0.070
			NPN	XUBTSNSNM12 (1)	0.070
0...0.8 With reflector XUZC50/C50HP	NO or NC, by programming	90° to case axis	PNP	XUBTSPSWM12 (1)	0.073
			NPN	XUBTSNSWM12 (1)	0.073

Ø 18 plastic, reflex with teach mode					
Sensing distance (Sn) m	Function	Line of sight	Output	Reference	Weight kg
Pre-cabled (2)					
0.1...0.8 With reflector XUZC50	NO or NC, by programming	Along case axis	PNP	XUBT1PSNL2	0.103
			NPN	XUBT1NSNL2	0.103
M12 connector					
0.1...0.8 With reflector XUZC50	NO or NC, by programming	Along case axis	PNP	XUBT1PSNM12	0.045
			NPN	XUBT1NSNM12	0.045

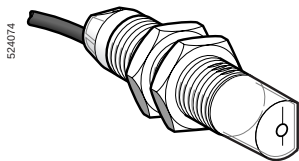
Accessories for XUBT..... (3)			
Description	Dimensions	Reference	Weight kg
Universal reflector	50 x 50 mm	XUZC50	0.020
Application reflector (accuracy, detection sensitivity)	50 x 50 mm	XUZC50HP	0.020

Fixing accessories (4)		
Description	Reference	Weight kg
3D fixing kit for use on M12 rod, for XUBT or XUZC50/C50HP	XUZB2003	0.170
M12 rod	XUZ2001	0.050
Support for M12 rod	XUZ2003	0.150
Stainless steel fixing bracket	XUZA118	0.045
Plastic fixing bracket with adjustable ball-joint	XUZA218	0.035

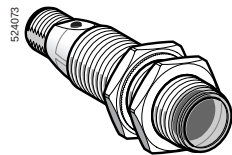
- (1) Application reflector XUZC50HP included with sensor.
(2) For a 5 m long cable, replace L2 by L5.
Example: XUBTAPSNL2 becomes XUBTAPSNL5.
(3) For further information, see page 5/159.
(4) For further information, see page 5/158.



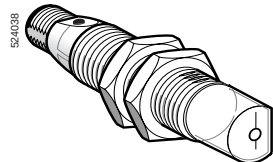
XUBT...NL2



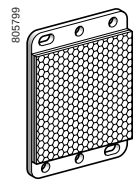
XUBT...WL2



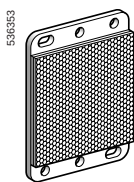
XUBT...NM12



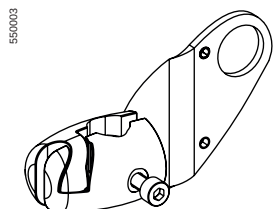
XUBT...WM12



XUZC50



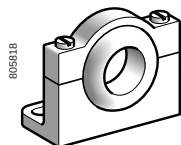
XUZC50HP



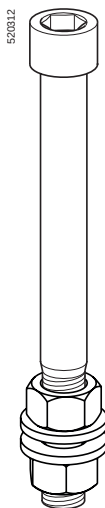
XUZB2003



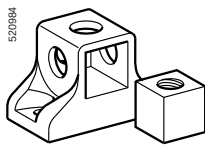
XUZA118



XUZA218



XUZ2001



XUZ2003

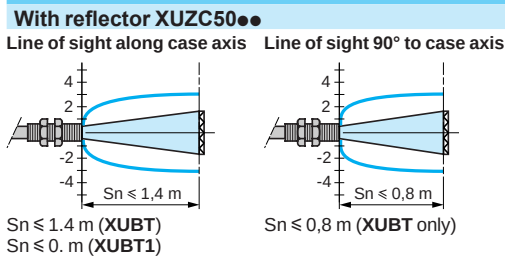
Characteristics					
Sensor type			XUBT●●●●M12/XUBT●●●●L2	XUBT1●●●●M12/XUBT1●●●●L2	
Product certifications			UL, CSA, CE		
Connection	Connector		M12 (male)		
	Pre-cabled		Length: 2 m, wire c.s.a.: 3 x 0.34 mm²		
Nominal sensing distance Sn	Line of sight along case axis	m	0 to 1.4 with reflector XUZC50/C50HP	0.1 to 0.8 with reflector XUZC50	
	Line of sight 90° to case axis	m	0 to 0.8 with reflector XUZC50/C50HP	–	
Beam divergence			1.5° (Ø 37mm spot at 1.4 m)		
Blind zone			m	0	0.1
Preferred object approach direction			Any		Lenses on horizontal plane for horizontal passage of object
Type of transmission			Coaxial polarised red		Dual lens red
Degree of protection			Conforming to IEC 60529	IP 65, IP 67, double insulation □ IP 69K for connector version XUBT●●●●M12 (1)	
Temperature	Storage	°C	- 40...+ 70		
	Operation	°C	0...+ 55		
Materials	Case		XUBTA and XUBT1 ●●●●●: plastic PBT XUBTS●●●●●: stainless steel (grade 304Cu)		
	Lens		PMMA		
	Cable		PvR		
Vibration resistance			Conforming to IEC 60068-2-6 7 gn, amplitude ± 1 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		
	Supply on		Green LED		
	Stability		Red LED		Red LED for alignment only
Rated supply voltage			V	--- 12...24 with protection against reverse polarity	
Voltage limits (including ripple)			V	--- 10...32	
Current consumption, no-load			mA	45	30
Switching capacity			mA	≤ 100 with overload and short-circuit protection	
Voltage drop, closed state			V	≤ 1.5	
Maximum switching frequency			Hz	1000	250
Delays	First-up	ms	< 200		< 200
	Response and recovery	µs	< 500		< 2000

(1) IP69K also available with PVC cable, please consult our Customer Care Center for specific adaptation.

Wiring schemes

M12 connector	Pre-cabled	PNP	NPN
	(-) BU (Blue) (+) BN (Brown) OUT/Output BK (Black)		

Detection curves

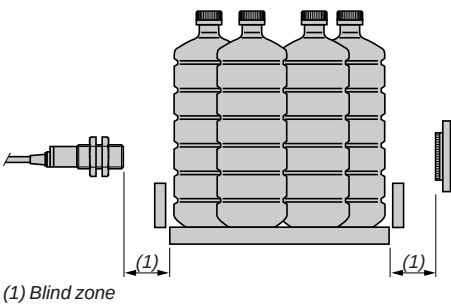


Dimensions

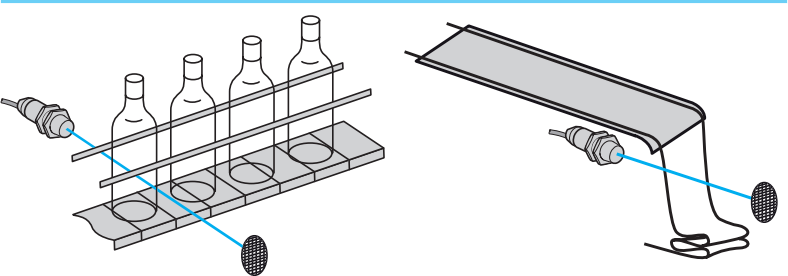
XUBT●●●●	Pre-cabled (mm)		Connector (mm)	
	a	b	a	b
Ø 18, line of sight along case axis	64	44	78	44
Ø 18, line of sight 90° to case axis	78	44	92	44

Setting-up

Recommended distances and application restraints



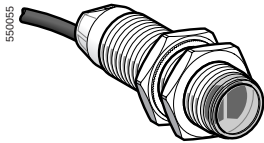
Application examples



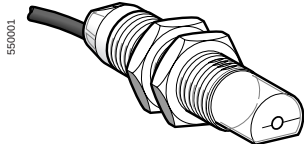
Detection of transparent bottles Detection of plastic film

For precise detection or magnifying glass effect cases, it is advisable to use XUBT●●●●M12/L2.

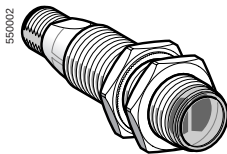
Photo-electric sensors
OsiSense XU Application, multimode
food and beverage processing series
Design 18, metal, stainless steel
Three-wire DC, solid-state output



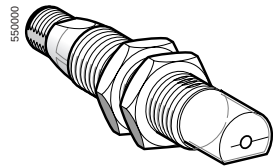
XUB0...NL2



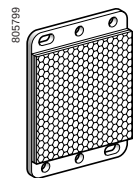
XUB0...WL2



XUB0...NM12



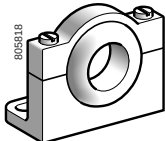
XUB0...WM12



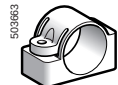
XUZC50



XUZA118



XUZA218



XUZB2005

Ø 18 stainless steel

Pre-cabled (1)

Sensing distance (Sn) (2) m	Function	Output	Line of sight	Reference	Weight kg
0...20 depending on whether accessories are used	NO or NC, by programming	PNP	Along case axis	XUB0SPSNL2	0.105
			90° to case axis	XUB0SPSWL2 (3)	0.110
		NPN	Along case axis	XUB0SNSNL2	0.105
			90° to case axis	XUB0SNSWL2 (3)	0.110

M12 connector

0...20 depending on whether accessories are used	NO or NC, by programming	PNP	Along case axis	XUB0SPSNM12	0.055
			90° to case axis	XUB0SPSWM12 (3)	0.060
		NPN	Along case axis	XUB0SNSNM12	0.055
			90° to case axis	XUB0SNSWM12 (3)	0.060

Accessories

Description	Connecti- on	Line of sight	Reference	Weight kg
Thru-beam accessories (transmitter)	Pre-cabled (1)	Along case axis	XUB0SKSNL2T	0.105
		90° to case axis	XUB0SKSWL2T (3)	0.110
	M12 connector	Along case axis	XUB0SKSNM12T	0.055
		90° to case axis	XUB0SKSWM12T (3)	0.060
Reflector 50 x 50 mm	—	—	XUZC50	0.020

Fixing accessories (4)

Description	Reference	Weight kg
Stainless steel fixing bracket	XUZA118	0.045
Plastic fixing bracket with adjustable ball-joint	XUZA218	0.035
Plastic fixing clamp, 24.1 mm centres with locking screw	XUZB2005	0.007

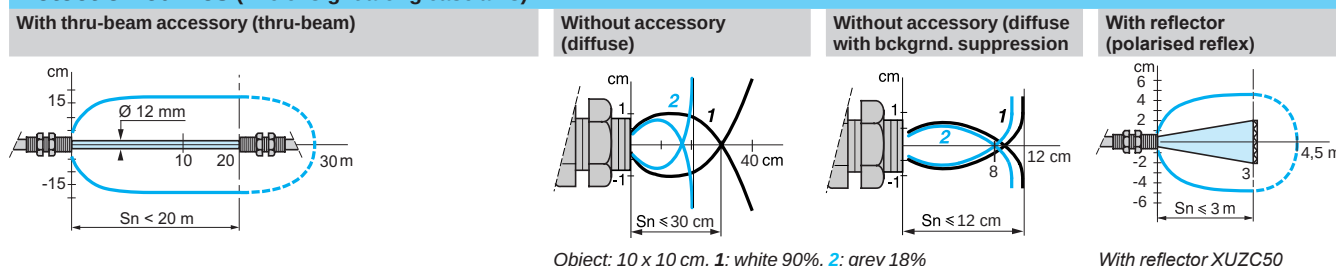
- (1) For a 5 m long cable, replace L2 by L5.
Example: XUB0SPSNL2 becomes XUB0SPSNL5.
(2) For further information, see page 5/32.
(3) For line of sight 90° to case axis versions, see sensing distances on page 5/32.
(4) For further information, see page 5/158.

Characteristics					
Sensor type		XUB0●●●●M12, XUB0●●●●M12T		XUB0●●●●L2, XUB0●●●●L2T	
Product certifications		UL, CSA, CE			
Connection	Connector	M12		—	
	Pre-cabled	—		Length: 2 m	
Sensing distance nominal S_n / maximum (excess gain = 2) (excess gain = 1)		m	Line of sight along case axis	Line of sight 90° to case axis	Accessory
			0.12 / 0.12	0.11 / 0.11	Without (diffuse with background suppression)
			0.3 / 0.4	0.2 / 0.3	Without (diffuse)
			3 / 4.5	1.5 / 2	With reflector (polarised reflex)
			20 / 30	10 / 14	With thru-beam accessory (thru-beam)
Type of transmission		Infrared, except polarised reflex (red)			
Degree of protection		IP 65, IP 67 conforming to IEC 60529; IP 69K conforming to DIN 40050; double insulation II			
Storage temperature		°C	- 40...+ 70		
Operating temperature		°C	- 25...+ 55		
Materials		Case: stainless steel, grade 304CU; 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 XUB0●●●●●●T)			
	Supply on	Green LED			
	Optical alignment aid / dirty	Red LED (except for XUB0●●●●●●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 XUB0●●●●●●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)		

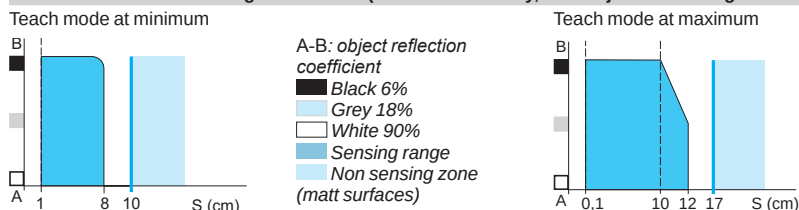
Wiring schemes

M12 connector	Pre-cabled	PNP	NPN	Thru-beam accessory
	(-) BU (Blue) (+) BN (Brown) OUT/Output BK (Black) Beam break input (1) VI (Violet)			Input 2/VI: - not connected: beam made - connected to -: beam broken

Detection curves (line of sight along case axis)



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



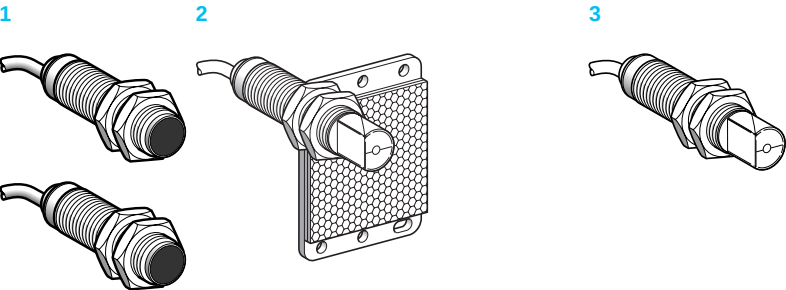
Dimensions

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 XUB0●●●●●●T, 64 becomes 62 mm and 78 becomes 76 mm.

Photo-electric sensors
OsiSense XU Application, single mode
food and beverage processing series
Stainless steel case M18 x 1
DC. Solid-state output

Design 18



System		Thru-beam 1	Reflex 2	Polarised reflex 2	Diffuse 3
Type of transmission		Infrared	Infrared	Red	Infrared
Sensing distance	Nominal Sn (excess gain = 2)	15 m	4 m	2 m	0.10 m
	Maximum (excess gain = 1)	20 m	5.5 m (with 50 x 50 mm reflector)	3 m (with 50 x 50 mm reflector)	0.15 m

References of pre-cabled versions (1)					
3-wire, PNP NO or NC programmable function	Line of sight along case axis	XU2N18PP341 (2)	XU1N18PP341 (3)	XU9N18PP341 (3)	XU5N18PP341
	Line of sight 90° to case axis	XU2N18PP341W (2)	XU1N18PP341W (3)	XU9N18PP341W (3)	XU5N18PP341W
3-wire, NPN NO or NC programmable function	Line of sight along case axis	XU2N18NP341 (2)	XU1N18NP341 (3)	XU9N18NP341 (3)	XU5N18NP341
	Line of sight 90° to case axis	XU2N18NP341W (2)	XU1N18NP341W (3)	XU9N18NP341W (3)	XU5N18NP341W
Weight (kg)		0.270	0.155	0.155	0.135

References of connector versions					
3-wire, PNP NO or NC programmable function	Line of sight along case axis	XU2N18PP341D (2)	XU1N18PP341D (3)	XU9N18PP341D (3)	XU5N18PP341D
	Line of sight 90° to case axis	XU2N18PP341WD (2)	XU1N18PP341WD (3)	XU9N18PP341WD (3)	XU5N18PP341WD
3-wire, NPN NO or NC programmable function	Line of sight along case axis	XU2N18NP341D (2)	XU1N18NP341D (3)	XU9N18NP341D (3)	XU5N18NP341D
	Line of sight 90° to case axis	XU2N18NP341WD (2)	XU1N18NP341WD (3)	XU9N18NP341WD (3)	XU5N18NP341WD
Weight (kg)		0.130	0.085	0.085	0.065

Fixing accessories (4)		
Description	Reference	Weight kg
Stainless steel fixing bracket	XUZA118	0.045
Plastic fixing bracket	XUZA218	0.035
Set of 2 stainless steel nuts	XSZE318	0.020
Set of 2 plastic nuts	XSZE218	0.004

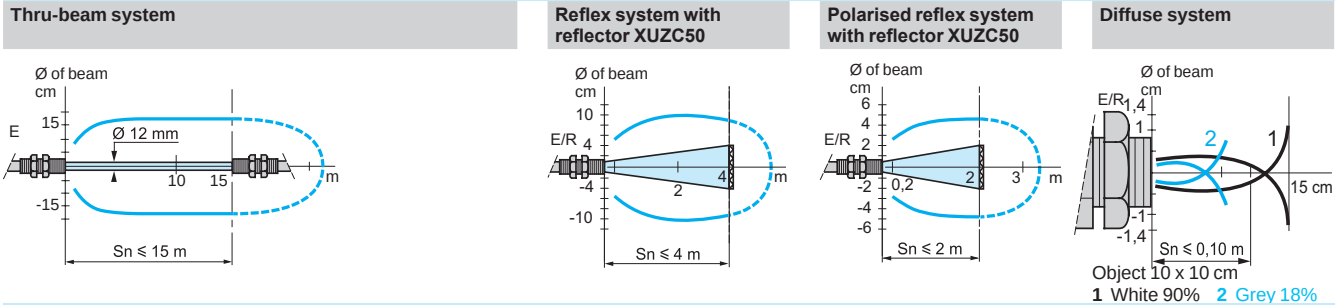
(1) Sensors available with 5 m long cable: To order, add L5 to the end of the reference selected from above.
Example: sensor XU1N18PP341 with 5 m cable becomes XU1N18PP341L5.
(2) Reference for both transmitter and receiver for thru-beam system sensors.
(3) 50 x 50 mm reflector included with reflex system sensors.
(4) For further information, see page 5/160.

Characteristics		
Product certifications		CE, UL, CSA
Ambient air temperature		For operation: - 25...0...+ 55 °C. For storage: - 40...+ 70 °C
Vibration resistance	Conforming to IEC 60068-2-6	25 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 67
Connection	Pre-cabled	Pre-cabled, diameter 4.2 mm, length 2 m (3), wire c.s.a.: 4 x 0.34 mm²
	Connector	M12 male connector, 4-pin (suitable female connectors, including pre-wired versions, see page 5/28)
Materials	Case	Food and beverage processing stainless steel, grade 304 Cu
	Lenses	PMMA
	Cable	PvR
Rated supply voltage		--- 12...24 with protection against reverse polarity
Voltage limits		--- 10...30 V (including ripple)
Switching capacity (sealed)		≤100 mA with overload and short-circuit protection
Voltage drop, closed state		≤ 1.5 V
Current consumption, no-load		≤ 30 mA (reflex and diffuse), ≤ 50 mA (thru-beam)
Maximum switching frequency		500 Hz
Delays	First-up	≤ 15 ms
	Response	≤ 1 ms
	Recovery	≤ 1 ms
Indicator lights	Supply on	Green LED, on transmitter only
	Output state	Yellow LED, on receiver only

(1) Sensors available with 5 m long cable: To order, add L5 to the end of the reference selected from above.
Example: sensor XU1N18PP341 with 5 m cable becomes XU1N18PP341L5.

Curves

Detection curves



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

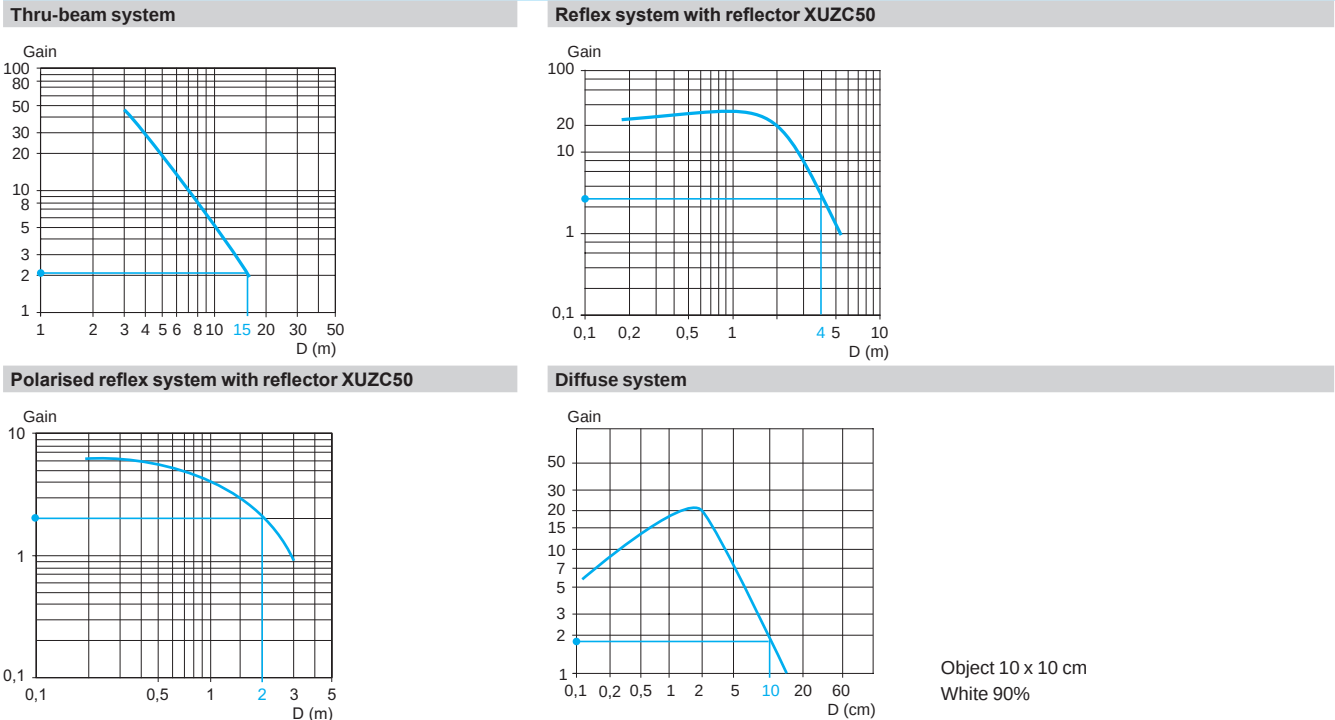
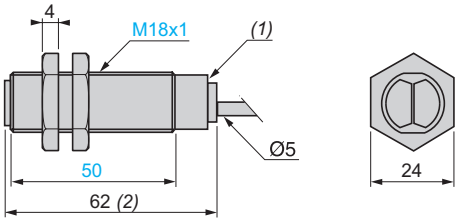


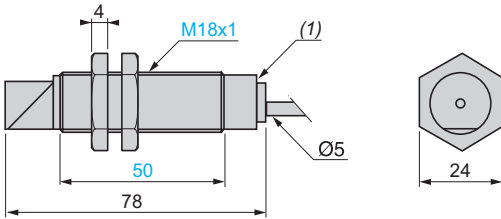
Photo-electric sensors
OsiSense XU Application, single mode
food and beverage processing series
Stainless steel case M18 x 1
DC. Solid-state output

Dimensions

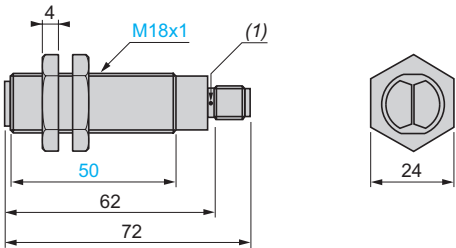
XU●N18●●341



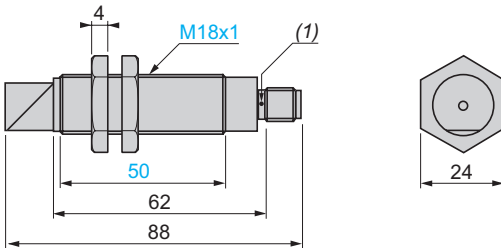
XU●N18●●341W



XU●N18●●341D



XU●N18●●341WD



(1) LED
(2) 64 for XU9N18●●341
Fixing nut tightening torque: < 15 N.m
Connector tightening torque: 2 N.m

Photo-electric sensors
OsiSense XU Application, single mode
food and beverage processing series
Stainless steel case M18 x 1
DC. Solid-state output

Wiring schemes

M12 connector

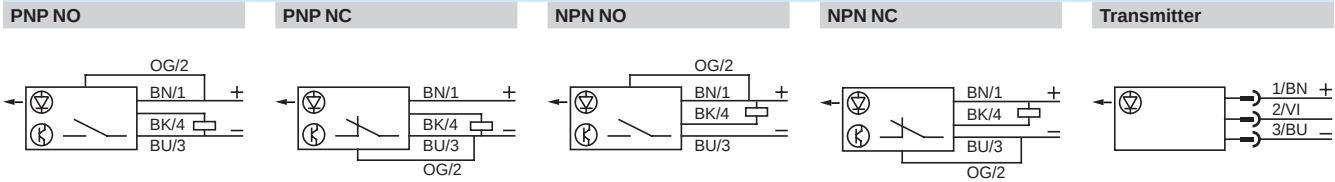


- 3 (-)
- 1 (+)
- 4 OUT/Output
- 2 Prog (or beam break input for thru-beam transmitter only)

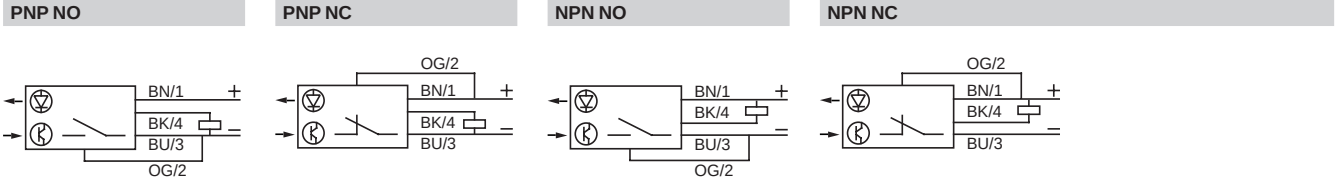
Pre-cabled

- (-) BU (Blue)
- (+) BN (Brown)
- (Out/Output) BK (Black)
- (Prog) OG (Orange)
- (Beam break input) VI (Violet) on thru-beam transmitter only

Wiring schemes - diffuse

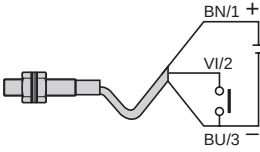


Wiring schemes - reflex and thru-beam

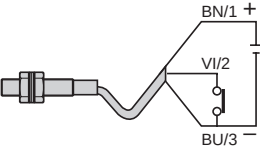


Beam break input on thru-beam transmitter only

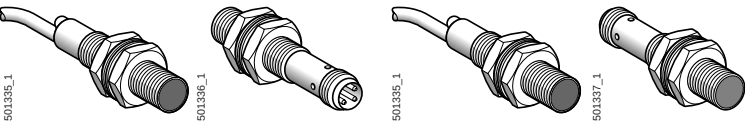
Beam made



Beam broken



Design 8



Connection	Pre-cabled	■	—	■	—
	Connector	—	■	—	■
System		Thru-beam	Thru-beam	Diffuse	Diffuse
Type of transmission		Infrared	Infrared	Infrared	Infrared
Nominal sensing distance (Sn)		2 m	2 m	0.05 m	0.05 m

References

3-wire, PNP	NO function	XUAH0214	XUAH0214S	XUAH0515	XUAH0515S
	NC function	XUAH0224	XUAH0224S	XUAH0525	XUAH0525S
3-wire, NPN	NO function	XUAJ0214	XUAJ0214S	XUAJ0515	XUAJ0515S
	NC function	XUAJ0224	XUAJ0224S	XUAJ0525	XUAJ0525S
Transmitter		XUAH0203	XUAH0203S	—	—
Weight (kg)		0.050	0.015	0.50	0.015

Characteristics

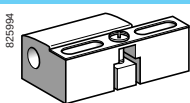
Product certifications		CE, cULus			
Ambient air temperature	For operation	- 25...+ 55 °C			
	For storage	- 30...+ 70 °C			
Vibration resistance	Conforming to IEC 60068-2-6	7 gn, amplitude ± 1 mm (f = 10...55 Hz)			
Shock resistance	Conforming to IEC 60068-2-27	30 gn, duration 11 ms			
Degree of protection	Conforming to IEC 60529	IP 67 - IP 65	IP 65	IP 67 - IP 65	IP 65
Connection	Pre-cabled	Ø 3.5 mm, length 2 m, wire c.s.a.: 3 x 0.14 mm²			
	Connector	M8 female connectors, 3-pin, see page 5/28			
Materials	Case	Nickel plated brass			
	Cable	PvR	—	PvR	—
	Lenses	PMMA			
Rated supply voltage		≡ 12...24 V with protection against reverse polarity			
Voltage limits (including ripple)		≡ 10...30 V			
Switching capacity (sealed)		≤ 100 mA with overload and short-circuit protection			
Voltage drop, closed state		≤ 1 V			
Current consumption, no-load	Transmitter	≤ 15 mA			
	Receiver	≤ 10 mA			
	Diffuse	≤ 25 mA			
Maximum switching frequency		2000 Hz		1000 Hz	
Delays	First-up	≤ 20 ms			≤ 0.5 ms
	Response and recovery	≤ 0.25 ms			

Function table	Function	Diffuse or through beam 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		

Fixing accessories (1)



XSAZ108



XSZB108

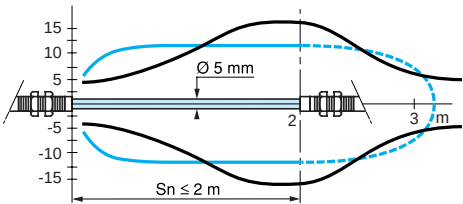
Description	Reference	Weight kg
Plastic fixing clamp with locking screw	XSAZ108	0.007
Plastic fixing clamp for sensor replacement without adjustment	XSZB108	0.006

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

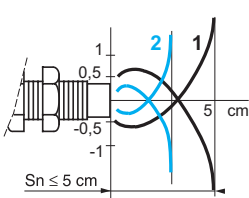
Curves

Detection curves

Thru-beam system



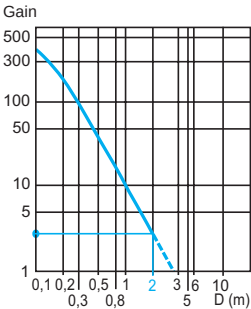
Diffuse system



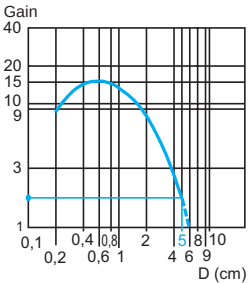
Object 5 x 5 cm; 1 White 90%; 2 Grey 18%

Excess gain curves (ambient temperature: ± 25 °C)

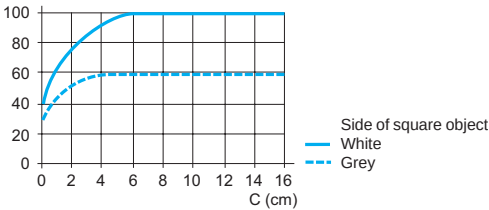
Thru-beam system



Diffuse system



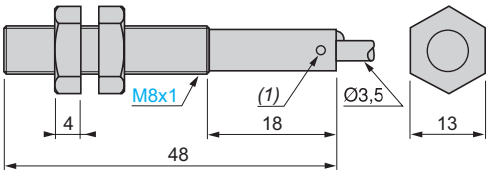
Variation of sensing distance Sn



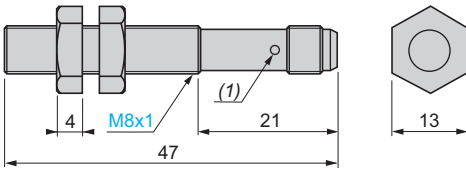
Detection differential (H) when object approaches from the front: $H \leq 25\%$ of S_n

Dimensions

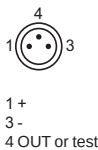
XUA



XUA●●●●●S



M8 connector



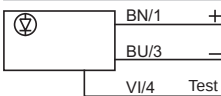
(1) LED, 4 viewing ports at 90°.

(1) LED, 4 viewing ports at 90°. **Note:** fixing nut tightening torque: $< 2 \text{ N.m}$

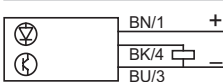
Wiring schemes (3-wire $\overline{\text{NPN}}$)

XUA

Transmitter



PNP

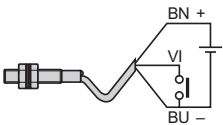


NPN

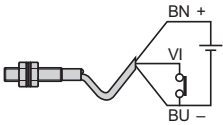


Beam break test

For thru-beam transmitter XUAH0203 only

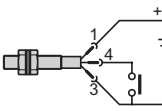


Beam made
LED on (steady light)

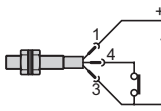


Beam broken
LED flashing

For thru-beam transmitter XUAH0203S only



Beam made
LED on (steady light)



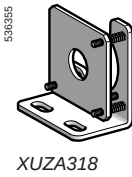
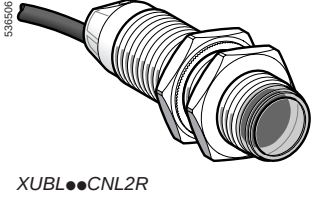
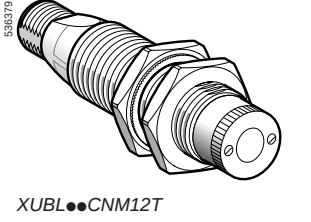
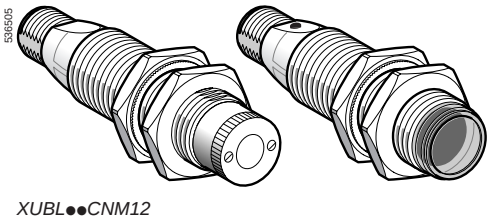
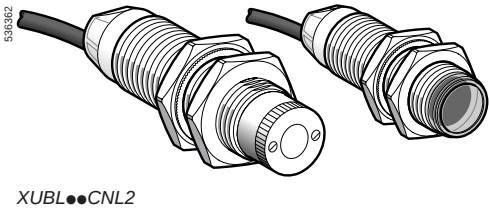
Beam broken
LED flashing

Photo-electric sensors

OsiSense XU Application, material handling series

Laser transmission. Design 18, plastic or metal

Three-wire DC. Solid-state output



Ø 18, plastic, thru-beam system with teach mode, laser transmission (Transmitter + receiver)

Sensing distance (Sn) m	Function	Connection	Output	Reference	Weight kg
0...100	NO or NC, by programming	Pre-cabled	PNP	XUBLAPCNL2	0.180
			NPN	XUBLANCNL2	0.180
		M12 connector	PNP	XUBLAPCNM12	0.078
			NPN	XUBLANCNM12	0.078

Ø 18, metal, thru-beam system with teach mode, laser transmission (Transmitter + receiver)

Sensing distance (Sn) m	Function	Connection	Output	Reference	Weight kg
0...100	NO or NC, by programming	Pre-cabled	PNP	XUBLBPCNL2	0.230
			NPN	XUBLBNCNL2	0.230
		M12 connector	PNP	XUBLBPCNM12	0.130
			NPN	XUBLBNCNM12	0.130

Separate components

Ø 18 transmitter

Description	Connection	Output	For use with	Reference	Weight kg
Plastic	Pre-cabled	–	XUBLA●●CNL2	XUBLAKCNL2T	0.090
	M12 connector	–	XUBLA●●CNM12	XUBLAKCNM12T	0.040
Metal	Pre-cabled	–	XUBLB●●CNL2	XUBLBKCNL2T	0.110
	M12 connector	–	XUBLB●●CNM12	XUBLBKCNM12T	0.060

Ø 18 receiver

Description	Connection	Output	For use with	Reference	Weight kg
Plastic	Pre-cabled	PNP	XUBLAPCNL2	XUBLAPCNL2R	0.090
		NPN	XUBLANCNL2	XUBLANCNL2R	0.090
	M12 connector	PNP	XUBLAPCNM12	XUBLAPCNM12R	0.040
		NPN	XUBLANCNM12	XUBLANCNM12R	0.040
Metal	Pre-cabled	PNP	XUBLBPCNL2	XUBLBPCNL2R	0.120
		NPN	XUBLBNCNM12	XUBLBNCNL2R	0.120
	M12 connector	PNP	XUBLBPCNM12	XUBLBPCNM12R	0.070
		NPN	XUBLBNCNM12	XUBLBNCNM12R	0.070

Fixing accessories for XUBL● (1)

Description	Reference	Weight kg
Precision fixing bracket with micrometric adjustment	XUZA318	0.170
Plastic fixing bracket with adjustable ball-joint	XUZA218	0.035
Stainless steel fixing bracket	XUZA118	0.045

Dimensions

	Pre-cabled (mm)		Connector (mm)	
	a	b	a	b
Receiver (2)	62	44	76	44
Transmitter (3)	52	28	66	28

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

(2) Yellow, green and red LED on receiver

(3) Green LED on transmitter

Note: fixing nut tightening torque: < 4 Nm

Characteristics			
Sensor type		XUBL●●●●M12	XUBL●●●●L2
Product certifications		UL, CSA, CÉ	
Connection	Connector	M12	—
	Pre-cabled	—	Length: 2 m
Nominal sensing distance Sn		m 0...100, excess gain 70...3	
Blind zone		0	
Preferred object approach direction		Any	
Type of transmission		Red laser, wavelength 670 nm	
Transmission power		Power < 1 mW, class 1 conforming to IEC 60825-1	
Degree of protection		IP 67, double insulation □	
Temperature	Storage	°C - 40... + 70	
	Operation	°C - 10... + 45	
Materials	Case	XUBLA●●●●●: PBT; XUBLB●●●●●: nickel plated brass	
	Lens	PMMA	
Vibration resistance		7 gn, amplitude ± 1.5 mm (f = 10 to 55 Hz)	
Shock resistance		30 gn, duration 11 ms	
Indicator lights	Output state and alignment aid	Yellow LED	
	Supply on and teaching	Green LED	
	Stability	Red LED	
Rated supply voltage		V --- 12...24 with protection against reverse polarity	
Voltage limits (including ripple)		V --- 10...30	
Current consumption, no-load		mA 25 for transmitter or receiver	
Switching capacity per output		mA ≤ 100 with overload and short-circuit protection	
Voltage drop, closed state		V ≤ 1.5	
Maximum switching frequency		Hz 1500	
Delays	First-up	ms < 80	
	Response and recovery	ms < 0.4	

Wiring schemes

M12 connector

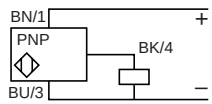


3 (-)
1 (+)
4 OUT/Output
2 Beam break input

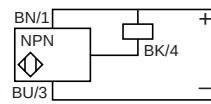
Pre-cabled

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

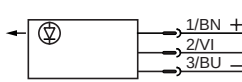
PNP



NPN



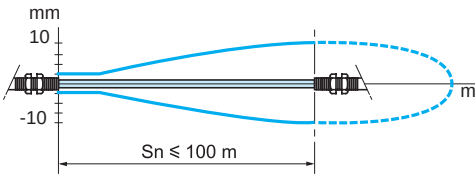
Transmitter



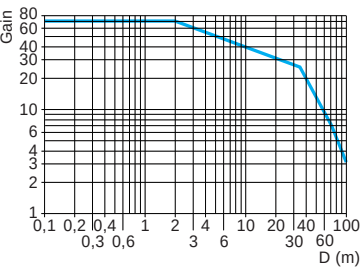
Input 2/VI:
- not connected: beam made
- connected to -: beam broken

Curves

Detection curve (set to infinity)



Excess gain curve

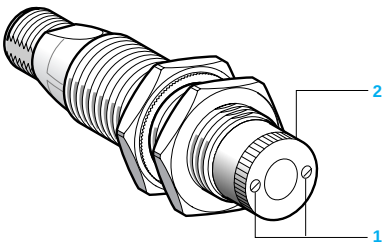


Operating precautions

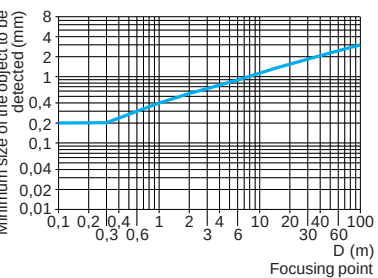


Laser class 1, conforming to IEC 60825-1.

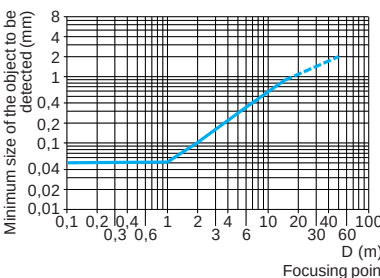
Adjustment



Standard curve



Detection limit curve

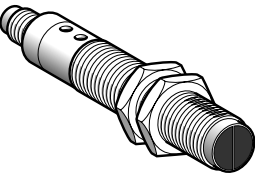


The adjustment of the focusing point enables the detection of objects down to a size of < 0.2 mm.

After slackening the fixing screws 1, adjust the focusing point of the laser beam by rotating the serrated sleeve 2 located on the face of the sensor. Re-tighten fixing screws.

Note: fixing bracket XUZA218 with ball-joint and, in particular, bracket XUZA318 with precise micrometric adjustment and locking by 6 screws, are specially suited for mounting the sensor and adjusting beam alignment when the sensing range is several tens of metres (see page 5/158).

Design 18



System	Diffuse
Type of transmission	Infrared
Nominal sensing distance (Sn)	5...40 cm

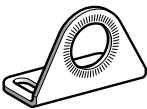
References

3-wire, PNP	XU5M18AB20D
Weight (kg)	0.075

Characteristics

Product certifications		CE, CSA, UL
Ambient air temperature		For operation: - 25...+ 55 °C. For storage: - 40...+ 70 °C
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 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 67
Connection		M12 male connector, 4-pin (suitable female connectors, including pre-wired versions, please refer to our catalogue "Cabling accessories OsiSense XZ")
Materials		Case: nickel plated brass, lens: PMAA
Rated supply voltage		--- 12...24 V with protection against reverse polarity
Voltage limits		--- 10...30 V (including ripple)
Output current	Maximum	20 mA
	Minimum	4 mA
Output current drift in relation to temperature		< 10% between - 25 and + 55 °C, < 5% between 0 and + 40 °C
Output current drift in relation to supply		< 3%
Current consumption, no-load		≤ 30 mA
Maximum switching frequency		20 Hz (for an output current variation of 10 mA)
Delays		First-up: ≤ 50 ms
Indicator light		The brightness of the green LED is proportional to the output current Ie = 20 mA: indicator light at maximum intensity Ie = 4 mA: indicator light at minimum intensity

Fixing accessory (2)



XUZA118

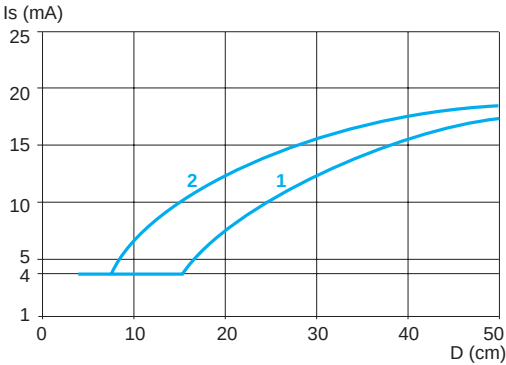
Description	Reference	Weight kg
Stainless steel fixing bracket	XUZA118	0,045

(1) Applications: position control, monitoring concentricity or eccentricity, closed loop regulation, monitoring displacement, etc.
(2) For further information, see page 5/158.

Curves

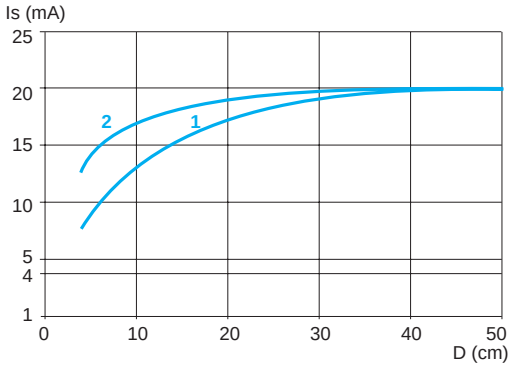
Output signal (related to distance of object)

Potentiometer set at maximum



- 1 White 90% object
- 2 Grey 15% object

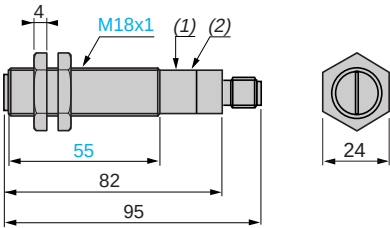
Potentiometer set at minimum



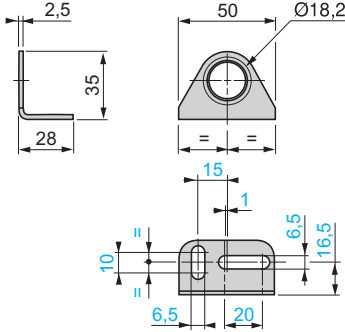
- 1 White 90% object
- 2 Grey 15% object

Dimensions

Sensor XU5M18AB20D



Fixing bracket XUZA118



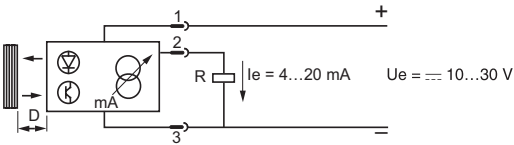
- (1) Potentiometer.
 - (2) Green LED.
- Fixing nut tightening torque: 15 N.m.
Connector tightening torque: 2 N.m.

Schemes

Wiring schemes

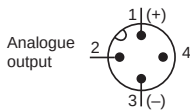
Diffuse system

Output current



Connector scheme

Sensor connector pin view

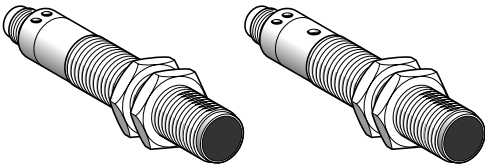


For suitable female connectors, including pre-wired versions, please refer to our catalogue "Cabling accessories OsiSense XZ".

Load characteristics (R)

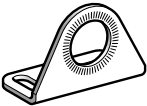
The output current varies between 4 and 20 mA, depending on the distance of the object, and therefore, the load must be less than 800 Ω for a 24 V supply and less than 300 Ω for a 12 V supply.

Design 18



System		Thru-beam
Type of transmission		Infrared
Nominal sensing distance (Sn) / maximum		50 m / 70 m (transmitter + receiver)
References		
3-wire, PNP	NO (object detection) + analogue output	XU2M18AP20D (2)
Weight (kg)		0.155
Characteristics		
Product certifications		CE, CSA, UL
Ambient air temperature	For operation	- 25...+ 55 °C
	For storage	- 40...+ 70 °C
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 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 67
Connection		M12 male connector, 4-pin (suitable female connectors, including pre-wired versions, please refer to our catalogue “Cabling accessories OsiSense XZ”)
Materials	Case	Nickel plated brass
	Lenses	PMMA
Rated supply voltage		--- 12...24 V with protection against reverse polarity
Voltage limits		--- 10...30 V (including ripple)
Solid-state digital output	Switching capacity (sealed)	≤100 mA with overload and short-circuit protection
	Voltage drop, closed state	≤ 1.5 V
	Maximum switching frequency	30 Hz
	First-up delay	≤ 50 ms
	Response delay	≤ 15 ms
	Recovery delay	≤ 15 ms
Analogue output	Output current	4...20 mA Drift < 5% for temperature between 0 and + 40 °C
	Delay	≤ 15 ms
Current consumption, no-load		≤ 55 mA (transmitter + receiver)
Indicator lights	Transmitter	Green LED, supply on Yellow LED illuminated = beam transmission
	Receiver	Yellow LED illuminated = solid-state output ON = object detected within beam Green LED: the brightness of the LED is proportional to the output current: - for I = 20 mA, object slightly opaque, intensity at maximum, - for I = 4 mA, object completely opaque, intensity at minimum.

Fixing accessory (3)



XUZA118

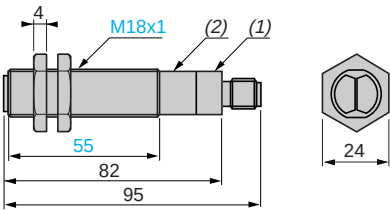
Description	Reference	Weight kg
Stainless steel fixing bracket	XUZA118	0,045

(1) Applications: detection of objects in spite of a difficult environment (smoke, dust, mist, etc.), detection of objects inside packaging, etc.
Example of values:
Object: white sheets of 80 gsm paper. Transmitter-receiver distance = 10 cm

Number of sheets	1	11	27	31
Analogue output current (mA)	17.3	12	6	5

(2) Reference for both transmitter and receiver for thru-beam system.
(3) For further information, see page 5/158.

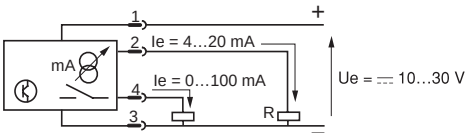
Dimensions



(1) LEDs
(2) Potentiometer (only on receiver)
Fixing nut tightening torque: 15 N.m
Connector tightening torque: 2 N.m

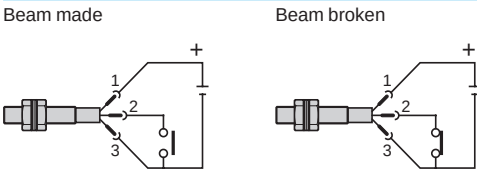
Wiring schemes

Receiver



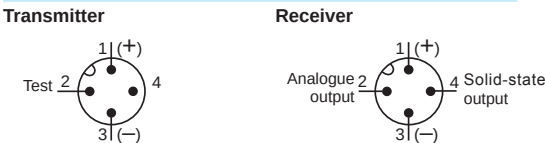
R max. < 800 Ω (Ue = 24 V), < 300 Ω (Ue = 12 V)

Beam break test (only on transmitter)



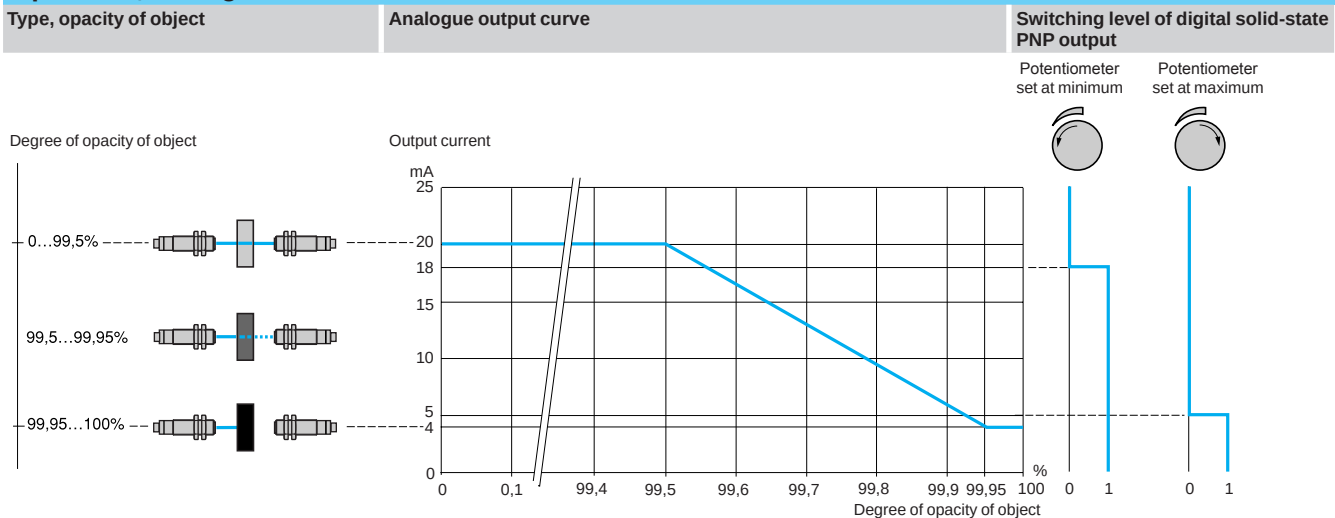
Connector scheme

Sensor connector pin view



For suitable female connectors, including pre-wired versions,
please refer to our catalogue “Cabling accessories OsiSense XZ”.

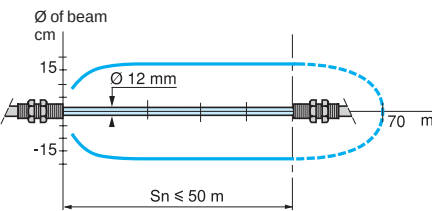
Operation, settings



Curves

Detection curve

Thru-beam system



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

Thru-beam system

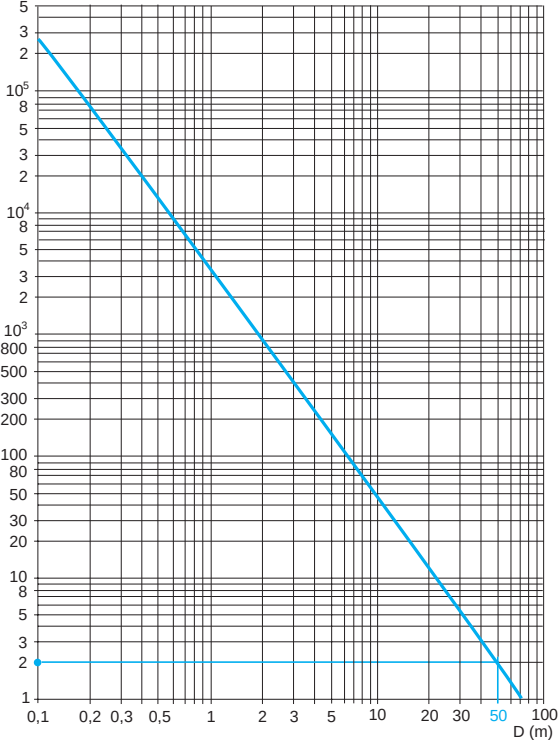
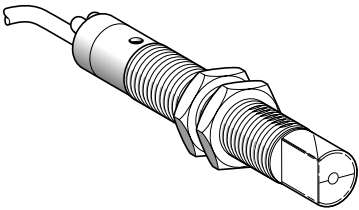


Photo-electric sensors

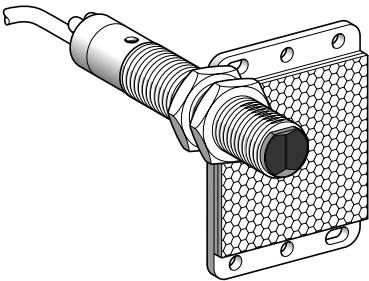
OsiSense XU Application

Design 18

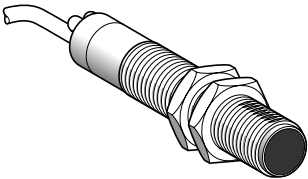
Two-wire AC ⁽¹⁾ or DC, solid-state output with adjustable sensitivity



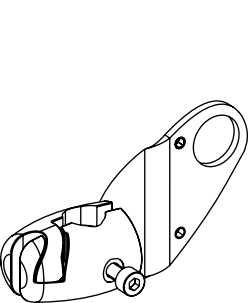
XU5M18M●230W
XU8M18M●230W



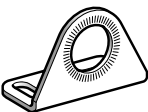
XU9M18M●230



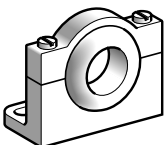
XU2M18M●230



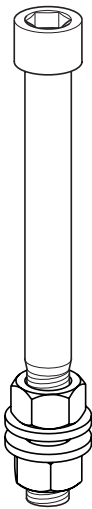
XUZB2003



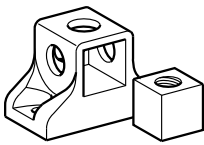
XUZA118



XUZA218



XU2001



XU2003

Diffuse system with adjustable background suppression

Sensing distance (Sn) m	Function	Line of sight	Connection	Reference	Weight kg
0.12	NO	Along case axis	Pre-cabled (L = 2 m) (2) 1/2"-20UNF	XU8M18MA230	0.150
				XU8M18MA230K	0.075
		90° to case axis	Pre-cabled (L = 2 m) (2) 1/2"-20UNF	XU8M18MA230W	0.150
	NC	Along case axis	Pre-cabled (L = 2 m) (2) 1/2"-20UNF	XU8M18MA230WK	0.075
				XU8M18MB230	0.150
		90° to case axis	Pre-cabled (L = 2 m) (2) 1/2"-20UNF	XU8M18MB230K	0.075
				XU8M18MB230W	0.150
				XU8M18MB230WK	0.075

Diffuse system

Sensing distance (Sn) m	Function	Line of sight	Connection	Reference	Weight kg
0.40	NO	Along case axis	Pre-cabled (L = 2 m) (2) 1/2"-20UNF	XU5M18MA230	0.150
				XU5M18MA230K	0.075
		90° to case axis	Pre-cabled (L = 2 m) (2) 1/2"-20UNF	XU5M18MA230W	0.150
	NC	Along case axis	Pre-cabled (L = 2 m) (2) 1/2"-20UNF	XU5M18MA230WK	0.075
				XU5M18MB230	0.150
		90° to case axis	Pre-cabled (L = 2 m) (2) 1/2"-20UNF	XU5M18MB230K	0.075
				XU5M18MB230W	0.150
				XU5M18MB230WK	0.075

Polarised reflex system ⁽³⁾

Sensing distance (Sn) m	Function	Line of sight	Connection	Reference	Weight kg
2	NO	Along case axis	Pre-cabled (L = 2 m) (2) 1/2"-20UNF	XU9M18MA230	0.170
				XU9M18MA230K	0.090
		90° to case axis	Pre-cabled (L = 2 m) (2) 1/2"-20UNF	XU9M18MA230W	0.170
	NC	Along case axis	Pre-cabled (L = 2 m) (2) 1/2"-20UNF	XU9M18MA230WK	0.090
				XU9M18MB230	0.170
		90° to case axis	Pre-cabled (L = 2 m) (2) 1/2"-20UNF	XU9M18MB230K	0.095
				XU9M18MB230W	0.170
				XU9M18MB230WK	0.090

Thru-beam system ⁽⁴⁾

Sensing distance (Sn) m	Function	Line of sight	Connection	Reference	Weight kg
15	NO	Along case axis	Pre-cabled (L = 2 m) (2) 1/2"-20UNF	XU2M18MA230	0.285
				XU2M18MA230K	0.155
		90° to case axis	Pre-cabled (L = 2 m) (2) 1/2"-20UNF	XU2M18MA230W	0.285
	NC	Along case axis	Pre-cabled (L = 2 m) (2) 1/2"-20UNF	XU2M18MA230WK	0.155
				XU2M18MB230	0.285
		90° to case axis	Pre-cabled (L = 2 m) (2) 1/2"-20UNF	XU2M18MB230K	0.155
				XU2M18MB230W	0.285
				XU2M18MB230WK	0.155

Fixing accessories ⁽⁵⁾

Description	Reference	Weight kg
3D fixing kit for use on M12 rod, for XU●M18 or XU2C50	XUZB2003	0.170
M12 rod	XU2001	0.050
Support for M12 rod	XU2003	0.150
Stainless steel fixing bracket	XUZA118	0.045
Plastic fixing bracket with adjustable ball-joint	XUZA218	0.035

(1) These sensors do not incorporate overload or short-circuit protection and therefore, it is essential to connect a 0.4 A "quick-blow" fuse in series with the load.

(2) For a 5 m long cable add L5.

Example: XU2M18MA230 becomes XU2M18MA230L5.

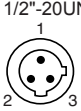
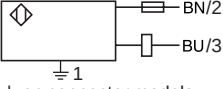
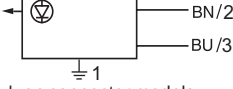
(3) 50 x 50 mm reflector XU2C50 included with polarised reflex system.

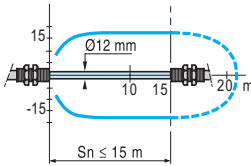
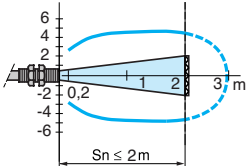
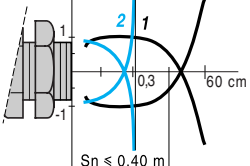
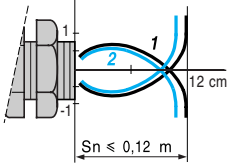
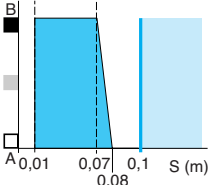
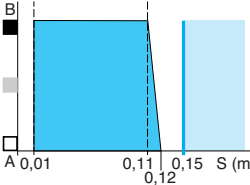
(4) Comprising both thru-beam transmitter and receiver.

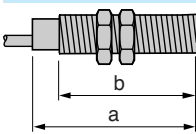
(5) For further information, see page 5/158.

Characteristics			
Sensor type		XU2M, XU5M, XU8M, XU9M	XU2M, XU5M, XU8M, XU9M●●●●●●●●K
Product certifications		UL, CSA, CE	
Connection	Connector	–	1/2"-20UNF
	Pre-cabled	Length: 2 m	–
Sensing distance nominal Sn / maximum (excess gain = 2) (excess gain = 1)	m	0.12 / 0.12 diffuse with background suppression	
	m	0.4 / 0.6 diffuse	
	m	2 / 3 polarised reflex	
	m	15 / 20 thru-beam	
Type of transmission		Infrared, except XU9 (red)	
Degree of protection	Conforming to IEC 60529	IP 67, double insulation	IP 67
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	
	Stability	Red LED (for reflex and thru-beam only)	
Rated supply voltage		V	~/--- 24...240
Voltage limits (including ripple)		V	~/--- 20...264
Residual current, open state		mA	< 1.5
Switching capacity		mA	10...200 (1)
Voltage drop, closed state		V	6
Maximum switching frequency		Hz	25
Delays	First-up	ms	< 300
	Response	ms	< 20
	Recovery	ms	< 20

(1) These sensors do not incorporate overload or short-circuit protection and therefore, it is essential to connect a 0.4 A "quick-blow" fuse in series with the load.

Wiring schemes			
Connector	Pre-cabled	2-wire ~ or —	Transmitter
1/2"-20UNF 	(~) BU (Blue) (~) BN (Brown)	 ⊥ 1 ⊥ on connector models	 ⊥ 1 ⊥ on connector models

Detection curves					
Thru-beam system	Polarised reflex system	Diffuse system	Diffuse system with adjustable background suppression		
					
With reflector XUZC50					
Object 10 x 10 cm; 1 White 90%; 2 Grey 18%					
Variation of usable sensing distance Su					
Potentiometer set at minimum		Potentiometer set at maximum			
					
A-B: object reflection coefficient					
■ Black 6%					
■ Grey 18%					
■ White 90%					
■ Sensing range					
■ Non sensing zone (matt surfaces)					

Dimensions			
XU●			
		Pre-cabled (mm)	
		a	b
		82	55
		97	55
		Connector (mm)	
		a	b
		95	55
		110	55