Osiris® universal detectors, design 18
Plastic or metal case, cylindrical, M18 x 1 threaded
Solid state output

Presentation

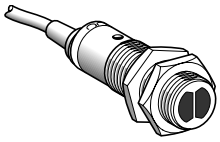
Plastic case

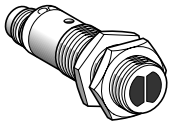
With sensitivity adjustment and stability LED

CE

d.c. supply

Pre-cabled or plug-in connector
Line of sight along case axis (1)





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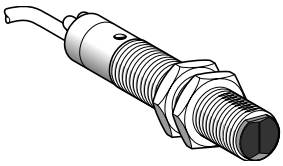
Metal case

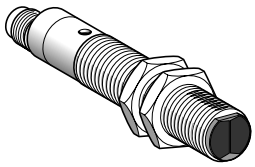
With sensitivity adjustment and stability LED

CE

d.c. supply

Pre-cabled or plug-in connector
Line of sight along case axis (1)





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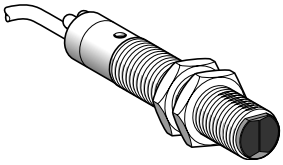
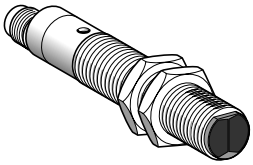
a.c. or d.c. supply

Pre-cabled or plug-in connector
Line of sight along case axis (1)





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(1) Line of sight 90° to case axis possible using mirror adaptor accessory.

Photo-electric detectors

Osiris® universal detectors, design 18
Plastic or metal case, cylindrical, M18 x 1 threaded
Solid state output

Common general characteristics, schemes

Detection characteristics

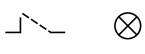
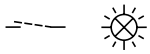
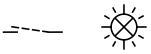
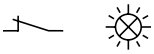
Nominal sensing distance	**Thru-beam system : 15 m** **Reflex system : 4 m** **Polarised reflex system : 2 m** **Diffuse system : 10 and 40 cm**

Environment

Product certifications	CE. UL, CSA
Ambient air temperature	Operation : - 25…+ 55 °C. Storage : - 40…+ 70 °C
Vibration resistance	25 gn, amplitude ± 2 mm (f = 10…55 Hz), conforming to IEC 68-2-6
Shock resistance	30 gn, duration 11 ms, conforming to IEC 68-2-27
Degree of protection	**IP 67 conforming to IEC 529**

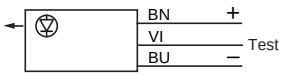
Function table

Output state (PNP or NPN) indicator (illuminated when detector output is ON)

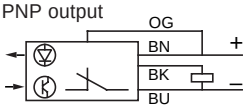
Function	Thru-beam and reflex systems		Diffuse system	
	No object present in the beam	Object present in the beam	No object present in the beam	Object present in the beam
Light switching				
Dark switching				

Schemes

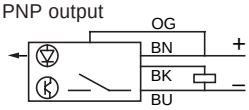
Wiring schemes (3-wire ⎓)
Pre-cabled versions
Transmitter



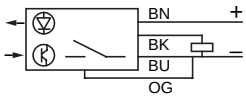
Light switching (no object present)
Thru-beam receiver & reflex — PNP output



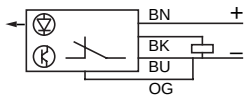
Diffuse — PNP output



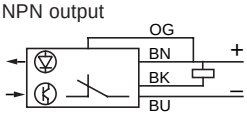
Dark switching (no object present)
Thru-beam receiver & reflex — PNP output



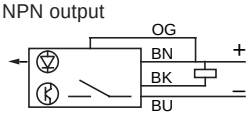
Diffuse — PNP output



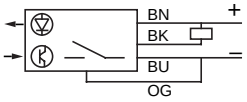
Thru-beam receiver & reflex — NPN output



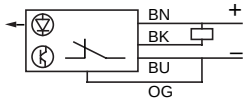
Diffuse — NPN output



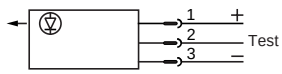
Thru-beam receiver & reflex — NPN output



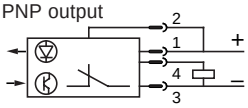
Diffuse — NPN output



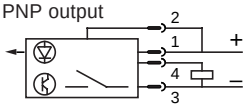
Plug-in connector versions
Transmitter



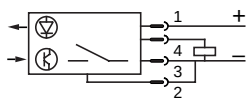
Light switching (no object present)
Thru-beam receiver & reflex — PNP output



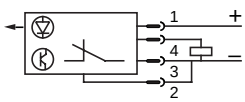
Diffuse — PNP output



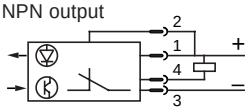
Dark switching (no object present)
Thru-beam receiver & reflex — PNP output



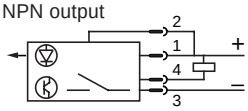
Diffuse — PNP output



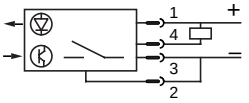
Thru-beam receiver & reflex — NPN output



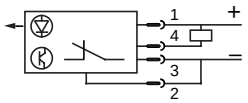
Diffuse — NPN output



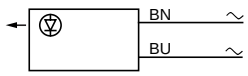
Thru-beam receiver & reflex — NPN output



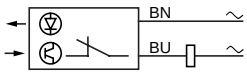
Diffuse — NPN output



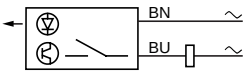
Wiring schemes (2-wire ∿)
Pre-cabled versions
Transmitter



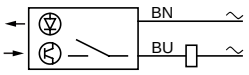
Light switching (no object present)
Thru-beam receiver & reflex



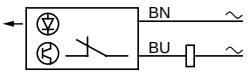
Diffuse



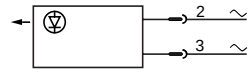
Dark switching (no object present)
Thru-beam receiver & reflex



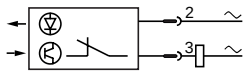
Diffuse



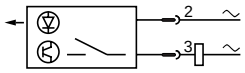
Plug-in connector versions
Transmitter



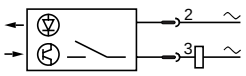
Light switching (no object present)
Thru-beam receiver & reflex



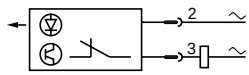
Diffuse



Dark switching (no object present)
Thru-beam receiver & reflex



Diffuse



Attention : It is essential that a load be connected in series with the detector.

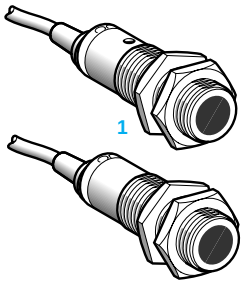
Photo-electric detectors

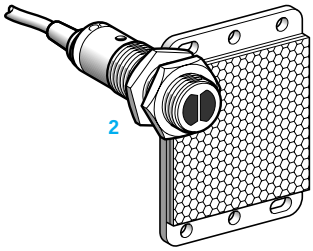
Osiris® universal detectors. Plastic case, cylindrical, M18 x 1 threaded
d.c. supply. Solid state output
With sensitivity adjustment and stability LED

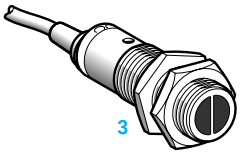
Accessories :
pages 2/118 to 2/123

References, characteristics

Design 18







System	Thru-beam 1	Reflex 2	Polarised reflex 2	Diffuse 3	
Type of transmission	Infra-red	Infra-red	Red	Red	Infra-red
Nominal sensing distance (Sn)	**15 m** (transmitter + receiver)	**4 m** (with 50 x 50 mm reflector)	**2 m** (with 50 x 50 mm reflector)	**0.10 m**	**0.40 m**

References of pre-cabled versions

3-wire, PNP	Light or dark programmable switching	**XU2-B18PP340** (1)	**XU1-B18PP340** (2)	**XU9-B18PP340** (2)	**XU8-B18PP340**	**XU5-B18PP340**
3-wire, NPN	Light or dark programmable switching	**XU2-B18NP340** (1)	**XU1-B18NP340** (2)	**XU9-B18NP340** (2)	**XU8-B18NP340**	**XU5-B18NP340**
Weight (kg)		0.150	0.095	0.095	0.075	0.075

References of plug-in connector versions

3-wire, PNP	Light or dark programmable switching	**XU2-B18PP340D** (1)	**XU1-B18PP340D** (2)	**XU9-B18PP340D** (2)	**XU8-B18PP340D**	**XU5-B18PP340D**
3-wire, NPN	Light or dark programmable switching	**XU2-B18NP340D** (1)	**XU1-B18NP340D** (2)	**XU9-B18NP340D** (2)	**XU8-B18NP340D**	**XU5-B18NP340D**
Weight (kg)		0.040	0.040	0.040	0.020	0.020

Complementary characteristics not shown under general characteristics (page 2/33)

Connection	Pre-cabled	Diameter 4 mm cable, length 2 m, wire c.s.a. : 4 x 0.22 mm² (3 x 0.22 mm² for thru-beam transmitter)
	Connector	M12 male connector, 4-pin (suitable extension cables and female connectors types 3, 4 and 5, see page 2/124)
Materials		Case : PC/ABS ; lens : PMMA ; cable : PVC
Rated supply voltage		⎓ **12...24 V 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		< 35 mA (reflex and diffuse) ; ≤ 50 mA (thru-beam)
Maximum switching frequency		500 Hz (thru-beam system : 400 Hz)
Delays		First-up : ≤ 30 ms ; response : ≤ 1 ms ; recovery : ≤ 1 ms (thru-beam system : 1.5 ms)

(1) Reference for both transmitter and receiver for thru-beam system detectors.
(2) 50 x 50 mm reflector included with reflex system and polarised reflex system detectors.

Note : These products are equivalent to the discontinued XUB short case detectors. See cross-reference tables, pages 2/126 and 2/127.

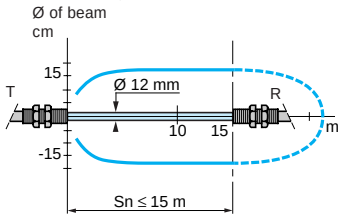
Osiris® universal detectors. Plastic case, cylindrical, M18 x 1 threaded
d.c. supply. Solid state output
With sensitivity adjustment and stability LED indicator

Accessories :
pages 2/118 to 2/123

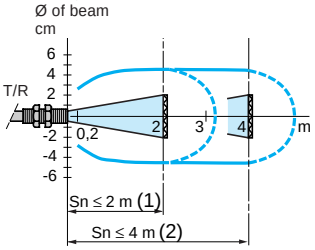
Curves, dimensions, schemes

Detection curves

Thru-beam system

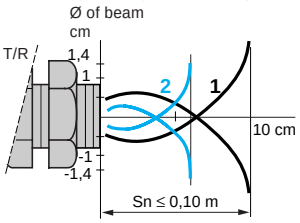


Reflex system



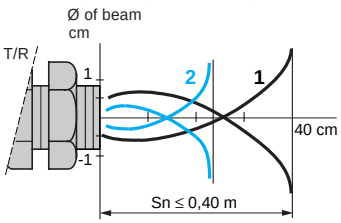
With reflector XUZ-C50
(1) Polarised reflex XU9-B18●P340
(2) Reflex XU1-B18●P340

Diffuse system (Sn = 10 cm)



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

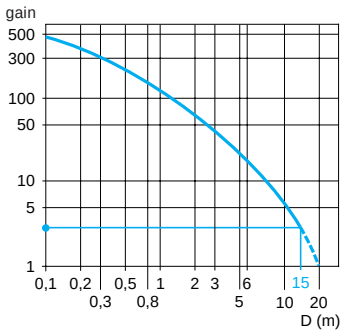
Diffuse system (Sn = 40 cm)



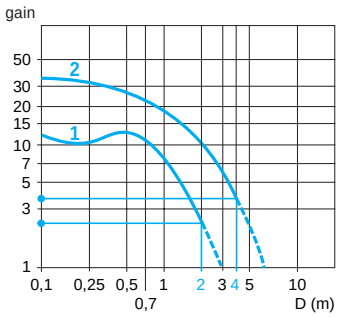
Object 20 x 20 cm
1 White 90%
2 Grey 18%

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

Thru-beam system

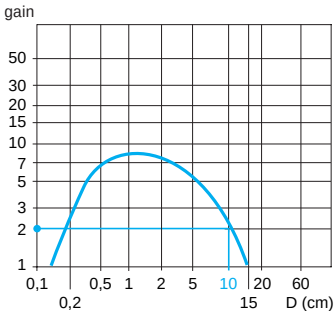


Reflex system



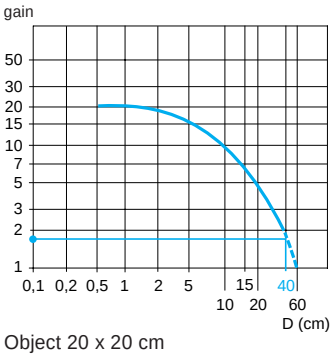
With reflector XUZ-C50
1 Polarised reflex XU9-B18●P340
2 Reflex XU1-B18●P340

Diffuse system (Sn = 10 cm)



Object 10 x 10 cm
White 90%

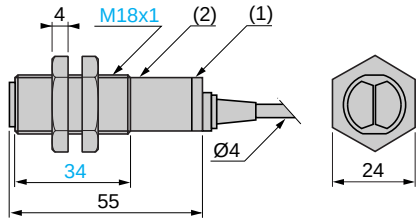
Diffuse system (Sn = 40 cm)



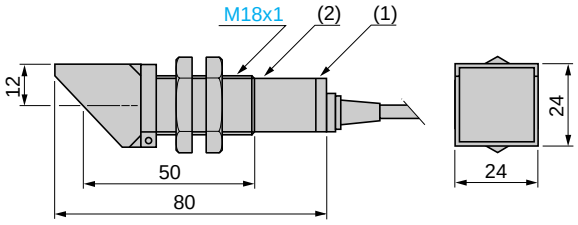
Object 20 x 20 cm
White 90%

Dimensions

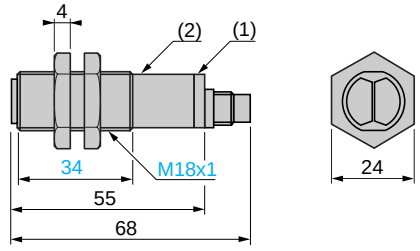
XU●-B18●P340



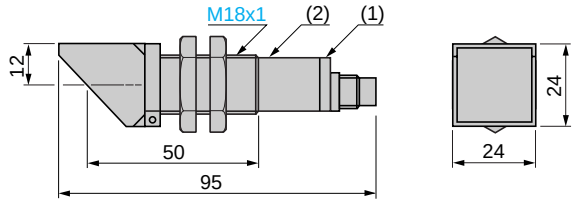
XU●-B18●P340 + XUB-Z0● (3)



XU●-B18●P340D



XU●-B18●P340D + XUB-Z0● (3)



(1) LED
(2) Adjustment potentiometer
(3) XUB-Z0● : mirror adaptor for reflecting beam through 90°, see page 2/118

Fixing nut tightening torque : < 4 N.m
Connector tightening torque : 2 N.m

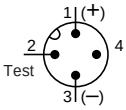
Cable connections

(–)	BU	(Blue)
(+)	BN	(Brown)
(OUT)	BK	(Black)
(Prog.)	OG	(Orange)
(Test)	VI	(Violet) for thru-beam transmitter only

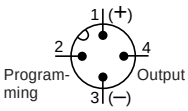
Connector schemes

Connector pin view

Transmitter

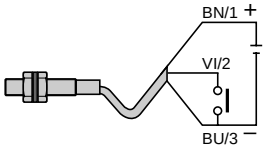


Thru-beam receiver, reflex and diffuse

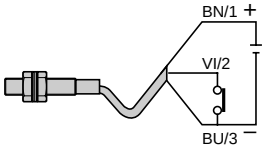


Beam break test (for thru-beam transmitter only)

Beam made

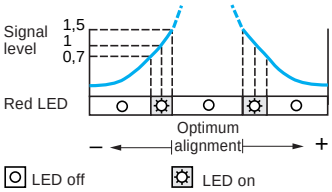


Beam broken



Verification of correct operation

Thru-beam and reflex systems

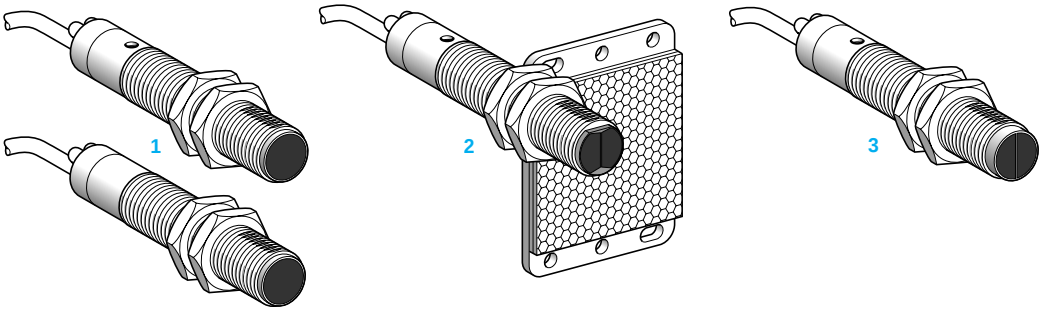


Osiris® universal detectors. Metal case, cylindrical, M18 x 1 threaded
d.c. supply. Solid state output
With sensitivity adjustment and stability LED

Accessories :
pages 2/118 to 2/123

References, characteristics

Design 18



System	Thru-beam 1	Polarised reflex 2	Diffuse 3	Diffuse with adjustable background suppression 3
Type of transmission	Infra-red	Red	Infra-red	Infra-red
Nominal sensing distance (Sn)	**15 m** (transmitter + receiver)	**2 m** (with 50 x 50 mm reflector)	**0.4 m**	**0.1 m** (0.08…0.12 m)

References of pre-cabled versions

3-wire, PNP	Light or dark programmable switching	**XU2-M18PP340** (1)	**XU9-M18PP340** (2)	**XU5-M18PP340**	**XU8-M18PP340** (4)
3-wire, NPN	Light or dark programmable switching	**XU2-M18NP340** (1)	**XU9-M18NP340** (2)	**XU5-M18NP340**	**XU8-M18NP340** (4)
Weight (kg)		0.285	0.170	0.150	0.150

References of plug-in connector versions

3-wire, PNP	Light or dark programmable switching	**XU2-M18PP340D** (1)	**XU9-M18PP340D** (2)	**XU5-M18PP340D**	**XU8-M18PP340D** (4)
3-wire, NPN	Light or dark programmable switching	**XU2-M18NP340D** (1)	**XU9-M18NP340D** (2)	**XU5-M18NP340D**	**XU8-M18NP340D** (4)
Weight (kg)		0.155	0.095	0.075	0.075

Complementary characteristics not shown under general characteristics (page 2/33)

Connection	Pre-cabled	Diameter 5 mm cable, length 2 m (3), wire c.s.a. : 4 x 0.34 mm² (3 x 0.34 mm² for thru-beam transmitter)
	Connector	M12 male connector, 4-pin (suitable extension cables and female connectors types 3, 4 and 5, see page 2/124)
Materials		Case : nickel plated brass, lens : PMMA, cable : PVC
Rated supply voltage		⎓ **12…24 V 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		≤ 35 mA (reflex and diffuse) ; ≤ 50 mA (thru-beam)
Maximum switching frequency		500 Hz
Delays		First-up : ≤ 15 ms ; response : ≤ 1 ms ; recovery : ≤ 1 ms

(1) Reference for both transmitter and receiver for thru-beam system detectors.
(2) 50 x 50 mm reflector included with polarised reflex system detectors.
(3) Detectors available with 5 m cable. To order, add the suffix **L5** to the reference selected from above.
Example : detector **XU9-M18PP340** with 5 m cable becomes **XU9-M18PP340L5**.
(4) These detectors do not have stability LED.

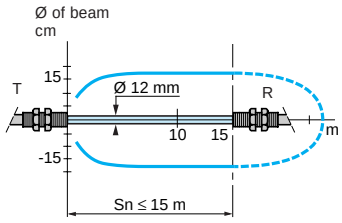
Osiris® universal detectors. Metal case, cylindrical, M18 x 1 threaded
d.c. supply. Solid state output
With sensitivity adjustment and stability LED

Accessories :
pages 2/118 to 2/123

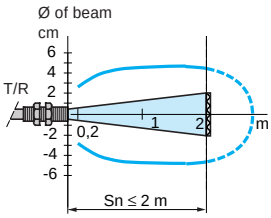
Curves, dimensions, schemes

Detection curves

Thru-beam system

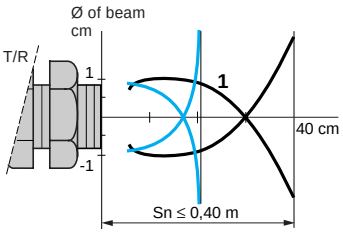


Polarised reflex system



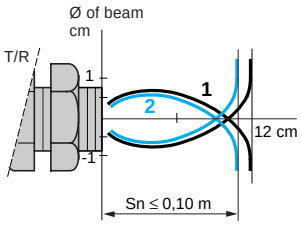
With reflector XUZ-C50

Diffuse system (Sn = 40 cm)



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

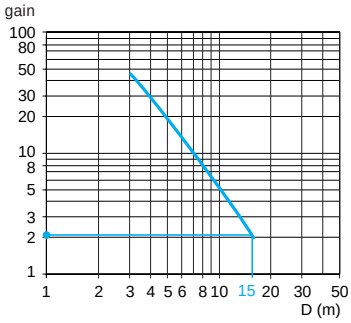
Diffuse system with background suppression (Sn = 10 cm)



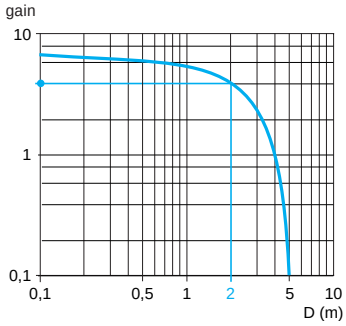
Object 10 x 10 cm
1 White 90%
2 Grey 18%

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

Thru-beam system

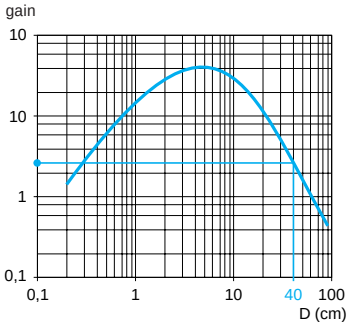


Polarised reflex system



With reflector XUZ-C50

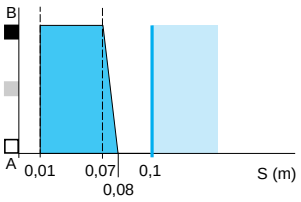
Diffuse system (Sn = 40 cm)



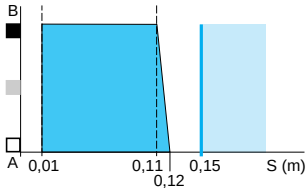
Object 10 x 10 cm
White 90%

Variation of usable sensing distance S

Diffuse system with adjustable background suppression
Potentiometer at minimum



Diffuse system with adjustable background suppression
Potentiometer at maximum

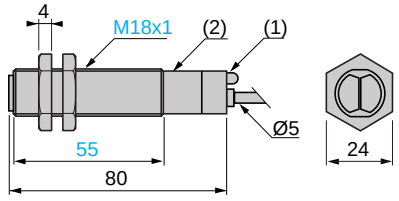


A-B : Object reflection coefficient

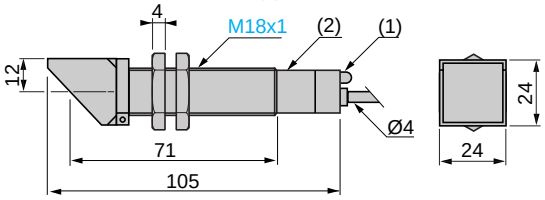
- Black 6 %
- Grey 18 %
- White 90 %
- Sensing range
- Non sensing zone (Matt surfaces)

Dimensions

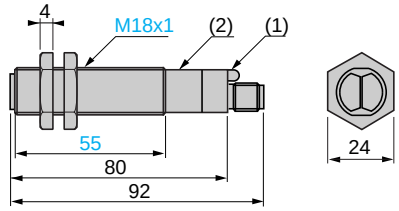
XU●-M18●P340



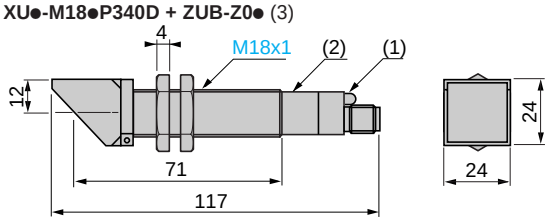
XU●-M18●P340 + XUB-Z0● (3)



XU●-M18●P340D



XU●-M18●P340D + ZUB-Z0● (3)



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

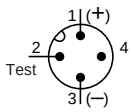
(3) XUB-Z0● : mirror adaptor for reflecting beam through 90°, see page 2/118
Connector tightening torque : 2 N.m

Cable connections

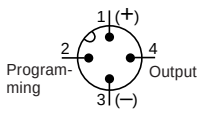
- (–)	BU	(Blue)
- (+)	BN	(Brown)
- (OUT)	BK	(Black)
- (Prog.)	OG	(Orange)
- (Test)	VI	(Violet) only applicable to thru-beam transmitter

Connector schemes

Connector pin view
Transmitter

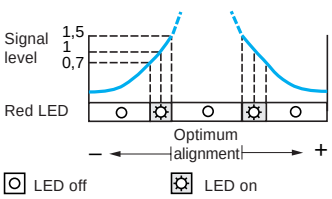


Thru-beam receiver, reflex and diffuse



Verification of correct operation

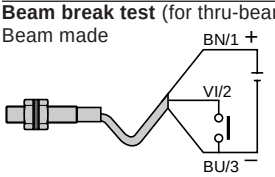
Thru-beam and reflex systems



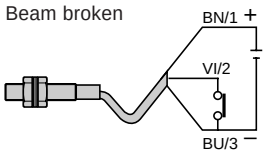
LED off LED on

Beam break test (for thru-beam transmitter only)

Beam made



Beam broken

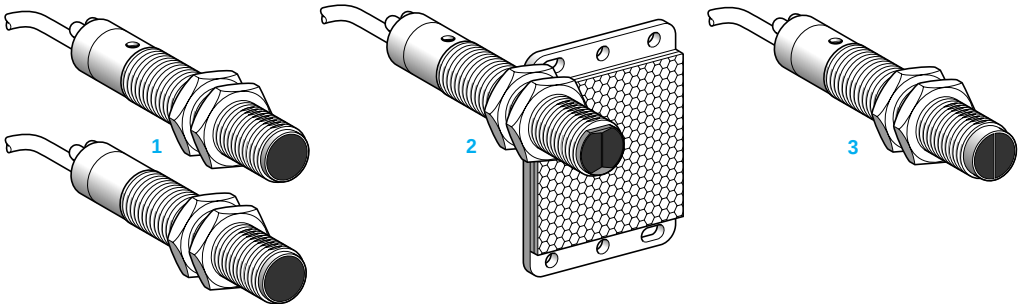


Osiris® universal detectors. Metal case, cylindrical, M18 x 1 threaded
a.c. or d.c. supply. Solid state output
With sensitivity adjustment

Accessories :
pages 2/118 to 2/123

References, characteristics

Design 18



System	Thru-beam 1	Polarised reflex 2	Diffuse 3	Diffuse with adjustable background suppression 3
Type of transmission	Infra-red	Red	Infra-red	Infra-red
Nominal sensing distance (Sn)	**15 m** (transmitter + receiver)	**2 m** (with 50 x 50 mm reflector)	**0.4 m**	**0.1 m** (0.08...0.12 m)

References of pre-cabled versions

2-wire, 24...240 V	Light switching	**XU2-M18MB230** (1)	**XU9-M18MB230** (2)	**XU5-M18MA230**	**XU8-M18MA230**
	Dark switching	**XU2-M18MA230** (1)	**XU9-M18MA230** (2)	**XU5-M18MB230**	**XU8-M18MB230**
Weight (kg)		0.285	0.170	0.150	0.150

References of plug-in connector versions

2-wire, 24...240 V	Light switching	**XU2-M18MB230K** (1)	**XU9-M18MB230K** (2)	**XU5-M18MA230K**	**XU8-M18MA230K**
	Dark switching	**XU2-M18MA230K** (1)	**XU9-M18MA230K** (2)	**XU5-M18MB230K**	**XU8-M18MB230K**
Weight (kg)		0.155	0.095	0.075	0.075

Complementary characteristics not shown under general characteristics (page 2/33)

Connection	Pre-cabled	Diameter 5 mm cable, length 2 m (3), wire c.s.a. : 2 x 0.5 mm²
	Connector	Ø 12 male connector, 3-pin (suitable female extension cables types 6 and 7, see pages 2/124 and 2/125)
Materials		Case : nickel plated brass, lens : PMMA, cable : PVC
Rated supply voltage		⎓/∿ **24...240 V**
Voltage limits		⎓/∿ 20...264 V (including ripple on ⎓)
Switching capacity (sealed)		**10...200 mA** (4)
Voltage drop, closed state		< 6 V
Residual current, open state		< 1.5 mA
Maximum switching frequency		25 Hz
Delays		First-up : ≤ 300 ms ; response : ≤ 20 ms ; recovery : ≤ 20 ms

1) Reference for both transmitter and receiver for thru-beam system detectors.
(2) 50 x 50 mm reflector included with polarised reflex system detectors.
(3) Detectors available with 5 m cable. To order, add the suffix **L5** to the reference selected from above.
Example : detector **XU9-M18MA230** with 5 m cable becomes **XU9-M18MA230L5**.
(4) These detectors do not incorporate overload or short-circuit protection and therefore, it is recommended that a 0.8 A "quick-blow" fuse be connected in series with the load. See page 2/120.

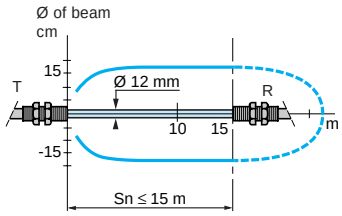
Osiris® universal detectors. Metal case, cylindrical, M18 x 1 threaded
a.c. or d.c. supply. Solid state output
With sensitivity adjustment

Accessories :
pages 2/118 to 2/123

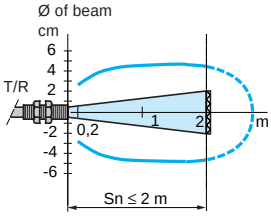
Curves, dimensions, schemes

Detection curves

Thru-beam system

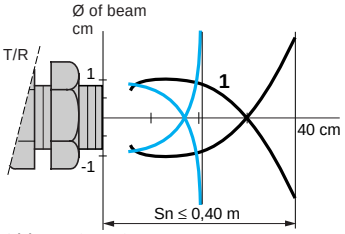


Polarised reflex system



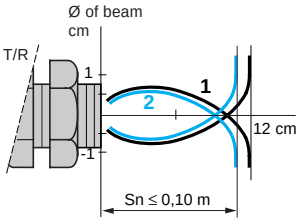
With reflector XUZ-C50

Diffuse system (Sn = 40 cm)



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

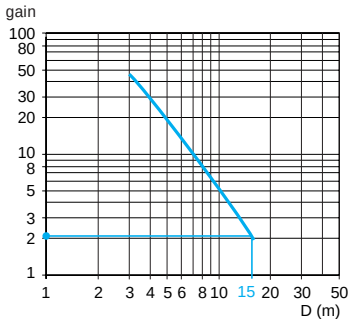
Diffuse system with background suppression (Sn = 10 cm)



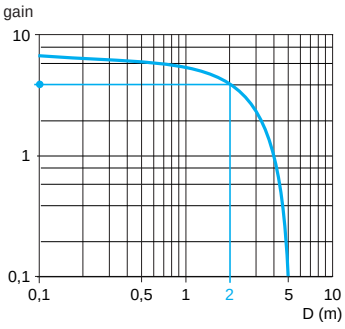
Object 10 x 10 cm
1 White 90%
2 Grey 18%

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

Thru-beam system

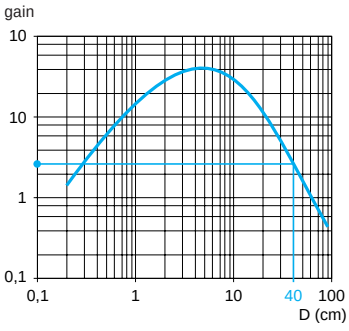


Polarised reflex system



With reflector XUZ-C50

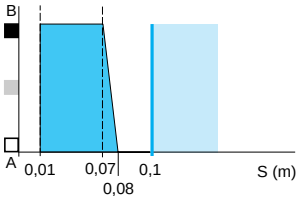
Diffuse system (Sn = 40 cm)



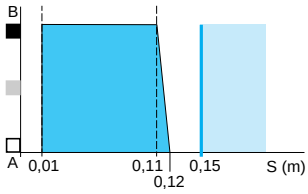
Object 10 x 10 cm
White 90%

Variation of usable sensing distance S

Diffuse system with adjustable background suppression
Potentiometer at minimum



Diffuse system with adjustable background suppression
Potentiometer at maximum

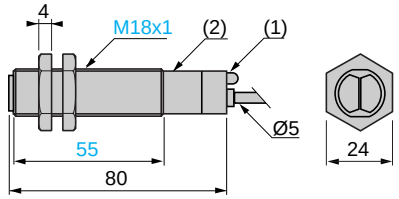


A-B : Object reflection coefficient

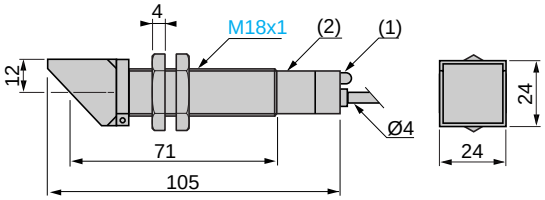
- Black 6 %
- Grey 18 %
- White 90 %
- Sensing range
- Non sensing zone (Matt surfaces)

Dimensions

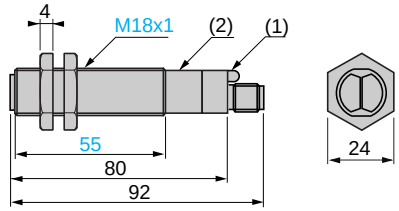
XU●-M18M●230



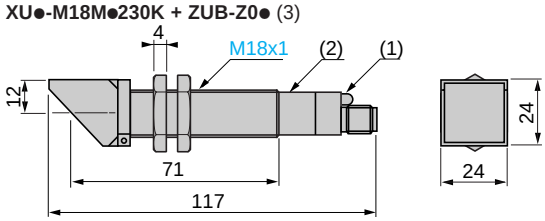
XU●-M18M●230 + XUB-Z0● (3)



XU●-M18M●230K



XU●-M18M●230K + ZUB-Z0● (3)



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

(3) XUB-Z0● : mirror adaptor for reflecting beam through 90°, see page 2/118
Connector tightening torque : 2 N.m

Cable connections

- (∿) BU (Blue)
- (∿) BN (Brown)

Connector scheme

Connector pin view
Thru-beam, reflex and diffuse



Attention : It is essential that a load be connected in series with the detector.