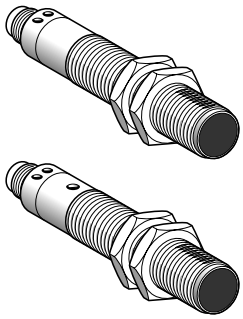
Photo-electric sensors

Osiris® Application, mechanical handling series

Thru-beam system with high “excess gain” *(1)*

Solid-state output and analogue output 4…20 mA

Design 18



System		**Thru-beam**
Type of transmission		Infra-red
Nominal sensing distance (Sn) / max.		**50 m /** 70 m (transmitter + receiver)

References

3-wire, PNP	N/C (object detection)+ analogue output	**XU2 M18AP20D** *(2)*
Weight (kg)		0.155

Characteristics

Product certifications		CE, CSA, UL
Ambient air temperature	Operation	- 25…+ 55 °C
	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 529	IP 67
Connection		M12 male connector, 4-pin (suitable female extension cables and connectors, see page 30210/2)
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)
Discrete solid state output	Switching capacity (sealed)	≤ **100 mA with overload and short-circuit protection**
	Voltage drop, closed state	≤ 1.5 V
	Maximum switching frequency	30 Hz
	Delays first-up	≤ 50 ms
	Delays response	≤ 15 ms
	Delays recovery	≤ 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 illuminated = supply on
		Yellow LED illuminated = beam transmission
	Receiver	Yellow LED illuminated = solid state output ON = object detected within beam
		Green LED : luminosity of the LED is proportional to the output current : - for I = 20 mA, object slightly opaque, light intensity at maximum, - for I = 4 mA, object completely opaque, light intensity at minimum.

(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 : 80 g white sheets of 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) Accessories see page 37012/2.

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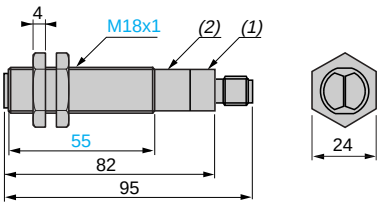
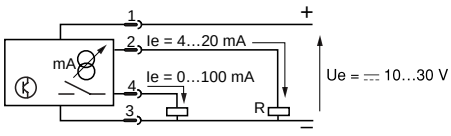
Dimensions



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

Wiring schemes

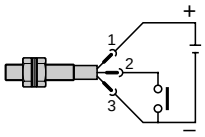
Receiver



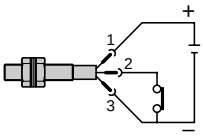
R max. < 800 Ω (Ue = 24 V), < 300 Ω (Ue = 12 V)

Beam break test (only applicable to transmitter)

Beam made



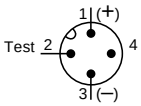
Beam broken



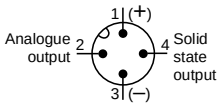
Connector schemes

Detector connector pin view

Transmitter



Receiver

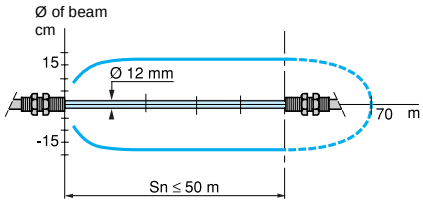


Depending on connector page 30210/2.

Curves

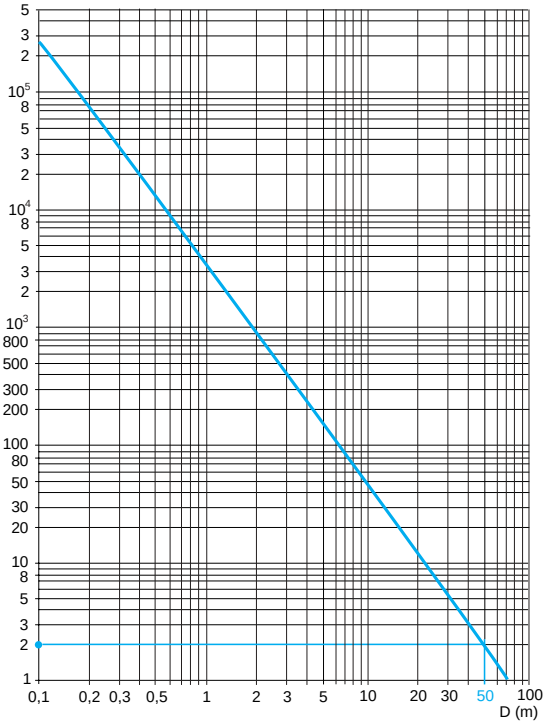
Detection curve

Thru-beam system



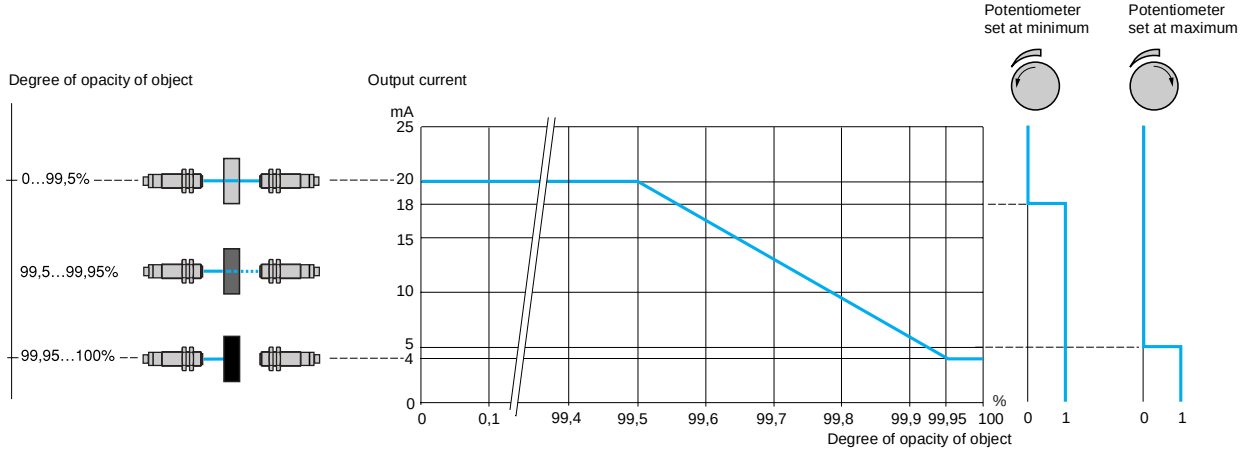
Excess gain curve (ambient temperature : + 25 °C)

Thru-beam system



Operation, settings

Type, opacity of the object	Analogue output curve	Switching level of discrete solid state PNP output



Accessories:
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