DATA SHEET PHOTOELECTRIC SENSOR V1.0

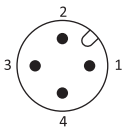
OP18 SERIES

ARTICLE PROPERTIES

SENSOR TYPE	Photoelectric sensor
SIZE	M18x1
OPERATING DISTANCE	See table
DETECTION MODE	Opposed, Retro-reflective, Polarized retro-reflective, Diffused

CONNECTION TYPES (*see table*)

- Cable — PVC, 0.34 mm², 2 m**
- M12 connector



** Other cable lengths are available on request

TECHNICAL DATA

OPERATING VOLTAGE	10 ... 30 V DC
RIPPLE VOLTAGE	≤ 10 %
LIGHT SOURCE	Infrared light: 850 nm Red light: 650 nm
LIGHT SPOT SIZE	See beam pattern
OUTPUT	PNP / NPN
FREQUENCY	See table
CURRENT CONSUMPTION	Opposed: ≤ 25 mA Others: ≤ 15 mA
LOAD CURRENT	≤ 100 mA
HOUSING MATERIAL	PC + PBT

VOLTAGE WITHSTANDING	1000 V/AC, 50/60 Hz, 60 s
REVERSE POLARITY PROTECTION	Yes
OVERLOAD RESISTANCE	Yes
SHORT CIRCUIT PROTECTION	Yes
MTTF	
• Emitter	855 years
• Receiver	366 years
• Retro-reflective and diffused	359 years
• Polarized retro-reflective	236 years

ENVIRONMENTAL CONDITIONS

OPERATING ENVIRONMENT HUMIDITY	35 % to 85 % RH (no condensation)
PROTECTION CLASS	IP67
STORAGE TEMPERATURE	-25 ... +65 °C
AMBIENT TEMPERATURE	-40 ... +70 °C

INSULATION IMPEDENCE	≥ 50 MΩ (500 V DC)
SHOCK RESISTANCE (EN 60068-2-27)	500 m/s² (50 G) 3 times X, Y, Z respectively
IMPACT RESISTANCE (EN 60068-2-6)	Complex amplitude 1.5 mm 10 ... 50 Hz (2hr X, Y, Z respectively)
ANTI-AMBIENT LIGHT	≤ 5000 Lux

STANDARDS AND DIRECTIVES

EMC DIRECTIVE 2014/30/EU	EN IEC 60947-5-2
ROHS DIRECTIVE 2011/65/EU	EN IEC 63000

APPROVALS

CE

OP18 SERIES

DETECTION MODE OPPOSED

Article number	Operating distance	Light source	Frequency	Output (wiring diagram)	Switching mode	Connection	Dimensions
OP18-S6 (emitter)	10 m	Infrared light	— —	— — (WD1)	— —	2 m cable	*see Fig. 1*
OP18-EVP6 (receiver)	10 m	— —	100 Hz	PNP (WD7)	L.O + D.O	2 m cable	*see Fig. 1*
OP18-EVN6 (receiver)	10 m	— —	100 Hz	NPN (WD8)	L.O + D.O	2 m cable	*see Fig. 1*
OP18-S6Q (emitter)	10 m	Infrared light	— —	— — (WD2)	— —	M12 connector	*see Fig. 2*
OP18-EVP6Q (receiver)	10 m	— —	100 Hz	PNP (WD9)	L.O + D.O	M12 connector	*see Fig. 2*
OP18-EVN6Q (receiver)	10 m	— —	100 Hz	NPN (WD10)	L.O + D.O	M12 connector	*see Fig. 2*

DETECTION MODE RETRO-REFLECTIVE

(The detection distance corresponds to the reflector RB50*50-1 (purchased separately)

Article number	Operating distance	Light source	Frequency	Output (wiring diagram)	Switching mode	Connection	Dimensions
OP18-RVP6	3 m	Infrared	100 Hz	PNP (WD3)	L.O + D.O	2 m cable	*see Fig. 1*
OP18-RVN6	3 m	Infrared	100 Hz	NPN (WD4)	L.O + D.O	2 m cable	*see Fig. 1*
OP18-RVP6Q	3 m	Infrared	100 Hz	PNP (WD5)	L.O + D.O	M12 connector	*see Fig. 2*
OP18-RVN6Q	3 m	Infrared	100 Hz	NPN (WD6)	L.O + D.O	M12 connector	*see Fig. 2*

DETECTION MODE POLARIZED RETRO-REFLECTIVE

(The detection distance corresponds to the reflector RB50*50-1 (purchased separately)

Article number	Operating distance	Light source	Frequency	Output (wiring diagram)	Switching mode	Connection	Dimensions
OP18-RPVP6	3 m	Red	800 Hz	PNP (WD3)	L.O + D.O	2 m cable	*see Fig. 1*
OP18-RPVN6	3 m	Red	800 Hz	NPN (WD4)	L.O + D.O	2 m cable	*see Fig. 1*
OP18-RPVP6Q	3 m	Red	800 Hz	PNP (WD5)	L.O + D.O	M12 connector	*see Fig. 2*
OP18-RPVN6Q	3 m	Red	800 Hz	NPN (WD6)	L.O + D.O	M12 connector	*see Fig. 2*

DETECTION MODE DIFFUSED

Article number	Operating distance	Light source	Frequency	Output (wiring diagram)	Switching mode	Connection	Dimensions
OP18-K100VP6	100 m	Infrared	100 Hz	PNP (WD3)	L.O + D.O	2 m cable	*see Fig. 1*
OP18-K100VN6	100 m	Infrared	100 Hz	NPN (WD4)	L.O + D.O	2 m cable	*see Fig. 1*
OP18-K100VP6Q	100 m	Infrared	100 Hz	PNP (WD5)	L.O + D.O	M12 connector	*see Fig. 2*
OP18-K100VN6Q	100 m	Infrared	100 Hz	NPN (WD6)	L.O + D.O	M12 connector	*see Fig. 2*
OP18-K200VP6	200 m	Infrared	100 Hz	PNP (WD3)	L.O + D.O	2 m cable	*see Fig. 1*
OP18-K200VN6	200 m	Infrared	100 Hz	NPN (WD4)	L.O + D.O	2 m cable	*see Fig. 1*
OP18-K200VP6Q	200 m	Infrared	100 Hz	PNP (WD5)	L.O + D.O	M12 connector	*see Fig. 2*
OP18-K200VN6Q	200 m	Infrared	100 Hz	NPN (WD6)	L.O + D.O	M12 connector	*see Fig. 2*

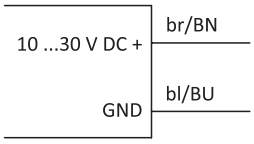
OP18 SERIES

DETECTION MODE DIFFUSED

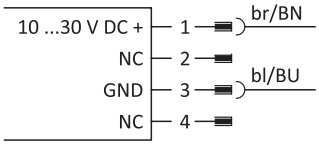
Article number	Operating distance	Light source	Frequency	Output (wiring diagram)	Switching mode	Connection	Dimensions
OP18-K400VP6	400 m	Infrared	100 Hz	PNP (WD3)	L.O + D.O	2 m cable	*see Fig. 1*
OP18-K400VN6	400 m	Infrared	100 Hz	NPN (WD4)	L.O + D.O	2 m cable	*see Fig. 1*
OP18-K400VP6Q	400 m	Infrared	100 Hz	PNP (WD5)	L.O + D.O	M12 connector	*see Fig. 2*
OP18-K400VN6Q	400 m	Infrared	100 Hz	NPN (WD6)	L.O + D.O	M12 connector	*see Fig. 2*
OP18-K600VP6	600 m	Infrared	100 Hz	PNP (WD3)	L.O + D.O	2 m cable	*see Fig. 1*
OP18-K600VN6	600 m	Infrared	100 Hz	NPN (WD4)	L.O + D.O	2 m cable	*see Fig. 1*
OP18-K600VP6Q	600 m	Infrared	100 Hz	PNP (WD5)	L.O + D.O	M12 connector	*see Fig. 2*
OP18-K600VN6Q	600 m	Infrared	100 Hz	NPN (WD6)	L.O + D.O	M12 connector	*see Fig. 2*

WIRING DIAGRAMS

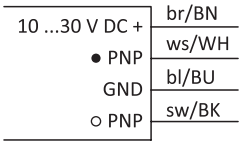
WD1 Emitter



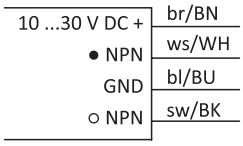
WD2 Emitter



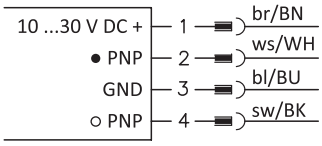
WD3 PNP / Light on | Dark on



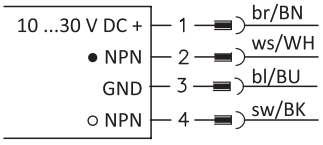
WD4 NPN / Light on | Dark on



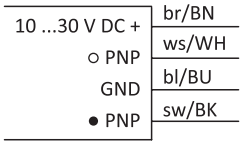
WD5 PNP / Light on | Dark on



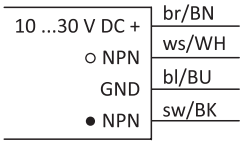
WD6 NPN / Light on | Dark on



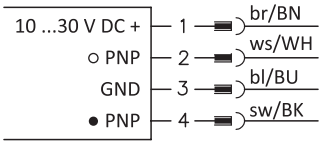
WD7 PNP / Light on | Dark on



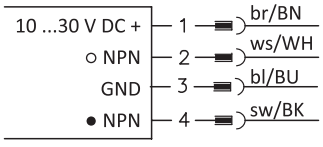
WD8 NPN / Light on | Dark on



WD9 PNP / Light on | Dark on



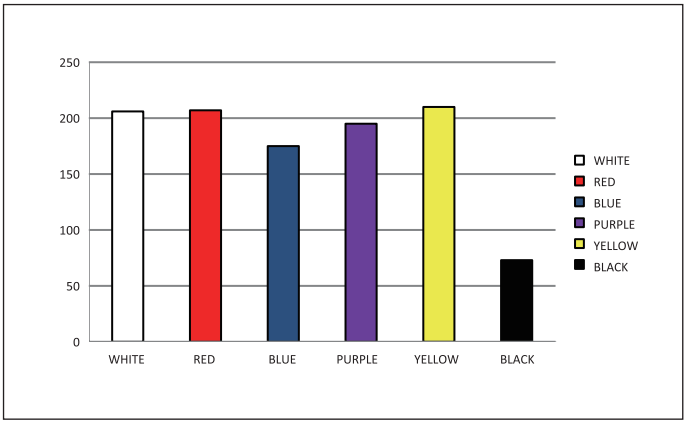
WD10 NPN / Light on | Dark on



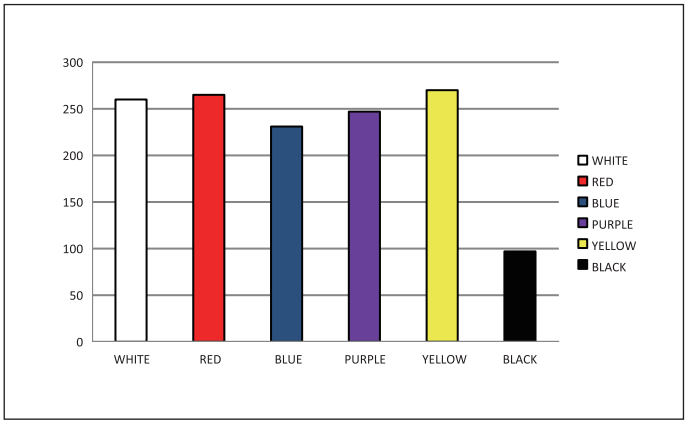
OP18 SERIES

ATTENUATION FIGURE

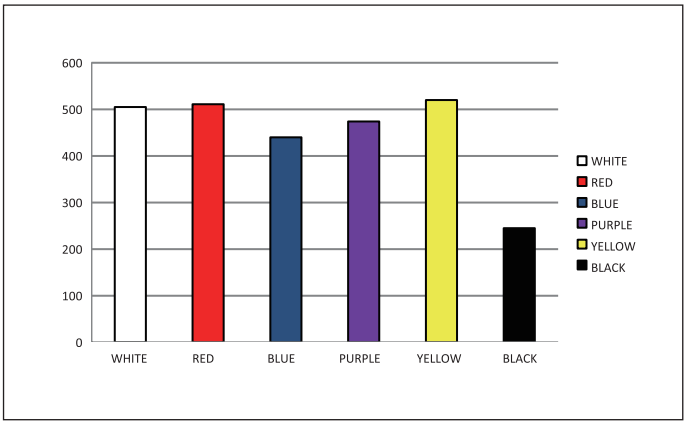
OP18-K100VP6



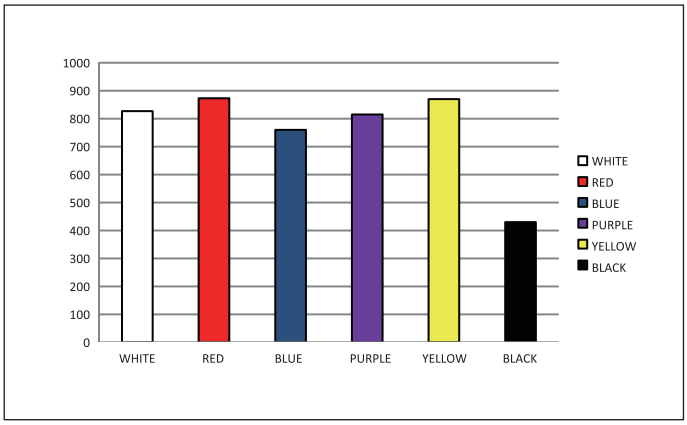
OP18-K200VP6



OP18-K400VP6

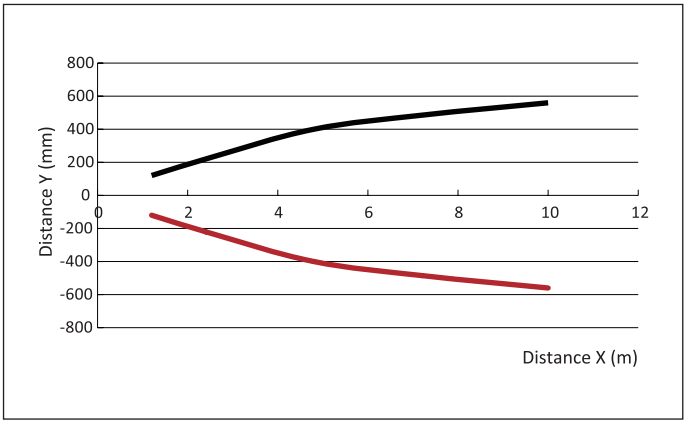


OP18-K600VP6

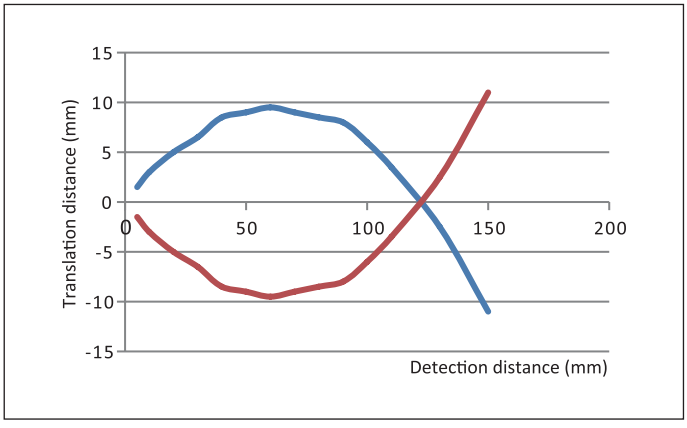


TRANSLATION CHARACTERISTIC CURVE

OP18 opposed characteristic curve (OP18-S6)



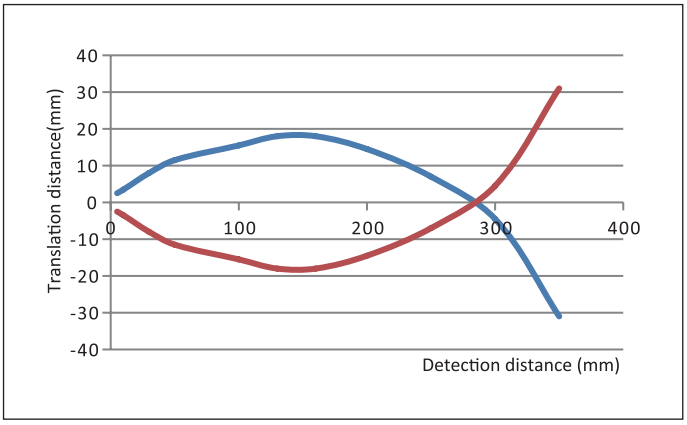
OP18-K100



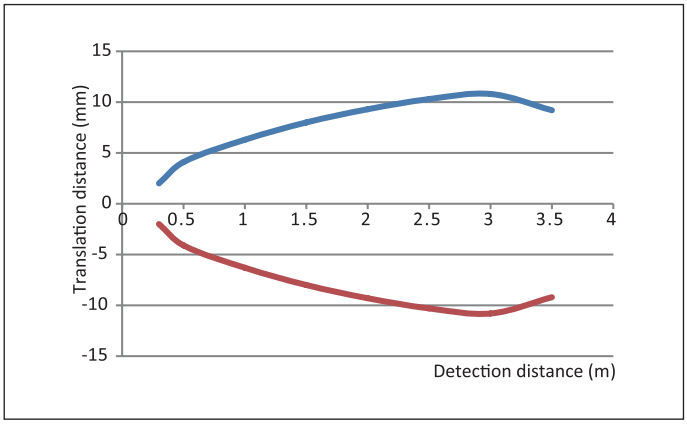
OP18 SERIES

TRANSLATION CHARACTERISTIC CURVE

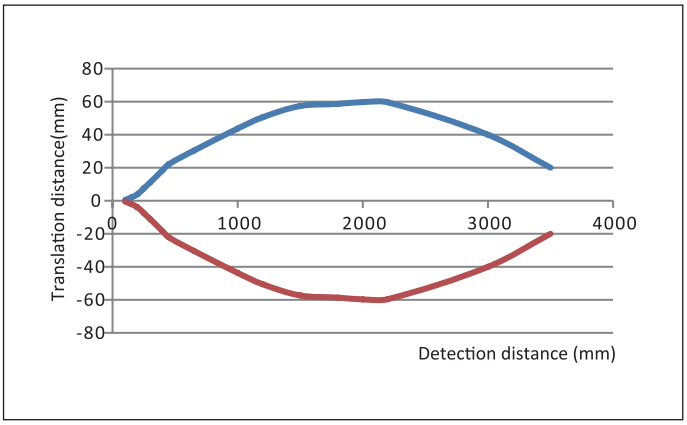
OP18-K200



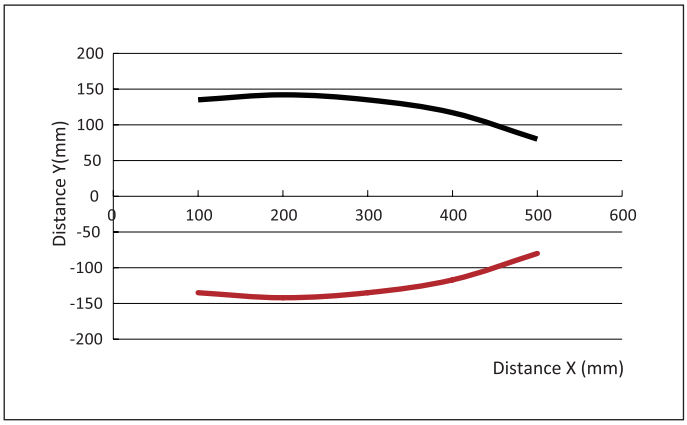
OP18 Polarized retro-reflective



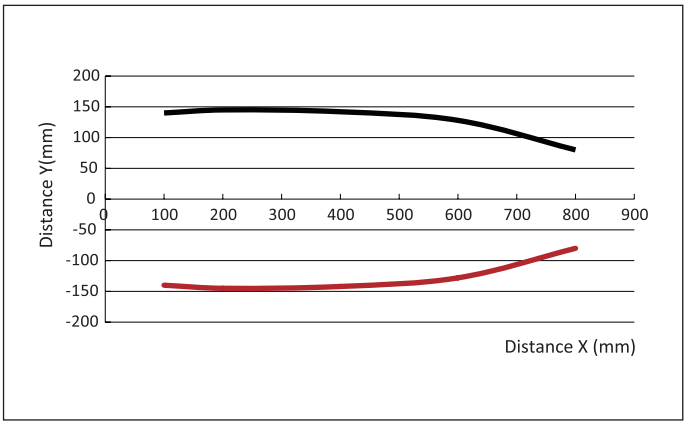
OP18 Retro-reflective



OP18 Diffused characteristic curve (OP18-K400)



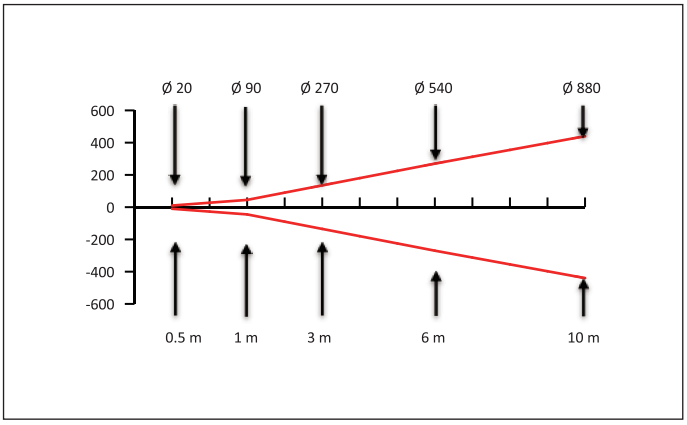
OP18 Diffused characteristic curve (OP18-K600)



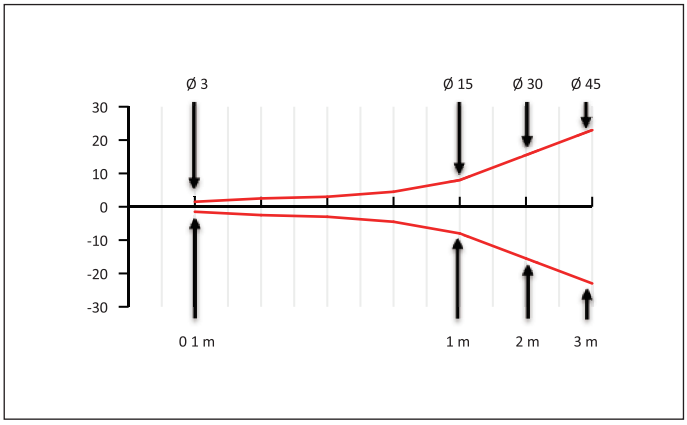
OP18 SERIES

BEAM PATTERN (mm)

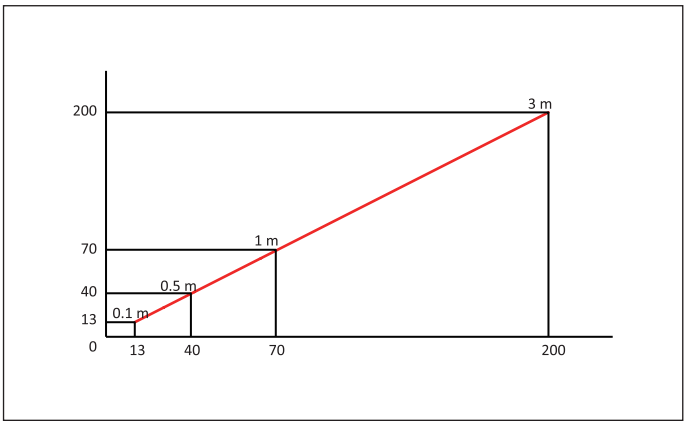
OP18-S6 (mm)



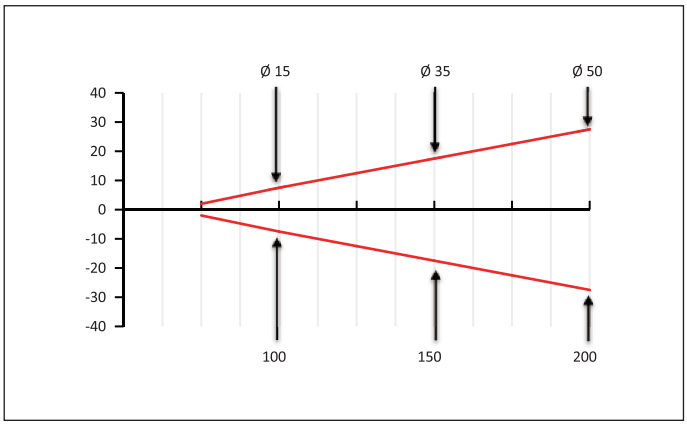
OP18-R (mm)



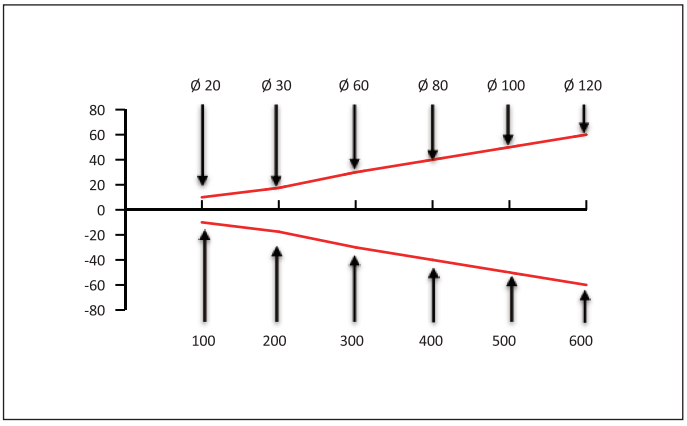
OP18-RP



OP18-K100/200



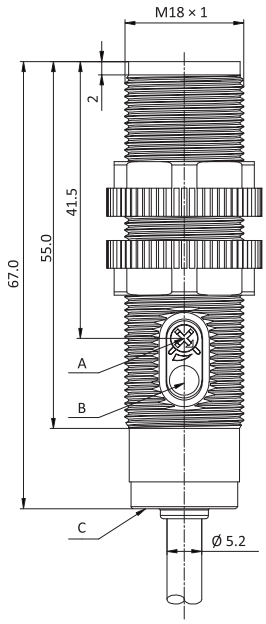
OP18-K400/600



OP18 SERIES

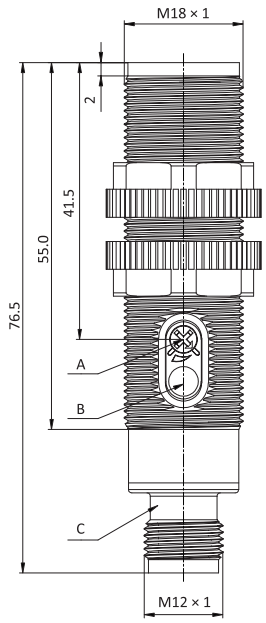
DIMENSIONS

Fig. 1 OP18 with cable



A Sensitivity regulation
B Steady state indicator
C Output indicator

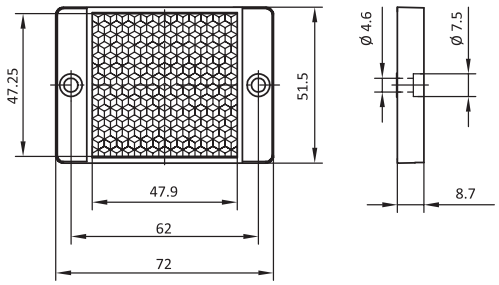
Fig. 2 OP18 with M12 connector



A Sensitivity regulation
B Steady state indicator
C Output indicator

REFLECTOR (OPTIONAL)

RB50x50-1



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