



Photoelectric sensors
V180-2, Photoelectric retro-reflective sensor,
Standard optics

VL180-2P42431

im0036730

Model Name > [VL180-2P42431](#)
Part No. > [6041819](#)



im0036730

Illustration may differ

At a glance

- Lowest-cost M18 housing sensor on the market
- Sensing distance up to 7 m
- Polarizing filter ensures reliable detection of highly-reflective objects
- Bright power and signal LEDs with 360° visibility
- Includes reflector
- High switching frequencies up to 1000 Hz
- Available in a metal housing for applications in harsh environments
- Optical axis selectively axial or radial (90°)

Your benefits

- Lowest-cost M18 cylindrical sensor on the market reduces installation costs
- Bright red sender LED simplifies alignment and saves installation time
- Bright power and signal LEDs with 360° visibility offer quick and simple troubleshooting, reducing maintenance time and costs
- The flat and smooth lens reduces the collection of dust and dirt, ensuring safe operation with less maintenance and fewer costs
- Polarizing filter prevents false readings on reflective surfaces, reducing downtime



Features

Sensor/detection principle:	Photoelectric retro-reflective sensor, Standard optics
Housing design (light emission):	Cylindrical, straight
Housing length:	70.2 mm
Thread diameter (housing):	M18 x 1
Optical axis:	Axial
Sensing range max.:	0.05 m ... 7 m ¹⁾
Sensing range:	0.05 m ... 6 m ²⁾
Type of light:	Visible red light
Light source:	LED ³⁾
Wave length:	645 nm
Angle of dispersion:	Ca. 4.5 °
Adjustment:	Potentiometer, 270°
Light spot size (distance):	Ø 400 mm (6 m)

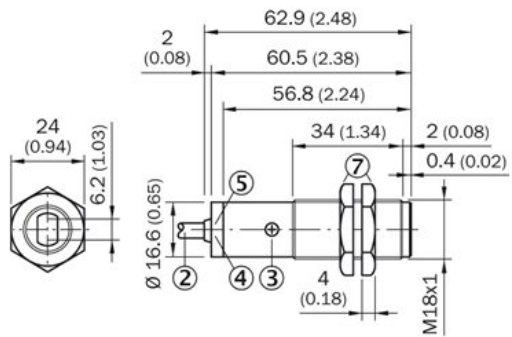
^{1) 2)} PL80A ³⁾ Average service life of 100,000 h at T_A = +25 °C

Mechanics/electronics

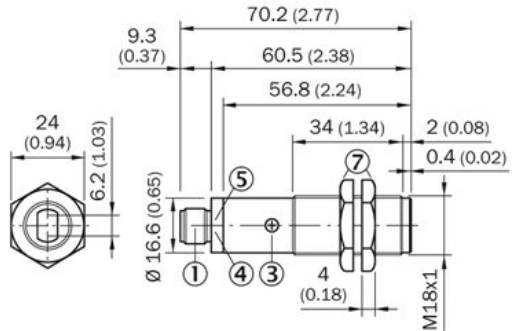
Supply voltage:	10 V DC ... 30 V DC ¹⁾
Ripple:	± 10 %
Power consumption:	30 ²⁾
Output type:	PNP, open collector ³⁾
Switching mode:	Light/dark-switching ⁴⁾
Switching mode selector:	Selectable via L/D control wire
Signal voltage PNP HIGH/LOW:	Approx. VS - 1.8 V/0 V
Output current I _{max} :	≤ 100 mA
Response time:	≤ 0.5 ms ⁵⁾
Switching frequency:	1,000 Hz ⁶⁾
Connection type:	Connector M12, 4-pin
Circuit protection:::	A, B, D ⁷⁾ ⁸⁾ ⁹⁾
Protection class:	III
Weight:	47 g
Polarisation filter:	✓
Special device:	-
Housing material:	Nickel-plated brass and PC, Metal
Optics material:	PMMA
Enclosure rating:	IP 67
Items supplied:	Fastening nuts (2 x), Reflector P250
Ambient operating temperature:	-25 °C ... 55 °C
Ambient storage temperature:	-40 °C ... 70 °C

¹⁾ Limit values, operation in short-circuit protected network max. 8 A ²⁾ Without load ³⁾ ⁴⁾ Control wire open: dark-switching D.ON ⁵⁾ Signal transit time with resistive load ⁶⁾ With light/dark ratio 1:1 ⁷⁾ A = V_S connections reverse-polarity protected ⁸⁾ B = inputs and output reverse-polarity protected ⁹⁾ D = outputs overcurrent and short-circuit protected

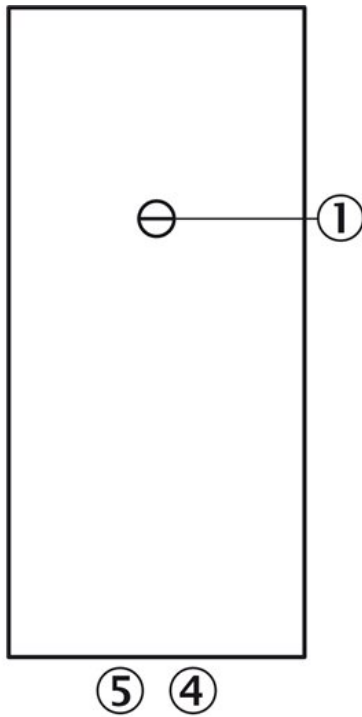
Dimensional drawing



- [1] Connector M12, 4-pin
- [2] Connection cable 2 m
- [3] Sensitivity adjustment 270°
- [4] LED indicator orange: switching output active
- [5] LED indicator green: strength indicator
- [7] fastening nuts (2 x); 24 mm hex, metal

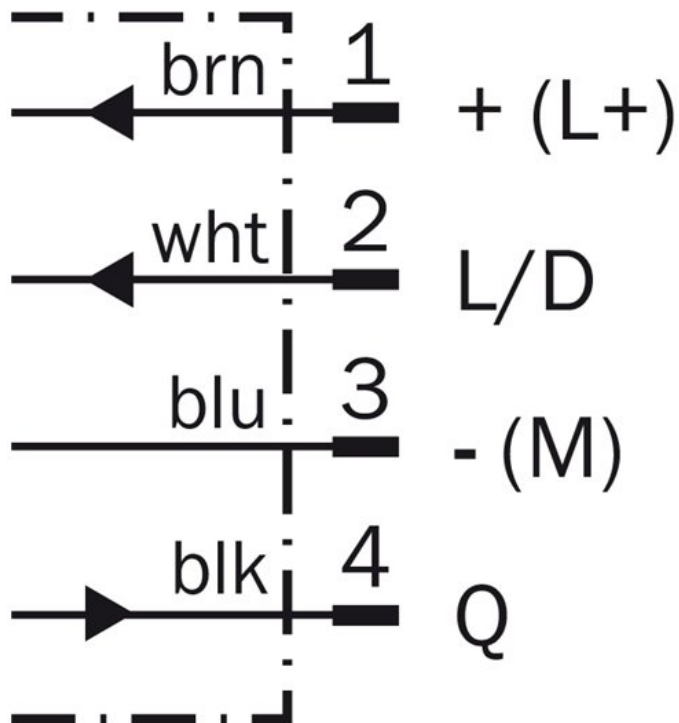


Adjustments possible

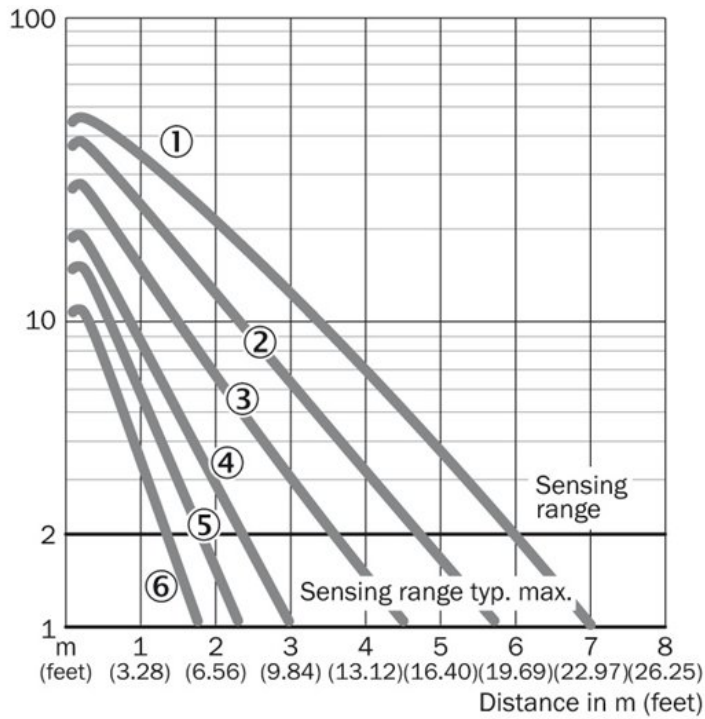


- [3] Sensitivity adjustment 270°
- [4] LED indicator orange: switching output active
- [5] LED indicator green

Connection diagram

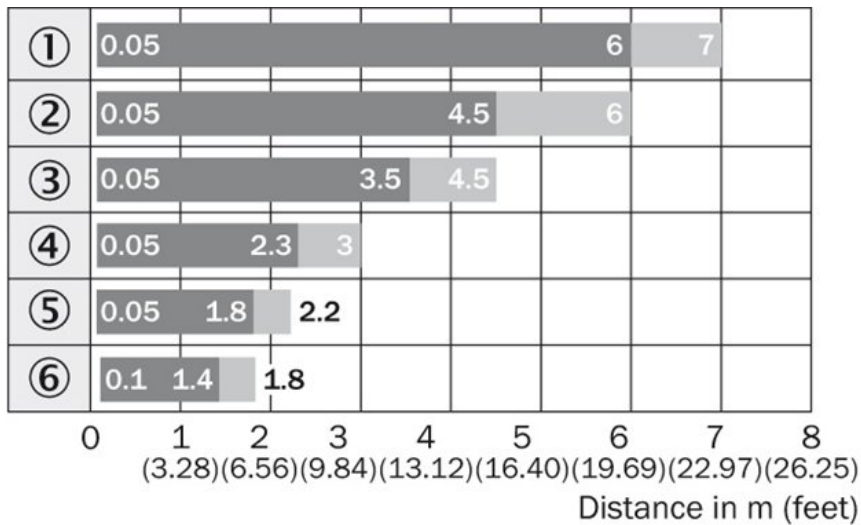


Characteristic curve



- [1] PL80A
- [2] P250, PL40A, PL50A, C110A
- [3] PL30A, PL31A
- [4] PL20A
- [5] P45
- [6] Reflective tape Diamond Grade

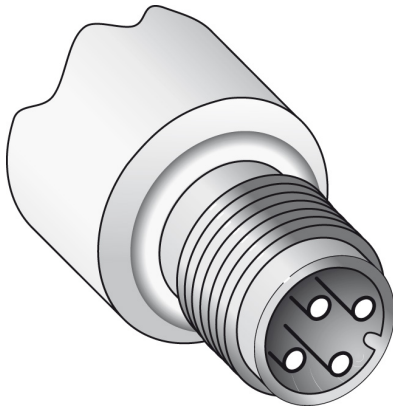
Sensing range diagram



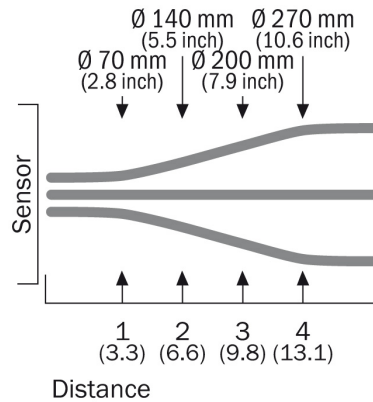
- |1| PL80A
- |2| P250, PL40A, PL50A, C110A
- |3| PL30A, PL31A
- |4| PL20A
- |5| P45
- |6| Reflective tape Diamond Grade

■ Sensing range ■ Sensing range max.

Connection type



Light spot size



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