



Photoelectric sensors
W4S-3, Photoelectric retro-reflective sensor,
autocollimation

WL4SC-3P2232A70



Model Name > [WL4SC-3P2232A70](#)
Part No. > [1067760](#)



Illustration may differ

At a glance

- Single-lens autocollimation optics
- All models with PinPoint LED technology provides a small intense, light spot
- Maximum sensing range of 5 m
- Key lock function, remote teach
- Diagnostics messages (contamination and short-circuit)
- Flexible sensor settings, monitoring, extended diagnostics, and visualization thanks to IO-Link
- Programmable functions as debouncing and time-measurement are included

Your benefits

- Quick and easy alignment due to the PinPoint LED's small, well-defined, intense light spot
- Single-lens autocollimation optics sees through small gaps and bore holes, enabling efficient machine integration
- Simple monitoring of detection quality
- Key lock function and parameter download prevent incorrect settings
- IO-Link provides easy data access from the PLC
- Quick and easy configuration
- Quick and easy integration using function blocks
- Easy device replacement and identification



Features

Sensor/detection principle:	Photoelectric retro-reflective sensor, autocollimation
Dimensions (W x H x D):	12.2 mm x 41.8 mm x 17.3 mm
Housing design (light emission):	Rectangular
Sensing range max.:	0 m ... 5 m ¹⁾
Sensing range:	0 m ... 3 m ²⁾
Type of light:	Visible red light
Light source:	PinPoint LED ³⁾
Wave length:	650 nm
Adjustment:	Single teach-in button
Light spot size (distance):	Ø 45 mm (1.5 m)
IO-Link functions:	Advanced functions, Standard functions
IO-Link advanced functions:	Decentralized debouncing, Time measurement/timer
Time measurement accuracy:::	IOL: - 0,9 ... + 0,9 ms ± 0,5 % of time measurement value, SIO Direct: ---, SIO Logic: - 0,7 ... + 0,7 ms ± 0,5 % of time measurement value ^{4) 5) 6) 7) 8) 9)}
Min. Time between two process events (switches):::	IOL: 700 µs, SIO Direct: ---, SIO Logic: 500 µs

Max. Debounce Range:: IOL: 30.000 ms, SIO Direct: ---, SIO Logic: 30.000 ms ^{10) 11) 12)}

Time measurement accuracy (e.g. accuracy for time measurement): IOL: - 5,9 ... + 5,9 ms, SIO Direct: ---, SIO Logic: - 5,7 ... + 5,7 ms

^{1) 2)} PL80A ³⁾ Average service life: 100,000 h at $T_U = +25\text{ °C}$ ^{4) 7) 10)} SIO Direct: Sensor operation in standard I/O mode without IO-Link communication and without usage of sensor-internal logic or timing parameters (set to "direct"/"deactivated"). ^{5) 8) 11)} SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used. ^{6) 9) 12)} IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

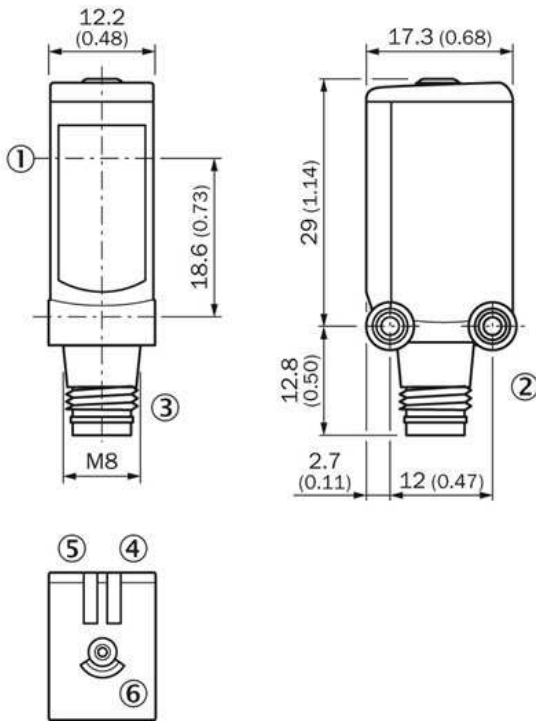
Mechanics/electronics

Supply voltage:	10 V DC ... 30 V DC ¹⁾
Residual ripple::	$\leq 5\text{ Vpp}$ ^{2) 3)}
Power consumption:	$\leq 20\text{ mA}$ ⁴⁾
Output type:	PNP
Switching mode:	Light/dark switching
Output current I _{max} ::	$\leq 100\text{ mA}$
Electrical connection:	Connector M8, 4-pin
Circuit protection:::	A, B, C, D ^{5) 6) 7) 8)}
Protection class:	III
Weight:	30 g
Polarisation filter:	✓
IO-Link:	✓
Special device:	-
Optics material:	PMMA
Enclosure rating:	IP 67 IP 66
Ambient operating temperature:	-40 °C ... +60 °C
Ambient storage temperature:	-40 °C ... +75 °C
UL File No.:	NRKH.E181493 & NRKH7.E181493
Housing material:	ABS, Plastic
Response time Q/ on Pin 2::	300 µs ... 450 µs ^{9) 10)}
Switching frequency Q \ on Pin2:	1,000 Hz
Repeatability Q/ on Pin 2::	150 µs
IO-Link version:	1.0
Transmission rate:	COM2

With light/dark ratio 1:1, valid for Q \ on Pin2, if configured with software; Valid for Q \ on Pin2, if configured with software;

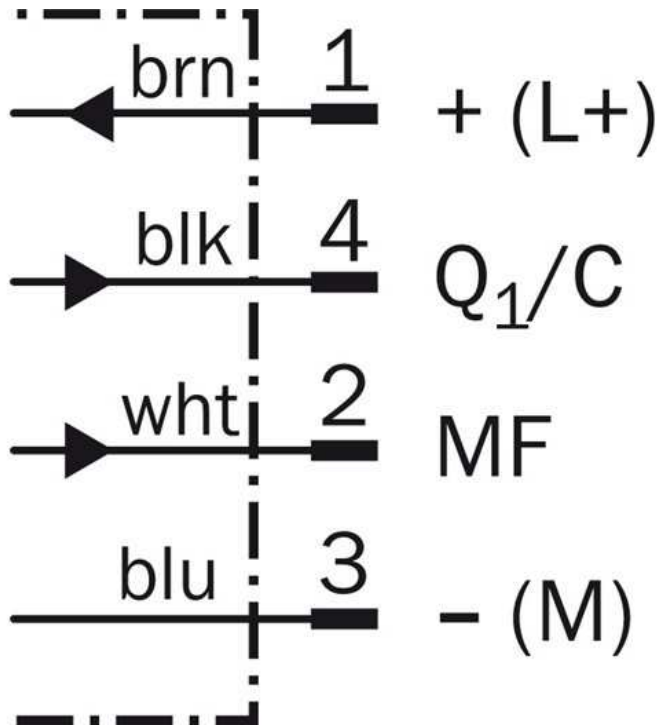
¹⁾ Limit values when operated in short-circuit protected network: max. 8 A ^{2) 3)} May not exceed or fall below U tolerances ⁴⁾ Without load ⁵⁾ A = V_S connections reverse-polarity protected ⁶⁾ B = inputs and output reverse-polarity protected ⁷⁾ C = interference suppression ⁸⁾ D = outputs overcurrent and short-circuit protected ⁹⁾ Signal transit time with resistive load ¹⁰⁾ Valid for Q \ on Pin2, if configured with software

Dimensional drawing



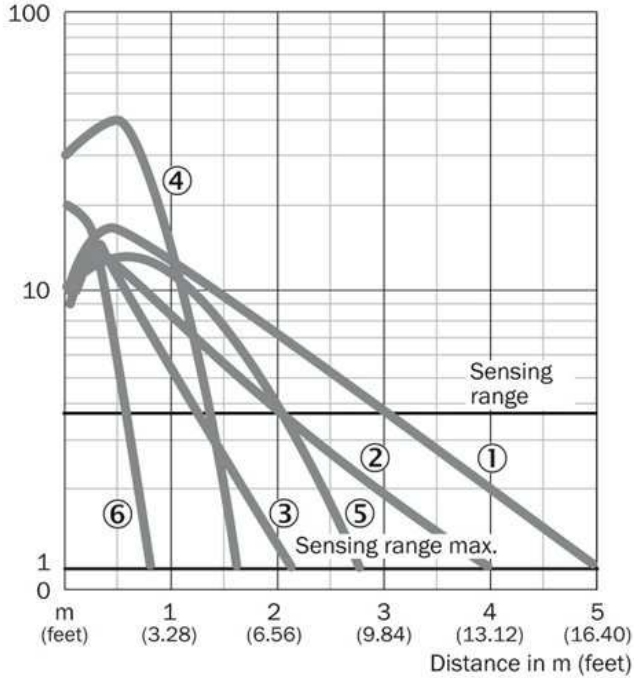
- |1| Center of optical axis
- |2| Threaded mounting hole M3
- |3| Connection
- |4| Status indicator LED green: supply voltage on
- |5| LED indicator orange: status of received light beam
- |6| Teach-in button

Connection diagram



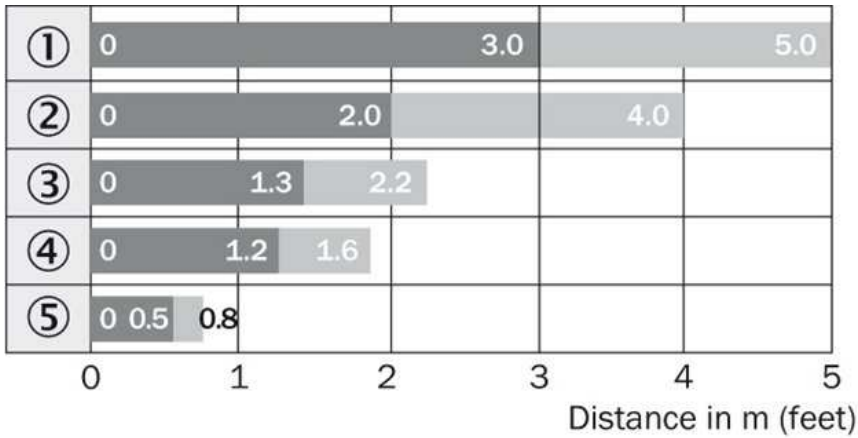
Characteristic curve

Operating reserve



- |1| PL80A
- |2| PL40A
- |3| PL20A
- |4| PL10F
- |5| P250 CHEM
- |6| REF-IRF-56

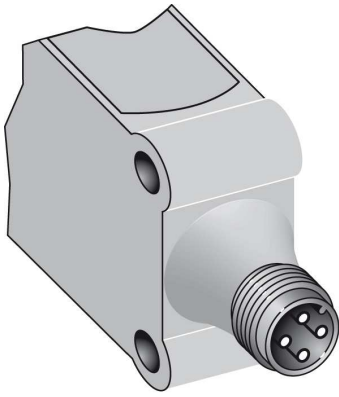
Sensing range diagram



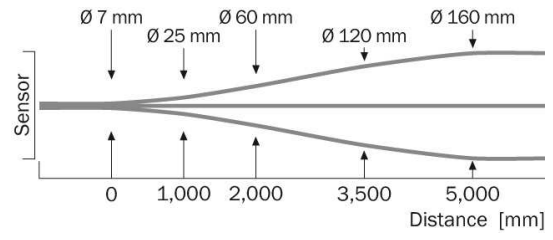
- |1| PL80A
- |2| PL40A
- |3| PL20A
- |4| PL10F
- |5| REF-IRF-56

■ Sensing range ■ Sensing range max.

Connection type



Light spot size



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