

# ZL1-P2421

Z-Sensor

CYLINDRICAL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.

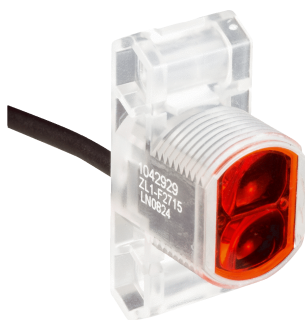


Illustration may differ



### Ordering information

Type	Part no.
ZL1-P2421	1045501

Other models and accessories → [www.sick.com/Z-Sensor](http://www.sick.com/Z-Sensor)

### Detailed technical data

#### Features

<b>Sensor/ detection principle</b>	Photoelectric retro-reflective sensor, Dual lens
<b>Dimensions (W x H x D)</b>	13.6 mm x 34.8 mm x 23 mm
<b>Housing design (light emission)</b>	Hybrid
<b>Thread diameter (housing)</b>	M18 x 1
<b>Sensing range max.</b>	0.1 m ... 4.8 m <sup>1)</sup>
<b>Sensing range</b>	0.1 m ... 3 m <sup>1)</sup>
<b>Type of light</b>	Visible red light
<b>Light source</b>	LED <sup>2)</sup>
<b>Light spot size (distance)</b>	Ø 125 mm (1 m)
<b>Wave length</b>	660 nm
<b>Adjustment</b>	None

<sup>1)</sup> Reflector PL80A.

<sup>2)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

#### Mechanics/electronics

<b>Supply voltage</b>	10 V DC ... 30 V DC <sup>1)</sup>
<b>Ripple</b>	< 5 V <sub>pp</sub> <sup>2)</sup>
<b>Current consumption</b>	20 mA <sup>3)</sup>
<b>Switching output</b>	PNP
<b>Switching mode</b>	Light switching

<sup>1)</sup> Limit values.

<sup>2)</sup> May not exceed or fall below U<sub>V</sub> tolerances.

<sup>3)</sup> Without load.

<sup>4)</sup> With light/dark ratio 1:1.

<sup>5)</sup> Do not bend below 0 °C.

<sup>6)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>7)</sup> D = outputs overcurrent and short-circuit protected.

<sup>8)</sup> Reference voltage: 50 V DC.

<b>Output current <math>I_{\max}</math></b>	≤ 50 mA
<b>Switching frequency</b>	400 Hz <sup>4)</sup>
<b>Connection type</b>	Cable with M12 male connector, 4-pin, 150 mm <sup>5)</sup>
<b>Circuit protection</b>	A <sup>6)</sup> D <sup>7)</sup>
<b>Protection class</b>	III <sup>8)</sup>
<b>Polarisation filter</b>	✓
<b>Housing material</b>	Plastic, Glass fiber reinforced ABS plastic
<b>Enclosure rating</b>	IP67
<b>Items supplied</b>	Mounting nut M18
<b>Ambient operating temperature</b>	-25 °C ... +50 °C
<b>Ambient temperature, storage</b>	-40 °C ... +70 °C
<b>UL File No.</b>	NRKH.E189383 & NRKH7.E189383

1) Limit values.

2) May not exceed or fall below  $U_V$  tolerances.

3) Without load.

4) With light/dark ratio 1:1.

5) Do not bend below 0 °C.

6) A =  $V_S$  connections reverse-polarity protected.

7) D = outputs overcurrent and short-circuit protected.

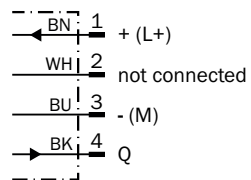
8) Reference voltage: 50 V DC.

## Classifications

<b>ECI@ss 5.0</b>	27270902
<b>ECI@ss 5.1.4</b>	27270902
<b>ECI@ss 6.0</b>	27270902
<b>ECI@ss 6.2</b>	27270902
<b>ECI@ss 7.0</b>	27270902
<b>ECI@ss 8.0</b>	27270902
<b>ECI@ss 8.1</b>	27270902
<b>ECI@ss 9.0</b>	27270902
<b>ECI@ss 10.0</b>	27270902
<b>ECI@ss 11.0</b>	27270902
<b>ETIM 5.0</b>	EC002717
<b>ETIM 6.0</b>	EC002717
<b>ETIM 7.0</b>	EC002717
<b>UNSPSC 16.0901</b>	39121528

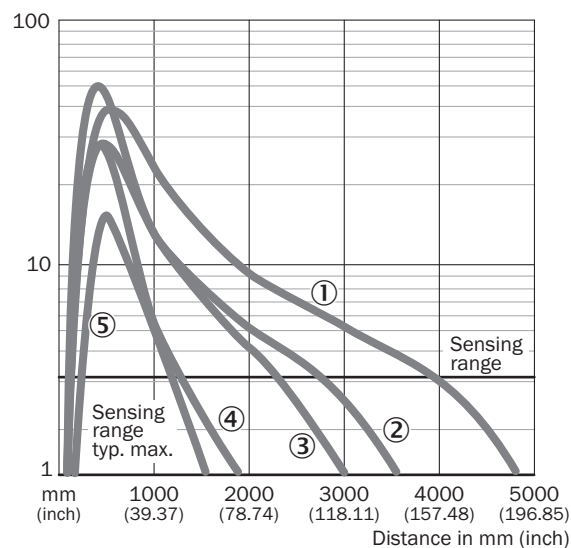
### Connection diagram

Cd-067



### Characteristic curve

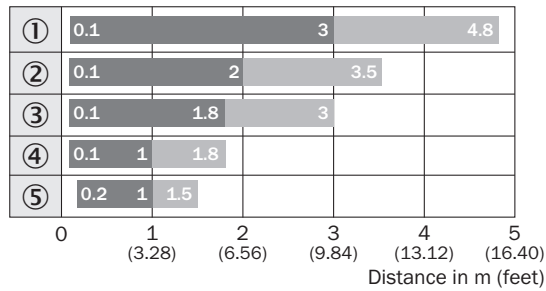
ZL1, ZL2, ZL3



- ① Reflector PL80A
- ② Reflector P250
- ③ Reflector PL40A
- ④ Reflector PL20A
- ⑤ Reflective tape REF-Plus

## Sensing range diagram

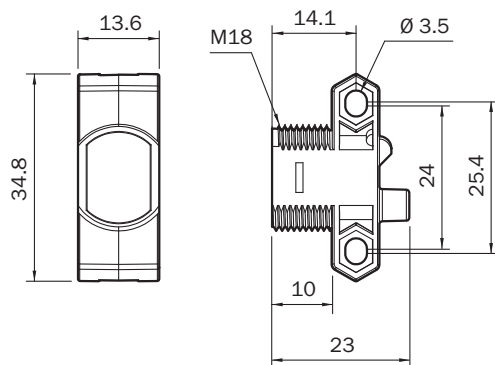
ZL1, ZL2, ZL3



- Sensing range    ■ Sensing range max.
- ① Reflector PL80A
  - ② Reflector P250
  - ③ Reflector PL40A
  - ④ Reflector PL20A
  - ⑤ Reflective tape REF-Plus



## Dimensional drawing (Dimensions in mm (inch))



ZT1, ZL1



## Recommended accessories

Other models and accessories → [www.sick.com/Z-Sensor](http://www.sick.com/Z-Sensor)

	Brief description	Type	Part no.
Mounting brackets and plates			
	Universal mounting bracket for reflectors, steel, zinc coated	BEF-WN-REFX	2064574
Reflectors			
	Rectangular, screw connection, 51 mm x 61 mm, PMMA/ABS, Screw-on, 2 hole mounting	P250	5304812

	Brief description	Type	Part no.
Plug connectors and cables			
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YF2A14-050VB3XLEAX	2096235
	Head A: male connector, M12, 4-pin, straight Head B: - Cable: unshielded	STE-1204-G	6009932

## SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)