




Hybrid sensor with integrated M18 threads for front and base mounting





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**Product description**

The industry-proven ELF-3 family of hybrid photoelectric sensors offers basic functions for presence detection applications. These low-cost sensors provide a variety of features that can be optimized for customers to reduce installation and procurement costs. They are ideal for standard, short-range applications, such as conveyor systems, vending machines, packaging lines, or other simple on/off applications. ASIC (application-specific integrated circuit) technology, which is proprietary to SICK, guarantees the best optical performance. ELF-3 sensors are

available in background suppression, energetic and retro-reflective variants. The background suppression variant offers a 50 mm fixed sensing distance. The energetic variant has a 155 mm sensing range and the retro-reflective variant has a 5 m sensing range. A clear back cover provides highly visible power and status indication. These multi-functional sensors are able to integrate optical and electronic elements into different housings. The ELF-3 comes with integrated M18 threads for front and base mounting.

**At a glance**

- Flush red lens
- Polarization filter
- Clear back cover for highly visible status indication
- 18 mm front and base mount
- Power and status indicator

**Your benefits**

- A wide range of customizable options reduces material and labor costs
- Flush red lens provides an increased sensing range for a broader range of application possibilities
- IP 67-rated housing has a longer service life that stands up to harsh environments, reducing maintenance time and costs
- Highly visible status/power indicator provides quick and easy troubleshooting from a distance
- M18 front and base mounting ensures quick and easy installation
- Small sensor footprint easily fits into applications with limited space

→ [www.mysick.com/en/ELF3](http://www.mysick.com/en/ELF3)

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



## Detailed technical data

### Features

	ET3	EL3	EL4
<b>Sensor principle</b>	Photoelectric proximity sensor	Photoelectric retro-reflective sensor	
<b>Detection principle</b>	Background suppression / energetic (depending on type)	-	
<b>Dimensions (W x H x D)</b>	23.8 mm x 45.4 mm x 33.6 mm		
<b>Housing design (light emission)</b>	Hybrid		
<b>Thread diameter (housing)</b>	M18		
<b>Sensing range max.</b>	0 mm ... 155 mm <sup>1)</sup> (depending on type)	0.1 m ... 4.8 m <sup>2)</sup>	
<b>Sensing range</b>	0 mm ... 155 mm <sup>1)</sup> (depending on type)	0.1 m ... 3 m <sup>2)</sup>	
<b>Type of light</b>	Infrared light / visible red light (depending on type)	Visible red light	
<b>Light source <sup>3)</sup></b>	LED		
<b>Wave length</b>			
Infrared light	880 nm	-	
Visible red light	660 nm		
<b>Special feature</b>	Focused optics	-	

<sup>1)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033)

<sup>2)</sup> PL80A.

<sup>3)</sup> Average service life of 100,000 h at T<sub>A</sub> = +25 °C.

### Mechanics/electronics

	ET3	EL3	EL4
<b>Supply voltage <sup>1)</sup></b>	10 V DC ... 30 V DC		
<b>Ripple <sup>2)</sup></b>	< 5 V <sub>pp</sub>		
<b>Power consumption <sup>3)</sup></b>	< 20 mA		
<b>Output type</b>	PNP		
<b>Switching mode</b>	Light switching / Dark-switching (depending on type)		
<b>Output current I<sub>max.</sub></b>	50 mA		
<b>Switching frequency <sup>4)</sup></b>	200 Hz	400 Hz	
<b>Connection type <sup>5)</sup></b>	Cable, 2 m		
<b>Circuit protection</b>	A <sup>6)</sup> , D <sup>7)</sup>		
<b>Protection class <sup>8)</sup></b>	III		
<b>Weight</b>	0.036 kg, 0.08 lbs		
<b>Polarisation filter</b>	-	✓	
<b>Housing material</b>	Glass fiber reinforced ABS plastic		
<b>Enclosure rating</b>	IP 67		
<b>Ambient operating temperature</b>	-25 °C ... +50 °C		
<b>Ambient storage temperature</b>	-40 °C ... +70 °C		

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

<sup>2)</sup> May not exceed or fall short of V<sub>S</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.

Ordering information

Other models available at [www.mysick.com/en/ELF3](http://www.mysick.com/en/ELF3)

ET3

- **Sensor principle:** photoelectric proximity sensor
- **Output type:** PNP
- **Connection:** cable, 3-wire, 2 m, PVC

Detection principle	Type of light	Sensing range max. <sup>1)</sup>	Light spot size (distance)	Switching mode	Connection diagram	Model name	Part no.
Background suppression	Infrared light	0 mm ... 50 mm	10.5 mm x 10.5 mm (50 mm)	Light switching	Cd-043	ET3-P3215	1045187
				Dark-switching	Cd-043	ET3-F3215	1045189
Energetic	Visible red light	5 mm ... 60 mm	8 mm x 8 mm (60 mm)	Light switching	Cd-043	ET3-P2215	1045195
				Dark-switching	Cd-043	ET3-F2215	1045196
	Infrared light	1 mm ... 100 mm	20 mm x 20 mm (100 mm)	Light switching	Cd-043	ET3-P4215	1045191
				Dark-switching	Cd-043	ET3-F4215	1045193
		5 mm ... 155 mm	31 mm x 31 mm (150 mm)	Light switching	Cd-043	ET3-P5215	1045199
				Dark-switching	Cd-043	ET3-F5215	1045200

<sup>1)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033)

EL3

- **Sensor principle:** photoelectric retro-reflective sensor
- **Output type:** PNP
- **Connection:** cable, 3-wire, 2 m, PVC

Type of light	Sensing range max. <sup>1)</sup>	Light spot size (distance)	Switching mode	Connection diagram	Model name	Part no.
Visible red light	0.1 m ... 4.8 m	125 mm x 125 mm (1 m)	Light switching	Cd-043	EL3-P2415	1043960
			Dark-switching	Cd-043	EL3-F2415	1043961

<sup>1)</sup> PL80A.

EL4

- **Sensor principle:** photoelectric retro-reflective sensor
- **Output type:** PNP
- **Connection:** cable, 3-wire, 2 m, PVC

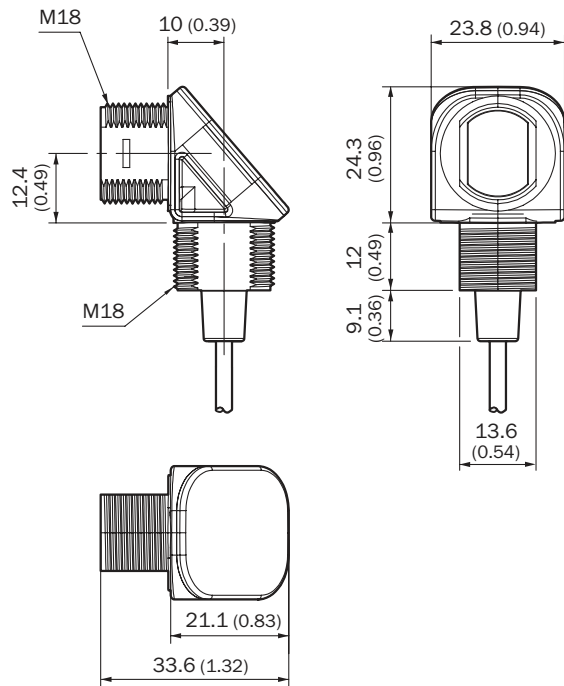
Type of light	Sensing range max. <sup>1)</sup>	Light spot size (distance)	Switching mode	Connection diagram	Model name	Part no.
Visible red light	0.1 m ... 4.8 m	125 mm x 125 mm (1 m)	Light switching	Cd-043	EL4-P2415	1044683
			Dark-switching	Cd-043	EL4-F2415	1044684

<sup>1)</sup> PL80A.

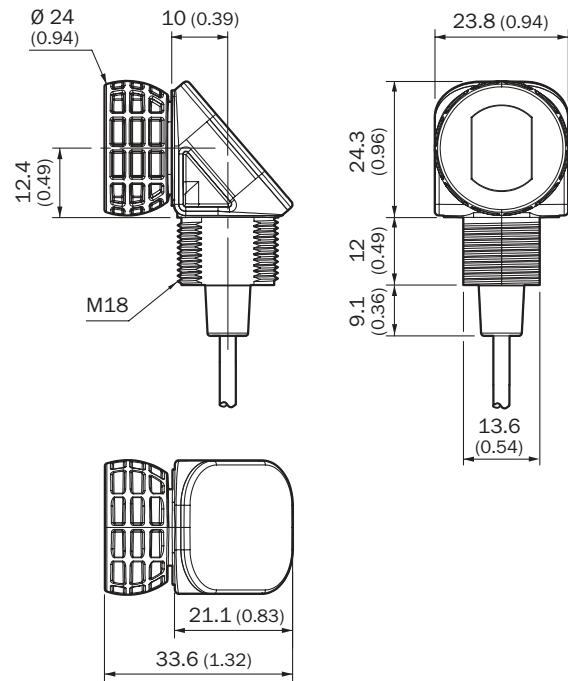
Dimensional drawings

Dimensions in mm (inch)

ET3, EL3



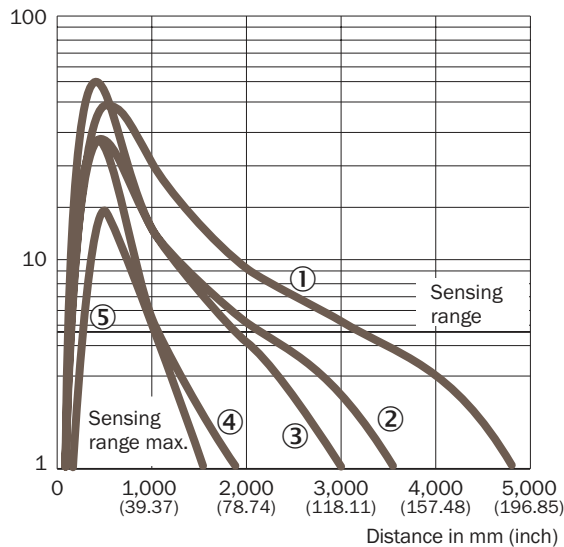
EL4



Characteristic curves

EL3

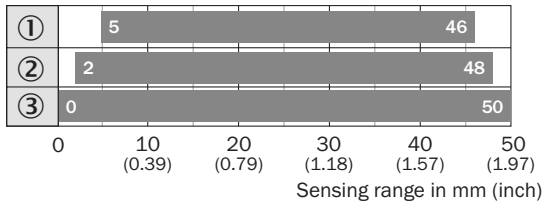
% of sensing range



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

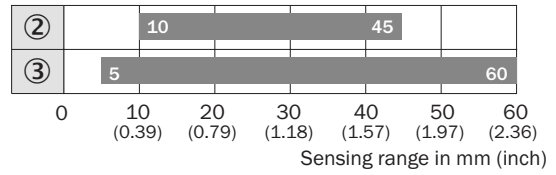
Bar diagrams

ET3, 50 mm



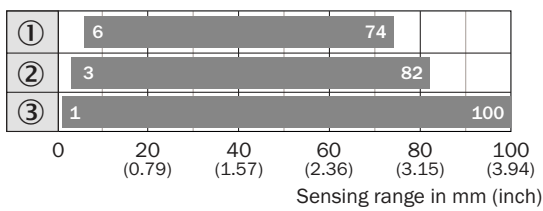
- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90 % remission

ET3, 60 mm



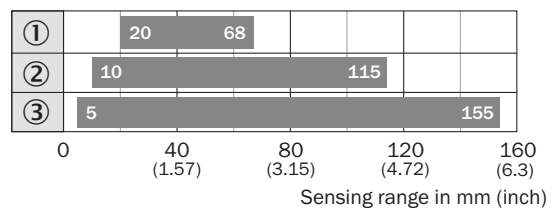
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90 % remission

ET3, ET4, 100 mm



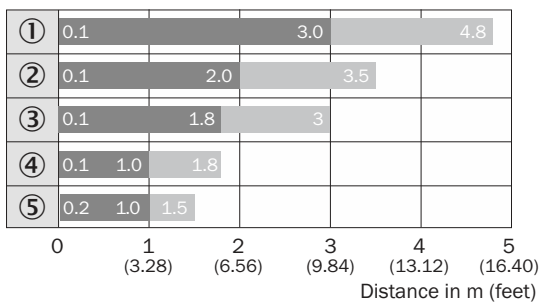
- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90 % remission

ET3, 150 mm



- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90 % remission

EL3, EL4

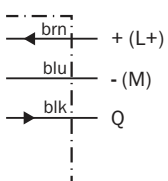


■ Sensing range      ■ Sensing range max.

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

Connection diagram

Cd-043








## Recommended accessories


### Reflectors

#### Angular


- **Description:** Rectangular, screw connection

Figure	Material	Dimensions	Model name	Part no.
	PMMA/ABS	47 mm x 47 mm	P250	5304812
		38 mm x 15 mm	PL20A	1012719
		56 mm x 28 mm	PL30A	1002314
		37 mm x 56 mm	PL40A	1012720
		80 mm x 80 mm	PL80A	1003865

#### Reflective tape

Figure	Description	Dimensions	Model name	Part no.
	Self-adhesive	50 mm x 60 mm	REF-IRF-56	5314244

#### Round

Figure	Description	Material	Diameter	Model name	Part no.
	Round, screw connection	PMMA/ABS	80 mm	C110A	5304549

→ For additional accessories, please see page L-861