



## ELF Sensor Economical Little Functional

The revolutionary, Economical, Little, Functional ELF photoelectric sensor is guaranteed to be the most competitively priced industrial photoelectric sensor available in the market today. State-of-the-art ASIC technology and creative engineering make the ELF one of the smallest sensors in the industry.

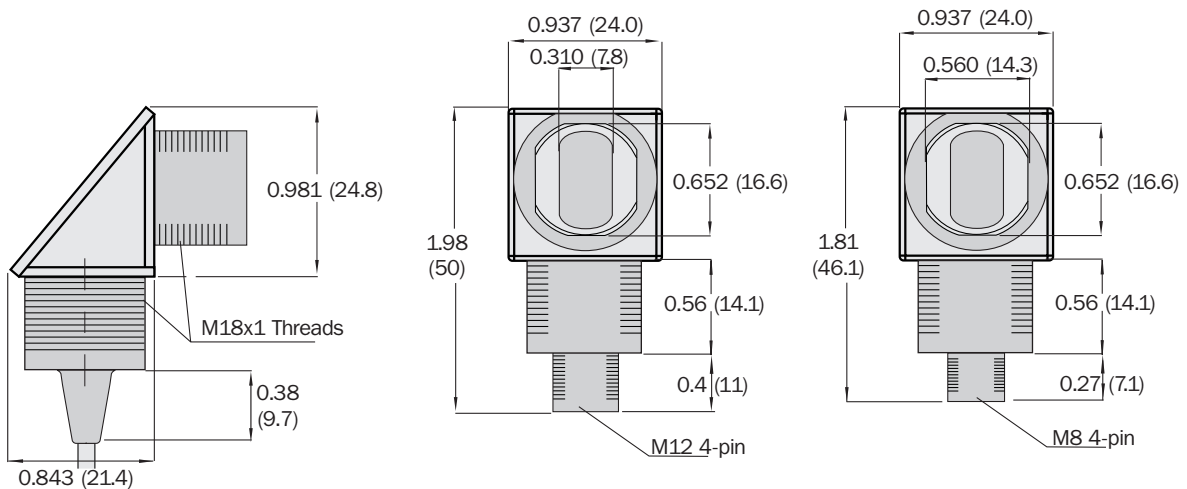
In addition to the incredibly small size, the ELF is packed with functionality including: external light immunity, reverse polarity protection, overload

protection, short circuit protection and alarm output. Advanced LED technology and unsurpassed optical engineering arms the ELF with optical performance not offered by any other sensor in it's class. The ELF is everything you have come to expect from larger sensors and more!

### Features

- ELF - Economical Little Functional
- Extremely compact to fit almost any application
- Universal mounting configuration for simple installation
- Unparalleled optical performance
- Electrical functionality previously available only in larger sensors
- Available with M8 or M12 connector or pre-leaded cable

### Dimensional Drawing

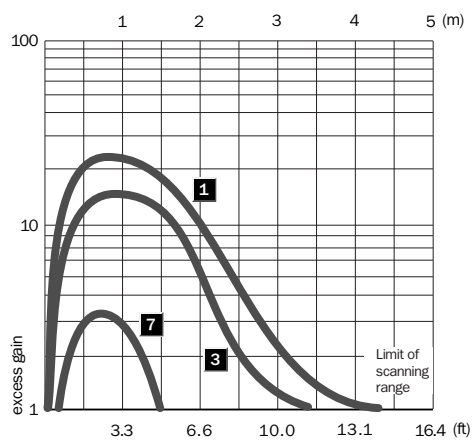


# ELF Sensor

## Economical Little Functional

Reflex/Retro-Reflective Sensors		Sensing Range: 0.2...13.1 ft (0.07...4.0 m)								
Model Number	Part Number	PNP	NPN	Alarm	Health	Light Operate	Dark Operate	2 m Cable	M8 Connector	M12 Connector
EL 1-P122	7 027 206									
EL 1-F122	7 027 207									
EL 1-N122	7 027 208									
EL 1-E122	7 027 209									
EL 1-P123	7 027 210									
EL 1-F123	7 027 211									
EL 1-N123	7 027 212									
EL 1-E123	7 027 213									
EL 1-P123 S01	7 028 960									
EL 1-P124	7 027 214									
EL 1-F124	7 027 215									
EL 1-N124	7 027 216									
EL 1-E124	7 027 217									
EL 1-P125	7 027 218									
EL 1-F125	7 027 219									
EL 1-N125	7 027 220									
EL 1-E125	7 027 221									
EL 1-P127	7 027 268									
EL 1-F127	7 027 269									
EL 1-N127	7 027 270									
EL 1-E127	7 027 271									
EL 1-P128	7 027 272									
EL 1-F128	7 027 273									
EL 1-N128	7 027 274									
EL 1-E128	7 027 275									
EL 1-P128 S01	7 028 959									

**Excess Gain - Reflex/Retro-Reflective**



Reflector Type	Sensing Range
<b>1</b> PL 80 A	0.07...4.0 m
<b>2</b> PL 50 A	0.07...2.7 m
<b>3</b> P250	0.07...3.3 m
<b>4</b> PL 40 A	0.07...2.4 m
<b>5</b> PL 30 A	0.07...2.1 m
<b>6</b> PL 20 A	0.07...1.5 m
<b>7</b> 2000X reflective tape min 50 x 50 mm <sup>2</sup>	0.2...1.5 m

# ELF Sensor

## Economical Little Functional

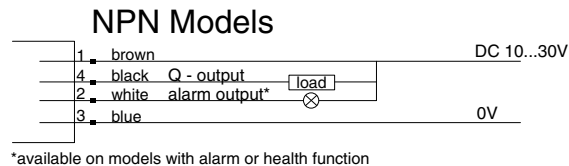
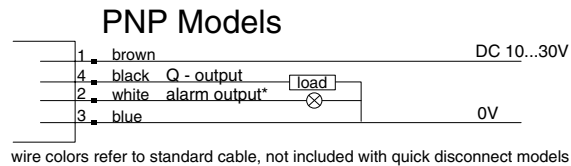
### Technical Data

<b>Light source</b> <sup>1)</sup>	LED, 660 nm red light, polarized for retro-reflective models; LED, 880 nm infrared for proximity models
<b>Light spot</b>	3.1 x 3.1 in at 78.7 in (80 x 80 mm at 2 m); models with alarm 4.7 x 4.7 in at 78.7 in (120 x 120 mm at 2 m)
<b>Supply voltage <math>V_S</math></b>	10...30 V DC, limit values
<b>Ripple</b>	< 5 $V_{SS}$ , must be within $V_S$ tolerances
<b>Current consumption</b>	< 20 mA, without load
<b>Switching outputs</b>	PNP, NPN, alarm (Selectable by model)
<b>Output current <math>I_A</math> max.</b>	50 mA
<b>Response time</b>	< 2.5 ms
<b>Switching frequency</b>	200 Hz, programmable up to 700 Hz on request
<b>Connection types</b>	
Cable <sup>2)</sup>	2 m length; 3 conductor 28 AWG, 2.3 mm O.D.; models with alarm 4 conductor 28 AWG, 2.7 mm O.D.
Connector	M12 4-pin, M8 4-pin
<b>Enclosure rating</b>	Housing IP 54
<b>Ambient temperature</b>	Operation -13...122 °F (-25...50°C) Storage -40...158°F (-40...70°C)
<b>Housing material</b>	Glass fiber reinforced ABS
<b>Circuit protection</b>	Reverse polarity protection, overload and short circuit protection
<b>Mounting hardware</b>	Quantity 1, M18 x 1 nut which can be used near connector or lens

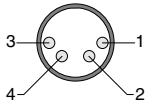
1) Average service life 100,000 h  
at  $T_U = 25^\circ\text{C}$

2) Do not bend below  $0^\circ\text{C}$

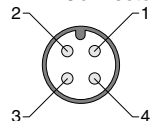
### Connection Diagram



M8 Connector



M12 Connector



### Accessories

Cables and connectors

Reflectors

Mounting bracket 18 mm

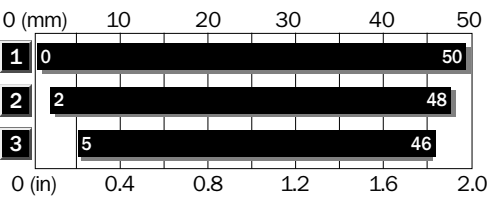
For more information, please see our photoelectric catalog or [www.sickusa.com](http://www.sickusa.com).

# ELF Sensor

## Economical Little Functional

Proximity Diffuse Sensors - Background Suppression				Sensing Range: 0...2.0 in (0...50 mm)					
Model Number	Part Number	PNP	NPN	Alarm	Light Operate	Dark Operate	2 m Cable	M8 Connector	M12 Connector
ET 1-P122	7 027 222	■			■		■		
ET 1-N122	7 027 223		■		■		■		
ET 1-P124	7 027 224	■			■				■
ET 1-N124	7 027 225		■		■				■
ET 1-E124	7 028 970		■			■			■
ET 1-P127	7 027 276	■			■			■	
ET 1-N127	7 027 277		■		■			■	
ET 1-E127	7 028 982		■			■		■	

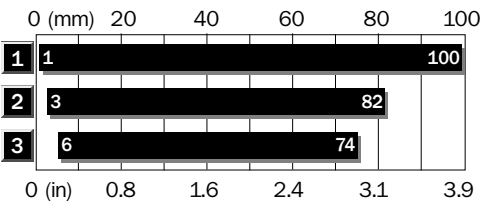
### Sensing Range



- 1 Sensing range on white, 90% reflectance
- 2 Sensing range on grey, 18% reflectance
- 3 Sensing range on black, 6% reflectance

Proximity Diffuse Sensors - Energetic				Sensing Range: 0.04...3.9 in (1...100 mm)					
Model Number	Part Number	PNP	NPN	Alarm	Light Operate	Dark Operate	2 m Cable	M8 Connector	M12 Connector
ET 1-P222	7 027 226	■			■		■		
ET 1-N222	7 027 227		■		■		■		
ET 1-P224	7 027 228	■			■				■
ET 1-N224	7 027 229		■		■				■
ET 1-P227	7 027 278	■			■			■	
ET 1-N227	7 027 279		■		■			■	

### Sensing Range



- 1 Sensing range on white, 90% reflectance
- 2 Sensing range on grey, 18% reflectance
- 3 Sensing range on black, 6% reflectance