



# VTB18-3P1240

V18

CYLINDRICAL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

| Type         | Part no. |
|--------------|----------|
| VTB18-3P1240 | 6030195  |

Other models and accessories → [www.sick.com/V18](http://www.sick.com/V18)

Detailed technical data

Features

|                                 |                                                            |
|---------------------------------|------------------------------------------------------------|
| Functional principle            | Photoelectric proximity sensor                             |
| Functional principle detail     | Background suppression                                     |
| Dimensions (W x H x D)          | 18 mm x 18 mm x 79.4 mm                                    |
| Housing design (light emission) | Cylindrical                                                |
| Housing length                  | 79.4 mm                                                    |
| Thread diameter (housing)       | M18 x 1                                                    |
| Optical axis                    | Axial                                                      |
| Sensing range max.              | 25 mm ... 140 mm <sup>1)</sup>                             |
| Sensing range                   | 30 mm ... 130 mm                                           |
| Focus                           | Approx. 5°                                                 |
| Type of light                   | Visible red light                                          |
| Light source                    | LED <sup>2)</sup>                                          |
| Light spot size (distance)      | Ø 12 mm (130 mm)                                           |
| Angle of dispersion             | Approx. 5°                                                 |
| Wave length                     | 660 nm                                                     |
| Adjustment                      | Potentiometer, 270° (Sensing range)<br>Potentiometer, 270° |

<sup>1)</sup> Object with 90% remission (based on standard white, DIN 5033).

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

## Mechanics/electronics

|                                            |                                                                          |
|--------------------------------------------|--------------------------------------------------------------------------|
| <b>Supply voltage <math>U_B</math></b>     | 10 V DC ... 30 V DC <sup>1)</sup>                                        |
| <b>Ripple</b>                              | $\pm 10\%$ <sup>2)</sup>                                                 |
| <b>Current consumption</b>                 | 30 mA <sup>3)</sup>                                                      |
| <b>Switching output</b>                    | PNP                                                                      |
| <b>Switching mode</b>                      | Dark switching                                                           |
| <b>Output current <math>I_{max}</math></b> | $\leq 100$ mA                                                            |
| <b>Response time</b>                       | $\leq 0.5$ ms <sup>4)</sup>                                              |
| <b>Switching frequency</b>                 | 1,000 Hz <sup>5)</sup>                                                   |
| <b>Connection type</b>                     | Male connector M12, 4-pin                                                |
| <b>Circuit protection</b>                  | A <sup>6)</sup><br>B <sup>7)</sup><br>C <sup>8)</sup><br>D <sup>9)</sup> |
| <b>Protection class</b>                    | III                                                                      |
| <b>Weight</b>                              | 200 g                                                                    |
| <b>Housing material</b>                    | Metal, Nickel-plated brass                                               |
| <b>Optics material</b>                     | Plastic, PMMA                                                            |
| <b>Enclosure rating</b>                    | IP67                                                                     |
| <b>Ambient operating temperature</b>       | -25 °C ... +70 °C                                                        |
| <b>Ambient temperature, storage</b>        | -55 °C ... +80 °C                                                        |
| <b>UL File No.</b>                         | NMFT2.E175606                                                            |

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

<sup>2)</sup> May not fall below or exceed  $U_y$  tolerances.

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

<sup>4)</sup> Signal transit time with resistive load.

<sup>5)</sup> With light/dark ratio 1:1.

<sup>6)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>7)</sup> B = inputs and output reverse-polarity protected.

<sup>8)</sup> C = interference suppression.

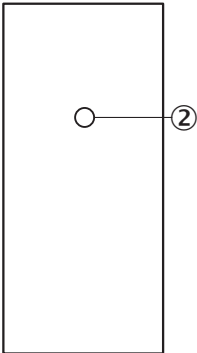
<sup>9)</sup> D = outputs overcurrent and short-circuit protected.

## Classifications

|                     |          |
|---------------------|----------|
| <b>ECLASS 5.0</b>   | 27270904 |
| <b>ECLASS 5.1.4</b> | 27270904 |
| <b>ECLASS 6.0</b>   | 27270904 |
| <b>ECLASS 6.2</b>   | 27270904 |
| <b>ECLASS 7.0</b>   | 27270904 |
| <b>ECLASS 8.0</b>   | 27270904 |
| <b>ECLASS 8.1</b>   | 27270904 |
| <b>ECLASS 9.0</b>   | 27270904 |
| <b>ECLASS 10.0</b>  | 27270904 |
| <b>ECLASS 11.0</b>  | 27270904 |
| <b>ECLASS 12.0</b>  | 27270903 |

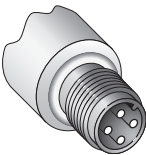
|                |          |
|----------------|----------|
| ETIM 5.0       | EC002719 |
| ETIM 6.0       | EC002719 |
| ETIM 7.0       | EC002719 |
| ETIM 8.0       | EC002719 |
| UNSPSC 16.0901 | 39121528 |

Adjustments



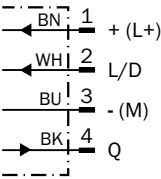
② Sensing range adjustment: potentiometer, 270°

Connection type

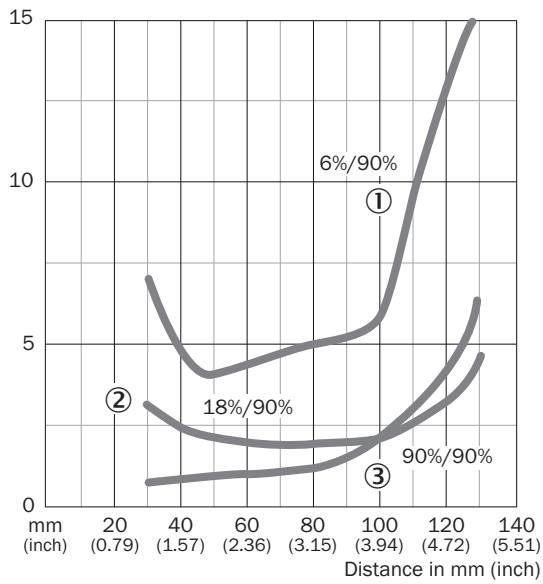


Connection diagram

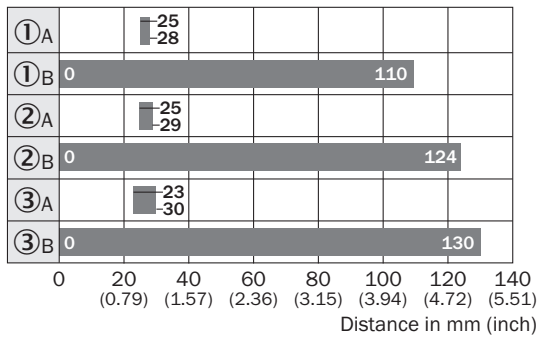
Cd-087



## Characteristic curve



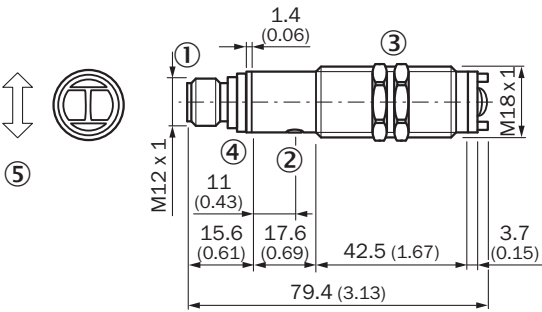
## Sensing range diagram



■ Sensing range

- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90 % remission
- A Sensing range adjuster on MIN
- B Sensing range adjuster on MAX

Dimensional drawing (Dimensions in mm (inch))



- ① Connection  
② Sensing range adjustment: potentiometer, 270°  
③ Mounting nuts SW, 24  
④ LED indicator yellow; Lights continuously: output aktivNo light: output inactiveBlinks slowly: shot circuit detected  
⑤ Standard direction of the material being detected

Recommended accessories

Other models and accessories → [www.sick.com/V18](http://www.sick.com/V18)

|                                                                                     | Brief description                                                                                                                                                                                                                                                                                                                                                                                                            | Type               | Part no. |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
| Mounting brackets and plates                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                              |                    |          |
|  | <ul style="list-style-type: none"><li>• <b>Description:</b> Mounting bracket for M18 sensors</li><li>• <b>Material:</b> Steel</li><li>• <b>Details:</b> Steel, zinc coated</li><li>• <b>Items supplied:</b> Without mounting hardware</li><li>• <b>Suitable for:</b> GR18, V180-2, V18, W15, Z1, Z2</li></ul>                                                                                                                | BEF-WN-M18         | 5308446  |
| Others                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                              |                    |          |
|  | <ul style="list-style-type: none"><li>• <b>Connection type head A:</b> Female connector, M12, 4-pin, straight, A-coded</li><li>• <b>Connection type head B:</b> Flying leads</li><li>• <b>Signal type:</b> Sensor/actuator cable</li><li>• <b>Cable:</b> 5 m, 4-wire, PVC</li><li>• <b>Description:</b> Sensor/actuator cable, unshielded</li><li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li></ul> | YF2A14-050VB3XLEAX | 2096235  |
|  | <ul style="list-style-type: none"><li>• <b>Connection type head A:</b> Male connector, M12, 4-pin, straight, A-coded</li><li>• <b>Description:</b> Unshielded</li><li>• <b>Connection systems:</b> Screw-type terminals</li><li>• <b>Permitted cross-section:</b> ≤ 0.75 mm²</li></ul>                                                                                                                                       | 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)