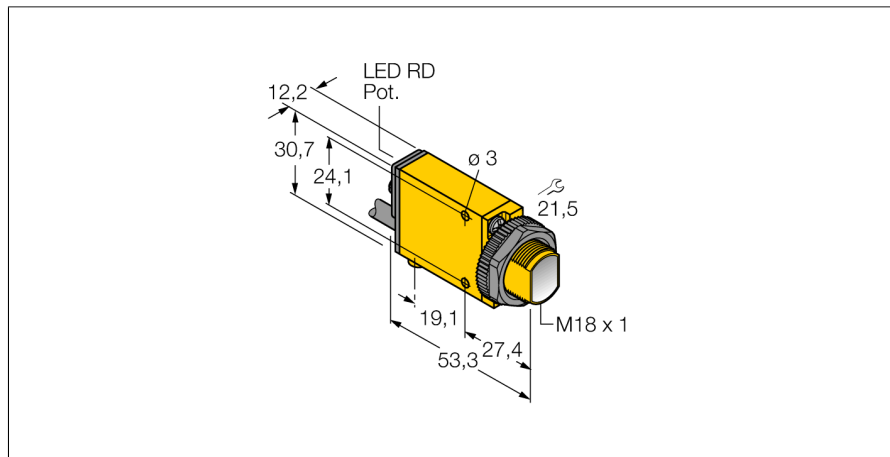
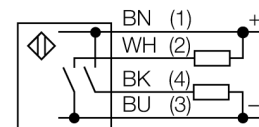


# Photoelectric Sensor Convergent Mode Sensor SM312CVBMHSQDP



- Cable with male end M12 × 1, 4-pin, PVC, 150 mm
- Protection class IP67
- Sensitivity adjustable via potentiometer
- Alignment indicator
- Operating voltage: 10...30 VDC
- Switching output, bipolar
- Light/dark operation

### Wiring Diagram



Type	SM312CVBMHSQDP
ID	3049076

Optical data	
Function	Proximity switch
Operating mode	Convergent
Light type	Blue
Wavelength	475 nm
Focal distance	16 mm

Electrical data	
Operating voltage $U_s$	10...30 VDC
Residual ripple	< 10 % $U_s$
DC rated operating current $I_s$	≤ 150 mA
No-load current $I_0$	≤ 25 mA
Output function	NO contact, PNP/NPN
Switching frequency	≤ 500 Hz
Readiness delay	≤ 100 ms
Response time typical	< 0.3 ms
Overcurrent release	> 220 mA
Setting option	Potentiometer

Mechanical data	
Design	Rectangular with thread, Mini Beam
Dimensions	Ø 18 x 53.3 x 12.3 x 30.7 mm
Housing material	Plastic, Thermoplastic material, Yellow
Lens	plastic, Acrylic
Electrical connection	Cable with connector, M12 × 1, 0.15 m, PVC
Number of cores	4
Ambient temperature	-20...+70 °C
Protection class	IP67

Special features	
Special features	Encapsulated
Switching state	LED, Red
Excess gain indication	LED, red, flashing

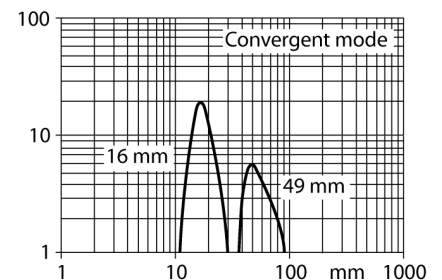
Tests/approvals	
Approvals	CE, cURus, CSA

### Functional principle

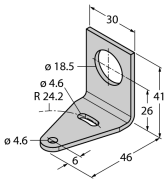
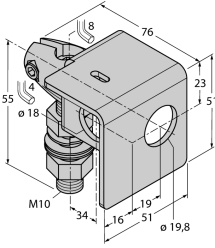
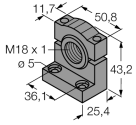
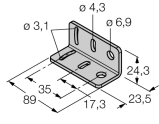
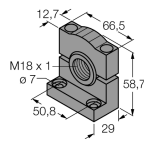
Convergent mode sensors are equipped with a lens in front of the emitter diode that produces a small and intense focal point at a defined distance from the sensor. Similar to diffuse mode sensors, the light reflected by the target is evaluated. Convergent mode sensors are ideal for detection of small targets or colour marks and edge guiding or positioning control of transparent materials. The targets must always be within the focal depth of the sensors. The focal depth is defined as the area in front of or behind the focal point within which the object can be detected. Based on the intense light concentration in the focal point, convergent mode sensors are capable of detecting targets with a low reflectivity.

### Excess gain curve

Excess gain in relation to the distance



## Accessories

Type code	Ident no.		Dimension drawing
SMB18A	3033200	Mounting bracket, rectangular, stainless steel, for sensors with 18 mm thread	 <p>Technical drawing of a rectangular stainless steel mounting bracket. Dimensions include: width 30, height 41, mounting hole diameter <math>\phi 18.5</math>, hole offset <math>\phi 4.6</math>, radius <math>R24.2</math>, and base dimensions 6, 46, and 26.</p>
SMB18AFAM10	3012558	Mounting bracket, material VA 1.4401, for M10 x 1.5 thread, thread length 18 mm	 <p>Technical drawing of a mounting bracket for M10 x 1.5 thread. Dimensions include: total width 76, height 23, mounting hole diameter <math>\phi 18</math>, and various offset dimensions: 8, 55, 4, 34, 16, 19, 51, and <math>\phi 19.8</math>.</p>
SMB18SF	3052519	Mounting bracket, PBT black, for sensors with 18 mm thread, rotatable	 <p>Technical drawing of a rotatable mounting bracket. Dimensions include: width 50.8, height 43.2, mounting hole diameter <math>\phi 18</math>, and other dimensions: 11.7, 38.1, 25.4, and <math>\phi 5</math>.</p>
SMB312B	3025519	Mounting bracket, stainless steel, for MINI-BEAM NAMUR	 <p>Technical drawing of a mounting bracket for MINI-BEAM NAMUR. Dimensions include: width 89, height 24.3, mounting hole diameter <math>\phi 3.1</math>, and other dimensions: 35, 17.3, 23.5, <math>\phi 4.3</math>, and <math>\phi 6.9</math>.</p>
SMB3018SC	3053952	Mounting bracket, PTB black, for sensors with 18 mm thread	 <p>Technical drawing of a mounting bracket. Dimensions include: width 66.5, height 58.7, mounting hole diameter <math>\phi 18</math>, and other dimensions: 12.7, 50.8, and 29.</p>