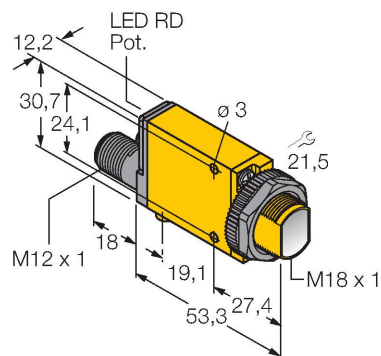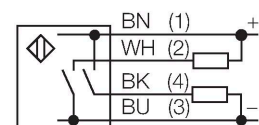# SM312CV2BQD
Photoelectric Sensor – Convergent Mode Sensor

Features

■ Male M12 × 1, 4-pin
■ Protection class IP67
■ Sensitivity adjustable via potentiometer
■ Alignment indicator
■ Operating voltage: 10…30 VDC
■ Switching output, bipolar
■ Light/dark operation

Wiring diagram

Technical data

Type	SM312CV2BQD
ID no.	3051253
Optical data	
Function	Proximity switch
Operating mode	Convergent
Light type	Blue
Wavelength	475 nm
Focal distance	49 mm
Range	49 mm
Electrical data	
Operating voltage	10…30 VDC
Residual ripple	< 10 % U_{ss}
DC rated operational current	≤ 150 mA
No-load current	≤ 25 mA
Output function	NO contact, PNP/NPN
Switching frequency	≤ 500 Hz
Readiness delay	≤ 100 ms
Response time typical	< 1 ms
Overcurrent release	> 220 mA
Setting option	Potentiometer
Mechanical data	
Design	Rectangular with thread, Mini Beam
Dimensions	Ø 18 x 71.3 x 12.3 x 30.7 mm
Housing material	Plastic, Thermoplastic material, Yellow
Lens	plastic, Acrylic
Electrical connection	Connectors, M12 × 1, PVC
Number of cores	4

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.
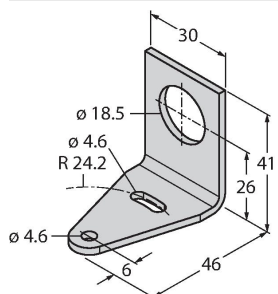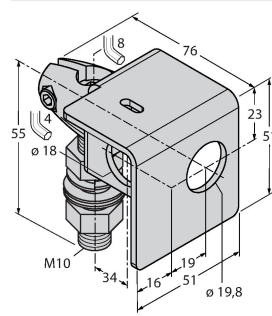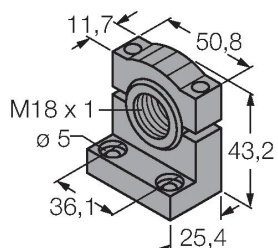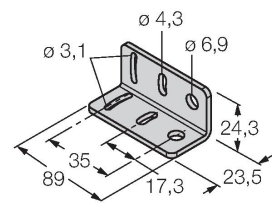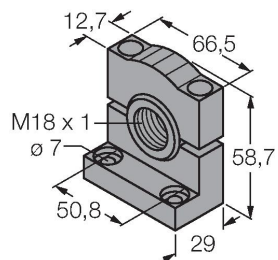
Excess gain curve
Excess gain in relation to the distance
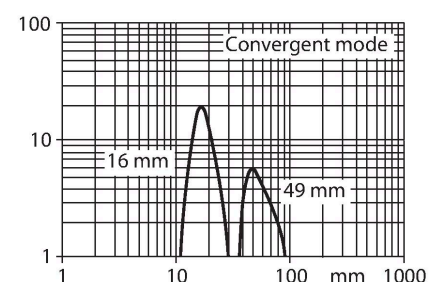
Technical data

Ambient temperature	-20…+70 °C
Protection class	IP67
Special features	Encapsulated
Switching state	LED, Red
Excess gain indication	LED, red, flashing
Tests/approvals	
Approvals	CE, cURus, CSA

Accessories

SMB18A	3033200

Mounting bracket, rectangular, stainless steel, for sensors with 18 mm thread

SMB18AFAM10	3012558

Mounting bracket, material VA 1.4401, for M10 x 1.5 thread, thread length 18 mm

SMB18SF	3052519

Mounting bracket, PBT black, for sensors with 18 mm thread, rotatable

SMB312B	3025519

Mounting bracket, stainless steel, for MINI-BEAM NAMUR

SMB3018SC	3053952

Mounting bracket, PTB black, for sensors with 18 mm thread