# VS1AP5CV10
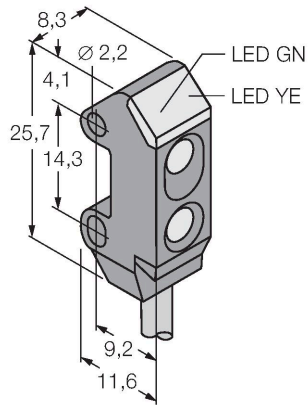# Photoelectric Sensor  –   Convergent Mode Sensor
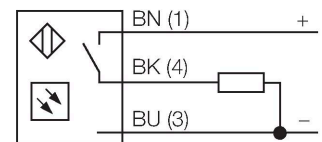# Miniature Sensor



## Features

■ Cable 2 m
■ Very high excess gain
■ Operating voltage: 10…30 VDC
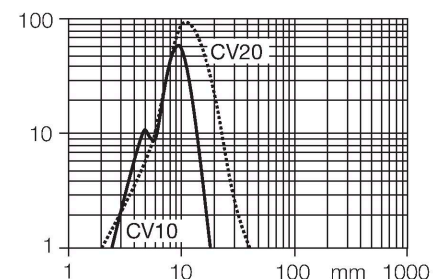■ PNP switching output, light operation

## Wiring diagram



## 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

| Type | VS1AP5CV10 |
| --- | --- |
| ID | 3056494 |
| **Optical data** | |
| Function | Proximity switch |
| Operating mode | Convergent |
| Light type | Red |
| Wavelength | 630 nm |
| Focal distance | 10 mm |
| Range | 10  mm |
| **Electrical data** | |
| Operating voltage | 10…30  VDC |
| Residual ripple | < 10 % $U_{ss}$ |
| DC rated operational current | ≤ 50 mA |
| No-load current | ≤ 25 mA |
| Short-circuit protection | yes |
| Reverse polarity protection | yes |
| Output function | NO contact, light operation, PNP |
| Current output | 0…50  mA |
| Switching frequency | ≤ 500  Hz |
| Readiness delay | ≤ 0 ms |
| Response time typical | < 1  ms |
| **Mechanical data** | |
| Design | Rectangular, VS1 |
| Dimensions | 11.6 x 8.3 x 25.7  mm |
| Housing material | Plastic, Thermoplastic material, Black |
| Lens | plastic, Acrylic |

## Technical data

| | |
|---|---|
| Electrical connection | Cable, 2  m, PVC |
| Number of cores | 3 |
| Core cross-section | 0.34  mm$^2$ |
| Ambient temperature | -20…+55  °C |
| Protection class | IP54 |
| Power-on indication | LED, Green |
| Switching state | LED, Yellow |
| Error indication | LED, green, Flashing |
| Excess gain indication | LED |
| Tests/approvals | |
| Approvals | CE |

## Accessories

| SMBVS1T | 3055496 | SMBVS1TC | 3056795 |
|---|---|---|---|
| | Mounting bracket, stainless steel, rectangular, for VS1 | | Mounting bracket, stainless steel, rectangular, for VS1 |
| SMBVS1S | 3055554 | SMBVS1SC | 3056797 |
| | Mounting bracket, stainless steel, rectangular, for VS1 | | Mounting bracket, stainless steel, rectangular, for VS1 |