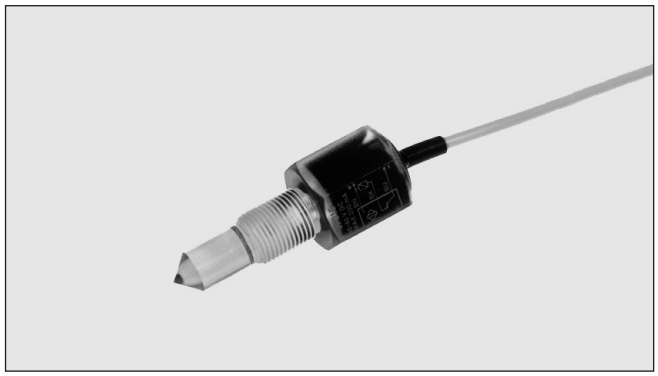
Photoelectrics, ATEX
Level Sensors
Type VP, Unmodulated

CARLO GAVAZZI



- **Sensor for liquid level detection**
- **Built-in amplifier, GaAlAs diode**
- **Output: Transistor PNP, NO or NC**
- **High chemical resistance to most acids and bases**
- **VP01/03: Output OFF when sensor in liquid**
- **VP02/04: Output ON when sensor in liquid**
- **No electrical or thermal connection between liquid and electrical circuit**
- **LED-indication for output ON**
- **ATEX zone 1**

CE Ex TÜV

Product Description

Optical level sensor with unmodulated, infrared light for the detection of liquids. Fitted with built-in amplifier. Transmitter and receiver are completely self-contained in solid plastic housing designed for mounting into container wall. VP01/02 are available in a Polysulphone housing resistant to most acids and bases. VP03/04 are available in a Polyamide 12 housing resistant to various solvents. For ATEX zone 1 where an explosive mixture is likely to occur in normal operation.

Ordering Key

VP 0 3 E P AX

- **Type**
- **Housing**
- **Output status**
- **Output type**
- **PNP output**
- **ATEX**

Type Selection

Housing material	Ordering no. Transistor PNP Make switching	Ordering no. Transistor PNP Break switching
Polysulphone	**VP 02 EP AX**	**VP 01 EP AX**
Polyamide 12	**VP 04 EP AX**	**VP 03 EP AX**

Specifications

Rated operational voltage	10 - 16.8 VDC
Rated operational current	
Continuous	< 50 mA
Voltage drop	≤ 1.0 VDC
No-load supply current	≤ 12 mA
Sensing accuracy	
Liquid level difference	Horizontal mounting: ± 5 mm Vertical mounting: ± 2.5 mm
Ambient light	0 - 100 lux
Frequency of operating cycles (f)	30 Hz
Environment	
Degree of protection	IP 67
Operating temperature	-20 to +40°C (-4 to +104°F)
Storage temperature	-40 to +100°C (-40 to + 212°F)

Indication for output status	LED, yellow
Housing and tip material	
VP01/02	Polysulphone
VP03/04	Polyamide 12
Weight	90 g
Connection	Cable (PVC), 2 m Ø4,1 mm, 3 x 0,25 mm2
Pressure	10 bar at + 60°C
Pipe thread	3/8" PT
Approvals	Ex II 2G Ex ib IIB T6 Gb Ci < 1.2 µF Li < 2.5 mH
CE-marking	Yes
TÜV Approval	Yes

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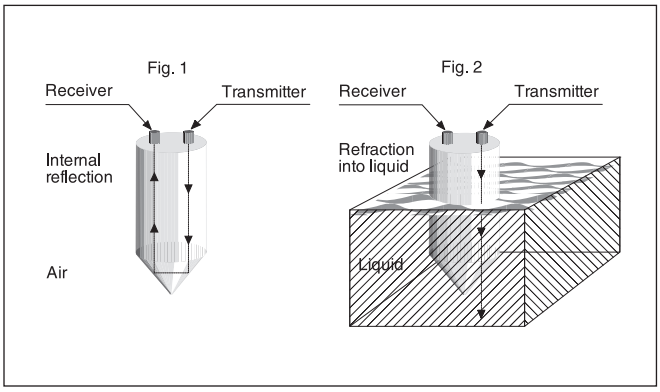
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Mode of Operation

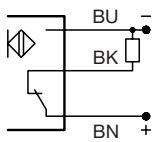
The sensor contains IR transmitter, receiver and amplifier with transistor or SCR output. The light source is a GaAlAs diode emitting infrared light.

The conical tip of the sensor forms an angle of 90ºC. This angle acts as a prism, i.e. the beam, emitted from the GaAlAs diode placed in one side of the sensor head, is reflected internally to the phototransistor placed in the other side of the sensor head, provided that the tip of the sensor is situated in free air. If the sensor tip is immersed in a liquid, always having a refractive index different from air, the beam will not be refracted by the prism and the photo transistor will not receive any signal.

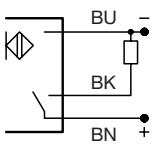
The sensor types can operate in oil, waste water, aqueous solutions such as beer, wine, alcohol etc. without any kind of accessory.



Wiring Diagrams

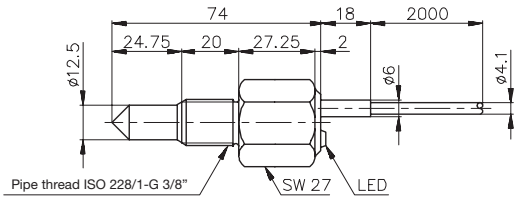


VP01EPAX, VP03EPAX



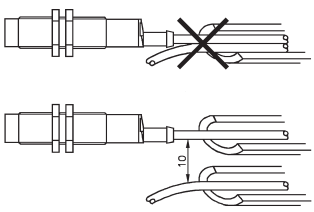
VP02EPAX, VP04EPAX

Dimensions

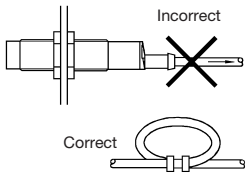


Installation Hints

To avoid interference from inductive voltage/ current peaks, separate the prox. switch power cables from any other power cables, e.g. motor, contactor or solenoid cables

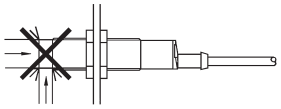


Relief of cable strain



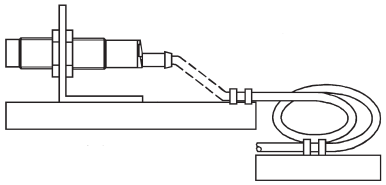
The cable should not be pulled

Protection of the sensing face



A proximity switch should not serve as mechanical stop

Switch mounted on mobile carrier



Any repetitive flexing of the cable should be avoided

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