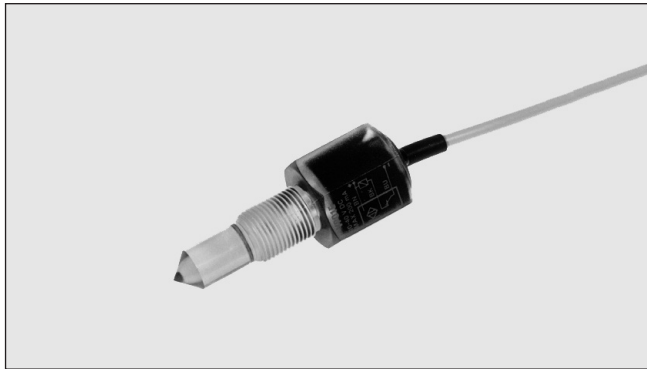


# Photoelectrics, ATEX Level Sensors Type VP, Unmodulated

CARLO GAVAZZI



- Sensor for liquid level detection
- Built-in amplifier, GaAIAs 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



## 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

<b>Rated operational voltage</b>	10 - 16.8 VDC	<b>Indication for output status</b>	LED, yellow
<b>Rated operational current</b> Continuous	< 50 mA	<b>Housing and tip material</b>	VP01/02 Polysulphone VP03/04 Polyamide 12
<b>Voltage drop</b>	≤ 1.0 VDC	<b>Weight</b>	90 g
<b>No-load supply current</b>	≤ 12 mA	<b>Connection</b>	Cable (PVC), 2 m Ø4,1 mm, 3 x 0,25 mm <sup>2</sup>
<b>Sensing accuracy</b> Liquid level difference	Horizontal mounting: ± 5 mm Vertical mounting: ± 2.5 mm	<b>Pressure</b>	10 bar at + 60°C
<b>Ambient light</b>	0 - 100 lux	<b>Pipe thread</b>	3/8" PT
<b>Frequency of operating cycles (f)</b>	30 Hz	<b>Approvals</b>	⊕ Ex II 2G Ex ib IIB T6 Gb Ci < 1.2 µF Li < 2.5 mH
<b>Environment</b> Degree of protection	IP 67	<b>CE-marking</b>	Yes
Operating temperature	-20 to +40°C (-4 to +104°F)	<b>TÜV Approval</b>	Yes
Storage temperature	-40 to +100°C (-40 to +212°F)		

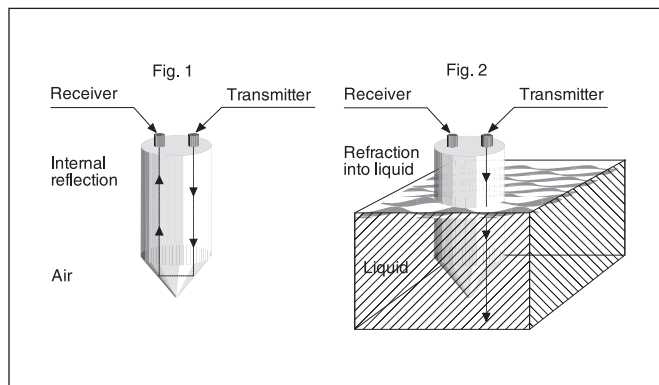
## Mode of Operation

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

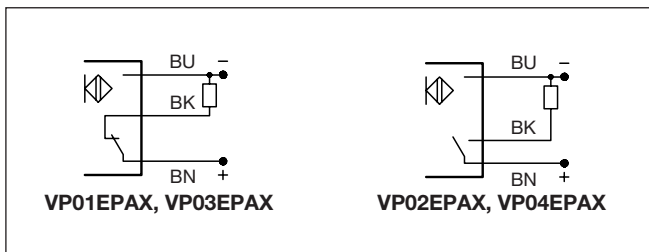
The conical tip of the sensor forms an angle of 90°C. This angle acts as a prism, i.e. the beam, emitted from the GaAlAs diode placed in one side of the sensor head, is reflected internally to the phototransistor placed in the other side of the sensor

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.

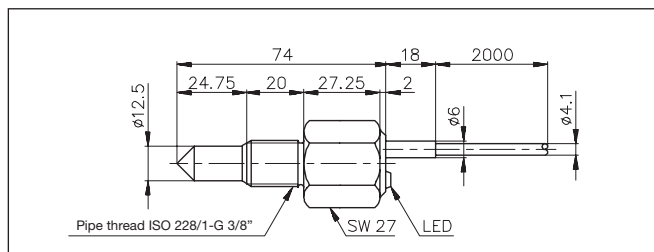
The sensor types can operate in oil, waste water, aqueous solutions such as beer, wine, alcohol etc. without any kind of accessory.



## Wiring Diagrams



## Dimensions



## Installation Hints

<p>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</p>	<p>Relief of cable strain</p> <p>Incorrect</p> <p>Correct</p> <p>The cable should not be pulled</p>	<p>Protection of the sensing face</p> <p>A proximity switch should not serve as mechanical stop</p>	<p>Switch mounted on mobile carrier</p> <p>Any repetitive flexing of the cable should be avoided</p>
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