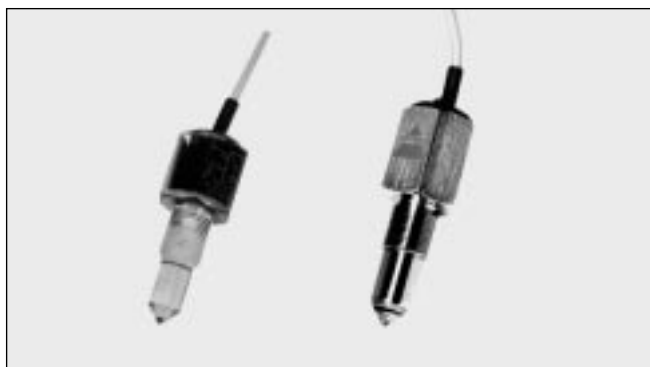


# Level Sensors Optical Types VP, Modulated

CARLO GAVAZZI



- Modulated infrared sensor for liquid level detection
- Built-in amplifier, Ga-As diode
- Output: Transistor NPN/PNP, make or break switching
- High chemical resistance to most acids and bases
- VP01/03/05/23: Output OFF when sensor in liquid
- VP02/04/06/24: Output ON when sensor in liquid
- No electrical or thermal connection between liquid and electrical circuit
- LED-indication for output ON
- Power supply 10 to 40 VDC

## Product Description

Optical level sensor with modulated, infrared light for the detection of liquids. Fitted with built-in amplifier. Transmitter and receiver are completely self-contained in solid plastic designed for mounting into container wall. VP01/02 are available in a

Polysulfone housing resistant to most acids and bases. VP03/04EM are available in a Polyamide 12 housing resistant to various solvents. VP05/06 are available in a TPX housing. VP23/24 are available in a stainless steel housing.

## Ordering Key

**VP 0 3 E P M**

Type \_\_\_\_\_  
Housing \_\_\_\_\_  
Output status \_\_\_\_\_  
Output type \_\_\_\_\_  
PNP output \_\_\_\_\_  
Modulated \_\_\_\_\_

## Type Selection

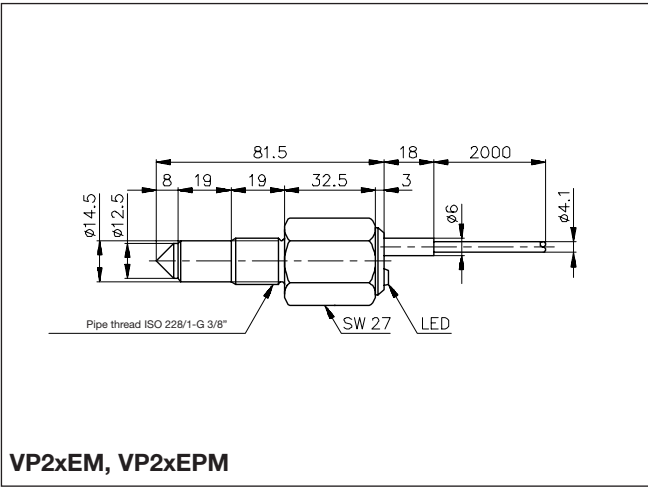
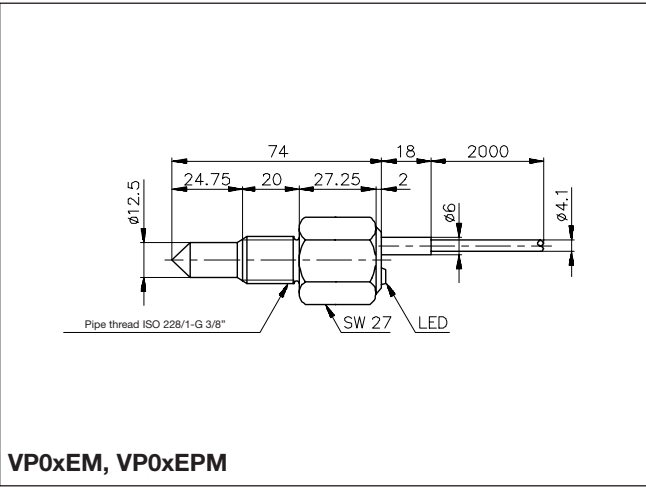
| Housing material | Ordering no.<br>Transistor NPN<br>Make switching | Ordering no.<br>Transistor NPN<br>Break switching | Ordering no.<br>Transistor PNP<br>Make switching | Ordering no.<br>Transistor PNP<br>Break switching |
|------------------|--------------------------------------------------|---------------------------------------------------|--------------------------------------------------|---------------------------------------------------|
| Polysulphone     | VP 02 EM                                         | VP 01 EM                                          | VP 02 EPM                                        | VP 01 EPM                                         |
| Polyamide 12     | VP 04 EM                                         | VP 03 EM                                          | VP 04 EPM                                        | VP 03 EPM                                         |
| TPX              | VP 06 EM                                         | VP 05 EM                                          |                                                  |                                                   |
| Stainless steel  | VP 24 EM                                         | VP 23 EM                                          | VP 24 EPM                                        | VP 23 EPM                                         |

## Specifications

|                                                                                            |                                                                           |                                                                  |                                                                   |
|--------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------------------------|
| <b>Rated operational voltage</b>                                                           | 10 - 40 VDC                                                               | <b>Indication for output status</b>                              | LED, yellow                                                       |
| <b>Rated operational current</b><br>Continuous                                             | 200 mA                                                                    | <b>Housing material</b><br>VP01/02<br>VP03/04<br>VP05/06<br>VP2x | Polysulphone<br>Polyamide 12<br>TPX<br>Stainless steel (AISI 304) |
| <b>Voltage drop</b>                                                                        | ≤ 1.0 VDC                                                                 | <b>Tip material</b><br>VP01/02<br>VP03/04, VP23/24<br>VP05/06    | Polysulphone<br>Polyamide 12<br>TPX                               |
| <b>No-load supply current</b>                                                              | ≤ 7 mA                                                                    | <b>Weight</b><br>VP0x<br>VP2x                                    | 90 g<br>190 g                                                     |
| <b>Sensing accuracy</b><br>Liquid level difference                                         | Horizontal mounting: ± 5 mm<br>Vertical mounting: ± 2.5 mm                | <b>Connection</b>                                                | Cable PVC, 2 m                                                    |
| <b>Ambient light</b>                                                                       | 0 - 50.000 lux                                                            | <b>Pressure</b><br>VP0x<br>VP2x                                  | 10 bar at + 60°C<br>10 bar at + 80°C                              |
| <b>Frequency of operating cycles (f)</b>                                                   | 30 Hz                                                                     | <b>Pipe thread</b>                                               | 3/8" PT                                                           |
| <b>Environment</b><br>Degree of protection<br>Operating temperature<br>Storage temperature | IP 67<br>-20° to +80°C (-4° to +176°F)<br>-40° to +100°C (-40° to +100°F) |                                                                  |                                                                   |



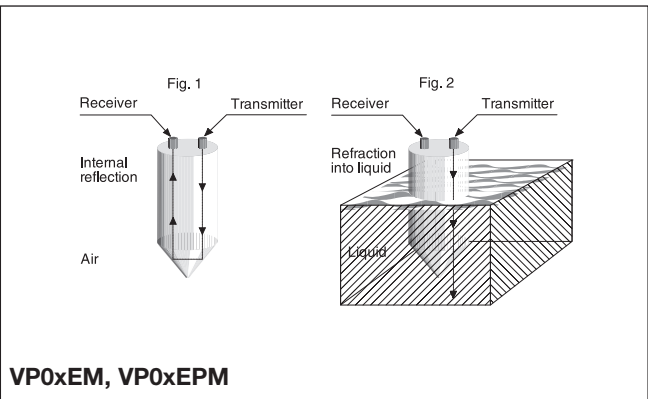
Dimensions



Mode of Operation

The sensor contains IR transmitter, receiver and amplifier with transistor output. The light source is a Ga-As diode emitting infrared light in short pulses. 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 Ga-As 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

