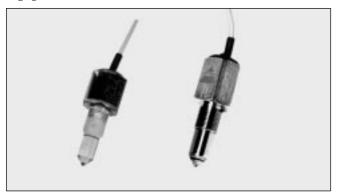
# Level Sensors Optical Types VP, Modulated



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

**CARLO GAVAZZI** 

- 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 selfcontained 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. Transistor NPN Make switching	Ordering no. Transistor NPN Break switching	Ordering no. Transistor PNP Make switching	Ordering no. Transistor PNP 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 Stainless steel	VP 06 EM VP 24 EM	VP 05 EM VP 23 EM	VP 24 EPM	VP 23 EPM

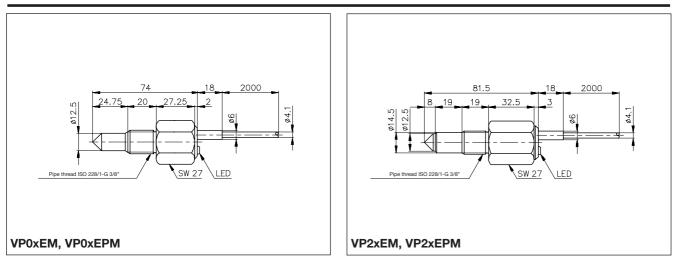
#### **Specifications**

Rated operational voltage	10 - 40 VDC
Rated operational current	
Continuous	200 mA
Voltage drop	≤ 1.0 VDC
No-load supply current	≤ 7 mA
Sensing accuracy Liquid level difference	Horizontal mounting: ± 5 mm
	Vertical mounting: ± 2.5 mm
Ambient light	0 - 50.000 lux
Frequency of	
operating cycles (f)	30 Hz
	30 Hz
operating cycles (f)	IP 67
operating cycles (f) Environment	
operating cycles (f) Environment Degree of protection	IP 67
operating cycles (f) Environment Degree of protection Operating temperature	IP 67 -20° to +80°C (-4° to +176°F)
operating cycles (f) Environment Degree of protection Operating temperature	IP 67 -20° to +80°C (-4° to +176°F)
operating cycles (f) Environment Degree of protection Operating temperature	IP 67 -20° to +80°C (-4° to +176°F)
operating cycles (f) Environment Degree of protection Operating temperature	IP 67 -20° to +80°C (-4° to +176°F)

Indication for output status	LED, yellow
Housing material	Debas dabas a
VP01/02	Polysulphone
VP03/04	Polyamide 12
VP05/06	TPX
VP2x	Stainless steel (AISI 304)
Tip material	
VP01/02	Polysulphone
VP03/04, VP23/24	Polyamide 12
VP05/06	TPX
Weight	
VPOx	90 g
VP2x	190 g
Connection	Cable PVC, 2 m
Pressure	
VP0x	10 bar at + 60°C
VP2x	10 bar at + 80°C
Pipe thread	3/8" PT
-	



#### **Dimensions**

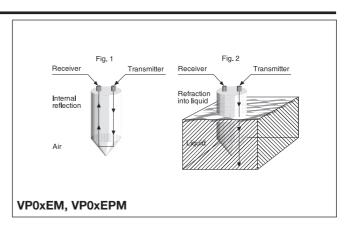


## **Mode of Operation**

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

