

Photoelectrics Level Sensors Types VP, Modulated

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- Sensor for liquid level detection
- Built-in amplifier, Ga-As diode
- Output: Transistor NPN/PNP, NO or NC switching
- 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
- 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 contain-

er 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.

Ordering Key

VP 0 2 E P M

Type _____
Housing _____
Output status _____
Output type _____
PNP output _____
Modulated _____

Type Selection

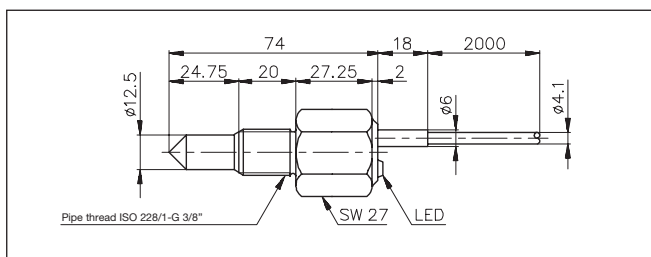
Housing material	Connection	Ordering no. Transistor NPN Make switching	Ordering no. Transistor NPN Break switching	Ordering no. Transistor PNP Make switching	Ordering no. Transistor PNP Break switching
Polysulphone	Cable	VP 02 EM	VP 01 EM	VP 02 EPM	VP 01 EPM
Polyamide 12	Cable	VP 04 EM	VP 03 EM	VP 04 EPM	VP 03 EPM

Specifications

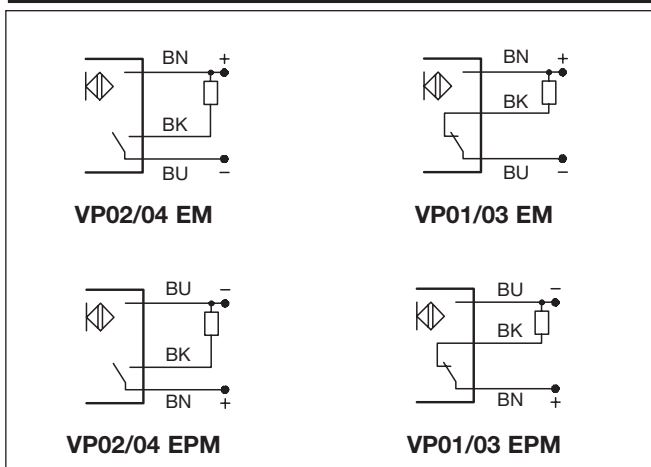
Rated operational voltage	10 - 40 VDC
Rated operational current Continuous	200 mA
Voltage drop	≤ 1.0 VDC
No-load supply current	≤ 7 mA
Sensing accuracy Liquid level difference	Horizontal mounting: ± 5 mm Vertical mounting: ± 2.5 mm
Ambient light	0 - 50.000 lux
Frequency of operating cycles (f)	30 Hz
Environment Degree of protection Operating temperature Storage temperature	IP 67 -20° to +80°C (-4° to +176°F) -40° to +100°C (-40° to +100°F)
Indication for output status	LED, yellow

Housing material VP01/02 VP03/04	Polysulphone Polyamide 12
Tip material VP01/02 VP03/04	Polysulphone Polyamide 12
Weight	90 g
Connection Cable	PVC, 2 m Ø4.1 mm, 3 x 0,25 mm ²
Pressure VP0x	10 bar at + 60°C
Pipe thread	3/8" PT
CE marking	Yes

Dimensions



Wiring Diagrams



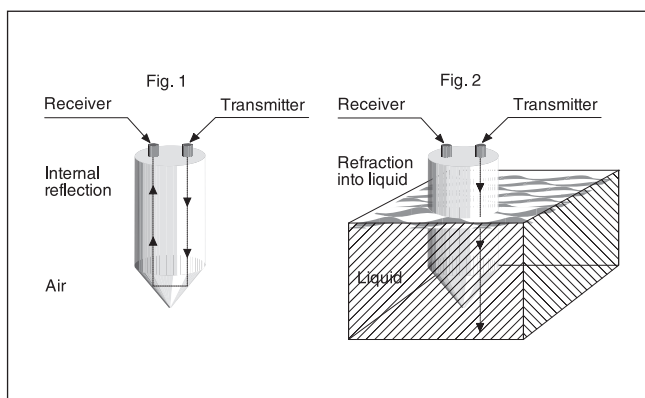
Mode of Operation

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,

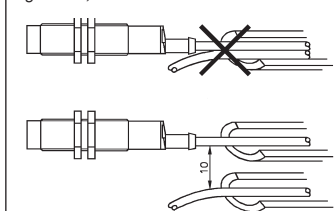
provided that the tip of the sensor is situated in free air. If the sensor tip is immersed in a liquid, always having a refractive index different from air, the beam will not be refracted by the prism and the photo transistor will not receive any signal.

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

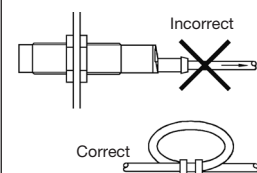


Installation Hints

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

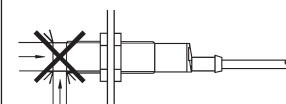


Relief of cable strain



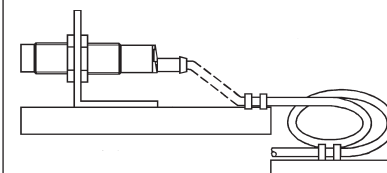
The cable should not be pulled

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