Optical Level Sensors

OPT

- Repeatability: ±1mm
- p_{max}: 10 bar; t_{max}: 80 °C
- Connection: R½", M 14
- Material (sensor): Polysulfone
  Material (housing): Polypropylene or stainless steel

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Description

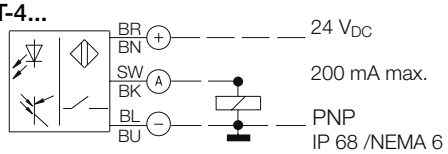
The optical level sensors of model OPT have been developed for monitoring **transparent** liquids. Due to the very small dimensions, very slight switching hysteresis and high repeatability, the instruments are also suited for service in small vessels. The optical sensor is situated in a robust housing. It comprises a plastic hollow hemisphere, in which the infrared diode is fitted as a transmitter and a semiconductor as a receiver. When the sensor is not wetted by liquid, the infrared light is reflected fully from the surface of the hemisphere to the receiver. As soon as the sensor is covered with liquid, the refractive index on the boundary layer changes and most of the light escapes into the liquid. Less light then reaches the receiver, which allows switching to take place. The level probe should not be fitted with the sensor poin ting downwards, as errors can occur due to drops of liquid sticking to it.

Applications

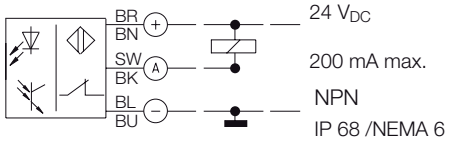
- Motor vehicle industry
- Leakage protection
- Medical technology
- Drinks vending machines

Electrical connection diagram

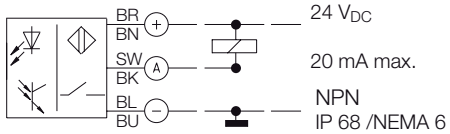
OPT-4...



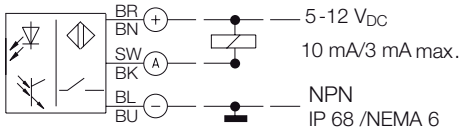
OPT-5...



OPT-6...



OPT-0... (OEM version)



Technical Details

Operating temperature:	-20 ... +80 °C
Operating pressure:	max. 10 bar
Protection:	IP 68

Material

Housing:	OPT-_1__: Polypropylene OPT-_2__: stainless steel (1.4301)
Sensor:	Polysulfone
Cable:	Polyurethane 1,5 m, Ø 4,5 mm
O-ring:	OPT-_2__: FPM
Hexagon nut:	OPT-__10: Polyamide
Flat gasket:	OPT-__10: FPM

Electrical data

Repeatability:	±1 mm
Hysteresis:	±1 mm
Response time:	50 µs (with rising level) 1 s (with falling level) depending on viscosity

OPT-0 (OEM-version, without CE-marking)

Power supply:	5 - 12 V_{DC} ± 5%
Current input:	15 mA typ. at 5 V_{DC} (without load)
Output:	NPN, open collector, function N/O contact (WET on)
Current output:	10 mA max. at 25 °C 3 mA max. at 80 °C

OPT-4

Power supply:	24 V_{DC} ± 15%
Current input:	17 mA typ. at 24 V_{DC} (without load)
Output:	PNP, open collector, function N/O contact (WET on)
Current output:	200 mA, short-circuit-proof

OPT-5

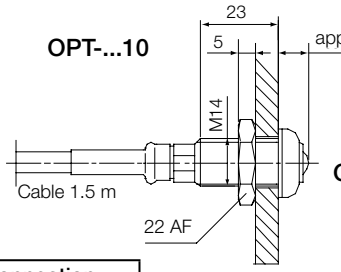
Power supply:	24 V_{DC} ± 15%
Current input:	17 mA typ. at 24 V_{DC} (without load)
Output:	NPN, open collector, function N/C contact (DRY on)
Current output:	200 mA, short-circuit-proof

OPT-6

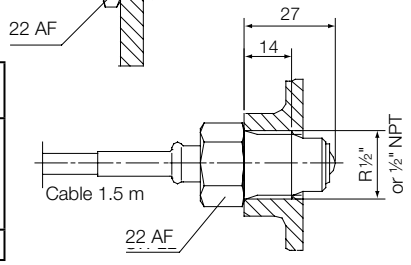
Power supply:	24 V_{DC} ± 15%
Current input:	17 mA typ. at 24 V_{DC} (without load)
Output:	NPN, open collector, function N/O contact (WET on)
Current output:	20 mA max, not short-circuit-proof

Dimensions

OPT-...10



OPT-...22/...N4



Order Details (Example: **OPT-0 1 10**)

Model	Version	Housing material	Connection male thread
OPT-	**0** = 5-12 V_{DC}, NPN, OEM (without CE) **4** = 24 V_{DC} ±15%, PNP **5** = 24 V_{DC} ±15%, NPN **6** = 24 V_{DC} ±15%, NPN	**1** = Polypropylene **2** = stainless steel	**10** = M14 with nut **22** = R½ **N4** = ½" NPT
MSR-010	Contact protecting relay for OPT-4 and OPT-5, 230 V_{AC}		

No responsibility taken for errors;
subject to change without prior notice.

1/07 - 2024