Optical Level Sensor

measuring • monitoring • analyzing

OPT

- Repeatability: ±1 mm
- Max. Pressure: 145 PSIG
- Max. Temperature: 176 °F
- Connection: ½" NPT, G½, M14
- Sensor Material: Polysulfone
- Housing Material: Polypropylene or Stainless Steel

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Description

The OPT is designed to monitor the level of transparent liquids. It's compact size, small switching hysteresis and high repeatability makes it suitable for use in small vessels. The optical sensor is protected by a rugged housing. It consists of a hollow hemispherical lens, in which the infrared diodes are fitted as a transmitter and as a receiver with semiconductor switch. When the sensor lens is dry, all of the infrared light is reflected from the surface of the hemisphere onto the receiver. As soon as the sensor lens is covered with liquid, the refractive index on the boundary layer changes and most of the light then escapes into the liquid. Less light reaches the receiver, which initiates the switching function. The sensor should never be oriented with the lens facing downward, as monitoring errors can occur due to drops of liquid remaining on the lens surface.

Technical Details

Operating Temp:	-4 ... 176 °F
Operating Pressure:	Max. 145 PSIG
Protection:	IP 68
Housing Material:	Polypropylene or 304 Stainless Steel Depending on model code
Sensor Lens:	Polysulfone
Cable:	Polyurethane 1.5 m, Ø 4.5 mm
O-ring:	OPT-.2..: FKM
Hexagon Nut:	OPT-..10: Polyamide
Flat Gasket:	OPT-..10: FKM
Repeatability:	±1 mm
Hysteresis:	±1 mm
Response Time:	50 µs (with Rising Level) 1 s (with Falling Level) Depending on Viscosity

OPT-0..

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..

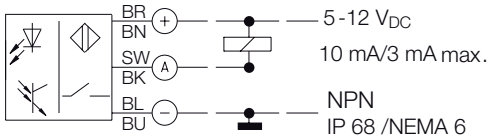
Power Supply:	24 V_{DC} ± 15%
Current Input:	17 mA typ. at 24 V_{DC} (without Load)
Output:	NPN, Open Collector, Function N/O Contact (WET On)
Current Output:	20 mA Max, not Short-circuit-proof

Order Details (Example: **OPT-5210**)

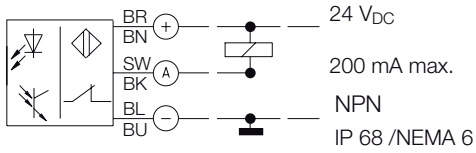
Model	Version	Housing Material	Connection (Male Thread)
OPT-	**..0..** = 5-12 V_{DC}, NPN, OEM, WET On **..4..** = 24 V_{DC} ±15%, PNP, WET On **..5..** = 24 V_{DC} ±15%, NPN, DRY On **..6..** = 24 V_{DC} ±15%, NPN, WET On	**..1..** = Polypropylene **..2..** = Stainless Steel	**..N4** = ½" NPT **..22** = G ½ **..10** = M14 with Nut
OPT-5210Y	OEM Version of OPT-5210 w/16" Jacketed Cable		
Accessory			
MSR-010P03	Contact Protection Relay for models OPT-4.., OPT-5.., or OPT-6.., 115 V_{AC}		

Electrical Connections

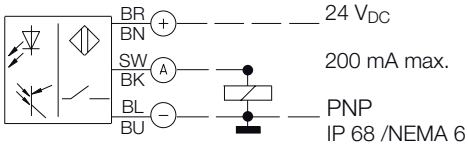
OPT-0..



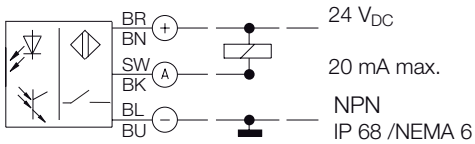
OPT-5..



OPT-4..



OPT-6..



Dimensions