Optical Level Switch LCSO

- **Solid-state sensor - no moving parts**
- **Applicable for wide range of industrial liquids**
- **Up to 120 °C temperature range**
- **Hygienic applications available**
- **12…24 VAC/DC supply voltage**
- **8A/250 VAC direct relay output**

The operation of COMECO's level probe LCSO is based on the changing of light reflection when liquid covers an optical sensor, mounted on the top of the probe. This model can be used as a single level switch for sensing presence or absence of liquid. It is applicable for the most of the low-viscose industrial liquids as well as the liquids in food industry, thanks to its stainless steel casing and polysulphone light sensor. The LCSO switch can be equipped with either transistor output, or contact relay output, and the power supply voltage can vary from 12 to 24 VAC/DC, providing convenient application. Two variants are available according to the electrical connection: connector-type (for side mounting) and cable-type (for side mounting and submersible usage). Thanks to its operating principle, power output, and low price, LCSO can be very useful in applications where float and conductive sensors are not applicable and capacitive or pressure sensors are too expensive.

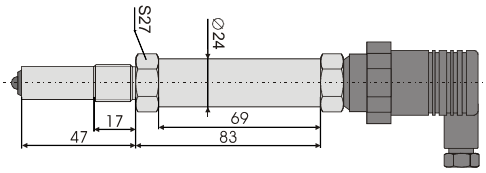
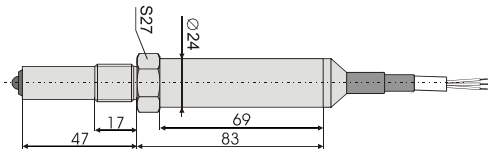
Technical specifications

Input	
Sensing element	solid-state optical sensor
Sensing parameter	presence or absence of liquid
Liquid type	low-viscose
Repeatability	1 mm
Hysteresis	1 mm (depending on liquid)

Output	relay	transistor
Output type	contact	PNP/NPN or MOS gate [1]
Output action [2]	NO or NC	NO or NC
Switching current	5 A at 250 VAC	0.1 A at 60 V
Consumption (output ON)	max. 100 mA	max. 150 mA
Voltage drop (output ON)	-	max. 2 V
Response time (level ON)		< 100 ms
Response time (level OFF)		< 1 s

Power supply	
Supply voltage	12...24 VAC/DC
Maximum ripple	10% p-p at 50 Hz
Ambient conditions	
Ambient temperature	-20...75 °C
Storage temperature	-40...85 °C
Relative humidity	0...95%
Design and materials	
Sensing element	polysulfone
Other wetted parts (no cable)	stainless steel
Casing material	stainless steel
Process connection	3/8" or 1/2" (G or NPT)
Other specifications	see table below

[1] MOS gate is optically isolated and can switch AC/DC loads. It is always NO!
[2] NO closes when liquid reaches the sensor; NC opens when liquid reaches the sensor

Variant	**with connector**	**with cable**	
Specifications			
Mounting applications	side mounting	side mounting	submersible
Medium temperature	-40...120 °C	-40...120 °C	-20...75 °C
Medium pressure	max. 25 bar	max. 25 bar	max. 6 bar
Wiring	4-pin detachable connector	cable 1...10 m	
Wetted parts protection	IP68	IP68	
Enclosure protection	IP65		

Ordering code LCSO✶ - G5.G8.G9.G10.G15

Code	Feature or option	Code values
✶	Variant	**1** - with connector, **2** - with cable
G5	Relay output	**A** - relay NO, **B** - relay NC, **E** - NPN NO, **F** - PNP NO, **G** - NPN NC, **H** - PNP NC, **M** - isolated MOS gate (NO)
G8	Cable length 'k' [m] and type [3]	**1GL…10GL** - glass fiber, **1SL…10SL** - silicone, **1TF…10TF** - Teflon®, **1PU…10PU** - polyurethane [5], **1PV…10PV** - PVC
G9	Process connection	**Q3** - G3/8", **Q4** - G1/2", **Q9** - 3/8" NPT, **Q10** - 1/2" NPT, **Z** - other (specify!)
G10	Sheath material	**M1** - 1.4301, **M2** - 1.4541, **M3** - 1.4571, **M9** - 1.4404
G15	Wiring connector [4]	**C1A** - angled connector M12, **C1S** - straight connector M12, **C7** - DIN 43650 connector

[3] Omit for variant '1'.
[4] Omit for variant '2'.
[5] Contact COMECO!