

The CLS' electronic level switch is used for point level control (on/off).  
Liquids and light bulk materials can be monitored.

## Characteristics

Industrial execution  
Universal use, for liquids and light bulk materials  
No calibration required  
Horizontal, vertical and oblique mounting  
Interface application (oil/water)  
Connection housing 350° rotatable  
Maintenance free

## Type

See data sheet LSWG04E

## Technical Data

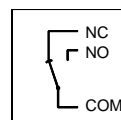
Housing	Polycarbonate grey (RAL 7035)
Sealing of housing cover	Neoprene
Protection class	IP66 in accordance with IEC 529
Cable gland	M20 x 1,5 for cables $\varnothing$ 5 to 9 mm
(Relay execution)	(PG 13.5 for cables 2 x $\varnothing$ 5 to 8 mm)
Operating temperature $T_O$	-40°C to +140°C (at $T_A = 20^\circ\text{C}$ )
Ambient temperature $T_A$	-20°C to +70°C
Storage temperature	-20°C to +85°C
Operating pressure $p_O$	max. 90 bar (at $T_O = 20^\circ\text{C}$ with water)
Test pressure	max. 150 bar
Fail-safe function	LLA (low level alarm) / HLA (high level alarm)
(closed circuit current)	adjustable by jumper
Interface setting	by jumper
Terminals	2,5 mm <sup>2</sup>
Weight	approx. 0,75 kg (standard type)

## Electronic Inserts

Depending on use, the corresponding electronic inserts are available in the following types:

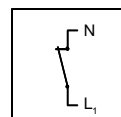
### AC relay

Operating voltage	20 to 250 VAC, 50/60 Hz
Switching current	max. 4A ( $\Omega$ load)
Switching voltage	250 VAC / 100 VDC (0,5 A)
Switching capacity	1000 VAC; 120 W



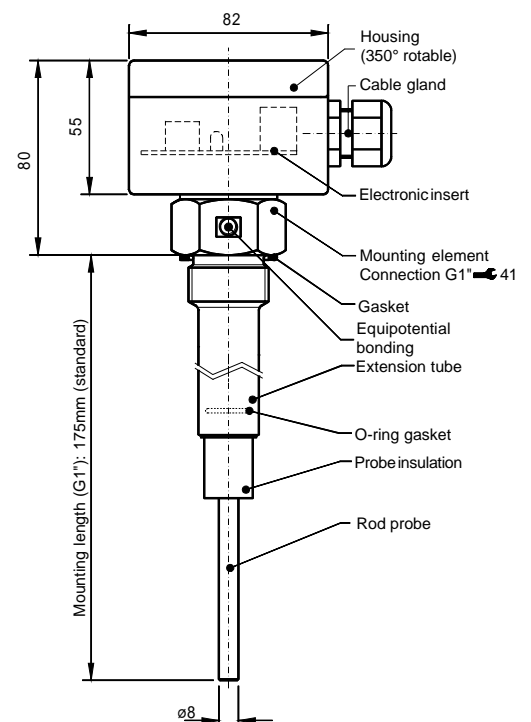
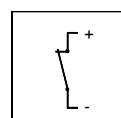
### AC/DC two wire switch

Operating voltage	20 to 250 VAC, 50/60 Hz
	20 to 250 VDC
Switching current	max. 350 mA
	min. 20 mA
Current requirement	<8 mA
Voltage drop over switch	<5 V at 350 mA switching current
	<8 V at 20 mA switching current



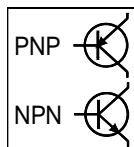
### DC NAMUR (not Ex)

Operating voltage	8.2 VDC $\pm 5\%$ (DIN 19234)
Switching current	On: $\geq 2.2$ mA
	Off: $\leq 1.0$ mA



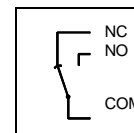
## DC PNP/NPN

Operating voltage	12 to 32 VDC
Switching current	max. 350 mA DC
Min. load resistance	$R \geq 35 \Omega$ (12 VDC) $R \geq 92 \Omega$ (32 VDC)



## DC relay

Operating voltage	24 VDC $\pm 10\%$
Switching current	max. 4 A ( $\Omega$ load)
Switching voltage	max. 250 VAC/ 100 VDC (0,5 A)
Switching capacity	1000 VA; 120 W



## Mounting element

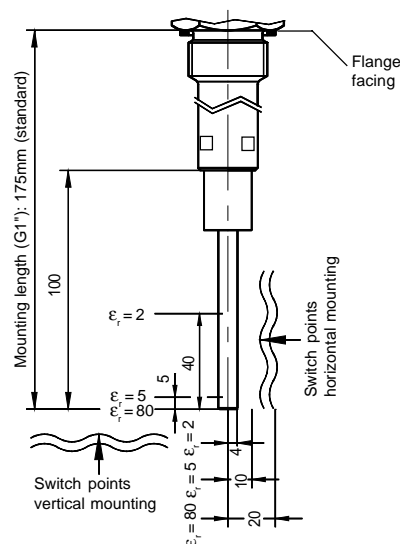
The mounting element shall be selected in accordance with the required manner of mounting (e.g. thread connection or flange), material and flange facing. The transmitter (housing) is 350° rotatable against the mounting element, i.e. after mounting, the cable entry can be turned to the desired position.

Material (at option)	1.4435/1.4571 (316L/316Ti), carbon steel C22.8, Hastelloy 2.4819 (C-276)
Connection with thread	G 1" (G 1½") in accordance with DIN ISO 228/1, wrench size 41 (60) mm NPT 1"-11.5 in accordance with ANSI B1.20.1, wrench size 41 mm
Gasket	G 1" flat packing AFM34, $\varnothing$ 33/40 x 2 G 1½" flat packing Chemotherm $\varnothing$ 59/48 x 2
Sanitary connection	DIN 11851 (in preparation)
Triclamp	ISO 2852 (in preparation)
Flange connection	following DIN 2527 and ANSI B16.5, for details refer to LSWG03E
Standard flange connections	DIN PN 16 to PN 100 ANSI cl. 150 to cl. 600 DN 50 to DN 100 DN 2" to DN 4"
Flange facing	raised face type B/E raised face (RF)

## Measuring probe

The probe in conjunction with the mounting element forms a pressure tight unit and therefore is suitable for use in pressurized vessels.

Rod probe	1.4435 (316L)
Probe insulation	not regenerated, pure PTFE
Extension tube	1.4435 (316L)
O-ring gasket	EPDM or FPM (Viton)
Min. mounting length	G 1" 175 mm (standard) NPT 1"-11.5 165 mm
Max. mounting length	600 mm
Length tolerance	$\pm 0.5\%$
Mounting length/switch point	see drawing on the right
Switching hysteresis	max. 4 mm
Switching delay	0.6 s (on and off switching)
Lateral load	120 N on probe tip at $T_0 = 20^\circ\text{C}$ and 175 mm mounting length



## Application range

The CLS' electronic level switch based on impedance measurement, can be used to control liquids and light bulk materials as well as for interface control. The range of applications is determined by the dielectric constant, the viscosity and the conductivity of the medium to be controlled. Medium with a dielectric constant between  $\epsilon_r = 2$  and  $\epsilon_r = 80$  can be controlled without calibration or previous adjustments. Mounting in horizontal, vertical and oblique position is possible.

## Medium interface applications

The medium to be detected, whether conducting or non-conducting, must have an  $\epsilon_r >$  approx. 40 and the second medium must be non-conducting with an  $\epsilon_r < 6$ .

