

# Model LV66(a)/LV66(b) Oil Level Transmitters

## Description

Based on capacitive principle, the LV66-series oil level transmitters are developed for automotive application where the oil level in a fuel tank has to be measured or controlled.

The LV66-series transmitters can also be used to measure or control the level of any non-conductive liquid in tank applications.

Thanks to the capacitive working principle, the LV66-series transmitter features lower temperature drift and wider oil temperature range from  $-50^{\circ}\text{C}$  to  $+200^{\circ}\text{C}$ , compared to other sensor technologies. In addition, there are no moving parts in the LV66-series level transmitters, so the transmitters are solid state sensors and offer excellent stability and reliability for oil level applications.

The detection part of LV66-series can be made from either aluminum alloy or 316L stainless steel materials. The 316L stainless steel version allows the LV66-series not only to be installed in harsh environment but also to be able to measure various non-conductive liquid compatible with 316L stainless steel.

There are two versions available for LV66-series level transmitters, LV66(a) and LV66(b). The LV66(a) is installed in an oil tank by means of thread mounting while the LV66(b) is fixed to an oil tank through flange mounting.

Each transmitter is calibrated at factory with the oil (or equivalent) specified by customers so as to provide required accuracy.



## Features

- medium to measure: oil, fuel, or any non-conductive liquids
- measuring ranges: 50mm, ..., 1000mm
- accuracy up to 0.5%fs
- wide medium temperature range:  $-50\sim+200^{\circ}\text{C}$
- selectable output: 4~20mA (standard), 0~5Vdc, 0~10Vdc, CANopen, SPI
- solid state sensor, no moving parts for high reliability

## Applications

- automotive industry
- chemical industry
- industrial application

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## Technical Data

Parameters	Units	Specifications	Notes
measuring liquid medium		oil, fuels, or other non-conductive liquid	1
level ranges	mm	5~50   5~100   5~200   5~300   5~400   5~500, 7~700, 10~1000	2
output signal	mA	4~20 (standard)	
	V	0~5, 0~10	
	digital	CANopen, SPI	
accuracy	%fs	±5   ±4   ±3   ±2   ±1   ±0.5, ±1 (standard)	3&4
long-term stability	%fs/year	≤ ±0.1	
power supply (Vs)	Vdc	9 < Vs ≤ 30 (for output = 4~20mA, 0~5V)	
	Vdc	15 < Vs ≤ 30 (for output = 0~10V)	
load resistance for current loop	Ω	≤ (Vs - 12V) / 0.02A	
storage temperature range	°C	-50 ~ +125	
oil temperature range	°C	-50 ~ +200	
compensated temperature range	°C	-50 ~ +80 (standard), -50 ~ +150	
temperature coefficient of zero	%fso/°C	≤ ±0.05	
temperature coefficient of span	%fso/°C	≤ ±0.05	
mechanical interface of LV66(a)		G1/2" (standard), M20x1.5	5
mechanical interface of LV66(b)		flange	
electrical interface		Φ7.3mm, shielded black PVC cable	6
wetted parts material		aluminum alloy (standard), 316L SS	7
flange material		aluminum alloy (standard), 316 SS	
electronics housing material		304 SS	
environment protection		IP68 for the stem part, IP66 for the electronic housing	
net weight	gram	from around 300 (depends on level range)	

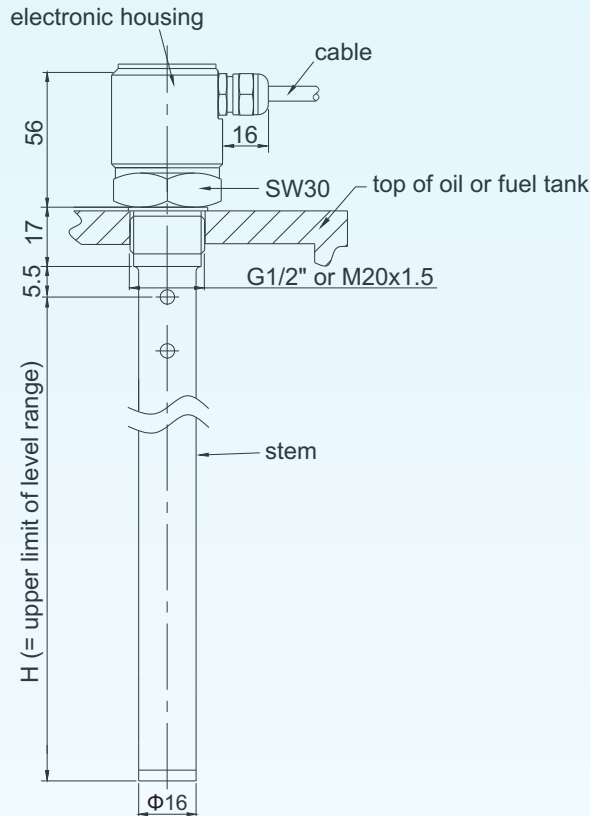
- Notes:
1. The medium should be compatible with wetted parts material and pressure diaphragm.
  2. For customized level ranges, consult BCM.
  3. "fs" refers to full scale measuring level range.
  4. Including non-linearity, hysteresis and repeatability.
  5. Other threads type available on request.
  6. 2-core cable for 4~20mA output; 3-core cable for 0~5V or 0~10V output; 4-core cable for CANopen and SPI output; .
  7. Flange material will be selected to match the wetted parts material, i.e. aluminum wetted parts with aluminum flange; stainless steel wetted parts with stainless steel flange.

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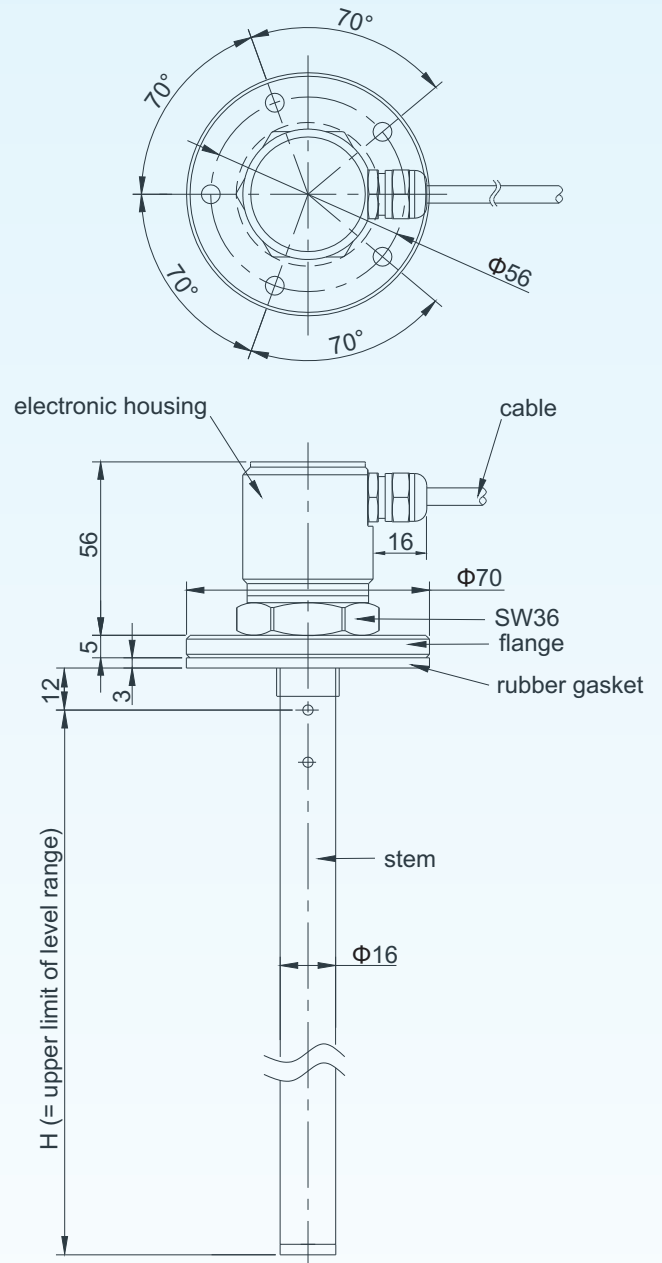
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## Dimensions

### LV66(a) with threads mounting



### LV66(b) with flange mounting



Notes: All dimensions are in mm.

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## Ordering Information

position (pos.) 1: model									
LV66(a)		LV66(b)							
pos. 2: measuring level ranges									
5/50mm		5/300mm		7/700mm					
5/100mm		5/400mm		10/1000mm					
5/200mm		5/500mm							
pos. 3: measuring liquid medium									
oil (standard)				other liquid medium (please specify)					
pos. 4: output signal									
4/20mA (standard)		0/5V		0/10V		CANopen		SPI	
pos. 5: accuracy (according to level range as specified in Technical Data)									
0.5%fs		1%fs		2%fs		3%fs		5%fs	
pos. 6: compensated temperature range									
T1 = -50 ~ +80°C (standard)				T2 = -50 ~ +150					
pos. 7: wetted parts material									
Al = aluminum alloy (standard)						316LSS = 316L stainless steel			
pos. 8: mechanical interface									
for LV66(a): G1/2 (standard)				M20x1.5					
for LV66(b): flange									
pos. 9: electrical interface									
(Φ7.3,2-core,shielded,PVC,2m) = Φ7.3mm, 2-core (depends on output signal), shielded PVC cable, cable length = 2m (this length is specified by customers)									
pos. 10: customized specifications									
“(*)” is necessary only if any customized parameter is required, otherwise it is neglectable.									
pos.1	pos. 2	pos. 3	pos. 4	pos. 5	pos. 6	pos. 7	pos. 8	pos. 9	pos. 10

## Examples of Ordering Code

- standard transmitters:

LV66(a)-5/200mm-oil-4/20mA-3%fs-T1-316LSS-G1/2-(Φ7.3,2-core,shielded,PVC,1m)

LV66(b)-5/500mm-oil-0/5V-1%fs-T1-Al-flange-(Φ7.3,3-core,shielded,PVC,3m)

- customized transmitter:

LV66(a)-5/450mm-oil-CANopen-1%fs-T2-Al-G1/2-(Φ7.3,4-core,shielded,PVC,1m)-(\*)

(\*): Customized level range = 5~450mm.

The listed specifications, dimensions and ordering information are subject to change without prior notice.

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