Sensor Co.,LTD

PRODUCT OVERVIEW

LEVEL MEASUREMENT

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LC22 Series Capacitance Fuel Tank Level Sensors/Probes

(Cut off probe by customers is available!)

Characters:

☆ Accuracy: ≤±0.5%F.S.
☆ High stability and reliability
☆ High resolution up to 1 mm
☆ Precise linear and temperature compensation
☆ ZERO and RANGE self-calibration
☆ Adjustable damp output time
☆ Strong interference resistance
☆ Strong shock resistance
☆ Surge, over-current and polarity resistant design
☆ Applicable for various non-conductive liquids

Applications:

★Diesel Tank Level Measurement
★Gasoline level measurement
★kerosene level measurement
★Biodiesel level measurement
★ Industry Process Level Measurement
★ Auto, Truck fuel tank level measurement
★Rooter, railway engine, tanker oil and fuel level measurement
★ other non-conductive liquid level measurement
★ And so on

Ⅰ. Profiles:

LC22 capacitance liquid-level sensor is the customized sensor meter for precise measuring of the oil level of automobile oil tanks, tankers, locomotives and oil depots, etc.

The whole sensor is free of any mobile or elastic part and is featured with the good impact resistance, convenient installation, high reliability, high precision, and stable performance. It can not only be installed on various occasions requiring precise level measuring of gasoline, diesel and hydraulic oil, etc, but also be Application for measuring of various non-conductive liquids.

In addition, it can be cut off probe length according customers requirements and calibrator will renew calibration sensor well for signal output.

Ⅱ. Specifications:

Model: / Parameter:	LC22 Series		
Pressure Range:	0-200 mm ～ 1000 (mm) optional		
Min resolution:	1 mm		
Blind zone:	Bottom of probe: 10 mm; Top of probe: 10 mm		
Probe Diameter:	Φ18.8 mm		
Overload:	Standard atmosphere pressure or 0Bar to +2Bar optional		
Accuracy: (Linearity; Hysteresis; Repeatability)	≤ ±1.0%F.S; ≤ ±0.5%F.S; Optional		
Stability:	Standard: 0.1%F.S, Max：0.2%F.S		
Working Temp:	-40℃~85℃		
Storage Temp:	-50℃~95℃		
Medium compatible:	Various media compatible with the aluminum alloy		
Electronic Wire:	6 Wires		
Output:	1-5V	0.5-4.5V	0-5V
Power Supply:	10~32 V dc	10~32 V dc	10~32 V dc
Zero Temperature Drift	0.05%/10℃		
Max working current:	＜15 mA		
Output signal refresh rate:	5s/times (by customized)		
Electronic connection:	Directly cable with connector 6 Pins		
Process connect port:	5 holes SAE flanges		
Response time:	First time starting time from 1s to 5s		
Certificate approve:	CE Certificate and Exia II CT6		
EMC Standard:	electromagnetic radiation：EN50081-1/-2 electromagnetic susceptibility：EN50082-2		
Remarks:	Special applications request by customized		

Ⅲ. Calibrator introduction:

Calibrator is use to calibrate capacitance sensor output when the probe cut off by customers. Because of LC22 is a cut off probe sensor, so we must renew calibration after cut off probe. calibrator enclosed a 12V 3A battery for power and red light is mean power on, when open the switch and red light is off, which is mean battery power is lower. so change the battery is fine.

The green light is calibration indicator, the buttons function as right picture.
Attention: Because of the different fuel and fuel quality, before application please do calibrate at first, also please calibrate full range calibration and then do zero point calibration. otherwise, sensor will unable enter calibration mode!

Ⅳ. Electronic Connections:

For 0-5V/0.5-4.5V/1-5V wires connection:

Pins 1: V_{CC}
Pins 2: Vout
Pins 3: GND
Pins 4: Connect with calibrator
Pins 5: Connect with calibrator
Pins 6: Connect with calibrator

Ⅴ. Sensor probe length adjustment and calibration

1. Probe length adjustment

Customers can cut of the probe of bottom sensor according necessary, do as follow:

a. make sure the sensor probe length, which is your last requirement.

b. use hacksaw cut off the redundant parts/length.

c. use blade or screwdriver clean the burr and metal dross of probe bottom. So that inside probe and outside probe will be isolated.

d. take down the strainer and rubber stopper from the cut off probe and install to the sensor probe bottom again.

2. Fuel level sensor calibration

Fuel level sensor calibration is meaning calibrate the zero point and span/full point. The basic principle is that record a full level and zero level value inside sensor when fuel tank is full and blank, definition fuel zero and full level in tank. When the fuel level is change and the sensor signal output also linear change. So we can calculate the fuel level height.

Attention: after cut off sensor probe, sensor must do calibration. Calibrate zero and span/full just relative to level height (not relative to volume of tank), so calibration could be operate indoor by make a container, which the same height with fuel tank, then filling diesel or other fuel into this container until full, now you can setting span/full point of sensor. after setting full point of sensor, then do zero point setting on the blank container. Please remember do full point calibrate at first and then go to do zero point calibrate!

3. Span/Full point calibration

Let's tank filling full fuel and take sensor probe into tank vertical and waiting 30s (let's sensor probe filling fuel). then press key 'Full Range Key' keep on 5s until green LED light is sparkling, which is mean sensor enter full/span calibrate mode. After 10s, green LED light off sparking, and then finished full/span calibration.

4. Zero point calibration

Put sensor outside of fuel tank and waiting the fuel outflow sensor probe, then press key 'Zero Point Key' keep on 5s until green LED light is sparkling, which is mean sensor enter Zero point calibrate mode. After 10s, green LED light off sparking, and then finished zero point calibration.

5. End of Calibration

After calibrate span and zero point of sensor, disconnect of calibrator wires connector and connect Pins 1& Pins 3 with power supply, then calibration finished and successful after power.

(Remarks: if you make a wrong operate when calibration sensor, you can power off calibrator and renew do above calibration)

6. Inspect sensor output

After calibrated sensor span and zero point, then testing the sensor signal output:

※ when fully fuel level: Vout is 5V

※ when half fuel level: Vout is 2.5V

※ when empty fuel level: Vout is 0V

If your testing data as above, which is mean that you do successful calibration.

And sensor will be suitable for your application now.

7. Part Number Selection Table:

	001	0-100mm		016	0-1600mm
	002	0-200mm		017	0-1700mm
	003	0-300mm		018	0-1800mm
	004	0-400mm		019	0-1900mm
	005	0-500mm		020	0-2000mm
	006	0-600m		021	0-2100mm
	007	0-700mm		022	0-2200mm
	008	0-800mm		023	0-2300mm
	009	0-900mm		024	0-2400mm
	010	0-1000mm		025	0-2500mm
	011	0-1100mm		026	0-2600mm
	012	0-1200mm		027	0-2700mm
	013	0-1300mm		028	0-2800mm
	014	0-1400mm		029	0-2900mm
	015	0-1500mm		030	0-3000mm

8. Order Information

P/N / Selection	LC22 (Model)	4	4	H	2	D	G
Output	3=4-20mA 4=0.5-4.5V 5=0.5V 9=RS485						
Process Connection	1=M12*1.5 2=2.5"Flange (63.5mm)4 hole 3=G1/2" 4=5 holes SAE flanges X=Customized						
Level Range	Pls select the required calibration parameter code from the Pressure Range Code Selection Table.						
Measured Medium	1= Water 2= Gasoline 3= Diesel 4=Other liquid by customized						
Probe Diameter	D=17.8 mm (Standard)						
Pressure type	G=Gage S=Sealed A=Absolute						

Notes:

1. Remarks are mean additional requirements to manufacturer.
2. Probe length is able to cut down by customers.
3. Customized is mean that data order by customers requirement.

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