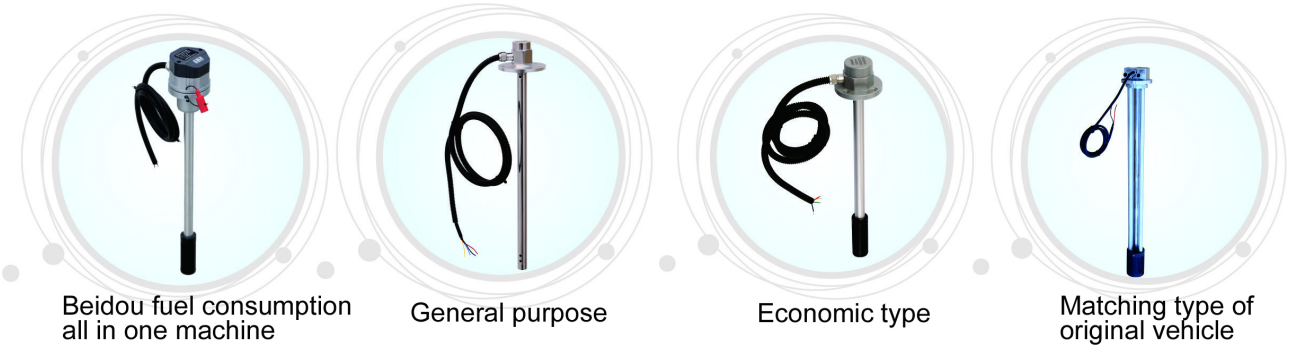
SFLS500 Series Oil Volume Sensor

OVERVIEW

The SFLS500 series oil volume sensor is based on the principle of radio frequency capacitance measurement and adopts a unique technology to realize automatic calibration. It is not affected by temperature and medium changes, and has high measurement accuracy and strong anti-interference ability. This technology fills the domestic gap and is at the international leading level. It can be installed in various occasions to accurately measure the oil level of gasoline, diesel, hydraulic oil and other weakly corrosive liquids.

We has made a major breakthrough in the field of capacitive digital sensor research. Through the unremitting efforts of engineers and technicians, it has made up for the shortcomings of traditional sensors such as low measurement accuracy, high environmental requirements and poor product stability. It has realized automatic calibration and is not affected by temperature and medium changes, filling the gap in the industry, and constantly Strive for high precision, intelligence and miniaturization.

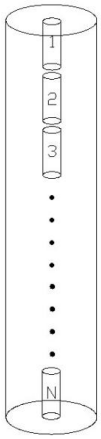


FEATURES

- The use of military components makes the product more stable, stronger anti-interference ability, and can be adapted to harsher environments.
- Multiple signal output, compatible with all brand terminal equipment
- All-metal structure, sturdy and durable, not afraid of being beaten, basically no requirement for environmental conditions
- Using invention and utility model patented technology with independent intellectual property rights, the product is automatically calibrated and is not affected by temperature and medium, and it is suitable for any occasion.
- The product has no moving parts, and the failure rate is 0.3‰, which is the lowest failure rate among similar products.
- Using radio frequency capacitance tomography technology, the measurement accuracy is high, and the accuracy can reach 0.5 level, which meets the needs of customers for high-precision liquid level monitoring equipment.

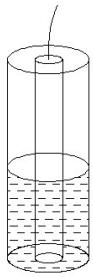
Multi-layer scanning, intelligent analysis, automatic calibration

This series of products uses a combination of multiple sets of capacitive sensors. There is an insulating sleeve in the metal cylinder of the level gauge, and N metal probes are distributed from bottom to top in the insulating sleeve. These metal probes are connected to the circuit board by leads, and the metal probes and metal cylinders form N groups Capacitive sensor. The CPU continuously scans these sensors, and after precise compensation and correction, it can eliminate the influence of all other external factors on the measured value, such as temperature, pressure, humidity, dielectric constant, viscosity, surface hanging material and so on. It realizes automatic calibration without manual intervention, and achieves the effects of high precision, high stability, high reliability and long life.



E-mail: info@cdsentec.com www.cdsentec.com

WORKING PRINCIPLE



The outer metal tube of the sensor and the central probe constitute a coaxial capacitor. There is a gap between the two. The liquid to be measured enters this gap. Because the dielectric constant of the liquid and air is very different, the level of the liquid changes the capacitance of the capacitor. Capacity, the change of this electric capacity directly reflects the change of the liquid level. This change is processed by the circuit and the program, and the standard signal corresponding to the level of the liquid is output.

SPECIFICATION

- Detection range: automotive grade 100～1400mm, industrial grade 200～6000mm
- Accuracy level:
  When the measuring range is within 300mm; the accuracy level is 1.5;
  When the measuring range is from 300mm to 700mm; the accuracy level is 1.0;
  When the measuring range is greater than 700mm; the accuracy level is 0.5;
- Resolution: less than 0.1mm
- Pressure range: -0.1MPa～0.6MPa
- Medium temperature: -50～125°C
- Protection level: IP68
- Power supply voltage: 10～80VDC or 5～30VDC
- Fixing method: thread M20*1.5 or flange installation, special specifications can be customized according to requirements
- Explosion-proof grade: intrinsically safe ExiaIIC T6 explosion-proof ExdIIC T5
- Multiple transmission methods:

*Analog voltage signal: 0~3.3V, 0~5V, 0~10V
*Analog current signal: 4-20mA
*Pure resistance output: 3-300Ω/300-3Ω
*Digital signal: RS232, RS485, TTL, CAN, LIN

MODEL TYPE

Universal type: SFLS5010	① All stainless steel structure ② Accuracy: 0.5 level ③ Pressure range: -0.1MPa～0.1MPa ④ Probe temperature resistance: -100～150°C ⑤ Ambient temperature: -40～70°C ⑥ Power supply: DC12～40V (typical value 24VDC) ⑦ Limit working voltage: DC10V～80V ⑧ Fixing method: threaded installation M20×1.5 or flange installation, ⑨ Explosion-proof grade: intrinsically safe ExiaIIC T6 explosion-proof ExdIIC T5	
Replace the original type: SFLS500T5	① Installation method: Replace the original car ② Chuck size: Φ65 or Φ55 can be replaced ③ Route method: keep the original car route ④ Output signal: analog resistance + RS485 (CAN)	
Economical type: SLFS500F	① All aluminum alloy structure, low cost ② Accuracy: Level 1 ③ Length can be customized ④ With automatic calibration function ⑤ Multiple signal output: RS485\232, 0-5V, analog resistance	

E-mail: info@cdsentec.com www.cdsentec.com

Truncated type: SFLS500S	① All aluminum alloy structure ② Can be truncated within the allowable length range ③ Accuracy: Level 1 ④ With automatic calibration function ⑤ Multiple signal output: RS485\232, 0-5V	
Anti-dismantle type: SFLS500E	① Single hole installation ② Anti-disassembly ③ Anti-clogging ④ Multi-signal output	
GPS all-in-one type: SLFS500G	① High integration: satellite positioning, data transmission, fuel consumption monitoring ② Low power consumption: working power consumption is only 3W. ③ Extensible: It can be connected with peripherals such as positive and negative sensors.	

SOLUTIONS

- **Reduce failure rate**

The failure rate of the original float-type level gauge is 1%, and now the failure rate of our products is promised at 0.3‰.

- **Improve measurement accuracy**

The product adopts tomographic scanning technology, and the accuracy can reach 0.5 level. The original level gauge has no accuracy at all, and it uses the phase measurement method.

- **Improve the technical level of the vehicle**

Provide high-precision and high-resolution digital fuel quantity signals to the vehicle bus system to make the fuel gauge display more accurate, and to accurately calculate vehicle fuel consumption, remaining fuel mileage, etc. Improve the technical level of the vehicle and increase the selling point of the vehicle.

- **Provide users with value-added services**

Through the "product + system" to provide users with intimate fuel consumption management services. Such as: fuel stealing alarm, fueling statistics, energy saving and consumption reduction comparison, etc. If the system can realize the pre-installation, it can avoid the trouble caused by the user's later modification.

APPLICATION

E-mail: info@cdsentec.com www.cdsentec.com

INSTALLATION

Sensor length: M

Actual range: H

Flange thickness: a

Blind area on oil rod: e

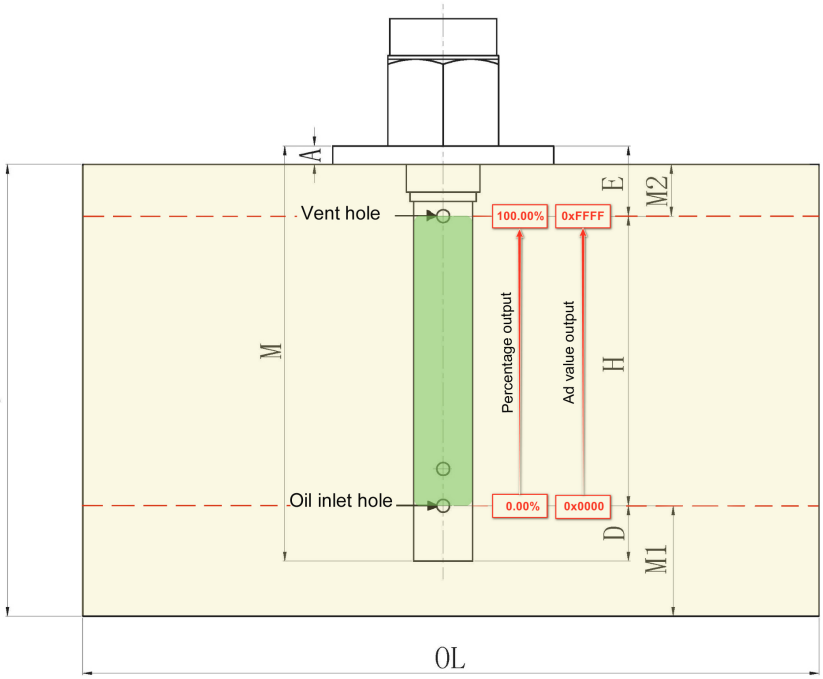
Blind area under sucker rod: D

Tank length: ol

Tank height: Oh

In fact, the blind spot is: m2

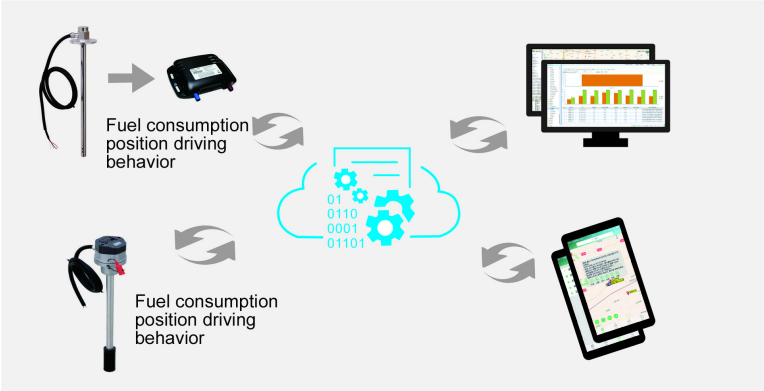
Actual lower blind area: M1



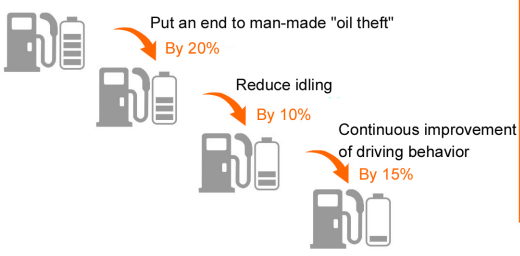
SYSTEM FUNCTIONS

① Vehicle fuel consumption management system

Standardize the driving behavior of drivers to prevent oil theft, oil leakage, detours, and illegal activities;
Standardize vehicle management, prevent private use of public vehicles, and reduce expenses;
Accurately measure the refueling status of vehicles to prevent shortcomings;
Refined management to effectively evaluate the fuel consumption of vehicles in various environments and the energy-saving level of drivers in driving;
Accurately measure the fuel consumption of a vehicle per 100 kilometers.



Trilogy of fuel saving



Installation picture

② System function

Ten functions:

1. Real-time monitoring of remote fuel consumption: 2. Accurate display of remaining fuel:
3. Comparison of fuel consumption during the period: 4. Time fuel consumption statistics:
5. Mileage and fuel consumption statistics: 6. Oil spill statistics:
7. Immediate alarm for oil leakage: 8. Refueling statistics:
9. Refueling real-time display: 10. Idle fuel consumption statistics:

Two additional integrated functions.

1. Real-time temperature display function: 2. Remote control function.

③ System advantages

Intelligent: The sensor calculates by itself, reports the fuel volume, fuel volume alarm, and fuel leak volume alarm, without platform processing;
Accuracy: The sensor collects hundreds of times per second, and the amount of data is large. The real data is filtered in real time at the first time, and the shaking during driving can be filtered out and repaired, and the calculated oil volume data is more accurate;
Cooperation: The vehicle-mounted terminal sends the real-time vehicle status (total mileage, ACC status, vehicle speed) to the sensor, and the sensor adjusts the algorithm and parameters according to the vehicle status to improve accuracy.
Timely: report the fuel filling amount and oil leakage in time, and report the oil leakage alarm within 15 seconds of the oil leakage;
Easy to use: platform calculus calculates the fuel tank fuel quantity array, and then sends the sensor; provides three calibration modes: real-time correction, real-time calibration, and retrospective correction;
Linkage: When the oil leaks, the sound and light alarm can be linked on the spot, and the remote oil leak process can be linked to video;
Variety: can detect single fuel tank, double fuel tank, three fuel tank, four fuel tank...

④ Sample report

Fuel quantity report: Fuel quantity statistics is a report module that counts the fuel quantity, mileage, speed, fuel temperature, ambient temperature, air conditioning and ACC status of the monitored objects connected to the fuel level sensor over a period of time
Refueling data: display all refueling data of the monitored object during the query time period
Oil spill data: display all the oil spill data of the monitored object during the query time period