

LSM1000

Mil-Spec UAV Fuel & Oil Level Sensor with Integrated Temperature Sensor

The LSM1000 is a lightweight, mil-spec fuel and oil level sensor with integrated temperature sensing designed for defence UAV platforms. Utilising class-leading capacitive sensing techniques, the LSM1000 delivers robust, continuous measurements of contained liquids. With an AN-10 threaded mount and ingress protection rating of IP68, this mil-spec instrument is custom-built up to 450mm long.

The lightweight probe features a carbon-fibre outer layer to add strength without additional weight and offers an integrated PT-1000 (Class B 1/3 DIN) temperature detector for liquid temperature sensing. With a 100Hz measurement rate, UAV operators are able to track vital UAV fluid level to enables UAV platforms to fly further for longer.

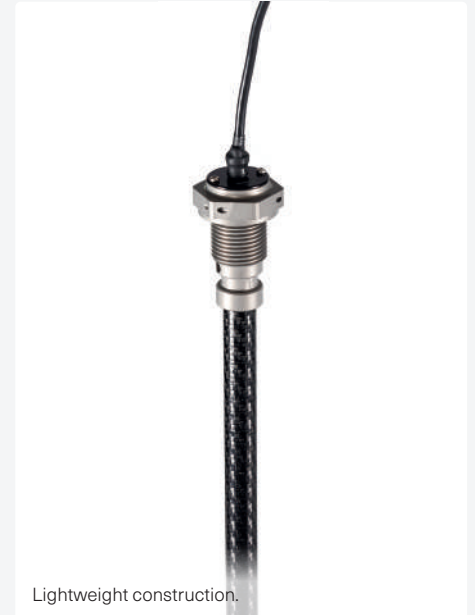
The LSM1000 delivers continuous readings with advanced accuracies of $\pm 1\%$ of reading ($\pm 0.5\%$ accuracy variants available). Housed within the sensor head, integrated electronics allow for analog 0-5V, CAN or analog and CAN outputs without the need for external CPU processing. The entire sensor, inclusive of electronics, has an operating temperature rating of 40°C to $+125^{\circ}\text{C}$ (-55°C to $+150^{\circ}\text{C}$ variant available) and a 2 bar differential tank pressure rating ensuring reliability in intensive heat, high vibration conditions and extreme environments. Certified to MIL STD 461F and RCTA DO160F.

Key Features

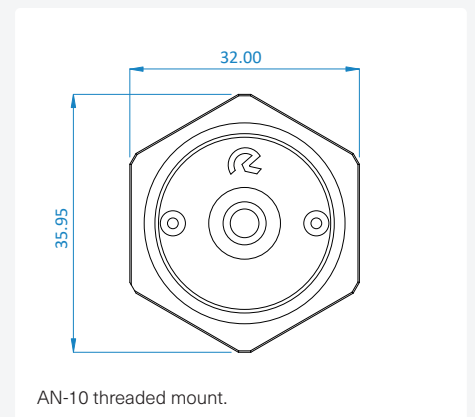
- Continuous, solid-state capacitive sensing technology
- Analog 0-5V and CAN output options
- High accuracy PT-1000 (Class B 1/3 DIN) integrated temperature sensor
- Advanced accuracies of $\pm 1\%$ of reading ($\pm 0.5\%$ accuracy variants available)
- -40°C to $+125^{\circ}\text{C}$ operating temperature range (-55°C to $+150^{\circ}\text{C}$ option)
- Mil-Std EMC Certified to 461F and RCTA DO160F
- IP68 rated
- 2 bar differential tank pressure ratings (up to 10 bar available)
- AN-10 threaded mounting

Benefits

- Insensitive to orientation allowing for convenient placement in fluid tanks.
- Solid-state for minimal maintenance.
- Manufactured to length and calibrated in intended liquid for accuracy.
- Capacitive technology delivers accurate level measurement despite sloshing.
- Full customisation available to suit specialist applications.
- Compatible with a wide variety of dielectric fluids, including fuel, oil, water and coolants.



Example Sensor Dimensions



EMC Approvals

MIL STD 461F Army Ground Limits:
CS114, CS115, CS116, RE102, RS103, RS101, CE102, CS101

RTCA DO160F: Section 25 ESD Cat. A



Mil-Std EMC Certified



Vibration Tolerant



Integrated Electronics



Ingress Protection up to IP68K



Insensitive to Orientation



Lightweight Construction



Solid-State Technology

Output

Analog	0 – 5VDC (Configurable)
CAN	2.0A with 11bit identifier with configurable base ID
Output Resolution	10bit
Sample Rate	100Hz
Accuracy	±1% of full scale @20°C ±0.5% of full scale @20°C (option)

Electrical

Supply Voltage	+6VDC – 30VDC 5VDC +/- 0.1VDC Unregulated
Supply Current	<20mA Nominal @ 12VDC

Calibration

Fluid Compatibility	All common fuels, oils, coolants, water and blends.
Fluid Calibration	Fluid specific, on board storage of multiple fluids available.
Dry Calibration	Up to 10 point calibration across temperature

Mechanical

Probe Length	80 – 700mm
Mounting Options	1 bolt, 2 bolt, 3 bolt, 5 bolt SAE, AN-8 and AN-10 Threaded
Sealing	Radial O-ring / Dowty seal

Environmental

Environmental Protection	IP68
Vibration	Designed to meet: 10Hz to 2000Hz sine sweep @10G (24hrs per each axis)
Shock	Designed to meet: 50G half sine wave for 11ms, 10 times each axis
Pressure Rating	2 bar (10 bar option)
Operating Temperature Range	-40°C to +125°C (-55°C to +150°C variant available)

Wiring Definition

Description	Wire Colour	PIN Out
Supply (+)	● Red	A
Ground (GND)	● Black	B
Signal	● Yellow	C
Tx Comms (Transmit)	○ White	D
Rx Comms (Receive)	● Green	E

Configuration Interface

Type	RS-232 via FTDI USB cable. See Accessories.
GUI	Available on request

Specifications may be subject to change without prior notice.

Custom Sensors

Reventec specialises in unusual sensor requirements and can adapt existing designs to fit your specific application.

- ✓ Remote electronics for high temperature environments
- ✓ Micro sensors
- ✓ Mil-spec certified

