The Belite liquid level / fuel probe is designed to sense fuel or liquid level of any type and provide an electrical indication to instrumentation along a range of 0 to 5 volts. The unit is not TSO’d or PMA’d. Use only in appropriate aircraft as a backup to certified instruments and pilot calculations. Ideal for monitoring level of liquid in many other applications, such as agricultural spraying. Patent pending.

DISCLAIMER:
Products from Belite Electronics are not designed to be used in applications where their failure would endanger safe flight or human life in any way. They are intended solely for use in VFR conditions. They are not certified to meet any Technical Standard Order, and are not produced under a Parts Manufacturing Authority (TSO / PMA). As a result, they are suitable only for use in experimental and ultralight aircraft, and in Light Sport Aircraft, if meeting the requirements of the respective manufacturer.

WARRANTY:
Your new Belite Avionics instrument carries a one year warranty. Please contact us at info@beliteaircraft.com should your product need warranty service. International warranty service will be charged $50.00 USD for repairs, which includes return shipping after repair. Payment must be received before service begins.

RETURN/REFUND INFORMATION:
Must be returned in new, resalable condition within 14 days.
Liquid Control Systems

**APPLICATIONS**

- Fuel level
- Liquid level in many other applications such as agricultural spraying
- Misfueling monitor
- Motorcycles
- Industrial

**FUNCTIONALITY**

- Provides liquid level indication between empty and full, for any tank with a minimum height of 6 inches (150mm) and a maximum height of 48 inches (1200mm); other options available.
- The electrical output of the product varies between 0.0 volts and 5.0 volts.
- Asserts “ALARM” when the tank is filled to less than 25% of calibrated capacity. Provides active low current sink to 15 ma.
- Includes an electrical slosh filter with an approximate time constant of 40 seconds. NOTE: if a tank was quickly evacuated due to a gross rupture or failure, the system may require up to two minutes to fully reflect an “empty” condition.
- Parts included are Liquid Probe with pigtail, Probe Computer Module & 9V connector.

**FEATURES**

- Stainless steel construction, 304L.
- High precision pressure sensor, accurate +/- 0.5% absolute.
- No moving parts. Based on MEMS technology.
- Designed to be immune to temperature, shock, and vibration.
- Will not fail if water is present in fuel (unlike capacitive probes).
- Compatible with any tank size or depth to 48”; other options available.
- Long term stability 0.5% per year.
- Operating temperature range -40 to 100 degrees C (Probe Only).
- Compatible with 9 to 14 volts input power.
- Provides linear output of 0.0 to 5.0 volts (empty / full).
- Built in exceptional slosh filtering and optional G filtering.
- Includes five point calibration for empty, ¼, ½, ¾, and full tank.
- Custom calibrations available. Contact factory.
- Alarm output active if <25% full. Contact factory for other alarm options.
INCLUDED

- Stainless steel liquid level probe with wiring harness for attachment to Probe Computer Module.
- Probe Computer Module with five point calibration.
- Power pigtail to Module, with 9V connector for testing.

SWITCHES

- Press Low/High simultaneously to begin calibration before and while applying power. (All lights will briefly blink.)
- Low level switch. Depress momentarily for low level calibration.
- ¼ level switch. Depress momentarily for calibration.
- ½ level switch. Depress momentarily for calibration.
- ¾ level switch. Depress momentarily for calibration.
- High level switch. Depress momentarily for high level calibration.

TECHNICAL DESIGN

- This product incorporates the following technical elements:
  - Microprocessor with RAM & firmware
  - Input A / D converter
  - Output D / A converter
  - Slosh Filter
  - Highly stable voltage supply for probe
  - Very low power consumption – approx. 10 milliamperes total consumption, with 7 milliamperes in the fuel probe.

ACCURACY & APPLICABILITY

- As this unit is non-TSO’d; non-PMA’s, the accuracy of this unit is not certified or guaranteed. Use only in appropriate aircraft as a backup to certified instruments and pilot fuel calculations. Do not use in any aircraft where such installation would violate appropriate aviation regulations.
- High precision pressure sensor, accurate +/- 0.5% absolute. Calculation based on design and is not tested or guaranteed.
INSTALLATION

- The probe has dimensions as shown, and is inserted into the lowest level of the fuel or liquid tank. Fitting is 1/8 NPT. 1/4 NPT adapter also available.

- The product also includes a freestanding Probe Computer Module, with dimensions of 2.00” square (51 mm). This module may be mounted anywhere within 12” (300 mm) of the probe. The mounting holes are 2 5/8”, center to center (67 mm).

- The product requires a voltage source of 9 through 14 volts with a typical power draw of about 10 milliamps. Usage of an independent 1 amp fuse is recommended for a system of one to three fuel probes. (The in-tank sensor uses about 7 ma of power.)

- The electrical connector to the Probe Computer Module has four wires: ground, power, alarm, and liquid level output. (The colors are always black, red, purple, and orange, respectively.) The connector comes conveniently prewired for a 9 volt battery, which is recommended for initial test and user training before installation. Thereafter, prior to installation in aircraft, the 9 volt connector may be cut off and discarded with permanent installation to system’s or ship power. The ground must be connected to avionics (system) ground. The power must be connected to a voltage source between 9 and 14 volts. The liquid level output may be connected to instrumentation liquid or fuel level input gauges. The alarm may be connected to a current limited LED.

- To program: before and while powering up touch low and high. This enables programming, all lights will blink. All five programming switches are sequentially depressed to set the levels associated with each switch, starting from the “O” and working toward the “1” switch. Allow two minutes before setting each switch, so that the slosh filter may settle to an accurate value. The LED associated with each switch will illuminate as the switch is depressed. After all are set, the “0” LED will begin to flash once per two seconds, showing successful programming. If it does not, programming was not successful. (In other words: start with an empty tank, and depress the “O” switch. Add fuel to ¼ tank; depress the next switch, and so forth, until the tank is full.)

- Recalibration is required if changing between fuel or liquid types, for instance, between Jet Fuel and 100LL or between Ethanol and Gasoline. As each type of fluid has a specific gravity, the range indication and levels will vary as a result.

- NOTE: If the system detects less than 25% of remaining capacity, it will assert the electrical “ALARM” output pin. This may be used to drive a system alarm. The output sink is capable of sinking 15 milliamperes of current, and may be used to drive an LED or provide other input to other instrumentation. Other “ALARM” indications are possible (for example, overfill); contact factory.