



FCI's Liquid Level Sensors Detect Aircraft Gearbox Oil Level To Support Maintenance Needs & Prevent Safety Issues

San Marcos, CA — Engineers searching for precision, flight-qualified fluid level sensors ready to support mission critical aircraft gearbox applications will find that the highly reliable [AS-LL Series Fluid Sensors](#) from [FCI Aerospace](#) feature thermal dispersion electronic sensing with no moving parts to provide accurate, dependable oil level detection.

Monitoring oil level and its temperature are critical measurements to ensure proper oil lubrication and cooling of the moving components in aircraft gearbox systems. Low or insufficient oil levels in engine, generator, rotary transmission, or aircraft mounted accessory drive (AMAD) gearboxes can create safety issues and/or require expensive repairs on fixed-wing and rotary aircraft by causing premature or even catastrophic failure of the gearbox.

Old technology methods, such as sight-glasses mounted on the side of the gear box housings are inconvenient as they are not easily accessible. Sight-glasses are also susceptible to unreliable readings caused by human error. Other older technology mechanical level detectors can become stuck or foul when applied in high viscosity oils and fluids, resulting in unreliable measurement or require more frequent maintenance.

The AS-LL Series Liquid Level Sensors from FCI Aerospace solves these problems by employing electronic sensing technology with no moving parts to achieve more reliable and accurate detection of oil levels. FCI's sensors provide cockpit staff and maintenance crews with an automated signal and indicator of "low oil level" prior to flight departure and after landing. This automated monitoring instrumentation assures better measurement of critical oil/liquid levels in aircraft so that they are maintained for safe flight operation before an aircraft's next departure.

FCI's Model AS-LLS level sensors mount externally to the gearbox at critical elevations in the gearbox to rapidly and accurately detect liquid level and provide an electronic signal to an alarm indicator or operator display of a low level condition.

Model AS-LLS key specifications include: response time: 3 to 15 seconds typical (depending on



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fluid type and switch point); measurement repeatability: $\pm 1/8$ inch (3 mm) of liquid level elevation; two signal output options: (1) sourcing output: wet signal: source 240 mA at 28 VDC; dry signal: source \emptyset VDC or (2) open collector output: wet signal: closed, sinking up to 100 mA at less than 0.5 VDC; dry signal: open, leakage $< 10 \mu\text{A}$ at 30 VDC; operating temperature ranges: (1) sensor element: -65 to 350°F (-54 to 175°C) and (2) electronics: -40 to 257°F (-40 to 125°C); proof pressure: up to 2,000 psig [138 bar (g)] as required by application.

FCI's Model AS-LLE level sensing elements, also known as remote oil level sensors (ROLS), are another solution to gearbox oil level monitoring. ROLS sensors are rugged, lightweight, highly reliable and can be easily installed internally or externally into the gearbox.

Model AS-LLE ROLS sensors are available in a two-wire, single point level design that can be periodically energized by the aircraft's electronics to detect the presence or absence of oil in the gearbox. Additional sensing points can be integrated into a single element to provide level detection at multiple elevations in the gearbox. Key specifications include: excitation current: 75mA. ON for 30 seconds, OFF for 120 seconds; temperature service: -67° to 400°F [-55° to 205°C]; pressure service: operating to 3000 psig [207 barg] with proof to 6000 psig [414 barg],

FCI is ISO9001:2015 and AS9100D certified and a continuous improvement manufacturer. FCI's design, manufacturing and calibration systems, processes, and facilities are continuously reviewed and audited by all major contractors and airframe manufacturers, enabling FCI to provide proposals directly to system suppliers and contractors alike. FCI products are proudly manufactured in the USA at our corporate headquarters in San Marcos, California.

FCI's Quality Assurance Management System has been reviewed, audited, and approved by numerous commercial and military aircraft, space, vehicle, and marine contractors and approval agencies. FCI as a Production Approval Holder (PAH) provides 8130-3 Airworthiness Tags under the Federal Aviation Administration- Parts Manufactures Approval (FAA-PMA).