

APPLICATION NOTE

Aircraft Potable and Grey Water Systems, Single and Multipoint Liquid Level Sensors



Safe and reliable operation of Aircraft Potable and Grey Water Systems is vital to support Passenger lavatory subsystems. Reliable Single and Multipoint Liquid Level Sensors assure continuous system availability for passenger comfort. Simultaneous indication of liquid level and temperature is an additional design benefit to reduce the number of measurement sensors to meet system requirements. FCI has the perfect solution for this important requirement with its fully qualified single and multipoint Liquid Level switch product lines.



Application Challenges

- Potable and Grey Water Systems require highly reliable liquid level and temperature detection with a simple, singly mounted multipoint probe mounted in water supply and waste reservoirs.
- Water System Switches must operate in harsh aircraft environments including widely varying temperature and pressure conditions, salt fog environments and corrosive environments with high reliability and low maintenance support.
- Ability to indicate level and temperature switch points with a single device reduces the number of sensors required to support the application.
- Commercial and military aircraft components must meet stringent qualification requirements including vibration, Electrical Magnetic Interference (EMI), Radio Frequency Interference (RFI), and high MTBF in salt/fog environments defined by the commercial and military specifications.
- Traditional mechanical and electronic liquid level transmitters and switches do not provide a reliable single, calibrated, independent level and temperature output.
- Mechanical liquid level and differential pressure switches and transmitters are inherently unreliable in lavatory service with very low MTBF proven performance.

Aircraft Installation Requirements

- **System Reservoir Sensing Lengths:** up to 36 inches+ (1 meter+)
- **Typical Liquid Level/Temperature Range:** Between -40 to 250+° F (-40° to 125+° C)
- **Media:** Potable and Grey Water
- **Fluid Operating Pressures:** 0 to 20 PSIG (0 to 138 kpa)
- **Fluid Operating Temperatures:** -40° to 250° F (-40° to 125° C)
- **Environmental Temperatures:** -40° to 250° F (-40 to 125° C)
- **Signal Outputs:** Single Open Collector – Source or Sink; Multipoint open collectors – source or sink; Multipoint Stepped Analog Outputs available
- **Power Input:** 28 Volts DC Aircraft Power Input





Solution and Benefits: FCI Thermal Dispersion Liquid Level Switch and Multi Point Level Switch

- No moving part thermal dispersion technology provides maintenance free operation
- Full commercial and aircraft qualification: DO160G, MIL810
- Single point flanged mounting or top or bottom threaded mounting for multipoint liquid level detection
- optional temperature outputs – AS-LLS, AS-MLLS Switch
- Stainless Steel wetted parts – single switch point; Stainless Steel and Food Grade Polymers – multipoint switch points configuration.
- Factory Calibrated across wide liquid level and temperature range to customer's specified output
- Normally Open or Normally Closed open collector configurations available – AS-LLS & AS-MLLS
- Proven reliability: 50,000+ hours MTBF maintenance free service life
- Compliance with ISO9001 and AS9100 Quality Certification