

## FUEL GAUGE TRANSMITTER

### CERTIFLY



The Fuel Gauge Transmitter family CERTIFLY is a flange mounted Fuel Gauge Transmitter (FGT) designed for aircraft fuel gauging application in main fuel tanks and auxiliary fuel tanks.

The sensor length is adaptable according to customer requirements. The sensor fuel height measurement output signal options comprise: PWM, Frequency, CAN, Current and Voltage.

#### **Fuel Gauge Transmitter Functionality**

The flange mounted sensor is a linear active capacitance type sensor. The capacitor's conductive surfaces are provided by straight concentric tubes. The measured capacitance is dependent on the fuel height at the sensor. The sensor's electronics transforms the measured capacitance which represents the actual fuel height into an output signal (see options above).

#### **Customising**

AUTOFLUG provides a wide range of Fuel Gauge Transmitters. AUTOFLUG Fuel Gauge Transmitters are based on company standardised components such as tubes, flanges, level sensors, electronics, cables and connectors.

In short time AUTOFLUG can configure, build, test and qualify sensor prototypes. Series production can start immediately thereafter. AUTOFLUG performs fuel tank studies based on customer supplied CAD data in order to define the optimum quantity and position of Fuel Gauge Transmitters and the associated height vs. volume tables for fuel volume and fuel mass calculation.

A Fuel Compensator can be integrated into the Fuel Quantity Measurement System to improve accuracy by compensation for different fuel types and fuel temperatures.



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#### Mechanical Interface

Mounting	flange mounted from top or bottom (no directional limitations)
Flange Diameter	6-hole mounting flange with a hole circle of 60 mm
Sensing length	100 mm to 1,000 mm (measured from flange mounting plate to the end of the sensing element)

#### Electrical Output Signal Options

“CAN”	The FGT provides the measured fuel height as a CAN output signal (DAL C) with following output parameters: CAN 2.0B (Extended Frame Format) Bit rate 125 kbps
“Current”	The FGT provides the measured fuel height as a current output signal with following output parameters: 4 to 20 mA
“Voltage”	The FGT provides the measured fuel height as a voltage output signal
“PWM”	The FGT provides the measured fuel height as a PWM Pulse Width Modulated output signal with following parameters: Frequency: $488 \pm 2$ Hz Amplitude: $< 1$ V equals “LOW” and $> 4$ V equals “HIGH” Max. signal current 1 mA
“Frequency”	The FGT provides the measured fuel height as a CTS (frequency) output signal with following parameters: $T = 100 \text{ s} \pm 0.25 \% \text{ “dry”}$ Amplitude: $5 \text{ VDC} \pm 1 \text{ VDC (o.c.)}$
<b>Accuracy</b>	$\pm 0.8\%$ of the measurement range at empty condition (dry) and shall be within the linear increasing tolerance up to $\pm 2.5\%$ of the fuel-specific measurement range at full condition (fully immersed)
<b>Weight</b>	180 g + 200 g/m

#### Electrical Interface

Connector	Series 800 “Mighty Mouse” part number 800-012-07 M6-7PN
Input Power	$16.2 \text{ VDC} \pm 15\%$ , maximum voltage ripple 60 mVpp, max. 25 mA

#### Temperature Range

Temperature & Altitude	SAE AS405D
Temperature Variation	SAE AS405D

#### Applicable Fluids

FAME contamination	The FGT shall be applicable for following fuel types with a potential FAME contamination limit of up to 100 ppm
Fuel Types	JET A-1, JP-8, F-34/F-35 JET A, JET B, JP-5, F-44 JP-4, F-40 EN 590, F-54, DF-2 JP-8+100

#### Environmental Qualification

SAE AS405D	Environmental Conditions and Test Procedures for Airborne Equipment
RTCA/DO-160G	
EUROCAE ED-14G	
RTCA/DO-178C	Software Considerations in Airborne Systems and Equipment Certification
EUROCAE ED-12C	
RTCA/DO-254	Design Assurance Guidance for Airborne Electronic Hardware
EUROCAE ED-80 (Issued 4-19-00)	
FAA AC 25.981-1C	Fuel Tank Ignition Source Prevention Guidelines

#### Certification Specification

ETSO for Fuel and Oil Quantity Instruments ETSO/TSO-C55a (approval process ongoing)
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