



# TJ310 Turbo-Mass™ Fuel Flowmeter, with Digital Output

## DESCRIPTION

AMETEK is pleased to introduce the latest in a series of fuel flow measurement sensors with ARINC 429 and RS232 output. The Turbo-Mass™ flowmeter incorporates decades of precise fuel flow measurement experience in a package uniquely suited for light jet, turbo-prop, and helicopter applications.

This new model combines proven turbine flowmeter design principles with state-of-the-art signal conditioning electronic designs to provide the user with an accurate mass flow indication in a single integrated package. This low profile, light-weight design provides an ideal solution for small aircraft applications where mass flow measurements are preferred over volumetric measurement.

The internal mechanism of the flowmeter is comprised of a single, in-line, turbine rotor, concentrically mounted on a shaft within a cylindrical housing through which the flow passes. This rotating assembly is located by flow conditioning end supports. The volumetric fuel flow rate, which is directly proportional to the turbine rotation rate, is detected by a modulated carrier pickup.

By compensating for variations in specific gravity and viscosity as a function of temperature, using conventional microprocessing capability, the turbine output efficiently provides the desired mass flow indication. The modular PCB construction separates processing functionality for maximum flexibility: power and EMI protection...compensation processing...signal measurement and filtering are each handled on separate PCBs.

## OVER FIFTY YEARS OF EXPERIENCE

AMETEK Aerospace & Defense has designed and manufactured aircraft fuel flowmeters since the 1950's. AMETEK has applied these designs to all aircraft types including helicopters, business jets, large commercial jets, military fighters, transports and refueling tankers. These applications have maximum flow rates ranging from 500 pph to 600,000 pph. The Turbo-Mass™ flowmeter was especially designed to meet the specific needs of today's growing Very Light Jet and UAV aircraft applications.



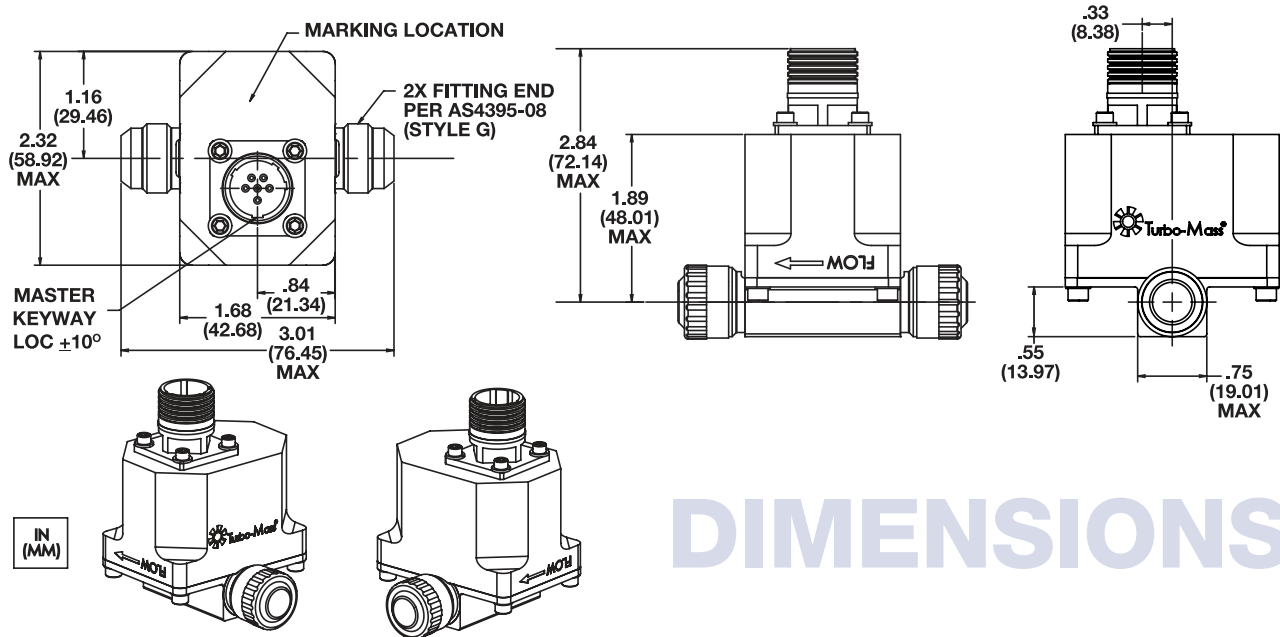
## FEATURES

- ✓ *Lightweight: < 0.80 lbs*
- ✓ *Low profile, compact design*
- ✓ *Compensated mass flow output signal: PPH, Kg/m*
- ✓ *Fuel temperature output, °C*
- ✓ *Integrated signal conditioning rated for 257°F*
- ✓ *Electrical interface options: ARINC429, RS232*
- ✓ *Range: 0-1000 PPH and 0-3000 PPH*
- ✓ *Repeatability: ±0.2%*
- ✓ *Accuracy: ±1% in cruise range*
- ✓ *Pending RTCA/DO-160 certification*

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## SPECIFICATIONS

Parameter	Levels	Notes
Weight	0.80 lbs (0.36 kg) maximum	Dry weight, no brackets or fittings
Range	75 to 2500 pph typical	
Accuracy	± 1% of point for 500 to 2500 pph ±5 pph below 500 pph	For standard Jet A-1 density vs temperature For 32° to 158°F (0° to 70°C) fuel
Fuel or ambient air temperature	-70° to 257°F (-57° to +125°C)	
Operating pressure	1600 psi	
Proof pressure	2450 psi	
Burst pressure	3200 psi	
Inlet pressure	50 psi minimum	
Pressure drop	5 psi max at 2500 pph 15 psi max with locked rotor	With Mil F-7024 Type 2 at 70 ±5°F (15°C)
Power	28 VDC, 20 mA max	
Output, mass flow	ARINIC 429 or RS232 Protocol for PPH, Kg/m	
Output, fuel temperature		ARINIC 429 or RS232 Protocol for °C
Accuracy, fuel temperature	±3°F (±1.7°C)	
Response time	2 sec max	
Bonding	10 milliohms maximum	Connector Shell to Housing



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