Application News

Smart Turbine Meter Keeps Airborne Systems Cool

Industry: Aerospace/Defense ***Service: Flow Rate Totalization*** ***Fluid: Polyalphaolephin (PAO) per MIL-PRF-87252***

Overview

In the aerospace industry, airborne testing of avionics cooling systems is a critical and demanding application. Traditionally, aircraft have used air-cooling systems for thermal management of electronics and avionics. However, new, advanced electronics require liquid cooling for increased cooling capacity.

Situation

A manufacturer of fluid control/monitoring systems for electronics cooling sought a precise method of measuring the flow rate of Polyalphaolephin (PAO) cooling fluid in airborne test systems. Due to limited installation space, the manufacturer needed a lightweight and compact means of measuring flow rate with low pressure drop. They also required special flow meter end fitting threads and an analog voltage output signal to interface with their data acquisition system.

Solution

Flow Technology can design and manufacture a wide range of custom flow measurement devices and ancillary electronics based on our customers' unique requirements. Because of our long and successful history serving the aerospace and defense industries, we are recognized as the *"Flow Measurement Resource"* that can support the most important projects. In this application, Flow Technology's Specials Experts developed a lightweight turbine flow meter solution meeting the customer's mechanical and electronic interface requirements.

System Description

The flow measurement system consisted of a special, one-inch FT-16 Series turbine flow meter equipped with an anodized aluminum housing and the requested custom end-fittings. The FT Series flow meter utilizes a proven flow measurement technology ensuring exceptional accuracy and reliability.

A pickoff-style LinearLink® flow meter linearizer provided a signal that compensated for turbine non-linearity inherent at the lowest flow rates. Using the LinearLink®, turbine meters can achieve 100:1 turndown with increased speed of response.

Flow Technology's specialized flow measurement system provided precise measurement of coolant flow with the oversized flow meter needed for the application's pressure drop requirements.

Technical Information

Flow Meter: FT-16 AEXBRLOA-0127/LN-5-C-MA-1
Flow Rate: 0.6 – 25 GPM
Fluid: Polyalphaolephin (PAO) Aircraft Avionic Coolant
per MIL-PRF-87252

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