

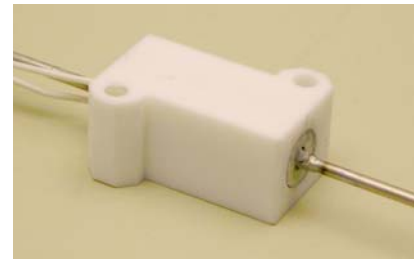
The TT01-001 is a thermally operated flow controller for use with xenon flow controllers in electric propulsion systems with the capability to provide a low cost flow controller to convert fixed thrust cold gas thrusters into proportional thrusters.

The controller design is based on well established principles, offering a large flow range, typically from 0.05 to 20mg/s. It can be fitted with single or dual redundant heaters, is all-welded, and is manufactured from flight qualified materials.

The controller consists of a flow tube and pin which are heated by means of a spiral heating element. This element is surrounded by a low thermal conductivity ceramic which also forms the housing and provides some thermal conductivity to the structure, optimizing power consumption and response time for flow increase. Flow decrease is readily achieved by increasing the heater power to 10W for a few seconds.

Inlet and outlet pipes are welded to the central tube to provide the gas flow path and minimize external leakage with an all-welded construction.

A typical flow range is shown against heater power levels in the figure below.



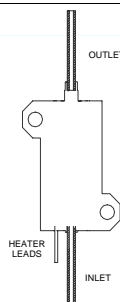
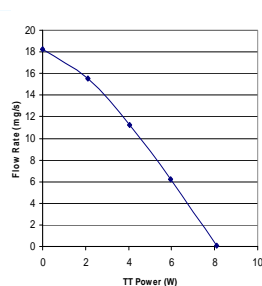
PRODUCT HISTORY

This product is in development.

Performance Characteristics

Operating Media	GHe, GN ₂ , GXe, Dry air	
Operating Temperature	-40°C to +100°C	
Operating Pressure	2.5 bar	
Power	0 to 8W	
Heater resistance	4 Ω 20°C (Typical)	
Response time	Flow reduction	< 20 s
	Flow increase	< 60 s
External Leakage	< 1 × 10 ⁻⁶ scc/s GHe	
Flow Range	0.05mg/s to 20mg/s (Typical)	
Cycle Life	7,000	
Materials	Stainless Steel, Radiometal, Ceramic	
Mass	< 20 g	
Pipe Connections	1/16" OD Stainless Steel Tube	
Housing Dimensions	24.5 × 12 × 19 mm	

PSL TT Flow Characteristic



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