

Internet Enabled Tritium Process Monitor Mini (iTMM Mini)

◆ Features & Benefits



Integrated Device:	Ionization chamber, preamplifier and controller in one small package
Multi-Range:	Auto range across 6 decades of signal
Integrated Chamber:	10cc Chamber integrated into body
Ethernet Enabled:	Single Ethernet connection provides power and signal
Pressure Vessel:	Registered to ASME Section VIII Div 1

◆ Typical Uses

- Flow through tritium transducer
- In-line Tritium in process measurement
- Low cost high activity process alarm

❖ Overview

The internet enabled Tritium process monitor Mini (iTM Mini) are in-line registered pressure vessel ionization chambers with preamplifier, multi-range controller, and power all integrated into a single compact design.

The iTM has only one RJ-45 ethernet jack that provides all required voltages with the power over ethernet (POE) protocol and all communication over the ethernet. Connectivity to multiple iTM's only requires a POE switch or router connected to your data acquisition (DAQ) or computers local area network (LAN).

An integrated 10cc ionization chamber within the body of the device allows for simple installation in a process loop.

The four stage multi-ranging capability provides 6 decades of measurement range. The iTM can be operated in an auto ranging or manual ranging mode.

The POE electronics do not have an external controller which reduces glovebox penetration requirements. Multiple (16 or more) iTM's can operate off a single switch installed inside the glovebox with a single RJ-45 ethernet cable penetration.

❖ Design Benefits

The iTM Mini is designed for use as an in-line process monitor. All ionization chambers are registered pressure vessels to comply with the process pressure envelope. The units are helium leak tight to 1×10^{-9} scc/sec at the operating temperatures as high as 150°C. All units come standard with ½" VCR8 female fittings to provide leak tight installation.

❖ Specifications

Ionization Chamber	
Sizes	Standard: 10cc Custom: from 1cc to 100cc upon request
Interior	Machined surfaces
Operating Pressure	150 psig
Operating Temperature	-50 °C to 120 °C
Humidity	0% - 90% non condensing
Gas Flow Rate	1cc – 10cc: 2 SLPM
Max Bakeable Temperature	250 °C @ atm, electronics removed
Connection Fittings	20cc – 1L: VC8 Female
Ionization Bias voltage	-100 VDC
Wetted Materials	316L Stainless Steel, High Density Ceramic
Dimensions	7.8” Tall 1.75” Wide 6.46” VCR face to face
Tritium Measurement	
Range	Single Range: 1 – 2,500 units Auto Range: 1 – 2,500,000,000 units
Sensitivity	0.1 mCi/m ³
Max Signal	Pure Tritium (2.58 MCi/m ³)
Electrical	
Connection	Single RJ-45 connection
Cable	Cat 5e
Power Supply	Power over Ethernet (POE) switch or router
Power Requirement from POE switch	48 VDC, 100mA as POE protocol
Connectivity	Connect to Local Area Network (LAN), DAQ or computer
Communication	
Data Acquisition System (DAQ)	Connected to LAN via a POE switch REST API delivers HTTP over TCP/IP
Computer	Connected to LAN via a POE switch Web Configuration over HTTP protocol for setup REST API delivers HTTP over TCP/IP

Drawings

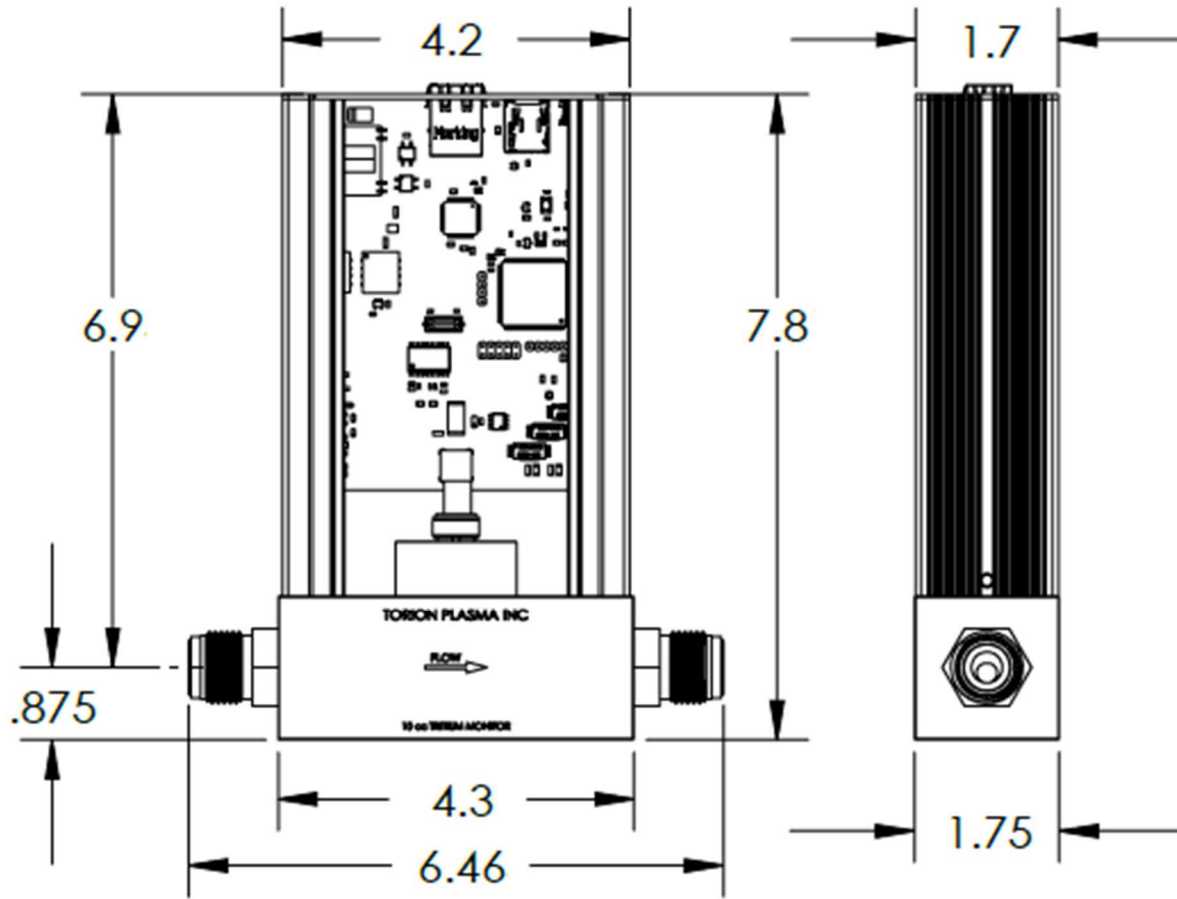


Figure 1: iTM Mini (10cc) Dimensions