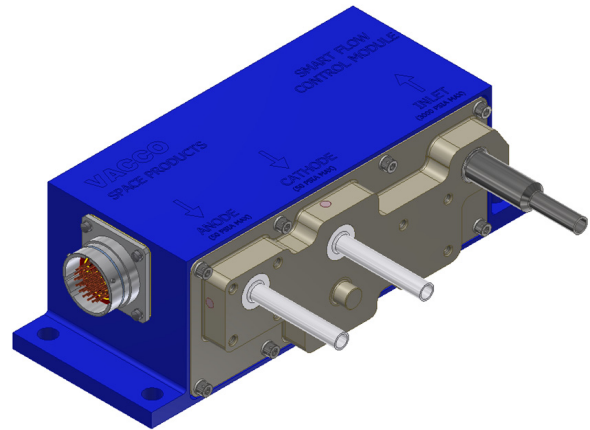


## Smart Flow Control Module

VACCO's Smart Flow Control Module (SFCM) is a highly integrated ChEM™ assembly designed for high reliability, tight leakage, and precise flow accuracy in a lightweight module that consumes almost no power. The SFCM accepts Xenon directly from the storage tank, eliminating the need for a pressure regulator. Maximizing reliability, the SFCM is designed with series redundancy against leakage. Currently, it is in qualification testing for NASA at Glenn Research Center with an estimated completion date of December 2014.

The SFCM is an all-welded manifold assembly of eight components: system filter, proportional valve, pressure switch, isolation valves, and pressure/temperature sensors. Each SFCM can independently control anode and cathode flow to an HET.



### Features

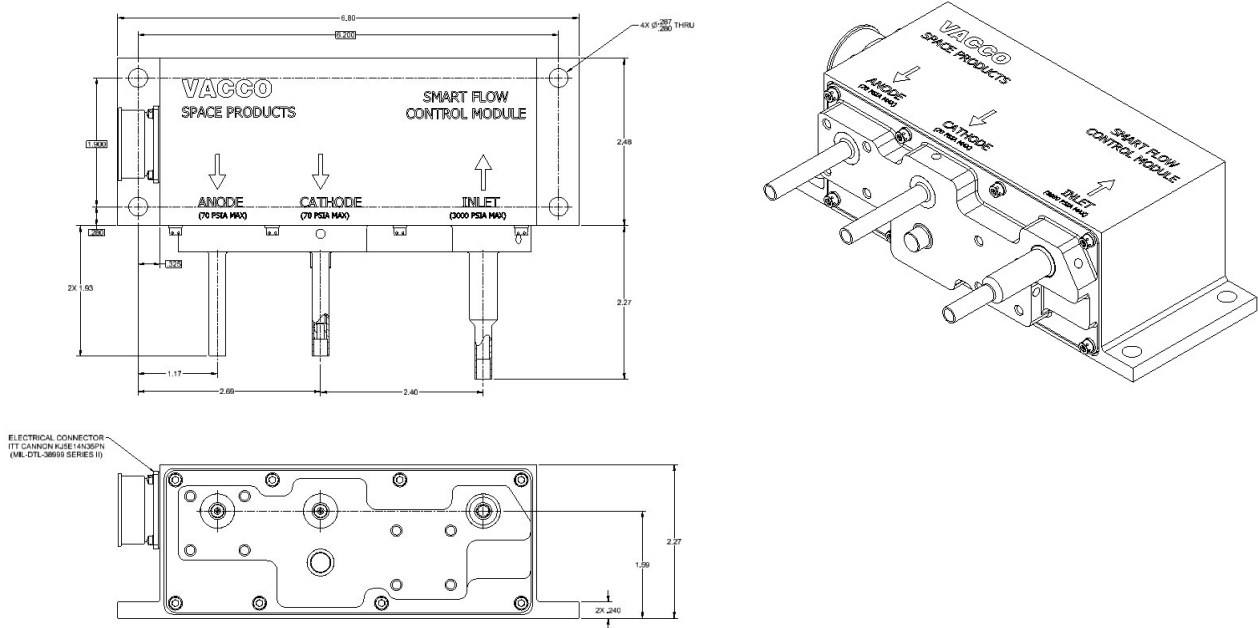
- Inlet pressure from 3,000 psi to 10 psi
- Two-channel flow from 3 to 160 sccm
- +/-1% closed-loop flow control accuracy
- Integral 10 micron etched system filter
- Inlet high pressure and temperature sensors
- Low pressure switch to prevent over-pressurization
- Dual redundant against internal leakage
- All-welded machined titanium manifold
- Low weight: 1.6 Kg (3.2 lbm)

### Operating Parameters

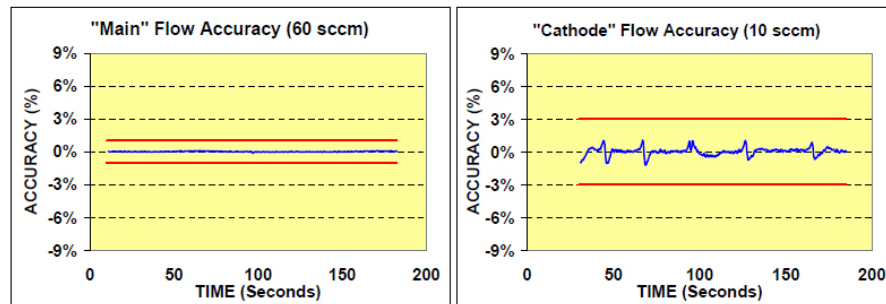
Inlet Pressure Range ..... 3000 to 10 psia  
Proof Pressure ..... 4500 psia  
Burst Pressure ..... 7500 psia  
Outlet Pressure Set Point Range ..... 0 to 70 psia  
Operating Temperature ..... 0°C to +70°C  
Flow Range ..... 3 to 160 sccm Xenon  
Anode Control Accuracy (closed loop) ..... +/-1%  
Internal Leakage .....  $<1 \times 10^{-3}$  sccs GHe  
External Leakage .....  $<1 \times 10^{-6}$  sccs GHe  
Inlet/Outlet Tubes ..... 1/4" Ti (CRES optional)

Proportional Valve:  
Voltage Control Mode ..... 0 to 130 vdc  
Current Control Mode .. 0 to 130 MA (12.6 vdc max)  
Iso Valve Voltage ..... 24 to 33 vdc  
Iso Valve Response ..... 50 mSec max @ 24.5 vdc  
Pressure Transducer Output ..... 0 to 5 vdc  
Pressure Transducer Accuracy ..... +/-0.5% full scale  
Temperature Sensors ..... 1000 Ω RTD  
Inlet Filter ..... 10 microns absolute  
Mass ..... <1.6 Kg (3.52 lbm)

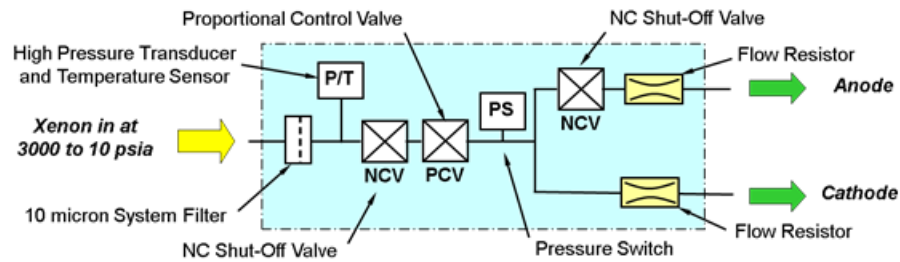
*Performance characteristics are based on customer requirements. As such, they are not representative of component capabilities or limitations.*



Performance Characteristics



Schematic Flow



Electrical Schematic

