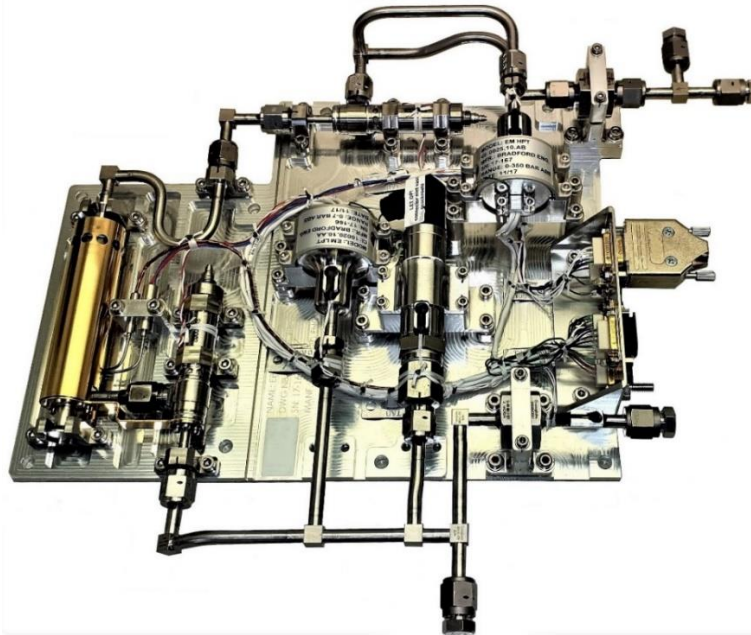


Electronic Pressure Regulator

- Electric and Chemical Propulsion Systems



Nammo Space has developed an **Electronic Pressure Regulator** for spacecraft use. This state-of-the-art development features the Nammo advanced High Pressure Proportional Valve and includes an integral heater for thermal conditioning of the gas.

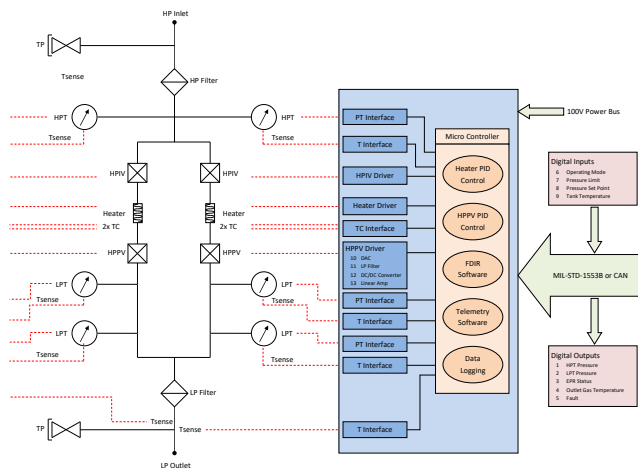
The EPR is primarily designed for electric

propulsion with the option of auxiliary cold gas propulsion Xenon and also for chemical propulsion systems to regulate the helium pressurant.

When used in a Xenon or Nitrogen application the EPR requires a propellant heater to avoid two phase flow in the regulator caused by Joule Thompson cooling.

The EPR design uses a heater upstream of the high pressure proportional valve, which heats the gas so that the outlet gas (at LP node) is maintained above 27°C.

The qualification activities are ongoing at this time for the electronic pressure regulator.



System Schematic Requirements with Electronic

Electronic Pressure Regulator

- Electric and Chemical Propulsion Systems

Operating Media	Xenon, Nitrogen, Helium
Inlet Pressure	Up to 310 bara
Pressure Set Point Range	0.5 bar to 22 bar
Set Point Accuracy	< 0.1 bar
Proof Pressure	465 bar
Burst Pressure	775 bar
Operating Temperature	-40°C to +70°C
Xenon Mass Flow Rates	0 to 1.2 g/s Xenon, pressures from 187 to 25 bara
Helium Mass Flow Rates	0 to 0.6 g/s Helium, pressures from 310 to 68 bara
Internal Leakage	2×10^{-5} scc/s GHe
External Leakage	1×10^{-6} scc/s GHe
Response	<1 second, depending on volume and inlet pressure
Filtration	2 μ m
Operating Life Cycles	15,000 On/Off cycles
Hardware Mass	< 2.3kg
Envelope	297mm x 225mm x 74mm
Materials	Stainless Steel or Titanium tubing interfaces
Single Branch Power	< 15W on standby and pre heated at 200°C for Xenon
Single Branch Power	1.4W on standby for Helium (no heating)
Electrical Interface	Flying leads or connectors
Fluidic Interface	Customisable, welded stub tubes or threaded fittings
Structural Interface	Aluminium baseplate, customisable to customer needs
Electronic Control Hardware	Closed loop electronics required with 200V valve driver
Technology Readiness Level	TRL7

Additional information is available on request. Nammo is ready to work with your specific needs for the success of your mission.



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