



STANDARD ACCURACY PRESSURE TRANSDUCER



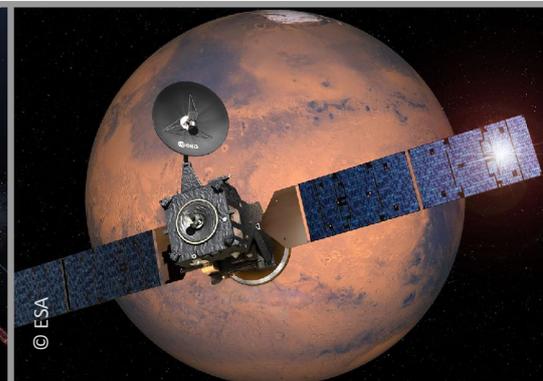
The Standard Accuracy Pressure Transducer (SAPT) is a piezo-resistive principle based, fully ESA qualified pressure gauging component, both for gaseous or liquid media.

The unit consists of a pressure-sensing element and a dedicated set of electronics, integrated into one compact design. The fully seal-welded sensor housing construction is optimised to enable one generic design for pressure ranges from 1 to 320 barA, with maximum flexibility for adaptation to customer specific requirements. Wetted parts have demonstrated compatibility with the all the typical propellants currently in use in spaceflight (hydrazine, MON, MMH, Green Propellant), whereas a qualified joint material enables different materials for fluidic interfaces.

The integrated analogue temperature compensation allows for accuracies $\leq 0.5\%$ FS, depending upon the operational temperature range and data output approximation.

Key Advantages

- Qualified for telecom/GEO (Hi-Rel EEE-parts) and manned space applications
- Excellent performance characteristics
- High-accuracy calibration traceable to national standards
- Zero failure in-orbit heritage (Galileo IOV, GB2, GOCE, Planck, Rosetta, ATV, PRISMA, AMOS3)
- Ongoing production heritage of 500+ units (Alphabus, Bepi-Colombo, SGEO, Galileo FOC, EarthCare, Cygnus, Exomars)



Standard Accuracy Pressure Transducer

Characteristic	Performance / Interfaces Budget
Medium Compatibility	Hydrazine, MON, MMH, Green Propellant, IPA, GHe, GN ₂ , GXe, Deionized H ₂ O
Pressures	0–1 to 0–320 barA
Proof Pressure Factor	2 times operating pressure
Burst Pressure	Up to 1250 barA
Internal / External Leakage	< 10 ⁻⁸ scc/sec GHe
Measurement Accuracy	± 0.3% FS to ± 0.5% FS (pending temperature range)
Mass	< 230g (excluding cable)
Envelope (l x w x h)	126 (for 30mm stub tube) x 77 x 43.5mm
Fluidic Interface	Weldable Tube Stub or screwed AS4395 fitting
Structural Interface	4 bolts M4
Wetted Materials	Ti6Al4V and/or AISI 316L/304L
Operational Life	18 Years
Sine Vibration	5-20 Hz: 15mm 0-Peak, 20-100 Hz 24g
Constant Acceleration	20g in each Axis Direction
Random Vibration	20 – 100 Hz: Increase 3dB/Octave to 2g ² /Hz 100 - 300 Hz: Constant at 2g ² /Hz 300 – 2000 Hz: Decrease at -6 dB/Octave 120 s each Axis, Overall 31.82g RMS
Shock	100Hz: 60g, 2000Hz: 3000 g, 10000 Hz: 3000 g, Q-factor = 10
Thermal Vacuum Qualification	-40° to +75°C Non-Operating, -20° to +70°C Operating
EMC Requirements	According MIL-STD-461E, dedicated project delta-qualifications
Radiation Resistance	100 kRAD(Si) EEE – parts
Power Supply	15 to 28 V Single or Dual, < 300 mW
Output Signals	Analogue, 0.5 to 5V (single power supply) or 0-5V (dual power supply)
Interface Wires	Flying leads according ECSS-3901

Variants of SAPT Available

- 1 Titanium stub pipe fluidic interface
- 2 Stainless steel (316L, 304L) stub pipe fluidic interface
- 3 Titanium flared fluidic interface according AS4395-04
- 4 Stainless steel (316L, 304L) flared fluidic interface according AS4395-04
- 5 Single power supply with 28 VDC
- 6 Dual power supply with +15/-15VDC
- 7 Dedicated tantalum radiation shielding



bradford

ABOUT

Bradford is a high-tech European developer and manufacturer of satellite control sub-systems and components.

© Bradford Engineering BV • All rights reserved.

BRADFORD ENGINEERING BV

De Wijper 26
4726 TG Heerle
The Netherlands

T: +31 (0)165 305100
F: +31 (0)165 304422
E: info@bradford-space.com
W: www.bradford-space.com