

GUIDE

PEGASUS **MAGNETOMETER**

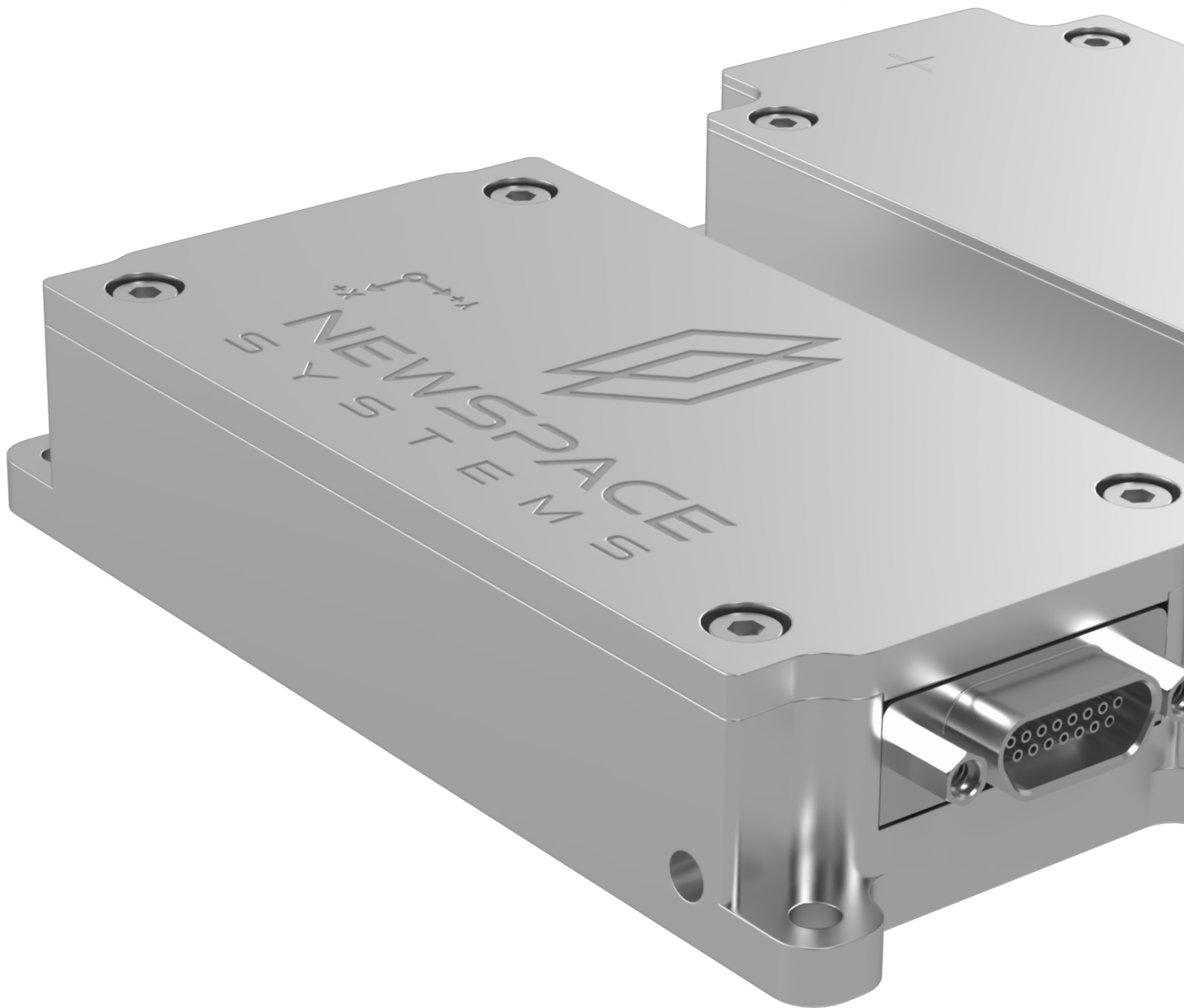
400+ **MAGNETOMETERS SOLD**

200+ **UNITS IN ORBIT**

FLOWN SINCE **2018**

UTILIZED ON **5+ CONSTELLATIONS**

The NSS tri-axial magnetometer utilises Anisotropic Magneto-Resistive (AMR) sensors, which are co-located with offset compensating circuitry. The offset compensating circuitry nulls the characteristic offset voltage of the AMR sensor, which enhances the sensors performance. The sensor provides x-, y- and z-axes magnetic field component measurements, as well as a sensor temperature measurement, which is used for the temperature compensation of the magnetic field measurement. This product includes low noise, precision processing and analogue-to-digital conversion circuitry, which improves its linearity and reduces the drift sensitivity of the sensor head. The integrated processing circuitry and sensor head provides the mission with an accurate and stable magnetic field measurement at low power consumption. The power requirement is a regulated 5 V supply while the measured x-, y-, and z-axes magnetic field components are available on a digital serial interface.



QUALIFICATIONS

The NewSpace Systems (NSS) magnetometer is TRL 9 with significant in-orbit heritage. Developed in collaboration with the Space and Atmospheric Physics Group of Imperial College London, the sensor head first flew on the CINEMA mission and then as an integrated unit in July 2014. Since then, >400 units have been sold to a variety of international missions and constellation programmes. To date, this product is baselined on 5 constellation programmes.

APPLICATION

- Can be used for the calculation of magnetorquer rod control torque levels
- Attitude determination sensor when used with an IGRF reference model
- Angular rate determination sensor by comparing successive measurements

KEY FEATURES

- Small size and low mass
- Radiation tolerant COTS
- Supplied with calibration matrix
- Simple to interface

FUNCTIONAL CHARACTERISTICS	PEGASUS-1	PEGASUS-30K
Orthogonality	< 1°	< 1°
Measurement Range	-60,000 nT to +60,000 nT	±60,000 nT / ±100,000nT
Resolution	≤ 8 nT	≤ 8 nT
Update Rate	< 25 Hz	< 20 Hz
Noise Density	< 16 nT RMS/Hz	< 16 nT /Hz
PHYSICAL CHARACTERISTICS	PEGASUS-1	PEGASUS-30K
Dimensions	99 mm x 43 mm x 17 mm	92 mm x 43 mm x 17.5 mm
Mass	82 g	107 g
Power	< 735 mW	< 500 mW
ENVIRONMENTAL CHARACTERISTICS	PEGASUS-1	PEGASUS-30K
Thermal (Operational)	-30 °C to + 75 °C	-30 °C to +75 °C
Mechanical Tests (Qualification)	21.06 g _{RMS} (random), 25 g (sine), 2000 g (shock)	21.06 g _{RMS} (random),25 g (sine), 2000 g (shock)
Radiation (TID) (Qualification)	10 krad (component level)	30 krad (component level)
INTERFACES	PEGASUS-1	PEGASUS-30K
Power supply	5 V _{DC}	5 V _{DC}
Data	RS-485 /RS-422	RS-485 /RS-422
Connector	9-pin Female Micro-D	15-pin Female Micro-D
Mechanical	4 x M3 Socket Head Cap Screws	4 x M3 Socket Head Cap Screws

ACCEPTANCE TESTING: All FM parts undergo random vibration (10 RMS) as well as thermal cycling (four-cycle ambient pressure) to five degrees beyond operational thermal specifications. However, NewSpace can perform additional environmental testing if required by a client.

CONFIGURATION MANAGEMENT: Specifications are subject to change. Please refer to the latest version



mark@newspacesystems.com
www.newspacesystems.com