



DTFM100S Radiation Tolerant Digital Triaxial Fluxgate Magnetometer

SPECIFICATIONS

Description: Low-cost, compact, lightweight, digital, triaxial, fluxgate magnetometer for satellite constellations, with RS485 or CAN Buss serial interface. Digital version of BA&D TFM100S analog, flight magnetometer. Immune to crossfield effect errors. Extensive flight heritage for the TFM100S detailed below.

Axial Alignment:	Orthogonality better than $\pm 1^\circ$
Input Voltage:	5 VDC
Power Consumption:	60 milliwatts idle 110 mw peak during 15ms A/D conversion time @ 5 ± 0.5 VDC
Measurement Range:	$\pm 80 \mu\text{T}$ (or as user specified)
Crossfield Effect Immunity:	< 20 nT gain/ ($<.015^\circ$ angular) shift with $\pm 60\mu\text{T}$ perpendicular fields
Accuracy:	± 0.3 % of Full Scale
Linearity	$< 0.05\%$ F.S.
Digital Output Resolution:	3nT @ 64x oversample. (5 msec per channel)
Data, convert/xmit 3 axes	$<15\text{mS}@115\text{kBaud}$. Faster w/ lower oversampling
Scale Factor Temperature Shift:	$\leq 200\text{ppm} / ^\circ\text{C}$
Zero Shift with Temperature:	≤ 3 nT / $^\circ\text{C}$
Susceptibility To Perming:	$< \pm 20$ nT zero shift, post $500\mu\text{T}$ applied, <2 msec full recovery after removal
TID Radiation tolerance:	>30 kRAD (>50 kRAD w/ additional internal shielding)
Serial data interface	RS485 or CAN buss 9600 to 1 MBps rates
E M I:	Designed to meet CEO1, CEO3, REO2, CSO1, CSO2, CSO6, RSO1, RSO2, RSO3
Random Vibration:	$> 20\text{G RMS}$ 20 Hz to 2 kHz
Acceleration:	> 60 G
Temperature Range:	- 40° to + 85° Celsius. Storage -50 to +125
Weight	< 100 grams Additional internal shielding for increased radiation tolerance would add moderately to weight - TBD .
Dimensions	8.26 x 3.51 x 3.23 centimeters
Output Connector:	Sub "D"