TAKE ME 2 SPACE

AeroMagControl

Technical Specifications



Description:

AeroMagControl is an advanced Attitude Determination and Control System (ADCS) designed for CubeSats ranging from 3 to 16U in size. It provides efficient detumbling and stabilization. The driver board, equipped with an onboard IMU and can be interfaced with sun sensors, star tracker, magnetorquers, reaction wheels, and GPS subsystems ensuring precise attitude determination and control.

Electronics Specifications:

	Parameter	Value
Controller	Controller Type	Dual 32-bit Arm® Cortex® (M7 CPU with MPU+M4), M7 - Up to 480MHz, M4 - Up to 240MHz
	Processor Clock Speed	M7 - Up to 480MHz M4 - Up to 240MHz
	Persistent Storage	1x 64Mbit
Power	Input Voltage	• 5V to 9V • 5V nominal
	Input Power protection	• Over Voltage protection - set at 9V • Under Voltage Lockout - set at 4.75V • Over Current Protection - set at 3.6A • Reverse Polarity Protection
	Nominal Current	1.5 A
	Peak Current	1.8 A
	Output Voltages [isolated from the input]	5V 3.3V
	Isolation Specification	Isolation Resistance : 50MΩ Isolation Voltage : 500VDC
Interfaces	Interfaces Supported	2x Full Duplex RS-485 2x CAN 2x GPIO for GPS PPS input 2x UART 8x I2C
	Onboard Peripherals	1x AMG IMU [9-axis IMU] 1x Temperature Sensor 1x 3-axis Magnetometer
Mechanical	Dimensions	95 mm x 95 mm x 30.6mm (with enclosure)
	Form factor	PC104 compliant with stackable connector
	Connectors	1x 6 pin Harwin Gecko screw lock for 5V

		power input 1x 6 pin Harwin Gecko screw lock for 5V and 3.3V power output 1x 6 pin Harwin Gecko screw lock for UART 2x 6 pin Harwin Gecko screw lock for Full Duplex RS-485 2x 6 pin Harwin Gecko screw lock for CAN 8x 4 pin 1mm pitch Molex Picolock for I2C 1x 4 pin 1mm pitch Molex Picolock for GPIO (GPS PPS input) 1x 6 pin 2mm pitch Molex Picklock for Torquers (3 Torquers Max) 1x 104 pin Samtec header (PC104 header)
Software	Software Development Kit (SDK)	Control SDK Library included
	Debug Interface	SWDIO

Environmental Test Specifications:

	Parameter	Value
Testing & Compliance	T-Vac	2 Cycles with temperature range of +60℃ to -25℃
	Vibration	Random vibration acceptance test levels 20 - 2000 Hz at 4.47grms for 60 seconds
	Shock	100 Hz at 30g 1000 Hz at 1500g 5000 Hz at 1500g

Peripheral Specifications:

	Parameter	Value
AMG IMU Specifications	Gyroscope	Gyroscope Measurement Range (dps) : ±125 to ±2000 Gyroscope Sensitivity (LSB/dps) :16
	Accelerometer	Accelerometer Measurement Range (g) : ±2 to

		±16 Accelerometer Sensitivity (LSB/mg) : 1
	Magnetometer	Magnetometer Measurement Range (µT): XY axis : ±1300 Z axis : ±2500 Magnetometer resolution (µT): 0.3
	Interface	I^2C
Magnetometer	Field Measurement Range	-800 to +800 µT
	Sensitivity	13 nT
	Noise	15 nT
	Interface	I^2C
Temperature Sensor	Accuracy	+/- 0.25 ℃
	Accuracy Drift	0.05℃
	Interface	I^2C

Questions? Queries? Contact us at info@tm2.space