

ATTITUDE CONTROL SYSTEMS



PRODUCT DESCRIPTION

BCT provides reliable, high-performance, turnkey GNC solutions that are compatible with a wide range of satellite configurations, all providing high accuracy stellar-based attitude solutions and precision spacecraft attitude control. Our XACT and FleXcore products are currently operating on-orbit, supporting numerous successful customer missions.

US-made and applicable for DOD applications.

DESIGN

A powerful processing core coupled with our reaction wheel assemblies enable a new generation of peak-performance, cost-efficient, miniaturized spacecraft. Our standard ACS solution includes our exceptional Star Tracker product line along with reaction wheels, torque rods, and coarse sun sensors. Configurations allow for a standard three-wheel system with the addition of a fourth wheel for improved performance and redundancy. The addition of our torque rods and coarse sun sensors further provides a robust and effective ACS system.

KEY ADVANTAGES

- Precise attitude knowledge & control
- Complete ACS in a micro-package
- Low-jitter micro-reaction wheel design
- User-friendly software supports simulation, integration, and customization

BASELINE DELIVERABLES

- User Manual
- Interface Control Documentation
- Command & Telemetry Handbook
- Functional, Performance and Environmental Test Results
- Certificate of Conformance (Flight Units Only)
- Mission Configuration ICD Addendum

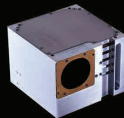
XACT SYSTEM DIMENSIONS



XACT-15
10 x 10 x 5 cm
(0.5U)



XACT-50
10 x 10 x 7.54 cm
(0.75U)



PERFORMANCE	XACT-15	XACT-50	XACT-100	FLEXCORE
MOMENTUM STORAGE	15 mNms	50 mNms	100 mNms	RWp500: 500 mNms RW1: 1 Nms RW4: 4 Nms RW8: 8 Nms
MAX TORQUE	0.005 Nm	0.006 Nm	0.006 Nm	RWp500: 0.025 Nm RW1: 0.06 Nm RW4: 0.25 Nm RW8: 0.25 Nm
SLEW RATE	Up to 10 deg/sec (4kg, 3U CubeSat)	Up to 10 deg/sec (14kg, 6U CubeSat)	Up to 10 deg/sec (25kg, 12U CubeSat)	Application Dependent
POINTING ACCURACY (1-sigma)		±10.8 arcsec for 2 axes; ±25.2 arcsec for 3rd axis		Gen3 star tracker: ±5.9 arcsec for 3 axes, 2 Trackers
SLEWING CROSS-BORESIGHT ERROR (@ 1 deg/sec) (1-sigma)		Gen 2: 15 arcsec		Gen 2 star tracker: 15 arcsec Gen 3 star tracker: 8 arcsec
SLEWING AROUND-BORESIGHT ERROR (@ 1 deg/sec) (1-sigma)		Gen 2: 200 arcsec		Gen 2 star tracker: 200 arcsec Gen 3 star tracker: 50 arcsec

MECHANICAL INTERFACE

DIMENSIONS	10 x 10 x 5 cm (0.5U)	10 x 10 x 7.54 cm (0.75U)	10 x 10 x 5 cm (0.5U)	< 12.1 x 11.4 x 4.9 cm
MASS	1.1 kg	1.36 kg	Configuration Dependent	Configuration Dependent

ELECTRICAL INTERFACE

SUPPLY VOLTAGE		12V		28V
INTERFACE	RS-422			

ENVIRONMENTAL CONDITIONS

OPERATING TEMPERATURE	-20°C to +60°C			
SURVIVAL TEMPERATURE	-30°C to +70°C			
RADIATION HARDNESS (Si)	>40 Krad			
VIBRATION QUALIFICATION	GEVS Qualification Profile			
DESIGN LIFE	5 years (LEO)			



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