Product Sheet

Integrated Flight Controller

KRATOS

INTEGRATED FLIGHT CONTROLLER

The Integrated Flight Controller (IFC)/Message Processor contains the datalink encode/decode and autopilot functions. These two functions are performed by a single high performance PowerPC processor. The IFC provides autonomous control functions to assure safe operation of the aircraft in the event of command datalink loss. This includes recovery to stable flight conditions while performing commanded maneuvers and control for escape maneuvers of individual drones under all flight conditions.

The IFC communicates with the Control Datalink Transponder via EIA RS-485 serial interfaces. The transponder receives uplink commands from the ground control station (GCS) and sends them to the IFC, which then processes and outputs control signals to the UAV.

The IFC also processes and sends the UAV telemetry (performance) information to the Control Datalink Transponder, which then transmits the information to the GCS. The IFC/Message Processor communicates with the attitude sensor package (ASP) via EIA RS-485 at a 100 Hz rate. The IFC gathers Heading, Pitch Angle, Roll Angle, Pitch rate, Roll rate, and Yaw rate from the ASP. The IFC/Message Processor communicates to Ground Support Equipment (GSE) via an EIA RS-422 serial umbilical interface. This interface is used to load initialization.

Features

Field-Proven Hardware

High Performance Power PC based single processor design

Capable of Processing up to 64 Uplink Discrete and 20 Proportional Commands

Capable of Providing up to 32 Discrete & 32 Proportional Telemetry Channels

Communication with Control Datalink Transponder via RS-485

RS-422 interface to APS, Umbilical, ECU, IFF, & ALE 47 Sequencers

Applications

Vehicle Control System

Autopilot

Command and Telemetry

Vehicle Payload Interface

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Environmental

Temperature:	Operating: -40º C to +71º C Storage: -54º C to +125º C
Cooling:	Passive Conductive (no moving parts)
Vibration:	Operating, Random, 0.15g2/Hz, 20Hz to 100Hz Operating, Random, 0.04g2/Hz 100Hz to 2000 Hz for 5 minutes per orthogonal axis (8.8 Grms)
Altitude:	Sea Level to 50,000 ft
Shock:	Half Sine, 20 Gs peak, 11 ms, 3 axes
Humidity:	Up to 95% @ 40º C (all boards are conformal coated)
Acceleration:	10 Gs, 3 axes, tested at drone level

Power Requirements

DC Power:	22 to 32VDC (28VDC Nominal)
Input Current:	0.5 Amps maximum
Protection:	Reverse polarity protected

Physical

Size:	4.25" H x 9.30" W x 2.51" D
Weight:	4 lbs
Installation:	Flange Mount Base Plate