LCR-100

GYROCOMPASS AHRS

The LCR-100 is the culmination of more than a decade of Fiber Optic Gyro (FOG) and Microelectromechanical Systems (MEMS) research and development. Northrop Grumman LITEF establishes this new generation of its Attitude and Heading Reference System (AHRS) family, designed to adapt to your specific needs.

Our „Made-Lighter-by-Light" technology is one of the many advantages the system offers. The weight, volume and power consumption of our FOG AHRS are one-third that of comparable systems fitted with mechanical gyros. Fiber Optic Gyros provide excellent reliability and accuracy since they do not rotate and have no moving parts.

Gyro Compassing

The LCR-100 is comprised of a triple axis FOG-Instrument Measuring Unit (IMU) gyro and a triad MEMS accelerometer that is capable of true North self-aligning (gyro compassing), like an Inertial Reference System (IRS).

This makes unnecessary a magnetic sensor for heading alignment. The LCR-100 also can be augmented with GNSS data to provide hybrid navigational outputs.

YOUR SYSTEM FOR TODAY AND TOMORROW ...

The outstanding features of the LCR-100 help reduce your total cost of ownership. These include: small size, low weight, an unlimited attitude range, high accuracy over its entire operating spectrum and gyro-compassing. The LCR-100 can be operated from a standard single 28 volt DC power source. The system also incorporates extensive BITE and self-test circuitry which provides a go/no go annunciator. To improve unit maintenance the system retains an easy-to-access digital failure history stored in solid-state memory for failure isolation.

RELIABILITY, AVAILABILITY, PLUS PERFORMANCE

The LCR-100 offers outstanding reliability that results from its high performance, low-cost fiber optic technology and its low 26 watt power consumption – based on the power consumption of the basic digital version of this unit. The rated MTBF of the LCR-100 with no forced cooling exceeds 15,000 hours.

The LCR-100 is qualified to the stringent civil helicopter standards, and is currently operating on Search and Rescue and precision landing approaches in difficult rotor wing environments. Northrop Grumman LITEF GmbH set a high technical bar for this product, and proceeded to leap over the requirements.

TECHNICAL DATA LCR-100

GYROCOMPASS AHRS

SPECIFICATIONS		
Dimensions	AHRU	278 x 102 x 128 mm
Weight	AHRU	2.7 kg
Volume	AHRU	3.6 l
Power	Primary Auxiliary Load	28 V DC (nominal) 28 V DC 26 W
MTBF	AHRU	>15,000 hours
PERFORMANCE (95 %)		
Attitude	Static (straight & level) Dynamic	0.1 deg 0.2 deg
True Heading	hybrid	1 deg 0.5 deg
Mag Heading		2 deg
Alignment Time		3 to 10 min
Flight Path Angle	With GNSS	0.5 deg
Drift Angle	With GNSS	1.0 deg
Position	hybrid Free inertial	GNSS acuracy < 12 nm/hr.
Velocity	With GNSS	0.5 kts
Inertial Vertical Speed		30 ft/min
Angular Rates		0.02 deg/s or 0.5%
Acceleration		5 mg or 0.5%
Acceleration Range		±10 g
INTERFACES		
ARINC-429		
Synchro		
RS-232/422 (Test)		
Discretes		
Installation Data Module (Aircraft related data)	Misalignment Correction, GNSS antenna lever arms, Center of gravity lever arm, MagVar Model	
Magnetic Sensor Interface		
CERTIFICATIONS		
TSO/ETSO	C3d, C4c, C5e, C5f, C6d	
Software	DO-178 B Level A	
Hardware	DO-254 Level A	
Environmental	DO-160 E	

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