

μCORS-10 / -10C μCORS-30 / -30C MICRO CORIOLIS RATE SENSOR



Northrop Grumman LITEF is a world leading company with 60 years of experience in Inertial Systems Technology. With its new generation MEMS (Micro Electro Mechanical Systems) technology sensors, LITEF continues to design high accuracy sensors to meet current and future requirements.

MEMS sensor design at LITEF started in the early nineties with the B-290, a full silicon accelerometer. This accelerometer has been qualified in systems for navigation, attitude heading reference, stabilization and guidance.

LITEF's extensive experience with its Fiber Optic Gyros and the MEMS Accelerometer Triad B-290, was the basis of the μCORS (Micro Coriolis Rate Sensor) design, resulting in the following advantages for the user:

- High performance under high vibration and shock levels in an extended temperature range
- High bandwidth
- High dynamic range (closed loop sensor)
- High scale factor linearity
- Temperature compensated data output
- High reliability

- Small size, low weight, low power consumption
- Flexible, configurable digital interface with multiple range, resolution and measurement mode options
- Tools available for flexible interface configuration

APPLICATION BENEFITS

- Improves system performance
- Operates in harsh environment
- Reduces integration and logistic complexity
- Reduces weight, volume, power, costs
- LITEF support during integration

TYPICAL APPLICATIONS

The μCORS is designed to meet the requirements of the most demanding stabilization and pointing applications; including but not limited to

- Platform stabilization for land, sea, and aerial systems e.g. camera stabilization for aerial survey
- Navigation, guidance, stabilization and control systems for unmanned and manned applications

TECHNICAL DATA

MICRO CORIOLIS RATE SENSOR

| PERFORMANCE | | | | | |
|--|--------------------|---|-----------|----------|-----------|
| | | μCORS-10 | μCORS-10C | μCORS-30 | μCORS-30C |
| Measurement Range | °/s | ± 1000 | ± 499 | ± 1000 | ± 499 |
| Rate Bias (1 σ), full temperature | °/h | ≤ 1 | ≤ 1 | ≤ 3 | ≤ 3 |
| Scale Factor Error - Day-to-Day (1 σ), full temperature | ppm | ≤ 500 | | ≤ 1000 | |
| Angular Random Walk ¹⁾ | °/√h | ≤ 0.05 | | ≤ 0.08 | |
| Vibration Rectification Error (RMS) | °/h/g ² | ≤ 0.3 | | | |
| Start-up Time (full performance) | s | ≤ 1 | | | |
| Axis Misalignment Repeatability | mrad (max) | ± 10 | | | |
| Axis Misalignment Stability | mrad (max) | ± 1 | | | |
| Bandwidth (-3 dB) ¹⁾ | Hz | ≥ 300 | | | |
| ELECTRICAL CHARACTERISTICS | | | | | |
| Supply Voltage | VDC | +5 | | | |
| Power Consumption | W | < 2.2 | | | |
| Connector | | D-Sub Micro, 15 pins, female | | | |
| Digital Serial Data Interface - asynchronous (RS-422) - synchronous (IBIS, based on CCITT 1431T1/E19) | Bd MHz | 9600 ... 375,000 up to 2.048 | | | |
| Configurability asynchronous interface only: | | Data Size & Resolution, Mode (Angular Increments, Rate, Accumulated Angle) Baudrate, Trigger Mode (HW, SW, Autonomous), Update Rate | | | |
| PHYSICAL CHARACTERISTICS | | | | | |
| Dimensions | mm | 51 x 51 x 23 (w/o connector) | | | |
| Weight | g | ≤ 85 | | | |
| ENVIRONMENTAL CONDITIONS | | | | | |
| Temperature Range (operational) | °C | -40 to +65 | | | |
| Vibration (operational) | g _{RMS} | 10.88 (10 Hz to 2 kHz) | | | |
| Shock (operational) | g / ms | 100 / 11, 250 / 4, 500 / 2 | | | |

¹⁾ Other noise/bandwidth ratio: on request

FOR MORE INFORMATION,
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