MicroStrain Torque Monitoring Solutions

Avoid Unplanned Downtime - Optimize Scheduled Maintenance

Parker LORD

ENGINEERING YOUR SUCCESS.

Monitoring Torque

Predictive Maintenance

- **Monitor overload conditions in real-time**
- **Determine health of rotating components**
- **Predict system degradation**
- **Schedule maintenance based on data**
- **Reduce maintenance downtime**

Operational Reliability

- **Ensure proper rotor/engine load balancing**
- **Provide accurate feedback for flight controls**
- **Ideal for safety-critical aerospace applications**
- **Increase Operational Uptime**

Exceptional Performance

- **Very high reliability compared to slip rings**
- **Tolerates high vibration, shock and acceleration forces**
- **Very high immunity to external electromagnetic interference**

Applications

- **F35B Lift Fan drive shaft monitor**
- **Tail-rotor drive shaft torque load monitor**
- **Feed system for ground-based military defense application**
- **Drive shaft on UAVs and industrial pump trucks**
- **Formula SAE drive shaft torque monitor**

Wireless Solutions

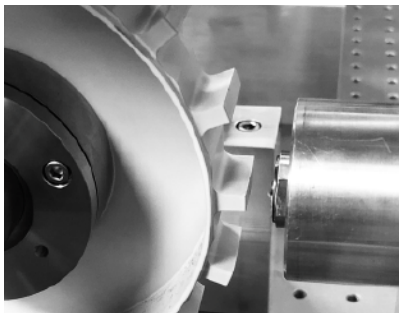
Near Field Communiations and Power

- **Non-contact inductive power eliminates batteries and slip rings, minimizing maintenance**
- **Patented technique for power and data transmission over 0.5" gap**
- **Measures torque on rotating shaft using strain gauges**
- **Power and data communications use fixed-frame coil and rotating coil secured to shaft**
- **Very low latency (<2mS typical)**

RF Systems

- **Measures torque on rotating shaft using strain gauges**
- **Electronics housed in application specific rapid-customized rotating housing**
- **2.4GHz wireless data transmission--no mechanical slip rings**
- **Internal battery or inductive power options**
- **Battery version enables simple and rapid deployment**
- **Easy integration into existing sensor networks**

Variable Reluctance



- **Uses fixed-frame VR sensors targeting mechanical features on rotating shafts to measure twist**
- **Up to 0.003° resolution**
- **Very high immunity to external electromagnetic interference**

Customized Package Designs: Fast 3D Printed Solutions From Our Applications Library

- **Flexible designs, adapted for your application**
- **Pre-configured design library supports engineered solutions with optimal components**
- **3D printed housing accomodates your unique requirements**
- **Inexpensive custom engineered solutions, fast turnaround**
- **Robust packaging for rugged environments**

MicroStrain Technology

Inertial Sensors

- **Unrivaled Dynamic and Thermal Stability Provides Best-in-Class Performance**
- **Smallest, Light Weight Package Enables Larger Payload and Range**
- **Auto-Adaptive Extended Kalman Filter (EKF) and Auto-Magnetometer Calibration Increases Performance in Challenging Environments**
- **Standard Communication Protocol Allows Forward and Backward Compatibility and Interchangeability**

Wireless Sensors

- **Lossless, Time-Synchronized and Scalable Communication Protocol Enables Hardwired Performance**
- **Open Communication Library Allows Wireless Data Acquisition to be Easily Added to Your Application**
- **SensorConnect & SensorCloud Software Provide Unrivaled Data Visualization**
- **Low Power Consumption Eliminates the Hassle of Frequent Battery Replacement**
- **High-Fidelity Measurement Enables High Levels of Data Analysis**

Displacement Sensors

- **Unrivaled Stroke to Length Ratio Enables Sensors to Fit Into Challenging Spaces**
- **Frictionless Design Allows Robust Operation in Harsh Environments with Temperatures up to 170°C**
- **Full Stroke 100 pt Calibration Results in High Accuracy Up to .05% of Full Scale with Resolution Up to 160,000:1**
- **Technical Support Experts Available to Assist in Selecting the Proper Displacement System for Specific Applications**

Parker LORD
Engineered Materials Group
MicroStrain Sensing
459 Hurricane Lane
Williston, VT 05495
USA

phone: 802 862 6629
email: sensing_sales@lord.com

www.microstrain.com

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