MicroStrain Torque Monitoring Solutions
Avoid Unplanned Downtime - Optimize Scheduled Maintenance
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 Communications 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 accommodates 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

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