

Aviation Rotating Telemetry System

The Efficient Solution for Blade Strain, Torque and Temperature Measurements

FEATURES

- Transmits Sensor Signals via Digital Radio Transmitter to a Stationary Receiver.
- Extremely rugged, can withstand the harshest of conditions. High reliability.
- Can transmit from main or tail rotors to inside fuselage. Up to 40m of range.
- Minimal Modifications Required. Rotating collar bolts to rotor or propeller hub.
- Bolt-on Collar houses Digital Transmitter(s) and Battery or Induction Power Converter. Contains embedded transmitting antenna.
- No noisy, problematic Slip Rings.
- Digital RF Technology Features error checking, providing clean low noise data free of drop-outs and long battery life.
- Fully configurable front-end signal conditioning gain and shunt calibration.



Model 3125B-32, 32-Channel Receiver
Model 2110B-32, 32-Channel Rotating Collar

Telemetry Transmitters Allow Sensors to be Wireless

ATi 2100/3100 Series Digital Telemetry Systems are excellent tools for extracting most any type of signal from rotating shafts, helicopter main and tail rotors, as well as fixed wing propellers. The system is quick and easy to install and eliminates the mechanical modifications, maintenance and performance limitations of slip rings.

Rotating electronics and batteries are housed in a collar (typically dish shaped) which can be customized for unique customer requirements. The collar bolts directly to the prop or rotor and the signal is transmitted to antennas mounted to, or inside, the fuselage. Because of the superior performance, ease of use and time savings our systems afford, major aircraft manufacturers are using ATi systems to extract

torque, blade strain and temperature from a wide variety of aircraft.

The 2100 Series system utilizes single channel digital Transmitters which provide sample rates up to 6400 samples/second. Multi-channel systems can be custom configured.

The 3100 Series system utilizes digital multiplexing Transmitters which can be custom configured for the number of channels, sampling rate and digital resolution required.

Power can be supplied to the Transmitters inductively or by batteries. ATi's Digital Receivers can be powered by most any power source and include filtered, analog outputs to supply data acquisition systems or other instrumentation.

ATi 2100/3100 SERIES

Digital Radio Telemetry System



Features and Specifications

Transmitter Sampling Speeds

1 Channel..... 10,000 samples/sec
 2 Channels 5000 samples/sec/ch
 4 Channels 2500 samples/sec/ch
 8 Channels..... 1250 samples/sec/ch
 16 Channels..... 625 samples/sec/ch
 Resolution 14 bits
 (other resolutions also available)

Total channel count.....up to 128 channels
 Integral Non-Linearity ± 0.10%
 Repeatability ± 0.025%
 Maximum Error..... < 0.15% Full Scale

RECEIVER: Model 2125B, 3125B

Power .. 12 VDC and 110/220 VAC (others available)
 Analog Output 0-2, 5, 10 VDC; ± 2, 5, 10 VDC
 (0-20 and 4-20 mA Optional)
 Display..... Multi-function Digital Backlit
 Size 8.0"L x 5.0"W x 3.48"H



Three Model 2125B-4 Receivers Shown

TRANSMITTER

Power Battery, Rechargeable Battery, Inductive
 Zero Drift..... 0.01% / °C
 Span Drift..... 0.01% / °C
 Operating Temperature Range.....-20 to 80° C
 (with standard battery pack)

ATi Transmitter Model Numbering Format				
31 4 2 B - 4/J				
Series	TX Type	Sensor Type	Power	Special (separate by "/")
21=Single Channel 31=Multiplexed	4=Rotating 5=Point to Point	0=Strain Gage* 1=Voltage* 2=Thermocouple 3=Accelerometer* 5=RTD*	B = Primary Battery *** R = Rechargeable Battery** I = Inductive	2,4,8 = Channel Count (31xx only) J,K,T = Thermocouple Type R = RMS Voltage
Standard Sensor Excitations: Types 0, 1, 5 (1.9 VDC), Type 3 (1 mA) Custom values are available.				

Additional Features

- * **Remote Calibration:** Pressing a button on the Receiver's front panel places the Transmitter in CAL mode for approximately 15 seconds.
 - Strain Sensors** - A shunt calibration resistor is connected to one leg of the bridge simulating a known load. (Sensor types 0, 1, 3 and 5 only)
 - Voltage Output Sensors** - Sensor output voltage is replaced by a reference voltage to simulate the load.
 - Accelerometer/Current Output Sensors** - A known constant current source is substituted for the sensor's output.
- ** **Remote On/Sleep:** Allows the user to manually place the transmitter collar in an ultra-low power sleep mode which greatly increases battery life. This feature is manually controlled via the Receiver's front panel display and pushbuttons. (Battery powered transmitters only.)
- *** **Auto On/Off:** (Optional) Transmitter detects when the Receiver is powered down and goes into ultra low power sleep mode. The Transmitter wakes up when the Receiver is powered up.



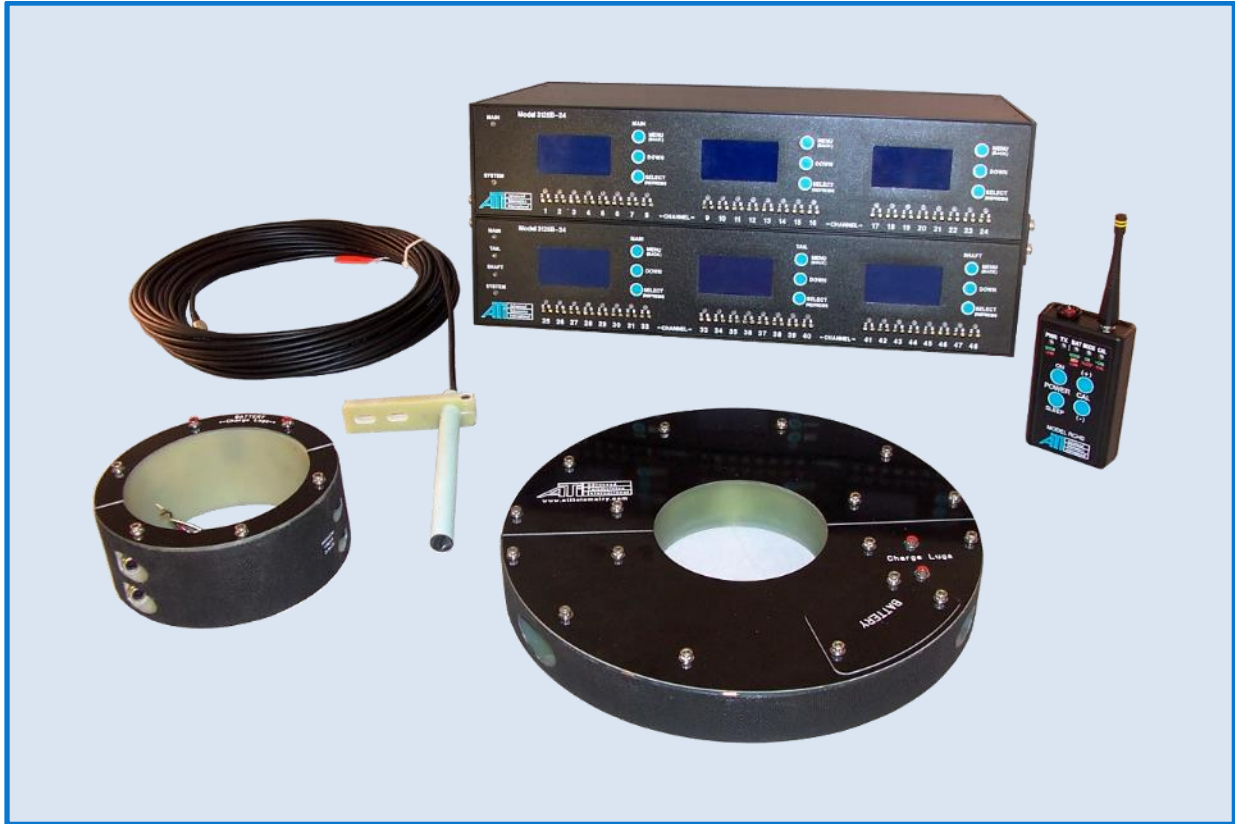
Remote Control (optional): Handheld Remote Control can be used to control the Remote Calibration and On/Sleep functions.

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Digital Radio Telemetry System



Aviation Applications



48-Channel Helicopter Telemetry System



Main Rotor Blades and Linkage



Tail Rotor Strain

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Digital Radio Telemetry System



Aviation Applications



Main Rotor Blade Strain



Engine Shaft Torque



Light Aircraft Propeller Blade Strain



Hovercraft Propeller Blade Strain

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Power Generation

Solve your telemetry problems today. Have ATi build a standard or custom Telemetry System for your application.