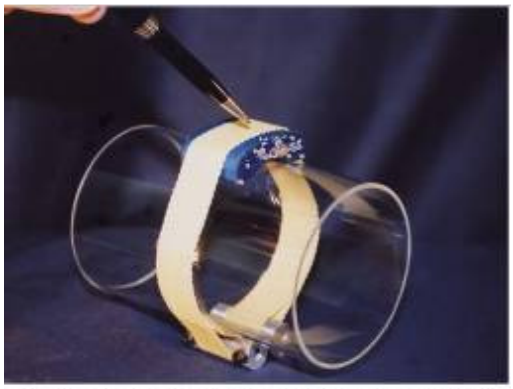
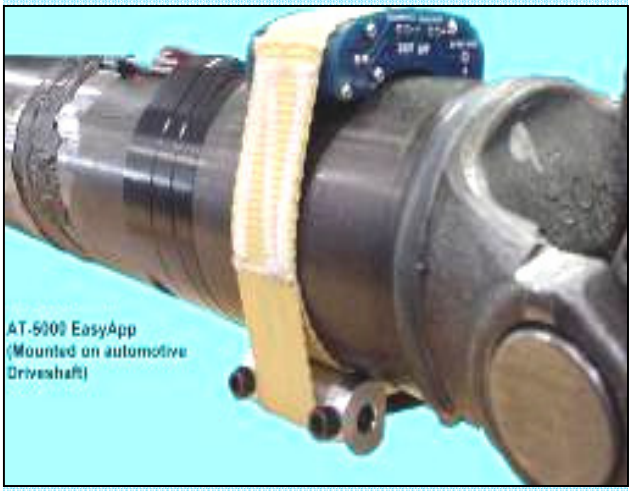


Accumetrics Torque Telemetry
AT-5000 EasyApp
11718 Samples/second

Features:

- Easy application — can be strapped to a shaft in 3 minutes
- Capable of >10000 G's of force (20000 RPM on a 1" OD, or 12000 RPM on a 4" shaft)
- Small size — typically requires only 0.7 to 0.9 inch radial clearance around shaft
- Low power consumption — 150 hours for 1000 ohm strain gage; 50 hours for 350 ohm/ operation on a single battery
- Digital telemetry — high data integrity and noise immunity—exceeds legacy FM telemetry and slip rings
- Two systems (Channel A and B) can be used side-by-side for multi-channel requirements
- Crystal controlled — no tuning required
- High resolution: 0.025% of range
- Built-in strain gage shunt calibration



Dependable, Easy to Apply, Long Battery Life Telemetry Systems

AT-5000 EasyApp™

Fast & Dependable Measurement of Torque, Temperature, Voltage on Driveshafts

A revolutionary advance in miniature telemetry, the AT-5000 series replaces slip rings and legacy FM telemetry, offering the perfect solution for applications requiring dependable data retrieval and easy installation (even in tight places).

Introduction

The AT-5000 EasyApp utilizes a small battery powered Kevlar® strap mounted transmitter to directly measure, digitize, and transmit true torque data from rotating half-shafts, driveshafts and rotors of all sizes and speeds. The system is also used for temperature, voltage, and acceleration sensing.

How to use the system to directly measure true torque:

- Install a 350 or 1000 ohm strain gage on the shaft (install the gage yourself, use a third party installer, or send the shaft to us)
- Apply the AT-5000 EasyApp with a specific Kevlar® strap sized for your shaft (--takes 3 minutes!) and connect to the gage wiring connector
- Place the flexible loop pickup antenna around the shaft to retrieve the EMI resistant digitally transmitted signal
- Connect the Receiver's voltage output to your data acquisition system
- Use either the Receiver's output adjustment or your data acquisition system to adjust for zero and full scale torque

How it works (Torque Example):
The AT-5000 EasyApp uses a long life lithium battery to excite a strain gage, and to power the AT-5's telemetry electronics on the rotating shaft. The small signal resulting from torque applied to the shaft/ strain gage is amplified, anti-alias filtered and digitized (typically at 11718 samples per second). The digital data is reliably RF transmitted off the rotating shaft to a nearby pickup antenna, which is connected to a Receiver. The Receiver converts the digital data to an analog voltage output (adjustable from 0 +/- 1.0 to +/- 10 volts). This DC to 1.2 kHz (or optionally higher) bandwidth voltage output can be fed directly to data acquisition systems, FFT, analyzers, oscilloscopes, etc.

Contact us: Telemetry@Accumetrix.com
www.Accumetrix.com
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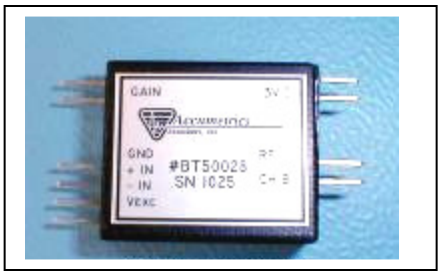
409 Front Street, Schenectady NY 12305

Accumetrics Associates, Inc.

EasyApp Housings- (Small, Large diameters)

Transmitter Module



Yoke- Counterbalance/ tensioning

Kevlar Strap >3000 lb strength (10000 lb strength – optional)

Flexible Loop Antenna - (Recommended)

Receiver

Specifications:

Transmitter Modules Sensor inputs	Three transmitter modules are available: 1. Full Bridge Strain Gage: Including other bridge-style transducers, including pressure transducers, resistive accelerometers, load cells, torque transducers, etc. 2. Temperature: Type K thermocouple is standard. Standard range is -50°C to +400°C. Contact factory for RTD sensor use. 3. Voltage: 0 to 100mV; external voltage divider for higher voltages available as a custom design.	
Transmitter modules- Sampling Rate/ Bandwidth	Channel A Transmitter: 7812 samples per second; DC to 1.2 kHz frequency response; 4MHz transmitter. Channel B Transmitter: 11718 samples per second; DC to 1.2 kHz frequency response (DC to 5kHz available); 6MHz transmitter frequency. (Channel A and B units can be co-located for 2 channel use.)	
Transmitter Module Specifications	• Non-linearity: <0.1% of full scale (typical) • Digital Resolution: 12 bits (0.025% of full scale) • Gain Drift: 100 PPM/°C typical, exclusive of external gain resistor • Offset Drift: 0.7µv/°C typical (0 - 85°C) • Bandwidth: DC to 1.2 kHz (up to 5kHz bandwidth available; AC coupling also available) • Power: Typically <4 mA current draw from 3.6 V battery, excluding sensor excitation • Temperature: -40 to +85° C (-40 to +185° F) Specifications are provided for a 1.9mV/V typical input	
Dimensions	Transmitter Module Dimensions: 1.1 in. (27.9 mm) x0.95 in. (24.1 mm) x0.36 in. (9.1 mm).	
EasyApp Mounting system Specifications – Small and large housings	Dimensions and weight	There are two housings: Small: 0.9" and larger OD shafts; Large: >= 2" OD shafts. Radial Height: 0.87" for the Small housing, and 0.67" for the Large housing Axial length: 2.0 inches. Weight: 0.15 lbs (68g) (Note: This is counterbalanced within a gram by weighting within the yoke for the expected diameter)
	G- Force limits	>10,000 G's (approximately 20,000 RPM on a 1" OD, or 12,000 RPM on a 4" shaft), subject to shaft geometry limitations. Contact Accumetrics for high speed/ large OD's.
Battery Specifications	Battery Voltage	3.6 volt open circuit; 3. 4 volts loaded. Low battery indication is transmitted to Receiver at approximately 2.7 volts.
	Battery Size, Material	2/3 length AA. Single use Lithium battery. Note: Non-rechargeable batteries. Do not store or use in applications with exposure to >150 C temperatures.
	Battery Life	50 hours for 350 ohm strain gage, 150 hours for 1000 ohm strain gage, 250 hours for thermocouple use. Note: On-Off switch on EasyApp can be used.
Receiver Specifications	Power	12 Volts (9 to 18Volts) by a 110VAC to 12 VDC adapter. (Call for other voltages).
	Output Range Output Signals and Adjustments	0 +/- 10 Volts. Output gain can be adjusted to allow lower outputs (i.e. 5 volts). RSSI Received Signal Strength Indicator -2 to +4 Volts (antenna signal strength). Zero adjust, Gain adjust, and Unipolar/ Bipolar output selection.
	Dimensions	NEMA style box: 3"x 6"x 4.25" height/ width / depth.
Pickup Antenna	Flexible Loop	Recommended antenna: custom length cable-style loop antenna. Construction: Teflon coax RG-188, and 10' lead (extendable to 100' max) of RG58 coax
	Rigid Phenolic	Machined phenolic two piece loop antenna, providing mechanical stability.
	Brass Loop	1/8" brass rod loop antenna with phenolic base and 10' of RG58 coax.
	Miniature Stub	Potted ferrite stub antenna. -For small diameter (0 to 2" max) shafts. Good alignment needed.

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