



# **BRAKE TEST STAND TEMPERATURE MONITORING**

**FOR AEROSPACE TESTING**

## Application: Brake Test Stand Temperature Monitoring

### Temperature digital telemetry for aerospace brake testing

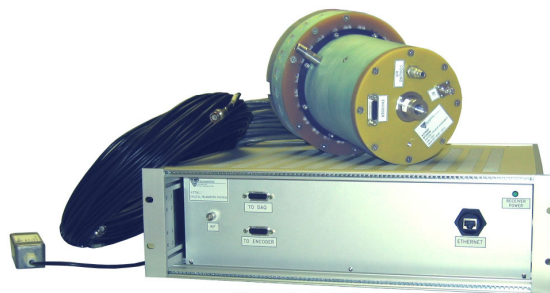
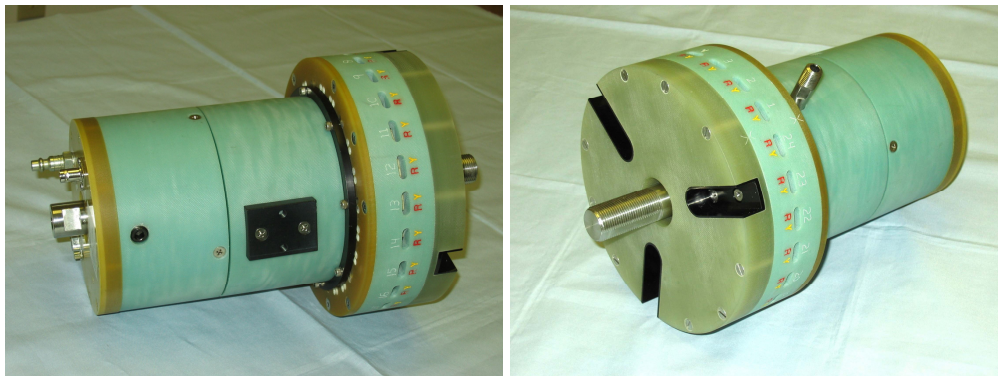
**Industry:** Aerospace

**Product:** [AT-7000](#)

**Parameters measured:** Temperature

A large brake manufacturer needed an aircraft wheel testing telemetry system (instead of a slip ring) that was capable of dependably providing 24 channels of thermocouple measurement, as well as providing a rotary union for tire pressure and an optical encoder. Accumetrics' AT-7000 system was used to provide the telemetry, and was mechanically packaged with the rotary union and encoder to provide a convenient system. The system is able to accurately make the measurements on-shaft, and can dependably transmit them without signal corruption due to noise.

All of the 24 temperature signals are sampled at high speed to allow the system to eliminate high frequency noise that typically detracts from the output temperature accuracy. With un-aliased temperature acquisition, the AT-7000's Receiver is able to filter out this noise successfully from the desired temperature signals. The digital telemetry techniques used for the AT-7000 provide robust signal transfer, as well as allowing all of the data to be transferred in a single high speed bit stream (thereby eliminating the need for 24 individual tuned transmitters and receivers!). With nothing to wear out, this system has clear advantages over noisy slip rings.



AT-7000 for Brake Temperature Testing  
24 thermocouples, optical encoder,  
and rotary air pressure union

- The picture top left shows the temperature transmitter/rotary union/encoder. The left-most area was bearing mounted to provide a stationary telemetry data and induction power connection , as well as tire air pressure connection and encoder output.
- The top right picture shows an opposite (rotating end) view. The labeling for the thermocouple inputs can be seen, as well as the rotating tire pressure connecting pipe.
- The bottom picture shows the rack mount style Receiver, which decoded the temperature measurements to Ethernet data.

The AT-7000 can measure thermocouples using the TAM (eight channel temperature acquisition module). If desired, the AT-7000 also has RTD modules, torque/strain dynamic acquisition modules, ICP accelerometer modules, and differential voltage (and current shunt) modules.

The AT-7000 can be supplied in either split clamp-on collar or end of shaft mounting. Systems of up to 88 inputs have been supplied (that system measured wheel force with 64 strain gages and 24 thermocouples). Output data can be in the form of analog signals (0 +/- 10V, 4-20mA), or Ethernet.



**6 British American Boulevard, Suite 103-F, Latham, NY 12110 USA**

accumetrix.com | telemetry@pcb.com | 888 684 0012 | +1 518 393 2200

© 2021 PCB Piezotronics - all rights reserved. PCB Piezotronics is a wholly-owned subsidiary of Amphenol Corporation. Endevo is an assumed name of PCB Piezotronics of North Carolina, Inc., which is a wholly-owned subsidiary of PCB Piezotronics, Inc. Accumetrics, Inc. and The Modal Shop, Inc. are wholly-owned subsidiaries of PCB Piezotronics, Inc. IMI Sensors and Larson Davis are Divisions of PCB Piezotronics, Inc. Except for any third party marks for which attribution is provided herein, the company names and product names used in this document may be the registered trademarks or unregistered trademarks of PCB Piezotronics, Inc., PCB Piezotronics of North Carolina, Inc. (d/b/a Endevo), The Modal Shop, Inc. or Accumetrics, Inc. Detailed trademark ownership information is available at [www.pcb.com/trademarkownership](http://www.pcb.com/trademarkownership).

MD-0407 revNR 0719