

Three Channel Wireless Accelerometer Signal Conditioning Module with Programmable Digital Filtering



Applications

- Flight Test Instrumentation
- Ground Vehicles
- Munitions
- Missiles/PGM
- Research Measurements and Experiments

Features

- Three channel wireless accelerometer signal conditioning module
- Programmable digital IIR presample filtering
 - 6-pole Butterworth characteristic
 - Automatic adaptive filter -3dB frequency based on format sample
- Programmable gain from 1x to 16x
- Compatible with ICP transducers
- +28 Volt supply
- ± 10 Volt inputs maximum -1.56 to 50 Hz
- $\pm 0.5\%$ System Accuracy
- All accelerometer data samples are time stamped
- Auxiliary functions including:
 - Internal temperature monitoring
 - 2 digital inputs, 2 digital outputs
- Compatible with M-ARM, MCDAU/WDAU-20XX operating to 20Mbps
- TEDS (Transducer Electronic Data Sheet) capable
- Windows 95/98/NT/2000/XP/Vista software Included

Description

The Three Channel Wireless Accelerometer Signal Conditioning Module forms part of TTC's wireless signal conditioning product line. The module operates on a nominal +28V supply. The SWSC-103E module communicates with the MWTR-103 Miniature Wireless Transceiver module that can be used to integrate wireless sensors into TTC's line of Miniature Distributed Data Acquisition Units. The accelerometer channels provide anti-alias filtering, 12-bit digitization and programmable DSP-based IIR digital filtering of the raw accelerometer signals. Each channel is AC coupled with single-pole, high-pass filters having a -3dB frequency at 0.64 Hz. An excitation voltage of +23 Volts is provided to power the transducer. DSP based low-pass IIR channel filters have a 6-pole Butterworth characteristic and programmable -3dB frequency ranging from 1.56 to 50 Hz. The accelerometer channels also provide a programmable gain from 1x to 16x. The SWSC-103E flash memory may be used for non-volatile storage and recall of "Transducer Electronic Data Sheet" (TEDS) information. The SWSC-103E channel sampling rate is automatically set by control software to 98% of the MWTR-103 format sample rate up to 200 sps. The low-pass, -3dB frequency of the accelerometer channels are then fixed at one fourth of the programmed SWSC-103E data sampling frequency. This provides programmable cut off frequencies of up to 50 Hz. All three acceleration channels are output to the MWTR-103 controller at 12-bit resolution via a Bluetooth 2.0 radio link for insertion into the system PCM serial output data stream. Also available for output to the PCM data stream is the SWSC-103E internal temperature. An auxiliary UART, running at 115.2K baud serves as a hard-wired alternative to the Bluetooth link.

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SWSC-103E Datasheet

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