

Wireless, Self-Contained, Tri-Axial Accelerometer and Signal Conditioning Module with Programmable Digital Filtering



Features

- Wireless, Tri-Axial MEMS-Accelerometer and Integrated Signal Conditioning Module
- Fully self-contained
- Integral Li-Ion battery and charger
- Programmable Digital IIR Presample Filtering
 - 6-pole Butterworth characteristic
 - Automatic adaptive filter -3dB frequency based on format sample rate
- Programmable Acceleration Input Range from $\pm 2.5g$ to $\pm 40g$ Full scale. >10,000 settings
- $\pm 0.5\%$ System Accuracy
- All Accelerometer data samples are Time Stamped
- Auxiliary Functions including:
 - Battery voltage monitoring
 - Internal temperature monitoring
 - 2 x Bi-level signal inputs
 - 2 x Bi-level signal outputs
- Compatible with MCDAU/WDAU-20XX and MARM-2000 operating to 20Mbps
- TEDS (Transducer Electronic Data Sheet) capable
Windows 95/98/NT/2000/XP/Vista Software Included

Applications

- Flight test instrumentation
- Ground vehicles
- Munitions
- Missiles/PGM
- Research measurements and experiments

Description

The SWSC-103-1 wireless tri-axial accelerometer and signal conditioning module forms part of TTC's ASMT wireless signal conditioning product line. This module is a fully self-contained system that operates on battery power and is designed to be attached to the external airframe using electro-cleavable adhesive or alternatively, by screw mounting. The SWSC-103-1 module communicates with the MWTR-103 Miniature Wireless Transceiver module that can be used to integrate multiple wireless sensors into TTC's line of miniature distributed data acquisition units. The AC-coupled accelerometer channels provide anti-alias filtering, 12-bit digitization and programmable DSP-based IIR digital filtering of the raw accelerometer signals. DSP-based low-pass IIR channel filters have a 6-pole Butterworth characteristic and programmable -3dB frequency ranging from 1.56 Hz to 50 Hz. The accelerometer channels also provide programmable gain from 1x to 16x allowing full-scale acceleration measurements from +2.5 g to +40 g. The SWSC-103-1 channel sampling rate is automatically set by control software to 98% of the host system 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-103 data sampling frequency, thus providing programmable cut off frequencies of up to 50 Hz. All three acceleration channels are output to the MWTR-103 controller via a Bluetooth 2.0 radio link for insertion into the system PCM serial output data stream. Additional capabilities include, on-board battery charging, monitoring of battery voltage and internal temperature and discrete bi-level inputs and outputs.

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SWSC-103-1 Datasheet

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