



ENHANCED WIDE-BAND MICRO-MINIATURE TRI-AXIAL ACCELEROMETER UNIT EWB MicroTAU™

INVOCON, INC.

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The High-Speed Synchronized Wireless Tri-Axial Accelerometer



The Enhanced Wide-Band Microminiature Tri-Axial Accelerometer Unit (EWB MicroTAU) system is a wireless, high-speed, synchronized data acquisition network for dynamic acceleration sensing, processing, and recording applications. The system includes EWB MicroTAU Remote Units, a EWB MicroTAU Receiver Unit, and the Graphical User Interface (GUI).

The **EWB MicroTAU Remote Unit** (pictured at left) is a small, battery-powered, autonomous, wireless device designed for trigger initiated acquisition and recording of high-speed acceleration data. The units acquire data from three external accelerometers, and each unit can be scheduled for multiple acquisition events. The unit autonomously follows a user-programmed schedule of events such as sleep, triggering, data

acquisition, and data processing. Within the schedule, the unit can follow dichotomous paths that are selected based on sensed events.

Download and event setup commands are issued either wirelessly or through a standard USB connection from the **EWB MicroTAU GUI** running on a PC. The wireless connection is through an **EWB MicroTAU Receiver Unit** that connects to the PC via a standard RS-232 serial port.

The EWB MicroTAU system was designed and flown for NASA to detect wing leading edge for foam impacts during launch of the Space Shuttle. STS-114 in July 2005 was the first flight of EWB MicroTAU hardware.

Other applications where the triggered initiation capability may be appropriate are aircraft, engines, gearboxes, industrial equipment, and other components that experience random vibration events.

Specifications

DATA ACQUISITION RATE	Factory set up to 20KHz.
SYNCHRONIZATION	±4µs between remote units at all sample rates
SENSORS	3 external accelerometers. Factory settable gain for wide range of charge output accelerometers. 86dB Dynamic Range
INTERNAL TEMPERATURE	10-bit A/D with one quarter degree C resolution—Sample Rate 1Hz.
PROCESSING	RMS Signal Analysis, Frequency Analysis, Decimation, Peak Detection
POWER	Battery powered, 3.0-4.0V input range.
OPERATING TEMPERATURE RANGE	-40°C to +85°C (Reduce battery life by 50% when continuous operation at -35°C.)
BATTERY LIFE	50-200 cumulative hours of data acquisition or trigger mode (depending on the sample rate). Extended-life external batteries are available.
MEMORY	256M-byte non-volatile
PACKAGING	Flange enclosure (pictured) with replaceable internal battery Approximately 7cm x 3.8cm x 8.3cm (not including flanges).

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System specifications subject to change without notice.

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