3500 Shannon Park Drive
Fredericksburg, VA 22408
Tel (540) 374-1000

BLU-FUZE

The BLU-Fuze Telemetry (Ballistics Logging Unit) family of flight instrumentation provides an extensive selection of shock hardened sensors to measure in-bore and in-flight performance of mortars and projectiles. All BLU-Fuze configurations include an integrated S-Band telemetry transmitter and antenna which relays the measured data to a ground station. The typical range of the telemetry exceeds 20,000 meters. The BLU-Fuze is conveniently packaged in the NATO standard fuze envelope for either artillery or mortar rounds so that it can add flight instrumentation and telemetry to a wide variety of munitions without any modifications to the munitions themselves. The BLU-Fuze is simple to use. The BLU-Fuze is activated when the battery pack is attached to the fuze body. The BLU-Fuze is then screwed into the fuze well of the projectile to be tested. Once activated, the BLU-Fuze will run for more than 45 minutes, providing ample time to verify the telemetry link, acquire GPS, load, and launch the projectile. Data is stored for the first 100 msec after detection of the launch to record in-bore data.

Unlike many competing flight instrumentation systems, software and technical support for decoding and analyzing the data is included in the purchase price.

Available Models:
BLU-FUZE In-Bore Artillery (INST-20A)
BLU-FUZE In-Bore Mortar (INST-23A)
BLU-FUZE Basic Artillery (INST-20B)
BLU-FUZE Basic Mortar (INST-23B)
BLU-FUZE Standard Artillery INST-20C)
BLU-FUZE Standard Mortar (INST-23C)
BLU-FUZE Enhanced Artillery (INST-20D)
BLU-FUZE Enhanced Mortar (INST-23D)

For more information contact:
Brian Tacke 540-374-1000 x118
btacke@syntronics.net

Not exactly what you need? Requests for custom configurations are welcome.

Specifications

Mechanical:

- *Weight, typical: 445 grams (artillery), 313 grams (mortar)*
- *Package: Compatible with the NATO standard fuze well for artillery and mortars Envelope: NATO standard (flat nose) or rounded nose on request.**

**Customized packaging can be provided upon request.*

Operating Temperature Range:

- *≤40F° to ≥90F° At time of launch**

**If a higher or lower operating temperature is required, please specify at the time of the order and the delivered units will be tested and certified prior to delivery.*

Telemetry Transmitter:

- *Carrier Frequency: S-Band, 2.205GHz to 2.295GHz, user specified at the time of order in 500kHz increments*
- *Carrier Frequency Accuracy: ±50 ppm all causes*
- *RF Power Output: 0.33 watts, typical Data Rate: 2Mbit/sec Data Encoding Format: Standard format is Biφ-L, R-NRL on request*

High-G Three Axis Accelerometer:

- *Range: 0 to 20,000Gs*
- *Resolution: 14 bits*
- *Update Rate: 64ks/sec for 100msec after detection of acceleration, continually interleaved with the data stream during the flight.*

Low-G Three Axis Accelerometer:

- *Range: 0 to ±50Gs*
- *Resolution: ≤0.1G*
- *Update Rate: 4ks/sec*

Three axis magnetometer:

- *Spin Rate Accuracy: ≤ 0.01Hz* (flight path not within ±10 degrees of magnetic North or South)**
- *Attitude Precision: ≥1 degree magnetic, typical*
- *Update Rate: 4ks/sec*

**Depends on the accuracy of the data reduction computer clock*

GPS Receiver:

- *Position Accuracy: 10 meters, 2D RMS **
- *Altitude Accuracy: < ± 35m Vertical in term of 95% **
- *Velocity Accuracy: ± 0.1 meters/second **
- *Time to first fix after launch: <2 to 30 sec***
- *Time: 1 usec synchronized to GPS time GPS*
- *Update Rate: 5 Hz.*
- *Telemeter Data Rate: 5Hz.*

**Commercial GPS Accuracy. The actual accuracy obtained is dependant upon the GPS satellite sky pattern.*
***Assumes the BLU-fuze is allowed to obtain a fix before loading and firing. The time to first fix after launch depends on the launch velocity, GPS satellite sky pattern, how quickly the BLU-fuze is loaded and fired, and whether or not GPS acquisition is maintained during the period prior to launch.*

External Analog Channels:

- *Number of Channels: 8*
- *Resolution: 12 bits*
- *Sampling and Data Rate: 50kHz, allocated over 1 to 8 channels*

Standard Configurations

BLU-Fuze In-Bore
Model INST-20A, (Artillery), Model INST-23A (Mortar)

- *S-Band Telemetry Transmitter and Antenna*
- *High-G three axis accelerometer for measuring in-bore shock and acceleration*
- *One Battery Pack*
- *Decoding and Analysis Software*

BLU-Fuze Basic
Model INST-20B (Artillery), Model INST-23B (Mortar)

- *S-Band Telemetry Transmitter and Antenna*
- *High-G three axis accelerometer for measuring in-bore shock and acceleration*
- *Low-G three axis accelerometer for measuring in-flight accelerations*
- *Three axis magnetometer for measuring spin rate and attitude*
- *One Battery Pack*
- *Decoding and Analysis Software*

BLU-Fuze Standard
Model INST-20C (Artillery), Model INST-23C (Mortar)

- *S-Band Telemetry Transmitter and Antenna*
- *High-G three axis accelerometer for in-bore shocks and accelerations*
- *Low-G three axis accelerometer for in-flight accelerations*
- *Three axis magnetometer for measuring spin rate and attitude*
- *GPS Receiver & Antenna for measuring projectile position, velocity, and altitude determination*
- *One Battery Pack*
- *Decoding and Analysis Software*

BLU-Fuze Enhanced
Model INST-20D (Artillery), Model INST-23D (Mortar)

- *S-Band Telemetry Transmitter and Antenna*
- *High-G three axis accelerometer for measuring in-bore shock and acceleration*
- *Low-G three axis accelerometer for measuring in-flight accelerations*
- *Three axis magnetometer for measuring spin rate, attitude, and "UP"*
- *GPS Receiver & Antenna for measuring projectile position, velocity, and altitude*
- *Eight external analog input channels, 12 bit resolution, up to 50Ksamples/sec, user specified interface*
- *One Battery Pack*
- *Decoding and Analysis Software*