Advanced Data Logger for Ballistic measures

BJ14

The results of 40 years of evolution in the development of high end quality control systems

Description: State of the art rugged, high performance, high reliability, easy to use data logger for ballistics analysis.

Purpose: quality control, research & development of ammunition, primers, weapons, propellants, explosives, fuzes, blasting caps, rockets, helmets, bulletproof glass, armor & bullet proof structures. Forensic medicine analysis. Impact tests for aircraft structures, rotors, jet engines & propellers . Transducers calibration, Closed vessel analysis.

Compliance: fully compliant with ballistics controls commercial (C.I.P.) and military rules.

Man Machine : Any personal computer Windows© or Linux based can be connected with the standard interface

Main applications & tests:

- ✓ Time & related ballistics data (velocity, energy, momentum etc)
- ✓ rate of fire
- ✓ shooting coordinates,
- ✓ pressure,
- ✓ light;

- ✓ force, trust ;
- ✓ acceleration;
- ✓ sound;
- ✓ ergonomics measures (recoil, yaw, vibration, stress, blunt trauma etc);

Main characteristics:
The system is based on a high integration proprietary gate arrays in house developed used in conjunction with a RISC microprocessor. This combination assure high performance & reliability, paired with low power consumption & small footprint unit. The **BJ14** time and analog acquisition blocks that are based on high speed logic controller performs acquisition without the use of PC, this allows high speed acquisition without time constrain. Every board have a dedicated connector to piggy back special function or interface card. All the board inside the systems are connected together via proprietary bus that optimize the systems performance. System have on board All signal conditioning modules and acquisition cards;
The calibration look up table is automatically loaded by the software to minimize error and improve linearity in any conditions.
BJ14 is compatible with almost all sensors for the measurement of ballistic or ergonomic parameter available on the market.

Time Section :- 12 to 24 synchronous channels; **very low aperture time** (time between two events). Resolution 0.1µ
The standard on board memory buffer depth is 1000 events expandable to 16000 without pressure measurement; each events log include the source code and the time mark acquired with a 100 ns resolution over 420s.
Each standard board have 12 fully independent inputs plus 2 or 4 specialized inputs for muzzle flash detector. Each input (non muzzle) have a standard 50 Ohm BNC connector and have the following characteristics:

- ➢ can be individually programmed to trigger signal from high to low transition or from low to high;
- ➢ have programmable repetition rate (time between one signal to the follower when the input is lock on to avoid noise input) ;
- ➢ 4 inputs have fixed input threshold for the use of TTL-CMOS input signal, other have programmable threshold control that allows to trigger independently each channel. 2 Channel have pre-amplified inputs for barriers.

The system was designed to assure that each input line have a maximum delay error (maximum delay versus any other input lines) of less than 40ns
Reference signal can be generated by software. A complete set of control led is available to easy control of the system working and the inputs status.
Very important feature is the fact that there is no concept of Start or Stop barrier for any measure, all inputs can be used in multiple and independent ways.

Analog Section : synchronous fully programmable acquisition (4 channels per board) 12 bits resolution channels, fully programmable acquisition sample time and block length.(Channels can be factory expanded to 16)

- Trigger mode "Internal", "External" , "software controlled" on falling or rising edge of the signal,
- Trigger type "Pre", "Pre-post", "Post", "Delayed acquisition".
- Block mode memory partitioning for automatic fire weapons testing.
- Broad range of internal and external signal conditioning modules.
- Piggy back connectors on all boards to hold customized signal conditioning units
- Built in self test

The first 2 channels are normally fitted with charge amplifiers for the use with pressure transducer measurement (also in constant current mode) The other two channels can be used for any external signal conditioning units (recoil amplifier, luxmeter etc)
All channel are factory calibrated and the look up table is automatically managed by the software to insure highest linearity (> 0.05%) and accuracy (>0.05%).
Amplifiers have high frequency anti-aliasing filters. The low frequency filtering is done by the built in digital signal processor.

Software : fully integrated with ours ballistics analysis software. Can be supplied with software driver only for the use with customer's legacy software.

Dimensions :
BJ14: 340w x 90h x 240d (mm), weight approx 3 kg.

Data Subject to change without notice

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