3 Analog Channel / 8 Digital Channel High Shock Recorder

DESCRIPTION

The VFR-1 recorder is a miniaturized, shock hardened, microprocessor controlled, low current, programmable, solid-state data acquisition system. This recorder is hardened for acceleration and vibration, to reliably collect data during applications up to 25,000 G's when properly packaged. Depending on the sensor and interface used, many types of information can be collected, including dynamic and static pressures, acceleration and vibration, stress/strain, temperature, and more.

The recorder can be remotely programmed by the technician in the field. Analog channel 0 can be programmed for 256 different gain and bias settings. The trigger can be programmed for 256 different levels and set to trigger at an absolute signal level, or set to trigger above a certain pre-set threshold. An external G switch can also be used to trigger the recorder.

OPERATION

The VFR-1 recorder has one analog channel with programmable gain and bias, two analog channels with buffers only, and eight digital channels.

This recorder is capable of automatically switching between two different speeds of data collecting during a test - HIGH (58 KHz sampling rate per channel) and LOW (selectable from 6KHz to slower) speed. The Recorder goes into HIGH speed when triggered and can collect HIGH speed data for up to 255 milliseconds. There are *three modes* of data collection:

1) *SLOW SPEED ONLY* - Recorder collects data at the slow sampling rate until the memory is full;

2) *MULTI-SPEED* - Recorder starts collecting data at SLOW speed, and every time the trigger event occurs (either with an auto-level trigger or external G switch), it switches to FAST speed, then returns to SLOW speed after the event. This sequence will be repeated until memory is filled;

3) *SLOW-to-FAST* - collects SLOW speed data until the trigger event occurs, then switches to FAST speed until the memory is full.

The recorder also records and displays the starting and ending battery voltage, test temperature, along with any test information entered by the technician. Configurations and test information are stored in an EEPROM, and this is retained when the batteries are removed.

SOFTWARE

The software runs under Windows 95™ on a Pentium™ based, SVGA laptop. The software is graphically based, and is used to communicate with the VFR-1 (via RS-232), program the Recorder configuration for the test. It also is used to display, filter, and analyze the data in the field. An ASCII spreadsheet file of the data is generated on the location for the customer.
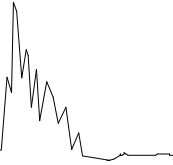
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FEATURES

Easy to use and program
EXTENSIVE software package
State of the art microprocessor design and components
Hardened to withstand high shock and vibration in excess of 25,000 G's
Wide temperature range (-40° to 80°C)
3.3 volt operation
3 analog channels, and 8 digital channels
Low current (400 microamps sleep mode and 20 milliamps recording mode)
High memory storage, 524,288 data points
8 bit (255 steps) accuracy
High Speed sampling rate - 58 KHz / channel
Data band width of 9.25 KHz with a 8-pole filter on Channels 0
Auto-trigger based input signal, with 256 selections
External trigger with G switch
Remote startup
Multiple slow speeds
Differential input amplifier for channels 0
256 programmable gain and bias selections for channels 0
Buffered (unfiltered) inputs for channels 1 and 2
Auto-sensor balance and bias before and during test (channel 0)
Multi-speed operation, to collect *both* slow and fast data during single test
Records starting and ending battery voltages during test
Records test temperature
Small size:
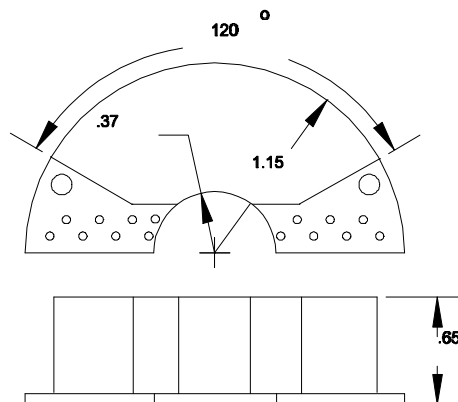
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