

GST-43 GeoStream

Features

- ❑ Continuous Data Stream to Internet
- ❑ Two Seismic Switch Set points (2 mg to Full Scale) with Independent Digital Output
- ❑ Internal Triaxial MEMS Accelerometers
- ❑ Automatic Zero Offset
- ❑ Level and STA/LTA Earthquake Detection Algorithms
- ❑ Additional algorithms available upon request
- ❑ Stores Earthquake Duration, Max. Intensity, Vector Sum and PGA
- ❑ Modbus RTU / TCP, up to 3 Hosts
- ❑ NTP Time Synchronisation



Description

GST-43 is an advanced technology instrument streaming the acquired seismic data, including a triaxial MEMS accelerometer and a powerful 16 Bit 80 MHz industrial CPU. The MEMS accelerometer acquires the vibration signals with a 40 Hz sampling rate. The CPU filters this signal with digital low pass filter to minimize non-earthquake signal which is typically above 20 Hz.

One of the brightest features of the GST-43 is its earthquake detection algorithms. GST-43 adopts STA/LTA with slope restraining algorithm to detect earthquakes. This algorithm is very useful to eliminate non-earthquake vibrations. As an enhancement over the traditional earthquake detection algorithms, this state-of-the-art numerical computation software carries out real time vector calculation faster than ever. Automatic zero drift compensation and high capacity FIFO buffer, makes GST-43 to achieve stable and high speed STA/LTA calculations. Therefore, GST-43 can achieve highly reliable and fast earthquake detection.

GST-43 is not only a data streamer and seismic switch but also is an earthquake intensity indicator and can be utilized in early warning and Rapid Response applications.

It could display in real time the maximum intensity according to CWB (Central Weather Bureau, Taiwan) earthquake intensity standard, maximum vector, tri-axial acceleration and instant tri-axial acceleration etc. User can preset threshold of acceleration for 2 digital outputs individually in order to protect crucial facilities.

The open connectivity of GST-43 offers Modbus RTU / TCP protocol so it is extremely easy to connect it to any Computer, PLC and HMI (Human Machine Interface). The connecting number of host can be up to 3 simultaneously. So it is a very a versatile unit with broadcast to achieve cost efficient disaster prevention backbones. It also provides active connection to server facility, which is useful to deploy in environments with no real IP. With NTP (Network Time Protocol) capability GST-43 can keep its internal time within 1 second accuracy.

Specifications GST-43 GeoStream

GST-43 is a data streamer and seismic switch based on tri-axial MEMS accelerometer, providing 2 digital outputs for facilities seismic monitoring and protection. It can display maximum intensity according to CWB earthquake intensity standard, maximum vector, tri-axial acceleration, instant tri-axial acceleration, etc.

GST-43 Supports both Modbus RTU / TCP which easily connect with any computer, PLC and HMI.

Accelerometer

Type: Tri-axial MEMS
Range: ± 2 g (X Y Axes)
 $+ 1$ g / -3 g (Z Axis)
Frequency Response: 0 to 20 Hz
Shock: 500 g @ 0.5 ms
3'000 g @ 0.1 ms

Digitizer

ADC Resolution: 12 Bit
Digital Resolution: <0.001 g

Earthquake Gauge

Algorithm: STA/LTA plus Slope Restrain
STA Setting Range: 0.1 - 100 s
LTA Setting Range: 0.1 - 100 s
Slope Restrain Range: 0 - 1 g
Offset Period: 30 - 43'200 min
Event Duration Time: 1 - 200 s

Switch Setpoints

Digital Output Numbers: 2
Setpoint Range: 2 – 1'960 mg
Contact Type: Open Collector
Contact Capacity: 0.6 A DC
Hold-On time: Same as Event Duration Time

Power

Supply Voltage: 10 - 30 VDC
Power (12 VDC): 3.5 W

Input / Output

Datastream output: Continuous datastream to TCP/IP Network
Modbus RTU: RS-232 or RS-485 format
19'200, N, 8, 1
Modbus TCP: 3 Host Simultaneously
Modbus ID: Default 101, settable
Modbus function: Function 3 and 16
Modbus Variables: 100 -158, 171-191 include
Address: Real Time Acceleration,
Event Information,
IP Address Setting,
Server IP Address Setting,
NTP IP Address Setting, etc

Size

Dimension: 123 x 72 x 33 mm
Weight: 0.2 kg (without power adapter and cable)

Environment

Operation Temp.: -10 - 60 °C
Storage Temp.: -20 - 70 °C