QUAKELOGIC

UNITEK

DATA-SHEET TRIT-A 001

TRITON
ACCELEROGRAPH
INTEGRATED DATA ACQUISITION PLUS SENSOR

For applications where combined and space saving-solution are required.

Very low seismic noise levels are achieved thanks to the sensor being shielded inside the enclosure and to the short wiring. Triton is available with MEMS or true mechanical Force Balance accelerometric sensor. Two different dynamic ranges are available for the MEMS sensors 90db and 110dB, while for the force balance sensor 160dB. Triton can be equipped with extra inputs for 3 or 6 24-bit channels. In this configuration, in addition to the internal sensor, the instrument can be connected externally to two other high dynamic sensors. The instrument is equipped with high-resolution delta-sigma 24 bit ADCs, each channel is synchronized and the sample rate is adjustable up to 1000 sps per channel.

KEY FEATURES

- INTEGRATED ACCELEROMETRIC SENSOR
- ADC RESOLUTION 24 bit
- DYNAMIC RANGE > 136dB@100 sps
- SYNCHRONOUS SAMPLING
- LAN, WIFI
- INTEGRATED 4G MODEM (OPTIONAL)
- BUILT-IN GNSS RECEIVER
- INTEGRATED UPS
- MINISEED DATA FORMAT

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LIVE DATA SHEET

APPLICATIONS

Seismological networks
Structural monitoring and surveys
Post-seismic damage analysis

SENSORS

MEMS 0-500Hz
90db ±2g (7 µg/√Hz) or ±5g (17 µg/√Hz)
110dB ±3g (0.2 µg/√Hz) or ±5g (1.2 µg/√Hz)

FBA 0-80Hz* (*opt 0-200Hz)
160dB ±0.5g, ±1g, ±2g, ±4g

A/D CONVERSION

SAMPLING Simultaneous
ADC Sigma-delta 24 bit synchronous sampling
DYNAMIC RANGE > 136dB @ 100 sps
SAMPLE RATES 25, 50, 100, 250, 500, 1000* sps *(3 ch active)
ADVANCED FEATURES Dual Sampling
ANTI-ALIASING FILTER FIR linear or minimum phase
ADDITIONAL DIGITAL FILTERS Low-pass and High-pass filter

TRIGGERS

TRIGGERS STA/LTA and threshold independent for each channel
AND/OR configuration on all channels
Trigger broadcasting towards recorders in the network

STORAGE

FORMAT MiniSEED
INTERNAL MEMORY 32GB standard, optionally up to 1TB
RING BUFFER DATA RECORDING (16 or 32 days, depending on mem. size)
plus strong motion events
ADV. FEAT. Periodic generation of ambient noise and post-seismic analysis

SYNCHRONIZATION

TIMING SOURCE Absolute Time UTC through high sensitive integrated GNSS receiver or NTP
ACCURACY in GNSS signal loss condition: ± 1 ppm (32 s/year)
Accuracy with GNSS signal < 1 µS

UI

LEDs Heartbeat, 4G, WiFI, GNSS, Ethernet, Power
BUTTONS Power on/off and WiFi enable/disable on the same button

COMMUNICATION

FILE TRANSFER Via Ethernet 10/100, WiFi (optional) or integrated 4G modem (optional)
WIFI MODE SOFT AP function
METADATA RESP file available on IRIS
DATA DOWNLOAD Through SCP protocol based program or via web interface
VPN Compatible with OpenVPN and IPSec

DATA STREAMING

FORMAT Seedlink protocol management for real-time interface with most common seismic programs such as SeisComP and Earthworm
STREAM Seismic and State-of-Health
ALARMS Management towards remote monitoring server

CONFIGURATION

INTERFACE Web Server
CONTROL Connection and management on remote servers
UPDATES Remote software update (local network or via internet)
ADVANCED FEATURES Multiple units can be connected to the network (Ethernet, WiFi or 4G) acting as a single multi-channel instrument

POWER SUPPLY

POWER SUPPLY 9 ÷ 28 Vdc - AC/DC adapter included
POWER CONSUMPTION < 2 W (< 800 mW available on request)
UPS Back-up LiPO battery, autonomy > 33 hours
ALARMS Remote alarms management in case of blackout
ACCESSORIES External battery pack and solar panel options

OP. CONDITIONS

STORAGE TEMPERATURE RANGE - 40 ÷ +85°C
HUMIDITY 0 to 100%
OPERATING TEMPERATURE RANGE Without battery - 40 ÷ +85°C *
*LiPo batteries can be charged in the range 0 ÷ +45°C while discharge is allowed in the range of -20 ÷ +70°C.
If the temperature is out of range, the LiPo battery will be inhibited by the electronics

PHYSICAL

CASE Anodized aluminum case (AISI 316 stainless steel optional)
PROTECTION GRADE IP67, IP68 optional
DIMENSIONS 18 x 18 x 10 cm
WEIGHT ≈3 Kg
INSTALLATION Mounting plate or spikes available on request

Triton Digital Accelerograph