



TitanXT

The TitanXT is a strong motion accelerograph for high precision structural engineering applications and research where scientists and engineers require exceptional dynamic range over a wide frequency band.

The TitanXT features TitanSMA technology, with a triaxial force balance accelerograph that has a low noise floor, exceptionally low hysteresis, and industry leading dynamic range. The integrated digitizer and recorder facilitates both standalone and networked free-field monitoring deployments. The ruggedized waterproof enclosure allows for an optional charger or modem.



TitanXT Accelerograph (model TXT-6)



Web based GUI Interface

With two models to choose from, the versatile TitanXT is ideal for deployments in challenging environments. The TXT-3 is a 3-channel strong motion accelerograph that is typically deployed in environments such as bridges and dams that require protection from the elements, theft and tampering.

The TXT-6 is a 6-channel model that incorporates the benefits of the TXT-3, while making it possible to co-locate the internal Titan accelerograph with an external 3-channel broadband seismometer. This model is ideal for a variety of applications, such as civil defense early warning systems and studies in noisy urban areas.

Ease of Use Features Include:

- Convenient data retrieval via removable SD card or local Ethernet in MiniSEED or ASCII formats.
- Continual streaming of data over Ethernet to a central server or retrieved on demand from the central site, SEEDLink available.
- HTTP data communications, which requires only Internet access from within the host IT network to stream continuous or event data.
- Instrument configuration/control via browser interface with Ethernet connection.

Product Specifications*

Accelerometer Technology

Topology	Triaxial, horizontal-vertical
Feedback	Force balance with capacitive displacement transducer
Centering	Automated electronic continuous offset removal

Deployment Options

Strong Motion	Internal Titan accelerograph (3 channels - Model TXT-3)
Co-located	Internal Titan accelerograph & external connector for broadband seismometer (6 channels - Model TXT-6)

Accelerometer Performance

Full Scale Range	Electronically selectable range: $\pm 4 g$, $\pm 2 g$, $\pm 1 g$, $\pm 0.5 g$, $\pm 0.25 g$, or $\pm 0.125 g$ (nominal)
Sensitivity	2, 4, 8, 16, 32, and 64 digitizer counts per μg , $\pm 1\%$
Bandwidth	DC to 430 Hz (-3 dB point)
Dynamic Range (Integrated RMS)	166 dB @ 1 Hz over 1 Hz bandwidth 155 dB, 3 to 30 Hz
Offset	Electronically zeroed to within $\pm 0.005 g$
Non-Linearity	<0.015% total non-linearity
Hysteresis	< 0.005% of full scale
Cross-axis Sensitivity	< 0.5% total
Offset Temperature Coefficient	60 $\mu g/^\circ C$, typical, horizontal sensor 320 $\mu g/^\circ C$, typical, vertical sensor

Digitizer Performance

Sampling	Simultaneous
Type	24-bit over sampled successive approximations
Digital Filter	140 dB attenuation at output Nyquist
Filter Type	Linear phase (contact us for other options)
Dynamic Range	>138 dB @ 100 sps (max sine wave above shorted input)
Sample Rates	10, 20, 40, 50, 80, 100, 200, 250, 500, 1000 sps
Dual Sample Rate	Decimate primary rate by factor 2, 4, 5, 10, 20, 50, 100, 200, 250
Timing	GPS via internal GPS receiver and external antenna <100 μs (with GPS duty cycle mode set to Automatic) <5 μs (with GPS duty cycle mode set to Always On)

Data Recording and Retrieval

Recording	High capacity internal CompactFlash (CF) Removable SD card
Data Retrieval	Direct download via Ethernet Media exchange (SD)
All Data	MiniSeed format, NP (Nanometrics Packets)
Events Only	SMC, COSMOS, ASCII
Data Streaming	SEEDLink or NP (Nanometrics Packets)

Environmental

Operating Temperature	-20 $^\circ C$ to 70 $^\circ C$
Humidity	0 to 100%

Events

Type	Bandpassed STA/LTA or threshold
Trigger Selection	Independent threshold or STA/LTA ratio for each channel
STA/LTA Trigger	Configurable STA, LTA, LTA latching, trigger, and de-trigger thresholds
Trigger Votes	User configurable votes for each channel, transmitted via IP multicast
Threshold Trigger	Selectable from 0.01% to 100% of full scale
Event Statistics	Peak ground acceleration, velocity, displacement

Physical - Enclosure

Size	Length: 34.7 cm (13.6") Width: 20 cm (7.8") Height: 14 cm (5.5")
Weight	11kg
Levelling	Integrated bubble level Levelling screw sets
Rating	IP67, waterproof

Power

Internal Battery and Charge Controller	Optional: Maximum internal size: (12 amp/hr) Length: 9.7 cm Width: 4.5 cm Height: 5.9 cm
Power Supply Voltage	9 to 36 VDC isolated input
Power Consumption	2.9 W, typical
Protection	Reverse-voltage and over-/under-voltage protected Self-resetting over-current protection
Battery Charger Protection	Short circuit protection. Reverse polarity protection

Interface

Connectors	Power- Mil - Circular Ethernet - RJ45 GPS Antenna - TNC connector Multi-function (optional) - External calibration signal, relay contacts for low voltage control Sensor - Mil - Circular (TXT-6 only)
Status LEDs	Status, Link, Time, Media, Event
Digital Calibration	Play back raw (headerless) audio files which are easily created using popular audio editors Step and 1 Hz sine wave provided, user-supplied custom waveforms
Communications	10/100 Base-T Ethernet Static or DHCP IP addressing UDP/IP (unicast/multicast) or HTTP-based (inbound or outbound) streaming protocols