

ARTIUS

A DIGITAL BROADBAND NODE FOR LARGE N ARRAYS



KEY FEATURES

- > 30 s to 200 Hz
- > Flexible power options, including lithium power packs
- > Seismometer with integrated digitiser and internal GNSS timing
- > Push deployment
- > Wireless configuration via Bluetooth
- > Rack mounted data download with output to miniSEED

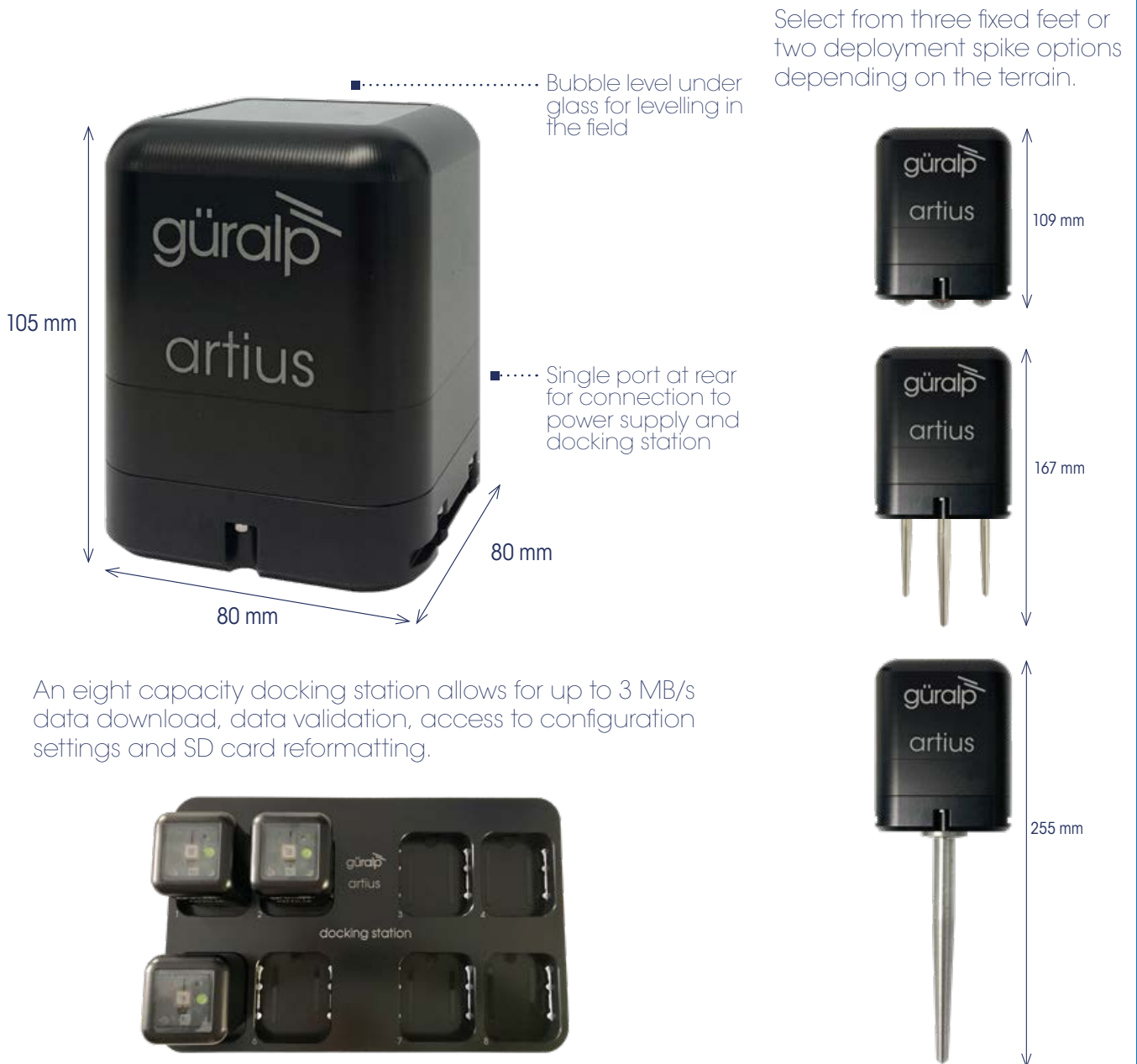
APPLICATIONS

- > High resolution imaging using portable high density networks
- > Network densification
- > Rapid response
- > Temporary seismic investigations

Artius

An ultra-compact node housing a three-component, digital broadband seismometer for portable, dense arrays with internal GNSS, Bluetooth and miniSEED output.

ARTIUS DIMENSIONS:



Artius offers a unique combination of performance and portability. A three-component, digital broadband seismometer, Artius was designed as an economic and research-grade node for projects requiring higher station density in medium to high noise sites.

Artius has a true broadband response of 30 seconds to 200 Hz and is suited to rapid temporary deployments where it can be either pushed or staked into the ground. As Artius has an internal digitiser and GNSS, it requires just a single port to connect to an external power source to power the sensor during deployment. A bubble level housed within the top of the sensor allows for levelling once in situ.

The GüVü Bluetooth App provides field based configuration as well as displaying waveforms, orientation, temperature and humidity data for added confidence during deployments.

For a broadband instrument, the Artius has an impressively compact form-factor of just 80 mm square by 105 mm height. The hard anodised aluminium casing is environmentally sealed to withstand the most challenging field environments.

Key features

Triaxial orthogonal (ZNE) instrument with high cross-axis rejection (> 65 dB)

30 s to 200 Hz response

Storage of instrument response and calibration parameters dramatically simplifies data management (RESP, Station XML and Dataless SEED formats)

Fixed 16 GB microSD card with options of 64 GB or 128 GB

A bubble level facilitates required levelling during deployments

A single port for power by external lithium battery

Accurate time-base provided by internal GNSS

Eight node capacity docking station for convenient mass configuration and 3 MB/s data download

GüVü Bluetooth App provides field based configuration and displays waveforms, orientation, temperature and humidity data for confident deployments

Artius has an ultra compact size of 80 mm × 80 mm × 105 mm and weighs just 1.4 kgs

Optional feet or deployment spikes can be selected to suit the terrain for rapid push installations

Data downloaded

Artius is designed to be docked into an eight node capacity docking station that provides:

- > Testing and configuration controls prior to deployment
- > Convenient mass data validation on completion
- > Up to 3 MB/s data download per node

Data are locally recorded on a fixed 16 GB microSD card in miniSEED (with metadata stored in Station XML and dataless SEED formats).

Sensor configuration and data management tools are provided via the Güralp Discovery software platform.

Applications

- > High resolution imaging using portable high density networks
- > Network densification
- > Rapid response
- > Temporary seismic investigations

SPECIFICATIONS

BROADBAND SEISMOMETER SYSTEM		DATA	
Configuration / Topology	Triaxial orthogonal (ZNE)	Data recording formats	miniSEED (metadata stored in Station XML and dataless SEED formats)
PERFORMANCE: BROADBAND SEISMOMETER		ON-BOARD DATA STORAGE	
Maximum frequency response bandwidth	30 s (0.03 Hz) to 200 Hz	Flash memory and storage	1 fixed 16 GB microSD card Option for 64 GB or 128 GB at point of order
Output sensitivity	500 V/ms ⁻¹	SOFTWARE	
Sensor dynamic range	> 145 dB	Operating system	Windows and Linux
Self-noise	-150 dB @ 10 seconds	OPERATION AND POWER USAGE	
Operational tilt range	±5°	Operating temperature	-20 to +70 °C -50 °C polar option available
Cross axis rejection	> 65 dB	Relative humidity range	zero to 100 %
Lowest spurious resonance	1 kHz	Power supply	7 - 16 V DC
Centring	Automatic	Power consumption	600 m W standard operation
Transfer function	Measured sensitivity, frequency response and instrument poles and zeros are stored within the instrument and accessible via web interface	<i>*Power voltage for operation of this unit only. Connection to additional instrumentation or use of longer cables may result in a higher input voltage requirement</i>	
ENVIRONMENTAL CHANNELS		PHYSICAL	
Sensor mass positions	Three independent sensor mass position outputs (integrator)	Casing type	Environmentally sealed, hard anodised aluminium
Orientation sensors	MEMS based accelerometer (three component)	Environmental sensor	Humidity and temperature
Other sensors	Temperature, humidity, input voltage, power time lock	Weight	1.4 kg (disconnected)
DATA PROCESSING		Dimensions (exc. connector)	80 mm × 80 mm × 105 mm
Output rates available	1 to 1000 samples per second User configurable via GüVü bluetooth app or docking station	Height with feet	109 mm
Decimation filters	÷2, ÷3, ÷4, ÷5 (Causal / Acausal)	Height with triple deployment spikes	167 mm
TIMING AND CALIBRATION		Height with single deployment spike	255 mm
Timing source precision	Accuracy when GNSS locked ±50 ns.	Connector type	Decoding M12 Automation Connector
Timing sources	In-built GNSS (GPS and GLONASS, BeiDou optional)	Environmental protection	IP68 - protection against effects of prolonged immersion at 3 m depth for 72 hours
Calibration signal generator	Step, white noise with selectable amplitude and sinewave	Artius package includes	Sensor Power cable for battery Deployment spike
USER INTERFACE		DOCKING STATION	
Configuration and control	(Ethernet) Güralp Discovery - free download (Windows, and Linux), web browser interface. GüVü Bluetooth app (Android)	Node capacity	Eight with concurrent data download
		Operating system compatible	Windows, Linux
		Communication technology	100BASE-T1 Ethernet
		Data harvesting speed	3 MB/s
		OPTIONAL ACCESSORIES	
		Portable Power Module	
		Deployment feet or spikes (single or triple)	
		Field protection cover	