

AFFINITY

CAPTURE. PROCESS. DISTRIBUTE.



A high-fidelity integrated digitiser and network communications unit that provides a convenient and expandable way of connecting analogue and digital instruments to your network.

KEY FEATURES

- > 31-bit analogue-to-digital conversion
- > Option of four or eight primary digitisation channels
- > Ultra-low noise at 138 dB of dynamic range at 100 samples per second
- > 8 or 16 multiplexed environmental channels
- > Fully interactive, fast user interface
- > State of the art timing protocols
- > On-board Web server (HTTP and HTTPS) for full remote configuration of digitizer parameters and broadband sensors
- > Supports ECDSA data authentication scheme

Affinity

The Güralp Affinity is a high-fidelity integrated digitiser and network communications unit that provides a convenient and expandable way of connecting analogue and digital instruments to your network.

AFFINITY DIGITISER AND NETWORK COMMUNICATIONS UNIT

REMOVABLE LIFTING AND MOUNTING BRACKET



← 274 mm →

SPECIFICATIONS

SENSOR INPUTS	
Primary digitisation channels	4-channel 31-bit ADC (3 primary; 1 auxiliary) or 8-channel 31-bit ADC (6 primary; 2 auxiliary)
Input voltage	Differential input: 40 V peak-to-peak (± 20 V). Also compatible with single-ended inputs: 20 V peak-to-peak (± 10 V)
Optional environmental channels	8 multiplexed environmental channels ± 10 V single-ended or 16 multiplexed environmental channels, ± 10 V single-ended
Input impedance	113 k Ω
PERFORMANCE	
ADC converter type	4th-order, single-bit, low-pass $\Sigma\Delta$
Output format	32-bit
Dynamic Range	>138 dB at 100 samples per second
Absolute accuracy	0.5 %
Common-mode rejection	>80 dB
DATA PROCESSING	
Output rates available	1 to 4000 samples per second
Highest output capability	20,000 samples per second aggregate
Decimation filters	2, 4, 5.
Anti-alias filters	3-pole
Low pass filters	FIR (other options available)
Out-of-band rejection	140 dB
Data transmission modes	Continuous
Triggered data	Retrievable using event table in the Affinity web page. User selectable pre and post event time.
Trigger modes	STA/LTA, level (threshold), external, software
TIMING AND CALIBRATION	
Timing source precision	<42 μ s drift per hour when unsynchronised (without GPS) < 0.1 μ s when GPS is connected
Timing sources	GNSS, PTP and NTP
Calibration signal generator	Amplitude/frequency adjustable, sine, step or broadband noise
OPERATION AND POWER USAGE	
Power supply	9 - 36 V DC*
Power consumption at 12 V DC	
4 channel	1.2 W (no GPS or ethernet) 1.55 W (GPS with 10 Mb/s Ethernet output)
8 channel	1.5 W (no GPS or ethernet) 1.85 W (GPS with 10 Mb/s Ethernet output)

*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.

SOFTWARE PROTOCOLS	
Operating system	Linux
Communication technologies supported	RS232, USB, Ethernet (10BASE-T / 100BASE-T)
Internet technologies supported	TCP/IP, PPP, SSH, HTTP, HTTPS (others on request) Firewall and routing capabilities
DATA COMMUNICATION	
Data recording formats	GCF and miniSEED
Seismic network protocols	Scream! (Antelope/Earthworm), CD1.0/1.1, SEEDlink, GDI-Link and others
Data storage	Fixed 64 GB onboard storage Optional external USB storage
Data authentication	Elliptic Curve Digital Signature Algorithm scheme data authentication
PHYSICAL/ENVIRONMENTAL	
Cold-start temperature range	-25 to +60 °C
Operational temperature range	-40 to +60 °C
Relative humidity range	zero to 100 %
Enclosure ingress protection	IP68 - protection against effects of prolonged immersion at 3 m depth for 72 hours
Enclosure/materials	Stainless steel cylinder
System weight	5.5 Kg (excluding GPS and cables)
Weight with mounting and carry bracket	6.1 Kg (excluding GPS and cables)
Dimensions - cylinder alone	274 mm \times 114 \varnothing , excluding connectors and cables
Dimensions with mounting/carrying bracket	304 mm \times 160 mm \times 130 mm, excluding connectors and cables
Standard accessories pack comprises	GNSS receiver (GPS, GLONASS, BeiDou, Galileo) with 10 m Cable (10 way to 10 way); 3 m Power Cable (4 way to Pig-tail); 5 m Ethernet Cable (6 way to Ethernet plug 8P8C); 1.8 m GPIO serial console cable (12 way-USB type A plug); RS422 to RS232 GNSS (GPS) adaptor

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In the interests of continual improvement with respect to design, reliability, function or otherwise, all product specifications and data are subject to change without prior notice.



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