iDAS™ intelligent Distributed Acoustic Sensor

The world's finest distributed acoustic sensor, the iDAS, has a novel optoelectronics architecture that allows for digital recording of acoustic fields at every location along a standard optical fibre. Amplitude, frequency and phase fidelity allows for numerous advanced applications.

Specifications

Measurement Technology	Phase coherent distributed acoustic sensor with linear amplitude and phase response
Optical architecture	Balanced interferometric phase detection to achieve the ultimate shot-noise performance down to pico-metre resolution
Finest Sampling Resolution	0.25m
Sampling Frequency [1]	1kHz – 100kHz
Finest Spatial Resolution [2]	1m
Frequency Range	0.001Hz to 50kHz
Self-noise (Noise floor) @ 1 kHz [pε per sqrt Hz]	2 pε per sqrt Hz @ 1kHz
Dynamic Range @ 10 Hz [dB power]	>100 dB @ 10Hz
Interrogation range	up to 50 km
Gauge length	10m gauge length optimised for seismic applications. Other gauge length available 3m
Fibre Compatibility [3]	Works with both singlemode and multimode fibres
Physical dimensions	Rack mounted, 178mm x 444mm x 518mm (H x W x D)

Weight	24 kg
In-built Triggering	PXI Trigger Input, SMB Jack
In-built synchronization	GPS Antenna Input SMB Synchronisation Clock Output SMB
External connectors	Ethernet: 2 x Gigabit Ethernet Port, RJ45; 2 x 10Gb SFP+ Port USB: 4 x Type-A USB 2.0 Port; 2 x USB 3.0 Port Display 2 x DisplayPort Data: 2 x PCIe x4 Cable Port GPIB Port, Micro D-Sub 25P COM Port, D-sub9 serial LAN PTP (RJ45) Power Inlet IEC 60320-1 C20, use with IEC 60320-1 C19 power outlet Fibre: E2000/APC
Max data capacity	350MB/s over 10GbE (short range)
Laser Product Category	Class 1
Compliance	CE/UKCA/FCC

Electrical Specifications

Input Voltage Range	100 - 240 VAC *
Input Frequency	50 - 60 Hz
Input Current	13 A Max
Over Current Protection	16 A circuit breaker
Power Consumption	215 W typical & 300 W max

*Ensure the main supply voltage fluctuations do not exceed +/-10% of the operating voltage range

[1] The upper limit for the sampling frequency is dictated by the length of the optical fibre, as a laser pulse cannot be launched until the reflected light from the end of the fibre from the previous pulse fibre is received. A simple rule of thumb is that the maximum sampling frequency on a 10km fibre is 10kHz; and on a 5km fibre is approximately 20kHz.

[2] Spatial resolution is the degree of localization of an event source. With a particular gauge length (GL) system, a point-source event will be measured as a signal spanning approximately 1 GL width, but the centre of the signal will track the source to within 1 m depending on the system settings.

[3] Performance figures quoted for singlemode fibre.

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