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# IGU 16HR 3C HZ Data Sheet

The IGU-16HR wireless seismic nodes, developed by Smartsolo, are a high resolution, portable and lightweight system which removes the requirement of excess cabling, multiple geophones and sources, typically associated with standard seismic data acquisition techniques such as MASW or refraction. We have 30 x 3 component 5Hz smart solo units available to hire in our rental pool, the system comes with the data acquisition laptop, magnetic switch, 2 x 2 port charger/ data download cases and the download cable. The highly sensitive, three component system uses a tail verterba design to ensure better coupling additionally its orthogonal configuration can easily pick up on propagating waves (from active or passive background sources) from 3 directions (X,Y & Z). In order to obtain these readings the IGU-16HR 3C uses an electromagnetic conversion system which generates millivolt signals which are proportional to the vibration intensity of the soil subsurface, the 3C configuration restores the multi-directional signal without distortion. Each node has a GPS clock signal which ensures all the data is timestamped/ acquired in real time.

*Fig.1. Image of the IGU-16HR 3C sensor/node which shows the unit fully assembled ready for field use and another which has the battery and node itself disconnected for reference (Image courteously provided by Smartsolo)*

The system can be operated through the Sololite acquisition software which is used to set up the Smartsolo for each survey, programme the charger/ download boxes and download the data from each of the nodes after the survey day, once the survey parameters are set up and transferred to sensors these can then be inserted into the top subsurface of the investigation area in a linear, l shape or triangular array design depending on your field requirements. To start the acquisition the operator can hold the magnetic switch near to the led light on the sensor until a green light lashes at 1pps.The sensors can then be left to record data over the survey day, the magnetic switch is used to turn off the sensor before they can be collected and the data downloaded off each unit using the charger/data download box and laptop.

## Product Dimensions

| Physical | Dimensions (L x W x H) | Weight |
|---|---|---|
| (instrument only) | 10 cm x 10 cm x 25 cm | 3 kg |

## Technical Specifications



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| | |
|---|---|
| **Sample intervals:** | 0.25, 0.5, 1, 2, 4 ms |
| **ADC resolution:** | 24 bits |
| **Seismic Data Loggers:** | @ 2ms sample interval, 31.25 Hz, 25?, unless otherwise indicated |
| **Preamplifier Gain:** | 0dB to 36 dB in 6 dB steps |
| **Anti-alias Filter:** | 206.5 Hz @ 2ms (82.6%of Nyquist) Selectable - Linear Phase or Minimum Phase |
| **DC blocking filter:** | 1Hz to 10Hz, 1Hz increments or DC Removed |
| **Seismic data channel:** | 3 |
| **Waterproof:** | IP68 |
| **Charging Temperature Range:** | +3?C ~ +40?C |
| **Equivalent Input Noise:** | 0.18 ?V 2ms Gain 18dB(Typical) |
| **Instantanteous Dynamic Range:** | 125dB@ 2ms Gain 0dB |
| **Total Harmonic Distortion:** | |



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