Sigicom

INFRA V12

A DIGITAL GEOPHONE IN THE INFRA-SYSTEM

INFRA V12 Triaxial Geophone

The INFRA system is used to monitor construction activities, blasting, train traffic, road traffic, vibration in buildings etc.

The V12 Digital Triaxial Geophone has vibration sensing elements sensitive in three directions X, Y, Z, together with Digital Signal Processing.

The Geophone can be directly connected to the INFRA field monitoring system.

All filtering, signal processing and detection is done digitally in the geophone. Before the recording/scanning is started you only select the wanted standard that is presented in the display of the INFRA data logger or Remote in INFRA Net.

INFRA V12 measures according to the following national and international standards:

SS 4604866 Spräng *	5 – 300 Hz
SS 025211 Schakt *	2 – 150 Hz
ISO 8569 Accel	5 – 300 Hz
SS 4604861 Komfort RMS 1s *	1 – 80 Hz
DIN 4150-2 KB RMS 125ms	1 – 80 Hz
DIN 4150-3 Anlage *	1 – 315 Hz
DIN 4150-3 Anlage	1 – 80 Hz
ÖNORM S 9012 RMS 1s **	1 – 80 Hz
SS 4604861 Komfort RMS 1s *	1 – 80 Hz
ISO 10816-2 RMS 1 s	5 – 500 Hz
NS8141 Byggverk *	5 – 300 Hz
NS8176 Komfort RMS 1s *	1 – 80 Hz
NS8141: 2013 *	3 – 400 Hz

ISO2631-2 RMS 1s	1 – 80 Hz
SN640 312a **	5 – 150 Hz
BS 7385 **	1 – 300 Hz
ISEE Seismograph ***	2 – 250 Hz
ANSI S2.71 RMS 1s ***	1 – 80 Hz
AS 2187.2-2006 ***	2 – 250 Hz
ÖNORM S 9020 **	1 – 315 Hz
Arrêté du 1994 **	1 – 150 Hz
ICPE-Circ86 **	1 – 150 Hz
IN1226 **	1 – 150 Hz
Toronto Bylaw 514 ***	2 – 250 Hz
Geophone	5 – 500 Hz

*) Available in Nordic countries
**) Available in European countries (except the Nordic countries)
***) Available in all countries outside Europe

Technical Data

DIRECTION OF SENSITIVITY

V12 is triaxial and measures vibration in three directions. It has holes for mounting bolts (M6) for wall mount and floor mount.

MEASURING

The geophone has a built in digital signal processor. The signal processor processes all incoming data in real time according to the selected standard. The sensor works in combinational mode. It measures maximum values for each interval (selectable from 5 sec. to 20 min) according to the selected standard and at the same time it triggers and record time histories when the trigger level is exceeded.

SAMPLING

The geophone signal is sampled at 4096 Hz using a 16 bit A/D converter which gives a wide dynamic range. When a preset threshold is exceeded a time history is recorded. Even some time before the trigger time is stored (pre-trig). If any sensor in a sensor network triggers all sensors will record transient data synchronously.

RECORDING TIME

Recording time up to 40 seconds at 4 kHz sampling. As soon as a time history is recorded in the geophone it is sent over the INFRA bus to the master unit.

POWER SUPPLY

The Geophone is powered via the bus cable with 12 Volts DC. Power in monitoring and recording mode 75 mW. Power consumption is higher during communication over the bus.

MEASURING RANGE

Frequency range 1 Hz - 500 Hz The Geophone has a calibrated sensitivity within +- 2%. Maximum vibration level is 250 mm/s (10 in/s) dependent on the selected standard. High range is 0.05 mm/s to 250 mm/s (0.002 in/s to 10 in/s). Low range is 0.005 mm/s to 25 mm/s (0.0002 in/s) to 1 in/s. The noise level is extremely low due to the internal A/D converter.

SENSOR ELEMENT

The sensor element is a high quality velocity sensing geophone. It is very rugged and has the following properties:
· Long term stability
· Wide temperature range -20 to +50 °C (-4 to 122 °F)
· Wide dynamic range

IDENTITY

The geophone has a unique ID number that follows the recorded data. This makes it possible to trace data to a certain sensor.

CALIBRATION

Only the geophone has to be calibrated. The rest of the the system is data communication and data storage. The Geophone has an internal memory for identity, calibration factors, calibration date etc. Even the calibration date is supplied with the recorded data.

TRIGG-SYNCRONISATION

All time history recording sensors that are connected to the same INFRA bus cable will record data simultaneously if one sensor triggers. Acts as a multichannel transient recorder.

MECHANICAL

Watertight anodized aluminium house with rubber seals.
It has holes for bolts passing through in both vertical and horizontal direction. Can very easily be bolted to the floor or to the wall.
Dimension: 102 x 78 x 75 mm (4.0 x 3.1 x 2.9 in)
excluding connector and standoffs
Material: Anodized aluminium
Protection class IP67
Weight: 1180 grams (2.6 lbs)

ACCESSORIES

Se the product catalogue for accessories.

CE APPROVAL

Fulfills EMC demands according to:
EN 301 489-1 V1.8.1 (2008)
EN 301 489-7 V1.3.1 (2005)
EN 61326-1 (2006)

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Sweden
info@sigicom.se
www.sigicom.se

France
info@sigicom.fr
www.sigicom.com

UK
info@sigicom.co.uk
www.sigicom.com

USA
info@sigicom.us
www.sigicom.com