

INTEGRIPod™ AM Acoustic Motion Data Logger



INTEGRIPod™
acoustic inclinometers
for mooring lines

The Pulse **INTEGRIPod™ AM** is an acoustically-linked motion data logger. It uses an accurate motion sensor to record the movement of a structure to its on-board memory over a long period of time. Periodically this data is transmitted to the surface via an acoustic link.

The data-loggers are acoustically linked to the surface and are controlled by the topside monitoring software, which allows for logging program selection, system diagnostic and data retrieval. Three user defined logging programs (Infrequent, Frequent and Emergency) are available to suit different offshore environments.

The **INTEGRIPod™ AM** contains all electronics, batteries and sensors enclosed in a cylindrical corrosion resistant casing rated for 3000m water depth.

Low power architecture and appropriate sensor selection facilitates long term operation, up to 1 year, without battery replacement (dependant on logging program selected).

These robust devices can be quickly installed by diver or ROV, and can accommodate the external loading anticipated even in harsh environments without damage or impacting reliability.

The **INTEGRIPod™ AM** is supplied with bi-axial accelerometers for direct motion measurement and can be expanded, offering maximum monitoring flexibility.

IMPLEMENTAION

The **INTEGRIPod™ AM** can be deployed in the field by strapping directly to the structure using bands or using a tailor-made interface designed to suit. This may be executed by diver or ROV. After installation, the **INTEGRIPod™ AM** is controlled by a topside data acquisition system via the acoustic transceiver.

A data acquisition system is deployed on the topside of the platform. This involves an acoustic transceiver, a PC-based data acquisition system and a topside electrical system. The acoustic transceiver can be deployed using a winch or mounted to a fixed structure of the platform.



Pod holders installed on subsea structures allow pods to be installed by ROV or divers

SENSOR EXPANSION

Number of sensor inputs	2 channels accelerometers.
Input range	0 – 2.5V
Accuracy / resolution	2mg RMS/0.6mg 1.2mV/0.6mV

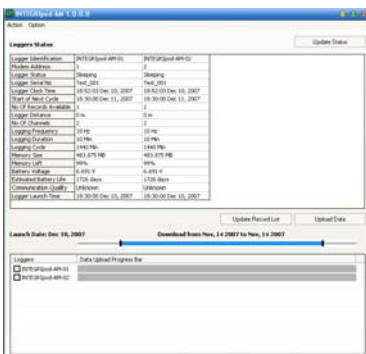
INTEGRIPod™ AM MOTION MONITORING SOFTWARE

The software has the basic functions of initialisation, data collection, saving and display.

Data saved by the system will enable post data analysis to be carried out. The saved files have the following format.

UPLOADED FILES FORMAT

Data files	Time stamp files Data records for each logging session Excel compatible
Time stamp files	ASCII format
Data record files	ASCII format Raw voltages for all sensors inputs



INTEGRIPod™ INTEGRIPod software allows the data from each pod to be retrieved acoustically

LOGGER SPECIFICATION

Acceleration Sensors (base case)

Sensor direction X and Y (Z optional)
 Range (g) ± 1.2 and ± 2
 Cut-off response 4.5Hz
 Accuracy ±0.002g rms with 1.2g range
 DC temp drift Correction if required
 Alignment error 0.3 deg between axis
 Sensor direction Indicated on the logger body
 Sensor calibration Use gravity (1g and -1g)

Standalone logging programme (user defined)

Logging mode Infrequent
 Logging period (min) 10
 Cycle period (hour) 24
 Sampling frequency (Hz) 10Hz
 Logging mode Frequent
 Logging period (min) 10
 Cycle period (hour) 2
 Sampling frequency (Hz) 10Hz
 Logging mode Emergency
 Logging period (min) 10
 Cycle period (hour) 0.5
 Sampling frequency (Hz) 10Hz

Communication Method

Method Acoustic transceiver

Acoustic Modem link

Transducer type 70° Omni-directional
 Link distance 3000 m
 Acoustic transmission rate 4800 bits/second
 Frequency 12.75 to 21.25 kHz
 Power 8mW in sleep mode
 8W in transmission

On-board memory

Memory media Up to 4 GB memory card

Software

Operating system 2000, NT, XP, Vista
 Functions
 - Diagnostic check
 - Collect statistical data
 - Initialise data collection
 - Download data
 - Data saving
 - GUI

Power consumption of logger

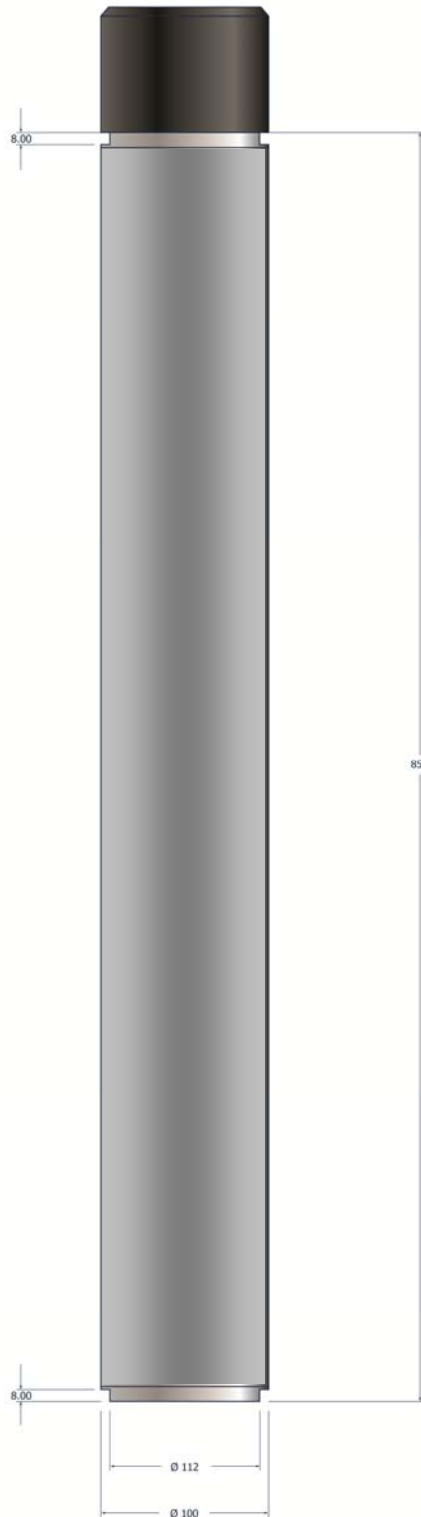
Batteries 40x D-size 3.6V lithium
 Battery capacity 140000mA-hour nominal
 Current (logging) 20mA
 Standby <3mA

Casing

Material Superduplex stainless steel
 Size (mm) 115 diameter x 900 length
 Weight in air 18kg (with batteries)
 Weight in water 13kg (with batteries)
 Direction of sensor-X Polarisation slot on base

Environmental

Operating 2° C to 30° C
 Storage -5° C to 50° C
 Pressure rating 3000m water depth
 Seals Nitrile 'O-rings'



London
 1-7 Cherry Street
 Surrey, GU21 6EE, UK
 Tel: +44 1483 774910

Aberdeen
 Tern Place House, Tern Place,
 Bridge of Don
 Aberdeen, AB23 8JX, UK
 Tel: +44 1224 452285

Houston
 16000 Barkers Point Lane, Suite 120,
 Houston, TX 77079, USA
 Tel: +1 713 422 2663

Kuala Lumpur
 Suite 16-3, 16th Floor, Wisma UOA II
 21 Jalan Panang 50450
 Kuala Lumpur, Malaysia
 Tel: +60 1 2328 312

Rio de Janeiro
 Praça Floriano, 19-22º andar,
 Centro, RJ, 20031-924, Brazil
 Tel: +55 21 2510 7323