



Underwater Multi Influence Sensor Systems

UMISS[®] MK II



Proven equipment from an experienced supplier

UMISS® MK II System Description

UMISS® is a family of Multi Influence Sensors Systems designed to measure Underwater Signatures. UMISS® MK II consists of parts and subparts that have been proved by use with the fixed and mobile ranges of the Royal Swedish Navy, and has been accepted for International market applications. UMISS® MK II is designed for use as a single unit or with several UMISS® MK II sensors, combined in a full range application.

The UMISS® MK II Sea Module is as standard equipped with magnetic, electric and pressure sensors. Optional is an acoustic sensor as well as a seismograph sensor. Underwater signatures are measured for fixed & mobile ranging and surveillance applications such as for harbour protection.

The UMISS® MK II sensor signals measured by the Sea Module sensors are converted to digital signals using a high precision 24 Bit ADC. The sensor output data is converted to Ethernet serial data traffic by a media converter and transmitted through a copper cable to the Land Module. The Sea cable carries Ethernet and 2 electrical conductors connecting the UMISS® MK II Sea Module to the Land Module. Alternative data communication with WLAN from a surface bouy or dedicated optical Ethernet is also available.

The UMISS® MK II sensor data from the Sea Module is transmitted over the Ethernet Sea Cable to a Land Module. The Land Module power supply is 24/48 Vdc alternatively 110/127/230 Vac which is also used for the Sea Module power supply.

UMISS® MK II is designed for easy deployment from a small workboat with minimized requirement for diver assistance. The Sea Module is also equipped with 2-axis inclination sensor unit. Data from this unit and the static 3-axis magnetic sensor enable compensation for non horizontal positions of the Sea Module to be made during subsequent analysis. Included in the Sea Module is also a humidity sensor enabling humidity surveillance of the Sea Module encapsulating.

When UMISS® MK II is used as a single unit, a laptop computer and a dedicated program permits real time presentation, storage of the raw sensor data as well as FFT analysis. In a full sea range application several UMISS® MK II sensors are connected to a hub and a workstation at the shore range station running the software.



UMISS® MK II Equipments

UMISS[®] MK II Technical specifications

Sea Module

The Sea Module consists of a foundation platform, a structure for the UEP/ELFE sensors integrated in the pressure housing for the electronic boards and the other sensors.

Data from the sensors are sampled, pre-processed and transmitted via the dedicated Ethernet to the land module with a bandwidth of up to 3000 Hz for each one of the channels (MAG/UEP/PRES).

The inclination and humidity data is transmitted on request from the land module.

Data from the sea module is transmitted to the Land Module via Ethernet Sea cable. Alternative data communication with WLAN from a surface bouy or dedicated optical fibre available.

The UMISS[®] MK II sea module may as an option be equipped with an optional acoustic sensor. In that case the Hydrophone connects to the Sea Module with a underwater connector. The Hydrophone is placed as a floating device beside the UMISS[®] MK II sensor. Normally in a full range application with several UMISS[®] MK II sensors the acoustic sensor is placed at an Underwater Junction Box (UWJB).

Land Module

The Land Module is delivered in a protective case containing a Laptop computer and a Data Converter.

The Data Land Unit contains a media converter for changing the incoming data to standard Ethernet TCP/IP data format. There is also a connector for the 24/48 Vdc power supply to UMISS[®] MK II system (or an AC/DC converter for 110/127/230 Vac). Alternate supply options are available.

The Laptop contains a data surveillance software program with a presentation store and analysis of the applicable raw sensors data. The Software in the Laptop also supports system status control and preparation for measurements.

Sea cable

The sea cable connects the Land Module junction box on shore with the Sea Module. This cable is made up of 1 Ethernet cable and 2 electric conductors in a double jacket of polyurethane. The cable connectors are made of rubber. One standard cable is 100 m and several can be joined up to approximate 1500 m with Ethernet Extenders. Each cable length can be delivered complete with an optional winder.

Specification Data

Magnetic sensor

Fluxgate sensor, 3-axis	DC and AC range
Dynamic range DC, per axis	100 μ T
Dynamic range AC, per axis	\pm 0.3 nT (optional)
Frequency range	DC-30 Hz opt. 1/3 kHz
Typical fluxgate noise	< 0.3 nT/root Hz @ Hz
Orthogonality inaccuracy	Less than \pm 0.5°

Electric sensor

Carbon Fibre Sensor, 3-axis	AC range
Frequency range	Typically 3 mHz - 3 kHz (-3 dB)
Typical input noise	<1 nV/ Root Hz @ 1Hz
Sensor spacing	50 cm
Orthogonality inaccuracy	Typically within 0.5-1°
Deployment preparation	None, can be done instant

Inclination sensor

Inclination sensor	2-axis
Inclination	\pm 15°
Inaccuracy	0.5°

Optional Acoustic Sensor

Acoustic Sensor	AC range
Frequency range	15 - 20000 Hz
Dynamic range	Up to 143 dB or 160 dB rel. 1 μ V

Pressure sensor

Pressure Sensor	DC and AC range
Frequency range	DC - 8 Hz
Dynamic & Static range	\pm 10000 Pascal & 0-200 m
Inaccuracy, dynamic	\pm 0.1%
Inaccuracy, static	\pm 1 m

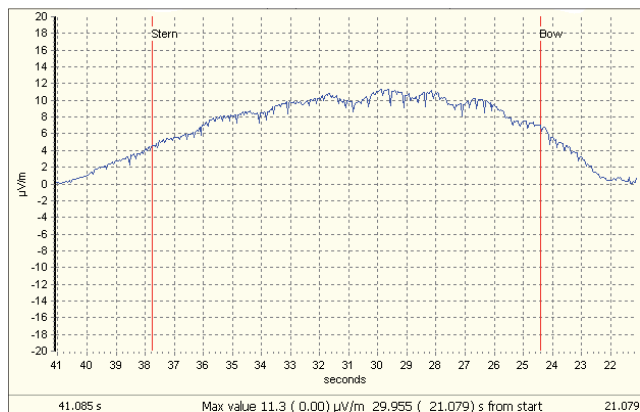
Cable specification

Cable length	Standard 100 m or optional 500 m
Output Diameter	< 20 mm
Composition	Ethernet and 2 electric conductors
Weight	Approx 48 kg
Weight with winder	Approx 60 kg

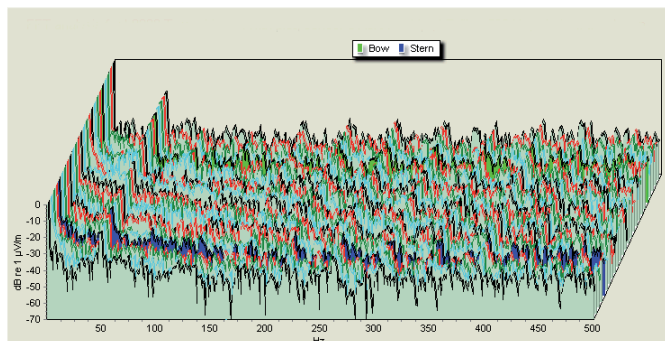
UMISS® MK II Software Information and Mechanical Data

Software

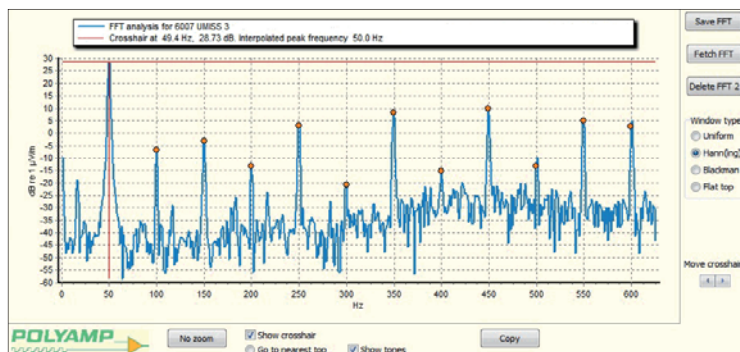
The electromagnetic signals from a passing vessel is stored for post analysis in a versatile software tool. The collected data from the sensors can be displayed in a variety of modes with user defined settings. A typical display window provides all the visual information that is needed for analysis and all displays can be stored as pictures for further use in reports or presentations. Integrated FFT analysis provides displays in the frequency range for single sensors or arrays. For a full range application using several UMISS® sensors platforms the Polyamp range software SWECADE® can be provided.



Time Domain



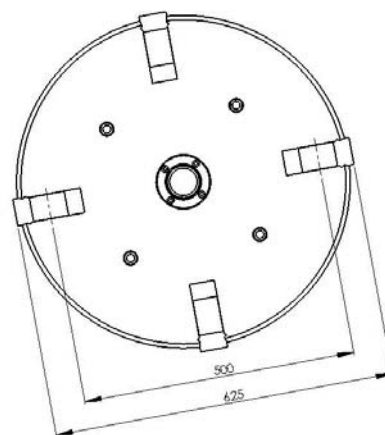
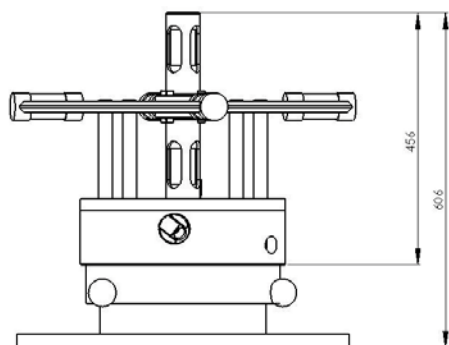
Water fall



FFT analysis

UMISS® MK II Mechanical Data

Diameter	625 mm
Height	606 mm
Weight in air (platform)	25 kg
Weight in air (total)	50 kg
Weight in water (total)	12 kg



Polyamp AB

Box 925
191 29 SOLLENTUNA
Tel: +46 - (8) 594 693 00
Fax: +46 - (8) 594 693 05
info@polyamp.se
www.polyamp.com



www.polyamp.com

This document only a general description of the products and services offered and shall not form part of any contract. From time to time, changes may be made to the services or conditions of supply.

Copyright© Polyamp AB, Sep 2012