



MOSS

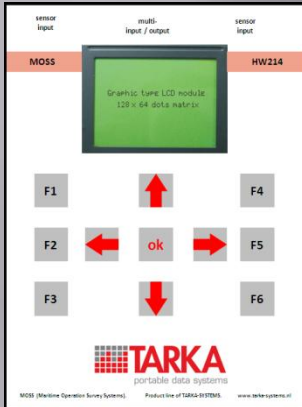
Maritime Operations Survey Systems

The Freeboard/Inclination system is a product within the MOSS product line.

The system was initially developed for the salvage market but due to basic functionality and the possibility to add multiple sensors, the system can be applied in many other applications.

Basic setup

Handheld unit



The handheld unit consist of the following items:

- Rechargeable Lithium-Ion battery-pack with control print
- 10 hours operational time with basic setup
- Fully rechargeable within 2 hours
- Electronics for data gathering and storage
- Front panel with touch buttons and large LCD screen
- Data stored at user selectable measurement position/location
- Basic calculations on measured values
- Rugged connectors for sensor cable(s)
- Rugged connector for battery charge and output functionality
- Data transfer of stored data to PC or laptop for post-processing
- Weight 1.5 kg

Ultrasonic sensor



The ultra sonic sensor has the following specifications:

- Optimum range 0.30 – 10 meter
- Max Range 15.2 meter
- Update rate 5 Hz
- Stainless steel IP68 housing
- RS485 bus output signal
- Input voltage 10-30 Vdc
- Resolution 0.1 mm
- Weight 0.73 kg

Inclination sensor



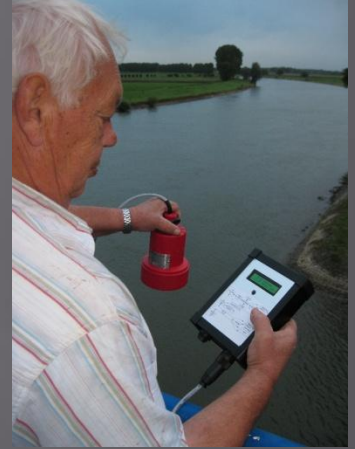
The inclination sensor has the following specifications:

- 360 degrees range
- RS485 bus output signal
- Resolution of 0.01 degree
- Hermetically sealed
- 16 bit microcontroller
- Multiple sensors can be operated using a single communication line
- Settling time <0.4 seconds

Development

Prototype

- Electronics with 2 voltage inputs
- 1 x ultra sonic sensor (volt output)
- 1 x inclination sensor intern (volt output)
- Large, heavy ultrasonic sensor (0.5 Hz)
- Small display
- No touch buttons
- Limited data storage



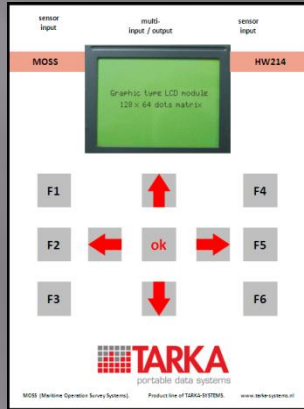
New unit (in development)

- Electronics with serial (RS485) input
- multiple ultra sonic sensor (RS485)
- multiple inclination sensor (RS485)
- Smaller, lighter and faster ultra sonic sensor(2 Hz)
- Large display
- Direct calculations of average values during measurement.
- Touch buttons
- Data storage on internal memory card
- Data connectivity to transfer data to post processing laptop.
- Internal rechargeable battery-pack for long periods of operation

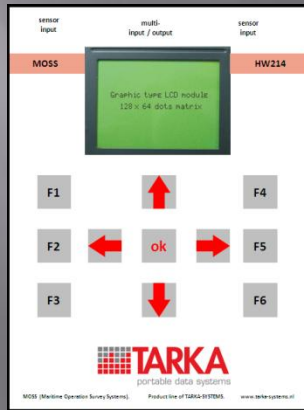


Possible configurations

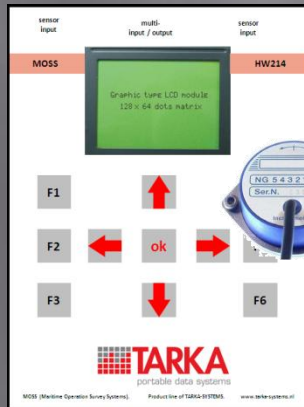
Handheld
1 x ultra sonic sensor



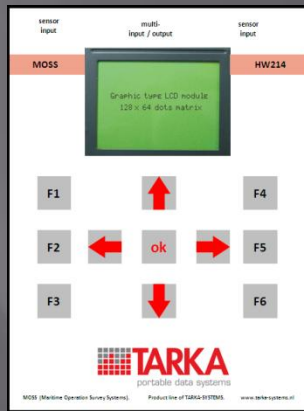
Handheld
1 x inclination sensor (extern)



Handheld
1 x ultra sonic sensor
1 x inclination sensor (intern)



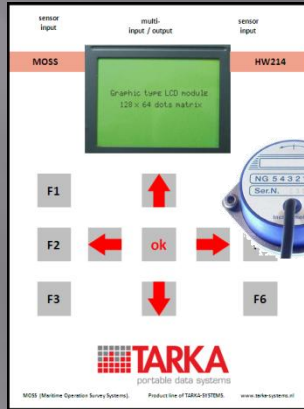
Handheld
1 x ultra sonic sensor
1 x inclination sensor (extern)



Possible configurations

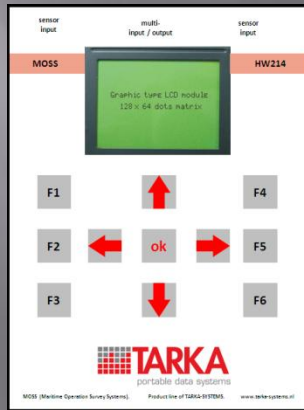
Handheld

- 1 x ultra sonic sensor
- 1 x inclination sensor (intern)
- 1 x inclination sensor (extern)



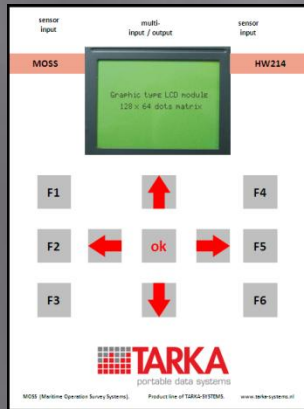
Handheld

- 2 x ultra sonic sensor
- or more



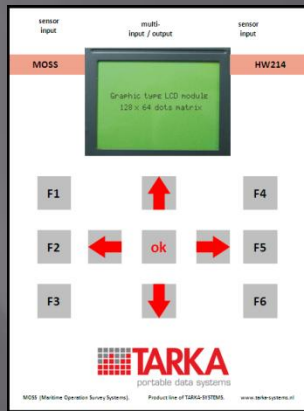
Handheld

- 2 x inclination sensor
- or more (extern)



Handheld

- Combination of more
- Ultra sonic and inclination sensors



Full ship deformation

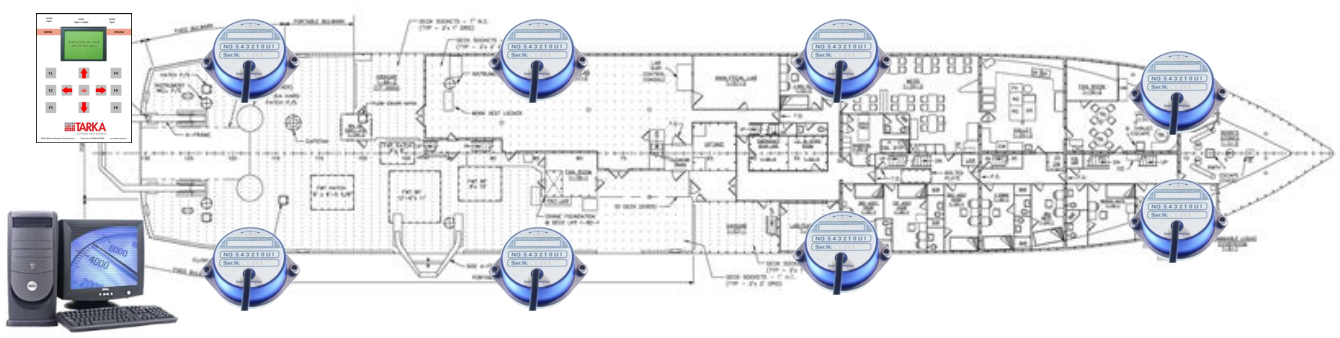
EXAMPLE:

Temporary

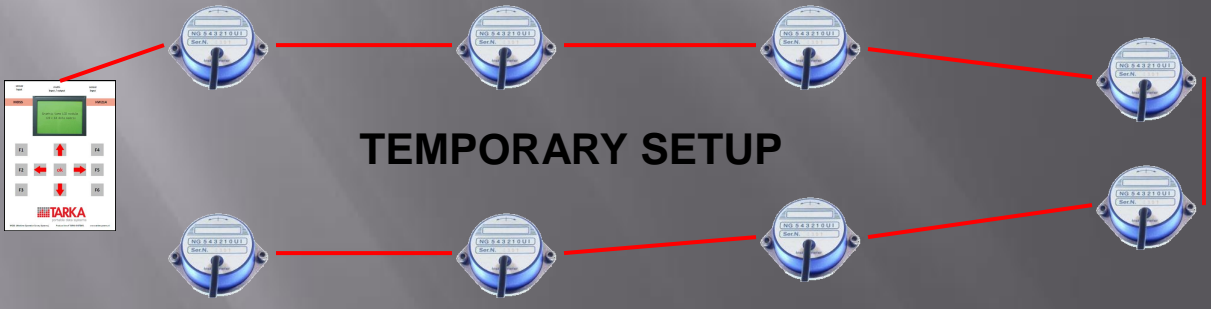
- 1 x handheld unit
- multiple inclination sensor s
- 1 x cable running to all sensors
- 1 x person holding handheld unit

Permanent

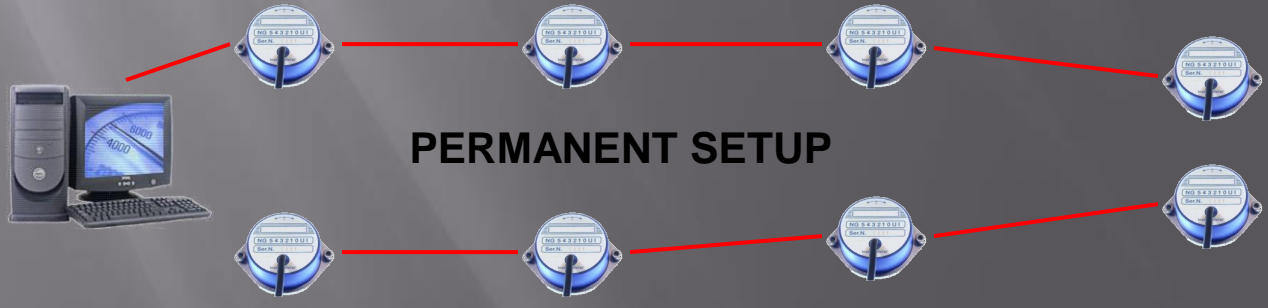
- 1 x laptop or PC
- multiple inclination sensors
- 1 x cable running to all sensor
- Laptop or PC installed on ship



TEMPORARY SETUP



PERMANENT SETUP



Freeboard measurement

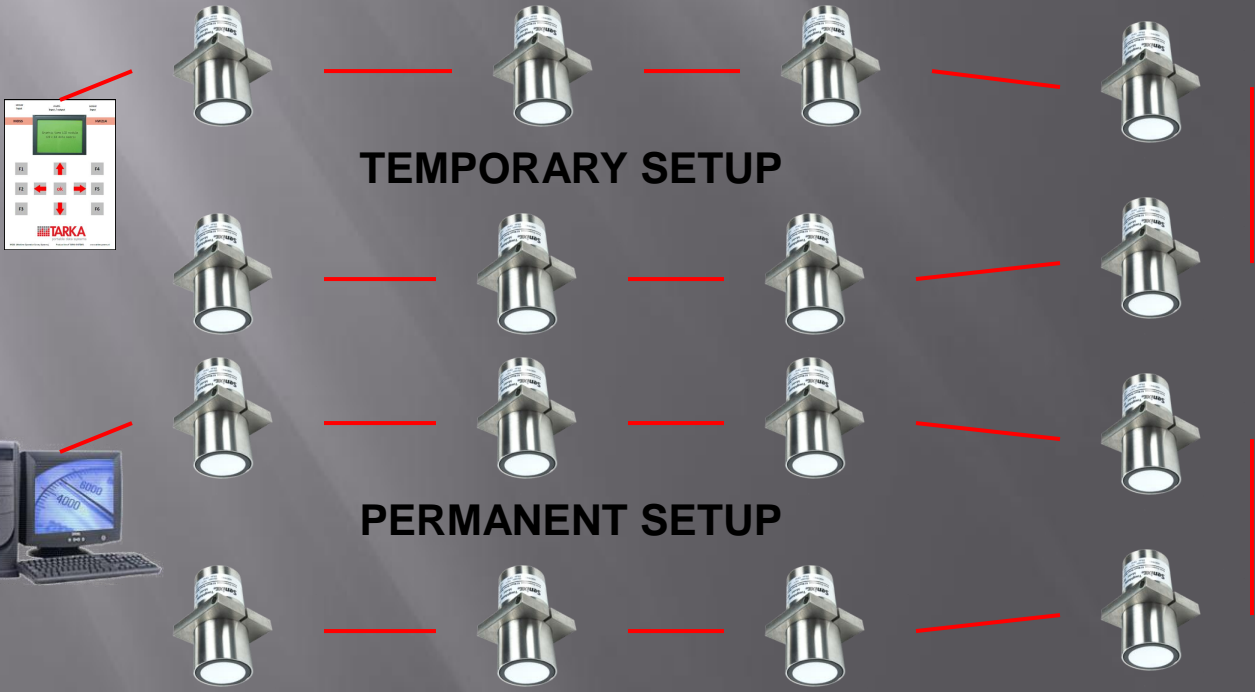
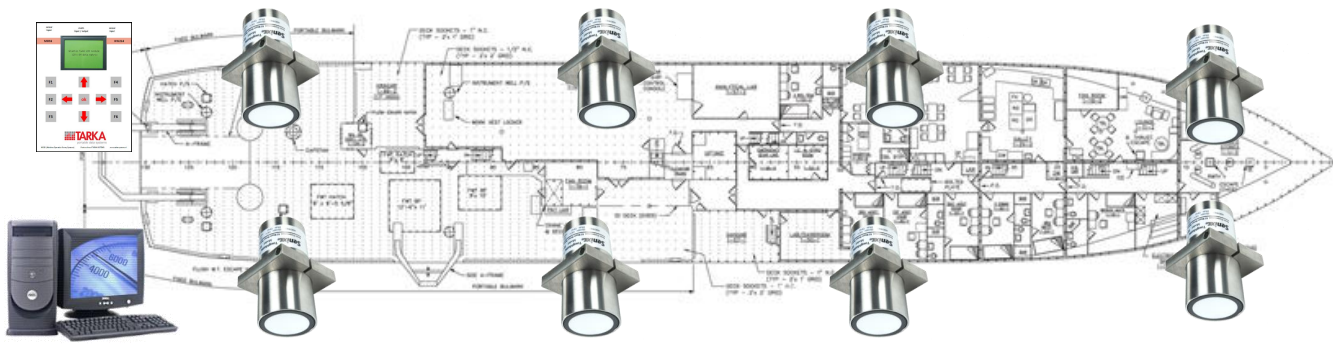
EXAMPLE:

Temporary

- 1 x handheld unit
- multiple ultrasonic sensors
- 1 x cable running to all sensors
- 1 x person holding handheld unit

Permanent

- 1 x laptop or PC
- multiple ultrasonic sensors
- 1 x cable running to all sensor
- Laptop or PC installed on ship





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