

MOTION AND INCLINATION SENSOR EMIS



INCLUDES FUNCTION DIGITAL INCLINOMETER ACCORDING TO IMO 363(92)

- Measures vessel roll and pitch motions.
- Roll measurement complies with:
 - IMO 363(92) Performance standards for electronic inclinometers,
 - ISO/PAS 19679 Ships and marine technology,
 - IEC 61924-2 Maritime navigation and radio communication equipment and systems.
- Provides NMEA output for ship performance systems (e.g. ESOS 2.0) and VDR.
- Provides option for high accuracy static trim measurement for loading operations.



Motion and Inclination Sensor (EMIS) allows measurement of ship motions along her longitudinal (roll) and transverse (pitch) axes. EMIS can be used as stand-alone system with a help of dedicated HMI (Human Machine Interface). Measured signals can be also registered and visualized by parent system (e.g. ESOS for performance analyses). EMIS provides separate roll signal for external systems (e.g. VDR system).

EMIS provides information of ship motions which may be used in order to recognize possible dangerous situations i.e. when ship due to operation in resonant state experiences violent and/or large amplitude motions.

EMIS can be optionally equipped with high accuracy trim sensor facilitating precise loading and ballasting operations.

FUNCTIONALITY

EMIS allows measurement of following quantities:

- Ship inclination angle around longitudinal axis – roll [°];
- Ship inclination angle around transverse axis – pitch [°];
- Furthermore following derived quantities are calculated:
- Rate of turn around longitudinal axis – roll angular velocity [°/s];
- Rate of turn around transverse axis – pitch angular velocity [°/s];
- Roll amplitude to SB from last period [°];
- Roll amplitude to PS from last period [°];
- Roll amplitude to SB from last user reset [°];
- Roll amplitude to PS from last user reset [°];
- Roll period [s].

Additional Information

There is an option for trim measurement functionality with additional high accuracy trim sensor to be mounted inside Measuring Unit.

TECHNICAL SPECIFICATION

Signals:

- Roll angle – momentary, average, RMS and extreme values, $\pm 90^\circ$;
- Roll amplitude – between 4s and 40s;
- Pitch angle – momentary, average, RMS and extreme values, $\pm 90^\circ$.

Optional high accuracy trim - momentary, $\pm 10^\circ$, resolution 0.001°.

Measurement Unit:

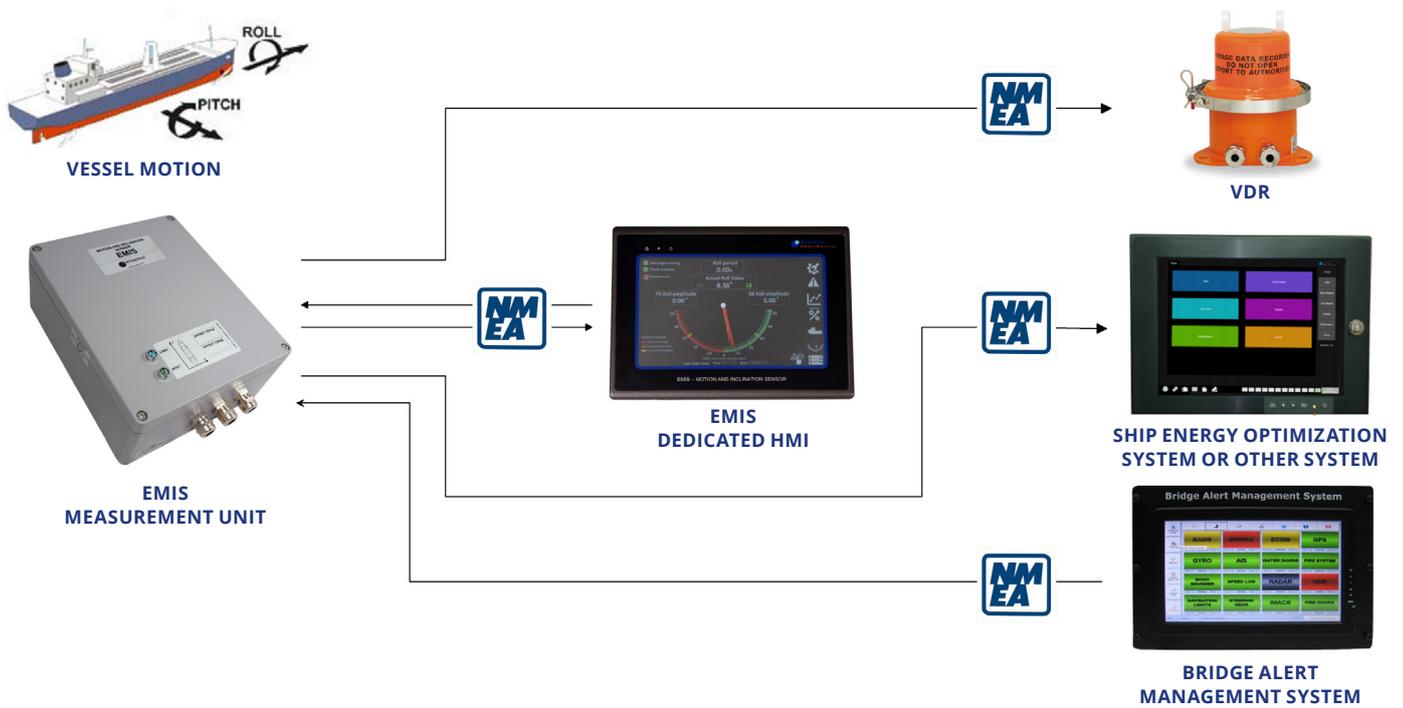
- Dimension (W x H x D) 230x280x150mm
- Weight approx 4.5 kg
- Output signal in NMEA protocol (standard for external supervisory systems (i.e VDR, ESOS2)
- Power Supply: 24VDC
- Power Consumption 350mA

HMI Operating Panel:

- Display: 7" TFT Contrast Ratio 500:1
- Resolution (W x H): 800x480
- Back Light: LED
- Touch Screen
- Flush mounted or in adjustable enclosure
- Power supply: 24V DC
- Power Consumption 400mA

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Additional Information

EMIS has implemented Alarm State Machine – which generates alarms, sends it to NMEA outputs and supports acknowledgments from navigational integrated systems in accordance with: ISO/PAS 19679 and IEC 61924-2.

EMIS can be integrated in SEEMP Set for the purpose of ship overall performance optimization.

