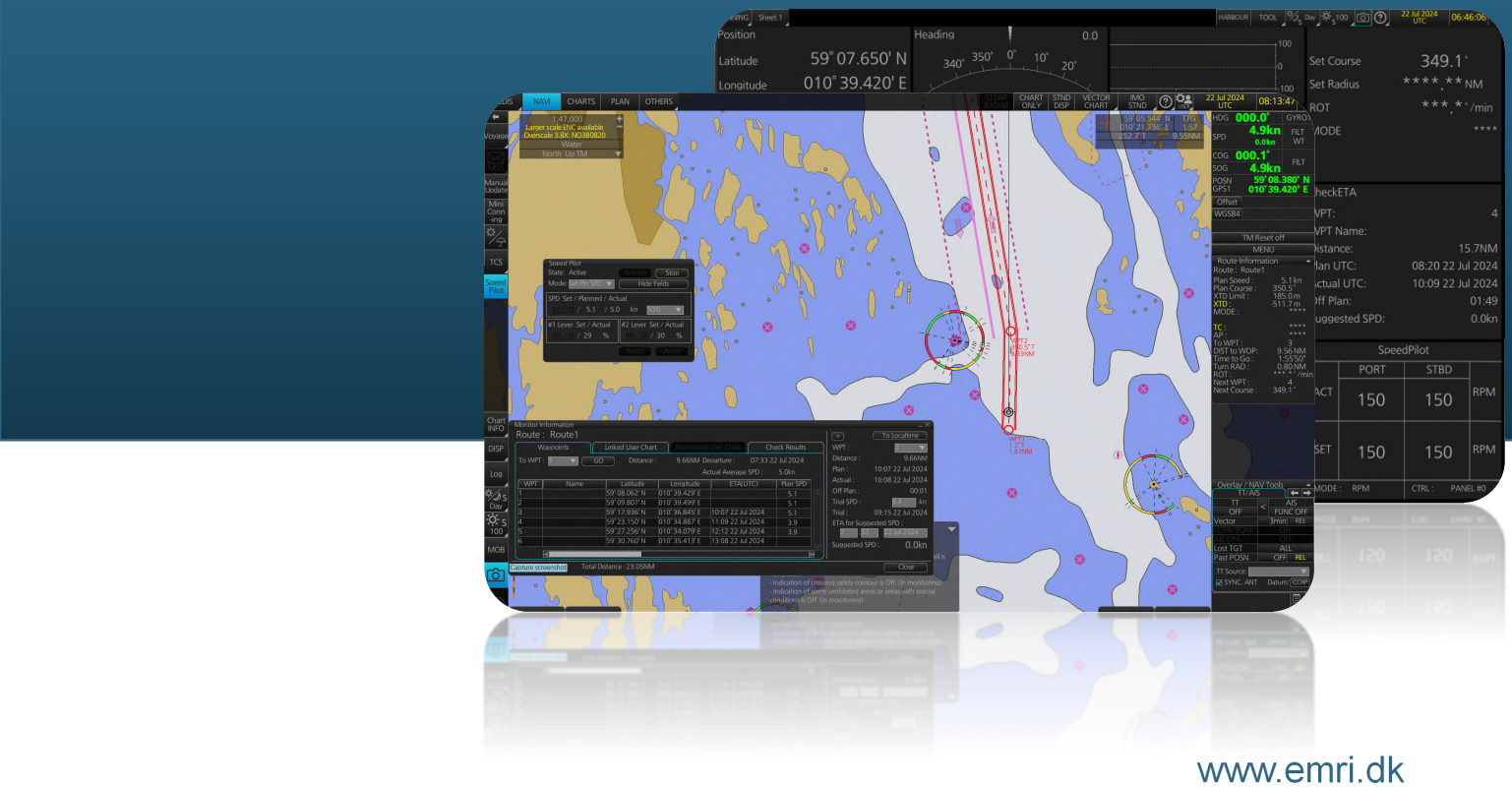
EMRI
A FURUNO COMPANY

SpeedPilot

Model: ESP300

OPTIMIZE VOYAGE PLANNING

with EMRI SpeedPilot



www.emri.dk

Efficiently securing your estimated time of arrival

The SpeedPilot from EMRI provides excellent speed planning capabilities with a user-friendly interface to the Furuno ECDIS.

- Fuel saving
- Voyage planning – ETA assistance
- Integrated in the Furuno FMD3200/3300 ECDIS
- Set speed sources SOG or STW
- EMRI Pilot series common components
- Minimal training needed

The ESP300 SpeedPilot is the result of our constant striving to improve functionality, cost efficiency and performance of ship steering control. The SpeedPilot assists the navigator´s approach to optimal planning and ship speed control. It provides automatic execution of the optimal speed profile scheduled for the voyage, which contributes to reducing the workload for the navigator, while securing on-time arrival.

ESP300 is designed to require minimal console space on the bridge, as it is integrated into the Furuno ECDIS where it can be operated directly via the SpeedPilot widget located on the InstantAccess bar™ on the screen or by the use of a dedicated armrest panel.

Speed sources

Within the SpeedPilot window it is possible to choose either Speed Over Ground (SOG) or Speed Through Water (STW) as speed reference.

Fuel saving

Maintaining consistent and optimal ship speed is crucial for maximizing fuel efficiency. While higher speed, particularly at the start of a voyage, can ensure timely and safe arrivals, they come at a substantial fuel cost, as increased speed often leads to a significant rise in fuel consumption. EMRI SpeedPilot assists in gradually ramping speed up and down to reduce fuel consumption and minimize wear on machinery.

Feed forward algorithm

The EMRI SpeedPilot utilizes a feed-forward algorithm to ensure adaptive and accurate speed control. Its main objective is to predict the necessary control action to achieve the desired output. By using Speed Through Water input for current compensation during Speed Over Ground control, it effectively eliminates overshoot, smoothly ramping the speed up and down to align with the set points, resulting in improved fuel and machinery efficiency.

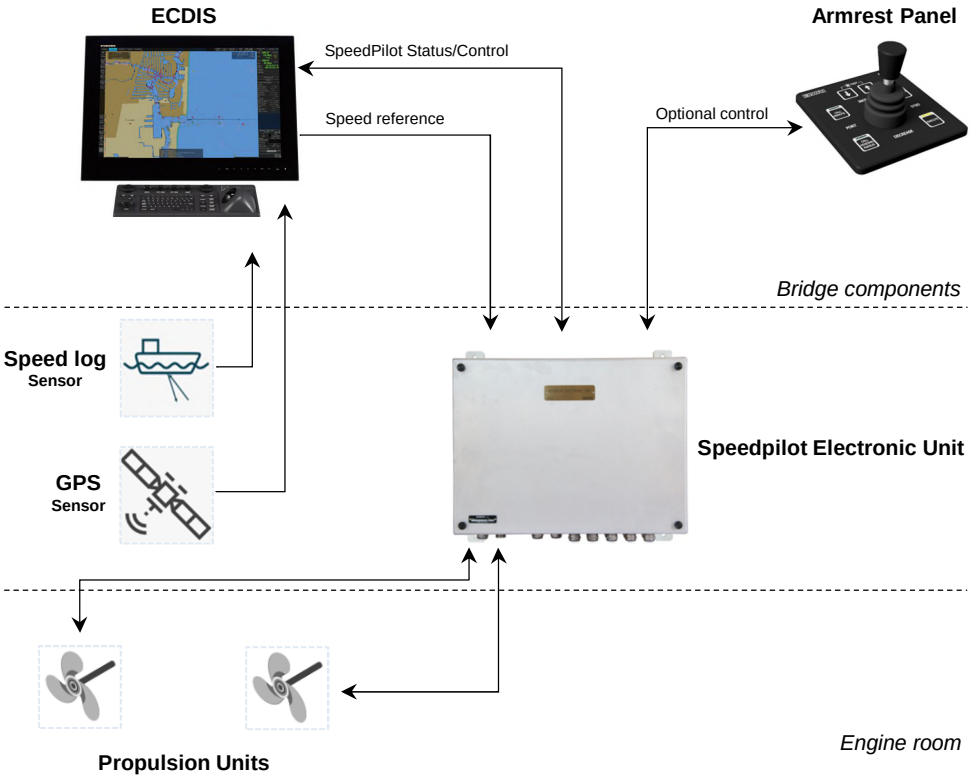
Simple configuration

The ESP300 unit functions as a middle layer between a Modbus interface to the propulsion units in the engine room and the ECDIS on the bridge.

It receives the speed reference from the speed log and GPS sensors via the ECDIS, enabling continuous exchange of SpeedPilot status and control between the units.

Interface to bridge components follows the IEC 61162-450 standard.

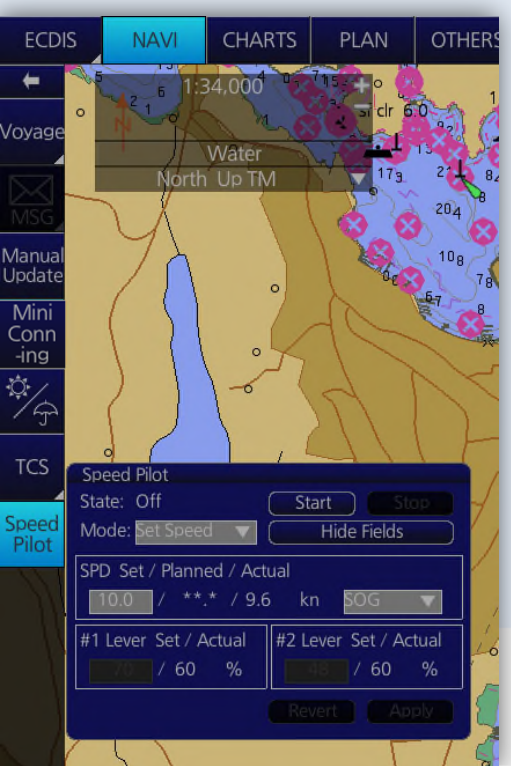
Interface to propulsion are running Modbus RTU.



Simple and safe operation

The EMRI SpeedPilot offers several modes that are easy to use and can be controlled in NAVI mode on the ECDIS. Setting changes and execution of planned operations are performed within the SpeedPilot window, which can be shown or hidden with a single click. To prevent any confusion and unattended changes, the state of the SpeedPilot function is always visible, and any changes to control commands can only be made when in the Active state. Additionally, the selected mode of operation is clearly displayed at all times when the SpeedPilot window is open.

The navigator can select the most appropriate control mode for the situation via a straightforward dropdown menu. Each of the SpeedPilot control modes offers unique benefits, allowing the vessel to adapt to varying operational needs and navigational requirements.



Set Speed mode allows for direct control of the vessel's speed by specifying desired speed. It is particularly useful when a speed needs to be maintained consistently.

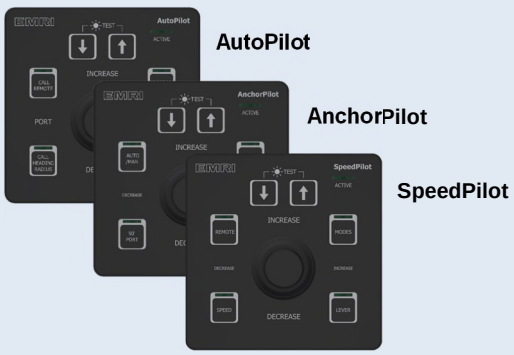
Set Lever mode allows the control to be performed by using the propulsion lever position.

Set Plan Speed mode allows the SpeedPilot to follow a planned speed from the current planned route on the ECDIS to achieve the current ETA at the next waypoint or destination ensuring that the vessel stays on track.

Part of EMRI Pilot series

ESP300 uses a high number of common components shared across equipment in the EMRI Pilot series consisting of the AutoPilot, SpeedPilot and AnchorPilot. These shared components range from control panel tillers, pushbuttons and displays to aluminium enclosures and printed circuit board elements. By standardizing many components across the series, the variety of spare parts needed is significantly reduced and availability issues is minimized – providing substantial benefits from a service and support perspective.

In addition to the service and support advantages, the similar look and feel of equipment in the EMRI Pilot-series helps to simplify the learning process for users and makes it easier for them to adapt.



Mode button the Armest Panel features a toggle function, enabling you to set RPM or Power set points to the machinery, for constant load on the machinery and improved fuel efficiency.

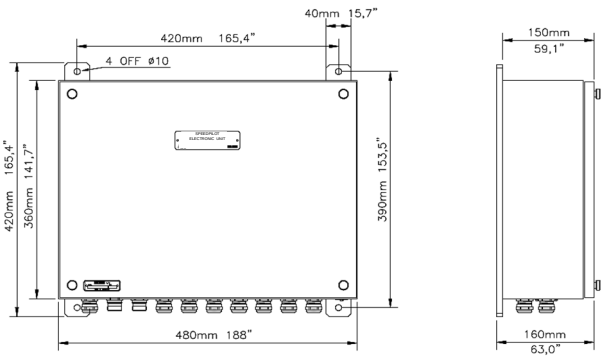
Product name ESP300

Speedpilot Electronic Unit

1. **Power supply**
   Ship supply 24 VDC +30/-25%
   Power: Max 48W
2. **Interface**
   CAN bus: 2 ports
   Ethernet: 1 port 100 Base-T
   USB: 2 ports (1x HOST USB1.1 type A, 1x Device USB1.1 type B)
   Serial I/O: 6 ports RS422
   Digital Input: 17 (opto isolated)
   Digital output: 15

Armrest Panel

1. **Power supply**
   Ship supply 24 VDC
2. **Interface**
   CAN bus: 2 ports
   Actuation of pushbuttons: 5.5 Newton
3. **Modes**
   Speed
   Lever
   Power
   RPM

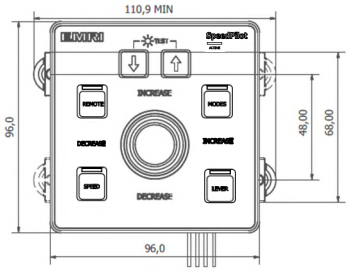


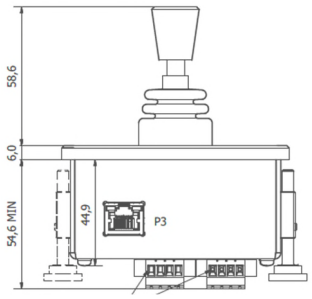
Environmental conditions

1. For indoor use

Standards conformity

1. Environmental: IEC60945 Protected class
2. Interface to bridge components: IEC 61162-450
3. Interface to propulsion: Modbus RTU RS-422
4. Electrical and electronics: IACS E10
5. Cyber: IACS E27 (pending)





NMEA sentences

The EMRI SpeedPilot communicates with the Furuno ECDIS using proprietary NMEA sentences over the UDP based IEC61162-450 network on the Furuno Sensor Network.

NMEA Sentence	Signal Input	Remarks
$PEMRSPA	Alarm data	SpeedPilot to ECDIS
$PEMRSPC	Status / Mode data	SpeedPilot to ECDIS
$PEMRSPD	Control / Mode data	ECDIS to SpeedPilot

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

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