
Product Guide

FURUNO AUTO-PILOT

 [®] **ULTRAFLEX**

NAV*pilot* with **INTEGRA** [®]

FURUNO



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1. INTEGRA system description

INTEGRA is a steer-by-wire steering system which combines traditional hydraulic components with electronic components checked by a specific data network.

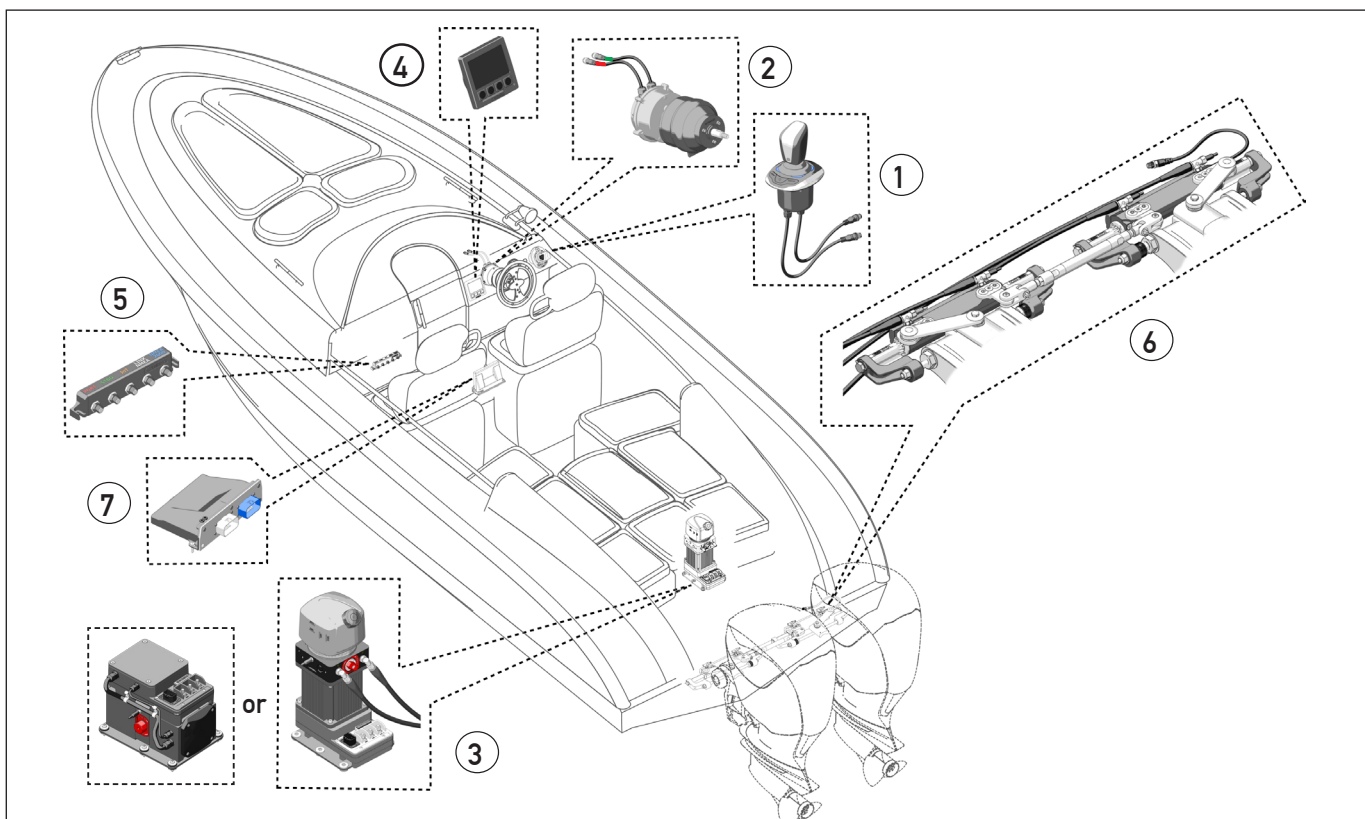
INTEGRA can be considered as an extremely safe and reliable system thanks to its communication system equipped with sensors, systems of self-checking and diagnostic.

The system is managed by checking data related to the hydraulic flow (number of turns of the steering wheel) and to the current absorption (power).

Integra JS adds a new level of manoeuvrability to Integra functionalities. Thanks to the Joystick technology, Integra JS has an intuitive operation and guarantees a safe, precise and simple low-speed manoeuvrability. This makes the mooring and the haulage operations on the trailer much easier. The joystick allows you to handle the boat by rotating and translating it. It includes the Boost, Heading, Mainstay and Trim functions.

The INTEGRA system consists of the following components:

- 1 **JOYSTICK:** the boat can be easily and intuitively handled through the use of the joystick.
- 2 **ELECTRONIC STEERING SYSTEM:** through the electronic steering system, the system converts the steering wheel rotation into digital signals reaching the power unit by means of the communication network.
- 3 **ELECTRO-HYDRAULIC POWER UNIT:** thanks to the electro-hydraulic power unit, the system converts the signals received from the steering system enabling the check of the hydraulic cylinders on the boat.
- 4 **CONTROL PANEL:** the control panel, positioned close to the steering station, shows the system status (including faults or error messages) and it allows making all the necessary settings to let the user better steer the boat
- 5 **BCM:** The BCM control module manages the entire communication of the components thanks to a CAN bus network.
- 6 **UC120 CYLINDER:** The INTEGRA system is based on the use of a UC120E electronic cylinder combined, in case of several engines, with a UC120P-OBF hydraulic cylinder and with tie bars.
- 7 **GATEWAY:** the outboard motor accelerator and reversing gear is handled through a gateway supplied for each specific motor.



2. NAVpilot-300 with INTEGRA

The Integra system has five independent CAN bus networks, consisting of PORT, STBD, LINK NMEA and NMEA 2000. PORT and STBD networks are for the Integra steering network. CAN LINK NMEA and NMEA 2000 networks are related to the Auto-pilot connection. The Navpilot 300 has a built-in "Drive-By-Wire" (DBW) Gateway. Rudder control is achieved by simply plugging the DBW Cable of the Navpilot Processor unit into the Integra CAN LINK NMEA.

The NavPilot 300 (Processor version 01.12 or higher - Display 01.13 or higher) is compatible with the Integra PCM SW0250 software Rev T.

3. Auto-pilot connection

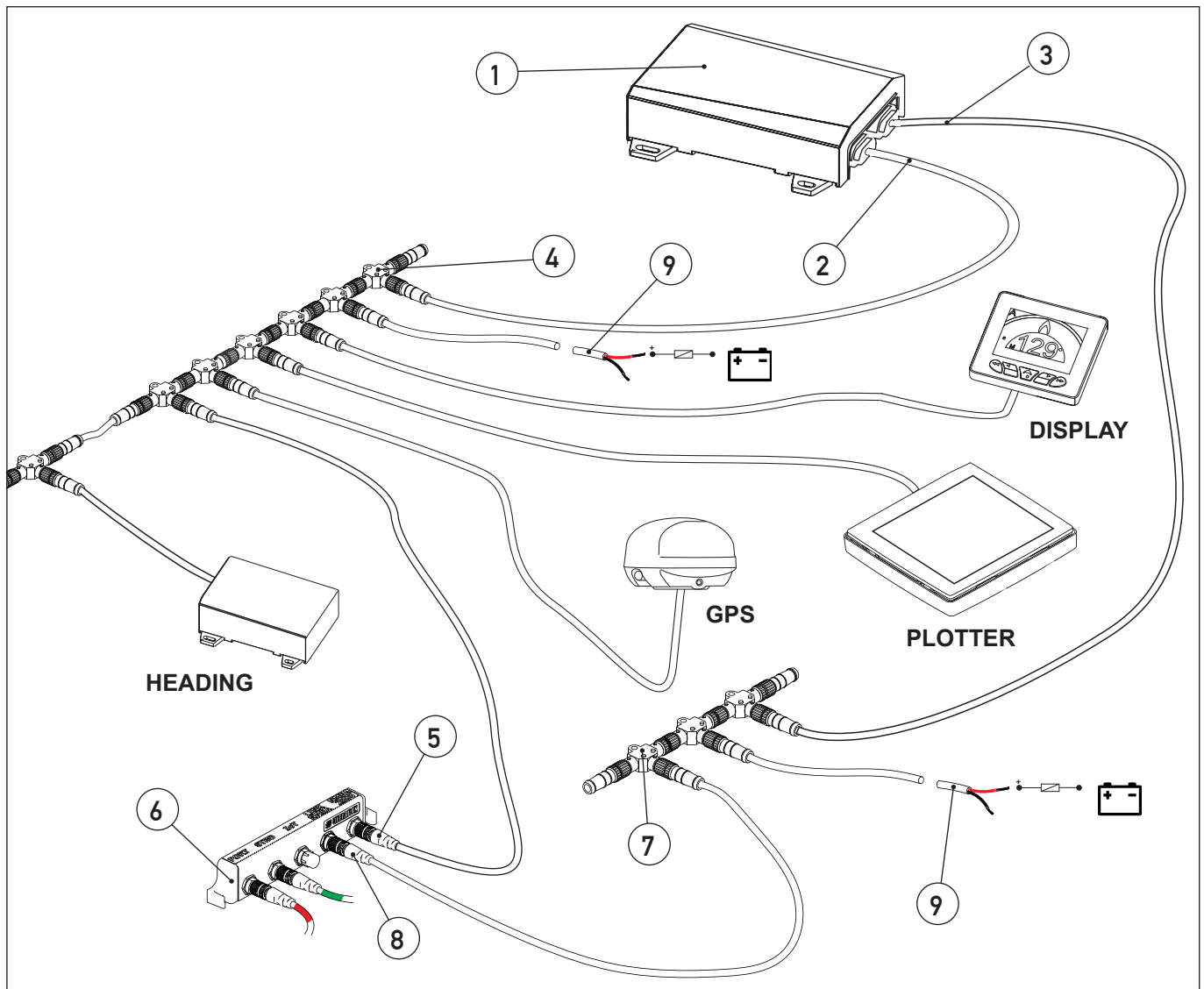
Through the use of the NMEA 2000 (2) and DBW (CAN) (3) cables, connect the NavPilot 300 (1) to the Integra system. By using a Tee-connector (4), connect the cable (2) to the NMEA 2000 network. Other devices controlling the Auto-pilot (for example: Display, Plotter, GPS or Heading) can also be connected to the same network through a Tee-connector.

By using the connector (5), connect the BCM module (6) to the NMEA 2000 network.

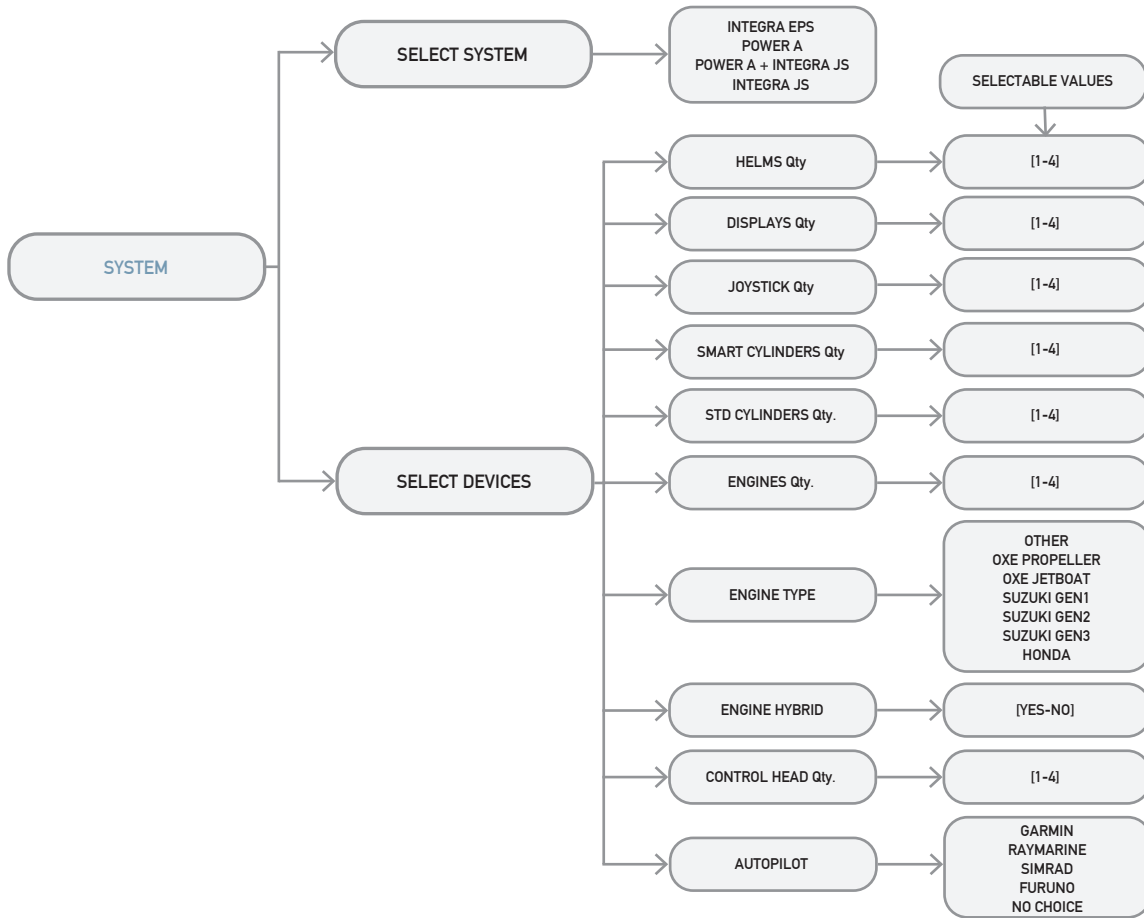
Then, connect the DBW (CAN) (3) to the LINK NMEA network. Through a Tee-connector (7), connect the same network to the BCM module with a CAN cable (8). Connect Voltage supply 12V Dc (9).

NOTICE

Both networks must be supplied by a battery (9) through a T-connector.





4. Menu dealer structure

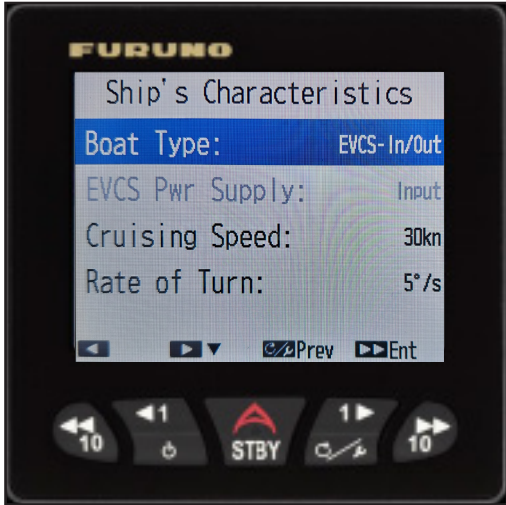


NOTICE

After selecting the AUTO-PILOT parameter, turn the system off and on.

5. NAVpilot-300 Initial Settings

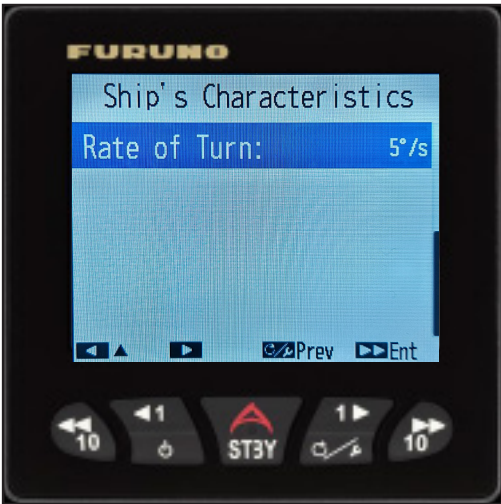
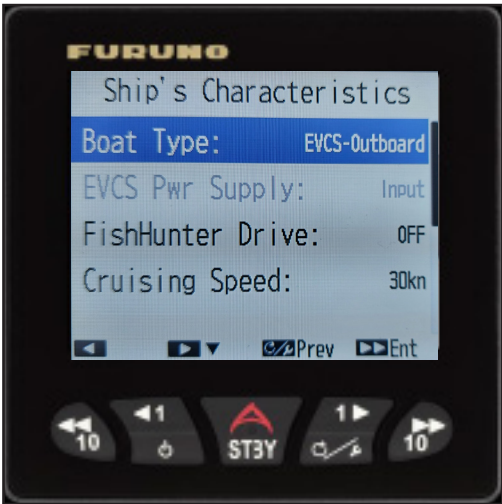
Enter the NavPilot 300 Installation Menu by holding down the back/tools  button while quickly pressing the STBY key  3 times. In the NavPilot Installation Menu locate, and select [Ship's Characteristics].



Set [Boat Type] to appropriate EVCS selection. Outboard, In/Out, or Inboard.



Set the [Boat Length], [Cruising Speed], and [Rate of Turn] to fit the customer's boat characteristics. A "Detection failure" message should not appear. This confirms that the connection with the Integra Steering system has been established.



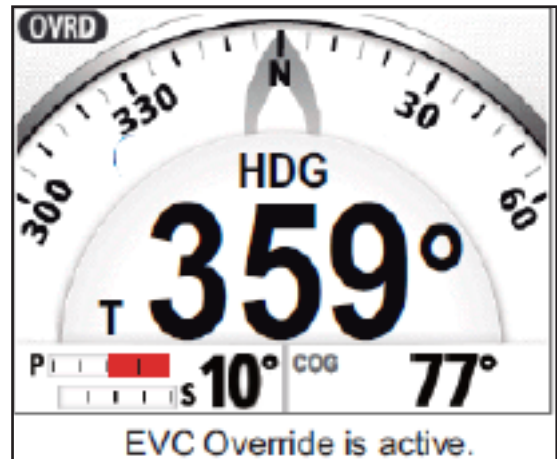
This completes the NavPilot 300 initial settings for use with an Integra steering system. Other basic NavPilot 300 settings still need to be set, such as the Heading source, Position source, etc.

Please see the NavPilot 300 Installation Manual for complete instructions.

6. Override (OVRD) mode of NavPilot

The NavPilot will display OVRD mode during the following conditions. When operating the Helm or Joystick, or in one of the operating modes such as Position Hold, Heading Hold or Position and Heading Hold.

Integra incorporates a safety feature called "Override". When a user turns the helm or uses the joystick, an override signal generated by the Integra system automatically sets the Navpilot 300 to STBY (standby). When this happens, the NAVpilot-300 will display the [OVRD] icon on the top of the screen.



NOTICE

Two outboard engines angles are controlled separately in Integra joystick and CEPS applications with two smart cylinders. The NavPilot shows the angle of the starboard engine.

7. Navpilot 300 - Compatible software versions

Items	Versions

ULTRAFLEX S.p.A.

16015 Casella (Genova) Italia - Via Crose, 2