FURUNO

NAVpilot

NAVpilot-300 with Volvo Penta IPS

INDEX

This document describes the basic information on Volvo Penta IPS, Volvo IPS Gateway with Navpilot 300 installation. Please refer to the Navpilot 300 Installation and Operator's manual for full instructions.

What is a Volvo Penta IPS?

Volvo Penta IPS (Inboard Performance System) is a modern inboard steering and throttle control system with multiple pod drive units, which can rotate 360 degrees. IPS provides easy maneuverability, better fuel efficiency, less CO2 emissions, higher efficiency, speed etc. The IPS Joystick Controller allows simple lateral or rotational boat movement. For more details, visit http://www.volvopenta.com.

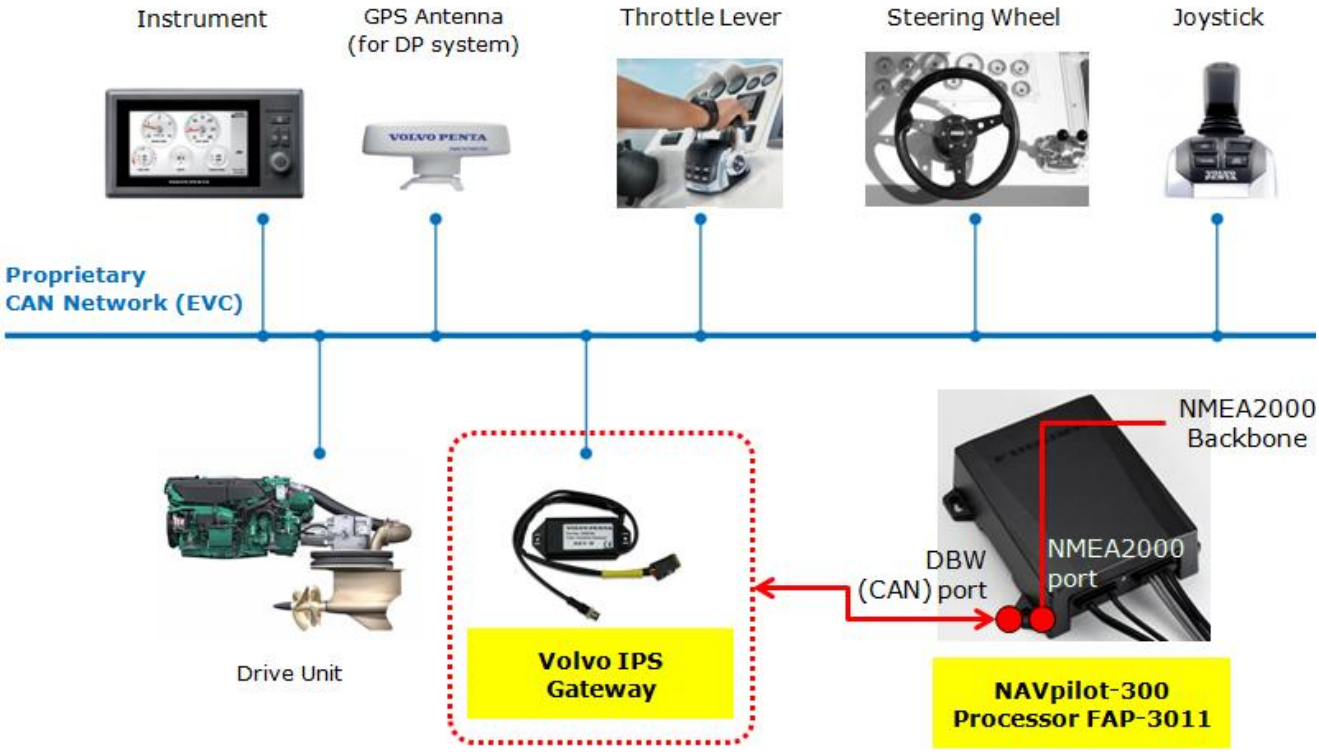
Volvo Penta IPS consists of a proprietary CAN network called **EVC** (Electronic Vessel Control), and the system is controlled electronically. The **NAVpilot-300** can be networked with IPS through a dedicated gateway. The following table summarizes the difference in interconnection and required items to connect to the IPS network.

IPS gateway Furuno part # 000-022-971-00 is compatible with Volvo Penta (VP) IPS drive versions C, D, or E type. These VP IPS drive versions have been installed on all IPS systems for the past several years. All new VP IPS vessels are compatible with the NAVpilot-300 via the IPS gateway. It is easy to confirm whether the IPS drive is a C, D, or E version. If you visually confirm that the boat has the same Throttle and Joystick controllers as pictured below, it is compatible with the NAVpilot-300.

The Navpilot 300 is compatible with two, three, or four IPS drives.

Interconnection

The following drawing shows an overview of NAVpilot-300 connected to the Volvo Penta IPS network. While the NAVpilot-300 is connected to the NMEA2000 bus, it is also connected to the Volvo Penta IPS network through the Furuno supplied gateway.

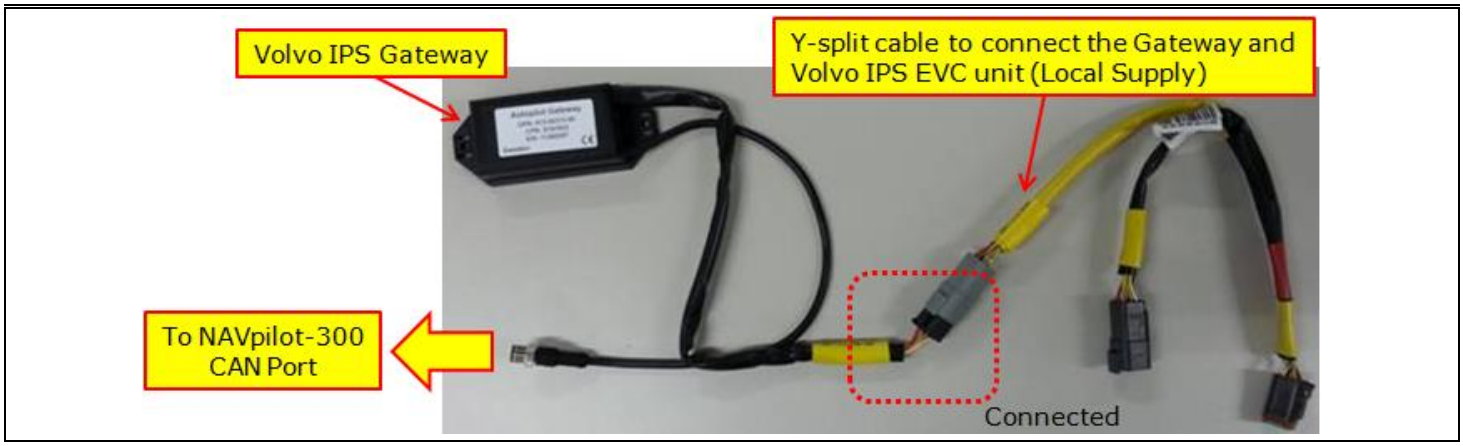


The following Furuno supplied gateway unit is necessary to network with Volvo Penta IPS.

Code	Name	Type	Remarks
000-022-971-00	VOLVO IPS GATEWAY	AUTOPILOT-GATEWAY	Gateway for Volvo Penta IPS system

The Volvo Penta IPS gateway consists of two (2) cables with connectors: **CAN** (same connector as NMEA2000 Micro-C, male) and **unique connector** for the Volvo Penta IPS bus (multi link bus cable). While the CAN connector is connected to the NAVpilot-300 DBW (CAN) port, the unique connector is connected to the Volvo Penta IPS network through a **Y-split cable**.

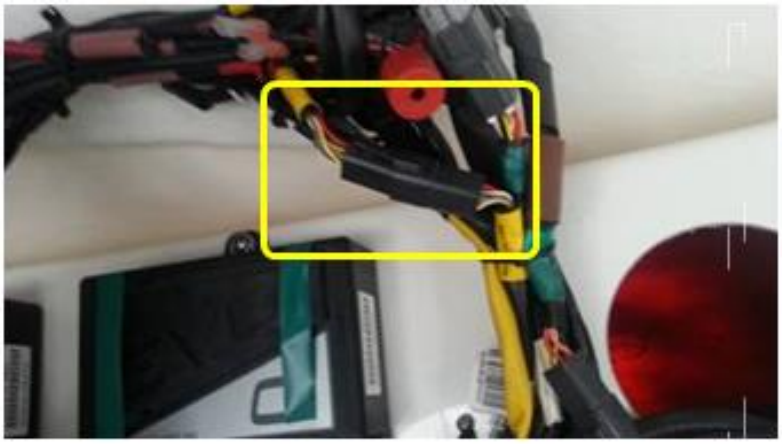
VOLVO IPS GATEWAY	Y-split cable to connect Gateway and Volvo Penta IPS EVC unit
	 - Included in FURUNO supply - Usually equipped with Volvo Penta IPS boat
Y-split cable to be connected to Gateway at installation	



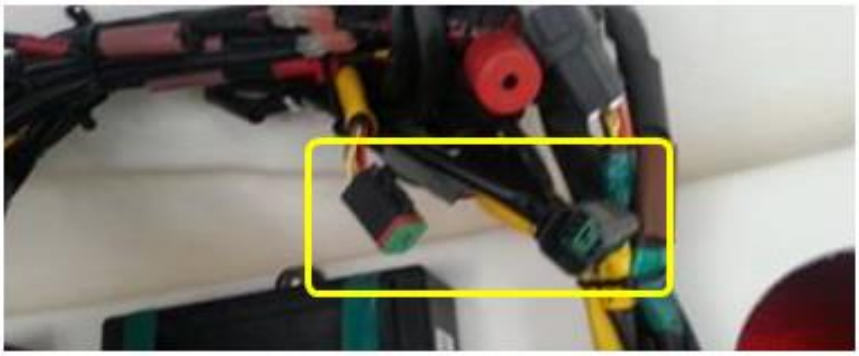
Wiring the Gateway to the EVC

- Locate the EVC black box control unit and the associated EVC Bus wiring. The number of EVC units is equivalent to the number of IPS engine units on the vessel. In this example the vessel has twin IPS drives.

- Then locate the multi-link bus cable **or** find an open port on an EVC bus connector to make the Volvo Penta IPS gateway connection. The bus cable connections and hub (if installed) will be located close to the EVC unit.



Disconnect the multi link cable connector and install the Y-split cable for multi link cable installation or if there is a hub simply plug the Helm Master gateway into the open port on the hub and disregard the Y-Split Cable.



Note:
There will be several similar style bus connectors but only the correct ones will fit properly.

Check that all cables are reconnected.

Scroll down for Initial NavPilot 300 settings

Initial Settings on NAVpilot-300

In the Installation Menu, access [Installation] – [Ship's Characteristics] – [Boat Type] and select [**EVCS-Pod Drive**]. Selecting "EVCS Pod Drive" will allow the NAVpilot-300 system to communicate with the Volvo IPS gateway.

Next in [EVCS Power supply]- select [**Output**]. This will supply power to the Navpilot 300 DBW CAN bus and the Volvo IPS gateway. With EVCS Pwr Supply set to Output you should see a red LED on the IPS gateway.

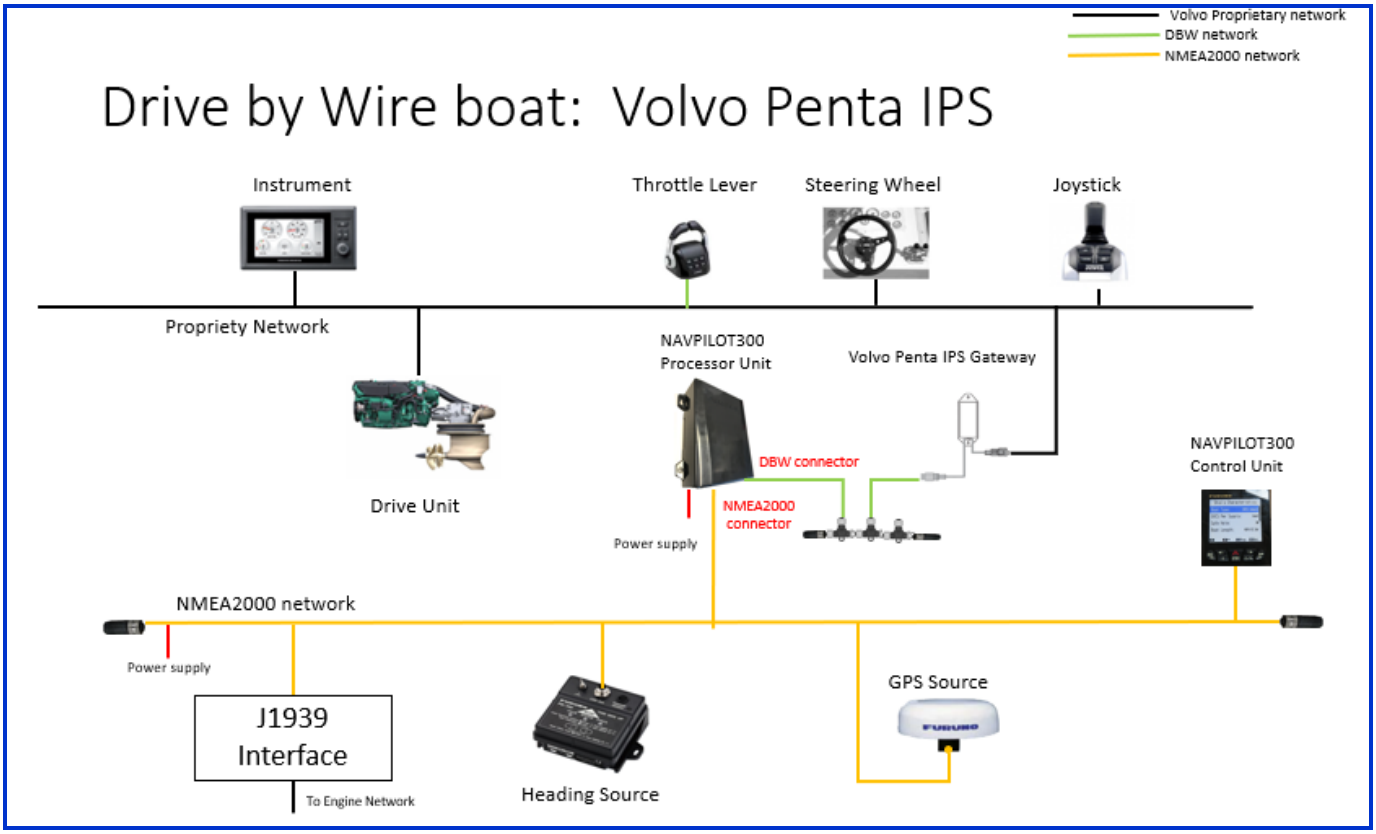
See table at end of document for further information on Gateway LED status lights.

Set the [Boat Length], [Cruising Speed], and [Rate of Turn] to fit the customer's boat characteristics.
Confirm that you do not see a "Detection failure" message.

Notes:

- You do not need to perform the rudder limit setup and rudder test because those values are already fixed by the Volvo Penta IPS system.

- You must install a proper CAN bus network that includes two terminating resistors on the DBW port.



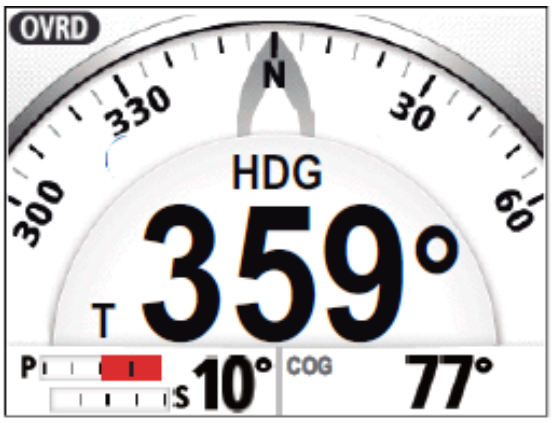
1.1. Compatible Software Versions

The NAVpilot-300 is compatible with Volvo Penta IPS from the initial version.

Items	Versions
Processor Unit FAP-3012	**01.06** or later
Control Unit FAP-3011	**01.07** or later

Tips on Operation

The Navpilot-300 automatically incorporates features like Safe Helm called "**Override**". When a user moves the helm or joystick, an override signal coming from the VOLVO EVC unit 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.



EVC Override is active.

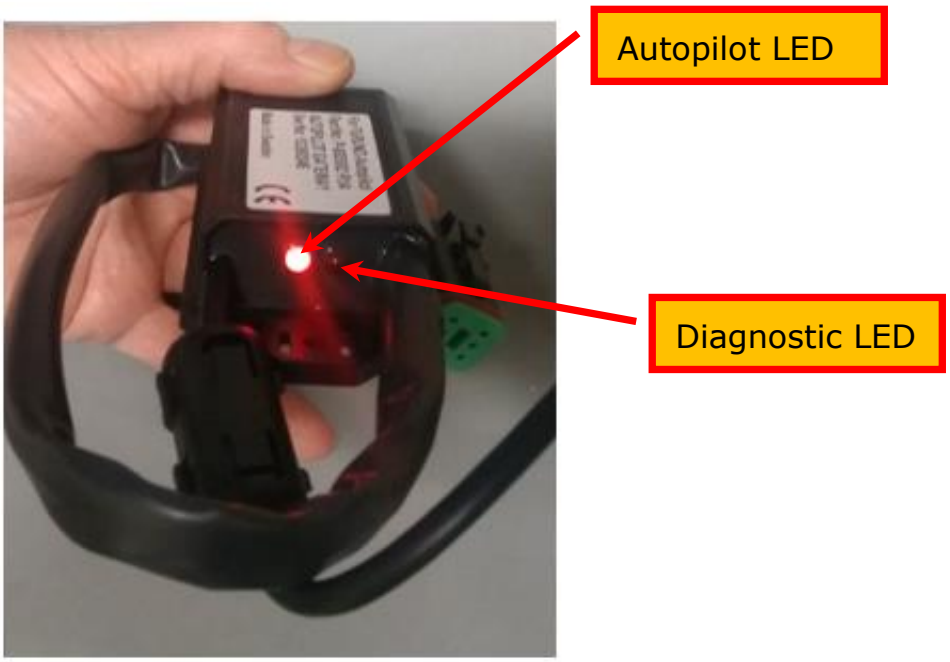
Gateway LED Status lights

Autopilot LED

Constant lit – The autopilot is powered on.

Diagnostic (autopilot interface) LED

- Flashes on/off repeatedly (*normal condition*) – The unit is receiving and transmitting valid autopilot and Multilink data.
- Constant lit – The unit is powered up but does not receive communication from either side (autopilot or Multilink).
- Flashes two strobes and then off repeatedly – The gateway is receiving Multilink data but does not have an autopilot connection.
- Flashed three strobes and then off repeatedly – The unit is receiving autopilot data but does not have a Multilink connection.



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