

NAVpilot

NAVpilot-711C with Yamaha Helm Master



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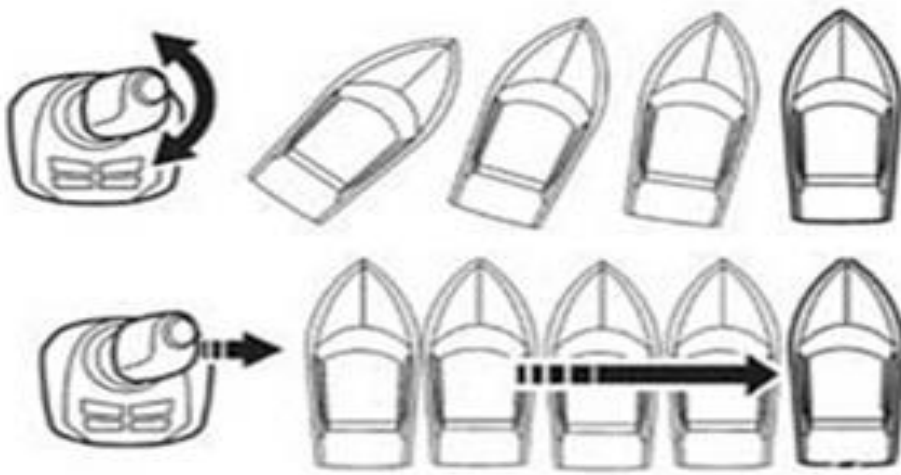
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1. Yamaha Helm Master

1.1. What is Yamaha Helm Master?

Yamaha Helm Master is a steering and throttle control system co-developed with Volvo Penta. It is designed to steer middle- to large-sized outboard boats with twin to quad 4-stroke outboard engines. All steering actions are controlled electronically. Shifting and rotational vessel motion can be controlled with a joystick.



For more details, visit the following website.

<http://yamahaoutboards.com/rigging/helm-master/overview>

1.2. Yamaha Helm Master and NAVpilot-711C

Yamaha Helm Master consists of a proprietary CAN network called **EVC** (Electronic Vessel Control), the system is controlled electronically. The **NAVpilot-711C** can be networked with the Yamaha Helm Master EVC system through a dedicated gateway and interface unit.

NAVpilot-711C

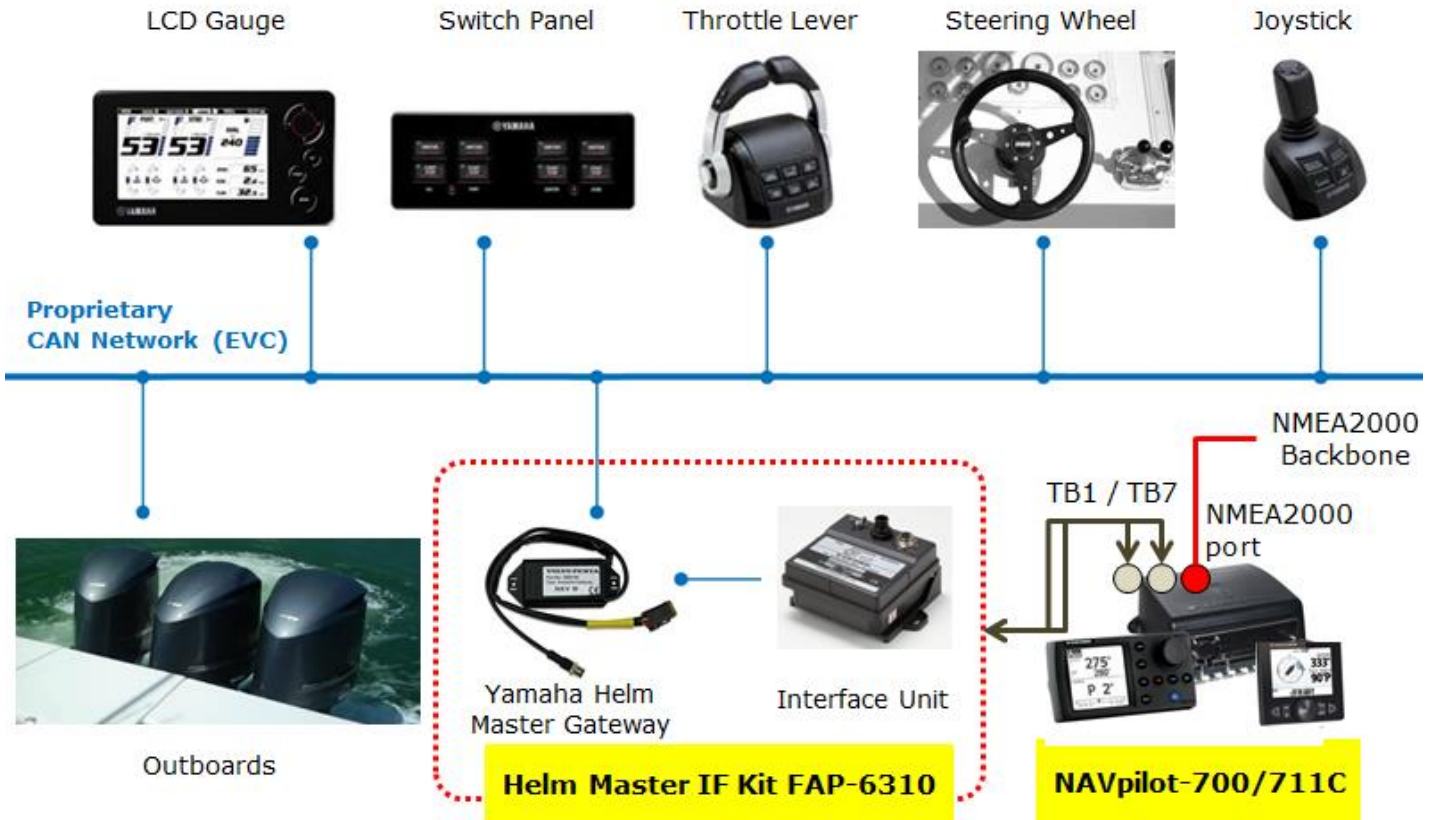
The IF kit is necessary to network with the Yamaha Helm Master. The kit consists of the gateway and interface unit.

Necessary Item: FAP-6310

2. NAVpilot-711C

2.1. Interconnection

The following drawing shows an overview of NAVpilot-711C connected to the Yamaha Helm Master network.






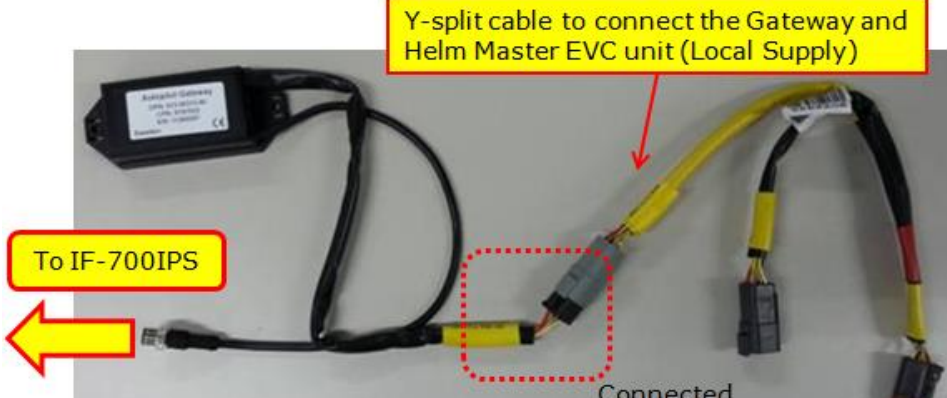
The following interface kit is required to network with a Yamaha Helm Master.

Name	Type	Remarks
YAMAHA HM IF KIT	FAP-6310	Consisting of interface and gateway unit

Components:

No	Item	Type	Qty	Remarks
1	Interface Unit	IF-700IPS	1	-
2	Yamaha Gateway	AUTOPILOT-GATEWAY for FURUNO Autopilot to Helm Master	1	Fit with 1 x cable to EVC (Y-cable) and cable for IF-700IPS
3	Cable Assembly	MJ-A7SPF0005-020C	1	2m, IF-700IPS – FAP-7002
4	Self-tapping Screw	4X16 SUS304	4	-
5	Fuse	FGMB 125V 1A PBF	1	For spare

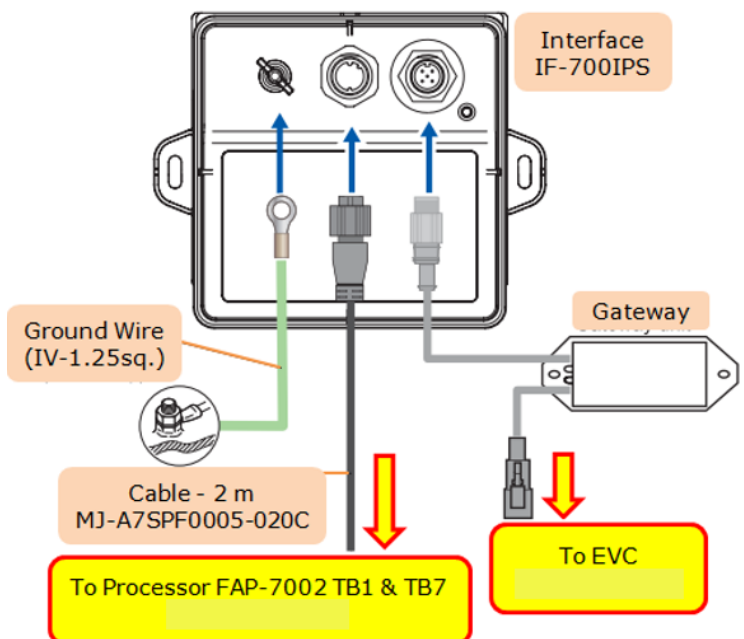
The IF kit **FAP-6310**, consists of an **interface** and a **gateway** unit. **The FAP-6310 kit is used to network the Navpilot-711C with Yamaha Helm Master.** The gateway is fitted with two (2) cables with connectors: A **CAN connector** (same connector as NMEA2000 Micro-C, male) and a **unique connector** for the Yamaha Helm Master bus (multi link bus cable). While the CAN connector is connected to the interface unit, IF-700IPS of the FAP-6310, the unique connector is connected to the Yamaha Helm Master network through a **Y-split cable**.

IF-700IPS	YAMAHA HM GATEWAY	Y-split cable to connect Gateway and Yamaha Helm Master EVC unit
		
Y-split cable to be connected to Gateway at installation		
		

Wiring Overview

While the gateway is connected to the Yamaha Helm Master EVC, the interface **IF-700IPS** is connected to the **processor unit FAP-7002** of NAVpilot-711C as shown in the illustration at right.

See **Section 2.2** for wiring of gateway to **EVC** and **Section 2.3** for wiring of IF-700IPS to the **TB1** and **TB7** terminals of NAVpilot-711C processor **FAP-7002**.



2.2. Wiring FAP-6310 (Gateway) to EVC

- (1) Locate the EVC black box control unit and the associated EVC Bus wiring on the Yamaha Helm Master boat.
- (2) Locate the multi link bus cable or find an open port on an EVC bus connector to make the Yamaha Helm Master gateway connection. The bus cable connections and hub (if installed) will be located close to the EVC unit.



- (3) 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 Yamaha 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.

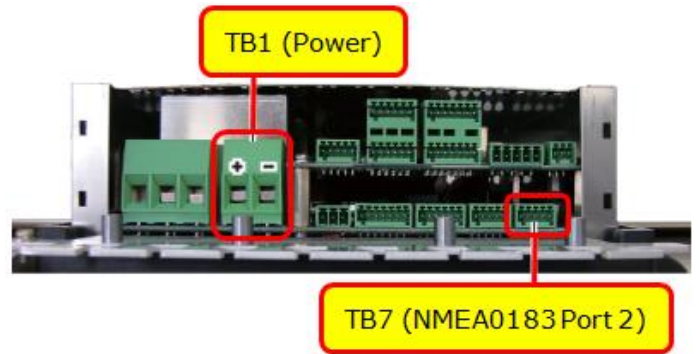


- (4) Check that all cables are re-connected.



2.3. Wiring FAP-6310 (Interface IF-700IPS) to NAVpilot-711C

The FAP-6310 includes a 2m cable, **MJ-A7SPF0005-020C** for the interface. Connect MJ-A7SPF0005-020C to the processor FAP-7002: **TB1 (Power)** and **TB7 (NMEA0183 Port 2)** ports as shown at right.



- (1) Open the processor case, remove the cable clamp/fan assembly from the shield cover, and disconnect the fan connector to access the TB1 and TB7 ports.
- (2) Connect the 2m cable, MJ-A7SPF0005-020C to the connector blocks **TB1** and **TB7** as follows.

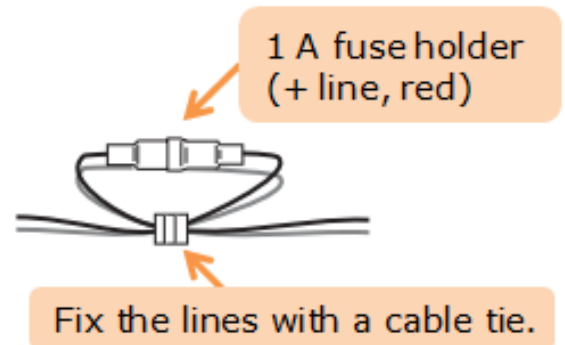
Connections with TB1 (Power)

Crimp the power lines of the cable assy. and power cable of processor unit using crimp connectors, and then connect the + line (red) and - line (black) to the TB1 of the processor unit.

Use the insulated section of the crimping tool to make the crimp, it will have rounded terminals.

Notes:

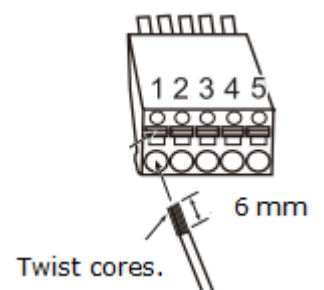
- ✚ Do not twist cores.
- ✚ The + line (red) has a fuse holder. To prevent the detachment of the fuse, make a loop in the cable and then cable tie the wiring as shown at right.



Connection with TB7 (NMEA port 2)

Connect the signal lines of the cable to TB7 with the color assignment shown at right.

Pin No.	Signal	Color
1	TD_A	Yellow
2	TD_B	Green
3	RD_H	White
4	RD_C	Blue
5	Shielded	Drain

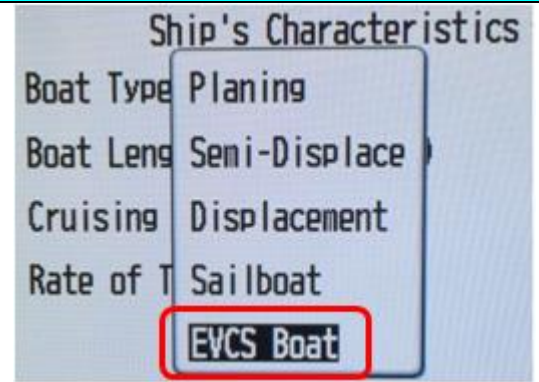


- (3) Fix the cable to the cable clamp with a cable tie (supplied with processor unit).
- (4) Reconnect the fan connector and re-attach the cable clamp/fan assembly and the processor case.

2.4. Initial Settings on NAVpilot-711C

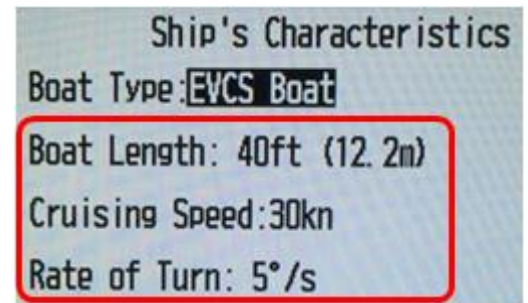
- (1) In the Installation Menu, access [Installation] – [SHIP'S CHARACTERISTICS] – [BOAT TYPE] and select [**EVCS BOAT**].

Selecting the [EVCS BOAT] will allow the NAVpilot-711C system to communicate with the Yamaha Helm Master gateway and IF-700IPS.



- (2) Set the [Boat Length], [Cruising Speed], and [Rate of Turn] to fit the customer's boat characteristics.
 (3) Check that no detection failure message appears to confirm that the connection with EVC is established.

You do not need to perform the rudder limit setup and rudder test because those values are already fixed by the Yamaha Helm Master system.



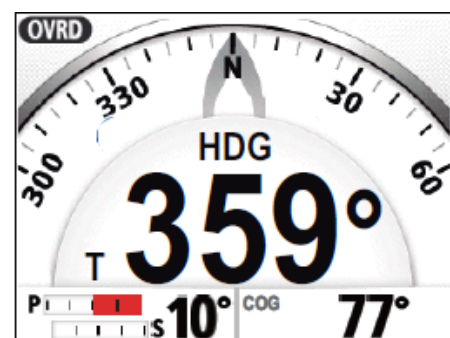
2.5. Compatible Software Versions

The NAVpilot-711C is compatible with Yamaha Helm Master with the following software versions. Make sure to install the latest versions of both processor and control units in the correct combination.

Items	Versions
Processor Unit FAP-7002	01.18 or later
Control Unit FAP-7011C	01.02 or later

3. Tips on Operation

The NAVpilot-711C incorporates a Safety feature called "**Override**". When the helm is moved or the joystick is used, an override signal coming from the Yamaha Helm Master system automatically sets the autopilot to STBY(Standby). The NAVpilot-711C will display the [**OVRD**] icon on the top of the screen.



EVC Override is active.

Note: Do not confuse a steering gateway with a Yamaha engine gateway. They look similar but are different and supply different information. You need a steering gateway for the autopilot interface and a Yamaha NMEA2000 engine gateway if you would like to display engine information on an MFD. Below is a picture of the gateways side by side.



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