FURUNO

# NAVpilot 300/711C








NAVpilot-300
with Gesture Controller




NAVpilot-711C

NAVnet Connect

# NAVpilot


GC-001


NAVpilot-300


NAVpilot-711C

NAVnet Connect · SABIKI MODE · FPS FURUNO Power-assist Steering · FANTUM FEEDBACK

FLSI

NAVpilot remarkable self-learning, adaptive software is developed by collaborative works between FURUNO and FLSI.

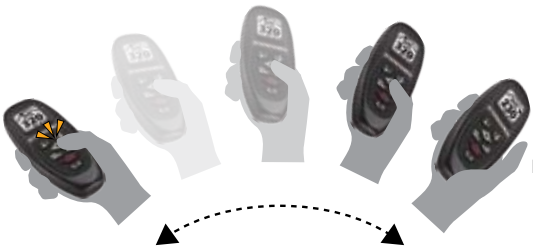
Bonded LCD · CAN bus · Enhanced Sunlight Viewable · NMEA2000 Certified · ®

## KEY FEATURES:

- Self-Learning and adaptive software; each time the boat goes to sea, the software learns the sea conditions and calculates the best adjustment for smooth steering
- Fantum Feedback™ offers simplified installation while delivering enhanced steering control - no need for physical rudder feedback unit
- Volvo Penta IPS, Yamaha Helm Master™, Yanmar, and Seastar VCS compatible
- Easy installation and smart network-based system configuration
- Waterproof Processing Unit (IP55) and Control Unit (IP56, IP65/67 for GC-001)
- Optional revolutionary SAFEHELM2 and POWER ASSIST brings unrivaled steering control and comfort to the helm
- Selectable “Economy” and “Precision” Navigation Modes combine adaptive technology, providing fuel and power savings of 2.5% or more*
- "Precision" provides tighter course keeping, within 0.01 NM of the set course
- Perfect for inboard or outboard power boats and sail boats (NAVpilot-711C only)
- Autopilot control available from NavNet TZtouch3/TZtouch2/TZtouch/GP-1871F/1971F

## Remote Navigation In The Palm of Your Hands (NAVpilot-300 only)

The Gesture Controller is a revolutionary and unique way to steer your boat remotely. By using Bluetooth signals, it is possible to control the Autopilot from anywhere on the boat within 10 meters. Just push and hold the button, point to the desired heading, and release the button to let the Autopilot redirect the boat!



Bluetooth communication between Processor Unit and Gesture Controller only.

## New SAFEHELM2 Reimagines Helm Control and Autopilot Safety

The optional SAFEHELM2 and POWER ASSIST features provide a unique interface to the vessel's hydraulic hand steering system, providing unrivaled comfort and control of steering directly from any manual helm on the vessel. These two modes greatly reduce steering effort and enhance the safety of your autopilot. The POWER ASSIST mode incorporates the SAFEHELM2 concept and provides speed-based, power assisted steering, which greatly reduces manual helm effort in maneuvering situations. POWER ASSIST is a unique helm-activated assisted steering feature that can augment or replace separate electric and power-robbing, engine-driven power steering systems on many vessels. POWER ASSIST reduces steering system complexity and costs while increasing fuel economy.

## Compatible with EVC Engines

The NAVpilot-300/711C have the capability to work with Volvo Penta IPS, Yamaha Helm Master™, Yanmar 8LV engine systems and the Seastar Optimus360 Joystick system.

Yamaha Helm Master™ system*

Seastar Optimus360 Joystick system**

Volvo Penta IPS system* (Compatible with Volvo Penta IPS drive versions C, D, or E type.)

Yanmar Joystick Control System** (Compatible with Yanmar 8LV and JC10)

* Requires the optional IF700IPS to connect with NAVpilot-300/711C.
** Required the optional IFNMEA2K2 to connect with NAVpilot-300/711C.

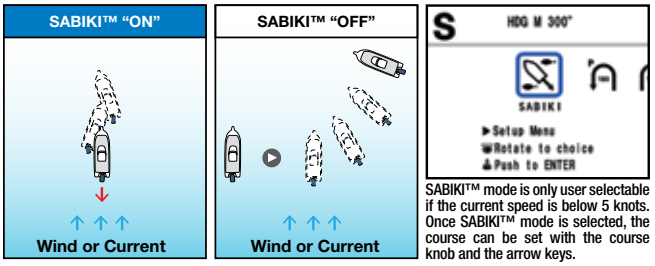
## Autopilot Control from NavNet TZtouch Series and GP-1871F/1971F

Furuno's NAVpilot Series are designed to match the GPS Chart Plotter GP-1871F/GP-1971F, the NavNet TZtouch Series, and other Furuno navigation equipment. The Plug and Play CAN bus interface allows for easy installation and exceptional interfacing.

GP-1971F NAVpilot-300/711C TZT19F

## SABIKI™ Mode for NAVpilot-300 and NAVpilot-711C

SABIKI™ mode lets the Autopilot take control while you are drifting astern so you can focus on fishing instead of steering. When moving astern at a slow pace, SABIKI™ mode is uniquely tailored for SABIKI fishing, jigging and bottom fishing. In order to maintain heading it is not sufficient to just reverse the engine and move astern. The steering has to be constantly adjusted in order to hold your heading. With SABIKI™ mode turned on, the direction can be kept just by adjusting the throttle. SABIKI fishing requires a bit of technique and whether you just started or have considerable experience, SABIKI™ mode will help you catch the bait fish needed for the big catch.




SABIKI™ mode is only user selectable if the current speed is below 5 knots. Once SABIKI™ mode is selected, the course can be set with the course knob and the arrow keys.

## Display Options for Day and Night

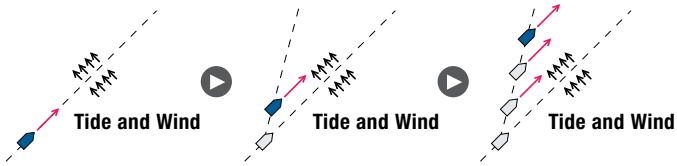
Several types of graphic displays are available, allowing you to customize the data to suit your own preferences with either digital or analog graphics. The NAVpilot-300 and NAVpilot-711C feature a color day/night graphic display, giving you better sunlight viewability during the day, while not affecting your night vision when the sun goes down.


Highway Mode Day Highway Mode Night

# NAVpilot Offers Self-Learning and Adaptive Software

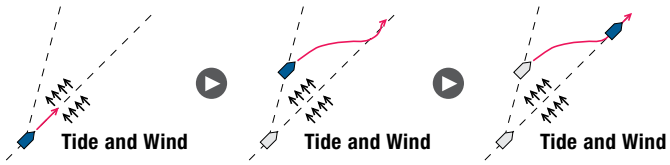
From the first dockside setup through the last voyage you made, NAVpilot continues to learn your vessel's steering characteristics. This allows dynamic adjustments to the boat's steering for vessel speed, trim, draft, tide and wind effects, weather, etc. These characteristics are stored in the processor's memory where they are continuously optimized to make the NAVpilot more versatile.

## Auto



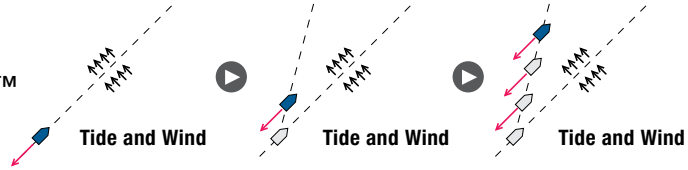

Maintains the desired heading, but the vessel may drift off course due to the effects of tide and wind.

## Advanced Auto




Maintains the desired heading while compensating for the effects of tide and wind.

## SABIKI™

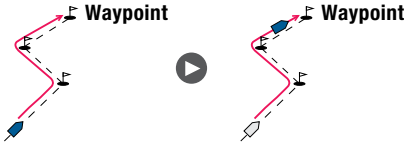



Maintains the desired heading astern while compensating for the effects of tide and wind. Speed is limited to 5 knots.

## Navigation

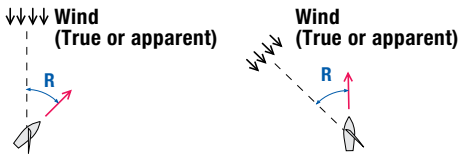

Steers the vessel towards the current waypoint while compensating for the effects of tide and wind.

## Navigation




When connected to a GPS navigator, NAVpilot steers the vessel to follow a series of waypoints in succession. Upon arriving at each waypoint or destination, audible or visual alerts are activated.

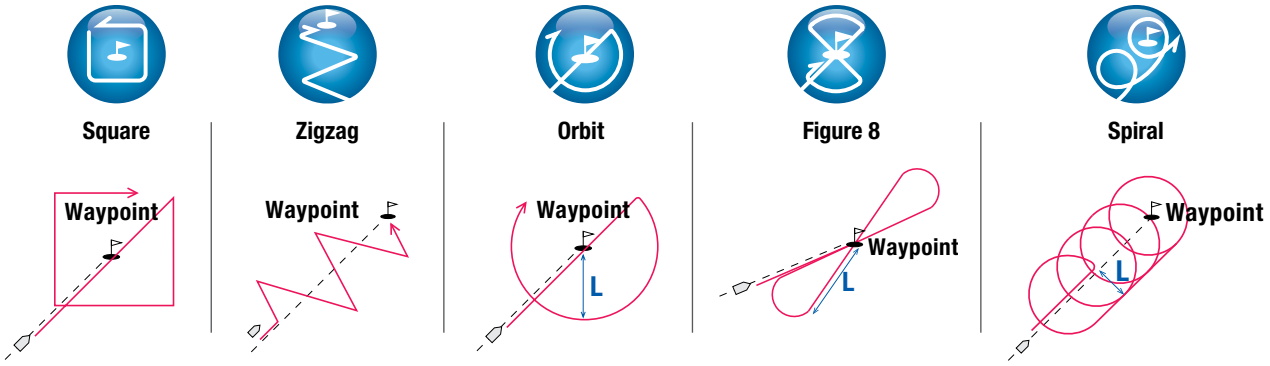
## Wind*




Maintains the desired heading toward true or apparent wind direction while compensating for the effects of tide and wind.

**Sailing craft only with proper wind data input*

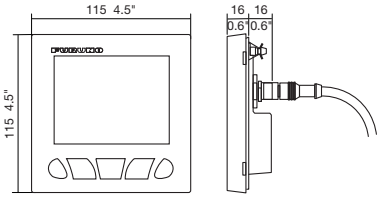
## FishHunter™



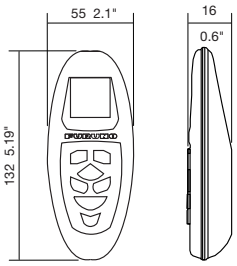

The NAVpilot will activate the FishHunter™ to perform various maneuvers around the target at a user-selected distance. The feature can also be used for Man Overboard (MOB).

## NAVpilot-300

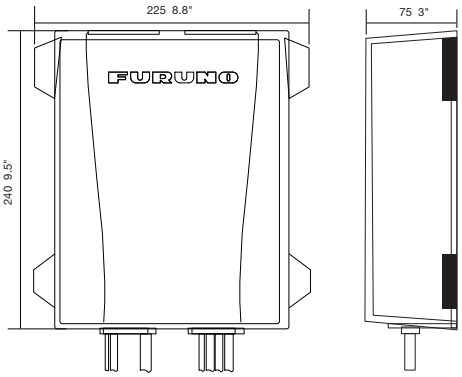
### Control Unit FAP-3011
0.25 kg 0.53 lb



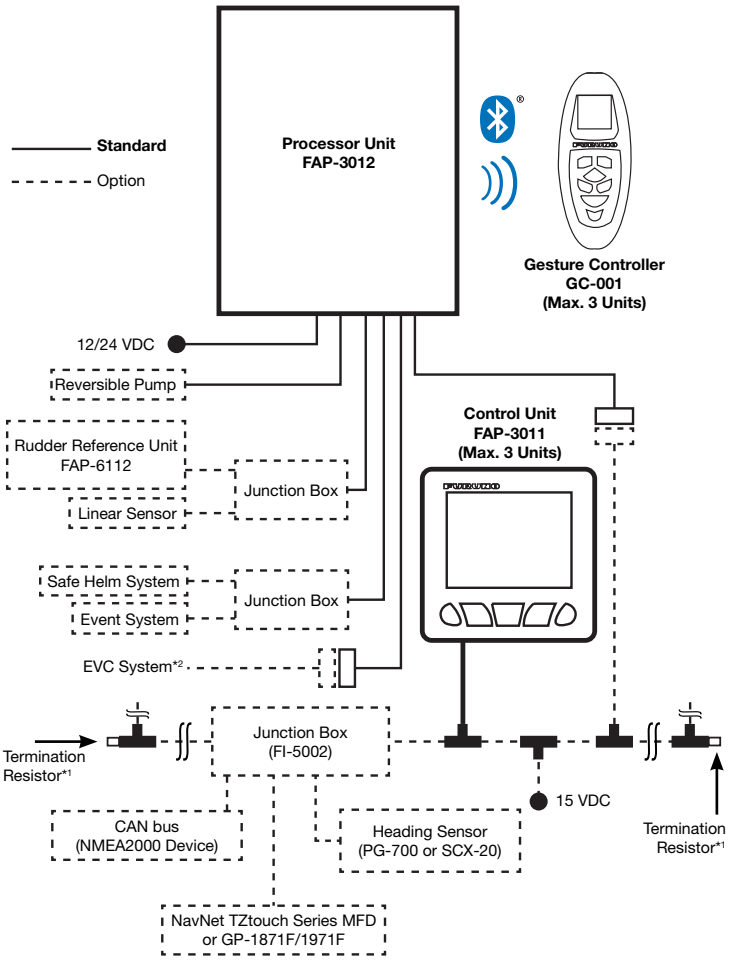

### Gesture Controller GC-001
0.12 kg 0.26 lb




### Processor Unit FAP-3012
1.5 kg 3.3 lb



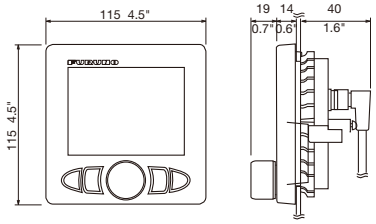

## INTERCONNECTION DIAGRAM



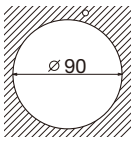

*1: Termination resistors must be installed at both ends of the backbone.
*2: VOLVO PENTA IPS, YAMAHA Helm Master, YANMAR VC10, SEASTAR SOLUTIONS OPTIMUS

## NAVpilot-711C

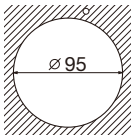
### Control Unit FAP-7011C
0.25 kg 0.53 lb



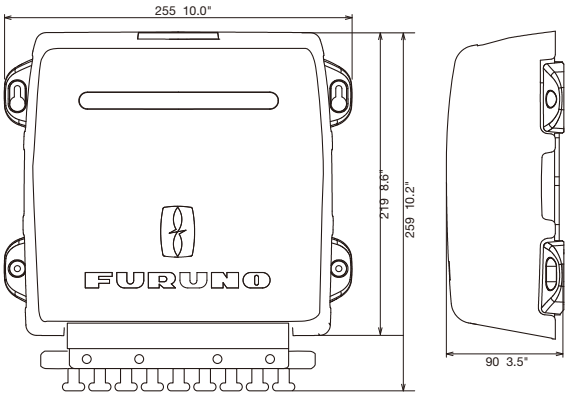

Cut-out for flush mount (Wall thickness less than 10 mm)



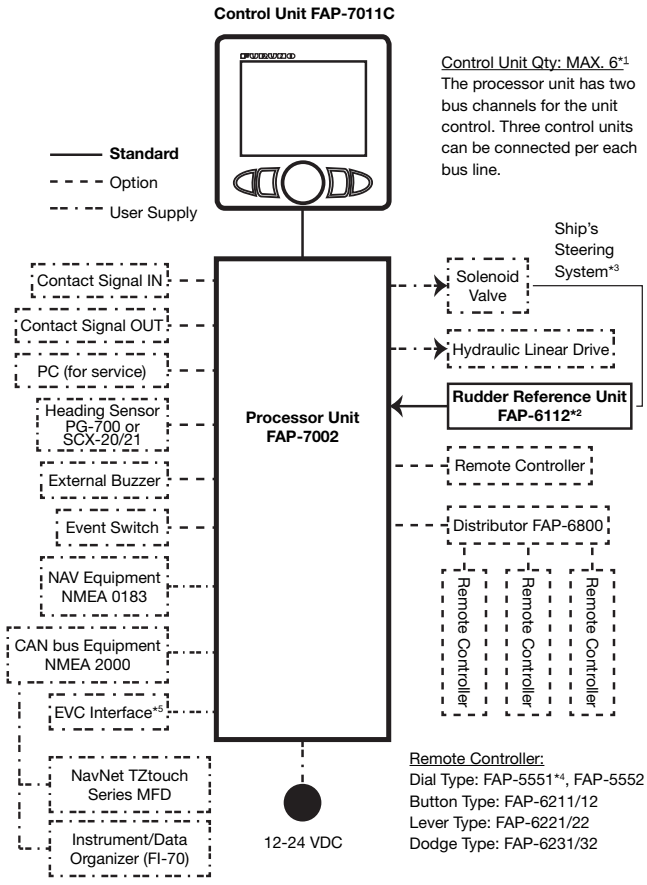

Cut-out for flush mount (Wall thickness 10 to 20 mm)




### Processor Unit FAP-7002
0.25 kg 0.53 lb




## INTERCONNECTION DIAGRAM




*1: Attach the terminator (type: BD-07AFFM-LR7001) to the port not used on the last control unit in the series.
*2: Not required for Fantum Feedback™.
*3: Not required for a EVC system equipped vessel.
*4: Connect one Dial-type Remote Controller FAP-5551 to one Distributor FAP-6800.
*5: VOLVO PENTA IPS, YAMAHA Helm Master, YANMAR VC10, SEASTAR SOLUTIONS OPTIMUS

| MODEL | | NAVpilot-300 | NAVpilot-711C |
|---|---|---|---|
| **CONTROL UNIT** | | | |
| Screen Size/Type | | 4.1" TFT color LCD | |
| Effective Display Area | | 82.56 (W) x 61.92 (H) mm | |
| Screen Resolution | | 320 x 240 dots (QVGA) | |
| Screen Brightness | | 700 cd/$m^2$ typical | |
| Screen Contrast | | 8 steps | |
| **PROCESSOR UNIT** | | | |
| Steering Mode | | STBY, Auto, Dodge, NFU (Non-follow up), Turn, SABIKI™, FishHunter™, Advanced Auto*, Navigation*<br>*External data required | STBY, Auto, Dodge, Turn, Remote, SABIKI™, Advanced Auto*, Navigation*, Wind*, FishHunter™*<br>*External data required |
| Weather Mode | | -- | Auto, Manual-Calm/Moderate/Rough |
| Rudder Gain | | Auto/1-20 (Manual) | |
| Counter Rudder | | Auto/0-20 (Manual) | |
| Trim Gain | | Auto/1-20 (Manual) | |
| Trim Adjustment | | -5° (port) to +5° (stbd) | -- |
| Change Course Speed | | 1-20 deg/s | 1-30 deg/s |
| Rudder Angle Settings | | -- | 10-45 deg |
| Alarm | | Heading deviation, Watch | Heading deviation, Cross-track error*, Ship's Speed*, Depth*, Water temperature*, Wind*, Watch, Log Trip*<br>*External data required |
| Motor Drive | | 10 A continuous, 20 A for 5 seconds | 25 A continuous, 50 A for 5 seconds |
| **GESTURE CONTROLLER (NAVpilot-300 only)** | | | |
| Screen Type/Resolution | | 1.28" Monochrome TFT LCD, 128 x 128 pixels | -- |
| Communication Distance | | 10 m (depending on environmental conditions) | |
| **INTERFACE** | | | |
| Ports | | NMEA2000 x1, CAN bus x1 (DBW control), Contact signal x3, Bluetooth (Gesture Controller) | NMEA0183 x2, CAN bus x1, Contact signal x2 |
| Input | NMEA0183 | -- | AAM, APB, BOD, BWC, BWR, DBT, DPT, GGA, GLL, GNS, HDG, HDM, HDT, MTW, MWV, ROT, RMB, RMC, THS, TLL, VHW, VTG, VWR, VWT, XTE, ZDA |
| | NMEA2000 | 059392/904, 060160/416/928, 061184, 065240, 126208/464/720/992/996, 127237/250/258, 128259, 129025/026/029/283/284/285/538, 130577/818/821/827/841 | 059392/904, 060928, 061184,126208/720/992/996, 127250/251/258/488/489,128259/267, 129025/026/029/033/283/284/285, 130306/310/311/312/313/314/577818/821/827/880 |
| Output | NMEA0183 | -- | DBT, DPT, GGA, GLL, GNS, HDG, HDM, HDT, MTW, MWV, RMB, RMC, ROT, RSA, VHW, VTG, VWR, VWT, ZDA |
| | NMEA2000 | 059392/904, 060928, 126208/464/720/993/996/998, 127237/245, 130816/821/822/823/827/841 | 059392/904, 060928, 061184, 126208/464/720/992/996, 127237/245/250/251/258, 128259/267, 129025/026/029/033/283/284/285, 130306/310/311/312/822/823/827 |
| **ENVIRONMENT** | | | |
| Temperature | | -15°C to +55°C | |
| Waterproofing | | Processor Unit: IP55<br>Control Unit: IP56<br>Gesture Controller: IP65/67 | Processor Unit: IP20<br>Control Unit: IP56 |
| **POWER SUPPLY** | | | |
| Processor Unit | | 12-24 VDC 0.22 A max. (LEN: 2) | 12-24 VDC: 4.0-2.0 A (control unit: 6 sets), excluding pump |
| Control Unit | | 15 VDC 0.29 A max.(LEN: 6) | -- |
| Gesture Controller | | VDC, Dry cell battery (AAA x2) | -- |
| **EQUIPMENT LIST** | | | |
| Standard | | Control Unit (FAP-3011), Processor Unit (FAP-3012), Gesture Controller (GC-001), Installation Materials, Accessories, and Spare Parts | Control Unit (FAP-7011C), Processor Unit (FAP-7002), Rudder Reference Unit (FAP-6112), Integrated Heading Sensor (PG-700), Installation Materials and Spare Parts |
| Options | | Control Unit (FAP-3011), Gesture Controller (GC-001), Bracket-mount Kits, Cables, Connectors, Junction Box, Pump Unit, Rudder Reference Unit, FPS8 Power Steering Module, Volvo Interface Kit, YAMAHA HM Gateway | Control Units, Flush Mount Kits, Bracket-mount Kits, Cradle, Rudder Reference Units (FAP6112-200), Remote Controllers, Cables, Connectors, Junction Box, Pump Unit, FPS8 Power Steering Module, Volvo Interface Kit (FAP-6300) |

# NavPilot 300

## FAQ

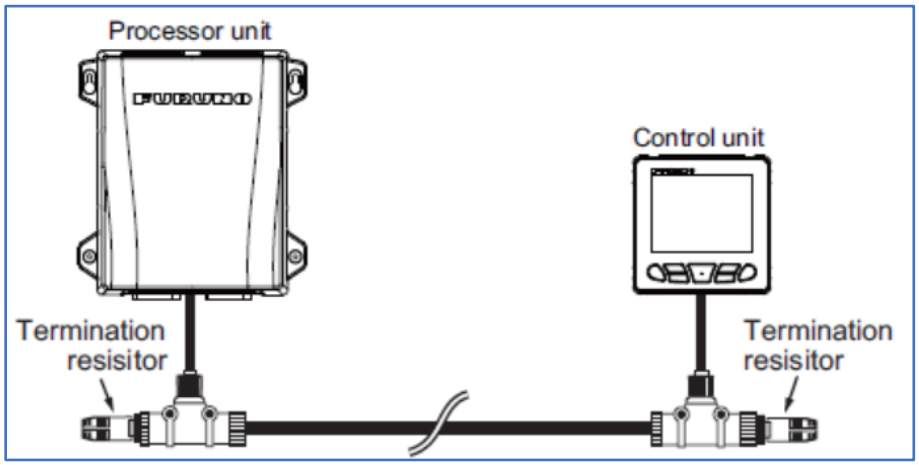

FURUNO

# NavPilot 300 FAQ

**How is the NavPilot 300 connected to an MFD or MFD network?** The NavPilot 300 processor unit, control head, and all MFDs are connected to the vessel's NMEA2000 bus.

**How is the NavPilot 300 control head connected to the processor unit?** The NavPilot 300 is a certified "NMEA2000" Autopilot. Both the control head and the processor unit connect directly to the vessel's NMEA2000 bus. This is unlike the NavPilot 711C, where the control head connects to the processor unit using a dedicated proprietary cable.

**Sample NMEA2000 connection diagram for the NavPilot 300.**




**Does the NavPilot 300 require a control head?** Upon introduction of the NavPilot 300 a control head will be required. However, full control from a TZT2 MFD is planned with version 6.1 software. At that time, it should be possible to operate without any control head in the system. TZT2 version 6.1 software is expected to be available Fall 2018.

**Does the NavPilot 300 have a clutch circuit used for sailboats?** No. The NavPilot 300 is primarily designed as a power boat pilot. Sailboat customers should consider the Navpilot 711C.

**Does the NavPilot 300 have a Solenoid output setting?** No. The NavPilot 300 was designed to drive a reversing pump or Drive by Wire

(DBW) installations with a Yamaha Helm Master, Seastar Optimus, Volvo Penta, Yanmar VC10 and other DBW steering systems.

**Does the NavPilot 300 have an NMEA0183 in/out port?** No. Only NMEA2000 is available. If NMEA0183 data is required, an NMEA2K2 can be installed in the system.

**What IO ports are available on the NavPilot 300?**

- One NMEA2000
- One specialized CAN bus for Drive by Wire systems (DBW)
- Three control signal input ports for an FPS8 connection and event input (emergency standby button)
- One Bluetooth for included Gesture Controller, GC001

**NavPilot 300 Interface**

| | |
|---|---|
| **Ports** | NMEA2000 x1, CAN bus x1 (DBW control)<br>Control signal x3, Bluetooth |
| **Input** | 059392/904, 060160/416/928, 061184, 065240,126208/464/720/992/996, 127237/250/258, 128259,129025/026/029/283/284/285/538, 130577/818/821/827/841 |
| **Output** | 059392/904, 060928, 126208/464/720/993/996/998, 127237/245, 130816/821/822/823/827/841 |

**Is the NavPilot 300 NMEA2000 certified?** Yes. Both the control head and the processor unit of the NavPilot 300 are NMEA2000 certified.

**What is the Wireless Gesture Controller that comes standard with the Navpilot 300?** The NavPilot 300 is supplied standard with a revolutionary Bluetooth Low Energy (BLE) "Gesture Controller" called the GC001. This unique controller wirelessly connects to the NavPilot 300 processor and allows operators to change course using a pointing hand motion in the same way that a game controller functions. It is a very clever, useful, and safe way to control a vessel. Up to three GC001 Bluetooth Gesture Controllers can be wirelessly connected to the NavPilot 300 Processor at the same time. The GC001 has an integrated heading and status display which is great for multi-station control.

**How many control heads can be in a NavPilot 300 system?** Up to three hardwired NMEA2000 Control Heads can be connected to the Navpilot 300 system as well as up to three GC001 Wireless Gesture Controller which also feature a status display.

**Can the NavPilot 300 control head be daisy-chained, like the NavPilot 711C control head?** No. The NavPilot 300 control head has only one NMEA2000 connector. Each control head is connected directly to the NMEA2000 bus.

**What pumps are available for the NavPilot 300?** Furuno USA will offer two reversing pump product lines for the Navpilot 300 from Accu-Steer and Octopus. The Octopus pump models we offer will be 12VDC only. An Accu-Steer pump will be required if 24VDC is needed. Also, Safe Helm and Power assist require the optional FPS8 and the use of Accu-Steer HRP11/17/100 pumps only.

### Octopus Pumps

| | |
|---|---|
| PUMPOCT06-12 | 600CC/min 12vdc Octopus pump for 6-9 cubic inch cylinders |
| PUMPOCT10-12 | 1000CC/min 12vdc Octopus pump for10-15 cubic inch cylinders |
| PUMPOCT16-12 | 1600CC/min 12vdc Octopus pump for 16-24 cubic inch cylinders |

### Accu-Steer Pumps

| | |
|---|---|
| PUMPHRP05-12 | 0.5 Cubic Inch P/Sec Pump 12vdc |
| PUMPHRP11-12 | Autopilot Pump, 24VDC, 1.7 Cubic Inches Per Second (For Ram Sizes of Up to 13 Cubic Inches in Volume) |
| PUMPHRP17-12 | Autopilot Pump, 12VDC, 1.1 Cubic Inches Per Second (For Ram Sizes of 14 to 25 Cubic Inches in Volume) |
| PUMPHRP05-24 | 0.5 Cubic Inch P/Sec Pump 24vdc |
| PUMPHRP11-24 | Autopilot Pump, 24VDC, 1.1 Cubic Inches Per Second (For Ram Sizes of Up to 13 Cubic Inches in Volume) |
| PUMPHRP17-24 | Autopilot Pump, 12VDC, 1.1 Cubic Inches Per Second (For Ram Sizes of 14 to 25 Cubic Inches in Volume) |

**What is the waterproof rating of the NavPilot 300?** Display is IP56. Processor is IP55. Gesture Controller, GC001 is IP67.

**Does the NavPilot 300 have a night mode?** The NavPilot 300 control head has a day and night mode.

**What steering modes are available for the NavPilot 300?** 5 different steering modes are available: Auto, Advanced Auto (compensation for tide and wind), FishHunter, Sabiki, and Nav.

**Does the NavPilot 300 require a Rudder Reference Unit (RRU) for outboard installations?** No. The NavPilot 300 incorporates Furuno's exclusive Fantum feedback mode. However, an RRU can be fitted to provide rudder position information.

**Is an (RRU) required for FishHunter mode in an outboard installation?** No. Unlike the NavPilot 700/711C, the NavPilot 300 does not require an RRU to use all of the turns offered in the FishHunter mode**.**

**Is an inboard RRU supplied with the NavPilot 300** No, it is an option. Available inboard RRU is the FAP6112. This is the same RRU that is used with the NavPilot 700/711C and it is an analog RRU. Direct NMEA2000 RRU PGN support is not supported at this time.

**How does the NavPilot 300 connect to Electronic vessel control systems (EVCS) Drive by Wire (DBW) systems?** The NavPilot 300 can be directly connected to the CAN bus steering systems of Seastar Optimus and Yanmar VC10 without the use of a gateway. Yamaha Helm Master and Volvo Penta systems require an optional gateway. Yamaha gateway part # 000-027-162-00. Volvo Penta gateway part # 000-022-971-00.

**How can the NavPilot 300 control head be mounted?** The NavPilot 300 control head can be either flush or desktop mounted. The desktop mount requires an optional bracket mounting kit, part # 000-033-337.

**Can you connect a NavPilot 711C control head to the NavPilot 300 processor unit?** No. The NavPilot 711C control head (FAP7011C) is not compatible with the NavPilot 300 processor unit.

**Can I connect a Follow-Up or Non-Follow-Up jog lever to the NavPilot 300**? No. The NavPilot 300 does not support these remotes. The NavPilot 300 does support up to three control heads and three remote Gesture Controllers, which can perform the functions of a jog lever. If you

need traditional Follow-up or Non-Follow-up remotes, the NavPilot 700/711C is recommended.

## Typical NavPilot 300 connections