NAVnet

TZ touch 3

Model:

TZT9F   TZT12F
# TZT16F   TZT19F

Yamaha Helm Master EX

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1. Yamaha Helm Master EX

Yamaha Helm Master EX is an electrically controlled system for single to quad outboard engine(s) with over 150 HP for boats over 24 ft (approx.). It is a scalable system categorized into Levels 1 to 4, depending on available functions.

No	Category	New Helm Master EX	Conventional Helm Master
1	Target	**Single** to **Quad** outboard(s)	Multiple outboards
2	Steering System	All electric: Electrical control and electrical actuator	Hydro-electric: Electrical control with hydraulic actuator
3	Shift Throttle	Electrical control	Electrical control
4	Joystick	Option for higher level	Standard
5	FishPoint Feature (simplified dynamic positioning) DriftPoint Feature (course keeping like SABIKI mode)	Available	Available
6	StayPoint Feature (dynamic positioning)	N/A for single engine Available for multiple engines	Available
7	Autopilot Function (straight, route, pattern steering)	Included for higher level (Level 3 and 4)	N/A

Conventional Helm Master

Electrical Control
    + Hydraulic Pump
        + Hydraulic Actuator
        (Hydro-Electric SBW)
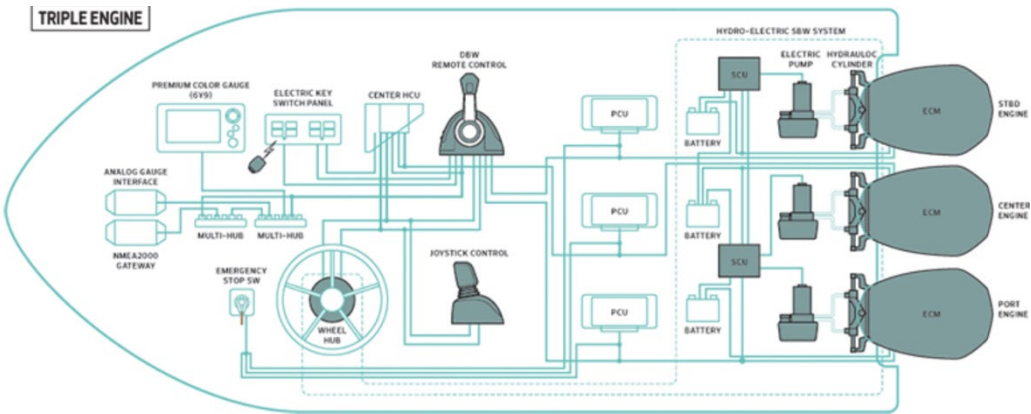
NEW Helm Master EX

Electrical Control + Electrical Actuator

(Electric Steering)

Videos from Yamaha:

All-New Yamaha Helm Master® EX - YouTube

Helm Master® EX Owner Operation - StayPoint® - YouTube

## Scalable System – Categorized into Four (4) Levels

Depending on levels, the implemented functions are different and categorized in Levels 1 to 4. Make sure to consult with Yamaha representatives for the details on each level to cope with integration with MFDs described in the latter sections.

FUNCTION	DEC Digital Electronic Control LEVEL 1	DES Digital Electric Steering LEVEL 2	AP Autopilot LEVEL 3	FM Full Manoeuvrability LEVEL 4
Single Lever	●	●	●	●
Speed Control	●	●	●	●
Trim Assist	●	●	●	●
Centre Engine	●	●	●	●
Neutral Hold	●	●	●	●
Pattern Shift	●	●	●	●
Adjustable/Variable Lock-to-Lock		●	●	●
Adjustable/Variable Steering Friction		●	●	●
Heading Hold			●	●
Course Hold			●	●
Track Point (with Compatible Multifunction Display)			●	●
Pattern Steer (Zig Zag and Concentric Spiral)			●	●
Autopilot with Waypoint Arrival and Joystick Control				●
SetPoint® Features (FishPoint®, DriftPoint® & StayPoint®)				●
Full Joystick Manoeuvrability				●

Level description extracted from Helm Master EX brochure
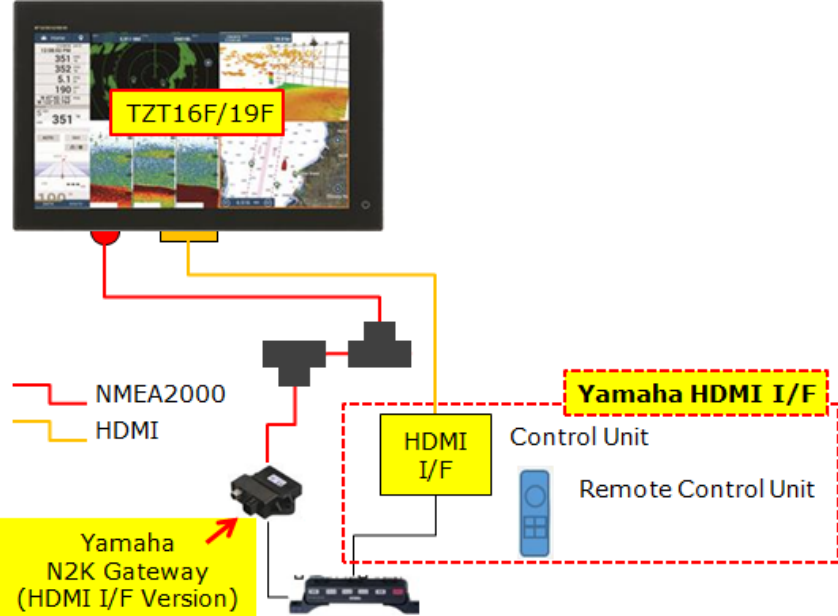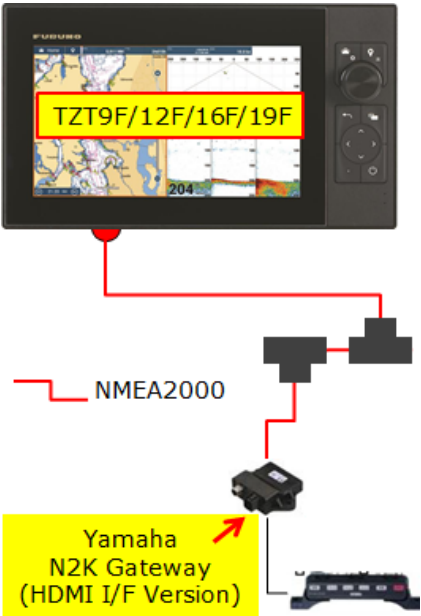
Example of Conceptual Wiring Diagram

MFD is added to the Yamaha Helm Master EX system to display engine gauges and output route data for autopilot. See **Section 2** for details on required items to connect the MFD.
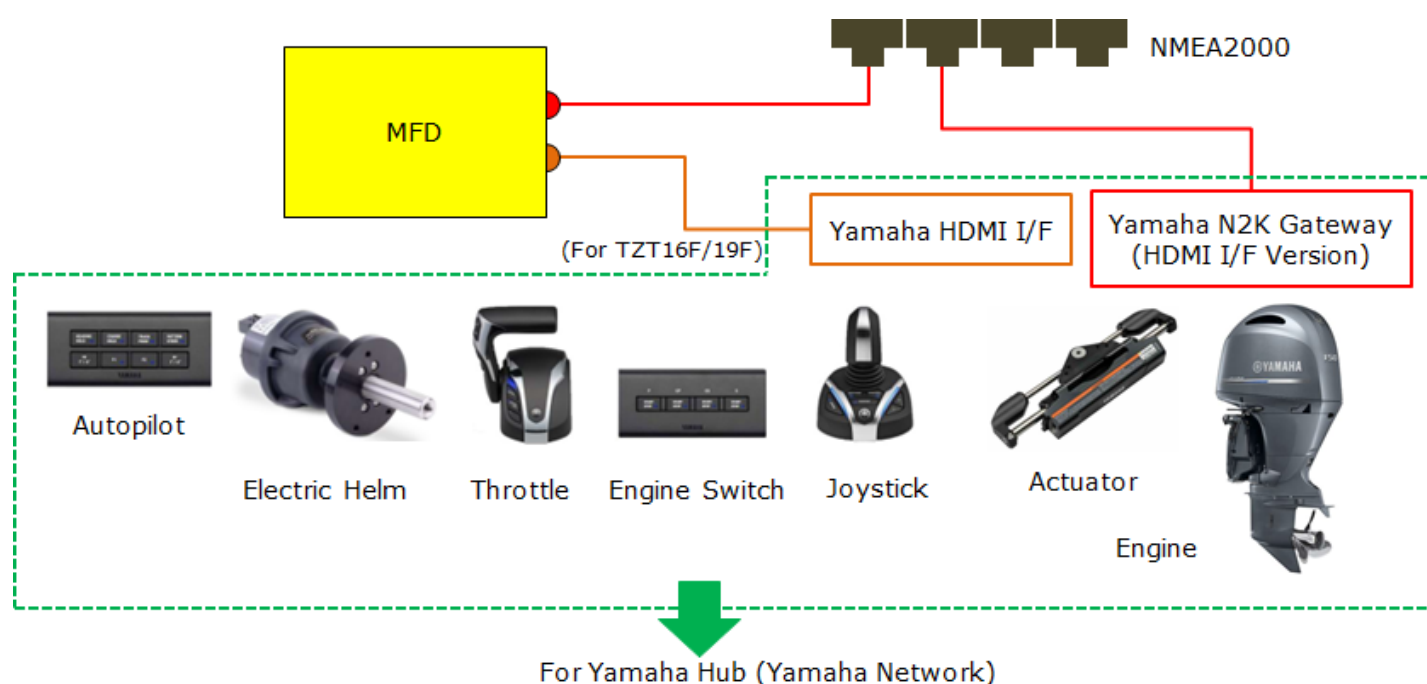
2. Yamaha Helm Master EX on NavNet TZtouch3

2.1. Interconnection

The TZT9F/12F/16F/19F v2.01 and above can be connected to the Yamaha Helm Master EX via the "HDMI I/F, **Yamaha part # 6YM-8A201-01** and N2K gateway (HDMI I/F version)", **Yamaha part # 6YG-8A2D0-11** or by just using the "N2K gateway (HDMI I/F version)".

Via HDMI I/F and N2K Gateway (HDMI I/F Version)	Via N2K Gateway (HDMI I/F Version)
The HDMI I/F is input to the HDMI IN port of TZT16F/19F to display gauge images on the TZT16F/19F – HDMI IN page. The N2K gateway (HDMI I/F version) is also connected for alarm, notification, route output, etc.	The N2K gateway (HDMI I/F version) is connected for engine data, as well as alarm, notification, route output, etc.

Yamaha part description for each item is as follows.

HDMI I/F (also called HDMI BOX): 6YM-8A201-01, MFDI unit with Remote controller
N2K Gateway (HDMI I/F version): 6YG-8A2D0-11, NMEA2000 Gateway (6YG)

2.2. Available Features by MFD Models

NavNet TZtouch3 MFDs are compatible with the following features of the Yamaha Helm Master EX.

No	Feature	TZT9F	TZT12F	TZT16F	TZT19F
1	Display alarms and notifications on MFD	✔	✔	✔	✔
2	Output route information from MFD for the engine to slow down and stop at the destination	✔	✔	✔	✔
3	Display Yamaha (graphics) engine gauge data on MFD via **HDMI I/F**	N/A	N/A	✔	✔
4	Display engine data on MFD via **N2K Gateway (HDMI I/F version)**	✔	✔	✔	✔

2.3. Alarm and Notification Indication

The indication related to Yamaha Helm Master EX will be shown on the message bar at the top of the screen.

The Alarm List shows the details of each alarm because the message bar has limited space.


Alarm

Notification

2.4. Route Output

In addition to PGN: 129285 (Navigation - Route/WP information) for the origin and destination of the route, the next destination is also output.

2.5. Engine Gauge Display via Yamaha HDMI I/F

The Yamaha Helm Master EX **internally** generates graphic images of engine gauges and outputs the data via the **HDMI I/F.** **TZT16F and TZT19F with the HDMI IN port** can show the Yamaha generated engine gauge display. TZT9F and TZT12F do not have an HDMI-In port and cannot display Yamaha generated EX gauge information. The engine gauge is controlled via a remote controller for EX.
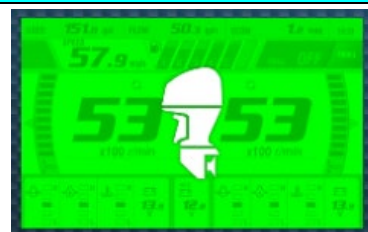
Notes:

(1) Arrange the HDMI I/F through your local Yamaha dealer.

(2) The data content and operation (GUI) of the engine gauge display are designed by Yamaha, not Furuno. For details or questions on these items, please contact your local Yamaha dealer or representative.

(3) The Yamaha engine displays CL7/CL5 displays show engine gauges without the HDMI I/F. Most MFD manufacturers' including Furuno NavNet TZtouch3 MFDs, use the **HDMI I/F.**

(4) While the engine gauge via the HDMI I/F is displayed on the TZT16F/19F, the HDMI source on the Camera page is **NOT** available because the HDMI IN port is being used by the HDMI I/F. This is currently true for every MFD on the network.

2.6. N2K Gateway (HDMI I/F Version)

The N2K gateway (HDMI I/F version) is used to network with an MFD for alarm/notification, route output, and engine data. If the HDMI I/F is not in the network, the engine data will be shown on the conventionally available Yamaha page on the MFD (these Yamaha graphics are internal to the TZT3 MFDs)

Note:

Make sure to arrange the **N2K gateway (HDMI I/F version)** through your local Yamaha representative.

## 2.7. Availability Table – With or Without HDMI I/F

The following table shows the available items with or without the HDMI I/F connected to the MFD.

Item	HDMI I/F Connected	N2K Gateway (HDMI I/F Version) Only
Compatible MFD	TZT16F/TZT19F – HDMI IN port utilized	TZT9F/12F/16F/19F
Home Page Icon		
Operation on MFD	N/A (control via remote controller only)	Available (switch display, troll mode, etc.)
Screen Mode	Full, 1/4-size (Quarter)	Full, 1/4-size (Quarter)

# 3. Notes and Tips

3.1. Quarter Screen Mode

In the quarter split screen mode, only one of the screens can be assigned as a Yamaha page.
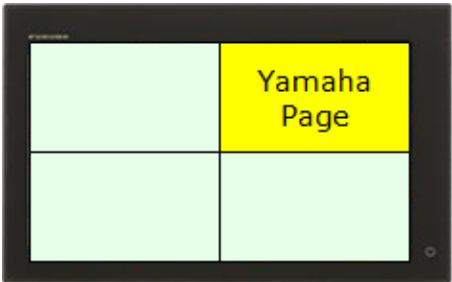
3.2. When HDMI I/F Not Detected...

When the HDMI I/F is not detected, the Home page will not show the bright green Yamaha page icon.

When the HDMI I/F is detected but the image is not available due to the HDMI I/F being powered off or a wiring failure, the Yamaha page will show a blue screen.
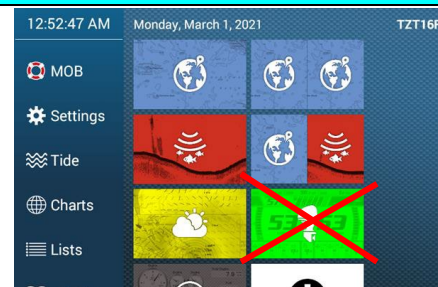
3.3. Limitations in Configuration with Multiple MFDs

No HDMI IN page available on other MFDs

While the HDMI I/F is connected to one of the MFDs in the network, **other MFD(s) CANNOT show the HDMI IN page for an HDMI camera, etc**.

Note:

For camera display requirement, use an analog or IP camera. Or use the video streaming feature.

No mix of HDMI I/F and N2K gateway images

While the HDMI I/F is connected to one of the MFDs in the network, **other MFD(s) CANNOT show engine data from N2K gateway**. Mixture of HDMI and N2K gateway screens is not allowed.
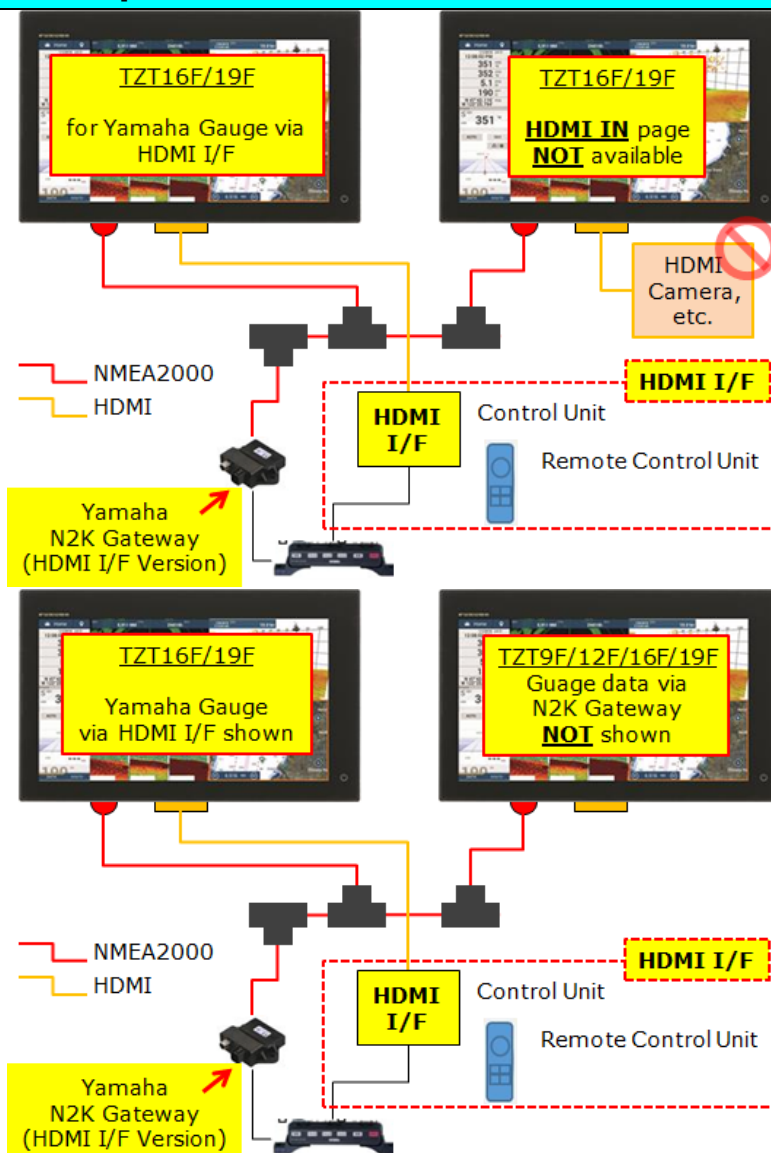
Show engine gauges on all MFDs

As an example, if the Yamaha display CL7/CL5 is used to show and control engine data without the HDMI IF, MFDs in the network can show and control the engine data via the N2K gateway.
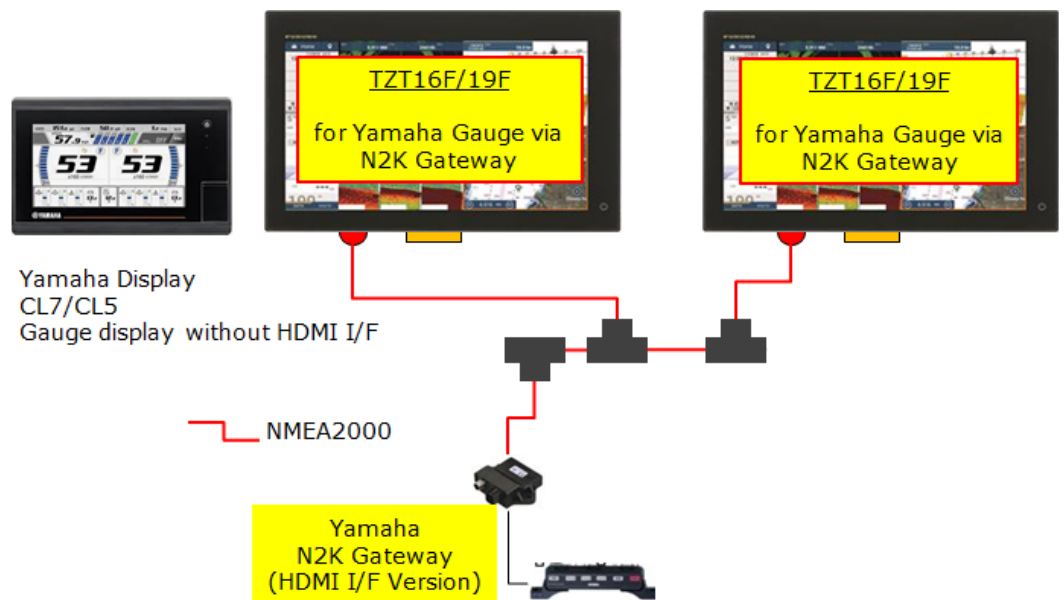
Engine data on Furuno Instrument page

The engine data from the N2K gateway can also be shown on the standard Instrument page in Furuno design. Note that some functions such as troll mode are not supported on the Furuno standard Instrument page.

3.4. Tips

Official Approval by Yamaha:

NavNet TZtouch3 v2.01 was tested by Yamaha onboard for data display on MFD and autopilot control and has been officially approved since March 2021.

Note:

Connection with NAVpilot-711C or NAVpilot-300 with Helm Master EX is not verified. The EX engine with the autopilot implemented (Level 3 and 4) can be utilized for full control for arrival at the destination by route output from the MFD.

October 19, 2021

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