

INSTALLATION GUIDE HUB-102 Ethernet Hub



WARNING



Do not open the shield cover unless totally familiar with electrical circuits.

Only qualified personnel should work inside the equipment.

Do not install the unit where it may be submerged in water.

Water in the unit can result in fire, electrical shock, or damage to the equipment.

Use only the supplied power cable.

Fire or damage to the equipment can result if a different power cable is used.

Do not disassemble or modify the equipment.

Fire, electrical shock, or serious injury can result.



CAUTION

Observe the following compass safe distances to prevent interference to a magnetic compass:

	standard compass	steering compass
HUB-102	0.05 m	0.05 m



FURUNO USA, INC.

<https://www.furuno.com/>

Specifications

Transmission speed	10Mbps/100Mbps half/full duplex 1000Mbps full duplex	
I/O Ports	5 ports	
Environmental conditions	Ambient temperature	-15 to 55 °C
	Relative humidity	93% or less
	EMC	IEC 60945 Ed.4
	Dustproofing, waterproofing	IP56 (IEC 60529)
Power supply	12-24 VDC/0.2-0.1 A	

Equipment List

Name	Type	Part No.	Qty	Remarks
Ethernet HUB	HUB-102	-	1	
Installation materials	HUB-102-CBL-05	-	1	Power cable assy.
	Self-tapping screws	-	1 set	M3 screws (4pcs.)
	Installation Manual	-	1	

Installation

Mounting considerations

The HUB-102 can be mounted on a desktop or a bulkhead. When choosing a mounting location, keep in mind the following points:

- Locate the unit where it will not be submerged in water.
- Keep the unit out of direct sunlight to prevent build up heat inside the cabinet.
- Cables should point down to prevent any possible water wicking.

Mounting

Fix the unit to the mounting location with four self-tapping screws, referring to the outline drawing in this manual.

Wiring

Interconnection

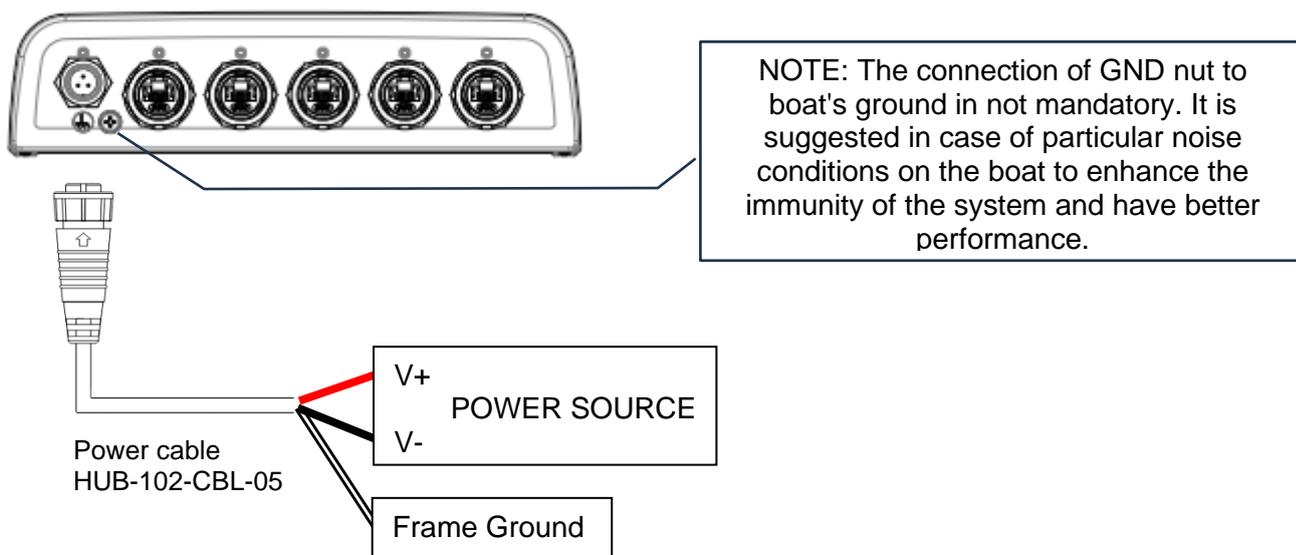
To connect NavNet equipment, use the optional cables shown below depending on the unit connected. (All cables below are shielded.)

Connected unit	Type	Part No.	Cable length
Waterproof equipment (Waterproof RJ45 to Waterproof RJ45 Cable)	FRU-RZWPWP-002G	001-653-250-00	2 m
	FRU-RZWPWP-005G	001-653-260-00	5 m
	FRU-RZWPWP-010G	001-653-270-00	10 m
Non-waterproof equipment (Waterproof RJ45 to Non- Waterproof RJ45 Cable)	FRU-RZWPNWP-002G	001-646-960-00	2 m
	FRU-RZWPNWP-005G	001-646-980-00	5 m
	FRU-RZWPNWP-010G	001-647-000-00	10 m
Waterproof adapter cable		WRJ-ADP-05M	0.5 m
Multiple HUB-102		HUB-102-JMP	0.5 m

Power connection

The HUB-102 power supply must be connected to a power source as follows:

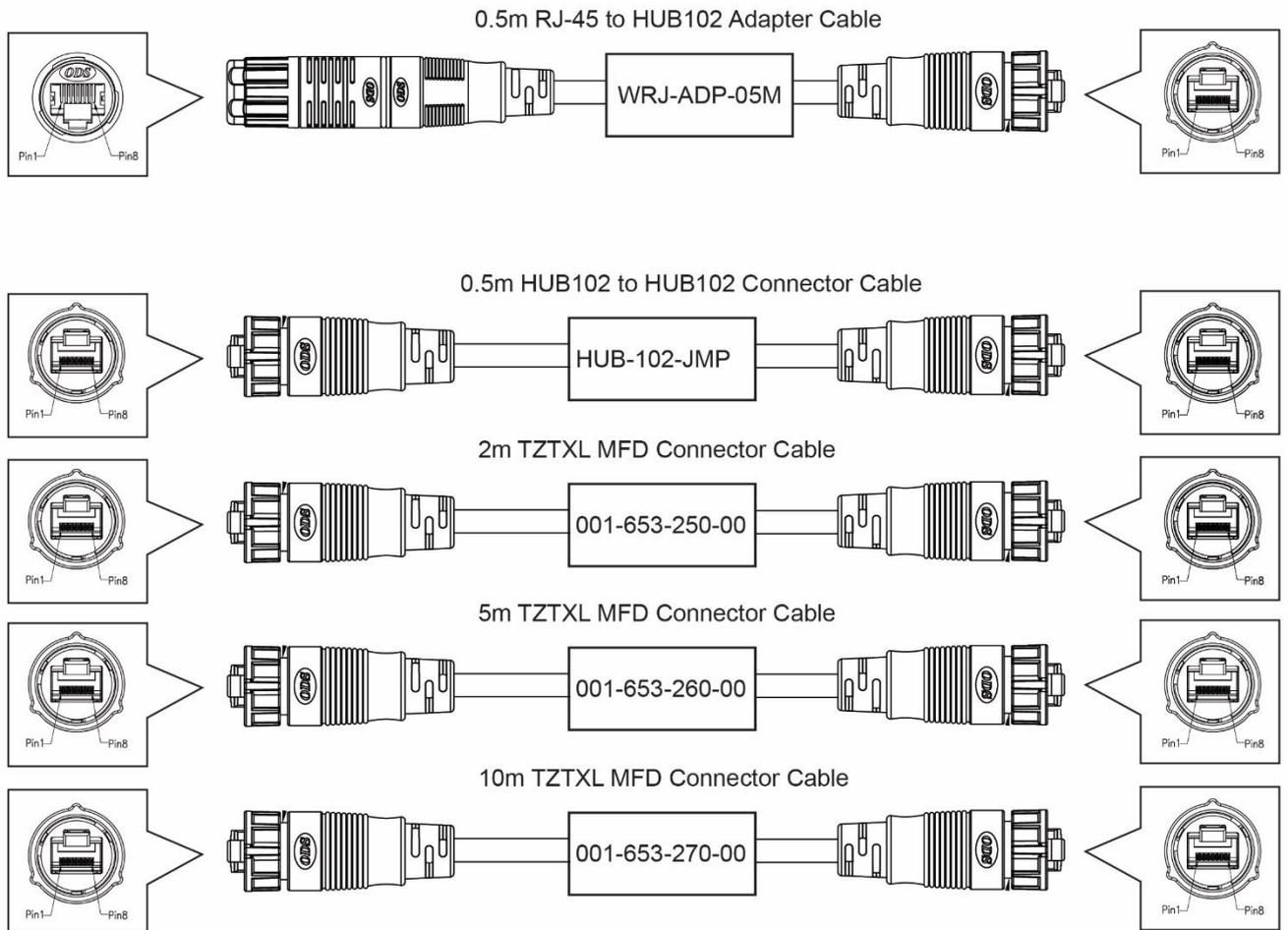
The HUB-102 is protected by an internal auto resetting fuse.



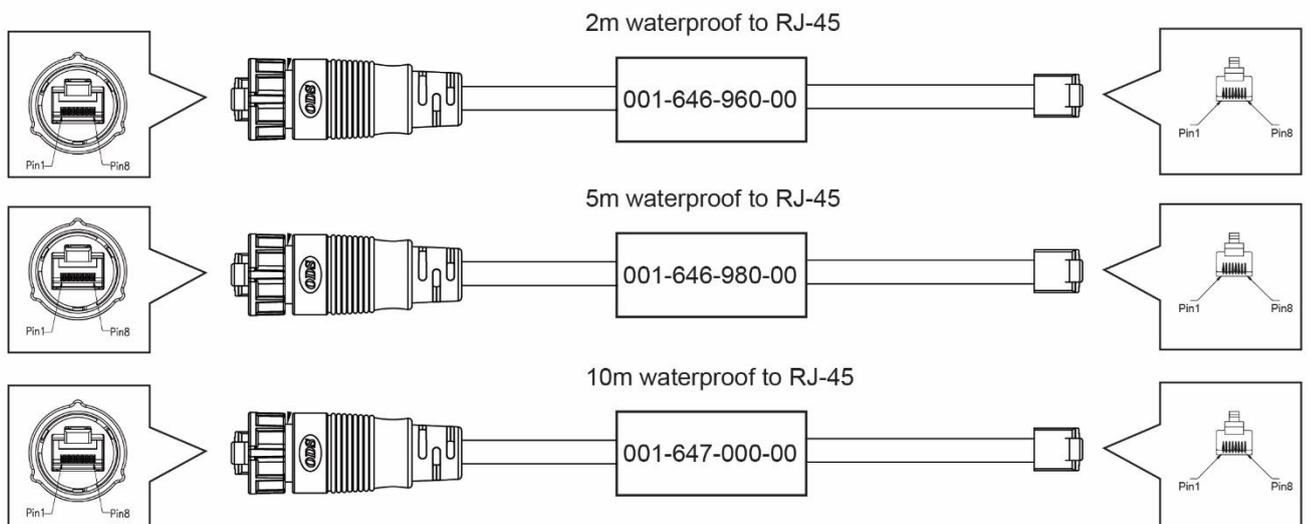
Red: V+
Black: V-
White: Frame Ground (FG)

Optional cables

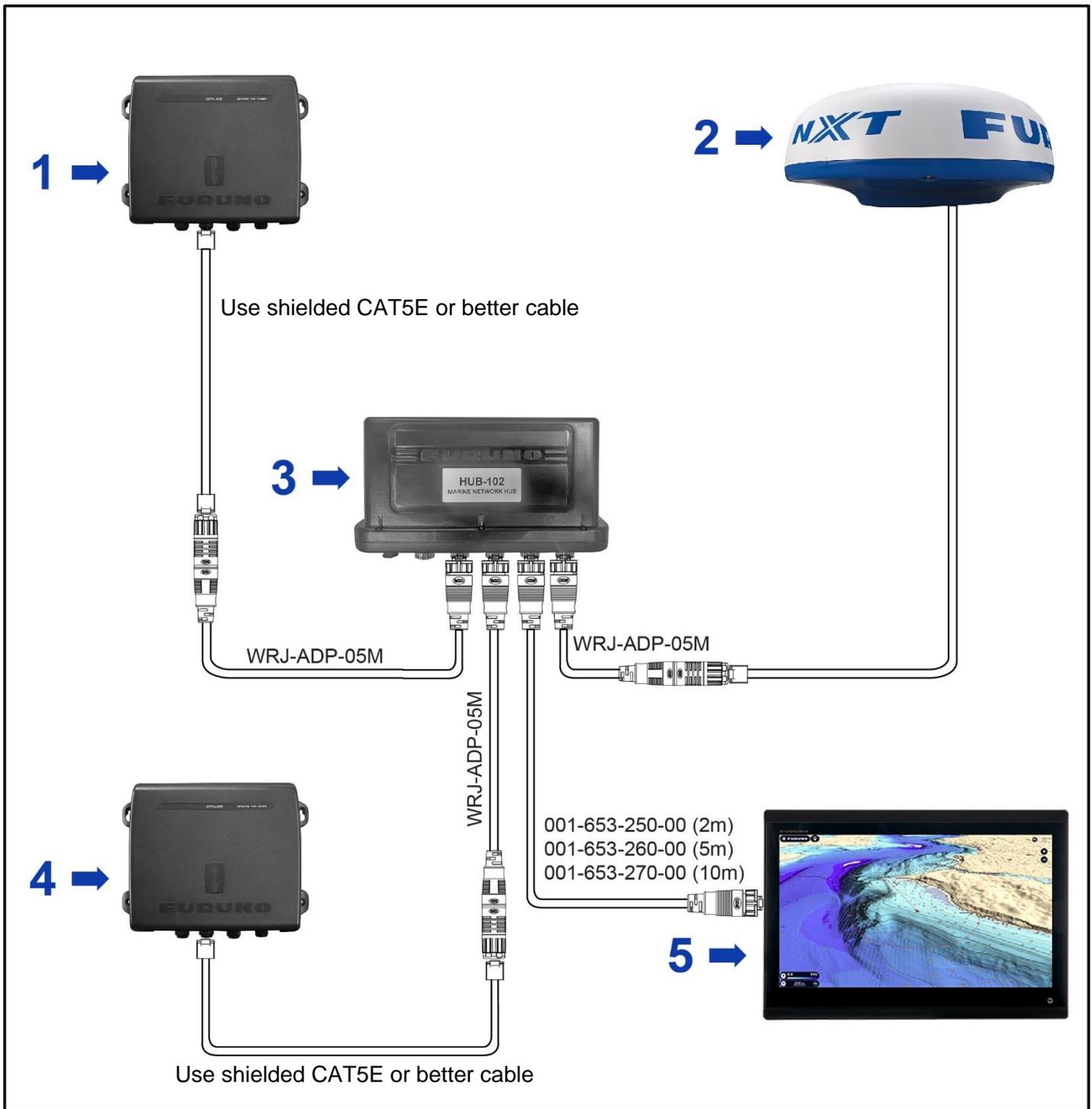
Ethernet waterproof to waterproof cables



Ethernet waterproof to non-waterproof cables

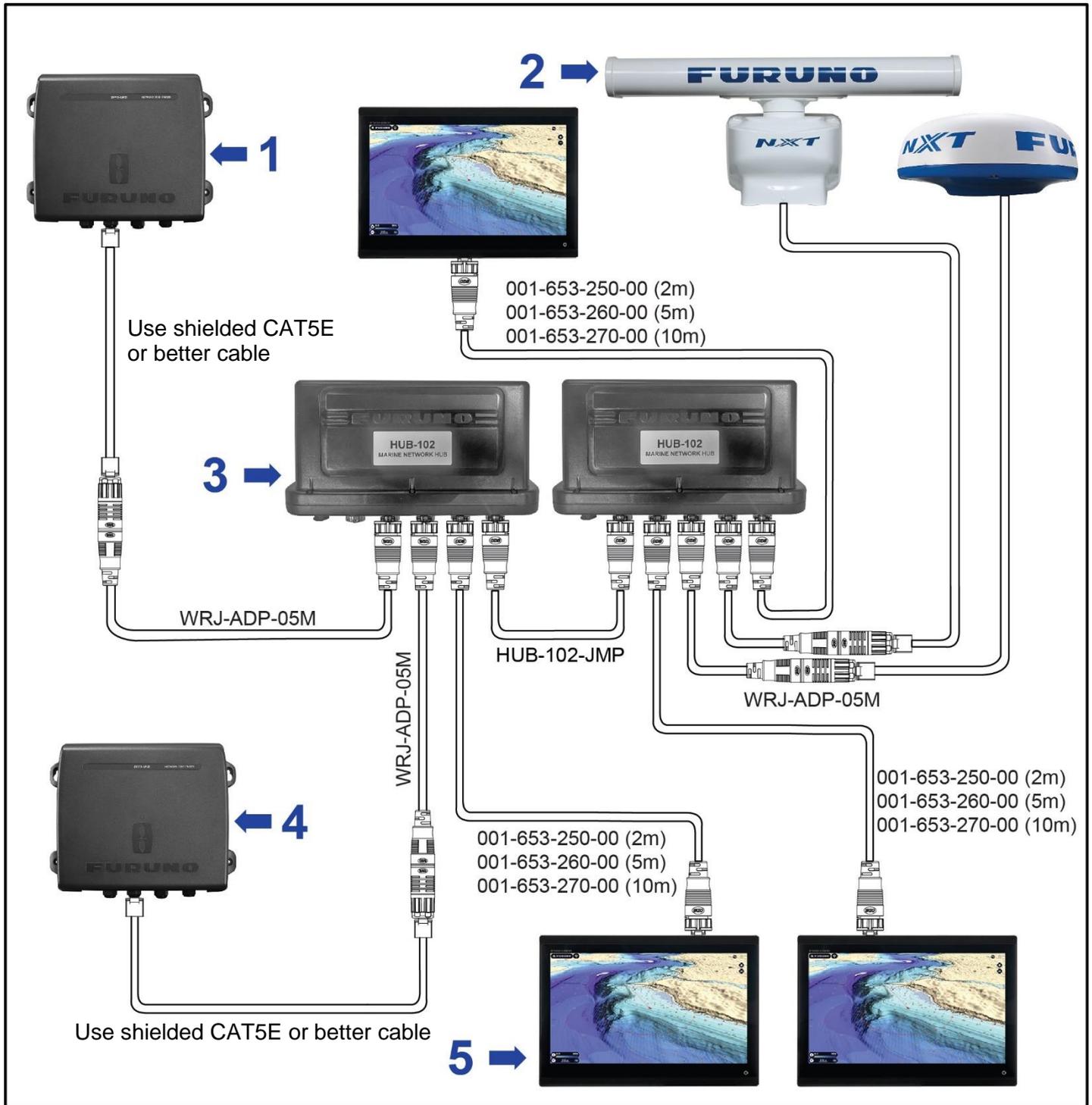


Example: Typical System



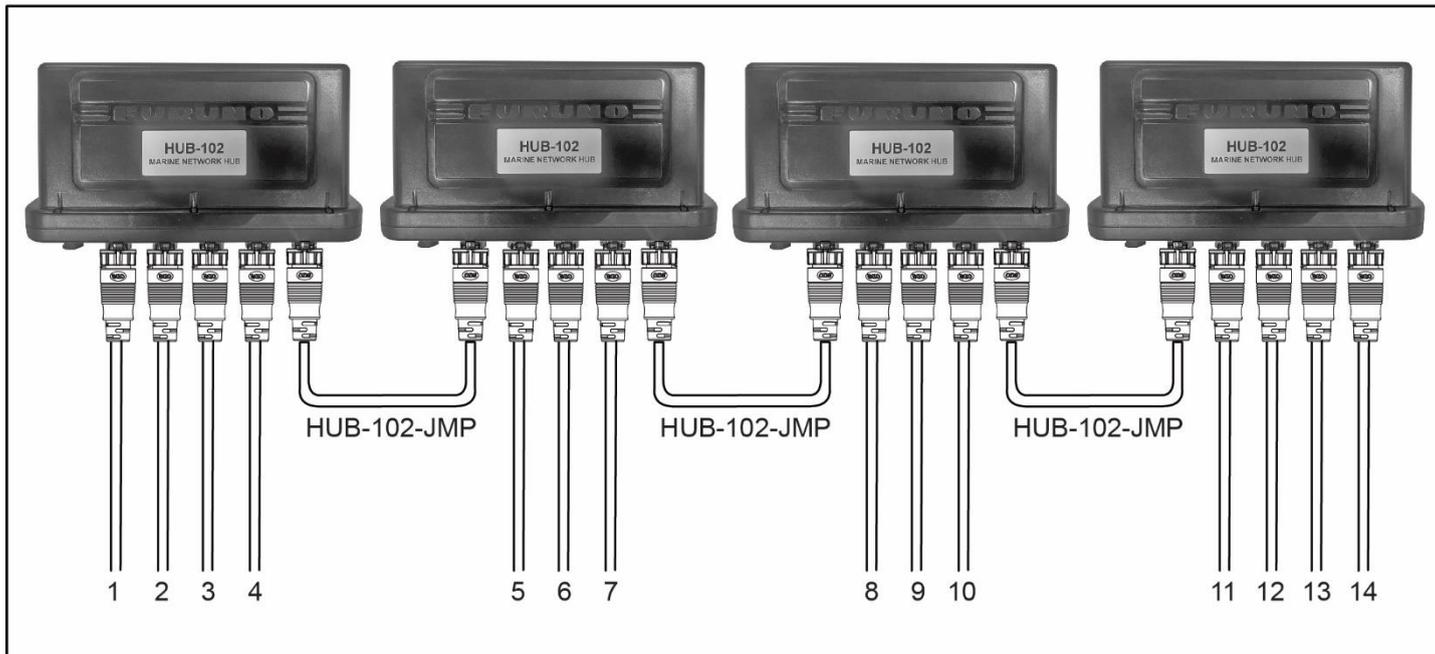
1. DFF3D Multibeam Sonar
2. Radar Antenna
3. HUB102 Network Switch
4. Network Fish Finder
5. Multi Function Display

Example: System connecting two HUB102's together

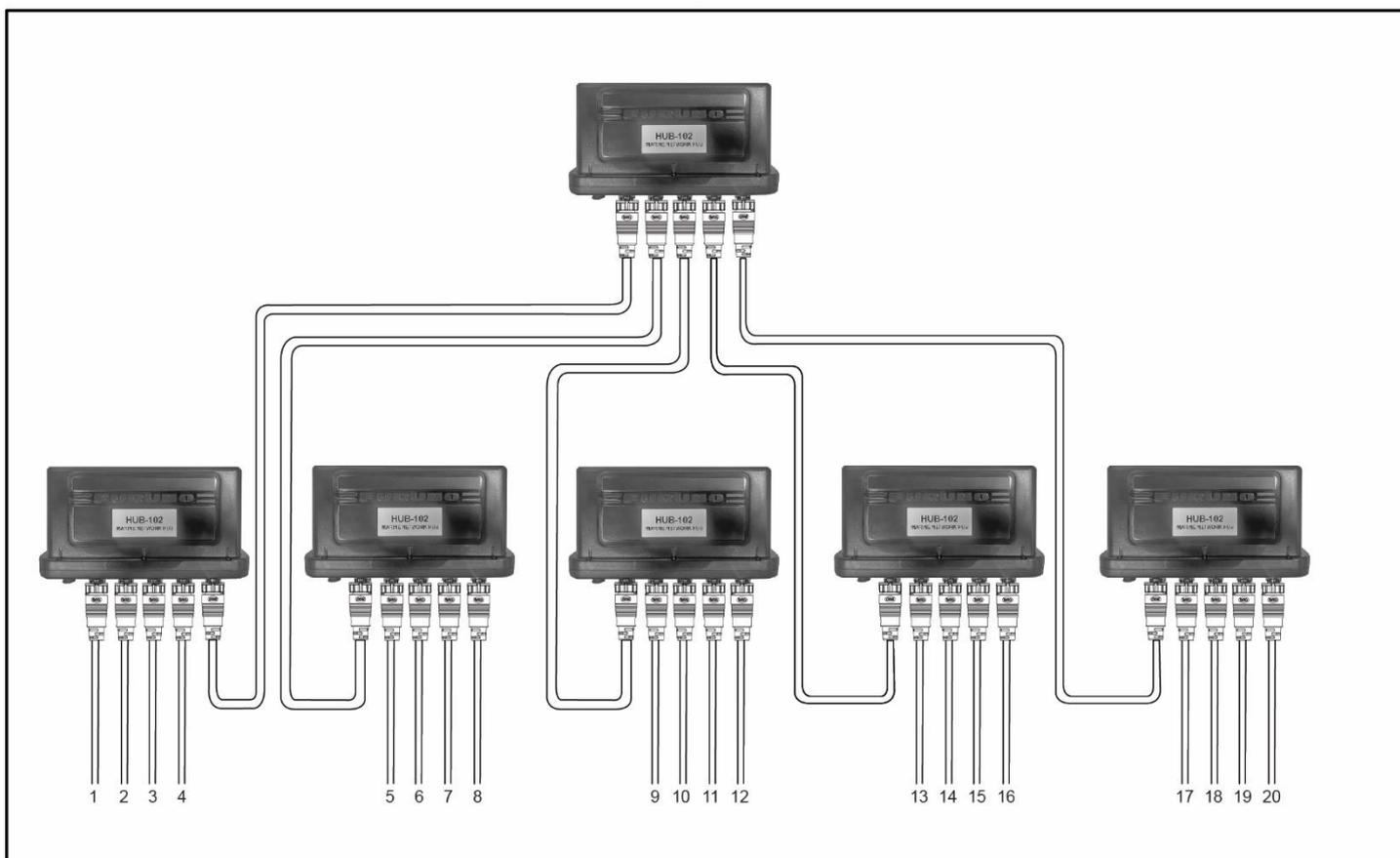


1. DFF3D Multibeam Sonar
2. DRS Radar
3. HUB102 Network Switches connected together to provide 8 ports
4. Network Fish Finder
5. Multi Function Displays

Connect up to 4 HUB102's in a daisy chain



To connect 5 HUB102's, connect per the diagram below



Turning Power on, LED function

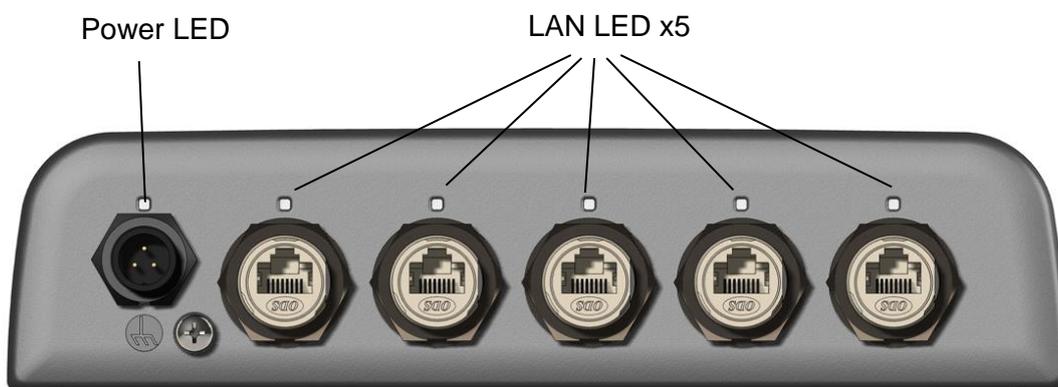
No operation is required by the user. Simply turn on the HUB-102's DC power source to power it.

LED display

There are LEDs to monitor power and LAN communication on the unit. The LEDs light, blink or go off according to equipment status as shown in the table below. When the equipment is powered on, LEDs light as following.

Power on sequence

- Power LED: ON
- LAN LEDs: Blink once, then go off.



LED	Status	Meaning
Power (green)	On Off	Equipment powered Equipment off
LAN LED (green)	On Off Blinking	Connected to terminal Disconnected from terminal Data TX or RX

Compatible model / unit

NavNet MFD	TZT10X / TZT13X / TZT16X / TZT22X / TZT24X / TZTBX TZT9F / TZT12F / TZT16F / TZT19F / TZT2BB
FLEX Function Display	SFD-1010 / SFD-1012
Marine Radar	FR-8 / FR-10 / FR-12 MODEL1815
Fish Finder	FCV-38 / FCV-2100 / FCV-1900G / FCV-1900B / FCV-1900

FURUNO Worldwide Warranty for Pleasure Boats (Except North America)

This warranty is valid for products manufactured by Furuno Electric Co. (hereafter FURUNO) and installed on a pleasure boat. Any web-based purchases that are imported into other countries by anyone other than a FURUNO certified dealer may not comply with local standards. FURUNO strongly recommends against importing these products from international websites as the imported product may not work correctly and may interfere with other electronic devices. The imported product may also be in breach of the local laws and mandated technical requirements. Products imported into other countries as described previously shall not be eligible for local warranty service.

For products purchased outside of your country please contact the national distributor of Furuno products in the country where purchased.

This warranty is in addition to the customer's statutory legal rights.

1. Terms and Conditions of Warranty

Furuno guarantees that each new FURUNO product is the result of quality materials and workmanship. The warranty is valid for a period of 2 years (24 months) from the date of the invoice, or the date of commissioning of the product by the installing certified dealer.

2. FURUNO Standard Warranty

The FURUNO standard warranty includes:

- **Repair at a FURUNO national distributor**
- **All spare parts for the repair**
- **Cost for economical shipment to the customer**

3. Furuno Onboard Warranty

If the product was installed/commissioned and registered by a certified FURUNO dealer, the customer has the right to the onboard warranty.

- **Free shipping of the necessary parts**
- **Labor: Normal working hours only**
- **Travel time: Up to a maximum of two (2) hours**
- **Travel distance: Up to a maximum of one hundred & sixty (160)km by car for the complete journey**

4. Warranty Registration

For the standard Warranty – presentation of the product with serial number is sufficient. Otherwise, the invoice with serial number, name and stamp of the dealer and date of purchase is shown.

For the Onboard warranty your FURUNO certified dealer will take care of all registrations.

5. Warranty Claims

For the Standard Warranty – simply send the defective product together with the invoice to a FURUNO national distributor. For Onboard Warranty – contact a FURUNO national distributor or a certified dealer. Give the product's serial number and describe the problem as accurately as possible.

Warranty repairs carried out by companies /persons other than a FURUNO national distributor or a certified dealer is not covered by this warranty.

6. Warranty Limitations

When a claim is made, FURUNO has a right to choose whether to repair or replace the product.

The FURUNO warranty is only valid if the product was correctly installed and used. Therefore, it is necessary for the customer to comply with the instructions in the handbook. Problems which result from not complying with the instruction manual are not covered by the warranty.

FURUNO is not liable for any damage caused to the vessel by using a FURUNO product.

The following are excluded from this warranty:

- a) Second-hand product**
- b) Underwater unit such as transducer and hull unit**
- c) Routine maintenance, alignment, and calibration services.**
- d) Replacement of consumable parts such as fuses, lamps, recording papers, drive belts, cables, protective covers, and batteries.**
- e) Magnetron & MIC with more than 1000 transmitting hours or older than 12 months, whichever comes 1st.**
- f) Costs associated with the replacement of a transducer (e.g. Crane, docking or diver etc.)**
- g) Sea trial, test and evaluation or other demonstrations.**
- h) Products repaired or altered by anyone other than the FURUNO national distributor or an authorized dealer.**
- i) Products on which the serial number is altered, defaced, or removed.**
- j) Problems resulting from an accident, negligence, misuse, improper installation, vandalism, or water penetration.**
- k) Damage resulting from force majeure or other natural catastrophe or calamity.**
- l) Damage from shipping or transit.**
- m) Software updates, except when deemed necessary & warrantable by FURUNO.**
- n) Overtime, extra labor outside of normal hours such as weekend/holiday, & travel costs above the 160km allowance.**
- o) Operator familiarization and orientation.**

FURUNO Electric Company, March 1, 2011

FURUNO Warranty for North America

Furuno U.S.A., Limited Warranty provides a twenty-four (24) months Labor and twenty-four (24) months PARTS warranty on products from the date of installation or purchase by the original owner. Products or components that are represented as being waterproof are guaranteed to be waterproof only for, and within the limits of the warranty period stated above.

The warranty start date may not exceed eighteen (18) months from the original date of purchase by dealer from Furuno USA and applies to new equipment installed and operated in accordance with Furuno USA's published instructions.

Magnetrons and Microwave devices will be warranted for a period of 12 months from the date of the original equipment installation.

Furuno USA, Inc. warrants each new product to be of sound material and workmanship and through its authorized dealer will exchange any parts proven to be defective in material or workmanship under normal use at no charge for a period of 24 months from the date of installation or purchase.

Furuno U.S.A., Inc. through an authorized Furuno dealer will provide labor at no cost to replace defective parts, exclusive of routine maintenance or normal adjustments for a period of 24 months from installation date provided the work is done by Furuno U.S.A., Inc. or an AUTHORIZED Furuno dealer during normal shop hours and within a radius of 50 miles of the shop location.

A suitable proof of purchase showing date of purchase, or installation certification must be available to Furuno U.S.A., Inc., or its authorized dealer at the time of request for warranty service.

This warranty is valid for installation of products manufactured by Furuno Electric Co. (hereafter FURUNO). Any purchases from brick and mortar or web-based resellers that are imported into other countries by anyone other than a FURUNO certified dealer, agent, or subsidiary may not comply with local standards. FURUNO strongly recommends against importing these products from international websites or other resellers as the imported product may not work correctly and may interfere with other electronic devices. The imported product may also be in breach of the local laws and mandated technical requirements. Products imported into other countries as described previously shall not be eligible for local warranty service.

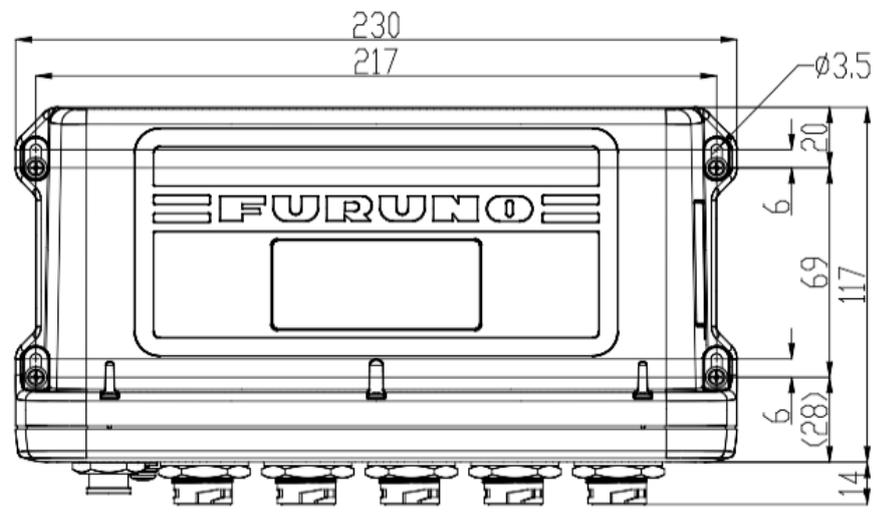
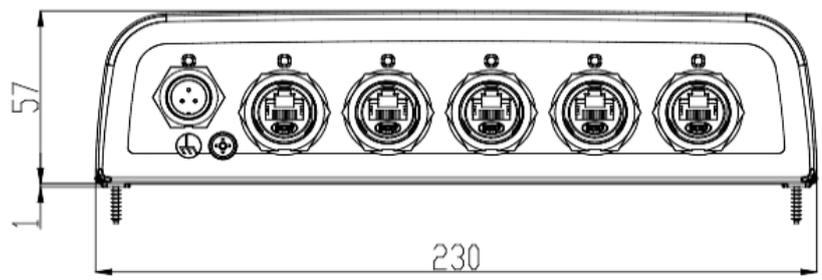
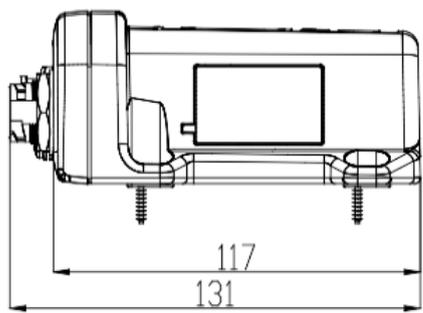
For products purchased outside of your country please contact the national distributor of Furuno products in the country where purchased.

WARRANTY REGISTRATION AND INFORMATION

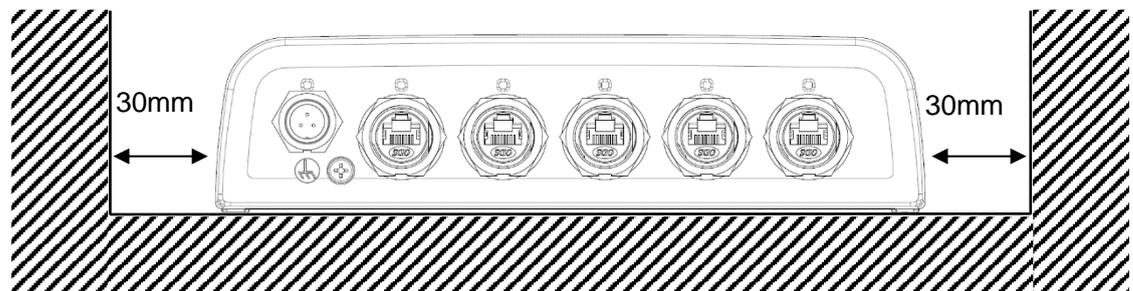
To register your product for warranty, as well as see the complete warranty guidelines and limitations, please visit www.furunousa.com and click on "Support". To expedite repairs, warranty service on Furuno equipment is provided through its authorized dealer network. If this is not possible or practical, please contact Furuno U.S.A., Inc. to arrange warranty service.

FURUNO U.S.A., Inc.
Attention: Service Coordinator
4400 N.W. Pacific Rim Boulevard
Camas, WA 98607-9300
Telephone: (360) 834-9300
FAX: (360) 834-9400

Dimension Drawing / 外寸図



MINIMUM SERVICE CLEARANCE / 最小サービス空間寸法



電源の投入、LEDの確認

本機には電源スイッチはありません。船内電源配電盤で電源を入れます。

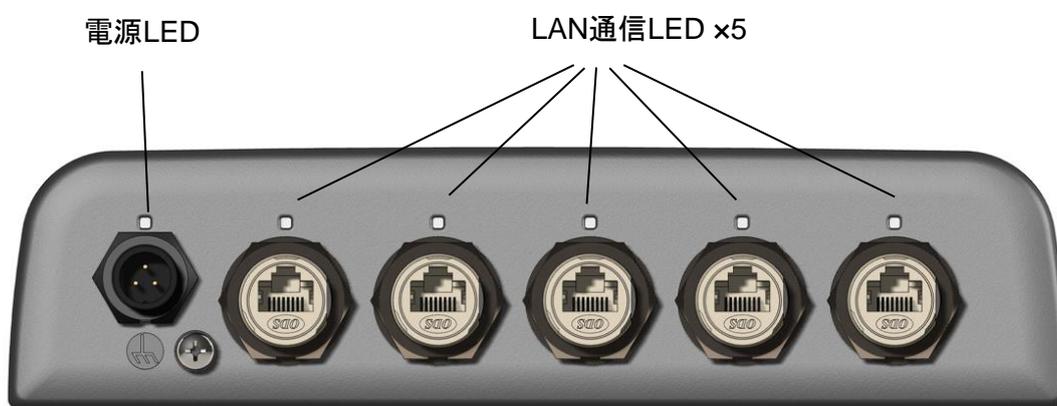
LED表示

本機には電源、LAN通信状態を示すLEDがあります。最初に電源を投入すると、各LEDが下記「電源投入直後の各LEDの働き」のように動作します。

その後、機器の接続状態、動作状態に応じて点灯または点滅します。

電源投入直後の各LEDの働き

- 電源LED：点灯
- LAN通信LED：一度点滅し、その後消灯

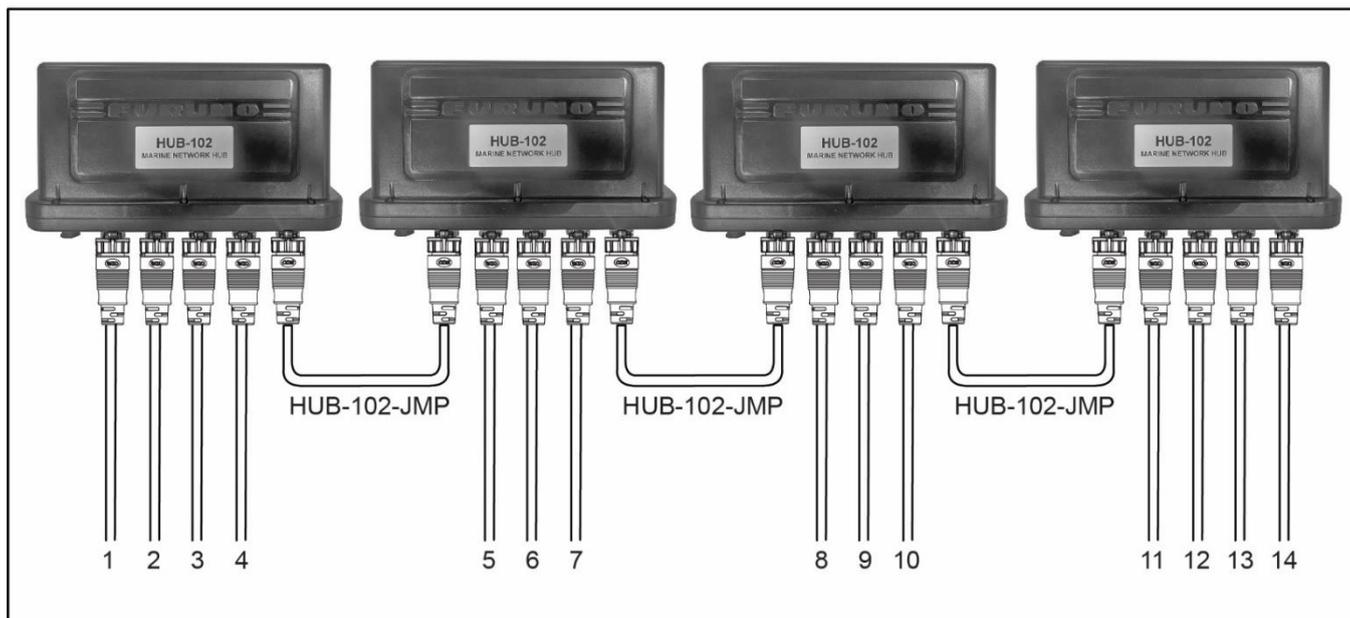


LED	状態	意味
電源 (緑)	点灯 消灯	本機の電源投入 本機の電源切断
LAN通信 (緑)	点灯 消灯 点滅	端末と接続 端末と未接続 データ送受信中

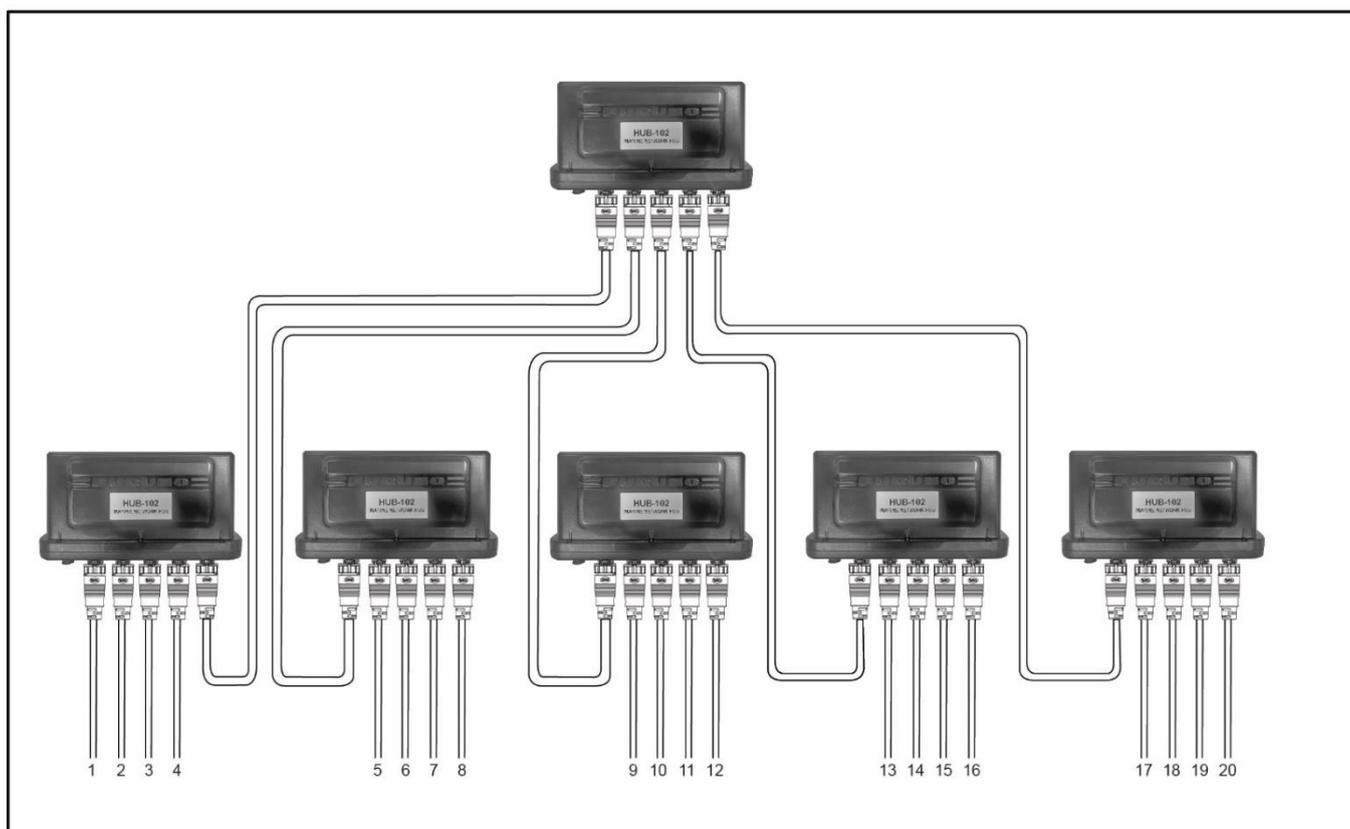
動作確認済み機種/ユニット

ナブネット マルチファンクション ディスプレイ (MFD)	TZT10X / TZT13X / TZT16X / TZT22X / TZT24X / TZTB BX TZT9F / TZT12F / TZT16F / TZT19F / TZT2BB
フレックスファンクション ディスプレイ	SFD-1010 / SFD-1012
船舶用レーダー	FR-8 / FR-10 / FR-12 MODEL1815
マリンデータ伝送システム	RT-100
魚群探知機	FCV-38 / FCV-2100 / FCV-1900G / FCV-1900B / FCV-1900

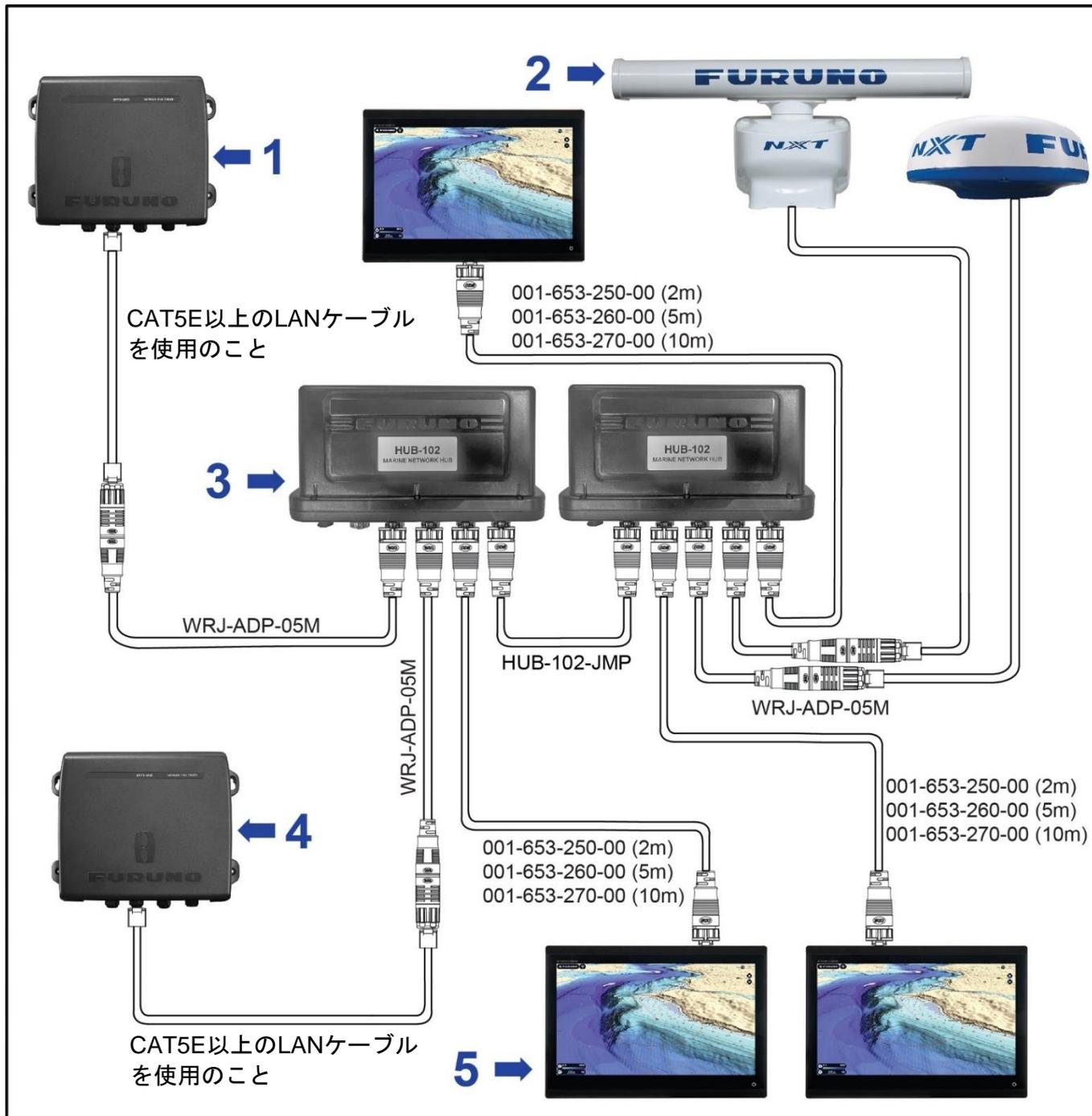
接続例：HUB-102×4台の場合（最大14台までネットワーク機器を接続可）



接続例：HUB-102×5台の場合（最大20台までネットワーク機器を接続可）

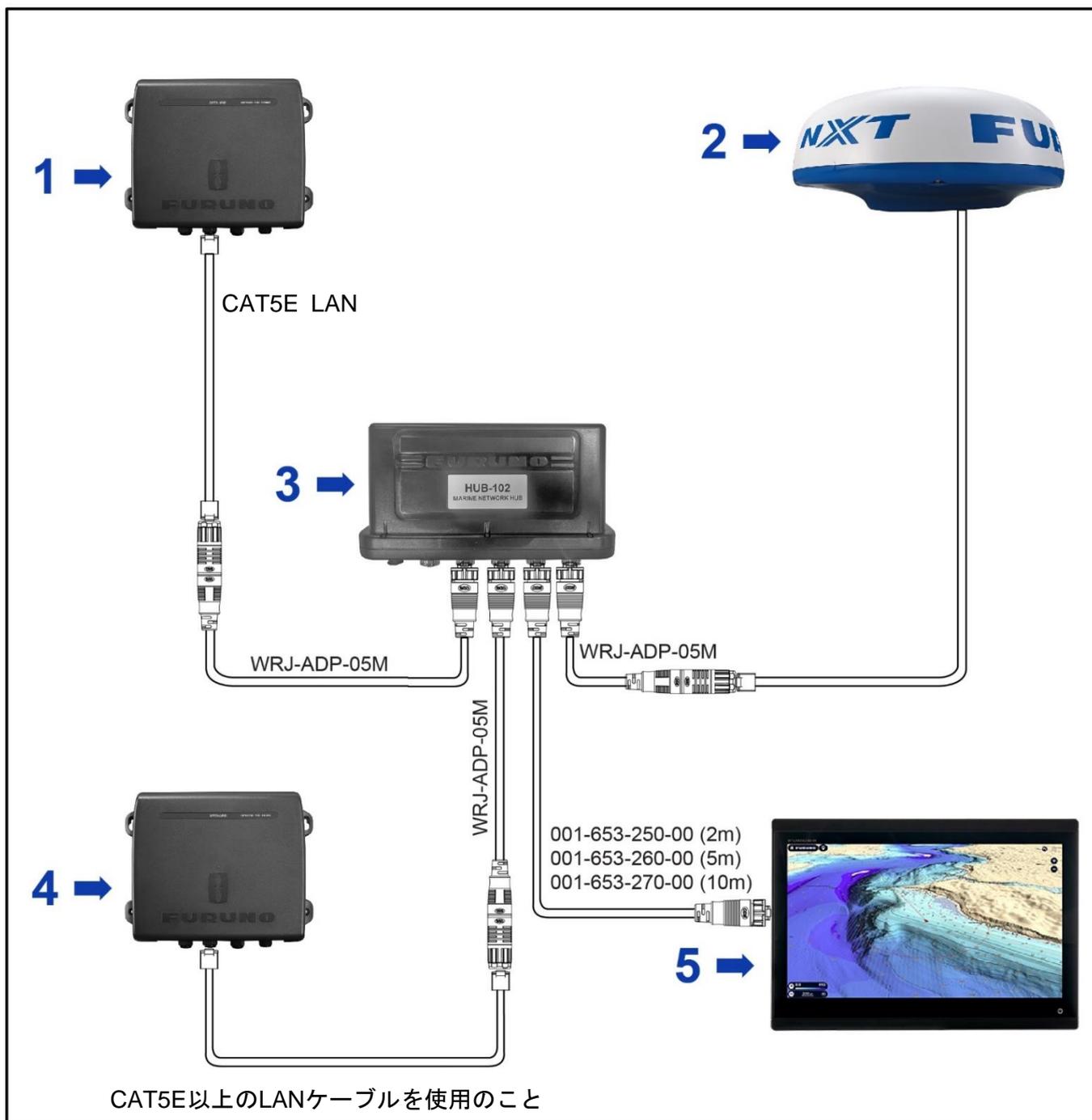


接続例：HUB-102×2台の場合



1. DFF3Dマルチビームソナー
2. DRSシリーズ
3. HUB-102の2台接続
4. DFFシリーズ
5. マルチファンクションディスプレイ (MFD)

HUB-102x1



- 6. DFF3D
- 7. DRS
- 8. HUB-102
- 9. DFF
- 10. MFD