# FURUNO

# FI-504 MULTI
# FI-507 MULTI XL
# Instrument

# FURUNO ELECTRIC CO., LTD.

**ECF**
(Elemental Chlorine Free)
The paper used in this manual
is elemental chlorine free.

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# IMPORTANT NOTICES

## General

- This manual has been authored with simplified grammar, to meet the needs of international users.

- The operator of this equipment must read and follow the descriptions in this manual. Wrong operation or maintenance can cancel the warranty or cause injury.

- Do not copy any part of this manual without written permission from FURUNO.

- If this manual is lost or worn, contact your dealer about replacement.

- The contents of this manual and equipment specifications can change without notice.

- The example screens (or illustrations) shown in this manual can be different from the screens you see on your display. The screens you see depend on your system configuration and equipment settings.

- Save this manual for future reference.

- Any modification of the equipment (including software) by persons not authorized by FURUNO will cancel the warranty.

- All brand and product names are trademarks, registered trademarks or service marks of their respective holders.

## How to discard this product

Discard this product according to local regulations for the disposal of industrial waste. For disposal in the USA, see the homepage of the Electronics Industries Alliance (http://www.eiae.org/) for the correct method of disposal.

## How to discard a used battery

Some FURUNO products have a battery(ies). To see if your product has a battery, see the chapter on Maintenance. Follow the instructions below if a battery is used. Tape the + and - terminals of battery before disposal to prevent fire, heat generation caused by short circuit.

### In the European Union

The crossed-out trash can symbol indicates that all types of batteries must not be discarded in standard trash, or at a trash site. Take the used batteries to a battery collection site according to your national legislation and the Batteries Directive 2006/66/EU.
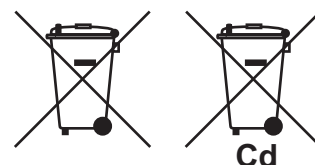
### In the USA

The Mobius loop symbol (three chasing arrows) indicates that Ni-Cd and lead-acid rechargeable batteries must be recycled. Take the used batteries to a battery collection site according to local laws.

### In the other countries

There are no international standards for the battery recycle symbol. The number of symbols can increase when the other countries make their own recycle symbols in the future.

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# ⚠ **SAFETY INSTRUCTIONS**

The operator of this equipment must read these safety instructions before attempting to operate the equipment.

| ⚠ **WARNING** | Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. |
|---|---|
| ⚠ CAUTION | Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. |

| ⚠ Warning, Caution | 🚫 Prohibitive Action | ❗ Mandatory Action |
|---|---|---|

*Safety instructions for the operator*

## ⚠ WARNING

**Do not open the equipment.**

Only qualified personnel should work inside the equipment.

**Do not disassemble or modify the equipment.**

Fire or electrical shock can result if the equipment is modified.

**Do not operate the equipment with wet hands.**

Electrical shock can result.

**Make sure no rain or water splash leaks into the equipment.**

Fire or electrical shock can result if water leaks into the equipment.

**Immediately turn off the power at the switchboard if water leaks into the equipment.**

Continued use of the equipment can cause fire or electrical shock.

**Warning Label**

A warning label is attached to the equipment. Do not remove the label. If the label is missing or damaged, contact a FURUNO agent or dealer about replacement.

*Safety instructions for the installer*

## ⚠ WARNING

**Turn off the power at the switchboard before beginning the installation.**

Turn off the power to prevent electrical shock.

**Make sure the installation site is not subject to water spray.**

Fire or electrical shock can result if water leaks into the equipment.

## ⚠ CAUTION

**Observe the following compass safe distances to prevent interference to the instruments:**

|  | Standard compass | Steering compass |
|---|---|---|
| FI-504 | 0.35 m | 0.30 m |
| FI-507 | | 0.25 m |

⚠ ⚠ **WARNING** DO NOT OPEN, DANGEROUS VOLTAGES INSIDE. 警告 高電圧注意 内部には高電圧の危険があります。開けないこと。

**FURUNO INSTRUMENT**

MODEL

SER.NO.

COMPASS SAFE DISTANCE

STD (0.35) m STEER ( ) m

Made in Japan

FURUNO ELECTRIC CO., LTD.
http://www.furuno.co.jp

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# TABLE OF CONTENTS

# FOREWORD

## A Word to the Owner of the FI-504, FI-507

Congratulations on your choice of the FURUNO FI-504 Multi/FI-507 Multi XL displays, members of the FI-50 series of marine instruments. We are confident you will see why the FURUNO name has become synonymous with quality and reliability.

For over 60 years FURUNO Electric Company has enjoyed an enviable reputation for quality marine electronics equipment. This dedication to excellence is furthered by our extensive global network of agents and dealers.

This equipment is designed and constructed to meet the rigorous demands of the marine environment. However, no machine can perform its intended function unless operated and maintained properly. Please carefully read and follow the recommended procedures for operation and maintenance.

Thank you for considering and purchasing FURUNO equipment.
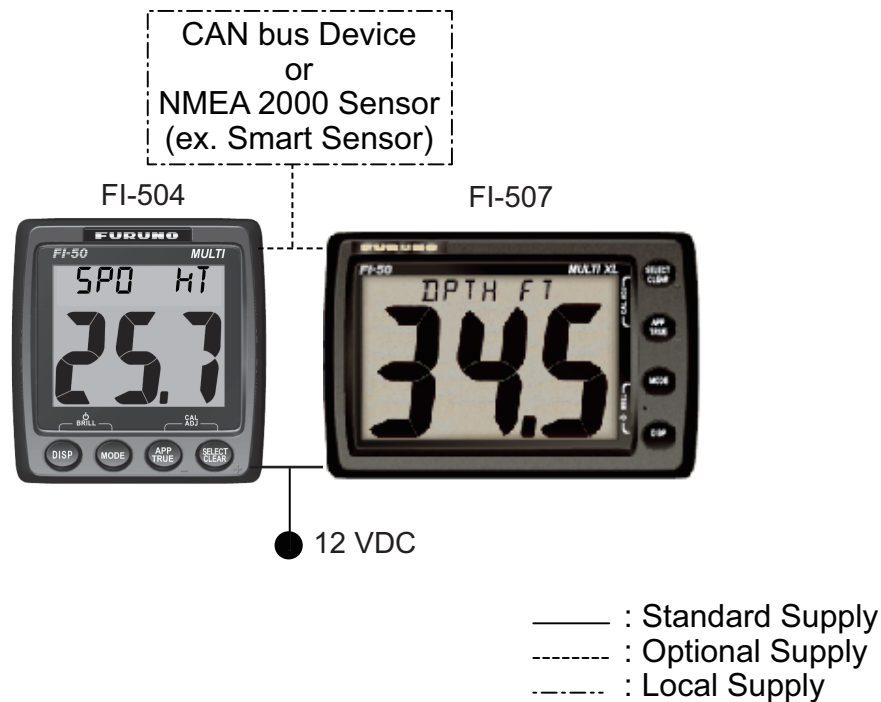
## Features

The FI-504 Multi/FI-507 Multi XL displays provide heading, environment, autopilot, engine, depth, speed, and wind information, all on a high quality, backlit LCD. The sturdy weather-proof case is built to stand up to even the harshest of environments.

The main features are

- Eight varieties of displays: heading, environment, autopilot, engine, depth, speed, timer, and wind.
- Four levels of backlighting including off.
- Timers: Stopwatch and count-down
- Depth alarms: Shallow alarm, Deep alarm
- Anchor alarms: Shallow alarm, Deep alarm
- Voltage alarm monitors power source voltage
- Wind alarms: High apparent wind angle, Low apparent wind angle, Max. true wind speed, Low true wind speed
- Speed indications: Max. STW, Average STW, SOG, Max. SOG, Average SOG, Wind speed, Max. true wind speed
- Log indication from 0 to 99,999 nm
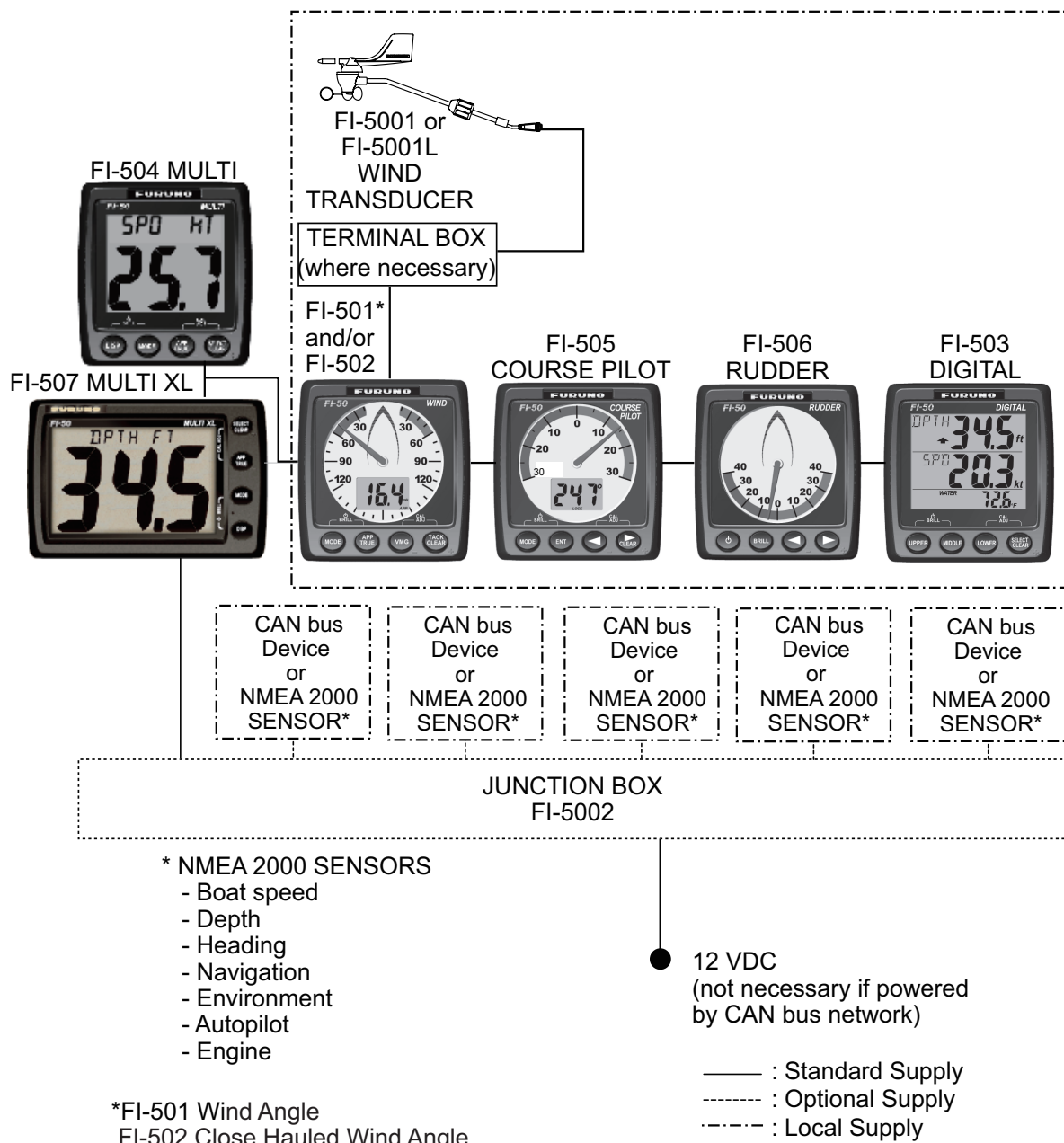- Resettable trip counter, from 0 to 999 nm

# SYSTEM CONFIGURATION

## Standalone configuration



```
          ┌─────────────────────┐
          │   CAN bus Device    │
          │         or          │
          │ NMEA 2000 Sensor    │
          │  (ex. Smart Sensor) │
          └─────────────────────┘
```

FI-504                    FI-507

12 VDC

───── : Standard Supply
------- : Optional Supply
·—·—·· : Local Supply

**NOTICE:** Turn on the terminal resistor in the instrument when connecting an NMEA 2000 sensor or CAN bus device. For the procedure, see the section on setting up, in the installation chapter.

# CAN bus network

FI-504 MULTI

SPD KT
25.7

FI-507 MULTI XL

DPTH FT
34.5

FI-5001 or
FI-5001L
WIND
TRANSDUCER

TERMINAL BOX
(where necessary)

FI-501*
and/or
FI-502

WIND
16.4.

FI-505
COURSE PILOT

24.7

FI-506
RUDDER

FI-503
DIGITAL

DPTH 34.5 ft
SPD 20.3 kt
WATER 72.6 F

| CAN bus Device or NMEA 2000 SENSOR* | CAN bus Device or NMEA 2000 SENSOR* | CAN bus Device or NMEA 2000 SENSOR* | CAN bus Device or NMEA 2000 SENSOR* | CAN bus Device or NMEA 2000 SENSOR* |

JUNCTION BOX
FI-5002

\* NMEA 2000 SENSORS
- Boat speed
- Depth
- Heading
- Navigation
- Environment
- Autopilot
- Engine

*FI-501 Wind Angle
FI-502 Close Hauled Wind Angle

12 VDC
(not necessary if powered
by CAN bus network)

——— : Standard Supply
------- : Optional Supply
·—·—· : Local Supply

**NOTICE:** Turn on the terminal resistor in the terminator of the CAN bus network.

# 1.   OPERATION

Provided applicable sensors are connected, the FI-504/FI-507 provides the following information, all on a backlit LCD:

• Depth
• Speed
• Heading
• Environment data
• Autopilot (rudder)
• Engine
• Wind
• Timers
• Navigation data

## 1.1   Operating Controls, Display Layout

Mode name
(Ex. SPD=Speed, DPTH=Depth)

*FI-504*                                    *FI-507*
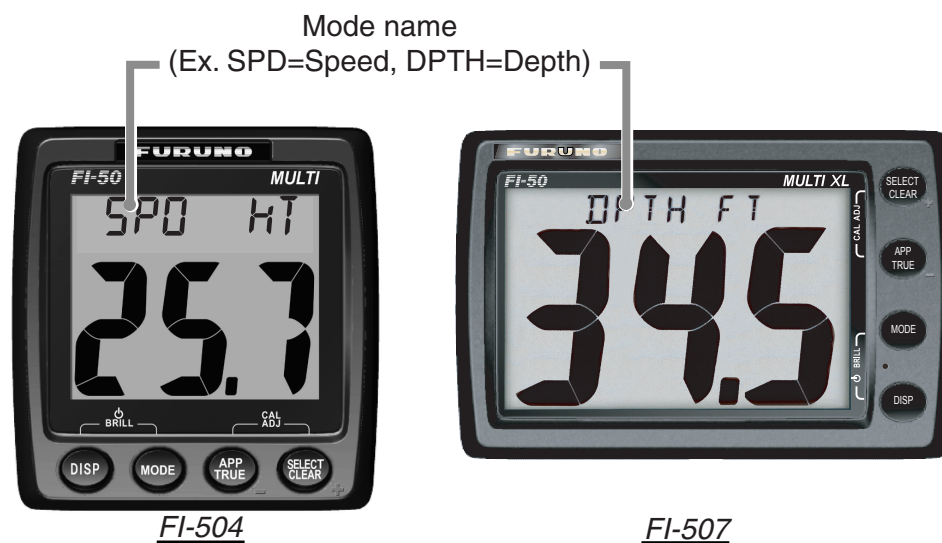
| Key name | Function |
|---|---|
| SELECT/CLEAR | • Select menu option.<br>• Silence alarm.<br>• Clear data.<br>• Reset counters and indications.<br>• Increment value. |
| APP/TRUE | • Select apaprent or true (wind) alternately.<br>• Decrement value. |
| MODE | Select a display. |
| DISP key | • Turn on power.<br>• Select a display category. |

**Note:** The example screens shown in this manual are taken from the FI-504. The screens from the FI-507 may be different.

## 1.2    Turning the Power On/Off

**To power the instrument,** press the **DISP** key. All LCD segments go on and off and then the last-used display appears.

**To power off the instrument,** press the **DISP** and **MODE** keys together (about 7-10 seconds). The timer appears and counts down from three seconds to one second, and then the power goes off.
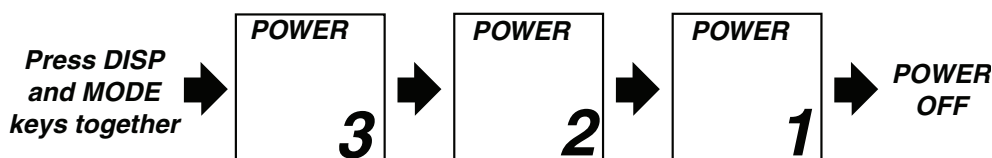


*Power OFF sequence*

## 1.3    Adjusting Brilliance and Contrast

1. Press the **DISP** and **MODE** keys together. The display for adjustment of brilliance appears, with current brilliance setting flashing.
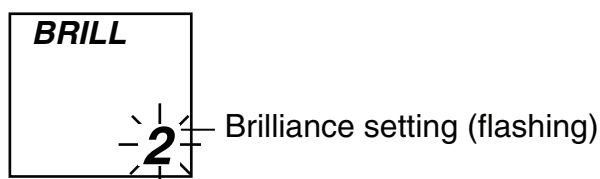


2. Within seven seconds of completing step 1, press the **APP/TRUE** key to lower the brilliance, or the **SELECT/CLEAR** key to raise it.

3. Press the **DISP** and **MODE** keys together. The display for adjustment of contrast appears, with current contrast setting flashing.
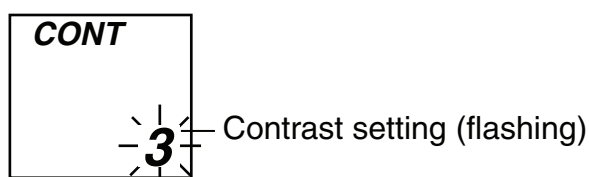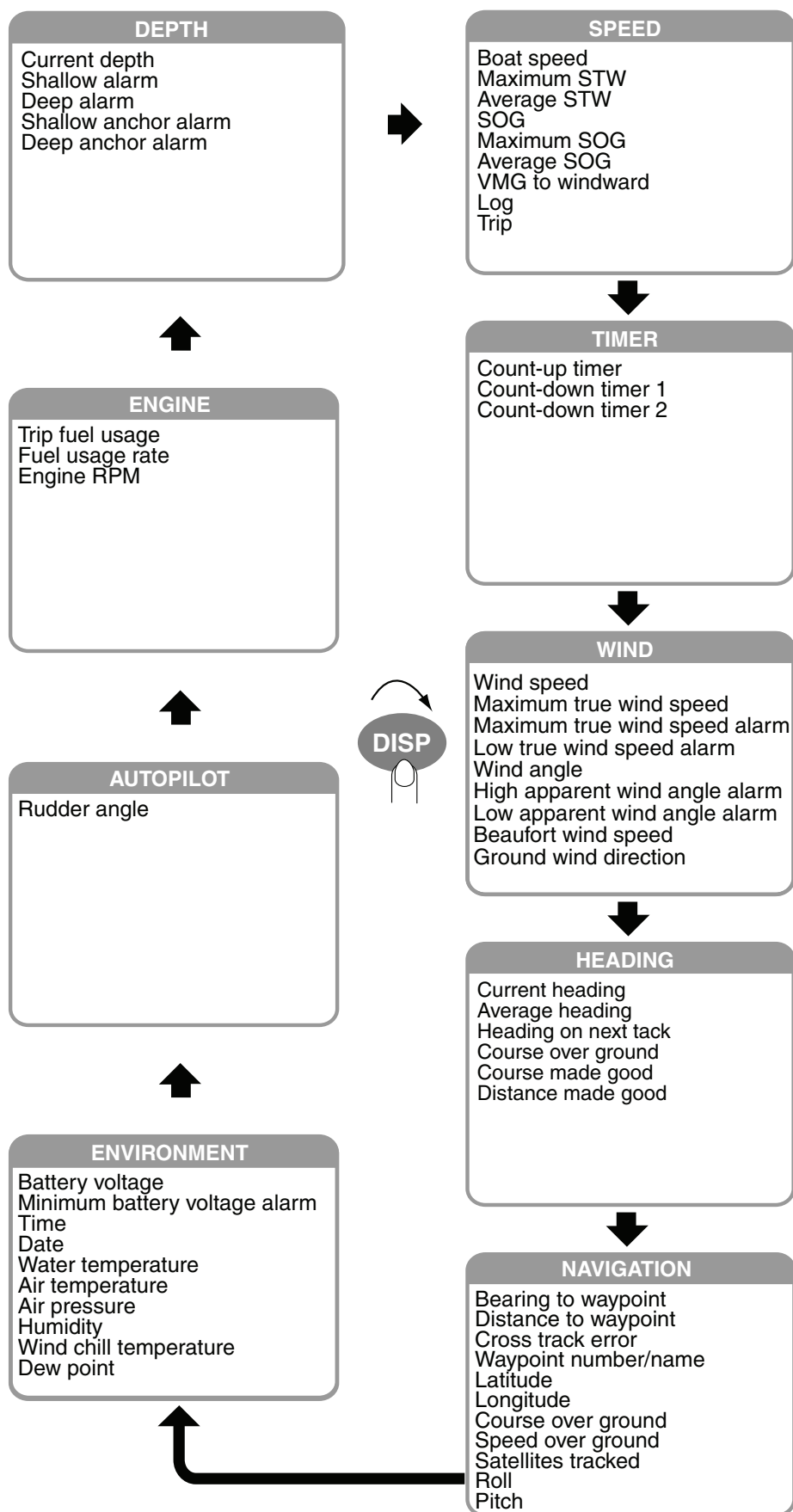


4. Within seven seconds of completing step 3, press the **APP/TRUE** key to lower the contrast, or the **SELECT/CLEAR** key to raise it.

5. Press the **DISP** and **MODE** keys together to save the settings and restore normal operation.

The brilliance and contrast will be the same on all units which are synchronized. (For how to synchronize units, see page 26.)

## 1.4     Selecting a Display

Use the **DISP** key to select a display category. Select desired display with the **MODE** key.

**DEPTH**
Current depth
Shallow alarm
Deep alarm
Shallow anchor alarm
Deep anchor alarm

**SPEED**
Boat speed
Maximum STW
Average STW
SOG
Maximum SOG
Average SOG
VMG to windward
Log
Trip

**ENGINE**
Trip fuel usage
Fuel usage rate
Engine RPM

**TIMER**
Count-up timer
Count-down timer 1
Count-down timer 2

**AUTOPILOT**
Rudder angle

**DISP**

**WIND**
Wind speed
Maximum true wind speed
Maximum true wind speed alarm
Low true wind speed alarm
Wind angle
High apparent wind angle alarm
Low apparent wind angle alarm
Beaufort wind speed
Ground wind direction

**HEADING**
Current heading
Average heading
Heading on next tack
Course over ground
Course made good
Distance made good

**ENVIRONMENT**
Battery voltage
Minimum battery voltage alarm
Time
Date
Water temperature
Air temperature
Air pressure
Humidity
Wind chill temperature
Dew point

**NAVIGATION**
Bearing to waypoint
Distance to waypoint
Cross track error
Waypoint number/name
Latitude
Longitude
Course over ground
Speed over ground
Satellites tracked
Roll
Pitch

## 1.4.1 Display description

### Depth category

| Display title | Indication | Function |
|---|---|---|
| Current depth | DPTH | Current depth, in meters, feet or fathoms. |
| Shallow alarm | SHALLOW | Set shallow depth alarm. Audio and visual alarms are released when the depth is lower than the threshold value. |
| Deep alarm | DEEP | Set deep depth alarm. Audio and visual alarms are released when the depth is higher than the threshold value. |
| Shallow anchor alarm | SHALLOW | Set shallow anchor alarm. Audio and visual alarms are released when the depth is lower than the threshold value. |
| Deep anchor alarm | DEEP | Set deep anchor alarm. Audio and visual alarms are released when the depth is higher than the threshold value. |

### Speed category

| Display title | Indication | Function |
|---|---|---|
| Boat speed | SPD | Boat speed, in knots (kt), miles per hour (MPH) or kilometers per hour (KMH). |
| Maximum STW | MAX SPD | Maximum boat speed, in knots (kt), miles per hour (MPH) or kilometers per hour (KMH). |
| Average STW | AVG SPD | Average boat speed, in knots (kt), miles per hour (MPH) or kilometers per hour (KMH). |
| SOG | SOG | Speed over ground, in knots (kt), miles per hour (MPH) or kilometers per hour (KMH). |
| Maximum SOG | MAX SOG | Maximum speed over ground, in knots (kt), miles per hour (MPH) or kilometers per hour (KMH). |
| Average SOG | AVG SOG | Average speed over ground, in knots (kt), miles per hour (MPH) or kilometers per hour (KMH). |
| VMG to windward | VMG | Velocity made good to windward, in knots (kt), miles per hour (MPH) or kilometers per hour (KMH). |
| Log | LOG | Log distance (total distance run), in nautical miles, (NM) kilometers (KM) or statute miles (SM). |
| Trip | TRIP | Trip distance (distance run between two points), in nautical miles (NM), kilometers (KM) or statute miles (SM). |

**4**

### Timer category

| Display title | Indication | Function |
|---|---|---|
| Count up timer | UP | Count-up timer. |
| Count down timer 1 | DOWN 1 | Count-down timer 1. |
| Count down timer | DOWN 2 | Count-down timer 2. |

### Wind category

| Display title | Indication | Function |
|---|---|---|
| Wind speed | APP (or TRUE) | Wind speed, in knots or meters/second. |
| Maximum true wind speed | MAX TRUE | Maximum true wind speed. |
| Maximum true wind speed alarm | 🔔 MAX TRUE | Set maximum true wind speed alarm. Audio and visual alarms are released when the wind speed goes higher than the threshold value. |
| Low true wind speed alarm | 🔔 TRUE LO | Set low true wind speed alarm. Audio and visual alarms are released when the wind speed goes lower than the threshold value. |
| Wind angle | APP (or TRUE) | Apparent (or true) wind angle, in degrees. |
| High apparent wind angle alarm | 🔔 APP HI | Set high apparent wind angle alarm. Audio and visual alarms are released when the wind angle at starboard goes higher than the threshold value. |
| Low apparent wind angle alarm | 🔔 APP LO | Set low apparent wind angle alarm. Audio and visual alarms are released when the wind angle at port goes lower than the threshold value. |
| Beaufort wind speed | BFT | Beaufort wind speed. Beaufort speeds up to 12 are shown. See the table below for Beaufort no. and wind speed. |
| Ground wind angle | GWIND | Angle of wind over ground, in degrees. Bearing reference in Magnetic (MAG) or True (TRUE). |

### *Beaufort no. and wind speed*

| Beaufort no. | Wind speed | | Beaufort no. | Wind speed | |
|---|---|---|---|---|---|
| | kt | m/s | | kt | m/s |
| 0 | 0 | 0-0.2 | 7 | 28-33 | 14.4-17.4 |
| 1 | 1-3 | 0.5-2.0 | 8 | 34-40 | 17.5-21.0 |
| 2 | 4-6 | 2.1-3.5 | 9 | 41-47 | 21.1-24.6 |
| 3 | 7-10 | 3.6-5.6 | 10 | 48-55 | 24.7-28.8 |
| 4 | 11-16 | 5.7-8.6 | 11 | 56-63 | 28.9-32.6 |
| 5 | 17-21 | 8.7-11.2 | 12 | 64 | 32.7-32.9 |
| 6 | 22-27 | 11.3-14.3 | | | |

### Heading category

| Display title | Indication | Function |
|---|---|---|
| Current heading | HDG | Heading, in degrees. Bearing reference in Magnetic (MAG) or True (TRUE). |
| Average heading | AVG HDG | Average heading, in degrees. Bearing reference in Magnetic (MAG) or True (TRUE). |
| Heading on next tack | TACK | Heading on next tack, in degrees true (fixed). Bearing reference in Magnetic (MAG) or True (TRUE). |
| Course over ground | COG | Course over ground, in degrees. Bearing reference in Magnetic (MAG) or True (TRUE). |
| Course made good | CMG | Course made good, in degrees. Bearing reference in Magnetic (MAG) or True (TRUE). |
| Distance made good | DMG | Distance made good, in kilometers (km), nautical miles (nm) or statute miles (sm). |

### Navigation category

| Display title | Indication | Function |
|---|---|---|
| Bearing to waypoint | BTW | Bearing to waypoint, in degrees. Bearing reference of Magnetic (MAG) or True (TRUE) |
| Distance to waypoint | DTW | Distance to waypoint, in kilometers (KM), nautical miles (NM) or statute miles (SM). |
| Cross track error | XTE | Cross-track error, in kilometers (KM), nautical miles (NM) or statute miles (SM). |
| Waypoint number/name | WPT | Waypoint number and name are shown. |
| Latitude | LAT | Position in latitude. |
| Longitude | LON | Position in longitude. |
| Course over ground | COG | Course over ground, in degrees. Bearing reference in Magnetic (MAG) or True (TRUE). |
| Speed over ground | SOG | Speed over ground, in knots (KT), miles per hour (MPH) or kilometers per hour (KMH). |
| Satellites tracked | GPS SAT | GPS satellites tracked. |
| Roll | ROLL | Ship's roll, in degrees. |
| Pitch | PITCH | Ship's pitch, in degrees. |

### Environment category

| Display title | Indication | Function |
|---|---|---|
| Battery voltage | VOLTS | Battery voltage. |
| Minimum battery voltage alarm | 🔔 VOLTS LO | Set low battery voltage alarm. Audio and visual alarms are released when the battery voltage goes lower than the threshold value. |
| Time | - | Current time, in 12-hour or 24-hour format. |
| Date | - | Current date. |
| Water temperature | WATER | Water temperature, in °C or °F. |
| Air temperature | AIR | Air temperature, in °C or °F. |
| Air pressure | PRE | Air pressure, in Hectopascal. |
| Humidity | HUMID | Relative humidity, in percentage. |
| Wind chill temperature | CHILL | Wind chill temperature, in °C or °F. |
| Dew point | DEW | Dew point, in °C or °F. |

### Autopilot category

| Display title | Indication | Function |
|---|---|---|
| Rudder angle | RUDDER | Rudder angle, in degrees either P(ort) or S(tarboard). |

### Engine category

| Display title | Indication | Function |
|---|---|---|
| Trip fuel used | TOTAL | Total fuel consumption, in liters or gallons. |
| Fuel rate | RTE (L/H) | Amount of fuel consumed in hour, in liters/hour (L/H) or gallons/hour (G/H). |
| Engine RPM | RPM | Engine speed per minute. |

**Note:** In case of multiple engines, the data of desired engine number (max. eight, E0-E7) can be selected with the **SELECT/CLEAR** key.

---

*Scrolling speed and scrolling direction*

Display scrolling speed and direction can be changed by the length of key push.

**Short push:** Scroll in forward order.
**Medium push:** Go back one display. Several beeps sound and then the previous display appears.
**Hold down:** Rapid scrolling, in forward direction. Several beeps sound and then speed is changed.

## 1.5 Selecting Apparent or True Wind Angle, Wind Speed

You can show wind angle and wind speed in apparent or true wind. The **apparent wind** is the actual flow of air acting upon a sail, or the wind as it appears to the sailor. **True wind** is the wind seen by a stationary observer in velocity and direction.

WIth a wind angle or wind speed indication displayed, press the **APP/TRUE** key to change the wind angle or wind speed to apparent and true alternately. A beep sounds after the change is completed. (Wind angle and wind speed displays are mutually changed.) True wind requires boat speed input. If there is no speed input three dashes appear.



Apparent and true wind speeds

Apparent and true wind angles
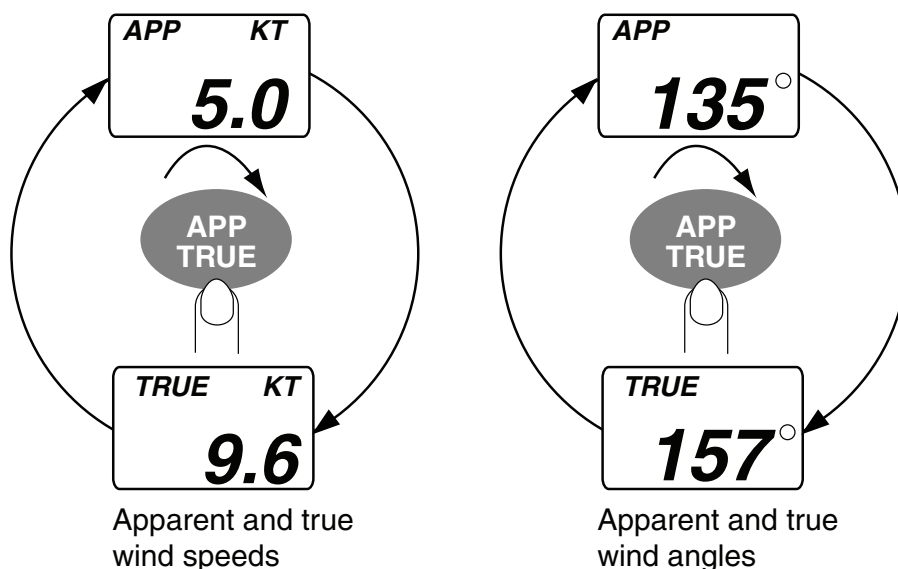
## 1.6 Resetting Counters and Indications

You can reset the following counters and indications:

- Trip
- Course made good
- Distance made good
- Average speed
- Average SOG
- Maximum speed
- Maximum SOG
- Average heading
- Maximum true wind speed

Select the applicable display and press and hold down the **SELECT/CLEAR** key. A short beep sounds, the counter or indication flashes twice and then a long beep sounds to indicate that resetting is completed.

# 1.7    Alarms

There nine conditions which trigger audio and visual alarms: Shallow alarm, Deep alarm, Shallow anchor alarm, Deep anchor alarm, Max. true wind speed alarm, Low true wind speed alarm, High apparent wind angle alarm, low apparent wind angle alarm, and low battery voltage alarm.

1. Use the **DISP** and **MODE** keys to select desired alarm page, referring to the illustration below for alarm location.

| Display category | Available alarms | | | |
|---|---|---|---|---|
| DEPTH | *SHALLOW* **020** <br> Shallow alarm | *DEEP* **150** <br> Deep alarm | *SHALLOW* **5.0** <br> Shallow anchor alarm | *DEEP* **10.0** <br> Deep anchor alarm |
| WIND | *TRUE  KT* MAX **38.9** <br> Max. true wind speed alarm | *TRUE  KT* LO **9.7** <br> Low true wind speed alarm | *APP S*  HI* **12.2** <br> High apparent wind angle alarm | *APP S*  LO* **5.4** <br> Low apparent wind angle alarm |
| ENVIRON-MENT | *VOLTS* LO **9.0** <br> Low voltage alarm | | | |

*S (Starboard) or P (Port)

.

*Alarm description*

| Alarm | Alarms released when; | Setting range |
|---|---|---|
| Shallow alarm | depth is shallower than this threshold. | 0.0-303 m |
| Deep alarm | depth is deeper than this threshold. | 0.1-304 m |
| Shallow anchor alarm | anchor depth is shallower than this threshold. | depth is shallower than this threshold. |
| Deep anchor alarm | anchor depth is greater than this threshold. | depth is deeper than this threshold. |
| Max. true wind speed alarm | max. true wind speed is greater than this threshold. | 0.1-999 kts |
| Low true wind speed alarm | true wind speed is lower than this threshold. | 0-998 kts |
| High apparent wind angle alarm | apparent wind angle is higher than this threshold. | S0°-S179° (High) S180°-P1° (Low) (S=Starboard, P=Port) |
| Low apparent wind angle alarm | apparent wind angle is lower than this threshold. | |

*Alarm description*

| Alarm | Alarms released when; | Setting range |
|---|---|---|
| Low battery voltage alarm | battery voltage is lower than this threshold. | 5.0 - 20.0 volts |

2. If the selected alarm page shows "Off," press and hold down the **SELECT/CLEAR** key until an alarm setting appears.

3. Press the **APP/TRUE** and **SELECT/CLEAR** keys together to enable adjustment. The alarm setting starts flashing.

4. Press the **APP/TRUE** key to lower the setting; the **SELECT/CLEAR** key to raise it.

   **Note:** A low alarm cannot be set higher than its affiliated high (max.) alarm.

5. Press the **APP/TRUE** and **SELECT/CLEAR** keys together to confirm setting and restore normal operation.

When an alarm is violated, the buzzer sounds and the alarm icon ( 🔔 ) flashes. You can silence the buzzer with the **SELECT/CLEAR** key. The icon continues flashing until the offending alarm is disabled.

While the icon is flashing you can switch between alarm display and current display alternately by pressing the **DISP** and **SELECT/CLEAR** keys together.

# 1.8    Timers

Three timers are provided:

- Count-up timer (stopwatch)
- Count-down timer (two provided)

Time is displayed in seconds or minutes, depending on counter values.

Once you have set a timer, you can leave that page and select any other display. The counter continues to run in the background.

## Count-up timer

The count-up timer functions like a stop watch, counting time upward, to 99 hours, 99 minutes and 59 seconds.

## Count-down timers

The two count-down timers count down from a time between 15 minutes and one minute. When these timers have counted down to zero, they then start counting up. The timers beep at preset intervals to alert you to specific points in time.

- Two beeps every minute
- Three beeps at the start of the last 30 seconds
- One beep/second for each of the last 10 seconds
- Two-second beep at zero

## How to set the timers

1. Press the **MODE** key to show the desired timer display.
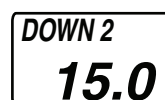
| 00:00:00.0 **UP** | DOWN 1 **15.0** | DOWN 2 **15.0** |
|:---:|:---:|:---:|
| Count-up timer | Count-down timer 1 | Count-down timer 2 |

2. Do one of the following depending on timer type selected:

   **Count-up timer:**
   Press the **SELECT/CLEAR** key to start the timer. A long beep sounds and the timer starts counting upward.

   **Count-down timer:**
   To start the timer from the time shown, press the **SELECT/CLEAR** key. To set a different start time, press the **APP/TRUE** and **SELECT/CLEAR** keys together to enable adjustment. Use the **APP/TRUE** key to lower the value; **SELECT/CLEAR** key to raise it. Press the **APP/TRUE** and **SELECT/CLEAR** keys together to confirm setting. Press the **SELECT/CLEAR** key to start the timer.

**To stop or restart the timer**, press the **SELECT/CLEAR** key momentarily. A short beep sounds when the timer is stopped or restarted.

**To stop and reset the timer to start value,** press the **SELECT/CLEAR** key until you hear a long beep. The timer is stopped and reset to start value.

The timer settings are reflected on any timer-equipped instrument in the network which is set up for synchronization.

# 2. MAINTENANCE, TROUBLESHOOTING

This chapter provides the information necessary for keeping your equipment in good working order.

> ## ⚠ WARNING
>
> ⚡ **Do not open the equipment.**
>
> Only qualified personnel should work inside the equipment.

## 2.1 Preventive Maintenance

Following the recommended procedures below will help maintain performance.

| Check item | Check point | Remedy |
|---|---|---|
| Cabling | Check that all cabling is securely fastened and is free or rust and corrosion. | Reconnect if necessary. Replace if damaged. |
| Cabinet | Dust on cabinet | Remove dust with a soft, lint-free cloth.<br><br>**NOTICE**<br><br>**Do not apply paint, anti-corrosive sealant or contact spray to coating or plastic parts of the equipment.**<br><br>Those items contain organic solvents that can damage coating and plastic parts, especially plastic connectors. |

## 2.2     Troubleshooting

If you feel the equipment is not functioning properly, follow the procedures in the table below to try to restore normal operation. If normal operation cannot be restored, do not attempt to check inside the cabinet. There are no user-serviceable parts inside.

*Troubleshooting*

| Problem | Possible cause | Remedy |
|---|---|---|
| Display is blank. Panel is not lit. | • Power supply<br>• Cabling disconnected or damaged. | • Check power supply.<br>• Check cabling. |
| Power is on but no or some data. | Sensor is turned off.<br>Cable from sensor is disconnected or damaged. | • Turn on sensor.<br>• Check cabling. |
| Inaccurate data | • Electromagnetic field generating equipment is in operation.<br><br>• Cabling from sensor is damaged.<br><br>• Sensor is improperly aligned (where applicable). | • Turn off all electromagnetic field generating equipment. Turn them on and off one by one. Check the display. Relocate offending equipment or this instrument as appropriate.<br>• Check cabling.<br><br>• Check installation. If installation is proper, an offset may be applied to certain data. For details, see section 1.7. |

# 3.  INSTALLATION

```
┌────────────────────────────────────┐
│              NOTICE                 │
├────────────────────────────────────┤
│ Do not apply paint, anti-corrosive  │
│ sealant or contact spray to coating │
│ or plastic parts of the equipment.  │
│                                     │
│ Those items contain organic solvents│
│ that can damage coating and plastic │
│ parts, especially plastic connectors.│
└────────────────────────────────────┘
```

## 3.1    Equipment Lists

**Standard supply**

(FI-504)

| Name | Type | Code No. | Qty | Remarks |
|---|---|---|---|---|
| Display Unit | FI-504 | - | 1 | |
| Installation Materials | CP26-00600 | 000-011-744 | 1 set | See packing list at end of manual for details. |

(FI-507)

| Name | Type | Code No. | Qty | Remarks |
|---|---|---|---|---|
| Display Unit | FI-507 | - | 1 | |
| Installation Materials | CP26-00800 | 000-015-730 | 1 set | See packing list at end of manual for details. |

**Optional supply**

| Name | Type | Code No. | Qty | Remarks |
|---|---|---|---|---|
| Cable Assy. | FI-50-DROP-6M | 001-105-810-10 | 1 | |
| | FI-50-CHAIN-0.3M | 001-105-820-10 | 1 | |
| | FI-50-CHAIN-5M | 001-105-840-10 | 1 | |
| | FI-50-CHAIN-1M | 000-166-950-11 | 1 | |
| | FI-50-CHAIN-10M | 001-105-850-10 | 1 | |
| | FI-50-CHAIN-20M | 001-105-860-10 | 1 | |
| Flush Mount Kit | FI-50-FLUSH-KIT | 000-010-619 | 1 set | For FI-504 |
| | FI-507-FLUSH-KIT | 000-015-722 | | For FI-507 |
| Junction Box | FI-5002 | 000-010-765 | 1 set | |
| Smart Sensor | DST-800 | 000-168-850-10 | 1 | |

## 3.2    Mounting

The display unit can be installed two ways: surface mount (fixed at front panel or fixed from rear panel) and flush mount (optional kit required). This section covers surface mounting. For flush mounting, see the flush mounting instructions, issued separately.

### Surface mount 1: Fix instrument from front panel

1. Using the applicable template at the back of this manual, open a mounting hole in the installation site.
2. Detach the front panel together with the keypad assy. Attach sponge (supplied) to rear of display unit.
3. Set the display unit to the mounting hole, and fix it with four self-tapping screws (3×20, supplied).
4. Attach the front panel and keypad assy. to the display unit.
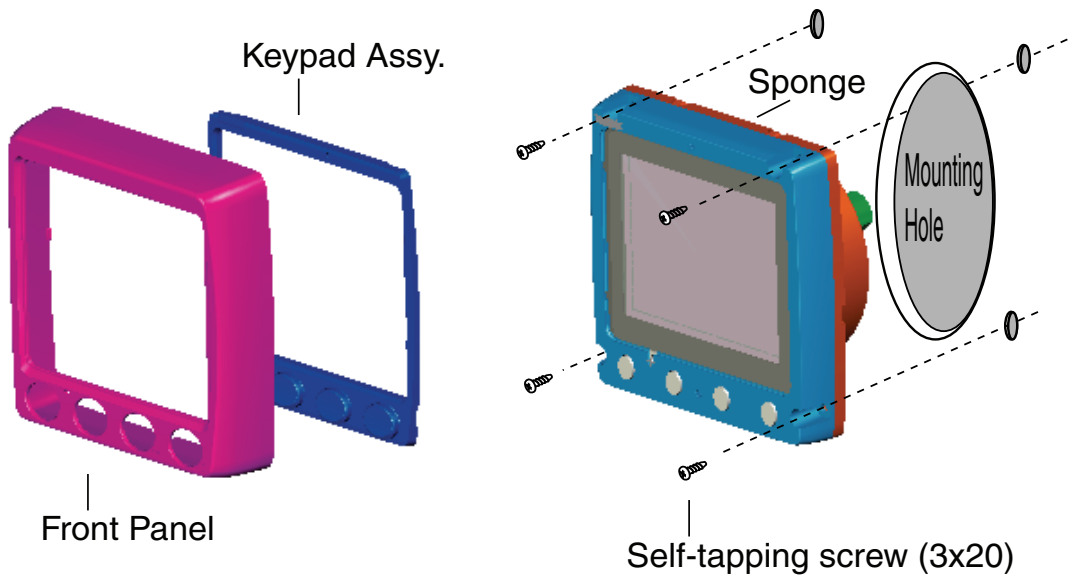


(ex. FI-504)

## Surface mount 2: Fix instrument from rear panel

1. Using the applicable template at the back of this manual, open a mounting hole in the installation site.

2. Insert studs (M3×40, 2 pcs. (FI-504) or 4 pcs. (FI-507), supplied) in the holes shown below. (Use only the studs supplied.)
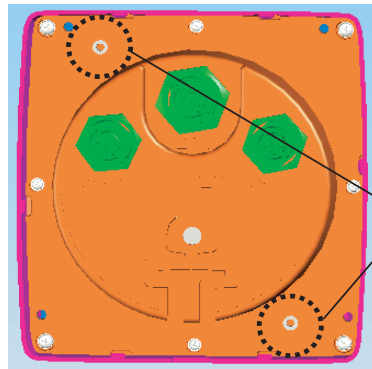


(FI-504)
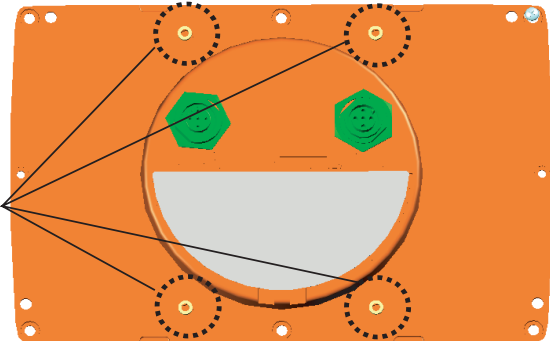
(FI-507)

*Display unit, rear view*

3. Set the display unit to the mounting hole, inserting studs through respective holes. Fix the display unit with spring washers, flat washers and wing nuts (M3, supplied).



Flat Washer and Spring Washer (M3)

Mounting Hole

(ex. FI-504)

Stud (M3x40)

Wing Nut (M3)

**17**
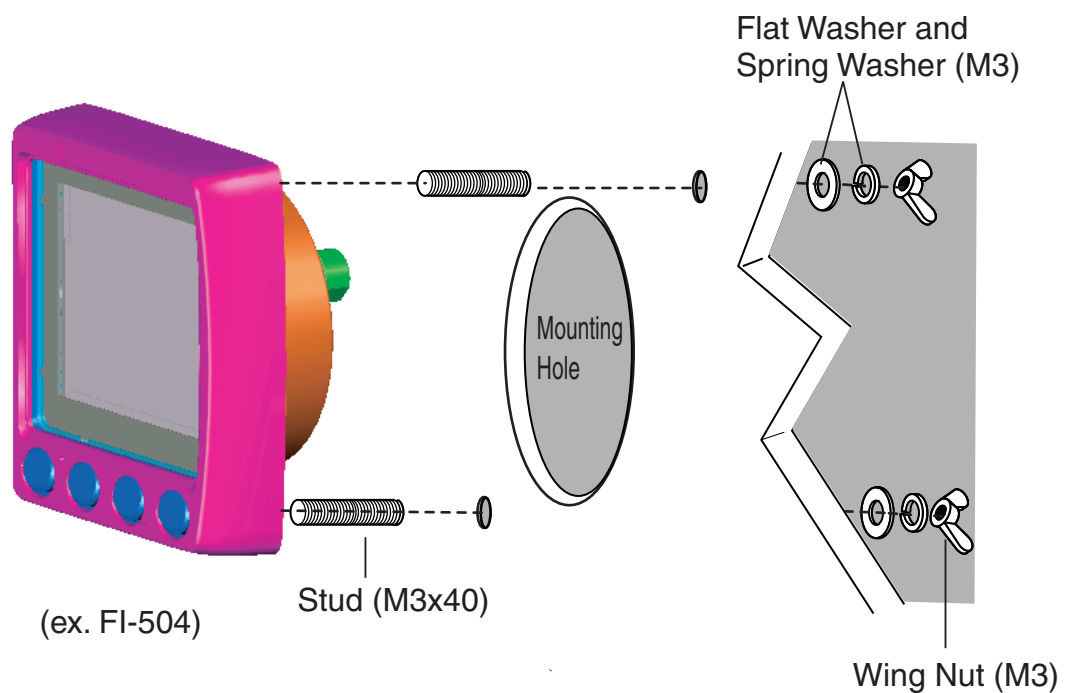
# 3.3 Wiring

For the service technician detailed information about CAN bus wiring is on the FURUNO Tech-net. See "Furuno CAN bus Network Design Guide" (TIE-00170-*).

## 3.3.1 Standalone configuration

For standalone configuration the junction box is not necessary; connect the instrument directly to the power supply.
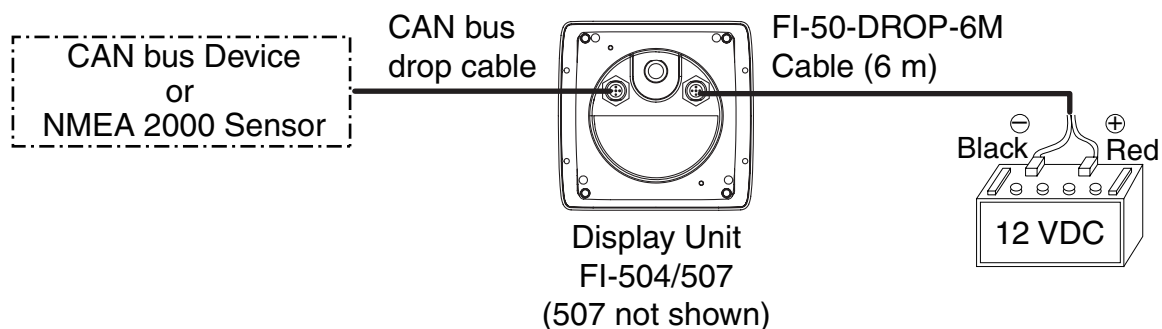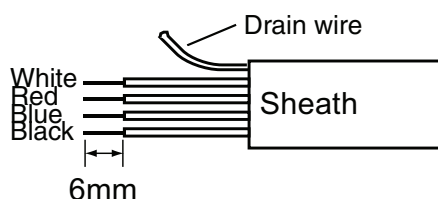


## 3.3.2 Multi-instrument configuration
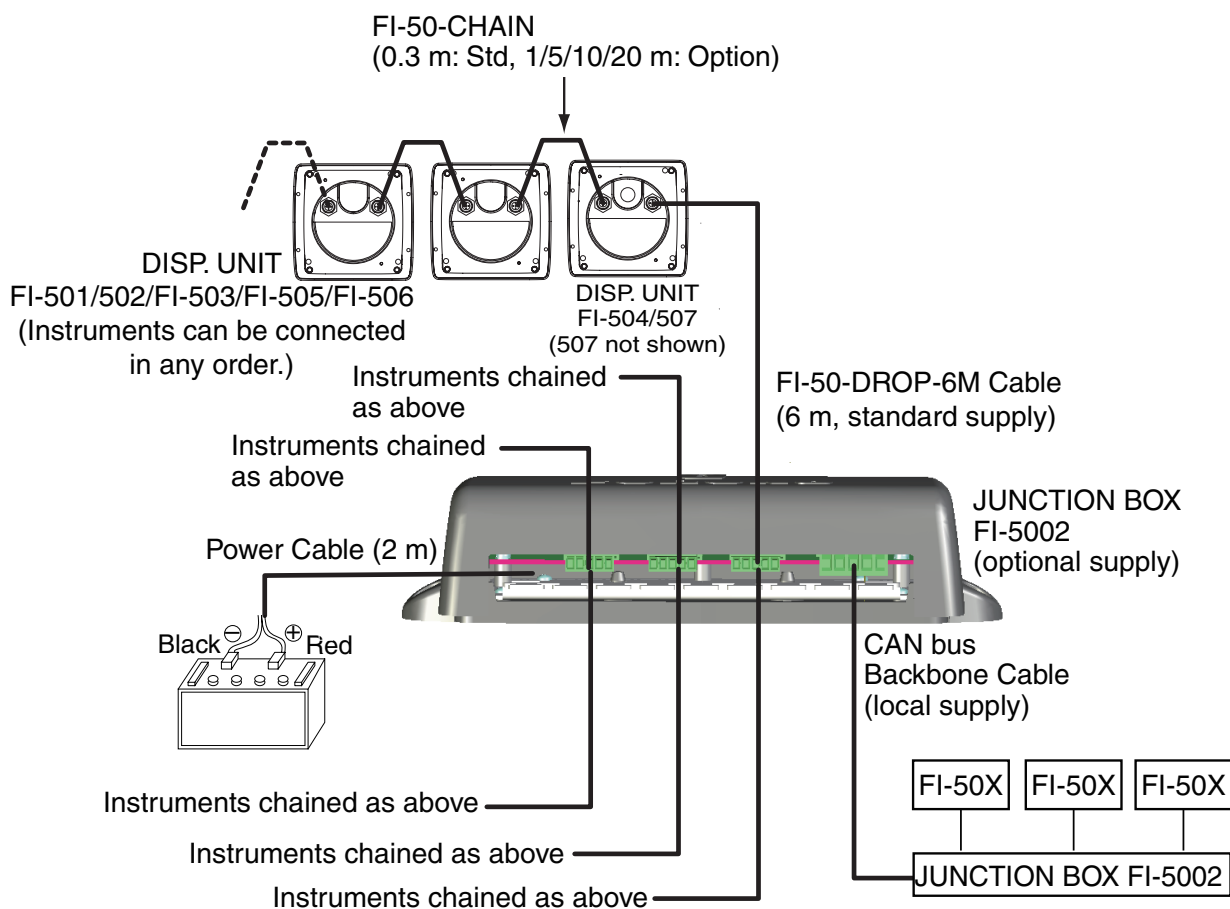


**NOTE:** The total length of drop cables and backbone cables must be within 80 m.

## Junction box (option)

The junction box is required when connecting CAN bus network. This section covers wiring of the junction box. For how to mount the junction box, see its installation instructions, issued separately.
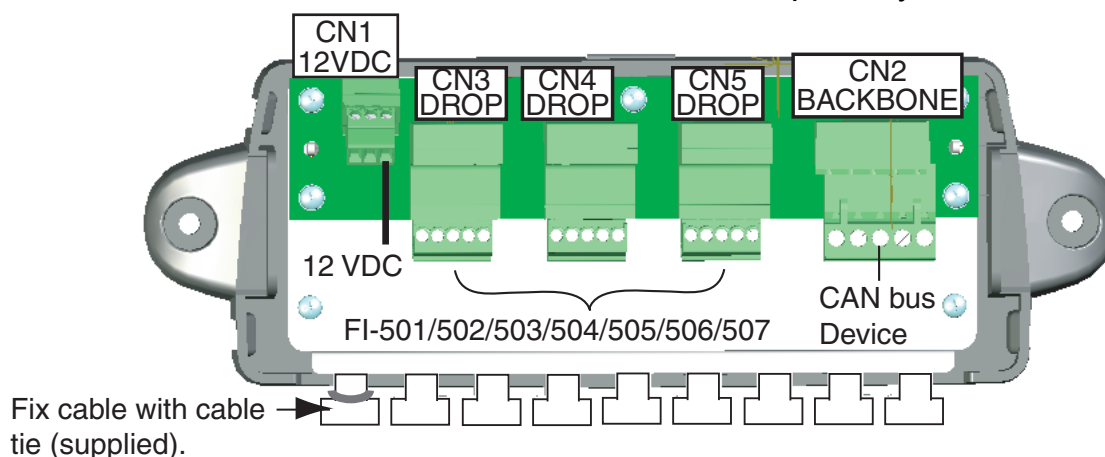


CH3 DROP - CH5 DROP and BACKBONE are socket-and-plug-type terminal blocks. Detach plug to connect wiring to it, by rocking it back and forth with your fingers. Remove approx. 6 mm of the sheath from the end of wires and twist wires. Loosen fixing screw in the plug, insert wire into hole and tighten fixing screw. Set plug to socket.
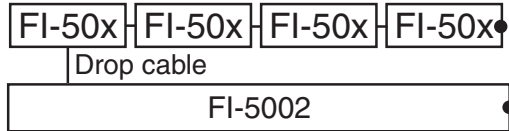


*How to fabricate cable*



*How to insert wire*

**19**
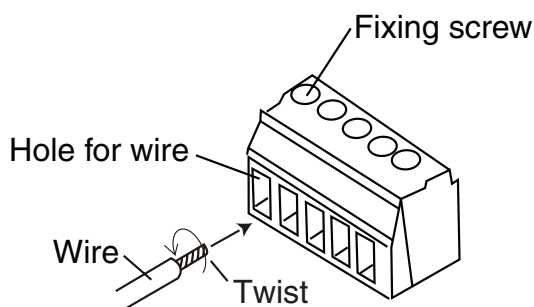
### Terminal resistor

The illustration below show various system configurations and what units to activate the terminal resistor.
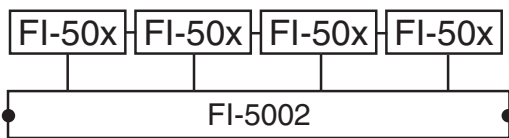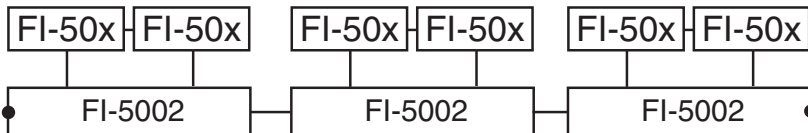
*Smart sensor+FI-50x*

```
┌────────┐ ┌──────┐
│ Smart  │─│FI-50x│•
│ Sensor │ └──────┘
└────────┘
```
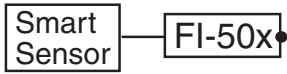
*Multiple FI-50 series instruments, FI-5002, drop cabling*

```
┌──────┐┌──────┐┌──────┐┌──────┐
│FI-50x││FI-50x││FI-50x││FI-50x│•
└──────┘└──────┘└──────┘└──────┘
   │ Drop cable
┌─────────────────────────────┐
│            FI-5002           │•
└─────────────────────────────┘
```

*Multiple FI-50 series instruments, FI-5002*

```
┌──────┐┌──────┐┌──────┐┌──────┐
│FI-50x││FI-50x││FI-50x││FI-50x│
└──────┘└──────┘└──────┘└──────┘
   │      │       │       │
•┌─────────────────────────────┐
 │            FI-5002           │•
 └─────────────────────────────┘
```

*Multiple FI-50 series instruments, multiple FI-5002*

```
┌──────┐┌──────┐  ┌──────┐┌──────┐  ┌──────┐┌──────┐
│FI-50x││FI-50x│  │FI-50x││FI-50x│  │FI-50x││FI-50x│
└──────┘└──────┘  └──────┘└──────┘  └──────┘└──────┘
   │               │                 │
•┌──────────┐  ┌──────────┐  ┌──────────┐
 │ FI-5002  │──│ FI-5002  │──│ FI-5002  │•
 └──────────┘  └──────────┘  └──────────┘
```

*Multiple FI-50 series instruments, FI-5002, smart sensor*

```
┌────────┐┌──────┐┌──────┐┌──────┐
│ Smart  ││FI-50x││FI-50x││FI-50x│•
│ Sensor │└──────┘└──────┘└──────┘
└────────┘   │
•┌─────────────────────────────┐
 │            FI-5002           │
 └─────────────────────────────┘
```
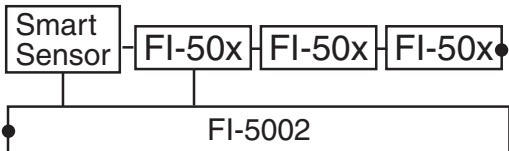
*Multiple FI-50 series instruments, FI-5002, heading sensor, smart sensor*
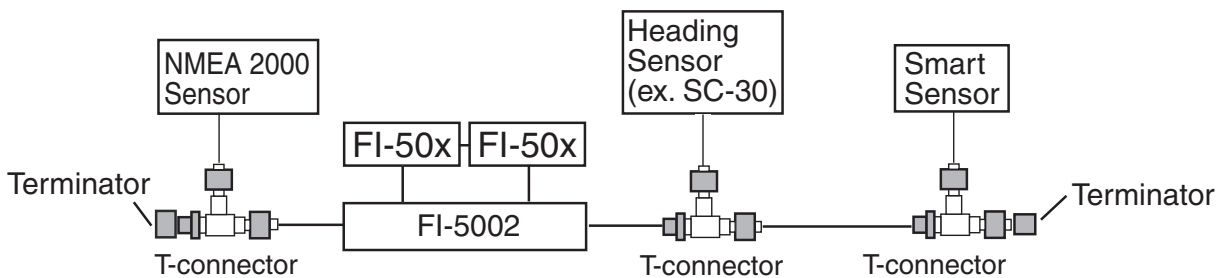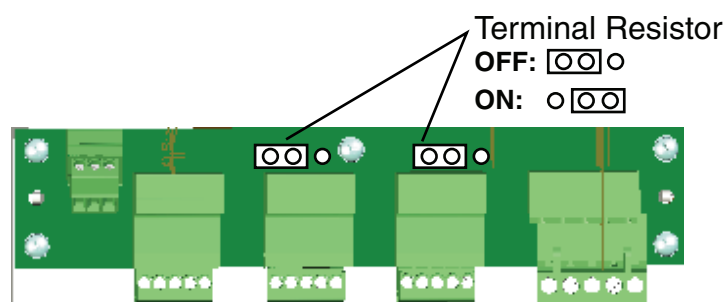


*Multiple FI-50 series instruments, FI-5002, NMEA 2000, CAN bus sensors*



• = Terminal resistor ON

**20**
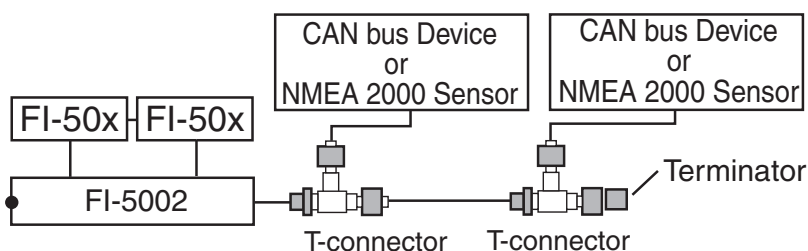
Turn on the terminal resistor in the junction box when the FURUNO CAN bus and/or NMEA 2000 sensor(s) connected to it do not have a terminal resistor.

Terminal Resistor
**OFF:** 
**ON:** 



For how to turn on the terminal resistor in a FI-50 series instrument, see paragraph 3.4.2 "Setup2 menu".
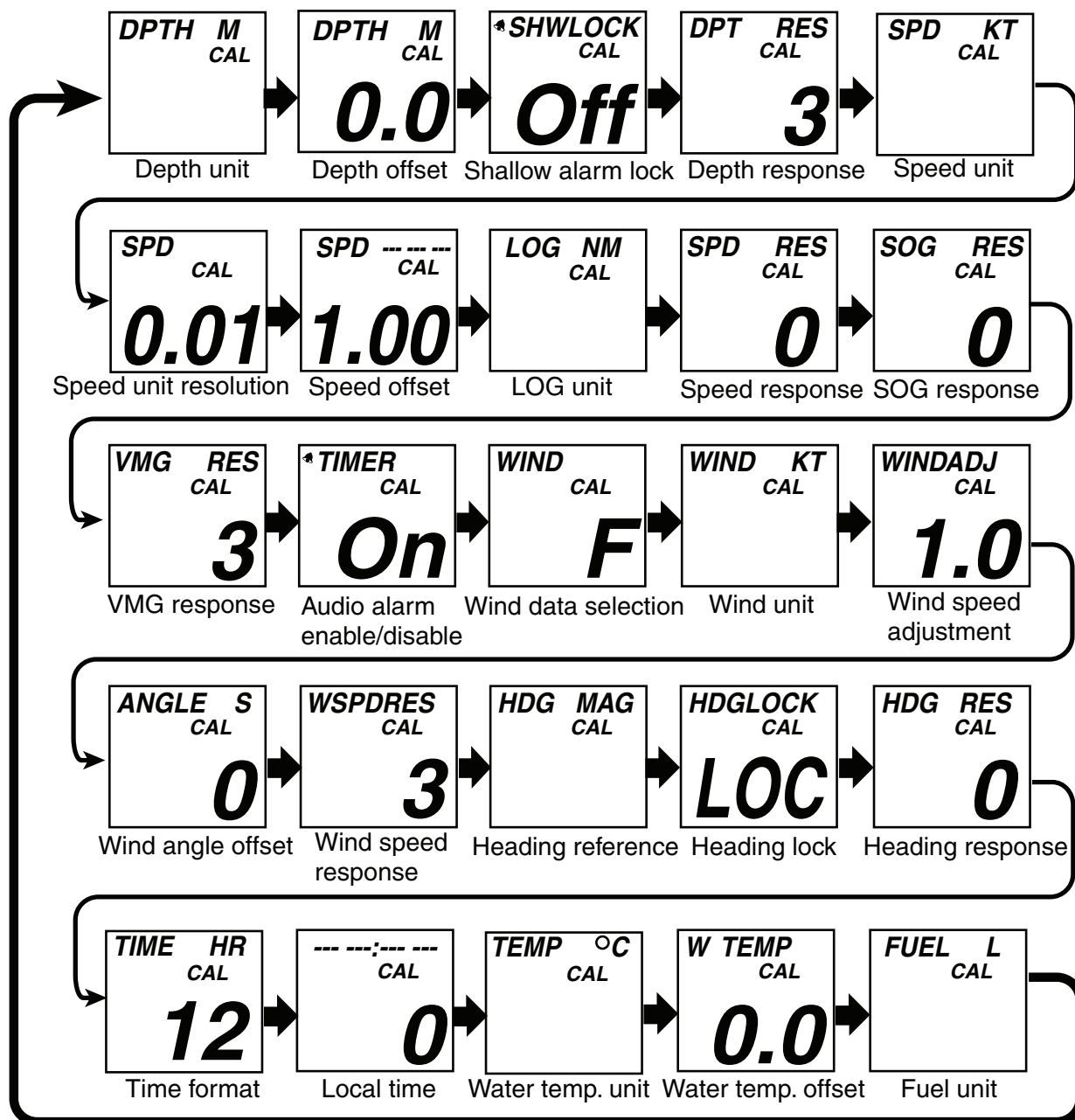
## 3.4 Setting Up

Your instrument is pre-programmed with factory default settings, which may or may not be suited to your vessel. Therefore, it is necessary to initialize the instrument for use with your vessel. This should be done immediately after completion of the installation.

Two sets of setup menus are provided: setup1 and setup2. The setup1 menu provides system parameters and the setup2 menu has user settings.

### 3.4.1 Setup1 menu

The setup1 menu contains system parameters which optimize the instrument for use on your vessel. Follow the procedure below to access and set parameters.

1. Press the **APP/TRUE** and **SELECT/CLEAR** keys momentarily to enable the setup1 menu. The Depth unit selection screen appears, with the depth unit flashing. (See the illustration on the next page.)
2. Use the **DISP** key to select a menu item. Each press of the key changes the menu item in the sequence shown in the illustration on the next page.

| DPTH M<br>CAL | DPTH M<br>CAL<br>**0.0** | ⚐SHWLOCK<br>CAL<br>**Off** | DPT RES<br>CAL<br>**3** | SPD KT<br>CAL |
|---|---|---|---|---|
| Depth unit | Depth offset | Shallow alarm lock | Depth response | Speed unit |

| SPD<br>CAL<br>**0.01** | SPD --- --- ---<br>CAL<br>**1.00** | LOG NM<br>CAL | SPD RES<br>CAL<br>**0** | SOG RES<br>CAL<br>**0** |
|---|---|---|---|---|
| Speed unit resolution | Speed offset | LOG unit | Speed response | SOG response |

| VMG RES<br>CAL<br>**3** | ⚐TIMER<br>CAL<br>**On** | WIND<br>CAL<br>**F** | WIND KT<br>CAL | WINDADJ<br>CAL<br>**1.0** |
|---|---|---|---|---|
| VMG response | Audio alarm<br>enable/disable | Wind data selection | Wind unit | Wind speed<br>adjustment |

| ANGLE S<br>CAL<br>**0** | WSPDRES<br>CAL<br>**3** | HDG MAG<br>CAL | HDGLOCK<br>CAL<br>**LOC** | HDG RES<br>CAL<br>**0** |
|---|---|---|---|---|
| Wind angle offset | Wind speed<br>response | Heading reference | Heading lock | Heading response |

| TIME HR<br>CAL<br>**12** | --- ---:--- ---<br>CAL<br>**0** | TEMP °C<br>CAL | W TEMP<br>CAL<br>**0.0** | FUEL L<br>CAL |
|---|---|---|---|---|
| Time format | Local time | Water temp. unit | Water temp. offset | Fuel unit |

3. Use the **APP/TRUE** or **SELECT/CLEAR** key to set value or select option.
   **VMG** key: Decrement value
   **SELECT/CLEAR** key: Increment value or select option.

4. To continue, press the **DISP** key to select another menu item.

5. To save settings and restore normal operation, press the **APP/TRUE** and **SELECT/CLEAR** keys together.

*Setup1 menu items*

| Display | Function | Setting range or options | Default setting |
|---------|----------|--------------------------|-----------------|
| DPTH M CAL | Select depth unit. | M (Meter), FT (Feet) | M |
| DPTH M CAL 0.0 | Set depth offset. | -99 - +99 | 0.0 |
| SHWLOCK CAL OFF | Lock/unlock shallow alarm setting. | ON, OFF | OFF |
| DPT RES CAL 3 | Set depth response. The lower the setting the faster the response to change in depth. | 0 - 12 | 3 |
| SPD KT CAL | Select speed unit. | KT (Knot), MPH (Miles/Hour), KMH (Kilometers/Hour) | KT |
| SPD CAL 0.01 | Select speed resolution. Select number of places to show after decimal point. | 0.01, 0.1 | 0.01 |
| SPD --- --- --- CAL 1.00 | Set speed adjustment. (STW only) | 0.30 - 2.50 | 1.00 |
| LOG NM CAL | Select log unit. | NM (Nautical Mile), SM (Statute Mile), KM (Kilometer) | NM |

## *Setup1 menu items*

| Display | Function | Setting range or options | Default setting |
|---|---|---|---|
| **SPD RES** CAL **0** | Set speed response. The lower the setting the faster the response to change in speed. | 0 - 12 | 0 |
| **SOG RES** CAL **0** | Set SOG response. The lower the setting the faster the response to change in speed over ground. | 0 - 12 | 0 |
| **VMG RES** CAL **3** | Set VMG response. The lower the setting the faster the response to change in velocity made good. | 0 - 12 | 3 |
| **TIMER** CAL **On** | Enable/disable the timer alarm's audio alarm. | ON, OFF | ON |
| **WIND** CAL **F** | Select source of wind data. Select "r" for second unit. | F: For FI-5001 (Furuno Sensor), r: repeater | F |
| **WIND KT** CAL | Select wind unit. | KT (Knot), M/S (Meters/Second) | KT |
| **WINDADJ** CAL **1.0** | Set wind speed adjustment. | 0.3 - 2.5 | 1.0 |
| **ANGLE S** CAL **0** | Set wind angle offset. | S $0°$ - $180°$ P $1°$ - $179°$ | 0 |
| **WSPDRES** CAL **3** | Set wind speed response. The higher the setting the faster the response to change in wind speed. | 0 - 12 | 3 |

*Setup1 menu items*

| Display | Function | Setting range or options | Default setting |
|---|---|---|---|
| **HDG   MAG** CAL | Select true or magnetic bearing. | MAG (Magnetic), TRU (True | MAG |
| **HDGLOCK** CAL **LOC** | Select heading type to display when activating locked heading. | LOC (Locked), CUr (Current) | LOC |
| **HDG   RES** CAL **0** | Set heading response. The lower the setting the faster the response to change in heading. | 0 - 12 | 0 |
| **TIME   HR** CAL **12** | Select time format. | 12, 24 (hour) | 12 |
| --- ---:--- --- CAL **0** | Use local time. Enter time difference between local time and GMT to use local time. | -12 - +12 | 0 |
| **TEMP   °C** CAL | Select water temperature unit. | °C, °F | °C |
| **W TEMP** CAL **0.0** | Set water temperature offset. | -99 - +99 | 0 |
| **FUEL   L** CAL | Select fuel unit. | L (Liter), G (Gallon) | L |

### 3.4.2    Setup2 menu
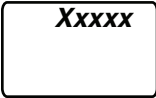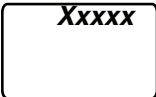
The setup 2 menu contains user settings which once preset do not require frequent adjustment.

1. Press and hold down the **APP/TRUE** and **SELECT/CLEAR** keys together (about 5-6 seconds) to enable the user settings menu. The software version of CPU1 appears. (See the illustration below.)

2. Press the **DISP** key to choose menu item. Each press of the key changes the menu item in the sequence shown below.

*XXxx=program and program ver. nos.

| Xxxxx* | Xxxxx* | KEYBEEP CAL ON | A BRILL CAL ON | ALT CAL OFF |
|---|---|---|---|---|
| Program ver. no. (CPU1) | Program ver. no. (CPU2) | Key beep | Auto brilliance | Alternating displays |

| SETUP CAL ON | rES CAL OFF | SYNCHRO CAL ON | DEPTH CAL ON | SPEED CAL ON |
|---|---|---|---|---|
| Setup 1 menu | Terminal resistor | Synchronization | Depth displays | Speed displays |

| TIMER CAL ON | WIND CAL ON | HEADING CAL ON | NAVI CAL ON | ENVIRO CAL ON |
|---|---|---|---|---|
| Timer displays | Wind displays | Heading displays | Nav displays | Environment displays |

| A PILOT CAL ON | ENGINE CAL ON | DEMO CAL OFF | RESET CAL OFF |
|---|---|---|---|
| Autopilot displays | Engine displays | Demo mode | Restore factory defaults |

3. Use the **SELECT/CLEAR** key to select setting.

4. To continue, press the **DISP** key to select another item.

5. To save settings and restore normal operation, press the **APP/TRUE** and **SELECT/CLEAR** keys together.

*Setup2 menu items*

| Display | Function | Setting range or options | Default setting |
|---------|----------|--------------------------|-----------------|
| *Xxxxx* | Software version of CPU1. X=program no. and xxxx=program version no. | - | - |
| *Xxxxx* | Software version of CPU2. X=program no. and xxxx=program version no. | - | - |
| KEYBEEP CAL ON | Turn key beep on/off. | ON, OFF | ON |
| A BRILL CAL ON | Auto brilliance on/off. | ON, OFF | ON |
| ALT CAL OFF | Enable/disable alternating displays. | OFF<br>1: Depth/boat spd<br>2: Boat spd/water temp.<br>3: Depth/water temp.<br>4: Depth/boat spd/water temp.<br>5: Roll/pitch<br>6: Latitude/Longitude | OFF |
| SETUP CAL ON | Enable/disable access to the setup1 menu. | ON, OFF | ON |
| rES CAL OFF | Turn the terminal resistor on/off. | ON, OFF | OFF |
| SYNCHRO CAL ON | Turn on/off synchronization of FI-50 series instruments. | ON:<br>  Synchronize FI-50 instruments having this setting.<br>OFF:<br>  Turn off synchronization.<br>A:<br>  Synchronize FI-50 instruments having this setting.<br>b:<br>  Synchronize FI-50 instruments having this setting. | ON |
| DEPTH CAL ON | Turn depth displays on/off. | ON, OFF | ON |
| SPEED CAL ON | Turn speed displays on/off. | ON, OFF | ON |

*Setup2 menu items*

| Display | Function | Setting range or options | Default setting |
|---|---|---|---|
| **TIMER** <br> CAL <br> **ON** | Turn timer displays on/off. | ON, OFF | ON |
| **WIND** <br> CAL <br> **ON** | Turn wind displays on/off. | ON, OFF | ON |
| **HEADING** <br> CAL <br> **ON** | Turn heading displays on/off. | ON, OFF | ON |
| **NAVI** <br> CAL <br> **ON** | Turn navigation displays on/off. | ON, OFF | ON |
| **ENVIRO** <br> CAL <br> **ON** | Turn environmental displays on/off. | ON, OFF | ON |
| **A PILOT** <br> CAL <br> **ON** | Turn autopilot displays on/off. | ON, OFF | ON |
| **ENGINE** <br> CAL <br> **ON** | Turn engine displays on/off. | ON, OFF | ON |
| **DEMO** <br> CAL <br> **OFF** | Demo mode. To enable, press the **SELECT/CLEAR** key. Depth is shown. <br> To disable and return to this menu, press and hold down the **SELECT/CLEAR** key. | ON, OFF | OFF |
| **RESET** <br> CAL <br> **OFF** | Restore factory defaults. To restore factory defaults, press and hold down the **SELECT/CLEAR** key to show ON. Press the key again. A beep sounds upon completion. | ON, OFF | OFF |

# SPECIFICATIONS OF
# FI-504 MULTI

## 1    GENERAL
1.1   Indication system              Segment LCD
1.2   Brilliance                     4 steps
1.3   Contrast                       3 steps
1.4   Display Contents               Depth, speed, wind speed, wind angle, timer, environmental information (water temperature, air temperature, air pressure, dewpoint, wind chill temperature), rudder angle
1.5   Number of Port                 CAN bus, 2 ports
1.6   Mount Method                   Surface or flush mount

## 2    JUNCTION BOX (OPTION)
2.1   Number of Port                 CAN bus Drop: 6 ports, CAN bus Backbone: 2 ports
2.2   Circuit Protection             Reverse, short, over current

## 3    POWER SUPPLY AND POWER CONSUMPTION
3.1   Display Unit                   12 VDC, less than 0.1 A
3.2   Junction Box                   12 VDC, less than 1 A, max. 2A connectable

## 4    ENVIRONMENTAL CONDITIONS
4.1   Useable Temperature Range      -15°C - +55°C
4.2   Relative Humidity              Less than 95% (+40°C)
4.3   Waterproofing
       Display Unit                  IP56
       Junction Box                  IPX0
4.4   Vibration                      - 2 Hz-5 Hz and up to 13.2 Hz with an excursion of ±1 mm ±10% (7 $m/s^2$ maximum acceleration at 13.2 Hz);
                                      - above 13.2 Hz and up to 100 Hz with a constant maximum acceleration of 7 $m/s^2$

## 5    COATING COLOR
5.1   Display Unit                   N2.5
5.2   Junction Box                   N2.5

E7269S01A1

# SPECIFICATIONS OF
# FI-507 MULTI XL

## 1   GENERAL

1.1   Indication system          Segment LCD

1.2   Brilliance                 4 steps

1.3   Contrast                   3 steps

1.4   Display contents           Depth, Ship's speed, Wind speed/angle, Date, Time, Bearing

Environmental information[1], Navigational information,

Rudder angle, Engine information[2]

1.5   Number of port             CAN bus: 2 port

1.6   Mount method               Surface or flush mount

*1)   Battery voltage, date, time, water temperature, air temperature, air pressure, humidity, wind chill temperature and dew point

*2)   Fuel consumption, fuel efficiency and engine speed

## 2   JUNCTION BOX

2.1   Number of port             CAN bus drop: 6, CAN bus backbone: 2

2.2   Circuit protection         Reverse, short, over current

## 3   POWER SUPPLY

3.1   Main unit                  12 VDC: 0.1 A

3.2   Junction box               12 VDC: 1 A
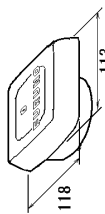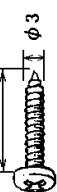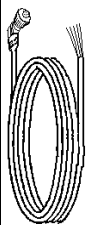
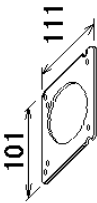## 4   ENVIRONMENTAL CONDITION

4.1   Ambient temperature   -15°C to +55°C

4.2   Relative humidity     95% at 40°C

4.3   Degree of protection
      Main unit             IP56
      Junction box          IPX0

4.4   Vibration             - 2 Hz-5 Hz and up to 13.2 Hz with an excursion of $\pm1$ mm $\pm10\%$ (7 m/s$^2$ maximum acceleration at 13.2 Hz);
                            - above 13.2 Hz and up to 100 Hz with a constant maximum acceleration of 7 m/s$^2$

## 5   COATING COLOR

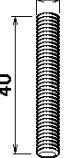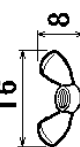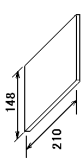5.1   Main unit                  N2.5
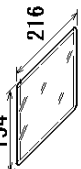
5.2   Junction box               N2.5
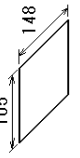
# PACKING LIST   FI-504

| NAME | OUTLINE | DESCRIPTION/CODE No. | Q'TY |
|---|---|---|---|
| ユニット **UNIT** | | | |
| 表示部<br>MONITOR UNIT | | FI-504<br>000-011-745-00 | 1 |
| 工事材料 **INSTALLATION MATERIALS** | | **CP26-00600** | |
| ＋ナベタッピンネジ 1シュ<br>SELF-TAPPING SCREW | | 3X20 SUS304<br>000-163-884-10 | 4 |
| ケーブル組品<br>CABLE ASSEMBLY | | FI-50-DROP-6M<br>001-105-810-10 | 1 |
| ケーブル組品0.3M<br>CABLE ASSEMBLY 0.3M | | FI-50-CHAIN-0.3M<br>001-105-820-10 | 1 |
| サーフェスマウントスポンジ<br>SPONGE | | TZ7583002A0<br>000-167-832-10 | 1 |
| パネルリムーバー<br>PANEL REMOVER | | 19-028-3124-1<br>100-340-471-10 | 1 |
| バネ座金<br>SPRING WASHER | | M3 SUS304<br>000-167-404-10 | 2 |
| ミガキ丸平座金<br>FLAT WASHER | | M3 SUS304<br>000-167-453-10 | 2 |

| NAME | OUTLINE | DESCRIPTION/CODE No. | Q'TY |
|---|---|---|---|
| 寸切ボルト<br>BOLT | | M3X40 SUS304<br>000-167-804-10 | 2 |
| 蝶ナット<br>WING NUT | | M3 SUS304<br>000-167-826-10 | 2 |
| 図書 **DOCUMENT** | | | |
| 取扱説明書（英）<br>OPERATOR'S MANUAL | | OME-72690-*<br>000-167-334-1* | 1 |
| 操作要領書<br>OPERATOR'S GUIDE | | OS*-72690-*<br>000-167-295-1*  ** | 1 |
| 内部終端/設定<br>INTERNAL RESISTOR SETTING | | C72-00705-*<br>000-168-501-1* | 1 |

コード番号末尾の[**]は、選択品の代表コードを表します。
CODE NUMBER ENDING WITH "**" INDICATES THE CODE NUMBER OF REPRESENTATIVE MATERIAL.

（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

型式/コード番号が2段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。 なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF
THE UPPER PRODUCT. QUALITY IS THE SAME.

26AA-X-9860

# PACKING LIST　FI-507

| NAME | OUTLINE | DESCRIPTION/CODE No. | Q'TY |
|---|---|---|---|
| ユニット　UNIT | | | |
| 表示部　MONITOR UNIT | | FI-507　000-015-729-00 | 1 |
| 工事材料　INSTALLATION MATERIALS | | CP26-00800 | |
| +ナベタッピンネジ 1シュ　SELF-TAPPING SCREW | | 3X20 SUS304　000-163-884-10 | 4 |
| Sマウントスポンジ XL　SURFACE MOUNTING SPONGE XL | | TZ7583059A0　000-170-617-10 | 1 |
| ケーブル組品　CABLE ASSEMBLY | | FI-50-DROP-6M　001-105-810-10 | 1 |
| ケーブル組品0.3M　CABLE ASSEMBLY 0.3M | | FI-50-CHAIN-0.3M　001-105-820-10 | 1 |
| パネルリムーバー　PANEL REMOVER | | 19-028-3124-1　100-340-471-10 | 1 |
| バネ座金　SPRING WASHER | | M3 SUS304　000-167-404-10 | 4 |
| ミガキ丸平座金　FLAT WASHER | | M3 SUS304　000-167-453-10 | 4 |

| NAME | OUTLINE | DESCRIPTION/CODE No. | Q'TY |
|---|---|---|---|
| 寸切ボルト　BOLT | | M3X40 SUS304　000-167-804-10 | 4 |
| 蝶ナット　WING NUT | | M3 SUS304　000-167-826-10 | 4 |
| 図書　DOCUMENT | | | |
| 取扱説明書（英）　OPERATOR'S MANUAL | | OME-72690-*　000-167-334-1* | 1 |
| 操作要領書（英）　OPERATOR'S GUIDE (EN) | | OSE-72770-*　000-170-641-1* | 1 |
| 内部終端/設定　INTERNAL RESISTOR SETTING | | C72-00705-*　000-168-501-1* | 1 |

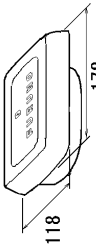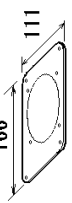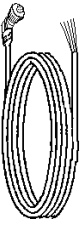型式/コード番号が2段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。 なお、品質は変わりません。
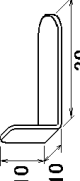TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.
26AA-X-9863

（略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

D-1

FURUNO

FURUNO ELECTRIC CO., LTD.
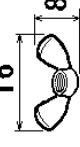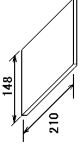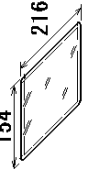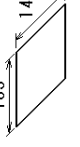
2-φ3.5 ⓑ
FIXING HOLES

89.6±0.5
45±0.5
80±0.5
φ90
60
51.5±0.5
94±0.5
96±0.5

ⓐ 4-取付穴位置
4-取付穴位置
PILOT HOLES

センサーコネクタ
SENSOR CONNECTOR
(FOR FI-501/502)

信号コネクタ
SIGNAL CONNECTOR

型式銘板
NAMEPLATE

2-M3

取付穴寸法図
CUTOUT DIMENSIONS

68φ
#50
23
26

110
115
38

表1 TABLE 1

| 寸法区分 (mm)<br>DIMENSION | 公差 (mm)<br>TOLERANCE |
|---|---|
| L≤50 | ±1.5 |
| 50<L≤100 | ±2.5 |
| 100<L≤500 | ±3 |

注記
1）指定外の寸法公差は表1による。
2）#印寸法は最小サービス空間とする。
3）取付方法は次の2種類から選択する。
　ⓐ：ナベタッピンネジ呼び径3×20を使用のこと。
　ⓑ：M3×40寸切りボルト、M3平座金／バネ座金／蝶ナットを使用のこと。

NOTE
1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2. # MINIMUM SERVICE CLEARANCE.
3. SELECT FIXING METHOD FROM FOLLOWINGS;
　ⓐ：USE TAPPING SCREWS φ3x20.
　ⓑ：USE M3 STUD BOLT, P.W. / S.W. / WING NUT, SCREW LENGTH: 40.

| DRAWN | 30/Sep/09 | T.YAMASAKI |
| CHECKED | 30/Sep/09 | T.TAKENO |
| APPROVED | 26/Oct/09 | R Esumi |
| SCALE | MASS 0.3 kg | 質量はケーブルを含みます。<br>MASS W/O CABLE. |
| DWG.No. C7266-G02- C | REF.No. 26-001-102G-2 |

TITLE FI-501/502/503/504/505/506
名称 インスツルメント（サーフェスマウント）外寸図
NAME INSTRUMENT (SERFACE MOUNT) OUTLINE DRAWING

**FURUNO**

**FURUNO ELECTRIC CO., LTD.**

113±1

108±1

118±0.5

R5

60±0.5

4－取付穴位置
PILOT HOLES

取付穴寸法
CUTOUT DIMENSIONS

センサーコネクタ
SENSOR CONNECTOR
(FOR FI-501/502)

信号コネクタ
SIGNAL CONNECTOR

型式銘板
NAMEPLATE

表1 TABLE 1

| 寸法区分 (mm)<br>DIMENSION | 公差 (mm)<br>TOLERANCE |
|---|---|
| L≦50 | ±1.5 |
| 50<L≦100 | ±2.5 |
| 100<L≦500 | ±3 |

#50

68ø

111

39

10

106

54

129

125

注 記

1) 指定外の寸法公差は表1による。
2) 取付用ネジはナベタッピンネジ呼び径3×20を使用のこと。

NOTE
1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2. USE TAPPING SCREWS ø3x20 FOR FIXING THE UNIT.
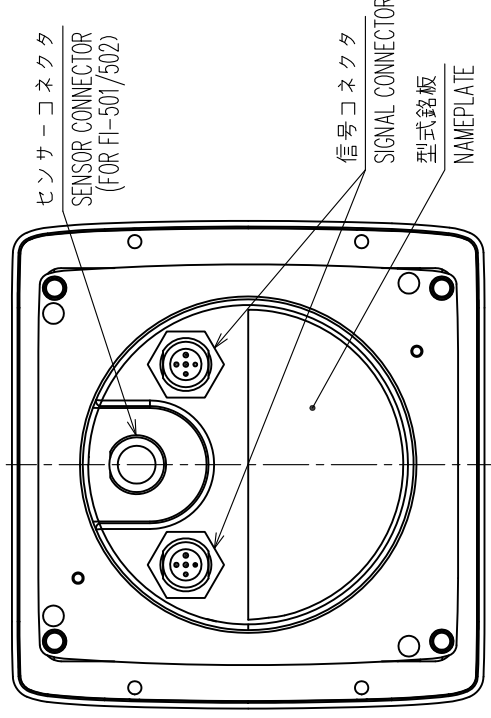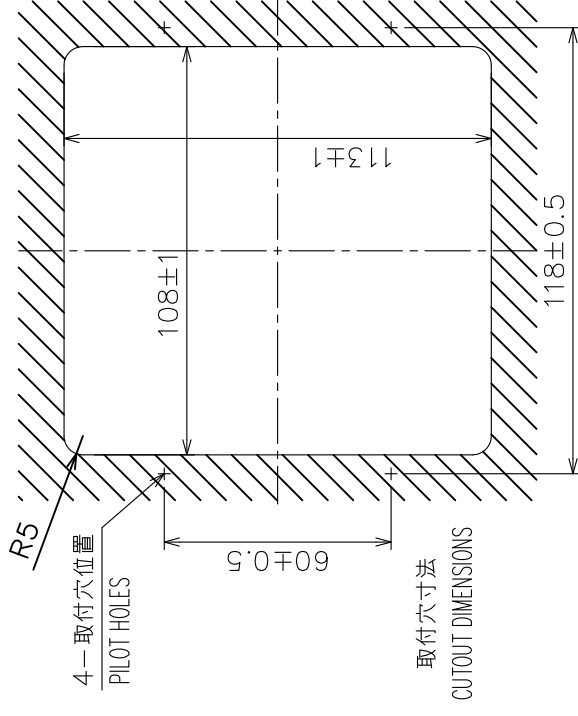
| | |
|---|---|
| DRAWN | 30/Sep/09 T.YAMASAKI |
| CHECKED | 30/Sep/09 T.TAKENO |
| APPROVED | 26/Oct/09 R.Esumi |

MASS 0.3 ±10% kg

SCALE

DWG.No. C7266-G01-B

REF.No. 26-001-101G-0

TITLE FI-501/502/503/504/505/506

名称 インスツルメント (フラッシュマウント)

外寸図

NAME INSTRUMENT (FLUSH MOUNT)

OUTLINE DRAWING

FURUNO

表1 TABLE 1

| 寸法区分 (mm)<br>DIMENSION | 公差 (mm)<br>TOLERANCE |
|---|---|
| L≦50 | ±1.5 |
| 50<L≦100 | ±2.5 |
| 100<L≦500 | ±3 |

52

84

#100

取付穴 2-φ5
FIXING HOLES

コネクタ
CONNECTOR

ケーブル導入口
CABLE ENTRY

41

コネクタ
CONNECTOR

基板
CIRQUIT BOARD

156

200±0.5

220
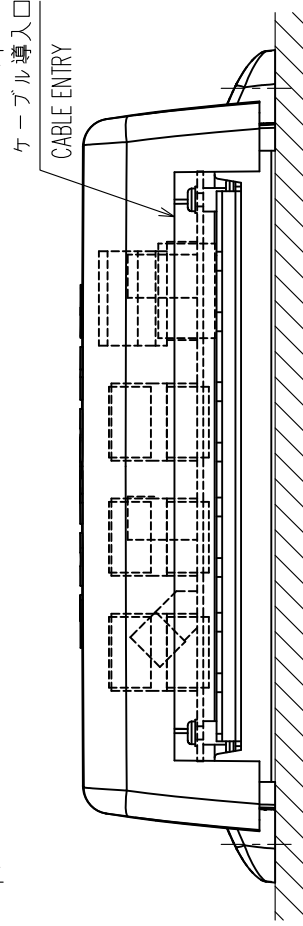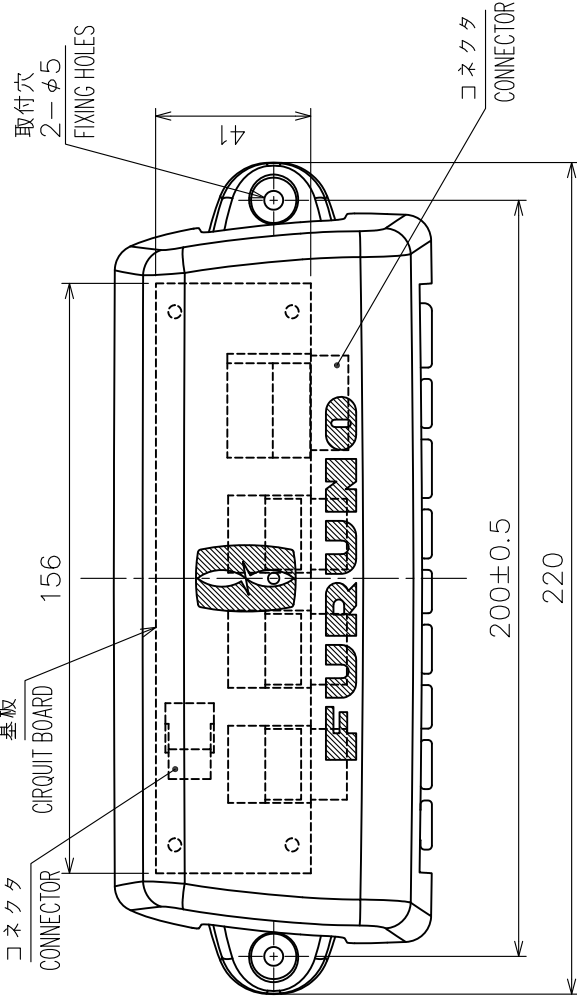
注 記
1) #印寸法は最小サービス空間寸法とする。
2) 指定外の寸法公差は表1による。
3) 取付用ネジはトラスタッピンネジ呼び径4×20を使用のこと。

NOTE
1.  #: MINIMUM SERVICE CLEARANCE.
2.  TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
3.  USE TAPPING SCREWS φ4x20 FOR FIXING THE UNIT.

| DRAWN | Jul. 19 '07 | T.YAMASAKI |
|---|---|---|
| CHECKED | Jul. 19 '07 | T.TAKENO |
| APPROVED | Jul. 24' 07 | R.Esumi |

| TITLE | FI-5002 |
|---|---|
| 名称 | ジャンクションボックス |
| | 外寸図 |
| NAME | JUNCTION BOX |
| | OUTLINE DRAWING |

MASS 0.3 ±10% kg

SCALE

DWG.No. C7268-G01- A

REF.No. 26-001-103G-0

FURUNO ELECTRIC CO., LTD.

FURUNO

FURUNO ELECTRIC CO., LTD.

**表1 TABLE 1**

| 寸法区分 (mm)<br>DIMENSION | 公差 (mm)<br>TOLERANCE |
|---|---|
| L≤50 | ±1.5 |
| 50<L≤100 | ±2.5 |
| 100<L≤500 | ±3 |

90±0.5

45±0.5

145±0.5

60±0.5

φ90$^{+5}_{0}$

51.5±0.5

103±0.5

Ⓐ4－取付用下穴
PILOT HOLES

取付穴 4－φ3.5
B FIXING HOLES

4－φ3.5 Ⓑ
FIXING HOLES

コネクタ
CONNECTOR

4－M3

型式銘板
NAMEPLATE

取付穴寸法図
CUTOUT DIMENSIONS

68φ

♯50

23

26

115

♯40

175

145

103

取付穴
4－φ3.5
B FIXING HOLES

注記 1) 指定外の寸法公差は表1による。
2) ♯印寸法は最小サービス空間寸法とする。
3) 取付方法は2種類から選択のこと。
　Ⓐの場合、ナベタッピンネジ呼び径3×20を使用のこと。
　Ⓑの場合、M3x40寸切ボルト、M3平座金・バネ座金・蝶ナットを使用のこと。

NOTE 1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2. ♯ MINIMUM SERVICE CLEARANCE.
3. SELECT FOLLOWING METHOD FOR FIXING THE UNIT;
　Ⓐ: USE TAPPING SCREWS φ3x20.
　Ⓑ: USE M3x40 STUD BOLTS, M3 P.W./S.W./WING NUTS.

| DRAWN | 2/Dec/08 | T.YAMASAKI | TITLE | FI-507 |
| CHECKED | 3/Dec/08 | T.TAKENO | 名称 | インスツルメント（サーフェスマウント） |
| APPROVED | 9/Dec/08 | R.Esumi | | 外寸図 |
| SCALE | 1/2 | MASS 0.46 $^{±10\%}_{}$ kg | NAME | INSTRUMENT (SURFACE MOUNT) |
| DWG.No. | C7277-G02-A | | | OUTLINE DRAWING |
| | | REF.No. 26-001-201G-0 | | |

FURUNO

173±1.0

113±1.0

183±0.5

60±0.5

4－取付用下穴
PILOT HOLES

R5

取付穴寸法図
CUTOUT DIMENSIONS

表1 TABLE 1

| 寸法区分 (mm)<br>DIMENSION | 公差 (mm)<br>TOLERANCE |
|---|---|
| L≤50 | ±1.5 |
| 50<L≤100 | ±2.5 |
| 100<L≤500 | ±3 |

コネクタ
CONNECTOR

型式銘板
NAMEPLATE

#50

39

17

10

125

#40

ø68

111

171

194

183

60

取付穴
4－ø3.5
FIXING HOLES
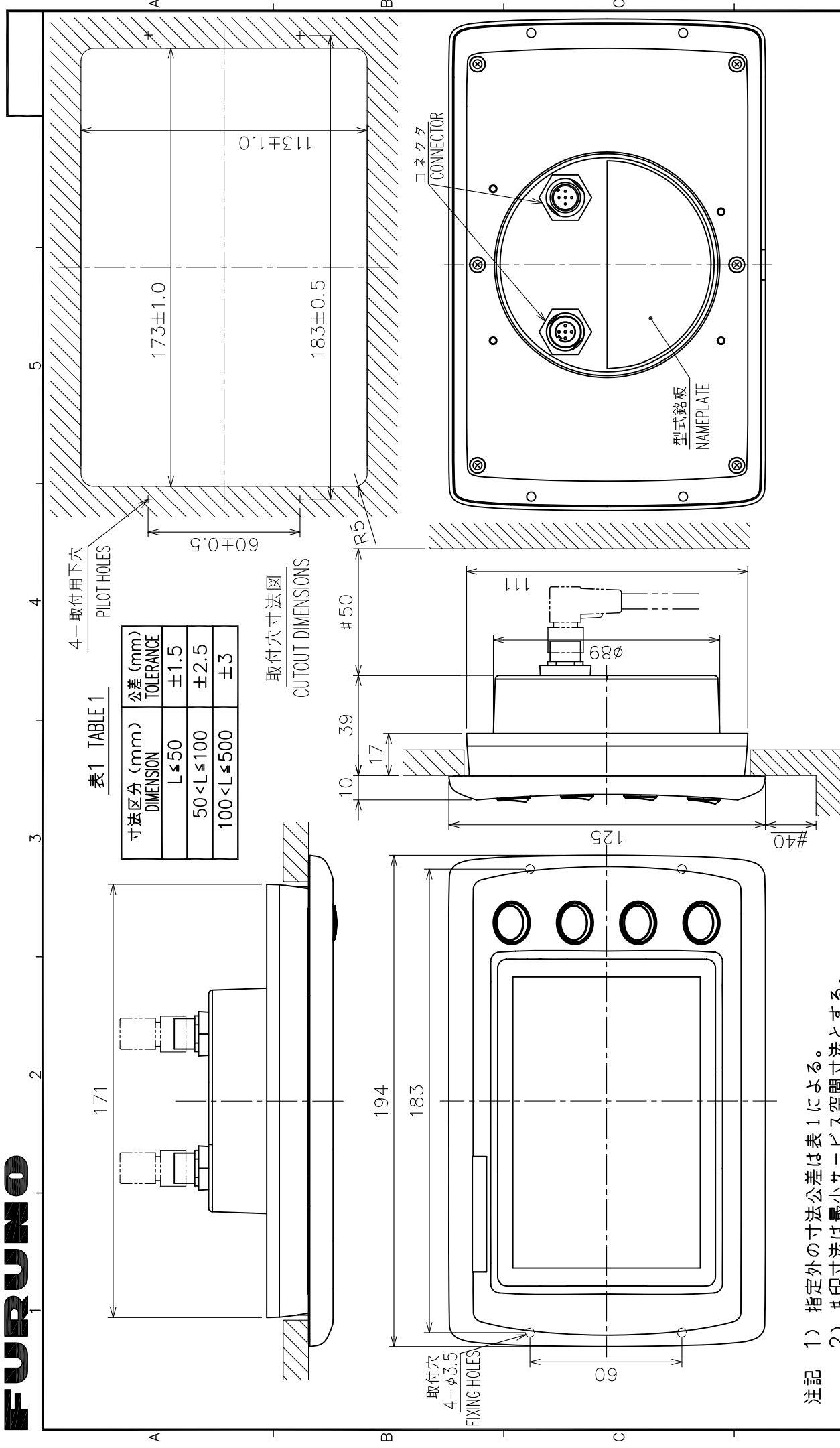
注記 1) 指定外の寸法公差は表1による。
　　 2) #印寸法は最小サービス空間寸法とする。
　　 3) 取付用ネジはナベタッピンネジ呼び径3×20を使用のこと。

NOTE 1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
　　 2. #: MINIMUM SERVICE CLEARANCE.
　　 3. USE TAPPING SCREWS ø3x20 FOR FIXING THE UNIT.

| | | |
|---|---|---|
| DRAWN | 3/Dec/08 | T.YAMASAKI |
| CHECKED | 4/Dec/08 | T.TAKENO |
| APPROVED | 9/Dec/08 | R.Esumi |
| SCALE 1/2 | MASS 0.45 ±10% kg | |
| DWG.No. C7277-G01-A | 4 | REF.No. 26-001-200G-0 |

TITLE FI-507
名称 インスツルメント（フラッシュマウント）
外寸図
NAME INSTRUMENT (FLUSH MOUNT)
OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

風向風速センサー
WIND TRANSDUCER
FI-5001/5001L

ターミナルボックス *2
TERMINAL BOX *2
FI-5001-TERMINAL

LTWBD-06AFMM
LR7000
FI-50-SENSOR-30M/50M, 30/50m, φ4.3
クロ BLK
チャ BRN
アカ RED
ダイ ORG
キ YEL

インスツルメント FI-501/502
INSTRUMENT
WIND
+V 1
DIR1 2
DIR2 3
SPEED 4
GND 5
SHIELD 6

インスツルメント FI-501/502
INSTRUMENT
CAN bus
1 SHIELD
2 NET-S
3 NET-C
4 NET-H
5 NET-L

LTW12-05AFMM-SR7000
FI-50-DROP, 6m, φ6
12VDC (+) アカ RED
(−) クロ BLK
*3 NC シロ WHT
NC アオ BLU

単品で使用するとき
USING INDEPENDENTLY

インスツルメント FI-501/502
INSTRUMENT
CAN bus
1 SHIELD
2 NET-S
3 NET-C
4 NET-H
5 NET-L

LTW12-05AFMM-SR7000
FI-50-DROP, 6m, φ6
アカ RED
クロ BLK
シロ WHT
アオ BLU
同上 DITTO

LTW12-05AMMM-SR7000
FI-50-CHAIN, 0.3m, φ6
(1/5/10/20m *1)

インスツルメント FI-503/504 505/506 507
INSTRUMENT
CAN bus
1 SHIELD
2 NET-S
3 NET-C
4 NET-H
5 NET-L

CAN bus
1 SHIELD
2 NET-S
3 NET-C
4 NET-H
5 NET-L

LTW12-05AFFM-SR7000
FI-50-DROP, 6m, φ6
アカ RED
クロ BLK
シロ WHT
アオ BLU
同上 DITTO
選択 SELECT

LTW12-05AMMM-SR7000
FI-50-CHAIN, 0.3m, φ6
(1/5/10/20m *1)

インスツルメント (最大26個)
INSTRUMENT (TOTAL: UP TO 26 SETS)
CAN busケーブル長総合計：80m以下
CAN bus CABLE TOTAL LENGTH: UP TO 80m

ケーブルや接続条件により満足しない場合あり
DEPEND ON CABLE AND CONNECTION CONDITIONS

ジャンクションボックス
JUNCTION BOX
FI-5002 *1

CN1 12VDC
1 (+)
2 (−)
3 SHIELD

CN3 DROP_U
1 SHIELD
2 NET-S
3 NET-C
4 NET-H
5 NET-L

CN2 BACKBONE_U
1 SHIELD
2 NET-S
3 NET-C
4 NET-H
5 NET-L

CN3 DROP_L
1 SHIELD
2 NET-S
3 NET-C
4 NET-H
5 NET-L

CN2 BACKBONE_L
1 SHIELD
2 NET-S
3 NET-C
4 NET-H
5 NET-L

CN4 DROP_U
1 SHIELD
2 NET-S
3 NET-C
4 NET-H
5 NET-L

CN4 DROP_L
1 SHIELD
2 NET-S
3 NET-C
4 NET-H
5 NET-L

CN5 DROP_U
1 SHIELD
2 NET-S
3 NET-C
4 NET-H
5 NET-L

CN5 DROP_L
1 SHIELD
2 NET-S
3 NET-C
4 NET-H
5 NET-L

FI-5002-POWERCABLE, 2m
(VV-SA0.75×2C)
12VDC シロ WHT
クロ BLK

接続箱
JUNCTION BOX
CAN bus NETWORK
(BACKBONE)

接続箱
JUNCTION BOX
CAN bus NETWORK
(BACKBONE)

注記
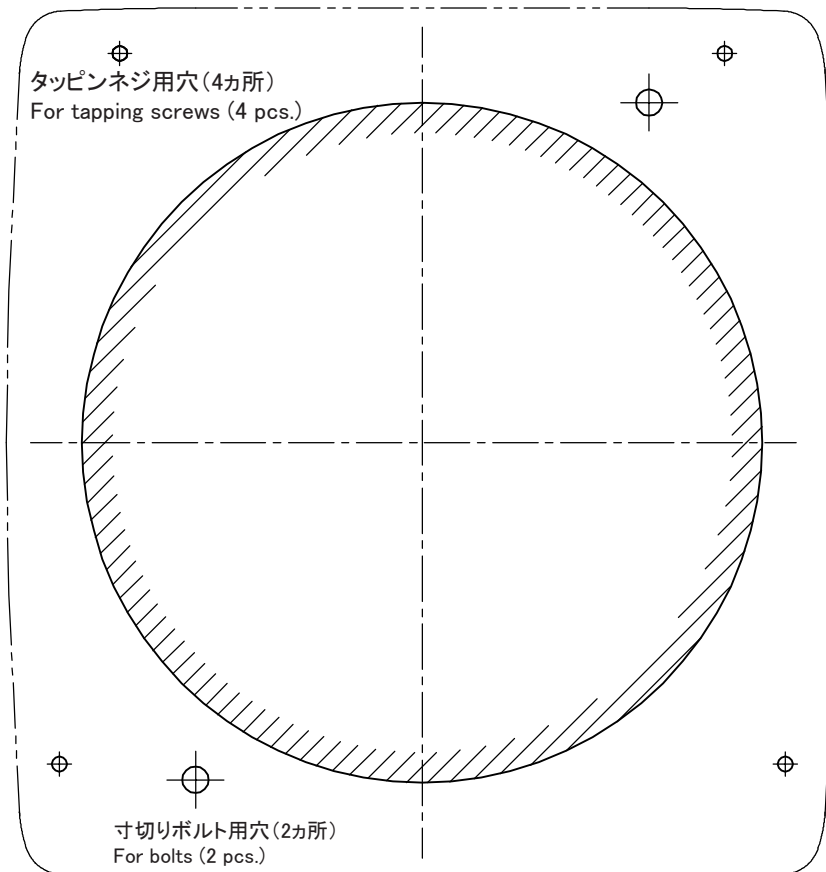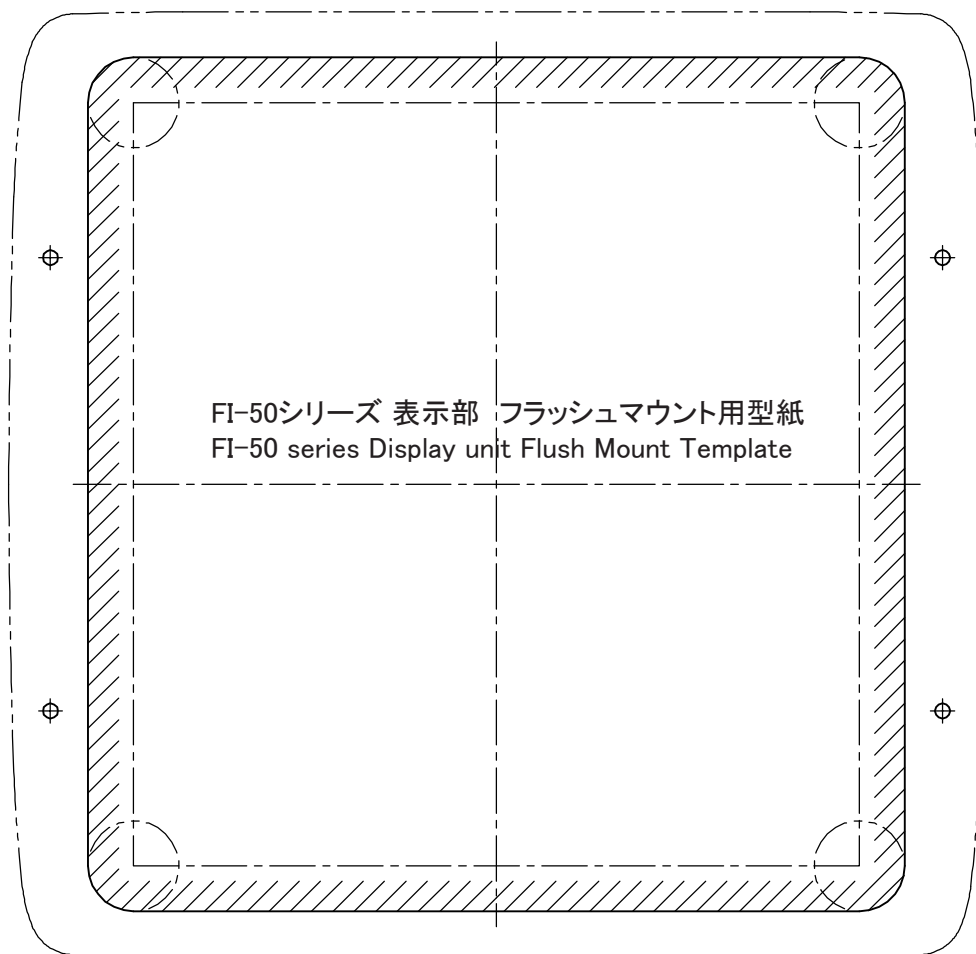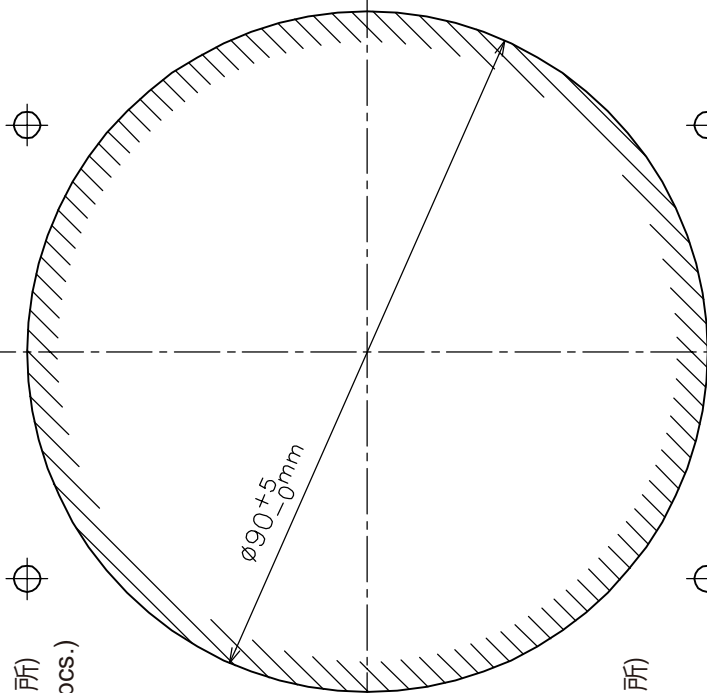＊1) オプション。
＊2) ケーブルを切断する場合は、ターミナルボックス（非防水）を使用のこと。
＊3) 短絡しないように、端末を処理する。

NOTE
*1: OPTION.
*2: USE A TERMINAL BOX (NO-PROTECTION) WHEN THE SUPPLIED CABLE IS CUT.
*3: PROTECT CABLE ENDS TO PREVENT SHORT-CIRCUIT.

| | | | |
|---|---|---|---|
| DRAWN | 28/Jan/'10 | T.YAMASAKI | TITLE FI-501/502/503/504/505/506/507 インスツルメント |
| CHECKED | 28/Jan/'10 | T.TAKENO | 名称 相互結線図 INSTRUMENT |
| APPROVED | 8/Mar/'10 | R.Esumi | NAME INTERCONNECTION DIAGRAM |
| SCALE | MASS | kg | |
| DWG.No. C7266-C01- J | | REF.No. | |

FURUNO

FURUNO ELECTRIC CO.,LTD.

タッピンネジ用穴（4ヵ所）
For tapping screws (4 pcs.)

寸切りボルト用穴（2ヵ所）
For bolts (2 pcs.)

FI-50シリーズ 表示部 フラッシュマウント用型紙
FI-50 series Display unit Flush Mount Template

FI-507
FI-507 Surface Mount Template

$\varnothing 90 {}^{+5}_{-0}mm$

タッピンネジ用穴 (4カ所)
For tapping screws (4 pcs.)

寸切りボルト用穴 (4カ所)
For bolts (4 pcs.)
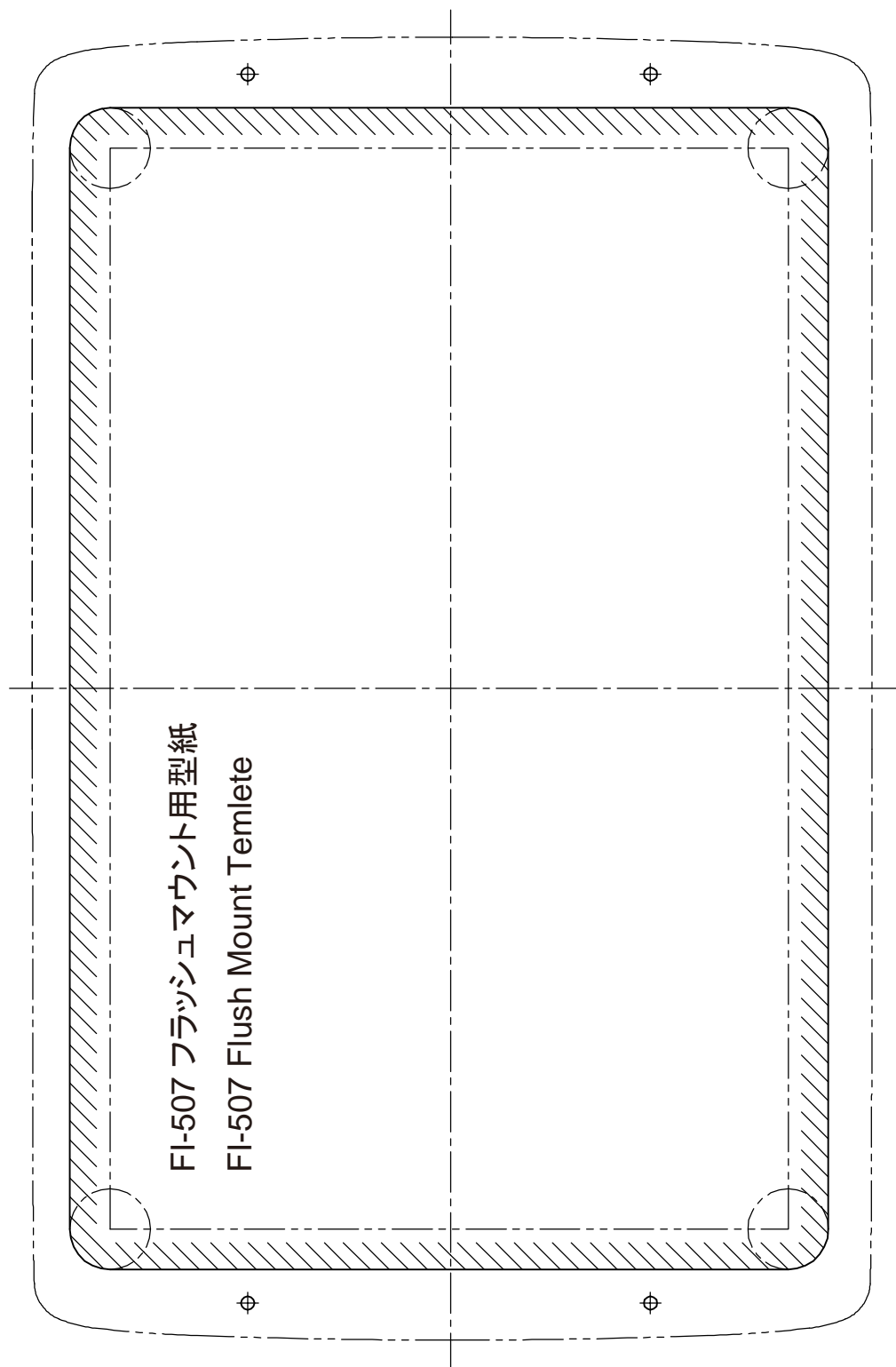
FI-507 フラッシュマウント用型紙
FI-507 Flush Mount Temlete