

FURUNO

INSTRUMENT

DIGITAL Model FI-503



OPERATOR'S MANUAL



FURUNO ELECTRIC CO., LTD.

www.furuno.com



ECF

(Elemental Chlorine Free)

The paper used in this manual
is elemental chlorine free.

FURUNO ELECTRIC CO., LTD.

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•FURUNO Authorized Distributor/Dealer

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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.

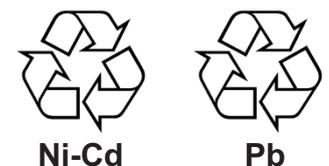
In the European Union

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.

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
<p> Do not open the equipment.</p> <p>Only qualified personnel should work inside the equipment.</p>
<p> Do not disassemble or modify the equipment.</p> <p>Fire or electrical shock can result if the equipment is modified.</p>
<p> Do not operate the equipment with wet hands.</p> <p>Electrical shock can result.</p>
<p> Make sure no rain or water splash leaks into the equipment.</p> <p>Fire or electrical shock can result if water leaks into the equipment.</p>
<p> Immediately turn off the power at the switchboard if water leaks into the equipment.</p> <p>Continued use of the equipment can cause fire or electrical shock.</p>

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
<p> Turn off the power at the switchboard before beginning the installation.</p> <p>Turn off the power to prevent electrical shock.</p>
<p> Make sure the installation site is not subject to water spray.</p> <p>Fire or electrical shock can result if water leaks into the equipment.</p>

 CAUTION						
<p> Observe the following compass safe distances to prevent interference to the instruments:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>Standard compass</th> <th>Steering compass</th> </tr> </thead> <tbody> <tr> <td>FI-50 series Instruments</td> <td>0.35 m</td> <td>0.30 m</td> </tr> </tbody> </table>		Standard compass	Steering compass	FI-50 series Instruments	0.35 m	0.30 m
	Standard compass	Steering compass				
FI-50 series Instruments	0.35 m	0.30 m				

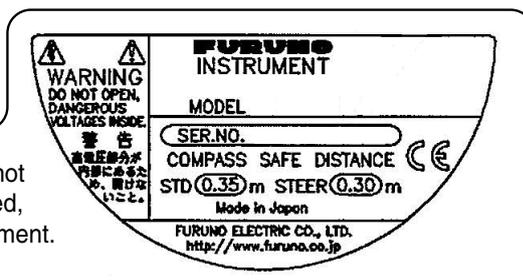


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FOREWORD

A Word to the Owner of the FI-503

Congratulations on your choice of the FURUNO FI-503 Digital Display, a member 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.

Since 1948, 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

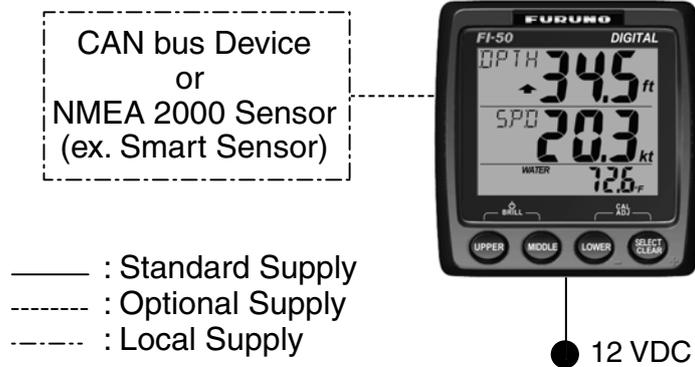
The FI-503 Digital Display provides depth, speed, trip and timer information, all on a high quality, backlit LCD. The sturdy weather-proof case is built to stand up to even the harshest of environments.

The main features are

- Three displays in one
- Three levels of backlighting.
- Timers: Stopwatch and count-down
- Depth alarms: Shallow alarm, Deep alarm.
- Anchor alarms: Shallow alarm, Deep alarm
- 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.
- Velocity Made Good (VMG).
- Log indication from 0 to 99,999 nm
- Resettable trip counter, from 0 to 999 nm

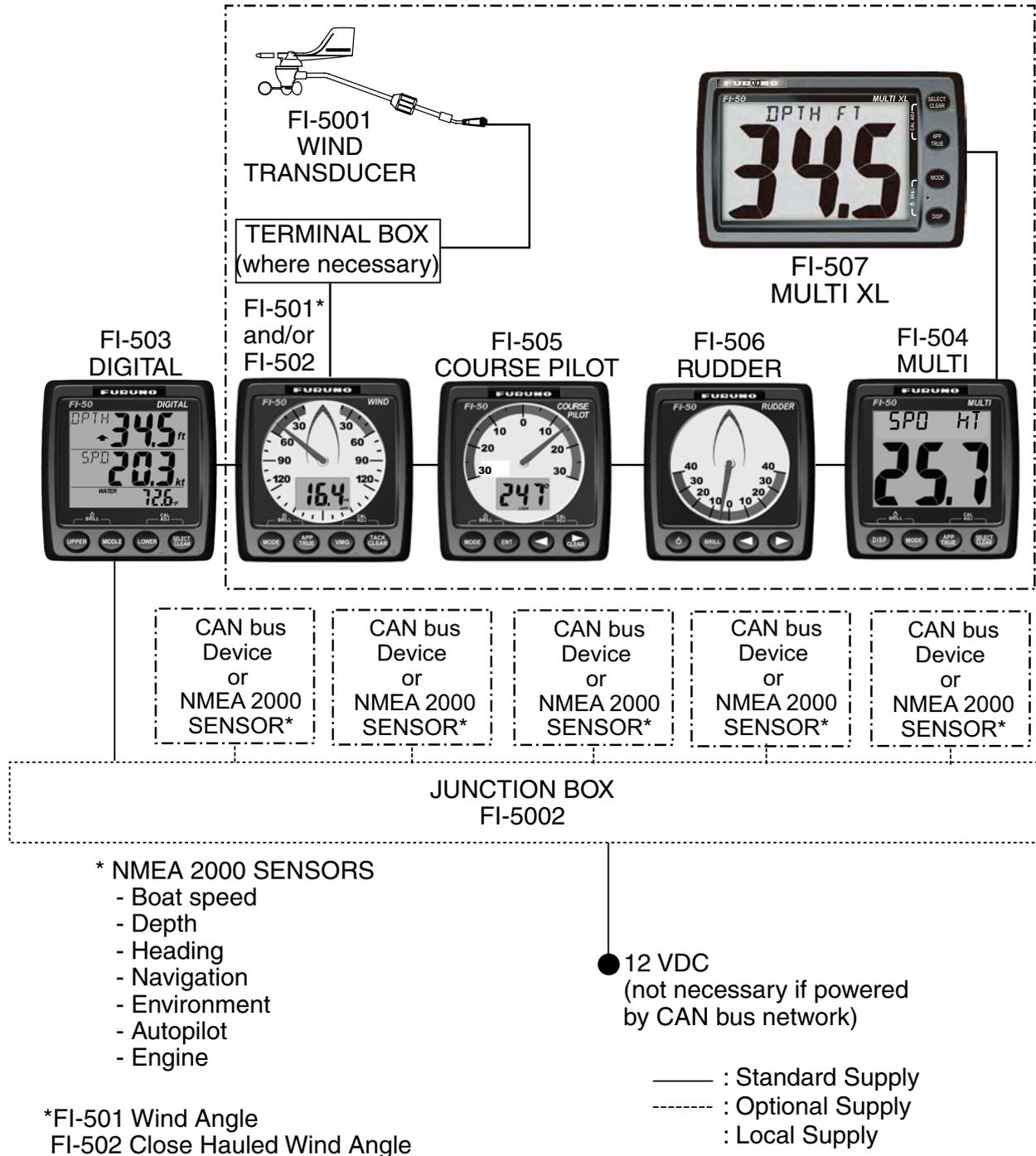
SYSTEM CONFIGURATION

Standalone configuration



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



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

1. OPERATION

The FI-503 Digital instrument provide depth, wind, boat speed and environmental information, on three separate displays. Various navigation alarms and distance counters are also provided.

1.1 Operating Controls, Display Layout



UPPER display
(Depth and wind angle information and associated alarms)

MIDDLE display
(Boat speed and wind speed information and associated alarms)

LOWER display
(Environmental information, timer alarms, distance counters)

SELECT/CLEAR

- Select menu option.
- Select apparent or true wind.
- Silence alarm.
- Clear data.
- Reset counters and indications.
- Increment value.

LOWER

- Select data for lower display.
- Decrement value.

MIDDLE

- Select data for middle display.

UPPER

- Turn on power.
- Select data for upper display.

1.2 Turning the Power On/Off

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

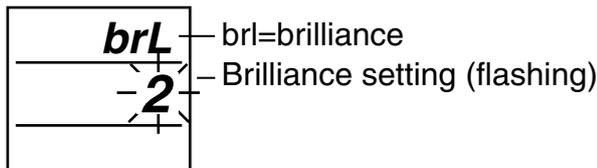
To power off the instrument, press the **UPPER** and **MIDDLE** keys together. The timer appears and counts down from three seconds to one second, and then the power goes off.



Power OFF sequence

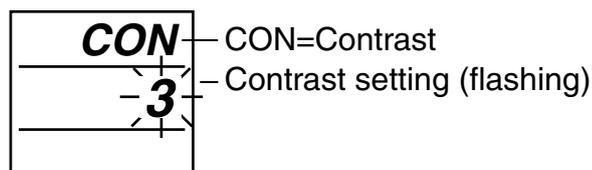
1.3 Adjusting Brilliance and Contrast

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



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

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



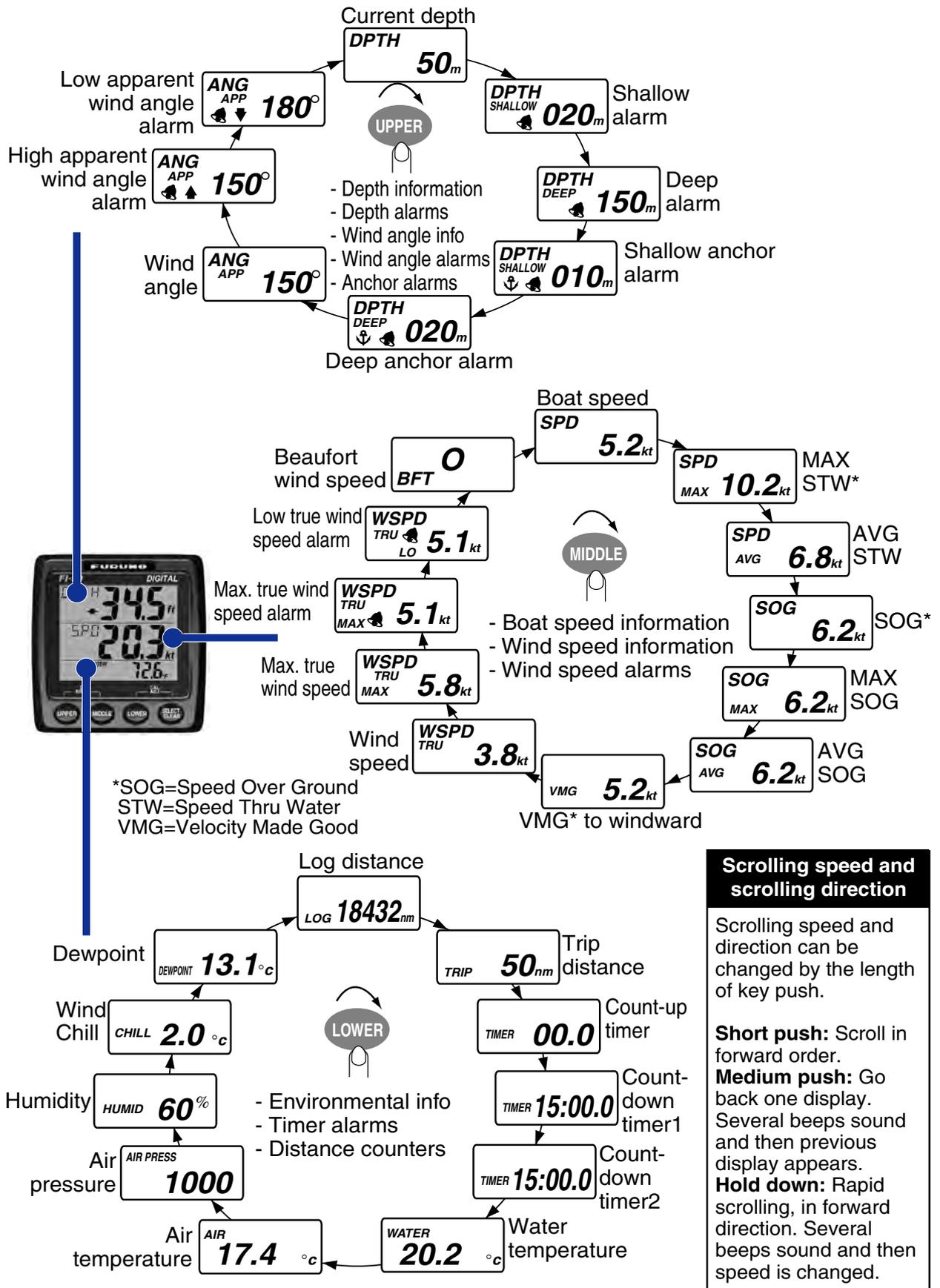
4. Within seven seconds of completing step 3, press the **LOWER** key to lower the contrast, or the **SELECT/CLEAR** key to raise it.

5. Press the **UPPER** and **MIDDLE** 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 instruments, see page 24.)

1.4 Selecting a Display

Use the **UPPER**, **MIDDLE** and **LOWER** keys to select the item to display in the upper, middle and lower displays.

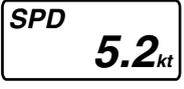
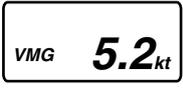
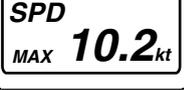
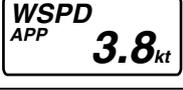
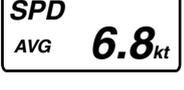
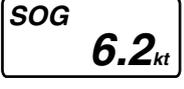


1. OPERATION

Upper display

Display	Function	Display	Function
	Current depth, in meters, feet or fathoms.		Set deep anchor alarm. The alarms are released when depth goes higher than threshold value.
	Set shallow alarm. The alarms are released when depth goes lower than threshold value.		Apparent (or true) wind angle, in degrees.
	Set deep alarm. Alarms released when depth goes higher than threshold value.		Set high apparent wind angle alarm. The alarms are released when wind angle goes higher than threshold value.
	Set shallow anchor alarm. The alarms are released when depth goes lower than threshold value.		Set low apparent wind angle alarm. The alarms are released when wind angle goes lower than threshold value.

Middle display

Display	Function	Display	Function
	Boat speed, in kt or m/s.		Velocity made good.
	Maximum boat speed. Resettable with the SELECT/CLEAR key.		Apparent (or true) wind speed.
	Average boat speed. Resettable with the SELECT/CLEAR key.		Maximum true wind speed. Resettable with the SELECT/CLEAR key.
	Speed over ground.		Set maximum true wind speed alarm. The alarms are released when true wind speed is higher than threshold value.
	Maximum speed over ground. Resettable with the SELECT/CLEAR key.		Set low true wind speed alarm. The alarms are released when true wind speed is lower than threshold value.
	Average speed over ground. Resettable with the SELECT/CLEAR key.		Beaufort wind speed. Beaufort speeds up to 12 are shown. See the table at the top of the next page for Beaufort no. and wind speed.

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			

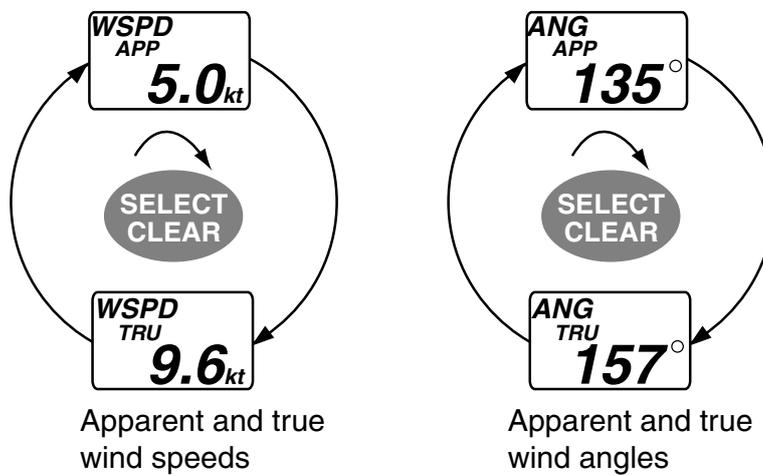
Lower display

Display	Function	Display	Function
	Log distance, up to 99,999 nm.		Air temperature, in °C or °F.
	Trip distance, up to 999 nm. Resettable with the SELECT/CLEAR key.		Air pressure, in hectopascals.
	Count-up timer. Counts up, like a stopwatch.		Relative humidity, in percentage.
	Count-down timer 1. Counts elapsed time.		Wind chill temperature, in °C or °F.
	Count-down timer 2. Counts elapsed time, from 99:59.0		Dewpoint.
	Water temperature, in °C or °F.		

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, long-push the **SELECT/CLEAR** 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.



1.6 Alarms

There are eight conditions which trigger audio and visual alarms: Shallow alarm, Deep alarm, Shallow anchor alarm, Deep anchor alarm, High apparent wind angle, Low apparent wind angle, Maximum true wind speed alarm, and Low true wind speed alarm.

1. Press the **UPPER** or **MIDDLE** key to select desired alarm page. Use the **UPPER** key to select depth or wind angle alarm, or use the **MIDDLE** key to select a wind speed alarm.

Key	Available alarms		
UPPER	 Shallow alarm	 Deep alarm	 Shallow anchor alarm
	 Deep anchor alarm	 High apparent wind angle	 Low apparent wind angle
MIDDLE	 Max. true wind speed alarm	 Low true wind speed alarm	

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.	0-999 kt
Low true wind speed alarm	true wind speed is greater than this threshold.	0.-998 kt
High apparent wind angle alarm	apparent wind angle is greater than this threshold.	S 0°-180° (S=Starboard)
Low apparent wind angle alarm	apparent wind angle is lower than this threshold.	P 1°-179° (P=Port)

1. OPERATION

2. If the selected alarm page shows “Off,” press and hold down the **SELECT/CLEAR** key until an alarm setting appears.
3. Press the **LOWER** and **SELECT/CLEAR** keys together to enable adjustment. The alarm setting starts flashing.
4. Press the **LOWER** 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 **LOWER** 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 **UPPER** and **SELECT/CLEAR** keys together.

1.7 Timers

Three timers are provided on the lower display:

- 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 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. These 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 **LOWER** key to show the desired timer display.



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 **LOWER** and **SELECT/CLEAR** keys together to enable adjustment. Use the **LOWER** key to lower the value; **SELECT/CLEAR** key to raise it. Press the **LOWER** 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. (For how to synchronize units, see page 24.)

1.8 Resetting Counters and Indications

You can reset the following counters and indications:

- Trip
- Average speed
- Maximum speed
- Average speed over ground
- Maximum speed over ground
- Maximum true wind speed

To reset a counter or indication, first select applicable display. 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 resetting is completed.

The corresponding counter or indication is reset on all synchronized units. (For how to synchronize units, see page 24.)

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 of rust and corrosion.	Reconnect if necessary. Replace if damaged.
Cabinet	Dust on cabinet	Remove dust with a soft, lint-free cloth. <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p style="text-align: center;">NOTICE</p> <p>Do not apply paint, anti-corrosive sealant or contact spray to coating or plastic parts of the equipment.</p> <p>Those items contain organic solvents that can damage coating and plastic parts, especially plastic connectors.</p> </div>

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.	<ul style="list-style-type: none"> • Power supply • Cabling disconnected or damaged. 	<ul style="list-style-type: none"> • Check power supply. • Check cabling.
Power is on but no or some data.	<ul style="list-style-type: none"> • Sensor is turned off. • Cable from sensor is disconnected or damaged. 	<ul style="list-style-type: none"> • Turn on sensor. • Check cabling.
Inaccurate data	<ul style="list-style-type: none"> • Electromagnetic field generating equipment is in operation. • Cabling from sensor is damaged. • Sensor is improperly aligned (where applicable). 	<ul style="list-style-type: none"> • 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. • Check cabling. • Check installation. If sensor is properly aligned, you can apply offsets to certain data to correct them. For further details, see the installation chapter.

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

Name	Type	Code No.	Qty	Remarks
Display Unit	FI-503	-	1	
Installation Materials	CP26-00600	000-011-744	1 set	See packing list at end of manual for details.

Optional supply

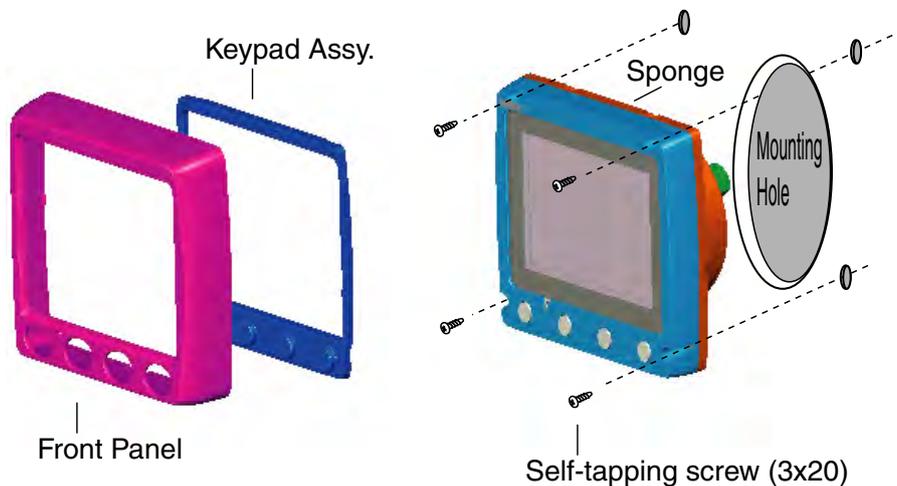
Name	Type	Code No.	Qty	Remarks
Cable Assy.	FI-50-DROP-6M	001-105-810-10	1	
	FI-50-CHAIN-0.3M	001-105-820-10	1	
	FI-50-CHAIN-5M	001-105-840-10	1	
	FI-50-CHAIN-1M	000-166-950-11	1	
	FI-50-CHAIN-10M	001-105-850-10	1	
	FI-50-CHAIN-20M	001-105-860-10	1	
Flush Mount Kit	FI-50-FLUSH-KIT	000-010-619	1 set	
Junction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

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.

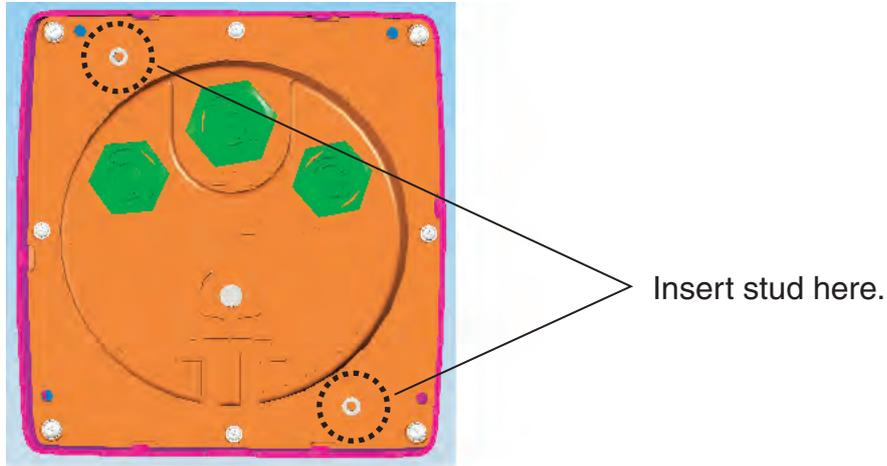
Surface mount 1: Fix instrument from front panel

1. Using the 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 (3x20, supplied).
4. Attach the front panel and keypad assy. to the display unit.

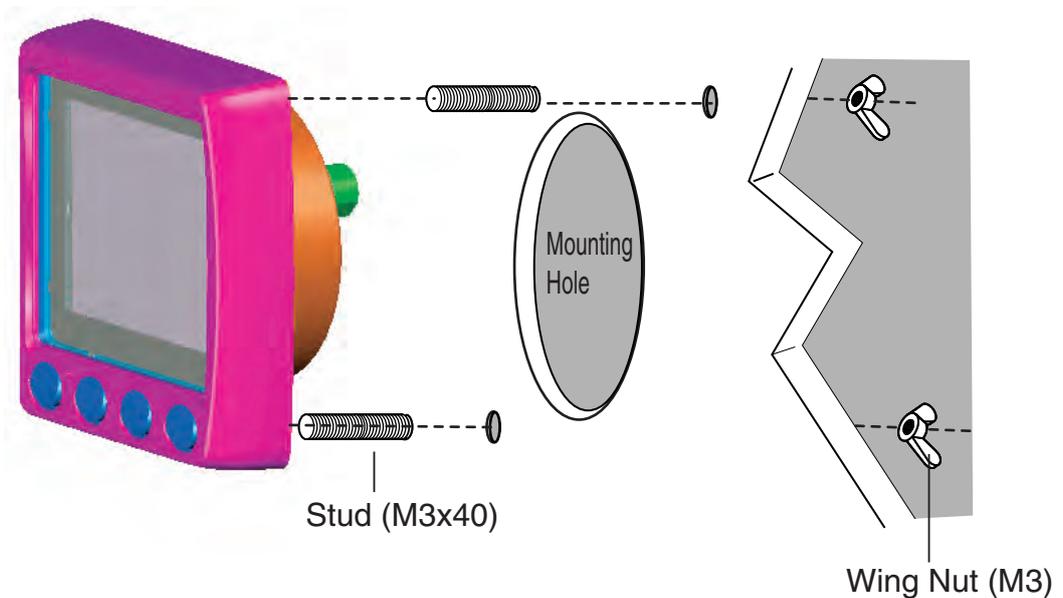


Surface mount 2: Fix instrument from rear panel

1. Using the template at the back of this manual, open a mounting hole in the installation site.
2. Insert studs (M3x40, 2 pcs., supplied) in the holes shown below. (Use only the studs supplied.)



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



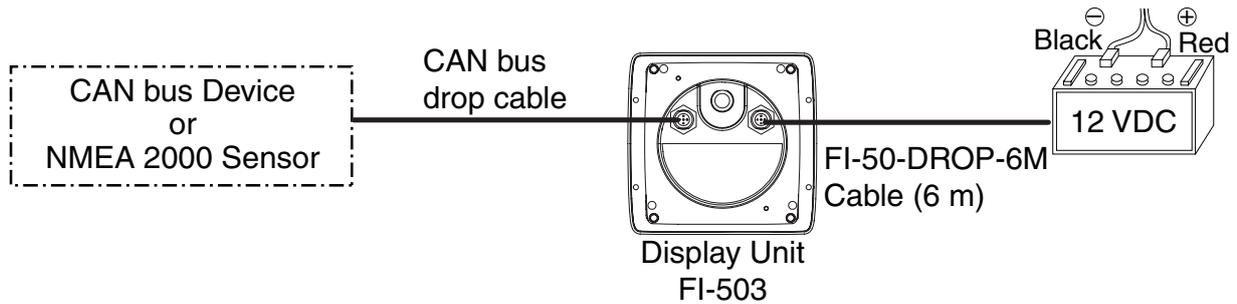
3. INSTALLATION

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-*).

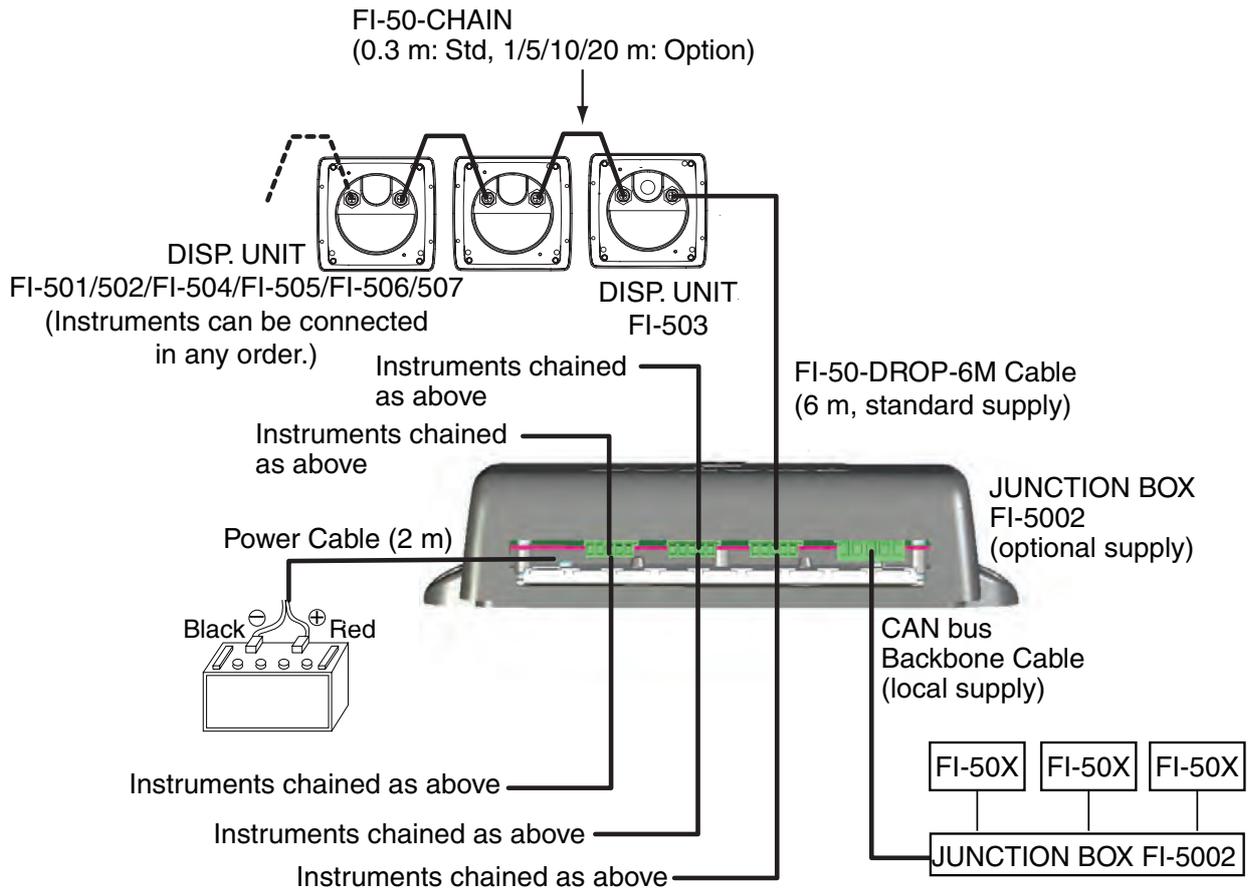
3.3.1 Standalone configuration

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



NOTICE: Turn on the terminal resistor in the instrument. For the procedure, see the section on setting up in this chapter.

3.3.2 Multi-instrument configuration

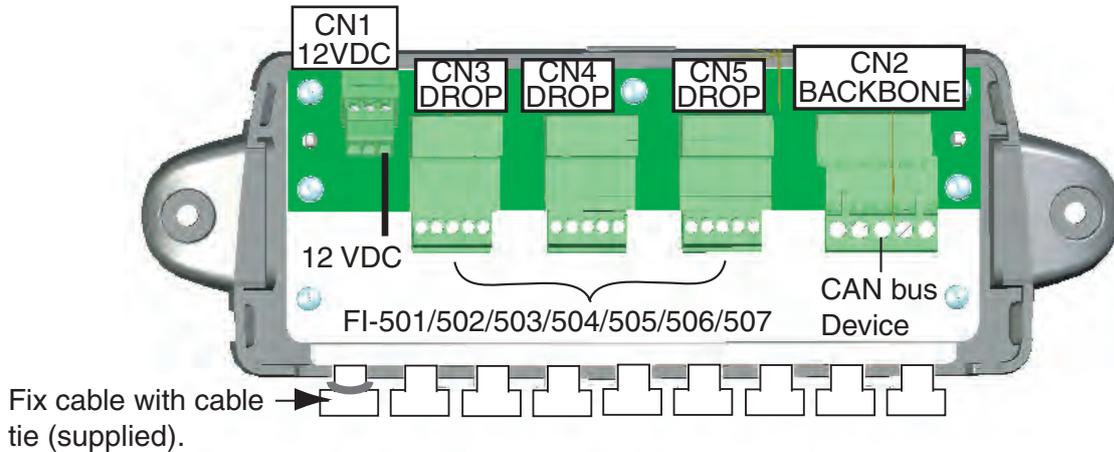


NOTE: The total length of drop cables and backbone cables must be within 80 m.

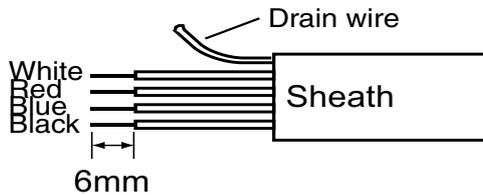
3. INSTALLATION

Junction box (option)

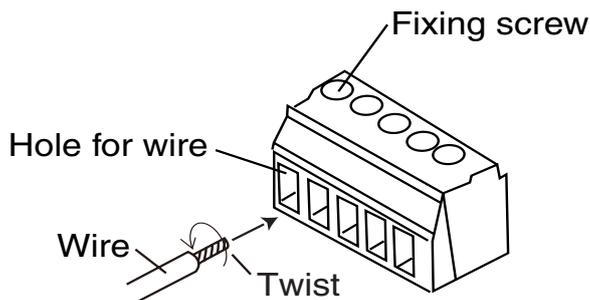
The junction box is required when connecting CAN bus network. This section covers wiring of the junction box. For how to mount the junction box, see its installation instructions, issued separately.



CN3 DROP - CN5 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

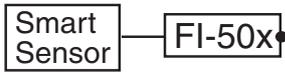


How to insert wire

Terminal resistor

The illustration below show various system configurations and what units to activate the terminal resistor.

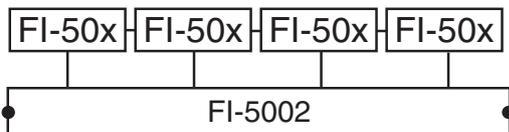
Smart sensor+FI-50x



Multiple FI-50 series instruments, FI-5002, drop cabling



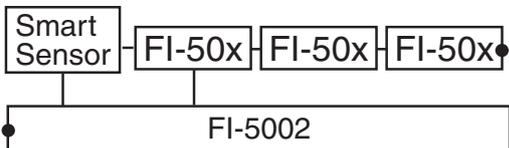
Multiple FI-50 series instruments, FI-5002



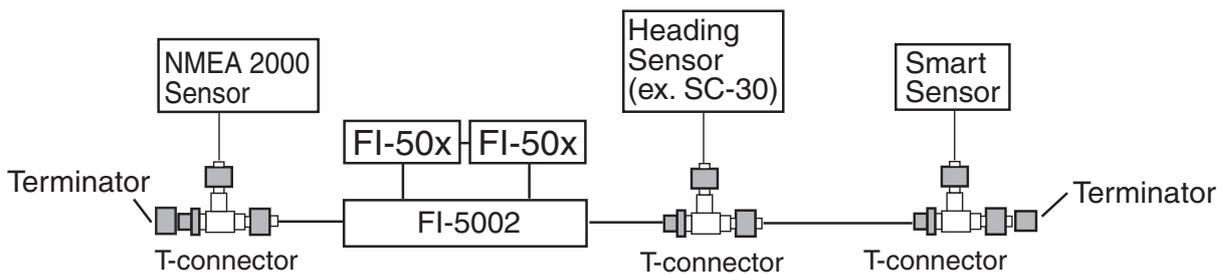
Multiple FI-50 series instruments, multiple FI-5002



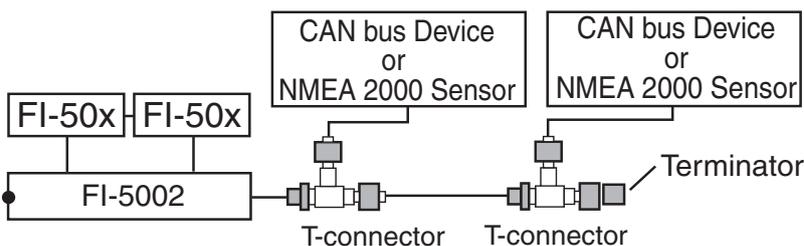
Multiple FI-50 series instruments, FI-5002, smart sensor



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



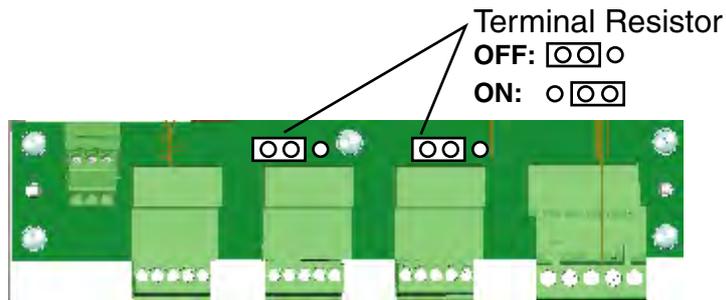
Multiple FI-50 series instruments, FI-5002, NMEA 2000, CAN bus sensors



• = Terminal resistor ON

3. INSTALLATION

Turn on the terminal resistor in the junction box when the NMEA 2000 sensor(s) connected to it do not have a terminal resistor.



For how to turn on the terminal resistor in a FI-50 series instrument, see page 24.

3.4 Setting Up

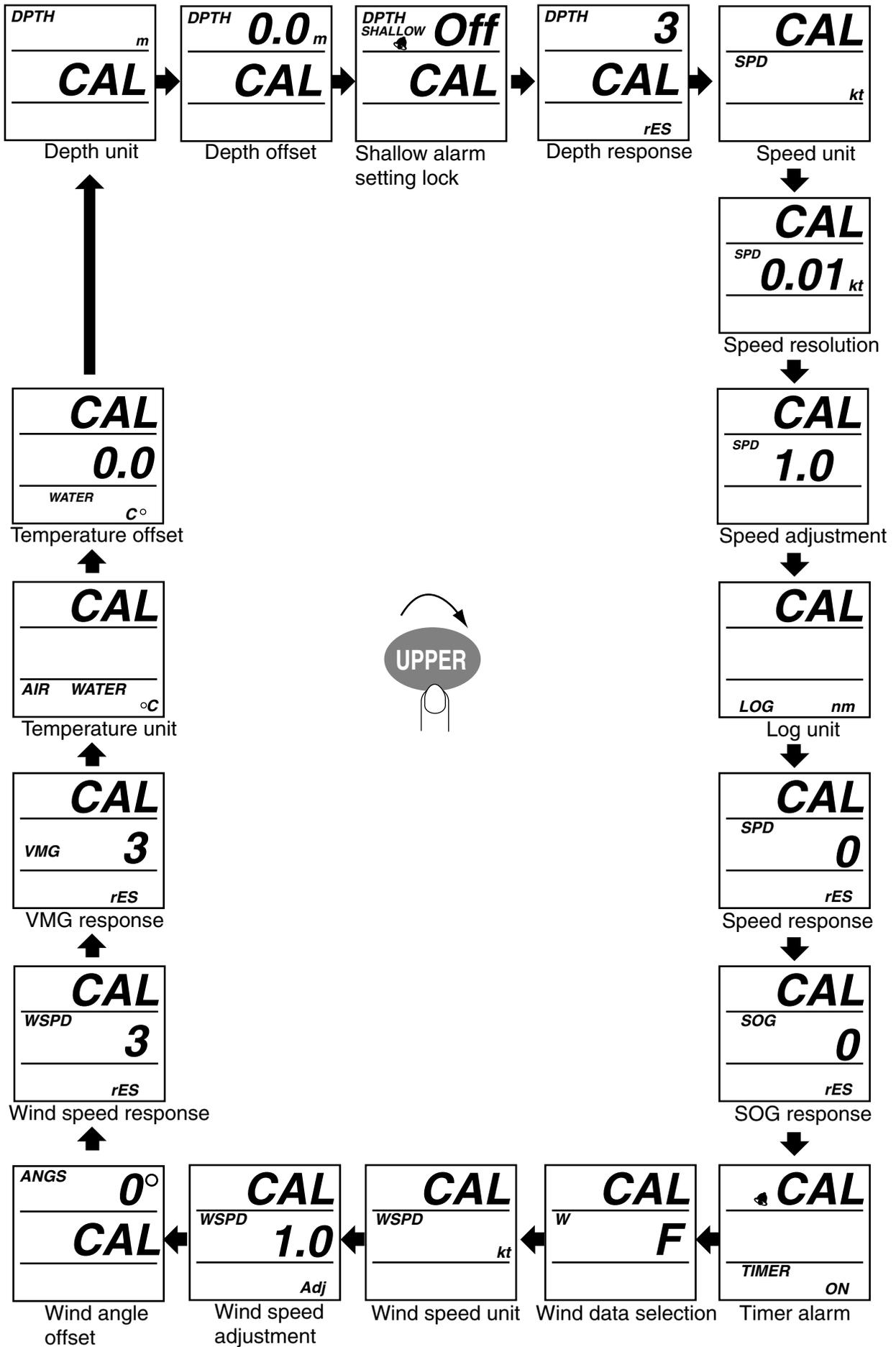
Your instrument is pre-programmed with factory default settings, which may or may not be suited to your vessel. Therefore, it is necessary to initialize the instrument for use with your vessel. This should be done immediately after completion of the installation.

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

3.4.1 Setup1 menu

The setup1 menu optimizes the instrument for use on your vessel. Follow the procedure below to access and set parameters.

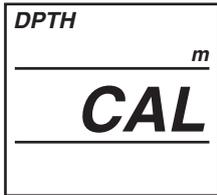
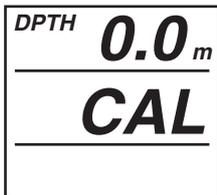
1. Press the **LOWER** and **SELECT/CLEAR** keys momentarily to enable the setup1 menu. The Depth units screen appears, with current setting flashing.
2. Use the **UPPER** key to select a menu item. Each press of the key changes the menu item in the sequence shown at the top of the next page.



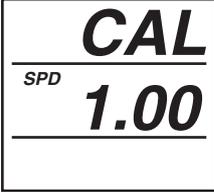
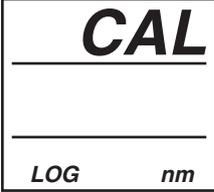
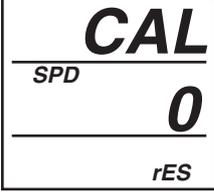
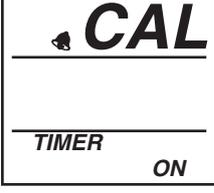
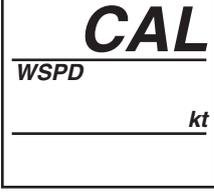
3. INSTALLATION

3. Use the **LOWER** and **SELECT/CLEAR** key to set value or select option.
LOWER key: Decrement value.
SELECT/CLEAR key: Increment value or select option.
4. To continue, press the **UPPER** key to select another menu item.
5. To save settings and restore normal operation, press the **LOWER** and **SELECT/CLEAR** keys together.

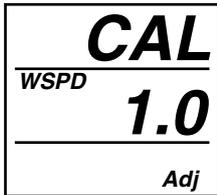
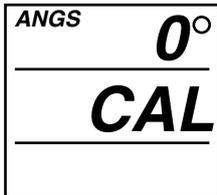
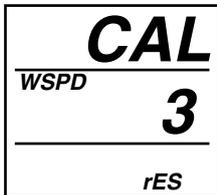
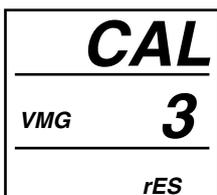
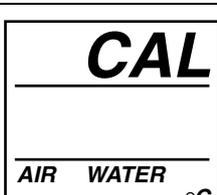
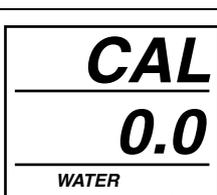
Setup1 menu items

Display	Function	Setting range or options	Default setting
	Select depth unit.	m (meter), ft (feet)	m
	Set depth offset.	-99 - +99 (m or ft)	0.0
	Luck/unlock shallow alarm setting.	On, OFF	OFF
	Set response to depth change. The lower the setting the faster the response.	0 - 12	3
	Select speed unit.	kt (knot), mph (mile per hour), kmh (kilometer per hour)	kt
	Select speed resolution. Select number of places to show after decimal point.	0.01, 0.1	0.01

Setup1 menu items

Display	Function	Setting range or options	Default setting
	Set speed adjustment. (STW only)	0.30 - 2.50	1.00
	Select log unit.	sm (statute mile), km (kilometer), nm (nautical mile)	nm
	Set response to speed change. The lower the setting the faster the response.	0 - 12	0
	Set response to SOG change. The lower the setting the faster the response.	0 - 12	0
	Enable/disable the timer alarm's audio alarm.	On, OFF	OFF
	Select source of wind data. Select "r" for second unit.	F: FI-5001, r: repeater	F
	Select wind speed unit.	kt, m/s (No unit indica- tion shown on dis- play)	kt

Setup1 menu items

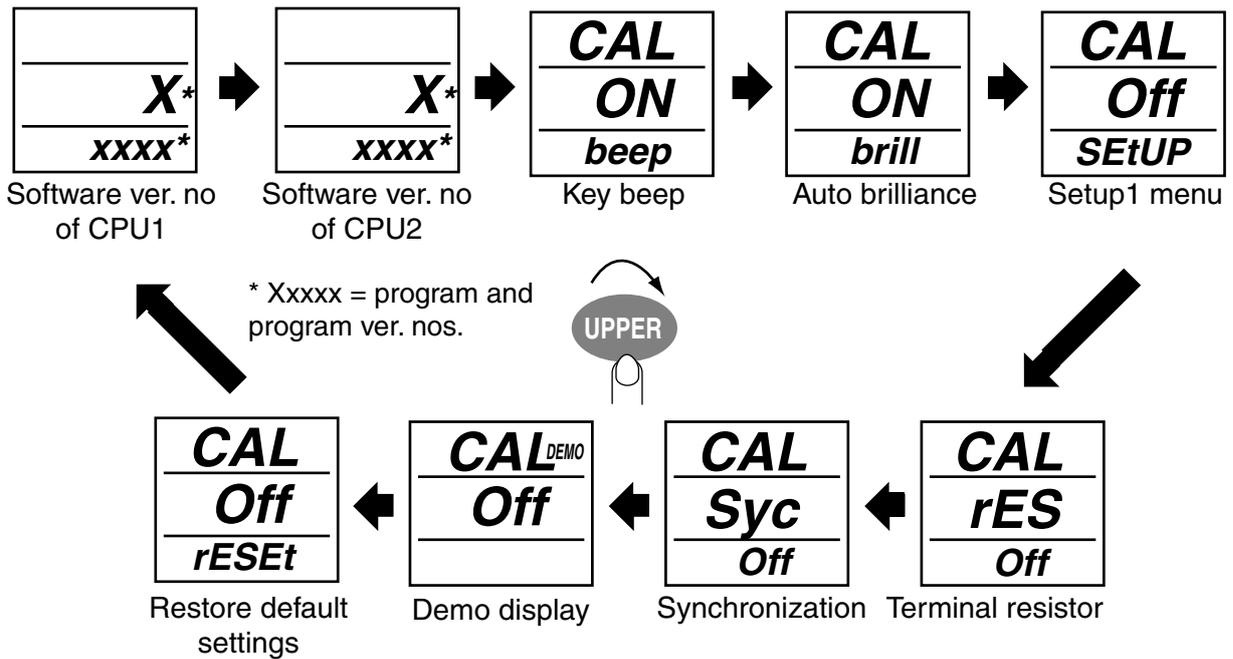
Display	Function	Setting range or options	Default setting
	Set wind speed adjustment.	0.3 - 2.5	1.0
	Set wind angle offset.	S 0° - 180° P 1° - 179°	0
	Set wind speed response. The lower the setting the faster the response.	0 - 12	3
	Set VMG response.	0 - 12	3
	Select temperature unit.	°C, °F	°C
	Set temperature offset.	-99° - +99°	0.0

3.4.2 Setup2 menu

The setup2 menu contains items which once preset do not require frequent adjustment. These are

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

2. Use the **UPPER** key to select a menu item. Each press of the key changes the menu item in the sequence shown below.



3. Use the **SELECT/CLEAR** key to select ON or OFF as applicable.
4. To continue, press the **UPPER** key to select another item.
5. To save settings and restore normal operation, press the **LOWER** and **SELECT/CLEAR** keys together.

Setup2 menu items

Display	Function	Options	Default setting
	Software version of CPU1. X=program and xxxx=program version no.	For display only.	
	Software version of CPU2. X=program and xxxx=program version no.		
	Key beep on/off.	ON, OFF	ON

Setup2 menu items

Display	Function	Options	Default setting
CAL ON <i>brILL</i>	Adjust brilliance automatically with environment.	ON, OFF	ON
CAL ON <i>SETUP</i>	Enable/disable access to the setup1 menu.	ON, OFF	ON
CAL <i>rES</i> OFF	Terminal resistor on/off.	ON, OFF	OFF
CAL Syc ON	Turn on/off synchronization of FI-50 series instruments.	ON: Synchronize all FI-50 instruments having this setting. A: Synchronize FI-50 instruments having this setting. b: Synchronize FI-50 instruments having this setting. OFF: Turn off synchronization.	ON
CAL ^{DEMO} OFF	Demo mode. To enable, press the SELECT/CLEAR key. Depth, speed and water temperature are shown. To disable and return to this menu, press and hold down the SELECT/CLEAR key.	ON, OFF	OFF
CAL OFF <i>rESET</i>	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-503 DIGITAL

1 GENERAL

- | | | |
|-----|-----------------|--|
| 1.1 | Display | Segment LCD |
| 1.2 | Display Content | Depth, speed, wind angle, wind speed, timer, environmental, nav data, rudder angle |
| 1.3 | I/O Port | CAN bus, 2 ports |

2 JUNCTION BOX (OPTION)

- | | | |
|-----|------------------|---------|
| 2.1 | No. of I/O ports | |
| | CAN bus Device | 6 ports |
| | CAN bus Backbone | 2 ports |

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 $\pm 10\%$ (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 |

PACKING LIST FI-503

26AA-X-9859-4

1/1

NAME	UNIT	OUTLINE	DESCRIPTION/CODE No.	Q'TY
表示部	MONITOR UNIT		FI-503 000-011-743-00	1
CP26-00600				
工事材料 INSTALLATION MATERIALS				
+	ナハ`タツピ`ンネン 1ｼｼ		3X20 SUS304 000-163-884-10	4
	SELF-TAPPING SCREW			
	ケーブル組品		FI-50-DROP-6M 001-105-810-10	1
	CABLE ASSEMBLY			
	ケーブル組品0.3M		FI-50-CHAIN-0.3M 001-105-820-10	1
	CABLE ASSEMBLY 0.3M			
	サ-フエ-マ-ク-ン-ト-ス-ポ-ン-ジ		TZ7583002A0 000-167-832-10	1
	SPONGE			
	パ`ネ`リ`ム`ハ`-		19-028-3124-1 100-340-471-10	1
	PANEL REMOVER			
	バ`ネ`座`金		M3 SUS304 000-167-404-10	2
	SPRING WASHER			
	ミ`カ`キ`丸`平`座`金		M3 SUS304 000-167-453-10	2
	FLAT WASHER			

コード番号末尾の「**」は、選用品の代表コードを表します。
CODE NUMBER ENDING WITH "**" INDICATES THE CODE NUMBER OF REPRESENTATIVE MATERIAL.

NAME	UNIT	OUTLINE	DESCRIPTION/CODE No.	Q'TY
寸切ボルト	BOLT		M3X40 SUS304 000-167-804-10	2
蝶ナット	WING NUT		M3 SUS304 000-167-826-10	2
図書 DOCUMENT				
取扱説明書	OPERATOR'S MANUAL		OME-72680-* 000-167-329-1*	1
操作要領書	OPERATOR'S GUIDE		OS*-72680-* 000-167-294-1*	1
内部終端/設定	INTERNAL RESISTOR SETTING		C72-00705-* 000-168-501-1*	1

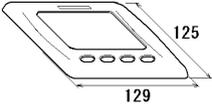
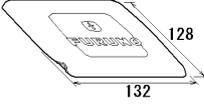
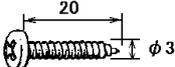
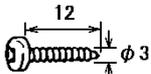
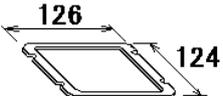
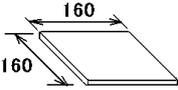
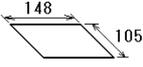
A-1

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.

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

C7268-Z01-D

FURUNO

		CODE NO.	000-010-619-00	26AA-X-9401 -4	
		TYPE	FI-50-FLUSH-KIT	1/1	
フラッシュマウントキット FLUSH MOUNT KIT.		INSTRUMENTS FI-50			
番号 NO.	名称 NAME	略図 OUTLINE	型名/規格 DESCRIPTIONS	数量 Q'TY	用途/備考 REMARKS
1	前面パネル FRONT PANEL		TZ7580002A0	1	※1
			CODE NO. 000-167-885-10		
2	FURUNOロゴ H3 FURUNO STICKER H3		19-028-1502-0	1	※1に貼付済み PRE-ATTACHED TO ※1.
			CODE NO. 100-339-580-10		
3	ハードカバー-F COVER		TZ7580007A0	1	
			CODE NO. 000-167-887-10		
4	フラッシュマウントツール FRAME		TZ7580008A0	1	
			CODE NO. 000-167-886-10		
5	+ナベタップネジ 1シ SELF-TAPPING SCREW		3X20 SUS304	4	
			CODE NO. 000-163-884-10		
6	+ナベPタイトネジ PAN HEAD P-TIGHT SCREW		3X12 SUS304	4	
			CODE NO. 000-167-827-10		
7	Fマウントスポンジ SPONGE		TZ7583001A0	1	
			CODE NO. 000-167-833-10		
8	取付要領書 INSTALLATION PROCEDURE		C72-00703-* 7/11	1	
			CODE NO. 000-167-323-1*		
9	ハードカバー-ハズシガイド HARD COVER DETACHMENT GUIDE		C72-00804-*	1	
			CODE NO. 000-170-074-1*		

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.

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

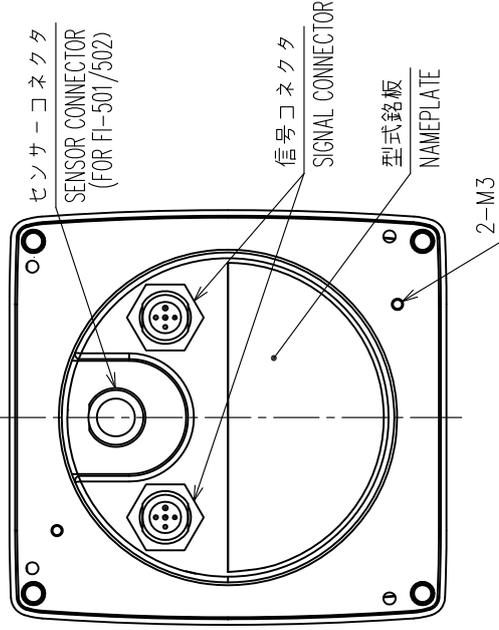
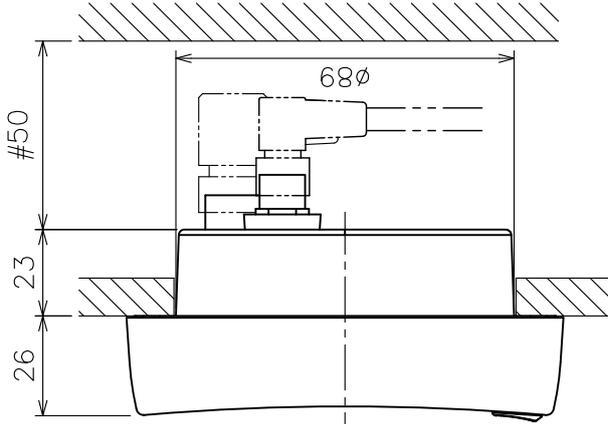
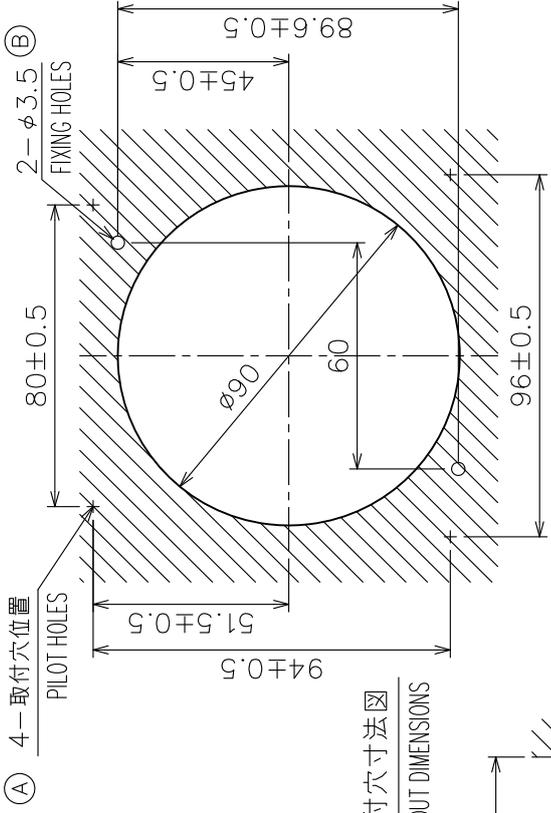
FURUNO ELECTRIC CO., LTD.

C7266-M01-C

表1 TABLE 1

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

取付穴寸法図
CUTOUT DIMENSIONS



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クリアランスとする。
- 3) 取付方法は次の2種類から選択する。
 ◎: M3×40寸切りボルト、M3平座金/バネ座金/バネナットを使用すること。
 ⊙: M3×40寸切りボルト、M3平座金/バネ座金/バネナットを使用すること。

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 $\phi 3 \times 20$.
 ⊙ : USE M3 STUD BOLT, P.W. / S.W. / WING NUT, SCREW LENGTH: 40.

DRAWN	30/Sep/09 I.YAMASAKI	TITLE	FI-501/502/503/504/505/506
CHECKED	30/Sep/09 I.TAKENO	名称	インストルメント (サーフェスマウント)
APPROVED	26/Oct/09 R. Esumi	外寸図	
SCALE	1/100 質量はケーブルを含みません。 MASS W/O CABLE.	NAME	INSTRUMENT (SURFACE MOUNT)
DWG.No.	C7266-G02-C	REF.No.	26-001-102G-2

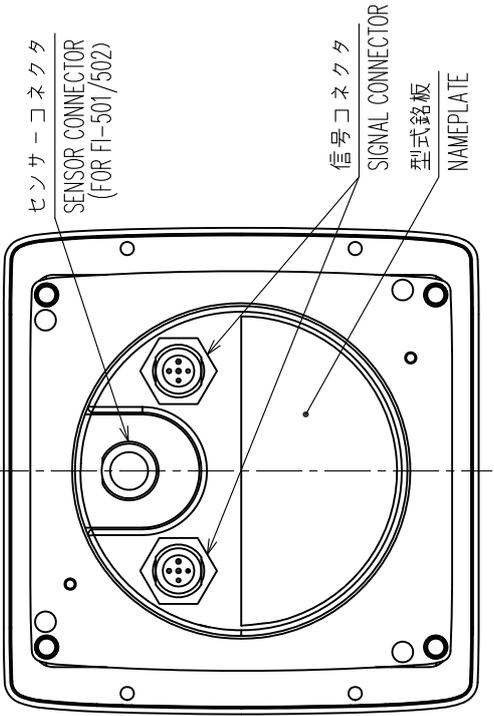
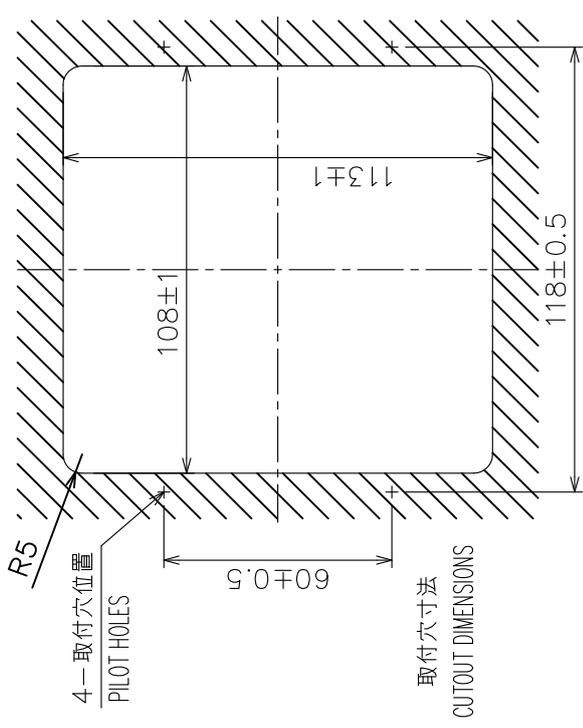
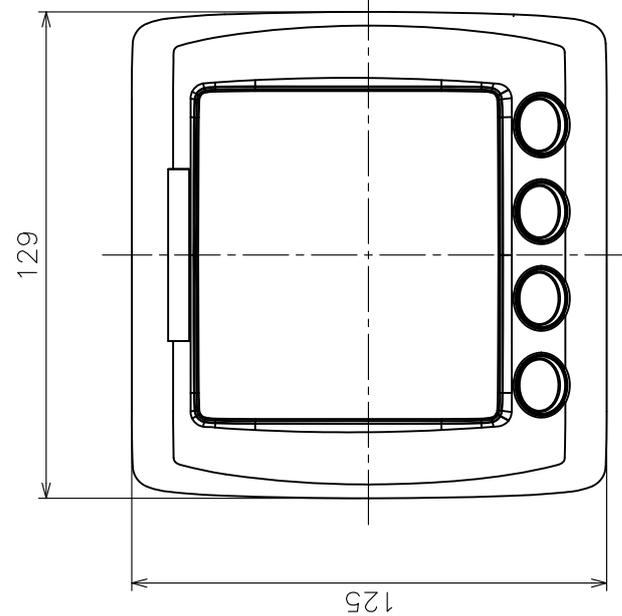
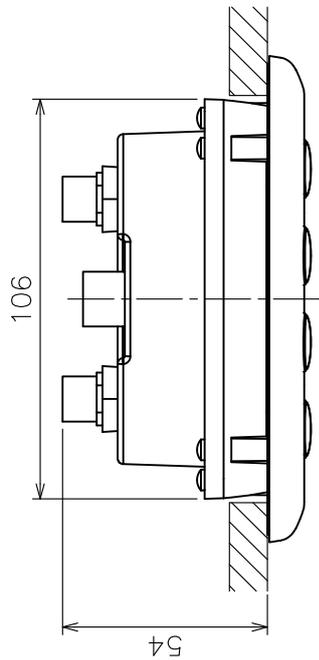
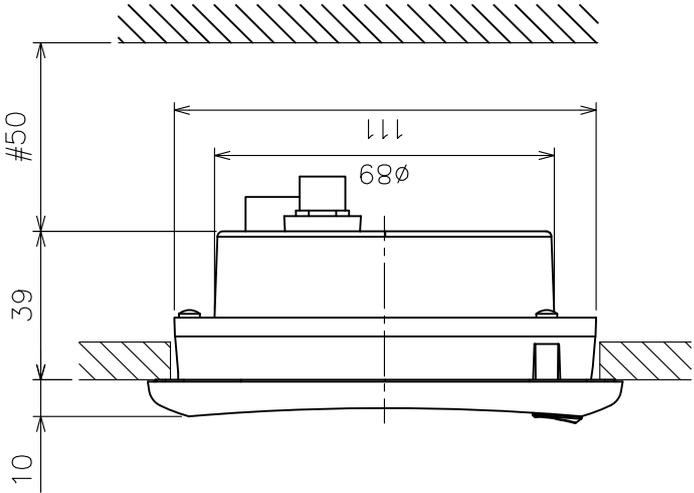


表1 TABLE 1

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



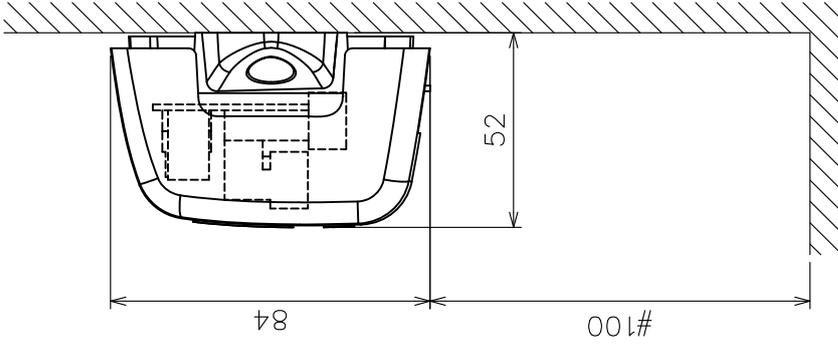
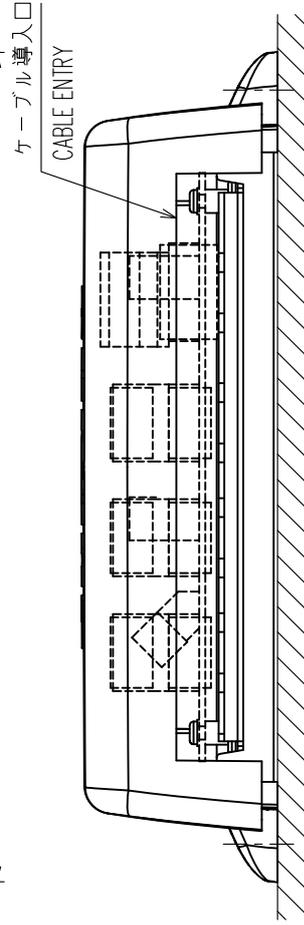
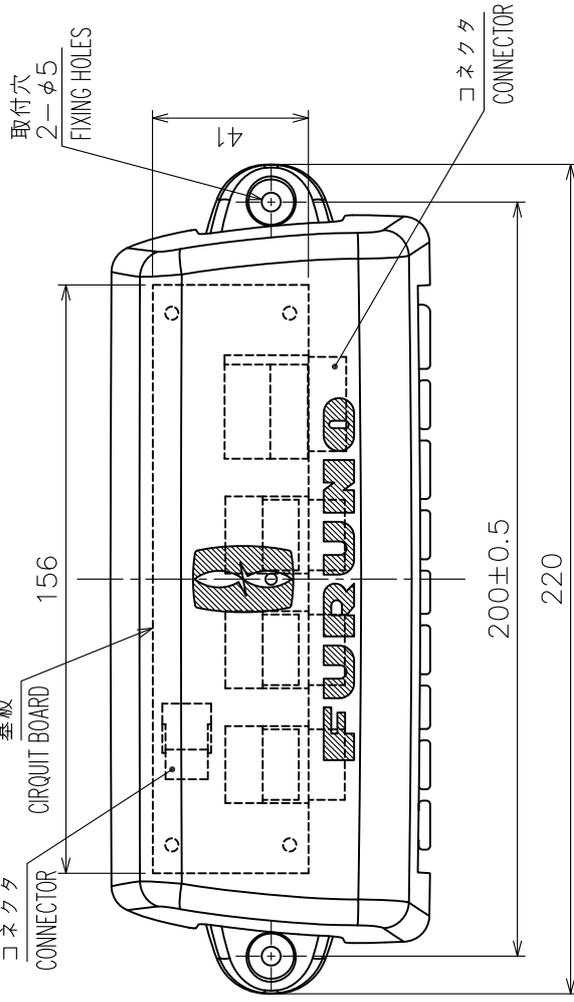
注 記

- 1) 指定外の寸法公差は表1による。
 - 2) 取付用ネジはナベタックピッチ呼び径3×20を使用のこと。
- NOTE
1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
 2. USE TAPPING SCREWS $\phi 3 \times 20$ FOR FIXING THE UNIT.

DRAWN	30/Sep/09 I.YAMASAKI	TITLE	FI-501/502/503/504/505/506
CHECKED	30/Sep/09 I.TAKENO	名称	インストルメント (フラッシュマウント)
APPROVED	26/Oct/09 R.Esumi	外寸図	
SCALE	MASS 0.3 kg	NAME	INSTRUMENT (FLUSH MOUNT)
DWG.No.	C7266-G01-B	REF.No.	26-001-101G-0

表1 TABLE 1

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



注記

- 1) #印寸法は最小サービスマン空間寸法とする。
- 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プピンネジ呼び径4×20を使用のこと。

NOTE

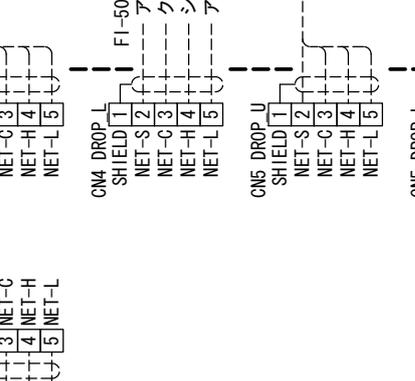
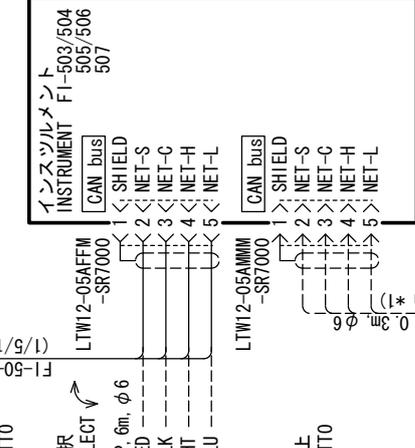
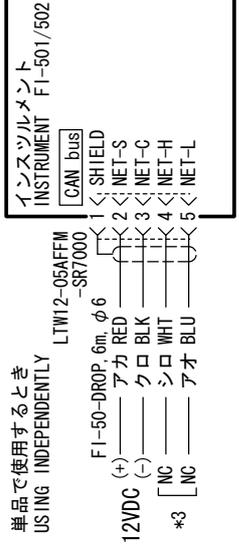
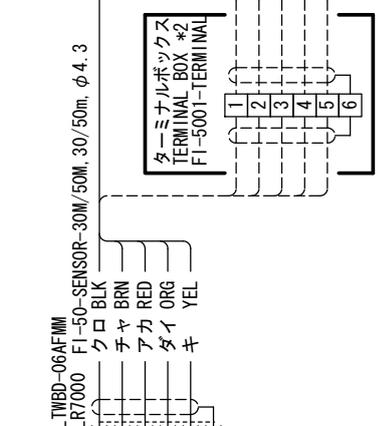
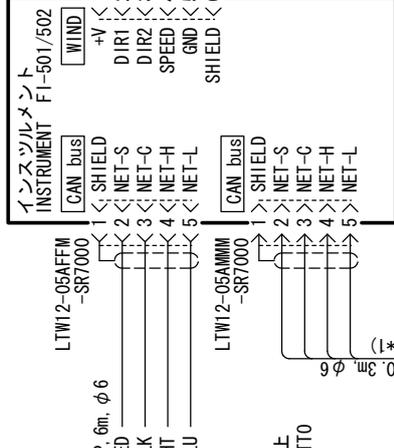
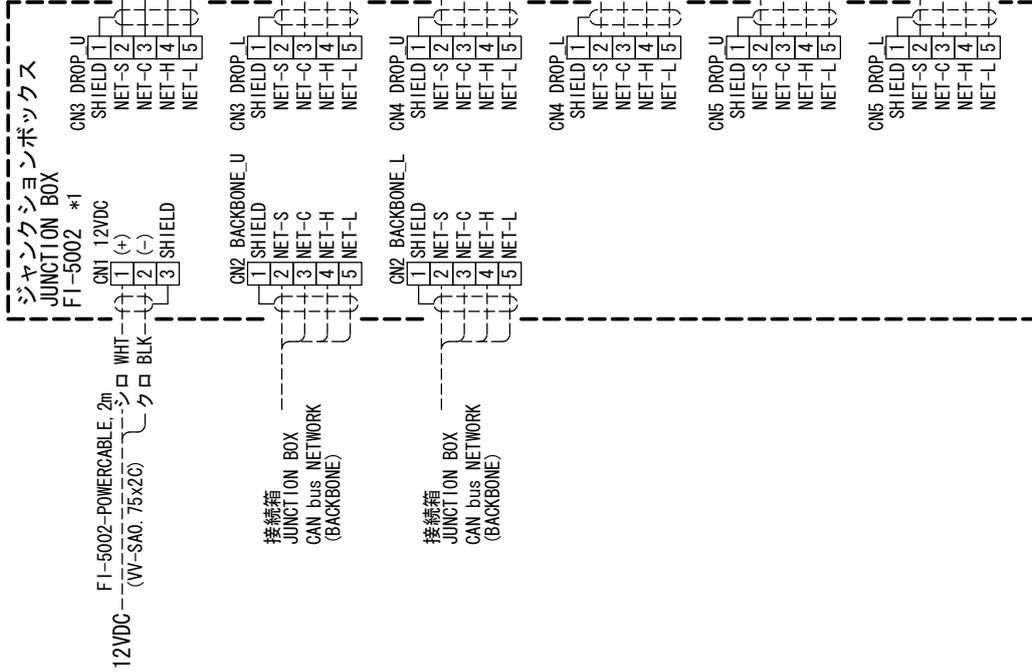
1. # MINIMUM SERVICE CLEARANCE.
2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
3. USE TAPPING SCREWS $\phi 4 \times 20$ FOR FIXING THE UNIT.

DRAWN	Jul. 19 '07	T. YAMASAKI	TITLE	FI-5002
CHECKED	Jul. 19 '07	I. TAKENO	名称	ジャンクションボックス
APPROVED	Jul. 24 '07	R. Esumi	外寸図	
SCALE		1/100	NAME	JUNCTION BOX
DWG.No.	C7268-G01-A	REF.No.	26-001-103G-0	OUTLINE DRAWING

2

3

4



インストゥルメント (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

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
CHECKED	28/Jan/10	T. TAKENO	名称	インストゥルメント
APPROVED	8/Mar/10	R. Esumi	相互結線図	
SCALE	MASS	kg	INSTRUMENT	
ENG. No.	C7266-G01-J	REF. No.	INTERCONNECTION DIAGRAM	

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 covers spare parts and labour costs associated with a warranty claim, provided that the product is returned to a FURUNO national distributor by prepaid carrier.

The FURUNO standard warranty includes:

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

The FURUNO onboard warranty includes

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

4. Warranty Registration

For the Standard Warranty - presentation of product with serial number (8 digits serial number, 1234-5678) 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 the 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 the product or replace it.

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.
- d. Magnetron and MIC with more than 1000 transmitting hours or older than 12 months, whichever comes first.
- e. Costs associated with the replacement of a transducer (e.g. Crane, docking or diver etc.).
- f. Sea trial, test and evaluation or other demonstrations.
- g. Products repaired or altered by anyone other than the FURUNO national distributor or an authorized dealer.
- h. Products on which the serial number is altered, defaced or removed.
- i. Problems resulting from an accident, negligence, misuse, improper installation, vandalism or water penetration.
- j. Damage resulting from a force majeure or other natural catastrophe or calamity.
- k. Damage from shipping or transit.
- l. Software updates, except when deemed necessary and warrantable by FURUNO.
- m. Overtime, extra labour outside of normal hours such as weekend/holiday, and travel costs above the 160 KM allowance
- n. 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 date of original equipment installation.

Furuno U.S.A., 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". In order 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 98607-9408
Telephone: (360) 834-9300
FAX: (360) 834-9400

Furuno U.S.A., Inc. is proud to supply you with the highest quality in Marine Electronics. We know you had several choices when making your selection of equipment, and from everyone at Furuno we thank you. Furuno takes great pride in customer service.

