FURUNO

OPERATOR'S MANUAL

BRIDGE NAVIGATIONAL WATCH ALARM SYSTEM (BNWAS)

MODEL **BR-500**

FURUNO ELECTRIC CO., LTD.

E C F
(Elemental Chlorine Free)

The paper used in this manual
is elemental chlorine free.

FURUNO ELECTRIC CO., LTD.

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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.
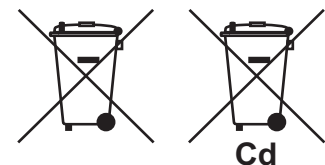
In the USA

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.
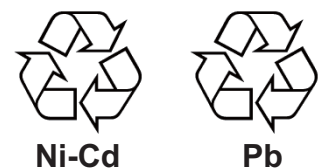
In the other countries

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

Read these safety instructions before you operate or install the equipment.

⚠ **WARNING**	Indicates a condition that can cause death or serious injury if not avoided.
⚠ CAUTION	Indicates a condition that can cause minor or moderate injury if not avoided.

⚠ Warning, Caution	🚫 Prohibitive Action	❗ Mandatory Action

⚠ WARNING

Do not open the equipment.

This equipment uses high voltage that can cause electrical shock.
Only qualified persons can work inside the equipment.

Turn off power at switchboard if the something is dropped inside the equipment.

Fire or electrical shock can result if the power remains on.

Turn off power at switchboard if the equipment is emitting smoke or fire.

Fire or electrical shock can result if the power remains on.

⚠ CAUTION

Do not disassemble or modify the equipment.

Fire, electrical shock or bodily injury can result.

Do not operate the equipment with wet hands.

Fire or electrical shock can result.

Keep the equipment away from rain, water and water splash.

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

Use the correct fuse.

Use of a wrong fuse can cause bodily injury or fire.

Warning Label

A warning label is attached to the processor unit.
Do not remove the label. If the label is missing
or damaged, see your dealer about replacement.

⚠ WARNING ⚠
To avoid electrical shock, do not remove cover. No user-serviceable parts inside.
⚠ 警 告 ⚠
感電の恐れあり。サービスマン以外の方はカバーを開けないで下さい。内部には高電圧部分が数多くあり、万一さわると危険です。

Name: Warning Label (1)
Type: 86-003-1011-3
Code No.: 100-236-233-10

⚠ WARNING

Do not open the equipment unless authorized.

This equipment uses high voltage which can cause electrical shock if mishandled.

Turn off power at switchboard before starting the installation.

Fire or electrical shock can result if the power is on.

Be sure to connect to the correct power supply.

Connection to a wrong power supply can cause fire or bodily injury.

Do not disassemble or modify the equipment.

Fire, electrical shock or bodily injury can result.

⚠ CAUTION

Securely ground (protection earth) the equipment.

Ineffective ground can cause electrical shock.

Follow the compass safe distances shown in the table below to prevent interference to a magnetic compass.

Unit	Standard compass	Steering compass
BR-510	0.60 m	0.40 m
BR-520	2.70 m	1.75 m
BR-530	0.35 m	0.30 m
BR-540	0.60 m	0.40 m
BR-550	0.70 m	0.45 m
BR-560	0.55 m	0.35 m
BR-570	0.45 m	0.30 m

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FOREWORD

A Word to the Owner of the BR-500

Congratulations on your choice of the FURUNO BR-500 Bridge Navigational Watch Alarm System (BNWAS). 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 innovative and dependable marine electronics equipment. This dedication to excellence is furthered by our extensive global network of agents and dealers.

Your equipment is designed and constructed to meet the rigorous demands of the marine environment. However, no machine can perform its intended function unless properly operated and maintained. Please carefully read and follow the operation and maintenance procedures set forth in this manual.

Thank you for considering and purchasing FURUNO.

We would appreciate feedback from you, the end-user, about whether we are achieving our purposes.

Features

The BR-500 monitors the Officer of the Watch's (OOW) presence on the bridge to prevent maritime casualties. The system sends an alarm to the quarters of the backup officer if the OOW fails to respond to the active alarm or emergency call.

- Complies with IMO MSC.128(75).
- Watches for unattended bridge and operator disability.
- Transmits alarm to backup officer if the OOW fails to respond to active alarm or emergency call.
- Motion Detector (option) detects motion on the bridge to confirm operator fitness.
- Flash Beacon (option) flashes to remind OOW to confirm presence (by operating equipment in the system).

Software history

Main Alarm Panel Program	Processor Unit Program

BOOT: 2450054-01.xx
  Initial version 09/2010 APPLICATION: 2450056-01.xx
	BOOT: 2450058-01.xx
	  Initial version 09/2010 APPLICATION: 2450060-01.xx
	CPLD: 2450065-01.xx

xx: minor change

Usage precautions

Back-up power supply

The BR-500 is not equipped with a back-up power supply. Use an external back-up power supply (24 VDC) when the main or auxiliary power fails.

Motion Detector (BR-560)

● The Motion Detector judges motion by the amount of temperature change within the detection area. If the area has source(s) of heat other than personnel or the temperature change is too small, detection of motion may not be possible. Keep the following points in mind:

Motion is mis-detected when

- movement in sleep is judged as motion.

- movement by small animal(s) is judged as motion.

- equipment that circulates air (air conditioner, etc.), steam-generating warmers and the like causes temperature change.

- sunlight or shade in the detection area causes temperature change.

Motion cannot be detected if

- the temperature change in personnel or detection area is too small.

- personnel motion is too fast or too slow

- there is an impedance between personnel and the Motion Detector.

● The Motion Detector can be affected by sunlight. Install it in a place well away from sunlight.

Alarm ACK signal

The BR-500 receives the Alarm ACK signal in contact signal format only. It cannot receive the signal in serial format.

Resetting the watch alarm timer

Reset the watch alarm timer from the Timer Reset Panel, which is installed next to the Main Alarm Panel.

SYSTEM CONFIGURATION

```
                              ┌─────────────────┐
┌───────────────────────┐     │                 │
│  MAIN ALARM PANEL      │─────│                 │  ····  Operator Fitness IN (4 lines)
│  BR-510               │     │                 │
└───────────────────────┘     │                 │
┌─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐     │                 │  ····  Backup Navigator IN (1 line)
│  CABIN PANEL          │┈┈┈┈┈│                 │
│  BR-540 (Max. 12)     │     │                 │
└─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘     │  PROCESSOR UNIT │  ····  Autopilot (1 line)
┌─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐     │  BR-520         │
│  TIMER RESET PANEL    │     │                 │
│  BR-530               │     │                 │  ····  SYSTEM FAIL OUT (2 lines)
│  WATERTIGHT TIMER     │┈┈┈┈┈│                 │
│  RESET PANEL          │     │                 │
│  BR-550               │     │                 │  ····  Serial I/O IEC 61162 (1 line)
│  (Max. 6)             │     │                 │
└─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘     │                 │
┌─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐     │                 │
│  FLASH BEACON         │┈┈┈┈┈│                 │
│  BR-570 (Max. 3)      │     │                 │
└─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘     │                 │
┌─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐     │                 │
│  MOTION DETECTOR      │┈┈┈┈┈│                 │
│  BR-560 (Max. 2)      │     │                 │
└─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘     └──────┬────┬─────┘
                                    │    │
                                24 VDC   100-230 VAC
                                (back-up
                                battery)
```
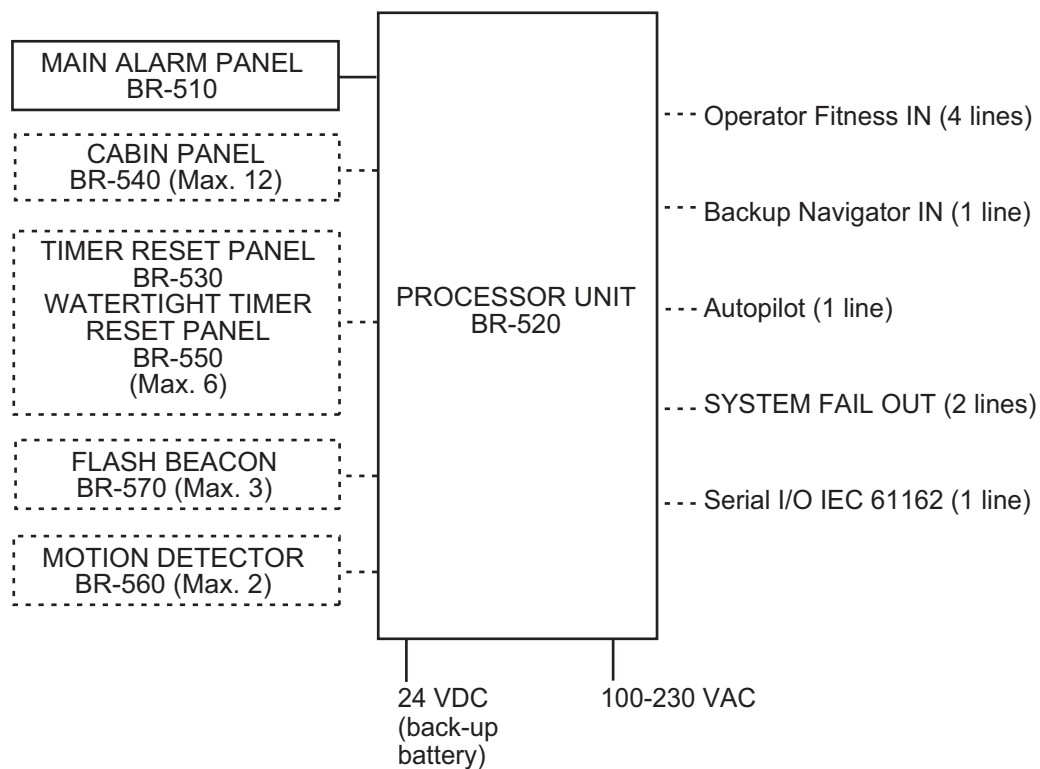
- Dashed lines indicate optional or local supply equipment.
- Environmental category:
  Units protected from the weather: BR-510, BR-520, BR-530, BR-540, BR-560, BR-570
  Units exposed to the weather: BR-550

1. MAIN ALARM PANEL

The Main Alarm Panel is the heart of the BNWAS. All settings are done from the Main Alarm Panel.

1.1 Controls

How to detach the hard cover from the unit

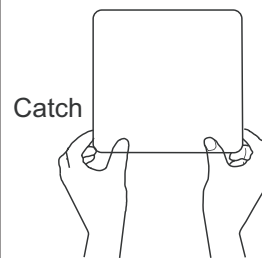Put your thumbs on the front and forefingers on the catches at the sides of the cover.
Pull the cover toward you.

Catch

No.	Control Name	Description
1	SEL	Select the backup officer.
2	MODE	Select the operating mode.
3	MENU/ESC	Open the menu; return to previous setting or previous screen.
4	CursorPad	Select items on menus; adjust LCD brilliance and key backlighting.
5	ENT/CALL	Confirm operation; call the Captain or other navigation officer.
6	EMG	Make emergency call.
7	RESET	Reset the watch timer.

1.2 How to Turn the System On/Off

Power to the system is supplied from the power switch on the ship's switchboard. After the power is applied to the system, the BNWAS display, shown below, appears.

Note: Wait at least one minute before reapplying the power to ensure correct startup.
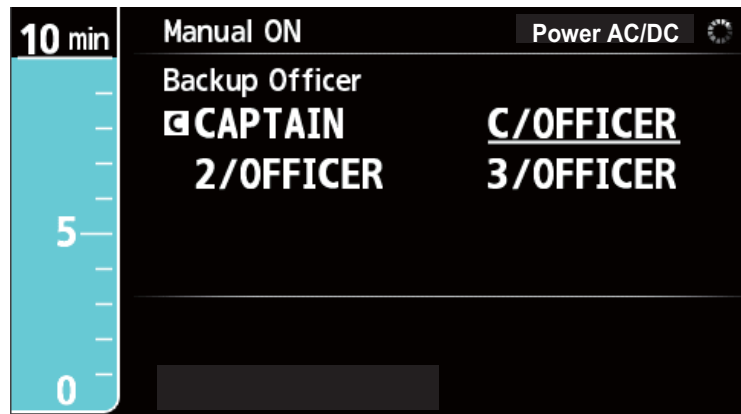
1.3 BNWAS Display

The BNWAS display is divided into the seven areas described below.

Operating mode

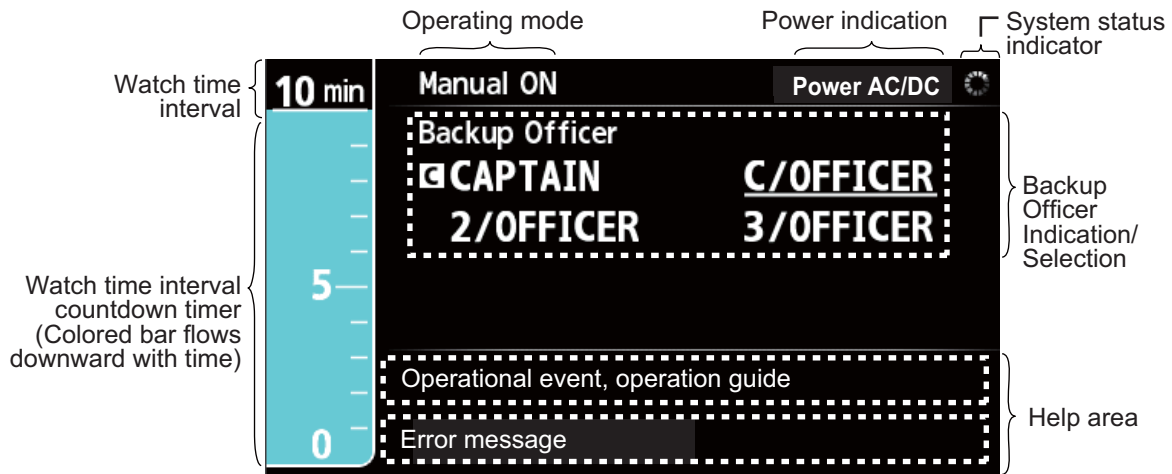The current operating mode. The possible indications are Auto, Manual ON, and Manual OFF.

Power indication

The power indications shows the power being supplied to the system.

- Power AC/DC: Both AC and DC power
- Power AC: AC power
- Power DC: DC power

If something appears to be wrong with the system, first check the power source (battery) and cables.

System status indicator

The system status indicator rotates when the system is normal, and appears on all displays. If the indicator is not rotating, there can be a problem with the system. Contact a FURUNO agent or dealer for information.
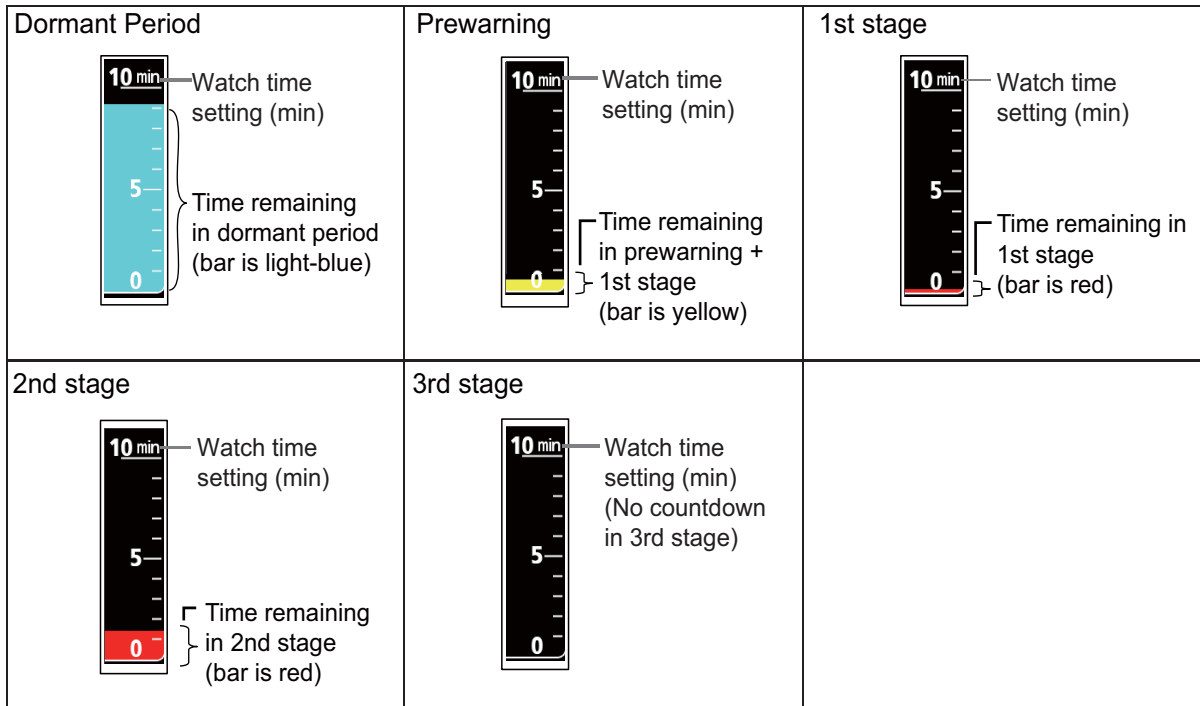
Backup officer indication/selection

You select the backup officer with the **SEL** key. The current selection is underlined.

Help area

The help area shows all operational events, operation guides and error messages. See section 1.8 Help Area.

Watch time interval countdown timer

The length of the bar decreases as time progresses and the color of the bar changes with each stage.

| Dormant Period	Prewarning	1st stage
10 min — Watch time setting (min) Time remaining in dormant period (bar is light-blue)	10 min — Watch time setting (min) Time remaining in prewarning + 1st stage (bar is yellow)	10 min — Watch time setting (min) Time remaining in 1st stage (bar is red)
2nd stage	3rd stage	
10 min — Watch time setting (min) Time remaining in 2nd stage (bar is red)	10 min — Watch time setting (min) (No countdown in 3rd stage)	

Watch time interval setting

The currently selected watch time interval appears at the top of the watch time interval countdown timer.

1.4   How to Adjust the LCD/LED Brilliance, Key Backlighting

The brilliance of the LCD of the Main Alarm Panel, the ALARM LED of the TImer Reset Panel and the LED of the Flash Beacon, and the backlighting for the keys of the Main Alarm Panel can be adjusted as shown below.

```
BRILL
LCD
4  ◄ ▐████████▌      ►
   MIN            MAX
Key / ALARM LED
4  ▼ ▐██████▌       ▲
```

1. Press any arrow on the CursorPad to show the [BRILL] window.

2. Press the right or left arrow on the CursorPad to adjust the brilliance of the LED. The setting range is 0-7, and the default setting is 5.

3. Press the up or down arrow on the CursorPad to adjust the key backlighting of the Main Alarm Panel and the ALARM LEDs (incl. Flash Beacon). The setting range is 0-7, and the default setting is 5.

4. Press the **MENU/ESC** key to close the window. (The window closes automatically if there is no adjustment within several seconds.)
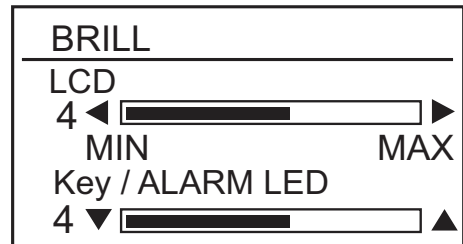
Note 1: If the screen is too bright with minimum brilliance at nighttime, install the shield film (option) to reduce the brilliance. See section 4.3.3.

Note 2: The system increases the brilliance one step in stages 1-3 of the watch alarm. When the timer is reset, the previous brilliance is restored. Brilliance is not changed if it is set for maximum at stages 1-3.

1.5 How to Select the Backup Officer

Press the **SEL** key at the BNWAS display to select a backup officer. The current selection is underlined.

Current backup officer selection is underlined
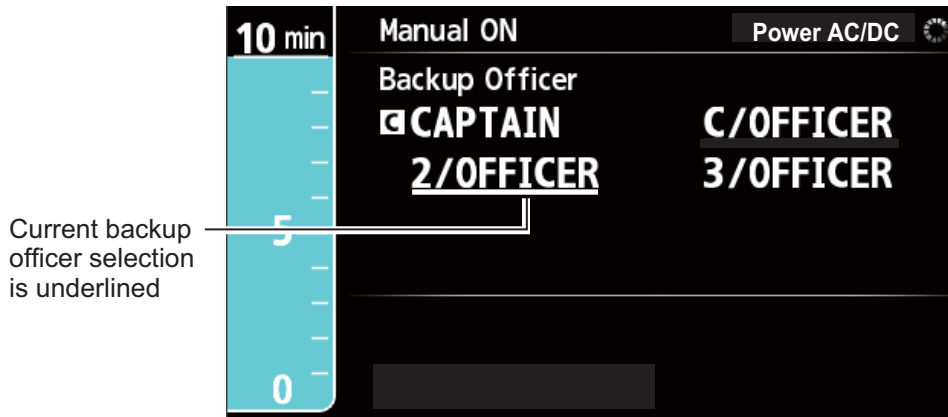
1.6 Mode

The BR-500 has three main modes of operation:

Manual OFF: The BNWAS is inactive. Use this mode when entering or just leaving harbor. No reset is necessary. Default setting.**Manual ON**: The BNWAS is active. Use this mode when the vessel is travelling on the open sea. Reset is necessary to continue operation.**AUTO**: The BNWAS is active or inactive according to the autopilot state. BNWAS is ON when the autopilot is ON; OFF when the autopilot is OFF.

1. Press the **MODE** key. You are asked to enter the password. Enter the password. See the FURUNO service technician for the password.

2. Use the CursorPad to select a mode then press the **ENT/ CALL** key.
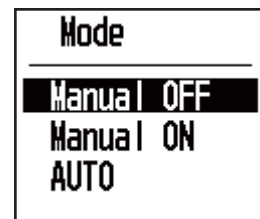
1.7   Watch Alarm Sequence

The watch alarm checks for the presence of the OOW on the bridge. If equipment on the bridge (Main Alarm Panel, Timer Reset Panel, Backup Navigator, Autopilot, or Motion Detector) is operated within the selected watch time interval, no alarm is given. If no equipment is operated within the selected watch time interval, the system continues in the sequence shown below.

1. The watch alarm timer starts when the system is started. The length of the watch time interval countdown timer bar (color is light-blue at this time) decreases as time progresses. (The timer interval is set on the Administrator Menu, which is under the control of the Administrator.)

Watch time interval countdown timer (light-blue in dormant period)
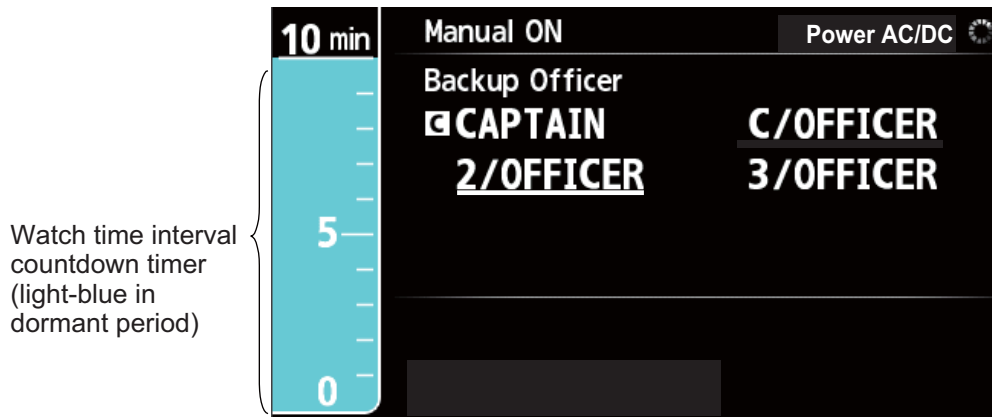
If the equipment connected to the system is operated before the timer reaches zero, the timer countdown is restarted.
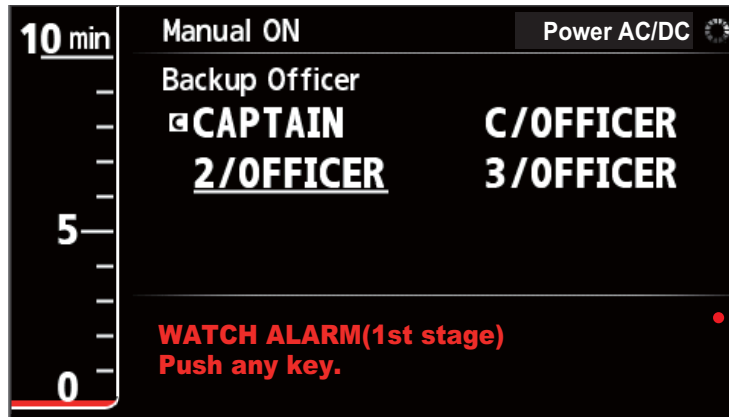
2. If the equipment connected to the system is not operated within the watch time interval, the PREWARNING phase begins:
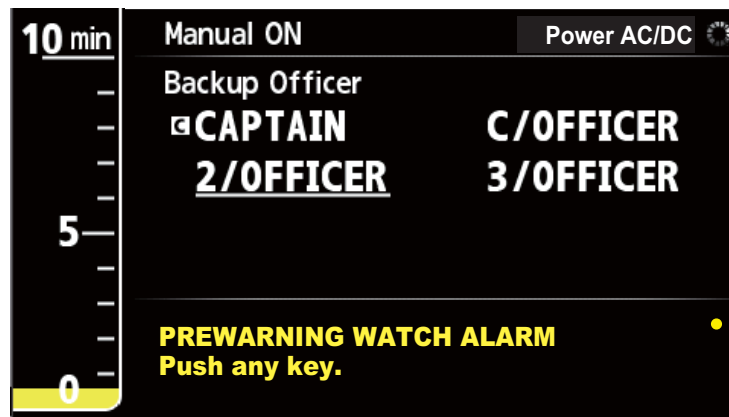
- Main Alarm Panel shows a 15-second visual alarm (in yellow)
- Timer Reset Panel flashes its ALARM LED 15 seconds
- Flash Beacon flashes

3. If the equipment connected to the system is not operated during the PREWARN-ING, the 1st stage visual and aural alarms begin.

• Main Alarm Panel releases 15-second visual (in red) and audible alarms
• Timer Reset Panel flashes its ALARM LED 15 seconds and sounds its buzzer 15 seconds
• Flash Beacon flashes

4. If the equipment connected to the system is not operated within 15 seconds, the 2nd stage visual and aural alarms begin.

• Main Alarm Panel shows a 90-180-second visual alarm (in red) and sounds its buzzer 90-180 seconds
• Timer Reset Panel flashes its ALARM LED 90-180 seconds and sounds its buzzer 90-180 seconds
• Cabin Panel:
  • Captain selected as a backup navigator: ALARM LED lights and buzzer sounds, 90-180 seconds each
  • Backup officer (selected on BNWAS display): ALARM LED lights and buzzer sounds, 90-180 seconds each
  • Other backup officer: No action
  • Public cabin: ALARM LED lights and buzzer sounds, 90-180 seconds each
• Flash Beacon flashes or is OFF (depending on DIP SW setting)

Note: The alarm cannot be stopped from a Timer Reset Panel at this point.

5. If, within the 2nd stage watch interval (90-180 seconds), the equipment connected to the system is not operated or the OOW does not press the **RESET** key, the 3rd stage visual and aural alarms begin.
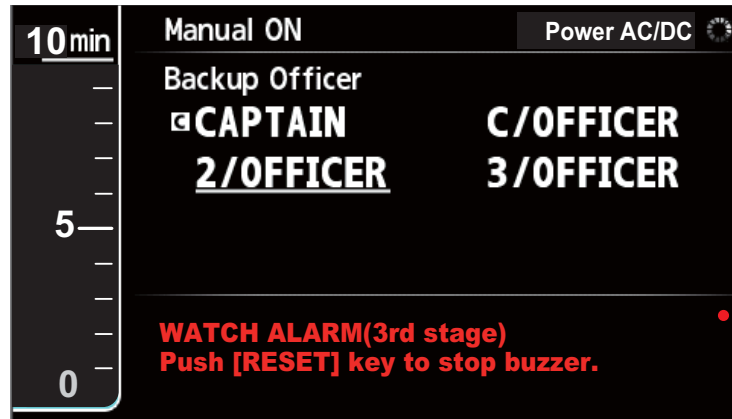
> • Main Alarm Panel continuously displays a visual alarm (in red) and sounds its buzzer until reset occurs
> • Timer Reset Panel continuously flashes its ALARM LED and sounds its buzzer until reset occurs
> • All Cabin Panels continuously light their ALARM LEDs and sound their buzzers until reset occurs
> • Flash Beacon flashes or is OFF (depending on DIP SW setting)

6. At the 2nd and 3rd stages, stop the buzzer and acknowledge the alarm with the**RESET** key on the Main Alarm Panel.

Equipment and visual alarm, LED, buzzer

Equip-ment	State	LED color	Dormant Period	Pre-warning	1st stage	2nd stage*2	3rd stage
Main-Alarm Panel BR-510	Visual alarm		None	Yes	Yes	Yes	Yes
	Buzzer		None	None	Yes	Yes	Yes
Timer Re-set Panel BR-530/550	RESET LED	Green	Lit	Lit	Lit	Lit	Lit
	ALARM LED	Yellow	OFF	Flashing	Flashing	Flashing	Flashing
	Buzzer		None	None	Yes	Yes	Yes
Cabin Panel: BR-540 Captain*1	DUTY LED	Green	Lit*3	Lit*3	Lit*3	Lit*3	Lit*3
	ALARM LED	Red	OFF	OFF	OFF	Lit*3	Lit*3
	Buzzer		None	None	None	Yes*3	Yes*3
Cabin Panel BR-540: Backup officer*5	DUTY LED	Green	Lit	Lit	Lit	Lit	Lit
	ALARM LED	Red	OFF	OFF	OFF	Lit	Lit
	Buzzer		None	None	None	Yes	Yes

1-7

Equip-ment	State	LED color	Dormant Period	Pre-warning	1st stage	2nd stage*2	3rd stage
Cabin Panel BR-540: other backup officer	DUTY LED	Green	OFF	OFF	OFF	OFF	OFF
	ALARM LED	Red	OFF	OFF	OFF	OFF	Lit
	Buzzer		None	None	None	None	Yes
Cabin Panel BR-540: public cabin	DUTY LED	Green	Lit	Lit	Lit	Lit	Lit
	ALARM LED	Red	OFF	OFF	OFF	Lit	Lit
	Buzzer		None	None	None	Yes	Yes
Flash Beacon BR-570	LED	Yellow	OFF	Flashing	Flashing	Flashing*4	Flashing*4

*1 Captain selected as backup officer on Administrator menu. *2 Output if [2nd Stage] is set to ON in Administrator menu. *3 [Captain Backup] set to ON in Administrator menu. *4 According to DIP SW setting in Processor Unit; SW ON: OFF, SW OFF: Flashes

Watch alarm sequence
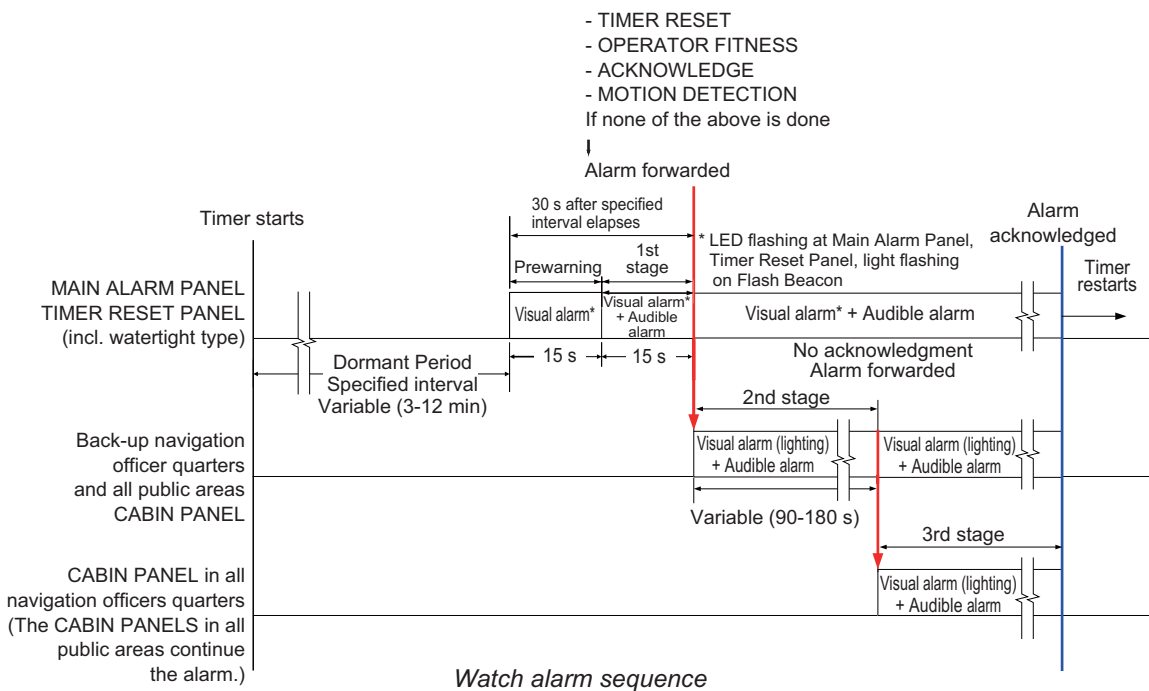
1.8 Help Area

The help area displays system failures, operational events, operation help, etc.

1.8.1 System failure indications

This section describes how system failures are given and the accompanying operation flow.

1) The help area shows system failure messages in red.

2) The buzzer at the Main Alarm Panel sounds.
There is no visual or audible alarm at a Timer Reset Panel nor is the alarm forwarded to a Cabin Panel.

3) Press any key on the Main Alarm Panel to stop the buzzer and acknowledge the alarm.

4) For any system error, contact a FURUNO sales representative or service technician for advice.

The table on the next page shows the system failure messages.

Indication	Problem	Color	State
Failure: Communication	Communication failure between Processor Unit and Main Alarm Panel	Red	Flashing
Failure: AC	AC power failure	Red	Flashing
Failure: DC	DC power failure	Red	Flashing

1.8.2 Operational event indications

When an operational event occurs, the Main Alarm Panel shows the related message in red, yellow or white in the help area.

| Indication	Event	Color
MANUAL OFF	Manual Off mode selected.	White
Autopilot OFF	Auto mode selected, Autopilot signal off.	White
PREWARNING WATCH ALARM Push any key.	Presence on bridge* not confirmed in dormant period.	Yellow
WATCH ALARM(1st Stage)Push any key.	Presence on bridge* not confirmed at prewarning phase.	Red
WATCH ALARM(2nd Stage)Push [RESET] key to stop buzzer.	Presence on bridge* not confirmed at 1st stage.	Red
WATCH ALARM(3rd Stage)Push [RESET] key to stop buzzer.	Presence on bridge* not confirmed at 2nd stage.	Red
WATCH ALARM(2nd Stage: Emergency Call) Push [RESET] key to stop buzzer.	Emergency call made from Main Alarm Panel, or backup navigator signal received.	Red
WATCH ALARM(3rd Stage: Emergency Call) Push [RESET] key to stop buzzer.	Emergency call made from Main Alarm Panel, or backup navigator signal received.	Red

* **RESET** key not pressed or equipment on bridge is not operated.

1.9 How to Make an Emergency Call

The purpose of an emergency call is to immediately start the watch timer from the 2nd stage. (This feature is disabled if the watch alarm is already in the 2nd or 3rd stage.)

Press the **EMG** key to start the emergency call.
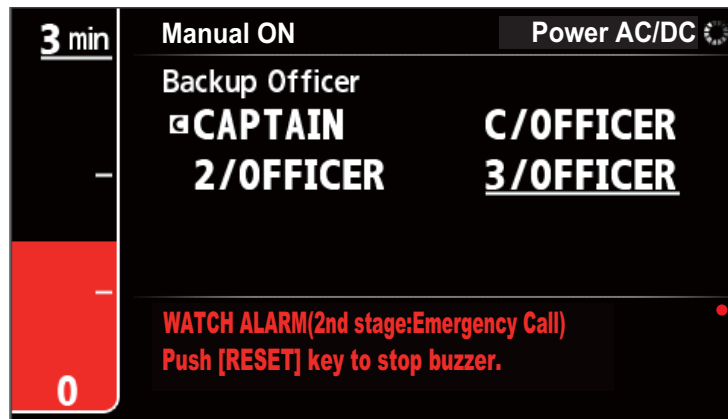
The system goes into the 2nd stage (or 3rd stage depending on system setting). In the 2nd stage, the following occurs:

- Main Alarm Panel presents a visual alarm and sounds its buzzer.
- Timer Reset Panel flashes its ALARM LED and sounds its buzzer.
- Cabin Panel:
    - Captain's room: ALARM LED lights and buzzer sounds.
    - Backup officer (selected on BNWAS display): ALARM LED lights and buzzer sounds.
    - Other backup officer: No action
    - Public cabin: ALARM LED lights and buzzer sounds.
- Flash Beacon flashes or is OFF (depending on DIP SW setting).

If the visual and aural alarms are not cancelled at the 2nd stage, the system goes to the 3rd stage and all visual and aural alarms are generated.

To stop the buzzer or cancel the emergency call, press the **RESET** key on the Main Alarm Panel. The system returns to the dormant state.

1.10 How to Call a Navigation Officer

The OOW can call the Cabin Panel of the back-up officer. Use the call feature when it is necessary to call a navigation officer to the bridge. This feature is available in all modes. When the watch alarm is generated during a call, the call is cancelled to process the alarm.

The ALARM LED on the called Cabin Panel lights (red) and the Cabin Panel's buzzer sounds.

To call a navigation officer do the following.

1. Press the **ENT/CALL** key to show the following window.
2. Use the CursorPad to select the navigation officer to call.
3. Press the **ENT/CALL** key to start the call. The called Cabin Panel's ALARM LED lights and the panel's buzzer sounds.
4. To stop the call, press the **ENT/CALL** key again.
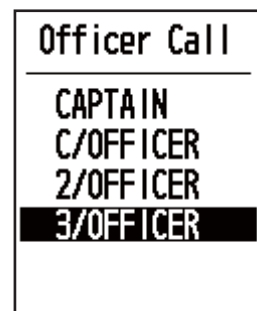
2. OPTIONAL EQUIPMENT

2.1   Timer Reset Panel BR-530, BR-550

The Timer Reset Panel BR-530 is installed on the bridge, and the Watertight Timer Reset Panel BR-550 is installed on the wing when it is necessary to have a unit there. A total of six can Timer Reset Panels can be installed.
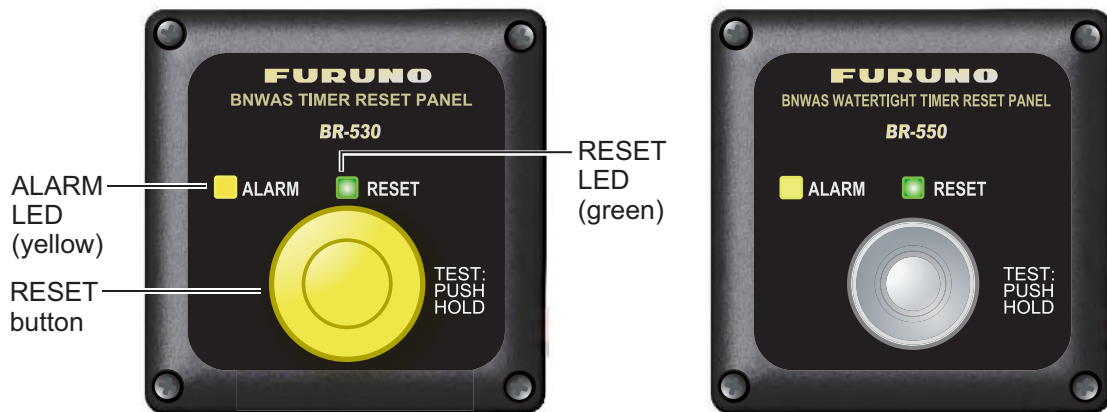
TIMER RESET PANEL BR-530   WATERTIGHT TIMER RESET PANEL BR-550

If the **RESET** button is pressed within the selected watch time interval, the watch timer is reset. If operation on the bridge is not confirmed within the time interval, the ALARM LED flashes (in yellow) every second for 15 seconds after the selected time interval ends. The ALARM LED flashes an additional 15 seconds after the PREWARNING phase ends, accompanied by a 15-second audible alarm. Reset can be done at the PREWARNING and 1st stage.

You can reset the watch alarm at the 1st stage (before the alarm is sent to the next stage) with the **RESET** button on the Timer Reset Panel. If the alarm is sent to the 2nd or 3rd stage, the alarm cannot be stopped from the Timer Reset Panel. To acknowledge the alarm from the 2nd or 3rd stage, use the **RESET** key on the Main Alarm Panel.

The RESET LED lights (in green) continuously when the unit is powered.

Note 1: Press the **RESET** button with a touch-and-release action to reset the watch timer. The watch timer is not reset if the button is pressed and held.

Note 2: When the **RESET** button is pressed and held, the connection between the Processor Unit, Cabin Panel and Timer Reset Panel is checked. The buzzer sounds when the test is started. See section 3.4.

2.2   Cabin Panel BR-540

The Cabin Panel is installed in all navigation officers' quarters and in public areas. The Cabin Panel releases audible and visual alarms if the OOW did not confirm presence on the bridge within the selected watch time interval. A total of 12 Cabin Panels can be installed.

CABIN PANEL BR-540

DUTY LED

The DUTY LED is illuminated (in green) when the BNWAS is active and according to type of Cabin Panel:

• Cabin Panel set as Captain, Backup Officer or Public is illuminated in all phases of the watch alarm.

Note: The LED is disabled when a 4-core cable (MPYC-4 or equivalent) connects Cabin Panel(s) to the Processor Unit.

ALARM LED

The ALARM LED lights (in red) and the buzzer sounds in response to an alarm sent to the 2nd and 3rd stages.

TEST switch

The **TEST** switch checks the LEDs and the buzzer for correct operation. The connection between the Cabin Panel and Processor Unit is also checked. (This check is not available when those units are connected to each other with a 4-core cable.) See section 3.4.

2.3 Motion Detector BR-560

The Motion Detector BR-560 detects motion on the bridge. The maximum motion detection range is 5 m.

The "motion" signal is output via the Processor Unit to tell the Main Alarm Panel to reset the watch alarm.

MOTION DETECTOR BR-560

2.4   Flash Beacon BR-570

The Flash Beacon BR-570 flashes at the Prewarning phase and the 1st stage. It either flashes or is OFF at the 2nd and 3rd stages depending on the setting of segment #4 of DIP SW S1. See section 4.8.

3. MAINTENANCE, TROUBLE-SHOOTING

This chapter provides maintenance and troubleshooting procedures for the user and serviceman.

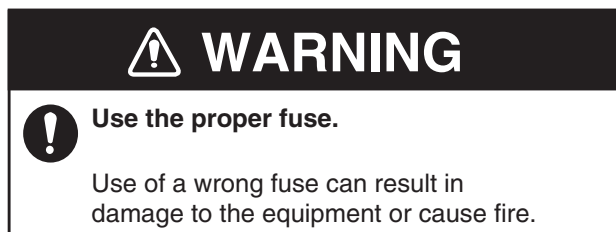| ⚠ WARNING	NOTICE
ELECTRICAL SHOCK HAZARD **Do not open the equipment.** This equipment uses high voltage that can cause electrical shock. 0nly qualified persons can work inside the equipment.	**Do not apply paint, anti-corrosive sealant or contact spray to plastic parts or equipment coating.** Those items contain products that can damage plastic parts and equipment coating.

3.1 Maintenance

Maintenance is important to keep the equipment in good working order. Check the items shown in the table monthly.

Item	Check point	Comments
Cabinet	Dust on the cabinets	Remove dust with a dry clean cloth. Do not use commercial cleaners to clean the equipment. Those cleaners can remove paint and markers.
LCD on Main Alarm Panel	Dust on the LCD	Wipe the LCD carefully to prevent scratching, using tissue paper and an LCD cleaner. To remove dirt or salt deposits, use the LCD cleaner, wiping slowly with tissue paper so as to dissolve the dirt or salt. Change paper frequently so the salt or dirt will not scratch the LCD. Do not use solvents such as thinner, acetone or benzene for cleaning.

3.2 Fuse Replacement

The fuses on the PWR Board (24P0105) inside the Processor Unit protect the system from overvoltage and overcurrent. If the power is not on, have a technician check for blown fuse(s). If a fuse(s) has blown, replace the fuse(s) with one of the same rating. If the fuse(s) blows again, contact your dealer.

⚠ **WARNING**

❗ **Use the proper fuse.**

Use of a wrong fuse can result in damage to the equipment or cause fire.

| Name	Type	Code No.	Qty
Fuse	FGMB 250V 2A PBF	000-157-497-10	2
Fuse	FGMB 250V 3A PBF	000-157-568-10	1

3.3 Troubleshooting

If the equipment appears to be abnormal, follow the procedure in the table below to try to restore normal operation. If you cannot restore normal operation, do not check inside the equipment. Get a qualified technician to check the equipment.

Problem	Remedy
The Main Alarm Panel is not powered.	• Check if the Processor Unit is ON. • Check if the power cable is properly connected. • Check if the power cable is damaged or corroded. • Check the connection between the Processor Unit and the Main Alarm Panel.
A key on the Main Alarm Panel is operated, but there is no response.	Reset the power with power switch on the ship' switchboard and operate the key. If the key does not respond, request service.
The results of the ROM and RAM test for the Main Alarm Panel or Processor Unit show an NG (No Good).	Reset the power with power switch on the ship's switchboard. If NG appears again, request service.
An alarm is not sent to a Cabin Panel.	Do the procedure in section 3.4 to check the connnections.
The message "Failure: Communication" appears and the buzzer sounds.	The message indicates communication error between Main Alarm Panel and Processor Unit. Press any key to silence the buzzer. Reset the power with power switch on the ship's switchboard. If the problem still occurs, request service.
The message "Failure: DC" (or "Failure: AC") appears and the buzzer sounds.	The message indicates power failure of corresponding power. Press any key to silence the buzzer. Check the power supply.

3.4 How to Check Connection Between Processor Unit/Cabin Panel/ Timer Reset Panel

You can check the connection between the Processor Unit/Cabin Panel/Timer Reset Panel. The tested panel sends a test signal to the Processor Unit. The Processor Unit receives the test signal then commands that panel to light or flash its LEDs and sound its buzzer.

Note: If the 4-core cable (MPYC-4, or equivalent) connects Cabin Panel(s), use the **EMG** call on the Main Alarm Panel to do the check. The **TEST** switch on the Cabin Panel is disabled when the 4-core cable is used.
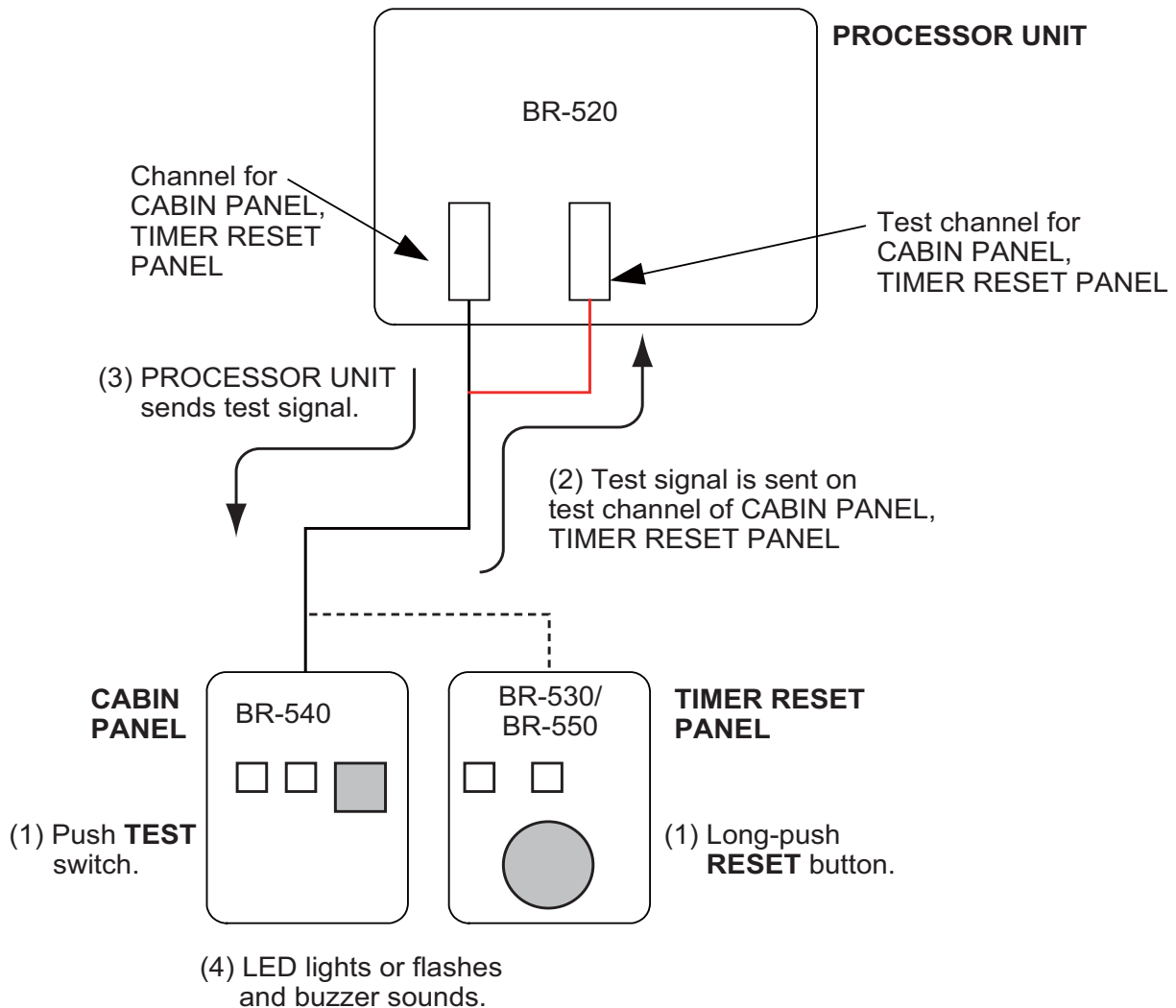
Push the **TEST** switch or **RESET** button (long-push) to start the test. The tested panel is normal if its LEDs and buzzer perform as shown in the table below.

Cabin Panel		Timer Reset Panel	
Item	Normal State	Item	Normal State
ALARM LED	Lights 5 s	ALARM LED	Flashes 5 s
DUTY LED	Lights 5 s	RESET LED	Lights
Buzzer	5 s	Buzzer	5 s

Note 1: The watch timer is not reset during the test.

Note 2: A Cabin Panel that is currently forwarding an alarm cannot be tested. However, you can test the Cabin Panels that are not forwarding an alarm. (For example, in the 2nd stage, a Cabin Panel other than the one in the back-up officer's quarters can be tested.)

3.5 Life Expectancy of Major Parts

The life of the fan depends on the operating environment. It is recommended to replace the fan before its expected expiration.

Unit	Part	Type	Code No.	Approx. Life
Processor Unit	Fan	MMF-06G12ES-ROD	000-174-638-10	5 years

4. INSTALLATION

4.1 Equipment Lists

Standard supply

| Name	Type	Code No.	Remarks
Main Alarm Panel	BR-510	-	
Processor Unit	BR-520	-	
Installation Materials	CP24-01701	001-117-860	For BR-510
	CP24-01800	000-018-042	For BR-520, w/10 m cable
	CP24-01801	001-117-970	For BR-520, no cable
Spare Parts	SP24-00501	001-117-990	For BR-520, for V spec.*

* Merchant vessel

Optional supply

Name	Type	Code No.	Remarks
Timer Reset Panel	BR-530	-	w/inst. materials CP24-01901
Cabin Panel	BR-540	-	w/inst. materials CP24-01901
Watertight Timer Reset Panel	BR-550	-	w/inst. materials CP24-02001
Motion Detector	BR-560		Max. two units, w/inst. materials CP24-01901
Flash Beacon	BR-570		Max. three units, w/inst. materials CP24-01901
Bulkhead Mount Kit	OP24-20	001-118-740	For BR-530, BR-540, BR-560, BR-570
Hanger	OP24-21	001-118-750	For BR-510, w/Inst. materials
Shield Film	OP24-22	001-118-760	For BR-510
Cable Assy. (connection between BR-510 and BR-520)*	FRU12-05AFFM-10M	000-174-328-11	10 m
	FI-50-DROP-10M	001-115-210-10	
	FRU12-05AFFM-20M	000-174-350-11	20 m
	FI-50-DROP-20M	001-115-220-10	
	FRU12-05AFFM-30M	000-174-351-11	30 m
	FI-50-DROP-30M	001-115-230-10	
	FRU12-05AFFM-40M	000-174-352-11	40 m
	FI-50-DROP-40M	001-115-240-10	
	FRU12-05AFFM-50M	000-174-353-11	50 m
	FI-50-DROP-50M	001-115-250-10	

* The lower cable in like cables may be supplied during product transition. There is no difference in quality between the two cables.

4.2   Mounting Considerations

Do the installation following the information in IEC 62616 Annex A and IMO MSC.128(75).

- Locate the units away from exhaust pipes and vents.

- Make sure the location has good ventilation.

- Mount the units where shock and vibration are minimal.

- Locate the units away from the equipment that generates electromagnetic fields, such as a motor or generator.

- Follow the maintenance space indicated in the outline drawings, to facilitate maintenance and servicing.

- Follow the compass safe distances indicated on page iii to prevent interference to a magnetic compass.

- Keep the units away from direct sunlight to prevent heat that can build up inside their cabinets. The LCD of the Main Alarm Panel BR-510 can darken if put in direct sunlight.

- **For the Main Alarm Panel,** the optimal viewing distance is 0.5 m. Select a location within that distance.

- **For the Main Alarm Panel, Timer Reset Panel, Motion Detector**:

  - Locate the units on the bridge where a proper lookout is available.

  - The means of activating the reset functions shall be easily accessible from the conning position, the workstation for navigating and maneuvering, and the workstation for monitoring and the bridge wings (if applicable).

  - The 1st stage audible alarm shall be audible from all operational positions on the bridge where the OOW may reasonably be expected to be stationed.

  - **On the Motion Detector installation**, obstructions must not be within the detecting range of the sensor. Observe the requirements shown in the illustration when you select an installation location.
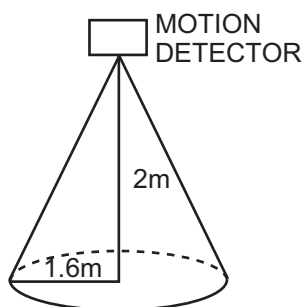
- **For the Flash Beacon**, the flashing indication shall be visible from all operational positions on the bridge where the OOW may reasonably be expected to be stationed.

4.3 Main Alarm Panel BR-510

The Main Alarm Panel can be mounted on a desktop or flush mounted in a console, on the bridge. Follow the mounting considerations in section 4.2 to select a location. Additionally, the unit must be located on the bridge where a proper look out is provided.

4.3.1 Desktop mount

This mounting method requires the optional hanger.

1. Unscrew knobs to remove the unit from the hanger.
2. Make four pilot holes (for 5x20 self-tapping screws) in the mounting location.
3. Fix the hanger to the mounting location with four self-tapping screws (5×20, supplied).
4. Attach cables to the back of the unit (see section 4.7.3).
5. Set the unit to the hanger, and fasten knobs to fix the unit.
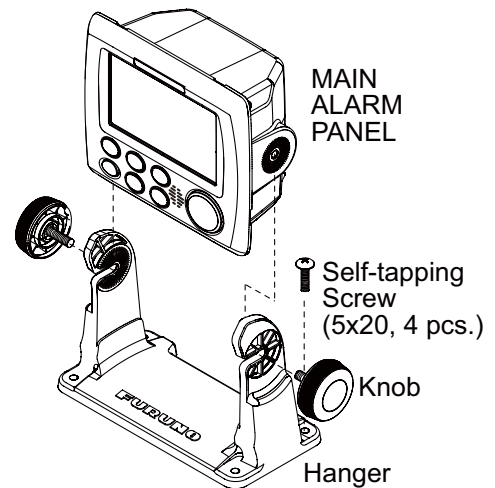
4.3.2 Flush mount

1. Use the template (supplied) to make a hole in the mounting location.
2. Prepare four pilot holes (for 3×20 self-tapping screws) at the mounting location.
3. Remove the front panel from the unit by unfastening the catches at the rear of the panel.
4. Set the F mount cushion (supplied) to the hole made at step 1.
5. Connect cables to the unit. (See section 4.7.3).
6. Use four self-tapping screws (3x20, supplied) to fasten the unit to the mounting location then re-attach the front panel.
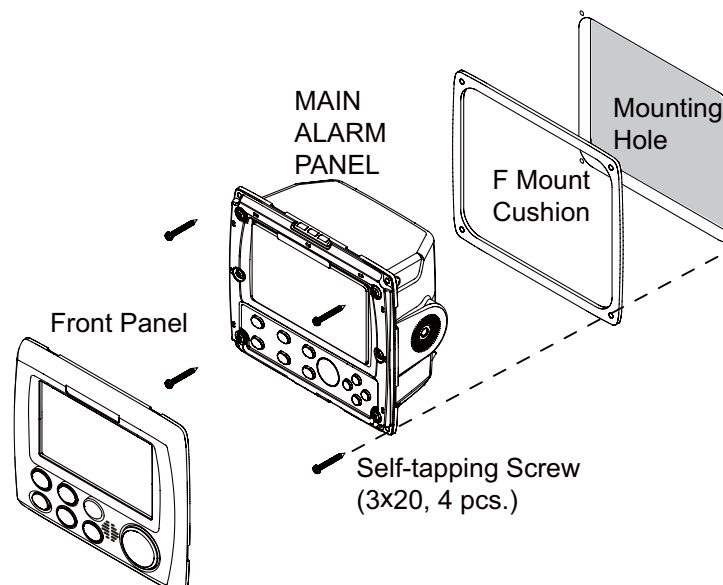
4.3.3   Shield film (option)

If the screen is too bright with minimum brilliance at nighttime, install the shield film to reduce the brilliance.

SHIELD FILM

1.   Clean the LCD with an LCD cleaning cloth.
2.   Peel off the protective backing from the shield film.
3.   Set the top edge of the shield film to the top edge of the panel and slowly attach the film.
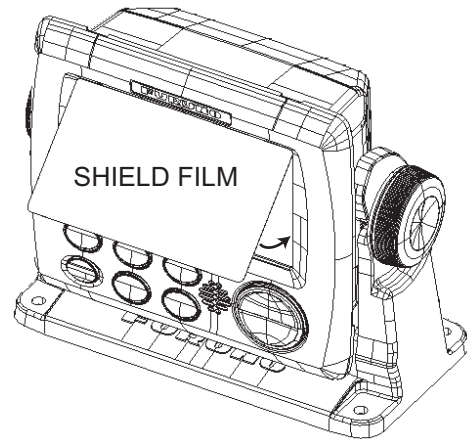
4.4   Processor Unit BR-520

The Processor Unit is designed to be mounted on a bulkhead or the deck. Follow the mounting considerations in section 4.2 when selecting a location.

Refer to the outline drawing at the back of this manual for dimensions. Fasten the unit with M6 bolts or 6×20 self-tapping screws. (Supply bolts locally.)

4.5   Timer Reset Panel BR-530, Cabin Panel BR-540, Motion Detector BR-560, Flash Beacon BR-570 (optional units)

These units can be flush mounted in a panel, or fixed to a bulkhead. Follow the mounting considerations in section 4.2 when selecting a location.

4.5.1   Flush mount

Prepare a cutout in the location, referring to the outline drawings. Connect the signal cable to the unit **BEFORE** you install the unit. (See section 4.7.4.) Set the unit to the cutout and fasten the unit with four 3×16 self-tapping screws (supplied).

Name	Type	Code No.	Qty	Remarks
Self-tapping Screw	3×16 SUS304	000-171-996-10	4	
Cable Tie	CV-150B	000-167-183-10	5	

4.5.2   Bulkhead mount (option)

This mounting method requires the optional bulkhead mount kit (Type: OP24-20, Code No. 001-118-740-00), the contents of which are shown in the table below. The cable can be led into the unit from the bottom or rear of the unit.

Name	Type	Code No.	Qty	Remarks
Mounting Case	24-012-3101-0	100-362-890-10	1	
Mounting Base	24-012-3102-1	100-362-901-10	1	
Clamp	24-012-3103-0	100-362-910-10	1	
Self-tapping Screw	4×20 SUS304	000-158-850-10	4	
Binding Screw	M3×8 SUS304	000-172-166-10	4	

<u>Lead in the cable from the rear of the unit</u>

1. Prepare a cutout in the mounting location, referring to the outline drawing.

2. Pass the cable through the cutout and the Mount Case and connect it to the terminal on the Chassis.
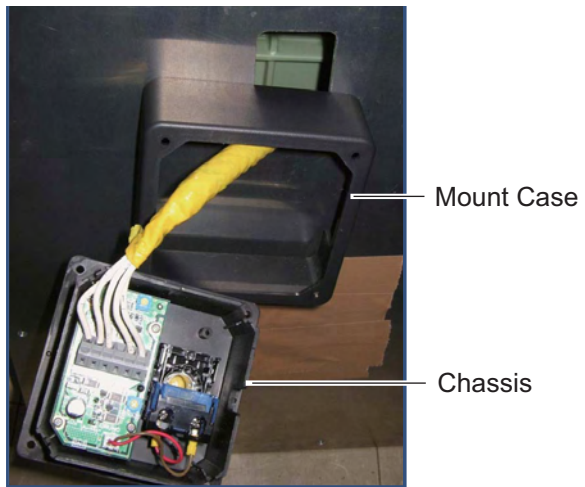
3. Remove the Clamp from the bottom of the Mount Base. Remove the cable protector from the clamp and attach it to the supplied clamp. Attach the supplied Clamp to the rear cover with the same screws. (You may discard the clamp originally attached to the Mount Base.)
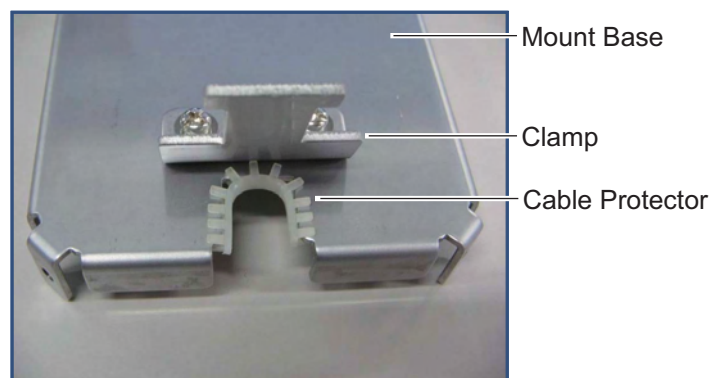
4. Fasten the cable to the Clamp with a cable tie (local supply). As shown in the figure below, make the distance between the terminal and the cable tie 100 mm.
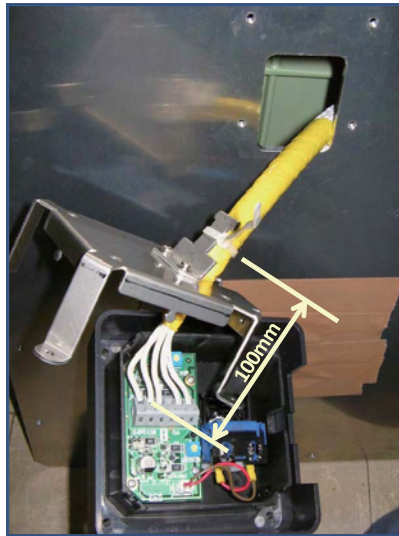
5. Fasten the Mount Base to the mounting location with four self-tapping screws (supplied). Fasten the Chassis to the Mount Case with four binding screws (supplied).
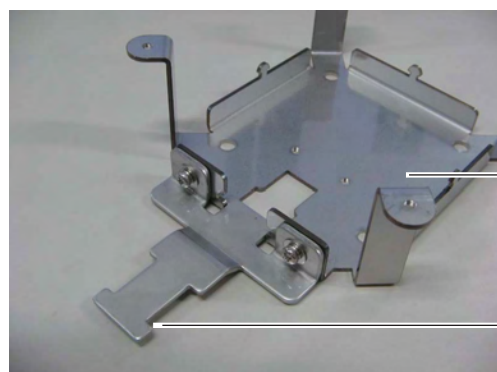

Self-tapping screws

Binding screws

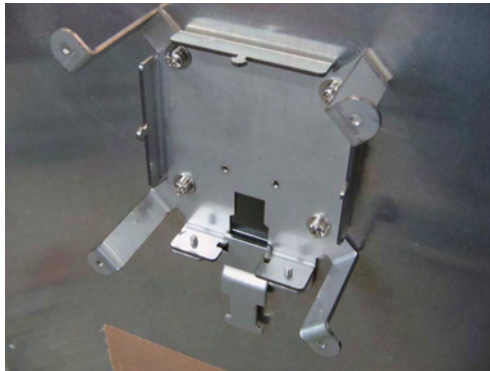### Lead in the cable from the bottom of the unit
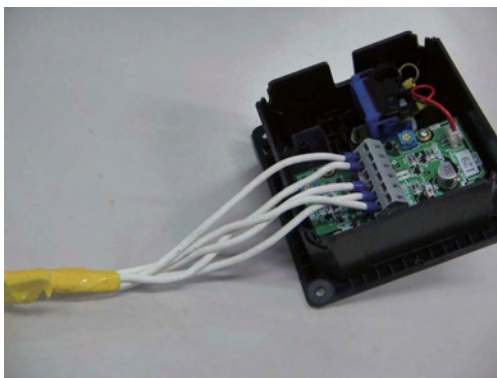
1. Fasten Cable Clamp 2 to the Mount Base.

Mount Base

Clamp

2. Fasten the Mount Base/Clamp to the mounting location with four self-tapping screws (supplied).

3. Pass the signal cable through the Mount Case.

4. Connect the signal cable to the WAGO terminal block. See the interconnection diagram.

5. Set the Chassis to the Mount Base. Set the signal cable in the notch in the Clamp.
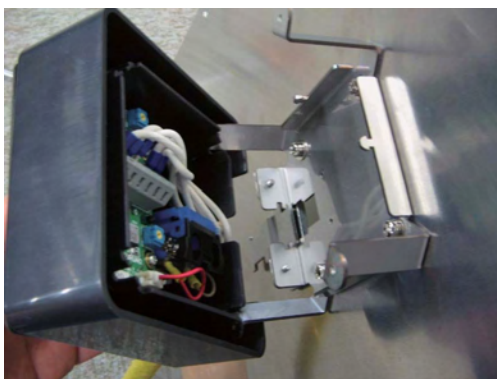
6. Fasten the Chassis to the Mount Case with binding screws (supplied)



7. Fasten the signal cable to the Clamp with a cable tie.

Cable Tie

4.6 Watertight Timer Reset Panel BR-550 (option)

Follow the mounting considerations in section 4.2 when selecting a location. Refer to the outline drawing at the back of this manual for dimensions.

1. Pass the signal cable through the gland and then the Nut of the Waterproof Case. Pass the cable into the unit. Process the cable as shown on page 4-13.
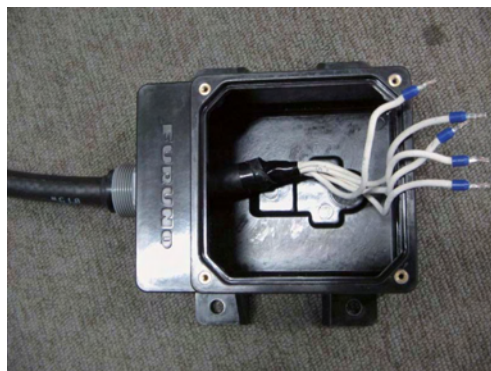
2. Connect the signal cable to the WAGO terminal block on the Chassis. See the interconnection diagram.

3. A gasket is fitted on the Chassis. Confirm that the gasket is correctly seated. If not correctly seated, re-seat the gasket, referring to the illustration below for the inserting direction.

Gasket

Inserting direction
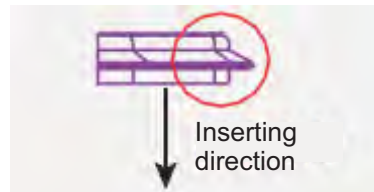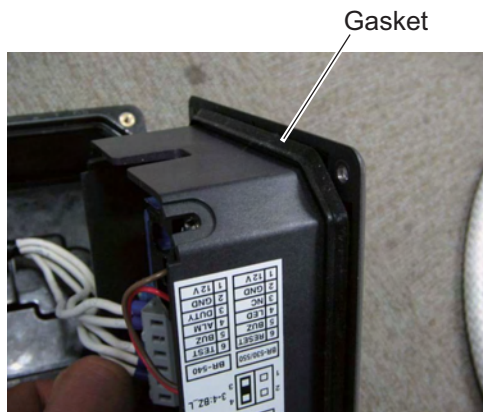
4. Fasten the Chassis to the Waterproof Case with the screws supplied. Do not use other types of screws; watertight integrity cannot be guaranteed.

5. Tighten the nut.

6. Fasten the unit to the mounting location with the supplied self-tapping screws (6×30, Code No. 000-162-614-10).

4.7 Wiring

4.7.1 Processor Unit

There are two power terminals: AC and DC. Connect each power cable to its power terminal. Connect the signal cables to their appropriate WAGO terminal blocks on the MAIN Board. Use the terminal opener (attached inside the Processor Unit) to open the WAGO terminal blocks.

Use the cable ties (supplied) to bind the cables to the cable posts on the Processor Unit. Close the shield cover. Run a ground wire (IV-2sq) between one of the two earth terminals on the unit and the ship's ground.
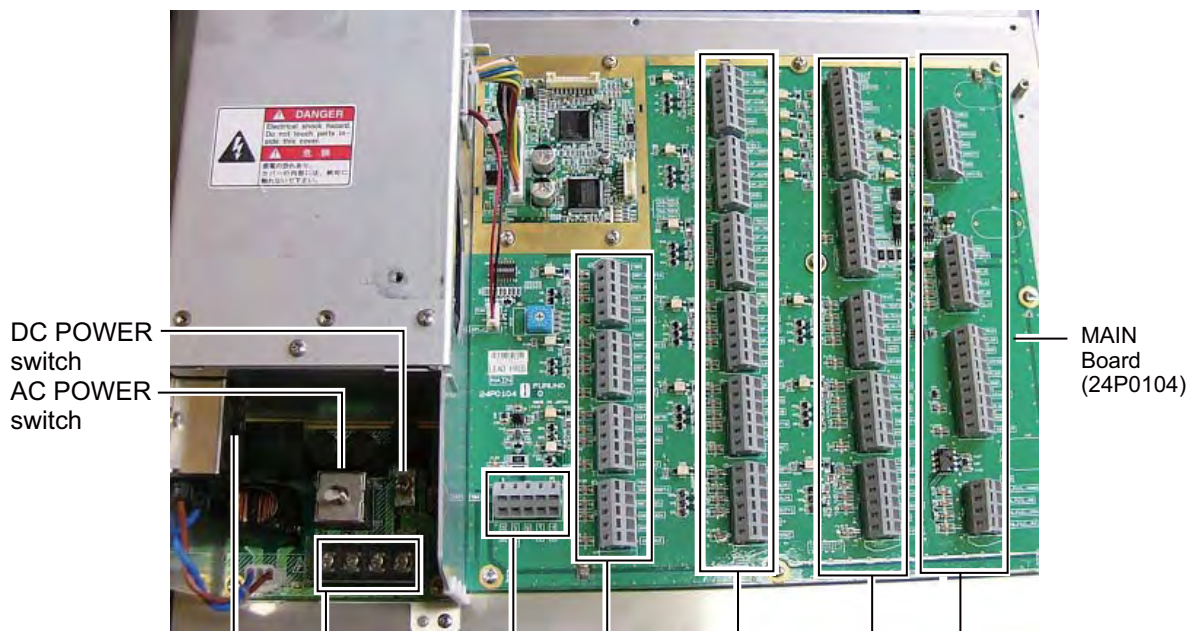
DC POWER switch
AC POWER switch

MAIN Board (24P0104)

PWR Board (24P0105)

TB1: Power cables
From Left:
#1, #2: AC
#3: 24 VDC (+)
#4: 24 VDC (-)

TB2: Main Alarm Panel BR-510

From Top:
TB12, TB11, TB10, TB9, TB8, TB7: Cabin Panel BR-540 (Backup Officer)

From Top:
TB21: Operator Fitness,
TB20: VDR, Other
TB19: Flash Beacon BR-570
TB18: Alarm System, VDR

From Top:
TB6, TB5 TB4, TB3: Timer Reset Panel BR-530, Watertight Timer Reset Panel BR-550

From Top:
TB17: Motion Detector BR-560, Backup Navigator
TB16: Autopilot
TB15, TB14, TB13: Cabin Panel BR-540 (Public)

---Cables to use *1---

TB1: DPYC-1.5 (AC), DPYC-2.5 (DC)
TB2: FRU12-05AFFM
TB3 - TB6: MPYC-7 (or MPYCY-7)
TB7 - TB15: MPYC-7 (or MPYC-4*2)
TB16, TB17: MPYC-4
TB18: MPYC-2
TB19: MPYC-4
TB20: TTYCS-1
TB21: MPYC-2
*1 Cables shown are JIS (Japan Industrial Standard) cables. Use equivalent if not available locally. See "JIS Cable Guide" in the Appendix for how to find equivalent cable.
*2 The TEST function and DUTY LED are disabled when this cable is used.

To connect BR-560, connect it to TB 16 and TB17(or TB21) with cable MPYC-4.
To connect Back-up Navigator, Operator fitness, connect to TB17 or TB21 with cable MPYC-2.

How to fabricate and fix cables to the Processor Unit

Power cables for Processsor Unit (DPYC-1.5 (AC power), DPYC-2.5 (DC power))

L
Sheath — Armor

L=Distance from cable clamp
to terminal connection

DPYC-1.5: ϕ = 11.7 mm
DPYC-2.5: ϕ = 12.8 mm

Cut the sheath.

6

Vinyl tape

Armor
Sheath

Crimp-on lug
Inner diameter ϕ4
Outer diameter ϕ7

Set this part in
cable clamp.

1

Conductor
DPYC-1.5:
S = 1.5 mm^2
ϕ = 1.56 mm
DPYC-2.5:
S = 2.5 mm^2
ϕ = 2.01 mm

MPYC-2 (Operator Fitness), MPYC-4^{*1} (Motion Detector, Flash Beacon)
MPYC-7^{*2} (Cabin Panel, Timer Reset Panel)

^{*1} Also available for
Cabin Panel connection.

MPYC-2
ϕ = 10.0 mm

Armor
Insulator
Sheath
Conductor
S = 1 mm^2
ϕ = 1.29 mm

L=Distance from cable clamp
to terminal connection

L   3

Sheath   Armor

Cut sheath.

6

Connect cores to
WAGO terminal
block.

Vinyl tape

Set this part in
cable clamp.

MPYC-4
ϕ = 11.2 mm

MPYC-7
ϕ = 13.2 mm

^{*2} Use MPYCY-7 for
Watertight Cabin
Panel.

TTYCS-1 (VDR)

L=Distance from cable clamp
to terminal connection

Remove paint.

L   50

Shield

Cut vinyl sheath.

TTYCS-1
ϕ = 10.1 mm

Armor
Sheath
Shield
Conductor
S = 0.75 mm^2
ϕ = 1.11 mm

Pull out cables from shield;
solder vinyl wire to shield.

6

Connect cores to
WAGO terminal
block.

Vinyl tape   Set this part in cable clamp.

4-11

SIgnal cable FRU12-05AFFM (Main Alarm Panel)

6 | 50

10 | 10

Connect cores
to WAGO terminal block. Vinyl tape

Set this part
in cable clamp.

80 mm | 80 mm

Wrap wires with
vinyl tape.

Wrap armor with
vinyl tape.

How to fabricate cables for processor unit
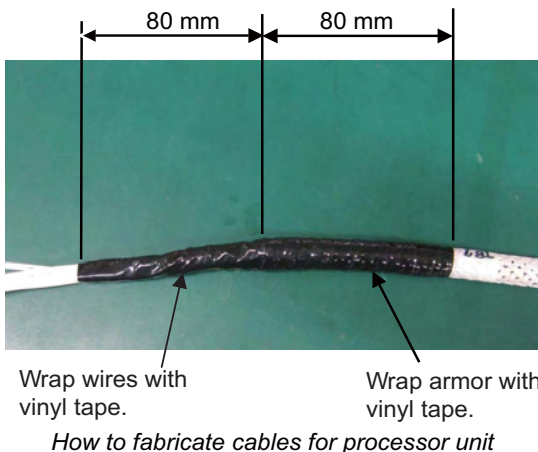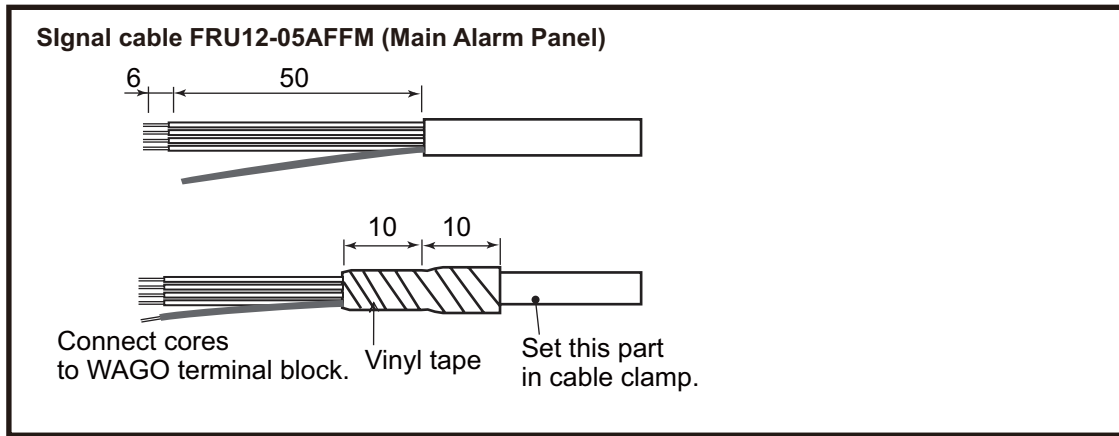
Fix cables to post with cable tie

4.7.2 Wiring information

Item	Description
Operator fitness	• **FAR-2105**: It is not possible to create a connection for operator fitness between FAR-2105 and the Processor Unit, because the FAR-2105 does not have operator fitness output. • **FAR-2107**: Use port J612 (pin #7/8 for operator fitness), where a contact signal is available. • **Other makes of radars**: Check for availability of contact signal.
FRU12-05AFFM (between BR-510 and BR-520)	This cable is fit with a Micro-C connector (male) on one end and a stripped end for connection to the BR-520. The standard length is 6 m. 10 m, 20 m, 30 m, 40 m, and 50 m cables are optionally available.
Cable MPYC-7 (between BR-530/550 and BR-520)	40 m and the total length for all units is max. 150 m. For example, when four BR-530 are installed: No.1 BR-530: 40 m No. 2 BR-530: 40 m No. 3 BR-530: 40 m No. 4 BR-530: 30 m Total length: 150 m
Motion Detector BR-560	• Pyroelectric detection • Detection range: Up to 5m, 80°×80° • Detection rate: 0.8 thru 1.2 m/s • Detection sensitivity: 4°C (difference from surround in temperature) Generally, up to two Motion Detectors can be installed, at INPUT3/4 and INPUT5-8. Also, INPUT port 2 can be used by setting [INPUT2] on the Service menu to [Timer Reset].

4.7.3   Main Alarm Panel

Connect the Processor Unit to the CAN bus connector with the cable FRU12-05AFFM (supplied). Run a ground wire (IV-2sq) between the ground terminal and ship's ground.

No use

NMEA 0183 connector (for service)

Ground Wire (IV-2sq)

CAN bus connector
Cable FRU12-05AFFM (10 m, max. 50 m)

Processor Unit BR-520
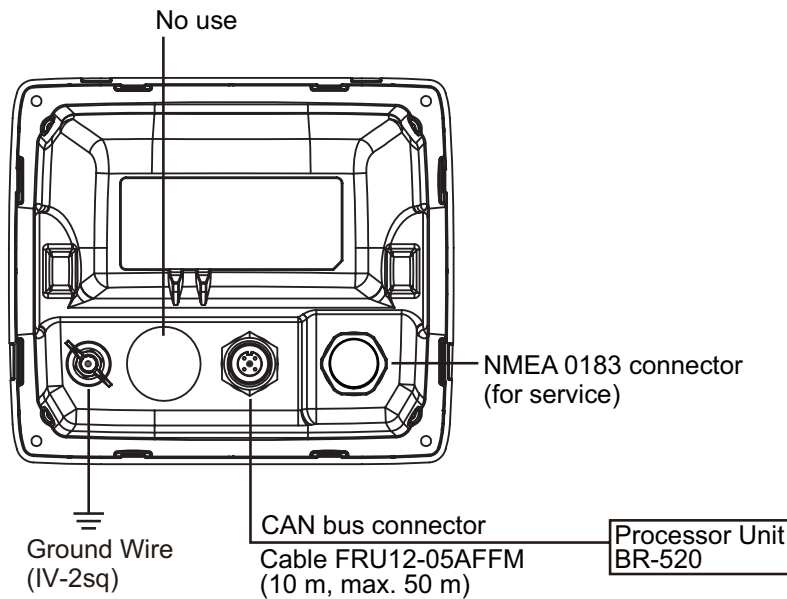
4.7.4   Timer Reset Panel, Cabin Panel, Motion Detector, Flash Beacon

The wiring procedure is common to all the above-mentioned units.

Cable to use	Description
Cable MPYC-7 (between respective unit and BR-520)	Timer Reset Panel Max. length of single cable: 40 m Max. length: of all cables: 150 m Cabin Panel Max. length of single cable: 80 m Max. length of all cables: 300 m Cable total length Cabin Panel: max. 300 m Timer Reset Panel: max. 150 m

1) Loosen four screws to remove rear cover.

2) Process cable and connect cable to WAGO terminal block. Use terminal opener (inside Processor Unit) to open terminals. (Shown: Timer Reset Panel)

3) Close rear cover. Fasten cable to clamp with cable tie (supplied).

4.7.5 Flash Beacon

The LED of the Flash Beacon can be adjusted externally. Connect a junction box (local supply) and external dimmer (3 kΩ, local supply) as shown below to enable the adjustment.
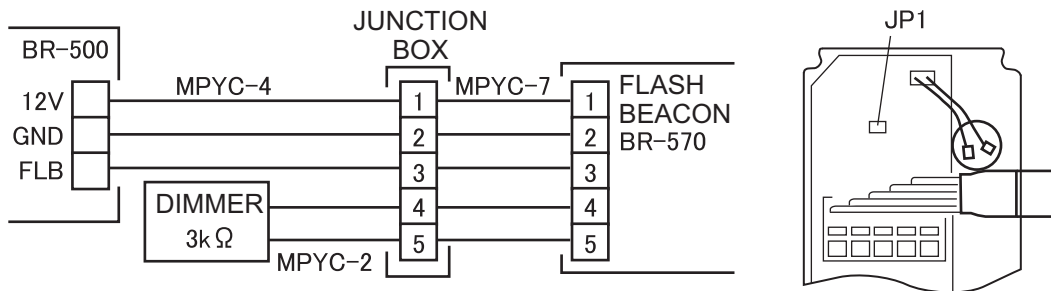
To use an external dimmer, set the jumper block JP1 to the 1-2 position.

4.7.6 How to fabricate cables for the Cabin Panel, Timer Reset Panel, Flash Beacon and Motion Detector

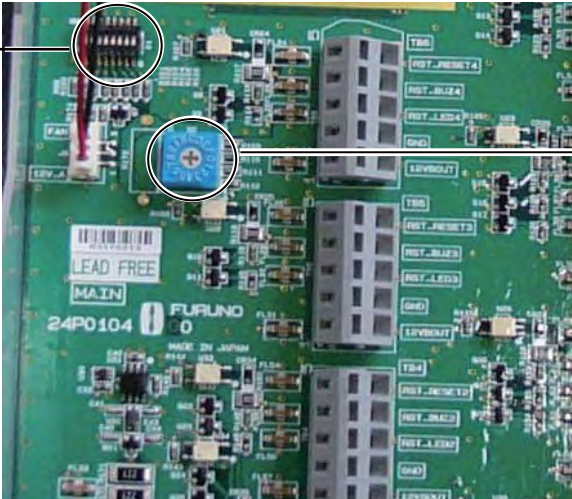Fabricate the above-mentioned cables as shown below.
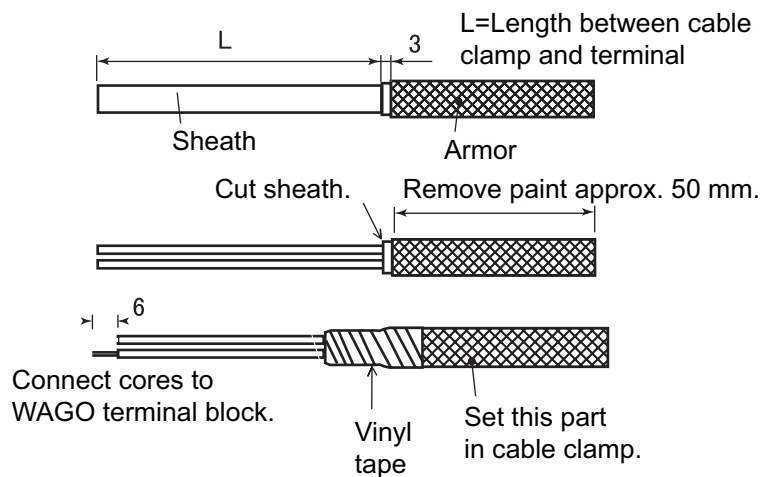
4.8   DIP Switch, Rotary Switch Settings

A DIP switch and a Rotary switch are provided in the Processor Unit to adjust the equipment according to applicable regulations and ship's requirements.

Location of switches in the Processor Unit

Rotary SW S2

SW position	Frequency
0	*4.2 kHz*
1	4.15 kHz
2	4.25 kHz
3	4.2 kHz
4	4.2 kHz
5	4.2 kHz
6	4.2 kHz
7	4.2 kHz
8	4.2 kHz
9	4.2 kHz
0	4.2 kHz
A	4.2 kHz
B	4.2 kHz
C	4.2 kHz
D	4.2 kHz
E	4.2 kHz
F	4.2 kHz

Default setting in bold italic

DIP SW S1

The DIP SW S1 allows adjustment of the items listed in the table below. The items in bold are the default settings.

SW No.	Function	DIP SW Setting	
		OFF	ON
1	Boot program overwrite	Enabled	Disabled
2	I/O test	**Disabled**	All LEDs, System Fail and Flash Beacon go ON.
3	ALR output (fixed interval output)	**30s**	60s
4	Flash Beacon function (2nd and 3rd stages)	**Flashing**	OFF
5	Processor Unit startup	**Normal startup**	Startup disabled. (For updating the program of the MAIN ALARM PAN-EL.)
6	IEC 61162 Baud rate	**4800 (bps)**	38400 (bps)
7	No use		
8	No use		

Rotary SW S2

The Rotary SW S2 changes the frequency of the buzzer. Use a plastic screwdriver to turn the switch to the appropriate position. See the illustration above for switch position and frequency.

4.9 How to Adjust LED Brilliance

The brilliance of the LEDs on the BR-530, BR-540, BR-550 and BR-570 can be adjusted. If the brilliance is too low or too high, adjust the corresponding potentiometer. Turn the potentiometer clockwise to raise brilliance, counterclockwise to lower it.
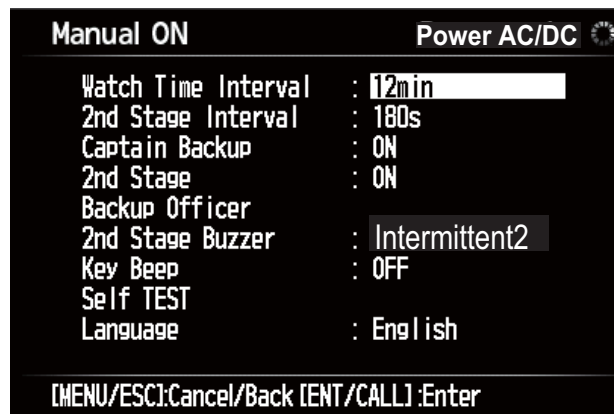

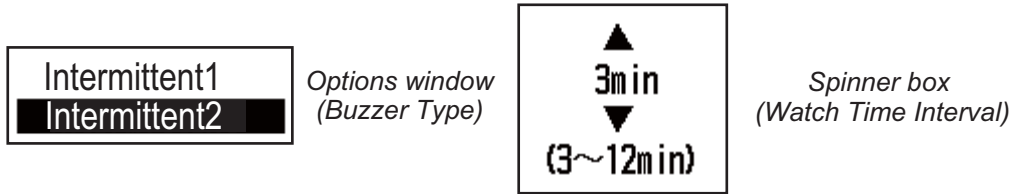*BR-530, BR-550*   *BR-540*   *BR-570*
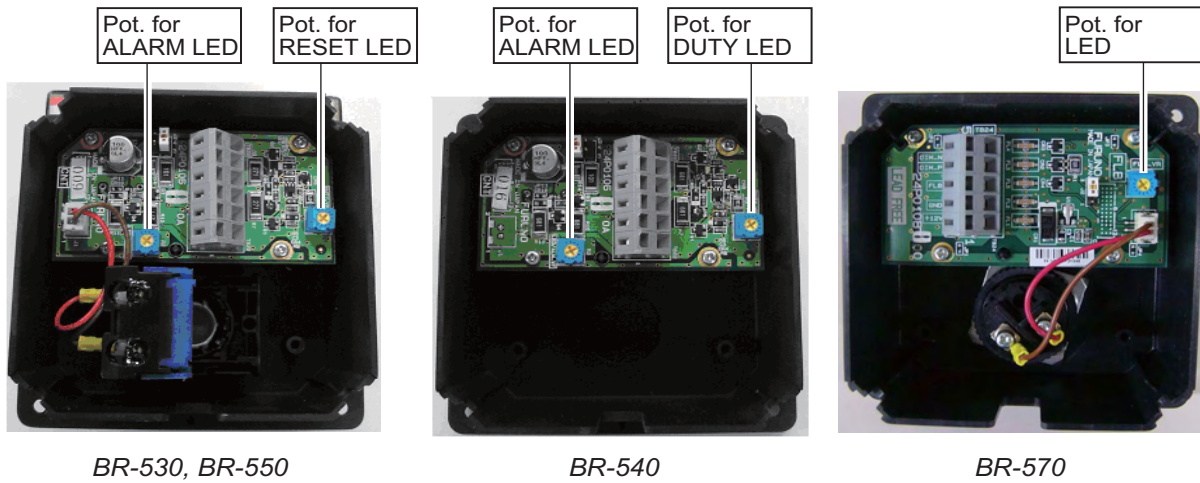
4.10 Menu Settings

4.10.1 Administrator Menu

The Administrator Menu has initial settings that set the system according to the requirements of your vessel. Only the Administrator of the system can enter the initial settings.

1. Press the **MENU/ESC** key.
2. You are asked to enter the password.

3. Use the up or down arrow on the CursorPad to select a menu item then press the **ENT/CALL** key. An options window or spinner box appears depending on your selection.

Intermittent1
Intermittent2
Options window (Buzzer Type)

▲
3min
▼
(3~12min)
Spinner box (Watch Time Interval)

4. Use the up or down arrow on the CursorPad to select an option or set a value then press the **ENT/CALL** key.

Description of Administrator menu

Menu Item	Description	Options
Watch Time Interval	Set the watch time interval.	▲ 3min ▼ (3~12min)
2nd Stage Interval	Set the time interval for the 2nd stage.	▲ 90s ▼ (90~180s)
Captain Backup	Select whether to include the Captain as a back-up navigation officer. That is, select whether to forward the alarm to the Cabin Panel in the Captain's quarters in the 2nd stage or the 3rd stage.**OFF**: Forward in 3rd stage.**ON**: Forward in 2nd stage.	OFF **ON**
2nd Stage	Select whether to omit 2nd stage alarm or not.**OFF**: Omit alarm.**ON**: Don't omit alarm.	OFF **ON**

Menu Item	Description	Options
Backup Officer	Change the name of navigation officers; add navigation officers; set the function of the Cabin Panel in the quarters of the Captain. **How to select the function of the Cabin Panel in the quarters of the Captain**: 1) Select [1 CAPTAIN]. 2) Press the **ENT/CALL** key. 3) Select [Backup] or [Captain]. If [Captain] is selected, a small "C" appears before the 1st name on the backup officer list on the BNWAS display. **CAPTAIN** 4) Press the **ENT/CALL** key. **How to change the name of navigation officers, add navigation officers**: 1) Select a name. (To add an officer, select a blank line.) 2) Press the **ENT/CALL** key to show the spinner box for setting name. ▲ **C/OFFICER** ▼ 3) Use the right or left arrow on the CursorPad to set the cursor on a character. 4) Use the up or down arrow on the CursorPad to select a character. **Note:** You can clear the entire line by long-pushing the **ENT/CALL** key. 5) Repeat steps 3 and 4 to change other characters. 6) Finally, press the **ENT/CALL** key to finish.	1 CAPTAIN Captain 2 C/OFFICER 3 2/OFFICER 4 3/OFFICER 5 6 Names of Navigation Officers (default) Backup **Captain** Function of Cabin Panel in quarters of Captain
2nd Stage Buzzer	Select the 2nd stage buzzer type. Intermittent1: ON: 200 ms, OFF: 250 ms Intermittent2: ON: 200 ms, OFF: 400 ms	Intermittent1 **Intermittent2**
Key Beep	Turn the key beep on or off.	OFF **ON**
Self TEST	Check the equipment for proper operation. See the procedure on the next page.	
Language	Choose the language: English, Japanese, Chinese, Korean, or Russian.	**English** 日本語 中文 한국어 Русский

Self TEST

The self test checks the equipment for proper operation.

1. Use the CursorPad to select [Self TEST] from the Administrator menu then press the **ENT/CALL** key.
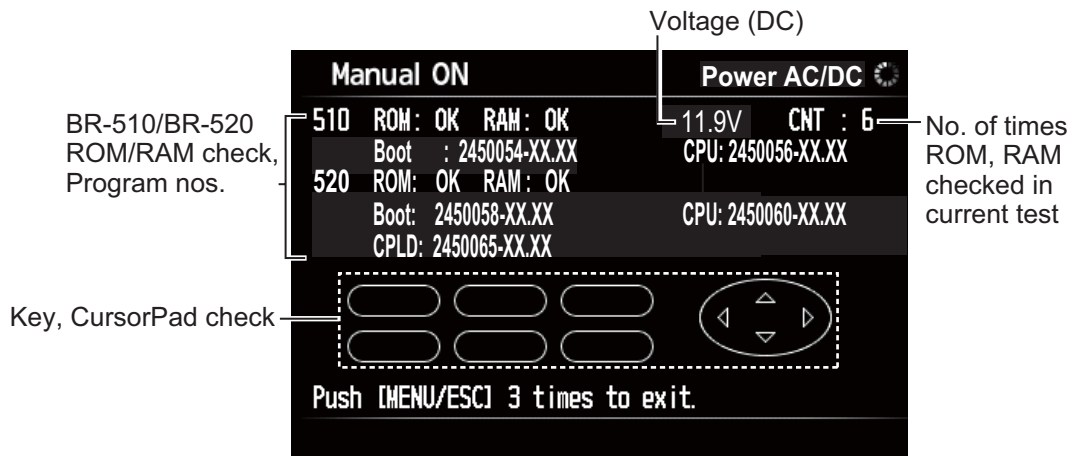
Self test description

- The ROM and RAM of the Main Alarm Panel and Processor Unit are checked. The results are shown as "OK "or "NG" (No Good). If an "NG" appears, try the test again. If "NG" still appears, have a technician check the set.

- The Boot and CPU program numbers of the Main Alarm Panel and the Processor Unit are shown.

- The program no. of the CPLD (Complex Programmable Logic Device) in the Processor Unit is shown.

- The rectangles and oval below the program numbers are for checking the keys and CursorPad. Press a key or an arrow on the CursorPad. The key's/arrow's on-screen location "lights" in red if the key/arrow is normal. Press the key/arrow again to remove the red.

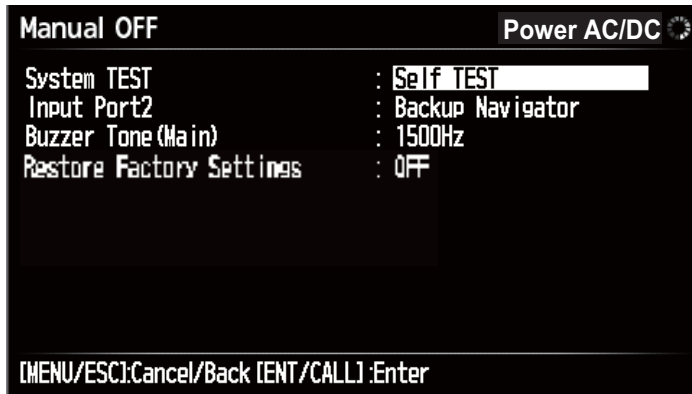2. To quit the Self TEST, press the **MENU/ESC** key three times.

4.10.2 Service Menu

The Service Menu contains items for the installer and the service technician. Contact a sales representative or service technician for the password.

1. Press the **MENU/ESC** key.

2. You are asked to enter the password.

   Note: If the BNWAS is active, the message shown right appears. The cursor is selecting "Yes"; press the **ENT/CALL** key to show the Service menu.
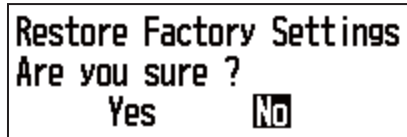
   ```
   Change mode to Manual OFF.
   Are you sure?
          Yes      No
   ```

```
Manual OFF                    Power AC/DC ○

System TEST              : Self TEST
Input Port2              : Backup Navigator
Buzzer Tone(Main)        : 1500Hz
Restore Factory Settings : OFF




[MENU/ESC]:Cancel/Back [ENT/CALL] :Enter
```

Menu Item	Description	Options
System TEST	Self TEST and LCD TEST. The Self TEST checks the system for proper operation. The LCD TEST checks the LCD on the Main Alarm Panel for proper display of colors.	**Self TEST** LCD TEST
Input Port2	Select the function for input port 2, Backup Navigator or Timer Reset.	**Backup Navigator** Timer Reset
Buzzer Tone (Main)	Set the frequency for the buzzer of the Main Alarm Panel, 1300-1699 (Hz).	▲ 1500Hz ▼
Restore Factory Settings	Restore all default settings. See the next page for the procedure.	

How to restore factory settings

1. Open the Service menu.

2. Use the CursorPad to select [Restore Factory Settings] then press the **ENT/CALL** key.

3. Use the CursorPad to select [ON] then press the **ENT/CALL** key.

```
Restore Factory Settings
Are you sure ?
       Yes        No
```

4. Use the CursorPad to select "Yes" then press the **ENT/CALL** key.

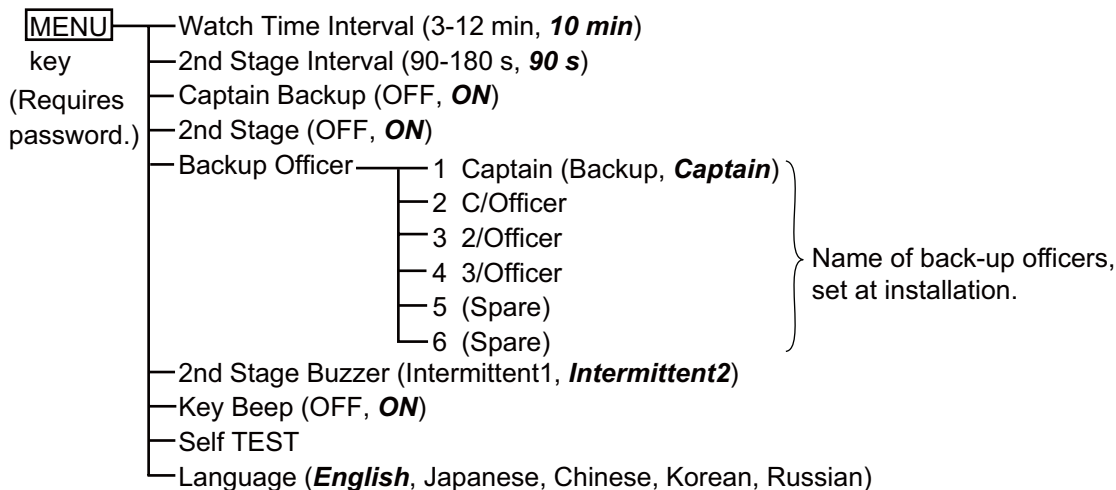5. The equipment restarts, the default settings are restored then the BNWAS display re-appears.

4.11   I/O Sentence Information

The BR-500 has no input sentences.

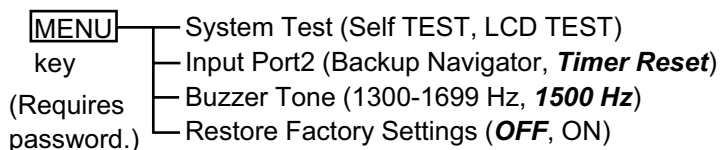| I/O	Sentence	Sentence construction
O	ALR	$BNALR, hhmmss.ss,xxx,A,A,c- -c,*hh<CR><LF> - hhmmss.ss: This part may be left blank because BNWAS does not include UTC time information. - xxx: Designation of source of alarm or source of reset command. xxx: 000: Watch alarm normal 010: Communication failure 011: Power failure AC 012: Power failure DC - A: A=Dormant period exceeded V=Dormant period not exceeded - A: A=Alarm acknowledged V=Alarm unacknowledged - c- -c: BNWAS mode: c1, c2, c3 c1=AUTO, MAN, or OFF c2=Dormant period in min. (03-12) c3=Alarm stage: 1, 2 or 3 Example: $BNALR,,000,A,V,C1=AUT;C2=03;C3=1*hh<CR><LF> Communication specification: Baud rate: 4800 bps/38400 bps (DIP SW S1 No.6) Data bits: 8 Stop bits: 1 Parity: None Characters: ASCII characters

APPENDIX 1 MENU TREE, ABBREVIATIONS, JIS CABLE GUIDE

Menu Tree (default settings in bold italic)

Administrator menu

```
MENU ────┬── Watch Time Interval (3-12 min, 10 min)
key      ├── 2nd Stage Interval (90-180 s, 90 s)
(Requires├── Captain Backup (OFF, ON)
password.)├── 2nd Stage (OFF, ON)
         ├── Backup Officer ──┬── 1 Captain (Backup, Captain)
         │                    ├── 2 C/Officer
         │                    ├── 3 2/Officer         } Name of back-up officers,
         │                    ├── 4 3/Officer         } set at installation.
         │                    ├── 5 (Spare)
         │                    └── 6 (Spare)
         ├── 2nd Stage Buzzer (Intermittent1, Intermittent2)
         ├── Key Beep (OFF, ON)
         ├── Self TEST
         └── Language (English, Japanese, Chinese, Korean, Russian)
```

Service menu

```
MENU ────┬── System Test (Self TEST, LCD TEST)
key      ├── Input Port2 (Backup Navigator, Timer Reset)
(Requires├── Buzzer Tone (1300-1699 Hz, 1500 Hz)
password.)└── Restore Factory Settings (OFF, ON)
```

Abbreviations

Term or Icon	Abbreviation, Meaning	Term or Icon	Abbreviation, Meaning
Alarm	ALARM	Maximum	MAX
Alternating Current	AC	Minimum	MIN
Automatic	AUTO	Minute	min
Brilliance	BRILL	Off	OFF
Direct Current	DC	Officer Of the Watch	OOW
Electronic Chart Display and Information System	ECDIS	On	ON
Emergency	EMG	Second	s
Enter	ENT	Second stage	2nd stage
Escape	ESC	Test	TEST
First stage	1st stage	Third stage	3rd stage
Hertz	Hz	Maximum	MAX
International Maritime Organization	IMO		Officer call

JIS Cable Guide

Cables listed in the manual are usually shown as Japanese Industrial Standard (JIS). Use the following guide to locate an equivalent cable locally.

JIS cable names may have up to 6 alphabetical characters, followed by a dash and a numerical value (example: DPYC-2.5). For core types D and T, the numerical designation indicates the *cross-sectional Area (mm^2)* of the core wire(s) in the cable. For core types M and TT, the numerical designation indicates the *number of core wires* in the cable.

1. Core Type

D Double core power line

T Triple core power line

M 1 mm Multi core

TT 0.75mm twisted pair communications (1Q=quad cable)

2. Insulation Type

P Ethylene Propylene

3. Sheath Type

Y Vinyl

DPYC

TPYC

4. Armor Type

C Steel

5. Shielding Type

Y Corrosive Resistant

6. Core Sheath

S All cores in one sheath

-S Individually sheathed cores

SLA All cores in one sheath, plastic tube sheath w/aluminum tape

-SLA Individually sheathed cores, plastic tube sheath w/aluminum tape
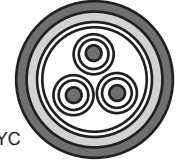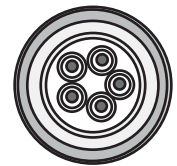
MPYC-5

TTYCS-4

```
        1 2 3 4 5 6              1 2 3 4
EX: DPYCYS - 1.5        MPYC - 5
```
Designation type ── │   Core Area (mm^2) ─┘   Designation type ─┘   # of cores ─┘

The following reference table lists gives the measurements of JIS cables commonly used with Furuno products:

Type	Core Area	Core Diameter	Cable Diameter	Type	Core Area	Core Diameter	Cable Diameter
DPYC-1.5	1.5mm^2	1.56mm	11.7mm	TTYC-7S	0.75mm^2	1.11mm	20.8mm
DPYC-2.5	2.5mm^2	2.01mm	12.8mm	TTYCSLA-1	0.75mm^2	1.11mm	9.4mm
DPYC-4	4.0mm^2	2.55mm	13.9mm	TTYCSLA-1Q	0.75mm^2	1.11mm	10.8mm
DPYC-6	6.0mm^2	3.12mm	15.2mm	TTYCSLA-4	0.75mm^2	1.11mm	15.7mm
DPYCY-2.5	2.5mm^2	2.01mm	14.8mm	TTYCY-4S	0.75mm^2	1.11mm	17.9mm
DPYCY-4	4.0mm	2.55mm	15.9mm	TTYCYS-1	0.75mm^2	1.11mm	12.1mm
DPYCYSLA-1.5	1.5mm^2	1.56mm	13.9mm	TTYCYS-4	0.75mm^2	1.11mm	18.5mm
DPYCYSLA-2.5	2.5mm^2	2.01mm	15.0mm	TPYCY-1.5	1.5mm^2	1.56mm	14.5mm
MPYC-2	1.0mm^2	1.29mm	10.0mm	TPYCY-2.5	2.5mm^2	2.01mm	15.5mm
MPYC-4	1.0mm^2	1.29mm	11.2mm	TPYCY-4	4.0mm^2	2.55mm	16.9mm
MPYC-7	1.0mm^2	1.29mm	13.2mm	TPYCYSLA-1.5	1.5mm^2	1.56mm	13.9mm
MPYCY-12	1.0mm^2	1.29mm	19.0mm				
MPYCY-19	1.0mm^2	1.29mm	22.0mm				

SPECIFICATIONS OF BRIDGE NAVIGATIONAL WATCH ALARM SYSTEM
BR-500

1   MAIN ALARM PANEL (BR-510)

1.1	Display	4.3-inch color LCD, 480 x 272 dots
1.2	Brilliance	0.15 to 500 cd/m^2 (w/o shield film)
1.3	Status indication	Dormant period, Alarm stage, Backup officer, Power status, Operation mode
1.4	Other functions	Backup officer selection, Emergency call, Officer call

2   PROCESSOR UNIT (BR-520)

2.1	Input port	
	Operator fitness	4 ch (normal open)
	Autopilot mode	1 ch (normal open)
	Backup navigator	1 ch (normal close)
2.2	Output port	
	System failure	2 ch (normal close)
2.3	Serial signal	1 ch (for VDR)
2.4	Cabin panel control	12 sets max. (3 sets: cascade connection)
2.5	Timer reset panel control	6 sets max. (2 sets: cascade connection)
2.6	Motion detector	2 ch
2.7	Flash beacon	3 ch

3   CABIN PANEL (BR-540)

3.1	Input voltage	12 VDC: 100 mA or less (supplied from processor unit)
3.2	Visible indication	Alarm LED, Duty LED
3.3	Audible alarm	Buzzer
3.4	Wire breaking diagnose	Press button
3.5	Dimmer	Inner volume and linked with key light

4   TIMER RESET PANEL (BR-530)/ WATERTIGHT TIMER RESET PANEL (BR-550)

4.1	Visible indication	Alarm LED, Reset LED
4.2	Audible alarm	Buzzer
4.3	Timer reset	Press button (yellow)
4.4	Wire breaking diagnose	Continuing pressure of button
4.5	Dimmer	Inner volume and linked with key light

5   MOTION DETECTOR (BR-560, OPTION)

5.1	Detection method	Infrared body motion sensor
5.2	Distance	5 m
5.3	Angle	±40°
5.4	Object size	700 mm x 250 mm (minimum)

5.5	Resolution	0.8 m/s (minimum speed)
5.6	Signal output	Contact closure (normal open)

6   FLASH BEACON (BR-570, OPTION)

6.1	Previous visible alarm	Watch alarm lamp (yellow)
6.2	Dimmer	External or inner volume and linked with key light

7   POWER SOURCE

100-230 VAC: 0.6-0.4 A, 1 phase, 50/60 Hz

24 VDC: 1.0 A (back-up source)

8   ENVIRONMENTAL CONDITION

8.1	Ambient temperature	-15°C to +55°C
8.2	Relative humidity	93% at 40°C
8.3	Degree of protection	
	Processor unit	IP22 (bulkhead), IP20 (tabletop)
	Main alarm panel, Cabin panel, Timer reset panel	IP22
	Motion detector, Flash beaconIP22	
	Watertight timer reset panel IP56	
8.4	Vibration	IEC 60945 Ed.4

9   COATING COLOR

9.1	Watertight timer reset panel	N1.0
9.2	Others	N2.5

PACKING LIST

BR-520-J/E-V

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット UNIT			
制御部 PROCESSOR UNIT	378 / 287 / 123	BR-520 000-018-041-00	1
工事材料 INSTALLATION MATERIALS			
工事材料 INSTALLATION MATERIALS		CP24-01801 001-117-970-00	1
図書 DOCUMENT			
取扱説明書（和） OPERATOR'S MANUAL (JP)	210 / 297	OM*-44610-* 000-174-617-1* **	1
操作要領書（和） OPERATOR'S GUIDE (JP)	210 / 297	OS*-44610-* 000-174-619-1* **	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.

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.）

24AJ-X-9852

PACKING LIST

BR-510

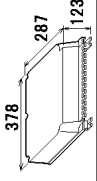| NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット UNIT			
メインアラームパネル MAIN ALARM PANEL UNIT	150 / 130 / 80	BR-510 000-018-030-00	1
工事材料 INSTALLATION MATERIALS			
工事材料 INSTALLATION MATERIALS		CP24-01701 001-117-860-00	1

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.）

24AJ-X-9851

PACKING LIST

BR-520-J/E-10

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット **UNIT**			
制御部 PROCESSOR UNIT	378 287 123	BR-520 000-018-041-00	1
予備品 **SPARE PARTS**			
予備品 SPARE PARTS		SP24-00501 001-117-990-00	1
工事材料 **INSTALLATION MATERIALS**		CP24-01800	
ケーブル組品 CABLE ASSEMBLY	L=10m	FI-50-DROP-10M 001-115-210-10	1
工事材料 INSTALLATION MATERIALS		CP24-01801 001-117-970-00	1
図書 **DOCUMENT**			
取扱説明書（和） OPERATOR'S MANUAL (JP)	210 297	OM*-44610-* 000-174-617-1* **	1
操作要領書（和） OPERATOR'S GUIDE (JP)	210 297	OS*-44610-* 000-174-619-1* **	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.

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.）
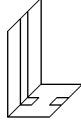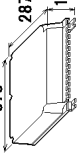
24AJ-X-9853

PACKING LIST

BR-520-J/E-N

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット **UNIT**			
制御部 PROCESSOR UNIT	378 287 123	BR-520 000-018-041-00	1
予備品 **SPARE PARTS**			
予備品 SPARE PARTS		SP24-00501 001-117-990-00	1
工事材料 **INSTALLATION MATERIALS**			
工事材料 INSTALLATION MATERIALS		CP24-01801 001-117-970-00	1
図書 **DOCUMENT**			
取扱説明書（和） OPERATOR'S MANUAL (JP)	210 297	OM*-44610-* 000-174-617-1* **	1
操作要領書（和） OPERATOR'S GUIDE (JP)	210 297	OS*-44610-* 000-174-619-1* **	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.

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.）

24AJ-X-9854

PACKING LIST

BR-510/520-J/E-N

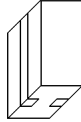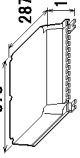| NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット UNIT			
メインアラームパネ 一式 MAIN ALARM PANE		BR-510 000-018-652-00	1
制御部 PROCESSOR UNIT	378 287 123	BR-520 000-018-041-00	1
制御部予備品 PROCESSOR UNIT SPARE PARTS			
予備品 SPARE PARTS		SP24-00501 001-1117-990-00	1
制御部工材 PROCESSOR UNIT INSTALLATION MATERIALS			
工事材料 INSTALLATION MATERIALS		CP24-01801 001-1117-970-00	1
図書 DOCUMENT			
取扱説明書 (和) OPERATOR'S MANUAL (JP)	210 297	OM*-44610-* 000-174-617-1* **	1
操作要領書 (和) OPERATOR'S GUIDE (JP)	210 297	OS*-44610-* 000-174-619-1* **	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.

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.) 24AJ-X-9856

PACKING LIST

BR-510/520-J/E-10

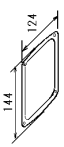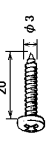| NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット UNIT			
メインアラームパネ 一式 MAIN ALARM PANE		BR-510 000-018-652-00	1
制御部 PROCESSOR UNIT	378 287 123	BR-520 000-018-041-00	1
制御部予備品 PROCESSOR UNIT SPARE PARTS			
予備品 SPARE PARTS		SP24-00501 001-1117-990-00	1
制御部工材 PROCESSOR UNIT INSTALLATION MATERIALS CP24-01800			
ケーブル組品 CABLE ASSEMBLY	L=10m	FI-50-DROP-10M 001-115-210-10	1
工事材料 INSTALLATION MATERIALS		CP24-01801 001-1117-970-00	1
図書 DOCUMENT			
取扱説明書 (和) OPERATOR'S MANUAL (JP)	210 297	OM*-44610-* 000-174-617-1* **	1
操作要領書 (和) OPERATOR'S GUIDE (JP)	210 297	OS*-44610-* 000-174-619-1* **	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.

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.
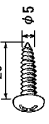(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.) 24AJ-X-9855

FURUNO

明細書 DESCRIPTION

BR-510

CODE NO.	001-118-750-00	24AJ-X-9412 -0
TYPE	0P24-21	

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	HANGER BRACKET	83 166 115	20-032-1061-1 / CODE NO. 100-357-151-10	1	
2	KNOB(BOLT) KNOB(BOLT	33 φ40	20-032-1062-1 / CODE NO. 100-357-161-10	2	
3	+トラスタッピンネジ 1シュ SELF-TAPPING SCREW	20 φ5	5X20 SUS304 / CODE NO. 000-162-608-10	4	

FURUNO

工事材料表 INSTALLATION MATERIALS

BR-510

CODE NO.	001-117-860-00	24AJ-X-9401 -0
TYPE	CP24-01701	

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	F_MOUNT CUSHION F_MOUNT CUSHION	144 124	20-032-1064-1 / CODE NO. 100-357-181-10	1	
2	+ナベタッピンネジ 1シュ SELF-TAPPING SCREW	20 φ3	3X20 SUS304 / CODE NO. 000-163-884-10	4	

FURUNO

	CODE NO.	001-117-990-00	24AJ-X-9301 -0 1/1
	TYPE	SP24-00501	BOX NO. P

SPARE PARTS LIST FOR

SHIP NO.   BR-520   U S E   SETS PER VESSEL

ITEM NO.	NAME OF PART	OUTLINE	DWG. NO. OR TYPE NO.	QUANTITY WORKING PER SET	PER VES	SPARE	REMARKS/CODE NO.
1	ヒューズ GLASS TUBE FUSE	20 φ5	FGMB 250V 2A PBF			2	000-157-497-10
2	ヒューズ GLASS TUBE FUSE	20 φ5	FGMB 250V 3A PBF			1	000-157-568-10

MFR'S NAME	FURUNO ELECTRIC CO., LTD.	DWG NO.	24AJ-X-9301	1/1

（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、下段に代わる通速類品であり、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.

FURUNO

	CODE NO.	001-118-760-00	24AJ-X-9413 -0
	TYPE	OP24-22	1/1

明細書 DESCRIPTION

BR-510

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	遮光フィルム SHADING FILM	95 55	24-012-1501-1 CODE NO. 100-363-581-10	1	

型式/コード番号が2段の場合、下段に代わる通速類品であり、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.

24AJ-X-9413

FURUNO

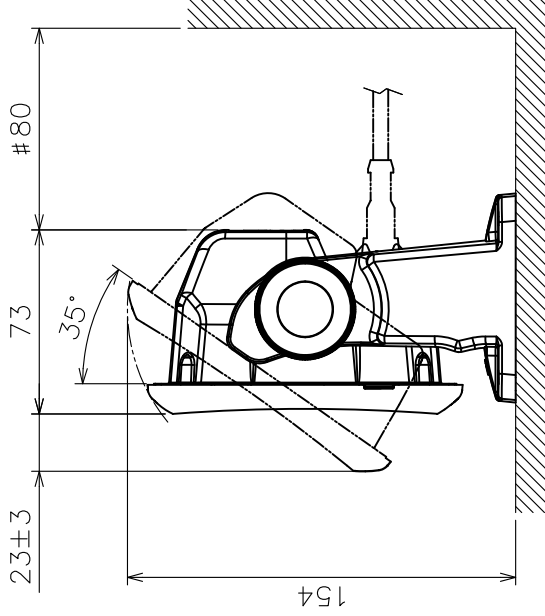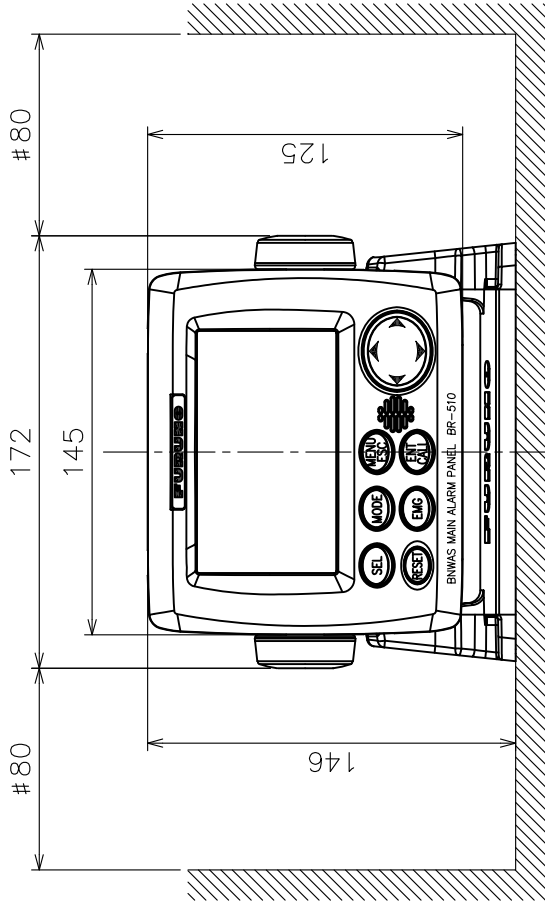## 表1 TABLE 1

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

信号コネクタ
SIGNAL CONNECTOR

信号コネクタ
SIGNAL CONNECTOR

背面
REAR VIEW

型式銘板
NAMEPLATE

アース端子
GND TERMINAL

#80

73

35°

23±3

154

#80

125

172

145

146

146±0.5

取付穴 4-φ6
FIXING HOLES

63±0.5

15±2

88

#80

注 記
1) 指定外寸法公差は表1による。
2) #印寸法は、最小サービス空間寸法とする。
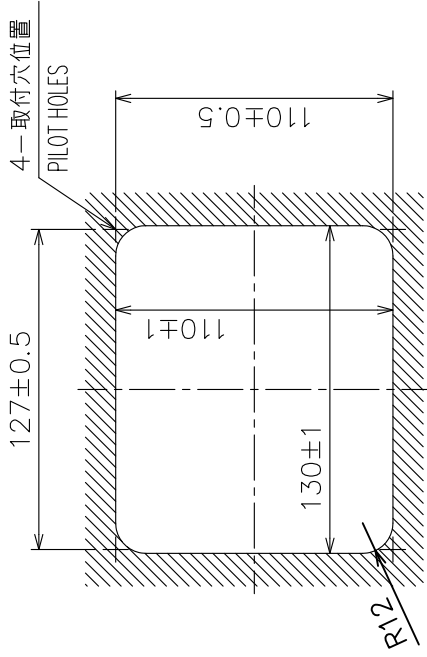3) 取付用ネジはトラスタッピンネジ呼び径5×20を使用のこと。

NOTE
1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2. #: MINIMUM SERVICE CLEARANCE.
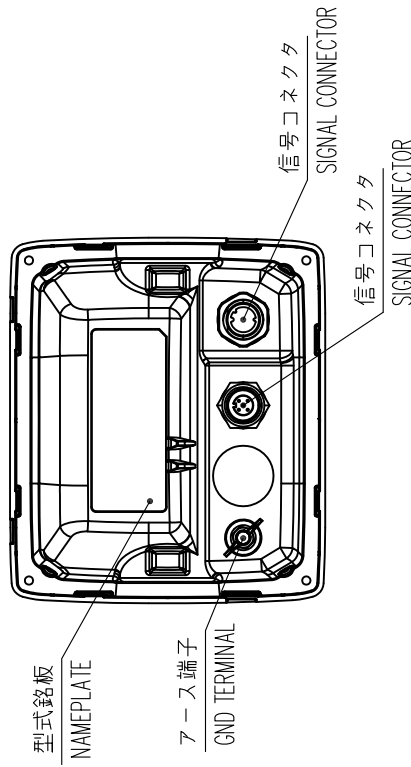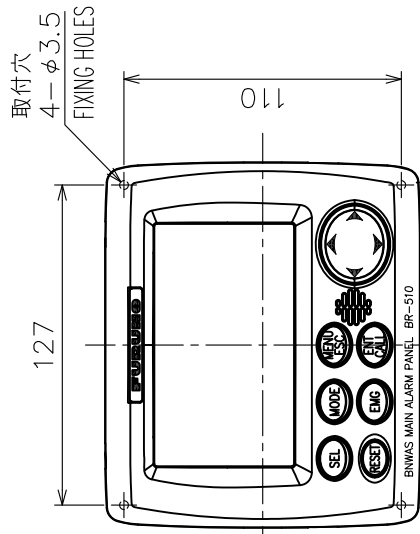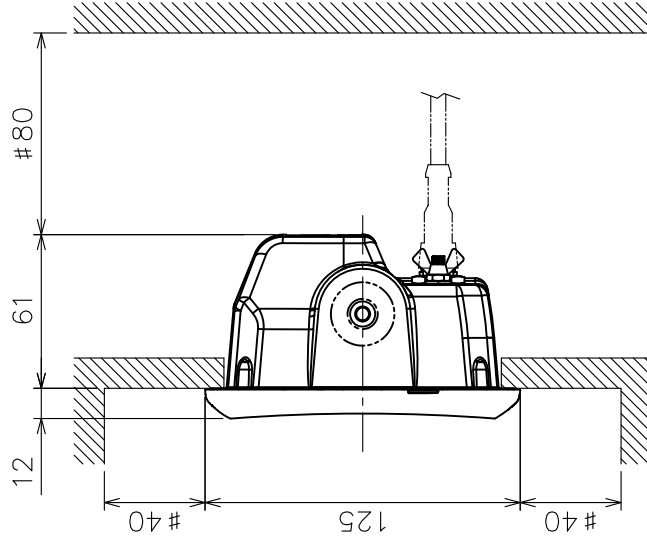3. USE TAPPING SCREWS φ5x20 FOR FIXING THE UNIT.

DRAWN	9/Dec/2010	T.YAMASAKI		TITLE	BR-510
CHECKED	9/Dec/2010	T.TAKAHASHI		名称	メインアラームパネル（卓上装備）
APPROVED	10/Dec/2010	Y.NISHIYAMA	BR-500		外寸図
			電量はケーブルを含まず。	NAME	MAIN ALARM PANEL (TABLETOP MOUNT)
SCALE	1/3	MASS 0.70 ±10% kg	MASS DOES NOT INCLUDE CABLE.		OUTLINE DRAWING
DWG.No.	C4461-G01-B	4		REF.No.	24-012-1006-4

FURUNO ELECTRIC CO., LTD.

FURUNO

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4－取付穴位置
PILOT HOLES

110±0.5

127±0.5

110±1

130±1

取付穴寸法図
CUTOUT DIMENSIONS

R12

信号コネクタ
SIGNAL CONNECTOR

信号コネクタ
SIGNAL CONNECTOR

型式銘板
NAMEPLATE

アース端子
GND TERMINAL

#80

61

12

#40

125

#40

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

#40

145

#40

取付穴
4－φ3.5
FIXING HOLES

127

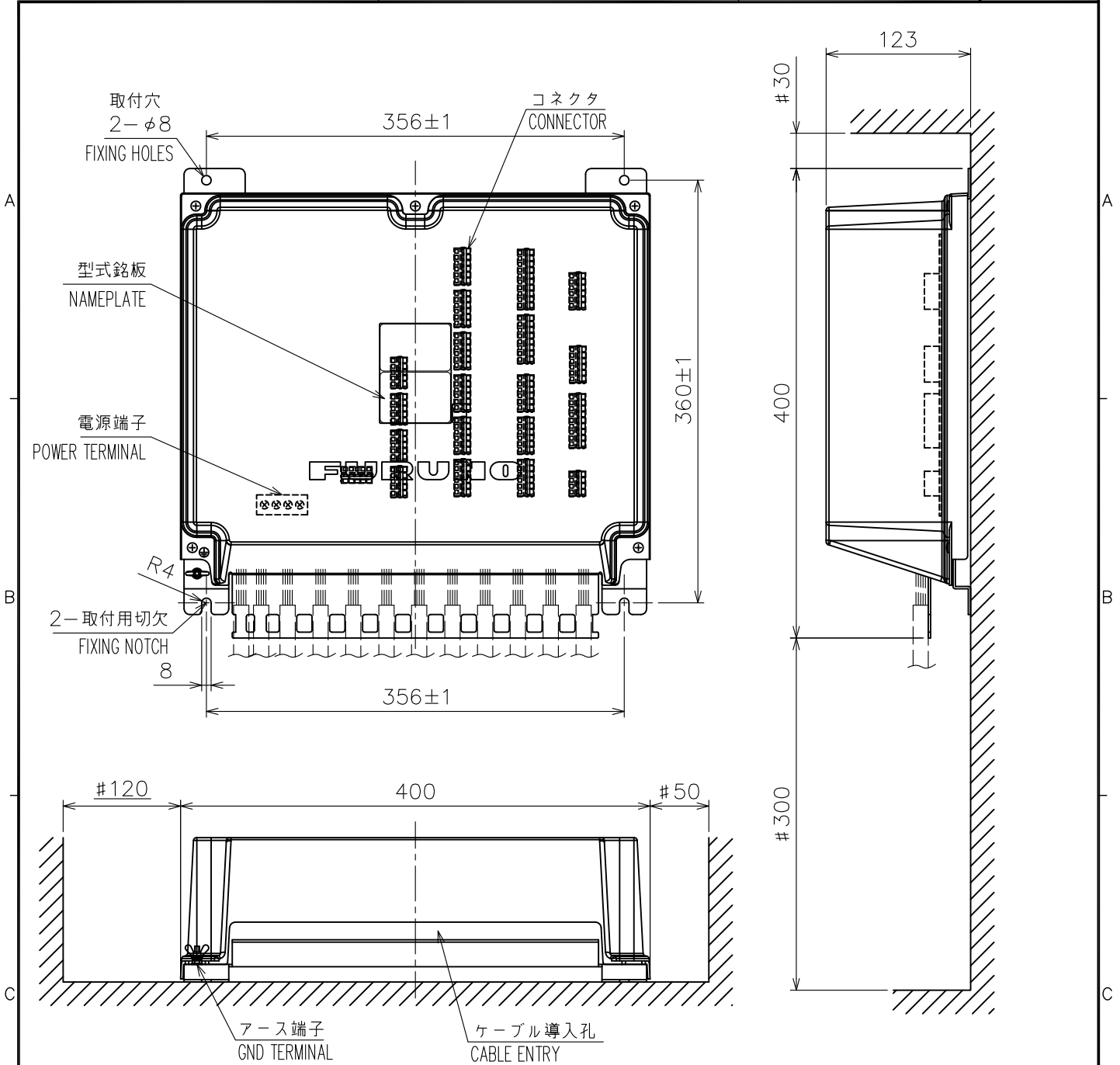110

BNWAS MAIN ALARM PANEL BR-510

MENU/ESC ENT
MODE ENG
SEL RESET

注 記

1） 指定外寸法公差は表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 φ3x20 FOR FIXING THE UNIT.

DRAWN	9/Dec/2010	T.YAMASAKI		
CHECKED	9/Dec/2010	T.TAKAHASHI		
APPROVED	10/Dec/2010	Y.NISHIYAMA	BR-500	
SCALE	1/3	MASS 0.59 kg	質量はケーブルを含みます。 MASS DOES NOT INCLUDE CABLE.	
DWG.No.	C4461-G02-B		REF.No. 24-012-110G-4	

TITLE BR-510
名称 メインアラームパネル（埋込装備）
外寸図
NAME MAIN ALARM PANEL (FLUSH MOUNT)
OUTLINE DRAWING

取付穴
2-φ8
FIXING HOLES

コネクタ
CONNECTOR

356±1

123

♯30

型式銘板
NAMEPLATE

400

360±1

電源端子
POWER TERMINAL

R4

2-取付用切欠
FIXING NOTCH

8

356±1

♯120

400

♯50

♯300

アース端子
GND TERMINAL

ケーブル導入孔
CABLE ENTRY

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） 取付はＭ６ボルトまたはトラスタッピンネジ呼び径６×２０を使用のこと。

表 1 TABLE 1

NOTE
1.   TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2.   #: MINIMUM SERVICE CLEARANCE.
3.   USE M6 BOLTS OR TAPPING SCREWS φ6x20 FOR FIXING THE UNIT.

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

DRAWN	9/Feb/2011 T.YAMASAKI			TITLE	BR-520
CHECKED	9/Feb/2011 H.MAKI			名称	制御部（壁掛装備）
APPROVED	9/Feb/2011 Y.NISHIYAMA	BR-500			外寸図
SCALE	1/5	MASS 5.3 ±10% kg		NAME	PROCESSOR UNIT (BULKHEAD MOUNT)
DWG.No.	C4461-G03- C	REF.No.	24-012-200G-3		OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

FURUNO

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取付穴位置
PILOT HOLES
4－取付穴位置

87±0.5

87±0.5

88±1

88±1

取付穴寸法図
CUTOUT DIMENSIONS

R15

#150

72

41

31

6

ケーブル
CABLE

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

ケーブル導入口
CABLE ENTRY

型式銘板
NAMEPLATE

103

取付穴
4－φ4
FIXING HOLES

100

87±0.5

87±0.5

100

LED

リセットボタン
RESET BUTTON

FURUNO
BNWAS TIMER RESET PANEL
BR-530
ALARM RESET
HOLD
TO
TEST

注記
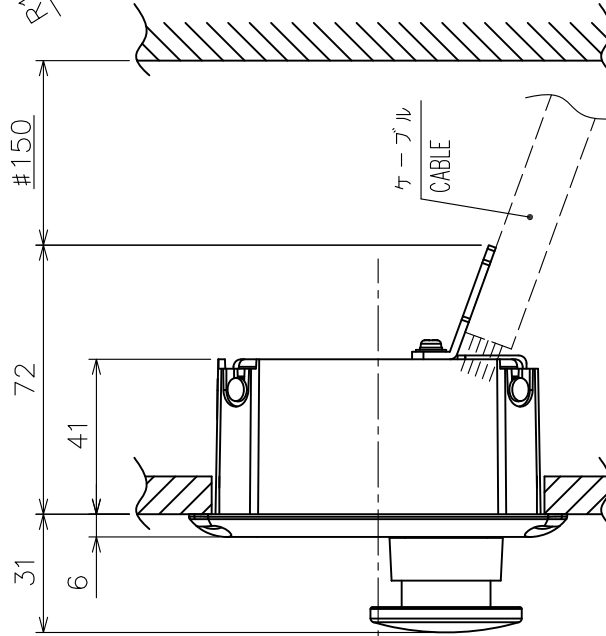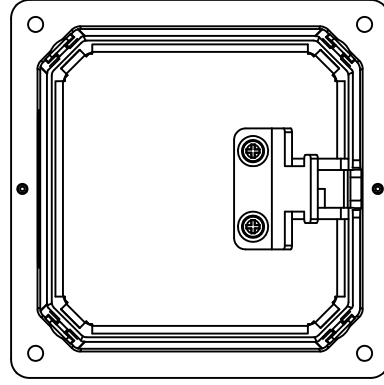1) 指定外の寸法公差は表1による。
2) ＃印寸法は最小サービス空間寸法とする。
3) 取り付けは、バインドタッピンネジ呼び径3×16を使用のこと。
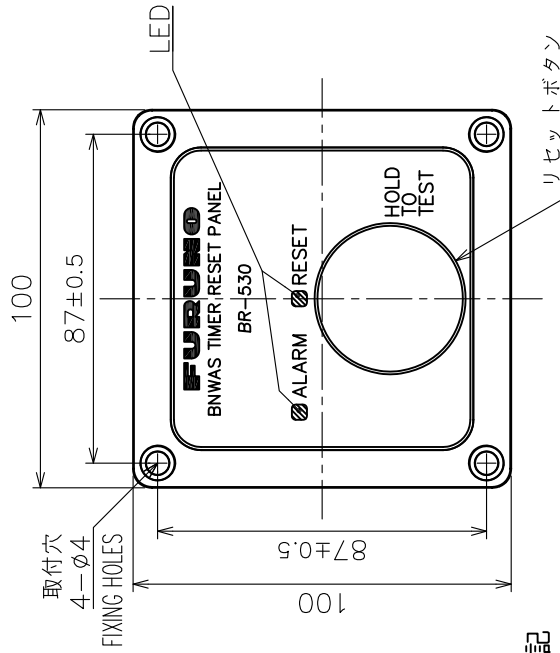
NOTE
1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2. #: MINIMUM SERVICE CLEARANCE.
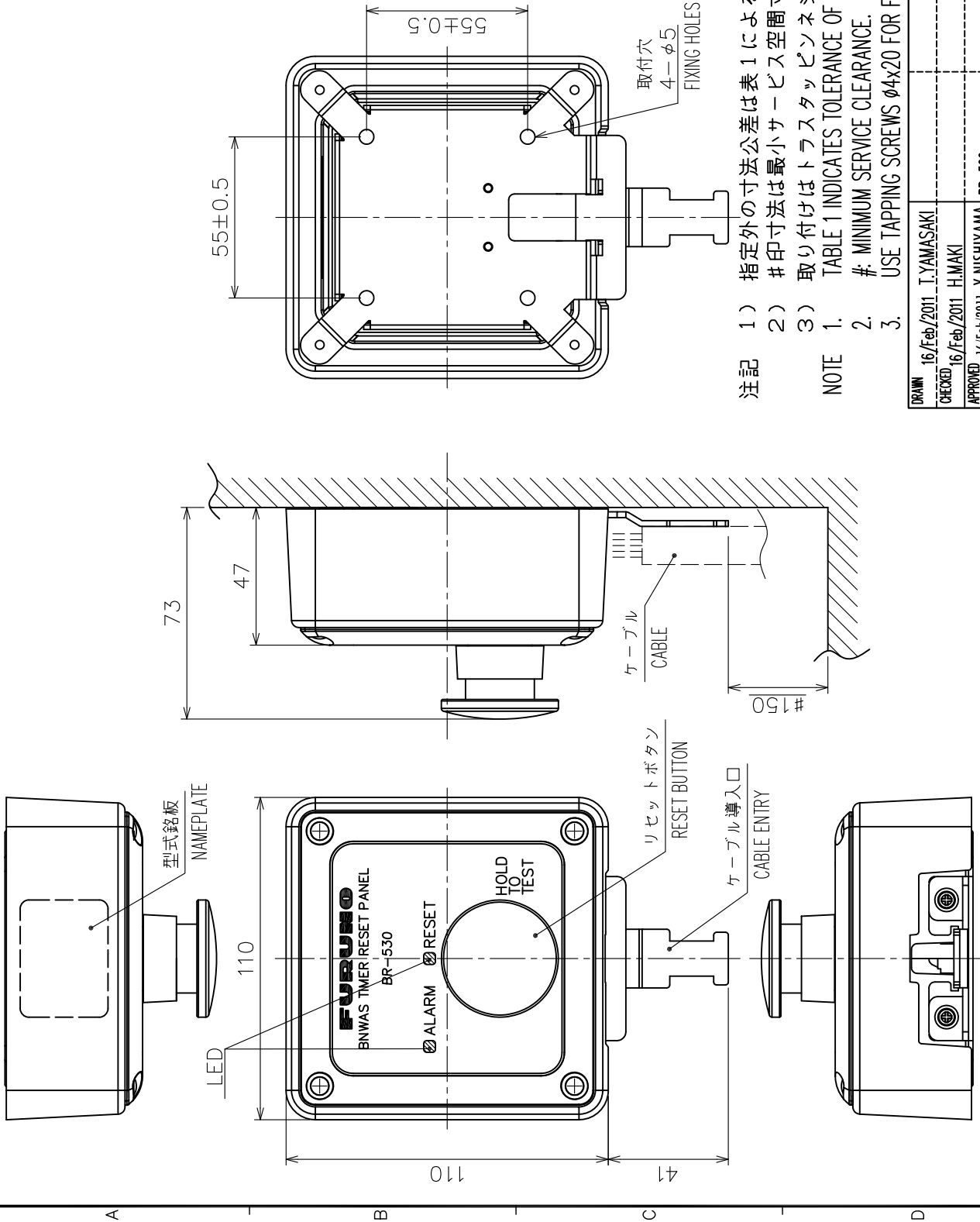3. USE BIND TAPPING SCREWS φ3x16 FOR FIXING THE UNIT.
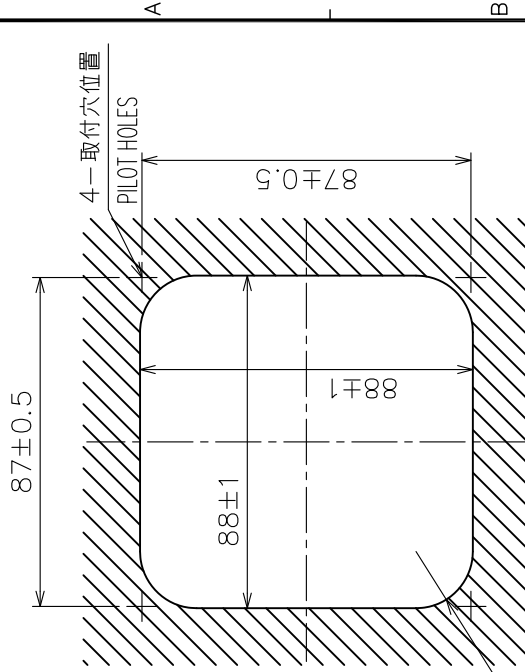
DRAWN	15/Dec/2010	T.YAMASAKI		
CHECKED	15/Dec/2010	H.MAKI		
APPROVED	16/Dec/2010	Y.NISHIYAMA		
SCALE	1/2	MASS	0.26 ±10% kg	
DWG.No.	C4461-G04-C	4		

TITLE BR-530
名称 タイマーリセットパネル（埋込装備）
外寸図
NAME TIMER RESET PANEL (FLUSH MOUNT)
OUTLINE DRAWING

質量はケーブルを含みます。
MASS DOES NOT INCLUDE CABLE.
BR-500
REF.No. 24-012-300G-4

FURUNO

FURUNO ELECTRIC CO., LTD.

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) #印寸法は最小サービス空間寸法とする。
3) 取り付けはトラスタッピンネジ呼び径4×20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 φ4x20 FOR FIXING THE UNIT.

取付穴 4-φ5
FIXING HOLES

55±0.5
55±0.5

47
73

ケーブル CABLE

#150

型式銘板 NAMEPLATE

リセットボタン RESET BUTTON

ケーブル導入口 CABLE ENTRY

FURUNO
BNWAS TIMER RESET PANEL
BR-530
ALARM RESET
HOLD TO TEST

LED

110
110
41

TITLE BR-530
名称 タイマーリセットパネル（壁掛装備）
外寸図
NAME TIMER RESET PANEL (BULKHEAD MOUNT)
OUTLINE DRAWING

DRAWN	16/Feb/2011	T.YAMASAKI			
CHECKED	16/Feb/2011	H.MAKI			BR-500
APPROVED	16/Feb/2011	Y.NISHIYAMA			質量はケーブルを含む。 MASS DOES NOT INCLUDE CABLE.
SCALE	1/2	MASS	0.34 ±10% kg	REF.No.	24-012-3106-5
DWG.No.	C4461-G05-D				4

FURUNO

FURUNO ELECTRIC CO., LTD.

4－取付穴位置
PILOT HOLES

取付穴 4－φ5
FIXING HOLES

取付穴寸法図
CUTOUT DIMENSIONS

55±0.5

38±1

54±1

55±0.5

55±0.5

55±0.5

#150

31

47

73

110

110

ケーブル
CABLE

ケーブル導入口
CABLE ENTRY

型式銘板
NAMEPLATE

LED

リセットボタン
RESET BUTTON

FURUNO
BNWAS TIMER RESET PANEL
BR-530
⌀ ALARM ⌀ RESET

HOLD TO TEST

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) #印寸法は最小サービス空間寸法とする。
3) 取り付けはトラスタッピンネジ呼び径4×20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 ⌀4x20 FOR FIXING THE UNIT.

DRAWN	16/Feb/2011	T.YAMASAKI		
CHECKED	16/Feb/2011	H.MAKI		
APPROVED	16/Feb/2011	Y.NISHIYAMA		

| SCALE | 1/2 | MASS | 0.33 kg |
| DWG.No. | C4461-G06-D | REF.No. | 24-012-311G-5 |

BR-500
質量はケーブルを含みます。
MASS DOES NOT INCLUDE CABLE.

TITLE BR-530
名称 タイマーリセットパネル（壁掛装備）
外寸図
NAME TIMER RESET PANEL (BULKHEAD MOUNT)
OUTLINE DRAWING

FURUNO

FURUNO ELECTRIC CO., LTD.

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

型式銘板
NAMEPLATE

矢視A
VIEW A
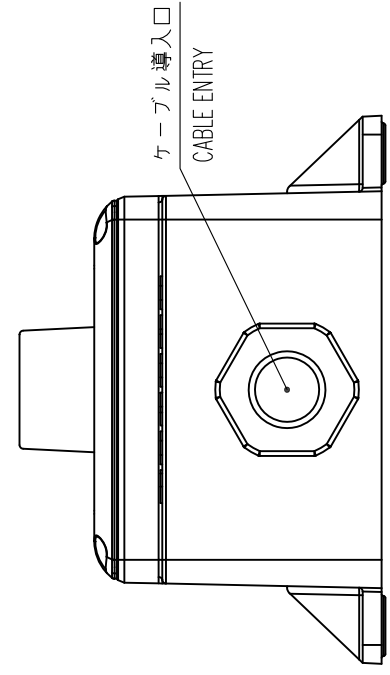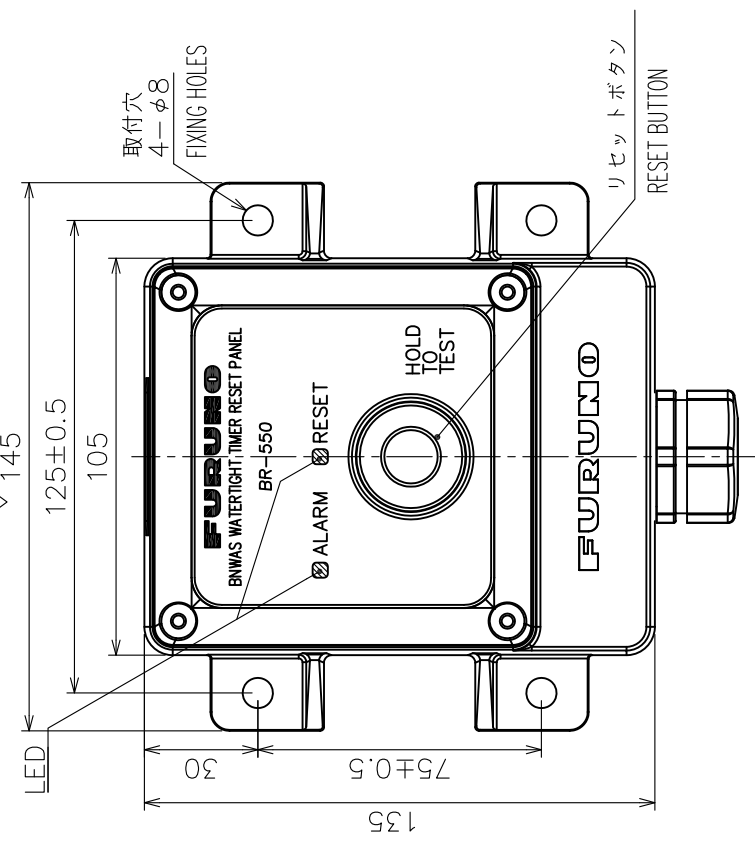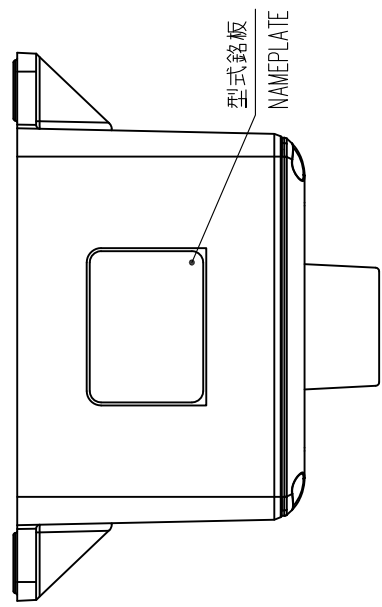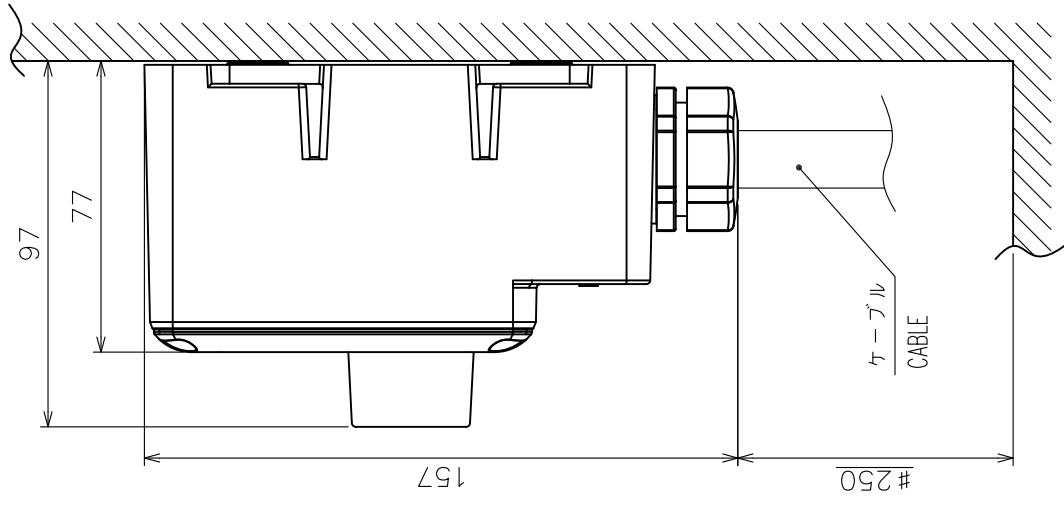
注記 1）指定外の寸法公差は表1による。
2）＃印寸法は最小サービス空間寸法とする。
3）取付用ネジはトラスタッピンネジ
呼び径6×30を使用のこと。

NOTE 1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS
WHICH IS NOT SPECIFIED.
2. #: MINIMUM SERVICE CLEARANCE.
3. USE TAPPING SCREWS φ6x30 FOR FIXING THE UNIT.

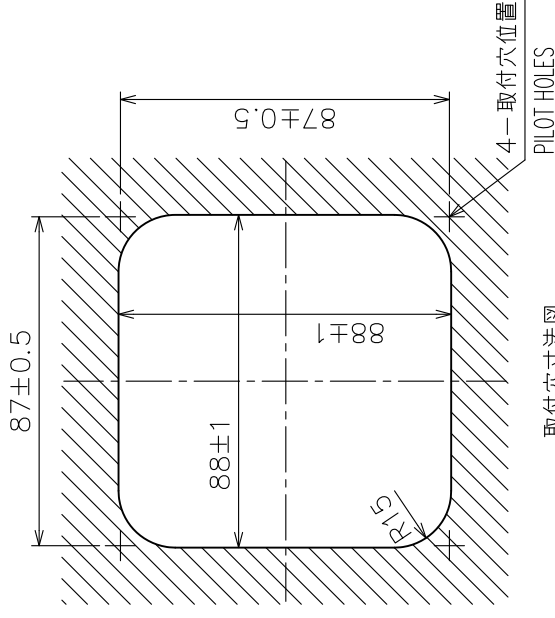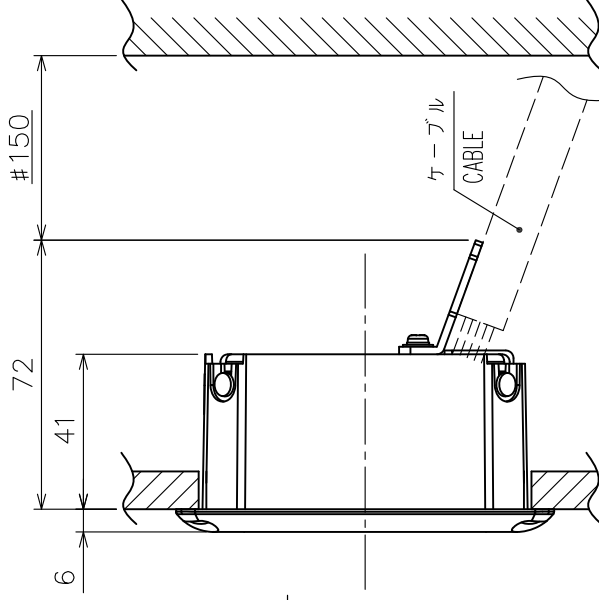| TITLE	BR-550
名称	防水タイマーリセットパネル（壁掛装備）外寸図
NAME	WATERTIGHT TIMER RESET PANEL
	OUTLINE DRAWING

DRAWN	8/Mar/2011	T.YAMASAKI
CHECKED	8/Mar/2011	H.MAKI
APPROVED	9/Mar/2011	Y.NISHIYAMA

BR-500
質量はケーブルを含まず。
MASS DOES NOT INCLUDE CABLE.

SCALE 1/2 MASS 0.57 ±10% kg
REF.No. 24-012-3206-5
DWG.No. C4461-G07-E 4

97
77
157
#250
ケーブル CABLE

取付穴 4-φ8 FIXING HOLES
リセットボタン RESET BUTTON
ケーブル導入口 CABLE ENTRY
145
125±0.5
105
30
75±0.5
135
LED

FURUNO BNWAS WATERTIGHT TIMER RESET PANEL BR-550
ALARM RESET
HOLD TO TEST
FURUNO

FURUNO

FURUNO ELECTRIC CO., LTD.

取付穴寸法図
CUTOUT DIMENSIONS

87±0.5

88±1

88±1

87±0.5

R15

4-取付穴位置
PILOT HOLES

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

#150

72

41

6

ケーブル
CABLE

TITLE BR-540
名称 キャビンパネル（埋込装備）
外寸図
NAME CABIN PANEL (FLUSH MOUNT)
OUTLINE DRAWING

DRAWN	9/Dec/2010	T.YAMASAKI
CHECKED	9/Dec/2010	T.YAMASAKI
APPROVED	10/Dec/2010	Y.NISHIYAMA

BR-500
質量はケーブルを含みます。
MASS DOES NOT INCLUDE CABLE.

SCALE	1/2	MASS	0.23	kg	±10%
DWG.No.	C4461-G08-B		REF.No.	24-012-4006-4
	4			

ケーブル導入口
CABLE ENTRY

型式銘板
NAMEPLATE

LED

テストスイッチ
TEST SWITCH

TEST

FURUNO
BNWAS CABIN PANEL
BR-540

DUTY

ALARM

100

87±0.5

87±0.5

100

取付穴
4-φ4
FIXING HOLES
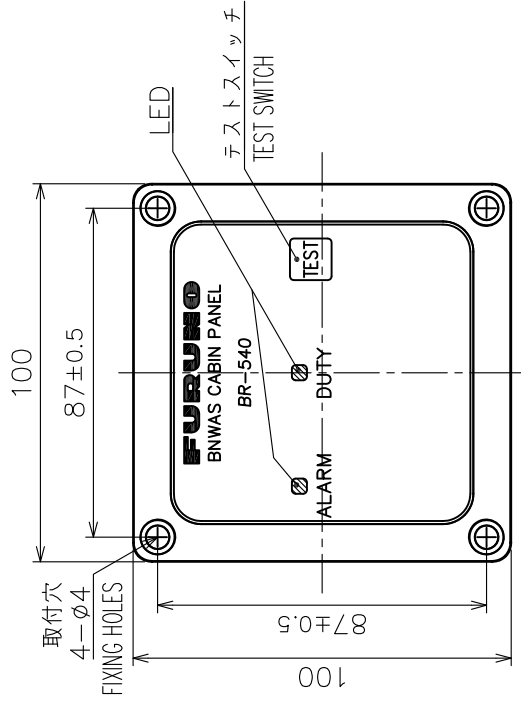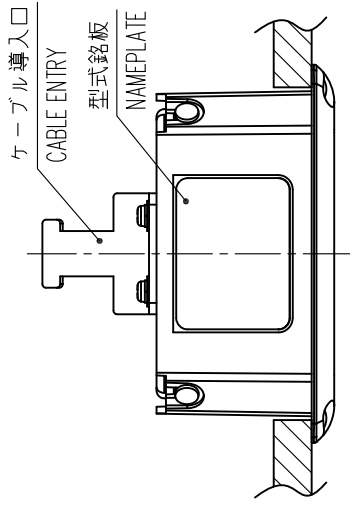
注記 1) 指定外の寸法公差は表1による。
2) #印寸法は最小サービス空間寸法とする。
3) 取り付けは、バインドタッピンネジ呼び径3×16を使用のこと。

NOTE 1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2. # MINIMUM SERVICE CLEARANCE.
3. USE BIND TAPPING SCREWS φ3x16 FOR FIXING THE UNIT.

表 1 TABLE1

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) #印寸法は最小サービス空間寸法とする。
3) 取り付けはトラスタッピンネジ呼び径4×20を使用のこと。

取付穴 4-φ5 FIXING HOLES
55±0.5
55±0.5
47
#150
ケーブル CABLE

型式銘板 NAMEPLATE
テストスイッチ TEST SWITCH
ケーブル導入口 CABLE ENTRY
110
110
41
LED
ALARM DUTY
TEST
FURUNO BNWAS CABIN PANEL BR-540

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

DRAWN 16/Feb/2011 T.YAMASAKI
CHECKED 16/Feb/2011 H.MAKI
APPROVED 16/Feb/2011 Y.NISHIYAMA
SCALE 1/2 MASS 0.31 kg
DWG.No. C4461-G09-C
TITLE BR-540
名称 キャビンパネル（壁掛装備）
外寸図
NAME CABIN PANEL (BULKHEAD MOUNT) OUTLINE DRAWING
REF.No. 24-012-4106-5
BR-500 質量はケーブルを含みます。MASS DOES NOT INCLUDE CABLE.

FURUNO ELECTRIC CO., LTD.

FURUNO

FURUNO ELECTRIC CO., LTD.

4-取付穴位置
PILOT HOLES

取付穴
4-φ5
FIXING HOLES

取付穴寸法図
CUTOUT DIMENSIONS

10

55±0.5

38±1

54±1

55±0.5

55±0.5

R5

55±0.5

#150

31

47

ケーブル
CABLE

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

TITLE　BR-540

名称　キャビンパネル（壁掛装備）

外寸図

NAME　CABIN PANEL (BULKHEAD MOUNT)

OUTLINE DRAWING

DRAWN	16/Feb/2011	T.YAMASAKI			
CHECKED	16/Feb/2011	H.MAKI		BR-500	
APPROVED	16/Feb/2011	Y.NISHIYAMA		質量はケーブルを含む。 MASS DOES NOT INCLUDE CABLE.	
SCALE	1/2	MASS	0.30 ±10% kg		
DWG.No.	C4461-G10-C			REF.No.	24-012-411G-5

4

ケーブル導入口
CABLE ENTRY

型式銘板
NAMEPLATE

LED

テストスイッチ
TEST SWITCH

TEST

FURUNO
BNWAS CABIN PANEL
BR-540

DUTY

ALARM

110

110
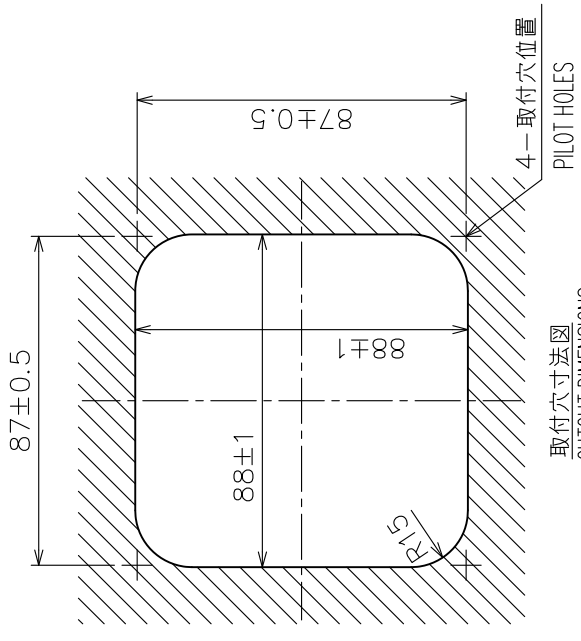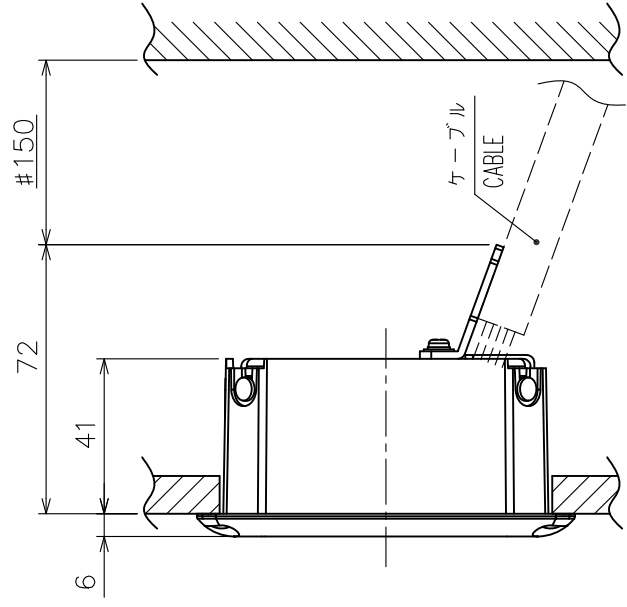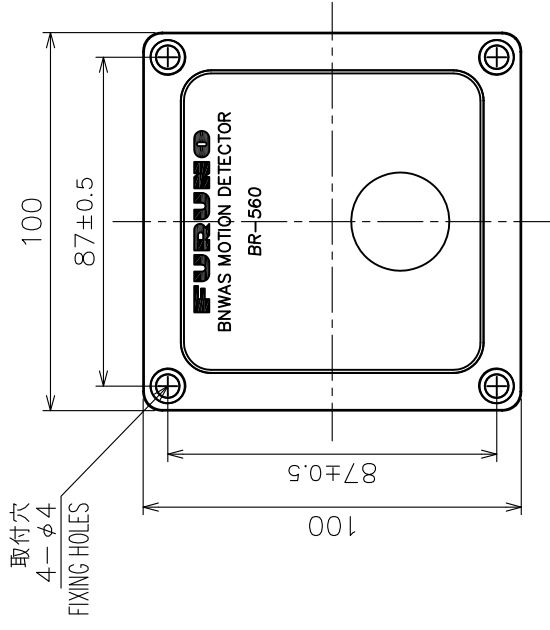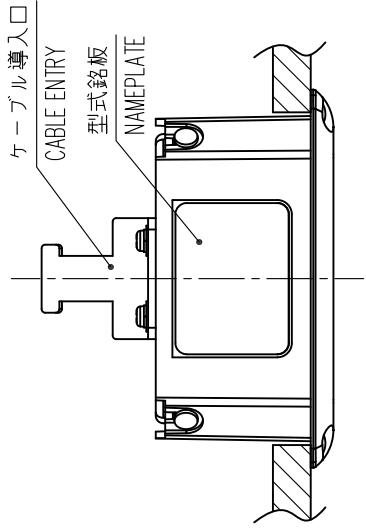
注記 1) 指定外の寸法公差は表1による。
2) #印寸法は最小サービス空間寸法とする。
3) 取り付けはトラスタッピンネジ呼び径4×20を使用のこと。

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

FURUNO

FURUNO ELECTRIC CO., LTD.

87±0.5

87±0.5

88±1

88±1

R15

4－取付穴位置
PILOT HOLES

取付穴寸法図
CUTOUT DIMENSIONS

#150

72

41

6

ケーブル
CABLE

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

ケーブル導入口
CABLE ENTRY

型式銘板
NAMEPLATE

100

87±0.5

87±0.5

100

FURUNO
BNWAS MOTION DETECTOR
BR-560

取付穴
4－φ4
FIXING HOLES

注 記
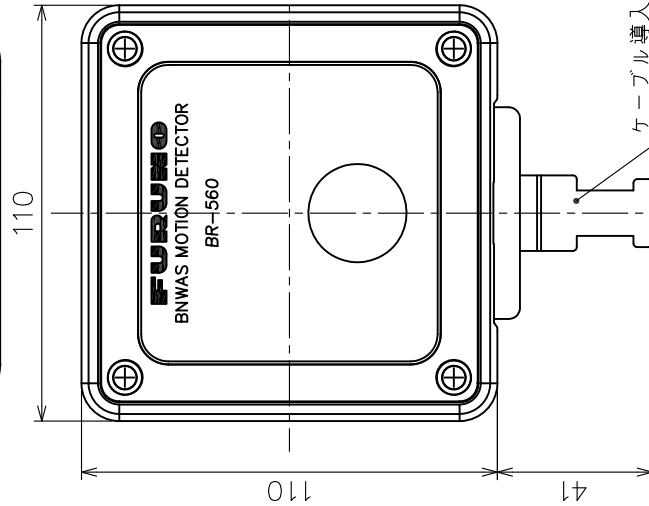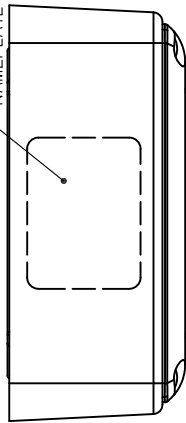1) 指定外の寸法公差は表1による。
2) #印寸法は最小サービス空間寸法とする。
3) 取り付けは、バインドタッピンネジ呼び径3×16を使用のこと。

NOTE
1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2. # MINIMUM SERVICE CLEARANCE.
3. USE BIND TAPPING SCREWS φ3x16 FOR FIXING THE UNIT.

DRAWN	13/Dec/2010	T.YAMASAKI		TITLE	BR-560
CHECKED	13/Dec/2010	H.MAKI		名称	モーション検出器（埋込装備）
APPROVED	14/Dec/2010	Y.NISHIYAMA	BR-500		外寸図
SCALE	1/2	MASS 0.23 ±10% kg	質量はケーブルを含みます。 MASS DOES NOT INCLUDE CABLE.	NAME	MOTION DETECTOR (FLUSH MOUNT)
DWG.No.	C4461-G11-B	4	REF.No. 24-012-500G-4		OUTLINE DRAWING

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

55±0.5

55±0.5

取付穴
4-φ5
FIXING HOLES

47

ケーブル
CABLE

#150

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

型式銘板
NAMEPLATE

110

FURUNO
BNWAS MOTION DETECTOR
BR-560

ケーブル導入口
CABLE ENTRY

110

41

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) 取り付けはトラスタッピンネジ呼び径４×２０を使用のこと。

DRAWN	16/Feb/2011	T.YAMASAKI			TITLE	BR-560
CHECKED	16/Feb/2011	H.MAKI			名称	モーション検出器（壁掛装備）
APPROVED	16/Feb/2011	Y.NISHIYAMA	BR-500	質量はケーブルを含む。		外寸図
SCALE	1/2	MASS 0.31 ±10% kg	MASS DOES NOT INCLUDE CABLE.		NAME	MOTION DETECTOR (BULKHEAD MOUNT)
DWG.No.	C4461-G12-C	4	REF.No.	24-012-5106-5		OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

FURUNO

FURUNO

FURUNO ELECTRIC CO., LTD.

4-取付穴位置
PILOT HOLES

取付穴寸法図
CUTOUT DIMENSIONS

取付穴 4-φ5
FIXING HOLES

取付穴 4-φ5
FIXING HOLES

55±0.5
54±1
38±1
55±0.5
55±0.5
55±0.5
10
R2

#150
31
47

ケーブル
CABLE

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

ケーブル導入口
CABLE ENTRY

型式銘板
NAMEPLATE

FURUNO
BNWAS MOTION DETECTOR
BR-560

110
110

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) 取り付けはトラスタッピンネジ呼び径4×20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 ø4x20 FOR FIXING THE UNIT.

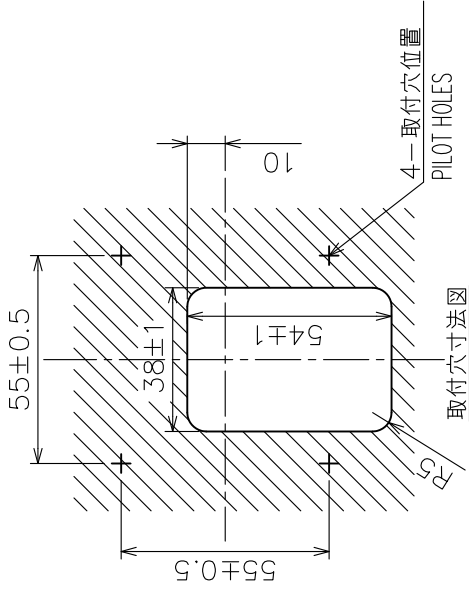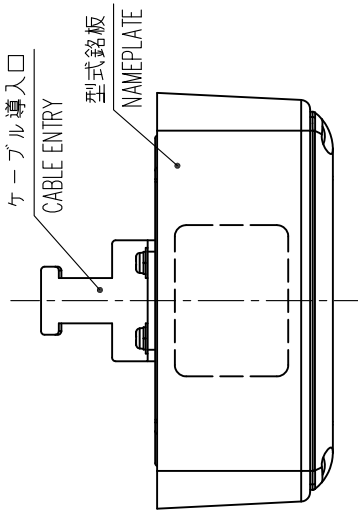| DRAWN	16/Feb/2011	T.YAMASAKI		TITLE	BR-560
CHECKED	16/Feb/2011	H.MAKI		名称	モーション検出器 (壁掛装備)
APPROVED	16/Feb/2011	Y.NISHIYAMA	BR-500	外寸図	

質量はケーブルを含みます。
MASS DOES NOT INCLUDE CABLE.

SCALE	1/2	MASS	0.30 kg	±10%	NAME	MOTION DETECTOR (BULKHEAD MOUNT)
DWG.No.	C4461-G13-C		4			OUTLINE DRAWING
				REF.No.	24-012-511G-5	

FURUNO

FURUNO ELECTRIC CO., LTD.

4－取付穴位置
PILOT HOLES

88±1

88±1

87±0.5

R15

87±0.5

取付穴寸法図
CUTOUT DIMENSIONS

#150

72

41

33

6

ケーブル
CABLE

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

ケーブル導入口
CABLE ENTRY

型式銘板
NAMEPLATE

100

87±0.5

87±0.5

100

FURUNO
BNWAS FLASH BEACON
BR-570

取付穴
4－φ4
FIXING HOLES

104

注 記
1) 指定外の寸法公差は表1による。
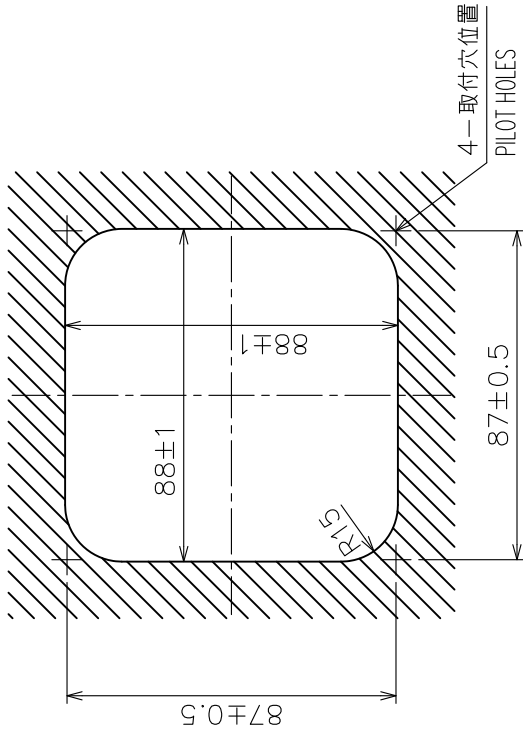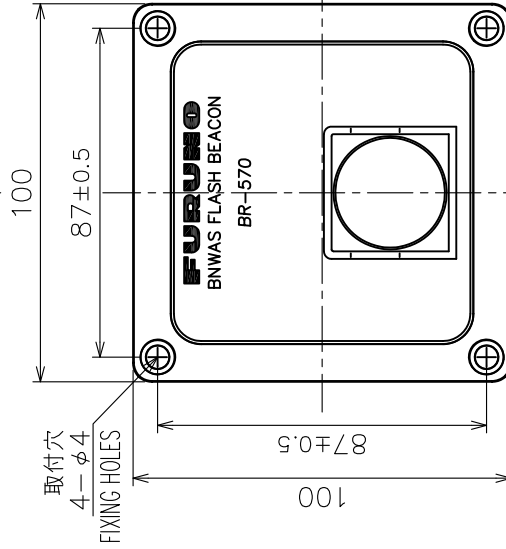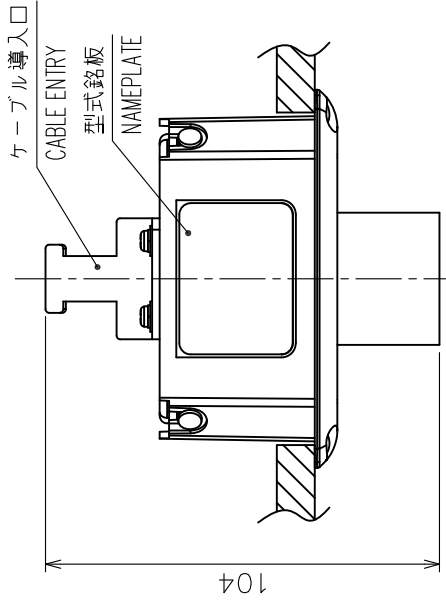2) #印寸法は最小サービス空間寸法とする。
3) 取り付けは、バインドタッピンネジ呼び径3×16を使用のこと。

NOTE
1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2. # MINIMUM SERVICE CLEARANCE.
3. USE BIND TAPPING SCREWS φ3x16 FOR FIXING THE UNIT.

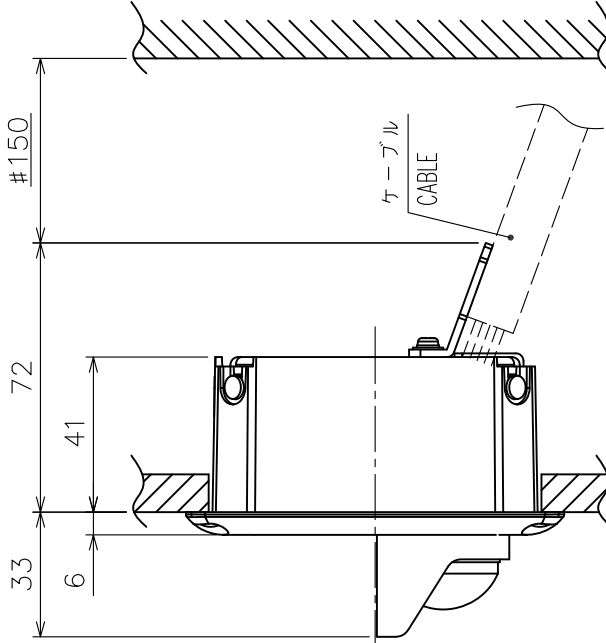| DRAWN	16/Feb/2011	T.YAMASAKI			
CHECKED	16/Feb/2011	H.MAKI			
APPROVED	16/Feb/2011	Y.NISHIYAMA	BR-500	質量はケーブルを含まず。	
SCALE	1/2	MASS 0.24 kg ±10%	MASS DOES NOT INCLUDE CABLE.		
DWG.No.	C4461-G14- C	4	REF.No.	24-012-520G-6	

TITLE BR-570
名称 フラッシュビーコン（埋込装備）
外寸図
NAME FLASH BEACON (FLUSH MOUNT)
OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

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

55±0.5

55±0.5

取付穴
4-φ5
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）　取り付けはトラスタッピンネジ呼び径4×20を使用のこと。

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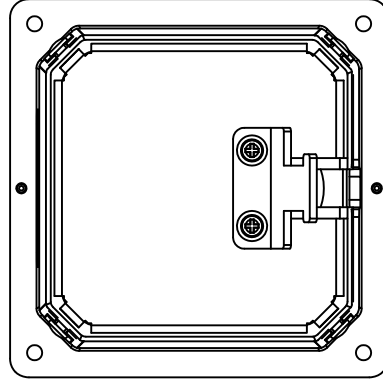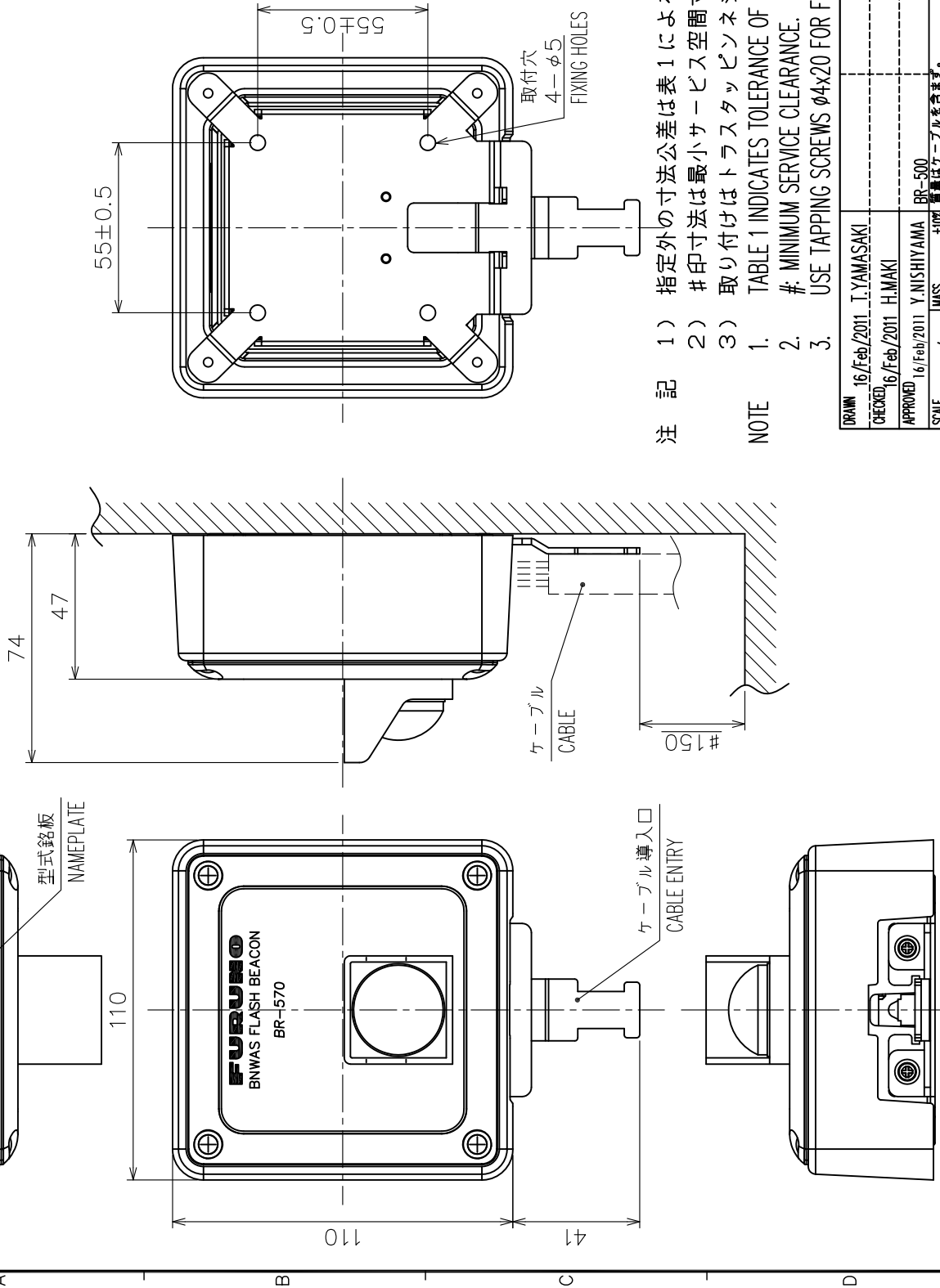　　　3.　USE TAPPING SCREWS φ4x20 FOR FIXING THE UNIT.

DRAWN	16/Feb/2011	T.YAMASAKI			TITLE	BR-570
CHECKED	16/Feb/2011	H.MAKI			名称	フラッシュビーコン（壁掛装備）
APPROVED	16/Feb/2011	Y.NISHIYAMA	BR-500			外寸図
SCALE	1/2	MASS 0.33 kg	質量はケーブルを含む。±10% MASS DOES NOT INCLUDE CABLE.	NAME	FLASH BEACON (BULKHEAD MOUNT)
DWG.No.	C4461-G15-C			REF.No.	24-012-5306-6	OUTLINE DRAWING

47

74

#150

ケーブル
CABLE

型式銘板
NAMEPLATE

110

110

FURUNO
BNWAS FLASH BEACON
BR-570

ケーブル導入口
CABLE ENTRY

41

タイマーリセットパネル：最大6台。ケーブル長さ：全長150m以下。
TIMER RESET PANEL (MAX. 6 SETS) TOTAL CABLE LENGTH: UP TO 150m

最大2台　MAX. 2 SETS

防水型タイマーリセットパネル
WATERTIGHT TIMER RESET PANEL
BR-550 *2

タイマーリセットパネル
TIMER RESET PANEL
BR-530 *2

防水型タイマーリセットパネル
WATERTIGHT TIMER RESET PANEL
BR-550 *2

タイマーリセットパネル
TIMER RESET PANEL
BR-530 *2

モーション検出器
MOTION DETECTOR
BR-560 *2

AUTOPILOT
BACK-UP NAVIGATOR *5
OPERATOR FITNESS *4
ALARM SYSTEM VDR

フラッシュビーコン
FLASH BEACON
BR-570 *2

最大3台 MAX. 3 SETS

VOLUME (3kΩ)

VDR, ETC.

ケーブル長さ合計：最大40m
TOTAL CABLE LENGTH: UP TO 40m

制御部
PROCESSOR UNIT
BR-520

CAPTAIN ROOM
OFFICER CABIN PANEL
OFFICER #1

PUBLIC CABIN PANEL

TB1 AC / AC / (+) / (-)

IV-2sq. *1

100-230VAC 1φ, 50/60Hz
DPYC-1.5
24VDC DPYC-2.5
(BUCK-UP BATTERY)

FRU12-05AFFM-10M 10m
20/30/40/50m (*2)
SHIELD
アカ RED / クロ BLK / シロ WHT / アオ BLU

NETWORK
FG / NET-S / NET-C / NET-H / NET-L

メインアラームパネル
MAIN ALARM PANEL
BR-510

IV-2sq. *1

キャビンパネル
CABIN PANEL
BR-540 *2

12V / GND / DUTY / ALM / BUZ / TEST

キャビンパネル：最大12台。ケーブル長さ：全長300m以下。
CABIN PANEL: UP TO 12 SETS FOR OFFICER AND PUBLIC USE.
TOTAL CABLE LENGTH: UP TO 300m

ケーブル長さ合計：最大80m
TOTAL CABLE LENGTH: UP TO 80m

キャビンパネルの4芯ケーブル接続例
EXAMPLE FOR CONNECTION CABIN PANEL WITH 4-CORE CABLE

TB7-15 12VAOUT / GND / PB_DUTY / PB_ALM / PB_BUZ / PB_TEST

MPYC-4 *1

キャビンパネル
CABIN PANEL
BR-540

DUTY-LEDおよびTEST機能は使用不可
DUTY-LED AND TEST FUNCTIONS ARE DISABLE

注記
＊1）造船所手配。
＊2）オプション。
＊3）キャビンパネルは最大3台まで接続可能。
＊4）モーション検出器に変更可能。
＊5）モーション検出器・オペレータフィットネスに変更可能。

NOTE
*1: SHIPYARD SUPPLY.
*2: OPTION.
*3: MAX. 3 CABIN PANELS CAN BE INSTALLED.
*4: CONNECTION CAN BE CHANGED TO MOTION DETECTOR.
*5: CONNECTION CAN BE CHANGED TO MOTION DETECTOR OR OPERATOR FITNESS.

DRAWN	17/May/2011 T. YAMASAKI	TITLE	BR-500
CHECKED	17/May/2011 H. MAKI	名称	船橋航海当直警報装置
APPROVED	18/May/2011 Y.NISHIYAMA		相互結線図
SCALE	MASS kg	NAME	BRIDGE NAVIGATIONAL WATCH ALARM SYSTEM
DWG No. C4461-C01- M	REF. No. 24-012-6001-2		INTERCONNECTION DIAGRAM

FURUNO ELECTRIC CO., LTD.

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Publication No. DOCQA0219

EC Declaration of Conformity

CE

We   FURUNO ELECTRIC CO., LTD.

(Manufacturer)

9-52 Ashihara-Cho, Nishinomiya City, 662-8580, Hyogo, Japan

(Address)

declare under our sole responsibility that the product

BRIDGE NAVIGATIONAL WATCH ALARM SYSTEM BR-500

(Model name, type number)

to which this declaration relates is in conformity with the following standard(s) or other normative document(s)

IEC 60945: Ed.4.0: 2002
IEC 60945: Ed.3.0: 1996, clauses 10.2 and 10.3
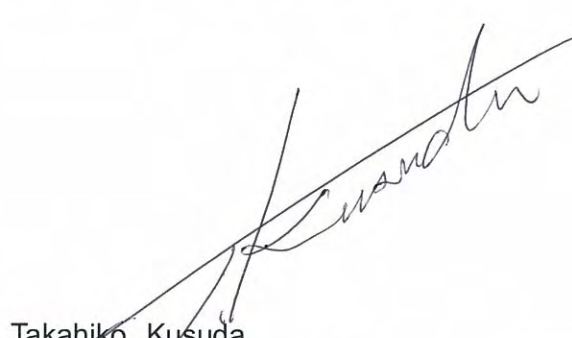IEC 62616: Ed.1.0: 2010
IMO Resolution MSC. 128(75)

(title and/or number and date of issue of the standard(s) or other normative document(s))

For assessment, see

• Test Report FLI 12-10-042, December 14, 2010 prepared by Furuno Labotech International Co., Ltd.

This declaration is issued according to the Directive 2004/108/EC of the European Parliament and of the Council of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC.

On behalf of Furuno Electric Co., Ltd.

Takahiko Kusuda
Manager, QMS Secretariat
Quality Assurance Department

Nishinomiya City, Japan
April 12, 2011

(Place and date of issue)

(name and signature or equivalent marking of authorized person)