FURUNO

Installation Manual
BRIDGE ALARM SYSTEM BR-1000

FURUNO ELECTRIC CO., LTD.

www.furuno.co.jp

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

FURUNO ELECTRIC CO., LTD.

9-52 Ashihara-cho,
Nishinomiya, 662-8580, JAPAN

Telephone : +81-(0)798-65-2111
Fax : +81-(0)798-65-4200

• FURUNO Authorized Distributor/Dealer

 Printed in Japan

A : SEP. 2009

Pub. No. IME-44500-A

(DAMI) BR-1000

000169189 10

⚠ SAFETY INSTRUCTIONS

Read these safety instructions before you 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 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.

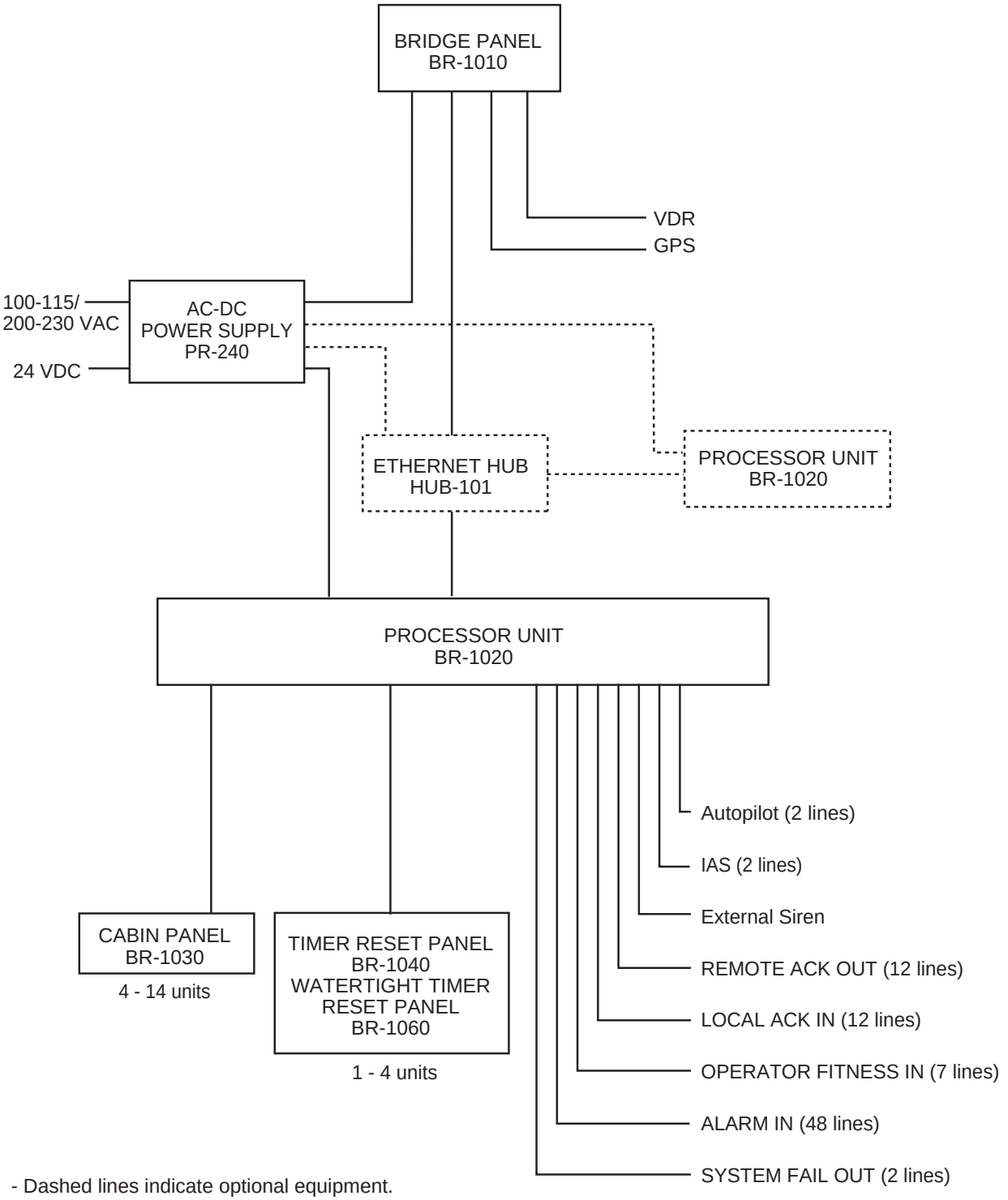
Use the correct fuse.

Use of a wrong fuse can cause fire.

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

Unit	Standard compass	Steering compass
BR-1010	0.70 m	0.45 m
BR-1020	1.85 m	1.15 m
BR-1030	0.30 m	0.30 m
BR-1040	0.30 m	0.30 m
BR-1060	0.30 m	0.30 m
PR-240	0.90 m	0.60 m

SYSTEM CONFIGURATION



- Dashed lines indicate optional equipment.
- Environment category: All units protected from weather.

EQUIPMENT LISTS

Standard Supply

Name	Type	Code No.	Qty	Remarks
Bridge Panel	BR-1010	-	1	
Processor Unit	BR-1020	-	1	
Cabin Panel	BR-1030	-	-	4-14 units
Timer Reset Panel	BR-1040	-	-	1-4 units
AC-DC Power Supply Unit	PR-240	-	1	
Installation Materials	CP24-01300	000-013-149	1	Cable MJ-A3SPF0013-035 (000-135-397) + CP24-01301. See packing list at back of manual.
	CP24-01401	001-041-390	-	For BR-1030, BR-1040. See packing list at back of manual.
	CP24-00151	005-931-190	-	For PR-240.See packing list at back of manual.
Spare Parts	SP24-00301	001-041-310	1	Fuse FGB0-A 125V 3A PBF, 2 pcs. (000-155-850-10)

Optional Supply

Name	Type	Code No.	Remarks
Watertight Timer Reset Panel	BR-1060	-	Installation Materials CP24-010501. See packing list at back of manual.
Processor Unit	BR-1020	-	
Cabin Panel	BR-1030	-	
Timer Reset Panel	BR-1040	-	
Ethernet Hub	HUB-101	-	
Hanger	FP24-00500	000-013-160	For BR-1000
Cable Assy.	MJ-A6SPF0003-050C	000-154-054-10	For VDR, 5 m
	MJ-A6SPF0003-100C	000-154-036-10	For VDR, 10 m
	MJ-A7SPF0007-050C	000-154-028-10	For GPS, 5 m
	MJ-A7SPF0010-100C	000-159-681-10	For GPS, 10 m
LAN Cable Set	CP03-28900	000-082-658	10 m cable, two connectors
	CP03-28910	000-082-659	20 m cable, two connectors
	CP03-28920	000-082-660	30 m cable, two connectors

1. HOW TO INSTALL THE EQUIPMENT

NOTICE

Do not apply paint, anti-corrosive sealant or contact spray to coating or plastic parts of the equipment.

Those items contain organic solvents that can damage coating and plastic parts, especially plastic connectors.

Install the equipment following the points shown below.

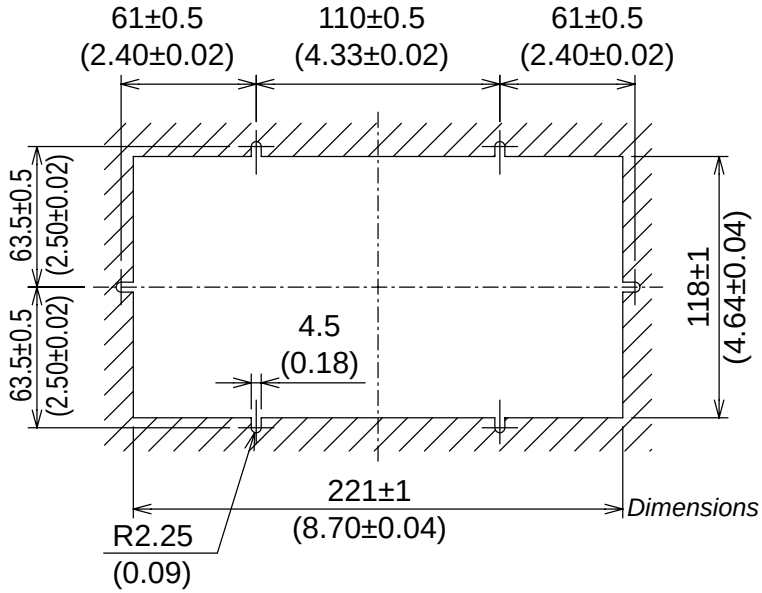
- Select a location where the temperature and humidity are moderate and stable.
- Keep the equipment away from the exhaust vents.
- Provide ventilation to keep the equipment cool.
- Select a location where vibration and shock are minimal.
- Leave space at the sides and rear of the unit for maintenance.
- Follow the safe compass distances on page i to prevent the interference to a magnetic compass.

1.1 Bridge Panel

Flush mount

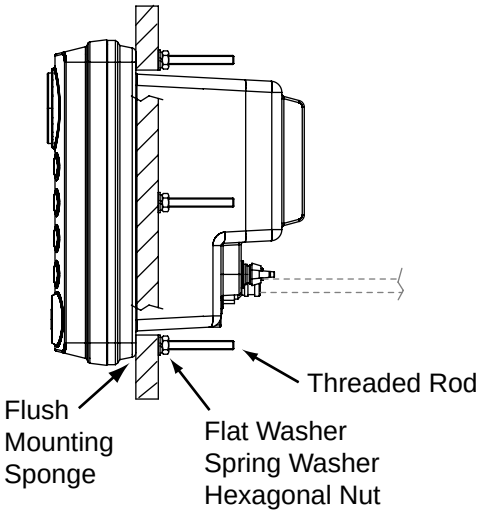
Fasten the Bridge Panel to the cutout with the hardware supplied.

1. Prepare a cutout in a console. See the outline drawing and the illustration shown below for dimensions.



Dimensions in millimeters (inches)

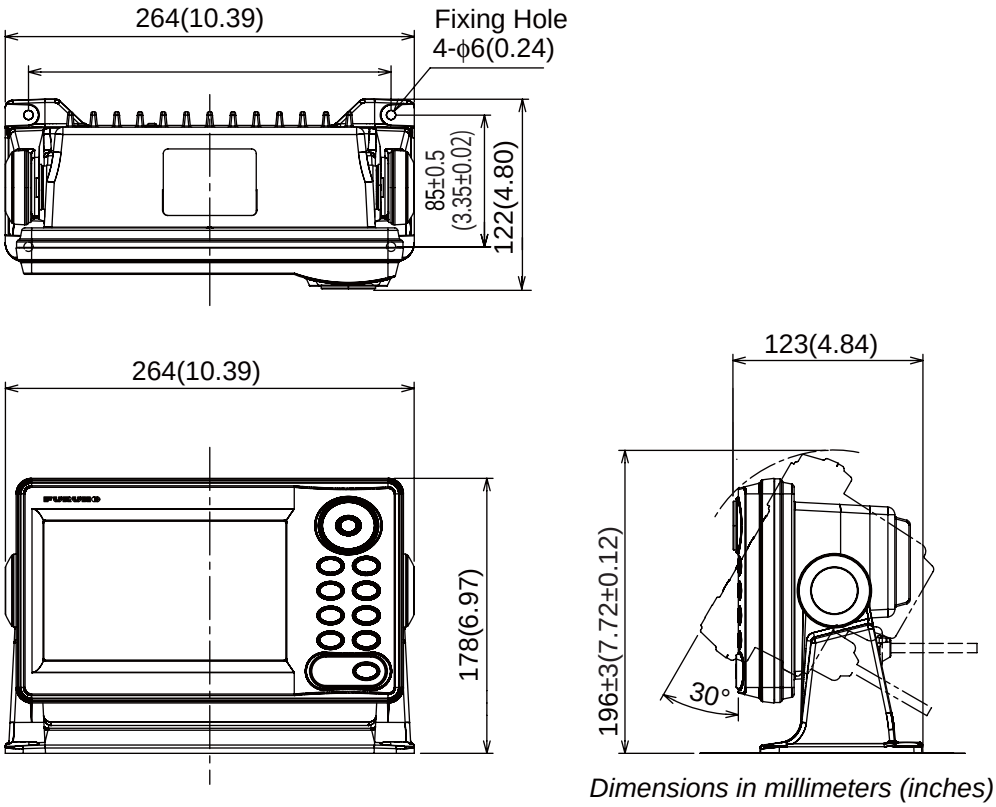
2. Screw in six threaded rods (supplied) at the back of the unit.
3. Attach the flush mounting sponge (supplied) at the rear of the unit.
4. Set the unit to the cutout.
5. From the rear side, fasten the unit to the console panel with six sets of flat washers, spring washers and hexagonal nuts.



Desktop mount (optional hanger)

The optional hanger lets you install the Bridge Panel on a desktop.

1. Fasten the hanger with four 5x20 self-tapping screws (supplied).
2. Screw the knobs into the unit.
3. Set the unit to the hanger then tighten the knobs.



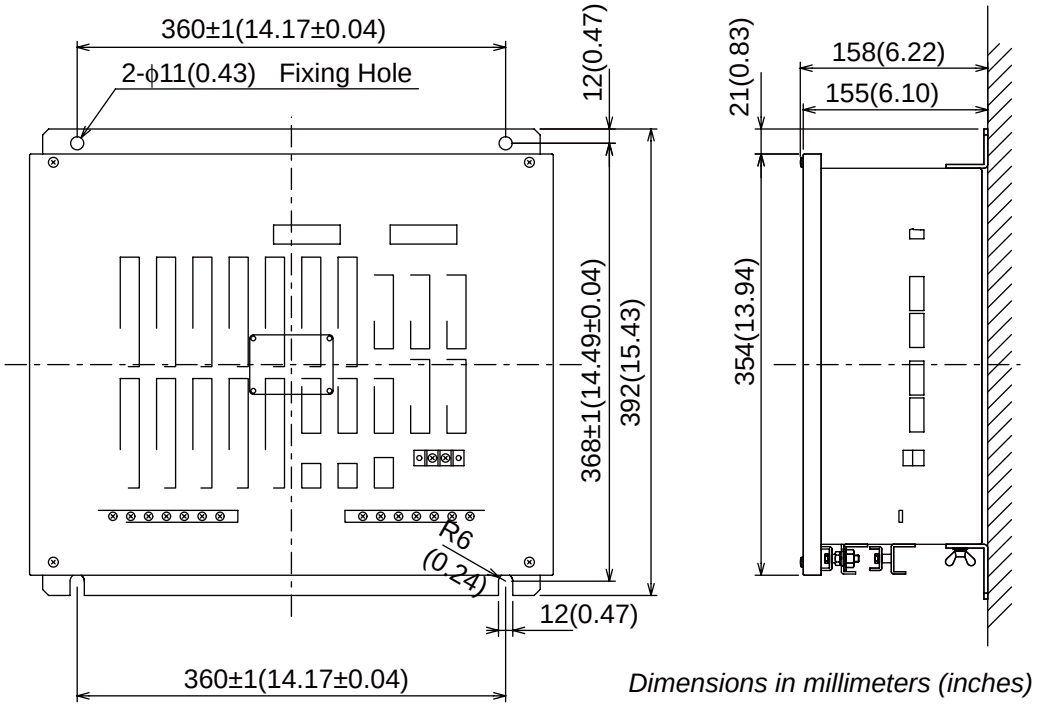
Dimensions in millimeters (inches)

1.2 Processor Unit

A maximum of two processor units can be installed, including the optional unit. To install the no. 2 processor unit, the Ethernet Hub HUB-101 is required. (For additional information, see the instruction manual (C4200707) for the HUB-101.)

Fasten the processor unit to a bulkhead or the deck as shown below.

1. Make four pilot holes for ϕ10 coach bolts or four fixing holes for M10 bolts. See the drawing below for mounting dimensions.
2. Fasten the unit with ϕ10 coach bolts or M10 bolts. (Supply bolts locally.)



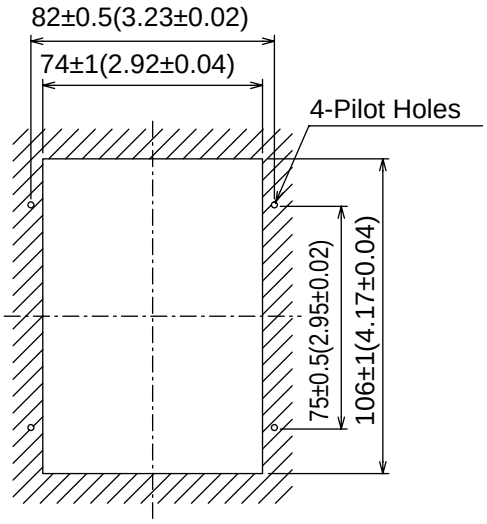
Bulkhead mounting dimensions for the processor unit

1.3 Cabin Panel, Timer Reset Panel

The Cabin Panel and Timer Reset Panel have the same dimensions. Flush-mount the units as shown below.

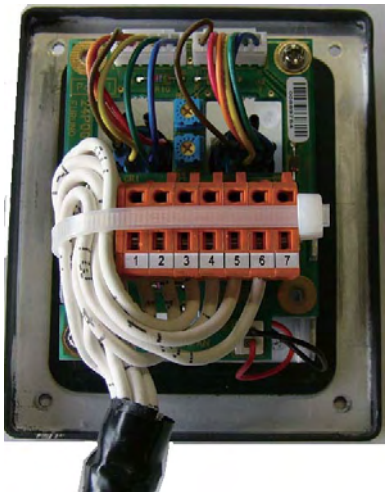
A maximum of 10 channels of Cabin Panels connect to one Processor Unit. (Four of the 10 channels can be connected in parallel for a total of 14 channels.) Install the 10 channels of Cabin Panels in the Captain's quarters, the back-up navigation officers' quarters, and public areas. The system has five channels to test wire continuity in the Cabin Panels. Install Cabin Panels in the captain's quarters and officers' quarters independently to conduct the wiring continuity test independently.

1. Prepare a cutout in the location. See the outline drawing and the figure shown below for dimensions.

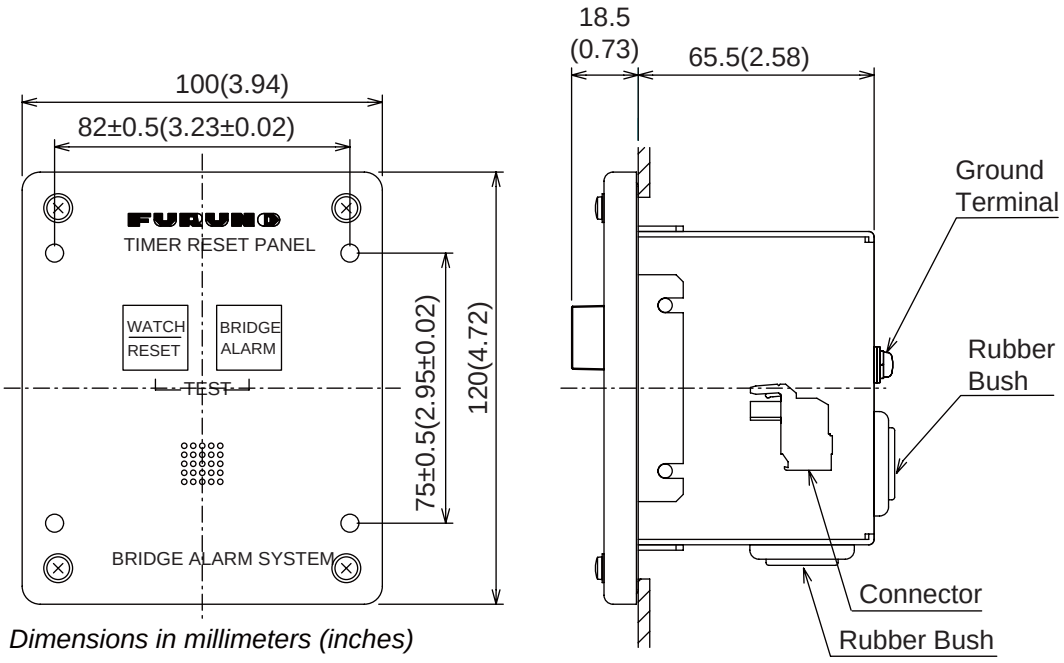


Dimensions in millimeters (inches)

2. Unfasten four screws from the front side of the unit to remove the rear cover.
3. Put the connection cable through one of the two rubber bushes and set the rear cover to the cutout. (Select the rubber bush most suitable for your installation.)
4. Fasten the rear cover with four 4x16 self-tapping screws (supplied).
5. Detach the WAGO connector from the PCB. Attach the wires to the WAGO connector. See Chapter 2 for how to attach the wires to a WAGO connector.
6. Attach the WAGO connector to the PCB. As shown in the illustration at right, run the cable along the left side of the connector and fix the cables to the connector with a cable tie.



7. Draw out excess cable from the cable entrance, set the unit into the rear cover and fasten the screws unfastened at step 2.

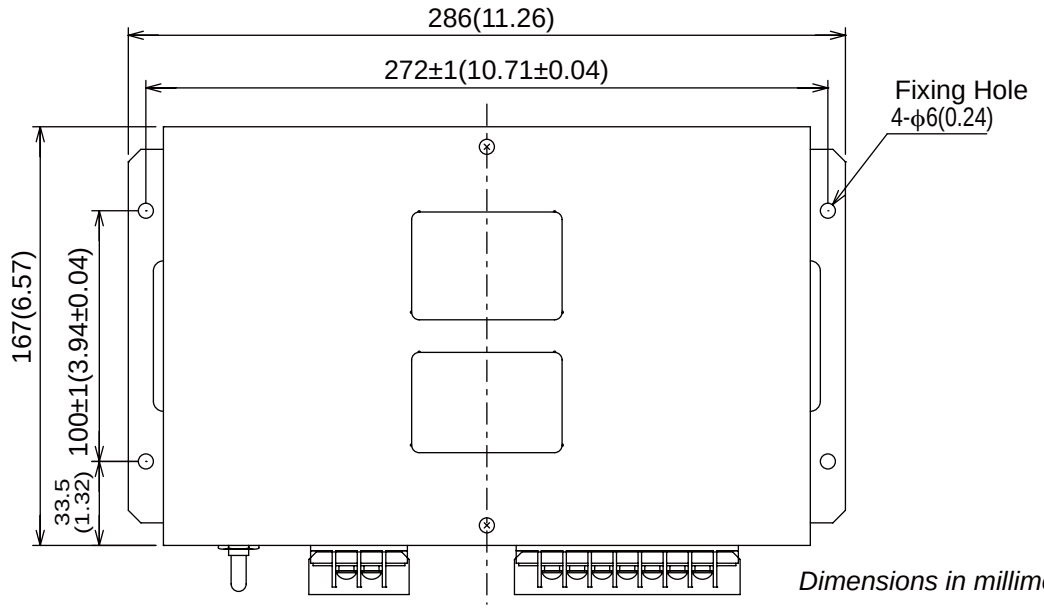


Dimensions in millimeters (inches)

1.4 AC-DC Power Supply

This bridge alarm system connects to both AC and DC power supplies. AC power for normal use, and DC power when AC power is lost.

Fasten the unit to a desktop with four 4x16 self-tapping screws (supplied). (There is no need to open the cover to install the unit.)

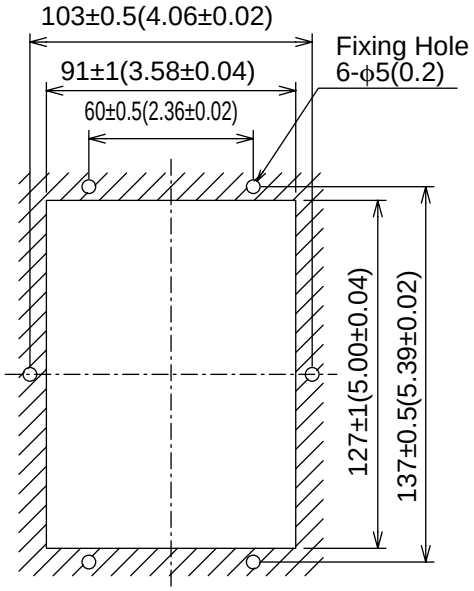


Dimensions in millimeters (inches)

1.5 Watertight Timer Reset Panel

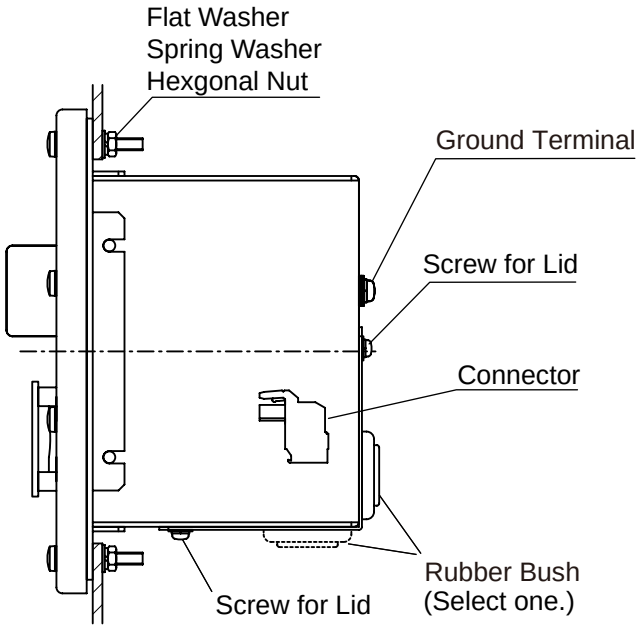
Flush mount the Watertight Timer Reset Panel as follows:

1. Prepare a cutout in the mounting location and make six holes.



Dimensions in millimeters (inches)

2. Unfasten two screws from the rear side to remove the lid. Put the connection cable through the rubber bush.
3. Detach the WAGO connector from the PCB. Attach the wires to the WAGO connector.
4. Attach the WAGO connector to the PCB. Close the rear lid.
5. Set the unit to the cutout. From the rear side, fasten the unit with six sets of bolts, flat washers, spring washers and hexagonal nuts.

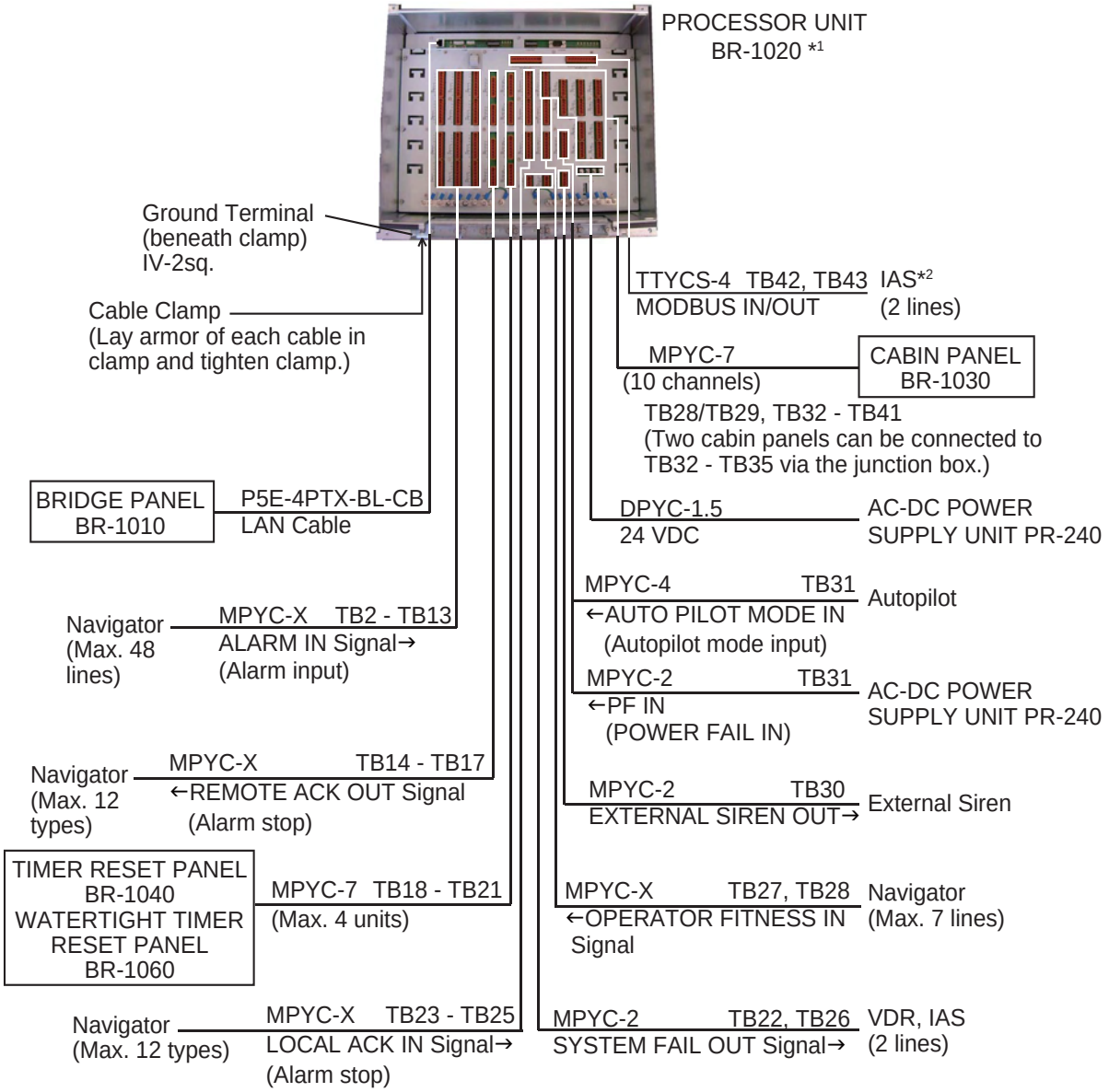


2. HOW TO CONNECT EXTERNAL EQUIPMENT

The cables described in this manual are shown as Japanese Industrial Standard (JIS). Use the JIS Cable Guide in Appendix 1 to find the equivalent cables locally.

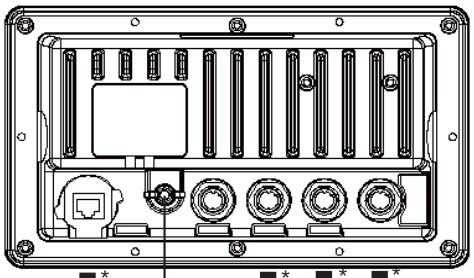
2.1 Connections Inside the Processor Unit

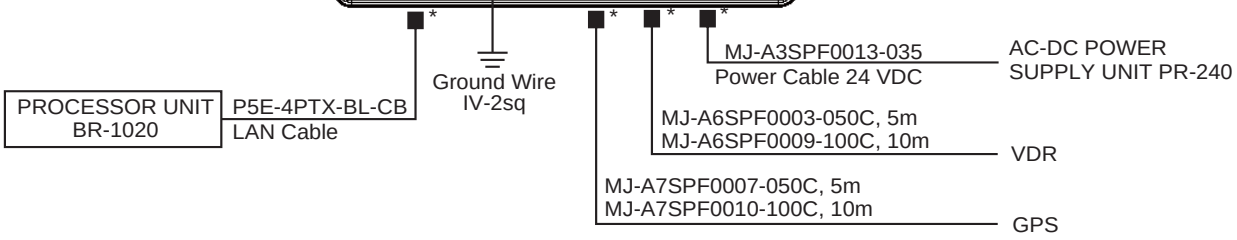
All signal cables are connected to the Processor Unit. Refer to the figure shown below for connections. Record the name of each device and signal connected to the Processor Unit in the list provided at the back of this manual. This information is needed when you set the alarms in Chapter 3.



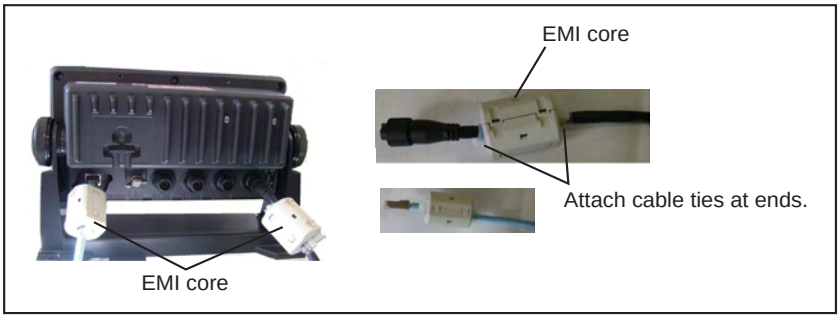
*1 If the number of alarm signals to be connected is greater than 49, use the Ethernet Hub (option) and the No. 2 Processor Unit. You cannot connect Cabin Panels or Timer Reset Panels to the No.2 Processor Unit. Connect to #5-#6 (AC POWER FAIL) of TB31 in the No. 2 Processor Unit.
*2 IAS=Integrated Automation System

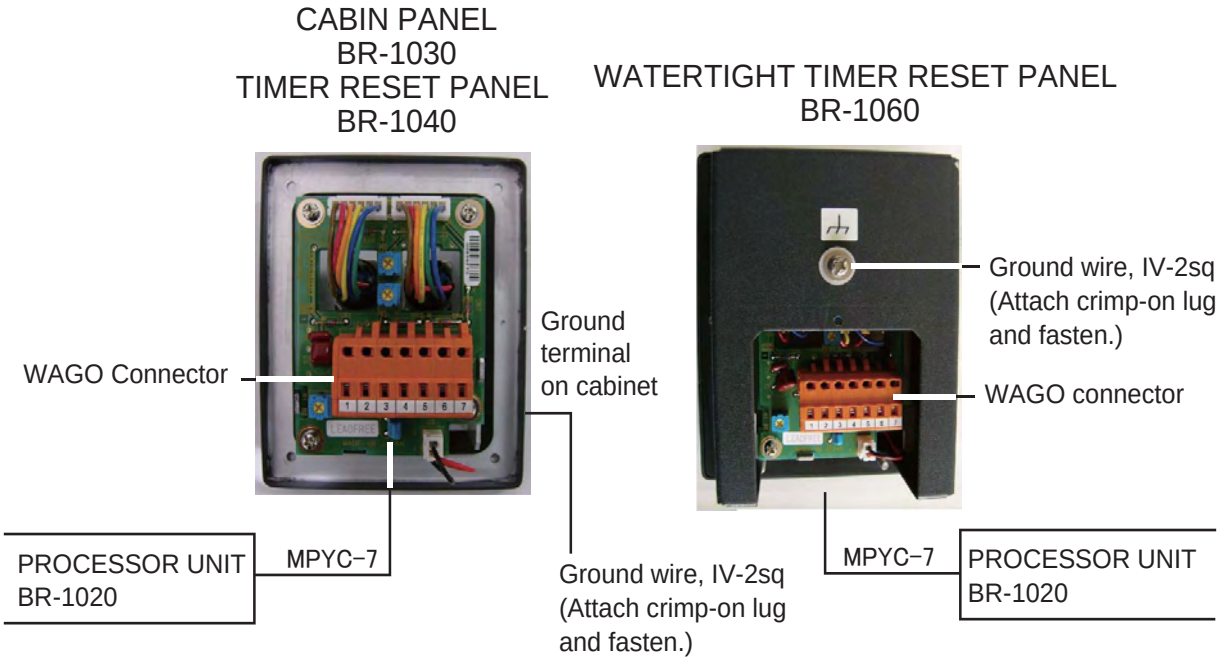
BRIDGE PANEL BR-1010





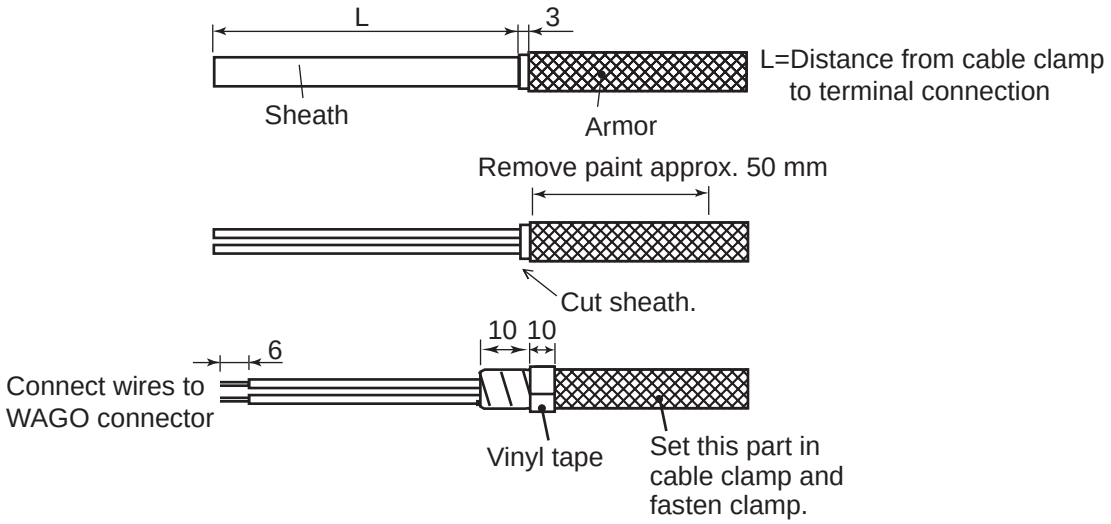
* Attach EMI core to both LAN cable and power cable, at approx. 10 to 20 mm from the cable end that connects to the BRIDGE PANEL. Fasten core with cable ties as shown below.





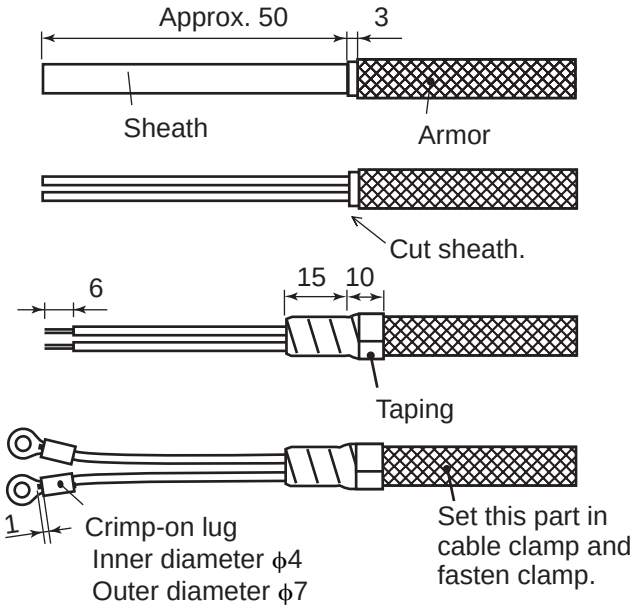
How to prepare the MPYC-type cable

Prepare the cable as shown below. Connect the cables to related WAGO connectors.



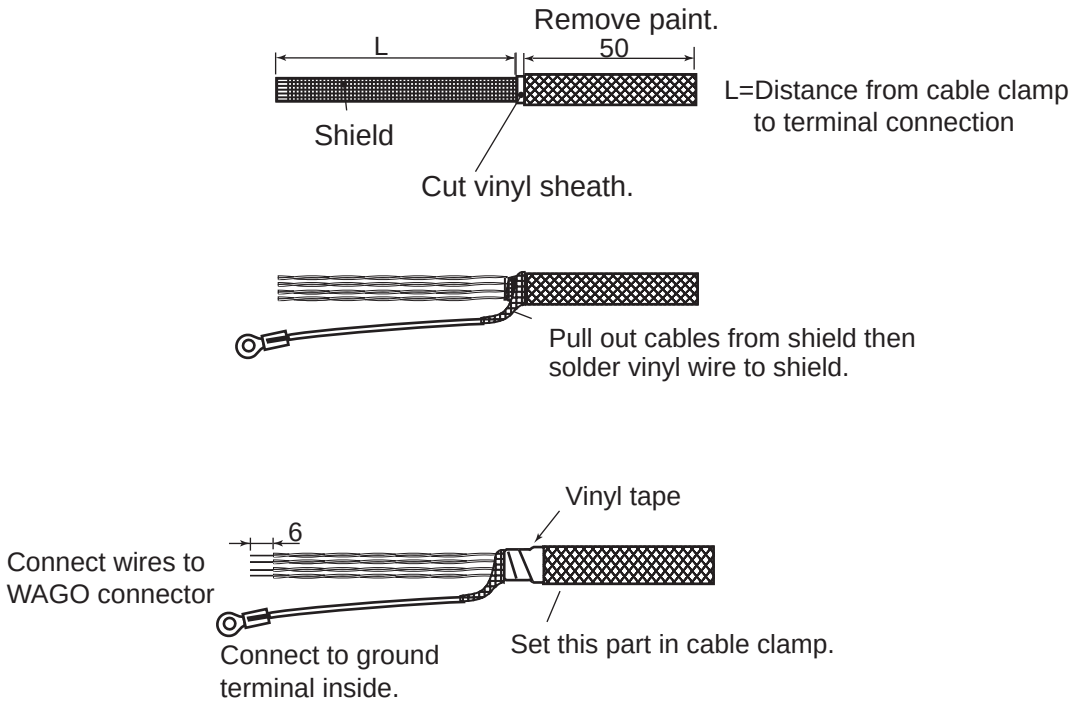
How to prepare MPYC-type cable

How to prepare cable DPYC-1.5



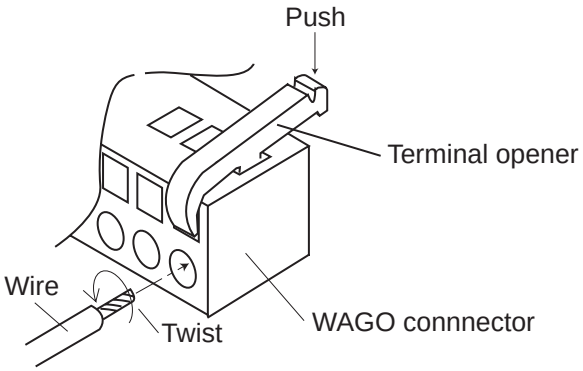
How to prepare the cable DYPC-1.5

How to prepare cable TTYCS-4



How to prepare the cable TTYCS-4

How to connect wires to a WAGO connector



Procedure
1. Twist core.
2. Set terminal opener as above and push.
3. Insert core into hole.
4. Release terminal opener.
5. Pull wire to confirm it is correctly inserted.

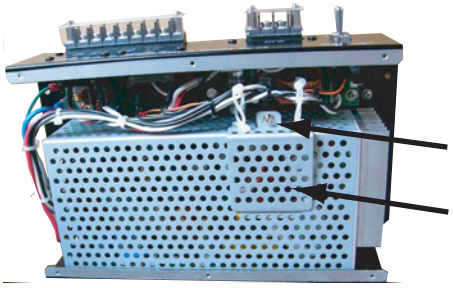
How to connect wires to a WAGO connector

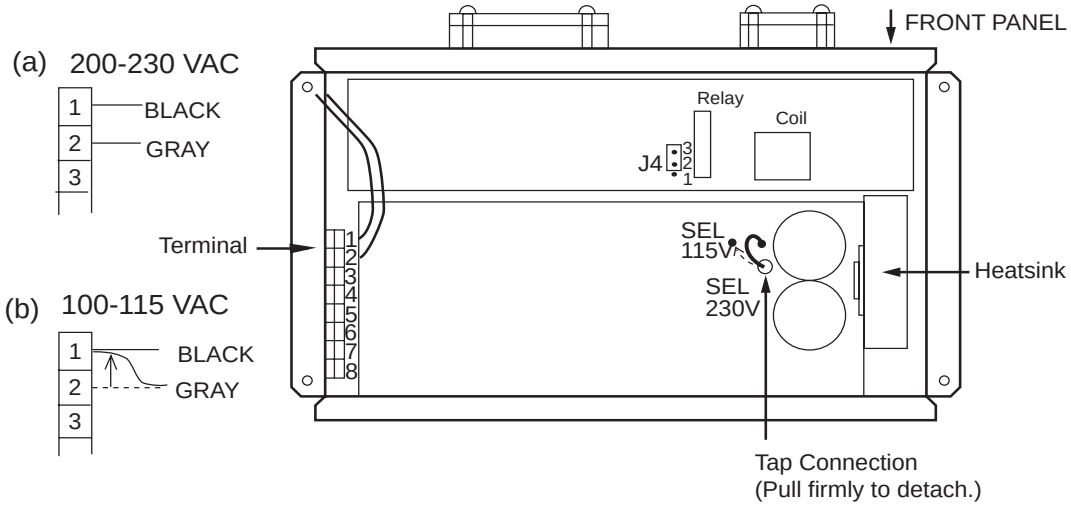
2.2 AC-DC Power Supply

Power Specifications

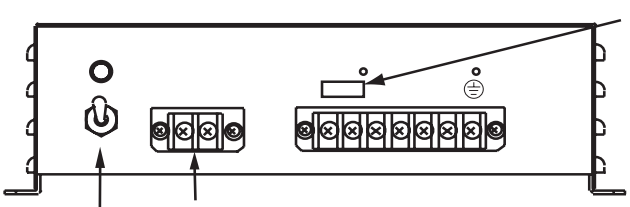
The AC-DC Power Supply PR-240 is for connection to a 200-230 VAC ship's mains. For 100-115 VAC ship's mains, change both the tap connection and the terminal connection. Attach the correct "power supply label" (supplied) to the front of the unit, at the location shown below.

Ship's Mains	Tap Connection	Terminal Connection	Power Supply Label
200-230 VAC	SEL 230 V	See (a) below.	200-230 VAC 2.2-1.7A 1ϕ 50/60 Hz
100-115 VAC	SEL 115 V	See (b) below.	100-115 VAC 3.2-2.6A 1ϕ 50/60 Hz





FRONT PANEL



AC FAIL
J4 sets contact signal output. Default setting is "normally closed" (#2 and #3 pins connected (for serial no. 022736 and after). For serial no. 022735 and before, normal opened (#1 and #2 connected). Match this setting with setting of BR-1020 (default is "normal close").

AC Power Switch
(When DC power is used, this switch is inoperative; DC power is supplied regardless of switch position.)

2.3 Connection of ALARM IN/REMOTE ACK OUT/ LOCAL ACK IN/OPERATOR FITNESS IN Signals

This system has 48 ALARM IN signal input terminals for the connection of navigation equipment. Connect radar, ECDIS, GPS navigator, navigational echo sounder, etc. that have ALARM OUT terminals to the ALARM IN terminals in the Processor Unit BR-1020. Connect all lines of the equipment having multiple ALARM OUT terminals.

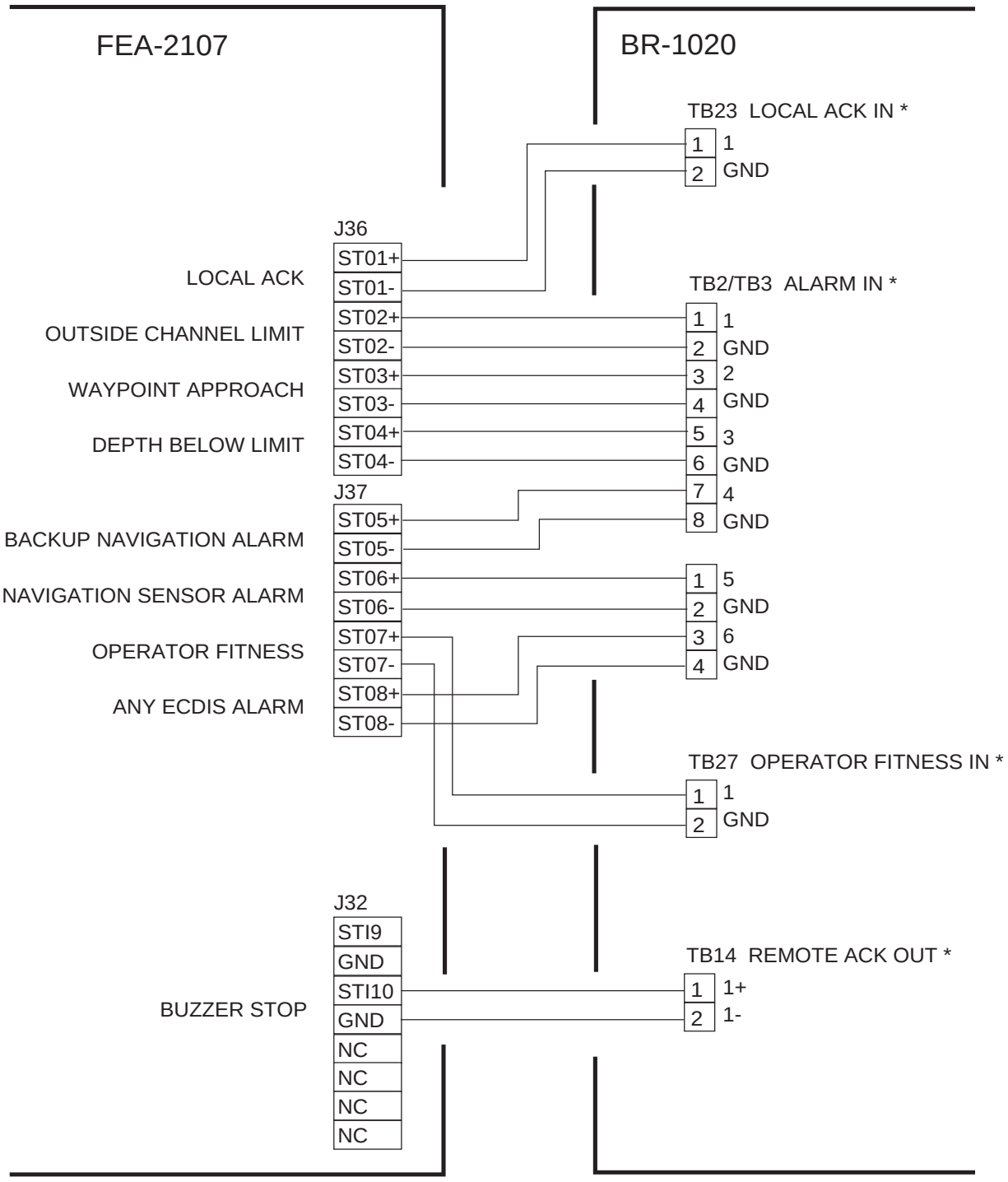
12 REMOTE ACK OUT signal output terminals are provided. The purpose of these terminals is to output the “stop alarm” in response to alarm input from external equipment. This system outputs only one REMOTE ACK OUT signal, without reference to the number of ALARM IN signals input from a device.

The LOCAL ACK IN signal is an “alarm stop” signal that is sent to external equipment in response to ALARM IN signal input from the external equipment. This equipment receives this signal to stop the buzzer at this equipment. 12 input signal terminals are provided.

Seven OPERATOR FITNESS IN signal input terminals are provided. This signal is output from external equipment to validate operator presence when the operator operates the external equipment. This system watches for this signal at fixed intervals, and if the signal is not received the system outputs an alarm.

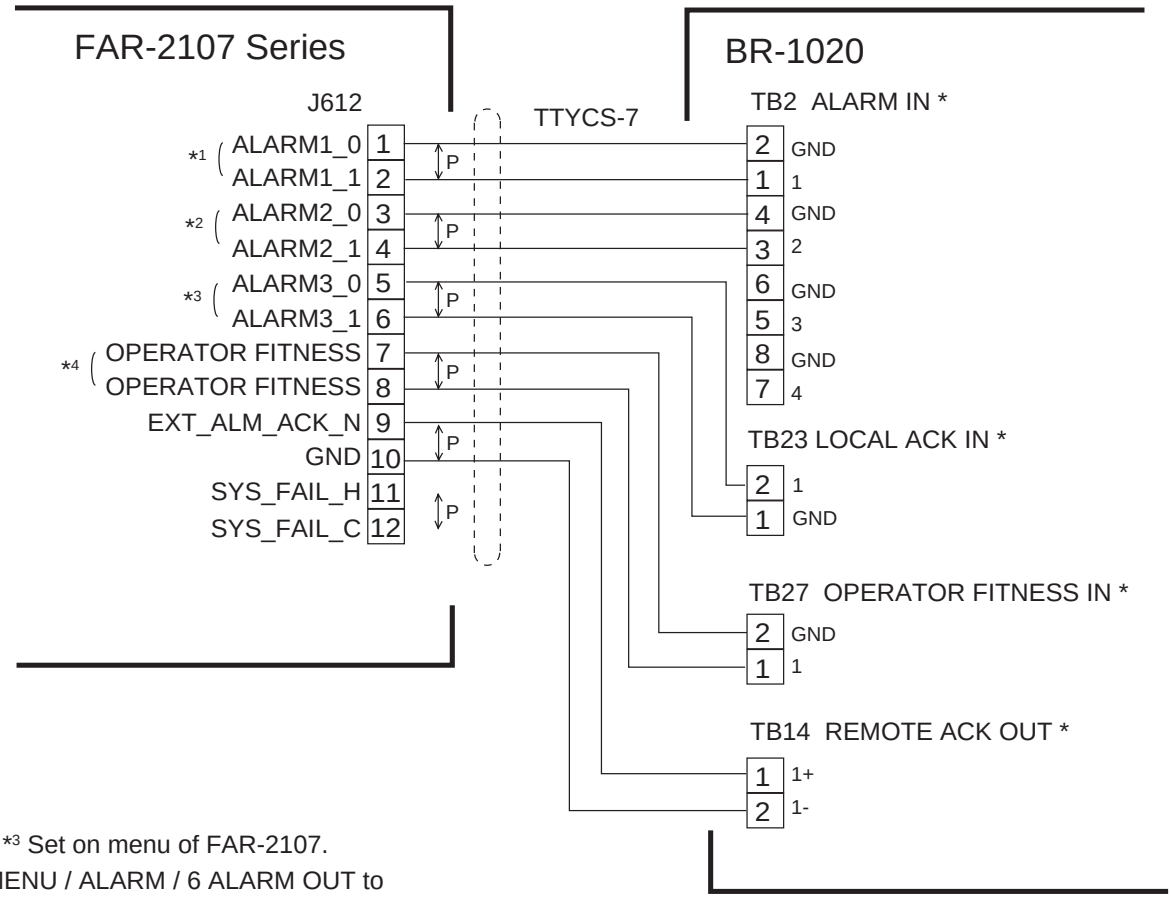
The illustrations on the next several pages show how to connect FURUNO make IMO radar, ECDIS, GPS navigator, and navigational echo sounder.

Connection of ECDIS FEA-2107



*: This connection is an example.
Other terminals which have the
same line can also be used.

Connection of IMO radar FAR-2107



*1 *2 *3 Set on menu of FAR-2107.

*1 MENU / ALARM / 6 ALARM OUT to select alarm to output.

*2 MENU / ALARM / 7 ALARM OUT to select alarm to output.

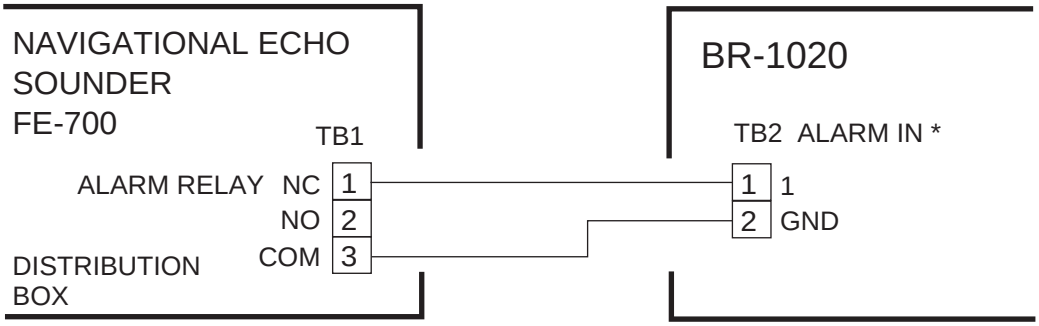
*3 MENU / ALARM / 8 ALARM OUT and select ALARM ACK OUT.

*4 MENU / ALARM / 9 ALARM OUT and select OPERATOR FITNESS.

(*1 and *2 are normal close signals; *3 and *4 are normal open signals.)

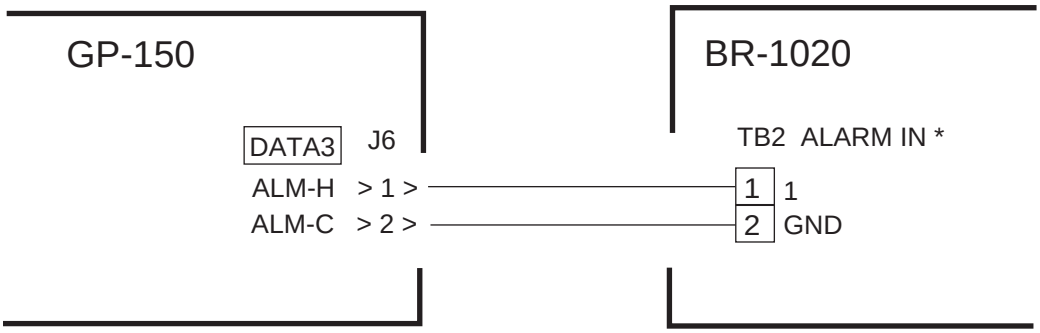
*: This connection is an example. Other terminals which have the same line can also be used.

Connection of Navigational Echo Sounder FE-700



*: This connection is an example. Other terminals which have the same line can also be used.

Connection of GPS Navigator GP-150



*: This connection is an example. Other terminals which have the same line can also be used.

3. HOW TO SET AND CHECK THE SYSTEM

This chapter shows you how to set the system according to the equipment connected. To make the procedure as easy as possible, an Excel file is used. The Excel file is downloaded from the internet to a PC. The installer enters the settings in the Excel file then uploads the contents of the file to this system. The Excel file can be used again to set this bridge alarm system on another ship.

You can set the system from the Bridge Panel, but that method takes longer than if you use the Excel file. After you have uploaded the contents of the Excel file to the Bridge Panel, you can make small adjustments from the Bridge Panel.

The system accepts 48 channels of ALARM IN signals. These channels are connected to the terminals TB2-TB13 in the Processor Unit. Connect the channels in terminals and write down channel order to prevent confusion, following the interconnection diagram. For example, connect the channel no. 1 to #1/2 of TB2 and the channel no. 48 to #7/8 of TB13. Connect other signals and the Cabin Panels according to the interconnection diagram.

To connect an IAS, see the instructions of the manufacturer of the IAS to set the Modbus. (Modbus is the communications protocol used by the IAS.)

3.1 How to Set and Connect the PC for Maintenance

PC

- Prepare a laptop PC that meets the requirements shown below.
  - OS: English or Japanese version Windows XP, or Windows Vista (32 bit)
  - Microsoft Excel: Excel 2000 or higher (English or Japanese version)
  - Serial port (If there is no serial port on the laptop, use a serial USB converter cable (driver).
- Set the IP of the PC as shown below.
  - IP address: 10.0.0.xxx (xxx=any value except 1, 2 or 3)
    The IP addresses of the bridge alarm equipment are
    BR-1010: 10.0.0.1, No.1 BR-1020: 10.0.0.2, No.2 BR-1020: 10.0.0.3
  - Subnet mask: 255.255.255.0

If you change the IP address on this file, the upload and download connection points change. See Network sheet on page 3-21 for information.

Excel file

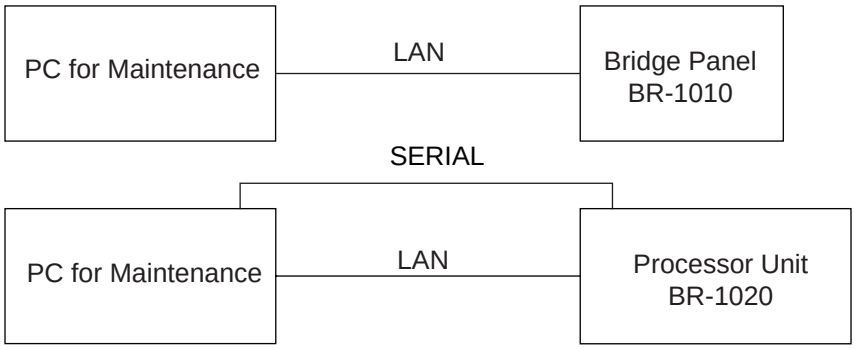
The Excel files to use to set this system are on the FURUNO WEB SERVICE. Access this website and download the following two files:

- BR1010CONF.xls
- BR1020CONF.xls

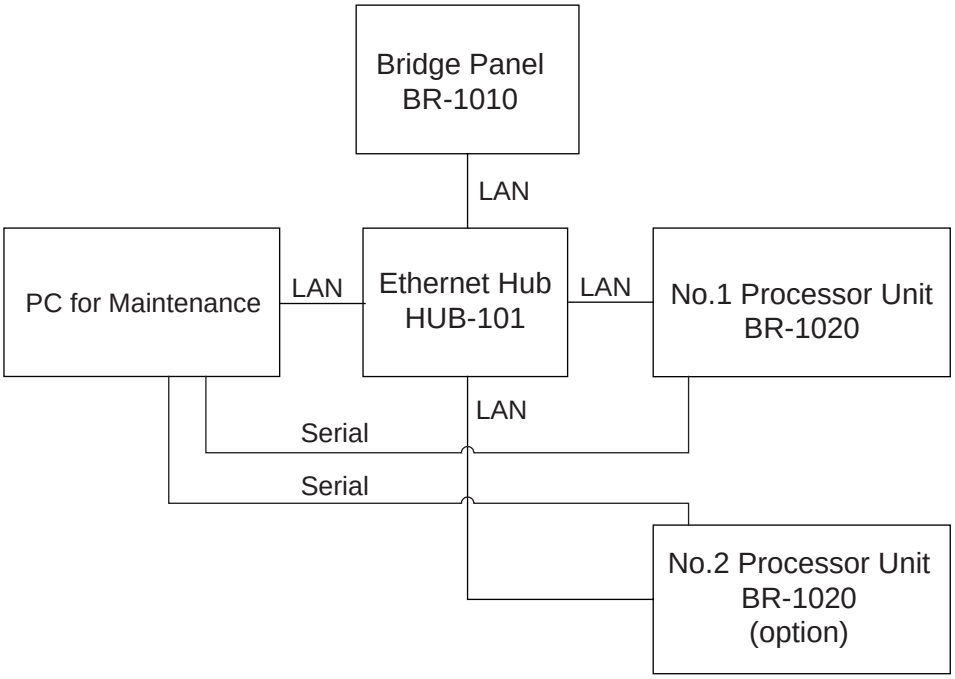
Note: These files contain macro functions. When you open the files, make sure you activate the macro functions.

Connection

Connect the PC as shown below according to system configuration.



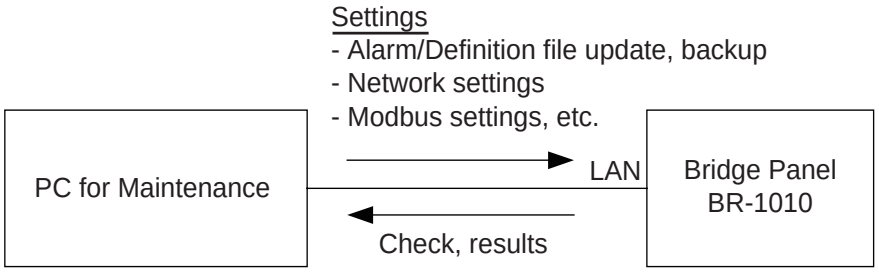
Single processor unit connection



Two processor unit connection

3.2 Settings for Bridge Panel BR-1010

The setting data to be uploaded from the PC to the BR-1010 are as shown below.

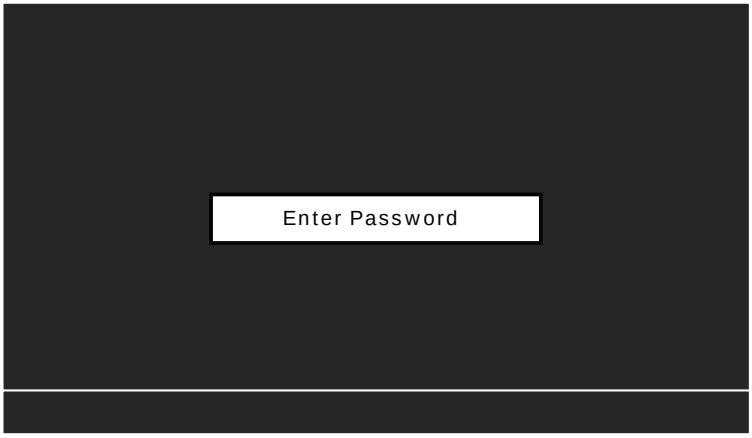


Setting procedure

The procedure shown below shows how to do all settings collectively. (You can make small adjustments from the BR-1010.)

Note: Before you do this procedure, write down the connections (terminal number, name of equipment connected, signal name) made in the Processor Unit. Use the list at the back of this manual to record this data. Refer to the list to do this procedure.

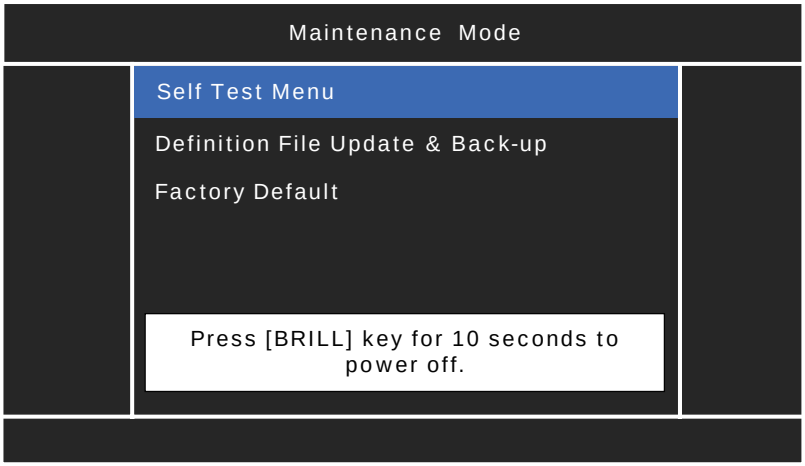
1. Connect the BR-1010 to the PC as shown in the illustration on page 3-2.
2. Open the Definition FIle Update & Backup screen from the BR-1010 as follows:
   1) Press the **BRILL** key while you press the **ACK** key to turn on the BR-1010. The window below appears, where you are asked to enter the password.



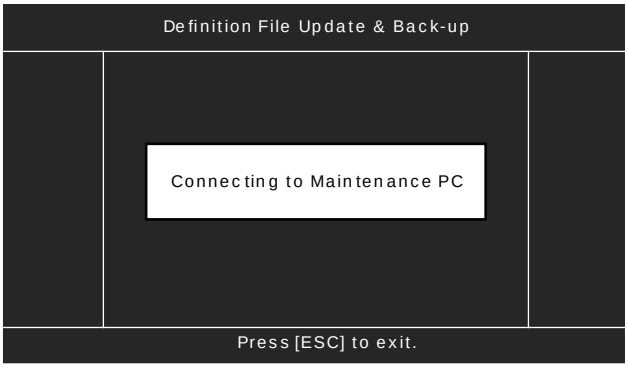
   2) Press the up, down, left and right arrows on the Cursor pad followed by the **LIST** and **ESC** keys. This is the password to open the Maintenance Mode menu.

      Note: If the password is wrong you are asked to turn off the power. Press the **BRILL** key for more than 10 seconds to turn off the power. Redo the procedure from step 1.

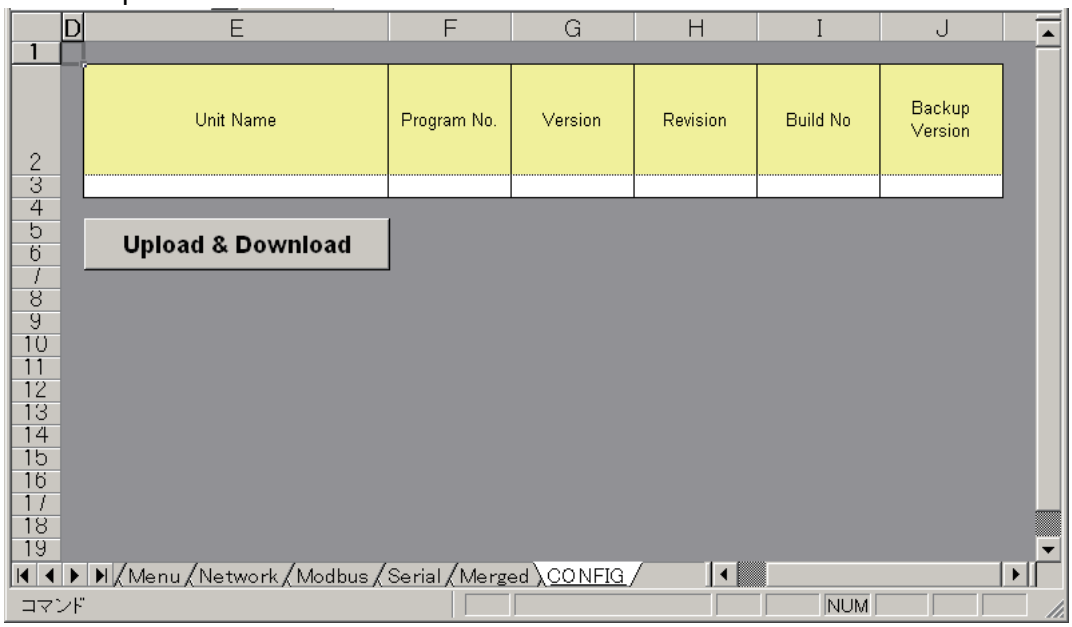
This is the Maintenance Mode menu.



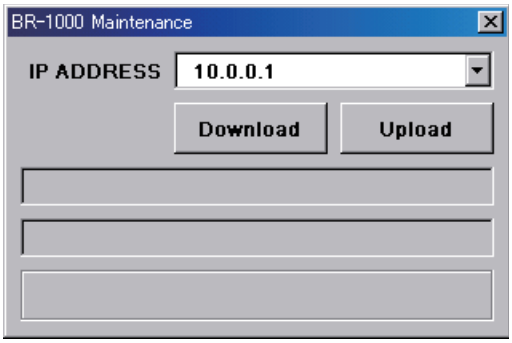
3) Press the up or down arrow to select Definition File Update & Back-up then press the **ENTER** key.



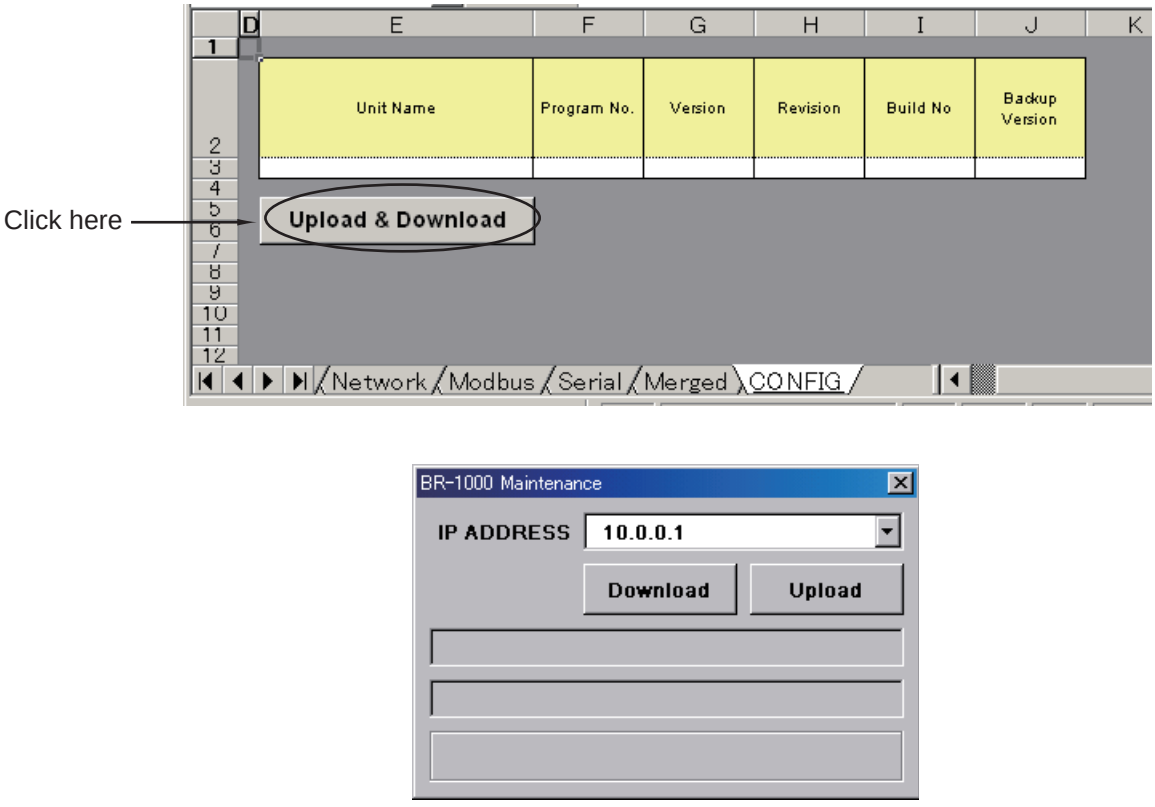
3. Open the Excel file BR1010CONF from the PC.



4. Open the Config sheet then click the Upload & Download button on the sheet to show the following display.



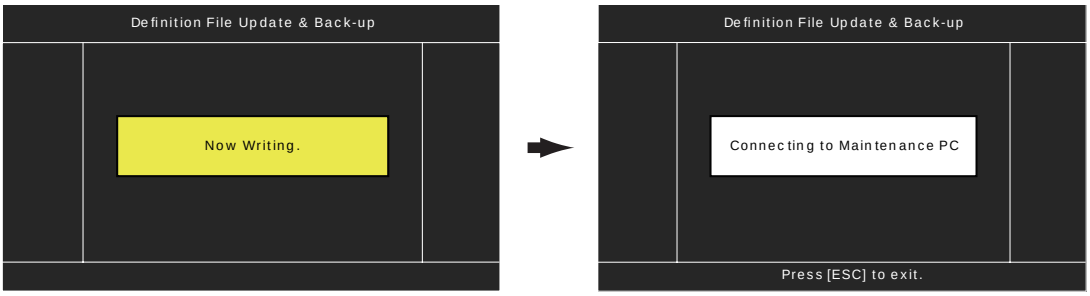
5. Confirm that the IP address for the BR-1010 is 10.0.0.1. Click the Download button to download the current settings (default values).
   A bar moves to the right as the download progresses and the message “Complete” appears when the download is completed.
6. Set each of the 10 sheets according to the equipment in the system. See the next section for how to enter the values.
7. After you have entered all settings, reopen the Config sheet and click the Upload & Download button.



Config sheet

8. Check that the IP address is correct then click the Upload button to upload the data to the BR-1010.

9. Confirm that the data is uploaded to the BR-1010.
   The yellow progress bar moves to the right as the upload progresses. The message “Complete” appears when the upload is completed.
   At the Bridge Panel, the indication at the screen center changes from “Now Writing” to “Connecting to Maintenance PC” when the upload is completed.

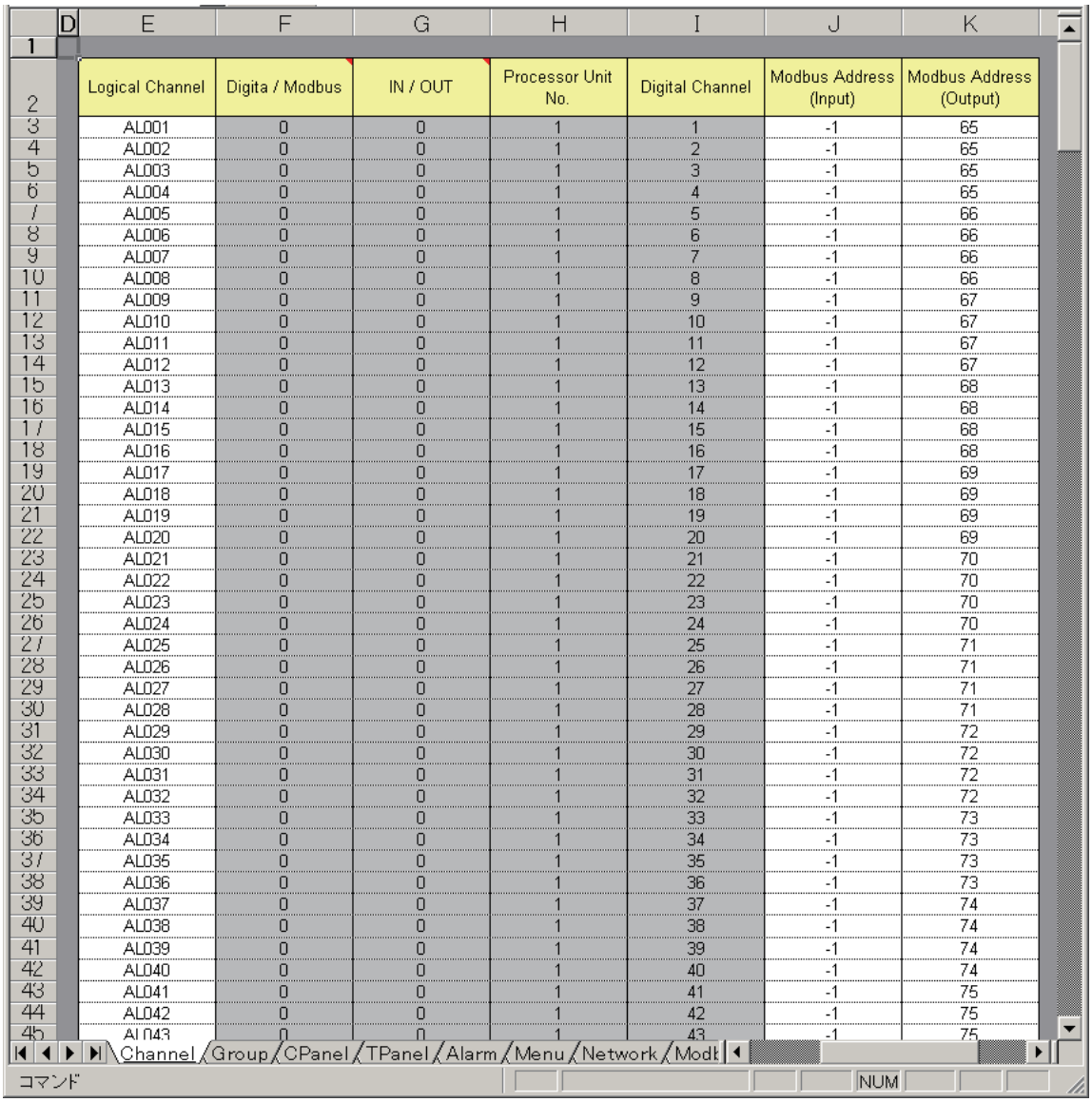


10. At the PC, select a name for the updated definition file and save the file.
    Select a name that is easy to remember, for example, name of ship. If you are setting up for several ships, save a file under the name of each ship.
11. Press the **BRILL** key more than 10 seconds on the BR-1010 to turn off the power. Disconnect the PC from the BR-1010.

[BR-1010 SETTINGS]

This paragraph describes the settings on each sheet in the Excel file.

Channel sheet



Logical Channel	Digita / Modbus	IN / OUT	Processor Unit No.	Digital Channel	Modbus Address (Input)	Modbus Address (Output)
AL001	0	0	1	1	-1	65
AL002	0	0	1	2	-1	65
AL003	0	0	1	3	-1	65
AL004	0	0	1	4	-1	65
AL005	0	0	1	5	-1	66
AL006	0	0	1	6	-1	66
AL007	0	0	1	7	-1	66
AL008	0	0	1	8	-1	66
AL009	0	0	1	9	-1	67
AL010	0	0	1	10	-1	67
AL011	0	0	1	11	-1	67
AL012	0	0	1	12	-1	67
AL013	0	0	1	13	-1	68
AL014	0	0	1	14	-1	68
AL015	0	0	1	15	-1	68
AL016	0	0	1	16	-1	68
AL017	0	0	1	17	-1	69
AL018	0	0	1	18	-1	69
AL019	0	0	1	19	-1	69
AL020	0	0	1	20	-1	69
AL021	0	0	1	21	-1	70
AL022	0	0	1	22	-1	70
AL023	0	0	1	23	-1	70
AL024	0	0	1	24	-1	70
AL025	0	0	1	25	-1	71
AL026	0	0	1	26	-1	71
AL027	0	0	1	27	-1	71
AL028	0	0	1	28	-1	71
AL029	0	0	1	29	-1	72
AL030	0	0	1	30	-1	72
AL031	0	0	1	31	-1	72
AL032	0	0	1	32	-1	72
AL033	0	0	1	33	-1	73
AL034	0	0	1	34	-1	73
AL035	0	0	1	35	-1	73
AL036	0	0	1	36	-1	73
AL037	0	0	1	37	-1	74
AL038	0	0	1	38	-1	74
AL039	0	0	1	39	-1	74
AL040	0	0	1	40	-1	74
AL041	0	0	1	41	-1	75
AL042	0	0	1	42	-1	75
AL043	0	0	1	43	-1	75

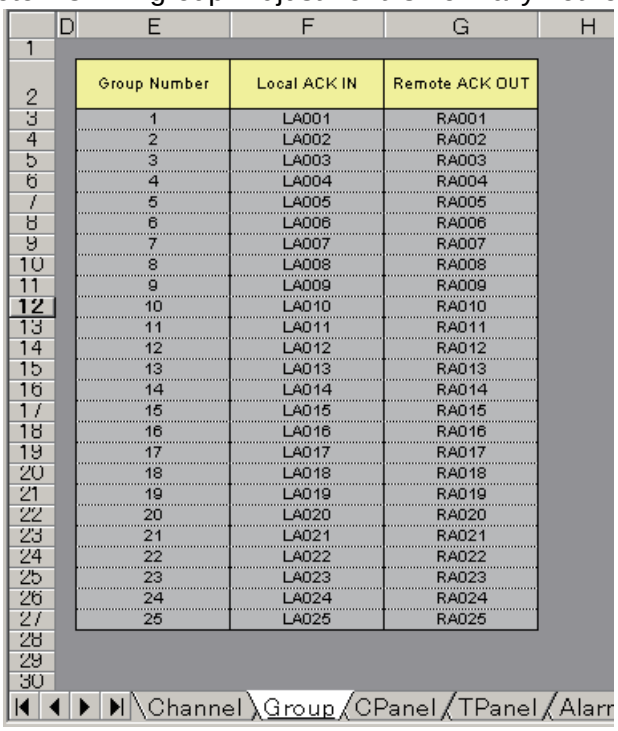
The Channel sheets set the input and output channels of the Processor Unit BR-1020.

1. Logical Channel
   Logical channel. Do not change the setting.
2. Digital/Modbus
   Select to use contact signal or Modbus signal.
   0: Contact signal (digital channel)
   1: Modbus
   Adjustment is normally not required.

3. IN/OUT
   Select the function of the signal, input or output.
   0: Input
   1: Output
   Adjustment is normally not required.
4. Processor Unit No. (Same as “Input Unit” on the Alarm List editing screen)
   For contact signal (digital channel), select either the standard BR-1020 or the optional BR-1020.
   -1: Modbus (For no use)
   1: Standard supply BR-1020
   2: Optional supply BR-1020
   Adjustment is normally not required.
   (The default setting is as follows:
   1, AL001-AL048 (for standard BR-1020), -1, AL049-AL096 (for Modbus), 2, AL097-AL144 (optional BR-1020), -1, AL145-AL-192 (for Modbus)
5. DIgital Channel (Same as Channel Number/Modbus Address on the Alarm List editing screen)
   Set input channel number of the BR-1020. Adjustment is normally not required.
6. Modbus Address (Input) (Same as “Channel Number/Modbus” Address on Alarm List editing screen.)
   Set Modbus address at input side (alarm at IAS side, etc.).
   Range: 1-64
   Note: Adjustment is normally not required, but consult with the IAS maker.
7. Modbus Address(Output)
   Set Modbus address at output side (alarm at BR-1000, etc.)
   Range: 65-128

Group sheet

1. Group Number
   Set group number. Adjustment is normally not required.
2. Local ACK IN
   Set Local ACK IN group. Adjustment is normally not required.
3. Remote ACK OUT
   Set Remote ACK IN group. Adjustment is normally not required.

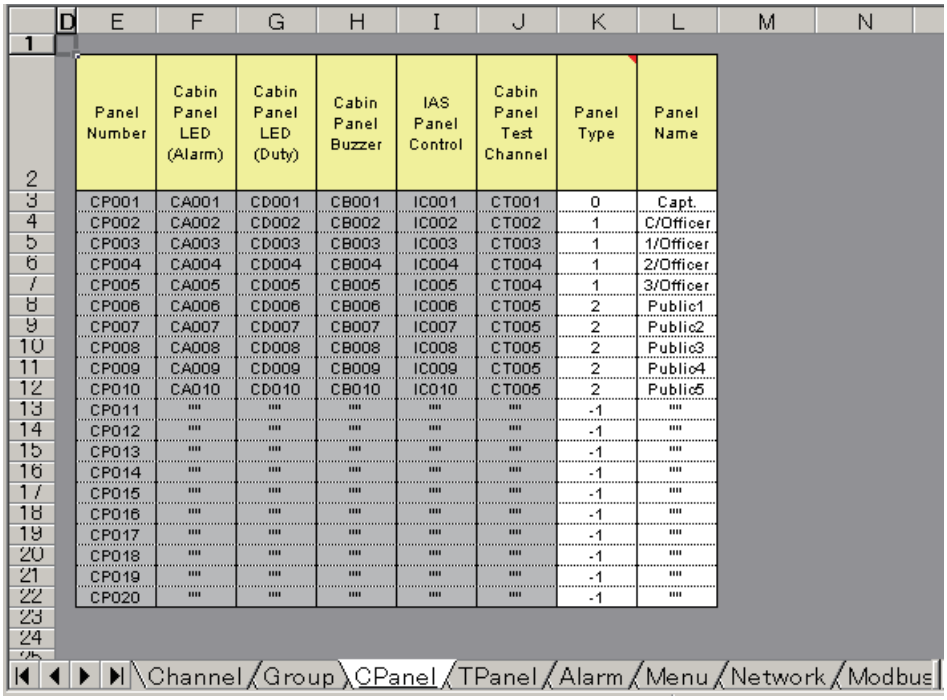


Group Number	Local ACK IN	Remote ACK OUT
1	LA001	RA001
2	LA002	RA002
3	LA003	RA003
4	LA004	RA004
5	LA005	RA005
6	LA006	RA006
7	LA007	RA007
8	LA008	RA008
9	LA009	RA009
10	LA010	RA010
11	LA011	RA011
12	LA012	RA012
13	LA013	RA013
14	LA014	RA014
15	LA015	RA015
16	LA016	RA016
17	LA017	RA017
18	LA018	RA018
19	LA019	RA019
20	LA020	RA020
21	LA021	RA021
22	LA022	RA022
23	LA023	RA023
24	LA024	RA024
25	LA025	RA025

Group sheet

CPanel sheet

The CPanel sheet has settings for the Cabin Panels. Before you do this procedure, record the terminal numbers (TB32-TB41) where the Cabin Panels are connected in the Processor Unit. The Cabin Panel connected to TB32 has the name “CP001” on this sheet. The Cabin Panel connected to TB41 has the name “CP010”.



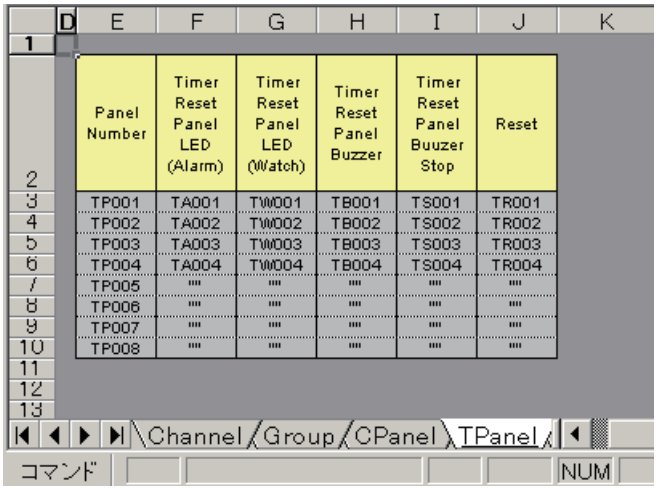
Panel Number	Cabin Panel LED (Alarm)	Cabin Panel LED (Duty)	Cabin Panel Buzzer	IAS Panel Control	Cabin Panel Test Channel	Panel Type	Panel Name
CP001	CA001	CD001	CB001	IC001	CT001	0	Capt.
CP002	CA002	CD002	CB002	IC002	CT002	1	C/Officer
CP003	CA003	CD003	CB003	IC003	CT003	1	1/Officer
CP004	CA004	CD004	CB004	IC004	CT004	1	2/Officer
CP005	CA005	CD005	CB005	IC005	CT004	1	3/Officer
CP006	CA006	CD006	CB006	IC006	CT005	2	Public1
CP007	CA007	CD007	CB007	IC007	CT005	2	Public2
CP008	CA008	CD008	CB008	IC008	CT005	2	Public3
CP009	CA009	CD009	CB009	IC009	CT005	2	Public4
CP010	CA010	CD010	CB010	IC010	CT005	2	Public5
CP011	""	""	""	""	""	-1	""
CP012	""	""	""	""	""	-1	""
CP013	""	""	""	""	""	-1	""
CP014	""	""	""	""	""	-1	""
CP015	""	""	""	""	""	-1	""
CP016	""	""	""	""	""	-1	""
CP017	""	""	""	""	""	-1	""
CP018	""	""	""	""	""	-1	""
CP019	""	""	""	""	""	-1	""
CP020	""	""	""	""	""	-1	""

CPanel sheet

1. Panel Number
2. Cabin Panel LED(Alarm)
3. Cabin Panel LED(Duty)
4. Cabin Panel Buzzer
5. IAS Panel Control
6. Cabin Panel Test Channel
   Do not change the settings of items 1-6.
7. Panel Type
   Set the type of each Cabin Panel.
   0: Cabin Panel fitted in Captain’s room
   1: Cabin Panel installed in the quarters of the officer(s) selected as back-up officer candidate. The Captain of the ship selects which officer is to be the back-up officer.
   2: Cabin Panel installed in public areas - lobby, dining room, leisure room, etc.
8. Panel Name
   Enter the name for each Cabin Panel. Use title of person or name of room. A maximum of 10 alphanumeric characters can be used for panel name.

TPanel sheet

The TPanel sheet sets the Timer Reset Panel. Do not change the settings on this sheet.

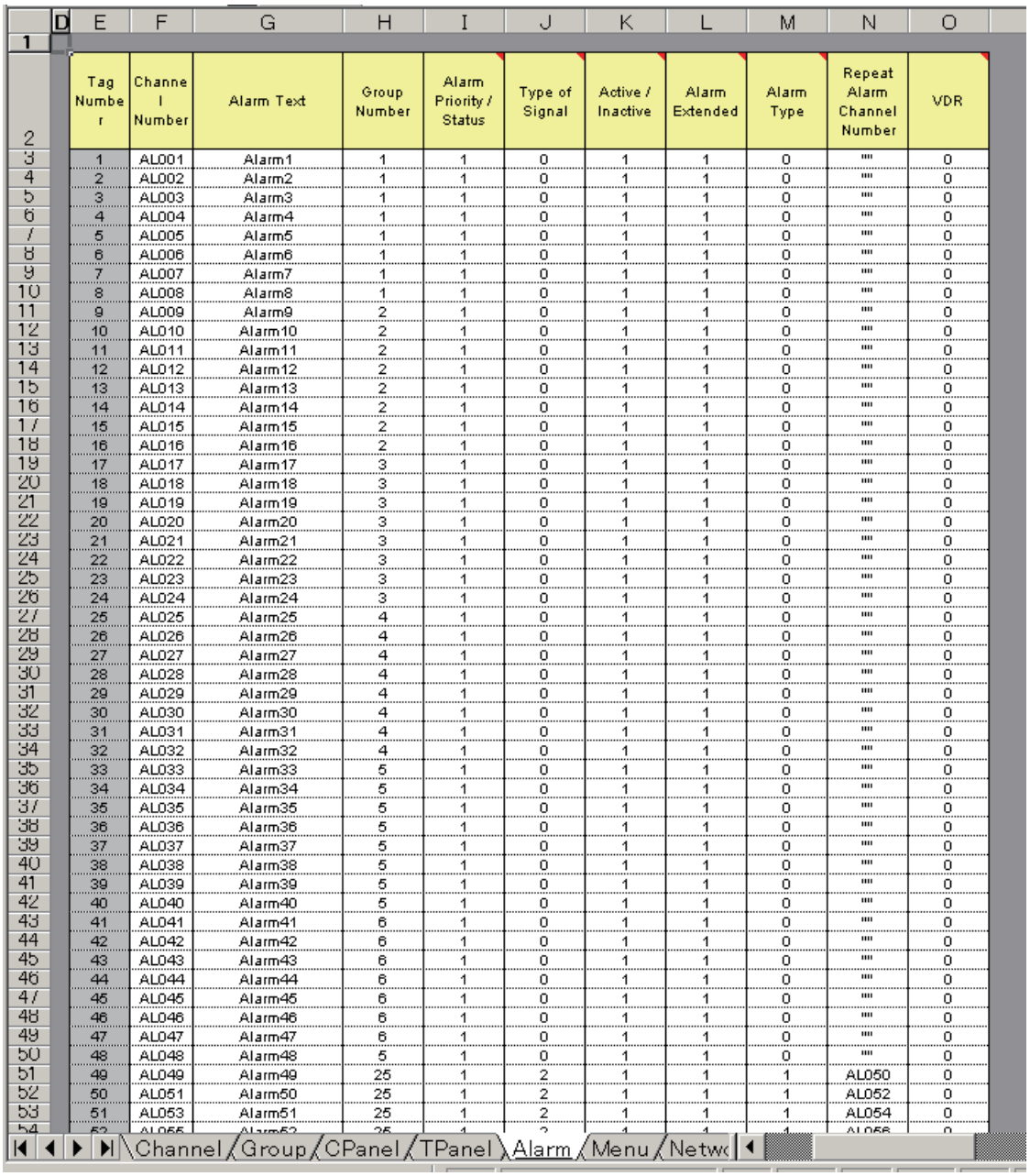


Panel Number	Timer Reset Panel LED (Alarm)	Timer Reset Panel LED (Watch)	Timer Reset Panel Buzzer	Timer Reset Panel Buuzer Stop	Reset
TP001	TA001	TW001	TB001	TS001	TR001
TP002	TA002	TW002	TB002	TS002	TR002
TP003	TA003	TW003	TB003	TS003	TR003
TP004	TA004	TW004	TB004	TS004	TR004
TP005	""	""	""	""	""
TP006	""	""	""	""	""
TP007	""	""	""	""	""
TP008	""	""	""	""	""

TPanel sheet

Alarm sheet

The Alarm sheet sets the alarms.



Tag Number	Channel Number	Alarm Text	Group Number	Alarm Priority / Status	Type of Signal	Active / Inactive	Alarm Extended	Alarm Type	Repeat Alarm Channel Number	VDR
1	AL001	Alarm1	1	1	0	1	1	0	""	0
2	AL002	Alarm2	1	1	0	1	1	0	""	0
3	AL003	Alarm3	1	1	0	1	1	0	""	0
4	AL004	Alarm4	1	1	0	1	1	0	""	0
5	AL005	Alarm5	1	1	0	1	1	0	""	0
6	AL006	Alarm6	1	1	0	1	1	0	""	0
7	AL007	Alarm7	1	1	0	1	1	0	""	0
8	AL008	Alarm8	1	1	0	1	1	0	""	0
9	AL009	Alarm9	2	1	0	1	1	0	""	0
10	AL010	Alarm10	2	1	0	1	1	0	""	0
11	AL011	Alarm11	2	1	0	1	1	0	""	0
12	AL012	Alarm12	2	1	0	1	1	0	""	0
13	AL013	Alarm13	2	1	0	1	1	0	""	0
14	AL014	Alarm14	2	1	0	1	1	0	""	0
15	AL015	Alarm15	2	1	0	1	1	0	""	0
16	AL016	Alarm16	2	1	0	1	1	0	""	0
17	AL017	Alarm17	3	1	0	1	1	0	""	0
18	AL018	Alarm18	3	1	0	1	1	0	""	0
19	AL019	Alarm19	3	1	0	1	1	0	""	0
20	AL020	Alarm20	3	1	0	1	1	0	""	0
21	AL021	Alarm21	3	1	0	1	1	0	""	0
22	AL022	Alarm22	3	1	0	1	1	0	""	0
23	AL023	Alarm23	3	1	0	1	1	0	""	0
24	AL024	Alarm24	3	1	0	1	1	0	""	0
25	AL025	Alarm25	4	1	0	1	1	0	""	0
26	AL026	Alarm26	4	1	0	1	1	0	""	0
27	AL027	Alarm27	4	1	0	1	1	0	""	0
28	AL028	Alarm28	4	1	0	1	1	0	""	0
29	AL029	Alarm29	4	1	0	1	1	0	""	0
30	AL030	Alarm30	4	1	0	1	1	0	""	0
31	AL031	Alarm31	4	1	0	1	1	0	""	0
32	AL032	Alarm32	4	1	0	1	1	0	""	0
33	AL033	Alarm33	5	1	0	1	1	0	""	0
34	AL034	Alarm34	5	1	0	1	1	0	""	0
35	AL035	Alarm35	5	1	0	1	1	0	""	0
36	AL036	Alarm36	5	1	0	1	1	0	""	0
37	AL037	Alarm37	5	1	0	1	1	0	""	0
38	AL038	Alarm38	5	1	0	1	1	0	""	0
39	AL039	Alarm39	5	1	0	1	1	0	""	0
40	AL040	Alarm40	5	1	0	1	1	0	""	0
41	AL041	Alarm41	6	1	0	1	1	0	""	0
42	AL042	Alarm42	6	1	0	1	1	0	""	0
43	AL043	Alarm43	6	1	0	1	1	0	""	0
44	AL044	Alarm44	6	1	0	1	1	0	""	0
45	AL045	Alarm45	6	1	0	1	1	0	""	0
46	AL046	Alarm46	6	1	0	1	1	0	""	0
47	AL047	Alarm47	6	1	0	1	1	0	""	0
48	AL048	Alarm48	5	1	0	1	1	0	""	0
49	AL049	Alarm49	25	1	2	1	1	1	AL050	0
50	AL051	Alarm50	25	1	2	1	1	1	AL052	0
51	AL053	Alarm51	25	1	2	1	1	1	AL054	0

1. Tag Number
   Do not change this setting.
2. Channel Number
   Give tag numbers to alarm logical channels. Adjustment is normally not required.
3. Alarm Text (Same as “Alarm Text” on the Alarm List editing screen.)
   Set the name of each alarm. You can use alphanumeric characters, and the name can have a maximum of 32 characters including spaces.
   Give Tag Numbers (Channel Numbers) according to terminal location on the Processor Unit BR-1020 as follows. Enter the name of the alarm connected to TB #1/2 in the input box for Tag Number 1.
   - TB2 #1/2: Tag Number 1 (Channel Number AL001)
   - TB2 #3/4: Tag Number 2 (Channel Number AL002)
   - TB13 #7/8: Tag Number 48 (Channel Number AL048)

If the No.2 processor unit is installed, enter tag numbers as shown below.
- No. 2 BR-1020 TB2 #1/2: Tag Number 97 (Channel Number AL097)
- TB2 #3/4: Tag Number 98 (Channel Number AL098)

Enter a name for the alarm that clearly identifies the type of alarm. These names appear on the Bridge Alarm Display and the Auto Alarm Pop-up Display.

Example: No. 1 Radar CPA/TCPA/GZ
No. 2 Radar System Fail
No. 1 GPS off-track

4. Group Number (Same as “Group Number” on the Alarm List editing screen.) Collect like alarms into a group.

   Range: 1-25, 25 is for Modbus.

   Examples:

   - Assign the four lines of alarm signals from the No. 1 radar that are connected to TB2 in the No. 1 processor unit to Group 1.
   - Assign the four lines of alarm signals from the No. 2 radar that are connected to TB3 in the No. 1 processor unit to Group 2.
   - Assign the eight lines of alarm signals from the ECDIS that are connected to TB4 and TB5 to Group 3.
   - Assign the four lines of alarm signals from a GPS navigator that are connected to #1/2 of TB6 to Group 4.

5. Alarm Priority/Status

   Assign priority to each alarm. Check with ship personnel to set priority. Priority appears on the Bridge Alarm Display and the Auto Alarm Pop-up Display.

   0: Emergency
   1: Urgency
   2: Primary
   3: Secondary

6. Type of Signal

   Set the type of contact signal for each alarm. Set according to equipment connected.

   0: AL Open (Contact signal opens when an alarm is generated - NC.)
   1: AL Close (Contact signal closes when an alarm is generated - N0.)
   2: Modbus

7. Active/Inactive

   Activate or deactivate each alarm. (The Bridge Panel ignores an alarm set as inactive.)

   0: Inactive
   1: Active

8. Alarm Extended

   Extend or don’t extend an alarm at the BR-1000 if the **BUZ STOP** and **ACK** keys are not operated after a device is restored to normal operation after generating an alarm.

   0: OFF (Alarm is not extended. Alarm is canceled at the BR-1000 after the alarm is cleared from a device.
   1: ON (Alarm is extended. Alarm is sent to the Cabin Panels (depending on mode) if the **BUZ STOP** and **ACK** keys are not operated.)

9. Alarm Type

   Enable or disable the repeat alarm for Modbus.

   When a “normal” alarm is generated and the repeat alarm address changes, the alarm changes to a repeat alarm. (Not related to contact signal.)

   0: Normal Alarm (No repeat alarm)

   1: Repeat Alarm (With repeat alarm)

   Note: For Modbus. Consult with the IAS maker.

10. Repeat Alarm Channel Number

    If the Alarm Type is Repeat Alarm, the repeat alarm is generated when the address of the corresponding logical channel changes.

11. VDR

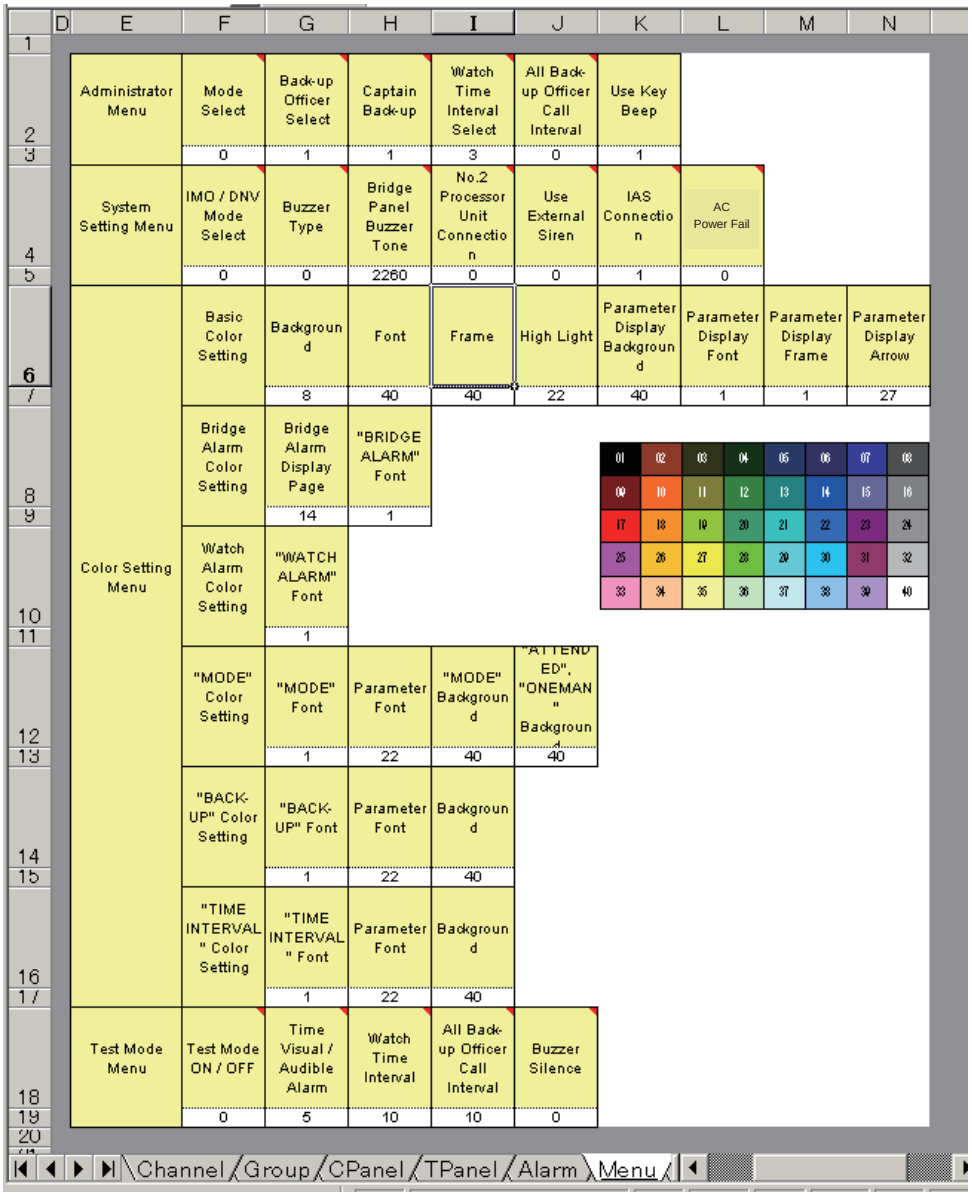
    Output or don’t output the ALR sentence to a VDR when related alarm is generated.

    0: Disable (no output)

    1: Enable (output)

Menu sheet

The Menu sheet has settings for the Administrator menu and the Service menu. The Administrator menu has items that can be adjusted by ship authorities (like the Captain) according to navigation status. The installer can keep the default settings. See the BR-1000 Operator's Manual for information about the Administrator menu.



[Administrator menu]

1. Mode Select
   Set the operating mode.
   0: Harbour Mode
   1: Attended Mode
   2: One-Man Mode
2. Back-up Officer Select
   Select the back-up officer (Range: 0-9).
   0: Cabin Panel 1
   1: Cabin Panel 2
   . . .
   9: Cabin Panel 10

Select the Cabin Panels that are set as “1 Back-up Officer” with the item “Panel Type” on the CPanel sheet.

3. Captain Back-up
   Set if the Cabin Panel in the Captain’s room is to give the audible alarm in the 2nd phase of an alarm or not.
   0: DIsable (no audible alarm)
   1: Enable (audible alarm sounds)
4. Watch Time Interval Select
   Set the watch time interval.
   Range: 3-12 (m)
5. All Back-up Officer Call Interval
   Select the time interval between the end of the 2nd phase and the start of the 3rd phase. The time unit is seconds.
   0: 90
   1: 120
   2: 150
   3: 180
6. Use Key Beep
   A beep sounds when a key is operated. This beep can be turned on or off.
   0: Disable (no beep)
   1: Enable (beep)

[System Setting menu]

1. IMO/DNV Mode Select
   Set the specification for the timing of watch alarm generation, IMO or DNV, See Chapter 1 in the Operator’s Manual for information about this setting.
   0: IMO (International Maritime Organization)
   1: DNV (Det Norske Veritas, Norwegian classification society)
2. Buzzer Type
   Set the buzzer type for continuous or intermittent.
   0: Continuous
   1: Intermit
3. Bridge Panel Buzzer Tone
   Set the buzzer frequency for the buzzer at the BR-1010.
   Range: 2100-2300 (Hz)
   In 10 Hz increments. Adjustment is normally not required.
4. No. 2 Processor Unit Connection
   Set whether the optional BR-1020 is connected or not.
   0: Disable (no connection)
   1: Enable (connected)

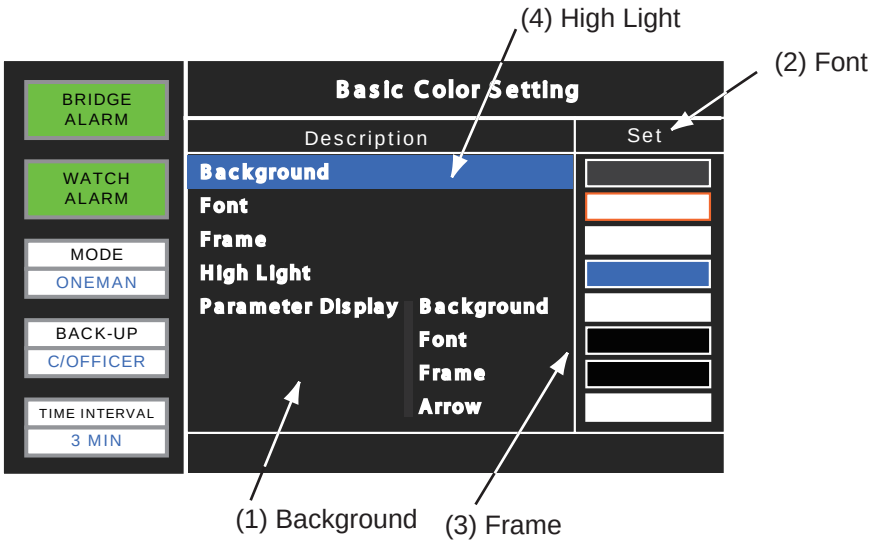
5. Use External Siren
   Use an external siren or not.
   0: DIsable (don't use)
   1: Enable (use)
6. IAS Connection
   Set whether IAS is connected or not.
   0: Disable (no connection)
   1: Enable (connected)
7. AC Power Fail
   Set the #5-#6 terminals of TB31 in the processor unit as "normally closed" or "normally open".
   0: Normally closed
   1: Normally open

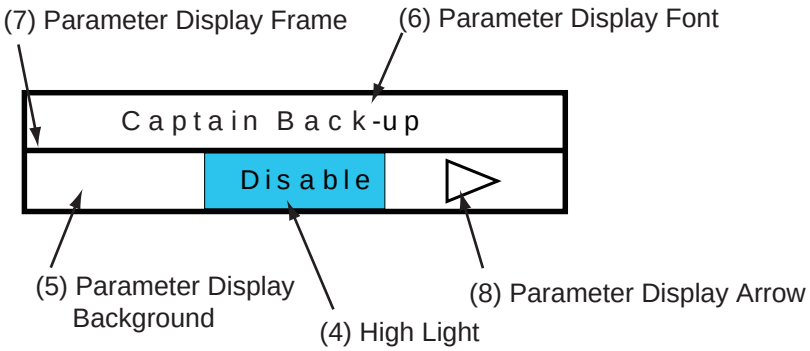
[Color Setting menu]

The setting for each color is shown on the sheet with numbers. Refer to the table and figure below for description and location of items.

1. Basic Color Setting

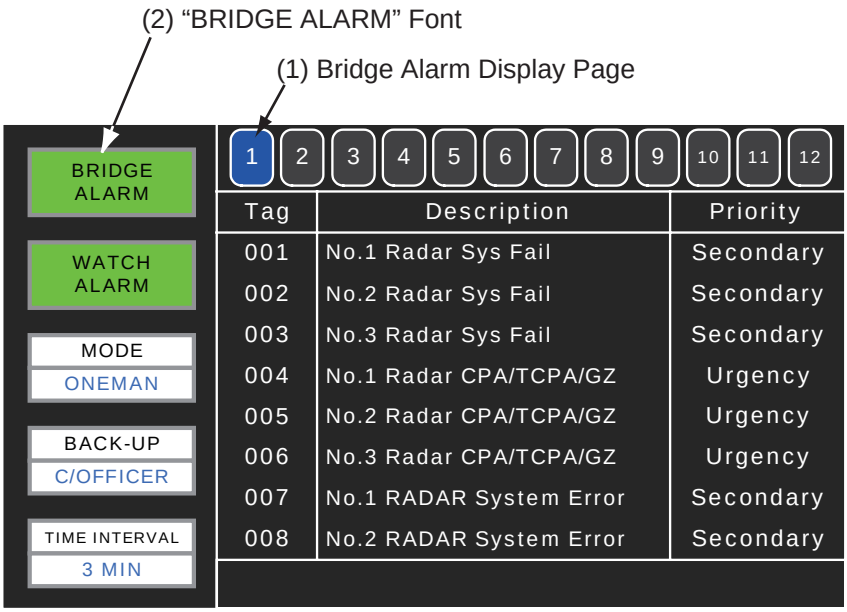
Item	Location
Background	(1)
Font	(2)
Frame	(3)
High Light	(4)
Parameter Display Background	(5)
Parameter Display Font	(6)
Parameter Display Frame	(7)
Parameter Display Arrow	(8)





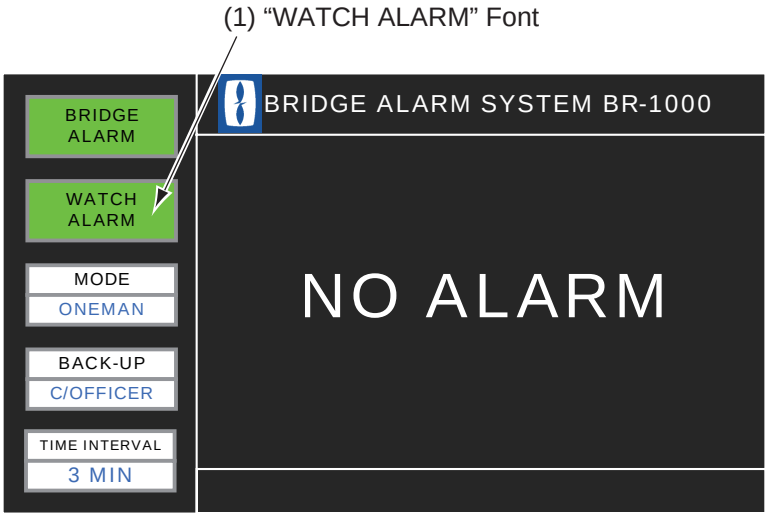
2. Bridge Alarm Color Setting

Item	Location
Bridge Alarm Display Page	(1)
“BRIDGE ALARM” Font	(2)



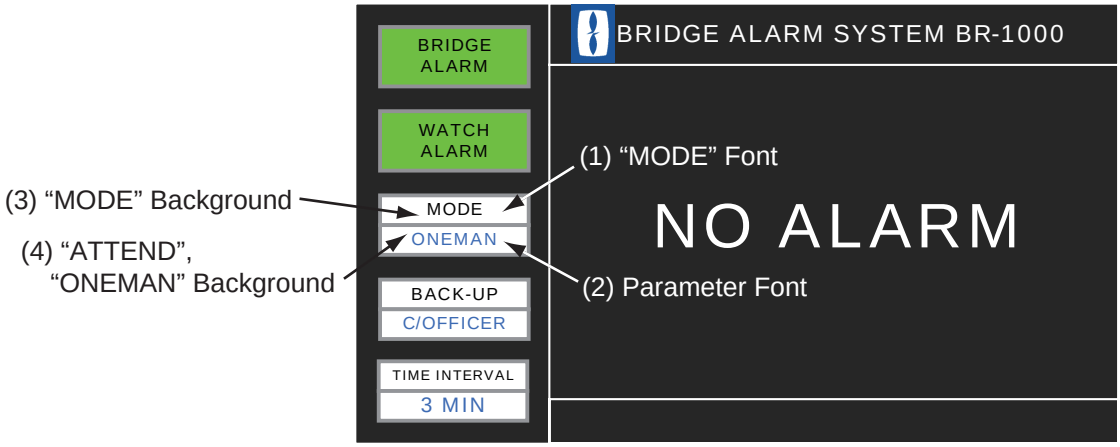
3. “WATCH ALARM” Color Setting

Item	Location
“WATCH ALARM” Font	(1)



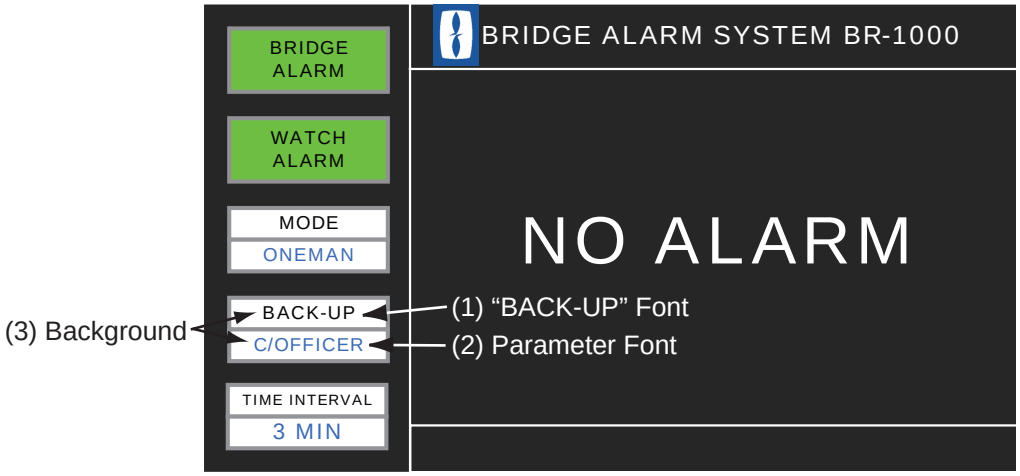
4. “MODE” Color Setting

Item	Location
“MODE” Font	(1)
Parameter Font	(2)
“MODE” Background	(3)
“ATTEND”, “ONEMAN” Background	(4)



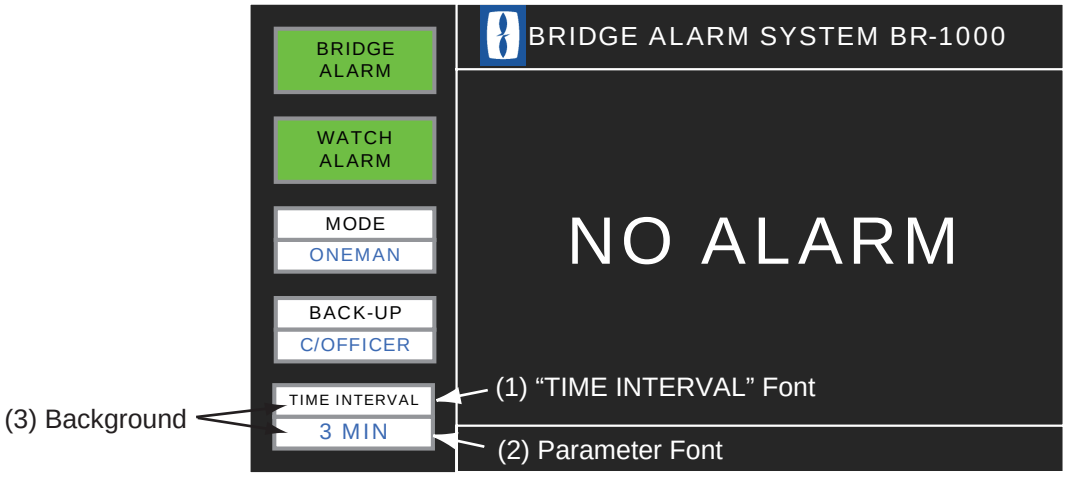
5. “BACK-UP” Color Setting

Item	Location
“BACK-UP” Font	(1)
Parameter Font	(2)
Background	(3)



6. “TIME INTERVAL” Color Setting

Item	Location
“TIME INTERVAL” Font	(1)
Parameter Font	(2)
Background	(3)



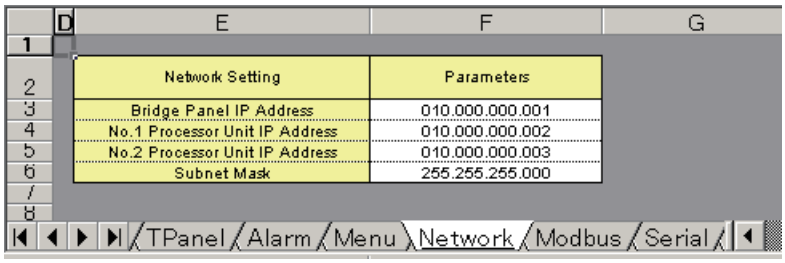
[Test Mode menu]

The test mode checks the system for proper operation. See section 3.4 for information.

1. Test Mode ON/OFF
   Turn test mode ON/OFF.
   0: OFF (normal operation)
   1: ON
2. Time Visual/Audible Alarm
   Set the time interval for the Prewarning and 2nd phase of the watch alarm to use in the test mode.
   Range: 5-14 (s)
3. Watch Time Interval
   Set the watch time interval to use in the test mode.
   Range: 10-30 (s)
4. All Back-up Officer Call Interval
   Set the time interval to use between the 2nd and 3rd phases in the test mode.
   Range: 10-30 (s)
5. Buzzer Silence
   Sound or don't sound the buzzer in the test mode.
   0: Disable (no buzzer)
   1: Enable (buzzer sounds)

Network sheet

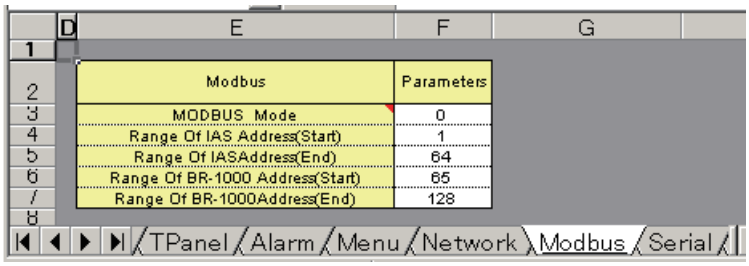
The network sheet sets the network. These settings cannot be entered or changed from the Bridge Panel.



1. Bridge Panel IP Address
   Enter the IP address of the BR-1010. Adjustment is normally not required.
2. No.1 Processor Unit IP Address
3. No.2 Processor Unit IP Address
   Set the IP address of the No.1 and No.2 Processor Unit. (These are settings for the bridge panel, so it may be necessary to change the setting for the No. 2 Processor Unit.)
   Adjustment is normally not required.
4. Subnet Mask
   Set the subnet mask. Adjustment is normally not required.

Modbus sheet

Modbus is the communications protocol used between the IAS and this system. These settings cannot be entered or changed from the Bridge Panel.

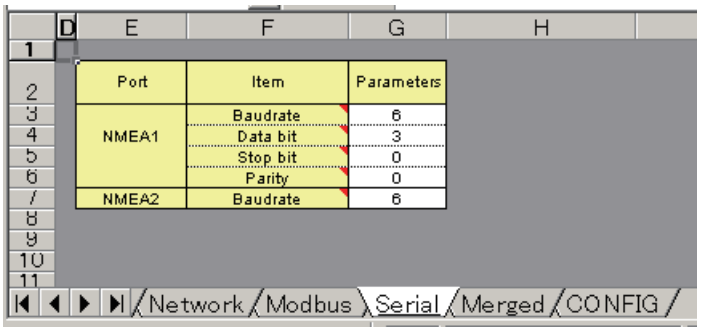


Note: For Modbus; consult with the IAS maker. The BR-1000 cannot be used with an IAS unless settings are compatible with one another.

1. Modbus Mode
   Set the Modbus mode.
   0: RTU
   1: ASCII
2. Range of IAS Address(Start)
   Set the start address at the IAS side. Alarm data generated at the IAS is written into the IAS address at the IAS side.
   Range: 1-64
   Adjustment is normally not required, but may be required depending on the make of the IAS.
3. Range of IAS address(End)
   Set the end address at the IAS side.
   Range: 1-64
   Adjustment is normally not required, but may be required depending on the make of the IAS.
4. Range of BR-1000 Address(Start)
   Set the start address at the BR-1000 side. Generated alarm data is written into the BR-1000 address at the BR-1000 side.
   Range: 65-128
   Adjustment is normally not required, but may be required depending on the make of the IAS.
5. Range of BR-1000 Address(End)
   Set the end address at the BR-1000 side.
   Range: 65-128
   Adjustment is normally not required, but may be required depending on the make of the IAS.

Serial sheet

Set the serial port of the BR-1010. Set the items according to the equipment connected. This procedure cannot be done from the Bridge Panel.



[NMEA1]

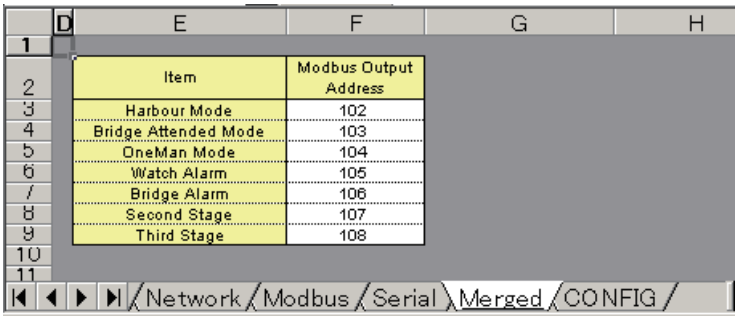
1. Baudrate
   Set baudrate of NMEA1 port.
   6: 4800 bps
   9: 38400 bps
   Note: Do not use setting 9 (38400 bps) since BR-1010 has no isolation.
2. Data Bit
   Set data bit of NMEA1 port.
   2: 7 bit
   3: 8 bit
3. Stop Bit
   Set stop bit of NMEA1 port.
   0: 1 bit
   1: 2 bit
4. Parity
   Set parity of NMEA1 port.
   0: None
   1: Even
   2: Odd

[NMEA2]

1. Baudrate
   Set baudrate of NMEA2 port.
   6: 4800 bps
   9: 38400 bps (no use)
   Note: Do not use setting 9 (38400 bps) since BR-1010 has no isolation.

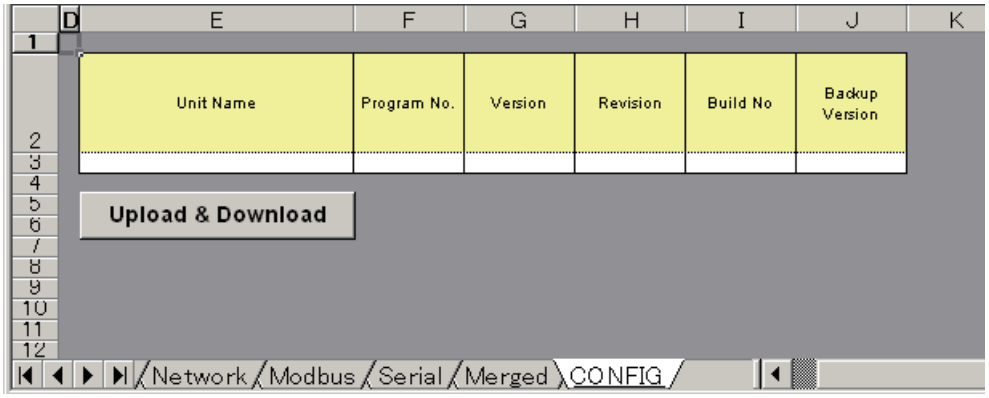
Merged sheet

Settings for a Merged System. A Merged System uses the Cabin Panels of an IAS to forward the alarms generated at the BR-1000. (The Cabin Panels of the BR-1000 are not installed.) Consult with the IAS maker.
Range: 65-128



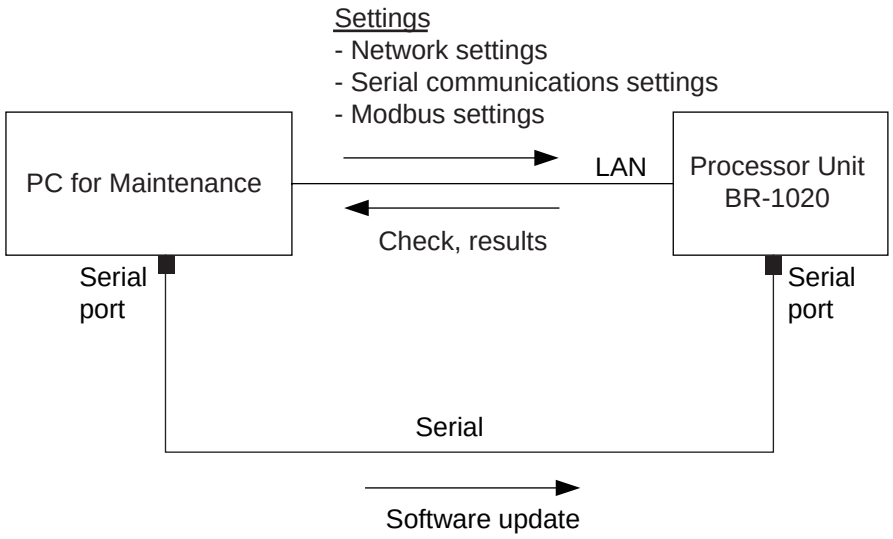
Config sheet

The Config sheet shows the software version of the BR-1010. Modification of the contents of this sheet is not necessary. Use the sheet to upload and download data.



3.3 Settings for Processor Unit BR-1020

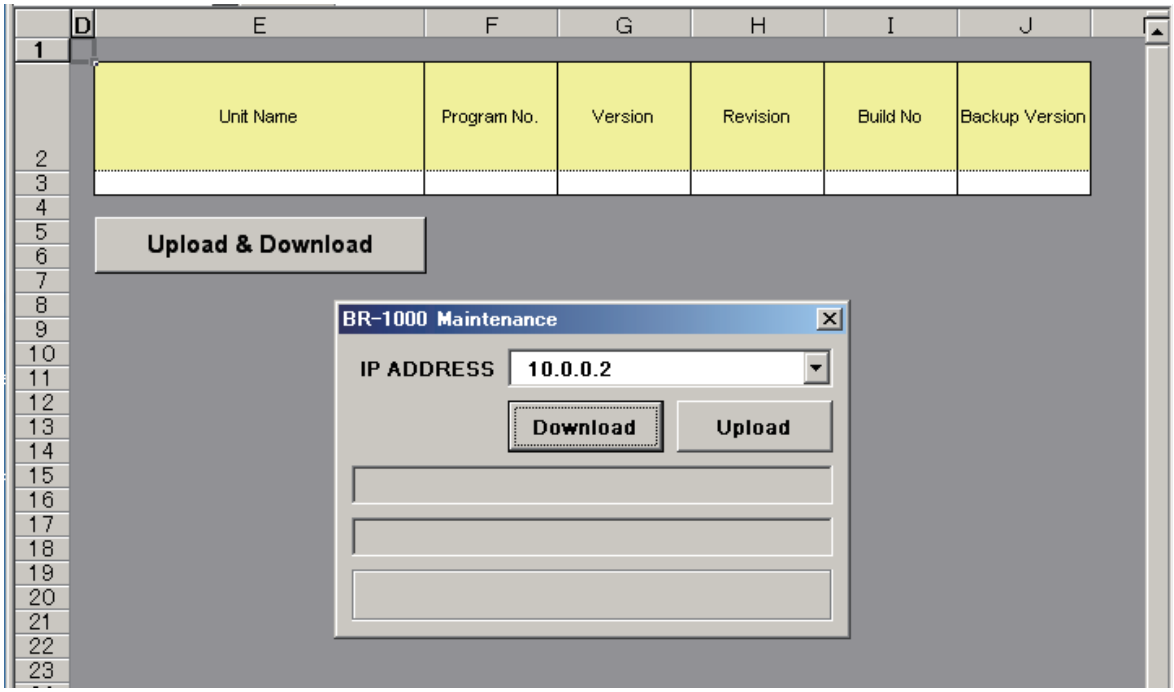
Connect the PC to the BR-1020 as shown below. Do the procedure below to update the BR-1020.



How to update the BR-1020

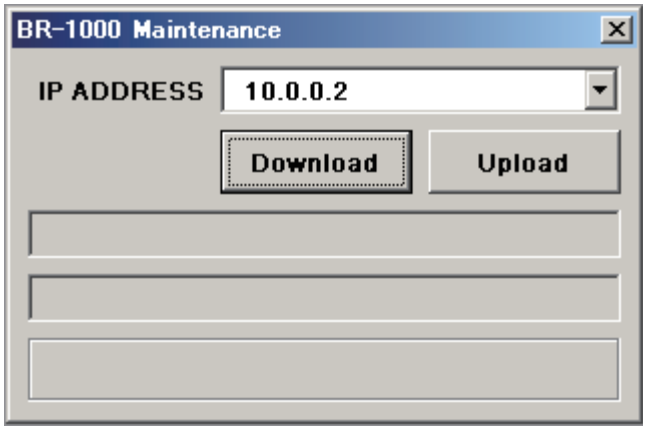
This section shows you how to update the BR-1020. This is the only procedure available to update the BR-1020.

1. Connect the PC to the BR-1020 and turn on the Bridge Panel.
2. Open the Maintenance Excel file BR1020CONF from the PC.
3. Open the Config sheet and click the Upload & Download button to show the BR-1000 Maintenance window.

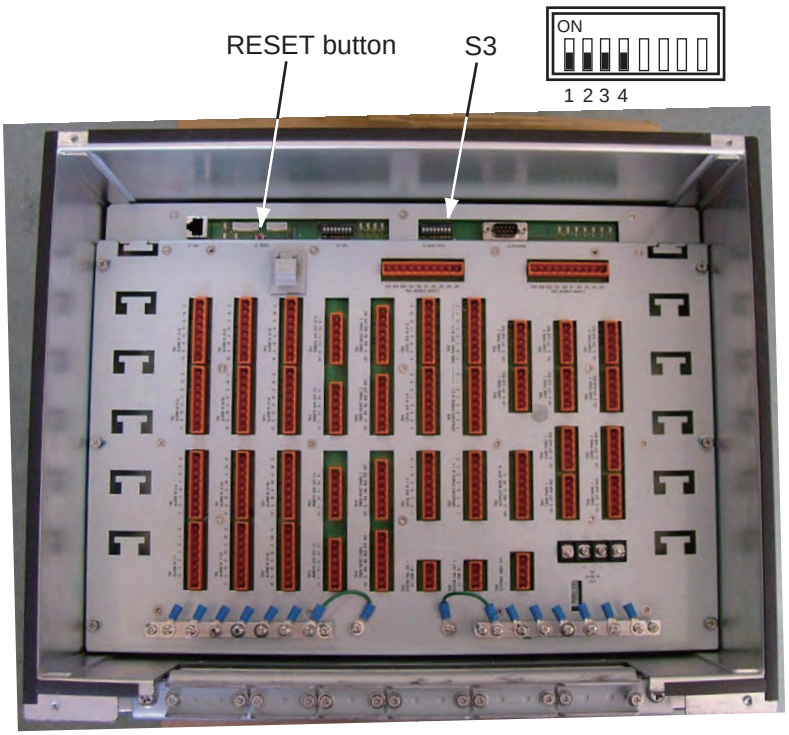


4. Check that the IP address for the BR-1020 is correct then click the Download button.
5. Change the settings on the Processor Unit sheet. See “Description of settings for BR-1020” on the next page.

6. After you have set all items, reopen the Config sheet and click the Upload & Download button.
7. Check that the IP address shown in the window is correct.

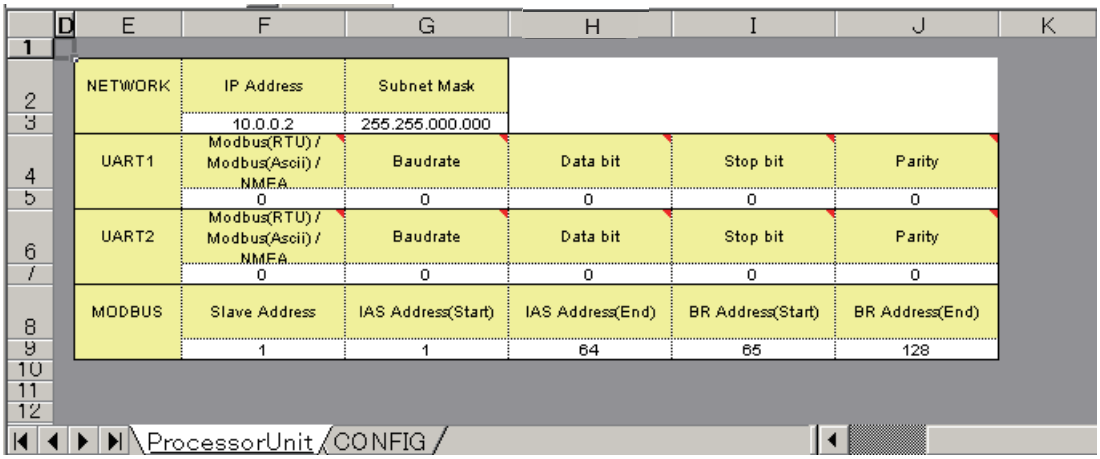


8. Click the Upload button to upload setting data. When the uploading is completed, the message “Complete” appears.
9. Give a name to the updated definition file and save the file. Select a name that is easy to remember; for example, name of ship.
10. Disconnect the PC from the BR-1020. Open the BR-1020 then push the Reset button inside.



◆ Description of settings for BR-1020

Processor Unit sheet



NETWORK	IP Address	Subnet Mask			
	10.0.0.2	255.255.000.000			
UART1	Modbus(RTU) / Modbus(Ascii) / NMEA	Baudrate	Data bit	Stop bit	Parity
	0	0	0	0	0
UART2	Modbus(RTU) / Modbus(Ascii) / NMEA	Baudrate	Data bit	Stop bit	Parity
	0	0	0	0	0
MODBUS	Slave Address	IAS Address(Start)	IAS Address(End)	BR Address(Start)	BR Address(End)
	1	1	64	65	128

ProcessorUnit / CONFIG

[Network]

Enter network settings here.

1. IP Address
   Set the IP address for the BR-1020. Adjustment is normally not required.
2. Subnet mask
   Set the subnet mask for the BR-1020. Adjustment is normally not required.

[UART1], [UART2]

UART1 and UART2 are settings for the serial lines for terminals TB-42 and TB-43 in the Processor Unit.

1. Modbus(RTU) / Modbus(ASCII) / NMEA
   Select a Modbus mode or NMEA for UART.
   0: Modbus(RTU)
   1: Modbus(ASCii)
   2: NMEA (no use)
2. Baudrate
   Set baudrate of UART.
   0: DIPSW
   1: 4800 bps
   2: 9600 bps
   3: 19200 bps
   4: 38400 bps
   For 0(DIPSW), see the table below to set baud rate with DIP switch S3, inside the BR-1020. See page 3-26 for the location of S3.

S3 #1	S3 #2	Baudrate(bps) for TB-42	S3 #3	S3 #4	Baudrate(bps) for TB-43
0	0	4800	0	0	4800
0	1	9600	0	1	9600
1	0	19200	1	0	19200
1	1	19200	1	1	19200

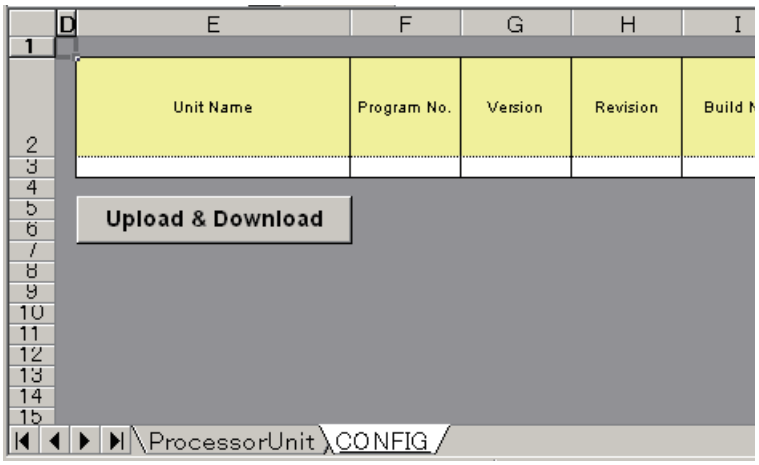
3. Data Bit
   Set data bit of UART.
   0: 7 bit
   1: 8 bit
4. Stop Bit
   Set stop bit of UART.
   0: 1 bit
   1: 2 bit
5. Parity
   Set parity of UART.
   0: None
   1: Even
   2: Odd

[Modbus]

1. Slave Address
   Set slave address.
   Range: 1-247
2. IAS Address(Start)
   Set the start address at the IAS side. (Range: 1-64)
   Adjustment is normally not required, but may be required depending on the make of the IAS.
   If change is necessary, set this address the same as that for “Range of IAS Adddress(Start)” at the BR-1010.
3. IAS address(End)
   Set the end address at the IAS side. (Range: 1-64)
   Adjustment is normally not required, but may be required depending on the make of the IAS.
   If change is necessary, set this address the same as that for “Range of IAS Adddress(End)” at the BR-1010.
4. BR Address(Start)
   Set the start address at the BR-1000 side. (Range: 65-128)
   Adjustment is normally not required, but may be required depending on the make of the IAS.
   If change is necessary, set this address the same as that for “Range of BR Adddress(Start)” at the BR-1010.
5. BR Address(End)
   Set the end address at the BR-1000 side. (Range: 65-128)
   Adjustment is normally not required, but may be required depending on the make of the IAS.
   If change is necessary, set this address the same as that for “Range of BR Adddress(End)” at the BR-1010.

Config sheet

The Config sheet shows the software version of the BR-1020. Use this sheet to upload and download setting data. Modification of this sheet is not necessary.



After entering all settings, click the Upload & Download button, enter the IP address of the BR-1020 then click the Upload button to upload the setting data.

3.4 System Operation Check

You check the system operation from the Test Mode Menu. This method is faster than checking the bridge alarm and watch alarm through normal operation.

Operation with the test mode active

[Bridge alarm]

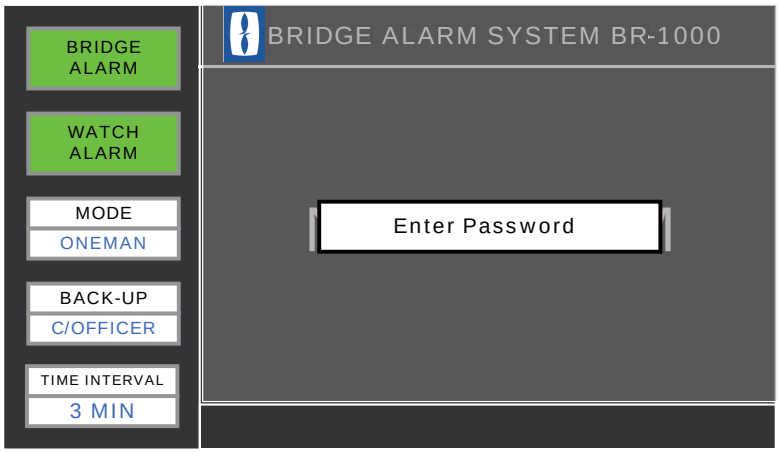
- The Initial Setting Display and the Alarm List editing screen cannot be opened when a bridge alarm is active.
- Press the **BUZ STOP** and **ACK** keys to stop an alarm. The system goes into “Pending” state then you can open the menu. To show the Initial Setting Display, press the **ESC** key and “Pending Alarm” appears at the screen center. Press the **MENU** key to show the display. “Pending” means that the buzzer has been stopped and alarm acknowledged, but the cause of the alarm has not yet been removed.

[Watch alarm]

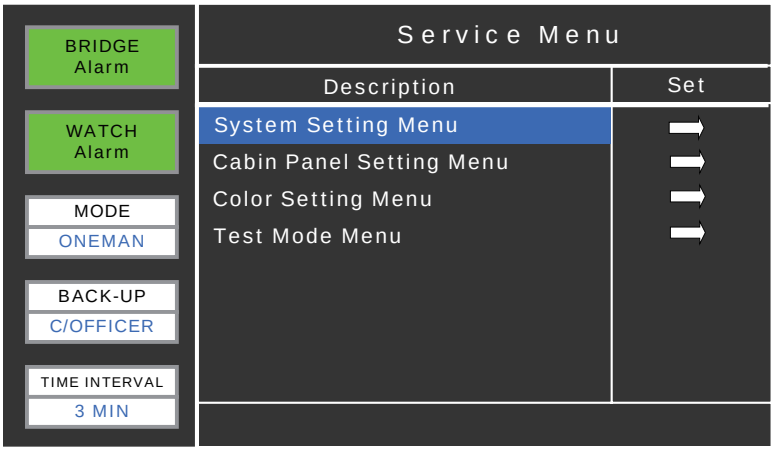
- The Initial Settings Display can be shown when a watch alarm is active.
- When a watch alarm is active and the **MENU** key is pressed, the audible alarm stops (audible alarms stop even if the alarm is sent to the next stage) and the window for password entry appears.
- The watch timer restarts after a watch alarm is stopped.
- If the bridge alarm and watch alarm are generated simultaneously, priority is given to the bridge alarm. In that case, the Initial Setting Display cannot be opened.

Do the following to check operation. Note that the system returns to the standby display if there is no menu operation in 60 seconds.

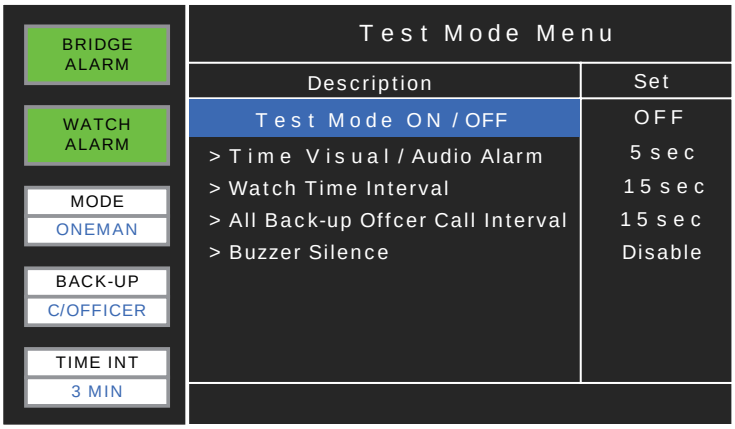
1. Press the **MENU** key, and the message “Enter Password” appears.



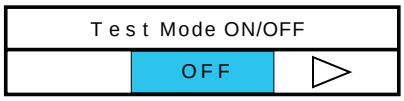
2. Press the up, down, left and right arrow pads on the Cursor pad followed by the **LIST** and **ESC** keys. This is the password to open the Service menu.



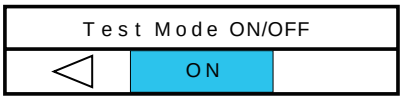
3. Press the down arrow to select (highlight) Test Mode Menu then press the **ENTER** key. The values shown in the Set column are those uploaded from the PC.



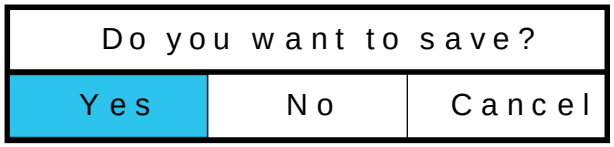
4. With Test Mode ON/OFF selected, press the **ENTER** key.



5. Press the right arrow to select ON then press the **ENTER** key.



6. Press the **ESC** key to show the following window.

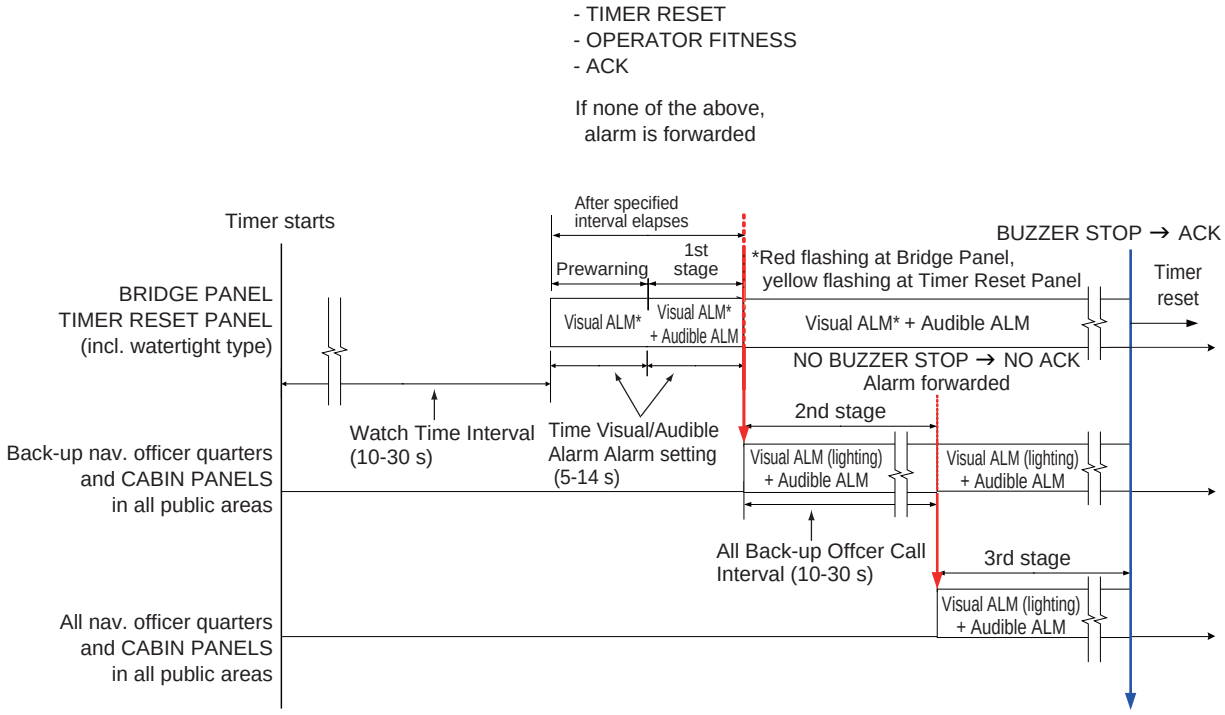


7. Select Yes then press the **ENTER** key.
   - To return to the Service Menu without making any changes, select No then press the **ENTER** key.
   - Select Cancel and press the **ENTER** key to close the window and return to the Test Mode menu.

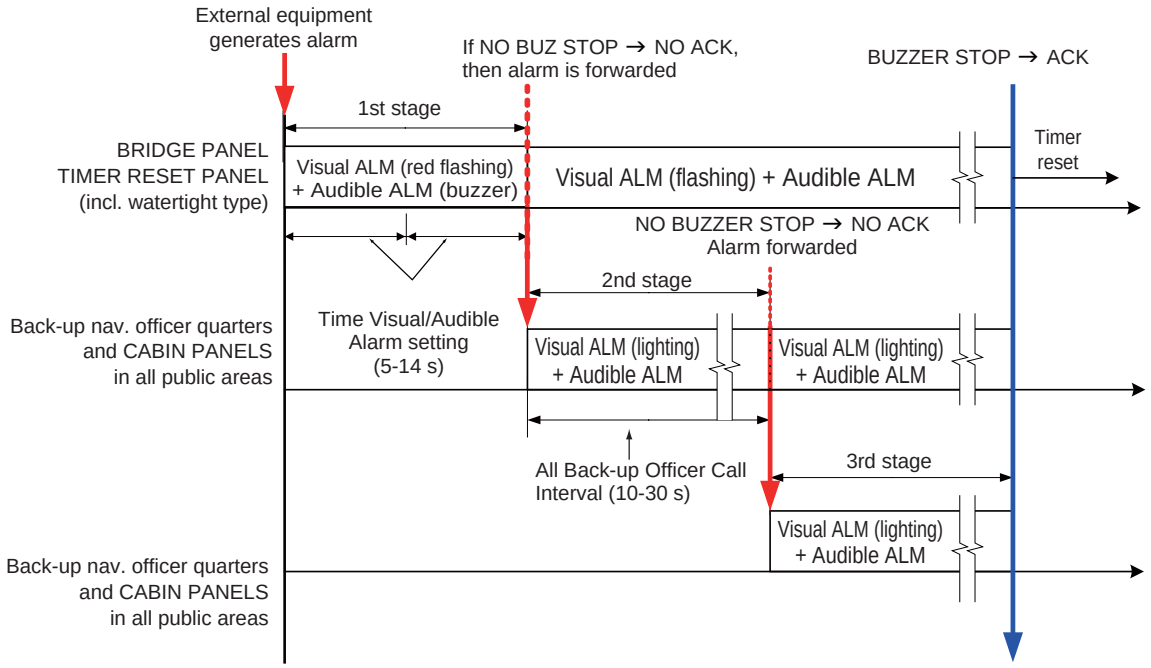
When Yes is selected and the MODE box at the left side of the display shows TEST MODE and the test mode starts.

Note: To stop the test mode, select OFF at step 5 in this procedure, press the **ENTER** key then do steps 6 and 7. Make sure you quit the test mode by this method.

- The test mode generates the watch alarm faster than the normal method. Check that the Bridge Panel and all Timer Reset Panels and Cabin Panels operate normally. To check the bridge alarm, create a condition that causes an external equipment to generate an alarm. Check that all units of the system respond to the alarm. The alarm timing is shown in the illustration below and on the next page.



Watch alarm sequence in test mode



Bridge alarm sequence in test mode

The Test Mode menu has various alarm-related parameters that can be changed. Adjustment is not normally required.

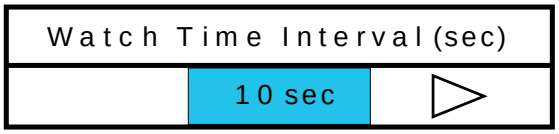
Menu item: Time Visual / Audible Alarm (sec)

Set the time interval for the visual and audible alarms in the test mode.

The range is 5-14 (s). Use the left or right arrow to set.

Menu item: Watch Time Interval

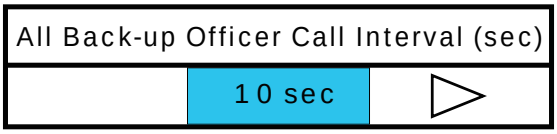
Set the watch time interval for the test mode.



The setting range is 10-30 (s). The selected interval appears in the TIME INTERVAL box at the lower left corner.

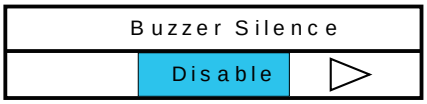
Menu item: All Back-up Officer Call Interval

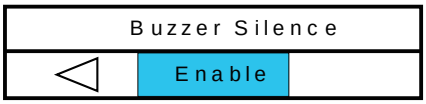
Set the time interval of the 2nd stage in the test mode. The range is 10-30 (s).



Menu item: Buzzer Silence

Enable or disable the buzzer for the bridge alarm and the watch alarm released from all “panel” units in the test mode. Lamps light or flash in both settings.





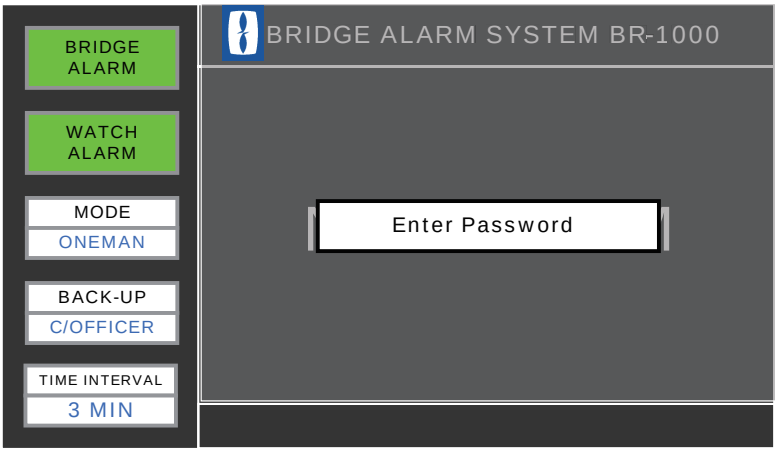
3.5 Service Menu

The Service menu is for use by the service technician. The procedure for setting the system is described in section 3.2 and 3.3. To make minor adjustments, do the procedure shown below.

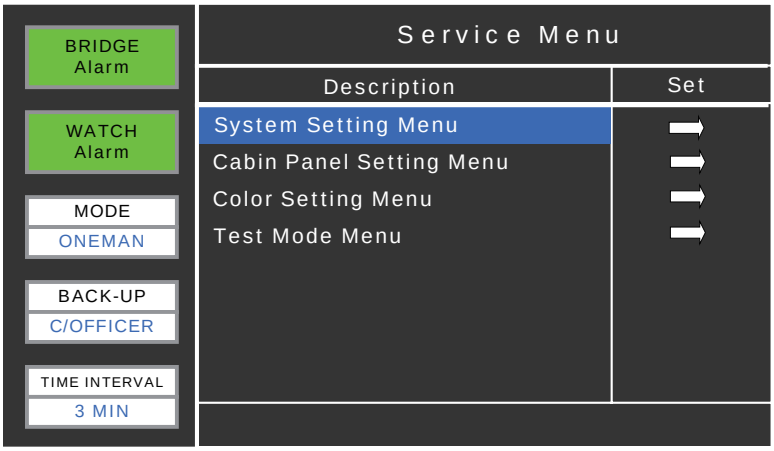
3.5.1 System Setting Menu

The system returns to the standby display if there is no menu operation in 60 seconds.

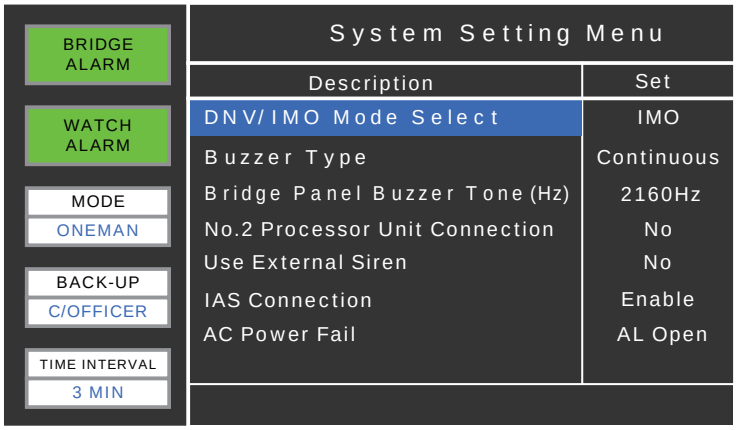
1. Press the **MENU** key. The message "Enter Password" appears.



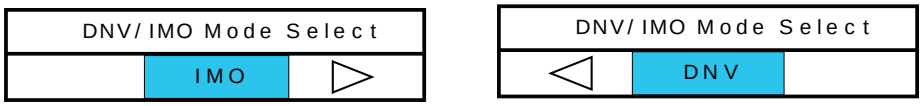
2. Press the up, down, left and right arrows on the Cursor pad followed by the **LIST** and **ESC** keys. This is the password to open the Service menu.



3. System Setting Menu is selected (highlighted); press the **ENTER** key.

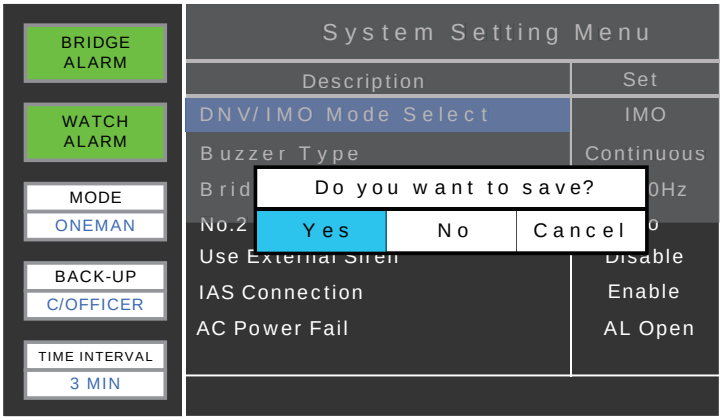


4. DNV/ IMO Mode Select is selected; press the **ENTER** key.



5. Press the left or right arrow to select IMO or DNV. See Chapter 1 in the Operator's Manual for a description of the IMO and DNV modes.
6. Press the **ENTER** key.
7. If required, set other items.

8. After you set all items required, press the **ESC** key to quit. You are asked if you are sure to save the settings.



9. Select Yes then press the **ENTER** key. Your settings are saved and the Service menu is redisplayed.
   - To return to the Service Menu without making any changes, select No then press the **ENTER** key.
   - Select Cancel then press the **ENTER** key to close the window and return to the Test Mode menu.

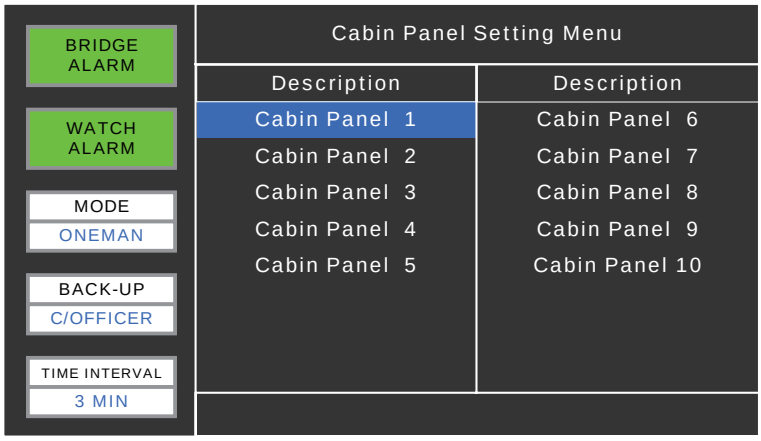
Description of System Setting Menu

Menu item	Options	Function
DNV/ IMO Mode Select	DNV, IMO	Select the timing specification of alarm forwarding in the watch alarm. DNV: Det Norske Veritas IMO: International Maritime Organization
Buzzer Type	Continuous, Intermit	Select buzzer type. Continuous: Continuous buzzer Intermit: Intermittent buzzer
Bridge Panel Buzzer Tone (Hz)	2100-2300 Hz	Set the frequency of the buzzer released from the Bridge Panel.
No.2 Processor Unit Connection	Enable, Disable	Select whether the No.2 Processor Unit is connected or not. Enable: Connected Disabled: Not connected
Use External Siren	Enable, Disable	Use external siren or not. Enable: Use external siren. Disable: Don't use external siren.
IAS Connection	Enable, Disable	Select whether IAS is connected or not. Enable: Connected Disable: Not connected
AC Power Fail	AL Close, AL Open	Set input terminals #5, #6 of TB31 in BR-1020. AL Close: Close, normally open AL Open: Open, normally closed

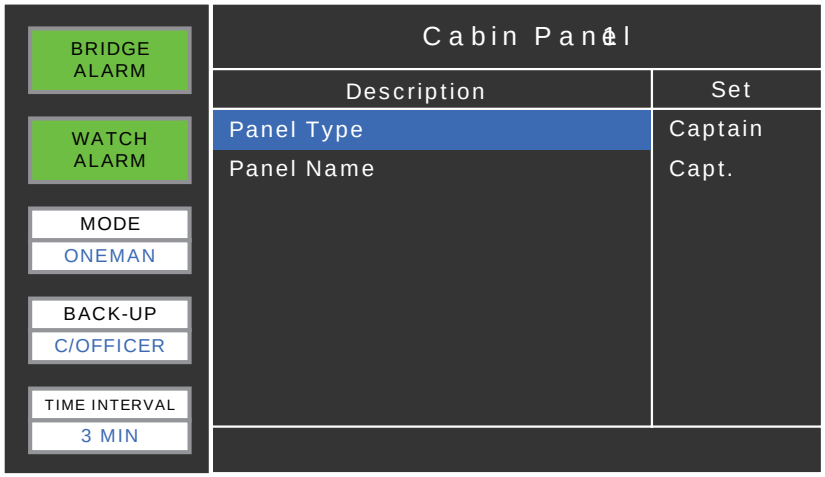
3.5.2 Cabin Panel Setting Menu

The purpose of this menu is to give names to the Cabin Panels. Record beforehand where the Cabin Panels are connected (TB32-TB41) on the Processor Unit.

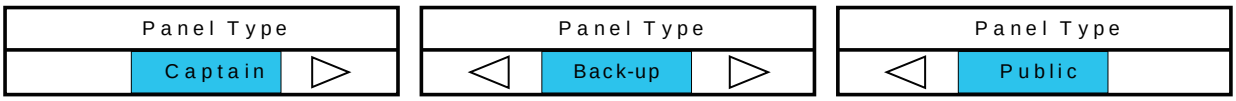
1. At the Service menu, select Cabin Panel Setting Menu then press the **ENTER** key.



2. Cabin Panel 1 is selected; press the **ENTER** key.



3. Panel Type is selected; press the **ENTER** key. The panel type selection window appears.



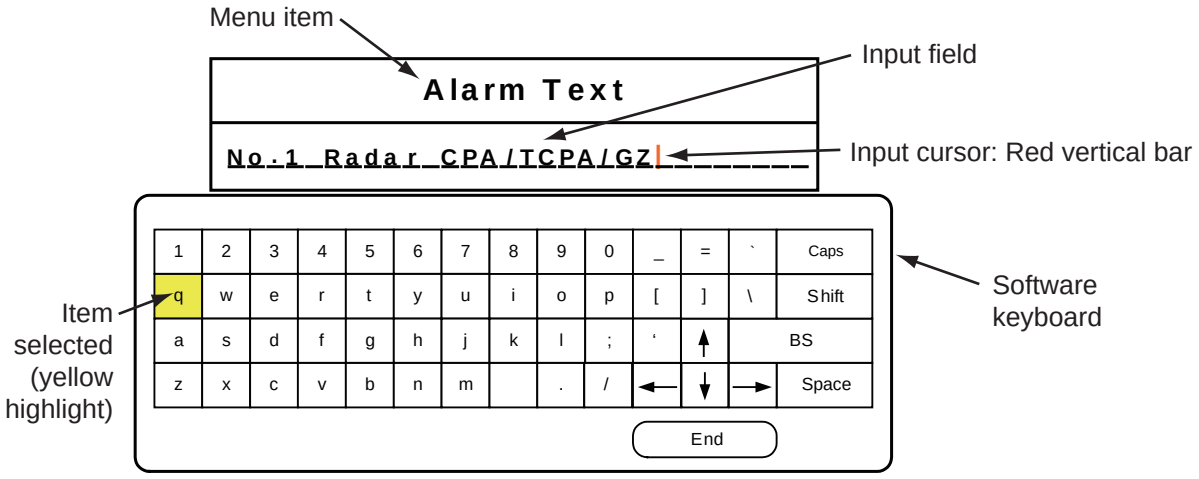
4. Use the left or right arrow to select a type then press the **ENTER** key.
   - Captain: For the Cabin Panel installed in the Captain's room.
   - Back-up: For the Cabin Panel installed in the sleeping quarters of the backup officer. Consult with the Captain of the ship to set this item.
   - Public: For the Cabin Panel installed in a public area.

5. Select Panel Name then press the **ENTER** key.
   The Panel Name entry window appears. The names for cabin panels are contained in the definition file. If required, you can change the name here.

6. Enter the title of the person who uses the room or the name of the room. Press the **ENTER** key.
   The name can have up to 10 alphanumeric characters. See the illustration below for how to enter name.
7. Enter the name for other Cabin Panels if necessary.
8. Press the **ESC** key to close the window.
9. Select Yes then press the **ENTER** key to save settings and return to the Service menu.

How to enter data

When you open the data input window, a flashing cursor is to right of the entered alphabet. The keyboard appears together with the text input box and the alphabet “q” is selected (highlighted).



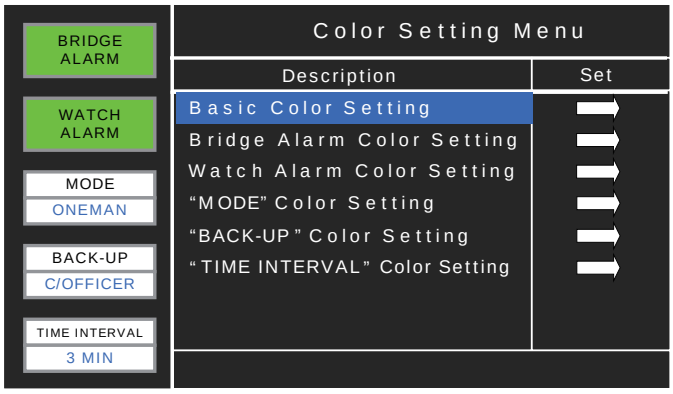
1. Use the Cursor pad on the Bridge Panel to put the cursor on [←] on the keyboard.
2. Press the **ENTER** key. The input cursor moves to the input field.
3. Do steps 1 and 2 to set the cursor to the right of the character to change.
4. Use the up or down arrow on the Bridge Panel to select BS on the keyboard.
5. Press the **ENTER** key. The character to the left of the cursor is erased.
6. Use the up or down arrow on the Bridge Panel to select the character to input then press the **ENTER** key. The selected character appears to the left of the cursor.
7. After you have finished selecting characters, select End on the keyboard then press the **ENTER** key. The keyboard is erased.

3.5.3 Color Setting Menu

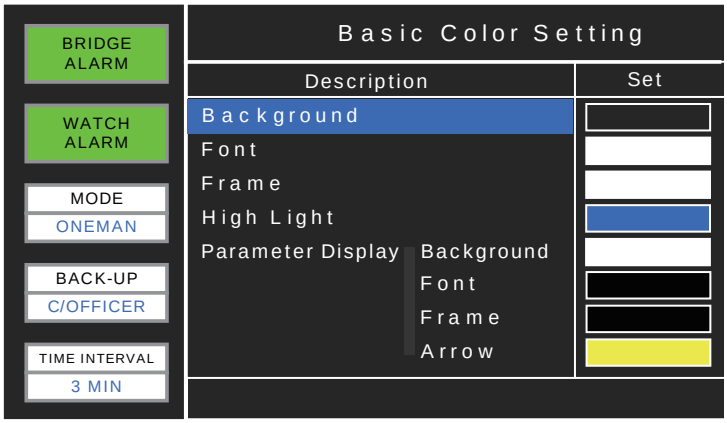
The Color Setting menu sets the background color, font color, etc.

Menu item: Basic Color Setting

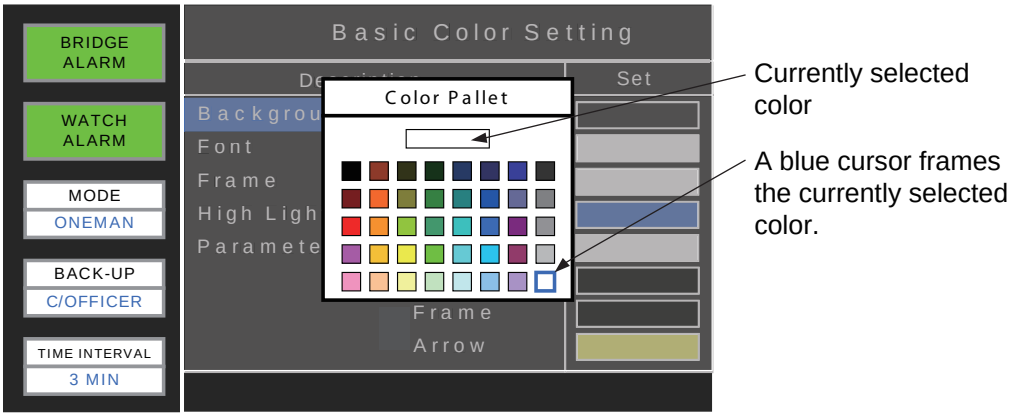
1. At the Service menu, select Color Setting Menu then press the **ENTER** key to show the Color Setting Menu.



2. Basic Color Setting menu is selected; press the **ENTER** key.



3. Background is selected; press the **ENTER** key. A thick blue cursor frames the currently selected color in the Color Palette.



4. Use the arrow pads to select a color then press the **ENTER** key. The Color Palette is erased and the selected color appears in the Set column.
5. Use the up or down arrow to select another item for which to set color. See the table on the next page for a description of each item.

6. After you have set all items, press the **ESC** key. The save confirmation window appears.
7. Select Yes then press the **ENTER** key.

Menu item	No. of colors	Function	Location*
Background	40 colors	Background color	(1)
Font	40 colors	Normal font color	(2)
Frame	40 colors	Normal frame color	(3)
High Light	40 colors	Color of the highlight cursor	(4)
Parameter Display Background	40 colors	Background color for the Parameter Setting Display	(5)
Parameter Display Font	40 colors	Font color for the Parameter Setting Display	(6)
Parameter Display Frame	40 colors	Color of the frame in the Parameter Setting Display	(7)
Parameter Display Arrow	40 colors	Color of the arrow in the Parameter Setting Display	(8)

* See page 3-18 for location.

Bridge Alarm Color Setting

Set colors for the bridge alarm related displays, such as the Auto Alarm Pop-up Display that appears when a bridge alarm is generated.

Menu item	No. of colors	Function	Location*
Bridge Alarm Display Page	40 colors	Color for page number in the Bridge Alarm Display Page	(1)
“BRIDGE ALARM” Font	40 colors	Color for “BRIDGE ALARM”	(2)

* See page 3-18 for location.

Watch Alarm Color Setting

Select the font color for the “WATCH ALARM” indication.

Menu item	No. of colors	Function	Location*
“WATCH ALARM” Font	40 colors	Color for “WATCH ALARM”	(1)

* See page 3-19 for location.

"MODE" Color Setting

Select the colors related to the "MODE" indication.

Menu item	No. of colors	Function	Location*
"MODE" Font	40 colors	Color for "MODE"	(1)
Parameter Font	40 colors	Color for the parameter	(2)
"MODE" Background	40 colors	Background color for "MODE"	(3)
"ATTEND", "ONEMAN" Background	40 colors	Background color for "ATTEND", "ONEMAN"	(4)

* See page "3-19 for location.

"BACK-UP" Color Setting

Select the colors related to the "BACK-UP" indication.

Menu item	No. of colors	Function	Location*
"BACK-UP" Font	40 colors	Color for "BACK-UP"	(1)
Parameter Font	40 colors	Color for the parameter	(2)
Background	40 colors	Background color for "BACK-UP"	(3)

* See page 3-20 for location.

"TIME INTERVAL" Color Setting

Select the colors related to the "TIME INTERVAL" indication.

Menu item	No. of colors	Function	Location*
"TIME INTER-VAL" Font	40 colors	Color for "TIME INTERVAL"	(1)
Parameter Font	40 colors	Color for the parameter	(2)
Background	40 colors	Background color for "TIME INTERVAL"	(3)

* See page 3-20 for location.

3.6 How to Edit the Alarm List

If modification of the data uploaded from the PC is required, follow the procedure in this section to modify the settings from the Bridge Panel.

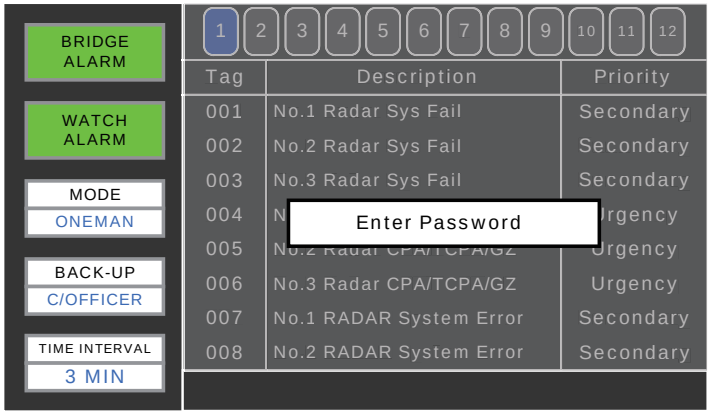
When the Alarm List editing screen is active, the system operates as follows:

- The system monitors the bridge alarm and watch alarm when the Alarm List editing screen is in use, but does not generate alarms.
- When you quit the Alarm List editing screen, the system generates bridge alarm if there is an alarm active.
- If an alarm is generated when the Alarm List editing screen is active, the BRIDGE ALARM box on the Bridge Panel flashes red, but the audible alarm does not sound from the Bridge Panel or Timer Reset Panel and no alarms are forwarded. The timer is reset when you quit the Alarm List editing screen. The 1st stage of the bridge alarm operates.
- You cannot use the Alarm List editing screen if a bridge alarm is active or the watch alarm is past the 2nd stage,
- If an alarm is generated, press the **BUZ STOP** and **ACK** keys to stop the alarms. Then you can use the Alarm List editing screen.
- After you acknowledge a bridge alarm with the **ACK** key, the Bridge Panel shows “Pending” until the cause for the alarm is removed. You can use the Alarm List editing screen in this condition. When you quit the Alarm List editing screen, the bridge alarm and watch alarm timers are reset. If the cause of the bridge alarm has not been removed, the bridge alarm starts from the 1st stage.

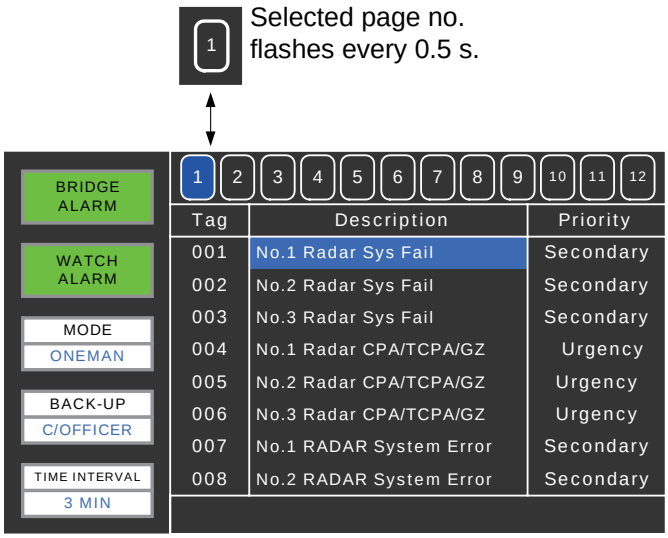
Alarm List editing screen

The system restores the standby display when there is no menu operation in 60 seconds. Settings are not saved when this occurs.

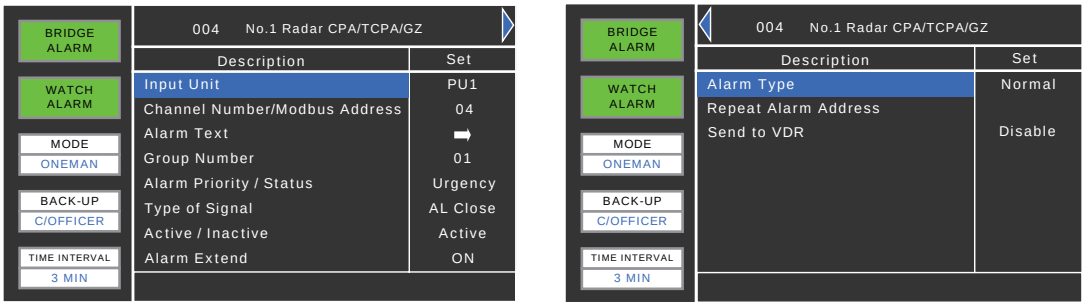
1. At the standby display, press the **LIST** key to show the Bridge Alarm Display.
2. Press the **EDIT** key, and the message "Enter Password" appears.



3. Press the up, down, left and right arrows on the Cursor pad followed by the **LIST** and **ESC** keys. This is the password to open the Alarm List editing screen.
   Page numbers appear at the top of the screen and the currently selected page number flashes. The cursor selects the first item in the selected page.

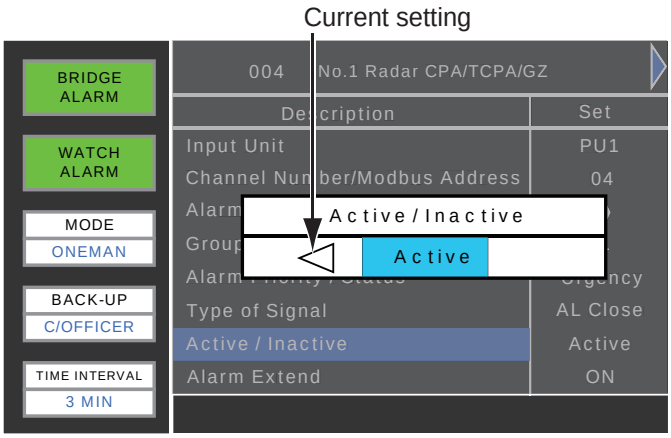


4. Use the left or right arrow to select the page to edit.
5. Use the up or down arrow to select the item to edit then press the **ENTER** key.
   For example, if you select Tag 004 on page 1, the screen looks like the one shown below. This tag is for the input signal connected to #7/8 of TB2 in the Processor Unit. Tag 001 on page 1 is for the input signal connected to #1/2 of TB2 in the Processor Unit.



   As shown in the illustration there are 11 items per input signal.

6. Use the arrow pads to select the item to edit then press the **ENTER** key.
   For example, select Active/Inactive. The following window appears.



7. Use the left or right arrow to select setting then press the **ENTER** key.

8. After you have set all items required, press the **ESC** key.
9. To change another input signal, do steps 4 through 8.
10. Press the **ESC** key to quit.

Description of Items in Alarm List editing screen

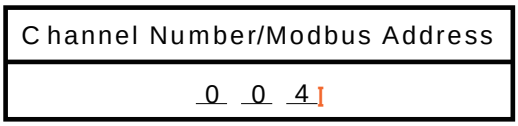
(1) Input Unit

Set the medium which receives the alarm signals.
PU1: No.1 Processor Unit
PU2: No.2 Processor Unit
Modbus: Modbus

PU2 is not shown when “No.2 Processor Unit Connection” is set for “Disabled”.

(2) Channel Number/Modbus Address

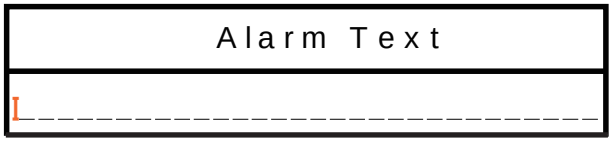
Select digital channel or Modbus address. Use digital channel if Input Unit (above) is set for PU1 or PU2. In that case the setting range is 001-048. For Modbus, the setting range is 001-032.



See the previous section for how to enter alphanumeric data.

(3) Alarm Text

Edit the name of the alarm for connected equipment. The name can have up to 32 alphanumeric characters. You can use upper case, lower case, numerals and symbols. If there are many alarm signals connected, be sure to select a name which identifies the alarm clearly. Characters are entered the same as described in the previous section. Alarm names are shown on the Bridge Alarm Display and Auto Alarm Pop-up Display.

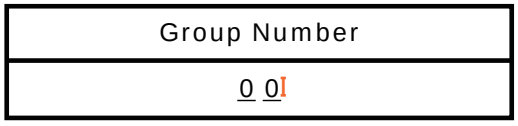


(4) Group Number

This system allows you to register in groups the equipment that transmits the REMOTE ACK OUT signal (buzzer stop) and receives the LOCAL ACK IN signal (buzzer stop).

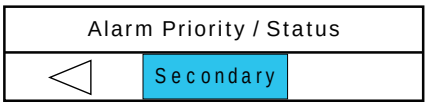
- PU1, PU2: 001-025
- Modbus: 012-059

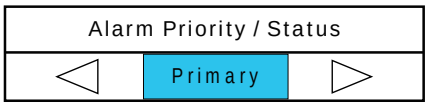
For example, four types of alarm signals from the No.1 radar are connected to the system. Assign a group number to those alarm signals.

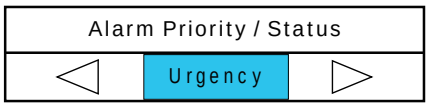


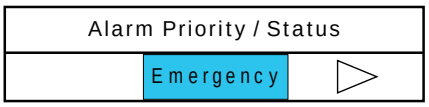
(5) Alarm Priority/Status

Set priority and status for the alarm selected. Consult with ship personnel to decide alarm priority. Priority is shown on the Bridge Alarm Display and Auto Alarm Pop-up Display.









(6) Type of Signal

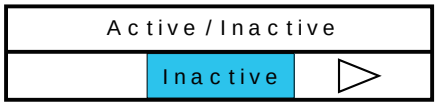
Set the type of contact signal input from external equipment, among the three choices described below.

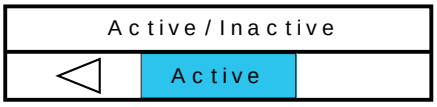
- AL Open: Contact signal opens when an alarm is generated (NC signal).
- AL Close: Contact signal closes when an alarm is generated (NO signal).
- Modbus: Modbus setting

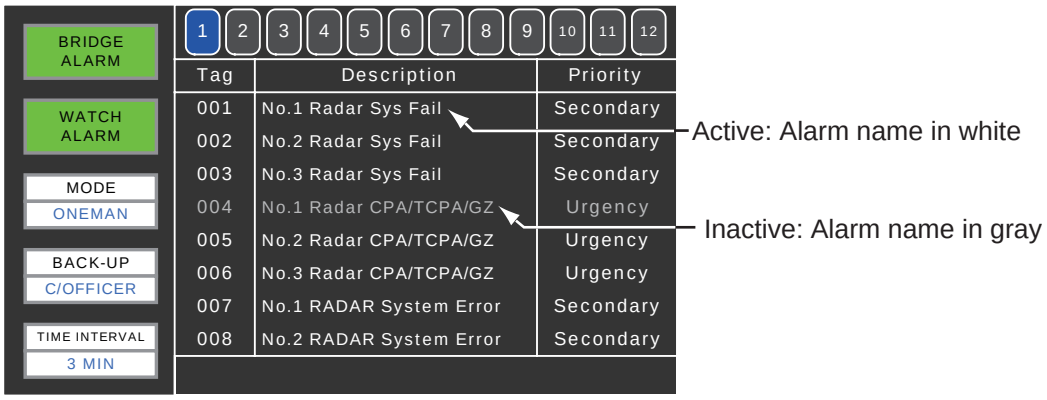
(7) Active / Inactive

Make an alarm active or inactive.

Active: Selected alarm is watched by the system. Alarm name in the Alarm List is white.
Inactive: Selected alarm is not watched by the system. Alarm name in the Alarm List is gray.

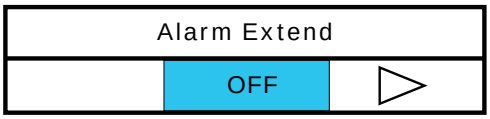


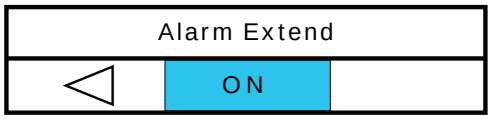




(8) Alarm Extend

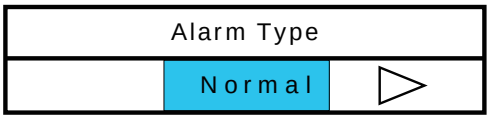
This is a special feature. If an external equipment recovers normally before the **BUZ STOP** and **ACK** keys on the bridge are operated, select whether to extend or don't extend an alarm condition until the **BUZ STOP** and **ACK** keys are operated.
0: OFF (Don't extend alarm)
1: ON (Extend alarm)

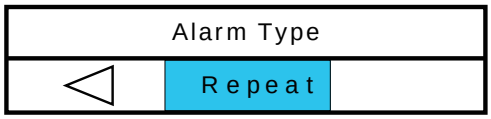




(9) Alarm Type

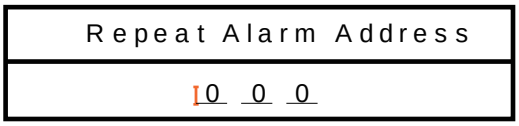
Set the type of alarm to use for the Modbus alarm, repeat alarm or normal alarm.





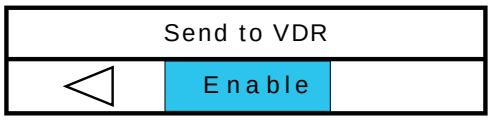
(10) Repeat Alarm Address

Set the Modbus address to processed as a Repeat Alarm, when Alarm Type is set for Repeat. This setting is invalid when Alarm Type is set for Normal. The setting range is 001-032.



(11) Send to VDR

Output or don't output the ALR sentence to the VDR when a related alarm is generated.
- Disable: No output
- Enable: Output the ALR sentence



APPENDIX 1 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 (mm²)* 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 1mm Multi core

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

2. Insulation Type

P Ethylene Propylene

3. Sheath Type

Y Vinyl

4. Armor Type

C Steel

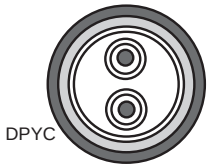
5. Shielding Type

Y Corrosive resistant

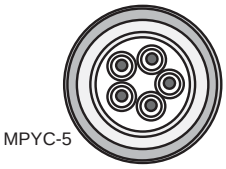
6. Core Sheath

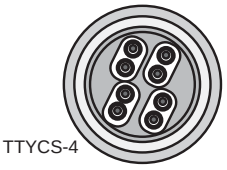
S All cores in one sheath

-S Individually sheathed cores


DPYC


TPYC


MPYC-5


TTYCS-4

1 2 3 4 5 6

EX: DPYCYS - 1.5 (Designation type: DPYCYS; Core Area (mm^2): 1.5)

1 2 3 4

MPYC - 5 (Designation type: MPYC; # of cores: 5)

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	1.5mm²	1.56mm	11.7mm	TPYCY-1.5	1.5mm²	1.56mm	14.5mm
DPYC-2.5	2.5mm²	2.01mm	12.8mm	TPYCY-2.5	2.5mm²	2.01mm	15.5mm
DPYCY-2.5	2.5mm²	2.01mm	14.8mm	TPYCY-4	4mm²	2.55mm	16.9mm
DPYCYS-1.5	1.5mm²	1.56mm	14.6mm	TPYCYS-1.5	1.5mm²	1.56mm	15.2mm
DPYCYS-2.5	2.5mm²	2.01mm	15.5mm				
MPYC-2	1mm²	1.29mm	10.0mm				
MPYC-4	1mm²	1.29mm	11.2mm				
MPYC-7	1mm²	1.29mm	13.2mm				
MPYCY-12	1mm²	1.29mm	19.0mm				
MPYCY-19	1mm²	1.29mm	22.0mm				
TTYCS-1	0.75mm²	1.11mm	10.1mm				
TTYCS-1Q	0.75mm²	1.11mm	11.3mm				
TTYCS-4	0.75mm²	1.11mm	16.3mm				
TTYCYS-1	0.75mm²	1.11mm	21.1mm				

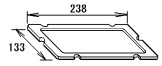
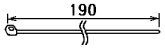
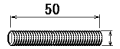
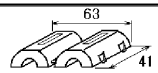
FURUNO

CODE NO.	001-041-320-00	24AI-X-9401 -1
TYPE	CP24-01301	1/1

工事材料表
INSTALLATION MATERIALS

BRIDGE ALARM SYSTEM

BR-1000

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ﾏｳﾝﾄﾖｳｽﾎﾟﾝｼﾞ FLUSH MOUNTING SPONGE		06-025-1053-1 CODE NO. 100-330-141-10	1	
2	ｺﾝﾍﾞｯｸｽ CABLE TIE		CV-200N CODE NO. 000-162-183-10	4	
3	ﾐｶﾞｷ丸平座金 FLAT WASHER		M4 SUS304 CODE NO. 000-167-455-10	6	
4	ﾊﾞﾈ座金 SPRING WASHER		M4 SUS304 CODE NO. 000-167-405-10	6	
5	六角ﾅｯﾄ 1ｼｭ HEX.NUT		M4 SUS316L CODE NO. 000-167-489-10	6	
6	ﾈ切ﾎﾞﾙﾄ THREADED ROD		M4X50 SUS304 CODE NO. 000-162-679-10	6	
7	EMIｺｱ EMI CORE		RFC-H13 CODE NO. 000-146-570-10	2	

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

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT.
QUALITY IS THE SAME.
（略図の寸法は、参考値です。　DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

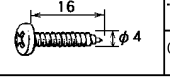
FURUNO

CODE NO.	001-041-390-00	24AI-X-9402 -0
TYPE	CP24-01401	1/1

工事材料表
INSTALLATION MATERIALS

BRIDGE ALARM SYSTEM

BR-1000

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	+ﾅﾍﾞﾀｯﾋﾟﾝﾈｼﾞ 1ｼｭ SELF-TAPPING SCREW		4X16 SUS304 CODE NO. 000-163-885-10	4	

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

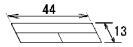
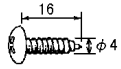
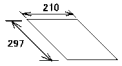
TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT.
QUALITY IS THE SAME.
（略図の寸法は、参考値です。　DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO

CODE NO.	005-931-190-00	24AA-X-9407 -2
TYPE	CP24-00151	1/1

工事材料表

INSTALLATION MATERIALS

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	ﾃﾞﾝｹﾞﾝﾊﾘﾏｰｸ PWR LABEL		24-003-4101-5 CODE NO. 100-299-775-10	1	
2	+ﾄﾗｽﾀｯﾋﾟﾝﾈｼﾞ 1ｼｭ SELF-TAPPING SCREW		4X16 SUS304 CODE NO. 000-162-605-10	4	
3	電源変更手順 CHANGING SHIP'S MAINS		C52-00205-* CODE NO. 000-147-013-1*	1	

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

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT.
QUALITY IS THE SAME.
（略図の寸法は、参考値です。　DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO

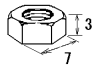
CODE NO.	001-041-450-00	24AI-X-9403 -0
TYPE	CP24-01501	1/1

工事材料表

INSTALLATION MATERIALS

BRIDGE ALARM SYSTEM

BR-1060

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	ﾐｶﾞｷ丸平座金 FLAT WASHER		M4 SUS304 CODE NO. 000-167-455-10	6	
2	ﾊﾞﾈ座金 SPRING WASHER		M4 SUS304 CODE NO. 000-167-405-10	6	
3	六角ﾅｯﾄ 1ｼｭ HEX.NUT		M4 SUS316L CODE NO. 000-167-489-10	6	

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

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT.
QUALITY IS THE SAME.
（略図の寸法は、参考値です。　DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO

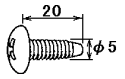
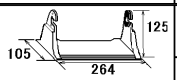
CODE NO.	000-013-160-00	24AI-X-9501 -1
TYPE	FP24-00500	1/1

付属品表

ACCESSORIES

BRIDGE ALARM SYSTEM

BR-1000

番号 NO.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	ﾉﾌﾞ(N-2.5) KNOB BOLT(N-2.5)		24-011-1017-1 CODE NO. 100-346-501-10	2	
2	+ﾄﾗｽﾀｯﾋﾟﾝﾈｼﾞ 1ｼｭ SELF-TAPPING SCREW		5X20 SUS304 CODE NO. 000-162-608-10	4	
3	ﾊﾝｶﾞｰ組品 HANGER ASSY.		FP24-00501 CODE NO. 001-041-460-00	1	

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

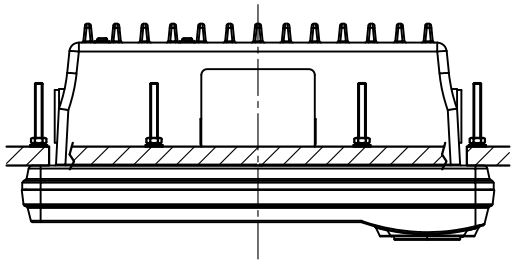
TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT.
QUALITY IS THE SAME.

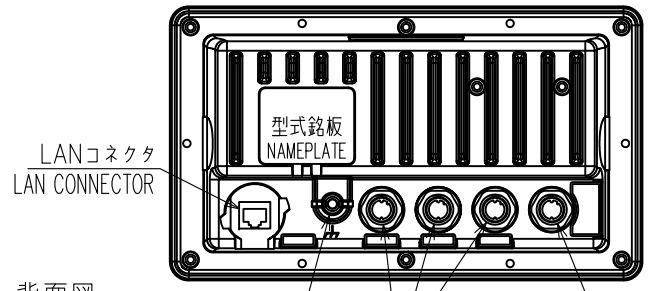
（略図の寸法は、参考値です。　DIMENSIONS IN DRAWING FOR REFERENCE ONLY.）

FURUNO

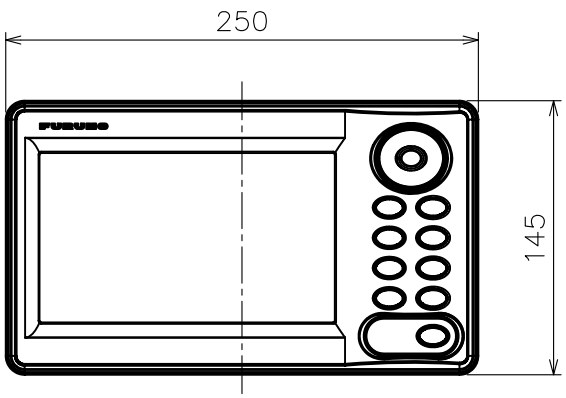
表1 TABLE 1

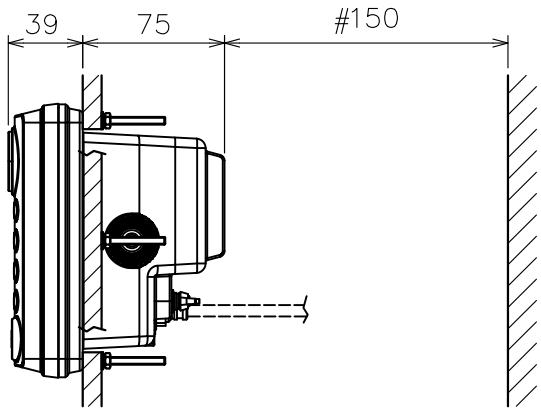
寸法区分（mm） DIMENSION	公差（mm） TOLERANCE
L≦50	±1.5
50<L≦100	±2.5
100<L≦500	±3

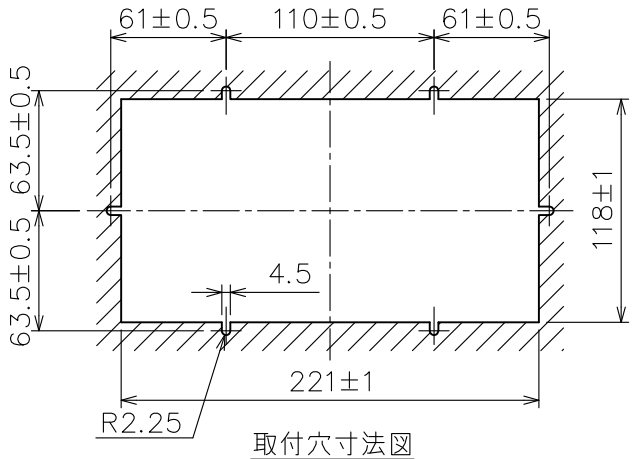




背面図
REAR VIEW







取付穴寸法図
CUTOUT DIMENSIONS

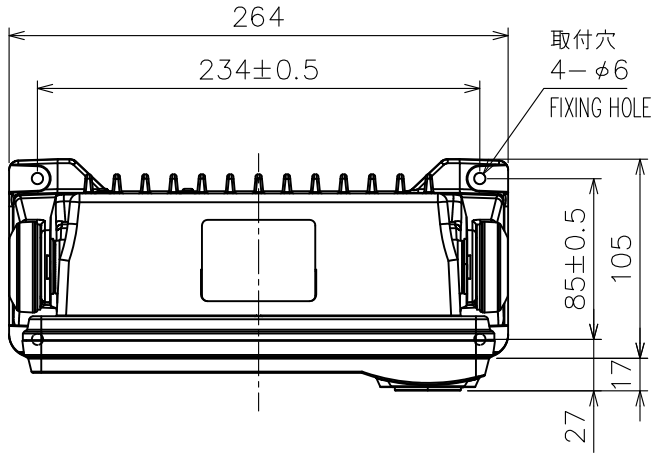
注　記　1）#印寸法は最小サービス空間寸法とする。
　　2）指定外の寸法公差は表１による。
　　3）取付にはＭ４Ｘ５０寸切りボルトを使用のこと。

NOTE　1. #: MINIMUM SERVICE CLEARANCE.
　　2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
　　3. USE STUD BOLTS M4x50 FOR FIXING THE UNIT.

DRAWN 26/May/08 T.YAMASAKI		TITLE	BR-1010
CHECKED 26/May/08 T.TAKENO		名称	ブリッジパネル（埋込装備）
APPROVED 3/Jun/08 R.Esumi	BR-1000		外寸図
SCALE 1/4	MASS 1.9 ±10% kg	NAME	BRIDGE PANEL (FLUSH MOUNT)
DWG.No. C4450-G06- A	REF.No. 24-011-110G-2		OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

FURUNO



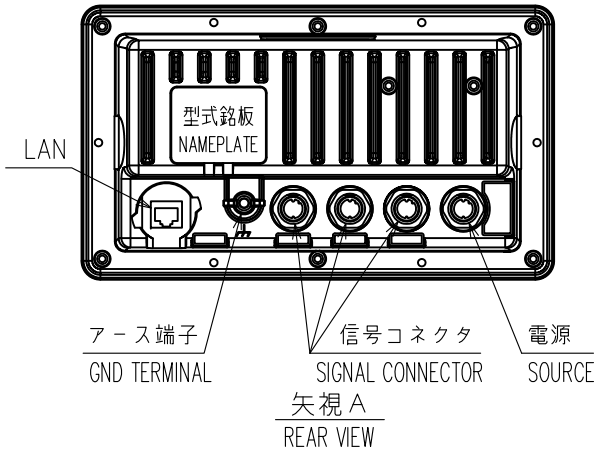
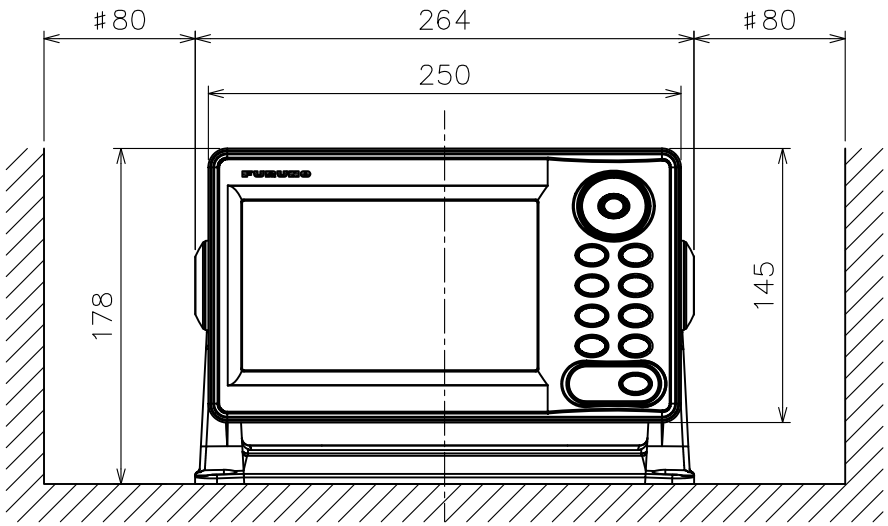
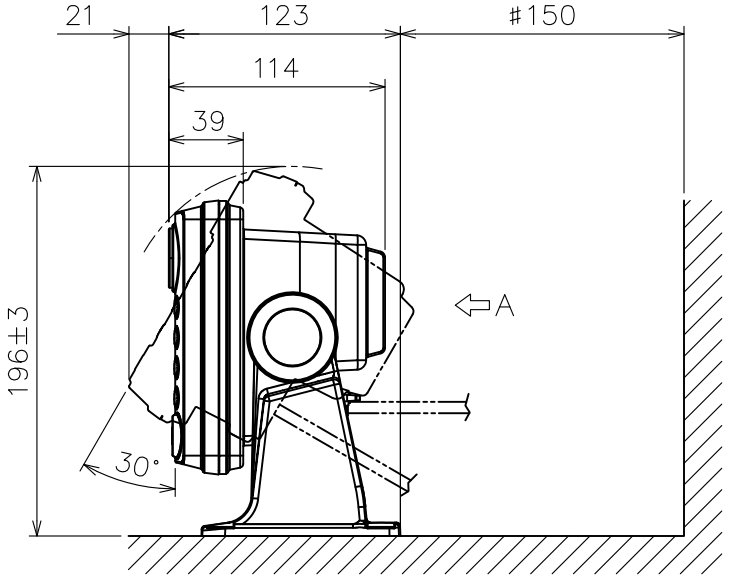


表1 TABLE 1

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



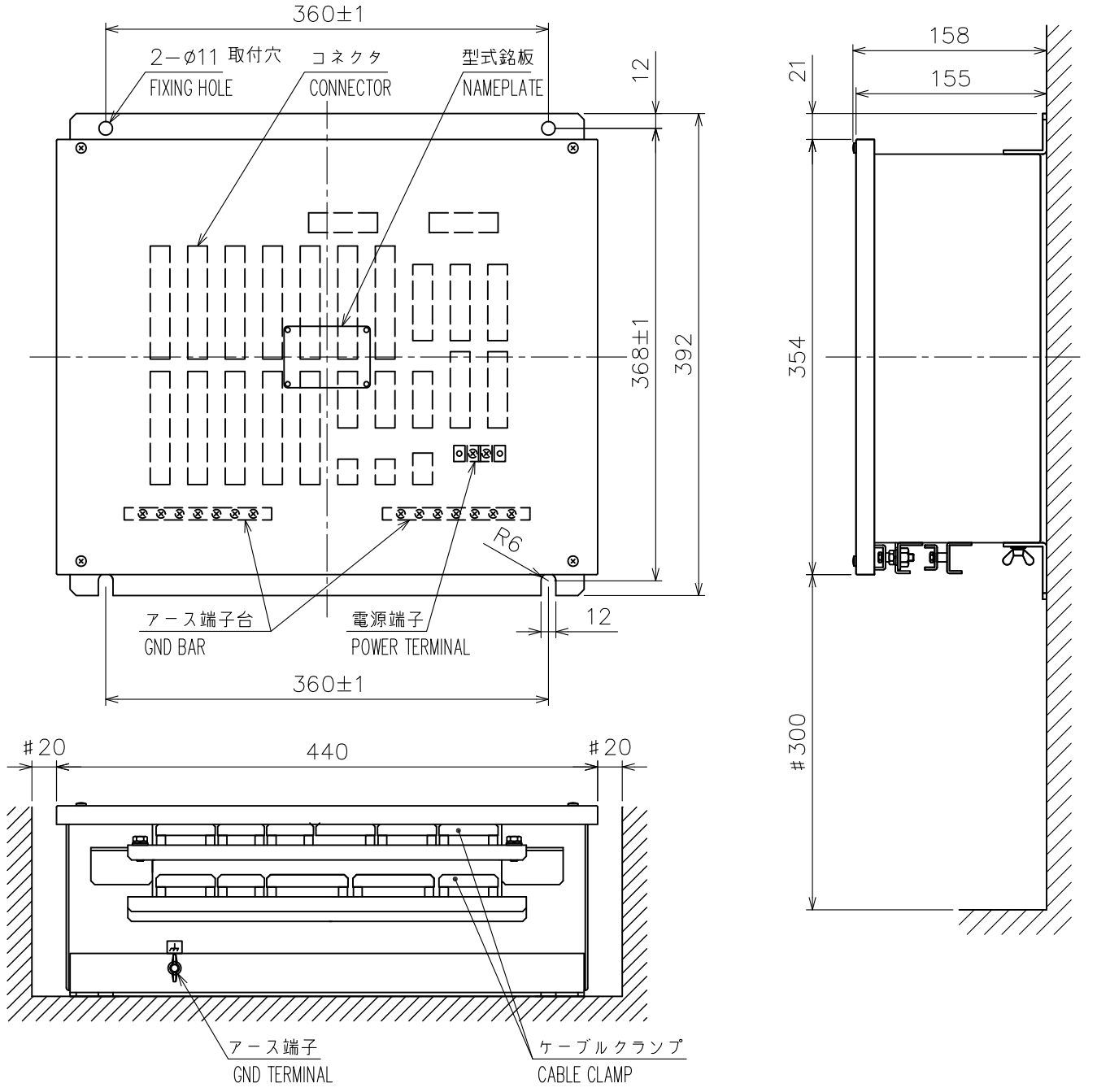


注　記　1）　#印寸法は最小サービス空間寸法とする。
　　2）　指定外の寸法公差は表１による。
　　3）　取付用ネジはトラスタッピンネジ呼び径5×20を使用のこと。

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

DRAWN 27/Aug/09 T.YAMASAKI		TITLE	BR-1010
CHECKED 27/Aug/09 T.TAKENO		名称	ブリッジパネル
APPROVED 4/Sep/09 R.Esumi	BR-1000		外寸図
SCALE 1/4 MASS 2.1 ±10% kg		NAME	BRIDGE PANEL
DWG.No. C4450-G01- B	REF.No. 24-011-100G-2		OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.



注　記　1）　#印寸法は最小サービス空間寸法とする。
　　2）　指定外の寸法公差は表1による。
　　3）　取付用ネジはM10ボルト又はコーチボルト呼び10を使用のこと。

NOTE　1.　#: MINIMUM SERVICE CLEARANCE.
　　2.　TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH ISNOT SPECIFIED.
　　3.　USE M10 BOLTS OR COACH SCREWS ø10 FOR FIXING THE UNIT.

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

DRAWN Feb. 15 '08 T.YAMASAKI		TITLE	BR-1020
CHECKED Feb. 15 '08 T.TAKENO		名称	制御部
APPROVED Mar.12'08 R.Esumi	BR-1000		外寸図
SCALE 1/5 MASS 13 ±10% kg		NAME	PROCESSOR UNIT
DWG.No. C4450-G02- A	REF.No. 24-011-200G-1		OUTLINE DRAWING

FURUNO

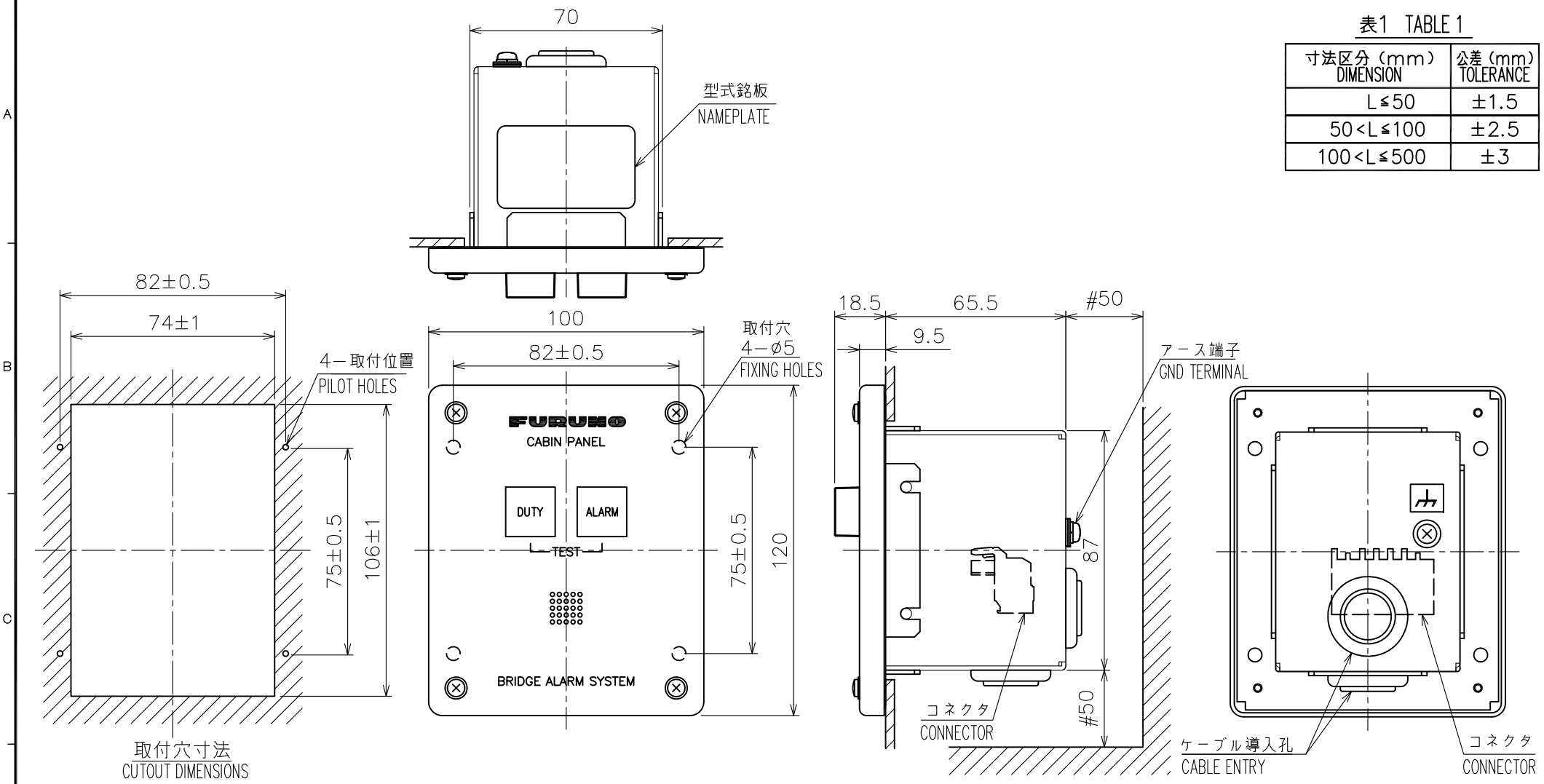


表1 TABLE 1

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

注 記 1） #印寸法は最小サービス空間寸法とする。
2） 指定外の寸法公差は表1による。
3） 取付用ネジはナベタッピンネジ呼び径４×１６を使用のこと。

NOTE 1. #: MINIMUM SERVICE CLEARANCE.
2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
3. USE TAPPING SCREWS ø4x16 FOR FIXING THE UNIT.

DRAWN Jan. 15 '08 T.YAMASAKI		TITLE	BR-1030
CHECKED Jan. 15 '08 T.TAKENO		名称	キャビンパネル
APPROVED Mar.12'08 R.Esumi	BR-1000		外寸図
SCALE 1/2 MASS 0.34 ±10% kg		NAME	CABIN PANEL
DWG.No. C4450-G03- A	REF.No. 24-011-300G-2		OUTLINE DRAWING

FURUNO ELECTRIC CO., LTD.

FURUNO

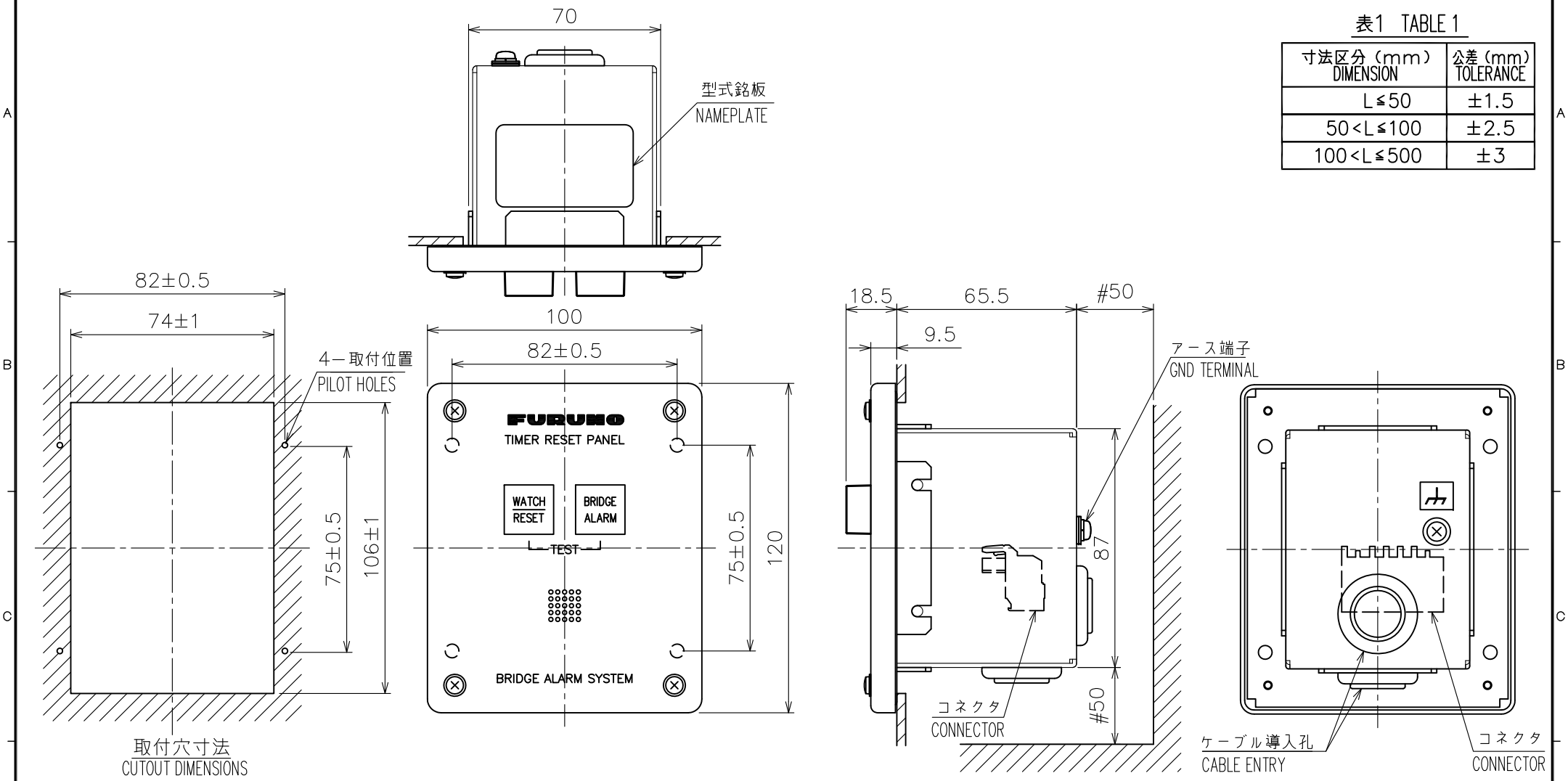


表1　TABLE 1

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

注　記　１）　＃印寸法は最小サービス空間寸法とする。
　　２）　指定外の寸法公差は表１による。
　　３）　取付用ネジはナベタッピンネジ呼び径４×１６を使用のこと。

NOTE　1.　#: MINIMUM SERVICE CLEARANCE.
　　2.　TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
　　3.　USE TAPPING SCREWS ø4x16 FOR FIXING THE UNIT.

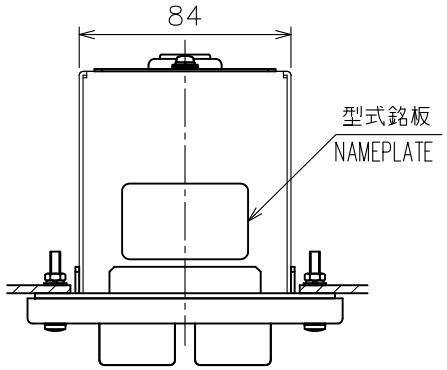
DRAWN Jan. 15 '08 T.YAMASAKI		TITLE	BR-1040
CHECKED Jan. 15 '08 T.TAKENO		名称	タイマーリセットパネル
APPROVED Mar.12'08 R.Esumi	BR-1000		外寸図
SCALE 1/2 MASS 0.34 ±10% kg		NAME	TIMER RESET PANEL
DWG.No. C4450-G04- A	REF.No. 24-011-400G-2		OUTLINE DRAWING

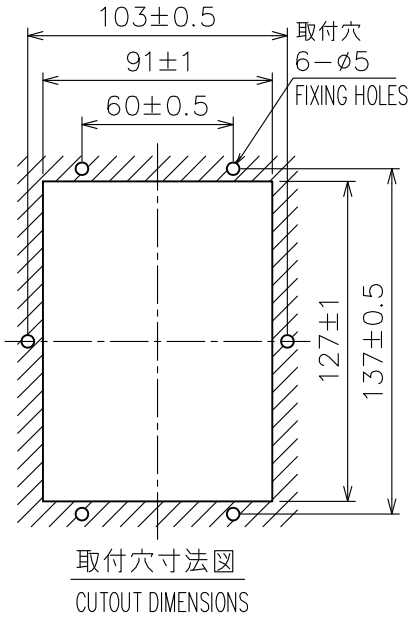
FURUNO ELECTRIC CO., LTD.

FURUNO

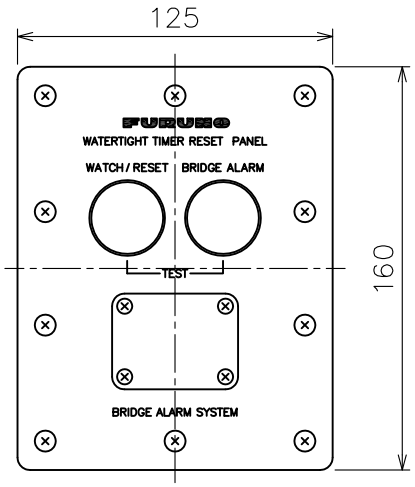
表1 TABLE 1

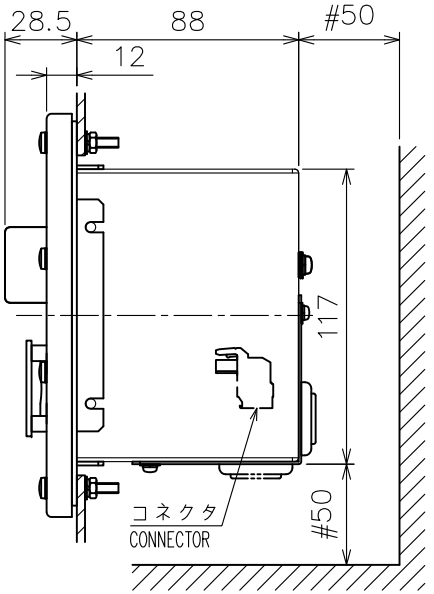
寸法区分（mm） DIMENSION	公差（mm） TOLERANCE
L≦50	±1.5
50<L≦100	±2.5
100<L≦500	±3

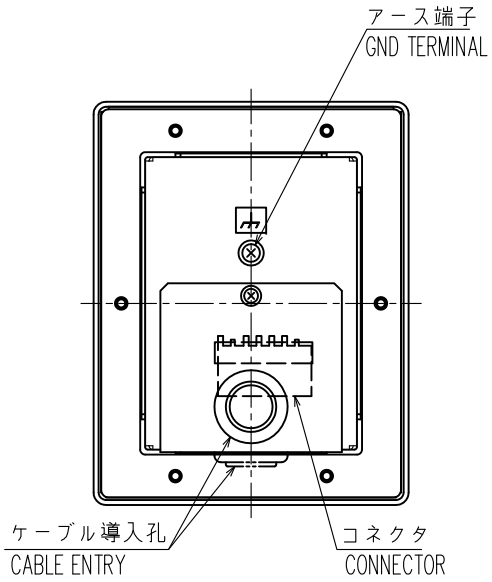




取付穴寸法図
CUTOUT DIMENSIONS







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）　取付にはＭ４平座金、バネ座金、ナットを使用のこと。

NOTE　1.　#: MINIMUM SERVICE CLEARANCE.
　　2.　TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
　　3.　USE M4 P.W, S.W AND NUTS FOR FIXING THE UNIT.

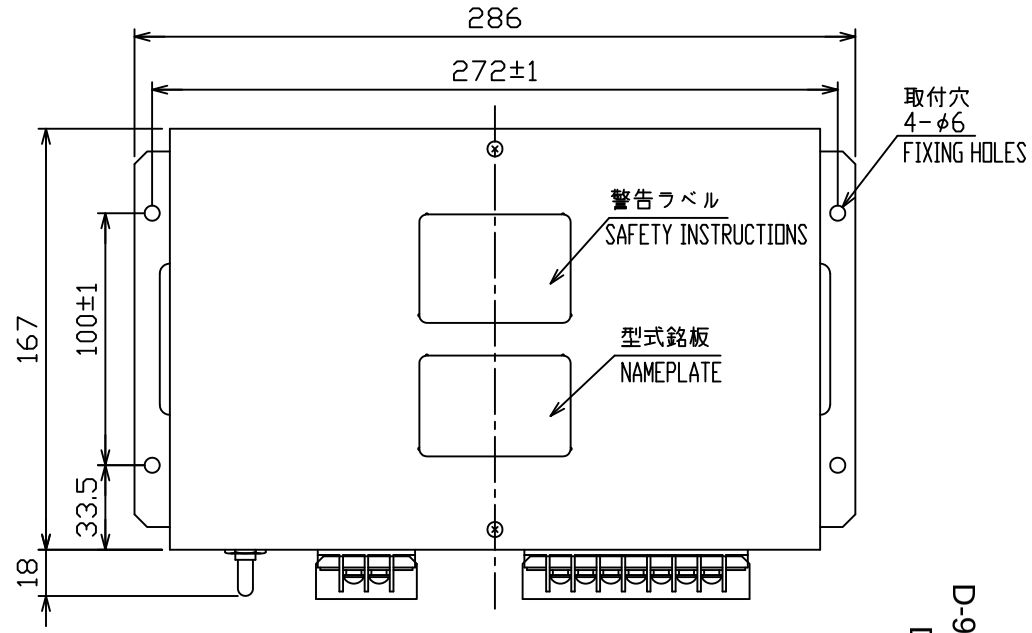
DRAWN Jan. 15 '08 T.YAMASAKI		TITLE	BR-1060
CHECKED Jan. 15 '08 T.TAKENO		名称	防水タイマーリセットパネル
APPROVED Mar.12'08 R.Esumi	BR-1000		外寸図
SCALE 1/3 MASS 0.86 ±10% kg		NAME	WATERTIGHT TIMER RESET PANEL
DWG.No. C4450-G05- A	REF.No. 24-011-410G-2		OUTLINE DRAWING

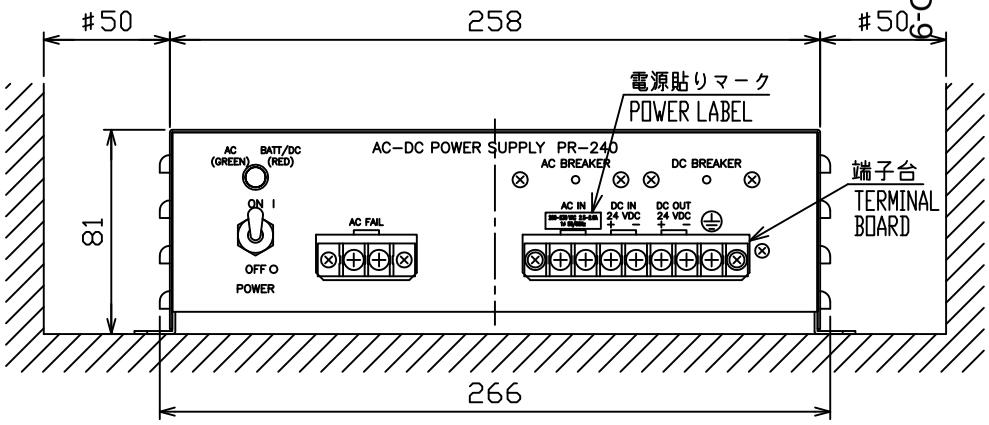
FURUNO ELECTRIC CO., LTD.

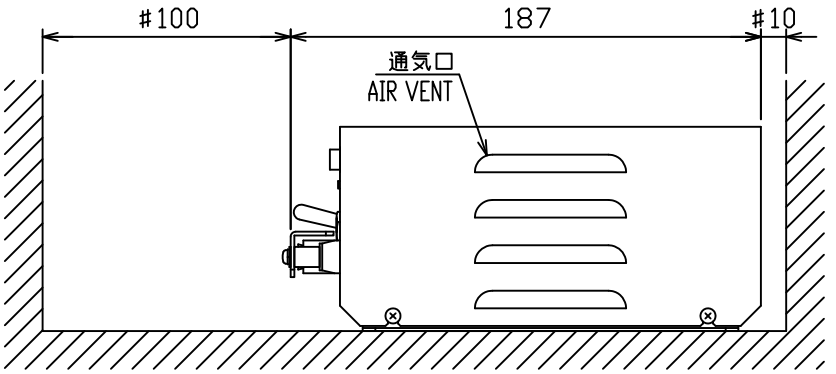
FURUNO

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







D-9

D-9

注　記　1）指定なき寸法公差は表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４ｘ１６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 ø4x16 FOR FIXING THE UNIT.

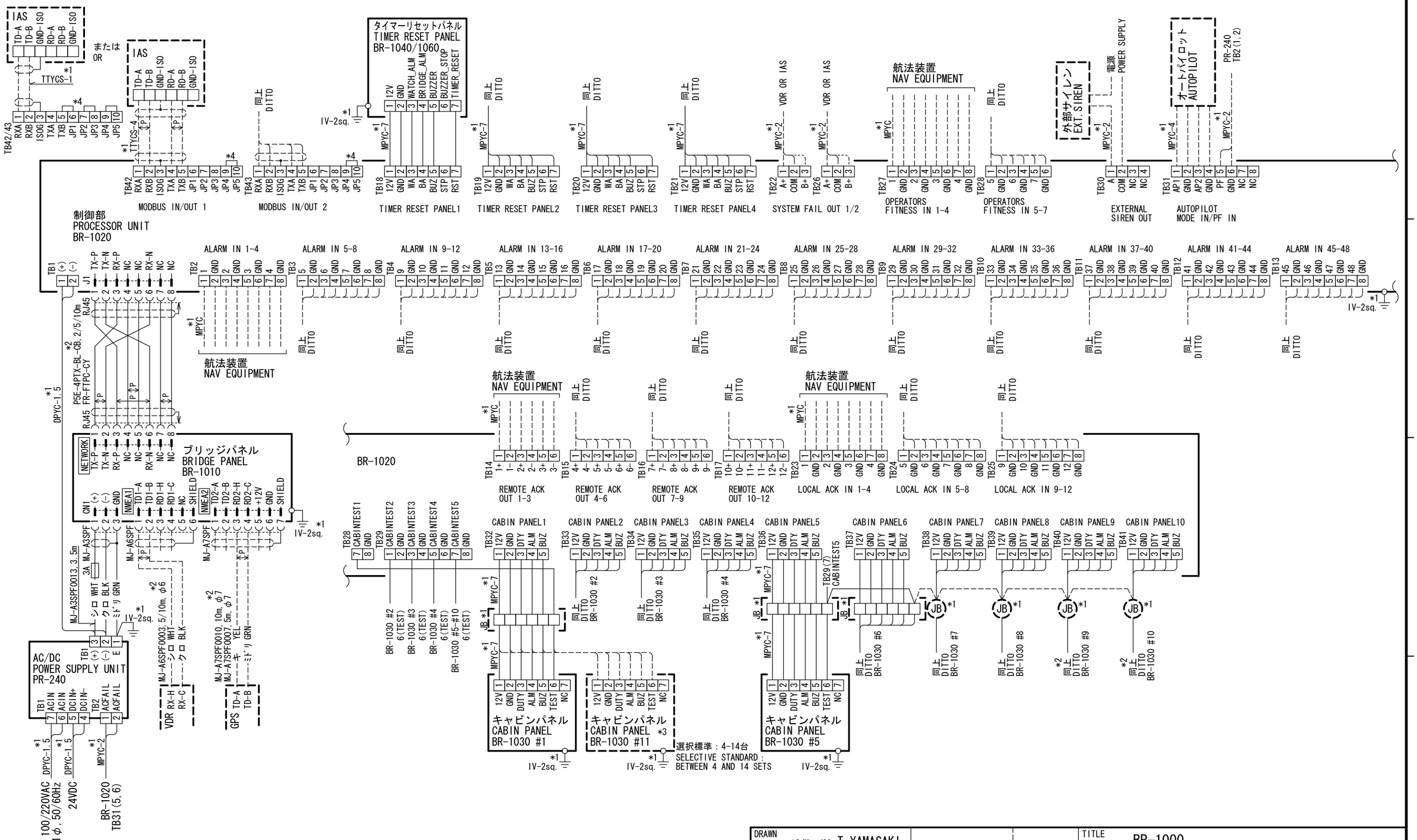
DRAWN 11/Dec/08 T.YAMASAKI		TITLE PR-240
CHECKED 11/Dec/08 T.TAKENO		名称 AC／DC電源ユニット
APPROVED 5/Feb/09 R.Esumi		外寸図
SCALE 1/3 MASS 3.2 ±10% kg		NAME AC/DC POWER SUPPLY UNIT
DWG No. C5003-G03- H	REF. No. 24-003-500G-4	OUTLINE DRAWING

D-7

FURUNO ELECTRIC CO., LTD.

FURUNO

S-1



注記

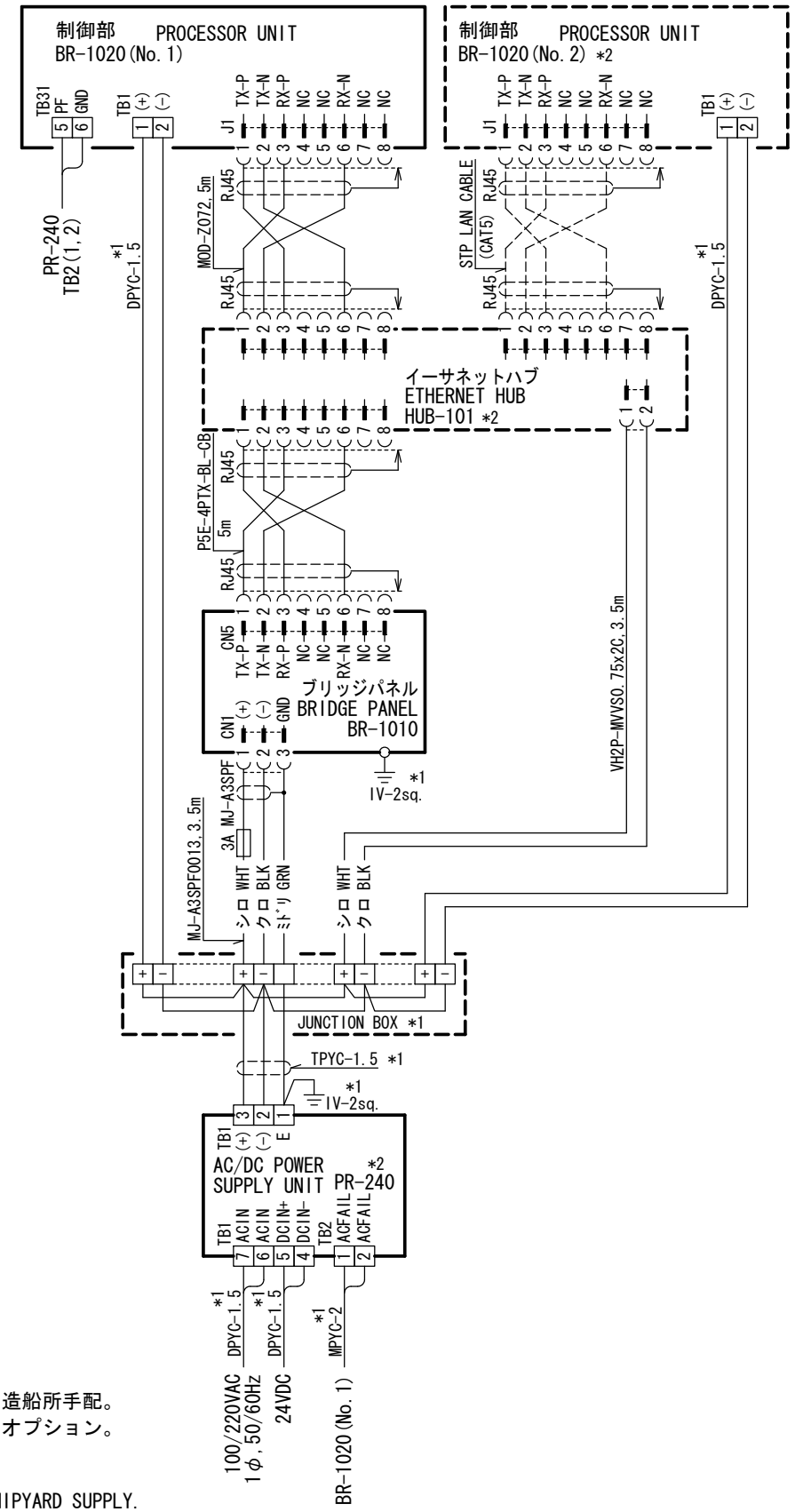
＊１）造船所手配。
＊２）オプション。
＊３）キャビンパネルは最大４台まで分岐可能。
＊４）信号種類に応じてジャンパー設定を変更する。

NOTE

*1: SHIPYARD SUPPLY.
*2: OPTION.
*3: MAX. 4 CABIN PANELS CAN BE INSTALLED AT ANOTHER ROOM.
*4: CHANGE JUMPER SETTING AS SIGNAL LEVEL.

DRAWN 12/Mar/09 T.YAMASAKI		TITLE	BR-1000
CHECKED 13/Mar/09 T.TAKENO		名称	ブリッジアラームシステム
APPROVED 25/Mar/09 R.Esumi			相互結線図
SCALE / MASS kg		NAME	BRIDGE ALARM SYSTEM
DWG No. C4450-C01- B	REF.No. 24-011-5035-1		INTERCONNECTION DIAGRAM

FURUNO ELECTRIC CO., LTD.



注記
＊１）造船所手配。
＊２）オプション。

NOTE
*1: SHIPYARD SUPPLY.
*2: OPTION.

DRAWN 23/May/08 T.YAMASAKI			TITLE BR-1000
CHECKED 26/May/08 T.TAKENO			名称 ブリッジアラームシステム(No.2)
APPROVED 10/Jun/08 R.Esumi			相互結線図
SCALE	MASS kg		NAME BRIDGE ALARM SYSTEM (No.2)
DWG.No. C4450-C02- A	REF.No. 24-011-5039-0		INTERCONNECTION DIAGRAM

ALARM IN		
Terminal No.	Device	Signal Name, Type
TB2 #1/2		
#3/4		
#5/6		
#7/8		
TB3 #1/2		
#3/4		
#5/6		
#7/8		
TB4 #1/2		
#3/4		
#5/6		
#7/8		
TB5 #1/2		
#3/4		
#5/6		
#7/8		
TB6 #1/2		
#3/4		
#5/6		
#7/8		
TB7 #1/2		
#3/4		
#5/6		
#7/8		
TB8 #1/2		
#3/4		
#5/6		
#7/8		
TB9 #1/2		
#3/4		
#5/6		
#7/8		
TB10 #1/2		
#3/4		
#5/6		
#7/8		
TB11 #1/2		
#3/4		
#5/6		
#7/8		
TB12 #1/2		
#3/4		
#5/6		
#7/8		
TB13 #1/2		
#3/4		
#5/6		
#7/8		

REMOTE ACK OUT	
Terminal No.	Device
TB14 #1/2	
#3/4	
#5/6	
#7/8	
TB15 #1/2	
#3/4	
#5/6	
#7/8	
TB16 #1/2	
#3/4	
#5/6	
#7/8	
TB17 #1/2	
#3/4	
#5/6	
#7/8	

LOCAL ACK IN	
Terminal No.	Device
TB23 #1/2	
#3/4	
#5/6	
#7/8	
TB24 #1/2	
#3/4	
#5/6	
#7/8	
TB25 #1/2	
#3/4	
#5/6	
#7/8	
TB17 #1/2	
#3/4	
#5/6	
#7/8	

OPERATOR FITNESS IN	
Terminal No.	Device
TB27 #1/2	
#3/4	
#5/6	
#7/8	
TB28 #1/2	
#3/4	
#5/6	

CABIN PANEL	
Terminal No.	Device
TB32	
TB33	
TB34	
TB35	
TB36	
TB37	
TB38	
TB39	
TB40	
TB41	

ALARM IN		
端子台	Device	Signal Name, Type
TB2 #1/2		
#3/4		
#5/6		
#7/8		
TB3 #1/2		
#3/4		
#5/6		
#7/8		
TB4 #1/2		
#3/4		
#5/6		
#7/8		
TB5 #1/2		
#3/4		
#5/6		
#7/8		
TB6 #1/2		
#3/4		
#5/6		
#7/8		
TB7 #1/2		
#3/4		
#5/6		
#7/8		
TB8 #1/2		
#3/4		
#5/6		
#7/8		
TB9 #1/2		
#3/4		
#5/6		
#7/8		
TB10 #1/2		
#3/4		
#5/6		
#7/8		
TB11 #1/2		
#3/4		
#5/6		
#7/8		
TB12 #1/2		
#3/4		
#5/6		
#7/8		
TB13 #1/2		
#3/4		
#5/6		
#7/8		

REMOTE ACK OUT	
Terminal No.	Device
TB14 #1/2	
#3/4	
#5/6	
#7/8	
TB15 #1/2	
#3/4	
#5/6	
#7/8	
TB16 #1/2	
#3/4	
#5/6	
#7/8	
TB17 #1/2	
#3/4	
#5/6	
#7/8	

LOCAL ACK IN	
Terminal No.	Device
TB23 #1/2	
#3/4	
#5/6	
#7/8	
TB24 #1/2	
#3/4	
#5/6	
#7/8	
TB25 #1/2	
#3/4	
#5/6	
#7/8	
TB17 #1/2	
#3/4	
#5/6	
#7/8	

OPERATOR FITNESS IN	
Terminal No.	Device
TB27 #1/2	
#3/4	
#5/6	
#7/8	
TB28 #1/2	
#3/4	
#5/6	