FURUNO

OPERATOR'S MANUAL

1002

INTERFACE UNIT

MODEL IF – 1002

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(ETMI) IF-1002

• Your Local Agent/Dealer

Initial Version: April 1991
Version D: March 8, 1996

⚠ SAFETY INSTRUCTIONS

"**DANGER**", "**WARNING**" and "**CAUTION**" notices appear throughout this manual. It is the responsibility of the operator of the equipment to read, understand and follow these notices. If you have any questions regarding these safety instructions, please contact a FURUNO agent or dealer.

⚠ **DANGER**	This notice indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.
⚠ **WARNING**	This notice indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠ **CAUTION**	This notice indicates apotentially hazardous situation which, if not avoided, could result in minor or moderate injury, or property damage.

⚠ WARNING

Do not open the cover of the equipment.

This equipment uses high voltage electricity which can shock, burn, or cause death. Only qualified personnel should work inside the equipment.

Do not dissasemble or modify the equipment.

Fire, electrical shock or serious injury can result.

Immediately turn off the power at the ship's mains switchboard if water or foreign object falls into the equipment or the equipment is emitting smoke or fire.

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

⚠ CAUTION

Do not place liquid-filled containers on the top of the equipment.

Fire or electrical shock can result if a liquid spills into the equipment.

Do not place heater near the equipment.

Heat can melt the power cord, which can result in fire or electrical shock.

Do not operate the unit with wet hands.

Electrical shock can result.

Use the correct fuse.

Use of the wrong fuse can cause fire or equipment damage.

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SPECIFICATIONS OF INTERFACE UNIT IF-1002

General

The FURUNO IF-1002 Interface Unit converts CIF format data (FURUNO) to NMEA0180C/0182, JRC or KODEN format data, to enable exchange of data between Furuno-make equipment and other makes of equipment.

Specifications

Data Conversion	CIF to NMEA0180C/0182, JRC or KODEN
I/O Data (CIF to NMEA0180C/0182)	Present Position (Lat/Long)
I/O Data (CIF to JRC)	Present Position (Lat/Long) Ship's Speed and Course Present Time
I/O data (CIF to KODEN)	Present Position (Lat/Long) Present Time
I/O Ports	Input ---- 1 port Output --- 3 ports
I/O Signal Level	Input ---- Current Loop Output --- Current Loop
Power Supply	Regulated 5VDC from navigational equipment connected to input or output port, or 8 to 42VDC from external power supply.
Power Consumption	Less than 1W at regulated 5VDC
Coating Color	2.5GY 5/1.5 Newtone No.5

EQUIPMENT LIST

COMPELETE SET

No.	NAME	TYPE	CODE No.	Qty	REMARKS
1	Main Unit	IF-1002	000-041-371	1	
2	Accessories	FP14-01500	000-041-374	1	
3	Installation Materials	CP14-02800	000-041-373	1	
4	Spare Parts	SP14-01620	000-041-372	1	

ACCESSORIES (FP14-01500)

No.	NAME	TYPE	CODE No.	Qty	REMARKS
1	Tapping Screw	4x16 SUS304	000-802-080	4	
2	Fastener	14-042-2011	100-135-380	2	

INSTALLATION MATERIALS (CP14-02800)

No.	NAME	TYPE	CODE No.	Qty	REMARKS
1	Power Cable	22S0019-2	000-109-000	1	
2	Connector	SRCN6A16-10P	000-508-663	2	

SPARE PARTS

No.	NAME	TYPE	CODE No.	Qty	REMARKS
1	Glass Tube Fuse	FGMB 0.2A	000-121-723	3	

CHAPTER 1 OPERATION

1. OPERATION

In normal operation, nothing is required of the operator. The power to the interface unit is turned on/off with an external power supply.

2. CONVERSION

1) The CIF data convertible into NMEA0180C/0182 data;

   PRESENT POSITION

2) The CIF data convertible into JRC data;

   PRESENT POSITION
   SPEED AND COURSE
   PRESENT TIME

   NOTE : Some JRC equipment can not receive converted data.

3) The CIF data convertible into KODEN data;

   PRESENT POSITION
   PRESENT TIME

   NOTE : Some KODEN equipment can not receive converted data.

3. FUSE REPLACEMENT

To protect the unit from serious damage, a 0.2A fuse is provided on the unit's lone P.C. board. The fuse protects against overvoltage or internal fault of the equipment. If the fuse blows, find the cause of the problem before replacing it.

CAUTION

Do not use a fuse rated more than 0.2A, since it may cause more serious damage to the equipment.

4. SELF TEST

The IF-1002 employs self tests to check it for proper operation.

1) Automatic self test

A simple check of the equipment is done each time the power is turned on.

Items Tested

ROM Test
RAM Test
SIO Test (CPU Loop back test)

RESULT OF THE SELF TEST

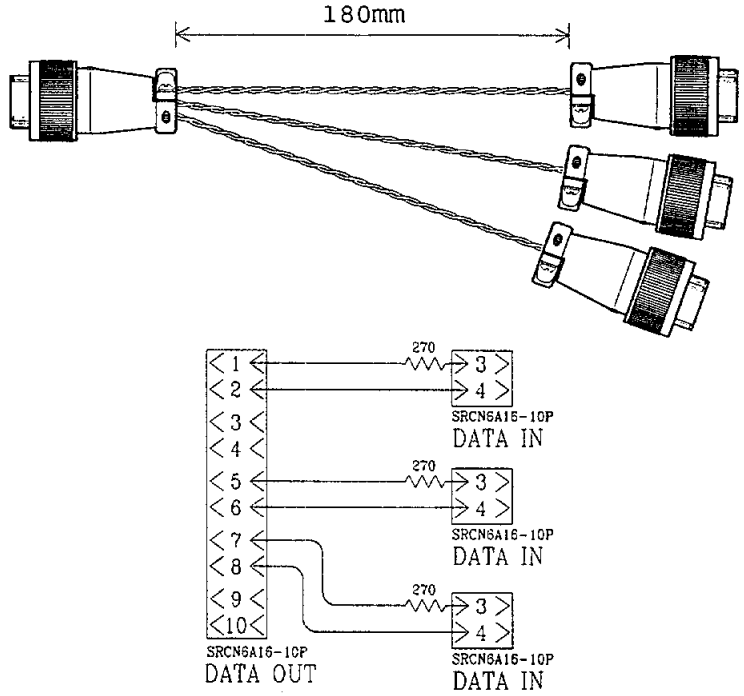
Normal.....CR17 blinks every second.
Abnormal...CR17 blinks every 0.5 seconds.

If this test shows abnormal operation, perform the test described below to identify the defective device.

2) Self test triggered by DIP SW1-8

This test identifies defective devices, and requires an external loop. Connect it as shown below. (Without the loop SIO cannot be tested.)

EXTERNAL LOOP



Items Tested

ROM Test
RAM Test
SIO Test (CPU loop back test)
(External loop back test)

RESULT OF THE SELF TEST

Error is shown by the status of LEDs CR14 to CR16.

CR14 ON	Defective ROM
CR15 ON	Defective RAM
CR16 ON	Error in SIO test

5. LED STATUS

LED	STATUS
CR 9	Lights when power is supplied to the interface.
CR10	NOT USED
CR11	Lights when receiving data.
CR12	Lights when sending data.
CR13	NOT USED
CR14	Lights when data is not received for more than 60 seconds.
CR15	Lights when data format does not agree with the DIP switch setting for more than 60 seconds.
CR16	Lights when showing the result of the self test.
CR17	Flickers every second. Blinks every 0.5 seconds when the self test detects an error.

CHAPTER 2 INSTALLATION

1. INSTALLATION

1) General notes on installation

This equipment provides its intended function only when it is installed properly. The installation site is important for proper operation and continued performance. Select it keeping the following points in mind.

(1) Keep away from water spray.

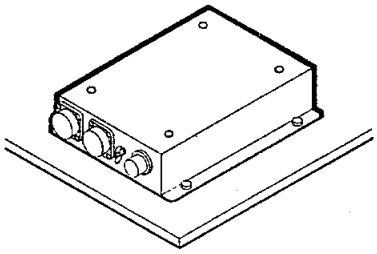
(2) Select a clean and cool place.

(3) Select a place where shock, vibration and noise are minimal.

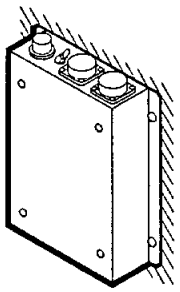
NOTE

FURUNO will assume no responsibility for the damage caused by water spray.

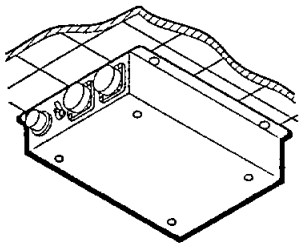
2) Mounting the unit



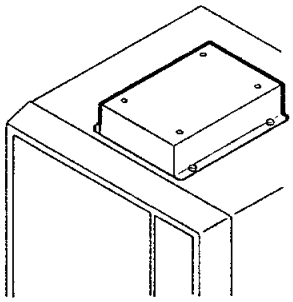
TABLETOP



BULKHEAD

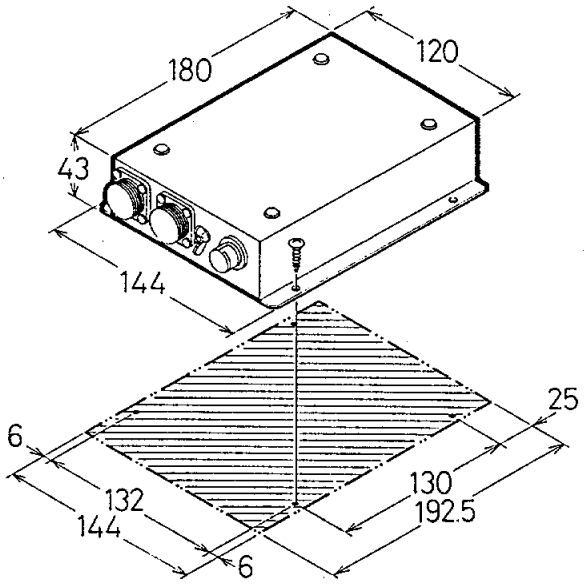


OVERHEAD



ON A DISPLAY UNIT

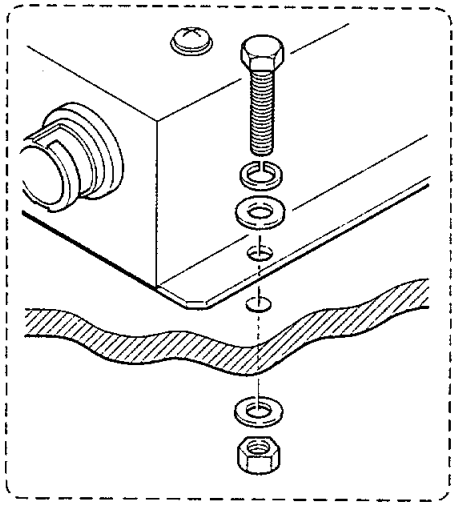
3) Mounting dimensions



All dimensions in millimeters.

For thin walls, use nuts, bolts and washers instead of woodscrews.

Secure sufficient space around the unit for maintenance and checking.



4) Mounting procedure

Mounting on the overhead, on a table or on the wall

(1) Drill pilot holes.

(2) Fix the unit with tapping screws (supplied).
For thin walls, use bolts and nuts instead of the tapping screws.

Mounting on a display

(1) Wipe off dust or dirt on the display. Fix the unit to the display with fasteners (supplied).

2. CABLE FABRICATION

(1) Remove the outer sheath by 38 mm.

(2) Remove the armor by 28 mm.

(3) Remove the sheath by 13 mm.

(4) Separate the cores from the braided shield.

(5) Fold back the shield.

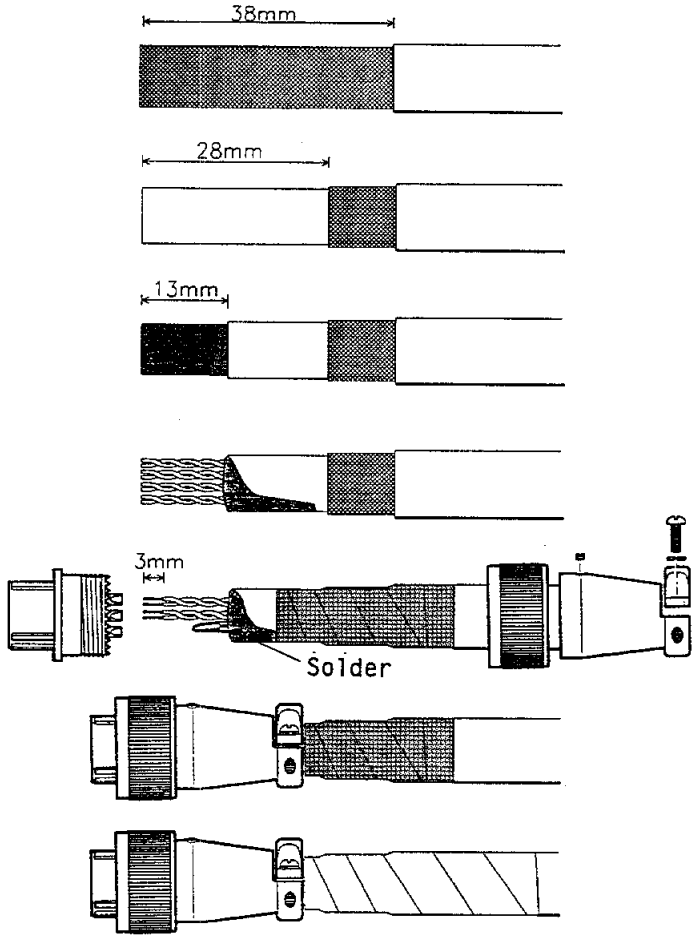
(6) Remove the insulation of the cores by 3 mm. Cut and solder unused cores to the shield.

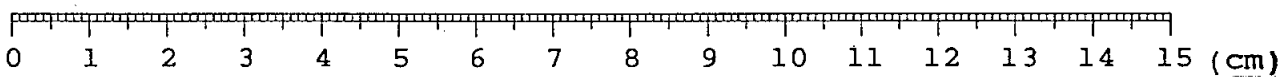
(7) Dress the shield and the outer sheath with EMI tape.

(8) Solder the cores to the pin and assemble the connector.

(9) Clamp the EMI tape with connector clamp.

(10) Dress the end of EMI tape with vinyl tape.





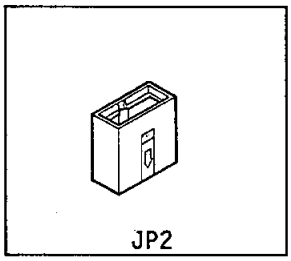
3. POWER SUPPLY

Supply the power to either of the following connectors.
1) POWER connector
2) DATA 1 connector
3) DATA 2 connector

Connector	Voltage	Jumper Setting
Power Supply	8VDC to 42VDC	Figure 1, Figure 2
DATA 1	5VDC regulated	Figure 3
DATA 2	5VDC regulated	Figure 4

Change the jumper block on JP2 according the connector as tabulated.

Jumper Block



8 to 18VDC

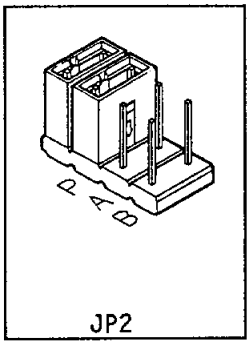


Figure 1

18 to 42VDC

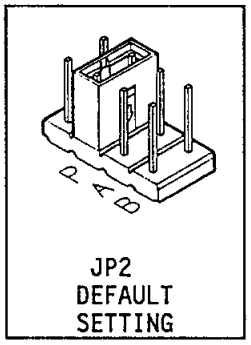


Figure 2

DATA 1 Connector

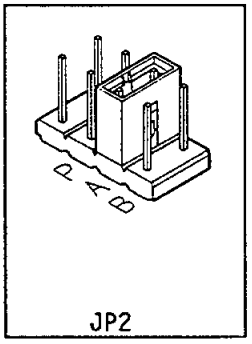


Figure 3

DATA 2 Connector

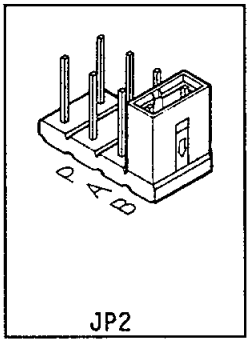


Figure 4

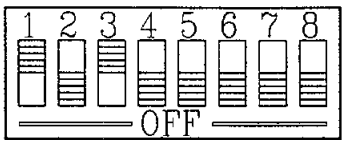
4. GROUNDING

Ground the unit with a copper strap to prevent interference to nearby equipment.

5. DIP SWITCH SETTING

1) Default setting

DIP switch S1 provides the specification tabulated below. The default setting for each segment is as shown below.



Input data ..... CIF
Output data NMEA0180C/0182

2) Function of DIP switches

Segment	Function	Setting
SW1-1, -2, -3	Select CIF data talker	SW1-1 SW1-2 SW1-3
	Dead reckoning	OFF OFF OFF
	Omega	OFF OFF ON
	Loran-A	OFF ON OFF
	Loran-C	OFF ON ON
	Decca	ON OFF OFF
	GPS	ON OFF ON
	ALL	ON ON OFF
	ALL	ON ON ON
SW1-4, -5, -6	Select output data format	SW1-4 SW1-5 SW1-6
	NMEA0180C/0182	OFF OFF OFF
	JRC	OFF OFF ON
	KODEN	OFF ON OFF
SW1-7	Output logic inversion	SW1-7
	Invert	ON
	Non-invert	OFF
SW1-8	Self test	SW1-8
	Self test at power on	ON OFF (for normal operation)

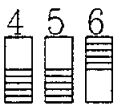
3) Change the output data

To output JRD data or KODEN data, change the DIP switch setting as shown below.
The default setting is NMEA0180C/0182.

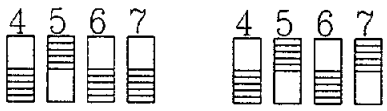
Turn off the equipment before changing the DIP switch settings. (To turn off the power disconnect the power cable.) To register settings to the CPU, turn the power on.

DIP switch setting

JRC



KODEN

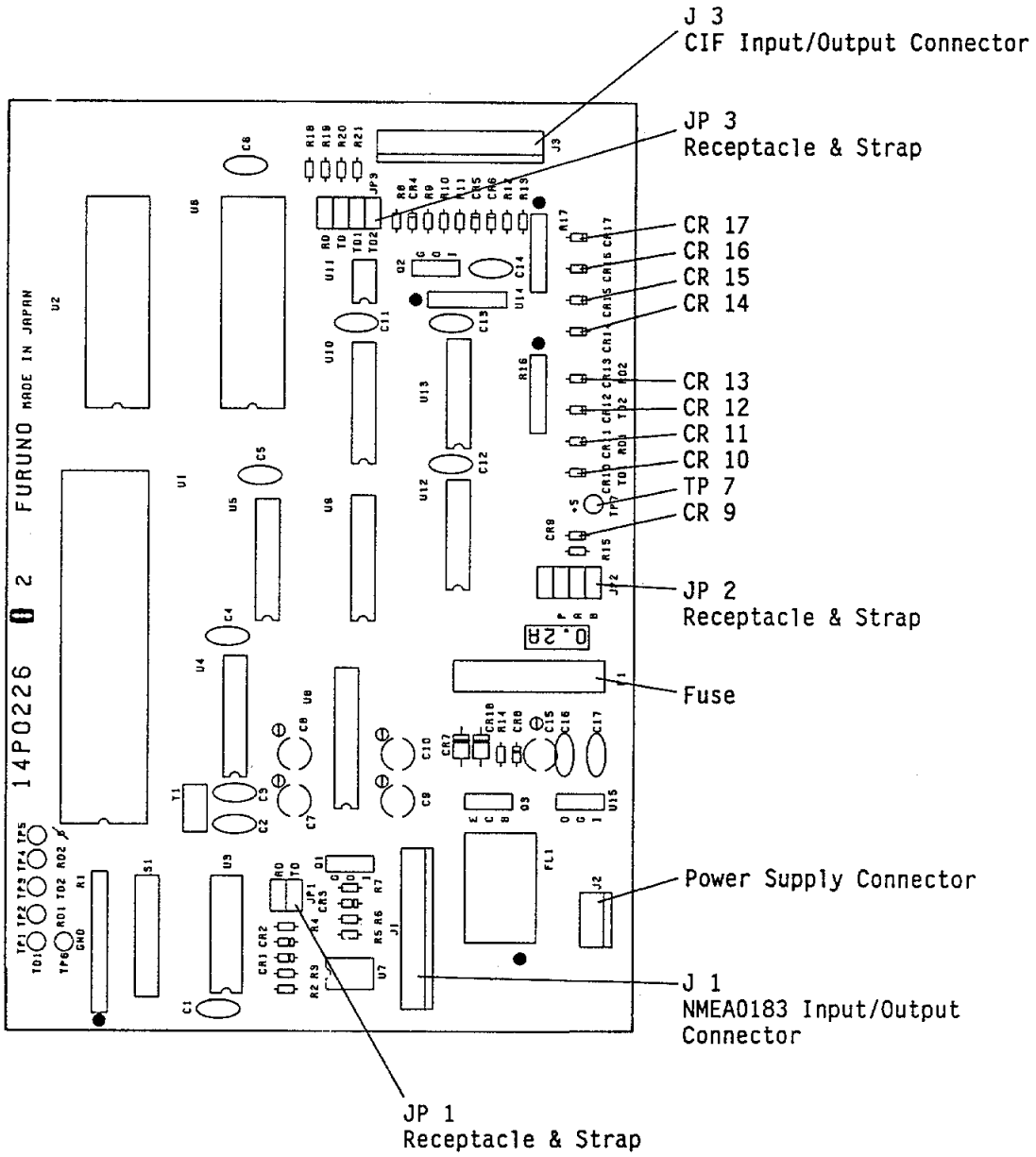


For some KODEN equipment
turn SW1-7 "ON".

NMEA0180C/0182 (DEFAULT SETTING)

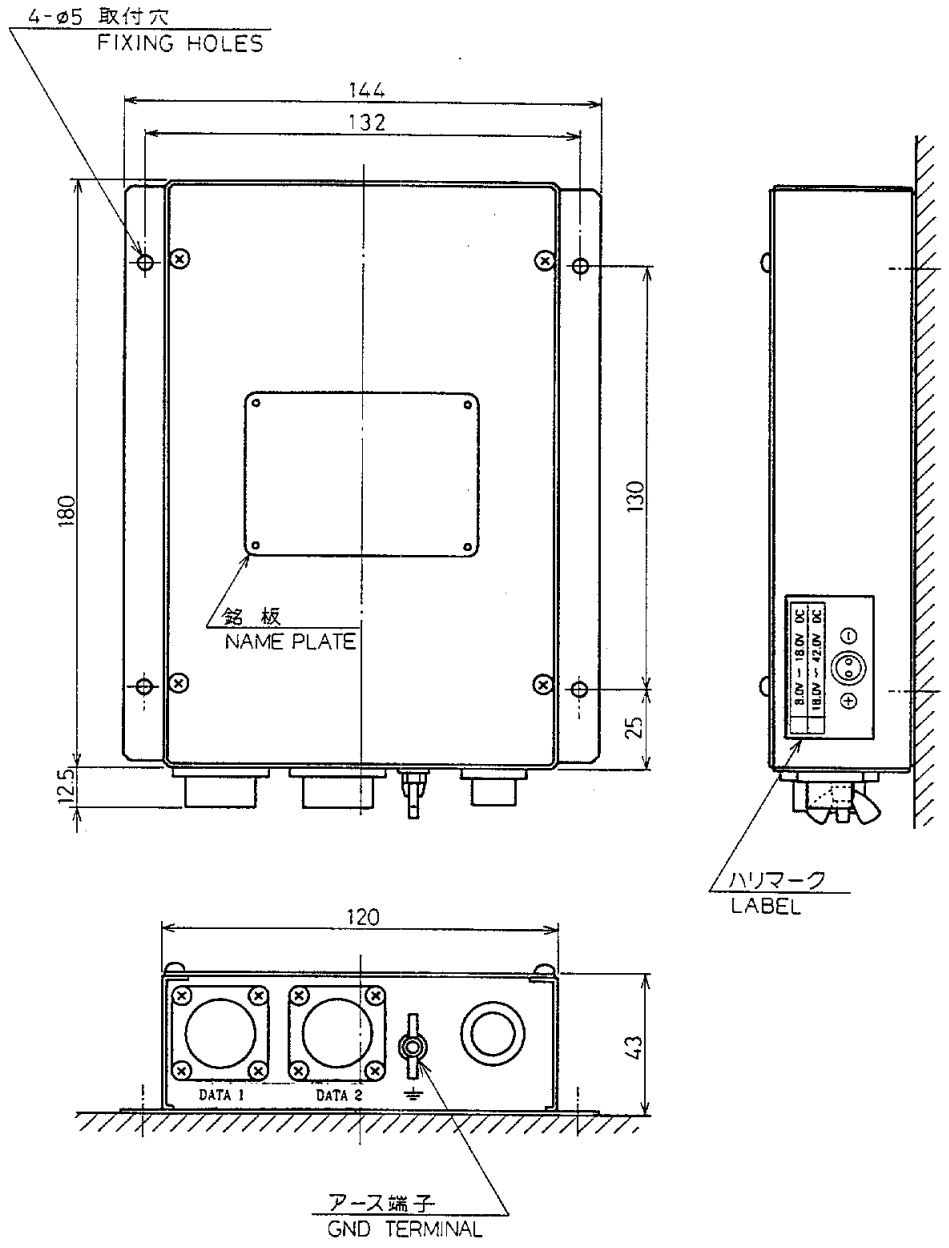
6. JUMPER WIRES

There are 2 more jumper wires JP 1 and JP 3 but do not change them from default settings.


J 3
CIF Input/Output Connector
JP 3
Receptacle & Strap
CR 17
CR 16
CR 15
CR 14
CR 13
CR 12
CR 11
CR 10
TP 7
CR 9
JP 2
Receptacle & Strap
Fuse
Power Supply Connector
J 1
NMEA0183 Input/Output
Connector
JP 1
Receptacle & Strap
14P0226
FURUNO MADE IN JAPAN

FURUNO

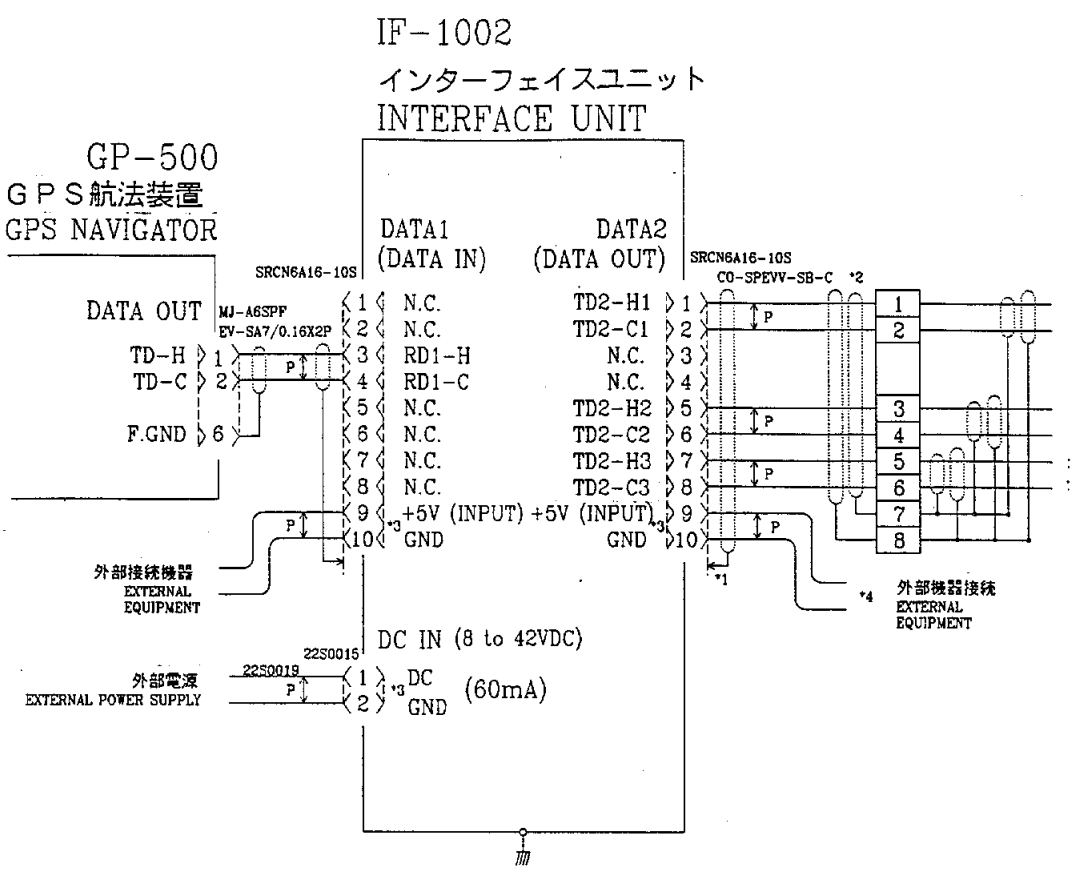
D - 1



品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS

承認 APPROVED	JUN.22.'90 T.NAKANO	三角法 THIRD ANGLE PROJECTION		名称 TITLE	IF-1001/1002/1003 インターフェイスユニット INTERFACE UNIT
検図 CHECKED	JUN.22.'90 N.SAITO	尺度 SCALE	1/2		
製図 DRAWN	June.22.'90 S.Nishi	重量 WEIGHT	0.8 kg	図番 DWG.NO.	C4341-G01-A

FURUNO ELECTRIC CO., LTD.



NOTE 1 : Ground to the chassis with cable clamp.

2 : Max. 10m.

3 : Select one DC input with internal jumper block.

4 : Input only regulated 5VDC to pin 9 and 10.
Other voltages to DC IN terminal.

注1：ケーブルクランプでアースに落とす。

2：最大10m 。

3：電源は、内部ジャンパーの設定により
1か所選択。

4：5Vの安定化電源のみ9番10番に接続する。
その他の電圧は、DC IN 端子に接続。

品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS

承認 APPROVED	OCT・12・'90 T.NAKANO	三角法 THIRD ANGLE PROJECTION		名称 TITLE	相互結線図 IF-1002 INTERCONNECTION DIAGRAM
検図 CHECKED	OCT・12・'90 N.SAITO	尺度 SCALE	/		
製図 DRAWN	Oct・11・'90 S.Nishi	重量 WEIGHT	kg	図番 DWG.NO.	C4341-C02-B

FURUNO ELECTRIC CO., LTD.

FURUNO

REVISION RECORD OF OPERATOR'S /INSTALLATION MANUAL

MODEL : IF-1002 PUBLICATION NO. : OM-E4341-1

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A		———	First Edition	E.HITOSHI
E	Mar. '96	i ~ iii	PL 追加	
		iii	目次ページを付ける	

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