

# FURUNO

## INSTALLATION MANUAL

INMARSAT MINI-C MOBILE EARTH STATION

MODEL

FELCOM16



**FURUNO ELECTRIC CO., LTD.**  
NISHINOMIYA, JAPAN



# SAFETY INSTRUCTIONS



## WARNING



**Do not open the equipment unless totally familiar with electrical circuits and service manual.**

**ELECTRICAL SHOCK HAZARD**

Only qualified personnel should work inside the equipment.



**Do not approach the radome closer than 60 cm when it is transmitting.**

Microwave radiation can cause severe injury or illness. Radiation level: 10 W/m<sup>2</sup> at 60 cm



**Turn off the power at the mains switchboard before beginning the installation. Post a sign near the switch to indicate it should not be turned on while the equipment is being installed.**

Fire, electrical shock or serious injury can result if the power is left on or is applied while the equipment is being installed.



## CAUTION

**Confirm that the power supply voltage is compatible with the voltage rating of the equipment.**

Connection to the wrong power supply can cause fire or equipment damage. The voltage rating appears on the label at the rear of the communication unit.

**Use the correct fuse.**

Use 10 A fuse (default setting) for 12 VDC power supply, or replace the fuse to 5 A (supplied as spare parts) with 24 VDC.

Use of wrong fuse can result in damage to the equipment.

**Keep the following compass safe distances.**

	Standard	Steering
Antenna Unit IC-116	0.3 m	0.3 m
Communication Unit IC-216	0.3 m	0.3 m
AC/DC Power Supply Unit PR-240-CE	0.9 m	0.6 m



**Attach securely protection earth to the ship's body.**

The protection earth is required to the power supply to prevent electrical shock

# TABLE OF CONTENTS

---

<b>EQUIPMENT LISTS .....</b>	<b>iii</b>
<b>SYSTEM CONFIGURATION.....</b>	<b>iv</b>
<b>1. MOUNTING THE UNIT .....</b>	<b>1</b>
1.1 Antenna Unit.....	1
1.2 Communication Unit .....	7
1.3 AC/DC Power Supply Unit PR-240-CE (option) .....	7
<b>2. WIRING .....</b>	<b>8</b>
2.1 Antenna Cable Connector at the Terminal Unit .....	9
<b>3. SETTINGS AFTER THE INSTALLATION.....</b>	<b>11</b>
3.1 Installing software.....	11
3.2 Setting the IMN (Inmarsat Mobile No.).....	15
<b>4. CHANGING SHIP'S MAINS SPECIFICATIONS.....</b>	<b>12</b>
<b>PACKING LISTS .....</b>	<b>A-1</b>
<b>OUTLINE DRAWINGS .....</b>	<b>D-1</b>
<b>INTERCONNECTION DIAGRAM .....</b>	<b>S-1</b>

# EQUIPMENT LISTS

## Standard Supply

Name	Type	Code No.	Qty	Remarks
Antenna Unit	IC-116	-	1	
Communication Unit	IC-216	-	1	
Junction Box*	IC-315	-	1	w/CP16-02501
SSAS Alert Unit*	IC-307	-	2	w/CP16-03101, FP16-00901
Installation Materials*	CP16-02101	004-439-060	1 set	For 15/30 m antenna cable**
	CP16-02111	004-439-070		For 50 m antenna cable**
	CP16-02121	004-439-080		For 100 m antenna cable**
	TP58A15W-RG58	000-146-252	1	15 m antenna cable
	TP5FBAW-5DFBB	000-146-250		30 m antenna cable
	8D-FB-CV	000-117-599		50 m antenna cable
	12D-SFA-CV	000-138-866		100 m antenna cable
	CP16-02401	004-439-540		For communication unit**
Accessories*	FP16-00700	004-439-550	1 set	FD-ROM, FD (FP16-00601)**
Spare Parts*	SP16-01401	004-439-530	1 set	Fuse

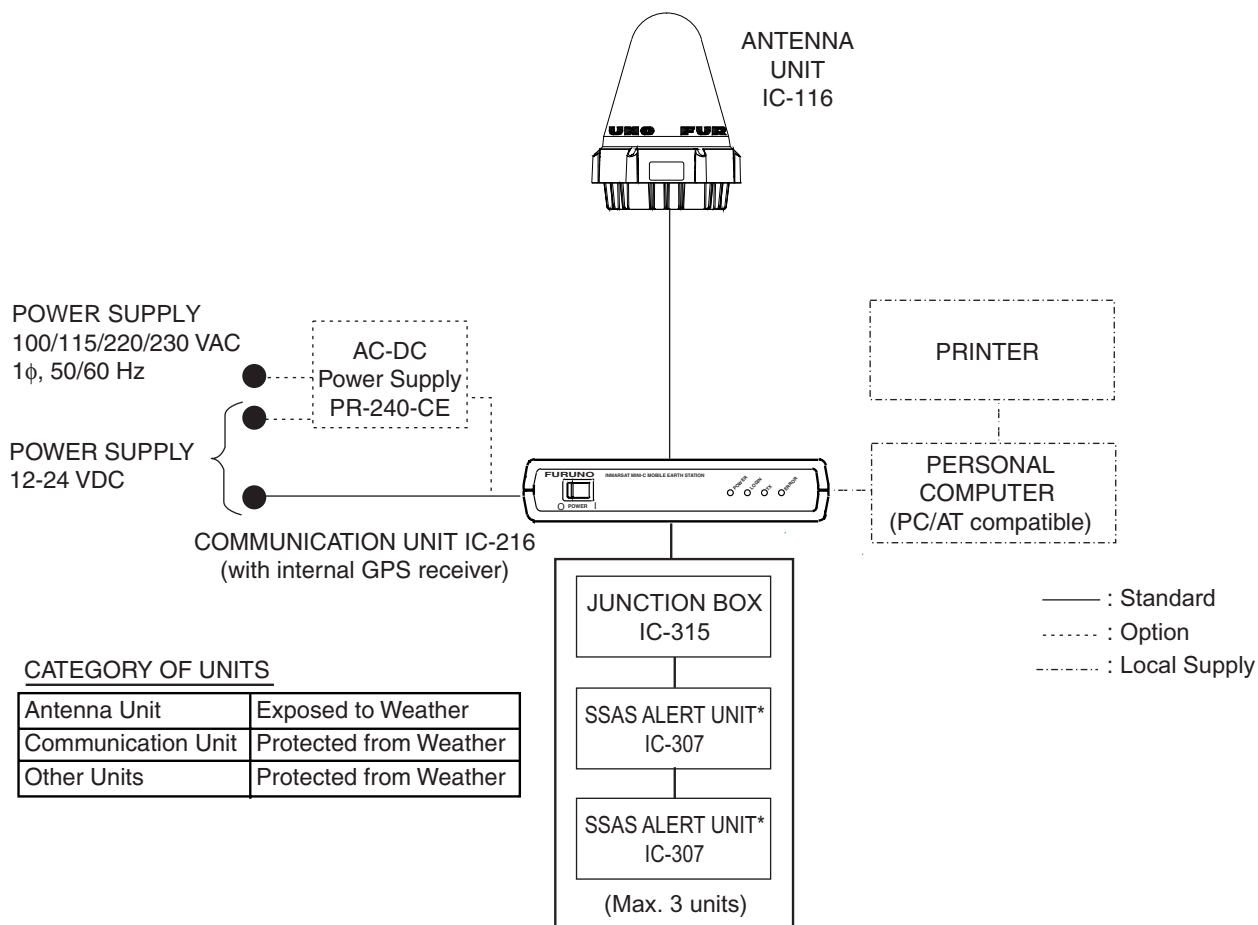
\*: SSAS Specification only.

\*\* : See packing lists at the back of this manual.

## Optional Supply

Name	Type	Code No.	Qty	Remarks
Cable assy	17JE-573-10	000-127-108	1	For PC connecting
AC/DC Power Supply Unit	PR-240-CE	-	1 set	w/CP24-00151**
5-pair cable	CO-SPEVV-SB-C 0.2x5P	000-560-452	1	For junction box, 10m
		000-103-868		For junction box, 20m
		000-103-869		For junction box, 30m
		000-132-829		For junction box, 40m
		000-132-828		For junction box, 50m
SSAS Alert Unit	IC-307	000-043-473	1	w/CP16-03101, FP16-00901
Flush Mount Kit	OP16-28	004-448-010	1	For SSAS alert unit

# SYSTEM CONFIGURATION



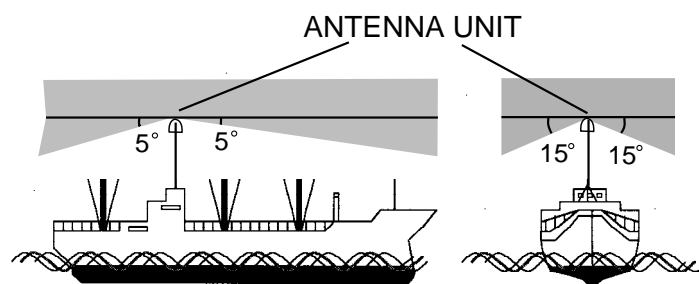
\*: At least two SSAS Alert Units are required.

# 1. MOUNTING THE UNIT

## 1.1 Antenna Unit

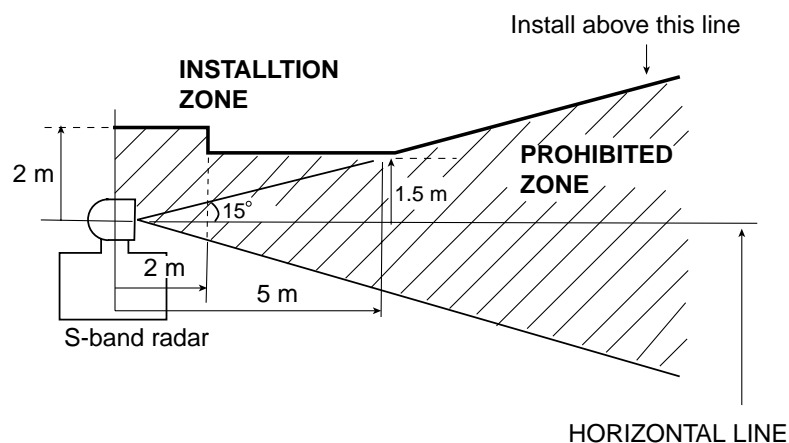
### Mounting Location

- Mount the omnidirectional antenna unit high atop a mast clear of stays and the turning diameter of a radar antenna. The ideal mounting location would be where no obstacle appears in the fore and aft directions down to  $-5^\circ$  and down to  $-15^\circ$  in the port and starboard directions. This concept is illustrated in the figure below. Shadow sector of the antenna mast, whip antenna, etc. should be within 2 degrees at one meter from the antenna unit.



*Antenna unit mounting location*

- If both Inmarsat-A or B ship earth stations are installed, separate the Inmarsat-A/B antenna at least 8 m.
- Separate the antenna unit from an S-band radar as follows:



*S-band radar and installation area*

## 1. MOUNTING THE UNIT

- The allowable vibration level as specified by Inmarsat is as shown in the table below.

### Allowable vibration level

Frequency	Level
2 to 10 Hz	2.54 mm Peak Amplitude
10 to 100 Hz	9.8 m/s <sup>2</sup> Peak Acceleration

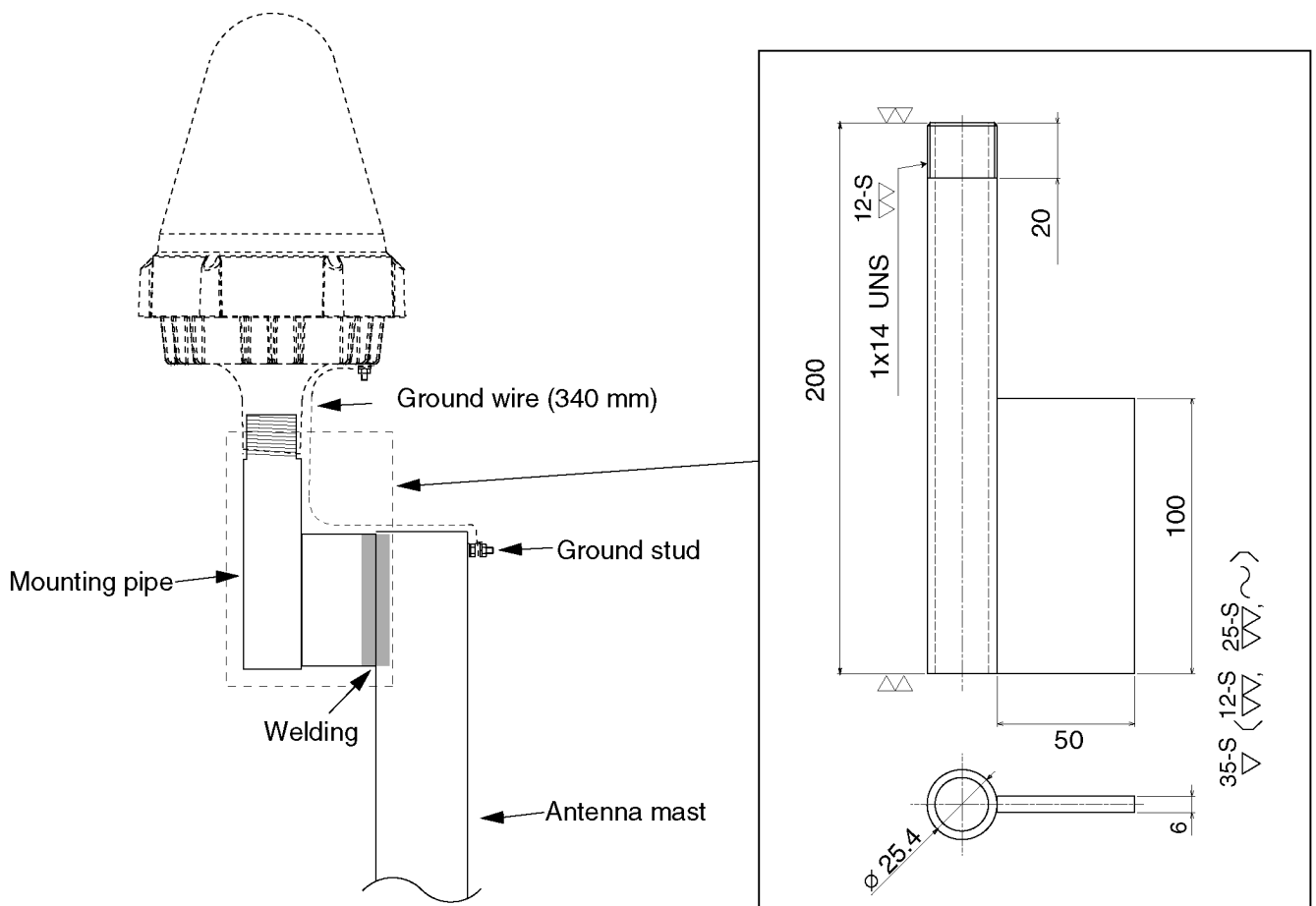
- Avoid the location near funnels and stacks; smoke and soot on the radome can lower signal level.
- Separate the antenna unit 5 m from HF, VHF or 27 MHz antenna.

## Mounting

Fifteen, 30, 50 or 100 m antenna cable is available. Fifteen and 30 m cable has connectors on both ends, and one connector for 50/100 m cable. **Do not shorten these cables to prevent interference.** To mount the antenna unit, an exclusive pipe is necessary.

Locally prepare an antenna mast with a ground stud (M6 stainless steel bolt welded to antenna mast) and mounting pipe with threads and plate (See the outline drawing of the mounting plate shown below.) Weld the mounting pipe to the antenna mast.

The distance between the stud and the earth terminal on the antenna unit should be within 340 mm, which also is the length of the supplied ground wire.

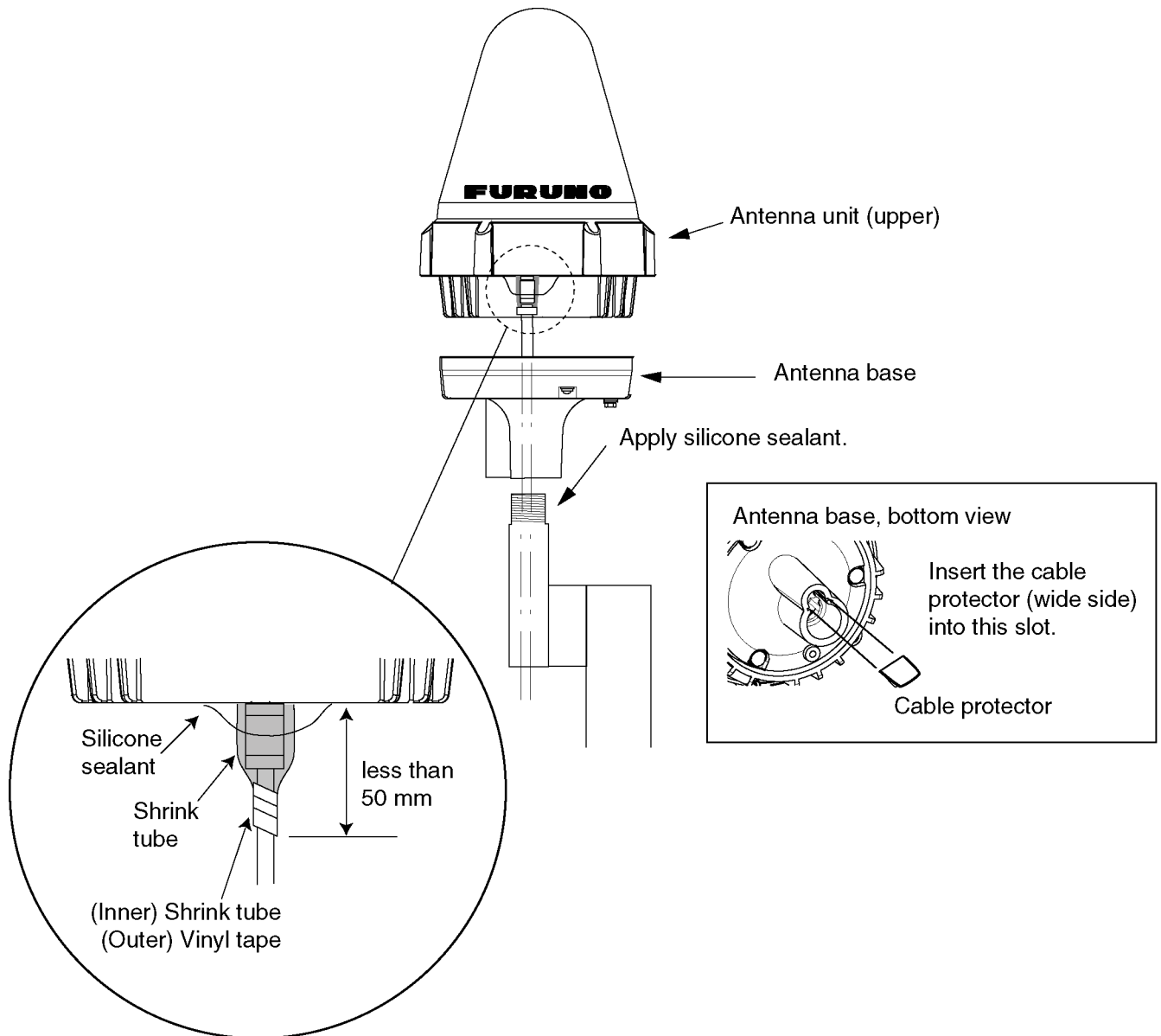


*Mounting pipe and antenna mast*

**For 15 or 30 m cable**

1. Apply silicone sealant (local supply) to the threads of the pipe.
2. Unscrew three screws to remove the antenna base from the antenna unit.
3. Pass the antenna cable through the pipe, antenna base in order.
4. Insert the cable protector (supplied) into the slot at the bottom of antenna base.
5. Screw the antenna base onto the antenna pipe by rotating the antenna base.
6. Pass the antenna cable through the shrink tube (supplied).
7. Attach the antenna cable to the connector at the bottom of the antenna unit (upper).
8. Slide up the shrink tube until it touches the bottom of the antenna unit (upper).
9. Heat the above shrink tube, and then apply silicone sealant around the upper edge of the tube. Also wind self-bonding tape around the lower edge of the shrink tube and then wrap vinyl tape over self-bonding tape.

**Note:** Between the bottom of the antenna unit (upper) and the end of the taping should be less than 50 mm.

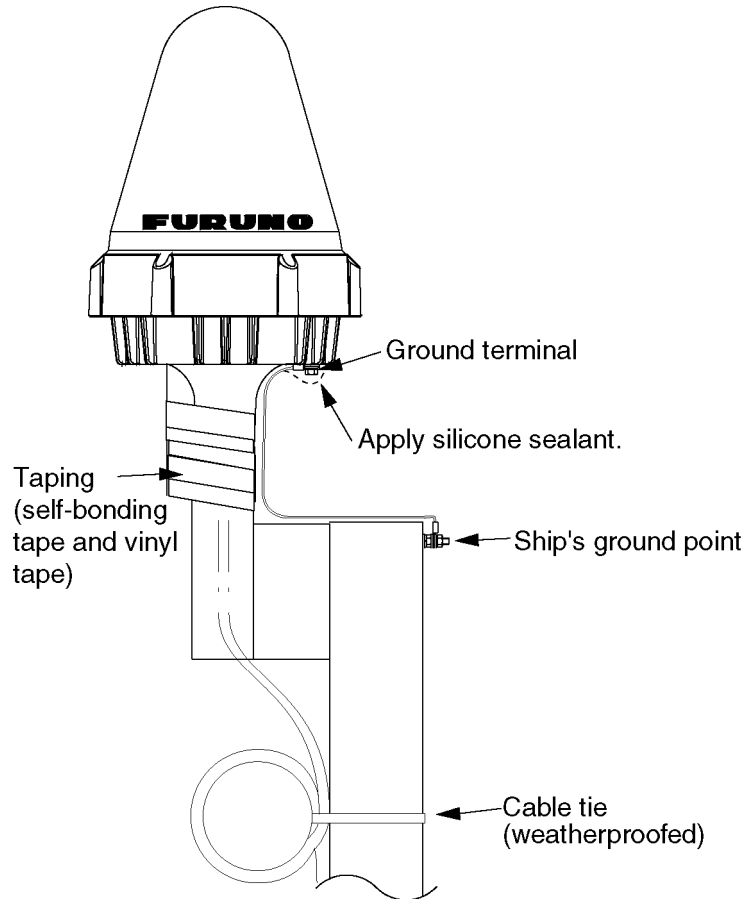


*Antenna unit, passing the cable through the pipe*



## 1. MOUNTING THE UNIT

10. Wrap self-bonding tape around the connection of antenna base and pipe, and then wind vinyl tape over self-bonding tape.
11. Remount the antenna unit (upper) on the antenna base. (Torque:  $2.6 \text{ N}\cdot\text{m} \pm 10\%$ )
12. Fix the ground wire RW-4747 (supplied) between the ground terminal on the antenna unit and the ship's ground point.



### *Mounting*

13. Apply silicone sealant (supplied) to the ground terminal and three screws at the bottom of antenna base.
14. Fix the antenna cable to the mast with a cable tie (local supply).

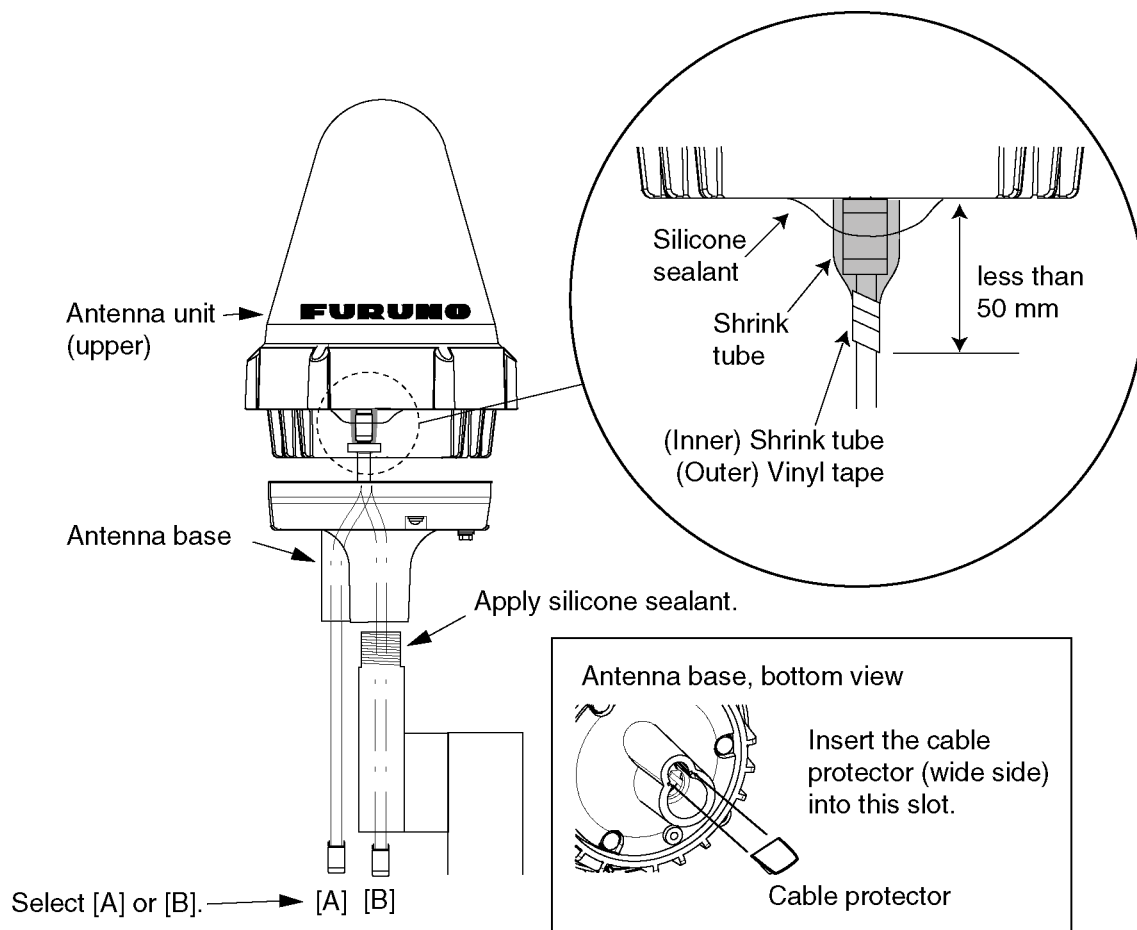
**For 50 or 100 m cable**

1. Apply silicone sealant (local supply) to the threads of the pipe.
2. Unscrew three screws to remove the antenna base from the antenna unit.
3. Pass the cable assy TPA5FB0.3NJ5FBA-5DFB (supplied, 300 mm) through the shrink tube (supplied).
4. Attach the above cable assy to the connector at the bottom of the antenna unit (upper).
5. Slide up the shrink tube until it touches the bottom of the antenna unit (upper).
6. Heat the shrink tube, and then apply silicone sealant around the upper edge of the tube, also wind self-bonding tape around the lower edge of the shrink tube and then wrap vinyl tape over self-bonding tape.

**Note:** Between the bottom of the antenna unit (upper) and the end of the taping should be less than 50 mm.

7. Insert the cable protector (supplied) in to the slot at the bottom of the antenna base.
8. Pass the antenna cable through the pipe, antenna base in order.

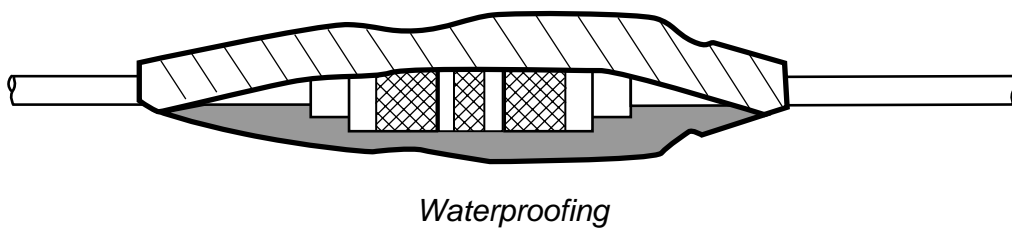
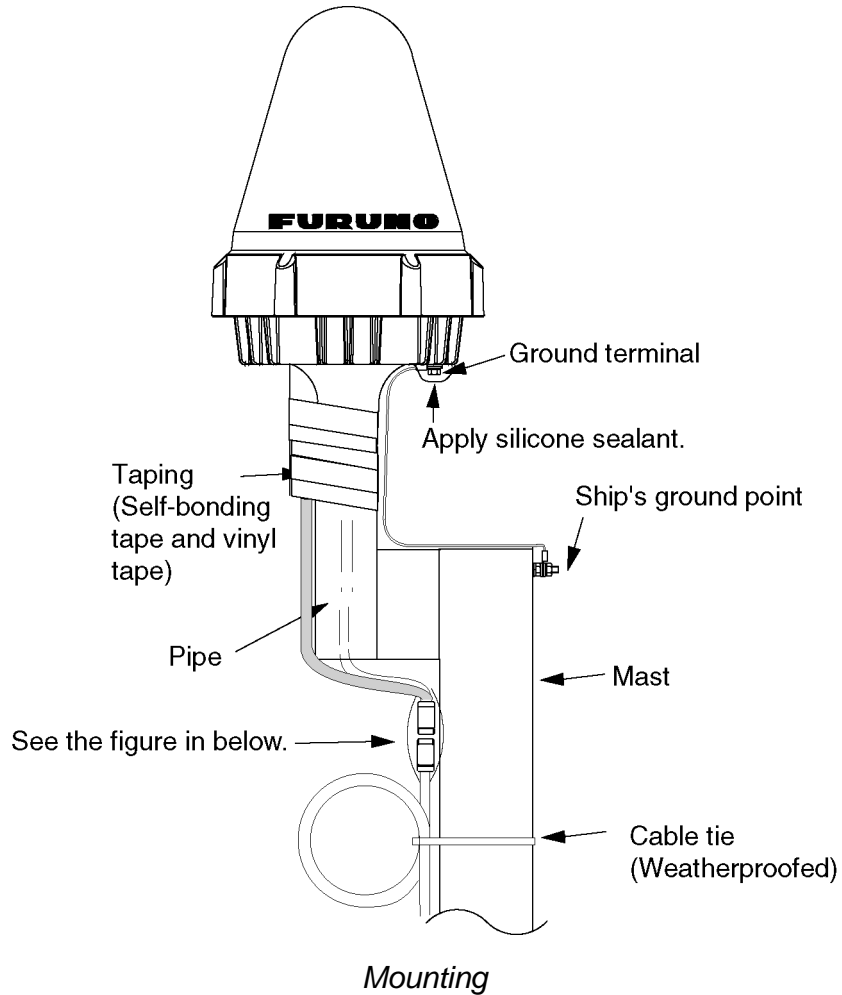
When laying the cable along side the pipe, put the cable aside to pass through the projection in the antenna base. See [A] in the figure shown below.

*Waterproofing*

9. Remount the antenna unit (upper) on the antenna base. (Torque: 2.6 N·m  $\pm$  10%)
10. Screw the antenna unit onto the antenna pipe by rotating the antenna unit.
11. Wind self-bonding tape (supplied) at the connection of antenna base and pipe, and then wrap vinyl tape over self-bonding tape.

## 1. MOUNTING THE UNIT

12. Fix the ground wire RW-4747 (supplied) between the ground terminal on the antenna unit and the ground stud on the mast.
13. Connect the antenna cable (50 or 100 m) and cable assy (attached at step 4).
14. Wrap the connector with self-bonding tape and then vinyl tape. Bind the cable end with a cable tie (local supply).
15. Fix the cable to the mast with cable tie (local supply).



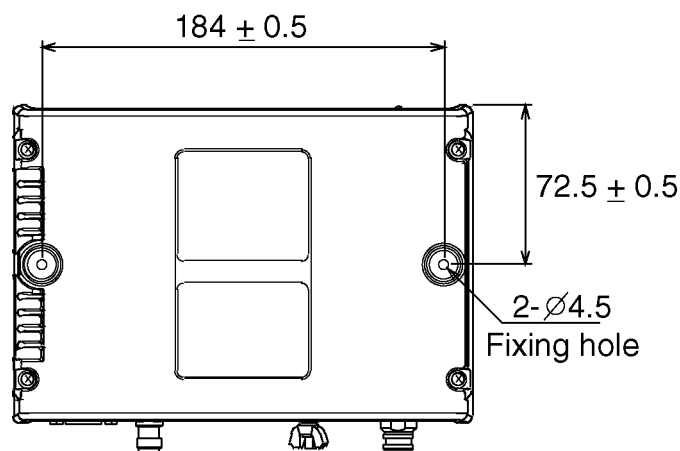
## 1.2 Communication Unit

### Mounting

Select the following place to mount the communication unit.

- Provide sufficient ventilation.
- For maintenance and checking purpose, leave sufficient space at the sides and rear of the unit.

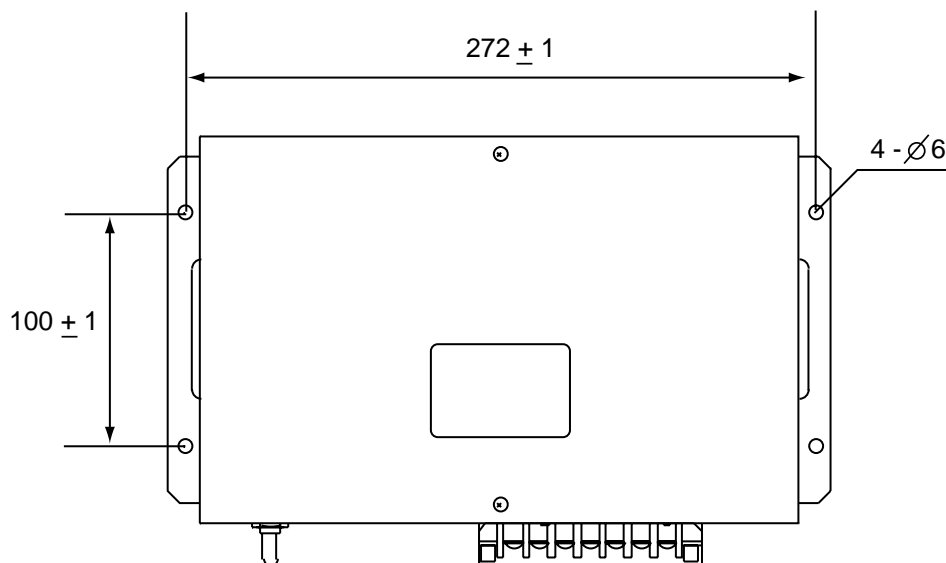
Use two tapping screws (4x40, supplied) to fix the communication unit. You can insert screws from the top and bottom side of the communication unit for bulkhead mounting. After the screwing, attach the cosmetic caps (2 pcs, supplied) to fixing holes to cover the screw head.



*Communication unit, dimensions*

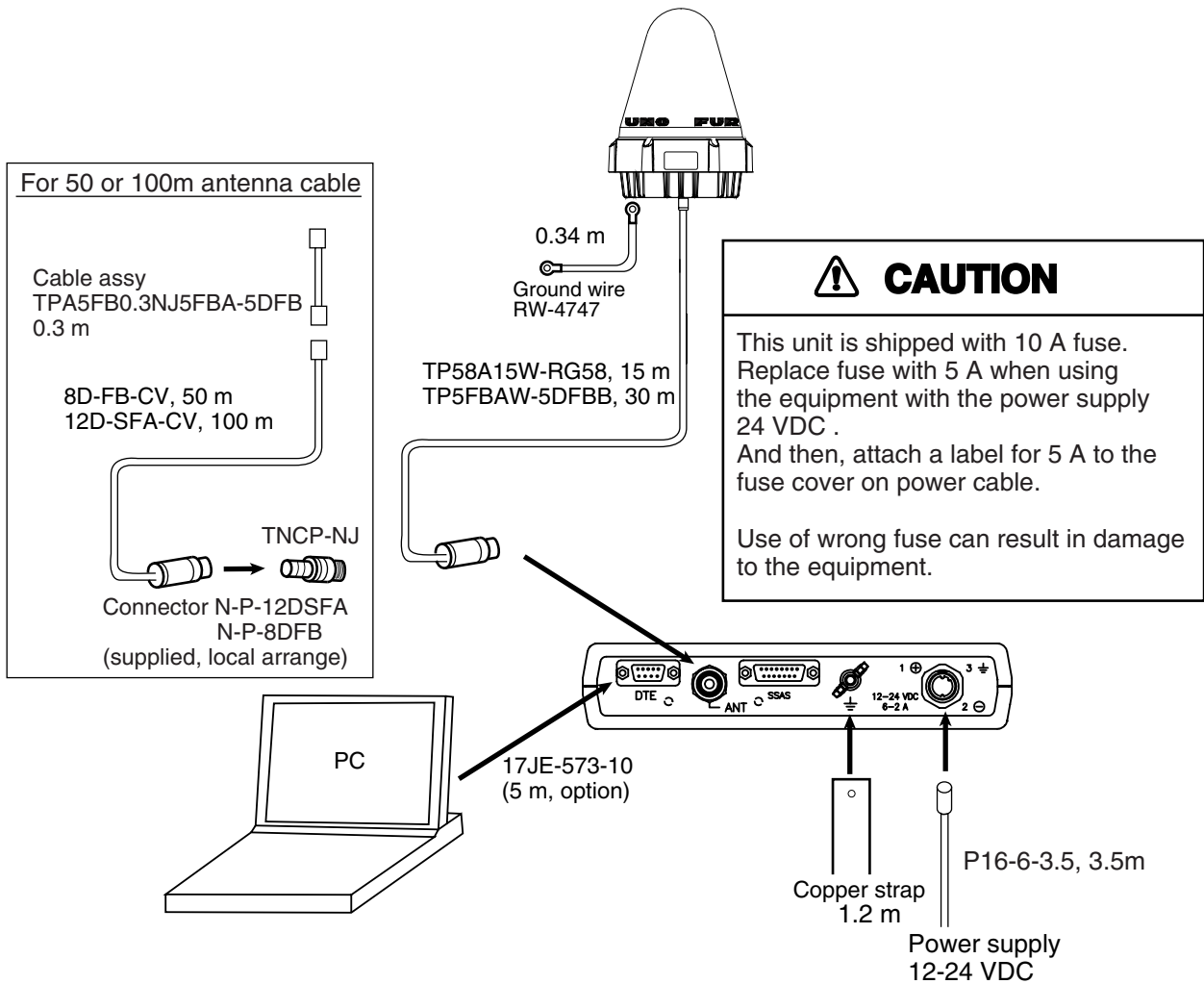
## 1.3 AC/DC Power Supply Unit PR-240-CE (option)

Fix the unit on a table with four tapping screws (4x16).



*AC/DC power supply unit, dimensions*

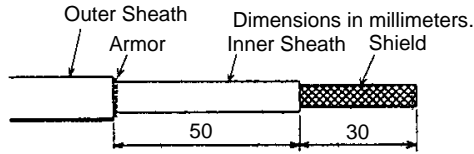
# 2. WIRING



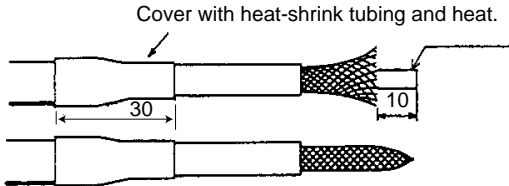
Wiring of FELCOM 16

## 2.1 Antenna Cable Connector at the Terminal Unit

### 8D-FB-CV (50 m)

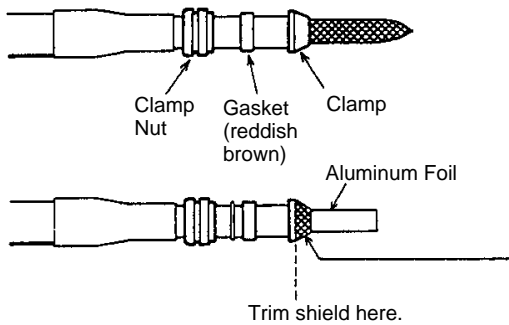


Remove outer sheath and armor by the dimensions shown left.  
Expose inner sheath and shield by the dimensions shown left.



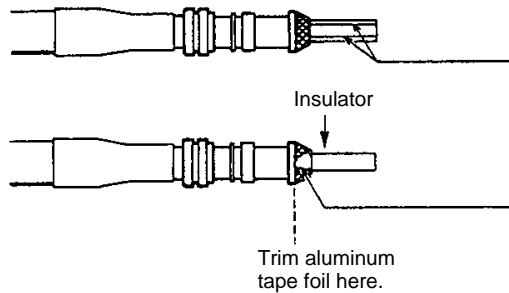
Remove insulator and core by 10 mm.

Twist shield end.



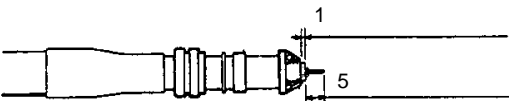
Slip on clamp nut, gasket and clamp as shown left.

Fold back shield over clamp and trim.



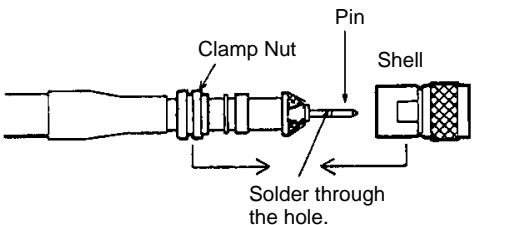
Cut aluminum foil at four places, 90° from one another.

Fold back aluminum tape foil onto shield and trim.



Expose the insulator by 1 mm.

Expose the insulator by 5 mm.

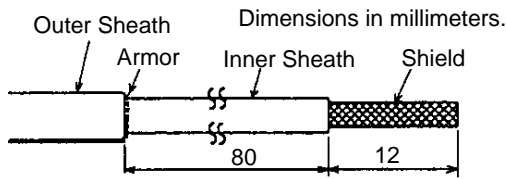


Slip the pin onto the conductor. Solder them together through the hole on the pin.

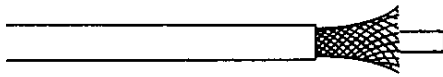
Insert the pin into the shell. Screw the clamp nut into the shell.  
(Tighten by turning the clamp nut. Do not tighten by turning the shell.)

*How to fabricate antenna cable 8D-FB-CV (50 m)*

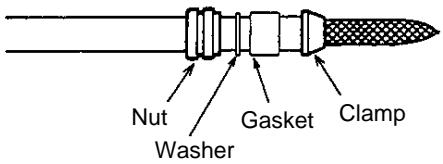
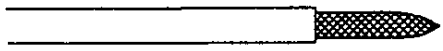
**12D-SFA-CV (100)**



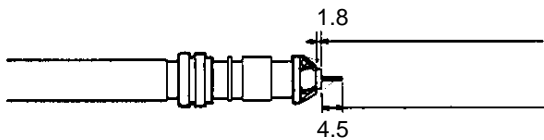
Remove outer sheath and armor by the dimensions shown left. Expose inner sheath and shield by the dimensions shown left.



Twist shield end.

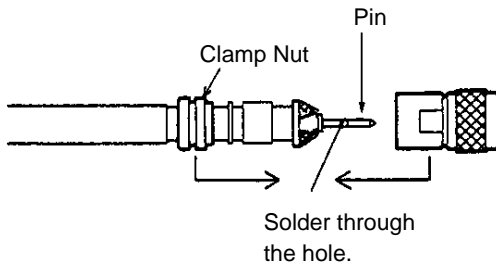


Slip on clamp nut, gasket and clamp as shown left.



Expose the insulator by 1.8 mm.

Expose the core by 4.5 mm.



Slip the pin onto the conductor. Solder them together through the hole on the pin.

Insert the pin into the shell. Screw the clamp nut into the shell. (Tighten by turning the clamp nut. Do not tighten by turning the shell.)

*How to fabricate antenna cable 12D-SFA-CV*

# 3. SETTINGS AFTER THE INSTALLATION

---

## 3.1 Installing software

After installing the equipment, install the FELCOM 16 software (F16PC) in the PC as follows:

1. Turn on the PC.
2. Set FD-ROM in floppy disk drive.
3. Click the icon of "SETUP.EXE" in the floppy disk. The setup procedure begins, showing the welcome dialog box.

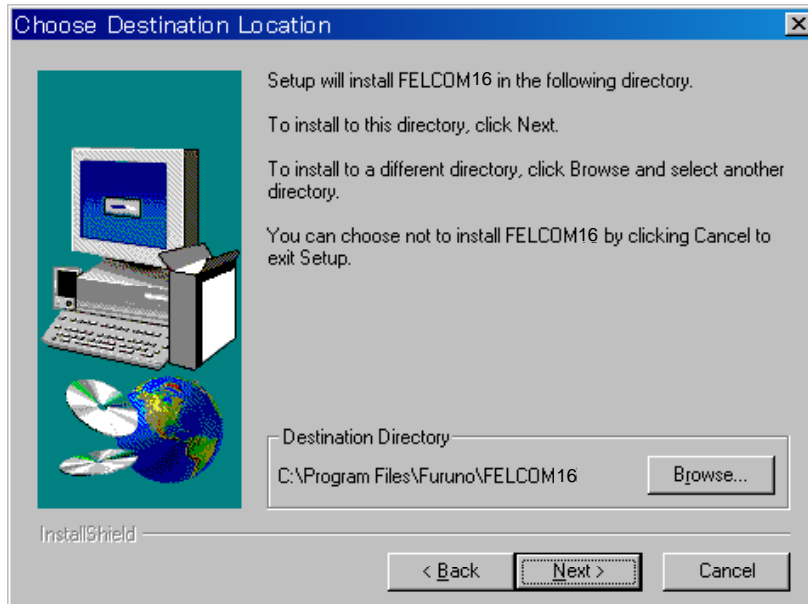


*Welcome dialog box*



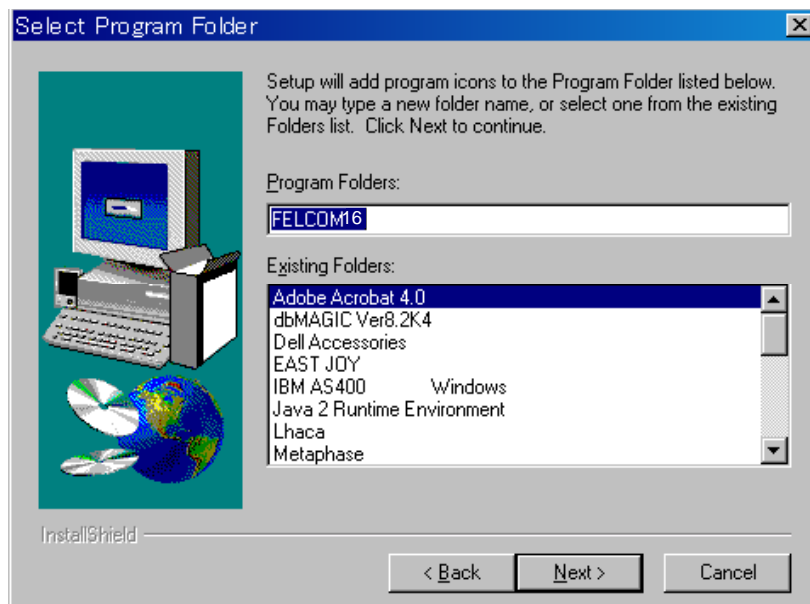
### 3. SETTINGS AFTER THE INSTALLATION

4. Click the [Next] button.



*Choose destination location dialog box*

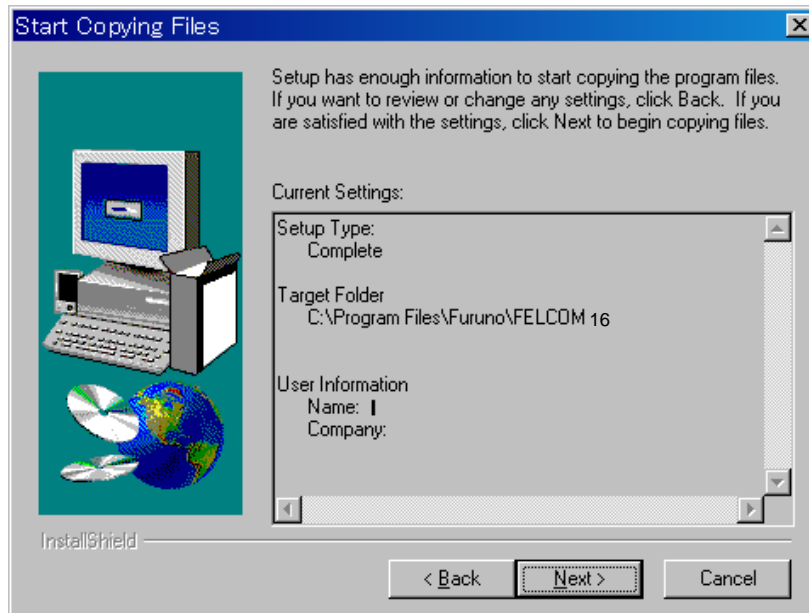
5. Click the [Next] button.



*Select program folder dialog box*

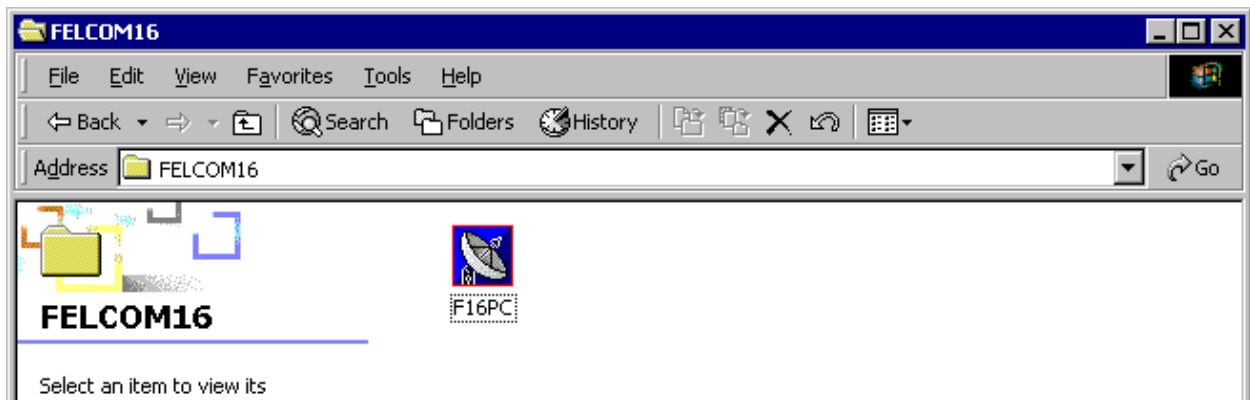
### 3. SETTINGS AFTER THE INSTALLATION

6. Click the [Next] button.



*Start copying files dialog box*

7. Click the [Next] button and the installation begins. When the installation is completed, the FELCOM 16 dialog box appears.



*FELCOM 16 dialog box*

### 3. SETTINGS AFTER THE INSTALLATION

8. Click the Close button (⊗) at the top right corner of the dialog box. The “Setup Complete” dialog box appears.



*Setup complete dialog box*

**Note:** If you want to launch the program file now check the box next to “Yes, Launch the program file.” The application will launch after the completion of step 9.

9. Click the [Finish] button. The FELCOM 16 PC application shortcut is created on the desktop.



F16PC

**Note:** To uninstall the F16 application see the operator’s manual for the PC.

### 3. SETTINGS AFTER THE INSTALLATION

## 3.2 Setting the IMN (Inmarsat Mobile No.)

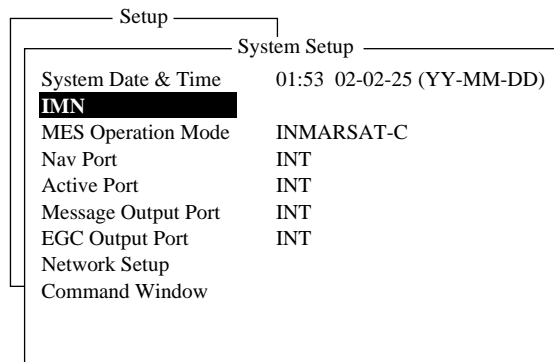
Set your IMN (Inmarsat Mobile No.) using the and PC as below.

1. Power on the communication unit and PC in order.
2. Double click [F16PC] on the screen to start the program.
3. Press the [F8] function key to show the Setup menu.



*Setup menu*

4. Press [1] key to display the System Setup menu.



*System Setup menu*

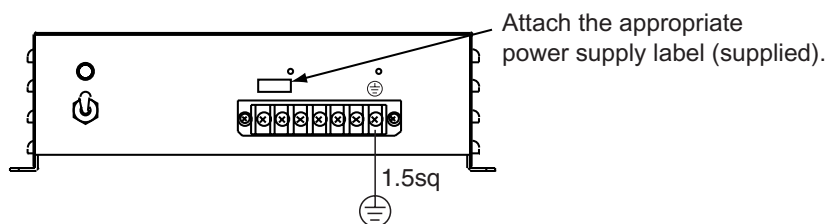
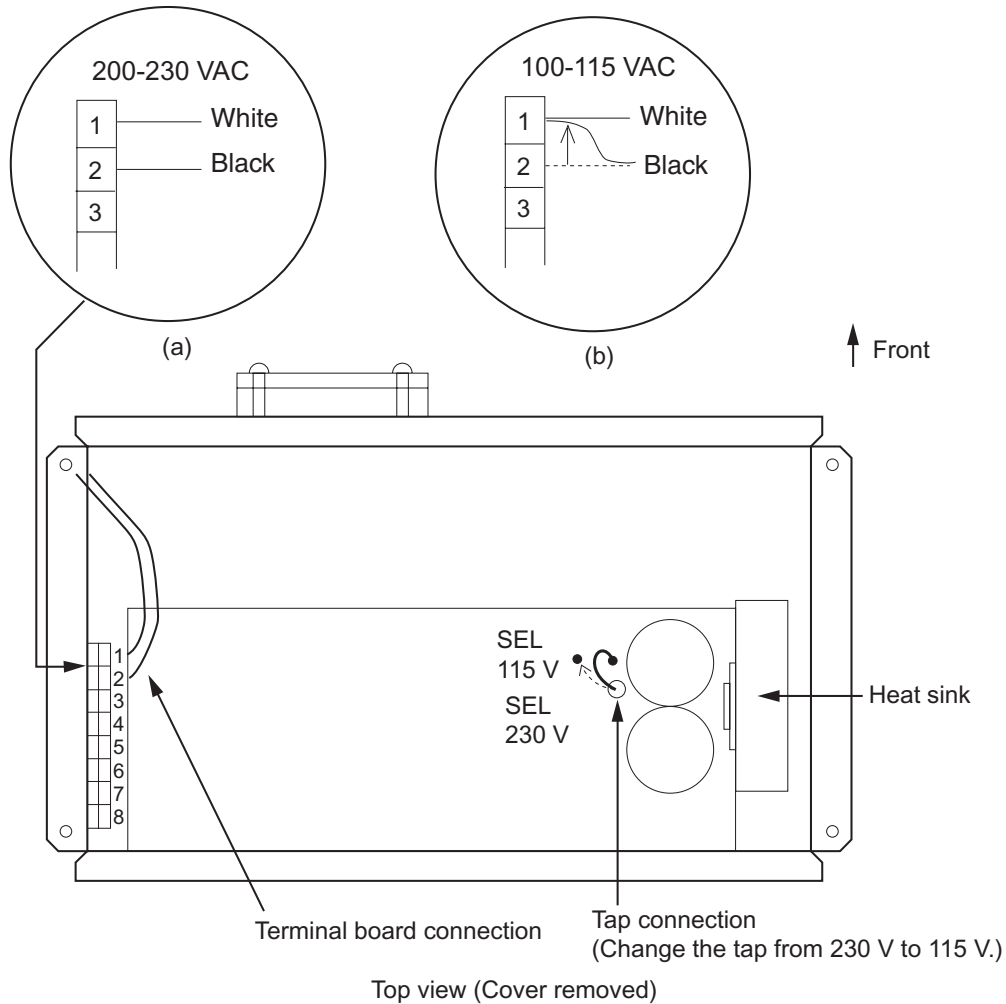
5. Confirm that the IMN is selected, and then press the [Enter] key.  
The entering field appears.
6. Key in your IMN.
7. Press the [Enter] key.
8. Press the [Esc] key to escape from the entering field.
9. Press the [Enter] key.

To clear the IMN, press [I] [M] [N] in order while pressing the [Alt] key down at step 6. When using the FELCOM 16 for VMS (Vessel Monitoring System), DNID (Data Network ID) has to be downloaded via the LES (Land Earth Station). This arrangement is normally done by authority of VMS.

# 4. CHANGING POWER SUPPLY SPECIFICATIONS

The power supply PR-240-CE (option) is shipped with 220 VAC (200-230 VAC) setting. If the power supplies are 100 VAC – 115 VAC, change the tap connection and terminal connection as follows.

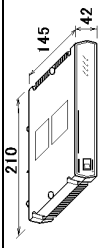
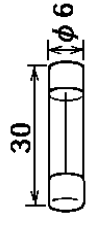
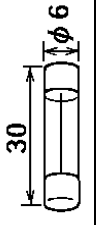
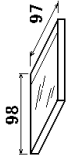
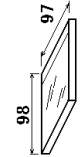

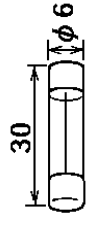

Power supply	Tap connection	Terminal board connection #1 & #2	Power supply label
100-115 VAC	SEL 115 V	b	AC100-115V 2.3-2.0A 1 $\phi$ 50/60kHz
200-230 VAC	SEL 230 V	a	AC200-230V 1.15-1.0 A 1 $\phi$ 50/60kHz


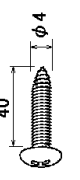
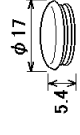


# PACKING LIST IC-216 J/E

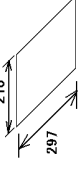
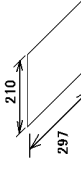
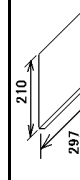
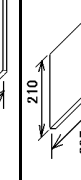
16AL-X-9851 -3

1/1

NAME	OUTLINE	DESCRIPTION/CODE	Q'TY
<b>ユニット</b>			
通信制御ユニット COMMUNICATION UNIT		IC-216 000-043-419	1
<b>予備品</b>			
SPARE PARTS SP16-01401			
ヒューズ FUSE		FGB0-A 5A AC125V 000-549-064	1
ヒューズ FUSE		FGB0 10A AC125V 000-549-065	1
<b>付属品</b>			
ACCESSORIES FP16-00700			
FD-ROM組品 FLOPPY DISK ROM		16-5-0166 004-439-740	1
7インチ 1/2組品 FLOPPY DISK		FP16-00601 004-439-400	1
<b>工事材料</b>			
INSTALLATION MATERIALS CP16-02401			
電源ケーブル組品 POWER CABLE ASSY.		P16-6-3.5(3P) 004-447-790	1
ヒューズ FUSE		FGB0-A 5A AC125V 000-549-064	1
ヒューズラベル FUSE LABEL		03-153-1312-0 100-292-140	1

NAME	OUTLINE	DESCRIPTION/CODE	Q'TY
7-ス板 COPPER STRAP		05-003-0031 590-300-310	1
+self-tapping screw SELF-TAPPING SCREW		4X40 SUS304	2
キャップ CAP		000-809-373 040-4025 000-515-249	2

## 図書 DOCUMENT

ヒューズ 変更のお願い NOTICE FOR FUSE REPLACEMENT		C52-00206-*	1
INMARSAT C 申請様式(和/英) APPLICATION FORM		000-147-004 J59-30110-*	1
装備要領書(和) INSTALLATION MANUAL		000-806-030 IMJ-56380-*	1
取扱説明書(和) OPERATOR'S MANUAL		000-809-346 ** OMJ-56380-*	1
		000-809-344 **	

1.コード番号末尾の["\*\*"]は、選択品の代表型式/コードを表します。  
CODE NUMBER ENDED BY "\*\*" INDICATES THE NUMBER OF TYPICAL MATERIAL.

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

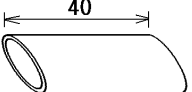
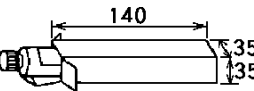
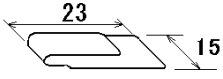
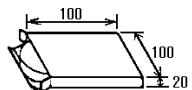
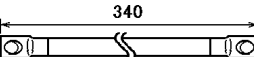
**FURUNO**

工事材料表 INSTALLATION MATERIALS		IC-116		CODE NO.	16AK-X-9405 -2
				TYPE	1/1
番号 NO.	名称 NAME	略図 OUTLINE	型名 / 規格 DESCRIPTIONS	数量 Q'TY	用途 / 備考 REMARKS
1	ケーブル組品 CABLE ASSY.	 L=100M	12D-SFA-CV *100M*	1	選択 TO BE SELECTED
			CODE NO.		
2	ケーブル組品 CABLE ASSY.	 L=50M	8D-FB-CV *50M*	1	選択 TO BE SELECTED
			CODE NO.		
3	ケーブル組品 CABLE ASSY.	 L=15M	TP58A15W-RG58 *15M*	1	選択 TO BE SELECTED
			CODE NO.		
4	ケーブル組品 CABLE ASSY.	 L=30M	TP5FBAW-5DFBB *30M*	1	選択 TO BE SELECTED
			CODE NO.		

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

**FURUNO**

CODE NO.	004-439-060	16AK-X-9401 -2 1/1
TYPE	CP16-02101	

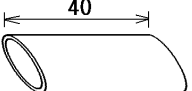
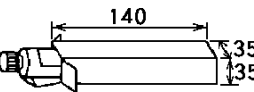
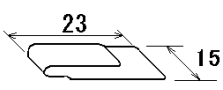
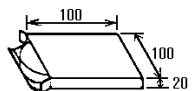

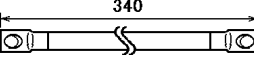
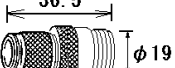
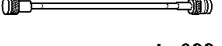
工事材料表 INSTALLATION MATERIALS					
番号 NO.	名称 NAME	略図 OUTLINE	型名 / 規格 DESCRIPTIONS	数量 Q'TY	用途 / 備考 REMARKS
1	シラックススリーブ SCM2 SHRINK TUBING		07-1220 如 *40MM*	1	
			CODE NO.		
2	シリボント SEALANT		1211 50G	1	
			CODE NO.		
3	ケーブル保護材 CABLE PROTECTOR		16-018-1251-1	1	
			CODE NO.		
4	アチルゴムテープ SELF-BONDING TAPE		NO.15	1	
			CODE NO.		
5	アース線 GROUNDING WIRE		RW-4747-1 03S4747-2	1	
			CODE NO.		

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



**FURUNO**

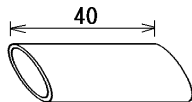
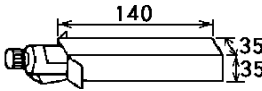
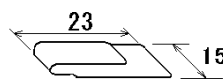
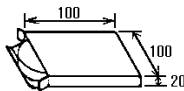
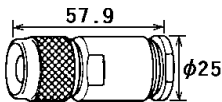
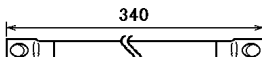
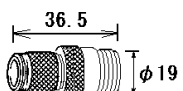
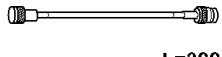
CODE NO.	004-439-070	16AK-X-9402 -2 1/1
TYPE	CP16-02111	

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	シラックススリーブ SCM2 SHRINK TUBING		07-1220 如 *40MM*	1	
			CODE NO. 000-147-037		
2	スリポイント SEALANT		1211 50G	1	
			CODE NO. 000-854-118		
3	ケーブル保護材 CABLE PROTECTOR		16-018-1251-1	1	
			CODE NO. 100-298-111		
4	アチルゴムテープ SELF-BONDING TAPE		NO.15	1	
			CODE NO. 000-835-526		
5	コネクタ(N) CONNECTOR		N-P-8DFB	1	
			CODE NO. 000-111-549		
6	アース線 GROUNDING WIRE		RW-4747-1 03S4747-2	1	
			CODE NO. 000-566-000		
7	コネクタ CONNECTOR		TNCP-NJ	1	
			CODE NO. 000-146-177		
8	ケーブル組品 CABLE ASSY.		TPA5FB0.3NJ5FBA-5DFB	1	
			CODE NO. 000-146-251		

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

**FURUNO**

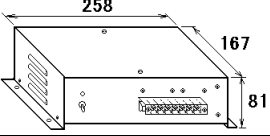
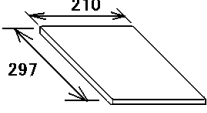
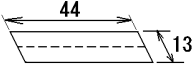
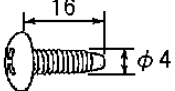
CODE NO.	004-439-080	16AK-X-9403 -2 1/1
TYPE	CP16-02121	

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	シラックススリーブ SCM2 SHRINK TUBING		07-1220 如 *40MM*	1	
			CODE NO. 000-147-037		
2	シリポント SEALANT		1211 50G	1	
			CODE NO. 000-854-118		
3	ケーブル保護材 CABLE PROTECTOR		16-018-1251-1	1	
			CODE NO. 100-298-111		
4	アチルゴムテープ SELF-BONDING TAPE		NO.15	1	
			CODE NO. 000-835-526		
5	コネクタ(N) CONNECTOR		N-P-12DSFA	1	
			CODE NO. 000-136-422		
6	アース線 GROUNDING WIRE		RW-4747-1 03S4747-2	1	
			CODE NO. 000-566-000		
7	コネクタ CONNECTOR		TNCP-NJ	1	
			CODE NO. 000-146-177		
8	ケーブル組品 CABLE ASSY.		TPA5FB0.3NJ5FBA-5DFB	1	
			CODE NO. 000-146-251		

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

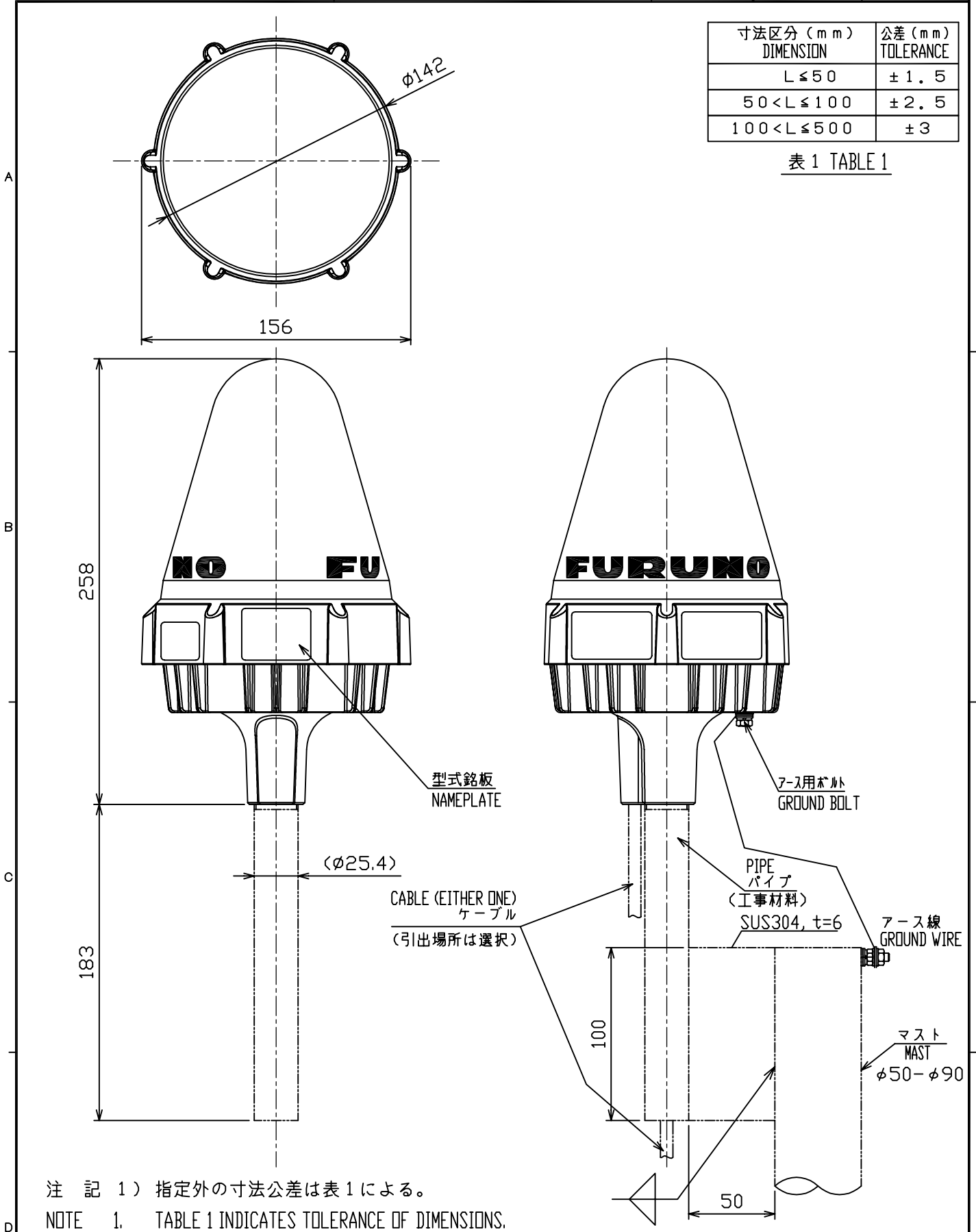
# PACKING LIST

PR-240-CE

NAME	OUTLINE	DESCRIPTION/CODE	Q'TY
<b>ユニット</b>	<b>UNIT</b>		
AC-DC電源 POWER SUPPLY UNIT		PR-240-CE 000-053-879	1
<b>工事材料</b>	<b>INSTALLATION MATERIALS</b>	<b>CP24-00151</b>	
PR-240-CE電源変更手順書 POWER MODIFICATION PROCEDURES		C52-00205-A 000-147-013	1
デングシハリマーク POWER LABEL		24-003-4101-3 100-299-773	1
+トラスタップシネジ SELF-TAPPING SCREW		4X16 SUS304 1ヶ 000-802-080	4

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

表 1 TABLE 1



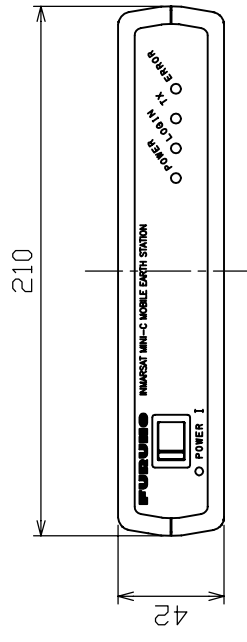
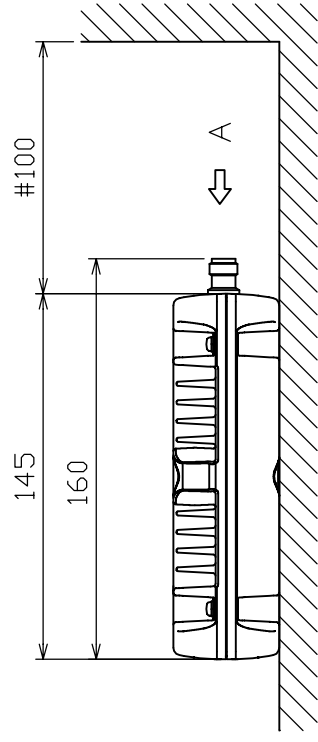
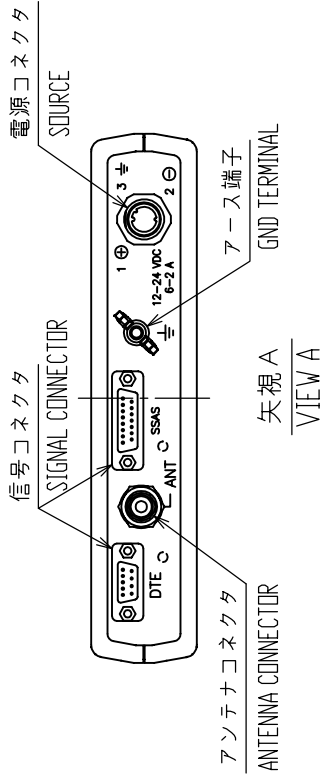
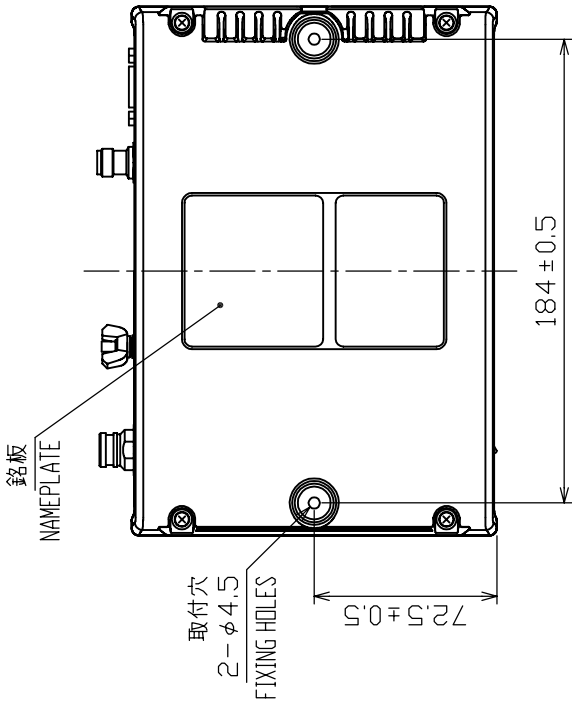
注 記 1) 指定外の寸法公差は表 1 による。

NOTE 1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.

DRAWN	Jan. 7 '03	T.YAMASAKI	TITLE	IC-115/116
CHECKED	Jan. 7 '03	Y.KIMURA	名称	アンテナユニット
APPROVED	Jan. 7, '03	<i>Y. Kimura</i>	FELCOM 15/16	外寸図
SCALE	1/3	MASS 1.4 ± 10% kg	質量はパイプ工材を含まず。 MASS W/D FIXTURE PIPE.	NAME
DWG No.	C5635-G01-C	16-018-100G-1		ANTENNA UNIT
				OUTLINE DRAWING

表 1 TABLE 1

寸法区分 (mm) DIMENSIONS	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) 取付にはM4ボルト、または+トラスタッピピンネジ呼び径4×40を使用のこと。

NOTE

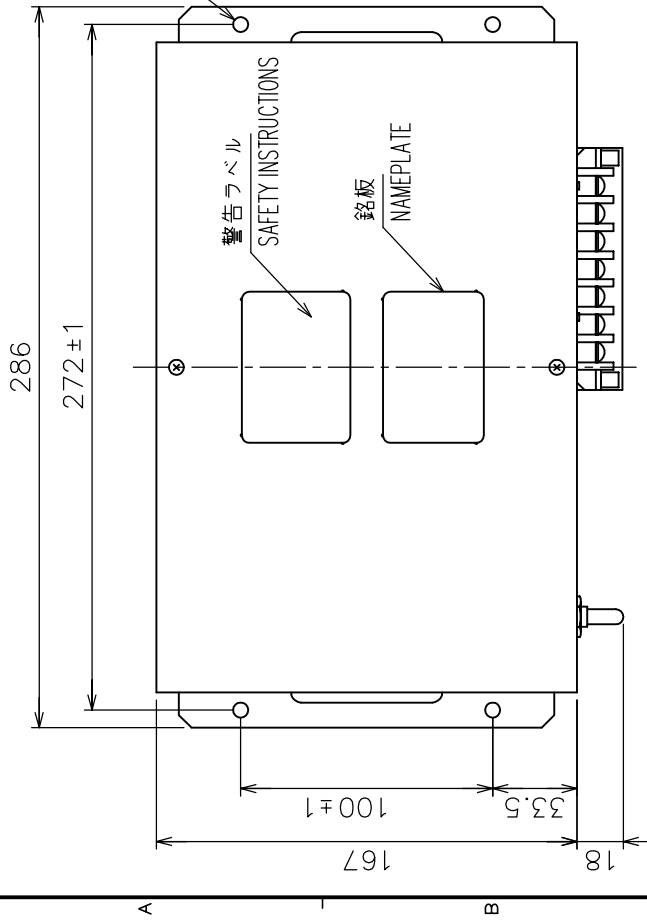
1. # MINIMUM SERVICE CLEARANCE.
2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
3. USE M4 BOLTS OR TAPPING SCREWS 4x40 FOR FIXING THE UNIT.

DRAWN	Feb. 9 '04	E. MIYOSHI	TITLE	IC-216
CHECKED		Takahashi T.	名称	通信制御ユニット
APPROVED		Y. Hatai	外寸図	
SCALE	1/3	MASS 1.2 ±10% kg	NAME	COMMUNICATION UNIT
FIG. No.		CS5638-G01-D		16-018-200G-3
				OUTLINE DRAWING

表 1 TABLE 1

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

4-φ6取付穴  
FIXING HOLES

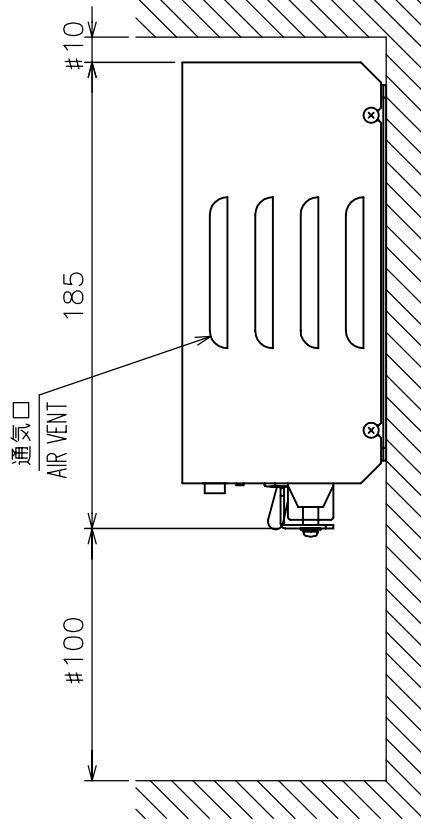
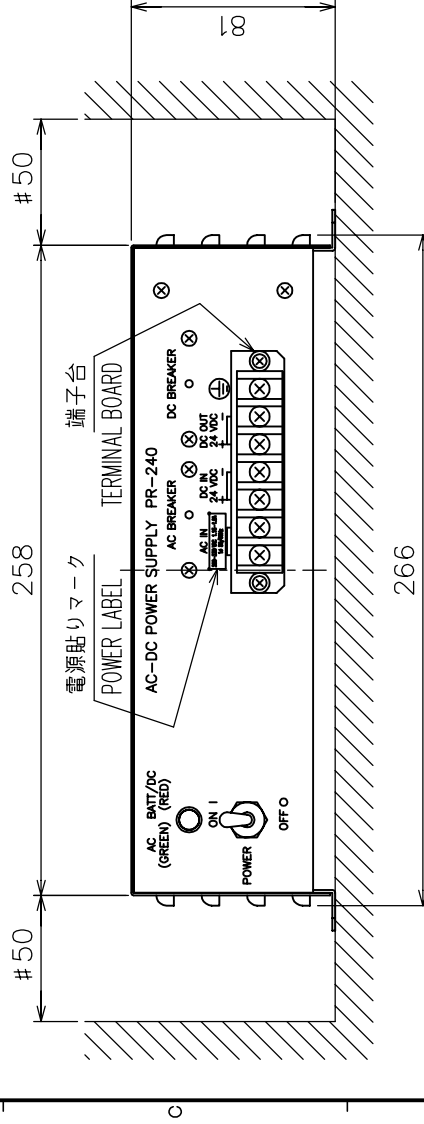


100-115 VACの時 200-230 VACの時

100-115 VAC 2.3-2.0A  
1φ 50/60Hz

200-230 VAC 1.15-1.0A  
1φ 50/60Hz

電源貼りマーク (尺度 1:1)  
POWER LABEL (SCALE 1:1)



- 注 記 1) 指定なき寸法公差は表 1 による。  
 2) #印寸法は推奨する最小サービスクリアランスとする。  
 3) 取付用ネジはプラスタツピンネジ 呼び径 4 x 1.6 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 4x1.6 FOR FIXING THE UNIT.

DRAWN	Mar. 3 '04	T. YAMASAKI	TITLE	PR-240-CF
CHECKED	Mar. 3 '04	T. TAKENO	名称	AC/DC 電源ユニット
APPROVED	Mar. 11 '04	H. Hayashi	外寸図	
SCALE	1/3	MAS 2.8	NAME	AC/DC POWER SUPPLY UNIT
DWG No.	CS003-G03-F			OUTLINE DRAWING
	24-003-500G-3			



© **FURUNO ELECTRIC CO., LTD.**

9-52 Ashihara-cho,  
Nishinomiya, Japan

Telephone : 0798-65-2111  
fax : 0798-65-4200

Your Local Agent/Dealer

All rights reserved.

Printed in Japan

PUB.No. IME-56380-C

( HIMA ) FELCOM16

FIRST EDITION : MAR. 2003

C : APR. 23,2004



\* 00080934702 \*



\* IME56380C00 \*