

## Sales Bulletin

Attention: All FURUNO Distributors/Subsidiaries

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Model: **FAR-15x8 Series**

Model: **FAR-15x3 Series**





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# 1. What are FAR-15x8 and FAR-15x3 Series?

The models **FAR-15x8** and **FAR-15x3** are new series after the FR-15xx MARK-3, suitable for the commercial market segment including tugs and fishing vessels, as well as large boats in the recreational segment including mega yachts.

## FAR-1518-BB/1528-BB (FAR-15x8) for IMO



The **FAR-15x8** consists of the models **FAR-1518-BB (12 kW)** and **FAR-1528-BB (25 kW)**, which are **IMO type-approved** as **Category 2** and **Category 3** Radar. The FAR-15x8 comes with a black box configuration as standard and can be combined with type approved **15" or 19" monitors**. Similar to FAR-2xx7 series, the FAR-15x8 also has a non-IMO mode for vessels that require the high end commercial grade in the non-IMO field.

### Note:

Category 2 – Effective diameter of Radar screen at 250 mm (with 19" monitor)

Category 3 – Effective diameter of Radar screen at 180 mm (with 15" monitor)

## FAR-1513-BB/1523-BB (FAR-15x3) for Non-IMO



The **FAR-15x3** consists of the models **FAR-1513-BB (12 kW)** and **FAR-1523-BB (25 kW)**, which is not IMO type-approved. It comes with a black box configuration as standard and can be connected with a monitor compatible with the XGA resolution. Thanks to the common antennas and gearboxes as FR-8xx5 series, short to long range target discrimination performance is suitable especially to professional users on fishing and workboats.

## Common Benefit with FAR-15x8 and FAR-15x3

Both FAR-15x8 (IMO) and FAR-15x3 (Non-IMO) offer the consistent user interface to the FAR-2xx7, or the familiar operation flow to the long-seller models. In addition, the latest functions such as **ACE (Automatic Clutter Elimination)** and **Fast Target Tracking**, popular with the FAR-3000 series Chart Radar are available on the FAR-15x8 and FAR-15x3. The unique **Target Analyzer** is also achieved by advanced image processing to support the safe navigation. For more information on each benefit, see **Section 3**.

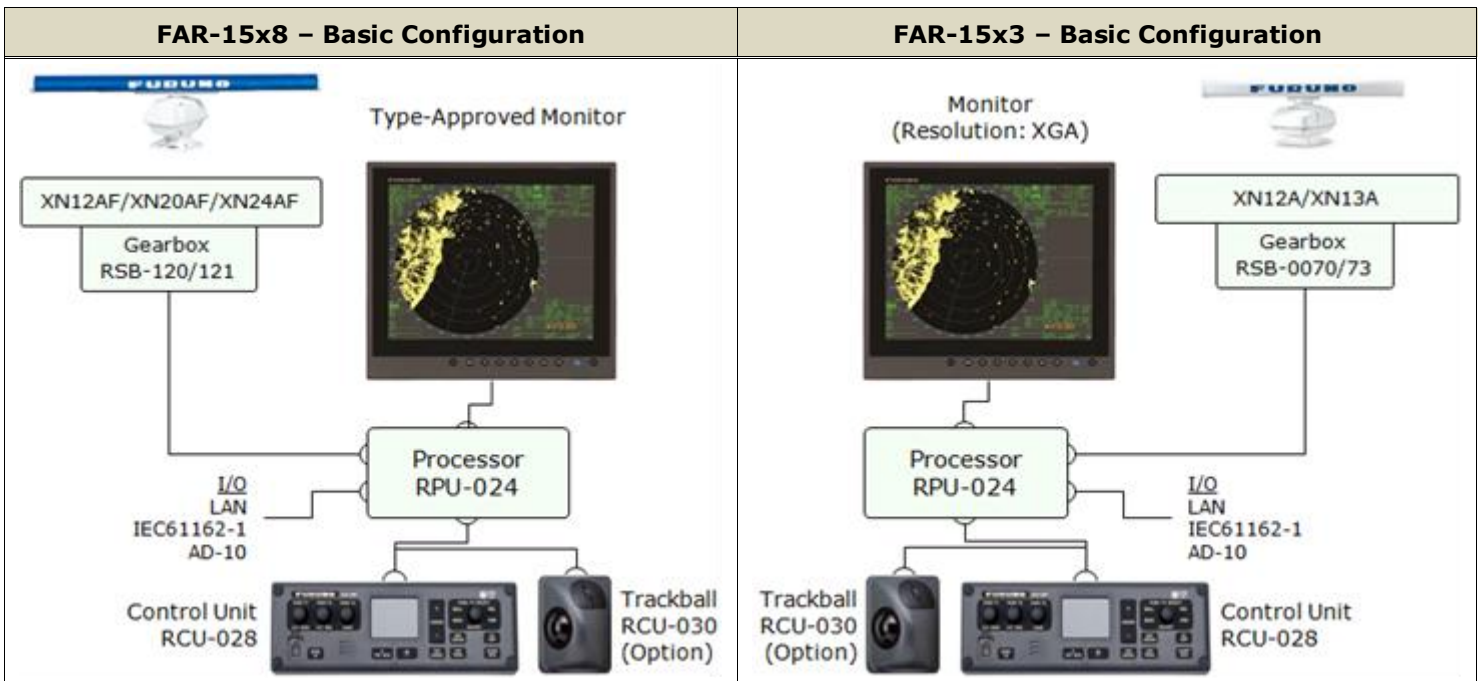
# 2. Specifications

## 2-1 Comprising and Basic Configuration

Items	FAR-1518-BB	FAR-1528-BB	FAR-1513-BB	FAR-1523-BB
Processor	RPU-024 (model/code different depending on voltage type) *(1)			
Control Unit	RCU-028 (Option: RCU-030)			
Gearbox *(2)	RSB-120 (26 rpm) / RSB-121 (48 rpm)		RSB-0070 (24 rpm) / RSB-0073 (48 rpm)	
RF	RTR-100 (12 kW)	RTR-101 (25 kW)	RTR-086A (12 kW)	RTR-087A (25 kW)
Antenna	XN12AF (4 ft) XN20AF (6.5 ft)	XN20AF (6.5 ft) XN24AF (8 ft)	XN12A (4 ft) XN13A (6 ft)	
Performance Monitor	PM-32A *(3)		<b>NOT</b> Available	

**Note:**

- (1) The **FAR-15x3** processor unit supports **24 VDC** power input only, **NO** option of AC power input. The FAR-15x8 processor has a selection of AC or DC power input.
- (2) The gearbox type is different depending on the output power and antenna rotation speed. Select an appropriate gearbox type for the required antenna rotation speed.
- (3) The performance monitor PM-32A (0141949000) for the FAR-15x8 is **NOT** included as standard. Purchase it separately if necessary.
- (4) A deicer or break unit is **NOT** available with the FAR-15x8 or FAR-15x3.
- (5) Arrange the monitor separately.



## 2-2 IMO Type Approved Monitors for FAR-15x8

The FAR-15x8 is IMO type-approved with the monitors shown at right.

Manufacturer	Model	Approval / Remarks
FURUNO	<b>MU-150HD</b>	Category 3 (180 mm)
FURUNO	<b>MU-190</b>	Category 2 (250 mm)

**Note:**

IMO approval with the **Hatteland** monitors shown at right is also planned.

Model	Approval / Remarks
JH 15T17 FUD-AA1-AOAA / JH 15T17 FUD-DA1-AOAA	Category 3 (180 mm)
JH 19T14 FUD-AA1-AOAA / JH 19T14 FUD-MA1-AOAA JH 19T14 FUD-AA1-AAAA / JH 19T14 MMD-MA1-AABA JH 20T17 FUD-AA1-AOAA / JH 20T17 FUD-DA1-AOAA	Category 2 (250 mm)

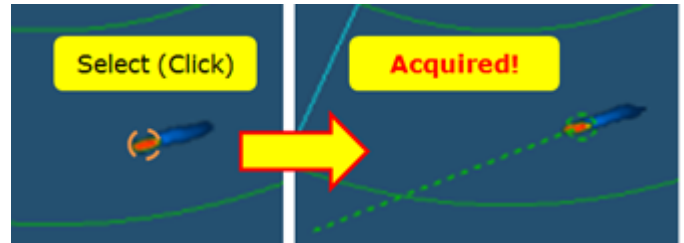
## 2-3 Comparison

General	FAR-15x8	FAR-15x3	FR-8xx5/8xx2
Category	IMO – Cat. 2/3	Non-IMO	Non-IMO
Configuration	Black Box	Black Box	Standalone
Output Resolution	XGA	XGA	SVGA
Compatible Screen Size	15" and 19"	15"	12.1"
Screen Aspect	Landscape	Landscape	Portrait
<b>Transmission</b>			
Output Power	12/25 kW	12/25 kW	6/12/25 kW
Antenna Length	4/6.5/8 ft	4/6 ft (common antenna)	
Rotation Speed	26/48 rpm	24/48 rpm (common gearbox)	
Performance Monitor	Available	Not available	Not available
Power Supply Unit	Not required	Not required	Required (25 kW)
Antenna Cable	RW-0030	RW-00224 (12 kW) RW-00225 (25 kW)	MJ-B24LPF0012 (12 kW) RW-9771 (25 kW)
<b>Function</b>			
ARPA Target Tracking	50 targets		10 targets (option)
AIS	300 targets		100 targets
Chart Overlay	Not available		Not available
<b>Interface</b>			
LAN	Available		Not available
IEC61162-1	Available		Available
AD-10	Available		Available
USB	Available		Not available
SD/SDHC	Available		Not available
Processor Power Supply	24 VDC or 100/220 VAC	24 VDC	24 VDC

# 3. Advanced Echo Processing

## 3-1 Fast Target Tracking

Conventional models required approx. one minute to finish acquiring a selected target. The quick target acquisition process achieved in the FAR-3000 series for the commercial segment is also available on the FAR-15x8 and FAR-15x3. Just click and wait for **a few seconds** to acquire the target!

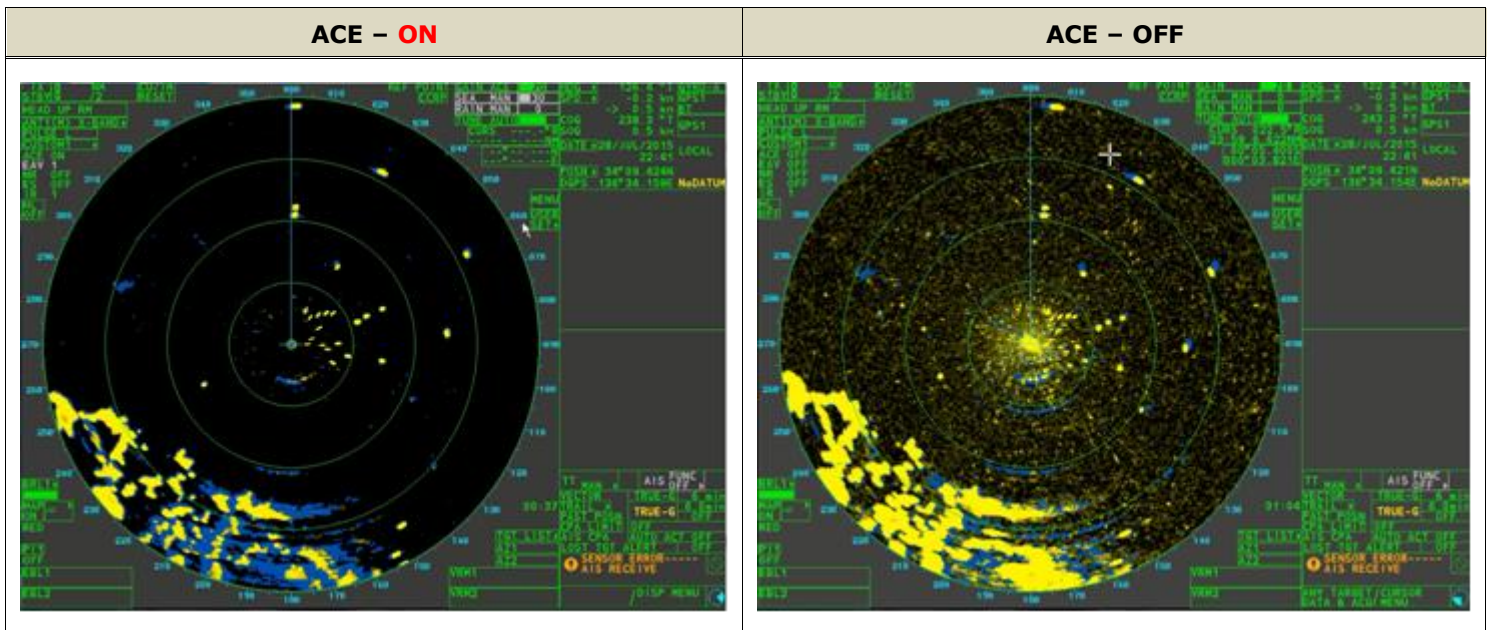


**Note:**

It may take longer than a few seconds to finish acquiring the targets that have appeared quite recently on the screen.

## 3-2 ACE (Automatic Clutter Elimination)

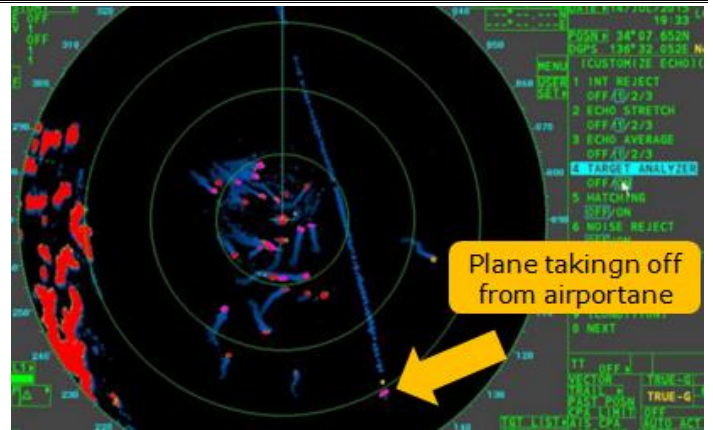
The unique function **ACE (Automatic Clutter Elimination)** helps eliminate unnecessary clutters from the screen. Since the **ACE** was introduced in the FAR-3000, it has been popular with navigators onboard due to crystal clear screen by one click on the [**ACE**] icon. It eliminates the requirement to manually adjust the gain and STC with knobs occasionally. The FAR-15x8 and FAR-15x3 utilizes the **ACE** function and let the operator see the clear screen without occasional adjustments.



### 3-3 Fast Moving Target Detection

In addition to the clear echo by ACE, advanced signal process inside the processor helps **detect fast moving targets**. The example at right from the FAR-1528 shows an airplane taking off from an airport. From the long trail behind the airplane target, you can see how fast the target was moving compared to the others, and how clear the FAR-1528 detects such a fast target.

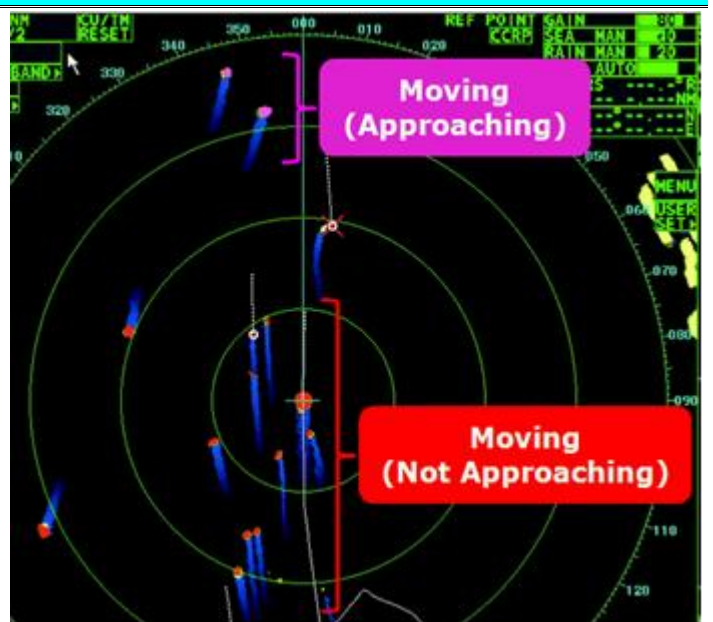
FAR-1528-BB – Fast moving helicopter



### 3-4 Target Analyzer

The unique **Target Analyzer** function was first introduced with the **Doppler Radar Sensor** model **DRS4D-NXT** for NavNet TZtouch and TZtouch2. It utilizes Doppler signal processing to define approaching targets in red color.

Now, the **FAR-15x8 (Non-IMO mode)** and **FAR-15x3** achieve the similar function, without Doppler, utilizing the **advanced image processing** inside the processor. **Targets are classified into five (5) categories with different colors**, which will make it easier for operators to **concentrate on watching and monitoring all the kinds of targets around the boat carefully**.



A variety of color types on the screen will also aid an operator to make an appropriate adjustment because the operator can immediately find the type of targets to be focused on at a glance.

The table at right shows available colors in the Target Analyzer mode.

Target Type	Target Color (different by presentation mode)	
	Single Color Mode	Multi Color Mode
Moving target (Approaching)	Magenta	White
Moving target (NOT approaching)	Red	Magenta
Stationary target	Defined by user such as Yellow	
Sea	Dark green (incremental color variation)	
Rain	Gray (incremental color variation)	

**Note:**

The **Target Analyzer** function is available on **Non-IMO** operation only, i.e. **FAR-15x8 (Non-IMO mode)** and **FAR-15x3**. The FAR-15x8 (IMO mode) is **NOT** allowed to have multiple color variation by regulation.

See **Sales Bulletin FSB16-0019** for details on Target Analyzer and comparison with the DRS4D-NXT.

# 4. Operation

## 4-1 Control Unit

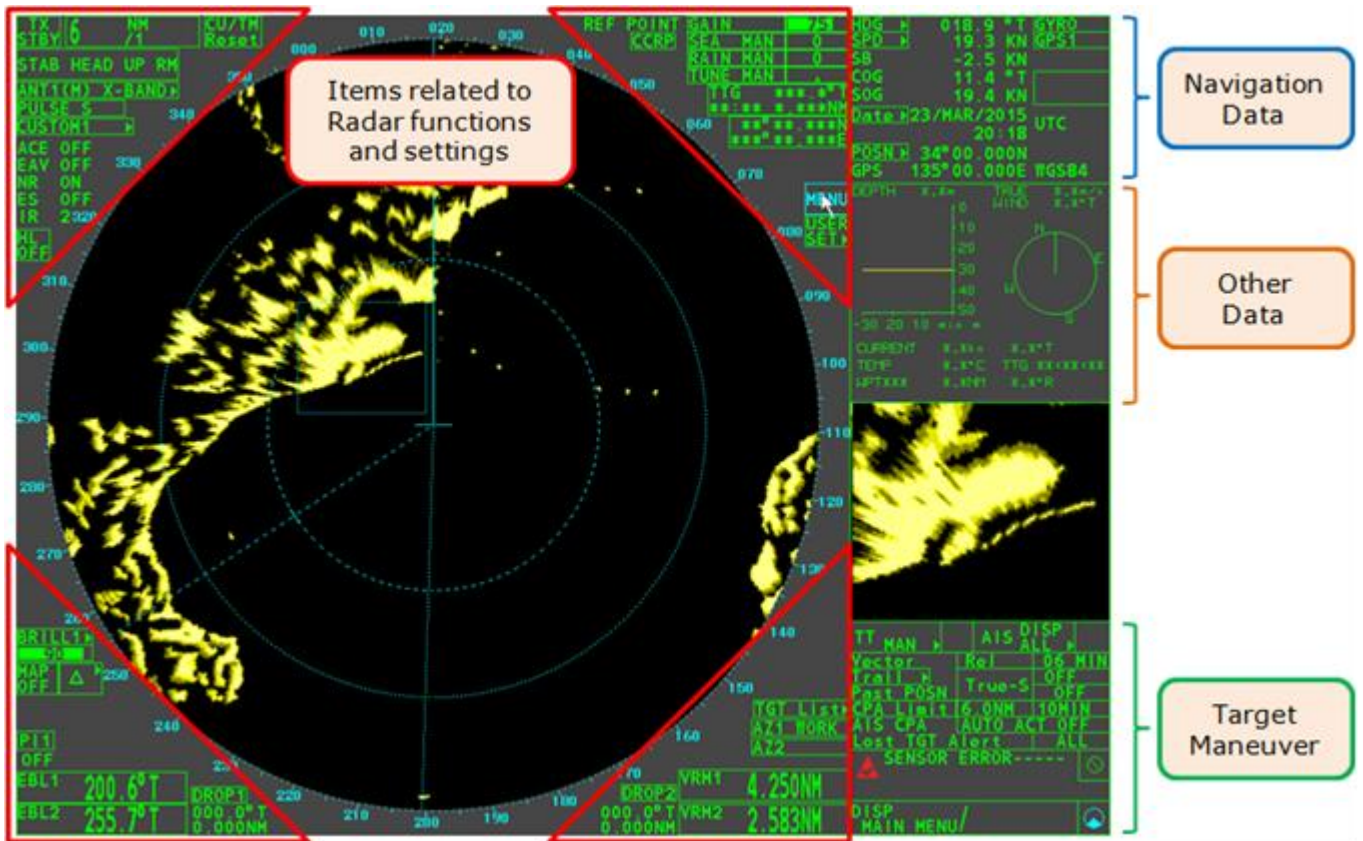


The standard control unit RCU-028 consists of a touch pad in the center and rotary knobs. The compact, thin in total depth helps to fit in a console space. The trackball unit RCU-030 shown at right is also connectable for users who prefer mouse operation.



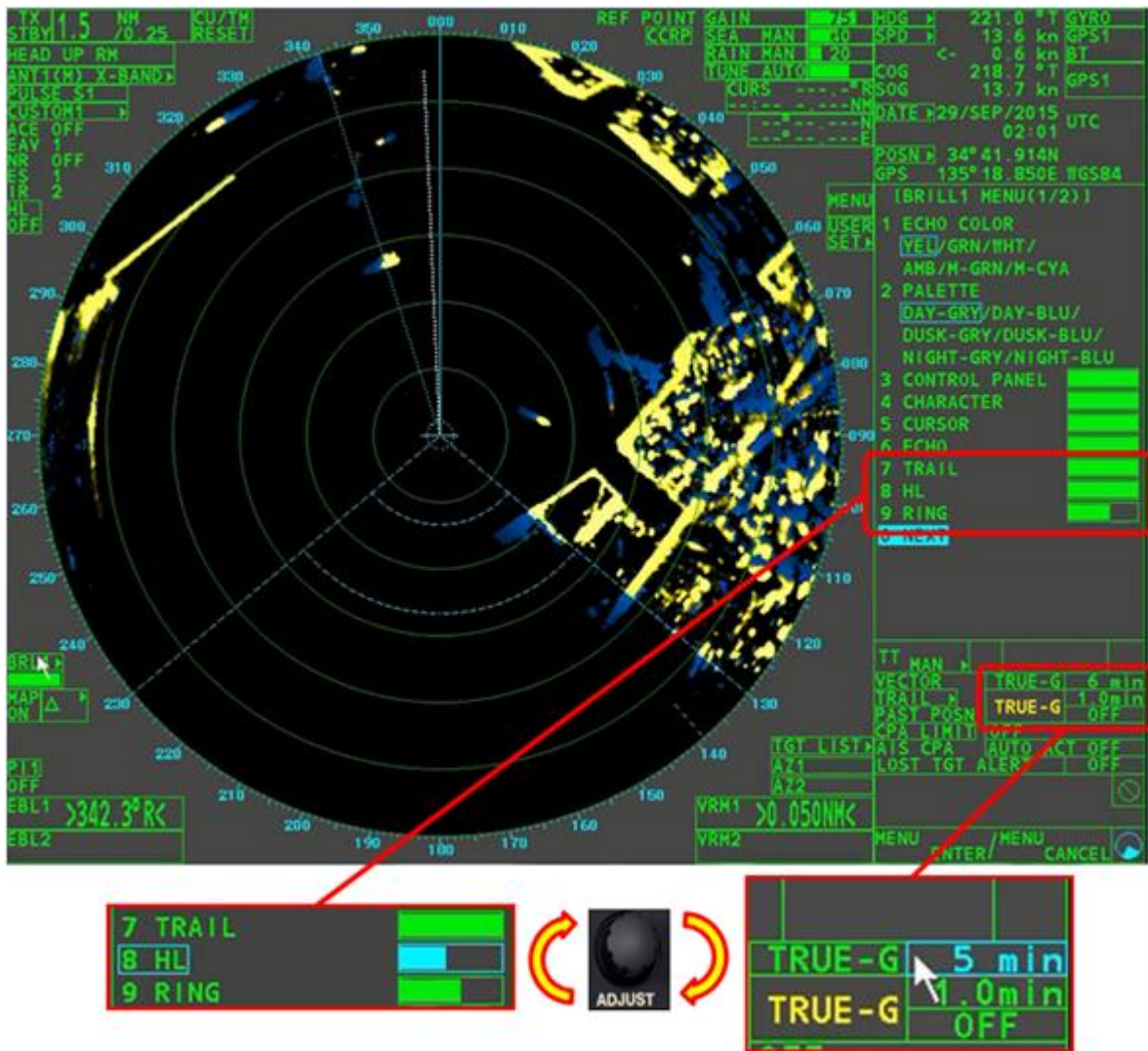
## 4-2 Screen Layout

The popular graphical layout on the FAR-2xx7 is also available on the FAR-15x8 and FAR-15x3.



## 4-3 Rotary Knob

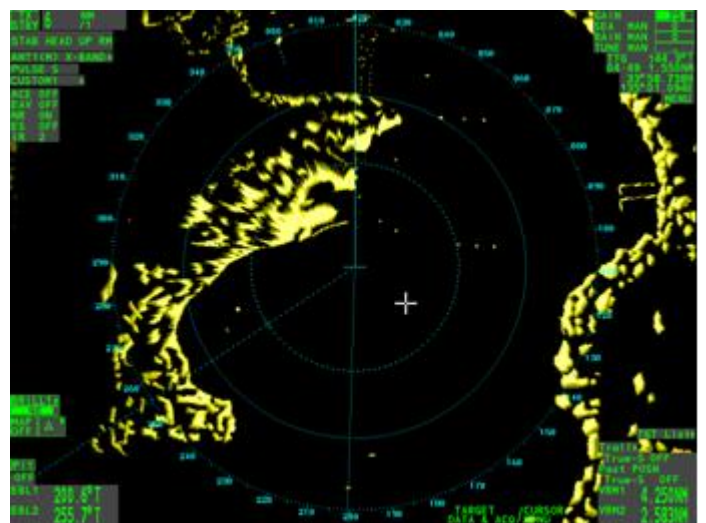
Rotary knob operation supports easy adjustment on a variety of settings. As shown in the following example, numerical numbers and bars are adjustable simply by rotating the knob.



#### 4-4 Variety of Display Modes (Non-IMO Mode Only)

The FAR-15x8 (Non-IMO mode) and FAR-15x3 have a variety of display layout modes from [CIRCLE], [WIDE], [ALL], and [SIMPLE]. The [SIMPLE] mode is a new layout option: Echoes are shown right in the center of the screen, and data boxes are removed, so that a wide range of echoes are visible on the screen.

**NEW – SIMPLE** Screen



## 4. Installation

### 4-1 Dimensions

Refer to the outline drawings of the processor, control unit, gearboxes, and antennas in the Installation Manual.

#### Notes:

- (1) The processor unit has an optional IPx2 kit **OP03-238 (00141956000)** to have the water proof level of IPx2.
- (2) The standard control unit RCU-028 is for front mounting only, **NOT** flush mounting.

### 4-2 Gearbox for FAR-15x3

The FAR-15x3 utilizes the common gearboxes as the FR-8xx2/8xx5. However, the **RTB PCB has been updated** for the FAR-15x3 in 2015, as shown in the following table to compare the previous and latest codes with the types of RTB PCB.

-	Code	Type	Spec. (For...)
Previous	00855392000	03P9405A(LF)RTB *OLD	RTR-085/A/86/A
<b>New</b>	<b>00142304000</b>	<b>03P9405A(LF)RTB *NEW</b>	<b>RTR-085/A/86/A</b>
Previous	00855393000	03P9405B(LF)RTB *OLD	RTR-087/A
<b>New</b>	<b>00142307000</b>	<b>03P9405B(LF)RTB *NEW</b>	<b>RTR-087/A</b>

In order to differentiate the gearbox with the new RTB PCB type from the previous one, the gearbox model indication has been changed to have "-1" in the suffix (e.g. RSB-0070-086A-1). The following tables show the compatibility of previous and new gearbox types with the Radar models FR-8xx2, FR-8xx5, and FAR-15x3.

Radar Model – 12 kW			FR-8122	FR-8125		FAR-1513	
Rotation			24/48 rpm	24 rpm	48 rpm	24 rpm	48 rpm
Previous	00002473700	RSB-0070-086A	-	✓	-	-	-
<b>NEW</b>	<b>00002869800</b>	<b>RSB-0070-086A-1</b>	-	✓	-	✓	-
Previous	00001865100	RSB-0073-086A	✓	-	✓	-	-
<b>NEW</b>	<b>00002869900</b>	<b>RSB-0073-086A-1</b>	✓	-	✓	-	✓

Radar Model – 25 kW			FR-8252	FR-8255		FAR-1523	
Rotation			24/48 rpm	24 rpm	48 rpm	24 rpm	48 rpm
Previous	00002474700	RSB-0070-087A	-	✓	-	-	-
<b>NEW</b>	<b>00002870000</b>	<b>RSB-0070-087A-1</b>	-	✓	-	✓	-
Previous	00001865600	RSB-0073-087A	✓	-	✓	-	-
<b>NEW</b>	<b>00002870100</b>	<b>RSB-0073-087A-1</b>	✓	-	✓	-	✓

As you can see, the new RTB PCB types are compatible with both the FAR-15x3 and FR-8xx2/8xx5, while the previous types are **NOT** compatible with the FAR-15x3. **When the previous gearbox types are to be utilized for the FAR-15x3, make sure to replace the RTB PCB with the new type 03P9405A(LF)RTB \*NEW (00142304000) for FAR-1513 or 03P9405B(LF)RTB \*NEW (00142307000) for FAR-1523.**

### 4-3 Antenna Cable Compatibility

The following table shows the compatibility of cables with other models.

	FAR-15x3	FAR-15x8 (NO PM)	FAR-15x8 (with PM)
FR-8xx2/8xx5 (RW-9771)	Compatible	<b>NOT</b> Compatible	<b>NOT</b> Compatible
FR-1500 MARK-3 (RW-6895 / RW-4873)	Compatible	Compatible	<b>NOT</b> Compatible

**Notes:**

(1) When utilizing the existing FR-8125/8255 cables, one end (antenna side) should be modified to have NH and VH connectors in order to fit the RSB-0070/73. However, the existing cables may have been worn out with a risk of lower performance. **We recommend that new, genuine cables for the FAR-15x8 and FAR-15x3 be installed.**

(2) The **FAR-15x3 antenna cables RW-00224 (12 kW)** and **RW-00225 (25 kW)** are fit with connectors at both ends. Do **NOT** cut the connectors when inserting the cable through a mast, floor, or wall.

### 4-5 Inter-Switching via LAN

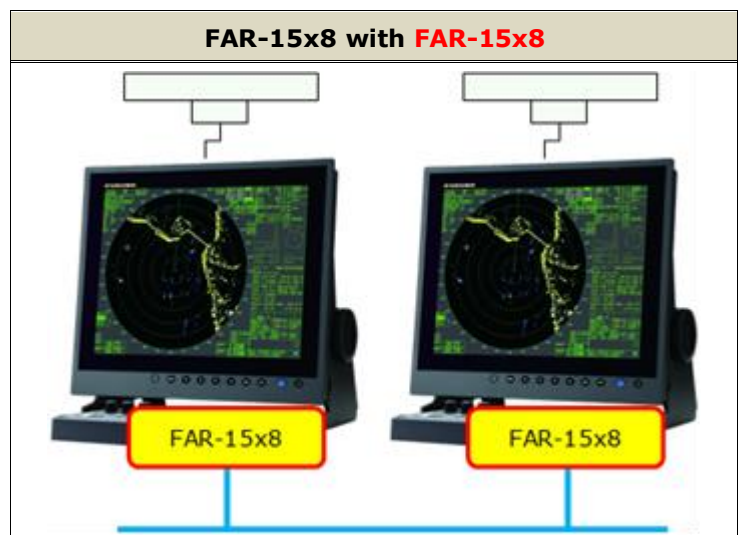
The FAR-15x8 and FAR-15x3 has one (1) Ethernet port. It supports inter-switching in a **maximum of two (2) Radar stations**. The following tables show the supported combinations of Radar models.

**[FAR-15x8] with [FAR-15x8, FAR-15x3, or FAR-2xx7]**

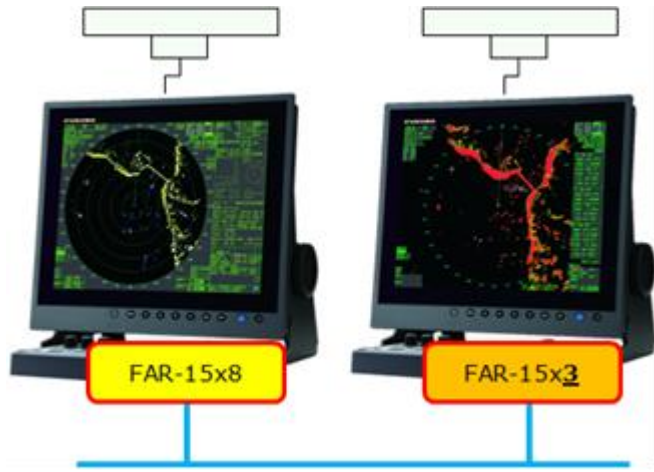
The **FAR-15x8** supports the inter-switching with **FAR-15x8, FAR-15x3, or FAR-2xx7**.

**Note:**

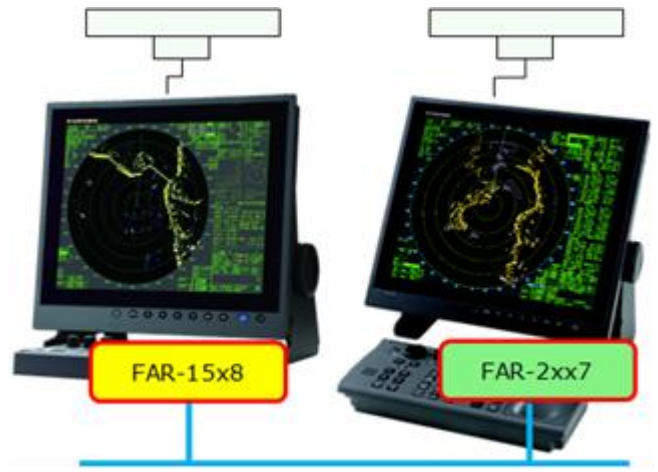
The inter-switching of **FAR-15x3** is available with the upcoming new program version **01.13**.



FAR-15x8 with FAR-15x3



FAR-15x8 with FAR-2xx7



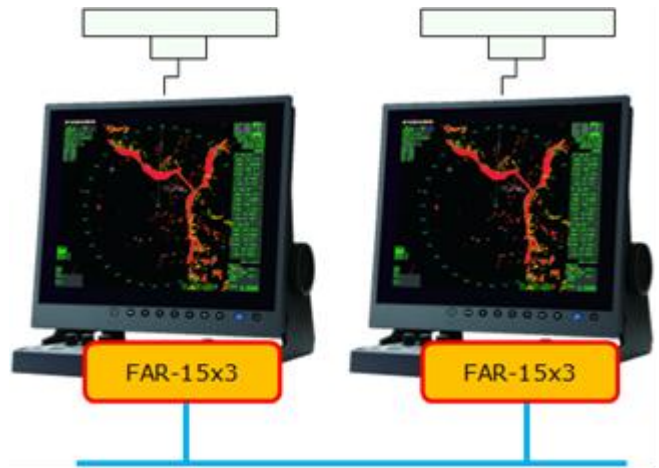
[FAR-15x3] with [FAR-15x3 or FAR-15x8]

The inter-switching of **FAR-15x3** is available with the updated program version **01.13** to support the inter-switching with **FRA-15x3** or **FAR-15x8**.

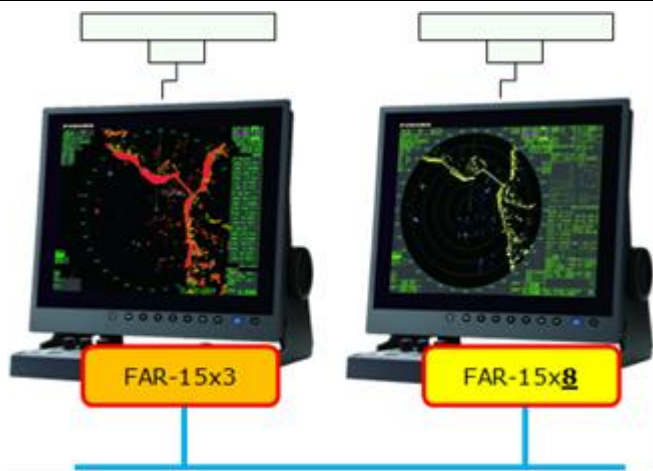
**Note:**

The **FAR-15x3** does **NOT** support the inter-switching with the **FAR-2xx7**. Inter-switching with the FAR-2xx7 is available with the FAR-15x8 only.

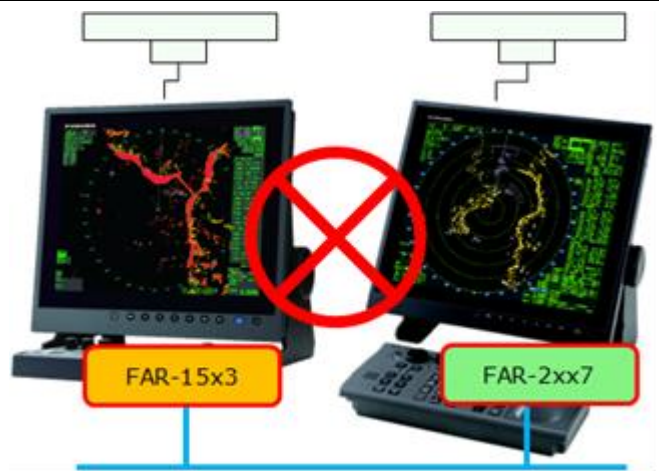
FAR-15x3 with FAR-15x3



FAR-15x3 with FAR-15x8



**NOT Supported** – FAR-15x3 with FAR-2xx7



## 4-6 Network with ECDIS

The FAR-15x8 and FAR-15x3 can be networked with the ECDIS models **FMD-3100/3200-BB (FMD-3x00)** or **FEA-2107-BB (FEA-2xx7)** via Ethernet in a maximum of four (4) stations. The following tables show the available network combinations and data shared between Radar and ECDIS.

### Network Combination

#### 1 x Radar + 3 x ECDIS = 4 Stations



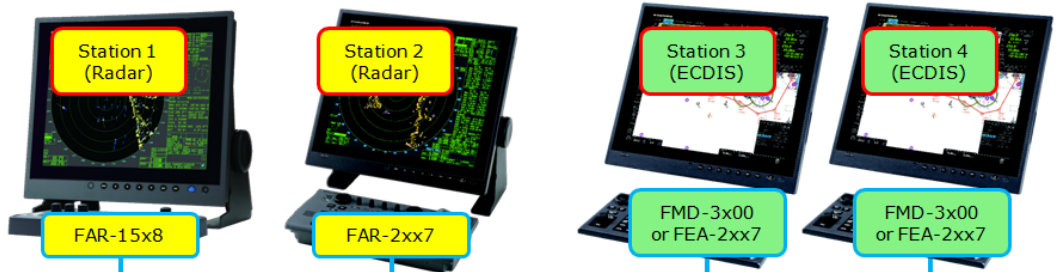
#### 2 x Radar + 2 x ECDIS = 4 Stations

Radar Combination:  
FAR-15xx + FAR-15xx



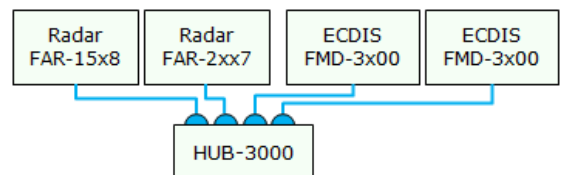
or

Radar Combination:  
FAR-15x8 + FAR-2xx7

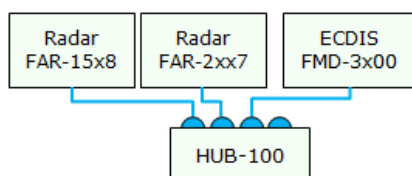


#### Note on Network with ECDIS FMD-3x00 via HUB-100 or HUB-3000

With two (2) sets of ECDIS FMD-3x00 in the network, the HUB-3000 is necessary for gigabit communications such as chart sharing, etc. between FMD-3x00 processors. Connect Radar(s) FAR-15xx/2xx7 to the HUB-3000.



*Example - FAR-15x8 + FAR-2xx7 + FMD-3x00 + FMD-3x00*

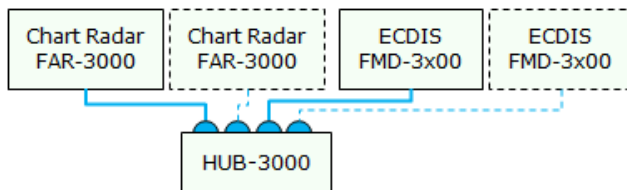


On the other hand, with only one (1) set of FMD-3x00 in the network, the HUB-100 can be used to network with Radar(s) FAR-15xx/2xx7.

*Example - FAR-15x8 + FAR-2xx7 + FMD-3x0*

**Tips:**

In the network with Chart Radar FAR-3000 and ECDIS FMD-3x00, the HUB-3000 should be used for gigabit communications such as chart sharing, etc. between both processors.



**Note that the FAR-3000 CANNOT be networked with the FAR-15x8 or FAR-15x3.**

**Shared Data between Radar and ECDIS**

FAR-15x8 + FMD-3x00 or FEA-2xx7	Shard Data
<p>A diagram showing two computer monitors. The left monitor is labeled 'Radar' and 'FAR-15x8'. The right monitor is labeled 'ECDIS' and 'FMD-3x00 or FEA-2xx7'. A blue arrow points from the Radar to the ECDIS, and a yellow arrow points from the ECDIS to the Radar.</p>	<p><b><u>From RADAR to ECDIS</u></b></p> <ul style="list-style-type: none"> <li>(1) Raw Radar echoes (no EAV/signal processing) are shown on ECDIS.</li> <li>(2) Tracked targets (TTM) on Radar are shown on ECDIS.</li> </ul> <p><b><u>From ECDIS to RADAR</u></b></p> <ul style="list-style-type: none"> <li>(1) A monitored route on ECDIS is shown on Radar.</li> <li>(2) User charts on ECDIS are shown on Radar.</li> </ul>

FAR-15x3 + FMD-3x00 or FEA-2xx7	Shard Data
<p>A diagram showing two computer monitors. The left monitor is labeled 'Radar' and 'FAR-15x3'. The right monitor is labeled 'ECDIS' and 'FMD-3x00 or FEA-2xx7'. A blue arrow points from the Radar to the ECDIS, but it has a red 'X' over it. A yellow arrow points from the ECDIS to the Radar.</p>	<p><b><u>From RADAR to ECDIS</u></b></p> <ul style="list-style-type: none"> <li>(1) Raw Radar echoes (no EAV/signal processing) are shown on ECDIS</li> <li>(2) Tracked targets (TTM) on Radar are shown on ECDIS.</li> </ul> <p><b><u>From ECDIS to RADAR</u></b></p> <p><b><u>NO</u></b> monitored route or user chart is shown on Radar.</p>

**4-7 USB**

The processor unit RPU-024 has two (2) USB ports and the control unit RCU-028 has one (1) USB port in a pigtail. The optional **RCU-030** may be connected to either USB port.

**Some generic USB mouse/trackball devices may be detected and the others may NOT.**

As of now, the Logitech trackball mouse (model: T-BB18) shown at right has been confirmed to work with the FAR-15x3 and FAR-15x8. However, wireless models have not been confirmed.

**For other mice devices, make sure to check the connectivity of the USB mouse/trackball with the FAR-15x3 or FAR-15x8 in advance.**



Model: T-BB18

**Note:**

Other USB devices such as memory stick, wireless LAN adapter, or USB-LAN converter, are **NOT** supported.

## 4-8 SD/SDHC

The processor unit RPU-024 has one (1) SDHC slot. An SD/SDHC card (max. 32 GB) can be used to save and restore marks, lines, user settings, installation settings, etc. At the time of releasing this document, the following SDHC cards have been verified.

Model	Capacity	Manufacturer	Speed Class
SDSDB-8192-J95A	8 GB	SanDisk	4
SDSDX-008G-J95	8 GB	SanDisk	10
SD-E008G4	8 GB	TOSHIBA	4
RP-SDW08GJ1K	8 GB	Panasonic	10
SDSDX-016G-J35	16 GB	SanDisk	10
RP-SDWA16GJK	16 GB	Panasonic	10

**Note:**

SDXC cards are **NOT** supported.

--- END ---

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