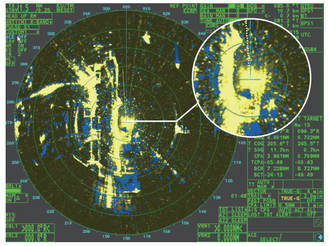
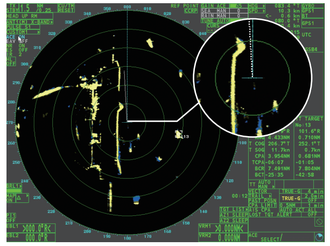
NEW

▶ Automatic Clutter Elimination (ACE) for unprecedented echo clarity

Quickly adjust the radar image with the push of a single button button press. When the ACE function is activated, the system automatically adjusts clutter reduction filters and gain control according to the sea and weather conditions selected by the user (calm/rough sea/hard rain).



Automatic Clutter Elimination (ACE) OFF

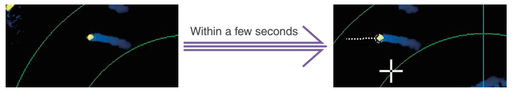


Automatic Clutter Elimination (ACE) ON

NEW

▶ Fast Target Tracking™ (TT)

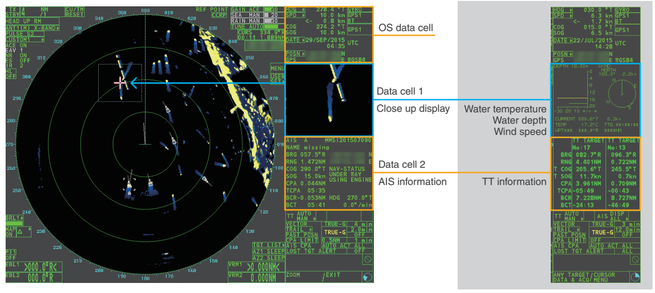
It only takes a few seconds after a target has been selected, that a speed and course vector is displayed. With accurate tracking information, estimation of other vessel's course and speed is made easier.



Before selecting a target

Speed and course vector

▶ Customizable data display for efficient and simple operation



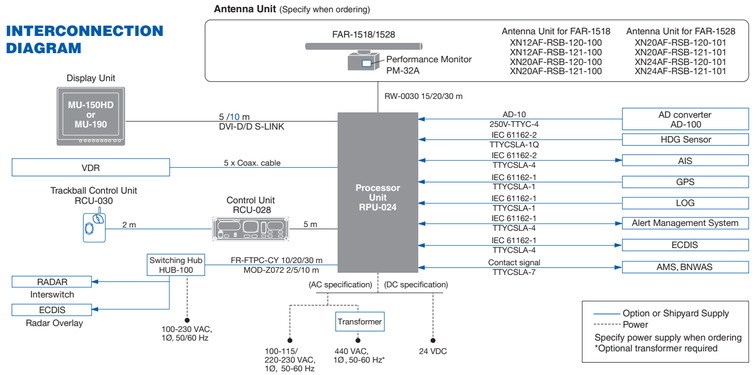
Data display

Whether it be a close up of approaching targets or target information, you can customize the display freely to show the information you need at hand. Up to four TT targets can be displayed as well as two AIS targets, complete with information.

Close up display (Zoom function)

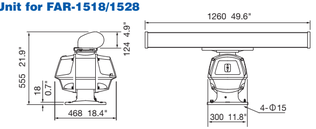
You can view a close up of a point of interest, enlarged two or three times. Enlarge incoming targets for increased situational awareness. Echo trails can also be displayed in order to further enhance situational awareness in busy shipping lanes.

INTERCONNECTION DIAGRAM

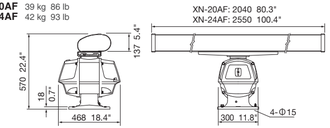


Antenna Unit for FAR-1518/1528

XN12AF
33 kg 73 lb

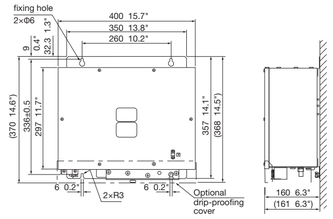


XN20AF 39 kg 86 lb
XN24AF 42 kg 93 lb



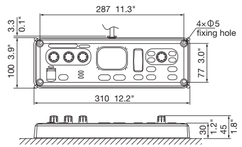
Processor Unit

RPU-024
DC 6.2 kg 13.7 lb
AC 6.8 kg 15.0 lb



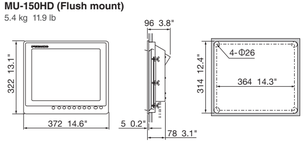
Control Unit

RCU-028
1.2 kg 2.6 lb

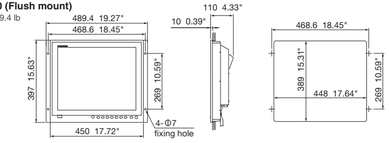


Display Unit

MU-150HD (Flush mount)
5.4 kg 11.9 lb



MU-190 (Flush mount)
8.8 kg 19.4 lb



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Catalogue No. R-208

FURUNO

RADAR



Models:
FAR-15x8 series (with 15" or 19" LCD)

Photo: 15" LCD MU-150HD

Approved

www.furuno.com



Excellent target detection, improved user interface, made possible with the very latest technologies



RADAR

- High performance Radar with Cat.2 (500-10,000GT) and Cat.3 (<500GT) support.
- Accurately tracks other vessels with advanced Target Tracking (TT) function for collision avoidance.
- Improved sea and rain clutter suppression function.
- Improved user interface for simple and efficient operation.

Easy to operate control unit

Simple and efficient operation is made possible with individual knobs for setting gain/rain/sea clutter suppression, as well as a RotoKey and touch panel. The optional trackball unit, as well as a regular USB mouse, can also be used.



Rotate to adjust brilliance level, sea surface reflection, gain

Touch panel area

Rotokey and frequently used key



Trackball Control Unit (option)

FAR-15x8 series

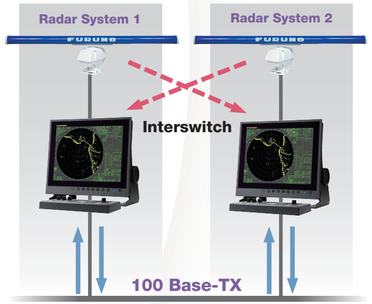
FAR-1518/ FAR-1518-BB	X-band, 12 kW, TR up
FAR-1528/ FAR-1528-BB	X-band, 25 kW, TR up

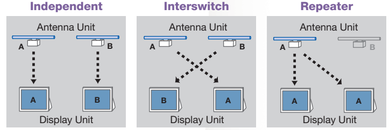
Antenna Unit



Photo: XN24AF

▶ Scalable Ethernet Network System





FAR-15x8 series utilizes a 100 Base-TX Ethernet connection to network up to two radar systems together.
This Ethernet data link gives high-speed and stable navigational data sharing for interswitching as well as sharing data between ECDIS and GPS plotters.

▶ High visibility monitor MU-190 and MU-150HD

19" LCD MU-190 (Cat.2) and 15" LCD MU-150HD (Cat.3) are offered to fit the needs of your vessel.
High brightness ensures great visibility in all environments.

▶ AIS connectivity built-in, accurately track targets for increased safety

▶ Display Radar overlay on connected ECDIS

▶ Customizable warning function for CPA/TCPA, Guardzone and more

▶ Conforms to IEC62388 and IEC62288 IMO

SPECIFICATIONS

PRODUCT NAME
MARINE RADAR

1 Antenna Radiators
Antenna type
Slotted waveguide array
Radiator length
4 ft (XN12AF), 6.5 ft (XN20AF), 8 ft (XN24AF)
Horizontal beamwidth
1.9° (XN12AF), 1.23° (XN20AF), 0.95° (XN24AF)
Vertical beamwidth
20°
Sidelobe attenuation
XN12AF
-24dB(within ±10°),
-30dB(outside ±10°)
XN20/24AF
-28dB(within ±10°)
-32dB(outside ±10°)
Polarization
Horizontal
Rotation
26 rpm (RSB-120), 48 rpm (RSB-121)

2 RF TRANSCEIVER
Frequency
9410 MHz ±30 MHz, P0N
Output power
FAR-1518/FAR-1518-BB
12 kW
FAR-1528/FAR-1528-BB
25 kW
Minimum range
25 m
Range discrimination
25 m
Range accuracy
1 % of range in use or 10 m whichever is the greater
Bearing accuracy
±1°
Range, Pulse length and Pulse Repetition Rate

PRR (Hz approx.)	Range scale (NM)									
	0.125	0.25	0.5	0.75	1.5	3	6	12	24	48	96
3000*	0.08 µs										
2760*	0.12 µs										
1500				0.22 µs							
1000				0.38 µs							
1000						0.68 µs					
600**							1.2 µs				

*2200 Hz approx. with TT range on 32 NM. **500 Hz on 96 NM range.

IF frequency
60 MHz

3 PROCESSOR UNIT
Range scales and ring interval

Scale (NM)	0.125	0.25	0.5	0.75	1.5	3	6	12	24	48	96
RI (NM)	0.025	0.05	0.1	0.25	0.25	0.5	1	2	4	8	16
Number of rings	5	5	5	3	6	6	6	6	6	6	6

Warm-up time
3 minutes approx
Presentation mode
Head-up, STAB Head-up, North-up (TM/RM), Course-up, Stern-up
Marks
Cursor, Radar ring, Heading mark, North mark, Bearing line, Vector, Map mark, Zoom, VRM, EBL, Acquisition zone
Target tracking (TT)
Auto or manual acquisition: 50 targets in 0.1 - 32NM
Tracking: 5/10 pts on all target
Time of vector: 0 to 60 minutes
AIS
Display capacity: 300 targets, Tracking: 5/10 pts on all target
Time of vector: 0 to 60 minutes
Echo trail
True/Relative, Trail length: 0 to 30 minutes (30 s steps) or continue
Radar map
5,000 pts
Interswitch function
Selected from menu

4 MARINE DISPLAY*

	MU-150HD	MU-190
Screen size	15-inch LCD	19-inch LCD
Resolution	XGA	SXGA
Brightness	1000 cd/m²	450 cd/m²
Contrast ratio	600:1	900:1
Radar effective diameter	213 mm	250 mm

*The display unit for BB-type should be prepared by user.

5 INTERFACE
Number of ports on processor unit
Heading
1 port: AD-10 format or IEC61162-2
Serial
IEC61162-2: 2 ports (AIS/HDG)
IEC61162-1: 4 ports (GPS/LOG/AMS/ECDIS)
Contact closure
Alert output: 4 ch, Remote ACK input, System fail, Power fail
Remote display
2 ports (Signal: HD, BP, Trigger and Video)
LAN
Ethernet 100Base-TX: 1 port
DVI
DVI-D: 1 port for main display
RGB
1 port for VDR or RGB monitor
Data sentences
Input
ABK, ACK, ACN, ALR, BWC, BWR, CUR, DBK, DBS, DBT, DPT, DTM, GBS, GGA, GLL, GNS, HBT, HDG, HDM, HDT, MTW, MWV, RMB, RMC, RTE, THS, VBW, VDM, VDO, VDR, VHW, VTG, VWR, VWT, WPL, ZDA
Output
ABM, ACK, ALC, ALF, ALR, ARC, BBM, EVE, HBT, OSD, RSD,TLB, TLL, TTD, TTM, VSD

6 POWER SUPPLY
Processor Unit
AC type
FAR-1518/1518-BB
100-115/220-230 VAC: 1.8/0.8 A (26 rpm), 2.2/1.0 A (48 rpm)
FAR-1528/1528-BB
100-115/220-230 VAC: 2.3/1.0 A (26 rpm), 2.6/1.2 A (48 rpm)
DC type
FAR-1518/1518-BB
24 VDC: 6.1 A max. (26 rpm), 7.2 A max. (48 rpm)
FAR-1528/1528-BB
24 VDC: 7.5 A max. (26 rpm), 8.6 A max. (48 rpm)
Marine display
MU-150HD: 12-24 VDC 4.5-2.2 A
MU-190: 100-240 VAC 0.7-0.4 A
Rectifier (RU-1746B-2/RU-3424, option)
100-115/220-230 VAC, 1 phase, 50/60Hz
Transformer (RU-1803, option)
440 VAC, 1 phase, 50/60Hz

7 ENVIRONMENTAL CONDITIONS
Ambient temperature
Antenna Unit
-25°C to +55°C (storage: +70°C or less)
Processor Unit
-15°C to +55°C
Marine display
-15°C to +55°C
Relative humidity
93% or less at +40°C
Degree of protection
Antenna Unit
IP56
Processor Unit
IP20 (IP22: option)
Control Unit
IP22
Marine display
IP56 (panel), IP22 (chassis)
Vibration
IEC 60945 Ed.4

EQUIPMENT LIST
Standard supply
1. Display Unit MU-190 or MU-150HD (selectable)
2. Processor Unit RPU-024
3. Control Unit RCU-028
4. Antenna Radiator
FAR-1518/1518-BB: XN12AF/XN20AF
FAR-1528/1528-BB: XN20AF/XN24AF
5. Gear Box RSB-120/121
6. Transceiver RTR-100/101
7. Peformance Monitor PM-32A
8. For Display Unit, DVI cable (5 m) DVI-D/D S-LINK 5M, not supplied with BB model
9. Standard Spare Parts and Installation Materials

Optional supply
1. Trackball Control Unit RCU-030
2. AD Converter AD-100
3. Stepdown Transformer Unit RU-1803
4. AC-DC Power Rectifier
PR-240/PR-850A/RU-3423/RU-1746B-2/RU-3424
5. Radar signal cable (1 m/5 m/10 m/15 m)
RW-4864 1M/RW-4864 5M/RW-4864 10M/RW-4864 15M
6. For Display Unit, DVI cable (10 m) DVI-D/D S-LINK 10M
7. Switching Hub HUB-100