

FURUNO®

X-Band, Logarithmic Amplifier

DAYLIGHT-VIEWING 12-INCH RADAR

Models **FR-8051/8111/8251**

FR-8051: 6 kW

FR-8111: 10 kW

FR-8251: 25 kW



The future today with FURUNO's electronics technology

FURUNO ELECTRIC CO., LTD.

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Catalogue No. R-157a

TRADE MARK REGISTERED
MARCA REGISTRADA

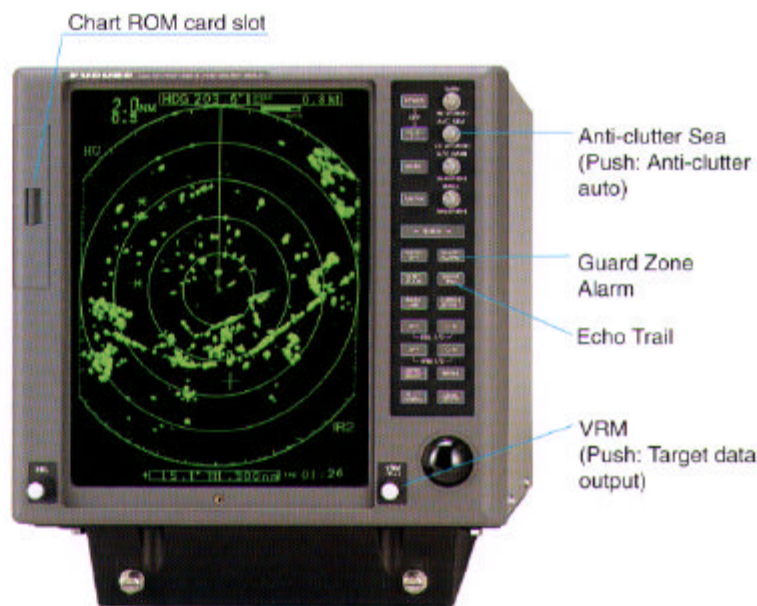
- 12-inch daylight display
- 8-level target gradation
- Automatic control of tuning and sea clutter
- Data output of cursor/target position
- Head-Up, North-Up*, Course-Up* and True Motion** modes
- Proven scanner reliability
- 10-target E-PLOT standard
- Echo Stretch, Echo Average* and True Echo Trail** in Head-up mode
- Dual Guard Zones
- Zoom function in 0.125 nm range



- Event mark entry
- User-programmable function key for instant selection of optimum settings
- Optional Auto Plotter ARP-15 with autotrack of up to 10 targets
- Optional Video Plotter RP-15 for display of chart plot and chart overlay
- Optional 36 rpm scanner motor

*Speed sensor required

**Heading sensor required



The FURUNO FR-8051/8111/8251 are new 12-inch X-Band radars carrying on the FURUNO tradition of high performance and reliability for professional use. The radars incorporate advanced signal processing techniques and a logarithmic amplifier to provide the best target detection in both short and long ranges.

Our FR-8051/8111/8251 radars allow automatic control of tuning and sea-clutter to give you optimum performance in rough weather. Operational parameters can be instantly set by using touchkeys and a trackball for Dual EBLs/VRMs, Offset EBL/VRM, Off-center, Zoom, Echo Trail, and E-Plot. The Guard Zone produces aural and visual alarms when a target enters the user-preset area. Two guard zones are available.

North-Up and Course-Up modes are provided. A True Motion presentation is also available with required inputs of compass and speed data. A unique echo trail feature simulates the afterglow of targets as on a conventional PPI and helps evaluate at a glance the speed and course of an unlimited number of targets. A True Echo Trail is also provided in the Head-up mode for intuitive discrimination of a moving target from fixed one.

In addition to the above features, the optional 10-target Auto Plotter ARP-15 and Video Plotter RP-15 with cartography are available for more integrated navigation.

Optional Auto Plotter ARP-15 and Video Plotter RP-15 are available for powerful system extensions—just install an optional board in the display unit

Auto Plotter ARP-15

The ARP-15 option provides manual acquisition and automatic tracking of up to 10 targets and displays selected target nav data. Digital output in NMEA 0183 (TTM sentence) is available for an external unit.

Radar picture in Head-up

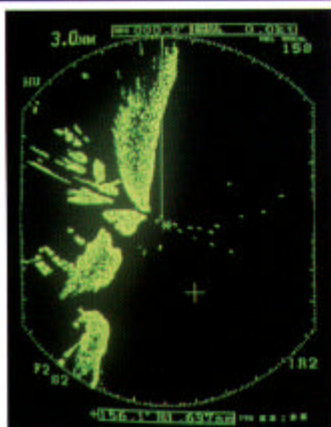


Chart display in Head-up



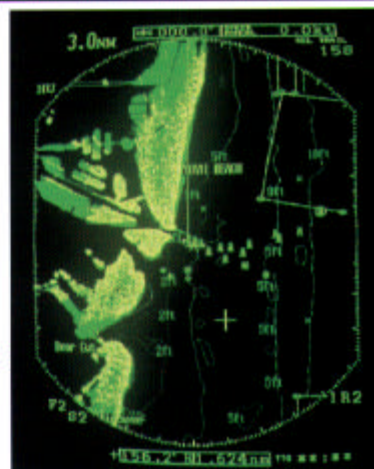
Video Plotter RP-15

The RP-15 offers similar functions as most video plotters with cartography. In addition, the RP-15 has the capability to display chart data in a Head-up mode and a chart overlay is also possible in the Head-up mode. You can intuitively see where you are and where to go relative to the ship's desired heading.

Specifications of RP-15

Map Area:	0.125 to 96 nm
Latitude Limits:	Between 85°N and 85°S
Plot Interval:	10, 30 s, 1, 5, 10, 30 or 60 min
Built-in Memory:	6,000 points for trackline and marks, 98 waypoints, 25 routes
Tracking Speed:	120 knots

Chart overlay on the radar picture



The chart data can be overlaid on the radar picture. You can easily determine the moving targets when it is used with echo trail function.

For radar monitoring at a second location...

Radar Remote Display FMD-8010

The FMD-8010 is optionally available for those needing radar monitoring at a remote location.

The FMD-8010 offers the same functions which are available on the FR-8051/8111/8251: Dual EBLs/VRMs, Offset EBL/VRM, Off-center, Zoom, Echo Trail, and E-Plot. The radar image is displayed clearly in 8 tones on the 12" CRT. This is the same screen as used with the FR-8051/8111/8251. ARP-15 and RP-15 can be also used with the FMD-8010.

SPECIFICATIONS OF FR-8051/8111/8251

ANTENNA RADIATOR

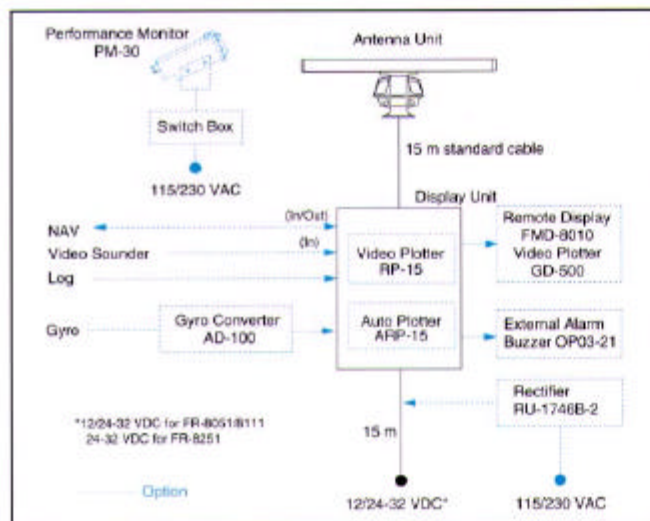
1. Type	Slotted waveguide array			
2. Length	4 ft (XN2)	6.5 ft (XN3)	6.5 ft (XN3A)	8 ft (XN4A)
3. Beamwidth	Hor: 1.8°	1.23°	1.23°	0.95°
	Ver: 25°	25°	20°	20°
4. Rotation Speed	24 rpm typical, (36 rpm optional)			
5. Wind Load	Relative wind 100 knots			

RF TRANSCEIVER

1. Frequency	9410 ± 30 MHz (X-band)
2. Output Power	FR-8051: 6 kW FR-8111: 10 kW FR-8251: 25 kW
3. Pulselength/PRR	0.08 µs, 2100 Hz (0.125 - 0.5 nm) 0.08/0.3µs, 2100 Hz (0.75 - 1.5 nm) 0.08/0.3/0.6 µs, 2100/1200 Hz (3 nm) 0.3/0.6/1.2 µs, 2100/1200/600 Hz (6 nm) 0.6/1.2 µs, 1200/600 Hz (12, 24 nm) 1.2 µs, 600 Hz (48 nm) 1.2 µs, 500 Hz (72°/96° nm) (*For FR-8111, ** For FR-8251)
4. IF	60 MHz, Logarithmic amplifier Bandwidth: 25 MHz (0.08 µs) 2.5 MHz (0.3/0.6/1.2 µs)
5. Noise Figure	6 dB nominal

DISPLAY

1. Display Unit	12-inch, green phosphor CRT (8-level gradation) Effective diameter: 180 mm Pixels: 481 (H) x 640 (V) dots
2. Display Modes	Head-up, Course-up*, North-up*, True Motion** * Heading data required ** Speed and heading data required
3. Range Scales (nm)	Range: 0.125, 0.25, 0.5, 0.75, 1.5, 3, 6, 12, 24, 48, 72°/96°** Ring: 0.025, 0.05, 0.1, 0.25, 0.5, 1, 2, 4, 8, 12°/16°** (*For FR-8111, ** For FR-8251)
4. Minimum Range	25 meters
5. Range Discrimination	Better than 20 meters
6. Accuracy	Range: 1% of range in use or 8 m, whichever is greater Bearing: EBL accuracy ±1°



7. Echo Trail Interval	15 s, 30 s, 1, 3, 6, 15, 30 min or continuous
8. Nav Data Input/Output	Input (NMEA0183) --- GP, LC, or any talker \$ -- BWC, \$ -- DTP, \$ -- GLL, \$ -- GLC, \$ -- HDG, \$ -- MDA, \$ -- RMA, \$ -- RMB, \$ -- RMC, \$ -- VTG, \$ -- DBK, \$ -- DBS, \$ -- DBT, \$ -- GTD, \$ -- HDM, \$ -- HDT, \$ -- MTW, \$ -- BWR, \$ -- VHW, \$ -- ZDA AD-10 format: Heading Data Output (NMEA0183) \$RATLL, \$RARSD, \$RATTM (w/ARP)

ENVIRONMENT (IEC945 test method)

- Temperature: -25°C to +70°C (Antenna unit)
-15°C to +55°C (Display unit)

POWER SUPPLY

- FR-8051/8111: 12/24-32 VDC
FR-8251: 24-32 VDC
- 115/230 VAC with optional rectifier

EQUIPMENT LIST

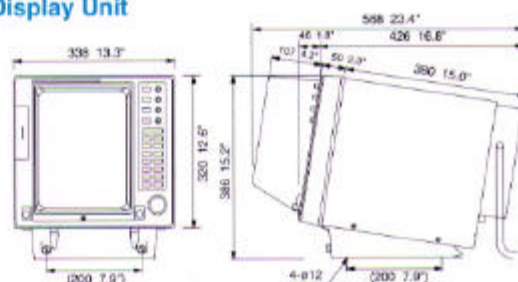
Standard

- Display Unit RDP-112 with screen filter 1 unit
- Antenna Unit w/4, 6.5 or 8 ft radiator 1 unit
- Antenna Cable RW-3839, 15 m 1 pc
- Standard Spare Parts and Installation Materials

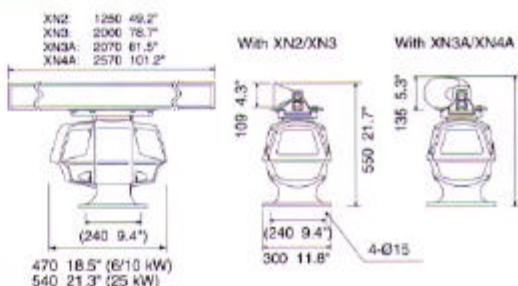
Optional

- Antenna cable RW-3839, 20/25/30 m
- Interswitch RJ-2
- Rectifier RU-1746B-2 for AC mains
- Power cable CVV-S 8x2c, 15 m
- External alarm buzzer OP03-21
- Gyro Converter AD-100
- Performance monitor PM-30
- Auto Plotter ARP-15
- Video Plotter RP-15
- 36 rpm scanner motor (for 24/32 VDC mains)
- Remote Display FMD-8010

Display Unit



Antenna Units



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

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