

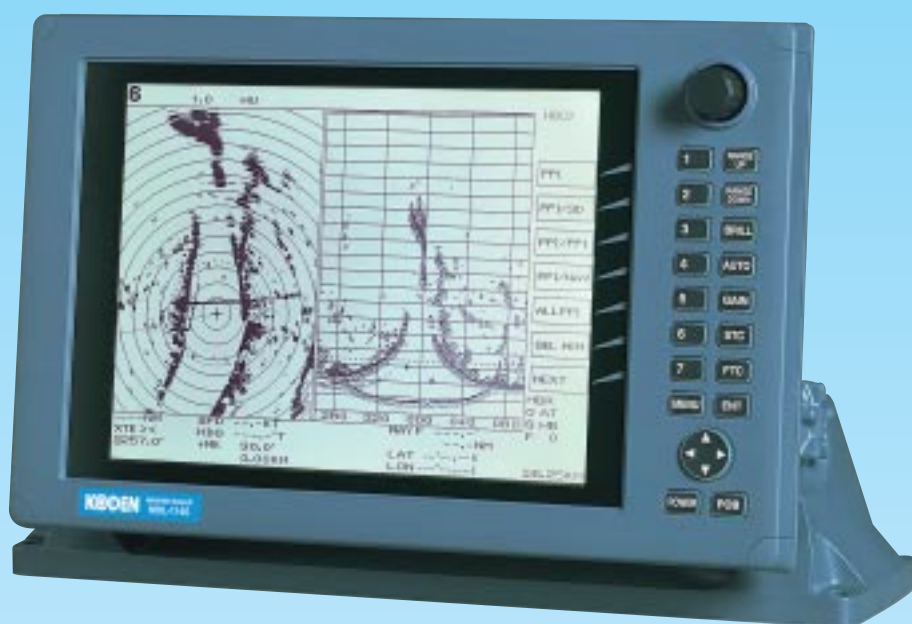
# KODEN

## 10.4-INCH, HIGH-RESOLUTION LCD RADAR

# MDL-1121/1141/1140

*Ultimate choice for navigation!*

*High quality compact radar, offering crisp and clear picture.*



MDL-1121: 1.2 ft, 2 kW, Radome  
MDL-1141: 2 ft, 4 kW, Radome  
MDL-1140: 3 ft/4 ft, 4 kW, Open Antenna

## FEATURES

### • Dual radar screens

Using DUAL SCREEN mode, you can monitor ships coming and going close and at the same time locate a far distant coastline.

### • Semi-3D display

Radar echoes are shown as realistic visual impressions. The amplitude of echo is determined by its signal strength and is painted on the Mercator type coordinate. The semi-3D display is shown together with normal radar screen.

### • Auto gain and clutter controls as standard

Using the AUTO key, your radar settings are automatic for the gain and rain/sea clutter. The radar's computer expertly sets Gain, STC, and FTC levels, allowing the operator to concentrate on other chores. Previously, these features were found only in larger and more expensive radar systems.

### • High speed antenna

You can select your antenna rotation speed to 48 rpm via the menu. A vital feature for fast moving ship navigating congested waters, rivers, canal, etc.

### • ATA option

The Automatic Tracking Aid feature is available as an option. Using this option your radar tracks up to 10 targets, providing the latest collision avoidance information in vector form.

### • Semi-continuous range scales

Closely separated range scales are available via the menu. The

scale value increases or decreases by approximately 10 % of the range in use. This feature is quite essential for the navigation in congested waters, which requires constant vigilance.

### • On screen Multi-languages

Fifteen languages are available as standard and can be selected via the menu. These include; Chinese, Danish, English, French, German, Greek, Italian, Japanese, Korean, Norwegian, Portuguese, Russian, Spanish, Swedish, and Turkish.

### • One-key-one-function plus menu operation

Six dedicated key switches are provided for fundamental radar controls, such as range scale, brilliance, Gain, STC and FTC. Plus, a variety of additional functions are also available via the menu.

### • User defined keys

Frequently used functions can be assigned to six user-defined keys. Available functions total 24, and is assorted in 4 groups. You can customize this radar to your own operational needs.

### • Rotary control

One large rotary control is provided for quick and easy operation controlling EBL, VRM, Gain, STC and FTC. No more cumbersome key controls are needed, such as, up and down, right and left.

### • Splash proof display

The display unit can be installed even in a place where water splash protection is not good such as, the fly bridge, open deck, etc.

## SPECIFICATIONS

### Antenna unit

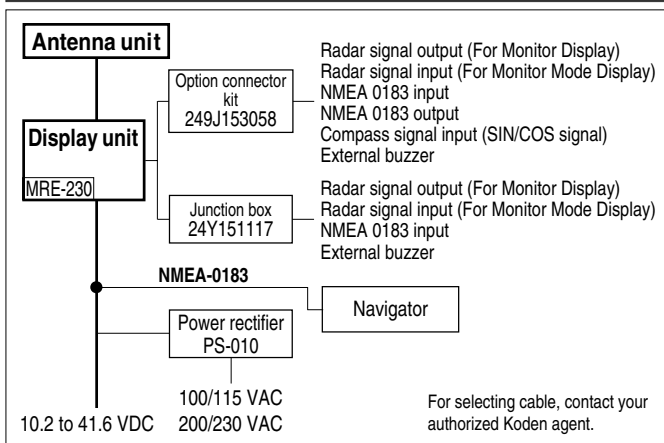
Model	MDL-1121	MDL-1141	MDL-1140
Aerial	1.2 feet (radome)	2 feet (radome)	3 feet / 4 feet (Open)
Peak power output	2 kW (1.5 kW : S pulse)	4 kW	
Transmitting frequency	9445 ± 30 MHz	9410 ± 30 MHz	
Beam width	Horizontal 6.0 °	3.9 °	2.5 ° (3 feet)/1.8 ° (4 feet)
	Vertical 25 °		22 °
Rotation	24 rpm ± 20 %	24 or 48 rpm	24 or 48 rpm (24 VDC or more)
Pulse length (µsec)/	S 0.12 / 2000	0.08/2,000	
PRF (Hz)	M 0.3 / 1,500	0.25/1,500	
	L 0.8 / 600	0.8/600	
IF center frequency	60 MHz		
Noise figure	6.5 dB or less		
Operating temperature	- 25 ° to + 55 °C (- 13 ° to 131 °F)		
Operation in wind (relative)	100 knots (Connecting cable : 10 m)		

### Display unit

Display	10.4-inch monochrome LCD
Resolution	640 x 480 pixels
Video level	4 levels
Indication system	PPI, PPI + semi-3D, split radar range
Presentation modes	Head up, *north up, **course up, ***true motion
Range scales (nm)	0.125 0.25 0.5 0.75 1.5 3 6 12 24 (36) (48)
Rings interval (nm)	0.0625 0.0625 0.125 0.25 0.25 0.5 1 2 4 (6) (8) (36)/(6): MDL-1141, (48)/(8): MDL-1140
Off-center	Can be 100% off-centered over the full range
Echo trail interval	Continuous, 15, 30 sec., 1, 3, 6 min.
Alarm	IN and OUT alarms
Minimum range	Better than 30 m (MDL-1121)/ 25 m (MDL-1141/1140) on 0.125 nm range
Range discrimination	Better than 30 m (MDL-1121)/ 25 m (MDL-1141/1140)
Range accuracy	Better than 8 m (26 feet) or 0.9 % of the maximum range of the scale in use, whichever is the greater
Bearing accuracy	Better than ± 1 °
Navigation data display	Boat position (Latitude/longitude), bearing and speed
Other functions	Gain, STC, FTC, auto tuning, heading marker off, Interference rejection, target expansion, zoom, two VRMs, two EBLs (0.1° step), floating EBL/VRM, cursor position (latitude/longitude), parallel cursor, bearing (true/relative), distance unit (nm/km), signal processing, location memory, intermittent transmission
Input data format	NMEA-0183 (BER, BEW, BPI, BWC, BWR, DBT, DPT, GGA, GLL, HDG, HDM, HDT, HSC, MTW, RMA, RMB, RMC, VHW, VTG, XTE)
Power supply	10.2 to 41.6 VDC
Power consumption	55 W or less (MDL-1121/1141), 70 W or less (MDL-1140)
Operating temperature	0 ° to + 55 °C (32 ° to 131 °F)

\* North up, \*\*course up mode : Bearing data from an electric compass, a gyro compass or a navigator is required.  
\*\*\* True motion : Speed data from a speed log, and Bearing data from an electric compass, a gyro compass or a navigator is required.

## CONNECTIONS



## EQUIPMENT LIST

### Standard equipment

Antenna unit	RB714A	1.2 feet, MDL-1121	1
	RB715A	2 feet, MDL-1141	
	Aerial	RW701A-03	3 feet, MDL-1140
		RW701A-04	4 feet, MDL-1140
	Transceiver	RB716A	MDL-1140
Display unit	MRD-95	With hard cover	1
Connecting cable	242J160680A	10 m (32 13/16 ft), With two connectors, MDL-1121	1
	242J158055A	10 m (32 13/16 ft), With two connectors, MDL-1141	
	242J159098A	10 m (32 13/16 ft), With two connectors, MDL-1140	
DC power cable	242J158054	2 m (6 9/16 ft), With a connector and one end plain	1
Spare parts kit			1 set
Installation materials			1 set
Operation manual			1

Note: Other cable length selections available : 15 m, 20 m or 30 m.

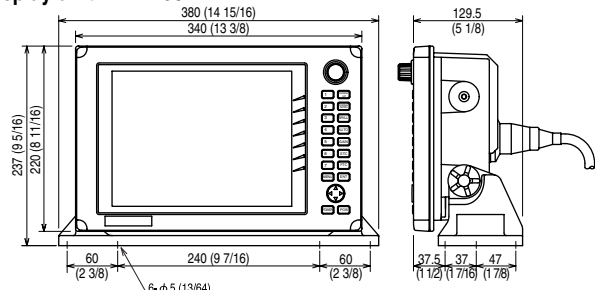
### Option

ATA module kit	MRE-230	With connecting cable
Flush mount kit	23E73298	RF718A.FM.KIT
Option connector kit	249J153058	
Junction box	24Y151117	For external connection, with 1.5 m cable
Power rectifier	PS-010	With two 5 A fuses
AC power cable	VV-2D8	3 m (9 13/16 ft), Both ends plain

## DIMENSIONS AND WEIGHT

### Display unit : MRD-95

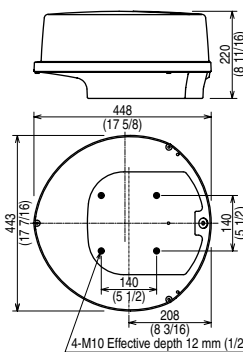
Unit: mm (inch)



Weight: 4.0 kg (8.9 lb)

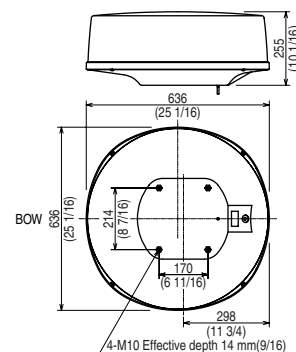
### Antenna unit

#### RB714A



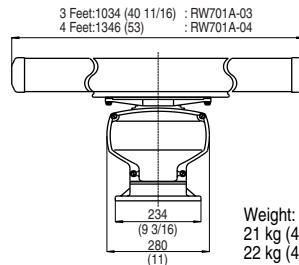
Weight: 6 kg (13.5 lb)

#### RB715A



Weight: 10 kg (22.5 lb)

#### RB716A



Weight:  
21 kg (46 lb) 3 feet  
22 kg (49 lb) 4 feet

\* Specifications subject to change without notice.

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## Certified to ISO 9001 ( TUV PRODUCT SERVICE )



**Safety precaution**

To ensure proper and safe use of the equipment, please carefully read and follow the instructions in the OPERATION MANUAL.

FOR DETAILS, PLEASE CONTACT: