KODEN

MDC-1860BB/1810BB/1820BB

- *Display selected from user's choice*
- *Flexible installation suiting your needs*
- *Best suited for ocean going mid-size vessels*
- *Select from 6 kW, 12 kW or 25 kW power output, 4 ft or 6 ft type aerial*

MDC-1860BB: 4 ft / 6 ft, 6 kW
MDC-1810BB: 4 ft / 6 ft, 12 kW
MDC-1820BB: 4 ft / 6 ft, 25 kW

FEATURES

• Free choice display
Unlike conventional radar systems we deliver only the antenna and control box. The display can be any size and any type, as long as the resolution grade is SXGA. KODEN'S BLACK BOX COLOR RADAR is a COTS based system where the choice is yours!

• Hands-free operation
A newly developed auto tuning and video processing system sets the operator free from cumbersome adjustments such as setting up tuning, STC, gain, etc. With a hands free operation the navigator can concentrate on other tasks on the bridge.

• High definition picture
High definition is available even on the short-range scales, 1/2 NM down to 1/8 NM. This is a powerful feature for harbor and docking operations.

• Collision assessment
Using a built-in EPA (Electronic Plotting Aid) other ship's movement is displayed in vector form. This feature provides a direct and logical assessment of collision risk and urges the operator to take early maneuvering operations.

• Picture offset to any point
Within 2/3 of the screen radius, the picture can be offset to any point on the screen to gain more viewing range.

• Map functions
Artificial lines and marks can be created and overlaid on the radar screen to represent coastlines, boundaries, etc.

• Alarm zone
A user-definable fan-shaped zone provides monitoring and alerting functions for ships entering and leaving the specified area. This feature becomes part of the ATA (Automatic Tracking Aid) functions when the optional ATA module is fitted.

• Monitor display (Option)
An external monitor display can be fitted on request, providing multiple radar operations from different locations on board the ship, one on the bridge the other in the captain's cabin, for instance.

• Analog RGB output
Radar picture can be supplied to an external monitor or a VDR (Video Data Recorder) through the display's rear panel.

• Serial interface
The IEC 61162-1 serial interface is fitted to connect an external navigation device to display navigational information such as ship's position, speed, course, etc.

• Tracking data output
With the ATA module installed, all tracked ship's data can be output to an external device such as an electronic plotter unit.

SPECIFICATIONS

Antenna unit

		MDC-1860BB	MDC-1810BB	MDC-1820BB
Aerial length		4 feet / 6 feet		
Peak power output		6 kW	12 kW	25 kW
Frequency		9410 ± 30 MHz		
Beam width	Horizontal	1.8°/1.2°		
	Vertical	22°		
Side lobes	Within ±10°	Better than -23 dB		
	Outside ±10°	Better than -30 dB		
Rotation		24 rpm		
Transmission pulse width	S (Short pulse)	0.08 μs / 2000 Hz		
	M1 (Medium 1 pulse)	0.25 μs / 1500 Hz		0.3 μs / 1300 Hz
	M2 (Medium 2 pulse)	0.5 μs / 1000 Hz		0.6 μs / 800 Hz
	L (Long pulse)	1.0 μs / 500 Hz		1.2 μs / 500 Hz, 400 Hz (96 nm)
IF center frequency		60 MHz		
IF bandwidth		15 MHz (S, M1) / 3 MHz (M2, L)		
Noise figure		Better than 6 dB		
Operation in wind		100 knots as relative		
Water protection		IPX6 (IEC60529)		

Processor unit

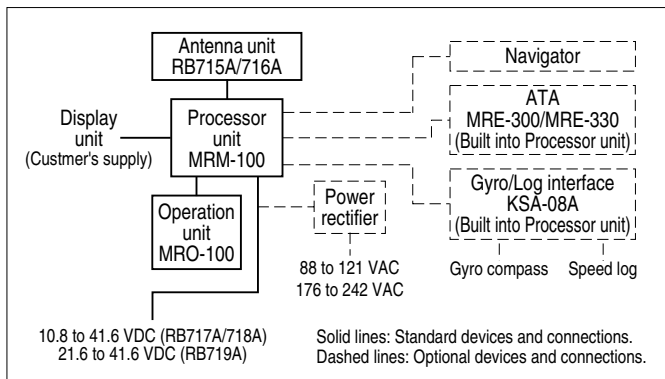| Display device	Any size, any type, resolution must be SXGA grade
Effective diameter	269 mm for 18-inch display, subject to change according to the display size
Resolution	1280 x 1024 pixels (SXGA)
Video level	8 levels
Presentation modes	Head-up, North-up, Course-up, True motion
Range scales (nm)	1/8, 1/4, 1/2, 3/4, 1.5, 3, 6, 12, 24, 48, 64, 72(12 kW), 96(25 kW)
Rings interval (nm)	1/16, 1/16, 1/8, 1/4, 1/2, 1, 2, 4, 8, 16, 12(12 kW), 16(25 kW)
Off-centering	Sweep origin can be moved to any point within 2/3 of the screen radius.
Trail display interval	Every scan, 15 sec, 30 sec, 1 min, 3 min, 6 min, 12 min and OFF
Alarm	Entry alarm [alarm range (Minimum 0.5 NM), depth and bearing can be varied]
EPA	Up to 10 targets can be plotted, 5 points for one target each
ATA (Option)	Display of acquire/track data of up to 10 targets and Guard Zone are available. Display of guard zone is also available (any alarm range, width and bearing can be set).
Data available for EPA and ATA	Speed, Course, CPA, TCPA, Distance, Bearing and age (time elapsed since the first plot, applicable to EPA only)
Minimum detectable range	20 meters at 1/8 nm range
Range resolution	20 meters at 1/8 nm range
Range data accuracy	70 meters or 1% of the range scale selected, whichever is the greater.
Bearing data accuracy	±1° maximum
Navigation data display	Data of own ship's position (latitude/longitude)
Input data format	IEC 61162-1/NMEA 0183 ver.2.3 (BWC, GGA, GLC, GLL, HDT, RMB, RTE, VBW, VDR, VHW, VTG, WPL)
Power supply	10.8 VDC to 41.6 VDC for RB717A/718A 21.6 VDC to 41.6 VDC (24 V/32 V, -10%, +30%) for RB719A
Power consumption	170 W nominal at 24 VDC input

ATA module (Option)

Acquisition	MRE-300 / Manual, MRE-330 / Auto and Manual
Tracking	Automatic
Number of targets tracked	Up to 10 targets
Numerical data output	Distance, bearing, speed, CPA and TCPA
Alarm	Collision alarm and lost alarm
On screen display	Symbols (acquired target, tracked target, target with data display and lost target), Target number, Vectors
Display mode	Relative and True
Tracking distance range	Up to 40.0 nm
ATA data output	To be taken via the DATA 1 connector on the display rear panel. Signal level: RS422, Data format: IEC 61162-1

Environmental conditions

	Antenna	Processor unit
Operating temperature	-25℃ to +55 ℃	-15℃ to +55℃
Storage temperature	+70℃	

CONNECTIONS

Antenna unit RB715A/716A

Navigator

Display unit (Custmer's supply)

Processor unit MRM-100

ATA MRE-300/MRE-330 (Built into Processor unit)

Operation unit MRO-100

Power rectifier

Gyro/Log interface KSA-08A (Built into Processor unit)

88 to 121 VAC 176 to 242 VAC

Gyro compass   Speed log

10.8 to 41.6 VDC (RB717A/718A) 21.6 to 41.6 VDC (RB719A)

Solid lines: Standard devices and connections.
Dashed lines: Optional devices and connections.

EQUIPMENT LIST

Standard equipment

Antenna unit	Aerial	RW701A-04	4 feet
		RW701A-06	6 feet
	Transceiver	RB717A	6 kW
		RB718A	12 kW
		RB719A	25 kW
Processor unit		MRM-100	
Operation unit		MRO-100	
Connecting cable		242J159098B-15M	15 m (49 3/16 ft) with connectors on both ends
DC power cable		CW-256-3M	3 m (16 3/8 ft) with 5-pin connector one end
RGB cable		CW-560-2M	For Processor unit
Spare parts kit		SP-100	
Installation material		M12-BOLT.KIT	For antenna unit
Operation manual		MDC-1800BBSER.OM.E	

Options

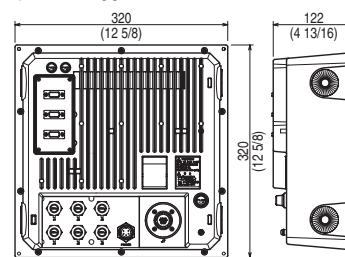| ATA	MRE-300/MRE-330	Built into processor unit
Gyro interface	KSA-08A	Built into processor unit
AIS interface	AIS-100	Built into processor unit
Rectifier	PS-010	With 2 spare fuses (5 A)
AC power cable	VV-2D8-3M	Flying leads on both ends
Connecting cable in extra length	242J159098C-20M	20 m with connector attached on both ends
	242J159098D-30M	30 m with connector attached on both ends

DIMENSIONS AND WEIGHT

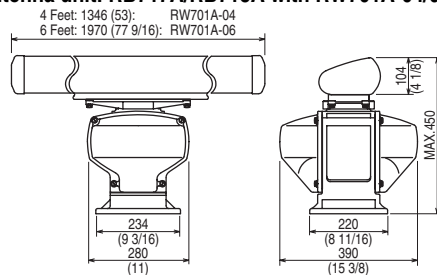Unit: mm (inch)

Operation unit: MRO-100

354 (13 15/16)
70 (2 3/4)
130 (5 1/8)
98 (3 7/8)
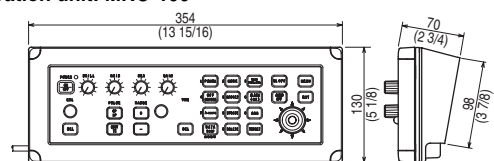
Weight: 2 kg (4.5 lb)

Processor unit: MRM-100

320 (12 5/8)
122 (4 13/16)
320 (12 5/8)

Weight: 5.5 kg (12.1 lb)

Antenna unit: RB717A/RB718A with RW701A-04/06

4 Feet: 1346 (53):   RW701A-04
6 Feet: 1970 (77 9/16):   RW701A-06

104 (4 1/8)
MAX.450 (17 3/4)
BOW

234 (9 3/16)
280 (11)
220 (8 11/16)
390 (15 3/8)

Weight:
23 kg (51 lb) with RW701A-04
25 kg (56 lb) with RW701A-06

Antenna unit: RB719A with RW701A-04/06

4 Feet: 1346 (53):   RW701A-04
6 Feet: 1970 (77 9/16):   RW701A-06

104 (4 1/8)
MAX.450 (17 3/4)
BOW

234 (9 3/16)
280 (11)
220 (8 11/16)
275 (10 13/16)
470 (18 1/2)
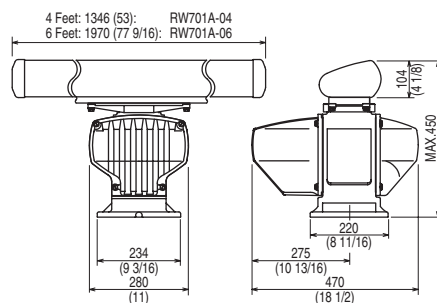
Weight:
27 kg (60 lb) with RW701A-04
29 kg (64 lb) with RW701A-06

• Design and specifications are subject to change without notice.

⚠ **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: