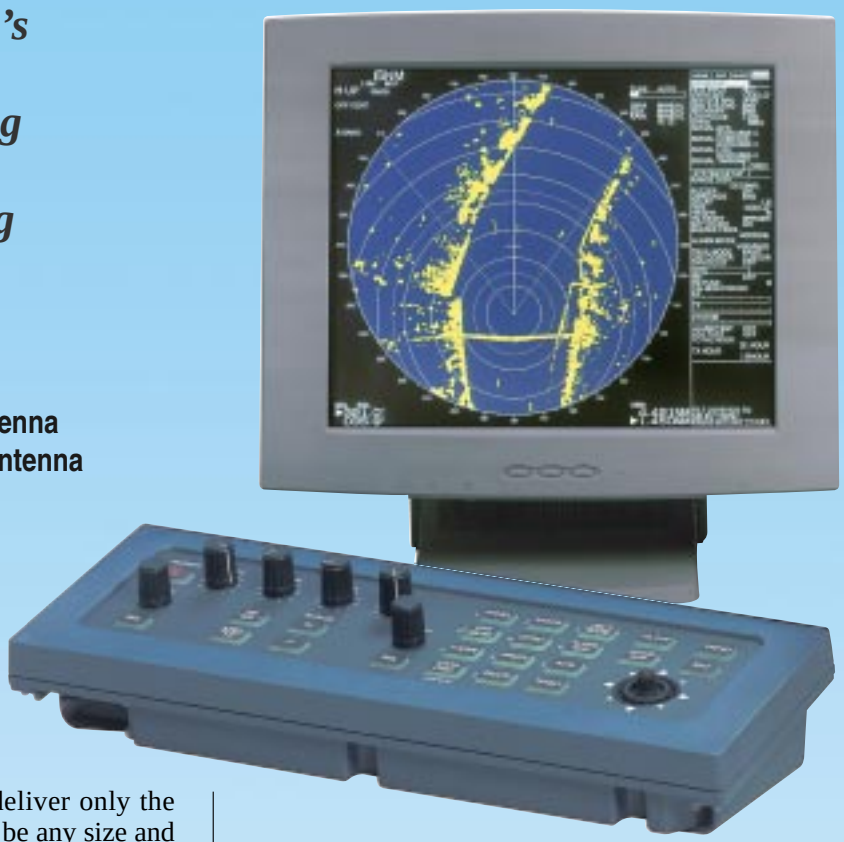
KODEN

High-resolution
Black Box Color Radar

MDC-1841BB/1840BB

- *Display selected from user's choice*
- *Flexible installation suiting your needs*
- *Best suited for ocean going mid-size vessels*



MDC-1841BB: 2 ft, 4 kW, Radome Antenna
MDC-1840BB: 3 ft / 4 ft, 4 kW, Open Antenna

CE 0191

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

Model		MDC-1841BB	MDC-1840BB
Aerial length		2 feet (radome)	3 feet / 4 feet (Open scan)
Peak power output		4 kW	
Frequency		9410 ± 30 MHz	
Beam width	Horizontal	3.9°	2.5°/1.8°
	Vertical	25°	22°
Rotation		24 or 48 rpm	24 or 48 rpm (24 VDC or more)
Pulse length / PRF	S	0.08 µs / 2000 Hz	
	M	0.25 µs / 1500 Hz	
	L	0.8 µs / 600 Hz	
IF center frequency		60 MHz	
Noise figure		6.5 dB or less	
Operation temperature		-25°C to +55°C (-13°F to +131°F)	
Operation in wind (relative)		100 knots	

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 and true motion
Range scales (nm)	1/8, 1/4, 1/2, 3/4, 1.5, 3, 6, 12, 24, 36, 48
Rings interval (nm)	1/16, 1/16, 1/8, 1/4, 1/2, 1, 2, 4, 6, 8
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 acquired/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	21.6 VDC to 41.6 VDC (24 V/32 V, -10 %, +30 %)
Power consumption	170 W nominal at 24 VDC unput

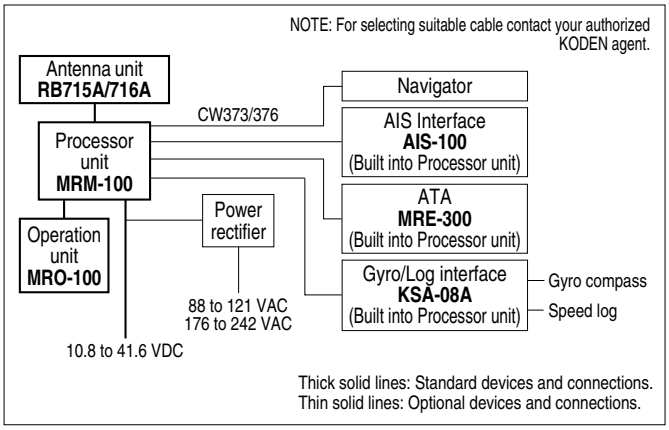
ATA module MRE-300 (Option)

Acquisition	Manual
Tracking	Automatic
Number of targets tracked	Up to 10 targets
Numerical data output	Distance, bearing, speed, course, 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 and vectors.
Display mode	Relative True
Tracking distance range	Up to 40.0 nm
ATA data output	To be taken via the DATA 1 connector on the Processor unit. Signal level: RS422, Data format: IEC 61162-1

Environmental conditions

	Antenna	Processor unit
Operating temperature	-25°C to +55°C	-15°C to +55°C
Storage temperature	+70°C	
Humidity	93 % ±3 % at +40°C	

CONNECTIONS



EQUIPMENT LIST

Standard equipment

Antenna unit	Aerial	RB715A	2 feet, MDC-1841BB
		RW701A-03	3 feet, MDC-1840BB
		RW701A-04	4 feet, MDC-1840BB
	Transceiver	RB716A	MDC-1840BB
Processor unit		MRM-100	
Operation unit		MRO-100	
Connecting cable		242J159098B	15 m (49 3/16 ft) with connectors on both ends
DC power cable		CW-256	3 m (16 3/8 ft) with 5-pin connector one end
Spare parts kit		SP-100	
Installation material		M12-BOLT.KIT	For antenna unit
Operation manual		MDC-1800SER.OM.E	

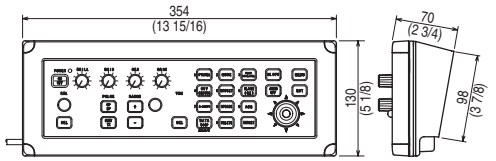
Optional items

ATA	MRE-300	Built into processor unit
Gyro interface	KSA-08A	Built into processor unit
AIS interface	AIS-100	Built into processor unit
Navigator connecting cable	CW-376-5M	With 6-pin connector one end flying leads other end
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	20m with connector attached on both ends
	242J159098D-30M	30m with connector attached on both ends

DIMENSIONS AND WEIGHT

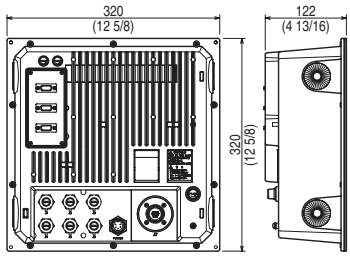
Unit: mm (inch)

Operation unit: MRO-100



Weight:
2 kg (4.5 lb)

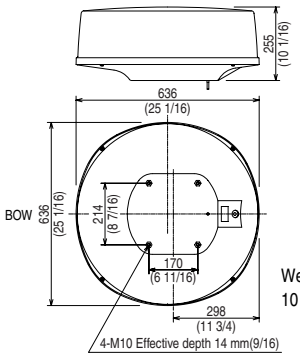
Processor unit: MRM-100



Weight:
5.5 kg (12.1 lb)

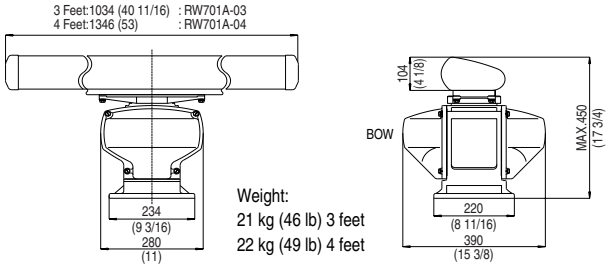
Antenna unit

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.

KODEN

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Certified to ISO 9001 (TÜV 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:

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