

**SPECIFICATIONS OF MARINE RADAR
MODEL 1835/1935/1945**

1 GENERAL

1.1 Range scale, pulselength (PL) and Pulse repetition rate (PRR)

MODEL 1835

Range scale (NM)	PL (μs)	PRR (Hz approx.)
0.0625 to 1.6	0.08	2100
1.5 to 3.2	0.3	1200
3 to 36	0.8	600

MODEL 1935

Range scale (NM)	PL (μs)	PRR (Hz approx.)
0.0625 to 1.6	0.08	2100
1.5 to 3.2	0.3	1200
3 to 48	0.8	600

MODEL 1945

Range scale (NM)	PL (μs)	PRR (Hz approx.)
0.0625 to 1.6	0.08	2100
1.5 to 3.2	0.3	1200
3 to 64	0.8	600

- 1.2 Range discrimination 25 m
- 1.3 Minimum range 25 m
- 1.4 Bearing resolution MODEL 1835: 4°, MODEL 1935: 2.4°, MODEL 1945: 1.9°
- 1.5 Bearing accuracy ±1°
- 1.6 Range ring accuracy 0.9% of range in use or 8 m, whichever is greater

2 ANTENNA UNIT

- 2.1 Radiator type MODEL 1835: Printed array,
MODEL 1935/1945: Slotted waveguide array
- 2.2 Radiator length MODEL 1835: 60 cm, MODEL 1935: 100 cm,
MODEL 1945: 120 cm
- 2.3 Horizontal beamwidth MODEL 1835: 4.0°, MODEL 1935: 2.4°, MODEL 1945: 1.9°
- 2.4 Vertical beamwidth MODEL 1835: 20°, MODEL 1935/1945: 22°
- 2.5 Sidelobe MODEL 1835: Within ±20° of main lobe: -18dB
Outside ±20° of main lobe: -23dB
MODEL 1935: Within ±20° of main lobe: -20dB
Outside ±20° of main lobe: -28dB
MODEL 1945: Within ±20° of main lobe: -24dB
Outside ±20° of main lobe: -30dB
- 2.6 Polarization Horizontal
- 2.7 Antenna rotation speed MODEL 1835: 24 rpm, MODEL 1935/1945: 24 rpm/48 rpm
- 2.8 Wind resistance MODEL 1935/1945: Relative wind speed 100 kn for 24 rpm/
70 kn for 48 rpm

3 TRANSCEIVER MODULE (CONTAINED IN ANTENNA UNIT)

- 3.1 Radiation type P0N
- 3.2 Frequency 9410 MHz±30MHz
- 3.3 Peak output power MODEL 1835/1935: 4 kW, MODEL 1945: 6 kW
- 3.4 Duplexer Circulator with diode limiter
- 3.5 Modulator switching FET
- 3.6 IF amplifier Log-amplifier
- 3.7 IF frequency 60 MHz
- 3.8 Tuning Automatic or manual
- 3.9 Warm-up time 90 s

4 DISPLAY UNIT

- 4.1 Screen type 10.4-inch color LCD, 640 (V) x 480 (H) dots, VGA
- 4.2 Effective radar diameter 158 mm
- 4.3 Range scales and Ring interval

Range scale (NM)	0.0625	0.125	0.25	0.5	0.75	1	1.5	1.6	2	3	3.2	4	6	8	12	16	24	32	36	48*	64**	
Ring interval (NM)	0.03125	0.0625	0.125	0.125	0.25	0.25	0.5	0.4	0.5	1	0.8	1	2	2	3	4	6	8	12	12*	16**	
Number of rings	2	2	2	4	3	4	3	4	4	3	4	4	3	4	4	4	4	4	4	3	4*	4**

*: For MODEL 1935/1945, **: For MODEL 1945

- 4.4 Marks Heading line, Bearing scale, Range ring, Tuning indicator, Cursor, North mark, Variable range marker (VRM), Electric bearing line (EBL), Target alarm zone, Zoom window, Waypoint mark*, Origin mark*
- 4.5 Alphanumeric indication Range, Range ring interval, Pulselength (SP/MP/LP), Display mode (H UP/C UP/N UP/TM/TRUE VIEW), Off-centre (OFFCENT (M/A/C)), Heading data*, Target trails, Tuning indicator, Target alarms, Echo stretch (ES), Echo average (EAV), Electric bearing line (EBL), Vector time*, Range and bearing to cursor or cursor position*, Interference rejecter (IR), Auto anti-clutter (A/C Auto), Variable range marker (VRM), Navigation data*(position, speed, course), ARPA/AIS target data*
*: external data required

5 INTERFACE

- 5.1 Heading signal AD-10 format or NMEA0183
- 5.2 NMEA 2 ports, NMEA0183 Ver-1.5/2.0/3.0
- 5.3 Remote display/ Ext. buzzer 1 port (option)
- 5.4 USB 1 port, USB2.0 for maintenance
- 5.5 Input data sentences BWC, BWR, DBT, DPT, GGA, GLL, GNS, HDG, HDT, HDM, MTW, MWV, RMB, RMC, VHW, VTG, VWR, VWT, XTE, ZDA
- 5.6 Output data sentences RSD, TLL, TTM

6 POWER SUPPLY

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|-----|------------|--|
| 6.1 | MODEL 1835 | 12-24 VDC: 4.1-2.0 A |
| 6.2 | MODEL 1935 | 12-24 VDC: 6.8-3.3 A for 24 rpm, 8.2-3.8 A for 48 rpm |
| 6.3 | MODEL 1945 | 12-24 VDC: 7.3-3.5 A for 24 rpm, 8.8-4.1 A for 48 rpm |
| 6.4 | Rectifier | MODEL 1835: PR-62, option,
100/110/220/230 VAC, 1 phase, 50/60 Hz
MODEL 1935/1945: RU-3423, option,
100/110/115/220/230 VAC, 1 phase,
50/60 Hz |

7 ENVIRONMENTAL CONDITION

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|-----|----------------------|----------------|
| 7.1 | Ambient temperature | |
| | Antenna unit | -25°C to +55°C |
| | Display unit | -15°C to +55°C |
| 7.2 | Relative humidity | 93% at 40°C |
| 7.3 | Degree of protection | |
| | Antenna unit | IP26 |
| | Display unit | IP55 |
| 7.4 | Vibration | IEC 60945 |

8 COATING COLOR

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|-----|--------------|------|
| 8.1 | Antenna unit | N9.5 |
| 8.2 | Display unit | N2.5 |

9 COMPASS SAFE DISTANCE

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| 9.1 | Antenna unit | Standard: MODEL 1835: 0.90 m, MODEL 1935/1945: 1.00 m
Steering: MODEL 1835: 0.70 m, MODEL 1935/1945: 0.75 m |
| 9.2 | Display unit | Standard: 0.45 m Steering: 0.30 m |