10.4 Multi-Color LCD RADAR
MODEL 1835/1935/1945

SPECIFICATIONS OF MODEL 1835/1935/1945

**COLOR LCD SOUNDER**

**MODEL 1835/1935/1945**

### ANTENNA RADIATOR

**Type**

- **MODEL 1945**
  - Printed array
- **MODEL 1935/1945**
  - Slot waveguide array

**Length and Rotation Speed**

- **MODEL 1945**
  - Radiation 60 cm (XN12A) 24 RPM
  - 60 cm (XN10A) 22 RPM

- **MODEL 1935**
  - Open 100 m (XN12A) or 48 RPM
  - Open 100 m (XN10A) or 48 RPM

**Wind Load (for MODEL 1935/1945)**

- 22 RPM
  - 100 kg rotation wind
- 68 RPM
  - 70 kg rotation wind

**Beamwidth**

- **ANT9210**
  - H. 1.9°, V. 22°
- **XN12A**
  - H. 2.4°, V. 22°
- **XN10A**
  - H. 1.9°, V. 22°

**RF TRANSCIEVER**

- Frequency
  - 213 MHz, 320 MHz (band)

**Output Power**

- **MODEL 1835/1935**
  - 4 W
- **MODEL 1945**
  - 6 W

**DISPLAY**

- **Screen Size**
  - 10.4" color LCD
- **Pixel Number**
  - 640 x 480 (VGA)
- **Effective Diameter**
  - 158 mm
- **Echo Colors**
  - 32 levels
- **Display Modes**
  - Head-up, Course-up*, North-up*, or continuous Trail
  - 32 levels

**Range Units**

- **Range Scales and Range Ring Intervals (mm)**
  - 5.2, 12.5, 25, 50, 75, 100, 150, 200, 250
- **Rings**
  - 1/32, 1/16, 1/8, 1/4, 1/2, 0.8, 1, 2, 3, 4,
  - 5, 6, 8, 10, 12, 15, 20, 25, 30, 40, 50, 60, 70

**Range:**

- **MODEL 1835**
  - 10, 15, 20 or 30 m
- **MODEL 1945**
  - 12-24 VDC: 7.3-2.0 A for 24 rpm
  - 8-3.2 A for 24 rpm

**Power Supply**

- **MODEL 1835**
  - 10, 15, 20 or 30 m 1 pc
- **MODEL 1945**
  - 12-24 VDC: 4.1-2.0 A

**ENVIRONMENT**

- **Input**
  - 8-4.1 A for 48 rpm
- **Interface**
  - AD-10 or IEC 61162 NMEA0183 Ver. 1.5/2.0/3.0

**Antenna Unit**

- **Model**
  - XN10A: 22 kg 48.5 lb
  - XN12A: 25 kg 55.1 lb

**EQUIPMENT LIST**

- **Antenna Unit**
  - MJ-A10SPFW0001+R 0.2 m
  - MJ-A6SPF0007-100C 10 m
  - MJ-A7SPF0007-050C 5 m
- **MODEL 1935/1945**
  - RU-3423
- **MODEL 1835**
  - PR-62
- **Display Unit**
  - IEC60529 IP55
- **Antenna Unit**
  - IEC60529 IP26
- **Waterproofing**
  - IEC60529 IP67

**Options**

- **Auto Plotter ARP-11**
- **Satellite Compass**
  - MJ-ABUS20101 15, 20 or 30 m
  - MJ-ABUS20030-003C 0 m
  - MJ-ABUS20030-003C 10 m
  - MJ-ABUS20030-003C 20 m
  - MJ-ABUS20030-003C 30 m

**TRADEMARK REGISTERED**

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Bringing a New Level of Quality, Operability, and Reliability into Marine Radar.

Furuno’s new Radar series, 1835/1935/1945, is a high contrast 10.4” color LCD series designed for a wide range of vessels including pleasure craft, tugs, ferries and workboats.

These Radars offer crystal clear target presentation with furrow-free, blue sky and fast convey to deliver a noise-free Radar presentation. It features Automatic Gain, Auto and另能 to adjust gain and the screen, a new display mode to allow easy-to-read target presentations in all weather conditions.

These Radars can be interconnected with other navigation equipment, chart plotters and sounders, through Furuno’s programmable NMEA 0183 interface, which affords operators the ability to expand their boat’s system as needed.

These Radars are also easy to install, with a 10.4” color LCD display offering a wide range of features:
- **Easy-to-install 10.4” portrait color LCD (350 cd) display**
- **Bonded LCD provides clear view in all weather conditions**
- **Stable AIS/ARPA target-tracking with zoom display function**
- **Full Screen Mode lets operators observe a wider range around the vessel**
- **Enhanced auto tuning/gain/anti-clutter controls**
- **Echoes in yellow, green, orange or multiple colors**

**AIS/ARPA Display**

Up to 100 AIS and 35 ARPA targets can be tracked and overlaid on the Radar screen to assist the operator in tracing vessel movements. Since AIS works by a VHF transceiver system, a variety of navigational information such as vessel name, speed, ROT, draft, and the destination of the selected targets can be included in real-time. Unlike ARPA targets, AIS targets are visible even if they are located behind large ships or islands.

**Anti-Clutter Controls**

Anti-clutter settings can be adjusted manually to remove sea and rain clutter from the Radar screen to gain a clearer view of Radar targets.

**Short Range Target Discrimination**

With a push of the “OFF CENTER” button, own ship position is shifted to a pre-registered point on the screen. This allows the operator to focus on a specific area ahead of or around the vessel without losing track of the position.

**Clearance between markings**

The conventional zoom function is also available by which the operator sets the zoom function on the target manually.

**Full Screen Mode**

With Full Screen Mode, the entire screen is filled with an echo image. Full-screen echo presentation can allow the operator to observe a wider overview of the surrounding area.

There is also an option to clear the navigation data on the Radar display. Individual navigation data can be easily toggled ON or OFF in the dedicated menu.

**Optional supply required**

- **AIS targets** can show that a vessel is coming from behind an island, when a Radar beam does not reach.
- **ARPA targets** can show that a vessel is coming from behind an island, where a Radar beam does not reach.
Bringing a New Level of Quality, Operability, and Reliability into Marine Radar.

Furuno's new Radar series, 1835/1935/1945, is a high contrast 10.4” color LCD radar designed for a wide range of vessels including pleasure craft, fishing boats and work boats. These new Radars offer crystal clear target presentation with Furuno's unique and new Simple Display function. A noise-free Radar presentation is enabled when all small targets both at short and long range. These Radars are easy-to-install and easy to use with a touch of the button, ON Easy-to-install 10.4” portrait color LCD (350 cd) display

Boned LCD provides clear view in all weather conditions

Stable AIS/ARPA target-tracking with zoom display function

Full Screen Mode lets operators observe a wider range around the vessel

Enhanced auto tuning/gain/anti-clutter controls

Echoes in yellow, green, orange or multiple colors

Easy-to-install 10.4" portrait color LCD (350 cd) display

Boned LCD provides clear view in all weather conditions

Stable AIS/ARPA target-tracking with zoom display function

Full Screen Mode lets operators observe a wider range around the vessel

Enhanced auto tuning/gain/anti-clutter controls

Echoes in yellow, green, orange or multiple colors

AIS / ARPA Display

1. Optimal equipment required

2. Anti-Clutter Controls

3. Clear View Mode

4. Off Center Mode

5. Full Screen Mode

6. Short Range Target Discrimination

7. Anti-Clutter Controls

8. Bonded LCD provides clear view in all weather conditions

9. Stable AIS/ARPA target-tracking with zoom display function

10. Full Screen Mode lets operators observe a wider range around the vessel

11. Enhanced auto tuning/gain/anti-clutter controls

12. Echoes in yellow, green, orange or multiple colors

AIS targets can show that a vessel is coming from behind or ahead, when a Radar beam hits on a vessel.

ARPA targets can show that a vessel is coming from behind an island.

Features dedicated rotary knobs to adjust Gain/STC/FTC for straightforward operation.

AIS targets can show that a vessel is coming from behind an island, where a Radar beam does not reach.

There is also an option to clear the navigation data on the Radar display.

Individual navigation data can be easily toggled ON or OFF in the dedicated menu.

With its advanced signal processing technology, the 1835/1935/1945 series demonstrates substantial improvements in target detection, particularly in close range. As shown in the pictures on the right, the Radar clearly displays thin piers from a very short distance.

With Full Screen Mode, the entire screen is filled with an echo image. Full-screen echo presentation capability allows the operator to observe a wider overview of the surrounding area.

There is also an option to clear the navigation data on the Radar display. Individual navigation data can be easily toggled ON or OFF in the dedicated menu.

AIS / ARPA Display

Off Center Mode

With a push of the “OFF CENTER” button, own ship position is shifted to a pre-registered point on the screen. This allows the operator to focus on a specific area ahead of or around the vessel without losing track of the position.

Clearance between markings of the bearing scale is changed according to the proximity between own ship and the bearing circle, or shown in the images on the right. This helps to grasp the bearing to the target echo without using LBL.

With Full Screen Mode, the entire screen is filled with an echo image. Full-screen echo presentation capability allows the operator to observe a wider overview of the surrounding area.

There is also an option to clear the navigation data on the Radar display. Individual navigation data can be easily toggled ON or OFF in the dedicated menu.

AIS / ARPA Display

Anti-Clutter Controls

Adding to the enhanced auto-clutter controls, dedicated rotary knobs are provided for the suppression of unwanted echoes from sea clutter, rain and other forms of precipitation. Anti-clutter settings can be adjusted manually to remove sea and rain clutter from the Radar screen to gain a clearer view of Radar targets.

Short Range Target Discrimination

With Full Screen Mode, the entire screen is filled with an echo image. Full-screen echo presentation capability allows the operator to observe a wider overview of the surrounding area.

There is also an option to clear the navigation data on the Radar display.

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AIS / ARPA Display

Anti-Clutter Controls

Adding to the enhanced auto-clutter controls, dedicated rotary knobs are provided for the suppression of unwanted echoes from sea clutter, rain and other forms of precipitation. Anti-clutter settings can be adjusted manually to remove sea and rain clutter from the Radar screen to gain a clearer view of Radar targets.
Bringing a New Level of Quality, Operability, and Reliability into Marine Radar.

Furuno’s new Radar series, 1835/1935/1945, is a high contrast 10.4” color LCD radar designed for a wide range of vessels including pleasure craft, fishing boats and work boats. These new Radars offer crystal clear target presentation with automatic Gain, Sea and Rain controls to deliver a noise-free Radar presentation. It features super resolution of own small targets both at short and long range. It also incorporates new display modes on True View Mode, Full Screen Mode, which set aside digitale navigation. The 1835/1935/1945 series gives you an easy-to-use menu before they are ready and allows you to view the data, no or during periods of disturbed visibility in any weather condition.

These Radars can be interconnected with other navigation equipment, chart plotters and sounders, through Furuno’s programmable NMEA 0183 interface which allows operators the ability to expand their boat’s system as needed.

- Easy-to-install 10.4” portrait color LCD (350 cd) display
- Bonded LCD provides clear view in all weather conditions
- Stable AIS/ARPA target-tracking with zoom display function
- Full Screen Mode lets operators observe a wider range around the vessel
- Enhanced auto tuning/gain/anti-clutter controls
- Echoes in yellow, green, orange or multiple colors

### AIS / ARPA Display

Up to 100 AIS and 14 ARPA targets can be tracked and overlaid on the Radar screen to assist the operator in tracking vessel movements. Since AIS works by a VHF transceiver system, a variety of navigational information such as vessel name, speed, ROT, draft, and other data can also be overlaid on the Radar screen. The conventional zoom function is also available by which the operator can easily track the target manually.

### Anti-Clutter Controls

Adding to the enhanced auto clutter controls, dedicated rotary knobs are provided for the suppression of unwanted echoes from sea clutter, rain and other forms of precipitation. Anti-clutter settings can be adjusted manually to remove sea and rain clutter from the Radar screen to gain a clearer view of Radar targets.

- With Full Screen Mode, the entire screen is filled with an echo image. Full-screen echo presentation capability allows the operator to observe a wider overview of the surrounding area.
- There is also an option to clear the navigation data on the Radar display. Individual navigation data can be easily toggled on or off in the dedicated menu.

### Full Screen Mode

With Full Screen Mode, the entire screen is filled with an echo image. Full-screen echo presentation capability allows the operator to observe a wider overview of the surrounding area.

### Short Range Target Discrimination

With its advanced signal processing technology, the 1835/1935/1945 series demonstrates substantial increase in target detection particularly in close range. As shown in the pictures on the right, the Radar clearly displays thin piers from a very short distance.

### Off Center Mode

With a push of the “OFF CENTER” button, own ship position is shifted to a pre-registered point on the screen. This allows the operator to focus on a specific area ahead of or around the vessel without losing track of the position.
**10.4 Multi-Color LCD RADAR**

**MODEL 1835/1935/1945**

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

**ANTENNA RADIATOR**

- **Type:**
  - MODEL 1835: Printed array
  - MODEL 1935/1945: Global waveguide array

- **Length and Rotation Speed:**
  - MODEL 1835: Radiator 60 cm (XN12A) 24 RPM
  - MODEL 1935: Open 100 cm (XN12A) 48 RPM
  - MODEL 1945: Open 100 cm (XN12A) 48 RPM

- **Wind Load:**
  - (for MODEL 1935/1945)
    - 25 m: 110 kg (XN12A)
    - 48 RPM: 70 kg (XN12A)

- **Beamwidth:**
  - XN12A: H: 1°, V: 22°
  - XN10A: H: 1°, V: 22°
  - XN210: H: 1°, V: 22°

- **RF TRANSCIEVER:**
  - Frequency: 9410 ± 30 MHz (X-band)
  - Output Power:
    - MODEL 1835/1935: 4 kW
    - MODEL 1945: 6 kW

**DISPLAY**

- **Screen Size:** 10.4" color LCD
- **Pixel Number:** 640 x 480 (VGA)
- **Effective Diameter:** 154 mm
- **Echo Colors:** 32 levels
- **Display Modes:**
  - Head-up, Course-up*, North-up*, True view*, True motion**
  - Head-up data required

**Range Units**

- **Range Scales and Range Ring Intervals (nm):**
  - Range: 1/16, 1/8, 1/4, 1/2, 3/4, 1, 1.5, 3, 6, 12, 24, 36, 48, 60, 90, 120, 180, 240, 360, 480, 600
  - Rings: 1/2, 3, 6, 12, 24, 36, 48, 60, 90

- **Minimum Range:** 25 n
- **Range Discrimination:** 25 n
- **Echo Trails:**
  - True or relative trails
  - Trajectory: 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 120, 180

**ACCESSORY List**

- **MODEL 1835/1935/1945**
  - **Display Unit**
    - 10.4" bonded LCD
  - **Antenna Unit**
    - XN12A: 25 kg 55.1 lb
    - XN10A: 17.6 lb
  - **RDP-152 Display Unit**
    - 5.4 kg 11.9 lb

**Power Supply**

- **MODEL 1835/1935/1945**
  - 12-24 VDC: 4.1-2.0 A
  - 6 kW: 8.8-4.1 A

**ENVIRONMENT**

- **Display Unit:**
  - Temperature: -15°C to +55°C (5°F to +131°F)
  - Humidity: 10% to 90% RH, non-condensing

**Power Supply**

- **MODEL 1945**
  - 12-24 VDC: 4.1-2.0 A
  - 6 kW: 8.8-4.1 A

**EQUIPMENT LIST**

- **MODEL 1835**
  - Antenna Unit (Specify when ordering)
  - Auto Plotter ARP-11
  - Rectifier
  - Interface Cable
  - Antenna Bracket (for MODEL 1935)
  - Option: Head-up, Course-up*, North-up*, True view*, True motion**

**TRADEMARK REGISTERED**

**SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE**

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10.4 Multi-Color LCD RADAR
MODEL 1835/1935/1945

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

**ANTENNA RADIATOR**
- **Type:**
  - **MODEL 1835**
  - **MODEL 1935/1945**
  - **BOW Radiation**
- **Length and Rotation Speed**
  - **MODEL 1835:**
    - Radiation: 60 cm (X-band) 24 RPM
  - **MODEL 1935:**
    - Open: 100 cm (X-band) 48 RPM
    - Closed: 100 cm (X-band) 48 RPM
  - **MODEL 1945:**
    - Open: 100 cm (X-band) 48 RPM
    - Closed: 100 cm (X-band) 48 RPM
- **Wind Load** (for MODEL 1935/1945):
  - 24 RPM: 100 cm (X-band) 70 km/h relative wind
  - 48 RPM: 100 cm (X-band) 90 km/h relative wind

**DISPLAY**
- **Screen Size:**
  - 10.4" color LCD
- **Pixel Number:**
  - 640 x 480 (VGA)
- **Effective Diameter:**
  - 154 mm
- **Echo Colors:**
  - 32 levels
- **Display Modes:**
  - Head-up, Course-up, North-up, True view, True motion
  - **Head-up, Position data required**
  - **Course-up, North-up, True view, True motion**
  - **Head-up, Position data required**

- **Range Units:**
  - **Range Scales and Range Ring Intervals (mm):**
    - 1, 5, 10, 15, 25, 35, 50, 75, 100, 125, 150, 200
  - **Range:**
    - 100, 150, 200, 250, 300, 350, 400, 450, 500
    - 1, 3, 5, 10, 25, 50, 100, 200, 300, 400, 500
    - 0.0, 0.2, 0.5, 1.0, 2.0, 3.0
  - **Ring:**
    - 100, 150, 200, 250, 300, 350, 400, 450, 500
    - 1, 3, 5, 10, 20, 30, 50, 100, 200, 300, 400, 500
    - 0.0, 0.2, 0.5, 1.0, 2.0
- **Minimum Range:**
  - 25 m
- **Range Discrimination:**
  - 25 m
- **Echo Trails:**
  - **Type:**
    - True or relative trails
  - **Trail Length:**
    - 1, 5, 10, 15, 20, 25, 30 mm, or continuous Trail
  - **Trail Width:**
    - Normal
- **Plotting Facilities (Required optional board ARP-11):**
  - **Acquisition:**
    - Auto, Manual
  - **Number of targets:**
    - 10 targets max.

**EQUIPMENT LIST**

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Model 1835/1935/1945</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Auto Plotter ARP-11</strong></td>
<td></td>
</tr>
<tr>
<td><strong>2. Antenna Cable</strong></td>
<td></td>
</tr>
<tr>
<td><strong>3. External Antenna</strong></td>
<td></td>
</tr>
<tr>
<td><strong>4. Display Unit</strong></td>
<td></td>
</tr>
<tr>
<td><strong>5. Antenna Unit</strong></td>
<td></td>
</tr>
<tr>
<td><strong>6. Antenna Bracket for MODEL 1935</strong></td>
<td></td>
</tr>
</tbody>
</table>

**AIR FUNCTION (Data input from AIS is required)**
- **Synthetic Sounding:**
  - Activated
  - Danger/Selected/Lost targets
  - Number of targets: 120 targets max.

**INTERFACE**
- **Input:**
  - **AD-10:**
    - 10-12-24 VDC: 6.4 A for 24 rpm
  - **AD-12:**
    - 12-24 VDC: 6.4 A for 24 rpm
  - **AD-15:**
    - 15-24 VDC: 6.4 A for 24 rpm
  - **AD-20:**
    - 20-24 VDC: 6.4 A for 24 rpm
  - **AD-30:**
    - 30-24 VDC: 6.4 A for 24 rpm

**ENVIRONMENT**
- **Temperature:**
  - Antenna Unit: -25°C to +55°C (-13°F to +131°F)
  - Display Unit: -15°C to +55°C (5°F to +131°F)
  - Waterproofing:
    - Antenna Unit: IPX8
    - Display Unit: IPX7

**POWER SUPPLY**
- **MODEL 1835:**
  - 10-12-24 VDC: 6.2-3.1 A for 24 rpm
- **MODEL 1935:**
  - 10-12-24 VDC: 6.4 A for 24 rpm
- **MODEL 1945:**
  - 10-12-24 VDC: 6.4 A for 24 rpm

**TRADEMARK REGISTERED**
- FURUNO ELECTRIC CO., LTD.
- Catalogue No. R-196

**FURUNO ELECTRIC CO., LTD.**
- Nishinomiya, Hyogo, Japan
- FURUNO U.S.A., INC.
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- FURUNO ESPAÑA S.A.
- FURUNO DANMARK AS
- FURUNO SVERIGE AB
- FURUNO NORGE A/S
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