

MD-215/219/224/226 Series

15/19/24/26-inch marine displays



- > 15/19/24/26-inch display
- > High quality LCD with LED backlight
- > Color calibrated for ECDIS compliance
- > Full range dimming, 0 to 100%
- > SavvyTouch™ display controls
- > Built-in RS-232/422/485 interfaces
- > Dual power supplies (AC & DC)
- > IP54 (front) / IP22 (rear) rated
- > Optically bonded and touch panel models available on request



Introduction

The MD-215/219/224/226 series of marine displays comes with full range dimming, wide viewing angles and optional optical bonding. These displays are built with a small-profile modular design that allows easier integration into industrial marine systems, reducing deployment costs and overall time-to-market.

The innovative and user-friendly SavvyTouch display controls offer several unique features not found on any other marine display console: a proximity sensor for convenient adjustments in dark conditions, an info button for immediate updates on power status, and a quick-switch

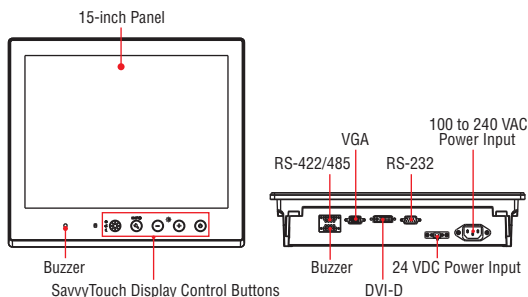
to adjust between day, dusk, and night-time ECDIS modes (for color-calibrated ECDIS models only).

The MD-215/219/224/226 series displays are compliant with IEC 60945, DNV, and IACS-E10, verifying their resilience and durability in maritime conditions. Their IP54 rated enclosure provides additional protection against dust and moisture above and beyond the limits established by these international standards bodies.

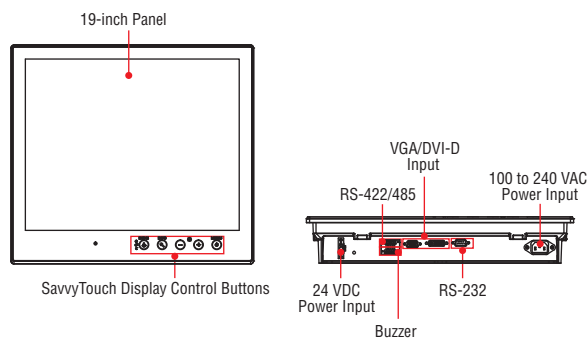
ECDIS-approved models are also available, offering an excellent HMI solution for ECDIS charting and navigation stations.

Appearance

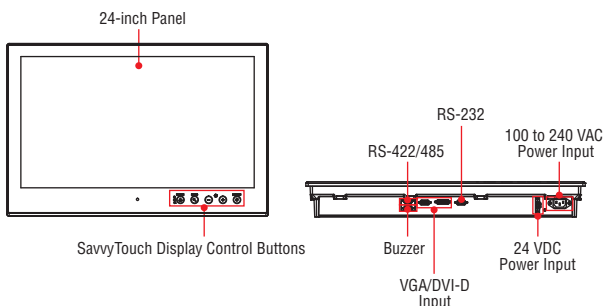
MD-215



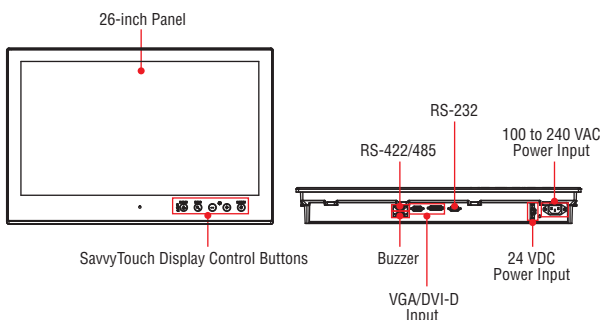
MD-219



MD-224



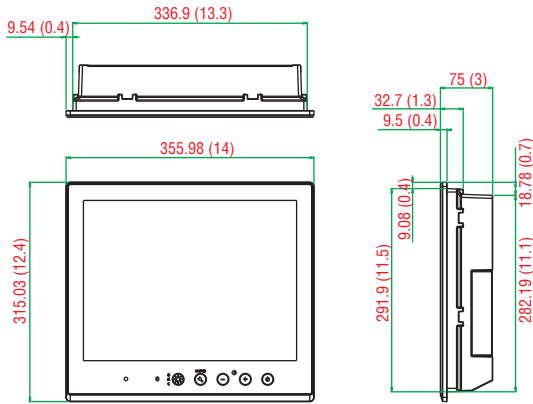
MD-226



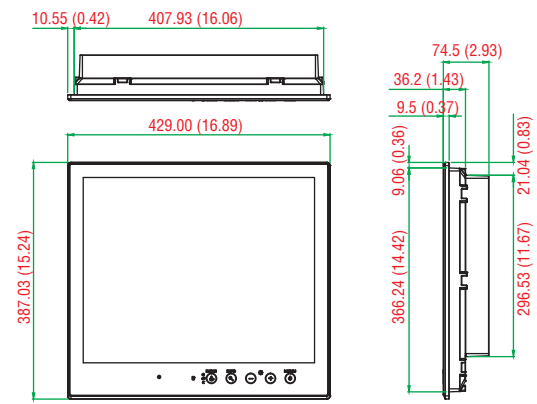
Dimensions

Unit: mm (inch)

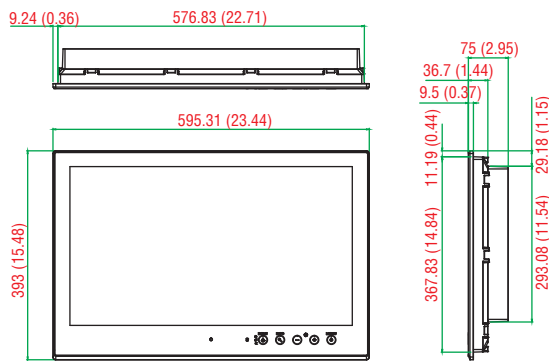
MD-215



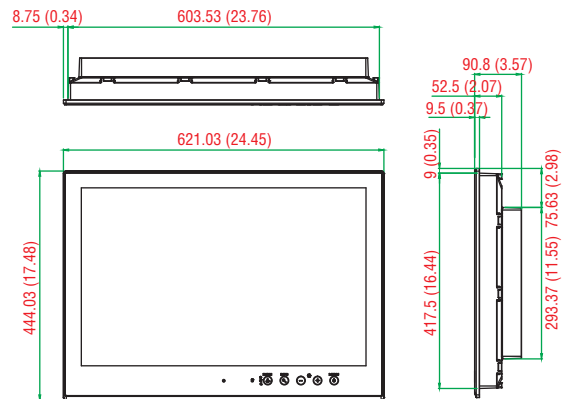
MD-219



MD-224



MD-226



Specifications

Display

Panel Size: 15/19/24/26-inch viewable image size

Panel Type: MVA

Aspect Ratio:

- MD-215: 5:4
- MD-219: 5:4
- MD-224: 16:9
- MD-226: 16:10

Pixels:

- MD-215: 1024 x 768
- MD-219: 1280 x 1024 (SXGA)
- MD-224: 1920 x 1080 (WSXGA+)
- MD-226: 1920 x 1200 (WUXGA)

Pixel Pitch (RGB):

- MD-215: 0.297 (H) x 0.297 (V) mm
- MD-219: 0.294 (H) x 0.294 (V) mm
- MD-224: 0.282 (H) x 0.282 (V) mm
- MD-226: 0.2865 (H) x 0.2865 (V) mm

Response Time:

- MD-215: 20 ms (gray to gray)
- MD-219: 20 ms (gray to gray)
- MD-224: 25 ms (gray to gray)
- MD-226: 15 ms (gray to gray)

Contrast Ratio:

- MD-215: 700: 1
- MD-219: 2000: 1

- MD-224: 5000:1

- MD-226: 1500:1

Light Intensity: 300 cd/m/m

Viewing Angles:

- MD-215: 160°/140°
- MD-219/224: 178°/178°
- MD-226: 176°/176°

Active Display Area:

- MD-215: 304.128 (H) x 228.096 (V) mm
- MD-219: 376.32 (H) x 301.06 (V) mm
- MD-224: 531.36 (H) x 298.89 (V) mm
- MD-226: 550.08 (H) x 343.8 (V) mm

Max. No. of Colors: 16.7M / 8-bit color

Display Interface:

- 1 VGA input
- 1 DVI-D input

Resolution:

- VGA: 640 x 480
- SVGA: 800 x 600
- XGA: 1024 x 768
- SXGA: 1280 x 1024 (MD-219/224/226 only)
- WSXGA+: 1920 x 1080 (MD-224/226 only)
- WUXGA: 1920 x 1200 (MD-226 only)

Serial Interface

Serial Standards: 1 RS-232 port (male DB9), 1 RS-422/485 port (Euroblock)

Optical Isolation Protection: 3 kV

Serial Signals

RS-232: TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND

RS-422: TxD+, TxD-, RxD+, RxD-, GND

RS-485-2w: Data+, Data-, GND

Front Panel

LEDs: MENU, Brightness, INFO, ECDIS, Day/Dusk/Night

Smart OSD: Yes

Physical Characteristics

Housing: Aluminum sheet metal

Weight:

- MD-215: 6.1 kg (13.56 lb)
- MD-219: 7.8 kg (17.33 lb)
- MD-224: 12 kg (26.67 lb)
- MD-226: 15.2 kg (33.78 lb)

Dimensions:

- MD-215: 356 x 315 x 77.2 mm (14.02 x 12.40 x 3.04 in)
- MD-219: 429 x 387 x 75 mm (16.89 x 15.24 x 2.95 in)
- MD-224: 595 x 393 x 75 mm (23.43 x 15.47 x 2.95 in)
- MD-226: 621 x 440 x 90 mm (24.45 x 17.48 x 3.57 in)

Mounting: VESA (optional), panel (optional), desktop (optional)

Environmental Limits

Operating Temperature: -15 to 55°C (5 to 131°F)

Storage Temperature: -20 to 60°C (-4 to 140°F)

Ambient Relative Humidity: 5 to 95% (non-condensing)

IP Rating:

- Front: IP54
- Rear: IP22

Anti-vibration: 0.7 g @ DNV 2.4 (Class A), sine wave, 2-100 Hz, 1 Oct./min., 1.5 hr per axis

Power Requirements

Input Voltage:

- DC: 24 VDC (with tolerance from 18 to 30 VDC, 2-pin terminal block)
- AC: 100 to 240 VAC

Power Consumption: 40 W max.

Standards and Certifications

Safety: UL 60950-1, EN 60950-1, IEC 60950-1

EMC: EN 55022/24

EMI: CISPR 22, FCC Part 15B Class A

EMS:

- IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV
- IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m
- IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV
- IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV
- IEC 61000-4-6 CS: Signal: 1 kV

Marine: IEC 60945 4th, IEC 61174, DNV2.4, IACS E10

Green Product: RoHS, cRoHS, WEEE

Warranty

Warranty Period: 1 year

Details: See www.moxa.com/warranty

We recommend taking the following precautions to minimize heat build-up within the display:

- Position the display within $\pm 40^\circ$ of the vertical.
- Install an external fan to increase airflow upwards through the display if (a) the display is not positioned within $\pm 40^\circ$ of the vertical, (b) the ambient temperature exceeds 25°C, or (c) the display is used in a location with minimal ventilation.

Important Safety Precaution:

Even though the display is rated to operate within the IEC 60945 standard of -15 to 55°C, it is best to ensure that the ambient temperature does not exceed 25°C. Doing so will increase the life of your display and minimize service costs.

Ordering Information

Available Models

MD-224X: 24-inch tape bonded marine display with 16:9 aspect ratio, full HD (1920 x 1080), LED backlighting, dual-power supply (AC/DC)

MD-224Z: 24-inch tape bonded marine display with 16:9 aspect ratio, full HD (1920 x 1080), projected-capacitive touch panel, LED backlighting, dual-power supply (AC/DC)

MD-215X-T: 15-inch display, DVI-D/VGA video output, AC/DC dual power, tape bonding

MD-215Z-T: 15-inch display, DVI-D/VGA video output, AC/DC dual power, multitouch w/ glove friendly, tape bonding

MD-219X: 19-inch, 5:4 aspect ratio display (1280 x 1024), LED backlight, DVI-D/VGA, RS-232 and RS-422/485 serial ports, AC/DC dual power, tape bonding

MD-219Z: 19-inch, 5:4 aspect ratio display (1280 x 1024), projected capacitive multitouch, LED backlight, DVI-D/VGA, RS-232 and RS-422/485 serial ports, AC/DC dual power, tape bonding

MD-226X: 26-inch, 16:10 aspect ratio display (1920 x 1200), LED backlighting, RS-232/422/485 serial ports, dual-power supply (AC/DC)

Optional Accessories (can be purchased separately, for AC power input)

PWC-C13US-3B-183: 10A/125V North American (US) power cord, 183 cm

PWC-C13EU-3B-183: 10A/250V Continental European (EU) power cord, 183 cm

PWC-C13UK-3B-183: 10A/250V United Kingdom (UK) power cord, 183 cm

PWC-C13AU-3B-183: 10A/250V Australian (AU) power cord, 183 cm

PWC-C13CN-3B-183: 10A/250V China (CN) power cord, 183 cm

Optional Mounting/Bracket Kits (can be purchased separately)

MPC-MD-2-24-PMTK: Panel-mounting kit

MPC-MD-2-24-VESAMTK: VESA-mounting kit

MPC-MD-2-24-26-DMTK w/o hinge: Desktop-mounting kit without hinge

MPC-MD-2-24-26-DMTK w/ hinge: Desktop-mounting kit with hinge

MPC-MD-2-19-PMTK: Panel-mounting kit

MPC-MD-2-19-VESAMTK: VESA-mounting kit

MPC-MD-2-19-DMTK w/o hinge: Desktop-mounting kit without hinge

MPC-MD-2-19-DMTK w/ hinge: Desktop-mounting kit with angle adjustment hinge

MPC-MD-2-15-PMTK: Panel-mounting kit with 8 screws

MPC-MD-2-15-VESAMTK: VESA-mounting bracket, 100 x 100 mm and 75 x 75 mm

Package Checklist

- MD-215/219/224/226 display
- VGA cable
- DVI-D cable
- 2-pin terminal block x 1
- 5-pin terminal block x 2
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card