# **MD-219 Series**

# 19-inch display: 5:4 aspect ratio, 1280 x 1024 resolution



- > 19-inch display, 5:4 aspect ratio
- > Sunlight readable 1000-nit 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-rated front panel (IP66 available by request)
- > Optical bonding available on request















# Introduction

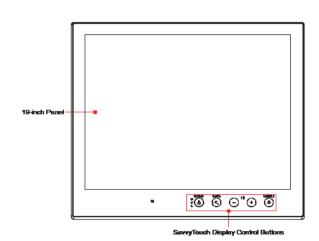
The MD-219 series of marine displays comes with full range dimming, wide viewing angles, and optional optical bonding. These displays are built with a small-profile modular design that allows easier integration into industrial marine systems, reducing deployment costs and overall time-to-market.

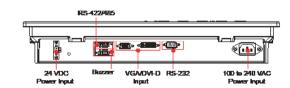
The innovative and user-friendly SavvyTouch display controls offer several unique features not found on any other marine display console: a proximity sensor for convenient adjustments in dark conditions, an info button for immediate updates on power status, and a guick-switch to adjust between day, dusk, and night-time ECDIS modes (for colorcalibrated ECDIS models only).

The MD-219 series displays are compliant with IEC 60945, DNV, ABS, and IACS E10, making them suitable for maritime applications. Their IP54 (IP66-rated model available by request) 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**





# Unit: mm (inch) 407.93(16.06) 429.00(16.89) 429.00(16.89) (277))72998 (277)72998

# Specifications

# **Display**

Panel Size: 19" viewable image size

Panel Type: MVA Aspect Ratio: 5:4

**Pixels:** 1280 x 1024 (SXGA) **Response Time:** 20 ms (gray to gray)

Contrast Ratio: 2000:1 Light Intensity:

Standard model: 300 nits
High brightness model: 1000 nits
Viewing Angles: 178°/178°

Active Display Area: 376.32 (H) x 301.06 (V) mm

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

Display Interface: VGA input x 1, DVI-D input x 1

Resolution:

• VGA: 640 x 480 • SVGA: 800 x 600 • XGA: 1024 x 768

• SXGA: 1280 x 1024

#### **Serial Interface**

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

block)

Optical Isolation Protection: 4 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: 7.8 kg

**Dimensions:** 429 x 387 x 75 mm (16.89 x 15.24 x 2.95 in)

Mounting: VESA, panel, and desktop

#### **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 (IP66 available by request)

• 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, CCC

Hazardous Environments: UL Class 1 Division 2

**EMC**: EN 55032/24

EMI: CISPR 32, 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

IEC 61000-4-8

Marine Standards: IEC-60945 4th, IEC-61174
Marine Type Approval: DNV 2.4 and IACS E10. ABS

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 ±40° of the vertical.
- Install an external fan to increase airflow upwards through the display if (a) the display is not positioned within ±40° 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-219X: 19-inch, 5:4 aspect ratio display (1280x1024), 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 (1280x1024), projected capacitive multi-touch, LED backlight, DVI-D/VGA, RS-232 and RS-422/485 serial ports, AC/DC dual power, tape bonding

MD-219Z-HB: 19-inch sunlight readable 1000-nit display, 5:4 aspect ratio (1280x1024), glove-friendly multi-touch, LED backlight, DVI-D/VGA, RS-232 and RS-422/485 serial ports, AC/DC dual power, tape bonding

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

PWC-C13US-3B-183: Power cord with 3-pin connector, USA plug

PWC-C13EU-3B-183: Power cord with 3-pin connector, Euro plug

PWC-C13UK-3B-183: Power cord with 3-pin connector, British plug

PWC-C13AU-3B-183: Power cord with 3-pin connector, Australian plug

PWC-C13CN-3B-183: Power cord with 3-pin connector, Chinese plug

#### Optional Mounting/Bracket Kits (can be purchased separately)

MPC-MD-2-19-PMTK: 19-inch panel-mounting kit, consisting of 10 mounting clamps

MPC-MD-2-19-VESAMTK: 19-inch VESA-mounting kit (can be used with either 100 x 100 mm or 280 x 150 mm VESA mounts)

MPC-MD-2-19-DMTK w/o hinge: 19-inch desktop mounting kit without hinge
MPC-MD-2-19-DMTK w/ hinge: 19-inch desktop mounting kit with hinge

# Package Checklist

- MD-219 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