MD-224 Series

24-inch marine display

Features and Benefits

- 24-inch display, 16:9 aspect ratio
- 300-nit or sunlight-readable 1000-nit LED backlight
- Color calibrated for ECDIS compliance (available by CTOS)
- 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)
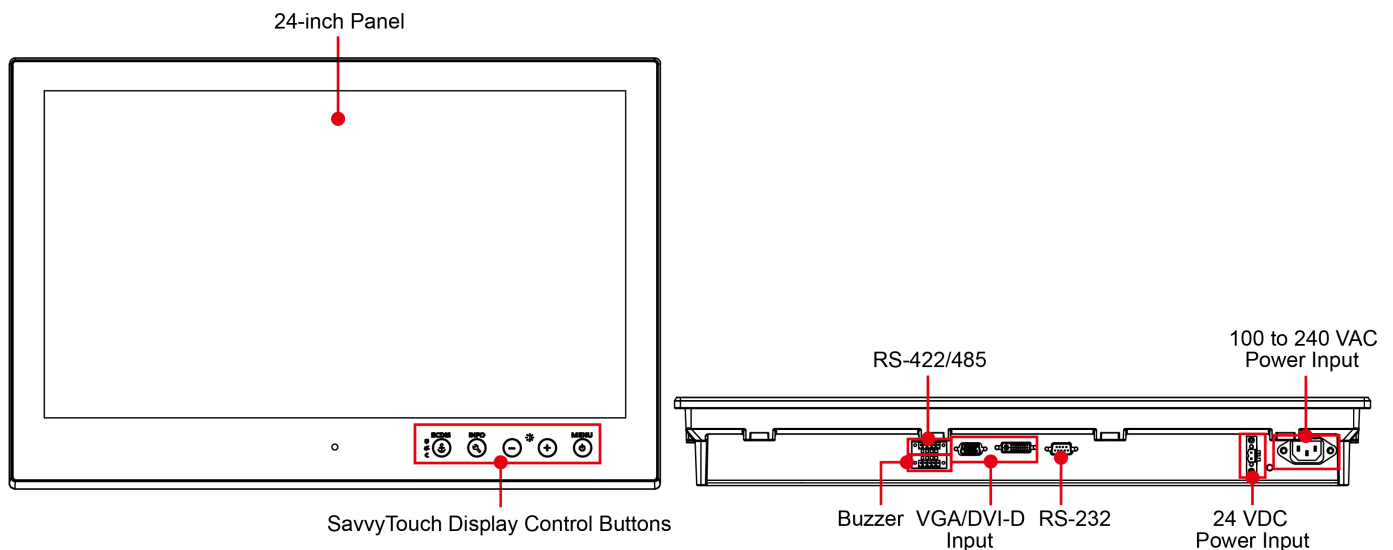
Certifications

Introduction

The MD-224 Series of marine displays come 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, thereby reducing deployment costs and overall time-to-market.

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

The MD-224 Series displays are compliant with IEC 60945, DNV, ABS, and IACS E10, making them suitable for maritime applications. Their IP54-rated (IP66-rated models available on request) 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

24-inch Panel

SavvyTouch Display Control Buttons

RS-422/485

100 to 240 VAC Power Input

Buzzer   VGA/DVI-D Input   RS-232   24 VDC Power Input

Specifications

Display

Aspect Ratio	16:9
Contrast Ratio	5,000:1
Max. No. of Colors	16.7M (8-bit/color)
Panel Size	24-inch viewable image
Panel Type	MVA
Pixels	1920 x 1080
Response Time	25 ms (gray to gray)
Viewing Angles	178°/178°
Light Intensity (Brightness)	MD-224X/224Z: 300 cd/m^2 MD-224Z-HB: 1000 cd/m^2

Computer Interface

Serial Ports	RS-232 ports x 1 (DB9 male) RS-232/422/485 ports x 1, software selectable (terminal block)
Video Input	DVI-D x 1, 29-pin DVI-D connectors (female) VGA x 1, 15-pin D-sub connector (female)

Touch Function

Touch Type	MD-224Z/224Z-HB: Capacitive Touch (PCAP) MD-224X: None
Touch Support Points	MD-224Z/224Z-HB: 4 points

Serial Interface

Baudrate	50 bps to 115.2 kbps
Data Bits	5, 6, 7, 8
Flow Control	RTS/CTS, XON/XOFF, ADDC® (automatic data direction control) for RS-485, RTS Toggle (RS-232 only)
Parity	None, Even, Odd, Space, Mark
Stop Bits	1, 1.5, 2

Serial Signals

RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422	Tx+, Tx-, Rx+, Rx-, GND
RS-485-2w	Data+, Data-, GND
RS-485-4w	Tx+, Tx-, Rx+, Rx-, GND

Power Parameters

Input Voltage	100 to 240 VAC 24 VDC (18 to 30 V)
Power Consumption	40 W (max.)

Physical Characteristics

Housing	Metal
IP Rating	MD-224X: IP54, front MD-224X: IP22, rear MD-224Z: IP54, front MD-224Z: IP22, rear MD-224Z-HB: IP66, front MD-224Z-HB: IP22, rear
Dimensions	595 x 393 x 75 mm (23.43 x 15.47 x 2.95 in)
Weight	9,570 g (21.10 lb)
Installation	Desktop Panel mounting VESA mounting

Environmental Limits

Operating Temperature	-15 to 55°C (5 to 131°F)
Storage Temperature (package included)	-20 to 60°C (-4 to 140°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

Standards and Certifications

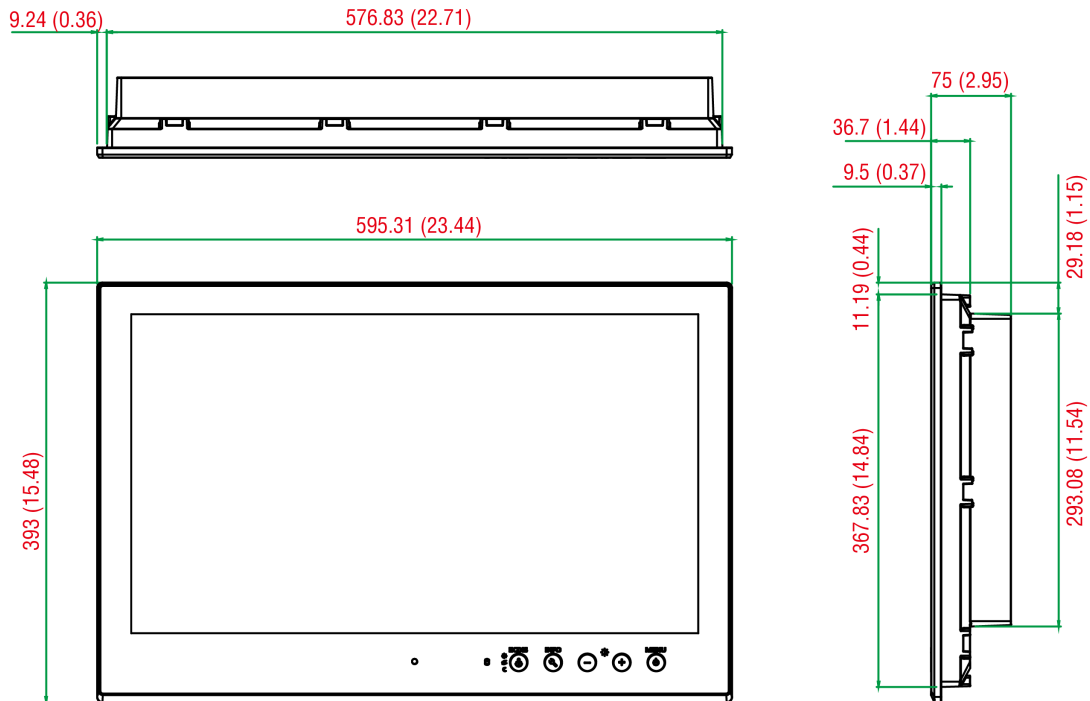|	
EMC	EN 55032/24
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 1k V
Maritime	ABS CCS IEC 60945 DNV
Safety	UL 60950-1

Warranty

Warranty Period	LCD: 1 year System: 3 years
Details	See www.moxa.com/warranty

Package Contents

Device	1 x MD-224 Series display
Cable	1 x DVI-D cable 1 x VGA
Installation Kit	1 x terminal block, 2-pin 1 x terminal block, 5-pin 1 x panel-mounting kit
Documentation	1 x quick installation guide 1 x warranty card

Dimensions

Unit: mm (inch)

9.24 (0.36) 576.83 (22.71)

595.31 (23.44)

393 (15.48)

75 (2.95)

36.7 (1.44)

9.5 (0.37)

11.19 (0.44)

29.18 (1.15)

367.83 (14.84)

293.08 (11.54)

Ordering Information

Model Name	Panel	Video Inputs	Touchscreen	Power Input	IP Rating	Operating Temp.
MD-224X	24" (16:9) 300 nits	1 x VGA 1 x DVI-D	–	24 VDC (18-30 V) 100-240 VAC	IP54 (front), IP20 (rear)	-15 to 55°C
MD-224Z	24" (16:9) 300 nits	1 x VGA 1 x DVI-D	Multi-touch	24 VDC (18-30 V) 100-240 VAC	IP54 (front), IP20 (rear)	-15 to 55°C
MD-224Z-HB	24" (16:9) 1000 nits	1 x VGA 1 x DVI-D	Multi-touch	24 VDC (18-30 V) 100-240 VAC	IP54 (front), IP20 (rear)	-15 to 55°C

Accessories (sold separately)

Desktop Mounting Kits

MPC-MD-2-24-26-DMTK w/ hinge	Desktop-mounting kit for 24/26-inch panels
MPC-MD-2-24-26-DMTK w/o hinge	Desktop-mounting kit for 24/26-inch panels, (no hinge)

Panel Mounting Kits

MPC-MD-2-24-RMTK	Rubber gasket for 24-inch panels

VESA Mounting Kits

MPC-MD-2-24-VESAMTK	VESA kit for 24-inch panels (can be used with 200 x 100 mm or 280 x 150 mm VESA mounts)

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