

# MPC-2190 Series

## 19-inch ECDIS color calibrated, fanless panel computers



- > 19-inch panel computer
- > Color calibrated for ECDIS compliance
- > 3rd Generation Intel® processor (Intel® Core i7 3517UE 1.7 GHz or Celeron® 1047UE, 1.40 GHz)
- > SavvyTouch display controls
- > Fanless system design
- > Built-in NMEA 0183 and 3-in-1 software selectable RS-232/422/485 interfaces
- > Multi-power supplies (AC & DC)



### Introduction

MPC-2190 panel computers feature an Intel 3rd generation processor matched to 4 GB of system memory, delivering a reliable, high-performance platform of wide versatility for use in industrial marine environments. With its two RS-232/422/485 serial ports, four NMEA 0183 ports, and two Gigabit Ethernet LAN ports, the MPC-2190 panel computer supports a wide variety of serial and marine-specific interfaces as well as high speed IT communications, all with native network redundancy.

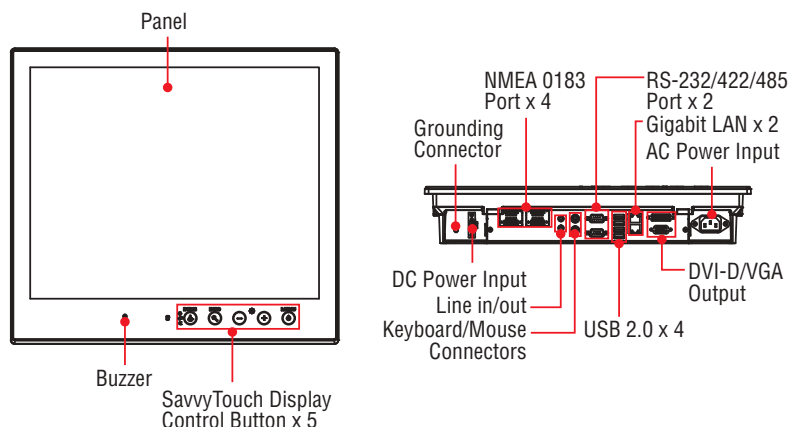
The MPC-2190 series comes with a range of standard display enhancements useful in industrial environments (including full range dimming, wide viewing angles, and optional optical bonding), as well as a few innovations especially deployed for maritime environments: user-friendly OSD controls, called SavvyTouch, featuring a proximity sensor for convenient adjustment in dark situations, immediate BIOS-level reports on hardware status (useful for determining why

a machine will not boot up), and a quick-switch ECDIS button (for color-calibrated ECDIS models only) that allows instant brightness adjustments to any of the three pre-set calibrations dictated by the ECDIS standard. In addition to all of this, the MPC-2190 series features a modular design that makes device integration into either new or existing industrial systems much simpler, reducing deployment costs and overall time-to-market.

The MPC-2190 panel computers are compliant with several industrial marine standards, including IEC 60945, IEC 61162, IEC 61174, DNV, and IACS E10, verifying their resilience for maritime operations. The IP54 (front panel) and IP22 (rear panel) rated unibody shell provides strong additional protection against the harsh conditions found in marine environments.

Color-calibrated ECDIS models are available upon request, providing an ideal HMI alternative for ECDIS charting and navigation stations.

### Appearance



## Specifications

### Computer

**CPU:** Intel Core Processor i7-3517UE (1.7 GHz)

**System Chipset:** Intel HM65

**System Memory:** 8 GB capacity, 4 GB pre-installed: 1 slot of 4 GB DDR3-1600 204 pin SO-DIMM SDRAM

**USB:** USB 2.0 hosts x 4, type A connectors, supporting system boot up

**Storage:** 2 SATA-III connectors

**BIOS:** 64 Mbit Flash BIOS SPI type, ACPI function supported

**Graphics Controller:** Intel HM65 Express chipset built-in

**Video Output:** DVI-D x 1, VGA x 1 (female)

### Other Peripherals

**Audio:** Line-in and line-out interface, with 3.5 mm mini jack

**KB/MS:** 2 PS/2 interface supporting standard PS/2 keyboard and mouse

### Display

**Panel Size:** 19 inch wide viewable image size

**Panel Type:** MVA

**Aspect Ratio:** 5:4

**Pixels:** 1280 x 1024 (SXGA)

**Response Time:** 20 ms

**Contrast Ratio:** 2000:1

**Light Intensity:** 300 cd/m<sup>2</sup>

**Viewing Angles:** 178°/178°

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

**Max. No. of Colors:** 16.7M (8 bits/color)

**Display Interface:** Dual channel LVDS

**Resolution:**

- VGA: 640 x 480
- SVGA: 800 x 600
- XGA: 1024 x 768
- SXGA: 1280 x 1024

### Ethernet Interface

**LAN:** Auto-sensing 10/100/1000 Mbps ports (RJ45) x 2

**Magnetic Isolation Protection:** 1.5 kV built-in

### Serial Interface

**Serial Standards:** 2 RS-232/422/485 ports, software-selectable (DB9 male)

### Serial Communication Parameters

**Data Bits:** 5, 6, 7, 8

**Stop Bits:** 1, 1.5, 2

**Parity:** None, Even, Odd, Space, Mark

**Flow Control:** RTS/CTS, XON/XOFF, ADDC® (automatic data direction control) for RS-485

**Baudrate:** 50 bps to 115.2 kbps (supports non-standard baudrates; see user's manual for details)

### Serial Signals

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

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

**RS-485-4w:** TxD+, TxD-, RxD+, RxD-, GND

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

### NMEA Interface

**Serial Standards:** 4 NMEA 0183 ports

**Base Serial Standard:** RS-422

**Optical Isolation Protection:** ±6kV contact discharge, ±8kV air discharge

**Voltage Differential:** -15 V to + 15 V

**Baudrate:** 4800 bps

**Data Bits:** 8

**Stop Bits:** 1, 1.5, 2

**Parity:** None

**Handshake:** None

### LEDs

**System:** Storage, Power

**LAN:** 100M/Link x 2, 1000M/Link x 2 (on connector)

### Front Panel

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

**Smart OSD:** Yes

### Physical Characteristics

**Housing:** Aluminum sheet metal

**Weight:** 7.8 kg (17.33 lb)

**Dimensions:** 429 x 387 x 74.5 mm (16.89 x 15.24 x 2.93 in)

**Mounting:** VESA, panel, and desktop

**System Cooling:** Fanless thermal design

### 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: IP 54
- Rear: IP 22

**Anti-Vibration:** 0.7 g @ DNV2.4 (Class A), sine wave, 2-100 Hz, 1 Oct./min., 1.5 hr per axis

### Power Requirements

**Input Voltage:**

- 24 VDC, 6 A or (18 to 34 VDC, 8 A max.), screw-type terminal block
- 100 to 240 VAC, 50 to 60 Hz, 2 A, AC power inlet

### Standards and Certifications

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

**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:** IEC 60945 4th, IEC 61174, IEC 61162, DNV2.4, IACS E10

**Green Product:** RoHS, cRoHS, WEEE

### Reliability

**Automatic Reboot Trigger:** Built-in WDT (watchdog timer) supporting 1-255 levels for time interval system reset, software programmable

### Warranty

**Warranty Period:**

- Computer systems: 3 years
- LCD panels: 1 year

**Details:** See [www.moxa.com/warranty](http://www.moxa.com/warranty)

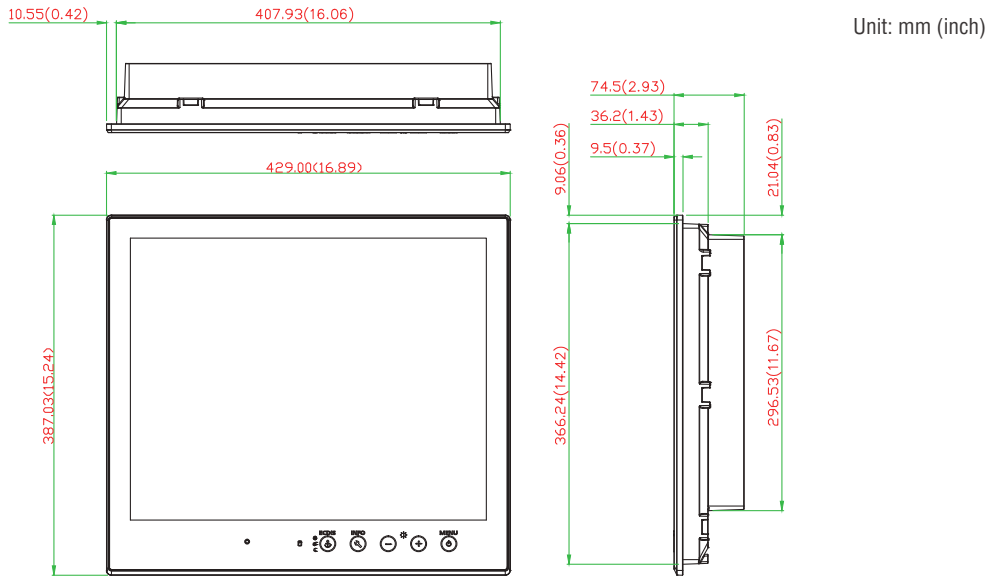
We recommend taking the following precautions to minimize heat build-up within the display:

- 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  $25^\circ\text{C}$ , 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  $55^\circ\text{C}$  for bridge applications, it is best to ensure that the ambient temperature does not exceed  $25^\circ\text{C}$ . Doing so will increase the life of your display and minimize service costs.

**Dimensions**



Unit: mm (inch)

**Ordering Information**

**Available Models**

Model name	Panel Size	Touch	CPU	RAM	Storage (pre-installed)	OS (pre-installed)	Storage Slot	LAN	Serial	USB 2.0	NMEA 0183	Video Out	Audio	PS/2	Power Input	Operating Temp.
MPC-2190Z-W7E	19" (5:4)	Multi-touch	Celeron 1047UE	4 GB	64-GB SSD	W7E 64-bit	1 SSD (internal)	2	2	4	4	1 VGA + 1 DVI-D	✓	✓	24 VDC (18-32 V) 100-240 VAC	-15 to $55^\circ\text{C}$
MPC-2190Z	19" (5:4)	Multi-touch	Celeron 1047UE	4 GB	N/A	N/A	1 SSD (internal)	2	2	4	4	1 VGA + 1 DVI-D	✓	✓	24 VDC (18-32 V) 100-240 VAC	-15 to $55^\circ\text{C}$
MPC-2190X	19" (5:4)	Non-touch	Celeron 1047UE	4 GB	N/A	N/A	1 SSD (internal)	2	2	4	4	1 VGA + 1 DVI-D	✓	✓	24 VDC (18-32 V) 100-240 VAC	-15 to $55^\circ\text{C}$
MPC-2197Z	19" (5:4)	Multi-touch	i7-3517UE	4 GB	N/A	N/A	1 SSD (internal)	2	2	4	4	1 VGA + 1 DVI-D	✓	✓	24 VDC (18-32 V) 100-240 VAC	-15 to $55^\circ\text{C}$
MPC-2197X	19" (5:4)	Non-touch	i7-3517UE	4 GB	N/A	N/A	1 SSD (internal)	2	2	4	4	1 VGA + 1 DVI-D	✓	✓	24 VDC (18-32 V) 100-240 VAC	-15 to $55^\circ\text{C}$

Note: Use the Moxa CTOS process to select RAM, storage, and OS options. Please contact your Moxa sales representative for details.

**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, Australia plug
- PWC-C13CN-3B-183:** Power cord with 3-pin connector, China plug

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

- 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

**Package Checklist**

- MPC-2190 panel computer
- 2 keys for the locking removable storage trays
- 1 2-pin terminal block for DC power input
- 2 5-pin terminal blocks for NMEA 0183 v2 interfaces
- Hard disk installation kit
- Documentation and driver DVD
- Quick installation guide (printed)
- Warranty card