MPC-2190 Series

19-inch ECDIS color calibrated, fanless panel computers

> 19-inch panel computer
> Color calibrated for ECDIS compliance
> Fanless system design with FloTHERM®
> SavvyTouch™ Controls
> 3rd Generation Intel® Core™ to Celeron® processor (Celeron® 1047UE, 1.40 GHz, and Intel® Core i7 2610UE 1.5 GHz)
> 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.
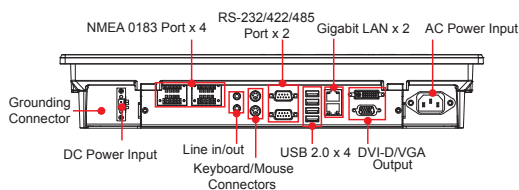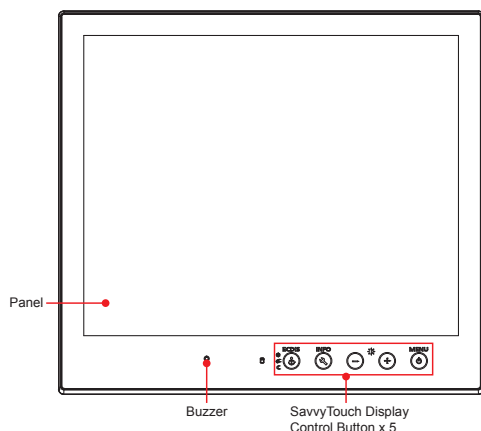
The MPC-2190 series comes with a range of standard display enhancements useful in industrial environments (including full range dimming, wide viewing angles, and optional optical bonding), as well as a few innovations especially deployed for maritime environments: user-friendly OSD controls, called SavvyTouch, 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

Panel

Buzzer

SavvyTouch Display Control Button x 5

NMEA 0183 Port x 4

RS-232/422/485 Port x 2

Gigabit LAN x 2

AC Power Input

Grounding Connector

DC Power Input

Line in/out Keyboard/Mouse Connectors

USB 2.0 x 4

DVI-D/VGA Output

Specifications

Computer
CPU: Intel Celeron® Processor 1047UE (2M Cache, 1.4 GHz)
OS: Windows 7 Professional, Windows XP Embedded, Windows Embedded Standard 7, Windows XP SP3 (models with OS pre-installed available by request)
System Chipset: Intel BD82HM65 platform controller hub
System Memory: 4 GB pre-installed: 1 slots of 4 GB DDR3-1066 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)
Digital Input/Output: 4 DIs, 4 DOs, or 8 DIs, 8 DOs (optional)
LPT Port: 1 (available on request)
Buzzer: 75 to 85 db (IEC 60945 complied)

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/m2
Viewing Angles: 178°/178°
Active Display Area: 376.32 (H) x 301.06 (V) mm
Max 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: 2 auto-sensing 10/100/1000 Mbps ports (RJ45)
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
Dimensions: 429 x 387 x 74.5 mm (16.89 x 15.24 x 2.93 in)
Mounting: Flush mounting
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 @ DNV 2.4 (Class A), sine wave, 2-100 Hz, 1 Oct./min., 1.5 hr per axis
• 1 g @ DNV 2.4, random wave, 3-100 Hz, 2.5 hr per axis
• 1 g @ DNV 2.4 (Class C), sine wave, 2-50 Hz, 1 Oct./min., 1.5 hr per axis

Power Requirements
Input Voltage: 115 to 230 VAC, 50/60 Hz, 24 VDC
Power Consumption: 40 W to 125 W (max.)

Standards and Certifications
Safety: UL 60950-1, CCC
EMC: EN 55022 Class B, EN 55024-4-2, EN 55024-4-3, EN 55024-4-4, FCC Part 15 Subpart B Class A
Marine Standard: IEC-60945 4th, IEC-61162, IEC-61174
Marine Type Approval: DNV 2.4 and IACS E10, ABS, MR-A003
Green Product: RoHS, cRoHS, WEEE

Reliability
MTBF (mean time between failures): 202,309 hrs
Automatic Reboot Trigger: Built-in WDT (watchdog timer) supporting 1-255 levels for time interval system reset, software programmable

Warranty
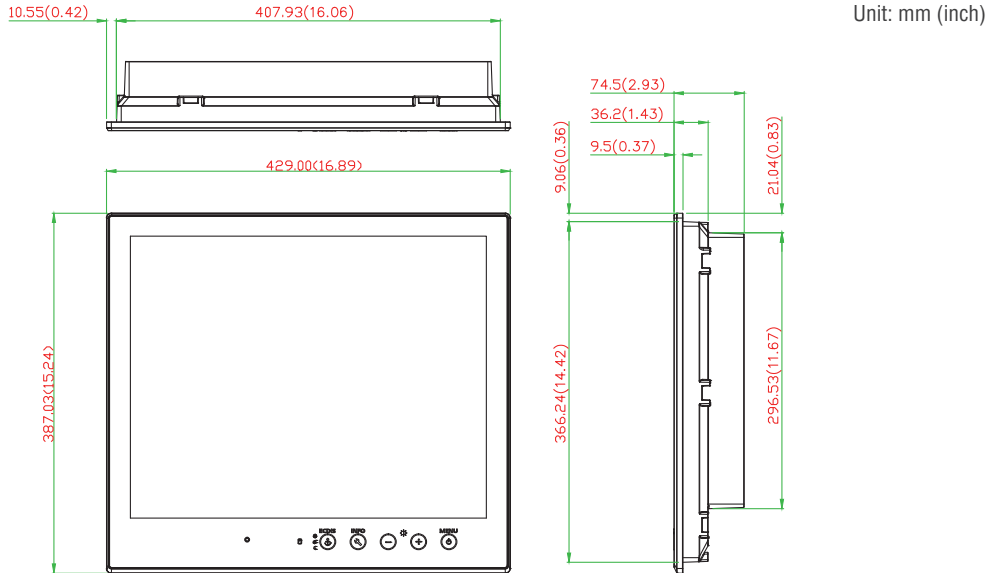**Warranty Period:** 1 year
Details: See www.moxa.com/warranty

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 for bridge applications, 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.

Dimensions

Unit: mm (inch)

10.55(0.42)   407.93(16.06)

74.5(2.93)
36.2(1.43)
9.5(0.37)
9.06(0.36)
21.04(0.83)

429.00(16.89)

387.03(15.24)

366.24(14.42)
296.53(11.67)

Ordering Information

Available Models
MPC-2190X: 19-inch fanless panel computer with Intel Celeron 1047UE 1.4 GHz processor, NMEA 0183, RS-232/422/485 serial ports, Gigabit LAN ports, USB 2.0 ports, dual AC/DC power inputs, tape bonding
MPC-2190Z: 19-inch fanless panel computer with Intel Celeron 1047UE 1.4 GHz processor, NMEA 0183, RS-232/422/485 serial ports, Gigabit LAN ports, USB 2.0 ports, dual AC/DC power inputs, tape bonding, projected capacitive touch screen
MPC-2197X: 19-inch fanless panel computer with Intel Core i7 3517UE 1.7 GHz processor, NMEA 0183, RS-232/422/485 serial ports, Gigabit LAN ports, USB 2.0 ports, dual AC/DC power inputs, 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, Australia plug
PWC-C13CN-3B-183: Power cord with 3-pin connector, China plug

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