

# Centurion™ C5 Series Custom Control Panel

The Centurion C5 Custom Control Panel is a fully integrated control and monitoring system for a variety of applications. Control panels are designed on an engineered-to-order basis, and we can partner with you to create user customized, multi-application design for your specifications. We specialize in building panels for use in hazardous areas, and you can be assured that the design will include components and wiring methods to meet those standards. The Centurion C5 Controller in these panels is custom programmed for any variety of custom control loop algorithms, custom calculations, highly specialized valve sequencing or any other control scenario for your equipment. Applications for electric motor, electronic engine and mechanical engine-driven gas compressors and pumps are examples of the types of equipment that can be used with our control panel; however, the system lends itself to almost any control solution that you may have in mind.

The application firmware is developed in-house and tested fully by our quality control department. It can be updated in panels using USB memory storage devices or free PC-based transfer tools.



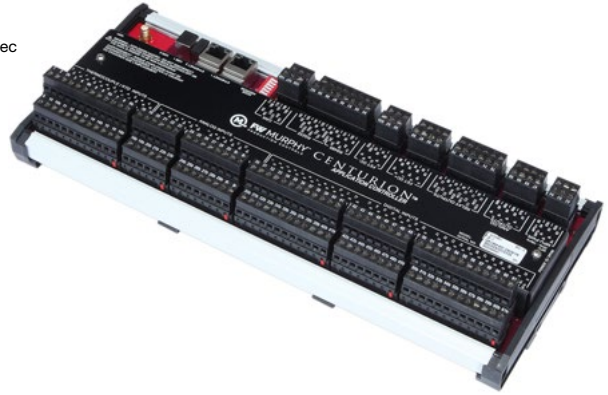
## C5 Series Main I/O Module

- Operating temperature: -40° to 185° F (-40° to 85° C)
- Power input: 30 W max 10-30 VDC
- Application firmware:
  - Centurion Custom option offers highly customized applications
  - Centurion programmable integrates with Rockwell Automation Processors as I/O module to write IEC 61131-3 logic (Ladder Logic, Structured Text, Function Block Diagram)
- All I/O options individually software selectable: No jumpers required
- Clock: Battery backed internal real-time clock, approximately 10 years unpowered service life
- 12 Analog inputs\*:
  - 0-24 mA or 0-5 VDC, 15-bit hardware
  - 4 configurable for resistive potentiometer measurement
- 32 Digital inputs\*:
  - NO or NC (active high/active low) intrinsically safe
  - Optically isolated DC digital inputs (active high/active low) with LED indicators
  - Polarity sense / wire fault detection on normally closed systems
  - Approved for use with general purpose switches in hazardous areas
- Eight temperature inputs\*:
  - J or K Type Thermocouples (ungrounded)
  - 3-wire 100Ω Pt RTD temperature inputs\*\*\*
  - Open, short DC-, short DC+ wire fault detection
  - Cold junction compensation
- One magnetic pickup input/AC run signal:
  - 30 to 10 kHz, 4.5 VAC rms min, 120 VAC rms max.
- 10 digital outputs:
  - LED indicators
  - 4 relay outputs, form C, dry contacts
  - 4 FET outputs (source)
  - 2 FET outputs (sink)
- Four analog outputs:
  - 4-20 mA, 16-bit hardware

(Continued)

## C5 Series Main I/O Module (continued)

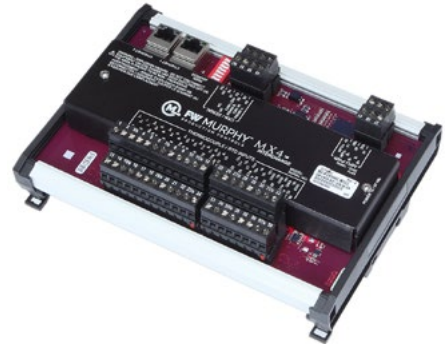
- 11 Communication ports:
  - Two Serial RS232:
    - > Protocol: Modbus RTU (server)
  - Two Serial RS485:
    - > Protocol: Modbus RTU (server)
  - One USB: Host Type A (data log access, firmware updates)
  - One USB: Server Type B (configuration/firmware updates)
  - Two CAN:
    - > One proprietary for FW Murphy hardware
    - > One reserved for J1939 Engine ECU
  - Two Ethernet 10/100 (DLR), Single MAC ID:
    - > Protocol: Modbus TCP/IP (server)
    - > EtherNet/IP (CIP)
  - One Wi-Fi: Optional C5-1 only
- Third-party approvals:
  - Class 1, Div 2, Grps A, B, C, D Haz. Loc. T4
  - Class I, Zone 2, AEx ec [ic] nC IIC T4 Gc Ex ec [ic] nC IIC T4 Gc X
  - ATEX Zone 2
    - II 3G Ex ec [ic] nC IIC T4 Gc
    - DEMKO 18 ATEX 1926X
    - 40° C ≤ Tamb ≤ +85° C
  - IECEx Zone 2
    - Ex ec [ic] nC IIC T4 Gc
    - IECEX UL 18.0072X
    - 40° C ≤ Tamb ≤ +85° C



## Expansion I/O Modules

### MX4-R2 Expansion I/O Module

- Operating Temperature:
  - 40° to 185° F (-40° to 85° C)
- Power input: 14.1 W max 10-30 VDC
- 18<sup>†</sup> thermocouple inputs\*
- J or K Type thermocouples (ungrounded)
- 9<sup>†</sup> 3-wire 100Ω Pt RTD temperature inputs\*,\*\*\*
  - Open, short DC-, short DC+ wire fault detection
  - Cold junction compensation
- One magnetic pickup input\* / AC Run Signal:
  - 4.5 VAC - 120 VAC, 30 Hz - 10 kHz
- Third-party approvals:
  - Class 1, Div 2, Grps A, B, C, D Haz. Loc. T4
  - Class I, Zone 2, AEx ec [ic] IIC T4 Gc Ex ec [ic] IIC T4 Gc X
  - ATEX Zone 2
    - II 3G Ex ec [ic] IIC T4 Gc
    - DEMKO 18 ATEX 1926X
    - 40° C ≤ Tamb ≤ +85° C
  - IECEx Zone 2
    - Ex ec [ic] IIC T4 Gc
    - IECEX UL 18.0072X
    - 40° C ≤ Tamb ≤ +85° C



### MX5-R2 Expansion I/O Module

- Operating temperature:
  - 40° to 185° F (-40° to 85° C)
- Power input: 16.5 W max 10-30 VDC
- 24 Digital inputs\*:
  - NO or NC (active high/active low) intrinsically safe
  - Optically isolated DC digital inputs (active high/active low) with LED indicators
  - Polarity sense / wire fault detection on normally closed systems
  - Approved for use with general purpose switches in hazardous areas
- 10 analog inputs\*: 0-24 mA or 0-5 VDC, 15 bit hardware
- 16\* digital outputs: FET (sink)
- 4 analog outputs: 4-20 mA, 16 bit hardware
- 1 magnetic pickup input\* / AC Run Signal:
  - 4.5 VAC - 120 VAC, 30 Hz to 10 kHz
- Third-party approvals:
  - Class 1, Div 2, Grps A, B, C, D Haz. Loc. T4
  - Class I, Zone 2, AEx ec [ic] IIC T4 Gc Ex ec [ic] IIC T4 Gc X
  - ATEX Zone 2
    - II 3G Ex ec [ic] IIC T4 Gc
    - DEMKO 18 ATEX 1926X
    - 40° C ≤ Tamb ≤ +85° C
  - IECEx Zone 2
    - Ex ec [ic] IIC T4 Gc X
    - IECEX UL 18.0072X
    - 40° C ≤ Tamb ≤ +85° C



\* Non-incendive. (Digital Inputs, Analog Inputs and Temperature Inputs are intrinsically safe and non-incendive.)

\*\*\* RTD=Resistive Temperature Device, American RTD Standard, TCR 0.00392, units Ohms/Ohm / deg. between 0-100 C.

<sup>†</sup> When configured for an RTD channel, two consecutive odd/even T/C channels are consumed.

## MV-5-C, M-View® Monochrome LCD Display

- Operating temperature:
  - 40° to 185° F (-40° to 85° C)
- Power input: 11 W max 10-30 VDC
- Screen: 320 x 240 pixels, LCD display with backlight
- User interface: 12-key keypad set point entry, alarm acknowledgment, start, stop, reset, etc.
- Communications:
  - RS232-1/RS485-1 (Modbus RTU client)
  - RS485-2 (Modbus RTU server)
  - 1 USB Server Type B (firmware updates)
  - 1 USB Host Type A (reserved)
  - CAN x 2
    - >1 proprietary for FW Murphy Hardware
    - >1 reserved for J1939 engine ECU
- Customizable process screens:
  - Line by line
  - Gauge
  - Control loop
  - Generic register
- Built-in screens (examples):
  - Digital input status and polarity
  - Digital output status
  - Temperature input status/fault
  - Fault snapshot (mirror of line by line)
  - Alarm log
  - Event log
- Third-party approvals: MV-5-C
  - Class 1, Div 2, Grps A, B, C, D Haz. Loc. T4
  - Class I, Zone 2, AEx ec [ic] IIC T4 Gc Ex ec [ic] IIC T4 Gc X
  - ATEX Zone 2
    - II 3G Ex ec [ic] IIC T4 Gc
    - DEMKO 18 ATEX 1926X
    - 40° C ≤ Tamb ≤ +85° C
  - IECEx Zone 2
    - Ex ec [ic] IIC T4 Gc
    - IECEX UL 18.0072X
    - 40° C ≤ Tamb ≤ +85° C



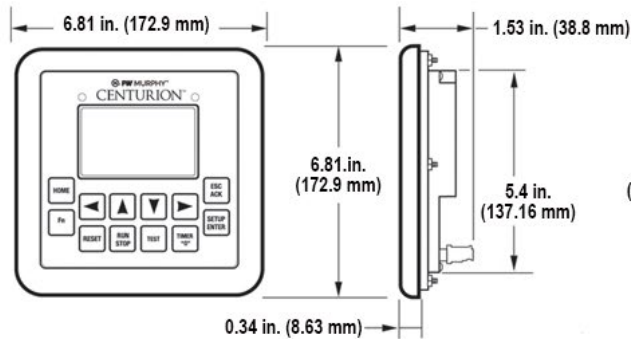
## MV-7T and MV-12T M-View® Touch Series Displays

- Operating temperature:
  - 4° to 140° F (-20° to 60° C)
- Power input:
  - MV-7T, 15 W max 10-30 VDC (36 W max with modules)
  - MV-12T, 23 W max 10-30 VDC (57 W max with modules)
- Screen (sunlight readable):
  - MV-7T, 800x480 pixels, 7" widescreen, brightness 1000 cd/m2
  - MV-12T, 1280x800 pixels, 12" widescreen, brightness 1600 cd/m2
- User interface: resistive analog touchscreen
- Communication interface
  - 2x RS232
  - 1x RS485
  - 2x USB host type A (file transfer, datalogging, USB device)
  - 1x USB server (program/firmware updates)
  - 2 Ethernet 10/100 Base TX (RJ45)
- Communication protocols:
  - EtherNet/IP (CIP)
  - Modbus TCP/IP
  - Modbus RTU standard
  - 300 plus available, web server
- Third-party approvals:
  - CE approved
    - EN 61326-1 immunity to industrial Locations emission CISPR 11 Class A
    - IEC/EN 61010-1
    - RoHS compliant
  - ATEX approved
    - II 3 G Ex ic nA IIC T4 Gc
    - II 3 D Ex tc IIIC T135°C Dc
    - DEMKO 14 ATEX 1387X
    - EN 60079-0, -11, -15, -31
  - IECEx approved
    - Ex ic nA IIC T4 Gc
    - Ex tc IIIC T135°C Dc
    - IECEx UL 15.0035X
    - IEC 60079-0, -11, -15, -31
  - UL approved
    - cULus listed for ordinary location: File #E302106
      - UL 61010-1, -2-201
    - cULus listed for hazardous location: File #E317425
      - Class I, Division 2, Groups A, B, C and D
      - Class II, Division 2, Groups F and G
      - Class III, Division 2 ANSI/ISA 12.12.01, C22.2 No. 213-M1987, 157-92
  - IP66 enclosure rating (face only)
  - Type 4X outdoor enclosure rating (face only)
  - ABS type approval for shipboard applications

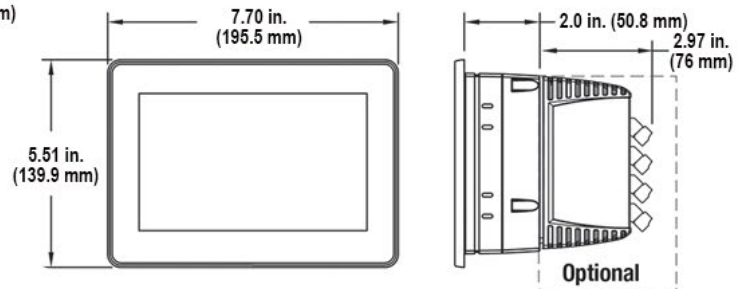


## Dimensions

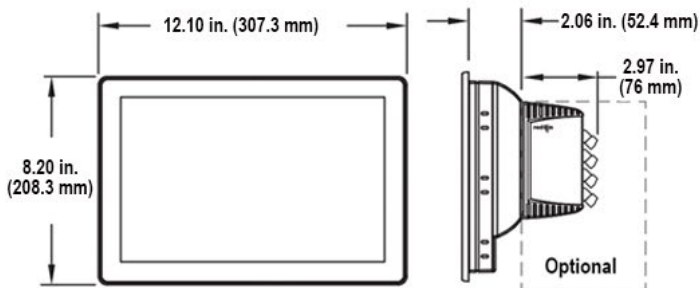
### MV-5-C



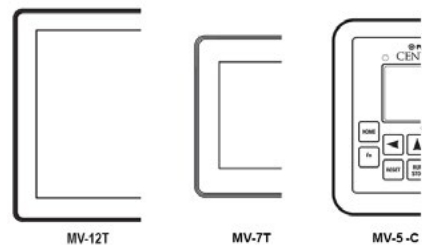
### MV-7T



### MV-12T

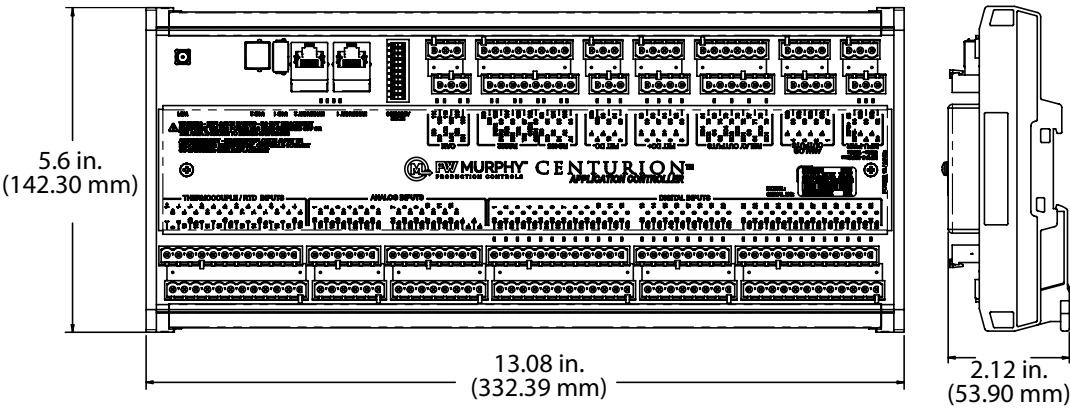


### Side-by-Side Screen Approximate Sizes



Dimensions (continued)

C5 Series Main Module



How to Order

Select the Centurion Custom Controller.  
C5

Specify any combination up to three  
expansion I/O modules (optional).  
MX4 R2, MX5-R2

Specify a display.  
MV-5-C, MV-7T or MV-12T

The minimum system requirements:  
C5 Main I/O Module  
Display capable of Modbus communications

The FW Murphy M-View Series display modules are highly  
integrated HMI for use with the Centurion system and is  
recommended for most customers.

Some systems may require additional I/O which is available on the  
MX4-R2 or MX5-R2 expansion I/O modules.

Part Number	Model and Description	Notes
Specify Model	C5, Centurion Controller (Main Module)	Custom Controller
	MV-5-C, (5 in. monochrome LCD display)	Optional
	MV-7T, (7 in. touchscreen full-color display)	Standard
	MV-12T, (12 in. touchscreen full-color display)	Optional
	MX4-R2 expansion I/O module	Optional
	MX5-R2 expansion I/O module	