FW MURPHY®
PRODUCTION CONTROLS

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Centurion PLUS™ Full-Featured Controller

The Centurion PLUS Full-Featured Controller is a control and monitoring system. Primarily designed for engine/electric motor-driven compressors, the Centurion is well suited for many control applications using standard configurations to save money and reduce training. Additionally, FW Murphy can custom design a control package to meet exact specifications for a variety of applications.

The Centurion PLUS continuously monitors input signals and set points and commands outputs to maintain proper operation. When an out-of-limits event occurs, the controller will stop, shut down or control equipment to change conditions.

The auto-start capabilities of the Centurion PLUS allow for start/stop based on parameters such as pressure set points or by digital signals.

The Centurion PLUS provides real-time data via communication ports to a connected display and/or supervisory system. This advanced system offers multiple options for remote communications and operation including HMIs, PLCs, PCs and SCADA systems. The industry-standard MODBUS* RTU protocol means greater support for a wide variety of communication equipment including radio and satellite communications systems.

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Features

Features of the Centurion PLUS:

- Custom programmed to meet exact application requirements
- Communications via 2 RS485/RS232 ports
- USB 1.1 support for laptops without a serial port
- Upload/download capabilities for set point edits
- Shut-down and alarm history, maintenance timers
- Complex valve logic and sequencing support
- PID Loops w/ overrides (multiple control loop possibilities)
- Expand I/O up to three expansion modules, any combination
- Firmware stored in non-volatile flash memory
- Set points stored in non-volatile eeprom memory
- Approved Certification for Class 1, Division 2, Groups B, C & D areas

Expanded calculation abilities

- Custom rod load equations
- Look up table support
- Temperature channel deviation

Expanded communication abilities

- Modem dial in/dial out using terminal interfaces, MODBUS RTU protocols
- Remote monitoring and control via Ethernet (several protocols supported including but not limited to MODBUS TCP, TCP/IP Internet web server)
- Event driven email, SMS text messaging possible
- Protocol conversion (many industry protocols supported)
- Web page hosting

Data logging

- Using a common SD card, 2 GB of storage
- Trends data as well as capture of readings at time of fault
- Security file logs all set point changes
  - Importable to CSV files
  - Multi-language support

Basic Components

The Centurion PLUS consists of a display module, a main I/O module and up to 3 optional expansion I/O modules. No special cables are required.

The Centurion PLUS is designed for use within a weatherproof enclosure only.

Display Module (Head): Choose from
MV-5-C - LCD Monochrome graphic screen
MV-7T, MV-10T or MV-12T - Full-color touch screen displays in 7, 10 and 12 inch screens
Main I/O Module: CPC4-1-A: 32 DI, 10 DO, 12 AI, 8 TC, 2 AO, 1 MPU
Expansion Module: MX4: 18 TC (Type J or K). MX5: 24 DI, 8 DO, 10 AI, 1 MPU.
MX5-A: 8 DO, 10 AI, 4 AO, 1 MPU. MX5-D: Same I/O as MX5, additional 8 digital outputs.
DI=Digital Input; DO=Digital Output; AI=Analog Input; AO=Analog Output; TC=Thermocouple Input; MPU=Magnetic Pick Up Input

Controller

Power Input: 10 -32 VDC
Operating Temp:
-40° to 185° F (-40° to 85° C)

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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 master)
  - RS485-2 (MODBUS RTU slave)
  - 1 USB Slave 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
  - Gage
  - 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:
  - North America:
  - Class 1, Div 2, Grps A, B, C, D Haz. Loc. T4
  - Class I, Zone 2, AEx ec ic [ic] IIC T4 Gc Ex ec ic [ic] IIC T4 Gc X
  - ATEX Zone 2
    - II 3G Ex ec ic [ic] IIC T4 Gc
    - DEMKO 18 ATEX 1926X
    - -40°C ≤ Tamb ≤ +85°C
  - IECEx Zone 2
    - Ex ec ic [ic] IIC T4 Gc
    - IECEx UL 18.0072X
    - -40°C ≤ Tamb ≤ +85°C

MV-7T, MV-10T 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-10T, 22 W max 10-30 VDC (52 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-10T, 640x480 pixels, 10.4" screen brightness 2500 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 slave (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

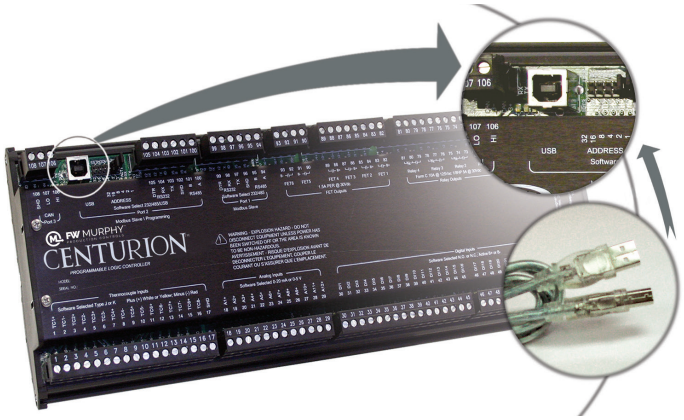
IP66 Enclosure rating (Face only)

Type 4X Outdoor Enclosure rating (Face only)

ABS Type Approval for Shipboard Applications

CPC4-1-A Main I/O Module

•Application Firmware: Programming proprietary C Language; PC-based upload/download set point editor
- All I/O options individually software selectable. No jumpers required
- 32 optically isolated DC digital inputs: NO or NC, (active high/active low) non-incendive
  - LED indicators
  - Approved for use with general purpose switches in hazardous areas
- 12 analog inputs: 0-24 mA or 0-5 VDC , 10 bit hardware
- 8 thermocouples
  - Open thermocouple
  - Cold junction compensation
- 1 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)
- 2 analog outputs
  - 4-20 mA, 16 bit hardware
- 3 Communication Ports:
  - Port 1 (SERIAL):
    - Interface: RS232 or RS485
    - Protocol: MODBUS RTU (slave)
  - Port 2 (SERIAL):
    - Interface: RS232 or RS485
    - Protocol: MODBUS RTU (slave), proprietary (configuration transfer)
  - Port 2 (USB): Interface: USB 1.1 compliant port emulating RS232 communications via PC driver
    - Protocol/Services: MODBUS RTU (slave), proprietary (configuration transfer)
    - Connection: USB Type B connector
    - Automatic selection of USB when a signal is detected on the USB Type B connector
  - Port 3: Interface: CAN bus
    - Protocol/Services: Proprietary communications for expansion I/O module support
- Third-party approvals:
  - CSA: Class 1, Div 2, Grps B, C, and D; T4 (Ambient 85 deg. C)
    - CAN/CSA Standard C22.2 No. 0-10
    - General Requirements-Canadian Electrical code, Part II Tenth Edition
    - C22.2 no 142-M1987(R2014) Process Control Equipments – Third Edition
    - C22.2 no 213-M1987(R2013) Non-incendive Electrical Equipment for use in Class I Div 2 Hazardous locations
    - ANSI/UL Standard 508 Industrial Control Equipment
    - ANSI/ISA-12.12.01-2012 Non-incendive Electrical Equipment for Use in Class I and II, Div 2 and Class III, Div 1 and 2 Hazardous (Classified) Locations



MX4 Expansion I/O Module

- All I/O options individually software selectable. No jumpers required.
- 18 thermocouple inputs: Type J or K, 12-bit hardware
- Open thermocouple detection: Drives channel reading high (max of scale)
- Cold junction compensation
- 1 magnetic pickup input: 4.5 VAC–120 VAC, 30–10kHz
- Third-party approvals:
  - CSA: Class 1, Div 2, Grps B, C, and D; T4 (Ambient 85 deg. C)
    - CAN/CSA Standard C22.2 No. 0-10
    - General Requirements-Canadian Electrical code, Part II Tenth Edition
    - C22.2 no 142-M1987(R2014) Process Control Equipments – Third Edition
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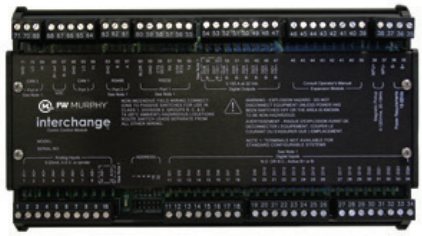
    - ANSI/UL Standard 508 Industrial Control Equipment
    - ANSI/ISA-12.12.01-2012 Non-incendive Electrical Equipment for Use in Class I and II, Div 2 and Class III, Div 1 and 2 Hazardous (Classified) Locations

MX5 Expansion I/O Module



- 24 Digital Inputs: optically isolated DC digital inputs, (active high/ active low) non-incendive
- 10 analog inputs: 0–20 mA or 0–5 VDC, 10-bit hardware
- 8 digital outputs: open collector transistor. 150 mA (sink)
- 1 magnetic pickup input: 4.5 VAC–120 VAC, 30–10 kHz
- Third-party approvals:
  - CSA: Class 1, Div 2, Grps B, C, and D; T4 (Ambient 85 deg. C)
    - CAN/CSA Standard C22.2 No. 0-10
    - General Requirements-Canadian Electrical code, Part II Tenth Edition
    - C22.2 no 142-M1987(R2014) Process Control Equipments – Third Edition
    - C22.2 no 213-M1987(R2013) Non-incendive Electrical Equipment for use in Class I Div 2 Hazardous locations
    - ANSI/UL Standard 508 Industrial Control Equipment
    - ANSI/ISA-12.12.01-2012 Non-incendive Electrical Equipment for Use in Class I and II, Div 2 and Class III, Div 1 and 2 Hazardous (Classified) Locations

MX5-A Expansion I/O Module – Analog Output

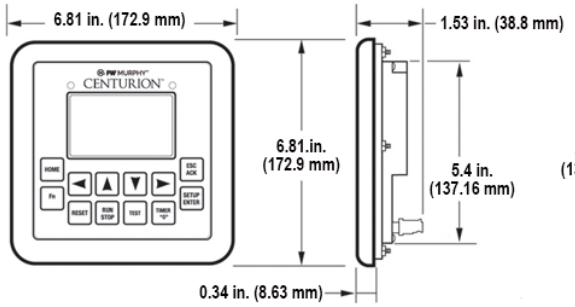
- 24 Digital Inputs: optically isolated DC digital inputs, (active high/ active low) non-incendive
- 10 analog inputs: 0-24 mA or 0-5 VDC, 10-bit hardware
- 8 digital outputs: open collector transistor, 150 mA (sink)
- 4 analog outputs: 4-20 mA, 16-bit hardware
- 1 magnetic pickup input: 4.5 VAC–120 VAC, 30–10 kHz

MX5-D Expansion I/O Module – Digital Output

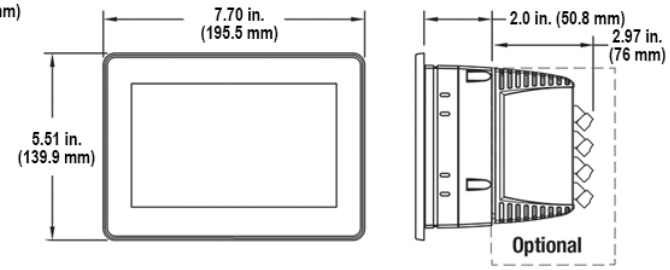
- 24 digital inputs: optically isolated DC digital inputs, (active high/active low) non-incendive
- 10 analog inputs: 0–20 mA or 0–5 VDC, 10-bit hardware
- 16 digital outputs: open collector transistor. 150 mA (sink)
- 1 magnetic pickup input: 4.5 VAC–120 VAC, 30–10 kHz

Dimensions

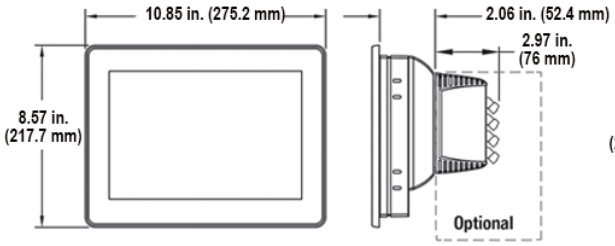
MV-5-C



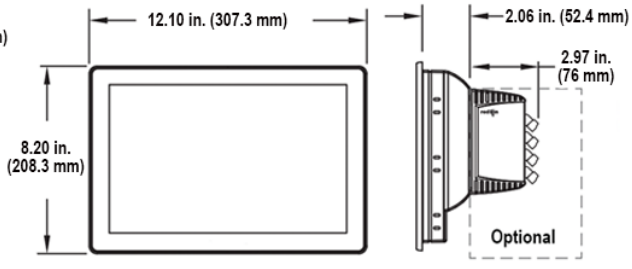
MV-7T



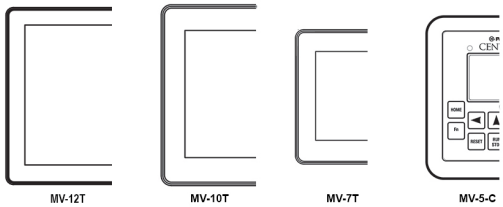
MV-10T



MV-12T

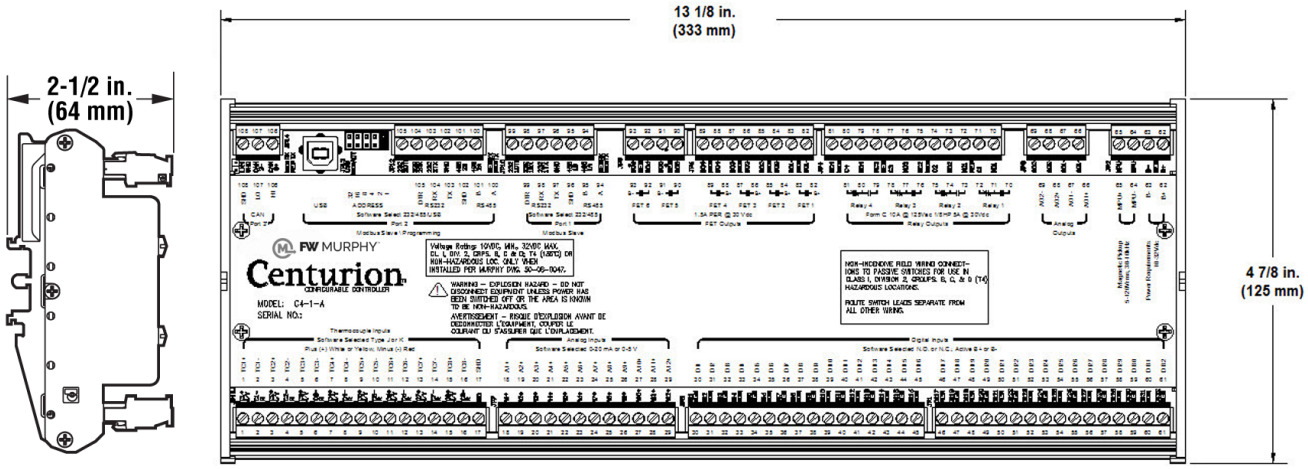


Side-by-Side Screen Approximate Sizes



Dimensions - continued

CPC4-1-A



How to Order

Select a Centurion Configurable Controller.
CPC4-1-A

Specify any combination up to three Expansion I/O Modules.
MX4, MX5, MX5-A, MX5-D

Specify One Display.
MV-5-C LCD Monochrome 5 inch screen
MV-7T - Full-color touch 7 inch screen
MV-10T - Full-color touch 10 inch screen
MV-12T - Full-color touch 12 inch screen

The minimum system requirements:
CPC4-1-A 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 or MX5 series expansion I/O modules.

Part Number	Description	Notes
Specify Model	CPC4-1-A, Centurion Controller	Standard
	MV-5-C, LCD Monochrome 5 inch display	Optional, Auto sync
	MV-7T, (7 in. touch, full-color display)	Standard, Auto sync
	MV-10T, (10 in. touch, full-color display)	Optional, Auto sync
	MV-12T, (12 in. touch, full-color display)	
	MX4 expansion I/O module	Optional
	MX5 expansion I/O module	
	MX5-A expansion I/O module	
	MX5-D expansion I/O module	