

# 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, Enovation Controls 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 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.

Features of the Centurion include:

- Custom programmed to meet exact application requirements
- Communications via 2 RS485/RS232 ports

## Basic Components

The Centurion consists of a display module, a main I/O module and optional expansion I/O module. No special cables are required. The Centurion is designed for use within a weatherproof enclosure only.

**Display Module (Head):** Choose from

- Standard MV-3-C LCD with graphic display
- Standard full-color VGA 6 in. or 10 in. touchscreen

**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, 8 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; RTD=Resistive Temperature Device

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- 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 common compact flash card memory, 1 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

## Controller General Specifications

**Power Input:** 10 -32 VDC

**Operating Temp:** -40° to 185° F (-40° to 85° C)

**Configuration:** PC-based Centurion Configuration Software

## MV-3-C Display Module with Graphical LCD

- Operating temperature: -40° to 185° F (-40° to 85° C)
- 320x240 pixels, LCD display with backlight
- 12-key keypad for user interface for set point entry, alarm acknowledgment, start, stop, reset, etc.
- Communications
  - RS232/RS485-1 (MODBUS master)
  - RS485-2 (reserved)
  - USB 1.1 compliant ports
    - Type A (reserved)
    - Type B (firmware updates)
  - CAN 1/2 (reserved)
- Customizable process screens (up to nine)
  - Line by line
  - Gauge
  - Control loop
  - Generic register



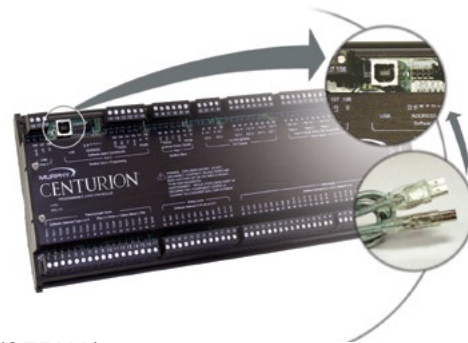
## Full-Color VGA Touch Screen

- Operating temperature: 32 to 122° F (0 to 50° C)
- Full-color VGA touch screen (resistive analog)
- 6" standard offering, 10" upgrade
- Data logging - 1 GB memory card
- Data log transfer on the fly
- Communications
  - Serial RS232 - 2
  - Serial RS485 - 1
  - USB 1.1 - 1
  - Ethernet (several protocols supported including, but not limited to MODBUS TCP, TCP/IP Internet Web server)
- Five-button keypad for on screen menus (6")
- Eight-button keypad for on-screen menus (10")
- Standard screen offerings
- Front panel power LED
- 24 VDC powered



## 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: 0-24mA or 0-5VDC , 10 bit hardware
- Eight thermocouples
  - Open thermocouple
  - Cold junction compensation
- One magnetic pickup input/AC run signal: 30 to 10kHz, 4.5VAC rms min, 120VAC rms max.
- 10 digital outputs:
  - LED indicators
  - 4 relay outputs, form C, dry contacts
  - 4 FET outputs (source)
  - 2 FET outputs (sink)
- Two analog outputs
  - 4-20mA, 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

## Expansion I/O Modules

### 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
- One magnetic pickup input: 4.5VAC – 120 VAC, 30 – 10kHz

### MX5 Expansion I/O Module

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

### MX5-A Expansion I/O Module

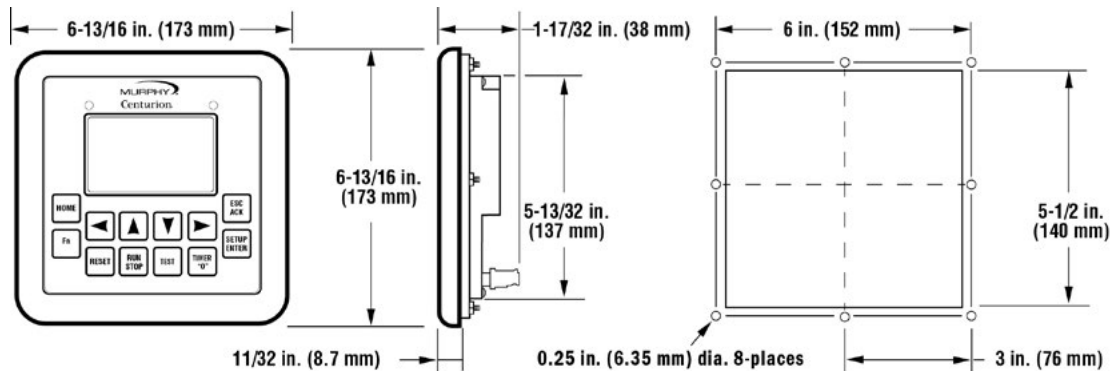
- Eight analog inputs: 0-24mA or 0-5VDC, 10 bit hardware
- Eight digital outputs: open collector transistor, 150mA (sink)
- Four analog outputs: 4-20mA, 16 bit hardware
- One magnetic pickup input: 4.5VAC – 120 VAC, 30 – 10kHz

### MX5-D Expansion I/O Module – Analog Output Option

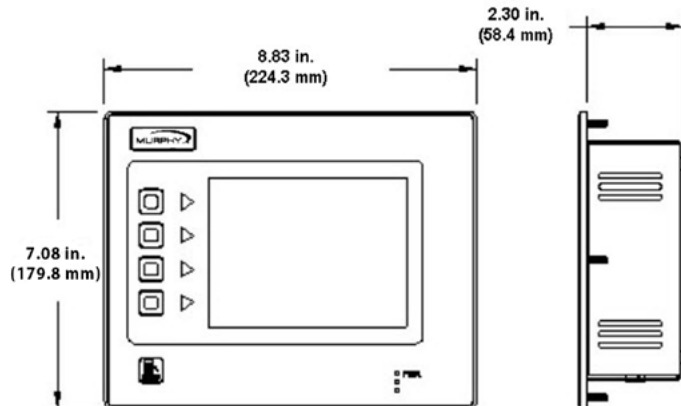
- 24 digital inputs: optically isolated DC digital inputs, (active high/active low) non-incendive
- 10 analog inputs: 4–20mA or 0–5VDC, 10 bit hardware
- 16 digital outputs: open collector transistor. 150mA (sink)
- One magnetic pickup input: 4.5VAC–120VAC, 30–10kHz

## Dimensions

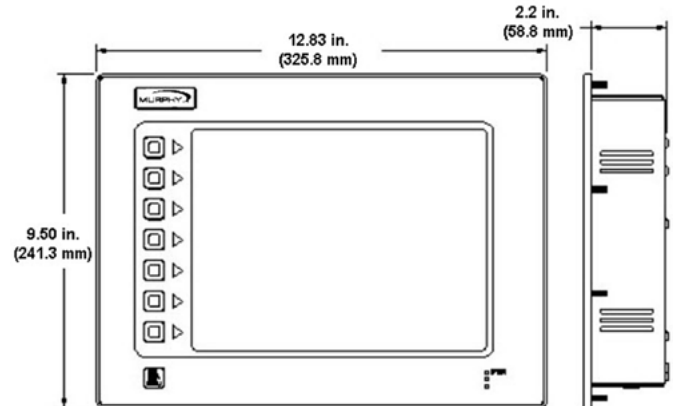
### MV-3-C



### 6-Inch VGA Touch Screen

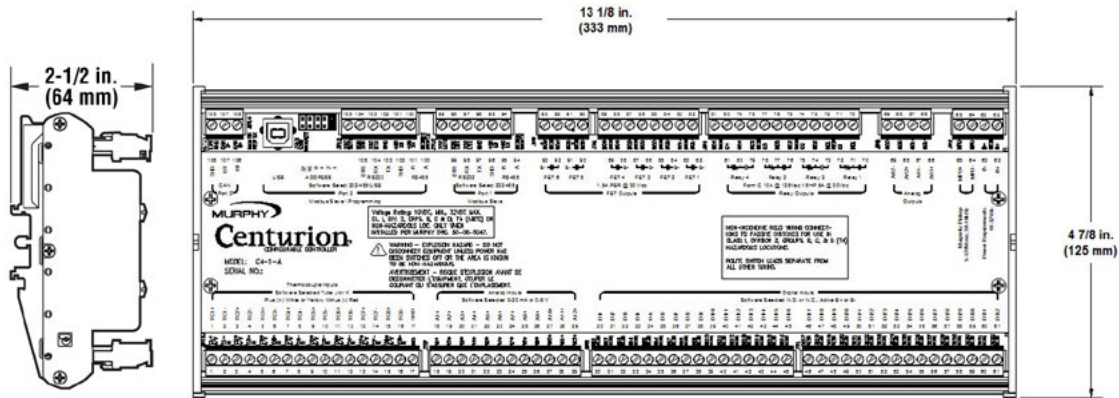


### 10-Inch VGA Touch Screen



# 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 and/or MX5-D

Specify One Display  
MV-3-C LCD

6-inch VGA Touch Screen  
10-inch VGA Touch Screen

The minimum system requirements:  
CPC4-1-A Main I/O Module  
Display capable of MODBUS communications

The Murphy MV-3-C Display Module is a 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-A expansion I/O modules.

Part Number	Description	Notes
Specify Model	CPC4-1-A, Centurion Controller	
	MV-3-C, Monochrome display	
	6-inch VGA touch screen	
	10-inch VGA touch screen	
	MX4 expansion I/O module	
	MX5-A expansion I/O module	
50000774	Ignition noise (choke) filter	
00030866	CPC4-1-A Plug kit	Printed replacement terminal plugs for main I/O module
00030867	MX4 Plug kit	Printed replacement terminal plugs for MX4 expansion I/O module
00030868	MX5 Plug kit	Printed replacement terminal plugs for MX5 expansion I/O module
50702313	Centurion configuration tool for user application setup	MurphyNET Configuration Suite is software for modifying sequence of operation, set points, timers, faults and displays for Centurion. Includes file transfer utilities for configuration and upgrades.