

# Centurion™ Configurable Controller

The Centurion Configurable 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 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 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:

- Fully configurable control and monitoring system. Applications include reciprocating/screw compressors and pump systems.
- Expandable system to meet most three-stage compressor applications.
- User configurability with Windows-based software allows the operator to point and click to implement standard processes. All I/O points can be custom configured.
- No programming experience required.
- Local and remote communications, MODBUS RTU via RS485/232.
- USB 1.1 support for laptops without a serial port.

- Upload/download capabilities for configurations and set points.
- Approved certification for Class I, Division 2, Groups B, C & D areas.
- Shut-down history list (Last 20 events)
- Event history list (Last 32 events)
- Active alarm list
- 10 maintenance timers
- Run hourmeter
- Support for no-flow totalization
- Number of starts per hour (electric motor)
- Six PID loops with override (up to three each)
- Configuration templates provided for simple use
- Configurations stored in non-volatile flash memory
- Set points stored in non-volatile EEPROM memory

## 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:** C4-1-A: 32 DI, 10 DO, 12 AI, 8 TC, 2 AO, 1 MPU

**Expansion Module:** MX4: 18 TC (Type J or K). MX5-A: 8 DO, 8 AI, 4 AO, 1 MPU

DI=Digital Input; DO=Digital Output; AI=Analog Input; AO=Analog Output; TC=Thermocouple Input; MPU=Magnetic Pick Up Input; RTD=Resistive Temperature Device

## 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)
- 320 x 240 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
  - Gage
  - Control loop
  - Generic register



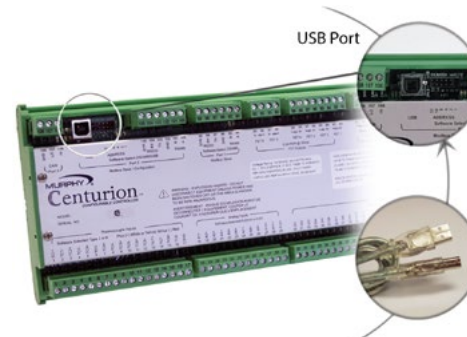
## Full-Color VGA Touch Screen

- 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



## C4-1-A Main I/O Module

- 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
- Eight thermocouples
  - Open thermocouple
  - 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)
- Two 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

## 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: 4.5 VAC – 120 VAC, 30 – 10 kHz



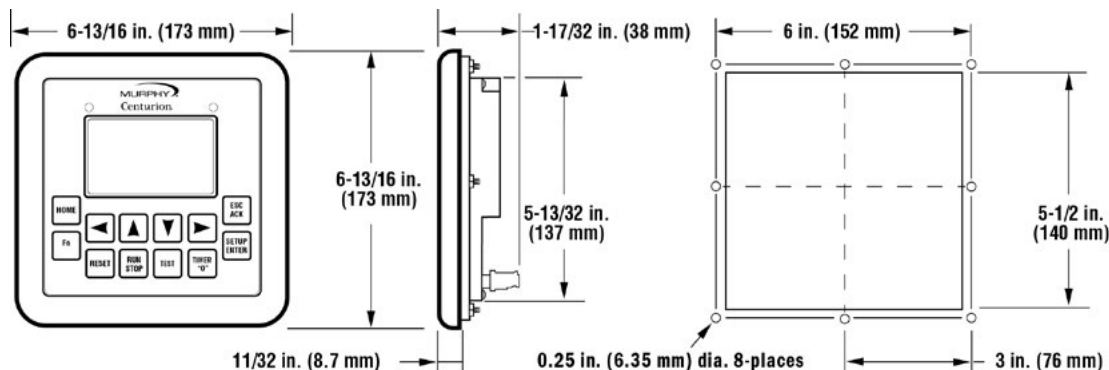
### MX5-A Expansion I/O Module

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

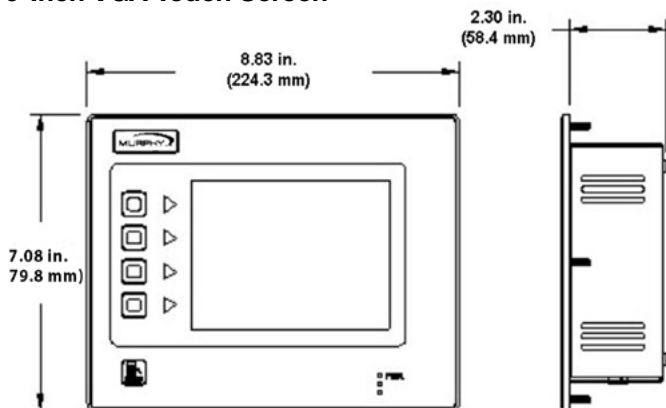


## Dimensions

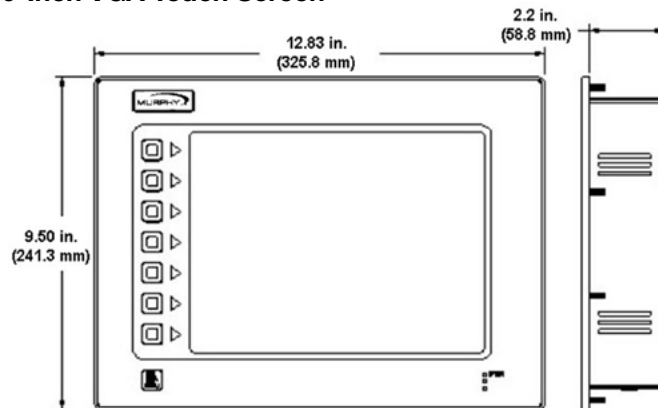
### MV-3-C



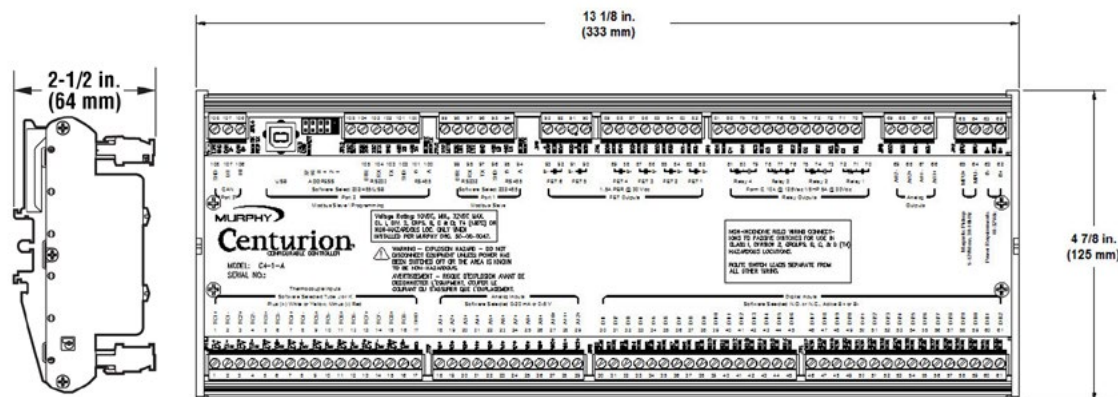
### 6-Inch VGA Touch Screen



### 10-Inch VGA Touch Screen



### C4-1-A



## How to Order

Select a Centurion Configurable Controller  
C4-1-A

Specify One (optional) Expansion I/O Module  
MX4 or MX5-A

Specify One Display  
MV-3-C LCD

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

The minimum system requirements:  
C4-1-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	C4-1-A, Centurion Controller	
	MV-3-C, Monochrome display	Standard with auto sync
	6-inch VGA touch screen	Requires additional software
	10-inch VGA touch screen	Requires additional software
	MX4 expansion I/O module	
	MX5-A expansion I/O module	
50000774	Ignition noise (choke) filter	
00000504	C4-1-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	Centurion configuration tool is software for modifying sequence of operation, set points, timers, faults and displays for Centurion. Includes file transfer utilities for configuration and upgrades.