Centurion™ C4 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, we 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

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.

Main I/O Module:
C4-1-A

M-VIEW Displays: Choose from MV-5-C, MV-7T, MV-10T or MV-12T

Optional Expansion I/O Modules:
MX4
MX5-A

Controller

Power Input:
10 -32 VDC

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

Configuration:
PC-based Centurion Configuration Software

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

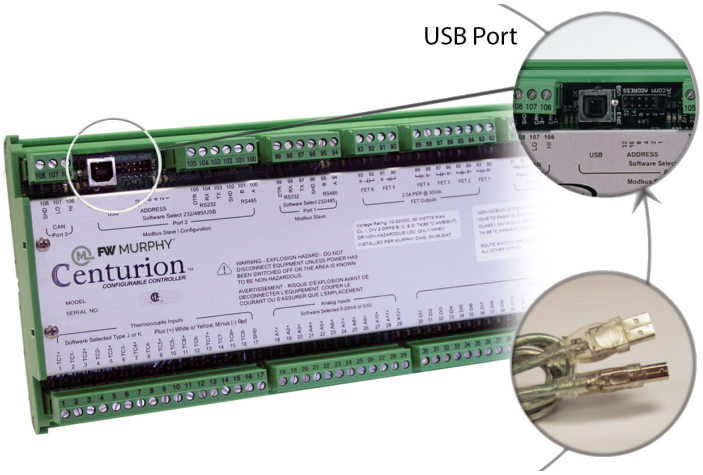
cULus Listed for Hazardous Location:
File #E317425
- Class I, Division 2, Groups A, B, C and D
- Class II, Division 2, Groups F and G
- Class III, Division 2 ANSI/ISA 12.12.01, C22.2 No. 213-M1987, 157-92

IP66 Enclosure rating (Face only)
Type 4X Outdoor Enclosure rating (Face only)
ABS Type Approval for Shipboard Applications

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

- 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
- One 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
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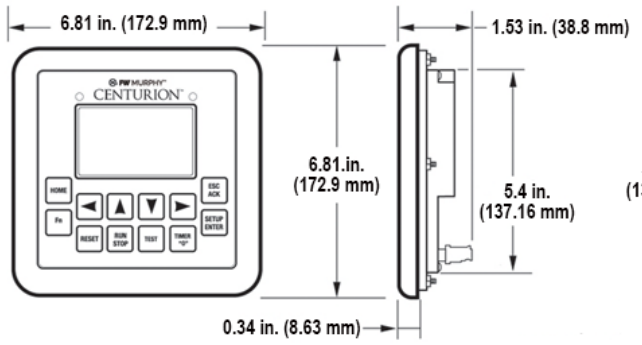
    - ANSI/ISA-12.12.01-2012 Non-incendive Electrical Equipment for Use in Class I and II, Div 2 and Class III, Div 1 and 2 Hazardous (Classified) Locations

MX5-A Expansion I/O Module

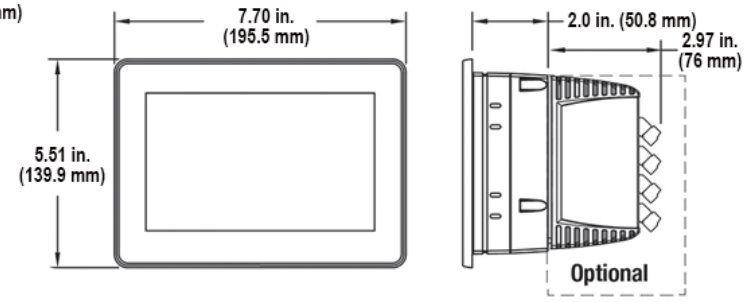
- 8 analog inputs: 0-24 mA or 0-5 VDC, 10-bit hardware
- 6 digital outputs: open collector transistor, 150 mA (sink)
- 4 analog outputs: 4-20 mA, 16-bit hardware
- One magnetic pickup input: 4.5 VAC – 120 VAC, 30 – 10 kHz
- Third-party approvals:
  - CSA: Class 1, Div 2, Grps B, C, and D; T4 (Ambient 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

Dimensions

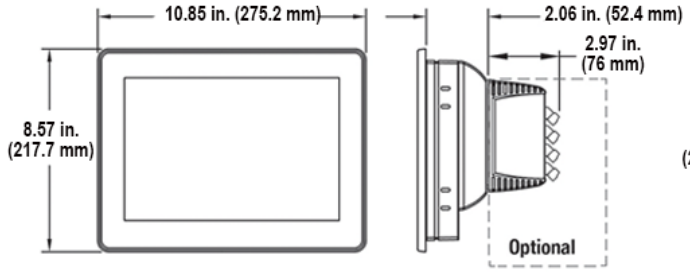
MV-5-C



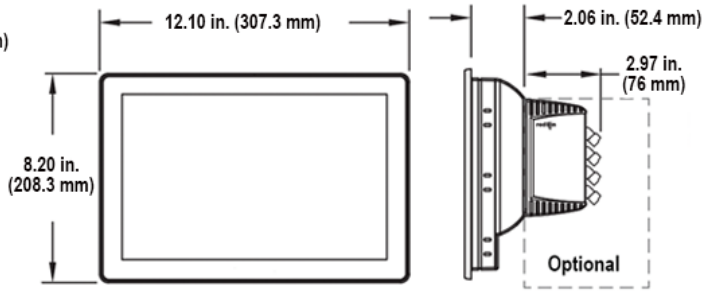
MV-7T



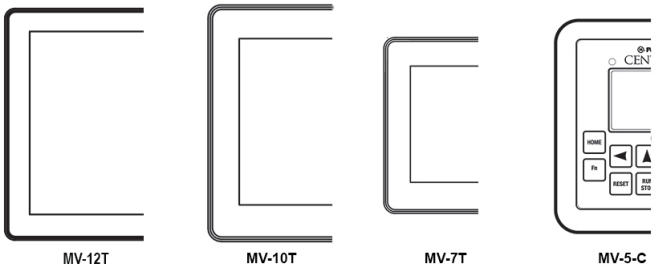
MV-10T



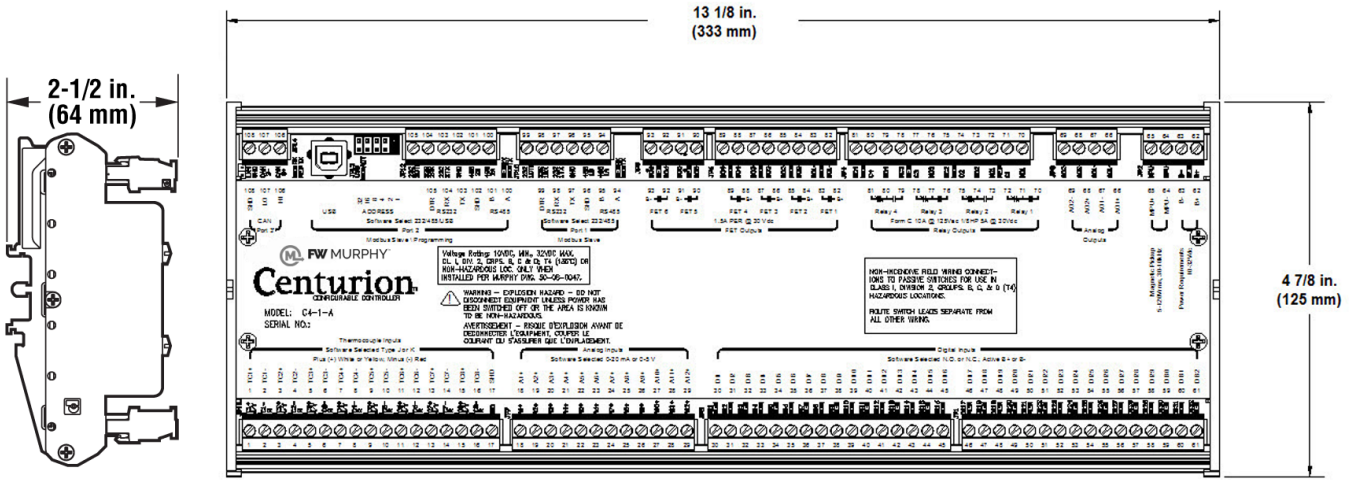
MV-12T



Side-by-Side Screen Approximate Sizes



C4-1-A



How to Order

Select a Centurion Configurable Controller.
C4-1-A

Specify expansion I/O modules (optional).
MX4 or MX5-A

Specify a display.
MV-5-C, MV-7T, MV-10T or MV-12T

The minimum system requirements:
C4-1-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-A expansion I/O modules.

Part Number	Description	Notes
Specify Model	C4-1-A, Centurion Controller	Standard
	MV-5-C, (5 in. monochrome LCD display)	Standard, Auto sync
	MV-7T, (7 in. touchscreen full-color display)	Optional, Auto sync
	MV-10T, (10 in. touchscreen full-color display)	
	MV-12T, (12 in. touchscreen full-color display)	
	MX4 expansion I/O module	Optional
	MX5-A expansion I/O module	
00030866	C4 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

Approximate Shipping Weight and Dimensions		
Model	Weight	Dimension
C4-1-A Controller	2 lb. 7 oz.	16 x 11 x 5 in.
MV-5-C Display	2 lb. 4 oz.	8 x 8 x 6 in.
MV-7T Display	3 lb. 4 oz.	10 x 10 x 6 in.
MV-10T Display	6 lb. 1 oz.	13 x 12 x 6 in.
MV-12T Display	5 lb. 1 oz.	10 x 12 x 12-1/4

Approximate Shipping Weight and Dimensions		
Model	Weight	Dimension
MX4 expansion I/O module	1 lb. 6 oz.	12 x 7 x 5 in.
MX5 expansion I/O module	1 lb. 6 oz.	12 x 7 x 5 in.
C4 Plug kit	0 lb. 5 oz.	5 x 5 x 5
MX4 Plug kit	0 lb. 3 oz.	5 x 5 x 5
MX5 Plug kit	0 lb. 3 oz.	5 x 5 x 5