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 common compact flash card memory, 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

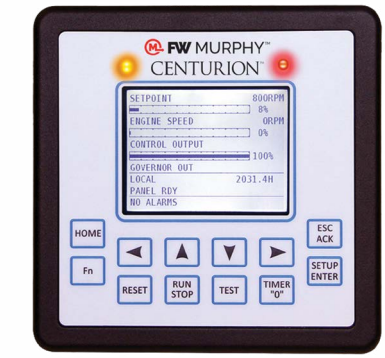
Basic Components

The Centurion 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, MV-7T or MV-12T
Main I/O Module:
CPC4-1-A
Expansion Module (optional):
MX4 R2 and MX5-R2

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
  - 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: MV-5-C
  - 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 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

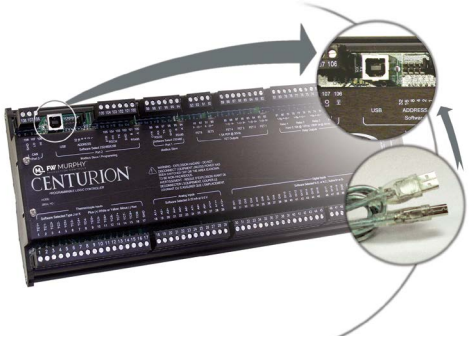
  UL approved
  cULus listed for ordinary location:
  File #E302106
  - UL 61010-1, -2-201

  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

CPC4-1-A Main I/O Module

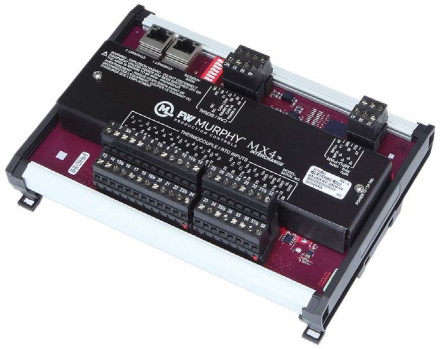
- Power Input: 10-32 VDC (30 W max)
- Operating Temp: -40° to185° F (-40° to 85° C)
- Application Firmware: Programming proprietary C Language; PC-based upload/download set point editor
- All I/O options individually software selectable. No jumpers required
- 32 optically isolated DC digital inputs: 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 (server)
  - Port 2 (SERIAL):
    Interface: RS232 or RS485
    Protocol: MODBUS RTU (server), proprietary (configuration transfer)
  - Port 2 (USB):
    Interface: USB 1.1 compliant port emulating RS232 communications via PC driver
    Protocol/Services: MODBUS RTU (server), 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-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* thermocouple inputs J or K Type thermocouples:
- 9* 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:

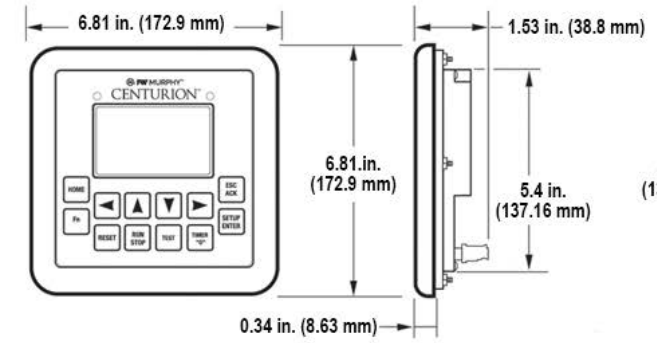
4.5 VAC -120 VAC, 30 Hz to 10 kHz

- 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

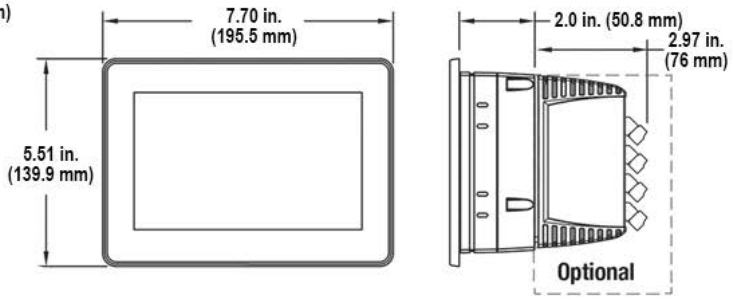
* Non-incendive. (Digital Inputs, Analog Inputs and Temperature Inputs are intrinsically safe and non-incendive.)
*** RTD=Resistive Temperature Device, American RTD Standard, TCR 0.00392, units Ohms/Ohm / deg. between 0-100 C.

Dimensions

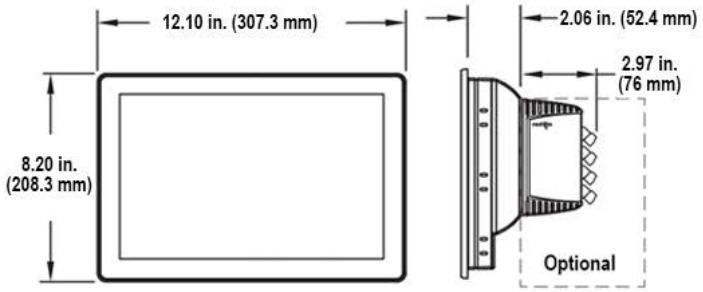
MV-5-C



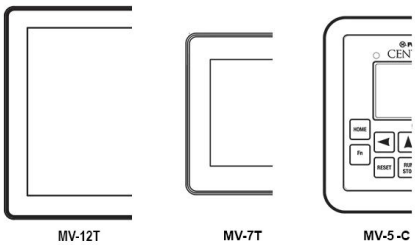
MV-7T



MV-12T

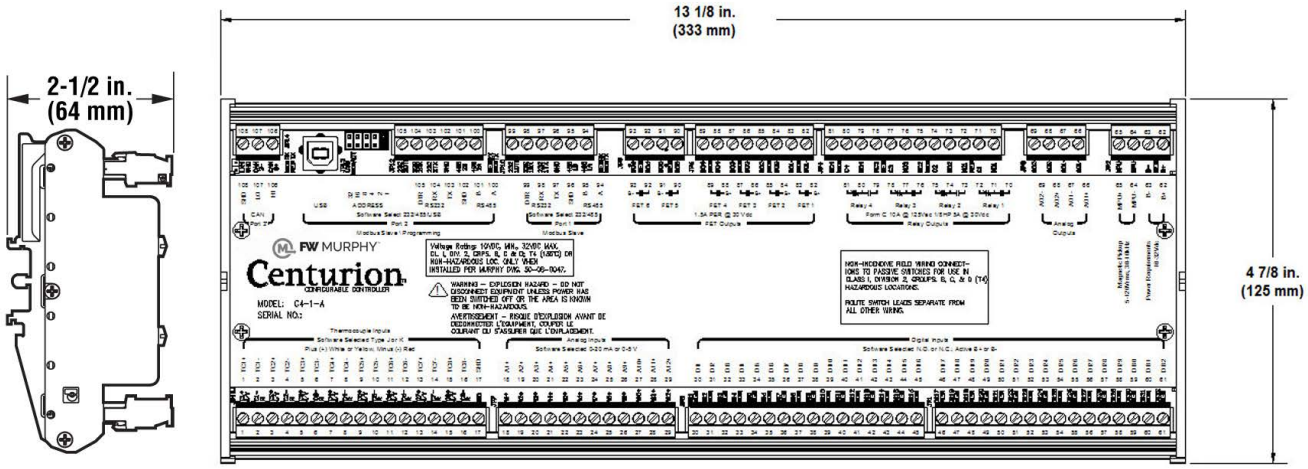


Side-by-Side Screen Approximate Sizes



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 (optional).
MX4-R2, MX5-R2

Specify One Display.
MV-5-C, MV-7T or MV-12T

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-R2 or MX5-R2 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
	MV-7T, (7 in. touch, full-color display)	Standard, Auto sync
	MV-12T, (12 in. touch, full-color display)	Optional
50703852	MX4-R2 expansion I/O module	Optional
50703853	MX5-R2 expansion I/O module	
50000774	Ignition noise (choke) filter	
00032656	MX4-R2 Plug Kit	Printed replacement terminal plugs for MX4-R2 expansion I/O module
00032657	MX5-R2 Plug Kit	Printed replacement terminal plugs for MX5-R2 expansion I/O module
00030866	C4 Plug Kit	Printed replacement terminal plugs for main 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-12T Display	5 lb. 1 oz.	10 x 12 x 12-1/4

Approximate Shipping Weight and Dimensions		
Model	Weight	Dimension
MX4-R2 expansion I/O module	1 lb. 6 oz.	12 x 7 x 5 in.
MX5-R2 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-R2 Plug kit	0 lb. 3 oz.	5 x 5 x 5
MX5-R2 Plug kit	0 lb. 3 oz.	5 x 5 x 5