Centurion™ *PLUS* Full Featured Controller

The Centurion *PLUS* Controller is a custom programmable control and monitoring system. Primarily designed for engine driven compressors, the Centurion *PLUS* is well suited for many control applications such as CNG control, Fire Pump Control, and many industrial control applications. Additionally, Murphy can custom design a control package to meet exact specifications for a variety of other 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, shutdown, or control equipment to change conditions. The Auto-Start capabilities of the Centurion *PLUS* allows for start/ stop based on parameters such as pressure set points or by digital signals. The Centurion *PLUS* allows for customer valve logic sequencing, purge cycle control, and many other logic applications. The Centurion *PLUS* can also provide complex calculation abilities such as rod load and temperature deviation.

The Centurion *PLUS* provides real-time data via communications ports to a connected display and/or supervisory system. This advanced system offers multiple options for remote communications and operation including HMI's, PLC's, PC's, 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. Other communication options include Modbus TCP/IP, web page hosting, and data logging captured in standard CSV files uploadable through USB port.

Features

- 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 setpoint edits
- Shutdown 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 (3) expansion modules, <u>any combination</u>
- Firmware stored in non-volatile flash memory
- Setpoints stored in non-volatile eeprom memory
- Approved Certification for Class 1, Division 2, Groups B, C, & D areas.
- Expanded calculation abilities
  - Rod load equations
  - Lookup 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 supportede)
  - 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 setpoint changes
  - Importable to CSV files
  - Multi-Language support

Basic Components

The Centurion *PLUS* consists of a Display Module, a Main I/O Module, and 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): Full color VGA 6" Touchscreen (Optional 10" available)

– Main I/O Module: CPC4-1-A: 32 DI, 10 DO, 12 AI, 8 TC, 2 AO, 1 MPU.

– Expansion Modules:

MX4: 18 TC (Type J or K)., 1 MPU

MX5: 24 DI, 8 DO, 10 AI, 1 MPU

MX5-A: Same I/O as MX5, additional 4 analog outputs

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.

General Specifications

Power Input: 10 -32 VDC
Operating Temp. (CPC4-1): -40 to 85°C (-40 to 185°F)
Operating Temp. (Touchscreen): 0 to 50°C (32 to 122°F)

Application Firmware: Programming Proprietary C Language - PC-based upload/download setpoint editor
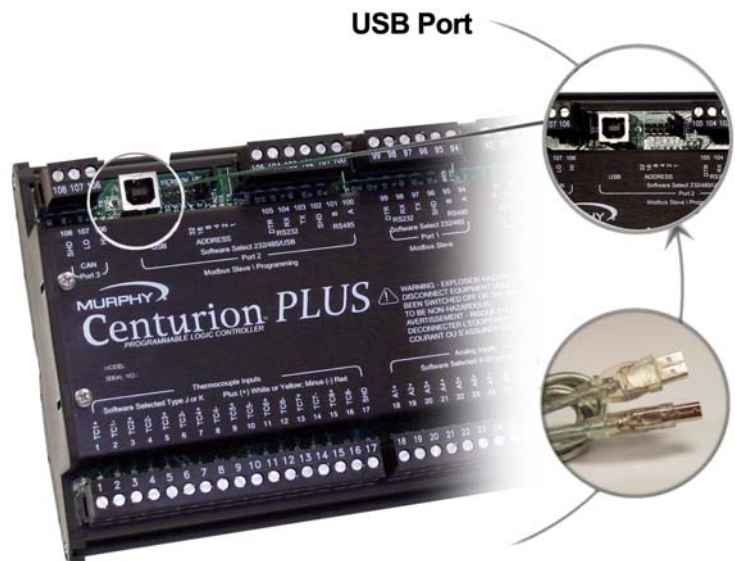
Full-Color VGA Touchscreen

- Full-Color VGA Touchscreen (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)
- 5-Button keypad for on screen menus (6")
- 8-Button keypad for on-screen menus (10")
- Standard Screen offerings
- Front panel Power LED
- 24 VDC Powered

CPC4-1-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: 4-20mA or 0-5V, 10 bit hardware.
- 8 Thermocouples: Type J or K, 12 bit hardware.
  - Open Thermocouple Detection: Drives channel reading high (max of scale).
  - Cold Junction Compensation.
- 1 Magnetic Pickup Input/AC Run Signal: 30 to 10kHz, 5VAC rms min, 120VAC rms max.
- 10 Digital Outputs:
  - LED indicators
  - Four (4) relay outputs, form C, dry contacts.
  - Four (4) FET outputs (source).
  - Two (2) FET outputs (sink).
- 2 Analog Outputs
  - 4-20mA, 16 bit hardware.
- 3 Communication Ports:
  Port 1: Interface: RS232 or RS485.
  - Protocol: Modbus RTU (Slave)
  Port 2 (SERIAL):
  - Interface: RS232 or RS485.
  - Protocol: Modbus RTU (Master or Slave), Proprietary (Firmware Transfer)

USB Port

Port 2 (USB): Interface: USB 1.1 Compliant Port emulating RS232 communications via PC driver.
- Protocol/Services: Modbus RTU (Slave), Proprietary (Firmware Transfer) Proprietary (Setpoint upload/down)
- Connection: USB Type B connector
- Automatic selection of USB when a signal is detected on the USB Type B connector.
Port 3: Interface: CAN
- 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.
- 1 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.
- 8 Digital Outputs: Open Collector Transistor, 150mA (sink)
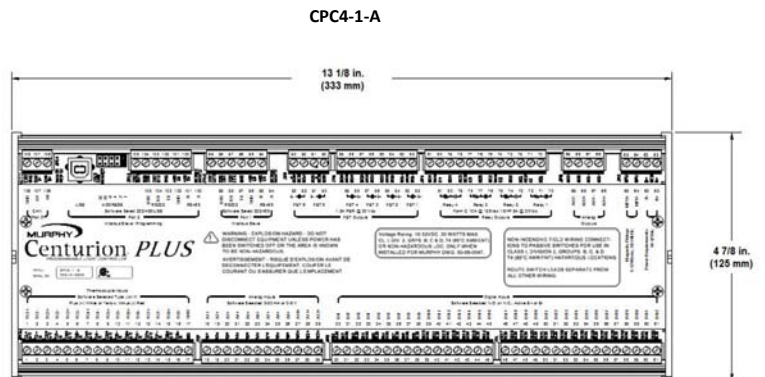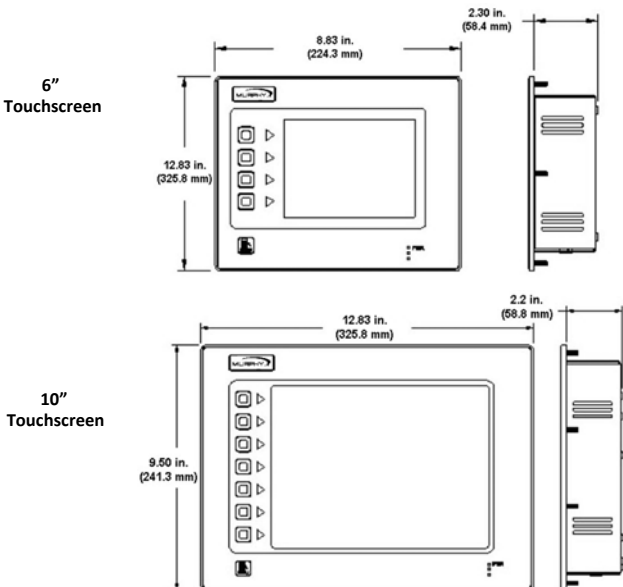- 1 Magnetic Pickup Input: 4.5VAC – 120 VAC, 30 – 10kHz.

MX5-A 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.
- 8 Digital Outputs: Open Collector Transistor, 150mA (sink)
- 4 Analog Outputs: 4-20mA, 16 bit hardware.
- 1 Magnetic Pickup Input: 4.5VAC – 120 VAC, 30 – 10kHz.

MX5-D Expansion I/O Module (Digital Output option, 8 additional)

- 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)
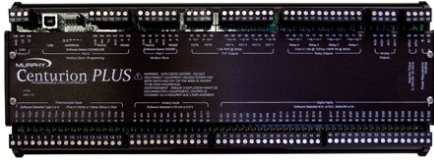- 1 Magnetic Pickup Input: 4.5VAC – 120 VAC, 30 – 10kHz.

Dimensions

6" Touchscreen

10" Touchscreen

CPC4-1-A

How To Order

Selecting a Centurion *PLUS* Controller Model:

1. Specify **CPC4-1-A** Main I/O Module

2. Specify any combination up to three (3) (optional) Expansion I/O Modules

MX4
MX5
MX5-A
&/or
MX5-D

3. Specify one 6-inch or 10-inch (upgrade) VGA Color Touchscreen

The minimum system requirements:
CPC4-1-A Main I/O Module
Full-color VGA Touchscreen (for operation control and interface with Main I/O Module)

Some systems may require the use of our **Interchange™ Comm Control Module, MX-Series Expansion I/O.** Chose up to three (3) of any combination.

Replacement Parts and Accessories

CPC4-1-A Plug Kit	**(00030866)**	Printed Replacement Terminal Plugs for Centurion *PLUS* (CPC4-1-A) Main I/O Module
Choke	**(50000774)**	Ignition Noise (Choke) Filter
MX4 Plug Kit	**(00030867)**	Printed Replacement Terminal Plugs for MX4 Expansion I/O Module
MX5 Plug Kit	**(00030868)**	Printed Replacement Terminal Plugs for MX5 Expansion I/O Module