

GETTING STARTED



CHAPTER 1

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Introduction

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The Purpose of this Manual

Thank you for purchasing from our *C-more*® Micro family of products. This manual describes *AutomationDirect.com's C-more* Micro panels, specifications, included components and available accessories and provides you with important information for installation, connectivity and setup. The manual shows you how to install, wire and use the products. It also helps you understand how to interface the panels to other devices in a control system.

This user manual contains important information for personnel who will install the panels and accessories, and for the personnel who will be programming the panel. If you understand control systems making use of operating interfaces such as the *C-more* Micro panels, our user manuals will provide all the information you need to get, and keep, your system up and running.

Supplemental Manuals

If you are familiar with industrial control type devices, you may be able to get up and running with just the aid of the Quick Start Guide that is included with each panel. You may also refer to the online help that is available in the *C-more* Micro programming software.

Technical Support

We strive to make our manuals the best in the industry. We rely on your feedback to let us know if we are reaching our goal. If you cannot find the solution to your particular application, or, if for any reason you need technical assistance, please call us at:

770-844-4200

Our technical support group will work with you to answer your questions. They are available Monday through Friday from 9:00 A.M. to 6:00 P.M. Eastern Time. We also encourage you to visit our web site where you can find technical and non-technical information about our products and our company.

<http://c-moremicro.automationdirect.com>

Conventions Used



When you see the “notepad” icon in the left-hand margin, the paragraph to its immediate right will be a special note. The word **NOTE**: in boldface will mark the beginning of the text.

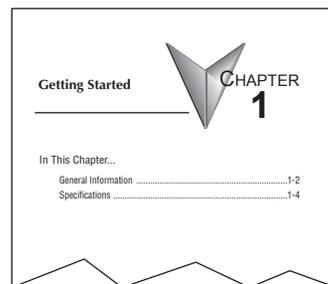


When you see the “exclamation mark” icon in the left-hand margin, the paragraph to its immediate right will be a warning. This information could prevent injury, loss of property, or even death (in extreme cases). The words **Warning**: or **Caution**: in boldface will mark the beginning of the text.

Key Topics for Each Chapter

The beginning of each chapter will list the key topics that can be found in that chapter.

- TFT color display
- LED backlight
- Selectable Portrait or Landscape orientation
- Requires 12 - 24 VDC Class 2 power supply
- USB Type B programming port
- Built in 15-pin serial communications port (RS-232/422/485)
- Built in RJ12 port
- Five or Seven user-defined function keys, each with a user-programmable red LED
- Optional replaceable clear screen overlay
- Built in Alarm Control setup that activates beep, backlight flash, customized alarm banner, and red LED blinking
- Up to 999 screens, limited only by memory usage
- 0 to 50 °C (32 to 122 °F) operating temperature range
- UL, cUL & CE agency approvals (see Panel Specifications and Agency Approvals sections for details)
- 2-year warranty from date of purchase



Agency Approvals

1

Certifications					
Name	UL / cUL	UL508	UL61010	CE	ISO-9000
EA3-S3ML-RN, EA3-S3ML-R, EA3-S3ML, EA3-T4CL	E157382	N/A	E157382	Yes	Yes
EA3-T6CL, EA3-T8CL, EA3-T10CL		E157382	N/A		

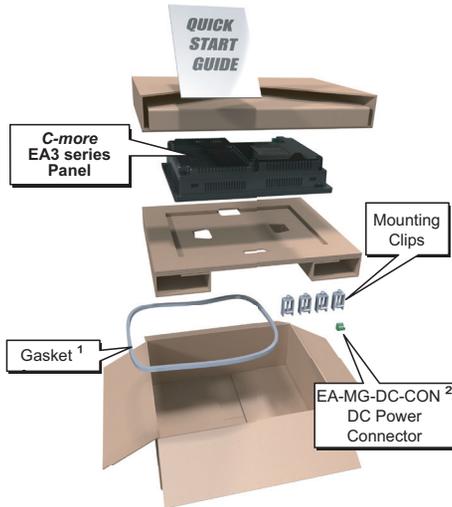


Quick Start Steps

Step 1 – Unpack and Inspect

a.) Unpack the *C-more* Micro panel from its shipping carton. Included in the carton are the following:

- *C-more* Color Micro panel
- DC power connector
- mounting clips
- gasket
- Quick Start Guide



1. Not included with EA3-S3ML-RN

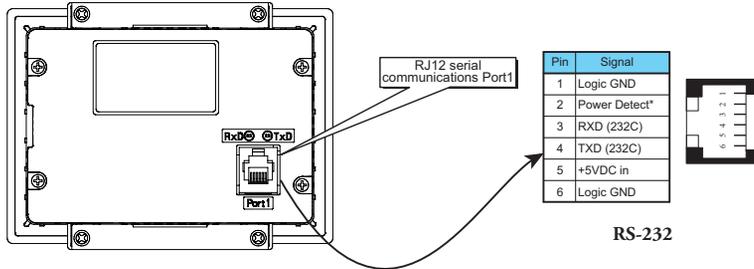
2. Not included with EA3-S3ML-RN and EA3-S3ML-R

- b.) Unpack any accessories that have been ordered, such as: programming cable, PLC communications cable, etc.
- c.) Inspect all equipment for completeness. If anything is missing or damaged, immediately call the AutomationDirect® returns department @ 1-800-633-0405.

Step 2 – Become Familiar with Available Communication Ports

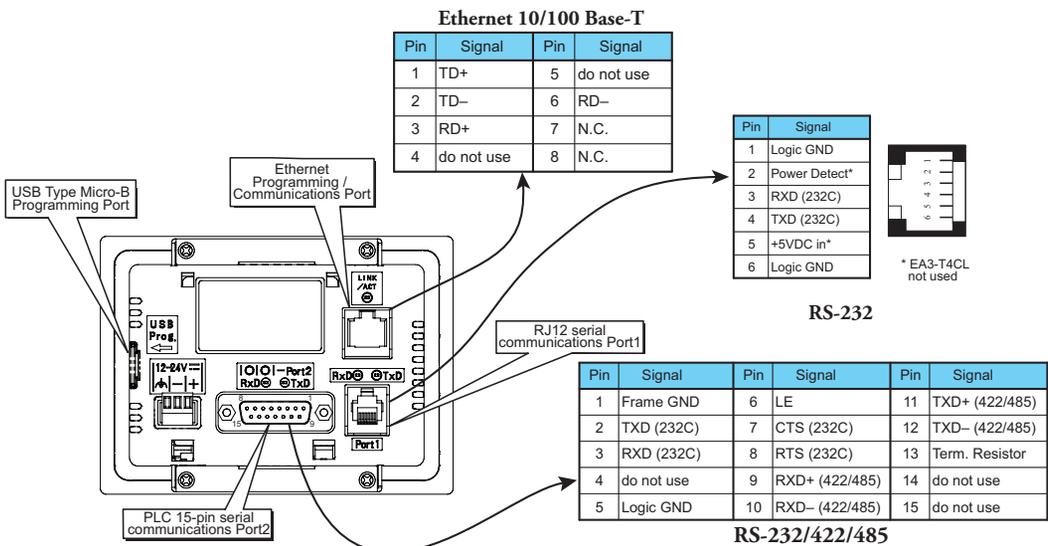
EA3-S3ML-RN and EA3-S3ML-R

EA3-S3ML-RN and EA3-S3ML-R *C-more* Micro panels include a built-in RJ12 RS-232 serial communications port designated as Port 1. The EA-MG-PGM-CBL programming cable assembly connects to this port for programming the *C-more* Micro with a PC. In operation, the DV-1000CBL cable is used to connect to any AutomationDirect PLC with an RJ12 port. These panels are powered through Port 1 when using either of these cables.

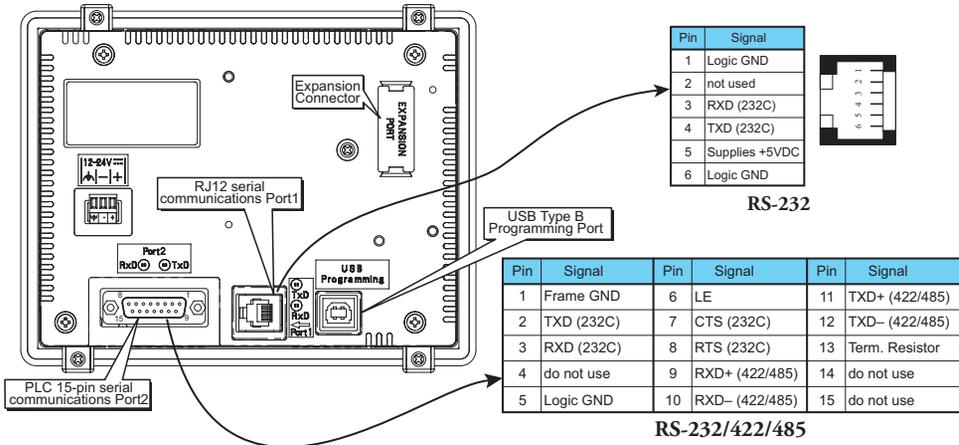


EA3-S3ML and EA3-T4CL

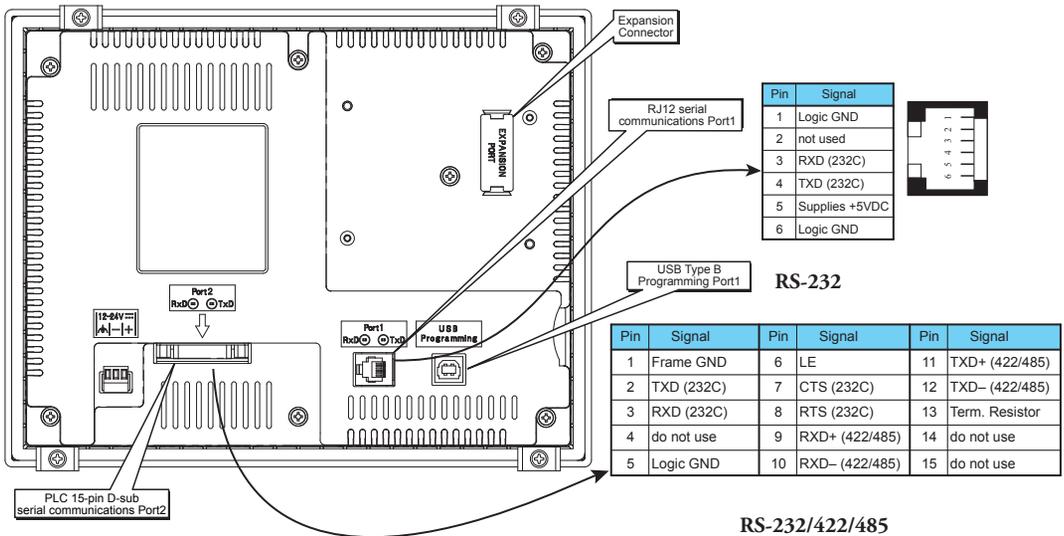
EA3-S3ML, EA3-T4CL, EA3-T6CL, EA3-T8CL and EA3-T10CL *C-more* Micro panels include a built-in USB Type B port used to communicate with a PC during project development. There is a 15-pin RS-232/RS-422/RS-485 port and an RJ12 RS-232 port for communications to a PLC.



EA3-T6CL



EA3-T8CL and EA3-T10CL



NOTE: See Chapter 2: Specifications and Chapter 6: PLC Communications for additional details on the available communication ports, protocols and cables.

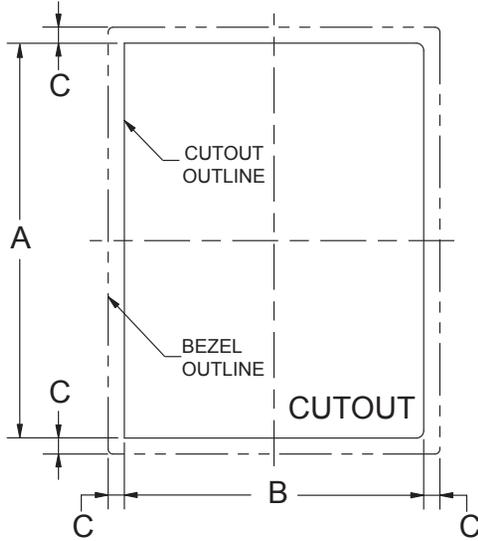


NOTE: The panel has a built-in RJ12 serial communications port (Port1 - RS-232) and a built-in 15-pin serial communications port (Port2 - RS-232/422/485). Only one of the ports can be used with a connected PLC.

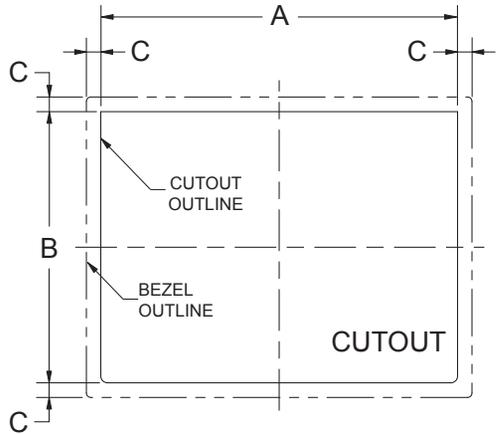
Step 3 – Install *C-more* Micro Panel

The *C-more* Micro panel can be mounted through a cutout in an enclosure by using the dimensions that follow.

See **Chapter 2: Specifications** for additional product dimensions.



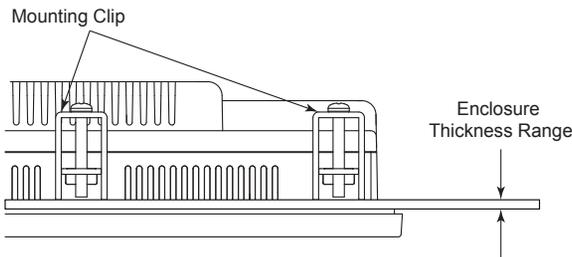
Landscape Mode (Horizontal)



Portrait Mode (Vertical)

Cutout Dimensions inches [mm]							
	EA3-S3ML-RN	EA3-S3ML-R	EA3-S3ML	EA3-T4CL	EA3-T6CL	EA3-T8CL	EA3-T10CL
A	4.02 [102.0]	4.02 [102.0]	4.02 [102.0]	4.02 [102.0]	6.34 [161.0]	9.25 [235.0]	11.91 [302.5]
B	2.76 [70.0]	2.76 [70.0]	2.76 [70.0]	2.76 [70.0]	4.81 [122.2]	7.07 [179.6]	8.92 [226.6]
C	0.24 [6.0]	0.24 [6.0]	0.24 [6.0]	0.36 [9.2]	0.26 [6.6]	0.31 [7.9]	0.31 [7.9]

The enclosure mounting thickness range for the panels is 0.04”–0.2” [1–5 mm].

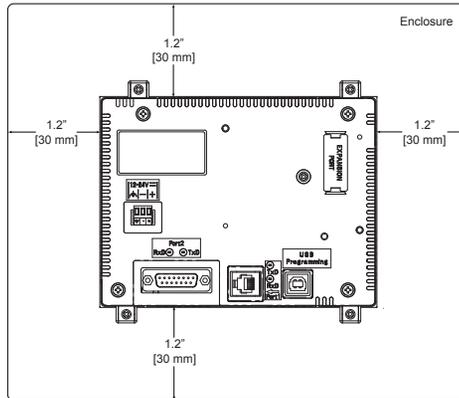


Mounting Screw Tightening Torque	
EA3-S3ML-RN	21 - 28 oz-in (0.15 - 0.20 N-m)
EA3-S3ML-R	
EA3-S3ML	
EA3-T4CL	
EA3-T6CL	
EA3-T8CL	63 - 77 oz-in (0.45 - 0.55 N-m)
EA3-T10CL	

Enclosure Clearances

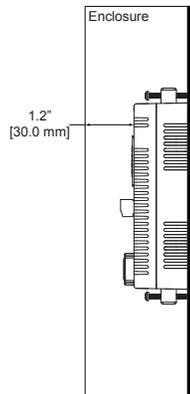
EA3-S3ML-RN, EA3-S3ML-R, EA3-S3ML, EA3-T4CL and EA3-T6CL

In all installations, 1.2" [30.0 mm] minimum clearance is required inside an enclosure for proper ventilation of *C-more* Micro panels.



Rear View

A 1.2" [30.0 mm] minimum clearance is required at the rear of a panel for proper ventilation of *C-more* Micro panels.

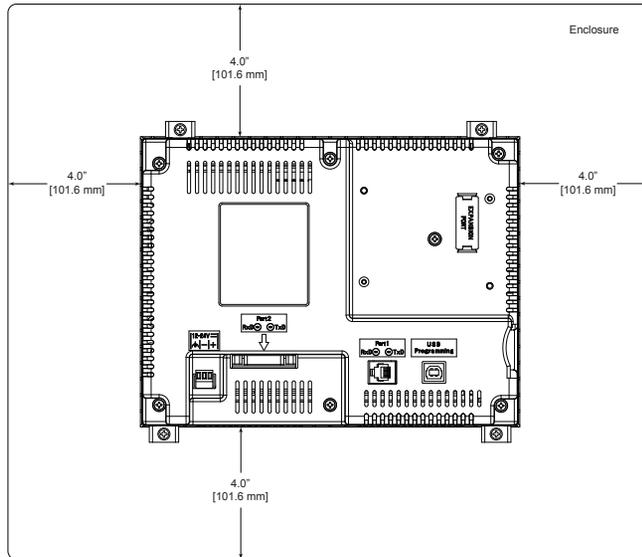


Side View

Enclosure Clearances (cont'd)

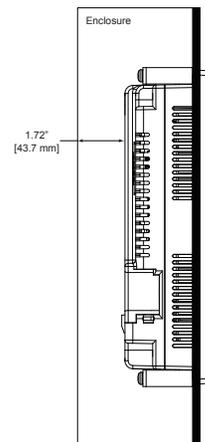
EA3-T8CL and EA3-T10CL

In all installations, 4.0" [101.6 mm] minimum clearance is required inside an enclosure for proper ventilation of 8-inch and 10-inch *C-more* Micro panels.



Rear View

1.72" [43.7 mm] minimum clearance is required at the rear of a panel for proper ventilation of 8-inch and 10-inch *C-more* Micro panels.



Side View

Step 4 – Install the Programming Software and Develop a Project

C-more Micro Programming Software is available for free download at <http://support.automationdirect.com/products/cmoremicro.html>

Part Number	Panel Software / Firmware Version Required
EA3-S3ML-RN	4.30 or later
EA3-S3ML-R	4.30 or later
EA3-S3ML	4.20 or later
EA3-T4CL	4.20 or later
EA3-T6CL	3.6 or later
EA3-T8CL	3.5 or later
EA3-T10CL	3.5 or later

Following are the system requirements for running *C-more* Micro Programming Software, EA-MG-PGMSW, on a PC:

- Operating System - Windows® 7 (32 and 64 bit), Windows 8 (32 and 64 bit); Windows 8.1 (32 and 64 bit), Windows 10
- Minimum 150 MB free hard-disk space
- USB port for installing software from the USB, or internet access to download free programming software
- USB port or Ethernet port if using optional EA-ECOM for project transfer from software to touch panel

Insert the *C-more* Micro Programming Software USB into the PC's USB port or download the programming software from www.automationdirect.com and follow the instructions. If you need assistance during the software installation, please refer to the supplied Software Installation Guide or call the AutomationDirect Technical Support team at 770-844-4200.



NOTE: The USB Type B programming port has an internal USB to serial converter. When the device is properly installed and the USB programming cable connects the panel to the PC, the port will be identified as a serial communications port with an assigned COM port number.

Step 5 – Connect *C-more* Micro to Computer

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NOTE: Install *C-more* Micro Programming software before connecting the panel to the PC to ensure that the panel drivers install correctly.

EA3-S3ML-RN and EA3-S3ML-R

Use an EA-MG-PGM-CBL, USB to RS-232 Programming Cable Assembly, from an USB port type A on the project development PC, through the supplied converter, to the RJ12 RS-232 programming/PLC serial communications port on the *C-more* Micro-Graphic panel as shown below.



EA3-S3ML and EA3-T4CL

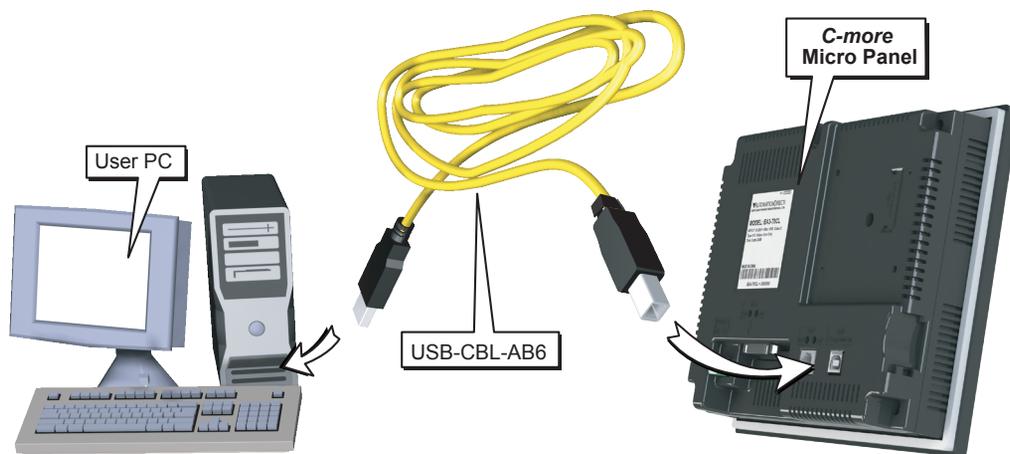
Ethernet: Connect the PC RJ45 Ethernet port to the **C-more** Micro panels built-in RJ45 Ethernet port.

USB Type B port: Connect the PC USB Type A port to the panels USB type micro B port using a standard USB A to micro B USB cable. Maximum micro USB cable length should not exceed six feet. See part number USB-CBL-AMICB6 on the AutomationDirect web store.

EA3-T6CL, EA3-T8CL and EA3-T10CL

Ethernet (Optional): Purchase the EA-ECOM Ethernet Option Module from AutomationDirect to connect the PC to the C-more Micro Panels.

USB Type A port: Connect the PC USB Type A port to the panels USB Type B port using standard USB Type A to Type B cables. See part number USB-CBL-AB6 on the AutomationDirect web store.



NOTE: EA3-S3ML and EA3-T4CL are programmable via the built-in Ethernet port.

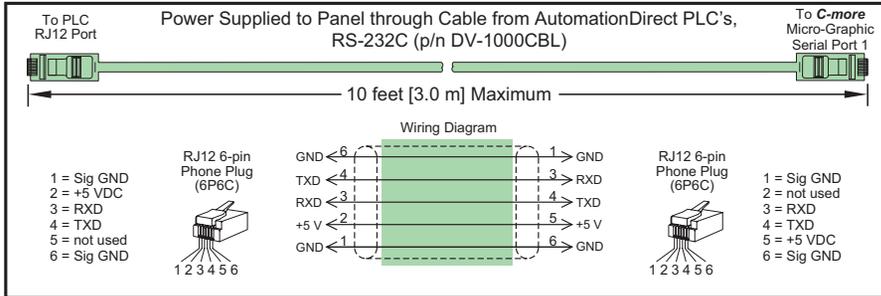


NOTE: Adding the optional EA-ECOM module to the EA3 6, 8 and 10-inch models allows programming via an Ethernet connection with Cat5e cable.

Step 6 – Provide Power to the C-more Micro Panel

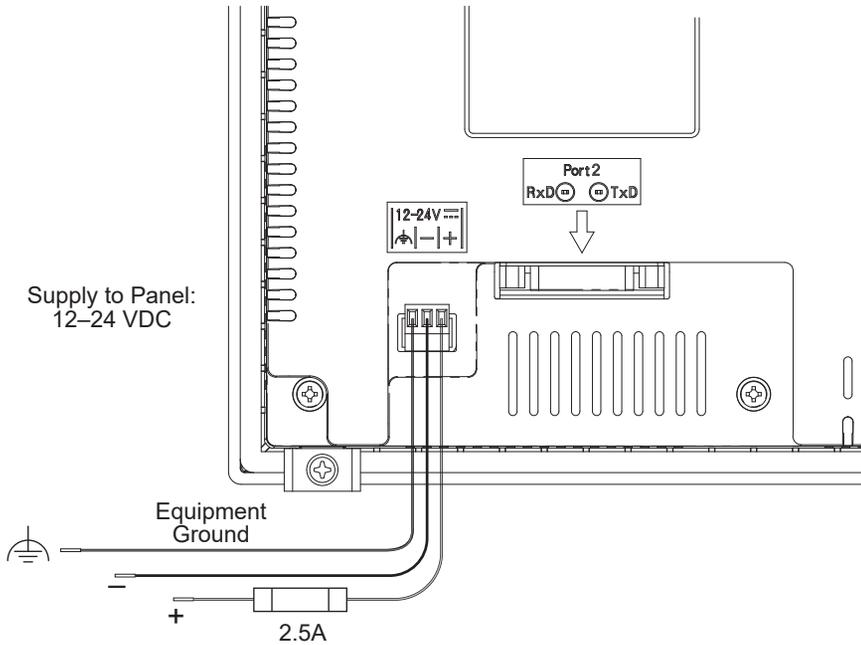
EA3-S3ML-RN and EA3-S3ML-R

- EA3-S3ML-RN and EA3-S3ML-R C-more Micro panels are powered during programming from the PC through the USB to RS-232 Programming Cable Assembly, EA-MG-PGM-CBL.
- During operation, EA3-S3ML-RN and EA3-S3ML-R C-more Micro panels can be powered from most AutomationDirect PLC's RJ12 serial communications port by using a DV-1000CBL communications cable, or a DV-1000CBL communications cable with a FA-15HD 15-pin HD DSub/RJ12 Adapter connected to a DirectLOGIC PLC's 15-pin HD communications port (DL06, D2-250-1 & D2-260) PLCs. See Chapter 6: PLC Communications for additional details.



EA3-S3ML, EA3-T4CL, EA3-T6CL, EA3-T8CL and EA3-T10CL

EA3-S3ML, EA3-T4CL, EA3-T6CL, EA3-T8CL and EA3-T10CL panels are powered by a 12-24 VDC class 2 power source .



Required Wire Specification	
Supported temperature	Over 60 °C
Wire Material	Copper
Wire Size	16 - 22 AWG

Tightening Torque	
Power supply wire connection	1.7 lb-in (0.2 Nm)

Recommended Power Supply		
Part Number	Power	Power Supply
EA3-S3ML-RN	N/A	N/A
EA3-S3ML-R		
EA3-S3ML	3W	PSL-24-010
EA3-T4CL	4W	
EA3-T6CL	7.5 W	
EA3-T8CL	8W	
EA3-T10CL	10W	PSC-24-015



WARNING: Using a differential power supply and connection the USB to a PC can damage both the panel and the PC.

Step 7 – Accessing the C-more Micro Panel Setup Screens

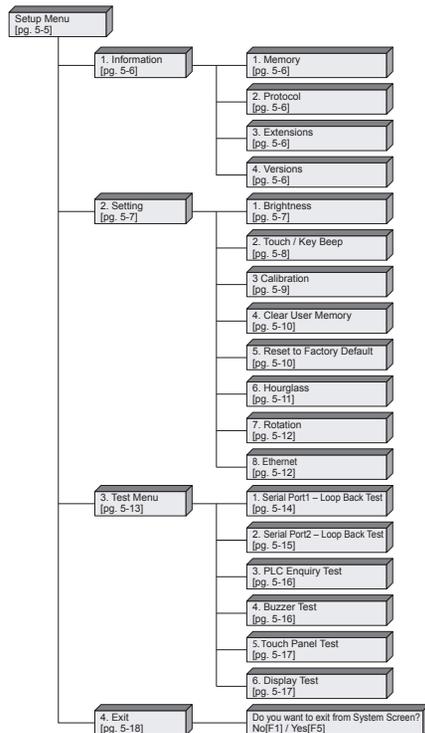
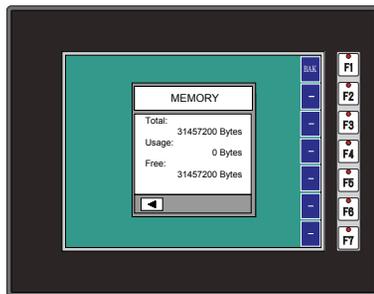
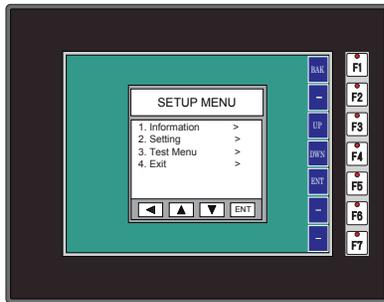
To access the **Setup Menu** of the panel's setup screens on models with function keys, press the the BAK [F1] and ENT [F5] function keys simultaneously for three (3) seconds. For EA3-T4CL, touch the upper left corner of the screen for three seconds.



From the **Setup Menu**, information about the panel can be obtained, settings can be adjusted, and panel functions can be tested.



NOTE: See **Chapter 5: System Setup Screens** for details on using the setup screen settings and functions.



Step 8 – Choose *C-more* Micro Panel to PLC Protocol & Cables

Available PLC Protocols

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PLC Drivers		
Serial - port1 or port2	Serial - port2 only	Ethernet*
AutomationDirect Productivity Series	Allen-Bradley DF1 Half Duplex	AutomationDirect Productivity Series Ethernet
	Allen-Bradley DF1 Full Duplex	
AutomationDirect Do-more / BRX**	Allen-Bradley PLC5 DF1	AutomationDirect Do-more / BRX Ethernet
AutomationDirect CLICK	Allen-Bradley DH485	AutomationDirect CLICK Ethernet
AutomationDirect K-sequence	GE SNPX (90/30, 90/70, Micro 90, VersaMax Micro)	AutomationDirect ECOM Ethernet
AutomationDirect DirectNET	Mitsubishi FX	Modbus TCP/IP
AutomationDirect Modbus (master only)	Mitsubishi Q & QnA	Allen-Bradley EtherNet / IP Client (MicroLogix 1100/1400)
Modicon Modbus RTU (master only)	Omron Host Link (C200 Adapter, C500)	
Entivity Modbus RTU (master only)	Omron FINS Serial (CJ1, CS1)	Allen-Bradley EtherNet / IP Client (SLC5 / 05 / ENI Adapter)
	Siemens PPI (S7-200 CPU)	
	AutomationDirect SOLO Temperature Controller	
	AutomationDirect GS Drives	

* Ethernet port is built in on EA3-S3ML and EA3-T4CL. Add an Ethernet port to EA3-T6CL, EA3-T8CL and EA3-T10CL with an optional EA-ECOM module. Ethernet communications require external power supply.

** BX-P-SER2-RJ12 is required

Available Purchased Cables

Cable Description	Cable Part No.
Cables used with RJ12 RS-232 serial Port1	
AutomationDirect Productivity Series, Do-more / BRX*, CLICK, Direct LOGIC PLC RJ-12 port, DL05, DL06, DL105, DL205, D3-350, D4-450, D4-454 & H2-WinPLC (RS-232C). 3.66m (12ft) cable length	DV-1000CBL
Direct LOGIC (VGA Style) 15-pin port, DL06, D2-250 (250-1), D2-260 (RS-232C). Use with D0-CBL cable.	FA-15HD
Direct LOGIC PLC 15-pin D-sub port, DL405 (RS-232C). Use with D0-CBL cable.	FA-CABKIT
Direct LOGIC PLC RJ-11 port, D3-340 (RS-232C) 2m (6.56 ft) cable length	OP-3CBL-1
* BX-P-SER2-RJ12 is required	

Available Purchased Cables continued on the next page

Available Purchased Cables (cont'd)

1

Cable Description	Cable Part No.
Cables used with 15-pin RS-232/422/485 serial Port2	
AutomationDirect Productivity Series, Do-more / BRX*, CLICK, Direct LOGIC PLC RJ-12 port, DL05, DL06, DL105, DL205, D3-350, D4-450, D4-454 & H2-WinPLC (RS-232C) 3m (9.8 ft) cable length	EA-2CBL
Direct LOGIC (VGA Style) 15-pin port, DL06, D2-250 (250-1), D2-260 (RS-232C) 3m (9.8 ft) cable length	EA-2CBL-1
Direct LOGIC PLC RJ-11 port, D3-340 (RS-232C) 3m (9.8 ft) cable length	EA-3CBL
Direct LOGIC DL405 PLC 15-pin D-sub port, DL405 (RS-232C) 3m (9.8 ft) cable length	EA-4CBL-1
Direct LOGIC PLC 25-pin D-sub port, DL405, D3-350, DL305 DCU and all DCM's (RS-232C) 3m (9.8 ft) cable length	EA-4CBL-2
Allen-Bradley MicroLogix 1000, 1100, 1200, 1400 & 1500 (RS-232C) 3m (9.8 ft) cable length	EA-MLOGIX-CBL
Allen-Bradley SLC 5-03/04/05, ControlLogix, CompactLogix, FlexLogix DF1 port (RS-232C) 3m (9.8 ft) cable length	EA-SLC-232-CBL
Allen-Bradley PLC-5 DF1 port (RS-232C) 3m (9.8 ft) cable length	EA-PLC5-232-CBL
Allen-Bradley SLC 5-01/02/03 DH485 port 3m (9.8 ft) cable length	EA-DH485-CBL
GE 90/30, 90/70, Micro 90, Versamax Micro (Port2) 15-pin D-sub port (RS-422A) 3m (9.8 ft) cable length	EA-90-30-CBL
MITSUBISHI FX Series 25-pin port (RS-422A) 3m (9.8 ft) cable length	EA-MITSU-CBL
MITSUBISHI FX Series 8-pin mini-DIN (RS-422A) 3m (9.8 ft) cable length	EA-MITSU-CBL-1
OMRON Host Link (C200 Adapter, C500) (RS-232C) 3m (9.8 ft) cable length	EA-OMRON-CBL
* BX-P-SER2-RJ12 is required	

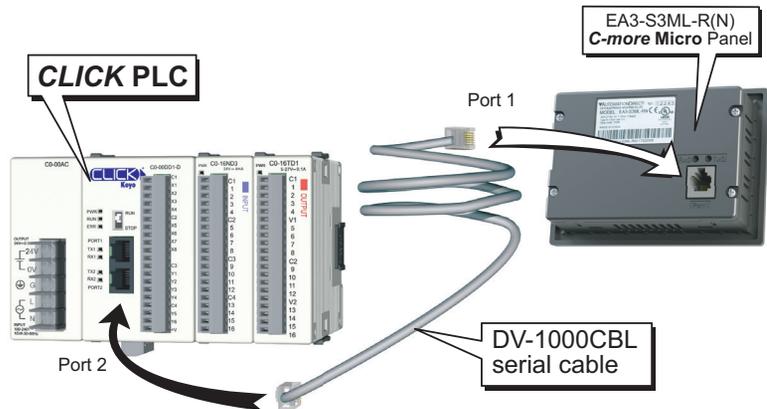


NOTE: See **Chapter 6: PLC Communications** for a detailed chart of PLC compatibility & cable connections. Chapter 6 includes wiring diagrams for end user construction of certain cables.

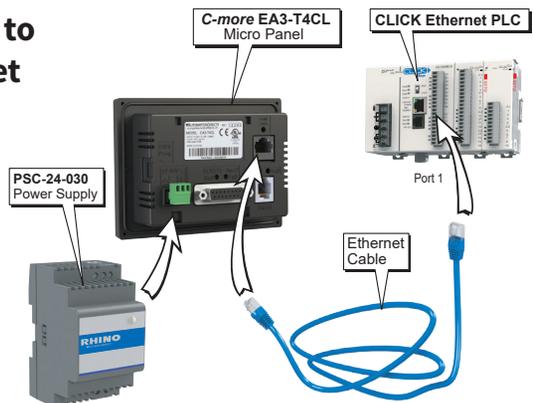
Step 9 – Connect *C-more* Micro Panel to PLC

Connect the serial communications cable between the *C-more* Micro panel and the PLC. The panel can be connected to the PLC via the panel's built-in RJ12 serial communications port (RS-232) or depending on model, the 15-pin serial communications port with either RS-232, RS-422 or RS-485 communications. Adding the optional EA-ECOM module to the EA3 6,8 and 10-inch models allows communications via an Ethernet connection. An Ethernet port is built-in to the EA3-S3ML and EA3-T4CL.

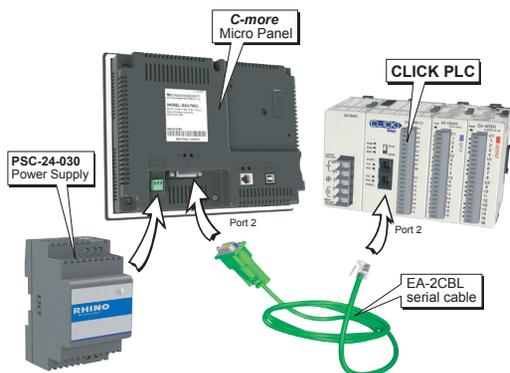
Example of panel's Port 1 connected to a CLICK PLC



Example of EA3-T4CL Ethernet Port connected to a CLICK PLC with Ethernet

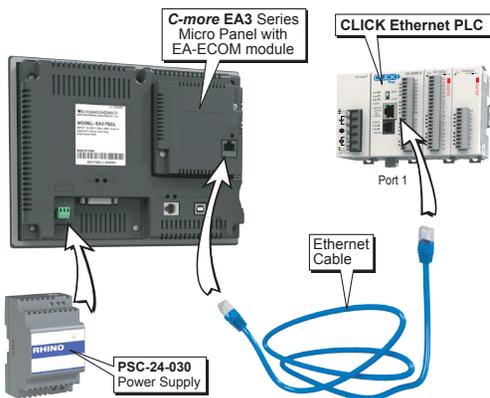
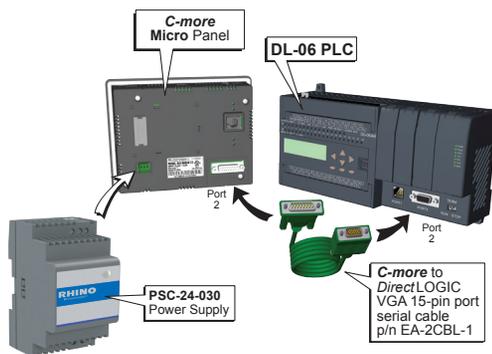


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Example of panel's Port 2 connected to a CLICK PLC

Example of panel's Port 2 connected to a DL06 PLC



Example of optional EA-ECOM module connected to a CLICK PLC with Ethernet.