C-more Micro 6-inch EA1 TFT Touch Panel

Model EA1-T6CL **C-more** 6" Micro touch panel has a 5.7-inch TFT LCD 320 x 240 pixel display and a palette of 32K colors for customizing objects, screen backgrounds and displaying bitmap graphics. It features five user-defined function keys, each key with a user-defined red LED indicator. The panel can display up to 40 lines by 80 characters of static text and up to 40 lines by 40 characters of dynamic text with embedded variables and phrases mixed with graphics in landscape orientation. Portrait orientation can display 53 lines by 60 characters of static text and 40 lines by 40 characters of dynamic text. It is rated UL for use on a flat surface of Type 1, 4X enclosure (for indoor use only). The **C-more** 6" Micro TFT panels are powered from a Class 2, 12-24 VDC power supply*.

Part No.   EA1-T6CL

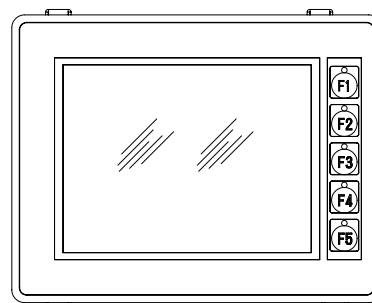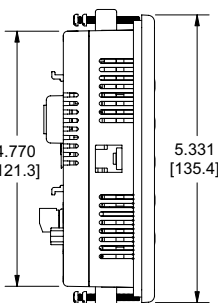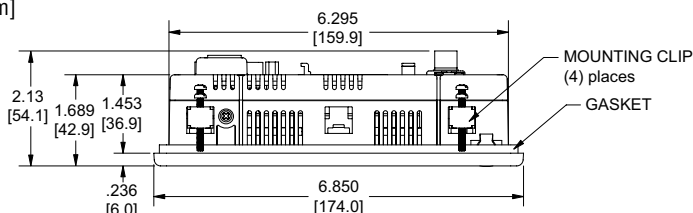**Shown in Landscape (Horizontal) mode**

Features

- Touch screen display
- Free downloadable programming software
- 320 x 240 pixel display with up to 40 lines by 80 characters of text and graphics in landscape mode
- Up to 40 lines by 40 characters of dynamic text with embedded variables and phrases mixed with graphics
- 5 programmable function keys can change with every screen. Can increment / decrement values, trigger recipes, view index of screens.
- 32K colors
- 2 optional keypad bezels, 20-button landscape and 21-button portrait
- Optional replaceable clear screen overlay
- 3,276 KB memory
- Built-in USB type B programming port
- Built-in 15-pin serial communications port
- Built-in Alarm Control setup that activates beep, backlight flash, customized alarm banner, and red LED blinking
- 0 to 50 °C (32 to 122 °F) operating temperature range (IEC 60068-2-14)
- NEMA 4/4X, IP65 compliant when mounted correctly, indoor use only
- UL, cUL & CE agency approvals
- 2-year warranty from date of purchase

Function	Available
Ethernet	No
USB Programming Port	Yes
Serial RJ12 Port	No
Serial DB15 Port	Yes

*NOTE: The EA1-T6CL can be powered through Port1 when connected to a PC for programming, the screen brightness is diminished because the panel is running in Low-Power Mode. For full brightness, connect an external Class 2, 12-24 VDC power source to the 6" panel's power connection. An external Class 2, 12-24 VDC power source must be used when the panel is installed in its application.
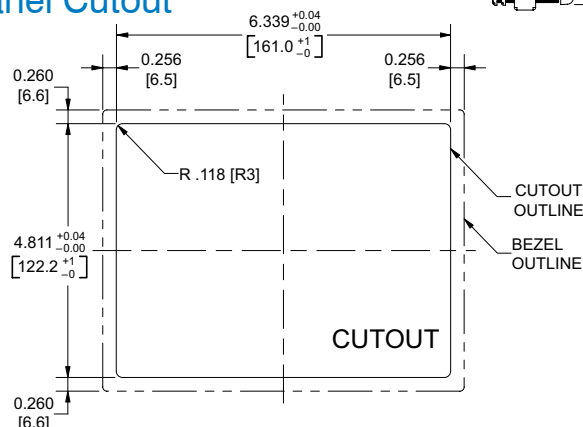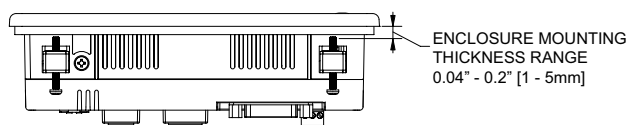
Dimensions

Units: inches [mm]

6.295 [159.9]
2.13 [54.1]
1.689 [42.9]
1.453 [36.9]
.236 [6.0]
6.850 [174.0]

MOUNTING CLIP (4) places
GASKET

4.770 [121.3]
5.331 [135.4]

F1
F2
F3
F4
F5

NOTE: Don't forget the optional keypad bezels shown in the Accessories section.

Panel Cutout

6.339 +0.04 −0.00 [161.0 +1 −0]
0.256 [6.5]
0.256 [6.5]
0.260 [6.6]
R .118 [R3]
4.811 +0.04 −0.00 [122.2 +1 −0]
CUTOUT OUTLINE
BEZEL OUTLINE
CUTOUT
0.260 [6.6]

Panel Thickness

ENCLOSURE MOUNTING THICKNESS RANGE 0.04" - 0.2" [1 - 5mm]

NOTE: The *C-more* 6" Micro cutout dimensions are not equivalent to previous AutomationDirect text panels. The *C-more* 6" Micro panels will not fit in cutouts for DV-1000, EZText, Optimate panels or *C-more* 6" panels.

C-more Micro 4-inch & 6-inch EA1 Specifications

EA1-T4CL and EA1-T6CL Specifications		
Part Number	*EA1-T4CL*	*EA1-T6CL*
Description	320 x 240 pixel LCD display (Landscape Mode), five user defined keypad function buttons, and five user defined LED's	
Display		
• *Type*	4.1" TFT Color LCD, graphical characters	5.7" TFT Color LCD, graphical characters
• *Resolution*	320 (W) x 240 (H) pixel (Landscape Mode) 240 (W) x 320 (H) pixel (Portrait Mode)	
• *Color*	32768 colors	
• *Display Brightness (Reference)*	USB Bus Power (Programming) - 180 nits (typ) High Power Mode - 360 nits (typ)	
• *Viewing Area Size*	3.357" (W) x 2.54" (H) [85.26 mm x 64.62 mm]	4.574" (W) x 3.483" (H) [116.2 mm x 87.4 mm]
• *Active Area Size*	3.250" (W) x 2.438" (H) [82.56 mm x 61.92 mm]	4.535" (W) x 3.400" (H) [115.2 mm x 86.4 mm]
• *Brightness*	Adjusted from the panel's built-in configuration setup menu	
• *Viewing Angle*	3, 9 o'clock axis –> 35 degrees 6 o'clock axis –> 50 degrees 12 o'clock axis –> 20 degrees	3, 9 o'clock axis –> 80 degrees 6 o'clock axis –> 65 degrees 12 o'clock axis –> 80 degrees
Backlight		
• *Type*	LED	
• *Color*	White	
• *User Replaceable*	No	
Touch Screen		
•*Type*	Analog touch panel, single touch*	
• *Operation*	82 gram force [0.8 N] maximum	
• *Life*	Minimum of 1,000,000 cycles	
Features		
• *User Memory*	3276 kBytes	
• *Number of Screens*	Up to 999 – limited by project memory usage	
• *Beep (Internal)*	Yes	
• *Keypad Function Buttons*	Five user defined function key buttons with the ability to customize label with an overlay. Minimum of 500,000 cycles	
• *Keypad Function Button LEDs*	Each function key button includes a red LED that can be user programmed.	
• *Programming Port*	USB Type B	
• *Serial Communications*	15-pin D-sub serial communications port (RS-232, RS-485 / 422)	
Screen Objects		
• *Functional Devices*	Pushbutton, Switch, Indicator Button, Indicator Light, Graphic Indicator Light, Numeric Display, Numeric Entry, Inc/Dec Value, Bar Graph, Bitmap Button, Static Bitmap, Dynamic Bitmap, Recipe Button, Static Text, Lookup Text, Dynamic Text, Screen Change Pushbutton, Screen Selector, Adjust Contrast, Function, Key Configuration Object, Real Time Graphics Line Graph, Analog Meter.	
• *Static Shapes*	Lines, Rectangles, Circles and Frames	
• *Displayable Fonts*	Fixed fonts: 4x6, 6x6, 6x6B, 6x8, 8x16, 8x32, 8x64, 16x16, 16x32, 16x64, 32x16, 32x32, 32x64, and Windows fonts	
*Note: The Touchscreen is designed to respond to a single touch. If it is touched at multiple points at the same time, an unexpected object may be activated.		
***C-more* Micro 4-inch & 6-inch EA1 panel specifications continued on next page.**		

C-more Micro 4-inch & 6-inch EA1 Specifications

EA1-T4CL and EA1-T6CL Specifications (cont'd)		
Electrical:		
	USB Bus Power (Programming)	***High Power Mode***
• **Input Voltage Range**	5.0 VDC (4.75 – 5.25 VDC)	12/24 VDC (10.2 – 26.4 VDC)
• **Input Power**	Supplied from a PC USB	Supplied from an external Class 2, 12-24 VDC power source
• **Power Consumption**	2W	4.5 W - EA1-T4CL 6.5 W - EA1-T6CL
• **Recommended Fuse**	No fuse required when directly connected to a PC with recommended cable.	Type AGC fast acting glass fuse, 750 mA, 250 VAC, ADC p/n AGC-75
• **Maximum Inrush Current**	4.5 A for 800 µs	8 A for 800 µs - EA1-T4CL 13 A for 800 µs - EA1-T6CL
• **Acceptable External Power Drop Duration**	Maximum 1ms	
Environmental:		
• **Operating Temperature**	0 to 50 °C (32 to 122 °F) Maximum surrounding air temperature rating: 50 °C	
• **Storage Temperature**	–20 to +60 °C (–4 to +140 °F)	
• **Humidity**	5–95% RH (non-condensing)	
• **Environmental Air**	For use in Pollution Degree 2 environment	
• **Vibration**	IEC60068-2-6 (Test Fc), 5-9 Hz: 3.5 mm amplitude, 9-150 Hz: 1.0G, sweeping, at a rate of 1 octave/min. (±10%), 10 sweep cycles per axis on each of 3 mutually perpendicular axes	
• **Shock**	IEC60068-2-27 (Test Ea), 15 G peak, 11ms duration, three shocks in each direction per axis, on 3 mutually perpendicular axes (total of 18 shocks)	
• **Noise Immunity**	NEMA ICS3-304 (EN61131-2) RFI, (145MHz, 440Mhz 10W @ 10cm) Impulse 1000V @ 1µS pulse EN61000-4-2 (ESD), EN61000-4-3 (RFI), EN61000-4-4 (FTB), EN61000-4-5 (Surge) EN61000-4-6 (Conducted), EN61000-4-8 (Power frequency magnetic field immunity)	
• **Enclosure**	For use on a flat surface of Type 1, 4X enclosure (Indoor use only)	
• **Agency Approvals**	CE (EN61131-2), UL508, CUL Canadian C22.2 No. 142-M95, UL File E157382, CSA 234884	
Physical:		
• **Enclosure Mounting Thickness Range**	0.04" – 0.2" [1 – 5 mm]	
• **Mounting Clip Screw Torque Range**	21 – 28 oz·in [0.15 – 0.2 N·m]	
• **Weight**	14.99 oz. (425 g)	30.69 oz. (870 g)

PLC Drivers	
Serial - port2 only	
AutomationDirect Productivity Series	Allen-Bradley DF1 Half Duplex
AutomationDirect CLICK	Allen-Bradley DF1 Full Duplex
AutomationDirect Do-more / BRX*	Allen-Bradley PLC5 DF1
AutomationDirect K-sequence	Allen-Bradley DH485
AutomationDirect DirectNET	GE SNPX (90/30, 90/70, Micro 90, VersaMax Micro)
AutomationDirect Modbus	Mitsubishi FX
AutomationDirect SOLO	Mitsubishi (Q, QnA)
AutomationDirect GS Drives	Omron Host Link (C200 Adapter, C500)
Modicon Modbus RTU	Omron FINS Serial (CJ1, CS1)
Entivity Modbus RTU	Siemens PPI (S7-200 CPU)
* BX-P-SER-RJ12 is required	

NOTE: EA1-T4CL and EA1-T6CL cannot be powered by a PLC and cannot communicate with a PLC through Port1

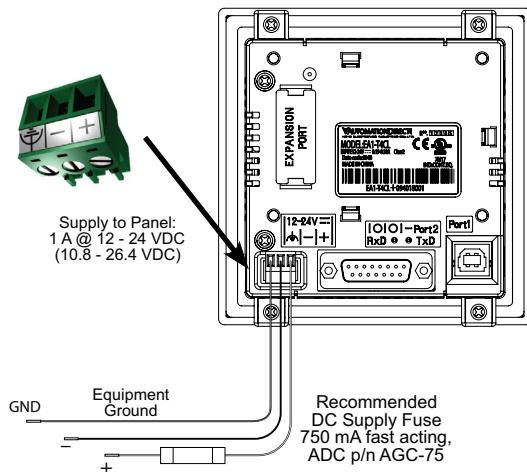# *C-more* Micro 4-inch & 6-inch EA1
Power Connection Wiring

Providing power to the touch panel

1.) The panel is powered by a Class 2, 1 Amp @ 12-24 VDC power source in normal operation. Recommended power supplies are AutomationDirect part number PSC-24-015 or PSC-24-030.

2.) EA1-T4CL and EA1-T6CL are powered during programming through a USB A-to-B cable such as USB-CBL-AB6. The panel will operate in Low-power mode when powered by the PC and result in a dim screen.*

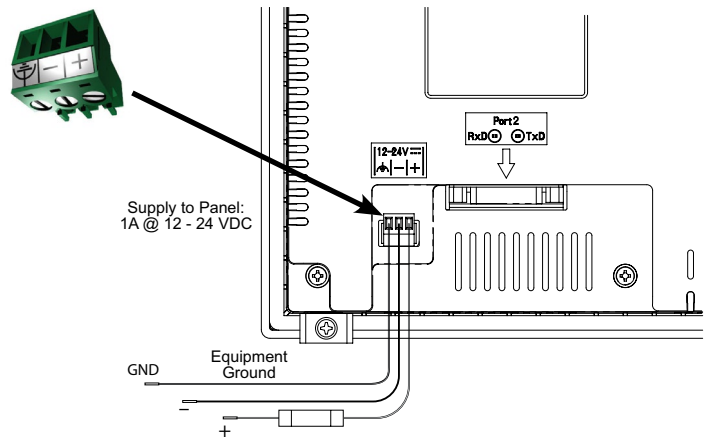3.) EA1-T4CL and EA1-T6CL cannot be powered from a PLC.

> ***NOTE: EA1-T4CL and EA1-T6CL can be powered through Port1 when connected to a PC for programming, the screen brightness is diminished because the panel is running in Low-Power Mode. For full brightness, connect an external Class 2, 12-24 VDC power source to the panel's power connection. An external Class 2, 12-24 VDC power source must be used when the panel is installed in its application.**

EA1-T4CL typical wiring diagram

Supply to Panel:
1 A @ 12 - 24 VDC
(10.8 - 26.4 VDC)

GND
Equipment Ground

+

Recommended DC Supply Fuse 750 mA fast acting, ADC p/n AGC-75

> **NOTE: Recommended DC power supply to power the EA1-T4CL, *AutomationDirect* Part No. PSC-24-015 or PSC-24-030.**

EA1-T6CL typical wiring diagram

Supply to Panel:
1A @ 12 - 24 VDC

GND
Equipment Ground

+

> **NOTE: Recommended DC power supply to power the EA1-T6CL, *AutomationDirect* Part No. PSC-24-030.**

C-more Micro 4-inch & 6-inch EA1 PLC Connections

Cabling requirements

The **C-more** 4″ and 6″ Micro panels can communicate through the built-in 15-pin serial port (Port2) via RS-232, RS-422 and RS-485 using these cables.

- EA-2CBL — connects to CLICK, Do-more/BRX**, Productivity Series, DL05, DL105, DL205, D3-350 and D4-450 phone jack.
- EA-2CBL-1 — connects to D2-250, D250-1, D2-260, DL06 VGA connector.

The EA1-T4CL and EA1-T6CL can only communicate to a controller through the 15-pin serial Port2. Port 2. EA3-T6CL can communicate to a controller through the 15-pin or the RJ12 serial ports. The USB port is for programming only.
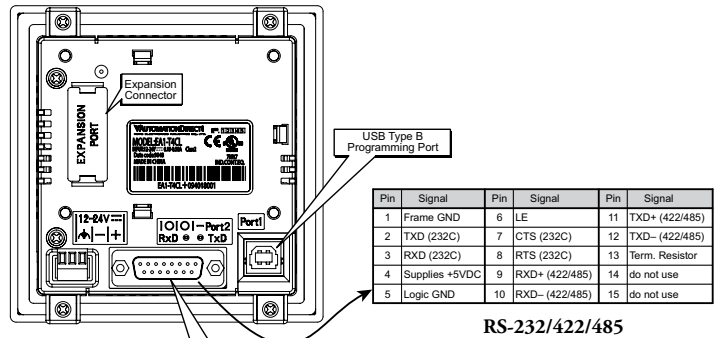
Drivers for your Controller

- AutomationDirect Productivity Series – serial
- AutomationDirect Do-more/BRX** – serial
- AutomationDirect CLICK (Modbus)– serial
- *Direct*LOGIC K-sequence, *Direct*LOGIC *Direct*NET, *Direct*LOGIC Modbus (Koyo Addressing)
- Modbus RTU
- Allen Bradley DF1 Full Duplex, Allen Bradley DF1 Half Duplex, Allen Bradley PLC5 DF1, AB DH485
- Omron Host Link (C200 Adapter, C500) Omron FINS serial (CJ1, CS1)
- GE SNPX (90/30, 90/70, Micro 90, VersaMax Micro)
- Mitsubishi Melsec FX
- Siemens PPI
- Entivity Modbus RTU
- AutomatiionDirect GS Drives
- AutomationDirect SOLO Temperature Controllers
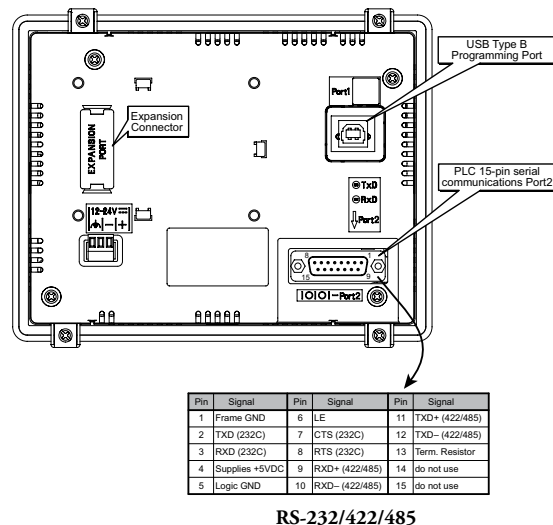- Mitsubishi Q/QnA

**BX-P-SER2-RJ12 is required
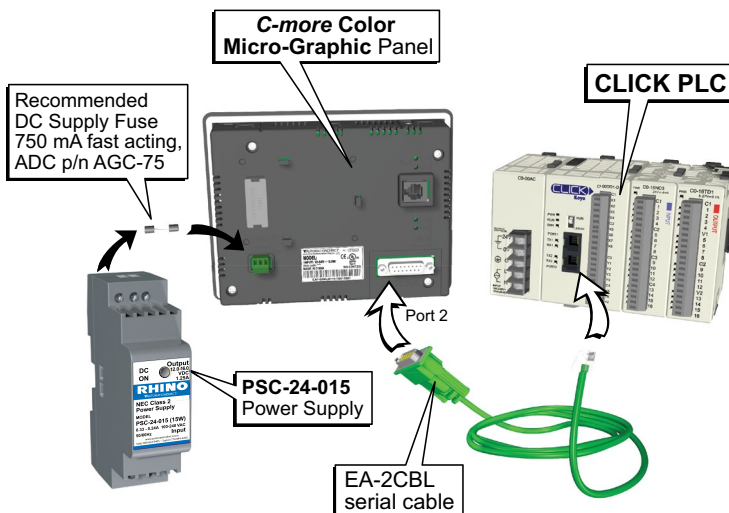
Communication Ports

EA1-T4CL

Pin	Signal	Pin	Signal	Pin	Signal
1	Frame GND	6	LE	11	TXD+ (422/485)
2	TXD (232C)	7	CTS (232C)	12	TXD– (422/485)
3	RXD (232C)	8	RTS (232C)	13	Term. Resistor
4	Supplies +5VDC	9	RXD+ (422/485)	14	do not use
5	Logic GND	10	RXD– (422/485)	15	do not use

RS-232/422/485

EA1-T6CL

Pin	Signal	Pin	Signal	Pin	Signal
1	Frame GND	6	LE	11	TXD+ (422/485)
2	TXD (232C)	7	CTS (232C)	12	TXD– (422/485)
3	RXD (232C)	8	RTS (232C)	13	Term. Resistor
4	Supplies +5VDC	9	RXD+ (422/485)	14	do not use
5	Logic GND	10	RXD– (422/485)	15	do not use

RS-232/422/485

C-more EA3 Micro Port 2 to CLICK PLC Port 2

Recommended DC Supply Fuse 750 mA fast acting, ADC p/n AGC-75

C-more Color Micro-Graphic Panel

CLICK PLC

Port 2

PSC-24-015 Power Supply

EA-2CBL serial cable

C-more Micro 4-inch & 6-inch EA1 Panel Accessories
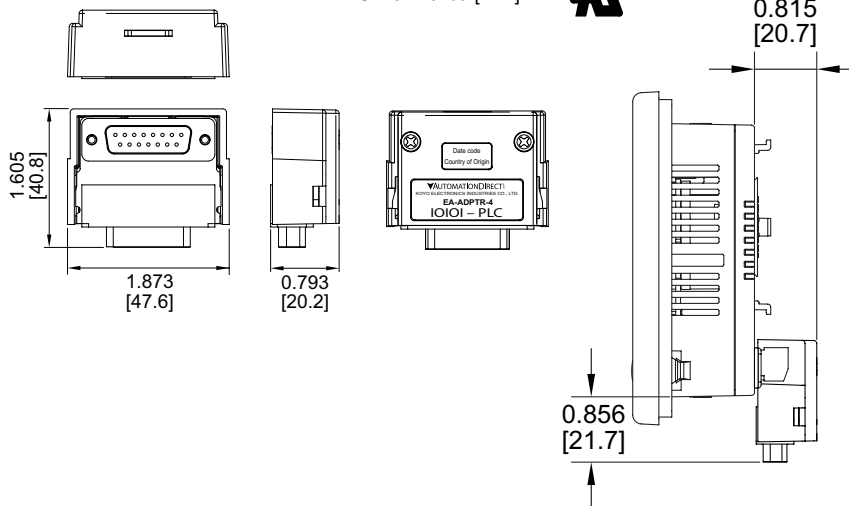
D-SUB 15-pin 90-degree Communication Port Adapter

The EA-ADPTR-4 adapter plugs into the 15-pin serial port on the rear of a EA1-T4CL or EA1-T6CL panel to allow a controller communication cable to be plugged in at a 90 degree angle to reduce panel depth requirements. 15-pin straight through pin-out. UL Recognized.

**Part No.
EA-ADPTR-4**

Dimensions

Units: inches [mm]

1.605
[40.8]

1.873
[47.6]

0.793
[20.2]

Date code
Country of Origin

AUTOMATIONDIRECT
KOYO ELECTRONICS INDUSTRIES CO., LTD.
EA-ADPTR-4
IOIOI – PLC

0.815
[20.7]

0.856
[21.7]

D-SUB 15-pin to Terminal Block Adapter

The EA-COMCON-3 adapter plugs into the 15-pin serial port on the rear of a EA1-T4CL or EA1-T6CL panel to allow wire terminal connections for an RS-422/RS-485/DH485 PLC communication cable. UL Recognized.
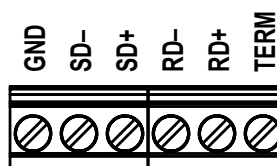
**Part No.
EA-COMCON-3**

Dimensions

Units: inches [mm]

1.756
[44.6]

1.873
[47.6]

1.126
[28.6]

Date code
Country of Origin

AUTOMATIONDIRECT
KOYO ELECTRONICS INDUSTRIES CO., LTD.
EA-COMCON-3

1.15
[29.2]

1.00
[25.4]

Terminals

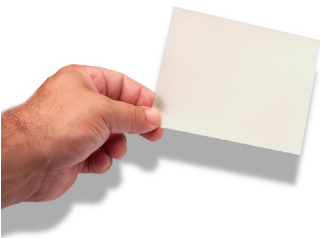| GND	SD–	SD+	RD–	RD+	TERM
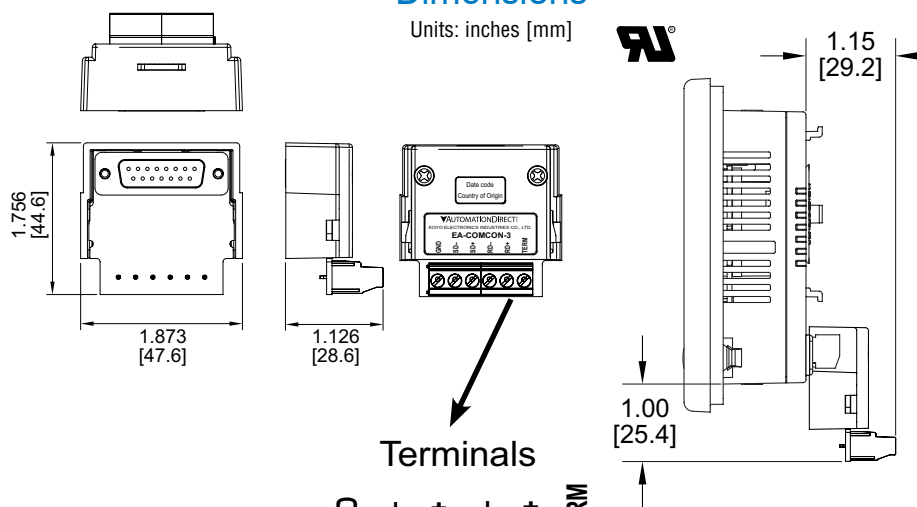
C-more Micro 4-inch & 6-inch EA1 Panel Accessories

Clear Screen Overlay

Optional clear screen overlay used to protect *C-more* Micro displays from minor scratches and wear. Package contains 3 clear screen overlays.
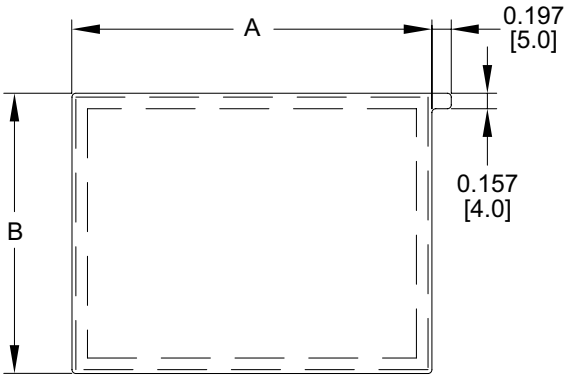
Part No. EA-4-COV2

Part No. EA-6-COV2

Dimensions

Units: inches [mm]

| Part Number	Dimensions - inch [mm]	
	A	B
EA-4-COV2	3.66 [93.0]	2.85 [72.5]
EA-6-COV2	4.91 [124.8]	3.80 [96.4]

C-more Micro 4-inch & 6-inch EA1 Replacement Parts

The optional replacement parts can be used to replace damaged, worn or lost EA1-T4CL or EA1-T6CL components.

Replacement parts at a glance:

Part Number	Description	Price
EA-MG-BZ2-BRK	Panel mounting brackets, replacement. Package of 8. For use with *C-more* Micro 4in and 6in panels, all 6in bezels, and 3in bezel EA-MG-BZ2.	
EA-MG-DC-CON	DC 3-terminal power connector, replacement. Package of 5. For use with all *C-more* Micro 4in, 6in, 8in and 10in panels, and power adapters EA-MG-P1 and EA-MG-SP1.	
EA-MG4-GSK	Panel mounting gasket, replacement. For use with *C-more* Micro EA1-T4CL 4in HMIs.	
EA-MG4-FKL	Function key label insert, replacement. Package of 4. For use with *C-more* Micro EA1-T4CL 4in HMIs. (3) blank label inserts and (1) landscape F1-F5 label insert included.	
EA-MG6-S6ML-GSK	Panel mounting gasket, replacement. For use with *C-more* Micro 6in panels.	

**Panel Mounting Clips
Part No. EA-MG-BZ2-BRK**
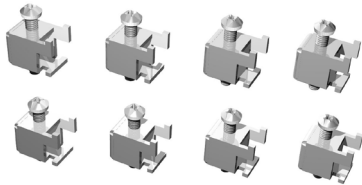
(pk of 8)

**DC Power Connector
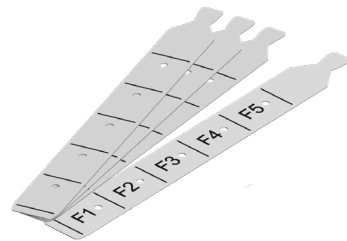Part No. EA-MG-DC-CON**
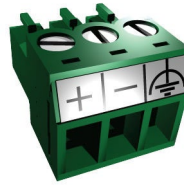
(pk of 5)

**Panel Gasket
Part No. EA-MG4-GSK**

**Function Keys Label Inserts
Part No. EA-MG4-FKL**

(pk of 4; 3 blank, 1 F1-F5 for landscape)

**Panel Gasket
Part No. EA-MG6-S6ML-GSK**

C-more Micro Programming Software

FREE software!

C-more Micro Programming Software can be downloaded at no charge or a CD version may be purchased by ordering EA-MG-PGMSW. The software requires a USB port or Ethernet connection* on your PC to connect to the *C-more* Micro panel. Software Help Files are included in the download. This software programs all the **C-more** Micro panels (does not program the **C-more** 6-inch through 15-inch touch panels).

> **Note: This software is used to program *C-more* Micro panels only.**

> **Note: The Ethernet port is built in to EA3-S3ML and EA3-T4CL. EA3-T6CL, EA3-T8CL and EA3-T10CL require the optional EA-ECOM module for Ethernet.**

Part Number	Panel Software / Firmware Version Required
EA1-S3ML	1.0 or later
EA1-S3ML-N	
EA1-S3MLW	1.5 or later
EA1-S3MLW-N	
EA1-T4CL	3.0 or later
EA1-T6CL	2.5 or later
EA3-S3ML-RN	4.30 or later
EA3-S3ML-R	
EA3-S3ML	4.20 or later
EA3-T4CL	
EA3-T6CL	3.6 or later
EA3-T8CL	3.5 or later
EA3-T10CL	

C-more Micro Programming Software is a spin-off of its powerful sibling **C-more** Touch Panel. It offers very high end features designed to reduce your configuration time. Simply drag and drop the objects from the object list (right side of screen) onto the screen construction area. Then configure your PLC tags and click on the objects you wish to use. Use the built-in simulator to review your work on your PC before ever downloading your project! The time saving benefits of the **C-more** Micro configuration software could easily pay for the panel. Check out www.CmoreMicro.com to download a free version.
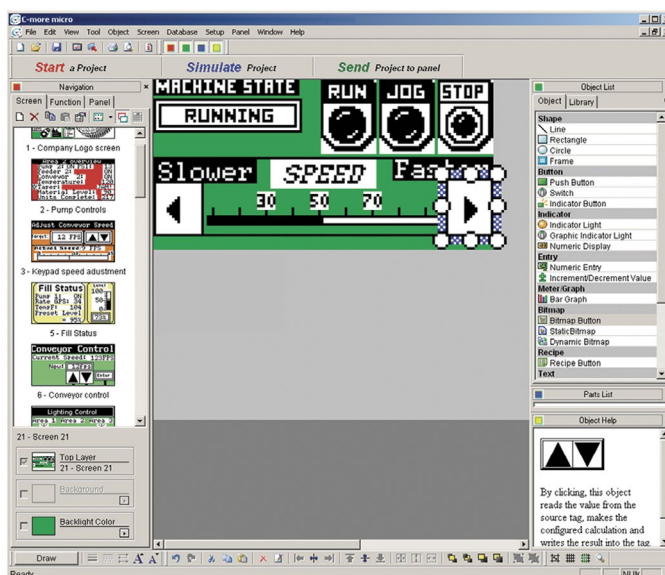
Built-in project simulator

- Runs your project on your PC
- Test all of your screens before downloading
- Time savings pays for the panel
- Simulate function keys and keypad bezel

Built-in user object/ screen libraries

Save time by re-using your custom objects and screens.

Thumbnail project preview pane

Helps keep track of multi-screen projects.

Scrolling object selection window

Lets you find the object you want fast. Just drag and drop it on the screen.

PC requirements

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

- Windows® Operating System (See automationdirect.com for specific operating system requirements.)
- 150 MB free hard-disk space
- CD-ROM or DVD drive for installing software from the CD, or internet access to download free programming software
- USB port to use with the correct Programming Cable Assembly for project transfer from the programming software to the panel

Scrolling help window

Gives you helpful information on each object