

SPECIFICATIONS





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Available Models

The *C-more* Color Micro-Graphic panels expand the next generation of HMI panels brought to you by *AutomationDirect*. They have been designed to display and interchange graphical data from a PLC by viewing, using the function keys, or touching the screen. See **Chapter 3: Accessories** for details on the available accessories for the *C-more* Color Micro-Graphic panels.

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<i>C-more</i> Color Micro-Graphic Panels	
Part Number	Description
EA1-T4CL	 <p>4-inch <i>C-more</i> Micro-Graphic Touch Panel with TFT Color LCD, 320 x 240 dot, 32,768 color display with LED backlight. 5 user-defined function keys with LED indicators. Two built-in ports (USB Type-B port and 15-pin D-sub RS-232/422/485 port). Display supports portrait and landscape modes. NEMA 4/4X, IP65 (when mounted correctly; for indoor use only)</p>
EA1-T6CL	 <p>6-inch <i>C-more</i> Micro-Graphic Touch Panel with TFT Color LCD, 320 x 240 dot, 32,768 color display with LED backlight. 5 user-defined function keys with LED indicators. Two built-in ports (USB Type-B port and 15-pin D-sub RS-232/422/485 port). Display supports portrait and landscape modes. NEMA 4/4X, IP65 (when mounted correctly; for indoor use only)</p>

C-more 6" Color Micro-Graphic Panel



C-more 6" Color Micro-Graphic Panels Installed in Landscape and Portrait Keypad Bezels



EA1-T4CL Specifications

Specifications	
Description:	320 x 240 dots 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
• Resolution	320 (W) x 240 (H) dots (Landscape Mode) 240 (W) x 320 (H) dots (Portrait Mode)
• Color	32768 colors
• Display Brightness (Reference)	USB Bus Power (Programming)
	High Power Mode
	180 nits (typ) 360 nits (typ)
• Viewing Area Size	3.357" (W) x 2.54" (H) [85.26 mm x 64.62 mm]
• Active Area Size	3.250" (W) x 2.438" (H) [82.56 mm x 61.92 mm]
• Brightness	Adjusted from the panel's built-in configuration setup menu
• Viewing Angle (landscape mode)	3, 9 o'clock axis → 35 degrees 6 o'clock axis → 50 degrees 12 o'clock axis → 20 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 custom 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 (USB 2.0 full speed mode 12 Mbps)
• Serial Communications	15-pin D-sub serial communications port (RS-232, RS-485 / 422).
*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.	

Specification table continued at the top of the next page.

EA1-T4CL Specifications (cont'd)

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Specifications (cont'd)		
Screen Objects:		
• Functional Devices	Push Button, Switch, Indicator Button, Indicator Light, Graphic Indicator Light, Numeric Display, Numeric Entry, Inc/Dec Value, Bar Graph, Bitmap Button, Static Bitmap, Dynamic Bitmap, Multi-State Bitmap, Recipe Button, Radio Button, Tri-State Button Static Text, Lookup Text, Dynamic Text, Scroll Text, Screen Change Push Button, 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	
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 12-24 VDC class 2 power source
• Power Consumption	2W	4.5 W
• 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
• Max. Inrush Current	4.5 A for 800 μ s	8 A for 800 μ s
• Acceptable External Power Drop Duration	Maximum 1 ms	
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. (\pm 10%), 10 sweep cycles per axis on each of 3 mutually perpendicular axes	
• Shock	IEC60068-2-27 (Test Ea), 15 G peak, 11 ms 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 @ 1 μ S pulse EN61000-4-2 (ESD), EN61000-4-3 (RFI), EN61000-4-4 (FTB), EN61000-4-5 (Serge) 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 File 234884	
Physical:		
• Dimensions	4.311" (W) x 4.362" (H) x 2.035" (D) [109.5 mm x 110.8 mm x 51.7 mm] (Landscape Mode) 4.362" (W) x 4.311" (H) x 2.035" (D) [109.5 mm x 110.8 mm x 51.7 mm] (Portrait Mode)	
• Enclosure Mounting Thickness Range	0.04" – 0.2" [1 – 5 mm]	
• Mounting Clip Screw Torque Range	21 – 28 oz-in [0.15 – 0.2 Nm]	
• Weight	14.99 oz. (425 g)	

EA1-T6CL Specifications

Specifications	
Description:	320 x 240 dots LCD display (Landscape Mode), Five user defined keypad function buttons, and five user defined LED's
Display:	
• Type	5.7" TFT Color LCD, graphical characters
• Resolution	320 (W) x 240 (H) dots (Landscape Mode) 240 (W) x 320 (H) dots (Portrait Mode)
• Color	32768 colors
• Display Brightness (Reference)	USB Bus Power (Programming)
	High Power Mode
	45 nits (typ) 270 nits (typ)
• Viewing Area Size	4.574" (W) x 3.483" (H) [116.2 mm x 87.4 mm]
• Active Area Size	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 (landscape mode)	3, 9 o'clock axis → 50 degrees 6 o'clock axis → 50 degrees 12 o'clock axis → 45 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 custom 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 (USB 2.0 full speed mode 12 Mbps)
• Serial Communications	15-pin D-sub serial communications port (RS-232, RS-485 / 422).
• Expansion Connection	Yes – used with optional Keypad Bezels, EA-MG6-BZ2 & EA-MG6-BZ2P
*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.	

Specification table continued at the top of the next page.

EA1-T6CL Specifications (cont'd)

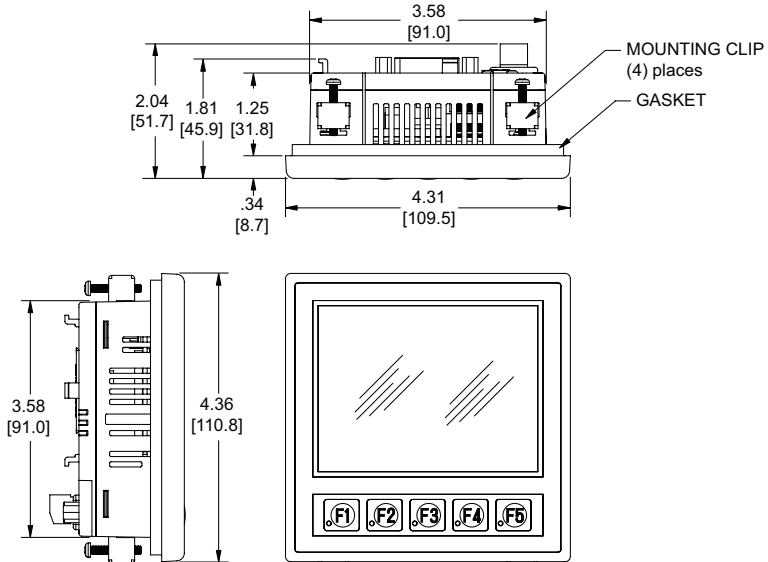
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Specifications (cont'd)		
Screen Objects:		
• Functional Devices	Push Button, Switch, Indicator Button, Indicator Light, Graphic Indicator Light, Numeric Display, Numeric Entry, Inc/Dec Value, Bar Graph, Bitmap Button, Static Bitmap, Dynamic Bitmap, Recipe Button, Static Text, Lookup Text, Dynamic Text, Screen Change Push Button, 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	
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 12-24 VDC class 2 power source
• Power Consumption	2W	6.5 W
• 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
• Max. Inrush Current	4.5 A for 800 μ s	13 A for 800 μ s
• Acceptable External Power Drop Duration	Maximum 1 ms	
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. (\pm 10%), 10 sweep cycles per axis on each of 3 mutually perpendicular axes	
• Shock	IEC60068-2-27 (Test Ea), 15 G peak, 11 ms 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 @ 1 μ s pulse EN61000-4-2 (ESD), EN61000-4-3 (RFI), EN61000-4-4 (FTB), EN61000-4-5 (Serge) 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:		
• Dimensions	6.850" (W) x 5.331" (H) x 2.130" (D) [174.0 mm x 135.4 mm x 54.1 mm] (Landscape Mode) 5.331" (W) x 6.850" (H) x 2.130" (D) [135.4 mm x 174.0 mm x 54.1 mm] (Portrait Mode)	
• Enclosure Mounting Thickness Range	0.04" – 0.2" [1 – 5 mm]	
• Mounting Clip Screw Torque Range	21 – 28 oz-in [0.15 – 0.2 Nm]	
• Weight	29.63 oz. (840 g)	

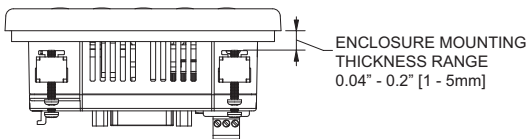
EA1-T4CL Panel Dimensions

Panel Dimensions

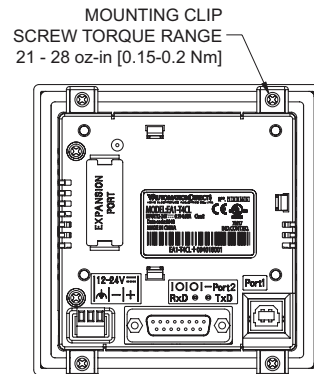
Units: Inches [mm]



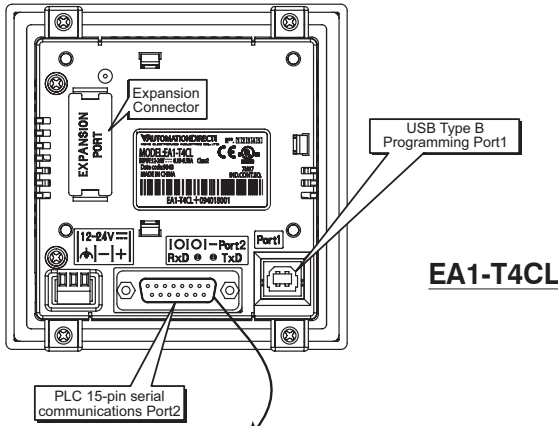
Enclosure Thickness



Mounting Clip Screw Torque



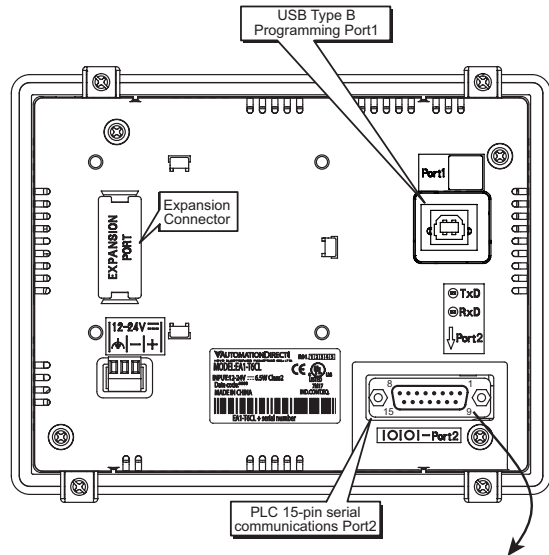
Communications Port



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

Chemical Compatibility

The *C-more* Micro-Graphic panels and accessory bezels are made of three materials that may be exposed to elements outside of the enclosure. The structural hard plastic of the panels and accessory bezels is ABS plastic. The gasket is silicone rubber. The overlay sheet for all 3” panels, 4” panels and accessory bezels is PET. For EA1-S6ML and EA1-S6MLW panels, the panel overlay sheet from original manufacture until January 2013 is PC. For EA1-S6ML and EA1-S6MLW panels with a manufacture date January 2013 and later, the panel overlay sheet is PET. For EA1-T6CL panels, the panel overlay sheet from original manufacture until February 2013 is PC. For EA1-T6CL panels with a manufacture date February 2013 and later, the panel overlay sheet is PET.