# SPECIFICATIONS

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# Available Models

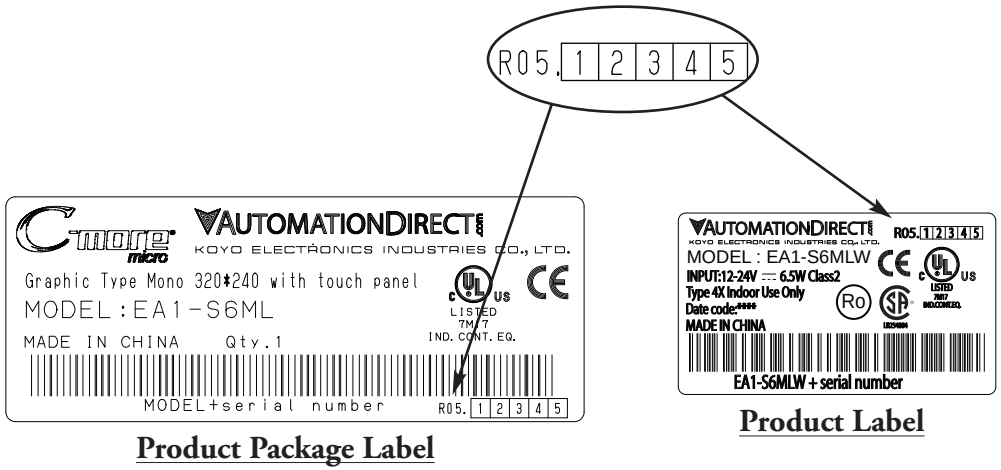


The *C-more* 6" Micro-Graphic panels expand the next generation of HMI panels brought to you by *AutomationDirect*. They have been designed to display and interchange graphical data from a PLC by viewing, using the function keys, or touching the screen.

The *C-more* 6" Micro-Graphic panel is available in two models to suit your application. Refer to the following table for part numbers, descriptions and general specifications. See **Chapter 3: Accessories** for details on the available accessories for the *C-more* 6" Micro-Graphic panels.

| Micro-Graphic Panels | | |
|---|---|---|
| **Part Number** | | **Description** |
| **EA1-S6ML** | | 5.7-inch *C-more* Micro-Graphic Touch Panel with STN LCD monochrome, 320x240 dot display. The panel has red and green LED backlights. Supports 5 selectable backlight colors (Red, Green, Amber, Lime, and Yellow). Includes 5 user-defined function keys with LED indicators. 2 built in serial Ports (RS-232 RJ12 port and 15 pin D-sub RS-232/422/485). NEMA 4/4X, IP-65 (when mounted correctly; for indoor use only). |
| **EA1-S6MLW** | | 5.7-inch *C-more* Micro-Graphic Touch Panel with STN LCD monochrome, 320x240 dot display. The panel has white and red LED backlights. Supports 5 selectable backlight colors (White, Pink1, Pink2, Pink3, and Red). Includes 5 user-defined function keys with LED indicators. 2 built in serial Ports (RS-232 RJ12 port and 15 pin D-sub RS-232/422/485). NEMA 4/4X, IP-65 (when mounted correctly; for indoor use only |

**Hardware Version**




**Product Package Label**

**Product Label**

***NOTE:*** *C-more 6" Micro-Graphic panels with hardware version R05 and higher must use firmware version 3.20 or higher.*

# Model Specifications

| Specifications | |
|---|---|
| **Description:** | 320 x 240 dots LCD display(Landscape Mode), five user defined keypad function buttons, and five user defined LEDs |
| **Display:** | |
| • Type | 5.7" STN monochrome LCD, graphical characters |
| • Resolution | 320 (W) x 240 (H) dots (Landscape Mode)<br>240 (W) x 320 (H) dots (Portrait Mode) |
| • Color | 2 colors (normal / inverse) |
| • Viewing Area Size | 4.614" (W) x 3.480" (H) [117.2 mm x 88.4 mm] |
| • Active Area Size | 4.535" (W) x 3.400" (H) [115.2 mm x 86.4 mm] |
| • Contrast | Adjusted from the panel's built-in configuration setup menu |
| • Viewing Angle | 3, 9 o'clock axis –> 45 degrees<br>6 o'clock axis –> 40 degrees<br>12 o'clock axis –> 20 degrees |
| **Backlight:** | |
| • Type | LED |
| • Color | Model EA1-S6ML : 5 user defined colors:<br>Red, Green, Amber, Lime, and Yellow |
| | Model EA1-S6MLW: 5 user defined colors:<br>White, Pink1, Pink2, Pink3 and Red |
| • User Replaceable | No |
| **Touch Screen:** | |
| •Type | Analog touch panel |
| • Operation | 82 gram force [0.8 N] maximum |
| • Life | Minimum of 1,000,000 cycles |
| **Features:** | |
| • User Memory | 1792 kBytes |
| • Number of Screens | Up to 999 – limited by project memory usage |
| • Beep (Internal) | Yes |
| • Keypad Function Buttons | Five user defined function key push buttons with the ability to label.<br>Minimum of 500,000 cycles |
| • Keypad Function Button LEDs | Each function key button includes a red LED that can be user programmed. |
| • Serial Communications | Built-in RJ12 serial communications port (RS-232)<br>and 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. |

Specification table continued at the top of the next page.

# Model Specifications (cont'd)

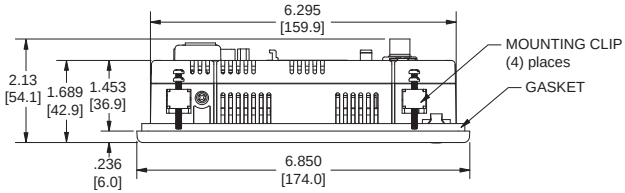


| Specifications (cont'd) | | |
|---|---|---|
| **Screen Objects:** | | |
| • Functional Devices | Push Button, Switch, Indicator Button, Indicator Light, Graphic Indicator Light, Numeric Display, Numeric Entry, Inc/Dec Value, Bar Graph, Bitmap Button, Static Bitmap, Dynamic Bitmap, Recipe Button, Static Text, Lookup Text, Dynamic Text, Screen Change Push Button, Screen Selector, Adjust Contrast, Function, Key Configuration Object, Real Time Graph, Line Graph, Analog Meter. | |
| • Static Shapes | Lines, Rectangles, Circles and Frames | |
| • Displayable Fonts | Fixed fonts: 6x6, 6x8, 8x16, 16x16, 32x16, 32x32, and Windows fonts | |
| **Electrical:** | | |
| | **Low Power Mode** | **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 through the panel's RJ12 serial communications port connection when used with most AutomationDirect PLCs having a RJ12 communication port or from a PC during programming. | Supplied from an external 12-24 VDC class 2 power source |
| • Power Consumption | 1.05 W @ 5 VDC (210 mA) | 6.5 W @ 10.2 VDC (630 mA), 12 VDC (540 mA), 24 VDC (250 mA) |
| • Recommended Fuse | No fuse required when directly connected to a PLC or PC with recommended cable. | Type AGC fast acting glass fuse, 750 mA, 250 VAC, ADC p/n AGC-75 |
| • Max. Inrush Current | 1 A for 500 µs | 10 A for 500 µs |
| • Acceptable External Power Drop | Maximum 1 ms | |
| **Environmental:** | | |
| • Operating Temperature | 0 to 50 °C (32 to 122 °F) | |
| • Storage Temperature | –20 to +60 °C (–4 to +140 °F) | |
| • Humidity | 5–95% RH, non-condensing | |
| • Environmental Air | No corrosive gases permitted | |
| • 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, 11 ms duration, three shocks in each direction per axis, on 3 mutually perpendicular axes (total of 18 shocks) | |
| • Noise Immunity | NEMA ICS3-304<br>RFI, (145 MHz, 440 Mhz 10 W @ 10 cm)<br>Impulse 1000 V @ 1 µs pulse | |
| • Enclosure | NEMA 4/4X, IP-65 (When mounted correctly, for **indoor** use only.) | |
| • Agency Approvals | CE (EN61131-2), UL508, CUL Canadian C22.2 No. 142-M95, UL File E157382, CSA File 234884 | |
| **Physical:** | | |
| • Dimensions | 6.850" (W) x 5.331" (H) x 2.13" (D) [174.0 mm x 135.4 mm x 54.1 mm] (Landscape Mode)<br>5.331" (W) x 6.850" (H) x 2.13" (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] | |
| • Depth from bezel rear | 1.894" [47.1 mm] | |
| • Weight | 30.69 oz. (870 g) | |

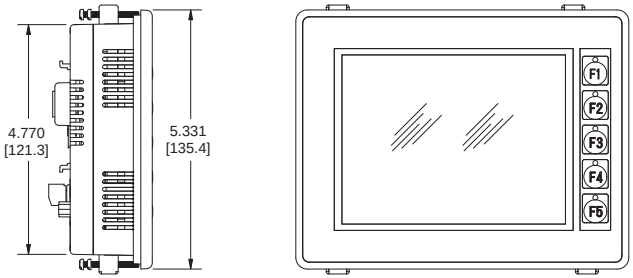
# Panel Dimensions



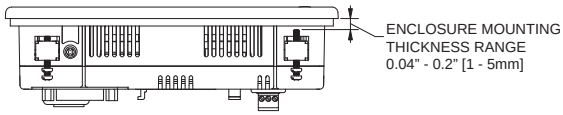
## Panel Dimensions



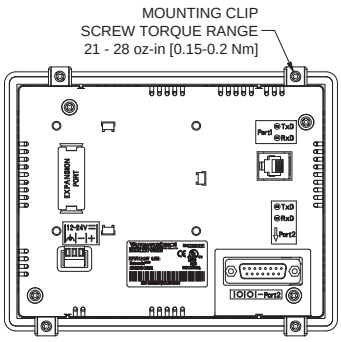

Units: Inches [mm]




## Enclosure Thickness

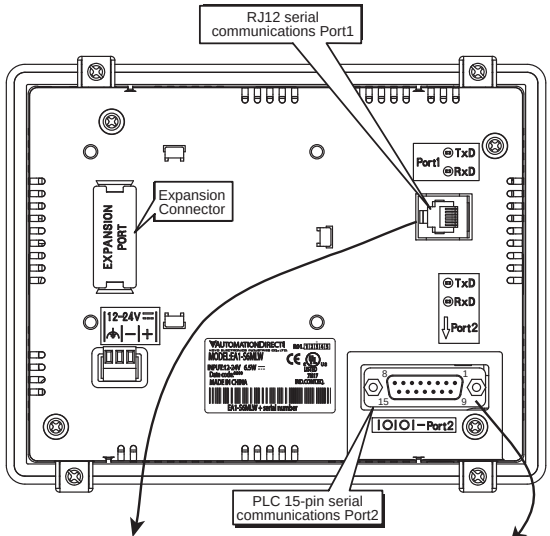


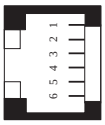

## Mounting Clip Screw Torque



# Communications Ports






| Pin | Signal |
|---|---|
| 1 | Logic GND |
| 2 | not used |
| 3 | RXD (232C) |
| 4 | TXD (232C) |
| 5 | +5 VDC |
| 6 | Logic GND |

**RS-232**

| 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 | do not use | 9 | RXD+ (422/485) | 14 | do not use |
| 5 | Logic GND | 10 | RXD– (422/485) | 15 | do not use |

**RS-232/422/485**

***NOTE:*** *The panel has one built-in RJ12 serial communications port (Port1 - RS-232) and one 15-pin serial communications port (Port2 - RS-232/422/485).* ***Only one*** *of the ports can be used with a connected PLC. The programming software allows the user to select either Comm. Port1 or Comm. Port2 under the Panel Manager dialog box. When using Port2 to communicate with the connected PLC, Port1 can still be used with the EA-MG-PGM-CBL Software Programming Cable Assembly to transfer projects between the PC and panel.*

# 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.