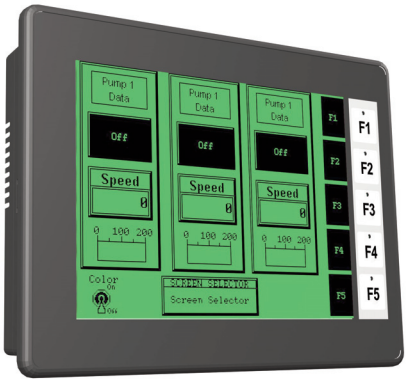
C-more 6" Micro-Graphic STN Touch Panel

The C-more 6" Micro-Graphic panel has a 5.7-inch STN LCD monochrome 320 x 240 dot display. Model EA1-S6ML has five selectable LED-driven backlight colors including Green, Red, Amber, Yellow and Lime. 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. Each model is rated NEMA 4/4X, IP-65 (when mounted correctly, for indoor use only). The C-more 6" Micro-Graphic panels are powered from a 12-24 VDC power supply or can operate in low-power mode* when powered from the serial communications port of select AutomationDirect PLCs.

Part No. EA1-S6ML

Shown in Landscape (Horizontal) mode



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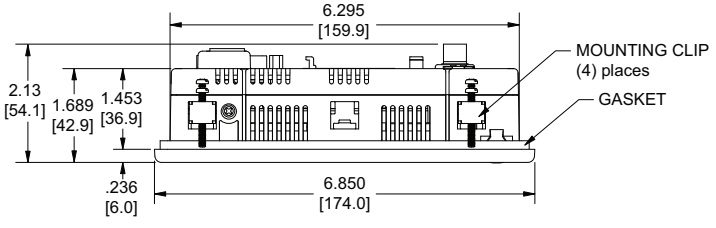
Features

- Touch screen display
- Free downloadable programming software
- 320 x 240 Dot 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.
- 5-Color LED backlight for longer life; Green, Red, Amber, Yellow and Lime
- 2 optional keypad bezels, 20-button landscape and 21-button portrait
- Optional replaceable clear screen overlay
- 1,792 KB memory
- Built in RJ12 serial communications 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, IP-65 compliant when mounted correctly, indoor use only
- UL, cUL & CE agency approvals
- 2-year warranty from date of purchase

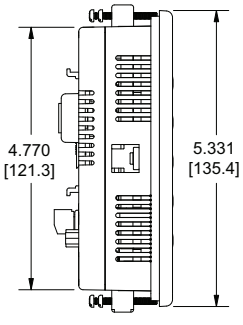
***NOTE: When the panel is powered through Port1 from a connected PLC or PC, the screen brightness is diminished because the panel is running in Low-Power Mode. For full brightness, connect an external 12-24 VDC power source to the panel's power connection. Low-Power Mode should be used during initial programming only. Connect an external 12-24 VDC power source when the panel is installed in its application.**

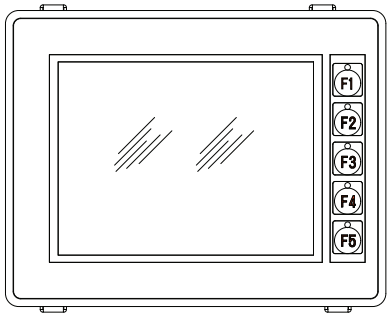
NOTE: Don't forget the optional keypad bezels shown in the accessories section.

Dimensions

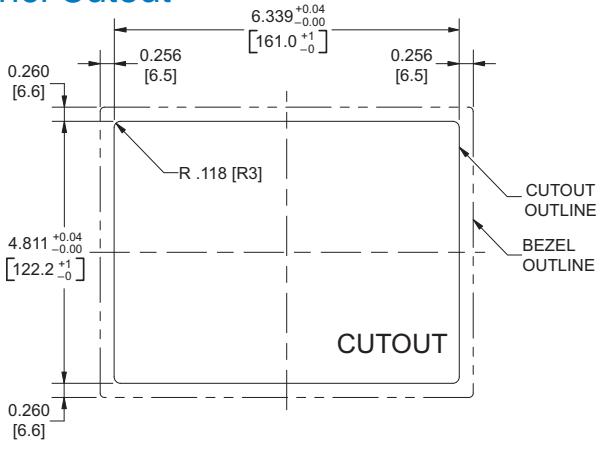


Units: Inches [mm]

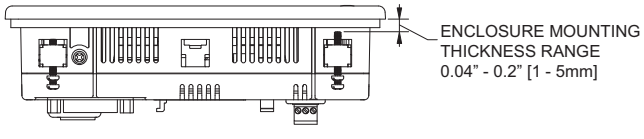




Panel Cutout



Panel Thickness



NOTE: The *C-more* 6" Micro-Graphic cutout dimensions are not equivalent to previous *AutomationDirect* text panels. The *C-more* 6" Micro-Graphic panels will not fit in cutouts for DV-1000, EZText, Optimate panels or C-more 6" panels EA7-S6x-x.

C-more 6" Micro-Graphic STN Touch Panel

The C-more 6" Micro-Graphic panel has a 5.7-inch STN LCD monochrome 320 x 240 dot display. Model EA1-S6MLW has five selectable LED-driven backlight colors including White, Pink1, Pink2, Pink3 and Red. 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. Each model is rated NEMA 4/4X, IP-65 (when mounted correctly, for indoor use only). The C-more 6" Micro-Graphic panels are powered from a 12-24 VDC power supply or can operate in low-power mode* when powered from the serial communications port of select AutomationDirect PLCs.

Part No. EA1-S6MLW

Shown in Landscape (Horizontal) mode

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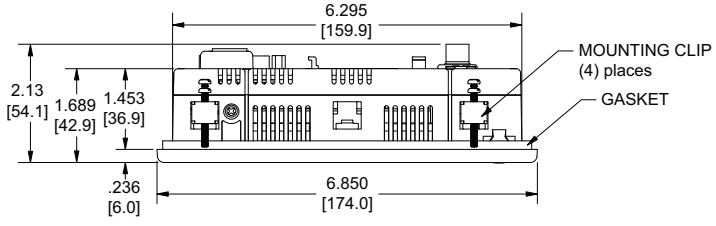
Features

- Touch screen display
- Free downloadable programming software
- 320 x 20 Dot 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.
- 5-Color LED backlight for longer lifetime; Green, Red, Amber, Yellow and Lime
- 2 optional keypad bezels, 20-button landscape and 21-button portrait
- Optional replaceable clear screen overlay
- 1,792 KB memory
- Built in RJ12 serial communications 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, IP-65 compliant when mounted correctly, indoor use only
- UL, cUL & CE agency approvals
- 2-year warranty from date of purchase

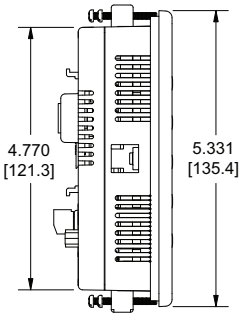
NOTE: Don't forget the optional keypad bezels shown in the accessories section.

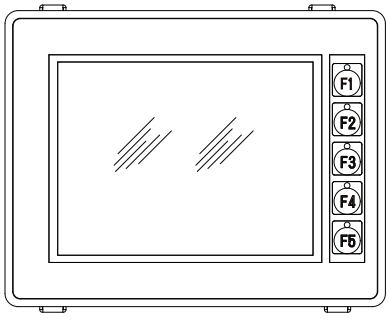
***NOTE: When the panel is powered through Port1 from a connected PLC or PC, the screen brightness is diminished because the panel is running in Low-Power Mode. For full brightness, connect an external 12-24 VDC power source to the panel's power connection. Low-Power Mode should be used during initial programming only. Connect an external 12-24 VDC power source when the panel is installed in its application.**

Dimensions

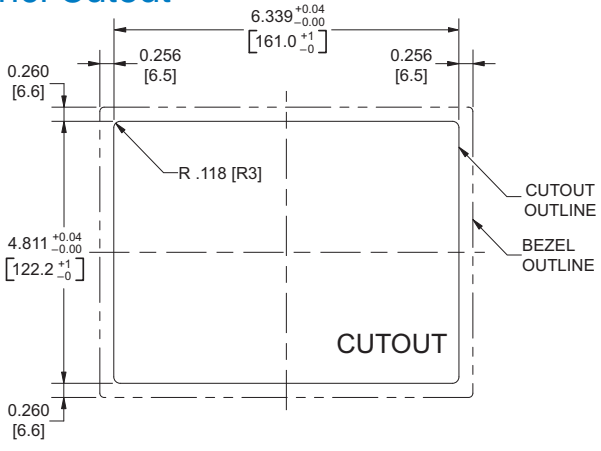


Units: Inches [mm]

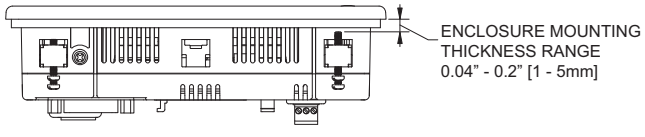




Panel Cutout



Panel Thickness



NOTE: The *C-more* 6" Micro-Graphic cutout dimensions are not equivalent to previous *AutomationDirect* text panels. The *C-more* 6" Micro-Graphic panels will not fit in cutouts for DV-1000, EZText, Optimate panels or C-more 6" panels EA7-S6x-x.

C-more 6" Micro-Graphic 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" STN monochrome LCD, graphical characters
• Resolution	320 (W) x 240 (H) dots (Landscape Mode) 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 6 o'clock axis –> 40 degrees 12 o'clock axis –> 20 degrees
Backlight	
• Type	LED
• Color	5 user defined colors: **EA1-S6ML** - Red, Green, Amber, Lime, and Yellow **EA1-S6MLW** - 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 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.
• Serial Communications	Built-in RJ12 serial communications port (RS-232) 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
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, Real Time Line Trend, Analog Meter.
• Static Shapes	Lines, Rectangles, Circles and Frames
• Displayable Fonts	Fixed fonts: 6x6, 6x8, 8x16, 16x16, 32x16, 32x32, and Windows fonts

NOTE: Photo shows Portrait and Landscape Bezels

C-more 6" Micro-Graphic Specifications

Specifications		
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 USB.	Supplied from an external 12-24 VDC power source
• ***Power Consumption***	1.05 W @ 5 VDC (210 mA)	6.5 W @ 10.2 VDC (630 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
• ***Maximum Inrush Current***	1 A for 500 µs	10 A for 500 µs
• ***Acceptable External Power Drop Duration***	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 RFI, (145 MHz, 440 Mhz 10 W @ 10 cm) 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	
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]	
• ***Depth from bezel rear with options Module***	1.894" [47.1 mm]	
• ***Weight***	30.69 oz. (870 g)	

***NOTE: When the panel is powered through Port1 from a connected PLC or PC, the screen brightness is diminished because the panel is running in Low-Power Mode. For full brightness, connect an external 12-24 VDC power source to the panel's power connection. Low-Power Mode should be used during initial programming only. Connect an external 12-24 VDC power source when the panel is installed in its application.**

NOTE: The environmental specifications for the panels shown above are also applicable for the *C-more* 6" Micro-Graphic accessories shown later in this section of the catalog.

C-more Micro-Graphic Programming Software

FREE Software!

C-more Micro-Graphic 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 on your PC to connect to the *C-more* Micro-Graphic panel. Software Help Files are included in the download. This software programs all the *C-more* Micro-Graphic panels (does not program the *C-more* 6" through 15" touch panels).

Note: This software is used to program C-more Micro-Graphic panels only.
Part Numbers: EA1-S3ML, EA1-S3ML-N, EA1-S3MLW, EA1-S3MLW-N, EA1-S6ML, EA1-S6MLW

Note: Software and Firmware Version 1.5 or later is required with models EA1-S3MLW and EA1-S3MLW-N. Available for free download at *www.automationdirect.com*

Note: Software and Firmware Version 2.0 or later is required with models EA1-S6ML and EA1-S6MLW. Available for free download at *www.automationdirect.com.*

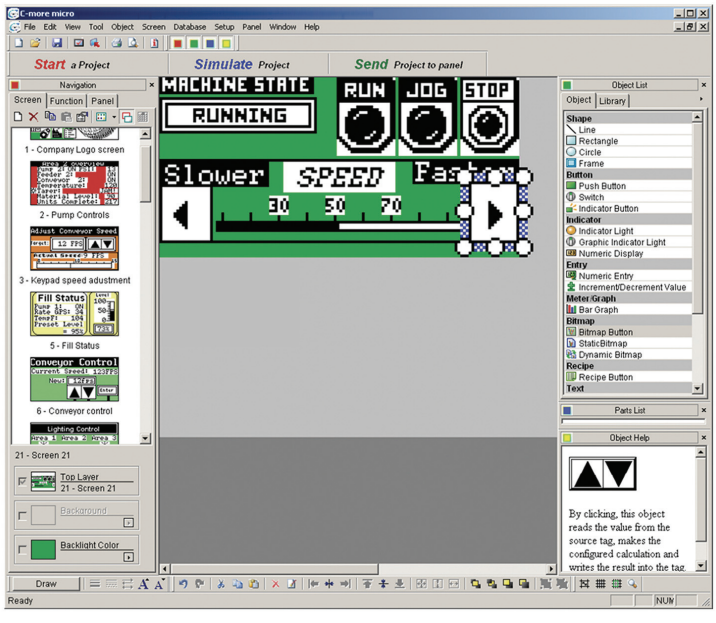
C-more Micro-Graphic Programming Software is a spin-off of its powerful sibling *C-more* Touch Panel. It offers very high end features designed to reduce your configuration time. Simply drag and drop the objects from the object list (right side of screen) onto the the screen construction area. Then configure 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* configuration software could easily pay for the panel. Check out www.C-moreMicro.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

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-Graphic Programming Software, EA-MG-PGMSW, on a PC:

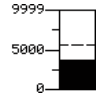
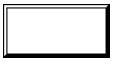
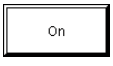
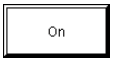
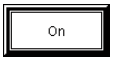
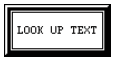
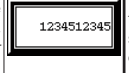
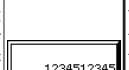
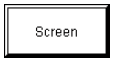
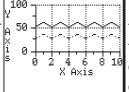
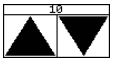
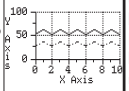
- USB port for project transfer from software to touch panel
- Personal Computer with a 333 MHz or higher processor (CPU) clock speed recommended; Intel® Pentium/Celeron family, or AMD® K6/Athlon/Duron family, or compatible processor recommended
- Keyboard and Mouse or compatible pointing device
- Super VGA color video adapter and monitor with at least 800 x 600 pixels resolution (1024 x 768 pixels recommended) 64K color minimum
- 150 MB free hard-disk space
- 128 MB free RAM (512 MB recommended)
- CD-ROM or DVD drive for installing software from the CD or internet access to download
- Operating System - Windows® XP Home / Professional Edition with Service Pack 2, Windows® 2000 with Service Pack 4 or Windows® Vista

Scrolling help window

Gives you helpful information on each object

C-more Micro-Graphic Programming Software

C-more Micro-Graphic Panel Objects

Object	Graphic	Object	Graphic
The **Line** object, just like with drawing tools, allows the user to insert a straight line drawing into a project. When a Line is inserted into a project, a window opens to allow the user to setup all available parameters for the Line object. Some of the uses for Line Objects include but are not limited to adding callouts, pointers, or indicators.		The **Analog Meter** object is used to display the current value of a Tag Name.	
The **Rectangle** object, just like with drawing tools, allows the user to insert a drawing of a Rectangle as well as other geometric shapes into a project. When this object is inserted into a project, a window opens to allow the user to setup all available parameters for the Rectangle object.		The **Bar Meter** object is used to monitor up to two assigned Tag Names continuously. This object has various appearances depending upon the relative value of the tags. The Bar Meter can be used to create digital versions of level, current, and flow meters to name a few samples, or gauges that measure speed and other measurable data.	
The **Circle** object, just like with drawing tools, allows the user to insert a drawing of a Circle or ellipse shape into a project. When this object is inserted into a project, a window opens to allow the user to setup all available parameters for the Circle object.		The **Bitmap Button** object offers the ability to use a Bitmap graphic to perform the functions of a Button. This allows users to create their own graphics and implement them within the software project. The Bitmap Button object can be used to activate or deactivate components assigned to a Discrete Tag Name. The C-more Micro-Graphic display only supports two colors, black and white.	
The **Frame** object allows the user to insert a Frame to the project that can be used to Frame other objects. Some of the uses for Frame object include but are not limited to graphically separating objects for different operations that may appear on one screen and emphasizing pushbuttons or other objects that may require more attention by the operator.		The **Static Bitmap** offers the ability to display a Bitmap graphic on any screen. The Static Bitmap does not change state. Refer to the Dynamic Bitmap Object if you require the graphic object to change state based on a Tag Value in your PLC. The dialog box for a "Static Bitmap" object allows you to "read from disk" and select a graphic file for import. Graphics must be in one of the following formats: .BMP .WMF .JPG .JPEG	
The **Pushbutton** object is available from the Button Category of the Object List window. The Pushbutton object is an electronic version of a typical Pushbutton normally found on control panels. The Pushbutton object can be used to activate or deactivate components assigned to a Discrete Tag Name.		**Recipe** objects make it easy to make a large number of tag changes with the push of a single button. Create Recipes with up to 99 entries, and multiple sets of values. Then just push a button to load an entire set of values into the group of recipe tags.	
The **Switch** object is an electronic version of a typical Switch that normally can be found on control panels. The Switch object can be used to activate or deactivate components assigned to a Discrete Tag Name.		The **Dynamic Bitmap** object offers the ability to make an object using two different Bitmap graphics that will display one graphic when the Tag is On and a different graphic when the Tag is Off. Use your own bitmap designs or use some of the bitmaps provided with the software that are located in the User Graphic Library.	
The **Indicator Button** object is available from the Button Category of the Object List window. The Indicator Button object is an electronic version of a typical Indicator Button normally found on control panels. The Indicator Button is a combination of a Pushbutton and an Indicator Light. The Indicator Button can be used to activate or deactivate components assigned to a Discrete Tag Name.		The **Static Text** object is used to display a Frame with a personalized Message. This Frame and Message can be placed on any screen and any location within the screen.	
The **Indicator Light** object is an electronic version of a typical Indicator Light normally found on industrial control panels. The Indicator Light can be configured to display the status of the assigned Discrete Tag Name.		The **Lookup Text** object is used to display a Frame with a personalized Message. This Frame and Message can be placed on any screen and any location within the screen. The object is always displayed like a sign but is configured to display only the message prompted by an assigned Tag Name. Messages are retrieved from a Message Database which is configured by the user with text defined by the user. The Lookup Text Object will scroll text up to 128 characters.	
The **Graphic Indicator Light** object is a more enhanced version of the "Indicator Light Object" that allows the user to choose more detailed graphics to display the status of a tag. This object is an electronic version of a typical Indicator Light normally found on industrial control panels. The Indicator Light can be configured to display the status of the assigned Discrete Tag Name.		The **Dynamic Text** object is used to display text that is retrieved from data stored in a Tag. The Tag Name is assigned to registers in the PLC that contain set character data. The data can be stored in the PLC in ASCII format and may include information such as machine numbers, locations, part numbers, and such. The Message can be configured to be visible (Trigger) when an associated Tag Name is On or Off. This object can be placed on any screen and any location within the screen. The Dynamic Text Object will scroll text up to 40 characters.	
The **Numeric Display** consists of a frame that displays a real-time numeric value according to the value of data received from an assigned Tag Name. The Numeric Display supports numeric Signed Decimal, Unsigned Decimal, BCD, and Floating Point data types with up to 11 digits, including decimal point. User Defined Alpha Numeric Prefix and Suffix values are also supported.		The **Scroll Text** object is available from the Text Category of the Object List window. The Scroll Text object is an electronic version of a marquee. It is similar to the Static Text Object. If the text in the object does not fit in the window, it will scroll from right to left across the window. The Scroll Text object does not require a Tag Name assignment. The Scroll Text Object has a maximum character limit of 128 characters.	
The **Numeric Entry** object is used to enter a value from your Panel to a PLC Register. This object, when selected, opens a Numeric Keypad that allows the user to enter a new value that will be written to the assigned Tag Name. The Numeric Entry supports numeric Signed Decimal, Unsigned Decimal, BCD, and Floating Point data types with up to 11 digits, including decimal points. User Defined Alpha Numeric Prefix and Suffix values are also supported.		The **Screen Change** Pushbutton object is available from the Control Category of the Object List window. The Screen Change Pushbutton object is a pushbutton that can be configured to activate another screen in the project. This object may be edited to various colors and sizes. Users can configure the button to activate the Power-Up screen, Forward Screen, Previous Screen, or any one of the project screens.	
The **Increment/Decrement Value** object is used to add or subtract a value by pressing a button on the Panel. Basically the object uses two Tags, one to read a value from and another to write a modified value to. The Increment/Decrement Value supports numeric Signed Decimal, Unsigned Decimal, BCD, and Floating Point data types with up to 11 digits, including decimal points. The Increment and decrement values are also user selectable.		The **Screen Selector** object is available from the Control Category of the Object List window. This object is an enhanced version of the Screen Change pushbutton in that it offers many more features and defaults with data from screens in the project. This helps to save time by not having to create Screen change buttons for each screen. This object may be edited to various colors and sizes.	
The **Real Time Graph** object displays the value stored in up to two PLC tags, over a history of up to 24 points each.		The **Adjust Display Contrast** object is used to allow the operator to adjust the Panel Display Contrast. The default Display setting often works in most applications, however lighting may vary based on the location of each application. In these cases the operator can use this object to make adjustments. The current display setting value will appear on the top of the button and will change as the arrow keys are pressed. This button can be modified to various sizes.	
The **Line Graph** object displays the values of up to 24 PLC address points. Up to two address arrays can be displayed.		The **Function** object is used to assign the panels function key buttons to a particular action as well as assigning the control of the LED On/Off status. When a button has been assigned as a shift button, the then F1 through F5 will become F6 through F10. The Function Object buttons will activate when the hardware button is pressed or when the object is pressed on the screen. The object size is restricted so that the keys will line up with the hardware function keys on the panel.	

C-more Micro-Graphic Computer Programming Connections

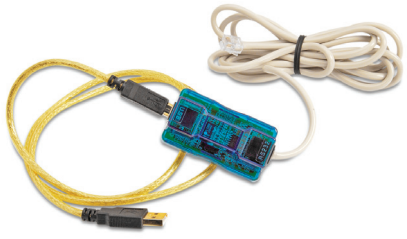
Using the *C-more* Micro-Graphic Programming Software for project development, the *C-more* Micro-Graphic panel can be connected to a PC (personal computer) by using EA-MG-PGM-CBL, the USB-to-RS-232 cable assembly.

- Connect the USB programming cable (included) from a USB port type A on the PC to the USB type B port on the converter (included). Next connect the serial programming cable from the converter's RJ12 port to the panel's RJ12 serial port. The panel receives power from the USB port of the PC that it is connected to through the USB to RS-232 converter assembly.

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

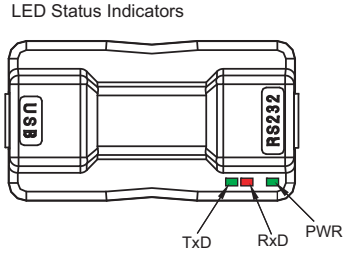
- USB port for project transfer from software to touch panel
- Personal Computer with a 333 MHz or higher processor (CPU) clock speed recommended; Intel® Pentium/Celeron family, or AMD® K6/Athlon/Duron family, or compatible processor recommended
- Keyboard and Mouse or compatible pointing device
- Super VGA color video adapter and monitor with at least 800 x 600 pixels resolution (1024 x 768 pixels recommended) 64K color minimum
- 150 MB free hard-disk space
- 128 MB free RAM (512 MB recommended)
- CD-ROM or DVD drive for installing software from the CD or internet access to download
- Operating System - Windows® XP Home / Professional Edition Service Pack 2, Windows® 2000 with Service Pack 4 or Windows® Vista

USB to RS-232 Programming Cable Assembly

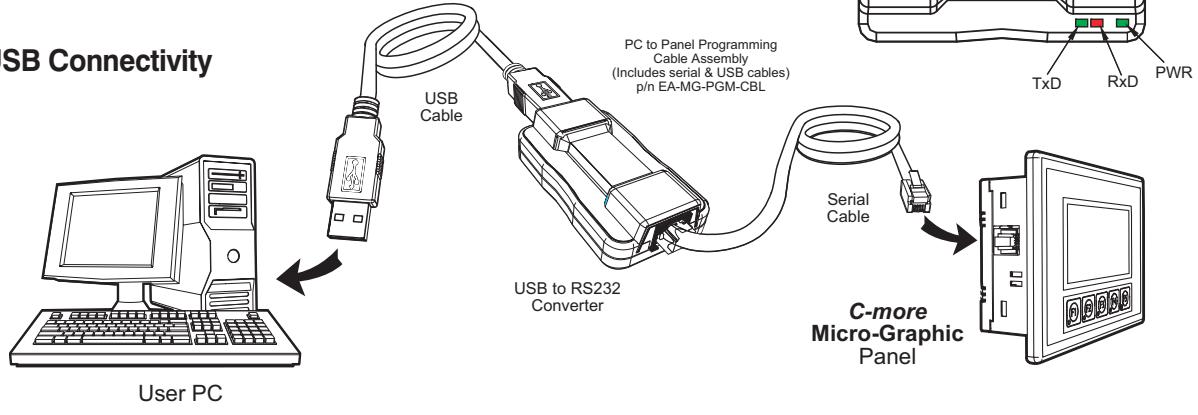


Part No. EA-MG-PGM-CBL

<---->



USB Connectivity



USB to RS-232 Converter Specifications	
Part Number	EA-MG-PGM-CBL
Hardware	
USB Interface	USB Specification Rev. 1.1 Connector: USB Type B jack to accept USB Type B cable plug
Serial Interface	RS-232 (EIA-232-E) Connector: RJ12 phone jack 6p to accept RJ12 cable plug
Baud Rate	115.2 kbps Maximum
Input Voltage	5 VDC (Supplied thru serial interface cable.)
Power Consumption	50 mA (Does not include power to panel and/or bezel.)
Accessory Cables (included)	
USB Cable	USB Type A plug to PC on one end, USB Type B plug to converter on other end, 0.30 m [1 foot] length (* Note)
Serial Cable	RJ12 phone plug connectors on both ends, 2.0 m [6.56 feet] length (* Note)
Physical	
Dimensions	2.559" (W) x 1.417" (H) x 0.886" (D) [65.0 mm x 36.0 mm x 22.5 mm]
Weight	1.06 oz. [30 g]
Environmental	See Micro-Graphic panel specifications at the beginning of this catalog section.
*** Note: Maximum cable length for either the USB or serial cable should not exceed 2.0 m [6.56 feet] in length.**	

C-more 6" Micro-Graphic Power Connection Wiring

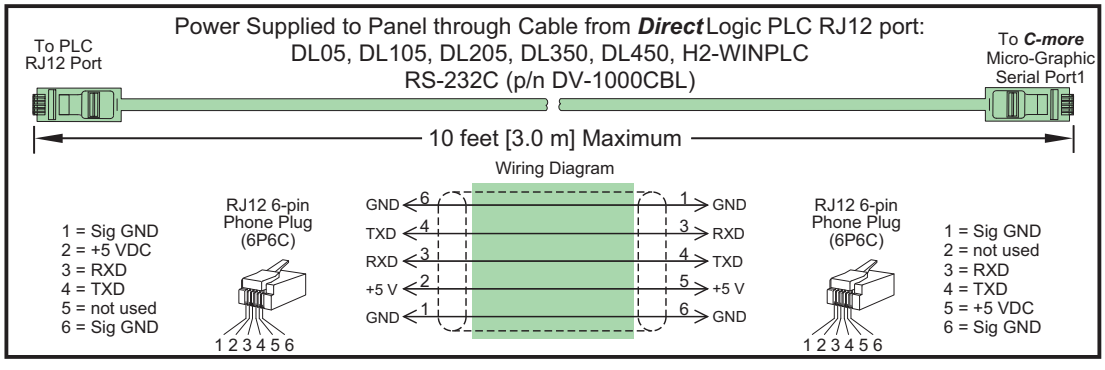
Providing Power to the Touch Panel

1.) During operation, the panel functions in High-Power Mode when powered by a minimum 1 Amp 12 - 24 VDC power source. Recommended power supplies are AutomationDirect part number PSP24-024S or PSP24-024C.

2.) The C-more Micro-Graphic panel is powered during programming from the PC through the USB to RS-232 Programming Cable Assembly, EA-MG-PGM-CBL. The panel will operate in Low-power mode when powered by the PC and result in a dim screen.*

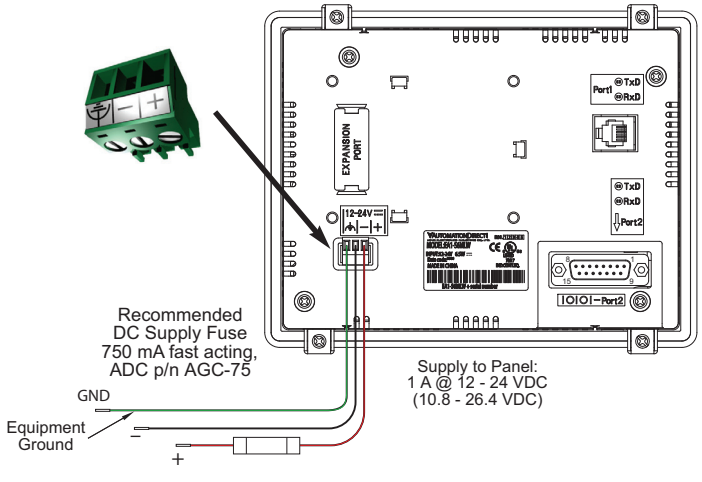
3.) Optionally, the C-more Micro-Graphic panel can function in Low-Power Mode powered from most AutomationDirect PLC's RJ12 serial communications port. Use a DV-1000CBL communications cable, or a DV-1000CBL communications cable with a FA-15HD 15-pin HD DSub/RJ12 Adapter connected to most AutomationDirect PLC's 15-pin HD communications port (DL06, D2-250-1 & D2-260) PLCs for Low-Power operation. See Chapter 6: PLC Communications in the Hardware User's Manual (P/N: EA1-MG6-USER-M) for additional details. The panel will operate in low-power mode when powered by the PC.

Panel Powered from an AutomationDirect ***Direct***LOGIC PLC via Communications Cable



***NOTE: When the panel is powered through Port1 from a connected PLC or PC, the screen brightness is diminished because the panel is running in Low-Power Mode. For full brightness, connect an external 12-24 VDC power source to the panel's power connection. Low-Power Mode should be used during initial programming only. Connect an external 12-24 VDC power source when the panel is installed in its application.**

Panel Powered from a DC Power Source – Wiring Diagram



NOTE: Recommended DC power supply to power the *C-more* Micro-Graphic Panel, *AutomationDirect* Part No. PSP24-024S or PSP24-024C.

C-more 6” Micro-Graphic PLC Connections

Cabling requirements

When using the built in RJ12 serial port (Port1) on the *C-more* 6” Micro-Graphic panel to connect with the DL05, DL06, DL105, DL205, D3-350 and DL405 CPUs, your cabling choices are fairly simple.

- DV-1000CBL — connects to DL05, DL06, DL105, DL205, D3-350 and D4-450 phone jack.
- D4-1000CBL — connects to all DL405 CPU 15-pin ports.

A maximum cable length of 10 feet between the *C-more* Micro-Graphic panel and the PLC is recommended when powering the panel in Low-Power Mode from the PLC.

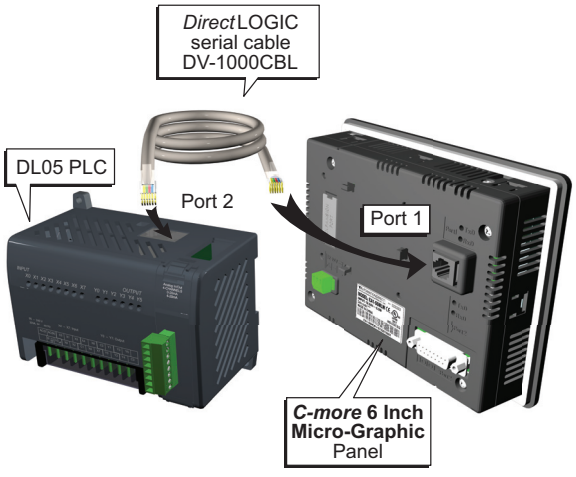
The C-more 6” Micro-Graphic panel can also communicate through its built-in 15-pin serial port (Port2) via RS-232, RS-422 and RS-485 using these cables.

- EA-2CBL — connects to DL05, DL105, DL205, D3-350 and D4-450 phone jack.
- EA-2CBL-1 — connects to D2-250, D250-1, D2-260, DL06 VGA connector.

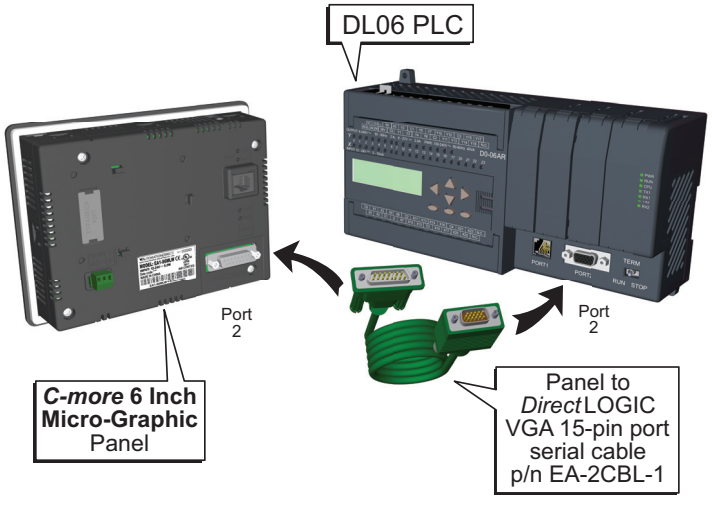
PLC Supported Protocols

- ***Direct***LOGIC K-sequence
- ***Direct***NET
- Modbus (Koyo Addressing)
- Modbus RTU
- Entivity Modbus RTU
- Allen-Bradley DF1 Half Duplex
- Allen-Bradley DF1 Full Duplex
- Allen-Bradley PLC5 DF1
- Allen-Bradley DH485
- GE Fanuc SNPX (90/30, 90/70, Micro 90, VersaMax Micro)
- Omron Host Link (C200 Adapter, C500)
- Omron FINS Serial (CJ1, CS1)
- Mitsubishi Melsec FX
- Siemens PPI

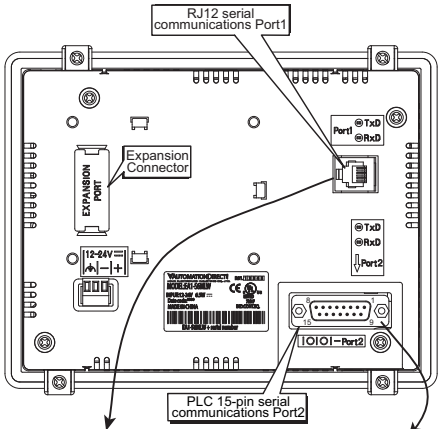
C-more 6” Micro-Graphic Port 1 to DL05 PLC Port 2

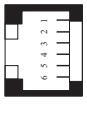


C-more 6” Micro-Graphic Port 2 to DL06 PLC Port 2



C-more 6” Micro-Graphic Communicaton 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	Future	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 6" Micro-Graphic PLC Communication Protocols & Cabling Chart

PLC Compatibility & Connection Chart

PLC			*C-more* 6" Micro-Graphic Panel			
			Panel to PLC Cabling Components Required for Specific Port and Protocol being used.			
			**PLC Port Powered or External DC Power Supply		External DC Power Supply	
			Using panel's RJ12 Port1		Using panel's Port2 DB 15-pin - female	
Family	*CPU*	*PLC Port & Type*	Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type
***Direct*LOGIC DL05**	all versions	Port 1 RJ12 - 6 pin	K-sequence, *Direct*NET, Modbus RTU	DV-1000CBL** RS-232	K-sequence, *Direct*NET, Modbus RTU	EA-2CBL RS-232
		Port 2 RJ12 - 6 pin				
	D0-DCM	Port 1 RJ12 - 6 pin	K-sequence, *Direct*NET, Modbus RTU	DV-1000CBL** RS-232	K-sequence, *Direct*NET, Modbus RTU	EA-2CBL RS-232
		Port 2 DB15HD (female)		DV-1000CBL** + FA-15HD RS-232		EA-2CBL-1 RS-232
						* See Note RS-422
					Modbus RTU	* See Note RS-485 Modbus only
***Direct*LOGIC DL06**	all versions	Port 1 RJ12 - 6 pin	K-sequence, *Direct*NET, Modbus RTU	DV-1000CBL** RS-232	K-sequence, *Direct*NET, Modbus RTU	EA-2CBL RS-232
		Port 2 DB15HD (female)		DV-1000CBL** + FA-15HD RS-232		EA-2CBL-1 RS-232
						* See Note RS-422
					Modbus RTU	* See Note RS-485 Modbus only
	D0-DCM	Port 1 RJ12 - 6 pin	K-sequence, Direct NET, Modbus RTU	DV-1000CBL** RS-232	K-sequence, *Direct*NET, Modbus RTU	EA-2CBL RS-232
		Port 2 DB15HD (female)		DV-1000CBL** + FA-15HD RS-232		EA-2CBL-1 RS-232
						* See Note RS-422
					Modbus RTU	* See Note RS-485 Modbus only
***Direct*LOGIC DL105**	all versions	Port 1 RJ12 - 6 pin	K-sequence	DV-1000CBL** RS-232	K-sequence	EA-2CBL RS-232
***Direct*LOGIC DL205**	D2-230	Port 1 RJ12 - 6 pin	K-sequence	DV-1000CBL** RS-232	K-sequence	EA-2CBL RS-232
	D2-240	Port 1 RJ12 - 6 pin	K-sequence	DV-1000CBL** RS-232	K-sequence	EA-2CBL RS-232
		Port 2 RJ12 - 6 pin	K-sequence, Direct NET,		K-sequence, Direct NET,	
	D2-250-1	D2-250-1	K-sequence, Direct NET, Modbus RTU	DV-1000CBL** RS-232	K-sequence, *Direct*NET, Modbus RTU	EA-2CBL RS-232
		Port 2 DB15HD (female)		DV-1000CBL** + FA-15HD RS-232		EA-2CBL-1 RS-232
						* See Note RS-422
	D2-260	Port 1 RJ12 - 6 pin	K-sequence, *Direct*NET, Modbus RTU	DV-1000CBL** RS-232	K-sequence, *Direct*NET, Modbus RTU	EA-2CBL RS-232
		Port 2 DB15HD (female)		DV-1000CBL + FA-15HD RS-232		EA-2CBL-1 RS-232
						* See Note RS-422
					Modbus RTU	* See Note RS-485 Modbus only
	D2-DCM	Port 1 DB 25 pin (female)	K-sequence, *Direct*NET, Modbus RTU	See Note RS-232	*Direct*NET	EA-4CBL-2 RS-232
						* See Note RS-422
	WINPLC	Port 1 RJ12 - 6 pin	Modbus RTU	DV-1000CBL** RS-232	Modbus RTU	EA-2CBL RS-232

*** Note: See the *C-more* 6" Micro-Graphic Hardware User Manual (P/N: EA1-MG6-USER-M), Chapter 6: PLC Communications, for wiring diagrams that the user can use to construct their own cables. Available for download at www.automationdirect.com.**

**** Note: The PLC can provide 5 VDC through this cable. No external 12-24 VDC souce is required, however, screen brightness is diminished and the alarm beep will not function. Low-Power Mode should be used during initial programming only. Connect an external 12-24 VDC power source when the panel is installed in its application.**

PLC Compatibility & Connection Chart continued on next page.

C-more 6" Micro-Graphic PLC Communication Protocols & Cabling Chart (cont'd)

PLC Compatibility & Connection Chart						
PLC			***C-more 6" Micro-Graphic Panel***			
			Panel to PLC Cabling Components Required for Specific Port and Protocol being used.			
			****PLC Port Powered or External DC Power Supply**		**External DC Power Supply**	
			Using panel's RJ12 port 1		Using adapter's serial Port 2 15-pin D-sub - female	
Family	***CPU***	***Port & Type***	Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type
***Direct*LOGIC DL305**	D3-330 or D3-340	D3-232-DCU DB 25 pin (female)	*Direct*NET	EA-4CBL-2 RS-232	*Direct*NET	EA-4CBL-2 RS-232
		D3-422-DCU DB 25 pin (female)	Not Possible		*Direct*NET	*See Note RS-422
	D3-340	Port 1 RJ11 - 4 pin	*Direct*NET	OP-3CBL-1** RS-232	*Direct*NET	EA-3CBL RS-232
		Port 2 RJ11 - 4 pin	*Direct*NET, Modbus RTU		*Direct*NET, Modbus RTU	
	D3-350	Port 1 RJ12 - 6 pin	K-sequence, *Direct*NET	DV-1000CBL** RS-232	K-sequence, *Direct*NET	EA-2CBL RS-232
		Port 2 DB 25 pin (female)	K-sequence, *Direct*NET, Modbus RTU	*See Note RS-232	K-sequence, *Direct*NET, Modbus RTU	EA-4CBL-2 RS-232 See Note RS-422
	D3-DCM D3-350 only	Port 1 DB 25 pin (female)	K-sequence, *Direct*NET, Modbus RTU	*See Note RS-232	*Direct*NET	EA-4CBL-2 RS-232 *See Note RS-422
***Direct*LOGIC DL405**	D4-430	Port 0 DB 15 pin (female)	K-sequence	D4-1000CBL or DV-1000CBL** & FA-CABKIT RS-232	K-sequence	EA-4CBL-1 RS-232
		Port 1 DB 25 pin (female)	K-sequence, *Direct*NET	DV-1000CBL & FA-CABKIT RS-232	K-sequence, *Direct*NET	EA-4CBL-2 RS-232 *See Note RS-422
	D4-440	Port 0 DB 15 pin (female)	K-sequence	D4-1000CBL or DV-1000CBL** & FA-CABKIT RS-232	K-sequence	EA-4CBL-1 RS-232
		Port 1 DB 25 pin (female)	K-sequence, *Direct*NET	DV-1000CBL** & FA-CABKIT RS-232	K-sequence, *Direct*NET	EA-4CBL-2 RS-232 *See Note RS-422
	D4-450	Port 0 DB 15 pin (female)	K-sequence	D4-1000CBL or DV-1000CBL** & FA-CABKIT RS-232	K-sequence	EA-4CBL-1 RS-232
		Port 1 DB 25 pin (female)	K-sequence, *Direct*NET, Modbus RTU	DV-1000CBL** & FA-CABKIT RS-232	K-sequence, *Direct*NET, Modbus RTU	EA-4CBL-2 RS-232 *See Note RS-422
		Port 3 DB 25 pin (female)	Not Possible		K-sequence, *Direct*NET, Modbus RTU	*See Note RS-422
		Port 2 RJ12 - 6 pin	K-sequence, *Direct*NET	DV-1000CBL** RS-232	K-sequence, *Direct*NET	EA-2CBL RS-232
	D4-DCM	Port 1 DB 25 pin (female)	K-sequence, *Direct*NET, Modbus RTU	*See Note RS-232	*Direct*NET	EA-4CBL-2 RS-232 *See Note RS-422

*** Note: See the *C-more* 6" Micro-Graphic Hardware User Manual (P/N: EA1-MG6-USER-M), Chapter 6: PLC Communications, for wiring diagrams that the user can use to construct their own cables. Available for download at www.automationdirect.com.**

**** Note: The PLC can provide 5 VDC through this cable. No external 12-24 VDC souce is required, however, screen brightness is diminished and the alarm beep will not function. Low-Power Mode should be used during initial programming only. Connect an external 12-24 VDC power source when the panel is installed in its application.**

PLC Compatibility & Connection Chart continued on next page.

C-more 6" Micro-Graphic PLC Communication Protocols & Cabling Chart (cont'd)

PLC Compatibility & Connection Chart

PLC			*C-more 6" Micro-Graphic Panel*			
			Panel to PLC Cabling Components Required for Specific Port and Protocol being used.			
			External DC Power Supply **Powered from an external 24 VDC source**			
			Using panel's RJ12 port 1		Using adapter's serial Port 2 15-pin D-sub - female	
Family	*CPU*	*Port & Type*	Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type
Allen-Bradley MicroLogix	1000, 1100, 1200, 1500	8-pin mini-din port	Not Possible		DF1 Full Duplex DF1 Half Duplex	EA-MLOGIX-CBL RS-232
		RJ45 8-pin phone plug			DH485/AIC/AIC+	EA-DH485-CBL RS-232
Allen-Bradley SLC500	5/03, 5/04, 5/05	9-pin D-sub port			DF1 Full Duplex DF1 Half Duplex	EA-SLC-232-CBL RS-232
	5/01, 5/02, 5/03	RJ45 8-pin phone plug			DH485/AIC/AIC+	EA-DH485-CBL RS-232
Allen-Bradley ControlLogix	all	9-pin D-sub port			DF1 Full Duplex DF1 Half Duplex	EA-SLC-232-CBL RS-232
Allen-Bradley CompactLogix	all	9-pin D-sub port			DF1 Full Duplex DF1 Half Duplex	EA-SLC-232-CBL RS-232
Allen-Bradley FlexLogix	all	9-pin D-sub port			DF1 Full Duplex DF1 Half Duplex	EA-SLC-232-CBL RS-232
Allen-Bradley PLC5	all	25-pin D-sub port			DF1 Full Duplex	EA-PLC5–232-CBL RS-232
		RJ45 8-pin phone plug			DH485/AIC/AIC+	EA-DH485-CBL RS-232
GE	90/30, 90/70	15-pin D-sub port			SNPX	EA-90-30-CBL RS-422
	Micro 90, VersaMax Micro	RJ45 Port 1				See Note RS-232
		15-pin D-sub port Port 2				EA-90-30-CBL RS-422
Mitsubishi	Melsec FX Series	25-pin D-sub port			CPU Direct	EA-MITSU-CBL RS-422
		8-pin mini-din port				EA-MITSU-CBL-1 RS-422
Omron	C200 (Adapter), C500	25-pin D-sub port			Host Link	EA-OMRON-CBL RS-232
	CJ1, CS1, CQM1, CPM1, CPM2, C200	9-pin D-sub port			FINS	See Note RS-232
Modicon	984 CPU, Quantum 113 CPU, AEG Modicon Micro Series 110 CPU	varies			Modbus RTU	See Note RS-232
Siemens	S7-200 CPU	9-pin D-sub port 0 or 1			PPI	See Note RS-485

Note: See the *C-more* 6" Micro-Graphic Hardware User Manual (P/N: EA-MG6-USER-M), Chapter 6: PLC Communications, for wiring diagrams that the user can use to construct their own cables. Available for download at www.automationdirect.com.

C-more 6" Micro-Graphic PLC Communication Cables and Cable Kits

Cable Description	Cable Part Number	Price
Cables for direct connect to panel's serial Port1 (Panel powered from PLC's serial port.)		
AutomationDirect *Direct*LOGIC PLC RJ-12 port, DL05, DL06, DL105, DL205, D3-350, D4-450 & H2-WinPLC (RS-232C).	***DV-1000CBL***	<--->
*Direct*LOGIC DL405 PLC 15-pin D-sub port, DL405 (RS-232C).	***D4-1000CBL***	<--->
*Direct*LOGIC (VGA Style) 15-pin port, DL06, D2-250 (250-1), D2-260 (RS-232C). **Use with DV-1000CBL cable.**	***FA-15HD***	<--->
*Direct*LOGIC PLC 15-pin D-sub port, DL405 (RS-232C). **Use with DV-1000CBL cable.**	***FA-CABKIT***	<--->
*Direct*LOGIC PLC RJ-11 port, D3-340 (RS-232C).	***OP-3CBL-1***	<--->
Cables used with serial Port2		
AutomationDirect *Direct*LOGIC PLC RJ-12 port, DL05, DL06, DL105, DL205, D3-350, D4-450 & H2-WinPLC (RS-232C).	***EA-2CBL***	<--->
*Direct*LOGIC (VGA Style) 15-pin port, DL06, D2-250 (250-1), D2-260 (RS-232C).	***EA-2CBL-1***	<--->
*Direct*LOGIC PLC RJ-11 port, D3-340 (RS-232C).	***EA-3CBL***	<--->
*Direct*LOGIC DL405 PLC 15-pin D-sub port, DL405 (RS-232C).	***EA-4CBL-1***	<--->
*Direct*LOGIC PLC 25-pin D-sub port, DL405, D3-350, DL305 DCU and all DCM's (RS-232C).	***EA-4CBL-2***	<--->
Allen-Bradley MicroLogix 1000, 1100, 1200 & 1500 (RS-232C)	***EA-MLOGIX-CBL***	<--->
Allen-Bradley SLC 5-03/04/05, ControlLogix, CompactLogix, FlexLogix DF1 port (RS-232C)	***EA-SLC-232-CBL***	<--->
Allen-Bradley PLC-5 DF1 port (RS-232C)	***EA-PLC5-232-CBL***	<--->
Allen-Bradley MicroLogix, SLC-5-01/02/03, PLC5 DH485 port (RS-232C)	***EA-DH485-CBL***	<--->
GE 90/30 and 90/70, Micro 90, VersaMax Micro (Port 2) 15-pin D-sub port (RS-422A)	***EA-90-30-CBL***	<--->
MITSUBISHI FX Series 25-pin port (RS-422A)	***EA-MITSU-CBL***	<--->
MITSUBISHI FX Series 8-pin mini-DIN (RS-422A)	***EA-MITSU-CBL-1***	<--->
OMRON Host Link C200 Adapter, C500 (RS-232C)	***EA-OMRON-CBL***	<--->

Part No. DV-1000CBL

Part No. D4-1000CBL

Part No. OP-3CBL-1

Part No. FA-15HD

Part No. FA-CABKIT

Part No. EA-2CBL

Part No. EA-2CBL-1

Part No. EA-3CBL

Part No. EA-4CBL-1

Part No. EA-4CBL-2

Part No. EA-MLOIGIX-CBL

Part No. EA-SLC-232-CBL

Part No. EA-PLC5-232-CBL

Part No. EA-DH485-CBL

Part No. EA-90-30-CBL

Part No. EA-MITSU-CBL

Part No. EA-MITSU-CBL-1

Part No. EA-OMRON-CBL