

# PLC COMMUNICATIONS

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# Introduction

The *C-more*<sup>®</sup> Color Micro-Graphic panels are capable of communicating with AutomationDirect Productivity Series, Do-more, CLICK, SOLO, GS Drives and the entire *DirectLOGIC* family of PLCs. The panel is capable of communicating using RS232, RS422 or RS485 on Port2.

The *C-more*<sup>®</sup> Micro-Graphic panel communicates using the following cables.

- EA-2CBL - connects to Productivity Series, Do-more, CLICK, DL05, DL105, DL205, DL350, DL450, H2-WINPLC phone jack: RJ12 - 15 pin D-sub.
- EA-2CBL-1 - connects to D2-250, D250-1, D2-260, DL06 VGA connector: 15-pin HD - 15 pin D-sub.

The panel also has the ability to communicate with Allen-Bradley PLCs that support the Allen-Bradley DF1 and DH485 protocols. Use Port2 with the following cables to connect the panel to a majority of Allen-Bradley PLCs.

- EA-MLOGIX-CBL – connects to AB MicroLogix 1000, 1100, 1200 1400 & 1500: 15-pin D-sub - 8-pin DIN
- EA-SLC-232-CBL – connects to AB SLC 5/03, /04, /05, ControlLogix, CompactLogix, FlexLogix: 15-pin D-sub - 9-pin Dshell female
- EA-PLC5-232-CBL – connects to AB PLC5: 15-pin Dshell - 25-pin Dshell
- EA-DH485-CBL – connects to AB MicroLogix, SLC500, and any PLC using AB AIC device: 15-pin Dshell - RJ45 8-pin

The PLC Compatibility and Connection Chart tables on the following pages list the various PLCs and protocols that can be configured. Other third party PLCs include GE, Mitsubishi, Omron, Modicon and Siemens. The rest of this chapter shows the pin to pin connections of available cables plus wiring diagrams to construct cables.



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**NOTE:** Refer to the *Compatibility and Connection Charts* beginning on page 6-7 for a listing of PLC connections for the *C-more* Micro-Graphic panel.

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**NOTE:** When the panel is powered through Port1 from a connected PC, the screen brightness is diminished because the panel is running in **Low-Power Mode**. Connect an external 12-24 VDC power source when the panel is installed in its application for full brightness.

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## Introduction (cont'd)

### Available PLC Protocols

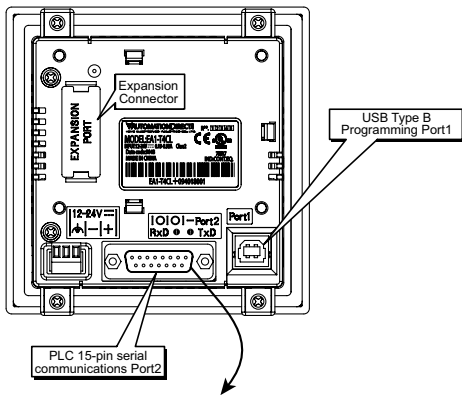
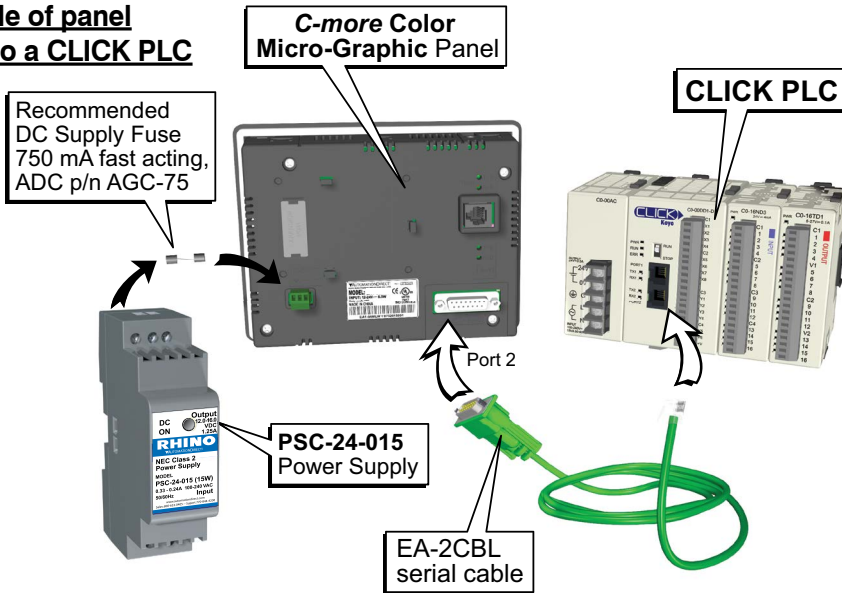
PLC Drivers
Serial - port2 only
AutomationDirect Productivity Series
AutomationDirect CLICK
AutomationDirect Do-more
AutomationDirect K-sequence
AutomationDirect DirectNET
AutomationDirect Modbus
AutomationDirect SOLO
AutomationDirect GS Drives
Modicon Modbus RTU
Entivity Modbus RTU
Allen-Bradley DF1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

The panel can also be connected to more than one PLC by using RS-422 or RS-485 wired in a multi-drop configuration. See the example wiring diagrams at the end of this chapter for details.

If you have difficulty determining whether the particular PLC and/or protocol you are using will work with *C-more* Micro-Graphic panels, please contact our technical support group at 770-844-4200.

# C-more Micro-Graphic Communication Ports

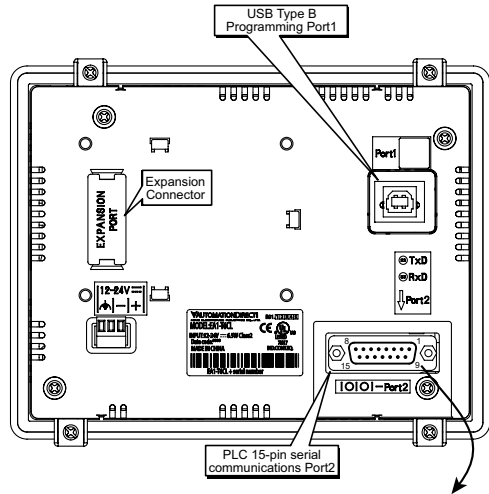
Example of panel connected to a CLICK PLC



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-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

## DirectLOGIC PLCs Password Protection



**NOTE:** *DirectLOGIC PLCs support multi-level password protection of the ladder program. This allows password protection while not locking the communication port to an operator interface. The multilevel password can be invoked by creating a password with an upper case "A" followed by any variation of seven numeric characters (e.g. A1234567). Please refer to the specific PLC user manual for further details.*

## Compatibility and Connection Charts

The following pages include charts that list the recommended cables and/or manufactured devices that can be used to make up the communications link between several different controllers and the *C-more* Micro-Graphic panel. Port2 is a 15-pin D-sub communication port that supports RS-232, RS-485 and RS-422. An external class 2, 1 Amp @ 12-24 VDC external power source is required.



**Note:** *Recommended DC power supply to power the C-more Micro-Graphic Panel, AutomationDirect Part No. PSC-24-015 or PSC-24-030.*

The chart also refers to wiring diagrams that can be used to construct cables for connecting the PLC's port to the panel's port. The user constructed cable diagrams start on page 6-24.

### AutomationDirect Controllers

#### AutomationDirect Productivity Series, CLICK, Do-more, DirectLogic, SOLO Temperature Controller and GS Drives

Drivers specific to these AutomationDirect control devices make it convenient to communicate with the *C-more* Micro-Graphic panels and simplify configuring objects with controller addresses.

### RS-422A/RS-485A Communications

When using the RS-422A/RS-485A communications capabilities of the *C-more* Micro-Graphic Serial Port (Port 2), the termination resistor is placed between the RXD- and RXD+ terminals on the PLC side of the connection between the touch panel and PLC. The Termination Resistor value is based on the characteristic impedance of the cable being used. To enable the built-in 120 Ohm Termination Resistor, jumper pin 13 (termination resistor) to pin 9 (RXD+) on the *C-more* Micro-Graphic 15-pin PLC communications port.

### Allen-Bradley

As stated in this chapter's introduction, the panel also has the ability to communicate with Allen-Bradley PLCs that support the Allen-Bradley DF1 and DH485 protocols. The chart for the various Allen-Bradley PLCs includes recommended cables.

### GE, Mitsubishi, Omron, Modicon and Siemens

Other 3rd party PLCs can be used with the *C-more* Micro-Graphic panel. These PLCs are listed in a chart and various wiring diagrams are shown to allow connectivity.

### How to use the Compatibility and Connection Charts

- 1.) Find the Controller or PLC Family being used.
- 2.) Find the particular Controller or PLC model in the Controller family.
- 3.) Determine the cable and other components, manufactured or user constructed, are required.

Example

Compatibility & Connection Chart				
Controller			C-more Micro-Graphic Panel	
Family	CPU	PLC Port & Type	Panel to PLC Cabling Components Required for Specific Port and Protocol being used.	
			External DC Power Supply	
			Using panel's Port2 DB 15-pin - female	
			Protocol(s) Supported	Components & Network Type
CLICK	all versions	Port1 RJ12 - 6 pin	AutomationDirect Modbus (CLICK)	EA-2CBL RS-232
	Analog CPUs	Port2 RJ12 - 6 pin Port3 Terminal block - 3 pin		* See Diagram 16 RS-485
Productivity3000	all versions	RS-232 RJ12 - 6 pin	AutomationDirect Productivity3000 Serial (P3-550)	EA-2CBL RS-232
		RS-232 Port Terminal block - 3 pin		* See Diagram 17 RS-485
DirectLOGIC DL05	all versions	Port 1 RJ12 - 6 pin	K-sequence, <b>DirectNET</b> , Modbus RTU	EA-2CBL RS-232
		Port 2 RJ12 - 6 pin		EA-2CBL RS-232
	D0-DCM	Port 1 RJ12 - 6 pin	K-sequence, <b>DirectNET</b> , Modbus RTU	EA-2CBL RS-232
		Port 2 DB15HD (female)		* See Diagram 1 RS-422
		Modbus RTU	* See Diagram 2 RS-485 Modbus only	

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**AutomationDirect CLICK PLC, ProductivitySeries, Do-more, SOLO Temperature Controller and GS Drives  
Panel Powered via external power supply, Port2 Communications**

Compatibility & Connection Chart				
Controller			C-more Micro-Graphic Panel	
Family	CPU	PLC Port & Type	Panel to PLC Cabling Components Required for Specific Port and Protocol being used.	
			External DC Power Supply Using panel's Port2 DB 15-pin - female Protocol(s) Supported	Components & Network Type
CLICK	all versions	Port1 RJ12 - 6 pin	AutomationDirect Modbus (CLICK)	EA-2CBL RS-232
	Analog CPUs	Port2 RJ12 - 6 pin		* See Diagram 16 RS-485
Productivity Series	all versions	Port3 Terminal block - 3 pin	AutomationDirect Productivity3000 Serial (P3-550)	EA-2CBL RS-232
		RS-232 RJ12 - 6 pin		* See Diagram 17 RS-485
Do-more	all versions	RS-232 Port Terminal block - 3 pin	AutomationDirect Do-more Serial	EA-2CBL RS-232
SOLO Temperature Controller	all versions	Port2 RJ12 - 6 pin	AutomationDirect SOLO Temperature Controller	* See Diagram 20 RS-485
GS Drives	all versions	Data terminals	AutomationDirect GS Drives	* See Diagrams 18 and 19 RS-485
* Note: Wiring Diagrams for user constructed cables start on page 6-24.				

AutomationDirect *Direct*LOGIC DL05, DL06,  
 D0-DCM Module & DL105 PLCs  
 Panel Powered via external power supply, Port2 Communications

Compatibility & Connection Chart

Controller			C-more Micro-Graphic Panel	
Family	CPU	PLC Port & Type	Panel to PLC Cabling Components Required for Specific Port and Protocol being used.	
			External DC Power Supply	
			Using panel's Port2 DB 15-pin - female	
			Protocol(s) Supported	Components & Network Type
<b>Direct</b> LOGIC DL05	all versions	Port 1 RJ12 - 6 pin	K-sequence, <b>Direct</b> NET, Modbus RTU	EA-2CBL RS-232
		Port 2 RJ12 - 6 pin		
	D0-DCM	Port 1 RJ12 - 6 pin	K-sequence, <b>Direct</b> NET, Modbus RTU	EA-2CBL RS-232
		Port 2 DB15HD (female)		EA-2CBL-1 RS-232 * See Diagram 1 RS-422
		Modbus RTU	* See Diagram 2 RS-485 Modbus only	
<b>Direct</b> LOGIC DL06	all versions	Port 1 RJ12 - 6 pin	K-sequence, <b>Direct</b> NET, Modbus RTU	EA-2CBL RS-232
		Port 2 DB15HD (female)		EA-2CBL-1 RS-232 * See Diagram 1 RS-422
	D0-DCM	Port 1 RJ12 - 6 pin	K-sequence, <b>Direct</b> NET, Modbus RTU	* See Diagram 2 RS-485 Modbus only
		Port 2 DB15HD (female)		EA-2CBL RS-232 EA-2CBL-1 RS-232 * See Diagram 1 RS-422
		Modbus RTU	* See Diagram 2 RS-485 Modbus only	

\* Note: Wiring Diagrams for user constructed cables start on page 6-24.

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**DirectLOGIC DL205 PLCs, D2-DCM Module and WINPLC  
Panel Powered via external power supply, Port2 Communications**

Compatibility & Connection Chart				
Controller			C-more Micro-Graphic Panel	
Family	CPU	PLC Port & Type	Panel to PLC Cabling Components Required for Specific Port and Protocol being used.	
			External DC Power Supply	
			Using panel's Port2 DB 15-pin - female	
			Protocol(s) Supported	Components & Network Type
<b>DirectLOGIC DL105</b>	all versions	Port 1 RJ12 - 6 pin	K-sequence	<b>EA-2CBL</b> RS-232
<b>DirectLOGIC DL205</b>	D2-230	Port 1 RJ12 - 6 pin	K-sequence	<b>EA-2CBL</b> RS-232
	D2-240	Port 1 RJ12 - 6 pin	K-sequence	<b>EA-2CBL</b> RS-232
		Port 2 RJ12 - 6 pin	K-sequence, <i>Direct</i> NET	
	D2-250-1	Port 1 RJ12 - 6 pin	K-sequence, <i>Direct</i> NET, Modbus RTU	<b>EA-2CBL</b> RS-232
		Port 2 DB15HD (female)		<b>EA-2CBL-1</b> RS-232  * See Diagram 1 RS-422
	D2-260	Port 1 RJ12 - 6 pin	K-sequence, <i>Direct</i> NET, Modbus RTU	<b>EA-2CBL</b> RS-232
		Port 2 DB15HD (female)		<b>EA-2CBL-1</b> RS-232  * See Diagram 1 RS-422
	D2-DCM	Port 1 DB 25 pin (female)	Modbus RTU	* See Diagram 2 RS-485 Modbus only
				<b>EA-4CBL-2</b> RS-232  * See Diagram 5 RS-422
	WINPLC	Port 1 RJ12 - 6 pin	Modbus RTU	<b>EA-2CBL</b> RS-232

\* Note: Wiring Diagrams for user constructed cables start on page 6-24.

**DirectLOGIC DL305 PLCs and D3-DCM Module**  
**Panel Powered via external power supply, Port2 Communications**

Compatibility & Connection Chart				
Controller			C-more Micro-Graphic Panel	
Family	CPU	PLC Port & Type	Panel to PLC Cabling Components Required for Specific Port and Protocol being used.	
			External DC Power Supply	
			Using panel's Port2 DB 15-pin - female	
			Protocol(s) Supported	Components & Network Type
<b>DirectLOGIC DL305</b>	D3-330 or D3-340	D3-232-DCU DB 25 pin (female)	<b>DirectNET</b>	<b>EA-4CBL-2</b> RS-232
		D3-422-DCU DB 25 pin (female)	<b>DirectNET</b>	* See Diagram 5 RS-422
	D3-340	Port 1 RJ11 - 4 pin	<b>DirectNET</b>	<b>EA-3CBL</b> RS-232
		Port 2 RJ11 - 4 pin	<b>DirectNET</b> , Modbus RTU	
	D3-350	Port 1 RJ12 - 6 pin	K-sequence, <b>DirectNET</b>	<b>EA-2CBL</b> RS-232
		Port 2 DB 25 pin (female)	K-sequence, <b>DirectNET</b> , Modbus RTU	<b>EA-4CBL-2</b> RS-232 * See Diagram 3 RS-422
	D3-DCM D3-350 only	Port 1 DB 25 pin (female)	<b>DirectNET</b>	<b>EA-4CBL-2</b> RS-232
				* See Diagram 5 RS-422

\* Note: Wiring Diagrams for user constructed cables start on page 6-24.

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**DirectLOGIC DL405 PLCs and D4-DCM Module, SOLO and GS Drives  
Panel Powered via external power supply, Port2 Communications**

Compatibility & Connection Chart				
Controller			C-more Micro-Graphic Panel	
Family	CPU	PLC Port & Type	Panel to PLC Cabling Components Required for Specific Port and Protocol being used.	
			External DC Power Supply	
			Using panel's Port2 DB 15-pin - female	
			Protocol(s) Supported	Components & Network Type
<b>DirectLOGIC DL405</b>	D4-430	Port 0 DB 15 pin (female)	K-sequence	<b>EA-4CBL-1</b> RS-232
		Port 1 DB 25 pin (female)	K-sequence, <b>DirectNET</b>	<b>EA-4CBL-2</b> RS-232 * See Diagram 3 RS-422
	D4-440	Port 0 DB 15 pin (female)	K-sequence	<b>EA-4CBL-1</b> RS-232
		Port 1 DB 25 pin (female)	K-sequence, <b>DirectNET</b>	<b>EA-4CBL-2</b> RS-232 * See Diagram 3 RS-422
	D4-450	Port 0 DB 15 pin (female)	K-sequence	<b>EA-4CBL-1</b> RS-232
		Port 1 DB 25 pin (female)	K-sequence, <b>DirectNET</b> , Modbus RTU	<b>EA-4CBL-2</b> RS-232 * See Diagram 3 RS-422
		Port 3 DB 25 pin (female)	K-sequence, <b>DirectNET</b> , Modbus RTU	* See Diagram 4 RS-422
		Port 2 RJ12 - 6 pin	K-sequence, <b>DirectNET</b>	<b>EA-2CBL</b> RS-232
	D4-DCM	Port 1 DB 25 pin (female)	<b>DirectNET</b>	<b>EA-4CBL-2</b> RS-232 * See Diagram 5 RS-422

\* Note: Wiring Diagrams for user constructed cables start on page 6-24.

Allen-Bradley PLCs

Panel Powered via external power supply, Port2 Communications

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Compatibility & Connection Chart					
Controller			C-more Micro-Graphic Panel		
Family	CPU	PLC Port & Type	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 Port2 DB 15-pin - female		
		Protocol(s) Supported	Components & Network Type		
Allen-Bradley MicroLogix	1000, 1100, 1200, 1400, 1500	8-pin mini-din port	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 * See Diagram 15 RS-422	
* Note: Wiring Diagrams for user constructed cables start on page 6-24.					

**GE, Mitsubishi, Omron, Modicon and Siemens PLCs  
Panel Powered via external power supply, Port2 Communications**

Compatibility & Connection Chart				
Controller			C-more Micro-Graphic Panel	
Family	CPU	PLC Port & Type	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 Port2 DB 15-pin - female	
			Protocol(s) Supported	Components & Network Type
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 Diagram 11 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
	Q / QnA	9-pin D-sub port	Q / QnA	* See Diagram 13 RS-232C
		6-pin mini-din port		* See Diagram 14 RS-232C
Omron	C200 (Adapter), C500	25-pin D-sub port	Host Link	EA-OMRON-CBL RS-232
	CJ1, CS1, CQM1, CPM1, CPM2 C200 CPU	9-pin D-sub port	Host Link FINS	* See Diagram 6 & 7 RS-232
Modicon	984 CPU, Quantum 113 CPU, AEG Modicon Micro Series 110 CPU	varies	Modbus RTU	* See Diagram 8, 9 & 10 RS-232
Siemens	S7-200 CPU	9-pin D-sub port 0 or 1	PPI	* See Diagram 12 RS-485

\* Note: Wiring Diagrams for user constructed cables start on page 6-24.

## Cables from *AutomationDirect*

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

## Cables from *AutomationDirect* (cont'd)



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-MLOGIX-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



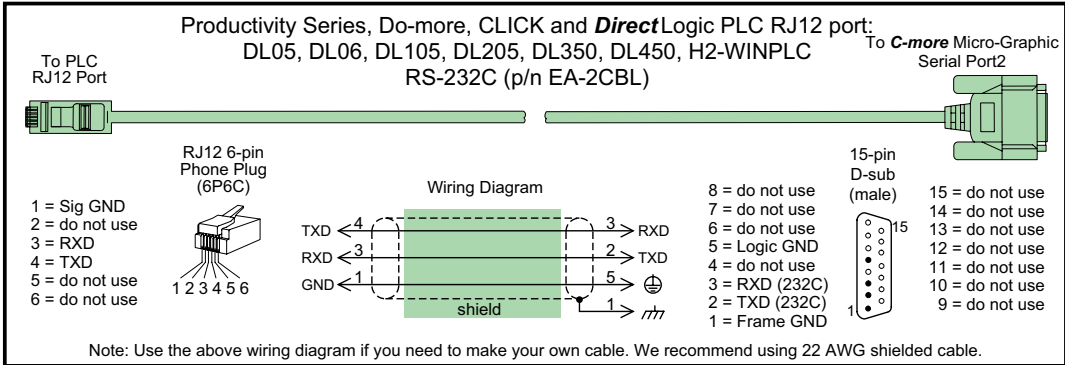
Part No. EA-OMRON-CBL

## Cables from AutomationDirect – Wiring Diagrams

The following series of wiring diagrams show the connectors and wiring details for the communication cables that are used between the *C-more* Micro-Graphic panels and various PLCs. Part numbers are included with the pre-made cables that can be purchased from *AutomationDirect*. The information presented will allow the user to construct their own cables if so desired.

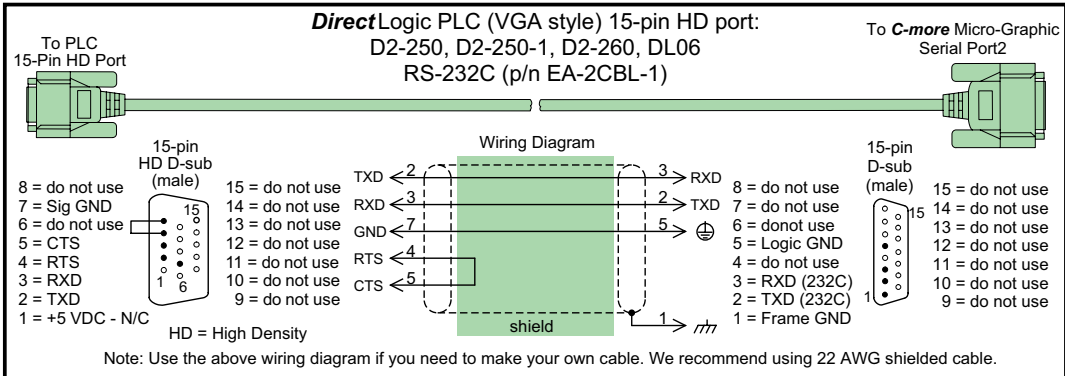
### CLICK & DirectLOGIC:

### EA-2CBL



### DirectLOGIC:

### EA-2CBL-1

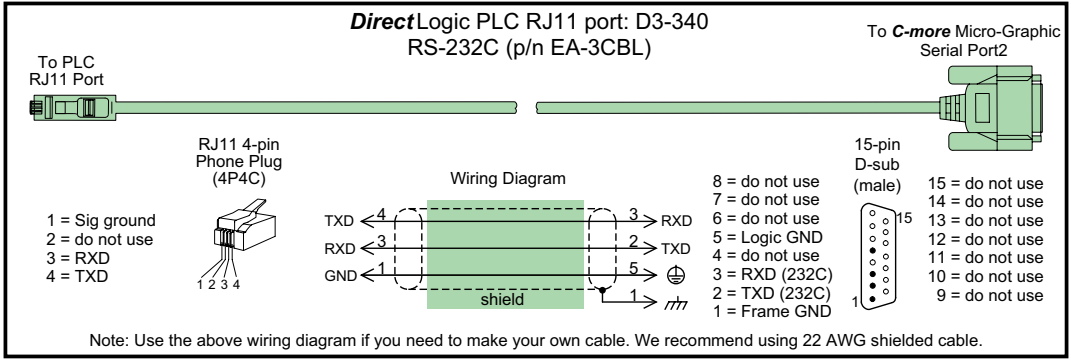




# Cables from AutomationDirect – Wiring Diagrams (cont'd)

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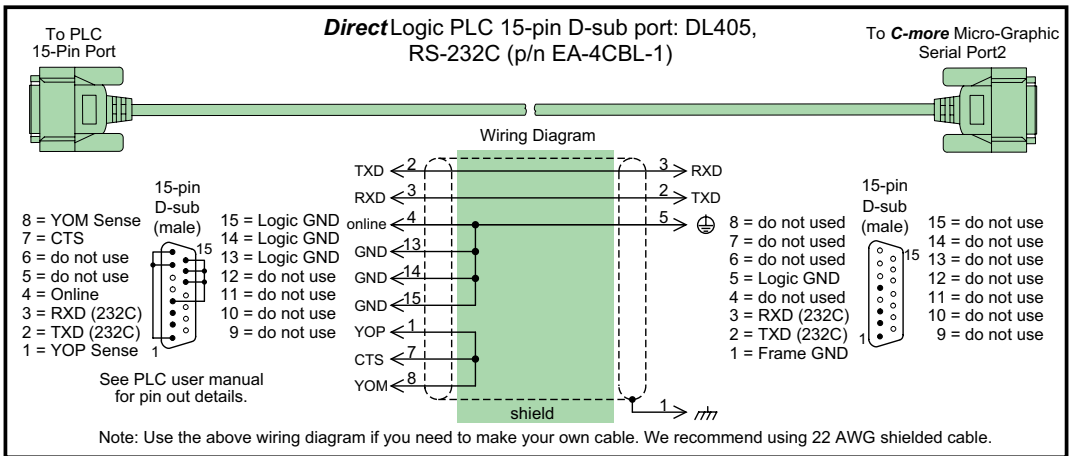
**EA-3CBL**



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**DirectLOGIC:**

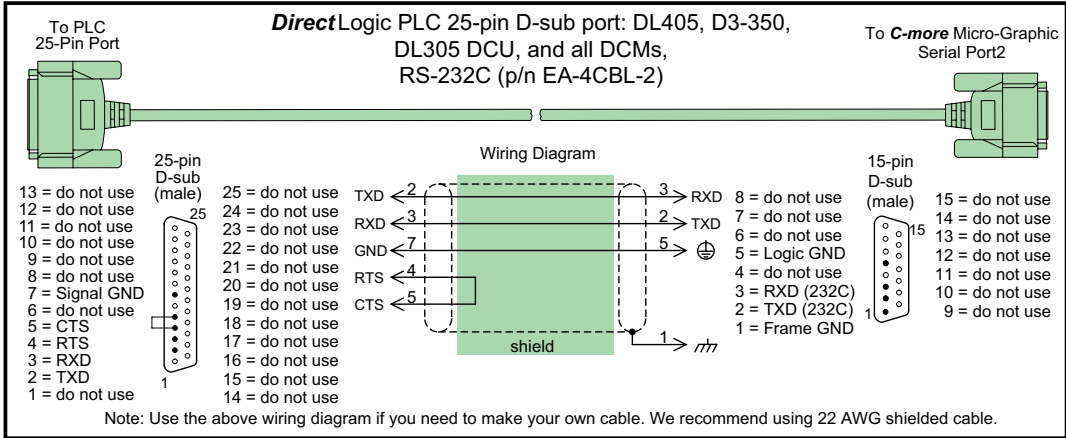
**EA-4CBL-1**



# Cables from AutomationDirect – Wiring Diagrams (cont'd)

DirectLOGIC:

EA-4CBL-2

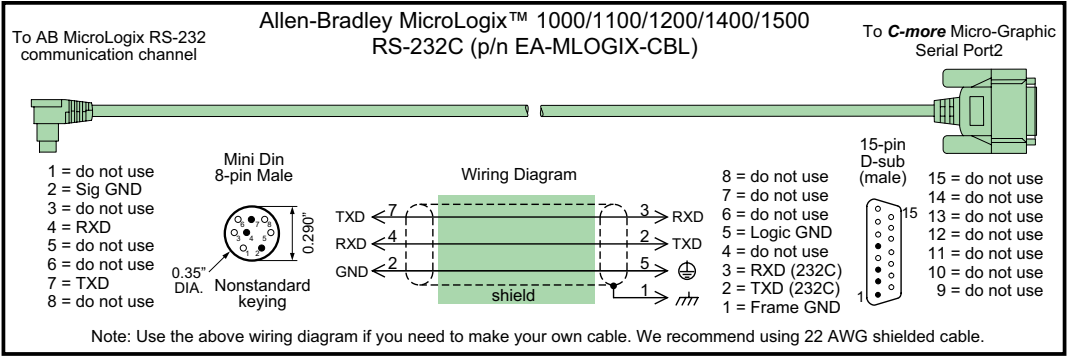


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# Cables from AutomationDirect - Wiring Diagrams (cont'd)

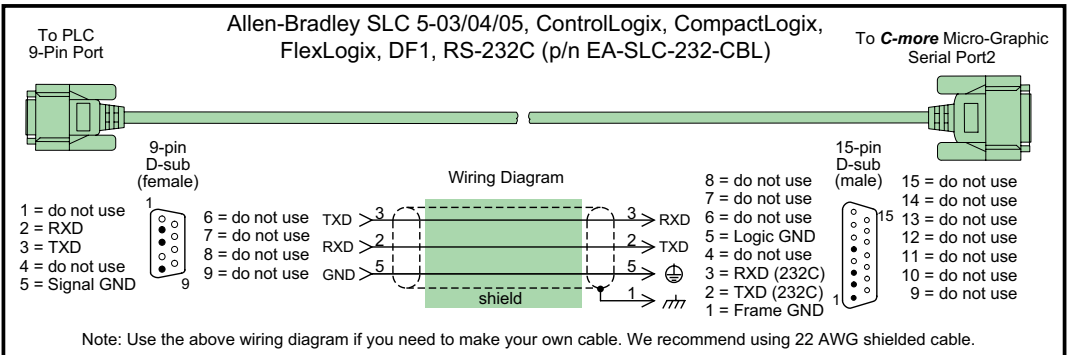
## Allen-Bradley:

## EA-MLOGIX-CBL

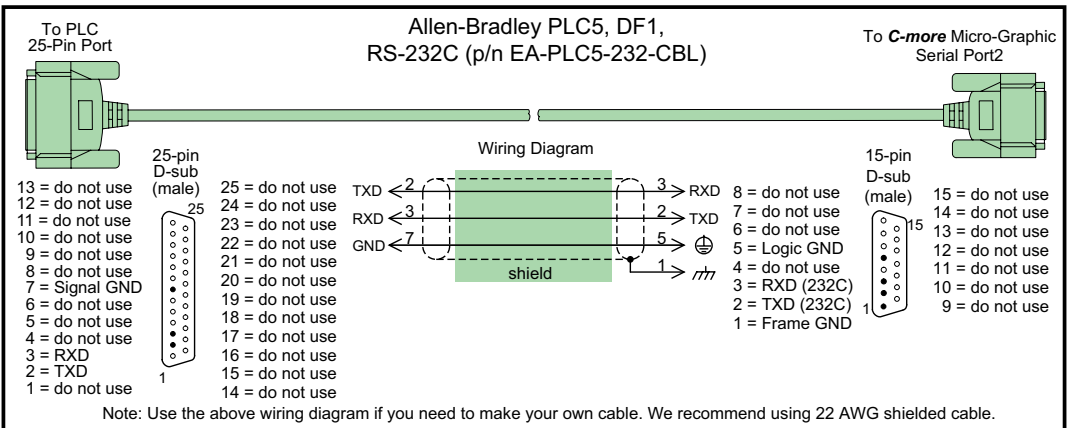


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## EA-SLC-232-CBL



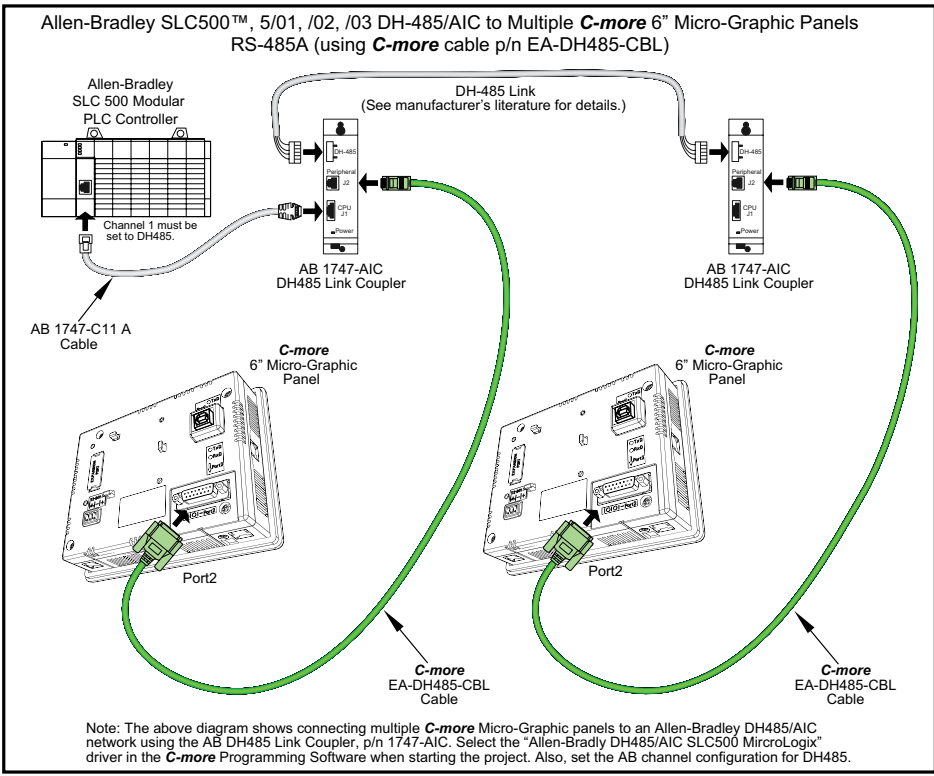
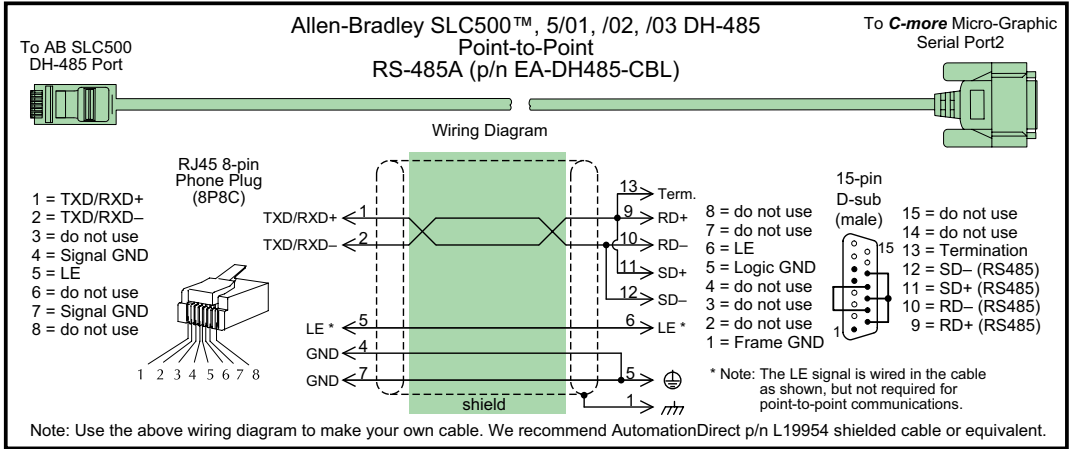
## EA-PLC5-232-CBL



# Cables from AutomationDirect - Wiring Diagrams (cont'd)

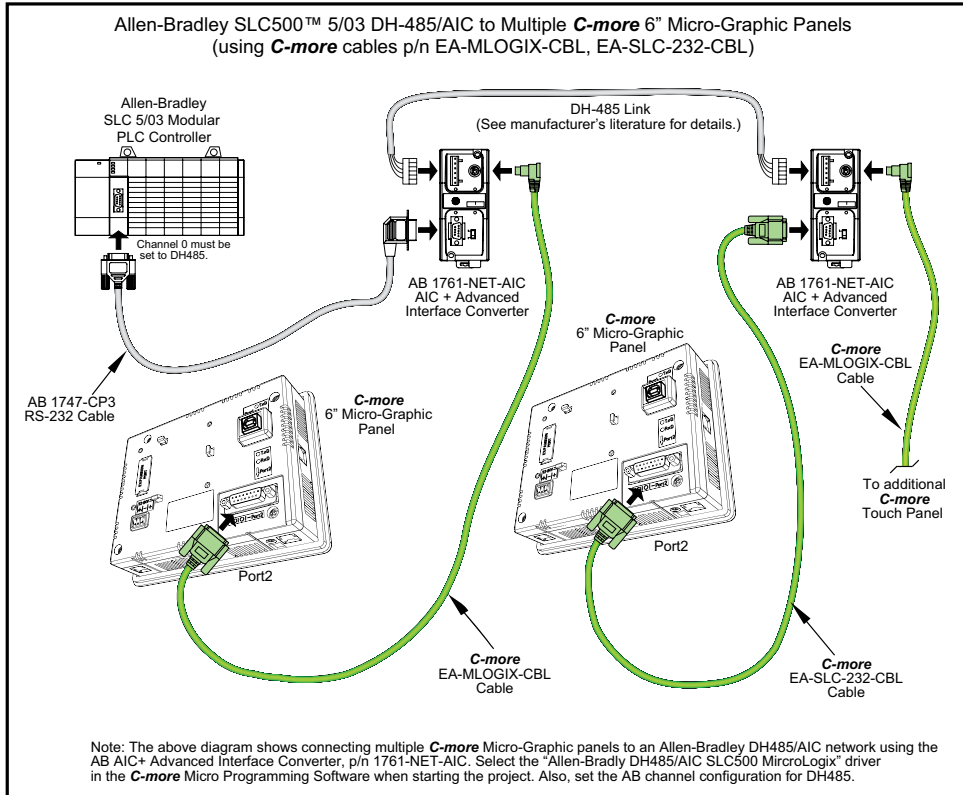
Allen-Bradley:

EA-DH485-CBL



## Cables from AutomationDirect - Wiring Diagrams (cont'd)

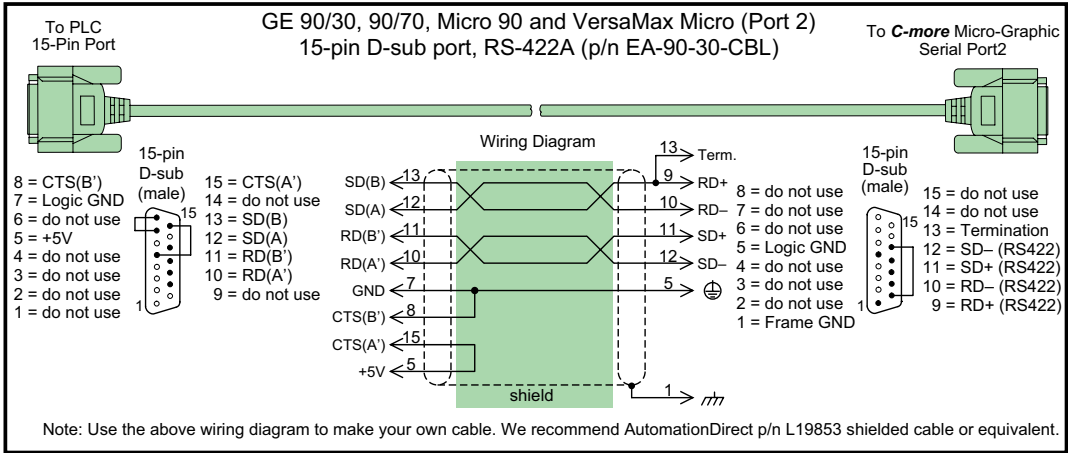
### Allen-Bradley:



# Cables from AutomationDirect - Wiring Diagrams (cont'd)

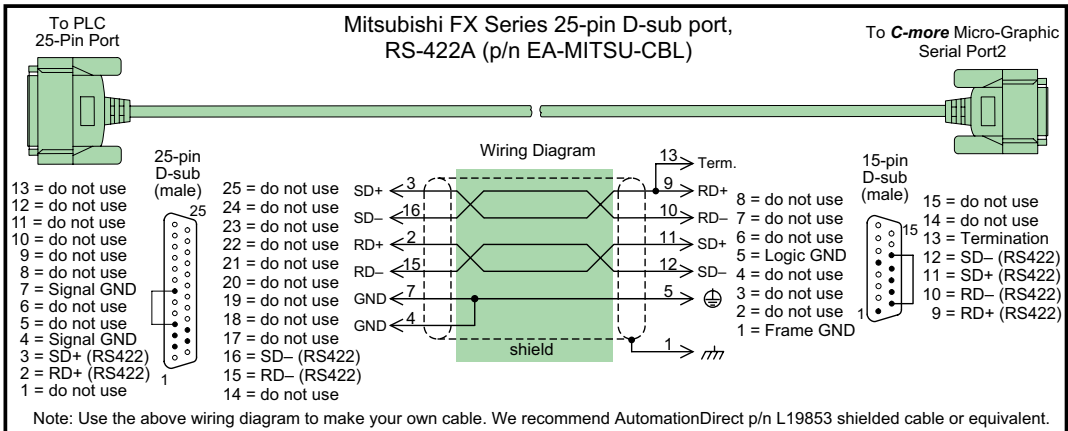
GE:

EA-90-30-CBL



Mitsubishi:

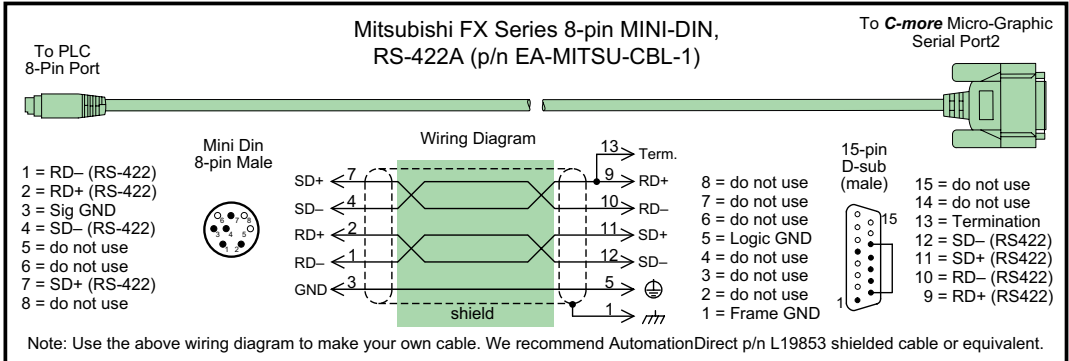
EA-MITSU-CBL



# Cables from AutomationDirect - Wiring Diagrams (cont'd)

**Mitsubishi:**

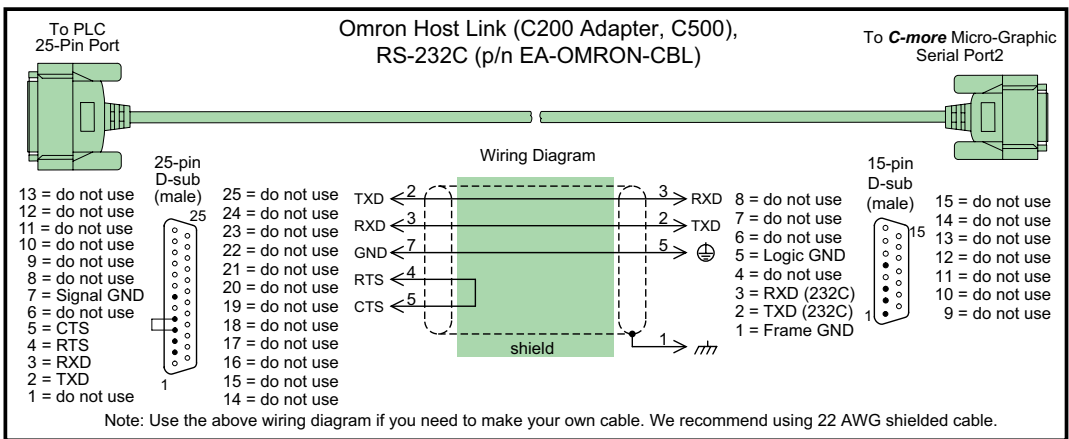
**EA-MITSU-CBL-1**



**6**

**Omron:**

**EA-OMRON-CBL**



# User Constructed Cables – Wiring Diagrams

Diagram 1

User Constructed

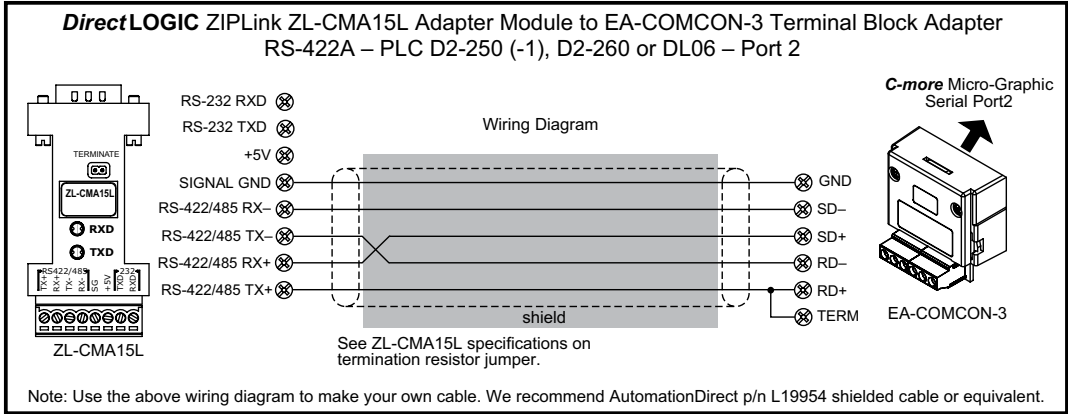
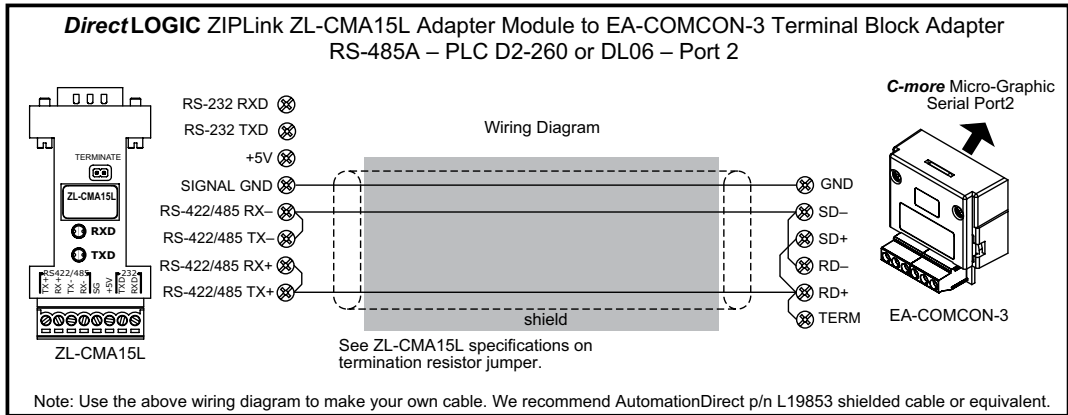


Diagram 2

User Constructed



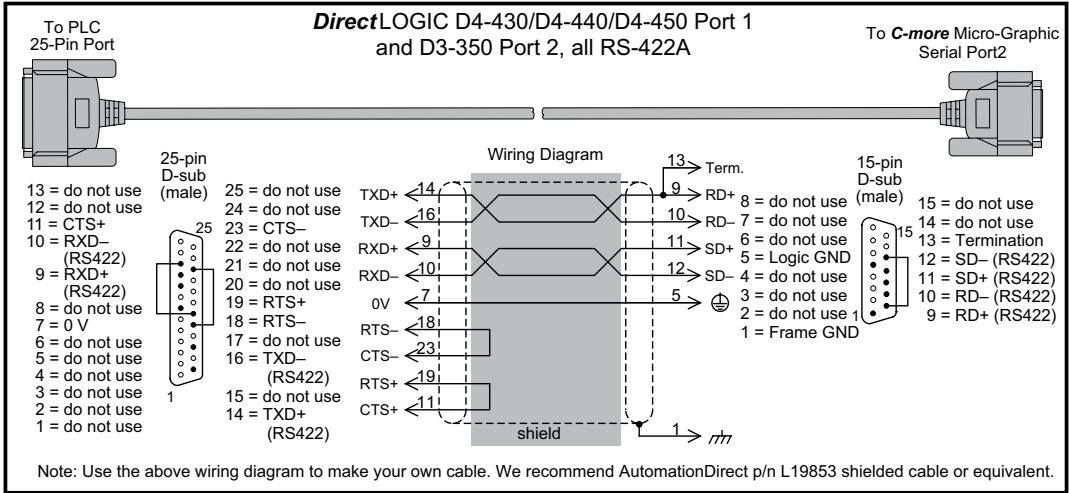
**NOTE:** The RS-422 and RS-485 wiring diagrams shown above are not for multi-drop networks involving connecting more than one PLC to a panel. Refer to the wiring diagram examples starting on page 6-34 if more than one PLC will be connected to a panel.



# User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 3

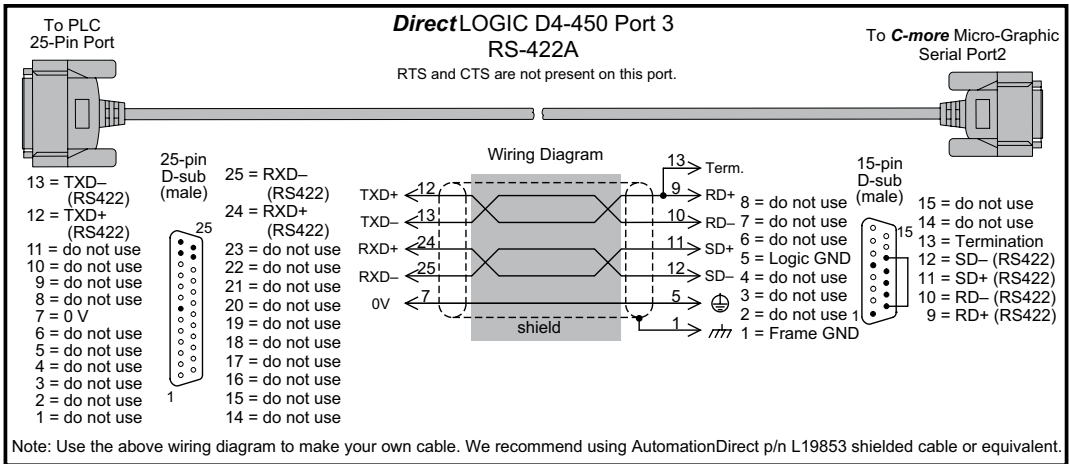
User Constructed



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Diagram 4

User Constructed

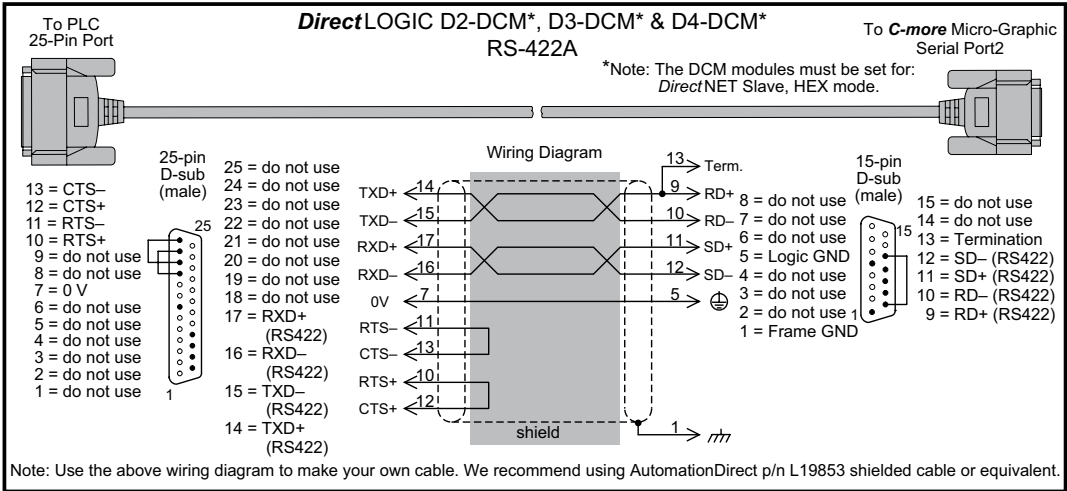


**NOTE:** The RS-422 wiring diagram shown above is not for multi-drop networks involving connecting more than one PLC to a panel. Refer to the wiring diagram examples starting on page 6-34 if more than one PLC will be connected to a panel.

# User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 5

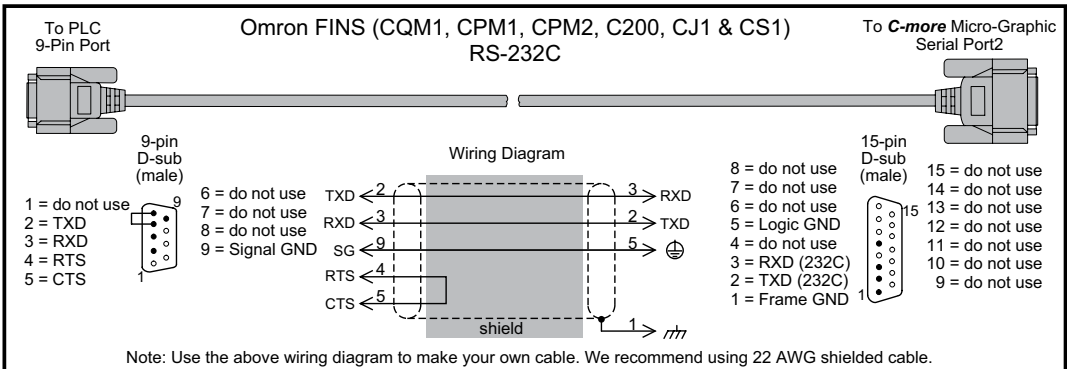
User Constructed



**NOTE:** The RS-422 wiring diagram shown above is not for multi-drop networks involving connecting more than one PLC to a panel. Refer to the wiring diagram examples starting on page 6-34 if more than one PLC will be connected to a panel.

Diagram 6

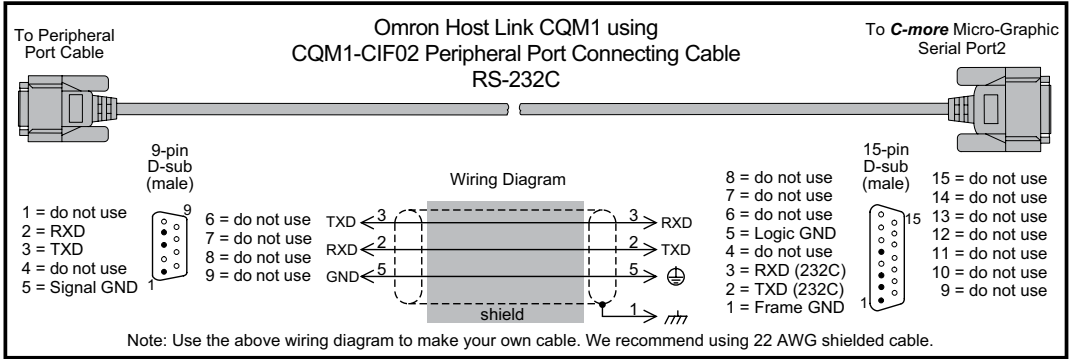
User Constructed



# User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 7

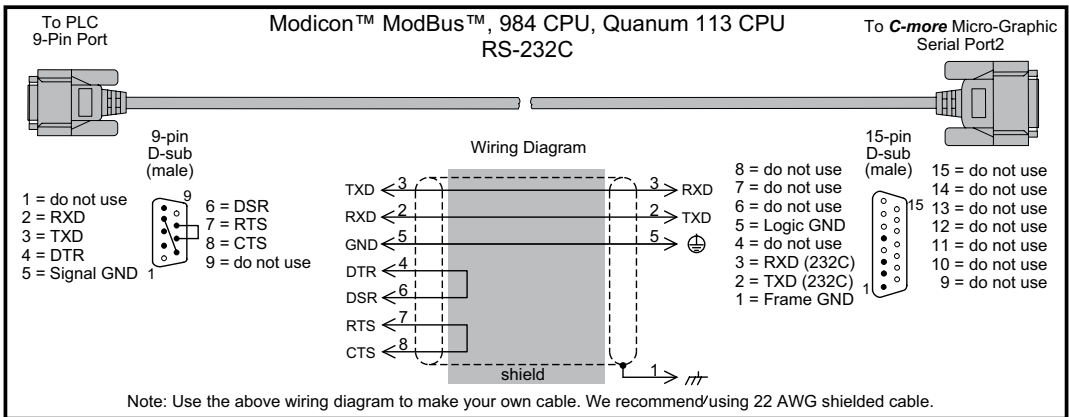
User Constructed



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Diagram 8

User Constructed



# User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 9

User Constructed

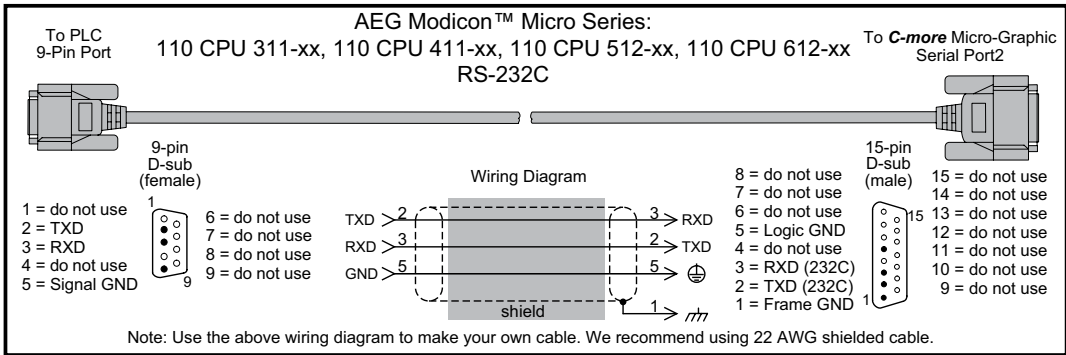
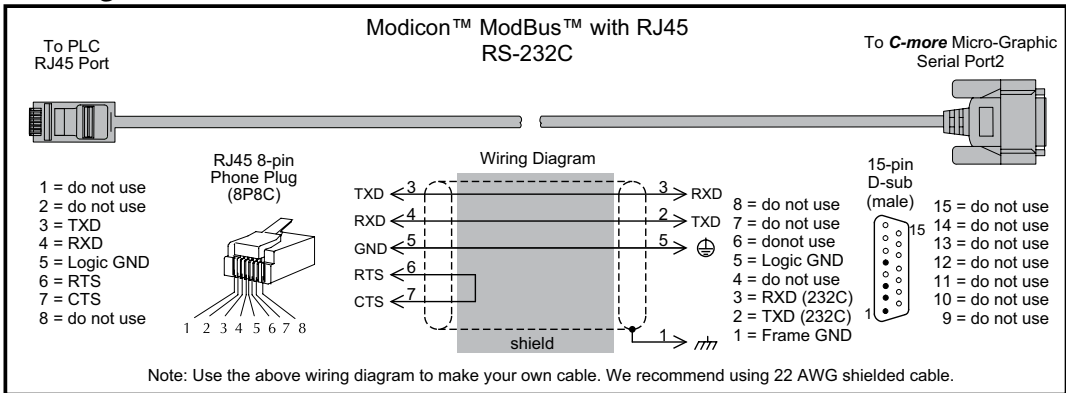


Diagram 10

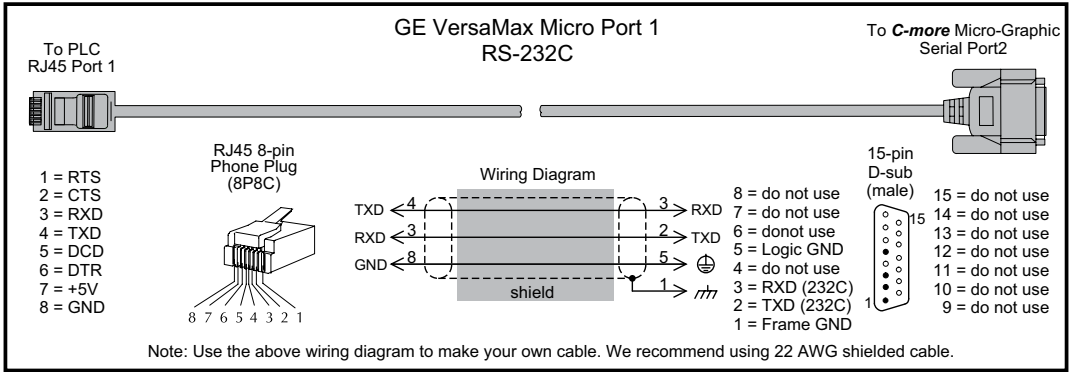
User Constructed



# User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 11

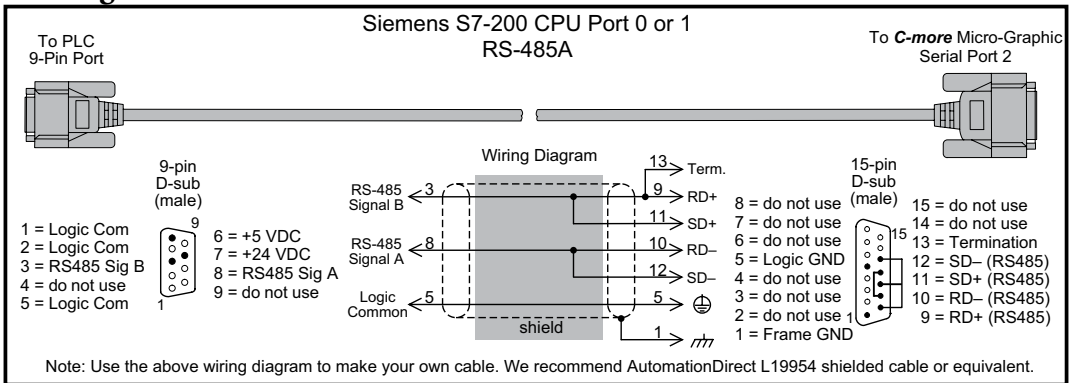
User Constructed



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Diagram 12

User Constructed



# User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 13

User Constructed

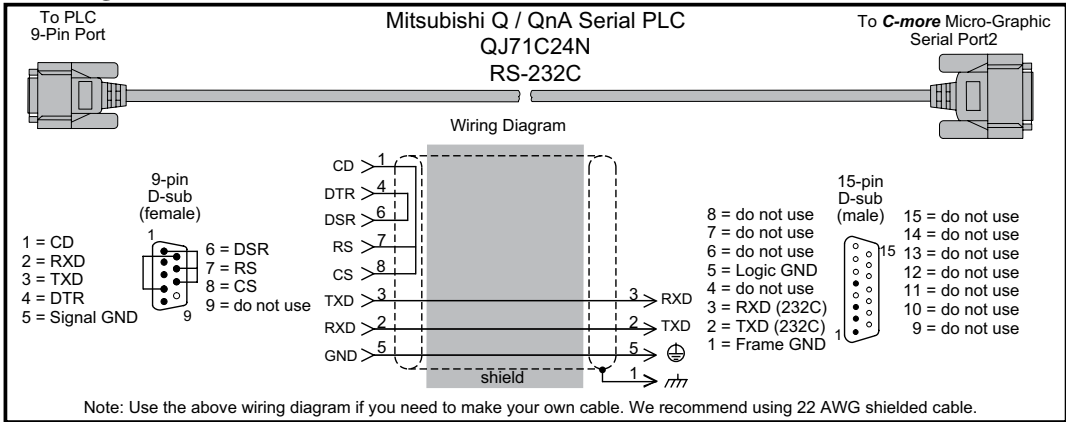
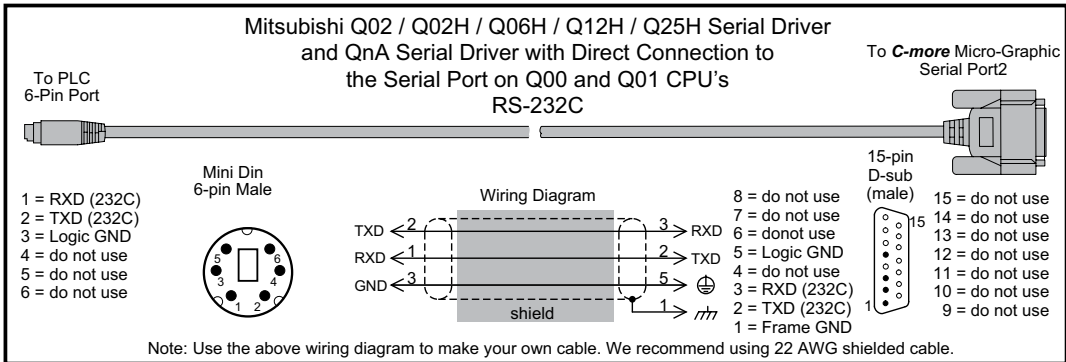


Diagram 14

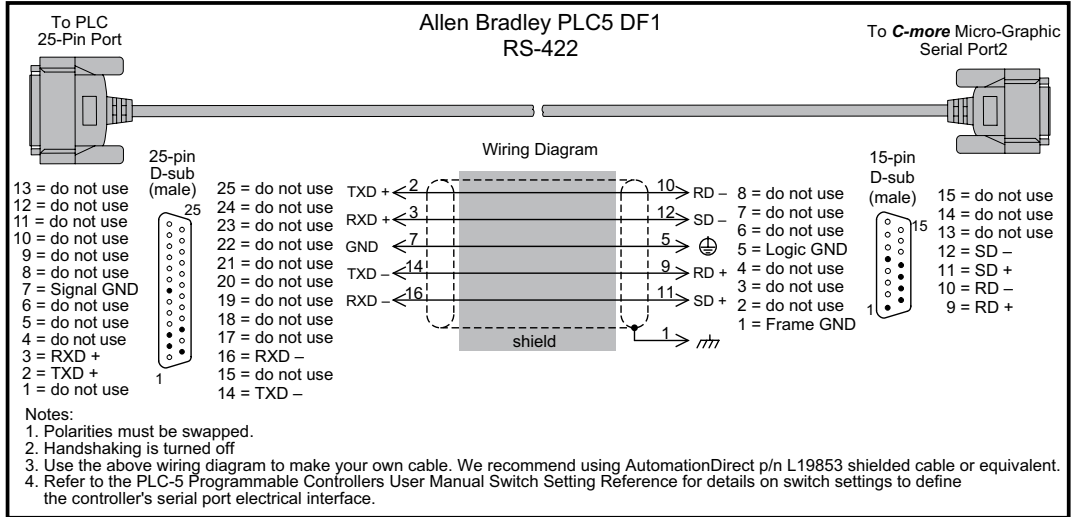
User Constructed



# User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 15

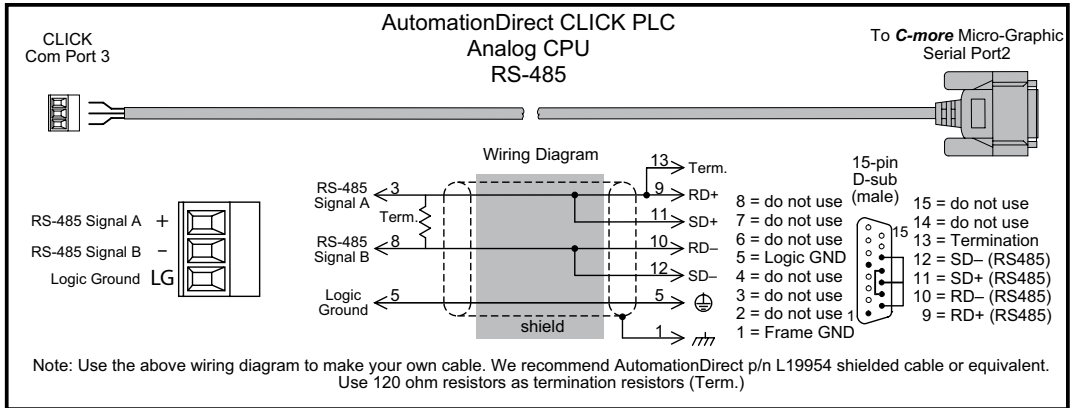
User Constructed



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Diagram 16

User Constructed



# User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 17

User Constructed

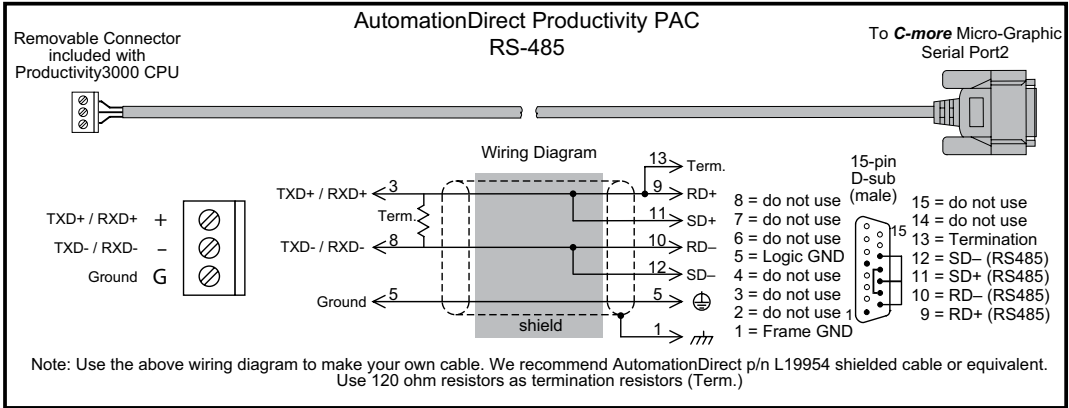
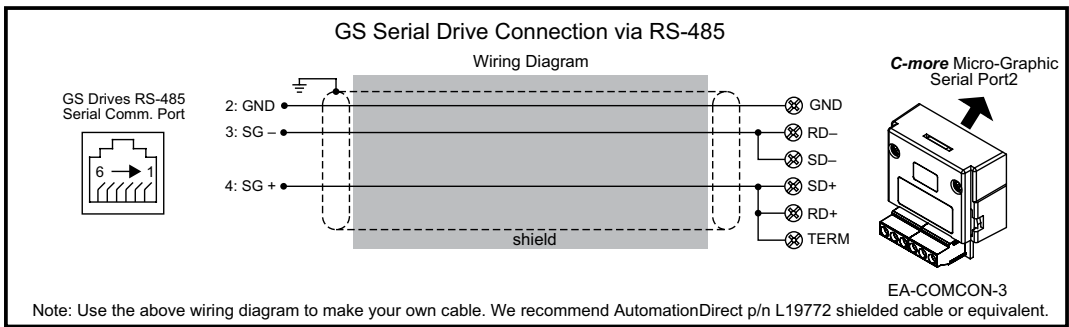


Diagram 18

User Constructed

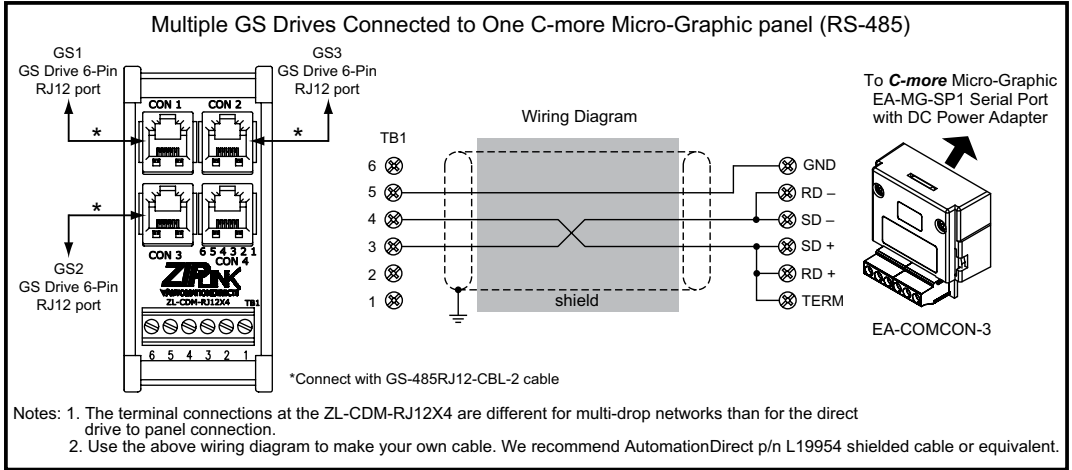




# User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 19

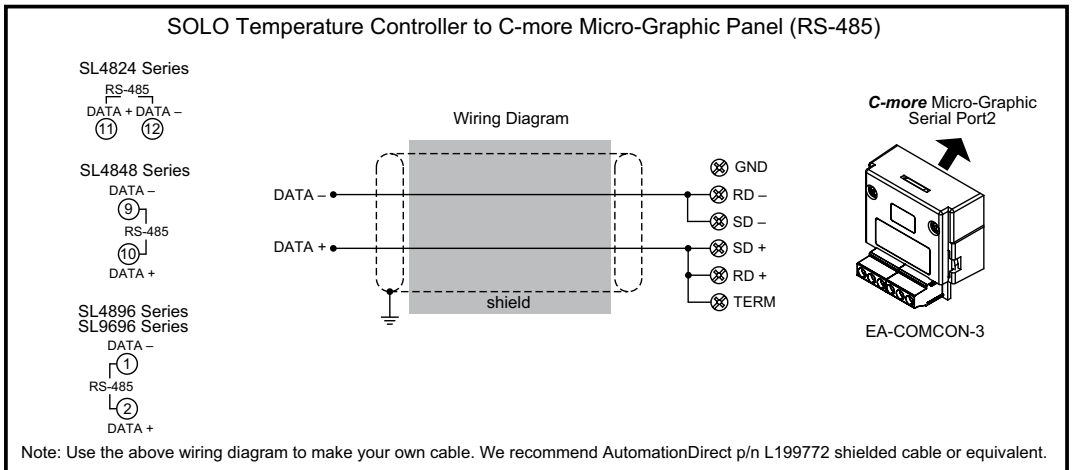
User Constructed



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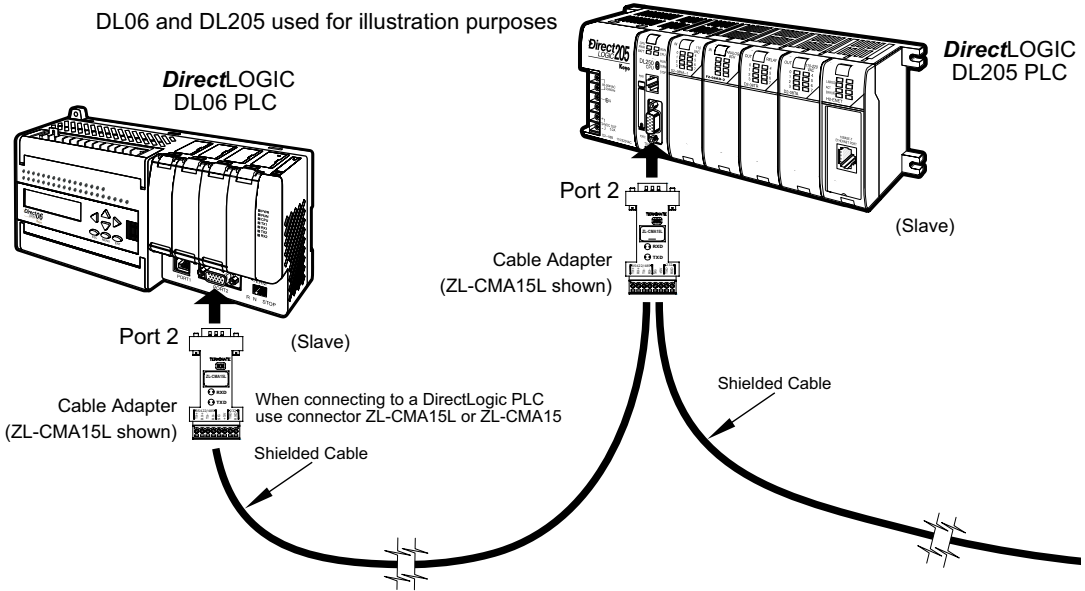
Diagram 20

User Constructed



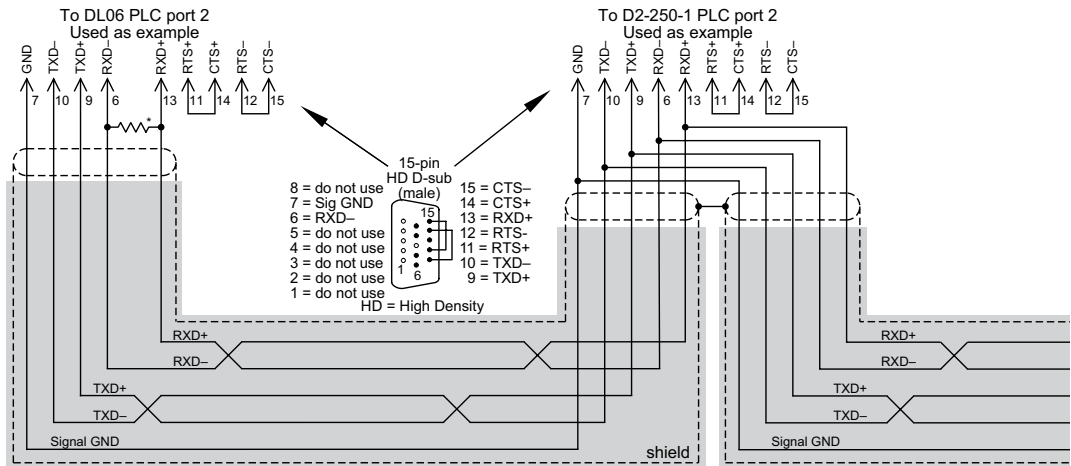
# RS-422A Multi-Drop Wiring Diagram Example

DL06 and DL205 used for illustration purposes



6

- Notes: 1. We recommend Belden 8103 shielded cable or equivalent.
- 2. Wiring Diagram for this example, ZL-CMA15(L)

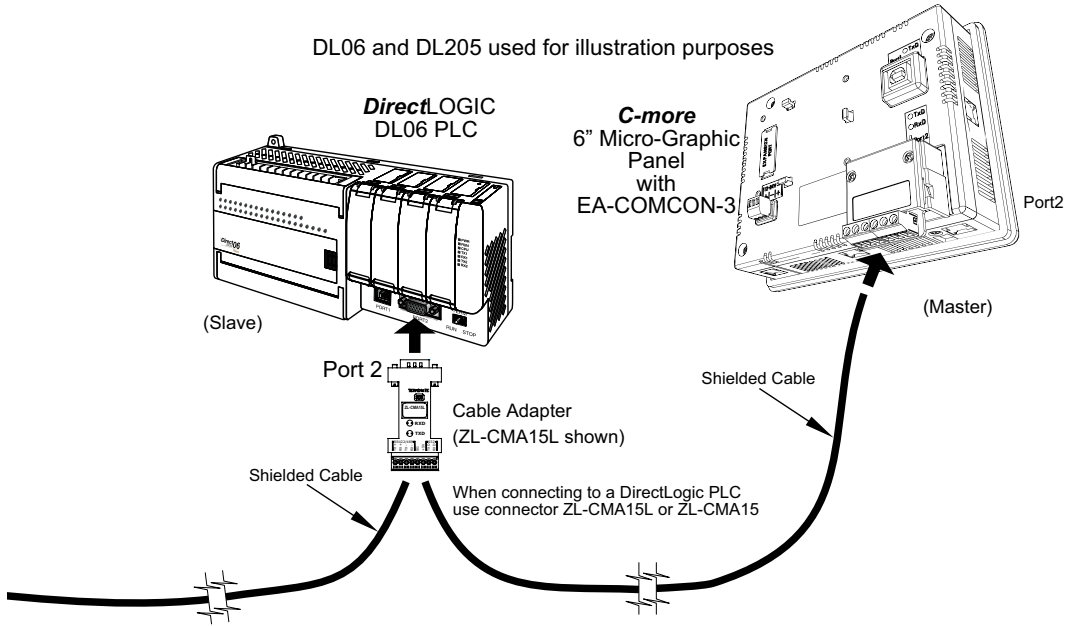


\* Termination resistors required at both ends of the network receive data signals to match the impedance of the cable (between 100 and 500 ohms).

Typical RS-422 Multi-Drop Wiring Diagram using DirectLogic pin numbers to illustrate

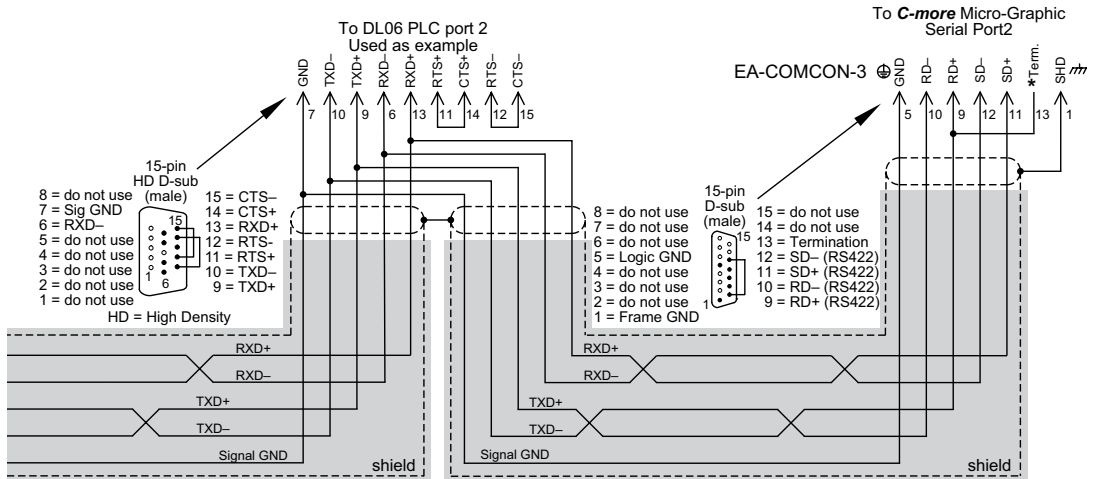
# RS-422A Multi-Drop Wiring Diagram Example (cont'd)

DL06 and DL205 used for illustration purposes



6

- Notes: 1. We recommend Belden 8103 shielded cable or equivalent.
- 2. Wiring Diagram for this example, ZL-CMA15(L)



\* Termination resistors required at both ends of the network receive data signals to match the impedance of the cable (between 100 and 500 ohms). Jumper pin 13 to 9 on the C-more 6" Micro-Graphic Serial Port2 15-pin connector to place the 120Ω internal resistor into the network. If the cable impedance is different, then use an external resistor matched to the cable

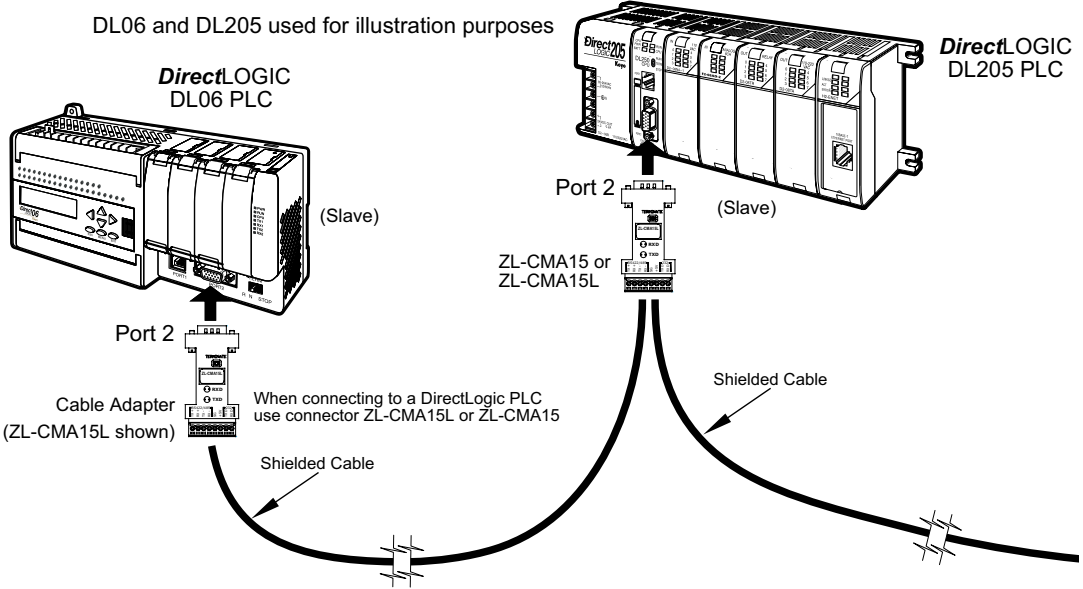
Typical RS-422 Multi-Drop Wiring Diagram (cont'd) using DirectLogic pin numbers to illustrate

# RS-485 Multi-Drop Wiring Diagram Example

DL06 and DL205 used for illustration purposes

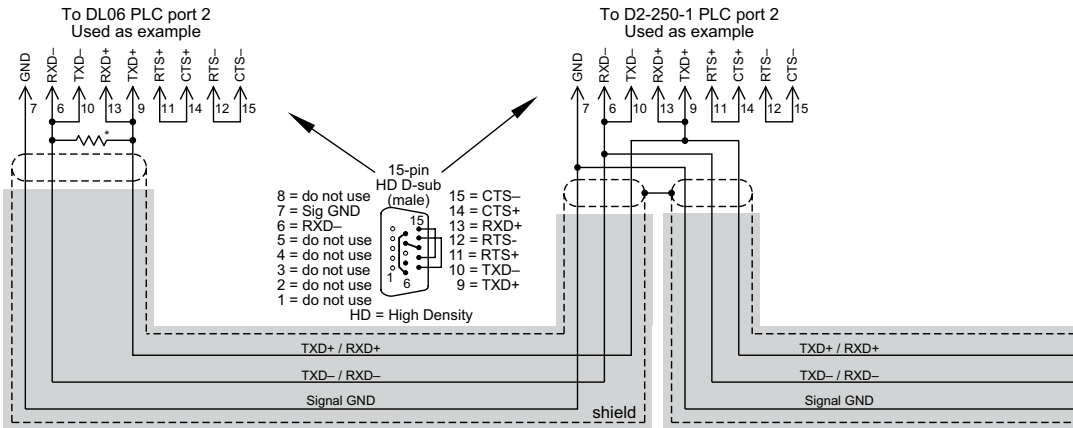
DirectLOGIC  
DL205 PLC

DirectLOGIC  
DL06 PLC



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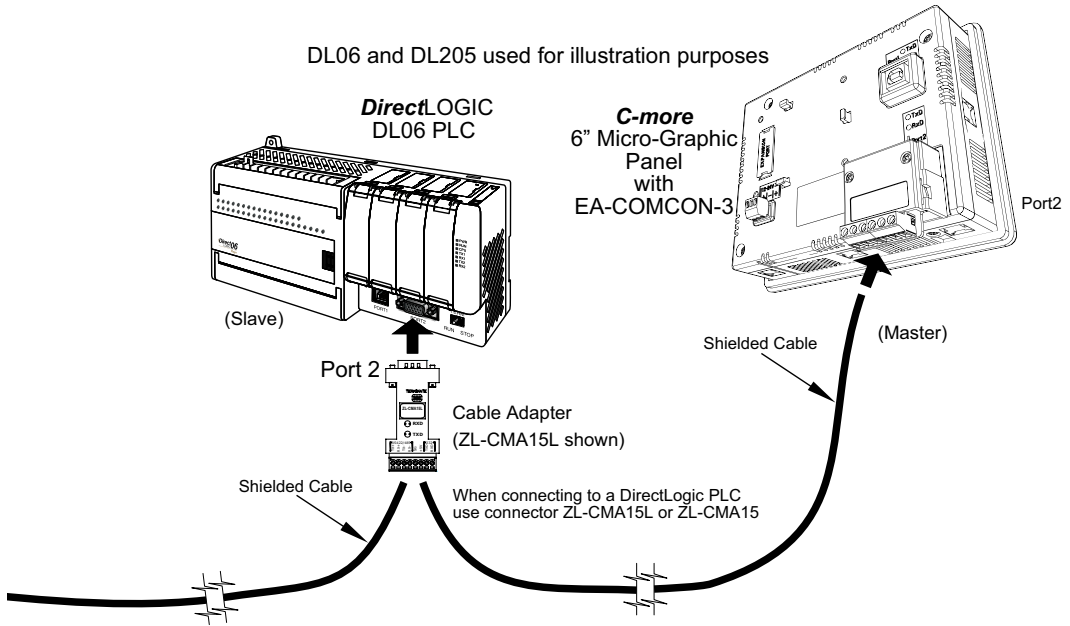
- Notes: 1. We recommend Belden 9842 shielded cable or equivalent.
- 2. Wiring Diagram for this example, ZL-CMA15(L)



\* Termination resistors required at both ends of the network to match the impedance of the cable (between 100 and 500 ohms).

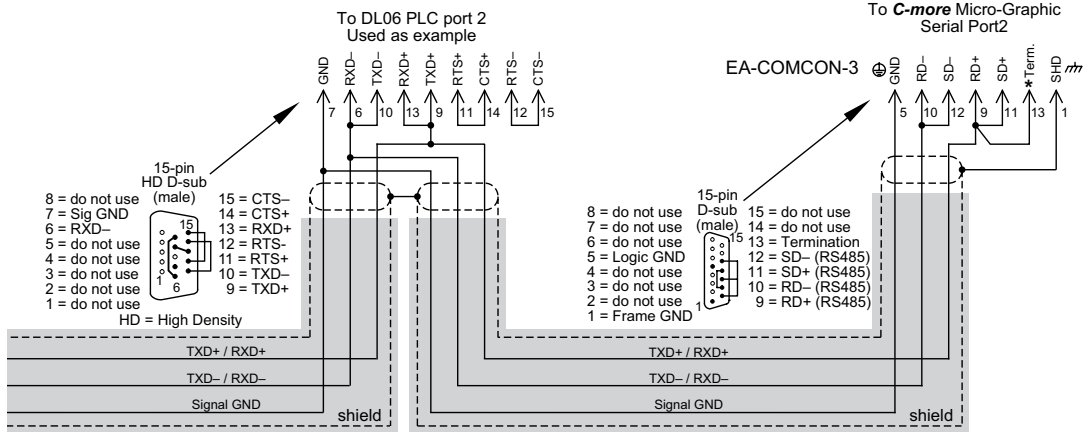
Typical RS-485 Multi-Drop Wiring Diagram using DirectLogic pin numbers to illustrate

# RS-485 Multi-Drop Wiring Diagram Example (cont'd)



6

- Notes: 1. We recommend Belden 9842 shielded cable or equivalent.
- 2. Wiring Diagram for this example, ZL-CMA15(L)



Typical RS-485 Multi-Drop Wiring Diagram (cont'd)  
using DirectLogic pin numbers to illustrate

\*Termination resistors required at both ends of the network receive data signals to match the impedance of the cable (between 100 and 500 ohms). Jumper pin 13 to 9 on the C-more 6" Micro-Graphic Serial Port2 15-pin connector to place the 120Ω internal resistor into the network. If the cable impedance is different, then use an external resistor matched to the cable

