

PLC COMMUNICATIONS



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Introduction

The *C-more*[®] Micro-Graphic panels are capable of communicating with AutomationDirect Productivity Series, Do-more, CLICK, SOLO, GS Drives and the entire *Direct*LOGIC family of PLCs. The panel is capable of communicating using RS232, RS422 and RS485 serial communications and networks. When using the built in RJ12 serial port, designated as **Port 1**, on the *C-more* Micro-Graphic panel to connect with AutomationDirect controllers, your cabling choices are fairly simple.

- DV-1000CBL – connects to Productivity Series, Do-more, CLICK, DL05, DL06, DL105, DL205, D3-350 and D4-450 phone jack.
- D4-1000CBL – connects to all DL405 CPU 15-pin ports.

The *C-more*[®] 6" Micro-Graphic panel can also communicate using RS232, RS422 or RS485 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.



NOTE: Refer to the PLC Compatibility and Connection Charts beginning on page 6-8 for a listing of PLC connections for the *C-more* 6" Micro-Graphic panel.



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



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** is intended for initial programming. For full brightness, connect an external 12-24 VDC power source when the panel is installed in its application.

Introduction (cont'd)

Available PLC Protocols

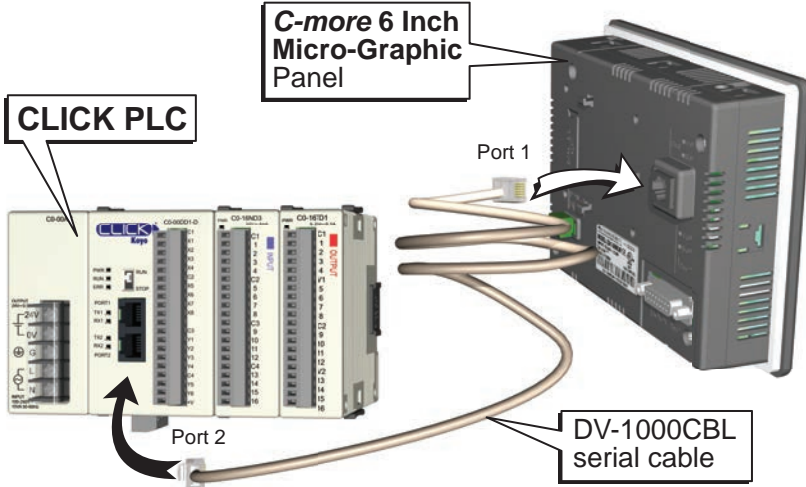
PLC Drivers	
<i>Serial - port1 or port2</i>	<i>Serial - port2 only</i>
AutomationDirect Productivity Series	Allen-Bradley DF1 Half Duplex
AutomationDirect Do-more	Allen-Bradley DF1 Full Duplex
AutomationDirect CLICK	Allen-Bradley PLC5 DF1
AutomationDirect K-sequence	Allen-Bradley DH485
AutomationDirect DirectNET	GE SNPX (90/30, 90/70, Micro 90, VersaMax Micro)
AutomationDirect Modbus	Mitsubishi FX
Modicon Modbus RTU	Mitsubishi Q & QnA
Entivity Modbus RTU	Omron Host Link (C200 Adapter, C500)
	Omron FINS Serial (CJ1, CS1)
	Siemens PPI (S7-200 CPU)
	AutomationDirect SOLO Temperature Controller
	AutomationDirect GS Drives

The panel can also be connected to more than one PLC by using RS-422 or RS-485 wired in a multi-drop configuration. Port1 and Port2 cannot simultaneously communicate with multiple PLC's. See the example wiring diagrams at the end of this chapter for details.

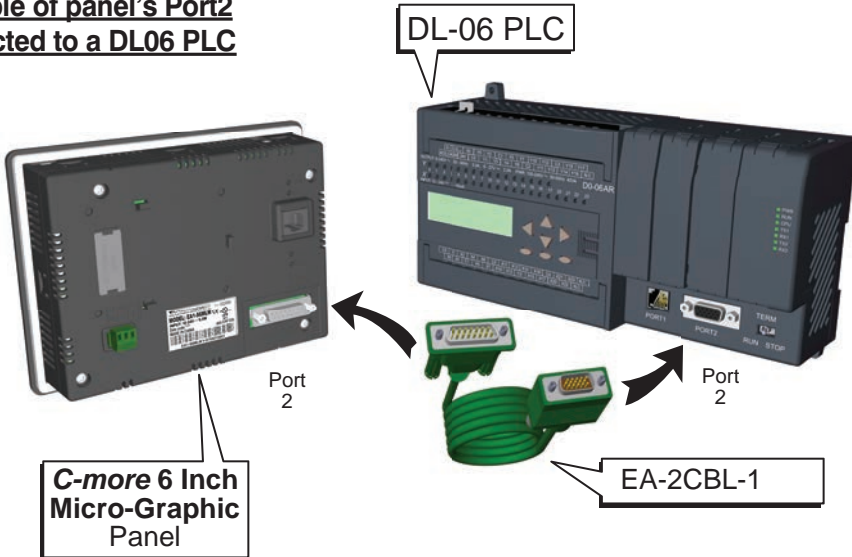
If you have difficulty determining whether the particular PLC and/or protocol you are using will work with *C-more* Micro-Graphic panels, please contact our technical support group at 770-844-4200.

C-more 6" Micro-Graphic Communication Ports

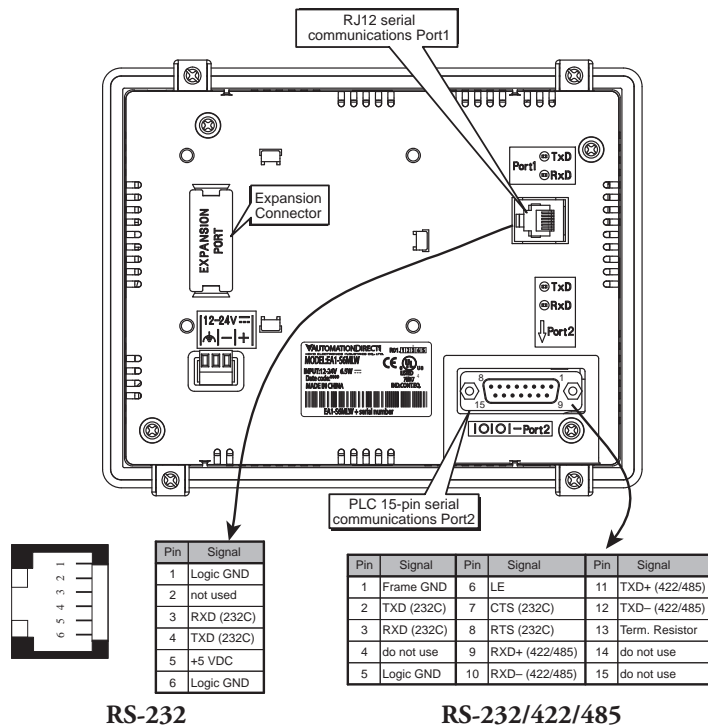
Example of panel's Port1 connected to a CLICK PLC



Example of panel's Port2 connected to a DL06 PLC



C-more 6" Micro-Graphic Communication Ports (cont'd)



NOTE: Only one of the communication ports can be used with a connected PLC. The programming software allows the user to select either Port1 or 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.

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.*

PLC Compatibility and Connection Charts

The following pages include charts that list the possible connections available between several brands of PLC's and the *C-more* 6" Micro-Graphic panel. AutomationDirect PLC's have the ability to communicate and provide power to the panel using Port1 (RS-232). 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 when using Port2.



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

The charts include the various PLC protocols that can be used with each combination of PLC port and panel port.

The charts list the recommended cables and/or manufactured devices that can be used to make up the communications link, and also refers to wiring diagrams that can be used to construct cables for connecting the PLC's port to the panel's port. The constructed cables are referred to as Diagram 1 through 13 and start on page 6-26.

Following the charts is a list of cables that can be purchased, including their wiring diagrams, and also wiring diagrams that are referenced from the charts that can be used to construct the referenced cables.

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.

PLC Compatibility and Connection Charts (cont'd)

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 PLC Compatibility and Connection Charts

- 1.) Find the PLC Family being used.
- 2.) Find the particular PLC model in the PLC family.
- 3.) Find the PLC communications port you will be connecting to the *C-more* Micro-Graphic panel.
- 4.) Read across the chart to determine if the *C-more* Micro-Graphic panel's Port1 and / or Port2 can be used and then determine the cable and other components, manufactured or user constructed, are required.

Example:

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PLC Compatibility & Connection Chart									
PLC			<i>C-more</i> 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		
			**PLC Port Powered or External DC Power Supply			Using panel's Port2 DB 15-pin - female			
			Using panel's RJ12 Port1			Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type
			Protocol(s) Supported	Components & Network Type		Protocol(s) Supported	Components & Network Type		
CLICK	all versions	Port 1 RJ12 - 6 pin	AutomationDirect Modbus (CLICK)	DV-1000CBL* RS-232	AutomationDirect Modbus (CLICK)	EA-2CBL RS-232			
		Port 2 RJ12 - 6 pin	K-sequence, <i>Direct</i> NET, Modbus RTU	DV-1000CBL* RS-232	K-sequence, <i>Direct</i> NET, Modbus RTU	EA-2CBL RS-232			
DirectLOGIC DL05	all versions	Port 1 RJ12 - 6 pin	K-sequence, <i>Direct</i> NET, Modbus RTU	DV-1000CBL* RS-232	K-sequence, <i>Direct</i> NET, Modbus RTU	EA-2CBL RS-232			
		Port 2 RJ12 - 6 pin		DV-1000CBL* RS-232		EA-2CBL-1 RS-232			
	D0-DCM	Port 2 DB15HD (female)	K-sequence, <i>Direct</i> NET, Modbus RTU	DV-1000CBL* + FA-15HD RS-232	Modbus RTU	** See Diagram 1 RS-422 ** See Diagram 2 RS-485 Modbus only			

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
		Port2 RJ12 - 6 pin		* See Diagram 17 RS-485
	Analog CPUs	Port3 Terminal block - 3 pin		
Productivity Series	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 18 RS-485
Do-more	all versions	Port2 RJ12 - 6 pin	AutomationDirect Do-more Serial	EA-2CBL RS-232
SOLO Temperature Controller	all versions	Data terminals	AutomationDirect SOLO Temperature Controller	* See Diagram 21 RS-485
GS Drives	all versions	Port RJ12 - 6 pin	AutomationDirect GS Drives	* See Diagrams 19 and 20 RS-485

* Note: Wiring Diagrams for user constructed cables start on page 6-26.

AutomationDirect *Direct*LOGIC DL05, DL06, D0-DCM Module & DL105 PLCs
Panel Powered via external power supply, Port1 or Port2 Communications

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PLC Compatibility & Connection Chart						
PLC			C-more Micro-Graphic Panel			
Family	CPU	PLC Port & Type	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	
			Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type
DirectLOGIC DL05	all versions	Port 1 RJ12 - 6 pin	K-sequence, <i>Direct</i> NET, Modbus RTU	DV-1000CBL* RS-232	K-sequence, <i>Direct</i> NET, Modbus RTU	EA-2CBL RS-232
		Port 2 RJ12 - 6 pin				EA-2CBL RS-232
	D0-DCM	Port 1 RJ12 - 6 pin	K-sequence, <i>Direct</i> NET, Modbus RTU	DV-1000CBL* RS-232	K-sequence, <i>Direct</i> NET, Modbus RTU	EA-2CBL RS-232
		Port 2 DB15HD (female)				** See Diagram 1 RS-422
Direct LOGICDL06	all versions	Port 1 RJ12 - 6 pin	K-sequence, <i>Direct</i> NET, Modbus RTU	DV-1000CBL* RS-232	K-sequence, <i>Direct</i> NET, Modbus RTU	EA-2CBL RS-232
		Port 2 DB15HD (female)				** See Diagram 1 RS-422
	D0-DCM	Port 1 RJ12 - 6 pin	K-sequence, <i>Direct</i> NET, Modbus RTU	DV-1000CBL* RS-232	K-sequence, <i>Direct</i> NET, Modbus RTU	EA-2CBL RS-232
		Port 2 DB15HD (female)				** See Diagram 1 RS-422
DirectLOGIC DL105	all versions	Port 1 RJ12 - 6 pin	K-sequence	DV-1000CBL* RS-232	K-sequence	EA-2CBL RS-232
		Port 2 DB15HD (female)				** See Diagram 2 RS-485 Modbus only

* Note: The PLC can provide 5 VDC through this cable. No external 12-24 VDC source is required, however, screen brightness is diminished and the alarm beep will not function.

** Note: Wiring Diagrams for user constructed cables start on page 6-26.

DirectLOGIC DL205 PLCs, D2-DCM Module and WINPLC Panel Powered via external power supply, Port1 or Port2 Communications

PLC Compatibility & Connection Chart						
PLC			C-more Micro-Graphic Panel			
Family	CPU	PLC Port & Type	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	
			Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type
DirectLOGIC 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, <i>DirectNET</i>		K-sequence, <i>DirectNET</i>	
	D2-250-1	Port 1 RJ12 - 6 pin	K-sequence, <i>DirectNET</i> , Modbus RTU	DV-1000CBL* RS-232	K-sequence, <i>DirectNET</i> , Modbus RTU	EA-2CBL RS-232
		Port 2 DB15HD (female)				DV-1000CBL* + FA-15HD RS-232
	D2-260	Port 1 RJ12 - 6 pin	K-sequence, <i>DirectNET</i> , Modbus RTU	DV-1000CBL* RS-232	K-sequence, <i>DirectNET</i> , Modbus RTU	EA-2CBL RS-232
		Port 2 DB15HD (female)				DV-1000CBL* + FA-15HD RS-232
				Modbus RTU	** See Diagram 2 RS-485 Modbus only	
	D2-DCM	Port 1 DB 25 pin (female)	K-sequence, <i>DirectNET</i> , Modbus RTU	** See Diagram 3 RS-232	<i>DirectNET</i>	EA-4CBL-2 RS-232 ** See Diagram 6 RS-422
	WINPLC	Port 1 RJ12 - 6 pin	Modbus RTU	DV-1000CBL* RS-232	Modbus RTU	EA-2CBL RS-232

* Note: The PLC can provide 5 VDC through this cable. No external 12-24 VDC source is required, however, screen brightness is diminished and the alarm beep will not function.
 ** Note: Wiring Diagrams for user constructed cables start on page 6-26.

DirectLOGIC DL305 PLCs and D3-DCM Module
Panel Powered via external power supply, Port1 or Port2 Communications

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PLC Compatibility & Connection Chart							
PLC			C-more Micro-Graphic Panel				
Family	CPU	PLC Port & Type	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		
			Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type	
DirectLOGIC DL305	D3-330 or D3-340	D3-232-DCU DB 25 pin (female)	<i>DirectNET</i>	** See Diagram 3 RS-232	<i>DirectNET</i>	** See Diagram 3 RS-232	
		D3-422-DCU DB 25 pin (female)	Not Possible		<i>DirectNET</i>	** See Diagram 6 RS-422	
	D3-340	Port 1 RJ11 - 4 pin	<i>DirectNET</i>	OP-3CBL-1 RS-232	<i>DirectNET</i>	EA-3CBL RS-232	
		Port 2 RJ11 - 4 pin	<i>DirectNET</i> , Modbus RTU		<i>DirectNET</i> , Modbus RTU		
	D3-350	Port 1 RJ12 - 6 pin	K-sequence, <i>DirectNET</i>	DV-1000CBL* RS-232	K-sequence, <i>DirectNET</i>	EA-2CBL RS-232	
		Port 2 DB 25 pin (female)	K-sequence, <i>DirectNET</i> , Modbus RTU	** See Diagram 3 RS-232	K-sequence, <i>DirectNET</i> , Modbus RTU	EA-4CBL-2 RS-232 ** See Diagram 4 RS-422	
	D3-DCM D3-350 only	Port 1 DB 25 pin (female)	K-sequence, <i>DirectNET</i> , Modbus RTU	** See Diagram 3 RS-232	<i>DirectNET</i>	EA-4CBL-2 RS-232 ** See Diagram 6 RS-422	

* Note: The PLC can provide 5 VDC through this cable. No external 12-24 VDC source is required, however, screen brightness is diminished and the alarm beep will not function.
 ** Note: Wiring Diagrams for user constructed cables start on page 6-26.

DirectLOGIC DL405 PLCs and D4-DCM Module Panel Powered via external power supply, Port1 or Port2 Communications

PLC Compatibility & Connection Chart						
PLC			C-more Micro-Graphic Panel			
Family	CPU	PLC Port & Type	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	
			Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type
DirectLOGIC 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, DirectNET	DV-1000CBL* & FA-CABKIT RS-232	K-sequence, DirectNET	EA-4CBL-2 RS-232 ** See Diagram 4 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, DirectNET	DV-1000CBL* & FA-CABKIT RS-232	K-sequence, DirectNET	EA-4CBL-2 RS-232 ** See Diagram 4 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, DirectNET , Modbus RTU	DV-1000CBL* & FA-CABKIT RS-232	K-sequence, DirectNET , Modbus RTU	EA-4CBL-2 RS-232 ** See Diagram 4 RS-422
		Port 3 DB 25 pin (female)	Not Possible		K-sequence, DirectNET , Modbus RTU	** See Diagram 5 RS-422
		Port 2 RJ12 - 6 pin	K-sequence, DirectNET	DV-1000CBL* RS-232	K-sequence, DirectNET	EA-2CBL RS-232
	D4-DCM	Port 1 DB 25 pin (female)	K-sequence, DirectNET , Modbus RTU	** See Diagram 3 RS-232	DirectNET	EA-4CBL-2 RS-232 ** See Diagram 6 RS-422

* Note: The PLC can provide 5 VDC through this cable. No external 12-24 VDC source is required, however, screen brightness is diminished and the alarm beep will not function.

** Note: Wiring Diagrams for user constructed cables start on page 6-26.

Allen-Bradley PLCs

Panel Powered via external power supply, Port1 or Port2 Communications

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PLC Compatibility & Connection Chart						
PLC			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 RJ12 Port1		Using panel's Port2 DB 15-pin - female	
			Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type
Allen-Bradley MicroLogix	1000, 1100, 1200, 1400, 1500	8-pin mini-din port RJ45 8-pin phone plug	Not Possible		DF1 Full Duplex, DF1 Half Duplex	EA-MLOGIX-CBL RS-232
					DH485/AIC/AIC+	EA-DH485-CBL RS-232
Allen-Bradley SLC500	5/03, 5/04, 5/05 5/01, 5/02, 5/03	9-pin D-sub port RJ45 8-pin phone plug			DF1 Full Duplex, DF1 Half Duplex	EA-SLC-232-CBL RS-232
					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 16 RS-422
		RJ45 8-pin phone plug			DH485/AIC/AIC+	EA-DH485-CBL RS-232

** Note: Wiring Diagrams for user constructed cables start on page 6-26.

GE, Mitsubishi, Omron, Modicon and Siemens PLCs Panel Powered via external power supply, Port1 or Port2 Communications

PLC Compatibility & Connection Chart							
PLC			<i>C-more</i> 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 RJ12 Port1		Using panel's Port2 DB 15-pin - female		
			Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type	
GE	90/30, 90/70	15-pin D-sub port	Not Possible			SNPX	EA-90-30-CBL RS-422
	Micro 90, VersaMax Micro	RJ45 Port 1					** See Diagram 12 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				** See Diagram 14 RS-232C	
		6-pin mini-din port				** See Diagram 15 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 7 & 8 RS-232
Modicon	984 CPU, Quantum 113 CPU, AEG Modicon Micro Series 110 CPU	varies				Modbus RTU	** See Diagram 9, 10 & 11 RS-232
Siemens	S7-200 CPU	9-pin D-sub port 0 or 1	PPI	** See Diagram 13 RS-485			

** Note: Wiring Diagrams for user constructed cables start on page 6-26.

Cables from AutomationDirect

Cable Description	Cable Part No.
Cables used with serial Port1	
AutomationDirect Productivity Series, Do-more, CLICK, Direct LOGIC PLC RJ-12 port, DL05, DL06, DL105, DL205, D3-350, D4-450 & H2-WinPLC (RS-232C)	DV-1000CBL
Note: The PLC can provide 5 VDC through this cable. No external 12-24 VDC source is required, however, screen brightness is diminished and the alarm beep will not function.	
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).	FA-CABKIT
Direct LOGIC PLC RJ-11 port, D3-340 (RS-232C).	OP-3CBL-1

Cable Description	Cable Part No.
Cables used with serial Port2	
AutomationDirect Productivity Series, Do-more, CLICK, 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, 1400 & 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, 90/70, Micro 90, Versamax Micro (Port2) 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. EA-2CBL



Part No. EA-2CBL-1



Part No. EA-3CBL



Part No. EA-4CBL-1



Part No. EA-4CBL-2

Cables from AutomationDirect (cont'd)



Part No. DV-1000CBL



Part No. OP-3CBL-1



Part No. FA-15HD



Part No. FA-CABKIT



Part No. D4-1000CBL



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



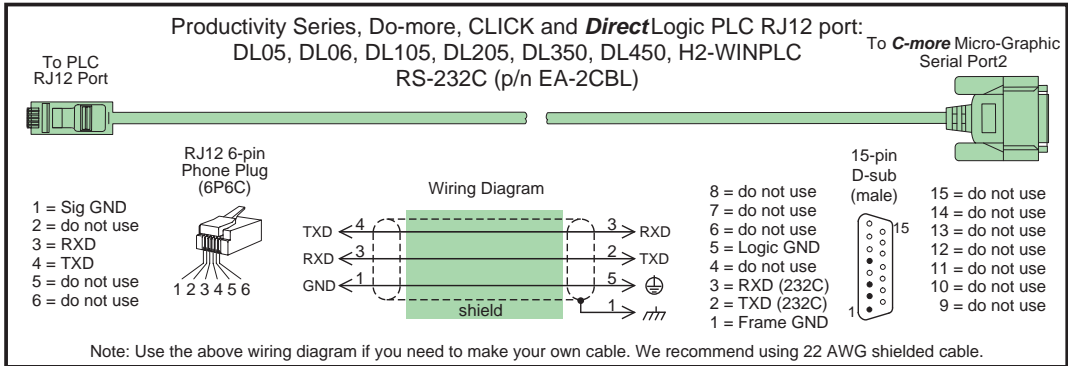
Part No. EA-OMRON-CBL

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:

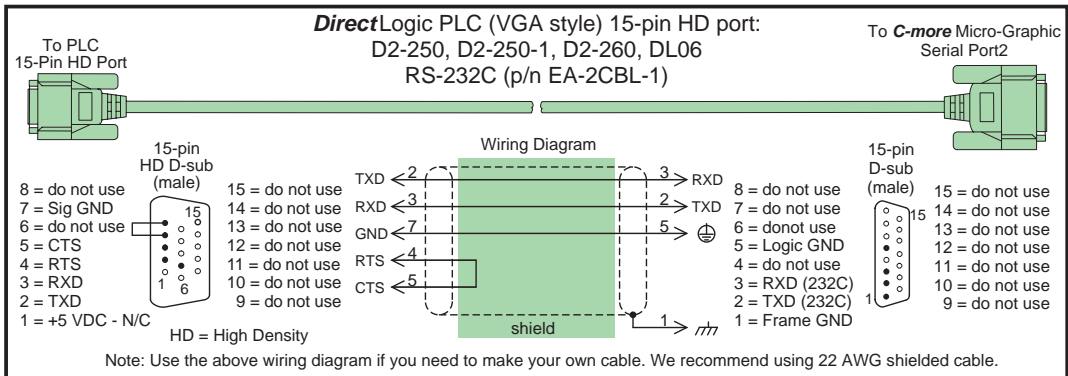
EA-2CBL



Note: Only one *C-more* Micro-Graphic panel can be powered by an *AutomationDirect* PLC. If connecting *C-more* Micro-Graphic panels to more than one port on an *AutomationDirect* PLC, the additional panel must use an external power supply.

DirectLOGIC:

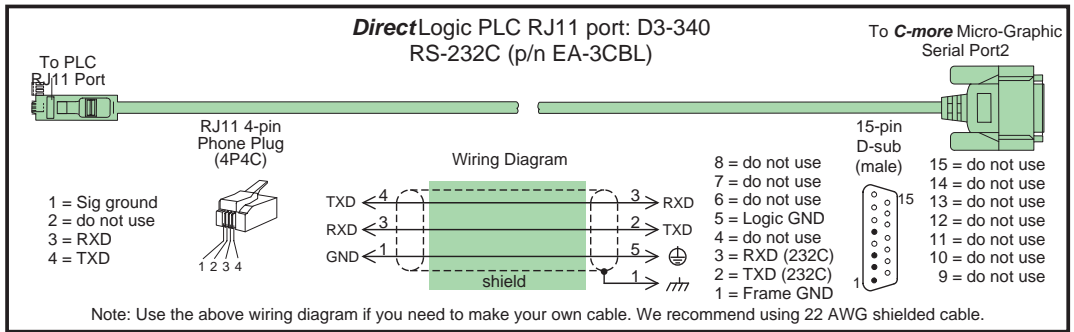
EA-2CBL-1



Cables from AutomationDirect – Wiring Diagrams (cont'd)

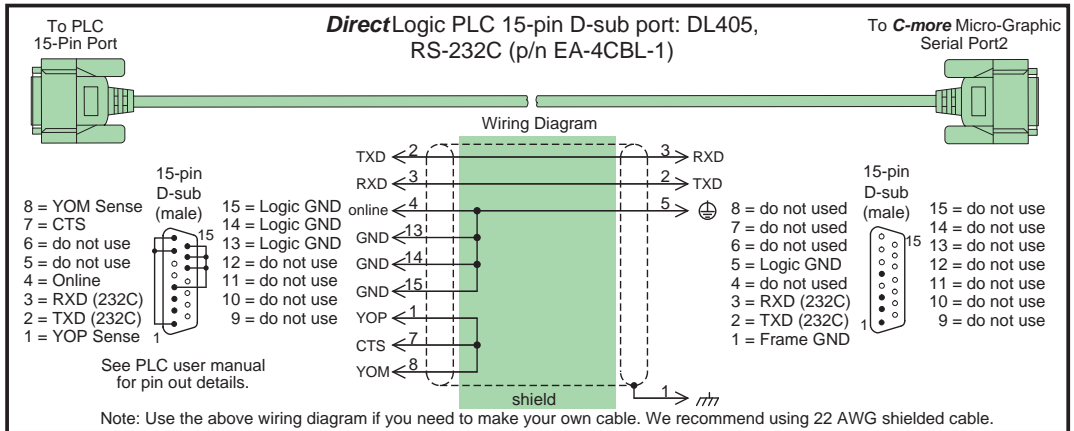
DirectLOGIC:

EA-3CBL

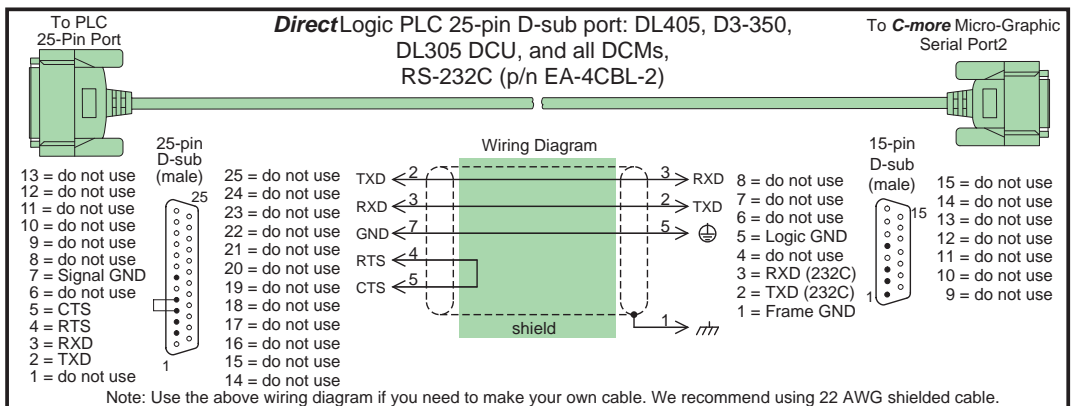


6

EA-4CBL-1

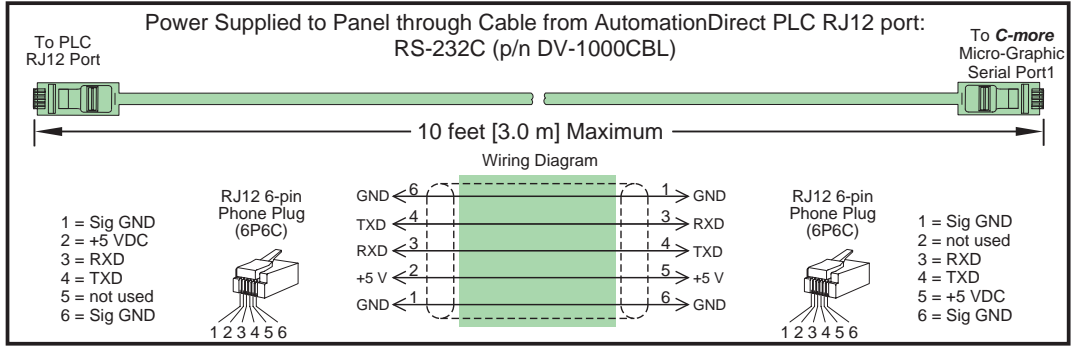


EA-4CBL-2



Cables from AutomationDirect – Wiring Diagrams (cont'd)

DV-1000CBL

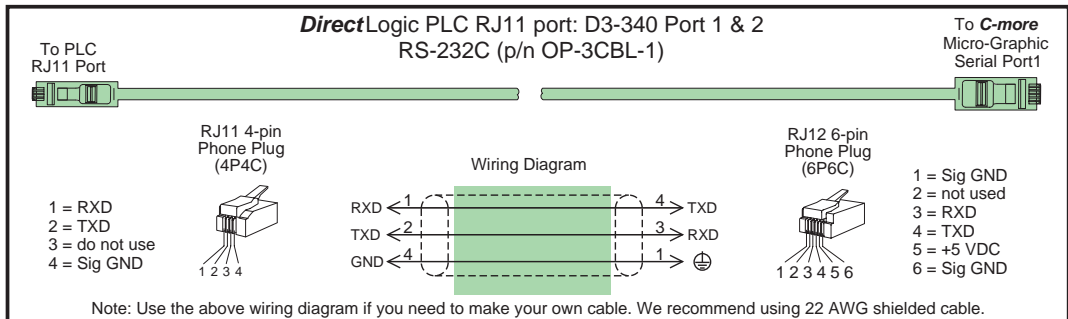


6



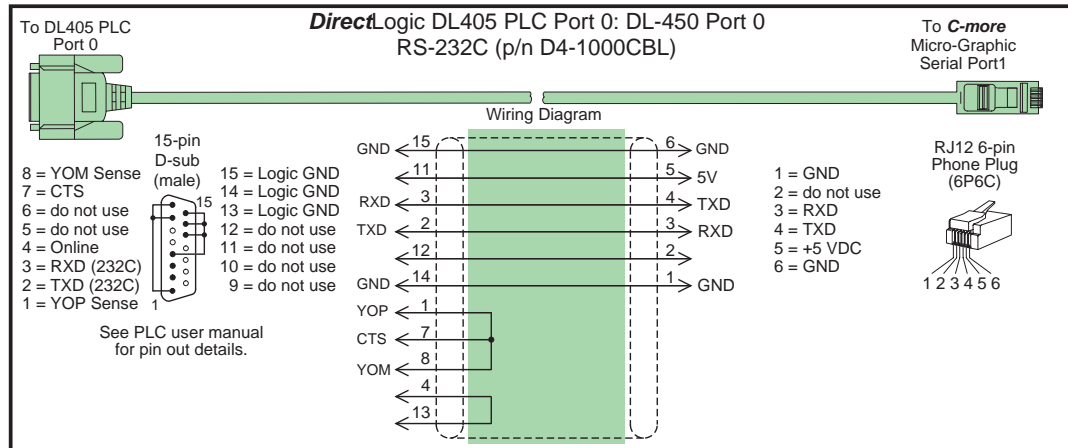
Note: Only one C-more Micro-Graphic panel can be powered by an AutomationDirect PLC. If connecting C-more Micro-Graphic panels to more than one port on an AutomationDirect PLC, the additional panel must use an external power supply.

OP-3CBL-1



Note: Use the above wiring diagram if you need to make your own cable. We recommend using 22 AWG shielded cable.

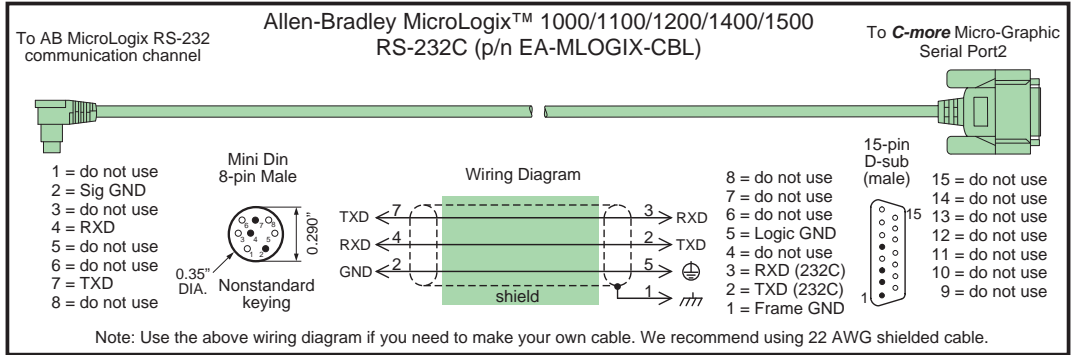
D4-1000CBL



Cables from AutomationDirect - Wiring Diagrams (cont'd)

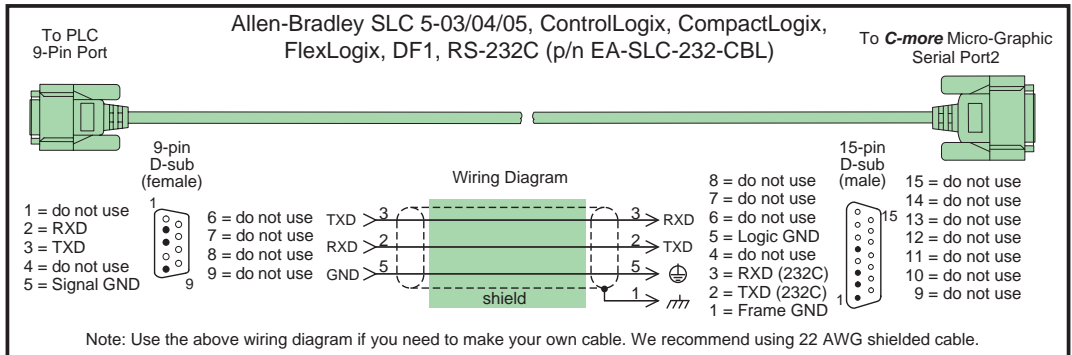
Allen-Bradley:

EA-MLOGIX-CBL

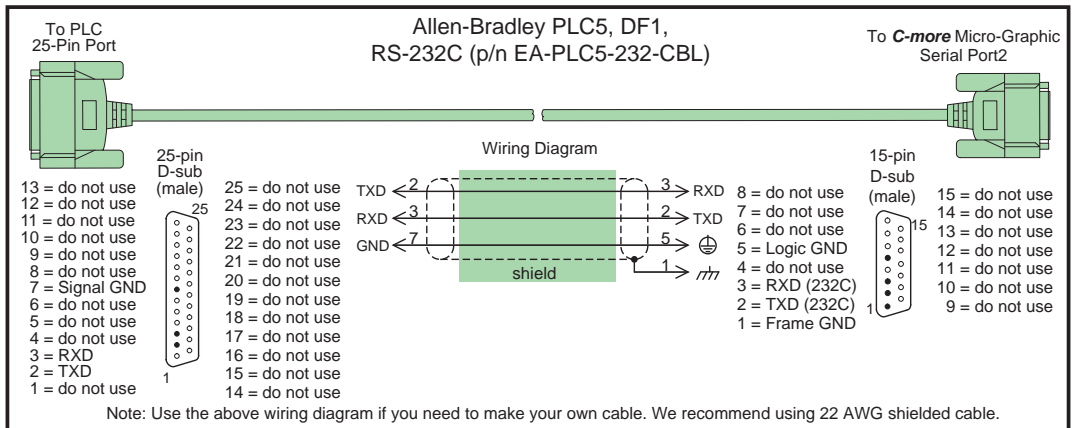


6

EA-SLC-232-CBL



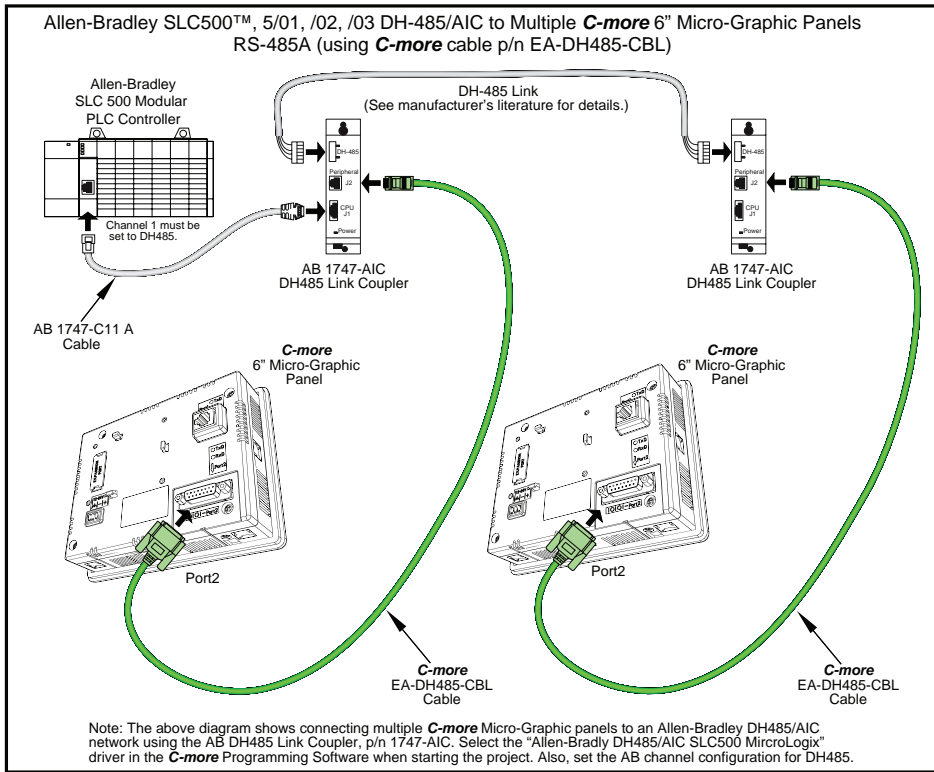
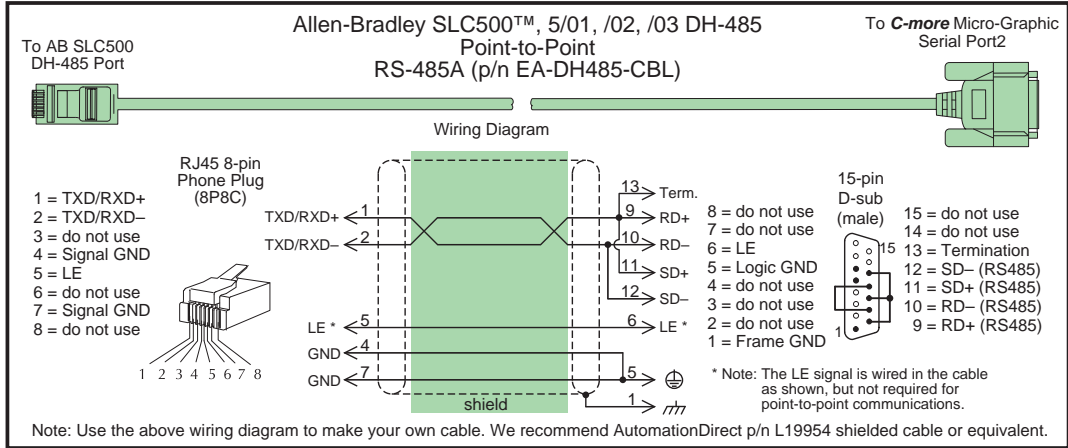
EA-PLC5-232-CBL



Cables from AutomationDirect - Wiring Diagrams (cont'd)

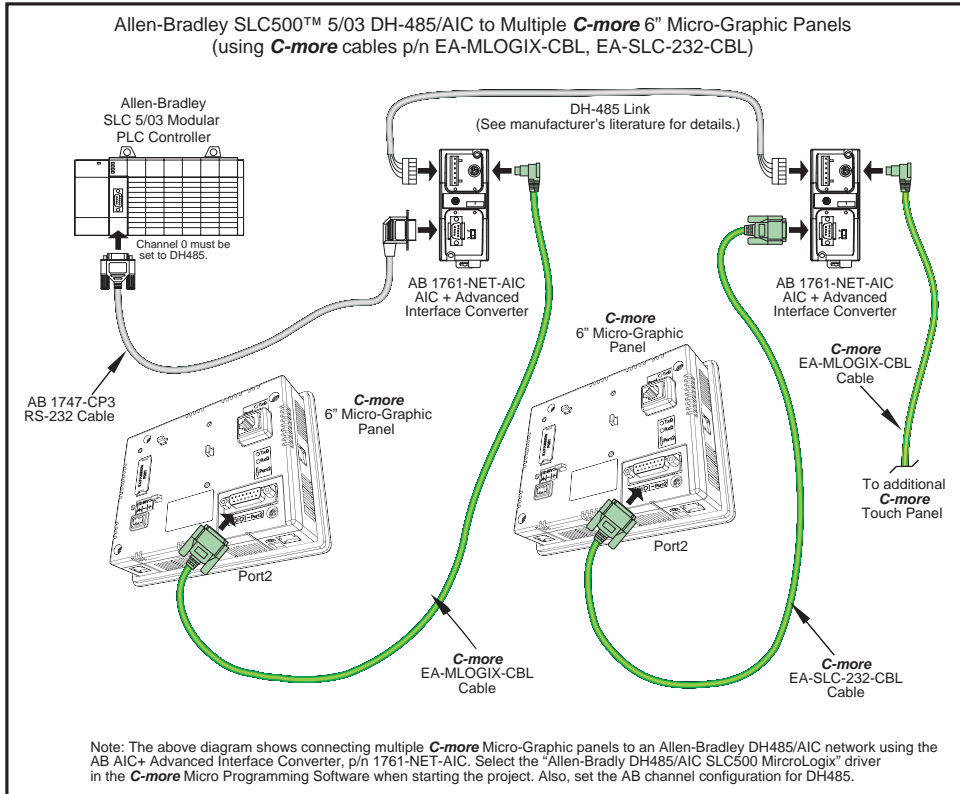
Allen-Bradley:

EA-DH485-CBL



Cables from AutomationDirect - Wiring Diagrams (cont'd)

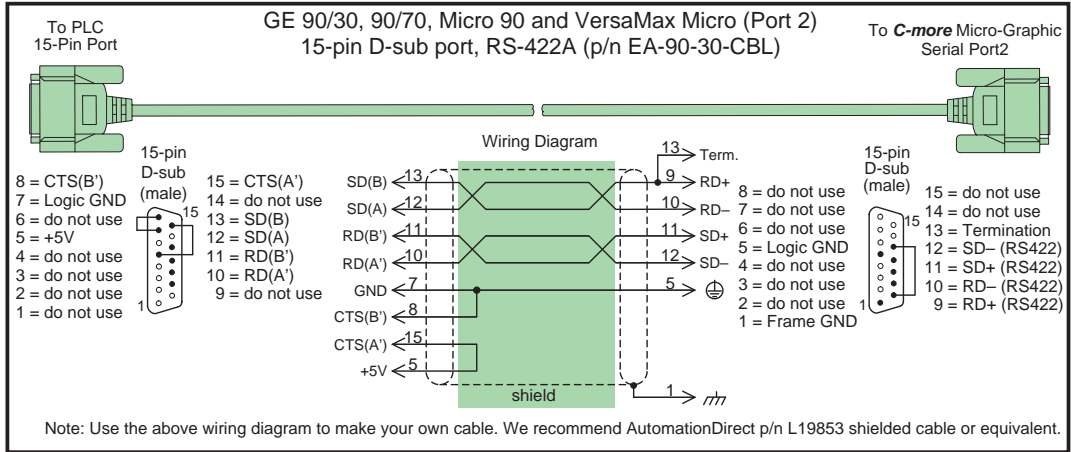
Allen-Bradley:



Cables from AutomationDirect - Wiring Diagrams (cont'd)

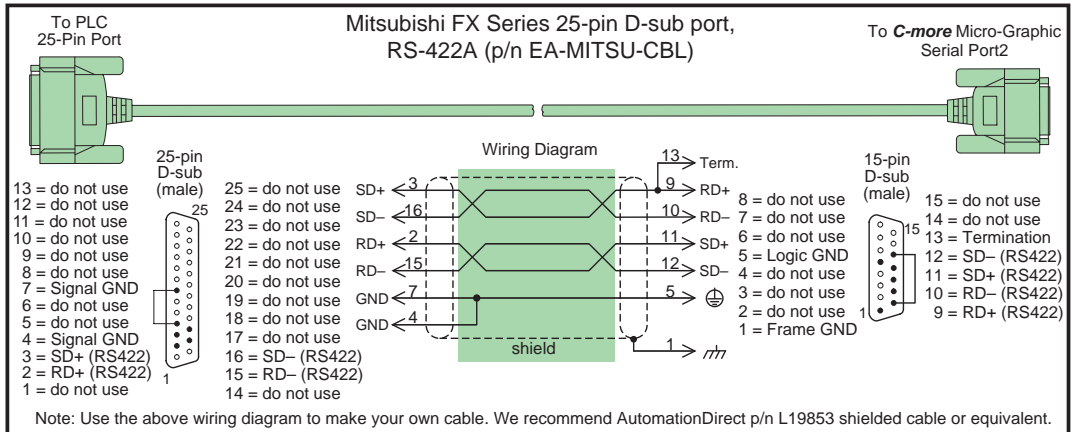
GE:

EA-90-30-CBL



Mitsubishi:

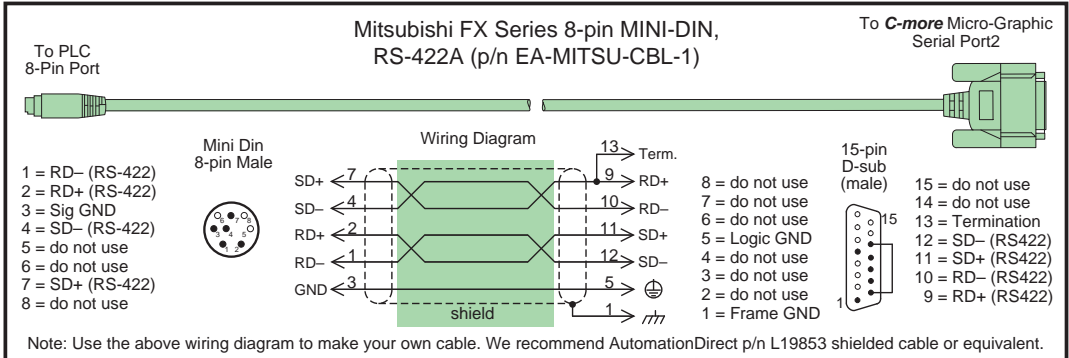
EA-MITSU-CBL



Cables from AutomationDirect - Wiring Diagrams (cont'd)

Mitsubishi:

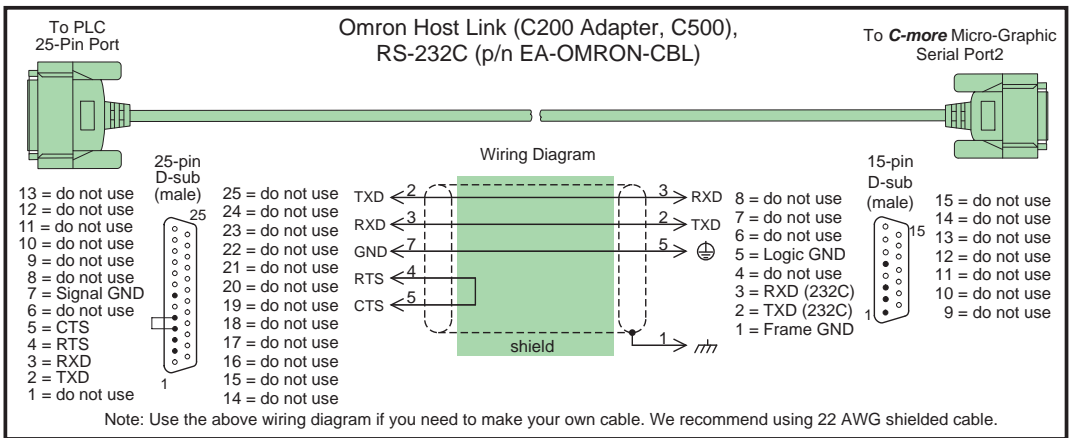
EA-MITSU-CBL-1



6

Omron:

EA-OMRON-CBL



User Constructed Cables – Wiring Diagrams

Diagram 1

User Constructed

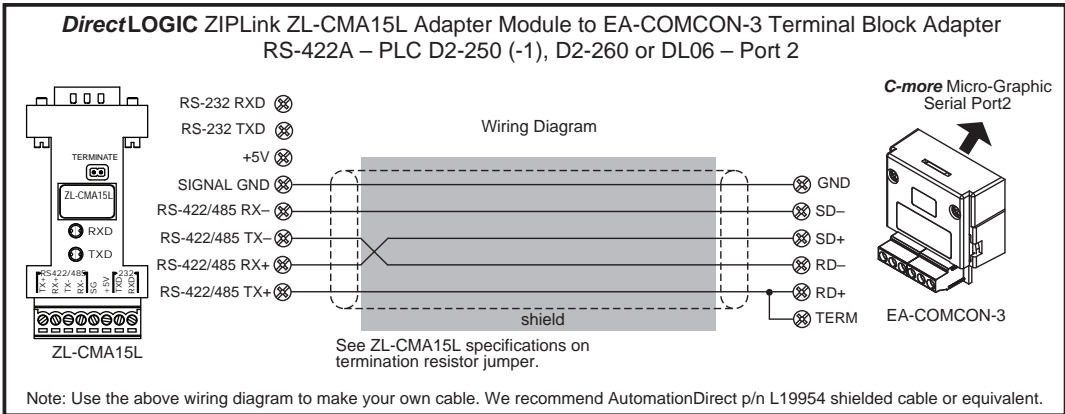
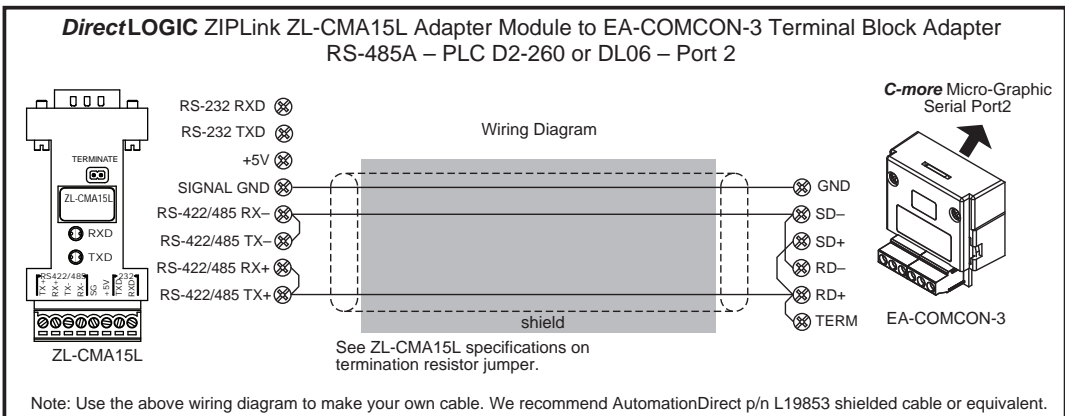


Diagram 2

User Constructed

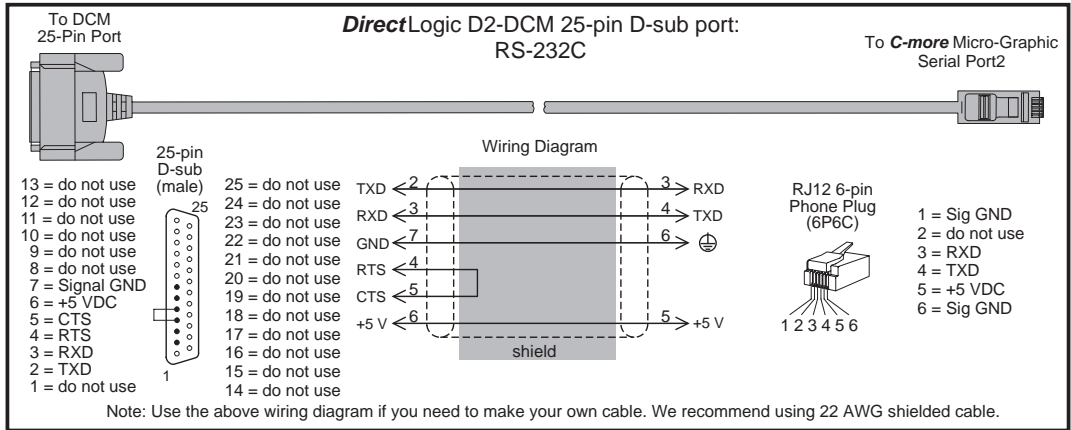


NOTE: The RS-422 and RS-485 wiring diagrams shown above are not for multi-drop networks involving connecting more than one PLC to a panel. Refer to the wiring diagram examples starting on page 6-34 if more than one PLC will be connected to a panel.

User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 3

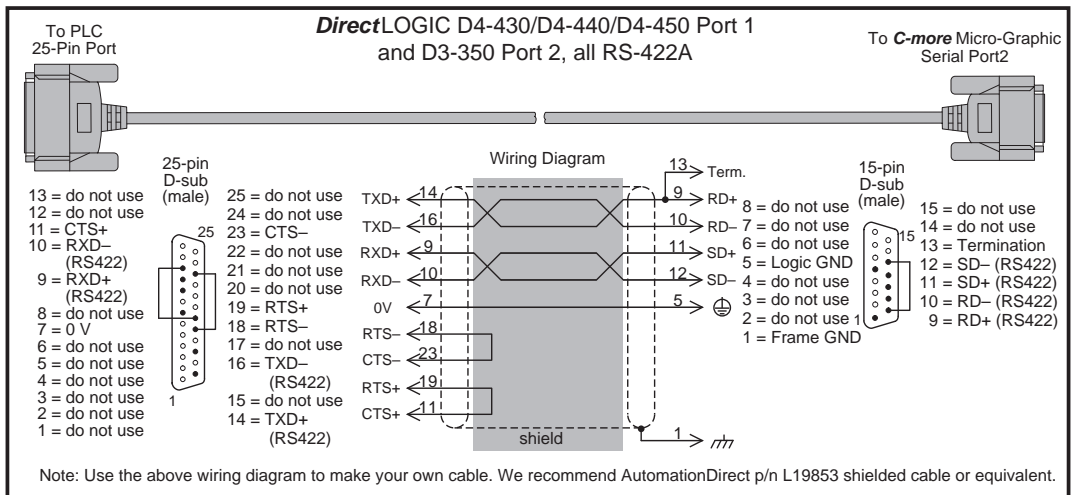
User Constructed



6

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

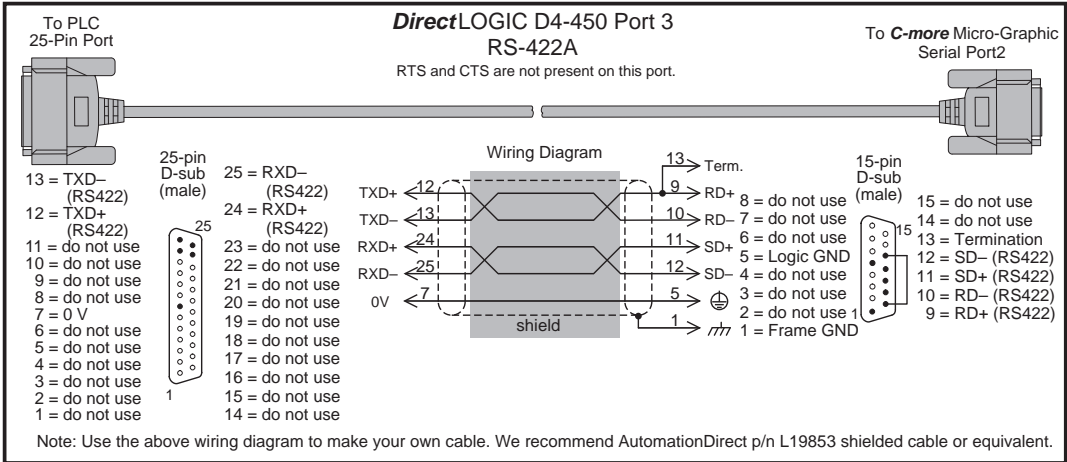
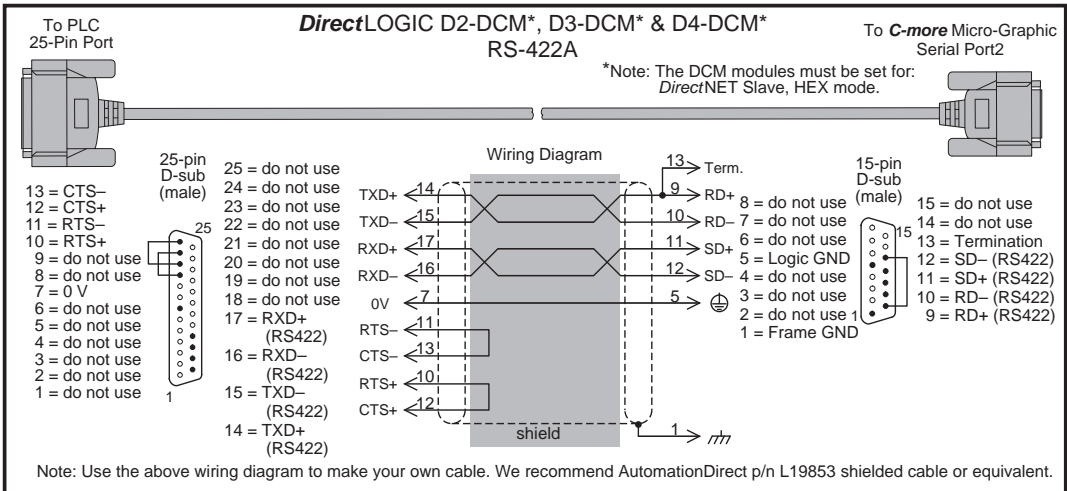


Diagram 6

User Constructed

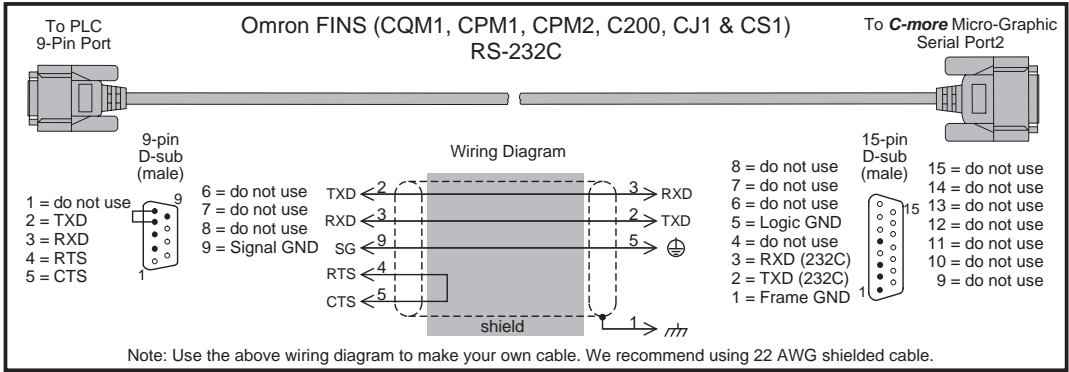


NOTE: The RS-422 wiring diagrams shown above are not for multi-drop networks involving connecting more than one PLC to a panel. Refer to the wiring diagram examples starting on page 6-34 if more than one PLC will be connected to a panel.

User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 7

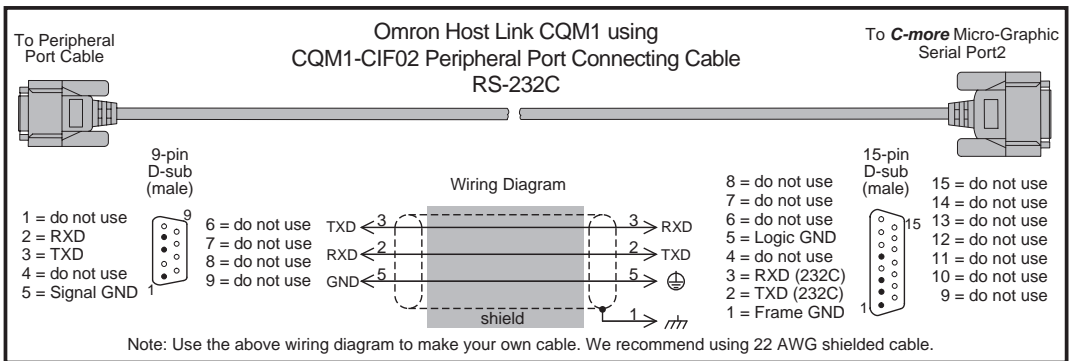
User Constructed



6

Diagram 8

User Constructed



User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 9

User Constructed

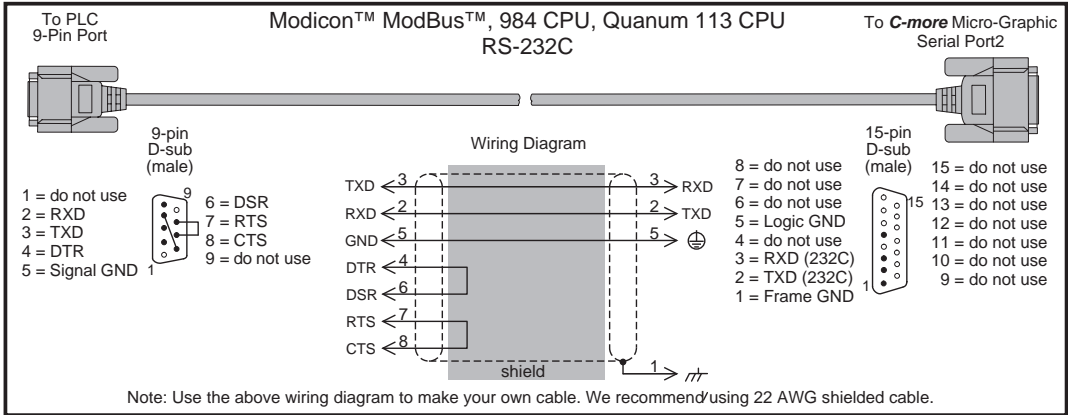
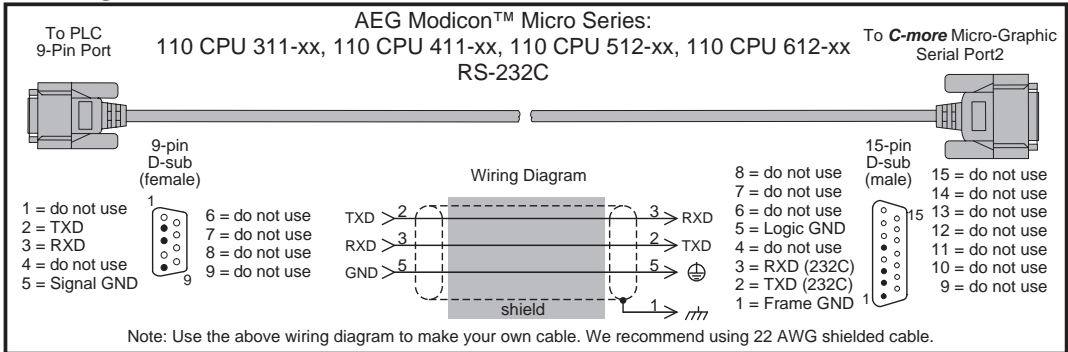


Diagram 10

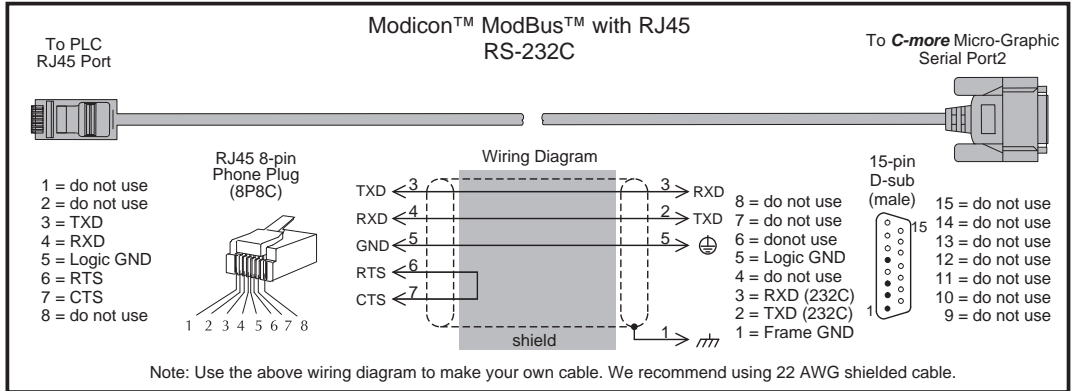
User Constructed



User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 11

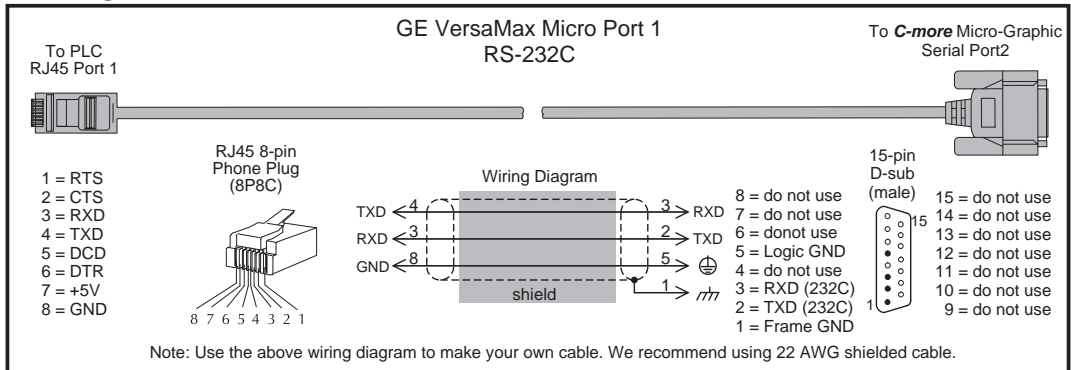
User Constructed



6

Diagram 12

User Constructed



User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 13

User Constructed

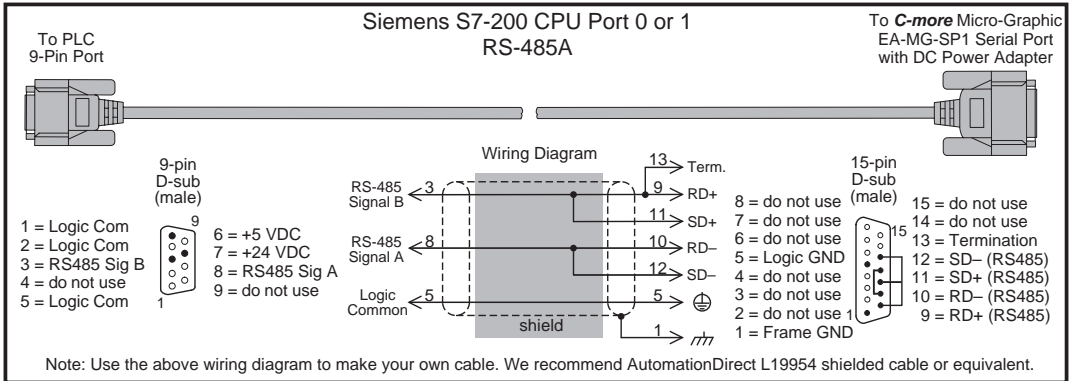
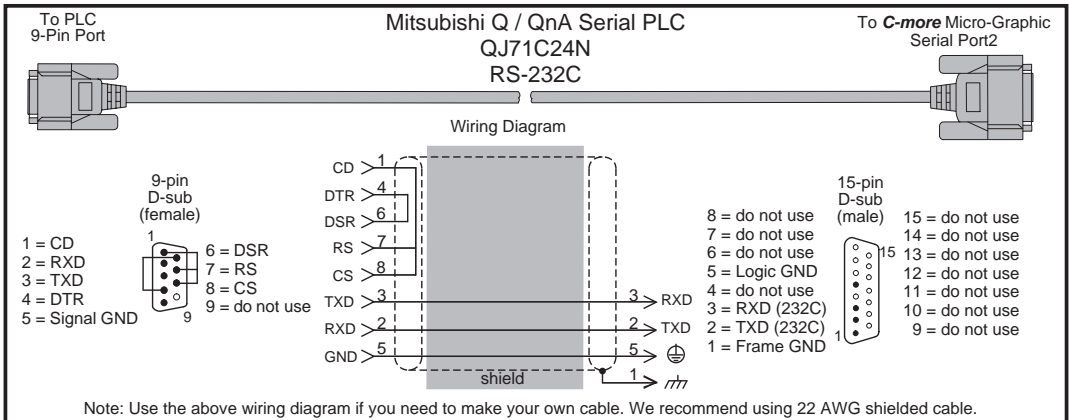


Diagram 14

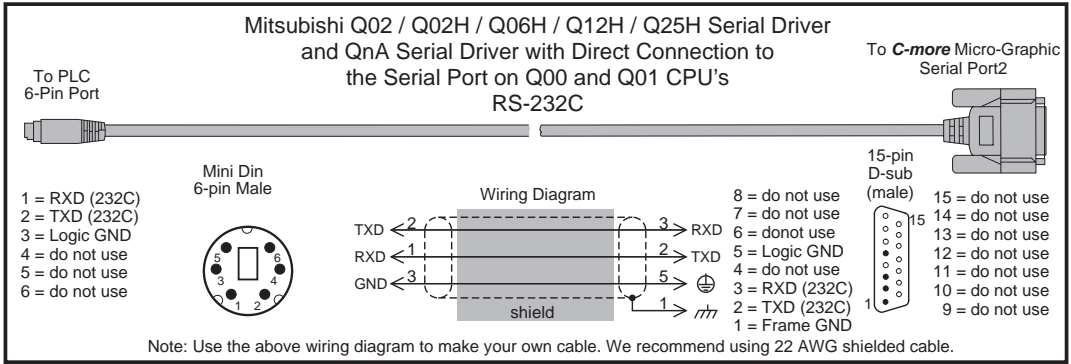
User Constructed



User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 15

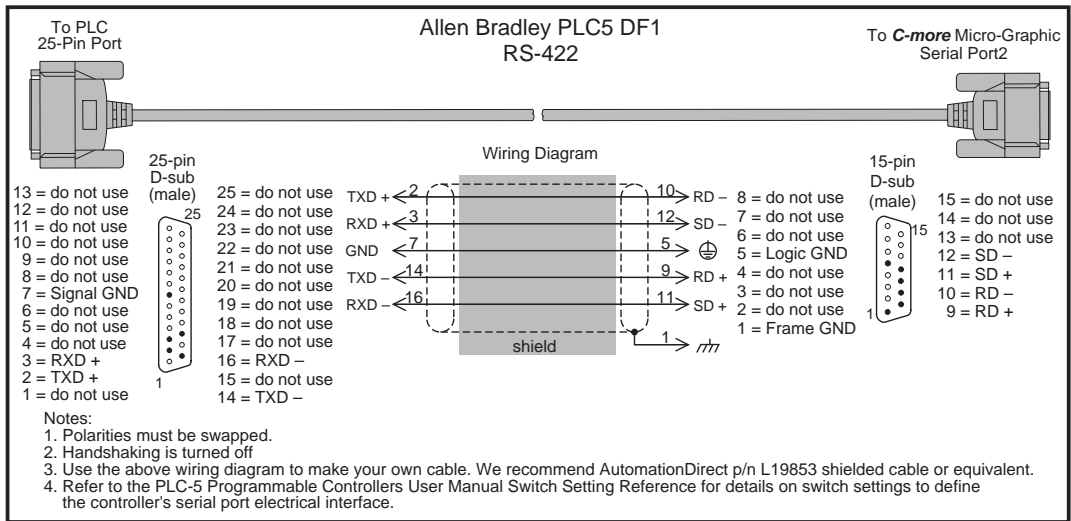
User Constructed



6

Diagram 16

User Constructed



User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 17

User Constructed

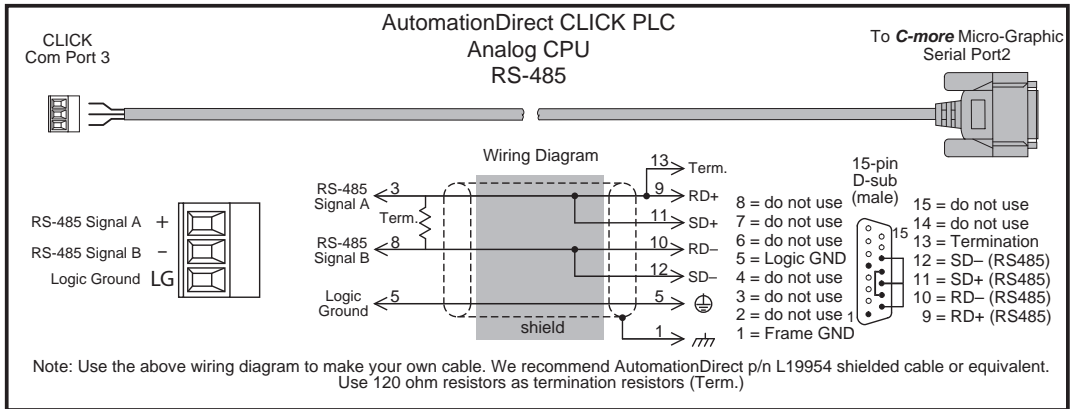


Diagram 18

User Constructed

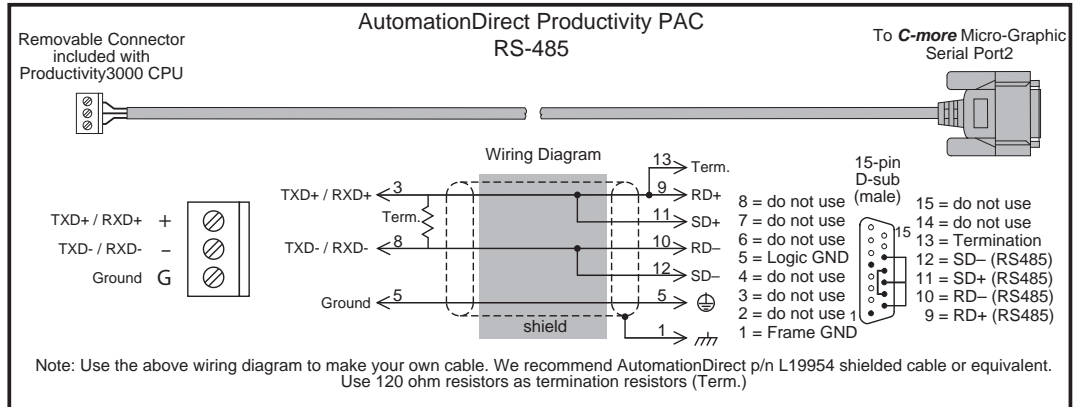
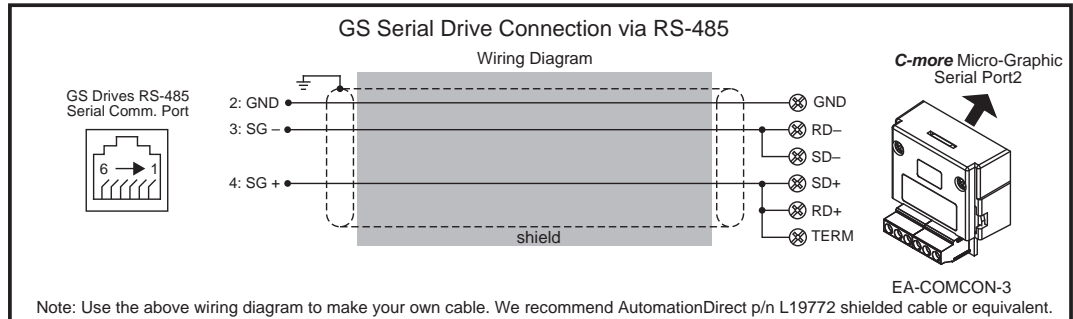


Diagram 19

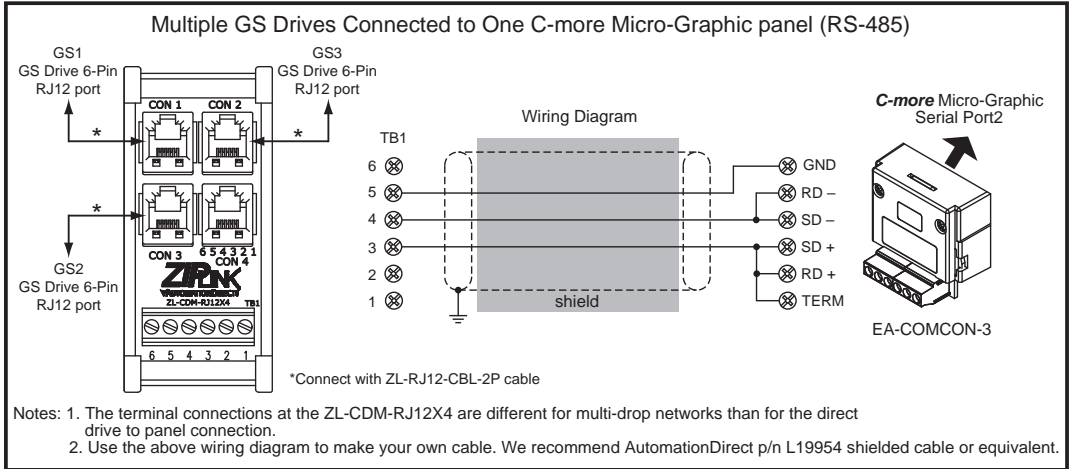
User Constructed



User Constructed Cables – Wiring Diagrams (cont'd)

Diagram 20

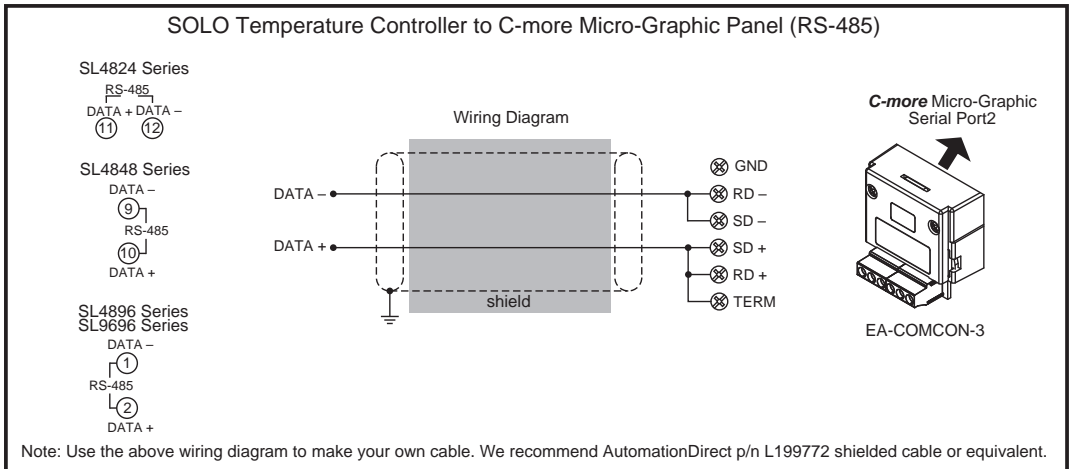
User Constructed



6

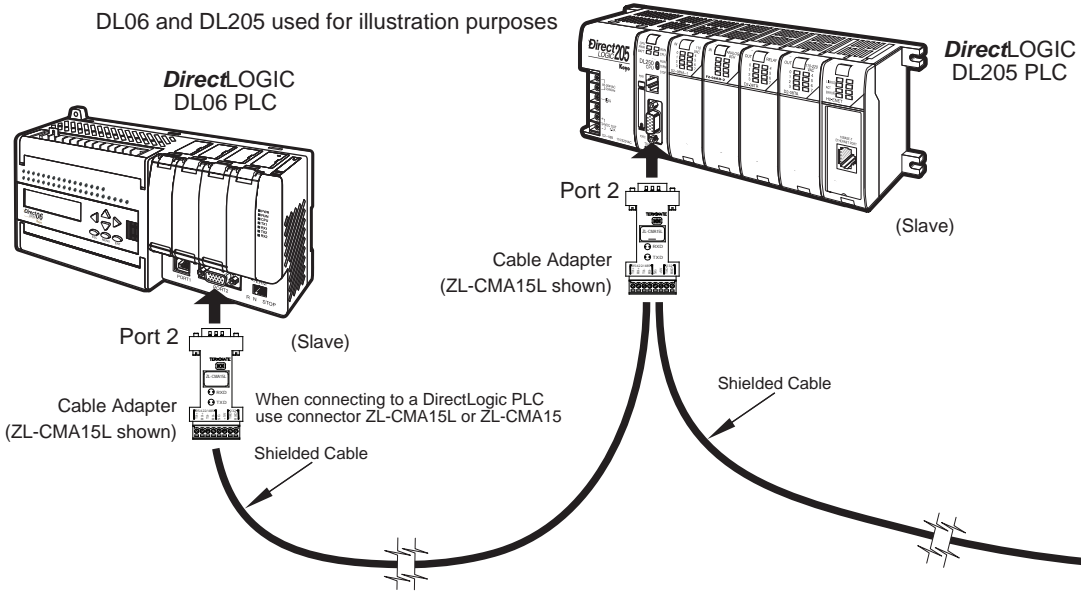
Diagram 21

User Constructed

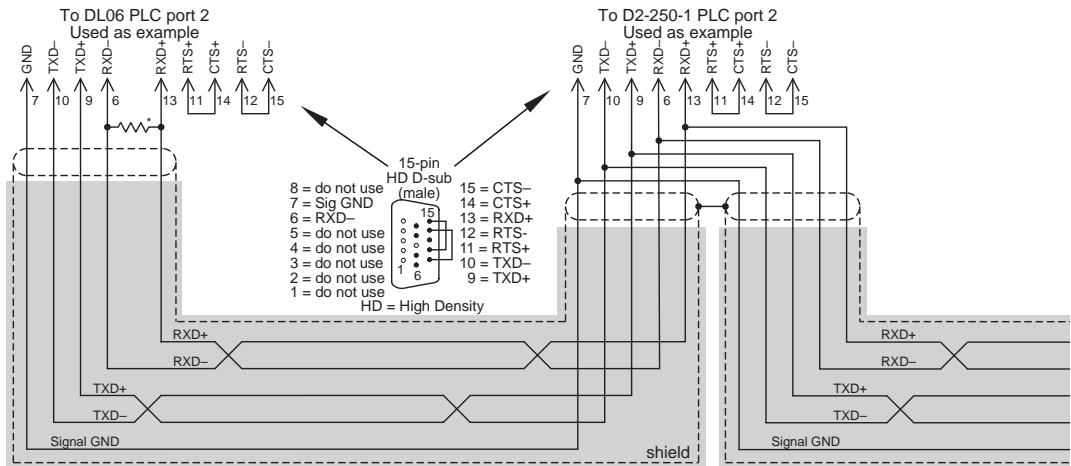


RS-422A/RS-485A Multi-Drop Wiring Diagram Examples

DL06 and DL205 used for illustration purposes



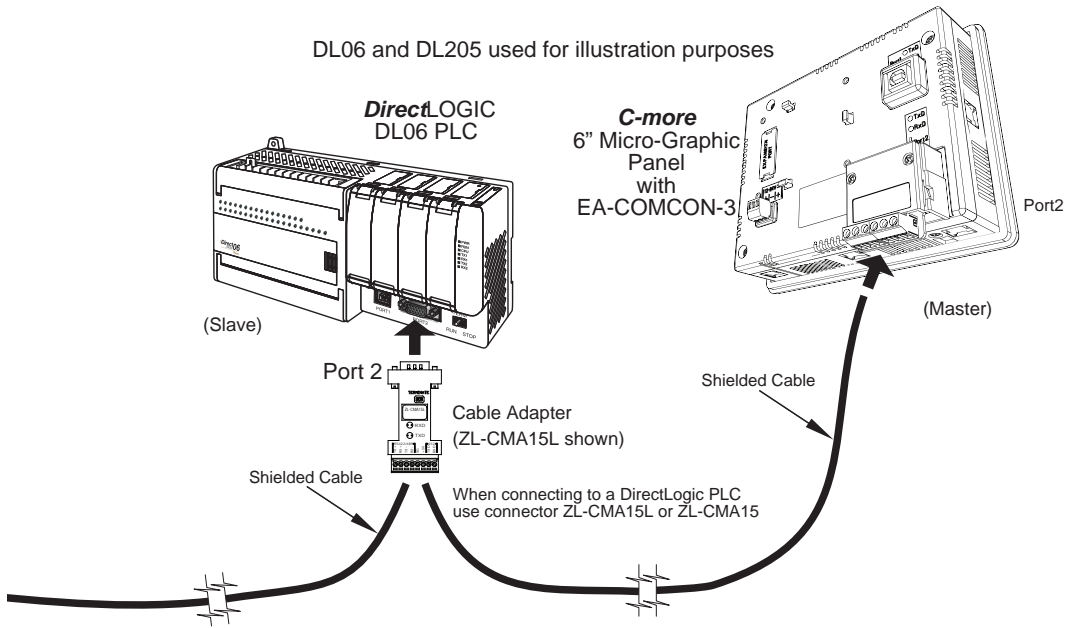
- Notes: 1. We recommend Belden 8103 shielded cable or equivalent.
- 2. Wiring Diagram for this example, ZL-CMA15(L)



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

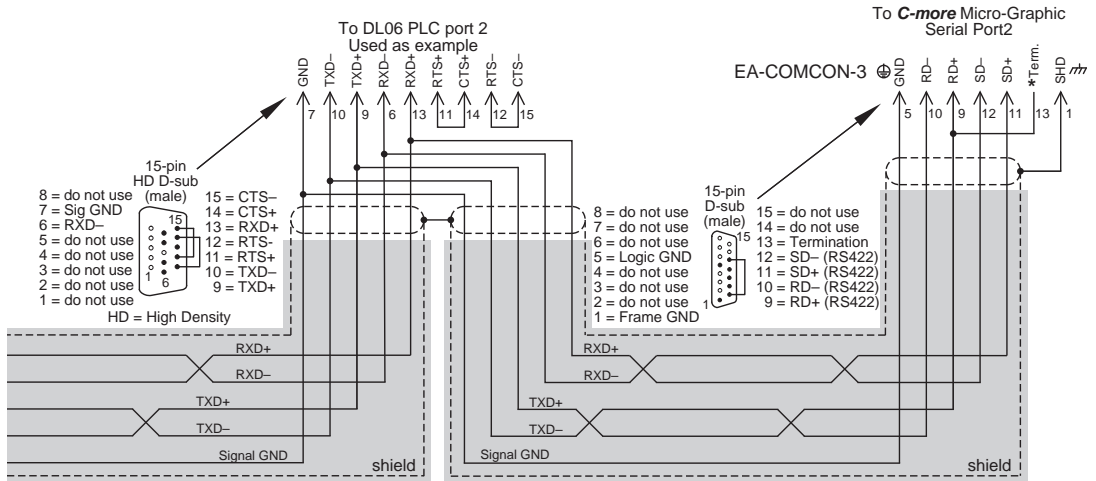
Typical RS-422 Multi-Drop Wiring Diagram using DirectLogic pin numbers to illustrate

RS-422A/RS-485A Multi-Drop Wiring Diagram Examples (cont'd)



6

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



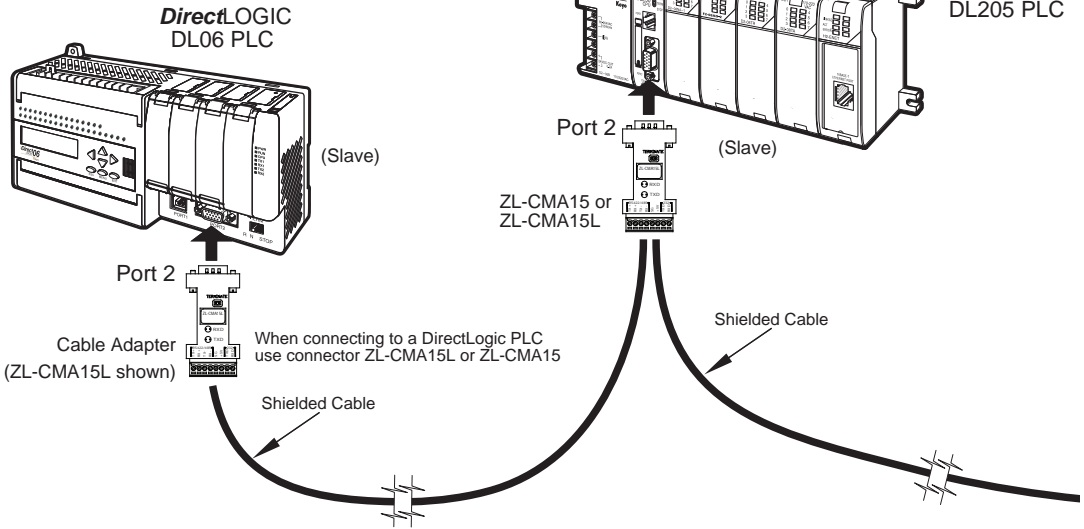
* Termination resistors required at both ends of the network receive data signals to match the impedance of the cable (between 100 and 500 ohms). Jumper pin 13 to 9 on the **C-more** 6" Micro-Graphic Serial Port2 15-pin connector to place the 120Ω internal resistor into the network. If the cable impedance 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-422A/RS-485A Multi-Drop Wiring Diagram Examples (cont'd)

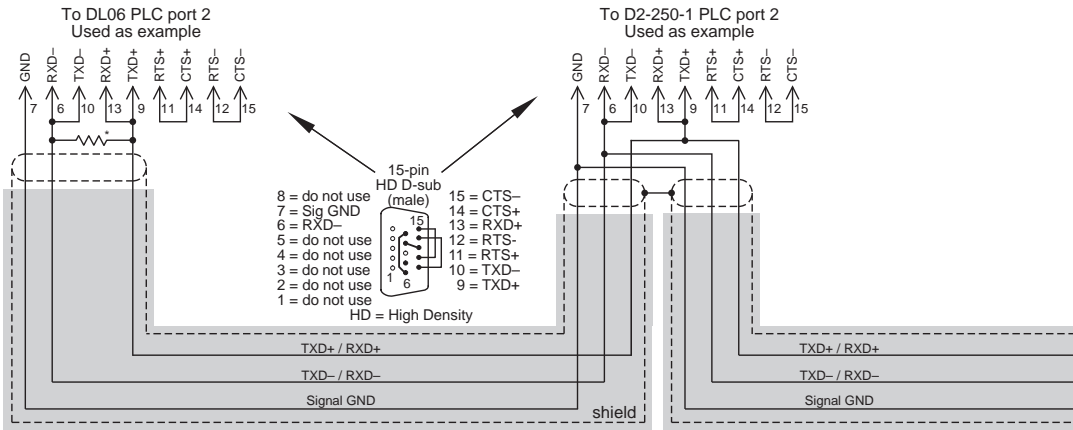
DL06 and DL205 used for illustration purposes

DirectLOGIC
DL205 PLC



6

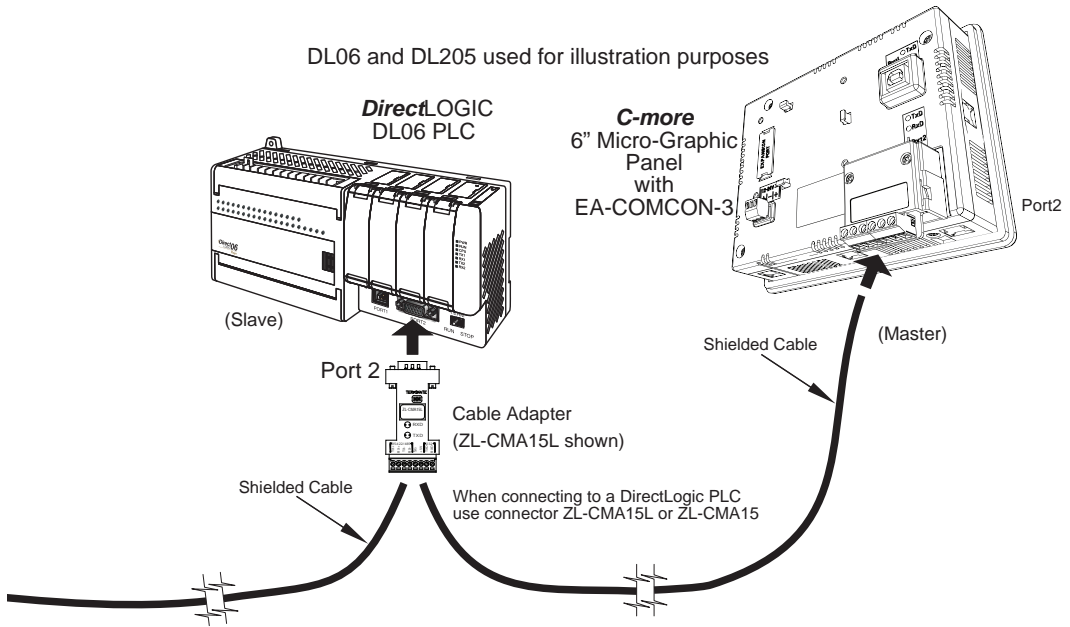
- Notes: 1. We recommend Belden 9842 shielded cable or equivalent.
- 2. Wiring Diagram for this example, ZL-CMA15(L)



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

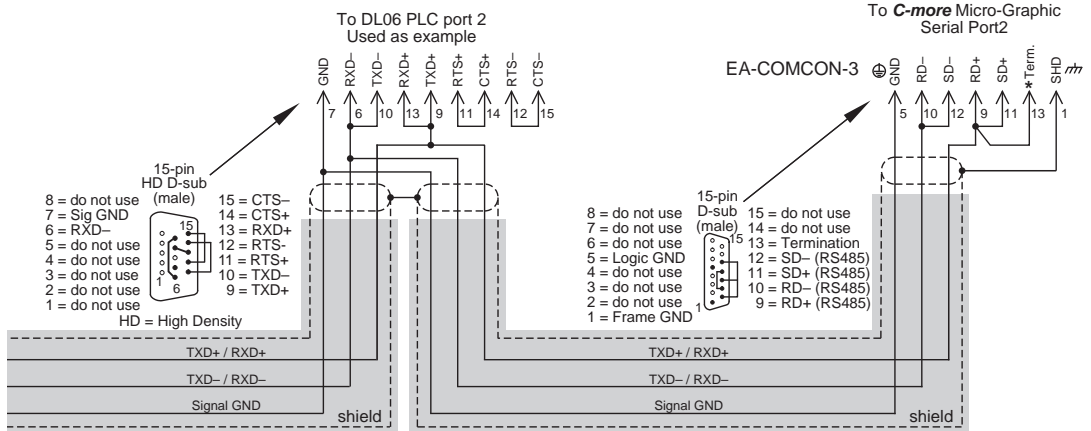
Typical RS-485 Multi-Drop Wiring Diagram
using DirectLogic pin numbers to illustrate

RS-422A/RS-485A Multi-Drop Wiring Diagram Examples (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