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**Introduction**

The **C-more** family of touch panels is capable of communicating with a wide variety of Programmable Logic Controllers. **C-more** is capable of communicating over RS232, RS422 and RS485 serial networks as well as Ethernet networks. It communicates with all AutomationDirect PLC’s utilizing various protocols. **C-more** also communicates with other brands of PLCs by their different protocols. The table on the next page lists all of the various PLCs and protocols that can be configured. The page after the protocol table lists the various serial communication cables that are available to purchase. The rest of this chapter is devoted to showing the pin to pin connections of all the available cables plus wiring diagrams that the user can refer to in order to construct their own cables, along with wiring diagrams of cables that are not available for purchase. To simplify RS422/RS485 wiring schemes, we have included wiring diagrams showing connections for available terminal connectors such as our ZIPLink Communication Adapter Module, p/n ZL-CMA15, used for example with our DL-06 and D2-260 PLCs.

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

**DirectLOGIC PLCs Password Protection**

*NOTE:* Many 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 seven numeric characters (e.g. A1234567). Please refer to the specific PLC user manual for further details.
# PLC Protocol & Cables

<table>
<thead>
<tr>
<th>Model</th>
<th>Protocols</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity Series</td>
<td>Productivity Serial</td>
</tr>
<tr>
<td></td>
<td>Productivity Ethernet</td>
</tr>
<tr>
<td>Do-more</td>
<td>Do-more Serial</td>
</tr>
<tr>
<td></td>
<td>Do-more Ethernet</td>
</tr>
<tr>
<td>CLICK</td>
<td>Modbus (CLICK)</td>
</tr>
<tr>
<td>DL05/DL06</td>
<td>K-Sequence</td>
</tr>
<tr>
<td></td>
<td>Direct NET</td>
</tr>
<tr>
<td></td>
<td>Modbus (Koyo addressing)</td>
</tr>
<tr>
<td>H0-ECOM/H0-ECOM100</td>
<td>Direct LOGIC Ethernet</td>
</tr>
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<td>DL105</td>
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<td>DL205</td>
<td>D2-230 K-Sequence</td>
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<td></td>
<td>D2-240 Direct NET</td>
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<tr>
<td>D2-250/D2-250-1/D2-260</td>
<td>Direct NET Modbus (Koyo addressing)</td>
</tr>
<tr>
<td>D2-240/D2-250-1/D2-260 Using DCM</td>
<td>Direct NET K-Sequence</td>
</tr>
<tr>
<td>H2-ECOM/H2-ECOM100</td>
<td>Direct LOGIC Ethernet</td>
</tr>
<tr>
<td>DL305</td>
<td>D3-330/330P (Requires the use of a Data Communications Unit) Direct NET</td>
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<tr>
<td>D3-340</td>
<td>K-Sequence</td>
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<td>D3-350</td>
<td>Direct NET</td>
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<tr>
<td>D3-350 DCM</td>
<td>Modbus (Koyo addressing)</td>
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<tr>
<td>DL405</td>
<td>D4-430 K-Sequence</td>
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<td>D4-440</td>
<td>Direct NET</td>
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<tr>
<td>D4-450</td>
<td>K-Sequence</td>
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<tr>
<td></td>
<td>Direct NET</td>
</tr>
<tr>
<td></td>
<td>Modbus (Koyo addressing)</td>
</tr>
<tr>
<td>H4-ECOM/H4-ECOM100</td>
<td>Direct LOGIC Ethernet</td>
</tr>
<tr>
<td>H2-WinPLC (Think &amp; Do) Live V5.2 or later</td>
<td>Think &amp; Do Modbus RTU (serial port)</td>
</tr>
<tr>
<td>H2-WinPLC (Think &amp; Do) Live V5.5.1 or later and Studio V7.2.1 or later</td>
<td>Think &amp; Do Modbus TCP/IP (Ethernet port)</td>
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<tr>
<td>GS Drives</td>
<td>GS Drives Serial</td>
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<td></td>
<td>GS Drives TCP/IP (GS-EDRV)</td>
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<td>SOLO Temperature Controllers</td>
<td>SOLO Temperature Controller</td>
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## PLC Protocol & Cables (cont’d)

<table>
<thead>
<tr>
<th>Model</th>
<th>Compatibility Table (cont’d)</th>
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<tbody>
<tr>
<td>Allen-Bradley</td>
<td>MicroLogix 1000, 1100, 1200, 1400, 1500, SLC 5-01/02/03</td>
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<tr>
<td></td>
<td>MicroLogix 1000, 1100, 1200, 1400 and 1500</td>
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<tr>
<td></td>
<td>SLC 5-03/04/05</td>
</tr>
<tr>
<td></td>
<td>ControlLogix™, CompactLogix™, FlexLogix™</td>
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<tr>
<td></td>
<td>PLC-5</td>
</tr>
<tr>
<td></td>
<td>ControlLogix, CompactLogix, FlexLogix - Tag Based</td>
</tr>
<tr>
<td></td>
<td>ControlLogix, CompactLogix, FlexLogix - Generic I/O Messaging</td>
</tr>
<tr>
<td></td>
<td>ControlLogix, CompactLogix, FlexLogix - Tag Based</td>
</tr>
<tr>
<td></td>
<td>MicroLogix 1100, 1400 and SLC 5/05, via native Ethernet port</td>
</tr>
<tr>
<td></td>
<td>MicroLogix 1000, 1100, 1200, 1400, 1500, SLC 5-03/04/05, all via ENI adapter</td>
</tr>
<tr>
<td>GE</td>
<td>90/30, 90/70. Micro 90, VersaMax Micro</td>
</tr>
<tr>
<td></td>
<td>90/30, Rxi</td>
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<tr>
<td>Mitsubishi</td>
<td>FX Series</td>
</tr>
<tr>
<td></td>
<td>Q02, Q02H, Q06H, Q12H, Q25H</td>
</tr>
<tr>
<td></td>
<td>Q, QnA Serial</td>
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<tr>
<td></td>
<td>Q, Qna Ethernet</td>
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<td></td>
<td>984 CPU, Quantum 113 CPU, AEG Modicon Micro Series 110 CPU: 311-xx, 411-xx, 512-xx, 612-xx</td>
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<tr>
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<td>Other devices using Modicon Modbus addressing</td>
</tr>
<tr>
<td>Modicon</td>
<td>984 CPU, Quantum 113 CPU, AEG Modicon Micro Series 110 CPU: 311-xx, 411-xx, 512-xx, 612-xx</td>
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<tr>
<td></td>
<td>Modbus RTU</td>
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<td>Modbus RTU</td>
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<td>Modbus TCP/IP</td>
</tr>
<tr>
<td>Omron</td>
<td>C200 Adapter, C500</td>
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<td></td>
<td>CJ1/CS1 Serial</td>
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<tr>
<td></td>
<td>CJ1/CS1 Ethernet</td>
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<tr>
<td>Siemens</td>
<td>S7-200 CPU, RS-485 Serial</td>
</tr>
<tr>
<td></td>
<td>S7-200 CPU, S7-300 CPU; Ethernet</td>
</tr>
</tbody>
</table>

Protocols:
- DH485/AIC/AIC+
- DF1 Half Duplex; DF1 Full Duplex
- DF1 Full Duplex
- EtherNet/IP Server
- EtherNet/IP Client
- SNPX
- SRTP Ethernet
- FX Direct
- Q CPU
- QnA Serial
- QnA Ethernet
- Modbus RTU
- Modbus TCP/IP
- Host Link
- FINS
- PPI
- Ethernet ISO over TCP
PLC Communication Cables & Wiring Diagrams

<table>
<thead>
<tr>
<th>Cable Description</th>
<th>Cable Part No.</th>
<th>Cable Description</th>
<th>Cable Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cables used with 15-pin RS-232/422/485 serial Port1</td>
<td></td>
<td>Cables used with RJ12 RS-232 serial Port3</td>
<td></td>
</tr>
<tr>
<td>AutomationDirect Productivity Series, Do-more, CLICK, Direct LOGIC PLC RJ-12 port, DL05, DL06, DL105, DL205, D3-350, D4-450 &amp; H2-WinPLC (RS-232C) 3m (9.8 ft) cable length</td>
<td>EA-2CBL</td>
<td>AutomationDirect Productivity Series, Do-more, CLICK, Direct LOGIC PLC RJ-12 port, DL05, DL06, DL105, DL205, D3-350, D4-450 &amp; H2-WinPLC (RS-232C) 3.66m (12ft) cable length</td>
<td>D0-CBL</td>
</tr>
<tr>
<td>Direct LOGIC (VGA Style) 15-pin port, DL06, D2-250 (250-1), D2-260 (RS-232C) 3m (9.8 ft) cable length</td>
<td>EA-2CBL-1</td>
<td>Direct LOGIC (VGA Style) 15-pin port, DL06, D2-250 (250-1), D2-260 (RS-232C). Use with DO-CBL cable.</td>
<td>FA-15HD</td>
</tr>
<tr>
<td>Direct LOGIC PLC RJ-11 port, D3-340 (RS-232C) 3m (9.8 ft) cable length</td>
<td>EA-3CBL</td>
<td>Direct LOGIC PLC 15-pin D-sub port, DL405 (RS-232C) 3m (9.8 ft) cable length</td>
<td>EA-CABKIT</td>
</tr>
<tr>
<td>Direct LOGIC DL405 PLC 15-pin D-sub port, DL405 (RS-232C) 3m (9.8 ft) cable length</td>
<td>EA-4CBL-1</td>
<td>Direct LOGIC PLC RJ-11 port, D3-340 (RS-232C) 2m (6.56 ft) cable length</td>
<td>OP-3CBL-1</td>
</tr>
<tr>
<td>Direct LOGIC PLC 25-pin D-sub port, DL405, D3-350, DL305 DCU and all DCM’s (RS-232C) 3m (9.8 ft) cable length</td>
<td>EA-4CBL-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allen-Bradley MicroLogix 1000, 1100, 1200, 1400 &amp; 1500 (RS-232C) 3m (9.8 ft) cable length</td>
<td>EA-MLOGIX-CBL</td>
<td>Allen-Bradley MicroLogix 1000, 1100, 1200, 1400 &amp; 1500 (RS-232C) 3m (9.8 ft) cable length</td>
<td></td>
</tr>
<tr>
<td>Allen-Bradley SLC 5-03/04/05, ControlLogix, CompactLogix, FlexLogix DF1 port (RS-232C)</td>
<td>EA-SLC-232-CBL</td>
<td>Allen-Bradley SLC 5-01/02/03, PLC5 DH485 port 3m (9.8 ft) cable length</td>
<td></td>
</tr>
<tr>
<td>Allen-Bradley PLC-5 DF1 port (RS-232C) 3m (9.8 ft) cable length</td>
<td>EA-PLC5-232-CBL</td>
<td>GE 90/30, 90/70, Micro 90, Versamax Micro (Port2) 15-pin D-sub port (RS-422A) 3m (9.8 ft) cable length</td>
<td>EA-90-30-CBL</td>
</tr>
<tr>
<td>Allen-Bradley SLC 5-01/02/03, PLC5 DH485 port 3m (9.8 ft) cable length</td>
<td>EA-DH485-CBL</td>
<td>MITSUBISHI FX Series 25-pin port (RS-422A) 3m (9.8 ft) cable length</td>
<td>EA-MITSU-CBL</td>
</tr>
<tr>
<td>GE 90/30, 90/70, Micro 90, Versamax Micro (Port2) 15-pin D-sub port (RS-422A) 3m (9.8 ft) cable length</td>
<td>EA-DH485-CBL</td>
<td>MITSUBISHI FX Series 8-pin mini-DIN (RS-422A) 3m (9.8 ft) cable length</td>
<td>EA-MITSU-CBL-1</td>
</tr>
<tr>
<td>MITSUBISHI FX Series 25-pin port (RS-422A) 3m (9.8 ft) cable length</td>
<td>EA-MITSU-CBL</td>
<td>OMRON Host Link (C200 Adapter, C500) (RS-232C) 3m (9.8 ft) cable length</td>
<td>EA-OMRON-CBL</td>
</tr>
<tr>
<td>MITSUBISHI FX Series 8-pin mini-DIN (RS-422A) 3m (9.8 ft) cable length</td>
<td></td>
<td>OMRON Host Link (C200 Adapter, C500) (RS-232C) 3m (9.8 ft) cable length</td>
<td></td>
</tr>
</tbody>
</table>

*Port2

RS-485 Serial Communications

*NOTE: All cables for connections at Port 2 are user constructed. Refer to the specifications of the connected device port to construct the cable properly. The connector for Port2, EA9-3TB, is included with your C-more panel.

Port1

D-Sub 15-pin female on rear of touch panel

Port3

RJ12 RS-232 Serial Communications

*NOTE: All cables for connections at Port 2 are user constructed. Refer to the specifications of the connected device port to construct the cable properly. The connector for Port2, EA9-3TB, is included with your C-more panel.
Chapter 6 - PLC Communications

Cables from AutomationDirect (cont’d)

Part No. D0-CBL
Part No. OP-3CBL-1
Part No. FA-15HD

Part No. EA-2CBL
Part No. EA-2CBL-1
Part No. FA-CABKIT

Part No. EA-4CBL-1
Part No. EA-4CBL-2
Part No. EA-3CBL

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
PLC Communication Cables & Wiring Diagrams (cont’d)

The following series of wiring diagrams show the connectors and wiring details for the communication cables that are used between the **C-more** touch panels and various PLC controllers. 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.

**AutomationDirect PLCs RS-232C Serial**

**EA-2CBL**

![Wiring Diagram for EA-2CBL](image)

<table>
<thead>
<tr>
<th>1 = Sig GND</th>
<th>2 = do not use</th>
<th>3 = RXD</th>
<th>4 = TXD</th>
<th>5 = Logic GND</th>
<th>6 = do not use</th>
<th>7 = do not use</th>
<th>8 = do not use</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 = TXD</td>
<td>3 = RXD</td>
<td>4 = TXD</td>
<td>5 = Logic GND</td>
<td>6 = do not use</td>
<td>7 = do not use</td>
<td>8 = do not use</td>
<td>9 = do not use</td>
</tr>
</tbody>
</table>

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

**EA-2CBL-1**

![Wiring Diagram for EA-2CBL-1](image)

<table>
<thead>
<tr>
<th>1 = Sig GND</th>
<th>2 = CTS</th>
<th>3 = RTS</th>
<th>4 = RXD</th>
<th>5 = TXD</th>
<th>6 = do not use</th>
<th>7 = do not use</th>
<th>8 = do not use</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 = TXD</td>
<td>3 = RXD</td>
<td>4 = TXD</td>
<td>5 = Logic GND</td>
<td>6 = do not use</td>
<td>7 = do not use</td>
<td>8 = do not use</td>
<td>9 = do not use</td>
</tr>
</tbody>
</table>

Note: Use the above wiring diagram if you need to make your own cable. We recommend using 22 AWG shielded cable.
AutomationDirect PLCs RS-232C Serial (cont’d)

**EA-3CBL**

To PLC
RJ11 Port

1 = RXD
2 = TXD
3 = do not use
4 = Sig ground

Direct Logic PLC RJ11 port: D3-340
RS-232C (p/n EA-3CBL)

**EA-4CBL-1**

To PLC
15-Pin Port

1 = RXD
2 = TXD
3 = do not use
4 = Sig ground

Direct Logic PLC 15-pin D-sub port: DL405,
RS-232C (p/n EA-4CBL-1)

Note: Use the above wiring diagram if you need to make your own cable. We recommend using 22 AWG shielded cable.
AutomationDirect PLCs RS-232C Serial (cont’d)

DirectLogic PLC 25-pin D-sub port:
- DL405, D3-350, DL305 DCU, and all DCMs,
- RS-232C (p/n EA-4CBL-2)

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

D0-CBL

D0-CBL RS-232 RJ12 to RJ12 Shielded Cable

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

OP-3CBL-1

DirectLogic PLC RJ11 port: D3-340 Port 1 & 2
- RS-232C (p/n OP-3CBL-1)

Note: Use the above wiring diagram if you need to make your own cable. We recommend using 22 AWG shielded cable.
AutomationDirect PLCs RS-422A/RS-485A

When using the RS-422A/RS-485A capabilities of the C-more 15-pin PLC communications Port1, 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 to pin 9 (RXD+) on the C-more 15-pin PLC communications Port1.

**User Constructed**

![Wiring Diagram](image)

Note: Use the above wiring diagram to make your own cable. We recommend Belden 8103 shielded cable or equivalent.

**User Constructed**

![Wiring Diagram](image)

*Note: The DCM modules must be set for: DirectNET Slave, HEX mode.*

**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 multi-drop wiring diagram examples later in this chapter if more than one PLC will be connected to a panel.
AutomationDirect PLCs RS-422A/RS-485A (cont’d)

**User Constructed**

**DirectLOGIC D4-430/D4-440/D4-450 Port 1 and D3-350 Port 2**

RS-422A

| 13 | do not use |
| 12 | do not use |
| 11 | CTS+       |
| 10 | RXD- (RS422) |
| 9  | RXD+ (RS422) |
| 8  | RXD- (RS422) |
| 7  | do not use |
| 6  | do not use |
| 5  | do not use |
| 4  | do not use |
| 3  | do not use |
| 2  | do not use |
| 1  | do not use |

**To PLC 25-Pin Port**

**Wiring Diagram**

1. **TXD+**
2. **TXD-**
3. **RXD+**
4. **RXD-**
5. **0V**
6. **RTS+**
7. **RTS-**
8. **CTS+**
9. **CTS-**

**To C-more 15-pin Port 1**

**Termination**

1. **Note:** Use the above wiring diagram to make your own cable. We recommend Belden 8103 shielded cable or equivalent.

**User Constructed**

**DirectLOGIC D4-450 Port 3**

RS-422A

| 13 | TXD- (RS422) |
| 12 | TXD+ (RS422) |
| 11 | do not use |
| 10 | do not use |
| 9  | do not use |
| 8  | do not use |
| 7  | 0 V |
| 6  | do not use |
| 5  | do not use |
| 4  | do not use |
| 3  | do not use |
| 2  | do not use |
| 1  | do not use |

**To PLC 25-Pin Port**

**Wiring Diagram**

1. **TXD+**
2. **TXD-**
3. **RXD+**
4. **RXD-**
5. **0V**

**To C-more 15-pin Port 1**

| 15 | do not use |
| 14 | do not use |
| 13 | Termination |
| 12 | SD+ (RS422) |
| 11 | SD- (RS422) |
| 10 | RD- (RS422) |
| 9  | RD+ (RS422) |

**Note:** Use the above wiring diagram to make your own cable. We recommend Belden 8103 shielded cable or equivalent.

**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 multi-drop wiring diagram examples later in this chapter if more than one PLC will be connected to a panel.
AutomationDirect PLCs RS-422A/RS-485A (cont’d)

User Constructed

To PLC 15-Pin Port

Direct LOGIC DL-06, D2-260 (both Port 2)
RS-485A

To C-more 15-pin Port

Note: Use the above wiring diagram to make your own cable. We recommend Belden 9842 shielded cable or equivalent.

NOTE: The RS-485 wiring diagram shown above is not for multi-drop networks involving connecting more than one PLC to a panel. Refer to the multi-drop wiring diagram examples later in this chapter if more than one PLC will be connected to a panel.
AutomationDirect PLCs RS-422A/RS-485A (cont’d)

User Constructed

DirectLOGIC ZIPLink ZL-CMA15L Adapter Module to EA-COMCON-3 Terminal Block Adapter
RS-485A – PLC D2-260 or DL06 only – Port 2

Wiring Diagram

Note: Use the above wiring diagram to make your own cable. We recommend Belden 8103 shielded cable or equivalent.

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 multi-drop wiring diagram examples later in this chapter if more than one PLC will be connected to a panel.

*NOTE: EA-COMCON-3 will install only on EA9-T6CL, EA9-T6CL-R, EA9-T7CL and EA9-T7CL-R panels
AutomationDirect PLCs RS-422A/RS-485A (cont’d)

**User Constructed**

Productivity PLC RS485 Port to EA-COMCON-3 Terminal Block Adapter

Wiring Diagram

```
SIGNAL GND
TXD / RXD -
TXD / RXD +
Productivity PS485 Port

* 120 Ω resistor
```

Note: Use the above wiring diagram to make your own cable. We recommend Belden 9842 shielded cable or equivalent.

**User Constructed**

AutomationDirect Productivity PLC RS-485

```
TXD+ / RXD+
TXD- / RXD-
Ground

Removable Connector included with Productivity CPU
```

```
Wiring Diagram

1 = Frame GND
2 = do not use
3 = do not use
4 = do not use
5 = Logic GND
6 = do not use
7 = do not use
8 = do not use
9 = RD+ (RS485)
10 = RD– (RS485)
11 = SD+ (RS485)
12 = SD– (RS485)
13 = Termination
14 = do not use
15 = do not use

NOTE: Use 120 ohm resistors as termination resistors (Term.).
```

**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 multi-drop wiring diagram examples later in this chapter if more than one PLC will be connected to a panel.

* **NOTE:** EA-COMCON-3 will install only on EA9-T6CL, EA9-T6CL-R, EA9-T7CL and EA9-T7CL-R panels
AutomationDirect PLCs RS-422A/RS-485A (cont’d)

User Constructed

![Wiring Diagram]

**NOTE:** The RS-485 wiring diagram shown above is not for multi-drop networks involving connecting more than one PLC to a panel. Refer to the multi-drop wiring diagram examples later in this chapter if more than one PLC will be connected to a panel.
DirectLOGIC Universal Isolated Network Adapter, p/n FA-ISOCON:

**NOTE:** EA-COMCON-3 will install only on EA9-T6CL, EA9-T6CL-R, EA9-T7CL and EA9-T7CL-R panels

---

**NOTE:** When using multiple PLCs connected to one C-more touch panel, only jumper the Term terminal to the RD+ terminal when the panel is the last device at one end of the network.

Ground the shield only at the equipment end where the FA-ISOCON is located.

See FA-ISOCON specifications to properly configure the adapter.

Note: Use the above wiring diagram to make your own cable. We recommend Belden 8103 shielded cable or equivalent.

---

**Terminal Block Adapter plugs into C-more 15-pin Port1**
DirectLOGIC Universal Converter, p/n F2-UNICON:

**Wiring Diagram**

- **F2-UNICON Universal Converter**
  - RS-422A to RS-232C – PLC DL05 or D2-240 – Port 2 only

**Terminal Block Adapter**
- Plugs into C-more 15-pin Port 1

**D2-240 PLC**

**Note:** When using multiple PLCs connected to one C-more touch panel, only jumper the Term terminal to the RD+ terminal when the panel is the last device at one end of the network.

**Modular cable included with the F2-UNICON**

**Note:** Use the above wiring diagram to make your own cable. We recommend Belden 8103 shielded cable or equivalent.

**EA-COMCON-3**

*NOTE: EA-COMCON-3 will install only on EA9-T6CL, EA9-T6CL-R, EA9-T7CL and EA9-T7CL-R panels*
RS-422A/RS-485A Multi-Drop Wiring Diagram Examples

DL06 and DL205 used for illustration purposes

* Termination resistors required at both ends of the network to match the impedance of the cable (between 100 and 500 ohms). Jumper pin 13 to 9 on the C-more Touch Panel 15-pin connector if the cable impedance is different, then use an external resistor matched to the cable impedance.

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

Typical RS-422 Multi-Drop Wiring Diagram

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

using DirectLogic pin numbers to illustrate

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 Touch Panel 15-pin connector to place the 125Ω internal resistor into the network. If the cable impedance is different, then use an external resistor matched to the cable impedance.
Only D06 PLC port 2

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

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

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**

DL06 PLC
(example device communicating across RS-422 connection)

**C-more**

Touch Panel
(Installs only on EA9-T6CL, EA9-T6CL-R, EA9-T7CL and EA9-T7CL-R panels)

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 touch panel 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 impedance.
Allen-Bradley

**EA-MLOGIX-CBL**

To AB MicroLogix RS-232 communication channel

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>do not use</td>
</tr>
<tr>
<td>2</td>
<td>Sig GND</td>
</tr>
<tr>
<td>3</td>
<td>do not use</td>
</tr>
<tr>
<td>4</td>
<td>RXD</td>
</tr>
<tr>
<td>5</td>
<td>do not use</td>
</tr>
<tr>
<td>6</td>
<td>do not use</td>
</tr>
<tr>
<td>7</td>
<td>TXD</td>
</tr>
<tr>
<td>8</td>
<td>do not use</td>
</tr>
</tbody>
</table>

**Wiring Diagram**

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

**EA-SLC-232-CBL**

To PLC 9-Pin Port

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>do not use</td>
</tr>
<tr>
<td>2</td>
<td>RXD</td>
</tr>
<tr>
<td>3</td>
<td>TXD</td>
</tr>
<tr>
<td>4</td>
<td>do not use</td>
</tr>
<tr>
<td>5</td>
<td>Signal GND</td>
</tr>
<tr>
<td>6</td>
<td>do not use</td>
</tr>
<tr>
<td>7</td>
<td>do not use</td>
</tr>
<tr>
<td>8</td>
<td>do not use</td>
</tr>
</tbody>
</table>

**Wiring Diagram**

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

**EA-PLC5-232-CBL**

To PLC 25-Pin Port

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>do not use</td>
</tr>
<tr>
<td>12</td>
<td>do not use</td>
</tr>
<tr>
<td>11</td>
<td>do not use</td>
</tr>
<tr>
<td>10</td>
<td>do not use</td>
</tr>
<tr>
<td>9</td>
<td>do not use</td>
</tr>
<tr>
<td>8</td>
<td>do not use</td>
</tr>
<tr>
<td>7</td>
<td>Signal GND</td>
</tr>
<tr>
<td>6</td>
<td>do not use</td>
</tr>
<tr>
<td>5</td>
<td>do not use</td>
</tr>
<tr>
<td>4</td>
<td>do not use</td>
</tr>
<tr>
<td>3</td>
<td>RXD</td>
</tr>
<tr>
<td>2</td>
<td>TXD</td>
</tr>
<tr>
<td>1</td>
<td>do not use</td>
</tr>
</tbody>
</table>

**Wiring Diagram**

Note: Use the above wiring diagram if you need to make your own cable. We recommend using 22 AWG shielded cable.
Allen-Bradley (cont’d)

Allen-Bradley SLC500™, 5/01, /02, /03 DH-485 Point-to-Point RS-485A (p/n EA-DH485-CBL)

Wiring Diagram

Note: Use the above wiring diagram if you need to make your own cable. We recommend Belden 9842 shielded cable or equivalent.

Allen-Bradley SLC500™, 5/01, /02, /03 DH-485/AIC to Multiple C-more Touch Panels RS-485A (using C-more cable p/n EA-DH485-CBL)

Note: The above diagram shows connecting multiple C-more touch panels to an Allen-Bradley DH485/AIC network using the AB DH485 Link Coupler, p/n 1747-AIC. Select the “Allen-Bradly DH485/AIC SLC500 MicroLogix” driver in the C-more Programming Software when starting the project. Also, set the AB channel configuration for DH485.
Allen-Bradley (cont’d)

Allen-Bradley SLC500™ 5/03 DH-485/AIC to Multiple **C-more** Touch Panels
(using **C-more** cables p/n EA-MLOGIX-CBL, EA-SLC-232-CBL)

Channel 0 must be set to DH485.

AB 1761-NET-AIC AIC + Advanced Interface Converter

AB 1747-CP 3 RS-232 Cable

C-more Touch Panel

C-more EA-MLOGIX-CBL Cable

Note: The above diagram shows connecting multiple **C-more** touch panels to an Allen-Bradley DH485/AIC network using the AB AIC+ Advanced Interface Converter, p/n 1761-NET-AIC. Select the “Allen-Bradley DH485/AIC SLC500 MicroLogix” driver in the **C-more** Programming Software when starting the project. Also, set the AB channel configuration for DH485.
Allen-Bradley (cont’d)

Multiple Allen-Bradley PLCs connected to multiple **C-more** Touch Panels
(using AB Ethernet Network Interface p/n 761-NET-ENI with EtherNet/IP protocol)

- Allen-Bradley SLC 5/03 Modular PLC Controller
- Allen-Bradley MicroLogix 1000 PLC Controller
- Allen-Bradley MicroLogix 1500 PLC Controller
- C-more Touch Panel

**Cable Connections:**
- AB mini DIN to D-shell cable p/n 1761-CBL-AP00
- AB mini DIN to mini DIN cable p/n 1761-CBL-AM00
- Ethernet Hub or Switch 10/100 Base-T

**Ethernet/IP Network:**
- AB 1761-NET-ENI
- C-more Touch Panel
Allen-Bradley (cont’d)

User Constructed

Notes:
1. Polarities must be swapped.
2. Handshaking is turned off
3. Use the above wiring diagram if you need to make your own cable. We recommend using 8103 shielded cable or equivalent.
4. Refer to the PLC-5 Programmable Controllers User Manual Switch Setting Reference for details on switch settings to define the controller’s serial port electrical interface.
GE

**EA-90-30-CBL**

GE 90/30 and 90/70 15-pin D-sub port, RS-422A (p/n EA-90-30-CBL)

**Wiring Diagram**

Note: Use the above wiring diagram if you need to make your own cable. We recommend Belden 8103 shielded cable or equivalent.

GE VersaMax Micro

**User Constructed**

GE VersaMax Micro Port 1 RS-232C

**Wiring Diagram**

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

**EA-MITSU-CBL**

Mitsubishi FX Series 25-pin D-sub port, RS-422A (p/n EA-MITSU-CBL)

To PLC 25-Pin Port

25-pin D-sub (male)

13 = do not use
12 = do not use
11 = do not use
10 = do not use
9 = do not use
8 = do not use
7 = Signal GND
6 = do not use
5 = Signal GND
4 = SD+ (RS422)
3 = RD+ (RS422)
2 = do not use
1 = do not use

SD+ 3
SD– 16
RD+ 2
RD– 15
GND 7
shield

Wiring Diagram

13 → Term.
12 → RD+
11 → RD–
10 → SD+ (RS422)
9 → SD– (RS422)
8 → do not use
7 → do not use
6 → do not use
5 → Logic GND
4 → do not use
3 → do not use
2 → do not use
1 → Frame GND

Note: Use the above wiring diagram if you need to make your own cable. We recommend Belden 8103 shielded cable or equivalent.

**EA-MITSU-CBL-1**

Mitsubishi FX Series 8-pin MINI-DIN, RS-422A (p/n EA-MITSU-CBL-1)

To PLC 8-Pin Port

Mini Din 8-pin Male

1 = RD– (RS-422)
2 = RD+ (RS-422)
3 = Sig GND
4 = SD– (RS-422)
5 = do not use
6 = do not use
7 = SD+ (RS-422)
8 = do not use

SD+ 7
SD– 4
RD+ 2
RD– 1
GND 3
shield

Wiring Diagram

13 → Term.
12 → RD+
11 → RD–
10 → SD+ (RS422)
9 → SD– (RS422)
8 → do not use
7 → do not use
6 → do not use
5 → Logic GND
4 → do not use
3 → do not use
2 → do not use
1 → Frame GND

Note: Use the above wiring diagram if you need to make your own cable. We recommend Belden 8103 shielded cable or equivalent.

**User Constructed**

Mitsubishi Q02 / Q02H / Q06H / Q12H / Q25H Serial Driver

and QnA Serial Driver with Direct Connection to

the Serial Port on Q00 and Q01 CPU’s

RS-232C

To PLC 6-Pin Port

Mini Din 6-pin Male

1 = RXD (232C)
2 = TXD (232C)
3 = Logic GND
4 = do not use
5 = do not use
6 = do not use

TXD 2
RXD 1
GND 3
shield

Wiring Diagram

15 → do not use
14 → do not use
13 → Termination
12 → SD– (RS422)
11 → SD+ (RS422)
10 → RD– (RS422)
9 → RD+ (RS422)
8 → do not use
7 → do not use
6 → do not use
5 → Logic GND
4 → do not use
3 → RXD (232C)
2 → TXD (232C)
1 → Frame GND

Note: Use the above wiring diagram to make your own cable. We recommend using 22 AWG shielded cable.
Mitsubishi (cont’d)

**User Constructed**

**Wiring Diagram**

Note: Use the above wiring diagram if you need to make your own cable. We recommend using 22 AWG shielded cable.
Chapter 6 - PLC Communications

Omron

**EA-OMRON-CBL**

Omron Host Link (C200 Adapter, C500), RS-232C (p/n EA-OMRON-CBL)

![Wiring Diagram]

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

User Constructed

Omron FINS (CQM1, CPM1, CPM2, C200, CJ1 & CS1)

RS-232C

![Wiring Diagram]

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

User Constructed

Omron Host Link CQM1 using CQM1-CIF02 Peripheral Port Connecting Cable

RS-232C

![Wiring Diagram]

Note: Use the above wiring diagram to make your own cable. We recommend using 22 AWG shielded cable.
Modicon Modbus RS-232

**User Constructed**

![Wiring Diagram]

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

Modicon Micro Series

**User Constructed**

![Wiring Diagram]

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

Modicon Modbus with RJ45

**User Constructed**

![Wiring Diagram]

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

User Constructed

Siemens S7-200 CPU Port 0 or 1
RS-485A

To PLC
9-Pin Port

RS-485
Signal B

RS-485
Signal A

Logic
Common

shield

13 = Termination
8 = do not use
11 = SD+ (RS485)
9 = RD+ (RS485)

9-pin
D-sub
(male)

6 = +5 VDC
7 = +24 VDC
8 = RS485 Sig A
5 = Logic GND
4 = do not use
3 = do not use
2 = do not use
1 = Frame GND

15-pin
D-sub
(male)

15 = do not use
14 = do not use
13 = Termination
12 = SD– (RS485)
11 = SD+ (RS485)
10 = RD– (RS485)
9 = RD+ (RS485)

To C-more Touch Panel PLC Port

Note: Use the above wiring diagram to make your own cable. We recommend AutomationDirect L19954 shielded cable or equivalent.