Allen-Bradley
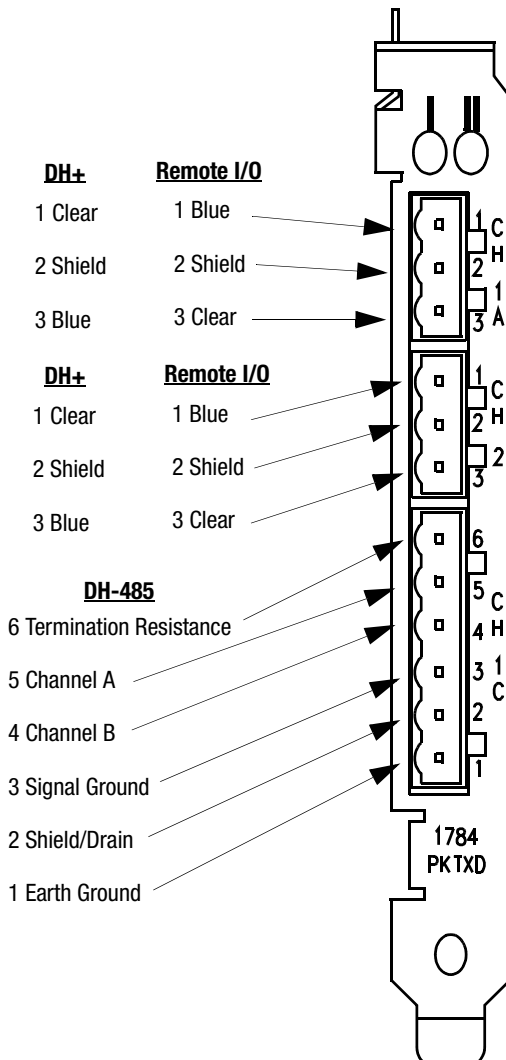
1784-PKTx
Network Interface
Card

1784-PKTX, -PKTXD

User Manual

Rockwell Automation

1784-PKTXD Connections

DH+	**Remote I/O**
1 Clear	1 Blue
2 Shield	2 Shield
3 Blue	3 Clear

CH 1A

DH+	**Remote I/O**
1 Clear	1 Blue
2 Shield	2 Shield
3 Blue	3 Clear

CH 2

DH-485

6 Termination Resistance

5 Channel A

4 Channel B

3 Signal Ground

2 Shield/Drain

1 Earth Ground

CH 1C

1784
PKTXD

40025

Before You Begin

WARNING 	If you connect or disconnect the communications cable with power applied to this module or any device on the network, an electrical arc can occur. This could cause an explosion in hazardous location installations.

Before you make the connections, make sure you have the correct cable.

For connections to:	Use this cable:	And these termination resistors:
Network Cable (build your own)		
Remote I/O	1770-CD [1][3] Belden #9463	82Ω or 150Ω
DH+	1770-CD [1][3] Belden #9463	150Ω for 57.6K bits/sec 150Ω for 115.2K bits/sec 82Ω for 230.4K bits/sec
DH-485	Belden #3106A [1][2]	not needed
Point-to-point Cable (prefabricated)		
Original PLC-5	1784-CP12	not needed
SLC 5/04 processors (direct DH+ connection) Enhanced PLC-5 SLC 5 1756-DHRIO	1784-CP13 (DH+)	not needed
SLC family processors (direct DH-485 connection)	1784-CP14 (DH-485	not needed

[1] Cables used for construction of custom cables

[2] Mating Connector: A-B PN 941999-06 or Phoenix Order No. 1849406

[3] Mating Connector: A-B PN 941999-03 or Phoenix Order No. 1849396

The 1784-PKTX, -PKTXD card ships with 82Ω and 150Ω resistors and with the DH+/remote I/O and DH-485 mating connectors.

For additional cable information, see these Allen-Bradley publications:

Publication Title	Publication Number
1784-CP12 Cable Packing Data	1784-2.41
1784-CP13 Cable Packing Data	1784-2.44
1784-CP14 Cable Packing Data	1784-2.45

For information about:	See:
Connecting to DH+ devices	page 4-5
Connecting to DH-485 devices	page 4-8
Connecting to remote I/O devices	page 4-11
Interpreting the LEDs	page 4-12

Connecting to DH+ Devices

Depending on your application, you may use the PKT*x* card to communicate with a single device or multiple DH+ devices via a DH+ network. This section shows you how to connect to a original or an enhanced PLC-5 programmable controller.

ATTENTION

⚠️

Not all software and hardware supports 115.2K bit/s or 230.4K bit/s for DH+ communications. Make sure your software and hardware supports the baud rate your select.

For information about:	See:
original programmable controllers	page 4-5
enhanced programmable controllers	page 4-7
terminating the last node	page 4-7
connecting the card to a DH+ network	page 4-8

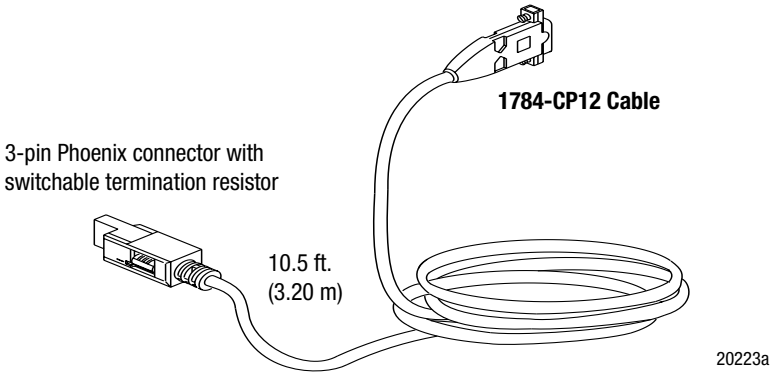## Connecting the Card to an Original PLC-5 Programmable Controller

To connect the 1784-PKTX or -PKTXD card to

PLC-5 programmable controller, follow these steps:
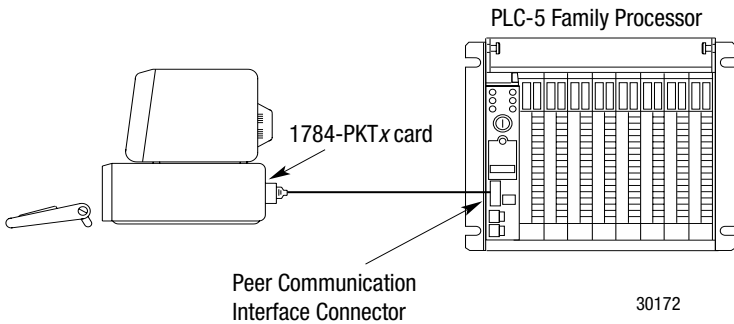
1. Turn off power to the computer.

IMPORTANT   If you disconnect the ac power from the computer, you lose the chassis ground. Electrostatic damage (ESD) protection is lost.

2. Connect the 3-pin Phoenix end of the CP12 cable to the PKTx card.

1784-CP12 Cable

3-pin Phoenix connector with
switchable termination resistor

10.5 ft.
(3.20 m)

20223a

3. Connect the 9-pin D-shell end directly to the 9-pin D-shell connector on the front of
the original PLC-5 processor.

PLC-5 Family Processor

1784-PKT*x* card
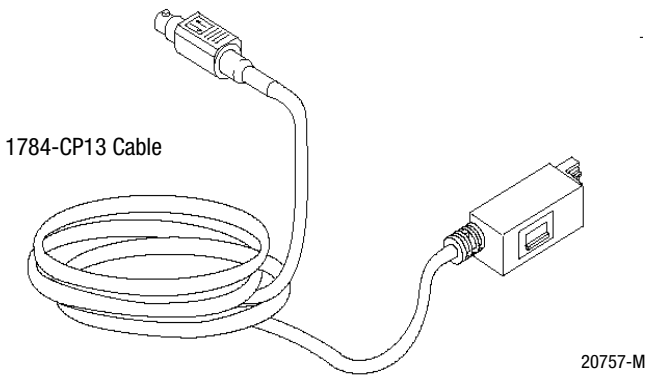
Peer Communication
Interface Connector

30172

4. Restore power to the computer.

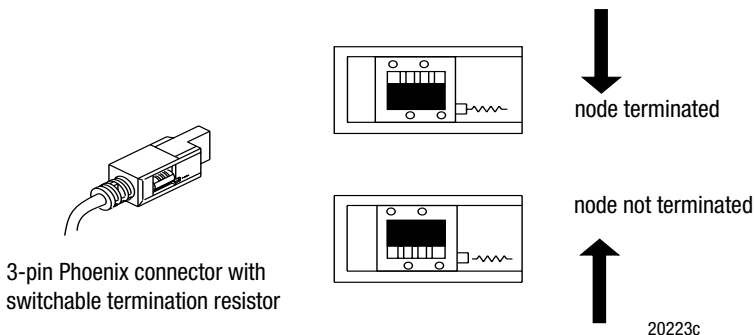## Connecting the Card to an Enhanced PLC-5 Processor

To connect the 1784-PKTX or -PKTXD card to an enhanced PLC-5 programmable controller, use a 1784-CP13 cable. Follow these steps:

1. Connect the 3-pin Phoenix end of the CP13 cable to the PKT*x* card.

2. Connect the adapter to the connector on the front of the enhanced PLC-5 programmable controller.

1784-CP13 Cable

20757-M

Terminating the Last Node

You must terminate both ends of your DH+ network. If the PKT*x* is the last physical node on your network, you must set the switch on the CP12 or 13 to terminate the link as shown below.

node terminated

node not terminated

3-pin Phoenix connector with switchable termination resistor

20223c

Connecting the Card Using Custom Cabling for DH+

To connect the 1784-PKTX or -PKTXD card to a Data Highway Plus network, use Allen-Bradley 1770-CD or approved cable to construct custom cable. See publication ICCG-2.2, Approved Vendor List for DH, DH+, DH-485, and Remote I/O.

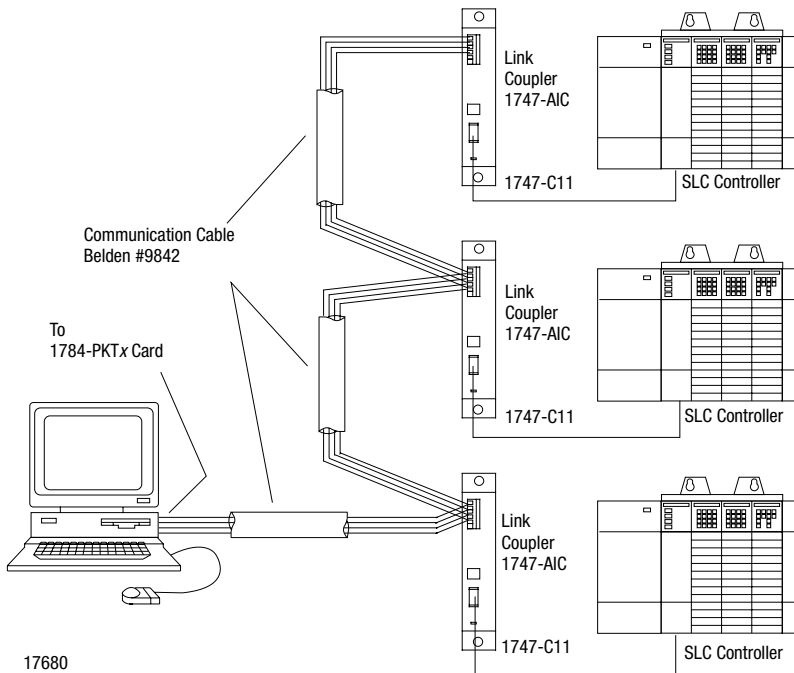| **IMPORTANT**	You must terminate the last physical node of the network with a resistor of appropriate value.
	If all of the devices on your network are capable of operating at 230.4K, use an 82Ω terminating resistor; otherwise, use a 150Ω terminating resistor.

Connecting the Card via a DH-485 Network

Figure 4.1 shows an example of a network consisting of three SLC family controllers and one programming station. This configuration requires the 1784-PKTX or -PKTXD card and three link couplers:

- An SLC family CPU is connected to each of the link couplers (1747-AIC) with a 1747-C11 cable.

- The 1784-PKTX or -PKTXD card is connected to the network at one of the link couplers, as shown in Figure 4.1.

- The communication cable consists of three segments of cable daisy-chained at each link coupler.
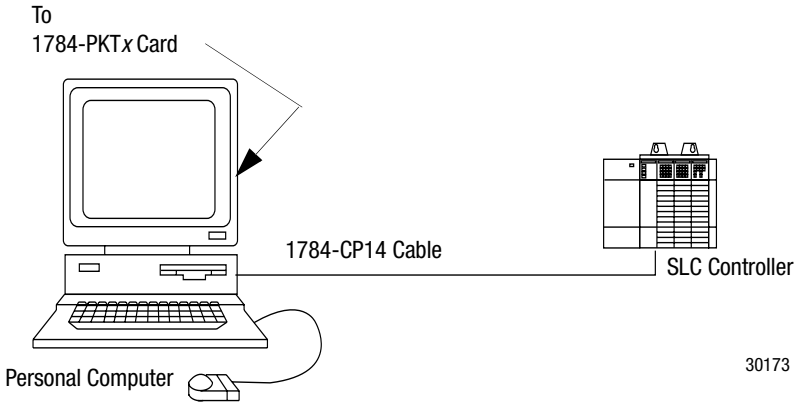
Figure 4.1 Communicating to multiple SLCs via the DH-485 network

Connecting the Card to a Single SLC Processor on DH-485

Figure 4.2 on page 4-10 shows an example of a point-to-point link consisting of an SLC processor and a programming station. This configuration requires the 1784-PKTX or -PKTXD card and an SLC processor. The SLC CPU is connected directly to the 1784-PKTX or -PKTXD card with a 1784-CP14 cable, as shown on page 4-10.
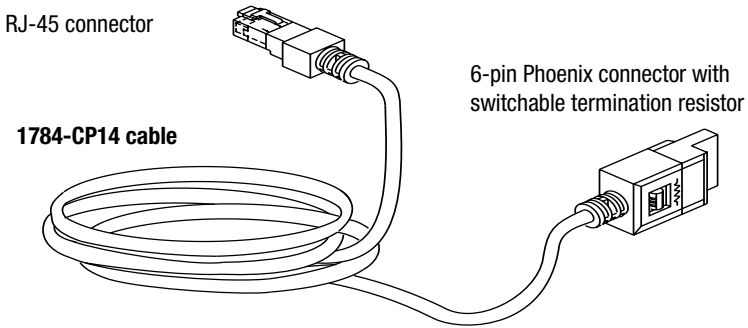
Figure 4.2 Communicating to a single SLC using a point-to-point DH-485 link
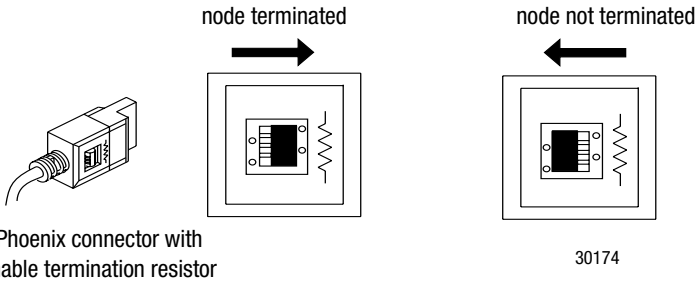

To connect an SLC family processor to the PKT*x* card, you:

1. Connect the termination resistor end of the CP14 cable to the PKT*x* card

2. Connect the RJ-45 connector directly to the phone-jack connector on the front of the SLC processor.

Terminating the Last Node

You must terminate both ends of your DH-485 network. If the PKT*x* is the last node on your network, you must set the switch on the CP14 to terminate the link as shown below.

node terminated   node not terminated

6-pin Phoenix connector with
switchable termination resistor

30174

Refer to publication 1770-6.2.2, Data Highway/Data Highway Plus/Data Highway II/Data Highway-485 Cable Installation Manual, for additional information about cable issues.

Connecting to Remote I/O Devices

Depending upon your application, you can use the PKT*x* card to communicate with a single device or to multiple devices via a remote I/O link.

To connect the PKTx card to remote I/O, use Allen-Bradley 1770-CD or approved cable to construct a custom cable. See publication ICCG-2.2 for a list of approved cables.

IMPORTANT	For proper operation, terminate both ends of a remote I/O link by using external resistors. Use either an 82Ω or 150Ω terminator. See Table 4.1.

Table 4.1 Selecting the External Resistor

If your remote I/O link:		use this resistor rating:	The maximum number of:	
			physical devices connected on the link:	racks that you can scan on the link:
operates at 230.4 K bits		82Ω	32	16
operates at 57.6 or 115.2K bit/s, and **no** devices listed below are linked:				
Scanners:	1771-SN; 1772-SD, -SD2; 1775-SR, -S4A, -S4B;			
Adapters	1771-AS; 1771-ASB (series A only); 1771-DCM			
Miscellaneous	1771-AF			
connects to any device listed below:		150Ω	16	16
Scanners	1771-SN; 1772-SD, -SD2; 1775-SR, -S4A, -S4B;			
Adapters	1771-AS; 1771-ASB (series A only); 1771-DCM			
Miscellaneous	1771-AF			
operates at 57.6 or 115.2K bit/s, and you do not require over 16 physical devices				

Interpreting the Status LEDs

What the LEDs mean depends on which protocol is running. Only the PKTXD uses both LEDs. The left LED (labeled |) is for the top channel on a PKTXD and the other is for the second, lower channel. A PKTX has only one channel (but multiple connectors depending on protocol) so only one LED is used.

Table 4.2 explains the DH+ Status LED. Table 4.3 on page 4-13 explains the DH-485 Status LED. Table 4.4 on page 4-13 explains the Remote I/O Scanner Mode LED.

Table 4.2 DH+ Status LED

LED State	Means
off	channel not online
blinking green	it is the only node on the network
solid green	online and receiving token
blinking red	duplicate node
solid red	failed selftest

Table 4.3 DH485 Status LED

LED State	Means
off	channel not online
blinking green	it is the only node on the network
solid green	online and receiving token
blinking red	parity error
solid red	failed selftest

Table 4.4 Remote I/O Scanner Mode Status LED

LED State	Means
off	channel not online
blinking green	at least one but not all adapters in the scanlist are not responding
solid green	all adapters in the scanlist are responding
blinking red	none of the adapters in the scanlist are responding
solid red	failed selftest

What to Do Next

If you have read each chapter, and still have questions, please call Allen-Bradley Automation Group Technical Support at 440-646-3223.