Understanding the 1785-BCM Hardware Components

Chapter Objectives

This chapter describes the major components that make up the 1785-BCM module. These components include:

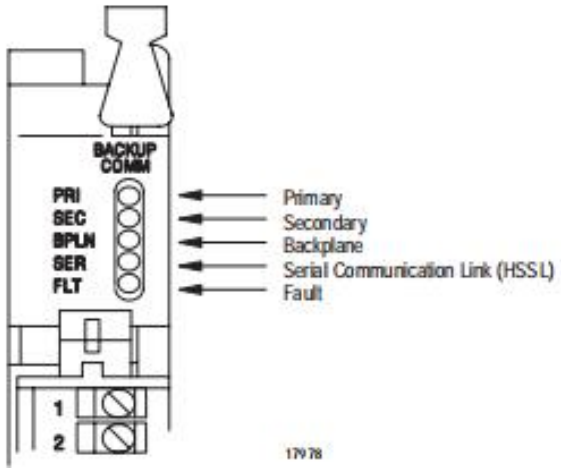
- status indicators
- 1771-WG wiring arm
- 1785-BCM communication links
  - high-speed serial link (HSSL)
  - Data Highway Plus link (DH+)
  - remote I/O link (RIO)
- customer relay (contact)
- switch assemblies
- backplane interface

Refer to Chapter 4 for information about the 1785-BEM backup expansion module.

Status Indicators

The 1785-BCM module has five status indicators on the front panel of the module (Figure 2.1). The indicators show both normal operation and error conditions of your PLC-5 backup system.

Figure 2.1
1785-BCM Module Status Indicators



All indicators light at power up or when a hardware fault occurs in the 1785-BCM module. With the exception of the FLT indicator, all of the 1785-BCM module's indicators are related to individual bits of the system status word. For more information on the system status word, refer to Chapter 5, "Operating Your PLC-5 Backup System."

For information about locating faults using the status indicators, refer to Chapter 8, "Diagnosing Faults".

Wiring Arm

You make connections to your communication links with the 1771-WG wiring arm, which is shipped with the module.

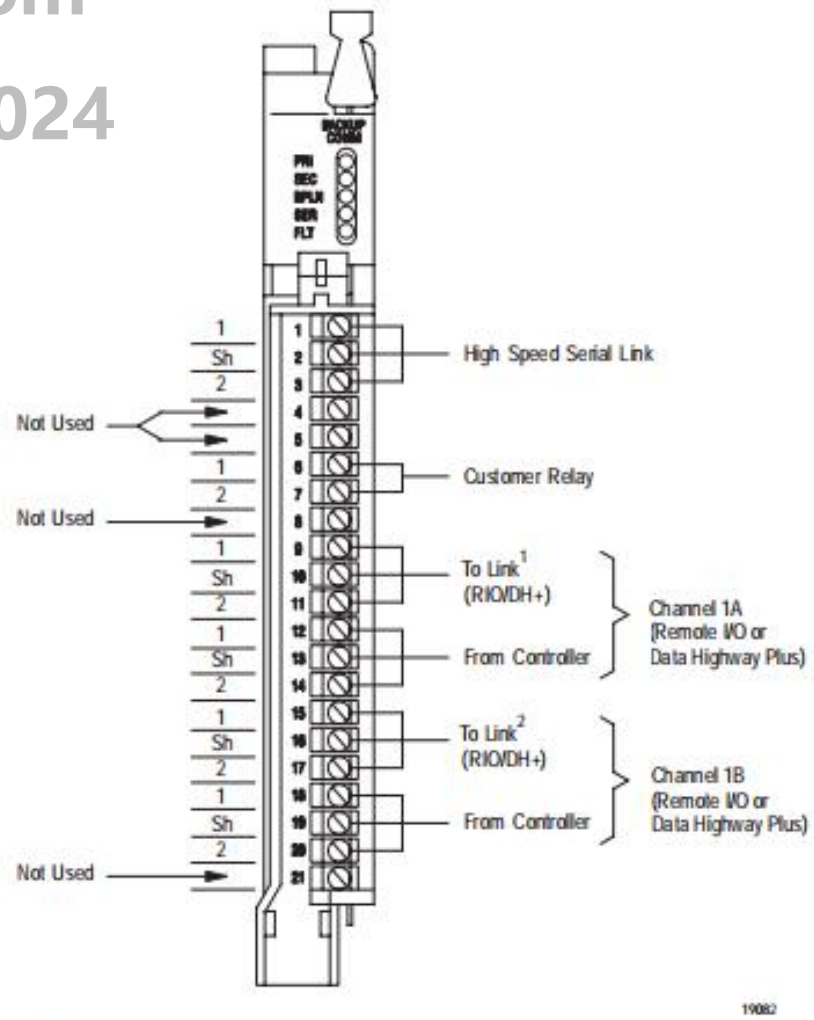
Your wiring arm attaches to the pivot bar on the bottom of the I/O chassis. It pivots upward and connects with the module so you can install or remove the module without disconnecting the wires.

Communication Links

The 1785-BCM module has ports for three communication links for connection with the Remote I/O, Data Highway Plus network, and the other 1785-BCM module (Figure 2.2). In addition, the module has a relay for customer connection.

As shown in Figure 2.2, there are two user-configurable ports (Channels 1A and 1B) that support remote I/O or Data Highway Plus modes. Table 2.A lists the communication ports and describes how the system uses each one.

Figure 2.2
1785-BCM Module Communication Links



1 Terminals 9, 10, and 11 are connected between the 1785–BCM modules in the backup system; in addition terminals 9, 10, and 11 of one of the 1785 BCM modules are connected to the DH+ network or to the remote I/O link.

2 Terminals 15, 16, and 17 are connected between the 1785–BCM modules in the backup system; in addition terminals 15, 16, and 17 of one of the 1785 BCM modules are connected to the DH+ network or to the remote I/O link.

Table 2.A
Communication Ports

Communication Port:	This link is used to:
High Speed Serial Link (HSSL)	permit two-way alternating communication (half-duplex) between the two 1785-BCM modules of the backup system at a distance of up to 15 feet.
Channel 1A	connect the primary PLC-5 processor to the Data Highway Plus network or to the remote I/O link; the secondary processor is isolated from this link.
Channel 1B	connect the primary PLC-5 processor to the Data Highway Plus network or to the remote I/O link; the secondary processor is isolated from this link.

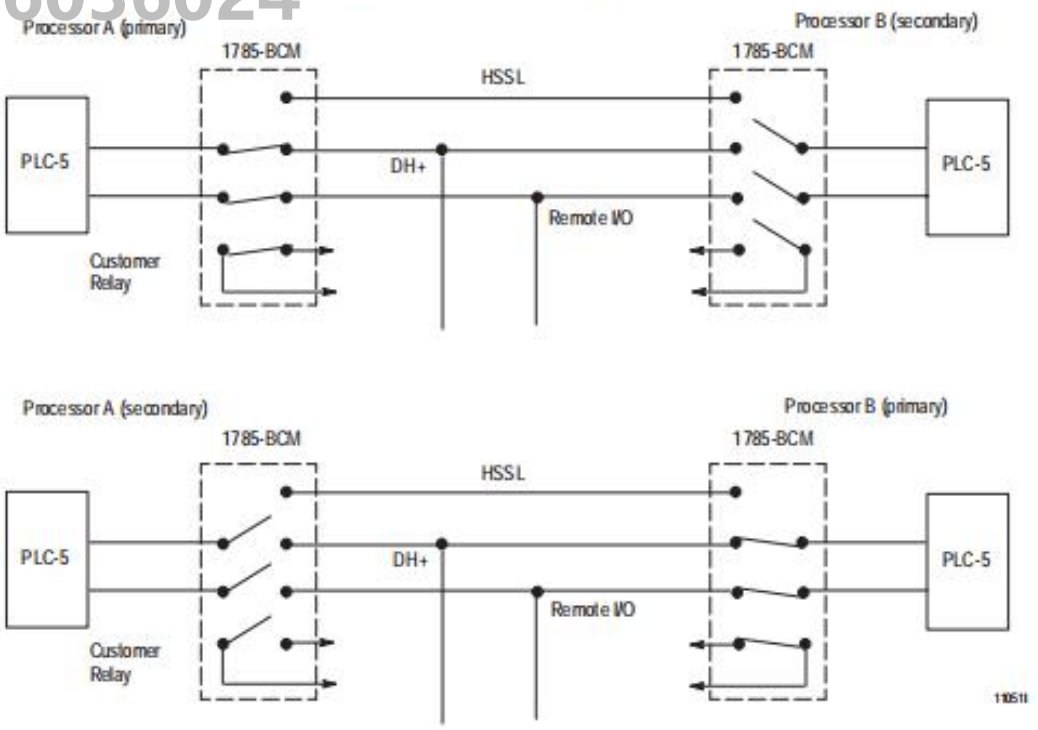
Channels 1A and 1B have a default communication mode which can be changed by resetting switches, if necessary. Table 2.B describes the default communication mode for each of the two channels.

Table 2.B
Default Communication Modes

Channel	Default Communication Mode
1A	Data Highway Plus
1B	Remote I/O – Scanner mode at 57.6 kbaud

With the exception of the HSSL, all of the connections in the 1785-BCM module have an internal relay whose contacts are closed when the controller is primary and open when the processor is secondary. Figure 2.3 shows these relays for processor A and processor B of a PLC-5 backup system.

Figure 2.3
Relays for Processor A and Processor B



Important: When using a 1785-BCM module with a PLC-5/40, PLC-5/60, or PLC-5/80 processor, you can add a 1785-BEM backup expansion module to provide backup for all processor communication channels. The channels of the 1785-BEM module, like the 1785-BCM module, can be configured for Data Highway Plus or remote I/O. For more information on the 1785-BEM backup expansion module, refer to Chapter 4.

Customer Relay

The customer relay connection on the 1785-BCM module is used to switch external devices. Relay contacts are rated at .25A @ 24V dc **resistive**. Loads with inductive characteristics will require additional suppression devices.

Switch Assemblies

There are two switch assemblies located at the top and at the bottom of the 1785-BCM module. Refer to Figure 2.4 for locations of the switch assemblies. Refer to Table 2.C for a description of the function of the 1785-BCM module switch assemblies.

Figure 2.4
1785-BCM Module Switch Assemblies

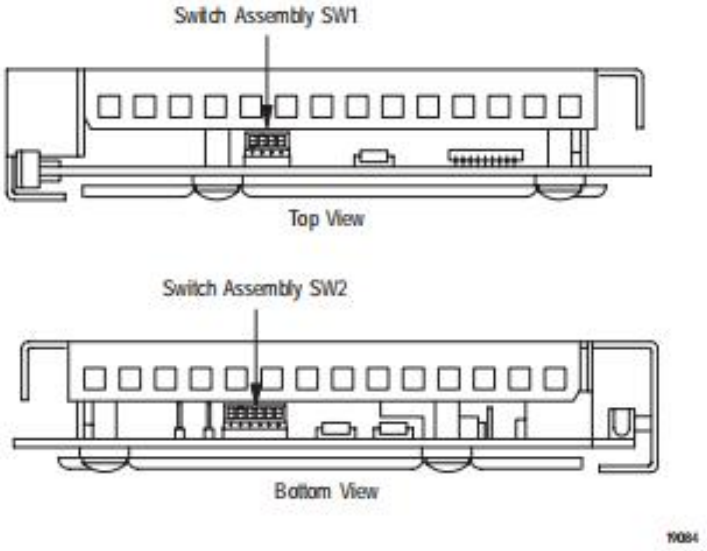


Table 2.C
1785-BCM Module Switch Assembly Functions

Use this switch assembly:	To:
SW1	• establish communication between the 1785-BCM series B module and a 1785-BCM series A module. • establish the fast data transfer mode from the secondary module to the secondary processor.
SW2	• specify if Channels 1A and 1B are going to establish communication with Data Highway Plus network or with the remote I/O link. With the remote I/O link, determine the baud rate as well as the mode of operation of the processor (scanner or adapter).

To set the switches described above, refer to Chapter 5, "Operating Your PLC-5 Backup System."

I/O Backplane Interface

Through its connection with the I/O chassis backplane, the 1785-BCM module can execute block transfer read (BTR) and block transfer write (BTW) instructions from a PLC-5 processor. With the inherent block-transfer queuing capabilities of the PLC-5 processor, multiple block-transfer instructions per program scan can be executed to the same 1785-BCM module.

What to Do Next

This chapter described the hardware components of the 1785-BCM module. Now that you are familiar with the module and some of the backup concepts for the PLC-5 backup system as described in chapter 1, you are ready to install the backup system. Chapters 3 and 4 describes installation procedures for the PLC-5 backup system (1785-BCM and 1785-BEM modules, respectively).