



PLC-5 802.4 MAP/OSI Broadband Modem

Cat. Nos. 1785-O5A/A, -O5B/A, -O5C/A

Installation Data

To The Installer

This installation data explains how to install the PLC-5 802.4 MAP/OSI Broadband Modem (cat. nos. 1785-O5A/A, -O5B/A, -O5C/A).

This publication contains the following sections:

- What This Package Contains
- Important User Information
- Overview of the PLC-5 802.4 MAP/OSI Broadband Modem
- Preventing Electrostatic Discharge (ESD)
- Installing the Modem
- Troubleshooting
- Specifications

What This Package Contains

When you receive your modem, check to be sure your package contains the following:

- one of the following modems:

This modem catalog number:	Is for this MAP channel:
1785-O5A/A	A
1785-O5B/A	B
1785-O5C/A	C

- one 90-degree male/female “F” connector (use is optional)
- one ESD grounding wrist strap

Important User Information

Because of the variety of uses for the products described in this publication, those responsible for the application and use of this control equipment must satisfy themselves that all necessary steps have been taken to assure that each application and use meets all performance and safety requirements, including any applicable laws, regulations, codes and standards.

The illustrations, charts, sample programs and layout examples shown in this guide are intended solely for purposes of example. Since there are many variables and requirements associated with any particular installation, Allen-Bradley does not assume responsibility or liability (to include intellectual property liability) for actual use based upon the examples shown in this publication.

Allen-Bradley Publication SGI-1.1, "Safety Guidelines for the Application, Installation and Maintenance of Solid State Control" (available from your local Allen-Bradley office) describes some important differences between solid-state equipment and electromechanical devices which should be taken into consideration when applying products such as those described in this publication.

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WARNING: With any complex communication system, you need to identify potential application-related communication problems so that if a problem occurs, the results will be predictable. These problems include the possibility of:

- Unexpected loss of communication
- Erroneous or incomplete data being supplied to the network and passed on to your application

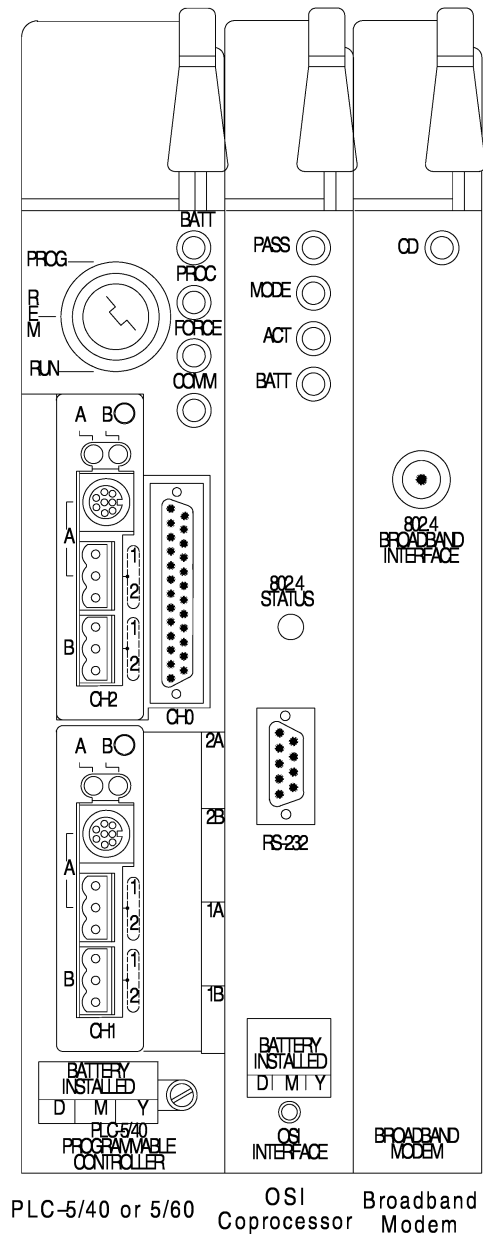
There may be other potential problems associated with your particular application.

Overview of the PLC-5 802.4 MAP/OSI Broadband Modem

The PLC-5 802.4 MAP/OSI Broadband Modem provides the interface between your broadband cable system, and your PLC-5 and OSI

coprocessor. The modem provides the physical layer interface without interfering with other backplane communication.

Your modem is designed to plug into the 1771-I/O rack. The slot to the immediate right of the coprocessor is reserved for the modem.



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When the OSI coprocessor is attached to the PLC-5, only the PLC-5 modem may be installed into this slot. If another module is installed into this slot, damage to the PLC-5 could result. To make sure only the PLC-5 modem can be inserted into this slot, you must install keying bands into the

1771-I/O chassis before installing the modem. Refer to the installation procedure for instructions on how to install these keying bands.

The modem has one LED indicator which lights whenever the modem has power and detects the carrier signal. If the LED indicator does not light, refer to the troubleshooting section in this document for information on determining the cause.

Preventing Electrostatic Discharge (ESD)

Important: Read this section before you handle the modem, the OSI coprocessor, or the 1771-I/O chassis.

Electrostatic Discharge (ESD) may occur whenever you handle the modem, the coprocessor, or the 1771-I/O chassis. ESD can degrade the performance of or cause permanent damage to the coprocessor and modem. To help prevent ESD, handle all modules at a static-safe workstation. If a static-safe workstation is not available, follow these guidelines:

- Touch a grounded object before handling any module. Remain in contact with this grounded object while handling the modules.
- Place the modules in a static-safe bag when they are not installed in the 1771-I/O chassis.
- Wear the grounding wrist strap. Follow the instructions provided with the wrist strap.

Installing the Modem

To install the modem into the 1771-I/O chassis, follow these steps:



CAUTION: Electrostatic discharge (ESD) can degrade the performance of and cause permanent damage to the OSI interface and modem. Before installing the modem, be sure to read “Preventing Electrostatic Discharge (ESD)” (above) for guidelines to help prevent damage caused by ESD.



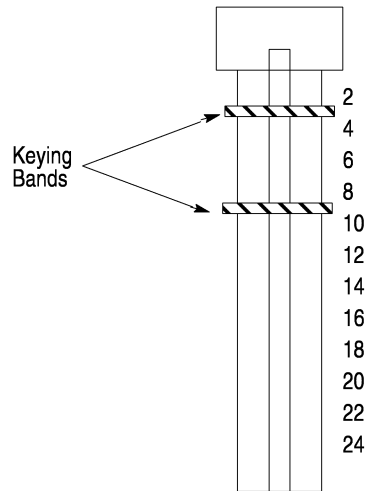
CAUTION: To guard against damage to the coprocessor or modem, always turn off the power to the 1771-I/O chassis before removing or inserting a module.

1. Turn off power to the 1771-I/O chassis.

2. You need to insert keying bands into the I/O slot designated for the modem so that only the modem fits in this slot. The slot designated for the modem is the one to the immediate right of the OSI coprocessor.

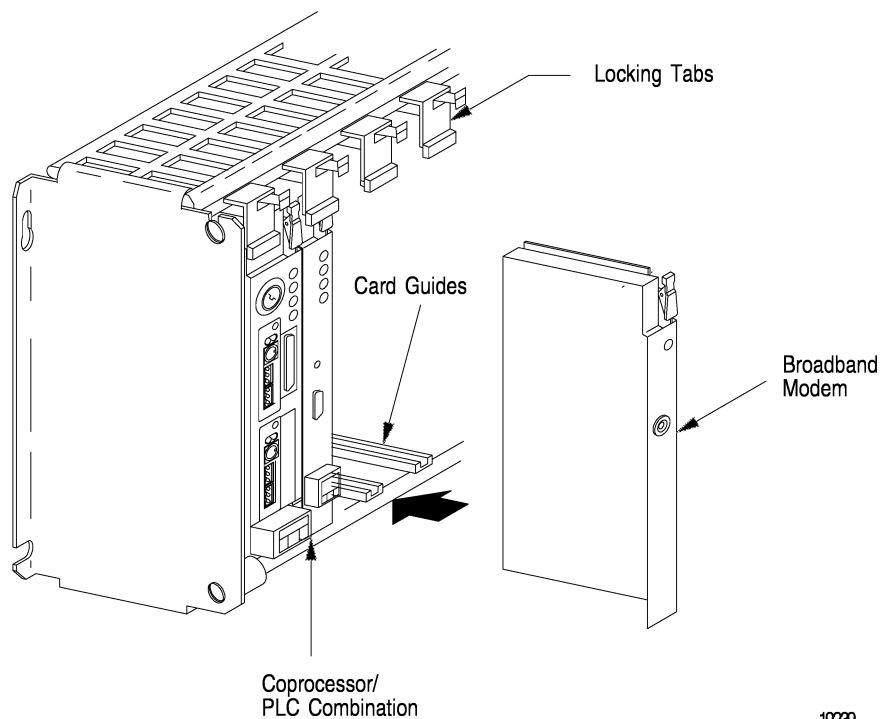
Important: You received a key kit that contains the keying bands when you received your 1771-I/O chassis. If you do not have the keys, contact your local Allen-Bradley distributor or sales representative.

Insert the plastic keying bands into the appropriate slot in the chassis between positions 2 and 4, and positions 8 and 10.



3. Insert the modem into its designated slot. Use the card guides on the top and bottom of the slot to guide the modem into position.

Important: The slot to the immediate right of the OSI coprocessor is reserved for the modem. When the OSI coprocessor is installed, only the PLC-5 modem may be installed into this slot.



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4. Snap the locking tab into place.
5. Plug the 802.4 broadband cable into the modem and tighten the nut to 20 in-lbs. (Using the 90-degree connector you received in this package is optional.)
6. Turn on the power to the modem and check to be sure the LED indicator lights. If the LED does not light, refer to the next section.

Troubleshooting

The LED indicator is lit whenever the modem has power and detects the carrier signal. If the LED indicator is not lit, the modem either does not have power or does not detect the carrier signal.

If the LED is not lit, first check to be sure that the modem is seated correctly in the 1771-I/O chassis and the power is on.

If the LED still is not lit, then do one of the following:

- Replace the modem with a known good modem and check to see if the LED lights.

If the LED:	Then:
Does not light	Check and correct the cable or headend
Lights	Replace the faulty modem

- Using a spectrum analyzer, verify that the modem is receiving a valid 802.4 signal from the headend. Refer to the IEEE 802.4 Specification, Section 14, for information on what qualifies as a valid signal.

If the modem:	Then:
Is not receiving a valid signal	Check and correct the cable or headend
Is receiving a valid signal	Replace the modem

Specifications

This section lists the operating specifications for the PLC-5 802.4 MAP/OSI Broadband Modem.

Transmit Specifications	
Medium:	
Impedance	75 ohm
Return Loss	14 dB min.
Coupling	AC
Breakdown	500 VAC 50/60 Hz min.
Shield to Chassis	0.1 ohm max.

Spectral:	
Channels (per CATV industry single-cable, mid-split configuration)	3'/4', 4A/5', or 5'/6'
Channel accuracy	+/- 0.01%
Bandwidth	12 Mhz
Power out	50 dBmv
Power out accuracy	+/- 2 dB over all factors
Carrier Suppression	32 dB min.
TX on/off	> 70 dBc
Spurious:	
TX off rev outband	< / = -25 dBmv / 30 kHz
TX off fwd outband	< / = -10 dBmv / 30 kHz
TX off inband	> 70 dBc
Modulation:	
Type	Duobinary AM / PSK
Data rate	10 mb / sec.
Data rate accuracy	+ / - 0.005%
Mask	Duobinary AM / PSK
Receive Specifications	
Medium:	
Impedance	75 ohm
Return loss	14 dB min.
Coupling	AC
Breakdown	500 VAC 50/60 Hz min.
Shield to chassis	0.1 ohm max.
Type	Fixed frequency direct conversion
Demod	AM 3 level duobinary
Performance:	
Dynamic range	-4 to +13 dBmv
UN DET BER	10 ⁻⁹
DET BER	10 ⁻⁸
Spectral:	
Channels	P/Q, R/S, or T/U

Electrical Specifications

Power:

+5V +/- 5%	6.5W
+12V +/- 5%	4.6W
-12V +/- 5%	1.4W



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