

Installing the MOD-10I-ST ISDN Expansion Board

Introduction

The MOD-10I-ST expansion card allows you to add ISDN BRI capability to the PortMaster 2E and 2ER communications servers.



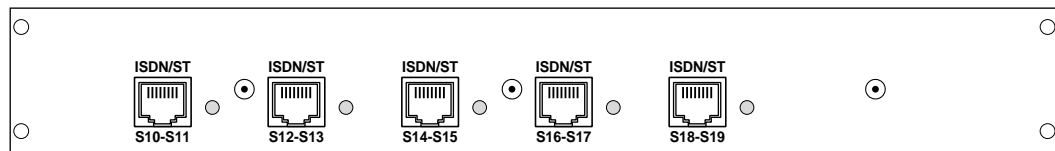
Note – Chapter 18, “ISDN Connections” in the current *Configuration Guide for PortMaster Products* only applies to the PortMaster U interface products, which have integrated NT1. This chapter’s coverage of NT1 and SPIDs does not apply to the MOD-10I-ST. The next release of this manual will cover configuration of ISDN S/T units (units without integrated NT1), such as the MOD-10I-ST.

The MOD-10I-ST is intended for use in Livingston Enterprises communications servers, such as the PortMaster 2E and 2ER. It requires ComOS™ 3.3.2 or later, available via anonymous ftp at ftp.livingston.com.

Features of the MOD-10I-ST

The MOD-10I-ST provides 5 RJ-45 ports for ISDN BRI connections. Each port supports two 64Kbps B channels for data and one 16Kbps D channel for signalling and provides an ST interface for countries that follow international ISDN standards. Ports may be connected directly to an NT1; a terminal adapter is not required.

The MOD-10I-ST rear panel is displayed below.



B channels may be used separately for 64Kbps connections, or combined for Multilink PPP (MP) connections or multi-line load-balancing. Multilink PPP uses two or more B channels for a single connection, resulting in increased data transfer rates. Multi-line load-balancing manages heavy traffic loads on a particular connection by adding additional B channels when traffic hits a designated “high water mark”.



Note – To configure Multilink PPP or multi-line load-balancing, see the *Configuration Guide for PortMaster Products*.

MOD-10I-ST ports support synchronous PPP and asynchronous V.120. The PortMaster autodetects whether an asynchronous or synchronous connection is required.

Installing the MOD-10I-ST board



Caution – Do not unpack components or open the case of the PortMaster without taking measures to control static electricity.

1. **Set the power switch to the OFF position and disconnect the PortMaster from the AC power source.**

2. **Open the PortMaster case.**

Remove the screw at the center of the top rear edge, then slide the top of the PortMaster case 1/2" horizontally and lift straight up. If you encounter difficulty separating the top and bottom sections of the PortMaster case, try pressing down on the top edge sides and pushing firmly.

3. **Verify that the 60-pin ribbon has been installed in the center of the PortMaster main board.**

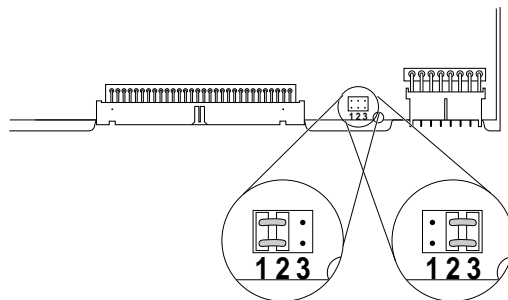
If the ribbon is already connected, continue to Step 4.

If it is not connected, insert the connector with the white stripe on the top into the main board, with the red line on the 60-wire ribbon closest to the power supply chamber. When inserting the 60-pin connector, support the free edge of the board (the side closest to the front of the PortMaster), with your hand so that it does not bend excessively.

4. **Verify the position of the expansion board jumper.**

The jumper is located between the two cable connectors on the expansion board.

The jumper pins are marked with three numbers, 1, 2, and 3. If the jumper connects pins 1 and 2, the expansion board will be seen as ports S10-S19. If the jumper connects the pair of pins marked 2 and 3 to the middle pair of pins, the expansion board will be seen as ports S20-S29.



5. **Remove the blank cover plate(s) from the rear of the PortMaster.**

The S10-S19 expansion board is inserted above the rear face plate with ports S0 through S9. The S20-S29 expansion board is inserted above the rear face plate with ports S10 through S19.

6. **Attach the rear face plates with the screws provided before attaching the data and power cables to the expansion boards.**

Before tightening any of the screws, ensure that the face plate is aligned.

7. **Plug the power cable (8-wire ribbon cable) and bus cable (60-wire ribbon cable) into the front of the expansion card(s).**

8. Close the PortMaster case by replacing the top of the case and the screw at the center of the top rear edge of the PortMaster.
9. Connect the PortMaster to the AC power source and set the power switch to the ON position.

ISDN Port Configuration

To configure the MOD-10I-ST, you will need to set the ISDN switch type and port telephone numbers.



Note – Setting SPIDs is typically not required outside of the US. If your service provider has given you SPIDs for your ISDN connection, see the “ISDN Connections” chapter of the *Configuration Guide for PortMaster Products* for configuration instructions.

Setting the Switch Type

To set the ISDN Switch Type, use the appropriate command from the following list.

Switch Type	Command
NET3	set isdn-switch net3
1TR6	set isdn-switch 1tr6
VN2	set isdn-switch vn2
VN3	set isdn-switch vn3
VN4	set isdn-switch vn4
NTT	set isdn-switch ntt
KDD	set isdn-switch kdd
NI-1	set isdn-switch ni-1
DMS-100	set isdn-switch dms-100
5ESS Custom Multipoint	set isdn-switch 5ess
5ESS Custom Point-to-Point	set isdn-switch 5ess-ptp

Switch type changes will not take effect until the PortMaster is rebooted.

Setting the Port Telephone Numbers

Telephone numbers must be assigned to each ISDN B channel on the MOD-10I-ST. When the PortMaster receives an incoming call, the call is connected to the B channel with the corresponding telephone number.

To assign a telephone number, use the `set <port number> directory` command.

```
Command> set s11 directory 5105551111
```

Confirming the ISDN Connection

The MOD-10I-ST does not include an NT1 LED. To confirm that there is a good ISDN connection in place, check the LED on your network termination device (NT1).



Note – The *Configuration Guide for PortMaster Products* mentions the NT1 LED and SPID configuration, which are not relevant to the MOD-10I-ST. The next revision of this manual will include MOD-10I-ST configuration.

Monitoring Port Status

To display the status of an ISDN port, use the `show <port number>` command. The Status field displays a message reflecting the current status of the port. To interpret this message, consult the following table.

Port Status	Modem Status	Description
NO-SERVICE	DCD- CTS- TELCO- NT1-	No directory (telephone) number
IDLE	DCD- CTS- TELCO- NT1-	No circuit to the NT1
IDLE	DCD- CTS+ TELCO+ NT1-	Line “on hook” and ready to use
IDLE	DCD- CTS+ TELCO+ NT1+	Line “off hook” and ready to dial
ESTABLISHED	DCD- CTS+ TELCO+ NT1+	Connecting or providing device service but no carrier sensed
ESTABLISHED	DCD+ CTS+ TELCO+ NT1+	Connected
ESTABLISHED	DCD+ CTS- TELCO+ NT1+	Connected with V.120 async but flow controlled by other end

Cable Information

An RJ-45 to RJ-45 cable is shipped with the MOD-10I-ST to connect the ISDN ports to an NT1.

The following table provides the pinout for the MOD-10I-ST ISDN ports. The directions (input/output) are with respect to the MOD-10I-ST.

MOD-10I-ST ISDN/ST Port	Name	Definition	Direction
3	TXD	Transmit Data	Output
6	TXD-		
4	RXD	Receive Data	Input
5	RXD-		

European Terminal Marking

CE188X

When installed in a PortMaster 2E or 2ER, the MOD-10I-ST carries the CE188X approval marking in accordance with the CE Marking Directive 93/68/EEC. This marking may be found on the base of the PortMaster.

This equipment has been tested and is compliant with the following European Directives:

- 91/263/EEC (Telecommunications Terminal Equipment)
- 73/23/EEC (Low Voltage Directive)
- 89/336/EEC (ElectroMagnetic Compatibility) as amended by 92/31/EEC

Pan-European Approval

BTZ, the German Notified Body, has issued Pan-European Approval to the MOD-10I-ST in accordance with the TTE Directive (91/263/EEC). This approval is valid throughout the European Economic Market.

This approval is valid in the following European Union Countries: Belgium, Denmark, Finland, France, Germany, Great Britain, Greece, Holland, Iceland, Ireland, Italy, Luxembourg, Portugal, Spain, and Sweden.

European CE approvals are automatically recognized by Norway.

In addition to compliance with the ETSI-based European standards, I-CTR 3 (Net 3 + Bridging Measures) NET 3 and ETS 300 047, the MOD-10I-ST has been tested and complies with the following National Delta requirements:

- French delta requirements CSE P 10-21 A
- German delta requirements BAPT 223 ZV 25

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You can schedule one-hour installation appointments in advance by calling the technical support telephone number listed above. New releases and upgrades of Livingston software are available via anonymous FTP from "[ftp.livingston.com](ftp://ftp.livingston.com/)."

