

Primary Rate Interface (PRI)

Description

In DSX-80/160, provides for connection to advanced digital lines and simplifies installation.

- Requires T1/PRI PCB P/N 1091006.

When a T1/PRI PCB (P/N 1091006) is installed, DSX-80/160 is compatible with ISDN Primary Rate Interface (PRI) circuits that use the NI-2 and DMS-100 signaling types. PRI provides 23 voice channels and a signaling channel (23B+D) in one circuit. Each T1/PRI PCB supports one 23B+D PRI circuit in a single RJ45 connector for a capacity of 23 lines. You can set up each line individually as one of the following line types:

- Loop Start DTMF
- DID Immediate Start DTMF

Similar to T1, PRI gives the system the advantages of advanced digital calling as well as conserving PCB slots. For example, you can set up a system with 12 loop start lines and 11 DID lines and use only a single PCB slot. Additionally, the T1/PRI PCB has its own on-board processor and DSP so it minimally impacts other system resources.

Incoming Calling Party Number and Name

If provided by the telco, DSX PRI supports the following incoming Calling Party Number (CPN) options:

- **Calling Party Number**
The keyset displays the Calling Party Number sent by the telco as the call is ringing. The Calling Party Number can be up to 16 digits long.
- **Calling Party Name**
As the call rings the keyset displays both the Calling Party Number and the Calling Party Name. The Calling Party Number can be up to 16 digits long and the Calling Party Name can be up to 15 ASCII characters long.

Incoming Calling Party Number is available on Loop Start DTMF and DID Immediate Start DTMF PRI lines when the Caller ID Type is set to *T1/PRI*. See *Programming* in this feature for more.

Outgoing Calling Party Number

The outgoing Calling Party Number (CPN) on a PRI line is provided by interaction of the programming set up for the system telephone number, the PRI line outgoing number, and the extension's outgoing ANI number. Here's how it works:

1. For PRI calls, the system's outgoing Calling Party Number is initially provided by the system telephone number set in **1011-02: TELEPHONE NUMBER**.
2. If a PRI line has its own outgoing number programmed in **3101-07: CALLING PARTY ID TELEPHONE NUMBER** the system outputs that number instead.
3. If an extension in turn has outgoing ANI programmed in **2101-05: OUTGOING ANI ID**, the system will overlay the ANI entry over either the system telephone number or the line outgoing number (depending on programming).

See *Programming* in this feature for more on how to set this up.

Outgoing Calling Party Number Example

Here is an example of how outgoing Calling Party Number over PRI lines can work:

- The system number set in **3101-07: CALLING PARTY ID TELEPHONE NUMBER** is 203 926 5400.
- PRI line 1 is the only line with an outgoing Caller ID number set in **3101-07: CALLING PARTY ID TELEPHONE NUMBER**. The entry is 203 926 6400.
- Extension 302 is the only extension with an outgoing ANI entry set in **2101-05: OUTGOING ANI ID**. The entry is 302.

For outgoing PRI calls:

- All outgoing PRI calls (except line 1 and extension 302) use 203 926 5400.
- All outgoing PRI calls on line 1 (except for extension 302) use 203 926 6400.
- An outgoing PRI call from extension 302 (except on line 1) uses 203 926 5302.
- An outgoing PRI call on line 1 from extension 302 uses 203 926 6302.

Outgoing Calling Party Number Privacy

An extension's Class of Service can optionally enable or disable Outgoing Calling Party Number Privacy. When an extension has Privacy enabled, the call recipient should see "Private Number" in their Caller ID display for calls over a PRI line from the extension. If disabled, the call recipient sees the Outgoing Calling Party Number programmed in the system.

Routing on the Dialed Number Received (Direct Inward Dialing)

Direct Inward Dialing (DID) routing for PRI lines is available when:

- The PRI line receiving the call is set for *DID Immediate Start*.
- The connected telco sends the Calling Party Number.
- The DSX system's DID programming is set for compatibility with the received Calling Party Number.

For more on setting up Direct Inward Dialing, see [*DIRECT INWARD DIALING*](#).

Installation Note

Although the T1/PRI PCB can connect directly to the telco's smart jack, your telco may require that you purchase and install a separate Channel Service Unit (CSU). This unit installs between the smart jack and the T1/PRI PCB.

Conditions

- None

Default Setting

- No PRI PCBs programmed.

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Programming

Basic Setup

1. Set Up the T1/PRI PCB.

1. In **1211-01: CARD TYPE**, the T1/PRI PCB will auto-ID as circuit type 06:

2. Select the PRI Signaling Type.

1. In **1213-07: T1/PRI SIGNALING TYPE**, select the PRI signaling type compatible with the connected telco.
 - **1** for NI-2 (ISDN NI-2)
 - **2** for DMS 100 (ISDN DMS-100)

3. Disable Overlap Dialing

1. In **1213-08: PRI OVERLAP DIALING**, enter **0**.
 - Overlap Dialing is generally not available in North America.
 - With Overlap Dialing, the system outputs digits over the PRI line as they are dialed. Dialing can continue until the system receives one of the following messages:
 - The call is proceeding (*CALL PROCEEDING*).
 - The call is ringing the destination (*CALL ALERTING*).
 - Switch dialing to in-band DTMF (*PROGRESS INDICATION 1 OR 8*).

4. Optionally adjust the Interdigit Timer.

1. In **1602-01: INTERDIGIT TIMER**, adjust the Interdigit Timer as required **[6]**.
 - For a manually-dialed PRI call, the system waits the Interdigit Timer interval after the user completes dialing before sending the call over the PRI line.
 - Speed Dial, Last Number Redial, and Save Number Dialed calls are sent immediately (without the interdigit delay).
 - To have the manually-dialed call sent immediately, the user just dials # after the last digit of their outgoing number.

Setup for Incoming Calling Party Number and Name

1. Set the Caller ID Type for the PRI lines.

1. In **3121-01: CALLER ID TYPE**, enter **3** (T1/PRI).

2. Enable incoming ring for the PRI lines.

1. Since Incoming Calling Party Number will only display for ringing calls, set the incoming ring type at each extension.
 1. (ringing day and night
 - For day and night ringing, in **2132-[01-64]: LINE RINGING** enter **1**.
 - For night ringing only, in **2132-[01-64]: LINE RINGING** enter **2**.
 - For delay ringing day and night, in **2132-[01-64]: LINE RINGING** enter **3**.
 - In **1604-01: DELAY RING TIMER**, set the interval after which a delay ring line will change from flashing to ringing.

Setup for Outgoing Calling Party Number (CPN)

1. Program the system's Outgoing Calling Party Number.

1. In **1011-02: TELEPHONE NUMBER**, enter the system telephone number (up to 18 digits).
 - This will be the Outgoing Calling Party Number unless overwritten by the line or extension programming in steps 2 or 3.

2. Program the Outgoing Calling Party Number for each PRI line.

1. In **3101-07: CALLING PARTY ID TELEPHONE NUMBER**, enter the Outgoing Calling Party Number for the PRI line (up to 18 digits). Each line can have a unique.
 - This will be the Outgoing Calling Party number for all calls on the line unless modified by extension programming in step 3.

3. Program the Outgoing Calling Party Number for each extension.

1. In **2101-05: OUTGOING ANI ID**, enter the Outgoing Calling Party Number for each extension (up to 4 digits).
2. For PRI calls, this option specifies the number that will overlay (replace) the last four digits of the outgoing Calling Party Number (up to 4 digits). For example:
 - If the system number is 203 926 5400 (set in **1011-02: TELEPHONE NUMBER**),
 - And the entry for this option (**2101-05: OUTGOING ANI ID**) is 302,
 - And there is no outgoing CPN set in **3101-07: CALLING PARTY ID TELEPHONE NUMBER**,
 - The outgoing CPN number will be 203-9026-5302.

Setup For Outgoing Calling Party Number Privacy

1. Should the system mark outgoing PRI calls from the extension as private?

1. In **2102-01: CLASS OF SERVICE**, check the extension's Class of Service level.
2. If yes, in **1404-05: OUTGOING ANI PRIVACY** enter **1** (Yes).
 - Normally, outgoing calls from the extension will be received as *Private Number*.
3. If no, in **1404-05: OUTGOING ANI PRIVACY** enter **0** (No).

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Other Related Features

CENTRAL OFFICE CALLS, PLACING

DSX provides individual En-bloc dialing for PRI lines. This makes the operation of PRI transparent to the user. It is not necessary to enable Store and Forward for PRI lines to facilitate En-bloc dialing.

DIRECT INWARD DIALING

DID service is available on PRI lines.

T1 LINES

T1 lines give the system a maximum of 24 lines in a single PCB slot.

Operation

PRI line operation is transparent. See CENTRAL OFFICE CALLS, ANSWERING and CENTRAL OFFICE CALLS, PLACING.