

# Hardware Installation for 5ESS Switch Integration with the 3A Translator

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## Overview

The connections required to integrate the Lucent™ INTUITY™ system with the Lucent 5ESS® switch using the 3A SMSI (simplified message desk interface) translator must be completed before programming the 3A translator. This chapter describes the:

- 3A translator
- NT1U-200, NT1U-220, and NT1L-230 network terminator units
- Power supply for the NT1U-200, NT1U-220, and NT1L-230 network terminator units
- Possible configurations for connecting to the multi-port serial circuit card



### NOTE:

The NT1U-200 network terminator unit is a older version of the unit, no longer supplied. It can be used for some integrations in upgrade situations.

Hardware configurations differ, depending upon the distance between the 3A translator and the 5ESS switch.

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## Purpose

This chapter provides procedures to install the hardware necessary to integrate a 5ESS switch with any MAP (multi-application platform) of the Lucent INTUITY system using a 3A translator.

## **Configuration**

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The 5ESS switch supports the applications processor interface (API) protocol. Data must be converted from simplified message service interface (SMSI) to API protocol before it reaches the integrated services digital network (ISDN) switching module on the 5ESS switch. To translate API to SMSI protocol, a 3A SMSI translator is used. The 3A translator can be connected to the multi-port serial circuit card on any INTUITY multi-application platform (M AP).

## **Distance Requirements**

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Different hardware configurations are possible depending on the distance between the 3A translator and the switch. If this distance is over 1 km (0.62 mi), a network terminator unit (NT1U-200, NT1U-220, or NT1L-230) is required:

- NT1L-230 network terminator unit can be used in any configuration.
- NT1U-220 or NT1L-230 network terminator unit is required if the U-card on the 5ESS switch uses 2B1Q encoding (5ESS switch Version 6 or later). Under these conditions, do not use an older version NT1U-200 network terminator unit.

The following configurations are supported for connection to the multi-port serial circuit card with the 3A translator:

- Less than 1 km (0.62 mi) from the 5ESS switch
- 1 km (0.62 mi) or more from the 5ESS switch with NT1U-220 or NT1L-230 network terminator unit
- Less than 1 km (0.62 mi) from the 5ESS switch with NT1U-200 or NT1L-230 network terminator unit

### **NOTE:**

At distances of 9.7 km (6 mi) or greater the 3A translator cannot be used. A modem must be used instead.

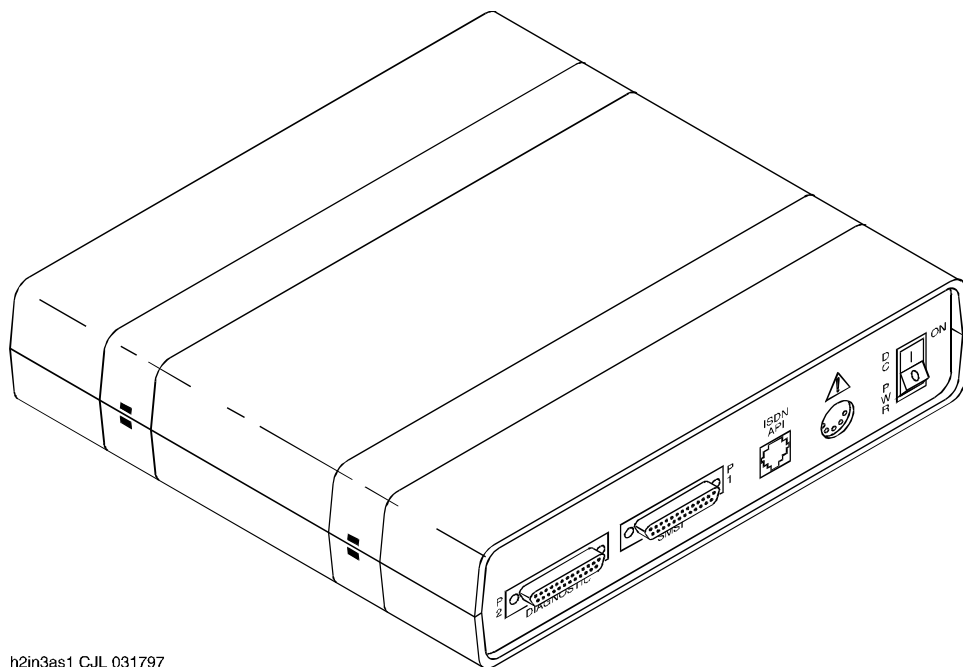
## Hardware Devices

See the following illustrations when installing the 5ESS integration hardware:

- 3A translator ([Figure 4-1](#) and [Figure 4-2](#))
- NT1U-220 network terminator unit ([Figure 4-3](#))
- NT1L-230 network terminator unit ([Figure 4-4](#))
- Power supply for NT1U-220, NT1U-220, and NT1L-230 network terminator units ([Figure 4-5](#))

### NOTE:

The NT1U-200 network terminator unit is not illustrated. It resembles the NT1U-220 network terminator unit. The NT1U-300 is also not illustrated. It also resembles the NT1U-200, but uses 2B1Q signaling.



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**Figure 4-1. Back View of the 3A SMSI Translator**

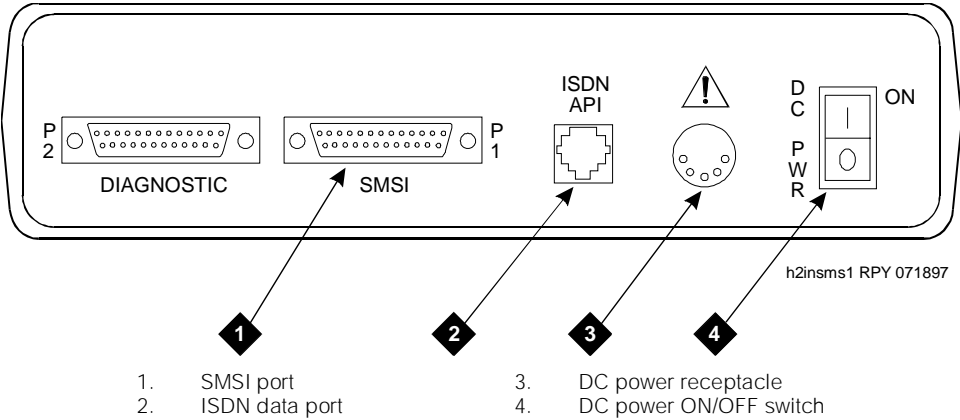


Figure 4-2. Back Panel of the 3A SMSI Translator

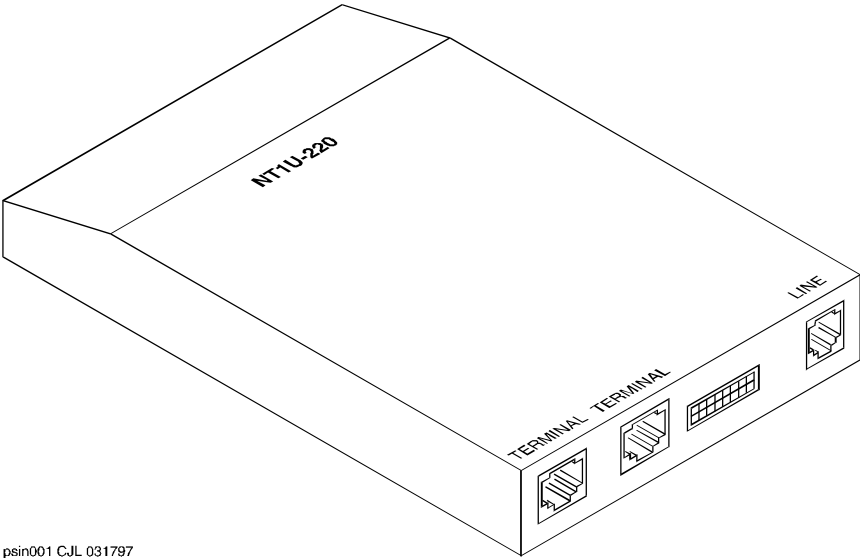


Figure 4-3. NT1U-220 Network Terminator Unit

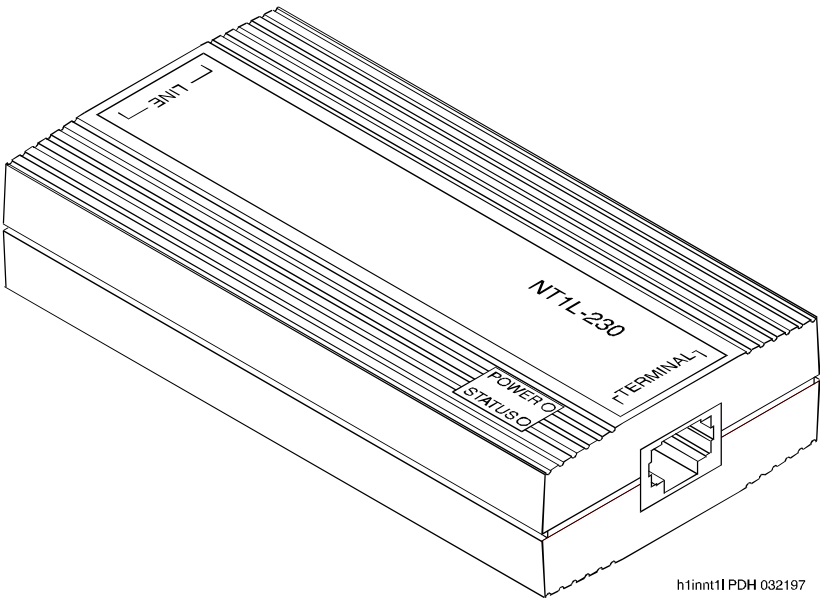


Figure 4-4. NT1L-230 Network Terminator Unit

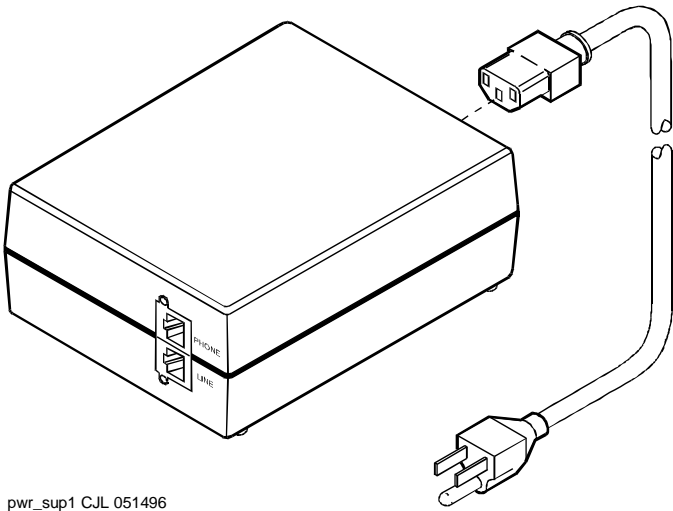


Figure 4-5. Power Supply for NT1U-200, NT1U-220, and NT1L-230 Network Terminator Units

## **Connecting to the Multi-Port Serial Circuit Card**

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The procedure required to connect the 3A translator to the multi-port serial circuit card depends on the distance between the 3A translator and the 5ESS switch:

- 1 km (0.62 mi) or less
- More than 1 km (0.62 mi) with NT1U-220 or NT1L-230 network terminator unit
- More than 1 km (0.62 mi) with NT1U-200 or NT1L-230 network terminator unit

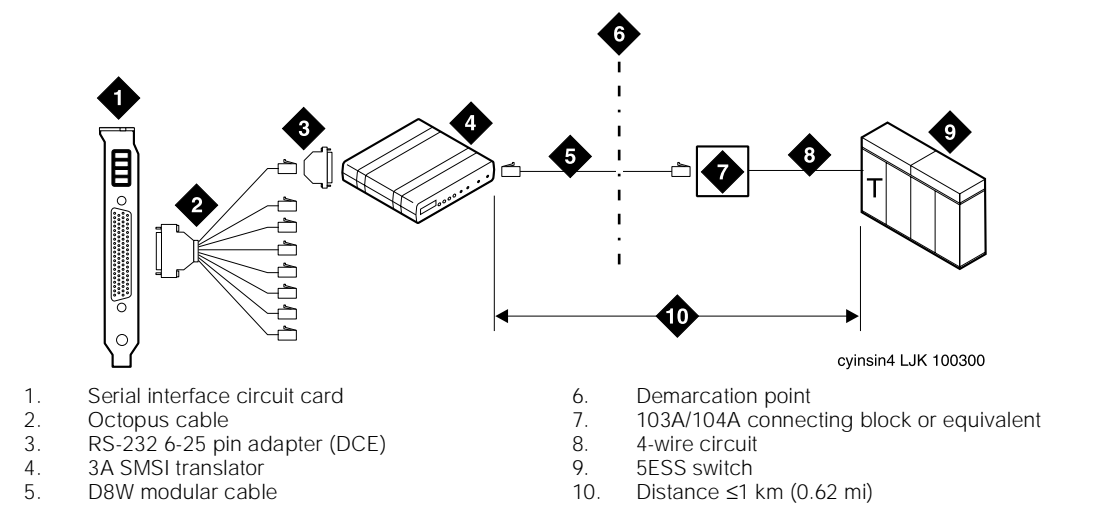
### **Distance of 1 km (0.62 mi) or Less**

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The following hardware is required when the 3A translator is connecting to the multi-port serial circuit card and is 1 km (0.62 mi) or less from the 5ESS switch ([Figure 4-6](#)):

- Multi-port serial circuit card (installed in any MAP)
- 4.3-m (14-ft) modular 6-wire cable (D6AP — provided with the multi-port serial circuit card)
- RS-232 6-25 pin terminal/printer adapter (DCE)
- 3A SMSI translator
- 60 Hz 120 VAC power supply/transformer (provided with the 3A translator)
- D8W modular cable
- 103A or 104A adapter or equivalent

In addition, a standard electrical outlet must be within 1.8 m (6 ft) of the 3A translator. Uninterruptible 60 Hz 120 VAC power is recommended.



**Figure 4-6. 3A Translator Connected to a Multi-Port Serial Circuit Card 1 km (0.62 mi) or Less from the 5ESS Switch**

Installing the Hardware


Use this procedure to connect the hardware for the 5ESS integration when the 3A translator is connecting to the multi-port serial circuit card and is 1 km (0.62 mi) or less from the switch ([Figure 4-6](#)).

1. On the Lucent INTUITY system, connect one end of the 4.3-m (14-ft) modular cable into the port being used on the multi-port serial circuit card.

**⇒ NOTE:**  
The port used must correspond with the port indicated in the **Serial Port** field on the Serial Interface window. (See [“Setting the Serial Interface Parameters”](#) in [Chapter 9, “Lucent Intuity Administration for Centrex Switch Integration”](#) for information on this window.)

2. Connect the other end of the 4.3-m (14-ft) modular cable to the RS-232 6-25 pin adapter.
3. In the back of the 3A translator ([Figure 4-2](#)), connect the RS-232 6-25 pin adapter into the SMSI port (P1). Secure the adapter to the back of the 3A translator.
4. Connect one end of the DC power cord from the power supply to the DC power receptacle in the back of 3A translator.
5. Connect the other end of the DC power cord to an AC electrical outlet.

6. In the back of the 3A translator, connect one end of the D8W modular cable to the ISDN data port.
7. Connect the other end of the D8W modular cable to the 103A or 104A connecting block leading to the 5ESS switch, or see [Figure 4-7](#) for wiring information necessary for the connection.

 **NOTE:**

The CO will deliver a 4-wire circuit to the interconnection point where the 103A or 104A connecting block is shown in [Figure 4-6](#). The following wiring information ([Figure 4-7](#)) may be needed to complete the connection.

4-Wire Circuit from CO		D8W Modular Cable	
1	W/BL (white-blue) pair	4	W/BL (white-blue) pair
2		5	
3	W/GN (white-green) pair	3	W/GN (white-green) pair
4		6	

**Figure 4-7. Wiring Configuration for Connecting the 3A Translator**

For information about CO requirements for interfacing with the switch, see [Chapter 3, "Centrex Switch Requirements and Administration"](#).

**Distance of More Than 1 km (0.62 mi) with NT1U-220 or NT1L-230 Network Terminator Unit**

The following hardware is required when the 3A translator is connecting to the multi-port serial circuit card and is more than 1 km (0.62 mi) from the 5ESS switch ([Figure 4-8](#)):

- Multi-port serial circuit card (installed in any MAP)
- 4.3-m (14-ft) modular 6-wire cable (D6AP — provided with the multi-port serial circuit card)
- RS-232 6-25 pin terminal/printer adapter (DCE)
- 3A SMSI translator
- 60 Hz 120 VAC power supply/transformer (provided with the 3A translator)
- Two D8W modular cables
- D6 modular cable
- Network terminator unit (NT1U-220 or NT1L-230)

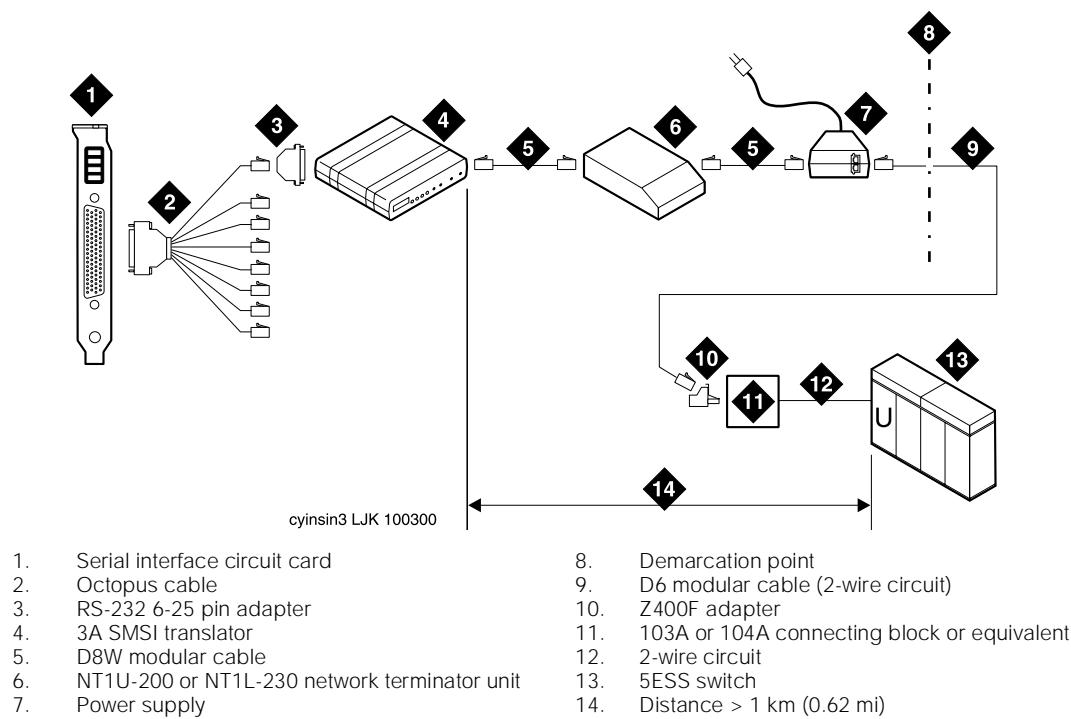
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Connecting to the Multi-Port Serial Circuit Card

- Power supply for NT1U-220 or NT1L-230 network terminator unit
- 400B2 adapter
- 103A or 104A connecting block (or equivalent)

In addition, a standard electrical outlet must be within 1.8 m (6 ft) of the 3A translator. Uninterruptible 60 Hz 120 VAC power is recommended.

**NOTE:**  
An NT1U-220 or NT1L-230 network terminator unit is required if the U-card on the 5ESS switch uses 2B1Q encoding (5ESS switch version 6 or later). Otherwise, use an NT1U-200 or NT1L-230 network terminator unit. The CO (central office) may provide the unit or the customer may be required to obtain it, depending on the local operating company procedures. The demarcation point is adjusted accordingly ([Figure 4-8](#)).



NOTE: If the customer provides the NT1U-200 or NT1L-230 network terminator unit, the demarcation point is the D8W cable from the back of the 3A translator.

**Figure 4-8. 3A Translator Connected to a Multi-Port Serial Circuit Card More Than 1 km (0.62 mi) from the 5ESS Switch with NT1U-220 or NT1L-230 Network Terminator Unit**

## **Installing the Hardware**

Use this procedure to connect the hardware for the 5ESS integration when the 3A translator is connecting to the multi-port serial circuit card and is more than 1 km (0.62 mi) from the switch ([Figure 4-8](#)):

1. On the Lucent INTUITY system, connect one end of the 4.3-m (14-ft) modular cable into the port being used on the multi-port serial circuit card.



### **NOTE:**

The port used must correspond with the port indicated in the `Serial Port` field on the Serial Interface window. (See ["Setting the Serial Interface Parameters"](#) in [Chapter 9, "Setting the Serial Interface Parameters"](#) for information about this window.)

2. Connect the other end of the 4.3-m (14-ft) modular cable into the RS-232 DCE 6-25 pin adapter.
3. In the back of the 3A translator ([Figure 4-2](#)), connect the RS-232 DCE 6-25 pin adapter into the SMSI port (P1). Secure the adapter to the back of the 3A translator.
4. Connect one end of the DC power cord from the power supply to the DC power receptacle in the back of 3A translator.
5. Connect the other end of the DC power cord to an AC electrical outlet.
6. In the back of the 3A translator, connect one end of the first D8W modular cable to the ISDN data port.
7. Connect the other end of the D8W modular cable a TERMINAL port on the NT1U-220 or NT1L-230 network terminator unit ([Figure 4-3](#) or [Figure 4-4](#)).
8. Connect one end of the second D8W modular cable to the LINE port of the NT1U-220 or NT1L-230 network terminator unit.
9. Connect the other end of the D8W modular cable to the TO PHONE port of the NT1U-220/NT1L-230 power supply ([Figure 4-5](#)).
10. Connect one end of the D6 modular cable to the TO LINE port of the NT1U/NT1L power supply ([Figure 4-5](#)).
11. Connect the other end of the D6 modular cable to the 400B2 adapter.
12. Connect the 400B2 adapter to the 103A or 104A connecting block leading to the 5ESS switch.

For information about CO requirements for interfacing with the switch, see [Chapter 3, "Centrex Switch Requirements and Administration"](#).

## **Distance of More Than 1 km (0.62 mi) with NT1U-200 or NT1L-230 Network Terminator Unit**

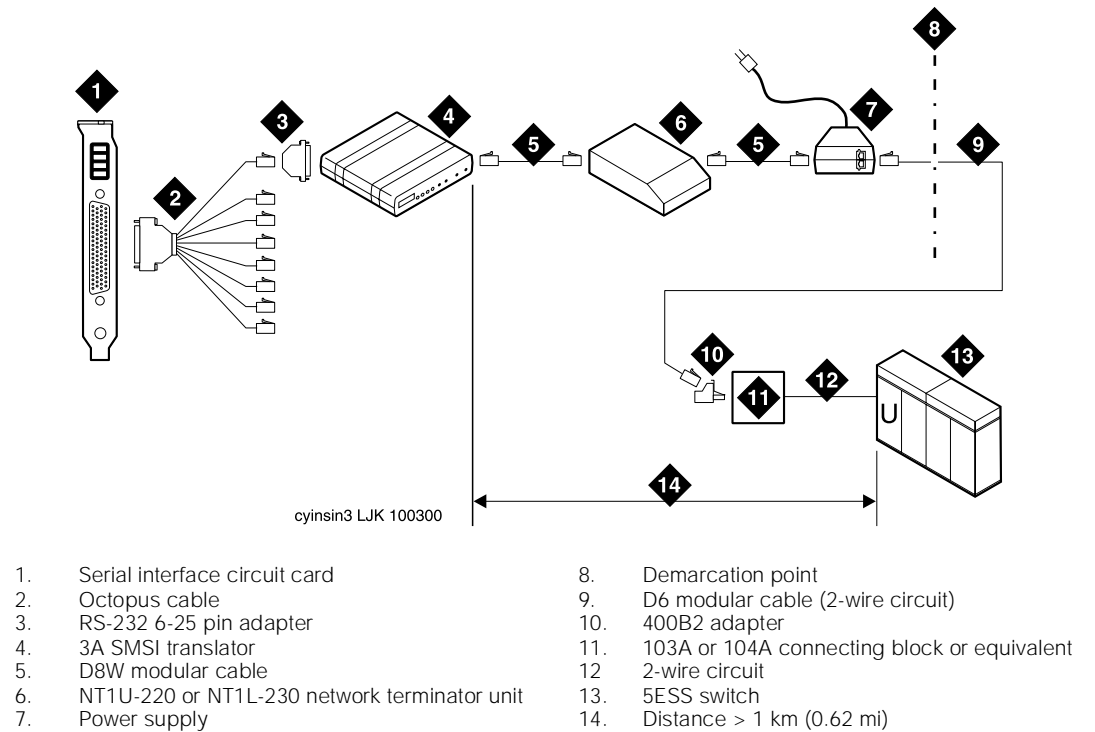
The following hardware is required when the 3A translator is connecting to the multi-port serial circuit card and is more than 1 km (0.62 mi) from the switch ([Figure 4-9](#)):

- Multi-port serial circuit card (installed in any MAP)
- 4.5-m (14-ft) modular 6-wire cable (D6AP — provided with the multi-port serial circuit card)
- RS-232 6-25 pin terminal/printer adapter (DCE)
- 3A SMSI translator
- 60 Hz 120 VAC power supply/transformer (provided with the 3A translator)
- Two D8W modular cables
- D6 modular cable
- Network terminator unit (NT1U-200 or NT1L-230)
- Power supply for NT1U-200 or NT1L-230 network terminator unit
- 103A or 104A connecting block (or equivalent)

In addition, a standard electrical outlet must be within 1.8 m (6 ft) of the 3A translator. An uninterruptible 60 Hz 120 VAC power is recommended.

### **⇒ NOTE:**

Use an NT1U-200 or NT1L-230 network terminator unit for 5ESS switch Versions 5 or earlier. Otherwise, use an NT1U-220 or NT1L-230 network terminator unit, as described in the previous section. The CO may provide the unit or the customer may be required to obtain it, depending on the local operating company procedures. If the customer provides the unit, the demarcation point is adjusted ([Figure 4-9](#)).



NOTE: If the customer provides the NT1U-200 or NT1L-230 network terminator unit, the demarcation point is the D8W cable from the back of the 3A translator2

**Figure 4-9. 3A Translator Connected to a Multi-Port Serial Circuit Card More Than 1 km (0.62 mi) from the 5ESS Switch with NT1U-200 or NT1L-230 Network Terminator Unit**

Installing the Hardware

Use this procedure to connect the hardware for the 5ESS integration when the 3A translator is connecting to the multi-port serial circuit card and is more than 1 km (0.62 mi) from the switch (Figure 4-9):

- 1. On the Lucent INTUITY system, connect one end of the 4.3-m (14 ft) modular 6-wire cable into the port being used on the multi-port serial circuit card.

**NOTE:** The port used must correspond with the port indicated in the Serial Port field on the Serial Interface window. (See [“Setting the Serial Interface Parameters”](#) in [Chapter 9, “Lucent Intuity Administration for Centrex Switch Integration”](#) for information about this window.)

2. Connect the other end of the 4.3-m (14-ft) modular cable into the RS-232 DCE 6-25 pin adapter.
3. In the back of the 3A translator ([Figure 4-2](#)), connect the RS-232 DCE 6-25 pin adapter into the SMSI port (P1). Secure the adapter to the back of the 3A translator.
4. Connect one end of the DC power cord from the power supply to the DC power receptacle in the back of 3A translator.
5. Connect the other end of the DC power cord to an AC electrical outlet.
6. In the back of the 3A translator, connect one end of the D8W modular cable to the ISDN data port.
7. Connect the other end of the D8W modular cable to a TERMINAL port on the NT1U-200 or NT1L-230 network terminator unit.
8. Connect one end of the first D6 modular cable to the LINE port of the NT1U-200 or NT1L-230 network terminator unit.
9. Connect the other end of the D6 modular cable to the TO PHONE port of the NT1U/NT1L power supply ([Figure 4-5](#)).
10. Connect one end of the second D6 modular cable to the TO LINE port of the NT1U/NT1L power supply ([Figure 4-5](#)).
11. Connect the other end of the D6 modular cable to the Z400F adapter.
12. Connect the Z400F adapter to the 103A or 104A connecting block leading to the 5ESS switch.

For information about CO requirements for interfacing with the switch, see [Chapter 3, "Centrex Switch Requirements and Administration"](#).

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