

Introduction

There are two models of the dual RS-232/2120 module.

- 4100/4120-0113 – used for systems with 2975-91xx Back Boxes (4100).
- 4100-6038 – used for systems with 2975-94xx Back Boxes (4100U and 4100ES).

Both models do the following to the Fire Alarm Control Panel:

- Connect a Simplex 2120 FACP to a 4100 system, using either an 18 AWG (0.8231 mm²) hardwired connection (maximum distance 10,000 feet [3,048 m]) or FSK-type modems.
- Connect devices with a standard RS-232 interface — such as an AC or DC Printer, CRT, third-party computer, or GCC — to the 4100.

Contents of Shipment

The RS-232/2120 card ships with the following components.

Part #	Description	Qty
565-799	Class B Motherboard	1
565-415	RS-232/2120 Daughter Card	1

Related Documentation

- *2120 Field Wiring Diagram* (900-036)
- *Field Wiring Diagram for 4100 Power Limited* (841-731) or,
- *Field Wiring Diagram for 4100 Non Power Limited* (841-995)
- *4100ES Fire Alarm System Installation Guide* (574-848)

In this Publication

This publication discusses the following topics:

Topic	See Page #
Cautions and Warnings	2
Setting Jumpers	3
Setting Switches	5
Installing Motherboards into 2975-91xx Back Boxes (410079)	7
Installing Motherboards into 2975-94xx Back Boxes (4100U/4100ES)	11
Installing the Daughter Card	16
Wiring	17

Cautions and Warnings

Cautions and Warnings



READ AND SAVE THESE INSTRUCTIONS- Follow the instructions in this installation manual. These instructions must be followed to avoid damage to this product and associated equipment. Product operation and reliability depend upon proper installation.



DO NOT INSTALL ANY SIMPLEX® PRODUCT THAT APPEARS DAMAGED- Upon unpacking your Simplex product, inspect the contents of the carton for shipping damage. If damage is apparent, immediately file a claim with the carrier and notify an authorized Simplex product supplier.

ELECTRICAL HAZARD - Disconnect electrical field power when making any internal adjustments or repairs. All repairs should be performed by a representative or authorized agent of your local Simplex product supplier.



STATIC HAZARD - Static electricity can damage components. Handle as follows:

- Ground yourself before opening or installing components.
- Prior to installation, keep components wrapped in anti-static material at all times.

FCC RULES AND REGULATIONS – PART 15 - This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Setting Jumpers

Jumper Locations

Figure 1 shows the locations of the jumpers on the dual RS-232/2120 card, and identifies the number assigned to each jumper pin. The specific jumper settings required on the dual RS-232/2120 card depend on the type of device being attached to the card. Refer to Table 1 for specific jumper configurations.

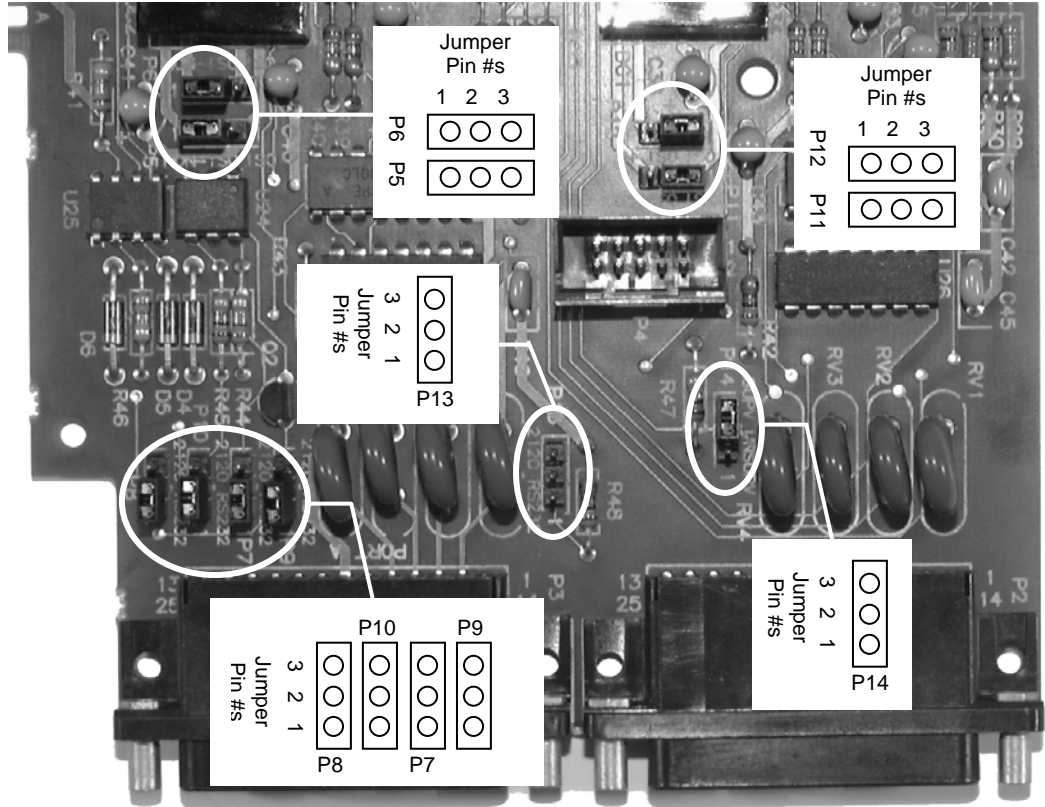


Figure 1. Location of Jumpers and Corresponding Pin Numbers

Continued on next page

Setting Jumpers, *Continued*

Jumper Settings for Specific Devices

Table 1 lists the jumper settings for the range of devices that can be attached to the RS-232/2120 card.

Refer to Figure 1 for the locations of the jumpers and their corresponding pin numbers. In the table below, 2-3 means you should place the jumper on pins 2 and 3, whereas a designation of 1-2 means you should place the jumper on pins 1 and 2.

Table 1. Jumper Settings for RS-232/2120 Devices

	If Connected to Port A							If Connected to Port B		
	P5	P6	P7	P8	P9	P10	P13	P11	P12	P14
2120 DC COMM (Port A Only)	2-3	2-3	2-3	2-3	2-3	2-3	2-3	N/A	N/A	N/A
2120 Master/Slave Modems, FSK-Type (Port A Only)	2-3	2-3	1-2	1-2	1-2	1-2	None	N/A	N/A	N/A
Service Modem (Port A Only)	1-2	1-2	1-2	1-2	1-2	1-2	None	N/A	N/A	N/A
2120 Comm Standard Modem (Port A Only)	2-3	2-3	1-2	1-2	1-2	1-2	2-3	N/A	N/A	N/A
DC Printer -- Supervised	1-2	1-2	1-2	1-2	1-2	1-2	None	1-2	1-2	2-3
DC Printer -- Unsupervised	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2
AC Printer, CRT, 3rd Party Computer, GCC, Alert Central -- Supervised	2-3	2-3	1-2	1-2	1-2	1-2	None	2-3	2-3	2-3
AC Printer, CRT -- Unsupervised	2-3	2-3	1-2	1-2	1-2	1-2	1-2	2-3	2-3	1-2

Setting Switches

Switches

Switch SW1 on the RS-232/2120 card is a bank of eight DIP switches. From left to right (see Figure 2, below) these switches are designated as SW1-1 through SW1-8. The function of these switches is as follows:

- **SW1-1.** This switch sets the baud rate for the internal 4100 communications line running between the card and the 4100 CPU. Set this switch to ON.
- **SW1-2 through SW1-8.** These switches set the card's address within the 4100 FACP. Refer to Table 2 for a complete list of the switch settings for all of the possible card addresses.

Note: You must set these switches to the value assigned to the card by the Programmer.

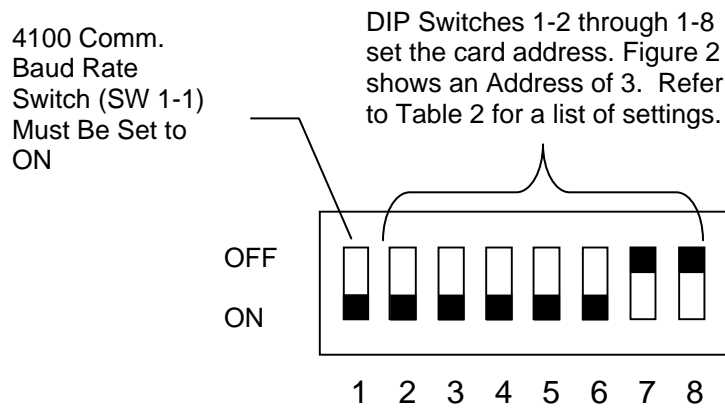


Figure 2. Address DIP Switch

Continued on next page

Setting Switches, *Continued*

Switches

Table 2. 4100 Daughter Card Addresses

Address	SW 1-2	SW 1-3	SW 1-4	SW 1-5	SW 1-6	SW 1-7	SW 1-8	Address	SW 1-2	SW 1-3	SW 1-4	SW 1-5	SW 1-6	SW 1-7	SW 1-8
1	ON	ON	ON	ON	ON	ON	OFF	61	ON	OFF	OFF	OFF	OFF	ON	OFF
2	ON	ON	ON	ON	ON	OFF	ON	62	ON	OFF	OFF	OFF	OFF	OFF	ON
3	ON	ON	ON	ON	ON	OFF	OFF	63	ON	OFF	OFF	OFF	OFF	OFF	OFF
4	ON	ON	ON	ON	OFF	ON	ON	64	OFF	ON	ON	ON	ON	ON	ON
5	ON	ON	ON	ON	OFF	ON	OFF	65	OFF	ON	ON	ON	ON	ON	OFF
6	ON	ON	ON	ON	OFF	OFF	ON	66	OFF	ON	ON	ON	ON	OFF	ON
7	ON	ON	ON	ON	OFF	OFF	OFF	67	OFF	ON	ON	ON	ON	ON	OFF
8	ON	ON	ON	OFF	ON	ON	ON	68	OFF	ON	ON	ON	OFF	ON	ON
9	ON	ON	ON	OFF	ON	ON	OFF	69	OFF	ON	ON	ON	OFF	ON	OFF
10	ON	ON	ON	OFF	ON	OFF	ON	70	OFF	ON	ON	ON	OFF	OFF	ON
11	ON	ON	ON	OFF	ON	OFF	OFF	71	OFF	ON	ON	ON	OFF	OFF	OFF
12	ON	ON	ON	OFF	OFF	ON	ON	72	OFF	ON	ON	OFF	ON	ON	ON
13	ON	ON	ON	OFF	OFF	ON	OFF	73	OFF	ON	ON	OFF	ON	ON	OFF
14	ON	ON	ON	OFF	OFF	OFF	ON	74	OFF	ON	ON	OFF	ON	OFF	ON
15	ON	ON	ON	OFF	OFF	OFF	OFF	75	OFF	ON	ON	OFF	ON	OFF	OFF
16	ON	ON	OFF	ON	ON	ON	ON	76	OFF	ON	ON	OFF	OFF	ON	ON
17	ON	ON	OFF	ON	ON	ON	OFF	77	OFF	ON	ON	OFF	OFF	ON	OFF
18	ON	ON	OFF	ON	ON	OFF	ON	78	OFF	ON	ON	OFF	OFF	OFF	ON
19	ON	ON	OFF	ON	ON	OFF	OFF	79	OFF	ON	ON	OFF	OFF	OFF	OFF
20	ON	ON	OFF	ON	OFF	ON	ON	80	OFF	ON	OFF	ON	ON	ON	ON
21	ON	ON	OFF	ON	OFF	ON	OFF	81	OFF	ON	OFF	ON	ON	ON	OFF
22	ON	ON	OFF	ON	OFF	OFF	ON	82	OFF	ON	OFF	ON	ON	ON	OFF
23	ON	ON	OFF	ON	OFF	OFF	OFF	83	OFF	ON	OFF	ON	ON	OFF	OFF
24	ON	ON	OFF	OFF	ON	ON	ON	84	OFF	ON	OFF	ON	OFF	ON	ON
25	ON	ON	OFF	OFF	ON	ON	OFF	85	OFF	ON	OFF	ON	OFF	ON	OFF
26	ON	ON	OFF	OFF	ON	OFF	ON	86	OFF	ON	OFF	ON	OFF	OFF	ON
27	ON	ON	OFF	OFF	ON	OFF	OFF	87	OFF	ON	OFF	ON	OFF	OFF	OFF
28	ON	ON	OFF	OFF	OFF	ON	ON	88	OFF	ON	OFF	OFF	ON	ON	ON
29	ON	ON	OFF	OFF	OFF	ON	OFF	89	OFF	ON	OFF	OFF	ON	ON	OFF
30	ON	ON	OFF	OFF	OFF	OFF	ON	90	OFF	ON	OFF	OFF	ON	OFF	ON
31	ON	ON	OFF	OFF	OFF	OFF	OFF	91	OFF	ON	OFF	OFF	ON	OFF	OFF
32	ON	OFF	ON	ON	ON	ON	ON	92	OFF	ON	OFF	OFF	OFF	ON	ON
33	ON	OFF	ON	ON	ON	ON	OFF	93	OFF	ON	OFF	OFF	OFF	ON	OFF
34	ON	OFF	ON	ON	ON	OFF	ON	94	OFF	ON	OFF	OFF	OFF	OFF	ON
35	ON	OFF	ON	ON	ON	OFF	OFF	95	OFF	ON	OFF	OFF	OFF	OFF	OFF
36	ON	OFF	ON	ON	OFF	ON	ON	96	OFF	OFF	ON	ON	ON	ON	ON
37	ON	OFF	ON	ON	OFF	ON	OFF	97	OFF	OFF	ON	ON	ON	ON	OFF
38	ON	OFF	ON	ON	OFF	OFF	ON	98	OFF	OFF	ON	ON	ON	OFF	ON
39	ON	OFF	ON	ON	OFF	OFF	OFF	99	OFF	OFF	ON	ON	ON	OFF	OFF
40	ON	OFF	ON	OFF	ON	ON	ON	100	OFF	OFF	ON	ON	OFF	ON	ON
41	ON	OFF	ON	OFF	ON	ON	OFF	101	OFF	OFF	ON	ON	OFF	ON	OFF
42	ON	OFF	ON	OFF	ON	OFF	ON	102	OFF	OFF	ON	ON	OFF	OFF	ON
43	ON	OFF	ON	OFF	ON	OFF	OFF	103	OFF	OFF	ON	ON	OFF	OFF	OFF
44	ON	OFF	ON	OFF	OFF	ON	ON	104	OFF	OFF	ON	OFF	ON	ON	ON
45	ON	OFF	ON	OFF	OFF	ON	OFF	105	OFF	OFF	ON	OFF	ON	ON	OFF
46	ON	OFF	ON	OFF	OFF	OFF	ON	106	OFF	OFF	ON	OFF	ON	OFF	ON
47	ON	OFF	ON	OFF	OFF	OFF	OFF	107	OFF	OFF	ON	OFF	ON	OFF	OFF
48	ON	OFF	OFF	ON	ON	ON	ON	108	OFF	OFF	ON	OFF	OFF	ON	ON
49	ON	OFF	OFF	ON	ON	ON	OFF	109	OFF	OFF	ON	OFF	OFF	ON	OFF
50	ON	OFF	OFF	ON	ON	OFF	ON	110	OFF	OFF	ON	OFF	OFF	OFF	ON
51	ON	OFF	OFF	ON	ON	OFF	OFF	111	OFF	OFF	ON	OFF	OFF	OFF	OFF
52	ON	OFF	OFF	ON	OFF	ON	ON	112	OFF	OFF	OFF	ON	ON	ON	ON
53	ON	OFF	OFF	ON	OFF	ON	OFF	113	OFF	OFF	OFF	ON	ON	ON	OFF
54	ON	OFF	OFF	ON	OFF	OFF	ON	114	OFF	OFF	OFF	ON	ON	OFF	ON
55	ON	OFF	OFF	ON	OFF	OFF	OFF	115	OFF	OFF	OFF	ON	ON	OFF	OFF
56	ON	OFF	OFF	OFF	ON	ON	ON	116	OFF	OFF	OFF	ON	OFF	ON	ON
57	ON	OFF	OFF	OFF	ON	ON	OFF	117	OFF	OFF	OFF	ON	OFF	ON	OFF
58	ON	OFF	OFF	OFF	ON	OFF	ON	118	OFF	OFF	OFF	ON	OFF	OFF	ON
59	ON	OFF	OFF	OFF	ON	OFF	OFF	119	OFF	OFF	OFF	ON	OFF	OFF	OFF
60	ON	OFF	OFF	OFF	OFF	ON	ON								

Installing Motherboards into 2975-91xx Back Boxes (410079)

Overview

The dual RS-232/2120 module can be mounted to either 4100 Back Boxes (PID series 2975-91xx) or 4100U/ 4100ES Back Boxes (PID series 2975-94xx).

- The 4100/4120-0113 version is used for systems with 4100 Back Boxes.
- The 4100-6038 version is used for systems with 4100U Back Boxes.

This section describes mounting the 4100/4120-0113 version into 4100 Back Boxes.

Installing into a 2975-91xx Master Controller Bay

Use the following guidelines and instruction when installing into a master controller bay.

- If the 575-274 Master Motherboard is used, it must be installed in the leftmost position of this bay. If the 575-274 Master Motherboard is not used, the CPU motherboard must be installed in the leftmost position of the bay.
- The power supply must be installed in the rightmost position of the bay.
- Relay cards must be installed in the slots immediately to the left of the power supply. This is necessary to allow for the proper routing of non-power limited wiring (120 VAC wiring connected to the relay card).
- If used, the Class B motherboard (575-275) must be installed to the left of the relay cards. If a physical bridge is used with the Class B motherboard, it must be to the right of any motherboards using NICs. This allows for earth ground detection via the physical bridge.

Install the motherboard as described below.

1. Orient the motherboard so that the connector labeled J1 is on the right and the header labeled P1 is on the left.
2. Slide the motherboard you are installing to the left until the pins are completely inserted in the connector of a previously installed motherboard.
3. Secure the motherboard to the chassis with four torx screws.

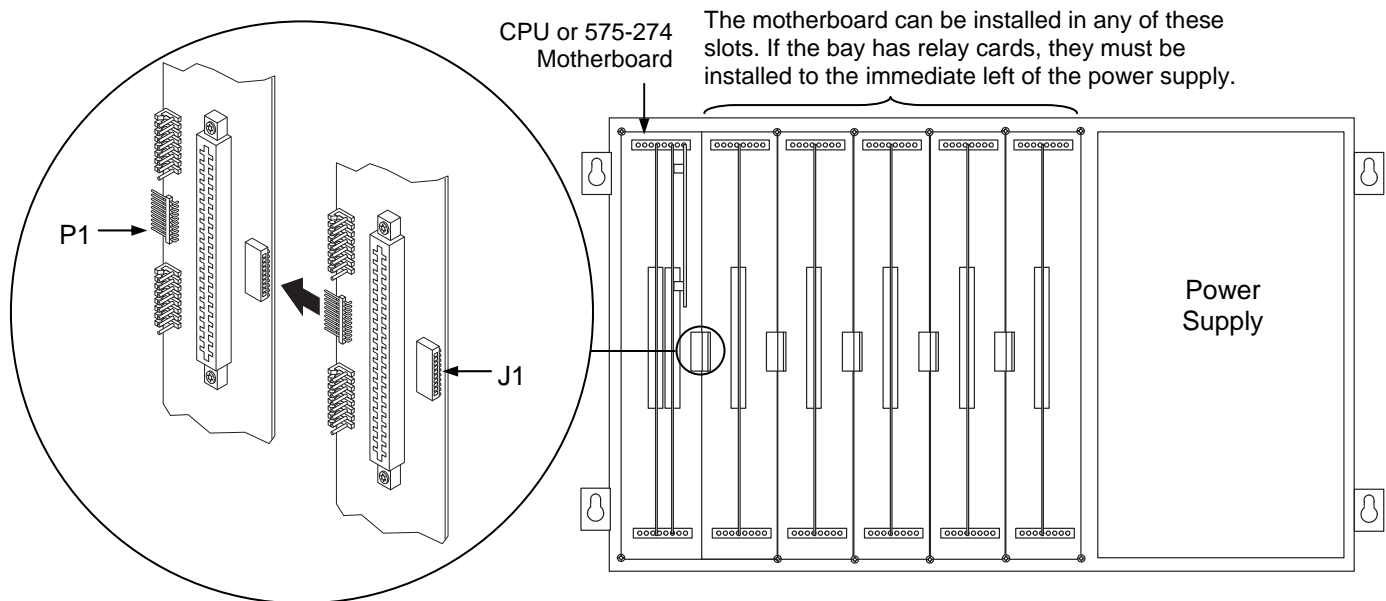


Figure 3. Installing the Motherboard into a 4100 Master Controller Bay

Continued on next page

Installing Motherboards into 2975-91xx Back Boxes (410079), *Continued*

Installing into a 2975-91xx Expansion Bay

Review the following guidelines before mounting the motherboard into a 2975-91xx Expansion Bay.

- If a power supply is installed in the bay, it must be installed on the far right of the bay and any relay modules must be installed in the slots immediately to its left.
- Relay cards must be installed in the rightmost possible slots. This is necessary to allow for the proper routing of non-power-limited wiring (typically 120 VAC wiring), which could be connected to a relay module.
- If a 4100-0155 SDACT or a 4100-0153 CCDACT is installed in the bay, it must be installed in the far left or far right slot. Neither of these modules contains the J1 or P1 connectors, which are used to distribute power and communications to adjacent modules.

Use the following directions and Figure 4 to install a motherboard into an expansion bay.

1. Orient the motherboard with the connector labeled J1 on the right and the header labeled P1 on the left.
2. Match the connector on the previously installed motherboard with the pins on the motherboard you are installing. Slide the motherboard to the left until the pins are completely inserted in the connector of the previously installed motherboard. If you are installing the leftmost board, the pins will remain unconnected.
3. Secure the motherboard to the chassis with four torx screws.

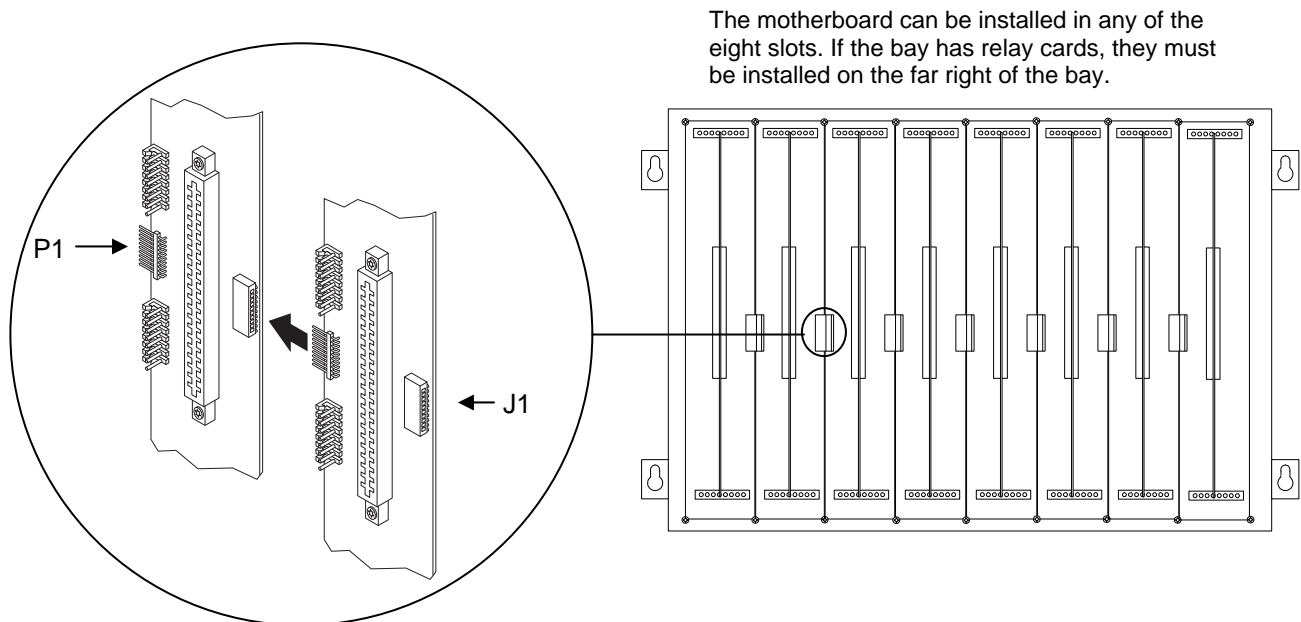


Figure 4. Installing the Motherboard into a 4100 Expansion Bay

4. If you are installing the leftmost motherboard, connect a 733-525 Power and Communication Harness. Continue to the next topic to connect the harness.

Continued on next page

Installing Motherboards into 2975-91xx Back Boxes (410079), *Continued*

Connecting the 733-525 Harness

If you need to connect a 733-525 Harness to a motherboard, refer to Figure 6 and follow these steps. Make sure to route the power and communication wiring on the left side of the bay.

1. Connect one end of the harness to a motherboard in an adjacent bay.

If the adjacent bay is a master controller bay, connect the harness to the P2 and P3 connectors of the master controller motherboard and continue to step 2.

If the adjacent bay is an expansion bay, connect the harness to the P2 and P3 connectors of the motherboard installed in the leftmost slot. (If a 4100-0155 SDACT or a 4100-0153 CCDACT occupies the leftmost slot, connect the harness to the motherboard in the second slot from the left.) Connect the harness as follows:

- a. Insert the harness connector with the blue wire into the P2 connector. Note that the P2 connector has eight pins. Insert the harness connector on either the top four pins or the bottom four pins, not in the middle.
- b. Insert the harness connector with the white wire into the P3 connector. Note that the P3 connector has eight pins. Insert the harness connector on either the top four pins or the bottom four pins, not in the middle.

Continued on next page

Installing Motherboards into 2975-91xx Back Boxes (410079), *Continued*

Connecting the 733-525 Harness

2. Connect the other end of the harness to the leftmost motherboard in the next bay, as described below. Make sure to route the wiring on the left side of the bay.
 - a. Insert the harness connector with the blue wire into the P2 connector. Note that the P2 connector has eight pins. Insert the harness connector on either the top four pins or the bottom four pins, not in the middle.
 - b. Insert the harness connector with the white wire into the P3 connector. Note that the P3 connector has eight pins. Insert the harness connector on either the top four pins or the bottom four pins, not in the middle.

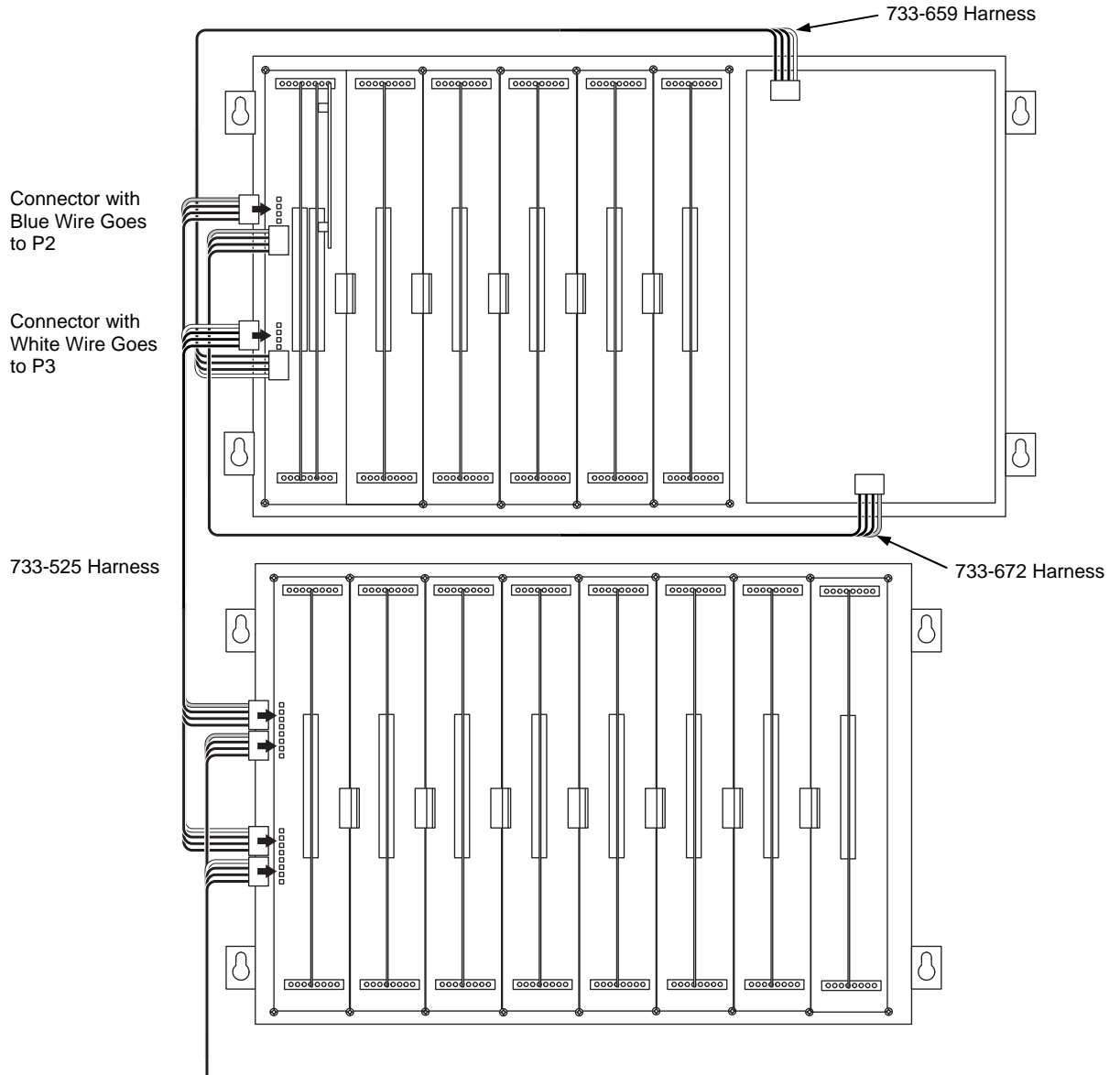


Figure 5. Power and Communication Wiring for Motherboards (4100)

Installing Motherboards into 2975-94xx Back Boxes (4100U/4100ES)

Overview

The dual RS-232/2120 module mounted to either 4100 Back Boxes (PID series 2975-91.xx) or 4100U Back Boxes (PID series 2975-94.xx).

- The 4100/4120-0113 version is used for systems with 4100 Back Boxes.
- The 4100-6038 version is used for systems with 4100U/4100ES Back Boxes.

This section describes mounting the 4100-6038 version of the module into 4100U/4100ES Back Boxes.

Installing into a 2975-94xx CPU Bay

Up to two motherboards may be installed with the system CPU in the CPU bay.

Use the following directions to mount a motherboard into a CPU bay.

1. Orient the motherboard with the connector labeled J1 on the right and the header labeled P1 on the left.
2. Slide the motherboard to the right until the pins from P1 on the motherboard to the right are completely inserted in the motherboard's J1 connector.
3. Attach four lockwashers and metal standoffs to the chassis, and secure the motherboard to the chassis using four #6 screws.

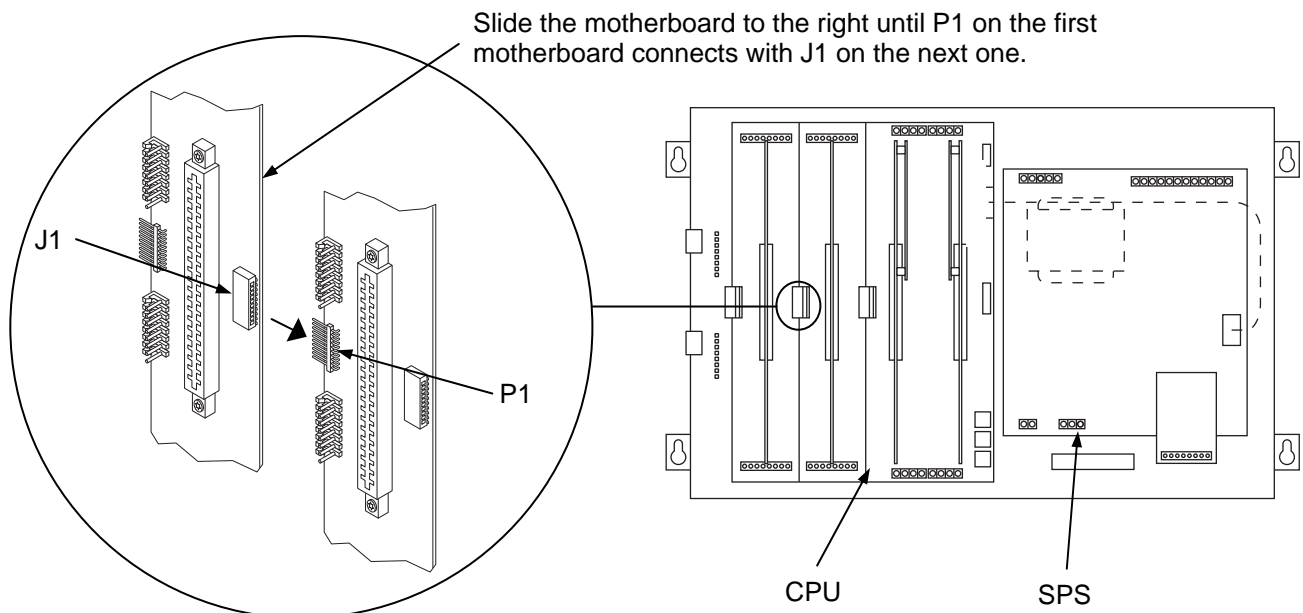


Figure 6. Installing the Motherboard into a 4100U/4100ES CPU Bay

Continued on next page

Installing Motherboards into 2975-94xx Back Boxes (4100U/4100ES), Continued

Installing into a 2975-94xx Expansion Bay

When installing 2 (51 mm) x 11 ½-inch (292 mm) motherboards in a 4100U/4100ES expansion bay, adhere to the following guidelines:

- Each expansion bay assembly includes a chassis, two end supports, one LED/switch frame, and a power distribution interface (PDI) board.
- An expansion bay holds up to eight 4-inch (102 mm) x 5-inch (127 mm) modules. A double-size module, such as the expansion power supply (XPS), takes up two blocks of space as shown below.
- Up to seven 2 (51 mm) x 11 ½-inch (292 mm) motherboards can be installed in an expansion bay **if no 4-inch (102 mm) x 5-inch (127 mm) modules are installed in the bay.** Motherboards are mounted on top of the PDI in expansion bays. The data and power that would normally be bussed via the PDI is instead routed across the boards via ribbon cable from one board to the next.
- As shown in the figure below, motherboards can be installed alongside 4-inch (102 mm) x 5-inch (127 mm) cards, if necessary.
- The leftmost slot must not contain a motherboard.
- 4-inch (102 mm) X 5-inch (127 mm) cards must be added from right to left.
- Motherboards must be added from left to right.

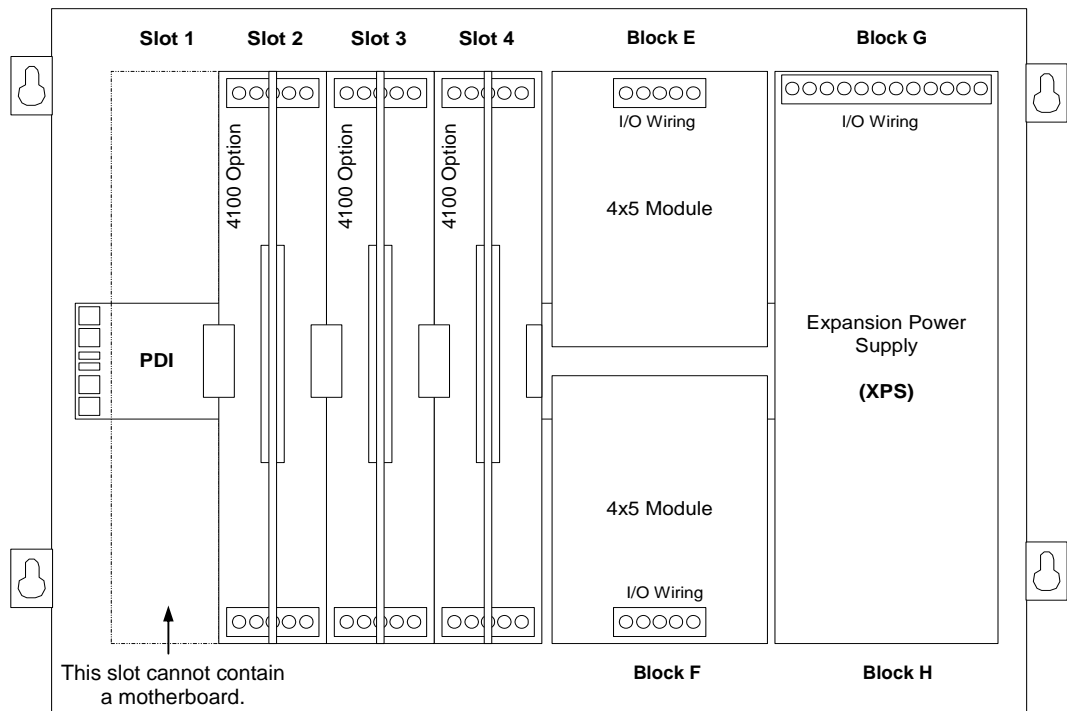


Figure 7. Installing the Motherboard in a 4100U/4100ES Expansion Bay

Continued on next page

Installing Motherboards into 2975-94xx Back Boxes (4100U/4100ES), Continued

Installing into a 2975-94xx Expansion Bay

Use the following procedure when installing motherboards in an expansion bay. Start with the second slot from the left and fill to the right.

1. Orient the motherboard with the connector labeled J1 on the right and the header labeled P1 on the left.
2. Attach four metal threaded standoffs and lockwashers into the screw holes on the chassis.
3. Secure the motherboard to the standoffs using four #6 torx screws as shown in Figure 8.

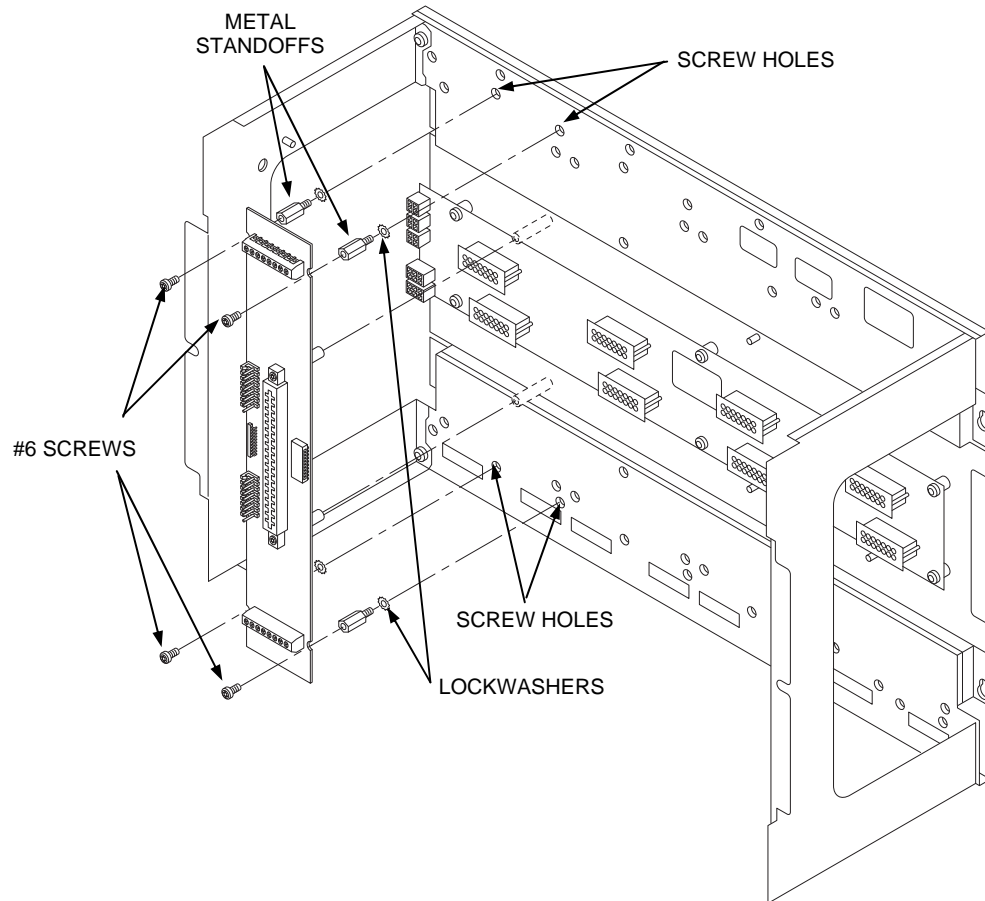


Figure 8. Installing the Motherboard in a 4100U/4100ES Expansion Bay

4. If you are installing the leftmost motherboard, connect a 733-525 Power and Communication Harness. Continue to the next topic to connect the harness.

Continued on next page

Installing Motherboards into 2975-94xx Back Boxes (4100U/4100ES),

Continued

Connecting the 733-525 Harness

If you need to connect a 733-525 Harness to a motherboard, refer to Figure 9 and follow these steps. Make sure to route the power and communication wiring on the left side of the bay.

1. Connect one end of the harness to a motherboard in an adjacent bay.

If the adjacent bay is the CPU bay, connect the harness to the P8 and P7 connectors of the CPU motherboard.

- Insert the harness connector with the blue wire into the P8 connector. Note that the P8 connector has eight pins. Insert the harness connector on either the top four pins or the bottom four pins, not in the middle.
- Insert the harness connector with the white wire into the P7 connector. Note that the P7 connector has eight pins. Insert the harness connector on either the top four pins or the bottom four pins, not in the middle.

If the adjacent bay is an expansion bay, connect the harness to the P2 and P3 connectors of the motherboard installed in the leftmost slot. (If an SDACT or CCDACT occupies the leftmost slot, connect the harness to the motherboard in the second slot from the left.) Connect the harness as follows:

- Insert the harness connector with the blue wire into the P2 connector. Note that the P2 connector has eight pins. Insert the harness connector on either the top four pins or the bottom four pins, not in the middle.
- Insert the harness connector with the white wire into the P3 connector. Note that the P3 connector has eight pins. Insert the harness connector on either the top four pins or the bottom four pins, not in the middle.

2. Connect the other end of the harness to the leftmost motherboard in the next bay, as described below. Make sure to route the wiring on the left side of the bay.

- Insert the harness connector with the blue wire into the P2 connector. Note that the P2 connector has eight pins. Insert the harness connector on either the top four pins or the bottom four pins, not in the middle.
- Insert the harness connector with the white wire into the P3 connector. Note that the P3 connector has eight pins. Insert the harness connector on either the top four pins or the bottom four pins, not in the middle.

Continued on next page

Installing Motherboards into 2975-94xx Back Boxes (4100U/4100ES), Continued

Connecting the 733-525 Harness

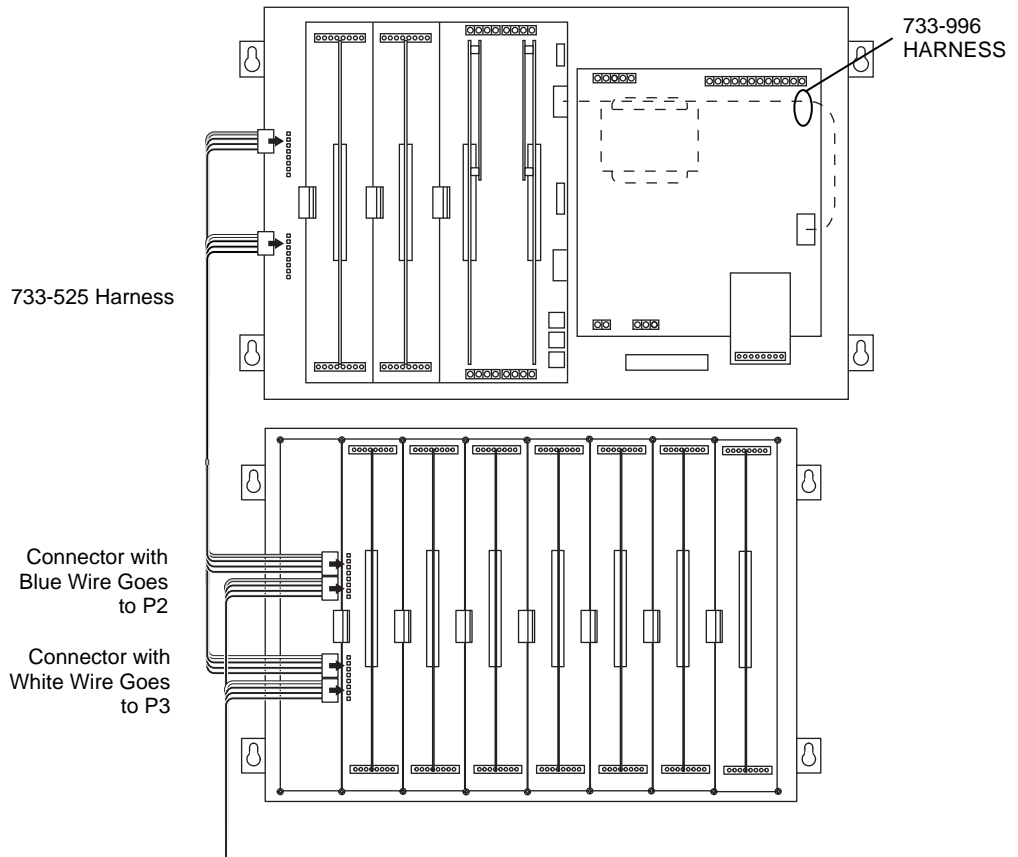


Figure 9. Power and Communication Wiring for Motherboard (4100U/4100ES)

Installing the Daughter Card

Installing the Daughter Card

The daughter card inserts into the connector located in the center of the motherboard. The connector is keyed so that the daughter card fits only one way. Before installing the card, examine the slot in the motherboard and the fingers on the daughter card and note where the key is located.

Note: The figure below is a general-purpose illustration that applies to all daughter cards.

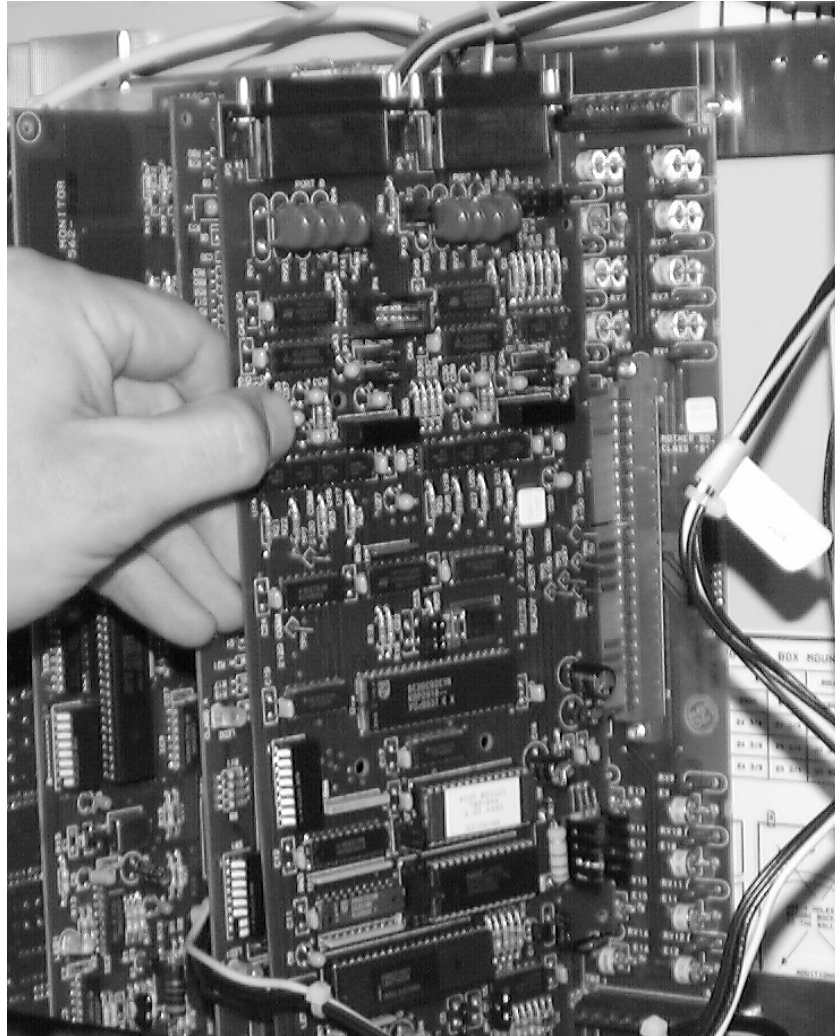


Figure 10. Installing the Daughter Card

Wiring

Introduction

This section contains guidelines and instructions for wiring the module to 2120 systems and to RS-232 devices.

General Guidelines

Make sure these guidelines are accounted for before wiring:

- All wires must be 18 AWG (0.8231 mm²), twisted-shielded pair.
- All wiring is supervised.
- Conductors must test free of all grounds.
- Power must come from a Simplex-approved power supply.
- All wiring must be done using copper conductors only, unless noted otherwise.
- If shielded wire is used:
 - The metallic continuity of the shield must be maintained throughout the entire cable length.
 - The entire length of the cable must have a resistance greater than 1 Megohm to earth ground.
- Underground wiring must be free of all water.
- Wires must not be run through elevator shafts.
- Wires that run in plenum must be in conduit.
- Splicing is permitted. All spliced connections must either be soldered (resin-core solder), crimped in metal sleeves, or encapsulated with an epoxy resin. When soldering or crimped metal sleeves are used, the junction must be insulated with a high-grade electrical tape that is as sound as the original insulating jacket. Shield continuity must be maintained throughout.
- A system ground must be provided for earth detection and lightning protection devices. This connection must comply with approved earth detection per NFPA780.
- Only system wiring can be run together in the same conduit.
- Any wiring leaving the building requires overload protectors (2081-9044). Use one overvoltage protector where wiring leaves the building and another where the wiring enters the other building.

Continued on next page

Wiring, Continued

Power-Limited Guidelines

Make sure these guidelines are accounted for before wiring for power-limited systems:

- Non-power-limited field wiring (AC power, batteries, City connection) must be installed and routed in the shaded areas shown in Figure 11.
- Power-limited field wiring must be installed and routed in the non-shaded areas shown in Figure 11, with the exception of City wiring.
- Excess slack should be kept to a minimum inside the back box enclosure. The wiring should be neatly dressed and bundled together using the wire ties provided with the equipment. Anchor power-limited wiring to tie points, as shown in Figure 11.

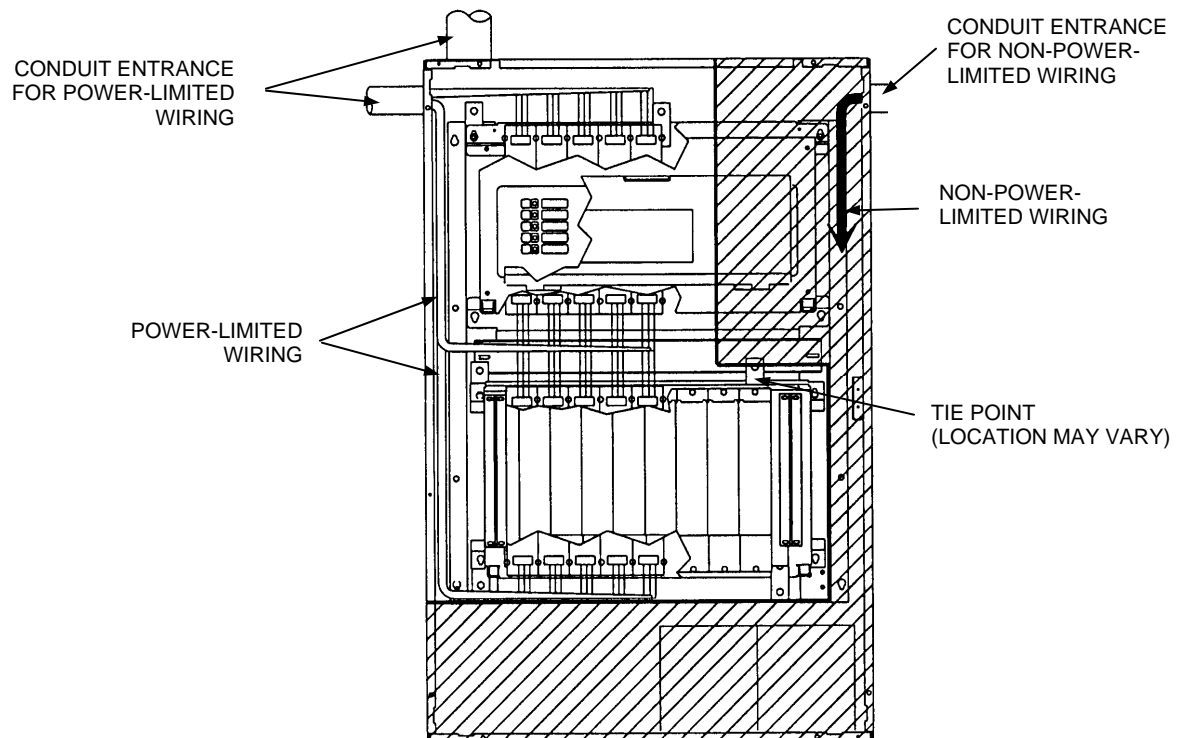


Figure 11. Power-Limited Wiring

- Tie the wiring located between bays to the internal wiring troughs, if applicable.
- When powering remote units or switching power through relay contacts, power for these circuits must be provided by a UPS-style power supply, the 4100-1108 Power Supply (8A), or a power-limited power supply that listed for fire-protective signaling use.

Continued on next page

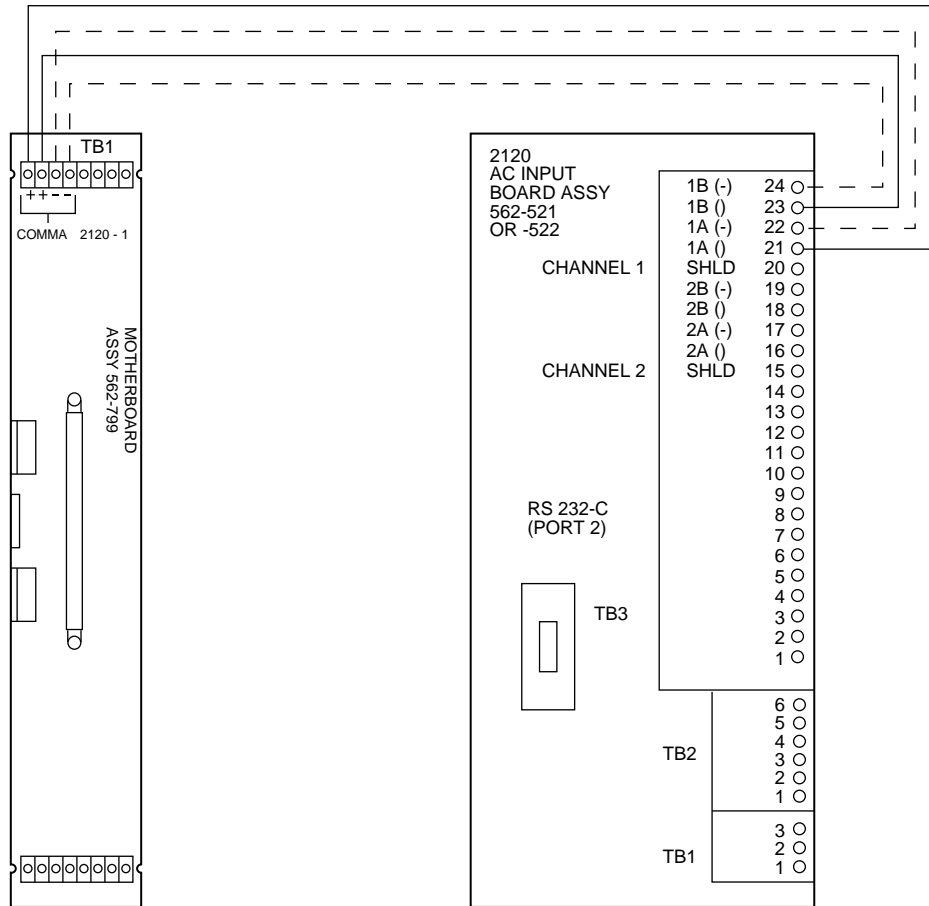
Wiring, Continued

Connecting 2120/DC Comm Wiring

Wire 2120 DC Comm wiring as shown in Figure 12.

Notes:

- Class A wiring requires two additional wires, shown in Figure 12 as dashed lines.
- All wiring must be supervised.
- 2120 Communication power: 30 VDC (max) at 1200-4800 baud, 150 mA.



Notes:

1. All wiring is 18 AWG (0.8321 mm²), twisted-shielded pair, 10,000 feet (3,048 meters) maximum. Dotted lines indicate Style 6 (Class A) additional wiring.
2. See Jumper Selection Chart for jumpers required on Assembly 565-415.
3. If PROM size equals 256 K, install jumper at P1-1 & P1-2. If PROM size equals 512 K, install jumper at P1-2 & P1-3.
4. All wiring is supervised.
5. 2120 Communication Power – 30 VDC (maximum) at 1200-4800 Baud, 150 mA.
6. When wiring leaves the building, overvoltage protectors are required. Install one 2081-9044 Protector where wiring leaves the building and another 2081-9044 Protector where wiring enters the next building.

Figure 12. 2120 DC Comm Wiring

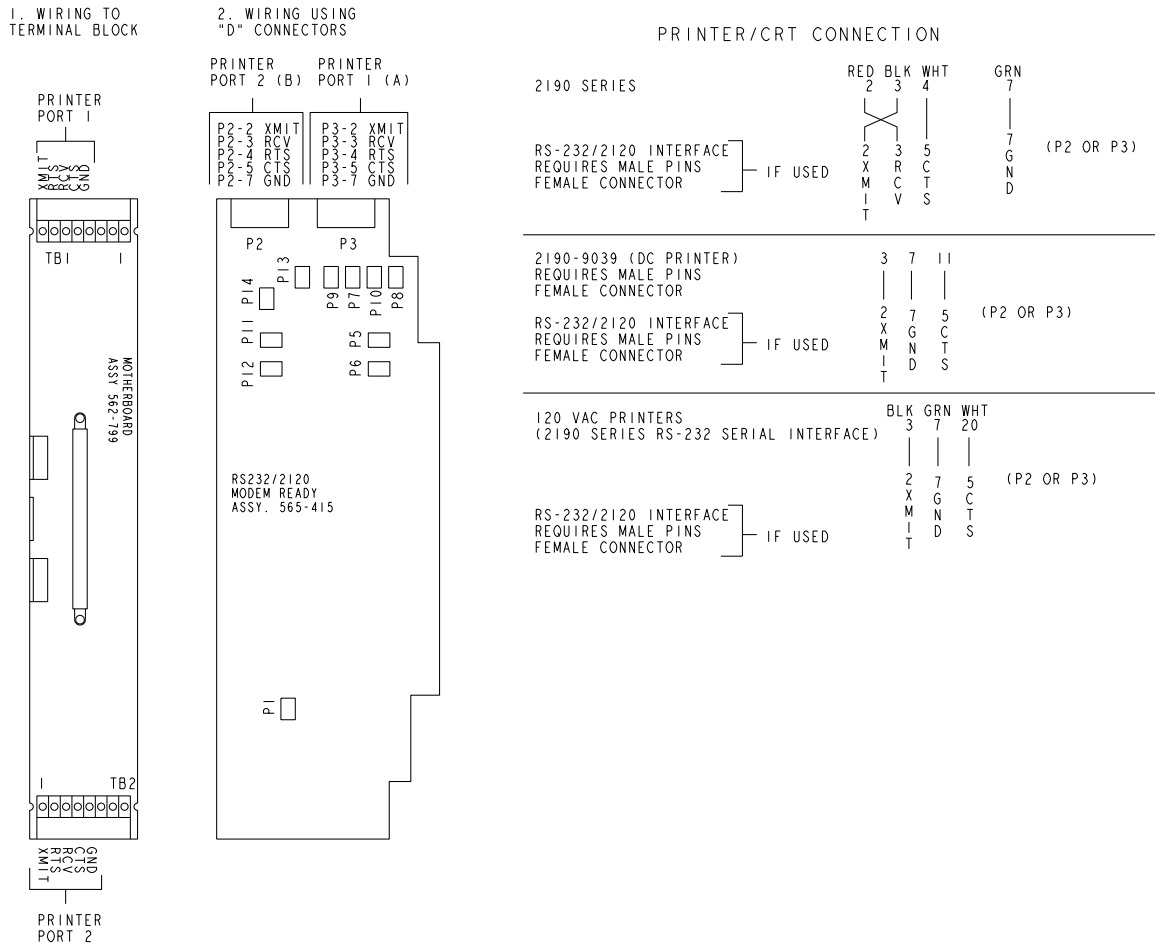
Continued on next page

Wiring, Continued

RS-232 Wiring

RS-232 devices can be wired to either the terminal blocks on the motherboard or they can be connected to the 25-pin D connectors on the RS-232 daughter card. In both cases, cables and/or connectors are not supplied.

Refer to Figure 13 for the pin-outs of these terminal blocks and connectors.



Notes:

1. Refer to 900-036 (2120 Field Wiring Specs.) for wiring limitations on 120 VAC printers.
2. If PROM size equals 256 K, install jumper at P1-1 & P1-2. If PROM size equals 512 K, install jumper at P1-2 & P1-3.
3. RS-232 Power – 10 mA (maximum).
4. All wiring is supervised.
5. For a DC-operated printer, the maximum distance is 395 feet (120 meters) for 14 AWG (2.081 mm²) or 625 feet (191 meters) for 12 AWG (3.309 mm²).
6. All wiring is 18 AWG (0.8321 mm²) or to local code.
7. Use of CTS line is required (with or without supervised circuit).
8. When using Service Modem 565-279, connect to Board 565-415 using Cable 733-808 in Shipping Group 740-850. Use Cable 171-095 to connect the modem to a phone jack and/or a telephone termination block. Cut off one end of Cable 171-095 if connecting to a telephone termination block. Strip back the cable to connect the two center wires to the red and green wires in the block. Refer to Test Specification 576-241 for instructions on how to communicate with the modem. Place jumpers across 1-2 of P4 and 2-3 of P5 on the service modem.

Figure 13. RS-232 Pin-outs