Installation Instructions
Part:Dual RS-232 Interface Module 4100-6046
Product: 4100U, 4100ES

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.

SYSTEM REACCEPTANCE TEST AFTER SOFTWARE CHANGES - To ensure proper system operation, this product must be tested in accordance with NFPA-72, after any programming operation or change in site-specific software. Reacceptance testing is required after any change, addition or deletion of system components, or after any modification, repair or adjustment to system hardware or wiring.

All components, circuits, system operations, or software functions known to be affected by a change must be 100% tested. In addition, to ensure that other operations are not inadvertently affected, at least 10% of initiating devices that are not directly affected by the change, up to a maximum of 50 devices, must also be tested and proper system operation verified.

Introduction

The dual RS-232 interface module - 4100-6046 - is a Fire Alarm Control Panel (FACP), 4x5 interface module that communicates to an an AC or a DC printer, a CRT, a third-party computer, or to a GCC to the FACP. It is used for systems with 2975-94xx back boxes. Supervised or unsupervised devices can be attached to either port.

Power to both ports can be either isolated or non-isolated. The isolated power is intended for AC printers or CRTs. Ground faults can result if isolated power is not used for AC devices, GCCs , and third-party computers. DC printers use the non-isolated power.

Overview

Inspecting Contents of Shipment

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 your local Simplex product supplier. The dual RS-232 interface module is shipped with the 566-798 dual RS-232 interface module component.

Related Documentation

- 4100 Field Wiring Diagrams 841-731 (power-limited) or 841-995 (non power-limited)
- *4100ES Fire Alarm System Installation Guide* (574-848)

In this Publication

This publication discusses the following topics:

Glossary

The following terms are defined:

Term	Definition
DIP	Dual-In-line Package
CRT	Cathode Ray Tube (standard TV/computer desktop monitor)
FACP	Fire Alarm Control Panel
GCC	Graphical Command Center
PDI	Power Distribution Interface

Input Specifications

- 24VDC normal operation: 60 mA
- Maximum fault conditions: 90 mA

Environmental Specifications

- Operating temperature: 32°F to 120°F (0°C to 49°C)
- Humidity: up to 93% relative humidity at 90°F (32°C)

Setting Jumpers

Jumper Locations

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

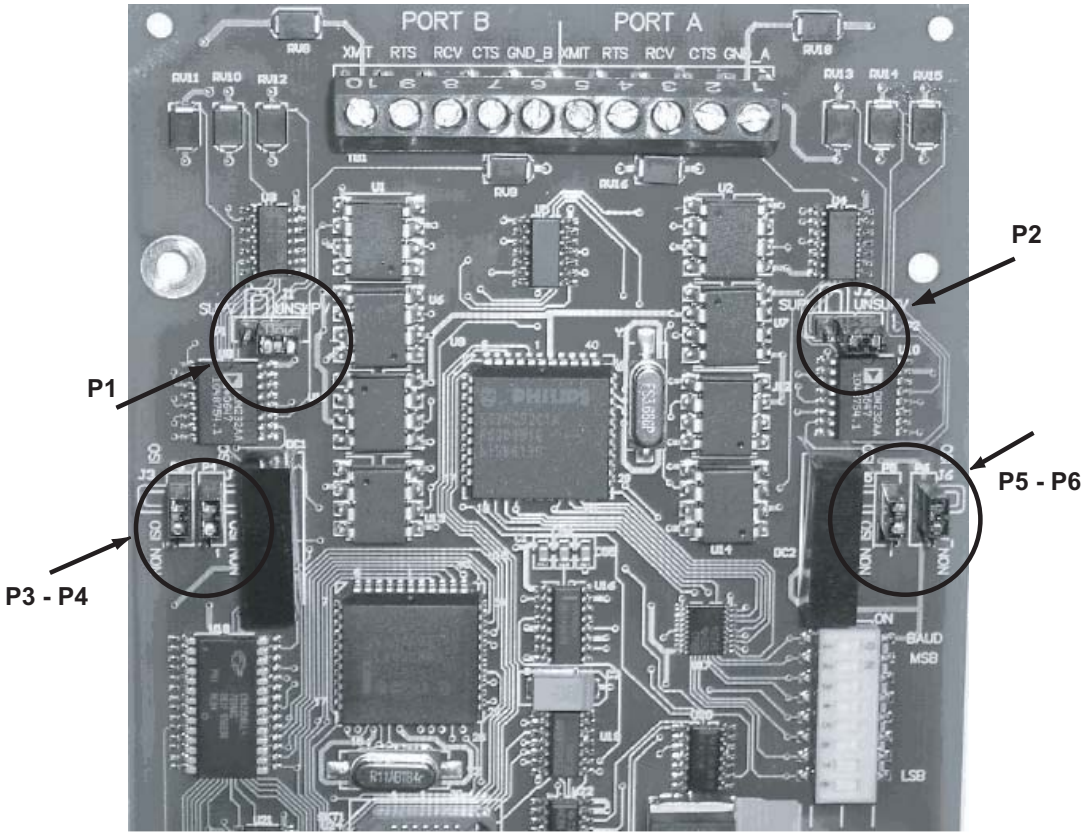


Figure 1 Location of Jumpers

Jumper Settings for Specific Devices

Table 1 lists the jumper settings for the range of devices that can be attached to the dual RS-232 interface module.

Refer to Figure 1 for the locations of the jumpers and their corresponding pin numbers. In Table 1, 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 Dual RS-232 Interface Module

	PORT B		PORT A	
	P1	**P3 AND P4**	**P2**	**P5 AND P6**
DC PRINTER SUPERVISED	2-3	1-2	2-3	1-2
DC PRINTER UNSUPERVISED	1-2	1-2	1-2	1-2
AC PRINTER SUPERVISED	2-3	2-3	2-3	2-3
AC PRINTER UNSUPERVISED	1-2	2-3	1-2	2-3

Setting Switches

Switches

Switch SW1 on the dual RS-232 interface module is a bank of eight DIP switches. From left to right (see Figure 2) 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 FACP communications line running between the card and the FACP CPU. Set this switch to ON.

- **SW1-2 through SW1-8**. These switches set the card's address within the 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 FACP Programmer.

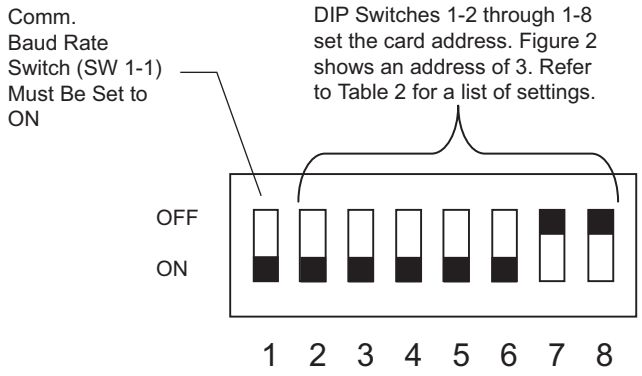


Figure 2 Address DIP Switch

Configuring the 4100-6046 Dual RS-232 Flat Card

Switches

Table 2 FACP 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	OFF	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	OFF	ON
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 4X5 Module into 2975-94*xx* Back Boxes

Installing into a 2975-94xx Expansion Bay

The 4100-6046 dual RS-232 interface module mounts on a PDI in an FACPexpansion box (PID series 2975-94xx). It can be mounted on any available block. Refer to Figure 3.

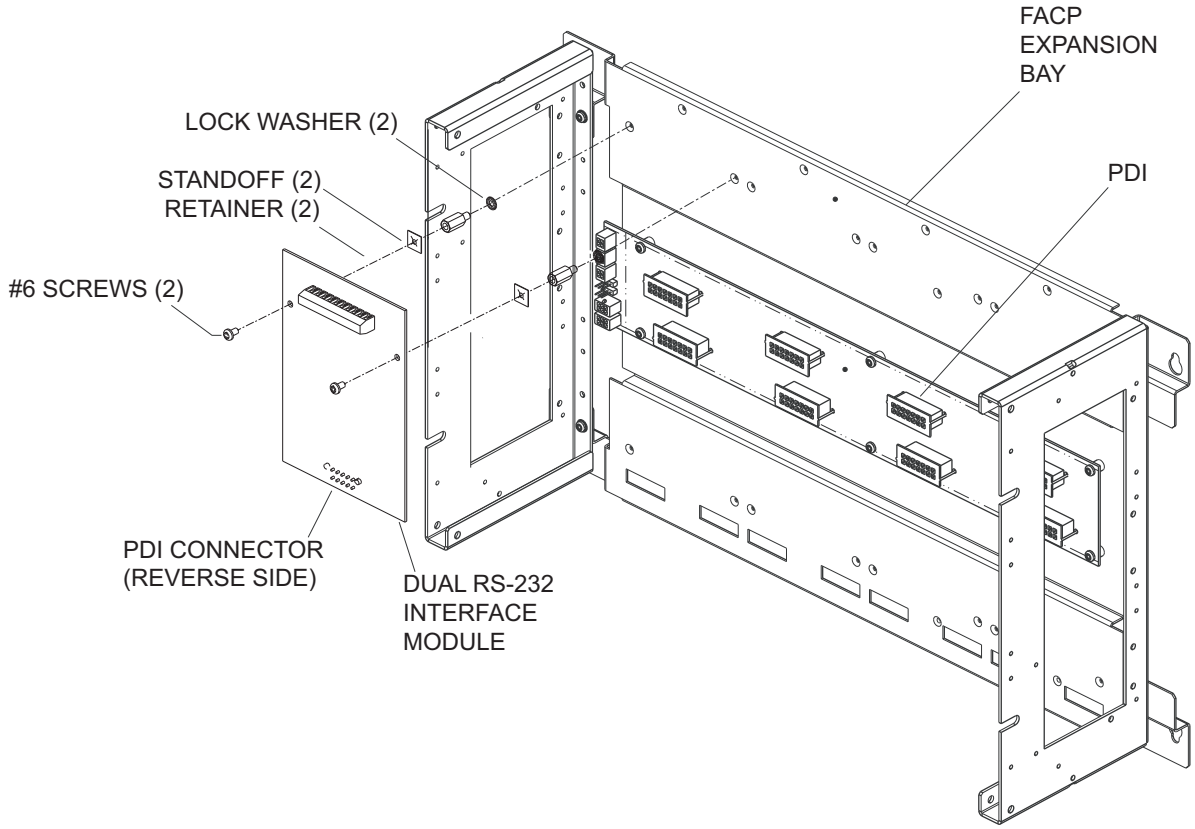


Figure 3 Installing the 4X5 Module in an FACP Expansion Bay

Wiring

Introduction

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

General Guidelines

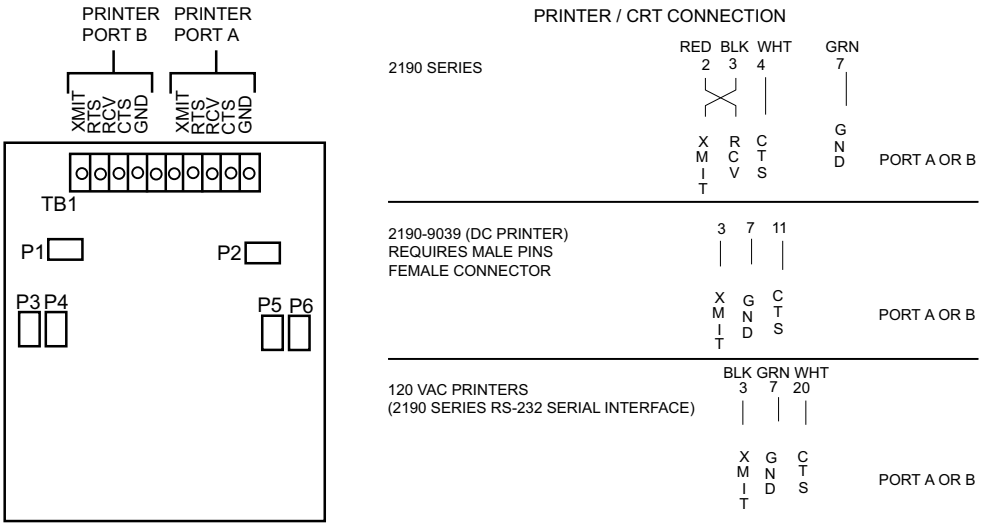
Make sure these guidelines are respected before wiring:

- All wires must be 18 AWG (0.8231 mm^2), 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 as indicated in the NFPA780 standard.
- 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

RS-232 Wiring

RS-232 devices are to be wired to the terminal blocks on the daughter card. Cables and / or connectors are not supplied.

Refer to Figure 4 for the pin-outs of these terminal blocks and connectors.



Notes:

1. RS-232 Power - 10 mA (maximum) per signal.
2. All wiring are supervised.
3. For a DC-operatated printer, the maximum distance is 395 feet (120 meters) for 14 AWG (2.081 mm^2) or 625 feet (191 meters) for 12 AWG (3.309 mm^2).
4. All wiring are 18 AWG (0.8321mm) or in accordance with the local code.
5. Use of CTS line is required (with or without supervised circuit).

Figure 4 RS-232 Pin-outs

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 5.
- Power-limited field wiring must be installed and routed in the non-shaded areas shown in Figure 5, 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 5.

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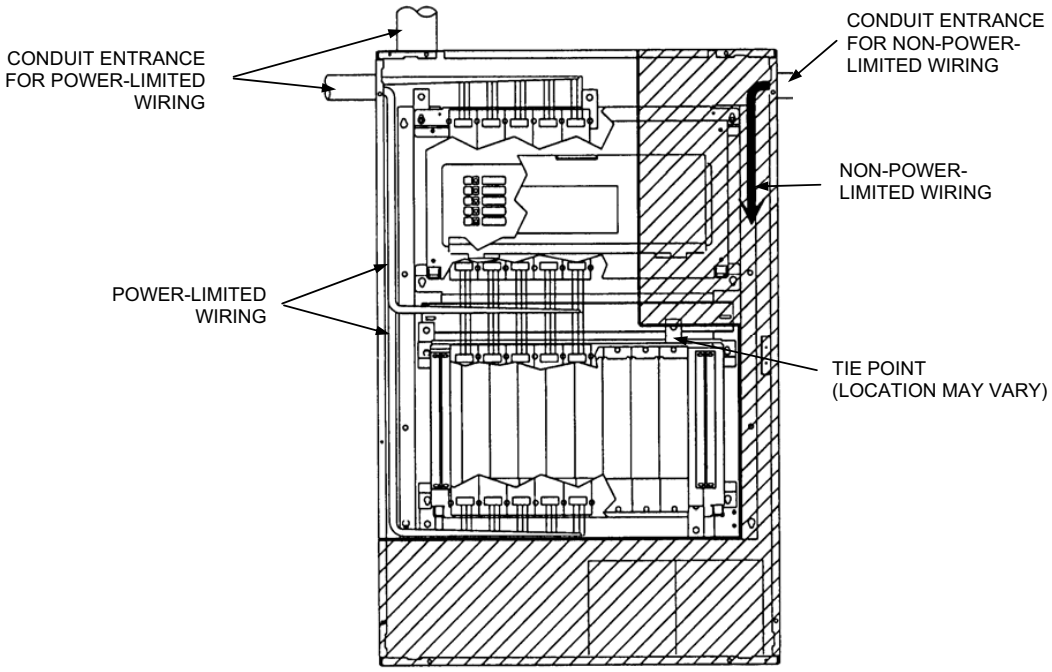

Figure 5 Power-Limited Wiring

- 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 listed for fire-protective signaling use.