

Introduction

This publication describes the setup and installation procedure for the 4100/4120-0119 and 4100-5152 12 VDC Converter.

Related Documentation

- *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
Introduction to the 12 VDC Converter	3
Installing the 12 VDC Converter	4
Wiring Guidelines	5

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.

EYE SAFETY HAZARD - Under certain fiber optic application conditions, the optical output of this device may exceed eye safety limits. Do not use magnification (such as a microscope or other focusing equipment) when viewing the output of this device.

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 to the 12 VDC Converter

Overview

The 12 VDC Converter provides 12 V output from a 24 VDC power supply for attached peripheral devices.

Power Requirements

Table 1 shows the power requirements and limits for the system.

Table 1. Power Requirements

Input Voltage	20.0 – 32.0 VDC
Input Current	10 mA + 0.75 x (Output Current)
Output Voltage	12 VDC +/- 5% including ripple of 100 mV p-p and spiking of 500 mV p-p
Output Current	2 A max.
Output Current Limit	2.85 A +/- 15%

Environmental Requirements

Temperature Range: 32°F (0°C) to 122°F (50°C) @ normal humidity

Humidity: 90°F (32° C) degrees @ 93% Relative Humidity (non-condensing)

Battery Standby Calculations

The 12V converter operates from (nominal) 24V dc input.

Calculate the input current from 24V by multiplying the output current times 0.75. For example, 200 mA output current would require an input current of $10\text{mA} + 150\text{mA} = 160\text{mA}$.

Installing the 12 VDC Converter

Overview

The converter board and terminal block attachment are mounted onto a mounting plate. The mounting plate for the 4100/4120-0119 is attached to the side of an expansion bay with four screws so that the terminal block faces the front. The mounting plate for the 4100-5152 mounts in an expansion bay block with the terminal screws away from the PDI board.

- The 4100/4120-0119 Converter is installed into 4100 Back Boxes (PID series 2975-1xx).
- The 4100-5152 Converter is installed into 4100U/4100ES Back Boxes (PID series 2975-94xx).

The Converter Terminal Block

Table 2. TB1 Input and Output Signals

Position 1	28 V C Input
Position 2	+28 V Input
Position 3	12V C Output
Position 4	12V C Output
Position 5	+12 V Output
Position 6	+12 V Output

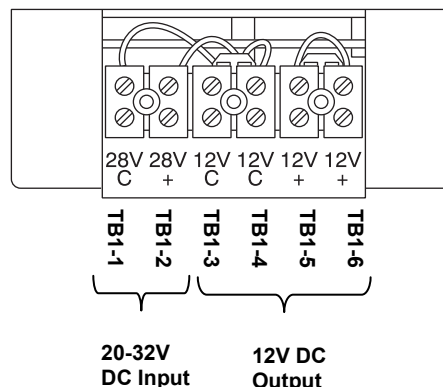


Figure 1. TB1

- The view shown in figure 1 is for a TB mounted to the bottom of the baypan. For a TB mounted to the top of the baypan, the view is rotated 180° .

Connecting Devices to 12 VDC Power

Connect a peripheral device to either positions TB1-3 and TB1-5 or positions TB1-4 and TB1-6.

Wiring Guidelines

Connecting to the Power Supply

(4100/4120-0119 Converter only) Connect positions TB1-1 and TB1-2 to a 28 V output tap on the power supply with the 733-689 Harness. Cut and strip the ends as necessary.

(4100-5152 Converter only) Connect TB1-1 to +24V AUX. and TB1-2 to 0V. (There is no harness included.)

General Guidelines

- All wires must be between 12 (3.309 mm/squared) and 18 AWG (0.823 mm/squared), or as the local code dictates.
 - Conductors must test free of all grounds.
 - 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.
-

Wiring Guidelines, *Continued*

Power-Limited Guidelines

- Non-power-limited field wiring (AC power, batteries, city connection) must be installed and routed in the shaded areas shown in Figure 2.
- Power-limited field wiring must be installed and routed in the non-shaded areas shown in Figure 2, 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 2.

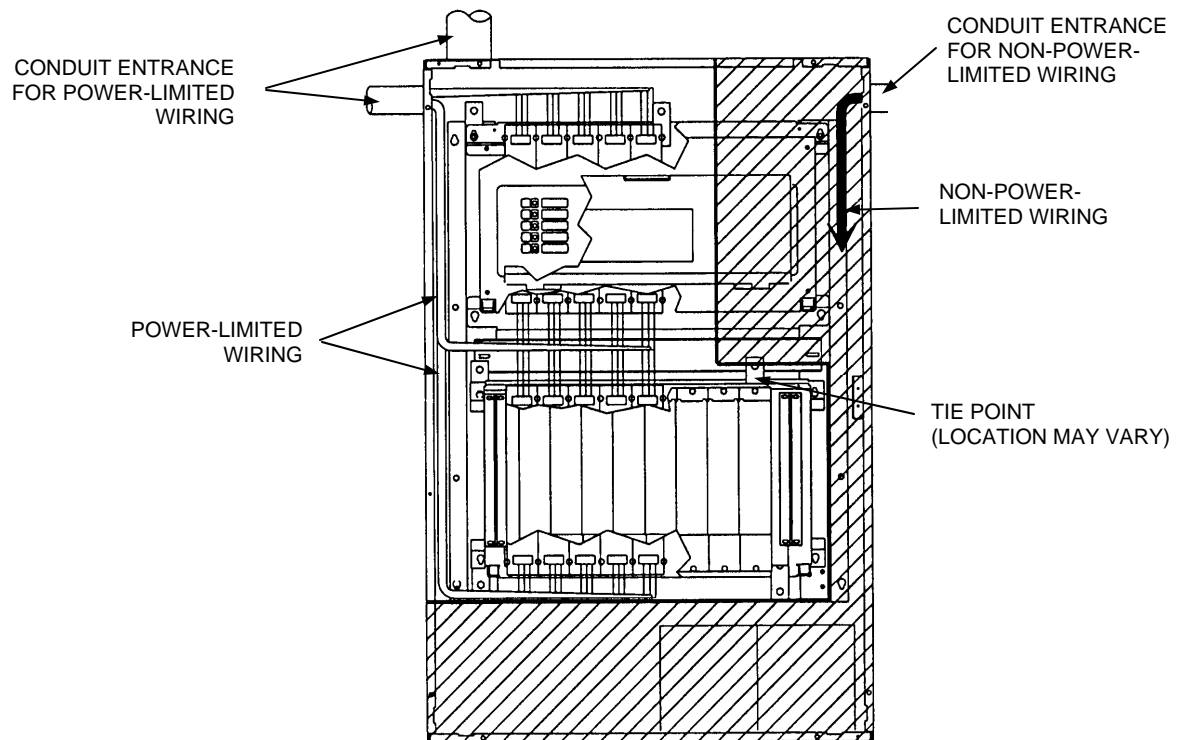


Figure 2. Power-Limited Wiring

- 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 power-limited power supply that listed for fire-protective signaling use.