PSU-510 N+1 Redundant Power Supply

1   Intent & Scope

This document describes the installation procedure for the PSU-510 N+1 Redundant Power Supply. The configuration of the power supply terminals was changed in April, 2005. This document describes both the old and the newer design.

2   Description

The PSU-510 N+1 Redundant Power Supply provides an output of ±12 Vdc/30A. An optional +24 Vdc/7.5A supply can be included for powering auxiliary equipment (i.e. master stations) that requires a +24 volt DC power supply. (Alternatively devices that require +24 volts can be driven from across both outputs of the ±12 Vdc supply.)

The PSU-510 power supply is constructed in a modular fashion with 6 individual +12 VDC/15A power supply units that are pre-wired to provide ± 12 VDC supply with 45A capability. The extra current capacity provides redundancy with uninterrupted power if any of the individual units fails. The optional +24 Vdc supply can be ordered as +24Vdc/7.5A or +24Vdc/15A. The +24Vdc/15A configuration can be used as a +24Vdc/7.5A supply with redundancy.

A form C relay output is available that provides an alarm output if any of the units fails

The PSU-510 power supply is designed for mounting in EIA standard 19″ equipment racks and occupies 3 U (5.25″) of vertical rack space.

PSU-510 Power Supply

3   Installation

Each I/O card cage should be supplied with its own power supply, mounted below it and in the same equipment rack. The PSU-510 power supply requires 120 Vac input power that should be provided by a UPS if it is required that the system operate during main power failures.

There are two versions of the PSU-510 supply. Changes were made in April 2005 to increase the electromagnetic compatibility (emc). These changes are reflected in a different arrangement of the terminal blocks. By comparing the two diagrams showing the terminal arrangement you should be able to easily recognize which type of power supply you have.

3.1   Pre-2005 PSU-510 Power Supply

The 120 Vac input is connected to the screw terminals on the left hand side of the PSU-510 when looking at the back. To gain access to the terminals the cover plate over the terminal bloc must be removed. The ±12Vdc power supply outputs are provided on a terminal block with four screw terminals on the rear of the power supply and on the left hand side of the back. Connections are made to the terminals labeled +12, -12 and either one of the two terminals labeled 0 (these terminals are strapped together).

If the power supply includes the +24 volt option then the +24 Vdc is available on the screw terminal block located in the center. The alarm terminals of a relay that is activated in case one of the units fails are located on this same terminal block.

 The minimum allowable wire size for connecting the power supplies to the card cages is #10 awg. Each output terminal on the power supply terminal block has to be connected to the corresponding terminal on the I/O card cage that it powers. When terminating the cables, ensure that the clamping screws are tightened snugly and the cables are secure in the terminal block.
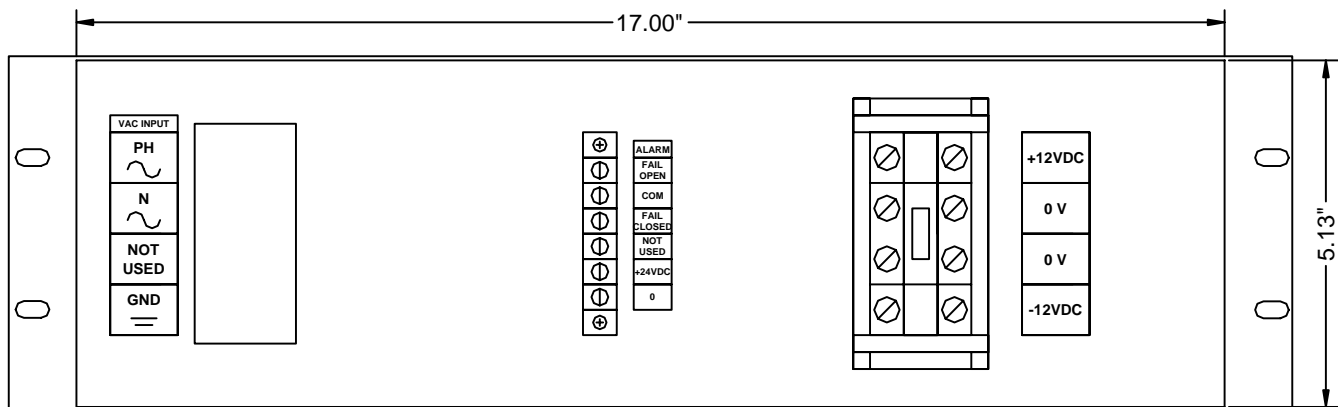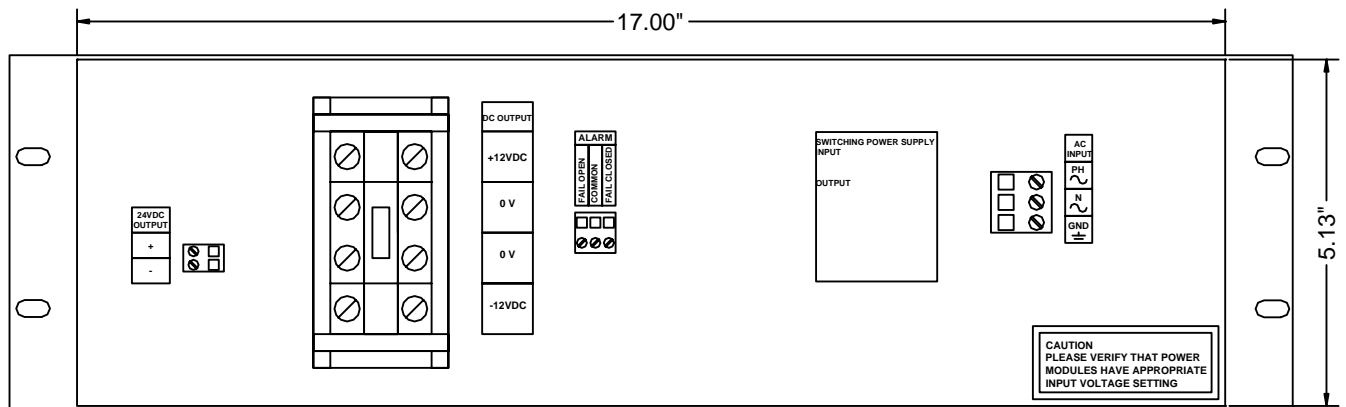

Power Supply Terminations on Pre-2005 PSU-510

3.2 Current PSU-510 Power Supply

The 120 Vac input is connected to the screw terminals on the right hand side of the PSU-510 when looking at the back. The AC input lines are connected via a three hole Phoenix compression block. The ±12Vdc power supply outputs are provided on a terminal block with four screw terminals on the rear of the power supply and on the left hand side of the back. Connections are made to the terminals labeled +12, -12 and either one of the two terminals labeled 0 (these terminals are strapped together).

If the power supply includes the +24 volt option then the +24 Vdc is available on the screw terminal block located on the left hand side. The alarm terminals of a relay that is activated in case one of the units fails are located on a separate terminal block located in the center of the unit.

The minimum allowable wire size for connecting the power supplies to the card cages is #10 awg. Each output terminal on the power supply terminal block has to be connected to the corresponding terminal on the I/O card cage that it powers. When terminating the cables, ensure that the clamping screws are tightened snugly and the cables are secure in the terminal block.

Power Supply Terminations on Current PSU-510