DC Plug Connector Product Notes

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DC Plug Connector Product Notes

Four plug connectors are provided to form input cables for connecting to DC sources with a 20-amp breaker for each source (two plug connectors for input cables and two spare plug connectors). Following are the instructions for assembling the DC input power cables using the DC plug connectors.

DC Source Site Requirements

TABLE 1 DC Power Requirements[1]

Electrical Element	Requirement
Voltage	-48 VDC
Max. Operating current	11 amps
Max. Input Surge current	22 amps peaks

1. The DC power supply range is -40 VDC to -75 VDC, 13 amps max. operating current.

- Electrically isolated from any AC source
- Reliably connected to earth (that is, the battery room positive bus is connected to the grounding electrode)
- Capable of providing up to 600 watts of continuous power per feed pair

Note – The DC version of the Netra st system must be installed in a *restricted access location*. Per the intent of the National Electrical Code, a restricted access location is an area intended for qualified or trained personnel only, and has access controlled by some sort of locking mechanism, such as a key lock or an access card system.

Overcurrent Protection Requirements

- Overcurrent protection devices must be provided as part of each equipment rack.
- Circuit breakers must be located between the DC power source and the Netra st system (two 20-amp double-pole fast trip DC-rated circuit breakers for each power supply).

Note – Overcurrent protection devices must meet applicable national and local electrical safety codes and be approved for the intended application.

DC Supply and Ground Conductor

The requirements are:

- Suitable conductor material: copper only
- Power supply connections through the input connector: 12 AWG (between the Netra st and the circuit breaker)[1]. There are three conductors:
  - -48V
  - -48V Return
  - Ground connection to the power supply
- System ground conductor: 8 AWG (to be connected to the system chassis)
- Cable insulation rating: minimum of 75 C, low smoke fume (LSF), flame retardant
- Cable type to be one of the following:
  - UL style 1028 or other UL 1581(VW-1) compliant equivalent
  - IEEE 383 compliant
  - IEEE 1202-1991 compliant
- Branch circuit cable insulation color: per applicable national electrical codes
- Grounding cable insulation color: green / yellow

Required Connection Materials

DC branch circuits:

- Four POWER-COMBICON plug connectors with screw flanges from Phoenix Contact are supplied in the ship kit with each system for proper connection to the -48V DC power source (two plug connectors for input cables and two spare plug connectors).

1. The input *connectors* are provided with every Netra st system; however, the input *conductors* are not provided with the system.

Feed Through Header on the DC Power Supply

FIGURE 1 shows the feed through header on the DC power supply on the Netra st system.

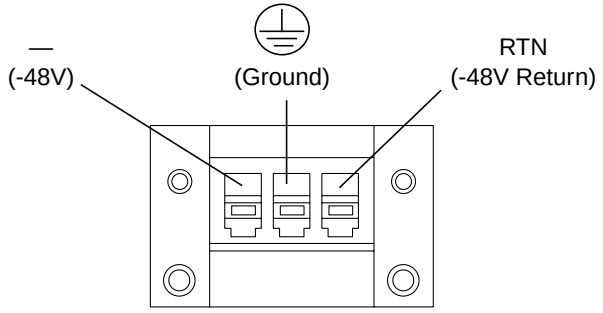

FIGURE 1 Feed Through Header on the DC Power Supply

▼ To Assemble the DC Input Power Cable

1. **Turn off power to the DC power source through the circuit breakers.**

Caution – Do *not* proceed with these instructions until you have turned off the power to the DC power source through the circuit breakers.

2. **Get two DC plug connectors from the ship kit (**FIGURE 2**).**

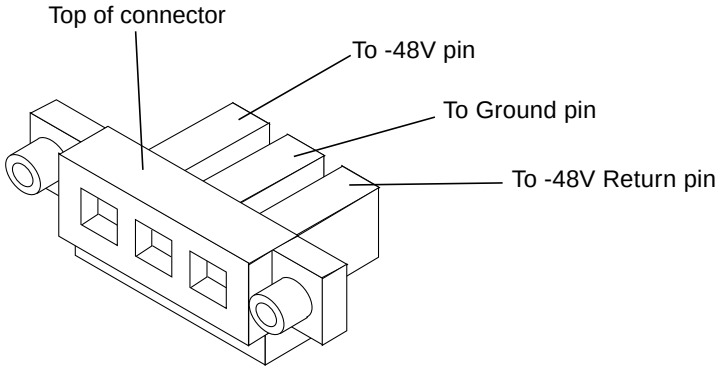

FIGURE 2 DC Plug Connector

3. **Locate the three wires coming from the DC power source that will be used in the connection to the Netra st system:**

   - -48V
   - Ground
   - -48V Return

4. **Strip .27 inches of insulation from each of the wires coming from the DC power source (**FIGURE 3**).**

   Do not strip more than .27 inches from each wire. Doing so will leave uninsulated wire exposed from the DC plug after the assembly is complete.

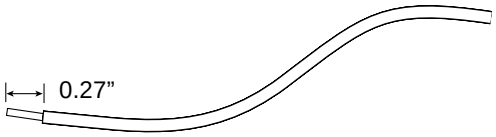

FIGURE 3 Striping the Insulation from the Cable

5. **Feed the exposed section of each wire into the appropriate hole in the DC plug connector (**FIGURE 4**).**

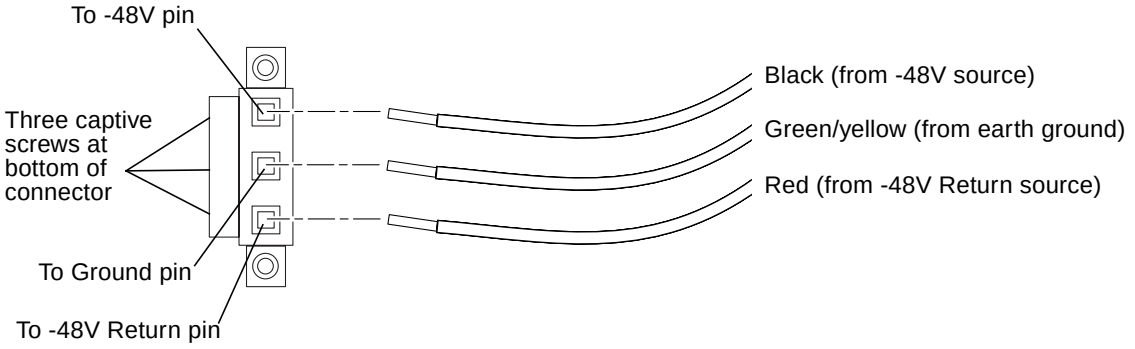

FIGURE 4 Assembling the DC Power Cable

6. **Use a screwdriver to tighten the three captive screws at the bottom of the DC plug connector to secure each wire in place (**FIGURE 5**).**

   The tightening torque must be 5-7 lb-in.

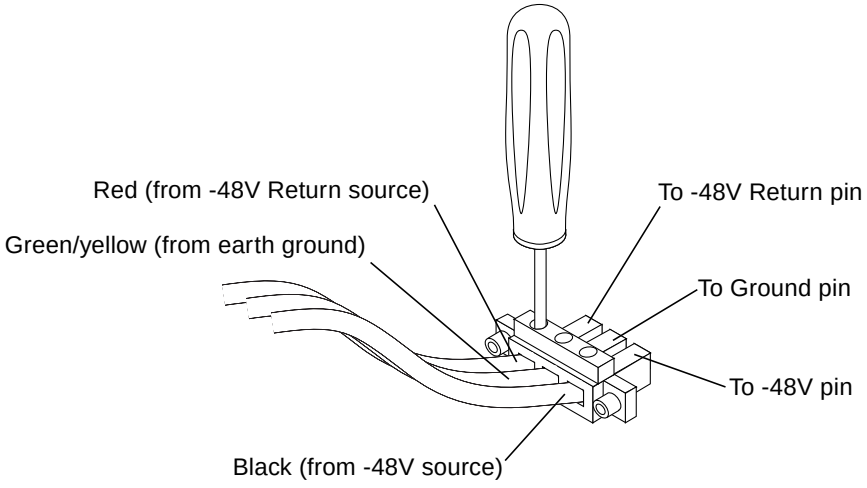

FIGURE 5 Tightening the Captive Screws at Bottom of DC Connector

7. **Repeat Step 3 through Step 6 to create a second DC input power cable using the second power connector.**

   Note that you will want to have the first set of wires connected to DC power source A and the second set of wires connected to DC power source B.

What's Next

The DC input power cables for your Netra st system are now completely assembled. FIGURE 6 shows how the DC input power cable will be connected to the DC feed through header on your Netra st system.

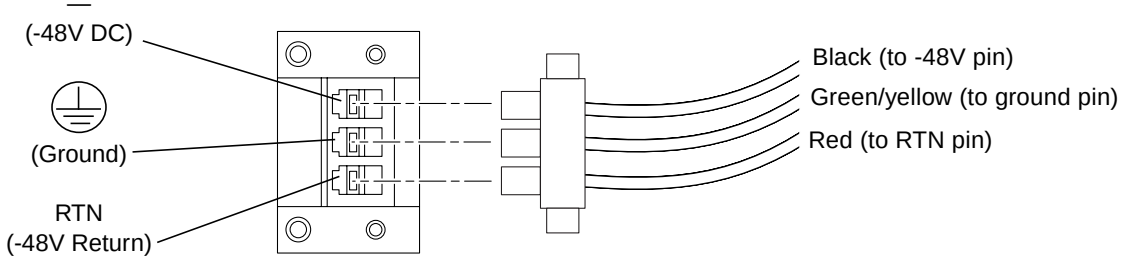

FIGURE 6 Connecting the DC Power Cable to the DC Feed Through Header

Follow the instructions in the *Netra st A1000 and Netra st D1000 Installation and Maintenance Manual* for the full installation instructions for your Netra st system.