

# DC Connector Product Notes

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# DC Connector Product Notes

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These product notes describe how to assemble DC input power cables using the WAGO DC connectors. Using the connection parts provided in this kit, you can assemble the DC input power cables before you receive your unit in preparation of installing the unit.

These instructions assume that the DC input current for each power supply in your unit is less than 15 amps. These instructions also describe how to set up your unit so that you have redundant power from DC input power sources.

These product notes are organized as follows:

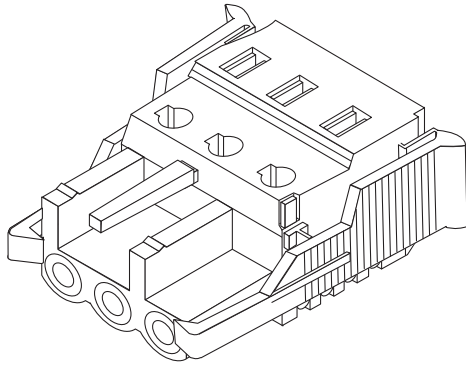
- “Parts List” on page 1
- “DC Source Site and System Power Supply Options” on page 3
- “DC Source Site and Overcurrent Protection Requirements” on page 5
- “DC Supply and Ground Conductor” on page 6
- “Power Connector on the DC Power Supply” on page 6
- “Assembling the DC Input Power Cable” on page 7

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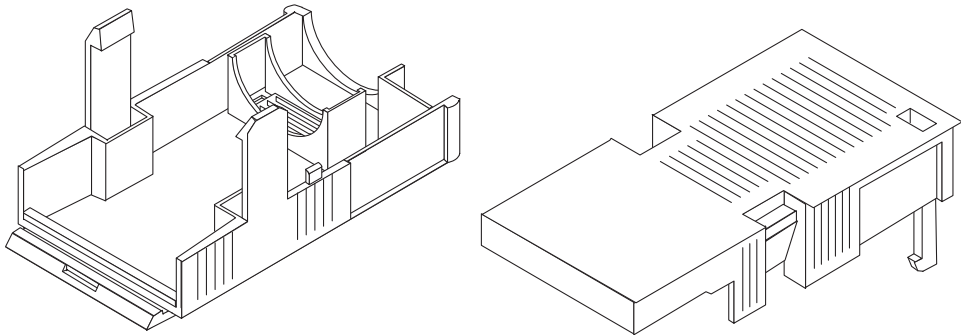
## Parts List

The following DC connection parts are provided in this kit so that you can assemble one or more DC input cables. These cables are used to connect the -48V DC input source(s) to the power supply or supplies on your unit:

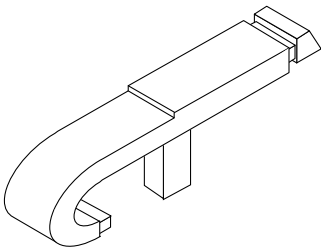
- Ten WAGO DC connectors
- Ten WAGO strain relief housings
- One cage clamp operating lever
- Ten tie wraps



**FIGURE 1** DC Connector



**FIGURE 2** Strain Relief Housing



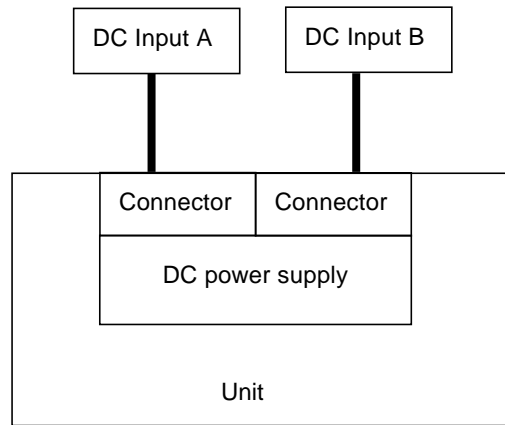
**FIGURE 3** Cage Clamp Operating Lever

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# DC Source Site and System Power Supply Options

You may have several options available to you for your DC source site and the power supply or supplies. Refer to the documentation that came with your unit for more information. If you have not yet received your unit, contact your Sun service representative for more information.

## Option 1



**FIGURE 4** Option 1

- No magnetic isolation between DC inputs A and B
- Less than 15 amps input current from each DC input power source
- Redundant power from the DC input power sources

## Option 2

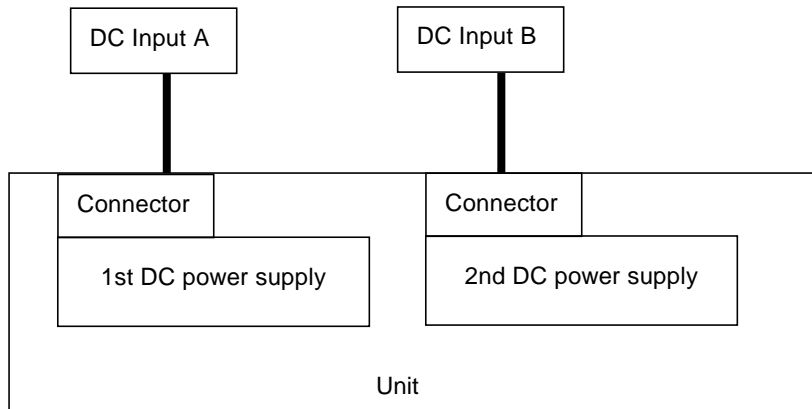


FIGURE 5 Option 2

- Magnetic isolation between DC inputs A and B
- Less than 15 amps input current from each DC input power source
- Redundant power through the DC power supplies
- Redundant power from the DC input power sources

## Option 3

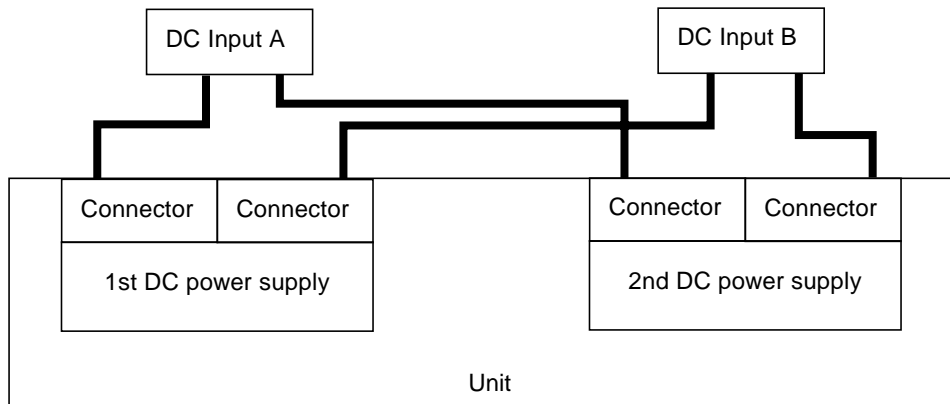


FIGURE 6 Option 3

- No magnetic isolation between DC inputs A and B
- Less than 15 amps input current from each DC input power source
- Redundant power through the DC power supplies
- Redundant power from the DC input power sources

## Option 4

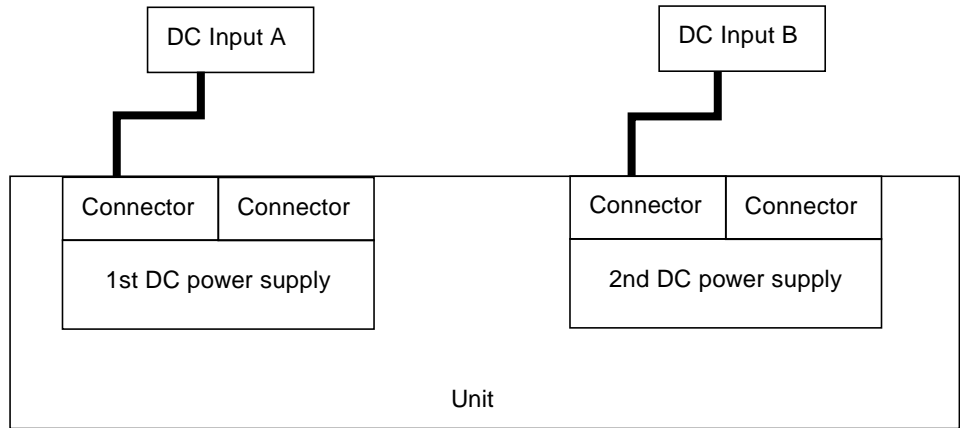


FIGURE 7 Option 4

- Magnetic isolation between DC inputs A and B
- Less than 15 amps input current from each DC input power source
- Redundant power through the DC power supplies
- Redundant power from the DC input power sources

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## DC Source Site and Overcurrent Protection Requirements

Refer to your unit documentation for DC source site and overcurrent protection requirements.

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# DC Supply and Ground Conductor

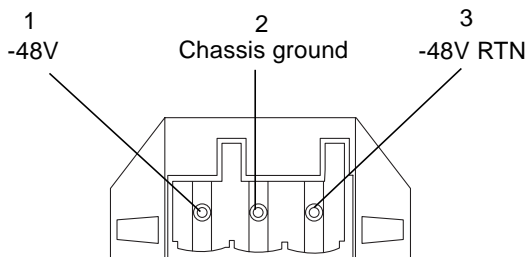
The requirements are:

- Suitable conductor material: copper only
- Power supply connections through the input connector: 12 AWG (between the unit and the circuit breaker). There are three conductors:
  - -48V (pin 1)
  - Ground connection to the power supply (pin 2)
  - -48V Return (pin 3)
- System ground conductor: 12 AWG (to be connected to the 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

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# Power Connector on the DC Power Supply

The following figure shows the power connector on the DC power supply on your unit.



**FIGURE 8** Power Connector on the DC Power Supply



# Assembling the DC Input Power Cable

## ▼ To Assemble the DC Input Power Cable

1. **Determine how many DC input power cables you will need from each DC power source.**

Refer to “DC Source Site and System Power Supply Options” on page 3 for more information.

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



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

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3. **Get a DC connector from the ship kit.**
4. **Locate the three wires coming from the DC power source that will be used in the connection to your unit:**

- -48V
- Ground
- -48V Return

5. **Strip .31 inches (8 mm) of insulation from each of the wires coming from the DC power source.**

Do not strip more than .31 inches (8 mm) from each wire. Doing so will leave uninsulated wire exposed from the DC connector after the assembly is complete.

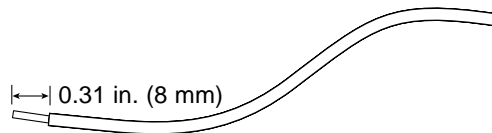
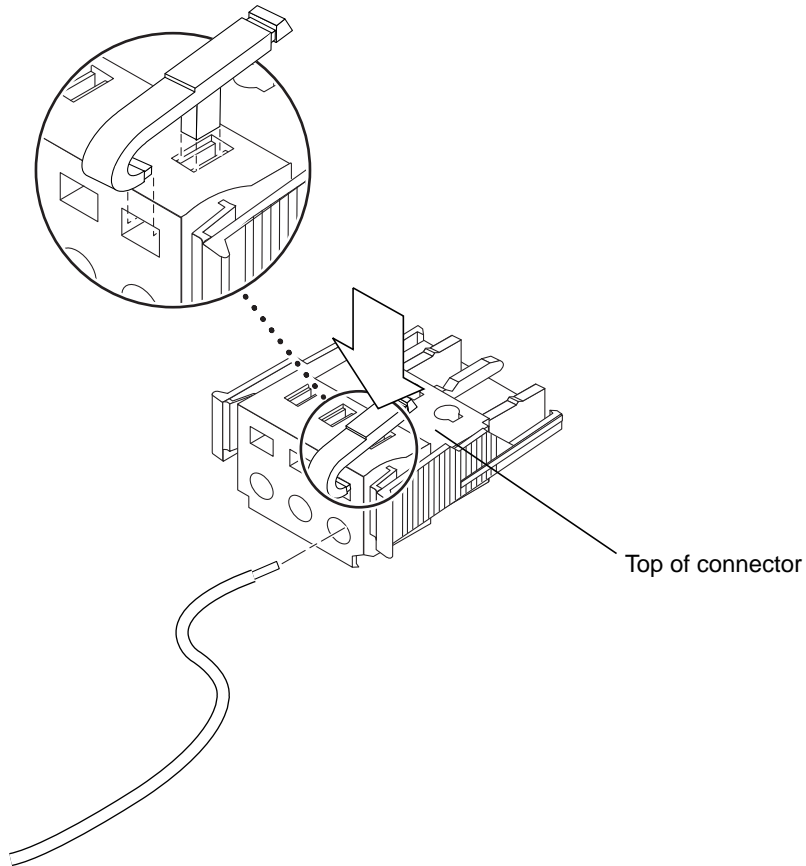


FIGURE 9 Stripping the Insulation From the Wire

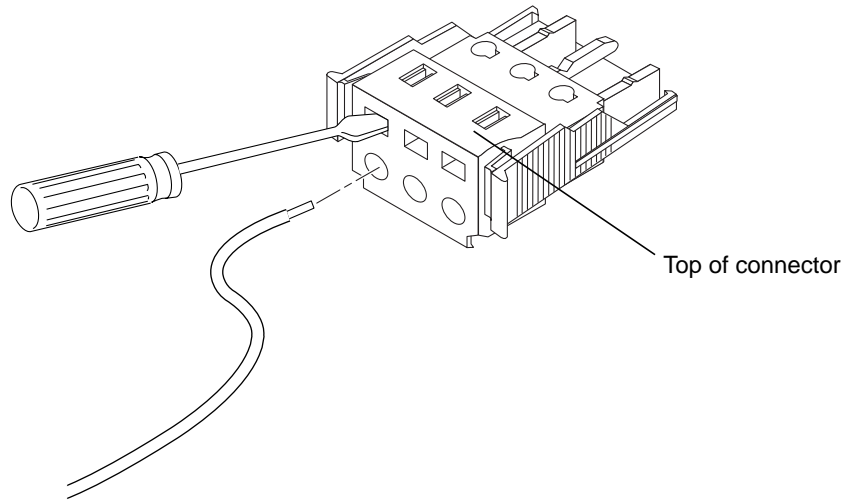
6. **Insert the tip of the cage clamp operating lever into the rectangular hole directly above the hole in the DC connector where you want to insert the first wire and press down on the cage clamp operating lever.**

This opens the cage clamp for this section of the DC connector.



**FIGURE 10** Opening the DC Connector Cage Clamp Using the Cage Clamp Operating Lever

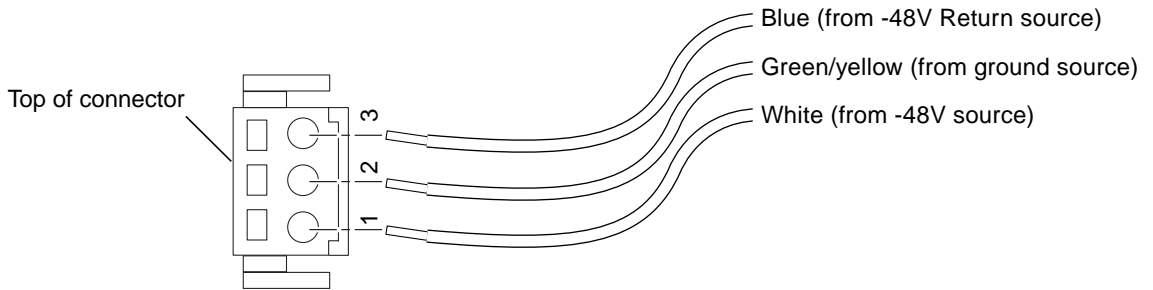
You can also open the DC connector cage clamp using a screwdriver by inserting a small slotted screwdriver into the rectangular hole directly above the hole in the DC connector where you want to insert the first wire and pressing down on the screwdriver.



**FIGURE 11** Opening the DC Connector Cage Clamp Using a Screwdriver

- 7. Feed the exposed section of the appropriate wire into that hole in the DC connector.**

FIGURE 12 shows which wires should be inserted into each hole in the DC connector.



**FIGURE 12** Assembling the DC Input Power Cable

- 8. Repeat Step 6 and Step 7 for the other two wires to complete the assembly of the DC input power cable.**
- 9. Repeat Step 4 through Step 8 to create as many DC input power cables as you need for your unit.**

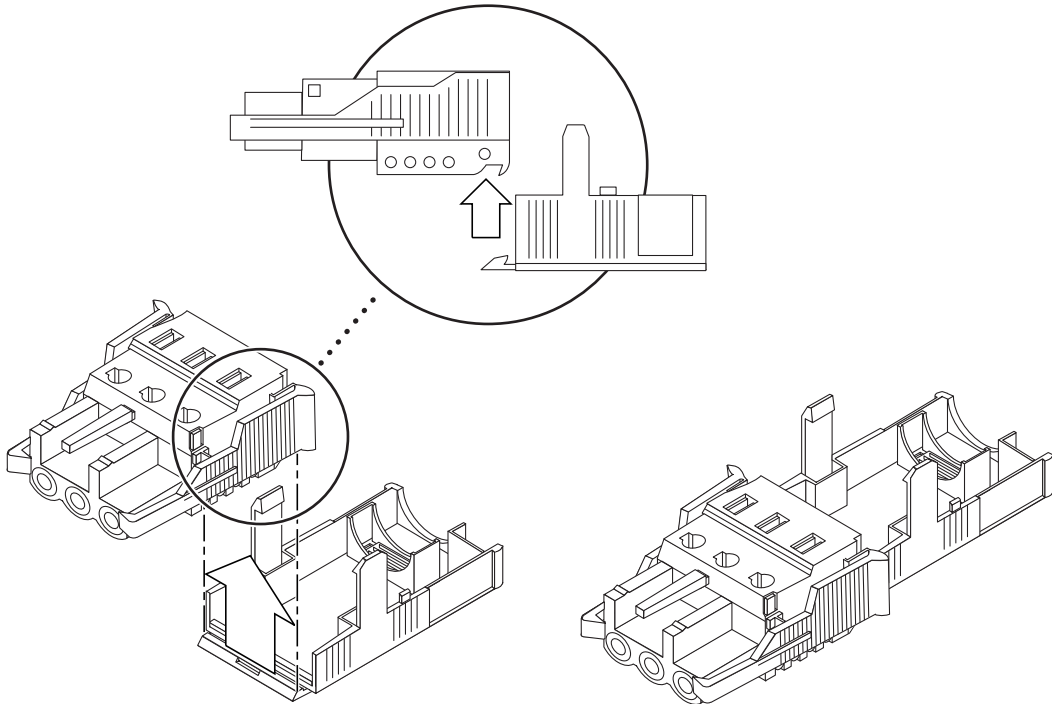
Refer to “DC Source Site and System Power Supply Options” on page 3 to determine how many DC input power cables you will need for your unit.

If you need to remove a wire from the DC connector, insert the cage clamp operating lever or a small screwdriver into the slot directly above the wire and press down (FIGURE 10 and FIGURE 11).

## ▼ To Install the Strain Relief Housings

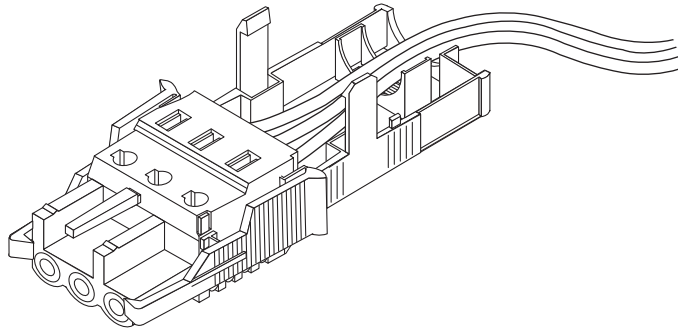
1. **Take the DC connector and insert the bottom portion of the strain relief housing into the notch on the DC connector until it snaps into place.**

Make sure the strain relief housing snaps into place on the DC connector; you will not be able to complete the assembly correctly if the strain relief housing is not snapped into place.



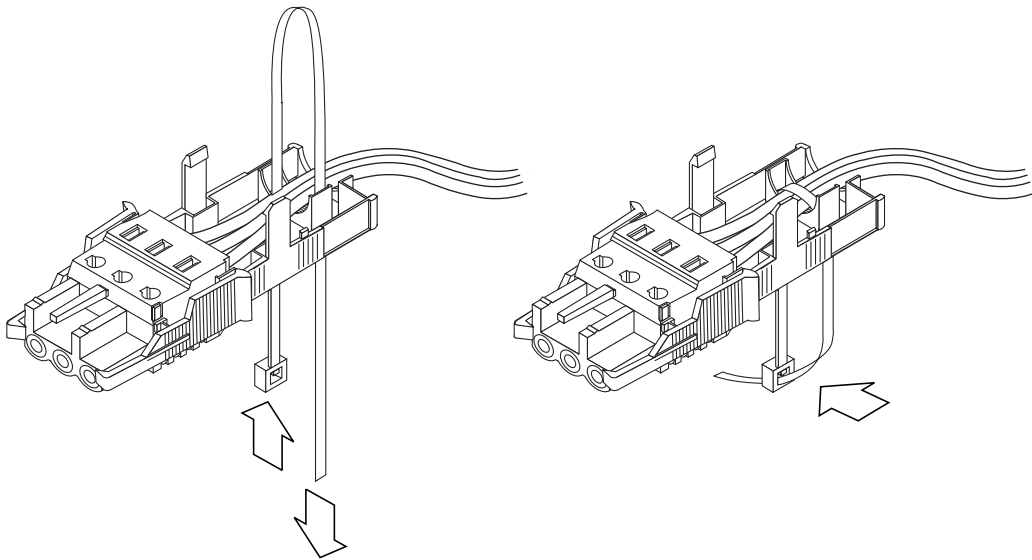
**FIGURE 13** Inserting the Bottom Portion of the Strain Relief Housing

2. **Route the three wires coming from the DC power source through the opening at the end of the bottom portion of the strain relief housing.**



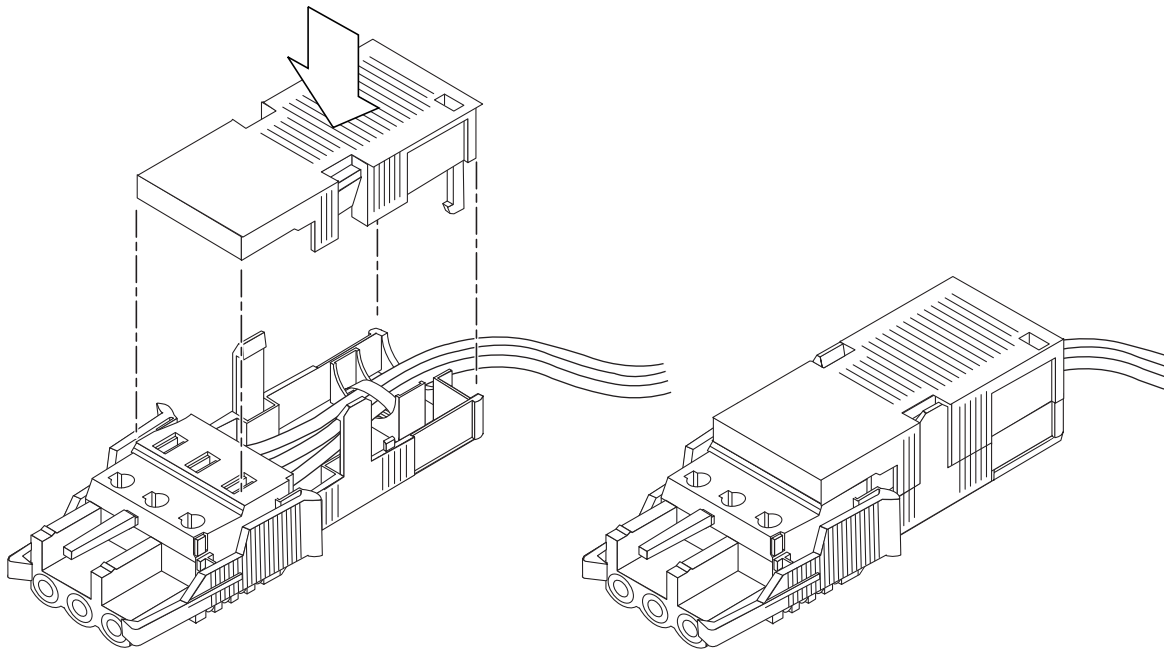
**FIGURE 14** Routing the Wires Out of the Bottom Portion of the Strain Relief Housing

- 3. Get the tie wrap and insert it into the bottom portion of the strain relief housing.**



**FIGURE 15** Securing the Wires to the Strain Relief Housing

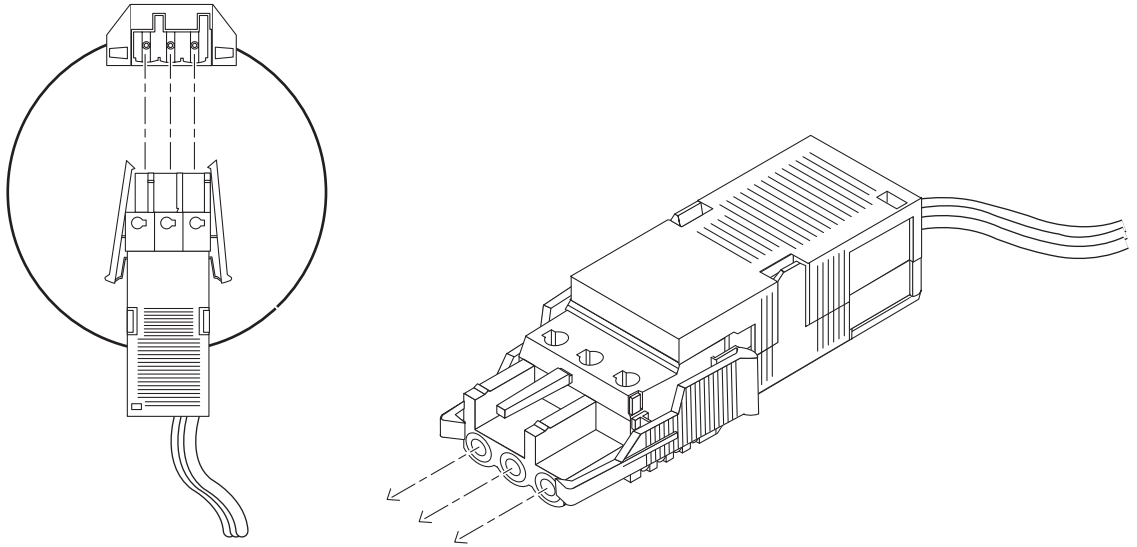
- 4. Loop the tie wrap over the wires and back out of the strain relief housing and tighten the tie wrap to secure the wires to the strain relief housing (FIGURE 15).**
- 5. Lower the top portion of the strain relief housing so that the three prongs on the top portion insert into the openings in the DC connector, and push the top and bottom portions of the strain relief housing together until they snap into place.**



**FIGURE 16** Assembling the Strain Relief Housing

## What's Next

The DC input power cables for your unit are now completely assembled. FIGURE 17 shows how the DC input power cable is connected to the power connector on the DC power supply on your unit.



**FIGURE 17** Connecting the DC Power Cable to the Power Connector on the DC Power Supply

Follow the instructions in the manual that you receive with your unit for the full installation instructions.

