

# 90-240VAC Universal Power Supply Module

## NPB-PWR-UN

### INSTALL SHEET

This document covers the mounting and wiring of the NPB-PWR-UN power supply module for Tridium® JACE® controllers, including models T-200/600 (JACE 2/6) and T-700 (JACE 7). This module can also be used to power a T-IO-16-485 remote I/O module.

**Table 1 NPB-PWR-UN module description.**

Description	Notes
Universal 90–263 Vac input, 15Vdc output, 30W power supply. Intended for mounting on 35mm DIN rail.	Refer to the specific <i>Mounting and Wiring Guide</i> for each of the products mentioned above for complete mounting and wiring details, including wiring details for this specific power supply module.  Such documents also provide all certification and listing information.



#### Note

The NPB-PWR-UN can also be used as a replacement power supply in certain Tridium enclosures. In this scenario (only), you remove and discard its plastic cover, and mount the module under a metal shield. This usage is outside the scope of this document. Refer to the install guides for medium or large Security Enclosures or T-ENC-001/-002 enclosures for details.

## Included in this Package

Included in this package you should find the following items:

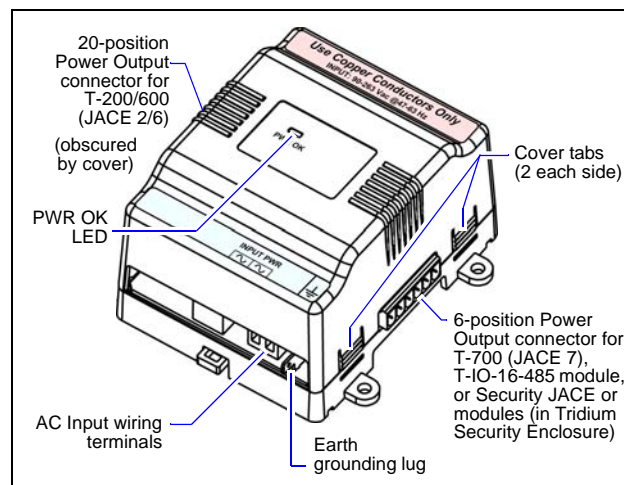
- a NPB-PWR-UN module, and grounding wire with quick-disconnect 0.187" female connector.
- This document, *90-240VAC Universal Power Supply Module*, Part Number 11841 Rev 1.1

## Material and Tools Required

The following tools and supplies may be required for installation:

- DIN rail, type NS35/7.5 (35mm x 7.5mm) and end clips (stop clips), as needed.
- Small flat-blade screwdriver: for making wiring connections to the AC line input terminals.

**Figure 1 NPB-PWR-UN power supply module.**



## Applications

The NPB-PWR-UN is a DIN-mountable, universal AC (120 or 240V) input, power supply module to power JACE controllers and/or connected accessory modules.

The module furnishes 15Vdc at 30VA maximum, and provides *two* different output connectors:

- **Left side:** 20-position connector that mates to the right side of a T-200/600 controller (JACE 2/6), or to a T-IO-16 (I/O module) directly attached on that controller's accessory module chain. A T-200/600 controller with up to four T-IO-16 modules can be powered by the NPB-PWR-UN. See "[T-200/600 controller usage](#)," page 2.
- **Right side:** 6-position connector that mates to the left side of a T-700 controller (JACE 7), or to an assembly of one or more remote I/O modules (T-IO-16-485), which are RS-485-wired back to a JACE controller in another location. See "[T-700 controller usage](#)" and "[T-IO-16-485 \(remote\) usage](#)," page 2.



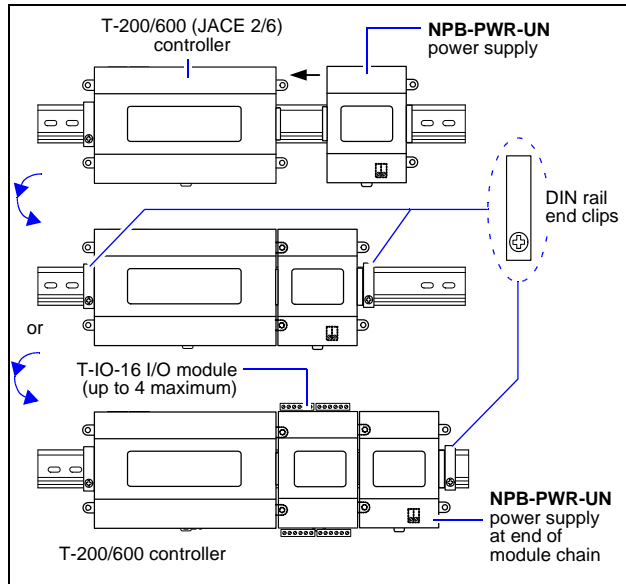
#### Note

Installation of this NPB-PWR-UN power supply uses only *one side's* power output connector—either the *left side* or the *right side*. The connector on the other side is *unused*.

## T-200/600 controller usage

Figure 2 shows the NPB-PWR-UN used to power a T-200/600 controller, with or without IO modules.

**Figure 2 NPB-PWR-UN powering T-200/600 controller.**

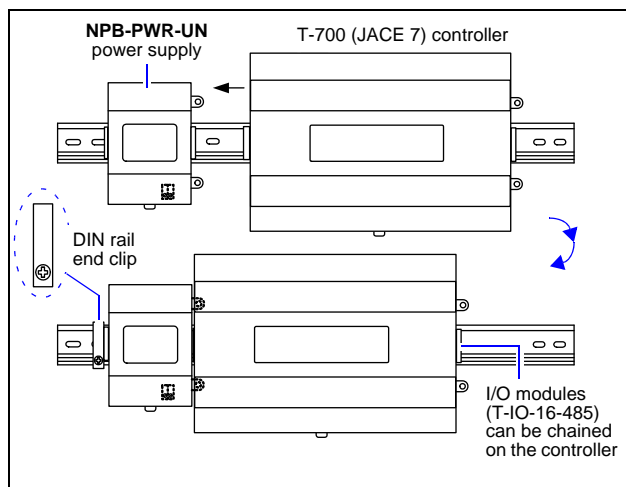


As shown, up to four (4) T-IO-16 modules can be mounted between the T-200/600 controller and the NPB-PWR-UN power supply module.

## T-700 controller usage

Figure 3 shows the NPB-PWR-UN used to power a T-700 controller.

**Figure 3 NPB-PWR-UN powering T-700 controller.**

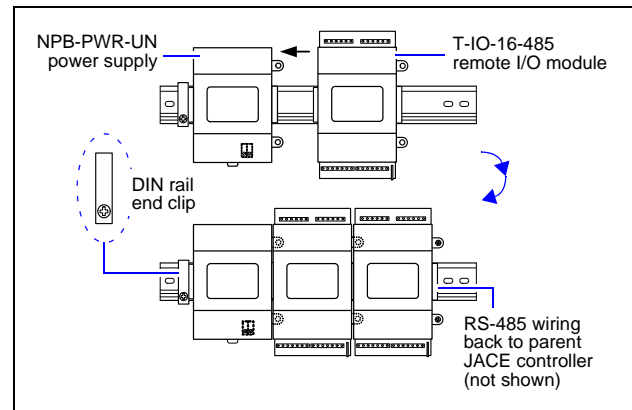


Also, T-IO-16-485 modules can be chained directly onto the other (right) side of the T-700 controller.

## T-IO-16-485 (remote) usage

Figure 4 shows the NPB-PWR-UN used to power an assembly of one or more T-IO-16-485 modules, located in a different location than the JACE controller.

**Figure 4 NPB-PWR-UN for remote T-IO-16-485(s).**



If the JACE is a T-700 controller, other T-IO-16-485 modules can be directly chained onto the controller.



### Note

Although remote T-IO-16-485 modules can be powered by a NPB-PWR-UN this way, other power options provide better operation through power “bumps”. Please see the “About battery backup operation” section in the *T-IO-16-485 Mounting and Wiring Guide*.

## NPB-PWR-UN application notes

- In all applications, DIN rail mounting is the preferred method, to ensure accurate alignment between connectors on the powered devices and the connector used on the NPB-PWR-UN.
- DIN rail “end clips” are recommended to secure chained device assemblies, whenever possible. See [Figure 2, 3, and 4](#).
- If DIN rail mounting is impractical, you can use screws in mounting tabs on the devices. Refer to the various mounting and wiring guides for mounting tab dimensions for device assemblies.
- Wiring the NPB-PWR-UN module is the same for all applications covered in this document. Be sure to connect the included grounding wire to a nearby earth ground, and disconnect power to the AC circuit before wiring power input connections. See the [Warning](#) on page 3.

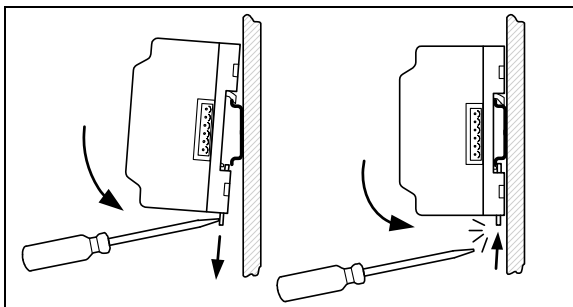
## Mounting

Regardless of application, the NPB-PWR-UN module mounts on installed 35mm DIN rail as shown below. Orientation can be in any direction.

### Procedure 1 Mounting on DIN rail.

1. Position the NPB-PWR-UN on the rail, tilting to hook DIN rail tabs over one edge of the DIN rail.

**Figure 5 Hook top of rail, pry plastic clip downwards.**



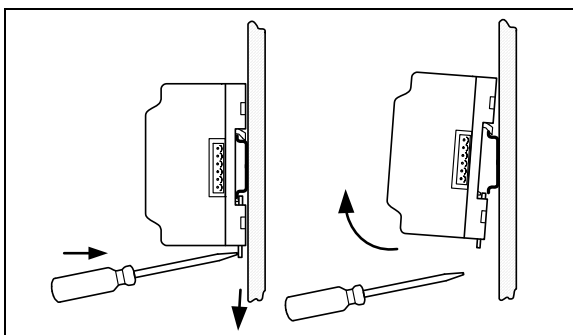
2. Use a screwdriver to pry down the plastic locking clip, then push **down** and **in** on the module. This forces the clip to snap over the other edge of the DIN rail. See [Figure 5](#).
3. Slide the NPB-PWR-UN along the DIN rail to connect either
  - its *left-side* 20-position plug into the T-200/600 (or its last T-IO-16 accessory module), or
  - its *right-side* 6-position socket into the T-700 (or remote T-IO-16-485 module).
4. Refer to other *Mounting and Wiring Guides* for additional mounting details.



#### Note

To *remove* the module from a DIN rail, use a screwdriver to pry out the plastic locking clip, then pull down and out at the bottom of the unit. See [Figure 6](#).

**Figure 6 Removing module from DIN rail.**



## Wiring



### Warning

A 120Vac or 240Vac circuit powers the NPB-PWR-UN. Disconnect power to this circuit before installation to prevent electrical shock or equipment damage.

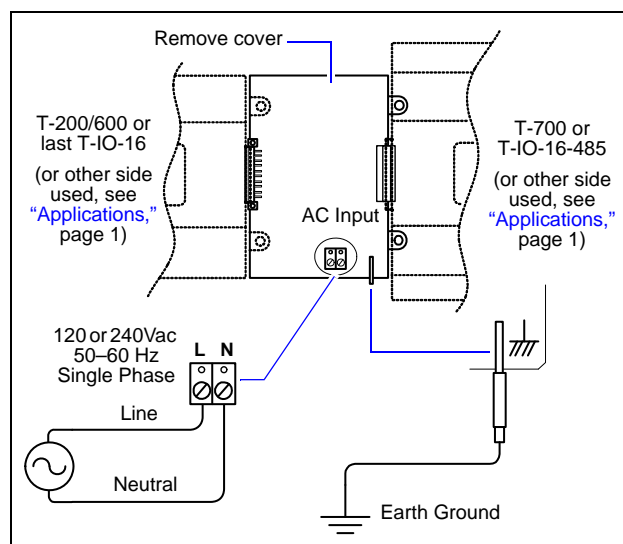
Make all connections in accordance with national and local electrical codes. Use copper conductors only.

Do not exceed 30W supply capacity of the NPB-PWR-UN by the powered devices.

## Ground and Input Power

Input power wiring requires you remove the module's cover to access a terminal block on the circuit board. You also make an earth ground connection to the grounding lug using the supplied grounding wire. See [Figure 7](#) and [Procedure 2](#).

**Figure 7 NPB-PWR-UN power and earth ground.**



### Procedure 2 Wiring earth ground and input power.

1. Remove power from the AC circuit being wired to the NPB-PWR-UN—see previous [Warning](#).
2. Remove the NPB-PWR-UN cover. To do this, press in the four cover tabs on both sides (see [Figure 1](#)), and lift the cover off.



#### Note

If a JACE controller or accessory module is plugged into the unit, you may need to slide it away to get to the cover tabs.

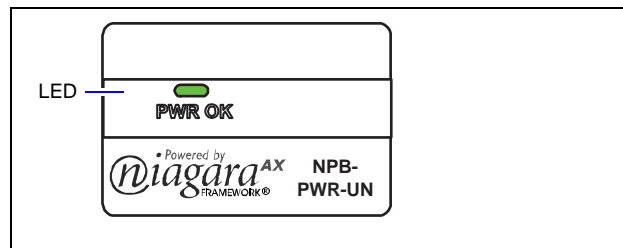
3. Connect the supplied earth grounding wire to a nearby grounding point. See [Figure 7](#).
4. Make AC circuit connections line (mains) and neutral to the terminals labeled "INPUT PWR."
5. Replace the cover on the NPB-PWR-UN. Make sure all modules in the mounted assembly are firmly connected together and secured.
6. Before restoring power to the NPB-PWR-UN, complete any other wiring connections on the JACE controller and/or its accessory modules. Refer to the appropriate *Mounting and Wiring Guide(s)* for more details.

If powering a T-200/600 (JACE 2/6) with T-IO-16 modules chained, see the [Warning](#) in the next "Output Power" section.

## LED

A single LED is visible on the NPB-PWR-UN's cover, to show supplied 15Vdc power. See [Figure 8](#).

**Figure 8 LED "PWR OK".**



Whenever AC power is applied to the NPB-PWR-UN, this LED should remain lit.

## Output Power

Once AC power is restored to the NPB-PWR-UN, 15Vdc power is supplied to devices attached via its used output connector. On all chained devices, power is passed through these type connectors.



**Warning** In the case of a T-200/600 (JACE 2/6) with T-IO-16 modules installed, it is important not to remove power after *first* applying it, for a period of up to 4 minutes, in case an automatic "firmware upgrade" from the T-200/600 controller to attached IO modules is in progress. Otherwise, IO modules can be rendered inoperable. Refer to the T-IO-16 *Installation and Configuration Guide* for additional details.

Information and/or specifications published here are current as of the date of publication of this document. Tridium, Inc. reserves the right to change or modify specifications without prior notice. The latest product specifications can be found by contacting our corporate headquarters, Richmond, Virginia. Products or features contained herein are covered by one or more U.S. or foreign patents. This document may be copied by parties who are authorized to distribute Tridium products in connection with distribution of those products, subject to the contracts that authorize such distribution. It may not otherwise, in whole or in part, be copied, photocopied, reproduced, translated, or reduced to any electronic medium or machine-readable form without prior written consent from Tridium, Inc. Complete confidentiality, trademark, copyright and patent notifications can be found at: <http://www.tridium.com/galleries/SignUp/Confidentiality.pdf>. © 2012 Tridium, Inc.