Z-Wave Option Card
NPB-ZWAVE-*xx*

INSTALL SHEET

This document covers the mounting of a NPB-ZWAVE-*xx* option card in a Tridium® JACE® controller, including models T-200/600 (JACE 2/6), T-700 (JACE 7), T-202/602-XPR (M2M JACE), or Security JACE series.

Table 1   NPB-ZWAVE-*xx* option description.

Description	Models /Notes
Z-Wave wireless option card for serial gateway support between the hosted NiagaraAX station and an RF wireless Z-Wave domain. This option card allows NiagaraAX integration of wireless Z-Wave devices. An RP-SMA coax stub antenna is included. Four status LEDs are on the option card's top surface.	Two models are available: • **NPB-ZWAVE-US** - For domestic U.S. usage. 908.42 MHz frequency • **NPB-ZWAVE-EU** - For European usage. 868.42 MHz frequency An optional antenna extension kit allows the included antenna to be located up to 6.56 feet (2m) away from the option card. This kit is required if installing in a T-202/602-XPR controller model. See "Antenna Extension Option," page 3. The NPB-ZWAVE-*xx* option card adds one COM port on the JACE controller. See "COM Port Usage," page 3.

**Note**   The JACE requires NiagaraAX-3.5 or later to support operation of the NPB-ZWAVE-*xx*.

Not covered in this document are NiagaraAX Z-Wave driver (software) topics about using this option card. For all other related mounting and wiring details, refer to the appropriate mounting and wiring document. See "Related Documentation," page 3.

Included in this Package

Included in this package you should find the following items:

- NPB-ZWAVE-*xx* option card, with pre-attached endplate.
- an RP-SMA coax-mounted stub antenna.
- This document *NPB-ZWAVE-xx Z-Wave Option Card*, Part Number 11691 Rev 2.2

Figure 1   NPB-ZWAVE-*xx* Option.
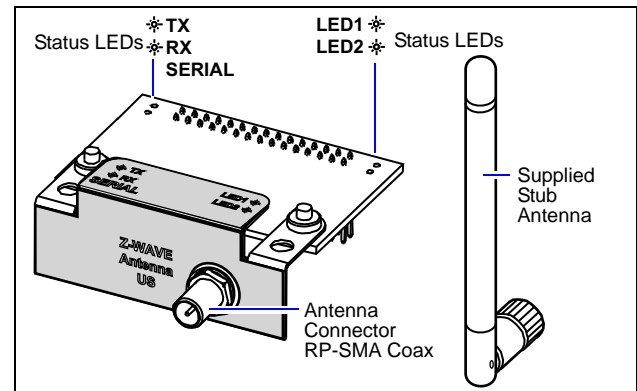
Material and Tools Required

The following supplies and tools are required:

- #2 phillips screwdriver: used to install the NPB-ZWAVE-*xx* option card.
- If installing in a T-*x*02-XPR (M2M JACE), an antenna cable kit. See "Antenna Extension Option," page 3. Also, a #1 phillips screwdriver.

Mounting

Warning   **Power to the controller must be OFF when installing or removing option cards, or damage will occur! Also, you must be very careful to plug any option card into its connector properly (pins aligned).**

Mount the NPB-ZWAVE-*xx* option card in either of the option card slots of the controller, as needed. Note the T-*x*02-XPR series has only one option card slot.

Procedure 1   Mounting NPB-ZWAVE-*xx* option card.

1. Remove power from the JACE—see the previous Warning.

2. Remove the JACE cover or covers (T-*x*02-XPR). For all but the T-*x*02-XPR, press in the four tabs on both ends of the unit, and lift the cover off.
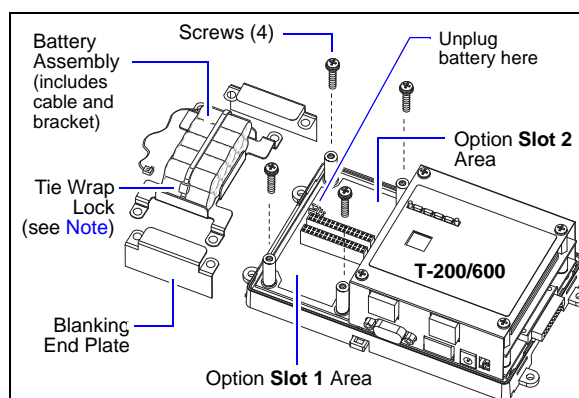
Note   If accessory modules are plugged into the controller, you may need to slide them away from the unit to get to the cover tabs.

If a T-202/602-XPR, first remove the right cover, then the left cover, retaining the two screws that secure each cover.

3. If a T-200/600 series, remove the battery and bracket assembly by taking out the screws holding it in place, setting screws aside for later. Figure 2 shows an exploded view of a T-200/600.

Figure 2   Remove screws and battery assembly.

Battery Assembly (includes cable and bracket)

Screws (4)

Unplug battery here

Option **Slot 2** Area

Tie Wrap Lock (see Note)

T-200/600

Blanking End Plate

Option **Slot 1** Area

Note   The tie wrap on the battery pack should have its lock "knot" on **top**, as shown in Figure 2. If not, cut and *remove* the tie, then *re-install* another tie wrap with its lock tab on top. (*Tie lock at bottom interferes with option card*).

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4. If a T-202/602-XPR or T-700, remove the option slot blanking plate, retaining the two screws.


Note   Slot 2 option card installation in a T-700 controller requires careful attention! See its *Mounting and Wiring Guide* for more details. This document focuses on installation in a T-200/600 series controller.

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5. Remove the blanking end plate for the slot you are installing the option card into. (Retain the blanking end plate in case the option card must be removed at a later date.)

6. Carefully insert the pins of the NPB-ZWAVE-*xx* into the socket of the appropriate option card slot. Mounting holes on the option board should line up with the standoffs on the base board. If they do not, the connector is not properly aligned. Press until the option card is completely seated.

Figure 3 shows a card going into **Slot 2** of T-200/600 series controller.

Figure 3   Option card going into Slot 2.

Insert option card into option card slot carefully, with **pins aligned**.

Fully seat card.
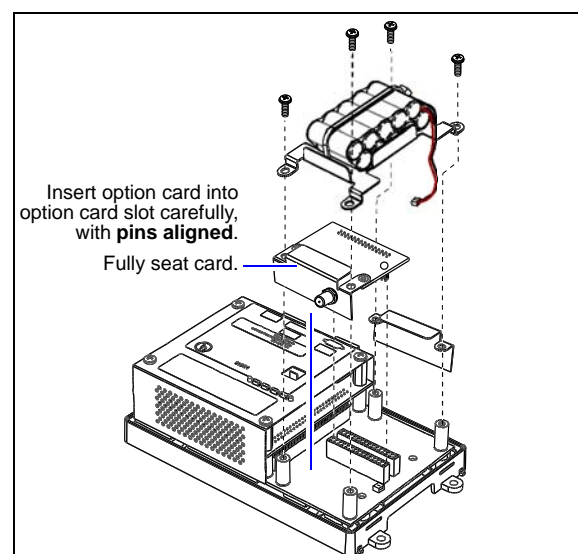
7. If a T-200/600 series, set the battery and bracket assembly back over the option card slots, with the mounting holes aligned with the standoffs.

8. Place the four screws through the battery bracket, end plates, and into the standoffs on the JACE base board. Hand tighten these screws.

**Figure 4   Re-fasten screws through battery bracket.**

Hand tighten the 4 screws through battery bracket, end plates, into standoffs.

JACE Battery Connector
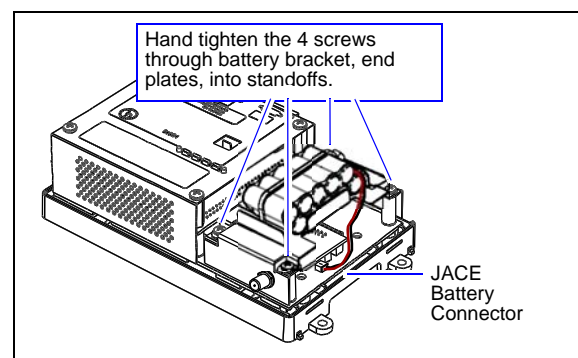
9. Plug the battery cable into the battery connector on the controller (see Figure 4).

10. Replace the controller's cover. If accessory modules were unplugged, plug them back into the JACE as before, and secure.

Attaching Antenna

A stub antenna with RP-SMA coax connector is provided for use with a T-200/600 or T-700 controller. To attach, simply insert into the coax jack on the option card, and finger-tighten the knurled nut (Figure 5).

Figure 5   RP-SMA stub antenna on T-200/600.
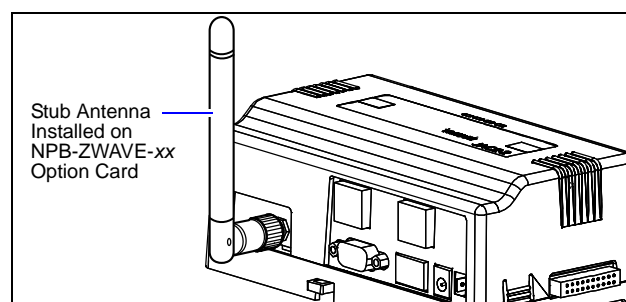
Rotate in whatever position is needed for mounting clearance and/or best reception. If needed, you can use the antenna extension option.

Antenna Extension Option

To locate the included stub antenna off the JACE, or if installing in a T-*x*02-XPR (M2M JACE) model, order and install the CBL-SED-EXT option. Included is a 6.56 ft. (2m) RP-SMA-type coax extension cable and steel bracket for wall or panel mounting. See Figure 6 for details and dimensions.

Figure 6   CBL-SED-EXT bracket details.
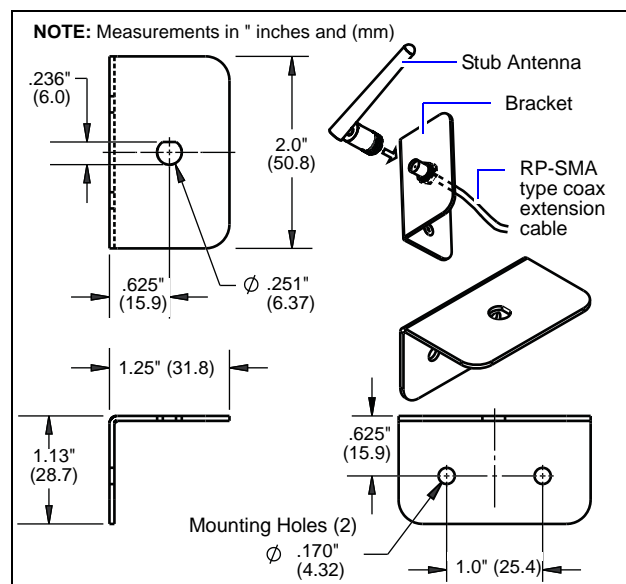
Some installations may require a different external antenna.

Note Any external antenna must be compatible with the Z-Wave frequency (U.S. 908.42 MHz, or 868.42 MHz European) and the 50 Ω impedance of the RP-SMA coax connector on the NPB-ZWAVE-*xx* option card.

LEDs

Four (4) LEDs are on the top of the option card—you must remove the JACE cover to see them. See Figure 1 on page 1.

Two LEDs indicate serial communications activity ("RX", "TX") to/from the JACE controller. The other two LEDs are controlled by the option card's PLD (Programmable Logic Device), where functionality is programmable.

COM Port Usage

The NPB-ZWAVE-*xx* option card has an onboard UART and so adds *one* COM port on the installed JACE controller. The hosted station automatically resolves the option's COM address.

- If a T-200/600 controller and installing in option Slot 1, or if the *only* option card, it is seen as COM3.
- If a JACE 7 controller and installing in option Slot 1, or if the *only* option card, it is seen as COM5.

If installed in Slot 1 of a JACE along with *another* option card that uses COM ports in option Slot 2, note that COM assignments for that other card are affected.

For example, if a NPB-ZWAVE-*xx* card is in Slot 1 of T-200/600 and a NPB-2X-485 option card is in Slot 2, the two NPB-2X-485 option ports are COM4 and COM5. The same option card mix in a JACE 7 would yield Slot 2 NPB-2X-485 option ports of COM6 and COM7.

The NPB-ZWAVE-*xx* installed in the only (single) option slot of a T-202/602-XPR series controller is seen as COM7.

Related Documentation

For more information on mounting and wiring any JACE controller, refer to its model-specific *Mounting and Wiring Guide*.

Also see the following software document:

- *NiagaraAX Z-Wave Driver Guide*

Options and Parts

The following options or replacement parts may be ordered for the NPB-ZWAVE-*xx* option card:

Table 2   Parts for NPB-ZWAVE-*xx* option card.

Option/Part	Description
CBL-SED-EXT	6.56 ft (2m) RP-SMA-type coax extension cable, and mounting bracket. See "Antenna Extension Option" on page 3. **Note:** Required if installing the option card in a T-*x*02-XPR (M2M JACE) model.
11685	NPB-ZWAVE-EU replacement RP-SMA coax-mounted antenna (868 MHz)
11686	NPB-ZWAVE-US replacement RP-SMA coax-mounted antenna (915[1] MHz)

1. Antennas have a 30 MHz bandwidth, and the specified center frequency does not have to align exactly with the Z-Wave module's frequency. Thus, the 915 MHz antenna (11686) is compatible with the U.S. option card's 908.42 MHz frequency.

Approvals

FCC: The Panasonic module used on the NPB-ZWAVE-*xx* option card is FCC approved, and has an FCC ID of T7VPAN8550.

The module also complies to EN300220 for ETSI (European FCC) approval.