

NPB-SED-001 Option Card

INSTALL SHEET

This document covers the mounting and wiring of a NPB-SED-001 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-SED-001 option description.

Description	Notes
Sedona Framework™ option card based on the Jennic JN5139 microcontroller for IEEE 802.15.4 wireless network and 6LoWPAN communications support. An RS-485 port for future MSTP networking is also provided. This option enables a JACE to integrate wireless Sedona Framework Jennic 802.15.4 based devices into its NiagaraAX station. See the data sheet for the NPB-SED-001 for further details.	<p>An adjustable angle RP-SMA coax antenna is included.</p> <p>Four status LEDs are on the top surface of the option card.</p> <ul style="list-style-type: none"> • Two LEDs are for monitoring RS-485 activity. • One LED is for heartbeat, and the other is future use. <p>An optional antenna extension kit allows the included antenna to be located 6.56 feet (2m) away from the option card. This kit is required if installing in a T-x02-XPR (M2M JACE) controller model.</p> <p>This option card adds and reserves one COM port on the JACE controller. See "COM Port Usage," page 3.</p>

Note The JACE requires NiagaraAX-3.4 or later to support operation of the NPB-SED-001.

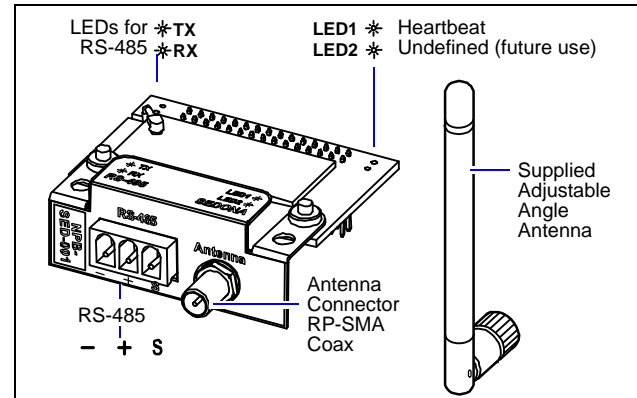
This document does not cover NiagaraAX or Sedona Framework software topics related to this option. Refer to the "Using the Sedona Jennic option card - Engineering Notes" document for related details.

Included in this Package

Included in this package you should find the following items:

- NPB-SED-001 option card, with pre-attached endplate. A 3-position removable connector plug for RS-485 wiring is included.
- an RP-SMA coax-mounted adjustable-angle antenna.
- This document *NPB-SED-001 Option Card Install Sheet*, Part Number 11632 Rev 1.4

Figure 1 NPB-SED-001 Option.



Material and Tools Required

The following supplies and tools are required:

- #2 Phillips screwdriver: used to install the NPB-SED-001 option card.
- If installing in a T-x02-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-SED-001 option card in either of the option card slots of the controller, as needed. Note the T-x02-XPR series has only one option card slot.

Procedure 1 Mounting NPB-SED-001 option card on a JACE.

1. Remove power from the JACE—see the previous [Warning](#).
2. Remove the JACE cover or covers (T-x02-XPR). For all but the T-x02-XPR, press in the four tabs on both ends of the unit, and lift the cover off.

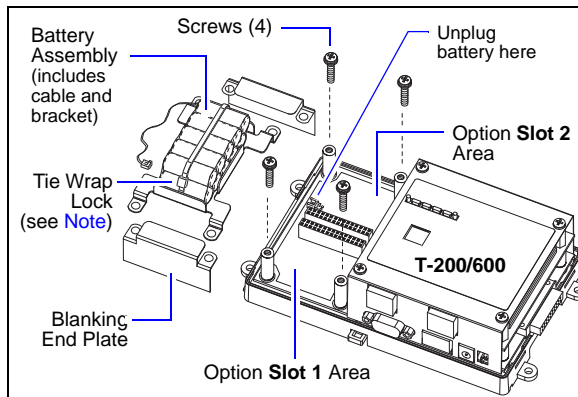


Note If accessory modules are plugged into the controller, you may need to slide them away from the unit to get to the cover tabs.

If a T-x02-XPR, first remove the right cover, then the left cover, retaining the two screws that secure each cover.

3. If a T-200/600 or Security JACE series, remove the battery and bracket assembly by taking out the screws holding it in place, setting screws aside for later. See [Figure 2](#) for an exploded view.

Figure 2 Remove screws and battery assembly.



- 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).

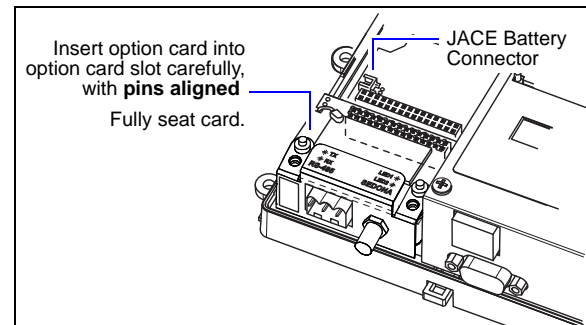
4. Remove the blanking end plate for the slot you are installing the option card into. (Retain the blanking end plate in case the option card must be removed at a later date.)



- Note** Slot 2 option card installation in a T-700 controller requires careful attention! See the *T-700 Mounting and Wiring Guide* for more details. This document focuses on installation in a T-200/600 series (JACE 2/6) controller.

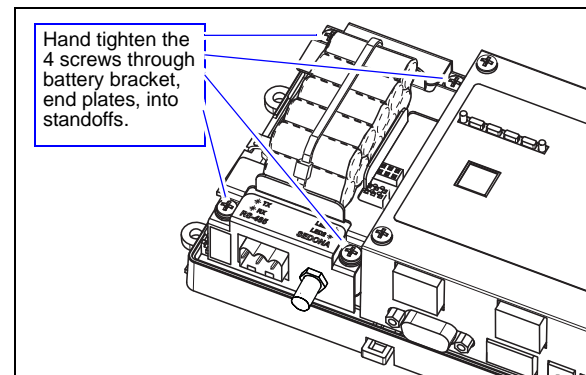
5. Carefully insert the pins of the NPB-SED-001 into the socket of the appropriate option card slot. The mounting holes on the option board should line up with the standoffs on the base board. If they do not, the connector is not properly aligned. Press until the option card is completely seated.
6. If unplugged, plug the battery cable back into the battery connector on the JACE (see [Figure 3](#) for location on the T-200/600).

Figure 3 NPB-SED-001 inserted, end plate on top.



7. For the T-200/600 series or Security JACE, set the battery and bracket assembly back over the option card slots, with mounting holes aligned with the standoffs. Screws enter holes in the battery bracket first. See [Figure 4](#).

Figure 4 Re-fasten screws through battery bracket.



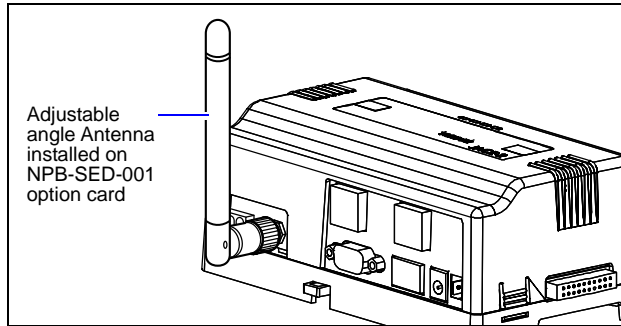
8. Place the screws through the end plate(s), and into the standoffs on the base board. Using a screwdriver, hand tighten screws.
9. Replace the JACE cover or covers (T-x02-XPR).
10. If accessory modules were unplugged from the JACE, plug them back as before, and secure.

Attaching Antenna

A 2.4 GHz adjustable-angle antenna with RP-SMA coax connector is provided. Attach it to the option card in a T-200/600 or T-700 series controller by simply inserting into the coax jack, and finger-tightening the knurled nut ([Figure 5](#)).



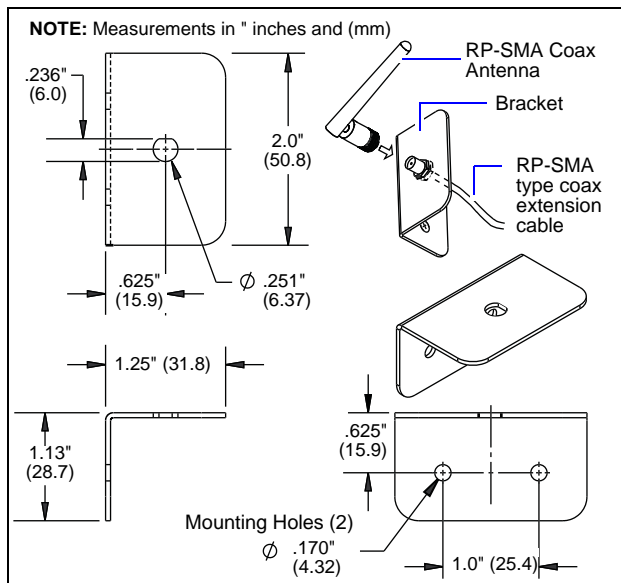
- Note** A T-x02-XPR controller requires the antenna outside of the unit, using the extension cable kit. See [“Antenna Extension Option,”](#) page 3.

Figure 5 RP-SMA coax 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 RP-SMA coax antenna off the JACE, or if installing in a T-x02-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 For FCC compliance, use only the antenna supplied with the option card, or else one listed by Jennic as FCC compatible with the Jennic JN5139 module.

RS-485 Wiring

(Future use only) Connect to an RS-485 multipoint network using the 3-position screw terminal connector plug, using shielded 18-22 AWG wiring. Refer to the TIA/EIA-485 standard for more details.

Screw terminals are minus (-), plus (+), and shield (S), as seen on the end plate label—see [Figure 1](#) on page 1.

LEDs

The NPB-SED-001 has four (4) LEDs for RS-485 and other status. All LEDs are on the top of the card (must remove JACE cover). See [Figure 1](#) for LED locations.

RS-485: Two LEDs monitor RS-485 activity.

The RS-485 LEDs are briefly described as follows:

- **TX** (yellow) — Transmit, the JACE is *sending* data to a device connected on the RS-485 trunk.
- **RX** (green) — Receive, the JACE is *receiving* data from a device connected on the RS-485 trunk.

Other: The other two LEDs are described as follows:

- **LED1** (green) — Heartbeat. After initialization completes, flashes at 1 second On, 1 second Off.
- **LED2** (green) — Blinks once during initialization. Other uses may be defined at a future date.

COM Port Usage

The NPB-SED-001 option card has an onboard UART. This causes the JACE platform to allocate a new COM port resource, reserved for the exclusive use of this option card.



Note Neither the COM port nor RS-485 port is directly available in the hosted NiagaraAX station.

- 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 T-700 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-SED-001 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 T-700 would yield Slot 2 NPB-2X-485 option ports of COM6 and COM7.

The NPB-SED-001 installed in the only (single) option slot of a T-x02-XPR series controller is seen as COM7.

Options and Parts

The following options or replacement parts may be ordered for the NPB-SED-001 option card:

Table 2 Parts for NPB-SED-00n 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.
11277	Replacement adjustable-angle 2.4GHz RP-SMA coax-mounted antenna.
10027	3-terminal wiring plug for RS-485

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