



SkyNEST

WASP™ Portable Kit, Smart Receiver and SCADA Gateway with Solar Panel

USER MANUAL

VERSION 1.1
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WARNING

READ THIS MANUAL BEFORE OPERATING THIS DEVICE.

MISE EN GARDE

LISEZ LE MANUEL AVANT UTILISATER

WARNING

**TO PREVENT EQUIPMENT FAILURE AND/OR DAMAGE
AND/OR PERSONAL INJURY, REGULAR CALIBRATION
AND INSPECTION OF THIS DEVICE IS REQUIRED.**

MISE EN GARDE

**POUR PRÉVENIR LE DOMMAGE À L'EQUIPMENT, ET/AU AUX
PERSON, LA CÀLIBRATION ET L'INSPECTION REGULIER EST
RÉQUIS.**

WARNING - EXPLOSION HAZARD

**SUBSTITUTION OF COMPONENTS MAY IMPAIR
SUITABILITY FOR CLASS 1 DIVISION 2.**

AVERTISSEMENT – RISQUE D’EXPLOSION

**LA SUBSTITUTION DE COMPOSANTS RENDRE CE MATÉRIEL
INACCEPTABLE POUR LES EMPLACEMENTS DE CLASSE 1,
DIVISION 2**

WARNING - EXPLOSION HAZARD

**DO NOT RECONNECT POWER
IN A HAZARDOUS ENVIRONMENT.**

AVERTISSEMENT - RISQUE D’EXPLOSION

**NE PAS BRANCHEZ LA PRISE DANS UN ENVIRONNEMENT
FLAMMABLE.**

Table of Contents

1. Introduction	5
1.1. SkyNEST Portable Kit Introduction	5
2. Installation.....	6
2.1. Included in the Package.....	6
2.2. Placement of SkyNEST	6
2.2.1. Placement.....	6
2.2.2. Location	6
2.2.3. Positioning	6
2.3. Wiring SkyNEST and NEST Receiver	6
2.3.1. Connections.....	6
2.3.2. SkyNEST Backplane and Switches.....	6
2.3.3. Antenna	6
2.3.3. Nest Receiver Mounting.....	7
2.3.4. Circuit Board Terminal Block.....	7
3. SkyNEST Interface	8
3.1. Solar Kit Button Description	8
3.1.1. Front Buttons	8
3.1.1. Side Button	9
3.2. NEST Interface	9
3.2.1. NEST Touchscreen.....	9
3.2.2. System Status Screens.....	10
3.2.3. Configure Individual Sensors.....	10
3.2.4. Setting Temperature Warning and Critical Alarm Thresholds	10
3.2.5. Temperature Calibration.....	10
3.2.6. Setting Acceleration Warning and Critical Alarm Threshold.....	10
3.2.6. Setting Velocity Warning and Critical Alarm Threshold.....	10
3.2.7. Binding and Ignoring Sensor Pucks.....	10
3.2.8. System Info	10
3.2.8. System Settings	10
3.2.9. Clear All Sensors	11
3.2.10. Set Auto Attach	11
3.2.11. Log Data Out Direct.....	11
3.2.12. Adjust Brightness	11

- 3.2.13. Reset System Settings 11
- 3.2.14. Logs 11
- 4. Maintenance 12
 - 4.1. Solar Panels 12
 - 4.1.1. Obstructions..... 12
 - 4.1.1. Cleaning..... 12
 - 4.2. Batteries 12
 - 4.1.1. SkyNEST Battery 12
 - 4.1.1. Charging 12
 - 4.1.1. Replace SkyNEST Battery 12
- 5. Contact Info 13
 - 5.1. Support..... 13

1. Introduction

1.1. SkyNEST Portable Kit Introduction

This Operations Manual provides basic information on how to operate the **SkyNest Portable Kit, Smart Receiver, and Gateway**. This manual covers the following topics:

- Installation of SkyNEST
- Placement of SkyNEST
- Wiring of SkyNEST and WASP™NEST
- SkyNEST Interface
- Configuring of Individual WASP™Sensors
- System Information and Settings of WASP™NEST
- Maintenance of WASP™NEST



2. Installation

2.1. Included in the Package

The SkyNEST is shipped complete with the BossPac NEST™ Receiver, Battery and Charger/Tender, Solar Panel, an attached antenna, and a pre-determined number of wireless sensors.

2.2. Placement of SkyNEST

2.2.1. Placement

The enclosure must be placed in a vertical orientation, (with antenna on top).

2.2.2. Location

The SkyNEST enclosure should be placed in a strategic location anywhere within 30 metres (100') of the WASP™ Sensors.

This location should be in an area subject to direct sunlight. It is best to avoid shaded areas and to ensure the unit is not placed in line of objects that will block sunlight from reaching the solar panels.

The placement surface should be clear of any standing water or possible runoff areas. In northern temperate zones it is best to avoid areas where excessive snow drifting can form.

2.2.3. Positioning

The SkyNEST enclosure should be positioned to maximize the amount of sunlight directed at the solar panel. For Northern Hemisphere locations the solar panel should face due south and be tilted at an optimal angle to get the best performance.

2.3. Wiring SkyNEST and NEST Receiver

2.3.1. Connections

No on site connections or additional onsite wiring of the SkyNEST is required.

2.3.2. SkyNEST Backplane and Switches

All necessary wire routing and cable connections have been completed prior to shipping.

2.3.3. Antenna

The antenna connection has been completed prior to shipping. The antenna cable is routed through the BossPac NEST™ Receiver Gateway and attached to a receptacle located on the WASP™ NEST circuit board. This connection cannot be accessed without removal of the protective back plate on the receiver. This should only be done by a trained service technician in a location known to be non hazardous.

WARNING – EXPLOSION HAZARD. DO NOT CONNECT OR DISCONNECT THE ANTENNA IN A HAZARDOUS ENVIRONMENT.

AVERTISSEMENT – RISQUE D’EXPLOSION. NE PAS BRANCHER OU DÈ-BRANCHER L’ANTENNE DANS UN ENVIRONNEMENT FLAMMABLE.

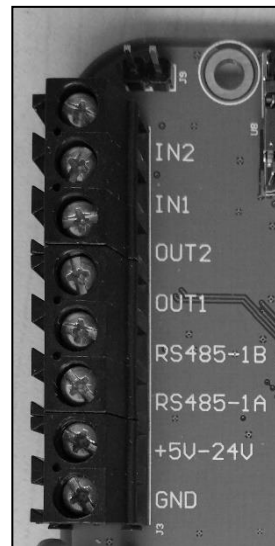
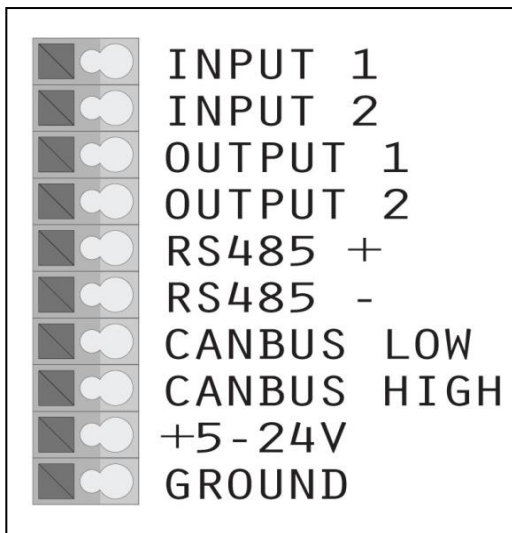
2.3.3. Nest Receiver Mounting

The BossPac NEST™ Receiver has been installed onto the inner door panel. All necessary wiring to the receiver has been completed prior to shipping. The protective back plate on the receiver should not be removed unless there is a requirement to access the receiver. This should only be done by a trained service technician in a location known to be non hazardous.

For complete wiring information refer to the WASP™ NEST Smart Receiver and Gateway Operations Manual.

2.3.4. Circuit Board Terminal Block

The NEST circuit board has a 10 pin terminal block, or an 8 pin terminal block, depending on version / revision of the unit. Refer to *NEST User Manual* for detailed information. A diagram of the terminal block is shown below.



For complete wiring information refer to the WASP™ NEST Smart Receiver and Gateway Operations Manual.

3. SkyNEST Interface

3.1. Solar Kit Button Description

3.1.1. Front Buttons

SOLAR:

Turns the solar panel charging system ON or OFF

- ON (I): charge battery using solar panel.
- OFF (O): Disconnect solar charging system. Use this position when charging the battery with plug-in charger.

Caution: Switch to OFF position when using plug-in battery charger.

NEST:

Turns the satellite communication and NEST Receiver ON or OFF

- SAT (I): Turns on the satellite communication and NEST Receiver.
- ON (O): Turns off satellite communication, turns on NEST Receiver. Use this position for downloading of data via the 485-USB cable to a laptop for analysis in BossPac WASP Desktop Software Application.
- OFF (II): Turns off satellite communication and NEST Receiver.



3.1.1. Side Button

INSTANT UPLINK:

Push once to initiate an instant upload of data to the remote server.



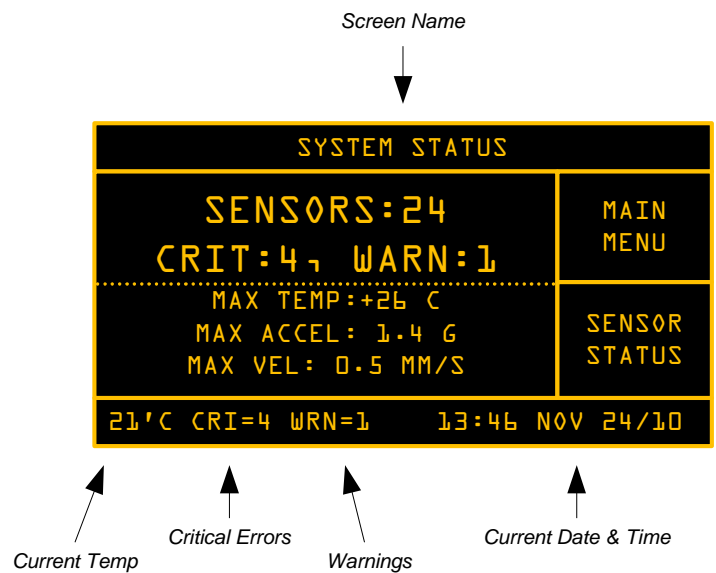
3.2. NEST Interface

Listed below is basic information regarding the BossPac NEST Receiver. Please refer to the “NEST User Manual” for complete setting instructions and details.

3.2.1. NEST Touchscreen

The touch screen interface on the BossPac NEST™ displays important current information throughout all of its screens. The name of the current screen is displayed at the top center. The current time and date are displayed at the bottom right. Current ambient temperature, critical error count, and warning count are displayed in the bottom left of the interface. These information sections, top bar and bottom bar, of the touch screen are not interactive and are only intended to provide current system statistics to the viewer.

NOTE: Warnings indicate a sensor(s) has reached a warning limit pre-determined in the Sensor Setup screen. Critical Alarms indicate a sensor(s) has reached a pre-determined shutdown limit and a shutdown signal has been issued.



Refer to the “NEST User Manual” for setting warning and critical alarm limits as well as information on the following:

3.2.2. System Status Screens

When activating the BossPac WASP™ system for the first time the BossPac NEST receiver will automatically detect all sensor pucks within the working radius.

3.2.3. Configure Individual Sensors

To configure individual sensor, tap SETUP from the SENSOR STATUS screen to access the SENSOR SETTINGS screen

3.2.4. Setting Temperature Warning and Critical Alarm Thresholds

After selecting the desired temperature threshold from the SENSOR SETTINGS screen you will be directed to the specific threshold screen.

3.2.5. Temperature Calibration

Use the settings screen to calibrate an individual sensor reading to a reference reading.

3.2.6. Setting Acceleration Warning and Critical Alarm Threshold

Select the desired limit (in G's)

3.2.6. Setting Velocity Warning and Critical Alarm Threshold

Specify the desired velocity (in millimeters/sec or inches/sec)

3.2.7. Binding and Ignoring Sensor Pucks

When first configuring or adding WASP™ Sensors to the WASP™ systems, it is necessary to bind the sensors to the receiver.

3.2.8. System Info

The System Info screen displays 3 options: **VERSION**, **UPTIME**, and **RADIO**.

Selecting **VERSION** displays the current NEST firmware version. The uptime screen simply displays how long the NEST has been active. Highlighting and selecting **RADIO** from the SYSTEM INFO screen will access the PROTOCOL STATUS screen.

3.2.8. System Settings

You can access the SYSTEM SETTINGS screen from the MAIN MENU screen. The SYSTEM SETTINGS screen displays a number of options

- Set Time/Date
- Set Password
- Set MODBUS Parameters
- Set temperature Units (°C or °F)
- Set Velocity Units

3.2.9. Clear All Sensors

You can clear all sensors from the NEST's memory.

3.2.10. Set Auto Attach

The auto-attach option will bind all sensors within the connecting range.

3.2.11. Log Data Out Direct

Log bound sensor data on the internal non-volatile memory or stream live data over RS485 port to an external device.

3.2.12. Adjust Brightness

Change the brightness of the screen to improve readability.

3.2.13. Reset System Settings

Restore the receiver to its default setting.

3.2.14. Logs

The BossPac NEST System has extensive logging capabilities with options to View Logs, Upload Logs, or Clear Logs.

4. Maintenance

4.1. Solar Panels

4.1.1. Obstructions

Carefully remove any loose obstructions such as snow, leaves, or other objects that have settled or built up around the solar panel.

4.1.1. Cleaning

In general the solar panel should self clean, (rain, etc).

In circumstances where cleaning is required a light spray with a hose, or a soft brush and squeegee should be sufficient. Do not use metal objects, abrasive products, and avoid using detergents on the panels. To remove oily stains use isopropyl alcohol for a spot cleaning substance.

4.2. Batteries

4.1.1. SkyNEST Battery

Battery is maintenance free.

4.1.1. Charging

The solar panel should be able to provide a sufficient charge to maintain adequate battery levels to operate the system.

A plug-in charger has been supplied to charge the battery if the solar charging is not sufficient. Ensure the “Solar Switch” on the inside panel is in the OFF position when using plug-in battery charger.

4.1.1. Replace SkyNEST Battery

To replace SkyNEST battery:

- Turn Solar and NEST switches to OFF
- Disconnect battery terminals
- Remove battery hold down strap
- Carefully remove and replace battery
- Re-assemble hold down strap
- Reconnect battery terminals
- Turn Solar and NEST switches to ON... if charging is required, use the supplied plug-in charger, ensuring Solar Switch is in OFF position.

WARNING – DO NOT CONNECT OR DISCONNECT BATTERY UNLESS AREA IS KNOWN TO BE NON-HAZARDOUS.

NE PAS BRANCHER OU DÉ-BRANCHER LA BATTERIE DANS UN ENVIRONNEMENT FLAMMABLE.

WARNING – DO NOT CHARGE BATTERY UNLESS AREA IS KNOWN TO BE NON-HAZARDOUS.

NE PAS CHARGER LA BATTERIE À MOINS QUE L'ENVIRONNEMENT SOIS NON-FLAMMABLE.

WARNING – USE ONLY BATTERIES DESIGNED FOR THE ENVIRONMENT THE BOSSPAC NEST RECEIVER IS OPERATING IN.

UTILISER SEULEMENT LES BATTERIES CONÇU POUR L'ENVIRONNEMENT.

5. Contact Info

5.1. Support

BossPac engineers can be reached at:

Email: support@bosspac.com

Ph: +1 403-216-1226

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FCC & IC Statements

FCC Class B Part 15

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by BossPac Engineering Technology Inc. may void the user's authority to operate the equipment.

IC RSS 210

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

FCC/IC RF Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. The antenna(s) used for this equipment must be installed to provide a separation distance of at least 8 inches (20cm) from all persons.

Cet équipement est conforme à l'exposition aux radiations de FCC et d'Industrie Canada établies pour un environnement non contrôlé. L'antenne (s) utilisé pour cet équipement doit être installé pour fournir une distance d'au moins 20cm à partir de toutes les personnes.