

# Installation Manual

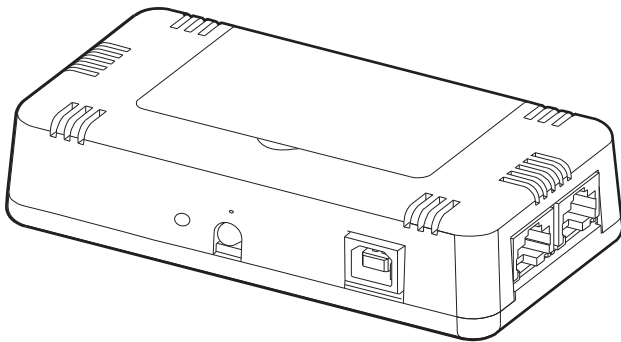
NetBotz<sup>®</sup>

Wireless Sensor Pod 180

NBPD0180

990-5230D-001

Publication Date: 1/2018



# APC by Schneider Electric Legal Disclaimer

The information presented in this manual is not warranted by APC by Schneider Electric to be authoritative, error free, or complete. This publication is not meant to be a substitute for a detailed operational and site specific development plan. Therefore, APC by Schneider Electric assumes no liability for damages, violations of codes, improper installation, system failures, or any other problems that could arise based on the use of this Publication.

The information contained in this Publication is provided as is and has been prepared solely for the purpose of evaluating data center design and construction. This Publication has been compiled in good faith by APC by Schneider Electric. However, no representation is made or warranty given, either express or implied, as to the completeness or accuracy of the information this Publication contains.

**IN NO EVENT SHALL APC BY SCHNEIDER ELECTRIC, OR ANY PARENT, AFFILIATE OR SUBSIDIARY COMPANY OF APC BY SCHNEIDER ELECTRIC OR THEIR RESPECTIVE OFFICERS, DIRECTORS, OR EMPLOYEES BE LIABLE FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL, PUNITIVE, SPECIAL, OR INCIDENTAL DAMAGES (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF BUSINESS, CONTRACT, REVENUE, DATA, INFORMATION, OR BUSINESS INTERRUPTION) RESULTING FROM, ARISING OUT, OR IN CONNECTION WITH THE USE OF, OR INABILITY TO USE THIS PUBLICATION OR THE CONTENT, EVEN IF APC BY SCHNEIDER ELECTRIC HAS BEEN EXPRESSLY ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. APC BY SCHNEIDER ELECTRIC RESERVES THE RIGHT TO MAKE CHANGES OR UPDATES WITH RESPECT TO OR IN THE CONTENT OF THE PUBLICATION OR THE FORMAT THEREOF AT ANY TIME WITHOUT NOTICE.**

Copyright, intellectual, and all other proprietary rights in the content (including but not limited to software, audio, video, text, and photographs) rests with APC by Schneider Electric or its licensors. All rights in the content not expressly granted herein are reserved. No rights of any kind are licensed or assigned or shall otherwise pass to persons accessing this information.

This Publication shall not be for resale in whole or in part.

# Contents

- Introduction** . . . . . **1**
  - Document overview . . . . . 1
  - Additional documentation . . . . . 1
  - Supported appliances . . . . . 2
  - Supported sensors . . . . . 2
  - Supported devices on the NetBotz wireless network . . . . 3
- Physical Description** . . . . . **4**
- Inventory** . . . . . **5**
- Components of the Wireless Sensor Network** . . . . . **6**
- Installing the Wireless Sensor Network** . . . . . **7**
- Adding Sensors to the Wireless Network** . . . . . **8**
- Mounting the Wireless Sensor Pod** . . . . . **8**
  - Toolless peg-mount installation . . . . . 9
  - External installation . . . . . 9
- Connecting a Door Switch or Temperature Sensor** . . . . . **10**
- Applying Power to the Coordinator** . . . . . **10**
- Configuring the Coordinator in Advanced View** . . . . . **10**
  - Disconnecting a Coordinator . . . . . 11
  - Internal sensor listing . . . . . 12
- Applying Power to a Router** . . . . . **12**
  - Internal sensor listing . . . . . 12
- Applying Power to an End Device** . . . . . **13**
  - Internal sensor listing . . . . . 13
- LED Activity** . . . . . **14**
  - Boot process LED activity . . . . . 14
  - Coordinator LED activity . . . . . 14
  - Router LED activity . . . . . 15
  - End Device LED activity . . . . . 15
- Using the Reset Button** . . . . . **16**

<b>Configuring and Monitoring Sensors</b> . . . . .	<b>16</b>
Receiving and sending data . . . . .	16
<b>Updating the Wireless Sensor Pod 180</b> . . . . .	<b>17</b>
NetBotz v4.4.x and above . . . . .	17
<b>Cleaning the Wireless Sensor Pod</b> . . . . .	<b>17</b>
<b>Specifications</b> . . . . .	<b>18</b>
<b>Two Year Limited Factory Warranty</b> . . . . .	<b>19</b>
Obtaining service . . . . .	21
<b>Radio Frequency Interference</b> . . . . .	<b>22</b>
USA—FCC . . . . .	22
Canada—ICES . . . . .	22
Australia and New Zealand . . . . .	22
European Union . . . . .	23
Russia . . . . .	23
Brazil . . . . .	23

## Introduction

The NetBotz<sup>®</sup> Wireless Sensor Pod 180 (NBPD0180) connects to a NetBotz appliance, allowing you to monitor the temperature and humidity in your data center. Additional sensors allow you to monitor rack door access and multiple temperature readings.

The Wireless Sensor Pod 180 can be configured as the Coordinator, a Router, or an End Device in your wireless sensor network.

**NOTE:** The Wireless Sensor Pod 180 requires a minimum of BotzWare version 4.3 and Advanced View 4.3. To upgrade Advanced View, and the BotzWare version installed on your appliance, use the **Upgrade** icon in your NetBotz appliance Advanced View, or visit the APC by Schneider Electric web site, [www.apc.com](http://www.apc.com).

**ZigBee<sup>®</sup> Certified.** The Wireless Sensor Pod 180 is ZigBee Certified. ZigBee is a wireless mesh networking standard for low-power applications. Schneider Electric is a member of the ZigBee Alliance.

Full information on the ZigBee standard can be found at the ZigBee Alliance web site: [www.zigbee.org](http://www.zigbee.org).

## Document overview

The *NetBotz Wireless Sensor Pod 180 Installation Manual* describes how to install the Wireless Sensor Pod in a rack, configure its mode and settings, attach it to a NetBotz appliance, and configure a wireless sensor network with other Wireless Sensor Pods. Specific instructions on installing door contacts and temperature sensors are in the installation instructions for each component.

## Additional documentation

Unless otherwise noted, the following documentation is available on the applicable product page on the APC by Schneider Electric web site, [www.apc.com](http://www.apc.com). To quickly find a product page, enter the product name or part number in the Search field.

**NetBotz Appliance User Guide** – Includes all details for using, managing, and configuring a NetBotz system with one of the following appliances: NetBotz Room Monitor 355 (NBWL0355/NBWL0355A, NBWL0356), NetBotz Room Monitor 455 (NBWL0455/NBWL0455A, NBWL0456), NetBotz Rack Monitor 450 (NBRK0450), NetBotz Rack Monitor 550 (NBRK0550), NetBotz Rack Monitor 570 (NBRK0570). There is a separate user's guide for the NetBotz Rack Monitor 250 (NBRK0250).

## Supported appliances

The Wireless Sensor Pod 180, and the other devices in the wireless sensor network, are monitored by a single NetBotz appliance. You can connect the Wireless Sensor Pod 180 to a wireless sensor network on any of the following appliances:

- NetBotz Rack Monitor 450 (NBRK0450)
- NetBotz Room Monitor 455 (NBWL0455/NBWL0455A, NBWL0456)
- NetBotz Rack Monitor 550 (NBRK0550)
- NetBotz Rack Monitor 570 (NBRK0570)

The NetBotz Room Monitor 455, NetBotz Rack Monitor 450, 550, and NetBotz Rack Monitor 570 appliances support a total of **48** wireless devices on the wireless sensor network.

In NetBotz versions prior to v4.5.3, the NetBotz Rack Monitor 450 supports a total of **26** wireless devices on the wireless sensor network.

## Supported sensors

### **NOTICE**

Only the sensors listed here are compatible with the Wireless Sensor Pod 180. Other sensors or devices will not function and may damage the Wireless Sensor Pod 180.

The Wireless Sensor Pod 180 includes three Universal Sensor ports for connecting APC by Schneider Electric temperature sensors and door contact sensors. The pod also has an internal temperature and humidity sensor. Supported sensors are:

<b>Sensor Name</b>	<b>Length</b>	<b>Part Number</b>
NetBotz Door Switch Sensor for APC by Schneider Electric Racks	12 ft	NBES0303
NetBotz Door Switch Sensor for APC by Schneider Electric Racks	62 in	NBES0313
NetBotz Door Switch Sensor for Third Party Racks	62 in	NBES0312
NetBotz Door Switch Sensor for Rooms or Third Party Racks	50 ft	NBES0302
APC by Schneider Electric Temperature Sensor	13 ft	AP9335T
APC by Schneider Electric Temperature & Humidity Sensor (reports temperature only when connected to the Wireless Sensor Pod 180)	13 ft	AP9335TH
NetBotz Temperature Sensor	32 in	NBES0311

## Supported devices on the NetBotz wireless network

### **NOTICE**

Only the devices listed here are compatible with the Wireless Sensor Pod 180. Other devices will not function and may damage the Wireless Sensor Pod 180.

The NetBotz Wireless Sensor Pod 180 is the only wireless sensor supported on the wireless sensor network in BotzWare v4.3 and Advanced View v4.3. NetBotz v4.3 supports a total of **26** Wireless Sensor Pod 180s, including the Coordinator, in the wireless sensor network.

BotzWare and Advanced View v4.4 and above support the following wireless sensors on the wireless sensor network:

- NetBotz Wireless Sensor Pod 180
- NetBotz Wireless Temperature Sensor (NBWS100T and NBWS100H)
- NetBotz USB Coordinator & Router (NBWC100U)

The NetBotz Room Monitor 455 and the NetBotz Rack Monitors 450, 550, and 570 support a total of **48** wireless devices on the wireless sensor network with BotzWare and Advanced view 4.4 and above.

**NOTE:** In NetBotz versions prior to v4.5.3, the Rack Monitor 450 supports a total of **26** wireless devices on the wireless sensor network.

The following wireless sensors can be configured as a Coordinator or a Router:

Sensor Name	Range	Part Number
NetBotz Wireless Sensor Pod 180	100 ft, line of sight	NBPD0180
NetBotz USB Coordinator & Router	100 ft, line of sight	NBWC100U

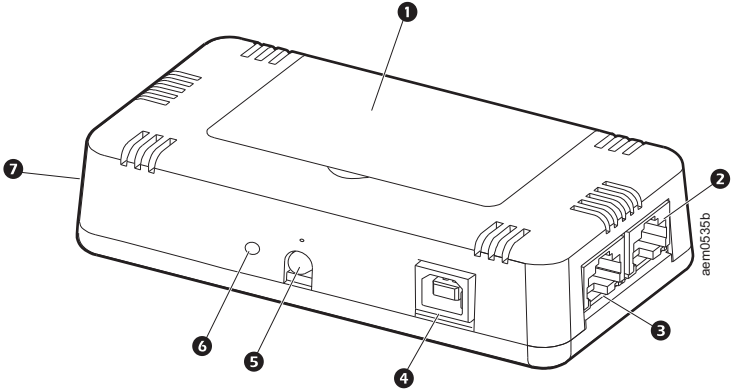
The following wireless sensors can be configured as an End Device:

Sensor Name	Range	Part Number
NetBotz Wireless Sensor Pod 180	100 ft, line of sight	NBPD0180
NetBotz Wireless Temperature Sensor	100 ft, line of sight	NBWS100T NBWS100H

**NOTE:** In a data center environment where obstructions are common, a range of 50 feet is typical.

For more information about installing and configuring the NetBotz Wireless USB Coordinator & Router or the NetBotz Wireless Temperature Sensor, see the online *Installation Manual* for either device.

## Physical Description



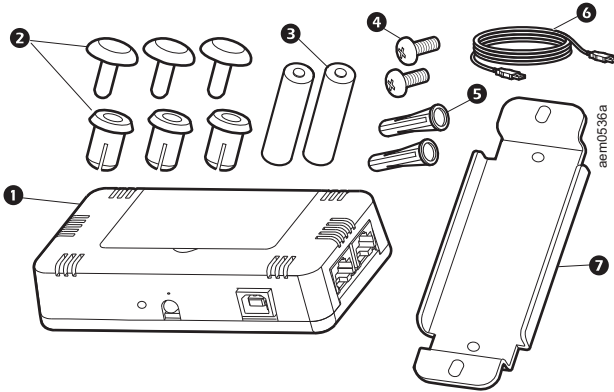
Item	Description
1 Battery Compartment	Holds 2 AA batteries when in End Device mode.
2 Universal Sensor Port #2	Port for a Temperature Probe or Door Contact sensor.
3 Universal Sensor Port #3	Port for a Temperature Probe or Door Contact sensor.
4 Type-B USB Port	Used to connect the Wireless Sensor Pod 180 to a NetBotz appliance when used in Coordinator mode, or to supply USB power when in Router mode.
5 Status LED	Used to signify the mode and current state of the Wireless Sensor Pod 180.
6 Reset button	Used to reboot the pod or reset the pod to factory defaults.
7 Universal Sensor Port #1 (occluded)	Port for a Temperature Probe or Door Contact sensor.



# Inventory

Inspect the contents of the package to ensure that the parts included match those shown below. Report missing or damaged contents to APC by Schneider Electric or your APC by Schneider Electric reseller.

The shipping and packaging materials are recyclable. Please save them for later use or dispose of them appropriately.



Item	Description
------	-------------

- |   |                                       |
|---|---------------------------------------|
| 1 | NetBotz Wireless Sensor Pod 180       |
| 2 | Plastic Push Rivets w/ sleeves (3)    |
| 3 | Lithium Batteries (2)                 |
| 4 | #8 x 3/4-in. Phillips head screws (2) |
| 5 | Plastic Wall Anchor (2)               |
| 6 | Type A/B USB Cable                    |
| 7 | Wall-mounting bracket                 |
|   | AC Adapter (not shown)                |
|   | Literature Kit (not shown)            |

## Components of the Wireless Sensor Network

The Wireless Sensor Pod 180 can be configured to act in three different modes on a ZigBee wireless sensor network: Coordinator, Router, and End Device. The mode of a Wireless Sensor Pod 180 is determined by how power is supplied to the device. The factory default is Router mode.

**Host Appliance.** A wireless sensor network is monitored by a single NetBotz appliance (see “Supported appliances” on page 2). The appliance collects data from the wireless sensor network, and generates alerts based on sensor thresholds.

The host appliance supports up to **48** wireless devices on the wireless sensor network (see “Supported devices on the NetBotz wireless network” on page 3).

**Coordinator.** Each NetBotz host appliance and wireless sensor network must have one and only one Coordinator. The Coordinator is connected directly to the host appliance via USB. It reports data from the sensors on the network, and its internal sensors and any attached external sensors (NBPD0180 only), and provides firmware updates to the wireless network, when available.

**NOTE:** The Wireless Sensor Pod 180 Coordinator must be configured as a serial device on the host appliance using the Wireless Sensor Setup task in the Advanced View.

**Router.** The factory default for the Wireless Sensor Pod 180 is Router mode. A Wireless Sensor Pod 180 configured as a Router extends the range of the wireless sensor network and passes information back and forth from the NetBotz appliance to the End Devices, and from itself to the Coordinator. It also reports sensor data from its internal sensors and any attached external sensors.

Routers are optional; in a data center environment where obstructions are common, Routers are recommended if sensors are more than 50 feet from the Coordinator.

A Wireless Sensor Pod 180, or a USB Coordinator & Router, powered by an AC-USB adapter, not attached to the NetBotz appliance, is automatically configured as a Router. If a Wireless Sensor Pod 180 has previously been configured as a Coordinator, you must reset it to factory defaults before powering it as a Router. See “Using the Reset Button” on page 16.

**End Device.** An End Device monitors its internal sensors, and any attached sensors, and sends data back to the monitoring appliance through the network. Any Wireless Sensor Pod 180 powered by batteries is automatically configured as an End Device.

## Installing the Wireless Sensor Network

The order in which you apply power to and configure your wireless network is important. For best results, apply power and configure your wireless network as follows:

1. Select the Coordinator and Routers. Choose the device that will become the Coordinator. **Note the extended address of the Coordinator.**
2. Mount the sensors. Choose the locations for the Routers and End Devices. Do not apply power to the Routers or End Devices at this time.
3. Apply Power to the Coordinator first. Connect one and only one Coordinator to a USB Type A port on the NetBotz appliance.
4. Apply power to each Router using the included AC-USB adapter, not directly connected to the NetBotz appliance.
5. Apply Power to the End Devices. To apply power to the Wireless Sensor Pod 180, insert the batteries included with the product. To apply power to the Wireless Temperature Sensor, turn it on using the switch on its side. To preserve battery life, do not apply power to the sensors until after the Coordinator and the Routers are powered.

## Adding Sensors to the Wireless Network

Depending on the NetBotz appliance, you can add wireless sensors to the network in the following ways:

Enter the MAC addresses for the wireless sensors manually.

- Use any bar code or QR code scanner to save a list of MAC addresses to a text file, one address per line, and copy and paste it into the sensor list.
- Use a hand-held USB scanner to manually scan the MAC address bar code on the USB Coordinator & Router (NBWC100U) label, or the QR code on the Wireless Temperature Sensor or Wireless Sensor Pod 180, directly into the sensor list.
- Once the Coordinator is connected to the appliance, allow powered wireless devices to automatically join and form the network using Auto Join.

**NOTE:** Some bar code and QR code scanners return the part number, serial number, and MAC address on one line:

XN:NBWC100U%SN:XXXXXX123456%MAC:00C0B70000XXXXXX.

To add a device to your wireless network, enter only the alphanumeric MAC address of each device.

For more information, see the documentation for your NetBotz appliance.

## Mounting the Wireless Sensor Pod

When planning your wireless network installation locations, place each End Device or Router within range of another Router or a Coordinator.

The maximum range of the Wireless Sensor Pod 180 is 100 ft (line of sight). This range is a best-case scenario; the signal will be strongly affected by environmental interference.

In a data center environment where obstructions are common, Routers are recommended if sensors are more than 50 feet from the Coordinator.

The recommended minimum distance between wireless devices is 2 ft.

See additional information on device placement in the Frequently Asked Questions (FAQs): go to [www.apc.com](http://www.apc.com), select your country from the drop-down list, and select **Support > Resources and Tools > FAQs**.

Choose the option below that fits your location.

**NOTE:** Install your wireless network in an environment compatible with the environmental specifications on page 18.

## Toolless peg-mount installation

**NOTE:** The toolless peg-mount installation is only available with a NetShelter VX, SX, or SV rack.

The Wireless Sensor Pod 180 ships with a pair of plastic rivets and sleeves to be used when mounting the pod in a NetShelter VX, NetShelter SX, or NetShelter SV rack.

To mount the Wireless Sensor Pod 180:

1. Separate the two pieces of the plastic rivets.
2. Place the pod in the desired location on the rack door. Make sure that all external sensors can reach their desired locations from the mounting point. **Do not apply power to the Wireless Sensor Pod 180 at this time.**
3. From the outside of the rack, insert the rivet sleeves through the mesh grating and into the mounting holes on the rear of the pod.
4. Insert the push rivet into the sleeve. Push until the rivet is firmly seated. Repeat with the second rivet.
5. Connect the external sensors to the appropriate ports. **Do not apply power to the Wireless Sensor Pod 180 at this time.**

## External installation

The Wireless Sensor Pod 180 ships with a mounting plate to be used when installing a pod in a non-rack location or in a non-Netshelter VX, SX, or SV rack.

1. Separate the two pieces of the plastic push rivets. To avoid equipment damage, use only the hardware provided when installing the brackets.
2. Place the included mounting plate on the back of the pod and align the holes with the mounting holes on the pod.
3. Insert the outer sleeves into the mounting holes on the rear of the plate.
4. Insert the plastic rivets into the anchor sleeves.
5. Use the appropriate hardware to mount the Wireless Sensor Pod 180 in the desired location. **Do not apply power to the Wireless Sensor Pod 180 at this time.**

## Connecting a Door Switch or Temperature Sensor

Each Wireless Sensor Pod 180 can monitor and control up to three door switch sensors or temperature sensors. Connect sensors to the universal sensor ports on the Wireless Sensor Pod.

### **NOTICE**

Only connect approved devices to ports on the Wireless Sensor Pod as directed in this manual. Plugging in other devices may result in equipment damage not covered under warranty.

## Applying Power to the Coordinator

**Apply power to the Coordinator first.** Connect one and only one Coordinator to a USB Type A port on the NetBotz Rack Monitor or Room Monitor appliance. To use the Wireless Sensor Pod 180 as the Coordinator on a NetBotz 4.x appliance, it must be configured as a serial device in Advanced View. Make a note of the port to which the Coordinator is attached, for example USB-A.

If you are using a USB Coordinator & Router (NBWC100U) as the coordinator on your wireless sensor network, it will be automatically configured.

## Configuring the Coordinator in Advanced View

To use the Wireless Sensor Pod 180 as a Coordinator on a NetBotz 4.x appliance, it must be configured as a serial device in the Wireless Sensor Setup task in the Advanced View on the host appliance.

After connecting the Coordinator:

1. Log in to the host appliance using the Advanced View.
2. Select the Configuration tab and double-click the Wireless Sensor Setup icon.
3. Click **Add** to enter the extended address of the Wireless Sensor Pod 180 that will be the Coordinator.  
**NOTE:** You can also add the extended addresses of any other sensors you are adding to the wireless sensor network.
4. Click **Apply** to apply the commission list to save it to the NetBotz appliance.
5. Click **Configure Coordinator**. Find the serial port ID for the Wireless Sensor Pod 180. It appears as “FTDI FT232BM Compatible (Port A)” or similar.

6. Select “Wireless Sensor Pod 180” in the **Device Type Installed** drop-down list, and specify the **Port Label**.
7. In the Navigation pane of Advanced View (the upper left), the Wireless Sensor is listed as “Sensor Pod 180 C” (the “C” denotes that it is the Coordinator). Wait for the pod to complete its configuration; when it is finished, the extended address of the pod will appear as the name of the device.

Once the Coordinator is running, the other sensors in the wireless sensor network will join the network automatically as long as their extended addresses are in the commission list, and they are powered.

To allow multiple wireless sensor networks to exist independently in the same area, the extended addresses in a commission list must not exist in another NetBotz Appliance commission list.

## Disconnecting a Coordinator

When you remove the Coordinator from the host appliance, all of the sensors on the wireless sensor network will go off line. When you reconnect the same Coordinator, the wireless network will restart, and the sensors will begin reporting data again.

If you want to connect a different device to the host appliance to become the Coordinator, you must first remove the extended address of the previous Coordinator from the commission list. The sensor history of the devices in the wireless sensor network will not be affected.

Restarting the wireless network can take up to 20 minutes if a new channel is selected. The sensor pods will not report data during this time. See “Configuring the Coordinator in Advanced View” on page 10.

**Maintaining sensor history.** In Advanced View, if you right-click a disconnected Coordinator in the Navigation pane and select “Delete Pod”, all of the devices on the wireless network will be deleted, including any sensor history related to those devices.

To maintain your sensor history, remove the Coordinator using the Wireless Sensor Setup dialog.

**NOTE:** If a Coordinator is removed from the host appliance after being configured as a serial device, it must be manually deleted using the Wireless Sensor Setup dialog. You will not be able to configure a Coordinator if the entry is not deleted, even if the original pod is reconnected.

## Internal sensor listing

When a Wireless Sensor Pod 180 is the Coordinator, and is selected in the Navigation Pane in Advanced View, the following internal sensors are listed in the Sensor Pane (along with any attached external sensors):

Sensor	Description
Temperature	The internal temperature sensor reading.
Humidity	The internal humidity sensor reading.
Dew Point	The calculated dew point.

## Applying Power to a Router

A Wireless Sensor Pod 180 must be connected to an AC-USB power source to become a Router. Once its extended address is added to the commission list in the Advanced View, and power is applied, the pod is automatically configured as a Router.

**NOTE:** Do not use a NetBotz appliance as the USB power source for a Router device.

To configure a Wireless Sensor Pod 180 as a Router:

1. Mount the pod using the instructions in “Mounting the Wireless Sensor Pod” on page 8.
2. Ensure the extended address of the pod is added to the commission list in the Advanced View.
3. Plug the pod into the included AC-USB power source.

## Internal sensor listing

When a Wireless Sensor Pod 180 is a Router, and is selected in the Navigation Pane in Advanced View, the following internal sensors are listed in the Sensor Pane (along with any attached external sensors):

Sensor	Description
Temperature	The internal temperature sensor reading.
Humidity	The internal humidity sensor reading.
Dew Point	The calculated dew point.
RSSI	The Received Signal Strength Indicator. This indicates the strength of the signal the Router receives from its parent (either another Router or the Coordinator). A reading above 30% RSSI is ideal.



## Applying Power to an End Device

An End Device reports data from the internal and external sensors to the host appliance, but does not extend the wireless network or pass data to other End Devices.

**NOTE:** Apply power to End Devices last to preserve battery life. Battery life is estimated at up to 5 years under normal use.

To configure a Wireless Sensor Pod 180 as an End Device:

1. Mount the pod using the instructions in “Mounting the Wireless Sensor Pod” on page 8.
2. In Advanced View, ensure the extended address of the pod is added to the commission list.
3. Install the provided lithium batteries into the battery compartment.  
**NOTE:** Use the 1.8V AA lithium batteries provided with the product when installing the Wireless Sensor Pod 180. When necessary, replace the batteries with only the same battery type.

Once its extended address is added to the commission list in Advanced View, and the lithium batteries are installed, the pod is automatically configured as an End Device.

## Internal sensor listing

When a Wireless Sensor Pod 180 is an End Device, and is selected in the Navigation Pane in Advanced View, the following internal sensors are listed in the Sensor Pane (along with any attached external sensors):

Sensor	Description
Temperature	The internal temperature sensor reading.
Humidity	The internal humidity sensor reading.
Dew Point	The calculated dew point.
Battery	The voltage of the batteries.
RSSI	The Received Signal Strength Indicator. Indicates the strength of the signal the End Device receives from its parent (either a Router or the Coordinator). A reading above 30% RSSI is ideal.

**NOTE:** Operation at low battery can cause invalid sensor readings. Replace the battery as soon as possible after a low battery alert occurs.

## LED Activity

The LED on the Wireless Sensor Pod 180 flashes to indicate certain statuses or alerts.

### Boot process LED activity

In NetBotz v4.3, with Wireless Sensor Pod 180 firmware v1.0.1, the LED on the sensor pod flashes yellow rapidly for about 40 seconds, turns solid yellow for 10 seconds, and then flashes a quick green, yellow, red sequence.

In NetBotz v4.4 and above, with Wireless Sensor Pod 180 firmware v1.0.4 or later:

LED Activity	Meaning
Flashes quick green, red, yellow sequence	Power on
Alternately flashes green and yellow for about 45 seconds	Runtime check
Flashes green 3 times	Check OK
Turns solid yellow for 5 seconds	Firmware update check
Flashes quick green, yellow, green sequence	Ready to attempt to join the network

### Coordinator LED activity

The following table lists the possible LED activities and their meaning for a sensor pod configured as a Coordinator:

LED Activity	Meaning
Flashing green	Normal status. The network was formed successfully.
Off	Forming a network
Solid green	Joined another network as a Router.
Solid red	Unable to form a network due to wireless energy interference. Relocate the Coordinator, and reboot the sensor pod.

## Router LED activity

LED Activity	Meaning
Solid green	Normal Status - network present
Solid yellow	Searching for network
Off	The pod was previously configured as a Coordinator. Reset the sensor pod to factory defaults.

To limit traffic on the network, the Router will attempt to rejoin the network after waiting the following number of seconds: 5, 15, 30, 60, 120, 300.

If the attempts to rejoin the network fail, the Router will scan the network every 300 seconds + a random number of seconds. This additional random time prevents multiple Routers from attempting to connect at the same time.

## End Device LED activity

LED Activity	Meaning
Flashes yellow twice every 2 seconds	Searching for network
Turns solid green, then turns off	Joined the network
Off	Joined the network, or has not joined the network and is conserving battery power.

If an End Device is not able to join a network on its initial attempt after startup, to conserve battery life, it will attempt to join the network after waiting the following number of seconds: 5, 15, 30, 60, 120, 300, 300, 600, 1200.

If the attempts to join the network fail, the End Device will scan the network every six hours to re-try the connection. If an End Device cannot join the network after approximately 24 hours, it will reboot and attempt to join the network again.

To force an attempt to join the network, press the reset button.

## Using the Reset Button

The Reset button on the side of the Wireless Sensor Pod 180 is used to reboot the pod, or reset the pod to the factory default settings.

To protect against false push button attempts, there is no effect if the Reset button is pressed for less than 100 milliseconds.

**Reboot.** When the reset button is given a short press (less than 3 seconds), the Status LED flashes green, and the sensor reboots with the current settings in place.

**Reset to factory defaults.** Press and hold the reset button for at least 5 seconds. The Status LED flashes green, and after about three seconds, changes to solid red until the button is released. The sensor will reset, erase its current settings, and restore the factory default settings.

**NOTE:** During the initial 45-second startup time, the reset button is disabled. Once startup is complete, the button functions normally.

## Configuring and Monitoring Sensors

Once your wireless network is installed and communicating, configure sensors and begin monitoring your system using the software interface for the appliance.

For system installation details and instructions on accessing the software interface of the appliance, see the *Installation and Quick Configuration Manual* for your appliance on [www.apc.com](http://www.apc.com).

When two NBES0311 temperature sensors are connected to the top and bottom of the Wireless Sensor Pod 180, the combined length from top to bottom is 75.25 inches.

## Receiving and sending data

The Coordinator and any Routers on the wireless sensor network pass data back and forth between the host appliance and any End Devices as necessary. If there is a significant change, each device sends its sensor data every 30 seconds. If there is no change, the Wireless Sensor Pod 180 waits up to 3 minutes before sending sensor data to indicate it is still alive.

Door Contact sensors send an update immediately when the status of the sensor changes.

## Updating the Wireless Sensor Pod 180

### NetBotz v4.4.x and above

Firmware updates for the Wireless Sensor Pod 180 are included in the BotzWare firmware releases. When a BotzWare firmware update is available, you download it from **www.apc.com** and install it on the NetBotz appliance.

Once the BotzWare firmware update is applied, and the Coordinator receives the firmware update package from the NetBotz appliance, the other devices on the wireless network, including any USB Coordinator & Router (NBWC100U), Wireless Temperature Sensor, and Wireless Sensor Pod 180 devices, receive the update package from the Coordinator over the wireless network.

When all the devices on the network have received the update package, the Firmware Update Available button is activated in the Wireless Sensor Setup task in the Advanced View. You click the button to reboot each device on the wireless network to apply the firmware update.

**NOTE:** You can also use the NetBotz Wireless Firmware Update Utility available on **www.apc.com** to update the firmware on your wireless sensors.

## Cleaning the Wireless Sensor Pod

To clean the device, gently wipe surfaces with a clean, dry cloth.

# Specifications

## Electrical

---

Input voltage, nominal	5v USB; 3.6v battery
Maximum total current draw	65 mA USB

---

## Physical

---

Dimensions (H x W x D)	106.0 x 56.4 x 28.0 mm (4.2 x 2.2 x 1.1 in.)
Shipping dimensions (H x W x D)	228.6 x 165.1 x 58.0 mm (9.0 x 6.5 x 2.0 in.)
Weight	0.1 kg (0.2 lb)
with batteries	0.15 kg (0.3 lb)
with mounting bracket	0.15 kg (0.3 lb)
with batteries and bracket	0.2 kg (0.4 lb)
Shipping weight	0.45 kg (1.0 lb)

---

## Environmental

---

Elevation (above MSL)	
Operating	0 to 3000 m (0 to 10,000 ft)
Storage	0 to 15 000 m (0 to 50,000 ft)
Temperature	
Operating	0 to 45°C (32 to 113°F)
Storage	-15 to 65°C (5 to 149°F)
Humidity	
Operating	0 to 95%, non-condensing
Storage	0 to 95%, non-condensing

---

## Compliance

---

System:	CE, EMC Directive 2004/108/EC, ICES-003 Class B, FCC Part 15, EN55022, EN55024, EN 61326
Transmitter:	CE, RED directive 2014/53/EU, Canada RS-210 Issue 8, FCC Part 15C, EN 300 328. EN 301 440-2, EN301 489-3

---

## Two Year Limited Factory Warranty

APC by Schneider Electric warrants its products to be free from defects in materials and workmanship for a period of two (2) years excluding the batteries. The APC by Schneider Electric obligation under this warranty is limited to repairing or replacing, at its own sole option, any such defective products. Repair or replacement of a defective product or parts thereof does not extend the original warranty period.

This warranty applies only to the original purchaser who must have properly registered the product within 10 days of purchase. Products may be registered online at **www.apc.com**.

APC by Schneider Electric shall not be liable under the warranty if its testing and examination disclose that the alleged defect in the product does not exist or was caused by end user's or any third person's misuse, negligence, improper installation, testing, operation or use of the product contrary to APC by Schneider Electric's recommendations or specifications. Further, APC by Schneider Electric shall not be liable for defects resulting from: 1) unauthorized attempts to repair or modify the product, 2) incorrect or inadequate electrical voltage or connection, 3) inappropriate on site operation conditions, 4) Acts of God, 5) exposure to the elements, or 6) theft. In no event shall APC by Schneider Electric have any liability under this warranty for any product where the serial number has been altered, defaced, or removed.

**EXCEPT AS SET FORTH ABOVE, THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE, APPLICABLE TO PRODUCTS SOLD, SERVICED OR FURNISHED UNDER THIS AGREEMENT OR IN CONNECTION HEREWITH.**

**APC BY SCHNEIDER ELECTRIC DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY, SATISFACTION AND FITNESS FOR A PARTICULAR PURPOSE.**

**APC BY SCHNEIDER ELECTRIC EXPRESS WARRANTIES WILL NOT BE ENLARGED, DIMINISHED, OR AFFECTED BY AND NO OBLIGATION OR LIABILITY WILL ARISE OUT OF, APC BY SCHNEIDER ELECTRIC'S RENDERING OF TECHNICAL OR OTHER ADVICE OR SERVICE IN CONNECTION WITH THE PRODUCTS.**

**THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES AND REMEDIES. THE WARRANTIES SET FORTH ABOVE CONSTITUTE APC BY SCHNEIDER ELECTRIC'S SOLE LIABILITY AND PURCHASER'S EXCLUSIVE REMEDY FOR ANY BREACH OF SUCH WARRANTIES. APC BY SCHNEIDER ELECTRIC WARRANTIES EXTEND ONLY TO ORIGINAL PURCHASER AND ARE NOT EXTENDED TO ANY THIRD PARTIES.**

**IN NO EVENT SHALL APC BY SCHNEIDER ELECTRIC, ITS OFFICERS, DIRECTORS, AFFILIATES OR EMPLOYEES BE LIABLE FOR ANY FORM OF INDIRECT, SPECIAL, CONSEQUENTIAL OR PUNITIVE DAMAGES, ARISING OUT OF THE USE, SERVICE OR INSTALLATION OF THE PRODUCTS, WHETHER SUCH DAMAGES ARISE IN CONTRACT OR TORT, IRRESPECTIVE OF FAULT, NEGLIGENCE OR STRICT LIABILITY OR WHETHER APC BY SCHNEIDER ELECTRIC HAS BEEN ADVISED IN ADVANCE OF THE POSSIBILITY OF SUCH DAMAGES. SPECIFICALLY, APC BY SCHNEIDER ELECTRIC IS NOT LIABLE FOR ANY COSTS, SUCH AS LOST PROFITS OR REVENUE, WHETHER DIRECT OR INDIRECT, LOSS OF EQUIPMENT, LOSS OF USE OF EQUIPMENT, LOSS OF SOFTWARE, LOSS OF DATA, COSTS OF SUBSTITUANTS, CLAIMS BY THIRD PARTIES, OR OTHERWISE.**

**NOTHING IN THIS LIMITED WARRANTY SHALL SEEK TO EXCLUDE OR LIMIT APC BY SCHNEIDER ELECTRIC'S LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM ITS NEGLIGENCE OR ITS FRAUDULENT MISREPRESENTATION OF TO THE EXTENT THAT IT CANNOT BE EXCLUDED OR LIMITED BY APPLICABLE LAW.**

To obtain service under warranty you must obtain a Returned Material Authorization (RMA) number from customer support. Customers with warranty claims issues may access the APC by Schneider Electric worldwide customer support network through the APC by Schneider Electric web site: [www.apc.com](http://www.apc.com). Select your country from the country selection drop down menu. Open the Support tab at the top of the web page to obtain information for customer support in your region. Products must be returned with transportation charges prepaid and must be accompanied by a brief description of the problem encountered and proof of date and place of purchase.



## Obtaining service

To obtain support for problems with your Wireless Sensor Pod 180:

1. Note the serial number. The serial number is printed on a label located on the inside of the battery compartment lid.
2. Contact Customer Support using the information on the back cover of this manual. A technician will try to help you solve the problem by phone.
3. If you must return the product, the technician will give you a return material authorization (RMA) number. If the warranty expired, you will be charged for repair or replacement.
4. Pack the unit carefully. The warranty does not cover damage sustained in transit. Enclose a letter with your name, address, RMA number and daytime phone number; a copy of the sales receipt; and a check as payment, if applicable.
5. Mark the RMA number clearly on the outside of the shipping carton.
6. Ship by insured, prepaid carrier to the address provided by the Customer Support technician.

## Radio Frequency Interference

**Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.**

### USA—FCC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. This equipment contains an intentional transmitter that has a FCC grant of authorization per Part 15C.

Transmitter FCC ID: Y2NRC24XX / IC: 9402A-RC24XX

Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### Canada—ICES

This Class A digital apparatus complies with Canadian ICES-003.

*Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.*

Module transmetteur ID IC: 9402A-RC2400

Son fonctionnement est soumis aux deux conditions suivantes: (1) cet appareil ne doit pas causer d'interférences nuisibles et (2) cet appareil doit accepter toute interférence reçue, y compris les interférences qui peuvent perturber le fonctionnement.

### Australia and New Zealand

Attention: This is a Class B product. This product may cause radio interference in which case the user may be required to take adequate measures.

## European Union

This product's transmitter module is in conformity with the requirements of EU Council Directive 2014/53/EU on the approximation of the laws of the Member States. This product may cause radio interference in which case the user may be required to take adequate measures.

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. APC by Schneider Electric cannot accept responsibility for any failure to satisfy the protection requirements resulting from an unapproved modification of the product.

## Russia



## Brazil



**MODELO: NBPD0180**

05271-16-10099

*"Este equipamento opera em caráter secundário, isto é, não tem direito à proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não pode causar interferência a sistemas operando em caráter primário."*





# Worldwide Customer Support

Customer support for this product is available at [www.apc.com](http://www.apc.com).

© 2018 APC by Schneider Electric. APC, the APC logo, NetBotz, StruxureWare, and NetShelter are owned by Schneider Electric Industries S.A.S., or its affiliated companies. All other trademarks are property of their respective owners.