Installation and Quick Configuration

NetBotz® Rack Monitor 250

125 kHz Access Control Appliance

13.56 MHz Access Control Appliance

NBRK0250
NBACS125
NBACS1356

990-9814E-001
Publication Date: 4/2020
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<td>30</td>
</tr>
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Important Safety Information

Read the instructions carefully to become familiar with the equipment before trying to install, operate, service or maintain it. The following messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

⚠️ The addition of this symbol to a Danger or Warning safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

⚠️ This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

[DANGER]

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

[WARNING]

WARNING indicates a potentially hazardous situation which, if not avoided, can result in death or serious injury.

[CAUTION]

CAUTION indicates a potentially hazardous situation which, if not avoided, can result in minor or moderate injury.

[NOTICE]

NOTICE addresses practices not related to physical injury including certain environmental hazards, potential damage or loss of data.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by APC by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.
Safety Information for the Rack Monitor 250

⚠️ ⚠️ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH
- No user-serviceable parts inside. Refer servicing to qualified personnel.
- Use indoors only in a dry location.
- Ensure the power input for the Rack Monitor 250 has a reliable ground (earth) connection.
- The Rack Monitor 250 is intended to be installed and operated by a skilled person in a controlled location with restricted access.
- The switched outlet may have voltage potential when the outlet is set to "off." Always use a properly rated voltage sensing device to confirm there is no voltage in the outlet.
- Disconnect the load power cord from this product before servicing the load equipment or the power cord.

Failure to follow these instructions will result in death or serious injury.

⚠️ CAUTION

FALLING EQUIPMENT HAZARD
- Do not create a hazardous condition due to uneven mechanical loading. For example, do not use the appliance as a shelf.
- Ensure the Rack Monitor 250 is mounted securely and evenly.

Failure to follow these instructions can result in injury or equipment damage.

NOTICE

EQUIPMENT DAMAGE HAZARD
The ambient operating temperature of a closed or multi-unit rack environment may be greater than the ambient temperature of the room. Ensure the ambient operating temperature of your rack environment does not exceed the rated ambient operating temperature for the Rack Monitor 250.

Failure to follow these instructions can result in injury or equipment damage.

The Rack Monitor 250 is suitable for installation in Information Technology Rooms in accordance with Article 645 of the National Electric Code and NFPA 75.
Introduction

Product Description

The APC by Schneider Electric NetBotz® Rack Monitor 250 is a rack-mountable central hardware appliance for an environmental monitoring and control system. Once installed, you can monitor and control your system using the Web User Interface (Web UI) or Command Line Interface (CLI).

The Rack Monitor 250 includes six ports for connecting temperature and humidity sensors, and other sensors including fluid detection sensors and third-party dry contact sensors. Using other ports on the Rack Monitor 250, you can connect two door switch sensors, two rack door handles, a beacon, and temperature and humidity sensors with digital display.

To expand your system, you can connect the Rack Monitor 250 to your building management system, connect up to six NetBotz Rack Sensor Pod 150s and additional sensors, and use ports that provide power to or allow control of other devices.

NOTE: The Rack Monitor 250 cannot be connected to or networked with any other NetBotz appliances. It uses unique software that is not compatible with other NetBotz products.

Document Overview

The NetBotz Rack Monitor 250 Installation and Quick Configuration Manual describes how to install the Rack Monitor 250, connect the provided temperature/humidity sensor and other additional devices, and configure the network settings. After performing the quick configuration procedures in this manual, you can access your system through its software interface, perform additional configuration tasks, and begin monitoring the environment.

Additional Documentation

Unless otherwise noted, the following documentation is available on the applicable product page on the APC by Schneider Electric website, www.apc.com. To quickly find a product page, enter the product name or part number in the Search field.


Security Handbook: Describes security features for the APC Network Management Card and for devices with embedded components of the Network Management Card.

Release Notes: Describes new features, fixed issues, and known issues for the latest firmware version.

Modbus Register Map: Defines NetBotz Rack Monitor 250 (NBRK0250) Modbus datapoint registers for communication with a building management system using the Modbus protocol.


Receiving Inspection

Inspect the package and its contents for shipping damage and see that the parts included in the shipment match the parts listed in the inventory table. Immediately report any shipping damage to the shipping agent. Report missing contents, damage, or other problems to APC by Schneider Electric or your APC by Schneider Electric reseller.
Inventory

Inspect the contents of the package to see 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. However, if damage was due to shipping, immediately report the damage to the shipping agent.

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

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Not Shown</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NetBotz Rack Monitor 250</td>
<td>• USB A-USB mini B configuration cable</td>
</tr>
<tr>
<td>2</td>
<td>USB Coordinator (NBWC100U) for wireless sensor network</td>
<td>• Temperature and Humidity Sensor (AP9335TH) and hardware kit</td>
</tr>
<tr>
<td></td>
<td>(installed in the Wireless port under a plastic cover)</td>
<td>• Wireless Temperature Sensor (NBWS100T) and hardware kit</td>
</tr>
<tr>
<td>3</td>
<td>1.8 m (6 ft) IEC-320-C13 to IEC-320-C14 power cord</td>
<td>• Base mount hardware kit</td>
</tr>
<tr>
<td>4</td>
<td>1.8 m (6 ft) NEMA 5-15P to IEC-320-C13 power cord</td>
<td>(0M-814726)</td>
</tr>
<tr>
<td>5</td>
<td>1/4 W, 150 ohm resistors (2)</td>
<td>• NetBotz 125 kHz Handle Kit (NBHN125) (Only included with NBACS125)</td>
</tr>
<tr>
<td></td>
<td>1/4 W, 499 ohm resistors (2)</td>
<td>• NetBotz 13.56 MHz Handle Kit (NBHN1356) (Only included with NBACS1356)</td>
</tr>
<tr>
<td>6</td>
<td>203 mm (8 in) hook and loop cable strap</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>203 mm (8 in) nylon tie wraps (2)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Mounting brackets for a standard 19 in rack (2)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>A-Link terminator</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>8-32 x 1/4 in Phillips-head screws (4)</td>
<td></td>
</tr>
</tbody>
</table>
Additional Options

The following options are available for the Rack Monitor 250. For more information, contact your APC by Schneider Electric representative or the distributor from whom you purchased your APC by Schneider Electric product.

- NetBotz Rack Sensor Pod 150 (NBPD0150)
- Temperature/Humidity Sensor with Digital Display (AP9520TH)
- Temperature Sensor (AP9335T)
- Temperature/Humidity Sensor (AP9335TH)
- Wireless Temperature/Temperature & Humidity Sensor (NBWS100T/NBWS100H)
- USB Coordinator & Router (NBWC100U)
- NetBotz 3.65 m (12 ft) Door Switch Sensor for APC by Schneider Electric Racks (NBES0303)
- NetBotz 15.24 m (50 ft) Door Switch Sensor for Rooms or Third Party Racks (NBES0302)
- NetBotz 125 kHz Handle Kit (NBHN125)
- NetBotz 13.56 MHz Handle Kit (NBHN1356)
- NetBotz Dry Contact Cable (NBES0304)
- Alarm Beacon (AP9324)
- NetBotz Vibration Sensor (NBES0306)
- NetBotz Smoke Sensor (NBES0307)
- NetBotz Spot Fluid Sensor (NBES0301)

Network Management With Other Applications

When your appliance is connected to the network, it is compatible with the following applications:

- StruxureWare Data Centers Expert® (DCE)
- EcoStruxure IT®

**NOTE:** The NetBotz Rack Monitor 250 communicates with DCE and EcoStruxure IT via SNMPv1 or SNMPv3.
### Physical Description

#### Front

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AC Line Inlet</td>
</tr>
<tr>
<td>2</td>
<td>Switched Outlet</td>
</tr>
<tr>
<td>3</td>
<td>Wireless Network Coordinator</td>
</tr>
<tr>
<td>4</td>
<td>Rack Access ports</td>
</tr>
<tr>
<td>5</td>
<td>Beacon port</td>
</tr>
<tr>
<td>6</td>
<td>Universal sensor ports</td>
</tr>
<tr>
<td>7</td>
<td>USB port</td>
</tr>
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<td>Voltage Output</td>
</tr>
<tr>
<td>9</td>
<td>10/100 Network Port</td>
</tr>
<tr>
<td>10</td>
<td>A-Link ports</td>
</tr>
<tr>
<td>11</td>
<td>Modbus RS-485 port</td>
</tr>
<tr>
<td>12</td>
<td>Console Port</td>
</tr>
<tr>
<td>13</td>
<td>Power LED</td>
</tr>
<tr>
<td>14</td>
<td>Reset button</td>
</tr>
</tbody>
</table>
Rear

Toolless mounting pegs allow for installation in APC by Schneider Electric NetShelter® VX and SX racks and enclosures without using any U-spaces. (For more details, see “Toolless peg-mount installation” on page 10.)

LED Descriptions

Status LED

This LED (light-emitting diode) indicates the status of the Rack Monitor 250.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td>One of the following situations exists:</td>
</tr>
<tr>
<td></td>
<td>• The Rack Monitor 250 is not receiving input power.</td>
</tr>
<tr>
<td></td>
<td>• The Rack Monitor 250 is not operating properly. It may need to be</td>
</tr>
<tr>
<td></td>
<td>repaired or replaced. Contact Customer Support at <a href="http://www.apc.com">www.apc.com</a>.</td>
</tr>
<tr>
<td>Solid green</td>
<td>The Rack Monitor 250 has valid TCP/IP settings.</td>
</tr>
<tr>
<td>Solid orange</td>
<td>A hardware malfunction has been detected in the Rack Monitor 250. Contact</td>
</tr>
<tr>
<td></td>
<td>Customer Support at <a href="http://www.apc.com">www.apc.com</a>.</td>
</tr>
<tr>
<td>Flashing green</td>
<td>The Rack Monitor 250 does not have valid TCP/IP settings.*</td>
</tr>
<tr>
<td>Flashing orange</td>
<td>The Rack Monitor 250 is making BOOTP requests.*</td>
</tr>
<tr>
<td>Rapidly flashing green</td>
<td>A user initiated a LED blink test from the user interface.</td>
</tr>
<tr>
<td>Alternately flashing green and orange</td>
<td>If the LED is flashing slowly, the Rack Monitor 250 is making DHCP† requests.*</td>
</tr>
<tr>
<td></td>
<td>If the LED is flashing rapidly, the Rack Monitor 250 is starting up.</td>
</tr>
</tbody>
</table>

*If you do not use a BOOTP or DHCP server, see “TCP/IP Configuration Methods” on page 14 to configure the TCP/IP settings.

†To use a DHCP server, see “BOOTP and DHCP configuration” on page 15.

Link-RX/TX (10/100) LED

This LED indicates the network status of the Rack Monitor 250.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td>One or more of the following situations exist:</td>
</tr>
<tr>
<td></td>
<td>• The Rack Monitor 250 is not receiving input power.</td>
</tr>
<tr>
<td></td>
<td>• The cable that connects the Rack Monitor 250 to the network is disconnected or</td>
</tr>
<tr>
<td></td>
<td>not functioning properly.</td>
</tr>
<tr>
<td></td>
<td>• The Rack Monitor 250 is turned off or not operating correctly. It may need</td>
</tr>
<tr>
<td></td>
<td>to be repaired or replaced. Contact Customer Support at <a href="http://www.apc.com">www.apc.com</a>.</td>
</tr>
<tr>
<td>Solid green</td>
<td>The Rack Monitor 250 is connected to a network operating at 10 Megabits per</td>
</tr>
<tr>
<td></td>
<td>second (Mbps).</td>
</tr>
<tr>
<td>Solid orange</td>
<td>The Rack Monitor 250 is connected to a network operating at 100 Mbps.</td>
</tr>
<tr>
<td>Flashing green</td>
<td>The Rack Monitor 250 is receiving or transmitting data packets at 10 Mbps.</td>
</tr>
<tr>
<td>Flashing orange</td>
<td>The Rack Monitor 250 is receiving or transmitting data packets at 100 Mbps.</td>
</tr>
</tbody>
</table>
Installation

Install the Rack Monitor 250

NOTICE
Use only the hardware provided when installing the brackets.

You can install the Rack Monitor 250 in the front or the rear of the rack using the rack-mount option (requires 1 U of rack space). If you are using an APC by Schneider Electric NetShelter VX or SX rack, you can use the toolless peg-mounts (does not use any U-space).

NOTE: Install the Rack Monitor 250 in an environment compatible with the environmental specifications on page 30.

Cage Nuts

If needed, APC by Schneider Electric offers a cage nut hardware kit (AR8100) for use with square holes.

CAUTION

FALLING EQUIPMENT HAZARD
Do NOT install cage nuts vertically with the ears engaging the top and bottom of the square hole.
Failure to follow these instructions can result in minor or moderate injury.

• Install cage nuts horizontally, with the ears engaging the sides of the square hole.
• Install the cage nuts on the interior of the vertical mounting rail.

Installation

1. From inside of the cabinet, insert the cage nut into the square hole. Hook one ear of the cage nut assembly through the far side of the hole.
2. Place the cage nut tool on the other side of the cage nut and pull to snap into position.

Removal

1. Remove any attached screw.
2. Grasp the cage nut and squeeze the sides to release it from the square hole.
Rack-mount installation

1. Choose a location for the Rack Monitor 250 in the front or rear of the rack. The Rack Monitor 250 occupies one U-space. A notched hole or a number on the vertical rail of the rack denotes the middle of a U-space.

2. Install the brackets using the provided 8-32 x 1/4 in Phillips screws.

3. Secure the Rack Monitor 250 to the rack, using cage nuts and screws (not provided).

4. See “Power cord and network cable connections” on page 10.
Toolless peg-mount installation

The toolless peg-mount installation is only available with a NetShelter VX or SX rack or enclosure.

1. In the left or right cable channel in the rear panel of the enclosure, install the Rack Monitor 250 in a set of mounting holes. Push down until it locks.
2. See “Power cord and network cable connections” on page 10 to complete the installation.

Power cord and network cable connections

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
</table>

**UNEXPECTED EQUIPMENT OPERATION**

- Before you energize the Rack Monitor 250, review the electrical specifications on page 31 to avoid overloading the circuit providing power.
- Make sure you properly ground the Rack Monitor 250; plug it directly into a wall outlet or verify the ground path if you connect it to a power strip.

Failure to follow these instructions can result in injury or equipment damage.

**NOTE:** The NetBotz Rack Monitor 250 is not a PoE compatible device. Do not connect a NetBotz Rack Monitor 250 to a PoE (Power over Ethernet) switch.

Connect the appropriate power cord to the AC Line Inlet of the Rack Monitor 250.

1. Secure the power cord using the tie wraps.
2. Connect a standard network cable to the Rack Monitor 250.
3. Plug the power cord into a power source.
4. Use the hook and loop cable strap and the 25 mm (1 in) wide tie wrap to secure cables.
Connect Sensors and Devices

**NOTICE**

Only connect approved devices to ports on the Rack Monitor 250 as directed in this manual. Plugging in other devices may result in equipment damage, and will cause the Rack Monitor 250 to reboot.

The following sensors and devices connect to specific ports and outlets (see "Physical Description" on page 6 for port details):

<table>
<thead>
<tr>
<th>Sensor/Device</th>
<th>Port/outlet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm beacon AP9324</td>
<td>Beacon port*</td>
</tr>
<tr>
<td>Door switch sensors</td>
<td>Universal sensor ports and Rack Access ports (Door #1 and Door #2)</td>
</tr>
<tr>
<td>• NBES0302</td>
<td><strong>NOTE</strong>: When using both a handle kit and a door switch sensor, connect the door switch sensor to a Rack Access Door port.</td>
</tr>
<tr>
<td>• NBES0303</td>
<td></td>
</tr>
<tr>
<td>Handles</td>
<td>Rack Access ports: Handle #1 and Handle #2</td>
</tr>
<tr>
<td>• NBHN125</td>
<td></td>
</tr>
<tr>
<td>• NBHN1356</td>
<td></td>
</tr>
<tr>
<td>Sensor Pod150 (NBPD0150)</td>
<td>A-Link ports†</td>
</tr>
<tr>
<td>Temperature sensors</td>
<td></td>
</tr>
<tr>
<td>• Temperature/Humidity Sensor with Display (AP9520TH)</td>
<td>A-Link ports†</td>
</tr>
<tr>
<td>• Temperature Sensor (AP9335T)</td>
<td>Universal sensor ports</td>
</tr>
<tr>
<td>• Temperature/Humidity Sensor (AP9335TH)</td>
<td>Universal sensor ports</td>
</tr>
<tr>
<td>Other NetBotz Sensors</td>
<td></td>
</tr>
<tr>
<td>• Dry Contact Cable (NBES0304)</td>
<td>Universal sensor ports</td>
</tr>
<tr>
<td>• Vibration Sensor (NBES0306)</td>
<td></td>
</tr>
<tr>
<td>• Smoke Sensor (NBES0307)</td>
<td></td>
</tr>
<tr>
<td>• Spot Fluid Sensor (NBES0301)</td>
<td></td>
</tr>
<tr>
<td>Third-party dry contact sensors</td>
<td>Universal sensor ports</td>
</tr>
</tbody>
</table>

*See “Configure Outlet-controlled Devices” on page 26 for configuration details. †See “Cascade devices to A-Link ports” on page 12 to cascade multiple devices.

**NOTE:** The length of a sensor cable can be extended using RJ-45 female-to-female couplings and standard CAT5 cabling. See “System Specifications” on page 28 for maximum cable lengths.

**NOTE:** The Rack Monitor 250 is not compatible with the following:

- Door switch cable included with the NetBotz Rack Access PX-HID (AP9361)
- NetBotz Sensor Pod 180 (NBPD0180)
Cascade devices to A-Link ports

You can cascade up to six NetBotz Rack Sensor Pod 150s (NBPD0150) and up to eight Temperature/Humidity Sensors with Digital Display (AP9520TH) to A-Link ports.

A-Link is an APC by Schneider Electric proprietary CAN (Controller Area Network) bus. Devices compatible with A-Link are not Ethernet devices and cannot coexist on an Ethernet bus with other networking devices, such as hubs and switches.

You cannot cascade Rack Monitor 250s or other NetBotz appliances.

Before performing this procedure, follow the installation instructions provided with your NetBotz Rack Sensor Pod 150s and sensors. If you cascade several devices, be sure you have a supplemental power supply (Power Supply 100–240 VAC/24 VDC—AP9505i) to connect to your system.

1. Connect sensors and NetBotz Rack Sensor Pod 150s to the Rack Monitor 250, as shown.
   – Use CAT-5 (or equivalent) Ethernet patch cables (2).
   – Connect to in and out ports as shown.
   – The maximum combined length of all A-Link cables must not exceed 1000 m (3,280 ft).

2. Plug an A-Link terminator into the unused A-Link ports (1 and 3).

3. If you have cascaded several devices, connect a supplemental power supply (AP9505i) to the 24 VDC Input jack of one of the Rack Sensor Pod 150s.

   NOTE: The first time a NetBotz Rack Sensor Pod 150 receives power, it obtains a unique identification address for communication over the A-Link bus. To avoid communication problems, you must complete steps 1 and 2 before you connect a supplemental power supply.

   NOTICE: Do not use crossover cables.
Wire the Modbus Interface

The NetBotz Rack Monitor 250 connects to your building management system using the Modbus RS-485 interface. The Modbus interface supports 2-wire and 4-wire RS-485, plus ground.

For more information, see the Modbus standard available at www.modbus.org.

For details on Modbus register settings, see the Modbus register map document for your specific Modbus-enabled device.

The Modbus standard specifies 150 ohm termination resistors at each end of a bus. Unless the bus is very long and operating at high data rates, these resistors are not needed.

Busses under 2000 feet operating at 9600 baud, or under 1000 feet operating at 19,200 baud, should not require termination.

2-wire (half duplex) connection diagram

![2-wire connection diagram]

4-wire (full duplex) connection diagram

![4-wire connection diagram]
Quick Configuration

Disregard the procedures described in this chapter if you have StruxureWare Data Center Expert as part of your system. See the documentation for your StruxureWare device for more information.

You must configure the following TCP/IP settings before the Rack Monitor 250 can operate on a network:

- IP address
- Subnet mask
- Default gateway (See the NetBotz Rack Monitor 250 User Guide on www.apc.com for more information about the watchdog role of the default gateway.)

NOTE: If a default gateway is unavailable, use the IP address of a computer that is located on the same subnet as the Rack Monitor 250 and that is usually running. The Rack Monitor 250 uses the default gateway to test the network when traffic is very light.

NOTE: Do not use the loopback address (127.0.0.1) as the default gateway address. It disables the network interface and requires you to reset TCP/IP settings to their defaults using a local serial login.

TCP/IP Configuration Methods

Use one of the following methods to define the TCP/IP settings for the Rack Monitor 250 for IPv4:

- “Device IP Configuration Utility” on this page
- “BOOTP and DHCP configuration” on page 15
- Networked computer:
  - “Local access to the Command Line Interface” on page 16
  - “Remote access to the Command Line Interface” on page 16
- “How to Recover from a Lost Password” on page 18

Device IP Configuration Utility

The Device IP Configuration Utility can discover the Rack Monitor 250 if it does not have an IP address assigned. Once discovered, you can configure its IP address settings.


This utility supports IPv4 only.

Installation. To install the Utility from a downloaded executable file:

2. Select your country.
3. In the Filter By Software/Firmware drop-down menu, select Software Upgrades - Wizards and Configurators.
4. Download the latest version of the Network Management Device IP Configuration Wizard and run the executable file.

When installed, the Utility is available through the Windows “Start Menu” option.
BOOTP and DHCP configuration

The default TCP/IP configuration setting, DHCP, assumes a properly configured DHCP server is available to provide TCP/IP settings to the Rack Monitor 250. You can also configure the setting for BOOTP.

A user configuration (.INI) file can function as a BOOTP or DHCP boot file. For more information, see the TCP/IP configuration section of the Rack Monitor 250 User Guide on the APC by Schneider Electric website, www.apc.com.

NOTE: If no servers are available, see “Device IP Configuration Utility” on page 14, “Local access to the Command Line Interface” on page 16, or “Remote access to the Command Line Interface” on page 16 to configure the needed TCP/IP settings.

BOOTP. For the Rack Monitor 250 to use a BOOTP server to configure its TCP/IP settings, it must find a properly configured RFC951-compliant BOOTP server.

In the BOOTPTAB file of the BOOTP server, enter the MAC address of the Rack Monitor 250, IP address, subnet mask, and default gateway, and, optionally, a bootup file name. Look for the MAC address on bottom of the Rack Monitor 250 or on the Quality Assurance Slip included in the package.

When the Rack Monitor 250 reboots, the BOOTP server provides it with the TCP/IP settings.

• If you specified a bootup file name, the Rack Monitor 250 attempts to transfer that file from the BOOTP server using TFTP or FTP. The Rack Monitor 250 assumes all settings specified in the bootup file.
• If you did not specify a bootup file name, you can configure the other settings of the Rack Monitor 250 remotely through its Web UI (see “Web User Interface” on page 19) or CLI (see “Remote access to the Command Line Interface” on page 16). The default user name and password are apc for both interfaces. You will be instructed to change the password after your initial login.

To create a bootup file, see your BOOTP server documentation.

DHCP. You can use an RFC2131/RFC2132-compliant DHCP server to configure the TCP/IP settings for the Rack Monitor 250.

This section summarizes the Rack Monitor 250 communication with a DHCP server. For more detail about how a DHCP server can configure the network settings for a Rack Monitor 250, see the Rack Monitor 250 User Guide on www.apc.com.

1. The Rack Monitor 250 sends out a DHCP request that uses the following to identify itself:
   – A Vendor Class Identifier (APC by default)
   – A Client Identifier (by default, the MAC address of the Rack Monitor 250)
   – A User Class Identifier (by default, the identification of the application firmware installed on the Rack Monitor 250)

2. A properly configured DHCP server responds with a DHCP offer that includes all the settings the Rack Monitor 250 needs for network communication. The DHCP offer also includes the Vendor Specific Information option (DHCP option 43). The Rack Monitor 250 can be configured to ignore DHCP offers that do not encapsulate the APC cookie in DHCP option 43 using the following hexadecimal format. (The Rack Monitor 250 does not require this cookie by default).
   Option 43 = 01 04 31 41 50 43
   where
   – the first byte (01) is the code
   – the second byte (04) is the length
   – the remaining bytes (31 41 50 43) are the APC cookie.

See your DHCP server documentation to add code to the Vendor Specific Information option. The Rack Monitor 250 Web UI has options to use vendor-specific data to require the DHCP server to provide an “APC” cookie. See the Rack Monitor 250 User Guide on www.apc.com for information.
Local access to the Command Line Interface

For local access, connect a computer to the Rack Monitor 250 to access the CLI.

1. Select a USB port at the computer, and disable any service that uses that port.

2. Connect the provided USB A-USB mini B configuration cable from the selected port on the computer to the console port on the Rack Monitor 250.

   **NOTE:** If you are unable to access the appliance using the console port, you may need to install a serial-to-USB virtual COM port driver. The USB vendor is FTDI; the driver type is VCP. Driver downloads are available on the FTDI Chip website, [www.ftdichip.com](http://www.ftdichip.com).

3. Run a terminal program (e.g. 3rd party terminal emulator programs like HyperTerminal™, PuTTY, or Tera Term) and configure the selected port for 9600 bps, 8 data bits, no parity, 1 stop bit, and no flow control. Save the changes.

4. Press ENTER, repeatedly if necessary, to display the User Name prompt.

5. Use `apc` for the user name and password the first time you access the appliance.

   **NOTE:** You will be prompted to enter a new password the first time you connect to the appliance.

See “Command Line Interface” on page 17 to finish the configuration.

Remote access to the Command Line Interface

From any computer on the same network as the Rack Monitor 250, you can use ARP and Ping to assign an IP address to the Rack Monitor 250, and then use Secure SHell (SSH) or Telnet to access its CLI and configure the other TCP/IP settings.

After the Rack Monitor 250 has its IP address configured, you can use SSH or Telnet, without first using ARP and Ping, to access that Rack Monitor 250.

1. Use the MAC address of the Rack Monitor 250 in the ARP command to define the IP address.

   **NOTE:** Look for the MAC address on the bottom of the Rack Monitor 250 or on the Quality Assurance Slip included in the package.

   For example, to define 156.205.14.141 as the IP address of a Rack Monitor 250 with 00 c0 b7 63 9f 67 as its MAC address, use one of the following commands:

   - Windows command format:
     
     ```
     arp -s 156.205.14.141 00-c0-b7-63-9f-67
     ```

   - LINUX command format:
     
     ```
     arp -s 156.205.14.141 00:c0:b7:63:9f:67
     ```

2. Use Ping with a size of 113 bytes to assign the IP address defined by the ARP command. For the IP address defined in step 1, use one of the following commands:

   - Windows command format:
     
     ```
     ping 156.205.14.141 -l 113
     ```

   - LINUX command format:
     
     ```
     ping 156.205.14.141 -s 113
     ```

3. Use SSH to access the Rack Monitor 250 at its newly assigned IP address. For example:

   ```
   ssh apc@156.205.14.141 -c aes256-cbc
   ```

   Where `-c` indicates the cipher (`aes256-cbc` or `3des-cbc`).

4. Use `apc` for both user name and password, then change the password as directed. It is recommended that you use strong passwords which conform to your company’s password requirements.

See “Command Line Interface” on page 17 to finish the configuration.
Command Line Interface

After you log on at the CLI, as described in “Local access to the command line interface” on page 20 or “Remote access to the command line interface” on page 21, you can manually configure network settings.

1. Contact your network administrator to obtain the IP address, subnet mask, and default gateway for the Rack Monitor 250.

2. Use this command to configure network settings. (Text in italics indicates a variable.)

   tcpip
   -i yourIPAddress
   -s yourSubnetMask
   -g yourDefaultGateway

   For each variable, type a numeric value that has the format xxx.xxx.xxx.xxx.

   The command can be entered on one line. For example, to set a system IP address of 156.205.14.141, a Subnet Mask of 255.255.255.0 and a default gateway of 156.205.14.1, type the following command and press ENTER:

   tcpip -i 156.205.14.141 -s 255.255.255.0 -g 156.205.14.1

3. Type reboot. The Rack Monitor 250 restarts to apply the changes.

.INI file utility

You can use the .INI file export utility to export .INI file settings from configured Rack Monitor 250s to one or more unconfigured Rack Monitor 250s. The utility and documentation are available in FAQ article FA156117 on the APC by Schneider Electric website: Go to www.apc.com, select Support > FAQs, then enter the article number in the search bar.
How to Recover from a Lost Password

You can use a local computer that connects to the Rack Monitor 250 through the serial port to access the CLI.

1. Select a serial port at the local computer, and disable any service that uses that port.
2. Connect the provided USB A-USB mini B configuration cable to the selected port at the computer and to the console port at the Rack Monitor 250.
   
   **NOTE:** If you are unable to access the appliance using the console port, you may need to install a serial-to-USB virtual COM port driver. The USB vendor is FTDI; the driver type is VCP. Driver downloads are available on the FTDI Chip website.
3. Run a terminal program (such as HyperTerminal, Tera Term or PuTTY) and configure the selected port for 9600 bps, 8 data bits, no parity, 1 stop bit, and no flow control.
4. Press ENTER, repeatedly if necessary, to display the User Name prompt. If you are unable to display the User Name prompt, verify the following:
   - The serial port is not in use by another application.
   - The terminal settings are correct as specified in step 3.
   - The correct cable is being used as specified in step 2.
5. Press the Reset button. The Status LED will flash alternately orange and green. When the LED begins to flash, immediately press the Reset button a second time to temporarily reset the user name and password to their defaults.
6. Press ENTER, repeatedly if necessary, to display the User Name prompt again, then use the default, **apc**, for the user name and password. (If you take longer than 30 seconds to log on after the User Name prompt is redisplayed, you must repeat step 5 and log on again.)
7. At the CLI, use the following commands to change the Password setting, which is **apc** at this stage:

   ```bash
   user -n user name -pw user password
   ```

   For example, to change the Super User password to XYZ, type:

   ```bash
   user -n apc -pw XYZ
   ```

   **NOTE:** For security reasons, it is possible to disable the Super User account. To verify that the Super User account is enabled, type:

   ```bash
   user -n <user name>
   ```

   If **Access: Disabled** is returned, you can re-enable the Super User by typing:

   ```bash
   user -n <user name> -e enable
   ```
8. Type quit or exit to log off, reconnect any serial cable you disconnected, and restart any service you disabled.
Access the Rack Monitor 250

After the Rack Monitor 250 is running on your network, you can access the following Rack Monitor 250 software user interfaces to finish configuring and to begin monitoring your system:

- Web UI (HTTP or HTTPS protocol)
- Telnet or Secure SHell (SSH)
- SNMP
- Modbus


Web User Interface

You can use the latest version of Microsoft Internet Explorer® 11 and higher, Firefox®, or Chrome® to access the Web UI of the Rack Monitor 250. Other commonly available browsers and versions may work but have not been tested.

For initial access the Web UI, enter `https://<your_device_IP_address>` or `https://<your_device_dns_name>` in your Web browser address field. You will be prompted for a user name and password. Enter the default, `apc` for each, to log on. Then change the default password as directed. It is recommended that you use strong passwords which conform to your company’s password requirements.

You may receive a message that the Web page is not secure. This is normal, and you can continue to the Web UI. The warning is generated because your Web browser does not recognize the default certificate used for encryption over HTTPS. However, information transmitted over HTTPS is still encrypted. See the Security Handbook on www.apc.com for more details on HTTPS and instructions to resolve the warning.

HTTP and HTTPS

When you use a Web browser to access the Web UI, you can use either HTTP or HTTPS.

- HTTP (disabled by default) provides authentication by user name and password but no encryption.
- HTTPS (enabled by default) provides security through Secure Sockets Layer (SSL); encrypts user names, passwords, and data being transmitted; and authenticates the Rack Monitor 250 using digital certificates.

To enable or disable HTTP or HTTPS, go to Configuration > Network > Web >Access.

For more information on selecting and configuring network security, see the Security Handbook on www.apc.com. For details on how to access the Security Handbook, see “Additional documentation” on page 2.
Command Line Interface

You can access the CLI through Telnet or Secure SHell (SSH), depending on which is enabled. Go to Configuration > Network > Console > Access to enable or disable either protocol. SSH is enabled by default.

SSH

SSH encrypts user names, passwords, and transmitted data. If you use Secure Sockets Layer (SSL) for the Web UI, use Secure Shell (SSH) for access to the CLI.

The interface, user accounts, and user access rights are the same whether you access the CLI through SSH or Telnet. However, to use SSH, you must first configure SSH and have an SSH client program installed on your computer.

See the NetBotz Rack Monitor 250 User Guide on www.apc.com for more information on configuring and using SSH.

Telnet

Telnet provides authentication by user name and password, but not the benefits of encryption. Telnet is disabled by default.

To use Telnet to access the CLI of the Rack Monitor 250:

1. At a command prompt, use the following command line, and press ENTER:
   ```bash
telnet address
   ```
   As `address`, use the IP address of the Rack Monitor 250 (or DNS name if configured).

2. Enter the user name and password (by default, `apc` and `apc` for an Administrator). You will be prompted to enter a new password the first time you connect to the appliance.
Simple Network Management Protocol (SNMP)

SNMP is disabled by default. You must be an Administrator to enable or disable SNMP access. Go to Configuration > Network > SNMPv1 or SNMPv3 > Access in the Web UI, or use the SNMP or SNMPv3 commands in the CLI. See the NetBotz Rack Monitor 250 User Guide on www.apc.com for more information.

To manage the Rack Monitor 250 with StruxureWare Data Center Expert or EcoStruxure IT, you must enable SNMPv1 or SNMPv3 in the unit interface. See your StruxureWare Data Center Expert or EcoStruxure IT documentation for detailed instructions.

SNMPv1

After you add the PowerNet® MIB to a standard SNMP MIB browser, you can use that browser to access the Rack Monitor 250. All user names, passwords, and community names for SNMP are transferred over the network as plain text.

SNMPv2c is also supported by the SNMPv1 interface and configuration settings. For more information, see FAQ article FA156193: Go to www.apc.com, select Support > FAQs, then enter the article number in the search bar.

SNMPv3

SNMPv3 uses a system of user profiles to identify users for GETs, SETs, and trap receivers. An SNMPv3 user must have a user profile assigned in the MIB software program to perform GETs and SETs, browse the MIB, and receive traps.

**NOTE:** To use SNMPv3, you must have a MIB program that supports SNMPv3. The Rack Monitor 250 supports MD5 or SHA authentication and DES or AES privacy (encryption).

Modbus

In the Rack Monitor 250 user interface, go to Configuration > Network > Modbus > serial (or TCP).

1. Check the box to enable access to the Modbus serial or TCP interface.
2. Set the connection parameters for the Modbus connection:
   - For the TCP connection, specify a port number (502, or 5000 to 32768). Click **Apply**.
   - For the serial connection, specify the parameters. The default serial connection settings are 9600 baud, 8 data bits, parity even, and 1 stop bit.
     a. Set Parity to None.
     b. Specify the Target Unique ID (1 to 247).
     c. Click **Apply**.

**NOTE:** The Rack Monitor 250 sets the value for stop bits automatically based on parity according to the Modbus standard. When parity is set to None, 2 stop bits are used.
Other Configuration

Configure Rack Access Proximity Cards

Both handles must be the same model, either two 125 kHz handles or two 13.56 MHz handles. The proximity card type must be the same for both handles. The Rack Monitor 250 can support up to 200 registered cardholders. You may be able to configure more than 200 cardholders by using a RADIUS server for authentication.

The Rack Monitor 250 with the NetBotz 125 kHz Handle Kit (NBHN125) supports the following 125 kHz proximity cards:

- H10301 26-bit
- H10302 37-bit
- H10304 37-bit with facility code
- CORP-1000

The Rack Monitor 250 with the NetBotz 13.56 MHz Handle Kit (NBHN1356) supports the following 13.56 MHz proximity cards:

- MIFARE Classic 4-byte UID
- MIFARE Classic 7-byte UID
- MIFARE DESFIRE
- MIFARE PLUS
- iClass 8-byte

To register a new proximity card:

2. Check the box to enable the card reader. Specify the card type for the installed handle(s), the auto-relock time (10–60 seconds), and the time to wait before the door open alarm is activated for Door 1, Door 2, or both (1–120 minutes). Click Apply.
3. Hold the card in front of the proximity reader on the handle until you hear a beep.
5. Click the card ID number to specify the user name, door access (Door 1, Door 2, or both), the access schedule (24 x 7 by default), and enable account access.
6. Click Apply.

To view, modify, or delete registered users, go to Configuration > Device > User Access > Registered Users.

For more information about configuring rack access, see the NetBotz Rack Monitor 250 User Guide on www.apc.com.
The Wireless Sensor Network

The wireless sensor network is made of a host appliance, a coordinator, routers, and end devices.

- The **host appliance** (the Rack Monitor 250) collects data from the wireless sensor network and generates alerts based on sensor readings.
- The **coordinator** is connected directly to the host appliance via USB. It reports data from the sensors on the network. Each wireless sensor network must have only one coordinator, which is connected to a USB Type A port on the NetBotz appliance. Your Rack Monitor 250 includes a USB Coordinator (NBWC100U) connected to the Wireless port under a plastic cover.
- **Routers** extend the range of the wireless sensor network. Routers pass information between themselves and the coordinator, and between the coordinator and end devices. 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. Each router is powered by an AC-USB adapter connected to a power outlet, not directly connected to the NetBotz appliance.
- **End devices** monitor attached and internal sensors and send data back to the host appliance through the network. End devices are powered by batteries.

The following devices can be configured on your wireless network:

<table>
<thead>
<tr>
<th>Wireless device</th>
<th>Network role</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB Coordinator &amp; Router (NBWC100U)</td>
<td>coordinator or router</td>
</tr>
<tr>
<td>Wireless Temperature Sensor (NBWS100T)</td>
<td>end device</td>
</tr>
<tr>
<td>Wireless Temperature/Humidity Sensor (NBWS100H)</td>
<td>end device</td>
</tr>
</tbody>
</table>

**NOTE:** Each wireless device has a maximum line-of-sight range of 30.5 m (100 ft). In a data center environment where obstructions are common, a range of 15 m (50 ft) is typical.
Connect the Wireless Sensor Network

The order in which you set up your wireless sensor network and apply power to your wireless devices is important:

1. **Select the coordinator and routers:** Choose the USB Coordinator & Router that will become the coordinator. **Note the extended address of the coordinator.** Choose one or more USB Coordinator & Routers to become routers.
2. **Mount the sensors.** Choose the locations for the routers and end devices. Do not power the routers or end devices at this time.
3. **Power the coordinator first:** Connect one USB Coordinator & Router to a USB Type A port on the NetBotz appliance.
4. **Apply power to the routers:** Power each router using an AC-USB adapter, not directly connected to the NetBotz appliance.
5. **Power the end devices:** To preserve battery life, do not power the end devices until after the coordinator and the routers are powered.
6. **Configure your appliance:** See “TCP/IP Configuration Methods” on page 14, then complete the configuration of the wireless network on the Web UI of your appliance (see “Configure the Wireless Sensor Network” on page 24).

Configure the Wireless Sensor Network

The Rack Monitor 250 must be communicating on the network, and you must have access to its Web UI to configure the wireless sensor network. For information, see “Access the Rack Monitor 250” on page 19.

To configure the wireless sensor network:

1. Log in to the Rack Monitor 250 user interface, and go to **Configuration > Device > Wireless Sensor Network.**
2. Position and turn on your Wireless Temperature Sensor(s).
3. Enable Auto Join until all the wireless sensors in the network have been discovered, or click **Add New Sensor** to add sensors manually.
   
   **NOTE:** You must enter the extended address (MAC) for each sensor you manually add to the network.

The wireless sensors appear in the list as they join the network. Auto Join runs for five hours, or until you end it manually.

You can add up to 47 wireless sensors without rebooting the network.

When you remove one or more wireless sensors, you must commit the sensor list to reboot the wireless network and allow it to reform. This can take several minutes.
Disabling the wireless sensor network

You can disable the wireless sensor network through the Web UI or the CLI. A reboot is required for this change to take effect, and the appliance will reboot automatically when all users have logged off.

**Web UI:** Go to **Configuration > Device > Wireless Sensor Network**, then select **Disable Coordinator**.

**CLI:** Enter `zw -wn disabled`.

**NOTE:** Store the USB Coordinator and the Wireless Temperature Sensor in a safe place when not in use. APC by Schneider Electric is not responsible for misplaced parts. You can purchase replacements or extra USB Coordinators (NBWC100U) and Wireless Temperature Sensors (NBWS100T) from [www.apc.com](http://www.apc.com).

Troubleshooting the wireless sensor network

During the boot process, the Coordinator LED activity is as follows:

- Flashes a quick green, yellow, red sequence
- Alternately flashes green and yellow for about 30 seconds
- Flashes green 3 times
- Turns solid yellow for 5 seconds
- Flashes a quick green, yellow, green sequence

**NOTE:** If the LED flashes red three times, then slowly flashes red, contact Technical Support.

After the boot process is complete, LED activity on the Coordinator signifies its status:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flashes green</td>
<td>Normal. The network was formed successfully.</td>
</tr>
<tr>
<td>Off</td>
<td>Forming a network or Not communicating with the Rack Monitor 250. Reboot the Coordinator.*</td>
</tr>
<tr>
<td>Solid red</td>
<td>Unable to form a network. Reboot the Coordinator.*</td>
</tr>
</tbody>
</table>

*To reboot the Coordinator, remove the plastic cover and press and hold the reset button (the LED) for no more than three seconds.

**NOTE:** For more information, see the *Quick Start Guide* and *Installation Manual* for your wireless device, or go to [www.apc.com](http://www.apc.com).
Configure Outlet-controlled Devices

This procedure applies to the alarm beacon, or any device attached to the relay output or switched outlet.

1. Connect all sensors and devices to the appropriate ports (see “Connect Sensors and Devices” on page 11).
3. Go to Configuration > Device > Outputs, and select the port or outlet to which your device is connected.
4. Configure the device to activate when sensors generate specific alarms. See the User Guide on www.apc.com for details.
# Specifications

## NetBotz Rack Monitor 250 (NBRK0250)

### Electrical

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage, nominal, for AC Line Inlet</td>
<td>100–240 VAC; 50/60 Hz</td>
</tr>
<tr>
<td>Maximum total current draw for AC Line Inlet</td>
<td>10 A (defined by Switched Outlet load + 0.25 A)</td>
</tr>
<tr>
<td>Maximum output voltage for Switched Outlet</td>
<td>Defined by input voltage</td>
</tr>
<tr>
<td>Maximum output current for Switched Outlet</td>
<td>10 A (defined by Switched Outlet load)</td>
</tr>
<tr>
<td>Voltage for Voltage Output contacts</td>
<td>12 VDC, 24 VDC</td>
</tr>
<tr>
<td>Current for Voltage Output contacts</td>
<td>75 mA total for 12 V and 24 V load</td>
</tr>
<tr>
<td>Current capacity of Relay Output contacts</td>
<td>1 A, 30 V AC/DC (rated for Class 2 circuits only)</td>
</tr>
</tbody>
</table>

### Physical

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (H x W x D)</td>
<td>43.6 x 431.8 x 59.2 mm (1.72 x 17.00 x 2.33 in.)</td>
</tr>
<tr>
<td>Shipping dimensions (H x W x D)</td>
<td>67 x 450 x 225 mm (2.6 x 17.8 x 8.9 in.)</td>
</tr>
<tr>
<td>Weight</td>
<td>1.26 kg (2.80 lb)</td>
</tr>
<tr>
<td>Shipping weight</td>
<td>3.00 kg (6.50 lb)</td>
</tr>
</tbody>
</table>

### Environmental

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevation (above MSL)</td>
<td>0 to 3000 m (0 to 10,000 ft)</td>
</tr>
<tr>
<td>Temperature</td>
<td>0 to 45°C (32 to 113°F), −15 to 65°C (5 to 149°F)</td>
</tr>
<tr>
<td>Humidity</td>
<td>0 to 95%, non-condensing</td>
</tr>
</tbody>
</table>

### Performance

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Rack Monitor 250 response time for dry</td>
<td>200 ms</td>
</tr>
<tr>
<td>contact sensor or door switch sensor state changes</td>
<td></td>
</tr>
</tbody>
</table>

### Compliance

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMC</td>
<td>• EMC directive 2014/30/EU</td>
</tr>
<tr>
<td></td>
<td>• EN55024:2010, EN55022:2010+AC:2011, Class A</td>
</tr>
<tr>
<td></td>
<td>• FCC 47 CFR Part 15 Radiated and Conducted Emissions</td>
</tr>
<tr>
<td></td>
<td>• ICES-003:2012</td>
</tr>
<tr>
<td></td>
<td>• ASNZ CISPR:22</td>
</tr>
<tr>
<td></td>
<td>• VCCI V-3:2015</td>
</tr>
<tr>
<td>Safety</td>
<td>• cULus / UL-EU / CE - UL/EN/IEC 62368-1</td>
</tr>
<tr>
<td></td>
<td>• LVD 2014/35/EU</td>
</tr>
<tr>
<td></td>
<td>• RED Directive 2014/53/EU</td>
</tr>
<tr>
<td></td>
<td>• FCC 47 CFR Part 15 Radiated and Conducted</td>
</tr>
<tr>
<td>Emissions</td>
<td>• ICES-003:2012</td>
</tr>
<tr>
<td></td>
<td>• IC: 3351C-NBWC100U</td>
</tr>
<tr>
<td></td>
<td>• FCC ID: SNSNBWC100U</td>
</tr>
</tbody>
</table>
Temperature/Humidity Sensor (AP9335TH)

<table>
<thead>
<tr>
<th>Specifications</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature accuracy</td>
<td>±1°C (± 2°F), from 0 to 40°C (32 to 104°F)</td>
</tr>
<tr>
<td>Humidity accuracy</td>
<td>± 4% RH, 20 to 90% RH, at 25°C (77°F)</td>
</tr>
<tr>
<td></td>
<td>± 8% RH, 30 to 80% RH, from 15 to 30°C (59 to 95°F)</td>
</tr>
<tr>
<td>Sensor operating temperature</td>
<td>–10 to 70°C (14 to 159°F)</td>
</tr>
<tr>
<td>Cable length</td>
<td>4 m (13 ft)</td>
</tr>
</tbody>
</table>

System Specifications

A-Link

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum combined length of all A-Link cables</td>
<td>1000 m (3,280 ft)</td>
</tr>
<tr>
<td>Maximum number of NetBotz Rack Sensor Pod 150s that can be cascaded on the A-Link bus†</td>
<td>six (6)</td>
</tr>
<tr>
<td>Maximum number of sensors (Temperature/Humidity Sensors with Digital Display [AP9520TH]) that can be cascaded on the A-Link bus†</td>
<td>eight (8)</td>
</tr>
</tbody>
</table>

Temperature/Humidity Sensor (AP9335TH), Temperature Sensor (AP9335T)

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum length of cable</td>
<td>15 m (50 ft)</td>
</tr>
</tbody>
</table>

Beacon

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum length of cable</td>
<td>100 m (330 ft)</td>
</tr>
</tbody>
</table>

NetBotz Dry Contact Cable (NBES0304), NetBotz 3.65 m (12 ft) Door Switch Sensor for APC Racks (NBES0303), NetBotz 15.24 m (50 ft) Door Switch Sensor for Rooms or Third Party Racks (NBES0302)

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum length of cable</td>
<td>30.48 m (100 ft)</td>
</tr>
</tbody>
</table>

Handles

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum length of cable</td>
<td>100 m (330 ft)</td>
</tr>
</tbody>
</table>

Door switches

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum length of cable</td>
<td>100 m (330 ft)</td>
</tr>
<tr>
<td>Gap distance</td>
<td>Less than 1 in. (2.54 cm) in air</td>
</tr>
</tbody>
</table>

†If several devices (NetBotz Rack Sensor Pod 150s [NBP0150], and Temperature/Humidity Sensors with Digital Display [AP9520TH]) are cascaded on the A-Link bus, a supplemental power supply (Power Supply 100–240 VAC/24 VDC—AP9505i) is required. The power supply connects to the 24 VDC Input on a NetBotz Rack Sensor Pod 150. Go to www.apc.com for more information.
Two-Year Factory Warranty

This warranty applies only to the products you purchase for your use in accordance with this manual.

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Warranty claims

Customers with warranty claims issues may access the APC by Schneider Electric customer support network through the Support page of the APC by Schneider Electric website, www.apc.com/support. Select your country from the country selection pull-down menu at the top of the Web page. Select the Support tab to obtain contact information for customer support in your region.
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 device complies with part 15 of the fcc rules. 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.

NOTE: The grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. such modifications could void the user’s authority to operate the equipment.

FCC ID: SNSNBWC100U

Canada—ICES

This device complies with Industry Canada license-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.

IC: 3351C-NBWC100U

European Union

The wireless USB Coordinator with this product is in conformity with the requirements of EU Council Radio Equipment Directive 2014/53/EU.

This product is in conformity with the requirements of EU Council Directive 2014/53/EU. This product may cause radio interference in which case the user may be required to take adequate measures. APC by Schneider Electric cannot accept responsibility for any failure to satisfy the protection requirements resulting from an unapproved modification of the product.
Worldwide Customer Support

Customer support is available at www.apc.com.