Raritan AMS Series

# Intelligent Electronic Asset Management

Quick Setup Guide

Thank you for purchasing Raritan AMS asset management sensors (asset sensors), which work with Raritan EMX, PX3TS transfer switches or specific PX models for providing the asset management solution. This asset management solution helps you track the locations of tens or hundreds of IT devices in the data center and server room.

Note: Refer to the table below for a list of PX models which support this solution.

This Quick Setup Guide explains how to install and configure asset sensors. For additional information on the asset management operation, see Raritan EMX, PX3TS or PX device's Online Help, which is available from the **Support page** (*http://www.raritan.com/support/*) or the **Product Online Help page** (*http://www.raritan.com/support/online-help/*) on the Raritan website.

An Overview of the Asset Management Solution

The asset management solution involves using diverse Raritan asset management devices and a Raritan or third-party asset management software.

SNMP

Asset Management Software
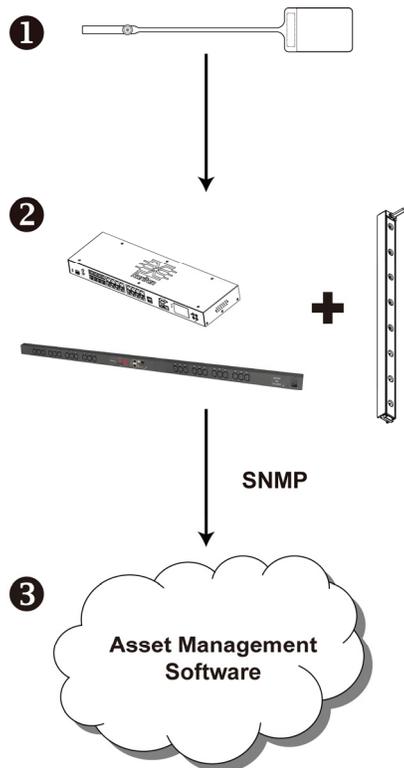
Number	Description
❶	Raritan asset management tags (AMT), each of which has a unique asset ID (that is, the barcode).
❷	Raritan asset management gateway where the asset sensors are physically connected, such as Raritan EMX or PX.
❸	Raritan or third-party asset management software, such as Raritan dcTrack.

A Raritan or third-party asset management software can access the Raritan asset sensors through a Raritan asset management gateway via SNMP.

The following table lists Raritan devices and firmware versions that function as the SNMP gateway for asset management.

Raritan products	Firmware versions
EMX rack management devices	All versions
PX2 power distribution units (PDUs)	Version 2.2.0 or later
PX3 PDUs	Version 2.5.20 or later
PX3TS transfer switches	Version 2.6.0 or later

The Configuration Management Database (CMDB) where asset IDs are associated with assets is stored in a network drive. You can use an asset management software to access this database.

Combining Asset Sensors

Each tag port on the asset sensor corresponds to a rack unit and can be used to locate IT devices on a specific rack (or cabinet).

For each rack, you can attach asset sensors up to 64U long, consisting of one MASTER and multiple SLAVE asset sensors.

The difference between the master and slave asset sensors is that the master asset sensor has an RJ-45 connector while the slave does not.

The following diagram illustrates some asset sensors. Note that Raritan provides more types of asset sensors than the diagram.
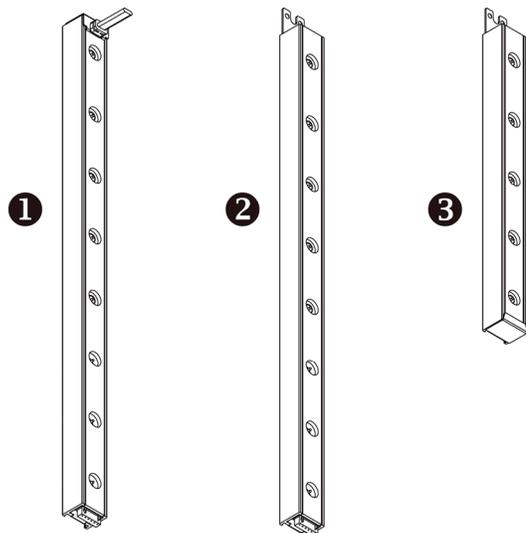

Number	Item
❶	8U MASTER asset sensor with 8 tag ports
❷	8U SLAVE asset sensor with 8 tag ports
❸	5U "ending" SLAVE asset sensor with 5 tag ports

Note: Unlike regular slave asset sensors, which have one DIN connector respectively on either end, the ending slave asset sensor has one DIN connector on only one end. An ending asset sensor is installed at the end of the asset sensor assembly.

▶ **To assemble asset sensors:**

1. Connect a MASTER asset sensor to an 8U SLAVE asset sensor.
   - Plug the white male DIN connector of the slave asset sensor into the white female DIN connector of the master asset sensor.

- Make sure that the U-shaped sheet metal adjacent to the male DIN connector is inserted into the rear slot of the master asset sensor. Screw up the U-shaped sheet metal to reinforce the connection.
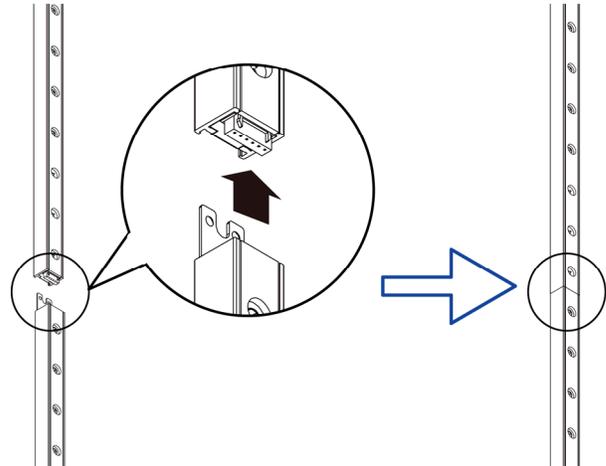
2. Connect another 8U slave asset sensor to the one being attached to the master asset sensor in the same manner as Step 1.

3. Repeat the above step to connect more slave asset sensors. The length of the asset sensor assembly can be up to 64U.
   - The final asset sensor can be 8U or 5U, depending on the actual height of your rack.
   - Connect the "ending" asset sensor as the final one in the assembly.

4. Vertically attach the asset sensor assembly to the rack, next to the IT equipment, making each tag port horizontally align with a rack unit. The asset sensors are automatically attracted to the rack because of magnetic stripes on the back.

Note: The asset sensor is implemented with a tilt sensor so it can be mounted upside down.

Connecting Asset Sensors to the Raritan SNMP gateway

Raritan EMX, PX3TS and PX devices function as a Raritan SNMP gateway for asset management after having asset sensors connected. See *An Overview of the Asset Management Solution* (on page 1) for a list of Raritan devices.

You need both asset sensors and asset tags for tracking IT devices.

Asset tags provide an ID number for each IT device. The asset tags are adhered to an IT device at one end and plugged in to an asset management sensor at the other.

The asset sensor is connected to a Raritan SNMP gateway, and the asset tag transmits the ID and positioning information to the asset sensor.

The following diagram illustrates an asset tag.

Letter	Item
A	Barcode (ID number), which is available on either end of the asset tag
B	Tag connector
C	Adhesive area with the tape

Note: The barcode of each asset tag is unique and is displayed in the Raritan SNMP gateway device's web interface so it can easily be identified.

▶ **To connect asset sensors to the Raritan SNMP gateway device:**

1. Affix the adhesive end of an asset tag to each IT device through the tag's tape.
2. Plug the connector on the other end of each asset tag into the corresponding tag port on the asset sensor.
3. Connect the asset sensor assembly on the rack to the Raritan SNMP gateway device, using a standard network patch cable (CAT5e/6).
   a. Connect one end of the cable to the RJ-45 connector on the MASTER asset sensor.
   b. Connect the other end of the cable to the FEATURE port on the Raritan SNMP gateway device.

   The Raritan SNMP gateway device supplies power to the asset sensor assembly through the network cable. All LEDs on the asset sensor assembly may cycle through different colors during the power-on process if the asset sensor's firmware is being upgraded by the Raritan SNMP gateway device. After the power-on or firmware upgrade process completes, the LEDs show solid colors. Note that the LED color of the tag ports with asset tags connected will be different from the LED color of the tag ports without asset tags connected.
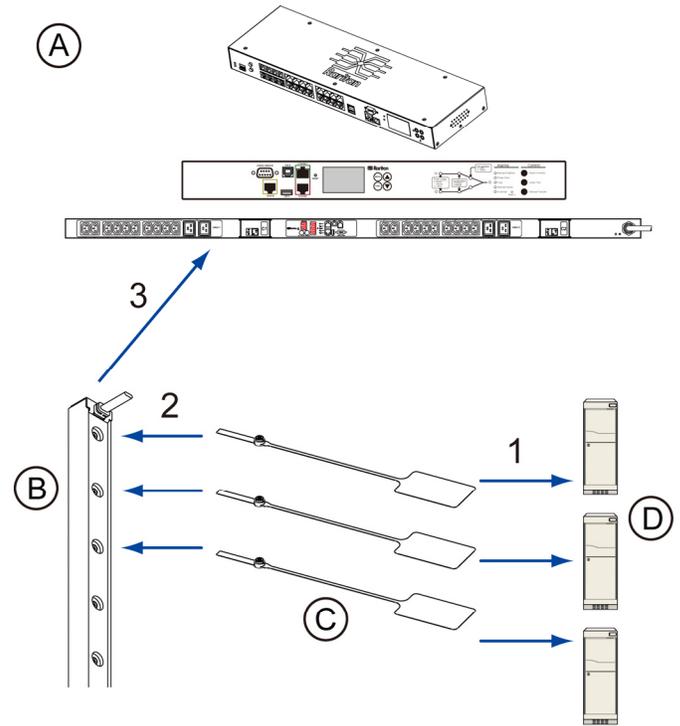
Letter	Item
A	Raritan SNMP gateway device: Raritan EMX, PX3TS or PX
B	Asset sensors
C	Asset tags
D	IT equipment, such as servers

Note: The supported maximum cabling length differs depending on the Raritan SNMP gateway device you purchased. See the User Guide or Online Help for your Raritan SNMP gateway device.

4. If the Raritan SNMP gateway device has more than one FEATURE port, repeat the above steps to connect additional asset sensors to the rest of FEATURE ports.

Connecting Composite Asset Sensors (AMS-Mx-Z)

A composite asset sensor is named AMS-Mx-Z, where x is a number, such as AMS-M2-Z or AMS-M3-Z. It is a type of asset sensor that functions the same as regular MASTER asset sensors except for the following differences:
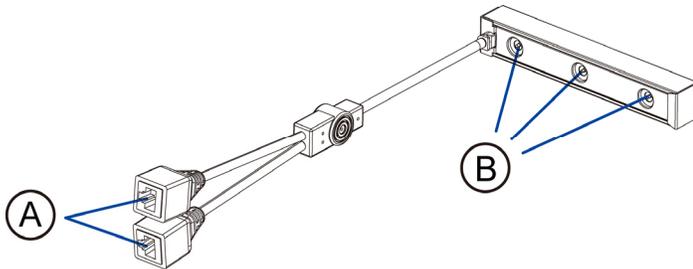
- It has two RJ-45 connectors.
- Multiple composite asset sensors can be daisy chained.

- A composite asset sensor contains less tag ports than regular asset sensors.

  For example, AMS-M2-Z contains two tag ports and AMS-M3-Z contains three tag ports only.

The composite asset sensor is especially useful for tracking large devices such as SAN boxes in the cabinet.

The following diagram illustrates AMS-M3-Z.

Item	Description
A	Two RJ-45 connectors
B	Tag ports

▶ **To connect composite asset sensors to the Raritan SNMP gateway device:**

1. Connect a composite asset sensor to the Raritan SNMP gateway device via a standard network patch cable (CAT5e or higher).
   a. Connect one end of the cable to the RJ-45 port labeled "Input" on the composite asset sensor.
   b. Connect the other end of the cable to the FEATURE port on the Raritan SNMP gateway device.
2. Affix an asset tag to the IT device. Then connect this asset tag to the composite asset sensor by plugging the tag connector into the tag port on the composite asset sensor. See ***Connecting Asset Sensors to the Raritan SNMP gateway*** (on page 2) for details.
3. If necessary, daisy chain *the same* type of composite asset sensors to track more IT devices.
   a. Get a standard network patch cable that is within 2 meters.
   b. Connect one end of the network cable to the RJ-45 connector labeled "Output" on the previous composite asset sensor.
   c. Connect the other end of the cable to the RJ-45 connector labeled "Input" on the subsequent composite asset sensor.
   d. Repeat the above steps to connect more composite asset sensors. See ***Daisy-Chain Limitations of Composite Asset Sensors*** (on page 4) for the maximum number of composite asset sensors supported per chain.

e. It is highly recommended using the cable ties to help hold the weight of all connecting cables.
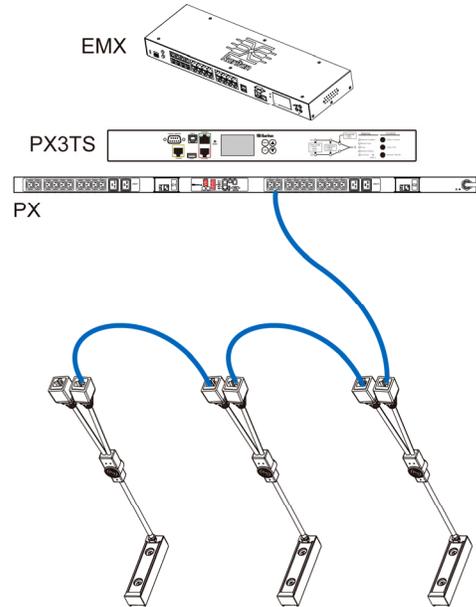
4. Repeat Step 2 to connect IT devices to the other composite asset sensors in the chain.

Daisy-Chain Limitations of Composite Asset Sensors

There are some limitations when daisy chaining composite asset sensors -- AMS-Mx-Z, where x is a number.

- The maximum cable length between composite asset sensors is 2 meters.
- The maximum number of composite asset sensors that can be daisy chained vary according to the Raritan device.

Raritan devices	Maximum sensors per chain
EMX2-111, PX2 PDUs	Up to 4 composite asset sensors are supported.
EMX2-888, PX3 PDUs, PX3TS transfer switches	Up to 6 composite asset sensors are supported.

Tip: To increase the maximum number of composite asset sensors attached to a Raritan PX2 PDU or EMX2-111, you can use Raritan's X adapter cable to strengthen the asset sensor signals in the chain. See PX2 or EMX online help or user guides for information on the X cable.
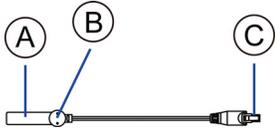
Connecting Blade Extension Strips

For blade servers, which are contained in a single chassis, you can use a blade extension strip to track individual blade servers.

Raritan's blade extension strip functions similar to a Raritan asset sensor but requires a tag connector cable for connecting to a tag port on the regular or composite asset sensor. The blade extension strip contains 4 to 16 tag ports, depending on which model you purchased.

The following diagrams illustrate a tag connector cable and a blade extension strip with 16 tag ports.

Tag connector cable

Item	Description
A	Barcode (ID number) for the tag connector cable
B	Tag connector
C	Cable connector for connecting the blade extension strip

Note: A tag connector cable has a unique barcode, which is displayed in the Raritan SNMP gateway device's web interface for identifying each blade extension strip where it is connected.
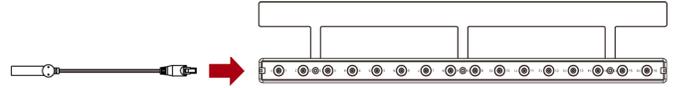
Blade extension strip
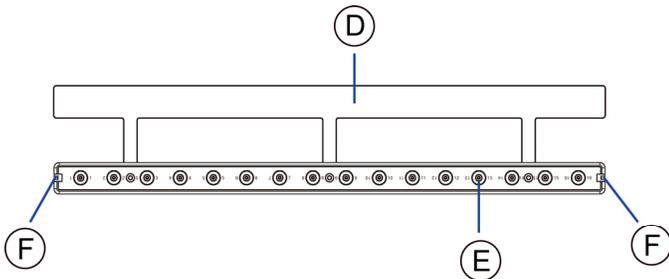
| Item	Description
D	Mylar section with the adhesive tape
E	Tag ports
F	Cable socket(s) for connecting the tag connector cable

Note: Each tag port on the blade extension strip is labeled a number, which is displayed as the slot number in the Raritan SNMP gateway device's web interface.

▶ To install a blade extension strip:

1. Connect the tag connector cable to the blade extension strip.
   - Plug the cable's connector into the socket at either end of the blade extension strip.


2. Move the blade extension strip toward the bottom of the blade chassis until its mylar section is fully under the chassis, and verify that the blade extension strip does not fall off easily. If necessary, you may use the adhesive tape in the back of the mylar section to help fix the strip in place.
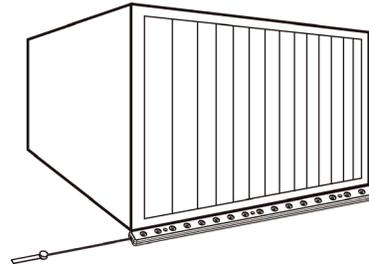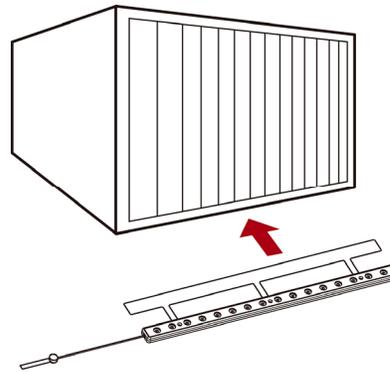

3. Connect one end of an asset tag to a blade server and connect the other end to the blade extension strip.
   a. Affix the adhesive part of the asset tag to one side of a blade server through the tag's tape.

b. Plug the tag connector of the asset tag into the tag port on the blade extension strip.
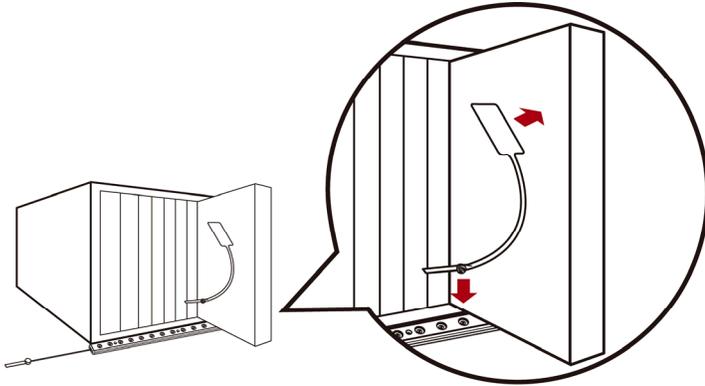
4. Repeat the above step until all blade servers in the chassis are connected to the blade extension strip via asset tags.

5. Plug the tag connector of the blade extension strip into the closest tag port of the regular or composite asset sensor on the rack.
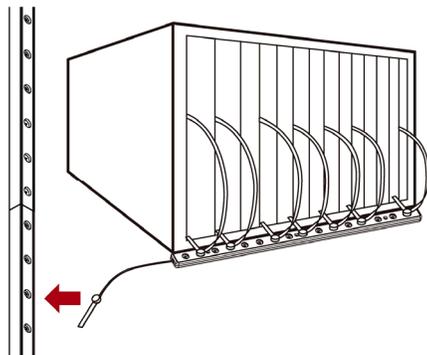
6. Repeat the above steps to connect additional blade extension strips and asset tags. Up to 128 asset tags on blade extension strips are supported per FEATURE port.

Note: If you need to temporarily disconnect the blade extension strip from the asset sensor, wait at least 1 second before re-connecting it back, or the Raritan SNMP gateway device may not detect it.

What to Do Next

1. Open a web browser and type the IP address of the Raritan SNMP gateway device.

2. When prompted for a user name and password, enter *admin* and the new password you assigned during the initial configuration of the Raritan SNMP gateway device. See the Quick Setup Guide accompanying your Raritan SNMP gateway device.

   Note: The factory default password for the admin user is *raritan*.

3. The Raritan SNMP gateway home page displays.

4. Configure each asset sensor assembly in the web interface.
   a. Locate the Feature Ports folder in the left pane, which contains a list of asset sensor icons.

   Note: If there is only one FEATURE port on your Raritan SNMP gateway device, only one asset sensor icon is available.

   b. Click the desired asset sensor icon in the left pane.
   c. Click Setup in the right pane. The setup dialog for the selected asset sensor assembly appears.
   d. Provide necessary information, including the desired name for the asset sensor assembly, the total number of rack units (tag ports), orientation of the asset sensor assembly and so on.

5. By default all LEDs on the asset sensors are set to the Automatic Operation mode. The LED color on the asset sensor changes according to whether an asset tag is detected. You can configure the LED color settings from the web interface:
   a. Click the desired asset sensor icon in the left pane.
   b. Select the desired rack unit (tag port) in the right pane.
   c. Click Configure Rack Unit to configure the rack unit settings, including the LED mode and colors.

Note: Detailed instructions are available in the User Guide or Online Help for your Raritan SNMP gateway device.

Additional Information

For more information about the Raritan SNMP gateway and the entire Raritan product line, see Raritan's website (www.raritan.com). For technical issues, contact Raritan Technical Support. See the Contact Support page in the Support section on Raritan's website for technical support contact information worldwide.

Raritan's products use code licensed under the GPL and LGPL. You can request a copy of the open source code. For details, see the Open Source Software Statement at (http://www.raritan.com/about/legal-statements/open-source-software-statement/) on Raritan's website.

Safety Certifications

The following lists the certifications Raritan has obtained for AMS series products except for composite asset sensors (AMS-Mx-Z).

FCC

This device complies with Part 15 Class A 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 interference received, including interference that may cause undesired operation.

VCCI

この装置は，クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。　　　　　ＶＣＣＩ－Ａ

Canadian ICES-003

CAN ICES-3 (A) / NMB-3 (A)