ARRIS

VAP3400/3402

802.11ac Wireless Video Access Point

CONTENTS

The VAP3400/3402 enables you to transmit multiple standard- and high-definition video streams throughout your home wirelessly. You can enjoy a full range of video services and applications without having to run wires, lay cables, or drill holes. The VAP3400/3402 uses one-button, Wi-Fi Protected Setup (WPS) technology to ensure easy, reliable installation.

The VAP3400/3402 operates via two (or more) integrated units. You'll dedicate one unit as the **Access Point** and the other unit (or units) as its **Client**. When you connect a VAP to your home gateway, it auto-configures as an Access Point. The Access Point streams content to the Client, which you'll connect to a set-top in a different location in your home. (The Client auto-configures as well when you connect it to the set-top.) The following graphic illustrates this setup:
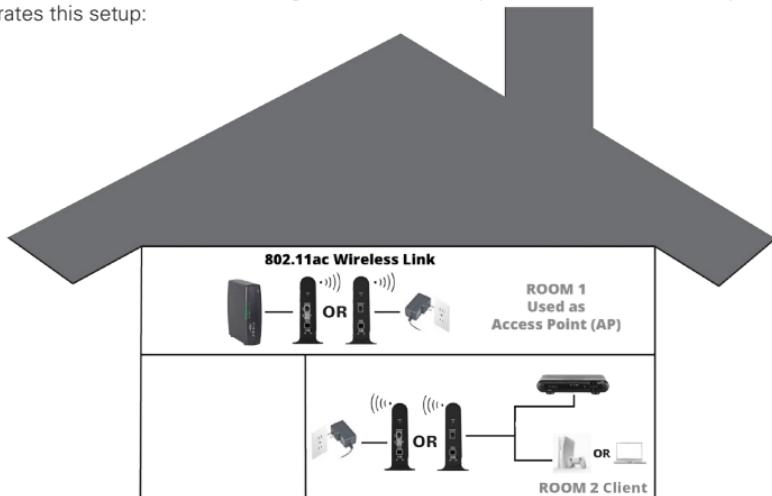
Note for ROOM 2 Client:
Always connects to a Set Top Box (1 and 2 port) and (optionally) one additional device (2 port only).

ABOUT THIS MANUAL

This manual provides you with instructions on how to install your VAP3400/3402. ARRIS designed the VAP3400/3402 to install and integrate easily with your set-top box and home network. If you encounter any difficulties during the installation process, refer to the Troubleshooting section at the end of this manual.

BOX CONTENTS
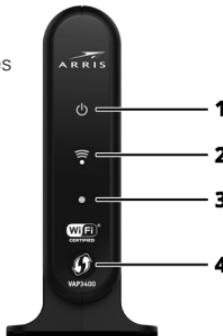
Your box should contain the following:

Single Unit Bundle (for additional Clients)		Dual Unit Bundle (for initial installation)	
One VAP3400/3402 connection kit		Two VAP3400/3402 connection kits	
One Ethernet Cable		Two Ethernet Cables	
One Power Adapter		Two Power Adapters	

FRONT PANEL

The LED behavior on the front panel of the VAP3400/3402 behaves slightly differently when configured as an Access Point or as a Client.

The following table explains the VAP status by the LED behavior.

		Configured as an Access Point	Configured as a Client
1	Power LED	Green = The VAP is on. Cyan = The VAP is on standby. Off = The VAP is off or disconnected from its power source.	Green = The VAP is on. Cyan = The VAP is on standby. Off = The VAP is off or disconnected from its power source.
2	Wireless Link Quality LED	Off = No wireless connection in Client mode or unit is off. Solid Green = Wireless quality is good. Fast Flashing Green = No Client associated with Access Point. Solid Blue or Cyan = Wireless quality is poor.	Off = No wireless connection in Client mode or unit is off. Solid Green = Wireless quality is good. Solid Blue or Cyan = Wireless quality is poor.

		Configured as an Access Point	Configured as a Client
3	Dual Function LED Operational Mode and WPS Status	**WPS Status** (During WPS pairing only) The LED will do the following to result in a successful pairing:	**WPS Status** (During WPS pairing only) The LED will do the following to result in a successful pairing:
		1. Slow Flashing Green = WPS is initiated and in process. This state lasts approximately two minutes.	1. Slow Flashing Blue = WPS is initiated and in process. This state lasts approximately two minutes.
		2. Fast Flashing Green to solid green = WPS pairing is successful. The fast flashing green LED state lasts for 15 seconds, followed by an LED state of solid green.	2. Fast Flashing Blue to Solid Blue = WPS pairing is successful. The fast flashing blue LED state lasts for 15 seconds, followed by an LED state of solid blue.
		If the LED does not initiate as slow flashing green or does not transition from slow to fast flashing green within 2 minutes, then there is an error. Refer to "Troubleshooting" for more details.	If the LED does not initiate as slow flashing blue or does not transition from slow to fast flashing blue within 2 minutes, then there is an error. Refer to "Troubleshooting" for more details.
		Operational Mode:	**Operational Mode:**
		Off: Device is not ready or in an unknown state.	Off: Device is not ready or in an unknown state.
		Solid Green: Device is configured as an AP.	Solid Blue: Device is configured as an AP.
4	WPS Button	Establishes secure wireless connection to your home network.	Establishes secure wireless connection to your home network

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REAR PANELS

Single Port
(VAP3400)
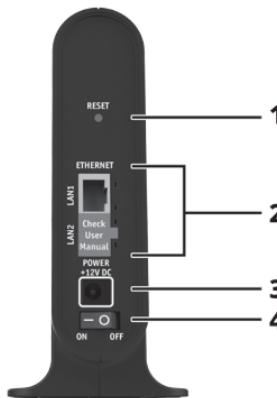
Two Ports
(VAP3402)

1	Reset Button	Resets the VAP to its default settings.
2	Ethernet Port	Connects to an Ethernet-equipped Gateway, computer, hub, or switch using an RJ-45 cable connection. Note: When utilizing two ports (VAP3402 only), do not connect both Ethernet ports to your gateway.
3	Power Jack	Provides power to the VAP.
4	Power Switch	Turns the VAP on or off.

INSTALLING YOUR VAP3400/3402 (DUAL UNITS)

Step 1: Install the Access Point

1. Connect one VAP unit to your home gateway using the provided Ethernet cable. Before you connect the VAP, ensure the gateway is powered on.

2. Connect the power adapter to the VAP, plug the adapter into a wall outlet and set the Power switch to the ON position. You'll see the Power LED on the unit's front panel light green, indicating the unit is powered.

3. After connecting the Ethernet cable, check that the 2 Ethernet port LEDs are (1) solid green and (2) blinking yellow.

   Note: While you are required to connect your VAP to a gateway to ensure the Access Point properly streams video to the Client, the VAP's extra Ethernet port (VAP3402 only) provides you with the option of connecting another device to the unit, such as a computer or gaming console.

   Do not connect both Ethernet ports to your gateway.
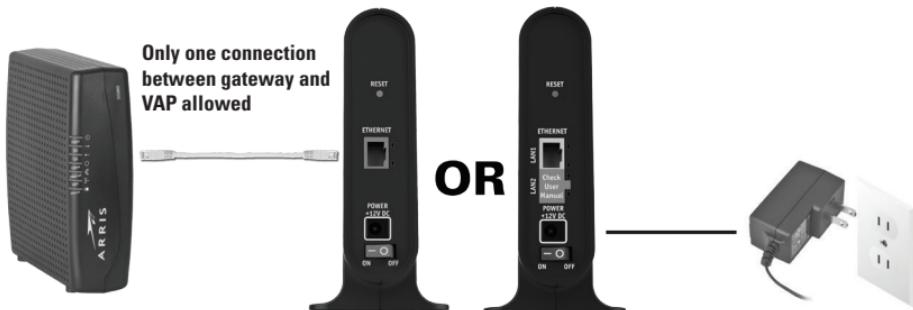
4. Wait until the Operational Mode/WPS Status LED is solid green (approximately 1-2 minutes).

Step 2: Install the Client

1. Connect the second VAP unit to your set-top box with the provided Ethernet cable. Before you connect the VAP, ensure your set-top box is powered on.

   Note: While you are required to connect your VAP to a set-top box to ensure the Access Point properly streams video to the Client, the VAP's extra Ethernet port (VAP3402 only) provides you with the option of connecting other devices to the unit as well, such as computers and gaming consoles.

2. Connect the power adapter to the VAP, plug the adapter into a wall outlet and set the Power switch to the ON position. You'll see the power LED on the unit's front panel light green, indicating the unit is powered.

3. After applying power, check that the 2 Ethernet port LEDs are (1) solid green and (2) blinking yellow.

4. Wait until the Operational Mode/WPS Status LED is solid blue (approximately 1-2 minutes).

5. The devices come Pre-Paired, so they will automatically establish secure communication with no further interaction required.

6. The Client's Wireless Link LED lights: 📶 (solid green - preferred, or solid blue). You have now established a secure wireless connection between the Access Point and the Client. You now can begin streaming video content to your set-top box or boxes.

NOTE: To install additional VAP Clients, repeat steps 1 through 5, replacing Step 4 (above) with the following:

Press and hold the WPS button on the front of the Client for 2 seconds. After doing so, you will have 2 minutes to return to the Access Point and press and hold its WPS button. Pressing the buttons on both units enables them to establish a wireless connection.

Note: After you press the WPS button, the WPS Status LED flashes green when functioning as an Access Point or flashes blue when functioning as a Client. If your connection is successful, the LED will stop flashing, light solid for approximately 30 seconds, and then return to either green (AP) or blue (Client). This is a normal part of the process and does not mean you have lost your connection to the Access Point. If the LED continues flashing or fast flashing blue/green, it indicates the unit has experienced an error; refer to the Troubleshooting section.

If you cannot find a solution to your problem in this manual, or to otherwise get assistance with your VAP3400/3402, contact your service provider.

SOLUTIONS

If the solutions listed here do not solve your problem, try pressing the Reset button on the rear panel of the Access Point and/or Client. Pressing and immediately releasing the Reset button resets the VAP to its current settings. Pressing and holding the Reset button for more than 5 seconds will perform a factory default reset, which you should do only if directed to do so by a technical service representative.

Problem	Possible Solution
Power LED is off	Check that the VAP is properly plugged into the electrical outlet.
	Confirm that the rear panel power switch is "On".
	Check that the electrical outlet is working.
	Press and immediately release the Reset button.
Cannot send or receive data	Check that the Ethernet cable is properly connected to both the VAP and your home gateway/device.
	Ensure you have not experienced an interruption in your cable or Internet service.
	Ensure your home gateway is connected and functioning.
WPS Status LED is cyan or blue	Press the rear panel Reset button on the Client and the Access Point.
	Perform the Installation process again for the Access Point and the Client.
WPS LED is rapidly blinking blue/green	If the LED remains in this state for longer than 2 minutes, go to the unit's front panel and push the WPS button. The LED may continue flashing in a different pattern, rapidly blinking for 1 second and then resting briefly before blinking again. If this occurs, wait 1 to 2 minutes and then press the WPS button again.

Problem	Possible Solution
Video is not displayed on TV or video is "blocky" (Wi-Fi Status LED is cyan or blue)	Relocate the Access Point or client units until the Client Wi-Fi Status LED is green or cyan (green preferred).
	Press and quickly release the Reset buttons on the rear of the Access Point and Client.
Cannot configure VAP unit as an Access Point	This may indicate that your gateway is not connected to your service provider's network. If you experience this problem, contact your service provider for assistance.
Cannot configure VAP unit as a Client	This may indicate that your gateway is not connected to your service provider's network. If you experience this problem, contact your service provider for assistance

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. THE UNIT MUST NOT BE EXPOSED TO DRIPPING OR SPLASHING. DO NOT PLACE OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, ON THE UNIT.

CAUTION: TO ENSURE REGULATORY COMPLIANCE, USE ONLY THE PROVIDED POWER AND INTERFACE CABLES.

CAUTION: DO NOT OPEN THE UNIT. DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN THE INSTALLATION AND TROUBLESHOOTING INSTRUCTIONS. REFER ALL SERVICING TO QUALIFIED SERVICE PERSONNEL.

This device must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

Postpone router installation until there is no risk of thunderstorm or lightning activity in the area.

Do not overload outlets or extension cords, as this can result in a risk of fire or electric shock. Overloaded AC outlets, extension cords, frayed power cords, damaged or cracked wire insulation, and broken plugs are dangerous. They may result in a shock or fire hazard.

Route power supply cords so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords where they are attached to plugs and convenience receptacles, and examine the point where they exit from the product.

Place this equipment in a location that is close enough to an electrical outlet to accommodate the length of the power cord.

Place this equipment on a stable surface.

When using this device, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

- Read all of the instructions {listed here and/or in the user manual} before you operate this equipment. Give particular attention to all safety precautions. Retain the instructions for future reference.
- Comply with all warning and caution statements in the instructions. Observe all warning and caution symbols that are affixed to this equipment.
- Comply with all instructions that accompany this equipment.

- Avoid using this product during an electrical storm. There may be a risk of electric shock from lightning. For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet, and disconnect the cable system. This will prevent damage to the product due to lightning and power surges.

- Operate this product only from the type of power source indicated on the product's marking label. If you are not sure of the type of power supplied to your home, consult your dealer or local power company.

- Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in safe operating condition.

It is recommended that the customer install an AC surge protector in the AC outlet to which this device is connected. This is to avoid damaging the equipment by local lightning strikes and other electrical surges.

Different types of cord sets may be used for connections to the main supply circuit. Use only a main line cord that complies with all applicable product safety requirements of the country of use.

Installation of this product must be in accordance with national wiring codes.

Place unit to allow for easy access when disconnecting the power cord/adapter of the device from the AC wall outlet.

Wipe the unit with a clean, dry cloth. Never use cleaning fluid or similar chemicals. Do not spray cleaners directly on the unit or use forced air to remove dust.

This product was qualified under test conditions that included the use of the supplied cables between system components. To be in compliance with regulations, the user must use these cables and install them properly. Connect the unit to a grounding type AC wall outlet using the power adapter supplied with the unit.

Do not cover the device, or block the airflow to the device with any other objects. Keep the device away from excessive heat and humidity and keep the device free from vibration and dust.

Installation must at all times conform to local regulations.

FCC COMPLIANCE CLASS B DIGITAL DEVICE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

FCC CAUTION: Any changes or modifications not expressly approved by ARRIS for compliance could void the user's authority to operate the equipment.

Restrict to indoor environment for operation within 5.15 ~5.25GHz /5.25 ~5.35GHz/5.47 ~5.725GHz frequency range. The band from 5600-5650MHz will be disabled by the software during the manufacturing and cannot be changed by the end user. This device meets all the other requirements specified in Part 15E, Section 15.407 of the FCC Rules.

This device complies with Part 15 of the FCC Rules. Operation is subject to the followin 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.

IMPORTANT NOTE:

Radiation Exposure Statement:

This product complies with the US portable RF exposure limit set forth for an uncontrolled environment and is safe for intended operation as described in this manual. Further RF exposure reduction can be achieved if the product can be kept as far as possible from the user or the device is set to a lower output power (if available). This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

The Country Code selection feature is disabled for products marketed to the US/CANADA. Operation of this device is restricted to indoor use.

CANADIAN COMPLIANCE

This Class B digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations. Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

FCC DECLARATION OF CONFORMITY

ARRIS Enterprises, Inc., Broadband Communications Sector, 101 Tournament Drive, Horsham, PA 19044, 1-215-323-1000, declares under sole responsibility that the VAP3400/3402 complies with 47 CFR Parts 2 and 15 of the FCC Rules as Class B digital devices. These devices comply with Part 15 of FCC Rules. Operation of these devices is subject to the following two conditions: (1) These devices may not cause harmful interference, and (2) these devices must accept any interference that may cause undesired operation.

WIRELESS LAN INFORMATION

The VAP3400/3402 products are wireless network products that use orthogonal frequency-division multiplexing (OFDM) radio technology. These products are designed to be inter-operable with any other wireless OFDM type product that complies with:

- The IEEE 802.11 Standard on Wireless LANs (Revision A, Revision N, and Revision AC),, as defined and approved by the Institute of Electrical Electronics Engineers.
- The Wireless Fidelity (WiFi) certification as defined by the Wi-Fi Alliance.

WIRELESS LAN AND YOUR HEALTH

The VAP3400/3402, like other radio devices, emit radio frequency electromagnetic energy, but operate within the guidelines found in radio frequency safety standards and recommendations.

RESTRICTIONS ON USE OF WIRELESS DEVICES

In some situations or environments, the use of wireless devices may be restricted by the proprietor of the building or responsible representatives of the organization. For example, using wireless equipment in any environment where the risk of interference to other devices or services is perceived or identified as harmful.

If you are uncertain of the applicable policy for the use of wireless equipment in a specific organization or environment, you are encouraged to ask for authorization to use the device prior to turning on the equipment.

The manufacturer is not responsible for any radio or television interference caused by unauthorized modification of the devices included with this product, or the substitution or attachment of connecting cables and equipment other than specified by the manufacturer. Correction of interference caused by such unauthorized modification, substitution, or attachment is the responsibility of the user.

The manufacturer and its authorized resellers or distributors are not liable for any damage or violation of government regulations that may arise from failing to comply with these guidelines.

FCC CERTIFICATION

The VAP3400/3402 contains a radio transmitter and accordingly has been certified as compliant with 47 CFR Part 15 of the FCC Rules for intentional radiators. Products that contain a radio transmitter are labeled with an FCC ID and the FCC logo.

INNOVATION, SCIENCE, AND ECONOMIC DEVELPMENT CANADA (ISED) STATEMENT:

This device complies with Industry Canada's license-exempt RSS-247. 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.

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;

2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Caution

(i) the device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;

(ii) the maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall comply with the e.i.r.p. limit; and

(iii) the maximum antenna gain permitted for devices in the band 5725-5825 MHz shall comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate.

Operations in the 5.25-5.35GHz band are restricted to indoor usage only.

Users should also be advised that high-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.

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Avertissement:

(i) les dispositifs fonctionnant dans la bande de 5150 à 5250MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux;

(ii) le gain maximal d'antenne permis pour les dispositifs utilisant les bandes de 5250 à 5350MHz et de 5470 à 5725 MHz doit être conforme à la limite de la p.i.r.e;

(iii) le gain maximal d'antenne permis (pour les dispositifs utilisant la bande de 5725 à 5850 MHz) doit être conforme à la limite de la p.i.r.e. spécifiée pour l'exploitation point à point et l'exploitation non point à point, selon le cas;

Les opérations dans la bande de 5.25-5.35GHz sont limités à un usage intérieur seulement

Radiation Exposure Statement:

This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body.

Déclaration d'exposition aux radiations:

Cet équipement est conforme Canada limites d'exposition aux radiations dans un environnement non contrôlé. Cet équipement doit être installé et utilisé à distance minimum de 20cm entre le radiateur et votre corps.

Antenna information	Antenna		Peak gain (dBi)			
Model	Type	Connector	5.15~525GHz	5.25~5.35GHz	5.47~5.725GHz	5.725~5.85GHz
(1) Mag.Layers - A8-A006-00121	PCB	MHF PLUG	0	0	0	0.1
(1) Mag.Layers -A8-A006-00121	PCB	MHF PLUG	0	0	0	0.1
(1) Mag.Layers -A8-A006-00120	PCB	MHF PLUG	0	0	0	0.1
(1) Mag.Layers -A8-A006-00120	PCB	MHF PLUG	0	0	0	0.1
(2) Airgain - N5X20SC-PK1-G65U	PCB	MHF PLUG	0	0	-0.1	0
(2)Airgain - N5X20SC-PK1-G65U	PCB	MHF PLUG	0	0	-0.1	0
(2)Airgain - N5X20SC-PK1-G100U	PCB	MHF PLUG	0	0	-0.1	0
(2)Airgain - N5X20SC-PK1-G100U	PCB	MHF PLUG	0	0	-0.1	0

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