



# PA421B PA821B

## Antenna Combiner

Shure PA421B PA821B Antenna Combiner online user guide. Includes how to use multiple transmitters and combiners with an antenna and specifications

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# PA421B PA821B Antenna Combiner

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## IMPORTANT SAFETY INSTRUCTIONS

1. READ these instructions.
2. KEEP these instructions.
3. HEED all warnings.
4. FOLLOW all instructions.
5. DO NOT use this apparatus near water.
6. CLEAN ONLY with dry cloth.
7. DO NOT block any ventilation openings. Allow sufficient distances for adequate ventilation and install in accordance with the manufacturer's instructions.
8. DO NOT install near any heat sources such as open flames, radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat. Do not place any open flame sources on the product.
9. DO NOT defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. PROTECT the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. ONLY USE attachments/accessories specified by the manufacturer.
12. USE only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



13. UNPLUG this apparatus during lightning storms or when unused for long periods of time.
14. REFER all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. DO NOT expose the apparatus to dripping and splashing. DO NOT put objects filled with liquids, such as vases, on the apparatus.
16. The MAINS plug or an appliance coupler shall remain readily operable.
17. The airborne noise of the Apparatus does not exceed 70dB (A).
18. Apparatus with CLASS I construction shall be connected to a MAINS socket outlet with a protective earthing connection.
19. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
20. Do not attempt to modify this product. Doing so could result in personal injury and/or product failure.
21. Operate this product within its specified operating temperature range.



This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.



This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.

### Waste Electrical and Electronic Equipment (WEEE) Directive



In the European Union and the United Kingdom, this label indicates that this product should not be disposed of with household waste. It should be deposited at an appropriate facility to enable recovery and recycling.

### Federal Communications Commission RF Exposure Notice:

Antennas used for the purpose of radiating signals are limited to a maximum gain of 14 dBi. Each antenna must be positioned to observe minimum separation requirements from all users and bystanders. The following guidelines should be used when considering separation distances.

Antennas must be placed such that, under normal conditions, personnel cannot come within 72 cm (~2.5 ft.) from any antenna. Adhering to this minimum separation will ensure that the employee or bystander cannot exceed RF exposures beyond the maximum permissible limit as defined by 47 CFR 1.1310, i.e., limits for General Population/Uncontrolled Exposure.

**WARNING:** Voltages in this equipment are hazardous to life. No user-serviceable parts inside. Refer all servicing to qualified service personnel. The safety certifications do not apply when the operating voltage is changed from the factory setting.

**Note:** Use only with the included power supply or a Shure-approved equivalent.

## General Description

Shure antenna combiners actively combine RF outputs from multiple wireless IEM transmitters to a single antenna, improving RF performance and conserving rack space.

## Features

- Reduction of intermodulation artifacts for cleaner RF environment
- Wideband operation (470-865 MHz or 865-960 MHz)
- Daisy-chain up to 2 combiners with the expansion port.
- Provide DC power to compatible IEM transmitters.
- LED indications of signal presence, signal overload and current draw

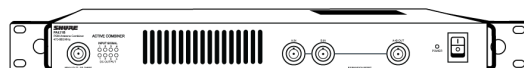
## Model Variations

Shure antenna combiners for Shure IEM wireless personal monitoring systems are available in four-channel and eight-channel rackmountable configurations.

Model	Frequency Range	RF Inputs	DC Power Outlets
PA421B	470-865 MHz	4	4
PA421BX	865-960 MHz	4	4
PA821B	470-865 MHz	8	0
PA821BX	865-960 MHz	8	0

The antenna combiners are available in two frequency ranges. The RF inputs allow up to four or eight (model dependent) IEM systems to share a single antenna. The DC power outlets and supplied power cables allow you to distribute power to up to four compatible IEM systems without requiring external power supplies.

# Included Components



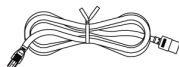
Antenna Combiner



2 ft. DC Power Output Cables\*



11 in. BNC Jumper Cables



IEC Power Cable

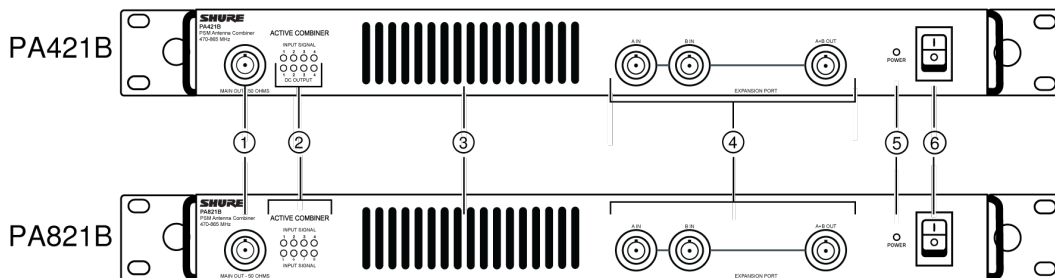


22 in. BNC Cables\*\*

\*(4) 2 ft. DC power output cables are included with four-channel combiners only.

\*\*The four-channel combiners come with (4) 22 in. BNC cables. The eight-channel combiners come with (8) 22 in. BNC cables.

## Front Panels

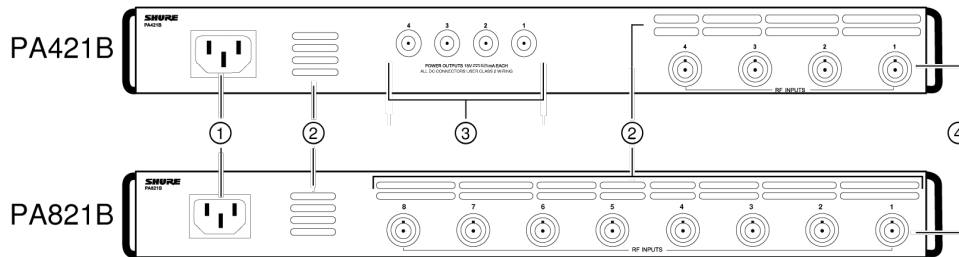


<p>① Main Out Antenna Connector</p>	<p>Use the antenna supplied with the transmitter, or any other Shure passive antenna that matches the RF operating range.</p>
<p>② LED Indicators</p>	<p>The LED indicators on the PA421B and PA421BX display RF signal and DC current draw. The LED indicators on the PA821B and PA821BX display RF signal only. See the section on LED Indicators for more information.</p>
<p>③ Fan Vents</p>	<p>For system cooling.</p>
<p>④ Expansion Port</p>	<p>Connect an IEM transmitter or another combiner to share a single antenna. See the Using Multiple Antenna Combiners with a Single Antenna section for connection information.</p>
<p>⑤ Power LED</p>	<p><b>Green:</b> Combiner is powered on  <b>Red:</b> Indicates fan fault  <b>Green/red flashing:</b> Maximum temperature has been exceeded</p>

**Warning!** If maximum temperature has been exceeded, attention is required. Allow the combiner to cool. If condition persists, send the unit to Shure Service and Repair.

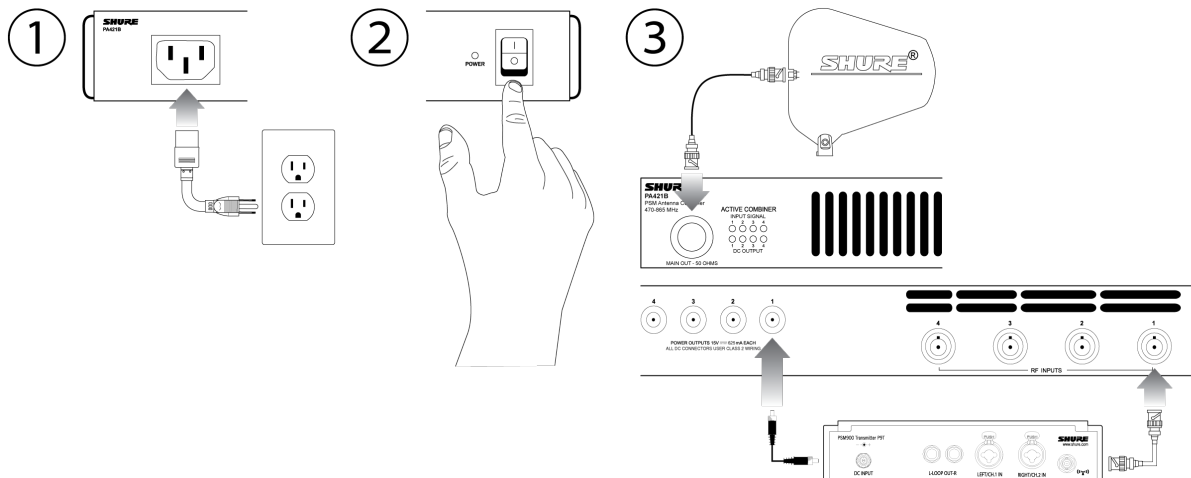
⑥ Power Switch

## Rear Panels



① Power Input	Connects unit to AC power.
② Exhaust Air Vents	For system cooling.
③ DC Power Outputs	Available on the PA421B and PA421BX models for powering compatible transmitters
④ RF Inputs	<b>PA421B:</b> Connect up to 4 IEM transmitter outputs <b>PA821B:</b> Connect up to 8 IEM transmitter outputs

## Installation



## Rack Mount Instructions

- If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Keep the rack environment temperature at or below the maximum ambient temperature (T<sub>ma</sub>) specified by the manufacturer of the installed equipment.
- Provide the proper amount of air flow inside the rack as required for safe operation of the equipment.
- Do not create a hazardous condition by mounting the equipment in the rack with an uneven mechanical load.
- When connecting the equipment to the supply circuit, consider the effect that overloading of the circuits might have on over-current protection and supply wiring. Consider all equipment nameplate ratings when addressing this concern.
- Maintain reliable earthing of rack-mounted equipment. Give particular attention to indirect supply connections to the branch circuit (e.g., power strips).

## LED Indicators

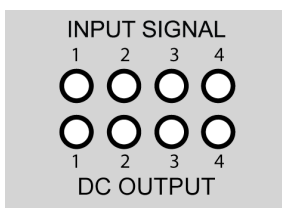
### PA421B and PA421BX

The top 4 RF LED indicators display input signal presence.

- **Green** = active
- **Red** = RF input signal overload
- **Off** = inactive

The bottom 4 LEDs indicate current draw for each DC output.

- **Green** = Device is powered on.
- **Red** = Current overload.
- **Off** = inactive

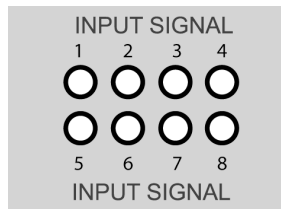


*PA421B and PA421BX*

### PA821B and PA821BX

The PA821B and PA821BX antenna combiners allow up to 8 transmitters to share a single antenna. RF LED indicators display input signal presence.

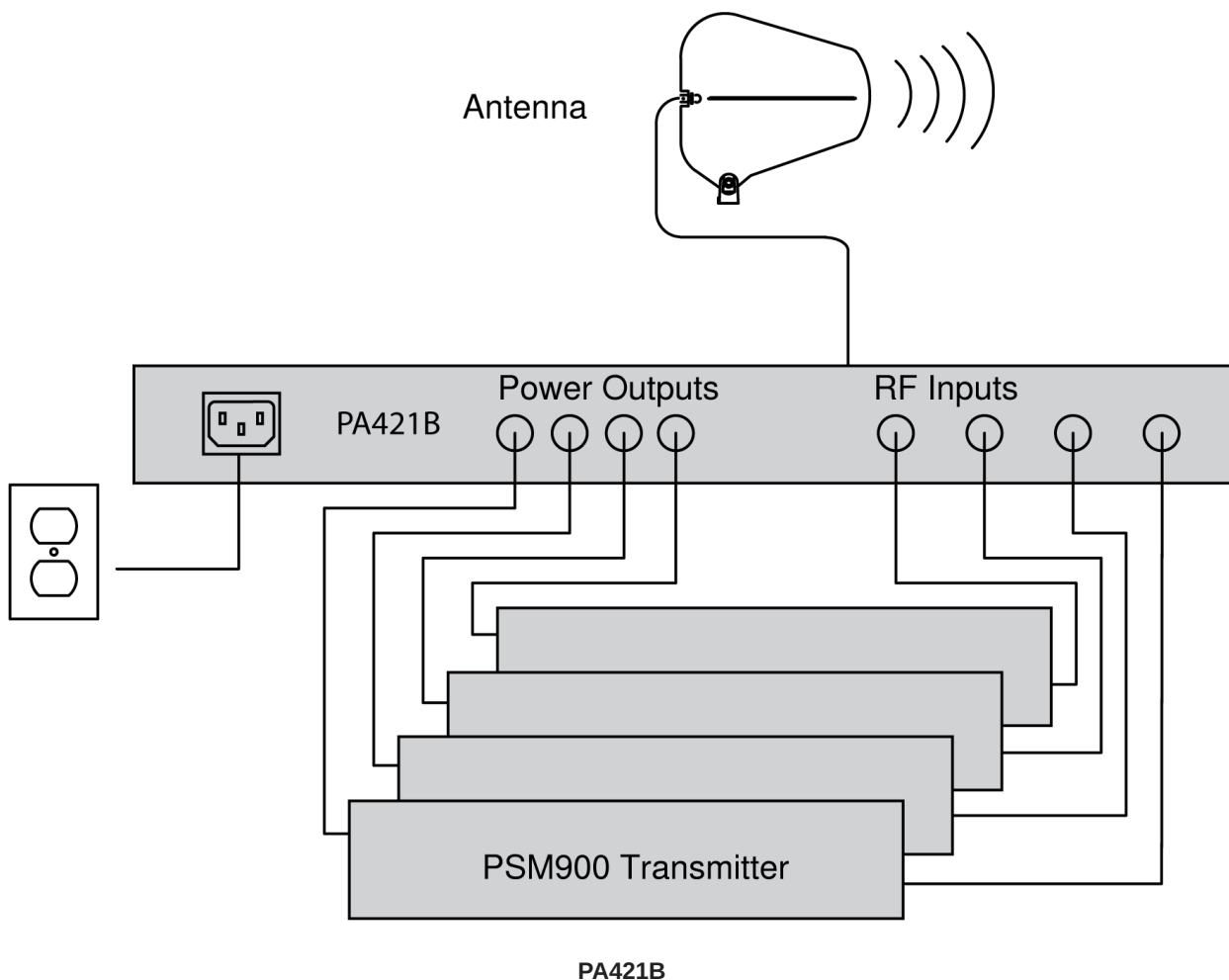
- **Green** = active
- **Red** = RF input signal overload
- **Off** = inactive



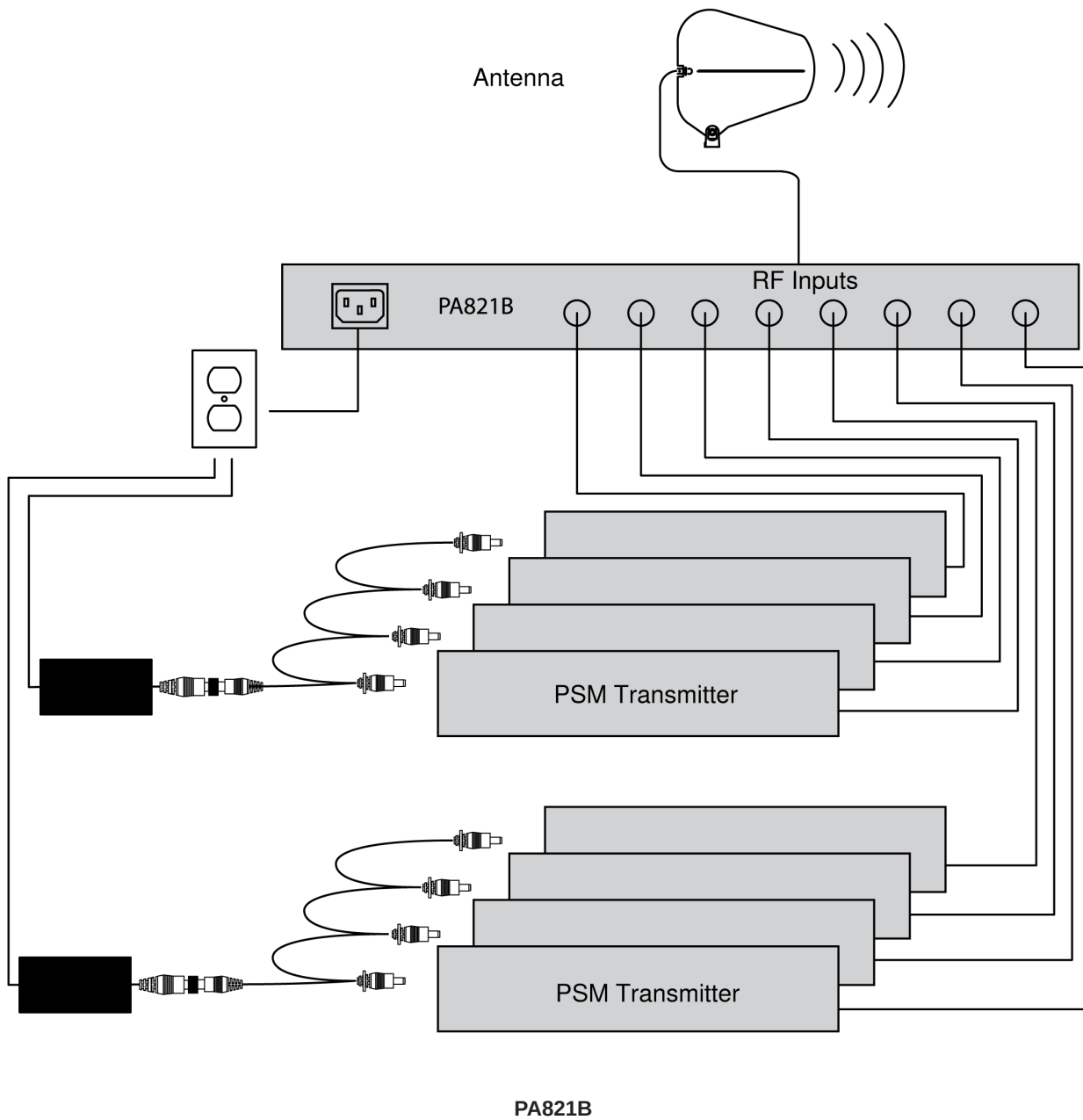
PA821B and PA821BX

**Note:** A minimum of RF signal is required to activate the channel. See Specifications page for more information.

## Using Multiple Transmitters with a Single Antenna

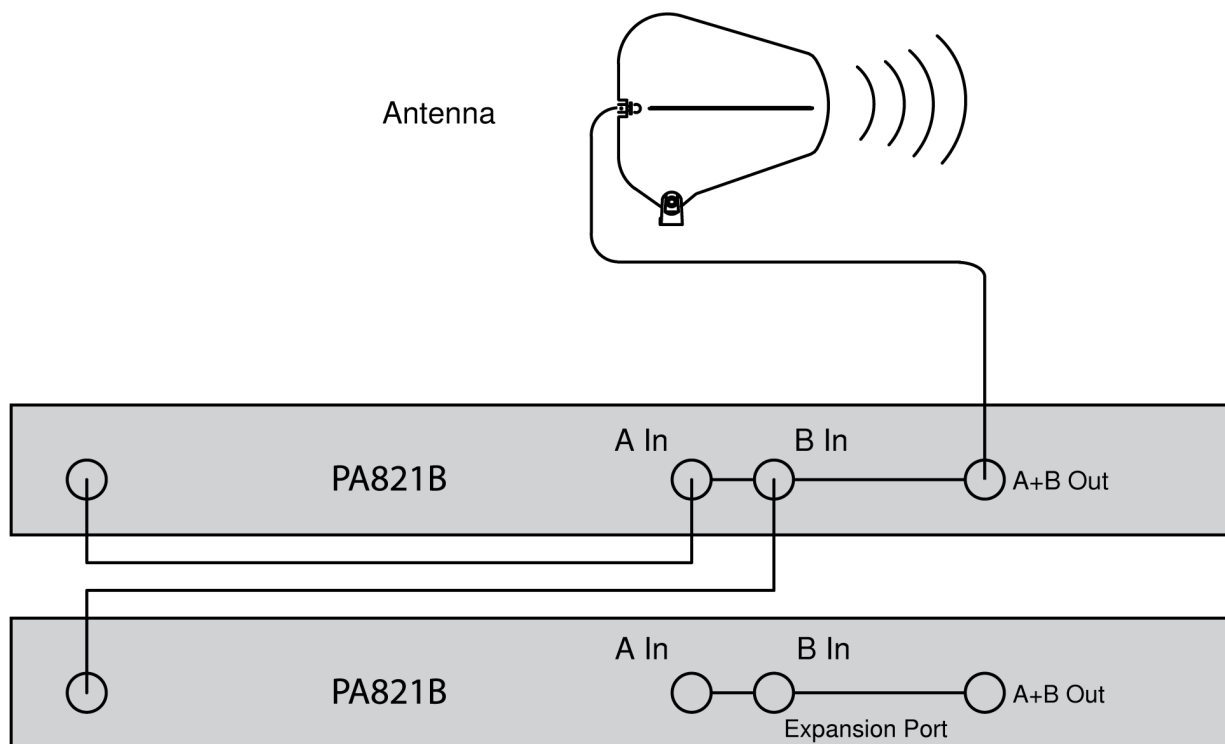






**Note:** Use external power supplies or an optional power distribution cable to supply power to additional transmitters. The PA821B and PA821BX combiners do not supply DC power.

# Using Multiple Antenna Combiners with a Single Antenna



## Specifications

### Dimensions

43 x 401 x 365 mm (1.7 x 15.8 x 14.4 in.), H x W x D

### Weight

<b>PA421B, PA421BX</b>	4.3 kg (9.5 lbs)
<b>PA821B, PA821BX</b>	4.8 kg (10.5 lbs)

### Operating Temperature Range

-18°C (0°F) to 63°C (145°F)

### Power Requirements

100 to 240 V AC, 50-60 Hz

### Current Drain

<b>PA421B, PA421BX (referenced at 100 V AC)</b>	1.09 A (109 VA)
<b>PA821B, PA821BX (referenced at 100 V AC)</b>	1.59 A (159 VA)

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## Power Consumption

<b>PA421B, PA421BX</b>	98 W max.
<b>PA821B, PA821BX</b>	143 W max.

## RF Input

### Connector Type

BNC

### Configuration

Active

### Impedance

50  $\Omega$

### RF Gain

0 dB ( $\pm 2$  dB)

### RF Input Normal Operating Range

up to +20 dBm max., protected up to +24 dBm

### LED Indicator Minimum Detection Threshold to Activate Channel

2.5 dBm

### LED Indicator Overload Threshold

>24 dBm

## Main Output

### Connector Type

BNC

### Impedance

50  $\Omega$

## Expansion Port

### Connector Type

BNC

### Configuration

Passive

### Impedance

50  $\Omega$

## Insertion Loss

<4 dB

## DC Outputs (PA421B, PA421BX)

### Output Voltage

15 V DC

### Output Current

*per output*

660 mA max.

### Output Power

*per output*

9.9 W

## LED Indicator Minimum Detection Threshold

85 mA

## LED Overcurrent Indicator

>660 mA

## RF Frequency Range

Band	Frequency Range
PA421B	470-865 MHz
PA421BX	865-960 MHz
PA821B	470-865 MHz
PA821BX	865-960 MHz

## Accessories

### Furnished Accessories

- (4) 22 in. BNC cables\*
- (8) 22 in. BNC cables\*\*
- (1) 11 in. BNC jumper cable
- IEC power cord\*\*\*
- (4) 2 ft. DC output power jumper cables\*

\*PA421B and PA421BX only

\*\*PA821B and PA821BX only

\*\*\*IEC power cord comes standard. Some regions come with multiple cords.

## Optional Accessories

- Passive Directional Antenna
- Passive Omnidirectional Antenna
- Helical Antenna
- BNC-terminated Coaxial Cables

## Antenna Cables from Shure

Shure offers antenna cables ranging from 6 to 100 feet.

## Wireless Accessory Wizard

The Shure Wireless Accessory Wizard is a resource to help determine the correct RF accessories for your wireless system. You provide basic information about your setup and receive item recommendations and connection diagrams.

Go to <https://www.shure.com/en-US/support/tools/wireless-accessory-wizard> to access the Wireless Accessory Wizard.

## Information to the user

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. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause interference with radio and television reception.

**Notice:** The FCC regulations provide that changes or modifications not expressly approved by Shure Incorporated could void your authority to operate this equipment.

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 or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to 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.

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.
2. This device must accept any interference received, including interference that may cause undesired operation.

The equipment is intended to be used in professional audio applications.

For information regarding responsible party and other matters relating to FCC compliance, please contact Shure Incorporated, 5800 W. Touhy Avenue, Niles, Illinois 60714-4608 U.S.A. [shure.com/contact](https://www.shure.com/contact)

**Registration, Evaluation, Authorization of Chemicals (REACH) Directive**

REACH (Registration, Evaluation, Authorization of Chemicals) is the European Union (EU) and the United Kingdom (UK) chemical substances regulatory framework. Information on substances of very high concern contained in Shure products in a concentration above 0.1% weight over weight (w/w) is available upon request.

Please consider the environment, electric products and packaging are part of regional recycling schemes and do not belong to regular household waste.

## LICENSING INFORMATION

Licensing: A ministerial license to operate this equipment may be required in certain areas. Consult your national authority for possible requirements. Changes or modifications not expressly approved by Shure Incorporated could void your authority to operate the equipment. Licensing of Shure wireless microphone equipment is the user's responsibility, and licensability depends on the user's classification and application, and on the selected frequency. Shure strongly urges the user to contact the appropriate telecommunications authority concerning proper licensing, and before choosing and ordering frequencies.

## Certifications

Conforms to electrical safety requirements based on IEC/EN 62368-1.

Certified under FCC Part 74.

Certified by ISED in Canada under RSS-123.

**FCC ID:** DD4PA421B. **IC:** 616A-PA421B.

**FCC ID:** DD4PA421BX. **IC:** 616A-PA421BX.

**FCC ID:** DD4PA821B. **IC:** 616A-PA821B.

**FCC ID:** DD4PA821BX. **IC:** 616A-PA821BX.

This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

**Notice:** The Industry Canada regulations provide that changes or modifications not expressly approved by Shure Inc. could void your authority to operate this equipment.

This product meets the applicable Innovation, Science and Economic Development Canada technical specifications. Certified by ISED in Canada under RSS-247 and RSS-GEN.

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique 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'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

### CE Notice:

Hereby, Shure Incorporated declares that this product with CE Marking has been determined to be in compliance with European Union requirements. The full text of the EU declaration of conformity is available at the following site: <https://www.shure.com/en-EU/support/declarations-of-conformity>.

**Authorized European Importer / Representative:**

Shure Europe GmbH  
 Department: Global Compliance  
 Jakob-Dieffenbacher-Str. 12  
 75031 Eppingen, Germany  
 Phone: +49-7262-92 49 0  
 Fax: +49-7262-92 49 11 4  
 Email: EMEAsupport@shure.de

## UKCA Notice:

Hereby, Shure Incorporated declares that this product with UKCA Marking has been determined to be in compliance with UK-CA requirements. The full text of the UK declaration of conformity is available at the following site: <https://www.shure.com/en-GB/support/declarations-of-conformity>.

### Authorized UK Importer / Representative:

Shure UK Limited  
 Unit 2, The IO Centre, Lea Road,  
 Waltham Abbey, Essex, EN9 1 AS, UK

部件名称	有害物质					
	铅	汞	镉	六价铬	多溴联苯	多溴二苯醚
电路模块	X	○	○	○	○	○
金属模块	X	○	○	○	○	○
线缆及其组件	X	○	○	○	○	○
外壳	○	○	○	○	○	○
电源适配器*	X	○	○	○	○	○
电池组*	X	○	○	○	○	○

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 X: 表示该有害物质至少在该部件某一均质材料中的含量超出 GB/T26572 规定的限量要求。  
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 \*:表示如果包含部分