

**WARNING:** This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

## 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

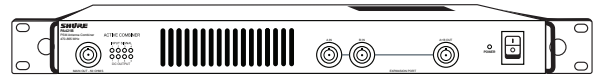
Shure antenna combiners for Shure IEM wireless personal monitoring systems are available in four-channel and eight-channel rackmountable configurations.

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.

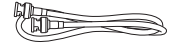
### Included Components



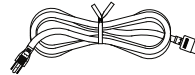
Antenna Combiner



2 ft. DC Power Output Cables\*



11 in. BNC Jumper Cables



IEC Power Cable

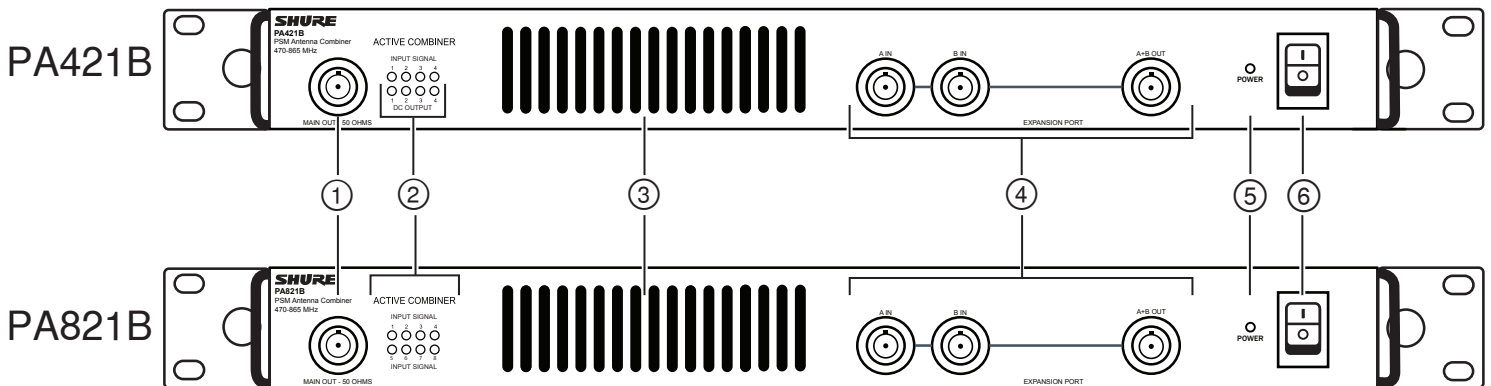


22 in. BNC Cables\*\*

\* (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



#### ① Main Out Antenna Connector

Use the antenna supplied with the transmitter, or any other Shure passive antenna that matches the RF operating range.

#### ② LED Indicators

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.

#### ③ Fan Vents

For system cooling.

#### ④ Expansion Port

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.

⑤ **Power LED**

**Green:** Combiner is powered on

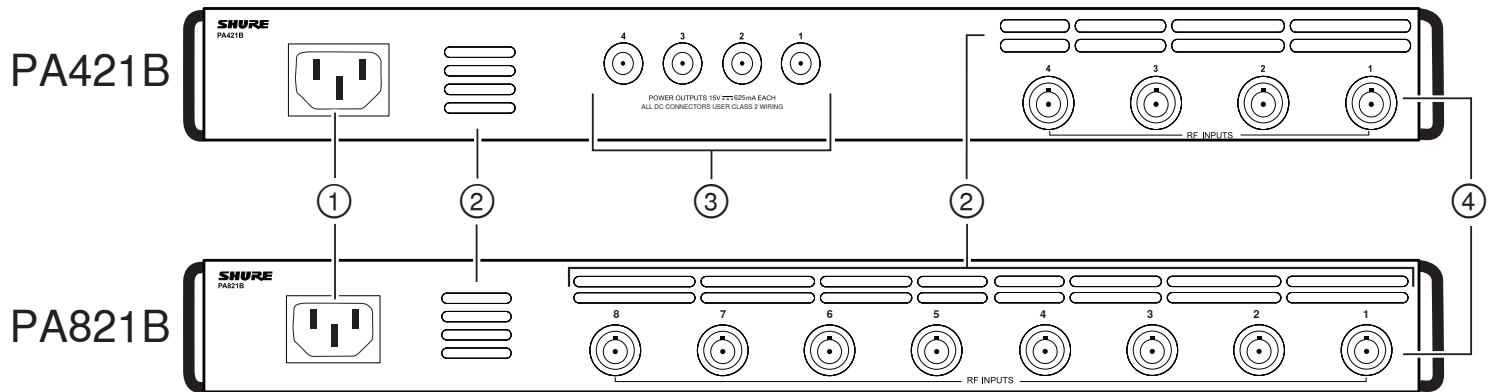
**Red:** Indicates fan fault

**Green/red flashing:** Maximum temperature has been exceeded

**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**

**PA421B:** Connect up to 4 IEM transmitter outputs

**PA821B:** Connect up to 8 IEM transmitter outputs

**Powering the Combiners**

1. Turn power off before connecting components.
2. Use the supplied power cable to connect the combiner from the power input to an AC source.
3. Turn on the power switch. The power LED will illuminate.

4. Power the unit off when not in use.

**Warning!** Opening the unit can result in permanent damage and may result in an undesirable change in performance. There are no user-serviceable parts inside.

**LED Indicators**

**PA421B and PA421BX**

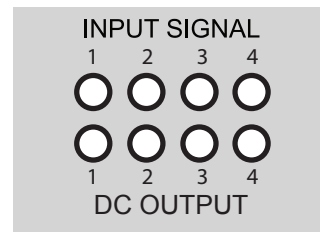
The top 4 RF LED indicators display input signal presence.

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

The PA421B and PA421BX combiners supply 15 V at up to 660 mA to each DC output. These may be used to power compatible Shure IEM transmitters.

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

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

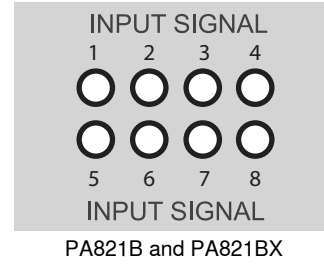


PA421B and PA421BX

**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

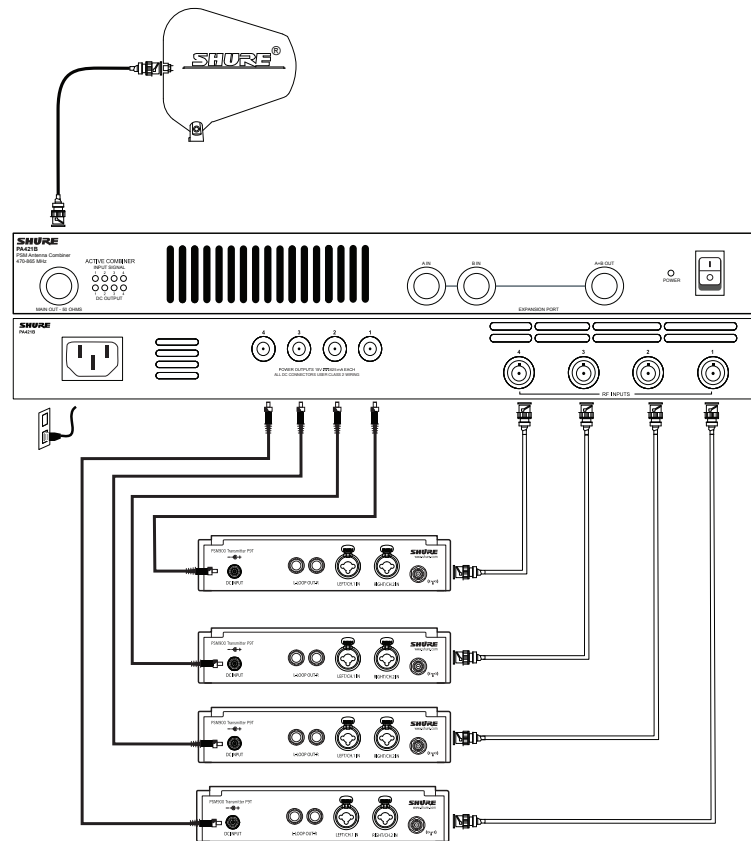


**Note:** A minimum of RF signal is required to activate the channel. See Specifications page for more information.

## Using Multiple Transmitters with a Single Antenna

1. Attach an antenna to the MAIN OUT connector of the combiner.
2. Use the supplied BNC-BNC cables to connect the antenna ports of the IEM transmitters to the RF INPUTS of the antenna combiner.
3. Use the power cables to route power from the combiner POWER OUTPUTS to the DC inputs on each compatible IEM transmitter, if applicable.

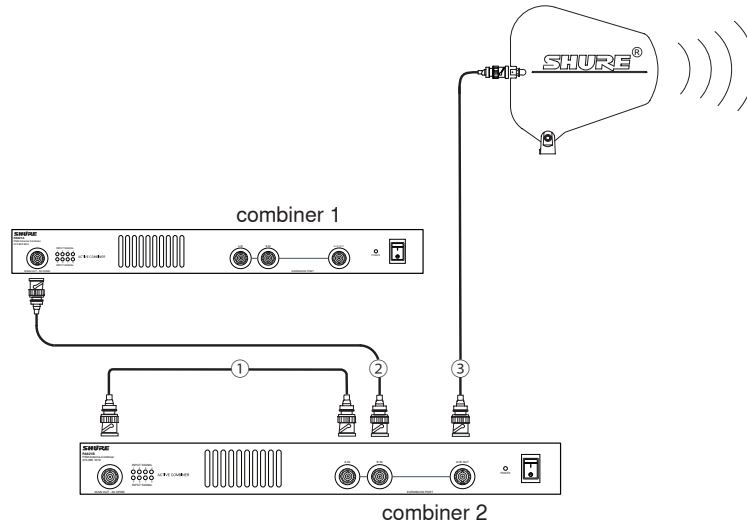
**Note:** Use external power supplies or an optional power distribution cable to supply power to additional transmitters. The PA821B and PA821BX combiners do not supply DC power.



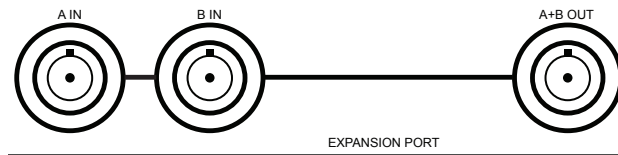
Four PSM900 transmitters using a single antenna.

## Using Multiple Antenna Combiners with a Single Antenna

Use the passive expansion port to share a single antenna with multiple combiners or transmitters.



1. Use a BNC-BNC jumper cable to connect the combiner 1 MAIN Output to the A IN of the combiner 1 expansion port.
2. Connect the antenna output from an IEM transmitter or the main output of another combiner (combiner 2) to the B IN of the expansion port on combiner 1.
3. Connect the antenna to the A + B OUT of the combiner 1 expansion port.



## Specifications

### Dimensions

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

### Weight

PA421B, PA421BX	4.3 kg (9.5 lbs)
PA821B, PA821BX	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

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

### Power Consumption

PA421B, PA421BX	98 W max.
PA821B, PA821BX	143 W max.

### RF Input

#### Connector Type

BNC

#### Configuration

Active

#### Impedance

50 Ω

#### RF Gain

0 dB (±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**

&lt;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**

&gt;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 <http://www.shure.com/wirelessaccessorywizard> to access the Wireless Accessory Wizard.

**Certifications**

Meets essential requirements of the following European Directives:

- Low Voltage Directive 2006/95/EC
- R&TTE Directive 99/5/EC

- Conforms to European Regulation (EC) No. 1275/2008, as amended.

- WEEE Directive 2002/96/EC, as amended by 2008/34/EC
  - RoHS Directive 2011/65/EU
- Note:** Please follow your regional recycling scheme for batteries and electronic waste

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.

Meets requirements of the following standards:

Conforms to electrical safety requirements based on IEC 60065.

Certified under FCC Part 74.

Certified by IC 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 RADIO EQUIPMENT IS INTENDED FOR USE IN PROFESSIONAL ENTERTAINMENT AND SIMILAR APPLICATIONS.

**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.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation of this device 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.

**Note:** EMC conformance testing is based on the use of supplied and recommended cable types. The use of other cable types may degrade EMC performance.

The CE Declaration of Conformity can be obtained from Shure Incorporated or any of its European representatives. For contact information please visit [www.shure.com](http://www.shure.com)

The CE Declaration of Conformity can be obtained from: [www.shure.com/europe/compliance](http://www.shure.com/europe/compliance)

Authorized European representative:  
 Shure Europe GmbH  
 Headquarters Europe, Middle East & Africa  
 Department: EMEA Approval  
 Jakob-Dieffenbacher-Str. 12  
 75031 Eppingen, Germany  
 Phone: +49-7262-92 49 0  
 Fax: +49-7262-92 49 11 4  
 Email: [info@shure.de](mailto:info@shure.de)

## 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 de-