# Table of Contents

- **PA411 Antenna Combiner** 3
- **Important Product Information** 3
  - **IMPORTANT SAFETY INSTRUCTIONS** 3
  - **SAFETY PRECAUTIONS** 4
- **General Description** 4
- **Included Components** 5
- **Front and Rear Panels** 5
- **Power and RF Connections** 6
- **Optional Accessories and Replacement Parts** 8
- **Specifications** 9
  - **RF Input** 9
  - **RF Output** 10
- **LICENSING INFORMATION** 10
- **Certifications** 11
PA411
Antenna Combiner

Important Product Information

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

SAFETY PRECAUTIONS
The possible results of incorrect use are marked by one of the two symbols—"WARNING" and "CAUTION"—depending on the imminence of the danger and the severity of the damage.

| ⚠️ | WARNING: Ignoring these warnings may cause severe injury or death as a result of incorrect operation. |
| ⚠️ | CAUTION: Ignoring these cautions may cause moderate injury or property damage as a result of incorrect operation. |

CAUTION

- Never disassemble or modify the device, as failures may result.
- Do not subject to extreme force and do not pull on the cable or failures may result.
- Keep the product dry and avoid exposure to extreme temperatures and humidity.

WARNING

- If water or other foreign objects enter the inside of the device, fire or electric shock may result.
- Do not attempt to modify this product. Doing so could result in personal injury and/or product failure.

This device is able to produce sound volume higher than 85 dB SPL. Please check your maximum allowed continuous noise exposure level based on your national employment protection requirements.

LISTENING TO AUDIO AT EXCESSIVE VOLUMES CAN CAUSE PERMANENT HEARING DAMAGE. USE AS LOW A VOLUME AS POSSIBLE. Over exposure to excessive sound levels can damage your ears resulting in permanent noise-induced hearing loss (NIHL). Please use the following guidelines established by the Occupational Safety Health Administration (OSHA) on maximum time exposure to sound pressure levels before hearing damage occurs.

<table>
<thead>
<tr>
<th>90 dB SPL</th>
<th>95 dB SPL</th>
<th>100 dB SPL</th>
<th>105 dB SPL</th>
</tr>
</thead>
<tbody>
<tr>
<td>at 8 hours</td>
<td>at 4 hours</td>
<td>at 2 hours</td>
<td>at 1 hour</td>
</tr>
<tr>
<td>110 dB SPL</td>
<td>115 dB SPL</td>
<td>120 dB SPL</td>
<td></td>
</tr>
<tr>
<td>at ½ hour</td>
<td>at 15 minutes</td>
<td></td>
<td>Avoid or damage may occur</td>
</tr>
</tbody>
</table>
General Description

The Shure PA411 Antenna Combiner distributes DC power and RF signal for up to four Shure PSM™ 300 transmitters. The compact half-rack system significantly reduces the amount of antennas and power supplies needed when using multiple systems.

Included Components

- (1) PA411 Antenna Combiner
- (1) 1-to-4 Power Distribution Cable
- (1) PS60 Power Supply
- (1) Rack Mounting Kit
- (1) BNC Bulkhead Adapter
- (4) 22-inch BNC-BNC Coaxial Cables

*Note: Antenna is not included. Please use the antenna that shipped with the PSM transmitters or other antenna from the appropriate frequency range.*

Front and Rear Panels

<table>
<thead>
<tr>
<th></th>
<th>RF Output Antenna Connector</th>
<th>Use the ¼ wave antenna supplied with the P3T transmitter, or any other Shure antennas that cover 470-865 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RF LED Indicators</td>
<td>Green: RF signal present&lt;br&gt;Red: RF signal overload</td>
</tr>
</tbody>
</table>
| Power LED | Green: Power on  
Green/red flashing: Power output overload |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Switch</td>
<td></td>
</tr>
<tr>
<td>Power Input</td>
<td>Requires a Shure PS60 power supply</td>
</tr>
<tr>
<td>Power Output</td>
<td>Requires a Shure PS411-PC power distribution cable to deliver power to transmitters</td>
</tr>
<tr>
<td>RF Inputs</td>
<td>Connect to transmitter RF outputs</td>
</tr>
</tbody>
</table>

**Power and RF Connections**

1. Connect the Shure PS60 power supply to a power outlet and to the power input on the PA411.
2. Connect the 1-to-4 power cable to the DC power output on the PA411.
3. Connect a power terminal from the 1-to-4 power cable to each P3T transmitter power input.
4. Connect an antenna to the P3T antenna output on the front panel. Acceptable antennas include the ¼-wave antenna supplied with the P3T transmitter or any Shure antennas that cover 470-865 MHz.
5. Connect each P3T antenna output to an antenna input on the PA411, using BNC coaxial cable.
Optional Accessories and Replacement Parts

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-to-4 Power Distribution Cable</td>
<td>PS411-PC</td>
</tr>
<tr>
<td>22 in. BNC-BNC Coaxial Cable</td>
<td>95K2035</td>
</tr>
<tr>
<td>2 ft. BNC-BNC Coaxial Cable</td>
<td>UA802</td>
</tr>
<tr>
<td>6 foot (1.8m) BNC to BNC Coaxial Cable for Remote Antenna Mounting for ULX Wireless System</td>
<td>UA806</td>
</tr>
<tr>
<td>25 ft. BNC-BNC Coaxial Cable</td>
<td>UA825</td>
</tr>
<tr>
<td>50 ft. BNC-BNC Coaxial Cable</td>
<td>UA850</td>
</tr>
<tr>
<td>100 ft. BNC-BNC Coaxial Cable</td>
<td>UA8100</td>
</tr>
<tr>
<td>Power supply</td>
<td>PS45</td>
</tr>
<tr>
<td>Bulkhead Adapter</td>
<td>95A8994</td>
</tr>
<tr>
<td>1/4 Wave Antenna (748–865 MHz) for SLX Wireless System</td>
<td>UA400</td>
</tr>
<tr>
<td>1/4 wave antenna (470-752 MHz)</td>
<td>UA400B</td>
</tr>
<tr>
<td>1/2 wave antenna (470-530 MHz)</td>
<td>UA8-470-530</td>
</tr>
<tr>
<td>1/2 wave antenna (500-560 MHz)</td>
<td>UA8-500-560</td>
</tr>
<tr>
<td>1/2 wave antenna (518-578 MHz)</td>
<td>UA8-518-578</td>
</tr>
<tr>
<td>1/2 wave antenna (518-582 MHz)</td>
<td>UA8-518-582</td>
</tr>
<tr>
<td>1/2 wave antenna (518-598 MHz)</td>
<td>UA8-518-598</td>
</tr>
<tr>
<td>1/2 wave antenna (554-590 MHz)</td>
<td>UA8-554-590</td>
</tr>
<tr>
<td>1/2 wave antenna (554-626 MHz)</td>
<td>UA8-554-626</td>
</tr>
<tr>
<td>1/2 wave antenna (554-638 MHz)</td>
<td>UA8-554-638</td>
</tr>
<tr>
<td>1/2 wave antenna (578-638 MHz)</td>
<td>UA8-578-638</td>
</tr>
<tr>
<td>1/2 wave antenna (596-668 MHz)</td>
<td>UA8-596-668</td>
</tr>
<tr>
<td>1/2 wave antenna (596-698 MHz)</td>
<td>UA8-596-698</td>
</tr>
<tr>
<td>1/2 wave antenna (596-714 MHz)</td>
<td>UA8-596-714</td>
</tr>
<tr>
<td>1/2 wave antenna (600-666 MHz)</td>
<td>UA8-600-666</td>
</tr>
<tr>
<td>1/2 wave antenna (626-698 MHz)</td>
<td>UA8-626-698</td>
</tr>
<tr>
<td>1/2 wave antenna (638-698 MHz)</td>
<td>UA8-638-698</td>
</tr>
<tr>
<td>1/2 wave antenna (670-742 MHz)</td>
<td>UA8-670-742</td>
</tr>
</tbody>
</table>
### Specifications

**Power Requirements**
15V DC

**DC Output**
12V DC (x4)

**Output Current**
*Combined total from all DC outputs*
1.4 A, maximum

**Operating Temperature Range**
−18°C to 63°C

**Dimensions**
42 x 177 x 198 mm (H x W x D)

**Net Weight**
1.32 kg (2.9 lbs)

**RF Input**

*Connector Type*
BNC

*RF Frequency Range*
470 to 865 MHz

*Maximum Input Level*
20 dBm Per Channel

*Input Port Isolation*
50 dB, typical

<table>
<thead>
<tr>
<th>1/2 wave antenna (710-790 MHz)</th>
<th>UA8-710-790</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2 wave antenna (740-814 MHz)</td>
<td>UA8-740-814</td>
</tr>
<tr>
<td>1/2 wave antenna (750-822 MHz)</td>
<td>UA8-750-822</td>
</tr>
<tr>
<td>1/2 wave antenna (774-865 MHz)</td>
<td>UA8-774-865</td>
</tr>
<tr>
<td>Single Rack Mount Kit</td>
<td>RPW503</td>
</tr>
<tr>
<td>Dual Rack Mount Kit</td>
<td>RPW504</td>
</tr>
</tbody>
</table>
RF Input Power  
*Operating Range, Per Channel*  
4.5 to 15 dBm

LED Indicator Minimum Detection Threshold  
3 dBm ±1.5 dB

RF Overload LED Threshold  
17.5 dBm ±1 dB

Impedance  
50 Ω

RF Output  
RF Frequency Range  
470 to 865 MHz

Output Intercept Point (OIP3)  
48 dBm, typical

Connector Type  
BNC

Impedance  
50 Ω

Reverse Isolation  
*Output to Input*  
40 dB, typical

Gain  
*Input to any output port*  
−5 to 0 dB

**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.

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.

**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.

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**Certifications**

Meets essential requirements of the following European Directives:

- Low Voltage Directive 2006/95/EC

Conforms to the relevant requirements of regulation (EC) No.278/2009, for low voltage external power supplies.

- R&TTE Directive 99/5/EC


- 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

Meets requirements of the following standards:

EN 300 422 Parts 1 and 2
EN 301 489 Parts 1 and 9
Certified under FCC Part 74.
Certified by IC in Canada under RSS-123 and RSS-102.

**FCC ID:** DD4PA411A.  **IC:** 616A-PA411A.

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

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

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