


## ANTENNA DISTRIBUTION SYSTEM USER'S GUIDE

## SAFETY 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. Install in accordance with the manufacturer's instructions.
8. DO NOT install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
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.



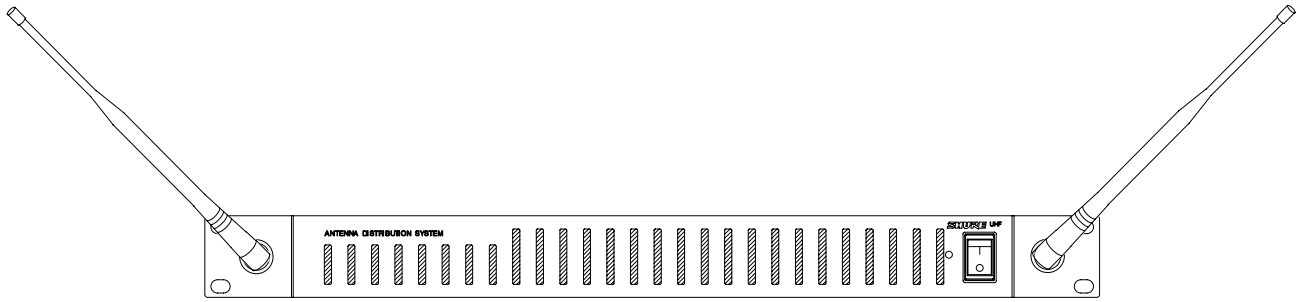
This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.



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

## MODEL UA845 ANTENNA DISTRIBUTION SYSTEM

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The Shure Model UA845 is an amplified, UHF Antenna Distribution System that expands a wireless microphone system by splitting one pair of antennas to multiple Shure U4 or Shure UC4 wireless receivers. It also amplifies RF signals to compensate for insertion loss due to splitting signal power to multiple output connectors. Each UA845 allows up to four receivers to use the same antennas. CASCADE connectors allow connections to a fifth receiver or a second UA845. There are also power connectors for powering Shure UHF and UC Wireless systems.

Each system contains the following items:

- **UA845 Antenna Distribution System**
- Rack-mounting hardware
- Surface-mounting hardware
- Front-mounting antenna hardware
- 18-in. Power OUTPUT Cord
- Power Cord
- Antenna cables for receiver connections
- DC power cables for receiver connections to DC power connectors on UC receivers.

The Shure Model UA845 ensures maximum sensitivity and signal processing capability, providing the widest radio range possible for the largest number of wireless receivers. To get the most from this system, follow these guidelines:

- When using long runs of cable for remote-mounted antennas, use the UA830 In-Line RF Amplifier and the Shure Model UA825 or UA850 Remote Antenna Extension cables (RG-8/X or equivalent), which have low loss at UHF operating frequencies
- Locate multiple transmitters more than 3 m [10 ft] from receiving antennas

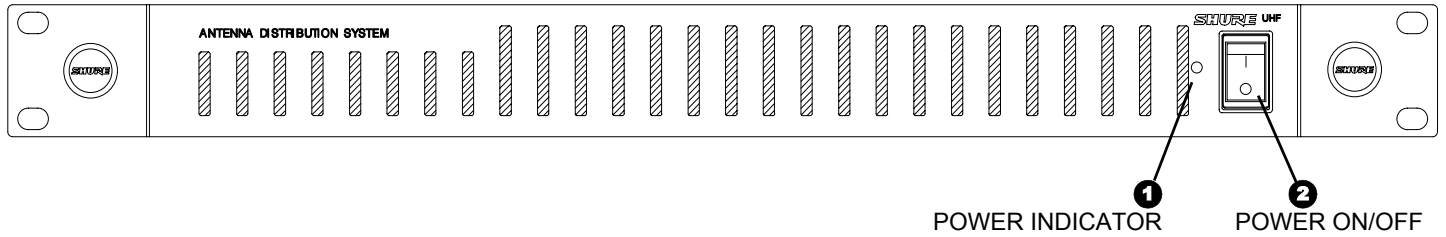
## SYSTEM FEATURES

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- **Expandability.** The UA845 UHF Antenna Distribution System is designed for large UHF wireless systems. Each unit allows up to four wireless receivers to use the same two antennas, and the CASCADE ports allow connection to a fifth receiver or a second UA845.
- **Compatibility.** The UA845 is compatible with all Shure wireless microphone receivers operating within a compatible frequency range (see *UHF Carrier Frequency Ranges* in the Specifications section).
- **CASCADE Ports.** Two 50  $\Omega$ , BNC-type antenna CASCADE ports allow an additional UA845 unit or a fifth wireless receiver. A large wireless system can be run off of a single pair of antennas.
- **Power OUTPUT and OUT Connectors.** Up to five (5) U4 receivers can be daisy-chained and powered from a single source via the Power OUTPUT connectors. Up to four (4) UC4 receivers can be powered from the UA845 using the 12 Vdc OUT connectors.
- **Low Noise and Intermodulation Distortion.** The UA845 maintains clean signals with minimal distortion.
- **Insertion Loss Compensation.** Whenever a signal is split to multiple output ports, there is a loss in signal strength. The UA845 amplifies signals to compensate, ensuring a strong signal to the receivers.
- **Front-Mounted Antennas.** The UA845 comes with hardware to front-mount the antennas, if desired.

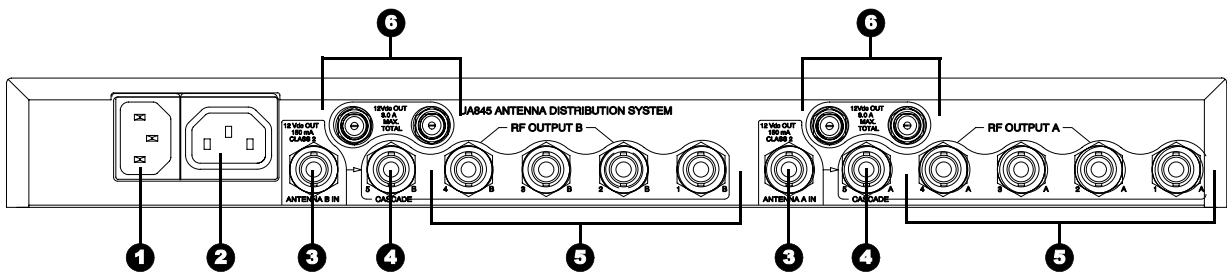
# CONTROLS AND CONNECTORS

## Front Panel



FRONT PANEL  
FIGURE 1

## Back Panel



BACK PANEL  
FIGURE 2

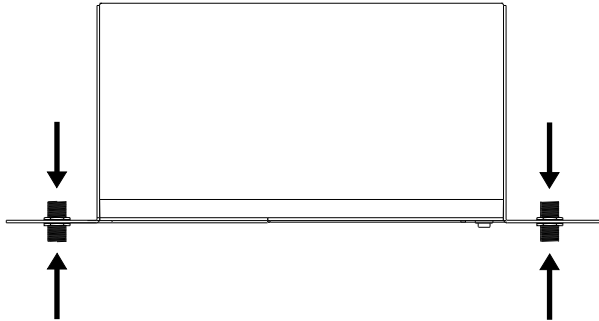
- 1 AC Power INPUT Connector.**
- 2 AC Power OUTPUT Connector.** Each UA845 has a Power OUTPUT connector for daisy-chaining up to five (5) Shure Model U4 UHF Diversity Single or Dual Receivers to a single power source.  
**NOTE:** This connector does not work for Shure UC4 Receivers.
- 3 ANTENNA IN Ports, Channel A & B.** BNC-type connectors for antennas.
- 4 RF CASCADE Connectors (Output connector 5), Channel A & B.** BNC-type connectors for adding a fifth receiver, or additional UA845's, permitting more wireless receivers to be connected.
- 5 RF OUTPUT Connectors, Channel A & B.** BNC-type connectors for up to four wireless receivers.
- 6 12 Vdc OUT Connectors.** These power connectors are designed to power up to four (4) Shure UC4 Wireless systems.

# SYSTEM INSTALLATION

## Installing Front-Mounted Antennas

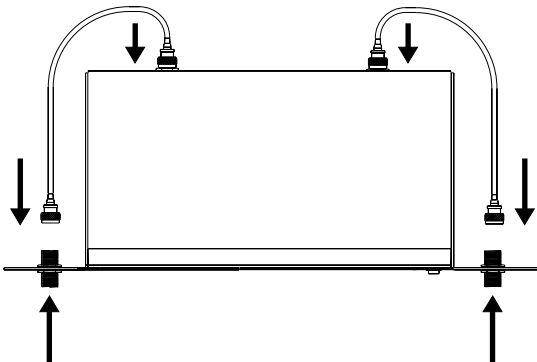
The UA845 comes equipped for front-mounted antennas. Front-mounting improves RF performance of the system by moving the antennas to the front of the rack. When a unit is located in a rack, antennas should be either front- or remote-mounted.

1. Insert the bulkhead adapters through the holes in each bracket, and secure them from each side, using the supplied hardware.



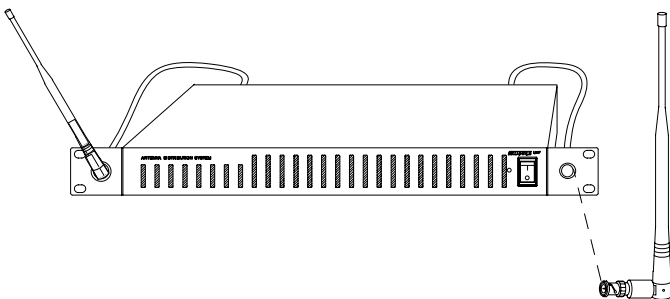
INSERTING BULKHEAD ADAPTERS  
FIGURE 3

2. Connect the supplied antenna cables to the receiver antenna inputs and adapters.



CONNECT ANTENNA CABLES  
FIGURE 4

3. Install the antennas onto the bulkhead adapters protruding through the front panel. See 5.



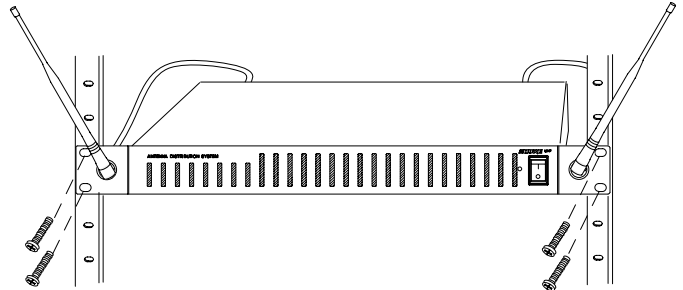
ATTACH ANTENNAS TO THE ADAPTERS  
FIGURE 5

**NOTE:** For the best results, point the antennas up and away from each other at 45° angles from vertical. This ensures the best possible reception and greatly reduces the possibility of signal dropout. Always perform a walk-through test of the system in the performing area before using a wireless system.

## Mounting the UA845 in an Equipment Rack

**NOTE:** If front mounting the antennas, connect them before mounting the UA845 in the rack. Once in the rack, it is more difficult to insert the bulkhead adapters and connect the antenna cables.

1. Insert the unit into a 19-inch equipment rack.
2. Using the screws supplied, secure the unit to the rack.

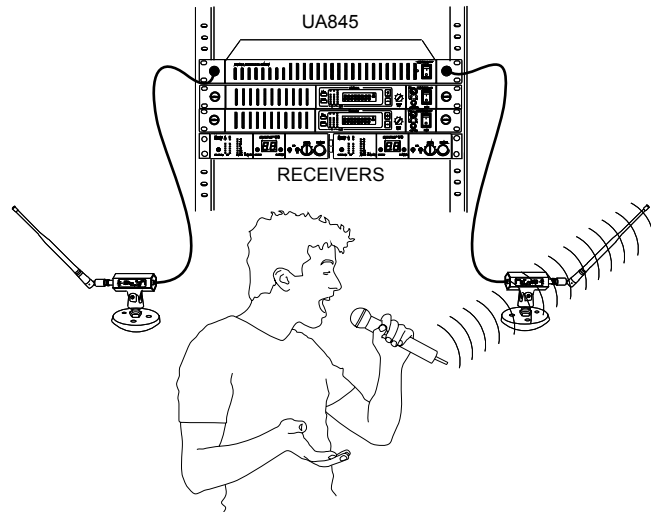


RACK MOUNTING  
FIGURE 6

3. If the antennas are remote mounted from the back of the rack, insert the supplied plastic plugs into the holes on the front of the brackets.

## Installing Remote Antennas

Remote-mounted antennas have the advantage of being free from the unit and closer to the transmitters. They can be placed anywhere within the recommended cable length, creating a much wider radio reception range and further reducing the possibility of signal dropout. When remote-mounted antennas are desirable, please ask your Shure dealer for information on the UA830 In-Line RF Amplifier. Cables are available in UA825 (7.5 m [25 ft]) and UA850 (15 m [50 ft]) versions.

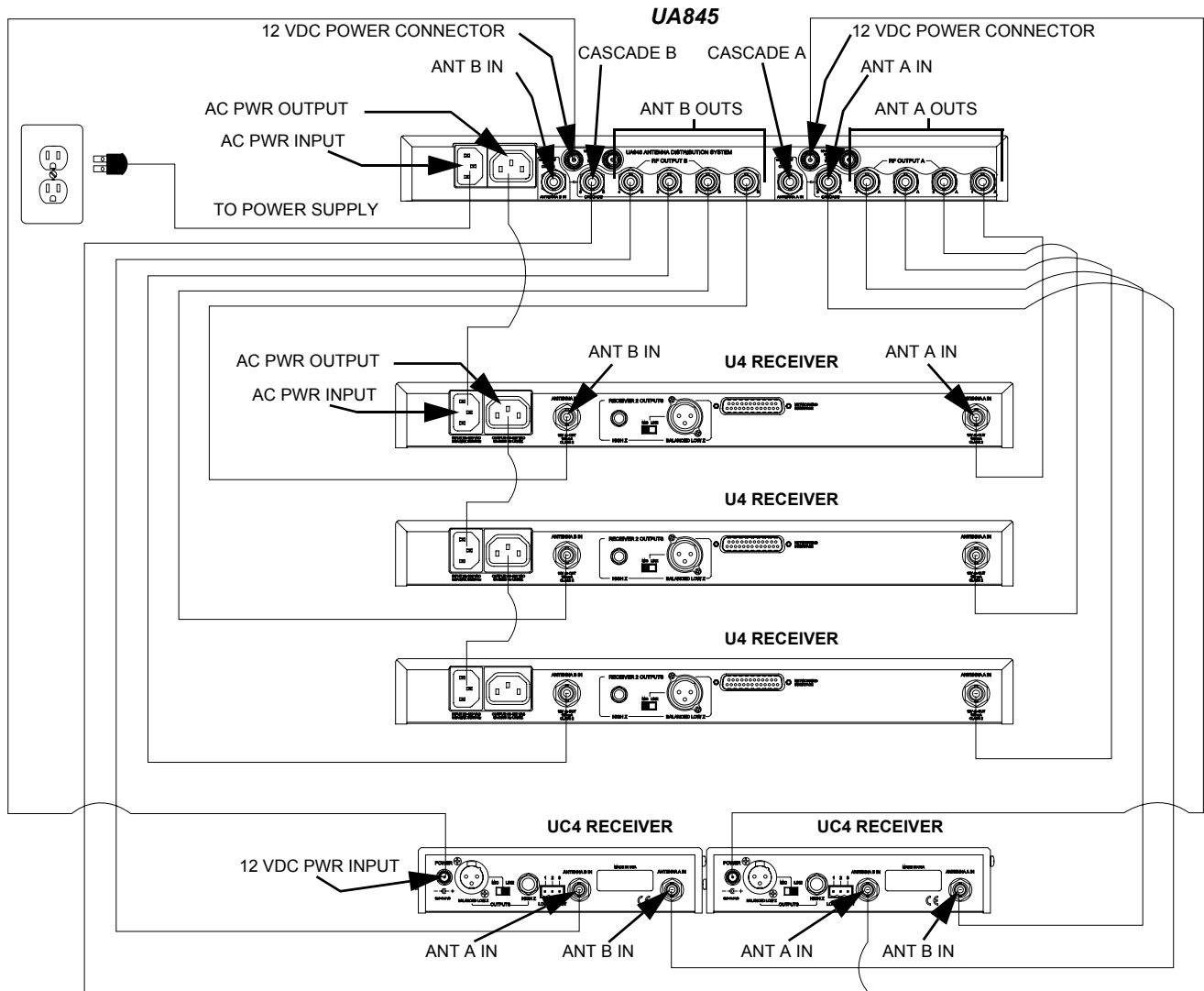


REMOTE-MOUNTED ANTENNAS  
FIGURE 7

## CONNECTING RECEIVERS

### Single UA845 Setup

- Using low-loss, 50  $\Omega$  coaxial cables (RG-58 or equivalent), connect the right and left (Channels 1 through 4, A and B) RF OUTPUT ports on the UA845 to the corresponding left and right antenna inputs on each receiver. Use the CASCADE ports to connect a fifth receiver.
- Using the supplied power cable, connect the UA845 to a power outlet.
- To daisy-chain U4 Receivers together with Power OUTPUT cables, connect the Power OUTPUT connector of the UA845 to the Power INPUT connector of one receiver. Connect the remaining receivers similarly. Connect the POWER INPUT of the unit to a power supply.  
**NOTE:** No more than five (5) Shure UHF receivers should be powered through a daisy-chain from a single UA845.
- To power Shure UC4 receivers, connect the power input ports of the UC4 receivers to the 12 Vdc OUT of the UA845. Up to four UC4 Receivers can be powered.



SINGLE UA845 SETUP  
FIGURE B

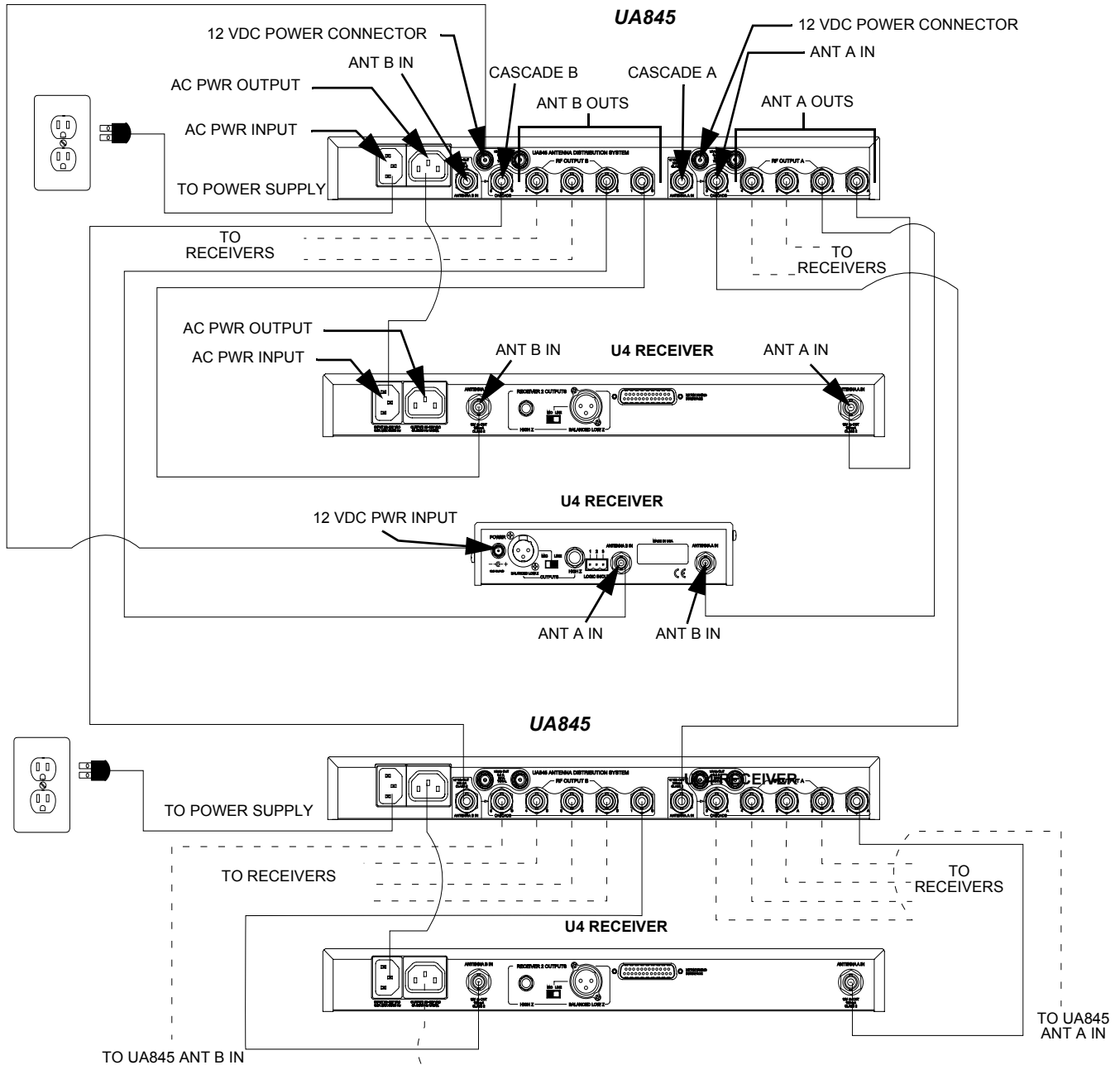
## Multiple UA845 Setup

1. Connect the CASCADE ports (connector 5) for RF OUTPUT Channels A and B of one UA845 to the ANTENNA INPUT, channels A and B, of a U4 receiver, a UC4 receiver, or a second UA845.
2. If desired, connect additional units in the same manner.
3. To daisy-chain U4 Receivers together with Power OUTPUT cables, connect the Power OUTPUT connector of the UA845 to the Power INPUT connector of one receiver. Connect the

remaining receivers similarly. Connect the POWER INPUT of the unit to an AC power supply.

**WARNING:** When adding additional UA845's to a system, each UA845 should be connected to a separate power supply. **No more than five (5) receivers can be powered from a single UA845.** Daisy-chaining multiple UA845's through the Power OUTPUT ports will overload a single power supply, possibly causing damage to the equipment.

4. To power Shure UC4 receivers, connect the power input ports of the UC4 receivers to the 12 Vdc OUT of the UA845. Up to four UC4 Receivers can be powered.



MULTIPLE UA845 SETUP  
FIGURE 9

## SPECIFICATIONS

### UHF Carrier Frequency Range

UA845-UA .....	782–806 MHz
UA845-UB .....	692–716 MHz
UA845-MA .....	782–810 MHz
UA845-MB .....	800–830 MHz
UA845-KK .....	838–862 MHz
UA845-MC .....	774–782 MHz
UA845 US .....	500–900 MHz
UA845 UK .....	500–900 MHz
UA845 E .....	500–900 MHz

### Distributed Output Level (Gain)

Models UA845-UA, UB, MA, MB, KK, MC:	
3.5 dB typical, 2.0 dB to 5.0 dB from antenna input (Output ports 1–4).	
0.5 dB typical, –1.0 dB to 2.0 dB from antenna input (Cascade port)	
Models UA845 US, UK and E:	
3 dB typical, 0 dB to 3.5 dB from antenna input (Output ports 1–4)	
1 dB typical, –1.6 dB to +1.8 dB from antenna input (Cascade port)	

### Output Connector Isolation

Greater than 25 dB

### Third Order Intercept Point (3 OIP)

Typical 24 dBm

### Input/Output AC Line Voltage

100 to 240 Vac, 50/60 Hz, unswitched

### DC Output Voltage

12 Vdc, 4 connectors

### Impedance

50  $\Omega$

### Operating Temperature Range

–7° C (+20° F) to 49° C (+120° F)

### Overall Dimensions

44.5 mm high x 482.6 mm wide x 295.3 mm deep  
(1<sup>3</sup>/<sub>4</sub> x 19 x 11<sup>5</sup>/<sub>8</sub> inches)

### Net Weight

3.32 Kg (7 lbs, 5 oz)

### Input/Output Antenna Connector Type

BNC-type

### AC Power Consumption

15 W per unit typical. When used with 4 UC4's, 55 W max.

### Certification

UA845: Listed by UL and CUL (U.S. and Canada), IC and FCC; IC Certified (Canada). Meets applicable European directives for CE marking eligibility. VDE GS-Certified. Meets Requirements of EMC Standard and 301 489 Parts 1 and 9. Meets the essential requirements of the European R&TTE Directive 99/5/EC and are eligible to carry the CE marking.

### Furnished Accessories

2 ft. Coaxial Antenna Cable (RG-58) (12) ..... UA802

### Optional Accessories

#### 1/2-Wave Antenna

UA820A .....	(774–865 MHz)
UA820B .....	(690–746 MHz)
UA820C .....	(662–698 MHz)
UA820D .....	(554–590 MHz)
UA820E .....	(746–784 MHz)

25 ft. Coaxial Cable (RG-8/X)..... UA825

50 ft. Coaxial Cable (RG-8/X)..... UA850

30.4 m (100 ft.) Antenna Extension Cable ..... UA8100

#### In-Line RF Amplifier

UA830A .....	(782–810 MHz)
UA830UB .....	(692–716 MHz)
UA830C .....	(800–830 MHz)
UA830D .....	(774–782 MHz)
UA830KK .....	(838–862 MHz)
UA830WB .....	(470–900 MHz)

#### Active Directional Antenna

UA870A .....	(782–810 MHz)
UA870MB .....	(800–830 MHz)
UA870MC .....	(774–782 MHz)
UA870KK .....	(838–862 MHz)
UA870UB .....	(692–716 MHz)
UA870WB .....	(470–900 MHz)

### Replacement Parts

Hardware Kit.....	90VL1371
Bulkhead Adapters .....	95A8647
120 VAC Power Line Cord .....	95A8389
230 VAC Power Line Cord .....	95A8247
240 VAC Power Line Cord (U.K.) .....	95A8713
120 VAC, 16-in. Power-Through Cord.....	95A8576
230 VAC, 18-in. Power-Through Cord.....	95A8678
12 Vdc Power Cables.....	95A8420

THIS RADIO EQUIPMENT IS INTENDED FOR USE IN MUSICAL PROFESSIONAL ENTERTAINMENT AND SIMILAR APPLICATIONS.

**NOTE:** THIS RADIO APPARATUS MAY BE CAPABLE OF OPERATING ON SOME FREQUENCIES NOT AUTHORIZED IN YOUR REGION. PLEASE CONTACT YOUR NATIONAL AUTHORITY TO OBTAIN INFORMATION ON AUTHORIZED FREQUENCIES FOR WIRELESS MICROPHONE PRODUCTS IN YOUR REGION



## LICENSING AND WARRANTY INFORMATION

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**Warranty.** Shure Incorporated ("Shure") hereby warrants that these products will be free from defects in material and workmanship for a period of two years from the date of purchase. At its option, Shure will repair or replace the defective product and promptly return it to you, or refund the purchase price. Retain proof of purchase to validate the purchase date and return it with any warranty claim. If you believe this product is defective within the warranty period, carefully repack the unit, insure it, and return it postpaid to:

**Shure Incorporated**  
**Attention: Service Department**  
**5800 W. Touhy Avenue**  
**Niles, IL 60714-4608 U.S.A.**

For service outside the United States, return the product to your authorized Shure Distribution Center.

All claims of defects or shortage should be directed to the above address. Please furnish model number, operating frequency, and date, place and proof of purchase (such as a copy of your sales receipt) to establish warranty. Your letter should include all pertinent details including applicable model or part numbers and a brief de-

scription of the problem. Do not mail any units or parts to Shure unless requested to do so by Shure's Service Department. Any returned items must have prior authorization. Unauthorized returns are delayed in handling; these delays can be avoided by contacting Shure in advance and furnishing the necessary information.

Shure reserves the right to make design changes and product improvements on any previously manufactured products. Shure also reserves the right to ship new and/or improved products which are similar to the form, fit and function of the originally ordered products.

**Licensing.** 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 other than standard frequencies.

## EU DECLARATION OF CONFORMITY

We,  
of

Shure Incorporated  
222 Hartrey Avenue  
Evanston, IL 60202-3696, U.S.A

Declare under our sole responsibility that the following products

Model: UA845 Description: Wireless Antenna Distribution Amplifier

Year of Manufacture: 1998

to which this Declaration relates

are in conformity with European Low Voltage Directive 73/23/EEC  
are in conformity with European EMC Directive 89/336/EEC  
are in conformity with European R&TTE Directive 1999/5/EC  
are in conformity with European CE Marking Directive 93/68/EEC

The product complies with the following product family, harmonized or national standards:

EN 301 489-1 V 1.2.1 08-2000  
EN 301 489-9 V 1.1.1 09-2000  
EN 61000-3-2:1996  
EN 61000-3-3:1994  
EN 60065

Manufacturer: Shure Incorporated

Signed  Date MARCH 22, 2002

Name, Title Craig Kozokar  
EMC Project Engineer, Corporate Quality, Shure Incorporated

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Wannenäcker Str. 28, 74078 Heilbronn, Germany  
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International Fax: 1-847-600-6446**