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**UHF Wireless System**

**USER GUIDE SUPPLEMENT**

**UB (692-716 MHz)**

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## SPECIFICATIONS

### RF Carrier Frequency Range

692–716 MHz

### Working Range

U1, U2: 152.4 m, minimum, under typical conditions; 487.6 m line of sight  
U1H: 275 m, minimum, under typical conditions; 975 m line of sight

**NOTE:** Actual working range depends on RF signal absorption, reflection and interference

### Audio Frequency Response

50 to 15,000 Hz,  $\pm 2$  dB. **NOTE:** Overall system frequency response depends on the microphone element

### Gain Adjustment Range

U1, U1H: 0 to 40 dB

U2: 0 to 26 dB

### Modulation

$\pm 45$  kHz deviation compressor-expander system with pre-and de-emphasis

### RF Power Output

U1, U2: 10 mW maximum

U1H: 50 mW maximum

### Dynamic Range

>102 dB, A-weighted

### RF Sensitivity

U4S	U4D
-110 dBm 12 dB SINAD	-107 dBm 12 dB SINAD
-105 dBm 30 dB SINAD	-102 dBm 30 dB SINAD

### Image Rejection

90 dB typical

### Spurious Rejection

75 dB typical

### Ultimate Quieting (ref. 45 kHz deviation)

>100 dB, A-weighted

### Audio Polarity

Positive pressure on microphone diaphragm (or positive voltage applied to tip of WA302 phone plug) produces positive voltage on pin 2 with respect to pin 3 of low impedance output and the tip of the high impedance  $1/4$ -inch output

### System Distortion (ref. $\pm 45$ kHz deviation, 1 kHz modulation)

0.3% Total Harmonic Distortion typical

### Power Requirements

U1, U1H, U2: 1.5V AA alkaline battery (Duracell MN1500 recommended); Nicad optional

U4: 90 to 230 Vac, 50/60 Hz

### Power Consumption:

U4S: 9.6 W min., 13.2 W max.

U4D: 12 W min., 16 W max.

UA840: 15 W min., 16 W max.

### Battery Life (Typical)

U1, U2: 12 hours (with Duracell MN1500 1.5V AA alkaline battery)

U1H: 6 hours (with Duracell MN1500 1.5V AA alkaline battery)

### Operating Temperature Range

-20° to 50° C **NOTE:** Battery characteristics may limit this range

## Overall Dimensions

U1: 92.2 mm L x 64.7 mm W x 24.2 mm D  
 U2/58: 254 mm L x 50.8 mm Dia.  
 U2/BETA 58: 254 mm L x 53.2 mm Dia.  
 U2/87: 228.6 mm x 49.2 mm Dia.  
 U2/BETA 87: 216 mm L x 50.8 mm Dia  
 U4S/U4D: 44.5 mm H x 482.6 mm W x 295.3 mm D

## Net Weight

U1, U1H: 175.2 g without battery  
 U2/58, U2/BETA 58: 375.6 g without battery  
 U2/87, U2/BETA 87: 303.1 g without battery  
 U4S: 3.30 kg  
 U4D: 3.85 kg

## Certification

U1\*, U2: FCC Part 74. BAPT Type Approved to FTZ 17TR 2019 and BAPT 122 R1; EMC Approved to ETS 300 445.  
 U4S, U4D: VDE Certified to EN 60 950. BAPT Type Approved to FTZ 17TR 2019 and BAPT 122 R1; EMC Approved to ETS 300 445. Meets Low Voltage Directive.

UHF Type Approved and EMC Approved systems are eligible to carry the CE marking.

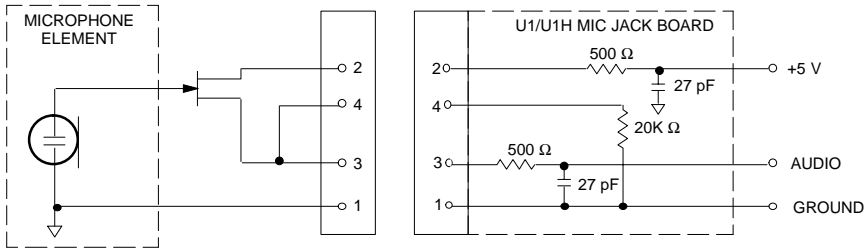
\*The U1H transmitter does not carry the same approvals as the U1 transmitter.

## U1, U1H Transmitter Input

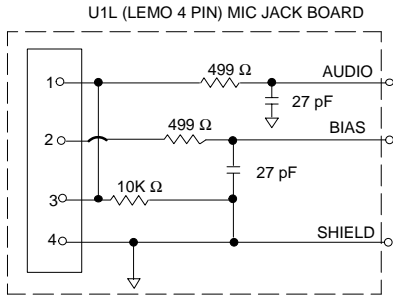
<b>Connector:</b>	Switchcraft TA4F Tini Q-G or LEMO connector (optional)
<b>Input Configuration:</b>	Unbalanced, active
<b>Actual Impedance:</b>	18 kΩ with lavalier microphone 1 MΩ with instrument cable
<b>Maximum Input Level:</b>	6 V <sub>p-p</sub> (+7 dBV) for 1% THD at minimum gain setting using 1 kHz signal.
<b>TA4F Tini Q.G. Connector Pin Assignments:</b>	Pin 1: Tied to Ground Pin 2: Tied to +5 V Pin 3: Tied to Audio Pin 4: Tied thru 20kΩ Resistor to Ground. (On instrument adapter cable, Pin 4 floats)
<b>LEMO Connector Pin Assignments:</b>	Pin 1: Tied to Pin 3 and 10 kΩ to Ground Pin 2: +5V Pin 3: Tied to Pin 1 Pin 4: Tied to Shield (Ground for Positive Bias)
<b>Voltage for Remote Power:</b>	+5 V supplied to microphone cartridge

## U1, U1H Transmitter Output (Figure 1)

<b>Connector:</b>	SMC
<b>Actual Impedance:</b>	50 Ω
<b>Nominal Output Level:</b>	+10 dBm (+17 dBm for U1H)
<b>Maximum Output Level:</b>	+11 dBm (+18 dBm for U1H)
<b>Pin Assignments:</b>	Shell = Ground Center = Signal



**NOTE:** LAVALIER MIC TIES PINS 3 AND 4 TOGETHER; GUITAR CABLE DOES NOT.



**FIGURE 1**

### U2 Transmitter Input

<b>Input Configuration:</b>	Unbalanced, active
<b>Actual Impedance:</b>	20 k $\Omega$
<b>Maximum Input Level:</b>	3 V <sub>p-p</sub> (0.5 dBV) for 1% THD at minimum gain setting using 1 kHz signal.

### U2 Transmitter Output

<b>Connector:</b>	SMC
<b>Actual Impedance:</b>	50 $\Omega$
<b>Nominal Output Level:</b>	+10 dBm
<b>Maximum Output Level:</b>	+11 dBm
<b>Pin Assignments:</b>	Shell = Ground Center = Signal

### U4S and U4D Receiver Input

Connector:	Antenna	Power Input	Network Interface
Connector Type:	BNC	IEC	25-Pin D
Actual Impedance:	50 Ω	—	—
Nominal Input Level:	-95 to -30 dBm	90-230 VAC, 50/60 Hz	CMOS Logic
Maximum Input Level:	+6 dBm (-20 dBm recommended)	230 VAC, 50/60 Hz	—
Pin Assignments:	Shell = Ground Center = Signal	IEC Standard	—
Voltage for Remote Power:	12 Vdc, 150 mA maximum	—	5V, 700 mA max.

### U4S and U4D Receiver Output

Connector:	Monitor	Power Output	High Z Audio	Low Z Audio*	Network Interface
Output Configuration:	Unbalanced mono, 1/4 inch	—	Unbalanced	Balanced	See Appendix
Actual Impedance:	300 Ω	—	1 kΩ	30 Ω	See Appendix
Nominal Input Level:	—	90 to 230 VAC, 5A	—	—	CMOS Logic
Pin Assignments:	Tip = Hot Ring = Hot Sleeve = Gnd	IEC Standard	Tip = Hot Ring/ Sleeve = Gnd	1 = Ground 2 = Hot 3 = Hot	See Appendix
Voltage/Current/Phantom Power Protection?	Yes	—	Yes	Yes	5V, 700 mA resettable polyfuse

\*Output Level: Microphone Level = Line Level - 30 dB

### FURNISHED ACCESSORIES

Microphone Stand Adapter (U2) .....	WA370A
Zipper Bag (U1) .....	26A13
Zipper Bag (U2) .....	26A14
Screwdriver .....	80A498
Coaxial Antenna Cable (2 ft) .....	UA802
1/2 Wave Antenna .....	UA820A
Transmitter Carrying Case .....	65A8257
Carrying Case Insert .....	29B1577

## OPTIONAL ACCESSORIES

Instrument Adapter Cable (U1) .....	WA302
Switchcraft TA4F Female 4-Pin Connector (U1) .....	WA330
In-Line Audio Switch (U1) .....	WA360
1.8 Meter (6 ft) Receiver-Mixer Cable (1/4" phone to XLR) .....	WA410
7.6 Meter (25 ft) Antenna Extension Cable .....	UA825
15.2 (50 ft) Meter Antenna Extension Cable .....	UA850
In-Line Active Remote Antenna Kit (800 – 830 MHz) .....	UA830C
Antenna/Power Distribution System, 230 Vac .....	UA845MB
Directional Antenna .....	UA870MB

## REPLACEMENT PARTS

Hardware Kit (screwdriver, mounting feet, cable clamps) .....	90VL1371
Bulkhead Adapters for Front-Mounting Antennas .....	95A8647
230 VAC Power Cord (Schuko mains connector) .....	95A8247
304 mm (12 in.) Daisy-Chain Power Cord (230 V) .....	95A8678
SM58 Cartridge with Grille (U2/58) .....	R158
BETA 58A Cartridge with Grille (U2/BETA 58) .....	R179
SM87 Cartridge with Grille (U2/87) .....	R165
BETA 87 Cartridge with Grille (U2/BETA 87) .....	R166
Matte Silver Grille (U2/58) .....	RK143G
Matte Silver Grille (U2/BETA 58) .....	RK265G
Matte Silver Grille (U2/BETA 87) .....	RK313G
Black Grille (U2/87) .....	RK214G
Black Grille (U2/BETA 58) .....	RK323G
Black Grille (U2/BETA 87) .....	RK324G
Belt Clip (U1) .....	53A8247A
Antenna (U1) .....	95A8646
Antenna (U2) .....	95A2029

## FREQUENCY SELECTION GUIDE

The Shure UHF Wireless System is designed for maximum flexibility and versatility in a variety of applications. Up to 20 Shure UHF Wireless Systems can be operated simultaneously in a single installation using the frequency compatibility groups. Please contact Shure Brothers Incorporated if you need additional information or assistance in frequency selection and setup.

### Compatibility Groups

The Shure UHF Wireless System includes 10 groups of compatible channels. If you are using more than one receiver in the same area, we recommend that you set the receivers to different frequencies within the same group.

### Compatible Frequency List

The following table lists the frequencies in each of the 10 compatibility groups.

		GROUP									
		GRP 1	GRP 2	GRP 3	GRP 4	GRP 5	GRP 6	GRP 7	GRP 8	GRP 9	GRP 10
CHANNEL	1	692.500	692.125	692.250	698.250	692.500	692.125	692.125	715.625	715.500	715.125
	2	693.375	692.625	695.125	698.875	693.250	693.500	693.125	714.625	714.250	714.125
	3	694.500	693.375	695.875	700.000	694.250	694.125	693.625	714.000	712.750	713.625
	4	695.000	694.375	697.125	700.625	695.000	695.125	694.625	713.125	712.000	711.875
	5	697.000	695.125	698.625	701.500	695.500	695.750	695.875	712.000	710.875	711.125
	6	698.000	698.875	699.875	702.000	696.250	697.000	696.500	710.250	710.375	709.875
	7	699.250	699.375	700.625	702.750	697.250	697.750	697.875	708.125	708.250	709.000
	8	699.750	700.625	701.625	703.750	698.000	699.125	698.875	707.625	707.125	708.375
	9	702.875	703.125	702.375	704.375	704.500	700.125	700.500	706.750	704.125	707.375
	10	703.750	704.625	703.625	709.000	706.000	701.625	701.500	706.250	702.500	706.625
	11	705.500	706.375	704.375	709.500	706.750	702.250	703.375	703.625	700.625	705.125
	12	707.500	707.125	708.375	710.250	707.250	710.125	703.875	702.625	699.000	700.875
	13	708.500	707.625	709.375	711.250	708.750	710.625	705.875	701.875	698.125	700.000
	14	709.000	708.375	709.875	711.875	709.500	711.500	706.875	699.875	697.625	699.375
	15	709.750	710.875	710.750	712.750	711.250	712.125	707.625	696.375	695.875	697.625
	16	710.250	711.500	711.875	713.250	712.000	713.125	708.125	695.875	694.875	696.875
	17	712.750	712.500	713.375	714.000	713.250	713.875	709.125	694.625	694.375	696.375
	18	713.750	713.125	714.125	715.000	714.250	714.375	709.625	693.750	693.250	694.625
	19	714.500	714.375	714.625	715.625	715.000	715.250		692.375	692.500	694.125
	20	715.500	715.125	715.625			715.875				693.125