SHURE

USER GUIDE SUPPLEMENT
UB (692–716 MHz)

UHF WIRELESS SYSTEM

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

Audio Frequency Response
50 to 15,000 Hz, ±2 dB. **NOTE:** Overall system frequency response depends on the microphone element

Gain Adjustment Range
U1: 0 to 40 dB
U2: 0 to 26 dB

Modulation
±45 kHz deviation compressor-expander system with pre-and de-emphasis

RF Power Output
U1, U2: 10 mW maximum
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. ±45 kHz deviation, 1 kHz modulation)
0.3% Total Harmonic Distortion typical

Power Requirements
U1, U2: 1.5V AA alkaline battery recommended; Nicad battery 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)

27D8670 (CC)

Printed in U.S.A.

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: 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: Type Accepted under FCC Part 74. FCC ID DD4U1B and DD4U2B. Certified by IC in Canada under TRC-78

U4S, U4D: UL and cUL Listed to UL 813 and CSA C22.2 No. 1. Approved under the Declaration of Conformity provision of FCC Part 15; Certified by IC in Canada under TRC-78. VDE Certified to EN 60 950.

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

FCC Statement

The U4 Receiver complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device does not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Licensing Statement

A user license may be required for operation. Contact the communications authority in your country for more information.

Modifications to Approved Equipment

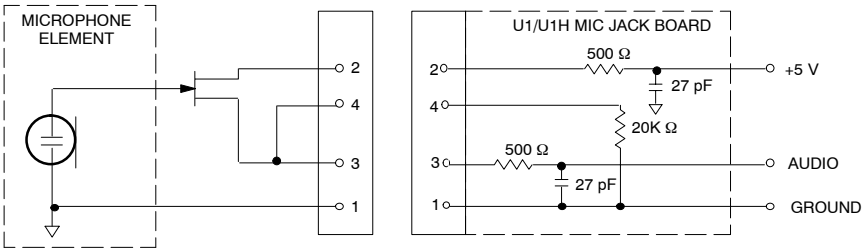
Changes or modifications not expressly approved by Shure Incorporated could affect compliance with telecommunications standards, thereby voiding the user's authority to operate this product.

U1 Transmitter Input

Connector:	4-Pin Female Miniature Connector (TA4F) or LEMO connector (optional)
Input Configuration:	Unbalanced, active
Actual Impedance:	18 kΩ with lavalier microphone 1 MΩ with instrument cable
Maximum Input Level:	6 Vp–p (+7 dBV) for 1% THD at minimum gain setting using 1 kHz signal.
4-Pin Female Miniature Connector TA4F Pin Assignments:	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)
LEMO Connector Pin Assignments:	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)
Voltage for Remote Power:	+5 V supplied to microphone cartridge

U1 Transmitter Output (Figure 1)

Connector:	SMC
Actual Impedance:	50 Ω
Nominal Output Level:	+10 dBm
Maximum Output Level:	+11 dBm
Pin Assignments:	Shell = Ground Center = Signal



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

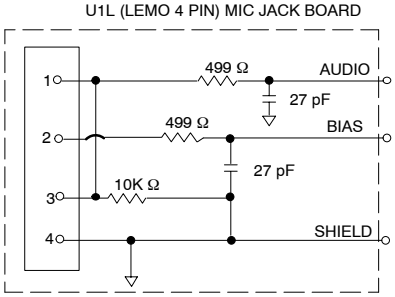


FIGURE 1

U2 Transmitter Input

Input Configuration:	Unbalanced, active
Actual Impedance:	20 kΩ
Maximum Input Level:	3 Vp–p (0.5 dBV) for 1% THD at minimum gain setting using 1 kHz signal.

U2 Transmitter Output

Connector:	SMC
Actual Impedance:	50 Ω
Nominal Output Level:	+10 dBm
Maximum Output Level:	+11 dBm
Pin Assignments:	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	—	Un-balanced	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
4-Pin Female Miniature Connector,TA4F (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 (619 – 716 MHz) UA830UB
Antenna/Power Distribution System, 120 Vac UA845UB
Directional Antenna UA870UB

REPLACEMENT PARTS

Hardware Kit (screwdriver, mounting feet, cable clamps) 90VL1371
Bulkhead Adapters for Front–Mounting Antennas 95A8647
120 VAC Power Cord (U.S. mains connector) 95A8389
304 mm (12 in.) Daisy–Chain Power Cord (120 V) 95A8570
SM58® Cartridge with Grille (U2/58) R158
BETA 58A® Cartridge with Grille (U2/BETA 58) R179
SM87 Cartridge with Grille (U2/87) R165
BETA 87A Cartridge with Grille (U2/BETA 87) R166
BETA 87C Cartridge with Grille (U2/BETA 87) RPW100
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–UB) 95C2029

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 Incorporated if you need additional information or assistance in frequency selection and setup.

NOTE: Shure recommends that you maintain a 500 kHz separation between each receiver channel in the U4D dual channel receivers. Please contact the Shure Customer Service Department (1–800–434–3350) 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	TV CHANNELS 51, 52, 53, 54 OPEN			TV CHANNEL 51 PRESENT	TV CHANNEL 52 PRESENT	TV CHANNEL 53 PRESENT	TV CHANNEL 54 PRESENT			
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

Declaration of Conformity

We of

Shure Incorporated
222 Hartrey Ave.
Evanston IL 60202–3696 U.S.A.
847–866–2200

declare under our sole responsibility that the following products,

Model: U4S Name: UHF Diversity Receiver
Model: U4D Name: UHF Dual Channel Diversity Receiver

were tested and found to comply with Part 15 of the FCC rules.

Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

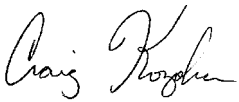
Testing was completed by the following NVLAP or A2LA accredited laboratory:

D.L.S. Electronic Systems, Inc.
1250 Peterson Drive
Wheeling, Illinois 60090, U.S.A.

At the test location of

D.L.S. Electronic Systems, Inc.
166 South Carter
Genoa City, Wisconsin, 53128, U.S.A.,
Test Sites Number 1 and 2

Shure Inc., Manufacturer.

Signed:  Date: June 15, 1999

Name, Title: Craig Kozokar, Senior Quality Engineer

Additional Information for this Shure Wireless System

This Shure wireless transmitter is accepted under FCC Part 74 and/or Part 90.

IMPORTANT: 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 urges the user to consult the appropriate telecommunications authority before choosing and ordering frequencies.

Changes or modifications not expressly approved by Shure Inc. could void your authority to operate this equipment.

The information on this page supersedes the corresponding information in your Shure user's guide.

SHURE®

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