



UHF WIRELESS SYSTEM

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SPECIFICATIONS

RF Carrier Frequency Range

554–584 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

Dynamic Range

>110 dB, A-weighted

RF Sensitivity (Typical)

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

Image Rejection

100 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: Two (2) 1.5V AA alkaline batteries recommended; Nicad batteries 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.

UA845US: 15 W min. per unit typical, 62 W max. when used with 4 UC4's and 4 UA830WB line amplifiers

Battery Life (Typical)

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

Operating Temperature Range

-7° to 49° 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 87A, U2/BETA 87C: 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 87A, U2/BETA 87C: 303.1 g without battery
U4S: 3.30 kg
U4D: 3.85 kg

Certification

U1,U2: Type Accepted under FCC Part 74. FCC ID DD4U1J4 and DD4U2J4. Certified by IC in Canada under RSS-123 and RSS-102
U4S, U4D: UL and cUL Listed to UL 6500, 2 nd. Edition and CAN/CSA E60065-00.
Approved under the Declaration of Conformity provision of FCC Part 15; Certified by IC in Canada under RSS-123 & ICES-003. VDE Certified to EN 60065, 6th Edition.
UHF Type Approved and EMC Approved systems. Meet the requirements of 300.422-1,-2 and 301 489 Parts 1 and 9 and are eligible to carry the CE marking.
CE 0682 Ⓞ

FCC Statement

The U4 Receiver complies 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.

Licensing Statement

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

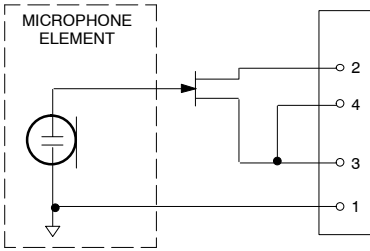
Modifications to Approved Equipment

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 (Figure 1A, 1B, 1C)

Connector:	4-Pin Male Miniature Connector (TA4M) or LEMO connector (optional)
Input Configuration:	Unbalanced, active
Actual Impedance:	18 k Ω with lavalier microphone 1 M Ω with instrument cable
Maximum Input Level:	6 V _{p-p} (+7 dBV) using 1 kHz signal for 1% THD at minimum gain setting with -6 dB pad
4-Pin Male Miniature Connector TA4M Pin Assignments:	Pin 1: Tied to Ground Pin 2: Tied to +5 V Pin 3: Tied to Audio Pin 4: Tied thru 20k Ω Resistor to Ground. (On instrument adapter cable, Pin 4 floats), see Figure 1B
LEMO Connector Pin Assignments:	Pin 1: Tied to Pin 3 and 10 k Ω to Ground Pin 2: +5V Pin 3: Tied to Pin 1 Pin 4: Tied to Shield (Ground for Positive Bias), see Figure 1C
Voltage for Remote Power:	+5 V supplied to microphone cartridge

Fig. 1A



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

Fig. 1B

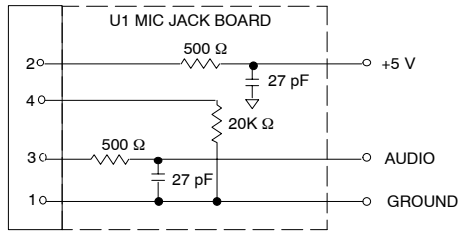
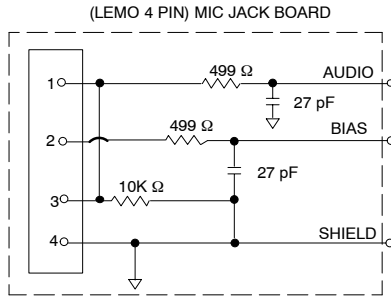


Fig. 1C



U1 Transmitter Output

Antenna Impedance:	50 Ω
Nominal Output Level:	+10 dBm
Maximum Output Level:	+13.5 dBm

U2 Transmitter Input

Input Configuration:	Wireless microphone element
Actual Impedance:	20 kΩ
Maximum Input Level:	3 V _{p-p} (0.5 dBV) using 1 kHz signal for 1% THD at minimum gain setting without pad.

U2 Transmitter Output

Connector:	SMC (Internal)
Pin Assignments:	Shell = Ground Center = Signal
Antenna Impedance:	50 Ω
Nominal Output Level:	+10 dBm
Maximum Output Level:	+13.5 dBm

U4S and U4D Receiver Input

Connector:	Antenna	Power Input	Network Interface
Connector Type:	BNC	IEC 320	25-Pin D Sub
Antenna 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)		—
Pin Assignments:	Shell = Ground Center = Signal	IEC Standard Brown = Live Blue = Neutral Green/Yellow = Ground	—
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 in User Guide
Actual Impedance:	300 Ω	—	1 k Ω	30 Ω	See Appendix in User Guide
Nominal Input Level:	—	90 to 230 VAC, 5A	—	—	CMOS Logic
Pin Assignments:	Tip = Hot Ring = Hot Sleeve = Gnd	IEC Standard Brown = Live Blue = Neutral Green/Yellow = Ground	Tip = Hot Ring/ Sleeve = Gnd	1 = Ground 2 = Hot 3 = Hot	See Appendix in User Guide
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 (U1), (U2)	80A498
Two Coaxial Antennas Cable 2 ft (U4)	UA802
Two 1/2 Wave Antennas (U4)	UA820D
Transmitter Carrying Case (U1), (U2)	65A8257
Carrying Case Insert (U1), (U2)	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 Meter (50 ft) Antenna Extension Cable	UA850
30.4 Meter (100 ft) Antenna Extension Cable	UA8100
Remote RF in-line Amplifier	UA830WB
Antenna/Power Distribution System, 120 Vac	UA845US
Directional Antenna	UA870WB

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)	95A8576
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 87A)	R166
BETA 87C Cartridge with Grille (U2/BETA 87C)	RPW100
Matte Silver Grille (U2/58)	RK143G
Matte Silver Grille (U2/BETA 58)	RK265G
Matte Silver Grille (U2/BETA 87A)	RK313G
Black Grille (U2/BETA 87C)	RK214G
Black Grille (U2/BETA 58)	RK323G
Black Grille (U2/BETA 87A)	RK324G
Belt Clip (U1)	44A8023A
Antenna (U1)	70A8019
Antenna (U2-J4)	95D2029

FREQUENCY SELECTION GUIDE

The Shure UHF Wireless System is designed for maximum flexibility and versatility in a variety of applications. Up to 24 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.

Compatibility Groups					
Group 1					
UHF TV Channel	Freq. MHz.	Group	Channel	Master List	
28	554.225	1	1	A1	10
28	555.000	1	2	A1	41
28	556.150	1	3	A1	87
28	556.750	1	4	A2	12
28	557.850	1	5	A2	56
29	560.475	1	6	A3	62
29	561.050	1	7	A3	85
29	561.975	1	8	A4	23
29	562.600	1	9	A4	48
29	563.925	1	10	A5	2
30	566.525	1	11	A6	7
30	568.075	1	12	A6	69
30	568.750	1	13	A6	96
30	570.750	1	14	A7	77
30	571.450	1	15	A8	6
31	573.150	1	16	A8	74
31	573.925	1	17	A9	6
31	574.500	1	18	A9	29
31	576.050	1	19	A9	91
31	576.700	1	20	B1	18
31	577.850	1	21	B1	64
32	578.625	1	22	B1	95
32	581.575	1	23	B3	15
32	582.175	1	24	B3	39
32	582.975	1	25	B3	71

Compatibility Groups					
Group 2					
UHF TV Channel	Freq. MHz.	Group	Channel	Master List	
28	554.050	2	1	A1	3
28	555.400	2	2	A1	57
28	557.200	2	3	A2	30
28	558.800	2	4	A2	94
29	560.025	2	5	A3	44
29	561.700	2	6	A4	12
29	563.100	2	7	A4	68
29	564.900	2	8	A5	41
29	565.525	2	9	A5	66
30	566.450	2	10	A6	4
30	567.000	2	11	A6	26
30	567.750	2	12	A6	56
30	571.650	2	13	A8	14
31	573.200	2	14	A8	76
31	575.000	2	15	A9	49
31	575.950	2	16	A9	87
31	577.200	2	17	B1	38
32	578.000	2	18	B1	70
32	579.075	2	19	B2	14
32	579.725	2	20	B2	40
32	580.675	2	21	B2	78
32	581.950	2	22	B3	30
32	582.550	2	23	B3	54
32	583.775	2	24	B4	4

Compatibility Groups					
Group 3					
UHF TV Channel	Freq. MHz.	Group	Channel	Master List	
28	554.050	3	1	A1	3
28	554.900	3	2	A1	37
28	555.450	3	3	A1	59
28	556.500	3	4	A2	2
28	557.325	3	5	A2	35
28	558.625	3	6	A2	87
28	559.525	3	7	A3	24
29	561.500	3	8	A4	4
29	562.975	3	9	A4	63
29	563.800	3	10	A4	96
29	565.900	3	11	A5	81
30	567.125	3	12	A6	31
30	569.175	3	13	A7	14
30	569.650	3	14	A7	33
30	570.825	3	15	A7	80
31	572.950	3	16	A8	66
31	573.900	3	17	A9	5
31	575.950	3	18	A9	87
31	577.450	3	19	B1	48
32	578.400	3	20	B1	86
32	579.150	3	21	B2	17
32	580.400	3	22	B2	67
32	581.300	3	23	B3	4
32	583.650	3	24	B3	98

Compatibility Groups					
Group 4					
UHF TV Channel	Freq. MHz.	Group	Channel	Master List	
28	554.300	4	1	A1	13
28	555.800	4	2	A1	73
28	556.800	4	3	A2	14
28	557.575	4	4	A2	45
28	558.550	4	5	A2	84
28	559.025	4	6	A3	4
28	559.750	4	7	A3	33
29	561.500	4	8	A4	4
29	562.500	4	9	A4	44
29	563.000	4	10	A4	64
29	564.200	4	11	A5	13
29	564.825	4	12	A5	38
29	565.675	4	13	A5	72
30	567.700	4	14	A6	54
30	571.400	4	15	A8	4
31	573.375	4	16	A8	83
31	574.350	4	17	A9	23
31	574.775	4	18	A9	40
31	575.975	4	19	A9	88
31	576.650	4	20	B1	16
32	579.300	4	21	B2	23
32	581.525	4	22	B3	13
32	582.150	4	23	B3	38
32	583.425	4	24	B3	89

Compatibility Groups					
Group 5					
UHF TV Channel	Freq. MHz.	Group	Channel	Master List	
28	554.475	5	1	A1	20
28	555.425	5	2	A1	58
28	557.600	5	3	A2	46
28	558.425	5	4	A2	79
28	559.550	5	5	A3	25
29	560.075	5	6	A3	46
29	564.150	5	7	A5	11
30	566.200	5	8	A5	93
30	566.750	5	9	A6	16
30	567.675	5	10	A6	53
30	570.225	5	11	A7	56
30	571.525	5	12	A8	9
31	572.100	5	13	A8	32
31	573.200	5	14	A8	76
31	574.550	5	15	A9	31
31	575.600	5	16	A9	73
31	577.200	5	17	B1	38
32	578.350	5	18	B1	84
32	579.300	5	19	B2	23
32	580.650	5	20	B2	77
32	581.775	5	21	B3	23
32	582.625	5	22	B3	57
32	583.275	5	23	B3	83
32	583.725	5	24	B4	2

Compatibility Groups					
Group 6					
UHF TV Channel	Freq. MHz.	Group	Channel	Master List	
28	554.700	6	1	A1	29
28	555.550	6	2	A1	63
28	557.150	6	3	A2	28
28	557.575	6	4	A2	45
28	558.250	6	5	A2	72
28	559.150	6	6	A3	9
29	561.400	6	7	A3	99
29	562.275	6	8	A4	35
29	562.950	6	9	A4	62
29	563.850	6	10	A4	98
29	564.300	6	11	A5	17
29	565.925	6	12	A5	82
30	571.825	6	13	A8	21
31	574.500	6	14	A9	29
31	575.250	6	15	A9	59
31	575.750	6	16	A9	79
31	576.525	6	17	B1	11
31	577.500	6	18	B1	50
32	578.225	6	19	B1	79
32	580.125	6	20	B2	56
32	580.975	6	21	B2	90
32	581.600	6	22	B3	16
32	583.400	6	23	B3	88
32	583.950	6	24	B4	11

Compatibility Groups					
Group 7					
UHF TV Channel	Freq. MHz.	Group	Channel	Master List	
28	554.125	7	1	A1	6
28	554.750	7	2	A1	31
28	556.000	7	3	A1	81
28	558.350	7	4	A2	76
29	560.250	7	5	A3	53
29	561.425	7	6	A4	1
29	562.375	7	7	A4	39
29	562.950	7	8	A4	62
29	564.125	7	9	A5	10
29	564.725	7	10	A5	34
30	566.100	7	11	A5	89
30	567.800	7	12	A6	58
30	568.500	7	13	A6	86
31	574.400	7	14	A9	25
31	574.975	7	15	A9	48
31	575.800	7	16	A9	81
31	576.950	7	17	B1	28
31	577.750	7	18	B1	60
32	578.325	7	19	B1	83
32	579.275	7	20	B2	22
32	580.025	7	21	B2	52
32	581.950	7	22	B3	30
32	582.500	7	23	B3	52
32	583.300	7	24	B3	84

Compatibility Groups					
Group 8					
UHF TV Channel	Freq. MHz.	Group	Channel	Master List	
28	554.450	8	1	A1	19
28	554.925	8	2	A1	38
28	555.900	8	3	A1	77
28	556.625	8	4	A2	7
28	557.075	8	5	A2	25
28	557.900	8	6	A2	58
29	560.500	8	7	A3	63
29	561.825	8	8	A4	17
29	562.900	8	9	A4	60
29	564.175	8	10	A5	12
29	564.650	8	11	A5	31
30	567.275	8	12	A6	37
30	570.675	8	13	A7	74
30	571.925	8	14	A8	25
31	574.600	8	15	A9	33
31	575.225	8	16	A9	58
31	576.900	8	17	B1	26
31	577.675	8	18	B1	57
32	578.875	8	19	B2	6
32	580.475	8	20	B2	70
32	581.500	8	21	B3	12
32	582.325	8	22	B3	45
32	582.775	8	23	B3	63
32	583.850	8	24	B4	7

Compatibility Groups					
Group 9					
UHF TV Channel	Freq. MHz.	Group	Channel	Master List	
28	554.025	9	1	A1	2
28	554.525	9	2	A1	22
28	555.375	9	3	A1	56
28	556.500	9	4	A2	2
28	558.125	9	5	A2	67
29	560.125	9	6	A3	48
29	561.925	9	7	A4	21
29	562.700	9	8	A4	52
29	563.175	9	9	A4	71
29	564.100	9	10	A5	9
29	564.625	9	11	A5	30
30	566.975	9	12	A6	25
30	567.850	9	13	A6	60
30	570.275	9	14	A7	58
31	574.450	9	15	A9	27
31	575.025	9	16	A9	50
31	576.225	9	17	A9	98
31	577.150	9	18	B1	36
32	578.350	9	19	B1	84
32	578.825	9	20	B2	4
32	580.125	9	21	B2	56
32	580.725	9	22	B2	80
32	582.850	9	23	B3	66
32	583.825	9	24	B4	6

Compatibility Groups					
Group 10					
UHF TV Channel	Freq. MHz.	Group	Channel	Master List	
28	554.000	10	1	A1	1
28	554.875	10	2	A1	36
28	557.500	10	3	A2	42
28	558.175	10	4	A2	69
28	559.900	10	5	A3	39
29	561.950	10	6	A4	22
29	563.275	10	7	A4	75
29	563.750	10	8	A4	94
29	565.200	10	9	A5	53
30	566.125	10	10	A5	90
30	566.850	10	11	A6	20
30	567.375	10	12	A6	41
30	568.125	10	13	A6	71
31	572.025	10	14	A8	29
31	575.050	10	15	A9	51
31	575.725	10	16	A9	78
31	577.000	10	17	B1	30
31	577.650	10	18	B1	56
32	578.525	10	19	B1	91
32	579.200	10	20	B2	19
32	580.525	10	21	B2	72
32	581.025	10	22	B2	92
32	583.050	10	23	B3	74
32	583.775	10	24	B4	4



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