



CONTENTS

SPECIFICATIONS 2
 Furnished Accessories 5
 Optional Accessories 6
 Replacement Parts 6
FREQUENCY SELECTION GUIDE 7
 Compatibility Groups 7
 Master List (Groups A1–A4) 9

SPECIFICATIONS

RF Carrier Frequency Range

774–782 MHz

Working Range

152.4 m (500 ft), minimum, under typical conditions; 487.6 m (1600 ft) 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

>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 (Duracell MN1500 recommended); Nicad optional

U4: 90 to 230 Vac , 50/60 Hz

Power Consumption: 9.6 W min., 13.2 W max. (U4S)

12 W min., 16 W max. (U4D)

15 W min., 16 W max. (UA840)

Battery Life (Typical)

12 hours (with Duracell MN1500 1.5V AA alkaline battery)

Operating Temperature Range

-20° to 50° C (-4° to 122° F) **NOTE:** Battery characteristics may limit this range

Overall Dimensions

U1: 92.2 mm L x 64.7 mm W x 24.2 mm D (3–29/32 x 2–35/64 x 61/64 in.)

U2/58: 254 mm L x 50.8 mm Dia. (10 x 2 in.)

U2/BETA 58: 254 mm L x 53.2 mm Dia. (10 x 2–3/32 in.)

U2/87: 228.6 mm x 49.2 mm Dia. (9 x 1–15/16 in.)

U2/BETA 87: 216 mm L x 50.8 mm Dia. (8–1/2 x 2 in.)

U4S/U4D: 44.5 mm H x 482.6 mm W x 295.3 mm D (1–3/4 x 19 x 11–5/8 in.)

Net Weight

U1: 175.2 g (6.1 oz.) without battery

U2/58, U2/BETA 58: 375.6 g (13.2 oz.) without battery

U2/87, U2/BETA 87: 303.1 g (10.7 oz) without battery

U4S: 3.30 kg (7.27 lbs)

U4D: 3.85 kg (8.48 lbs)

Certification

U1, U2: 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.

U1 Transmitter Input (Figure 1)

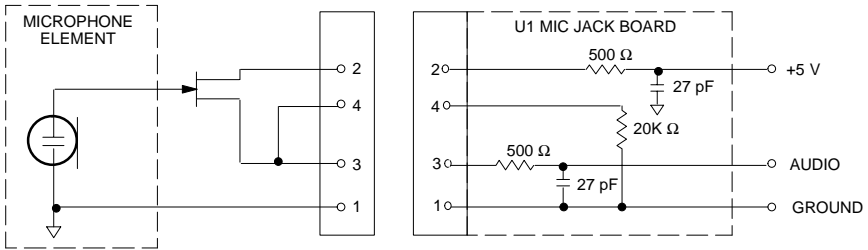
Connector:	4-Pin Female Miniature Connector TA4F or LEMO connector (optional)
Input Configuration:	Unbalanced, active
Actual Impedance:	18 k Ω with lavalier microphone 1 M Ω with instrument cable
Maximum Input Level:	6 V _{p-p} (+7 dBV) for 1% THD at minimum gain setting using 1 kHz signal.
4-Pin Female 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 20k Ω Resistor to Ground. (On instrument adapter cable, Pin 4 floats)
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)
Voltage for Remote Power:	+5 V supplied to microphone cartridge

U1 Transmitter Output

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

U2 Transmitter Input

Input Configuration:	Unbalanced, active
Actual Impedance:	20 k Ω
Maximum Input Level:	3 V _{p-p} (0.5 dBV) for 1% THD at minimum gain setting using 1 kHz signal.



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

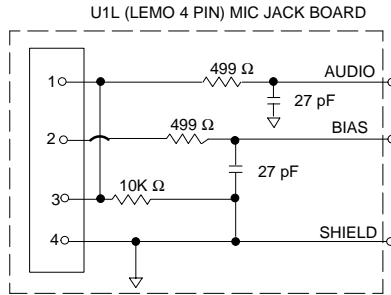


FIGURE 1

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 k Ω	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 ConnectorTA4F (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 (774 – 782 MHz)	UA830D
Antenna/Power Distribution System, 230 Vac	UA840D
Directional Antenna (774–782 MHz)	UA870MC

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 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)	95A2029

FREQUENCY SELECTION GUIDE

Compatibility Groups

The following table lists frequency-compatible channels. Each group contains 11 channels that are compatible with one another. Up to 11 Shure UHF Wireless Systems can be operated simultaneously within the 774–782 MHz band in a single installation by using frequencies from any one of the Groups 1–8. If there are UHF television stations present within the band, the number of compatible channels for any application will decrease.

CHANNEL	GROUPS							
	1	2	3	4	5	6	7	8
1	774.125	774.250	774.375	774.125	774.250	774.250	774.375	774.250
2	775.125	775.250	775.125	774.625	775.000	775.000	775.375	774.750
3	775.625	775.750	776.125	775.625	776.000	775.500	775.875	775.750
4	776.375	776.500	776.875	776.375	776.750	776.250	776.625	776.500
5	777.375	777.500	777.375	776.875	777.250	777.250	777.625	777.000
6	778.000	778.125	778.250	777.750	778.125	777.875	778.250	777.875
7	778.875	779.000	778.875	778.375	778.750	778.750	779.125	778.500
8	779.375	779.500	779.875	779.375	779.750	779.250	779.625	779.500
9	780.125	780.250	780.625	780.125	780.500	780.000	780.375	780.250
10	781.125	781.250	781.125	780.625	781.000	781.000	781.375	780.750
11	781.625	781.750	781.875	781.625	781.750	781.750	781.875	781.750

Master List (Groups A1–A4)

The “Master List” (Groups A1–A4) is a comprehensive index of all system frequencies. Note that not all “Master List” channels are compatible.

FREQ	GRP	CHAN
774.125	A1	1
774.150	A1	2
774.175	A1	3
774.200	A1	4
774.225	A1	5
774.250	A1	6
774.275	A1	7
774.300	A1	8
774.325	A1	9
774.350	A1	10
774.375	A1	11
774.400	A1	12
774.425	A1	13
774.450	A1	14
774.475	A1	15
774.500	A1	16
774.525	A1	17
774.550	A1	18
774.575	A1	19
774.600	A1	20
774.625	A1	21
774.650	A1	22
774.675	A1	23
774.700	A1	24
774.725	A1	25
774.750	A1	26
774.775	A1	27
774.800	A1	28
774.825	A1	29
774.850	A1	30
774.875	A1	31
774.900	A1	32
774.925	A1	33
774.950	A1	34
774.975	A1	35
775.000	A1	36
775.025	A1	37
775.050	A1	38
775.075	A1	39
775.100	A1	40
775.125	A1	41
775.150	A1	42

FREQ	GRP	CHAN
775.175	A1	43
775.200	A1	44
775.225	A1	45
775.250	A1	46
775.275	A1	47
775.300	A1	48
775.325	A1	49
775.350	A1	50
775.375	A1	51
775.400	A1	52
775.425	A1	53
775.450	A1	54
775.475	A1	55
775.500	A1	56
775.525	A1	57
775.550	A1	58
775.575	A1	59
775.600	A1	60
775.625	A1	61
775.650	A1	62
775.675	A1	63
775.700	A1	64
775.725	A1	65
775.750	A1	66
775.775	A1	67
775.800	A1	68
775.825	A1	69
775.850	A1	70
775.875	A1	71
775.900	A1	72
775.925	A1	73
775.950	A1	74
775.975	A1	75
776.000	A1	76
776.025	A1	77
776.050	A1	78
776.075	A1	79
776.100	A1	80
776.125	A1	81
776.150	A1	82
776.175	A1	83
776.200	A1	84

FREQ	GRP	CHAN
776.225	A1	85
776.250	A1	86
776.275	A1	87
776.300	A1	88
776.325	A1	89
776.350	A1	90
776.375	A1	91
776.400	A1	92
776.425	A1	93
776.450	A1	94
776.475	A1	95
776.500	A1	96
776.525	A1	97
776.550	A1	98
776.575	A1	99
776.600	A2	1
776.625	A2	2
776.650	A2	3
776.675	A2	4
776.700	A2	5
776.725	A2	6
776.750	A2	7
776.775	A2	8
776.800	A2	9
776.825	A2	10
776.850	A2	11
776.875	A2	12
776.900	A2	13
776.925	A2	14
776.950	A2	15
776.975	A2	16
777.000	A2	17
777.025	A2	18
777.050	A2	19
777.075	A2	20
777.100	A2	21
777.125	A2	22
777.150	A2	23
777.175	A2	24
777.200	A2	25
777.225	A2	26
777.250	A2	27
777.275	A2	28

FREQ	GRP	CHAN
777.300	A2	29
777.325	A2	30
777.350	A2	31
777.375	A2	32
777.400	A2	33
777.425	A2	34
777.450	A2	35
777.475	A2	36
777.500	A2	37
777.525	A2	38
777.550	A2	39
777.575	A2	40
777.600	A2	41
777.625	A2	42
777.650	A2	43
777.675	A2	44
777.700	A2	45
777.725	A2	46
777.750	A2	47
777.775	A2	48
777.800	A2	49
777.825	A2	50
777.850	A2	51
777.875	A2	52
777.900	A2	53
777.925	A2	54
777.950	A2	55
777.975	A2	56
778.000	A2	57
778.025	A2	58
778.050	A2	59
778.075	A2	60
778.100	A2	61
778.125	A2	62
778.150	A2	63
778.175	A2	64
778.200	A2	65
778.225	A2	66
778.250	A2	67
778.275	A2	68
778.300	A2	69
778.325	A2	70
778.350	A2	71
778.375	A2	72
778.400	A2	73

FREQ	GRP	CHAN
778.425	A2	74
778.450	A2	75
778.475	A2	76
778.500	A2	77
778.525	A2	78
778.550	A2	79
778.575	A2	80
778.600	A2	81
778.625	A2	82
778.650	A2	83
778.675	A2	84
778.700	A2	85
778.725	A2	86
778.750	A2	87
778.775	A2	88
778.800	A2	89
778.825	A2	90
778.850	A2	91
778.875	A2	92
778.900	A2	93
778.925	A2	94
778.950	A2	95
778.975	A2	96
779.000	A2	97
779.025	A2	98
779.050	A2	99
779.075	A3	1
779.100	A3	2
779.125	A3	3
779.150	A3	4
779.175	A3	5
779.200	A3	6
779.225	A3	7
779.250	A3	8
779.275	A3	9
779.300	A3	10
779.325	A3	11
779.350	A3	12
779.375	A3	13
779.400	A3	14
779.425	A3	15
779.450	A3	16
779.475	A3	17
779.500	A3	18
779.525	A3	19

FREQ	GRP	CHAN
779.550	A3	20
779.575	A3	21
779.600	A3	22
779.625	A3	23
779.650	A3	24
779.675	A3	25
779.700	A3	26
779.725	A3	27
779.750	A3	28
779.775	A3	29
779.800	A3	30
779.825	A3	31
779.850	A3	32
779.875	A3	33
779.900	A3	34
779.925	A3	35
779.950	A3	36
779.975	A3	37
780.000	A3	38
780.025	A3	39
780.050	A3	40
780.075	A3	41
780.100	A3	42
780.125	A3	43
780.150	A3	44
780.175	A3	45
780.200	A3	46
780.225	A3	47
780.250	A3	48
780.275	A3	49
780.300	A3	50
780.325	A3	51
780.350	A3	52
780.375	A3	53
780.400	A3	54
780.425	A3	55
780.450	A3	56
780.475	A3	57
780.500	A3	58
780.525	A3	59
780.550	A3	60
780.575	A3	61
780.600	A3	62
780.625	A3	63
780.650	A3	64

FREQ	GRP	CHAN
780.675	A3	65
780.700	A3	66
780.725	A3	67
780.750	A3	68
780.775	A3	69
780.800	A3	70
780.825	A3	71
780.850	A3	72
780.875	A3	73
780.900	A3	74
780.925	A3	75
780.950	A3	76
780.975	A3	77
781.000	A3	78
781.025	A3	79
781.050	A3	80

FREQ	GRP	CHAN
781.075	A3	81
781.100	A3	82
781.125	A3	83
781.150	A3	84
781.175	A3	85
781.200	A3	86
781.225	A3	87
781.250	A3	88
781.275	A3	89
781.300	A3	90
781.325	A3	91
781.350	A3	92
781.375	A3	93
781.400	A3	94
781.425	A3	95
781.450	A3	96

FREQ	GRP	CHAN
781.475	A3	97
781.500	A3	98
781.525	A3	99
781.550	A4	1
781.575	A4	2
781.600	A4	3
781.625	A4	4
781.650	A4	5
781.675	A4	6
781.700	A4	7
781.725	A4	8
781.750	A4	9
781.775	A4	10
781.800	A4	11
781.825	A4	12
781.850	A4	13
781.875	A4	14

SHURE®

SHURE Incorporated Web Address: <http://www.shure.com>

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

Phone: 847-866-2200 Fax: 847-866-2279

In Europe, Phone: 49-7131-72140 Fax: 49-7131-721414

In Asia, Phone: 852-2893-4290 Fax: 852-2893-4055

Elsewhere, Phone: 847-866-2200 Fax: 847-866-2585