



WBS-670



WBS-680

**Powerful Features and Performance**  
For Reliable Mobile Communications



Whether you are adding to a wired intercom system or creating a standalone wireless communications system, the WBS-670 and WBS-680 wireless intercoms are excellent choices. These systems extend the reach of your communications system in live performance, studio and mobile television production, industrial and aerospace applications, or wherever full-duplex wireless communications are required.

#### **Frequency-agile UHF Operation**

The WBS-670 and WBS-680 operate in select frequency bands between 470-686MHz. Both wireless systems are supplied with 24 factory-selected, intermodulation-free frequencies. Select from factory presets or any suitable frequency in 25KHz increments. 720 Tx and 720 Rx frequencies can be selected; each from independent 18 MHz operational bands.

#### **Adjustable Transmitter Power**

The beltacks can sense when operating in close proximity to the base station and intelligently reduce transmitter output by 10dB. This effectively eliminates overloading the base station receiver front end which is the primary cause of “nearfar” densing problems. WBS wireless system beltacks operate in normal power mode for typical distances; a manual high power setting is available when operating the equipment more than 200ft (160m) for the base station.

#### **Pre-Selected Compatible**

Frequencies and Frequency Scan System setup is easy with the 24 internal pre-selected and intermodulation-free frequency groups. Aided by the “ClearScan” function, base stations and beltacks can typically be coordinated and working together within minutes. Memory locations can be allocated so that particular sets of frequencies can be chosen, programmed and saved as a new preset.

#### **Graphical User Interface**

A clear, backlit LCD screen displays the status of the beltacks and provides easy access to all the powerful features as well as configuration of the operational parameters. The LCD displays which beltack is transmitting, operating frequencies, and group/channel status.

#### **Superior Audio Quality and Range**

The audio quality of the WBS-670 and WBS-680 wireless systems is on par with that of professional wired partyline and digital matrix intercoms. UHF frequencies are ideally suited for operating through obstacles; a variety of remote antenna options can help improve range in difficult, interference-prone production environments.

#### **Seamless Connection to Wired Intercoms**

WBS wireless systems can interface with a variety of 2-wire partyline, 4-wire digital matrix or other wireless intercom systems. In addition to interfacing with external intercom systems, the systems provide connections for auxiliary balanced audio input and output. Wireless Talk-Around (WTA) and Stage Announce (SA) features are available on the WTR-680 beltack.

#### **Rechargeable Battery Option**

The battery pack will operate the beltack in full-duplex mode for 14 hours with a set of alkaline batteries. The optional rechargeable NiMH (nickel metal hydride) batteries will give over 11 hours of continual use. Chargers are available in single-bay or 4-bay configurations.

# WIRELESS INTERCOM SYSTEMS

## WBS-670 SINGLE-CHANNEL WIRELESS

The WBS-670 1RU, rack-mountable base station supports up to four full-duplex wireless beltpacks.

### System features:

- Full talk/listen headset at the base
- Rear panel connections allow system expansion
- LCD screen displays which beltpacks are transmitting the operating frequencies and group/channel status
- Input and output level adjustment controls for both the connected wired intercom and auxiliary audio connection
- 3-pin XLR loop-through connectors for one channel of wired partyline intercom at the rear
- WTA (Wireless-Talk-Around) button momentarily routes audio to only the wireless beltpacks monitoring the current channel, serving as isolation (ISO) channel
- Stage Announce (SA) button allows a (dry) relay signal
- RJ-45 connector for direct connection to a digital 4-wire intercom port, and a pair of auxiliary connectors

## WBS-680 TWO-CHANNEL WIRELESS

The WBS-680 1RU, rack-mountable base station supports up to four full-duplex wireless beltpacks.

### System features:

- Full talk/listen headset at the base
- Rear panel connections allow base station to connect to two separate channels of wired intercom (2-wire, 4-wire, or both)
- Toggle switch enabling the user to communicate with either intercom channel A or B (including any wired intercoms connected at the base station)
- LCD screen displays which beltpacks are transmitting the operating frequencies and group/channel status
- Input and output level adjustment controls for both the connected wired intercom and auxiliary audio connection
- 3-pin XLR loop-through connectors for one channel of wired partyline intercom at the rear
- WTA (Wireless-Talk-Around) button momentarily routes audio to only the wireless beltpacks monitoring the current channel, serving as isolation (ISO) channel
- Stage Announce (SA) button allows a (dry) relay signal, which can activate a loudspeaker, two-way radio, IFB, or any other relay activated device



- A pair of efficient, half-wave co-linear antennas is supplied with system; A variety of external antennas may also be used.

### WTR-670 BELTPACK FEATURES

- Extremely light, durable cast magnesium
- Durable, detachable antennas are secured to the beltpack via threaded post connectors
- Low-profile volume control
- Robust, distinguishable momentary latch talk button



- RJ-45 connector for direct connection to a digital 4-wire intercom port, and a pair of auxiliary connectors
- A pair of efficient, half-wave co-linear antennas is supplied with system; A variety of external antennas may also be used.

### WTR-680 BELTPACK FEATURES

- Extremely light, durable cast magnesium
- Durable, detachable antennas are secured to the beltpack via threaded post connectors
- Low-profile volume control
- Robust, distinguishable momentary latch talk button
- Stage Announce
- Wireless-Talk-Around (WTA)

WBS-670/680 UHF FREQUENCY BAND CHART

NTSC TV CHANNEL	START FREQUENCY	END FREQUENCY	FREQUENCY BAND OPTIONS	PAL TV CHANNEL	
14	470	476	<b>88</b>	21	470-478
15	476	482		22	478-486
16	482	488		23	486-494
17	488	494		24	494-502
18	494	500		25	502-510
19	500	506		26	510-518
20	506	512	<b>A</b>	27	518-526
21	512	518		28	526-534
22	518	524	<b>B</b>	29	534-542
23	524	530		30	542-550
24	530	536	<b>C</b>	31	550-558
25	536	542		32	558-566
26	542	548	<b>E</b>	33	566-574
27	548	554		34	574-582
28	554	560	NOT USED IN USA	35	582-590
29	560	566		36	590-598
30	566	572		37	598-606
31	572	578		38	606-614
32	578	584	<b>2</b>	39	614-622
33	584	590		40	622-630
34	590	596	<b>3</b>	41	630-638
35	596	602		42	638-646
36	602	608	<b>4</b>	43	646-654
37	608	614		44	654-662
38	614	620		45	662-670
39	620	626		46	670-678
40	626	632	<b>G</b>	47	678-686
41	632	638		48	686-694
42	638	644	<b>9</b>	49	694-702
43	644	650		50	702-710
44	650	656		51	710-718
45	656	662		52	718-726
46	662	668		53	726-734
47	668	674		54	734-742
48	674	680		55	742-750
49	680	686		61	790-798

G9 is only available in Germany.	796	802	<b>G</b>	65	822-830
	802	808		66	830-838
	808	814		67	838-846
	844	850	<b>9</b>	68	846-854
	850	856		69	854-862
	856	862			

■ Transmit Bands      ■ Receive Bands

Single Channel Wireless Intercom System (WBS-670) Frequency Band Options: A2, B4, C3, C6, G9

Two-Channel Wireless Intercom System (WBS-680) Frequency Band Options: A2, B4, C3, C6, E88

OVERVIEW		
	WBS-680/WBS-670 Base Station	WTR-680/WTR-670 Beltpacks
RF Frequency Range	518-608MHz, 614-686MHz in 18MHz TX and RX bands WBS-670: G9 band, 796-814MHz Tx, Germany only	518 - 608MHz, 614 - 686MHz in 18MHz TX and RX bands WTR-670: G9 band, 844-862MHz Tx, Germany only
Power Requirement	100-240VAC, 50-60Hz, IEC receptacle	6 Alkaline "AA" Cells (NiMH optional)
Typical Battery Life Alkaline	N/A	14 Hours (Continuous duty with talk light on)
Typical Battery Life - Nickel Metal Hydride (1500 mAh)	N/A	11 Hours (Continuous duty with talk light on)
Current Draw	N/A	140mA (Push-to-Talk, Talk On)
Temperature Range	-4°F to 140°F (20°C to 55°C)	-4°F to 140°F (20°C to 55°C)
Dimensions	19.0" W x 1.72" H x 14.0" D (48.3cm x 4.4cm x 35.6cm)	3.75" W x 5.05" H x 1.65" D (9.5cm x 12.8cm x 4.2cm)
Weight	WBS-680: 7lbs. 2oz. (3.24kg) WBS-670: 6lbs. 15oz. (3.15kg)	16oz. (0.454kg) with batteries 15oz. (0.425kg) with batteries
Transmit Antenna	1/2 Wave (supplied), TNC Male Connector	1/4 Wave (supplied), Screw type
Receiver Antenna	1/2 Wave (supplied), TNC Male Connector	1/4 Wave (supplied), Screw type
FCC ID	B5DM514	B5DM515
Frequency Response	300Hz - 8,000Hz	300Hz - 8,000Hz
Four-Wire Input	Level Adjustable (2Vrms typical)	N/A
Four-Wire Output	Level Adjustable (2Vrms typical)	N/A
Clear-Com® Partyline Levels	Input/Output Level Adjustable (1Vrms typical), Line Impedance 200W	N/A
RTS® Partyline Levels	Input/Output Level Adjustable (0.775Vrms typical), Line Impedance 200W	N/A
Telex® Partyline Levels	Input/Output Level Adjustable (1 Vrms typical), Line Impedance 300W	N/A
Auxiliary Input	Adjustable (2Vrms typical)	N/A
Aulliliary Output	Adjustable (2Vrms typical into 600W) (at rated deviation)	N/A
Stage Announce Output (WBS-680 only)	Internally Adjustable (1Vrms typical at rated deviation into 100KW)	N/A
Stage Announce Relay (WBS-680 only)	Dry contact, rated at 1Amp, 24V Max. / N/A	N/A

TRANSMITTER		
	WBS-680/WBS-670 Base Station	WTR-680/WTR-670 Beltpacks
Type	Synthesized, 720 channels	Synthesized, 720 channels
Transmit Power	WBS-680: 100mW max. (High), 10mW (normal) WBS-670: 50mW max. (High), 5mW (normal)	WTR-680/WTR-670: 50mW max. (auto-power reduction when close to base)
RF Frequency Stability	0.005%	0.005%
Modulation	FM, 40KHz Deviation	FM, 40KHz Deviation
Modulation Limiter	Peak-Responding Compressor	Peak-Responding Compressor
Modulation Frequency Range	300Hz -8,000Hz +-2dB	300Hz -8,000Hz +-2dB
Microphone Audio Input	30W - 3,500W	30W - 3,500W
Microphone Input Sensitivity	9mV	9mV
Radiated Harmonics & Spurious	Exceeds FCC specifications	Exceeds FCC specifications
FCC Acceptance	Type accepted under FCC Part 74	Type accepted under FCC Part 74

RECEIVER		
	WBS-680/WBS-670 Base Station	WTR-680/WTR-670 Beltpacks
Type	Dual Conversion Superheterodyne, Synthesized, FM, 720 channels	Dual Conversion Superheterodyne, Synthesized, FM, 720 channels
RF Sensitivity	<0.7mV for 12dB SINAD	<0.7mV for 12dB SINAD
Signal-to-Noise Ratio	95dB	95dB
IF Selectivity	3dB at 230KHz	3dB at 230KHz
Image Rejection	70dB or better	70dB or better
Squelch Quieting	95dB	95dB
RF Frequency Stability	0.005%	0.005%
Distortion	<1% at full deviation	<1% at full deviation
Local Headset Output	40mW output into 600W (1% distortion)	40mW output into 600W (1% distortion)
FCC Acceptance	Notification under FCC Part 15	Notification under FCC Part 15

# BATTERY CHARGERS

## WTR1C

The WTR1C is a single battery charger that provides built-in maintenance capability to maximize the battery cycle life for the WBS-670 and WBS-680 wireless intercom systems. It helps to optimize the battery and maintains the battery's peak capacity while it is charging. There is no restriction to how long the battery can remain in the charger. Rapid Charge capabilities fully charge batteries in less than 2 hours.



## WTR4C

The WTR4C has the same features as the WTR1C, except that the WTR4C can charge up to 4 batteries simultaneously.



### STATUS INDICATORS

- Charging LED - Solid light indicates battery pack is charging
- Ready LED - Solid light indicates battery is fully charged
- Rejected LED - Flashing light indicates faulty or dead battery
- Power LED - Solid light indicates there is power to the charging slot
- Conditioning Cycle LED - Flashing light indicates discharging process

### BATTERY FEATURES

- Easy-to-read LED status indicator lights
- Battery is fully charged in less than 2 hours
- Maintains battery at peak capacity
- Optimizes battery life
- Battery can remain in charger indefinitely

# TECHNICAL SPECIFICATIONS

BC-800NM4 & BC-800NM BATTERY CHARGERS		
Physical Characteristics	BC-800NM4	BC-800NM
<b>Product Dimensions</b>	13" (33cm) W x 1.7" (4.5cm) H x 7" (17.8cm) D	3" (7.62cm) W x 3.5" (8.89cm) H x 6" (15.24cm) D
<b>Product Weight</b>	4lbs (1.5kg) without battery adapters	1lb, 6oz (0.62kg)
<b>Shipping Dimensions</b>	11.5" (29.2cm) W x 10.5" (26.7cm) H x 18.5" (47cm) D	7" (17.8cm) W x 4.5" (11.43cm) H x 7" (17.8cm) D
<b>Shipping Weight</b>	10lbs, 9oz (4.8kg) with battery adapters, power supply, & rechargeable battery packs	2lbs, 10oz (1.2kg) with rechargeable battery pack & power supply
<b>Material</b>	ABS KJW fire retardant plastic, textured	ABS KJW fire retardant plastic, textured

FEATURES	
<b>Conditioning Cycle</b>	Provides built-in maintenance capability to maximize battery cycle life
<b>Status Indicators</b>	'Charging', 'Ready', 'Rejected' (dead battery), 'Conditioning Cycle' and 'Power LED' indicators make the BC-800NM simple and easy to use
<b>Intelligent Charging</b>	<ul style="list-style-type: none"> <li>Optimizes the battery</li> <li>Battery can remain in the charger indefinitely</li> <li>Maintains battery at peak capacity</li> </ul>
<b>Rapid Charge Capability</b>	Charges in less than 2 hours

USER ENVIRONMENT	
<b>ESD</b>	8KV continuous contact discharge; 15KV from air to all surfaces without contact
<b>Humidity</b>	95% relative humidity (non-condensing)
<b>Drop</b>	Unit functions normally after 4ft./1.2m drop to concrete
<b>Storage Temperature</b>	-40° to 122oF/-40° to 50°C
<b>Operating Temperature</b>	32° to 122°F/0o to 50°C
<b>Power Supply</b>	BC-800NM4: (Universal): 90V-230VAC, 50/60Hz Output: 15VDC, 5A or 24VDC, 4.5A BC-800NM: (Universal): 90V-230VAC, 50/60Hz Output: 15VDC, 1.5A or 24VDC, 1.3A
<b>Safety Standards</b>	Charger & power supply UL listed (UL 1950), CSA Certified (C 22.2 No. 223); Compliant to FCC part 15 Class A and CE Marking (Electromagnetic Compatibility) Directive 89/336/EEC and Low Voltage Directive 73/23/EEC; C15PR-22 Class B

PERFORMANCE CHARACTERISTICS	
<b>Rapid Charge</b>	Charges batteries to 90+% capacity in 2 hours or less
<b>Complete Charge</b>	Completes 100% capacity charge in 4 hours or less
<b>Conditioning</b>	Completely discharges a battery and automatically switches to charging mode
<b>Maintenance Charge</b>	Maintains the battery at optimum capacity indefinitely

USER INTERFACE	
<b>Power LED</b>	Indicates POWER to charging slot
<b>Conditioning/Charging LED</b>	Flashing indicates discharging process
<b>Reject LED</b>	Flashing indicates faulty battery
<b>Conditioning/Charging LED</b>	Solid indicates battery pack is being charged
<b>Ready LED</b>	Solid indicates battery charged



### **About Clear-Com®**

Clear-Com, an HME company, is a global provider in professional voice communications systems since 1968. We develop and market proven intercom technologies such as Analog & Digital Partyline, Digital Matrix, Wireless and Intercom-over-IP systems for critical communication applications in broadcast, performance venues, military, government and enterprise markets. Recognized for our legacy of intercom innovations, production teams around the world have come to depend on Clear-Com for clear, reliable and scalable communications solutions.

### **About HM Electronics, Inc. (HME)**

A privately held company founded in 1971, HME has continued to be a leading provider of innovative technology focused on enhancing productivity and customer service for multiple markets including pro audio, sports, and restaurants. HME developed the first wireless intercom system for pro audio and continues to introduce exciting, cutting-edge wireless intercoms that enhance communications, increase productivity and facilitate creativity for virtually any application.

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