

CLOCKAUDIO®

UHF PPL WIRELESS MICROPHONES

SYSTEM INSTRUCTION
MANUAL



PROFESSIONAL
MICROPHONE
SYSTEMS

CONTENTS

1. Features	3
2. Specifications	
2.1 CW9000R Receiver	3
2.2 CW9001T Belt pack Transmitter	4
2.3 CW9000T Handheld Transmitter & Microphone	4
2.4 Standard Microphones	4
3. Equipment Parts and Accessories	
3.1 CW9000R Diversity Receiver	5
3.2 CW9000T Handheld Microphone and Transmitter	5
3.3 Standard Accessories	5
3.4 CW90001T Belt pack Transmitter	6
3.5 CL6 Lavalier Cardioid Condenser Microphone	6
4. Setting Up and Operation	
4.1 CW9000R Diversity Receiver	7
4.2 CW9000T Handheld Microphone/Transmitter	8
4.3 CW9001T Belt Pack Transmitter and Microphones	9
4.4 CW9004-T UHF Desk Wireless Transmitter	12
4.5 CW9005-T UHF Desk Wireless Microphone Transmitter	13
4.6 CW9006-T UHF Desk Wireless Transmitter	14
4.7 CU-2 Intelligent Battery Management System	15
5. Optional Accessories	
5.1 Microphones for the CW9004 Transmitter	17
5.3 HW 1500 Lightweight Headworn Boom Microphone	18
5.4 HW 1200 Lightweight Headworn Boom Microphone	18
5.5 CL4 Lavalier Omni-Directional Microphone	18
5.6 CW9000T-C Interchangeable Condenser Microphone Head	18
5.7 AA9000 Antenna Distribution Amplifier	19
5.8 AB9000 Antenna Booster	19
5.9 RRM9000 Rackmount	19
6. General Information	20

I. FEATURES

- UHF Band operation for reduced interference
- PLL Synthesised technology for stable frequency and multiple simultaneous channels
- True diversity reception with tuned Antennas and two independent receivers for optimum continuity and reception conditions
- Integral squelch and mute functions to minimise noise
- S.A.W. filtering to minimise interference
- Receivers in compact half rack size rugged metal case with easy controls, comprehensive LCD display, balanced (XLR) and unbalanced (6.3mm jack) outputs
- Belt Pack (Lavalier Microphone) and Hand Held systems with easy to use and secure controls, and LCD display
- Headworn boom microphones for belt pack system and interchangeable condenser microphone head for hand held system available as optional extras

2. SPECIFICATIONS

2.1 Receiver CW9000R

FM Carrier	UHF for reduced interference
Frequency Range	630 - 960Mhz (Bands according to local regulation)
Channel Frequencies	192 PLL pre selectable channels per Band
Frequency stability	± 0.005%
S/N Ratio	± 100dB
Audio Output Level	-12dB
AF Output Impedance	600 Ohms
Squelch	Pilot Tone and Noise Mute
Output Terminations	Balanced - 3 Pin XLR socket. Unbalanced - 6.3mm jack socket
Display	LCD
Display Information	Frequency; Receiver A/B; Mute Status; RF/AF levels.
Controls	Power On/Off; Frequency Up/Down; Frequency Scan; Audio level
Supply Power	External 12V DC; 500mA.
Rugged Metal Case	
Dimensions	(W) 211mm x (H) 40mm x (D) 152mm
Finish	Black
Accessories	Audio link cable terminated in 6.3mm jack 1 U Rack Mount for 2 receivers Rack Cover Panel for vacant slot (when only one receiver mounted)

2.2 Belt Pack Transmitter CW9001T

FM Carrier	UHF for reduced interference
Frequency Range	630 - 960MHz (Bands according to local regulation*)
Channel Frequency	192 PLL Pre selectable Channels
RF Output	10mW
Frequency Stability	± 0.005%
Frequency Deviation	± 48KHz
S/N Ratio	> 102dB
Audio Frequency Response	50Hz - 15KHz
Dynamic Range	> +110dB
Controls	Power On/Off, Frequency and AF Level set
LCD Display Information	Frequency and Battery Status
Microphone	CL6 Cardioid Lavalier including Windshield
Power	2 x AA Batteries giving more than 8 hours use
Finish	Black and Grey dual colour
Belt clip	Reverseable/removable
Accessories	Presentation Case and Microphone Windshield included CMH2000 or HW1500 Headworm microphones available as optional extras

2.3 Hand Held Radio Microphone CW 9000T

RF, AF and control information as for CW9001T above

Microphone	Dynamic Cardioid
LCD Display Information	Frequency, AF Level and Battery Status
Power	2 x AA batteries giving more than 10 hours use
Finish	Soft touch Black
Accessories	Presentation Case, Identifying Coloured Microphone End Covers and SA5 Microphone Holder/Stand Adaptor included Interchangeable Cardioid Condenser Microphone Head CW9000T-C available as optional extra

2.4 Standard Microphones

Model	CL6	9000T-D
Type	Condenser (Back Electret)	Dynamic
Polar Diagram	Cardioid	Cardioid
Frequency Response	100Hz - 12KHz	50Hz - 16.5KHz
Impedance	2.2 KOhms	600 Ohms
Sensitivity	-50dB @ 1KHz	-52dB @ 1KHz (0dB = 1VPa)
Termination	4 Pin Tini-Q connector	

* Licence may be required. You are advised to contact your Licencing Authority before use to ensure legal transmission.

3. EQUIPMENT PARTS AND ACCESSORIES

3.1 CW9000R Diversity Receiver

- A. Power On/Off switch
- B. Up button
- C. Down button
- D. Set button
- E. LCD display
- F. Audio level control



- G. DC power input socket
- H. Audio output, jack socket - unbalanced
- I. Audio output XLR socket - balanced
- J. Antenna 2 input socket
- K. Antenna 1 input socket
- L. Antenna



3.2 CW9000T Hand held transmitter

- A. Interchangeable microphone head
- B. Battery tray
- C. Battery tray clips
- D. Power On/Off switch
- E. Set button
- F. Down button
- G. Up button
- H. LCD display



3.3 Standard Accessories

- A. Receiver audio output cable w 6.3mm jack plugs
- B. Receiver AC/DC Power supply
- C. Colour coded end covers
- D. Microphone carrying case
- E. SA5 microphone holder and stand adaptor



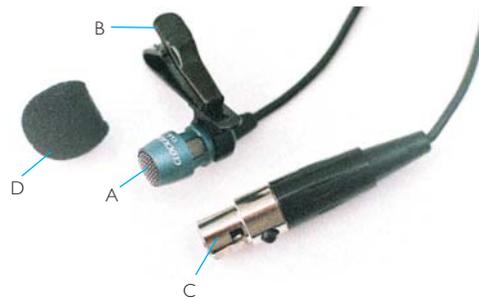
3.4 CW9001T Belt pack transmitter

- A. Microphone input
- B. Power On/Off switch
- C. Antenna
- D. LCD display
- E. Set button
- F. Up button
- G. Down button
- H. Sliding outer cover release buttons
- I. Audio (modulation) level control
- J. Belt clip
- K. Battery tray



3.5 Lavalier microphone

- A. CL6 Lavalier condenser microphone
- B. Microphone clip
- C. Tini Q 4 pin connector
- D. Windshield



4. SETTING UP AND OPERATION

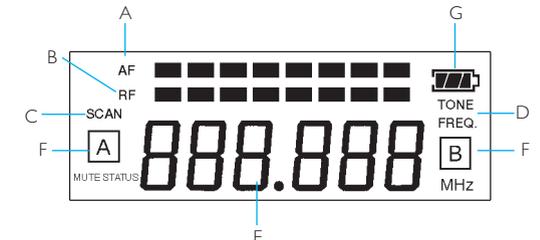
4.1 CW9000R Diversity Receiver

- (i) Connect the two antennas to the easy mount BNC sockets on the rear of the receiver and align them vertically.
- (ii) Insert the DC connector of the power supply unit in the DCV Input socket on the rear of the receiver.
- (iii) Connect the audio output to a mixer or amplifier using a lead with an XLR male connector if it is a balanced connection, or a lead with a 6.3mm jack plug if it is an unbalanced connection.
- (iv) The electrical supply to the DC power supply unit can now be made or switched on.
- (v) Turn the receiver on by pressing the "Power" button. (To turn off receiver depress the "Power" button again)
- (vi) To scan or set frequency press the "SET" button for 3 seconds. Use the "Up" and "Down" buttons to select the desired frequency with reference to the LCD display.
- (vii) Press the "SET" button again to store the setting.
- (viii) When signal is present audio output level can be set by using the rotating level control on the left side of the front panel.



LCD display

- A. AF signal level
- B. RF signal level
- C. Display for scan mode
- D. Display for frequency mode
- E. Main display
- F. Diversity display (antenna 1 or 2)
- G. Transmitter battery status



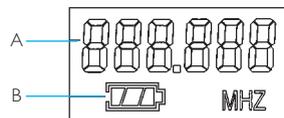
4.2 CW9000T Hand held Transmitter/microphone

- (i) To insert or change the battery
 - A. Remove the microphone head by unscrewing counter-clockwise
 - B. Press both battery tray buttons towards each other to release battery tray
 - C. Remove exhausted batteries and insert two new AA batteries according to polarity shown on tray
 - D. Push the battery tray carefully back in to the microphone body until "clicked" home
 - E. Present the microphone head to the body ensuring the connectors mate and resecure by screwing clockwise
- (ii) Switch the transmitter on using the On/Off switch at the bottom of the microphone
- (iii) To set the desired frequency press the "SET" button for 3 seconds. When "MHZ" blinks on the display the frequency may be selected by using the "Up" and "Down" buttons
- (iv) Press the "SET" button to store the setting
- (v) When signal is present AF (modulation) level may be set. Press the "SET" button twice. When "Sensit" appears on the display use the "Up" and "Down" buttons to adjust the right level
- (vi) Press the "SET" button to store the setting
- (vii) To prevent accidental operation of controls press the "Up" button for 3 second to activate the "Lock Mode". To unlock press the "Up" button again



LCD display

- A. Main display
- B. Battery status indicator



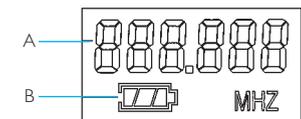
4.3 CW9001T Belt Pack Transmitter

- (i) To insert or change the batteries
 - A. Press in and hold both outer cover release buttons
 - B. Slide transmitter body downwards to expose battery compartment in rear of body
 - C. Remove exhausted batteries and insert two new AA batteries according to polarity shown on tray
 - D. Push the transmitter carefully back in to position until the release buttons click home
- (ii) Insert the lavalier microphone connector in the microphone socket on the top of the transmitter
- (iii) Switch on the transmitter using the On/Off switch on top of the unit
- (iv) Release the outer cover and slide transmitter upwards to expose the display and controls at the front of the transmitter
- (v) To set the desired frequency press the "SET" button for 3 seconds. When "MHZ" blinks on the display the frequency may be selected by using the "Up" and "Down" buttons
- (vi) Press the "SET" button to store the setting.
- (vii) When signal is present the AF (modulation) level may be set by using a trimmer to adjust the control set in the top left rear face of the unit
- (viii) To prevent accidental changes to settings press the "Up" button for 3 seconds to activate the "Lock Mode". To unlock press the "Up" button again
- (ix) Push the transmitter carefully back in to position



LCD display

- A. Main display
- B. Battery Status indicator



CW9004T - CW9005T - CW9006T TRANSMITTER

1. Switch on the transmitter using the On/Off on the bottom of the unit
2. To set the desired frequency press the "SET" button for 3 seconds. When "MHz" blinks on the display the frequency may be selected by using the "UP" and "DOWN" buttons.
3. Press the "SET" button to store the setting
4. To prevent accidental changes to the settings press the p button again.
5. LCD display (A) Main display (B) Battery Status indicator.
6. Battery compartment ensure correct polarity when replacing the rechargeable batteries.



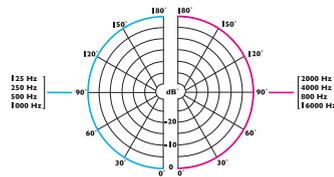
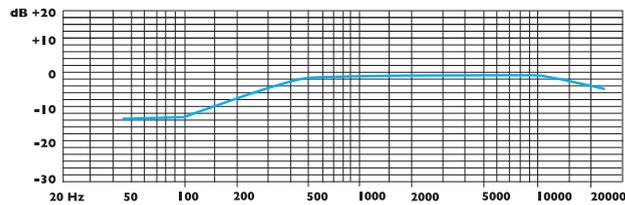
4.4 CW9004T UHF Desk Wireless Transmitter

Frequency Range	630 - 960MHz (According to local regulation)
Channel Frequencies	192 PLL selectable channels per frequency band
RF Output	10mw
Frequency Stability	±0.005%
Frequency Deviation	±48KHz
S/N Ratio	> 102dB
Audio Frequency Response	50Hz - 15KHz
Dynamic Range	> +110dB
Controls	Power On/Off Frequency and AF level set
LCD Information	Frequency and battery status
Switching	Programmable touch switch and LED indicator
Power Supply	2 x AA batteries giving more than 9 hours use
Connections	3 Pin Mini XLR (Tini-Q Switchcraft)
Finish	Black
Dimensions	L 125mm (4.93") x W 115mm (4.53") x (D) 40mm (1.58")
Weight	394g (13oz)
Accessories	Microphones Models C310 C312 C313 and C314



4.5 CW9005T UHF Desk Wireless Microphone Transmitter

Frequency Range	630 - 960MHz (According to local regulation)
Channel Frequencies	192 PLL selectable channels per frequency band
Polar Pattern	Omni-directional
Audio Bandwidth	50Hz - 18KHz
RF Output	10mw
Frequency Stability	±0.005%
Frequency Deviation	±48 KHz
S/N Ratio	> 102dB
Audio Frequency Response	50Hz - 15KHz
Dynamic Range	> +110dB
Controls	Power On/Off Frequency and AF level set
LCD Information	Frequency and battery status
Switching	Programmable touch switch and LED indicator
Power Supply	2 x AA batteries giving more than 9 hours use
Finish	Black
Dimensions	L 125mm (4.93") x W 115mm (4.53") x (D) 40mm (1.58")
Weight	394g (13oz)
Accessories	CU-2 Gang battery charging unit



4.6 CW9006T UHF Desk Wireless Transmitter

Frequency Range	630 - 960MHz (According to local regulation)
Channel Frequencies	192 PLL selectable channels per frequency band
RF Output	10mw
Frequency Stability	±0.005%
Frequency Deviation	±48KHz
S/N Ratio	> 102dB
Audio Frequency Response	50Hz - 15KHz
Dynamic Range	> +110dB
Controls	Power On/Off Frequency and AF level set
LCD Information	Frequency and battery status
Switching	Programmable touch switch and LED indicator
Power Supply	2 x AA batteries giving more than 9 hours use
Output	24 Volts Phantom Power
Connections	3 Pin XLR
Finish	Black
Dimensions	L 125mm (4.93") x W 115mm (4.53") x (D) 40mm (1.58")
Weight	394g (13oz)
Accessories	S-201-X Floor Stand



S210-X
MICROPHONE FLOOR STAND

A fixed height folding long legged stand with a diecast base for stability and ease of transport. Fitted with a 3 pin XLR connector at the base and the top, the top connector is lockable. Specially designed for use with the CW-9006 UHF transmitter. Overall height 1023mm (41")



4.7 CU-2 Intelligent Battery Management System

Charging Current	1.25A
Charging Time	6 hours (Ni-MH. 2700mAh)
Indicators	Red LED charging Green LED charging complete
Power Supply	Input 90-260V AC Output 12VDC 1.25A
Dimensions	L 125mm (4.93") W 125mm (4.93") H 63mm (2.48")
Weight	282g (9.95oz)

- Processor controlled
- Built-in active monitoring circuitry
- Pulse charging system
- Temperature sensor
- Two dedicated compartment for charging two CW9004-T, CW9005-T or CW9006-T



CW9004T - CW9005T - CW9006T SWITCHING INSTRUCTIONS

The following instructions are a step to step guide of how you can programme the switch to the function you require:

1. Whilst holding down the function switch, power up the base by switching on the power switch located on the underside of the base. This enables you to enter programming mode. Note both bases require 9 to 48 volts phantom power to operate.
2. You will notice the LED flashes on and off for approximately 2 seconds to tell you that programming mode has been selected.
3. At each stage of programming the base will tell you what functions have already been stored by the LED flashing the appropriate numbers of times. See the table below for a quick reference guide.

Programme	Description	Option 1	Option 2
1	Switch Type	Momentary	Latching
2	Switch Action	PTT (Normally Off)	PTM (Normally On)

By pressing the switch once programme option 1 shall be selected and the LED will flash according to which option is stored (either once for Momentary or twice for Latching) and likewise for programme option 2 for PTT or PTM.

You are able to change the switching operation by following the step by step guide.

Latching (Normally On)

This is the default setting, the switch has a latching operation and the microphone is live as soon as the base is powered. Should the default setting be cleared perform the following actions:

1. Press the switch once the LED will flash once, then press the switch twice the LED will flash twice. Once you have performed this step the switch is set for Latching operation.
2. For Normally On press the switch twice, the LED will flash twice, then again press the switch twice the LED will flash twice. Wait for approximately 5 seconds and the switch function will be set into the bases memory.

Latching (Normally Off)

The microphone requires the switch to be pressed to become live. For programming follow step one from above and then for normally off press the switch twice, the LED will flash twice, then press the switch once the LED will flash once. Wait for approximately 5 seconds and the switch function will set into the bases memory.

Push to Talk

In this function the switch needs to be pressed and held for the microphone to be live.

1. Press the switch once the LED will flash once, then again press the switch once the LED will flash once. Once you have performed this step the switch is set for push operation.
2. For PTT press the switch twice the LED will flash twice, then press the switch once the LED will flash once. Wait for approximately 5 seconds and the switch function will be set into the base memory.

Push to Mute

In this function the microphone is live until the switch is pressed and held down.

1. Press the switch once the LED will flash once, then again press the switch once the LED will flash once. Once you have performed this step the switch is set for push operations.
2. For PTM press the switch twice the LED will flash twice, then press the switch twice the LED will flash twice. Wait for approximately 5 seconds and the switch function will be set into the base memory.

Please allow time for the LED to flash between each stage of programming and also at each stage the interval between pressing the switch should be no more than one second.

Should for any reason you wish to start over remove to the base.

5. OPTIONAL ACCESSORIES

5.1 Microphone for the CW9004 Transmitter

- C310 Short Rigid Stem
- C312 Semi-rigid Gooseneck
- C313 Semi-rigid Gooseneck
- C314 Semi-rigid Gooseneck



SPECIFICATIONS

Type	Condenser (Black Electret)
Polar Pattern	Cardioid
Frequency Response	50 - 18KHz
Sensitivity	-47dB \pm 3dB @ 1KHz (0dB = 1VPa)
S/N Ratio	64dB (A)
Connection	3 pin Tini-Q Female Plug

Product	Overall Length	Shaft Diameter	Head Diameter
C310	100mm (3.94")	6mm (0.24")	12mm (0.47")
C312-SR	200mm (7.88")	6mm (0.24")	12mm (0.47")
C313-SR	300mm (11.82")	6mm (0.24")	12mm (0.47")
C314-SR	400mm (15.76")	6mm (0.24")	12mm (0.47")

5.3 CMH 2000 Microlightweight Headworn Boom Microphone

Type	Condenser (Back Electret)
Polar Diagram	Omni Directional
Frequency Response	30Hz - 18KHz
Impedance	4.4K Ohms
Sensitivity	-33dB @ 1KHz (0dB = 1VPa)
Termination TAF4	Tini-Q 4 Pin connector
Finish	Black and Beige



5.4 HWI500 Lightweight Headworn Boom Microphone

Type	Condenser (Back Electret)
Polar Diagram	Bi-directional Close Talking
Frequency Response	300Hz - 5KHz
Impedance	1K Ohms
Sensitivity	-44dB @ 1KHz (0dB = 1VPa)
Termination TAF4	Tini-Q 4 Pin connector
Finish	Black



5.5 HWI200 Lightweight Headworn Boom Microphone

Type	Condenser (Back Electret)
Polar Diagram	Cardioid
Frequency Response	50Hz - 18KHz
Impedance	680 Ohms ± 30%
Sensitivity	-50dB @ 1KHz (0dB = 1VPa)
Termination TAF4	Tini-Q 4 Pin connector
Finish	Black



5.6 CL4 Lavalier Omni-Directional Microphone

Type	Condenser (Back Electret)
Polar Diagram	Omni-Directional
Frequency Response	50Hz - 16KHz
Impedance	1K Ohms ± 30%
Sensitivity	-44dB @ 1KHz (0dB = 1VPa)
Termination TAF4	Tini-Q 4 Pin connector
Finish	Black or Beige
Accessories	Tie clip and Foam windshield



5.7 CW9000T-C Interchangeable Condenser Microphone Head

Type	Condenser (Back Electret)
Polar Diagram	Cardioid
Frequency Response	60Hz - 18KHz
Impedance	400 Ohms
Sensitivity	-50dB (0dB = 1VPa)



5.8 AA9000 Antenna Distribution Amplifier

Carrier frequency	470-870 MHz
Antenna inputs	2 (BNC)
Antenna outputs	4 x pairs (BNC)
Output connector isolation	24dB
Nominal cascade gain	3dB
Inline antenna power	12 Volts DC 120MA
Dimensions	(W) 263mm x (H) 45mm x (D) 480mm
Weight	3Kg
Rack height	1U
Finish	Satin black
Power supply	4 x 12V DC
Mains input voltage	90-264 AC 50/60 Hz



5.9 AB9000 Antenna Booster

Carrier frequency	470-870 MHz
Antenna gain	1.8dBi
Booster gain	0dB +2/-1
Antenna coverage	360 degrees
Operating voltage	12 - 18V DC
Inline antenna power	12 Volts DC 120MA
Dimensions	(W) 77mm x (H) 65mm
Antenna height	250mm
Weight	166g



5.10 RRM9000 Rack mount for 2 Receivers and RCP9000 Cover Panel for vacant slot (when only 1 receiver mounted)



RRM9000



RCP9000

6. GENERAL INFORMATION

- Always make all other connections before plugging the DC power supply into an AC power outlet
- Do not keep the devices in places of very high temperature or humidity
- For optimum reception and maximum operating distance aim for open space between receiver and transmitter
- For optimum performance use devices at least 50cm away from known interference sources
- For best pick up pattern grip the hand held microphone around the middle of its body
- Remove the batteries when transmitters are not likely to be used for some time
- When replacement batteries are needed always change both for new ones at the same time

CLOCKAUDIO®

Clockaudio Ltd - Headquarters

22 Arside Road, Waterlooville, Hampshire PO7 7UP. UK
Tel +44 (0)23 9225 1193 • Fax +44 (0)23 9225 1201
e-mail sales@clockaudio.co.uk

Clockaudio North America Inc.

2891 du Meunier, Unit 103, Vaudreuil-Dorion, Quebec J7V 8P2. Canada
Tel: (450) 424-9797 • Fax: (450) 424-3660
e-mail: info@clockaudio.com

www.clockaudio.com

As part of a continuous product improvement programme, we reserve the right to alter specifications without prior notice.

