

Wireless Microphone System

WM-1000

Product Manual



PYRAMID
COMMUNICATIONS

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1.0 Introduction

1.1 What's In The Box

When purchased as a System, the Wireless Microphone comes with a WM-1000 handheld wireless microphone and WB-1000 base unit/docking station.

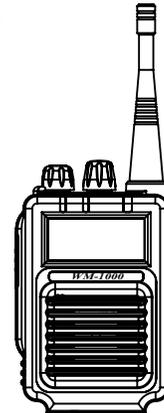
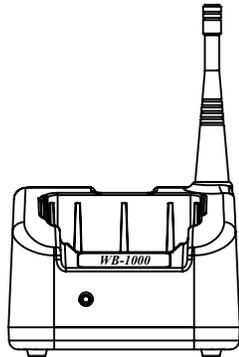
1 x WB-1000 Base / Docking Unit

1 x WM-1000 Handheld Wireless Microphone

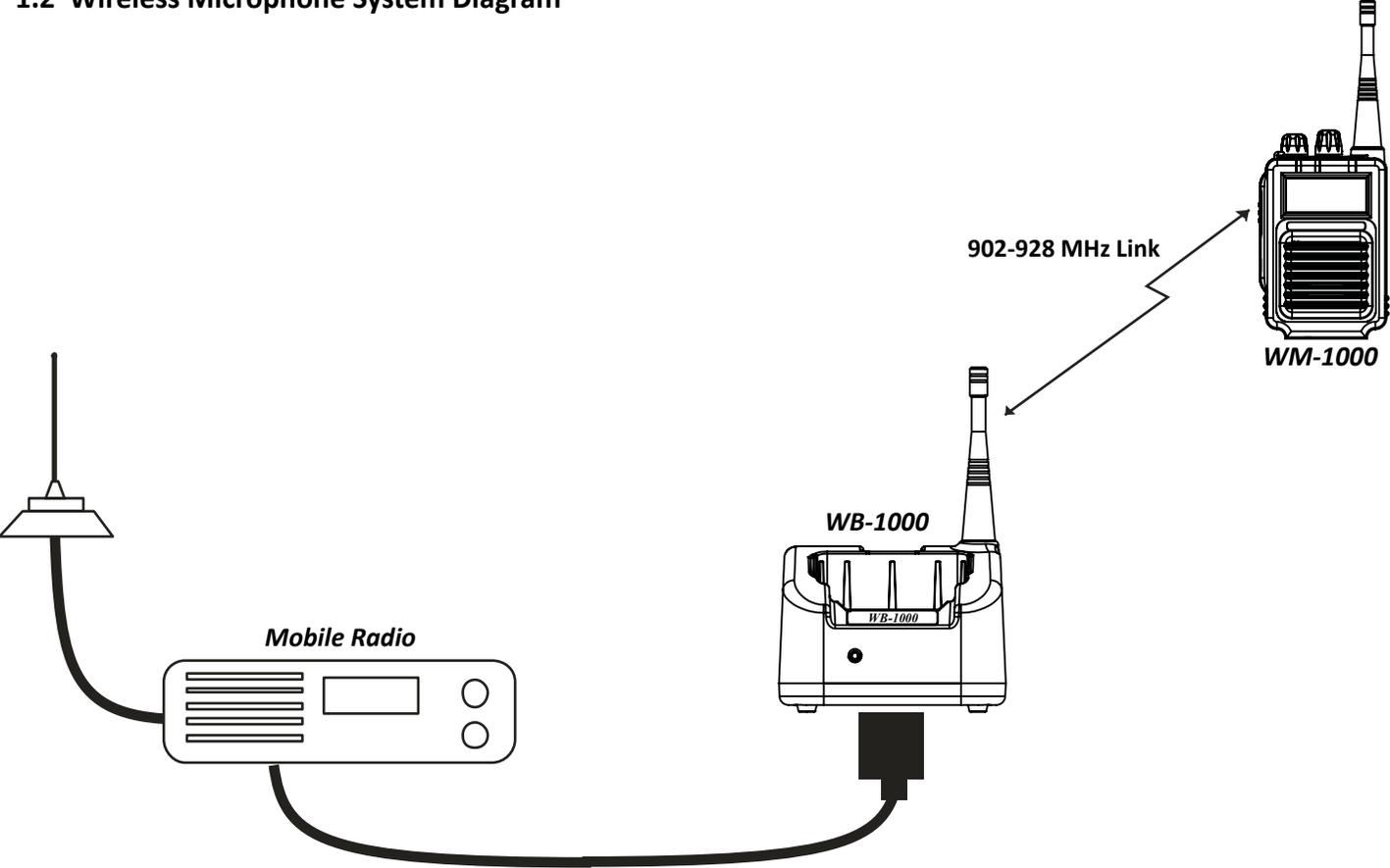
1 x USB Programming Cable

1 x USB Flash Card Drive Containing Programming Software, USB Drivers and Manual

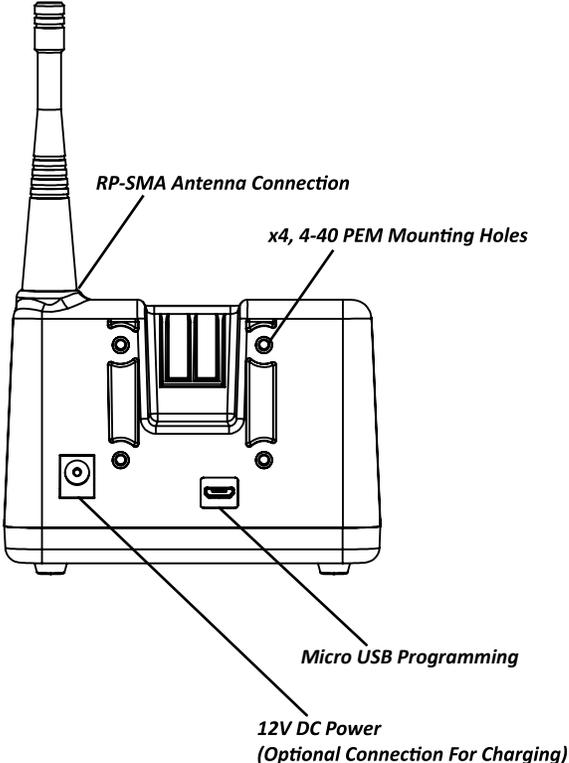
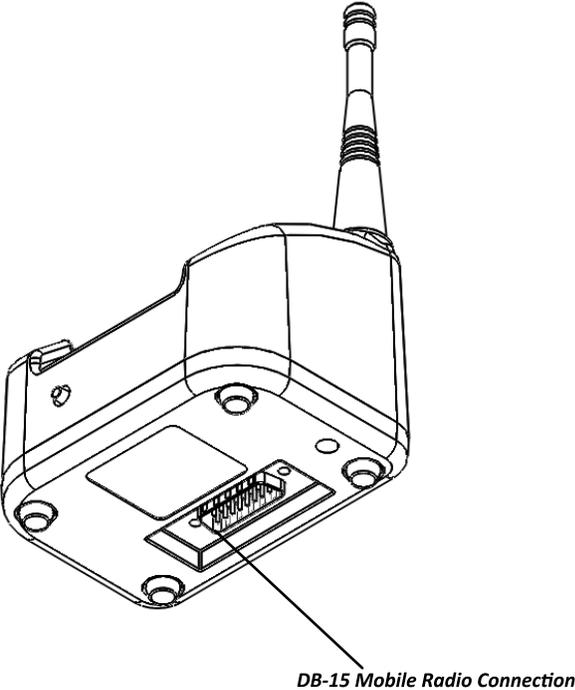
1 x Generic Interface Cable (unless purchased with radio specific interface cable)



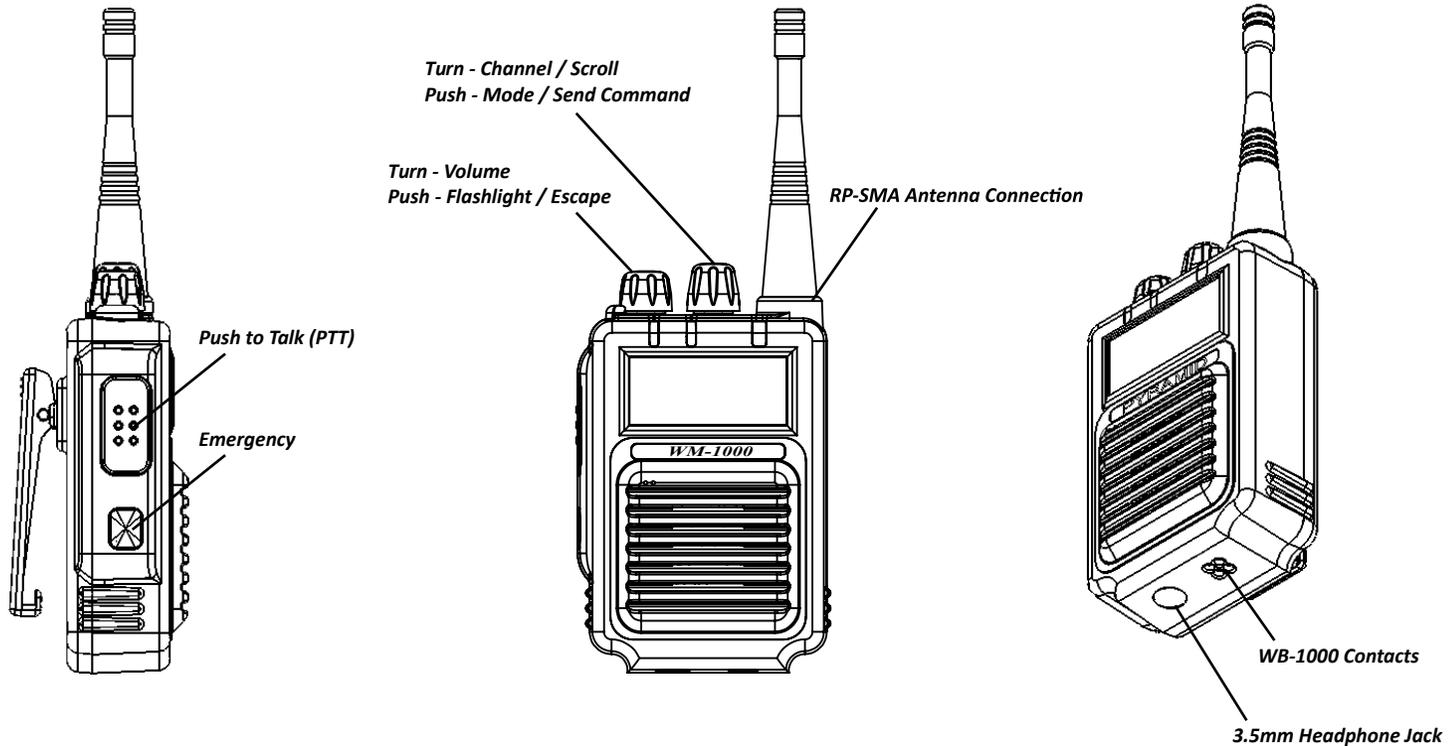
1.2 Wireless Microphone System Diagram



1.3 WB-1000 Connections



1.4 WM-1000 Connections, Buttons and Knobs



1.5 Scope of this manual

This manual contains the specifications, functional description, operating instructions for the WM-1000 Wireless Microphone System. This manual is intended for use by qualified service technicians to aid them with installation, interfacing, alignment and trouble shooting of the WM-1000 when used with other land mobile radios.

Note: Any modifications not expressly approved by Pyramid Communications may void the user's authority to operate the equipment.

Service manual revisions

Component changes, additions and deletions may occur in the circuit design to improve operation and will be reflected in future releases of this service manual. Specifications and circuit changes are subject to change without prior notice or obligation by Pyramid Communications.

1.6 Safety Information

The WM-1000 Wireless Microphone System is designed to operate within all applicable Federal regulations at the time of manufacture. Proper operation and service procedures will assure continued compliance with these regulations:

- Do not operate without an antenna or appropriate RF load connected to the antenna connector.
- Do not operate in the presence of unshielded electrical blasting caps or explosive environmental conditions.
- Do not operate while refueling the vehicle or in the presence of explosive fumes.
- Do not mount WB-1000 in front of an airbag.

1.7 Regulatory Information

FCC information

FCC ID: LRUWM1000, LRUWB1000

This device 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.

RF Exposure Statement

The WM-1000 has been shown to be compliant for localized specific absorption rate (SAR) for uncontrolled environment/general exposure limits specified in ANSI/IEEE Std. C95-1-1992 and had been tested in accordance with the measurement procedures specified in IEEE 1528-2013, OET Bulletin 65 Supp. C and EN/IEC 62209.

To maintain compliance with RF exposure limits, a 20cm separation distance must be maintained between the WB-1000 and any persons.

Industry Canada Information

IC ID: 2390A-WM1000, 2390A-WB1000

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante

This radio transmitter 2390A-WM1000 & 2390A-WB1000 have been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio 2390A-WM1000 & 2390A-WB1000 a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Approved Antenna: 2.2dBi (value used for ¼ dipole antenna) 50 Ohm, RP-SMA Whip Antenna

RF Exposure Statement

The WM-1000 has been shown to be compliant for localized specific absorption rate (SAR) for uncontrolled environment/general exposure limits specified in ANSI/IEEE Std. C95-1-1992 and had been tested in accordance with the measurement procedures specified in IEEE 1528-2013, OET Bulletin 65 Supp. C and EN/IEC 62209.

To maintain compliance with RF exposure limits, a 20cm separation distance must be maintained between the WB-1000 and any persons.

Pour maintenir la conformité avec les limites d'exposition aux radiofréquences, une distance de séparation de 20 cm doit être maintenue entre le WB-1000 et toutes les personnes.

2.0 Specifications

Physical

Handheld Size: 4.3" x 2.6" x 1.5"

Handheld Weight: 6 oz.

Base Size 3.8 " x 2.75" x 2.75"

Base Weight: 5 oz.

Construction: ABS Plastic

Power & Audio

Battery: 3.7V Lithium Polymer Battery, 2000mAH

Speaker: 1.6 Watt Internal Speaker

External Audio Output: 3.5mm Headphone Connector

Transmitter

Frequency Range: 902 - 928 MHz, Frequency Hopping Spread Spectrum (Fixed Channel)

RF Power Output: +13.1dBm

Audio Data Rate: 8KHz / 16 Bit AUdio

Receiver

Frequency Range: 902 - 928 MHz

Receiver IF bandwidth: 300 kHz

Receiver sensitivity (BER) -102.5 dBm at 150 kbps, GFSK

3.0 Functional Description

The WM-1000 is a state of the art spread spectrum unlicensed radio system that provides extended coverage for mobile radio users. This portable radio system integrates with your existing mobile radio to give users handheld coverage when outside of their vehicle. With no license required, the WM-1000 offers ease of implementation when compared to traditional SVR vehicular repeater systems.

The WM-1000 is used as mobile extender in cross-band operation: the link is 915 MHz ISM Band utilizing a traditional simplex mode of communications where the handheld WM-1000 unit can either transmit or receive at any one time. The mobile radio that the WM-1000 is connected to can be Lo-band, VHF, UHF, 700MHz or 800MHz trunking or conventional. Proper care must be taken to prevent interference between the mobile's higher power transmitter and the WB-1000 receiver. Proper antenna placement is important even in this cross-band operation.

Pyramid's Smart Trunking II™ access gives portable radio users feedback of the handshake status of their tethered mobile radio to system call status. This ensures that the portable user has complete visibility of the trunking status to the main radio system. High speed data signalling between the WM-1000 and the WB-1000 negotiate the trunking access regardless of trunking format, EDAC'S™, LTR™, P25™, Nexedge™, MOTOTRBO™ AND IDAS™. When channel access is granted the WM-1000 user will hear a go ahead tone, acknowledging channel access.

The WM-1000 is configured to be uniquely paired to one or more WB-1000 base in the vehicle. The WM-1000 has four channels. These channels can be selected using the mode knob on the WM-1000 handheld and will select the RF channel and base paired to that channel. This provides private secure communications to your vehicle mounted mobile radio.

In most cases, WB-1000 is powered from the DB-15 radio connection and requires no external power supply. There are provisions for external 12V DC on the rear of the WB-1000 for desktop charging/programming. The WB-1000 is available in a “charge only” version (no RF), model number CH-1000.

The WM-1000 can be configured a couple of different ways, depending on the user requirements. First, if all your WB-1000 base units are setup identical, having the same RF Band (channel) and RF Address, the WB-1000 units will operate in a multi-vehicle mode, where they will determine a priority vehicle and all handheld from WM-1000 units will be passed through the WB-1000 that is priority. This allows handheld users to communicate with each other on a common channel (as in a simplex mode) and still have communications with their dispatch using the priority WB-1000. The WB-1000 base units ESP II™ structure works to establish one priority vehicle on the scene to handle traffic to and from the dispatch channel.

Second, you have the option to program each of the WB-1000 base units with a RF Band and RF Address. This will create a individual pairing from the WM-1000 to the selected WB-1000 and the handheld radios will not hear each other on the 915 MHz link. They may still be able to communicate with each other through the mobile radio network, however, the communications between the WM-1000 and that WB-1000 is private. There are four different RF Bands to choose from to reduce the chance of RF interference if operating in this mode.

3.1 Cradle/Docking Station Features

WB-1000 is a dedicated base and charger that interfaces seamlessly to most popular mobile radios. When the WM-1000 transmits, the WB-1000 receives the transmission and in real time keys the Mobile Radio retransmitting the conversation back to the radio network (dispatch). When the mobile receives a transmission, the WB-1000 base retransmits back to the WM-1000, extending the range of the wireless microphone equal to your mobile two way radio.

Important: To configure (Pair) a WM-1000 to any WB-1000, insert the desired WM-1000 into the WB-1000 and press the “PAIR” button on the WB-1000 to program the WM-1000 for this Base unit.

3.2 Multi-Vehicle Operation

When the WB-1000 is first activated, it listens on the channel for beacons from other WB-1000 units that maybe be in the area. If no beacon is heard, it will assume the priority status and be ready to repeat Base-to-portable (BTP) or Portable-to-Base (PTB) traffic within 6 seconds. If there is another unit already on scene, the arriving WB-1000 unit will go into a ‘standby monitor’ mode where it keeps track in a table of all WB-1000 units on the scene.

Each WB-1000 sends a beacon at a 4 second interval. This beacon is used to communicate with the other WB-1000 units and provide status update for which unit is in priority to non-priority units. This method of determining the priority unit is referred to as ESP II tm.

ESP II™ also provides provisions in the event that there is handheld or base traffic and the priority WB-1000 is not available (disabled or left the scene) before a non-priority unit has assumed the priority status. In the event that there is traffic to repeat and no other unit is handling the call, a non-priority WB-1000 unit will assume the priority status within the programmed “Priority Wait” time (default of 800mS) of activity without reciprocal activity on the opposing side of the call.

In other words, if a WB-1000 senses activity from WM-1000 units, but no other WB-1000 has keyed a mobile radio on the same channel within 800mS (determined by mobile COR), the non-priority unit will revert to the priority state and begin handling the call. This same method is used if a call is received from the tethered mobile radio and there is no WB-1000 traffic on the 915MHz link, the non-priority unit will assume a priority state within 800 mS.

3.3 Emergency

The WM-1000 has an emergency button that can be activated to send the WB-1000 and other users an emergency status. When the emergency button is pressed, an audible alert is heard on the originating unit. The originating unit can also be programmed to trigger a “Silent” emergency. Silent Emergency simply creates a discrete emergency (no sounds) from the sending WM-1000 unit. When other WM-1000 units receive the emergency from a WM-1000 user, the display on the receiving unit will show the emergency status and ID of the sending radio as well as alarm the receiving user of the emergency status audibly.

When the WB-1000 receives an emergency status from a WM-1000 user, it will assert the emergency output line to the mobile radio, triggering the mobile radio (if configured) to enter an emergency mode.

3.4 Trunking operation (Smart Trunking II tm)

When the WB-1000 is connected to a trunking mobile, it should be programmed for trunking in the CPS software. The WM-1000 handheld operator will need to pair with the programmed WB-1000 at least once to synchronize the programming from the WB-1000. Smart Trunking II tm creates a subset of the mobile trunking system between the WB-1000 and the WM-1000 handheld user. Users will get clear to talk tones on their WM-1000 handheld after the WB-1000 negotiates the handshake on the mobile radio.

When the WM-1000 user keys their handheld radio, the WB-1000 will attempt to acquire a voice channel on the trunking system by keying the mobile for 200mS and monitoring the on-air detect line from the mobile. If it does not see the radio transmit at all (system is busy), it will send a 'low tone' to the hand held operator to alert them that the system is busy. If unsuccessful after 30 seconds, the WB-1000 will transmit low tone to alert the handheld operator that the call attempt failed.

In a successful call, the WB-1000 detects that the mobile is transmitting, it will continue to monitor the on-air line until the transmitter remains keyed for at least 250mS to ensure that the radio isn't merely handshaking or retrying. After successful acquisition of a voice channel on the trunking system, the WM-1000 user will hear a 'clear to talk' beep from their handheld and know it is OK to begin talking.

4.0 Installation

Before installing the WB-1000, ensure that the mobile radio is properly aligned per the manufacturer's tuning Instructions. Additionally, ensure that the WB-1000 jumper switches are properly configured for use with the particular mobile radio that it will be connected to. Follow the application note for your specific model of mobile radio to complete the interface to the WB-1000. Application notes can be found at www.pyramidcomm.com in the support section.

4.1 Switch Settings

SW2 & SW3 - Serial Interface: If the WB-1000 is connected to a radio that supports an RS-232 connection, such as select Kenwood mobile radios, move SW3 to the RS-232 position. If the WB-1000 is connected to a radio that requires a RS-485 serial connection, position the switches in the RS-485 position.

SW4 - Emergency Operation: This jumper will configure the Emergency output of the WB-1000. SW4 determines if the Emg output signal pulls to ground (NO, Normally Open) or breaks ground (NC, Normally Closed).

Visit www.pyramidcomm.com
for up to date installation guides
on your specific mobile radio.

4.2 Radio Connection

Make the connections between the mobile radio and the WB-1000 cable as follows:

- Pin 1: Ground. Connect to the radio's chassis or ground plane.
- Pin 2: Mobile transmit audio. Connect to the mobile transmit audio path or tone input. If connected to the mobile mic input, ensure that the WB-1000 is programmed for flat (common data). If connected after pre-emphasis, ensure that the WB-1000 transmit audio path is programmed for pre-emphasis. The PTB audio adjustment in the CPS sets this output level to a range between 0-5VPP
- Pin 3: Remote enable/disable. Connect to the radio's auxiliary output or a separate switch to remotely enable or disable the repeater. If this line goes high to activate the repeater, ensure that CPS programming for Remote Enable Polarity is set to High. If this line is open collector from the mobile radio, make sure to check the 'pull up' option in the CPS for Remote Enable.
- Pin 4: Mobile PTT output. Connect to mic PTT on the mobile radio, or a line that goes active low to transmit. Pin 4 is an open drain output rated at 2.2A at 20VDC.
- Pin 5: 12 VDC input. Connect to the radios 12V switched supply or a point capable of supplying at least 500mA of current.
- Pin 6: Mobile receive audio. Connect this line to the mobile receive audio path before the volume control. If pin 6 is connected to the mobile discriminator, ensure that the WB-1000 receive path is programmed for de-emphasis. If connected after de-emphasis, program the receive path for flat. This input should be between 30mVPP and 5VPP. The BTP audio settings in the CPS sets the gain of the receive input amp.

- Pin 7: Mobile COR detect. This line is used to indicate when the WB-1000 should repeat the transmission to the WM-1000 handheld. Connect to a logic point in the radio that indicates proper tone and carrier have been detected or the audio unmute line. If this line goes more positive during an unmute condition, program the mobile COR line as active high (in the CPS). If the line goes more negative during an unmute condition, program the mobile COR line as active low. If this line is open collector from the mobile radio, make sure to check the 'pull up' option in the CPS for COR.
- Pin 8: Local mic audio. If programmed for local mic repeat, the WB-1000 will go into transmit mode and repeat the audio from this line whenever the mobile radio is keyed by the local mic. Connect this line to the mobile transmitter audio path before limiting or filtering. This input is AC coupled and high impedance (>5.6Kohms). The input level at this pin should be 300mV to 5VPP. Use the Local Mic Gain in the CPS to adjust the level of mic audio rebroadcasted out to the WM-1000 units.

Pin 9:

On-Air detect.

Trunking: Connect to a point in the radio that indicates the mobile transmitter is actually on the air.

This is not the same as mic PTT. If pin 9 goes positive during transmit, program the on-air detect line for active high (common data). If pin 9 goes to ground during transmit, program the on air detect line for active low.

Conventional: Used for local mic repeat indication from the mobile. Connect pin 9 to pin 4 of the WB-1000 and program the on-air detect line for active low.

Pin 10:

Emergency Output. Connect to the Emergency input on the mobile radio. On Motorola radios, the Emergency input opens from ground on activation and SW4 should be in the "NC" position. On all other radios, the Emergency input pulls to ground on activation and jumper SW4 should be in the "NO" position.

Install the WB-1000 in the vehicle using an AMPS mounting bracket hardware. Install the unit where it will be easily visible by the driver and will not interfere with the drivers vision or constitute a hazard during a vehicle collision. The WB-1000 mounts in the bracket using the four 4-40 x 1/2" machine screws.

Do not use longer screws to mount the WB-1000 to the bracket or damage may result.

4.3 Interface Cables and Antennas

Interface Cables

Pyramid Communications offers pre-made cables for the most popular mobile radios. If not ordered for a specific mobile radio, the WB-1000 comes with a 'blunt cut' cable, which will allow interfacing to virtually any mobile radio. Visit www.pyramidcomm.com for the latest technical application notes for your specific mobile radio application.

Antennas and Antenna Placement

The WB-1000 comes with a unity gain whip antenna. Use of this antenna will provide limited coverage from the vehicle, depending on the placement of the WB-1000 and vehicle configuration.

External antennas can be used, so long as low loss coax cable is used and the overall antenna system gain does not exceed 2.2dB (including line loss).

Additionally, it is important that proper antenna placement practices are adhered to. The WB-1000 antenna must be greater than 4 to 6 feet from the mobile antenna, on a separate ground plane, providing as much isolation from the mobile transmitter as possible.

4.4 Programming and Alignment:

To set the audio level through the WB-1000 and the mobile radio, the connect the CPS software to the WB-1000. The CPS software is preset with most common audio level values for your mobile radio.

Select your mobile radio model from the “Mobile Audio Preset” drop down menu. This will set the PTB and BTP audio levels to match your mobile radio audio gain settings. This preset will also setup the polarities for Remote Enable, COR and On-Air Detect as well as audio filtering to match the mobile radio accessory connector.

Use the drop down menu and Connect button to establish a connection to the WB-1000. Use the Read and Write buttons to get and send data to the WB-1000.

Ensure that the WB-1000 VCP Serial Driver (provided on the USB Disk with the CPS software and in the Program Files\WM-1000 CPS Folder) has been installed along with the CPS software AFTER you connect a WB-1000 to the PC. A restart may be required to complete the driver installation.

Wireless Settings:

Base Alias: 15 character name for this base unit. This is displayed on the screen of the WM-1000 as the ID of the base.

Band: Select the frequency band used by this WB-1000. There are four band choices.

RF Address: Select the RF Address to create private talk paths between the WB-1000 and WM-1000 users.

Common Data:

Rmt En Polarity: Determines if the Remote Enable input from the mobile is active high or low.

COR Polarity: Determines if the COR signal from the mobile is active high or low.

On-Air Polarity: Determines if the Tx indication from the mobile is active high or low.

Mobile Type: Select either Conventional, Trunking. If Trunking is selected, the WB-1000 will go through the voice channel acquisition procedure during portable-to-base repeat mode.

Tx Audio: If the mobile Tx audio from the WB-1000 to the mobile is connected after pre-emphasis, select Flat response. If connected before pre-emphasis or to the mic input, select De-Emp.

Rx Audio: If the Rx audio from the mobile to the WB-1000 is connected to the discriminator or before de-emphasis, select Flat response. If connected after de-emphasis, select Pre-Emp.

Local Mic Repeat: Enables or disables the local mic repeat function; if enabled, ensure the on-air polarity is set correctly and the Grey wire is configured correctly (see page 15). Not all mobile radios support this function. Refer to the specific application note for your installation for more details.

Out of Range Alert: Enables or disables the warning beep heard on the WM-1000 handheld when it goes out of range from the WB-1000 base.

Locate Wireless Mic button: Enables or disables button on the WB-1000 used to find microphones that are lost or misplaced within range of the WB-1000. *Note: WM-1000 must be out of the cradle for this feature to work.*

Silent Emergency: Set's a "Silent Emergency" mode, where if a unit presses their emergency button, their unit will not alarm audibly, creating a discreet emergency signal from the WM-1000 to the WB-1000.

Base Config:

Mobile Interface Protocol: Determines the serial protocol (if any) used to communicate with the mobile radio.

Kenwood Base ID: In Kenwood NEXEDGE and FleetSync mode, this sets the ID of the base radio for messaging.

Mobile Audio Preset: Sets default PTB and BTP audio as well as common data polarities for the radio interface

Local Mic Audio Gain: Sets the audio gain used for Local Mic Repeat.

PTB Audio Gain: Sets the audio gain of audio sent to the mobile radio interface (heard by the dispatcher).

BTP Fine Audio Gain: Sets the audio gain of audio sent WM-1000 handheld user.

BTP Coarse Audio Gain: Sets the audio gain of audio sent WM-1000 handheld user.

Priority Wait: Sets the revert time used when resuming priority when there is no traffic being handled.

Note: You can adjust any parameter and WRITE to a unit, even if the unit is handling a call. For example, if you change a audio level or filter, you can make the change and hear the result real-time by writing to the unit and listening to the audio through the WB-1000.

Note: Any WM-1000 specific parameter requires you to PAIR the WM-1000 with this WB-1000 base after you write data to the base. It is always a good idea to PAIR after programming the WB-1000 with updated data.

Firmware Downloader Profile

STMicroelectronics Virtual CX

Disconnect

Write

Read

Wireless Settings

Band

Band3

Base Alias

My Base

RF Address

30

Common Data

Rmt En Polarity

 High

PU

 Low

COR Polarity

 High

PU

 Low

On-Air Polarity

 High

PU

 Low

Tx Audio

 De-Emp Flat

Rx Audio

 Pre-Emp Flat

Radio Type

 Conv. Trunked

WM-1000 Mic Gain Setting

 Normal High Local Mic Repeat Out Of Range Alert Silent Emergency Locate Wireless Mic Button

Unit Status

Base Config

Status Message Config

Zone/Channel Config

Radio Specific Data

Mobile Interface Protocol

Kenwood Nexedge

PTB Audio Gain

-48.00dB

Mobile Audio Preset

Kenwood NX-X00

BTP Fine Audio Gain

-3.0dB

Local Mic Audio Gain

OFF

BTP Coarse Audio Gain

21dB

Kenwood Base/Console Radio ID

58

Priority Wait

800mS

Status Message Config:

Using the Load/Save and Get/Program, you can load or save profiles of the status message and zone/channel config tables to a file on your PC. This file is kept separate from the main personality of the WB-1000. To read the status and zone/channel configuration out of a WB-1000, select Get from the menu. This will populate both the Status Message List and the Zone/Channel list.

Use the Status Message List to complete the status used in the Kenwood NEXEDGE and FleetSync radio interface. These will be the actual status numbers sent by the mobile radio to the base station and/or base software.

Ensure that this list of status messages and corresponding number match up with the list of expected statuses on your NEXEDGE system.

This status list is on a 'per paired' channel in the WM-1000. A WM-1000 can be paired with multiple WB-1000 units, each having its own unique NEXEDGE Status Message List.

Note: Use the GET and PROGRAM menu items in this tab to read and write Kenwood specific data to the WB-1000. The data on this screen IS NOT sent along with the READ / WRITE personality on the main screen.

Firmware Downloader Profile

STMicronics Virtual C

Disconnect

Write

Read

Wireless Settings

Band

Band3

Base Alias

My Base

RF Address

30

Common Data

Rmt En Polarity

 High

PU

 Low

COR Polarity

 High

PU

 Low

On-Air Polarity

 High

PU

 Low

Tx Audio

 De-Emp Flat

Rx Audio

 Pre-Emp Flat

Radio Type

 Conv. Trunked

WM-1000 Mic Gain Setting

 Normal High Local Mic Repeat Out Of Range Alert Silent Emergency Locate Wireless Mic Button

Unit Status

Base Config

Status Message Config

Zone/Channel Config

Load

Save

Get

Program

Status Message [16 Characters Max]

1: In Service

2: Loading

3: Arrive

4: Working

5: Leave Job

6: Arrive Office

7: Lunch

8: Call My Cell

9: Job On Hold

10: Job Complete

11: Need Assistance

12: Off Duty

Zone/Channel Config:

Using the Load/Save and Get/Program, you can load or save profiles of the status message and zone/channel config tables to a file on your PC. This file is kept separate from the main personality of the WB-1000. To read the status and zone/channel configuration out of a WB-1000, select Get from the menu. This will populate both the Status Message List and the Zone/Channel list.

Use the Zone / Channel list to create a table to channels the WM-1000 user can change to on their Kenwood NEXEDGE or FleetSync radio. These channels will be available from the front panel of the WM-1000.

Ensure that the Zone and Channel you put in this list is programmed into your Mobile Radio. The WM-1000 and WB-1000 will not be able to steer a mobile radio to a channel that is not in the mobile radio personality.

This channel list is on a 'per paired' channel in the WM-1000. A WM-1000 can be paired with multiple WB-1000 units, each having its own unique Remote Zone/Channel List.

Note: Use the GET and PROGRAM menu items in this tab to read and write Kenwood specific data to the WB-1000. The data on this screen IS NOT sent along with the READ / WRITE personality on the main screen.

Firmware Downloader Profile

STMicroelectronics Virtual CX

Disconnect

Write

Read

Wireless Settings

Band

Band3

Base Alias

My Base

RF Address

30

Common Data

Rmt En Polarity

 High

PU

 Low

COR Polarity

 High

PU

 Low

On-Air Polarity

 High

PU

 Low

Tx Audio

 De-Emp Flat

Rx Audio

 Pre-Emp Flat

Radio Type

 Conv. Trunked

WM-1000 Mic Gain Setting

 Normal High Local Mic Repeat Out Of Range Alert Silent Emergency Locate Wireless Mic Button

Unit Status Base Config Status Message Config Zone/Channel Config

Load	Save	Get	Program
Cmd #	Zone	Channel	
1	1	1	
2	2	1	
3	2	2	
4	2	3	
5	2	4	
6	2	5	
7	2	6	
8	2	7	
9	2	8	
10	2	9	
11	2	10	
12	2	11	
13	12	1	

Unit Status:

The Unit Status tab shows the real time status of the WB-1000 unit.

Use the Status information to view what inputs and outputs are active on the WB-1000 mobile radio interface. Since the WB-1000 has no LEDs or display, this is the best troubleshooting tool in the unit for understanding the interface to the mobile radio.

The WM-1000 Status information shows the Firmware, RF Channel, RF Address and Battery status of the WM-1000 in the cradle. To see this data, the WM-1000 in the cradle must be TURNED ON.

Portable ID:

The WM-1000 Status shows the Portable ID of the WM-1000 Handheld unit in the cradle. If you wish to update the alias of the Handheld in the docking station, enter text in the box provided and press WRITE to write this to the WM-1000.

Firmware Downloader Profile

STMicroelectronics Virtual CX

Disconnect

Write

Read

Wireless Settings

Band

Band3

Base Alias

My Base

RF Address

30

Common Data

Rmt En Polarity

 High
 Low

PU

COR Polarity

 High
 Low

PU

On-Air Polarity

 High
 Low

PU

Tx Audio

 De-Emp
 Flat

Rx Audio

 Pre-Emp
 Flat

Radio Type

 Conv.
 Trunked

WM-1000 Mic Gain Setting

 Normal
 High
 Local Mic Repeat Out Of Range Alert Silent Emergency Locate Wireless Mic Button

Unit Status

Base Config

Status Message Config

Zone/Channel Config

Status

Firmware: 20141201A001
 Remote: Enabled
 On Air: Off
 Cor: Off
 Ptt: Off
 Priority: Enabled
 Emergency: Off

WM-1000 Status

Firmware: 20141203A001
 RF Channel: 3
 RF Address: 7710
 Voltage: 4.148V
 Current: 0mA
 Charge: 2000mAh [Infinity%]
 Capacity: 0mAh
 Mic Gain: High
 Portable Id: My Handheld

Write

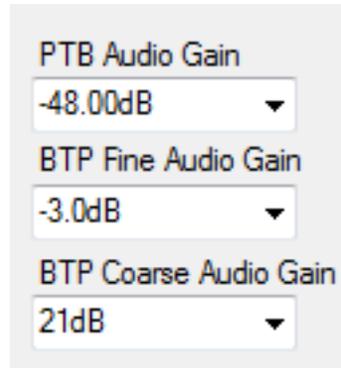
4.5 Tuning The Audio

Tuning the Portable to Base (PTB) Audio Path:

Adjust the PTB audio by changing the PTB Audio Gain setting in the CPS. Because there is no service function generator required to set the deviation, use this value to adjust the audio level to the mobile radio as determined by listening to the output of the mobile radio with a service monitor. Ensure that speech is approximately 60% of the total deviation of the mobile radio transmit audio.

Tuning the Base to Portable (BTP) Audio Path:

Adjust the PTB audio by changing the PTB Audio Gain setting in the CPS. Generate traffic on the mobile radio receiver and adjust the BTP Coarse Audio Gain until the audio heard on the WM-1000 handheld is clear and loud. Use the PTB Fine Audio Gain to adjust the audio so it is clear to the WM-1000 handheld radio.



The image shows a screenshot of three audio gain settings in a software interface. Each setting is displayed as a label followed by a dropdown menu. The first setting is 'PTB Audio Gain' with a value of '-48.00dB'. The second setting is 'BTP Fine Audio Gain' with a value of '-3.0dB'. The third setting is 'BTP Coarse Audio Gain' with a value of '21dB'. The labels are in a blue font, and the values are in a black font. Each dropdown menu has a small downward-pointing triangle on the right side.

PTB Audio Gain	-48.00dB
BTP Fine Audio Gain	-3.0dB
BTP Coarse Audio Gain	21dB

4.6 Handheld Programming / Pairing:

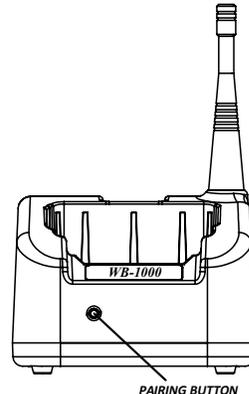
The WM-1000 isn't programmed with any PC software, but rather obtains its personality from the WB-1000. When the WB-1000 is programmed with the mobile radio parameters, select the desired channel on the WM-1000 you wish to program and insert the WM-1000 into the WB-1000 dock/charger. Ensure both units are powered on, and press the button on the WB-1000 to program/pair the WM-1000 to the selected base programming.

Note: If you recently made changes to your WB-1000, make sure you have written the new program to your WB-1000 using the CPS Software and then re-pair your WM-1000 to update the WM-1000 with the new settings.

If you have multiple base units with different channel parameters, simply select a different channel on the WM-1000 and repeat the steps above to program the selected channel on the WM-1000 to the WB-1000.

Steps to Pair:

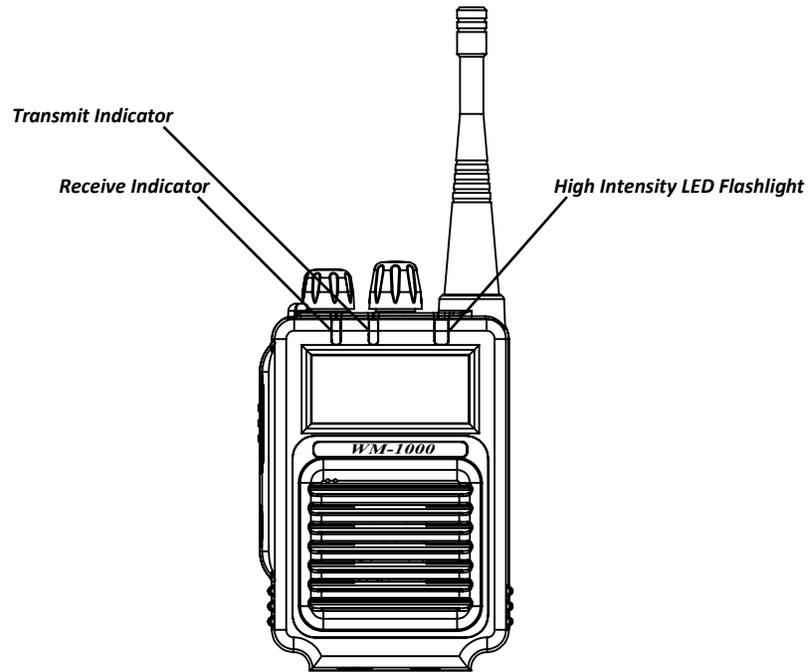
- 1. Place WM-1000 in cradle and turned on*
- 2. Make sure WM-1000 is powered on*
- 3. Briefly press pairing button*
- 4. A confirmation Beep and display will indicate successful pairing.*



4.7 WM-1000 LEDs, Display and Menus

LED Indicators

The WM-1000 is equipped with 2 LED Status indications and 1 high intensity flashlight, as shown below:

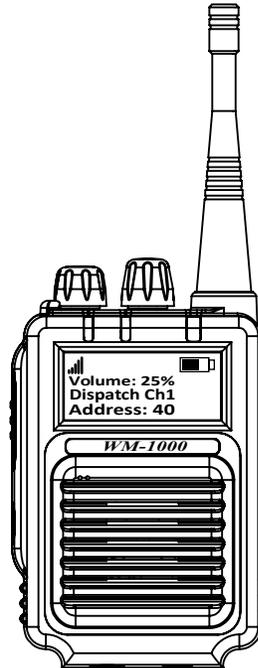


Display

The graphic LCD Display on the WM-1000 gives real time status and menu selectable functions in the WM-1000.

The main menu includes signal strength from the WB-1000 or other handheld users, battery status and Channel and Volume information as shown below:

Note: If configured on select Kenwood NEXEDGE and FleetSync mobile radios, the "Channel Alias" will be the channel text shown on the Kenwood mobile radio display. Otherwise, the Base Alias text as configured in the WB-1000 programming will be displayed.

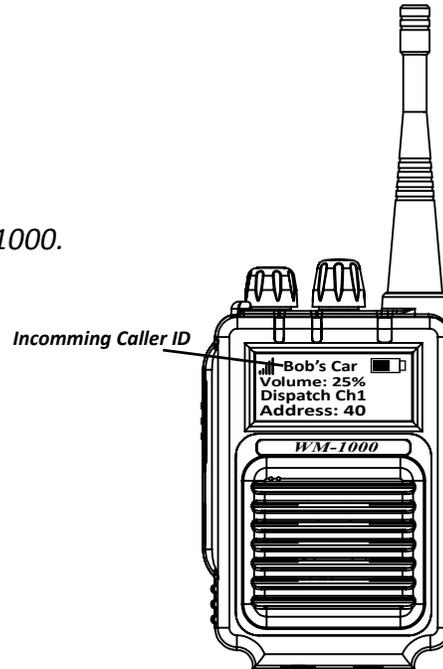


Display (continued)

When the WM-1000 receives a call from another WM-1000, the preprogramming caller ID alias of the transmitting radio will be shown on the top line of the WM-1000 display. When the call being received is from a WB-1000, the Base Alias of the WB-1000 handling the call will be displayed on this line.

Note: To program the portable ID of a WM-1000, refer to section 4.3 Portable ID configuration in this manual.

If you wish to update the alias of the Handheld in the docking station, use the CPS software to enter text in the box provided and press WRITE to write this to the WM-1000.

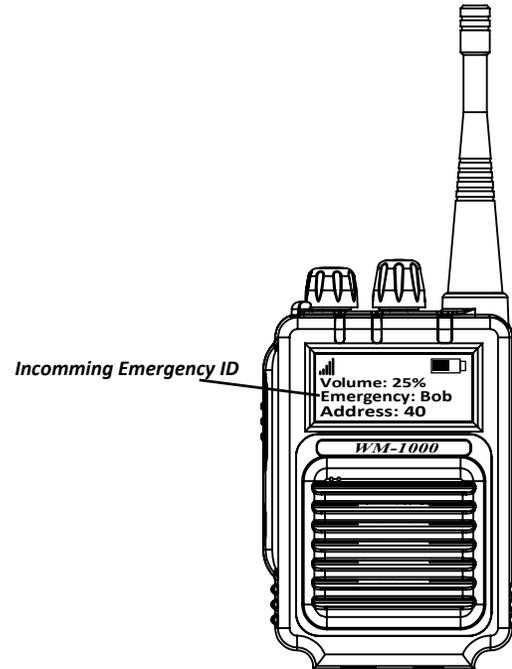


Display (continued)

When the WM-1000 receives an emergency from another WM-1000, the Emergency Status and Alias of the originating WM-1000 will be shown on the Channel Alias line of the display.

Note: If the alias of the incoming emergency is longer than the display can show, a ">" will be shown at the end of the line of text. Use the channel select/scroll knob on the top of the WM-1000 to see the entire name of the sending unit.

Push the Volume knob to escape out of the emergency alarm and return to the main menu screen.

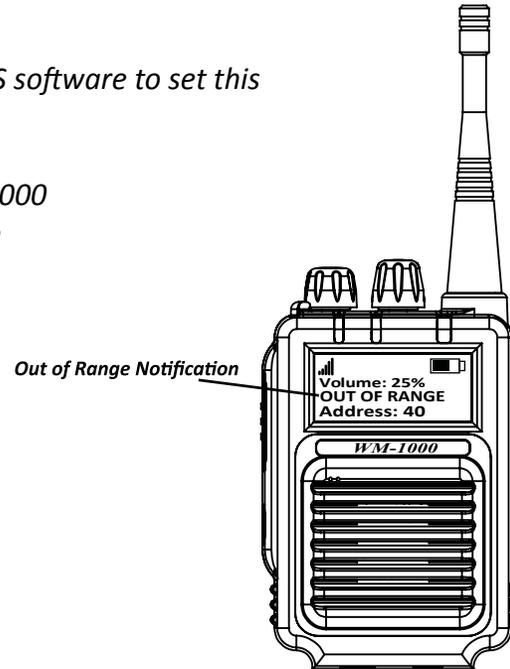


Display (continued)

If enabled, the WM-1000 will alert a user when it travels outside the range of the vehicle and the WB-1000. An audible beep will be heard every 30 seconds, reminding the user that they are out of range of their WB-1000 and an “OUT OF RANGE” notification on the Channel Alias line of the display will be shown.

Note: To enable Out of Range notifications, use the CPS software to set this feature in the WB-1000.

When enabled, even if a unit is out of range, the WM-1000 user will still be able to talk to other WM-1000 users on within range AFTER the ‘call failed’ tone is heard.



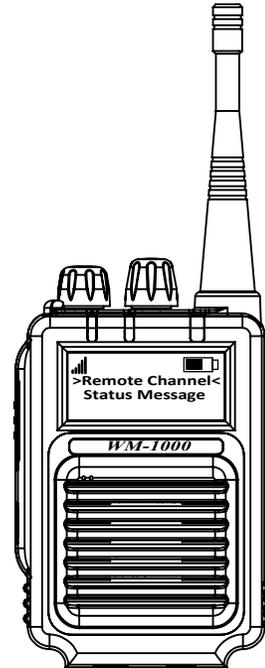
Menus - Kenwood Functions

When paired with a WB-1000 that is connected to a Kenwood NEXEDGE or FleetSync mobile radio, the user can access menus to allow them to control the channel of their mobile radio and send pre-canned status messages using the Kenwood status signalling protocol. To enter the Remote Control and Status Messaging menu, press the Mode knob down.

Note: Status messages and the Remote Channel list are configured in the WB-1000 through the CPS software.

Rotate the Mode knob to select Remote Channel or Status Message sub-menus.

Press down on the Mode Knob to accept your selection.

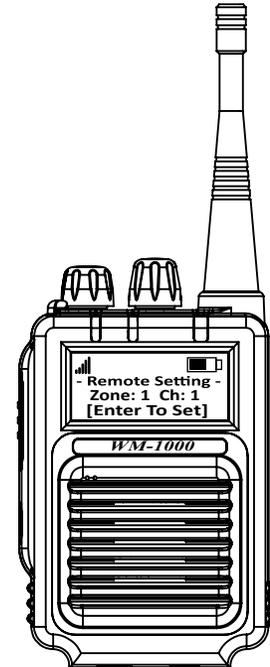


Menus - Remote Control

When the Remote Channel mode is selected, the WM-1000 will display a remote channel list of possible channels the user can select. Rotate the Mode knob to scroll through a list of remote Zones and Channels that will allow this user to steer the Zone and Channel of their mobile radio in the vehicle.

Note: Remote Channel list is configured in the WB-1000 through the CPS software.

*Press down on the Mode Knob to accept your selection.
Your message will be confirmed with an audible beep.
This indicates that the WB-1000 has received the message and sent it along to the Kenwood mobile radio.*



Menus - Status Messaging

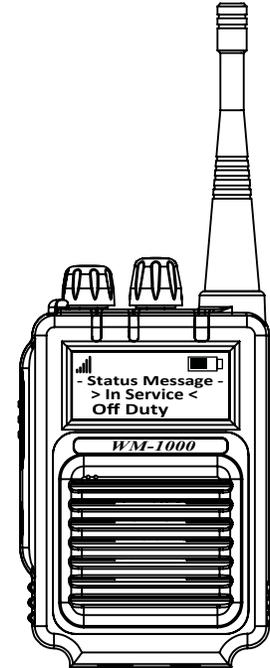
When the Status Message mode is selected, the WM-1000 will display a Status list of possible canned status messages the user can select. Rotate the Mode knob to scroll through a list of status messages available.

Note: Status Message list is configured in the WB-1000 through the CPS software.

Press down on the Mode Knob to accept your selection. Notice the "> <" icons showing you your current selection.

Your message will be confirmed with an audible beep. This indicates that the WB-1000 has received the message and sent it along to the Kenwood mobile radio.

Note: The destination ID for all status messages is set in the CPS software. Use the Kenwood Base / Console Radio ID field to set the destination where ALL status messages will be sent.



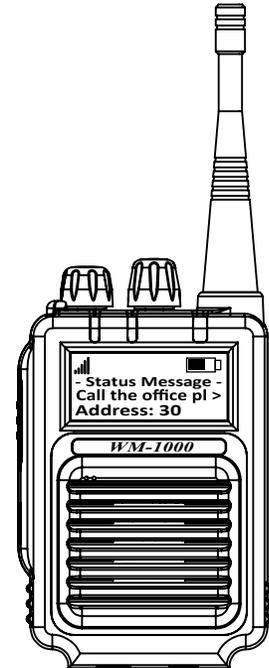
Menus - Incoming Text Messaging

When the WM-1000 receives an incoming text message from a Kenwood NEXEDGE base station or PC software, the unit will alert with an audible beep then display the incoming message on the Channel Alias line of the main menu.

Note: Short Messages are limited to 100 characters by the NEXEDGE PC protocol.

If a message is longer than what can be displayed on the WM-1000 screen, a ">" icon will appear at the end of the line of text. Rotate the Mode/Scroll knob to scroll the text and view the rest of the message.

Press down on the Volume knob to exit the viewing of this message. The incoming text messages are not stored after the user exits the message view display.





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