

KGMR-401

INSTRUCTION MANUAL

**8CH CHANNEL HANDHELD
FM TWO-WAY RADIO**

CHNOLOGY

UNIMO TE



1. INTRODUCTION

1.1 GENERAL

This unit is small and lightweight, portable FM radio designed for using 462.55~467.725MHz band. And it supplies as following.

- 1) The stability of frequency does not fluctuate between each channels and it is easy to change frequency of channel using microcomputer-controlled PLL frequency synthesizer instead of X-tal replacement.
- 2) The EEPROM allows external programming of operation information such as Tx & Rx frequency, CTCSS/CDCSS code, VOX, TOT(Time Out Timer) for Tx, Scan, PSC(Power Saving Control) time and so on. And for retaining information KGMR-401 need not backup power. In addition, these information data can be duplicated easily to other radio by using "cloning feature"
- 3) With external MIC/Speaker jack, You can use more freely.
- 4) As all active components are made of semi-conductor devices, This radio guarantees long-lived and excellent performance under the change of weather condition.

1.2 CONFIGURATION

DESCRIPTION	MODEL NO.
RADIO BATTERY OPERATION MANUAL ANTENNA	KGMR-401 KBP-6100H (NI-MH, 1000mA)
(OPTIONS) PC PROGRAMMER SOFTWARE PC PROGRAMMER CABLE PC PROGRAMMER MANUAL CLONNING CABLE	

2. SPECIFICATIONS

2.1 GENERAL

. Frequency Range	: 462.550~467.725 MHz	
. Channels	: 8ch	
. Communication	: Simplex	
. Antenna Impedance	: 50 ohm (nominal)	
. Antenna Type	: Whip Antenna	
. Current Consumption	: Tx (2.5W output)	-- less than 1A
	: Rx (0.7W output)	-- less than 250mA
	: Rx stand-by	-- less than 35mA
. Operation Temp. Range	: -20°C ~ +60°C	
. Dimensions	: 62(W) X 130(H) X 32(D)m/m	
. Weight	: 160g (ex. battery.)	
. Power source	: Ni-MH(7.2V, 6CELL)	

2.2 TRANSMITTER

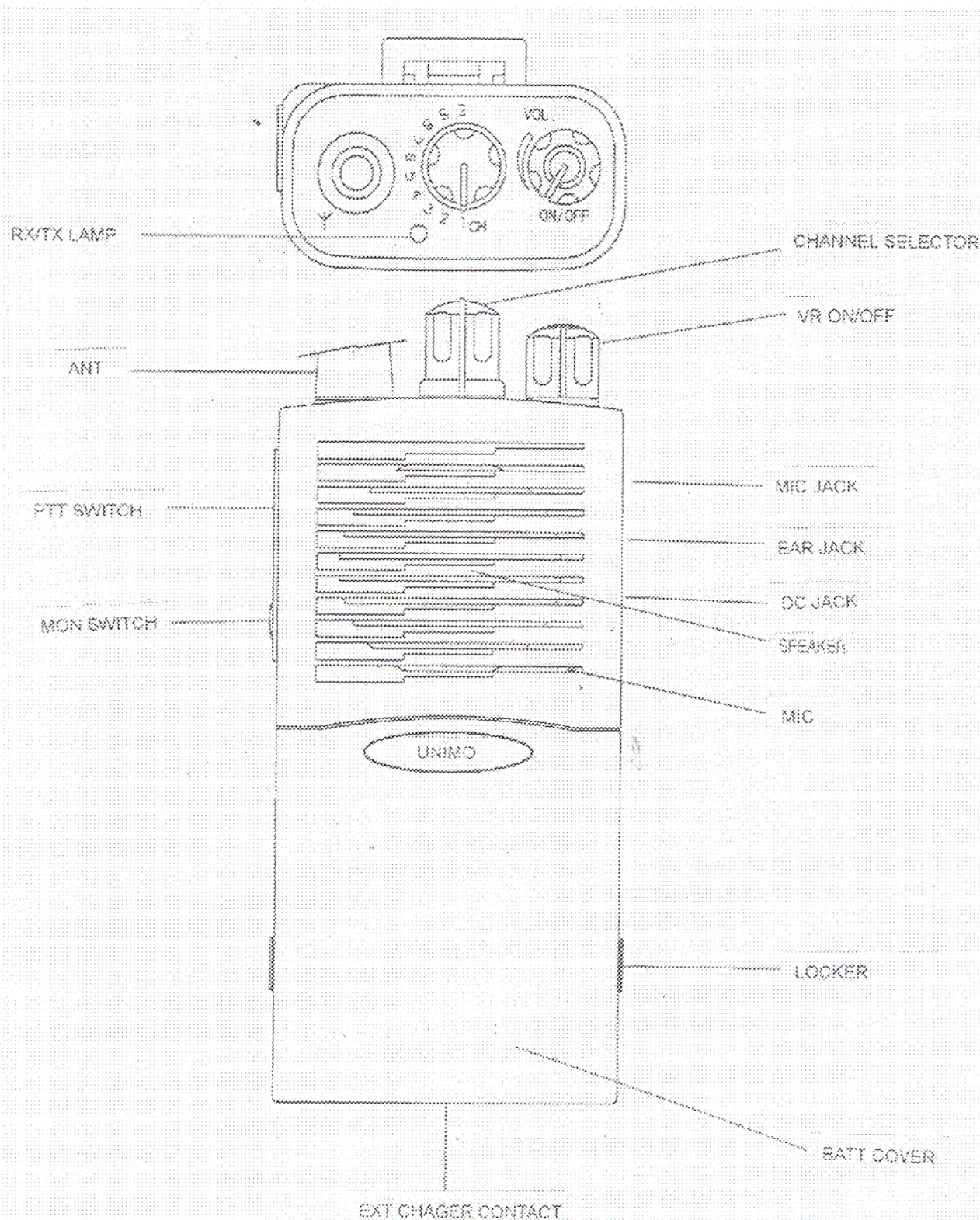
. Power Output	: 2.5W(7.5V)
. Modulation System	: 8K50F3E
. Oscillating Method	: PLL Frequency Synthesizer
. Frequency Stability	: $\pm 0.0005\%$ or less
. Max. Freq. Deviation	: $\pm 2.5\text{kHz}$
. Audio Distortion	: less than 5% (1kHz, 60% deviation)
. Spurious Emissions	: less than -65dB
. Signal to Noise Ratio	: less than -37dB

2.3 RECEIVER

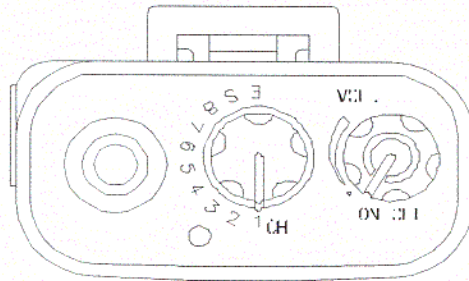
. Type	: Double super-heterodyne
. Sensitivity	: less than 0.25 μV (12dB SINAD)
. Squelch Sensitivity	: less than 0.2 μV
. Frequency Stability	: $\pm 0.0005\%$ or less
. Spurious Response	: greater than 70dB
. Selectivity	: greater than 60dB
. IMD	: less than 65dB
. Audio Distortion	: less than 5% (@60% mod. by 1kHz)
. Signal to Noise Ratio	: less than -37dB
. Max. Audio Output	: greater than 0.5W (16 Ω load)

3. CONTROLS AND OPERATIONS

3.1 EXTERNAL VIEW



3.2 CONTROLS



1. ON/OFF AND VOLUME CONTROL

Power ON/OFF and Volume control switch



As turning clockwise(CW) direction, Power turns on, and continuous CW turning makes volume louder. Turning counter clockwise(CCW) direction makes volume weaker and power turns off when turning completely.

2. CHANNEL SELECTOR

Channel selecting switch.



- a. 1~8 : Normal channel
- b. S : Scan mode
- c. E : Emergency channel

3. ANT.CON.

Connect the external antenna.

4. RX/TX LAMP

LAMP COLOR	EQUIPMENT STATUS
Red	Indicating Transmitting(TX)
Green	Indicating Receiving(RX)
Red lamp blink	Indicating Low Battery
Green lamp blink	Indicating Program mode or Clone mode

5. PTT (Press-To-Talk) BUTTON

Changing Switch between Tx and Rx mode. PTT must be pressed to transmit

6. MON BUTTON

Monitoring noise status. For monitor mode, Press and hold monitor button, So you can receive all signal at current channel regardless CTCSS/CDCSS tone.

7. EXTERNAL EAR/MIC JACK

Connect the external earphone/microphone. When external EAR/MIC is using, Internal speaker and PTT switch will not operate.

Caution : Use only KGMR-401 external EAR/MIC provided by manufacturer.

8. DC JACK

Providing external power and low charging using external power or low charging feature.

Caution : Input DC voltage : 10V

9. SPEAKER

High performance speaker with 16Ω , $\phi 45$ is employed

10. MIC

Keep your mouth apart from the MIC properly and talk as usual voice strength on transmitting.

11. BATTERY COVER

As changing battery pack, Push battery lock backward (reverse direction of indicating arrow) and push and down battery cover. And change battery, then make reverse procedures.

12. BATTERY PACK

Using high capacity 7.2V (NI-MH, 6cells, 1000mA) battery pack, It is possible much longer operation.

13. EXT CHARGER CONTACT

Contact and connect desktop charger, that can operate high/low speed charging mode

3.3 OPERATIONS

1. CHANNEL SELECTION

PC-program can set frequency of each 8 channel

2. TONE SELECTION

Each channel can have sub audio signal that prevents interference

3. SCAN

As placing the channel selector to "S" then radio would scan from 1 to 8 channel. If the correct signal is received, the radio would stop scanning and receive the signal. Otherwise, repeat scanning operation would do.

4. VOX

As pressing and holding PTT button, turn on the radio. Then, it is set to VOX mode. The signal can be transmitted with not pressing PTT switch but only voice

5. TOT(Time Out Time)

In order to prevent long-time transmission, transmit time out feature can be used. When time of transmission exceeds the limitation, the radio is automatically switched to receive mode. Furthermore, penalty time, which makes the radio not to transmit for pre-defined time period, can be applied. Transmit time out and penalty time can be programmable by PC programmer.

6. Power Saving Mode

If no received signal for pre-defined time, this radio goes into power saving mode. Time value can be programmable by PC program.

7. Low battery indication

As low battery, blinking red lamp.

8. Program Mode

Input the information data (frequency, tone etc.) by PC-Programmer or other radio. First place the channel selector to "E" then as pressing and holding MON button, turn on the radio. Then, connect the PC-programmer cable to EAR/MIC jack. And write data using PC-programmer or other radio.

9. CLON

Duplicate the information data(frequency, tone etc.) by other radio. First place the channel selector to "E" then pressing and holding PTT button, turn on the radio. Then, connect the cloning cable to EAR/MIC jack. And write data using other radio.

10. DISABLING THE SOUND

As pressing and holding MON button, turn on the radio.

3.4 CTCSS/CDCSS TONE

3.4.1 CTCSS

No.	Freq.(Hz)	No.	Freq.(Hz)	No.	Freq.(Hz)
00	No Tone	13	103.5	26	162.2
01	67.0	14	107.2	27	167.9
02	71.9	15	110.9	28	173.8
03	74.4	16	114.8	29	179.9
04	77.0	17	118.8	30	186.2
05	79.7	18	123.0	31	192.8
06	82.5	19	127.3	32	203.5
07	85.4	20	131.8	33	210.7
08	88.5	21	136.5	34	218.1
09	91.5	22	141.3	35	225.7
10	94.8	23	146.2	36	233.6
11	97.4	24	151.4	37	241.8
12	100.0	25	156.7	38	250.3

3.4.2 CDCSS

NO.	DCS CODE	NO.	DCS CODE	NO.	DCS CODE
101	023	129	174	157	445
102	025	130	205	158	464
103	026	131	223	159	465
104	031	132	226	160	466
105	032	133	243	161	503
106	043	134	244	162	506
107	047	135	245	163	516
108	051	136	251	164	532
109	054	137	261	165	546
110	065	138	263	166	565
111	071	139	265	167	606
112	072	140	271	168	612
113	073	141	306	169	624
114	074	142	311	170	627
115	114	143	315	171	631
116	115	144	331	172	632
117	116	145	343	173	654
118	125	146	346	174	662
119	131	147	351	175	664
120	132	148	364	176	703
121	134	149	365	177	712
122	143	150	371	178	723
123	152	151	411	179	731
124	155	152	412	180	732
125	156	153	413	181	734
126	162	154	423	182	743
127	165	155	431	183	754
128	172	156	432		