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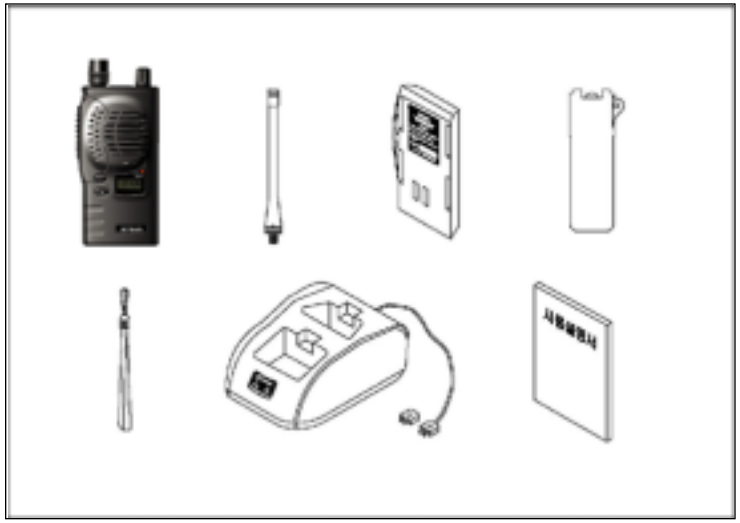
General Features

1. Ultra compact design & size
   (102 x 50 x 36mm, 310g with high capable battery)
2. Heavy durable construction
3. 90 channels
4. Alphanumeric LCD display up to 6 characters
5. 38 CTCSS/ 83 CDCSS
6. PC Programmable, transferable by cloning
7. Time-out timer (TOT)
8. Busy channel lock-out (BCLO)
9. Battery saving mode
10. Low battery alert
11. 2/5 tones programmable
12. 12.5KHz/25KHz channel spacing programmable
13. DTMF PTT-ID
14. Button lockable
15. Talking range to 5 miles
16. Transmit output power High/Low
17. DC7.5V Ni-MH battery

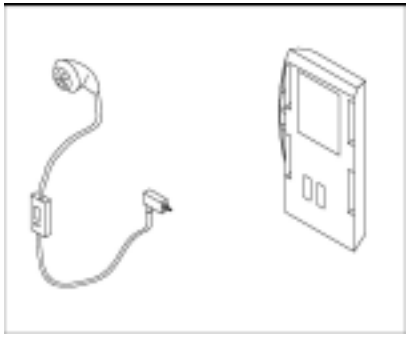
Unpacking

Unpack and check that all items have been enclosed.
Packing contents: radio antenna battery pack (1,350 mAH) belt clip hand strap charger user's manual



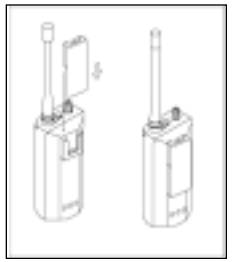
Optional Accessories

1. External earphone & MIC. (APE–10)
2. Additional battery pack (720 mAH, HM–720)



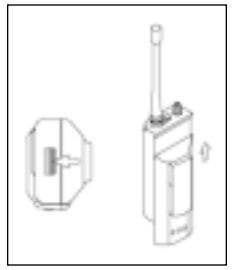
Getting Ready

1. Installation, Removal Belt Clip



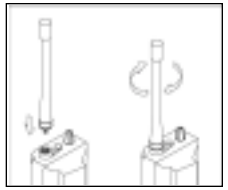
Installation: align the belt clip with the plastic slots of the battery pack. Slide the belt clip onto the battery pack, pushing firmly until a click heard.
Removal: hold up the belt clip release tab with a fingernail or a coin (or like instrument). While holding up the release tab, slide the belt clip out and away from the battery pack.

2. Installation, Removal Battery Pack



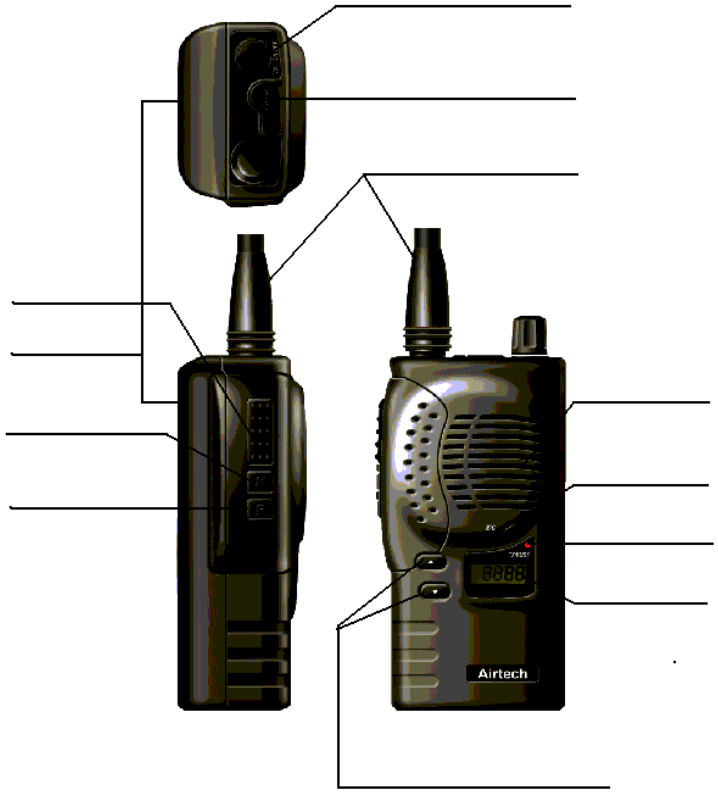
Installation: turn off the transceiver. Hold the transceiver with the back of the unit facing up. Place the battery pack against the back of the transceiver so that the tabs on the transceiver engage the four openings in the battery pack. Slide the battery pack toward the top of the transceiver until a click heard.
Removal: turn off the transceiver. Hold the radio with the back of the unit facing up. With the thumbnail of your other hand slide the latch lever down. While holding the latch lever down, slide the battery pack down toward the bottom of the transceiver. Separate the battery pack from the transceiver.

3. Installation Antenna



Rotate the antenna clockwise until it is seated firmly.
*. Before your starting operation, make sure the battery is fully charged.

Description



Power on / off and Volume Control Switch
Turn the transceiver on by rotating power on / off and volume control switch clockwise and control the volume.
Channel Select Button
Select the desired channel with pressing Up and Down button, pressing and holding down more than 1 second makes the channel moving fast. And you can choose On or Off in function mode.
PTT(Push To Talk) Button
Hold down to transmit, release to receive.
Function Button
Refer to “OPERATION” page 7.
Monitor Button
Press to monitor. Holding down over 2 seconds keeps monitoring function on, and press shortly again or PTT Button to stop.
LCD Display Panel
Refer to next page.
Tx / Rx Indicate LED (3 colors)

Red	On	Transmitting
	Blinking	Low battery
Green	On	Receiving, monitoring
	Blinking	Different sub-tone when receiving
Orange	On	Initializing, programming and cloning

Microphone
Talk 5~7Cm in distance during transmitting.
Speaker
External Earphone/MIC and Programming Jack Socket
Battery Pack
Helical Antenna

LCD Panel

DISPLAY	FUNCTION
T	Sub-tone
SCN	Scanning
H L	Transmitt output power
	Beep sound
	Button lock
CH-001	Channel
ON	On
OFF	Off
dt	PTT-ID

un-Loc	Abnormal
EP-Err	Abnormal
Prog	Program
CLon	Clone
Good	Cloning finished
-	Cloning processing (moves rightward)

Operation

1. Power Turn on / off and Volume Control
   Rotate the Power on/off and Volume Control Switch clockwise to turn power on, then the LED lights orange and power–up tone is generated after about on second, indicating the transceiver has passed the self–diagnostic. When you turn on the transceiver, it comes same channel and function with your last using. Rotate this switch clockwise to increase the volume or counterclockwise to reduce the volume. Rotate it counterclockwise fully to turn power off.
2. Transmit
   Choose the channel by pressing Channel Select Button as you desire. Hold down the PTT Button and talk to MIC in 5~7Cm distance. The LED lights red on transmitting. Release the PTT button to stop transmitting.
3. Receive
   Choose the channel by pressing Channel Select Button as you desire. The LED lights green on receiving. In case the signal doesn't match in using sub–tone, green light blinks.
4. Monitor
   Press the Monitor Button to monitor. Holding down Monitor Button over 2 seconds keeps monitoring function on, and press Monitor Button shortly or press PTT Button to stop.
5. Scan
   Press Channel Select Button ▲ while holding down Function Button to start scanning forward increasing channels.

In case Priority Scan not settled down 1) mem 1ch > mem 2ch > mem 3ch > …..
In case 1 cannel of Priority Scan is settled down 2) mem 1ch > pri ch > mem 2ch > pri ch > …..
In case 2 cannels of Priority Scan are settled down 3) mem 1ch > pri 1ch > pri 2ch > mem 2ch > …..

   The transceiver stops scanning after detecting a signal and returns a receiving mode in the channel if the signal keeps for 2 seconds. Or re-start scanning automatically. And if detecting a signal while scanning, but in case of no matching sub-tone, re-starting scanning with a delayed Press Channel Select Button▲ to skip the channel. And if you press Channel Select Button▼ when the transceiver is receiving a signal in a channel while scanning, the transceiver doesn't scan the same channel in the next. And if you want to return the normal mode, press Channel Select Button ▲ while holding down Function Button to finish scanning.
   When you press PTT Button while scanning, the transceiver transmits in the channel which received a signal last while scanning or LCD shows when it's turned on.
6. Dual Watch
   The transceiver detects the channel LCD shows as well as another channel set as a dual watch channel upon "DW" mode.
7. Preference of Scan, Priority Scan & Dual Watch
   Turn on holding down Channel Select Button▼ . Then, the LCD shows "SL-001". And you can settle down which channel can be scanned or not by pressing Function Button in each channel while moving the channels upward or downward with the Channel Select Button▲▼ . And press the PTT button to finish. Then the LCD shows "P1-000". Then, you choose a channel with the Channel Select Button▲▼ . Then press the PTT button to finish. As well, "P2-000" by the above same way. If you choose "000", it doesn't work.
   The LCD will show "DW000" once registered "Priority Scan". Then, also you can register a Dual Watch channel in same way as one of "Priority Scan".
8. Beep Sound on / off

When you press Function Button once sign on LCD blinks. (in case of being selected button lock function on blinks) Press Channel Select Button to select the beep sound on or off. Press PTT Button to finish selection.

9. Button Lock on / off
   When you press Function Button twice, sign on LCD blinks. Press Channel Select Button to select the button lock on or off. Press PTT Button to finish selection. This function prevents from changing the channel by unintended pressing of Channel Select Button. Press Function Button once, sign on LCD blinks. Select off with Channel Select Button , then press PTT Button to set off.
10. DTMF PTT–ID on / off
    When you press Function Button three times, “dt” sign on LCD blinks. Press Channel Select Button to select DTMF PTT–ID on or off. Press PTT Button to finish.
11. Transmit Output Power H / L
    While holding down PTT Button , press Channel Select Button▲ to set high power (it shows ‘H’ on LCD) or press Channel Select Button▼ to set low power (it shows ‘L’ on LCD.
12. 2/5 Tone Decode (Selcall)
    During initial radio programming by the technician this radio can be configured for several different types of decode operation. If a channel is selected that has Selcall activated the radio will be muted until the proper signal is received. When this occurs the radio can sound a ringing type alert signal or a voice message maybe heard. Depending upon the initial programming, pressing the PTT may cause an automatic identifier to be sent. When programmed for Selcall pressing the monitor and function buttons at the same time can cause the Selcall mode to be cancelled and generate an automatic identification. Please have your radio technician or dispatcher fully explain this operation.

Additional Function

1. Time–Out Timer (TOT)

It limits the amount of time you can continuously transmit on a channel from 0~100 seconds by a programmer. There will be a short pre–alert warning tone 4 seconds prior to the end of the transmission. Then the transmission is terminated and there will be a constant alert tone until you release the PTT Button.

2. Busy Channel Lock–Out (BCLO)

It prevents from transmitting if any activity is detected on the channel. Programmer can do this feature.

3. Power Saving Mode

If there is no transmitting and receiving for several time, the transceiver takes the power saving mode automatically for saving power.

4. Low Battery Alert

The LED will blink red whenever pressed the PTT Button if the transceiver falls below a low voltage level. As well, whenever you release the PTT Button on low voltage level, there will be alert tone twice. Finally there will be alert tone three times and “OFF” sign on LCD then the operation is terminated.

5. Cloning

You can clone from the transceiver to another. Connect the transceivers with the cloning cable. While pressing both of two Channel Select Button▲▼, turn the power on the transceiver which want to be cloned (LCD shows ‘prog’ and indicate LED lights orange). While pressing the Monitor Button, turn the power on the original transceiver (LCD shows ‘clon’ and indicate LED lights orange). Press the Monitor Button of the original transceiver again to start cloning (LCD shows ‘–‘moving right side). After 15 seconds approximately, the cloning finishes (the original transceiver’s LCD show ‘good’). Turn both transceivers power off and disconnect the cloning cable.

Charger and Battery

1. Battery (Ni-MH)

Voltage		DC 7.5V
Duty time (5-5-90)	HM-1350	Over 8 hrs
	HM-720	Over 4 hrs

2. Charger

Input power		Free voltage (AC90~250V)
Charging time	HM-1350	Appr. 100min
	HM-720	Appr. 60min
Operating temperature		0ºC~55ºC

Connect the charger to electric power supply (free voltage AC 90~250 V). Turn the transceiver power off and put into front socket of the charger. The red light turns on during charging and the green light turns on when finished. When you put two batteries together, the front one charges first then the rear one starts charging.

* When you put the battery on rear cup of the charger for charging, the charger checks voltage. If voltage is under 7.4V, the charger starts discharging for 4 minutes then checks again. If voltage is still less than 7V, it discharges until voltage is 6V then starts charging.

Red	On	Charging
	Blinking	Abnormal battery
Green	On	Fully charged
Orange	On	Stand-by for charging (rear cup)
	Blinking	Discharging

Specifications

		AT-100	AT-200	AT-400
Dimension (HxWxD)		102x50x32mm (720mAH Battery), 102x50x36mm (1,350mAH Battery)		
Weight (With Battery)		150g (243g/310g)		

Operating Voltage		DC 7.5V		
Operating Temp.		-30 ~ 60		
Battery Life (H/L) 720mAH Battery 1,350mAH Battery		(based on 5% Tx: 5% Rx: 90% STBY) 6hrs/8hrs 10hrs/15hrs		
Channels		90		
Privacy Codes		38 CTCSS, 83 CDCSS		
Band Width		12.5KHz/25KHz programmable		
Frequency Range	Tx	136~150 (A) 150~174 (B)	216 - 223MHz	400~430 (A) 440~470 (B)
	Rx	Same as the above		
FM Hum & Noise	Tx	-40 dB		
	Rx	-40 dB		
Rx Sensitivity		-119 dBm (0.25uV)		
Rx Spurious Response		-70 dB	-70 dB	-70 dB
Rx Selectivity		-70 dB	-70 dB	-70 dB
Rx Intermodulation		-65 dB	-65 dB	-65 dB
Tx Power (H/L)		5W/3W	3W/2W	4.0W/2W
Tx Spurious Rejection		-65 dBc		
Audio Power (8Ω)		500mW (Max.)		
Frequency stability		±2.5ppm	±5ppm	±2.5ppm

Standard units consist of

Desk Rapid/Trickle Charger	ACR5-130/1.5 hrs
1,350 mAH Ni-MH Battery	HM-1350
Helical antenna	

User's Manual

Land Mobile Radio (LMR)

Model: AT-100 A/B
AT-200
AT-400 A/B

Airtech Information & Communication Co., Ltd.