TECSUN
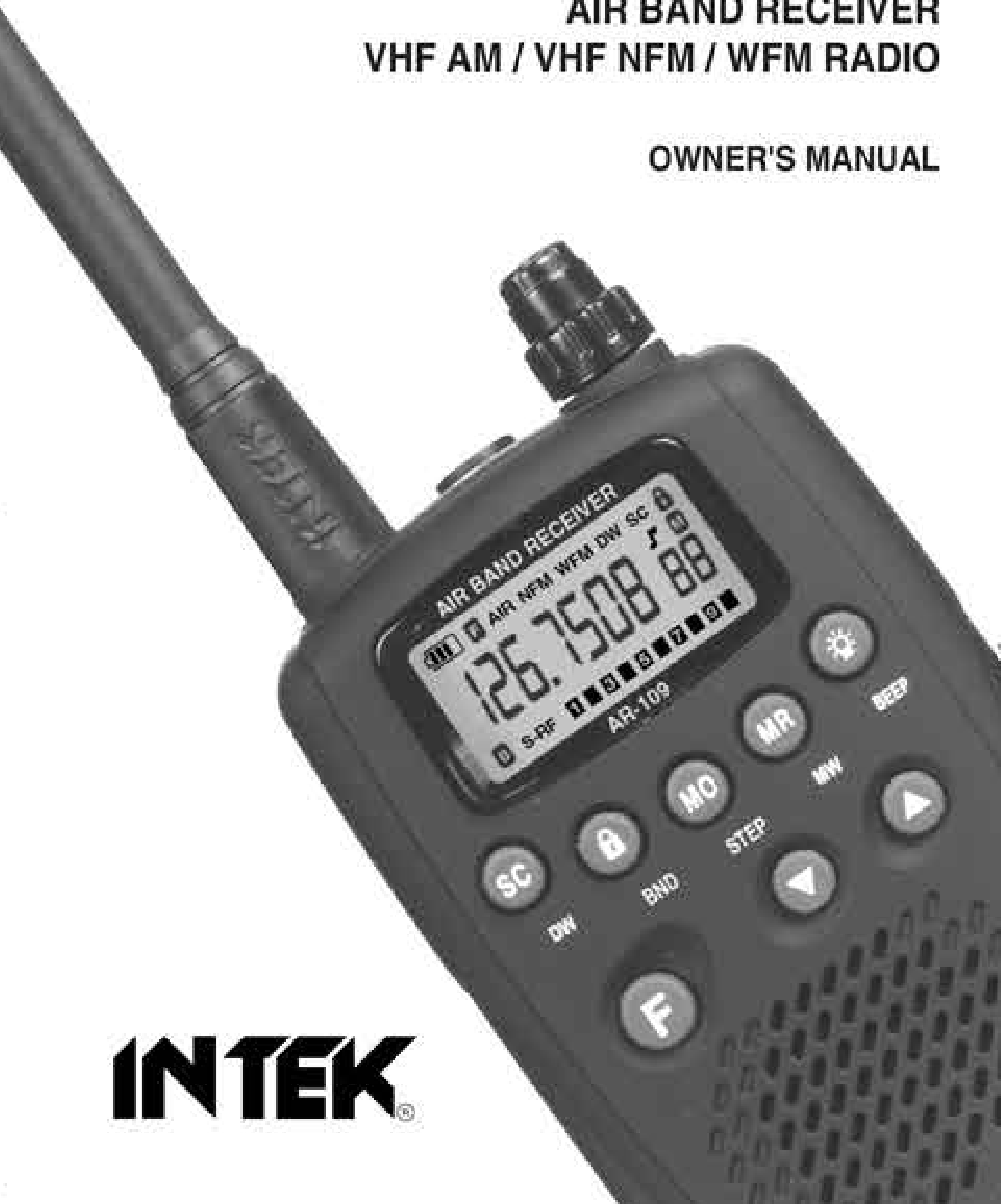## RADIOS AUSTRALIA
www.tecsunradios.com.au

AR-109
AIR BAND RECEIVER
VHF AM / VHF NFM / WFM RADIO

OWNER'S MANUAL

INTEK®

TECSUN RADIOS AUSTRALIA

Index

IMPORTANT !

It is recommended to carefully read this instruction manual throughout, before using the radios. This also in order to prevent you from using the radios out of the limits stated by the regulations.

IMPORTANT !

The maximum operating range will vary depending on terrain and environment. Range will be usually greater in open fields. While range is usually shorter within and around buildings or large structures.

RoHS
2002/95/EC

Introduction

Congratulations !

Congratulations on your selection and purchase of this high quality product. With proper care and adherence to the set-up and user instructions in this Owner's Manual, this unit will let you enjoy years of trouble-free service.

We are committed to providing quality products that fit your needs, however we would like to receive any comments or suggestions that you might have on this product, which will help us in continuous improvement of the quality.

Applications

AR-109 is a pocket size digital Air Band Scanning Receiver, specifically designed for monitoring the Air Band and the Aircraft radio communication traffic. This receiver also covers the VHF NFM band used by amateur radio operators, civil services, marine band, etc. and the WFM radio broadcasting band (88-108 MHz). It includes many features like a large backlighted LCD display with 7-digit full frequency readout, a digital Signal Meter, 99 programmable memory channels and much more ! Monitor the following services :

- Air Band (Commercial and General Aviation)
- Amateur Radio 144 MHz Band
- Police
- Ambulances
- Civil Services
- Fire Department
- Commercial VHF Radios
- Marine VHF Band
- Etc.

Features and Benefits

The radio includes a number of advanced features, nevertheless its operation is user firendly and you may get familiar with it, after few minutes of use.

Please refer to the following list of the main feautres in this two-way radio :

- VHF AM Air Band 118-137 MHz
- VHF NFM Band 137-175 MHz
- FM Radio 88-108 MHz
- Backlighted LCD Display
- 7-Digit full frequency readout
- 99 programmable Memory Channels
- Battery level Meter
- Digital Signal Meter
- Keypad Lock
- Keypad tone
- Power Save
- Busy
- Monitor function
- Scan Skip
- Delay
- Automatic Frequency / Memory Channel Scanning
- Dual Watch
- External Earset Jack
- Wall Charger Jack

Contents of Package

Please carefully check that the package contains the following items :

1 x   Main Unit
1 x   Rubber SMA Antenna
2 x   1.2V Ni-MH Battery
1 x   230VAC Wall Charger
1 x   Belt Clip
1 x   User Manual (this one)

Battery Operation

Installing and Checking Batteries

Unlock the battery door locker (18) and remove the battery door (17). Install 2 x AA size alkaline batteries or rechargeable batteries and pay attention to install it with the correct polarity as indicated in the battery room. Replace the battery door and lock the tab (18). Switch ON radio by turning the VOL/OFF (2) control and check the battery level on the battery level indicator (A), 4 bars mean full charge, 3 bars mean normal charge, 2 bars mean half charge and 1 bar means low battery condition. When the battery capacity is low, the Battery Indicator (A) will flash on the LCD display (5). Recharge or replace the batteries at this time. Please refer to the following item BATTERY CHARGING.
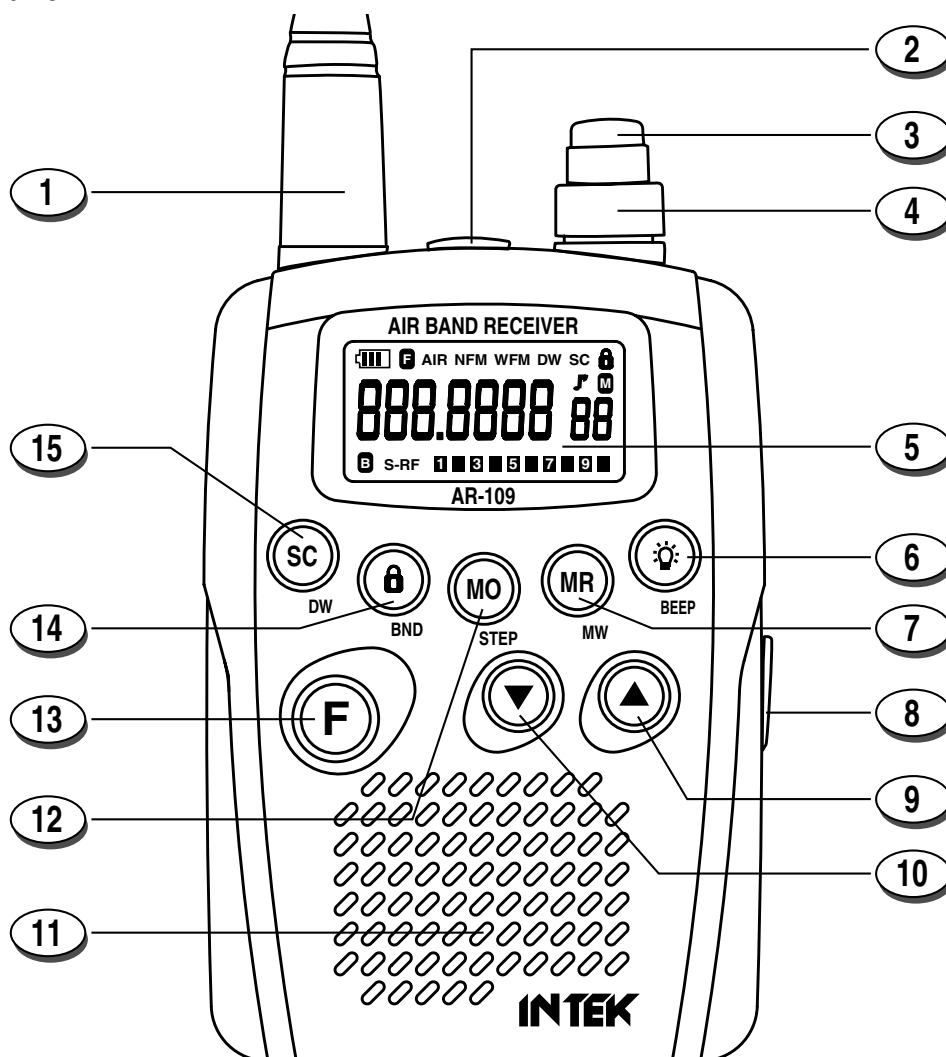
Battery Charging

When the battery capacity is low, switch OFF the radio and connect the supplied battery travel to the CHARGE jack (8), then plug it into the 230VAC outlet; the Battery Indicator (A) will show the charging process. To obtain the maximum performance from the batteries, recharge them only when they are fully discharged. The charging time depends on the capacity of the used batteries, it is approximately 12 hours for one set of Ni-MH batteries (1200-1500mAh). When the charging time has expired, the Battery Indicator (A) will lighted on the LCD Display. Unplug the charger from the AC outlet and then disconnect it from the radio.

WARNING !
1. **Only Ni-MH (or Ni-CD) batteries may be recharged.**
2. **Connect the supplied AC Adaptor ONLY if the batteries are installed !**
3. **Do never try to recharge alkaline batteries, as this might cause damage to the radio or explosion of the batteries.**
4. **Always switch OFF radio before starting the battery charging process.**
5. **Do not recharge batteries for more than 13-14 hours, in order to avoid overcharge or overheating, which could cause damage to the radio.**
6. **Use only the enclosed battery charger or original INTEK battery chargers.**

Controls and Indicators

Front Panel

1.   Antenna

High efficency rubber SMA antenna.

2.   Earset Jack

Connect an external earset to this jack. The dust cover prevents dirt and moisture from getting inside the radio.

WARNING !

Use only original accessories. Connecting and using accessories other than the original ones, may cause serious damage to the radio and will void the warranty.

Always set the volume to minimum before connecting an external earset, in order to avoid damaging the earset or the user's ear.

Controls and Indicators

3. VOL/OFF (On-OFF/Volume) Control

This knob switches the radio ON and OFF and it adjusts the volume control to the desired level.
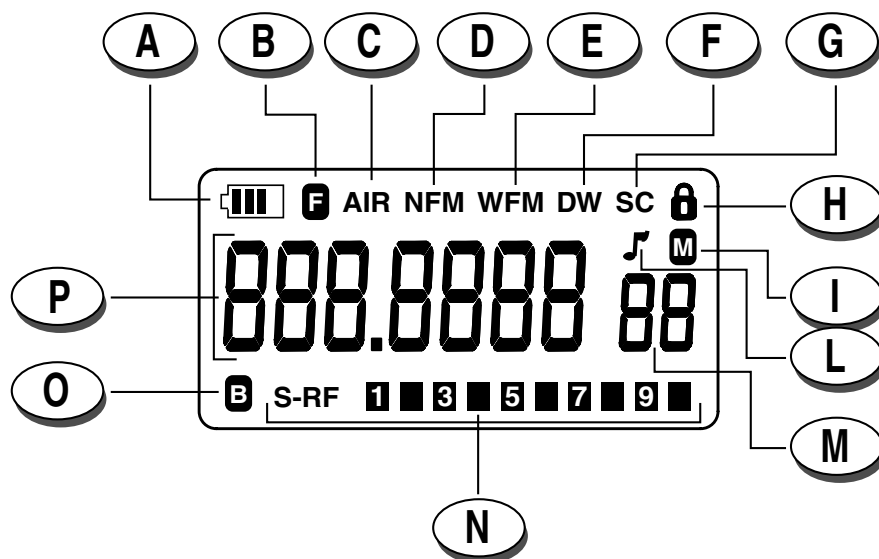
4. SQ (Squelch) Control

The SQL control allows to silent the receiver by cutting the background noise, when no signals are received. Turn the knob clockwise until the background noise is cut. Turn the knob counter clockwise (SQUELCH opening) in order to listen to the weakest signals.

5. LCD Display

Large size LCD display with orange color backlight function for best readability in darkness. The 4-line LCD indicates simultaneously all the programmed settings and all the enabled functions. Digital 10-bar Signal Meter and 4-bar battery level indicator.

LCD Display

A. Battery Level Indicator

It shows the current battery level condition and the charging process.

B. F Icon (Function Mode)

The F Icon (B) is lighted when the F key (13) is pressed.

C. AIR Icon

The AIR Icon (C) is lighted when the AIR band is selected.

D. NFM Icon

The NFM Icon (D) is lighted when the VHF NFM band is selected.

Controls and Indicators

E.   WFM Icon
The WFM Icon (E) is lighted when the WFM Radio band is selected.

F.   DW Icon
The DW icon is lighted when the DW (DUAL WATCH) function has been enabled.

G.   SC Icon
The SC icon (G) is lighted when the SCAN function has been enabled.

H.   KEYLOCK Icon
The KEYLOCK (H) icon is lighted when the keypad lock function has been enabled.

I.   M Icon
This icon indicates the Memory Mode operation.

L.   BEEP Function Icon
The Beep Icon (L) is lighted when the Beep function is enabled.

M.   Memory Channel Number
It indicates the selected memory channel number, total 99 memory channels are available.

N.   S-RF Digital Bar Meter
The 10-bar digital meter indicates the received signal strength.

O.   B Icon
The B icon (O) is lighted when the radio is receiving a signal or when Squelch is open.

P.   Frequency Readout
Full 7-digit frequency readout in KHz.

6.   LIGHT / BEEP Key
LIGHT

Shortly press the LIGHT (6) key to backlight the LCD display. The LCD backlight will be turned OFF automatically after 4 seconds or press the LIGHT key (6) again to turn OFF the LCD backlight.

BEEP Function

This feature enable a short beep tone to confirm that the radio has been turned on. To enable or disable this feature, press the F Key (13) and the Beep Key (6). When this feature is disables, the keypad program tone and the error beep tone will not sound. When this feature is enabled, the BEEP Icon (I) is lighted on the LCD display (5).

Controls and Indicators

7.   MR (Memory Read) / MW (Memory Write) Key

This receiver contains a total of 99 memory locations for each Air band, VHF FM band and WFM band where desired frequencies can be programmed by the user. Programming of the desired frequencies can be carried our in the following ways for each band. Please refer to MEMORY OPERATION at page 12.

8.   Charge Jack

Connect the supplied 230VAC battery travel charger to this jack.

9.   UP Key

The UP key (9) is used to change frequency, memory channel and toggle setting for the other selected functions.

10.   DOWN Key

The DOWN key (10) is used to change frequency, memory channel and toggle setting for the other selected functions.

11.   Built-in Speaker

Built-in front speaker.

12.   MO / STEP Key

MONITOR FUNCTION

Quickly press the MO/STEP key (12) to activate the Monitor function. This function opens Squelch in order to listen to the background noise and weak signals. When the Squelch is open, the B Icon (O) is lighted on the LCD display.

FREQUENCY STEP SELECTION

You could preset the channel steps value for each band listed below :

Air Band channel steps: 12.5 KHz, 25 KHz and 8.3 KHz

VHF Band channel steps: 5 KHz, 10 KHz, 12.5 KHz, 15 KHz, 20 KHz, 25 KHz and 50 KHz.

WFM Band: No channel step. It is fixed at 100 KHz.

To select the desired frequency step, please proceed as follows :

Press the F (13) and MO/STEP key (12); the LCD display will show the **CS** indication and the selected frequency step. Press the UP (9) or DOWN (10) keys to select the desired frequency step then press MO key (12) to confirm. After preset, when you press the UP (9) or DOWN (10) keys, the frequency will move up or down in the selected channel step value.

Controls and Indicators

13.   F Key

Press this key to select the Function Mode. The F Icon (B) will appear on the LCD Display (5).

14.   KEYLOCK / BND key

KEYLOCK

Press and hold this key for about 3 seconds to enable the keypad LOCK function; the LOCK Icon (H) will appear on the LCD display (5). Press and hold this key again to disable the keypad LOCK function.

BAND SELECTION

To select the desired band from Air band, VHF band and WFM band (in loop) press the F Key (13) then press the LOCK/BND Key (14). The selected band name will appear on the LCD display (**Air bAnd, uHF bAnd, FM bAnd**).
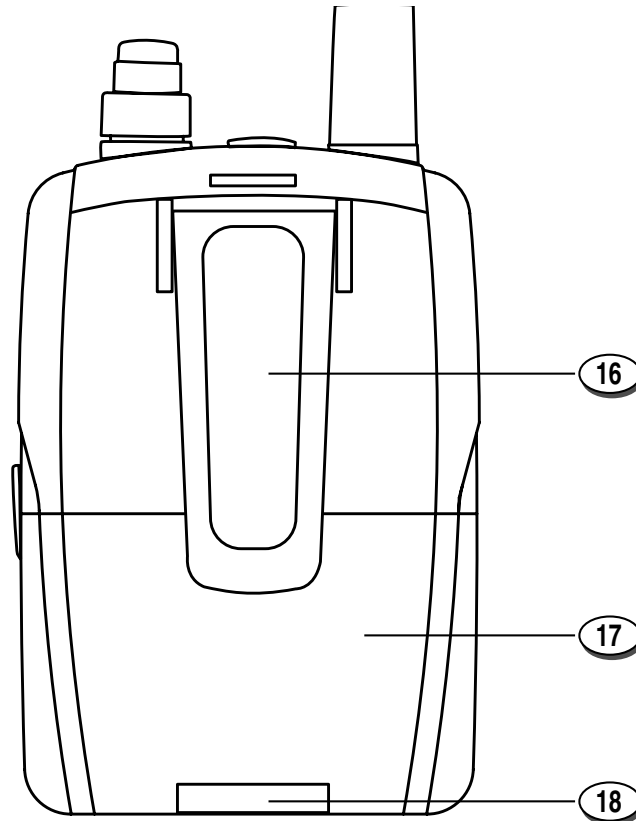
15.   SC / DW Key

SCAN FUNCTION

Shortly press the SC/DW (15) key to start the frequency/memory channel scanning (refer to AUTOMATIC SCANNING at pages 12 and 13).

DUAL WATCH FUNCTION

Press the F Key (13) and the SC/DW key (15) to enable the Dual Watch function. This function allows to monitor 2 differents frequencies / memory channels (refer to DUAL WATCH FUNCTION at page 14).

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Controls and Indicators

Rear Panel

16. **Belt Clip**
1. To install the belt clip, slide it down into the special slot situated in the rear side of the unit, until the block system make a click.

2. To remove the clip, pull the block tab toward exterior and slide the clip toward the up side of the unit.

17. **Battery Door**
Open this cover (17) to install or remove batteries.

18. **Battery Door Locker**
This tab is used to lock or unlock the battery door.

Operation

FREQUENCY SELECTION

Direct Selection

Press the UP (9) or DOWN (10) keys to select the desired frequency, according to the selected frequency STEP (refer to the ITEM 12 at page 8).

Cursor Function

The desired frequency can be directly entered by using the Curson Function. This function allows to select the 2nd, the 3rd, the 4th and the 5th digit of the used frequency.

To enter the frequency directly using cursor function, please proceed as follows :

1. Select the desired frequency (P) by using the UP (9) or DOWN (10) keys.

2. Press the F Key (13) and the UP Key (9) to move the cursor to the right or the F Key (13) and the DOWN Key (10) to move the cursor to the left on the selected frequency. The selected frequency digit will blink on the LCD Display (5).

3. Every time the F Key (13) and the UP (9) keys are pressed, the next digit on the right will start to flash.

4. Every time the F Key (13) and the DOWN (10) keys are pressed, the previous digit on the left will start to flash.

Example of frequency selection : 150.4650 MHz on the VHF Band.

1. Press the F Key (13) and the BND Key (14) until the VHF Band is indicated on the LCD display.

2. Press the F Key (13) and the DOWN Key (10). The 5th digit of the frequency will start to blink. Now press the UP (9) or DOWN (10) keys to set the value to "5".

3. Press the F Key (13) and the DOWN Key (10). The 4th digit of the frequency will start to blink. Now press the UP (9) or DOWN (10) keys to set the value to "6".

4. Continue this process for the remaining digits until you have entered the desired frequency (the first digit of the frequency will can not be changed).

5. Press the MO Key (12) to confirm the frequency selection.

The same procedure is followed for call and memory channels when selecting the desired frequency.

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Operation

MEMORY OPERATION

This receiver has a total of 99 memory locations, where desired frequencies can be programmed by the user.

Memory Read Function

Press the MR/MW Key (7) to enter Memory Read Mode. The M Icon (I) will appear on the LCD display (5). Press the UP (9) or DOWN (10) keys to select the desired memory channel from 01 to 99 available locations. If the selected memory channel is empty, the LCD display will show **--- ----** and the selected memory channel number (M) indications (for example **--- ---- 01**).

Memory Write Function

FREQUENCY SELECTION BY CURSOR FUNCTION

1. Press the MR/MW Key (7) to enter Memory Read Mode and select the desired memory channel.

2. Select the desired frequency, as indicated in the FREQUENCY SELECTION section; the M Icon (I) and the memory channel number will blink on the LCD display.

3. After complete the frequency selection, press the MR/MW (7) or the MO/STEP (12) Keys to confirm and store into memory.

FREQUENCY SELECTION BY CHANNEL STEP SEARCH

1. Press the MR/MW Key (7) to enter Memory Read Mode; the M Icon (I) and the memory channel number will appear on the LCD display.

2. Press the UP (9) or DOWN (10) keys to select the desired memory channel from 01 to 99.

3. Press the F Key (13) and the MR/MW Key (7); the M Icon (I) and the selected memory channel number (M) will blink on the LCD display.

4. Press the UP (9) or DOWN (10) keys; the frequency will change up or down with preset Channel Step value.

5. Press the MR/MW Key (7) to confirm and store.

AUTOMATIC SCANNING

Frequency Scanning

1. Select the desired frequency, as indicated in the FREQUENCY SELECTION section.
2. Close the Squelch by using the SQ Control (4).
3. Press the SC/DW Key (15) to start the automatic frequency scanning.
4. During the scanning process, press the UP (9) or DOWN (10) keys to change the scanning direction.
5. SCAN will automatically stop when a signal is detected on one frequency, in order to listen to the communication and SCAN will re-start when no more signal is detected on that frequency after about 4 seconds. To resume or stop the SCAN function press the SC/DW Key (15).

Operation

Memory Channels Scanning

1. Press the MR/MW Key (7) to enter Memory Read Mode; the M Icon (I) will appear on the LCD display.
2. Close the Squelch by using the SQ Control (4).
3. Press the SC/DW Key (15) to start the automatic Memory Channels scanning.
4. During the scanning process, press the UP (9) or DOWN (10) keys to change the scanning direction.
5. SCAN will automatically stop when a signal is detected on one frequency, in order to listen to the communication and SCAN will re-start when no more signal is detected on that frequency after about 4 seconds.
6. If you press the F Key (13) at stopping channel during the scanning process, this channel will be skipped in the next scanning process. The LCD display will show the **PASS** indication.

   NOTE : The memory channels skipped from scanning process are automatically recovered when the radio is switched OFF and ON.

7. If only one channel remain due to the skipping of channels from the scanning process, the process will stop and the **EMPTY** message will appear on the LCD display.

   NOTE : Other buttons located on the front of the radio will not operate. If you press these buttons, an error beep tone will be generated.

SCAN Skip Function in Memory Mode

This function allows to skip a particular memory channel during the memory channels scanning operation.

1. Press the MR/MW Key (7) to enter Memory Read Mode
2. Press the UP (9) or DOWN (10) keys to select the channel you want to skip.
3. Press the F Key (13) and the MR/MW key; the M Icon (I) and the selected memory channel number (M) will blink on the LCD display.
4. Press the SC/DW key (15); the LCD display will show **SCSP on** and the selected memory channel number (M).
5. Press the UP (9) or DOWN (10) keys to select **on** or **oF**.
   oF = Skip the selected Memory Channel
   on = Scan the selected Memory Channel
6. Press the MR/MW Key (7) to confirm the selection.

Operation

DUAL WATCH FUNCTION

This receiver is equipped with a Dual Watch function that allows to monitor 2 differents frequencies / memory channels.

1. Select the first frequency or memory channel to be monitored (**Channel A**).

2. Press the F Key (13) and the SC/DW Key (15); DW Icon (F) will appear on the the LCD display (5).

3. Press the UP (9) or DOWN (10) keys to select the second frequency or memory channel to be monitored (**Channel B**).

4. Once the Channel B has been selected, the radio will begin its dual watch monitoring.

5. When a signal is receiving on the Channel A or on the Channel B, if the F Key (13) and SC/DW key (15) are pressed, the Dual Watch function will be disabled and the radio will remain on that channel.

6. If a signal is being received on the Channel A, the receiver will stay on Channel A until the signal disappears.

7. If a signal is being received on the Channel B, the unit will switch to the Channel A every 3 seconds to check the incoming signals.

8. If you press the UP (9) or DOWN (10) keys in Dual Watch mode, the Channel B will move to higher (or lower) channel than is currently chosen.

9. In the Dual Watch function, the Power Save feature does not operate.

10. To disable the Dual Watch function, simply press the F Key (13) and the SC/DW Key (15). The radio will return to the Channel A for normal operation.

Note :   In Air Band, you could only Dual Watch Air band channels.
In VHF Band, you could only Dual Watch VHF band Channels.
In FM Band, you could Dual Watch either Air Band or VHF band Channels.

OPTION SETTING MODE

Power Save Setting

The radio has an Automatic Power Save circuit designed to dramatically extend battery life.

Power OFF the unit. Press and hold F Key (13) and then turn ON the radio. The LCD display will show the **PS** indication and the **on** or **OFF** settings. Press the UP (9) or DOWN (10) keys to select the **on** (Power Save enabled) or **OFF** (Power Save disabled).

If the Power Save function is enabled, if no signal is received for 10 seconds, the radio automatically switches to the Power Save mode.

Operation - Specifications

SCAN Delay Time

This feature allows the scanning process to stop for the fixed time when a signal is received. After this time, the scanning process will continue.

1. In the Power Save mode, press the F Key (13) and the UP Key (9); the LCD display will show the **Sd- 5** indication.

2. Press the UP (9) or DOWN (10) keys to select the desired Delay Time, from 1 to 30 seconds.

NOTE for the OPTION SETTING MODE

A. If the F Key (13) and the UP Key (9) or DOWN Key (10) are pressed, the radio will switch the Power Save Mode and the SCAN Delay Time function alternatively.

B. Press the MO key (12) to store the settings; the radio will return to normal operation.

C. Other keys on the front panel will not operate in this mode. If you press these keys, error beep tone will be generated.

SPECIFICATIONS

GENERAL

Operating Frequency	118.0000 - 136.9750 MHz (VHF AM AIR Band)
	137.0000 - 175.9900 MHz (VHF NFM Band)
	87.5000 - 108.0000 MHz (WFM Radio Band)
Frequency Generation	PLL synthesizer
Impedance	50 Ohm
Operating Temperature	-10°C to +55°C
Power Source	3.0V (2 x AA 1,5V alkaline battery)
	2.4V (2 x AA 1,2V Ni-MH battery)
Modulation	F3E, A3E
Dimensions	H87 x L59 X D29 mm (without antenna)
Weight	gr. 100 (without batteries)

RECEIVER

Circuit Type	Dual Conversion Superheterodyne
IF Frequency	1st IF : 21.4 MHz / 2nd IF : 150 KHz
Sensitivity	FM 0.25µV for 12dB SINAD / AM 1Mv for 10dB NQ
Selectivity	50dB Min.
S/N Ratio	40dB Min.
Audio Output @10%THD	100mW, 32 Ohm

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Important Informations

Important Informations

Important !

Changes or modifications to this product could void your authority to operate this unit.
Any adjustment to your radio must be made by a qualified authorized technician or service.

To be safe and sure :

Never open the cabinet of your radio.
Never change or replace anything in your radio (except the battery).

Hazardous Environments :

Do not operate the radio in hazardous environments.

Care and Safety :

To clean the radio, use a soft cloth dampened with water. Do not use cleaners or solvents because they can harm the body of the unit and leak inside, causing permanent damage. Use a dry, lint-free cloth to clean the battery contacts. **Do not submerge the unit in water or use it on a wet environment.** If the unit gets wet, turn it off and remove the battery immediately. Dry the battery and the battery compartment with a soft cloth to minimize potential water damage. Leave the battery compartment cover off overnight to ensure complete drying. Do not use the radio until it is completely dry.

Battery Operation - Important Information

Dispose of battery in the proper manner, according to federal, state and local regulations that apply in your area. A battery may leak electrolyte if it is mixed in a set with different battery types, if inserted incorrectly, if disposed of in fire, or if an attempt is made to charge a battery not intended to be charged. Discard leaky batteries immediately. Leaking batteries can cause skin burns or other personal injury.

Warning !

The use of this device may be subject to national restrictions or regulations. Check details with your local authority or dealer before purchasing and using this product.

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Declaration of Conformity - User Information

EC Certificate of Conformity

(to EC Directive 2006/95, 2004/108, 99/5)

DECLARATION OF CONFORMITY

With the present declaration, we certify that the following products :

INTEK AR-109

comply with all the technical regulations applicable to the above mentioned products in accordance with the EC Directives 2006/95/EC, 2004/108/EC, 99/5/EC.

Type of product :   Communication VHF Receiver

Details of applied standards :   EN 301 783-2, EN 301 489-1-15 V1.2.1
                                          EN 60065:2002+A1:2006

Manufacturer :   INTEK S.R.L.
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Segrate, 18/09/2008   dr. Vittorio Zanetti

                                          (General Manager)

User Information

in accordance with art. 13 of the Legislative Decree of 25th July 2005, no. 15 "Implementation of Directives 2002/95/EC, 2002/96/EC and 2003/108/EC, relative to reduction of the use of hazardous substances in electrical and electronic equipment, in addition to waste disposal".

The crossed bin symbol shown on the equipment indicates that at the end of its working life the product must be collected separately from other waste.
The user must therefore take the above equipment to the appropriate differentiated collection centres for electronic and electro technical waste, or return it to the dealer when purchasing a new appliance of equivalent type, in a ratio of one to one.

Appropriate differentiated waste collection for subsequent recycling, treatment and environment-friendly disposal of the discarded equipment helps to prevent possible negative environmental and health effects and encourages recycling of the component materials of the equipment.

Illegal disposal of the product by the user will be punished by application of the administrative fines provided for by the legislative decree no. 22/1997 (article 50 and following of the legislative decree no. 22/1997).

Notes

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CE ① ♺ **RoHS** 2002/95/EC

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Congratulations !

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- Air Band (Commercial and General Aviation)
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Please refer to the following list of the main feautres in this two-way radio :

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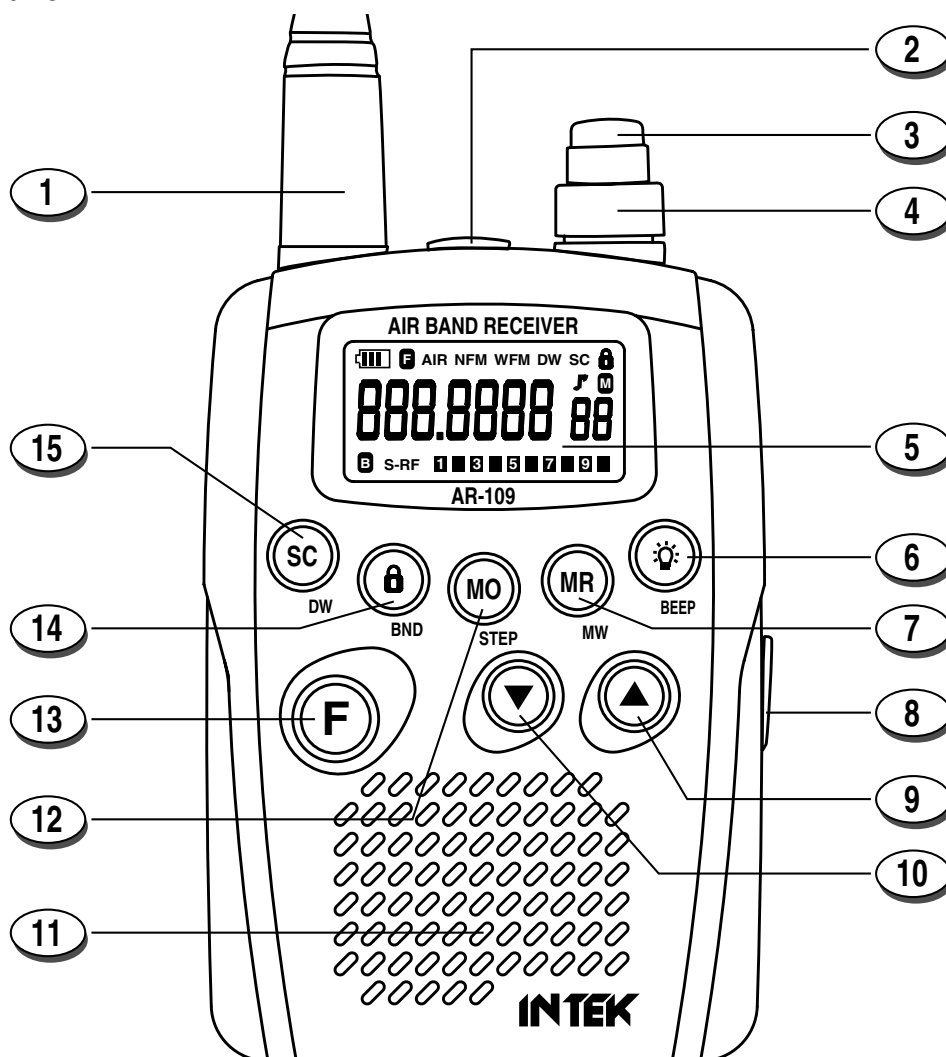
Battery Charging

When the battery capacity is low, switch OFF the radio and connect a USB charger to the CHARGE jack (8), then plug it into the 230VAC outlet; the Battery Indicator (A) will show the charging process. To obtain the maximum performance from the batteries, recharge them only when they are fully discharged. The charging time depends on the capacity of the used batteries, it is approximately 12 hours for one set of Ni-MH batteries (1200-1500mAh). When the charging time has expired, the Battery Indicator (A) will lighted on the LCD Display. Unplug the charger from the AC outlet and then disconnect it from the radio.

WARNING !
1. **Only Ni-MH (or Ni-CD) batteries may be recharged.**
2. **Connect the optional AC Adaptor ONLY if the batteries are installed !**
3. **Do never try to recharge alkaline batteries, as this might cause damage to the radio or explosion of the batteries.**
4. **Always switch OFF radio before starting the battery charging process.**
5. **Do not recharge batteries for more than 13-14 hours, in order to avoid overcharge or overheating, which could cause damage to the radio.**
6. **Use only the enclosed battery charger or original INTEK battery chargers.**

Controls and Indicators

Front Panel

1.   Antenna
High efficency rubber SMA antenna.

2.   Earset Jack
Connect an external earset to this jack. The dust cover prevents dirt and moisture from getting inside the radio.

WARNING !
Use only original accessories. Connecting and using accessories other than the original ones, may cause serious damage to the radio and will void the warranty.

Always set the volume to minimum before connecting an external earset, in order to avoid damaging the earset or the user's ear.

Controls and Indicators

3.   VOL/OFF (On-OFF/Volume) Control

This knob switches the radio ON and OFF and it adjusts the volume control to the desired level.
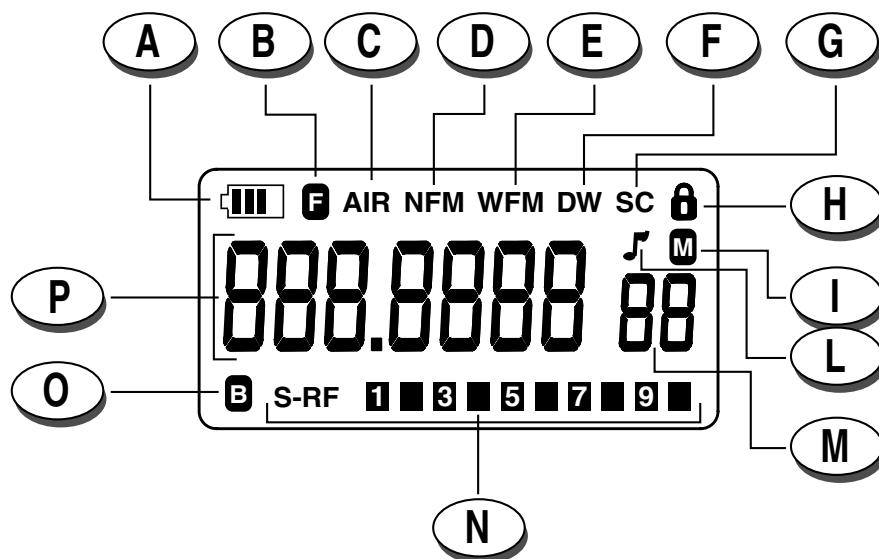
4.   SQ (Squelch) Control

The SQL control allows to silent the receiver by cutting the background noise, when no signals are received. Turn the knob clockwise until the background noise is cut. Turn the knob counter clockwise (SQUELCH opening) in order to listen to the weakest signals.

5.   LCD Display

Large size LCD display with orange color backlight function for best readability in darkness. The 4-line LCD indicates simultaneously all the programmed settings and all the enabled functions. Digital 10-bar Signal Meter and 4-bar battery level indicator.

LCD Display

A.   Battery Level Indicator

It shows the current battery level condition and the charging process.

B.   F Icon (Function Mode)

The F Icon (B) is lighted when the F key (13) is pressed.

C.   AIR Icon

The AIR Icon (C) is lighted when the AIR band is selected.

D.   NFM Icon

The NFM Icon (D) is lighted when the VHF NFM band is selected.

Controls and Indicators

E. WFM Icon

The WFM Icon (E) is lighted when the WFM Radio band is selected.

F. DW Icon

The DW icon is lighted when the DW (DUAL WATCH) function has been enabled.

G. SC Icon

The SC icon (G) is lighted when the SCAN function has been enabled.

H. KEYLOCK Icon

The KEYLOCK (H) icon is lighted when the keypad lock function has been enabled.

I. M Icon

This icon indicates the Memory Mode operation.

L. BEEP Function Icon

The Beep Icon (L) is lighted when the Beep function is enabled.

M. Memory Channel Number

It indicates the selected memory channel number, total 99 memory channels are available.

N. S-RF Digital Bar Meter

The 10-bar digital meter indicates the received signal strength.

O. B Icon

The B icon (O) is lighted when the radio is receiving a signal or when Squelch is open.

P. Frequency Readout

Full 7-digit frequency readout in KHz.

6. LIGHT / BEEP Key

LIGHT

Shortly press the LIGHT (6) key to backlight the LCD display. The LCD backlight will be turned OFF automatically after 4 seconds or press the LIGHT key (6) again to turn OFF the LCD backlight.

BEEP Function

This feature enable a short beep tone to confirm that the radio has been turned on. To enable or disable this feature, press the F Key (13) and the Beep Key (6). When this feature is disables, the keypad program tone and the error beep tone will not sound. When this feature is enabled, the BEEP Icon (I) is lighted on the LCD display (5).

Controls and Indicators

7.   MR (Memory Read) / MW (Memory Write) Key

This receiver contains a total of 99 memory locations for each Air band, VHF FM band and WFM band where desired frequencies can be programmed by the user. Programming of the desired frequencies can be carried our in the following ways for each band. Please refer to MEMORY OPERATION at page 12.

8.   Charge Jack

Connect the supplied 230VAC battery travel charger to this jack.

9.   UP Key

The UP key (9) is used to change frequency, memory channel and toggle setting for the other selected functions.

10.   DOWN Key

The DOWN key (10) is used to change frequency, memory channel and toggle setting for the other selected functions.

11.   Built-in Speaker

Built-in front speaker.

12.   MO / STEP Key

MONITOR FUNCTION

Quickly press the MO/STEP key (12) to activate the Monitor function. This function opens Squelch in order to listen to the background noise and weak signals. When the Squelch is open, the B Icon (O) is lighted on the LCD display.

FREQUENCY STEP SELECTION

You could preset the channel steps value for each band listed below :

 Air Band channel steps: 12.5 KHz, 25 KHz and 8.3 KHz

 VHF Band channel steps: 5 KHz, 10 KHz, 12.5 KHz, 15 KHz, 20 KHz, 25 KHz and 50 KHz.

 WFM Band: No channel step. It is fixed at 100 KHz.

To select the desired frequency step, please proceed as follows :

Press the F (13) and MO/STEP key (12); the LCD display will show the **CS** indication and the selected frequency step. Press the UP (9) or DOWN (10) keys to select the desired frequency step then press MO key (12) to confirm. After preset, when you press the UP (9) or DOWN (10) keys, the frequency will move up or down in the selected channel step value.

Controls and Indicators

13.   F Key

Press this key to select the Function Mode. The F Icon (B) will appear on the LCD Display (5).

14.   KEYLOCK / BND key

KEYLOCK

Press and hold this key for about 3 seconds to enable the keypad LOCK function; the LOCK Icon (H) will appear on the LCD display (5). Press and hold this key again to disable the keypad LOCK function.

BAND SELECTION

To select the desired band from Air band, VHF band and WFM band (in loop) press the F Key (13) then press the LOCK/BND Key (14). The selected band name will appear on the LCD display (**Air bAnd, uHF bAnd, FM bAnd**).
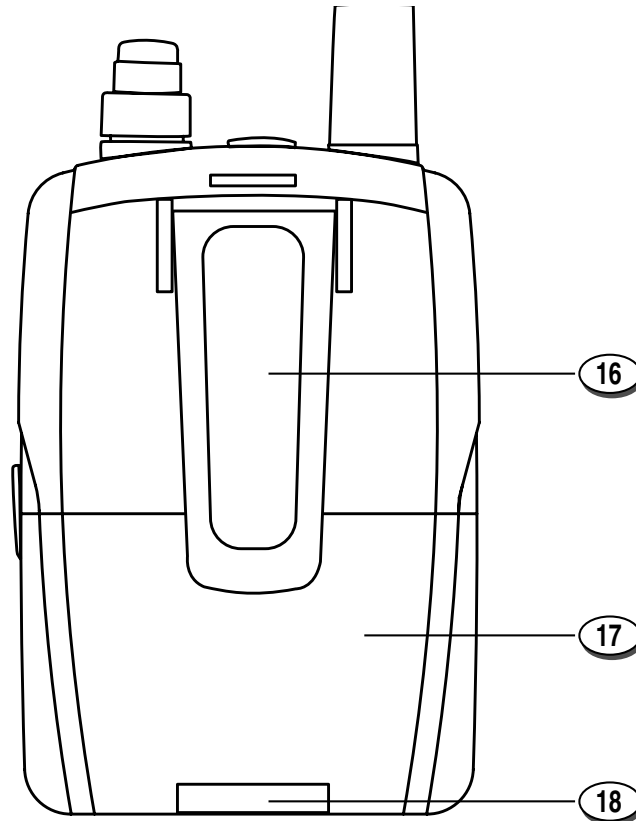
15.   SC / DW Key

SCAN FUNCTION

Shortly press the SC/DW (15) key to start the frequency/memory channel scanning (refer to AUTOMATIC SCANNING at pages 12 and 13).

DUAL WATCH FUNCTION

Press the F Key (13) and the SC/DW key (15) to enable the Dual Watch function. This function allows to monitor 2 differents frequencies / memory channels (refer to DUAL WATCH FUNCTION at page 14).

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Controls and Indicators

Rear Panel

16.   Belt Clip

1.   To install the belt clip, slide it down into the special slot situated in the rear side of the unit, until the block system make a click.

2.   To remove the clip, pull the block tab toward exterior and slide the clip toward the up side of the unit.

17.   Battery Door

Open this cover (17) to install or remove batteries.

18.   Battery Door Locker

This tab is used to lock or unlock the battery door.

Operation

FREQUENCY SELECTION

Direct Selection

Press the UP (9) or DOWN (10) keys to select the desired frequency, according to the selected frequency STEP (refer to the ITEM 12 at page 8).

Cursor Function

The desired frequency can be directly entered by using the Curson Function. This function allows to select the 2nd, the 3rd, the 4th and the 5th digit of the used frequency.

To enter the frequency directly using cursor function, please proceed as follows :

1. Select the desired frequency (P) by using the UP (9) or DOWN (10) keys.

2. Press the F Key (13) and the UP Key (9) to move the cursor to the right or the F Key (13) and the DOWN Key (10) to move the cursor to the left on the selected frequency. The selected frequency digit will blink on the LCD Display (5).

3. Every time the F Key (13) and the UP (9) keys are pressed, the next digit on the right will start to flash.

4. Every time the F Key (13) and the DOWN (10) keys are pressed, the previous digit on the left will start to flash.

Example of frequency selection : 150.4650 MHz on the VHF Band.

1. Press the F Key (13) and the BND Key (14) until the VHF Band is indicated on the LCD display.

2. Press the F Key (13) and the DOWN Key (10). The 5th digit of the frequency will start to blink. Now press the UP (9) or DOWN (10) keys to set the value to "5".

3. Press the F Key (13) and the DOWN Key (10). The 4th digit of the frequency will start to blink. Now press the UP (9) or DOWN (10) keys to set the value to "6".

4. Continue this process for the remaining digits until you have entered the desired frequency (the first digit of the frequency will can not be changed).

5. Press the MO Key (12) to confirm the frequency selection.

The same procedure is followed for call and memory channels when selecting the desired frequency.

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Operation

MEMORY OPERATION

This receiver has a total of 99 memory locations, where desired frequencies can be programmed by the user.

Memory Read Function

Press the MR/MW Key (7) to enter Memory Read Mode. The M Icon (I) will appear on the LCD display (5). Press the UP (9) or DOWN (10) keys to select the desired memory channel from 01 to 99 available locations. If the selected memory channel is empty, the LCD display will show **--- ----** and the selected memory channel number (M) indications (for example **--- ---- 01**).

Memory Write Function

FREQUENCY SELECTION BY CURSOR FUNCTION

1. Press the MR/MW Key (7) to enter Memory Read Mode and select the desired memory channel.

2. Select the desired frequency, as indicated in the FREQUENCY SELECTION section; the M Icon (I) and the memory channel number will blink on the LCD display.

3. After complete the frequency selection, press the MR/MW (7) or the MO/STEP (12) Keys to confirm and store into memory.

FREQUENCY SELECTION BY CHANNEL STEP SEARCH

1. Press the MR/MW Key (7) to enter Memory Read Mode; the M Icon (I) and the memory channel number will appear on the LCD display.

2. Press the UP (9) or DOWN (10) keys to select the desired memory channel from 01 to 99.

3. Press the F Key (13) and the MR/MW Key (7); the M Icon (I) and the selected memory channel number (M) will blink on the LCD display.

4. Press the UP (9) or DOWN (10) keys; the frequency will change up or down with preset Channel Step value.

5. Press the MR/MW Key (7) to confirm and store.

AUTOMATIC SCANNING

Frequency Scanning

1. Select the desired frequency, as indicated in the FREQUENCY SELECTION section.
2. Close the Squelch by using the SQ Control (4).
3. Press the SC/DW Key (15) to start the automatic frequency scanning.
4. During the scanning process, press the UP (9) or DOWN (10) keys to change the scanning direction.
5. SCAN will automatically stop when a signal is detected on one frequency, in order to listen to the communication and SCAN will re-start when no more signal is detected on that frequency after about 4 seconds. To resume or stop the SCAN function press the SC/DW Key (15).

Operation

Memory Channels Scanning

1. Press the MR/MW Key (7) to enter Memory Read Mode; the M Icon (I) will appear on the LCD display.
2. Close the Squelch by using the SQ Control (4).
3. Press the SC/DW Key (15) to start the automatic Memory Channels scanning.
4. During the scanning process, press the UP (9) or DOWN (10) keys to change the scanning direction.
5. SCAN will automatically stop when a signal is detected on one frequency, in order to listen to the communication and SCAN will re-start when no more signal is detected on that frequency after about 4 seconds.
6. If you press the F Key (13) at stopping channel during the scanning process, this channel will be skipped in the next scanning process. The LCD display will show the **PASS** indication.

    NOTE : The memory channels skipped from scanning process are automatically recovered when the radio is switched OFF and ON.

7. If only one channel remain due to the skipping of channels from the scanning process, the process will stop and the **EMPTY** message will appear on the LCD display.

    NOTE : Other buttons located on the front of the radio will not operate. If you press these buttons, an error beep tone will be generated.

SCAN Skip Function in Memory Mode

This function allows to skip a particular memory channel during the memory channels scanning operation.

1. Press the MR/MW Key (7) to enter Memory Read Mode
2. Press the UP (9) or DOWN (10) keys to select the channel you want to skip.
3. Press the F Key (13) and the MR/MW key; the M Icon (I) and the selected memory channel number (M) will blink on the LCD display.
4. Press the SC/DW key (15); the LCD display will show **SCSP on** and the selected memory channel number (M).
5. Press the UP (9) or DOWN (10) keys to select **on** or **oF**.
    oF = Skip the selected Memory Channel
    on = Scan the selected Memory Channel
6. Press the MR/MW Key (7) to confirm the selection.

Operation

DUAL WATCH FUNCTION

This receiver is equipped with a Dual Watch function that allows to monitor 2 differents frequencies / memory channels.

1. Select the first frequency or memory channel to be monitored (**Channel A**).

2. Press the F Key (13) and the SC/DW Key (15); DW Icon (F) will appear on the the LCD display (5).

3. Press the UP (9) or DOWN (10) keys to select the second frequency or memory channel to be monitored (**Channel B**).

4. Once the Channel B has been selected, the radio will begin its dual watch monitoring.

5. When a signal is receiving on the Channel A or on the Channel B, if the F Key (13) and SC/DW key (15) are pressed, the Dual Watch function will be disabled and the radio will remain on that channel.

6. If a signal is being received on the Channel A, the receiver will stay on Channel A until the signal disappears.

7. If a signal is being received on the Channel B, the unit will switch to the Channel A every 3 seconds to check the incoming signals.

8. If you press the UP (9) or DOWN (10) keys in Dual Watch mode, the Channel B will move to higher (or lower) channel than is currently chosen.

9. In the Dual Watch function, the Power Save feature does not operate.

10. To disable the Dual Watch function, simply press the F Key (13) and the SC/DW Key (15). The radio will return to the Channel A for normal operation.

Note :   In Air Band, you could only Dual Watch Air band channels.
In VHF Band, you could only Dual Watch VHF band Channels.
In FM Band, you could Dual Watch either Air Band or VHF band Channels.

OPTION SETTING MODE

Power Save Setting

The radio has an Automatic Power Save circuit designed to dramatically extend battery life.

Power OFF the unit. Press and hold F Key (13) and then turn ON the radio. The LCD display will show the **PS** indication and the **on** or **OFF** settings. Press the UP (9) or DOWN (10) keys to select the **on** (Power Save enabled) or **OFF** (Power Save disabled).

If the Power Save function is enabled, if no signal is received for 10 seconds, the radio automatically switches to the Power Save mode.

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Operation - Specifications

SCAN Delay Time

This feature allows the scanning process to stop for the fixed time when a signal is received. After this time, the scanning process will continue.

1. In the Power Save mode, press the F Key (13) and the UP Key (9); the LCD display will show the **Sd- 5** indication.

2. Press the UP (9) or DOWN (10) keys to select the desired Delay Time, from 1 to 30 seconds.

NOTE for the OPTION SETTING MODE

A. If the F Key (13) and the UP Key (9) or DOWN Key (10) are pressed, the radio will switch the Power Save Mode and the SCAN Delay Time function alternatively.

B. Press the MO key (12) to store the settings; the radio will return to normal operation.

C. Other keys on the front panel will not operate in this mode. If you press these keys, error beep tone will be generated.

SPECIFICATIONS

GENERAL

Operating Frequency	118.0000 - 136.9750 MHz (VHF AM AIR Band)
	137.0000 - 175.9900 MHz (VHF NFM Band)
	87.5000 - 108.0000 MHz (WFM Radio Band)
Frequency Generation	PLL synthesizer
Impedance	50 Ohm
Operating Temperature	-10°C to +55°C
Power Source	3.0V (2 x AA 1,5V alkaline battery)
	2.4V (2 x AA 1,2V Ni-MH battery)
Modulation	F3E, A3E
Dimensions	H87 x L59 X D29 mm (without antenna)
Weight	gr. 100 (without batteries)

RECEIVER

Circuit Type	Dual Conversion Superheterodyne
IF Frequency	1st IF : 21.4 MHz / 2nd IF : 150 KHz
Sensitivity	FM 0.25µV for 12dB SINAD / AM 1Mv for 10dB NQ
Selectivity	50dB Min.
S/N Ratio	40dB Min.
Audio Output @10%THD	100mW, 32 Ohm

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Important Informations

Important Informations

Important !

Changes or modifications to this product could void your authority to operate this unit.
Any adjustment to your radio must be made by a qualified authorized technician or service.

To be safe and sure :

Never open the cabinet of your radio.
Never change or replace anything in your radio (except the battery).

Hazardous Environments :

Do not operate the radio in hazardous environments.

Care and Safety :

To clean the radio, use a soft cloth dampened with water. Do not use cleaners or solvents because they can harm the body of the unit and leak inside, causing permanent damage. Use a dry, lint-free cloth to clean the battery contacts. **Do not submerge the unit in water or use it on a wet environment.** If the unit gets wet, turn it off and remove the battery immediately. Dry the battery and the battery compartment with a soft cloth to minimize potential water damage. Leave the battery compartment cover off overnight to ensure complete drying. Do not use the radio until it is completely dry.

Battery Operation - Important Information

Dispose of battery in the proper manner, according to federal, state and local regulations that apply in your area. A battery may leak electrolyte if it is mixed in a set with different battery types, if inserted incorrectly, if disposed of in fire, or if an attempt is made to charge a battery not intended to be charged. Discard leaky batteries immediately. Leaking batteries can cause skin burns or other personal injury.

Warning !

The use of this device may be subject to national restrictions or regulations. Check details with your local authority or dealer before purchasing and using this product.

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Declaration of Conformity - User Information

EC Certificate of Conformity

(to EC Directive 2006/95, 2004/108, 99/5)

DECLARATION OF CONFORMITY

With the present declaration, we certify that the following products :

INTEK AR-109

comply with all the technical regulations applicable to the above mentioned products in accordance with the EC Directives 2006/95/EC, 2004/108/EC, 99/5/EC.

Type of product : Communication VHF Receiver

Details of applied standards : EN 301 783-2, EN 301 489-1-15 V1.2.1
EN 60065:2002+A1:2006

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Segrate, 18/09/2008

dr. Vittorio Zanetti

(General Manager)

User Information

in accordance with art. 13 of the Legislative Decree of 25th July 2005, no. 15 "Implementation of Directives 2002/95/EC, 2002/96/EC and 2003/108/EC, relative to reduction of the use of hazardous substances in electrical and electronic equipment, in addition to waste disposal".

The crossed bin symbol shown on the equipment indicates that at the end of its working life the product must be collected separately from other waste.

The user must therefore take the above equipment to the appropriate differentiated collection centres for electronic and electro technical waste, or return it to the dealer when purchasing a new appliance of equivalent type, in a ratio of one to one.

Appropriate differentiated waste collection for subsequent recycling, treatment and environment-friendly disposal of the discarded equipment helps to prevent possible negative environmental and health effects and encourages recycling of the component materials of the equipment.

Illegal disposal of the product by the user will be punished by application of the administrative fines provided for by the legislative decree no. 22/1997 (article 50 and following of the legislative decree no. 22/1997).

Notes