Instruction Manual

for

Model AR1000

Wide Range Portable Monitor Receiver

Controls and function

1. Antenna Connector. This is a standard BNC high frequency connector mounted on the top face of receiver.

2. VOL (volume) control. This is the inner knob of the concentric controls on the top face of the receiver, and is used to set the desired level of audio from the receiver. In its fully anti-clockwise position, it turns off the power to the receiver.

3. SQL (squelch) control. The outer knob of the concentric controls, the squelch control is provided to eliminate the background noise on unoccupied frequencies, and also to enable the receiver to decide whether or not to stop on a frequency when searching or scanning. Turn the SQL control from the fully anti-clockwise position until the background noise just disappears. This is the most sensitive setting for the SQL. It is usually preferable to advance the squelch control little way further clockwise than the most sensitive setting to avoid inadvertent stopping on noise or very weak signals.

4. ATT (attenuator) switch. For most uses, the DX or long distance setting is used for most sensitive condition for the receiver. However, when operating the AR1000 in the presence of very strong signals such as those from TV stations or FM broadcast transmitters, some interference effects may be apparent. This can take the form of increase levels of background noise, or spitting noises occasionally heard on peaks of modulation from the interfering source, or strange spurious signals generated by intermodulation between the strong signals. The cure of most of these effects is the use of the ATT switch in the LOCAL position.

5. UP/DOWN knob. This is the tuning knob. For a full description of the use of the knob.

6. EAR (earphone or external speaker). This is used for connection of either the earphone supplied, or an external headset or loudspeaker. When a plug is inserted into this jack, the internal speaker of the AR1000 is automatically disconnected. The impedance of the external load should be 8 ohms or greater.
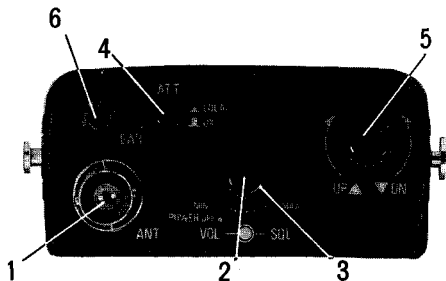
Top view of AR-1000 control panel.
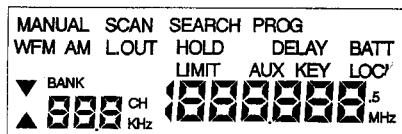
Display Panel showing all legends.

7. DISPLAY. This provides comprehensive information for the user in easy to understand form.

CHG. This concentric socket is mounted on the side of the case and is used for connection of the mains charger supplied, or the DC power cord supplied, or any suitable 11 to 14 volt DC supply.

Keyboard controls

1. First of all we have the numerical keys from 0 to 9, plus the decimal point (.). These are used for entering frequency, frequency step size, memory channel number, bank number, and so on. The same keys are used in the bank select mode, in which case the numbers 0 to 9 correspond to the frequency bands listed in the operating paragraph of this handbook. The bank designations are show on the lower side of each number key.

2. **CLEAR.(.)** Press once to enter a decimal point when entering frequency information. Press twice to clear an incorrect entry.

3. **ENTER key.** Used to enter frequency after selection by the keypad, or to complete many memory changes or operations.

4. **SEARCH key.** Used to start the frequency search action of the receiver; also used to manually advance frequency after the search has stopped.

5. **SCAN key.** Used to start the memory scanning system of the receiver; also used to manually advance the memory channels when the scan has stopped.

6. **MANUAL key.** Used to engage the manual mode of receiver control, that is when the user wishes to directly enter a frequency of interest to the receiver, or directly select any memory channel.

7. **PROG key.** Used in programming search frequency limits.

8. **LIMIT key.** Used in conjunction with the PROG key in fixing search band limits.

INC key. Used when entering the desired frequency increments or steps, from 5KHz to 995KHz.

10. **Bank key.** Used to select the desired memory bank or search bank from 0 to 9 when scanning or searching.

11. AM/FM key. Selects either mode as required.

12. W-FM key. Selects either W(wide)FM or narrow FM as required.

13. LOCKOUT key. Press once to lockout the channel or frequency show on the display.

14. DELAY/HOLD key. Press to change from DELAY to HOLD and back again sequentially in both search and scan mode. When "HOLD" is shown on the display, the scan or search stops on a busy channel and remains there even after the signal has gone off. When "DELAY" is shown on the display, the scan or each stops on a busy channel, but then automatically resumes the search or scan approximately 2 seconds aft the signal has gone off.

15. Down arrow key Initially, the search or scan action is always from lower frequencies to higher, or lower memory channels to higher. If when searching or scanning, the down arrow key is pressed, the search or scan stops, and the down arrow mark is shown on the display. Subsequent short press of the down arrow key will step the scan or search downwards. If the down arrow key is held pressed for more than about one seconds, the scan or search will re-start, but in the downwards direction.

16. KEY LOCK key. Press this key to disable all keyboard function. Press again to restore all function to normal. This key is used to prevent accidental mis-operating or changes of frequency when the receiver is being carried around but still in use, for example at air displays.

17. LIGHT key. Pressed momentarily, this will illuminate the display for approximately six seconds, after which the lamp will automatically be extinguished.

Manual Operation

1. To enter frequency
MANUAL - (frequency in MHz) - ENTER

2. To enter tuning steps
INC - (tuning step in KHz) - ENTER

To enter receiving mode
AM (or FM, or W.FM) - ENTER

3. To tune receiver
Use main tuning knob. Display will show up arrow or down arrow mark as you tune up or down in steps previously entered.

Memory Operation

1. To enter a frequency into memory from display.
PROG - (memory bank and channel) - ENTER

Example. Enter frequency on display into memory bank 1, channel 52.
PROG - 152 - ENTER

2. To enter a new frequency and mode into memory.
MANUAL - (frequency in MHz) - ENTER - (mode) - PROG -
(memory bank and channel number)

Example: Enter 144.025 MHz, FM mode, into memory bank 0 channel 55.
MANUAL - 144.025 - ENTER - FM - PROG - 055

3. To recall the contents of any memory.
MANUAL - BANK - (bank and channel number)

Example: Recall contents of bank 3 channel 26.
MANUAL - BANK - 326

4. To clear a memory.
MANUAL - CLEAR - ENTER - PROG - (bank and channel number)

Example: Clear contents of bank 1 channel 20.
MANUAL - CLEAR - ENTER - PROG - 120

Scanning Operation

1. Scan all memories
PRESS SCAN. (having set SQUELCH control to cut off background noise)

2. Start scan at a particular bank
SCAN - BANK - (bank number)

3. Programmed bank scan
SCAN - BANK - PROG - (start bank number) - LIMIT - (end bank number)
ENTER

Example: To scan between bank 1 and bank 5.
SCAN - BANK - PROG - 1 LIMIT - 5 - ENTER

4. Memory channel lockout
MANUAL - BANK - (bank and channel number) - LOCKOUT
(lockout confirmed by flashing "L.OUT" in display.)

Page 4

5. Memory group lockout.
Choose the bottom channel of the group you wish to lockout, and
proceed as for memory channel lockout, then press: **MANUAL - LOCKOUT**
for each channel you wish to lockout.

Each channel lockout will be confirmed by flashing "L.OUT" in the
display.

6. Memory bank lockout (all 100 channels)
MANUAL - BANK - (bottom channel in bank) - BANK - LOCKOUT

Example: Lockout bank 7 (i.e. channels 700 to 799 inclusive)
MANUAL - BANK - 700 - BANK - LOCKOUT

7. Releasing memory channel lockout.
MANUAL - BANK - (bottom channel in locked out bank) - LOCKOUT
Lockout release will be confirmed by the disappearance of the flashing
"L.OUT" from the display.

Search Operation

1. Bank search
SEARCH - BANK - (any bank number from 0 - 9)

2. Programmed bank search
SEARCH - BANK - PROG - (start bank number) - LIMIT - (end bank number)
- ENTER

Example: To search banks 5 to 8 inclusive
SEARCH - BANK - PROG - 5 - LIMIT - 8 - ENTER

Example: To search a single bank (bank 2) continuously.
SEARCH - BANK - PROG - 2 - LIMIT - 2 - ENTER

3. Store search frequency into memory.
PRESS DELAY/HOLD so that "HOLD" shows in display, then ENTER -
(bank and channel number)

4. Search lockout
Simply press LOCKOUT if the search stops on a continuously occupied
frequency, and the search will continue, automatically ignoring the
locked out frequency on the next search.

5. Releasing search lockout
SEARCH - BANK - PROG - LOCKOUT (or ENTER)

6. Search bank lockout
SEARCH - BANK (bank number) - BANK - LOCKOUT

7. Releasing search bank lockout.
First scroll through all individually locked out channels, until you see "BANK" flashing and "L.OUT" showing steadily in the display. One press of the LOCKOUT key will then release the bank lockout.

8. Re-programming search bank limits.
SEARCH - (start frequency) - LIMIT - (stop frequency) - ENTER - (search step in KHz) - ENTER - (receiving mode) - ENTER - (bank number) - ENTER

AR1000 Specification

Frequency Ranges		8 - 600MHz, 805 - 1300MHz
Frequency Steps		5KHz to 995KHz in 5 or 12.5KHz step
Sensitivity	FM	0.5uV or better across the band
	AM	3uV or better across the band
Receiving modes		AM, FM(narrow), FM(wide)
Memory scan speed		Approx. 20 channels/sec
Scan delay time		Approx. 2 seconds.
Search speed		Approx. 40 steps/sec
Memory channels		1000, arranged in 20 banks of 100
Priority channel		Any of the 100 memories can be set as priority
Priority Sampling time		Approx. every 2 seconds.
Antenna input		BNC 50 ohm
Audio output		> 100mW at 10% distortion
Power supply		4.8V (AA size NiCd Batteries supplied), or 11 - 15V DC from external power source
Power consumption		Approx. 80mA standby, 85-100mA with full audio output
Size		170 x 35 x 65mm
Weight		300g (excluding batteries)