

35GR reference manual

ver. 1.01

ApexRadio, Inc.

ApexRadio, Inc.

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FCC WARNING

Changes or modifications not expressly approved by the party responsible for compliance could void the use's authority to operate the equipment.

■ Part15 class B

NOTICE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

1. Quick reference manual conventions

Operating mode	DIAL (manual tune) , Memory recall, Scanning Memory, Select scanning, Dial search, Programming search
Receive mode	FM, AM, USB, LSB, CW, AUTO <u>AUTO:</u> The receiver will automatically select the appropriate receive mode, IFBW, step frequency, and others. Of course, should you wish then receive mode, IFBW, step frequency & others may be manually changed when required.
IFBW	I.F. BANDWIDTH An appropriate IF filter is automatically selected when AUTO is engaged.
AGC	Automatic Gain Control. In FM mode the options are AGC MID / OFF and in other modes are OFF, FAST, MID and SLOW.
ATT RF AMP	The 35GR features an RF stepped attenuator and preamplifier. LCD legends “ ATT 00 dB ” and “ AMP ” are used to display the settings in use. Below 30 MHz: A switchable RF preamplifier is utilized making the available selection of ON & OFF Above 1100MHz: . The attenuator is disabled to minimise signal loss through the switching unit... always set to 0dB. The “ AMP ” legend is always displayed.
MEMORY WRITE	Storing receive data into memory. It is very convenient to store commonly used frequencies into a memory bank along with mode and attenuator status, this saves having to key the data in over and over again.
MEMORY READ	Memory recall is very straightforward and quick when compared to retying all data.
SCANNING	During SCAN the 35GR automatically recalls each memory channel which contains data in numeric order and monitors them for activity. When an active memory channel is located (when a signal is found and the squelch is open) the receiver will temporarily stop scanning. Memory banks may be LINKED and UNLINKED to effectively make larger or smaller groups of memories which may be scanned together. CHANNEL PASS may be used whereby memory channels can be skipped when not required (such as when permanently busy), and may be easily reinstated at a later time.
SELECT SCAN	SELECT SCAN enables you to make a single short list of interesting memory channels from all memory banks to be scanned as a separate function. This reduces the need to PASS, LINK and UNLINK banks and channels.
PRIORITY	Another special form of scanning is PRIORITY where a special channel is scanned for activity every interval time (1 -60 seconds).
PROGRAM SEARCH	The 35GR has a SEARCH mode whereby an upper and lower frequency limit may be defined and the 35GR instructed to look for activity on all frequencies in predetermined step size in an upward or downward direction. The mode and channel step will change automatically when set to the default of AUTOMODE but data may be specified specifically if preferred. It is important that you do not confuse SEARCH and SCAN modes.
BANK LINK	Linking function of Memory banks and Search banks.
SQUELCH	The squelch control is used to eliminate unwanted background noise when monitoring a normally inactive frequency and is also used by the 35GR microprocessor to determine when a channel is active (busy). The receiver cannot scan or search when the background noise is present.
CONFIG menu	The CONFIG menu is used to make many changes to operations of the receiver, the less frequently accessed items are held here to minimize the number of second function keys thereby simplifying operation.
AF	Audio Filters
CLOCK & TIMER	The 35GR is equipped with an independent real time clock with timer function. It is 24hr format displaying hours, minutes and seconds.

Where text appears in **[SQUARE BRACKETS]** the keys are to be pressed exactly as shown.

For example : **[1] [2] [0] [ENT]**

Means press the 1key followed by the 2 key followed by the 0 key followed by ENT key

[MODE]	Press the MODE key
[FUNC]+[MODE]	Press the FUNC key followed by MODE key
[FUNCL]	Press and hold the FUNC key for more than 0.6 sec.
[UPL]	Press the UP key for more than 0.6 sec
[DOWNL]	Press the DOWN key for more than 0.6sec.

2. FUNC key (function key)

“FUNC” as a legend appears when the key is pressed signifying that the receiver’s microprocessor is awaiting the press of another key, where the SECOND FUNCTION shown in white (not orange) adjacent to the keys will be activated... an example is to selection of the IFBW. When the second function is activated, the “FUNC” legend disappears and often a new LCD legend appears to confirm selection.

[FUNC]	Use for second function.
[FUNCL]	Press and hold the FUNC key for more than 0.6 sec. Use for third function When third function is activated, the FUNC legend is blinking.

3. Second functions (with the FUNC key)

[FUNCL]+[MODE]	IF bandwidth selection
[FUNC]+[STEP]	ST-ADJ (Step-adjust) ON/OFF
[FUNC]+[4]	Frequency SHIFT ON/OFF
[FUNC]+[6]	PRIORITY ON/OF
[FUNC]+[9]	Switching display : receiving frequency or clock
[FUNC]+[·]	LSQ (Level squelch) ON/OFF
[FUNC]+[EXIT]	Switching display : receiving frequency or TAG of channel

4. Third functions (with the FUNC key press & hold)

[FUNCL]+[MODE]	AUTO (receive mode) ON/OFF									
[FUNCL]+[4]	To SHIFT setting Menu									
[FUNCL]+[6]	To PRIORITY setting menu									
[FUNCL]+[9]	To CLOCK setting menu									
[FUNCL]+[.]	To LSQ (Level Squelch) setting menu									
[FUNCL]+[MEM]	To Memory scans setting menu									
[FUNCL]+[SRCH]	To Program search setting menu									
[FUNCL]+[DIAL]	To dial search setting menu									
[FUNCL]+[0]	To delete menu . <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Operation mode</td> <td>Description</td> </tr> <tr> <td>DIAL, DIAL search</td> <td>Delete frequency pass (lock out)</td> </tr> <tr> <td>Program search</td> <td>Delete search bank, frequency pass (lock out)</td> </tr> <tr> <td>Memory recall, Scan, Select Scan</td> <td>Delete memory bank, channel pass, channel selection</td> </tr> </table>		Operation mode	Description	DIAL, DIAL search	Delete frequency pass (lock out)	Program search	Delete search bank, frequency pass (lock out)	Memory recall, Scan, Select Scan	Delete memory bank, channel pass, channel selection
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Memory recall, Scan, Select Scan	Delete memory bank, channel pass, channel selection									
[FUNCL]+[EXIT]	To text setting menu <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Operation mode</td> <td>Description</td> </tr> <tr> <td>DIAL, DIAL search</td> <td>To text setting DIAL-# (#=A-F)</td> </tr> <tr> <td>Program search</td> <td>To text setting menu of present search bank</td> </tr> <tr> <td>Memory recall, Scan, Select Scan</td> <td>To text setting menu of present memory channel.</td> </tr> </table>		Operation mode	Description	DIAL, DIAL search	To text setting DIAL-# (#=A-F)	Program search	To text setting menu of present search bank	Memory recall, Scan, Select Scan	To text setting menu of present memory channel.
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DIAL, DIAL search	To text setting DIAL-# (#=A-F)									
Program search	To text setting menu of present search bank									
Memory recall, Scan, Select Scan	To text setting menu of present memory channel.									

5. Switching Operation mode

Keys	Present operation	
[DIAL]	DIAL mode	DIAL # switching ⇔DIAL-A ⇔DIAL-B ⇔DIAL-C ⇔DIAL-D ⇔DIAL-E ⇔DIAL-F ⇔
	Except DIAL mode	To DIAL mode
[MEM]	Memory recall	To Memory scan
	Except Memo recall	To memory recall
[FUNC] + [MEM]	Except Memo Scan	To Memory scan
[FUNC] + [7]	Except select scan	To Select Scan
[SRCH]	Except Program search	To program search
[UPL], [DOWNL]	DIAL mode	To Dial search
	Memo recall	To memory scan

6. Alphanumeric display on LCD

MODE	Receive MODE
BW, IFBW	Band width of I.F. filters
ST	STep frequency
ATT	ATTenuator (RF stage)
AMP	AMPlifier (always ON above 30MHz)
AGC	Automatic Gain Control (2ndIF(10.7MHz), 3rdIF(455kHz)))
HPF	High Pass Filter (audio stage)
LPF	Low Pass Filter (audio stage)
DEMP	De-emphasis (audio stage)
CW-P	CW Pitch (BFO frequency)
LSQ	Level SQuelch
LAMP	LCD Back light
BEEP	BEEP
EXT-IF	External I.F. output
BPS	Bits Per Second (baud) rate on serial port
STD	external high STability reference signal
S-M	S - Meter
RSSI	Received Signal Strength Indication without AGC effect
AGC	Received Signal Strength Indication with AGC effect
VI	Voice Inverter
TE	Tone Eliminator
DSR	Dial SeaRch
PSR	Program SeaRch
MEM	Memory channels
DEL	DElete
DBK	Delete BanK
BKL	BanK Link
DIS	DISable (bank link setting)
ENA	ENAble (bank link setting)
No */No—	No:Bank No. , CH:memory channel, DATA:program search data
CH */CH—	
DATA */DATA—	
PASS */PASS—	PASS setting (memory channel / frequency pass)
SEL */SEL—	Memory Channel for select scanning

7. [UP], [DOWN] keys

[UP] - if quickly pressed causes the displayed frequency in DIAL mode to be incremented in an upward direction by one step. The key may be pressed to force the scan and search onward past a busy frequency or channel it may also be used to reverse the direction of scan and search. If held for more than 0.6 seconds while in DIAL mode, DIAL search is initiated. If held for more than 0.6 seconds while in memory recall mode, the scan process will start.

INCREMENT - the key will often increment sub menu options such as Audio Filters setting etc.

[DOWN] - If this key is quickly pressed, the displayed frequency in DIAL mode to be incremented in a downward direction by one step. The key may be pressed to force the scan and search onward past a busy frequency or channel it may also be used to reverse the direction of scan and search. If held for more than 0.6 seconds while in DIAL mode, a frequency search is initiated. If held for more than 0.6 seconds while in memory recall mode, the scan process will start.

INCREMENT - the key will often increment sub menu options such as Audio Filters setting etc.

8-1. Operation table 1/4

N o	ITEM	KEY	Sub menu	Operations		
			[UP][DOWN]	[DIAL]	[PASS]	[0~9][.]
1	Receive mode (MODE)	[MODE]		↔FM↔AM↔USB↔LSB↔CW↔		
2	IF width (IFBW)	[FUNC]+ [MODE]		↔2.4↔5.5↔7.0↔15.0↔30.0↔ ↔110.0↔220.0↔		
3	Selecting Tuning step (STEP)	[STEP]		↔0.001↔0.010↔0.050↔0.100↔ ↔0.500↔1.000↔5.000↔6.250↔ ↔8.300↔9.000↔10.000↔ ↔12.500↔20.000↔25.000↔ ↔30.000↔50.000↔100.000↔ ↔500.000↔		Direct input using numeric keys in kHz
4	Attenuator (ATT)	[FUNC]+ [1]	ATT	↔ AUTO↔0dB↔10dB↔20dB↔ ↔30dB↔		
			AMP (below 30MHz)		ON/OFF	
5	AGC	[FUNC]+ [2]		↔0FF↔ FAST↔MID↔SLOW↔		
6	AF set (Audio characteristics)	[FUNC]+ [3]	HPF	↔0.05↔0.2↔0.3↔0.4↔		
			LPF	↔3.0↔4.0↔6.0↔15.0↔		
			DEMP	↔THRU↔25↔50↔75↔750↔		
			CW-P	↔0.4↔0.5↔0.6↔0.7↔0.8↔ ↔0.9↔1.0↔12.0↔		
7	Frequency Shift (SHIFT)	[FUNCL] +[4]		↔+↔-↔		Direct input using numeric keys in kHz
8	DELAY time (DELAY)	[FUNC]+ [5]		↔OFF↔0.1↔0.2↔0.3↔0.4↔... ...↔9.5↔9.6↔9.7↔9.8↔9.9↔ The limits are OFF and 0.1 to 9.9 seconds		
9	Setting PRIORITY (PRIORITY)	[FUNCL] +[6]	Setting priority channel	Set for receiving frequency, mode, etc		
			INTERVAL time	↔1↔2↔3↔...↔58↔59↔60↔ The limits are 1 to 60 seconds		
10	Setting OPTIONS (OPTION)	[FUNC]+ [8]	AFC		ON/OFF	
			NB		ON/OFF	
			DTMF		ON/OFF	
			VI (voice inverter)	↔0↔1↔2↔...↔254↔255↔ The limits are 0 to 255.	ON/OFF	
			TE	↔0↔1↔2↔...↔254↔255↔ The limits are 0 to 255.	ON/OFF	

[EXIT] : The EXIT key may be used to abort frequency entry during programming or to escape from a menu.

[ENT] : The ENTER key is used to finalize the entry of frequency and other data inputs.

[UP][DOWN] : The UP DOWN keys may be used to selection of sub menu.

8-2. Operation table 2/4

No	ITEM	KEY	Sub menu	Operations		
			[UP][DOWN]	[DIAL]	[PASS]	[0~9][.]
11	CLOCK	[FUNC1] + [9]	Setting time	hh-mm-ss setting		[4] [6] h-m-s selection
			Setting ON TIMER	hh-mm-ss setting	ON/OFF	[4] [6] h-m-s selection
			ALM	↔RADIO↔BEEP↔		
			VOLUME	↔0↔1↔2↔ · · · ↔254↔255↔ The limits are 0 to 255		
			Setting OFF TIMER	hh-mm-ss setting	ON/OFF	[4] [6] h-m-s selection
			Setting SLEEP TIMER	↔0↔1↔2↔ · · · ↔119↔120↔ The limits are 1 to 120 minutes	ON/OFF	
12	Setting Level Squelch	[FUNC1] + [.]		↔0↔1↔2↔ · · · ↔254↔255↔ The limits are 0 to 255		
13	Memory Wright (MW)	[FUNC]+ [ENT]		Selects all 1000 (000-999) memory channels in sequence [UP] increment memory channels number by 10 [DOWN] : decrement memory channels number by 10		Bank selection
14	Scan facilities	[FUNC1] + [MEM]	PAUSE	↔1↔2↔ · · · ↔59↔60↔ The limits are 1 to 60 seconds	ON/OFF	
			BKL (bank link setting)	↔0↔1↔2↔ · · · ↔8↔9↔ The limits are #0 to #9 banks	DIS/ENA	
			BKL (bank link)		ON/OFF	
15	Program Search facilities	[FUNC1] + [SRCH]	PAUSE	↔1↔2↔ · · · ↔59↔60↔ The limits are 1 to 60 seconds	ON/OFF	
			BKL (banklink setting)	↔00↔01↔02↔ · · · ↔18↔19↔ The limits are #00 to #19 banks	DIS/ENA	
			BKL (bank link)		ON/OFF	
16	Dial search Facilities	[FUNC1] + [DIAL]	PAUSE	↔1↔2↔ · · · ↔59↔60↔ The limits are 1 to 60 seconds	ON/OFF	

[EXIT] : The EXIT key may be used to abort frequency entry during programming or to escape from a menu.

[ENT] : The ENTER key is used to finalize the entry of frequency and other data inputs.

[UP][DOWN] : The UP DOWN keys may be used to selection of sub menu.

8-3. Operation table 3/4

No	ITEM	KEY	Sub menu	Operations		
			[UP][DOWN]	[DIAL]	[PASS]	[0~9][.]
17	System Configuration (CONFIG)	[FUNC] + [DIAL]	LAMP		ON/OFF	
			BEEP	↔0↔1↔2↔ · · · ↔254↔255↔ The limits are 0 to 255	ON/OFF	
			IFOUT	↔OFF↔1↔2↔3↔		
			BPS	↔9.6k↔19.2k↔38.4k↔57.6k↔ ↔115.2k↔		
			STD	↔20MHz(INT)↔10MHz(EXT)↔		
			S-M	↔RSSI↔AGC↔		
			DISP	↔NORM↔RSSI↔		
18	Programming Search banks (SR PROG)	[FUNC] + [SRCH]	Bank # selection bA	↔00↔01↔2↔ · · · ↔18↔19↔ The limits are 00 to 19		
			LO Lower frequency			Direct input using numeric keys in MHz
			HI Upper frequency			Direct input using numeric keys in MHz
			ST Step frequency	↔0.001↔0.010↔0.050↔0.100↔ ↔0.500↔1.000↔5.000↔6.250↔ ↔8.300↔9.000↔10.000↔ ↔12.500↔20.000↔25.000↔ ↔30.000↔50.000↔100.000↔ ↔500.000↔		Direct input using numeric keys in kHz
			MODE	↔FM↔AM↔USB↔LSB↔CW↔		
			BW (IFBW)	↔2.4↔5.5↔7.0↔15.0↔30.0↔ ↔110.0↔220.0↔		
				↔0↔1↔2↔ · · · ↔7↔8↔9↔ ↔A↔B↔C↔ · · · ↔X↔Y↔Z↔ ↔‘↔*↔+↔-↔, ↔, ↔/↔ ↔ ↔↔↔=↔↔↔_↔		[4] [6] keys move the text entry point to the right and left respectively.
19	Text Menu (TAG)	[FUNCL] + [EXIT]				

[EXIT] : The EXIT key may be used to abort frequency entry during programming or to escape from a menu.

[ENT] : The ENTER key is used to finalize the entry of frequency and other data inputs.

[UP] [DOWN] : The UP DOWN keys may be used to selection of sub menu.

8-4. Operation table 4/4

No	ITEM	KEY	Sub menu	Operations		
			[UP] [DOWN]	[DIAL]	[PASS]	[0~9] [·]
20	DEL Deleting individual memory channels	[FUNC] + [0]			Deleting temporary settlement	Deleting Settlement
21	Delete menu for Memory read Memory scan Select scan	[FUNCL] + [0]	DBK No Memory bank # selection	↔0↔1↔2↔⋯⋯↔8↔9↔ The limits are 0 to 9.		
			DBK CH Deleting Selected memory bank		Deleting temporary settlement	Deleting Settlement
			DBK PASS Clearing PASS In memory bank		Clearing temporary settlement	Clearing Settlement
			DBK SEL Clearing SEL in memory bank		Clearing temporary settlement	Clearing Settlement
22	Delete menu for Program search	[FUNCL] + [0]	DBK No search bank # selection	↔00↔01↔2↔⋯⋯↔18↔19↔ The limits are 00 to 19		
			DBK DATA Deleting selected program search bank		Deleting temporary settlement	Deleting Settlement
			DBK PASS Clearing PASS In search bank		Clearing temporary settlement	Clearing Settlement
			----,---- Clearing individual pass frequencies		Clearing temporary settlement	Clearing Settlement
23	Delete menu for Dial & Dial search	[FUNCL] + [0]	DEL PASS Clearing PASS In dial mode		Clearing temporary settlement	Clearing Settlement
			----,---- Clearing individual pass frequencies		Clearing temporary settlement	Clearing Settlement

- Specifications subjects to change without notice due to continuous development of the receiver. E&OE