Quansheng UV-K5 - IJV v3 Firmware Manual

The Quansheng UV-K5, K5(8), K6 and k5-plus radios have the option of being upgraded with unofficial firmware.
These updates are substantial to the point that there was a need to rewrite the manual, as the menu and functions are different.

I disclaim all liability in case of transmission outside the bands allowed by the manufacturer. What you do with your radio is at your own risk.

Please note that the use of this radio requires an HAM radio licence.

Sezioni

This manual is for version 3 of the IJV firmware.

If you wish to stay with version 2.9R5, follow this link.

1. IJV V3 o IJV X3 999 Ch ?

To make it clear from the outset, the IJV 3 version requires a certain level of expertise. For those who do not feel up to it, it is preferable to go for the stable version 2.9R5.
Inoltre si suddivide in due firmware:

***IJV V3** for unmodified radios, with 200 channels.*
***IJV VX3** to take advantage of 999 channels. Requires physical intervention with replacement of an eeprom chip.*

IJV X3 con 999CH

For the more daring, there is now the possibility of using 999 channels instead of the original 200. However, this requires a rather complex hardware modification: a chip has to be desoldered and re-soldered.

This involves replacing the original 8K eeprom (24C64) with a new 128K one, such as 24M01.

Where to buy 128K EEPROM 24M01: Link1, Link2, Link3.

Before making any changes, save the channels stored in the radio with CHIRP and also the calibration file with K5prog_IJV_V3.
After replacing this memory, it will be necessary to install the dedicated firmware. The X variant is available alongside the normal version.

`firmware_IJV_V3.bin` ⇒ 200 channels.
`firmware_IJV_VX3.bin` ⇒ 999 channels.

To install VX3 firmware, follow the same procedure from Chapter 2.2 to 2.6.
Once switched to VX3, it is necessary to do a Reset ALL and load the previously saved calibration file.
If you have not saved your calibration file, you can always install this generic one by Teo+Mat: Calibration_Teo file.

The same applies to CHIRP: the module to be loaded to read the radio is the one named vX3: `uvk5_IJV_vX3.py`

⚠️If you use the V3 firmware on a modified radio, only 200 memories will still be displayed. However, if you install the VX3 firmware on an intact radio, no memories will be displayed, only VFOs.

How to copy saved V3 channels to the VX3

The method is to open 2 instances of CHIRP with the V3 and VX3 modules respectively.

1. With V3, read the previously saved file.
2. With the VX3 read the modified radio.
3. Copy the channels from CHIRP with V3 and paste them into the other CHIRP with VX3.

In brief

The correct procedure for replacement is:

1. Save stored channels with CHIRP.
2. Save the calibration file with K5prog_IJV_V3.
3. Replace the memory.
4. Load VX3 firmware
5. Perform Reset ALL.
6. Load calibration file with K5prog_IJV_VX3.
7. Read and copy memories from the previously saved CHIRP file.
8. Read the radio with CHIRP.
9. Paste the memories.
10. Write it all down in the radio.

</> 2. The IJV Firmware

Version 3 is totally different from its predecessor, you have a different radio in your hand.

2.1 Download Firmware-IJV

- Click on the button to download the zip file. It contains the following files:
  - `changelog.txt`
  - `firmware_IJV_V3.x.bin`
  - `installazione modulo per chirp.pdf`
  - `useful links.txt`
  - `uvk5_IJV_V3_xx.py`
- The procedure for using the CHIRP module is explained in chapter 8.1.
- Should there be a problem with this firmware, you can always reload the official one and the radio will be exactly as it was before. Refer to chapter **2.3**.

You can support us in our efforts with a donation.

To Fabrizio IU0IJV for creating the firmware.
To Sirius for creating the manual.

2.2 k5prog-win

- To load the firmware into the radio you need the software **k5prog**.
- \+ This programme allows you to save the configuration and calibration data recorded in the EEPROM. Indeed, is strongly recommended to do so.
- There are two versions, one for intact radios with 200 channels and the other for radios that have had their eeprom replaced to reach 999 channels.
- In the X3 version, the 'Read and Write Full Eprom' buttons will also read/write Calibration data.

Start k5prog-win on Debian Linux.

1. Follow this article: wine.htmlvalidator.com/install-wine-on-debian-12
2. `shell`
   `sudo adduser $USER dialout`
3. Restart the computer.
4. Open a terminal and run:
   `copy`
   `winecfg`
5. Agree to install MONO (it takes a few minutes to download) and the default options.
6. Download k5prog-win from the link in this manual and put it in a folder of your choice.
   Enter the folder with a terminal and run:
   `wine k5prog_win-v1.26_IJV.exe`

2.3 Backup of Calibration and Original Configuration

- As mentioned above, it is important to safeguard the original Calibration and Configuration files:
- Install the cable driver . Check that it is well recognised by Windows and k5prog-win.
  → Start the radio normally (user mode), connect the cable from the computer to the radio, start k5prog-win. Using the buttons: "Read Configuration" and "Read Calibration", save those two files in your folder.

- If you need to restore the radio as it was originally, it is not enough to put back the original firmware, you will also have to load the original "my_calibration" and "my_config" files:
  → with the k5prog-win programme via the 'Write Configuration' and 'Write Calibration' buttons.
  These files include a hundred or so parameters such as the 3 transmission powers, squelch, RF Gain, start message, 200 channels, VFO, etc., and are recorded on an external EEPROM memory.
  ⚠️ These files are different from radio to radio, it is not certain that those of another are compatible with yours. The calibration is adjusted at the factory for each individual radio.

🔸 If you have not saved your calibration file, you can always install this generic one:Calibration x v3.20.

2.4 Online tool for Mac and Linux as well

There is a utility for flashing firmware online. This is useful for those with a Mac, Linux or versions prior to Windows 10.

Follow this link, everything else is intuitive. https://egzumer.github.io/uvtools/

⚠️It does not work with Safari or Brave, it requires a Chromium-based browser so use Chrome, Edge or Opera. For Linux use Chrome.

2.5 Upload the IJV Firmware

1. Make sure you have a sufficiently charged battery.
2. Plug the cable into the PC, but DO NOT start the software.
3. Set the radio to update mode:
   While pressing the PTT button, switch on the radio.
   → The white LED lights up.
4. Connect the cable to the radio. The first time the plugs do not fit very well, you have to push a little to get them all the way in.
5. Start the software **k5prog-win.**
6. Then choose the right COM port in the software.
7. Via the software **k5prog-win,** upload the file *firmware_IJV_vxxx.bin* previously downloaded.
   → The white LED blinks.
8. At the end of the flashing, switch off the radio and disconnect the cable.

To connect the radio, you will need a Kenwood-type cable:

2.6 Transfer all memories at version change with Reset ALL

When changing from one version to another very different one, it happens that you have to do an reset ALL, in some cases CHIRP is not able to copy the stored channels of the previous version to the new one. Here is the procedure:

1. Install the new firmware *(Chapter 2.5)*.
2. Read the radio with CHIRP and the new module, then save as a temporary file; it will only serve for stored channels (keep CHIRP switched on).
3. Do an Reset ALL of the radio *(Chapter 2.7)*.
4. Read the radio again with CHIRP and the new module.
5. Ensure that the list of groups are identical on `Settings` → `Memory Group`.
6. Copy the stored channels from the temporary file and paste them into the memory table of the radio you just read.
7. Change the settings as desired.
8. Load it onto the radio.
9. Save this configuration as a final file.

2.7 Adjusting the radio after update

⚠️ **Beware that after installing the new firmware, it is essential to make these settings.**
Only if this is a first-time installation or if you are coming from other firmware:

1. Perform a RESET ALL: Start the radio by pressing the S1 side button at the same time.
2. Go to the RESET menu and select ALL then confirm, (the green LED flashes).
   The stored frequencies will all be deleted.
3. Set menu items as desired.
4. From version 3.20 onwards, the original calibration is no longer suitable for the new RF-Gain and WB parameters. Via K5prog_IJV_V3, it is recommended to load this specially designed calibration: Calibration x v3.20.

🔸 To optimise reception, make gain adjustments for each band, see section**7.3 RF Gain**.

3. IJV firmware features

What it has more of, what it has less of.

+ WHAT'S HERE

- Overlay windows similar to a context menu.
- Single VFO with direct insertion frequencies above GHz.
- AGC FAST / NORM / SLOW / Only for AM and SSB.
- AGC MAN also in FM with 35-level attenuator adjustment.
- Transmission in emulation DSB (SSB doppio).
- Preselection for an Upconverter with transmission lock.
- Increased waiting times during scanning.
- Rit & Xit in all modulations.
- Stable SSB reception.
- Reception gain customisable to your needs.
- Attivazione circuiti SATCOM (Boost) con incremento in ricezione > +9dB.
- FM Broadcast.
- VOX
- 1750 Tone
- PTT Toggle activated at power-up with * key (note: only works with FM).
- Beacon in CW (Radiofaro).
- Compander
- Extended reception Frequency range: 15 → 1300MHz. With Rx gap between 620 and 840MHz.
- Unlockable limited transmission: NO AIR BAND / NO 27 MHZ.
- Rapid Frequency and Tone Search: FC (Frequency Copy) function.
- Quick Tone Search.
- Quick partial or full memory scan.
- SMETER
- TX modulation indicator
- Selective Calling with reception audio suppression (Code Squelch)
- Selective sending DTMF, ZVEI, CCIR.
- Scramble.
- CW (Continuous Wave) modulation.
- Distinct squelch for each single VFO line (A and B)
- Battery voltage indication in info menu.
- Auto-completion of VFO frequency entry with the M key.

Services menu *(ex hidden) (per attivarlo accendere la radio premendo tasto laterale S1)*

- QRA.
- Fine frequency calibration.
- TX Power adjustment for each of the 3 levels.
- Adjustment of each of the 9 Squelch Levels: RSSI, NOISE, GLITCH.

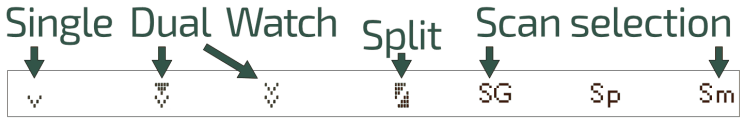
– WHAT'S NOT

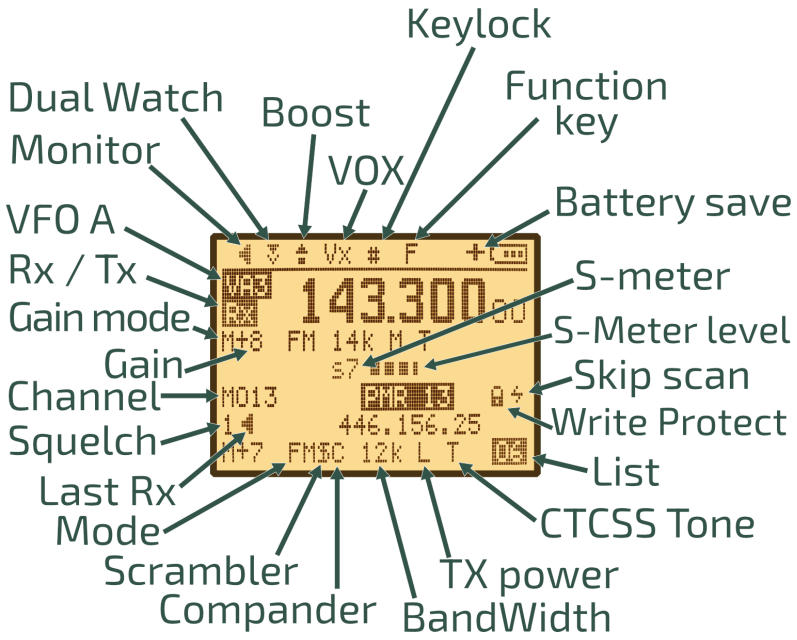
- SPECTRUM (will never be there)
- Password
- NOAA
- VOICE
- ALARM
- Blinking LED.
- Charging info on USB.
- AIRCOPY

4. Display

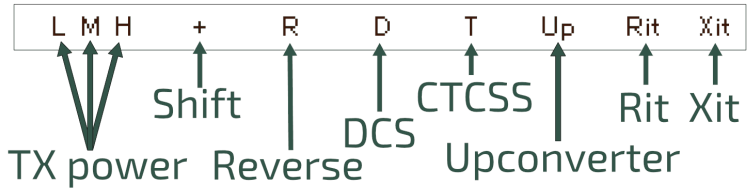
Symbols and abbreviations on the screen.

Symbols that may appear in the top line

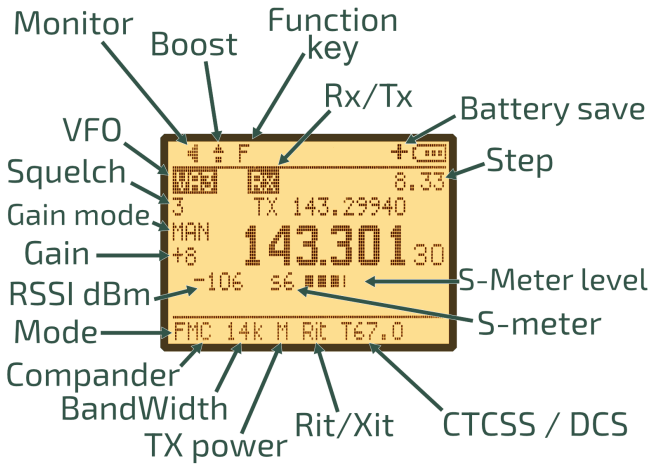




Symbols that may appear in the bottom line



Display: single VFO



The meaning of icons

Monitor: A loudspeaker, because in Monitor mode it is always on, a sound is always heard.

Single Watch: A single receiving symbol, like a container, a dish, a dipole waiting to receive a signal.

Dual Watch: Double reception symbol, like two receivers.

Dual Watch LOCK: Double container, but one of the two is blocked, Tx is only on the selected one.

SPLIT: Two triangles, two separate arrows belonging to the same rectangle pointing in different directions. Triangle already used in the Dual Watch LOCK.

Keylock: The hash symbol is already present on the key that locks the keyboard. The gate is also a barrier that prevents access to something.

Boost (Satcom): An arrow symbolises elevation, either because satellites are very high or because the setting increases sensitivity.

Battery SaveA **+** next to the battery to indicate that the battery will last longer.

Skip Scan: A thunderbolt, quick as lightning, the scan jumps him, the shape of the S reminds one of Skip.

ScramblerScrambler's S + a vertical bar that comes to alter the letter as the inserted frequency comes to alter the voice.

Write Protect: Protects channel from being overwritten. (Can only be activated via CHIRP).

5. Function of keys

*The keys have different functions when pressed, pressed for a long time or in addition with the key **F**.*

5.1 Short-press keys functions.

Key	Function
M	→ Access to radio menu. → Confirm and save selection in menus and drop-down menus.
EXIT	→ In SCAN : aborts the scan and returns to the initial frequency. If pressed on a found frequency, it stops scanning and remains on this frequency. → With Rit/Xit function active, realigns the Rx to the Tx by resetting the Step. Reset the last 2 digits of the VFO by aligning it to the lowest KHz. → When writing, deletes the previous character by going backwards. → In the RF-Gain and BW drop-down menus, keep your selection as long as you stay on the same channel and the radio is switched on.
PTT	→ In SCAN : stops scanning and leaves the last scanned frequency.
* Scan	→ In SCAN : Momentary insertion of a frequency in the Black List.
F#	→ Activates secondary functions. The letter F appears in the top left-hand corner and remains active for 8 seconds.

5.2 Long-press keys functions.

The big news in version 3 is the introduction of overlay windows similar to a context menu.

In the window appear the options to be selected via the buttons ∧ **Up** / ∨ **Down** and confirm with the key **M**.

Key	Function
1 Band	→ AGC shift selection: SLOW / FAST / NORM / MAN.
2 A/B	→ Select VFO line A or VFO line B.
3 VFO/MR	→ VFO or Memory mode.
4 FC	→ RF Gain

5	→ Change bandwidth: Wide, Narrow, Ultra Narrow. In memory mode, press the key **M** to store it permanently even after restarting the radio. Press the key **EXIT** to store it temporarily until the radio is switched off.
6 H/M/L	→ Power selection L M H.
7	→ Inserts the channel into a memory list.
8 R	→ In Duplex, inverts freq Rx and freq Tx. → In Simplex, activate the Rit/Xit function. (7.8)
9	→ Select a Step.
0 FM	→ Switch modulation type FM; AM; DSB; CW; WFM.
* Scan	→ Start scan. In VFO, SG appears at the top left of the status line. If you have set bandwidth limits, i.e. you want to do a partial scan, then you will see SP. In memory mode, Sm (Scan memory) appears and the group number Sm0, Sm1, Sm2... For more details go to chapter 7.1
F#	→ Keypad lock, except side keys.
EXIT	→ Resets the selected VFO band back to initial conditions: BW, modulation, power, step, offset, etc. The message appears **Clear VFO**.

5.3 Keys associated with F

The F key must be pressed once and lasts 8 seconds.

Key	Function
F+1 Band	→ Access the last VFO used.
F+2 A/B	→ Switches from dual channel to single channel, on display. In Single, the VFO is 4-digit, the frequency above Ghz can be set directly. VFOs are called VAx or VBx to make it clear which one is active. (7.4)
F+3 VFO/MR	→ Copies the memory frequency to VFO.
F+4 FC	→ In VFO: fast VFO storage with automatic assignment to first free slot. → In Memory: sets scan skip to the memory.
F+5	→ Activates or deactivates Compander (FM only).
F+6 H/M/L	→ Switch completely transmission off or on. The H/M/L power indicators disappear on the screen. *This function remains set even after restarting the radio.*
F+7 VOX	→ Switch VOX on or off.
F+8 R	→ Activate UpConverter on the active VFO. Set the UpConv. menu first.
F+9 Call	→ Recall Fast Call Channel.
F+0 FM	→ FM radio broadcasting. Frequencies can be stored in normal memories by assigning them a name.
F+* Scan	→ Select the Channel List to be applied. = ChList menu. With arrows ∧ **Su** and ∨ **Giù** sarà possibile scorrere solo i canali memorizzati nella lista selezionata, lo stesso vale per la scansione. It is still possible to access another channel outside the list by entering its number on the numeric keypad. The set list only applies to the selected VFO line.
F+∧ **Up**	→ Set high frequency for partial scan.
F+∨ **Down**	→ Set low frequency for partial scan.

5.4 Side keys

The two side keys are programmable via the services menu 57, 58, 59, 60.

You can attribute a function to short or long pressure.
Side1S: S sta per Short clic.
Side1L: L is for Long press.
Side2S
Side2L

Functions	Description
NONE	None
FLASH LIGHT	Switches on the LED.
TX POWER	Power selection L M H.
MONITOR	Activate monitor, set Squech to 0.
SCAN	Start scan. (7.1)
VOX	Activates the VOX function.
FM RADIO	Activates FM broadcast radio reception.

VFO CHANGE	Select VFO Line A or VFO B = long press 2 A/B.
VFO SWAP	In VFO, switch from dual to single.
SQL +	Increase squelch by one level
SQL -	Decreases squelch by one level
REGA TEST	Link info REGA
REGA ALARM	
CW CALL CQ	Sends caller ID in morse code. Operates in CW modulation only. (QRA menu)
PRESET	Set the radio to according to the presets in the Preset menu
AGC MAN	Set gain adjustment to manual.
CH LIST	Set the Channel List to be used. = ChList menu = F+ * Scan.
SCRAMBLR	Activate the Scrambler.

PTT + Side2 = 1750 Tone

6. Menu

To access the main menu, press the key **M**.

To enter the selected item with the arrows, then press the key **M**.

To confirm your choice, press the key **M**.

To exit the menu item without confirming, press the key **EXIT**.

6.1 Main menu

Menu		Default	Firmware IJV
1	SQL		0 → 9, NO RX. *('0' = Monitor, 'NO RX' = block Rx, on display indicated by - sign)*
	To correctly adjust squelch levels, switch off the dual watch. *Each Memory, VFO or Band stores its own Squelch level automatically.*		
2	STEP		Hz : 10, 50, 100, 500 kHz: 1, 2.5, 5, 6.25, 8.33, 9, 10, 12.5, 20, 25, 50, 100
3	MODE		FM, AM, DSB, CW, WFM | *WFM = radio Broadcast da 76 a 108MHz.*
4	BW W/N		Wide, Narrow, Ultra Narrow.
	Adjusts as well as the audio filter as the bandwidth. *Each channel stores the bandwidth automatically, thus without doing a ChSave.* *The dot indicates the standard value for the reference BW.*		
	Band Width		**Audio filter**
	W	25 kHz	26 kHz
	W	25 kHz	23 kHz
	W	25 kHz	20 kHz
	W	25 kHz	17 kHz
	W	25 kHz	14 kHz
	W.	25 kHz	12.5 kHz
	N	12.5 kHz	10 kHz
	N.	12.5 kHz	9 kHz
	U	6.25 kHz	7 kHz
	U	6.25 kHz	6 kHz
5	Tx PWR		LOW, MID, HIGH
	Each channel keeps its transmission power stored, if you want to set a new one use ChSave or via CHIRP.		
6	Shift	OFF	OFF, +, - | *Direction Shift/Offset repeater bridges.*
7	Offset	0.000MHz	0 to 999.9999 MHz | *Frequency shift/offset for repeater bridges.*
8	RxCTCS	OFF	OFF, 67.....250.3Hz | *Sets a CTCSS subtone in reception.*
9	TxCTCS	OFF	OFF, 67 to 250.3Hz | *Sets a CTCSS subtone in transmission.*
		A CTCSS subtone can be customised in the CHIRP settings under Expert Settings.	
10	Rx DCS	OFF	OFF, D023N, D025N, 26.....754 | *Set a DCS code in reception.*
11	Tx DCS	OFF	OFF, D023N, D025N, 26.....754 | *Sets a DCS code in transmission.*
12	Tx TOT		OFF, 30sec, 1min to 5min | Time-Out-Timer: *Limits the maximum duration of the transmission.*
	With notice at 10 and 5 seconds before closing.		
13	BusyCL	OFF	OFF, ON | *Prevents transmission if the channel is busy.*
14	ChSave	CH-001	1 to 200
15	ChName	CH-001	*10 characters max* *With arrows ∧ Up / ∨ Down, select the desired character. Digits can be written directly with the*

			keyboard. *Key **M** to move to the next character. EXIT back and delete. Always confirm the new name with the **M**.*
16	ChCanc		*Delete stored channel.*
17	ChDisp	NAME_S FREQ_L	FREQ, CHANNEL, NAME, NAME_S FRQ_L, NAME_L FRQ_S.
	In Single mode you can choose the font size for the channel name and its frequency, L = Large and S = Small.		
18	ChList	0 ALL	*Channel Lists: Lists that group memories for scanning or viewing mode. The names of the lists are editable via CHIRP.*
19	PrSave		*Preset Save. Saves a preset set by you. Caution: This action may overwrite those already present in the preset menu.*
20	BLTime	ON	OFF, 5sec, 10sec, 20sec, 1min, 3min, RX/TX, ON
	RX/TX: Assumes the exact time since the last transmission or reception. ON: always on.		
21	BLMode	RX/TX	RX/TX, OFF
	Determines the event that causes the display to light up.		
22	LCD	NORMAL	NORMAL, INVERTED| INVERTED is better for night vision.
23	BEEP	OFF	ON, OFF | *Beep sound when buttons are pressed.*
24	Sc REV	SLOW	SLOW, FAST, SEARCH, LOG, TIME | Scan Revert
	Set scan resumption. *SLOW e FAST CARRIER: resumes scanning after the signal has disappeared.* *SEARCH: stops when it finds a busy channel and stays there.* *LOG: This will be used in the future to link the radio to an app.* *TIME: Stops on busy channel for 5 sec. then starts again.*		
25	KeyLok	OFF	OFF, AUTO | *AUTO locks the keyboard after 10 sec. of inactivity. The keyboard can be activated temporarily with a long press on the F#* key.
26	Tx STE	ON	ON, OFF | *It eliminates the tail tone, so the small rustling noise that occurs when releasing the PTT when using a bridge.*
	When the PTT is released, it turns off the subtone and then immediately disconnects the carrier. (STE: Squelch Tail Eliminator) *Radios engaging the repeater, when the PTT is released, immediately switch off the subtone, which then drops the repeater, but the carrier still remains active for a second, so that there is still a carrier on the bridge receiver that mutes the repeater's audio and does not make the hissing sound.*		
27	Rx STE	OFF	OFF, 1*100ms to 10*100ms | *Eliminates head hum in Rx. When the bridge carrier is released, it closes the audio for the set time.*
	With Rx STE active, when the carrier is released, the audio will be muted for a few ms (set by the menu), thus avoiding the hiss caused by a too-slow squelch.		
28	Scramb	OFF	OFF, 2600 to 3500 Hz | *Encrypts voice with an obfuscating frequency. (FM only).*
29	Mic dB	+15dB	+1.1dB to +15.1dB | *Increases or decreases microphone sensitivity.*
30	MicBar	OFF	ON, OFF
	It inserts a modulation level bar in the centre of the screen. *Useful for DSB transmission, in fact for optimal modulation it is best not to exceed half the scale, so the Mic dB level should not exceed 4 dB.*		
31	Compnd	OFF	OFF, TX, RX, RX/TX
	Compander: compressor/expander filter, enhances vocals (FM only).		
32	VOX	OFF	OFF, 1 to 10 | *Smaller = more sensitive.*
33	1 Call	CH-001	*F+9 Call - One Key Call Channel. choice of single-button emergency call channel.*
34	Own ID		102 | *Set a personal ID.*
35	UPCode		123 | *Initial selective code. Assignable to each memory. Max. 10 characters.*
36	DWCode		456 | *Final selective code. Assignable to each memory. Max. 10 characters.*
37	LocMon	ON	OFF, ON| Local Monitor: *DTMF and Selective side tone switch. (PTT + S2 = Tone 1750).* *Allows you to monitor, listen locally to the tones sent by the radio.*
38	D RSP	OFF	OFF, RING, REPLY, BOTH | DTMF Response. *Choose how the radio should react to the DTMF call.*
39	D Hold	10s	5s to 60s
40	D PRE	30*10ms	
41	D CALL	OFF	ON, OFF *(Call waiting)*
42	D List	NULL	
43	D Live	OFF	ON, OFF| *DTMF Live. Activates DTMF real time decoding.*
44	PTT ID	OFF	OFF, DTMF CALL ID, DTMF BEGIN, DTMF END, DTMF BEG+END, ZVEI1 BEGIN, ZVEI1 END, ZVEI1 BEG+END, ZVEI2 BEGIN, ZVEI2 END, ZVEI2 BEG+END, CCIR-1F BEGIN, CCIR-1F END, CCIR-1F BEG+END; CCIR-1 BEGIN, CCIR-1 END, CCIR-1 BEG+END, ROGER Single, ROGER 2Tones, MDC 1200, Apollo Quindar. CCIR-1F = 50 ms CCIR-1 = 100 ms

	Acoustic or digital signals sent at the start and/or end of the call. (7.5) "MDC 1200" is the only tone that cannot be heard locally with "D Lmon" active, because it is an FSK modulation.		
45	F Copy	*Fast Copy (Frequency Meter)* *Analyses and identifies the frequency and CTCSS tone of a transceiver when one does not know how to operate the menus or has a faulty display.* *It is necessary that the 2 radios are VERY close to each other, because the required signal must exceed -40dBm. The 2 radios must be almost in contact.*	
46	CtScan		*Starts CTC/DCS tone scanning on a given frequency.*
47	Info		IJV MOD V.x.x, Batt Volt.
48	Beacon	OFF, 5sec, 10sec, 30sec, 1min, 3min, 6min, 10min, 20min. *The Beacon will start after a 30-second wait and works ONLY in CW mode.*	
49	BatSav	OFF	OFF, 50%, 67%, 75%, 80%
	It allows the radio to remain active for only a few moments, thus reducing consumption. *The cycle consists of 4 phases of 100mS each, saving on how many times in this cycle the Rx is active or in suspension.* *The greater the savings, the lower the performance in reception, especially in scanning.*		
50	dBm/Sm	S/Meter	S/Meter, RSSI dB
51	SCList		*List created after a scan of found frequencies. Deletes after reboot.*
	*Frequencies preceded by * are those on the blacklist.* *Selecting the frequency and pressing Menu tunes the VFO there.*		
52	Boost	OFF	ON, OFF
	Activates the filter change circuit for frequencies after 240 MHz and sets the radio chip to a +9dB increase in reception, this once activated remains in memory the next time it is switched on. Similar to a preamplifier, to be used in exceptional cases of low signal because it can cause distortion in listening, switch it off when not needed. *The message RESET BOOST appears. Ideal for SATCOMs.* *1- Change the gain indices of the Beken so that it is more sensitive to low signals.* *2- Activate the automatic BW function with the choice of the best BW to be adopted.* *3- Increase the deflection in TX for greater incisiveness.* *4- Increase the AFC as much as possible to compensate for Doppler effects.*		
53	UpConv	OFF	OFF, 50, 125, CUSTOM
	Set the radio to operate with a Upconverter for HF band reception. *A value of 50MHz, 125MHz or a custom value (CUSTOM) entered via CHIRP is automatically subtracted from the frequency shown on the display.* *Once the conversion value has been chosen, press F+8R (reverse) to read the actual Rx frequency, 'Up' will appear below the frequencies.* *Trying to transmit will display 'TX DISABLE'.* *ATTENZIONE: in modalità "CUSTOM" la radio potrà anche trasmettere rischiando di bruciare l'Up-converter."*		
54	Preset		CB, 70, AIR, VHF 144, VHF 145, UHF 430, LPD, PMR, SERVICES, SAT, SEA, USER
	It sets up reception and scanner filters with search limits per selected band. Each preset is fully customisable with the PrSave and CHIRP menu. *Pressing the M button stores the bands and returns directly to the main VFO screen.*		
55	Rx AGC		MAN, FAST, NORM, SLOW
	Auto Gain Control: *In MAN, the sensitivity of the RF Gain can be changed manually by long-pressing the key 4 FC. It works on FM only.* *FAST, NORM or SLOW: determines how quickly or slowly the AGC recovers gain after attenuating a strong signal. Only works on AM, SSB and CW (7.3)* *In Rx, it appears to the left of the centre line:* M+0, FST, NOR o SLW.		
56	SetVFO		SINGLE, DUAL, DW NCHG, DW LINK, SPLIT *(Dual Watch+Single/Dual VFO) allows two channels to be monitored simultaneously.*
		SINGLE: Single VFO screen = F+2A/B. DOUBLE: Dual VFO screen = F+2A/B. DW LOCK: Dual Watch with fixed VFO, receives on both VFOs, but transmits only on the selected one. DW LINK: Receives on both and switches the active channel to the VFO of the last reception. SPLIT: Receives only on the non-selected VFO and transmits on the selected one.*In FM Broadcast, the radio automatically switches to SPLIT. In dual VFO receive from both VFOs, interrupting the broadcast when there is a signal on the other VFO and then returning to listen to the broadcast. In single VFO receive only the broadcast.*	

6.2 Services Menu

To activate it, switch on the radio by simultaneously pressing the S1 side button.

	Menu	Default	Firmware IJV
57	RESET		VFO, DATA, ALL
	VFO: resets menu settings. *DATA: resets VFO and all customisations.* *ALL: deletes memories as well.*		
58	LckVFO	OFF	*Lock the VFO function, only memorised channels will be usable.*
59	PonMSG	FW MOD	NONE, FW MOD, MESSAGE. | Power ON Message.
	Message shown when switch on the radio. Nothing; Firmware version; Custom message. *The customised message displays the QRA line and two other lines of text that can be entered via CHIRP.*		
60	QRA		*Write your CW call sign. Max 8 digits.*
61	Side1S	SQL +	FM RADIO, VFO CHANGE, VFO SWAP, SQL +, SQL -, REGA TEST, REGA ALARM, CW CALL CQ, PRESET, AGC MAN, CH LIST, SCRAMBLR, NONE, FLASH LIGHT, TX POWER, MONITOR, SCAN, VOX.
62	Side1L	MONITOR	FM RADIO, VFO CHANGE, VFO SWAP, SQL +, SQL -, REGA TEST, REGA ALARM, CW CALL CQ, PRESET, AGC MAN, CH LIST, SCRAMBLR, NONE, FLASH LIGHT, TX POWER, MONITOR, SCAN, VOX.
63	Side2S	SQL -	FM RADIO, VFO CHANGE, VFO SWAP, SQL +, SQL -, REGA TEST, REGA ALARM, CW CALL CQ, PRESET, AGC MAN, CH LIST, SCRAMBLR, NONE, FLASH LIGHT, TX POWER, MONITOR, SCAN, VOX.
64	Side2L	PRESET	FM RADIO, VFO CHANGE, VFO SWAP, SQL +, SQL -, REGA TEST, REGA ALARM, CW CALL CQ, PRESET, AGC MAN, CH LIST, SCRAMBLR, NONE, FLASH LIGHT, TX POWER, MONITOR, SCAN, VOX.
	Assigns a function to the side buttons below the PTT. S= Short click, L= Long press.		
65	F Lock	OFF	OFF, FCC, CE, GB, 430, 438, 10m
	It blocks certain functions depending on the legislation of the country you are in. *Select the type of enabling you prefer:*		
	FCC: 144 MHz → 148 MHz, 420 MHz → 450 MHz **CE**: 144 MHz → 146 MHz, 430 MHz → 440 MHz **GB**: 144 MHz → 148 MHz, 430 MHz → 440 MHz **430**: 136 MHz → 174 MHz, 400 MHz → 430 MHz **438**: 136 MHz → 174 MHz, 400 MHz → 438 MHz **10m**: abilita solo le frequenze HF da 20MHz a 30MHz.		
66	Txp EN	ON	ON, OFF
	OFF totally blocks the TX, the radio becomes just a receiver.		
67	FrqCal		*Changes the frequency of the radio's oscillator for fine-tuning the Tx frequency. Does not affect the receive frequency. Requires the use of dedicated equipment.*
68	TxpCal		*Adjusts Tx power for the 3 levels L, M, H.*
	First choose the desired power on any freq, then menu PwrCal and adjust the power. ((7.6)		
69	SqlGli		*Calibration of Glitch Squelch Parameter. ⚠ Experts only, modification may create squelch malfunctions.*
70	SqlNoi		*Calibration of Noise Squelch Parameter. ⚠ Experts only, modification may create squelch malfunctions.*
71	SqlRss		*Calibration of RSSI Squelch Parameter. ⚠ Experts only, modification may create squelch malfunctions.*

7. Common Operations

7.1 Scanning

In memory mode you can enter a channel into 15 memory groups for separate scanning by long-pressing the key 7.
Before scanning, choose all or one of these 15 lists using the F+ key ✱ Scan.

Start scanning:
Long press key ✱ Scan to start a general, partial or inter-memory scan.

If you want to start a scan in VFO mode, it is recommended to first select the desired band type in the menu **Preset**.

During the scanning process:
SP = partial scan, SG = general scan, Sm = scan of all memory lists.

The scanning direction can be changed or continued using the buttons ∧ **Up**/∨ **Down**.
EXIT → Stops the scan and returns to the initial frequency.

EXIT → If pressed on a found frequency, it stops scanning and remains on this frequency.
PTT → Stops scanning and leaves the last scanned frequency.

There is the possibility to change during scanning: BW Filters, Step and Fast Frequency Saving.

Black List:
It is possible to exclude up to 40 unwanted frequencies in a black list.
When the scan stops at an unwanted frequency, make a short press on the key ✱Scan, it will be entered into the Black List. The following will appear on the screen: "BlackList In #(n)" where (n) is the number of frequencies entered.
By switching off the radio, the Black List will be deleted.

Scan List:

The Scan List lists all frequencies found during the scan, it is visible in the menu under SCList.
By switching off the radio, the scan list will be deleted.

Skip:

It is possible to programme to exclude a memory from scanning with the Skip function: select the memory and press F+4FC, then a lightning bolt will appear to the right of the memory to indicate its exclusion from scanning.

🔸 Locking and unlocking the keyboard by long keypressesF#🗝 is possible during scanning.
🔸 Battery saving is switched off during scanning.
🔸 Boradcast WFM memories are excluded a priori.
🔸 Group names can only be added or changed with CHIRP. To display the new name in the frequency section, the driver must be reloaded via the menu:`Radio > Reload Driver`.

7.2 Partial scan

1. Enter the lowest frequency in VFO, e.g. 144.0000 (7 chars.).
2. Press the key F+∨ **Down**you will see the message "**Set Range Low OK**".
3. Enter the highest frequency, e.g. 145,6000 (7 chars.).
4. Press key F+∧ **Up**you will see the message "**Set Range Up OK**".
5. Start the scan by long-pressing the key ✱Scan.
   The abbreviation Sp. will appear in the top line.

7.3 RF Gain

The function **RF Gain** is the same to that of large radios or CBs. You can increase or decrease the sensitivity as required.

Adjust RF Gain

1. Switch to the desired frequency and long-press the 4FC. A window with values appears on the right.
2. Use arrows ∧ **Up**/∨ **Down** to increase or decrease the gain.
3. To store the value, press either the **M** or **EXIT**. This setting remains stored even after the radio is switched off.
4. If the desired frequency is in another modulation than FM, change it with a long press on the 0FM.
   (In FM, the AGC is always in MAN).
5. A good adjustment of RF Gain must be combined with an accurate adjustment of Squelch and Bandwidth.
   A wider bandwidth reduces sensitivity, too low will always open the squelch. Maximum sensitivity on firmware IJV is at the value immediately wider than that which opens the squelch perpetually even in the absence of signals. In practice, if the radio opens squelch at 12k, maximum sensitivity will be at 18k.

🔸 Each band has its own Gain, the level stored applies to the band active at that time.
🔸 The zero value is aligned with the input signal, if connected to a generator the output value corresponds to the RSSI read by the radio. In fact there is +26 in VHF and +18 in UHF.
🔸 To reset the RF Gain to default on all bands perform a VFO Reset (Start the radio by pressing EXIT).
🔸 The RF Gain function also works without reception, but you have no reference to adjust it.

7.4 Entering frequencies above 1000 MHz (GHz)

Single VFO method

1. Switch to Single VFO mode: F+2A/B
2. Enter the desired frequency with 8 digits or auto-complete with the key **M**.

🔸 VFOs are called VAx or VBx to make it clear which one is active.
🔸 Returning to the double VFO line, GHz is identified with a dot in head of the frequency.

7.5 DTMF

- **Principle for making the call work with DTMF tones:**

RADIO 1	RADIO 2
Own ID = 1	Own ID = 2
UPCode = 2	UPCode = 1

MENU settings

34	Own ID	Enter your code e.g. 1 (max. 3 digits)	
35	UPCode	Enter the recipient's code e.g. 2 (max. 3 digits)	
41	D Call	ON	DTMF decoding enabled
44	PTT ID	DTMF CALL ID	ID selettiva a DTMF

- Do the same thing on the other radio by reversing the codes as shown above.
- The characters allowed in DTMF are 0123456789 ABCD * #.
- By pressing the **PTT + S1** the radio sends the OWN ID code.
- To send in Tone 1750, press **PTT + S2** (side button 2).

7.6 The Selectives: ZVEI, CCIR... SelCall

- **To activate selectives:**

MENU settings

34	Own ID	Here you can enter your personal ID for use with the Rega selective Rega.	
35	UPCode	Enter the code to be transmitted e.g.: 12345 | Only in VFO. Occurs before transmission ZVEI BEG CCIR BEG DTMF BEG	
36	DWCode	Enter the code to be transmitted e.g.: 12345 | Only in VFO. Occurs at the end of the transmission ZVEI END CCIR END DTMF END	
44	PTT ID	ZVEI 1 & 2 CCIR 1 & 1F	You can specify the selective type between ZVEI 1 and 2, CCIR 1 (100ms) and 1F (50ms) and decide whether to transmit it at the beginning or end of Tx or both. | Valid in both VFO and Memories, but in the latter the code entered in UPCODE and DOWNCODE will not be used, but the selective one specified in each memory. Each memory has 10 characters available for UP, DOWN or UP&DOWN. They are entered only via CHIRP in the "Code PTTID" column.

- Selective codes are assignable to each memory. Max. 8 characters.
- The characters allowed in selective are: 0123456789 ABCDEF.

7.7 Power Output Adjustment

Exact adjustment of transmission power for the 3 levels L, M, H:

1. Access the Services Menu: by switching on the radio while simultaneously pressing the S1 side button.
2. Choose any frequency in the UHF band.
3. Select one of the 3 powers L, M, H.
4. Go to the services menu **TxpCal** and set the power.
5. Repeat the operation at will for all 3 levels.
6. Repeat the operation on the VHF band as well.

Each channel stores its transmission power automatically.

By pressing the **PTT**, this value in Watts will appear below the **Tx,** symbol. The value shown does not actually represent the power output, especially outside the bands for which the radio was designed, 2m and 70cm.

7.8 CW Modulation (Continuous Wave)

CW (Continuous Wave), allows telegraphic communication by means of an external key telegraph or PTT.
To hear the note monitor, enable ON in menu **D Lmon**.

- Enter your call sign in the services menu **QRA**.
- Assign the CW / CALL CQ function to a side button.
- Activate Beacon and Call CW Repeat interval time. Menu **Beacon**.
  When they are active, Bc appears for Beacon and Cc for Call CW.
- The Beacon (Radiofaro) sent is made up of:
  VVV DE "QRA"/B "QRA"/B "STRINGA1" "STRINGA2" "tensione batteria *(in centiVolt)*".
  For a total of 8 + 8 + 15 + 15 characters. If you write it with Chirp: 8 + 8 + 12 + 12.
  String 1 takes it from the first line of the welcome message, String 2 from the second line.
  The welcome message can be changed with the software CHIRP.
- Pressing the key you have assigned to CW / CALL CQ starts the automatic CALL CW call. The abbreviation Cc appears when it is active.
  Sending the CW / CALL CQ consists of: **CQ CQ DE QRA QRA PSE**.
- Pressing PTT disables both Beacon (returns to OFF) and CALL CW.

- In dual VFO, the Beacon function calls alternately on the two frequencies, if both are set to CW.
- The Rit/Xit function can be used on CW.

7.9 Rit/Xit

The Rit/Xit function works in VFO on any FM, AM, DSB and CW modulation.

To make full use of the Rit/Xit function, it is necessary to switch to Single Channel mode: **F**+**2**A/B

1. Long press **8**R to activate Rit, Xit or exit.
   The words Rit or Xit down and the F for Function appear at the top of the screen.
   The frequency is also split: above in small the Tx frequency and below in large the Rx frequency.
2. Use the arrows to change the kHz frequency.
   In Rit the Rx frequency will change, in Xit the Tx frequency will change.
3. The key **EXIT** realigns the Rx to the Tx by resetting the Step. Reset the last 2 digits of the VFO by aligning it to the lowest kHz.

Check that F is active, because after 8 seconds it comes off. If it does, press the F button again.
Without the F active, the arrows will change Rx and Tx frequencies simultaneously.

7.10 Radio broadcast FM

There are two ways to start FM radio mode:

1. **VFO mode**

- Switch to VFO mode.
- Press F+**0**FM to switch to FM Broad mode (this can also be done after entering the frequency).
- Use the keyboard to manually enter a frequency (7 characters).
- Press the keys ∧ **Up** / ∨ **Down** to change the frequency.

Storage

- To store the frequency, press the key **M** and go to the ChSave menu, press **M** and select the desired memory number with the ∧ **Up** / ∨ **Down**. Again press the key **M** to record the channel.
- The following message appears `Memory saved`.
- Press the key ∨ **Down** to select the ChName entry, press the two times **M** to enter alphanumeric writing mode, with the arrows ∧ **Up** / ∨ **Down** select the desired character. Press the **M** to move on to the next character. Digits can be written directly with the keyboard. Use the **EXIT** key to go back and delete if necessary. Once you have finished the 10 character string, confirm the storage with the **M**.

2. **MR memory mode**

- Go into memory mode with long presses on key **3**VFO/MR.
- Select the memory you have stored normally with the buttons ∧ **Up** / ∨ **Down**.
- Or use the keyboard to enter the memory number. (3 characters).

🔸 In FM Broadcast, the radio automatically switches to Dual Watch SPLIT. In Dual VFO receive from both VFOs, interrupting the broadcast when there is a signal on the other VFO, and then returning to listen to the broadcast. In single VFO it receives only the broadcast.

🔸 It is not possible to scan the other VFO while listening to FM Broadcast.

To exit FM Radio mode, press either: F+**0**FM.

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8. Connect

Interfacing the radio with a computer.

8.1a CHIRP

1. Download and install the software CHIRP-next. Minimum required:
   - Windows 10 and later (64-bit)
   - macOS Big Sur and later (universal binary with Intel and Apple Silicon support)
   - Linux (all modern distros with python3, details here)
2. Install the cable driver .
3. Download the zip file containing the module: LINK ZIP IJV.
4. Make sure your battery is sufficiently charged and connect the radio with the cable.
5. Open CHIRP and make sure you are in developer mode, then → 'Help' menu → tick 'Developer Mode'.

6. To the alert message, answer Yes and restart CHIRP as requested.
7. Click FILE in the menu, select 'Upload module'.
8. At the alert message, answer Yes. Upload the attached module `uvk5_IJV_v3_xx.py`.
9. Read the radio using the normal procedure, selecting in the radio list the model: K5 IJV_V3
10. Set the display of all fields, then → View menu and tick: Show extra fields.
11. Enter the frequencies.

    - 🔸 If your radio already contains personal information, read the radio's Chirp configuration and save it to your computer. Copy the desired frequencies into that file.
    - 🔸 If your radio is new, you can start directly from the downloaded img file.
    - Open the Chirp configuration file (.img).
    - Modify the settings as you like.
    - Save the file with the name of your radio.
    - Upload it to your radio.

⚠️ The module `uvk5_IJV_V3_xx.py` must be loaded every time you want to change the radio or the .img configuration file.

💻📝Download a generic Chirp configuration file (.img) suitable for the IJV module for CHIRP here. It contains the following frequencies:
16 PMR; 69 LPD; ISS; 40 CB; 18 SEA; 3 SATCOM.

8.1b Load the module automatically when CHIRP starts.

1. Go to the Chirp installation folder: C:\Program Files (x86)\CHIRP
2. Create a CHIRP software Shortcut:
   Right-click on **"chirpwx.exe"** → Create Shortcut.
3. Rename it to CHIRP IJV V3.
4. Right-click on the newly created shortcut file → Properties
   A window opens, then go to the 'Shortcut' tab.
5. In the 'Destination' box, add at the end of the string
   `--module "D:\Folder Path\uvk5_IJV_v3.py"`

    - Make sure you only leave a single separator space.
    - Replace `Folder Path` with the address of your folder where the module is located.
    - The name of the module may change depending on the version.
    - Example:
      `"C:\Program Files (x86)\CHIRP\chirpwx.exe" --module "D:\UVK5\Firmware Mod IJV\uvk5_IJV_v3_34.py"`
6. Click on OK or Apply.

Now, when you start CHIRP from this customised shortcut, the module will automatically load. You will get confirmation of this in the title bar where the words "Module loaded" will appear.

🔸 If the path contains spaces, be sure to enclose the entire path in inverted commas " ".

🔸 If the module changes name in an updated version, be sure to replace the file and rename the link string as well.

8.1c Batch editing of CHIRP fields.

1. Select the frequencies to be modified.
2. Right click → `Settings`.
3. A context menu with two sections appears: `Values` and `Extra`.
4. Edit fields as desired.
5. Click OK.

🔸 Anything modified in this way will be modified in all selected memories.