GET GOING GUIDE

HFConverse Connecting It All Together

Modem, radio and PC: the cables, the settings and the first checks

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A PACTOR station is three boxes: the PC running HFConverse, the SCS modem, and the radio. This guide takes you from cables to a first contact. Pick the layout that matches your station, fill in the few settings it needs, then check each link in turn. The User Manual has the detail on every box.

> **Golden rule:** each settings box asks for **one thing only**: a port, a number or an address. Never a command, never two things at once. If a box seems to want more, look for the box next to it.

Before you start

1. **HFConverse is installed** and your **Callsign** and **Locator** are set (Settings ▸ Configuration… ▸ Station).
2. **The modem's USB cable** goes from the PC to the modem, and the modem is switched on. (A DR-9400 or networked DR-7800 can use your network instead.)
3. **The modem's audio and PTT cable** goes from the modem's audio socket to the radio's data or accessory socket. On a FlexRadio, that's the accessory socket. This cable carries the tones *and* keys the transmitter. HFConverse has no setting for it: the modem does the keying.
4. **The radio control (CAT) connection**, if you have one. It depends on your layout, below.
5. **The radio is in USB or USB-Data** (DIGU), with the audio level that already works for your modem.
6. **The radio's audio into the PC** (optional): only for the Waterfall and Fax. See Step 4.

Finding your ports

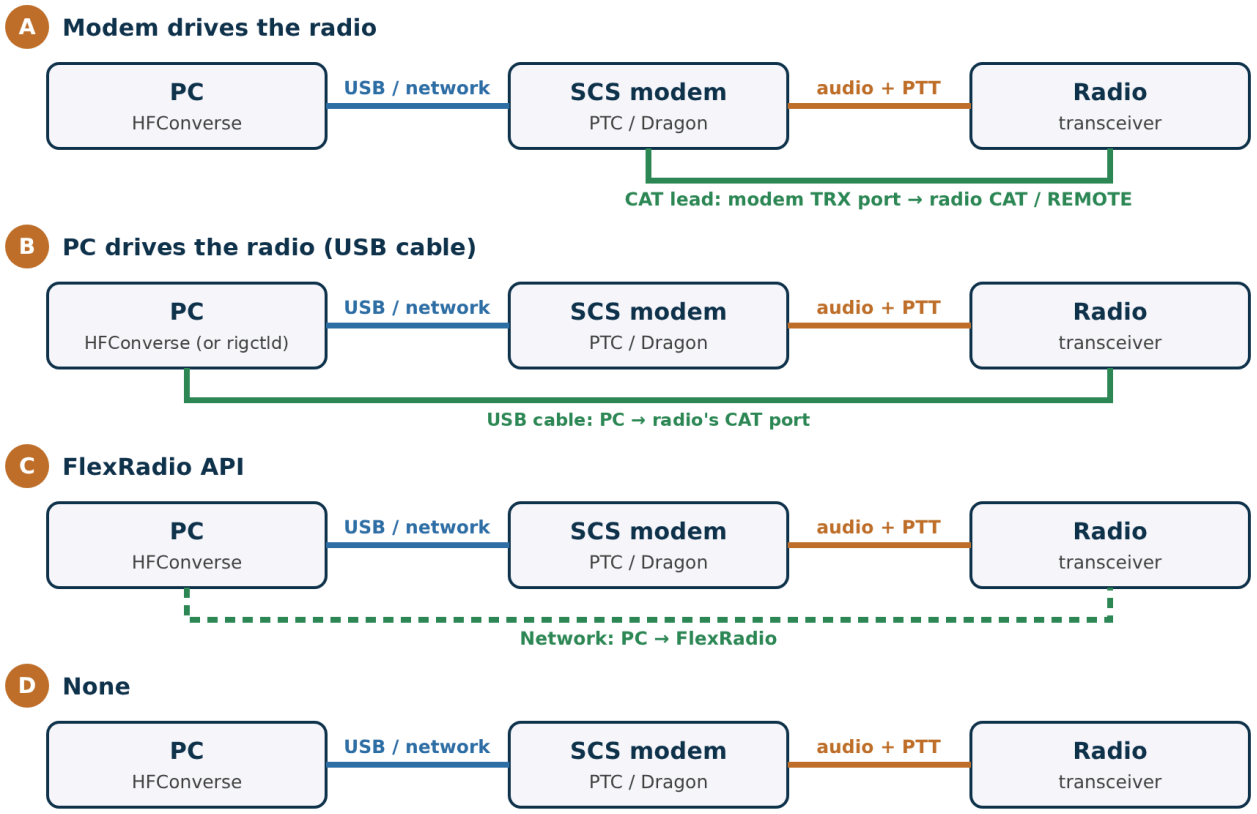
Every USB cable gives the PC a **port**. You need the modem's port and, for layout B, the radio's port. They are two different ports. Mixing them up is the most common setup fault.

Computer	Where to look	Looks like
Windows	Device Manager ▸ **Ports (COM & LPT)**	`COM3`, `COM7`
Mac	Terminal.app: `ls /dev/cu.*`	`/dev/cu.usbserial-A1B2C3` (an SCS modem), `/dev/cu.SLAB_USBtoUART` (many Icom and Yaesu radios)
Linux	`ls -l /dev/serial/by-id/`	`…FTDI…PTC-IIIusb…-if00-port0`, `…Silicon_Labs_CP2102…IC-7300…`

> **Which port is which?** Unplug one cable and look again. The port that disappeared belongs to that cable. Write both down.

> **Two ports from one radio.** A modern Yaesu (FT-991A, FT-891, FT-710, FTdx10, FTdx101) and the Kenwood TS-890S show up as **two** ports from the one USB cable: *Enhanced* and *Standard*. Radio control uses the **Enhanced** one. On Windows, Device Manager names them; on a Mac or Linux PC the lower-numbered of the pair is usually Enhanced. An Icom shows up as a single port.

The layouts



No CAT: set the frequency on the radio by hand

The **blue** link (PC to modem) and the **orange** link (modem to radio: audio and PTT) are the same for everyone. The only difference is the **green** link: how the radio's frequency is set.

Layout	Pick it if	Settings ▸ CAT Configuration ▸ Control Method
A	Your modem has a TRX (radio control) port and a lead to the radio's CAT or CI-V socket	**Modem drives the radio**
B	The radio connects to the PC by its own USB cable (IC-7300, FT-991A, FTdx10, TS-590 and similar)	**PC drives the radio** for the Yaesu, Kenwood and Icom radios HFConverse lists, **Hamlib** for any other radio
C	You have a FlexRadio 6000, 8000 or Aurora	**FlexRadio API (direct)**
D	No radio control at all	**None**

Layout A isn't offered for a PTC-IIe, PTC-IIex or DR-9400: those modems can't read the radio's frequency. Use B, C or D.

Step 1: Connect to the modem

Do this first, whatever your layout.

1. Start HFConverse. The **port selector** opens (or press **Cancel** during the start-up countdown).
2. **Connect via:** USB / serial port (or Network for a networked modem).
3. **USB / COM Port:** the **modem's** port. Press **Refresh** if it isn't listed.
4. **Modem:** your modem model.
5. Leave the port settings alone. HFConverse finds the right speed itself.
6. Press **Connect**. The Terminal shows the modem's `cmd:` prompt.

If you see "*looks like ... a radio's CI-V port, not the modem's*", you picked the radio's port. Disconnect and pick the other one.

Step 2: Set up radio control

Open **Settings ▸ Configuration… ▸ CAT Configuration** and choose the **Control Method** for your layout.

Layout A: Modem drives the radio

The modem talks to the radio through its own TRX port. HFConverse only tells the modem what radio it has.

- **Radio Type:** your radio's make. Some Yaesu models (FT-450, FT-950, FT-2000, FT-9000) use **Kenwood**, then pick the Yaesu model under **This radio is**.
- **Baud Rate:** the same as the radio's own CAT (or CI-V) baud rate menu. Icom: 19200 or lower.
- **CI-V Address** (Icom only): exactly as the radio's CI-V menu shows it, e.g. `94` for an IC-7300.
- **Control Levels** (not Icom): V24 or TTL, to match your lead.
- **Offset:** leave at 0. HFConverse handles the 1.5 kHz tone offset itself (Settings ▸ Equipment ▸ CF offset).

Check the **command preview** at the bottom: e.g. `TRX TYpe ICOM 19200 $94`. Press **Save**.

Layout A: extra radio settings at connect and disconnect

With layout A the modem can also pass the radio any of its own CAT commands. So HFConverse can set the radio up when it connects to the modem, and put it back when it disconnects: for example, switch an IC-7300's data audio to the ACC socket, where the modem is, and back to USB for other programs.

- The commands go in **Settings ▸ Configuration… ▸ Equipment**: **Commands after connecting** and **Commands before disconnecting**, one per line.
- Each line is `TRX T` followed by the radio's own CAT command: in **hex** for Icom and Yaesu (spaces don't matter), as plain **text** for Kenwood, e.g. `TRX T FA;`.
- The codes are in your radio's CAT or CI-V reference. Add as many lines as you need: tuner, AGC and so on.

Box	Line	What it does (IC-7300, CI-V address 94)
Commands after connecting	`TRX T FEFE94E01A05006701FD`	Data-mode audio from the ACC socket (the modem)
Commands before disconnecting	`TRX T FEFE94E01A05006703FD`	Data-mode audio from USB again

- **Leave out mode commands.** HFConverse sets USB-Data itself when you choose it under **Radio mode when HFC sets the frequency**.
- HFConverse sends the connect lines last, after its own set-up, so yours win. The disconnect lines go when you disconnect or close HFConverse.
- If your modem can set the radio but not read it back, you won't see the radio's reply. Check the radio does what you expect.

Layout B: PC drives the radio

The PC controls the radio over the radio's own USB cable. There are two ways to do it:

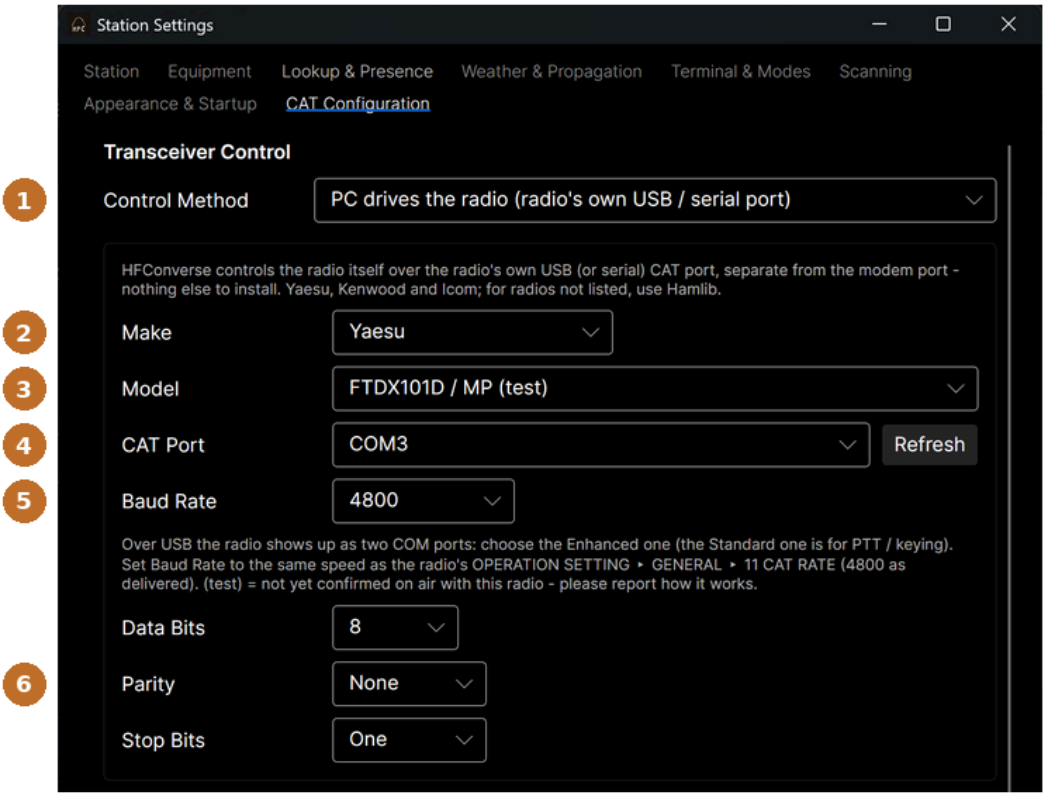
- **Built in:** HFConverse talks to the radio itself. Nothing else to install. For the radios in the list below.
- **Hamlib:** a free program, rigctld, talks to the radio and HFConverse talks to rigctld. For any other radio.

If your radio is in the list, use the built-in way.

Make	Models
Yaesu	FT-991 / 991A, FT-891, FT-710, FTdx10, FTdx101D / MP
Kenwood	TS-480, TS-590S / SG, TS-890S, TS-2000
Icom	IC-7300, IC-7300MK2, IC-705, IC-7100, IC-7610, IC-9700, IC-7200

Layout B1: Built in (Yaesu, Kenwood, Icom)

Connect the radio's USB cable to the PC. On Windows, install the radio maker's USB driver first (Yaesu and Icom: the Silicon Labs CP210x driver from their websites). Macs and Linux PCs have it built in.



	Box	What goes in it	Example
1	**Control Method**	PC drives the radio	PC drives the radio (radio's own USB / serial port)
2	**Make**	Yaesu, Kenwood or Icom	Yaesu
3	**Model**	Your radio	FTDX101D / MP (test)
4	**CAT Port**	The **radio's** port. A Yaesu or TS-890S: the **Enhanced** one	`COM3` · `/dev/cu.SLAB_USBtoUART`
5	**Baud Rate**	The same as the radio's **CAT RATE** menu (Icom: **CI-V Baud Rate**). It fills in with the factory setting when you pick the model	`4800` (FTDX101), `19200` (IC-7300)
6	**Data Bits / Parity / Stop Bits**	Leave as they are	`8` / None / `1`
7	**CI-V Address** (Icom only)	Hex, as the radio's CI-V Address menu shows it. It fills in when you pick the model	`94` (IC-7300)
8	**Also key PTT via CAT**	Leave it **unticked**: the modem keys the radio	☐

The line under **Baud Rate** names the menu to check on your radio. Press **Test Connection** (under *Radio Test*): it reads the radio's frequency and ID, e.g. "*Connected — Yaesu FTDX101D / MP reports 14105.000 kHz*". Press **Save**.

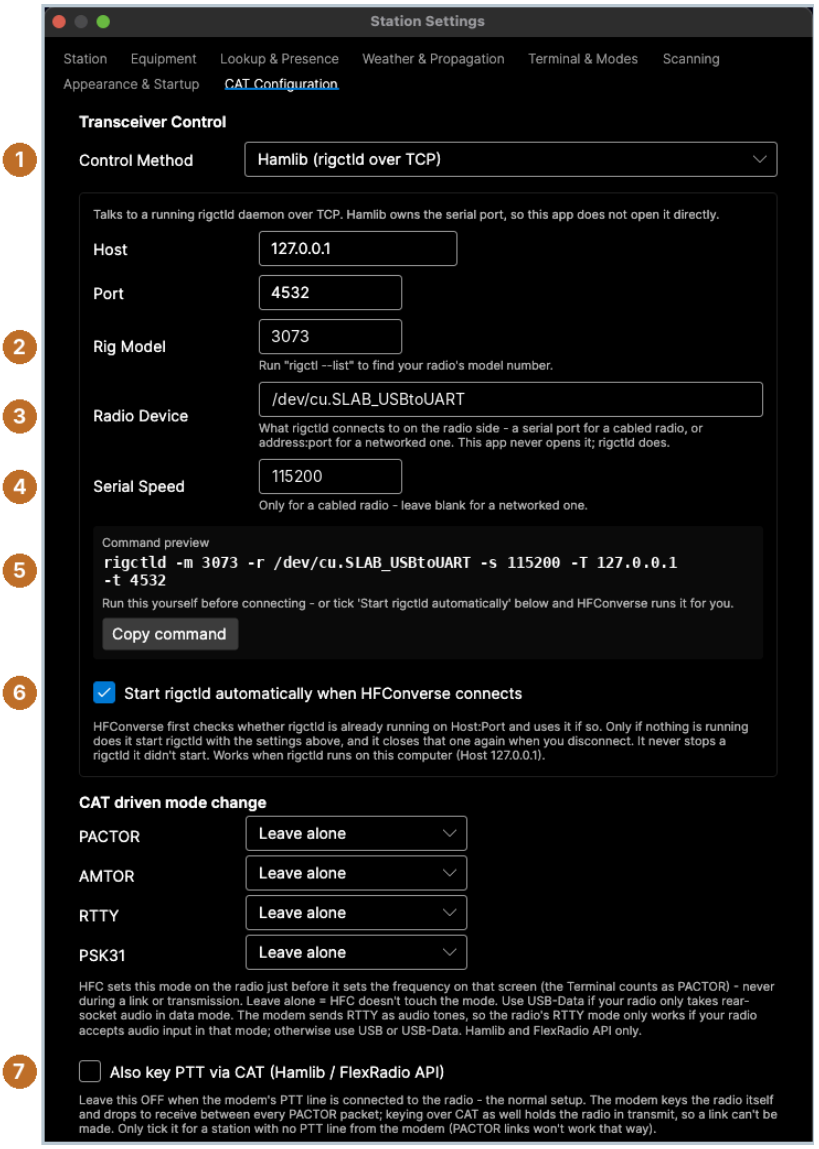
When HFConverse connects to the modem it opens the radio's port too, and the Terminal shows e.g. *[Connected to the Yaesu FTDX101D / MP on COM3 at 4800 baud]*.

> **"(test)" after a model** means it's built from the maker's CAT manual but hasn't been confirmed on air yet. If yours is one of them, please tell us how it goes (Help ▸ Report a problem).

> **One program at a time.** While HFConverse is connected it holds the radio's port, so a logger or WSJT-X can't open it, and nor can **Test Connection** in Settings. Disconnect first, or use **Read From Radio** on the Terminal.

Layout B2: Hamlib (any other radio)

HFConverse doesn't talk to the radio itself. A free program, **rigctld** (part of Hamlib), does, and HFConverse talks to rigctld. Install Hamlib once: the Windows build from the Hamlib website, `brew install hamlib` on a Mac, or `sudo apt install libhamlib-utils` on Linux.



	Box	What goes in it	Example
1	**Control Method**	Hamlib	Hamlib (rigctld over TCP)
	Host / Port	Leave as they are	`127.0.0.1` / `4532`
2	**Rig Model**	Your radio's Hamlib number, only the number	`3073` (IC-7300)
3	**Radio Device**	The **radio's** port, only the port	`COM4` · `/dev/cu.SLAB_USBtoUART`
4	**Serial Speed**	The radio's USB CAT baud rate	`115200`
5	**Command preview**	Nothing to type: HFConverse builds this from 2, 3 and 4	
6	**Start rigctld automatically**	Tick it	☑
7	**Also key PTT via CAT**	Leave it **unticked**: the modem keys the radio	☐

Finding the Rig Model number: in a command window, `rigctl --list | findstr /i icom` (Windows) or `rigctl --list | grep -i icom` (Mac, Linux), with your radio's make in place of icom. Put just the number from the first column in **Rig Model**.

> **Don't type a command into Radio Device.** It's tempting to paste something like `rigctl -m 3073 -r COM4 -s 115200` there. Only the port goes in it: `COM4`. HFConverse shows an amber note under the box if it holds anything more, and won't start rigctld until it's fixed.

Press **Save**.

Layout C: FlexRadio API

- **Radio IP Address:** the Flex's address on your network (SmartSDR shows it, or look in your router's device list).
- **Slice:** the slice HFConverse should control, as SmartSDR labels them (A, B…).

No rigctld, and SmartSDR doesn't have to be running. Leave **Also key PTT via CAT** unticked: the modem keys the radio through the accessory socket. Press **Save**.

Layout D: None

Nothing to fill in. Set the frequency on the radio by hand. The frequency buttons in HFConverse stay greyed out.

Step 3: Check each link

Do these in order. Each one proves one more link, so if one fails you know exactly where to look.

1. **PC to modem.** The Terminal shows `cmd:`. Type `ver` in the **cmd:** box and press Enter: the modem answers with its firmware version.
2. **Radio control: reading.** Press **Read From Radio** on the Terminal. The radio's frequency appears. *(Layouts A, B, C.)*

3. **Radio control: setting.** Type a frequency in **CF kHz**, e.g. `14109.0`, and press **Set Frequency**. The radio moves to the dial frequency 1.5 kHz below it.
4. **Settings ▸ CAT Configuration ▸ Test Connection** gives the same check with a fuller explanation if something is wrong.
5. **Modem to radio: transmit.** Open **Mode ▸ PACTOR** on a clear frequency and press **Send CQ** once. The radio goes into transmit for a few seconds, shows power out, and comes back to receive by itself.
6. **Radio audio into the PC** (if you did Step 4). Open **Station ▸ Waterfall**: the band's signals scroll down it.

All of them work? Your station is connected. The **PACTOR** guide takes it from here.

Step 4 (optional): The radio's audio into the PC

PACTOR doesn't need this: the modem hears the radio through its own cable. But the **Waterfall** (Station ▸ Waterfall) and **Fax** (Mode ▸ Fax) are drawn and decoded by HFConverse itself, so the PC needs a copy of the radio's receive audio. The modem's cable stays exactly as it is.

Your radio	The PC hears it through	Choose in Settings ▸ Audio
Has its own USB sound card: IC-7300, IC-7100, IC-705, IC-7610, TS-890S, FT-991, FTdx10, FTdx101 and similar	The radio's USB cable, the one you may already use for layout B	The radio's sound card. On Windows it's often called *USB Audio CODEC*
Has no USB sound card	A sound card (a small USB one is fine) fed from the radio's audio output	That sound card
FlexRadio	A DAX channel. In SmartSDR give the slice a DAX channel, e.g. 1 (Windows)	*DAX Audio RX 1*

1. Open **Settings ▸ Configuration… ▸ Audio**. The input is off until you choose one.
2. Choose the input from the list. **Refresh** reads the list again after you plug something in; **Show all devices** (Mac, Linux) lists every device.
3. Press **Listen**: for 3 seconds the level shows the radio's audio. Noise from the band should move it; nothing at all means the wrong input.
4. Press **Save**.

> **On Linux**, if another program (fldigi, WSJT-X) is using the radio's sound card, choose *System default*, PulseAudio or PipeWire, which can share it. If HFConverse says the audio library is missing, install PortAudio (`sudo apt install libportaudio2` on Debian or Ubuntu).

Quick reference

Box	Takes	Never
Port selector ▸ USB / COM Port	The **modem's** port	The radio's port
PC drives the radio ▸ CAT Port	The **radio's** port (Yaesu: Enhanced)	The modem's port, the Yaesu Standard port
PC drives the radio ▸ Baud Rate	The radio's CAT RATE (Icom: CI-V Baud Rate)	A speed the radio isn't set to
Hamlib ▸ Rig Model	A number, e.g. `3073`	`-m 3073`
Hamlib ▸ Radio Device	The **radio's** port, e.g. `COM4`	A `rigctl` command, the modem's port
Hamlib ▸ Serial Speed	The radio's CAT baud rate	Blank for a USB-cabled radio
CI-V Address (either method)	Hex, as the radio shows it, e.g. `94`	
Also key PTT via CAT	Unticked	Ticked, when the modem has a PTT line to the radio
Commands after connecting / before disconnecting (layout A)	`TRX T` and the radio's own CAT command	The radio's command without `TRX T`

When things go wrong

What you see	Try this
"*No response - check modem*"	The modem is off, unplugged, or you picked the radio's port.
"*looks like ... a radio's CI-V port*"	You picked the radio's port for the modem. Pick the other one.
"*no answer from the radio on COM... at ... baud*" (PC drives the radio)	Wrong port (a Yaesu's Standard port, or the modem's), or **Baud Rate** doesn't match the radio's CAT RATE menu. Icom: also check the **CI-V Address**.
"*couldn't open COM...*" (PC drives the radio)	Another program has the radio's port. Close it. (While HFConverse is connected, **Test Connection** uses its own connection to the radio.)
The model isn't in the list	Use **Hamlib** (layout B2).
Amber note under **Radio Device**	It holds more than a port. Leave only the port, e.g. `COM4`.
"*Connected to rigctld*" but no frequency	Wrong **Rig Model**, **Radio Device** or **Serial Speed**, or Radio Device is the modem's port.
HFConverse can't find rigctld	Install Hamlib, then Settings ▸ CAT ▸ Hamlib ▸ **Find**.
rigctld stops at once: port busy	Another program (a logger, WSJT-X, Fldigi) has the radio's port. Close it.
"*The modem asked the radio but got no answer*" (layout A)	The baud rate or CI-V address doesn't match the radio's menu, or the lead is in the wrong socket.
The radio stays in transmit between packets	Untick **Also key PTT via CAT**.
The radio moves, but HFConverse shows the wrong frequency	Settings ▸ Equipment ▸ **CF offset** should be 1.5 kHz, and the modem TRX Offset 0.
The Waterfall or Fax stays blank	No input chosen in **Settings ▸ Audio**, or the wrong one. Press **Listen** there: the level must move with the band noise.
The Waterfall is all dark or all bright	Set the radio's USB audio level (its menu, or Windows Sound settings), then use **Brightness** and **Contrast** in the Waterfall window.

Issue history

Issue	Date	Changes
1	October 2026	First issue.
2	November 2026	Layout B: HFConverse now drives Yaesu, Kenwood and Icom radios over USB itself (**PC drives the radio**), with Hamlib for any other radio. New port, quick reference and fault rows.
3	November 2026	Layout A: extra radio settings at connect and disconnect (`TRX T`), with an IC-7300 example.
4	November 2026	Step 4: the radio's audio into the PC for the Waterfall and Fax (Settings ▸ Audio). New check and two fault rows.

More detail on every screen and setting is in the HFConverse User Manual. mw0gbq.hamserve.uk · HFConverse is not affiliated with SCS.