



USER GUIDE

KR87 ADF Radio

Operating instructions for the RHSimTech replica King KR87-style ADF — tuning, ANT/ADF/BFO modes, frequency swap, and the FLT/ET timer page.

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Rotherham, South Yorkshire, UK

Hand-built avionics for X-Plane & MSFS

SIMTECH KR87

A replica King KR87-style ADF (Automatic Direction Finder) for X-Plane / MSFS. This guide covers day-to-day operation once the panel is wired up and connected to SimLink.

SECTION 01

Display Layout

The display has two halves:

- **Left side** — the Active frequency, the one currently being received
- **Right side** — the Standby frequency, or the FLT/ET timer page, depending on mode

A row of indicator lights above the display shows which reception mode (ANT / ADF / BFO) and which right-side page (FRQ / FLT / ET) is currently active.

SECTION 02

Basic Controls

CONTROL	FUNCTION
ADF	Selects ADF reception mode — the needle points to the station
BFO	Selects BFO reception mode — for identifying unmodulated stations by ear
FRQ	Swaps Active and Standby frequencies, and returns the display to the frequency page
FLT/ET	Cycles the right-side page between the Flight Timer and Elapsed Timer
SET	Starts/stops/resets the Elapsed Timer; hold to switch between count-up and count-down
Tuning knobs (inner/outer)	Tune the Standby frequency on the FRQ page, or the Active frequency directly on the FLT/ET pages
Knob push	Toggles the half-kHz digit on whichever frequency is currently being tuned
Power/Volume knob	Powers the unit on/off and controls audio volume

SECTION 03

Reception Modes

The unit always starts in **ANT** mode. From there:

- Press **ADF** to switch into ADF mode — the needle points toward the tuned station
- Press **BFO** to switch into BFO mode — useful for identifying unmodulated stations, common outside the US
- Pressing **ADF** or **BFO** again toggles back toward ANT/ADF as appropriate

ANT mode gives the clearest audio for station identification but does not provide bearing information — switch to ADF once you've confirmed you have the right station.

Simulator dependent: the panel sends each mode change to the simulator, but what actually happens in response depends on how well your simulator and aircraft model the ADF receiver. In most cases ADF/BFO switching is reflected on the panel and instruments for show, without changing the underlying needle behaviour or audio in the simulator itself.

SECTION 04

Tuning a Frequency

1. On the FRQ page, turn the **outer knob** to set the hundreds/thousands digits, and the **inner knob** for the tens digit.
2. Push either knob to toggle the half-kHz digit on the Standby frequency.
3. Press **FRQ** to swap the new Standby frequency into Active.

You always tune the Standby side first, then swap it active when ready — matching real-world ADF operation. The tuning range is 190–1799 kHz.

While the FLT or ET timer page is showing, the tuning knobs adjust the **Active** frequency directly instead of Standby — handy for scanning through stations without disturbing your timer display. Press **FRQ** to return to the normal Standby-tuning behaviour.

SECTION 05

FLT / ET — Timer Pages

Press **FLT/ET** to cycle the right-side display between two timer pages:

- **FLT (Flight Timer)** — starts automatically when the unit is powered on, and simply counts up. Read-only.

- **ET (Elapsed Timer)** — a stopwatch you control manually, with both count-up and count-down modes.

Elapsed Timer — Count Up

- Tap **SET** to start the stopwatch
- Tap **SET** again to stop it
- Tap **SET** once more to reset it to zero

Elapsed Timer — Count Down

- Press and hold **SET** for about two seconds to switch the Elapsed Timer into count-down mode
- While stopped, turn the tuning knobs to set the countdown time (minutes and seconds)
- Tap **SET** to start the countdown
- When the timer reaches zero, the display flashes for about 15 seconds before automatically resetting and returning to count-down setup

Switching back: hold **SET** for two seconds again to return to count-up mode.

Press **FRQ** at any time to leave FLT/ET and return to the frequency display.

SECTION 06

Startup Behaviour

When power is applied:

1. The unit briefly tests its display and indicator lights.
2. It then waits for the handshake from SimLink before going live.
3. Once connected, the Flight Timer begins automatically, and the unit starts receiving live frequency data.
4. If SimLink isn't running or the COM port isn't connected, the unit will sit at its last-known/default display state until a connection is made.

Tip: if the display looks “stuck” or frequencies aren't updating, check that SimLink is running and pointed at the correct COM port for this panel before assuming a hardware fault.

Troubleshooting Quick Reference

SYMPTOM	LIKELY CAUSE
Display blank	Check power and display connection
Frequencies don't move with sim	SimLink not connected, or wrong COM port assigned
Knob doesn't tune Standby	You're on the FLT/ET page — the knobs tune Active there instead. Press FRQ to return to normal tuning.
Timer won't switch from count-up to count-down	Hold SET for a full two seconds rather than tapping it

Covers the current SimTech KR87 build.

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