BLIP 13

REV. 1.1
NOVEMBER 2026

USER MANUAL

Firmware menu reference

AUTO-EXCLUDE

Automatically adds all current signals to exclusions; the device no longer reacts to them.
Each further press adds new signals to those already excluded.
Excluded signals are shown on the graph as green bars.
Auto-exclusions are reset when the device restarts.

SCAN BANDS

Selects the frequency bands to scan.
You can choose which frequency bands the device will scan.
To monitor EW activity, you can enable all bands.
By default, the standard and non-standard bands used by drone video transmitters are enabled.

CHANGING BANDS AND TRIGGER THRESHOLDS (ADVANCED USERS)

1. Exit Detector Mode.
2. Open the full menu: FREQUENCY → MULTI BAND (press twice).
3. Select the band and change its parameters:
   - START — start of the scanned band.
   - STOP — end of the scanned band.
   - LEVEL — trigger threshold in the band (requires AUTO THRESHOLD to be off).
4. Enter Detector Mode.

Band and threshold changes are saved when the device is switched off.

MAIN MENU

ON-SCREEN MANUAL — view the firmware user manual on screen.

ADVANCED — go to the advanced firmware settings menu.

MANUAL EXCLUSIONS — manually set bands the device will not react to.
You can set up to 12 frequency bands the device will ignore.
A start and end frequency is set for each band.
Enabled manual exclusions are shown on the graph in light blue.
Manual exclusions are kept after the device restarts.

GENERAL SETTINGS

Basic analyzer and firmware settings.

TOUCHSCREEN — turns the touchscreen on/off in scan mode.

SOUND — sends sound to the headphone jack or the built-in speaker.

SLEEP — the screen turns off after 15 seconds and wakes up when a signal is detected (battery saving).

FREQUENCY ROUNDING — sets rounding for detected signals; default 10 MHz.

PEAK HOLD — shows/hides the maximum signal level in red.

MANUAL CALIBRATION — simplified calibration of the input signal level in dBm; useful when external amplifiers are connected (default −10 dBm).

ALARM — shows/hides the alarm when the APPROACH conditions are met.

SAVE PROFILE — saves the current settings to the SD card as a *.cfg file.

LOAD PROFILE — loads settings from the SD card (*.cfg).

FACTORY RESET — resets all settings to defaults (code "1234").

SCAN SETTINGS

Scan mode parameters.

AUTO THRESHOLD — automatic selection of trigger levels.
On start-up, it automatically sets trigger levels for all bands.
When it is off, levels can be set manually via FREQUENCY → MULTI BAND.
In manual mode, the LEVEL parameter sets the trigger threshold for a specific band.

SAME FOR ALL BANDS — with AUTO THRESHOLD on, sets the same trigger level for all bands.

SENSITIVITY — sensitivity for automatic level setting (recommended 5–10: the higher the number, the higher the trigger level and the smaller the detection radius for a new signal).

INTERFERENCE FILTER — on: precise scanning with determination of the source frequency; off: fast scanning with harmonics shown.
Warning: the interference filter may be used only when the device works in the range up to 7,300 MHz (7.3 GHz). In the X-band range (7,300 MHz to 13,000 MHz) the filter must not be used: the device cannot operate with the filter on in this mode.

LNA — turns the built-in low-noise amplifier on/off. Keep it on at all times!

FINE SCAN — doubles the number of scan points (to ~900) and halves the scan speed.

DETECTION COUNT — number of signal detections before the alarm is triggered.

SIGNAL HOLD — holds a signal after it disappears. Turn this mode on to detect new drone types that are hard to scan.
It must be on if the signal source keeps changing frequency.

HOLD TIME — how many scan cycles to hold a frequency after it disappears.

DECAY RATE — by how many dBm the held signal decreases on each scan cycle after the hold time expires.

EW

Settings for working with electronic warfare (EW) systems.

EXTERNAL TRIGGER — outputs a control signal to the board pins when a new signal is detected.
When a new signal is detected, 3 V (TTL) is applied to the selected pins for the set time.

Board pins and their use:
- **GND** — common ground (–).

- **PA4** — new signal on any band; alternating signal of ~3 kHz (suitable for a low-power speaker or amplifier).
- **RX / TX / PB13 / PB14** — 3 V (TTL) output; a transistor, LED or optocoupler with current up to 25 mA may be connected.

WARNING: never connect power elements (relays, etc.) directly to the board pins — use MOSFET switches or driver boards with a signal input.

TRIGGER DURATION — sets how long the EW control output stays on when triggered.

EW MONITOR — EW operation alarm mode.
Remembers signal levels in all bands.
If they are lost (EW failure or switch-off), it gives a warning and a sound signal.

MONITOR SENSITIVITY — threshold for the signal level drop in EW Monitor mode (default 10 dBm).

OUTPUT PINS — control of the additional pins:
- PB13 — turns pin PB13 on/off.
- PB14 — turns pin PB14 on/off.
- TX — turns pin TX on/off.
- RX — turns pin RX on/off.

SCAN DURING EXTERNAL EW — allows scanning to continue while an external EW system is on (the built-in LNA is turned off in this case; enter code "1234" to prevent accidental activation of this mode).

APPROACH

Alarm display settings based on signal level growth or change.

RED — shows the alarm and new signals that exceed growth rate level 2 (APPROACH → LEVEL 2).

YELLOW — shows the alarm and new signals that exceed growth rate level 1 (APPROACH → LEVEL 1).

GREEN — shows "calm" signals whose level does not change or decreases between scans.

HOLD LEVEL 1 / LEVEL 2 — how many seconds a signal stays in RED / YELLOW status after triggering.

CUTOFF — growth rate threshold (3–50) above which a signal is considered safe (green).

ACCUMULATION — number of growth cycles (1–5) before a signal is assigned yellow or red.

DETECTOR MODE

- **On:** the device works as the BLIP 13 detector.
- **Off:** the device works as a spectrum analyzer.