

SCAN FOR THE
FULL GUIDE

Set up your Radio Sensor Listener: the two-dollar receiver (Build 1)

A bare 433 MHz receiver on one pin hears an AcuRite Iris (5-in-1) and sends every reading to a place you own, or into Home Assistant. This build decodes the AcuRite 5-in-1 and nothing else. Heard an Iris on our bench, 2026-09-07.

BEFORE YOU START

Have these on hand:

- A classic **ESP32** devkit and a 433 MHz **superheterodyne receiver** module (three pins; the kind sold as RXB6 or RXB8): VCC to 5 V or 3V3 as the module says, GND to GND, **DATA to GPIO 33**.
- An **antenna**: a straight **17.3 cm** wire on the module's antenna pad, standing vertical. Without one the station is heard from the same room and no further.
- An **AcuRite Iris (5-in-1)** within tens of metres. Any other station needs Build 2 (a CC1101).
- A computer with **Chrome** or **Edge** and a **data** USB cable.
- Your **Wi-Fi** and where the readings go — or nothing at all, if this will be a pod on a LoRa node.

FLASH IT (FIRST TIME ONLY)

- 1 Open openagriculturetechnology.com/build/sketches/weather-station-listener/, choose **Build 1**, plug the board in and press its one button. The CC1101 buttons are the wrong image for this board: they boot and say **radio NOT FOUND**.

CONNECT TO THE NODE

- 2 **Power the node** with a USB cable (any USB charger or your computer).
- 3 **On your phone or laptop, join its Wi-Fi network**. It appears as **OAT-Setup-XXXXXX** (open, no password). A setup page opens by itself; if not, go to <http://192.168.4.1>.

Setup page address	http://192.168.4.1
Username	admin
Password	oatsetup (change it once the node is online)

FILL IN YOUR SETTINGS

Write yours here first, then type them into the setup page. One card per node.

Listener name

e.g. barn-wx

Farm ID

the same on every node you own

Location

Wi-Fi name (SSID)

2.4 GHz

Wi-Fi password

Delivery method

Webhook or MQTT (Home Assistant)

Webhook URL

https:// ... (or the Test Endpoint below)

MQTT host / port

if using MQTT

Band (MHz)

fixed at 433.92 by the receiver module

Station allow-list

optional: exact ids from Stations heard,
comma-separated

Push interval (sec)

default 60

Station id (from Stations heard)

e.g. acurite-5n1:748-A — write it here

NO ENDPOINT YET? USE THE OAT TEST ENDPOINT

The listener appears under your Farm ID with each station and sensor beneath it.

Delivery method	Webhook
Webhook URL	https://iot-test.openagriculturetechnology.com/ingest
Watch it live	https://iot-test.openagriculturetechnology.com

It keeps roughly the last hour. Rain arrives as the station's running total; the endpoint does the daily subtraction.

INTO HOME ASSISTANT (MQTT)

Choose MQTT, point it at the Mosquitto broker Home Assistant uses, and each reading lands on `oat/<name>/<station id>/<measurement>`. Declare each as an MQTT sensor in YAML (value_json.value).

MQTT host	the Home Assistant machine
Port	1883 plain · 8883 with TLS ticked
User / password	the broker's, if it has them
Then	Settings → Devices & Services → MQTT: rename the device; the id stays underneath

The guide at </home-assistant/weather-station/> has the dashboard cards and the frost, rain-hold and wind automations.

SAVE & CHECK THE DATA IS FLOWING

4 Press Save. The node joins your Wi-Fi while the setup page waits, then shows its **address on your own network**, like `http://192.168.1.37` and `http://oat-yourname.local`. Bookmark one; that's the node's home page from now on.

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Open **Live Status** there and press **Send a test reading**. A green “OK” means a reading just reached your endpoint. That’s the whole job done.

Updating later: The setup page’s **Stations heard** lists every device with its id, model, signal and how long ago. A station broadcasts every 16–60 s; give it a minute. The neighbours’ stations show too on a shared band: the allow-list keeps only yours.

THE USB CONSOLE

Open the install page, choose **Console**.

stations	the station heard, with its age (a bare receiver reports no signal level).
status	frames, bad checksum, bad parity and repeats: whether pulses are arriving at all.
set lineout off	silence the oat-line output (on by default, for pod use).

IF SOMETHING’S NOT WORKING

Stations heard stays empty	This build hears the AcuRite 5-in-1 (Iris) only. Bring the station into the same room for the first test. status : frames climbing means it is heard; bad checksum climbing means pulses arrive but weakly (antenna, distance); everything at zero means DATA is not on GPIO 33 or the module has no power.
It hears the Iris only when it is close	That is the antenna. A straight 17.3 cm wire, vertical, clear of the ESP32. A superheterodyne module, not the cheapest tunable-coil kind.
Rain shows a small amount with no rain	Carrying the station tips the bucket; the total is the station’s running count and only resets when its batteries are pulled. Your endpoint subtracts for the day.
I flashed a CC1101 button by mistake	It boots and says radio NOT FOUND . Nothing is harmed. Flash Build 1’s button.

Generated 2026-10-10 · This card and the firmware are open. The full sketch, the supported boards, and the web installer are at openagriculturetechnology.com/build/sketches/weather-station-listener/.