SPROUT KEEPER

OZBITS

Smart Garden Automation Hub

User Manual • Firmware v13.14

Soil Sensors	Moisture · Temperature · Light · Battery · DLI · Trend
Weather Stations	Temperature · Humidity · VPD (kPa) · 5-Day Forecast
Rain Gauge	Today · Yesterday · 7 Days · Month · YTD
USB Water Pump	Soil event trigger · built-in relay + remote SproutPod port
USB Grow Light	Timer-controlled · hub or remote SproutPod port
VPD Monitoring	Vapor pressure deficit · color-coded zones · tap for tips
Event Automation	4 events per sensor · AND/OR 2nd condition · timer · enforce
Notifications	Email · SMS · Phone call on any sensor threshold
Freeze / Frost	Real-time & forecast cold alerts with day + temperature
Home Assistant	MQTT auto-discovery · Backup & Restore all settings

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1 Overview

Pro-grade TDR wireless soil sensor — stainless-steel triple probes, IPX5 waterproof, 8–12 month battery life on 2×AAA

SproutKeeper is a wireless sensor hub that receives transmissions from soil moisture sensors, outdoor weather stations, and rain gauges, then displays live readings on a web dashboard you can open in any browser on your home network. No app download, no cloud account — everything runs locally.

What It Monitors

Soil sensors	Moisture %, soil temperature, ambient light level, DLI (daily light integral), moisture trend, and battery status.
Weather stations	Outdoor air temperature and relative humidity; VPD (vapor pressure deficit); 5-day weather forecast; freeze and frost alerts.
Rain gauges	Cumulative rainfall since reset, plus Today, Yesterday, 7-Day, This Month, and Year-to-Date totals. Units follow your °F/°C setting (inches or mm).

What It Can Do

- Show live readings from up to 20 soil sensors, 3 weather station channels, and connected rain gauges at once.

- Display VPD, 5-day weather forecast, and freeze/frost alerts directly on the dashboard.
- Automatically turn smart plugs on or off when a reading crosses a threshold.
- Control SproutPod USB outputs to switch USB-powered pumps and grow lights from sensor events.
- Combine two conditions with AND or OR logic for precise automation.
- Send an email, SMS, or phone call when something needs attention.
- Integrate with Home Assistant via MQTT.
- Extend sensor range with a SproutPod unit (see Section 16).
- Back up and restore all sensor names, event rules, and configuration with one click.
- Run completely offline — no internet required for local monitoring and plug control.

2 Getting Started

Connecting to Your Network

- Power on the SproutKeeper device.
- On your phone or computer, connect to the Wi-Fi network called **SproutKeeper**.
- Open a browser and go to **http://sproutkeeper.local**.
- Click ■ **Settings** in the header, expand the **WiFi** section, choose your home network, and enter the password.
- The device will restart and join your home network. Reconnect to your normal Wi-Fi, then visit **http://sproutkeeper.local** again.

Note: *The SproutKeeper hotspot stays active as a fallback at all times. If you can't reach the dashboard on your home network, connect to the* ***SproutKeeper*** *hotspot and try* ***http://192.168.4.1****.*

Placing Your Sensors

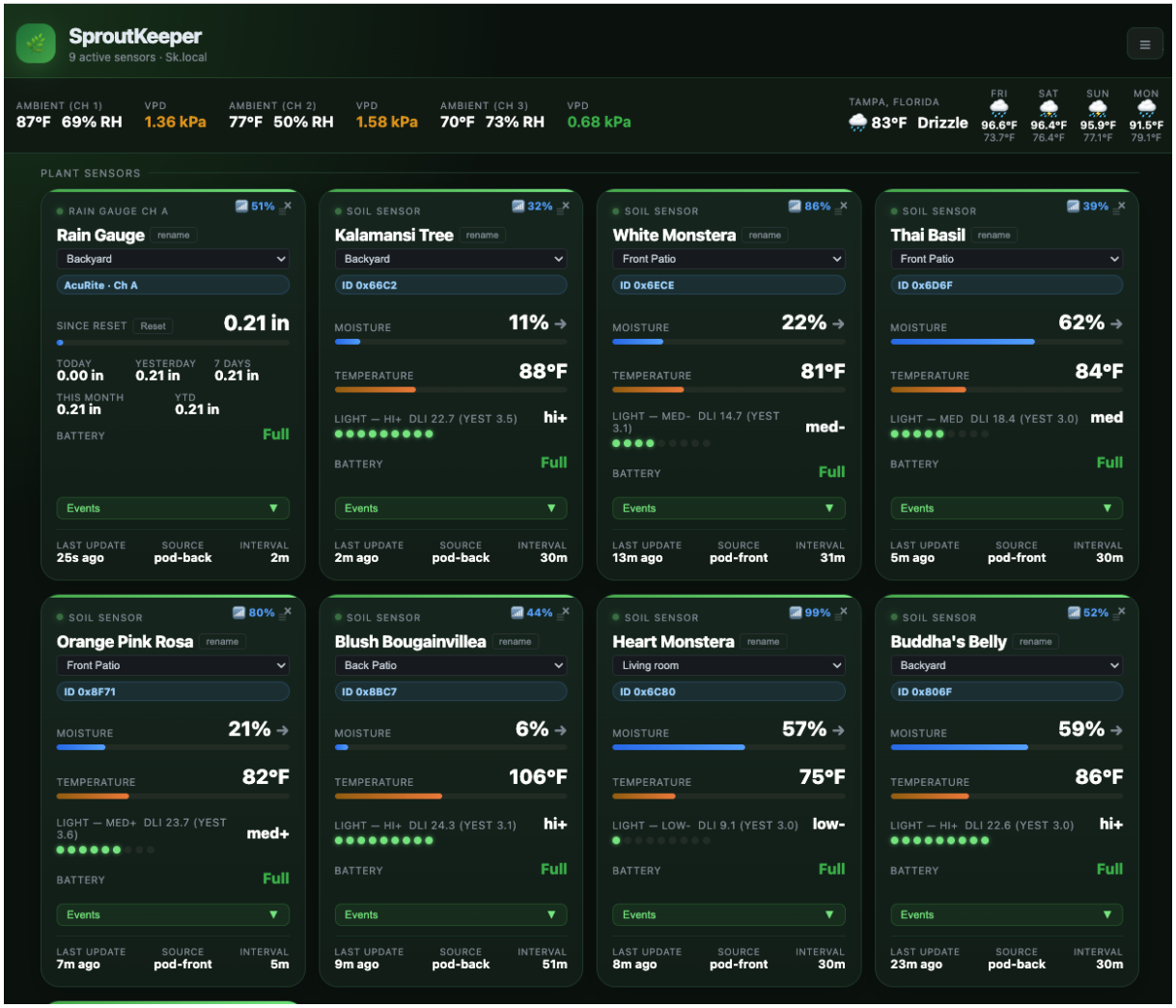
- Before going outside, stay near your SproutKeeper hub.
- Pull the plastic battery tab or strip from the sensor — it will power on immediately.
- Wait a few seconds. The sensor appears on the dashboard automatically.
- Press the **Rename** button on the sensor card and give it a unique name (e.g. "Tomatoes" or "Raised Bed 1"). This is how SproutKeeper remembers the sensor across power cycles.
- Now take the sensor to its location and push the probe fully into the soil at root depth.
- For rain gauges, place the unit in an open area away from overhanging trees or eaves.
- Keep sensors within range — typically up to 30 m outdoors, less through thick walls.

Note: *Always name your sensor* ***before*** *placing it in the ground. If a sensor has no name, SproutKeeper will still track it by device ID — but naming it first ensures your events, locations, and history stay linked to the right sensor.*

Tip: *Place soil sensors at root depth for the most meaningful moisture readings.*

3 Dashboard

The dashboard refreshes automatically every 2 seconds. Readings update in place as new data arrives — no page reload needed.



Header Buttons

■ **Settings**	Open the configuration panel (Wi-Fi, weather city, notifications, Home Assistant, temperature units, mDNS name, backup/restore).
■ **Locations**	Manage location names and assign sensors to locations.
■ **Mute**	Silence all email, SMS, and call notifications. Plug control runs normally.

Environment Bar

When a weather station is active, an environment bar appears above the sensor grid showing outdoor temperature, humidity, and VPD — plus the city name, current conditions, and a 5-day forecast inline. Tap the VPD value to open a colour-coded popup.

Freeze & Frost Alert Banner

A coloured banner above the environment bar when cold conditions are detected:

Frost warning	Real-time TX16 reading below 38°F — dark orange.
Freeze alert	Real-time TX16 reading below 32°F — dark red.
Forecast alert	Upcoming daily low forecast below 38°F or 32°F — shows day name and temperature. Both alerts can appear simultaneously.

Heartbeat Indicator

A dot in the footer pulses green every 2 seconds while the device is responding. Red means no response for 6+ seconds — usually a brief Wi-Fi hiccup that clears on its own.

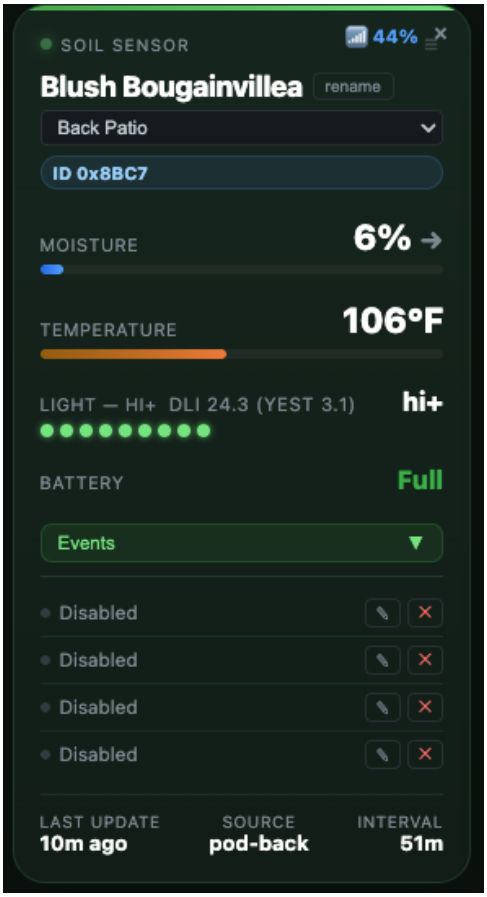
Sensor Cards

Each detected sensor appears as a card. Cards can be dragged by the ≡ handle to any position — order is remembered across page loads. Cards stay visible for 24 hours after the last reading.

Plug Panel

Below the sensor grid: SproutKeeper built-in USB, Kasa/Shelly smart plugs, and SproutPod USB outputs. Click any plug card to toggle it. SproutPod units appear automatically after their first transmission.

4 Soil Sensor Cards



Sensor Name	The name you assigned to this sensor (or the short device ID if unnamed). Displayed at the top of the card.
Rename button	Click **Rename** on the card to give the sensor a new name. The name is saved to the device immediately and persists across reboots. Name your sensor before placing it in the ground — see Section 2.
Moisture	0–100 %. A reading of 0 % usually means the probe is not in soil.
Moisture trend	↑ rising · ↓ falling · → stable. Updates when moisture changes by more than 4 % since the previous reading.
Temperature	Soil temperature in °F or °C. Shows — if outside a plausible range.
Light	Ambient light level: low– · low · low+ · med– · med · med+ · hi– · hi · hi+
DLI	Daily Light Integral (mol/m²/day) — total light dose your plant has received today, accumulated from light level × time between readings. Resets at local midnight. Tap the DLI value to open a popup with target ranges by plant type.
Battery	Low (red) · Med (amber) · Full (green)

Signal %	■ XX % chip in the card header. Shows reception strength of the last packet. Direct reads show SproutKeeper's signal; relayed reads show the SproutPod's signal.
Source	Where the reading was received. 'SproutKeeper' = decoded directly by the hub. A SproutPod device name (e.g. 'greenhouse') = relayed via that unit. When both paths receive the same sensor, the stronger signal wins.
Location	Named location assigned to this sensor. Select from the dropdown to change.
Last Update	How long ago the most recent reading was received (e.g. 5m ago).
Interval	Measured time between the last two transmissions. Shows — until two readings received.
■ Events	Opens the event automation editor for this sensor.

DLI — Daily Light Integral

DLI (mol/m²/day — moles of photons per square metre per day) measures how much usable light your plant received over the course of today. Most growers never track this, but it's one of the most reliable predictors of plant health — too little light slows growth, too much causes stress and bleaching. SproutKeeper calculates it automatically from each sensor's ambient light readings and resets it at local midnight.

Low-light houseplants	3–6 mol/m²/day — ferns, pothos, peace lily, snake plant.
Herbs & leafy greens	12–20 mol/m²/day — basil, lettuce, spinach, kale.
Seedlings	6–12 mol/m²/day — delicate; too much causes bleaching.
Fruiting vegetables	20–30 mol/m²/day — tomatoes, peppers, cucumbers.
Full-sun / outdoors	30–60 mol/m²/day — in direct sun these levels are normal.

Tip: *Tap the DLI value on any sensor card to open an in-app popup showing these target ranges and a status indicator for the current reading.*

Note: *DLI needs at least two sensor readings to start accumulating from zero on a new day. After a reboot, it restores from memory and shows immediately on the first reading.*

Using DLI in Events

DLI is available as a condition in the event editor (Section 10). This lets you automate grow lights based on actual daily light received rather than a fixed schedule. For example: turn on a grow light when DLI falls below 12 at end of day, or send an alert when DLI exceeds 30 on a day you expected shade.

Note: *Soil sensors in battery-saving mode transmit every 30–60 minutes. If a card shows an old reading, the sensor is most likely between transmissions — not offline.*

5 Weather Station Cards

Weather stations (Geevon TX16S) transmit on one of three channels, updating approximately every 48 seconds. Each channel appears as a separate card: **Weather CH1**, **Weather CH2**, or **Weather CH3**.

Station Name	The name assigned to this weather station card. Displayed in the card header.
Rename button	Click **Rename** on the card to give the station a custom name (e.g. *Back Yard* or *Greenhouse*). Saved immediately and persists across reboots.
Temperature	Outdoor air temperature in °F or °C.
Humidity	Relative humidity 0–99 %.
VPD	Vapor Pressure Deficit in kPa — calculated from temperature and humidity. Colour-coded by growing zone. Tap the value for an explanation popup.
Channel	Set using the switch on the back of the TX16 unit (1, 2, or 3).

VPD — Vapor Pressure Deficit

VPD (kPa — kilopascals) measures the drying power of the air. SproutKeeper calculates it automatically from your TX16 reading and displays it colour-coded in the environment bar.

Blue < 0.4 kPa	Too low — high humidity, risk of mould and poor transpiration.
Green 0.4–1.2 kPa	Ideal growing range for most crops.
Orange 1.2–1.6 kPa	Stress — increase humidity or reduce temperature.
Red > 1.6 kPa	High stress — risk of wilting or tip burn.

Tip: *Tap the VPD value in the environment bar for a popup with the current zone and an actionable tip.*

5-Day Weather Forecast

When a weather city is configured in Settings, SproutKeeper fetches a 5-day forecast from Open-Meteo and displays it inline in the environment bar: current conditions, then four forecast columns (day / icon / high / low). Refreshes every 30 minutes. No API key required.

> ***Note:*** *The forecast is fetched by your browser, not the device. It requires internet access on the device you view the dashboard on. Local readings and plug control work offline even without a forecast.*

Freeze & Frost Alerts

Frost warning (live)	TX16 currently below 38°F. Dark orange banner.
Freeze alert (live)	TX16 currently below 32°F. Dark red banner.
Forecast frost/freeze	Upcoming day's low forecast below 38°F or 32°F. Shows day name and temperature. Both alert types can appear simultaneously.

Tip: *Use the freeze alert with an event (Section 10) to automatically turn on a heat mat when temperature drops below 38°F.*

6 Rain Gauge Card

AcuRite wireless rain gauges are recognised automatically and displayed as a dedicated Rain Gauge card. Channel (A, B, or C) is shown in the card header. Totals are in **inches** when set to °F, **mm** when set to °C.

Readings

Gauge Name	The name assigned to this rain gauge card. Displayed in the card header.
Rename button	Click **Rename** on the card to give the gauge a custom name (e.g. *Backyard Gauge*). Saved immediately and persists across reboots.
Since Reset	Cumulative rainfall since the last manual reset. A **Reset** button appears while the gauge is live.
Today	Rain accumulated since local midnight today.
Yesterday	Total for the previous local day.
7 Days	Running total since the last 7-day reset point.
This Month	Total since the 1st of the current month.
YTD	Total since 1 January of the current year.
Battery	Low (red) · Med (amber) · Full (green)
Last Update	Time since the last packet was received.
Interval	Measured transmit interval (shows — until two packets received).

Resetting the Counter

Tap **Reset** to open the reset dialog. Choose **Since Reset only** (re-baselines the counter without touching Today/Yesterday/weekly figures) or **Since Reset + Clear all totals** (wipes all accumulated figures). Today/Yesterday/weekly figures roll over automatically at local midnight.

> ***Note:*** *Rain totals use your local midnight, detected from your browser's timezone automatically.*

Events on the Rain Gauge

The ■ **Events** button is available on rain gauge cards. Supported metrics: **Rain Today** and **Battery**. See Section 10.

Rain Data in Soil Sensor Events

When a rain gauge is present, **Rain Today** is available as a 2nd AND/OR condition in soil sensor events — e.g. water only when soil is below 30 % AND less than 0.25 in has fallen today.

> ***Tip:*** *Moisture < 30 % AND Rain Today < 0.25 in = irrigation only when soil is dry and it hasn't rained enough.*

7 Sensor Locations

Assign sensors to named locations — Greenhouse, Veggie Bed A, Back Patio — to keep your dashboard organised with many sensors.

Managing the Location List

- Click ■ **Locations** in the header.
- Up to **12 locations** can be defined. Enter a name next to each numbered slot.
- Click the ■ button to delete a location name.
- Click **Save Locations** when finished.

Assigning a Sensor

- On the sensor card, use the **Location** dropdown to choose a location.
- The assignment is saved instantly.
- Select the blank entry to remove a location assignment.

Note: *Location names are stored on the device and survive reboots. Renaming a location updates it everywhere automatically. Location names can also be managed from the* ***Setup Page*** *— see Section 14.*

8 Renaming Sensors

By default sensors are labelled by a short ID code. Give any sensor a meaningful name such as *Tomatoes* or *Herb Garden*.

- Click the **Rename** button on the sensor card.
- Type the new name in the field that appears.
- Press **Enter** or click **Save** to confirm.
- The name is saved to the device immediately and survives reboots.

Tip: *Name your sensor before placing it in the ground — see Section 2 for the recommended first-use order.*

Note: *Names appear in notification messages via the %sensor macro (see Section 15 — Message Builder).*

9 Hiding & Showing Sensors

- Click the **×** button in the top-right corner of a card to hide it.
- A **Show all** bar appears at the bottom of the grid when cards are hidden.
- Click **Show all** to bring all hidden cards back.

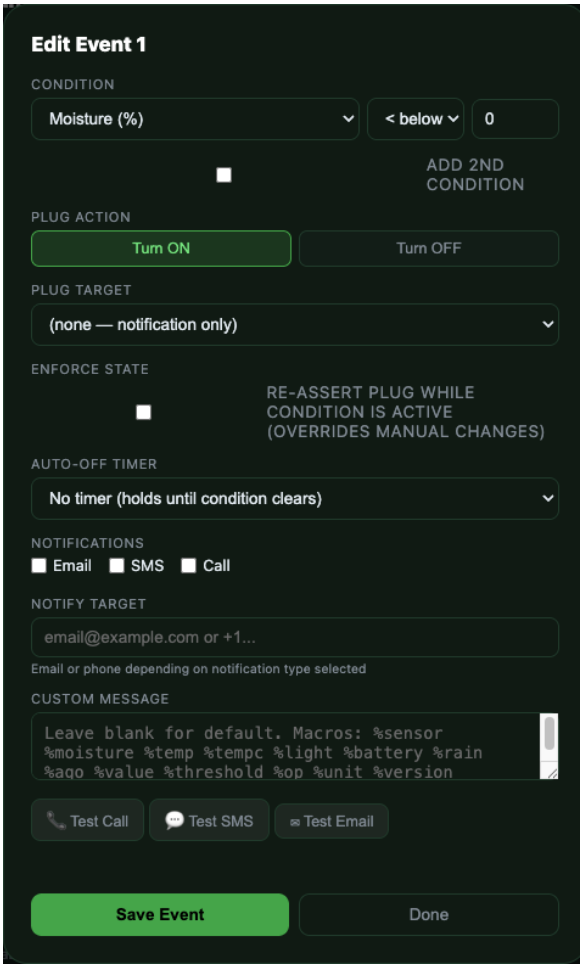
Note: *Hidden state is remembered in the browser — hiding on your phone does not affect your computer.*

10 Event Automation

Each soil sensor and rain gauge supports up to **4 events**. An event watches one or two readings and can switch a plug and/or send a notification when triggered.

Opening the Event Editor

- Click ■ **Events** at the bottom of any sensor card.
- Click the pencil (✎) icon to edit, or **+ Add Event** to create a new one.



Condition (1st)

Metric	Soil sensors: Moisture · Temperature · Light · DLI · Battery · Rain Today* Rain gauges: Rain Today · Battery * Rain Today appears only when a rain gauge is in the system.
Operator	< below · > above · ≤ at or below · ≥ at or above · = exactly
Threshold	The trigger value. DLI threshold in mol/m²/day. Rain thresholds in the current unit (inches or mm).

Optional 2nd Condition (AND / OR)

AND	Both conditions must be met simultaneously. Prevents false triggers.
OR	Either condition triggers the event. Catch multiple situations in one slot.

Tip: *Moisture < 30 % AND Rain Today < 0.25 in — pump only activates when soil is dry and rainfall today is under a quarter inch.*

Tip: *DLI < 12 — trigger a grow light when your herbs or seedlings haven't received enough light by midday. See Section 4 for DLI target ranges by plant type.*

Plug & Timer Settings

Plug	Output to control: SproutKeeper USB, Kasa/Shelly smart plugs, SproutPod USB outputs.
Plug action	Turn the plug ON or OFF when the condition is true.
Timer	Turns plug on for N seconds then reverses. 0 = hold while condition is true.
Enforce State	Re-asserts the plug every 30 s while condition holds. Cooldown configurable (30 s to 2 h).

Notifications

Notifications	Email / SMS / Call — sent once when condition first becomes true.
Target	Email address or phone number with country code (e.g. +1 555 123 4567).
Message	Custom text with macro support (Section 15). Leave blank for default.
Test buttons	Test Call / Test SMS / Test Email — send an immediate test without waiting for a trigger.

11 Smart Plug Integration

SproutKeeper controls USB relay outputs and Wi-Fi smart plugs — no cloud required. All outputs appear in the plug panel and event editor dropdown.

SproutKeeper USB Power Output

Every SproutKeeper hub has a built-in relay wired to a **USB-A female connector**. It supplies **5 V** to whatever is plugged in when switched on. It appears in the plug panel as **SproutKeeper USB** and is always available — no discovery or configuration needed.

What You Can Connect

USB water pump	Auto-water a plant pot or hydro reservoir. Run on a timer so it only pumps for N seconds per trigger.
USB grow light	Supplement light for seedlings or cuttings. Schedule via a soil sensor's light-level event.
USB fan	Keep air circulating in a grow tent or cabinet. Trigger on temperature or VPD.
USB heat mat	Keep propagation trays warm. Wire to a freeze alert event (< 38 °F).
USB LED strip	Status indicator or supplemental lighting on a schedule.

Note: *Connect USB devices rated for 5 V. The relay switches the 5 V supply line — the USB-A port does not negotiate fast-charge protocols.*

Controlling the SproutKeeper USB Output

- Toggle manually from the plug panel on the dashboard.
- Assign it as the plug target in any soil sensor, weather station, or rain gauge event.
- Set a **Timer** (seconds) to pulse the output for a fixed duration then turn off automatically.
- Enable **Enforce State** to re-assert the relay every 30 s while the condition holds.

Tip: *Moisture < 30 % → SproutKeeper USB ON → Timer 30 s: the pump runs for 30 seconds each time the soil sensor dips below 30 %, then stops automatically.*

SproutPod USB Power Output

Each SproutPod unit has its own **USB-A relay output** — identical in capability to the SproutKeeper built-in output. This lets you place a pump or light exactly where it is needed, powered and controlled by the nearest SproutPod, without running wires back to the main hub.

When a SproutPod connects to your network, its output appears automatically in the SproutKeeper plug panel as **<name> USB** (e.g. *greenhouse USB*). It supports the same on/off, timer, and enforce-state options as any other output.

Typical SproutPod USB Setup

- Place the SproutPod in the area you want to monitor and control.
- Plug a USB pump, light, or fan into the SproutPod USB-A port.
- On the SproutKeeper dashboard, open ■ **Events** on a nearby soil sensor.

- Set the plug target to **<name> USB** and configure the trigger condition.
- The SproutPod handles both sensing and actuation at the remote location.

Note: *SproutPod USB only appears in the plug panel after the unit has sent at least one sensor packet to SproutKeeper. If it doesn't appear, check* ***Last POST*** *on the SproutPod dashboard — it should show HTTP 200.*

Tip: *Name your SproutPod something descriptive like greenhouse or veggie-bed so its USB output is easy to identify in the event editor dropdown.*

OzBits Smart Plug

The OzBits Smart Plug is the easiest plug to set up with SproutKeeper. It is purpose-built to integrate with SproutKeeper — minimal configuration, no third-party app, and automatic self-discovery on your local network.

Self-discovery	Powers on and announces itself on the network automatically. SproutKeeper finds it without any IP addresses or manual steps.
Minimal setup	Connect to the plug's hotspot once, enter your Wi-Fi — done. No cloud account, no app, no pairing codes.
Built to integrate	Responds to the same local HTTP commands SproutKeeper uses for all plugs. Appears in the plug panel and event editor instantly.
Physical button	Manual on/off button on the unit for override control without touching the dashboard.

Tip: *Use the OzBits Smart Plug to control 120V devices like water pumps, grow lights, fans, and heaters — set up in under 60 seconds, no third-party apps ever required.*

TP-Link Kasa Plugs

- Kasa plugs are found automatically when on the same Wi-Fi network.
- Discovered plugs appear in the plug panel.
- Click **Discover Plugs** in the panel to rescan if a plug doesn't appear.

Shelly Plugs

- Use the **shelly:** prefix: e.g. `shelly:192.168.1.55`

Manual Control

Click any plug card in the panel to toggle it immediately, independent of any events.

12 Notifications

SproutKeeper sends **email**, **SMS**, or **phone call** notifications when an event condition is triggered. Enter your service key in Config.

Setup

- Open ■ **Settings** and enter your **Service Key**.
- In the event editor, tick the notification types you want.
- Enter the destination in the **Target** field — email or phone number with country code.

Global Mute

The ■ **Mute** button silences all notifications globally. Plug control continues normally. Mute state survives reboots.

Test Buttons

Each event has **Test Call**, **Test SMS**, and **Test Email** buttons that send an immediate test message to verify your target and service key.

13 Home Assistant MQTT

SproutKeeper publishes sensor readings to an MQTT broker and sends Home Assistant auto-discovery messages so sensors appear automatically in HA.

Setup

- Open ■ **Config** → Home Assistant section.
- Enter your MQTT broker **host** (IP or hostname).
- Set the **port** (default: 1883).
- Enter broker **username** and **password** if required.
- Set the **Discovery Prefix** (default: `homeassistant`).
- Enable the toggle and click **Save Config**.

Published Readings

Soil sensors	moisture · temperature · light · battery
Weather stations	temperature · humidity
Availability	online / offline (last-will testament)

Note: *Only sensors with a reading within the last 24 hours are published.*

14 Setup Page

Open by clicking ■ **Settings** in the header.

General

Device Name	Friendly name used in MQTT topics and notifications.
mDNS Name	Local hostname — device reachable at .local. Default: *sproutkeeper*. Useful for multiple SproutKeeper units on the same network.
Temperature Unit	Fahrenheit or Celsius. Rain totals switch between inches and mm automatically.
Service Key	SproutKeeper notification service key for email, SMS, and call delivery.
Weather City	City name for the 5-day weather forecast (e.g. *Tampa*). Dashboard geocodes it automatically. Leave blank to disable the forecast.

Wi-Fi

Expand the **WiFi** section to scan nearby networks and switch. The SproutKeeper hotspot remains active as a fallback at all times.

Home Assistant

MQTT broker settings — see Section 13 for details.

Backup & Restore

Save a complete snapshot of all your SproutKeeper settings — device name, service key, notification targets, Home Assistant config, weather city, sensor names, location assignments, and all event rules.

- Click ■ **Save Backup** to download `sproutkeeper-backup.json`.
- Click ■ **Restore** and select a backup file to reload all settings immediately.

Note: *Restore overwrites all current settings. Save a fresh backup before restoring if you want to revert.*

Saving

Click **Save Config** to apply. Wi-Fi changes require a reboot.

15 Message Builder

The **Message** field in the event editor supports macros filled in with live values when the notification is sent. Use these to build custom alert messages that include sensor name, current readings, and trigger details.

%sensor	Sensor name (or ID if unnamed)
%moisture	Current moisture %
%temp	Temperature in the configured unit
%tempc	Temperature always in °C
%light	Light level label (e.g. med+)
%battery	Battery level (Low / Med / Full)
%rain	Today's rain total in the configured unit
%ago	Time since last reading (e.g. 5 min ago)
%value	The reading that triggered the event
%threshold	The threshold value from the event
%op	The condition operator (> or <)
%unit	Temperature unit symbol (°F or °C)
%version	Firmware version

Tip: *"%sensor is too dry (%moisture%%) — only %rain in of rain today." → "Tomatoes is too dry (22%) — only 0.05 in of rain today."*

16 SproutPod — Range Extender & USB Relay

SproutPod extends the reach of your sensor network and adds a USB relay output for pumps and grow lights. Place it where sensors are too far from SproutKeeper, and it will forward all decoded readings over Wi-Fi while also controlling USB-powered devices locally — no extra wiring to the main hub.

What SproutPod Does

433 MHz reception	Own RXB6 receiver decodes soil and weather sensor transmissions independently.
Forwarding	Decoded readings sent to SproutKeeper over Wi-Fi. Sensors appear on the main dashboard as if received directly.
Signal reporting	Sends RSSI with every packet. SproutKeeper shows whichever source (direct or SproutPod) has the stronger signal.
USB relay output	Built-in relay switches 5 V to the USB-A connector. Connect a USB pump, grow light, or fan.
Auto-discovery	SproutKeeper detects SproutPod units and shows their USB output in the plug panel automatically.
Multiple units	Run more than one SproutPod — each covers a different area with its own USB output.

Setting Up SproutPod

- Power on the SproutPod unit.
- Join the Wi-Fi network **SproutPod_XXXX** (unique per unit).
- Open **http://pod.local** or **http://192.168.4.1**.
- Enter your home Wi-Fi and set **SproutKeeper Host** to **sproutkeeper.local**.
- Optionally set a **Device Name** — e.g. *greenhouse* appears as *greenhouse USB* in the plug panel.
- Click **Save & Restart**. SproutPod joins your network and begins forwarding automatically.

***Note:** The **SproutPod_XXXX** hotspot stays active as a fallback. Reconnect to it and visit **http://192.168.4.1** to reconfigure.*

Controlling the USB Output

- Toggle it manually from the plug panel on the SproutKeeper dashboard.
- Assign it as a plug target in any sensor event.
- Use a timer to run the pump for N seconds, then turn it off automatically.
- Use Enforce State to re-assert the relay every 30 s while the condition holds.

***Tip:** Wire a USB pump to the SproutPod USB-A port. Set a moisture event on a nearby soil sensor to activate it when the soil drops below 30 %. SproutPod handles both sensing and actuation remotely.*

SproutPod Dashboard

WiFi	Network name when connected, or 'disconnected'.

IP	IP address on your network.
Device Name	mDNS name for this unit (default: pod.local).
SproutKeeper	The SproutKeeper host this unit forwards data to.
Last decode	Most recent decoded sensor reading with elapsed time.
Last POST	Result of the most recent forward to SproutKeeper (should show HTTP 200).
Firmware	Current firmware version and update status.

Firmware Updates

- Open the SproutPod dashboard at **http://pod.local**.
- Click **Check for Updates**.
- A progress bar shows the download; turns green when installation begins.
- The unit reboots automatically and confirms the new version.

Placement Tips

- Position within range of both your sensors and your Wi-Fi network.
- Outdoors or near a window improves 433 MHz reception.
- One SproutPod can serve a full greenhouse or paddock.

Tip: *If a sensor shows 'late' more often than expected, adding a SproutPod usually resolves it.*

17 Backup & Restore

Backup & Restore saves a complete snapshot of your SproutKeeper configuration: device name, service key, notification targets, Home Assistant MQTT settings, weather city, temperature unit, mDNS name, location names, sensor names, location assignments, and all event rules. Restore to transfer everything to a new device or roll back a change.

Saving a Backup

- Open ■ **Config** → Backup & Restore section.
- Click ■ **Save Backup**.
- Your browser downloads `sproutkeeper-backup.json`.
- Store it on your computer, cloud drive, or email it to yourself.

Restoring a Backup

- Open ■ **Config** → Backup & Restore.
- Click ■ **Restore** and select your backup file.
- All settings are applied immediately. The page refreshes to reflect the restored state.

Note: *Restore overwrites all current settings. Save a fresh backup before restoring if you want to be able to revert.*

When to Use It

New device	Flash a new SproutKeeper unit and restore — all sensor names, events, and config transfer instantly.
Firmware update	OTA updates preserve settings, but a backup beforehand is good practice.
Config experiment	Save before major changes so you can roll back easily.
Multiple locations	Keep separate backup files for different gardens or growing sites.

18 Troubleshooting

Heartbeat dot is red

- Usually a brief Wi-Fi hiccup — the dot returns to green on its own.
- If it stays red, refresh the page. If that doesn't help, power-cycle the device.

Sensor not appearing on the dashboard

- Check the battery — a flat battery stops transmissions entirely.
- Move the sensor closer to SproutKeeper and wait one transmission cycle.
- Soil sensors transmit every 30–60 minutes in battery-saving mode.
- Weather stations transmit every 48 seconds — if not appearing within 2 minutes, check the channel switch.
- If too far away, add a SproutPod between the sensor and SproutKeeper (Section 16).

Rain gauge card briefly shows as a soil card on first load

Corrects itself as soon as the next RF transmission is decoded — typically within seconds.

Sensor showing — for temperature

Reading was outside expected range and suppressed. Clears automatically on the next valid reading.

Moisture always shows 0 %

Make sure the probe is fully inserted into moist soil. A sensor resting on a bench reads 0 %.

Rain totals seem incorrect after reset

- Since Reset starts from the moment you tapped Reset. Today/Yesterday/weekly figures are unaffected.
- A battery swap on the gauge resets its own counter — tap Reset on the card afterwards.
- Today/Yesterday use your browser's local timezone, detected automatically.

Smart plug not responding

- Make sure the plug is on the same Wi-Fi network as SproutKeeper.
- Click **Discover Plugs** to refresh the Kasa list.
- Shelly plugs need the **shelly:** prefix: `shelly:192.168.1.55`

SproutPod USB not appearing in plug panel

- SproutPod USB appears only after the unit has sent at least one sensor packet to SproutKeeper.
- Check **Last POST** on the SproutPod dashboard — should show **HTTP 200**.
- If SproutPod shows 'disconnected', reconnect to **SproutPod_XXXX** hotspot and re-enter credentials.

Weather forecast not showing

- Make sure a city name is entered in ■ **Config** → Weather City.
- Forecast requires internet on your browser device (not the SproutKeeper hub).
- Enter just the city name — e.g. *Tampa*, not *Tampa, FL*.

VPD not displaying

- VPD requires an active TX16 weather station. Appears automatically once a TX16 reading is received.

Notification not received

- Check that ■ **Mute** is not active.
- Use **Test** buttons in the event editor to verify your target and service key.
- Phone numbers must include the country code (e.g. +1 for USA).
- Check your spam folder — the first email may be filtered.

Can't reach sproutkeeper.local

- Connect to the **SproutKeeper** hotspot and open **http://192.168.4.1**.
- Check your router for the SproutKeeper IP address and use that directly.

SproutPod not forwarding

- Open the SproutPod dashboard and confirm **WiFi** shows your network name.
- Confirm **SproutKeeper Host** is set to **sproutkeeper.local**.
- Check **Last POST** — any code other than HTTP 200 means SproutKeeper is not reachable.

19 API Reference

All SproutKeeper endpoints are plain HTTP on port 80 at the device IP or `http://sproutkeeper.local`. GET requests return JSON; POST requests accept JSON body (Content-Type: application/json) unless noted otherwise.

Sensor Data

GET /api/data	Returns the full sensor table. Each slot (index 0–N) contains: `valid`, `deviceId`, `name`, `moisture`, `tempF`, `light`, `battery`, `rain`, `age` (seconds since last read), `interval`, `source`, `rssi`, `captures`, `loc_idx`.

Sensor Management

POST /api/rename	Rename a sensor. Body: `{"id":<deviceId>,"name":"New Name"}`
GET /api/locations	Return location name list: `["Greenhouse","Bed A",…]` (12 slots).
POST /api/locations	Save location names. Body: `{"locations":["Greenhouse",…]}`
POST /api/sensor/loc	Assign a sensor to a location slot. Body: `{"id":<deviceId>,"loc":<0–11>}`. Send `"loc":-1` to clear.
POST /api/sensors/clear	Wipe all soil and rain sensor slots. Sensor names and location assignments stored in NVS are preserved.

Event Rules

GET /api/events?id=<deviceId>	Return the 4 event rules for a sensor as a JSON array.
POST /api/events	Save event rules. Body: `{"id":<deviceId>,"events":[…]}`. Each event object: `metric, op, thresh, plug, plug_action, timer, enforce, notify_email, notify_sms, notify_call, target, message, metric2, op2, thresh2, logic2`.

Plug Control

GET /api/plugs	Return plug list. Each entry: `type`, `name`, `ip`, `target`, `state`.
POST /api/plug/discover	Trigger a UDP broadcast scan for TP-Link Kasa plugs on the local network. Returns discovered plugs in the same format as /api/plugs.
POST /api/plug/set	Set plug state. Body: `{"target":"kasa:192.168.1.x","on":1}`. on accepts `0`, `1`, or `"toggle"`. Target prefix: `kasa:`, `shelly:`, or `growpod:` for SproutPod USB.

Configuration

GET /api/config	Return all config fields as JSON: device name, mDNS name, temperature unit, service key, weather city, MQTT settings, notification targets, mute state.
POST /api/config	Save config. Body: JSON object with any subset of config fields to update. Wi-Fi changes require a reboot.
GET /api/wifi-scan	Scan nearby Wi-Fi networks. Returns JSON array of SSIDs with RSSI and security type.
POST /api/wifi-save	Save Wi-Fi credentials. Body: `{"ssid":"MyNet","pass":"secret"}`. Device reboots after saving.
GET /api/tz	Return the current timezone offset in seconds, derived from the last browser interaction.

Notifications

POST /api/mute	Toggle global notification mute. Body: `{"mute":1}` or `{"mute":0}`. Returns `{"mute":true|false}`.
POST /api/test-notify	Send a test message immediately. Body: `{"type":"email"|"sms"|"call","target":"address or number"}`.

Rain Gauge

POST /api/rain/reset	Reset the Since Reset counter. Add `"full":1` to also wipe Today, Yesterday, 7-Day, Month, and YTD totals. Default (no full flag) resets Since Reset only.

Signal Calibration

POST /api/rssi/reset	Reset RSSI auto-calibration to factory defaults (floor: 698 mV, ceil: 848 mV). Useful after relocating SproutKeeper or adding a SproutPod. Calibration rebuilds automatically from the next received packets.

Backup & Restore

GET /api/backup	Download a complete settings backup as JSON. Includes: device config (name, service key, notification targets, HA MQTT, weather city, temp unit, mDNS), location names, sensor names + location assignments, all event rules, and RSSI calibration. Browser saves as `sproutkeeper-backup.json`.

POST /api/restore	Restore from a backup JSON. Body: the full backup JSON returned by /api/backup. Config is applied in-memory and written to NVS immediately. Event rules are written to NVS and applied live for any sensor currently in a slot.

Over-the-Air Firmware Update

POST /api/ota	Trigger an OTA firmware check and install. SproutKeeper fetches the version manifest from the update server; if a newer version is available it downloads and installs it, then reboots. Returns `{"ok":true}` immediately (update runs in background).

Note: *To flash a specific binary directly, use:* `curl -X POST http://sproutkeeper.local/api/ota`

SproutPod API

SproutPod units expose their own HTTP API at `http://pod.local` or the unit's IP.

GET /api/status	Returns: `wifi` (bool), `ssid`, `ip`, `gsHost` (SproutKeeper hostname), `mdnsName`, `fw` (version string), `relay_state` (0|1), `lastDecode`, `lastPost` (HTTP result of last SproutKeeper forward), `ota`.
GET /relay/set?state=on|off	Set the SproutPod USB-A relay. Returns plain text `on` or `off`. (SproutKeeper calls this automatically via plug events — direct use is for testing only.)
POST /api/ota	Trigger OTA check on the SproutPod unit.
POST /save	Save SproutPod config. Body: `{"ssid":"…","pass":"…","gsHost":"sproutkeeper.local","mdnsName":"pod"}`.