

SP Flux

Wireless thermal imaging logger

64 temperatures in a single glance

SP Flux — Wireless thermal imaging logger

A LoRaWAN thermal imager on a battery. SP Flux watches a whole scene as an 8×8 field of 64 temperatures, spots a single hot pixel against the learned background and sends the alarm at once — with the hottest point and a full thermal picture in SmartCloud.

Key features

- 8×8 thermal array: 64 temperatures, 60° field of view
- Hot-spot detection per pixel against the background
- Alarm at once, full thermal picture in the cloud
- Finds its network itself: SP Net gateway or LoRaWAN
- Archive in memory, nothing lost when the link drops
- Set-up by phone over NFC and over the air

- Worldwide Helium Network compatibility
- Ready to work out of the box
- 3 years warranty period

Use Cases

Electrical cabinets and equipment

One SP Flux watches a whole cabinet or machine: a loose terminal or an overloaded bearing heats a few pixels while the rest stays cool. The sensor compares every pixel with the learned background, so a warm room does not raise an alarm, and a local hot spot of +1 °C and more does.

Warehouses and fire prevention

Mounted under the ceiling over a storage zone, SP Flux sees heat build up in goods, batteries or chargers long before smoke appears, and reports the place in the 8×8 picture.

Greenhouses and apiaries

The full thermal picture shows how heat is spread over beds or inside a hive cover; SmartCloud keeps the history of every pixel and draws it as a heat map.

People and presence

People are warmer than the background: SP Flux shows where they stand and how many warm spots there are — without images of faces, privacy-safe.

Point the sensor at the scene, register it in SmartCloud — it learns the background picture by itself and reports only real heating; no on-site setup.

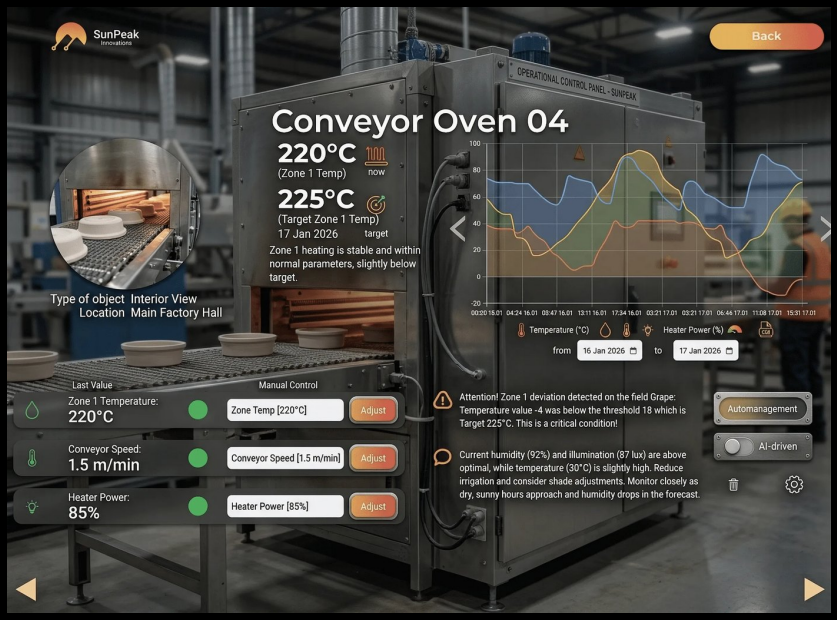
Technical specifications

The warranty period is 3 years from the production date.

Device main parameters

Parameter	Value
Sensor	Thermopile array 8×8 = 64 pixels (Panasonic Grid-EYE AMG8833), 60°×60° field of view
Temperature range	0…+80 °C (object surface)
Accuracy	±2.5 °C absolute (sensor datasheet); resolution 0.25 °C
Hot-spot detection	Pixel above the learned background by 1 °C (default, configurable), confirmed by a second probe; optional absolute threshold
Reporting	Alarm and clear at once; summary (hottest point, median, hot pixel) every hour; full 8×8 picture every 6 h and on change; all configurable
Data memory	Archive in flash with delivery confirmation: about 4 months of a quiet scene
Radio standard	LoRaWAN 1.0.4 Class A (OTAA/ABP), EU868, or SP Net single-channel (two-way); automatic network selection
Communication range	up to 5 km (line-of-sight)
Configuration	NFC (SunPeak Devices app, Android/iOS); over the air via SP Net and LoRaWAN networks, signed
Power source	3.6 V 2400 mAh ER14505 Li-SOCl
Battery life	up to 5 years (depends on the probing and reporting profile)
Operating temperature	0…+80 °C (sensor limits), indoors
Dimensions	about 100 × 50 × 22 mm

SmartCloud Ecosystem



Cloud Ready

Plug & Play: register the device and point it at the scene — the sensor learns the background itself, no calibration on site.

Heat map

Every snapshot is shown as a smooth heat map with the hottest and coolest points marked; the same map can be put on an SP Screen e-ink board next to the equipment.

Overheating alarms

SmartCloud turns the sensor alarms into events with time, place in the picture and peak temperature, and notifies the right people by Telegram or SMS.

History and trends

Compare the scene week by week, see slow heating of a connection or a bearing long before it fails.

Control and indication

All timings and thresholds are configured from SmartCloud (by phone over NFC or over the air via SP Net or LoRaWAN).

Magnet gestures

Control is by touching the marked spot with a magnet; a series of touches ends with a 2 s pause.

Magnet touches	Function	Indication
1×	Send a fresh thermal picture now and collect pending settings	mode colour during transmission
4×	Sleep (sensor off; any touch wakes)	green blinking
6×	Test mode 3 min: a probe and a frame every 15 s	white beacon every 0.5 s; on each probe green = no change, blue = change, red = sensor error
8×	Reboot	red blinking
12×	Network mode selection: AUTO (default) ABP OTAA SP Net	mode colour: AUTO yellow, ABP pink, OTAA blue, SP Net white
Power-on	Joining the network; in AUTO — LoRaWAN or SP Net, whichever answers	mode colour blinking, 3× on success

Integration and support

Integration with standard LoRaWAN systems

The device is compatible with any standard LoRaWAN network. DevEUI and AppKey are printed on the device label.

Payload description

Uplink on FPort 2, frame format v3 (FW 2.00 and later): header — device ID 730, firmware ID, frame ID (0 scheduled, 1 alarm/change, 2 magnet, 3 start, 5 test, 6 archive), battery, format 0x30/0x31; then blocks with the age of each record. SCALAR (0x20) — case temperature, median, maximum, hot pixel index with alarm flags and excess over the background; PROG / PROG+ (0xB0 / 0xCp) — the 8×8 picture sent coarse first and refined by the next frames to the full 0.25 °C resolution; STATE (0xA1), ENERGY (0xA2), GAP and TBREAK — service blocks. Records are kept in flash until the network confirms delivery. Decoding is built into SmartCloud; for a custom integration use the SmartCloud API.

Block	Content	Note
Header	Device ID 730, firmware ID, frame ID, battery, format	7 bytes
0x20 SCALAR	Case, median and maximum temperature, hot pixel, alarm flags, excess	1/16 and 1/4 °C
0xB0 / 0xCp	8×8 picture: coarse layer and refinement planes	full 0.25 °C after refinement
0xA1 / 0xA2	Firmware and configuration CRC; battery ledger	service
0xA4 / 0xA5	Gap in the archive; time break after power loss	service

Top-level integration

To bring the data into your own system, use the SunPeak Innovations ecosystem as a complete measurement and network package and take the data via REST API, WebHook or WebSocket. Connection instructions are in the SmartCloud platform.

Metrological characteristics

Channel	Range	MPE	Resolution	Status
Surface temperature, 8×8 thermal array (frame median) — AMG8833 thermal array	0…80 °C	±2.5 °C (manufacturer's release tolerance)	0.25 °C	Calibratable

Recommended calibration interval: 24 months; the owner sets the final interval based on their own risk analysis. MPE — maximum permissible error. Calibration is performed against reference standards traceable to accredited laboratories; each measuring device is delivered with a calibration certificate in the ISO/IEC 17025 form.

Quality documents

Every SP Flux passes visual inspection, a functional test and a metrological test before it ships. For each serial number the product passport with the final inspection report, the calibration certificate and the technical specification are available at the verification page — scan the QR code on the device passport or enter the serial number.

Verify by serial number

CONTACT

SunPeak Innovations LLC
Georgia
info@sunpeaki.com · https://www.sunpeaki.com

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