JungleSIM T1H Climate Sensor - Datasheet

Wireless temperature and humidity sensor for terrariums, battery powered



The T1H measures temperature and humidity inside the terrarium and sends them by radio to the JungleSIM S1M screen module or C1H control hub. Its Sensirion SHT45 sits in its own vented chamber, sealed off from the electronics, and is specified up to 100 % RH. It runs for months on a rechargeable battery that charges over USB-C, and mounts on the glass with a magnet or on two screws.

Features

- Sensirion SHT45-AD1F with PTFE membrane: typ. ±1.0 % RH, ±0.1 °C, specified 0-100 % RH
- Sensor chamber vented to the outside only (bottom grille, side slots); board room closed by a TPU gasket
- ESP-NOW straight to the S1M or C1H, no router needed; several T1H per terrarium
- Reading interval 30 s to 10 min, set in the app (2 min by default)
- Rechargeable LiPo 500 mAh with protection; charges over USB-C, also runs while charging
- Firmware updates over the air, passed on by the S1M
- Magnet mount (inside the glass, holding magnet outside) or two keyholes

Electrical

Parameter	Value
Battery	Lithium polymer 503035, 3.7 V nominal, 500 mAh, 1.85 Wh, JST PH 2.0, replaceable
Battery protection	DW01A + FS8205: over-charge (4.3 V), over-discharge (2.5 V), over-current and short circuit
Charging	5 V DC (4.75-5.25 V) via USB-C, sink only (CC 5.1 k); MCP73831, 213 mA (0.43 C), 0-45 °C
Current from USB	max. 0.5 A (charging plus radio peaks)
Power path	runs from USB without a cell (SS14 from VBUS, P-MOSFET from the cell)
Internal rail	3.3 V, LDO RT9080 (2 uA quiescent); sensor supply switched off between readings
Sleep current	about 15 uA (estimate, to be measured)
Battery life	several months at a 2 min interval (estimate, to be measured)
USB data	USB-Serial/JTAG of the ESP32-C3 (service only), ESD protection USBLC6-2SC6
Protection class	III, circuits ES1 / PS1 to EN IEC 62368-1

Radio

Parameter	Value
Module	Espressif ESP32-C3-MINI-1-N4 (EU type-examination certificate, TIMCO NB 1177)
Protocol	ESP-NOW (IEEE 802.11 b/g/n frames, 2.4 GHz, 20 MHz)
Frequency band	2400-2483.5 MHz (channels 1-13)
Max. transmit power	to be limited to 20 dBm e.i.r.p. in firmware (T1H-CAR-001)
Antenna	PCB antenna on the module, unchanged
Bluetooth	present in the module, not used
Duty cycle	one short exchange per reading (milliseconds)

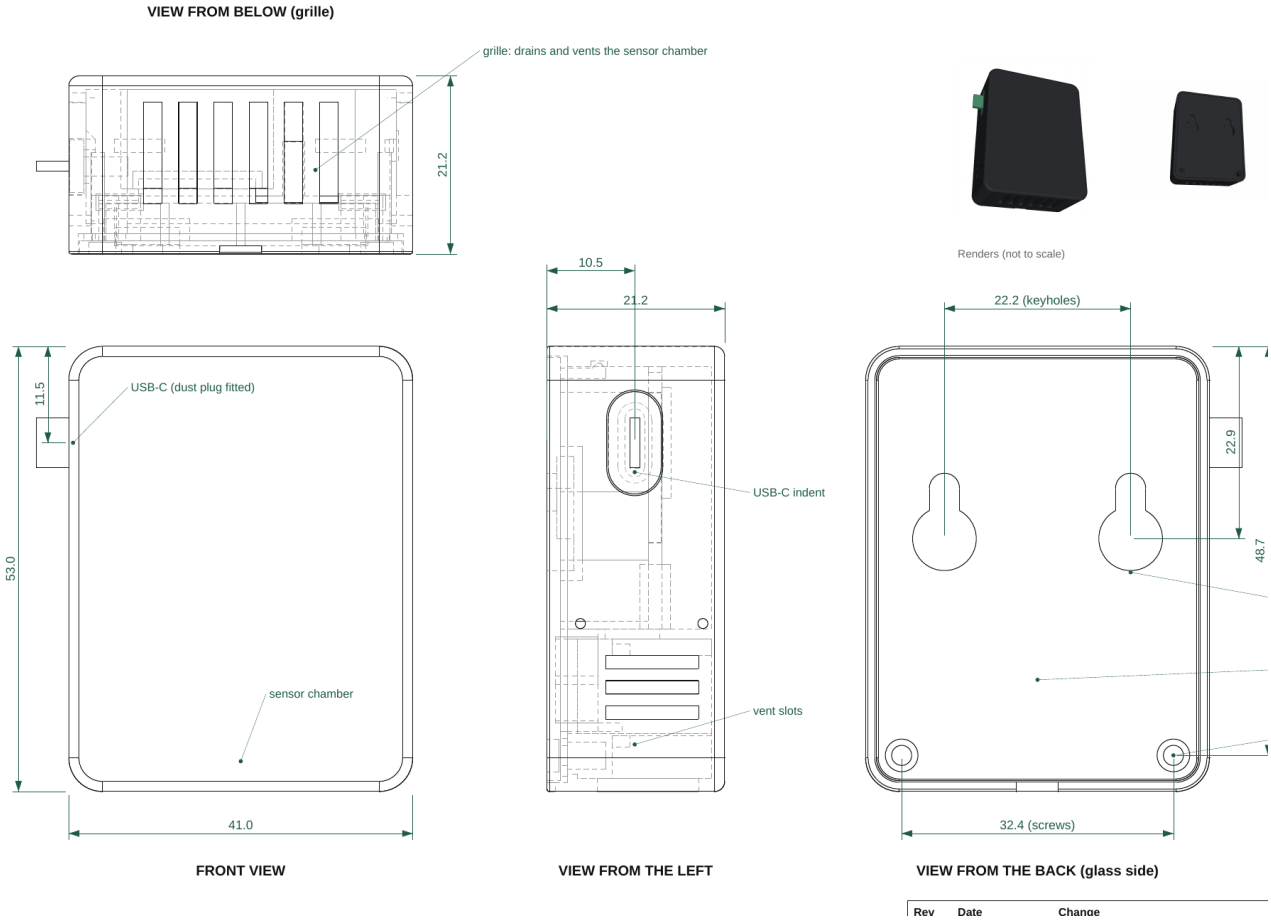
Measurement

Parameter	Value
Sensor	Sensirion SHT45-AD1F on the SHT45 board rev 1.0 (I2C 0x44, JST SH cable to J4)
Humidity	0-100 % RH, typ. ±1.0 % RH; creep above 80 % RH recovers in dry air
Temperature	typ. ±0.1 °C (sensor); case and self-heating effects to be measured
Resolution sent	0.1 °C, 0.1 % RH

Mechanical and environment

Parameter	Value
Dimensions	41.0 x 53.0 x 21.2 mm
Weight	to be weighed on the first unit
Case	PA12 nylon (MJF, black), TPU 95A gasket and seals, 2 x M2 x 6 stainless screws into heat-set inserts
Mounting	magnet 30 x 10 x 5 mm in the lid, or 2 keyholes 22.2 mm apart
Ingress protection	not rated; made for terrarium air and condensation, not waterproof
Operating	0 to 40 °C, up to 100 % RH
Charging	0 to 45 °C, outside the terrarium
Storage	-10 to 40 °C

Drawing



Outline drawing T1H-DWG-001 rev 1 (the A3 drawing is a separate download)

Ordering information

Item	Contents
JungleSIM T1H Climate Sensor	T1H with battery in its case, dust plug, quick guide, safety sheet
Replacement battery	LiPo 503035, 500 mAh, JST PH 2.0

Compliance

CE (RED 2014/53/EU, RoHS 2011/65/EU). Battery to Regulation (EU) 2023/1542. Marked with the crossed-out wheelie bin (WEEE 2012/19/EU). Manufacturer: JungleVault, Frauenstiftgasse 5/1/11, 1210 Wien, Austria, contact@thejunglevault.com.

Specifications may change; the newest datasheet is on thejunglevault.com.

Revisions

Rev	Date	Changes
1	2026-10-24	First issue, sensor module rev 2.0, SHT45 board rev 1.0, case rev 1.1.