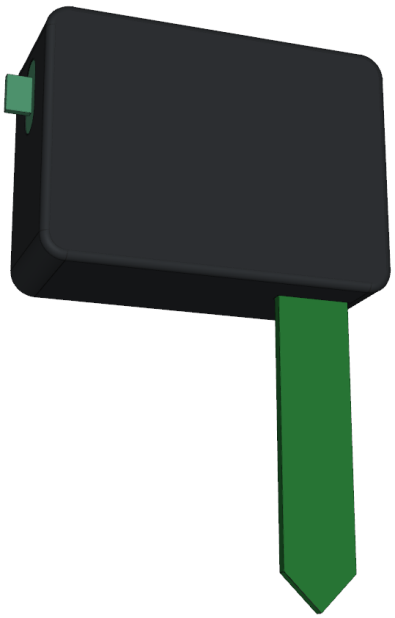
JungleSIM M1S Soil Moisture Sensor - Datasheet

Wireless capacitive soil moisture sensor for terrariums, battery powered



The M1S with its case rev 1.0

The M1S tells you how moist the substrate is. Its capacitive probe measures through its coating, so no bare metal touches the soil and nothing corrodes in a wet terrarium. It sends its readings by radio to the JungleSIM S1M screen module or C1H control hub and runs for months on a rechargeable battery that charges over USB-C.

> **Note.** Moisture readings need the sensor firmware, S1M and app update that is in preparation.

Features

- Capacitive probe, about 920 kHz (TLC555), electrode under solder mask on both sides with a ground ring
- About 49 mm sensing depth below the SOIL LINE, which is the case bottom; pointed blade
- 0-100 % relative moisture after a two-point calibration (dry / wet) in the app
- ESP-NOW straight to the S1M or C1H, no router needed
- Reading interval 30 s to 10 min, set in the app
- Rechargeable LiPo 500 mAh with protection; charges over USB-C
- Firmware updates over the air, passed on by the S1M

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, 0-45 °C
Current from USB	max. 0.5 A (charging plus radio peaks)
Internal rail	3.3 V, LDO RT9080 (2 uA quiescent); probe supply switched off between readings

Parameter	Value
Probe	TLC555 astable, about 920 kHz; BAT54 peak detector with 1 uF / 1 M; DC level on IO1 (ADC), lower = wetter
Probe cable	JST SH 4-pin to J5 of the sensor module
Battery life	several months at a 10 min interval (estimate, to be measured)
Protection class	III, circuits ES1 / PS1 to EN IEC 62368-1

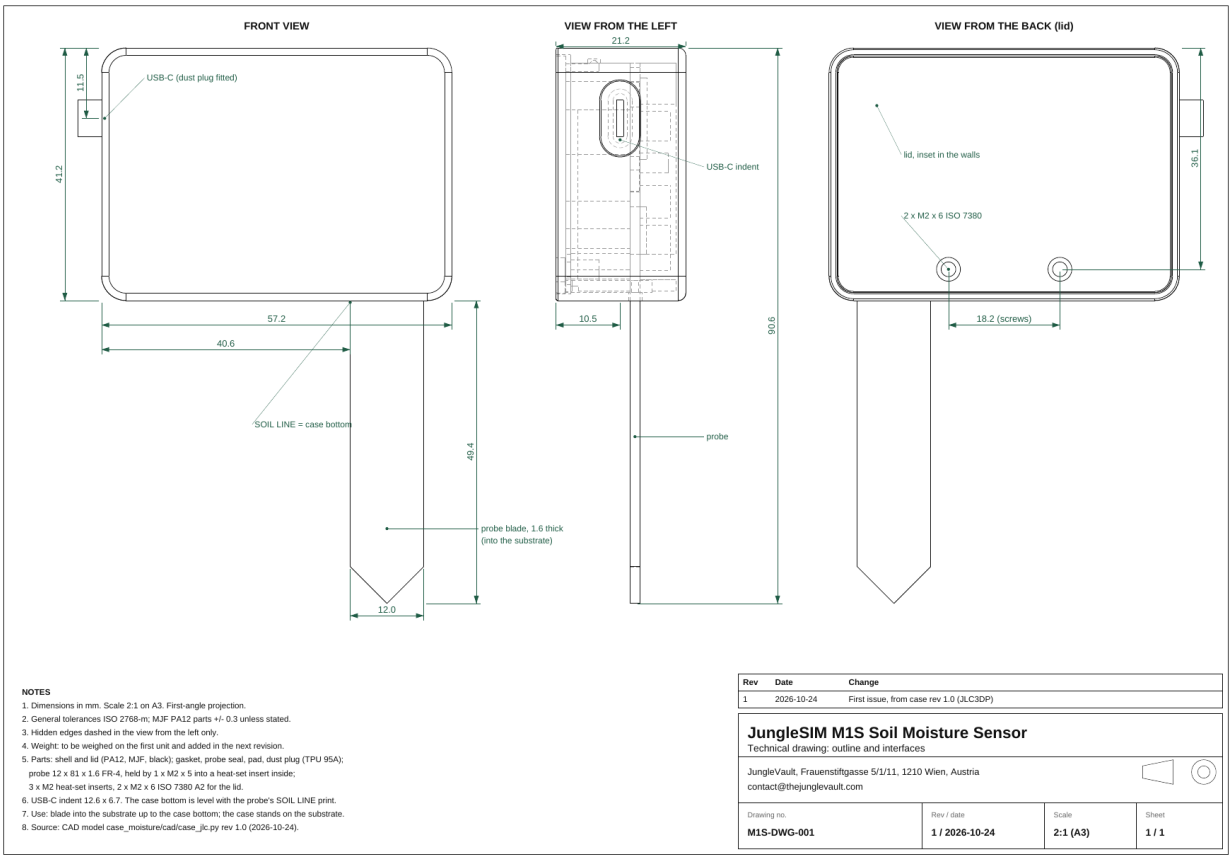
Radio

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 (M1S-CAR-001)
Antenna	PCB antenna on the module, unchanged

Mechanical and environment

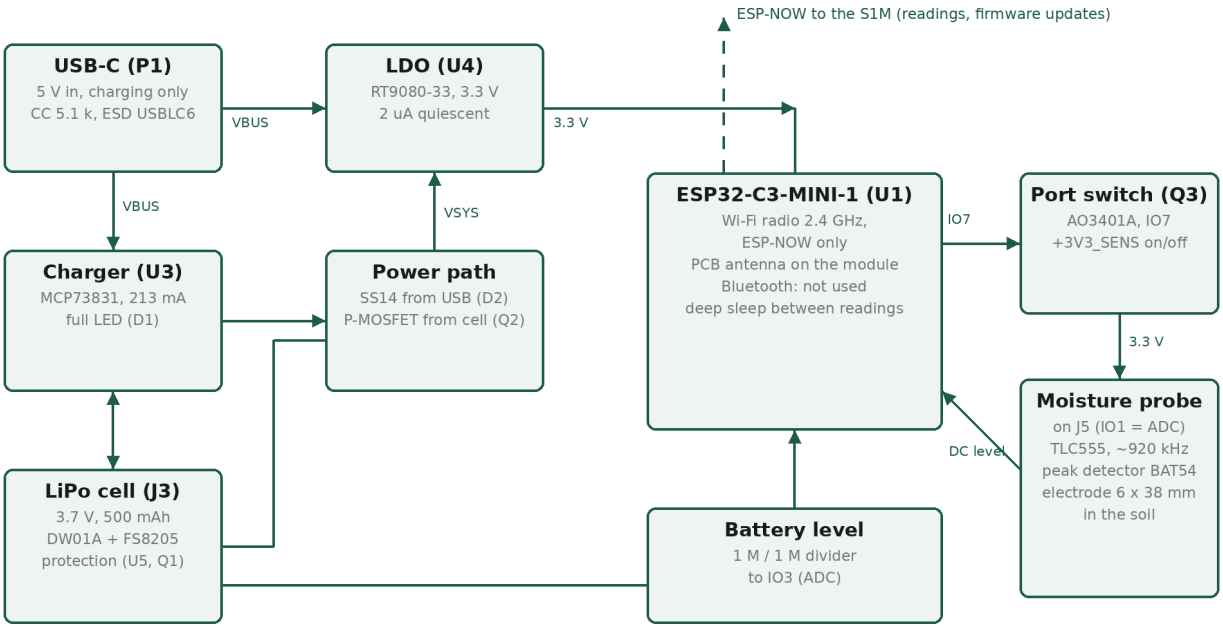
Parameter	Value
Dimensions	case 57.2 x 41.2 x 21.2 mm; 90.6 mm tall with the probe
Weight	to be weighed on the first unit
Case	PA12 nylon (MJF, black), TPU 95A gasket and probe seal, lid inset in the walls, 2 x M2 x 6 stainless screws into heat-set inserts
Probe board	12 x 81 mm, FR-4 1.6 mm, 2 layers, solder mask both sides, sealed edges; held by an M2 screw inside the case
Sensing part	electrode 6 x 38 mm, blade 49 mm below the case bottom (SOIL LINE)
Placing	the case stands on the substrate, the blade in it
Ingress protection	not rated; blade for wet soil, case for humid air, not waterproof
Operating	0 to 40 °C
Charging	0 to 45 °C, outside the terrarium
Storage	-10 to 40 °C

Drawing



Outline drawing M1S-DWG-001 rev 1 (the A3 drawing is a separate download)

Block diagram



JungleSIM M1S: sensor module rev 2.0 + moisture probe rev 1.0. All circuits 5 V / 3.3 V / 4.2 V (ES1).

Ordering information

Item	Contents
JungleSIM M1S Soil Moisture Sensor	M1S with battery in its case, probe fitted, 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) once the declaration is signed. 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
2	2026-10-24	Case rev 1.0 (JLC3DP) - picture, mechanical data, drawing M1S-DWG-001; blade length corrected to 49 mm.
1	2026-10-24	First issue (draft), sensor module rev 2.0, moisture probe rev 1.0. Case data follows with the case.