

DODO LOGGER

User Manual

SD · Wi-Fi · LoRaWAN · 4G LTE

Installation, configuration and adding sensors

Firmware 2.4.3 · Manual Rev 1.0 · DODOTiK · www.dodotik.com

1. About this manual

This manual covers installing a **DODO LOGGER**, connecting it to a network, adding sensors to it, and getting the readings out — on the SD card, in the cloud, or into your own system.

It describes **firmware 2.4.3**. The version your unit is running is shown on the System screen (section 12). If it differs, some screens may differ too.

Everything in this manual is done from the logger's **built-in web interface**. There is no app to install and no software to buy. A phone or a laptop with a browser is the only tool needed.

Who	Read
Installer, commissioning a unit on site	Sections 3 to 9
Operator, adding or changing a sensor later	Sections 8 and 9
Integrator, taking data into another system	Sections 10 and 11

2. What you need

Supplied with the logger

- DODO LOGGER in its enclosure, with the sensor sockets fitted
- microSD card (installed)
- Mounting hardware

You must provide

- A **DC 12–24 V** power supply, sized for the logger plus every sensor on it
- Your sensors, with the **GX12 4-pin** connector fitted (standard on all DODO AQUA and DODO SOIL probes) or bare leads for a terminal block
- A phone or laptop with Wi-Fi and a browser
- For cloud use: Wi-Fi credentials for the site, and a DODOTiK Platform account

3. The logger at a glance

Part	What it is for
4 sensor sockets	Each is one <i>slot</i> . A slot is either an RS-485 Modbus sensor or an analog input — your choice, per slot.
Power input	DC 12–24 V. The logger passes this straight through to the sensors.
microSD card	Every reading is written here, always, whether or not the uplink is working.

Part	What it is for
Button	Hold 3 seconds to put the logger into setup mode (section 5).
Status LED	Shows power and activity.

Three connectivity versions — Wi-Fi, LoRaWAN and 4G LTE — share the same firmware, web interface, enclosure and sensor inputs. Only the uplink radio differs. **All three log to the SD card**, so a unit keeps a complete local record whether or not its uplink is up.

4. Mounting and wiring

Power the logger from a supply rated for the whole load. The logger passes its input voltage through to every sensor socket, so the supply must carry the logger plus all four sensors. A supply that is marginal shows up as sensors that read intermittently rather than as an obvious power failure.

Mount the enclosure where the cable glands point down. Water tracks along a cable and collects at the gland.

Keep the sensor connectors dry. DODO AQUA probes are IP68 at the body, but the GX12 mating pair is a dry-side connector. A connector standing in water eventually tracks between contacts, and the symptom is an intermittent Modbus timeout rather than a clean failure.

Fit the SD card before powering up. The logger detects a card inserted while running, but a card present at boot is one less thing to check.

Do not daisy-chain two sensors with the same Modbus address. This is the single most common commissioning fault. See section 9.6.

5. First power-up — the setup access point

A logger that has no Wi-Fi network stored, or whose button is held at power-up, starts its own access point so you can reach it.

To enter setup mode

1. Power the logger. If it has never been configured, it enters setup mode by itself.
2. Otherwise, **hold the button for 3 seconds** until the logger restarts into setup mode. You can also hold the button while powering up.

To connect

1. On your phone or laptop, join the Wi-Fi network **DODO-Logger-XXXX**, where **XXXX** is the last four hex digits of the logger's MAC address. Each logger's name is unique, so several on one site do not collide.
2. The setup page usually opens by itself. If it does not, browse to **http://192.168.4.1**.

The setup network is open and accepts one device at a time. It has no password, so anyone in range can reach the logger while it is in setup mode — configure it and move it onto your own Wi-Fi rather than leaving it in setup mode. And because only one client may join, a second phone trying to connect will simply fail; disconnect the first.

Once the logger is on your own Wi-Fi, you can reach it from any browser on the same network at **http://dodo-logger-xxxx.local/** (lower case), or at the IP address shown on the System screen. The **.local** name works on macOS, iOS, Android and most Linux desktops; on Windows it needs Bonjour installed, so the IP address is the reliable route there.

6. The web interface

Every screen is reached from the home screen. The top of the home screen shows the clock and four status lamps.



The home screen clock and the four status lamps. Green means working; red means the logger cannot see that subsystem. A yellow WiFi lamp means the logger is in setup mode and serving its own access point rather than being joined to your network.

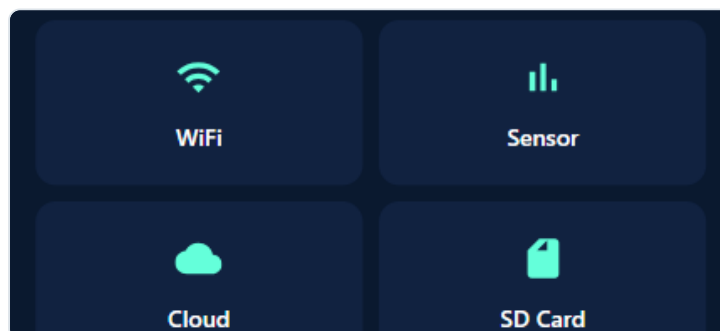
Lamp	Green means	Red means
WiFi	Joined to your network	Not connected. Yellow = setup mode
Sensor	At least one slot returned a reading	No slot is reading
SD	A card is present and writable	No card, or the card failed
RTC	The clock is set	The clock has not been set

Below the lamps, the home screen lists a live reading from every enabled slot, refreshed every 2.5 seconds.



Live readings, one card per enabled slot. The slot number and sensor name are on the left, how long ago it was read on the right. This is the fastest way to confirm a sensor is wired and addressed correctly.

Below the readings is the menu. Each tile opens one settings screen.



The settings menu. Each tile opens one screen; the BACK button at the top left of every screen returns here.

7. Wi-Fi settings

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WiFi Settings

NETWORK NAME (SSID)

DODOTIK-FIELD

PASSWORD

.....

SAVE WIFI SETTINGS

The WiFi screen. Enter the network name exactly as broadcast, including capitals, then save. The logger restarts its network connection immediately.

Field	What to enter
Network name (SSID)	The site Wi-Fi name, exactly as broadcast — it is case-sensitive
Password	The network password. Leave empty for an open network

Press **Save WiFi Settings**. The logger tries the network straight away. If it cannot join, it keeps retrying; hold the button for 3 seconds to get back into setup mode and correct the details.

2.4 GHz only. The logger does not see 5 GHz networks. If your router publishes both bands under one name, the logger will still find the 2.4 GHz one; if the bands have separate names, enter the 2.4 GHz name.

8. Adding a sensor — how slots work

The logger has **four slots**. Each slot is configured independently and can be either:

- an **RS-485 Modbus sensor**, identified by an entry in the sensor library, or
- an **analog input** — 0–10 V, or 0–20 / 4–20 mA.

A slot needs two things: **what the sensor is** (which library entry) and **where it answers** (its Modbus address). Everything else follows from the library entry.

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Sensors

4 sensor slots

Pick a sensor type for each slot — choose from built-in presets or your own custom definitions. Up to 4 sensors per device. Readings refresh every 2.5s.

Slot 1

ENABLED

SENSOR TYPE

MODBUS ADDR

BAUD

DODO AQUA pH (p

6

9600

Last read: 3s ago

pH

7.24 pH

Temperature

21.8 C

Slot 2

ENABLED

SENSOR TYPE

MODBUS ADDR

BAUD

DODO AQUA EC

7

9600

Last read: 3s ago

Conductivity

1432 uS/cm

TDS

716 mg/L

Temperature

21.6 C

Slots 1 and 2, each assigned a Modbus sensor. Under each slot the logger shows what it last read, and how long ago, so a wiring or addressing mistake is visible immediately.

To add a Modbus sensor to a slot

1. Open **Sensor** from the menu.
2. Find a free slot. Tick **ENABLED**.
3. In **SENSOR TYPE**, pick the sensor from the dropdown. The list holds the built-in presets plus anything you have added to the library (section 9).
4. Set **MODBUS ADDR** to the address that sensor answers on.
5. Leave **BAUD** at the value the library entry suggests unless you have changed the sensor's baud rate.
6. Press **Save Slot Configuration** at the bottom of the screen.

Within a few seconds the slot's reading box fills in. If it stays empty, work through section 13.

Worked example — a DODO AQUA pH probe on slot 1. Plug the probe's GX12 connector into socket 1. Tick **ENABLED** on slot 1, choose **DODO AQUA pH** as the sensor type, set MODBUS ADDR to **6** — every DODO AQUA water-quality probe leaves the factory on address 6 — leave baud at 9600, and save. The slot box should show a pH value and a temperature within a few seconds.

8.1 Analog sensors

A slot set to an analog type does not use a Modbus address. Instead it reads one of the two analog inputs and converts the raw signal into engineering units using a scaling you define.

The screenshot shows a configuration interface for two sensor slots. Slot 3 is active and configured as an Analog 0-20 / 4-20 mA input. It has a Modbus address of 1 and a baud rate of 9600. A 'Configure scaling' button is visible. Below the configuration, it shows 'Last read: 3s ago' and 'Tank level' with a value of 3.18 m. Slot 4 is disabled and has no sensor type selected.

Slot	Enabled	Sensor Type	Modbus Addr	Baud	Label	Value
Slot 3	ENABLED	Analog 0-20 / 4-20	1	9600	Tank level	3.18 m
Slot 4	DISABLED	-- none --	1	9600		

Slot 3 set to the 4-20 mA analog input. The address and baud fields grey out because they do not apply, and a Configure scaling button appears. Slot 4 is unused.

1. Set the slot's **SENSOR TYPE** to **Analog 0–10 V** or **Analog 0–20 / 4–20 mA**.
2. Press **Configure scaling** →.
3. Fill in the scaling form, then **Save**.

The screenshot shows the 'Slot 3 — Analog Scaling' configuration form. It includes fields for Label, Field Key, Unit, Input Min (mA), Input Max (mA), Output Min, and Output Max. The form is pre-filled with 'Tank level', 'level', 'm', 4.000, 20.000, 0.000, and 5.000 respectively. At the bottom, there are buttons for 'Live test pin', 'Save', and 'Cancel'.

Field	Value
LABEL	Tank level
FIELD KEY	level
UNIT	m
INPUT MIN (MA)	4.000
INPUT MAX (MA)	20.000
OUTPUT MIN	0.000
OUTPUT MAX	5.000

The analog scaling form for a 4-20 mA tank-level sensor. Input min and max are the sensor's electrical range; output min and max are what those currents mean in the real world.

Field	What it means
Label	What this reading is called on screen, e.g. <i>Tank level</i>
Field key	The column name in the CSV and the cloud, e.g. <code>level</code> . Lower case, no spaces
Unit	The unit, e.g. <code>m</code>
Input min / max	The sensor's electrical range — for a 4–20 mA sensor, 4 and 20
Output min / max	What those two ends mean — for a 0–5 m level sensor, 0 and 5

Press **Live test pin** to read the input once and see both the raw signal and the converted value. That is the quickest way to confirm the wiring before you trust the scaling.

Check which end is which. A 4–20 mA sensor wired so that 4 mA is full scale rather than empty produces a reading that looks plausible and is exactly inverted. Live test with the tank at a known level.

9. The sensor library

The library is the list of Modbus sensors this logger knows how to read. A slot can only be assigned a sensor that is in the library.

SAVE SLOT CONFIGURATION

Modbus / RS485 Sensor Library: 2 / 10

+ ADD MODBUS SENSOR

This library is for Modbus / RS485 sensors only.
 Built-in presets (XY-MD02, DODO_Soil_sensor, SHT40) are read-only.
 Add custom Modbus profiles for any other RS485 sensor.
 For analog 0-10 V or 4-20 mA sensors, pick the analog option in a slot dropdown above — no library entry needed.

DODO AQUA pH PRESET TEST
 id: da-ph • FC 3 • reg 0+4 • 9600 baud • 2 fields

DODO AQUA EC TEST Edit DELETE
 id: da-ec • FC 3 • reg 0+6 • 9600 baud • 3 fields

The sensor library. Built-in presets are marked PRESET and cannot be edited or deleted. Entries you add can be tested, edited and deleted. The counter at the top shows how many of the ten slots are used.

Built-in presets — XY-MD02, DODO_Soil_sensor and SHT40 — ship with the firmware and are read-only. **Up to ten** library entries are stored in total.

Adding a sensor to the library requires **no firmware update**. The logger stores the definition and starts using it immediately.

9.1 Adding a custom Modbus sensor

Press **+ Add Modbus Sensor**. The form has two halves: what to read, and how to interpret it.

New Modbus Sensor

ID — SHORT IDENTIFIER, LOWERCASE LETTERS/DIGITS/UNDERSCORE (MAX 15)

da-orp

NAME — DISPLAY LABEL (MAX 31)

DODO AQUA ORP

MODBUS FUNCTION CODE

0x03 — Read Holding Registers

START REGISTER

REGISTER COUNT (1-16)

DEFAULT ADDR (1-247)

DEFAULT BAUD

0

2

6

9600

These are starting values when this sensor is assigned to a slot. Each slot can override them.

The first half of the sensor form: a short id, a display name, the Modbus function code, and which registers to read. These come from the sensor's own datasheet.

Field	Where it comes from
ID	Your own short name, lower case, letters/digits/underscore, max 15 characters. Used internally
Name	What appears in the slot dropdown, max 31 characters
Modbus function code	0x03 read holding registers, or 0x04 read input registers. The sensor datasheet says which
Start register	The first register to read
Register count	How many registers to read in one go, 1 to 16
Default addr / baud	Suggested values when this sensor is assigned to a slot. Each slot can override them

Then describe each value inside that block of registers. A definition can hold up to **eight fields**.

Fields: 1 / 8

+ ADD FIELD

Field #1

REMOVE

KEY (A-Z 0-9 _, MAX 15)
orp

LABEL
ORP

UNIT
mV

REGISTER INDEX
0

SCALE (RAW × SCALE)
1

TYPE
int16 (1 reg) ▾

BYTE ORDER (32-BIT ONLY)
ABCD (default) ▾

Cancel

SAVE SENSOR

The second half: one field per value the sensor returns. Register index counts from the start register, not from zero of the device's map. Scale converts the raw integer into real units.

Field	What to enter
Key	The column name in the CSV and the cloud, e.g. <code>ph</code> . Lower case, max 15
Label	The display name, e.g. <code>pH</code>
Unit	e.g. <code>pH</code> , <code>C</code> , <code>mg/L</code>
Register index	Offset from the start register , counting from 0 — not the absolute register address
Scale	What to multiply the raw integer by. A value returned as hundredths has scale <code>0.01</code>
Type	<code>int16</code> / <code>uint16</code> (one register) or <code>int32</code> / <code>uint32</code> (two registers)
Byte order	32-bit values only. <code>ABCD</code> is normal; <code>CDAB</code> is word-swapped

Press **Save Sensor**. It appears in the library and in every slot dropdown.

Signed or unsigned is not cosmetic. A sensor that can return a negative value — an ORP probe, a temperature below zero — must be `int16` . Read as `uint16` , `-40` becomes `65496` and the error only appears in cold weather.

9.2 Testing a library entry

Press **TEST** beside any library entry. The logger polls the sensor and shows what came back, decoded through the field definitions. Use it after adding a definition and before assigning it to a slot — it separates "the definition is wrong" from "the wiring is wrong".

9.3 Modbus addresses

Every sensor on the RS-485 bus must answer on a **different address**. The valid range is 1 to 247.

Most sensors ship on the same address. All five DODO AQUA water-quality probes leave the factory on **address 6**; DODO AQUA LEVEL and PRESSURE on **address 1**. Two probes of the same family on one logger will collide, and the symptom is garbled or missing replies rather than a clean error.

Address each sensor individually, one at a time on the bus, before wiring the others. Each sensor's own datasheet gives the command.

10. Cloud settings

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Cloud Settings

TELEMETRY PROTOCOL

MQTT — DODOTiK Platform (Recommended) ▾

MQTT Broker: mqtt.platform.dodotik.com:8883 (TLS)

DEVICE ID

dl-x4-2610-0042

DEVICE KEY

.....

SEND INTERVAL (MINUTES)

15

SAVE CLOUD SETTINGS

Cloud settings with the default MQTT transport selected. The device ID and key come from the DODOTiK Platform when you register the logger.

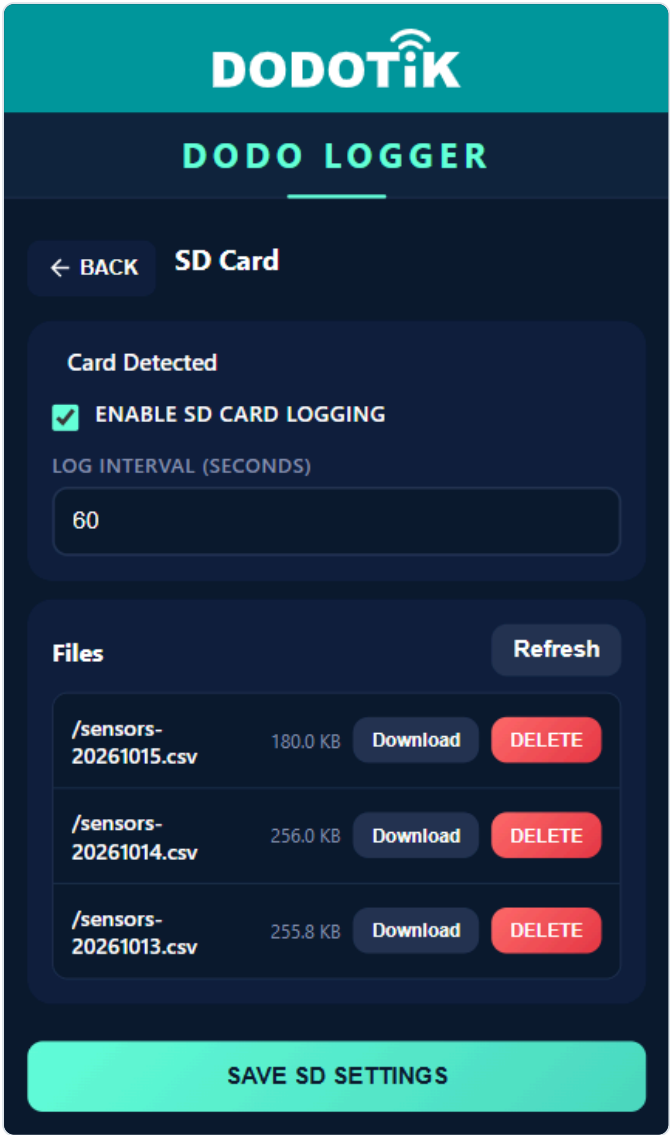
Protocol	Use it when
MQTT — DODOTiK Platform	The default and the recommended choice. TLS to mqtt.platform.dodotik.com:8883
HTTPS — Custom endpoint	You want the data posted to your own server instead

For the DODOTiK Platform, enter the **Device ID** and **Device Key** issued when you register the logger on the platform, set the **send interval** in minutes, and save. The default interval is 10 minutes.

For your own server, choose the custom endpoint, enter an `https://` URL and, if your server requires one, a bearer token. The logger POSTs self-describing JSON: it declares its own fields, so a new sensor appears in your system without a schema change at your end. The device ID is included in the body for your reference but is **not** used to authenticate — secure the endpoint with the bearer token.

The send interval is independent of the SD logging interval. It is normal to record to the card every minute and upload every fifteen.

11. SD card logging



The SD card screen. The card status is at the top, the log interval below it, and the files on the card are listed with their size, a download link and a delete button.

SD logging is **on by default** and is independent of the cloud. A logger with no network still records everything.

Setting	Meaning
Enable SD card logging	Turn recording on or off
Log interval (seconds)	How often a row is written. Default 60

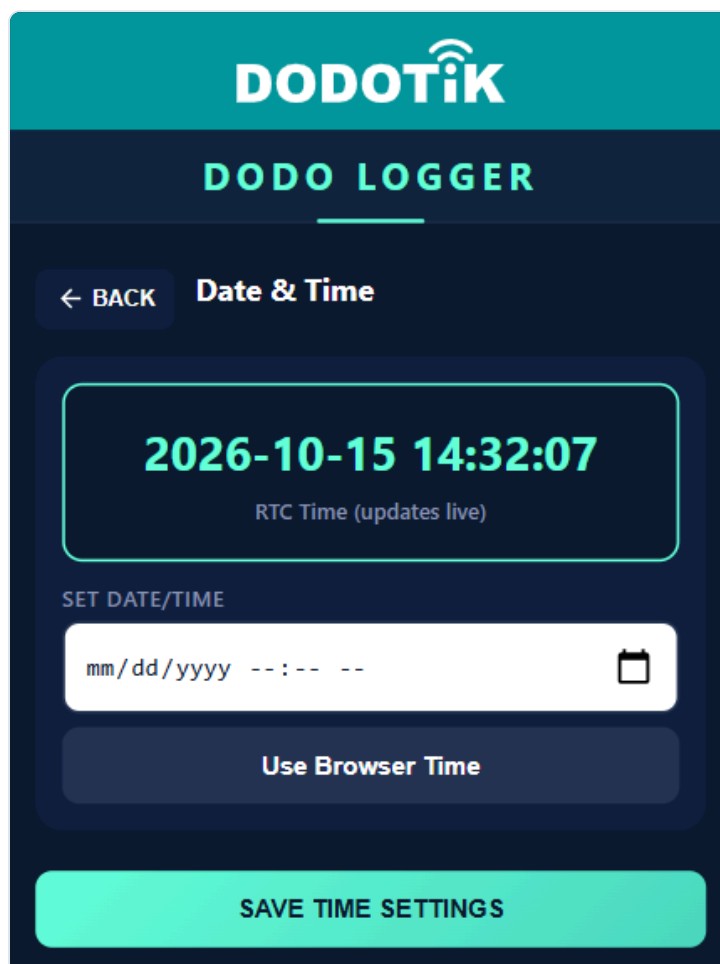
One file per day, named `/sensors-YYYYMMDD.csv`. If the clock has not been set when the first row is written, the logger uses `/sensors-unknown.csv` instead — a visible name rather than a file dated 1970.

The columns are named from your slots. Each is `s<slot>_<key>_<unit>`, so a pH probe on slot 1 produces `s1_ph_pH` and `s1_temp_C`. The header row is written when the file is created, which means **changing a slot mid-day does not rewrite the header of a file already open** — the new columns appear in the next day's file. If you reconfigure slots, delete that day's file or accept that its header describes the earlier configuration.

Timestamps in the CSV are local time, using the timezone offset you set in section 12, so they match the wall clock on site. Data sent to the cloud carries UTC.

Press **Download** to pull a file to your phone or laptop over Wi-Fi.

12. Date and time



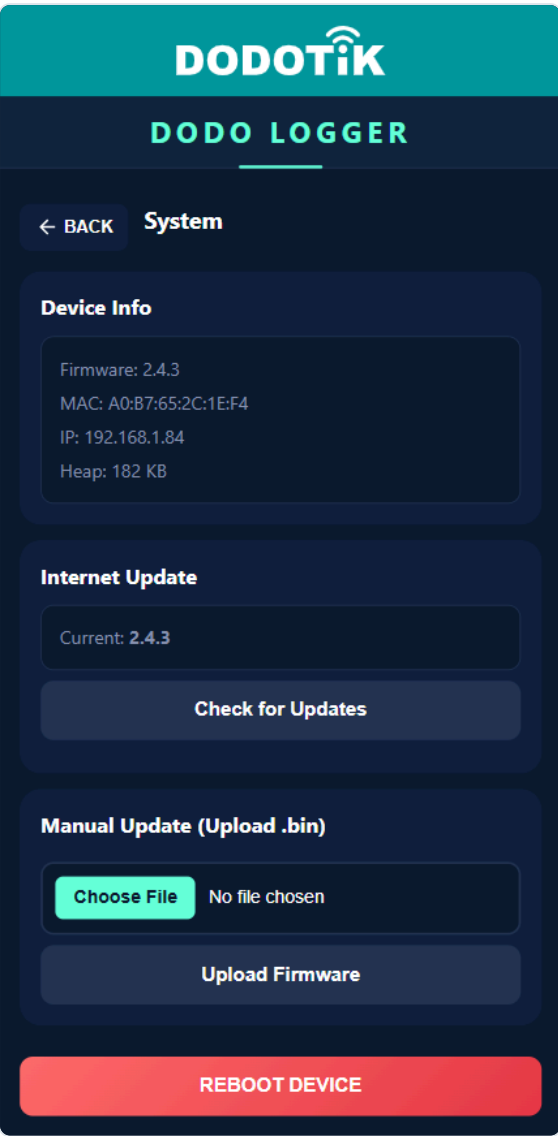
The date and time screen. The live clock at the top is what the logger will write into the CSV; Use Browser Time copies the time from the device you are using.

The logger has a **battery-backed real-time clock**, so it keeps time across power cuts. When it has internet it also calibrates itself from NTP.

Set the time by pressing **Use Browser Time** — this copies the clock and the timezone from the phone or laptop you are holding — then **Save Time Settings**. Setting it from a device that is in the site's timezone is the simplest way to get local timestamps right.

The clock stores UTC internally and applies your offset for display and for the CSV. That is why a logger shipped between timezones keeps correct absolute time but needs its offset updated.

13. System — firmware and restart



The System screen: firmware version, MAC address, IP address and free memory, with the update and reboot controls below.

Device info gives you the four things support will ask for: firmware version, MAC address, IP address and free memory. The MAC address is also what makes the setup network name unique.

Internet update checks DODOTiK for a newer firmware once every 24 hours, and on demand when you press **Check for Updates**. Updates are signed, and the logger keeps the previous firmware until the new one boots successfully.

Manual update takes a `.bin` file, for sites with no internet.

Reboot device restarts the logger. Configuration, library entries and the SD card are untouched.

14. Troubleshooting

Symptom	Most likely cause
A slot shows no reading	Wrong Modbus address — check section 9.3. Then: wrong baud, A/B swapped, or the sensor is not powered
Two sensors of the same type both fail	Address collision. Both are answering on the factory default. Address them one at a time
Readings appeared, then stopped	Check the connector is dry and the supply carries all four sensors

Symptom	Most likely cause
Sensor lamp red, one slot fine	Normal if only some slots are enabled; the lamp follows whether <i>any</i> slot reads
WiFi lamp yellow	The logger is in setup mode serving its own access point. Enter the site Wi-Fi and save
Cannot reach .local address on Windows	Windows needs Bonjour. Use the IP address from the System screen
Cannot join the setup network	Only one device may join at a time. Disconnect the other phone
SD lamp red	No card, or the card is unreadable. Reseat it; the logger re-detects a card inserted while running
CSV columns do not match the slots	The header was written when the file was created. Expect the change in tomorrow's file
Analog reading is inverted	Input min and max are the wrong way round for how the sensor is wired
A negative value reads as about 65500	The field is defined as <code>uint16</code> and should be <code>int16</code>

Recovering a logger you cannot reach. Hold the button for 3 seconds, or hold it while powering up. The logger returns to setup mode on `DODO-Logger-XXXX` / `192.168.4.1` with its configuration intact, so you can correct the Wi-Fi details without losing anything.

15. Support

Company	DODOTiK — industrial IoT hardware and instrumentation
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WhatsApp	+90 538 282 6257
Email	info@dodotik.com
Website	www.dodotik.com
Cloud platform	https://platform.dodotik.com
Technical support	info@dodotik.com — quote the firmware version and MAC address from the System screen

The **DODO AQUA** water sensors and the **DODO SOIL** 8-in-1 probe each have their own datasheet, which gives the register map and the addressing command for that product.