03 HTTP API

AT A GLANCE

For	Any program that can send HTTP: set a resistance or a sensor value, read the state, search sensors. The Companion stays open and keeps logging.
You need	The Companion connected to the box, the **Local network API** server started, and its token.
Try it	Replace `YOUR_TOKEN` with the token (**Copy** on the page):

```
curl -X POST http://127.0.0.1:8765/v1/resistance \
  -H "Authorization: Bearer YOUR_TOKEN" \
  -H "Content-Type: application/json" \
  -d '{"value":"10k"}'
{"success":true,"data":{"ohms":10000,"rounded":false},"error":null}
```

Start the server

1. Connect the box on the **Device** page.
2. Open **Local network API** (switch it on in Settings if it isn't listed).
3. Port: `8765`, or any from 1024 to 65535. Press **Start**. The page says **Running**.
4. Token: **Show** or **Copy**. Treat it like a password. **Make a new token** stops the old one at once.

Off until started. The page also has working curl examples with your port.

Connection

Base URL	`http://127.0.0.1:8765`
Listens on	This computer only (`127.0.0.1`). Tick **Allow other computers on the network** for every address.
Auth	`Authorization: Bearer <token>` on every request. Token: 64 hex characters.
Body	JSON, `Content-Type: application/json`, max 64 KB
Rate	100 requests per second per address
Browsers	Any request with an `Origin` header is refused

Endpoints

Request	Body / query	`data` in the reply
`GET /v1/state`		`connected`, `model`, `firmware`, `lastSetOhms`, `activeTable` (`{slot, units}` or `null`)
`POST /v1/resistance`	`{"value":"10k"}`: a string as typed on the Device page, or a number	`ohms`, `rounded`, and `table` if one is active
`POST /v1/sensor`	`{"sensor":"pt100","value":25}`, optional `"unit":"F"`	As above, plus `sensor` (name used) and `value`
`GET /v1/sensors?q=pt100`	Search words	List of `id`, `name`, `maker`, `type`, `min`, `max`, `unit`
`POST /mcp`	MCP, for AI clients	Chapter 05

Every reply: `{"success": true|false, "data": …|null, "error": null|"message"}`. Not offered, by design: raw commands, tables, calibration, opening the output.

```
GET /v1/state
{"success":true,"data":{"connected":true,"model":"ohmSTAR+","firmware":"6.1",
 "lastSetOhms":138.51,"activeTable":null},"error":null}
POST /v1/resistance  {"value":138.505}
{"success":true,"data":{"ohms":138.51,"rounded":true},"error":null}
```

Status codes

Code	`error` text	Cause
200	`null`	Done. `ohms` is what was sent.
400	Send a "value", such as "10k". · Send a "sensor" name and a numeric "value". · That JSON could not be read.	Missing or bad field, bad JSON
401	A valid token is required.	Token missing, wrong or replaced
403	Requests from web pages are not allowed. · That address is not allowed. · AI control is switched off…	`Origin` header; `Host` not local; `/mcp` while AI control is off
404	No such address.	Unknown path
413	That request is too large.	Body over 64 KB
415	Send JSON, with the content type application/json.	Wrong content type
422	The ohmSTAR+ goes from 1 Ω to 5 MΩ. · Use a capital M for megohms, such as 1.5M. · No box is connected.	Value refused; nothing sent
429	Too many requests. Slow down and try again.	Over 100 per second
500	Something went wrong in the app.	App fault

With a table active on the box, the box reads the number in the table's units, and neither POST refuses it. On firmware 7.0 and later the reply then gives `ohms` as what the box says its output is (`null` if it didn't say) and `table` as `{slot, units, asked, value, confirmed}`. Firmware 6.1 can't say a table is active, so `activeTable: null` there proves nothing. A script that means ohms: check `activeTable` first, and on 6.1 make sure the box shows no table.

Allowing other computers drops the local-address check. Anyone on the network with the token can set the box. MCP still answers this computer only.