01 Choose a route

AT A GLANCE

For	Picking how a computer drives the box: by hand, script, test program or AI.
You need	The box on USB. Every route below runs on Windows, macOS and Linux.
Try it	The quickest check that a route works, with no box at all:

```
$ ohmstar set 10k --mock
Set 10 kΩ (10000 Ω) on the mock ohmSTAR.
The box cannot report its output, so check that its LCD shows 10000.0.
This was the built-in mock box, so no real box changed.
```

Routes

Route	Best for	Needs	App open?	Ch.
Companion app	Bench work by hand	The app	Yes	00
In-app command line	Typing commands at a connected box	The app	Yes	02
`ohmstar` tool	Scripts, test stations	Node.js 20+	**No**: disconnect it	02
HTTP API	Any language with HTTP; a second computer	The app, server started, token	Yes	03
Python	Test scripts, tables, sensor values	Python 3.8+, `pyserial`	**No**: disconnect it	04
ohmSTAR Console	Older lab PCs, Windows 7 and up; tables by hand	Nothing to install: unzip and run	**No**: disconnect it	04
AI assistant (in the app)	Plain-language requests	The app, a provider and model	Yes	05
MCP (your AI app)	Claude Code, Codex, Claude Desktop	The app, server, AI control on	Yes	05
Raw serial	LabVIEW, MATLAB, TestStand, a terminal	A serial port, 9600 8N1	**No**: disconnect it	02

Rule of thumb: a person at the screen, use the app or its assistant. A script while the app stays open (logging, other pages), use HTTP or MCP. A script on its own, use the tool or Python. A program that only talks serial, use raw serial and check values yourself.

What each route guards

Guard	App, command line, HTTP, Python, MCP	Raw serial
Value checked against the model, rounded to its step	Yes. Out of range is refused, nothing sent; rounding is reported	No. The box answers `y` to anything
Calibration writes	Not reachable (Python, HTTP, MCP); app and `ohmstar send` ask first	Possible with `T,0,…,D0`
Table writes	Python and the app read back and compare; `ohmstar send` needs `--yes`; HTTP has no route	Possible; check yourself

Rules for every route

- **One program per box.** A serial port opens once: the app, the tool, Python and raw serial take turns.
- **Ranges:** ohmSTAR 1 Ω to 25 MΩ in 0.1 Ω steps; ohmSTAR+ 1 Ω to 5 MΩ in 0.01 Ω steps. Write `4700`, `10k`, `1.5M`; lower-case `m` is refused.
- **The box can't report its output** on firmware 6.1. A program knows only what it last sent; someone at the keypad can change it.

- **Set** `I set` (current protection) before connecting a circuit: at the box, or with the Device page keypad. The tool, HTTP API, Python and MCP have no I set command.