



Model Train™
TECHNOLOGY

Speed Stick™

JMRI PANEL & RECEIVER USER MANUAL

A live Speed Stick display for JMRI / PanelPro

For use with the Series 5 — Bluetooth Edition Speed Stick
Connects by USB or Wi-Fi

Model Train Technology LLC

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INTRODUCTION

The Speed Stick JMRI Receiver puts a large, live Speed Stick display right on your computer screen in JMRI. The small receiver listens to your Speed Stick(s), and JMRI shows a sharp on-screen panel — switchable between multiple sticks, resizable, color-customizable, and nameable.

There are two ways to connect it, and you can use either:

- USB — plug the receiver into the computer. Simplest; nothing to configure.
- Wi-Fi — run the receiver on any USB power and let it broadcast to your network (one-time Wi-Fi setup).

Either way there are no IP addresses to look up and no serial ports to pick — JMRI finds the receiver on its own.

WHAT YOU NEED

Item	Requirement
Speed Stick	Any Series 5 (Bluetooth Edition) stick — shows v5.xB on its screen. (Series 4 Standard has no Bluetooth and will not work.)
Receiver	The Speed Stick JMRI Receiver (this device) + a USB cable or USB power source.
Computer	Running JMRI — the free Java Model Railroad Interface, from www.jmri.org .
Software	Two files supplied with your receiver: SpeedStick.py and SpeedStickAssets.py.

INSTALLING THE SOFTWARE

You do this once.

1. Install JMRI from www.jmri.org if you don't have it, and start PanelPro.
2. In PanelPro, choose Scripting → Run Script... — the file chooser opens in JMRI's scripts folder (usually a folder named "jython").
3. Copy BOTH SpeedStick.py and SpeedStickAssets.py into that folder, keeping them together.

That's it — no other files, no subfolders, and nothing to edit.

Keep them together. SpeedStick.py uses SpeedStickAssets.py for its display font and logo. If the companion file is missing or damaged, the panel shows a friendly message telling you so.

TWO WAYS TO CONNECT: USB OR WI-FI

The receiver can feed JMRI two ways. The on-screen panel has a USB / Wi-Fi switch so you can pick.

USB (simplest)

Plug the receiver into one of the computer's USB ports. JMRI finds it automatically — there is no port to choose. A freshly-opened panel starts on USB.

Wi-Fi (wireless)

Power the receiver from any USB charger anywhere on your layout; it broadcasts readings to your network and JMRI listens. This needs a one-time Wi-Fi setup (Section 6), then tap the panel's chip to Wi-Fi.

Default. A brand-new panel comes up on USB. If you've set up Wi-Fi and want to run wireless, tap the USB / Wi-Fi chip to Wi-Fi (it turns green).

QUICK START (USB)

The fastest way to see it working:

1. Plug the receiver into a USB port on the JMRI computer.
2. In PanelPro: Scripting → Run Script... → open SpeedStick.py.
3. The display opens, showing “Scanning...” until it hears a stick. It finds the receiver’s USB port on its own.
4. Turn on a Speed Stick and trigger a reading — the speed appears.

No port to select, no IP address, and no Wi-Fi needed for USB.

First-Time USB Connection

The first time you plug the receiver into a computer, the system sets it up as a USB serial device. What you see depends on your operating system:

- Windows — the first time only, Windows briefly sets up the device (you may see a “Setting up a device” message, and it may be identified as a “USB Serial/JTAG” device or “USB JTAG/serial debug unit” — this is normal and expected) and assigns it a port. This is automatic, takes only a few seconds, and uses a driver already built into Windows — there is nothing to download or install. After that it connects instantly. Moving the receiver to a different USB port may repeat this quick one-time setup, which is normal; the display still finds the receiver on its own.
- Apple Mac — nothing to set up. The receiver is ready as soon as it is plugged in.
- Other systems (for example, Raspberry Pi or other Linux computers) — the receiver is recognized automatically, but some systems may require additional configuration, such as serial-port permissions. That is beyond the scope of this manual.

SETTING UP WI-FI (OPTIONAL)

Only needed if you want the receiver wireless — on a charger, away from the computer. Do it once, from a phone; it takes about a minute.

1. Plug the receiver into USB power. The light flashes fast (setup mode) and it creates a temporary network named SpeedStick-Setup.
2. On your phone: Settings → Wi-Fi → join SpeedStick-Setup. A setup page opens by itself.
3. Pick your Wi-Fi, type its password (it stays visible so you can check it), and tap Connect. The button turns yellow while it tests.
4. The receiver tests the password before saving: Correct → “Connected!”, it saves and restarts and SpeedStick-Setup disappears (that is the sign it worked). Wrong → “Couldn’t connect.”, nothing is saved — just try again.

Be patient after Connect. Your phone drops SpeedStick-Setup (normal) and the receiver takes a few seconds to join your Wi-Fi. The phone page may look stuck even though it connected — give it a moment. There is no IP address to enter.

Then, in JMRI, tap the panel’s USB / Wi-Fi chip to Wi-Fi (green).

THE STATUS LIGHT

The receiver’s light tells you what it’s doing at a glance:

Light	Meaning
Solid on	USB to the computer AND a stick is broadcasting — everything is working.
Slow fade up/down	USB to the computer, but no stick heard yet — connected and waiting.

Light	Meaning
Heartbeat — one pulse every 2 s	Running on Wi-Fi power and connected to your network (wireless mode).
Slow blink	Can't connect — wrong Wi-Fi password, or the router/JMRI isn't reachable.
Fast flutter	Setup mode — SpeedStick-Setup is on, waiting for you to configure it.

Your receiver, your guide. Receivers come with a single light, a color light, or a small screen. Whichever you have, the on-screen Info page (the gear on the panel) shows the status guide that matches your exact receiver — so you never have to guess which chart applies.

OPENING THE DISPLAY

1. In PanelPro: Scripting → Run Script... → SpeedStick.py.
2. The display opens. Close it anytime; reopen it by running SpeedStick.py again.
3. When you quit JMRI, if it asks to “Store panel files,” choose No — the display rebuilds itself each time, and your names, colors, and size are kept separately.

Reopening is safe. Running SpeedStick.py again just reopens the panel; it does not disturb the receiver, which keeps listening in the background.

USING THE DISPLAY

Control	What it does
Big number	Scale speed (SPEED), single-pass time (TIME), or lap time (LOOP)
Units	mph / kph, or ms for a single-pass time
Mode	SPEED = scale speed · TIME = single-pass time · LOOP = lap stopwatch
Scale	Model scale and ratio (e.g. HO 1:87.0)
< >	Switch between the sticks the receiver has heard
S / M / L	Panel size — small, medium, large (remembered)
Color dot	Change the readout color for that stick (remembered)
Pencil	Give a stick a friendly name in JMRI (remembered)
USB / Wi-Fi	Which input JMRI listens on — USB (blue) or Wi-Fi (green)
Gear	Opens the Info page — version and the status-light guide (see next section)
Battery	The selected stick's battery level
MTT logo	Tap it to open the Model Train Technology website

Names are local to JMRI. A name you set with the pencil lives on this computer only. The stick's own app-set name (if any) shows by default; renaming here does not change the stick.

Dormant sticks. If a stick stops broadcasting, it drops off the panel after about 10 seconds — the panel switches to another live stick, or shows “Scanning...” if none remain. Names, colors, and size are saved per stick and survive restarts.

THE INFO PAGE

Tap the gear (to the right of the USB / Wi-Fi switch) to open the Info page. Tap CLOSE to return to the display. It shows two things:

- Version — the software version of the panel and receiver. Handy if you ever call support: just read us the “Receiver firmware” line.
- Status-light guide — a table of what your receiver’s light (or screen) is telling you, matched to the exact receiver you have plugged in.

“Receiver not detected yet.” If the Info page shows this instead of a firmware version, the panel hasn’t heard from the receiver yet — give it a few seconds after plugging in, or check the connection. Everything else on the page still works.

MOVING THE RECEIVER

You can unplug the receiver and move it to a different USB port while JMRI is running. The panel shows “Scanning...” for a few seconds, then finds the receiver on its new port and resumes — no restart needed.

CHANGING OR RESETTNG THE WI-FI

To move the receiver to a different network (or after you change your router’s password), you can reopen the SpeedStick-Setup page without any button — handy when the receiver is sealed

in a case. You do it by powering the receiver on and off three times in quick succession.

There is no power switch. The receiver has no on/off button, so each “power cycle” simply means pulling the USB plug out and pushing it back in. (If it’s plugged into a power strip, you can use the strip’s switch instead — either way, the goal is to cut power and restore it.)

Start with the receiver plugged in and running, then:

1. Unplug it. Pull the receiver out of its USB port (or switch its power off). Wait about one second — long enough for the light to go fully dark.
2. Plug it back in. Push it back into the USB port. The light comes on. Wait about one second.
3. Unplug it again, wait ~1 second, then plug it back in (that’s power-up #2).
4. Unplug it a third time, wait ~1 second, then plug it back in (that’s power-up #3).

On that third power-up the status light changes to a fast flutter and the SpeedStick-Setup network reappears. From here, set up Wi-Fi again exactly as in Section 6.

Keep it quick. Each power-up must be brief — do the next unplug within a second or two, and never leave it plugged in for more than about five seconds between cycles. If it stays powered longer than that, the count resets and you start over. A single normal power-up (plug it in once and leave it) never triggers setup mode, so you can’t reset it by accident.

READING THE DISPLAY

The display shows exactly what the Speed Stick is doing:

- **SPEED** — the scale speed of the train, in mph or kph, for the selected scale.
- **TIME** — a single-pass elapsed time in milliseconds (how long the train took to cross the sensor window).

- **LOOP** — a lap stopwatch, shown as MM:SS:hh (minutes : seconds : hundredths).

The receiver hears every Speed Stick in range at once and keeps them separate, so several people can each run their own stick — each appears in the < > list with its own name and color.

TROUBLESHOOTING

Symptom	Try this
Nothing appears (USB)	Make sure the receiver is plugged into the computer's USB and the panel's chip is on USB. The light should be solid (stick present) or fading (waiting). Trigger a stick.
Nothing appears (Wi-Fi)	Check the light is a heartbeat (connected). Make sure the computer and receiver are on the SAME network and the chip is on Wi-Fi. Redo Wi-Fi setup if it's slow-blinking.
Panel says a file is missing	Keep SpeedStickAssets.py in the same folder as SpeedStick.py.
A stick isn't in the < > list	Only Series 5 (Bluetooth) sticks broadcast. Make sure the stick is on and within range of the receiver.
SpeedStick-Setup won't appear	It only shows in setup mode (fast flutter). Use the 3-power-cycle reset (Section 11).
Still nothing on a Mac (Wi-Fi)	The Mac firewall may block incoming data. In System Settings → Network → Firewall, allow incoming for JMRI (Java), or turn the firewall off briefly to test.

SUPPORT

For help with your Speed Stick or the JMRI receiver, visit Model Train Technology online or contact us through the support page on our website.

WARRANTY

ONE YEAR MANUFACTURER WARRANTY: We warrant this **product** to be free from defects in workmanship and materials, under normal residential use and conditions, for a period of one (1) year from the original invoice date. Shipping and handling fees are to be paid for by the customer.

LIMITATION OF LIABILITY

UNDER NO CIRCUMSTANCE SHALL COMPANY OR ITS AFFILIATES, PARTNERS, SUPPLIERS OR LICENSORS BE LIABLE FOR ANY INDIRECT, INCIDENTAL, CONSEQUENTIAL, SPECIAL OR EXEMPLARY DAMAGES ARISING OUT OF OR IN CONNECTION WITH YOUR USE, OR INABILITY TO USE THE PRODUCT, WHETHER OR NOT THE DAMAGES WERE FORESEEABLE AND WHETHER OR NOT COMPANY WAS ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, COMPANY'S AGGREGATE LIABILITY TO YOU SHALL NOT EXCEED THE AMOUNT OF THE PRODUCT. THE FOREGOING LIMITATION WILL APPLY EVEN IF THE ABOVE STATED REMEDY FAILS OF ITS ESSENTIAL PURPOSE.



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