Strip 2.9″

E-paper label with an RGB LED and a button

For SMD magazines, bins and shelf edges. Your ERP decides what the label shows and when it lights up; the button sends a confirmation back.



Render from the design model, with invented example data on the panel. Nothing has been fabricated yet.



From the front: panel, LED window, button key and NFC mark.



From behind, on the magazine adapter plate with its foam pad.

Fits an SMD magazine
Sized for the 170 × 50 mm free area on the side. The adapter plate keeps the antenna 5 mm off the aluminium.

A button for the picker
Presses go back to the control center and on to your ERP.

Light before the redraw
The LED is designed to start blinking within about 2 s of a request, while the panel still redraws.

Tap to pair
Register a label with a phone over NFC, or scan the QR code on its back.

In development. The design is captured in KiCad and build123d (revision A). No board has been fabricated and nothing has been tested on hardware; every value here is a design target or an estimate until it is measured on prototypes.

Specifications

Design in the design files · Target to be verified on prototypes · Estimate calculated, not measured · Planned not built yet

Display

Panel	2.9″ e-paper, 296 × 128 pixels	Design
Colours	Strip BW: black, white Strip Colour: black, white, red, yellow	Design
Active area	66.9 × 29.1 mm	Design
Redraw	BW: about 3 s, partial 0.3 s Colour: about 16 s	Estimate
New image shown	Within 10 s of a request (BW)	Target
Without power	Keeps showing the last image	Design

Light and button

LED	RGB behind a light pipe, 4 mm window; white and yellow mixed	Design
Reaction	Blinks within 2 s of a request	Target
Visibility	Colours told apart at 5 m in factory light; ±60°	Target
LED limits	Enforced in firmware: 20 % duty per pattern, 300 s per command; not yet verified on hardware	Design
Button	One, flexible key; short, long (≥ 1 s) and double press	Design

Radio and pairing

Radio	Bluetooth 5.4 Electronic Shelf Label profile (PAwR), sync every 1–2 s	Design
Module	nRF54L15 radio module with integrated antenna and its own radio approvals	Design
Security	ESL profile encryption with bonded keys; unencrypted commands are rejected	Design
Pairing	NFC tap with a phone, or QR code on the back	Design
Range	30 m line of sight; at most 6 dB lost on a metal magazine	Target

Power

Battery	Two CR2450 in parallel, 1,240 mAh nominal. Strip BW also with one cell	Design
Battery life	5 years or more at 4 updates and 10 locate requests a day	Target
Power model	BW 8.8–10.1 years, Colour 7.0–7.8 years, two cells, LED at ≤ 10 % duty	Estimate
Battery door	Snap door on the back; a coin or flat screwdriver releases it. Coin-cell compliance of the latch still open	Design

Mechanical

Size	100 × 44 × 12 mm	Design
Weight	About 45 g with cells	Estimate
Mounting	Slides onto an adapter plate with a VHB foam pad and latches; a screwdriver releases it	Design
On metal	The plate keeps the antenna end 8.8 mm off the metal	Design
Housing	Static-dissipative plastic. Prototypes printed in PETG-ESD; production in antistatic PC/ABS	Target

Environment

Temperature	0 to 40 °C, indoor	Target
Ingress	IP40, dry rooms	Target
ESD	IEC 61000-4-2 ±8 kV air; surface ≤ 100 V for use in an EPA	Target
Drop	1 m onto concrete, six faces	Target
Flammability	UL 94 V-0 or V-2 enclosure material	Target

Compliance

- **Not certified, not CE marked yet.** Before sale the label gets its own assessment under the Radio Equipment Directive: EN 300 328, EN 301 489-1/-17, EN 62368-1 and EN 62311.
- The radio module's approvals do not cover the finished label on their own.
- RoHS and REACH are design requirements. WEEE and battery take-back are arranged before the first sale.

Availability

- **Not for sale yet.** Pilot sets go to a few manufacturers first. Ask at service@newmatik.com.
- Two versions: **Strip BW** (black and white) and **Strip Colour** (four colours).
- Works with the Merkora access point, bridge and control center.