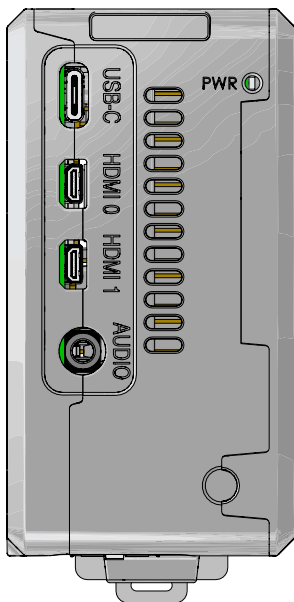


# SL-RP4 User Guide

This specification document provides detailed information about the SL-RP4, a variant of the Raspberry Pi 4 that is UL listed.

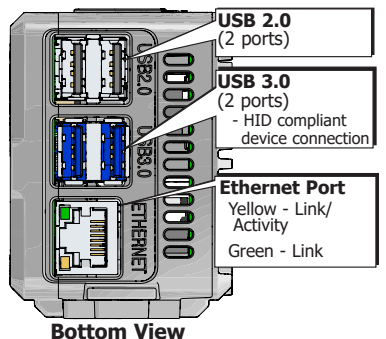
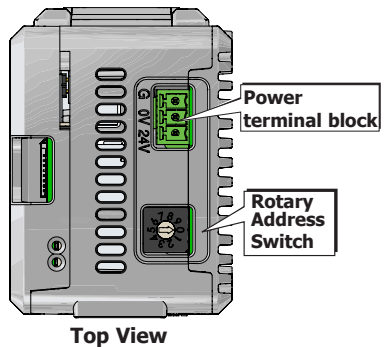
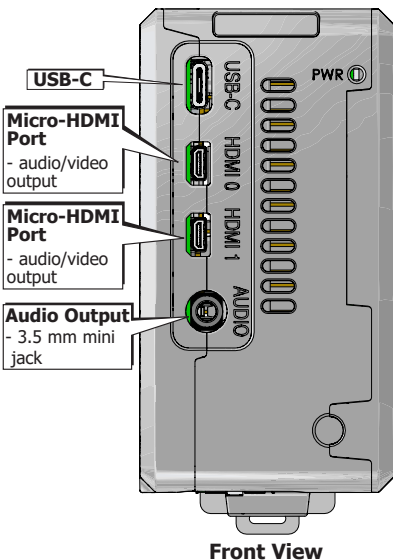


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# Product Overview

The SL-RP4 is an industrial solution based on the Raspberry Pi 4 Model B. A custom aluminum enclosure enables optimal performance within a wide ambient temperature range (0–50°C) with no throttling. A specialized hat board offers an input for a 24V class 2 power supply and a rotary switch for device addressing. The device also supports DIN rail mounting, suitable for industrial applications.



# Technical Specifications

## Hardware Features

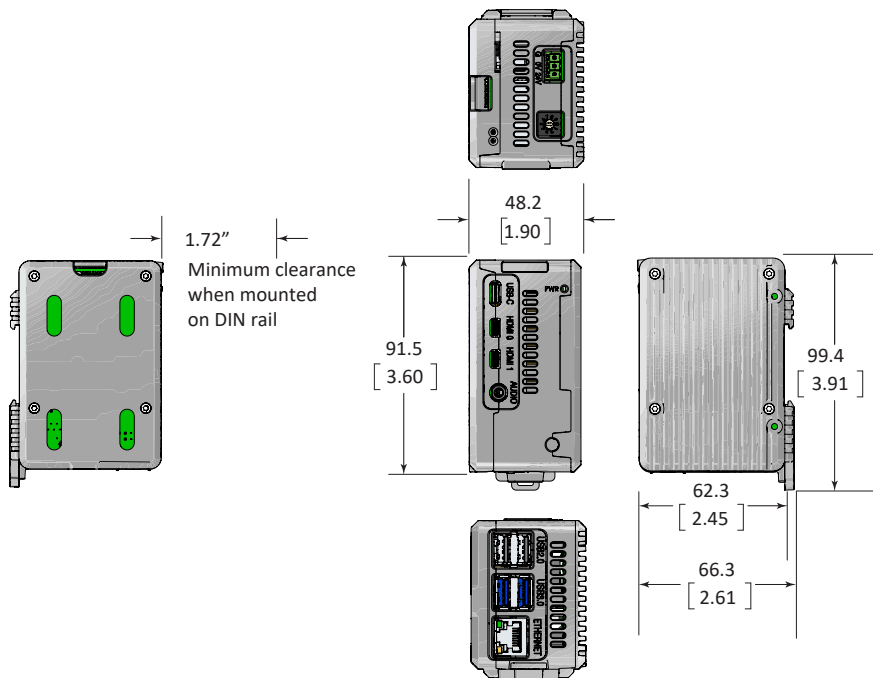
<b>Processor</b>	Broadcom BCM2711 quad-core Cortex-A72 (ARMv8-A) 64-bit SoC
<b>Memory</b>	2GB LPDDR4-3200 SDRAM
<b>Connectivity</b>	Gigabit Ethernet, 2.4 GHz and 5.0 GHz IEEE 802.11ac wireless, Bluetooth 5.0, BLE
<b>Ports</b>	Two USB 3.0, two USB 2.0, two micro HDMI ports, 3.5mm audio jack
<b>Storage</b>	16 GB MicroSD card
<b>Power</b>	5V/3A DC via USB-C connector; Class 2 External 24VDC $\pm 25\%$ @ 700mA
<b>Operating System Compatibility</b>	The SL-RP4 is compatible with various operating systems, including Raspberry Pi OS, Linux distributions, and third-party operating systems.

## General Specifications

<b>Operating Temperature</b>	0° to 50°C (32° to 122°F)
<b>Storage Temperature</b>	-20° to 70°C (-4° to 158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Altitude</b>	2,000 meters max
<b>Pollution Degree</b>	2
<b>Environmental Air</b>	Pollution Degree 2 environment, no corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Overvoltage Category</b>	II
<b>Heat Dissipation</b>	15W
<b>Weight</b>	9.6 oz. (272.2 g)
<b>Enclosure Type</b>	Open Equipment
<b>Agency Approvals</b>	UL 61010 and UL 61010-2-201 File E139594, Canada and USA CE (EN 61131-2 EMC, EN 61010-1 and EN 61010-2-201 Safety)*

\*See CE Declaration of Conformance for details.

# SL-RP4 Dimensions



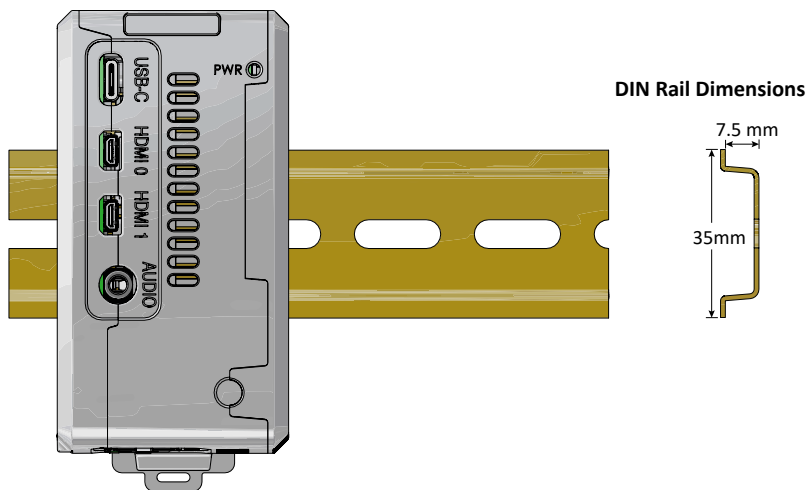
## Removable Terminal Block Specifications

Part Number	Dinkle EC350V-S2250403P
Number of Positions	3 screw terminals
Pitch	3.5 mm
Wire Range	28–16 AWG solid conductor 28–16 AWG stranded conductor
Screw Driver Width	1/8 inch (3.175 mm) maximum
Screw Size	M2
Screw Torque	1.7 lb·in (0.4 N·m)



# Mounting Clearances

The SL-RP4 can be secured within an enclosure or cabinet using mounting rails. Use rails that conform to DIN EN standard 50022. The rails are approximately 35mm high, with a depth of 7.5 mm.



- Provide a minimum clearance of 2 inches (50mm) on all sides of the assembled system to allow proper airflow.
- Allow extra clearance for door-mounted operator panels, push buttons, lights, and other items.
- Maintain a minimum of 3 inches (76mm) of vertical clearance between the module(s) and any wire duct.
- Ensure a minimum of 7.2 inches (183mm) of vertical distance from chassis to chassis in a multiple unit installation.

# Installation

## **Mounting within an Enclosure:**

Your selection of a proper enclosure is important to ensure the safe and proper operation of your SL-RP4. Applications for the SL-RP4 vary and may require additional hardware considerations. The minimum considerations for enclosures include:

- Conformance to electrical standards
- Protection from the elements in an industrial environment
- Common ground reference
- Not exceeding the specified maximum ambient temperature
- Access to the equipment
- Security or restricted access
- Sufficient space for proper installation and maintenance of the equipment.

## **Mounting Position:**

Mount the SL-RP4 horizontally, as shown in the cabinet illustration on the following page, to provide proper ventilation. Do NOT mount vertically, upside down, or on a flat horizontal surface.

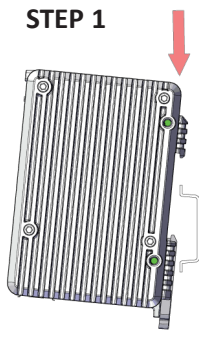
## **Temperature Considerations:**

The SL-RP4 enclosure should be installed in an environment that falls within the specified equipment operating temperature range. If the environment temperature deviates above or below the specified operating temperature range, measures such as cooling or heating the enclosure should be taken to remain within the range specification.

# Installation

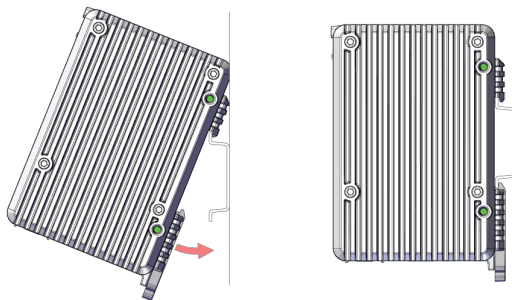
Follow the steps below to mount SL-RP4 module onto DIN rail.

## STEP 1



Insert DIN rail in mounting slots.

## STEP 2



Rotate module ensuring clip snaps onto rail.



Module securely mounted on DIN rail.

# Installation

## Working with the SL-RP4 out of the box:

1. Connect ethernet cable and provide 24V power to the SL-RP4 (or use USB-C cable to provide power)

On Windows PC:

1. Open browser (chrome, firefox, edge, etc)
2. In the address bar enter `http://sl-rp4.local:8080`
3. In the OpenPLC Webserver that opens in the browser enter username and password (default username: `openplc` password: `openplc`)
4. You have now entered into OpenPLC dashboard running on SL-RP4
5. It is highly recommended to change default dashboard password (username: `openplc`, password: `openplc`), and SL-RP4 system default password (username: `sl-rp4` password: `sl-rp4`).

## Changing Open PLC Dashboard Password:

1. Log in to OpenPLC dashboard using your browser (address: `http://sl-rp4.local:8080`)
2. On the dashboard, click on Users on the left menu
3. On the table that appears, click on the "OpenPLC User" entry
4. Change the username and password and then click on "Save changes"



# Installation

The screenshot shows the OpenPLC web interface. On the left is a sidebar menu with options: Dashboard, Programs, Slave Devices, Monitoring, Hardware, Users (highlighted), Settings, and Logout. Below the menu, it says 'Status: Stopped' and has a 'Start PLC' button. The main area is titled 'Edit User' and shows the 'OpenPLC User' profile. The form includes fields for Name (OpenPLC User), Username (openplc), Email (openplc@openplc.com), Password (masked with dots), and a Picture field with a 'Choose File' button. At the bottom right are 'Save changes' and 'Delete user' buttons. The top status bar indicates 'Stopped: Blank Program' and 'OpenPLC User'.

## Changing Linux Default User Password:

Upon initial setup, your SL-RP4 comes with a default username and password:

**Username:** sl-rp4

**Password:** sl-rp4

For security reasons, it is highly recommended to change the default password as soon as possible. Follow these steps below to update your password:

- **Connect Peripherals:**

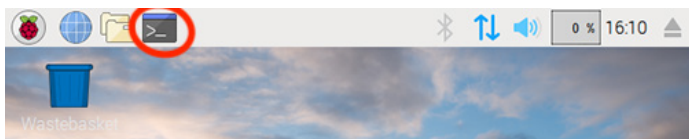
- Connect to micro HDMI cable, a keyboard and a mouse to the SL-RP4.

- Power on your SL-RP4.

- **Open a Terminal:**

- You can access the terminal by clicking on the terminal icon in the taskbar or by using the keyboard shortcut **Ctrl + Alt + T**.

# Installation



- **Enter the passwd Command:**

- Type the following command and press **Enter**: passwd

- **Follow the Prompts:**

- You will be prompted to enter your current password (sl-rp4)
  - After entering the current password, you will be asked to enter a new password. Note the characters will not be displayed for security reasons.
  - Re-enter the new password to confirm.

- **Password updated:**

- Once the process is complete, you will receive a confirmation that your password has been successfully updated.

## **Important Security note:**

- Choose a strong and unique password to protect your SL-RP4 from unauthorized access.
- Regularly update your password to enhance security.

## **Grounding**

A sound common ground reference (earth ground) is essential for proper operation of the SL-RP4. One side of all control circuits and power circuits along with the ground lead, must be properly connected to earth ground (earthing) by connecting the earth ground pin of the 24V terminal block to the earth ground of the enclosure/panel. This must be a single-point ground (i.e. copper buss bar) for all devices in the enclosure that require an earth ground.

# Safety Precautions

**WARNING:** Thank you for choosing Synergy Logic equipment. Prior to installation or operation, carefully read this publication and any relevant materials. To mitigate potential safety risks, comply with local and national codes governing equipment installation and operation. Ensure adherence to the National Fire Code, National Electrical Code, and codes from the National Electrical Manufacturer's Association (NEMA) at a minimum. Local regulatory offices can provide additional guidance on codes and standards. Failure to comply may result in equipment damage or serious injury. Our products are not intended for High Risk Activities and do not come with a warranty for such applications. For warranty and safety details, refer to our Limited Warranty and Limitation of Liability statement which can be found at [www.synergy-logic.com](http://www.synergy-logic.com). For inquiries or additional information, contact us at [support@synergy-logic.com](mailto:support@synergy-logic.com). Synergy Logic reserves the right to modify products and publications without notice.

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To obtain warranty service, technical support, product inquiries and additional information, please email us at **support@synergy-logic.com**

NOTE: Do not return parts directly to Synergy Logic without first obtaining return authorization.

Unauthorized returns can result in unavoidable delays.