



Datasheet

STR-3221-R1 Module

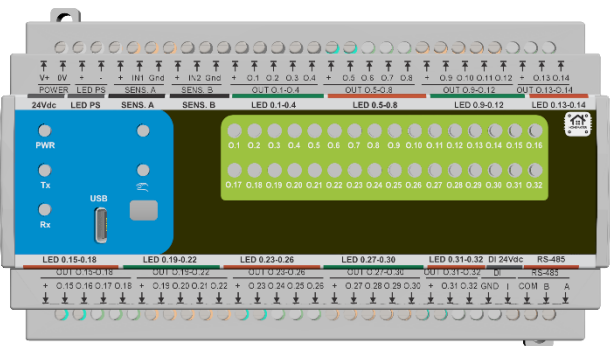
Part No. 0000010

About the product

The STR-3221-R1 is a programmable LED lighting controller specifically designed for staircase illumination effects. Built for integration with MiniPLC and MicroPLC platforms via RS-485 Modbus RTU, it delivers smooth, animated step lighting sequences triggered by motion sensors or manual switches.

Powered by the RP2350 microcontroller, it supports advanced automation logic, making it ideal for smart homes, hotels, commercial stairwells, and architectural lighting.

With ESPHome support, the module is fully compatible with Home Assistant, enabling advanced lighting scenes, automation, and responsive control.



Electrical Data

Power supply	24VDC, 220VAC, USB-C female (5V DC via USB-C) for programming
Power consumption	typ. 1.85W, max. 3W
Raspberry PI	RP2350A
Output Channels	<ul style="list-style-type: none">32 LED Output Channels<ul style="list-style-type: none">Controlled via 4× TLC59208F constant-current I²C LED driversMOSFET-switched outputs (SI2307A) for 12 V / 24 V LED stripsSmooth step-by-step fade and dimming effects
Digital Inputs	3 isolated, surge protected digital sourcing inputs logic 0: 0 ... 9.2VDC undefined: 9.2 ... 15.8VDC logic 1: 15.8 ... 24VDC
RS485	Half-duplex, data rate 115,2 kbps,

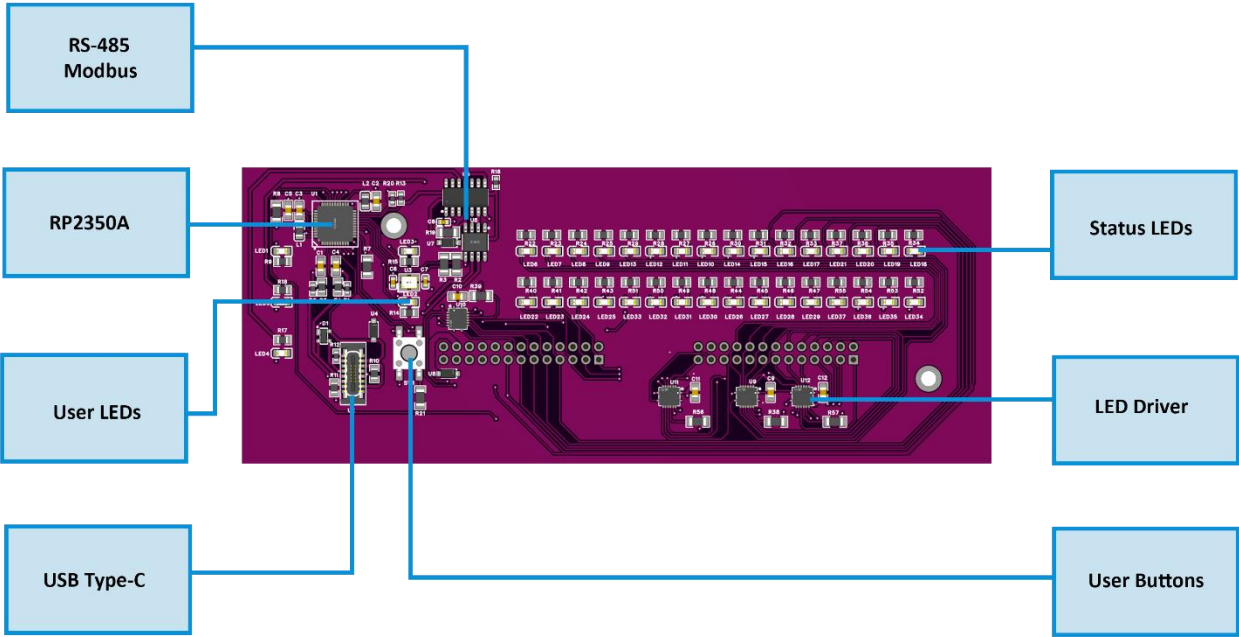
	short-circuit current limited and protected against excessive power dissipation, fail-safe for open circuit, surge protected
USB	USB type-C USB Specification 2.0 compliant, ESD protected, Silicon Labs CP2102N USB-to-UART bridge controller, Virtual COM Port Device Drivers, Works with existing COM port applications, Supported on Windows, Mac, and Linux
Real-time clock	PCF8563
Ambient temperature	0 ... 40°C / 32 ... 104°F
Humidity	max. 95% r.H. (non condensing)

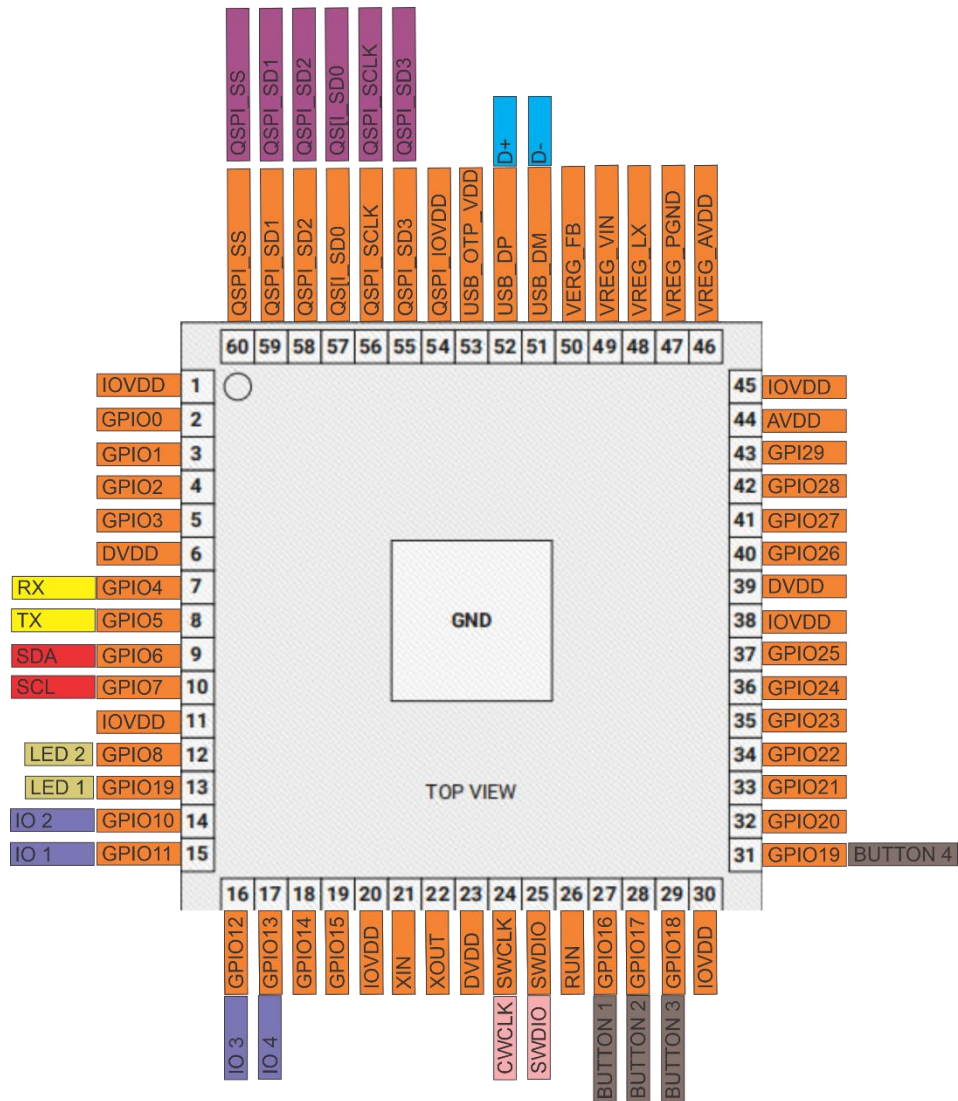
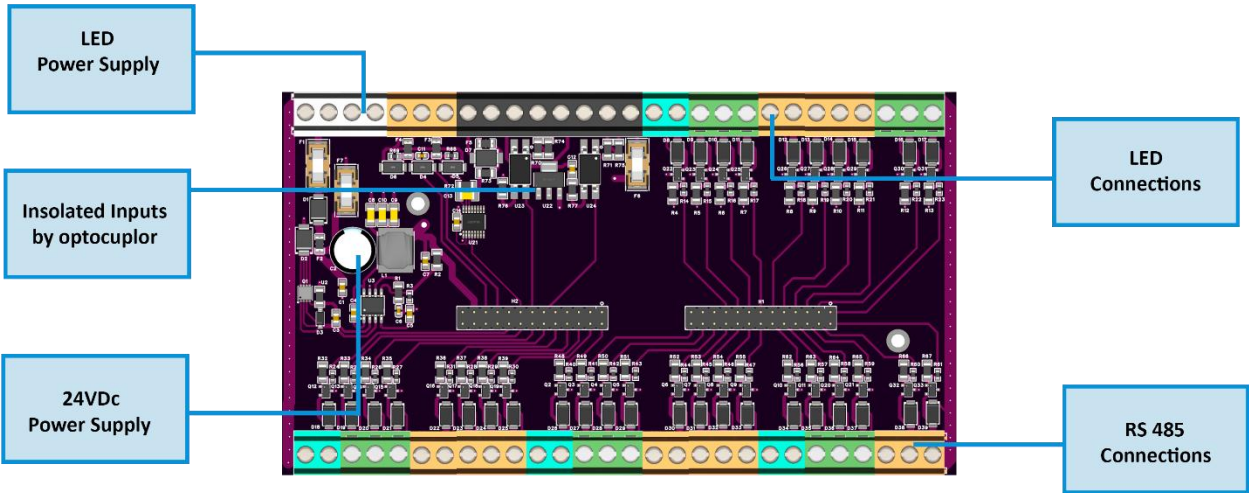
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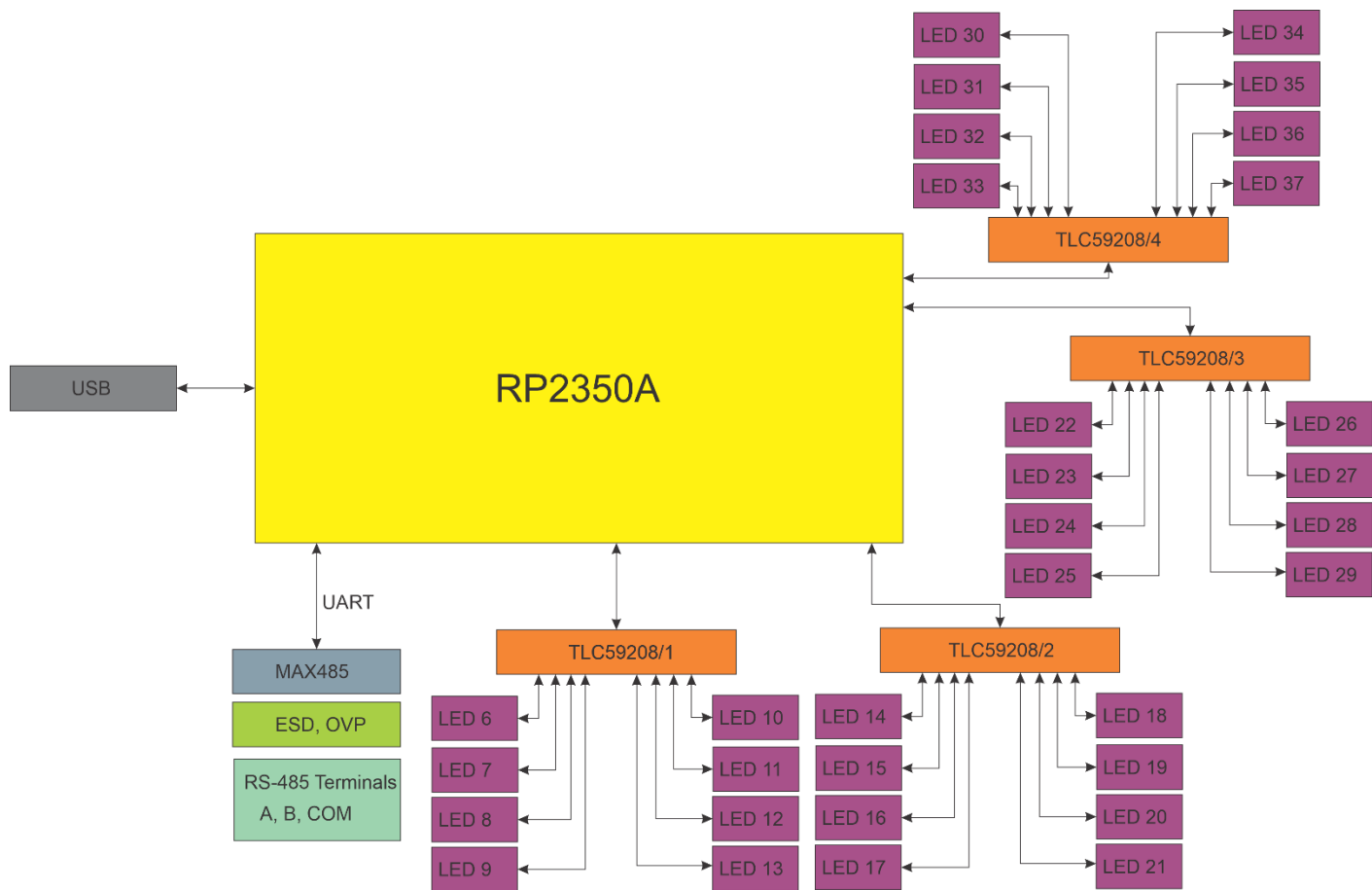
High loads at the digital outputs result in heat development, which can influence the lifetime in the long run. We recommend using coupling relays with loads greater than 5A.

Connections

Terminals	300V 20A 26-12 AWG 2.5mm2, Torque of terminal blocks 0.5 ... 0.6Nm /0.37 ... 0.44 lbf ft, Pitch: 5.08mm(.200")
USB	USB type-C





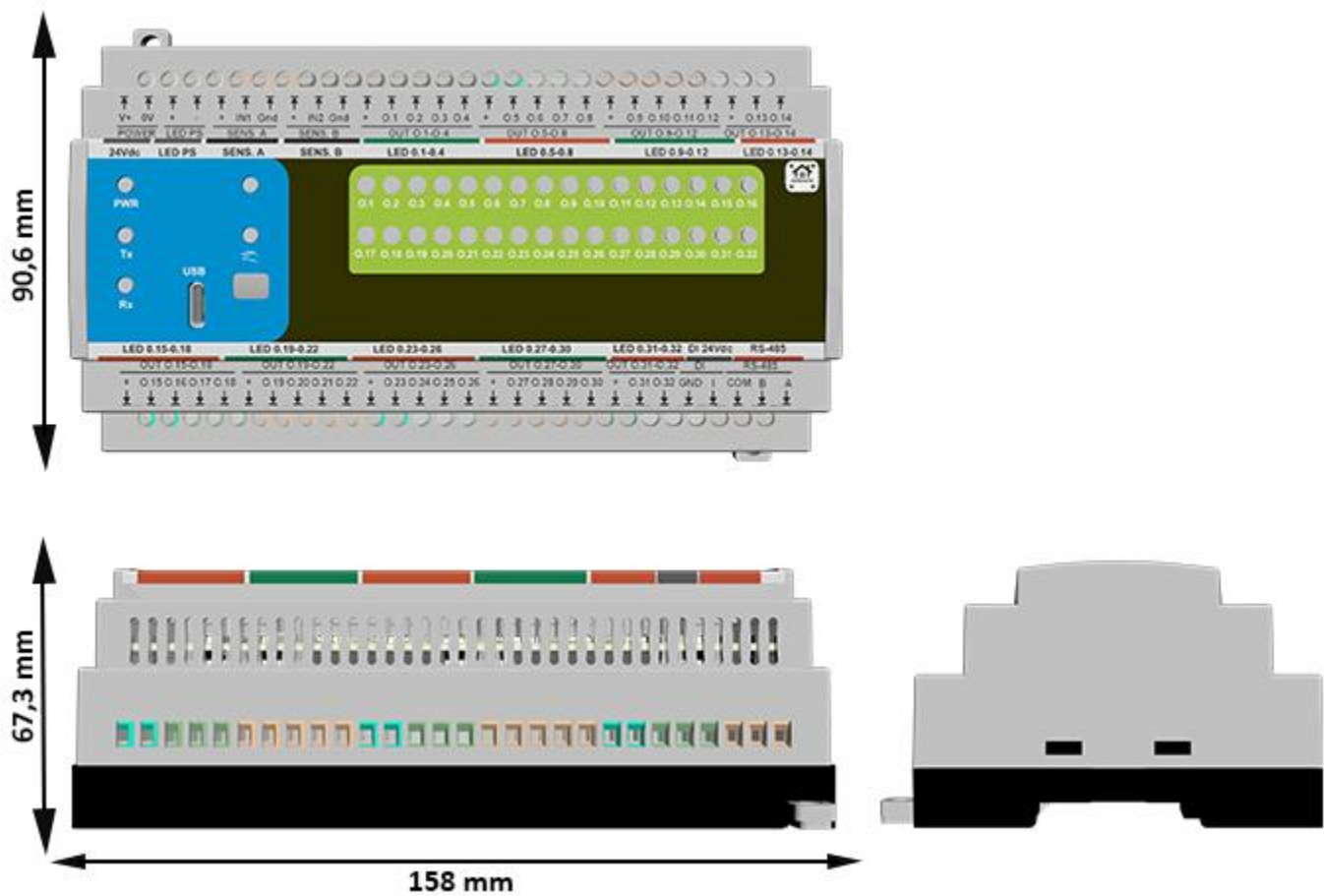


Product Characteristics

Mounting type	DIN rail according to EN50022, 35mm
Colors	Light Gray/Black, Smoke Panel
Material	PC/ABS/V0
Finish	Matte

Weight & Dimensions

Net weight	000g
Total weight	000g
Product dimensions	157.4 x 91 x 58.4 mm (6.2 x 3.58 x 2.3 in) (LxWxH), 9 division units
Pack size	230x140x87mm (9 x 5.5 x 3.4 in) (LxWxH),



Certifications & Standards

Safety rating	IP20
Operation	Type 1 (UL60730-1, CSA E60730-1)
Rated impulse voltage for digital output	2.5kV (UL60730-1, max. Altitude 2000m)
Degree of pollution	2
Certifications	CE, UL60730-1, CSA E60730-1

The STR-3221-R1 enables a variety of connected devices to work with HOMEMASTER technology.
See <https://www.home-master.eu> for more details.

Communication between iPhone, iPad, Apple Watch, HomePod, or Mac and the HomeKit- enabled STR-3221-R1 is secured by ESPHome and Home Assistant technology.

Installation must be carried out by a qualified electrician in accordance with the relevant regulations.

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