



## **SEVIO R200**

### **Installation guide**



## Legal information

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Under no circumstances shall Sevio be responsible for any loss of data or income or any special, incidental, and consequential or indirect damages howsoever caused.

More information about Sevio can be found at the following Internet address: <https://sevio.it/>.

## Version history

Revision	Date	Description
23_03	2023/03/22	Emission
24_04	2024/04/02	First revision



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## Safety

### Important safety notes



Read this user guide carefully before mounting, installing and operating the device.



Do not operate the device in any other environmental conditions than it is designed for.

### Before using this device

Read this manual completely and gather all information on the device. Make sure that you understand it fully. Check that your application does not exceed the safe operating specifications for this device.

### Before installation

This device should only be installed by qualified personnel.

## Regulatory notices

### Simplified EU declaration of conformity

Hereby, Sevio Srl declares that the equipment is in compliance with EU directives. The full EU declaration of conformity and other detailed information are available at the respective product page at <https://sevio.it/>.

### United States (FCC)

This device complies with Part 15 of the FCC rules subject to the following two conditions: 1. This device may not cause harmful interference. 2. This device must accept all interference received, including interference that may cause undesired operation.

**Note:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### Canada (IC)

This device complies with Industry Canada's license-exempt RSSs. Operation is subject to the following two conditions: 1. This device may not cause interference. 2. This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: 1. l'appareil ne doit pas produire de brouillage. 2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

### Agency approvals and standards compliance

Description	Standards
Health and Safety	EN 62368-1:2020 + A11:2020
	EN 50364:2018
EMC	ETSI EN 301 489-1 V2.2.3
	ETSI EN 301 489-3 V2.3.2
	EN 55032:2015 + A11:2020
	EN 55035:2017 + A11:2020
FWL	ETSI EN 300 330 V2.1.1
RoHS	EN IEC 63000:2018

## Warranty

Any guarantee claim must be received before the end of the 2 years guarantee period and is to be enclosed with the returned claimed defective product within this same period, and must include Sevio return authorization number (RM No.).

## Care recommendations

Follow the care recommendations below to maintain full operation of device and to fulfill the warranty obligations.

This device must not be operated with covers or lids removed.

Do not drop, knock or shake the device, rough handling beyond the specification may cause damage to internal circuit boards.

Do not use harsh chemicals, cleaning solvents or strong detergents to clean the device.

Do not paint the device. Paint can clog the device and prevent proper operation.

Do not expose the device to any kind of liquids (rain, beverages, etc). The device is not waterproof. Keep the device within the specified humidity levels.

Do not use or store the device in dusty, dirty areas, connectors as well as other mechanical parts may be damaged.

If the device is not working properly, contact the place of purchase, nearest Sevio distributor office or Sevio technical support.

**Note:** Do not use damaged equipment and/or accessories such as damaged power cord.

**Note:** Do not open the device. There are no serviceable parts inside.

**Note:** Product warranty gets void and any liability will be disclaimed when opening the device.

**Note:** Never unplug device from the power connector by holding the cable only, always disconnect the cable by applying force directly to the connector.

## Symbols



CE marking, the product complies with the requirements of the applicable EU directives.



Direct current, DC



This symbol means that the product shall not be treated as unsorted municipal waste when disposing of it. It needs to be handed over to an applicable collection point for recycling electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help to reduce hazardous substances and prevent potential negative consequences to both environment and human health, which could be caused by inappropriate disposal.



## General description

SEVIO R200 is a Networking device aimed at providing a secure interconnection between industrial automation networks and external/remote IP networks.

It is mainly used as a network segment to isolate WAN and LAN networks. It offers Ethernet and serial, CAN bus interfaces (only for R200-RC) on the industrial automation side; while on the Networking side it provides Ethernet and cellular interfaces.

Along with the hardware device Sevio provides a managed VPN infrastructure to allow remote access to routers and automation networks. The VPN infrastructure is accessible from PCs, smartphones, tablets via standard protocols.

The typical scenarios can be identified in:

- Remote access to automation devices for the purpose of troubleshooting, maintenance, control, assistance, reconfiguration, data collection.
- Machine to remote machine communication.
- Local data collection, processing, storage, retrieval and transmission to outside premises.
- An application platform to enable the integrator to deploy software where both connectivity to the outside world and to automation networks/buses are available.
- Providing a safe Internet access to the automation devices.

Typical users of Sevio routers are:

- OEMs
- System integrators
- End users

The device can only be installed by instructed or skilled persons in electrical cabinets onboard or in the vicinity of the machines.

The configuration may be performed locally configuring the web server or web application named Sevio Portal.

Although requiring a certain level of competence in Networking and Security, the configuration is usually very simple and automated.

## Package content

The package contents of following main components:

- 1 Sevio router (R200 or R200-SC)
- 1 power terminal block connector
- 1 quick guide

If any components are missing or damaged or if you have any questions regarding the contents, contact us at [support@sevio.it](mailto:support@sevio.it).

## Product identification and version information

Identification information is available on the left side of the device:



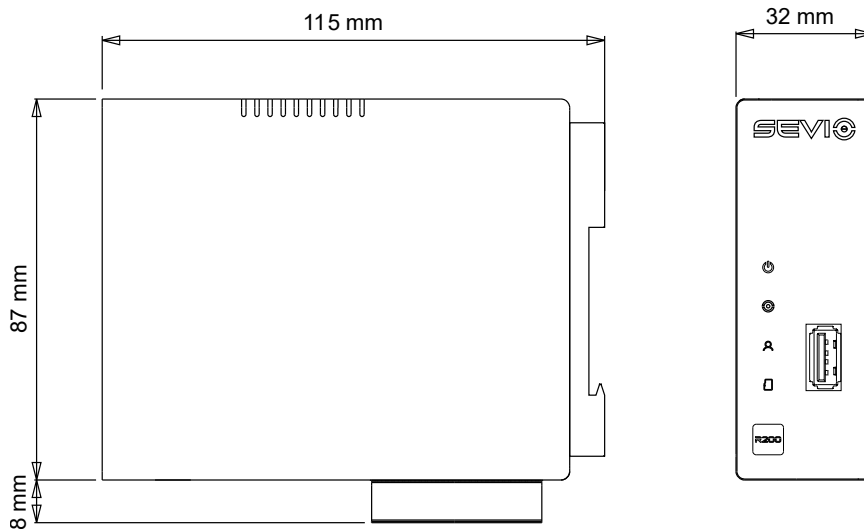
Specification	Value	Notes
MODEL	R200	R200 router
	R200-SC	R200 router with serial / CAN bus option
MFGD	YYYYMMDD	Manufacturing date
SERVICE TAG	XXXXXXX	7-characters alphanumeric unique code given to the device
REGISTRATION KEY	XXXX-XXXX-XXXX	Registration key for Sevio Portal
BAR CODE		Service Tag barcode



## Mechanical installation

### Mechanical overview

<b>Maximum dimensions without cables</b>	95 x 115 x 32 mm (H x D x W)
<b>Space needed for installation</b>	Approx. 190 x 125 x 90 mm
<b>Enclosure</b>	Aluminum
<b>Weight</b>	300 g
<b>IP Protection</b>	IP30

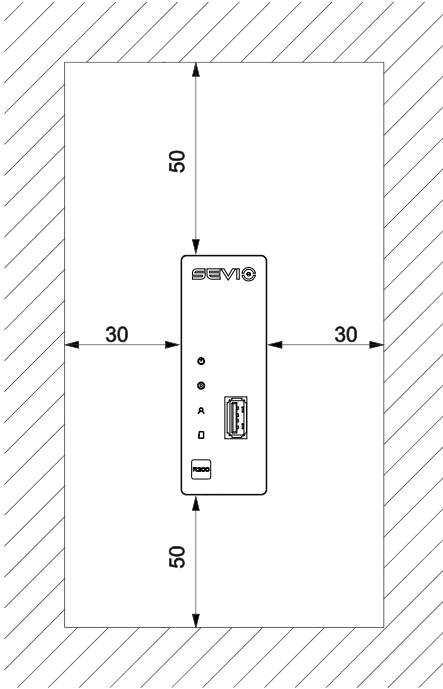


Mechanical drawings files are available at <https://sevio.it/>.

### Environmental

<b>Operating temperature</b>	-20 °C to 65 °C
<b>Storage and transport temperature</b>	-40 °C to 85 °C
<b>Operating humidity</b>	10% to 90% RH (non condensing)
<b>Storage and transport humidity</b>	10% to 90% RH (non condensing)
<b>Operating altitude max.</b>	3000 m

## Cooling



**Note:** measurement unit in mm.

This device uses passive convection cooling. For this reason sufficient air circulation should be guaranteed.

The amount of cooling needed depends on the ambient temperature, the transmission power and the intensity of data traffic.

If operating at extremes ensure that proper clearances, as shown in drawing, are given.

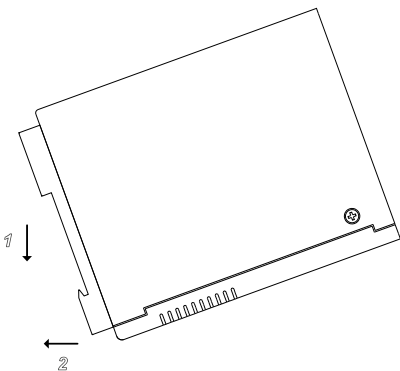
Avoid exposure to direct sunlight.

## Temperature Alarms

This product has integrated temperature sensors for monitoring the internal device temperature. The limits for the sensors are set so, that operation without alarm is ensured for ambient temperatures as specified for the product assuming correct installation.

Whenever the sensed temperature exceeds the specified limit the operation will be suspended and resumed automatically when the temperature decreases under a safe value.

## Mounting



This device is equipped with a spring-loaded clip to hold the device on a standard 35 mm DIN rail.

The device is intended to be mounted vertically.

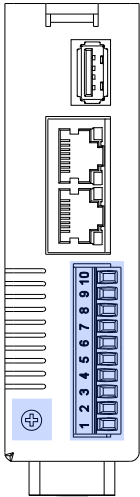
The top of the hook must first be set on the DIN rail. Then just press down (step 1) and at the same time rotate the device until it is flush with the rail (step 2). Finally, release the force on the spring and check that it gets properly seated.

# Electrical installation

## Power supply

Power the router through the connector at the bottom of the device, as shown in the figure.

The device is protected against polarity inversions.



PIN	Mark	Description
1	V+	Power Supply
2	V-	Power Ground
3	O1+	Digital Output 1 V+
4	O1-	Digital Output 1 V-
5	O2+	Digital Output 2 V+
6	O2-	Digital Output 2 V-
7	I1+	Digital Input 1 V+
8	I1-	Digital Input 1 V-
9	I2+	Digital Input 2 V+
10	I2-	Digital Input 2 V-

Power connector: MC 1.5/10-STF-3.81

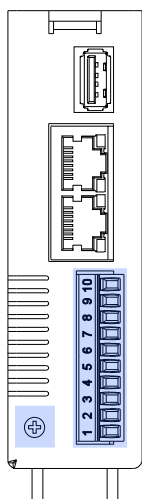
**Note:** Signal ground and chassis ground are connected via a low impedance to a single point. Use the grounding screw to connect the chassis to earth ground. An earth ground connection is optional.

	Min.	Typ.	Max.	Conditions
<b>V+ voltage</b>	+12 Vdc		+30 Vdc	
<b>V+ voltage (absolute limits)</b>	+9.6 Vdc		+33 Vdc	
<b>V+ input current</b>			0.5 A	Full load @ V+ = 30 V
<b>V+ input current</b>			1.9 A	Full load @ V+ = 12 V
<b>Input power</b>			23 W	Full load
<b>Idle power</b>		2.5 W		Idle CPU, no ports connected

**Note:** The equipment shall be supplied by ES1/SELV power sources according to IEC/EN 62368-1, protected by a 2.5 A fuse. Transient voltage has been considered as 1500 V<sub>peak</sub>.

## I/O connection

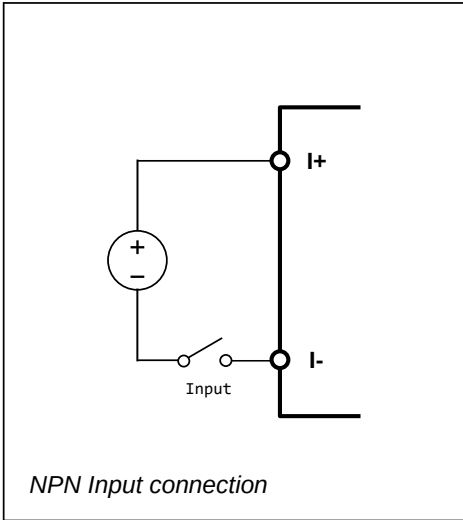
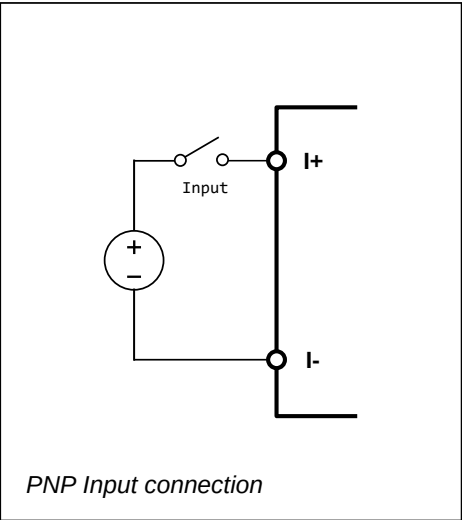
The device has 2 digital inputs and 2 digital outputs overvoltage, overcurrent and short-circuit protected. Power, ground and I/Os are insulated and photo-coupled.



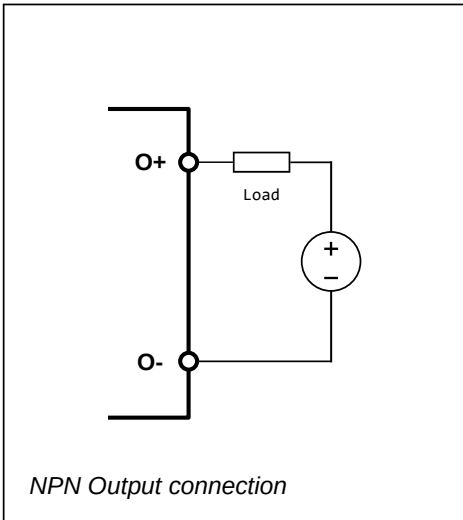
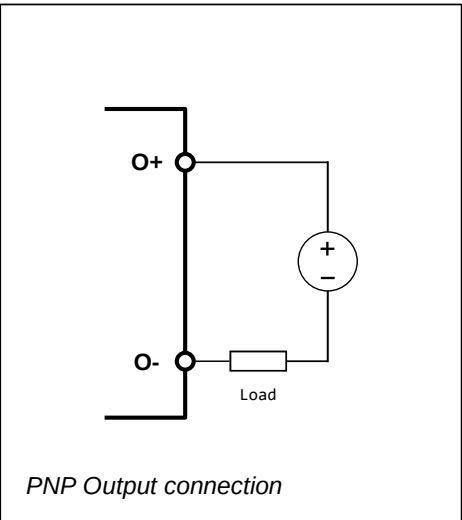
PIN	Mark	Description
1	V+	Power Supply
2	V-	Power Ground
3	O1+	Digital Output 1 V+
4	O1-	Digital Output 1 V-
5	O2+	Digital Output 2 V+
6	O2-	Digital Output 2 V-
7	I1+	Digital Input 1 V+
8	I1-	Digital Input 1 V-
9	I2+	Digital Input 2 V+
10	I2-	Digital Input 2 V-

	Min.	Typ.	Max.	Conditions
<b>Isolation (both DI &amp; DO)</b>			1.5 kV	
<b>DI [1÷2] input voltage</b>	0 Vdc		+30 Vdc	
<b>DI [1÷2] input current</b>	1 mA		5 mA	
<b>DI [1÷2] input low threshold</b>			3.0 Vdc	
<b>DI [1÷2] input high threshold</b>	4.5 Vdc			
<b>DI max frequency</b>			10 kHz	
<b>DO [1÷2] output voltage</b>	0 Vdc		+30 Vdc	
<b>DO [1÷2] output current</b>			200 mA	@ V+ = 30 V

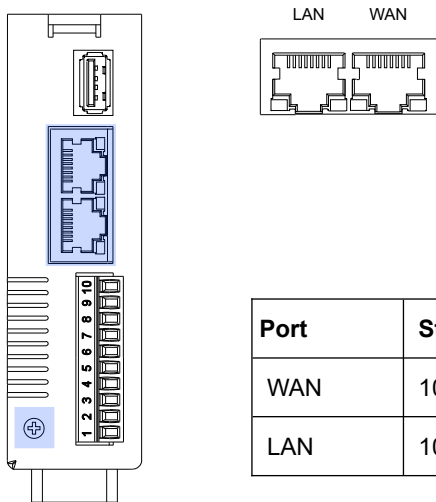
## Wiring the Digital Inputs (DI)



## Wiring the Digital Outputs (DO)



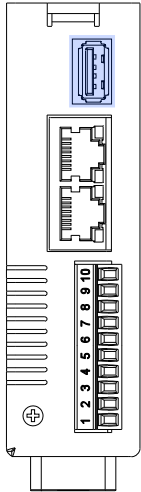
## Ethernet interface



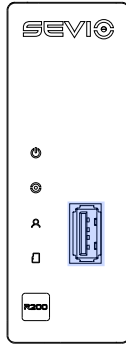
Port	Standard	Use
WAN	100BASE-T	External LAN
LAN	100BASE-T	Local LAN (automation network)

<b>Connector type</b>	RJ-45 shielded
<b>Cable type</b>	CAT 5e or better, shielded
<b>Autonegotiation</b>	Yes
<b>Auto MDI/MDI-X</b>	Yes
<b>Speed</b>	10 Mbit/s, 100 Mbit/s
<b>Duplex</b>	Full, Half
<b>Transmission distance max.</b>	110 m

## USB



M100 Port



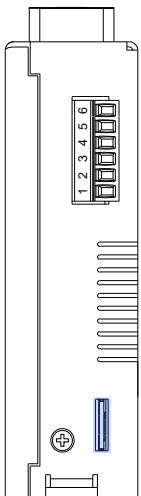
USB

Port	Type	Connector	Max. Current	Use
M100	2.0	A	1800 mA	Used for M100 connection
USB	2.0	A	500 mA	Configure the Sevio Router when offline through a properly set up USB flash drive

All ports are protected from overcurrent and short circuit.

**Note:** The cable must be shorter than the 5m allowed in the USB standard.

## μSD



### Insert microSD Card

The microSD card slot uses a push-push mechanism. The card should be inserted with the top side facing left. Press the card with a fingernail or soft tool further until you feel a click.






### Remove microSD Card

Wait until the microSD LED is green (ready to eject).

Push the microSD card further into the microSD card slot until you feel a click. The card can be pulled out.

## Status

### LED indicators

LED	Status	Description
	OFF	Power off
	GREEN	Normal operation
	AMBER	Device in updating
	RED	Device in failure
	OFF	VPN is not ready
	GREEN	VPN connection is established
	AMBER	VPN connection is locked
	RED	VPN connection in failure
	OFF	No active session
	GREEN	Session in progress
	AMBER	Session locked
	OFF	μSD is not inserted
	GREEN	μSD is ready to eject
	AMBER	μSD is in read/write mode
	GREEN	Activity LED
	AMBER	Connection speed LED





## Configuration

The device is configurable via web server or Sevio Portal, the web application accessible via any updated web browser:

1. Open <https://sevio.it/> and click on Sevio Portal in your web browser.
2. If you already have an account just log in as usual and add this new device to your list of devices, otherwise register a new account following the instructions in Sevio Portal.



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<https://sevio.it/>