

onway Router on1810



User Manual

2026-07-09

onway ag, Switzerland



1 Safety Instructions

Please carefully observe all safety instructions in the manual.

Compliance Information

The onway routers must be used in compliance with any and all applicable national and international laws and with any special restrictions regulating the utilization of the communication module in prescribed applications and environments.

Information about the accessories / changes to the device

- Please only use original accessories to prevent injuries and health risks.
- Changes made to the device or the use of non-authorized accessories will render the warranty null and void and potentially invalidate the operating license.
- onway routers must not be opened (SIM cards may be used according to the instructions).

Information about the device interfaces

- All systems that are connected to the onway router interfaces must meet the requirements for SELV (Safety Extra Low Voltage) systems.
- Interconnections must not leave the building nor penetrate the body shell of a vehicle.
- Connections for antennas may only exit the building or the vehicle hull if transient overvoltages (according to IEC 62368-1) are limited by external protection circuits down to 1500 V_{peak}. All other connections must remain within the building or the vehicle hull.
- Always keep a distance of more than 40 cm from the antenna in order to reduce exposure to electromagnetic fields below the legal limits.
- Devices with a WLAN interface may be operated only with the applicable regulatory domain configured. Special attention must be paid to country, number of antennas and the antenna gain. The maximum allowed gain is 3 dBi in the relevant frequency range. To use WLAN antennas with a higher gain, contact onway about custom radio configurations. The antenna gain and cable attenuation need to be correctly configured by certified specialized personnel. A misconfiguration will lead to loss of the approval.
- Cellular antennas attached to the router must have an antenna gain of no more than 2.5 dBi. The user is responsible for the compliance with the legal regulations.
- Only CE-compliant power supplies with a current-limited SELV output voltage range may be used with onway routers.

General safety instructions

- Observe the usage limitations of radio units at filling stations, in chemical plants, in systems with explosives or potentially explosive locations.
- The devices may not be used in airplanes.
- Exercise particular caution near personal medical aids, such as pacemakers and hearing aids.
- onway routers may also cause interference in the nearer distance of TV sets, radio receivers and personal computers.
- Never perform work on the antenna system during a thunderstorm.
- The devices are generally designed for normal indoor use. Do not expose the devices to extraordinary environmental conditions worse than IP40.
- Protect them against aggressive chemical atmospheres and humidity or temperatures outside specifications.

2 Specifications and Features

Interfaces

- 1× SFP cage
- 6× (5× if SFP is used) Ethernet (10/100/1000 Mbit/s) with auto MDX, RJ45 connector
- Optional 4× PoE 802.3af/at PSE, total 60 W
- 2× Micro-SIM card slot
- 1× USB-A 3.0 Host on the front panel
- 1× Power input
- 1× RS-232 serial console port

Options

- Up to two LTE-Advanced Category 6 modems
- Up to two LTE Category 4 modems
- Up to one 5G 4×4 MIMO modem
- Up to two dualband WLAN modules (AP or station mode)
- Internal SSD mass storage for content
- GNSS receiver, optionally with dead reckoning and 3D accelerometer/gyroscope
- Optional passive or active dual CAN module

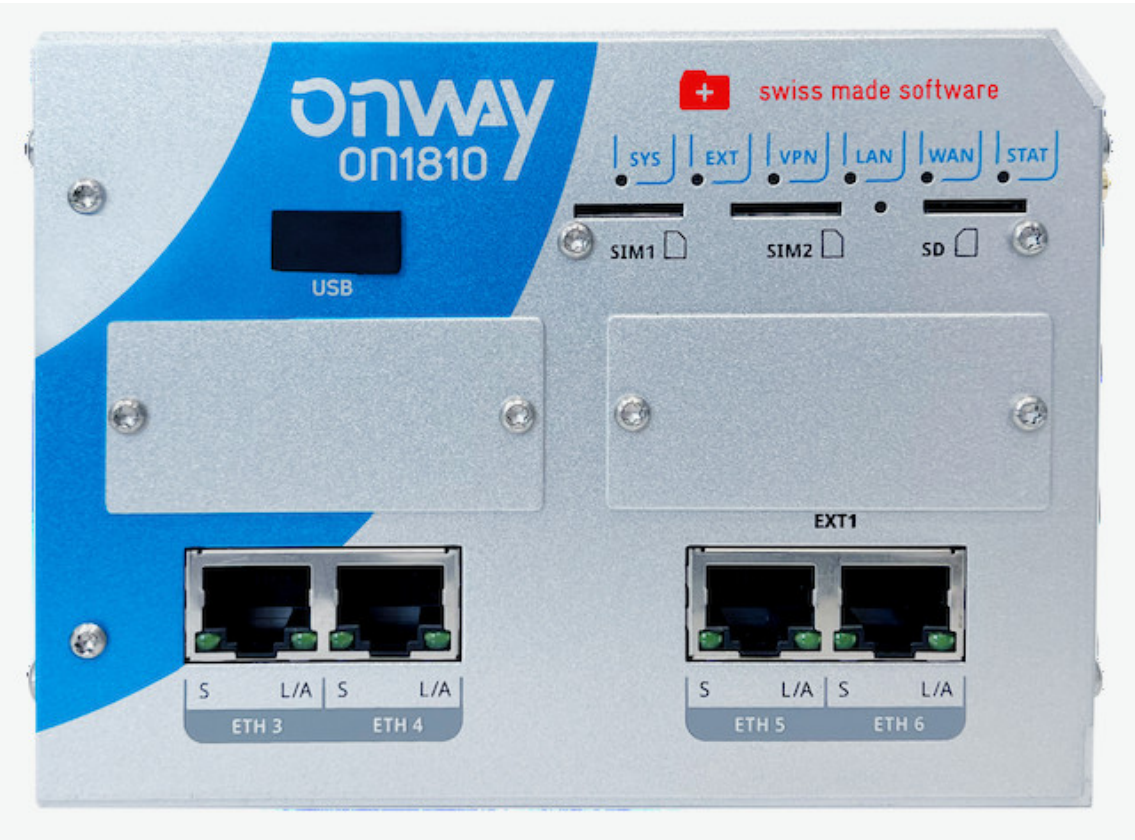
Dimensions

- Size of mounting base, excluding connectors: 130 mm x 130 mm
- Height: 95 mm
- Weight: 1000 g, depending on options

Environmental Conditions

- Input voltage: 12 V to 48 V (DC, $\pm 25\%$)
- Operating temperature range: -40°C to 70°C
 - PoE providing 15 W: -40°C to 65°C
 - PoE providing 30 W: -40°C to 60°C
 - PoE providing 45 W: -40°C to 55°C
 - PoE providing 60 W: -40°C to 50°C
- Storage temperature range: -40°C to 85°C
- Humidity: 0 % to 95 % (non-condensing)
- Altitude: 4000 m maximum
- Ingress protection rating: IP40 (with SIM and USB covers mounted)

3 Connectors and Indicators



ON1810 Router Front View

Status Indicators

Name	State	Description
SYS		GNSS 3D fix including altitude
		GNSS 2D fix without altitude
		Satellites in view, but no GNSS fix
		No GNSS satellites in view
EXT	WLAN 2 state	(With secondary WLAN option)
	access point	AP operational and some clients connected
	client/mesh	Connected to a configured network
	access point	AP operational, no clients connected
	client/mesh	Currently not connected to any configured network
		WLAN 2 interface configuration error
		WLAN 2 interface not in use

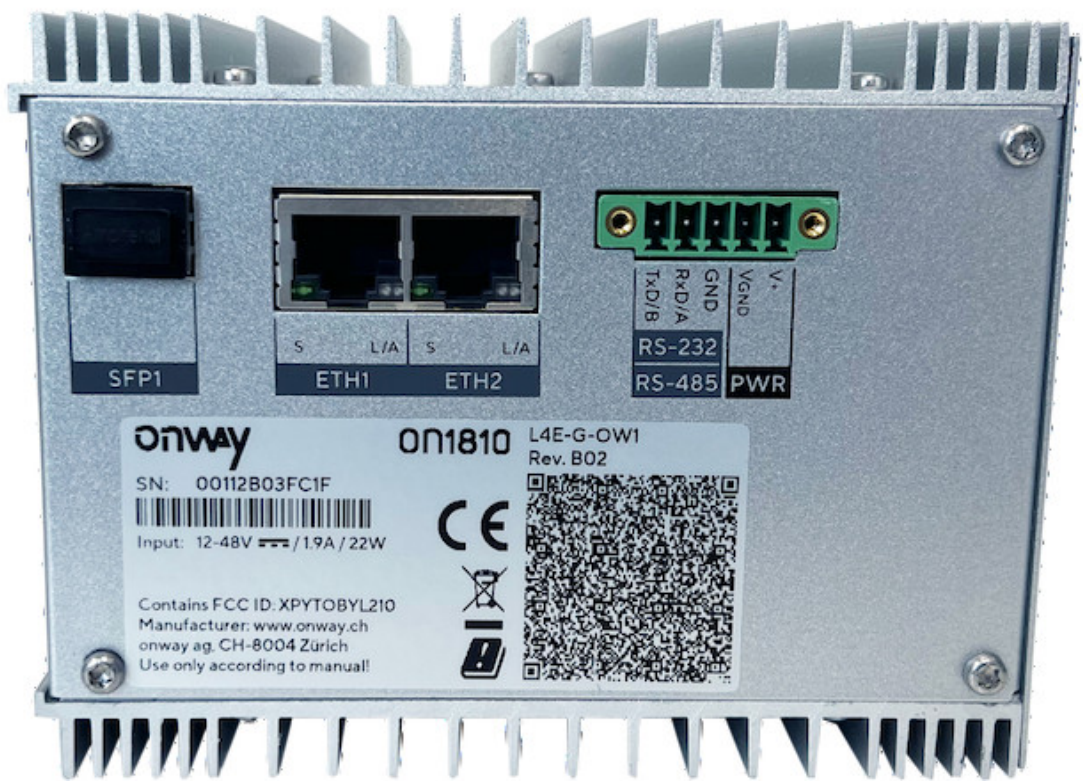
Name	State	Description
EXT	MOBILE 2 state	(With secondary MOBILE option)
		IP connectivity on modem 2 established
		Modem 2 connected to mobile network
		Unable to connect modem 2 to mobile network
		No SIM detected on modem 2
VPN		All VPN conn. redundantly established over all uplinks
		All VPN conn. established, but limited uplink redundancy
		At least some VPN connections unavailable
LAN	WLAN 1 state	(With primary WLAN option)
	 access point	AP operational and some clients connected
	 client/mesh	Connected to a configured network
	 access point	AP operational, no clients connected
	 client/mesh	Currently not connected to any configured network
		WLAN 1 interface configuration error
		WLAN 1 interface not in use
WAN	MOBILE 1 state	(With primary MOBILE option)
		IP connectivity on modem 1 established
		Modem 1 connected to mobile network
		Unable to connect modem 1 to mobile network
		No SIM detected on modem 1
STAT		System booted in regular mode
		System booted in recovery mode
	 — 	First-boot system initialization

Interface Connectors

Interface Name	Connector	Function
ETH 3	RJ45	Gigabit Ethernet port 3, optional PoE 802.3af/at
ETH 4	RJ45	Gigabit Ethernet port 4, optional PoE 802.3af/at
ETH 5	RJ45	Gigabit Ethernet port 5, optional PoE 802.3af/at
ETH 6	RJ45	Gigabit Ethernet port 6, optional PoE 802.3af/at

Note

Ethernet PSE powering is supported on specific router models only, and require a power supply with 48 V to use this feature. PSE powering is enabled on all supported ports by default, and can be disabled on individual ports in the router configuration.



ON1810 Router Left View

Interface Connectors

Interface Name	Connector	Function
SFP 1	SFP cage	Gigabit SFP port 1, mutually exclusive with ETH 2
ETH 1	RJ45	Gigabit Ethernet port 1
ETH 2	RJ45	Gigabit Ethernet port 2, mutually exclusive with SFP 1
RS-232	Block	Serial console port
PWR	Block	Power connector
	V+	Supply voltage
	VGND	Ground connector

Note

The SFP 1 and ETH 2 Ethernet ports share internal hardware resources and cannot be used at the same time. If an SFP module is inserted into the cage, SFP 1 is enabled and ETH 2 is disabled. If no SFP module is present, ETH 2 is enabled and SFP 1 is disabled. The router automatically switches between these two ports and reboots to apply the change when an SFP module is inserted or removed.



ON1810 Router Right View

Interface Connectors (LTE models)

Interface Name	Connector	Function
MOB 1-2	SMA female	
<i>Option L,</i>	A1/2	4G cellular modem 1 1×2 MIMO antennas
<i>up to 2× 4G:</i>	A3/4	4G cellular modem 2 1×2 MIMO antennas
<i>Option N, 1× 5G:</i>	A1/2/3/4	5G cellular modem 1 4×4 MIMO antennas
WLAN 1-2	SMA female	
<i>Option Non-N Wac</i>	A1/2	WLAN module 1 2×2 MIMO antennas
<i>Option Non-N 2Wac</i>	A3/4	WLAN module 2 2×2 MIMO antennas
GNSS	SMA female A5	Satellite navigation antenna Satellite navigation antenna
EXT	SMA female	
<i>Option N Wac</i>	A6/7	WLAN module 1 2×2 MIMO antennas

Note

4G 1×2 MIMO antenna configurations use only the first antenna for TX, having an antenna connected to the first port is mandatory.

Ethernet Status Indicators

Name	Label	Color	Description
ETH 1-2	S		10 Mbit/s: one blink 100 Mbit/s: two blinks 1 Gbit/s: three blinks
	L/A		Activity
			No link
ETH 3-6	S	 / 	10 Mbit/s, 100 Mbit/s / 1 Gbit/s
	L/A		Activity
			No link

Software Interface Mapping

The network interface naming and numbering used in the router configuration is different compared to the labels on the router housing. Refer to the following table to map between the two naming and numbering schemes.

LTE Models

Interface Name	Config Name
SFP 1	sfp0
ETH 1-6	lan0-lan5
MOB 1-3	mbm0-mbm2
WLAN 1-2	wfi0-wfi1

5G Model

Interface Name	Config Name
SFP 1	sfp0
ETH 1-6	lan0-lan5
MOB 1-2	mbm0
MOB3 / EXT	wfi0

Only either sfp0 or lan1 will be available at the same time. Refer to the note about the mutual exclusivity of the SFP 1 and ETH 2 Ethernet ports in the *Interface Connectors* section.

Antenna Options

Depending on the installed router options, some connectors may be missing.

Cellular modems have multiple antenna ports. For optimal performance, these antennas shall use different polarizations. Secondary antennas are for RX MIMO only, TX uses the primary antenna: When connecting only one antenna, it must be connected to the primary modem antenna connector. To achieve the best data rates and cover all available 5G frequencies, all four antennas of the optional 5G modem should be connected for full 4x4 MIMO performance.

SIM Selection

The default SIM to modem connections are SIM 1 to modem 1 and SIM 2 to modem 2.

Supply Voltage

To power the router, a supply voltage of 12 V to 48 V must be provided between the V+ and VGND connectors.

The power supply requirements depends on the installed options, but must be at least 24 W.

Factory Reset

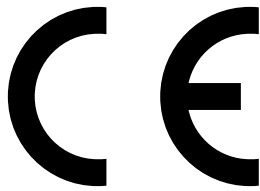
On the right side of the SIM2 slot there is a small hole to access the Factory Reset Button. A short press of the Factory Reset Button triggers a system reboot. A long press, greater than 5 seconds, triggers a system reset. A reset will delete all configuration data as well as all credential data stored on the router. A reset will flash all LEDs three times in red. After the reset is complete, a reboot will follow.

USB Mass Storage Devices

The USB-A port on the router supports USB 2.0/3.0 mass storage devices. If enabled in the configuration or if the device has a signed partition, the device will be mounted automatically upon insertion and named USB. Connecting mass storage devices through USB hubs is not supported.

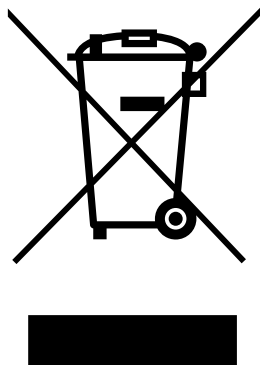
4 Conformity and Waste Disposal

Declaration of Conformity



onway routers comply with the relevant standards following the provisions of the RED Directive 2014/53/EU. To obtain a signed version of the Declaration of Conformity please contact the onway support.

Waste Disposal



This product is subject to the WEEE directive 2012/19/EU and compliant with the marking requirements. The WEEE symbol on this product indicates that it must not be disposed of with normal household waste at its end of life. Instead, it must be separated and returned to a designated collection point for waste electric and electronic equipment for proper recycling. Doing so helps to conserve natural resources and to protect the environment from unnecessary pollution.

5 Open Source Software Notice

This product does in part build on open source software. We are distributing such open source software to you under its respective license, and the licenses can be obtained here:

<https://support.onway.ch/onway-router/licenses/on1810/>

To obtain the corresponding open source codes covered by these licenses, please contact us at support@onway.ch.

Specific Acknowledgements

- This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (<http://www.openssl.org/>)

6 Contact Information

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