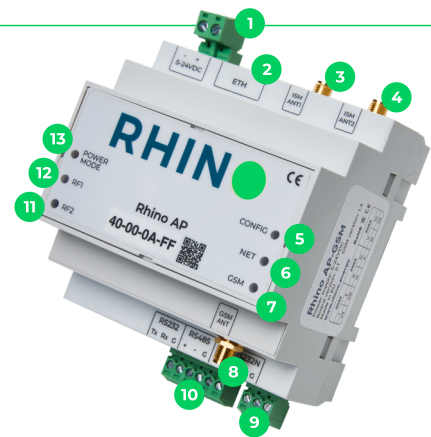


Rhino AP-GSM

IoT gateway. Reads data from metering devices and sensors. Equipped with multiple communication interfaces supporting most popular protocols. Includes two RF channels for wireless communication with Rhino hardware. Data transfer to the Rhino Cloud Platform via Ethernet or GSM* (SIM card pre-installed). Powered by external 5-24VDC power supply.

DEVICE OVERVIEW

- | | |
|----------------------------------|--------------------------------|
| 1 Power socket | 7 GSM status LED |
| 2 Ethernet socket | 8 SMA GSM antenna connection |
| 3 SMA ISM 1 antenna connector | 9 RS232N connection |
| 4 SMA ISM 2 antenna connector | 10 RS232 and RS485 connections |
| 5 Configuration status LED | 11 12 Radio communication LEDs |
| 6 Internet connection status LED | 13 Power status LED |



TECHNICAL PARAMETERS

Communication type	Ethernet (DHCP / Static IP) or GSM (LTE / GPRS / WCDMA / HSPA)
Rhino communication	Frequency range: 433MHz ISM channel 1 - Rhino ED DI / ED DI-D / Sensors ISM channel 2 - Rhino ED RS485 / RS232 Maximum of 50 end devices on each radio channel
Input voltage	5-24VDC (> 10W)
Internal battery	2700 mAh (emergency power supply)
Internal memory	uSD card (min. 8 GB)
Logging measurement data	Yes
Interface protocols	RS232 - DLMS, IEC62065 RS485 - DLMS, IEC62065, Modbus RTU, GazModem I, GazModem II Ethernet - DLMS, IEC62025, BACnet, Modbus TCP/IP, Custom network protocols Optional interfaces - M-Bus, Wireless M-Bus OMS

Got questions?
Contact us!

Rhino
Hogehilweg 19
1101CB Amsterdam, NL

+31 20 217 02 09
sales@rhino.energy
www.rhino.energy

Configuration	Over the Air (OTA)
Firmware update	Over the Air (OTA)
Operating temperature	0 °C - 85 °C (depending upon installed environment) 0 °C - 45 °C (during charging Li-Ion)
IP Class	IP40 (not suitable for outdoor use)
Dimensions	87.5 mm x 90.0 mm x 65.0 mm (5 DIN modules)
Weight	~0.2kg
Additional equipment	1 x ISM antenna with 3m cable and magnetic base 1 x GSM antenna with 3m cable and magnetic base (included)

POWER SPECIFICATION

Required power supply - 5V-24V/DC output voltage with minimal 10W. The built-in 3.7V 2.9Ah lithium-ion battery, Allows it to continue working for several hours in case the external power supply fails.

LED INDICATION

Power mode	Red Permanent - Power OK Flashing - Battery power
RF1 / RF2	Short Flash - Data received
GSM	Green Permanent Good GSM connection Flashing Poor cellular GSM connection
NET	Green Permanent Good internet connection
CONFIG	Green Permanent Configuration is correctly loaded to the device.

REQUIRED CABLE TYPES

Signals thickness	0.129-1.31 MM ² - 26-16AWG
Power supply thickens	0.205-3.31 MM ² - 24-12AWG

RS232

The RS232 port can connect one device or by using one optical head. This interface is galvanically isolated.

Transmission speed	300 to 115200 bit/s
Transmission parameters	Customizable
Voltage range	-25V - +25VDC
Insulation voltage	3,75 kV
Max number of devices connected	1

RS485

Multiple meters or devices can be connected on a shared main. The interface is galvanically isolated.

Transmission speed	300 to 115200 bit/s
Transmission parameters	Customizable
Voltage range	-7V - +12VDC
Insulation voltage	3,75 kV
Max number of devices connected	256 / 1/8 UL (unit load)

RS232N

The RS232 port can connect one device or by using one optical head.

Transmission speed	300 to 115200 bit/s
Transmission parameters	Customizable
Voltage range	-25V - +25VDC
Max number of devices connected	1

Got questions?
Contact us!

GSM

The device operates with 3G/4G/LTE technology. There is a SIM card slot located under the cover. SIM card must be used with a secure PIN code. The configuration of PIN code, APN and GSM and module configuration is done by logging in to the device from the web browser. (see "Device configuration")

INSTALLATION

Installation should be performed by a qualified electrician, automation specialist or an installer having the required level of specialism. For safety reasons, a DIN-rail enclosure must cover the terminals.

DEVICE CONFIGURATION

Use the mobile cloud application to configure read parameters and control the Rhino AP device remotely. To configure GSM settings (PIN code, APN), Ethernet use the mobile cloud application to configure read parameters and control the Rhino AP device remotely. To configure GSM settings (PIN code, APN), Ethernet settings and service meter readings, connect an Ethernet cable to a computer and open the web browser and go to IP address 192.168.0.160:8080 to login using the credentials below:

Username: rhino
Password: RhIn0@mi

After the first login, change the password and save the new password securely.

FACTORY RESET

Rhino AP can be restored to factory default settings by removing the top cover and pressing and holding the button on the left side for 20 seconds. After restoring to factory default settings, the GSM and Ethernet will change to DHCP and registration data will return to factory default settings. A short button press will turn the device off and on.

TROUBLESHOOTING

- If none of the LEDs are illuminated, ensure the power supply is connected properly.
- If the device does not connect to the server or the GSM, Status LED flashes at a high frequency, check that the GSM antenna is correctly connected to the SMA antenna connector (8). Check if the SIM card is correctly installed under the cover, Check if the SIM card is correctly configured and activated.
- If the LED for internet connection (6) is OFF, Check if the SIM card is active, Check if the PINcode and correct APN have been configured. If in case of Ethernet interface communication, Check the settings and operation of the LAN / WAN network.
- If the configuration status LED (5) is OFF, the device has not downloaded the configuration from the Rhino server. Check whether the device is configured in the mobile cloud application.

ARCHITECTURE

Rhino AP can be expanded with external devices (interfaces), Allowing reading of meters located in places without access to power or network.

wM-Bus wireless module connected to the RS232 port, for wireless M-Bus OMS meters and sensors

Rhino ED DI wireless battery device for pulse output S0) meters

Rhino ED RS232, RS485 wireless device for meters with serial communication interfaces

Rhino Sensors wireless device featuring temperature, humidity, PM2.5 and PM10 concentrations, as well as air quality (VO₂ and CO₂).

Rhino ED DI-D wireless battery device with screen for gas, water, heating and kWh meters with pulse output (S0).

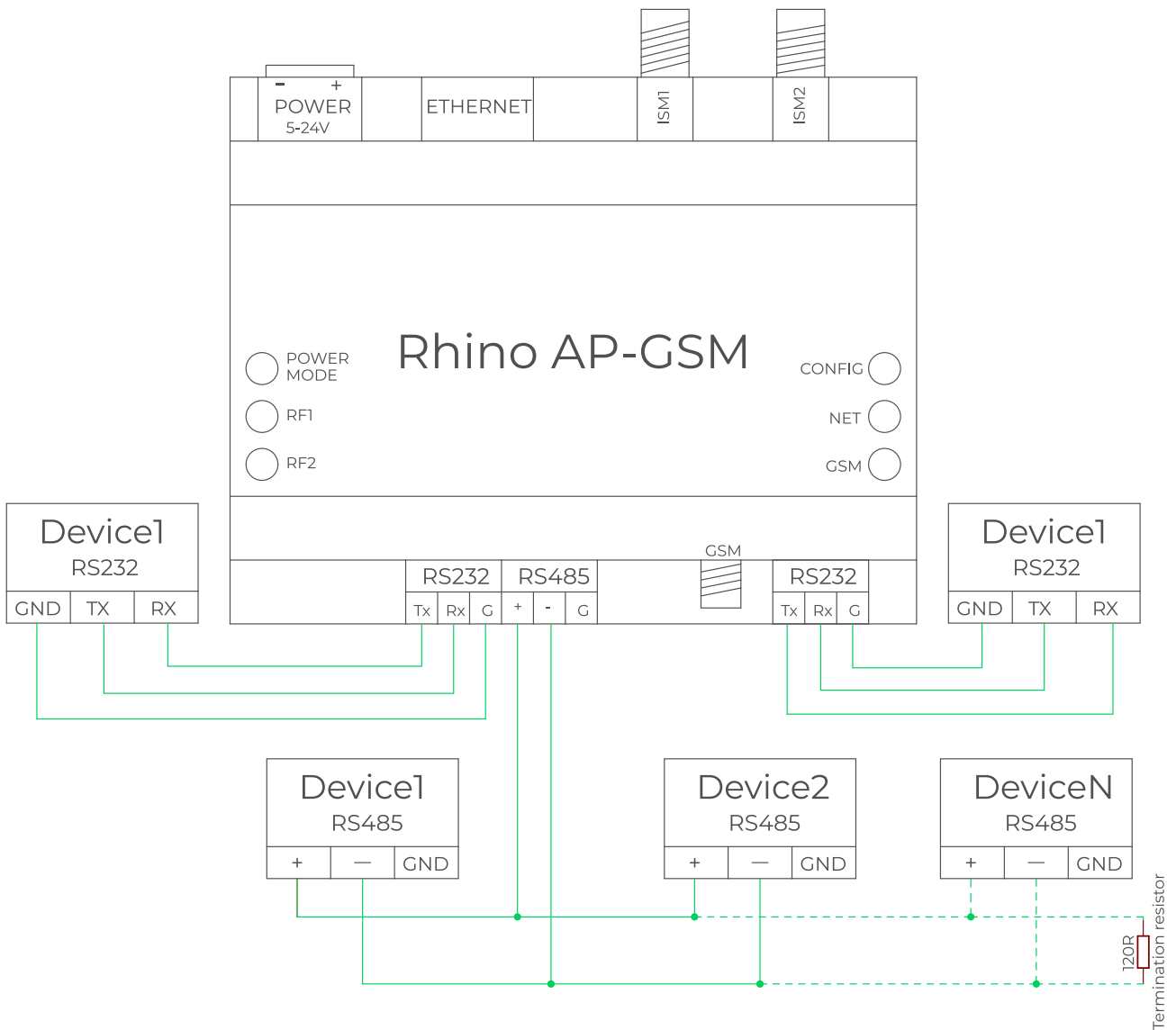
Got questions?
Contact us!

Rhino
Hogehilweg 19
1101CB Amsterdam, NL

+31 20 217 02 09
sales@rhino.energy
www.rhino.energy

Rhino AP-GSM

Connection Diagram



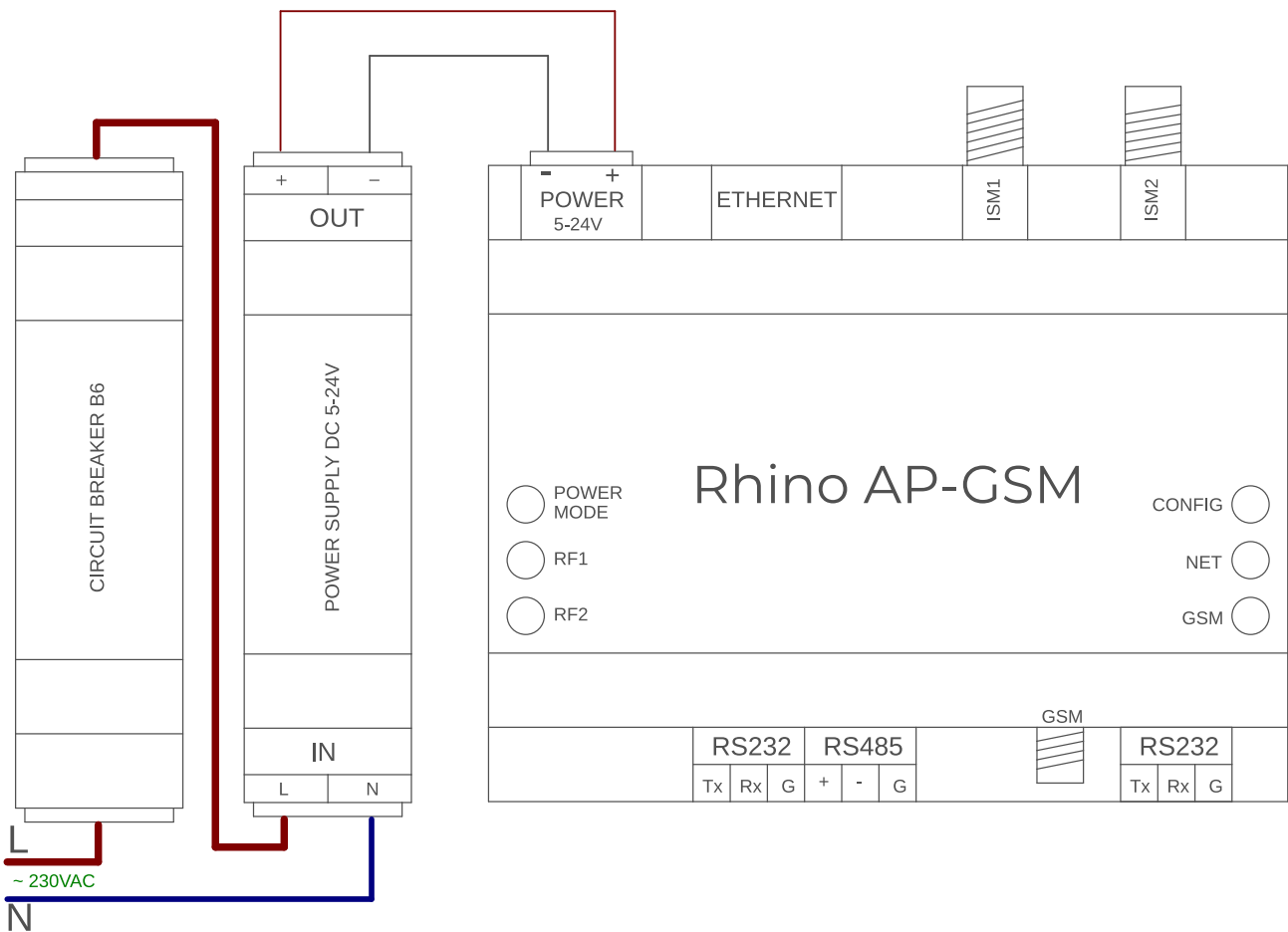
Got questions?
Contact us!

Rhino
Hogehilweg 19
1101CB Amsterdam, NL

+31 20 217 02 09
sales@rhino.energy
www.rhino.energy

Rhino AP-GSM

Power Supply Diagram



Got questions?
Contact us!

Rhino
Hogehilweg 19
1101CB Amsterdam, NL

+31 20 217 02 09
sales@rhino.energy
www.rhino.energy

Rhino System Topology

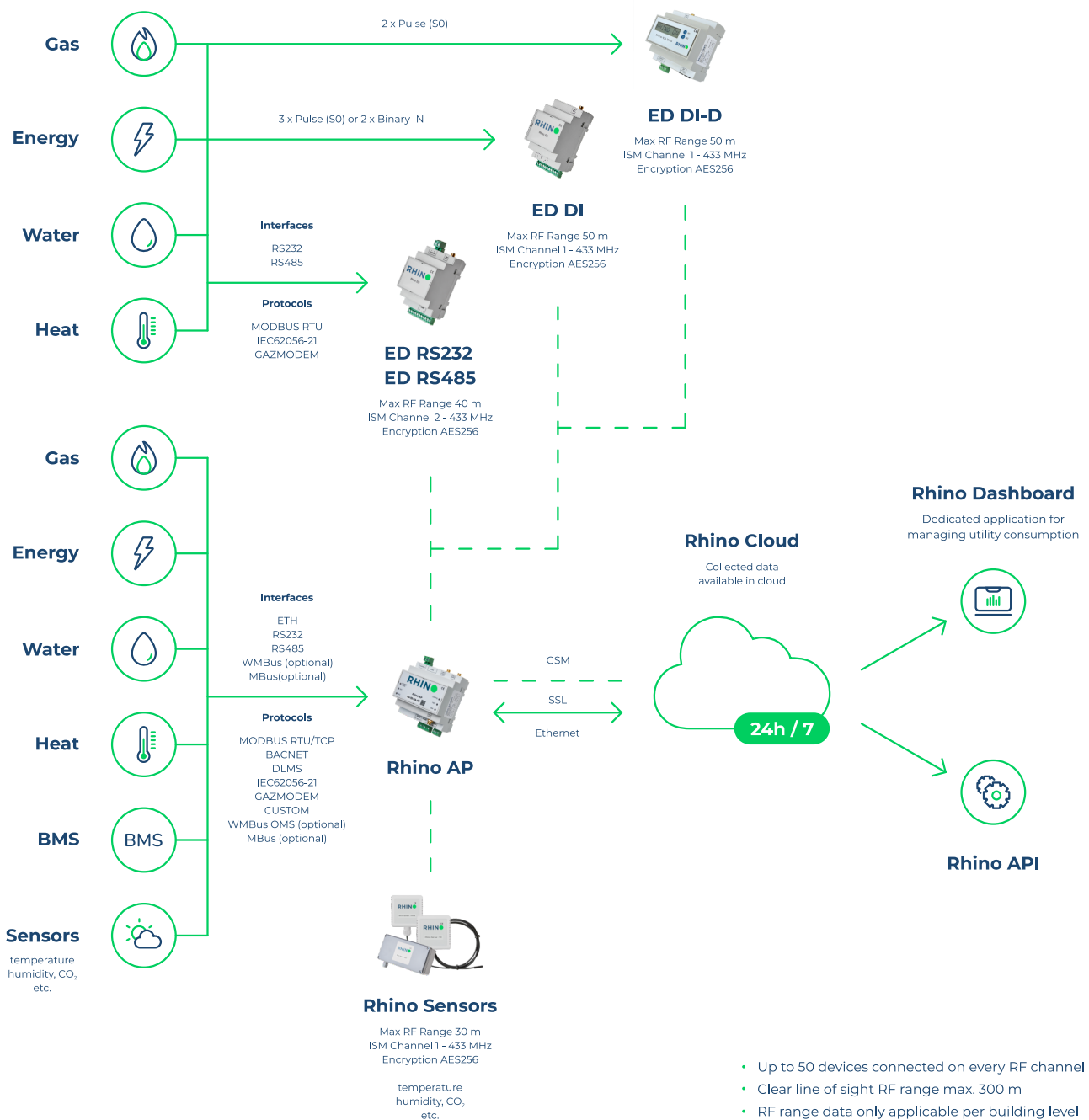
- Up to 50 devices connected on every RF channel
- Clear line of sight RF range max. 300 m
- RF range data only applicable per building level

RHINO

- External inputs
- Rhino Ecosystem



Rhino System Topology



- Up to 50 devices connected on every RF channel
- Clear line of sight RF range max. 300 m
- RF range data only applicable per building level

Got questions?
Contact us!

Rhino
Hogehilweg 19
1101CB Amsterdam, NL

+31 20 217 02 09
sales@rhino.energy
www.rhino.energy