Network gateway
Short guide

1. Overview

Network gateway GG-24-Cloud is designed to connect the network devices working with the Modbus protocol over the RS485 interface to the cloud service akYtec Cloud via GPRS.

The detailed user guide is available for download at www.akytec.de.

2. Specifications

Table 1 Specifications

Parameter	Value
Power supply	
Power supply	24 (10…48) VDC
Power consumption, max	6 W
Galvanic isolation	1770 V
Network interface	
Interface	RS485
Protocols	Modbus RTU, Modbus ASCII, akYtec*
Baud rate	1200…115200 bps
Cable length, max.	1000 m
Cloud interface	
Interface	GSM / 2G
GSM frequency bands	GSM-850, E-GSM-900, DCS-1800, PCS-1900
Output power class	4 for GSM-850, E-GSM-900; 1 for DCS-1800, PCS-1900
SMS	MT, MO, CB, Text, PDU mode. Storage SMS on SIM card
Antenna	External, SMA connector
Interface	GSM
Antenna cable length, max.	3 m
SIM card	
Standard	SIM, USIM
Format / Quantity	Micro SIM /1 pcs
Voltage	1.8V / 3V
Cellular subscription	2G support, internet access
Mechanical	
Dimensions (without antenna)	55 × 100 × 58 mm
IP code	IP20
Average service life	10 years
Weight	approx. 150 g

NOTE
Only devices listed in the library can be connected via the akYtec protocol.

3. Environmental conditions

The device is designed for natural convection cooling that should be taken into account when choosing the installation site.

The following environment conditions must be observed:

- clean, dry and controlled environment, low dust level;
- closed non-hazardous areas, free of corrosive or flammable gases.

Table 2 Environmental conditions

Condition	Permissible range
Ambient temperature	-40 °C ...+55 °C
Relative humidity	10...95% (non-condensing)
Altitude	up to 2000 m above sea level
EMC emission / immunity	conforms to IEC 61131-2
Vibration / shock resistance	

NOTE
The operating temperature range of the SIM card must correspond to the operating conditions of the device.

4. Dimensions

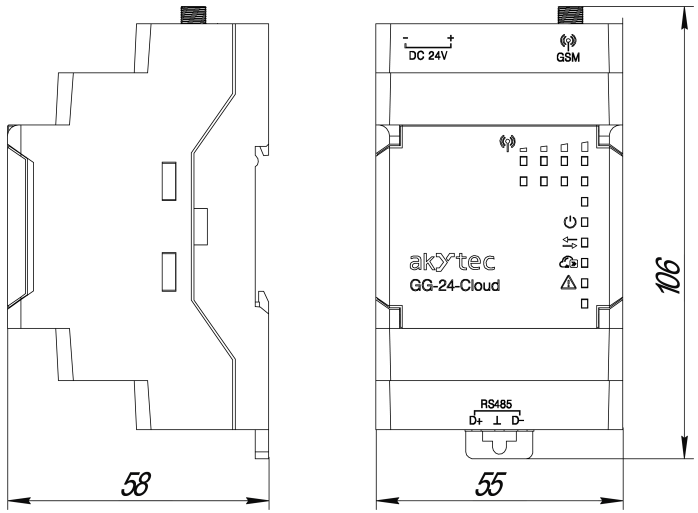


Fig. 1 Dimensions

5. APN configuration

The default APN access point settings are compatible with most cellular service providers. Do not change the default settings until necessary.

Make sure your cellular subscription plan supports:

Data exchange over 2G

Connectivity to smart devices.

The default APN access point settings are:

$$A = internet; U = ; P = ;$$

To modify the default settings:

1. Send SMS with the following text to the SIM card's number:

$$A = ; U = yyy; P = zzz$$

where **A** — access point name (APN) depending on the cellular service provider; **U** — user name; **P** — password (APN).

NOTE
The device can receive settings from only one SMS.
Do not use too long login and/or password, it may cause SMS to split during transmission and cause misconfiguration.
SMS can contain only Latin alphabet letters and digits and must not contain spaces.
It is allowed to send only part of the settings, for example: "A=internet;".

2. When the SMS is received successfully, the device will apply the new settings and restart.

6. Indication and control

There are 8 LEDs on the front cover.

Table 3 LED indicators

LED	State	Description
	ON (GSM 1...4)	GSM signal level
	For indication of startup steps, see *Table 4*	
	ON	Power is on
	flashing	Data transfer over RS485 interface
	flashing	Command transfer from akYtec Cloud
	OFF	No error
	ON	Error (see *Table 5*)

Table 4 Startup steps indication

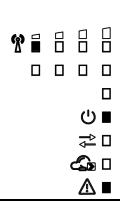
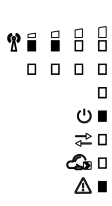
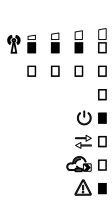
LED	State	Description
	flashing (GSM 1)	Configuration
	flashing (GSM 1, 2)	Establishing connection to GSM network
	flashing (GSM 1...3)	GPRS activation
	flashing (GSM 1...4)	Establishing connection to the akYtec Cloud

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akYtec GmbH · Vahrenwalder Str. 269 A · 30179 Hannover · Germany
Tel.: +49 (0) 511 16 59 672-0 · www.akytec.de

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Table 5 Error indication and remedy

LED	State	Description	Remedy
	ON (⚠ and GSM **1**)	GSM module errors:	
		- module does not respond; - module responds incorrectly; - module is not powered	Contact akYtec service staff
	ON (⚠ and GSM **1**, **2**)	SIM card or cellular network errors:	
		- no SIM card detected	Ensure SIM card is installed correctly
		- no network signal detected	Ensure GSM signal is available and antenna is connected
		- SIM card is PIN-locked	Disable PIN code check
	ON (⚠ and GSM **1 — 3**)	GPRS errors:	
		GPRS access blocked	Check SIM card balance. Check whether you have been granted access to GPRS / 2G
		Cannot connect to GPRS network (invalid APN settings)	Get GPRS settings from your ISP (see. *Section 5*)
	ON (⚠ and GSM **1 – 4**)	Connection terminated by server	Check whether the gateway has been added and configured in akYtec Cloud

Under the front cover:

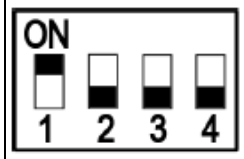
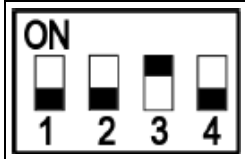
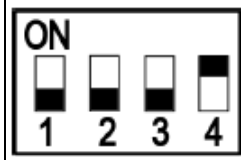
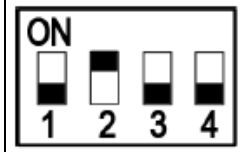
1. Service button
2. 4 DIP switches
3. Micro-USB connector

To restart the device, press the service button shortly. To reset the device to the factory settings, press and hold the service button for at least 12 s, then power the device off an on again.

Power must be disconnected and reconnected after pressing the button (reset the gateway to factory settings).

Pressing the button without holding it down restarts the gateway.

Table 6 DIP switches

DIP switch	Description
 DIP1 = ON	120 Ω terminating resistor is connected
 DIP3 = ON	Write commands via RS485 interface are disabled
 DIP4 = ON  DIP2 = ON	Only for akYtec service staff. The switch must be turned off during normal operation

NOTE
DIP switch positions are read in ascending order starting from 1.

7. RS485 connection

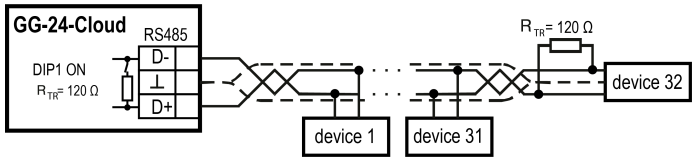


Fig. 2 Connection to RS485 interface

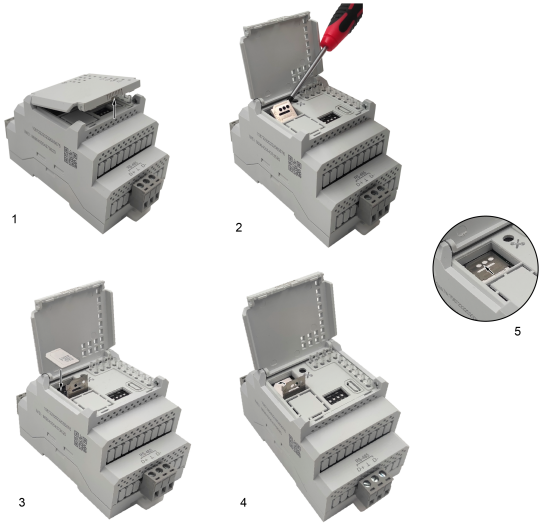


Fig. 3 SIM card installation

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