OPTION

Option™ CloudGate Probe

Installation Guide

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OPTION

Features & Technical Specifications

CloudGate Probe is a compact DIN rail mountable metering device that can connect devices over Modbus (RS-485), M-bus, Digital & Analog Input to a LPWAN Cellular (CP1000-12261) or LoRaWAN (CP2000-12260) network. This permits to monitor assets and buildings remotely in a convenient way.

As a low cost and compact device, the CloudGate Probe can read and transmit data of nearly any meter to any IoT platform. The device can also be used to change settings or the state of an actuator like an HVAC device, control valve, relay, etc.

The CloudGate Probe Cellular is intended to be used in asset monitoring (i.e. pumps, generators, etc.)

The CloudGate Probe LoRa is intended to be used in building use cases (i.e. smart building and building management platforms)

Communication Specifications (Cellular variant)

Communication protocol	LTE Cat M1 / Cat NB2
EU bands	B3/B8/B20
International coverage	Available on demand
Integrated GNSS receiver	Yes
External antenna support	2x SMA connector

Table 1

Communication Specifications (LoRa variant)

Communication protocol	LoRaWAN protocol 1.0.3
LoRa regions	868 MHz or 915 MHz
LoRaWAN class	Class C
External antenna support	1x SMA connector

Table 1

Electrical Specifications

AC powered	85-305 Vac
DC powered	5-32 Vdc
Max power consumption	4W

Table 2

Mechanical and Environmental Specifications

Formfactor	DIN-rail mountable device, 2 U wide
Material	PC/ABS
Weight	74g
Operating temperature	-20°C to 60°C
Humidity	5% to 95% relative humidity (noncondensing)
IP Class	IP20

Table 3

Safety Information

Use this product only in the manner described in this manual. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Product may be cleaned with a clean soft towel. Do not use liquids to clean.

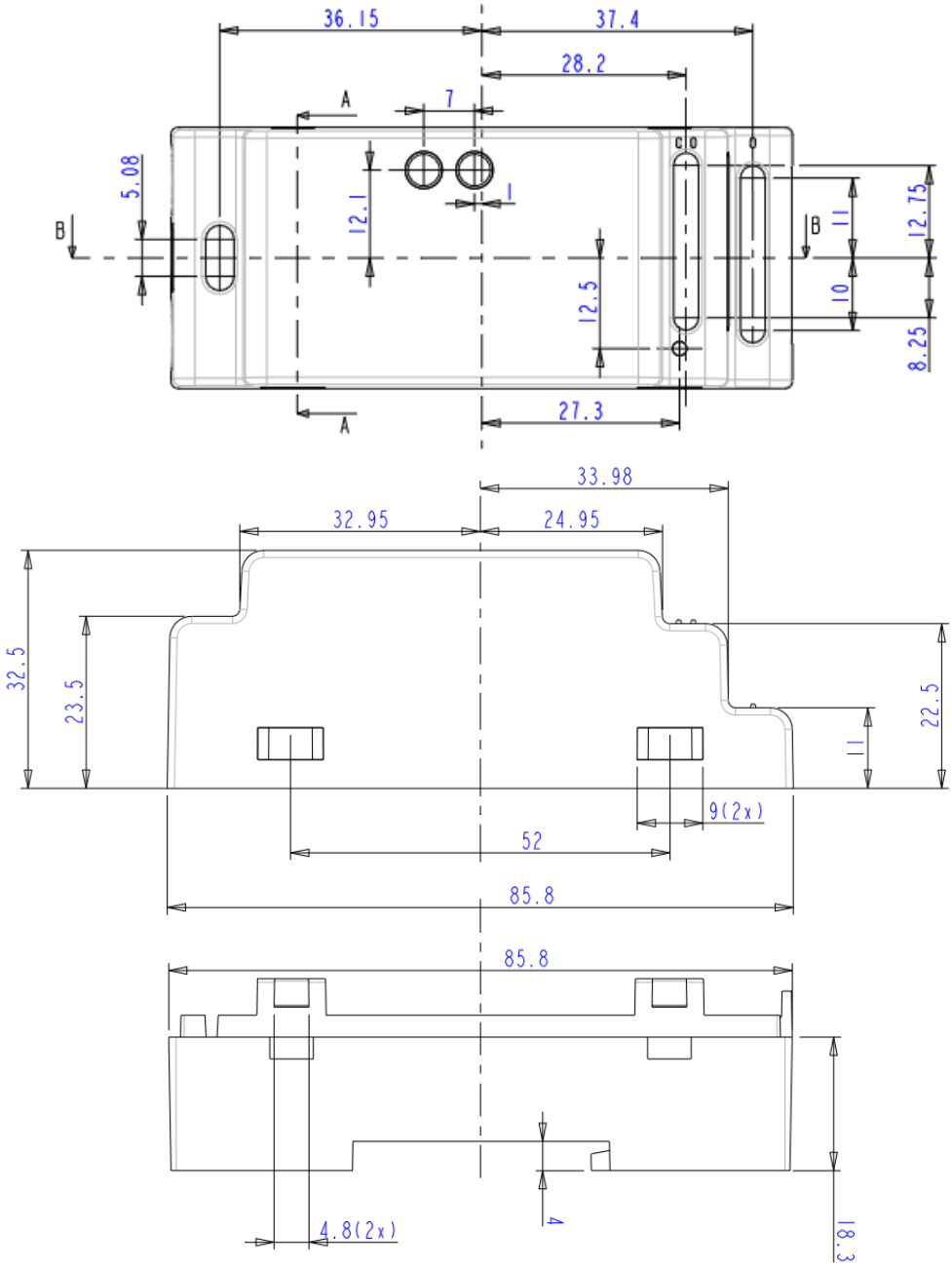
Product is not water resistant. If the unit gets wet, do not touch it. Power off and allow it to dry thoroughly before further operation.

Do not disassemble the product. There are no spare parts for this, it is not repairable. If physical damage to the product occurs, do not use it. Replace with a new one.

CC Information

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1)This device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation."

Device dimensions



Installation requirements

The instructions provided below, should be performed only by licensed electricians. Installation from non-qualified individuals may lead to electrocution or heavy damage to the devices.

Make sure that the power supply matches the requirements of the CloudGate Probe model you are installing:

- Option A: 85-305 Vac
- Option B: 5-32 Vdc

CloudGate Probe must be protected with appropriate circuit protection according to local electrical codes.

1. Locate the electrical panel or control cabinet where the device will be installed.
2. Turn the power off for safety reasons.
3. Check inside the electrical panel for the optimal location to place the CloudGate Probe as well as the appropriate protective circuit breaker.
4. Place the protective circuit breaker on the DIN rail.
5. Place the CloudGate Probe on the DIN rail and lock it securely.

Connections and wiring

Power connections:

- For AC-powered model (Option A): Connect the AC power lines to the appropriate terminals.
- For DC-powered model (Option B): Connect the 24Vdc power supply to the appropriate terminals, ensuring proper polarity.
- When solid wires are used, make sure that only 6mm of isolation is removed so no bare wire is sticking out of the connector.
- When stranded wires are used it is required to use ferrules to avoid loose wires from the strand which can cause a safety hazard

M-bus connections:

- Connect the M-Bus devices to the M-Bus screw terminals.
- Note that the CloudGate Probe can only support up to 4 Unit Loads.

Modbus connections:

- Connect the RS485 Modbus device(s) to the Modbus screw terminals.
- Ensure proper wiring for half-duplex operation.
- Follow appropriate termination practices for RS485 networks. There is an internal termination resistance built into the Probe.

IO connections:

- Analog inputs: Connect devices according to the required configuration (0-3.3V or 0-10V).
- Digital inputs: Connect dry contacts or CMOS signal sources as appropriate.
- Analog outputs: Connect devices requiring 0-10V or 4-20mA control signals.
- Digital outputs: Connect devices requiring CMOS level control or devices that can be driven by the Open Drain output (max 250mA).

WARNING! Make sure all connections are secure and properly terminated before powering on the device.

Antenna installation:

- Make sure the power to the CloudGate Probe is removed before connecting antennas or antenna cables. This avoids a safety hazard when the insulation of the power supply cables would be damaged by connecting the antenna.
- When there is not enough room in the cabinet to mount the antennas directly on the CloudGate Probe, antenna cables of the proper length should be used to put the antennas outside the cabinet.
- Locate the two SMA antenna connectors on the CloudGate Probe.
- Connect the primary antenna to the main antenna connector.
- Connect the secondary antenna (diversity/GNSS) to the second connector if using GNSS functionality. (cellular variant only)
- Position antennas for optimal reception:
    - Mount antennas away from metal objects when possible
    - For external antennas, ensure proper weatherproofing
    - Maintain minimum separation distance between antennas as recommended by antenna manufacturer

WARNING! Poor antenna placement may result in reduced performance or inability to connect to cellular networks.

- After completing all connections, double-check the wiring before restoring power.
- Power on the system and verify LED indicators show proper operation.

SIM card placement (cellular variant only):

- Make sure the power to the CloudGate Probe is removed before SIM card placement. This avoids a safety hazard when the insulation of the power supply cables would be damaged by the placement of the SIM card with a metal tool.