RoHS Compliant

GC-512, Battery-operated, Super-Long Standby, LTE Cat NB-IoT/M Gas Meter Controller



Overview

Built-in Cat NB-IoT/Cat M, Micro-SIM holder, primary battery, high-efficiency antenna, and with AES 256 encryption protection, GC-512 is an ideal companion of gas meters.

It sends warning data to cloud immediately once a meter alert was detected so that the gas operator knows what happened to this meter before receiving end user's call. Periodically receiving commands from cloud allows gas operator's control of any specified gas meter. Daily report of gas usage accumulates big data for gas operator's employment of AI technology to predict supply, usage, and to conceive new value added service.

Features

- 10-year standby
  - At good communication signal condition
  - Ultra-low power consumption
- Over The Air adjustable,
  - Hourly/ Daily/ Monthly report
- Built-in Cat NB-IoT/M module and high-efficiency antenna
  - Micro-SIM support
  - Reliable, smooth 2-way communication
  - AES 256 encryption support
  - OTA support
- Support Japan-made digital gas meters+
  - Via meter's A-Line (black and orange wires)
  - Support all known digital gas meter functions
  - Notify server right away on detected alerts
  - Accept commands from server periodically
  - Daily report of meter's hourly reading
- In addition, meter temperature and signal quality information are also sent to the server.
- Replaceable primary battery (non-rechargeable)
  - Battery replaceable in case of bad signal.
  - Low power alert at battery low
- Flexible
  - Multiple MNOs support
  - No fixed bundling with meters, GC-512 works with any connected digital meters.

+ Other digital meters could also be supported.

Technical Specifications

Cellular Module+

Brand Model	Telit Cinterion TX62W-B module
Frequency Bands	**LTE Cat M1:** 700 (Bd12, Bd13, Bd28, Bd85), 800 (Bd18, Bd19, Bd20, Bd26, Bd27), 850 (Bd5), 900 (Bd8), AWS-3 (Bd66), AWS-1 (Bd4), 1800 (Bd3), 1900 (Bd2, Bd25), 2100 (Bd1)

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	LTE Cat NB1/2: 600 (Bd71), 700 (Bd12, Bd13, Bd28, Bd85), 800 (Bd18, Bd19, Bd20, Bd26), 850 (Bd5), 900 (Bd8), AWS-3 (Bd66), AWS-1 (Bd4), 1800 (Bd3), 1900 (Bd2, Bd25), 2100 (Bd1)
Speed (Max.)	DL 300kbps, UL 1.1Mbps (Cat M1) DL 27kbps, UL 63kbps (Cat NB1) DL 124kbps, UL 158kbps (Cat NB2)
FOTA	Incremental Over The Air firmware update

+: This module supports Cat NB1/2 and Cat M1. Customization is welcome.

General

Dimension (mm)	142 x 80 x 43
Weight (g)	293.5
Interfaces 3 2 1 	1. Power switch button x 1, 2. 2-pin screw connector x 1, 3. Orange LED x 1, 4. Micro-SIM card holder x 1
Power	By 3.6VDC Primary battery Input range: 3VDC~4.2VDC
Communication	* NB-IoT to servers * Meter's orange and black wires
Power consumption	Power saving mode: 8~10 uA Normal working: 7~55 mA[1] average
Working Environment	Temperature: -20 °C ~ 70 °C Humidity: 85%RH, non-condensing
Storage	Temperature[2]: ≦ 30 °C

[1] Depending on signal quality

[2] Higher temperature with more self-discharge. 1 year of storage at 20 °C, battery self-discharge rate <1%.

Major Functions

Power ON/OFF	Push switch button to 1: to turn ON, 0: to turn OFF
SIM Change	Push SIM edge to eject/fix SIM card
Orange LED	Blink to show power ON, then OFF.
Meter Connection	Connect to, fix at the screw connector
Meter Readings	Report at the specified interval
Meter alerts	Report immediately as an alert detected ● Earthquake ● Gas leakage etc.
Meter Settings	Meter control functions ● Turn ON/OFF utility supply ● Meter configuration update
OTA	Over The Air firmware upgrade
Security	AES 256 encryption to server

Quick Guide

Normally, the device has been properly setup on arrival.

- Remove the device's bottom cover
- Connect meter's black wire to the left of the screw connector and orange wire to the right one.
  - Above is for Japan meters. Different meters would have different ways of connections.
- Turn on power switch, LED blinks and then is dark to indicate power has been turned on.
- Different LED blinking patterns to indicate different anomalies.
- Warning would be reported to server as it was detected, meter reading data were reported to server periodically, waiting for commands from server.

Accessories

- 3.6V primary battery

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