

OPTION

CloudGate Energy

Solution pack for
Energy integrators &
Service providers



THE EASIEST WAY TO PROFESSIONAL BUILDING DATA ACQUISITION

Aggregate any metering data.

Unlock your energy footprint with real-time data & get the best return on your building's data. Easy energy integration & energy management.

The standard Mbus, Modbus and Zigbee 2.4 interface makes the aggregation of data easy; including sending it to your cloud platform. The CloudGate gateway connects seamlessly with ABB, Schneider, Carlo Gavazzi, Meazon or any other standard meter.

The CloudGate Energy pack can be expanded with private Lora, BACnet or LTE 4G/NB-IoT.

OPTION

Serial port	<ul style="list-style-type: none"> 6-pins, 2kV galvanically isolated RS232 (Rx/Tx/RTS/CTS/GND) – 500Kbaud max or RS422 or RS485 (full or half duplex A/B/GND) Switch for RS485 termination available in the UI* <p>*not applicable to CloudGate R1</p>
Mbus port	<ul style="list-style-type: none"> Mbus Master <ul style="list-style-type: none"> up to 250 unit loads with 30V power supply up to 64 unit loads with 24V power supply or Mbus Slave Power supply + GND pin for Mbus master. These pins are also powering CloudGate so no separate power supply is needed.
IO port	<ul style="list-style-type: none"> 18-pins connector for wired interfaces I2C interface 3.3V eg for environmental sensors in electricity cabinet (temp, humidity etc) - 4 pins 5 multi-purpose IO's eg to monitor alarms in electricity cabinet or to drive door opening/ventilation relays - 11 pins <ul style="list-style-type: none"> Digital input (0 - 30V) (including dry-contact pulse counter) Analog input (0 - 10V) Current Loop input (4 – 20mA) S0 pulse-counter input Digital output (0 – 3.3V) Open Drain output (< 250mA, 0 – 30V) P1 interface (for electricity meters in BE/NL) - 3 pins
USB 2.0 port	✓
Printed-Circuit Board Connector - Plug	<ul style="list-style-type: none"> 6-contact/3 position connector : PHOENIX-1790111-3V * 18-contact/9 position connector: PHOENIX-1790179-9V ** <p>The 6-contact connectors can be used on the 18-pin socket</p> <p>* 2 x 6-contact connectors included with the card ** 18-contact connector not included with the card, available at most electronic component distributors</p>



CloudGate Smart Metering Expansion card, ideal for smart building & energy optimization

Monitoring energy production and consumption in a building has never been easier.

Not only can it interface with all wired interfaces that are used by meters, it can also monitor critical sensors, analog or digital inputs and trigger digital outputs.

This makes it an ideal card to be used in Smart Building or cabinet monitoring use cases where it can optimally use the other advantages of the CloudGate IoT gateway platform such as a combination with wireless connectivity cards (LoRaWAN, Zigbee, wM-Bus, BLE...), an interface to the BACnet building management system, remote access etc.

In case of power loss, the optional battery kit of CloudGate 4.0 gateways can ensure transmission of notifications.

CloudGate Zigbee Expansion card, connecting Zigbee devices to the Cloud

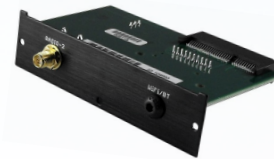
- Adds Zigbee connectivity to the CloudGate
- Supports Zigbee Home Automation 1.2 communication
- Zigbee messages can be processed in CloudGate using LuvitRED

The Zigbee expansion card allows the CloudGate IoT gateway to receive messages from Zigbee devices that communicate with the Zigbee Home Automation 1.2 communication protocol. Support for the Zigbee 3.0 protocol is under development and will be available in LuvitRed.

The card is typically used in combination with Zigbee-based metering devices: DinRail meters.

The wireless range can go up to 50m indoor and Zigbee meshing is supported.

Zigbee Home Automation (Zigbee HA) is a global standard designed to make every home smarter. Zigbee HA enables consumers to manage energy consumption and home security. Zigbee HA products are Zigbee Certified, so they work interoperable regardless of the manufacturer. Zigbee HA uses very little energy, which makes it perfect for products that run on batteries. Using wireless technology reduces installation costs and eliminates the hassle of running wires.



Zigbee HA is easy to set up and operate and since AES 128 encryption is part of Zigbee HA, communication takes place in a secure way.

Zigbee 3.0 builds on the existing Zigbee standard, and it unifies the market-specific application profiles. Zigbee 3.0 ensures interoperability across vendors, and it is designed for communication in environments with a high level of RF noise.

Zigbee version supported	Home Automation Profile version 1.2
Chipset on Zigbee expansion card	TI CC2538 System-On-Chip
RF characteristic	2.4 GHz IEEE 802.15.4 Compliant RF transceiver
Tx power	Programmable up to 7dBm
Rx sensitivity	-97dBm
Security	AES-128/256, SHA2 hardware encryption engine
Operating temperature	-30 to +70°C
External antenna connector on expansion card	100-240 Vac / 45-65 Hz
Power loss response	RP-SMA female
BLE module firmware reprogramming	Supported in LuvitRed

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CloudGate Energy DinRail meters

Our circuit-level DIN rail form-factor meters are so small that fit almost everywhere. Due to their optimal cost efficient design, they have a low TCO enabling the adoption of a larger number of metering points, driving much more detailed insight into energy efficiency opportunities.



DinRail Advanced 1-phase

Architecture	ZigBee Mesh Network
Frequency band	2.4 GHz
Simultaneous operation of multiple metering devices	Yes
Minimum Data communication interval	1 second (default 5 minutes)
Data storage—measurement device	Yes
Response to loss of communication	Yes (Path reorganization through Zigbee)
Security mechanism	Yes. AES encryption 128bits.
Operating Voltage / Frequency	100-240 Vac / 45-65 Hz
Power loss response	Automatic resumption of operation after power loss
Electric parameters measured	Irms, Vrms, line Frequency, Active Power & Energy, Reactive Power & Energy
Ranges of measured parameters (model depended)*	Voltage: 100 to 240 Vac phase-to-neutral, 45 to 65Hz Current: up to 63 Amperes
Accuracy of measurements	< 1% of reading measurement error (metering device)
Build-in Data log record	25 days
Extra features/functionalities	<ul style="list-style-type: none"> External relay control External relay scheduling Neutral Detection indication contact
Coverage	Up to 50m indoor / mesh topology
Dimensions	7.8 x 80 x 59.6 (WxHxD) in mm
Operating Environment	Temperature: -20°C to 50°C Relative Humidity: 10% to 90% (RH), non-condensing



DinRail Advanced 3-phase

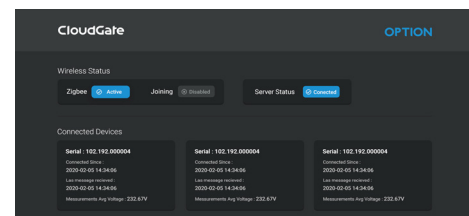
Architecture	ZigBee Mesh Network
Frequency band	2.4 GHz
Simultaneous operation of multiple metering devices	Yes
Minimum Data communication interval	1 second (default 5 minutes)
Data storage—measurement device	Yes
Response to loss of communication	Yes (Path reorganization through Zigbee)
Security mechanism	Yes. AES encryption 128bits.
Operating Voltage / Frequency	100-240 Vac / 45-65 Hz
Power loss response	Automatic resumption of operation after power loss
Electric parameters measured	Irms, Vrms, line Frequency, Active Power & Energy, Reactive Power & Energy
Ranges of measured parameters (model depended)*	Voltage: 0 to 240 Vac phase-to-neutral, 45 to 65 Hz 80% to 120% of normal line voltage Current: up to 2400 Amperes
Accuracy of measurements	< 1% of reading measurement error (metering device)
Build-in Data log record	25 days
Extra features/functionalities	<ul style="list-style-type: none"> External relay control External relay scheduling Neutral Detection indication contact
Coverage	Up to 50m indoor / mesh topology
Dimensions	25 x 80 x 69.6 (WxHxD) in mm
Operating Environment	Temperature: -20°C to 50°C Relative Humidity: 10% to 90% (RH), non-condensing

Energy Installation & Energy Management Software

30% of your buildings will generate 70% of total energy savings but only real-time data can unlock your full energy footprint.

Benefit from the fastest, most robust and scalable solution on the market. With the Energy Management Software, you can monitor and analyse any variable that affects energy consumption.

The CloudGate Energy Installation Software guarantees easy configuration and rapid deployment.





Get the best return on your data

Monitor real-time consumption, injection and production,

- Add extra meters to monitor heavy consumers,
- Save cost by human error detection,
- Allocate cost based on your own tariff plan or upload your contracted tariff,
- Aggregate data from different locations,
- Verify savings,
- Report.

Easy energy integration & energy management.

CloudGate Smart IOT Gateway		 LTE WW	 Ethernet
WWAN Modem LTE	Supported frequency bands	<ul style="list-style-type: none"> LTE FDD: B1, B2, B3, B4, B5, B7, B8, B12, B13, B18, B19, B20, B26, B28 TDD: 38/39/40/41 	Not applicable
	Max. connectivity speeds	<ul style="list-style-type: none"> LTE DL 150 Mbps, UL50 Mbps 	
WWAN Modem 3G/2G	Supported frequency bands	<ul style="list-style-type: none"> GSM/GPRS/EDGE: 850/900/1800/1900 MHz (B2, B3, B5, B8) UMTS/HSDPA/HSUPA/HSPA+: 800-850/900/AWS (1700/2100)/1800/1900/2100 MHz (B1, B2, B4, B5, B6, B8, B19) 	Not included
	Max. connectivity speeds	<ul style="list-style-type: none"> DC-HSPA+ DL 42 Mbps, UL 5.76 Mbps 	Not included
	Rx Diversity	Simultaneous Equalization and Rx Diversity on all bands	Not included
WWAN Antenna	Antenna connector	<ul style="list-style-type: none"> 1 x SMA: WWAN Main 1 x SMA: WWAN Mimo/Div/GPS 	Not included
GPS		<ul style="list-style-type: none"> Standalone GPS, Assisted GPS, GPS OneXTRA™ Wideband GPS processing (20MHz) for improved measurement accuracy Passive/active GPS antenna support 	Not included
SIM	USIM/SIM connection – Class B and Class C	Micro-SIM (3FF)	Not applicable
CPU		i.MX280 (ARM926EJ-S @ 450 MHz) Memory available for customer apps 512 MB Flash (20 MB for data, 30 MB for application, 372 MB extra data partition)	ARM926EJ-S @ 450 MHz Memory available for customer apps 512MB Flash (available : 20MB for data, 30MB for application, 384MB extra data partition) 128MB RAM (available : 85 MB)
Ethernet (IEEE 802.3)	10/100Mb/s RJ45 Connector	2 (LAN/WAN or LAN/LAN)	✓
microSD card holder		on main PCB	Optional
Power control	Timed Wakeup	✓	<ul style="list-style-type: none"> Timed wake-up possible with RTC and Cortex M0 in sleep mode
	Ignition Sensing	✓	✓
Power Input	9-33V DC	<ul style="list-style-type: none"> DC input voltage: 9-33 V DC Connector: Micro-Fit 3.0TM, Dual row, 4-position; DC, GND sensing input 	✗
Battery	Optional	Li-Ion battery, optional last gasp function (up to 1h with limited functionality) Battery backup RTC (7days)	✗
Case	Dimension (115 x 105 x 45mm)	✓	✓
	Weight	285g	282g
	Mounting, Bulkhead, 4x M4 holes, DINrail with adapter	✓	✓
Environments	Operating temperature	-30°C to +70°C	-30°C to +70°C
	Storage temperature	-40°C to +70°C	-40°C to +70°C
	Humidity operational.: 5% - 95%	5% - 95%	5% - 95%
Certifications		CE, FCC, PTCRB, ISED, AT&T, VZW, US Cellular	CE, FCC, IC
Std. compliance	ROHS, Reach	✓	✓