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CloudGate Ethernet

Model: CG0102

The CloudGate Ethernet is an M2M gateway providing internet connectivity.

The base unit is designed around a main board. Its main features are listed in the table below:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ethernet (IEEE 802.3)</strong></td>
<td>• 10/100Mb/s RJ45 Connector</td>
</tr>
<tr>
<td><strong>Visual indicators</strong></td>
<td>• Seven 3 color LEDs showing system status</td>
</tr>
<tr>
<td><strong>Power input</strong></td>
<td>• DC input voltage: 9-33 V DC • Connector type: Micro-Fit 3.0™, Dual row, 4 circuits</td>
</tr>
</tbody>
</table>
| **Expansion Card Slots**   | • Two expansion card slots (one at the front and one at the back side of the device)  
• Expansion boards for I/O functions, such as Serial, USB, GPIO, WLAN, Accelerometer, etc. |
| **Metal case**              | • Aluminum housing 
• Dimensions: 115 x 105 x 45 mm (excluding antenna connectors) 
• Weight: 282 g
• Mounting: 6 through holes for M4 bolts or DIN rail with adapter |
| **Environmentals**         | • Operating temperature: -30°C to 70°C (*) 
• Storage temperature: -40°C to 85°C 
• Humidity operational: 5% - 95% non condensing |
| **Certification**           | • CE, FCC, IC                                                                                          |
| **Standard compliance**     | • ROHS, Reach                                                                                          |
| **CloudGate Universe**      | • Device can be configured OTA using CloudGate Universe                                               |

(*) See Safety Warning in the Environmental Specifications section

A more detailed hardware description can be found in the corresponding subsections.
A datasheet of the CloudGate Ethernet can be found here.

The CloudGate Ethernet has two expansion card slots that allow to insert a variety of expansion cards.
1.8.1. Main Board

The CloudGate Ethernet is designed around a main board. The processor on the main board controls all the interfaces.

The CloudGate also has two expansion board connectors to allow insertion of dedicated expansion cards.

The block diagram shows the overview.

Main Board Block Diagram (PDF)

Power Input

- V_PWR: min 9V DC, max 33V DC

Internal Power Supply

- Power input: V_PWR, min 9V DC, max 33V DC
- Stable 3.4V power rail
- Reverse polarity protection
- Over-voltage protection up to 60V
- Current limiter at 1.2A
- One-time fuse of 2A

Main Board Processor

- Freescale i.MX280 @ 450MHz
  - 64 MB RAM
  - 128 MB Flash memory
  - Ethernet interface
  - interfaces to the two expansion board connectors

Primary Expansion Card Slot

The primary expansion card slot is located at the front side of the CloudGate.

It has the following interfaces:

- Power supply: V_PWR, 3V4, 3V3
- 24 Mhz clock signal
- Master reset signal
- High speed USB interface
- High speed OTG USB interface
- SDIO interface
• GPIO signals
• Serial interface

Secondary Expansion Card Slot

The secondary expansion card slot is located at the back side of the CloudGate. It has the following interfaces:

• Power supply: V_PWR, 3V4, 3V3
• 24 Mhz clock signal
• Master reset signal
• High speed USB interface
• SDIO interface
• GPIO signals
Front and Back View of CloudGate Ethernet

The CloudGate Base Unit is assembled in the top half of the device. The bottom half is available for the insertion of expansion cards.

The front and back side of the CloudGate housing are closed by means of metal panels that are secured with Torx T6 screws.

The top panels are designed by Option and cannot be changed, since they provide the interfaces of the base unit. The bottom panels can be customized to match the external interfaces of the expansion card.

Front View

Connectors and LED indicators on the top front panel

On the front side of the device we can see the following:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ethernet port</td>
<td>10/100 Mbps RJ-45</td>
</tr>
<tr>
<td>2</td>
<td>Torx T6 screws</td>
<td>-</td>
</tr>
</tbody>
</table>

A detailed description of the LEDs is given in the section about the LED Indicators.

Bottom Front Panel
The bottom front panel covers the front expansion slot and has to be removed when installing a Primary Expansion Card.

Option provides a custom panel for the following primary expansion cards:

- Low Cost Serial Card
- Industrial Serial Card
- Ethernet Switch
- Ethernet Switch with PoE
- Telematics Card
- Breadboard Card

Back View

Connector and button on the top back panel

|   | Power connector | 9-33 VDC  
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Micro-Fit 3.0, dual row, 4 circuits</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Reset button</th>
<th>The explanation on how to use the reset button is explained here</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The functionality of the button is explained in the section about the Reset button

Bottom Back Panel
The bottom back panel covers the back expansion slot and has to be removed when installing a Secondary Expansion Card.

Option provides a custom panel for the following secondary expansion cards:

- WLAN Expansion Card
- WLAN Access Point Card
# LED Indicators on the CloudGate Ethernet

<table>
<thead>
<tr>
<th>LED</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WLAN State</strong></td>
<td>Indicates the connection status of the WLAN interface</td>
</tr>
<tr>
<td>Off: not installed</td>
<td></td>
</tr>
<tr>
<td>Orange: WLAN board = OK, client not connected and AP not enabled</td>
<td></td>
</tr>
<tr>
<td>Orange blinking: AP disabled and Client connected / data traffic</td>
<td></td>
</tr>
<tr>
<td>Red: board error/ (Any that causes AP or Client not to work)</td>
<td></td>
</tr>
<tr>
<td>Green: AP enabled</td>
<td></td>
</tr>
<tr>
<td>Green flashing: AP enabled and Client connected/data traffic</td>
<td></td>
</tr>
<tr>
<td><strong>WLAN Client Signal Strength</strong></td>
<td>Indicates the signal strength of the WLAN CLIENT interface when connected to a WLAN access point</td>
</tr>
<tr>
<td>Off: The WLAN CLIENT is off or not connected</td>
<td></td>
</tr>
<tr>
<td>Orange: The WLAN Client is receiving a moderate signal strength</td>
<td></td>
</tr>
<tr>
<td>Red: The WLAN Client is receiving bad signal strength</td>
<td></td>
</tr>
<tr>
<td>Green: The WLAN client is receiving good signal strength</td>
<td></td>
</tr>
<tr>
<td>Green flashing: n/a</td>
<td></td>
</tr>
<tr>
<td><strong>GPS/Aux State</strong></td>
<td>Indicates the GPS operation</td>
</tr>
<tr>
<td>Off: no WWAN modem installed</td>
<td></td>
</tr>
<tr>
<td>LED</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>GPS/Aux signal strength</td>
<td>Indicates the signal strength of the GPS Off: no WWAN modem installed</td>
</tr>
<tr>
<td>System State</td>
<td>Indicates successful power on and device readiness</td>
</tr>
<tr>
<td></td>
<td>Off: no power Orange: booting Red: error</td>
</tr>
<tr>
<td></td>
<td>Green: on Green flashing: n/a</td>
</tr>
<tr>
<td>WWAN State</td>
<td>Indicates WWAN or 3G interface availability and use</td>
</tr>
<tr>
<td></td>
<td>Off: no WWAN modem installed</td>
</tr>
<tr>
<td>WWAN Signal Strength</td>
<td>Indicates WWAN or 3G interface signal strength</td>
</tr>
<tr>
<td></td>
<td>Off: no WWAN modem installed</td>
</tr>
</tbody>
</table>
1.8.4. Ethernet Interface

This section describes the Ethernet interface on the CloudGate main board.

Ethernet Interface

- RJ-45 receptacle tab on top
- 10/100 Mbps
- 100BASE-TX
- Auto-MDIX

Pinout

Yellow LED:
- Active when operating speed is 100 Mbps
- Inactive when operating speed is 10 Mbps or when not connected

Green LED:
- Active when valid links are detected
- Blinks when activity is detected
- Inactive when not connected

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TX/RX+</td>
</tr>
<tr>
<td>2</td>
<td>TX/RX-</td>
</tr>
<tr>
<td>3</td>
<td>RX/TX+</td>
</tr>
<tr>
<td>4</td>
<td>Not used</td>
</tr>
<tr>
<td>Pin #</td>
<td>Function</td>
</tr>
<tr>
<td>-------</td>
<td>----------</td>
</tr>
<tr>
<td>5</td>
<td>Not used</td>
</tr>
<tr>
<td>6</td>
<td>RX/TX-</td>
</tr>
<tr>
<td>7</td>
<td>Not used</td>
</tr>
<tr>
<td>8</td>
<td>Not used</td>
</tr>
</tbody>
</table>

IMPORTANT: The auto-MDIX feature is always activated on the CloudGate. This feature automatically detects the required cable connection type (straight or crossed), and configures the connection appropriately, removing the need for crossover cables. In order for auto-MDIX to work correctly, auto-negotiation (auto speed and auto duplex) must be enabled on both sides of the link. Note that auto negotiation is always active on the CloudGate.

**WAN/LAN Switchover Feature**

The WAN/LAN switchover feature is a mechanism to maximize the internet connectivity via the Ethernet port.

The description of the related configuration parameters and the switchover mechanism itself can be found in the Ethernet Tab section of the CloudGate Setup Guide.
1.8.5. Power Requirements

Base Unit Power Supply

The symbol on the label at the bottom side of the CloudGate shows the power requirements:

![9-33V 1.2A]

- Input voltage must be between 9V - 33V DC
- Internal electronic fuse limits the input current to 1.2A

For the power cable between the external power supply unit and the CloudGate Option recommends to use a power cable that has a wire thickness of 22 AWG!

SAFETY WARNING
This CloudGate operates on DC power provided by a DC power supply or by an AC power adapter. Only use power supplies in the range 9-33V DC and make sure the product is installed near a power outlet that is easily accessible.
When using the KNX card, only use a 24Vdc power supply.

SAFETY WARNING
When using an AC adapter make sure that the ambient temperature doesn't exceed the specified temperature limits of the AC adapter.

SAFETY WARNING
The CloudGate is regarded a Class III equipment: this means that the protection against electrical shock is provided by means of power supplied by an SELV (Safety Extra Low Voltage) circuit and that the CloudGate does not generate hazardous voltages within itself.
When using an AC power adapter make sure it provides protection against electrical shock, class II, and that it is certified for the country where it will be used.

As a reference, the power supply available from Option has the following parameters:

- Output voltage 12V DC
- Max output current 1A

In case you would like to use an industrial power supply Option recommends the next:
It can be sourced through Farnel, Mouser, Digikey, ...
Power Connector

The power connector is a Micro-Fit connector from Molex (MX-43025-0400)

Power Connector Drawing (PDF)

Power Connector Datasheet (PDF)

Pinout

The following drawing shows the pinout of the power connector, seen from the terminal side.

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Input voltage</td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
</tr>
<tr>
<td>3</td>
<td>Not connected</td>
</tr>
<tr>
<td>4</td>
<td>Not connected</td>
</tr>
</tbody>
</table>

Power Consumption

You can find here a document describing all the different power consumption numbers

Preventing Fuse Overload
SAFETY WARNING
On old CloudGate models, a huge inrush current caused by capacitors inside the CloudGate may cause an internal fuse to break. When using an external power supply with an output voltage higher than 15V, Option recommends using a special cable which will reduce the amplitude of these charge currents. This cable can be obtained at your CloudGate distributor.
If the fifth digit of the serial number of the CloudGate is a "C", the CloudGate is an older model and susceptible to this remark. If the fifth digit is not a "C", the fuse of your CloudGate will not get broken due to these charge currents.
1.8.5.1. Internal Power Circuits

The voltage applied by the power adapter to the CloudGate is converted into different voltage rails on the main board. Two different power circuits make five different voltage rails.

Dedicated high current power circuit

- Provides two different voltage rails which both can deliver high current levels:
  - V_PWR: At the power adapter input of the CloudGate there is an overvoltage protection circuit and a current limiter of 1.2A. The V_PWR is the voltage level behind the current limiter. The protection circuit causes a little voltage drop lower than 1V.
  - 3V4: the 3V4 is a power rail generated by a dedicated power circuit on the main board. The 3V4 is used on the main board and is also available on the expansion boards.

Low power circuit generated by the micro controller

- Provides three voltage rails for very limited power:
  - 3V3: A 3.3V power rail provided by the micro controller is used on the mainboard and also accessible to the expansion boards
  - 1V8: A 1.8V power rail provided by the micro controller and only used on the main board
  - 1V2: A 1.2V power rail provided by the micro controller and only used on the main board

<table>
<thead>
<tr>
<th>Voltage Rail</th>
<th>Voltage</th>
<th>Usage</th>
<th>Max Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>V_PWR</td>
<td>Equals the voltage applied by the power adapter, minus the drop over the protection circuit</td>
<td>Use for power-hungry devices</td>
<td>Current is limited to 1.2A</td>
</tr>
<tr>
<td>3V4</td>
<td>3.4V</td>
<td>Powers all standard digital components on the expansion cards</td>
<td>3A maximum of which the main board is already using 1.5A. Only 1.5A is left for both expansion cards. (The sum of both expansion cards should be lower than 1.5A)</td>
</tr>
<tr>
<td>3V3</td>
<td>3.3V</td>
<td>Powers low power components or level</td>
<td>The DC/DC Converter is a triple</td>
</tr>
</tbody>
</table>
translators, e.g. between I/O signals from the processor and circuitry on the main board or on the expansion cards.

Output buck converter (3V3, 1V8 and 1V2). The maximum output current capability of each output of the converter is dependent on the loads on the other two outputs.

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1V8 1.8V</td>
<td>Internal use on the main board only</td>
<td>Internal use only</td>
</tr>
<tr>
<td>1V2 1.2V</td>
<td>Internal use on the main board only</td>
<td>Internal use only</td>
</tr>
</tbody>
</table>

Internal Power Circuits Block Diagram
1.8.6. Reset Button

On the back side of the unit there is a reset button behind the hole in the top panel (indicated by the "2" in the picture above).

This button allows to restart the unit or to reset it to the factory settings:

- press and hold for less than ten seconds to reset the unit to the last working settings,
- press and hold for ten seconds or more to reset the unit to factory settings.
1.8.7. Mechanical Drawings of the CloudGate Ethernet

- 3D file of the CloudGate Ethernet.
- 3D file of the front plate of the expansion cards \(^{(1)}\)

As there is no WWAN module inside, there are no RF connectors on the front plate of the CloudGate Ethernet.

Below you can find the dimensions of the CloudGate.
The 6 mounting holes in the CloudGate housing allow mounting on a wall or on a DIN rail. See the details in the "Mounting" section of the CloudGate Installation Guide.

Note 1:
The front plate for the expansion cards, both at the front and at the back side of the CloudGate, are identical.
1.8.7.1. IP-65 Requirements

Below you can find the parts for the encasing which are needed to fulfill the requirements for IP-65.

All these parts can be ordered by TAKACHI:

- 1x box BCAK 203013G or BCPK 203013S,
- 1x plate BMP 2030P,
- 1x screws (20pcs) MT4-8T,
- 1x bracket (2x4 pcs) BLF-2G(PC-GF) or CK-26P (metal SS)
- 3x cable gland MG-12S (3 inputs)
<table>
<thead>
<tr>
<th>Encasing M2M box</th>
<th>or</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Box</strong></td>
<td></td>
</tr>
<tr>
<td>![Box Diagram]</td>
<td>BCAK 203013G</td>
</tr>
<tr>
<td></td>
<td>(ABS+Key)UL94HB</td>
</tr>
<tr>
<td></td>
<td>WxDxH</td>
</tr>
<tr>
<td></td>
<td>200x300x131,5</td>
</tr>
<tr>
<td></td>
<td>BCPK 203013S</td>
</tr>
<tr>
<td></td>
<td>(PC + Key)UL94VO</td>
</tr>
<tr>
<td></td>
<td>WxDxH</td>
</tr>
<tr>
<td></td>
<td>200x300x131,5</td>
</tr>
<tr>
<td><strong>Plate</strong></td>
<td></td>
</tr>
<tr>
<td>![Plate Diagram]</td>
<td>BMP 2030P (ABS)</td>
</tr>
<tr>
<td></td>
<td>WxDxt</td>
</tr>
<tr>
<td></td>
<td>166,5x266x4</td>
</tr>
<tr>
<td><strong>screws</strong></td>
<td>MT4-8T</td>
</tr>
<tr>
<td></td>
<td>20PCS</td>
</tr>
<tr>
<td></td>
<td>M4 tapping</td>
</tr>
<tr>
<td><strong>Bracket</strong></td>
<td>BLF-2G (PC-GF)</td>
</tr>
<tr>
<td></td>
<td>4 Mounting brackets</td>
</tr>
<tr>
<td></td>
<td>4 screws M5x12</td>
</tr>
<tr>
<td></td>
<td>CK-26P (metal SS)</td>
</tr>
<tr>
<td></td>
<td>4 Mounting brackets</td>
</tr>
<tr>
<td></td>
<td>4 screws M5x10</td>
</tr>
<tr>
<td><strong>Cable gland</strong></td>
<td>MG-12S</td>
</tr>
<tr>
<td></td>
<td>Ø12</td>
</tr>
<tr>
<td></td>
<td>cable range Ø3-6,5mm</td>
</tr>
</tbody>
</table>
Environmental Specifications

- Operating temperature: -30°C to 70°C (*) see Safety Warning below
- Storage temperature: -40°C to 85°C
- Humidity operational: 5% - 95% non condensing
- Operating altitude: up to 2000m

Safety Warning
When the device is installed in a location where the environmental temperature can rise above 60°C, the temperature of the surface might reach high values and therefore under these conditions the user needs to be warned in order to prevent accidental contact. For this purpose the device has to be installed in a restricted access location and a warning sticker, in accordance with IEC 60417-5041 (DB:2002-10), must be applied on a visible part of the unit.
1.8.9. Shock Resistance

The next tests have been performed on the CloudGate and passed:

- **EUT state**: operational
- **Frequency range**: 10 … 2000Hz
- **Overall acceleration**: 3.6Grms
- **Crest Factor**: 3
- **Orientation**: 3 axis, X / Y / Z
- **Test duration**: 94 hours / axis
- **Profile**: See PSD table on 'additional info' sheet

<table>
<thead>
<tr>
<th>Test</th>
<th>Details</th>
<th>Spec number</th>
</tr>
</thead>
</table>
| Resonance search and dwell                | • EUT state: operational
   (Search for critical resonances and stress these to verify the reliability of the EUT.)
   • Frequency range: 10 … 2000Hz
   • Overall acceleration: 3.6Grms
   • Crest Factor: 3
   • Orientation: 3 axis, X / Y / Z
   • Test duration: 94 hours / axis
   • Profile: See PSD table on 'additional info' sheet | IEC 60068-2-6 |
| Vibration endurance                       | ISO 16750-3                                                            | IEC 60068-2-53|
| (Simulate rough conditions over lifetime.)|                                                                         |               |
| Shock Vibration (Bump)                    | • EUT state: operational
   (Simulate rough handling.)
   • Acceleration: 10gn
   • Pulse width: 11ms
   • Waveform: Half-sine
   • Amount of bumps: 100 / axis
   • Orientation: 3 axis, X / Y / Z | IEC60068-2-27 |
| Guided drop test                          | • EUT state: Non-operational
   (Simulate impact caused by dropping the device.)
   • Drop height: 150cm
   • Drop surface: concrete floor
   • Amount of impacts: 6 (1 per orientation)
   • Orientation: 6 axis, X+/X- / Y+/Y- / Z+/Z- | IEC60068-2-31 |
Certification information for CloudGate Ethernet

Model: CG0102

This page offers an overview of the country certifications and operator approvals obtained per region. This CloudGate model is approved for use in the countries listed below. For use in other countries, please consult your sales contact.

- Canada
- Chile
- Colombia
- European Economic Area (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxemburg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom)
- Peru
- Switzerland
- Turkey
- United States

Before installing your CloudGate device, read the Safety Guidelines section in the CloudGate Installation Guide carefully. Not following these guidelines can cause harm to the CloudGate, yourself or other persons.

Canada

The CloudGate Ethernet can be used in Canada and complies with the applicable Industry Canada regulations.

The CloudGate Ethernet can be used in Class I Div 2 Hazardous Locations. Click here for conditions for use.

INDUSTRY CANADA REGULATIONS

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:
(1) this device may not cause interference, and
(2) this device must accept any interference, including interference that may cause undesired operation of the device.
REGULATIONS INDUSTRIE CANADA

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:
(1) l'appareil ne doit pas produire de brouillage, et
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Chile

The CloudGate Ethernet can be used in Chile

Colombia

The CloudGate Ethernet can be used in Colombia

European Economic Area

The CloudGate Ethernet complies with the essential requirements of the EMC directive 2014/30/EU and the Low Voltage directive 2014/35/EU issued by the Commission of the European Union and carries the CE mark. The product can be used in the following countries of the European Economic Area: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

The Declaration of Conformity can be downloaded here.

Waste from Electrical and Electronic Equipment (WEEE)

Attention: Your product is marked with this symbol. Electrical and electronic equipment should not be disposed of with general household waste. There is a separate collection system for these items.

Please contact your supplier for information on their disposal policy. You may be charged for the costs of take-back and recycling. In some countries, small products in small quantities may be disposed of at designated collection facilities. Please contact
your local authority for details.

Peru
The CloudGate Ethernet can be used in Peru

Switzerland
The CloudGate Ethernet carries the CE mark and can be used in Switzerland.

Turkey
The CloudGate Ethernet carries the CE mark and can be used in Turkey.

United States
The CloudGate Ethernet can be used in the USA and complies with the applicable FCC rule parts.

The CloudGate Ethernet can be used in Class I Div 2 Hazardous Locations. Click here for conditions for use.

FCC REGULATIONS
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.

Federal communications commission notice
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Modifications

Any changes or modifications made to this device that are not expressly approved by Option could void the user's authority to operate the equipment.
Class I Div 2 Hazardous Locations

Model: CG0102

Expansion card models CG2101, CG1102, CG1106, CG3102

This page offers information on using your CloudGate product in Class I Div 2 Hazardous Locations in the countries listed below. For use in other countries, please consult your sales contact.

Please read the safety guidelines carefully. Not following these guidelines can cause harm to the CloudGate, yourself or other persons.

Canada & United States

The CloudGate Ethernet can be used in Canada and the United States and was tested under following standards:

- CSA C22.2 No. 213-M1987 "Non-incendive electrical equipment for use in class I, division 2 hazardous locations"
- ANSI/ISA-12.12.01-2013 "Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations"

The above mentioned model can only be used in Hazardous Locations when marked with the 'MET RECOGNIZED' logo. The above mentioned expansion card models can only be used when marked with the text "C1D2" on the label. Other existing CloudGate models and other expansion cards that are not present in the list above, shall not be used in hazardous locations.

This equipment is suitable for use in Class I, Division 2, Groups A, B, C, D or non-hazardous locations only.

- [Hazardous locations safety guidelines](#)
- [Normal locations safety guidelines](#)

UL60950

The CloudGate Ethernet was successfully tested against the UL60950-1 safety standard.