OPTION

# CloudGate



# Smart IOT Gateway

- Transports & Logistics
- Industrial & Remote Asset Monitoring
- Smart Cities & Environmental Monitoring

# CloudGate

## MODELS



| | | **LTE WW** | **3G US rev 3** | **3G EMEA rev 3** | **Ethernet 2.0** |
|---|---|---|---|---|---|
| **WWAN Modem** **LTE** | Supported frequency bands | 700/800/850/900/1800/1900/2100/2600/AWS (B 1-5, 7, 8, 13, 17, 18, 19, 20) | Not applicable | | |
| | Max. connectivity speeds | 100Mbps down, 50Mbps up (Cat3) Theoretical LTE data rates | | | |
| **WWAN Modem** **3G/2G** | Supported frequency bands | • UMTS/HSDPA/HSUPA/HSPA+: 850/900/1900/2100 MHz and AWS band (1700/2100 MHz) (B 1, 2, 4, 5, 8) • GSM/GPRS/EDGE: 850/900/1800/1900 MHz | • UMTS/HSDPA/HSUPA/HSPA+: 800-850/900/ 1900/2100 MHz and AWS band (1700/2100 MHz) (B1, 2, 4, 5, 6, 8) • CDMA 1xRTT/EV-DO rev0/EV-DO revA: 800/1900 (BC0, BC1) • GSM/GPRS/EDGE: 850/900/1800/1900 MHz | • UMTS/HSDPA/HSUPA/HSPA+: 900-2100 MHz (B1, 8) • GSM/GPRS/EDGE: 900/1900 MHz | Not included |
| | Max. connectivity speeds | • DC-HSPA+: 42 Mbps (Cat 24) down 5.76 (Cat 6) up | • HSPA+: 14.4 Mbps (Cat 10) down 5.76 (Cat 6) up • EV-DO RevA mode: 3.1 Mbps FL/1.8 Mbps RL | • HSPA+: 14.4 Mbps (Cat 10) down 5.76 (Cat 6) up | Not included |
| | Rx Diversity | Simultaneous Equalization and Rx Diversity on all bands | Simultaneous Equalization and Rx Diversity on all bands | Simultaneous Equalization and Rx Diversity on all bands | Not included |
| **WWAN Antenna** | Antenna connector | • 1 x SMA: WWAN Main • 1 x SMA: WWAN Div/GPS | • 1 x SMA: WWAN Main • 1 x SMA: WWAN Div/GPS | • 1 x SMA: WWAN Main • 1 x SMA: WWAN Div/GPS | Not included |
| **GPS** | | • High sensitivity A-GPS /A-GLONASS receiver (SUPL 1.0 & SUPL 2.0) • Active GPS antenna support | • Standalone GPS, Assisted GPS, GPS OneXTRA™ • Wideband GPS processing (20MHz) for improved measurement accuracy • Passive/active GPS antenna support | • 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 | ✔ | ✔ | ✔ | Not applicable |
| **CPU** | | ARM926EJ-S @ 450 MHz Memory available for customer apps 512MB Flash (available : 20MB for data, 30MB for application, 372MB extra data partition) 128MB RAM (available : 85 MB) | ARM926EJ-S @ 450 MHz Memory available for customer apps 512MB Flash (available : 20MB for data, 30MB for application, 372MB extra data partition) 128MB RAM (available : 85 MB) | ARM926EJ-S @ 450 MHz Memory available for customer apps 512MB Flash (available : 20MB for data, 30MB for application, 372MB extra data partition) 128MB RAM (available : 85 MB) | 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 | ✔ | ✔ | ✔ | ✔ |
| **microSD card holder** | | ✔ | Not included | Not included | Optional |
| **Power control** | Timed Wakeup | ✔ | • Timed wake-up possible with RTC and Cortex M0 in sleep mode • Remote modem wake-up | • Timed wake-up possible with RTC and Cortex M0 in sleep mode • Remote modem wake-up | • Timed wake-up possible with RTC and Cortex M0 in sleep mode |
| | Ignition Sensing | ✔ | ✔ | ✔ | ✔ |
| **Power** | DC Power in, 9-33 V DC | ✔ | ✔ | ✔ | ✔ |
| | Connector type Micro-Fit, Dual row, 4 circuits | ✔ | ✔ | ✔ | ✔ |
| **Case** | Dimension (115 x 105 x 45mm) | ✔ | ✔ | ✔ | ✔ |
| | Weight | 304g | 294g | 294g | 282g |
| | Mounting, Bulkhead, 4x M4 holes, DINrail with adapter | ✔ | ✔ | ✔ | ✔ |
| **Environ-mentals** | Operating temperature | -30°C to +70°C | -30°C to +70°C | -30°C to +70°C | -30°C to +70°C |
| | Storage temperature | -40°C to +70°C | -40°C to +70°C | -40°C to +70°C | -40°C to +70°C |
| | Humidity operational.: 5% - 95% | 5% - 95% | 5% - 95% | 5% - 95% | 5% - 95% |
| **Certifications** | | CE, FCC, IC, PTCRB, E-mark, EN50155, AT&T, T-Mobile, Verizon, Latam, Australia, Singapore | FCC, IC, PTCRB, IFETEL, AT&T, T-Mobile, Sprint, Verizon, Bell Mobility, Telus, Aeris, Telcel, Entel, US Cellular, Latam | CE, TRA, E-mark, RCM | CE, FCC, IC |
| **Std. compliance** | ROHS, Reach | ✔ | ✔ | ✔ | ✔ |
| **CloudGate Universe** | Device can be configured OTA using CloudGate Universe | ✔ | ✔ | ✔ | ✔ |
| **Expansion cards** | 2 x expansion slots for adding cards | ✔ | ✔ | ✔ | ✔ |
| **For developers** | Support CloudGate development kit: Developer board, Breadboard, SDK, HDK | ✔ | ✔ | ✔ | ✔ |
| **In the box** | Accessories are available (i.e. Power cable, antenna's etc.) | CloudGate Gateway | CloudGate Gateway | CloudGate Gateway | CloudGate Gateway |
| **Product Code** | | CG0114-12019 | CG0198-12042 | CG118-12043 | C102-11972 |

## CloudGate

### ACCESSORIES

1008855  3g/LTE antenna (Grandtek)
1008379  WiFi antenna (Taoglass)
1009568  External antenna LTE/GPS A/WiFi AP 1533-b 0,4m
1009607  External antenna LTE/GPS A/WiFi AP 1533-b 1,5m
1009608  External antenna LTE/GPS A/WiFi AP 1533-b 3m

1008098  868/900 MHz antenna (Pulse)
1008607  DC power cable with microfit connector 3m (3-wire)
1009120  AC power supply 12V/1.5A class 6 and cable with microfit connector 1.5m (interchangeable blades)
1008890  US interchangeable plug for power supply
1008889  EU interchangeable plug for power supply

1008891  UK interchangeable plug for power supply
1009077  AU interchangeable plug for power supply
CG7101-12018  Telematics IO break-out board and cable
108837  Telematics card IO connector (9x2)
1008836  Precrimped cables for Telematiccs card IO connector (300mm, 20 AWG)

# CloudGate
## EXPANSION CARDS

| STANDARD CARDS | | NON-STANDARD |
|---|---|---|
| Front slot | Back slot | Front slot |



**STANDARD SERIAL CARD**
CG1101-11919
- One RS-232 serial port 921,6 Kbaud maximum speed



**INDUSTRIAL SERIAL CARD**
CG1102-11920
- One RS-232 serial port 921,6 Kbaud maximum speed
- One 2KV isolated RS-485 serial port 921,6 Kbaud maximum speed, full duplex or half duplex, 2 wire or 4 wire. Switchable termination.



**ETHERNET EXPANSION CARD** CG1104-11936
- 4-port 10/100 Base-T, µSD card holder

**DEVELOPER CARD for SW developer** CG1105-11937
- Extended format card for with headers for all interfaces.
- Includes headers for access to USB, USB on the go, RS-232, I2C, SPI/SD and GPIO lines.
- On board temperature sensor, relay, SD card slot and RS232 serial port.



**TELEMATICS CARD - extended IO & CAN**
CG5106-11984
- Adds flexible IO and RS232/ RS485/USB/CAN connectivity for industrial and telematics applications to CloudGate
- Built-in 3 axis accelerometer for movement detection and other applications
- Additional SIM card slot for back-up roaming SIM
- Built-in microcontroller offloads all IO from CloudGate
- Breakout card (CG7101-12018) available for developers

**BLE Bluetooth Low Energy CARD** CG1119-12096
- Bluetooth 4.2 LE
- Nordic Semiconductor nRF52 chipset
- Multiprotocol radio allows other protocol stacks as well
- OTA-DFU (Over-The-Air Device Firmware Update) capable
- Connect (i)Beacons to your CloudGate for RTLS applications



**BREADBOARD CARD for HW developer**
CG1108-11980
- Ideal for prototyping your own expansion card.
- Supports 3 types of connections:
  - All signals on the back connector can be tapped off on breadboard area near this connector
  - 2.54 mm pitch components can be soldered on main breadboard area
  - 3.5 mm pitch connectors can be soldered on two front rows to provide a more reliable and longterm connection

**LoRaWAN CARD**
CG2118-12078 (868 MHz)
CG2119-12091 (915 MHz)
CG2121-12098 (433 MHz)
- Available for 433 MHz, 868 MHz and 915 MHz LoRa devices
- Connects LoRa sensors/actuators to private & public LoRa networks
- Optionally combined with WLAN connectivity



**WLAN CARD Client & Access point** CG2101-11921
- 802.11 a/b/g/n
- Access point up to 10 simultaneous users



**MONNIT® CARD**
CG2111-12049 (868 MHz)
CG2112-12050 (900 MHz)
CG2113-12054 (433 MHz)
- Available for 433 MHz, 868 MHz and 900 MHz Monnit devices
- Connects up to 100 Monnit sensors

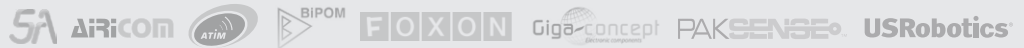| | |
|---|---|
| CG1109-11991 | • Ethernet card - 1 port |
| CG1103-11935 | • Ethernet card - 4 port with PoE |
| CG1106-11957 | • Telematics card |
| CG5106-11983 | • Telematics card with extended IO |
| CG5106-12052 | • Telematics card with extended IO (4-port current loop) |
| CG5106-12039 | • Telematics card with extended IO and CAN (4-port current loop) |
| CG1110-12012 | • KNX card |
| CG5221-12023 | • KNX bus with RS485 expander and P1 |
| CG1121-12080 | • Xbee card |
| CG1118-12064 | • Smartcity card |
| CG1120-12079 | • M-bus slave - wM-bus card |

| Back slot | |
|---|---|
| CG2102-11994 | • WXLAN access point card |
| CG2103-12047 | • Monnit® card with WLAN (868 MHz) |
| CG2104-12048 | • Monnit® card with WLAN (900 MHz) |
| CG2105-12053 | • Monnit® card with WLAN (433 MHz) |
| CG2117-12065 | • Xbee card |
| CG2120-12090 | • Smart Metering card |

## PARTNER CARDS

5A  AiriCOM  ATIM  BiPOM  FOXON  Giga-concept  PAKSENSE  USRobotics

| Front slot | | | Back slot |
|---|---|---|---|
| • AiriCOM - Industrial grade IO card | • BiPOM - SiFlex card | • Giga Concept - RFID card | • 5A - MicroSD holder card |
| • ATIM - LoRa card | • BiPOM - Multiwireless card | • Paksense - Temperature sensing card | |
| • BiPOM - nano-WiPom card | • BiPOM - Monnit card | • USRobotics - Modemulator card | |
| • BiPOM -2-RS232 & USB card | • BoilerConnect - GPIO card | | |
| • BiPOM - 4-port USB card | • Foxon – IQRF card | | |

## CloudGate
### APPLICATIONS

# LuvitRED

Award-winning visually configurable CloudGate application for design and deployment of smart IoT solutions delivering true IoT edge computing.
Key features:
- 'Drag & drop and visual wiring' configuartion environment for Cloudgate devices
- 'Drag and drop' and visual wiring configuration with minimal programming
- Rapid application development in only minutes
- Supports a wide variety of sensors aka 'node sets'
- Reduces risk/lowers development cost
- Shorter sales cycles
- Drives innovation by enabling 'risktaking'

# SRAS
SECURE REMOTE ACCESS SERVICE

Provides Secure Remote Access from your laptop/smartphone to your CloudGate gateways and the devices attached to it. VPN tunnel is set-up from the CloudGate gateway to the SRAS server and from your computer to the SRAS server, creating a secure end-to-end connection
Benefits:
- CloudGate gatweay can create VPN tunnels upon request without the need for a permanent VPN tunnel thus reducing the data traffic associated with secure remote access
- VPN tunnel leverages built-in VPN clients of major OS suppliers and device manufacturers making life cycle management easier, robust & cost effective
- Self provisioning and support for bulk device provisioning via webbased UI
- Fully qualified domain names used to obtain access to the device
- Multi-tier support - device access based on permissions

## CloudGate
### UNIVERSE

With CloudGate Universe Option supports its partners by providing the easiest and most cost effective deployment mechanism for their software solutions. A provisioning system dedicated to delivering Option and third party software and product configuration to CloudGate gateways.
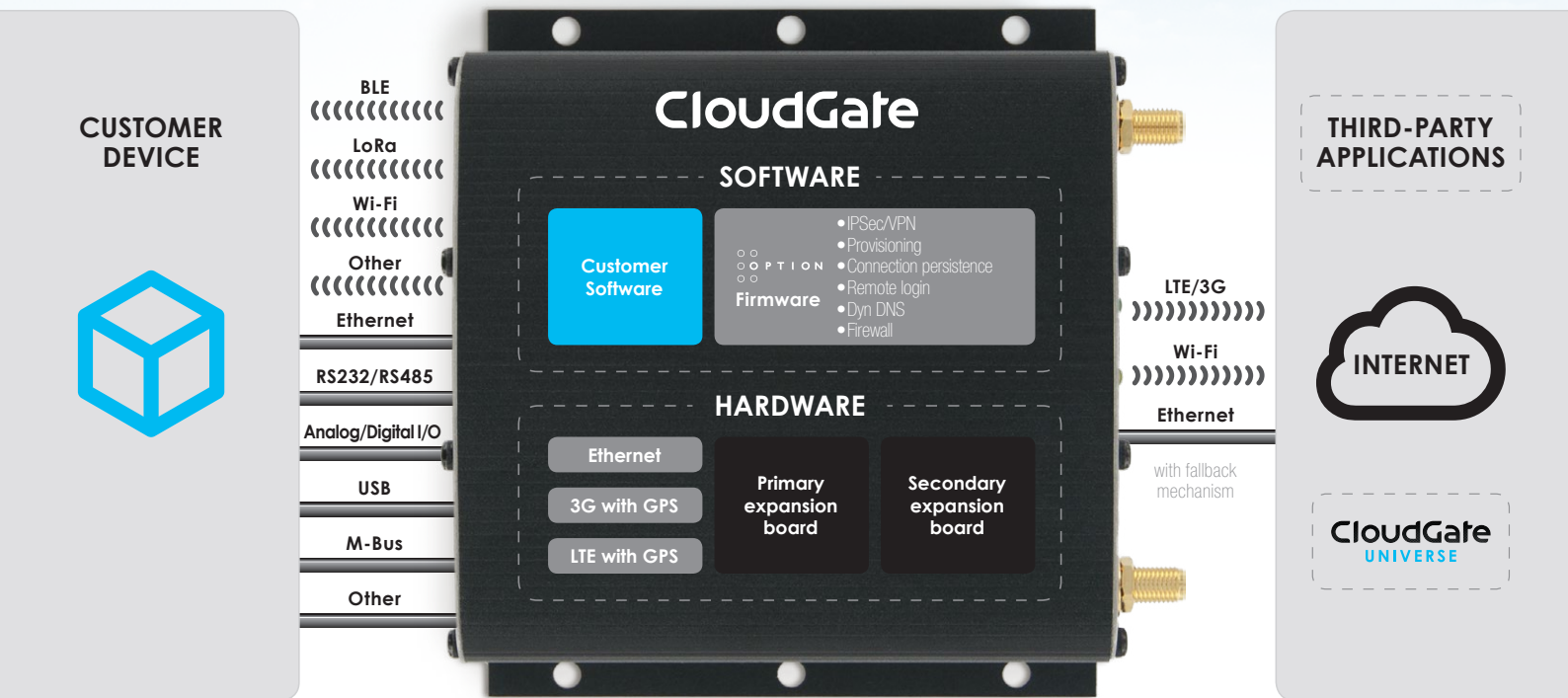CloudGate Universe is part of the CloudGate solution with no registraton cost or yearly fees and no competition with system integrator or software developer services and products.
Configure just one, some or all your devices for a particular site, application or customer and configure all your devices to the same device setting.

**www.cloudgateuniverse.com**

**O P T I O N**

Option Wireless Technology's CloudGate is the carrier-approved IoT solution platform that delivers device connectivity, security and processing power for global IoT applications.

It includes the world wide carrier-approved intelligent Cloudgate gateway that comes with CloudGate Universe, Option's cloud-based configuration and deployment platform, as well as the CloudGate SDK for rapid application development, the CloudGate HDK for prototyping custom expansion cards and award-winning LuvitRed, a visually configurable device agent with easy-to-use graphical, "drag and drop &visual wiring " configuration. LuvitRed overcomes complexities of the vast variety of protocols used in different IoT verticals and delivers true IoT Edge Computing capabilities on Cloudgate in an easy way. A pre-built library of software applications and modular hardware extensions ensure ease of deployment and maximum flexibility. Only Option delivers a complete M2M ecosystem.

## CUSTOMER DEVICE

BLE
LoRa
Wi-Fi
Other

Ethernet
RS232/RS485
Analog/Digital I/O
USB
M-Bus
Other

## CloudGate

### SOFTWARE

Customer Software

**O P T I O N** Firmware
- IPSec/VPN
- Provisioning
- Connection persistence
- Remote login
- Dyn DNS
- Firewall

### HARDWARE

- Ethernet
- 3G with GPS
- LTE with GPS

Primary expansion board

Secondary expansion board

## THIRD-PARTY APPLICATIONS

LTE/3G
Wi-Fi
Ethernet

with fallback mechanism

INTERNET

CloudGate UNIVERSE

option.com

DataSheet_v1.5.3

**1. Select a CloudGate model with expansion cards and/or accessories to suit your needs**

**2. Configure CloudGate Universe, the provisioning server**

**3. …and start to CONNECT THINGS to the Cloud**