CAREL – Confidential



**REQUIREMENTS SPECIFICATION**

Gateway Middle End

rev. 0.02

DRAFT CONFIDENTIAL

Index

[Index 2](#_Toc20987300)

[Revision 3](#_Toc20987301)

[Definitions, acronyms, and abbreviations 4](#_Toc20987302)

[1 Introduction 5](#_Toc20987303)

[1.1 Scope of RS 5](#_Toc20987304)

[2 Hardware Requirement Specification 6](#_Toc20987305)

[2.1 Memory summary 6](#_Toc20987306)

[2.2 2G Model 6](#_Toc20987307)

[2.3 WiFi Model 7](#_Toc20987308)

[3 Production 8](#_Toc20987309)

[3.1 Labels 8](#_Toc20987310)

[3.2 Packaging 8](#_Toc20987311)

[3.3 2G model - GTW000MGP0 8](#_Toc20987312)

Revision

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| --- | --- | --- | --- |
| Rev. | Rev. date | Author | Note |
| *0.01* | *xx/09/2019* | *A.Bilato* | Initial draft |
| 0.02 | XX/10/2019 | *A.Bilato* | Added production notes |
| 0.03 | 10/10/2019 | *A.Bilato* | Added request for 2G HW |
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Definitions, acronyms, and abbreviations

GME = Gateway Middle End  
FW = firmware

IoT = Internet of Things

OTA = Over The Air

SW = software

CAREL server = the cloud system of CAREL  
CCL = CAREL Cloud Library

GTW000MGT0 = CLOUDGATE BASIC WIRELESS 2G - 1 RS485 -   
 THIRD PARTY CLOUD

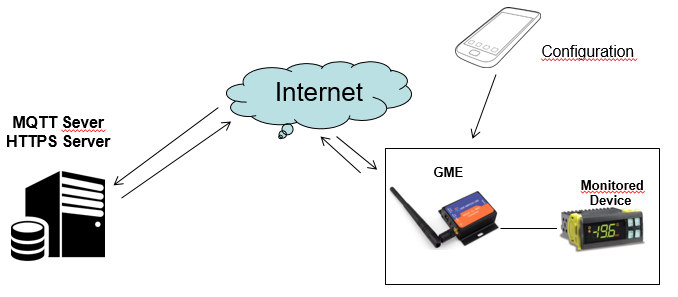
GTW000MGP0 = CLOUDGATE BASIC WIRELESS 2G - 1 RS485

GTW000MWT0 = CLOUDGATE BASIC WIRELESS WI-FI - 1 RS485

1. Introduction
   1. Scope of RS

This is the requirement specification for the Gateway Middle End (GME) that will be available in two version 2G and WiFi, in short this device will be able to:

1. monitoring one (1) device through an RS485 port through Modbus protocol
2. log some variables in the internal memory (RAM) for a very limited time slot,  
   this to reduce the number of transfer to the cloud
3. transfer the logged variables to the CAREL cloud through MQTT
4. Receive some variables values from the CAREL cloud MQTT and transmit it to the connected device.
5. Transfer data to a target via Modbus file transfer
6. receive a device model definition file from the CAREL cloud,  
   this file contain the map of the variables that the GME read from the connected target
7. receive security certificate file from the CAREL cloud



1. Hardware Requirement Specification
   1. Memory summary

A quick recap of the required memory previously agreed with USR and common to all models.

|  |  |
| --- | --- |
| **Use** | **Available Area Size** |
| Security certificate | 8K bytes (2 files x 4K bytes) |
| Device model | 2K bytes |
| Space to store some CAREL information in a file format.  ie. Configuration parameters | TBD: USR give us available maximum space, right now CAREL require no less than 512 bytes of space. |

* 1. 2G Model

As already agreed with USR the idea is to implement a device based/like the USR-GPRS-730 model but with the GM35/V2 (Nota A) module inside, this to meet the memory requirement needed to fit our application (ie. OTA upgrade).  
Other requirements are:

1. A new polycarbonate (graphic design by CAREL)
2. RS485 with 3 pole removable screw terminal 3.81mm type (or 5.08mm)  
   CAREL standard. The RS232 port is not required, as previously agreed.
3. A new request to USR is the possibility to have, please give us a feedback if it is possible.  
   A TTL serial port with the same pin out of the GTW000WT, this port work in alternative to the RS485 port.  
   To select the TTL/RS485 port the possible choices are
   * Via SW, via an MQTT message (not via SMS due to the fact that some   
     data SIM don’t have the support for the SMS)
   * Via DIP switch, this is more simple also for the user.

1. A side label with some informations (see label documentation <GME_Labeling.ppt>):
   * Product Code
   * Serial number (serialized by USR)
   * IMEI
   * Carel Control Code
   * QR Code
2. All the rest of the characteristics are the same of the USR-GPRS-730
3. A magnetic antenna with up to 3 meters of cable is part of the offer.
4. There are two models:   
   a. One with a SIM card provided by CAREL and installed by USR.  
    The model part number is GTW000MGP0  
   b. One without any pre-installed SIM  
    The model part number is GTW000MGT0
5. The HW must be certified for CE/RED.

Nota A  
GM35/V2 use RDA8955L, (32Mb+32Mb)

* 1. WiFi Model

The WiFi model will use the current HW of the model GTW000WT.   
  
Other requirements are:

1. A new polycarbonate (graphic design by CAREL)
2. A side label with some informations (see label documentation <GME_Labeling.ppt>):
   * Product Code
   * Serial number (serialized by USR)
   * MAC address
   * Carel Control Code
   * QR Code
3. The HW is already certified CE/RED and FCC/IC but we wish to be reassured that there are no certification problems when changing FW and product code.
4. The model part number is GTW000MWT0.
5. Production
   1. Labels

One of the requirement is about the product labeling, all the things related to this aspect are listed in the GME\_Labeling.ppt file.

* 1. Packaging

There aren’t special packaging requirements

* GTW000MWT0 - CLOUDGATE BASIC WIRELESS WI-FI - 1 RS485  
  will use the same white carton box of the current GTW000WT.
* GTW000MGT0 and GTW000MGP0 - CLOUDGATE BASIC WIRELESS 2G  
  a white carton box like the above model is fine.
  1. GTW000MGP0 - CLOUDGATE BASIC WIRELESS 2G - 1 RS485

This gateway will mount a SIM card supplied by CAREL.  
We will send you batch of SIM card before to place a production order.

We require a specific test to verify that the SIM is properly installed and working fine.

Our idea about this is quite simple,

* Install the CAREL SIM card
* power on the GTW000MGP0
* wait the connection to the cellular provider for max xx seconds
* If the led GPRS will light on, the test is passed.

If the test do not pass, the possible reason are:

* Damaged gateway HW
* An error in the installation of the SIM Card or problem with the SIM card holder.
* Damaged CAREL SIM card or an error in the programmation of the SIM Card;

Unfortunately, we have experienced that in some case the SIM card not work   
due to an error in the programmation, very rare but sometimes happen.

* Trouble with cellular provider.
  1. GTW000MGT0 - CLOUDGATE BASIC WIRELESS 2G - 1 RS485 - THIRD PARTY CLOUD

This gateway will not mount a SIM card.

USR will do the usual test to assure that the gateway work, nothing ,ore.