CG9103-2RS232-1USB
User Manual

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WARRANTY:

BiPOM Electronics warrants CG9103-2RS232-1USB for a period of 3 years. If the board becomes defective during this period, BiPOM will at its option, replace or repair the board. This warranty is voided if the product is subjected to physical abuse or operated outside stated electrical limits. BiPOM Electronics will not be responsible for damage to any external devices connected to CG9103-2RS232-1USB. BiPOM Electronics disclaims all warranties express or implied warranties of merchantability and fitness for a particular purpose. In no event shall BiPOM Electronics be liable for any indirect, special, incidental or consequential damages in connection with or arising from the use of this product. BiPOM Electronics' liability is limited to the purchase price of this product.

Overview

CloudGate is an intelligent 3G or LTE M2M gateway and wireless Linux computer from Option®. CloudGate provides cell modem, LAN to WWAN routing and GPS functionality in a single basic unit for remote monitoring and control applications.

On top of the basic functionality, CloudGate can be tailored to meet specific industrial requirements by adding additional software and peripheral boards. CG9103-2RS232-1USB is one such peripheral board for CloudGate.

CG9103-2RS232-1USB is a miniature interface board, containing dual channel RS-232 line driver / receiver, and USB Host and OTG interface circuit. The combination of CG9103-2RS232-1USB and CloudGate offers unmatched connectivity to a wide variety of external devices. CG9103-2RS232-1USB is fully backed by a 3-year warranty, technical support and application assistance from BiPOM.

Specifications

- One 4-wire RS-232 port: TXD,RXD,CTS,RTS
- One 2-wire RS-232 port: TXD,RXD
- TIA / EIA –232-F compliant
- One USB Host interface with software controlled power management.
- One MicroSD socket with software controlled power management.
- 5VDC/1A power available to external devices
- Powers from CloudGate
- Low power consumption: Under 1mA when idle
- Protected against Electrostatic Discharge (ESD)
- FCC Certified

Target Applications:

- Oil and Gas Monitoring
- Irrigation Generator Set Monitoring
- Energy Monitoring
- Utility Meter Remote Monitoring
- Factory Automation
- Vibration Monitoring
- Sensor Networks
- Medical Devices
- Asset Tracking

Ordering Information

- CG9103-1USB (Single USB Host)
- CG9103-2RS232-1USB (Dual RS232 plus single USB Host)

Both models have microSD socket.

Board Layout

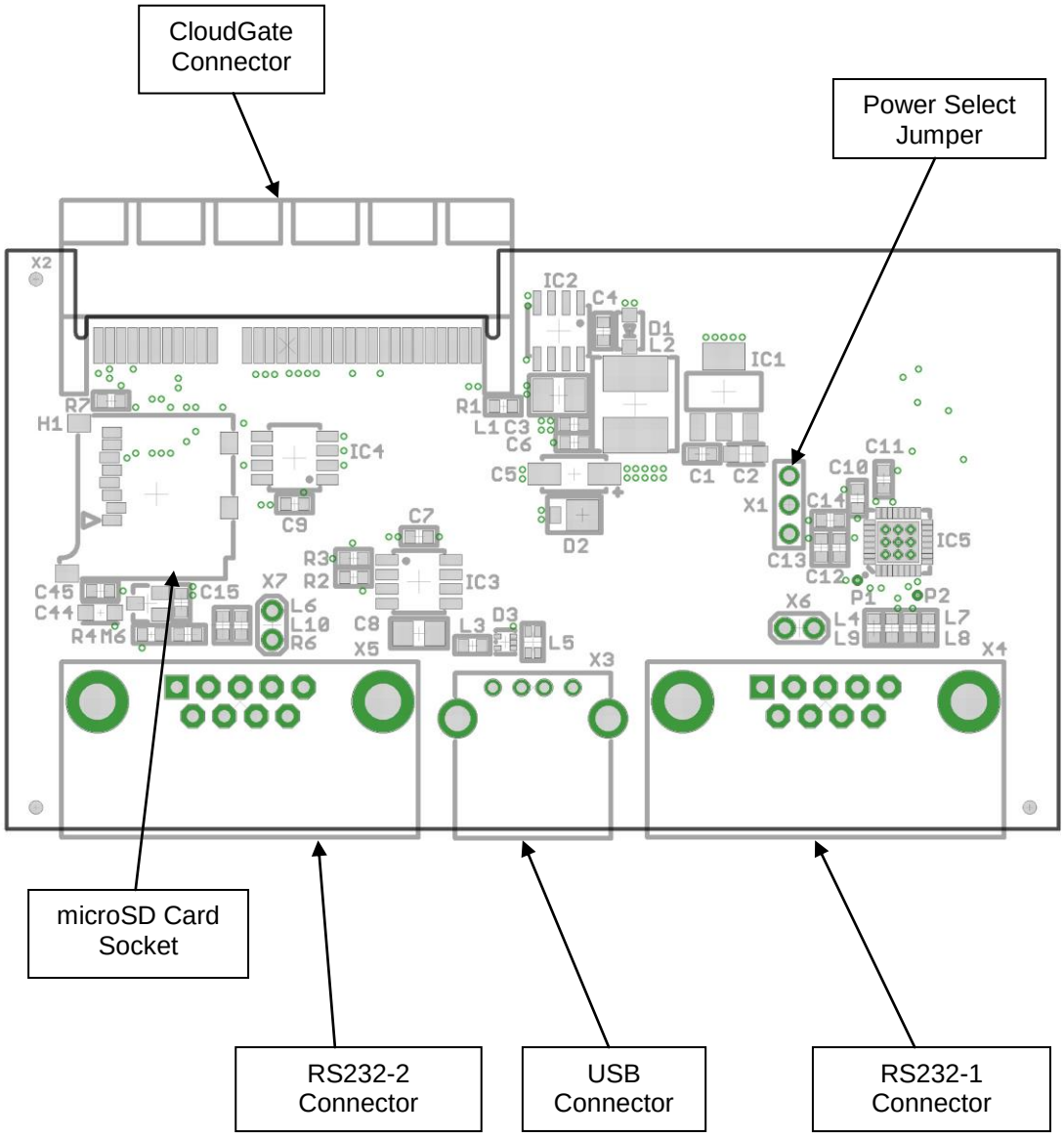


Figure 1

RS-232 ports and USB

The placement of USB and RS232 connectors at the front panel is shown on Figure 2:

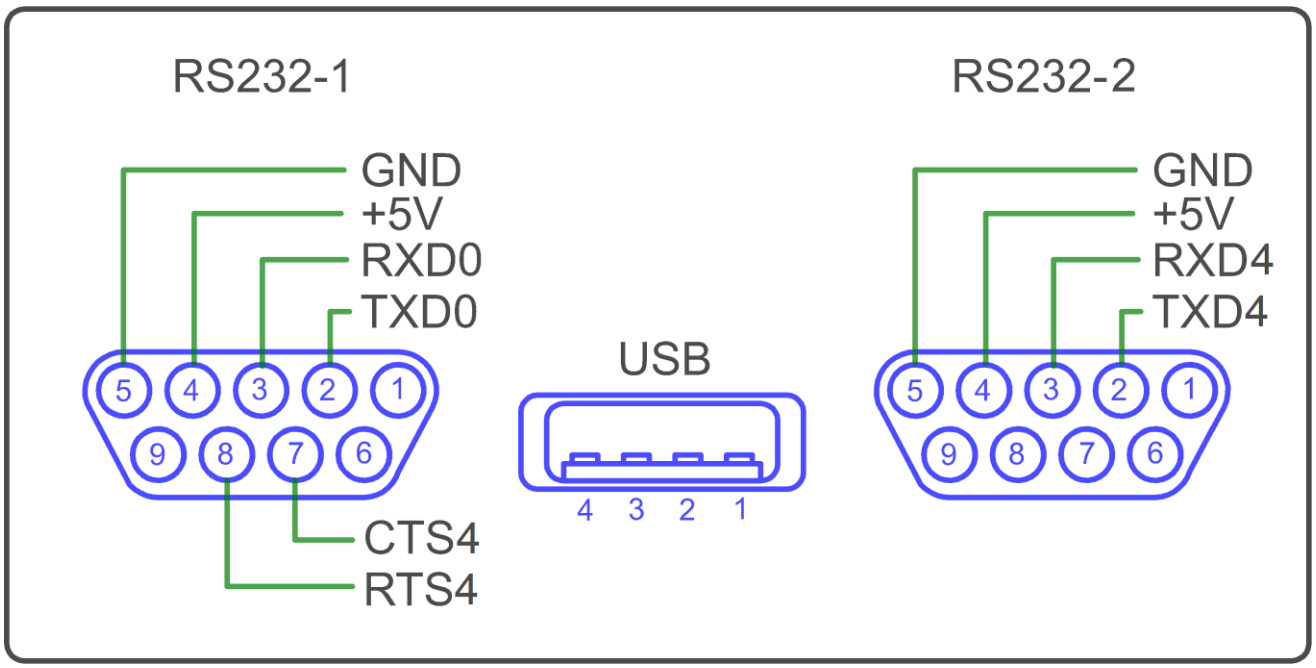


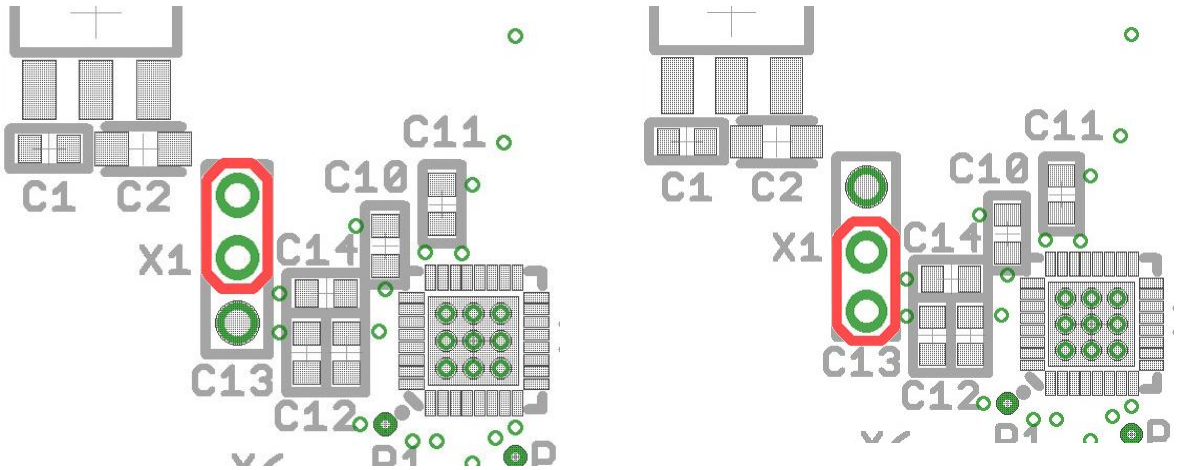
Figure 2

MicroSD Card Holder

CG9103-2RS232-1USB has a socket for a microSD card operation for data storage and other purposes. MicroSD card is accessible from CloudGate Linux.

Power Select Jumper

CG9103-2RS232-1USB can be powered either from its on-board power supply, or from CloudGate 3.4V. Figure 2 shows how Jumper X1 is used to switch between these two options:



Internal Power Supply

Power supply from CloudGate 3.4V

Figure 2

RS232 Power Jumpers

When installed, jumper X6 connects +5V power supply to Pin #4 (DTR) of RS232-0 connector.

When installed, jumper X7 connects +5V power supply to Pin #4 (DTR) of RS232-1 connector.

Software

CG9103-2RS232-1USB can be accessed using the serial framework for CloudGate.

BiPOM also provides a test developer image that enables the Linux drivers for CG9103-2RS232-1USB. After installing the developer image through the CloudGate provisioning web interface:

1. From Linux command shell, microSD card can be mounted to /tmp/mmc using:

mkdir /tmp/mmc; mount /dev/mmcblk0 /tmp/mmc; cd /tmp/mmc

2. From Linux command shell, an external USB flash drive on USB port cane be mounted to /tmp/usb using:

mkdir /tmp/usb; mount /dev/sda /tmp/usb; cd /tmp/usb

3. A built-in terminal program allows RS232 loopback testing (without handshake lines) when a NULL modem cable is connected between the two RS232 connectors. Terminal can be started using:

For RS232-1 port:

/rom/mnt/cust/bin/terminal -d /dev/ttySP0

For RS232-2 port:

/rom/mnt/cust/bin/terminal -d /dev/ttySP4

4. A built-in terminal program allows RS232 loopback testing (using the handshake lines RTS and CTS on RS232-1 port) when a NULL modem cable is connected between the two RS232 connectors. Two separate sessions of the terminal program can be started in two separate Linux shell windows using:

/rom/mnt/cust/bin/terminal -d /dev/ttySP4

/rom/mnt/cust/bin/terminal_handshake -d /dev/ttySP0

If RTS-0 and CTS-0 are not connected, it is not possible to send data from SP0 to SP4.

SP4 can still send and SP0 will receive.

To send data from SP0 to SP4 necessary to connect RTS-0 and CTS-0 externally so handshake lines will be used to control RS232 traffic.