

EZmoto V2



Product description

Rev. 6 – 10/01/2014

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1. Overview

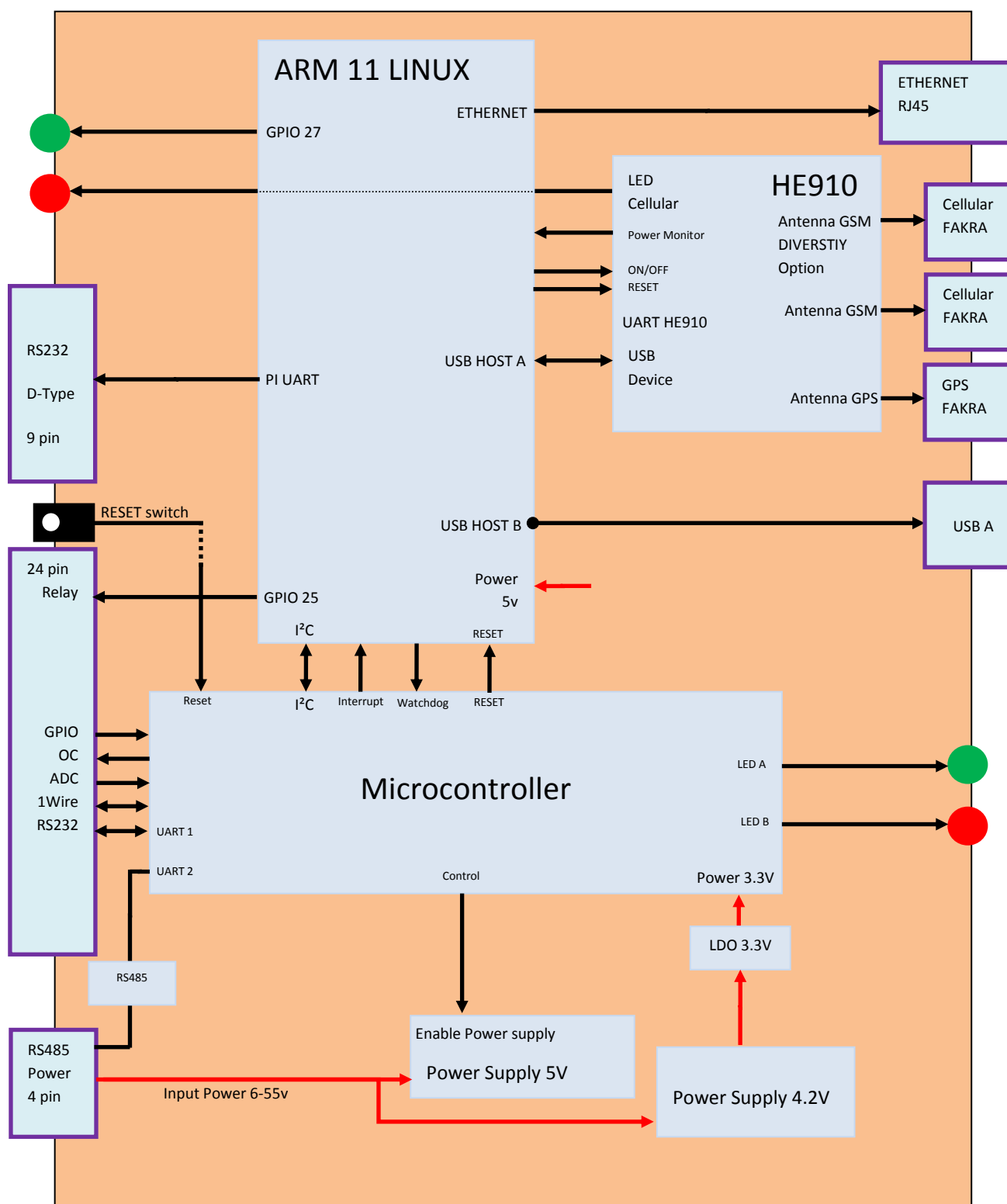
The mobile router EZmoto is a complete 3G Cellular Router solution (with GPS) that allows Ethernet-based devices to utilize a cellular data account.
EZmoto based on Telit HE910 module and ARM 11.

2. Hardware Interface Description

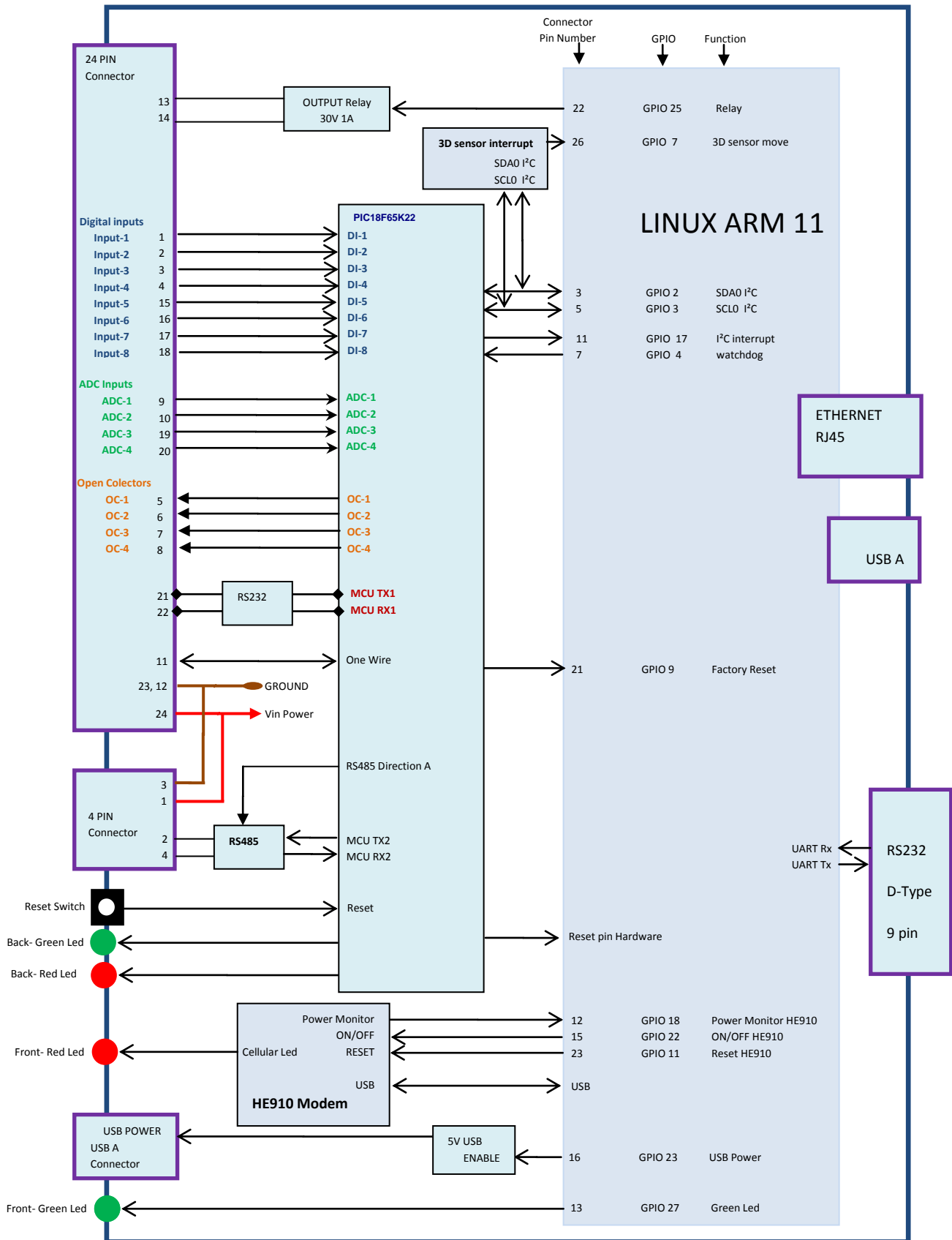
2.1 Main features of the EZmoto

| Feature | Implementation |
|---------------------------------|---|
| Incorporates Telit HE910 module | The Telit module handles all GSM/UMTS GPS |
| Frequency bands | GSM: 850/900/1800/1900/2100MHz UMTS/HSPA+: 800/850/900/1700/1900/2100MHz |
| Incorporates ARM 11 | Introduced the ARM11 with 512Mb SDRAM LINUX operating system, SD card |
| Power supply | Single supply voltage 6V DC to 55V DC connector 4 pin micro-fit 3mm |
| Communication | Ethernet RJ45 connector RS232 connector D-Type 9 pin Connector USB Type A |
| Antennas | UMTS GPS via FAKRA connectors |
| GPIO | 24 pin connector Input and output control |

2.2 Hardware block diagram



2.3 Internal Hardware connection



3. Interface description

3.1 Molex 4 pin connector – Power connector

3.1.1 Power Supply

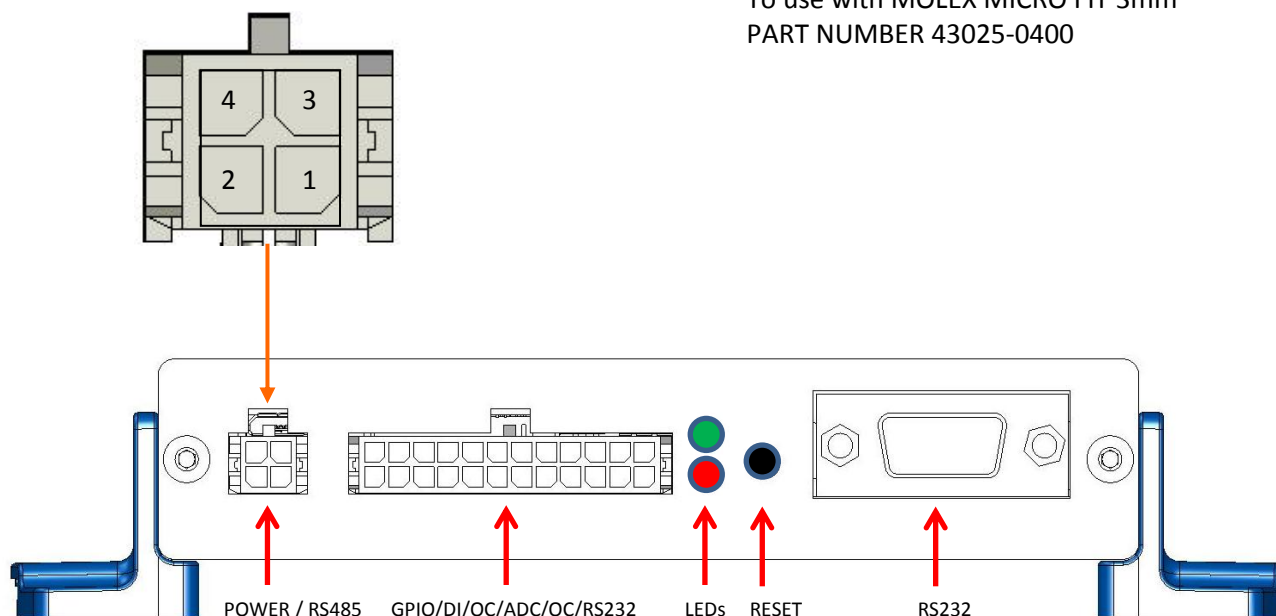
The power supply of the EZmoto Router requires a single voltage source of POWER 6V-55V capable of providing a peak during an active transmission. The EZmoto Router is protected against supply voltage reversal. An internal fuse 1.1A 60V ensures an electrical safety according to EN60950-1. This fuse is not removable. A fast blow fuse of 0.8A is necessary for 24V power supply system (for vehicles).

The power supply recommended being any safety approved power supply certified IEC 60950-1 or EN 60950-1 or UL 60950-1 with limited output current up to 2A. The type of the receptacle assembled on the EZmoto Router is 4 pin Micro Mate-N-LOK 3mm (0.11 inch) from MOLEX.

| Pin | Signal name | Use |
|-----|-------------|--------------------------------|
| 1 | POWER | Input Power supply range 6-55V |
| 2 | RS485 | A |
| 3 | GND | Ground |
| 4 | RS485 | B |

Pin assignment of the power plug including power supply and Power Enable

Male 4-pole plug for power supply
To use with MOLEX MICRO FIT 3mm
PART NUMBER 43025-0400



3.1.2 Supply voltage requirements

The DC power supply must be connected to the POWER input:

- Input voltage range 6 - 55V DC
- Nominal Voltage 12V DC
- Power Supply current rating: max. 2A @12V
- Power Supply ripple: max. 120mV
- Input current in idle mode: 20mA @ 12V
- Input average current in communication mode: 100mA @ 12V

3.2 USB CONNECTOR

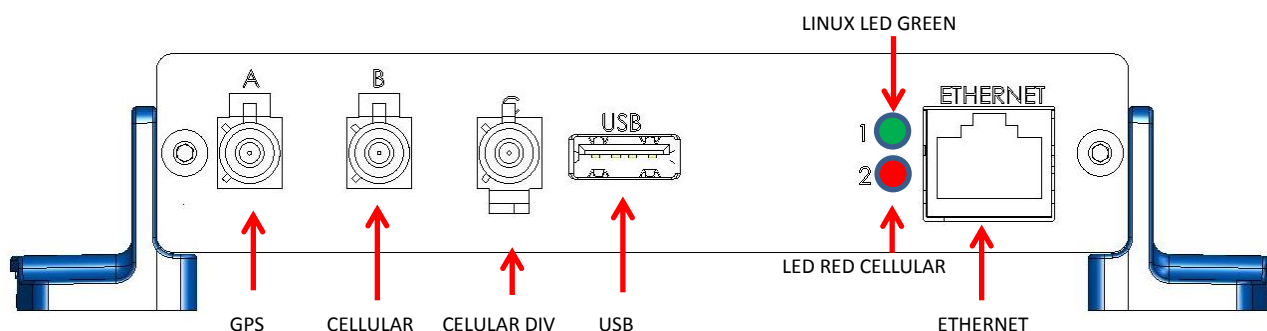
The USB CONNECTOR of the EZmoto Router is **USB 2.0 TYPE A High retention**.

3.3 FAKRA CONNECTORS

The EZmoto Terminal uses FAKRA CONNECTORS for ANTENNAS.

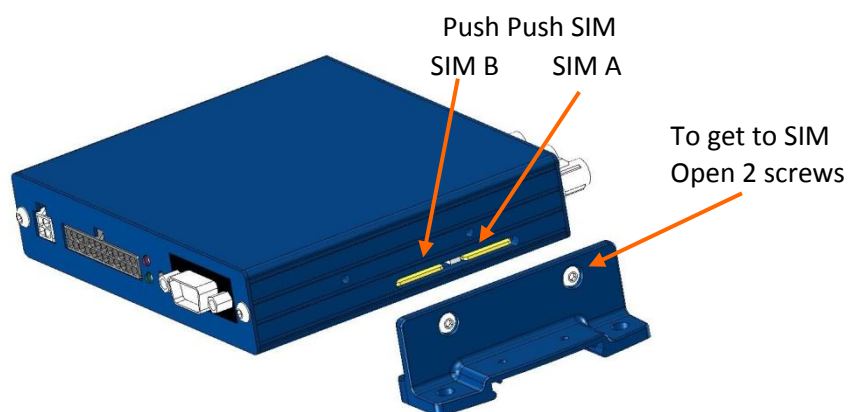
3.4 RJ45 – ETHERNET CONNECTOR

RJ45 jack is capable of meeting the high performance needs of networking devices.



3.5 SIM DRAWER

Please insert the SIM card into the SIM socket,
To install SIM only remove side bracket 2 screws.



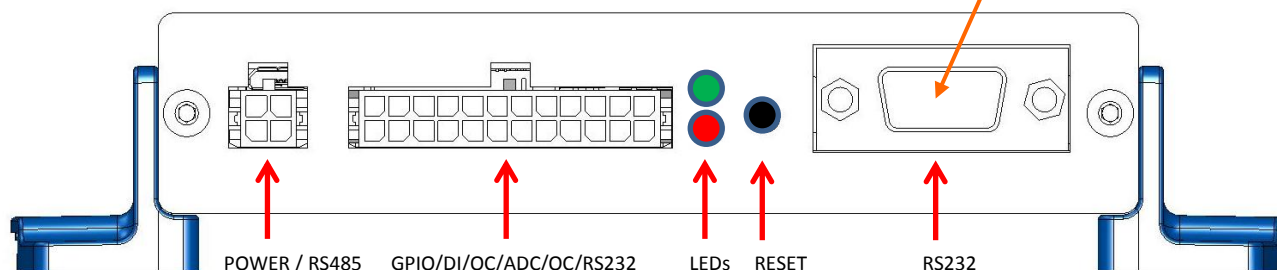
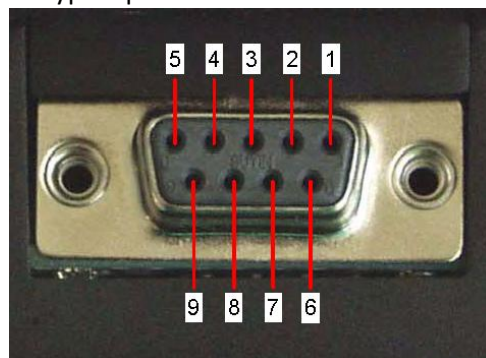
3.6 RS-232 Interface

The serial interface of the EZmoto is intended for the communication between the ARM11 and the host application. This RS-232 interface is a data and control interface for transmitting data. It accepts, AT commands and provides multiplexed channels. EMC immunity complies with the vehicular environment requirements according to EN 301 489-7. The user interface of the EZmoto is accessible from a Data Terminal Equipment DTE connected to the RS232 interface and it is managed by AT commands according to the GSM/UMTS GPS specification. The supported commands are listed in the AT Commands Reference Guide.

| Pin no. | Signal name | I/O | Function of application |
|---------|-------------|-----|------------------------------|
| 1 | | | |
| 2 | RXD | O | Receive Data |
| 3 | TXD | I | Transmit Data |
| 4 | | | |
| 5 | GND | - | Ground |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | 5V | O | 5V switch by Microcontroller |

Pin assignment RS-232

D-Type 9 pin female RS232



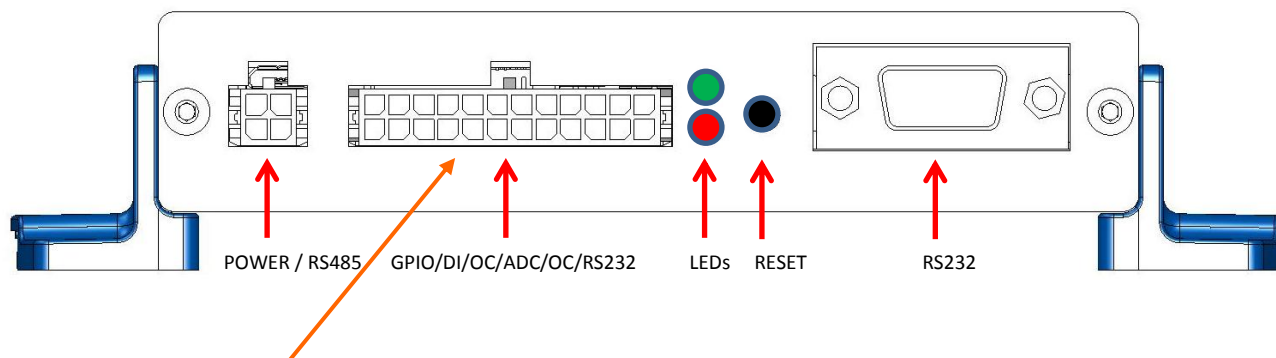
RS232 connected to ARM11 UART

Connector type on the terminal is:

- RS-232 through D-Type 9-pin female
- Baud rate from 300 to 230,400 bit/s
- Short circuit (to Ground) protection on all outputs.
- Input voltage range: -12V to +12V

3.7 Molex 24 pin connector – IO interface

The following interfaces and functions are provided via the IO interface connector.



GPIO interface connector 24 pin

| Pin | Signal name | I/O | Description |
|-----|-----------------|-----|---|
| 1 | Digital input 1 | I | 0-50V digital input |
| 2 | Digital input 2 | I | 0-50V digital input |
| 3 | Digital input 3 | I | Interrupt with 200k Pull-up 0-50V digital input |
| 4 | Digital input 4 | I | Interrupt with 200k Pull-up 0-50V digital input |
| 5 | OC1 | O | Open collector 250mA output |
| 6 | OC2 | O | Open collector 250mA output |
| 7 | OC3 | O | Open collector 250mA output |
| 8 | OC4 | O | Open collector 250mA output |
| 9 | ADC1 | I | 0-15V 12bit analog input |
| 10 | ADC2 | I | 0-15V 12bit analog input |
| 11 | ONEWIRE | | ONEWIRE TEMPERTUER sensor / 5V voltage support |
| 12 | DGND | PWR | Digital ground |
| 13 | Relay A | O | Relay output A |
| 14 | Relay B | O | Relay output B |
| 15 | Digital input 5 | I | 0-50V digital input |
| 16 | Digital input 6 | I | 0-50V digital input |
| 17 | Digital input 7 | I | Interrupt with 200k Pull-up 0-50V digital input |
| 18 | Digital input 8 | I | Interrupt with 200k Pull-up 0-50V digital input |
| 19 | ADC3 | I | 4-20mA 12bit analog input |
| 20 | ADC4 | I | 4-20mA 12bit analog input |
| 21 | Micro RS232 TX1 | | |
| 22 | Micro RS232 RX1 | | |
| 23 | PLG GND | PWR | Plug ground |
| 24 | Vin | PWR | Input voltage |

5. Mechanical Characteristics

5.1 General mechanical description

| | |
|----------------------------|---|
| Weight | 400g (14.1oz) 0.88 lb |
| Dimensions (max) L x W x H | 100cm x 120mm x 30mm 3.93inch x 4.72 inch x 1.18inch |
| Humidity | 5% - 85% |
| Case material | Aluminum |

5.2 Environmental requirements

| | | |
|-----------------------------|--|--|
| Operating temperature range | -20°C to +55°C -4°F to 131°F ambient temperature | The router is fully functional in all the temperature range and it fully meets the ETSI specifications. |
| | -30°C to +70°C -22°F to 158°F | The router is fully functional in all the temperature range. Temperatures outside of the range -20°C to +55°C (-4°F to 131°F) might slightly deviate from ETSI specifications. |
| Humidity | 5% - 85% | |

5.3 Protection class

IP40 Avoid exposing the Terminal to liquid or moisture.

5.4 RoHS compliance

All hardware components are fully compliant with the EU RoHS and WEEE Directives.

6. SAFETY RECOMMENDATIONS

READ CAREFULLY

1. The unit does not provide protection from lightning and surge. For outdoor installation use outdoor nonmetallic case safety approved according UL 50. Additionally you should provide protection from lightning and over voltage according National code.

2. Be sure the use of this product is allowed in the country and in the environment required. The use of this product may be dangerous and has to be avoided in the following areas: Where it can interfere with other electronic devices in environments such as hospitals, airports, aircrafts, etc. Where there is risk of explosion such as gasoline stations, oil refineries, etc. It is responsibility of the user to enforce the country regulation and the specific environment regulation. Do not disassemble the product; any mark of tampering will compromise the warranty validity. We recommend following the instructions of the hardware user guides for a correct wiring of the product. The product has to be supplied with a stabilized voltage source and the wiring has to be conforming to the security and fire prevention regulations. The product has to be handled with care, avoiding any contact with the pins because electrostatic discharges may damage the product itself. Same cautions have to be taken for the SIM, checking carefully the instruction for its use. Do not insert or remove the SIM when the product is in power saving mode. The system integrator is responsible of the functioning of the final product; therefore, care has to be given to the external components of the unit, as well as of any project or installation issue, because the risk of disturbing the GSM network or external devices or having impact on the security. Should there be any doubt, please refer to the technical documentation and the regulations in force. Every unit has to be equipped with a proper antenna with specific characteristics. The antenna has to be installed with care in order to avoid any interference with other electronic devices and has to guarantee a minimum distance from the body (20 cm/8"). In case this requirement cannot be satisfied, the system integrator should assess the final product against the SAR regulation. The European Community provides some Directives for the electronic equipment introduced on the market. All the relevant information available on the European Community website:

<http://europa.eu.int/comm/enterprise/rtte/dir99-5.htm> The text of the Directive 99/05 regarding telecommunication equipment is available, while the applicable Directives (Low Voltage and EMC) are available at:

http://europa.eu.int/comm/enterprise/electr_equipment/index_en.htm

7. Two Years Limited Warranty

GateTel warrants, to the original purchaser, that this equipment shall be free of defects in materials and workmanship for a period of two (2) years from purchase date.

This warranty does not apply if the product has been misused or has been damaged by accident, abuse, misuse, or misapplication or if it has been modified without written permission.