EZ864 G

Telit Cellular GSM/UMTS Engine + option GPS

Hardware guide Version: 3.1 Update: 24. SEP .2009
EZ864 G+GPS_Hardware Guide_V3.1

Hardware Interface Description

1. Hardware Features of the EZ864 G +GPS

Feature	Implementation
Incorporates Telit UC864-G, GC864, CC864 module	The Telit module handles all GSM/UMTS processing for, signal and data within the **EZ864 G**.
Frequency bands	Quad band: GSM 850/900/1800/1900/2100MHz
Power supply	Single supply voltage 5V to 30V
Operating temperature	-20°C to +65°C ambient temperature
Physical	Dimensions: 83mm x 64m x 33m Weight: 180g
RoHS, WEEE	All hardware components are fully compliant with the EU RoHS and WEEE Directives
3 GPIO inputs 1 ADC input	1 input ADC 3 inputs 5-24V
1 internal relay	1 relay 1A 30V maximum, normally open, Pins number 2 and 4 on the 4 pin power supply connector.
Communication	RS232 /USB
GPS -	Telit UC864 G GPS modem

2. Interface Description

2.1 Overview

EZ864 G provides the following connectors for power supply, Interface and antennas:

1. SMA connector (female) for GSM antenna
2. 4-pole 3mm Micro Mate-N-LOK connector for power supply, Internal relay output
3. SIM card holder
4. 9-pole (female) SUB-D plug for RS-232 serial interface or RS485
5. Led GSM and Led GPIO
6. 6-pole RJ11 plug (female) for GPIO's and ADC
7. 5-pole mini B USB plug
8. SMA connector (female) for GPS antenna

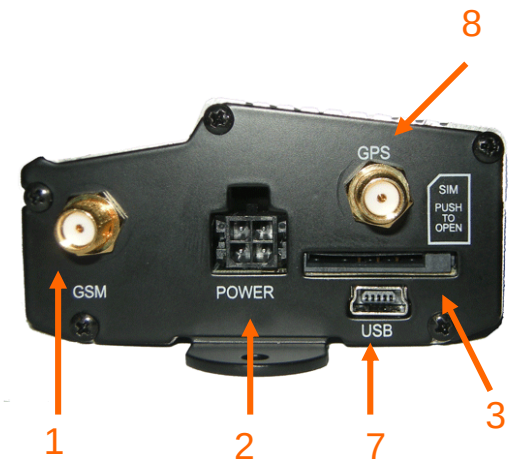


Figure 1: EZ864 G side A view

Figure 2: EZ864 G side B view

2.2 Block Diagram EZ864 G V4

Figure 3 shows a block diagram of a sample configuration that incorporates a **EZ864 G** and typical accessories.

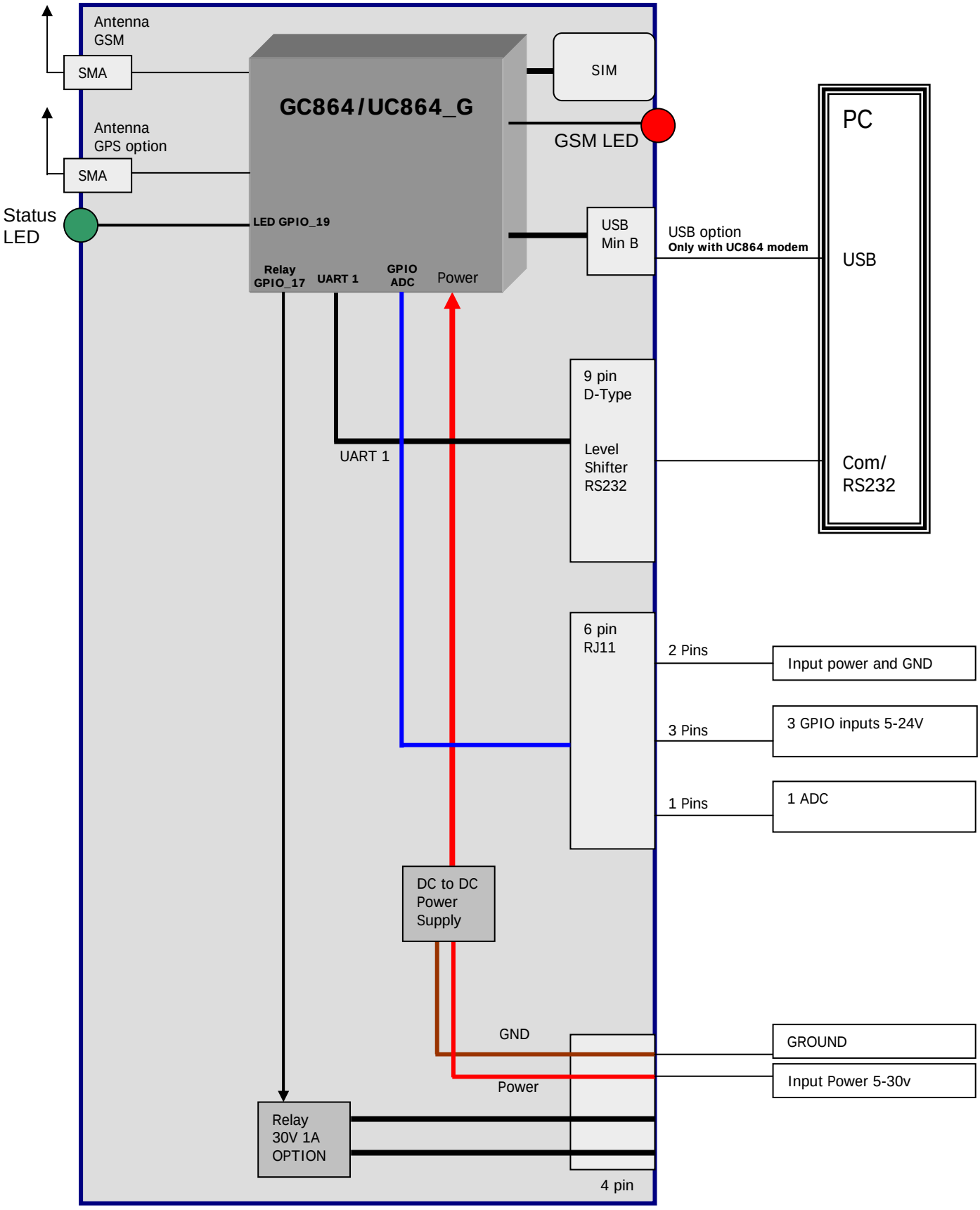


Figure 3: Block diagram

2.3 Power Supply

The power supply of the **EZ864 G** Terminal has to be a single voltage source of POWER 5V-30V capable of providing a peak during an active transmission. The **EZ864 G** Terminal is protected from supply voltage reversal. An internal fuse ensures an electrical safety according to EN60950-1. This fuse is not removable. A fast acting fuse 0.8A with melting is necessary to use with the **EZ864 G** at a 24V power supply system for vehicles. The power supply must be compliant with the EN60950 guidelines.

Pin	Signal name	Use
1	POWER	Input Power supply range 5-30V
2	Relay	Internal Relay leg A
3	GND	Ground
4	Relay	Internal Relay leg B

Table 1: Pin assignment of the plug for power supply and relay

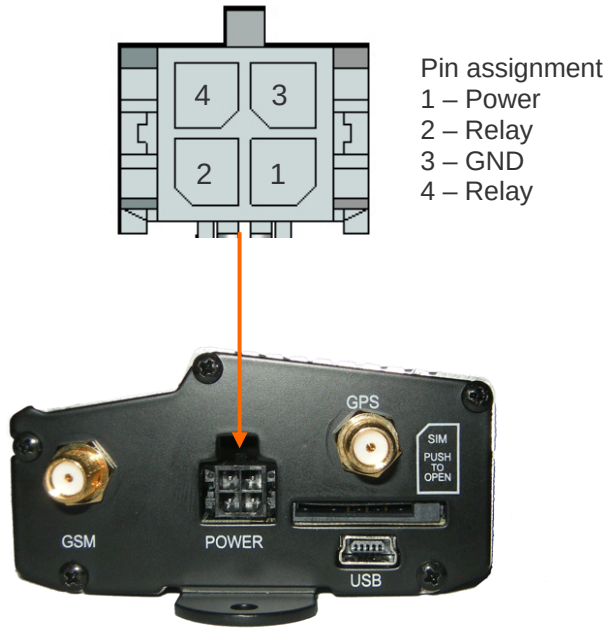


Figure 4: Male 4-pole plug for power supply and Relay output.

2.3.1 Supply voltage requirements

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

- Input voltage range 5 - 30V 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

2.4 RS-232 Interface

The serial interface of the EZ864 PRO Terminal is intended for the communication between the GSM module and the host application. This RS-232 interface is a data and control interface for transmitting data, AT commands and providing multiplexed channels. EMC immunity complies with the vehicular environment requirements according to EN 301 489-7.
The user interface of the EZ864 PRO Terminal is accessible from a Data Terminal Equipment DTE connected to the RS232 interface and it is managed by AT commands according to the GSM 07.07 and 07.05 specification and the supported commands are listed in the AT Commands Reference Guide.

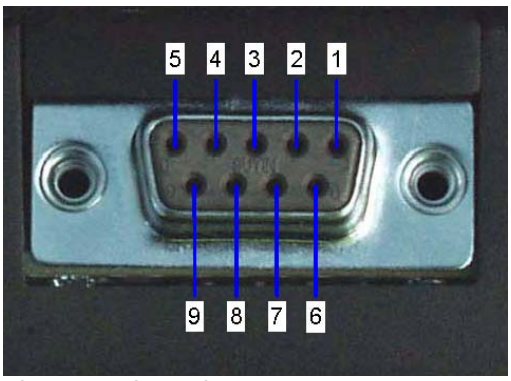


Figure 6: Pin assignment RS-232 (D-Sub 9-pole female)

Pin no.	Signal name	I/O	Function of application
1	DCD	O	Data Carrier Detected
2	RXD	O	Receive Data
3	TXD	I	Transmit Data
4	DTR	I	Data Terminal Ready
5	GND	-	Ground
6	DSR	O	Data Set Ready
7	RTS	I	Request To Send
8	CTS	O	Clear To Send
9	RING	O	Ring Indication

Table 2: D-Sub 9-pole female RS232

Connector type on the terminal is:

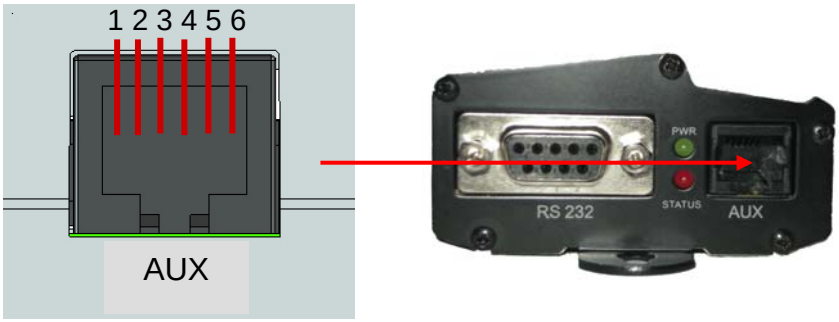
- RS-232 through D9-pin female
- Baud rate from 300 to 115.200 bit/s
- Short circuit (to Ground) protection on all outputs.
- Input voltage range: -12V to +12V

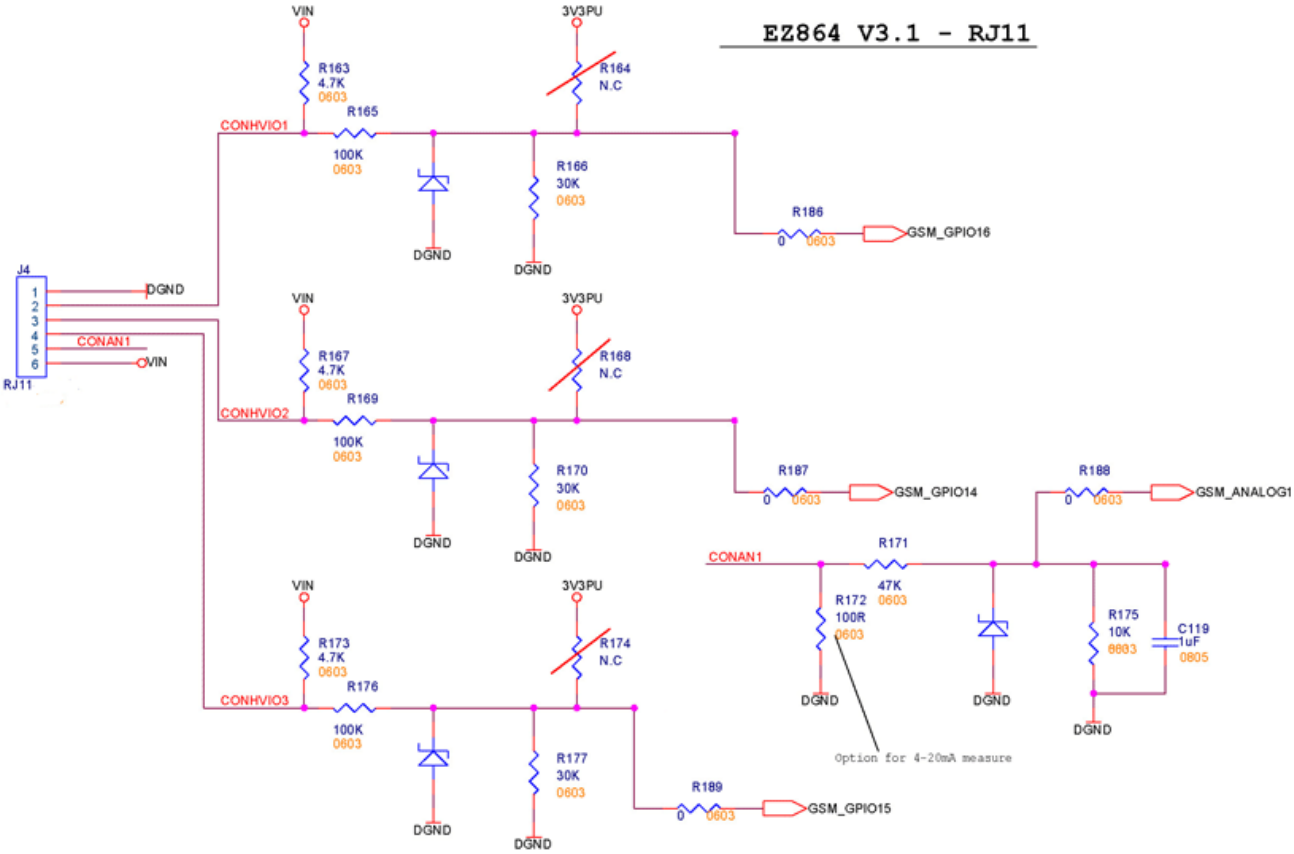
2.5 GPIO Interface

The GPIO interface provides via 6 pins RJ11 connector the following options:

- 3 inputs 2 GPIO digital.
- 1 input ADC.
- 1 power pin and 1 Ground pin

Pin assignment
1 – GND
2 – GPIO 16
3 – GPIO 14
4 – GPIO 15
5 - ADC1
6 – Power VIN



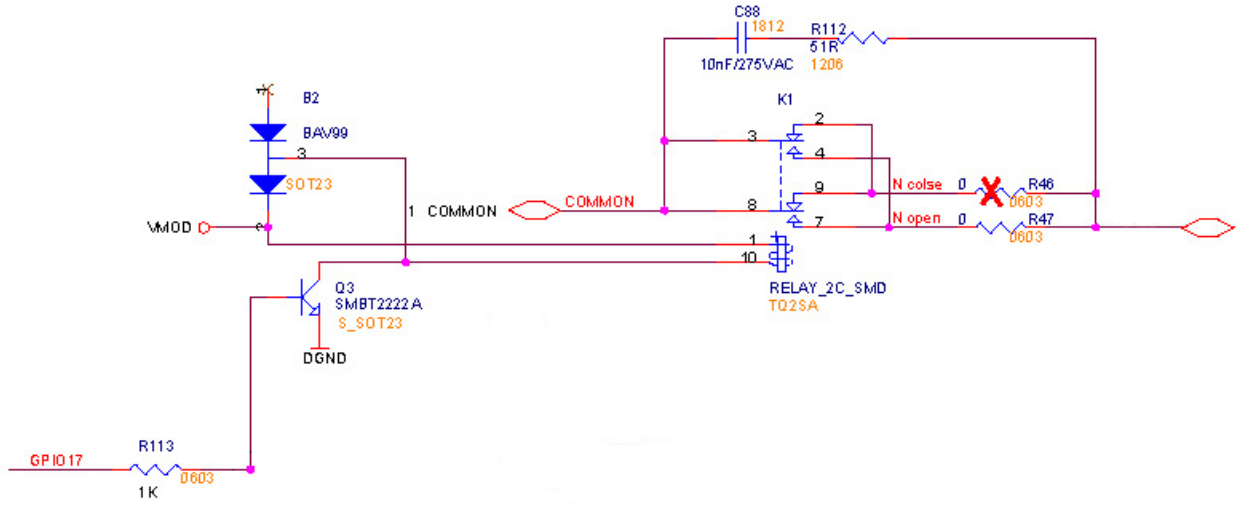


2.8 Relay

The internal Relay pins 13,14 at the 24 pins interface connector may be used for controlling external circuit devices or applications. The relay parameters:

• Maximum voltage = 30V @ max. 1A.

• The Relay is set to normally open.



2.9 Status LED

Red LED displays the network status of the EZ864 G.

Red LED status	Device Status
permanently on	a call is active
fast interrupt sequence (period 0,5s, Ton 1s)	Net search / Not registered / turning off
slow interrupt sequence (period 0,3s, Ton 3s)	Registered full service
permanently off	device off

Table 3: RED LED Status

Green LED Suggested application displays the operating status of EZ864 G
The Green LED control by GPIO-19 of the Telit modem

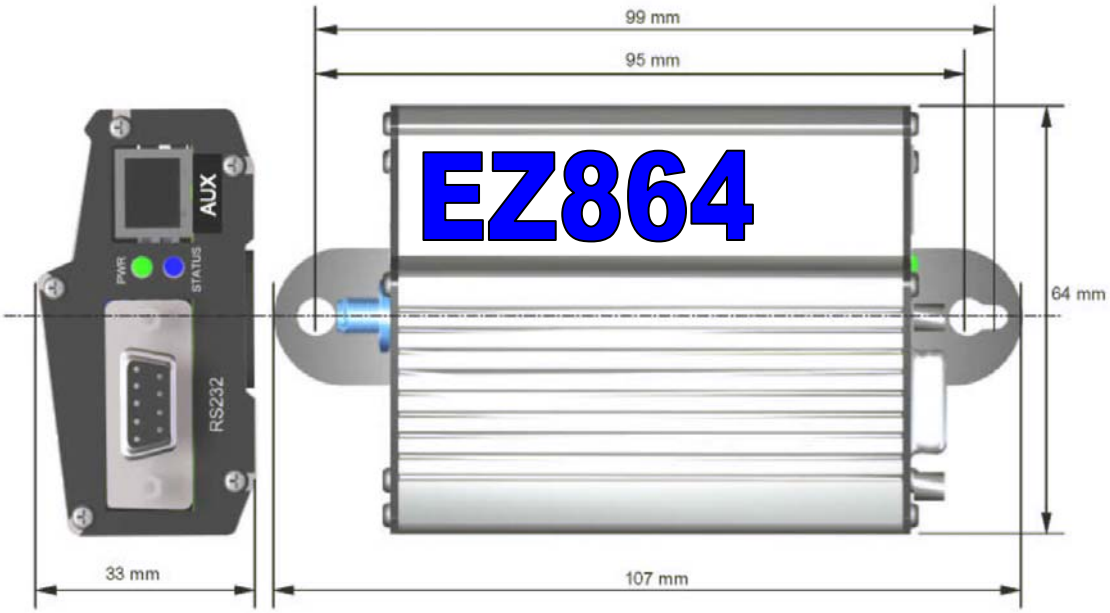
Green LED status	Device Status
permanently ON	Unit active
fast interrupt sequence (period 1s, Ton 1s)	Error: Net search / Not registered
OFF for 1s and then ON	Unit get phone call
permanently OFF	device off

Table 4: Suggested application for GREEN LED Status

4. Mechanical Characteristics

Weight	180g
Dimensions (max) L x W x H	83m x 64 x 33mm
Temperature range	-20°C to +65°C ambient temperature
Air humidity	5% - 85%
Casing material	Aluminum

Table 5: Mechanical characteristic



5.2 Power Supply

This chapter provides specifications for the power supply which serves the Terminal. The power supply recommended to be 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 EZ864 PRO Terminal is 4 pin Micro Mate-N-LOK 3mm from MOLEX. Mating headers can be chosen from the MOLEX Micro Mate-N-LOK Series. For latest product information http://www.molex.com

5.2 GSM antenna

This chapter provides specifications for the GSM antennas which serves the Terminal.
We recommended 4 types of GSM antennas with SMA connector:
900/1800Mhz 2.5dBm 3 meter cable part number EZantenna2.5db3M9001800.
850/1900Mhz 2.5dBm 3 meter cable part number EZantenna2.5db3M8501900.
900/1800/1900Mhz 1dBm 5 cm 90 degree SMA part number EZantenna1db5m90018001900SMA.
900/1800/1900Mhz 1dBm 5 cm for internal assembly part number EZantenna1db3M90018001900int.

6. SAFETY RECOMMANDATIONS

READ CAREFULLY

1. The unit does not provide protection from lightning and surge. For outdoor installation use outdoor plastic case safety approve according UL 50. Additional 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 taken 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). In case of this requirement cannot be satisfied, the system integrator has to assess the final product against the SAR regulation. The European Community provides some Directives for the electronic equipments introduced on the market. All the relevant information's are 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 equipments is available, while the applicable Directives (Low Voltage and EMC) are available at:
http://europa.eu.int/comm/enterprise/electr_equipment/index_en.htm

7.0 Product specified approval for CE

Name: Industrial GSM/UMTS Communication unit
Model: EZ864 PRO

Reference standard(s):

Radio **Note: test only for GC864 module**

Number	Market	Standard	Procedure
1	Europe	EN 301 511 V9.0.2	Spurious Emissions testing

EMC

Number	Market	Standard	Procedure
2	Europe	EN 301 489-7 V1.2.1	partial testing and report
3	USA	47 CFR part 15:06 sb.B	Verification

Safety

Number	Market	Standard	Procedure
4	Europe	EN 60950-1:06	DoC