



MLB-G1103

MLB-G1103

LTE Wireless Terminal



USER MANUAL

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WARNING: The MLiS GSM wireless terminal is a RF product intended for interfacing and operating with a host device. Local relevant RF regulations such as allowed frequencies and usage in commercial flights must be observed. Safety instructions must be included in the manuals of the host device. Schmidt & Co., (HK) Ltd assumes NO liability for customers, who fail to comply with these precautions.

Service and Support

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Download Information

http://www.schmidtm2m.com/en/support_download.php

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1 INTRODUCTION

1.1 Description

The MLiS MLB-G1103 is a LTE wireless terminal. It is designed for RS232/RS422/RS485 communication over TCP/IP via any readily available LTE carrier network. Overall, they are more cost and time effective to use remote solutions to combine Machine to Machine over diverse locations without having first to establish and invest in a huge complex network.

The MLB-G1103 wireless terminal series use the DB9 Connector to provide data communication interface and the DC jack to provide power input. LEDs are used to indicate the status of the wireless terminal.

The MLB-G1103 wireless terminal can be used to provide a wireless communication link to many applications, including metering, fleet and asset management, vending, security and alarm monitoring, e-maintenance and other telemetry applications.

1.2 Highlights

Interface

- DC jack connector for power / Terminal Block for power
- DB9 connector (male)
- SMA Female Connector (GSM antenna connector)
- SIM card reader
- 1 * Relay
- 2 * DIs

General Features

General Features	
Frequency Range	MLB-G1103-EU: LTE: Penta band 700 (Bd28) / 800 (Bd20) / 900 (Bd8) / 1800 (Bd3) / 2100 MHz (Bd1) UMTS/HSPA+: Dual band 900 (BdVIII) / 2100MHz (BdI) GSM/GPRS/EDGE: Dual band 900/1800MHz
Protocol Stack	TCP/UDP/FTP/HTTP/SMTP
Power Supply Input	5~42VDC
Power Consumption	Working Mode : 102 mA @12V Standby Mode : 29 mA @12V
Humidity	5~95% (non-condensing).
Operating Temperature	-40~+75°C
Switch Off Protection	+90°C
Dimension (L) x (W) x (H)	119.5 x 89 x 26.9mm (excluding connectors)
Weight	200g (without antenna)
Casing Material	Metal
Data Transmission	
LTE	UE CAT 1 supported DL 10.2Mbps, UL 5.2Mbps
HSPA+	DL 7.2Mbps, UL 5.7Mbps HSDPA Cat.8 / HSUPA Cat.6 data rates Compressed mode (CM) supported according to 3GPP TS25.212
GPRS/EGPRS	GPRS: <ul style="list-style-type: none"> • Multislot Class 12 • Full PBCCH support • Mobile Station Class B EGPRS: <ul style="list-style-type: none"> • Multislot Class 12 • EDGE E2 power class for 8 PSK • SRB loopback and test mode B • PBCCH support • Mobile Station Class B
SMS	MT, MO, Cell broadcast, Text and PDU mode
Operating Mode	Transparent (TCP server/TCP client/UDP) TCP server/TCP client/UDP

	SMS/AT command
Serial Mode	RS-232/422/485
Serial Parameter	Data Bits: 7, 8 Stop Bits: 1, 2 Parity: None, Even, Odd Flow Control: RTS/CTS, DTR/DSR Baud Rate: 1200 - 921600 selectable Serial Signals: TxD, RxD, RTS, CTS, DTR, DSR, DCD, RST (reset circuit), GND
Relay	1 output with current carrying capacity of 2A @40VDC
Digital Inputs	2 electrically isolated inputs: +13~+30V for state "1" (on) +3~-30V for state "0" (off)
ESD Protection	15 KV
Heart Beat Packet	Yes
ID with Packet	Yes (15 Bytes MAX.)
Data Buffering	128KB
Data Delimiter	Yes
Event Trigger	GPRS/Reboot/IO/Relay
MCCP/MCCU	Yes API: MLiS Cellular Control Protocol (MCCP) Utility: MLiS Cellular Configuration Utility (MCCU)
Interfaces	
RF Antenna Socket	50 Ohm SMA
Power Connector	DC jack connector / Terminal Block for power
SIM Card Num.	1
SIM Card Slot	Flip-up type
Serial Interface	DB9 connector (male)
LED	6 x Working Status Indicator 3 x Network Status Indicator
Reset	HW Reset
Approval	
Certification	EMC EN55032/35

	<p>RF EN301489-1 EN301489-52 EN62311</p> <p>Safety LVD 60950-1</p> <p>NCC PLMN10 CNS13438 CNS13438 CNS14336-1</p>
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Functional Block Diagram

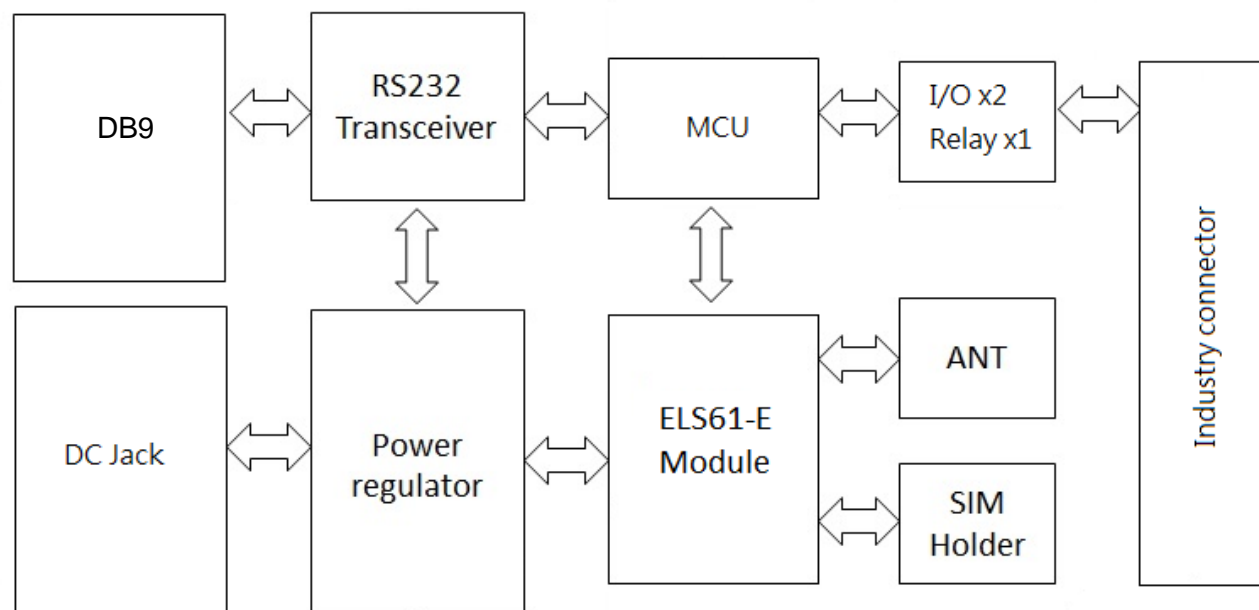


Figure 1-1: Functional Block Diagram for MLB-G1103

The MLB-G1103 series consist of a fully certified (CE /NCC approved) GSM/GPRS engine, SIM card holder and power regulator.

The wireless terminal is supplied with power via the DC jack. The remaining DB9 connector is used for data communications.

The SMA female connector provides the air interface to an external 50 ohm antenna specified for the correct frequency band.

1.3 Precautions

The MLB-G1103 wireless terminals are designed for indoor use only. For outdoor uses it has to be integrated into a weatherproof enclosure. Do not exceed the environmental and electrical limits as specified in the user manual.

2 MECHANICAL DESCRIPTION

2.1 Overview

The pictures below show the mechanical design of the wireless terminal along with the positions of the different connectors.

2.2 Dimensions

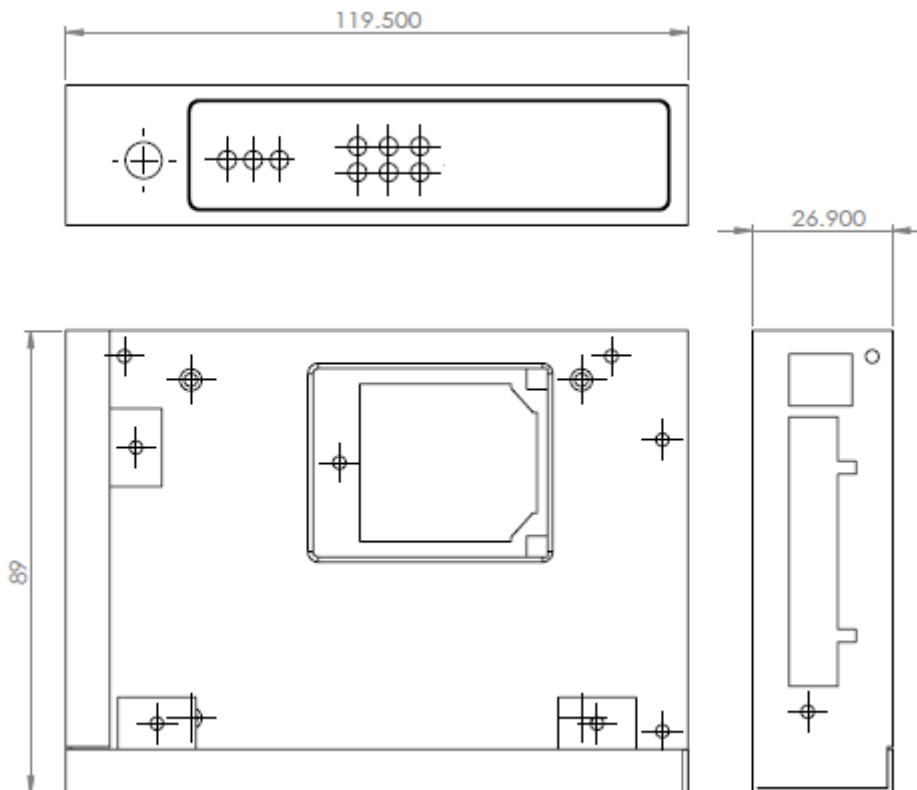


Figure 2: Chassis Dimension for MLB-G1103

S/N	Parameter	Value
1	Height (H)	26.9mm
2	Length (L)	119.5mm
3	Width (W)	89.0mm
4	Weight	200g
5	Chassis Material	Metal

Table 1: Chassis Dimensions and Mechanical Description for MLB-G1103

3 ELECTRICAL INTERFACE DESCRIPTIONS

3.1 Right Side View (DB9 connector)

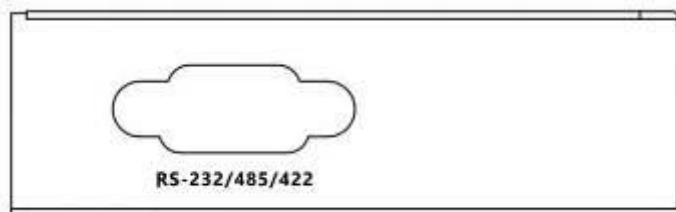


Figure 3: RS232/RS422/RS485 for MLB-G1103

The table below defines the RS232/RS422/RS485 pin configuration on the wireless terminal.

Pinouts

Pin	RS-232	RS-422/485 4-wire	RS-485 2-Wire
1	DCD = Input	Not Used	Not Used
2	RXD = Input	RXD+ = Input	Not Used
3	TXD = Output	TXD+ = Output	DAT+ (often B)
4	DTR = Output	Not Used	Not Used
5	GND	GND	GND
6	DSR = Input	RXD-- = Input	Not Used
7	RTS = Output	Not Used	Not Used
8	CTS = Input	Not Used	Not Used
9	Not Used	TXD-- = Output	DAT-- (often A)

Table 2: DB9 Pins Define for MLB-G1103

3.2 Left Side View (DC Jack & Industry Connector)



Figure 4: DC and Terminal Block for MLB-G1103

For power redundancy purpose, it is recommended to connect both DC jack and the wire power line to the corresponding power pinouts of terminal block to a DC power sources.

The interfaces and pinouts definition for MLB-G1103 are as follows:

Name	Description	Function
DC	DC	Input Power: +5V~+42V
Terminal Block	PWR (V+, V-)	<ul style="list-style-type: none"> Input Power: +5V~+42V Pin #1 is V+ Pin #2 is V- When use DC for input, the output power of TB is same as input power ➤ Do Not use DC & PWR to be the input power at the same time, it may cause damage to the equipment.
	Relay	External Relay: max+40V
	DI1 (I1, COM_1) Pin #5 is + Pin #6 is -	<ul style="list-style-type: none"> I1: External signal +12V~+48V COM_1: common grand Pin #5 is + Pin #6 is -
	DI2 (I2, COM_2) Pin #7 is + Pin #8 is -	<ul style="list-style-type: none"> I2: External signal, +12V~+48V COM_2: common grand Pin #7 is + Pin #8 is -
Reset	Reset	<ul style="list-style-type: none"> 1-click to reboot MLB-G1103 Double click to set MLB-G1103 into configuration mode. Long press over 10 seconds to reset MLB-G1103 to default.

Table 3: Interfaces description and Pinouts definition of MLB-G1103

3.3 Frond view (antenna & LED)

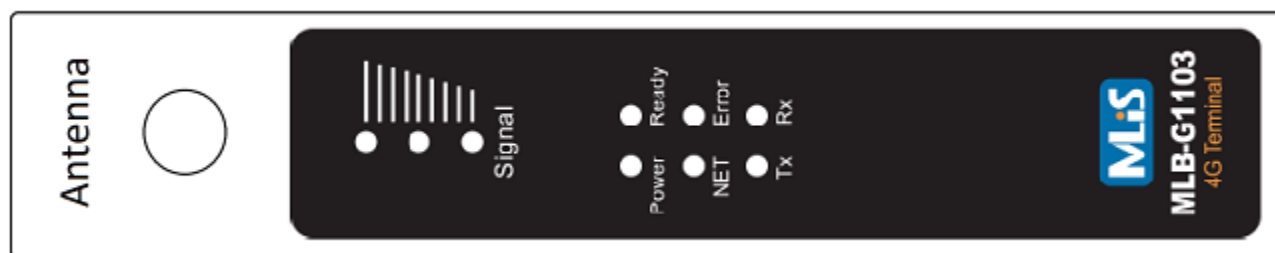


Figure 5-1: Antenna Connector for MLB-G1103

For optimum RF performance, the MLiS wireless terminals have to be connected to an external RF antenna matched to 50ohms. Please use a SMA Male connection for the wireless terminal.

The functions of LED are indicated on the table below.

Item	Description	Function
1	Power	Power on indication
2	Ready	Registered to a base station with cellular connection & Get IP address.
3	NET	Data Connection Establishment indication
4	Error	Error Occurred. - LED light-up: No SIM inserted. - Flashing: SIM locked.
5	Tx	UART transmit indication.
6	Rx	UART receive indication.

Table 4: LED Functions of MLB-G1103

The RESET button is located on the bottom panel of the MLB-G1103. You can reboot the MLB-G1103 or reset it to default settings by pressing the RESET button with a pointed object such as an unfolded paper clip.

- **Configuration Mode:** Double click RESET button to enter configuration mode and the signal LEDs will become marquee mode.
- **Reboot:** Hold the RESET button down for under 5 seconds and then release.
- **Reset to Default:** Hold the RESET button down for over 5 seconds until the LEDs are off. Release the button to reset the MLB-G1103 and enter the boot-up stage.

3.4 SIM Card Holder

In the bottom, The MLB-G1103 wireless terminals are provided with a SIM card reader designed for 1.8V and 3V SIM cards. It is the flip-up type which can be locked. It can be accessed through removing the cover as shown below.

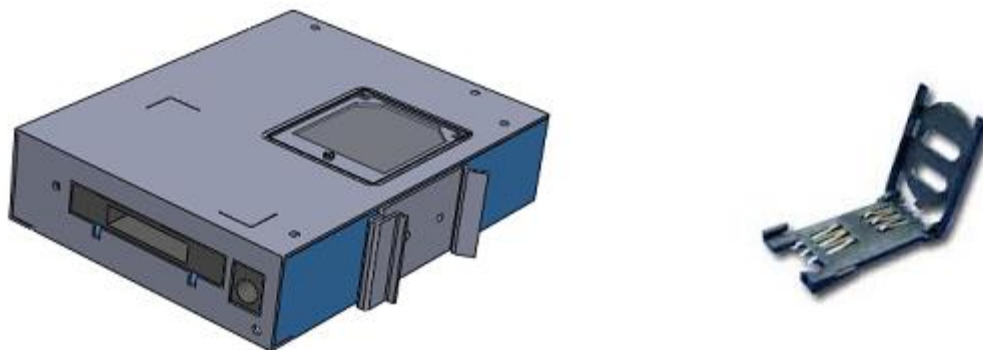


Figure 6: SIM Card Holder for MLB-G1103

- **Be sure to power off the modem when user replaces the SIM card. Otherwise it may cause damage to the equipment.**

The MLB-G1103 series fully operate when inserting a SIM card. Some MLB-G1103 series' functionality may be lost if the users try to operate the wireless terminal without a SIM card.

3.5 DIN-Rail Mounting

The aluminum DIN-Rail attachment plate should already be fixed to the back panel of the MLB-G420X when you take it out of the box.

STEP 1:

Insert the top of the DIN-Rail into the slot just below the stiff metal spring.

STEP 2:

The DIN-Rail attachment unit will snap into place as shown.

<DIN-Rail mounting kits PIC>

To remove MLB-G420X from the DIN-Rail, simply reverse Steps 1 and 2.

3.6 Getting Started

HW Installation

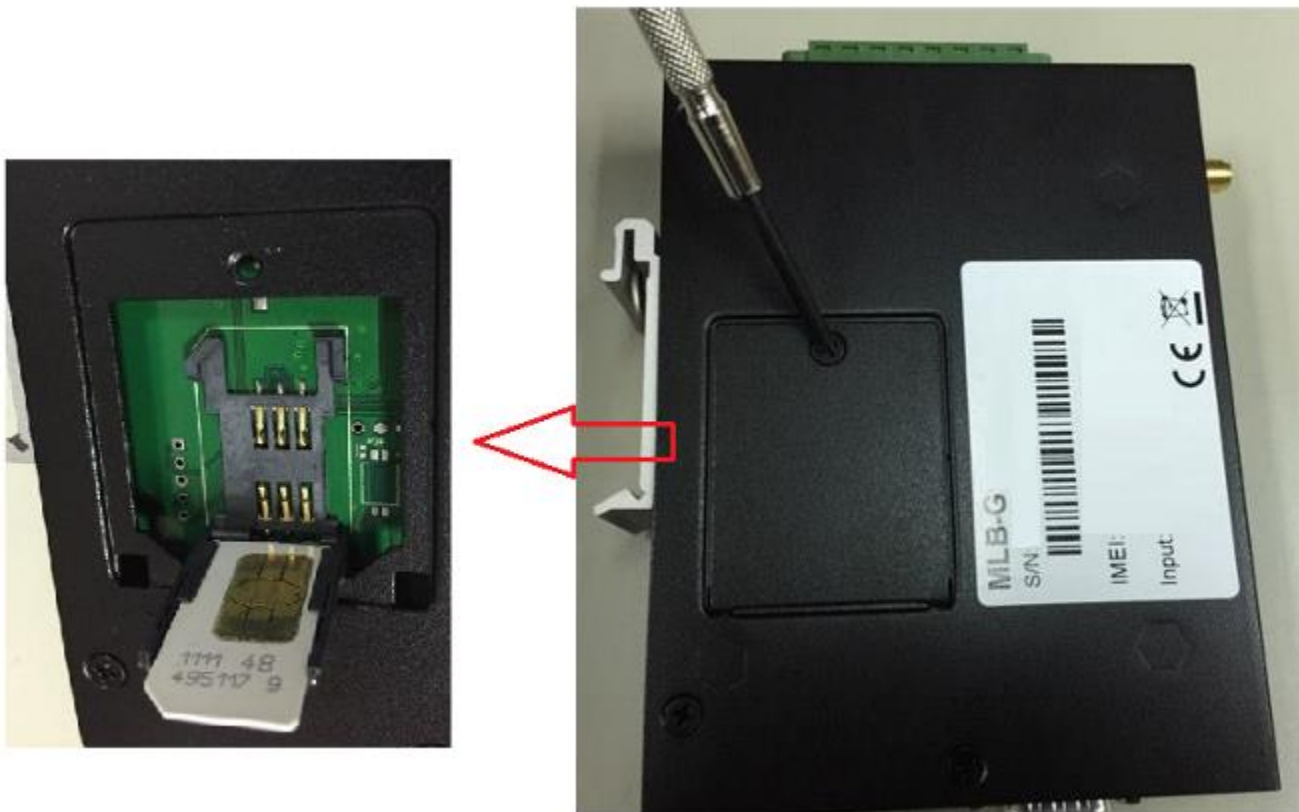
Step 1: Please insert SIM card into SIM card holder as follows.

- **Be sure to power off the modem when user replaces the SIM card. Otherwise it may cause damage to the equipment.**

Installing a SIM Card

The SIM card slots are located inside the MLB-G1103's housing. To install a SIM card, please follow the steps below:

1. Turn off the MLB-G1103.
2. Remove the screw to open the SIM card slot cover.
3. Install a SIM card into a SIM card flip-up holder.
 - Orient the gold contacts facing down and the cut-off edge to the left.
4. Install the screw to secure the SIM card slot cover.



DIN-Rail Mounting

The aluminum DIN-Rail attachment plate should already be fixed to the back panel of the MLB-G1103 when you take it out of the box.

1. Insert the top of the DIN-Rail stiff metal spring into the slot.



2. The top of stiff metal spring of the DIN-Rail mounting kit unit will snap into the Din rail rack as shown in the following illustration.



To remove MLB-G1103 from the DIN-Rail, simply reverse Steps 1 and 2.

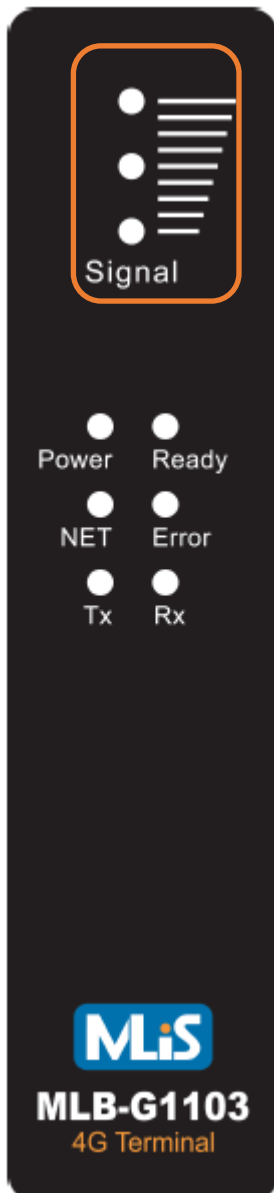
Step 2: Please connect the serial port to device as following Pinouts.

Pinouts

Pin	RS-232	RS-422/485 4-wire	RS-485 2-Wire
1	DCD = Input	Not Used	Not Used
2	RXD = Input	RXD+ = Input	Not Used
3	TXD = Output	TXD+ = Output	DAT+ (often B)
4	DTR = Output	Not Used	Not Used
5	GND	GND	GND
6	DSR = Input	RXD- = Input	Not Used
7	RTS = Output	Not Used	Not Used
8	CTS = Input	Not Used	Not Used
9	Not Used	TXD- = Output	DAT- (often A)

Step 3: Please connect power supplier with 5~42 VDC, then boot up. The LED will light up when MLB-G1103 Series ready.

Step 4: After plug-in power adapter. The wireless terminal is usually fully operational within 30 seconds, after powering it up. Depending on the signal strength of the network in the area, logging into a network may take longer and is outside the control of the wireless terminal.



The device is ready after LED of signal is lighted. Then user can operate it.

Step 5: When user uses the MCCU (MLiS Cellular Configuration Utility) to configure MLB-G1103, please refer the connection as below:

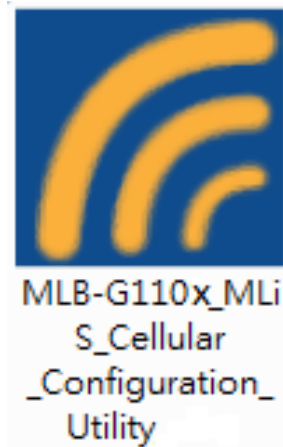


Note: The user needs to use null modem adaptor, DB9 Female to DB9 Female connector so RS-232 console management is workable from PC via RS-232 console cable.

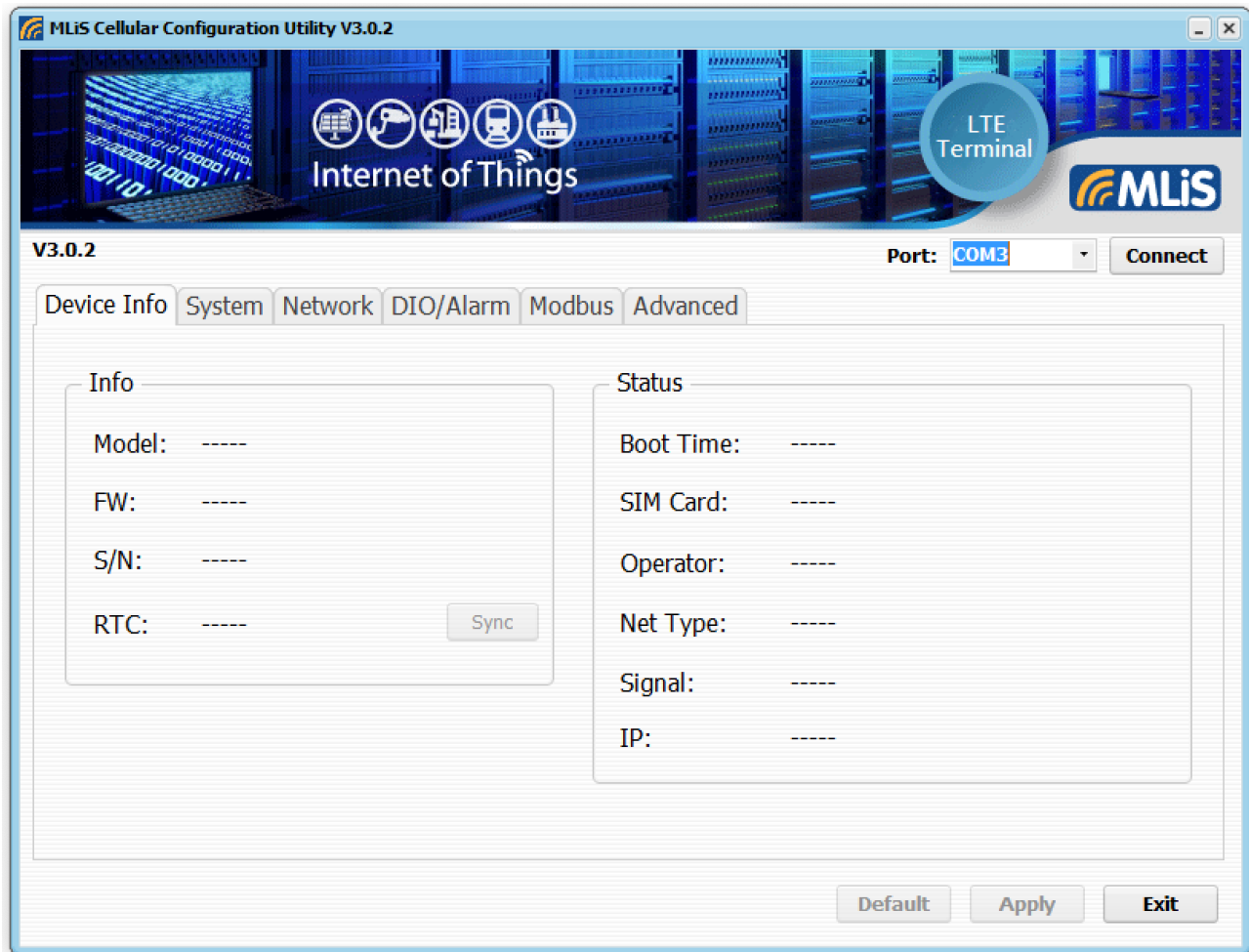
4. SW Installation

Preliminary Work: Power on MLB-G1103 and use USB-to-RS232 cable to connect to MLB-G1103 & PC.

Step 1: Open MCCU (MLiS Cellular Configuration Utility)

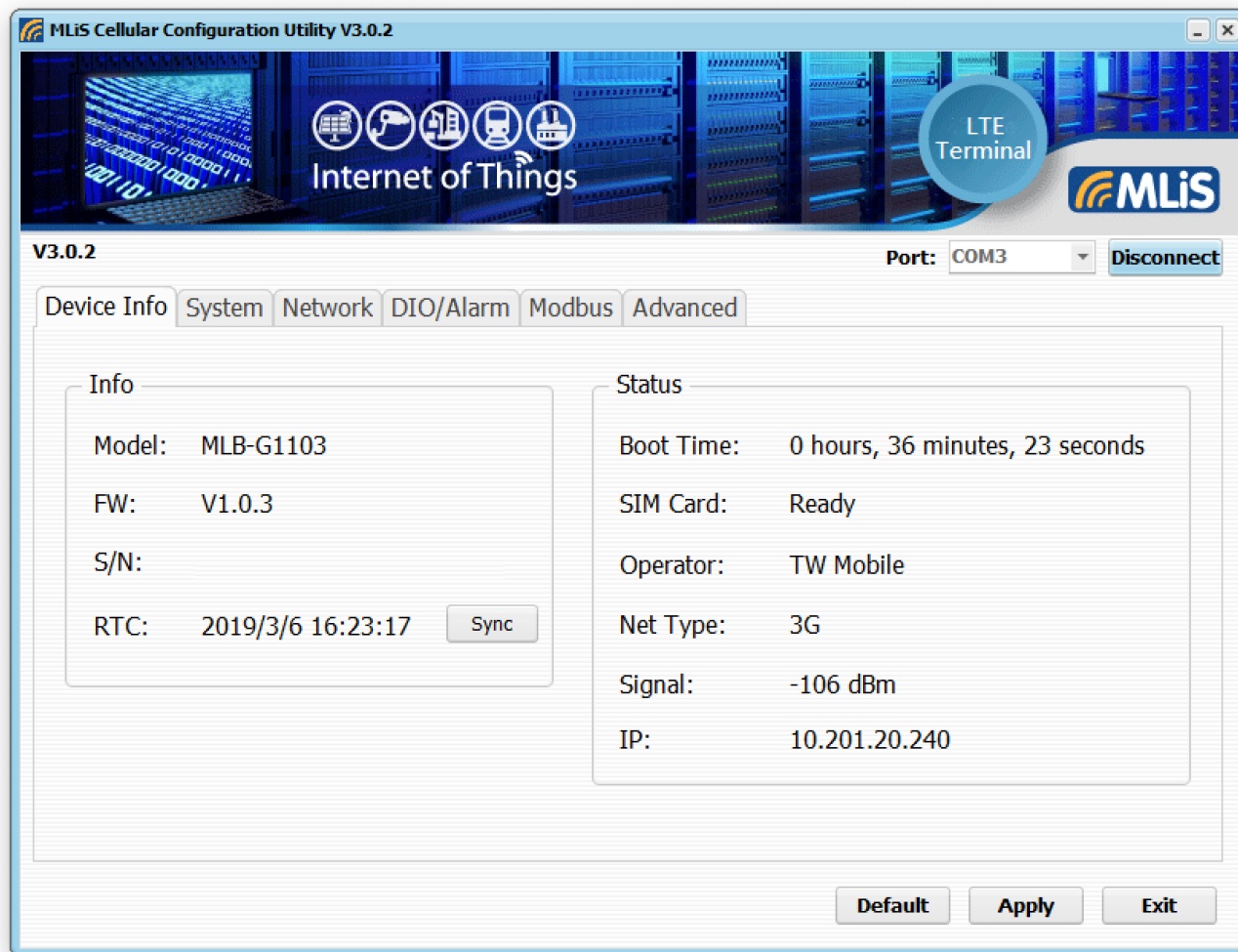


Step 2: The main window of MCCU launch.



MLB-G1103 Configuration Utility

Step 3: Select correct port and click “Connect” to establish connection with MLB-G1103.



Note: MCCU (MLiS Cellular Configuration Utility) v3.0.2 is backward compatible with the firmware version before v1.9.0 installed on MLB-G1103 series. However, it is strongly recommended to update the firmware version to the latest v1.0.3 or above to go with MLiS Cellular Configuration Utility version V3.0.2 or above.

Device Info	
The Device Info page summarizes the current settings of MLB-G1103	
<div style="border: 1px solid #ccc; padding: 10px;"> <div style="display: flex; justify-content: space-between; border-bottom: 1px solid #ccc; margin-bottom: 10px;"> Device Info System Network DIO/Alarm Modbus Advanced </div> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%; border: 1px solid #ccc; padding: 5px;"> <p>Info</p> <p>Model: MLB-G1103</p> <p>FW: V1.0.3</p> <p>S/N:</p> <p>RTC: 2019/3/6 16:23:17 <input type="button" value="Sync"/></p> </div> <div style="width: 45%; border: 1px solid #ccc; padding: 5px;"> <p>Status</p> <p>Boot Time: 0 hours, 36 minutes, 23 seconds</p> <p>SIM Card: Ready</p> <p>Operator: TW Mobile</p> <p>Net Type: 3G</p> <p>Signal: -106 dBm</p> <p>IP: 10.201.20.240</p> </div> </div> </div>	
Model	Shows the model user connected
FW Version	Current firmware version
S/N	Serial Number
RTC	- Real-time Clock - Click "Sync" to regulate.
Boot Time	The running time of MLB-G1103.
SIM Card	The status of SIM Card
Operator	Telecoms
Net Type	The cellular network in using.
Signal	Signal LED 1: - 113 ~ - 99 dBm Signal LED 2: - 97 ~ - 87 dBm Signal LED 3: - 85 ~ - 73 dBm Signal LED 4: - 71 ~ - 11dBm
IP	Current WAN IP address.

System

Essential settings related to establishing a cellular network.

Device Info |
 System |
 Network |
 DIO/Alarm |
 Modbus |
 Advanced

Serial Port

Mode: RS232 ▾ Baud Rate: 115200 ▾
 Data: 8 bit ▾ Parity: NONE ▾
 Stop: 1 bit ▾ HW Flow Control

Operator

APN:
 User Name:
 Password:

Supervisor

Enabled Utility Login
 Phone Number:

Device ID

Enabled
 Type: Text Hex
 ID:

Alias

Name:

Serial Port

Serial Port	Select RS232/422/485 mode by drop-down list
Baud-rate	Set baud-rate by drop-down list
Data	Set Data Bit by drop-down list
Parity Bit	Set Parity Bit by drop-down list
Stop Bit	Set Stop Bit by drop-down list`
HW Flow Control	- Check to enable HW Flow Control - User can set DTR/RTS in normal mode.

Supervisor

Enabled	Check to set phone number to be the administrator.
Utility Login	-Check to enable utility login page. -Set phone number to be the password.

Alias

Name	Set alias for MLB-G1103.
------	--------------------------

Operator

APN	Input the APN (Please confirm with carriers.)
-----	---

User Name	Input user name of APN
Password	Input password of APN
Device ID	
Enabled	Check to enable Device ID function.
Type	Select the Device ID string type is Text or Hex.
ID	Input ID string.

Network

Set connection mode and variables.

Device Info
System
Network
DIO/Alarm
Modbus
Advanced

Operation Mode

Mode: TCP Client

1 IP: IP or Domain Name : 0

2 IP: IP or Domain Name : 0

3 IP: IP or Domain Name : 0

4 IP: IP or Domain Name : 0

5 IP: IP or Domain Name : 0

Reconnection

Interval: 10 seconds

Retry Time: 65535 65535 means no limit

Heart Beat

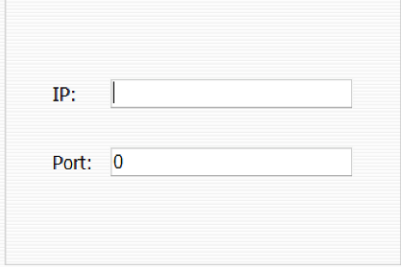
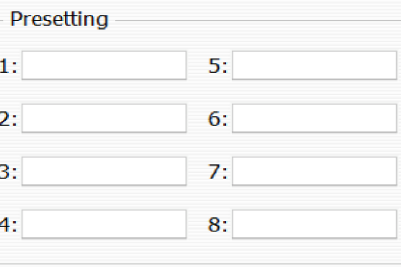
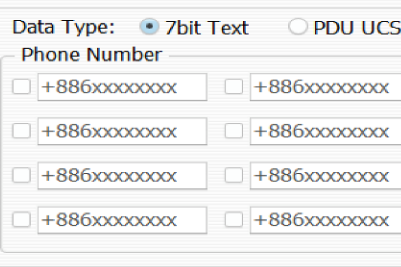
Enabled

Text: This is heart beat

Interval: 60 seconds

Operation Mode

Mode	Select connection mode by drop-down list.
<div style="border: 1px solid #ccc; padding: 5px;"> <p><input type="checkbox"/> 1 IP: <input style="width: 100px;" type="text"/> IP or Domain Name : <input style="width: 50px;" type="text"/> 0</p> <p><input type="checkbox"/> 2 IP: <input style="width: 100px;" type="text"/> IP or Domain Name : <input style="width: 50px;" type="text"/> 0</p> <p><input type="checkbox"/> 3 IP: <input style="width: 100px;" type="text"/> IP or Domain Name : <input style="width: 50px;" type="text"/> 0</p> <p><input type="checkbox"/> 4 IP: <input style="width: 100px;" type="text"/> IP or Domain Name : <input style="width: 50px;" type="text"/> 0</p> <p><input type="checkbox"/> 5 IP: <input style="width: 100px;" type="text"/> IP or Domain Name : <input style="width: 50px;" type="text"/> 0</p> </div>	<p>TCP Client:</p> <ul style="list-style-type: none"> - Check to enable individual connection. - Input IP (or Domain Name) & port. - Support 5 connections at the same time
<div style="border: 1px solid #ccc; padding: 5px;"> <p><input type="checkbox"/> 1 IP: <input style="width: 100px;" type="text"/> IP or Domain Name : <input style="width: 50px;" type="text"/> 0</p> <p><input type="checkbox"/> 2 IP: <input style="width: 100px;" type="text"/> IP or Domain Name : <input style="width: 50px;" type="text"/> 0</p> <p><input type="checkbox"/> 3 IP: <input style="width: 100px;" type="text"/> IP or Domain Name : <input style="width: 50px;" type="text"/> 0</p> <p><input type="checkbox"/> 4 IP: <input style="width: 100px;" type="text"/> IP or Domain Name : <input style="width: 50px;" type="text"/> 0</p> <p><input type="checkbox"/> 5 IP: <input style="width: 100px;" type="text"/> IP or Domain Name : <input style="width: 50px;" type="text"/> 0</p> </div>	<p>UDP client:</p> <ul style="list-style-type: none"> - Check to enable individual connection. - Input IP (or Domain Name) & port. - Support 5 connections at the same time
<div style="border: 1px solid #ccc; padding: 5px; height: 100px;"> <p style="text-align: center;">Port: <input style="width: 100px;" type="text"/> 2600</p> </div>	<p>TCP Server</p> <ul style="list-style-type: none"> - Set the port of TCP server.

	<p>Transparent Client - Input IP (or Domain Name) & port.</p>
	<p>AT Command - You can set the AT command to auto send while MLB-G1103 boot up in AT command mode.</p>
	<p>SMS Mode - Select "Data Type" - Check to enable and input Phone Number.</p>
<p>Reconnection</p>	
<p>Interval</p>	<p>The interval between two retries</p>
<p>Retry Time</p>	<p>Set the retry times when connection interrupts</p>
<p>Heart beat</p>	
<p>Enable</p>	<p>Check to enable "Heart Beat" function.</p>
<p>Text</p>	<p>Set the string of "Heart Beat".</p>
<p>Interval</p>	<p>Set the interval of sending heart beats.</p>

Note: Do Not power down the device during the firmware upgrade process.

DIO/Alarm

Get DIO status and set alarm settings.

Device Info
System
Network
DIO/Alarm
Modbus
Advanced

Alarm

Event	Phone Number	Text
<input type="checkbox"/> Reboot	<input type="text" value="+886xxxxxxxx"/>	<input type="button" value="Edit"/>
<input type="checkbox"/> DI1 H to L	<input type="text" value="+886xxxxxxxx"/>	<input type="button" value="Edit"/>
<input type="checkbox"/> DI1 L to H	<input type="text" value="+886xxxxxxxx"/>	<input type="button" value="Edit"/>
<input type="checkbox"/> DI2 H to L	<input type="text" value="+886xxxxxxxx"/>	<input type="button" value="Edit"/>
<input type="checkbox"/> DI2 L to H	<input type="text" value="+886xxxxxxxx"/>	<input type="button" value="Edit"/>
<input type="checkbox"/> Relay Changed	<input type="text" value="+886xxxxxxxx"/>	<input type="button" value="Edit"/>
<input type="checkbox"/> Connection Stop	<input type="text" value="+886xxxxxxxx"/>	<input type="button" value="Edit"/>

DI

DI1 Status: LOW

DI2 Status: LOW

Relay

Default State: ON OFF

Alarm	
Reboot	<ul style="list-style-type: none"> - Check to enable "Reboot" event. - Set the phone number to receive SMS when event occurred. - Click Edit to modify the SMS string.
DI1 H to L	<ul style="list-style-type: none"> - Check to enable "DI1 H to L" event. - Set the phone number to receive SMS when event occurred. - Click Edit to modify the SMS string.
DI1 L to H	<ul style="list-style-type: none"> - Check to enable "DI1 L to H t" event. - Set the phone number to receive SMS when event occurred. - Click Edit to modify the SMS string.
DI2 H to L	<ul style="list-style-type: none"> - Check to enable "DI2 H to L t" event. - Set the phone number to receive SMS when event occurred. - Click Edit to modify the SMS string.
DI2 L to H	<ul style="list-style-type: none"> - Check to enable "DI2 L to H" event. - Set the phone number to receive SMS when event occurred. - Click Edit to modify the SMS string.
Relay Changed	<ul style="list-style-type: none"> - Check to enable "Relay Changed" event. - Set the phone number to receive SMS when event occurred. - Click Edit to modify the SMS string.
Connection Stop	<ul style="list-style-type: none"> - Check to enable "Connection Stop event. - Set the phone number to receive SMS when event occurred. - Click Edit to modify the SMS string.
DI	
Refresh	Click "Refresh" to get status of DI1 & DI2.

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Relay	
Default Status	Set default status of Relay.
ON/OFF	Click to test Relay function works well.

Modbus

Set variables and Get Relay/DIO status in MISC page

Device Info
System
Network
DIO/Alarm
Modbus
Advanced

Cellular

Raw Data

Modbus TCP

Serial Port

Raw Data

Modbus RTU

Modbus ASCII

Enabled RTU ASCII Paired format. ex: 00FF01FE Interval: Min

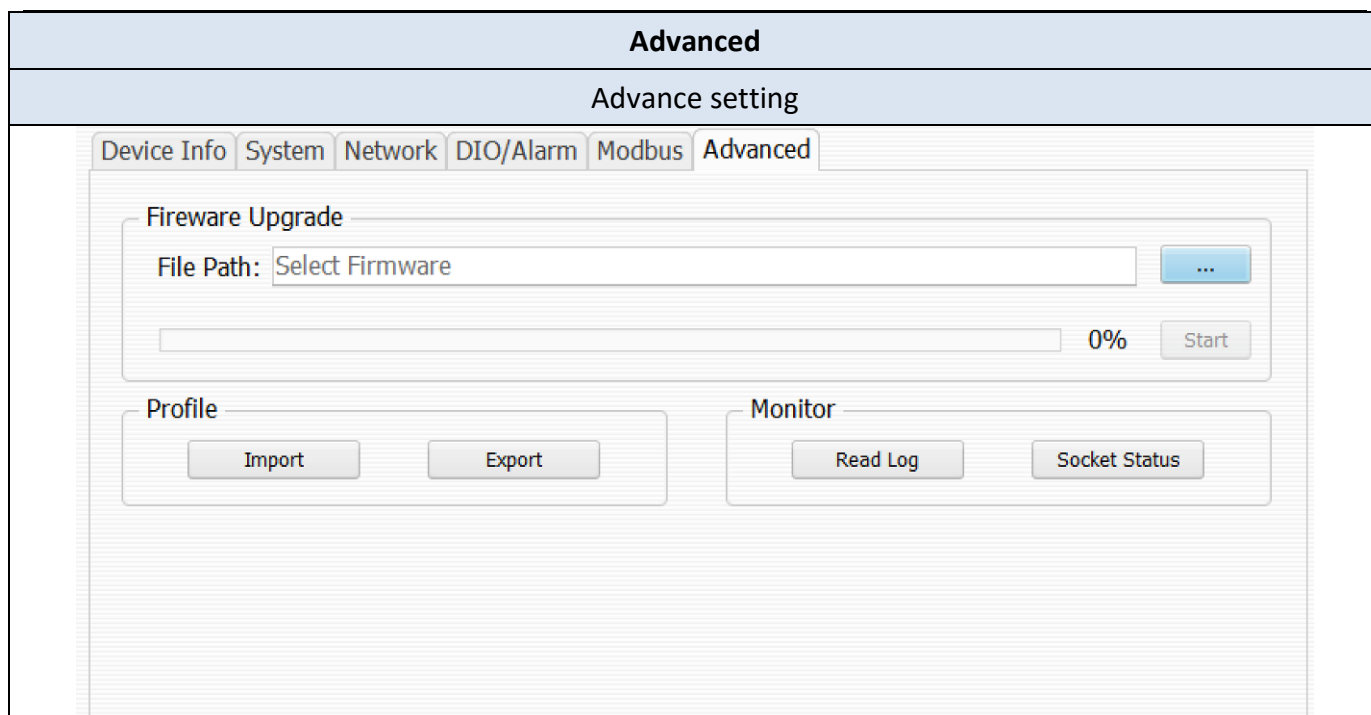
Enabled RTU ASCII Paired format. ex: 00FF01FE Interval: Min

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Cellular	
Raw Data/Modbus TCP	Select data format received from cellular.
Serial Port	
Raw Data	Check to enable and select RTU/ASCII to input related settings.
Modbus RTU	Set Device Address
Modbus ASCII	Set Device Address

Note: The data format response through MODBUS will be with **MLB+MODBUSDATA** data header.

662911	NET	30	MLB+MODBUSDATA:01030400D90225	4D 4C 42 2B 4D 4F 44 42 55 53 44 41 54 41 3A 30 31 30 33 30 34 30 30 44 39 30 32 32 35 0E
722987	NET	30	MLB+MODBUSDATA:01030400D90224	4D 4C 42 2B 4D 4F 44 42 55 53 44 41 54 41 3A 30 31 30 33 30 34 30 30 44 39 30 32 32 34 0F
782953	NET	30	MLB+MODBUSDATA:01030400D90222	4D 4C 42 2B 4D 4F 44 42 55 53 44 41 54 41 3A 30 31 30 33 30 34 30 30 44 39 30 32 32 32 11
842983	NET	30	MLB+MODBUSDATA:01030400D90220	4D 4C 42 2B 4D 4F 44 42 55 53 44 41 54 41 3A 30 31 30 33 30 34 30 30 44 39 30 32 32 30 13
903168	NET	30	MLB+MODBUSDATA:01030400DA0225	4D 4C 42 2B 4D 4F 44 42 55 53 44 41 54 41 3A 30 31 30 33 30 34 30 30 44 41 30 32 32 35 06
963384	NET	30	MLB+MODBUSDATA:01030400DA0227	4D 4C 42 2B 4D 4F 44 42 55 53 44 41 54 41 3A 30 31 30 33 30 34 30 30 44 41 30 32 32 37 04
1023101	NET	30	MLB+MODBUSDATA:01030400DB0225	4D 4C 42 2B 4D 4F 44 42 55 53 44 41 54 41 3A 30 31 30 33 30 34 30 30 44 42 30 32 32 35 05
1083131	NET	30	MLB+MODBUSDATA:01030400DB0234	4D 4C 42 2B 4D 4F 44 42 55 53 44 41 54 41 3A 30 31 30 33 30 34 30 30 44 42 30 32 33 34 05



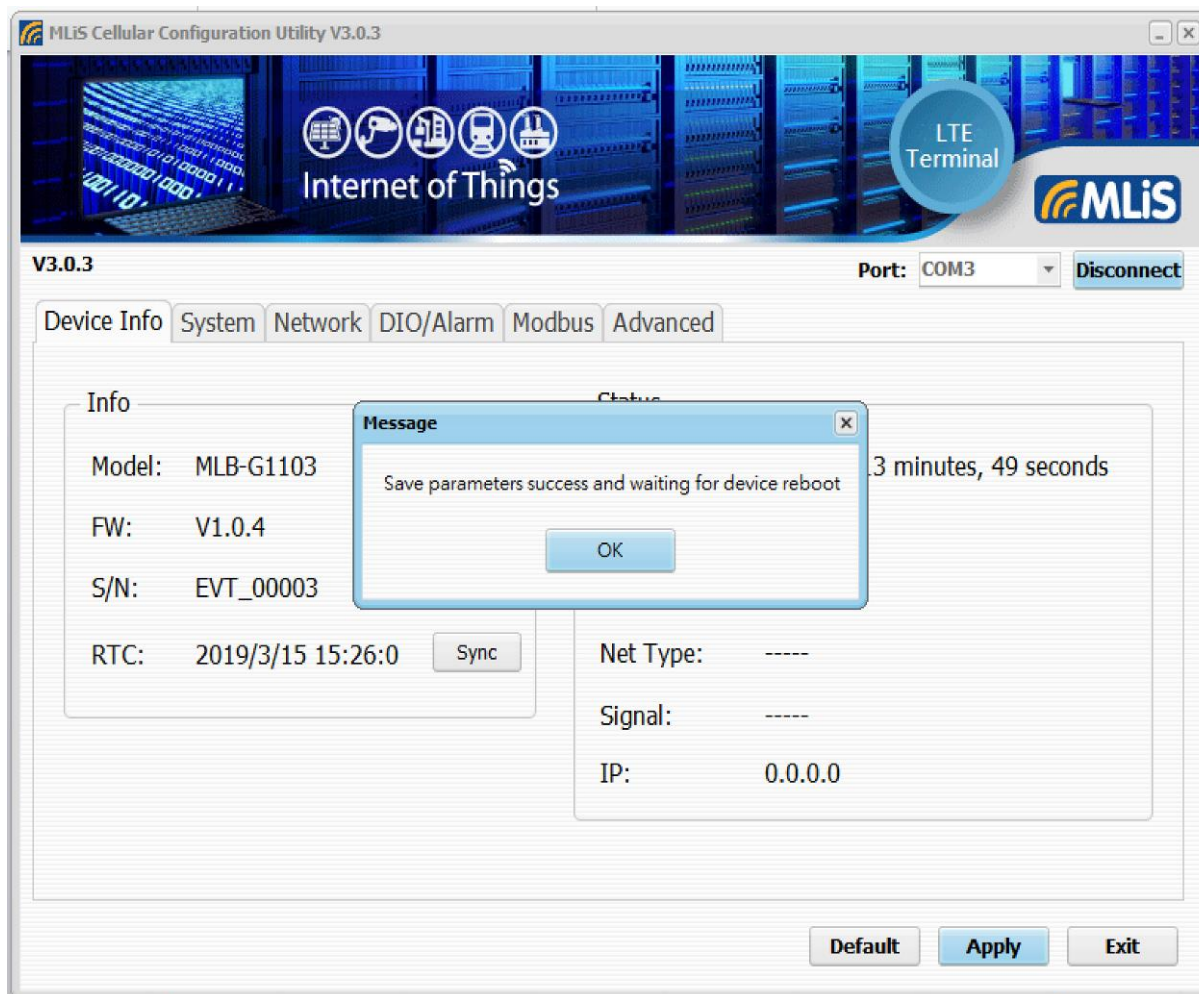
Firmware Upgrade	
File Path	Click “...” to select firmware.
Start	After firmware selected, click “Start” to start firmware upgrade process.
Profile	
Import	Click “Import” to select configuration profile to import.
Export	Click “Export” to select save folder to export configuration profile.
Monitor	
Read Log	Click to read log file.
Socket status	Click to monitor sockets status.

Table 7: Operation Modes

	TCP/UDP	Transparent	Transparent
	Sever/Client Mode	Packing Mode	Fast Mode
Connection	5	1	1
Transmission rates (Base on baud-rate 115200)	Max.3kbits/sec	100Kbits/sec	115kbits/sec
Packing	TCP Packing	Stream	Stream

Notice: It is recommended to apply TCP/UDP mode for the most application scenarios.

Step 4: Click Apply to save settings to MLB-G1103.



- When applying the setting, make sure the RS232 cable is well connected.
- If the cable is loose during the applying process, please long press the “Reset” button to reset MLB-G1103 to default. Then apply the setting again.

5 OPERATING NOTE

5.1 Power on the Modem

After plugin the power adapter, the modem is usually fully operational within 60 seconds, after powering it up. Depending on the signal strength of the network in the area, logging into a network may take longer and is outside the control of the modem.

5.2 Reset to default

Press reset button, it will be reset to default. All of temporary data buffer will be clear.

5.3 External input x2

External signal input source, positive signal is DI1 and DI2, negative signal is COM_1 are COM_2. Power input range is +12V~+48V, it will be determined as positive. It can be used for alert.

1.15 External Relay x1

No positive and negative signal relay output, maximum power input voltage range is +48V. It can be used for beeper.

1.16 DB9 Connector

The RS-232/422/485 connector is DB9 male type, please refer to table 4.

1.17 Install SIM card

Please turn to back view, screw open the cover, then user will see SIM card holder. Please use SIM card faces to PCB board and put it into holder, please screw the cover back. (Please refer to Figure 6)

6 MLiS Cellular Control Protocol (MCCP)

MLiS user can remotely control MLB-G1103 through MLiS Cellular Control Protocol. MLiS Cellular Control Protocol is open to MLiS user.

The MCCP should be converted to hexadecimal then count with checksum. If any question about MCCP, please feel free to contact us. support.mlis@schmidtelectronics.com

GETINFORMATION		
Command	MLB-GETINFORMATION:Z	
Receive	+: {SN}, {Model}, {FW ver.}	Ex. +:EVT_00003,MLB-G1103,V1.0.4
SAVE DEFAULT		
Command	MLB-SAVEDEFAULT:Z	
Receive	+:OK	
SAVE PARAMETERS		
Command	MLB-SAVEPARAMETERS:Z	
Receive	+:User Data Save OK	
Restart		
Command	MLB-RESTART:Z	
Receive	+:System reboot now	
Set RTC		
Command	MLB-SETRTC:{Unix Timestamp},Z	Note: Transfer time to Unix Timestamp format.
Receive	+:OK	
Get DIO Status		
Command	MLB-GETDIOX:{1 or 2},Z	
Receive	+:{1 or 2}, status	Status:

		0: L 1: H
Set Relay Status		
Command	MLB-SETRELAY:{Status},Z	Status: 0:OFF 1:ON
Receive	+:OK	
AT COMMAND		
Command	MLB-ATCOMMAND:{Command}Z	
Receive	{ Command Respond }	
Connection Profile		
Command	MLB-CONNECTIONPROFILE: { Connection Type },{ Connection No. },{ IP:Port },{ Status },Z	Connection Type 0:TCP Client 1:UDP Client 2:TCP Server 3:TRANSPARENT Client Connection No. 0~4 Status: 0: disable 1: enable
Receive	+:OK	
UART Setting		
Command	MLB-UARTSETTING:{ Serial Type },{ Data bit },{ Baud rate },{ Parity bit },{ Stop bit },{ Flow Control },0,0,Z	Serial Type: 0: RS232 1: RS485 2: RS422
		Data bit: 0: 7 1: 8
		Baud rate: 0:1200 1:2400

		2:4800 3:9600 4:19200 5:38400 6:57600 7:115200 8:230400 9:460800 10:921600
		Parity bit: 0:NONE 1:ODD 2:EVEN
		Stop bit: 0:1 1:2
		Flow Control: 0:NONE 1:RTS/CTS
Receive	+:OK	
Internet Setting		
Command	MLB-INTERNETSETTING:{APN},{User Name},{Password},{Operation Mode},Z	Operation Mode: 0:TCP Client 1:UDP Client 2:TCP Server 3:TRANSPARENT Client 4:ATCommand 5:SMS
Receive	+:OK	
Phone Setting		
Command	MLB-PHONESETTING:{Event},{Phone Number},{Status},Z	Event: 0:Reboot 1:DI1 H to L 2:DI1 L to H 3:DI2 H to L 4:DI2 L to H 5:Relay Changed 6:Connection Stop Status: 0:disable

		1:Enable
Receive	+:OK	
Re-connect Setting		
Command	MLB-RECONNECTSETTING:{Retry Times},{Retry Interval},Z	Retry Times: 5~65535 Retry Interval: 10~300
Receive	+:OK	
Heartbeat Setting		
Command	MLB-HEARTBEATSETTING:{Interval},{String},{Status},Z	
Receive	+:OK	
SMS Setting		
Command	MLB-SMSMODESETTING:{SMS Setting No.},{Phone No.},{Format},{Status},Z	Format: 0:7bit Text 1:PDU UCS2
Receive	+:OK	
AT Command Pre-send		
Command	MLB-PRESETTING: {Pre-send Command No.},{Command},Z	
Receive	+:OK	
Supervisor Setting		
Command	MLB-SUPERVISOR:{Status},{Phone No.},{Utility Login},Z	Status: 0:Disable 1: Enable Utility Login: 0:Disable 1:Enable
Receive	+:OK	
SMS-sending Settings		

Command	MLB-SENDSMS:{SMS Format},{Phone No.},{SMS String},Z	SMS Format: 0:7bit Text 1:PDU UCS2
Receive	+:OK	

Get CONNECTION PROFILE

Command	MLB+CONNECTIONPROFILE:{Connection Type},{Connection No.},Z	
Receive	0~1: => +:{IP: Port},{Status} 2: => +:{IP: Port} 3: => +:{IP: Port}	

Get UART Setting

Command	MLB+UARTSETTING:Z	
Receive	+: {Serial Type},{Data bit},{Baud rate},{Parity bit},{Stop bit},{Flow Control},0,0	

Get Internet Setting

Command	MLB+INTERNETSETTING:Z	
Receive	+:{APN},{UserName},{Password},{Operation Mode}	

Get Phone Setting

Command	MLB+PHONESETTING:{SMS Event},Z	
Receive	+:{Phone No.},{String},{Status}	

Get Reconnect Setting

Command	MLB+RECONNECTSETTING:Z	
Receive	+:{Retry Times},{Retry Interval}	

Get Heartbeat Setting

Command	MLB+HEARTBEATSETTING:Z	
Receive	+:{Interval},{String},{Status}	

Packing Setting		
Command	MLB+PACKINGSETTING:Z	
Receive	+:{Device ID},{Status}	
Get SMS Mode		
Command	MLB+GETSMSMODE:{Item No.},Z	Item No.: 0~7
Receive	+:{Status},{format},{Phone Number}	
Get Pre-send Setting		
Command	MLB+GETPRESETTING:{Pre-send Command No.},Z	Pre-send Command No.: 0~7
Receive	+:{Command}	

7 SALES CONTACT

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8 ORDERING INFORMATION

MLiS Product

MLB-G1103: The MLIS Dual-Band 2G/3G wireless terminal.

Power Adaptor

MLA-PSP-100: Input: AC 100 ~ 240V Output: 9V/1.3A DC jack 5.5/2.1

MLA-PSP-101: US Adapter Plug

MLA-PSP-104: British Adapter Plug

MLA-PSP-103: European Adapter Plug

MLA-PSP-102: Australia Adapter Plug

MLA-CAB-001: DC Jack power line 5.5/2.1

Cable

MLA-CAB-101: DB9 connector for RS232 (female)

Antenna

MLA-ANT-002: Magnet standalone antenna

MLA-ANT-001: PCB antenna

MLA-ANT-005: Magnet 850/900MHz-1800/1900MHz -2100MHz
5- band antenna with male SMA connector 1.5dBi

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