MLB-G1101 DTU

User Guide

MLiS Basic DTU 2G/3G

Model Number:

MLB-G1101

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Service and Support

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Revision History

Version	Date	Description
1.0	Mar 2014	1st Release
1.1	April 2014	2nd Release

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1 INTRODUCTION

1.1 Description

The MLiS MLB-G1101 is a Dual Band 2G/3G DTU designed for RS232/RS422/RS485 communication over TCP/IP via any readily available 2G/3G carrier network. Overall, it is 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-G1101 DTU uses 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 DTU.

The MLB-G1101 DTU 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
- DB9 connector for data communications
- SMA Female Connector (GSM antenna connector)
- SIM card reader
- 1 * relay
- 2 * I/O pins

General Features

- Dual / Quad-Band GSM 850/900/1800/1900 MHz
- GPRS multi-slot class 8
- GSM release 99
- Output Power
  - Class 4 (+33dBm ±2dB) for EGSM850 (quad band only)
  - Class 4 (+33dBm ±2dB) for EGSM900
  - Class 1 (+30dBm ±2dB) for GSM1800
  - Class 1 (+30dBm ±2dB) for GSM1900 (quad band only)
- Control via AT commands
- SIM Application Toolkit (release 99)

- TCP/IP stack access via AT commands
- Internet Services: TCP, UDP, HTTP, FTP
- Supply voltage range: 5 to 32 VDC
- Temperature range
  - Operating: -40°C to 85°C
  - Restricted operating: 65°C to 80°C
- Dimensions (L) x (W) x (H) : 119.5 x 89 x 26.9 mm (excluding connectors)
- Weight: 200g

GPRS Data Transmission

- GPRS Class 12: max. 86kbps (DL & UL)
- Mobile station class B
- PBCCH support
- Coding schemes CS 1-4

CSD Data Transmission

- Up to 14.4kbit/s
- V.110, RLP
- Non transparent
- USSD support

PPP-stack for GPRS data transfer

Short Message Service (SMS)

- Point-to-point MO and MT
- SMS cell broadcast
- Text and PDU mode
- Cell broadcast
- Storage: SIM card plus 25 SMS locations in mobile equipment Transmission of SMS alternatively over CSD or GPRS. Preferred mode can be user defined.

1.3 Functional Block diagram

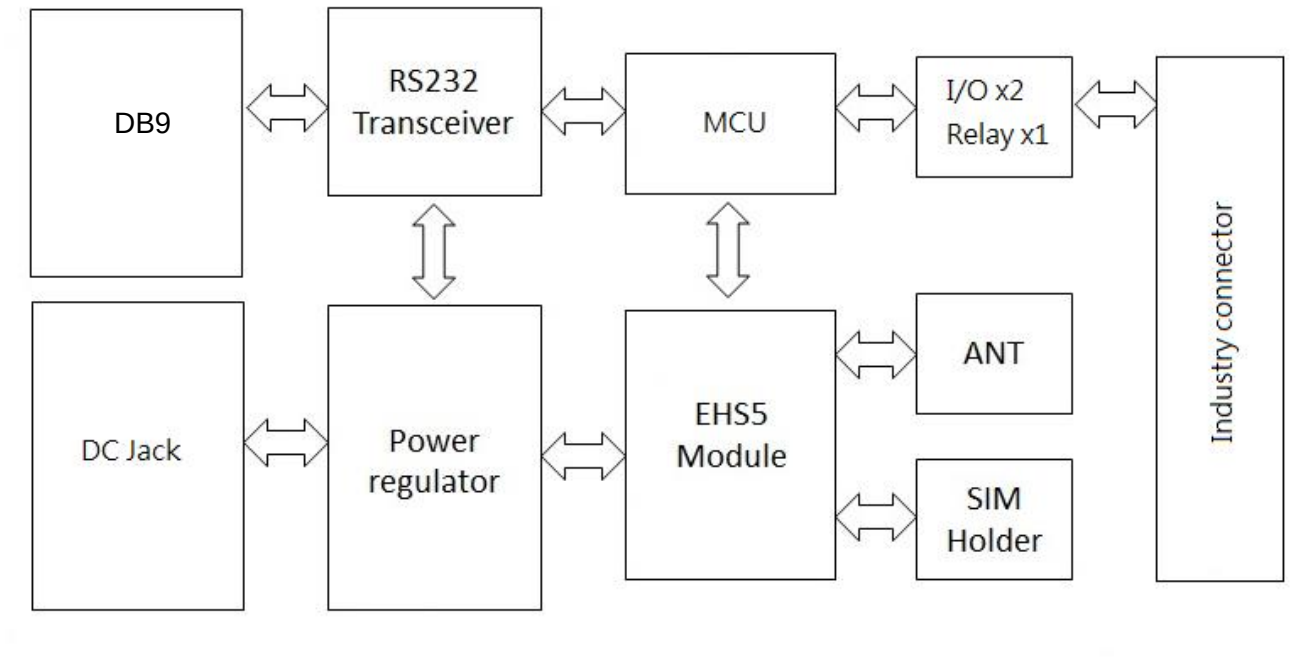

Figure 1: Functional Block Diagram for MLB-G1101

The MLB-G1101 consists of a fully certified (CE approved) GSM/GPRS engine, SIM card holder and power regulator.

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

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

1.4 Main Features and Services

The MLB-G1101 performs a set of telecom services (TS) according to GSM standard phase 2+, ETSI and ITU-T. The services and functions of the MLB-G1101 are implemented by issuing customized applications embedded on the device, or by AT commands issued internally, or over the RJ45 to RS232 serial interface.

1.4.1 Operating Modes

The table below briefly summarizes the various operating modes referred to in the following chapters.

Normal operation	GSM / GPRS SLEEP	Various power save modes set with AT+CFUN command. Software is active to minimum extent. If the module was registered to the GSM network in IDLE mode, it is registered and paging with the BTS in SLEEP mode, too. Power saving can be chosen at different levels: The NON-CYCLIC SLEEP mode (AT+CFUN=0) disables the AT interface. The CYCLIC SLEEP modes AT+CFUN=7 and 9 alternately activate and deactivate the AT interfaces to allow permanent access to all AT commands.
	GSM IDLE	Software is active. Once registered to the GSM network, paging with BTS is carried out. The module is ready to send and receive.
	GPRS IDLE	Module is ready for GPRS data transfer, but no data is currently sent or received. Power consumption depends on network settings and GPRS configuration (e.g. multi-slot settings).
	GPRS DATA	GPRS data transfer in progress. Power consumption depends on network settings (e.g. power control level), uplink / downlink data rates, GPRS configuration (e.g. used multi-slot settings) and reduction of maximum output power.
POWER DOWN	Normal shutdown after sending the AT^SMSO command. Only a voltage regulator is active for powering the RTC. Software is not active. Interfaces are not accessible. Operating voltage (connected to BATT+) remains applied.	
Airplane mode	Airplane mode shuts down the radio part of the module, causes the module to log off from the GSM/GPRS network and disables all AT commands whose execution requires a radio connection. Airplane mode can be controlled by using the AT commands AT^SCFG and AT+CALA: • With AT^SCFG=MEopMode/Airplane/OnStart the module can be configured to enter the Airplane mode each time when switched on or reset. • The parameter AT^SCFG=MEopMode/Airplane can be used to switch back and forth between Normal mode and Airplane mode any time during operation. • Setting an alarm time with AT+CALA followed by AT^SMSO wakes the module up into Airplane mode at the scheduled time.	

Table 1: Operating Modes

1.4.2 DTU Features and Electrical Specifications

Table 2: Features and Specifications

S/N	Feature	Specifications	
1	Frequency Bands	EU GSM/GPRS/EDGE: 900/1800MHz and UMTS/HSPA+: 900/2100MHz US GSM/GPRS/EDGE: 850/1900MHz and UMTS/HSPA+: 850/1900MHz	
2	RF Output Power	Class 4 (+33dBm ±2dB) for EGSM850 (quad band only) Class 4 (+33dBm ±2dB) for EGSM900 Class 1 (+30dBm ±2dB) for GSM1800 Class 1 (+30dBm ±2dB) for GSM1900 (quad band only)	
3	GSM Phase	Release 99	
4	Power Supply	5 o 32 VDC	
5	Power Consumption	- DATA mode : GPRS 1TX, 4RX GSM 850/EGSM 900 GSM 1800/1900	 180mA 145mA
		- DATA mode : GPRS 2TX, 3RX GSM 850/EGSM 900 GSM 1800/1900	 330mA 260mA
6	Operating Temperature	Normal operation: -40°C to +85°C Restricted operation: -40°C to -30°C, +85°C to +90°C	
7	Data Transfer	GPRS Multi-slot Class 12 max 85.6kbps (Downlink and Uplink) Full PBCCH Support Mobile Station Class B Coding Scheme 1~4 PPP stack	
		CSD V.110, RLP, non-transparent @2.4, 4.8, 9.6 & 14.4kbps USSD	
		PPP-stack for GPRS data transfer	
8	SMS	Point-to-Point MT and MO Cell Broadcast Text and PDU Mode Storage: SIM Card plus 25 SMS locations in mobile equipment Transmission of SMS alternatively over CSD or GPRS. Preferred mode can be user defined.	
9	AT Commands	AT-Hayes 3GPP TS 27.007, TS 27.005	
10	TCP/IP Stack	Access by AT Commands Internet Services include TCP, UDP, HTTP, FTP	
11	Serial Interface	DB9 connector 8-wire Modem Interface with status and control lines, unbalanced, asynchronous Fixed bit rate: 300bps to 460,800bps Autobauding: 1,200bps to 460,800bps	

S/N	Feature	Specifications
		Flow Control: Hardware RTS0/CTS0 and Software XON/OFF Multiplex ability according to GSM 07.10 Multiplexer Protocol
12	SIM Interface	SIM Card Slot Supports SIM Cards: +3V and +1.8V
13	Antenna	50 ohms via External SMA Connector
14	Software Reset	Orderly shut down and Reset by AT Command (AT^SMSO)
15	RoHs 	All hardware components are fully compliant with the EU RoHs directive 2002/95/EC Exception: MLB55IN

1.5 Precautions

The MLB-G1101 DTU is designed for indoor use only. For outdoor use 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 DTU along with the positions of the different connectors.

2.2 Dimensions

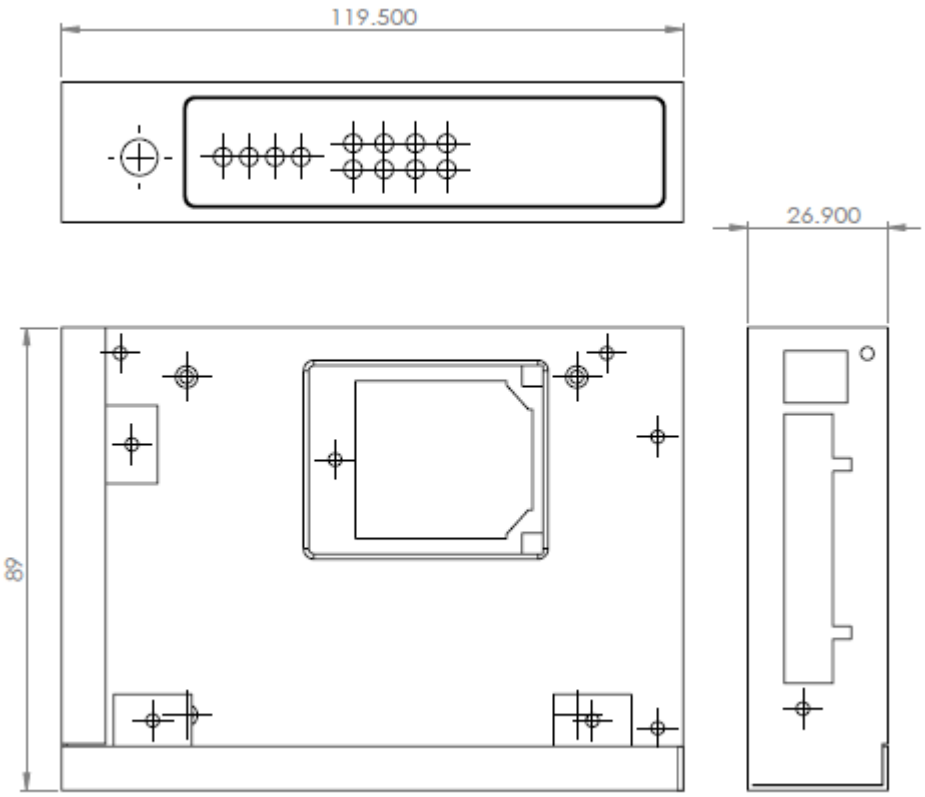

Figure 2: Chassis Dimension for MLB-G1101

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 3: Chassis Dimensions and Mechanical Description for MLB-G1101

3 ELECTRICAL INTERFACE DESCRIPTIONS

3.1 Right side view (DB9 connector)

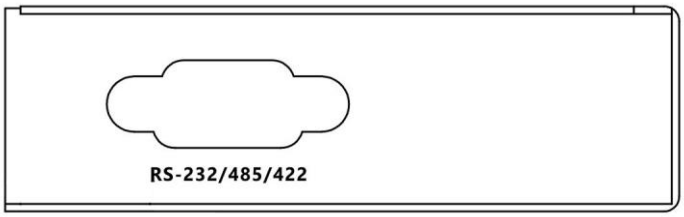

Figure 3:RS232/RS422/RS485 for MLB-G1101

The table below defines the RS232/RS422/RS485 pin configuration on the DTU

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 4: DB9 pins define for MLB-G1101

3.2 Left side view (DC Jack & Industry connector)

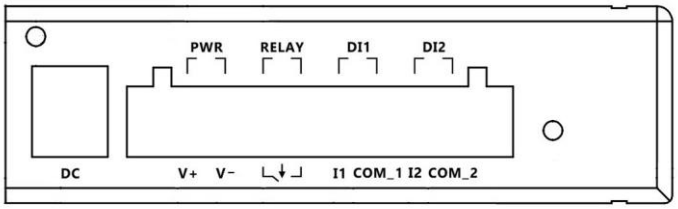

Figure 4: DC and Industry connector for MLB-G1101

The interfaces and indicators for MLB-G1101 are as follows:

Item	Description	Function
1	DC	Input Power:+5V~+32V
2	PWR(V+,V-)	Output Power +3.3V
3	Relay	External Relay:max+48V
4	DI1(I1,COM_1)	I1:external signal +12V~+48V COM_1:common grand
5	DI2(I2,COM_2)	I2:external signal,+12V~+48V COM_2:comman grand

Table 5: Interfaces and Indicators Description of MLB-G1101

3.3 Frond view (Antenna & LED)

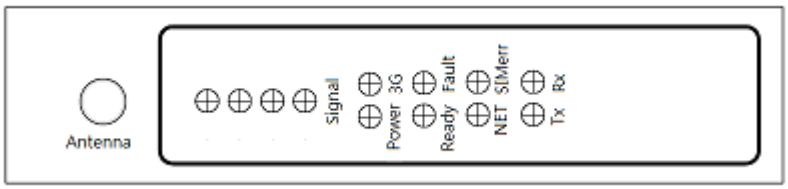

Figure 5: Antenna Connector for MLB-G1101

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

The table describes LED function.

Item	Description	Function
1	Power	Power on indication
2	3G	3G status indication
3	Ready	Function working indication
4	Fault	Occur error
5	Net	Bulid connection
6	SIMerr	Sim card error indication
7	Tx	Uart transmit indication
8	Rx	Uart Receive indication

Table 6: LED functions of MLB-G1101

3.4 SIM card holder

In the bottom, The MLB-G1101 DTU is 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 battery cover as shown below.

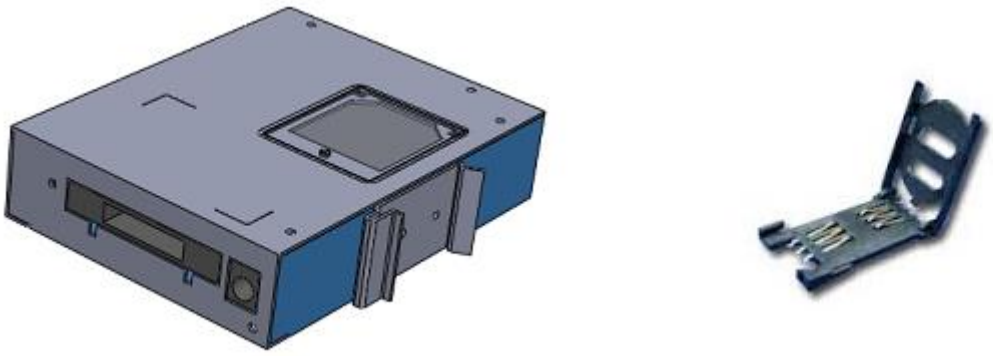

Figure 6: SIM Card Holder for MLB-G1101

∗ Be sure to power off the modem when you replace the SIM card. Otherwise it may cause damage to the equipment.

The MLB-G1101 fully operates when inserting a SIM card. Some MLB-G1101 functionality may be lost if you try to operate the DTU without a SIM card

4 OPERATING NOTE

4.1 Power on the Modem

After plug in power adapter. The modem is usually fully operational within 4 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.

4.2 Reset to default

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

4.3 External input x2

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

4.4 External Relay x1

Non positive and negative signal relay output, maximum power input voltage range is +48V. It can be used for beeper.

4.5 DB9 Connector

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

4.6 Install SIM card

Please turn to back view, screw open the cover, then you 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)

5 SCHMIDT Protocol

Protocol Description

The SCHMIDT Protocol defines the method of data exchange between host controller and a target SCHMIDT 3G DTU. It specifies how a host controller can address, configure, and command a target SCHMIDT 3G DTU in order to communicate with M2M devices.

The SCHMIDT Protocol supports Binary format exchange. The host controller initiates every REQUEST / RESPONSE sequence.

Figure 7: Binary Protocol Exchange

Host Interface RS-232

RS-232 Host Interface is used to communicate with PC or other terminal devices.

A 3-wire interface (RX, TX and Ground) is implemented.

RS-232 Data Rates (Baud Rates)

115200 bits/sec, N, 8, 1

PS : No Parity Bit, 8 Data Bits, 1 Stop Bit.

MESSAGE FORMAT

General format structure

STX	Transaction type	Message Length	Data	ETX	LRC

The general message structure is used to communicate between the DTU and the Controller as shown in Table 7.

Field	Field Description	Field Length	Field type	remarks
1	STX	1	B	0x02
2	Transaction type	4	A	
3	Data length	2	B	Size of data excluding ETX
4	Data	VAR		
5	ETX	1	B	0x03
6	LRC	1	B	

Table 7: General message structure

The “message” described herein refers to the data framed started by an STX character and terminated with an ETX character followed by a LRC.

5.1 **Longitudinal Redundancy Check or LRC**

The LRC is used to ensure the data integrity of data exchanged between the interface device.

The LRC character is appended to all data message exchange between the DTU and Controller to detect and recover from transmission errors.

It is generated by using an 8-bits EXCLUSIVE-OR of all bytes between the STX and ETX character (this would exclude the STX but include the ETX character).

Link Control Characters

The link control characters set are characters sets that are used by the messaging protocol as shown in Table 8

Character	Hex	Decimal	Remarks
STX	02	02	Start of text framing character
ETX	03	03	End of text framing character
ACK	06	06	Affirmative acknowledgement
NAK	15	21	Negative acknowledgement

Table 8: link control characters set

Normal Request and Respond

Figure 5-3 shows the standard normal request/response transaction between the Controller and DTU. The request message is of the standard message format

e.g. <STX><TransType><LEN><DATA><ETX><LRC>.

5.2 Invalid Transaction Type

When DTU received an invalid transaction request that DTU does not support, the DTU will not response any message. The MLB-G1101 will drop the invalid request command.

5.3 DTU API COMMAND SET

DTU CONFIGURATION COMMANDS

The following table summarizes the configuration commands that are supported by the DTU:

Figure 5-3

Command	Command Code	Response Code
Management command		
Get DTU FW+HW version	Z100	Z110
Set TCP Client parameter	Z200	Z210
Set Transparent TCP Client parameter	Z201	Z211
Set SMS parameter	Z202	Z212
Set FTP Client parameter	Z300	Z310
Get DTU setting profile	Z400	Z410
Set DTU Setting profile	Z500	Z510
Get 3G Signal Quality	Z600	Z610
Get SIM Status	Z700	Z710
Get Operation Name	Z800	Z810

Get Time Zone	Z900	Z910
Set APN	ZA00	ZA10
Baud rate Configuration	ZA04	ZA14
Get Input status from DI1	ZA05	ZA15
Get Input status from DI2	ZA06	ZA16
Set Relay level to High	ZA07	ZA17
Set Relay level to Low	ZA08	ZA18
Internet command		
Baud rate Configuration	ZB01	ZB11
Enable Transparent TCP Bridge	ZC00	ZC10
Disable Transparent TCP Bridge	ZC01	ZC11
Send SMS Message	ZC02	ZC12
Send TCP Data	ZD00	ZD10
Reset DTU to default	ZF10	ZF20

5.3.1 **GET Hardware, Firmware Version**

The get hardware-firmware version command is used to get DTU's hardware and firmware version.

Request message Z100

Field	Field Name	Attribute	Value	Remarks
	Message type	4	"Z100"	Get HW FW version
1	Len	2		

Response message Z110

Field	Field Name	Attribute	Value	Remarks
	Message type	4	"Z110"	Get HW FW version
	Len	2		
1	Hardware version	8	HW Version	
2	Firmware Version	8	FW Version	For example,v1.00

5.3.2 Set TCP Client Parameters

The command is used to set TCP Client parameters. It's for TCP client send data function. Host can send data via TCP Client service.

Request message Z200

Field	Field Name	Attribute	Value	Remarks
	Message type	4	"Z200"	Set TCP Client parameters
	Len	2		Total length
	Len	2		
	Len of IP	2		
	IP address	N		Internet address e.g 192.168.0.1
	Len of port	2		
	IP port	N	Socket port	3000~65536 eg : 3001 → 0BB9 65535 → FFFF

Response message Z210

Field	Field Name	Attribute	Value	Remarks
	Message type	4	“Z210”	Set TCP Client parameters
	Len	2		
1	Status	1	Status 00h : OK 01h : ERROR	
2	Error Code	1	Option	If Status is ERROR then append Error Code

5.3.3 Set TCP Transparent Bridge Parameters

Set TCP transparent bridge parameter for TCP bridge services.

Request message Z201

Field	Field Name	Attribute	Value	Remarks
	Message type	4	"Z201"	Set TCP Transparent Bridge parameters
	Len	2		Total length
	Len	2		
1	Len of IP	2		
2	IP address	N		Internet address e.g $192.168.0.1$
3	Len of IP port	2		
4	IP port	N	Socket port	3000~65536 eg : 3001 → 0BB9 65535 → FFFF

Response message Z211

Field	Field Name	Attribute	Value	Remarks
	Message type	4	“Z211”	Set TCP Transparent Bridge parameters
	Len	2		
1	Status	1	Status 00h : OK 01h : ERROR	
2	Error Code	1	Option	If Status is ERROR then append Error Code

5.3.4 Set SMS Parameter

Set SMS parameter e.g phone number for Send SMS Message function.

Request message Z202

Field	Field Name	Attribute	Value	Remarks
	Message type	4	“Z202”	
	Len	2		
	Len of phone number	2		
	Phone number	N		For example 0926123456

Response message Z212

Field	Field Name	Attribute	Value	Remarks
	Message type	4	“Z212”	
	Len	2		
1	Status	1	Status 00h : OK 01h : ERROR	
	Error Code	1	Option	If Status is ERROR then append Error Code

5.3.5 Set FTP Client Parameters

Set TCP client services' parameters e.g FTP Server IP, Server port, login in user name,and password...etc.

Request message Z300

Field	Field Name	Attribute	Value	Remarks
	Message type	4	Z300	“”Set FTP Client parameters
	Len	2		
1	Len of IP	2		
2	FTP IP	N	FTP IP	FTP server IP
3	Len of port	2		
4	FTP port	N	FTP Port	Port
5	Len of Account name	2		
6	User name	N	User name	
7	Len of Password	2		
8	Password	N	Password	
9	Len of file name	2		
10	File name	N	File name	For example, test12345.txt
11	Len of file path	2		
12	File path	N	File path	

Response message Z310

Field	Field Name	Attribute	Value	Remarks
	Message type	4	Z310	“”Set FTP Client parameters
1	Len	2		
2	Status	1	Status 00h : OK 01h : ERROR	Status of setting parameters to EEPROM
	Error Code	1	Option	

5.3.6 Get DTU Setting Profile

Get MLB-G1101 setting profile

Request message Z400

Field	Field Name	Attribute	Value	Remarks
	Message type	4	Z400	Get DTU profile
	Len	2		

Response message Z410

Field	Field Name	Attribute	Value	Remarks
	Message type	4	Z410	Get DTU profile
1	Total Len	2		
2	Len of IP 1	2		
3	Transparent IP	N	Transparent IP	eg : 175.180.133.126:65535
4	Len of IP 2	2		
5	TCP IP Client IP	N	TCP IP Client IP	eg : 175.180.133.126:65535
6	Len of IP 3	2		
7	FTP IP	N	FTP IP	eg : 175.180.133.126:65535
8	Len of IP 4	2		
9	Reserved service	N	Reserved service	eg : 175.180.133.126:65535
10	Len of IP 5	2		
11	Reserved service	N	Reserved service	eg : 175.180.133.126:65535
12	Len of IP 6	2		
13	Reserved service	N	Reserved service	eg : 175.180.133.126:65535
14	Len of IP 7	2		
15	Reserved service	N	Reserved service	eg : 175.180.133.126:65535

16	Len of IP 8	2		
17	Reserved service	N	Reserved service	eg : 175.180.133.126:65535
18	Len of IP 9	2		
19	Reserved service	N	Reserved service	eg : 175.180.133.126:65535
20	Len of APN	2		
21	APN Parameter	N		eg : internet
22	Len of Mobile Number	2		
23	Mobile Number	N		eg : 0987093400 or +886987093400

5.3.7 Set DTU Setting Profile

Request message Z500

Field	Field Name	Attribute	Value	Remarks
	Message type	4	Z500	Set DTU profile
1	Total Len	2		
2	Len of IP 1	2		
3	Transparent IP	N	Transparent IP	eg : 175.180.133.126:65535
4	Len of IP 2	2		
5	TCP IP Client IP	N	TCP IP Client IP	eg : 175.180.133.126:65535
6	Len of IP 3	2		
7	FTP IP	N	FTP IP	eg : 175.180.133.126:65535
8	Len of IP 4	2		
9	Reserved service	N	Reserved service	eg : 175.180.133.126:65535
10	Len of IP 5	2		
11	Reserved service	N	Reserved service	eg : 175.180.133.126:65535
12	Len of IP 6	2		
13	Reserved service	N	Reserved service	eg : 175.180.133.126:65535

14	Len of IP 7	2		
15	Reserved service	N	Reserved service	eg : 175.180.133.126:65535
16	Len of IP 8	2		
17	Reserved service	N	Reserved service	eg : 175.180.133.126:65535
18	Len of IP 9	2		
19	Reserved service	N	Reserved service	eg : 175.180.133.126:65535
20	Len of APN	2		
21	APN Parameter	N		eg : internet
22	Len of Mobile Number	2		
23	Mobile Number	N		eg : 0987093400 or +886987093400

Response message Z510

Field	Field Name	Attribute	Value	Remarks
	Message type	4	Z510	Set DTU profile
1	Len	2		
2	Status	1	00h :OK 01h:	
	Error Code	1	option	

5.3.8 Get DTU 3G Signal Quality

Get DTU 3G signal quality-the RSSI value.

Request message Z600

Field	Field Name	Attribute	Value	Remarks
	Message type	4	Z600	
1	Len	2	B	

Response message Z610

Field	Field Name	Attribute	Value	Remarks
	Message type	4	Z610	
1	Len	2		
2	3G Signal Quality	2		For example,24,99

5.3.9 Get SIM Status

Get SIM status, if SIM's status is ok then DTU can operate in normal mode.

Request message Z700

Field	Field Name	Attribute	Value	Remarks
	Message type	4	Z700	Get SIM Status
1	Len	2	B	

Response message Z710

Field	Field Name	Attribute	Value	Remarks
	Message type	4	Z710	Get SIM Status
1	Len	2		
2	SIM Status	1	00h : READY 01h : ERROR	
	Error Code	1	option	

5.3.10 Get Operation Name

The function is used to get operation name.

Request message Z800

Field	Field Name	Attribute	Value	Remarks
	Message type	4	Z800	Get operation name
1	Len	2		

Response message Z810

Field	Field Name	Attribute	Value	Remarks
	Message type	4	Z810	
1	Len	2		
2	Operation name	16	Operation name	For example, Far EasTone

If don't get operation name, response ERROR packet

Field	Field Name	Attribute	Value	Remarks
	Message type	4	Z810	
1	Len	2		
2	Status	1	00h :OK 01h:	00 : enable ok

			ERROR	01 : enable with ERROR If ERROR occurs, please use Get Error code command to see which error occurs
	Error Code	1	option	

5.3.11 Get Time Zone

The function is used to get time zone, the application can use time zone to do specific application.

Request message Z900

Field	Field Name	Attribute	Value	Remarks
	Message type	4	Z900	Get time zone
1	Len	2		

Response message Z910

Field	Field Name	Attribute	Value	Remarks
	Message type	4	Z910	
1	Len	2		
2	Time Zone	16	Timezone	

5.3.12 Set APN

The function is used to set APN of DTU.

Request message ZA00

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZA00	
	Len	2		
1	Len of APN	2		
	APN	N		

Response message ZA10

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZA10	
1	Len	2		
2	Status	1	00h :OK 01h:	
3	Error Code			

5.3.13 Baudrate Configuration

Set baud rate .of MLB-G1101

Request message ZA04

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZA04	
1	Len	2		
2	Baud rate parameter	1	D2 : 230400 D3 : 115200 D4 : 57600 D5 : 38400 D6 : 19200 D7 : 9600 D8 : 4800 D9 : 2400 D1 : 1200 DB : 300 DC : 110	

Response message ZA14

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZA14	
1	Len	2		

2	Status	1	00h :OK 01h: ERROR	
	Error Code	1	Option	

5.3.14 Get Input Status from DI1

This command will get external input status from DI 1 interface

Request message ZA05

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZA05	
1	Len	2		

Response message ZA15

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZA15	
1	Len	2		
2	Input Status	1	00h : Low 01h : High	

5.3.15 Get Input Status from DI2

This command will get external input status from DI2 interface

Request message ZA06

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZA06	
1	Len	2		

Response message ZA16

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZA16	
1	Len	2		
2	Input Status	1	00h : Low 01h : High	

5.3.15 Set Relay Level to High

Set RELAY output to high

Request message ZA07

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZA07	
1	Len	2		
2	Set Relay to High	1	48h : High	

Response message ZA17

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZA17	
1	Len	2		
2	Status	1	00h : Low 01h : High ERROR	

5.3.16 Set Relay Level to Low

Set RELAY output to low

Request message ZA08

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZA08	
1	Len	2		
2	Set Relay to High	1	4Ch : Low	

Response message ZA18

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZA18	
1	Len	2		
2	Status	1	00h : Low 01h : High ERROR	

5.3.17 Enable Transparent TCP Bridge

Enable transparent TCP bridge mode to let DTU enter TCP bridge mode.

Host or devices can send data they would like to send.

Request message ZC00

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZC00	
1	Len	2		

Response message ZC10

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZC10	
1	Len	2		
2	Status	1	00h :OK 01h: ERROR	00 : enable ok 01 : enable with ERROR If ERROR occurs, please use Get Error code command to see which error occurs
	Error Code	1	option	

5.3.18 Disable Transparent TCP Bridge

Disable Transparent TCP bridge services.

Request message ZC01

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZC01	
1	Len	2		

Response message ZC11

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZC11	
1	Len	2		
2	Status	1	00h :OK 01h: ERROR	00 : enable ok 01 : enable with ERROR I
	Error Code	1	option	

5.3.19 Send SMS Message

The function is used to send SMS message.

Request message ZC02

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZC02	
1	Len	2		
	Len of SMS message	2		
	SMS Message	N		

Response message ZC12

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZC12	
1	Len	2		
2	Status	1	00h :OK 01h: ERROR	00 : enable ok 01 : enable with ERROR If ERROR occurs, please use Get Error code command to see which error occurs
	Error Code	1	option	

5.3.20 Send TCP Data

When issue the Send TCP Data function, the DTU will send TCP data to server depend on TCP setting parameters.

Request message ZD00

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZD00	
1	Len	2		
	TCP Data	512		TCP data is 512 bytes you would like to send using TCP Client

Response message ZD10

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZD10	
1	Len	2		
2	Status	1	00h :OK 01h: ERROR	00 : ok 01 : ERROR
	Error Code	1	option	

5.3.21 Reset DTU To Default

DTU will restore default parameters and restart the device.

Request message ZF10

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZF10	
1	Len	2		

Response message ZF20

Field	Field Name	Attribute	Value	Remarks
	Message type	4	ZF20	
1	Len	2		
2	Status	1	00h :OK 01h: ERROR	00 : ok 01 : ERROR If ERROR occurs, please use Get Error code command to see which error occurs
	Error Code	1	option	

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7 ORDERING INFORMATION

MLiS Product

MLB-G1101: The MLIS Dual-Band 2G/3G DTU

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 connector1.5dBi

Notes:


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