PRODUCT INTRODUCTION

LM Gateway414-IoT provides 4 RS-485/323 serial ports and 2 10/100 Mbps Ethernet port, built-in 4G wireless module.It provides complete industrial protocols support including Modbus, BACnet, OPCUA, DLT645, CJ188, etc, provides external data as Modbus RTU/TCP, Bacnet server. The gateway and cloud platform use the instant messaging protocol MQTT to transmit data. The gateway can be used as an MQTT client to connect to Alibaba Cloud, Amazon Cloud,etc. The data points of the gateway are pushed to the cloud through the mechanism of subscription and published, and the cloud can read and write to the collected device through the gateway, which supports disconnected storage.

HARDWARE SPECIFICATION

LM Gateway403 Hardware parameters：	
CPU	4 Core A9,clocked at 1.4GHz
RAM	512MB DDR3 high performance memory
Nand Flash	MLC eMMC ,Onboard as 4GByte eMMC
Serial Port	4 fully isolated RS485 interfaces
Network Port	2 100M/10M Ethernet interface
Power Supply	DC9V ～ 36V, Anti-reverse connection, lightning resistance, overcurrent,etc.
Total Weight	260g
Enclosure rating	IP51
Installation size	129mm×116mm×29mm(L×W×H)
Mechanical installation	DIN rail card slot fixing
LM Gateway414 Environmental parameters：	
Power consumption	The biggest power consumption ≤6W
Temperature and Humidity	-40～80℃ 20～90％ non-condensing

INTERFACE DEFINITION

1. POWER

SIGNAL	DESCRIPTION
Vin+	Positive power supply
Vin-	Negative power supply
E	Safety ground

2. Network port

- 10/100M high speed adaptive network card；
- Two-stage lightning protection and anti-static protection, can resist 2KV lightning；
- Unique MAC address.

LAN	DEFAULT IP	SUBNET MASK
Eth0	192.168.1.230	255.255.255.0
Eth1	192.168.0.230	255.255.255.0

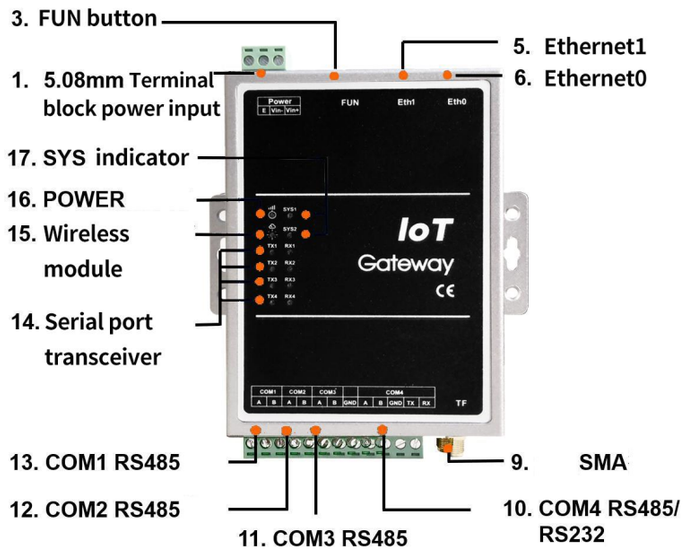
- Eth0 can be used as a LAN port or a WAN port to support access to the Internet
- Eth1 is a LAN port and can only be used for LAN

3. CON

PIN	SIGNAL	DESCRIPTION
1	COM1-A	RS485-1 Positive signal
2	COM1-B	RS485-1 Negative signal
3	COM2-A	RS485-2 Positive signal
4	COM2-B	RS485-2 Negative signal
5	COM3-A	RS485-3 Positive signal
6	COM3-B	RS485-3 Negative signal
8	COM3-GND	RS485-3 Signal ground
9	COM3-TX	RS232-3 Signal sender
10	COM3-RX	RS232-3 Signal receiver
11	COM4-A	RS485-4 Positive signal
12	COM4-B	RS485-4 Negative signal
13	COM4-GND	RS485-4 Signal ground
14	COM4-TX	RS232-4 Signal sender
15	COM4-RX	RS232-4 Signal receiver

RS485：

- Fully isolated RS485 interface with three levels of protection；
- Supports the highest level of 4KV protection for the10/700uS test in the GB/T 17626.5-2008 standard；
- ±15kV human body discharge mode；
- ±15kV IEC1000-4-2 air gap discharge；
- Communication parameters can be configured,default communication parameters: 9600, 8-1-N.



4. LEDx-Lightings

PIN	SIGNAL	DESCRIPTION
1	POWER	Power indication
2	SYS	System operation indication
3	RX1-4	Serial port send and receive instructions
4	TX1-4	Serial port send and receive instructions

Wireless module WAN indicator

WAN Indicator working status	Indicated network status
Slow flash （200mS on/1800mS off）	Seeking network
Slow flash （1800mS on/200mS off）	Standby
Quick flash （125mS on/125mS off）	Data transmission
On	On call

DATA SERVICE

- The gateway provide external data as a Modbus RTU and Modbus TCP server. It supports 4 functional areas(0x, 1x, 3x, 4x) & various types of data(int16, int32, float32,etc.)
- Provide data to the host computer as an OPC UA server。
- The gateway can connect to Alibaba Cloud, Amazon Cloud,etc as an MQTT client. The data points of the gateway are pushed to the cloud through the mechanism of subscription and published, we can read and write to the collected device in the cloud through the gateway
- The gateway provides an http server, which supports two common methods(GET and POST). Users can retrieve real-time data and stored historical data of the gateway through the http server interface.
- The gateway push the gateway's data points to specific topics as a kafka client side
- The gateway can be used as a remote data client side port to provide services and support data to be written directly to the remote database
- Provide data externally as BACnet IP,Bacnet MS/TP server.Support AI, AO, AV, BI, BO, BV, MSI, MSO, MSV,etc and data units configuration. Support Who-Is and I-Am services, COV subscription, read&write and other services.

DATA OPERATION

Support arithmetic and function operations, logical judgments, Boolean operations.

REMOTE DATA STORAGE

The gateway connects to the database server as the database client, and writing data directly to the remote database. Currently supported database types are: mysql

IoT

With the MQTT protocol, the gateway can communicate with the cloud server. Support Alibaba Cloud, Amazon Cloud and other private cloud servers.

ALARM AND EVENTS

The Alarms and Events page allows the user to set the trigger condition for the event, trigger the event when the condition is met, and perform the event release when the state transitions from the satisfied condition to the unsatisfied condition

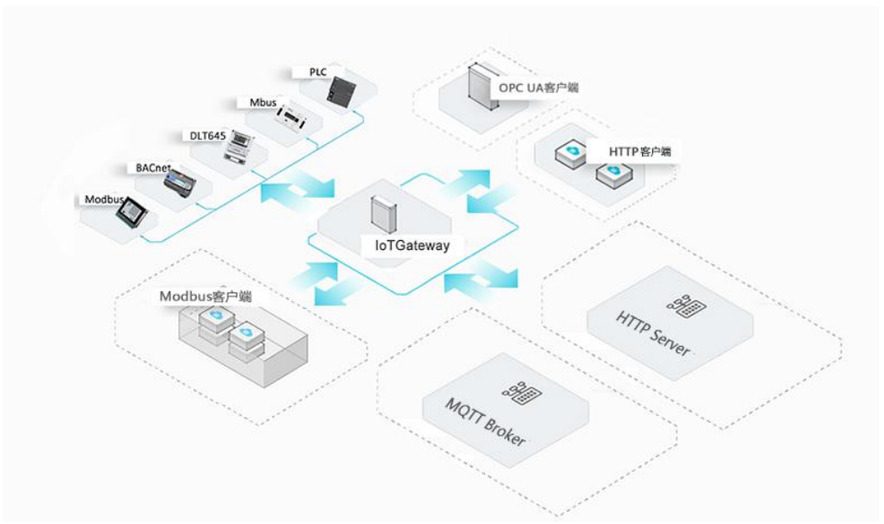
MISSION PLAN

The user establishes a mission plan that specifies the values for multiple points for the day of the week and time period. Please calibrate the gateway time before using the mission planning function.

JavaScript EDITING

JavaScript script editor built-in function, user can customize logic control by editing script language.

----------Example diagram----------



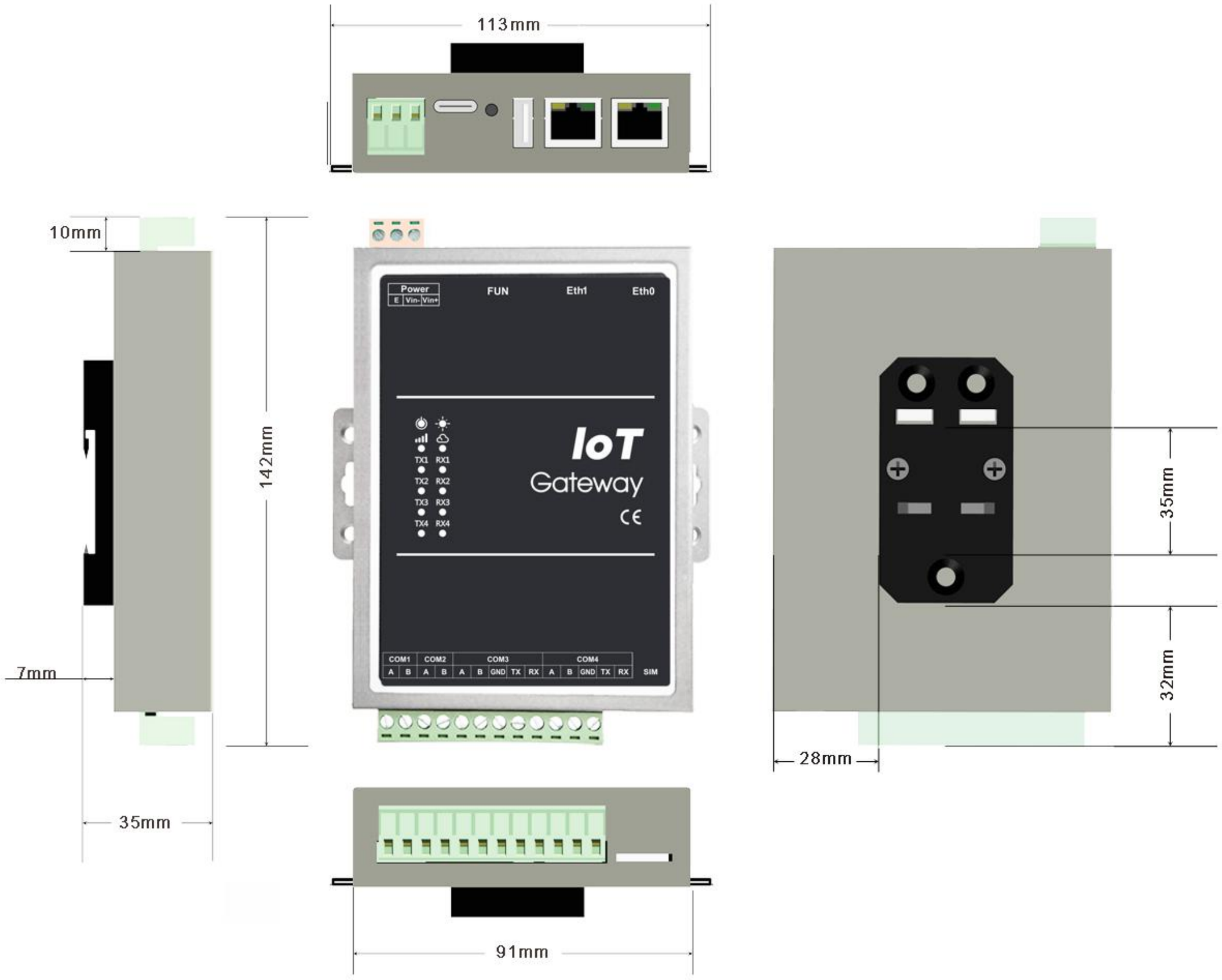
CONFIGURING THE GATEWAY

1.Power thegateway;

2.Connect the LM Gateway414 data collection gateway to the computer or switch using a crossover cable; (PS. the gateway and the computer are in the same network segment);

3.Use the tool software to configure the data acquisition gateway. For the operation, see the configuration manual of the configuration tool.

	Data collection driver	Serial Port	Network Port
Instrumentation	Modbus	Modbus RTU	Modbus TCP
		ModbusAscii	Modbus RTU_over_TCP
	DLT645	DLT645-1997	DLT645_over_TCP
		DLT645-2007	
		DLT645.98	
	CJ188	CJ188	/
	Mbus	MBus_EnergyMeter	/
		MBus_EN1434	
PLC	Mitsubishi	Mitsubishi Fx3U	MC_Qna-3EBinary
		Mitsubishi Fx485	MC_Qna-1EBinary
	Siemens	Siemens S7-200 PPI	Siemens S7-200 Network
			Siemens S7-300 Network
			Siemens S7-400 Network
			Siemens S7-1200 Network
			Siemens S7-1500 Network
			FetchWrite
	AB	/	AB NET
	Omron	HOSTLINK-FINS	OMRON_FINS
		HOSTLINK-CMODE	
	Panasonic	Mewtocol	/
	Yokogawa	/	Yokogawa PLC
	FUJI	/	FUJI_SPH_NET
Eco protection	212	HJ 212 serial	HJ 212 net
Building	BACnet	BACnet MS/TP	BACnet IP
			KNX
Industrial	OPC	/	OPC UA
			OPC DA
			OPC XML DA
Substation	IEC	/	IEC104
CNC	FANUC		FANUC
		Serial Port	**Network Port**
Instrumentation	Modbus	Modbus RTU	Modbus TCP
		ModbusAscii	Modbus RTU_over_TCP
	DLT645	DLT645-1997	DLT645_over_TCP
		DLT645-2007	
		DLT645.98	
	CJ188	CJ188	/
	Mbus	MBus_EnergyMeter	/
		MBus_EN1434	
PLC	Mitsubishi	Mitsubishi Fx3U	MC_Qna-3EBinary
		Mitsubishi Fx485	MC_Qna-1EBinary
	Siemens	Siemens S7-200 PPI	Siemens S7-200 Network
			Siemens S7-300 Network
			Siemens S7-400 Network
			Siemens S7-1200 Network
			Siemens S7-1500 Network
			FetchWrite
	AB	/	AB NET
	Omron	HOSTLINK-FINS	OMRON_FINS
		HOSTLINK-CMODE	
	Panasonic	Mewtocol	/
	Yokogawa	/	Yokogawa PLC
	FUJI	/	FUJI_SPH_NET
Eco protection	212	HJ 212 serial	HJ 212 net
Building	BACnet	BACnet MS/TP	BACnet IP
			KNX
Industrial	OPC	/	OPC UA


113mm
10mm
142mm
7mm
35mm
Power
E Vin- Vin+
FUN
Eth1
Eth0
TX1 RX1
TX2 RX2
TX3 RX3
TX4 RX4
IoT
Gateway
CE
COM1 COM2 COM3 COM4
A B A B A B GND TX RX A B GND TX RX
SIM
35mm
32mm
28mm
91mm