Product Specification

Supplier Authorized Signature				
Status： [ ] Draft [√] Released	Product name	PLC Gateway（WCDMA）		
	Model	MSKT1001-PLC		
	Project	A4587-01		
	Version	A0		
	Prepared		Date	
	Marketing		Date	
	Quality		Date	
	Approved		Date	

Customer Authorized Signature			
Quality		Approved	

SHANGHAI MOONS' AUTOMATION CONTROL CO,.LTD.

History Version

Version	Prepared	EC No.	Start Date	Notes
A0	Alex.Gu		2015-03-01	First released

1 DESCRIPTIONS

The MSKT1001-PLC Power Line Communication (PLC) gateway is designed for roadway , tunnel and area lighting. It can transfer data between control center and nodes. It can communicate with the control center via Ethernet, RS485 or cellular network. Each PLC gateway can manage up to 200 nodes.

1.1 FEATURES

- Three-phase four-wire, 200 ~ 420VAC; 50 / 60Hz.
- Uplink support Ethernet (RJ45)/3G/GPRS, follow the TCP/IP protocol.
- Downlink support Power Line Communication (PLC)
- An additional RS485 bus channel.
- There are 4 relay switches.
- There are 2 channels (0-10V&4~20mA) analog input.
- Support three-phase metering。
- Omniseal flame retardant protective enclosure.
- Warranty: 5 years standard.

2 CHARACTERISTICS

2.1 ABSOLUTE MAXIMUM RATINGS

At 20 ℃, 50% RH, 100Kpa conditions.

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Min input voltage		65	/	/	Vac
Max input voltage		/	/	460	Vac
Max input current				0.4	A

2.2 OPERATING CONDITIONS

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operating temperature		-40	/	55	℃
Storage temperature	Indoor dry, well-ventilated place	-40	/	70	℃
Relative humidity	No frost	10	/	95	%

Vibration		/	/	1	G
Packaging Impact	Drop	/	1	/	M
Ingress protection	Not Installed	/	IP51	/	

2.3 SAFETY

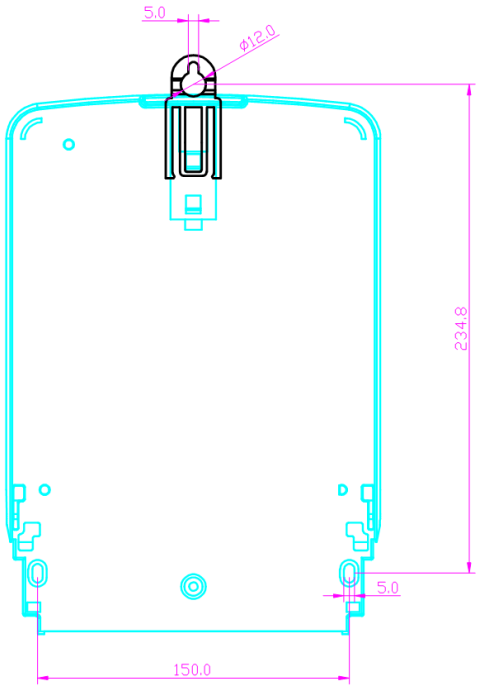
TYPE	Test level	
Isolation Voltage	PE to AC	1.5kVac,10mA,1min
	AC to DC	3.0kVac,10mA,1min
	RS485 to DCIN	1.5kVac,10mA,1min
	LAN to DCIN	1.5kVac,10mA,1min
Leakage Current	AC to PE	220Vac,0.75mA

2.4 EMC

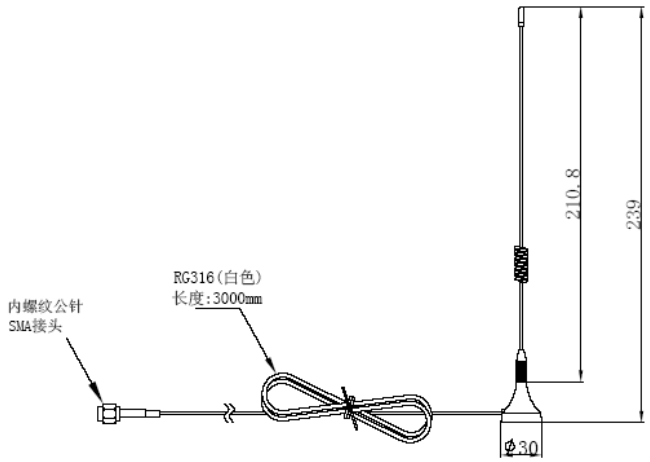
TYPE	Standard	Test level
Electrostatic discharge immunity	IEC61000-4-2	Level 4
RFEMS	IEC61000-4-3	Level 2
Electrical fast transient burst immunity	IEC61000-4-4	Level 3
Surge Immunity	IEC61000-4-5	Level 4
Conducted disturbances induced by RF field immunity	IEC61000-4-6	Level 2
Electromagnetic disturbance characteristics	FCC PART15 Class B / EN55015	

3 MECHANICAL DATA

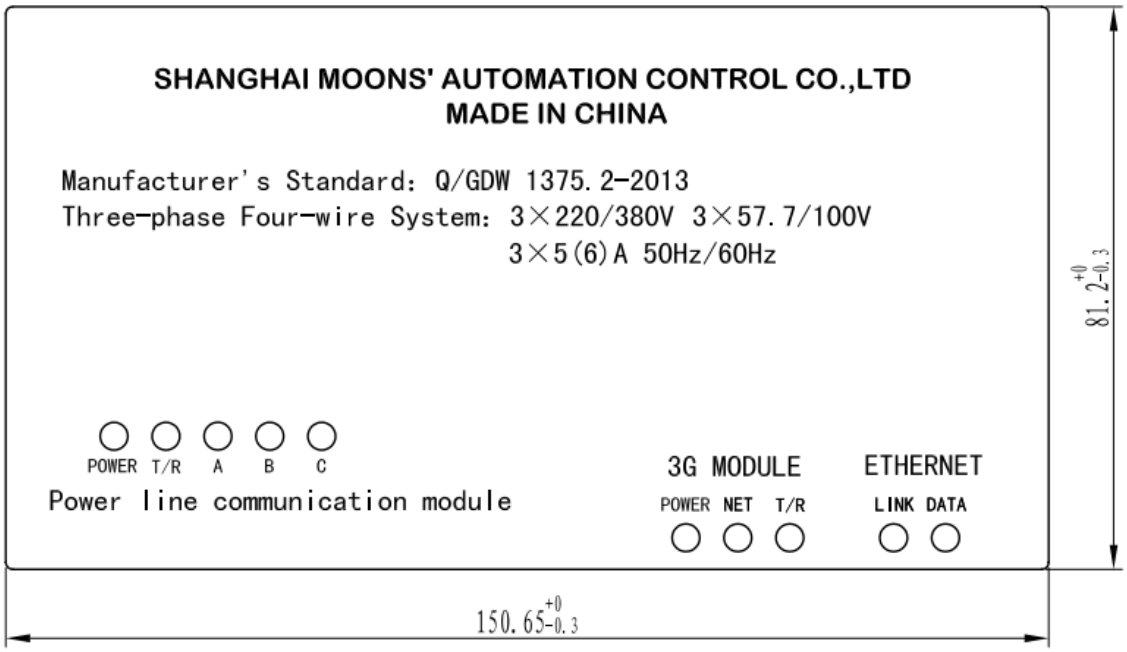
3.1 DIMENSIONS



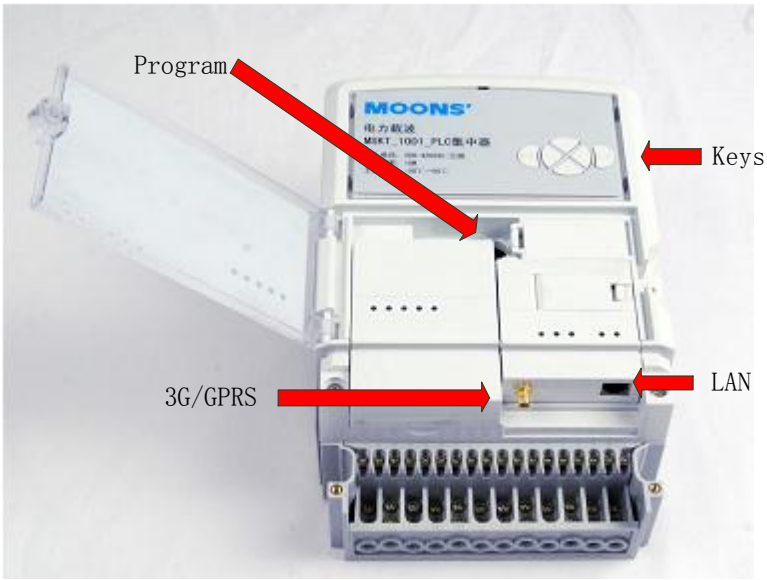
3.2 UP LINK ANTENNA

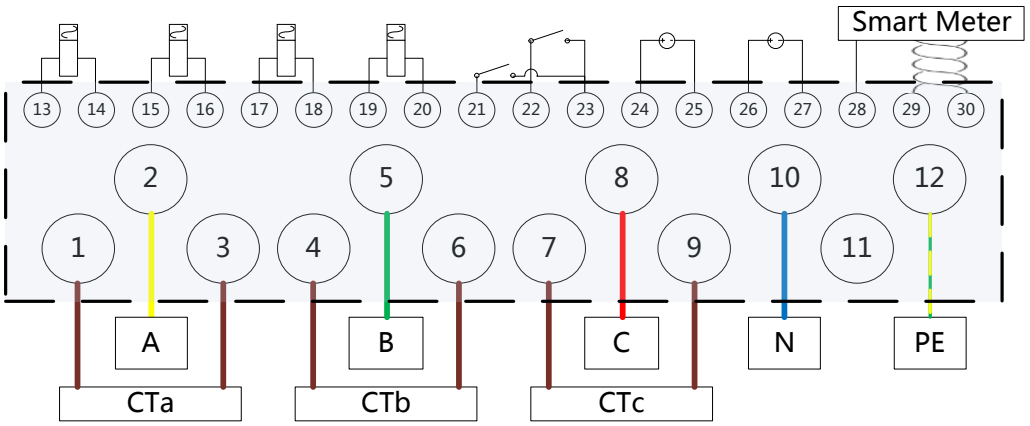


3.3 LABEL



4 INTERFACE





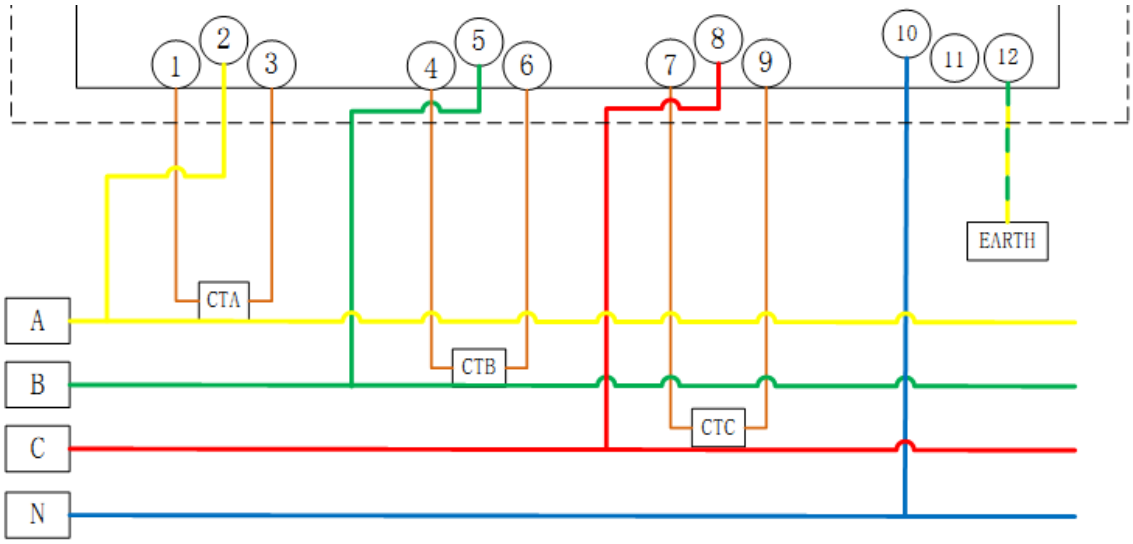
Terminal No.	Definition	Classification	Terminal No.	Definition	Classification
1	A current sampling P	AC input	16	Loop control output 2b	Loop control
2	A voltage input & PLC	AC input	17	Loop control output 3a	Loop control
3	A current sampling M	AC input	18	Loop control output 3b	Loop control
4	B current sampling P	AC input	19	Loop control output 4a	Loop control
5	B voltage input & PLC	AC input	20	Loop control output 4b	Loop control
6	B current sampling M	AC input	21	Digital input 1	Digital input
7	C current sampling P	AC input	22	Digital input 2	Digital input
8	C voltage input & PLC	AC input	23	Digital input GND	Digital input
9	C current sampling M	AC input	24	Analog current input +	Analog input
10	N (Null line)	AC input	25	Analog current input -	Analog input
11	Not enabled		26	Analog voltage input +	Analog input
12	PE (Ground)	Ground	27	Analog voltage input -	Analog input
13	Loop control output 1a	Loop control	28	RS485 GND	RS485 communication
14	Loop control output 1b	Loop control	29	RS485 A	RS485 communication
15	Loop control output 2a	Loop control	30	RS485 B	RS485 communication

4.1 AC INPUT & PLC

- Three-phase four-wire, 200 ~ 420VAC; 50 / 60Hz.
- Carrier signal comply with EIA-709.1, EIA-709.2 and EN50065-1 standards.

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
AC input voltage		200	220	420	VAC
AC input current	RMS	/	/	200	mA
AC input frequency		47	/	63	Hz
Power Dissipation	220VAC	2.5	/	10	W
PLC transmission distance			100	200	m
PLC carrier frequency			132		kHz
PLC transmission rate			5.5		kbps
PLC receiver sensitivity			-60		dBV
PLC transmitter power				3	W

4.2 ENERGY METERING & ANALOG SAMPLING



- Support 3- phase energy metering
- Support current transformer
- Output voltage, current, power and power factor.
- Current sampling : 4-20mA
- Voltage sampling : 0-10V

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
AC Voltage sampling range		0	/	450	Vac
AC Current sampling range		0	/	6	A
AC Sampling accuracy		-2	/	+2	%
0-10V input voltage		0		10.5	V
0-10V input current		10			uA
0-10V Sampling rate				1	Hz
0-10V Sampling accuracy				4	%
4-20mA input voltage		1		10	V
4-20mA input current		3.5		24	mA
4-20mA Sampling rate				1	Hz
4-20mA Sampling		-3		+3	%

accuracy					

4.3 RELAY

- 4-channel independent control
- Latching Relay

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Switching Voltage		/	/	250	Vac
Load current		0	/	5	A

4.4 LAN

- RJ45 (8pin)
- Meet TCP / IP protocol
- 100M/10M adaptive

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Transmission rate		10	/	100	Mbps
Transmission voltage	100Mbps	-1.05	/	+1.05	V
Transmission voltage	10M	-2.8	/	+2.8	V
Isolation Voltage	PE, DCIN to LAN		1500		VAC

4.5 RS485

- Support MODBUS protocol
- Meters and other equipment can be used for data access

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Transmission distance	RVVSP 1.5mm^2 cable	500	/	/	m
Transmission voltage		-5	/	+5	V
Transmission current		-250		+250	mA
Transmission rate		4800	9600	115200	Bps

Maximum number of devices connected				64	
Isolation Voltage	DC to RS485		1500		VAC

4.6 RF UP LINK

- Support WCDMA/GPRS/GSM
- SMA antenna connector
- Mini SIM card slot

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
WCDMA uplink rate				5.76	Mbps
WCDMA downlink rate			/	7.2	Mbps
GPRS uplink rate				42.8	Kbps
GPRS downlink rate			/	85.6	Kbps

4.7 USB

- USB 2.0 , only for debug.
- Micro USB

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input voltage	To PC	4.5		5.5	V
Input current	To PC			50	mA
Date transmitter voltage			3.0		V
Transmitter rate				1	Mbps

5 DATA PROCESSING AND STORAGE

5.1 PROCESSOR

- With ARM9 core processor, Clocked at 270MHz

5.2 MEMORY

- DDR RAM 64MB.
- NAND FLASH 256MB.
- Data saved more than 10 years.

5.3 RTC

- RTC can continue to work after a power failure for more than 60 days.
- Need to run 24 hours before the power failure

6 LEDS & KEYS

6.1 STATUS INDICATORS

NAME	Status	Definition
3G Module Power	Red on	3G Power on
	Red off	3G Power off
3G module NET	Green on	Access Network
	Green off	Offline
3G module T/R	Red flash	Receive data
	Green flash	Send data
LAN LINK	Green on	Access Network
	Green off	Offline
LAN DATA	Red on	Data transmission OK
PLC Power	Red on	PLC Power on
	Red off	PLC Power off

PLC T/R	Red flash	Receive data
	Green flash	Send data

6.2 KEYS

NAME	Action	Feature
DEF	Press and hold ← + ○ + × more than 2 seconds	To restore the default IP ADDRESS. The default IP ADDRESS=192.168.1.183
RST	Press and hold ↑ more than 10 seconds	System reset.
↑	Press the key	Dimming +10%
↓	Press the key	Dimming -10%

7 PACKAGE