UT-WM-4312D-4G

UTICOR Tough

Industrial IoT LTE Gateway with IEEE 802.11 b/g/n and 2x10/100Base-T(X), 1xRS-232/422/485 ports

Features

- Compact size industrial M2M gateway for remote access, data collection and end-devices control applications suitable for multiple IoT Cloud Platform interfaces
- Support **LTE Cat. 4** with up to 150Mbps downlink and 50Mbps uplink data rates
- Support dual mini SIM card slot
- Support 2x 10/100Base-T(x) Ethernet ports
- Support 1x RS-232/422/485 Serial port in DB9 connector
- Support 1x DI and 1x DO
- Support High Speed Wireless Connectivity: 802.11 b/g/n WLAN Wi-Fi interface with up to 150Mbps bandwidth
- Support **Open Gateway** (protocol converter) software feature for user-friendly IIoT deployment
- Support **Modbus TCP/RTU** industrial protocols
- Support **MQTT/MQTT Sparkplug B/CoAP/LWM2M** Cloud protocols
- Support **DHCP** server and forwarding through PPTP function
- Support **VPN** for secured network connection (OpenVPN, PPTP, IPSec)
- Support **NAT** (Network Address Translation)
- Support **Firewall** features
- Event warning by System logs, SNMP Trap, E-mail and SMS
- Redundant multiple host devices:
  5 host devices: Virtual COM, TCP Server, TCP Client mode, UDP mode (4 IP Ranges)
- Redundant 12~48VDC power input in terminal block
- **PoE power input** available with 1kV isolation
- Rugged IP-30 casing design and wide operating temperature range for harsh environment operation
- DIN Rail and Wall mounting types
- Support **OpenWRT SDK** for project customization

Introduction

UT-WM-4312D-4G LTE cellular M2M Gateway is an innovative product for Cloud, Internet of Things and Industry 4.0 applications. It is a perfect choice for remote secured data collection from the factory floor (PLCs, machines, networking devices) and environmental sensors (temperature, humidity, noise, pollution, vibration etc.) as well as for serving control commands coming from Cloud Platforms for changing end-devices status.

Connectivity: UT-WM-4312D-4G Gateway uses LTE module which supports **2G/3.5G/4G** technologies. The user has a possibility to choose between three different communication interfaces to connect his end-device: **Fast Ethernet ports, Serial port and Wireless Wi-Fi connectivity** with 150Mbps link speed. With **Modbus RTU and TCP** protocols the Gateway can easily communicate with any compatible device to poll and write all kind of data types. UT-WM-4312D-4G can also transfer data to 5 host PCs simultaneously for backup purposes. In addition the gateway supports all common **VPN** protocols (OpenVPN, PPTP, IPSec) and can establish secured tunneling connection between clients and servers.

Cloud Platforms connection: UT-WM-4312D-4G supports all common lightweight Cloud communication protocols: **MQTT** (Message Queuing Telemetry Transport) including **Sparkplug B** version for payload and topic definition, **CoAP** (Constrained Application Protocol) and **LWM2M** (Lightweight M2M).
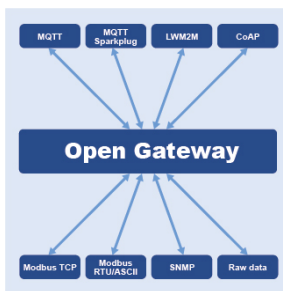

Thanks to **Open Gateway** software feature it simplifies to maximum IoT solution deployment. Connecting big variety of end-devices, very often with different communication interfaces, to different Cloud Platforms has never been so easy. Open Gateway protocol converter from a very simple and user-friendly web-based configuration interface turns the gateway into a transparent man in the middle between Modbus field devices and MQTT/CoAP/LWM2M servers. The user has a possibility to define and shape the data format before it is sent to the Cloud for secured storing, analysis and Dashboard or HMI SCADA visualization.
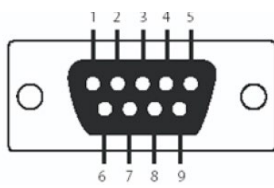
Application

This is an example application of UT-WM-4312D-4G connected with the server and edge devices.

M2M Gateway Connection

The gateway provides a variety of VPN security connections and supports server and client mode in VPN connection.
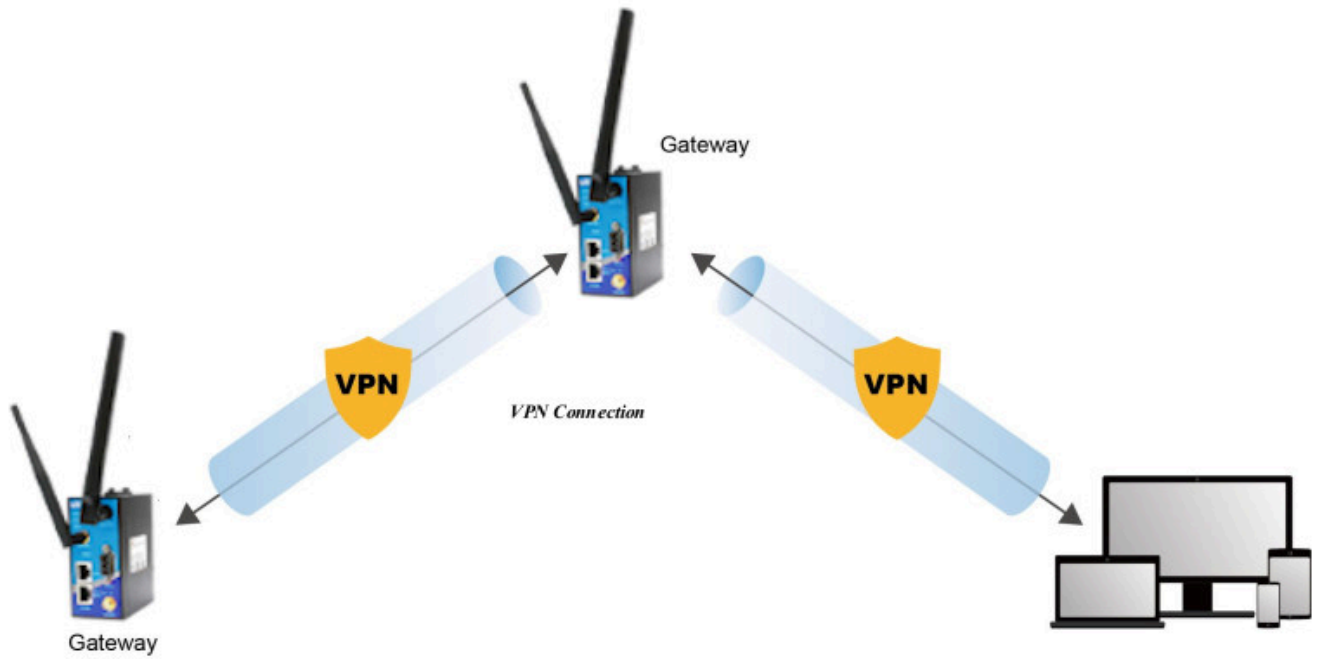
Pin Definition

DB9 connector

Pin #	RS-232	RS-422	RS-485 (4 wire)	RS-485 (2 wire)
1	DCD	TX-	TX-	DATA -
2	RXD	TX+	TX+	DATA +
3	TXD	RX+	RX+	
4	DTR	RX-	RX-	
5	GND	GND	GND	
6	DSR			
7	RTS			
8	CTS			
9	RI			

Dimension

Unit =mm (Tolerance ±0.5mm)
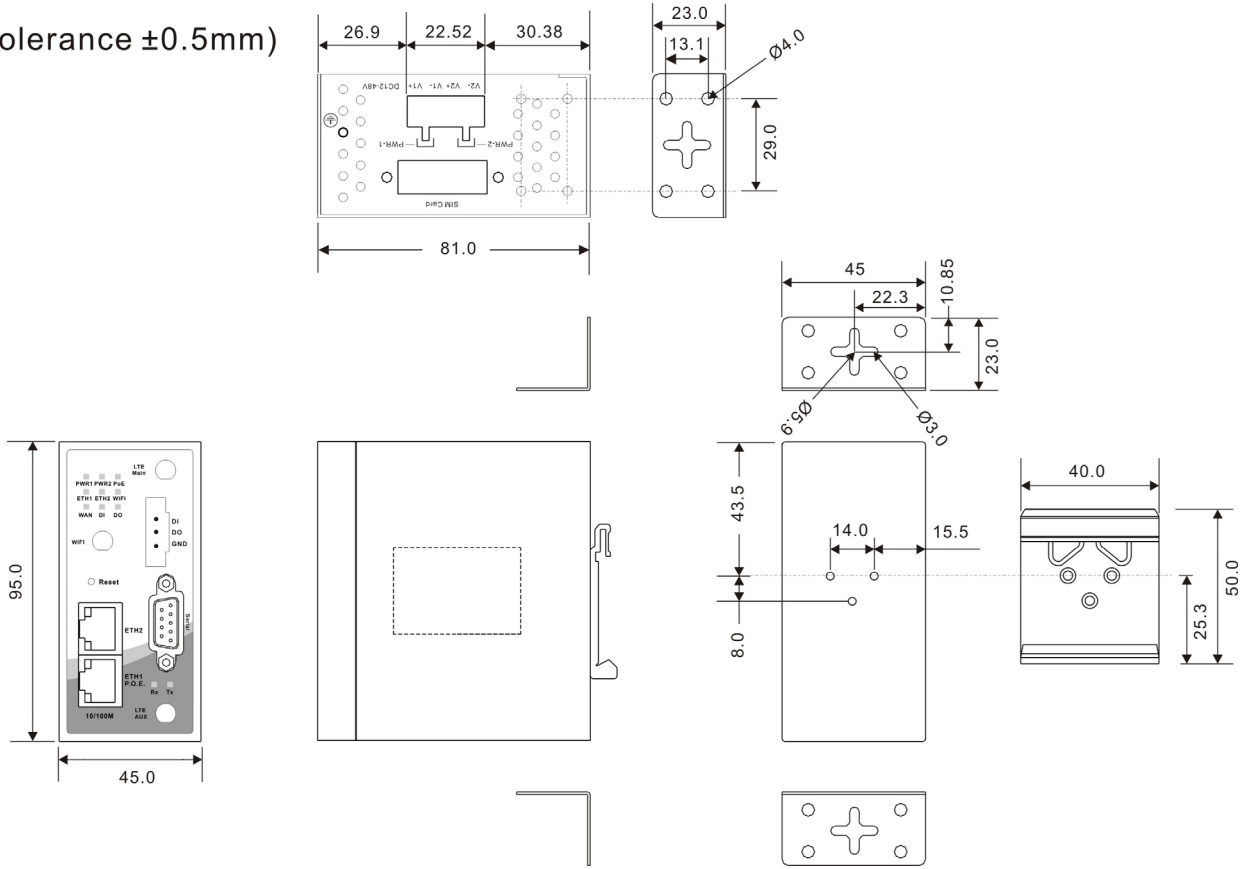
Specifications

	UT-WM-4312D-4G
Physical Ports	
10/100 Base-T(X) Ports in RJ45 Auto MDI/MDIX	**2**

PoE P.D Port	P.O.E.Present at ETH1
	Power Device (IEEE 802.3af):
	  IEEE 802.3af compliant input interface
	  Over load & short circuit protection
	  Isolation Voltage: 1000 VDC min.
	  Isolation Resistance : 10^8 ohms min

Sim card slot	2
DI/DO(Dry Contact)	DI x 1, DO x 1 (DI :Logic level 1: 5V~30V, Logic level 0: 0V~2V DO :Maximum Voltage is 30V, Maximum Current is 20mA)
Cellular Interface	
Antenna Connector	2 x SMA Female
Cellular Standard	GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA /LTE

Band Option	**America (US grade)**
	LTE:
	  FDD:1900(B2)/1700(B4)/850(B5)/700(B12)/700(B13)/700(B14)/1700(B66)/600(B71) MHz
	UMTS/HSDPA/HSUPA/HSPA+:
	  1900/1700/850 MHz
	
	Europe (EU grade)
	LTE:
	  FDD:2100(B1)/1800(B3)/2600(B7)/900(B8)/800(B20) MHz
	  TDD:TDD:2600(B38)/2300(B40)/2500(B41) MHz
	UMTS/HSDPA/HSUPA/HSPA+:
	  2100(B1)/900(B8) MHz
	GSM/GPRS/EDGE:
	  900/850 MHz
	
	Taiwan (TW grade)
	LTE:
	  FDD:2100(B1)/1900(B2)/1800(B3)/1700(B4)/850(B5)/2600(B7)/900(B8)/700(B28) MHz
	  TDD:2300(B40)
	UMTS/HSDPA/HSUPA/HSPA+/DC-HSPA+:
	  2100(B1)/1900(B2)/850(B5)/900(B8) MHz
	GSM/GPRS/EDGE:
	  B2/B3/B5/B8
	
	China (CN grade)
	LTE:
	  FDD:2100(B1)/1800(B3)/900(B8) MHz
	  TDD:2600(B38)/1900(B39)/2300(B40)/2500(B41) MHz
	TDSCDMA: B34/B39
	WCDMA: 900/2100 MHz
	CDMA 1x/EVDO: 800(BC0) MHz
	 GSM: 900/1800 MHz

WiFi Interface	
Antenna Connector	1 x RP-SMA Female
Modulation	IEEE802.11b: CCK/DQPSK/DBPSK IEEE802.11g: OFDM IEEE802.11n: BPSK, QPSK, 16-QAM, 64-QAM
Frequency Band	America / FCC: 2.412~2.462 GHz (11 channels) Europe CE / ETSI: 2.412~2.472 GHz (13 channels)

Transmission Rate	802.11b: 1/2/5.5/11 Mbps 802.11g: 6/9/12/18/24/36/48/54 Mbps 802.11n(40MHz): UP to 150 Mbps
Transmit Power	802.11b: 19dBm ±1.5dBm 802.11g: 17dBm ±1.5dBm 802.11n(2.4G@20MHz): 16dBm ±1.5dBm 802.11n(2.4G@40MHz): 14dBm ±1.5dBm
Receiver Sensitivity	802.11b: -90dBm ±2dBm@1Mbps 802.11g: -72dBm ±2dBm@54Mbps 802.11n(2.4G@40MHz,MCS7): -68dBm ±2dBm
Encryption Security	WEP: (64-bit ,128-bit key supported) WPA/WPA2 :802.11i(WEP and AES encryption) WPA-PSK (256-bit key pre-shared key supported) 802.1X Authentication supported TKIP encryption

Serial Ports	
Connector	DB9 x 1
Operation Mode	RS-232/422/485
Serial Baud Rate	110 bps to 115.2 Kbps
Data Bits	7, 8
Parity	odd, even, none, mark, space
Stop Bits	1, 1.5, 2
RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND
Flow Control	XON/XOFF, RTS/CTS, DTR/DSR

Network Protocol	
Protocol	ICMP, IP, TCP, UDP, DHCP, BOOTP, SSH, DNS, SNMP V1/V2c, HTTPS, SMTP, DDNS, PPPoE

LED indicators	
Power indicator	3 x LEDs, PWR 1(2)(PoE) / Ready: Green On: Power is on
10/100TX RJ45 port indicator	2 x LEDs, Green for port Link/Act at 100Mbps.
Serial TX / RX	Red: Serial port is receiving data Green: Serial port is transmitting data
WIFI	1 x LED, Green: WIFI Link /ACT
WAN	1 x LED, Green On : Power is on and functioning Normal
Digital I/O	2 x LEDs, Green On: active

Power	
Redundant Input power	Dual DC inputs. 12-48VDC on 4-pin terminal block
Power consumption (Typ.)	7W Max.
Overload current protection	Present
Reverse polarity protection	Present on terminal block

Physical Characteristic	
Enclosure	IP-30
Dimension (W x D x H)	45(W)x80.6(D)x95(H) mm 1.77 3.17 3.74
Weight (g)	395

Environmental	
Storage Temperature	-40 to 85ºC (-40 to 185ºF)
Operating Temperature	-25 to 70ºC (-13 to 158ºF)
Operating Humidity	5% to 95% Non-condensing

Regulatory approvals	
EMI	FCC Part 15, EN55032/24, EN301489-1/-17
EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11
WIFI	EN300328
2G/3G/4G	EN301511, EN301908-1

* All specifications are subject to change without notice.

Shock	*IEC60068-2-27
Free Fall	*IEC60068-2-31
Vibration	*IEC60068-2-6
Safety	*UL61010-1/-2-201
Hazardous Areas	*ATEX, *C1D2
* Under Development	
Warranty	5 years

	Model Name	Description
Available Model	UT-WM-4312D-4G	Industrial IEEE 802.11 b/g/n 4G LTE Cellular Router with 2x10/100Base-T(X) 1x RS-232/422/485 Gateway, 1-port PoE P.D, US band

Packing List

- **UT-WM-4312D-4G x 1**
- **Din-Rail Kit x 1**
- **Quick Installation Guide x 1**
- **Wall-Mount Kit x 1**
- **LTE antenna x 2**
- **2.4G WiFi antenna x 1**

Optional Accessories

- **UT-30W series : 30 Watts Smart, Din-Rail Power power supply**
- **UT-120W series : 120 Watts Smart, Din-Rail Power power supply**
- **UT-60W series : 60 Watts Smart, Din-Rail Power power supply**
- **UT-240W series : 240 Watts Smart, Din-Rail Power power supply**
- **UT-90W series : 90 Watts Smart, Din-Rail Power power supply**

Uticor Contact

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