



Fig.: UT-WM Gateway - Your Generic Interface For IIoT Applications

Compact size industrial M2M gateway for remote access, data collection and end-devices control applications suitable for multiple IoT Cloud Platform interfaces

Features

Rugged IP-30 casing design and wide operating temperature range for harsh environment operation ($-25 > 70^{\circ}\text{C}$)

1x Digital Input and 1x Digital Output

2x 10/100Base-T(x) Ethernet ports

PoE power input available with 1kV isolation

High Speed Wireless Connectivity:
802.11 b/g/n WLAN Wi-Fi (150Mbps)

Dual mini SIM card slot

Redundant 12~48VDC
power input in terminal block

DIN Rail and Wall mounting types

1x RS-232/422/485 Serial port (DB9)

LTE Cat. 4 with up to 150Mbps downlink
and 50Mbps uplink data rates

- * **Open Gateway** (protocol converter) software feature for user-friendly IIoT deployment
- * **DHCP server** and forwarding through PPTP function
- * **VPN** for secured connection (OpenVPN, PPTP, IPSec)
- * Supports **NAT** (Network Address Translation)
- * Supports **Modbus TCP/RTU** industrial protocols

- * **MQTT/MQTT Sparkplug B/CoAP/LWM2M** Cloud protocols
- * **Firewall** features
- * **Event warning** by System logs, SNMP Trap, E-mail and SMS
- * Supports **multiple host devices**: Virtual COM, TCP Server, TCP Client mode, UDP mode (4 IP Ranges)
- * OpenWRT SDK for **project customization**

Description

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.

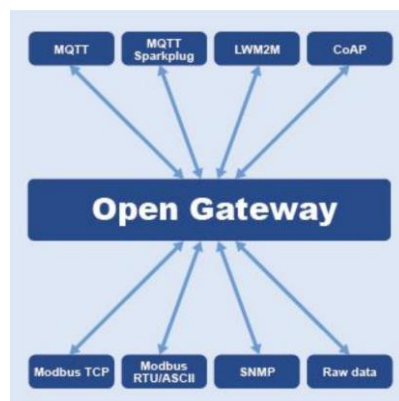
Cloud Platforms connection:

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 Examples



Fig.: M2M Data Collection And Alarm Handling

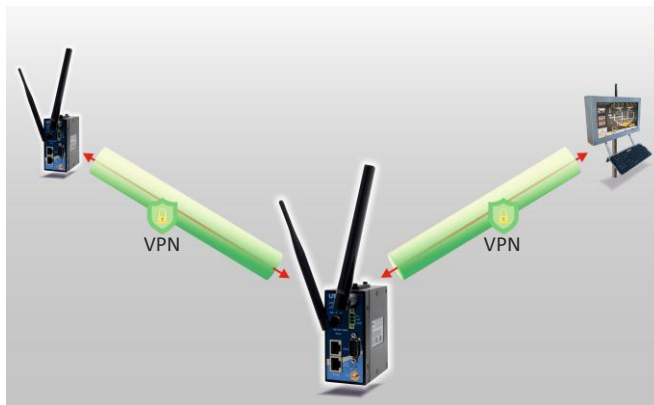
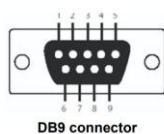
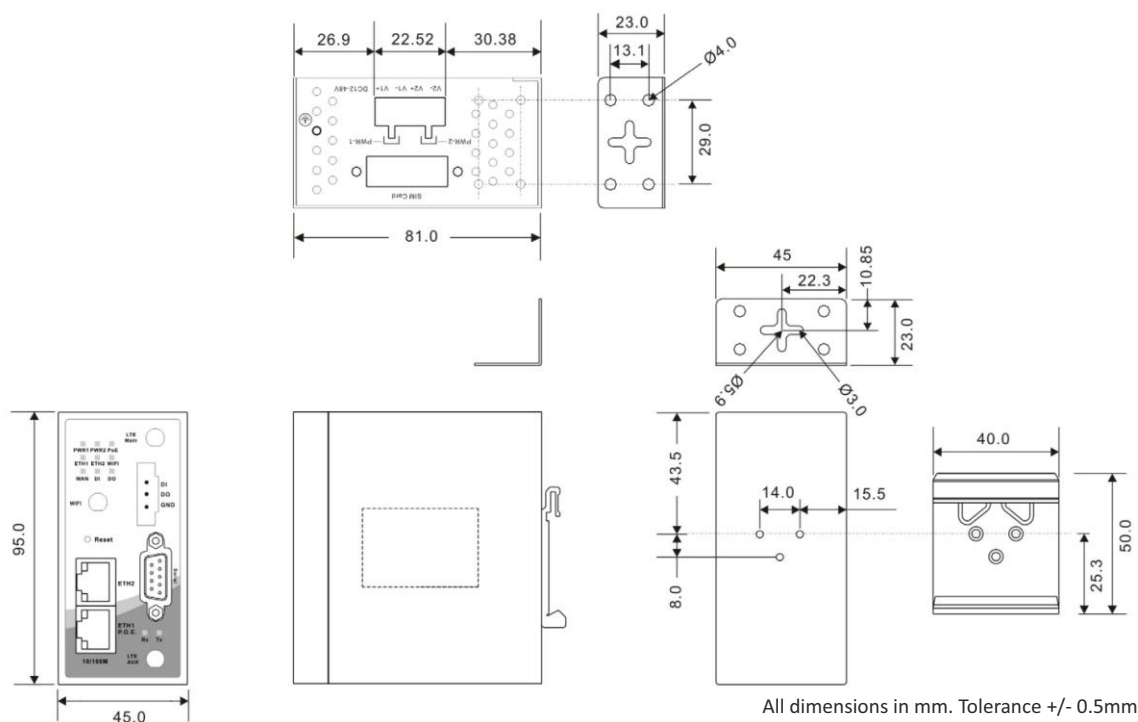


Fig.: Secure Data Transfer Via VPN Tunneling

Drawings



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			

PIN definition DB9 connector

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)

Specifications (cont'd)

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 85°C (-40 to 185°F)
Operating Temperature	-25 to 70°C (-13 to 158°F)
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

Specifications (cont'd)

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

Models

Available Model	Model Name	Description
	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

- * Gateway UT-WM-4312D-4G
- * DIN-Rail Kit
- * Quick Installation Guide
- * Wall-Mount Kit
- * 2 x LTE Antenna
- * 2.4G WiFi Antenna

Optional Accessories

Programmable Power Supply With Built-In Diagnostics



3-Digit LED
for Output
Voltage



2-Digit LED
for Output
Current



Remaining
Maint. Time
(ex. 1.2k Hrs)



Adjustable
Voltage
Setting



Programmable
Current Limit

- * UT-30W Series | Smart DIN-Rail Power Supply
- * UT-60W Series | Smart DIN-Rail Power Supply
- * UT-90W Series | Smart DIN-Rail Power Supply
- * UT-120W Series | Smart DIN-Rail Power Supply
- * UT-240W Series | Smart DIN-Rail Power Supply