TECHNICAL SPECIFICATION

ATREYO®
SOLUTIONS THAT SIMPLIFY

Multi-channel LoRa WAN® Gateway

ALWG-1638



Features

- **LoRaWAN® Class A/B/C**
- **Multi-channel**
- **LTE and GSM with dual SIM support**
- **PoE Ethernet, GNSS and WiFi**
- **Built-in advanced web interface**
- **Chirpstack LNS and Basic Station**
- **Pre-installed Node-RED**
- **ARM Cortex-A7 quad core processor**
- **High gain LoRa antenna**
- **USB for debug**
- **SuperCAP backup**
- **Aluminium IP67 housing resistant to all weather conditions**

Multichannel LoRaWAN® Gateway, powered by ARM Cortex-A7 processor with an IP67 enclosure to handle tough environments. Standout features include an isolated power supply for protection and power backup. The gateway's dual SIMs ensures network connectivity redundancy. Moreover, its multiple VPN support adds an extra layer of security, serving to diverse communication needs. The built-in LNS server also allows the gateway to be used without an external LNS.

Description	Specification
Processor	
Type	ARM Cortex-A7
Number of cores	Quad core
Clock	960MHz per core
RAM memory	
Memory size	512MB
Memory speed	1066MHz max
Storage	
Internal memory	8GB eMMC
USB	
USB port number	1
USB type	Device for debug, on bottom of the enclosure

Description	Specification
Connector	C-type
Protection	Surge protection
LoRaWAN®	
Compatibility	LoRaWAN®, Class A/B/C
Frequency	IN865 (other country option available. Refer modem selection chart)
LoRa demodulators	8 x 8 channels LoRa packet detectors 8x SF5-SF12 LoRa 8x SF5-SF10 LoRa 1x 125/250/500 kHz high-speed 1x (G)FSK
Demodulation paths	Up to 10 parallel

Description	Specification
Uplinks channel	8
Downlink channel	1
TX power	Up to 27 dBm @ SF12, BW 125 kHz
RX sensitivity	Down to -139 dBm @ SF12, BW 125 kHz
Data-rate	Dynamic data-rate adaptation (ADR)
Module certification	USB-IN865 (other country option available. Refer selection chart)
Antenna connector	N-type female
Ethernet	
Number	1
Type	1x 10/100M
WiFi[1]	
Bands	2.4 and 5GHz ISM
Standards	802.11 b/g/n, 802.3, 802.3u 802.11e-compatible bursting and I standards
Modulation schemes	BPSK, QPSK, 16 QAM, 64 QAM
Security	WEP, TKIP, and AES, WPA, WPA2
Antenna	Inbuilt inside the enclosure
Cellular modem[2]	
Cellular bands	Refer cellular specification chart
SIM card	2 x nanoSIM, tray to prevent cards falling out
	3V/1.8V
Antenna	Inbuilt inside the enclosure
GNSS[3]	
GNSS systems	GPS, BDS, Galileo, GLONASS, QZSS
Antenna connector	Inbuilt inside the enclosure
Security	
VPN	Multiple VPN support
Login	User name and login access
Indicators	
Multifunction	1 RGB LED outside on bottom of the housing for all functions indication
Debug and development	
System debug	C-type USB to UART inbuilt
Reset	Reset push button
Default	Default push button
Operating system and functions	
OS	OpenWRT Linux
Forwarder	UDP forwarder

Description	Specification
	ChirpStack MQTT forwarder
	Basic station
LNS	ChirpStack server
Other functions	Node-RED with ChirpStack support
Power supply	
Power supply	PoE isolated EEE802.3at compliant 37-57V isolated
Power consumption	Average 5W (approx)
Connector	RJ45 (cable through gland)
Power backup	Inbuilt SuperCAP
Backup time	Approx 20s
Physical characteristics	
Installation	Pole / wall mounting with attached stainless steel clamp.
Housing back	Aluminium alloy ADC-12 – Surtec 650, salt spray duration 96hrs
Housing front	Polycarbonate – UV stabilised, UL94 V0 rated, Sabic943(f1)
Cooling	Passive
Weight	920g (without antenna and clamp)
Dimensions	220×122×70mm (without antennas and cable gland)
Environmental specification	
Operating temp.	-25 ~ 70°C (-13 ~ 158°F)
Storage temp.	40 ~ 85°C (-40 ~ 176°F)
Ambient RH	5% ~ 95% (non-condensing)
Protection class	IP67

1 WiFi is optional.
2 Apply to LT models. Refer ordering and cellular specification chart.
3 GNSS is optional.

Cellular modem specification of EU (Europe and India) version

EU version of gateway	Cellular network interface details	
Band LTE FTD	B1/3/5/7/8/20/28	
Band LTE TDD	B38/ 40/ 41	
Band GSM	B2/3/5/8 (900/1800MHz)	
GPRS slot	Multi-slot class 12/10	
Bandwidth	1.4/ 3/ 5/ 10/ 15/ 20 MHz	
Output power	LTE-FDD	Class 3 (23 dBm ±2 dB)
	LTE-TDD	Class 3 (23 dBm ±2 dB)
	EGSM900	Class 4 (33 dBm ±2 dB)
	DCS1800	Class 1 (30 dBm ±2 dB)
Maximum data rate	LTE-FDD	10 Mbps (DL), 5 Mbps (UL)
	LTE-TDD	8.96 Mbps (DL), 3.1 Mbps (UL)
	GSM	85.6 kbps (DL), 85.6 kbps (UL)
Power	Compliant to GSM phase 2/2+	
	– Class 4 (2 W 900MHz)	
	– Class 1 (1 W 1800MHz)	

Cellular modem specification of GL (global) version

GL version of gateway	Cellular network interface details	
Band LTE FTD	B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/B28	
Band LTE TDD	B38/B39/B40/B41	
Band WCDMA	B1/B2/B4/B5/B6/B8/B19	
Band GSM	B2/B3/B5/B8	
Output power	GSM850	Class 4 (33 dBm ±2 dB)
	EGSM900	Class 4 (33 dBm ±2 dB)
	DCS1800	Class 1 (30 dBm ±2 dB)
	PCS1900	Class 1 (30 dBm ±2 dB)
	GSM850 8-PSK	Class E2 (27 dBm ±3 dB)
	EGSM900 8-PSK	Class E2 (27 dBm ±3 dB)
	DCS1800 8-PSK	Class E2 (26 dBm ±3 dB)
	PCS1900 8-PSK	Class E2 (26 dBm ±3 dB)
	WCDMA	Class 3 (24 dBm +1/-3 dB)
	LTE-FDD	Class 3 (23 dBm ±2 dB)
	LTE-TDD	Class 3 (23 dBm ±2 dB)
Maximum data rate LTE	LTE-FDD	150 Mbps (DL), Max. 50 Mbps (UL)
	LTE-TDD	130 Mbps (DL), Max. 30 Mbps (UL)
Maximum data rate UMTS	DC-HSDPA	42 Mbps (DL)
	HSUPA	5.76 Mbps (UL)
	WCDMA	384 kbps (DL), Max. 384 kbps (UL)
Maximum data rate GSM	EDGE	296 kbps (DL), Max. 236.8 kbps (UL)
	GPRS	107 kbps (DL), Max. 85.6 kbps (UL)

Table with model structure for ordering

This table is applicable when ordering larger quantities of gateways and to optimize the selection of certain components.

Model Structure	
Model example	**ALWG-1638- IN- LT- EU**

Base model name

ALWG-1638

LoRa® frequency/country

IN (IN865)
US (US915) US, Canada, Mexico, Bolivia, Peru, Uruguay, Venezuela, Colombia, Ecuador, Panama, Paraguay
EU (EU868) EU, Mauritius, Mozambique, Namibia, Saudi Arabia, South Africa, Turkey, UAE, UK, Finland, Madagascar, Malta, Switzerland, Tanzania
AU (AU915) Australia, Brazil, Argentina, New Zealand, Chile
AS (AS923) Hong-Kong, Singapore, Taiwan, Vietnam, Cambodia, Japan, Malaysia
RU (RU864) Russia

Cellular modem

LT (cellular modem present)

Cellular regional information

EU (cellular modem for India and Europe)
GL (global cellular modem)

Standard package list

1 ALWG-1638 Gateway
2 LoRa antenna
2 LAN cable gland
3 Fitting clamp and screws
4 2x LAN cable
5 PoE power supply
6 SIM card tray ejector pin

For more details scan or click on QR code

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