TECHNICAL SPECIFICATION



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
- 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- SIMs ensures network connectivity redundancy. Moreover, its 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

multiple VPN support adds an extra layer of security, serving to diverse communication needs.

Description	Parameter	
Processor		
ARM	Cortex-A7 quad core	
L1 cache	32KB for data, 32KB for instruction	
L2 cache	512KB, 8 ways	
Target frequency	960MHz	
RAM		
Memory size	512MB DDR3	
Memory speed	1066max	
Storage		
eMMC	8Gb	
USB		
USB number	1	
USB type	1x C-type for debug, on bottom of the enclosure	
USB protection	Surge protection	
LoRaWAN®		
Compatibility	LoRaWAN, Class A/B/C	
Frequency	IN865 (other country option available.	

Description	Parameter
	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
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
Cellular	
GPRS channels	GSM850, EGSM900, DCS1800, PCS1900
TE channels	LTE-FDD B1/B3/B5/B7/B8/B20/B28

LTE-TDD B38/B40/B41 Dual nanoSIM, tray type anti-loss holder. Support 3V/1.8V SIM Antenna Inbuilt inside the enclosure GNSS GNSS Systems BeiDou, Galileo, GLONASS, GPS, QZSS Protocol NMEA Antenna Inbuilt inside the enclosure WiFi Data speed Up to150Mbps Bands 2.4 GHz ISM 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 Ethernet Number 1 Type 10/100M port Support full and half duplex Support Daisy Chain and NIC mode for different application scenarios Support MAC clone and MAC security Support 4 traffic classes (compatible with IEEE802.1D-2004) PoE PoE class A (18-70V DC)	Description	Parameter	
Antenna Inbuilt inside the enclosure GNSS GNSS Systems BeiDou, Galileo, GLONASS, GPS, QZSS Protocol NMEA Antenna Inbuilt inside the enclosure WiFi Data speed Up to150Mbps Bands 2.4 GHz ISM 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 Ethernet Number 1 Type 10/100M port Support full and half duplex Support Daisy Chain and NIC mode for different application scenarios Support MAC clone and MAC security Support 4 traffic classes (compatible with IEEE802.1D-2004)		LTE-TDD B38/B40/B41	
GNSS GNSS Systems BeiDou, Galileo, GLONASS, GPS, QZSS Protocol NMEA Antenna Inbuilt inside the enclosure WiFi Data speed Up to150Mbps Bands 2.4 GHz ISM 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 Ethernet Number 1 Type 10/100M port Support full and half duplex Support Daisy Chain and NIC mode for different application scenarios Support MAC clone and MAC security Support 4 traffic classes (compatible with IEEE802.1D-2004)	SIM card		
GNSS Systems Protocol NMEA Antenna Inbuilt inside the enclosure WiFi Data speed Up to150Mbps Bands 2.4 GHz ISM 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 Ethernet Number 1 Type 10/100M port Support full and half duplex Support Daisy Chain and NIC mode for different application scenarios Support A traffic classes (compatible with IEEE802.1D-2004)	Antenna	Inbuilt inside the enclosure	
Protocol Antenna Inbuilt inside the enclosure WiFi Data speed Up to150Mbps Bands 2.4 GHz ISM 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 Ethernet Number 1 Type 10/100M port Support full and half duplex Support Daisy Chain and NIC mode for different application scenarios Support MAC clone and MAC security Support 4 traffic classes (compatible with IEEE802.1D-2004)	GNSS		
Antenna Inbuilt inside the enclosure WiFi Data speed Up to 150Mbps Bands 2.4 GHz ISM 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 Ethernet Number 1 Type 10/100M port Support full and half duplex Support Daisy Chain and NIC mode for different application scenarios Support MAC clone and MAC security Support 4 traffic classes (compatible with IEEE802.1D-2004)	GNSS Systems	BeiDou, Galileo, GLONASS, GPS, QZSS	
WiFi Data speed Up to 150Mbps Bands 2.4 GHz ISM 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 Ethernet Number 1 Type 10/100M port Support full and half duplex Support Daisy Chain and NIC mode for different application scenarios Support MAC clone and MAC security Support 4 traffic classes (compatible with IEEE802.1D-2004)	Protocol	NMEA	
Data speed Bands 2.4 GHz ISM 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 Ethernet Number 1 Type 10/100M port Support full and half duplex Support Daisy Chain and NIC mode for different application scenarios Support MAC clone and MAC security Support 4 traffic classes (compatible with IEEE802.1D-2004)	Antenna	Inbuilt inside the enclosure	
Bands 2.4 GHz ISM 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 Ethernet Number 1 Type 10/100M port Support full and half duplex Support Daisy Chain and NIC mode for different application scenarios Support MAC clone and MAC security Support 4 traffic classes (compatible with IEEE802.1D-2004)	WiFi		
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 Ethernet Number 1 Type 10/100M port Support full and half duplex Support Daisy Chain and NIC mode for different application scenarios Support MAC clone and MAC security Support 4 traffic classes (compatible with IEEE802.1D-2004)	Data speed	Up to150Mbps	
Standards 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 Ethernet Number 1 Type 10/100M port Support full and half duplex Support Daisy Chain and NIC mode for different application scenarios Support MAC clone and MAC security Support 4 traffic classes (compatible with IEEE802.1D-2004)	Bands	2.4 GHz ISM	
Security Antenna WEP, TKIP, and AES, WPA, WPA2 Inbuilt inside the enclosure Ethernet Number 1 Type 10/100M port Support full and half duplex Support Daisy Chain and NIC mode for different application scenarios Support MAC clone and MAC security Support 4 traffic classes (compatible with IEEE802.1D-2004)	Standards	802.11e-compatible bursting and I	
Technology Support Support Daisy Chain and NIC mode for different application scenarios Support MAC clone and MAC security Support 4 traffic classes (compatible with IEEE802.1D-2004)	Modulation schemes	BPSK, QPSK, 16 QAM, 64 QAM	
Technology Support Support Daisy Chain and NIC mode for different application scenarios Support MAC clone and MAC security Support 4 traffic classes (compatible with IEEE802.1D-2004)	Security	WEP, TKIP, and AES, WPA, WPA2	
Number 1 Type 10/100M port Support full and half duplex Support Daisy Chain and NIC mode for different application scenarios Support MAC clone and MAC security Support 4 traffic classes (compatible with IEEE802.1D-2004)	Antenna	Inbuilt inside the enclosure	
Type 10/100M port Support full and half duplex Support Daisy Chain and NIC mode for different application scenarios Support MAC clone and MAC security Support 4 traffic classes (compatible with IEEE802.1D-2004)	Ethernet		
Technology Support Support full and half duplex Support Daisy Chain and NIC mode for different application scenarios Support MAC clone and MAC security Support 4 traffic classes (compatible with IEEE802.1D-2004)	Number	1	
Technology Support Support Daisy Chain and NIC mode for different application scenarios Support MAC clone and MAC security Support 4 traffic classes (compatible with IEEE802.1D-2004)	Туре	10/100M port	
Technology Support different application scenarios Support MAC clone and MAC security Support 4 traffic classes (compatible with IEEE802.1D-2004)	Technology Support	Support full and half duplex	
Support MAC clone and MAC security Support 4 traffic classes (compatible with IEEE802.1D-2004)		Support Daisy Chain and NIC mode for different application scenarios	
with IEEE802.1D-2004)		Support MAC clone and MAC security	
PoE PoE class A (18-70V DC)			
	PoE	PoE class A (18-70V DC)	
Connector RJ45 with IP67 gland	Connector	RJ45 with IP67 gland	
Security			
VPN Multiple VPN support	VPN	Multiple VPN support	

Description	Parameter	
Indicators		
Multifunction	1 RGB LED outside on bottom of the housing for all functions indication	
C	Operating system	
OS	OpenWRT Linux	
Power supply		
Power	18-60V DC by isolated PoE	
Connector type	RJ45 (cable through gland)	
Power consumption	Up to 10W Average 5W (approx)	
SuperCAP	Inbuilt	
Backup time	Approx 20s	
Physical characteristics		
Installation	Pole / wall mounting with attached stainless steel clamp.	
Housing back	Back – aluminium alloy ADC-12 – Surtec 650, salt spray duration 96hrs	
Housing front	Polycarbonate – UV stabilized, UL94 V0 rated, Sabic943(f1)	
Cooling	Passive	
Dimensions	220×122×70mm (without antennas and cable gland)	
Weight	920g (without antenna and clamp)	
Environmental specification		
Operating Temp.	-25 ~ 70°C (-13 ~ 158°F)	
Storage Temp.	-40 ~ 85°C (-40 ~ 176°F)	
Ambient RH	5% to 95% (non-condensing)	
Protection class	IP67	

Ordering information

Model structure

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 communication modem

LT (LTE communication module present)

LTE/GSM module regional information

IN (certification of LTE module for India and China)

EU (certification of LTE module for Europe)

GL (global certification of LTE module)

For more details scan or click on QR code



Copyright

Copyright © 2023 Atreyo Research and Development LLP. This technical specification is protected under national and international copyright laws. No part of this user manual may be reproduced, distributed, translated, or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or storing in any information storage and retrieval system, without the prior written permission of Atreyo Research and Development LLP. Copy or use any part of this specifications is prohibited without the prior written permission from the Atreyo Research and Development LLP. Atreyo Research and Development LLP shall not unreasonably withhold or deny such consent but shall be entitled to receive additional equitable remuneration in connection with its grant of consent.

Trademarks

Atreyo and the Atreyo logo are registered trademarks of Atreyo Research and Development LLP.

All other trademarks and copyrights are the property of their respective owners.

Disclaimer

- All dimensions mentioned in the drawings are not to scale and may vary/differ due to construction contingencies and site conditions which are subject to change as may be decided by the company
- The specifications and amenities mentioned in this document and promotional documents are only representational and informative. The descriptions in this specification are based on the default configuration of your device.
- Images used in this specification may differ in appearance from the actual product.
- The Atreyo Research and Development LLP reserves rights to make additions, deletions, alterations or amendments as and when it deems fit and proper, without any prior notice.

Atreyo Research & Development LLP +91 9727741417 info@atreyo.in

414, Sunrise Mall, Mansi Circle, Vastrapur Ahmedabad 380015, India