TECHNICAL SPECIFICATION

ATREYO®
SOLUTIONS THAT SIMPLIFY

Programmable OpenWRT LTE IoT Gateway with RS485, RS232 and I/O

AG-702



Features

- **OpenWRT system**
- **Fully programmable Linux environment**
- **Additional 512MB memory as overlay**
- **4G LTE CAT1 or CAT4, GSM**
- **WiFi and two Ethernet ports**
- **GNSS**
- **2 opto-isolated digital inputs**
- **1 potential free relay output**
- **Opto-isolated RS485 and RS232**
- **USB host with storage support**
- **Cellular signal strength indicator**
- **Wide power supply range**
- **Aluminium enclosure**
- **DIN rail mounting**

AG-702 is an innovative 4G LTE cellular Gateway with 2 Ethernet ports, WiFi, RS485, RS232 and digital I/Os working on OpenWRT system. It can connect in multiple ways to the Internet with dual SIM capability and a range of advanced functions for mission critical IoT or M2M applications. AG-702 also support MQTT protocol for cloud application and Modbus TCP/IP or RTU for industrial applications.

Description	Parameter
Processor	
Type	MIPS24KEc
Clock	580MHz
RAM memory	
Memory size	256MB DDR2
Memory speed	1066max
Storage	
Internal flash	64MB flash + 512MB NAND ExtRoot support (overlay)
Other option	Supports USB flash drives
USB	
USB port number	1
USB type	USB 2.0, host with storage support

Description	Parameter
Connector	USB type A
Protection	IEC 61000-4-2 level 4: – 15 kV (air discharge) – 8 kV (contact discharge)
USB overload	500mA
Serial RS485	
Port number	1
Interface Type	RS485
Data Rate	600 – 460800 bps
Signals	A and B
Connector	Pluggable push-in
Protection	Opto-isolated 2.5 kV RMS per UL 1577 IEC 61000-4-2 level 4:

Description	Parameter
	– 15 kV (air discharge) – 8 kV (contact discharge)
	Fail-safe receiver for bus open, short and idle
Serial RS232	
Port number	1
Interface type	RS232
Data rate	300 – 230400 bps
Signals	RX, TX, RTS, CTS
Connector	Pluggable push-in
Protection	Opto-isolated 2.5kV RMS per UL 1577
	IEC 61000-4-2 level 4: – 15kV (air discharge) – 8kV (contact discharge)
Ethernet	
Number	2
Type	10/100M port
Connector	RJ45 with LED indicators
PoE	Spare pair on ETH-1
WiFi	
WiFi type	2.4GHz
WiFi standard	IEEE 802.11/a/b/g/n, Access Points
Antenna connector	SMA female
Cellular modem[1]	
Band	Please refer table of cellular network on page 3 and 4.
SIM card	2 x nanoSIM, tray to prevent cards falling out
	3V/1.8V
Antenna connector	SMA female
GNSS[2]	
GNSS systems	GPS, BDS, Galileo, GLONASS, QZSS
Antenna connector	SMA female
Digital inputs	
Input number	2
Input type	Opto-isolated 2.5kV
Configuration	Separate IN-GND
Connector	Pluggable push-in
Max $_{Vin}$	30V DC
Logic 1 voltage	3.5V to max $_{Vin}$
Relay outputs	
Output number	1
Output type	NO (normal open)
Load$_{max}$	3A 160V AC or 3A 30V DC

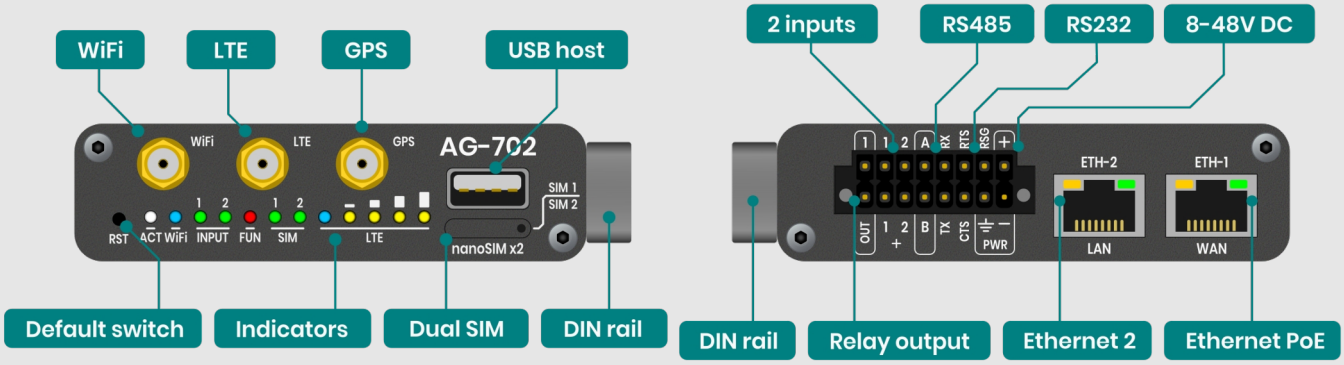
Description	Parameter
Connector	Pluggable push-in
System functions indicators	
Indicators	ACT – activity
	WiFi
	IN-1 and IN-2
	Custom use
	SIM-1 and SIM-2
	Cellular
	Cellular signal level – 4 LED
	Out enable (not available in 'S' slim version model)
System	
Operating systems	OpenWRT 23.05, Kernel 5.15.71, Atreyo Environment V1.01.09
Booting source	Flash memory
Watchdog	In 'S' variant only
Power supply	
Power supply	8-48V (or 8-60V or 8-36V DC[3])
Power consumption	1.6W (24V without LTE and relay on)
Connector	Pluggable push-in (+, -, earthing)
PoE	Passive PoE over spare pairs. Not compatible with IEEE802.3af, 802.3at and 802.3bt standards
	Compatible with 802.3 with external APOE-INJ-12
Protection	Reverse polarity, over voltage
Physical characteristics	
Installation	DIN-Rail, clamp
Housing	Aluminium
Weight	240g
Dimensions	88mm x 87mm x 35mm
Dimensions 'S' model variant	91mm x 89mm x 25mm
Environmental specification	
Operating temp.	-20 ~ 65°C (-4 ~ 149°F) -25 ~ 70°C (-13 ~ 258°F) (extended range optional)
Storage temp.	-40 ~ 85°C (-40 ~ 185°F)
Ambient RH	5% ~ 95% (non-condensing)
Ingress protection	IP 30

1 Apply to LT models. Refer model selection chart. LTE/GSM Bands are mentioned for in Cellular table section on page 3 and 4.

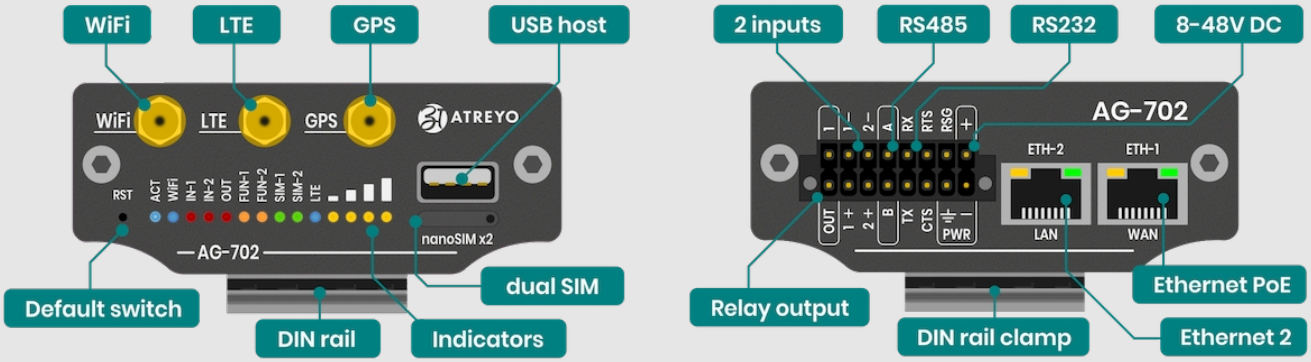
2 Apply to LT models. Refer ordering chart.

3 Refer ordering chart. Versions other than 8–48 V are manufactured only subject to a minimum order quantity.

'S' variant



Standard variant



Cellular modem specification of IN (India CAT1) version

IN version of gateway	Cellular network modem details	
Band LTE FTD	B1/ 3/ 5/ 8	
Band LTE TDD	B34/ 38/ 39/ 40/ 41	
Band GSM	B3/ 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)
	GPRS	85.6 Kbps (DL)/85.6 Kbps (UL)

Cellular modem specification of 4IN (India CAT4) version

4IN version of gateway	Cellular network modem details	
Band LTE FTD	B1/B3/B5/B8	
Band LTE TDD	B34/B38/B39/B40/B41	
Band WCDMA	B1/B5/B8	
Band GSM	EGSM900/DCS1800	
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	41 Mbps (DL)
	HSUPA	5.76 Mbps (UL)
	WCDMA	384 kbps (DL) Max. 384 kbps (UL)
Maximum data rate GSM	EDGE	236.8 kbps (DL) Max. 236.8 kbps (UL)
	GPRS	85.6 kbps (DL) Max. 85.6 kbps (UL)

Cellular modem specification of EU (Europe and India CAT1) version

EU version of gateway	Cellular network modem 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 CAT4) version

GL version of gateway	Cellular network modem 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)

Standard model list

These are models in regular production. Other models are only made on order with a minimum order quantity. Please contact us if you require a custom order.

Model	Hardware Options					More information
AG-702	Cellular Network				GNSS	
	GPRS	3G	LTE CAT1	LTE CAT4		
AG-702-V48						Without cellular modem
AG-702-LT-EU-V48	✓		✓		✓	Model for India and EU
AG-702-LT-GL-V48	✓	✓		✓	✓	Global model
AG-702-S						Without cellular modem
AG-702-S-LT-EU	✓		✓		✓	Model for India and EU
AG-702-S-LT-GL	✓	✓	✓	✓	✓	Global model
AG-702-S-LT-4IN	✓	✓		✓		Model for India

Table with model structure for ordering

Model Structure	
Model structure example	**AG-702-S-LT-EU-V48**

Base model name

AG-702

Body structure

S (slim version), blank – standard version

Cellular communication modem

LT (cellular communication modem present)

LTE/GSM module regional information

IN (cellular modem for India CAT1)
EU (cellular modem for India and Europe CAT1)
GL (global cellular modem CAT4)
4IN (cellular modem for India CAT4)

Power supply range or slim enclosure version

V60 (from 8V to 60V DC)
V36 (from 8V to 36V DC)
V48 (from 8V to 48V DC) in 'S' version by default supply is V to 48V DC

Standard package list

1 AG-702 Gateway
2 Cellular antenna[1]
3 WiFi antenna
4 GNSS antenna[2]
5 DIN rail clamp with screws
6 SIM card tray ejector pin
7 Female main connector without cable

Magnet with 2 or 3m cable
Magnet with 1.5m cable
Magnet with 3m cable

Please note: The set does not include a power supply.

1 Models without a cellular modem will not include cellular and GNSS antennas.
2 Model 4IN will not include GNSS antenna.

For more details scan or click on QR code

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