TECHNICAL SPECIFICATION

ATREYO®
SOLUTIONS THAT SIMPLIFY

Advanced ARM Cellular IoT Gateway

AG-707



Features

- **Dual core ARM Cortex A53 processor**
- **Fully programmable Linux environment**
- **OpenWRT Linux OS**
- **4G LTE/5G cellular**
- **One 2.5Gbps and one 1Gbps Ethernet port**
- **GNSS**
- **WiFi od Bluetooth (optional)**
- **Two opto-isolated digital inputs**
- **One relay output**
- **Dual opto-isolated RS485**
- **USB host with storage support**
- **Cellular signal strength indicator**
- **Wide power supply range up to 57V**
- **Aluminium enclosure**
- **DIN rail mounting**

AG-707 is an innovative 4G LTE/5G cellular gateway with 2 Ethernet ports, two RS485, digital I/Os working on OpenWRT or Debian system. It has also optional WiFi module. 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-707 also support MQTT protocol for cloud application and Modbus TCP/IP or RTU for industrial applications. The gateway supports systems such as Docker, openPLC and Node-RED.

The gateway's debug port enables advanced users to easily develop their own applications.

Description	Specification
Processor	
Type	ARM Cortex-A53, 64bits
Number of cores	Dual core
Clock	Up to 1.3GHz
RAM memory	
Memory size	515MB/1GB
Memory speed	2133MHz
Storage	
Internal memory	8 to 64GB eMMC
SD card	One microSD card slot

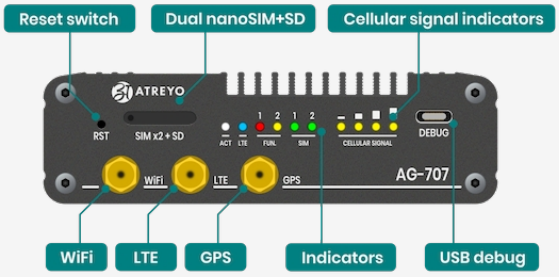
Description	Specification
USB	
USB port number	2
USB type	USB 2.0, host with storage support
Connector	USB type A
Protection	IEC 61000-4-2 level 4: – 15 kV (air discharge) – 8 kV (contact discharge)
USB overload	500mA

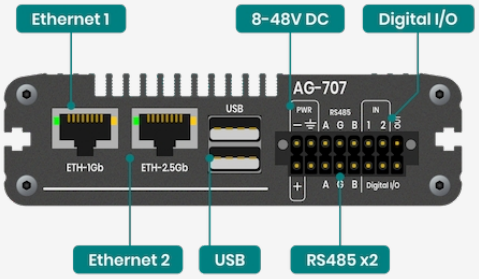
Description	Specification
Serial RS485	
Port number	2
Interface Type	RS485
Data Rate	1200bps to 921600bps
Signals	A and B
Connector	Pluggable push-in
Protection	Opto-isolated 1.5kV RMS per UL 1577 IEC 61000-4-2 level 4: – 15 kV (air discharge) – 8 kV (contact discharge) Fail-safe receiver for bus open, short and idle
Ethernet	
Number	2
Type	1 x 2.5Gbps, 1 x 1Gbps
Ethernet connector	RJ45 with LED indicators
WiFi[1]	
WL1	2.4Ghz and 5Ghz band
WL2	2.4Ghz
WL3	2.4Ghz
Antenna connector	SMA female
Bluetooth[2]	
Bluetooth	Only with selected WiFi modules
Cellular modem[3]	
Cellular bands	Refer cellular specification chart
SIM card	2 x nanoSIM, tray to prevent cards falling out 3V/1.8V
Antenna connector	SMA female
GNSS[4]	
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, PNP/NPN
Connector	Pluggable push-in
Max $_{Vin}$	30V DC
Logic 1 voltage	3.5V to max $_{Vin}$
Relay output	
Output number	1

Description	Specification
Output type	Relay NO (normal open)
Load$_{max}$	3A 160V AC or 3A 30V DC
Connector	Pluggable push-in
System function indicators	
Indicators	ACT – activity Cellular signal level – 4 LED Custom use – 2 LEDs Cellular – 1 LED SIM-1 and SIM-2
Debug and development	
System debug	C-type USB to UART inbuilt
Reset	Reset push button
Default	Default, recover and system load push buttons.
System	
Operating system	OpenWRT Linux
Booting source	U-boot from flash and OS from eMMC
Application	
Language support	C, Python, Java and all supported by Linux
Local logic apps	NodeRED Any other custom app
Web interface	Luci app in OpenWRT Any other custom made
Power supply	
Power supply	8-57V DC
Power consumption	TBD
Connector	Pluggable push-in (+, -, earthing)
Protection	Reverse polarity, over voltage
Physical characteristics	
Installation	DIN-Rail, clamp
Housing	Aluminium
Weight	TBD
Dimensions	114mm x 32mm x 104mm
Environmental specification	
Operating temp.	-0 ~ 75°C (32 ~ 167°F)
Storage temp.	-40 ~ 85°C (-40 ~ 185°F)
Ambient RH	5% ~ 95% (non-condensing)

1 WiFi is optional. There are different options of WiFi card offered by Atreyo. Refer ordering chart and WiFi card selection chart.
2 Bluetooth is on WiFi card module. Available with selected WiFI modules.
3 Apply to LT models. Refer ordering and cellular specification chart.
4 Apply to LT models. Refer ordering and cellular specification chart.

Gateway





Standard model list

Standard gateway models that are in regular production. If you have requirements for a different configuration, then select a specific specification from the table "Table with model structure for ordering".

Model	Hardware Options							More information
	Memory	RAM	Cellular Network			GNSS	WiFi	
	GB	GB	GPRS	3G	LTE			
AG-707	32GB	0.5						Without cellular
AG-707-32G-0.5G-LTI-EU	32GB	0.5	✓		✓	✓		For India and EU
AG-707-32G-0.5G-LTI-EU-WL4	32GB	0.5	✓		✓	✓	✓	For India and EU
AG-707-32G-0.5G-LT4-GL	32GB	0.5	✓	✓	✓	✓		Global model
AG-707-32G-0.5G-LT4-GL-WL4	32GB	0.5	✓	✓	✓	✓	✓	Global model
AG-707-32G-0.5G-LT4-IN	32GB	0.5	✓	✓	✓			For India
AG-707-32G-0.5G-LT4-IN-WL4	32GB	0.5	✓	✓	✓		✓	For India

WiFi and Bluetooth selection chart

Not all WiFi cards have all features in all operating systems offered. Therefore, before choosing a card, read the information on the documentation page or contact Atreyo.

WiFi option		WiFI specification	Bluetooth	Bluetooth version
WL3	Standard	802.11b/g/n		
	Band	2.4GHz		
	Speed	54Mbps and 150Mbps for IEEE 802.11g and 802.11n OFDM		
	2.4GHz:	ch1 ~ ch14		
WL4	Standard	802.11b/g/n AP/ STA/ AP + STA		
	Band	2.4GHz and 5Ghz		
	Modulation	CCK/ DBPSK/ DQPSK/ BPSK/ QPSK/ 16QAM/ 64QAM		

	Speed	802.11a 54 Mbps 802.11b 11 Mbps 802.11g 54 Mbps 802.11n 150 Mbps		
WL5	Standard	IEEE 802.11 a/b/g/n AP/ STA	✓	V5.2
	Band	2.4GHz and 5Ghz		
	Channel bandwidth	20 MHz/ 40 MHz		
	Speed	802.11a 54 Mbps 802.11b 11 Mbps 802.11g 54 Mbps 802.11n 150 Mbps		
	5.0GHz:	36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 130, 132, 136, 140, 149, 153, 157, 161, 165		

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

Model Structure	
Model example	**AG-707-8G-1G- LT-EU-WL4**

Base model name

AG-707

Internal memory

8G, 32G, 64, 128G (eMMC)

RAM memory

0.5G, 1G (size of RAM in GB)

Cellular modem

LT/5G (cellular modem present)

Cellular regional information

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

WiFi version

WL3 /WL4/WL5 (refer WiFi selection chart)

Standard package list

1 AG-707 Gateway
2 Cellular antenna[1]
3 WiFi antenna (only WiFi models)
4 GNSS antenna[2]
5 DIN rail clamp with screws
6 SIM card tray ejector pin
7 female 16 pin 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 also 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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