

TECHNICAL SPECIFICATION

Fully programmable IoT gateway
with quad core ARM processor

AG-3303



Features

- Fully programmable Linux environment
- Quad core ARM Cortex A53
- Up to 4GB RAM memory
- 4G LTE, GSM
- Two Ethernet ports
- WiFi and Bluetooth
- GNSS
- 4 opto-isolated digital I/O
- Two opto-isolated RS485
- Two USB hosts
- Wide power supply range
- Aluminium enclosure
- DIN rail mounting

Fully programmable industrial IoT Gateway with support for Debian Linux and OpenWRT Linux systems. It provides the ability to install custom scripts and use ready-made scripts. Also, it works under the control of OpenWRT system. Under the control of the NodeRED application, it gives unlimited possibilities for easy

creation of gateway operation logic. It also has and 4G LTE cellular modem with support for 2 SIM cards. It has two Ethernet ports, two isolated RS485 interfaces and four opto-isolated I/Os. It also has a USB type-C port for debugging.

Description	Specification
Processor	
Type	ARM Cortex-A53, 64bits
Number of cores	Quad core
Clock	Up to 1.5GHz
RAM memory	
Memory size	1-4GB
Memory speed	1866MHz
Storage	
Internal memory	8, 16 or 32GB eMMC
SD card	One microSD card slot
USB	
USB port number	2
USB type	USB 2.0, host with storage

Description	Specification
Connector	support
	USB type A
Protection	IEC 61000-4-2 level 4: – 15 kV (air discharge) – 8 kV (contact discharge)
	USB overload
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

Description	Specification
	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	1x 10/100M and 1x 10/100/1000M
Ethernet connector	RJ45 with LED indicators
PoE	On ETH-1
WiFi¹	
WL1	2.4Ghz and 5Ghz band
WL2	2.4Ghz
WL3	2.4Ghz
Antenna connector	SMA female
Bluetooth²	
Bluetooth	Only with WL1 and 2 WiFi module
Cellular modem³	
Cellular bands	Refer cellular specification chart
SIM card	2 x nanoSIM, tray to prevent cards falling out 3V/1.8V
Antenna connector	SMA female
GNSS⁴	
GNSS systems	GPS, BDS, Galileo, GLONASS, QZSS
Antenna connector	SMA female
Digital inputs	
Input number	4 interchangeable with outputs
Input type	Opto-isolated 2.5kV
Configuration	Separate IN-GND
Connector	Pluggable push-in
Max V_{in}	30V DC
Logic 1 voltage	3.5V to max V_{in}
Digital outputs	
Output number	4 interchangeable with inputs
Output type	NO (normal open) optomofset
Load_{max}	800mA 50V
Connector	Pluggable push-in
System function indicators	
Indicators	ACT – activity Cellular modem Function 1 (user configurable)

1 WiFi is optional. There are 3 different options of WiFi card offered by Atreyo. Refer ordering chart and WiFi card selection chart.

2 Bluetooth is on WiFi card module. Available only with selected WiFi modules.

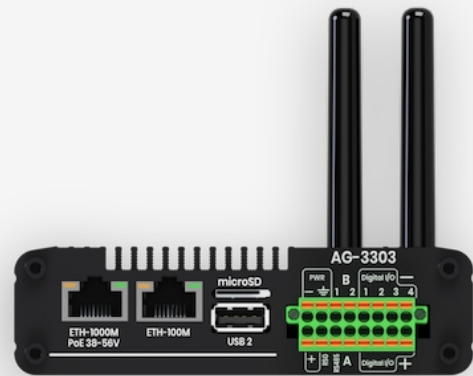
3 Apply to LT models. Refer ordering and cellular specification chart.

4 Apply to LT models. Refer ordering and cellular specification chart.

Description	Specification
	Function 2 (user configurable) Function 3 (user configurable) Function 4 (user configurable)
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 systems	Linux Debian OpenWRT
Bootimg source	Inbuilt eMMC memory
Whatchdog	External configurable whatchdog
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 Webmin in Debian Any other custom made
Power supply	
Power supply	8-48V DC (or 7-70V DC ⁵)
Power consumption	Average 6W
Connector	Pluggable push-in (+, -, earthing)
PoE	Isolated IEEE802.3af compliant 37-57V isolated (optional)
Protection	Reverse polarity, over voltage
Physical characteristics	
Installation	DIN-Rail, clamp
Housing	Aluminium
Weight	360g approx
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)

5 Apply to ES2 models. Refer ordering 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". In the standard model, the gateway has 1GB RAM, 8GB eMMC, 2 RS485 and 4 digital inputs and 4 digital outputs and power supply 7-48V DC. These parameters are then not mentioned in the standard model number.

Model	Hardware Options										More information
AG-3303	Memory	RAM	Cellular Network			GNSS	WiFi	Digital In	Digital Out	Supply V	
	GB	GB	GPRS	3G	LTE						
AG-3303	8GB	1						4	4	7-48V	Without cellular
AG-3303-LT-EU	8GB	1	✓		✓	✓		4	4	7-48V	For India and EU
AG-3303-LT-EU-WL1	8GB	1	✓		✓	✓	✓	4	4	7-48V	For India and EU
AG-3303-LT-GL	8GB	1	✓	✓	✓	✓		4	4	7-48V	Global model
AG-3303-LT-GL-WL1	8GB	1	✓	✓	✓	✓	✓	4	4	7-48V	Global model

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
WL1	Standard	IEEE 802.11 a/b/g/n/ac (Access Points)	✓	V5.0+EDR
	Band	2.4GHz and 5Ghz		BLE
	Speed	up to 433.3Mbps, 20, 40, 80 MHz channels	Speed	V5.0 of 1, 2 and 3 Mbps
	2.4GHz:	ch1 ~ ch13		
	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		
WL2	Standard	IEEE 802.11 a/b/g/n/d/e/h/i, Software AP	✓	V2.1+EDR/V4.0, V4.0
	Band	2.4GHz		Ch. 0 ~78
	Speed	150 Mbps downstream and 150 Mbps	Speed	1 Mbps for Basic Rate 2,3 Mbps ED 6,9,12,18,24,36,48,54 Mbps HS
WL3	2.4GHz:	ch1 ~ ch14		
	Standard	802.11b/g/n		
	Band	2.4GHz		
	Speed	54Mbps and 150Mbps for IEEE 802.11g and 802.11n OFDM		
	2.4GHz:	ch1 ~ ch14		

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 \pm 2 dB)
	LTE-TDD	Class 3 (23 dBm \pm 2 dB)
	EGSM900	Class 4 (33 dBm \pm 2 dB)
	DCS1800	Class 1 (30 dBm \pm 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 \pm 2 dB)
	EGSM900	Class 4 (33 dBm \pm 2 dB)
	DCS1800	Class 1 (30 dBm \pm 2 dB)
	PCS1900	Class 1 (30 dBm \pm 2 dB)
	GSM850 8-PSK	Class E2 (27 dBm \pm 3 dB)
	EGSM900 8-PSK	Class E2 (27 dBm \pm 3 dB)
	DCS1800 8-PSK	Class E2 (26 dBm \pm 3 dB)
	PCS1900 8-PSK	Class E2 (26 dBm \pm 3 dB)
	WCDMA	Class 3 (24 dBm \pm 1/-3 dB)
	LTE-FDD	Class 3 (23 dBm \pm 2 dB)
	LTE-TDD	Class 3 (23 dBm \pm 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. Standard specifications are in the table of standard models.

Model Structure										
Model example	AG-3303- 8G- 4G- LT- EU- WL1- R42- I4- O4- ES3- PE- DEB									
Base model name										
AG-3303										
Internal memory										
8G, 16G, 32G, 64G (eMMC)										
RAM memory										
1G, 2G, 4G (size of RAM in GB)										
Cellular modem										
LT (cellular modem present)										
Cellular regional information										
EU (cellular modem for India and Europe) GL (global cellular modem)										
WiFi version										
WL1 /WL2/WL3 (refer WiFi selection chart)										
RS485 port number										
R4 + number of ports										
Digital inputs										
I + number of inputs										
Digital outputs										
O + number of outputs										
Power supply										
ES1: 7-48V, ES2: 7-75V, ES3: 8-36V										
PoE present										
PE (37-57V)										
Pre-installed OS										
DEB – Debian WRT – OpenWRT UBU – Ubuntu										

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