# **TECHNICAL SPECIFICATION**



# Programmable IoT Gateway with Quad core ARM processor

### AG-1629



### **Features**

- · Fully programmable Linux environment
- Quad core ARM Cortex A7
- 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

Programmable industrial IoT Gateway with support for Debian Linux and OpenWRT Linux systems. It provides the ability to install custom scripts and use readymade scripts. Also, it works under the control of OpenWRT system. In Debian under the control of the NodeRED system, it gives unlimited possibilities for easy

creation of gateway operation logic. It also has a cellular modem with support for 2 SIM cards. It has two LAN, two isolated RS485 interfaces and four optoisolated I/Os. It also has a USB type-C port for debugging and a boot source selector.

Description	Specification				
Processor					
Туре	ARM Cortex-A7				
Number of cores	Quad core				
Clock	Up to 960Mhz				
RAM Memory					
Memory size 512MB DDR3					
Memory speed	1066MHz				
Storage					
Internal memory	8, 16 or 32GB eMMC				
SD card	One microSD card slot (up to 256Gb)				
USB					
<b>USB port number</b>	2				
USB type	USB 2.0, host with storage support				

Description	Specification
Connector	USB type A
	IEC 61000-4-2 level 4:
Protection	- 15 kV (air discharge)
	- 8 kV (contact discharge)
USB overload	600mA
	Serial RS485
Port number	2
Interface Type	RS485
Data Rate	1200 bps ~ 460800 bps
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)

Description	Specification
	- 8 kV (contact discharge)
	Fail-safe receiver for bus open,
	short and idle
	Ethernet
Port number	2
Туре	10/100M
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
	Bluetooth <sup>2</sup>
Bluetooth	Only with WL1 and 2 WiFi module
Ce	ellular Modem³
Cellular bands	Refer cellular specification chart
	Dual nanoSIM, tray type anti-
SIM card	loss holder
	3V/1.8V
Antenna connector	SMA female
	GNSS⁴
GNSS systems	GPS, BDS, Galileo, GLONASS, QZSS
Antenna connector	SMA female
	OND CTOTTIONS
	Digital Inputs
С	Digital Inputs
Input number	Digital Inputs 4 interchangeable with outputs
Input number Input type	Digital Inputs 4 interchangeable with outputs Opto-isolated 2.5kV
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Description	Specification				
	Function 3 (user configurable)				
Debug and Development					
System debug	C-type USB to UART converter inbuilt				
Reset	Reset push button				
Default	Default push button				
	System				
One resting eventors	Linux Debian				
Operating systems	OpenWRT				
	Inbuilt eMMC memory				
<b>Booting source</b>	microSD				
booting source	Support for automatic boot				
	source selection				
Watchdog	External configurable watchdog				
	Applications				
Language support	C, Python, Java and all				
33	supported by Linux				
Local logic apps	NodeRED				
	Any other custom app Luci app in OpenWRT				
Web interface	Webmin in Debian				
Web interruce	Any other custom made				
D	Power Supply				
Power supply	8-48V DC (or 7-70V DC <sup>5</sup> )				
Power consumption	Average 6W				
1 ower consumption	Pluggable push-in (+, -,				
Connector	earthing)				
	Isolated EEE802.3af compliant				
PoE	38-58V isolated (optional)				
Protection	Reverse polarity, over Voltage				
Physic	al Characteristics				
Installation	DIN-Rail, clamp				
Housing	Aluminium				
Weight	350g approx				
Dimensions	114 x 104 x 32mm				
Environn	nental Specification				
Operating temp.	-20 ~ 85°C (-4 ~ 185°F)				
Storage temp.	-40 ~ 85°C (-40 ~ 185°F)				
Ambient RH	5% ~ 95% (non-condensing)				

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

<sup>2</sup> Bluetooth is on WiFi card module. Available only with selected WiFI modules.

<sup>3</sup> Apply to LT models. Refer ordering chart and cellular modem specification chart...

<sup>4</sup> Apply to LT models. Refer ordering chart and cellular modem specification chart.

 $<sup>\,\,</sup>$  5  $\,$  Apply to ES2 models. Table with model structure for ordering.

## Gateway









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#### 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 512MB 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						
AG-1629	Memory GB	RAM GB	Cellul GPRS	ar Ne	twork LTE	GNSS	WiFi	Digital In	Digital Out	Supply V	information
AG-1629	8GB	512						4	4	8-48V	Without cellular
AG-1629-LT-EU	8GB	512	$\checkmark$		$\checkmark$	√		4	4	8-48V	For India and EU
AG-1629-LT-EU-WL3	8GB	512	√		$\checkmark$	√	√	4	4	8-48V	For India and EU
AG-1629-LT-GL	8GB	512	√	$\checkmark$	$\checkmark$	√		4	4	8-48V	Global model
AG-1629-LT-GL-WL3	8GB	512	√	$\checkmark$	$\checkmark$	√	√	4	4	8-48V	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 Specification
	Standard	IEEE 802.11 a/b/g/n/ac (Access Points)	√	V5.0+EDR
	Band	2.4GHz and5Ghz		BLE
	Speed	up to 433.3Mbps, 20, 40, 80MHz channels	Speed	V5.0 of 1, 2 and 3Mbps
WL1	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	150Mbps downstream and 150Mbps	Speed	1 Mbps for Basic Rate 2,3 Mbps ED 6,9,12,18,24,36,48,54Mbps HS
	2.4GHz:	ch1 ~ ch14		
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		

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

EU version of gateway	c	ellular 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				
	LTE-FDD	Class 3 (23 dBm ±2 dB)			
Output payor	LTE-TDD	Class 3 (23 dBm ±2 dB)			
Output power	EGSM900	Class 4 (33 dBm ±2 dB)			
	DCS1800	Class 1 (30 dBm ±2 dB)			
	LTE-FDD	10 Mbps (DL)/ 5 Mbps (UL)			
Maximum data rate	LTE-TDD	8.96 Mbps (DL)/ 3.1 Mbps (UL)			
	GSM	85.6 kbps (DL)/ 85.6 kbps (UL)			
	Compliant to GSM phase	e 2/2+			
Power	- 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				
	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)			
Output power	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)			
Maximum data rate LTE	LTE-TDD	130 Mbps (DL)/Max. 30 Mbps (UL)			
	DC-HSDPA	42 Mbps (DL)			
Maximum data rate UMTS	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)			
Maximum add rate 03M	GPRS	107 kbps (DL)/Max. 85.6 kbps (UL)			

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### Table with model structure for ordering

WRT - OpenWRT

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-1629-8G-LT-EU-WL1-R42-I4-O4-ES3-PE-DE
Base model name	
AG-1629	
Internal memory	
8G, 16G, 32G, 64G (eMMC)	
Cellular modem	
LT (cellular modem present)	
Cellular regional information	
EU (cellular modem for India and Europe)	
GL (global cellular modem)	
WiFi version	
WLI (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 (38-58V)	
Pre-installed OS	
DEB - Debian	

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