TECHNICAL SPECIFICATION

ATREYO®
SOLUTIONS THAT SIMPLIFY

Programmable IoT gateway with quad core ARM processor

AG-1629



Features

- **Fully programmable Linux environment**
- **Quad core ARM Cortex A7**
- **4G LTE CAT1 or CAT4, 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 ready-made 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 opto-isolated I/Os. It also has a USB type-C port for debugging and a boot source selector.

Description	Specification
Processor	
Type	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	
USB port number	2
USB type	USB 2.0, host with storage support

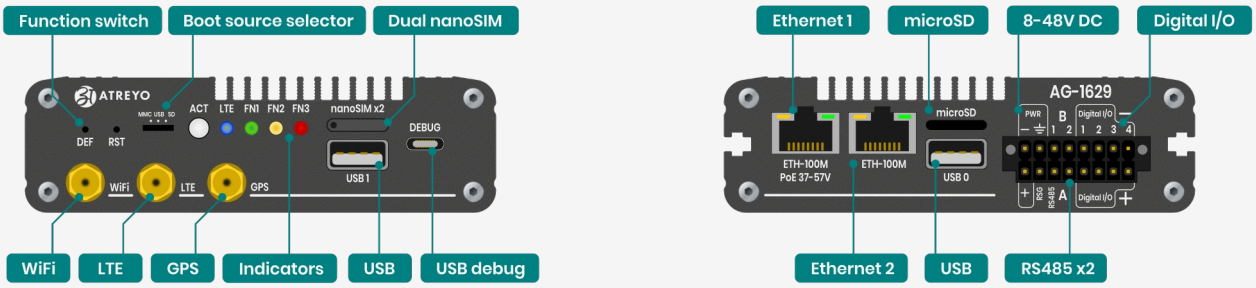
Description	Specification
Connector	USB type A
Protection	IEC 61000-4-2 level 4: – 15 kV (air discharge) – 8 kV (contact discharge)
USB overload	600mA
Serial interface	
Port number	2
Interface Type	RS485
Data Rate	1200 bps ~ 460800 bps
Signals	A and B
Connector	Pluggable push-in
Protection	Opto-isolated 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
Type	10/100M
Ethernet connector	RJ45 with LED indicators
PoE	On ETH-1
WiFi[1]	
WL1	2.4Ghz and 5Ghz band
WL2	2.4Ghz
WL3	2.4Ghz
Antenna connector	SMA female
Bluetooth[2]	
Bluetooth	Only with WL5 and BT1 module
Cellular modem[3]	
Cellular bands	Refer cellular specification chart
SIM card	Dual nanoSIM, anti-loss tray type
	3V/1.8V
Antenna connector	SMA female
GNSS[4]	
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 $_{Vin}$	30V DC
Logic 1 voltage	3.5V to max $_{Vin}$
Digital outputs	
Output number	4 interchangeable with inputs
Output type	NO (normal open) opto-mosfet
Load$_{max}$	800mA 50V
Connector	Pluggable push-in
System functions indicators	
Indicators	ACT – activity (multicolor)
	Cellular modem
	Function 1 (user configurable)

Description	Specification
	Function 2 (user configurable)
	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	
Operating systems	Linux Debian
	OpenWRT[5]
Booting source	Inbuilt eMMC memory
	microSD
	Support for automatic boot source selection
Watchdog	External configurable watchdog
Applications	
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[6])
Power consumption	Average 6W
Connector	Pluggable push-in (+, -, earthing)
PoE	Isolated EEE802.3af compliant 38-58V isolated (optional)
Protection	Reverse polarity, over voltage
Physical characteristics	
Installation	DIN-Rail, clamp
Housing	Aluminium
Weight	350g approx
Dimensions	114 x 104 x 32mm
Environmental specification	
Operating temp.	-20 ~ 85°C (-4 ~ 185°F)
Storage temp.	-40 ~ 85°C (-40 ~ 185°F)
Ambient RH	5% ~ 95% (non-condensing)

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. You can also order a version that includes only the Bluetooth module.
3 Apply to LT models. Refer ordering chart and cellular modem specification chart.
4 Apply to LT models. Refer ordering chart and cellular modem specification chart.
5 OpenWRT OS is under development.
6 Apply to ES2 models. Table with model structure for ordering.

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 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 information
	Memory	RAM	Cellular Network			GNSS	WiFi	BT/BLE	Digital In	Digital Out	
	GB	GB	GPRS	3G	LTE						
AG-1629	8GB	512							4	4	Without cellular
AG-1629-LT-EU	8GB	512	✓		✓	✓			4	4	For India and EU
AG-1629-LT-EU-WL3	8GB	512	✓		✓	✓	✓		4	4	For India and EU
AG-1629-LT-EU-BT1	8GB	512	✓		✓	✓		✓	4	4	For India and EU
AG-1629-LT-GL	8GB	512	✓	✓	✓	✓			4	4	Global model
AG-1629-LT-GL-WL3	8GB	512	✓	✓	✓	✓	✓		4	4	Global model
AG-1629-LT-GL-BT1	8GB	512	✓	✓	✓	✓		✓	4	4	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
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		
BT1			✓	V5.0
				BLE
			Speed	EDR to 3 Mbps.

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

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-DEB**

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/BT version

WL1 /BT (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
WRT – OpenWRT

Standard package list

1	AG-1629 Gateway	
2	Cellular antenna[1]	Magnet with 2 or 3m cable
3	WiFi antenna (only WiFi models)	Magnet with 1.5m cable
4	GNSS antenna	Magnet with 3m cable
5	DIN rail clamp with screws	
6	SIM card tray ejector pin	
7	Female 16 pin main connector without 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.

For more details scan or click on QR code

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Atreyo Research & Development Pvt. Ltd.	**+91 9727741417** **info@atreyo.in**	2106, Z2, Thaltej, Ahmedabad, Gujarat, India