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 luetooth
- 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					
USB port number	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)

www.atreyo.in ARAD/AG-1629/TS/2024/03 Page 1

Baradada	0					
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					
РоЕ	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 WL1 and 2 WiFi module					
Ce	ellular Modem ³					
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					
	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}					
D	igital Outputs					
Output number	4 interchangeable with inputs					
Output type	NO (normal open) optomosfet					
Load _{max}	800mA 50V					
Connector	Pluggable push-in					
System	Functions Indicators					
0,000	ACT – activity (multicolor)					
	Cellular modem					
Indicators	Function 1 (user configurable)					
	Function 2 (user configurable)					
	· ····································					

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				
Operating systems	Linux Debian				
operating systems	OpenWRT				
	Ibuilt eMMC memory				
Booting source	microSD				
3	Support for automatic boot source selection				
Whatchdog	External configurable				
	whatchdog				
, and a second s	Applications				
Language support	C, Python, Java and all				
	supported by Linux NodeRED				
Local logic apps	Any other custom app				
	Luci app in OpenWRT				
Web interface	Webmin in Debian				
	Any other custom made				
P	ower Supply				
Power supply	7-48V DC (or 7-70V DC ⁵)				
Power consumption	Average 6W				
Connector	Pluggable push-in (+,-, earthing)				
DeF	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)				

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 chart and cellular modem specification chart...

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

 $^{\,\,}$ 5 $\,$ Apply to ES2 models. Table with model structure for ordering.

Gateway









 www.atreyo.in
 ARAD/AG-1629/TS/2024/03
 Page | 3

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	7-48V	Without cellular
AG-1629-LT-EU	8GB	512	√		\checkmark	√		4	4	7-48V	For India and EU
AG-1629-LT-EU-WL1	8GB	512	\checkmark		\checkmark	√	\checkmark	4	4	7-48V	For India and EU
AG-1629-LT-GL	8GB	512	√	\checkmark	\checkmark	√		4	4	7-48V	Global model
AG-1629-LT-GL-WL1	8GB	512	√	\checkmark	\checkmark	√	\checkmark	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 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
				1 Mbps for Basic Rate
	Speed	150Mbps downstream and 150Mbps	Speed	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		

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)			
Annines une electer unte 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)			
favinarina data vata 0014	EDGE	296 kbps (DL)/Max. 236.8 kbps (UL)			
Maximum data rate GSM	GPRS	107 kbps (DL)/Max. 85.6 kbps (UL)			

 www.atreyo.in
 ARAD/AG-1629/TS/2024/03
 Page | 5

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-DEE
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	
WL1 (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	

For more details scan or click on QR code



Copyright

Copyright © 2024 Atreyo Research and Development LLP. This technical specification is protected under national and international copyright laws. No part of this user manual may be reproduced, distributed, translated, or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or storing in any information storage and retrieval system, without the prior written permission of Atreyo Research and Development LLP. Copy or use any part of this specifications is prohibited without the prior written permission from the Atreyo Research and Development LLP.

Trademarks

Atreyo and the Atreyo logo are registered trademarks of Atreyo Research and Development LLP.

All other trademarks and copyrights are the property of their respective owners.

Disclaimer

 The information contained in this datasheet is provided "as is" and is subject to change without notice. While every effort has been made to ensure the accuracy and completeness of the information contained herein, Atreyo Research and Development LLP assumes no responsibility or liability for any errors or omissions.

- Images used in this specification may differ in appearance from the actual product.
- All dimensions mentioned in the drawings are not to scale and are subject to change and update as may be decided by the Atreyo Research and Development LLP.
- Atreyo Research and Development LLP makes no warranties, either express or implied, regarding the contents of this document, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.
- Users of this datasheet should verify the applicability and suitability of the information and procedures to their particular use. Atreyo Research and Development LLP shall not be liable for any damages, including but not limited to direct, indirect, special, incidental, or consequential damages, arising from or related to the use or inability to use this datasheet or the products described herein.
- By using this datasheet, you agree to the terms and conditions stated above.

Atreyo Research & Development LLP

+91 9727741417 info@atreyo.in

414, Sunrise Mall, Mansi Circle, Ahmedabad, Gujarat, India