

TECHNICAL SPECIFICATION

Programmable OpenWRT LTE IoT Gateway with RS485 and digital inputs

AG-207



Features

- OpenWRT system
- Fully programmable Linux environment
- Additional 512MB memory as overlay
- 4G LTE, GSM, WiFi and Ethernet
- GNSS
- 2 opto-isolated digital inputs
- Interface RS485
- USB host with storage support
- Wide power supply range
- Aluminium enclosure
- DIN rail mounting

AG-207 is a RS485 4G LTE cellular Gateway with 2 digital inputs and WiFi. By using the OpenWRT system has a huge programming and functional potential. With range of advanced functions and support of many

protocol it is perfect for IoT or M2M applications. USB host provides the ability to connect many types of extensions. AG-207 also support MQTT.

| Description | Specification |
|-------------------|---|
| Processor | |
| Type | MIPS24KEc |
| Clock | 580MHz |
| RAM Memory | |
| Memory size | 256MB DDR2 |
| Memory speed | 1066max |
| Storage | |
| Internal flash | 64MB+512MB ExtRoot support (overlay) |
| USB | |
| USB port number | 1 |
| 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 Interface RS485 | |
| Port number | 1 |
| Interface Type | RS485 |
| Data Rate | 600 – 460800 bps |
| Signals | A and B |
| Connector | Pluggable screw terminal |
| Protection | IEC 61000-4-2 level 4: – 15 kV (air discharge) – 8 kV (contact discharge) Fail-safe receiver for bus open, short and idle |
| Ethernet | |
| Port number | 1 |
| Type | 10/100M port |
| PoE | PoE (spare pare on one connector) |
| Ethernet connector | RJ45 with LED indicators |
| PoE | Spare pare on ETH-1 (8-36V) |

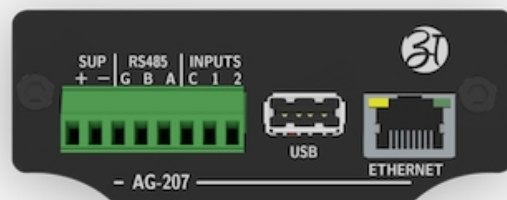
| Description | Specification |
|--------------------------------------|--|
| WiFi | |
| WiFi type | 2.4GHz |
| WiFi standard | IEEE 802.11/a/b/g/n, Access Points |
| Antenna connector | SMA female |
| LTE/GSM Interface¹ | |
| Band | Please refer table of cellular network |
| SIM card | microSIM |
| | 3V/1.8V |
| Antenna connector | SMA female |
| GNSS² | |
| GNSS systems | GPS, BDS, Galileo, GLONASS, QZSS |
| Antenna connector | SMA female |
| Digital Inputs | |
| Input number | 2 |
| Input type | Opto-isolated 2.5kV |
| Configuration | Common IN-GND |
| Connector | Pluggable screw terminal |
| Max V_{in} | 30V DC |
| Logic 1 Voltage | 3.5V to max V_{in} |
| System Functions Indicators | |
| Indicators | ACT – activity |
| | Custom use |
| | Cellular |
| | WiFi |
| | IN-1 and IN-2 |
| System | |
| Operating systems | OpenWRT 23.05, Kernel 5.15.71, Atreyo Environment V1.01.02 |
| Bootling source | Flash memory |
| Power Supply | |
| Power supply | 8-36V DC |
| Power consumption | 1.6W (24V without cellular on) |
| Connector | Pluggable screw terminal |
| PoE | Passive PoE over spare pairs. Not compatible with IEEE802.3af, 802.3at and 802.3bt standards |
| Protection | Reverse polarity, over voltage |
| Physical Characteristics | |
| Installation | DIN-Rail, clamp |
| Housing | Aluminium |
| Weight | 215g |
| Dimensions | 88mm x 65mm x 35mm |
| Environmental Specification | |

¹ Apply to LT models. Refer model selection chart. LTE/GSM Bands are mentioned for in Cellular table section on page 3 and 4.

² Apply to LT models. Refer ordering chart.

| Description | Specification |
|------------------------|---------------------------|
| Operating temp. | -20 ~ 65°C (-4 ~ 149°F) |
| Storage temp. | -40 ~ 85°C (-40 ~ 185°F) |
| Ambient RH | 5% ~ 95% (non-condensing) |

Gateway



Cellular modem specification of IN (India) version

| IN version of gateway | | Cellular network modem details | |
|-----------------------|---------------------------|--------------------------------|--|
| Band LTE FTD | B1/ 3/ 5/ 8 | | |
| Band LTE TDD | B34/ 38/ 39/ 40/ 41 | | |
| Band GSM | B3/ 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) | |
| | GPRS | 85.6 kbps (DL)/ 85.6 kbps (UL) | |

Cellular modem specification of EU (Europe and India) version

| EU version of gateway | Cellular network modem 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 modem 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) |

Standard model list

| Model | Hardware Options | | | GNSS | More information |
|--------------|------------------|----|-----|------|------------------------|
| | Cellular Network | | | | |
| AG-207 | GPRS | 3G | LTE | | |
| AG-207 | | | | | Without cellular modem |
| AG-207-LT-IN | ✓ | | ✓ | ✓ | Model for India |
| AG-207-LT-EU | ✓ | | ✓ | ✓ | Model for India and EU |
| AG-207-LT-GL | ✓ | ✓ | ✓ | ✓ | Global model |

Table with model structure for ordering

| Model Structure | | |
|---|--|---------------|
| Model structure example | | AG-207- LT-EU |
| Base model name | | |
| AG-207 | | |
| Cellular communication modem | | |
| LT (cellular communication modem present) | | |
| LTE/GSM module regional information | | |
| IN (cellular modem for India) | | |
| EU (cellular modem for India and Europe) | | |
| GL (global cellular modem) | | |

**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