

Edge Gateway 500 Series

Version:
v1.2

Date:
30.09.2024



Contents

1	Copyright	2
2	Regulatory Compliances	3
2.1	CE and UKCA Notice	3
2.2	FCC PART 15 VERIFICATION STATEMENT	4
2.3	ICES-003 ISSUE 7 VERIFICATION STATEMENT	4
3	Safety Instructions	5
4	Product Specifications	6
4.1	Technical Details	7
5	Dimensions	8
5.1	System Drawings	9
6	Power Supply	10
7	Power Consumption	11
8	Interfaces and Connections	12
8.1	EG 503L	13
8.2	EG 503W	15
9	Radio Modules (Relevant for EG503L Models)	16
9.1	Radio Frequencies	16

1 Copyright

Copyright and Trademarks, 2024 Publishing. All Rights Reserved

This manual, software and firmware described in it are copyrighted by their respective owners and protected under the laws of the Universal Copyright Convention. You may not reproduce, transmit, transcribe, store in a retrieval system, or translate into any language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, biological, molecular, manual, or otherwise, any part of this publication without the express written permission of the publisher.

All products and trade names described within are mentioned for identification purpose only. No affiliation with or endorsement of the manufacturer is made or implied. Product names and brands appearing in this manual are registered trademarks of their respective companies. The information published herein has been checked for accuracy as of publishing time. No representation or warranties regarding the fitness of this document for any use are made or implied by the publisher.

We reserve the right to revise this document or make changes in the specifications of the product described therein at any time without notice and without obligation to notify any person of such revision or change.

2 Regulatory Compliances

2.1 CE and UKCA Notice

This device complies with the requirements of the CE directive and UKCA regulations.

Low Voltage Directive 2014/35/EU + Electrical Equipment Safety Regulations 2016 (SI 2016 No 1101)

- EN 62368-1:2014

EMC Directive 2014/30/EU + Electromagnetic Compatibility Regulations 2016

- BS EN 50121-4:2016+A1:2019
- BS EN 61000-6-4:2014
- BS EN 61000-4-2:2009
- BS EN IEC 61000-4-3:2020
- BS EN 61000-4-4:2012
- BS EN 61000-4-5:2014+A1:2017
- BS EN 61000-4-6:2014
- BS EN 61000-4-8:2010
- EN 50121-4:2016+A1:2019/IEC 62236-4:2018
- EN 61000-6-4:2007+A1:2011/IEC 61000-6-4:2010
- EN 61000-4-2:2009 and IEC 61000-4-2:2008
- EN IEC 61000-4-3:2020 and IEC 61000-4-3:2020
- EN 61000-4-4:2012 and IEC 61000-4-4:2012
- EN 61000-4-5:2014+A1:2017 and IEC 61000-4-5:2014+A1:2017
- EN 61000-4-6:2014+AC:2015 and IEC 61000-4-6:2013
- EN 61000-4-8:2010 and IEC 61000-4-8:2010 and IEC 61000-4-8:2009
- EN 55032:2015+AC: 2016
- EN 55035:2017
- EN 61000-3-2:2014
- EN 61000-3-3:2013
- EN 61000-4-3:2006+A1
- EN 61000-4-11:2004+A1:2017

RoHS 2 Directive 2011/65/EU & 2015/863/EU + RoHS 2 Directive 2020 No. 1647

- RoHS 2 Directive 2011/65/EU & 2015/863/EU
 - Exemption(s) used:
 - * 6a, 6b, 6c
- RoHS 2 Directive 2020 No. 1647
 - Exemption(s) used:



2.2 FCC PART 15 VERIFICATION STATEMENT

WARNING

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Notice: The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

May Contain transmitter module:

- XMR2021EM05G

2.3 ICES-003 ISSUE 7 VERIFICATION STATEMENT

CAN ICES3(A)/NMB3(A)

This device complies with CAN ICES-003 Issue 7 Class A. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Cet appareil est conforme à la norme CAN ICES-003 Issue 7 Class A. Le fonctionnement est soumis aux deux conditions suivantes : (1) cet appareil ne doit pas causer d'interférences nuisibles et (2) cet appareil doit accepter toute interférence reçue, y compris les interférences pouvant opération indésirable.

May Contain transmitter module:

- 10224A-2021EM05G

3 Safety Instructions

Please read these instructions carefully and retain them for future reference.

1. Disconnect this equipment from the power outlet before cleaning. Do not use liquid or sprayed detergent for cleaning. Use a moist cloth or sheet.
2. Keep this equipment away from humidity.
3. Ensure the power cord is positioned to prevent tripping hazards and do not place anything on top of it.
4. Pay attention to all cautions and warnings on the equipment.
5. If the equipment is not used for an extended period, disconnect it from the main power to avoid damage from transient over-voltage.
6. **Prolonged usage with less than 12V may damage the PSU or destroy the mainboard.**
7. Never pour any liquid into openings as this could cause fire or electrical shock.
8. Have the equipment checked by service personnel if:
 - The power cord or plug is damaged.
 - Liquid has penetrated the equipment.
 - The equipment has been exposed to moisture in a condensation environment.
 - The equipment does not function properly, or you cannot get it to work by following the user manual.
 - The equipment has been dropped and damaged.
9. Do not leave this equipment in an unconditioned environment, with storage temperatures below -20 degrees or above 60 degrees Celsius for extended periods, as this may damage the equipment.
10. Unplug the power cord when performing any service or adding optional kits.
11. Lithium Battery Caution:
 - Risk of explosion if the battery is replaced incorrectly. Replace only with the original or an equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.
 - Do not remove the cover, and ensure no user-serviceable components are inside. Take the unit to a service center for service and repair.

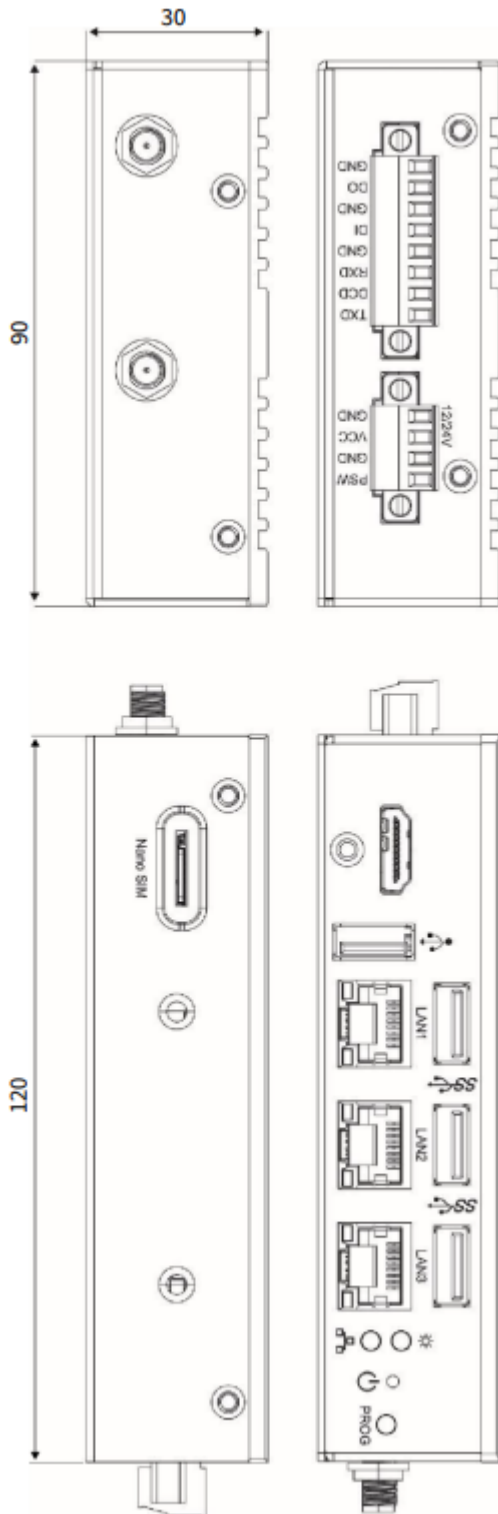
4 Product Specifications

4.1 Technical Details

Feature	Specification	EG503 (4GB RAM)	EG503 (Standard)
Processor	CPU	Intel® Atom™ x5-E3930	Intel® Atom™ x5-E3940
Memory	RAM	4 GB LP-DDR4	8 GB LP-DDR4
Storage Options	Free Storage	100 GB	100 GB
Security	TPM	TPM 2.0 with TrEE 1.1	TPM 2.0 with TrEE 1.1
I/O Ports	HDMI	-	1
	Gigabit Ethernet	3x RJ45	3x RJ45
	USB 3.0	1	3
	USB 2.0	-	1
	Serial Ports	-	1 RS232 (RS485 optional) (TX/RX only)
	DIO	-	1 DI, 12-24V 1 DO, 12-24V, max. 2 A, output voltage defined by DC input
Connectivity	LTE (EG503L only)	4G	4G
Expansion	SIM Slot	1 push-push Type Nano-SIM Slot	1 push-push Type Nano-SIM Slot
Additional	Watchdog Timer	System Reset, Programmable via Software from 1 to 255 Seconds	System Reset, Programmable via Software from 1 to 255 Seconds
Environmental	Operating Temperature	-20° to 60° C	-20° to 60° C
	Storage Temperature	-20° to 80° C	-20° to 80° C
	Humidity	5% to 95% non-condensing	5% to 95% non-condensing
Power	Supply	12 - 24 V DC (+/-10 % tolerance)	12 - 24 V DC (+/-10 % tolerance)
	Connector	Terminal block	Terminal block
Mounting	Options	DIN-Rail	DIN-Rail
Operating System	Compatibility	Welotec egOS	Welotec egOS
Physical Build	Material/Color	Steel / Aluminum	Steel / Aluminum
	Ingress Protection	IP20	IP20
	Dimensions	130 x 90 x 30 mm	130 x 90 x 30 mm
	Weight	500 g	500 g

5 Dimensions

5.1 System Drawings



6 Power Supply



Use the terminal block to connect the Edge Gateway to a 12-24V DC power source.

Pin	Description
Pin 0 – PSW	External power switch
Pin 1 – GND	Ground
Pin 2 – VCC	V+ 12-24V
Pin 3 – GND	Ground

7 Power Consumption

Item	Specification
CPU	Intel Atom® x5-E3940 Processor
RAM	LP-DDR4 8GB 2133MHz
Operating System	Windows 10 IoT 2021 LTSC
Test Program	3DMark06
Storage	128GB M.2 NVMe

Note: The following results are for reference only.

Voltage	Power Off	Startup Max	Startup Stable	Stable	EG503W Max	Burn-in	EG503L Max	Burn-in	Shut-down
12V	0.14A	0.95A	0.62A		1.10A		1.50A		0.82A
24V	0.09A	0.50A	0.32A		0.57A		0.77A		0.42A

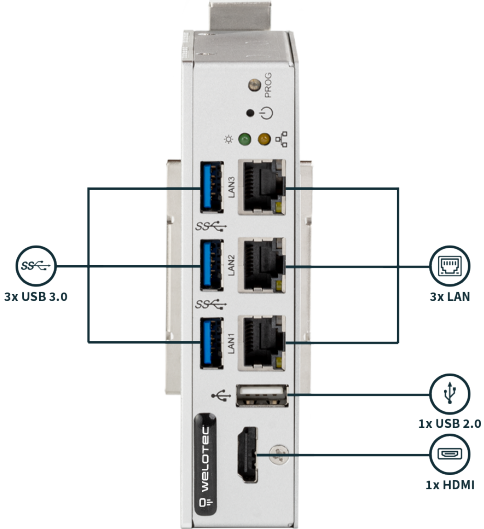
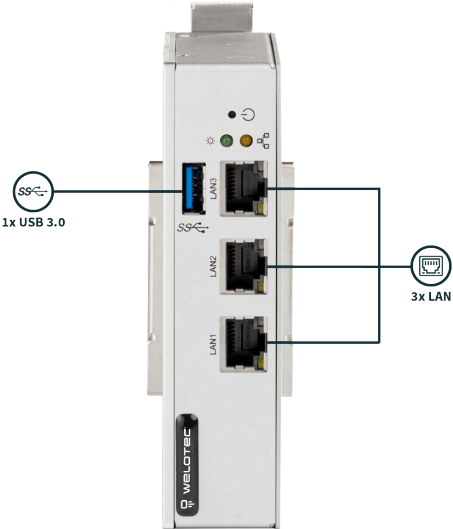


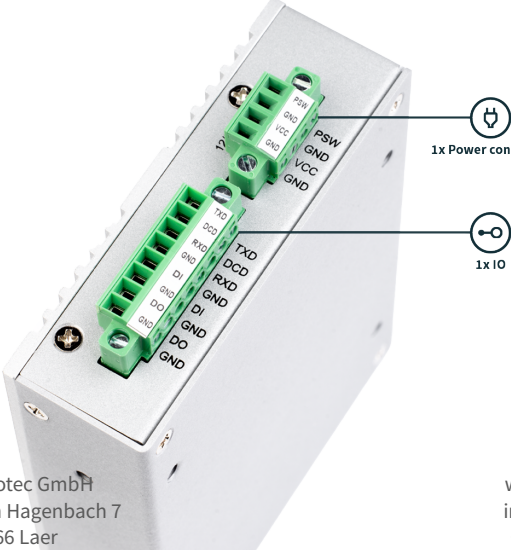

Note: Power consumption varies based on configuration and software usage.

8 Interfaces and Connections

8.1 EG 503L

EG 503L 8GB	EG 503L 4GB
<p>2x Antenna Connectors</p> <p>3x USB 3.0</p> <p>3x LAN</p> <p>1x USB 2.0</p> <p>1x HDMI</p>	<p>2x Antenna Connectors</p> <p>1x USB 3.0</p> <p>3x LAN</p>
<p>2x Antenna Connectors</p> <p>Diversity</p> <p>Main</p>	<p>2x Antenna Connectors</p> <p>Diversity</p> <p>Main</p>
<p>1x Power connector</p> <p>1x IO</p>	<p>1x Power connector</p>

8.2 EG 503W

EG 503W 8GB	EG 503W 4GB
 <p>3x USB 3.0</p> <p>3x LAN</p> <p>1x USB 2.0</p> <p>1x HDMI</p>	 <p>1x USB 3.0</p> <p>3x LAN</p>
	
 <p>1x Power connector</p> <p>1x IO</p>	 <p>1x Power connector</p>

9 Radio Modules (Relevant for EG503L Models)

The EG503L may contain the following RF Module:

- Quectel EM05-G

LTE:

Quectel EM05-G	Supported Bands
LTE	FDD B1/ B2/ B3/ B4/ B5/ B7/B8/ B12/B13/B14/ B18/ B19/B20/ B25/ B26/ B28/B66/B71TDD B38/ B39/ B40/ B41
WCDMA	B1/ B2/ B4/ B5/ B6/ B8/ B19

9.1 Radio Frequencies

9.1.1 4G LTE Europe

Band	Frequency Range Down	Frequency Range Up	Max Transmission Power
Band 1	2110 MHz - 2170 MHz	1920 MHz - 1980 MHz	199 mW
Band 3	1805 MHz - 1880 MHz	1710 MHz - 1785 MHz	199 mW
Band 7	2620 MHz - 2690 MHz	2500 MHz - 2570 MHz	199 mW
Band 8	925 MHz - 960 MHz	880 MHz - 915 MHz	199 mW
Band 20	791 MHz - 821 MHz	832 MHz - 862 MHz	199 mW
Band 28	758 MHz - 803 MHz	703 MHz - 748 MHz	199 mW
Band 38	2570 MHz - 2620 MHz	2570 MHz - 2620 MHz	199 mW
Band 41	2496 MHz - 2690 MHz	2496 MHz - 2690 MHz	199 mW

9.1.2 3G UMTS Europe

Band	Frequency Range Down	Frequency Range Up	Max Transmission Power
Band 1	2110 MHz - 2170 MHz	1920 MHz - 1980 MHz	251 mW
Band 8	925 MHz - 960 MHz	880 MHz - 915 MHz	251 mW

Notes

- **Down:** Refers to the downlink frequency range.
- **Up:** Refers to the uplink frequency range.
- **Max Transmission Power:** Maximum power at which the device transmits.