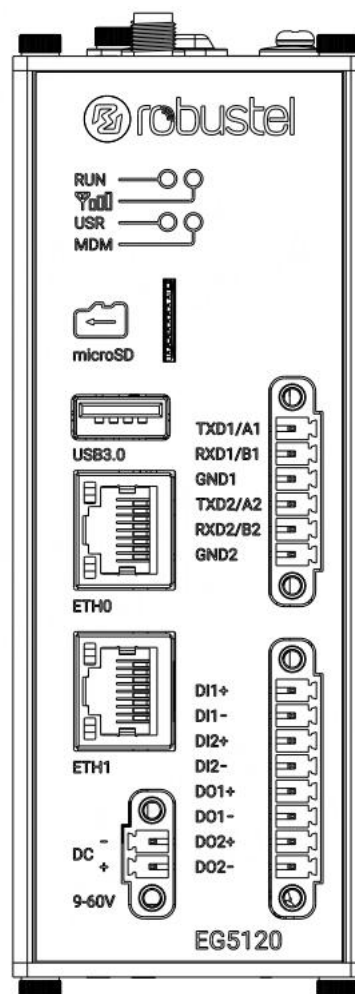


EG5120

Hardware Manual



Version: 1.0.0

Date: July 6, 2022

Table 1: Toxic or Hazardous Substances or Elements with Defined Concentration Limits

Name of the Part	Hazardous Substances									
	(Pb)	(Hg)	(Cd)	(Cr(VI))	(PBB)	(PBDE)	(DEHP)	(BBP)	(DBP)	(DIBP)
Metal parts	o	o	o	o	-	-	-	-	-	-
Circuit modules	o	o	o	o	o	o	o	o	o	o
Cables and cable assemblies	o	o	o	o	o	o	o	o	o	o
Plastic and polymeric parts	o	o	o	o	o	o	o	o	o	o
o: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in RoHS2.0. X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials for this part <i>might exceed</i> the limit requirement in RoHS2.0. -: Indicates that it does not contain the toxic or hazardous substance.										

Radio Specifications

RF technologies	2G, 3G, 4G, 5G, GNSS, WiFi, BLE
2G Frequency	GSM: B2/B3/B5/B8
3G Frequency	WCDMA: B1/B2/B4/B5/B6/B8/B19
4G Frequency	LTE FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71 LTE TDD: B34/B38/B39/B40/B41/B42/B43/B48 LAA: B46 (only supports 2 x 2 MIMO)
5G Frequency	NR SA/NSA: n1/n2/n3/n5/n7/n8/n12/n13/n14/n20/n25/n26/n28/n29/n30/n38/n40/n41/n48/n66/n71/ n75/n76/n77/n78/n79
WiFi Frequency	2.4 GHz: 2.412 ~ 2.484 GHz 5 GHz: 4.915 ~ 5.925 GHz
BLE Frequency	2402 ~ 2480 MHz
Max RF power	35 dBm@2G, 25 dBm@3G, 27 dBm@4G, 27 dBm@5G, 18.5dBm@WiFi, 4 dBm@BLE

Simplified EU Declaration of Conformity

We, Guangzhou Robustel Co., Ltd. are located at 501, Building #2, 63 Yongan Road, Huangpu District, Guangzhou, China, declare that this radio equipment complies with all applicable EU directives. The full text of the EU DoC is available at the following internet address:

www.robustel.com/certifications/

FCC Declaration of Conformity

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.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

IC Declaration of Conformity

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

L' émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d' Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L' exploitation est autorisée aux deux conditions suivantes :

- (1) L' appareil ne doit pas produire de brouillage;
- (2) L' appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d' en compromettre le fonctionnement.

Radio Frequency Exposure Statement for IC

This device complies with IC exposure limits set forth for an uncontrolled environment. This device shall be installed and operated with minimum distance 20cm between the radiator & body.

Cet équipement est conforme aux limites d'exposition IC définies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec une distance minimale de 20 cm entre le radiateur et la carrosserie.

Related download link

Find more product documents or tools at:

www.robustel.com/en/documentations/

Technical Support

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Web: www.robustel.com



Document History

Updates between document versions are cumulative. Therefore, the latest document version contains all updates made to previous versions.

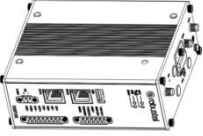
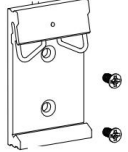
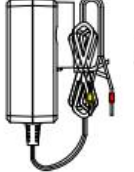
Date	Firmware Version	Document Version	Change Description
July 6, 2022	2.0.0	1.0.0	Initial release.

Overview

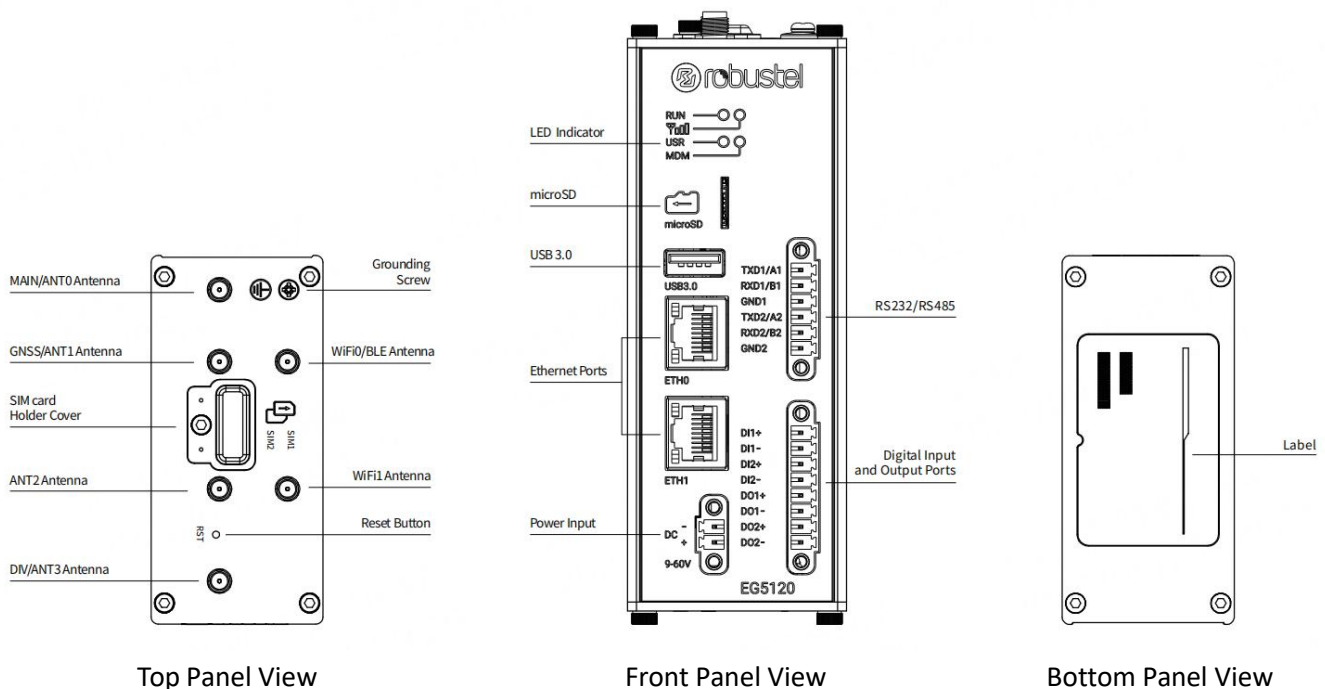
EG5120 is a new generation of industrial edge computing gateway, supporting global 5G/4G/3G/2G networks for cellular backhaul, with a fully-fledged Debian 11(bullseye) based operating system able to support thousands of existing or new ARMv8 (Raspberry Pi compatible) based applications.

Package Checklist

Before commencing installation ensure your package has the following components:

Device	2PIN Terminal Block	6PIN Terminal Block	8PIN Terminal Block	DIN Rail Kit
				
RCMS Card	Quick Start Guide Card	Cellular Antenna (Optional)	Power Supply (Optional)	WiFi Antenna (Optional)
				

Panel Layout(May vary on different models)



Interface Descriptions

1. **Serial Ports.** Two software configurable serial ports, could be configured as RS232 or RS485.

Name	RS232 Mode	RS485 Mode
TXD1/A1	data sending	RS485_A
RXD1/B1	data receiving	RS485_B
GND1	Ground	Ground
TXD2/A2	data sending	RS485_A
RXD2/B2	data receiving	RS485_B
GND2	Ground	Ground

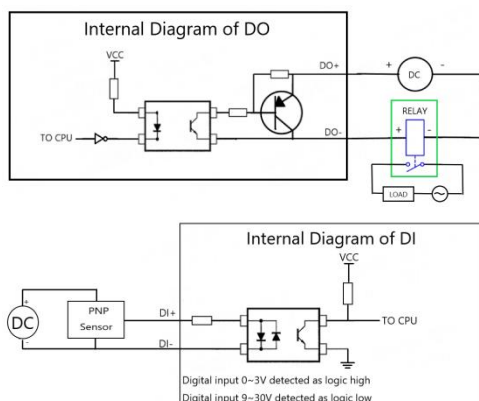
2. **Ethernet Ports.** Two Ethernet ports, both of them could be configured as WAN or LAN.

LED	Description	
Activity	On, blinking	Transmitting data
	Off	No activity
Link	Off	Link off
	On	Link on

3. **Reset Button.**

Press and Release	RUN LED	Action
Hold less than 3 seconds	On then blink regularly	Reset
Hold more than 3 seconds but less than 10 seconds	Blink regularly -> blink rapidly	Restore to factory setting and reboot
Hold more than 10 seconds	Solid on for 5 seconds then blink regularly	Do nothing

4. **Digital Input and Output Ports.** Two sets of digital inputs and two sets of digital outputs. Some applications for reference are as below:



Note: The external power supply DC voltage range is 5V~30V, 0.1A max.

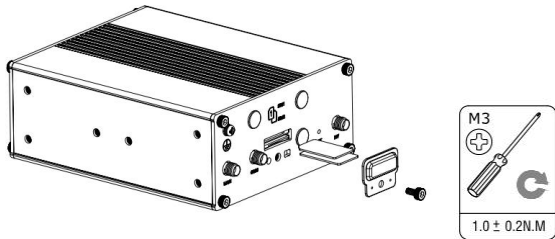
5. **LED Indicators.**

LED	Description	
RUN	On, solid	Gateway system is initializing
	On, blinking	Gateway starts operating
	Off	Gateway is powered off
<i>Note: The RUN LED's color is green</i>		
MDM	Color	With 4G Module: 2G: Red, 3G: Yellow, 4G: Green With 5G Module: 3G: Red, 4G: Yellow, 5G: Green
	On, blinking	Link connection is working
	Off	Link connection is not working
	Green	Strong signal
	Yellow	Medium signal
	Red	Weak or no signal
<i>Note: The USR LED is defined by user via web UI to specify different status, the details see the following sheet.</i>		

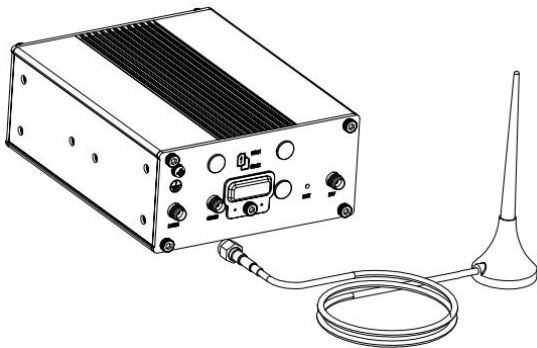
USR	Description	
None	Off	No definition
Net	On, solid	With 4G Module: Connection to the 4G network is established With 5G Module: Connection to the 5G network is established
	On, blinking	With 4G Module: Connection to the 2G or 3G network is established With 5G Module: Connection to the 4G or 3G network is established
	Off	No connection
SIM	On, solid	Main card is being used
	On, blinking	Backup card is being used
IPsec	On, solid	IPsec connection is established
	Off	IPsec connection is not established
Open VPN	On, solid	OpenVPN connection is established
	Off	OpenVPN connection is not established
<i>Note: The USR LED's color is green.</i>		

Hardware Installation

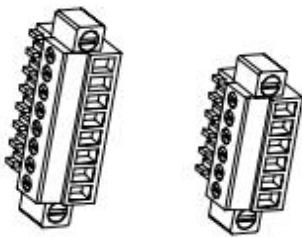
1. **SIM Card Installation.** Remove the SIM card cover to insert the SIM cards into the device, then screw up the cover.



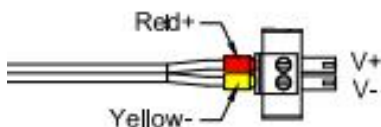
2. **Antenna Installation.** Rotate the antenna into the antenna connector accordingly.



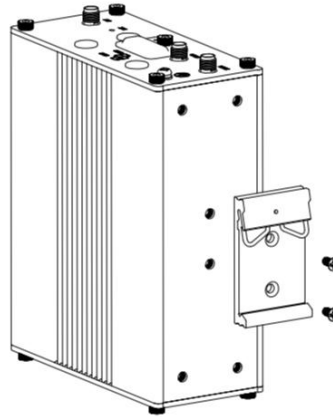
3. **Terminal Block Installation.** Insert the 6PIN and 8PIN terminal blocks into the interfaces connector, then can connect the devices or sensors to the gateway with wires via corresponding interfaces e.g. RS232/RS485, DDO...



4. **Power Supply installation.** Insert the power supply cord into the corresponding terminal block if needed, then insert the terminal block into the power connector.



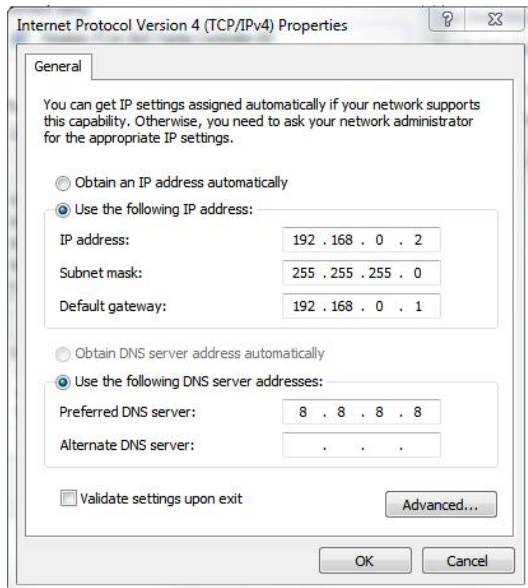
5. **DIN Rail Mounting.** Use 2 M3 screws to fix the DIN rail to the device, then hang the DIN rail on the mounting bracket.



6. **Grounding the Device.** Grounding will help to prevent the noise effect due to electromagnetic interference (EMI). Connect the device to the site ground wire by the grounding screw before powering on.

Login to the Device

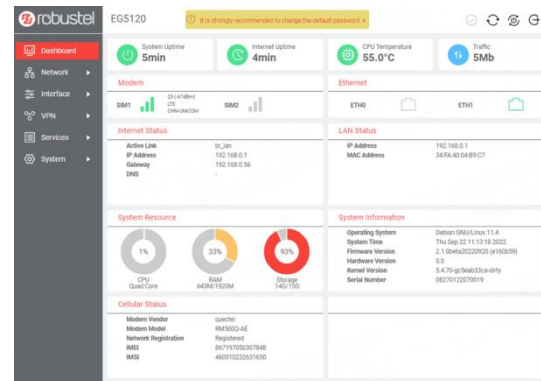
1. Connect the gateway's Ethernet port to a PC with a standard Ethernet cable.
2. Before logging in, manually configure the PC with a static IP address on the same subnet as the gateway address, click and configure "Use the following IP address".



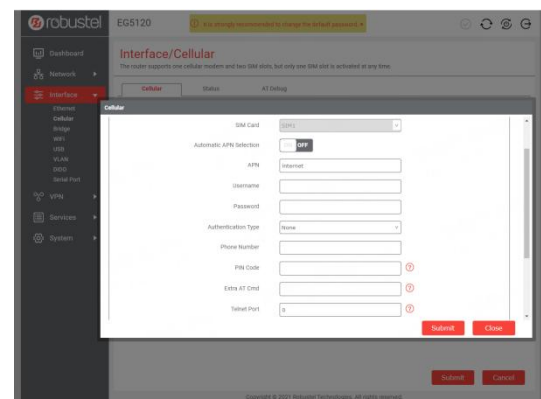
3. To enter the gateway's web interface, type <http://192.168.0.1> into the URL field of your Internet browser.
4. Use login information shown in the product label when prompted for authentication.



5. After logging in, the home page of the web interface is displayed, then you can view system information and perform configuration on the device.



6. The automatic APN selection is ON by default, if need to specify your own APN, please go to the menu **Interface->Cellular->Advanced Cellular Setting->General Settings** to finish the specific setting.



7. For more configuration details please refer to **RT104_SM_RobustOS Pro Software Manual**.
(END)