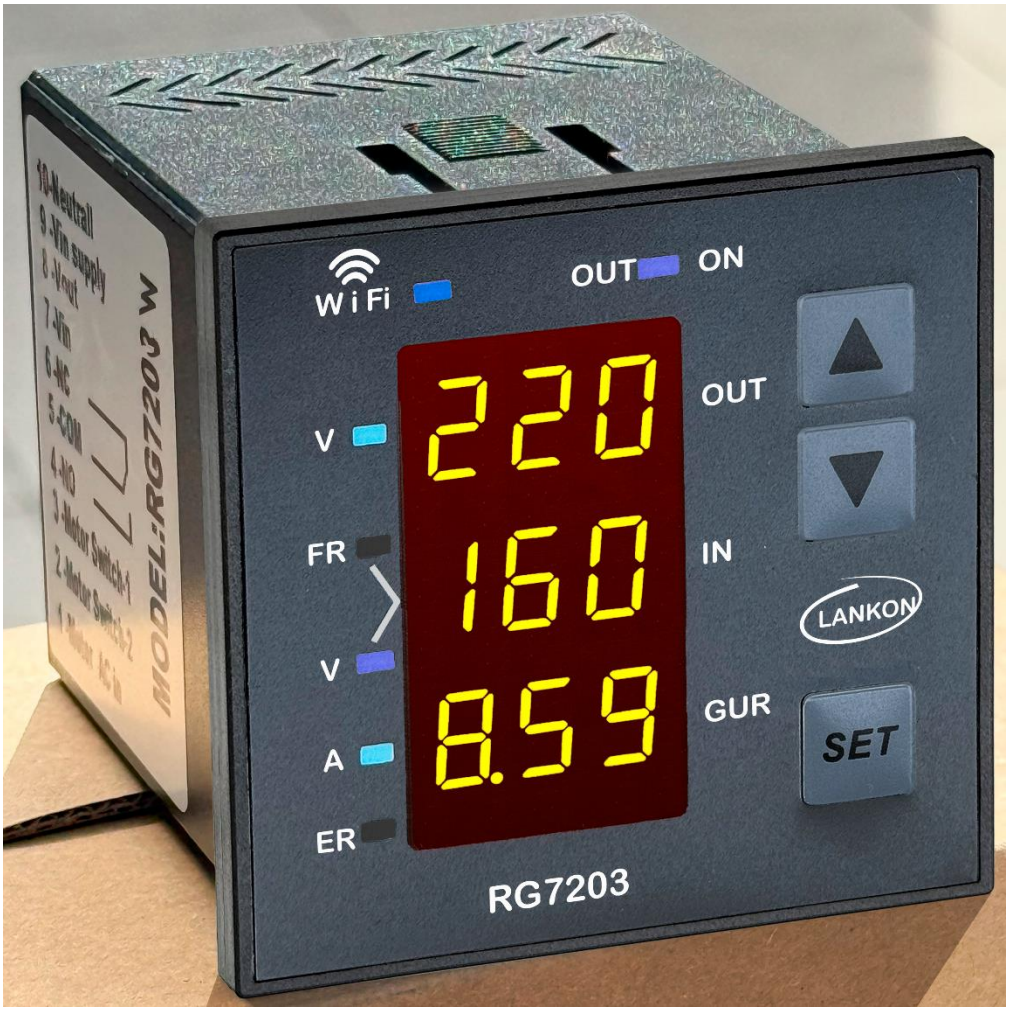
RG7203W Voltage Regulator Control Unit. VER. 27032025



Technical Instructions and User Manual.

---------- *General Information.* ----------

"RG7203W" is an embedded device designed for use in servo voltage regulators.

1. The regulator simultaneously displays the input voltage, output voltage, current value, and frequency on a 7-segment display.
2. It controls the DC motor to maintain a stable output voltage.
3. It protects the connected load from high/low voltage, high current, high/low frequency, and power interruptions.
4. It records the limits of all measured values, the reasons for shutdowns, and the number of occurrences.
5. Additionally, it allows for data monitoring via **WiFi**, emergency shutdown of the output voltage when necessary, forced activation, and deletion of records.

---------- *Menu Usage* ----------

*To enter the menu, briefly press the **«SET»** button. The upper display will show **"P.."**, and the lower display will show **"out"**. Use the **up/down** buttons to navigate through the menu parameters. To modify a parameter, press the **«SET»** button again when you reach the desired parameter. The upper display will flash **"P.."** along with the parameter number. Use the **up/down** buttons to change the value.*

To select another parameter, press the **«SET»** button again and use the **up/down** buttons to move to another parameter. To exit the menu, press the **«SET»** button when the upper display shows **"P.."** and the lower display shows **"out"**. If no button is pressed for **20 seconds**, the device will save the changes and return to the main screen.

---------- Menu Parameters ----------

Page	Description	On the screen
0	**Entering or Exiting the Menu**	***Pr 0*** ***out***
P.01	**Desired Output Voltage of the Regulator** **Factory Setting:** 220 V **Adjustment Range:** 1 V ... 300 V	***P.0 1*** ***2 2 0***
P.02	**Tolerance Value of the Regulator Output Voltage** **Factory Setting:** 3 V **Adjustment Range:** 1 V ... 30 V	***P.0 2*** ***0 0 3***
P.03	**Upper Protection Voltage of the Regulator Output** When the output voltage exceeds **242+5 V**, the device releases its relay. **Factory Setting:** 242 V	***P.0 3*** ***2 4 2***

	Adjustment Range: 1 V ... 300 V	
P.04	**Lower Protection Voltage of the Regulator Output** When the output voltage falls below **198-10 V**, the device releases its relay. **Factory Setting:** 198 V **Adjustment Range:** 1 V ... 300 V	***P.0 4*** ***1 9 8***
P.05	**Protection Mode Activation Time** The delay time for releasing the relay after the output voltage exceeds the specified upper or lower protection voltage. (If the voltage returns to normal within this time, the device will not release the relay.) **Factory Setting:** 5 seconds **Adjustment Range:** 1 second ... 25 seconds	***P.0 5*** *0 0* ***5***
P.06	**Protection Mode Deactivation Time** When the output voltage is within the upper and lower protection voltage range, the device waits for this duration before re-engaging the output. **Factory Setting:** 5 seconds **Adjustment Range:** 1 second ... 25 seconds	***P.0 6*** *0 0* ***5***
P.07	**Startup Count** **Factory Setting:** 9 **Adjustment Range:** 0 ... 98 If the parameter is set to **0**, the microprocessor will not engage the relay even if the voltage returns to normal after power is restored. The relay will only be engaged when the middle button is pressed for **5 seconds**	***P.0 7*** *0 0* ***9***
P.08	**Current Transformer (CT) Value** **Value Range:** 5 ... 9000 If the value exceeds **999**, the display will show the **"H"** symbol (e.g., for 1000, it will show **"H1.0"**, and for 9000, it will show **"H9.0"**).	***P.0 8*** *0 0* ***75***
P.9	**Current Protection Value** **Value Range:** 0.01 ... 9000 If the value exceeds **999**, the display will show the **"H"** symbol.	***P.9*** ***45***
P.10	**Current Protection Delay Time** **Factory Setting:** 9 **Value Range:** 1 ... 999 seconds	***P.10*** *0* ***5***

P.11	**Upper Frequency Protection Value** **Value Range:** 47.1 – 99.9 Hz **Note:** This value cannot be lower than the value set in **P.12**.	***P.11*** ***63.0***
P.12	**Lower Frequency Protection Value** **Value Range:** 47.1 – 99.9 Hz **Note:** This value cannot be greater than the value set in **P.11**.	***P.12*** ***47.0***
P.13	**Menu Access Password** **Value Range:** 1-999 When the password is set to **773**, other menu parameters can be modified. Otherwise, if you attempt to change other parameters, the **P.13** value will automatically appear on the screen.	***P.13*** ***773***
P.14	**WiFi Module** **WiFi Inactive (Off):** 0 **WiFi Active (On):** 1	***P.14*** *0 0* ***1***
P.15	**Wi-Fi Connection Password** The last 3 digits of the 8-digit password can be changed via the menu. **Value Range:** 100 ... 999 The password consists of **8 digits**. The first 5 digits are fixed as **"12345"** at the factory. The last 3 digits are set by the user. **Factory Setting:** 678 If the password has not been changed, use **"12345678"** for the Wi-Fi connection. Afterward, you can connect by typing **"192.168.4.1"** into your browser's address bar and pressing **Enter**.	***P.15*** ***678***
P.16	**Screen refresh rate of data.** **Value range: 0 ... 99.** The lower the value, the faster the values on the screen are refreshed.	***P.15*** *0* ***19***
P.17	**Average Value of the Voltmeter Displaying Output Voltage** When this parameter is set to **1**, the voltmeter will display the **P.01** value at the output when the output voltage is within the range of **P.01 + P.02** and **P.01 - P.02**.	***P.15*** *000*
P.18	**Software Version** At the time this technical manual and user guide was written, the software version was **27**.	***P.14*** *0* ***27***

Error Handling During Device Operation

When errors occur while the device is operating, the device will cut off the voltage to the load and will not supply voltage to the load until the error is resolved. During this process, the error number will be displayed on the bottom screen. There are **8 different types of errors** that may occur.
Below, the error numbers and their causes are explained:
Errors encountered during use will be displayed on the bottom screen as **"Er1"** to **"Er8"**.

The errors that occur during use will be displayed at the bottom of the screen as "Er1" ... "Er8".

---------- **Errors and Solutions** . ----------

Errors and Solutions

Er1: Output voltage is lower than the output voltage protection value.
Solution: The input voltage is below the voltage correction lower limit. Check the input voltage.

Er2: Output voltage is higher than the output voltage protection value.
Solution: The input voltage is above the voltage correction upper limit. Check the input voltage.

Er3: The load current passing through the device exceeds the current protection value.
Solution: Reduce the load current passing through the device.

Er4: Frequency is higher than the upper frequency protection value.
Solution: Check the upper frequency protection value.

Er5: Frequency is lower than the lower frequency protection value.
Solution: Check the lower frequency protection value.

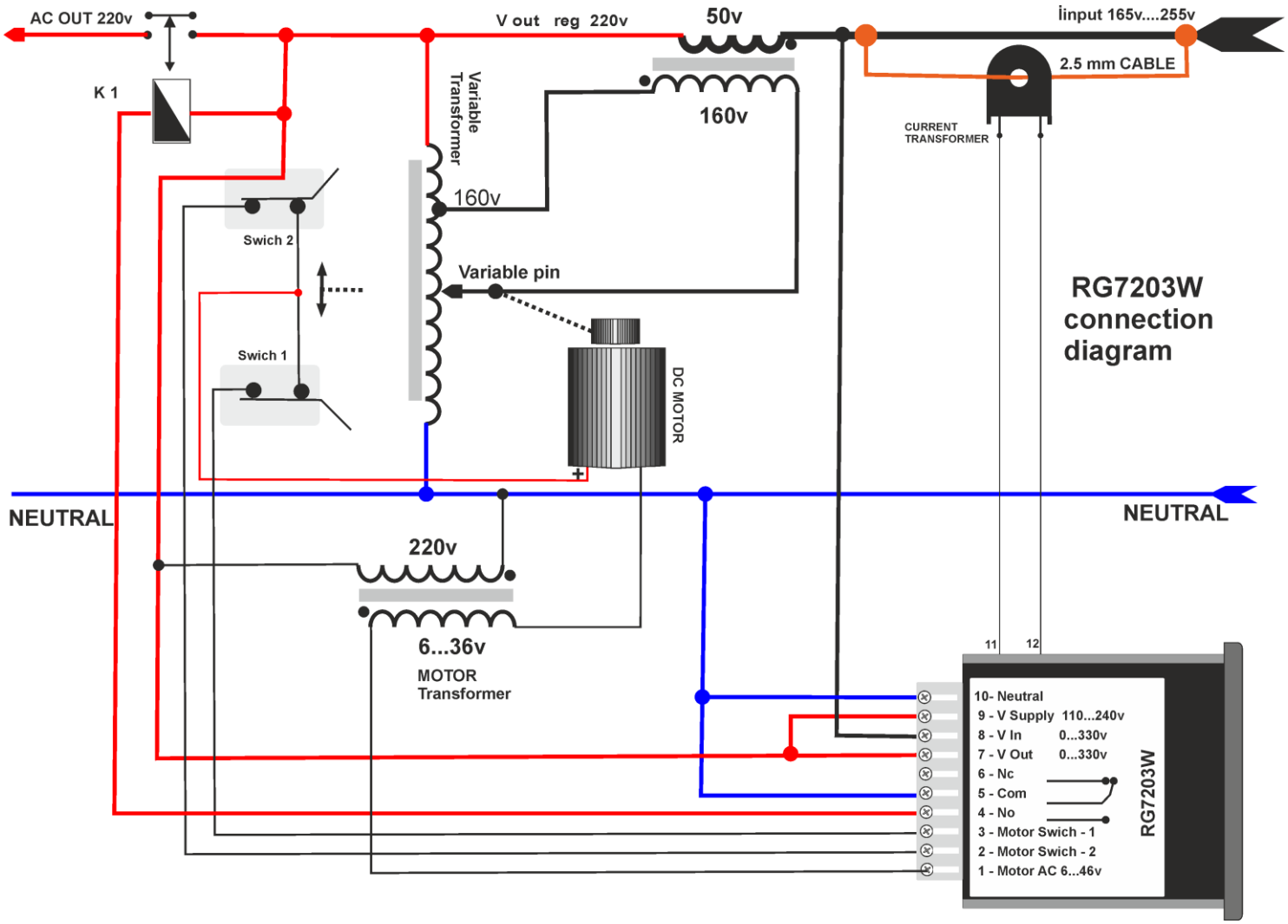
Er6: The number of restarts exceeds the allowed restart limit.
Solution: Check the number of restarts.

Er7: The current passing through the current transformer exceeds 5 amperes.
Solution:

- If an external current transformer is used, a higher-rated current transformer is required.
- The cable passing through the current transformer on the device is too thick.
- If a parallel cable is used for current measurement, choose a thinner cable to pass through the current transformer on the device.

Er8: The direction of the cable passing through the current transformer is reversed.
Solution: Change the direction of the cable passing through the current transformer.

----- **Common issues and solutions in manufacturing and usage.** ----------



Attention!!!

If a separate transformer is not used for the DC motor, it is essential and mandatory to isolate the motor from the chassis.

(THİS TEXT CONTAİNS AN İMPORTANT SAFETY WARNİNG. FAİLURE TO PROPERLY İSOLATE DC MOTORS MAY LEAD TO ELECTRİCAL İSSUES OR SAFETY RİSKS.)

Motor Reverse Rotation Issue

In this circuit, even though all components are identical, the motor may sometimes rotate in the reverse direction.

The actual reason for this is that the transformer's output voltage is connected with a 180-degree phase shift in the sine wave. This occurs due to the coil being wound in the opposite direction or the terminals being numbered incorrectly.

This issue can be resolved by switching either the input or output terminals of the transformer.

Frequent or Continuous Direction Change Issue in the Motor

This issue mostly occurs when the regulator output voltage is applied with a tolerance of less than 1% and when motorized loads cause voltage fluctuations.

The problem can be resolved by increasing the regulator output voltage tolerance to above 2%.

---------- " WiFi " ----------

Unlike All Similar Embedded Devices, the "RG7203W" Module Uses a "Wi-Fi" Communication Module

This feature allows the device to enable broader data monitoring, reset stored data, and control the load voltage (turning it off and on) directly through a web browser without needing any additional applications.

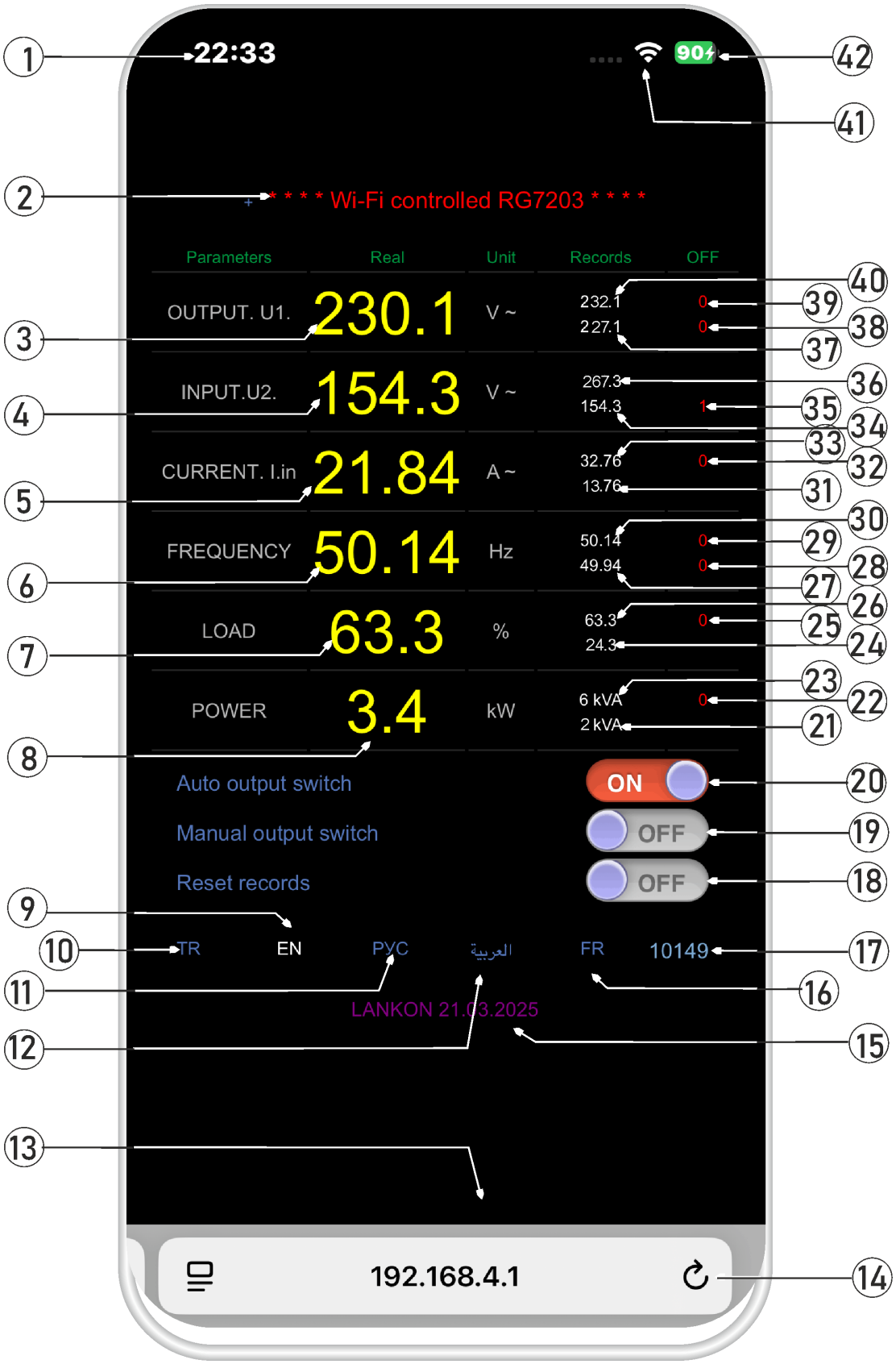
When leaving the factory, **Parameter 14 (P.14) is set to WiFi Active = 1 (On).**

Setting Up “RG7203W” Wi-Fi Connection on a Tablet, Computer, or Mobile Phone:

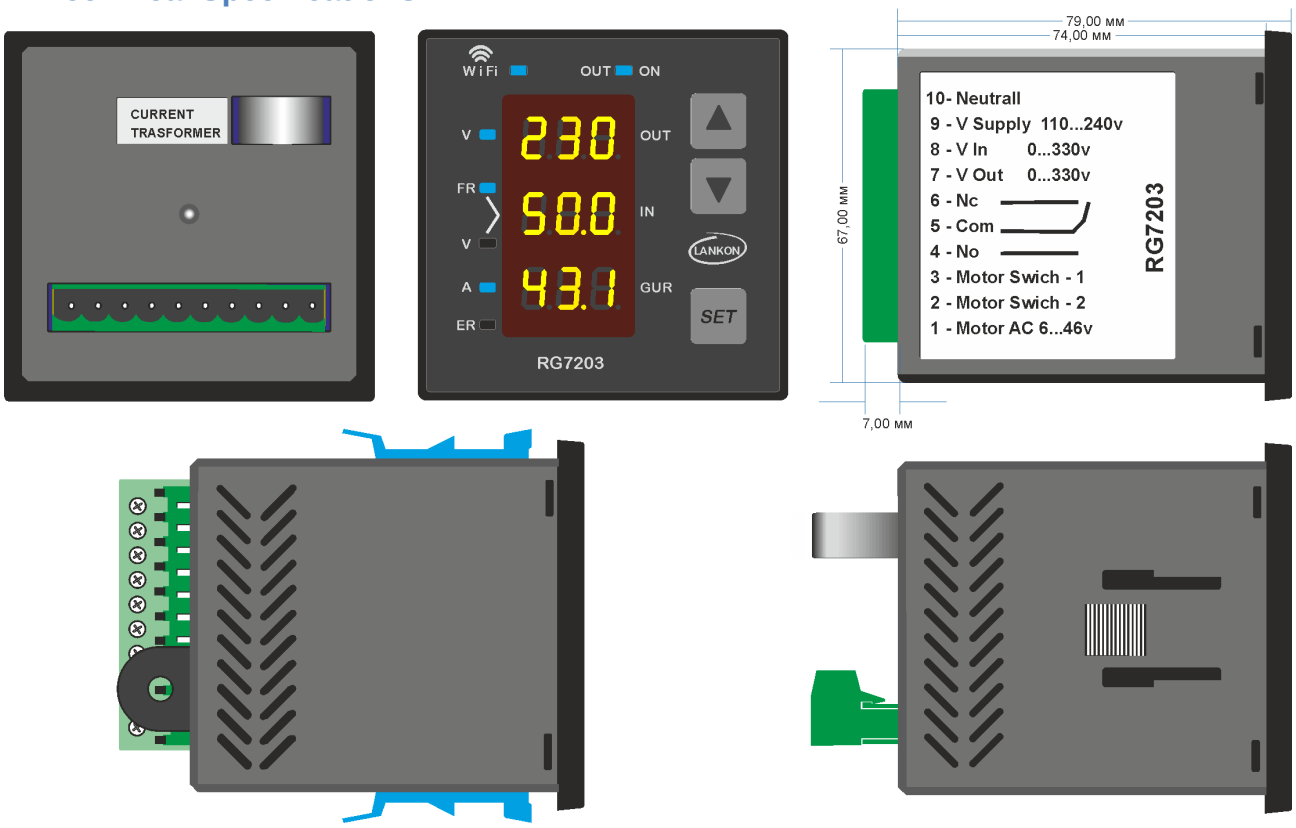
1. Go to **Settings > Wi-Fi** section.
2. A list of nearby Wi-Fi networks will be displayed.
3. Select **"RG7203_"** from the list and press **"Enter"**.
4. Wait for the Wi-Fi connection to establish successfully.
5. When prompted for a password, enter **"12345678"** and press **"Enter"**.
6. Open a web browser and type **"192.168.4.1"** into the address bar, then press **"Enter"** to access the **"RG7203W" Wi-Fi page**.

Explanation of Numbered Values on the "RG7203W" Wi-Fi Page

1. **Real-time:** The system's current time.
2. **Page title:** The name or title of the page.
3. **Actual output voltage value:** The real-time voltage measured at the output.
4. **Actual input voltage value:** The real-time voltage measured at the input.
5. **Actual current value:** The real-time current measured in the system.
6. **Actual frequency value:** The real-time frequency measured in the system.
7. **Loading percentage:** The real-time load percentage of the system.
8. **Load (in Watts):** The system load expressed in watts.
9. **English mode:** Button to switch the interface to English.
10. **Turkish mode:** Button to switch the interface to Turkish.
11. **Russian mode:** Button to switch the interface to Russian.
12. **Arabic mode:** Button to switch the interface to Arabic.
13. **Value to be entered in the browser’s address bar:** Special value used for searching.
14. **Page refresh icon:** Icon to refresh the page.
15. **Software version:** The software version of the system.
16. **French mode button:** Button to switch the interface to French.
17. **Incoming page number:** The page number currently displayed in the system.
18. **Reset records button:** Button to reset stored records.
19. **Manual output activation button:** Button to manually activate the output.
20. **Automatic output activation button:** Button to automatically activate the output.
21. **Minimum power (recorded in kVA):** The minimum power value recorded in the system.
22. **Shutdown count due to high load (recorded):** Number of times the system shut down due to high load.
23. **Maximum load (recorded in kVA):** The maximum load value recorded in the system.
24. **Minimum load percentage (recorded):** The minimum load percentage recorded in the system.
25. **Shutdown count due to high load (recorded):** Number of times the system shut down due to high load.
26. **Maximum load percentage (recorded):** The maximum load percentage recorded in the system.
27. **Lowest frequency (recorded):** The lowest frequency value recorded in the system.
28. **Shutdown count due to low frequency (recorded):** Number of times the system shut down due to low frequency.
29. **Shutdown count due to high frequency (recorded):** Number of times the system shut down due to high frequency.
30. **Highest frequency (recorded):** The highest frequency value recorded in the system.
31. **Lowest current (recorded):** The lowest current value recorded in the system.
32. **Shutdown count due to high current (recorded):** Number of times the system shut down due to high current.
33. **Highest current (recorded):** The highest current value recorded in the system.
34. **Lowest input voltage (recorded):** The lowest input voltage value recorded in the system.
35. **Power supply interruption count (recorded):** The number of times the power supply was interrupted.
36. **Highest input voltage (recorded):** The highest input voltage value recorded in the system.
37. **Lowest output voltage (recorded):** The lowest output voltage value recorded in the system.
38. **Shutdown count due to low voltage at output (recorded):** Number of times the output shut down due to low voltage.
39. **Shutdown count due to high voltage at output (recorded):** Number of times the output shut down due to high voltage.
40. **Highest output voltage (recorded):** The highest output voltage value recorded in the system.
41. **Phone Wi-Fi status:** The Wi-Fi connection status of the phone.
42. **Phone battery status:** The battery level of the phone.


22:33
90
* * * * Wi-Fi controlled RG7203 * * * *
Parameters
Real
Unit
Records
OFF
OUTPUT. U1.
230.1
V ~
232.1
227.1
INPUT.U2.
154.3
V ~
267.3
154.3
CURRENT. I.in
21.84
A ~
32.76
13.76
FREQUENCY
50.14
Hz
50.14
49.94
LOAD
63.3
%
63.3
24.3
POWER
3.4
kW
6 kVA
2 kVA
Auto output switch
ON
Manual output switch
OFF
Reset records
OFF
TR
EN
РУС
العربية
FR
10149
LANKON 21.03.2025
192.168.4.1

Technical Specifications



- **Operating Voltage (V Supply):** 110V…230V
- **Operating Frequency (Automatic):** 47…99Hz
- **Measurement Range:** 1V…300V (L-N)
- **Measurement Accuracy:** ±1%
- **Measurement Speed:** 50Hz - 20ms
- **Operating Power:** < 2VA
- **Relay Contact Rating:** 250V/5A AC (1250W)
- **AC Motor Power Supply:** 6…46V
- **Operating Temperature:** +55°C to -25°C
- **Connection Type (Pluggable Terminal Block):** 10 x 5.08 mm
- **Mounting:** Front panel mounting
- **Panel Cutout Dimensions:** 68 x 68 mm
- **Overall Dimensions:** 72 x 72 x 82 mm
- **Weight:** RG7203W - 0.190 kg

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