Inova-bg Ltd.

Radina Tau

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1. Main features

Radina Tau is a communication device with the main purpose to transmit data from security panels and/or sensors through UHF radio channel and/or IP based network. Combining the advantages of those two advanced communication technologies Radina Tau provides the most secure connection with monitoring center using various ways of back-up – 1 main and up to 4 back-up UHF radio frequencies and up to 2 IP servers.

IP Server LED
LAN Status
LAN Activity
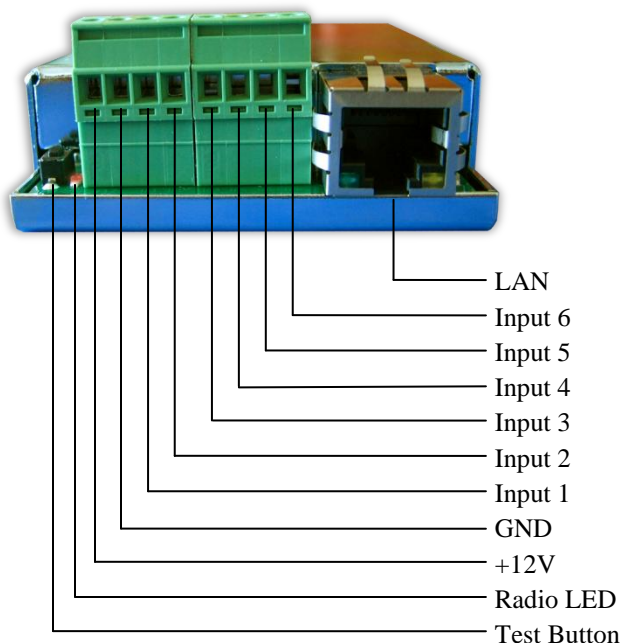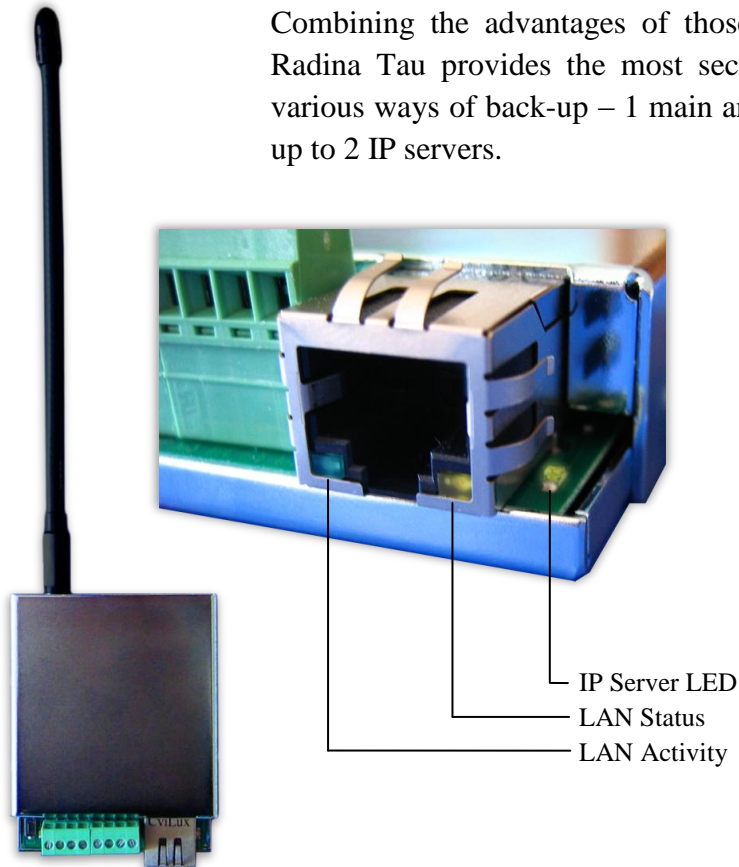
Features:

- Power supply 12VDC (8,5V to 16V)
- Low power consumption – 0,08A under normal operation and from 0,9 to 1,5A when transmitting through radio channel
- Frequency range – from 400MHz to 470MHz
- RF Output power – 5-6W in the whole RF range
- Bandwidth – 12,5KHz
- One main and up to four back-up frequencies
- Configurable parity check, RF messages repeat count, RF test repeat count, repeat count in a single message, test period and "repeat until restore" period
- Usage of a Smart Test to reduce radio transmitting
- Network interface - IEEE 802.3 Ethernet, Fully Compatible with 10/100/1000Base-T Networks
- Static or dynamic IP address compatible with DHCP server
- Capability to use one or two fully independent IP servers

LAN
Input 6
Input 5
Input 4
Input 3
Input 2
Input 1
GND
+12V
Radio LED
Test Button

- Encrypted connection with IP servers
- Verification with an unique ID code
- HTML server for easy configuration and status check, protected with an username and a password
- Capability to change the username and password of the html server
- Indication (4 LEDs) for:
  - Radio LED – blinks under normal operation, 'ON' when transmitting radio message, 'OFF' while waiting after transmission
  - LAN Status - Ethernet available
  - LAN Activity – Network packets service
  - IP Server LED – Established connection with IP server/s – when using 1 server - 'ON' when connection is established. When using 2 servers - 'ON' when connection is established with both servers, blinks if connection is established with only one server , 'OFF' when connection isn't established with both servers
- Six digital inputs working simultaneously with RF and IP transmitters
- Capability every digital input separately to be set to transmit on backup RF frequency
- Capability every digital input separately to be set to re-transmit RF message over a period of time until it is in alarm state
- Configurable working mode for every digital input:
  - Normal Open
  - Normal Close
  - Check for AC voltage from 5V to 20V
  - Deactivated
- Configurable parameters sent for events on each digital input to IP servers

Pout [W] = f (F)
RF Output power on different series
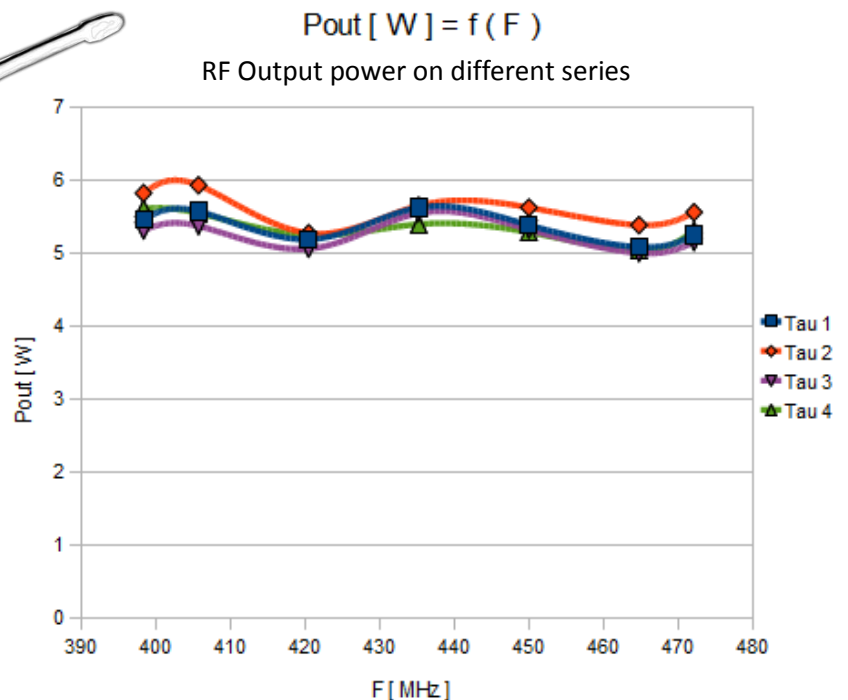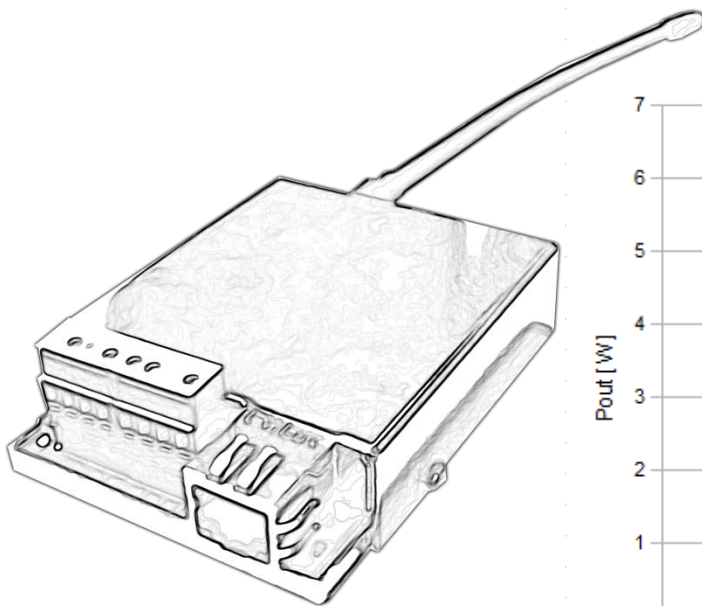
2.   Start working with Radina Tau

The default IP address is 192.168.1.230. Make sure that your computer is in the same IP subnet (see Chapter 9. **Windows Network configuration**). To access the web server for configuration use Internet Explorer (Chrome, Firefox, Opera or any other web browser) and enter the Radina Tau's address - **http://192.168.1.230/** (or the new one if you already change it). Alternatively you could write **http://radinatau**. If the device is accessible from that computer a connection will be established and you will be prompt to enter username and password:
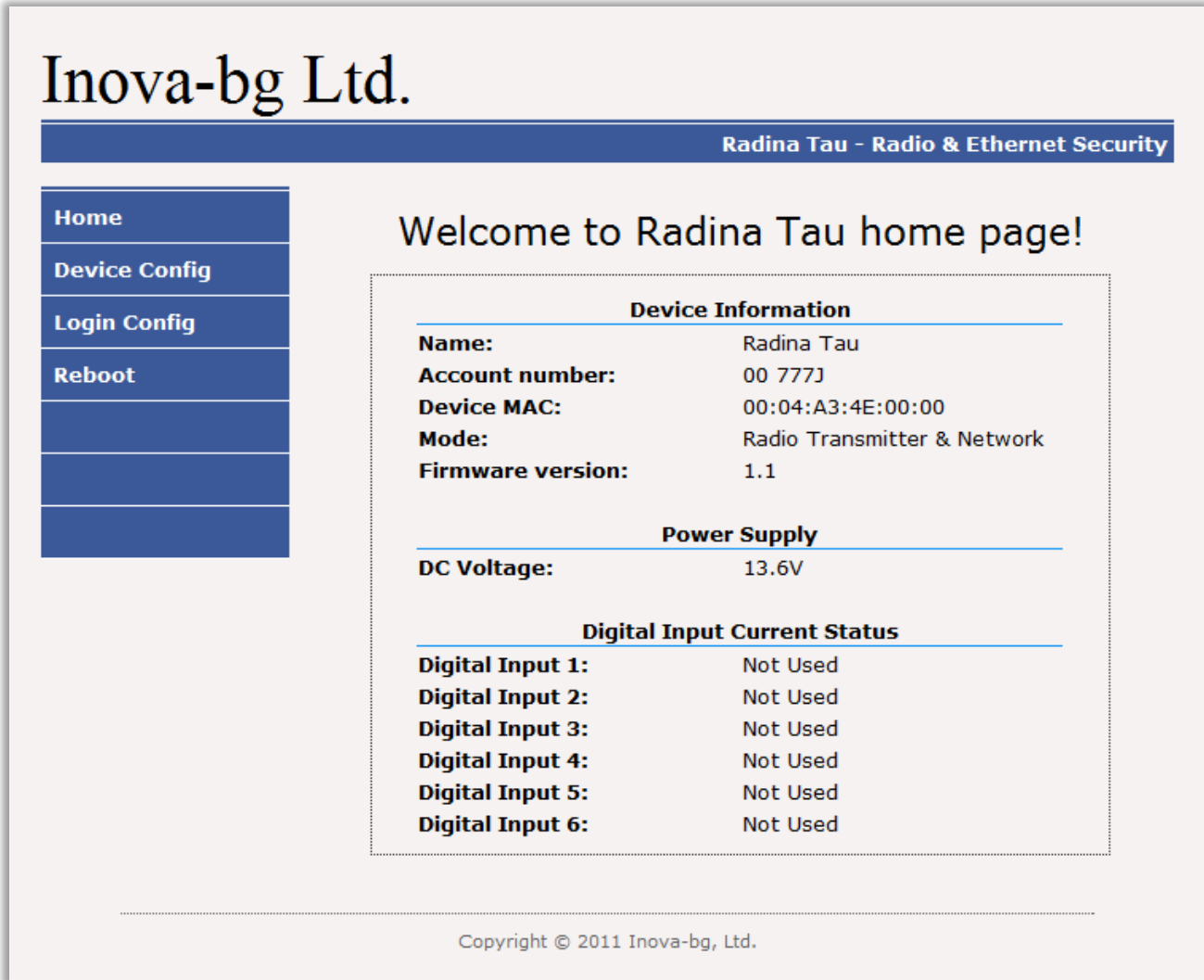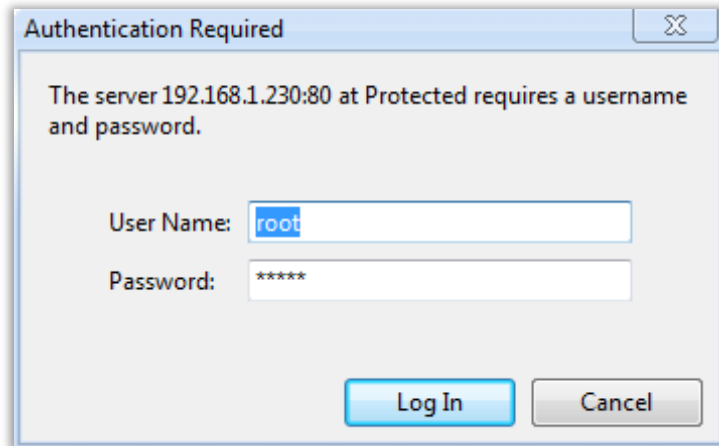

The default settings (which will be recovered after hardware reset) are:

IP Address:	192.168.1.230
Username:	root
Password:	admin

If you enter the right credentials you will have access to the web page for configuration.

3. Homepage

On the homepage you can find main information about the device, current status of the input voltage and the current state of each digital input. Through the menu you could select one of the following actions:

Home – Homepage

Device Config – Configuration of the main parameters

Login Config – Configuration of username and password for web-server access

Reboot – Restart the device

4. Configuration of the main parameters
4.1. General settings

Device Name – Enter the name of the device. This value is used only for user convenience – to identify devices if you have more than one connected to one network. Maximum length – 30 symbols.

Account Number – Used in radio and in network transmission. The first 3 symbols must be from 0 to 7. The last symbol must be from 0 to 9 or from A to J. In the monitoring software you can select how to use the last symbol – as a digit or as a letter.

Select working mode:
    Use Radio Transmitter & Network – Transmit data messages through radio and IP network simultaneously.
    Use Radio Only – Transmit data messages only through radio. Network communication is used only for configuration
    Use Network Only – Transmit data messages only through IP Network.

    If you choose **Use Radio Only,** IP settings are deactivated except the ones which are needed to access the web-server. If you choose **Use Network Only** radio settings will be deactivated.

4.2. Settings for the radio transmitter

Main Frequency – Main frequency for radio transmitting. Can be from 400 to 470 MHz with maximum of four symbols after the decimal point.

Backup Count – Number of used backups

Backup 1,2,3,4 – Backup frequencies for the radio transmitting. Can be from 400 to 470 MHz with maximum of four symbols after the decimal point. For each digital input you can choose whether to transmit or not on the backup frequencies.

System – System number.

Parity – Parity check – Odd or Even.

Use Smart Test – When activated test messages will be sent over a period of time, set by the field **Test Period**, and this time will be restarted after every transmitted message regardless if it's a test message or not. This option will reduce the number of test messages transmited through the radio channel. **Use this option only if your monitoring software supports it.**

Repeat Count – Determines how many times the data message will be transmitted through the radio channel. Must be from 1 to 15. Default – 6.

Repeat Test Count – Determines how many times the test message will be transmitted through the radio channel. Must be from 1 to 15. Default – 1
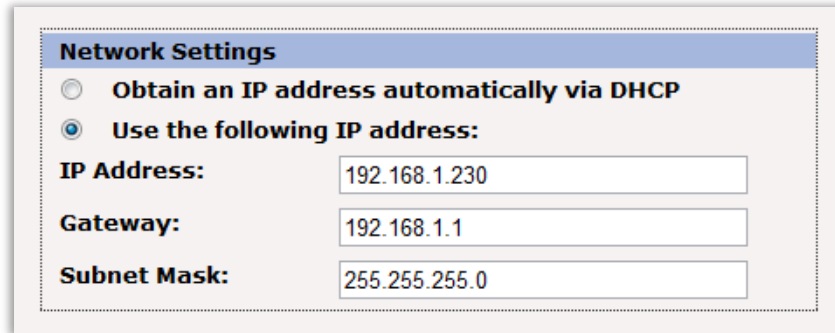
Repeats in message – Determines how many times the word is repeated in one message. In most cases it's not necessary to change this parameter. Must be from 6 to 15. Default – 8

Test Period – Determines the time period (in hours) between test messages. Must be from 1 to 255. Default – 6

TUR Period – Transmit Until Restore Period – Determines how often (time period in minutes) to repeat the alarm message until the corresponding digital input is not restored. This option can be enabled separately for each digital input.

4.3. General IP settings

This settings are active even when working in Use Radio Only, mode because they are important for web-server access.

IP settings:

Obtain an IP address automatically via DHCP – IP address is received automatically from a DHCP server in the current network. In this case easy way to access the web-server is by entering the following address: http://radinatau . If you select this mode but after reboot the device cannot find a dhcp server for more than 10 seconds – Radina Tau will load the last saved static address.
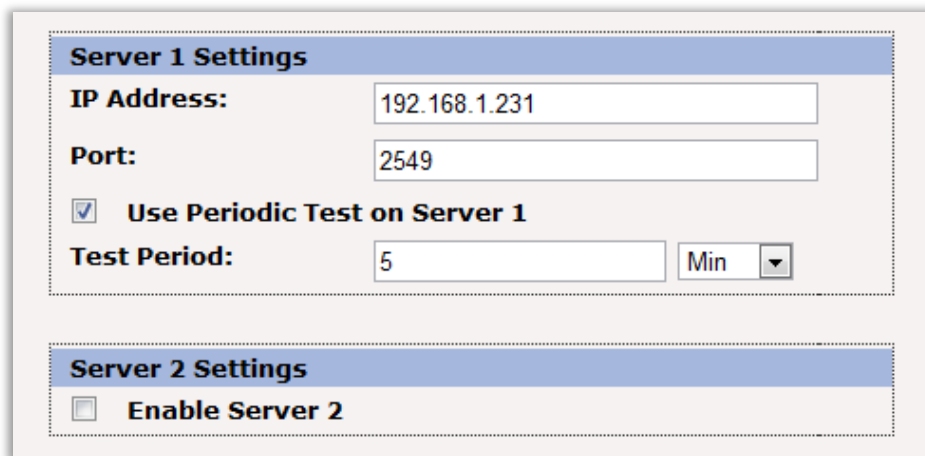
Use the following IP address – IP address and network parameters are set to static

IP Address – IP address

Gateway –Gateway address.

Subnet Mask – Subnet mask of the IP network.

4.4. Settings for the IP transmitter

If Radina Tau works in mode **Use Radio Transmitter & Network** or **Use Network Only** the IP network server parameters will be visualized. The first group is corresponding to the first monitoring server. You must set the IP address and the communication UDP port. You can activate the periodic test - **Use Periodic Test on Server 1** and set the period.

If you want to use the second server you must enable it - **Enable Server 2** – and to set the parameters in the same way as for Server1.

4.5. Settings for the digital inputs

According to which working mode is selected, in digital inputs settings different fields will become active/deactive.

Digital inputs can be connected to PGM outputs of security panles or to any different kind of sensors – panic-buttons, tampers and etc. In the **Active State** field you can set the working mode of each input – normal close (N.O.) or normal open (N.C.) contact, check for AC on this input (Hardware AC) or you can disable the input (Not Used). When digital input is

connected to PGM or dry contact, for '0' state is accepted value of the resistance to ground less than 300Ω and for active '1' – value more than 1,4KΩ (or open circuit), the hysteresis is between 300Ω and 1,4KΩ. If digital inputs are controlled by voltage for '0' state is accepted value of the voltage to ground less than 0,7V, and for active '1' – value more than 2,6V, the hysteresis is between 0,7V and 2,6V.

Radio messages are transmitted through radio channel for each input – **A1 to A6** for alarms on this input and **B1 to B6** for restore. In the radio settings for each input you can set the following parameters:

Transmit on backup – Determines whether to send messages for this input on back-up channel or not.

Repeat Alarm Transmit Until Restore (TUR) – Determines whether to repeat messages for this input until it is in alarm state - using the **TUR Period** field to make pauses between repeats.

In the network settings for each input you can set the following parameters:

Type – Choose a message which will correspond to the change of state of this input

Partition (two symbols each from 0 to 9 and from B to F) and **Zone** (three symbols each from 0 to 9 and from B to F) determines the corresponding parameters for the messages generated from each digital input.

4.6. Saving the new configuration

When you click the Save Config button a validation check is performed. If there is invalid data in one or more fields – they will be colored in red. If all the input data are correct Radina Tau will save the parameters and will reboot with the new configuration.

5.   Username and password configuration

In **Login Config** menu you can change the username and password used to access the web-server. Maximum length for both fields is 11 symbols. If you forget your credentials you can perform a hardware reset to recover default settings:

Username: root   Password: admin

When you click the Save Config button a validation check is performed. If there is invalid data in one or more fields – they will be colored in red. If all the input data are correct Radina Tau will save the parameters and will reboot with the new configuration.

6.   Reboot

If you choose the **Reboot** menu this will cause the device to restart.

7.   Hardware reset

In case you changed the settings and can't reach the device or if you forgot your username or password, Radina Tau is capable to return to its factory defaults. For this purpose you must disconnect from power supply, push and hold the button for hardware reset and reconnect to the power supply. Hold the button for 5 seconds until the green LED is blinking. Once the LED goes off you can release the button and connect to the device.

8. How to determine the height of the antenna

The height of the antenna is determined by the radio frequency. If you use more than one radio frequency – make a compromise between all the frequencies. Put the antenna on its place, remove the plastic cap on the top – start measuring from the end of the box.

Height, cm = 7500 / Frequency, MHz : $L_{cm} = 7500 / F_{MHz}$
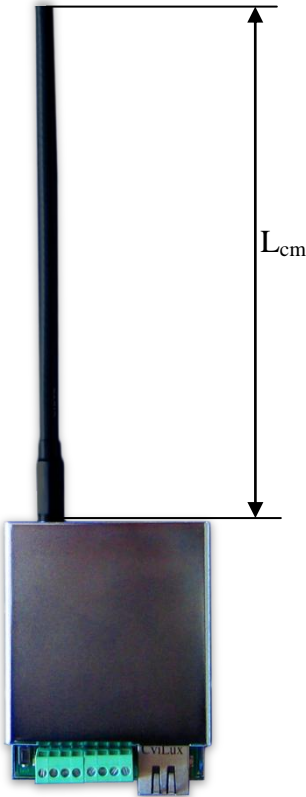
Frequency F_{MHz}	Formula	Height of the antenna L_{cm}
400.0000 MHz	7500 / 400	18.75 cm
410.0000 MHz	7500 / 410	18.29 cm
420.0000 MHz	7500 / 420	17.86 cm
430.0000 MHz	7500 / 430	17.44 cm
440.0000 MHz	7500 / 440	17.05 cm
450.0000 MHz	7500 / 450	16.67 cm
460.0000 MHz	7500 / 460	16.30 cm
470.0000 MHz	7500 / 470	15.96 cm

L_{cm}

9. Windows Network configuration

If you want to access the web-server, your computer must be in the same IP subnet. You must change the settings of your network adapter (if they are different than needed).

If your computer is in a different network than: 192.168.1.xxx with mask 255.255.255.0 you will need to change your current configuration of Windows network:

Start → Control Panel → Network and Sharing Center → Change adapter settings → Right-Click on your network adapter → Properties → Right-Click on Internet Protocol Version 4 → Properties → Use the following IP address

IP Address :   192.168.1.xxx, xxx is between 2 and 254 and must be different than 230
Subnet Mask: 255.255.255.0