WiNG-MGR Quick Start Guide

Thank you for purchasing a WiNG-MGR wireless sensor network manager. This guide outlines basic WiNG-MGR installation and configuration.

Additional support information, including the WiNG-MGR User Guide, is available online at www.rletech.com. Before you install a WiNG-MGR, check the website to ensure you are using the most recent version of our documentation.

If you need further assistance, please contact RLE Technologies at support@rletech.com.

Falcon

v1.2
(06/2017)

RLE Technologies

Installation Supplies

Included with the WiNG-MGR
WiNG-MGR device
24VDC power adapter
Three antennas
Rack mount tabs

Available from RLE, sold separately
Wall mount tabs
WiNG sensors as necessary for your application

Additional Supplies
18 – 22 AWG ground wire
18AWG shielded twisted pair stranded copper wire - no more than 2000ft (610m) (Modbus RTU communication via EIA-485 port)
CAT 6 crossover network cable
Straight-through CAT5 cable
Straight-through, nine-pin serial cable
USB mini B to USB A cable

Network Communications Information
Consult your IT administrator and determine the following WiNG-MGR network settings:

- IP Address _____

- Subnet Mask _____

- Default Gateway _____

Mount the Device

The WiNG-MGR is designed to be installed in a 19-inch rack or mounted on a wall.
- If you're installing it in the front or back of a rack, use our rack mount tabs and orient them appropriately for your application.
- If you're mounting it on a wall, use RLE's wall mount tabs (sold separately).

Remove the mounting screws from the side of the device, put the mounting tabs in place, and reapply the screws. Use the proper anchoring method and hardware to mount the unit securely in your desired location.

Mount the Antennas

The WiNG-MGR ships with three antennas. After you connect each antenna firmly to its labelled terminal connection on the WiNG-MGR, you'll need to ensure proper antenna position. Antennas A and B can be close together, but to avoid signal interference they both need to be as far away from antenna C as your installation will allow. Extend the leader cables on the antennas to their fullest lengths and secure the antennas as far away from the WiNG-MGR - and as high off the ground - as possible.

Provide a Power Supply and Ground Connections

Power the WiNG-MGR from a UPS supply so the device can send alarm notifications during a power outage. Power can be supplied to the WiNG-MGR through either the power jack and the provided wall adapter OR the power supply terminal block.
1. Connect an 18AWG ground wire from the ground terminal (marked on the upper left side of the enclosure) to a suitable earth ground.
2. Plug the provided wall adapter into the jack at P1 and the UPS outlet. The wall adapter has a five foot (1.524m) power cord.
3. If you're providing your own power supply, connect 24VDC to the unit through the power terminal block.
Never connect both power sources simultaneously - you will damage the device.

Connect the WiNG-MGR to the Network

The WiNG-MGR needs network connectivity in order to access the web interface, configuration screen, and to activate the email (SMTP), BACnet slave, Modbus slave, and SNMP features. Use a CAT 6 crossover cable to connect the 10/100BASE-T Ethernet port directly to a PC. Use a straight-through CAT 5 cable to connect the WiNG-MGR to a network hub or switch.

Set the IP Address Using a Web Browser

If you have not set an IP address before or are using IPv6, consult your IT Department for support.

Note: The default IP address for the WiNG-MGR is 10.0.0.188
        The default Subnet Mask is 255.255.255.0
   By default there is no user name or password.

1. Contact your IT Department to obtain an available IP address, Subnet Mask, and default Gateway.
2. Plug a crossover network cable into the laptop or workstation that will be used to configure the WiNG-MGR.
3. You'll need to change the IP address and Subnet Mask of your computer so it can communicate with the WiNG-MGR in its factory-configured state. Before you change anything, write down the original IP address and Subnet Mask of your computer - you'll need to revert back to these original settings once the WiNG-MGR is configured.
4. Change the IP address and Subnet Mask of the computer from its existing address to one that will allow it to communicate with the WiNG-MGR, such as 10.0.0.189. It may be beneficial to set the IP address to one that is one number different from the WiNG-MGR's IP address (10.0.0.188).
5. Connect the other end of the crossover cable to the Ethernet port on the back of the WiNG-MGR.
6. Access the WiNG-MGR through a Web browser — type the WiNG-MGR's IP address (10.0.0.188) into the location bar.
7. Select the Configuration Menu link, then change the IP address, Subnet Mask, and default Gateway to the one provided by your IT Department, or change it to 0.0.0.0 to enable DHCP. Press the Submit Changes button. The WiNG-MGR will save the new IP address, Subnet Mask and default Gateway and reboot.
8. Change the IP address of the computer back to its original IP address. If the computer was configured as DHCP (the network domain controller assigns an IP address) return it to this state. This may require assistance from your IT Department, or you may need to consult the computer's manual.
9. The computer and the WiNG-MGR are now both configured to communicate on the network. Both should be accessible via the network. Connect the PC and the WiNG-MGR to the network. From the PC web browser, type in the new IP address of the WiNG-MGR. Enter the user name and password as stated above to verify network access to the device.

EIA-232 Connection

The WiNG-MGR can be connected directly to a PC through its EIA-232 port. Designed for temporary use, this connection supports IP configuration, firmware downloads, and troubleshooting. Connect via a straight through, 9-pin serial cable.

| 24 VDC Power Supply | EIA-232 Connection | RJ45 Ethernet Cable |
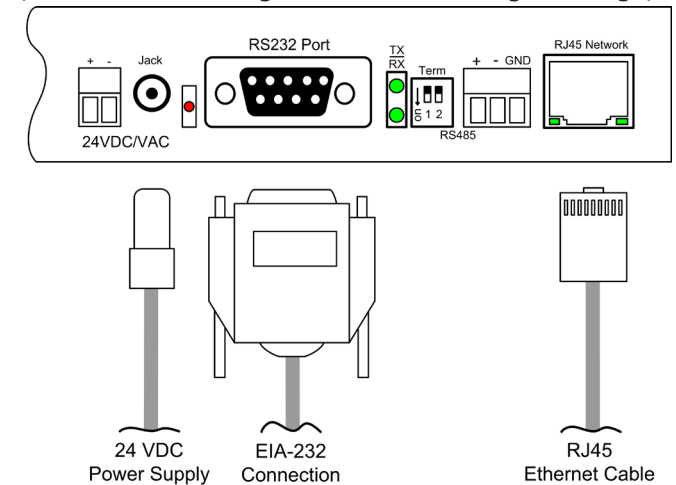
Wire the Relay Outputs

Two (2) wired relay outputs provide expanded monitoring and notification capabilities. Wired outputs may look like this:
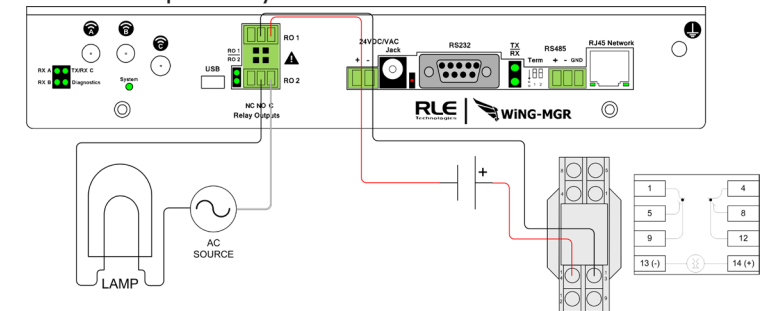
Configure the relay outputs in the System Configuration>Relay Outputs section of the WiNG-MGR web interface. Refer to the WiNG-MGR User Guide for more detailed information.

Sensor Discovery Wizard

There are two different ways to configure sensors to communicate with a WiNG-MGR: the sensor discovery wizard and manual sensor auto discovery. The sensor discovery wizard is the preferred method and will be demonstrated here. If you'd like to use manual sensor auto discovery, please reference the WiNG User Guide, available at www.rletech.com.
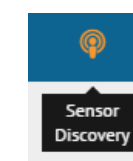
The sensor discovery wizard icon is located in the header of the web interface. Run the wizard when you need to install or locate new sensors. The wizard allows the WiNG-MGR to discover WiNG sensors transmitting within its transmission radius and enter them into the

Sensors page of the web interface. To configure sensors to communicate with the WiNG-MGR, follow these steps:

1. Install all your sensors in the desired locations. Be sure to pull the tabs to activate the batteries in the sensors.
2. In the WiNG-MGR's user interface, click the icon to launch the Sensor Discovery Wizard. Click the Begin Discovery button.
3. The wizard will locate all sensors within the range of the WiNG-MGR that are not already associated with this unit. They will all list in the modal window. Each sensor has a checkbox in front of it. If you would like the sensor to be associated with this WiNG-MGR, leave the checkbox checked. Uncheck the boxes next to the sensors that should NOT be configured within this WiNG-MGR at this time. Verify the serial numbers to ensure you're adding the correct sensors. The animated ball image will continue as long as the modal window is
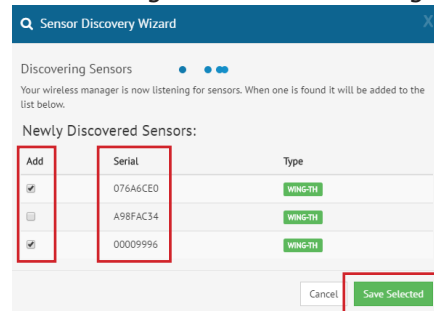

open, so you don't have to wait for it to stop before you make your selections.
4. Once you've selected the appropriate sensors, click the Save Selected link.
5. Click the Close button to return to the Sensors page of the website.
6. The selected sensors will be added to the system and will appear at the end of the list of sensors on the dashboard. Confirm the placement of all the new sensors in the sensor list.

Set Sensor Alarm and Warning Parameters

If you're configuring a new system, global settings are a quick way to configure settings for all your sensors at one time. To use this feature click the Admin link in the left hand navigation and then the Alarms tab that appears in the top navigation. Any global settings configured on this page will apply to all the sensors associated with this WiNG-MGR. If you already have parameters set up for your sensors, they will be overwritten when you apply these global alarm settings. Once you apply the global settings, that value will be present on each sensor's individual configuration page. The global settings will not be recorded on this page - when you click through to another page of the user interface and then return to this global settings page, all the values in the alarm fields will have reverted back to zeros.

Check the checkbox next to each individual alarm setting to apply that particular setting to each sensor in the system. If you do not check the box next to the alarm parameter, that value will not be applied to the sensors in your system. Enter the
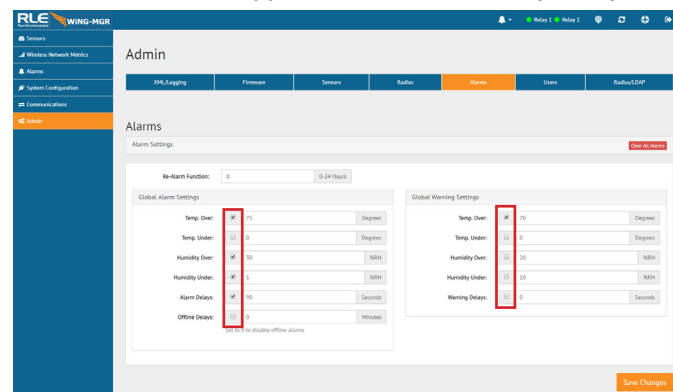

threshold for that alarm or warning condition and click the Save Changes button to apply the settings to all sensors associated with this WiNG-MGR.

To configure sensor thresholds individually, use the sensor's serial number to locate it in the sensor list on the unit's dashboard. The sensor's name field in the table is a

---

link. Click the link to access the to individual sensor's page.
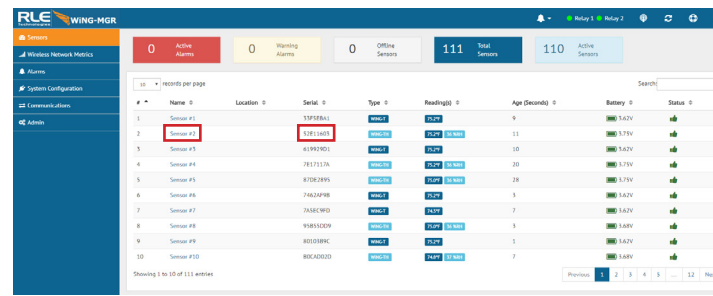
Click the Sensor Configuration tab to access the alarm and warning parameters available for the sensor. Enter in the appropriate values and click the Save Changes button to activate the alarm parameters.
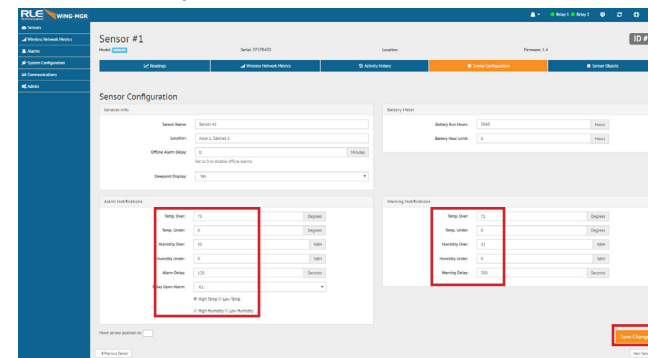
Install A Range Extender (WiNG-RXT)

Some WiNG applications may require the use of a range extender, WiNG-RXT. To add a WiNG-RXT to your application:

1. Plug the provided wall adapter into the jack on back of the range extender and a wall outlet.
2. The WiNG-RXT uses a different antenna configuration than the WiNG-MGR. The WiNG-RXT ships with three antennas, labelled A, B, and C. Antennas A and B connect to the WiNG-RXT via long leader cables, and antenna C is a fixed antenna that connects directly to the WiNG-RXT. After you connect each antenna firmly to its labelled terminal connection on the WiNG-RXT, you'll need to ensure proper antenna position. Antennas A and B can be close together, but to avoid signal interference they both need to be as far away from antenna C as your installation will allow. Extend the leader cables on antennas A and B to their fullest lengths and secure the antennas as far away from the WiNG-RXT - and as high off the ground - as possible.
3. You'll need to configure the WiNG-MGR to recognize the WiNG-RXT. In the WiNG-MGR user interface, click the Admin link on the left and navigate to the Radios tab. The Range Extenders box on the bottom right side of the screen
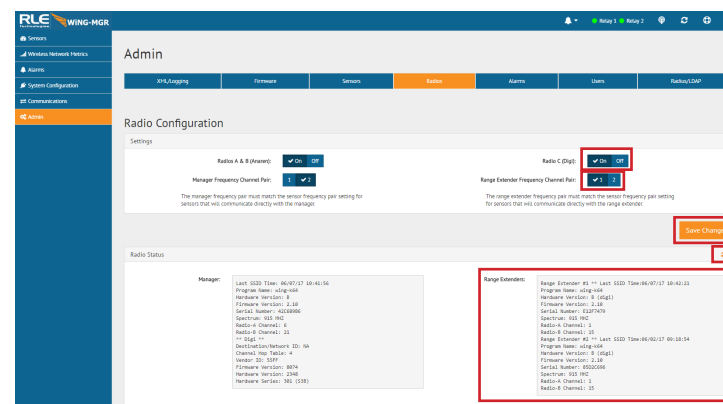
displays information about the range extenders that currently operating on your network. If you don't see your range extender, click the refresh button to refresh the list.
4. Click the toggle button to turn Radio C (Digi) On. Be sure to click the Save Changes button when you have finished your configuration.

---

5. By default, all sensors communicate on channel 1. You may have an application that requires the use of the alternate channel 2. If you need to switch to the alternate channel, reference our Alternate Channel Communications Guide on our website, www.rletech.com. You've installed a range extender to improve communications with a target group of sensors. Click the toggle button to select the range extender frequency channel pair that corresponds with the channel setting for that specific group of sensors. Click the Save Changes button to save the radio and frequency channel pair selections.

Troubleshooting

Basic WiNG-MGR troubleshooting information is included here. More in-depth troubleshooting is available in the WiNG-MGR User Guide, which can be found online at www.rletech.com.

Sensors Are Not Automatically Discovered by the WiNG-MGR

If an installed sensor is not detected by the WiNG-MGR, it is either too far away from the WiNG-MGR or there is an obstruction in its path. To determine the source of the problem, remove the sensor from its installed location and place it near the WiNG-MGR. If it's then discovered by the WiNG-MGR:

- Its desired location may be too far away. Move the sensor away from the WiNG-MGR in small increments. This will help you determine the distance threshold of the sensor.
- An obstruction is blocking the signal. Either move the sensor or install a WiNG-RXT range extender to boost the signal.
- The sensor has a wire whip antenna that can be extended out of the sensor case in an effort to resolve either a distance limitation or obstruction issue. To expose the whip antenna:
  1. Access the sensor's circuit board. Hold the sensor upside down in your hand (label toward your palm) and squeeze the short side of the sensor enclosure's lid. Pull the base away to open the sensor enclosure. The sensor board should remain in the lid. Gently grasp the edges of the sensor lid and pull it to free it from the sensor enclosure.
  2. Locate the whip antenna connection on the circuit board. Gently rotate the connection 180° so the antenna routes toward the U3 marking on the board, instead of routing past the Y1 marking on the board.
  3. Now put the board back into the enclosure. The whip antenna will route out the vent hole in the enclosure near the tip of the orange wing icon on the enclosure label, and the sensor board will slip into the board slots in the enclosure. The whip antenna should extend directly out of the enclosure and not pass back over the length of the board. Reapply the sensor base.
  4. You should end up with about three inches of antenna outside of the enclosure, and this can dramatically increase the signal distance the sensor can achieve.

If the sensor is still not discovered by the WiNG-MGR:

- Verify the sensor's serial number. Make sure you're looking for the correct sensor at that position.
- Remove the sensor's cover and make sure the battery pull tab has been completely removed.
- Check to see that the heartbeat LED is blinking, once every 10 to 20 seconds.
- If the LED is not blinking, ensure there is not a gap between the battery clips and the side of the battery. Remove the battery, gently squeeze the clips in, and replace the battery.
- Check the battery's voltage. If the battery is reading a low voltage (lower than 2.7V), replace the battery with a 3.6V lithium AA battery.

Sensor Battery Issues

When you replace the battery, replace it with a 3.6V lithium battery. WiNG sensors will NOT operate with a standard alkaline AA cell.

Make sure you replace the battery with the terminals facing the correct direction. The sensor will not function if the battery is inserted backwards.