Temperature and RH Wireless Transmitter
RHT-Air

Introduction

The **RHT-Air** is a wireless transmitter that when coupled with the **AirGate-Modbus** provides an excellent solution for wireless monitoring of temperature and relative humidity variables. Together, they combine the ease of configuration and data acquisition operation of the RHT-RS485-LCD, which connects directly to a Modbus RTU bus, with the versatility of the wire-free installation of **LogBox-RHT**. Through the IEEE 802.15.4 wireless interface, multiple **RHT-Airs** may talk to one or more AirGates, providing this way USB and RS485 communication paths to the main application.

The **RHT-Air** uses high accurate sensors for measurements of the temperature, relative humidity and dew point. It also provides a LCD display for local viewing of the measurements while allowing reconfiguration of the transmitter parameters without having to run the configuration software on the computer.

Two models are available. See product label for identification:

*   RHT-Air: Operates from internal battery or external power supply;
*   RHT-Air NB: Operates from external power supply only.

Features

*   Operating limits:
    *   Sensor and probe: -20 to 80 °C, 0 to100 % RH
    *   Electronic circuit: 0 to+65 °C, 0 to 95 % RH
*   Power supply:
    *   Internal battery: 3,6 V Lithium ½ AA
    *   Battery autonomy: Typically 1 year
    *   External supply (optional): 10 to 35 Vcc, <100 mA
*   Wireless Protocol: IEEE 802.15.4
*   Configurator software DigiConfig for Windows® can be downloaded for free

*   Accuracy: ±3 % RH from 20 to 80 % RH (at 25 °C) and ±1 °C for temperature
*   ABS housing with IP65 protection, for wall mounting (WM model). Nylon probe
*   Probe extension (DM model): Stainless steel 150 or 250 mm of length
*   Dimensions: 70 x 60 x 35 mm
*   Anatel certification
*   Typical wireless range:
    *   Indoor: 100 meters
    *   In open field: 500 meters

Application Topology

Star Topology

Operating on this topology, up to 246 Modbus slaves (wired or wireless) can be connected to the master through an **AirGate-Modbus.** Modbus masters can be connected both to the **AirGate-Modbus** RS485 and USB interfaces.
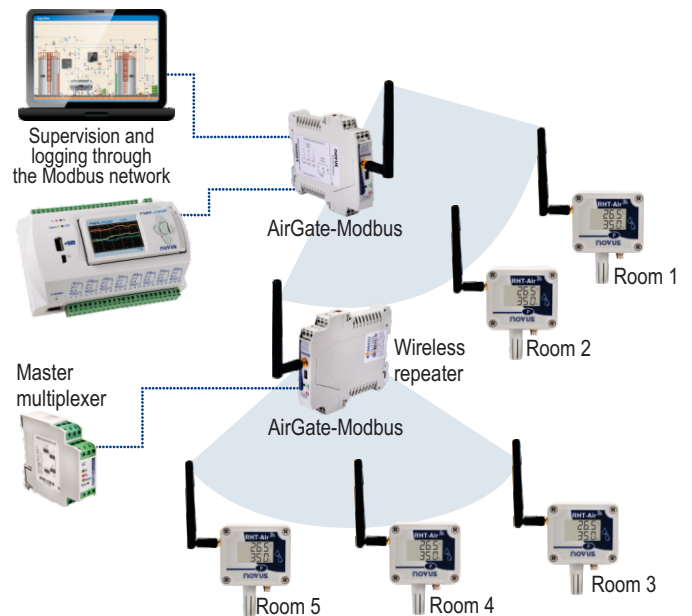
Figure below shows a temperature and relative humidity monitoring system which is logged by a **FieldLogger** and is remotely supervised by the corporative network.
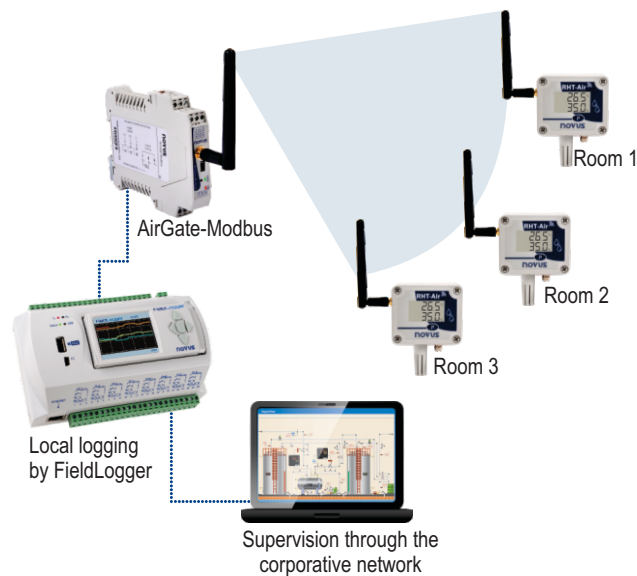
Long Range Application

It is possible to extend network ranges by using **AirGate-Modbus** as a repeater. Acting as a repeater, **AirGate-Modbus** allows the connection of wired devices through its RS485 interface.

Figure below shows a two-level system using a couple of **AirGate-Modbus**, one acting as a wireless repeater and the other with two Modbus masters multiplexed connected to the physical interfaces USB and RS485.

AirGate-Modbus
Room 1
Room 2
Room 3
Local logging by FieldLogger
Supervision through the corporative network

Supervision and logging through the Modbus network
AirGate-Modbus
Room 1
Room 2
Master multiplexer
Wireless repeater
AirGate-Modbus
Room 5
Room 4
Room 3

Configuration Software

Diagnostics

DigiConfig software is the **RHT-Air** configuration tool. By using it connected to the USB interface, it is possible to configure all transmitter's communication parameters, besides offering advanced and important diagnostics information for installation and maintenance of the wireless communication system. **DigiConfig** allows access to real-time information during system operation. Some of the parameters that can be checked are:

• Battery level
• Wireless reception signal intensity
• Type of the wireless connection with other devices
• Temperature, relative humidity and dew point

Interconnection visualization

Visualization of the wireless devices interconnection makes network diagnostics, installation and expansion very easy to make. **DigiConfig** shows stablished connections between several equipments of the network, simplifying the network topology analysis and allowing optimization of the system installation.