MIDAM
CONTROL SYSTEM

MIDAM WRU90001

Wireless room unit with CO_2 sensor

Summary

WRU90001 is a wireless, battery powered HMI unit. The device features temperature, humidity and CO_2 sensors, the values of which can be displayed to user on a large LCD display. It features a native modbus map that grants seamless integration into the DDC/SCADA system. The communication is based on the encrypted Midam KFP protocol, which allows to update the device firmware on a wireless basis.

WIRELESS

Application

- HVAC control
- Measurement of temperature, humidity and CO_2
- Display of status values
- Wireless integration into SCADA control systems

Function

The wireless room unit measures temperature and relative humidity. It allows to set the desired temperature setpoint and operating modes using the rotating knob. The values are transmitted through the 868 MHz unlicensed band to the WCOM51, or WCOM01 gateways. There is also an option without rotating knob and display available (refer to WRU90009 room sensor) to provide a variety of possibilities for building up a project. The room unit features a native modbus map with the direct read and write functionality. The modbus map is available in a separate document. All settings and configuration are also stored in a modbus register, directly in the device. It is necessary to pair the device before first use.

SCADA system integration

The controller can be integrated into DDC or SCADA systems directly via the WCOM51, or WCOM01 wireless gateways.

Pairing

Two devices are required for mutual communication. Both must be powered and located in close proximity to each other. Set the PRG switch on WRU90001, then set the PRG switch or the DIP switch on the remote device. From this time on, it is necessary to press the rotary knob on the WRU90001 within 10 seconds. This will confirm the pairing of both devices. Then, switch both PRG and DIP switches on both devices again.

Password or frequency change

The encryption password (default "MIKROKLIMA1234AB") and the communication frequency (default 868.95 MHz) can be changed using the WUSB01 configuration dongle and appropriate software tool.

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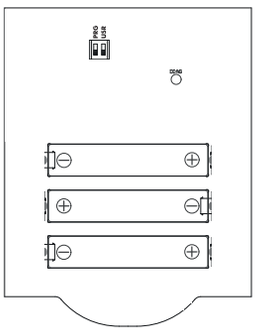
Technical data

Power supply	4,5V, 3x main alkaline battery 1,5V, type AA
Consumption	idle <10 uA, avg. typical 90 uA, max. 25 mA
Battery life	> 3 years
Communication	868,950 MHz, 100 kbps, WMBUS T1, KFP 868,300 MHz, 32 kbps, WMBUS S1, KFP 868,100 MHz, 100 kbps, KFP 869,525 MHz, 100 kbps, WMBUS C, KFP 868,300 MHz, 38 kbps, KFP
Protocol	WMBUS (EN 13757-4), KFP (dual stack)
Encryption	AES 128 PCBC, EN 13757-4
RF power	+10 to - 20 dBm, step 5 dB
Antenna	Integrated
Communication range	100 m in free space, 30 m in buildings
Mechanical and dimensions	90x115x30 mm enclosure ABS, IP20 2 x DIP switch (INIT mode, USR mode)
Temperature measurement range	-20 to +55 °C, ± 0,5 °C
Humidity measuring range	10 to 90 % rH, ±3% rH
Temperature setpoint	configurable, ± 10 to ± 1 K
CO_2 measuring range	400 ... 5000 ppm (secondary output 0-100%)
CO_2 measuring method	NDIR (Non-dispersive Infra Red)
CO_2 measuring accuracy	± 30ppm, ± 3% of measured value (defined conditions for at least 3 calibration ACDL completed over the past 3 weeks). ACDL (automatic calibration in dimming light mode).
Display	reflexive segmented LCD 60x60 mm
Ambient conditions	-5 to +45 °C, 5 % to 95 % rH (EN 60721-3-3 class 3K5)

Terminals and DIP switches

PRG	Default frequency, power and password is used in ON position.
USR	Not used.
DIAG	LED indication, sending data



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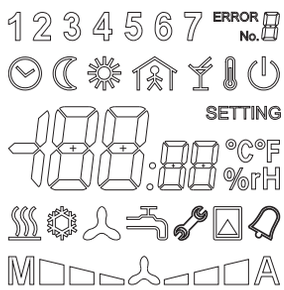
Battery change

Remove the base lid of the controller by gently pressing it on the sides. Remove old batteries from the bracket and place new batteries. Observe the battery type and polarity. Always replace both bateries with fresh ones. Then put both parts together and close the controller again.

Display

The large LCD shows the current temperature, humidity and fancoil controller status using segment symbols, standard symbols for day and night mode, time programs and activated output. At the top of the display there are symbols indicating the day of the week. The bell symbol indicates a communication error, while the side wrench symbol indicates weak batteries.



Changes in versions

02/2019	New datasheet version (v19/01)

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