MIDAM WRU90001

Wireless room unit with CO_2 sensor

Wireless, battery powered room sensor. The device features temperature, humidity and CO_2 sensors. Native modbus map that grants seamless integration into the DDC/SCADA system. CO_2 values are indicated through 3 colour LED in "traffic light" pattern. The communication is based on the AES128 encrypted Midam KFP protocol, which allows to update the device firmware on a wireless basis.

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. Embedded AES 128-bit, provides the most secure encryption standard for wireless connections. 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. In asynchronous mode and upon direct pairing with one of the wireless modules for lights and blinds WOUT2x1, it is possible to use the room controller for direct control according to the set value (setpoint with hysteresis). 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. Usually, wireless gateway or configuration dongle is used to set up remote wireless devices. Use look-up function in software tool to display a list of all available devices in range and assign or adjust parameters based on wireless ID code for each single device. There is a comprehensive help section integrated in the software tool to provide support during the wireless device set up procedure.

Midam KFP Password change

Prior to the first use, the encryption password (default "MIKROKLIMA1234AB") must be changed using the WUSB01 configuration dongle and the relevant software tool.

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Technical data

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Power supply	4,5V, 3x main alkaline battery 1,5V, type AA, not included
Consumption	idle <10 uA, avg. typical 90 uA, max. 25 mA
Battery life	> 3 years
Communication	868,950 MHz, 100 kbps, WMBUS T1, KFP (default factory setting) 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)
RoHS notice	The device contains a non-rechargeable battery. After the device is not operable, please return it to the manufacturer or dispose of it in compliance with local regulations.

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Terminals and DIP switches

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PRG	In ON position, default frequency, power and password
USR	In ON position, asynchronous communication mode with WOUT2x1 remote outputs
LED	RED/GREEN LED - sending/receiving data, RED still ON - error indication
PWR1	Power supply terminal 1 (+)
PWR2	Power supply terminal 2 (-)
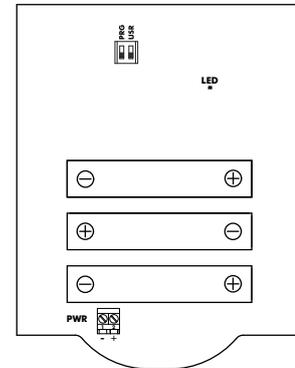
Battery/adapter power supply

The AA type type battery should keep your device running smoothly for more than 60 months but the time will come when you need to replace it. The KFP Tool app can also indicate and report the remaining battery power so that you are aware when it's proper time for change. Open the controller by gently pressing it on the sides. Remove old batteries from the bracket and place new batteries or connect appropriate wired power supply. Observe the battery type and polarity. Always replace both bateries with fresh ones. Then put both parts together and close the controller again. If powered simultaneously from 5 VDC, the batteries may serve as a power supply backup in case of mains supply problems.

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.
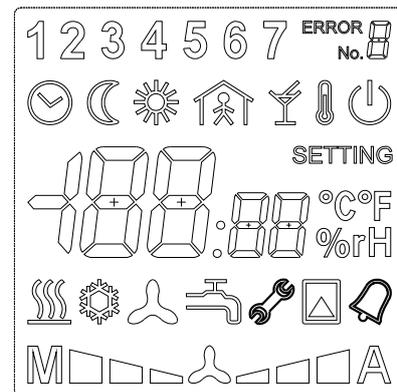
Changes in versions

06/2020	New datasheet version (v20/06).
08/2020	Added asynchronous communication with WOUT2x1 - remote output control. (v20/08).
07/2023	Power supply options added (v23/07).
07/2025	The wording of the section "Midam KFP Password change" has been modified (v25/07).

Subject to technical changes and
General Terms and Conditions.

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