UC905   Room unit for controller FCR015

Summary

The UC905 room unit is a communicative human-machine interface for VAV unit controller FCR015.

According to production type, each version of the unit may contain display, backlight and knob.

UC0905 – basic version with display and knob
UC905BL – version with display, knob and backlight
UC905DK – version without knob and display

The UC905 is a successor of UC095 room unit and can be used with controllers FC015 and FCR015. Beware of unit terminals connection. It differs from its predecessor.

Application

- ▪ **VAV systems – measurement and control of room temperature and CO_2 concentration.**

Function

The unit reads room temperature, humidity and CO_2 concentration in the room air, temperature correction / setpoint by a knob, and required operation mode which is set by a short push or in the menu. Data is transmitted to the room controller. The main controller, FCR015, may send to the unit other data (heating / cooling mode, fan stage, day / night / standby mode etc.) which are displayed on the LCD display.

Connect the room unit to FCR015 over a 4-core cable, the most suitable types are JY(St)Y or LAM 2x2x0.8. Use the same type which powers the FCR015 controller as if the room unit power is taken from the FCR015 terminals, the cores in a terminal should be of the same cross-section.
If there is communication failure between UC905 and FCR015, there is a wrench and alarm bell icon at the UC905 display. Check signal polarity (terminals 8, 9), bus termination, and correct wiring at the FCR015 side (see FCR015 data sheet).

Technical data

Power supply	24 V AC ± 20 %
Consumption	3 W
Galvanic isolation	1 kV
Communication	RS485, Modbus RTU, selectable speed 1200 ... 115200 bps
SW	ModComTool
Temperature measuring range	-20 ÷ 70 °C (accuracy ±1 °C)
Humidity measuring range	10 ÷ 90 rH (accuracy ±3 % rH)
CO_2 concentration measuring range	NDIR technology, range 0…5000 ppm, measuring accuracy (operating conditions 0…45 °C, relative non-condensing humidity 0 to 85%) ± 50 ppm ± 3% of measured value, CO2 reaction time (90%) 90 s
Setpoint	as configured, ± 10 to ± 1 K
Display	LCD 60 × 60 mm
Terminals	screw terminals for wires 0.14 ... 1.5 mm²
Cover	ABS, RAL9010
Protection	IP20
Dimensions	90 × 115 × 30 mm
Ambient temperature	External conditions: -5 … 45 °C; 5 … 95 % relative humidity; non-condensing gases and chemically non-aggressive conditions (according to EN 60721-3-3 climatic class 3K5
	Storage: -5 … 45 °C; 5 … 95 % relative humidity; non-condensing gases and chemically non-aggressive conditions (according to EN 60721-3-1 climatic class 1K3)
Standards conformity	EMC EN 61000-6-2 ed.3:2005, EN 61000-6-4 ed.2:2006 + A1:2010 (industrial environment)
	Electrical safety EN 60950-1 ed.2:2006 + A11:2009 + A12:2011 + A1:2010 + A2:2014 + Opr.1:2012 + Z1:2016
	Hazardous substances reduction EN 50581:2012

Terminals
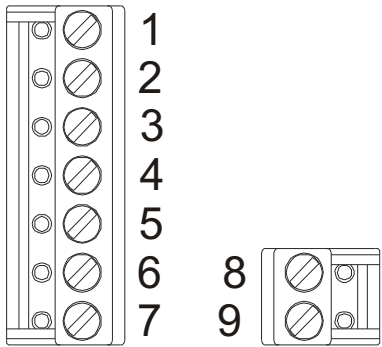
1: NC   not connected
2: NC   not connected
3: NC   not connected
4: NC   not connected
5: GND   technical earth (TE)
6: G0   power – common point
7: G   power

8: K-   communication, RS485 –
9: K+   communication, RS485 +

DIP switches
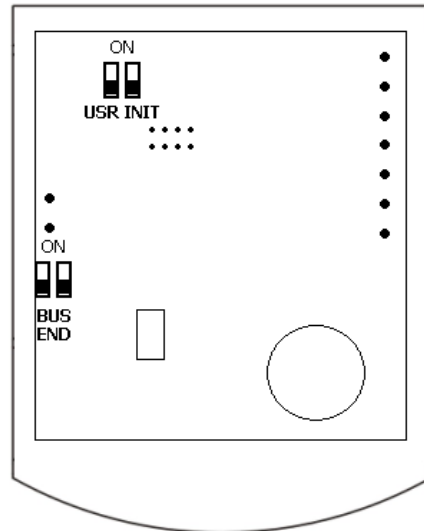
Back of the PCB

BUS END: if ON, the bus is terminated (if last device on the line)

USR: not used, reserved for future applications

INIT: sets the controller into default state and sets bus address to 1, baud rate to 9600.
To init, proceed as follows:
- connect the device over RS485 to a PC with ModComTool config tool
- set INIT to ON
- apply power (use only the connector without bottom)
- find the controller in the tool (Scan)
- set INIT to OFF
- in the ModComTool, open the controller window
- click the Init button in the tool
- remove and apply power.

Version compatibility

- New FCR015 (FW 107) and new UC905 (FW 205) → Functional combination. Supplied since 04/2025.

- Old FCR015 (FW 105) and old UC905 (FW 203) → Functional combination.

- Old FCR015 (FW 105) and new UC905 (FW 205) → Functional combination. Additionally, it displays CO_2 in ppm.

- New FCR015 (FW 107) and old UC905 (FW 203) → Non-functional combination. It can be solved by ordering FCR015 with FW version 105.

Upgrading UC905 (105) to newer FW (107): CANNOT BE PERFORMED
Upgrading FCR015 (203) to newer FW (205): Free of charge upon delivery to the company's address.

PN of new room controllers: UC905BL → PN 10392; UC905 → PN 10394
More information is available at Release notes | Domat Control System.

Installation

Units are intended for operating in a normal and chemically non-aggressive environment. They do not need any service or maintenance. Install them in a vertical position at places where they can be operated easily and measure correct values of temperature, i.e. in the height of about 150 cm, with no direct sunlight or other heat / cool source (AHU outlets, refrigerator, electrical appliances). The device consists of two parts: bottom with screw terminal block and cover containing PCB, display, and the knob. The bottom part is fixed by 2 or 4 screws to any flat surface or a flush-mounting box Ø 50 mm. At the back of the bottom there is an aperture for cabling. The bottom should be installed and cabling connected first, and the upper part inserted after the construction works have been finished to prevent damage to the unit.

Seal the conduits to avoid influencing the sensor by draught. Use an insulating pad when installing the sensor on cold walls. Avoid sensor exposition to sunlight or other heat sources.
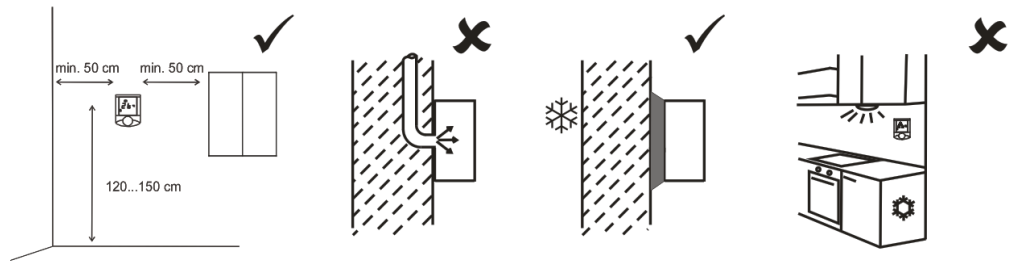

Cover opening

When removing the display part, proceed as follows:

- press gently the side parts of the unit and pull the right of the display part by several millimeters
- pull the left of the display part
- pull the display part and remove it from the bottom.

Do not bend the display part too much, the connector pins could be damaged. The locks are only at the sides of the display part, not at the top nor bottom.
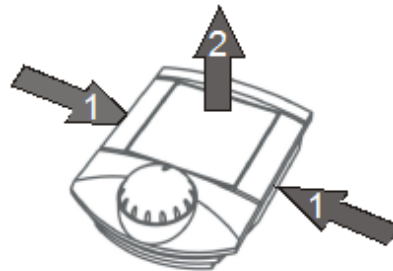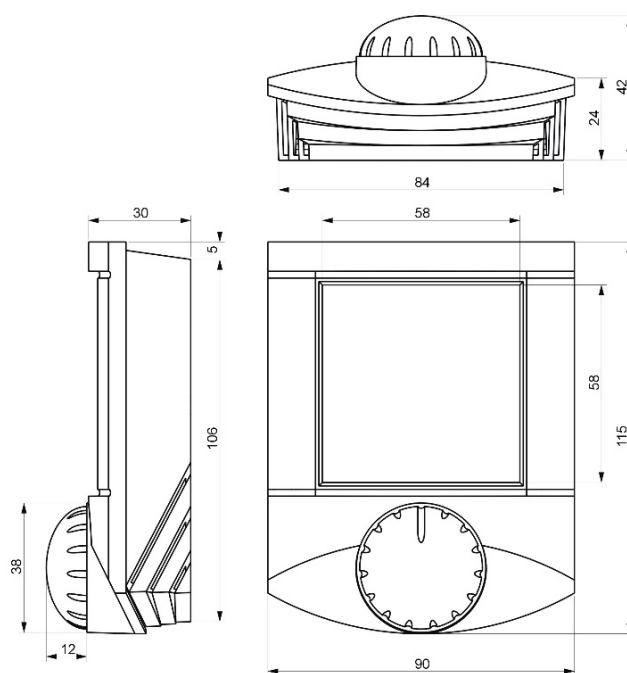

Display
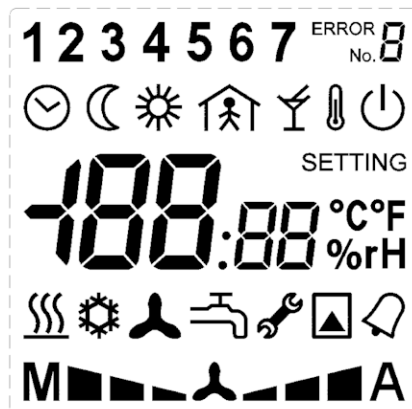
A large (60 × 60 mm) display clearly shows actual room temperature and controller status with 7-segment digits and standard Day, Night, Off, and Time scheduler symbols. Active output is indicated by a heating symbol. In the upper part, there are weekdays used for time scheduler setup. Other symbols are not used.
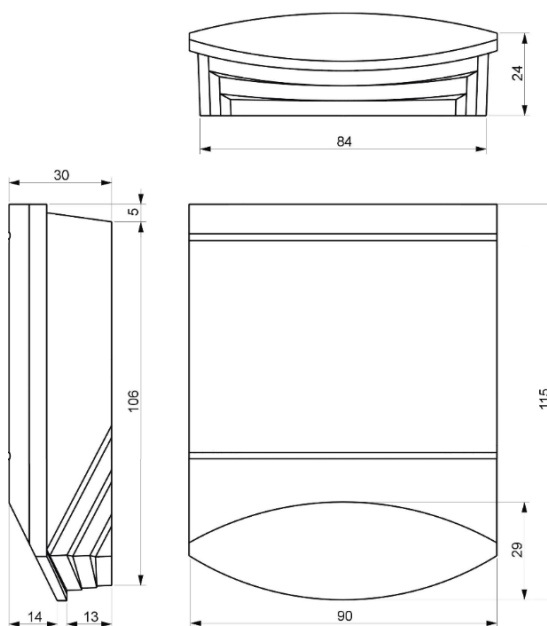
LCD symbol set

Dimensions   **UC905**

UC905DK

All dimensions in *mm.*

Safety note   The device is designed for monitoring and control of heating, ventilation, and air conditioning systems. It must not be used for protection of persons against health risks or death, as a safety element, or in applications where its failure could lead to physical or property damage or environmental damage. All risks related to device operation must be considered together with design, installation, and operation of the entire control system which the device is part of.

Changes in versions

10/2017 – The first datasheet version.
08/2018 – Minor changes.
10/2023 – Change of the logo, stylistic changes.
05/2025 – Added information about version compatibility.