

# Alledio Room

## Room Unit 2 - Modbus

Temperature | Humidity | VOC



Document revision 1.5

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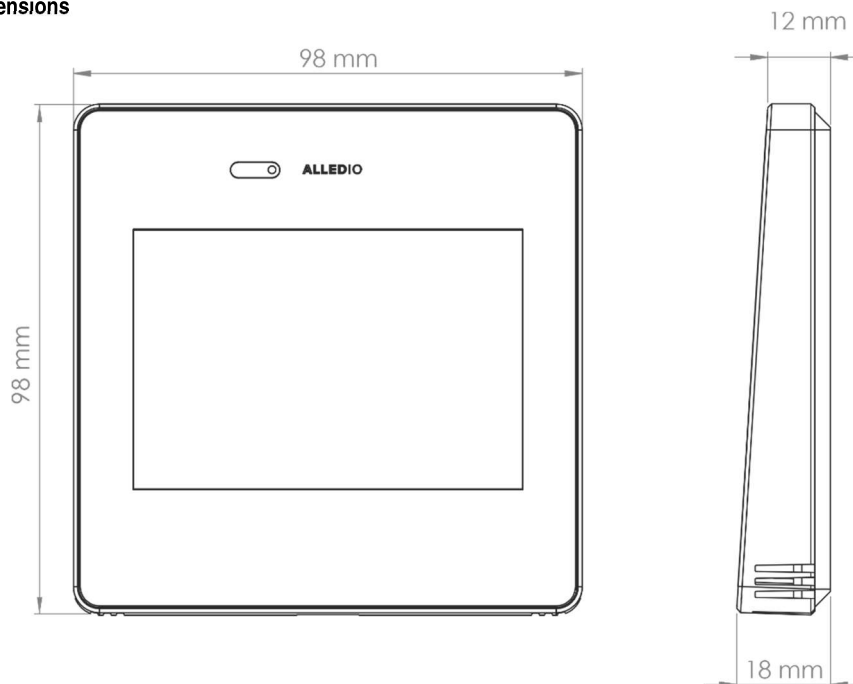
Document Number ALL-RU2

Notes Data and descriptions in this document are subject to change without notice. Product photos and pictures are for illustrations purposes only and may differ from the real product appearance.

Parameter	Technical data
<b>Housing Material</b>	ABS (flame resistant); scratch-resistant glass
<b>Power Supply</b>	12V to 35V DC/AC; recommended 24V
<b>Maximum Current</b>	1A at 24V DC/AC
<b>Power consumption</b>	0.3W (at 50% display brightness). Less than 1 kWh/month.
<b>Average current consumption</b>	Operating mode ("ON"): 0.011A at 24V (at 50% display brightness)
<b>In-built Sensors</b>	Temperature: digital sensor, NTC (optional) Humidity: digital sensor Air Quality (optional): VOC digital sensor CO2 sensor (optional) Pressure sensor: (optional)
<b>Measuring Ranges (sensors)</b>	Temperature: -40°C to +125°C Humidity: 0 – 100 % VOC (optional): 1 - 500 VOC index points; Ethanol in clean air: 0 - 1000 ppm CO2: 400-5000 ppm Pressure: 260 - 1260 hPa
<b>Sensor Accuracy:</b>	Temperature: average $\pm 0.5^{\circ}\text{C}$ (at 0 – 60°C); Humidity: $\pm 1.8\%$ (10%-90% at 25°C) Air Quality: device to device variation: VOC Index Points $< \pm 15\%$ ; repeatability: VOC Index Points $< \pm 5\%$ CO2: $\pm 100.0\text{ ppm} \pm 10\%$ m.v. Pressure: $\pm 0.5\text{ hPa}$
<b>Network</b>	RS485 Modbus, RTU, half-duplex, Baud rate 9600 kbps, 19200 kbps, 38400 kbps, 57600 kbps, 115200 kbps. Parity: non, even or odd. RS485 bus termination; software defined
<b>Modbus Device Type</b>	Slave Device (upon request also available as Master Device)
<b>Analog Output</b>	<u>0-10V</u> : Output is limited to 10mA OR <u>4-20mA</u> : current sink.
<b>Digital Output</b>	Open collector output. 1A per output.
<b>Analog Input</b>	<u>0-10V</u> OR <u>4-20mA</u> : can accept 0-20mA.
<b>Digital Input</b>	Non-isolated 0-30V.
<b>WiFi</b>	WiFi module is connecting over 2.4 GHz Wi-Fi (802.11 b/g/n) and can support two modes, STA mode and AP mode. Supported protocols: TCP or UDP. Support for encrypted message transfer over HTTPS. Standard devices use WiFi to perform "over-the-air" updates of the whole device.
<b>Bluetooth</b>	Bluetooth 5 (LE) ready. Bluetooth protocol can be implemented according to the client specifications. Document of the data protocol, GATT Services and characteristics must be provided.

<b>API</b>	The room unit supports REST API and MQTT connectivity for integration with external systems; however, access to the API is restricted to authorized partners. API credentials available upon request after verification.
<b>Operating Range (device)</b>	Temperature: -40°C to +85°C Humidity: 0% – 80%
<b>Clock</b>	RTC Real Time Clock (optional)
<b>Display</b>	LCD Display size 3.5" with 480 x 320 at, with capacitive touch, brightness sensor for automatic illumination control
<b>Connections</b>	Push-in CAGE CLAMP 0.2 - 0.75mm <sup>2</sup>
<b>Communication Cable</b>	Twisted pair with drain wire and foil wrap or equivalent. Must Be suitable for RS485 Standard.
<b>Ingress Protection</b>	IP20 according to EN 60529
<b>Product dimensions</b>	98 mm × 98 mm × 14 mm
<b>Product weight</b>	150 g
<b>Package dimensions</b>	130mm × 130mm × 40mm (protective case)
<b>Package weight</b>	180g (optional bulk packaging – quantity dependent)
<b>Standard</b>	CE, EN 60730-1, EN 60730-2-9, EN 300 328 V2.2.2
<b>Country of origin</b>	Slovenia, EU
<b>Warranty</b>	1 year

### Alledio Room Unit 2 - Dimensions







## Alledio Room Unit 2 - Variations

	Temperature	Humidity	CO2	Pressure	Universal Output	Universal Input	Universal In-/Output
TH	x	x			/	/	/
THC	x	x	x		/	/	/
THCP	x	x	x	x	/	/	/
TH-1UI-1UO	x	x			1	1	/
THC-1UI-1UO	x	x	x		1	1	/
THCP-1UI-1UO	x	x	x	x	1	1	/
TH-2UI-2UO	x	x			2	2	/
THC-2UI-2UO	x	x	x		2	2	/
THCP-2UI-2UO	x	x	x	x	2	2	/
TH-2UI-UIO-3UO	x	x			3	2	1
THC-2UI-UIO-3UO	x	x	x		3	2	1
THCP-2UI-UIO-3UO	x	x	x	x	3	2	1
ALL-RU2-[custom]	x	x	(x)	(x)	(x)	(x)	(x)

## Applications

- **Fancoil:** 2-pipe Heating / 2-pipe Cooling / 2-pipe change over H&C / 4-pipe
- **AHU Air Supply:** 2-pipe Heating / 2-pipe Cooling / 2-pipe change over H&C / 4-pipe, VAV (M/S)
- **Chilled Beams**
- **VAV Fresh Air Supply:** Temperature, CO2, VOC
- **Radiant:** Radiator Heating, Floor Heating, Floor Cooling, Ceiling heating, Ceiling Cooling, Wall Heating, Wall Cooling
- **Humidity:** Humidification, Dehumidification

## Security Advice - Caution

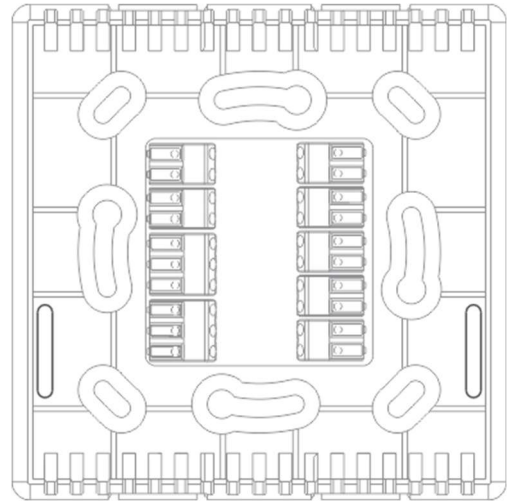
 <b>Intended Use</b>	Use this device only as intended. Unauthorized modifications void the warranty and are prohibited.
 <b>Critical Systems</b>	Do not use this device in systems where failure could threaten human health, life, or animals.
 <b>Electrical Safety</b>	Risk of electric shock. Disconnect the power supply before installation or maintenance. Do not work on live equipment.
 <b>Compliance</b>	Please comply with local laws, health & safety regulations, technical standards and regulations and the installation manual.

## Mounting

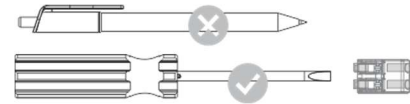
<b>Mounting Location</b>	Wall-mounted, approx. 1.5m from floor level; avoid direct blow or other intense airflow
<b>EU</b>	flush mounted with standard EU box (Ø=60 mm), M3.5 countersunk screw

## Mounting instructions

- Mount the room unit in a location that is **free from direct airflow**, such as air blown by fan coil units, split system units, localized heating or cooling devices, or central ventilation system intake grilles, to ensure accurate and reliable measurements.
- Mount the room unit at a height of **1.5 meters** from the floor to ensure optimal performance and accurate readings.
- Mount the room unit at least **0.5 meter** away from any door.
- Mount the room unit to the wall. Ensure the backplate is positioned correctly with the two narrow elongated openings located at the bottom.
- Connect the unit firstly with **Modbus communication** cables: Pin 5,6.
- Connect the unit secondly with **Power Supply** cables: Pin 7,8.
- Once room unit is mounted and connected you can attach the front plate.



**IMPORTANT!** Do not press connectors with a pen or pointed object. Use a flat-head screwdriver to avoid damaging the connectors.



## Electrical Connection

<b>Pin 1</b>	Universal Input 2	<b>Pin 11</b>	AUX2
<b>Pin 2</b>	GND	<b>Pin 12</b>	AUX1
<b>Pin 3</b>	Universal Input 1	<b>Pin 13</b>	Universal Output 3
<b>Pin 4</b>	GND	<b>Pin 14</b>	GND
<b>Pin 5</b>	DC+	<b>Pin 15</b>	Universal Output 2
<b>Pin 6</b>	Universal Input Output 1	<b>Pin 16</b>	GND
<b>Pin 7</b>	GND	<b>Pin 17</b>	Universal Output 1
<b>Pin 8</b>	Modbus A	<b>Pin 18</b>	GND
<b>Pin 9</b>	Modbus B	<b>Pin 19</b>	DC+ / ~AC
<b>Pin 10</b>	GND	<b>Pin 20</b>	DC- / ~AC

