Alledio Thermostat

Temperature I Humidity I VOC I Modbus I WiFi

Document revision	1.1
Document release date	July 2025
Document Number	ALL-TH
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.

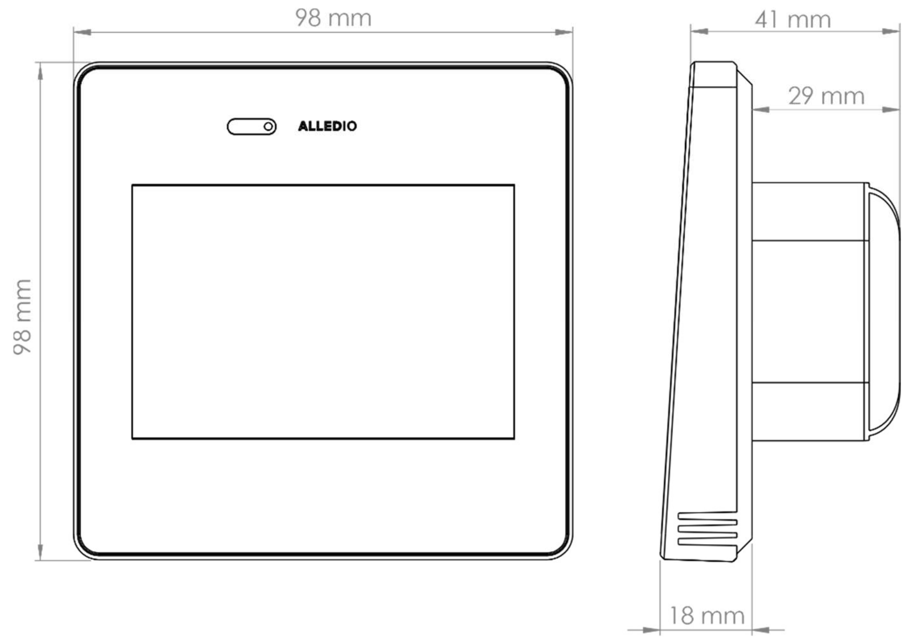
Parameter	Technical data
Housing Material	ABS (flame resistant); scratch-resistant glass
Power Supply	230 VAC
Power consumption	1W (at normal operation with display off). Less than 1 kWh/month.
In-built Sensors	- temperature: digital sensor, NTC 10k (optional) - humidity: digital sensor - air quality (optional): digital sensor
Measuring Ranges (sensors)	Temperature: -40°C to +125°C Humidity: 0 – 100 % VOC (optional): 1 - 500 VOC index points; Ethanol in clean air: 0 - 1000 ppm
Sensor Accuracy:	Temperature: average ±0.2 °C (at 0 – 60°C); Humidity: ±1.8 % (10%-90% at 25°C) Air Quality: - device to device variation: VOC Index Points < ± 15% - repeatability: VOC Index Points < ± 5%
Relays	Max 5 relays (configuration dependent) - fan speed 1, 2, 3, heating, cooling. Max 5A (4A) resistive load per relay.
Outputs	Analog output 0-10V; output is limited to 10mA. Digital output is limited to 10mA.
Network	RS485 Modbus, RTU, half-duplex, Baud rate 9600 kbps, 19200 kbps, 38400 kbps, 57600 kbps, 115200 kbps. Parity: non, even or odd. RS485 bus load: ¼ unit load according to RS485 standard (max. 128 devices).
Modbus Device Type	Slave Device (upon request also available as Master Device)
WiFi	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.
Bluetooth	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.
Operating Range (device)	Temperature: -40°C to +°85°C Humidity: 0% – 80%
Clock	RTC Real Time Clock
Display	LCD Display size 3.5" with 480 x 320 at, with capacitive touch, brightness sensor for automatic illumination control
Connections	Screw terminals 0.3 - 1.5mm2
Communication Cable	Twisted pair with drain wire and foil wrap or equivalent. Must Be suitable for RS485 Standard.
Ingress Protection	IP20 according to EN 60529

Ambient conditions	-10+50 °C, max. 85% rH non-condensing
Product dimensions	98 mm x 98 mm x 47 mm
Product weight	200 g
Standard	CE, EN 60730-1, EN 60730-2-9, EN 300 328 V2.2.2
Country of origin	Slovenia, EU
Warranty	1 year

Thermostat Variations	Fan Speed Relays	Analog Output	Digital Output	Heating Cooling Relays	External temp sensor	Casing Color
ALL-TA-W(/B)	1,2,3	2×	/	/	NTC	White / Black
ALL-TD-W(/B)	1,2,3	/	2×	/	NTC	White / Black
ALL-TAD-W(/B)	1,2,3	1×	1×	/	NTC	White / Black
ALL-THC-W(/B)	1,2,3	/	/	2×	NTC	White / Black

Dimensions

L x W x H				98 mm x 98 mm x 47 mm

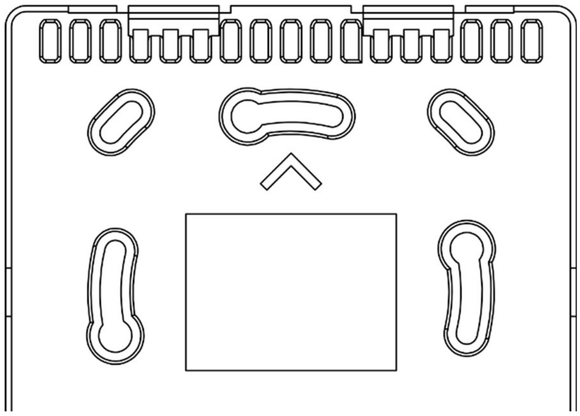


Mounting

Mounting Location	Wall-mounted, approx. 1.5m from floor level; avoid direct blow or other intense airflow
EU	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. On the **back plate** of the device there is an **"UP arrow"** marking in order to attach the back plate in the correct direction for best measurement performance;
- 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.



Electrical Connection

	2x AO	2x DO	1x AO, 1x DO	Relay H/C
Pin 1	L			
Pin 2	N			
Pin 3	NTC			
Pin 4	Modbus A			
Pin 5	Modbus B			
Pin 6	GND			
Pin 7	Analog O-1	Digital O-1	Analog O	Heating Relay
Pin 8	Analog O-2	Digital O-2	Digital O	Cooling Relay
Pin 9	Relay Out (Fan Speed 1)			
Pin 10	Relay Out (Fan Speed 2)			
Pin 11	Relay Out (Fan Speed 3)			
Pin 12	Relay Com (Communication)