



**COMET SYSTEM, s.r.o.**

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## H3431 temperature and humidity regulator with RS485 output



code: H3431

Humidistat, thermostat with two relay outputs. Outdoor, indoor use.

Relative humidity, temperature probe on a cable. Measured values are also converted to other humidity interpretation: dew point temperature, absolute humidity, specific humidity, mixing ratio, specific enthalpy. Three two-state inputs.

The device is supplied with T+RH probe with 1m cable. Cable lengths 2m or 4m available optionally.

### Included in delivery:

- H3431 sensor
- [Traceable calibration certificate](#)
- Quick start manual
- Technical support at [discussion forum](#)

## Features

Humidistat is designed for two-state control of e.g. heating, ventilation, humidifier, dehumidifier, etc.

Transmitter is equipped with two relay outputs for alarm indication or control of external devices. Each relay can be assigned to any measured or computed value. For each relay setting of delay, hysteresis, audible alarm is enabled.

Measured temperature and relative humidity is recalculated to other humidity interpretations - dew point temperature, absolute humidity, specific humidity, mixing ratio or specific enthalpy.

Parameters are easy adjustable from regulator keyboard or from the computer. Large dual line LCD for simultaneous display of temperature, relative humidity or other calculated humidity interpretation is an advantage.

State-of-the-art capacitive polymer sensor ensures excellent calibration long term stability, inertia against water and condensation. Transmitter is designed for use in non-aggressive environment.

Transmitter is also equipped with three binary inputs for detection of two-state events - e.g. water, smoke, glass break detection, door contact.

## APPLICATIONS

- temperature control
- monitoring of temperature and three binary signals at:
- building management and automation

- server rooms
- telecommunication devices
- warehouses, glasshouses
- manufacturers
- museums, archives, galleries
- air-conditioned rooms, HVAC

**Serial output RS485** is galvanically isolated from other circuitry to prevent collisions on the RS485 bus. The transmitter works with [ModBus RTU](#) communication protocol or with [Advantech ADAM](#) compatible protocol. Protocol is user selectable in special configuration mode by means of the PC. Serial link enables to read actual readings and modify transmitter configuration. Instrument works always in slave mode, i.e. responds only to master device query. Transmitters have the address space available from 0 to 255. Communication speed is 110 to 115200Bd.

## SOFTWARE:

- **Comet Database**

Complex solution for data acquisition and analysing. Easy to use and high flexible database software for Comet Transmitters and Regulators.

- **Sensor RS485/232 utility**

allows communication of sensors with RS485/RS232 output and sending data to [Comet Database](#).

- **T-Sensor software**

Free configuration utility for Comet Transmitters and Regulators.

- **SensorReader software**

Basic data acquisition utility for Comet Transmitters and Regulators. Software is free for download.

- **3rd party software**

[ControlWeb](#), [TIRS.NET](#), [LabVIEW](#) etc. Support for this software is provided by the 3rd party companies.



## Technical Data

Technical parameters	Value
Output	RS485
Measured Value	Temperature + Relative Humidity
Construction Type	With T+RH Probe on Cable
Design	Industrial
Temperature Measuring Range	-30 to 105 °C
Relay Output	Yes
Two-State Input	Yes
Lcd Display	Yes
PoE	No
Maximum switching voltage, current, power of relay output	50V, 2A, 60VA
Audible alarm	from built-in beeper - switchable
Relative humidity range	0 to 100%
Accuracy of relative humidity measurement	±2.5% relative humidity from 5 to 95% at 23°C

Accuracy of temperature output	$\pm 0.4^{\circ}\text{C}$ from $-30$ to $+100^{\circ}\text{C}$ $\pm 0.4\%$ from reading over $+100^{\circ}\text{C}$
Available temperature units	degrees Celsius, Fahrenheit
Accuracy and range of dew point temperature output - for more details see graphs	$\pm 1.5^{\circ}\text{C}$ at ambient temperature $T < 25^{\circ}\text{C}$ and $\text{RH} > 30\%$ range $-60$ to $+80^{\circ}\text{C}$
Accuracy and range of absolute humidity output	$\pm 1.5\text{g}/\text{m}^3$ at ambient temperature $T < 25^{\circ}\text{C}$ range $0$ to $400\text{g}/\text{m}^3$
Accuracy and range of specific humidity output	$\pm 2\text{g}/\text{kg}$ at ambient temperature $T < 35^{\circ}\text{C}$ range $0$ to $550\text{g}/\text{kg}$
Accuracy and range of mixing ratio output	$\pm 2\text{g}/\text{kg}$ at ambient temperature $T < 35^{\circ}\text{C}$ range $0$ to $995\text{g}/\text{kg}$
Accuracy and range of specific enthalpy output	$\pm 3\text{kJ}/\text{kg}$ at ambient temperature $T < 25^{\circ}\text{C}$ range: $0$ to $995\text{kJ}/\text{kg}$
Signal for binary inputs	from voltage-less contact, open collector or two-state voltage signal. Inputs are not galvanically isolated.
Minimum pulse length at binary input	500 ms
Voltage at open contact	3.3 V
Low voltage level	$0$ to $+0.5\text{V}$
High voltage level	$+3.0$ to $+30\text{V}$
Temperature operating range	$-30$ to $+80^{\circ}\text{C}$
Temperature operating range of LCD display	readable to operating temperature $+70^{\circ}\text{C}$ , it is recommended to switch OFF the LCD over $+70^{\circ}\text{C}$
Temperature compensation of the humidity sensor	all temperature range
Filtering ability of sensor cover	$0.025\text{mm}$ - filter with stainless steel mesh
Communication protocol	ModBus RTU, ARION and Advantech ADAM compatible protocol
Communication speed	$110$ to $115200\text{Bd}$
IP protection	IP65 electronics, IP40 sensors
Power	$9\text{-}30\text{Vdc}$ , power consumption approximately $1\text{W}$
Length of the probe cable	$1\text{m}$ , $2\text{m}$ or $4\text{m}$ optionally
Dimensions	$136 \times 159 \times 45\text{mm}$ (W x H x D), probe length $88\text{mm}$ , probe diameter $18\text{mm}$
Weight	approximately $420\text{g}$ - $1\text{m}$ probe
Warranty	3 years