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H3531R - rack mount thermometer hygrometer with Ethernet interface and relays

code: H3531R

Humidity, temperature monitor with two relay outputs.



Sensor H3531R is designed for online monitoring of temperature, relative humidity of air without aggressive substances. Three binary inputs to detection of two-states signals are the advantage. Other devices are controlled by two relay outputs.

High precision capacitive polymer sensor ensures excellent long term calibration stability and ultimate accuracy. Measured values are also converted to other humidity interpretation: dew point temperature, absolute humidity, specific humidity, mixing ratio and specific enthalpy. The device is supplied with T+RH probe with 1m cable. Cable lengths 2m or 4m available optionally.

Included in delivery:

- H3531R sensor
- [Traceable calibration certificate](#)
- Quick start manual
- Technical support at [discussion forum](#)

Features

APPLICATIONS:

• Server rooms monitoring

Temperature/humidity and binary inputs monitoring of the server rooms and rack units, SNMP monitoring, alert by email and Syslog

• Building HVAC management

Temperature/humidity monitoring of buildings, history data to [Comet Database](#), alert by email or SMS

• Warehouses

Temperature/humidity monitoring of storage, history data to [Comet Database](#) or 3rd party SCADA system

• Museums, archives, galleries

Temperature/humidity is requested for rooms where old valuable documents are stored, history data to [Comet Database](#), alert by email or SMS

• Factories and manufacturing

Temperature/humidity monitoring for food processing industry, pharmaceutical industry, aerospace industry, etc.

• Air-conditioned rooms

Temperature rising indicates cooling fault, alert by email



SOFTWARE:

- [Comet Database](#)

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

- [T-Sensor software](#)

Free configuration utility for COMET sensor.

- [SensorReader software](#)

Basic data acquisition utility for COMET Sensors. Software is free for download.

- [3rd party software](#)

[Cacti](#), [InTouch](#), [ControlWeb](#), [EasyView](#), [LabVIEW](#). Support for this software is provided by the 3rd party companies.

FEATURES:

Temperature and humidity



Sensor is designed to measuring from internal temperature and humidity sensor. High precision capacitive polymer sensor ensures excellent calibration long term stability, inertia against water and condensation. Web Sensor is designed for use in non-aggressive environment. Degrees Celsius and Fahrenheit are user selectable.



Dew point and computed quantities



Measured values are also converted to other humidity interpretation: dew point temperature, absolute humidity, specific humidity, mixing ratio and specific enthalpy. User can select one of these interpretation.

Relay outputs



Two relay output for alarming or external device control. It is possible to assign any input value to each relay. Relay can be remotely controlled using ModbusTCP communication protocol.

Binary inputs



It is possible to read three binary inputs status for detection of two-state events - e.g. smoke, water leak detectors, door contact. Supported binary inputs: dry contact, open collector or two-state voltage signal.

Dual line LCD



Large dual line LCD for simultaneous display of temperature, relative humidity or other calculated humidity interpretation is an advantage. Displayed values are user selectable. Display can be switched off.

Acoustic alarms



Acoustic signalisation can be activated after exceeding set limits. Alarm can be confirmed (deactivated) from device keyboard.

Ethernet interface



10Base-T/100Base-TX Ethernet interface via standard RJ45 connector. IP address can be obtain automatically from DHCP server or set manually. Internet protocol version 4 is supported only.

WWW server



Current values are available via embedded web server. Design of the web pages is can be changed according user requirements.

Email



Warning email are sent when measured value exceed selected limits. SMTP authentication is supported, but SSL not.

History export to CSV



History values can be exported for next processing by the CSV file. CSV file can be processed inside spreadsheet application like Microsoft Excel or OpenOffice Calc. Two formats of CSV file are supported - dot and comma decimal point separators. Timestamps inside CSV file are shown when device time is synchronised by the SNTP server.

ModbusTCP protocol



Modbus protocol for communication with SCADA systems or third party software. Device use Modbus TCP protocol version.

SNMP protocol



SNMP version 1 protocol for IT infrastructure. Using SNMP protocol you can read actual measured values, alarm status and alarm parameters. MIB tables with OID description are available.

SNMP Trap



SNMP Trap for IT infrastructure. The device allows sending Traps to selected Trap receiver server. Traps are sent in case of alarm on channel or at error states.

SOAP protocol



The device allows to send currently measured values via SOAP v1.1 protocol. The device sends values in XML format to the web server. The advantage of this protocol is that communication is initialized by the device side. Due to it is not necessary use port forwarding.

Syslog protocol



Syslog protocol for IT infrastructure monitoring systems. The device allows sending text message to selected Syslog server. Messages are sent in case of alarm on channel or at error states.

SNTP protocol - time synchronization



Time synchronisation with SNTP server. Actual time is shown at web pages and is necessary for timestamps inside CSV files.

Technical Data

Technical parameters	Value
Output	Ethernet
Measured Value	Temperature + Relative Humidity
Construction Type	With T+RH Probe on Cable
Design	Rack 19"
Temperature Measuring Range	-30 to 105 °C
Relay Output	Yes
Two-State Input	Yes

Lcd Display	Yes
PoE	No
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	±0.4°C
Resolution	0.1°C, 0.1%RH
Measuring interval	2s
Available temperature units	degrees Celsius, degrees Fahrenheit
Computed values	dew point, absolute humidity, specific humidity, mixing ratio, specific enthalpy
Accuracy and range of dew point temperature output - for more details see graphs in manual	±1.5°C at ambient temperature T<25°C and RH>30% range -60 to +80°C
Accuracy and range of absolute humidity output	±1.5g/m ³ at ambient temperature T < 25°C range 0 to 400g/m ³
Accuracy and range of specific humidity output	±2g/kg at ambient temperature T < 35°C range 0 to 550g/kg
Accuracy and range of mixing ratio output	±2g/kg at ambient temperature T < 35°C range 0 to 995g/kg
Accuracy and range of specific enthalpy output	±3kj/kg at ambient temperature T < 25°C range: 0 to 995kj/kg
Temperature compensation of the humidity sensor	all temperature range
Temperature operating range	-30 to +80°C
IP protection	IP30
Number of relay outputs	2
Maximum switching voltage, current and power of relay output	50V, 2A, 60VA
Number of binary inputs	3
Signal for binary inputs	dry contact, open collector or two-state voltage signal. Inputs are not galvanically isolated.
Minimum pulse length at binary input	500ms
Low voltage level	0 to +0.5V
High voltage level	+3.0 to +30V
Audible alarm	built-in beeper - switchable
LAN connection	RJ-45 connector, 10Base-T or 100Base-TX
Communication protocols	WWW, ModbusTCP, SNMPv1, SOAP
Alarm protocols	E-mail (SMTP authentication is supported), SNMP Trap, Syslog
Configuration	T-Sensor, Telnet, keyboard
Temperature operating range of LCD display	readable to operating temperature +70°C, it is recommended to switch OFF the LCD over +70°C
Filtering ability of sensor cover	0.025mm - filter with stainless steel mesh

Power	12Vdc, maximum consumption 1W
Power connector	co-axial, diameter 5.5 x 2.1mm
Length of the probe cable	1m, 2m or 4m optionally
Dimensions	483 x 44 x 45mm (W x H x D), one 19" rack unit 1U
Weight	approximately 1090g - 1m probe
Warranty	3 years