

## PRODUCT DESCRIPTION

**Programmable monitoring systems** for 19" rack mounting with Ethernet connection are designed to measure temperature, relative humidity and barometric pressure of air in non-aggressive environment, to alarm indication and to control of external devices. Three galvanic no isolated binary inputs are intended for detection of binary signals.

**Two output relays** functions can be set from regulator keyboard or from computer. Each relay can be assigned to one of measured, detected or computed value (dewpoint temperature, absolute humidity, specific humidity mixing ratio and specific enthalpy). Setting of delay, hysteresis, audible alarm is enabled for each relay. It is possible to control output relay status via Ethernet too. The instrument may send a warning message if the measured value goes out of adjusted limits. Devices are equipped with four button keyboard and LCD display.

**The formats of Ethernet communication** that are supported: www pages with user-design possibility, Modbus TCP protocol, SNMPv1 protocol and SOAP. For setting of all parameters you can use *TSensor* software (see [www.cometsystem.com](http://www.cometsystem.com)).

type *	measured values	construction	mounting
<b>H3531R</b>	T + RH + CV	probe on a cable	rack 19"
<b>H4531R</b>	T	external probe Pt1000/3850 ppm	rack 19"
<b>H7531R</b>	T + RH + P + CV	probe on a cable	rack 19"

\* models marked HxxxZ are custom - specified devices

T...temperature, RH...relative humidity, P...barometric pressure, CV...computed values

## INSTALLATION , OPERATION AND CONFIGURATION

Monitoring systems are used for mounting to rack 19" (mounting screws and self-retaining nuts are included). For binary sensors and external probe connection choose shielded cables (external diameter 4 to 6.5mm) with wire cross-section 0.14 to 1.5mm<sup>2</sup>. Maximum binary sensor and external probe cable length is 10 m. The binary sensor and external probe cable shielding is connected to proper terminal device only, do not connect it to other circuitry and do not ground it. The all cables should be located as far as possible from potential interference sources. Pay attention to device mounting, because incorrect choice of working position or place of measuring could adversely affect accuracy and long-term stability of measured values.

Actual parameters settings of each relay can be displayed by pressing of „▲“ key. To change any parameter, press the „Set“ key, enter password (default 0000) and set required value. Then click on „Set“ and pressing „Esc“ key exit setup mode. To change the password and to set all other parameters (acoustic alarm, select the computed value etc.) is used *Extended setting mode* (see manual for devices at [www.cometsystem.com](http://www.cometsystem.com)).

For network device connection it is necessary to know new suitable IP address (you can get it automatically from DHCP server or from your network administrator) and to have *TSensor* software installed. After you connect sensing probe, Ethernet cable and power adapter, you run *TSensor* program, set the new IP address, configure the device in accordance with your requirements and finally store the settings. The default IP address of each device is preset to **192.168.1.213**.

Devices don't require special maintenance. We recommend you periodic calibration for measurement accuracy validation.

## ERROR STATES

Device continuously checks its state during operation and if an error appears, it is displayed relevant code: **Err 1** – measured or calculated value is over the upper limit, **Err 2** – measured or calculated value is below the lower limit or pressure measurement error occurred, **Err 0**, **Err 3** a **Err 4** – it is a serious error, please contact distributor of the device, **Err5**, **Err6** - there is problem with assigned value to output relay, **Err9** – inserted password is not valid.

## SAFETY INSTRUCTIONS



- Humidity and temperature sensors of the monitoring system can not be operate and store without a filter cap.
- Temperature and humidity sensors have not to be exposed to direct contact with water and other liquids.
- It is not recommended to use the humidity monitoring systems for long time under condensation conditions.
- Take care when unscrewing the filter cap as the sensor element could be damaged.
- Use only the power adapter according to technical specifications and approved according to relevant standards.
- Don't connect or disconnect devices while power supply voltage is on.
- Installation, electrical connection and commissioning should be performed by qualified personnel only.
- Devices contain electronic components, it needs to liquidate them according to currently valid conditions.
- **To supplement the information** provided in this data sheet, use the manuals and other documentations which are available at [www.cometsystem.com](http://www.cometsystem.com)

## Technical specifications

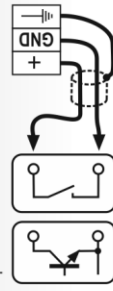
Device type	H3531R	H4531R	H7531R
Supply voltage / power consumption	12 Vdc / 1W	12 Vdc / 1W	12 Vdc / 1W
Powering of external sensors and detectors	+12 Vdc / max. 400mA, +5 Vdc / max. 500mA, total power consumption max. 5W		
Relay outputs	max. switching voltage ... 50V, max. switching current ... 2A, max. switching power ... 60 VA		
Binary inputs	low level input voltage ... 0 to 0.5V, high level input voltage ... 3 to 30V, current through closed contact ... 25µA		
Temperature measuring range	-30 to 105 °C	-200 to 600 °C	-30 to 105 °C
Accuracy of temperature measurement	± 0.4 °C	± 0.2 °C (without probe)	± 0.4 °C
Relative humidity (RH) measuring range	0 to 100 %RH	—	0 to 100 %RH
Accuracy of humidity measurement from 5 to 95 %RH at 23 °C	± 2.5 %RH	—	± 2.5 %RH
Barometric pressure measuring range	—	—	600 to 1100 hPa
Accuracy of barometric pressure measurement at 23 °C	—	—	± 1.3 hPa
Other calculated humidity variables	yes	—	yes
Recommended calibration interval	1 year	2 years	1 year
Protection class of the case with electronics	IP30	IP30	IP30
Protection class of the sensors cover	IP40	—	IP40
Temperature operating range of the case with electronics *	-30 to +80 °C	-30 to +80 °C	-30 to +80 °C
Temperature operating range of the measuring probe	-30 to +105 °C	—	-30 to +105 °C
Humidity operating range	0 to 100 %RH	0 to 100 %RH	0 to 100 %RH
Mounting position of the humidity and temperature probe	any position **	—	any position **
Storage temperature range (0 to 100 %RH, no condensation)	-30 to +80 °C	-30 to +80 °C	-30 to +80 °C
Electromagnetic compatibility according to	EN 61326-1	EN 61326-1	EN 61326-1
Weight	1090 (1130, 1210) g	1025 g	1090 (1130, 1210) g
Dimensions [mm]			

## Electrical wiring

### Binary inputs

Configuration is done by DIP switches 1,2,3

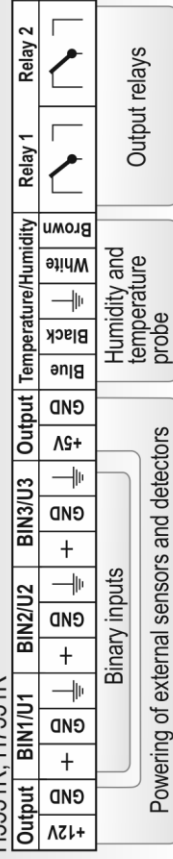
open contact ..... DIP - OFF



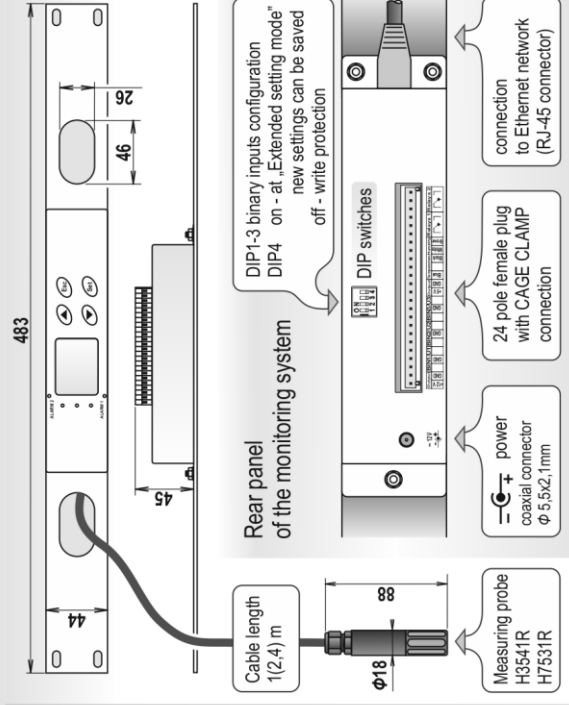
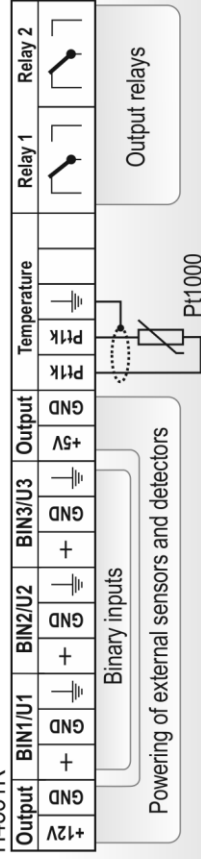
external voltage ..... DIP - ON



### H3531R, H7531R



### H4531R



\* It is recommended to switch off the LCD display at ambient temperature above 70 °C.

\*\* if it can lead to long term condensation of water, it is necessary to use the probe at position with sensor cover downwards