Hx5xx regulators with Ethernet connection
QUICK START MANUAL

H0530 • H4531 • H3530 • H3531 • H3531P • H3536 • H7530 • H7531

PRODUCT DESCRIPTION

Programmable regulators with Ethernet connection are designed to measure temperature, relative humidity and barometric pressure of air in non-aggressive environment, to signal alarms and to control of external devices. Three galvanically not isolated binary inputs are intended for detection of binary signals. The regulators with relative humidity measurement also provide a value of dew point temperature, absolute humidity, specific humidity, mixing ratio, specific enthalpy and humidex. The currently measured values are shown on a two-line LCD display. The regulators are available in a compact design or with a probe on a cable.

The function of the two output relays can be set from the device web pages and using jumpers. The devices allow you to set two alarm limits for each measured value. The reaction to an alarm change can be switching on a relay, activating an acoustic signal or sending a warning message using email and other communication protocols. The status of the relays can be changed remotely via Ethernet, too.

Formats of the Ethernet communication that are supported: HTTP – web, Modbus TCP protocol, SNMPv1, XML and SOAP protocol. Alarm messages are sent via email, SNMPv1 Trap or Syslog. To set all devices including their alarm limits embedded websites can be used. A device connected to a local network can be found by the *TSensor* software (free to download at www.cometsystem.com.

Type	Measured values	Version	Mounting
H0530	T	ambient air	wall
H4531	T	external probe Pt1000/3850 ppm	wall
H3530	T + RH + CV	ambient air	wall
H3531	T + RH + CV	probe on cable	wall
H3531P	T + RH + CV	probe on cable – pressure up to 25 bars	wall
H3536	T + RH + CV	probe DigiL/0-x on cable	wall
H7530	T + RH + P + CV	ambient air	wall
H7531	T + RH + P + CV	probe on cable	wall

T…temperature, RH…relative humidity, P…barometric pressure, CV…computed values
models marked **HxxxxZ** are custom - specified devices

INSTALLATION, OPERATION AND CONFIGURATION

The mounting holes and connection terminals are accessible after unscrewing the four screws in the corners of the regulator case and removing the lid. Place the device on a flat surface and connect cables (external diameter of 4 to 6.5 mm and a wire cross-section of 0.14 to 1.5 mm^2). Connect the two-state sensors and the external Pt1000 probe with shielded cables (maximum length 10 m). Insert attached plugs into unused cable glands, too. All cables should be located as separately as possible from potential interference sources. Pay attention to the device mounting, because incorrect choice of working position or measuring point could adversely affect the accuracy and long-term stability of measured values.

To install the device and connect it to the network you need a free IP address. Please contact the network administrator to obtain the IP address. The device can obtain an IP address automatically from the DHCP server, or a static IP address can be set manually. The default IP address of devices is preset to **192.168.1.213**. After connecting the Ethernet cable and the power adapter, the device IP address needs to be changed in the web pages. To change the IP address, the *TSensor* software can be used alternatively.

The devices do not require special maintenance. We recommend verifying the measurement accuracy regularly by calibration.

MONITORING AND VALUES RECORDING

For data monitoring and auditing it is recommended to use the Comet Database software. A trial version of Comet Database is available at www.cometsystem.com. For monitoring, software and SCADA systems from third party vendors can be used. For data acquisition a communication protocol can be used which is supported by the device.

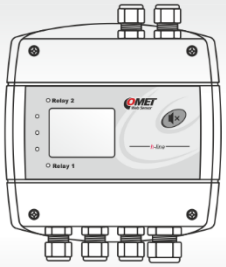
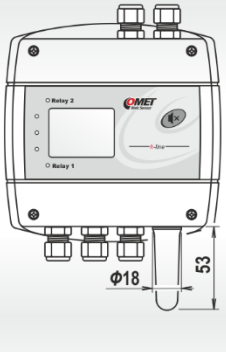
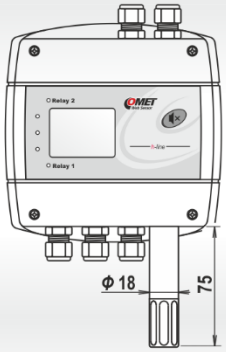
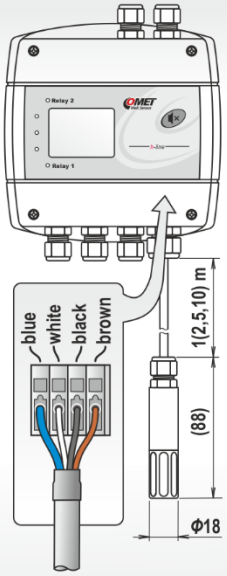
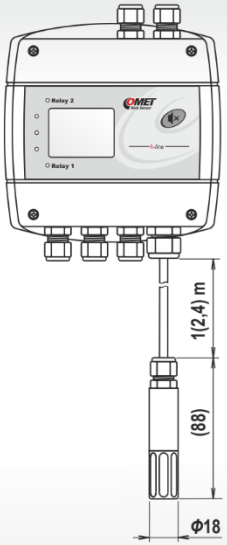
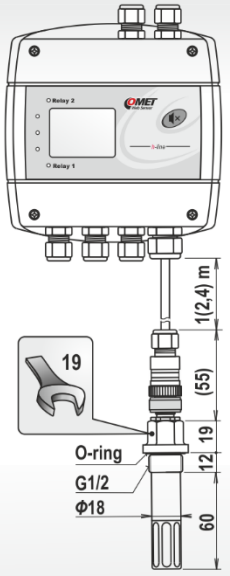
ERROR STATES

The device continuously checks its state during operation. If an error appears, the relevant code is displayed: **Err 1 -** the measured or calculated value (except of pressure) is above the upper limit, **Err 2 -** the measured or calculated value is below the lower limit or a pressure measurement error has occurred, **Err 0, Err 3** and **Err 4** - a serious error has occurred, please contact the distributor of the device.

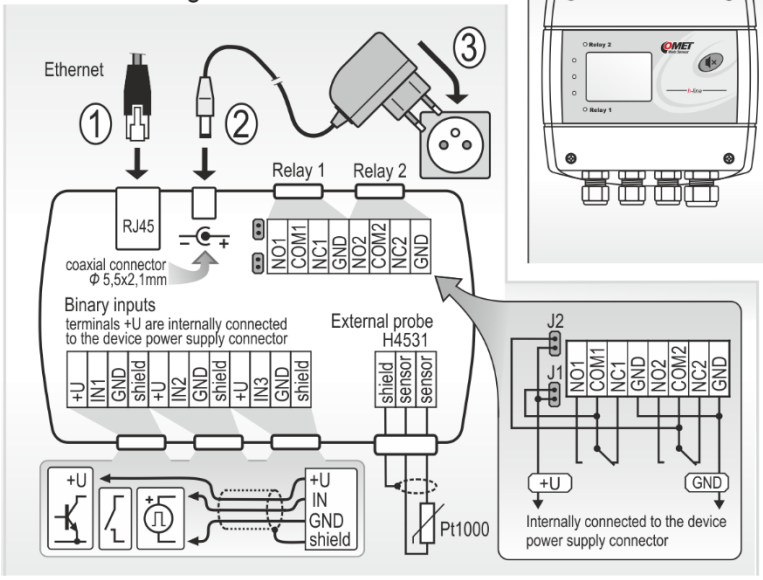
SAFETY INSTRUCTIONS

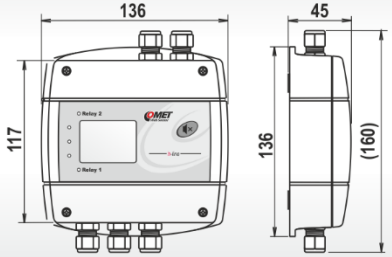
- Do not use or store the devices without the cover of the temperature and humidity sensors.
- Temperature and humidity sensors should not be exposed to direct contact with water and other liquids.
- Take care when unscrewing the filter cap as the sensor element could be damaged.
- It is not recommended to use the humidity regulators for long time under condensation conditions
- Use only a power adapter which is approved according to technical specifications and relevant standards.
- Do not connect or disconnect devices while power supply voltage is on.
- Do not install or remove the probe of the H3531P regulator under pressure.
- Installation, electrical connection and commissioning should be performed by qualified personnel only.
- The devices contain electronic components. Dispose of them in accordance with legal requirements.
- **To complement the information in this data sheet** read the manuals and other documentation, which are available in the Download section for a particular device at www.cometsystem.com.

Technical specifications

Device type	H4531	H0530	H3530, H7530	H3536	H3531, H7531	H3531P
Common parameters	*Supply voltage*: 9 to 30Vdc *Power consumption of the device*: ~ 1W *Relay outputs*: max. switching voltage ... 50V, max. switching current ... 2A, max. switching power ... 60VA *Binary inputs*: low level input voltage ... 0 to 0.5V, high level input voltage ... 3 to 30V, minimum input pulse duration ... 500 ms, auxiliary power supply +U ... 9 to 30 Vdc					
Temperature measuring range	-200 to 600°C	-30 to +80°C	-30 to +80°C	-30 to 105 °C	-30 to 105 °C	-30 to 105 °C
Accuracy of temperature measurement	±0.2°C (without probe)	± 0.4°C	± 0.4°C	± 0.4°C	± 0.4°C	± 0.4°C
Relative humidity (RH) measuring range *	—	—	0 to 100 %RH	0 to 100 %RH	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	± 2.5 %RH	± 2.5 %RH
Barometric pressure measuring range	—	—	600 to 1100 hPa (H7530)	—	600 to 1100 hPa (H7531)	—
Accuracy of barometric pressure measurement at 23°C	—	—	±1.3hPa (H7530)	—	±1.3hPa (H7531)	—
Other calculated humidity variables (dew point temperature, ...)	—	—	yes	yes	yes	yes
Recomended calibration interval of the device **	2 years	2 years	1 year	1 year	1 year	1 year
Protection class of the case with electronics	IP40	IP40	IP40	IP40	IP40	IP40
Protection class of the sensors cover	—	IP40	IP40	IP40	IP40	IP40
Temperature operating range of the case with electronics ***	-30 to +80°C	-30 to +80°C	-30 to +80°C	-30 to +80°C	-30 to +80°C	-30 to +80°C
Temperature operating range of the sensing element (sensors)	—	-30 to +80°C	-30 to +80°C	-30 to +105°C	-30 to +105°C	-30 to +105°C
Humidity operating range	0 to 100%RH	0 to 100%RH	0 to 100%RH	0 to 100%RH	0 to 100%RH	0 to 100%RH
Mounting position	any position	sensor cover downwards	sensor cover downwards	any position ****	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	-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	EN 61326-1	EN 61326-1	EN 61326-1
Weight	340 g	340 g	360 g	420 (440, 510, 620) g	410 (450, 530) g	460 (500, 580) g
Dimensions [mm]						

Electrical wiring





The probe connection to the device terminal block

Probe operating pressure range: up to 25 bar !

* The relative humidity measuring range is limited at temperature above 85°C, see manuals for devices
** Recomended calibration intervals: relative humidity - 1 year, temperature - 2 years, pressure - 1 year

*** It is recomended 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