

## PRODUCT DESCRIPTION

**Programmable regulators** with relay outputs are designed to measure temperature and relative humidity of air in non-aggressive environment, to alarm indication and to control of external devices. Regulators are available in wall-mount and duct-mount versions or with probe on a cable. For measuring temperature and relative humidity of compressed air is used type HxxxxP.

**Two output relays** functions can be set from regulator keyboard or from computer. Each relay can be assigned to one of measured 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. Measured and calculated values are displayed on a two-line display. Using *TSensor* software (see [www.cometsystem.cz/software.htm](http://www.cometsystem.cz/software.htm)) can be all regulator parameters set. To connect to PC is used USB adapter SP003 (optional accessories).

type *	measured values	construction	mounting
<b>H3020</b>	T + RH + CV	ambient air	wall
<b>H3023</b>	T + RH + CV	duct mount	wall
<b>H3021</b>	T + RH + CV	probe with a cable	wall
<b>H3021P</b>	T + RH + CV	probe with a cable – pressure up to 25 bars	wall

\* models marked HxxxxZ are custom - specified devices

T...temperature, RH...relative humidity, CV...computed values

## INSTALLATION AND OPERATION

The mounting holes and connection terminals are accessible after unscrewing the four screws in the corners of case and removing the lid. Devices have to be mounted on a flat surface to prevent its deformation. Pass cables (external diameter 3 to 6.5 mm) through released glands and connect wires according to diagram. Wire cross-section choose from 0,14 to 1.5mm<sup>2</sup>. Tighten glands and screw the lid. Insert attached plug into unused cable glands too. 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 (alarm settings, used units, computed value selection etc.) is used *Extended setting mode* (see manual for devices at [www.cometsystem.cz/manuals.htm](http://www.cometsystem.cz/manuals.htm)).

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:

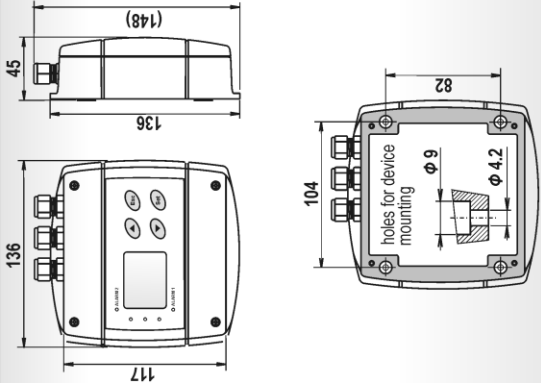
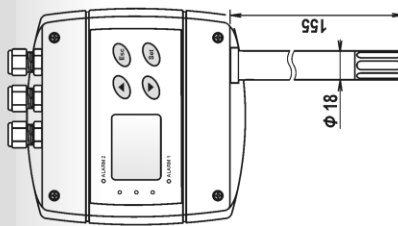
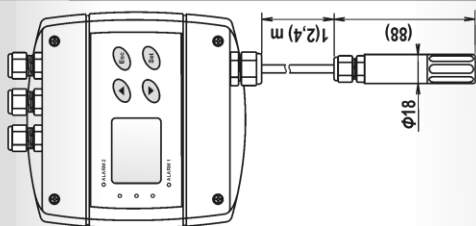
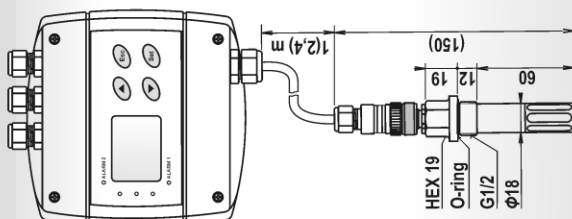
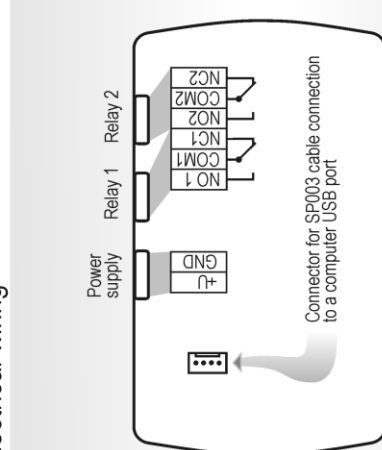
- Err 0** – it is a serious error, please contact distributor of the device
- Err 1** – measured or calculated value is over the upper limit
- Err 2** – measured or calculated value is below the lower limit
- Err 3** – it is a serious error, please contact distributor of the device
- Err 5** – there is problem with assigned value to output relay
- Err 6** – there is problem with assigned value to output relay
- Err 9** – inserted password is not valid

## SAFETY INSTRUCTIONS



- Humidity and temperature sensors of the regulator 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 regulators for long time under condensation conditions.
- Take care when unscrewing the filter cap as the sensor element could be damaged.
- Don't connect or disconnect devices while power supply voltage is on.
- If the sensing probe of H3021P regulator is installed, make sure that measured area is without pressure.
- 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.
- For more information, please use detailed manuals and other documentation which are available at [www.cometsystem.cz/manuals.htm](http://www.cometsystem.cz/manuals.htm) or [www.cometsystem.cz/software.htm](http://www.cometsystem.cz/software.htm)

## Technical specifications

	H3020	H3023	H3021	H3021P
Device type	H3020	H3023	H3021	H3021P
Supply voltage	9 to 30Vdc	9 to 30Vdc	9 to 30Vdc	9 to 30Vdc
Power consumption	approximately 1W	approximately 1W	approximately 1W	approximately 1W
Relay outputs	- maximum switching voltage 50 V 2 A 60 VA	50 V 2 A 60 VA	50 V 2 A 60 VA	50 V 2 A 60 VA
Measuring interval	1 s	1 s	1 s	1 s
Temperature measuring range	-30 to 80°C	-30 to 125°C	-30 to 105°C	-30 to 105°C
Accuracy of temperature measurement	±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
Other calculated humidity variables	yes	yes	yes	yes
Recommended calibration interval	1 year	1 year	1 year	1 year
Protection class of the case with electronics	IP65	IP65	IP65	IP65
Protection class of the sensors cover	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
Temperature operating range of the sensing element (sensors)	-30 to +80°C	-30 to +125°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
Mounting position	cable glands upwards	cable glands upwards	any position ***	any position ***
Storage temperature range (humidity 0 to 100%RH, no condensation)	-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
Weight	350 g	420 g	400 (440, 520) g	450 (490, 570) g
Dimensions [mm]				
Electrical wiring				

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

\*\* mounting position "cable glands upwards" is recommended for free space, in the air-conditioning duct you can place the device in any position \*\*\* if it can lead to long term condensation of water, it is necessary to use the probe at position with sensor cover downwards