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. Type H3021P is designed for measurement the temperature and relative humidity of compressed air.

The function of two output relays can be set from regulator keyboard (or from computer) and using the jumpers (see „Electrical wiring"). You can assign one of measured or computed value (dew point temperature, absolute humidity, specific humidity mixing ratio and specific enthalpy) to each relay. The setting of delay, hysteresis and audible alarm is enabled for each relay too. Measured and calculated values are displayed on a two-line display.

All regulator parameters can be set using *TSensor* configuration software (it is free to download at www.cometsystem.com). To connect to PC is used USB adapter SP003 (optional accessories).

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

* models marked Hxxxx**Z** are custom - specified devices   T…temperature, RH…relative humidity, CV…computed values

INSTALATION 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 1.5 mm^2. 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 by pressing of "ESC" key leave the setup mode. Extended setting mode (see manual for devices at www.cometsystem.com) you can use to setting new password and to modifying of all other parameters (acoustic alarm, used units, computed value selection etc.).

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 cannot 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.
- Do not connect or disconnect devices while power supply voltage is on.
- Do not install or remove the probe of H3021P regulator under 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.
- **To complement the information in this data sheet** read the manuals and other documentations that are available in the Download section for a particular device at www.cometsystem.com.

Technical specifications

Device type	H3020	H3023	H3021	H3021P
Supply voltage	9 to 30Vdc	9 to 30Vdc	9 to 30Vdc	9 to 30Vdc
Power consumption of the device	approximately 1W	approximately 1W	approximately 1W	approximately 1W
Relay outputs - maximum switching voltage	50 V	50 V	50 V	50 V
- maximum switching current	2 A	2 A	2 A	2 A
- maximum switching power	60 VA	60 VA	60 VA	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 (dew point temperature, absolute humidity, specific humidity, mixing ratio, ...)	yes	yes	yes	yes
Recomended calibration interval of the device *	1 year	1 year	1 year	1 year
Protection class of the case with elektronics	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]				
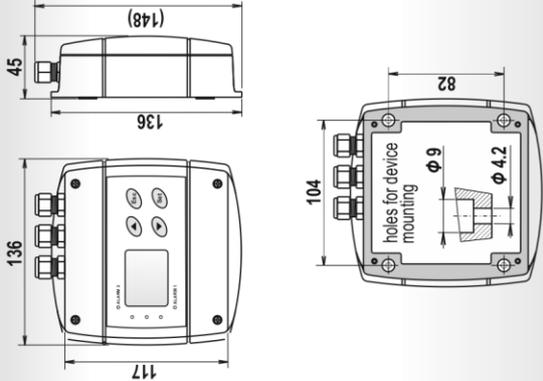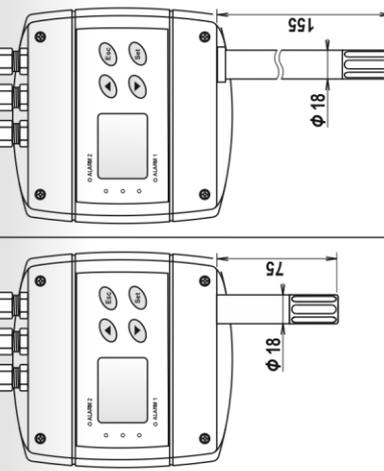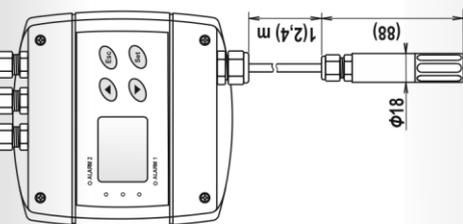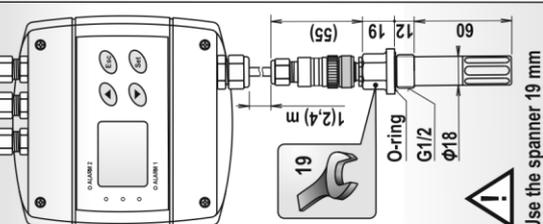
Use the spanner 19 mm for probe installation!

*** mounting position "cable glands upwards" is recomended 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

Electrical wiring

Connector for SP003 cable connection to a computer USB port

Internally connected to the device power supply connector
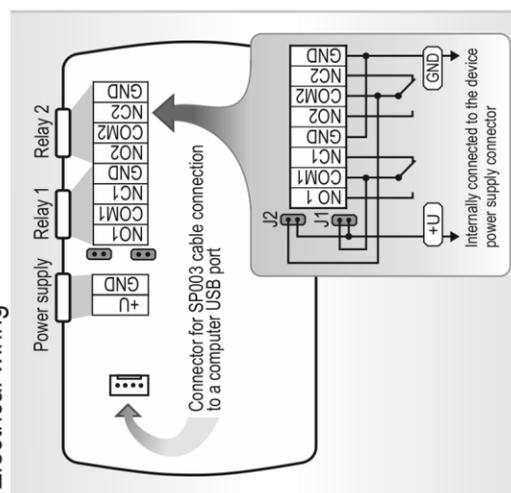
* Recomended calibration intervals: relative humidity - 1 year, temperature - 2 years
** It is recomended to switch off the LCD display at ambient temperature above 70°C.