eStat10 DUO
Electronic Room Hygro-Thermostat
1 switching output each for temperature and humidity

- **Easy to install**
- **2 potential-free switching outputs configurable as opener or closer**
- **Setpoint and switching hystereses for temperature and relative humidity independently configurable**
- **Display of current relay switching states**
- **2 continuous 0...10 V signal outputs for relative humidity and temperature**
- **Temperature compensation**
- **Alternating display of relative humidity and temperature**

Technical Data

Humidity

Measuring range	0...100 %rh
Control range of the relative humidity	5...95 %rh
Setting range of the switching hystereses	0.5...9 %rh
Measuring uncertainty	
10...90 %rh at 25 °C max	≤ ±3 %rh
0...10 %rh and 90...100 %rh at 25 °C	additional ≤ ±0.2 %rh / %rh
Long term stability	≤ 0.5 %rh/a
Hysteresis	≤ ±1 %rh
Typ. temperature influence at 25 °C	±0.05 %rh/K

Electrical data

Switching outputs:	2 relay contacts potential-free, normally open
Setting as opener / closer	Via DIP switch
Switching voltage	≤ 48V DC / AC ≥ 100 µV
Breaking capacity	≤ 60 W / 62.5 VA
Power factor	> 0.9
Switching cycles (at Pmax)	> 10^5
Switching current	≤ 2A
Continuous output rel. humidity	0...10 V DC
Continuous output temperature	0...10 V DC
Supply voltage	15...30 V DC 13...26 V AC
Consumption	≤ 30 mA
Standards applied	EN 61326-1

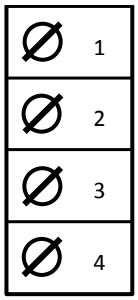
Temperature

Control range of the temperature	-25...+55 °C
Setting range of the switching hystereses	0.1...10 K
Output ranges	0...+50 °C -30...+70 °C 0...+100 °C Further ranges on demand
Measuring uncertainty at 23°C and ≤ mA switching current	typ. ±0.3 K

General Data

Measuring medium	Air, non-pressurised, non-condensing, non-aggressive
Operating temperature	-30...+60 °C
Storage temperature	-40...+85 °C
Electrical connections at mains terminals	
Wire cross-section at each connection	max. 1.5 mm²
Cable diameter	
→ Surface-mounted cable	max. 1 x Ø 6.5 mm or 2 x Ø 4.5 mm
→ Concealed cable	
See: User instructions on page 4	
Housing IP rating	IP 30D
Safety category	III
Housing materials	ABS
Housing colour	similar to RAL 9003 Signal white
Digital dispaly	2 lines

Connection diagrams

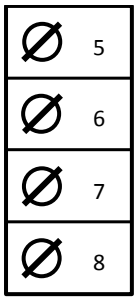


GND

+ U_B 15…30 V DC or 13…26 V AC

Output humidity 0…10 V

Output temperature 0…10 V



Relais 1

Relais 1

Relative humidity

Relais 2

Relais 2

Temperature

Relay outputs: potential free, normally open

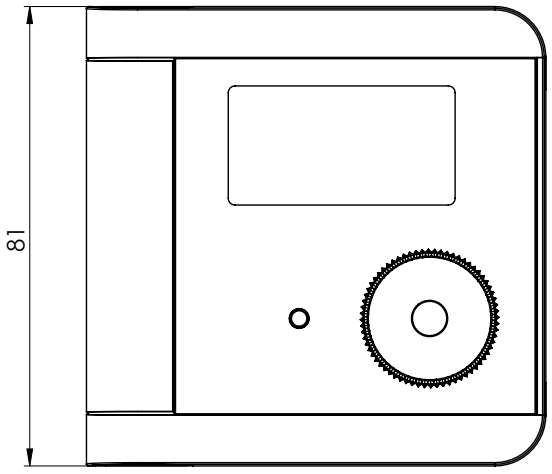
ESD protection advice

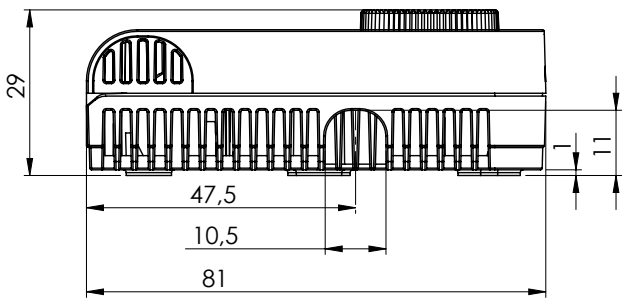
The devices contain components which can be damaged by the effects of electrical fields or by charge equalisation when touched.

The following protective measures must be taken when the housing of the device is to be opened for connection:

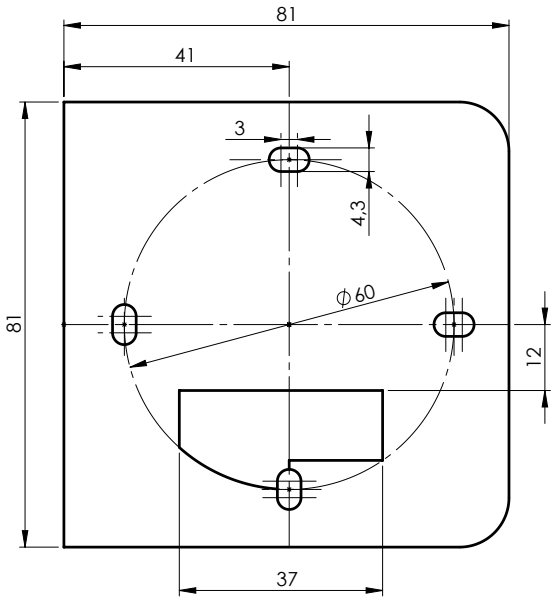
- Before opening the housing, ensure electrical potential equalisation between you and your environment.
- Pay particular attention to ensure that this potential equalisation is maintained while you are working with the housing open.

Dimensions

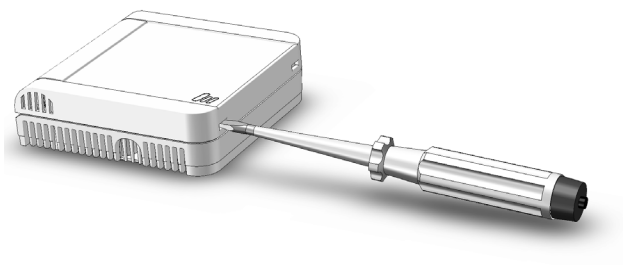




Drilling pattern

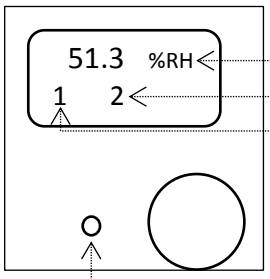


Opening the housing



Configuration guide

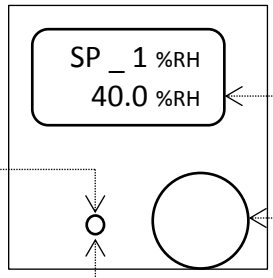
Operation mode



Alternately displays current relative humidity/temperature
„2“ displayed if relay 2 (Temp) = contacts 7-8 closed
„1“ displayed if relay 1 (rel. humidity) = contacts 5-6 closed

Press black button *briefly*: switch to

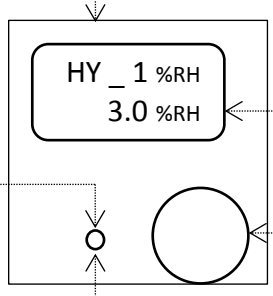
Configuration mode



Setpoint for relay 1 (rel. humidity); adjustable with rotary controller

Press black button and *hold* (>3s): store value (display: „Store“)

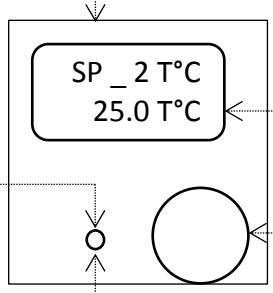
Press black button *briefly*:
Switch to next parameter *or* (after turning rotary controller) display shows "_ESC" and return to operation mode



Switching hysteresis for setpoint 1; adjustable with rotary controller

Press black button and *hold* (>3s): store value (display: „Store“)

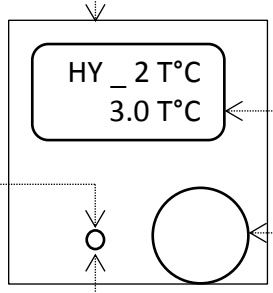
Press black button *briefly*:
Switch to next parameter *or* (after turning rotary controller) display shows "_ESC" and return to operation mode



Setpoint for relay 2 (Temp.); adjustable with rotary controller

Press black button and *hold* (>3s): store value (display: „Store“)

Press black button *briefly*:
Switch to next parameter *or* (after turning rotary controller) display shows "_ESC" and return to operation mode



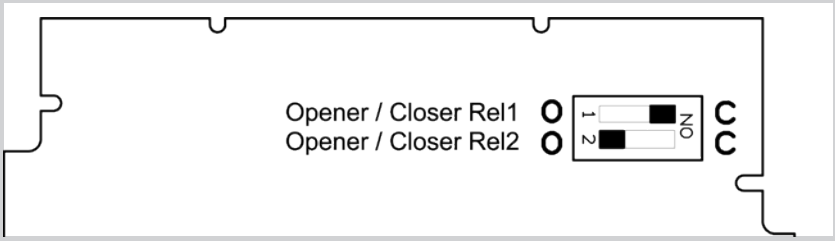
Switching hysteresis for setpoint 2; adjustable with rotary controller

Press black button and *hold* (>3s): store value (display: „Store“)

Press black button *briefly*:
Return to operation mode *or* (after turning rotary controller) display shows "_ESC" and return to operation mode

Setting relay 1 and 2 as opener or closer

DIP-Switch set to	Current reading < setpoint - switching hysteresis / 2	Current reading > setpoint + switching hysteresis / 2
C (Closer)	Relay = open	Relay = closed
O (Opener)	Relay = closed	Relay = open



Installation instructions

Position	The installation site should be chosen such that a representative measurement of air humidity can be guaranteed, i.e. the humidity readings at the installation site should correspond to those in the room. Avoid areas in the vicinity of radiators, doors and exterior walls, as well as direct sunlight.
Flush mounting Connection to surface-mounted and concealed cables	When flush-mounting the device, appropriate seals should be used to prevent external air from reaching the sensor element of the device through the concealed housing. When connecting to a concealed cable, the knock-out part of the housing floor should be broken out to allow the cable to pass through. When connecting to a surface-mounted cable, the separators at the hollowed-out points in the side of the housing can be broken out.
Connection	The device must be connected by qualified personnel.
	The housing contains sensitive components. When opening the housing, electrostatic discharge (ESD) precautions must be observed.
	Leads connected to the sensor must not run parallel to strong electromagnetic fields.
	Where there is a possibility of voltage surges, install surge protection devices.

User instructions

Damaging influences	Depending on their type and concentration, aggressive media containing solvents can cause incorrect reasings or cause the sensor to fail. Substances deposited on the sensor element (e. g. resin aerosols, paint aerosols, smoke deposits etc.) are harmful as they eventually form a water-repellent film.