

ELKO EP, s.r.o.
 Palackého 493
 769 01 Holešov, Vsetuly
 Czech Republic
 Tel.: +420 573 514 211
 e-mail: elko@elkoep.com
 www.elkoep.com

Made in Czech Republic

02-219/2016 Rev.: 0



RHT-1

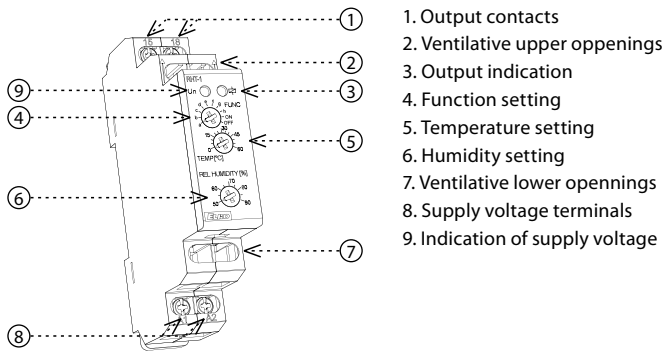
Hygro-thermostat



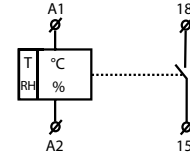
Characteristics

- hygro-thermostat for temperature monitoring and regulation in range 0 .. 60 °C (32 .. 140 °F) and relative humidity monitoring and regulation in range 50 .. 90 %
- possibility of setting of up to 8 conditions for contact switching and function permanently ON/OFF
- sensor is a part of the device - designated for measuring in switchboards
- function of sensor control (damage, disturbances)
- fixed setting of temperature hysteresis at 2.5 °C (4.5 °F) and humidity at 4 %
- output state is indicated by red LED
- supply voltage AC/DC 24 - 240 V
- output contact 1x NO / SPDT 16 A / 250 V AC1
- 1-MODULE, DIN rail mounting

Description



Symbol



Connection



Type of load	 cos φ ≥ 0.95 AC1	AC2	AC3	AC5a uncompensated	AC5a compensated	AC5b	AC6a	AC7b	AC12
Mat. contacts AgSnO ₂ contact 16A	250V / 16A	250V / 5A	250V / 3A	230V / 3A (690VA)	230V / 3A (690VA) to max. input C=14uF	1000W	x	250V / 3A	x
Type of load	AC13	AC14	AC15	DC1	DC3	DC5	DC12	DC13	DC14
Mat. contacts AgSnO ₂ contact 16A	x	250V / 6A	250V / 6A	24V / 10A	24V / 3A	24V / 2A	24V / 6A	24V / 2A	x

RHT-1

Function:	hygro-thermostat
Supply terminals:	A1 - A2
Voltage range:	24 - 240 V AC/DC (AC 50 - 60 Hz)
Power input:	max. 1 VA / 0.5 W
Max. dissipated power (Un + terminals):	2.5 W
Supply voltage tolerance:	-15%; +10%

Measuring circuit

Temperature range:	0 .. 60 °C (32 .. 140 °F)
Humidity range:	50 .. 90 %
Temperature hysteresis:	2.5 °C (4.5 °F)
Humidity hysteresis:	4 %
Sensor:	internal
Indication of sensor's fault:	red LED flashing

Accuracy

Setting accuracy (mechanical):	5 %
Long-term stability of humidity:	typical < 0.8 % / year

Output

Number of contacts:	1x NO / SPDT (AgSnO ₂)
Current rating:	16 A / AC1, 10 A / 24 V DC
Breaking capacity:	4000 VA / AC1, 300 W / DC
Switching voltage:	250 V AC / 24 V DC
Output indication:	red LED shines
Mechanical life:	3x10 ⁷
Electrical life (AC1):	0.7x10 ⁵

Other information

Operational temperature:	-20 .. 60 °C (-4 °F .. 140 °F)
Storage temperature:	-30 .. 70 °C (-22 °F .. 158 °F)
Electrical strength:	2.5 kV (supply - output)
Operating position:	vertical, with correct orientation
Mounting:	DIN rail EN60715
Protection degree:	IP40 from front panel, IP10 on terminals
Overvoltage category:	III.
Pollution degree:	2
Max. cable size (mm ²):	max. 2x 2.5, max. 1x 4 / with sleeve max. 1x 2.5, max. 2x 1.5 (AWG 12)
Dimensions:	90 x 17.6 x 64 mm (3.5" x 0.7" x 2.5")
Weight:	63 g (2.2 oz.)
Standards:	EN 60730-2-9, EN 61010-1

Warning

Device is constructed for connection for 1-phase main alternating -current voltage and must be installed according to norms valid in existing state. Connection according to the details in this direction. Installation, connection, setting and servicing should be installed by qualified electrician staff only, who learn this instruction and functions of device. For right device protection should be fronted-end certain element. Before installation the main switch must be in position "OFF" and the device should be de-energized. Don't install the device to sources of excessive electro-magnetic interference. By correct installation ensure ideal air circulation so in case of permanent operation and higher ambient temperature the maximal operating temperature of the device is not exceeded. For installation and setting use screw-driver cca 2 mm. The device is fully-electronic - installation should be carried out according to this fact. Non-problematic function depends also on the way of transportation, storing and handling. In case of any signs of destruction, deformation, non-function or missing part, don't install and claim at your seller. After its lifetime it is possible to dismount it, recycle, or store at protected waste dump.

This device is designated for monitoring of parameters of environment (meaning temperature and relative humidity) in switchboards. It enables setting of eight conditions of contact closing and therefore it is usable for various types of load (e.g. fans, heating, air-conditioning, dehydrating units,..). While installing it is necessary to take into account the fact that hysteresis rises by persistence of measured values between sensor and ambient environment.

The device is equipped by sensor fault detection. In case of sensor fault, exceeding allowed limits (for temperature -30 °C/-22 °F and 80 °C/176 °F; for humidity 5 % and 95 %) or in case of faulty internal communication higher than 50 % (due to e.g. high ambient disturbances) contact opens and sensor fault is indicated. Sensor fault doesn't have influence on function permanently ON or permanently OFF.

To ensure correct installation, arrows on the product's housing need to be aiming upwards. Ventilation openings must not be covered.

Choice of function / Relay switched under the following conditions:

A: T > Tset or RH > RHset

Relay switches if temperature or humidity exceeds set limits, relay opens if temperature and humidity is under set limit; e.g. fan switching, fault indication.

B: T < Tset or RH > RHset

Relay switches if temperature is lower or humidity higher than selected limit, relay opens if temperature is higher or humidity lower than selected limit; e.g. switching heating unit.

C: T > Tset or RH < RHset

Relay switches if temperature is higher or humidity lower than selected limit, relay opens if temperature is lower and humidity higher than selected limit; e.g. switching of cooling unit with moistening.

D: T < Tset or RH < RHset

Relay switches if temperature or humidity are smaller than selected limit, relay opens if temperature and humidity is higher than selected limit, e.g. fault indication, switching of heating unit with moistening.

E: T < Tset and RH < RHset

Relay opens if temperature and humidity are higher than selected limit, relay switches if temperature and humidity drops under selected limit, inverse function to function A (NC contact).

F: T > Tset and RH < RHset

Relay opens if temperature is lower or humidity higher than selected limit, relay switches if temperature is higher and humidity lower than selected limit, inverse function to function C (NC contacts).

G: T < Tset and RH > RHset

Relay opens if temperature is higher or humidity lower than selected limit, relay switches if temperature is lower and humidity higher than selected limit, inverse function to function C (NC contact).

H: T > Tset and RH > RHset

Relay opens if temperature or humidity are lower than selected limit, relay opens if temperature or humidity are higher than selected limit, inverse function to function D (NC contact).

ON: Manual relay control - relay is always permanently switched (connection test).

OFF: Manual relay control - relay is always permanently open (temporarily out of order).

Note: In case the conditions for switching are not applied, relay is open.