

Heater /Thermostat/hygrostat

# Heater and thermostat system expert

LINKWELL is the system supplier, with energy-saving, environmental protection, efficient product performance, to meet the requirements of temperature control system.



## KTH-082 Temperature&Humidity Remote Controller

20-90%RH (No condensation)





#### Overview

Adopting the MCU control system, the product provide a real time monitoring and controlling over temperature and humidity, which assures an appropriate ambient temperature and humidity through intelligent climate control.

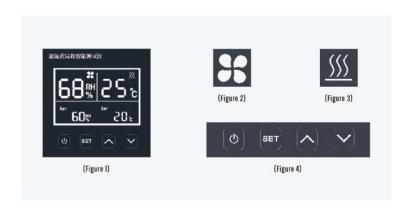
#### 1.Functions

1.1The temperature and humidity values are displayed on a high definition LCD screen. Displaying diagram as below, i.e.(Figure 1):

- Displaying humidity measurement by 2 digits, i.e: 60%RH.
- Displaying humidity set value: In the set state, 500ms/time, humidity set value is blinking, i.e. 40%RH.
- Displaying temperature measurement value by 2 digits, i.e: 25 °C
- $\bullet$  Displaying temperature set value: In set state, 500ms/time.temperature set value is blinking: i.e.: 25  $^{\circ}$  C .
- Dehumidifying mode indication, i.e.( Figure 2 ):
   When the equipment is in dehumidifying mode, it display the status by the dynamic fan.
- Heating mode indication, i.e.( Figure 2 ):
   when the equipment is in heating mode, it display the status by heating signal.

#### 1.2Button, i.e.( Figure 4):

- "POWER": Press this button to switch on or off.
- "SET": In the boot state, press this button, the product is in setting mode for temperature of humidity. Meanwhile, the digital display of humidity or temperature blinking. If no button press within 10 seconds, it automatically exit the setting status.
- ullet "PLUS":In the set state, press this button, the set values increase one as per each single press. The max. Humidity set value is 80%RH, and the max. temperature set value is 60 °C. Exiting setup automatically, if no button press in 10 seconds.
- "MINUS": In the set state, press this button, the set values decrease one as per each single press. The
  min. Humidity set value is 10%RH, and the min. temperature set value is 5°C. Exiting setup automatically,
  if no button press in 10 seconds2.



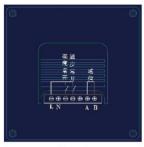
Input voltage	AC220V±10%, Other voltages can be customized
Humidity range	20-90%RH ( no condensation )
Humidity accuracy	±5%RH ( at 25℃ )
Temperature range	-20 ~ 80℃
Temperature Accuracy	±1°C ( at 25°C )
Humidity set range	20-80%RH
Operating temperature/humidity	temperature -20 $^{\circ}$ $\sim$ 60 $^{\circ}$ , humidity 10 $\sim$ 95 $^{\circ}$ RH ( no condensation )
Storage temperature/humidity	temperature -10°C $\sim$ 40°C , humidity10 $\sim$ 90%RH ( no condensation )
Switching capacity	pure resistance load AC250V/10A , DC30V/5A
Power down memory	Intelligent memory for its preset parameter in case of power failure

## KTH-082 Temperature&Humidity Remote Controller

## 20-90%RH (No condensation)



(Figure 1)



(Figure 2)



(Figure 3)

#### 2. Output Control

2.1 Humidity Output Control

If the measured humidity exceeds the set value, output relay closed for dehumidifying. And the dynamic fan displays the operation status. If the measured humidity are 5% RH less than the set value, dehumidifying stopped, the dynamic fan indicator off. The humidity difference are 5% RH so as to avoid the frequent switch over the critical point which shorten service time.

With initial power on, there are 3 seconds' time-delay from output control, i.e. The dehumidifying controller starts action in 3 seconds under the right humidity, indicator display the running mode.

2.2 Temperature Control Output

If the measured temperature exceeds the set value, the output relay closed for heating. Thus the heating signal display the operation status. If the measured temperature are 2  $^{\circ}$ C less than the set value, heating stopped, the heating signal off. The heating difference are 2  $^{\circ}$ C so as to avoid the frequent switch over the critical point which shorten the service time.

With initial power on, there are 3 seconds' time-delay from output control, i.e. The heating relay controller starts action in 3 seconds under the right humidity, indicator displays the running mode.

Power down memory protection.

With power down memory protection, it could save user's setting parameter on equipment in case of sudden power off.

Communication

This product adopts 485 communication mode, which allow the temperature, humidity parameter and running status to be uploaded to the remote computers. The display mode as below.

#### 3.Dimensions and connection diagram, i.e. (Figure 1)

3.1Flush mounted controller, opening size 82.5x82.5mm.

3.2 Terminal block diagram at backside of controller, i.e. (Figure 2)

- ( 1 ) Power: AC220V/50HZ: Connect power supply with terminal L and N
- ( 2 ) Load Terminal: Connect the heater with NO contact; Connect the fan with NC contact.
- (3) 485 communication terminals; connect A and B.

#### 4.USB Converter Connector, i.e. (Figure 3)

4.1 USB terminal on the left side :

Connect with the USB port on the computer, installation requires a USB drive (see details on 485USB drive);

4.2 RS485 on the right side: connect controller with terminal A and B.

### Temperature&Humidity Remote Control Display System

Enclosure No.	Measured Temperature	Measured Humidity	Running State
1#	25℃	60%RH	Running
2#	25℃	60%RH	Stop
3#	25℃	60%RH	Running
4#	25℃	60%RH	Stop
5#	25℃	60%RH	Stop

It can display the temperature, humidity parameter and running status of 5 cabinet enclosures at same time.







#### Superiority:

- Integrated integration: AC input, AC output, offering convenience in use.
- · With LED indicator, easier to recognize working state.
- Small size for a variety of applications.
- Stable long time operating.
- · ROHS compliant.

#### Features:

- $\bullet$  Humidity control: If the relative humidity exceeds the value set on the humidity dial, the electric circuit is cut off. Return difference is 5 10% RH.
- ullet Temperature control: If the ambient temperature rises above the value set on the temperature dial, the electric circuit is cut off. A tolerance of 1 3°C is allowed.
- Power: AC220V. Other voltage is alternative.
- Current: Max 46mA.
- Operating conditions: Temperature: 10 50°C; Humidity: 40 90%RH.
- Storage conditions: Temperature: 20 60°C; Humidity: 20 95%RH.
- Humidity sensor: Polymer humidity resistance.
- Temperature sensor: Bimetal sensor.

#### Elements:

- Set up the operation range by adjusting the knob. When the relative humidity drops below the value pre set, the electric circuit is closed via terminal LED illuminates. When the relative humidity rises above the value pre set, the electric circuit is cut off via terminal LED blacks out. In order to protect the loads not to work too frequently, the return difference is 5 10%RH, means the electric circuit is closed when the humidity drops 5 10% below more than the value pre set.
- Set up the operation range by adjusting the knob. When the ambient temperature drops below the value pre set, the electric circuit is closed via terminal LED illuminates. When the ambient temperature rises above the value pre set, the electric circuit is opened via terminal LED blacks out.

Humidity switching difference	4%RH(±3% tolerance)
Temperature switching difference	7k(±4k tolerance)
Temperature sensor element	Bimetal sensor
Relative humidity range	35%~95%RH
Temperature control contact mode	
	Step type contact point
Humidity control contact mode	Chang - over switch
Mean life	750,000 cycles
Min Switching capacity	20VAC/DC 100m A
Max Switching capacity	250VAC/DC 5(1)A DC30W
Connection	5 - pole terminal,clamping torque O.5Nm Max for solid wire 2.5mm² and stranded wire(with wire and ferrule) 1.5mm²
Installation	35mm Din rail
Casing	UL94V - O, light grey
Dimension	70x63x40mm
Weight	90g
Fitting position	Cabinet top
Operating temperature	0~+60°C(+32~+140°F)
Storage temperature	- 20~+80°C( - 4~+176°F)
Protection level	IP20





Small size

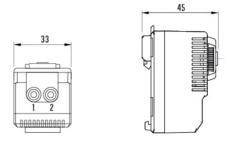
Simple to mount

• High switching performance

JTO 011: Thermostat(normally closed); contact breaker for regulating heaters.

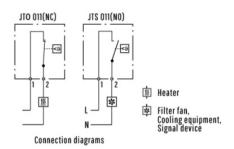
JTS 011: Thermostat (normally open): contact maker for regulating filter fans and heat exchangers or for switching signal device when temperature limit has been exceeded.

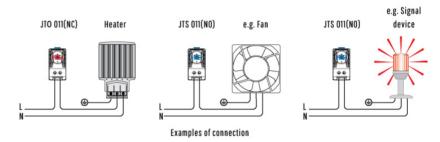
#### Dimensions





0 to +60°C





	1		
Temperature range	0-+60 °C		
JTO 011 NC(Normally closed)	When t	he temperature reaches the set value, open	circuit
JTS 011 NO(Normally open)	When the te	emperature exceeds the set value action, clo	sed circuit
Switch temperature difference		7K(±4K tolerance)	
Sensor element		thermostatic bimetal	
Contact type		Snap-action	
Contact resistance		< 10m ohm(Incidental connection line)	
Service life		>100,000 cycles	
Max. Switching capacky	250VAC,10(2)A,120VAC,15(2)A,30WDC at 24VDC to 72VDC		
Connection	2-pole terminal, clamping torque 0.5Nm max.:rigid wire 2.5mm²,stranded wire (with wire end ferrule) 1.5mm²		
Casing	plastic according to UL94 V-O, light grey		
Installation	35mm DIN Installation guide		
Dimensions		60×33×43mm	
Weight		41.5g	
fitting position	variable		
Operating/Storage temperature	-20-+80 °C		
Protection type	IP20		
Setting range	Art. No. Contact Breaker (NC)	Art. No. Contact Maker (NO)	Approvals

JTS 011

JTO 011

CE





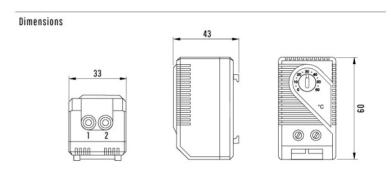
Small size

· Simple to mount

• High switching performance

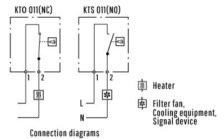
KTO 011: Thermostat(normally closed); contact breaker for regulating heaters.

KTS 011: Thermostat (normally open): contact maker for regulating filter fans and heat exchangers or for switching signal device when temperature limit has been exceeded.





0 to +60°C





Temperature range	0-+60 °C		
KTO 011 NC(Normally closed)	When the temperature reaches the set value, open circuit		
KTS 011 NO(Normally open)	When the to	emperature exceeds the set value action, clo	osed circuit
Switch temperature difference		7K(±4K tolerance)	
Sensor element		thermostatic bimetal	
Contact type		Snap-action	
Contact resistance		<10m ohm(Incidental connection line)	
Service life		>100,000 cycles	
Max. Switching capacky	250V/	AC,10(2)A,120VAC,15(2)A,30WDC at 24VDC to 7	ZZVDC
Connection	2-pole terminal, clamping torque O.5Nm max.:rigid wire 2.5mm²,stranded wire (with wire end ferrule) 1.5mm²		
Casing	plastic according to UL94 V-0, light grey		
Installation	35mm DIN Installation guide		
Dimensions		60×33×43mm	
Weight		40g	
fitting position	variable		
Operating/Storage temperature	-20-+80 °C		
Protection type	IP20		
			0
Setting range	Art. No. Contact Breaker (NC)	Art. No. Contact Maker (NO)	Approvals

KTS 011

KTO 011

CE





#### Panel thermostat

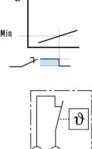
- Small, compact size (17.5mm wide)
- Long electrical life
- Snap action themostatic Bimetal sensor
- 35mm rail (EN 60715) mount
- Wide temperature setting range

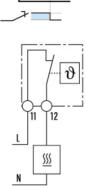
Heating control - Should the panel temperature fall below the (minimum) set temperature the contact will close to call for heat. The contact will open when this set temperature is exceeded. Ventilation control - Should the panel temperature exceed the (maximum) set temperature then the contact will close to call for cooling. The contact will open when the temperature falls below this set temperature.

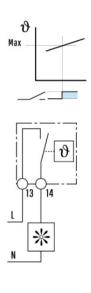
#### Dimensions

## Heating control









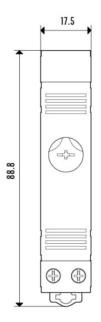
Contact configuration		1	NC	1 N	0
Rated current/Maximum peak current	A	10/20		10/20	
Rated voltage/Maximum switching voltage	V AC	250/	/250	250/250	
Rated load AC1	VA	25	00	2500	
Rated load AC 15 (230V AC)	VA	25	50	25	0
Single phase motor rating AC 3 (230V AC)	kW	0.1	25	0.1	25
Breaking capacity DC 1:30/110/220 V	A	1/0.3	/0.15	1/0.3/0.15	
Minimum switching load	mW (V/mA)	500 (1	12/10)	500 (12/10)	
Standard contact material		AgNi		AgNi	
Setting range (ventilation)	oC.			-20-+40	+0-+60
Switch temperature differential	K			7±	4
Setting range (heating)	oC.	-20+40 +0+60		-	
Switch temperature differential	K	7±4		-	
Electrical life at rated load AC1	cycles	100 · 10³		$100 \cdot 10^3$ $100 \cdot 10^3$	
Ambient temperature range	oC	-45-+80		-45-+80	
Protection category		IP	20	IP :	20

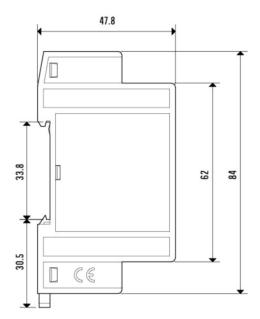
## **Outline drawings**

#### Screw terminal



Alarm output contact, Passive contact, AC250V 5A. NO.close while function of dehumidifier is out of order. Function out of order defined: Temperature sensor or humidity sensor fault; Duration of Dehumidifier work is over 24 hours, RH≥80%RH.





## Ordering information

Example: KNC/KNO Series, thermostat for ventilation control, contact activates ventilation should the panel temperature exceed the set value (max+60°C),35mm rail (EN 60715) mount.

Insulation			
Dielectric strength between open contacts	V AC	500	
Other data			
Screw torque	Nm	0.5	0.5
Max. wire size		solid cable	stranded cable
	$mm^2$	1×2.5	1×1.5
	AWG	1×12	1×16
Model No.		KNO 011	NO Type for heating
		KNC 011	NC Type for cooling





- NO and NC in one casing
- Separate adjustable temperatures
- High switching capacity
- Terminals easily accessible
- Clip Fixing

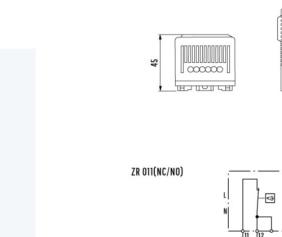
Two thermostats in one casing:

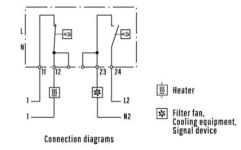
Thermostat(contact breaker, normally closed)for regulating heaters Thermostat(contact make, normally open) for regulating filter fans and heat exchangers or switching signal devices when temperature limit has been exceeded.

Heaters and cooling equipment can be switched independently from each other with a temperature offset a he usual change-over contacts.

50

67



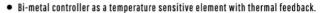


Temperature range	NO/NC:0-+60 ℃
Switch temperature difference	7K(+4K tolerance)
Sensor element	thermostatic bimetal
Contact type	Snap-action
Contact resistance	<10m ohm
Service life	>100,000 cycles
Max. Switching capacky	250VAC,10(2)A, 120VAC,15(2)A, DC 30W
Connection	4-pole terminal, clamping torque 0.5Nm max.: rigid wire 2.5mm², stranded wire (with wire end ferrule) 1.5mm²
Installation	35mm DIN Installation guide
Casing	UL94 V-O Plastic, light gray
Dimensions	67×50×46mm
Weight	90g
fitting position	variable
Operating/Storage temperature	-20~+80°C
Protection type	IP20

Setting range	Art. No. Contact Maker (NC/NO)	Approvals
0 to +60°C	ZR 011	CE







- Contact population: Single-pole change-over contact as a quick-break contact.
- Permissible contact load:

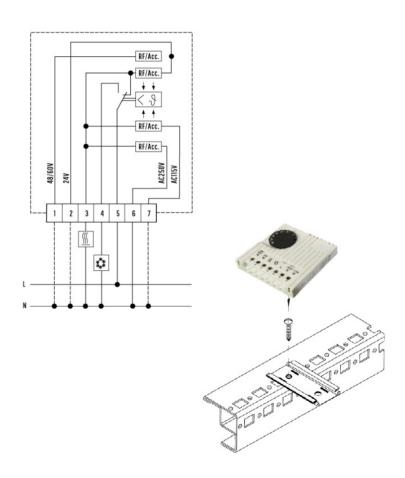
Cat. 5 - 3 (heating) AC 10 (4\*) A, DC = 30 W Cat. 5 - 4 (cooling) AC 5 (4\*) A, DC = 30 W \* ( ) = inductive load at cos phi = 0.6 Setting range: 0 - + 60 °C

- Weight: 105g appr Size: 71x71x33.5mm Switch discrepancy: 1K ± 0.8K
- Voltage scope is wide, any type could be used from 24-230 V
- Time-saving connection, terminal block could be installed screw from outside
- Easy installation, could be installed to 35mm din rail vertically or horizontally, according to EN50 022, it could be clipped to TS/35 cabinet profile with its accessory adapter.

Application Especially suitable for controlling fan-and-filter units, heaters and heat exchangers, this thermostat can also be used as a signal generator for monitoring the enclosure internal temperature.



#### Dimensions



Rated voltage: 230/115/60/48/24V (AC), 60/48/24V (DC)

48V/60V N	24V N	SSS	**	(L1*)L	(L2*)250V N	115V N
1	2	3	4	5	6	7

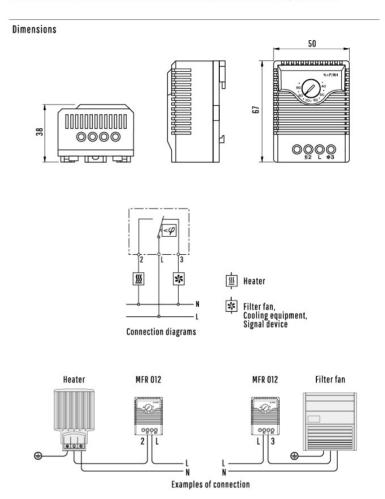




- Adjustable relative humidity
- Easily accessible terminals
- Change-over contact
- Clip fixing

• High switching capacity

The electromechanical hygrostat is designed to control enclosure heaters so that the dew point is raised when a critical relative humidity of 65% is exceeded. In this way condensation and corrosion in enclosures with electric/electronic components is effectively prevented.



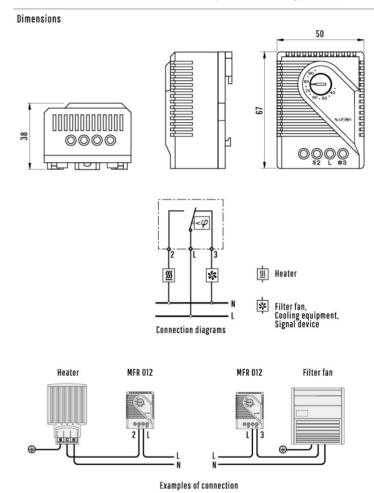
Switching error	4% RH (±3% tolerance)
Relative humidity range	35 - 95%
Allow wind speed	15m/sec
Contact type	Changeover contact
Contact resistance	<10m ohm
Service life	>50,000 cycles
Mix. Switching capacky	20V AC/DC 100 mA
Max. Switching capacky	25 VAC, 5 A
Connection	3-pole terminal for 2.5mm², clamping torque 0.5Nm max.: rigid wire 2.5mm², stranded wire (with wire end ferrule) 1.5mm²
Installation	35mm DIN Installation guide
Casing	UL94 V-O Plastic, light gray
Dimensions	67x50x38mm
Weight	about 60g
Fitting position	variable
Operating/Storage temperature	0 - +60°C (+32 - +140°F) / -20 - +80°C (-4 - +176°F)
Protection type	IP20
Model No.	Setting range
MFR 012	35 - 95% RH



- Adjustable relative humidity
- Easily accessible terminals
- Change-over contact
- Clip fixing

High switching capacity

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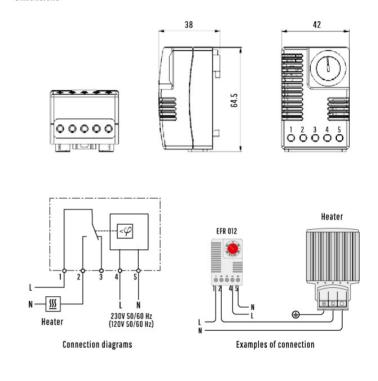
Switch difference*	4% RH (± 3% tolerance)			
Permissible air velocity	15m/sec.			
Contact type	change-over contact			
Service life	>50,000 cycles			
Mix. Switching capacky	250VAC, SA 20WDC			
Max. Switching capacky	5AAC			
Connection	3-pole terminal for 2.5mm², clamping torque 0.5Nm max.:rigid wire 2.5mm² stranded wire (with wire end ferrule) 1.5mm²			
Mounting	clip for 35mm DIN rail, EN 60715			
Casing	plastic according to UL94 V-0, light grey			
Dimensions	67 x 50 x 38mm			
Weight	approx. 60g			
Fitting position	variable			
Operating / Storage temperature	0 - +60°C (+32 - +140°F) / -40 - +60°C (-40 - +140°F)			
Operating / Storage humidity	max. 90% RH (non-condensing)			
Protection type	IP20			
Model No.	Setting range			
MFR012-2	35 - 95% RH			





- Temperature and humidity adjustable
- Optical operating display (LED)
- Clip fixing
- High switching capacity

The electronic hygrotherm senses the ambient temperature and relative humidity in an enclosure with electric / electronic components and turns on a heater (or alternatively a fan) at either set point, helping prevent the formation of condensation in the enclosure. The LED integrated in the adjustment knob on the active controller is lit when the connected device is in operation.



Switch difference	5% RH (±1% RH tolerance) at 25°C/77°F (50% RH)		
Reaction time	5 sec.		
Contact type	change-over contact (relay)		
Service life	> 50,000 cycles		
Max. switching capacity (relay output)	240VAC, 8(1.6) A; 120VAC, 8 (1.6) A; 100WDC at 24VDC		
EMC	acc.to EN 55014-1-2, EN 61000-3-2, EN 61000-3-3		
Optical indicator	LED		
Connection	5-pole terminal, clamping torque 0.5Nm max.:rigid wire 2.5mm² stranded wire (with wire end ferrule) 1.5mm²		
Mounting	clip for 35mm DIN rail,(EN50022)		
Casing	UL94 V-O, light grey		
Dimensions	64.5 x 42 x 38mm		
Weight	approx. 70g		
Fitting position	vertical		
Operating / Storage temperature	0 -+60°C(+32 -+140°F) / -20 -+70°C(-4 -+158°F)		
Operating / Storage humidity	max. 90 % RH (non-condensing)		
Protection type	IP20		

Model No.	Rated operating voltage, frequency Setting range		Approvals
01245.0-00	230VAC, 50/60Hz	40 - 90% RH	CE
01246.0-00	230VAC, 50/60Hz	65% RH pre-set	CE
01245.9-00	120VAC, 50/60Hz	40 - 90% RH	CE
01246.9-00	120VAC, 50/60Hz	65% RH pre-set	CE

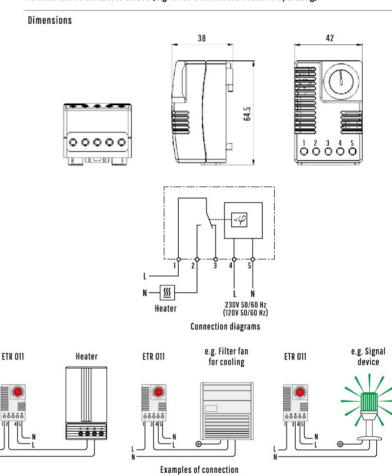




01131.0-00

- Large setting range
- Small hysteresis
- Optical operating display (LED)
- Change-over contact
- Clip fixing

The electronic thermostat is used for controlling heating and cooling equipment, filter fans or signal devices. The thermostat registers the surrounding air and can switch both inductive and resistive loads via relay with change-over contact. The LED integrated in the adjustment knob is lit when the NC contact is closed (e.g. when a connected heater is operating).



Switch difference	4K (±1K tolerance) at 20 °C/68 °F		
Sensor element	NTC		
Reaction time	5 sec		
Contact type	change-over contact (relay)		
Service life	> 50,000 cycles		
Max. switching capacity (relay output)	240VAC,8(1.6)A/120VAC,8(1.6)A/100WDC at 24VDC		
Max. inrush current	16AAC for 10 sec.		
Optical indicator	LED		
Connection	5-pole terminal, clamping torque 0.5Nm max.:rigid wire 2.5mm² stranded wire (with wire end ferrule) 1.5mm²		
Mounting	clip for 35mm DIN rail, EN 60715		
Casing	plastic according to UL94 V-O, light grey		
Dimensions	64.5 x 42 x 38mm		
Weight	approx. 70g		
Fitting position	vertical		
Operating / Storage temperature	-40 - +85°C (-40 - +185°F)		
Operating / Storage humidity	max. 90 % RH (non-condensing)		
Protection type	IP20		
Model No.	Rated operating voltage,frequency	Setting range temperature	Approvals

-20 - 60 °C

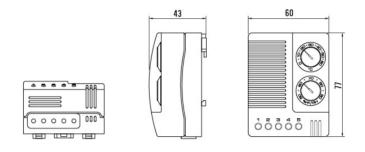
230VAC, 50/60Hz

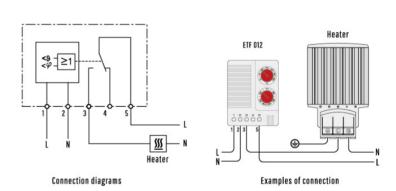
CE



- Temperature and humidity adjustable
- High switching capacity
- Optical operating display (LED)
- Clip fixing

The electronic hygrotherm senses the ambient temperature and relative humidity in an enclosure with electric / electronic components and turns on a heater (or alternatively a fan) at either set point, helping prevent the formation of condensation in the enclosure. The LED integrated in the adjustment knob on the active controller is lit when the connected device is in operation.





Switch difference (temperature)	2K (±1K tolerance) at 25°C/77°F (50% RH)		
Switch difference (humidity)	4% RH (±1% tolerance) at 25°C/77°F (50% RH)		
Reaction time (humidity)	5 sec.		
Contact type	change-over contact (relay)		
Contact resistance	<10mQ		
Service life	NC: 50,000 cycles , NO: 100,000 cycles		
Max. Switching capacity (relay output)	NC:240VAC,6(1)A NO:240VAC,8(1.6)A, NC:120VAC,6(1)A NO:120VAC,8(1.6)A 24VDC,4A		
EMC	acc.to EN 55014-1-2,EN 61000-3-2,EN 61000-3-3		
Optical indicator	LED		
Connection	5-pole terminal for 2.5mm², clamping torque 0.5Nm max,rigid wire 2.5mm², stranded wire (with wire end ferrule) 1.5mm²		
Mounting	clip for 35mm DIN rail,EN 60715		
Casing	plastic according to UL94 V-O.light grey		
Dimensions	77x60x43mm		
Weight	approx. 0.2kg		
Fitting position	vertical		
Operating / Storage temperature	0-+60°C(+32-+140°F)/-20-+80°C(-4-+176°F)		
Protection type	IP20		

Model No.	Rated operating voltage,frequency	Setting range temperature	Setting range humidity	Approvals
01230.0-00	230VAC, 50/60Hz	0 - +60 °C	50 - 90% RH	CE
01230.9-01	120VAC, 50/60Hz	0 - +60 °C	50 - 90% RH	CE



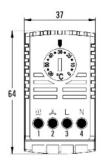
## Features:

• Easily mounted on 35mm DIN rails with snap on attachment per EN50022

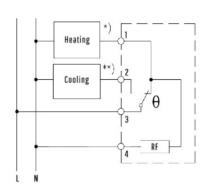
#### **Product Description:**

Temperature controller for controlling cabinet heaters, filter fans, slide-in fans, heat excahngers etc.

- Locking adjusting knob grey scala
- Standard thermic reduction







Storage temperature	-20° bis + 80°C	
Rated operating voltage	100-250VAC	
Heating (opened con.)	10 A (2) DC 30W	
Cooling (closed con.)	5 A (2) DC 30W	
Switching hysteresis	Approx. 5 K (with thermic reduction approx.1K)	
Contact	2 way	
Connection	4 screw terminals 2,5 mm <sup>2</sup>	
Sensor element	Bimetal	
Service life time	> 100.000 switching cycles	
Temperature control range	0-+60 ℃	
Surface finish	Plastic light grey UL94VO	
Dimensions (WxHxD)	37x64x46mm	
Weight	0.06 kg	
Protection type	IP20	