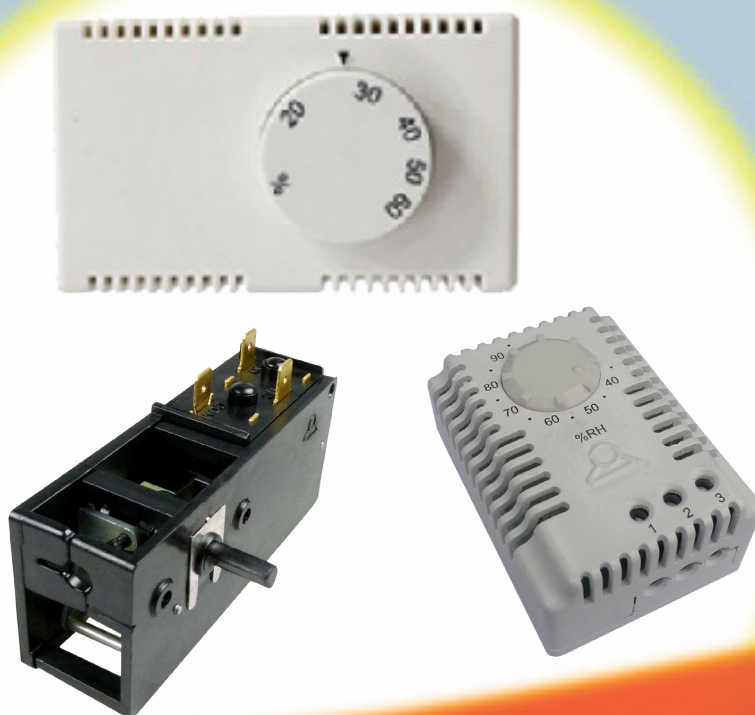


ULTIMHEAT®



HUMIDISTATS

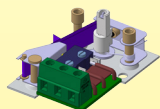
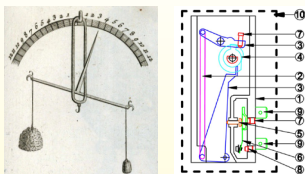
and
Electronic humidity controls

The professional solution: an extended, rational, and consistent range of products

Technical catalogue for R&D department

Edition 31/05/2013





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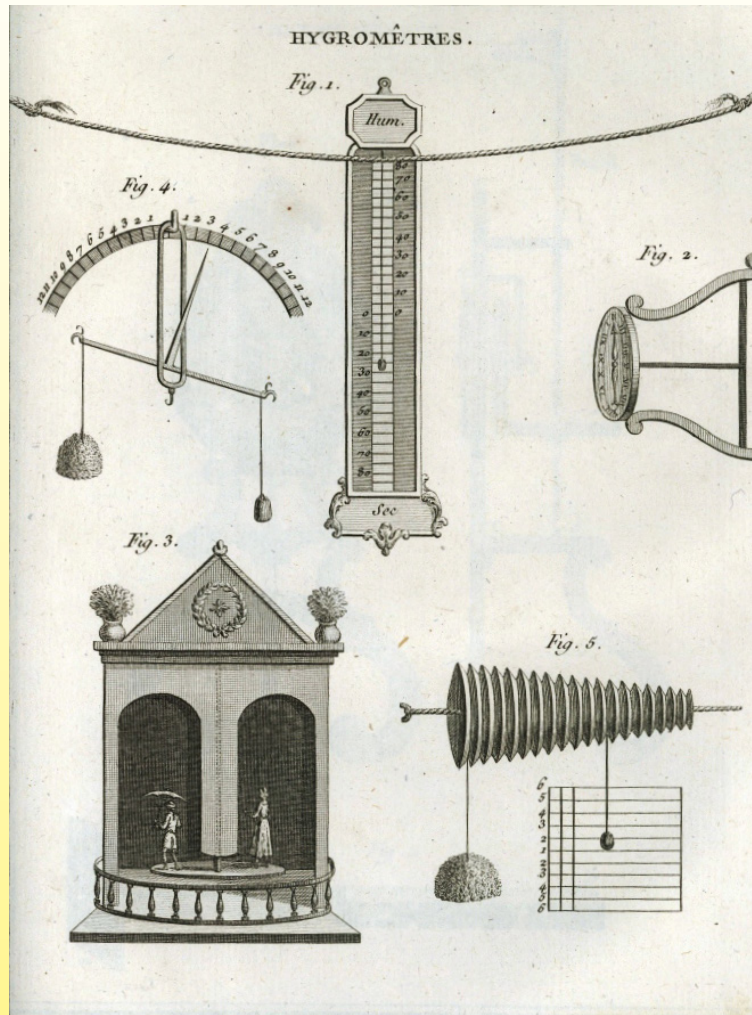
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Some humidity measurement devices , 18eme Century (Ultimheat collection)

Relative humidity control is relatively new, and the first mechanical devices that were used for this purpose dating from the early 20th century, and were related to the development of central heating and air conditioning, and the concept of environmental comfort.

One of the sticking points which blocked the development of these devices was to find a measuring element providing a deformation or elongation function of relative humidity.

Since antiquity, it had been noticed that the wool weight increases depending on the humidity. In 1450, the German Bishop Nicolas of Cusa, experimenting on this variation concluded that the atmospheric humidity could be measured.

Over the following centuries many materials and methods were used with more or less efficiency: cat intestine extension, (ca 1600, Santorio Santorio), paper strips extension (Folli Francisco, 1660) hygroscopic salts, bending of a beard of wild oat (1665 Hooke), human hair extension (Horace Benedict de Saussure, 1783)

The instrument invented by the latter laid the foundation for a comparative and reproducible measure of relative humidity.

The non-linear connection between the elongation of the hair and the humidity in the air were scientifically established in 1815 by the French scientist Joseph Louis Gay-Lussac.

In 1882, Richard company in Paris develops a humidity recorder that uses the bending of an ox horn strip. The first device controlling humidity in air conditioning was invented in 1900 by Warren Johnson in the U.S. He used the bending of a maple leaf, and coined the word "Humidostat". He fitted one of the first installations of air conditioning made by Willis Carrier in the USA in 1903.

Since that time Humidistats and Humidostats are used in English for these controls, and Hygrostat is used in French.

Hygrometers and humidistats using hairs and other organic materials for humidity sensing were used during more than 60 years in the 20th century. One of their main disadvantages was a gradual change in their deformation characteristics because of measuring element aging.

The technological breakout that led to the development of modern humidistats is the invention of nylon in 1938.

Nylon is the plastic material of which the rate of elongation according to the relative humidity is the most important and this was quickly identified as being useful for the humidity measurement.

In 1952, the first efficient electromechanical humidistat using hair as a measurement was invented by Honeywell, USA.

In 1965, the same company replaced hairs with a nylon ribbon

Therefore, either in the form of fine fibers or extra thin ribbon, and processed to achieve fast response times, nylon became the standard in humidistat sensing element

Humidistats made by JPC use specially processed nylon ribbons, with a few microns thickness.

Introduction to nylon ribbon humidistats technology

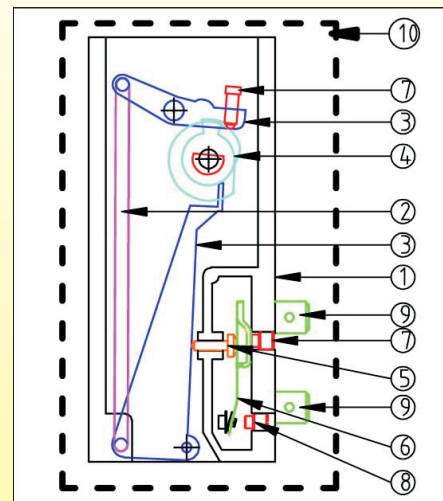
(other names : Humidostats, hygrometers, humidity switches)

A/ Operation principle

JPC humidistats are constructed according to the hygroscopic nylon film technology. Nylon is a particularly hygroscopic material, which has the property of expanding in the presence of moisture.

Nylon ribbons humidistats use this property by measuring the elongation of a strip of nylon as a function of relative humidity. This extension is then transmitted through a lever system to an electrical contact.

A set point adjustment shaft allows to change the actuator lever position and thus set the threshold that will trigger the humidistat



Schematic diagram

A humidistat is composed of 10 main components

- | | |
|-----------------------|----------------------------------|
| 1: Frame | 6: Micro-switch |
| 2: Hygroscopic ribbon | 7: Calibration screw |
| 3: Lever mechanism | 8: Differential adjustment screw |
| 4: Adjustment shaft | 9: Electrical terminals |
| 5: Plunger | 10: Wall mounting box (optional) |

B/ Main components description

1: The frame

It maintains mechanical parts together. Humidistat is inherently used in wet and humid area, and plastic body is preferable to metal to avoid the risk of corrosion. It also provides better electrical insulation, which is particularly important for applications in humid conditions.

It allows to mount the switch with two screws, and mounting design allows adjustment shaft to be located in front or lateral position. Frame is widely open around the nylon film to allow good air circulation.

2: The hygroscopic ribbon

The relative humidity of the air is the percentage of water vapor contained in the air before compared to the amount where it condenses. If this rate reaches 100%, the water vapor condenses into liquid water. The amount of water vapor that the air can contain increases with the temperature of the air. The term *relative* humidity is thus well suited, since a relative humidity at a given ambient temperature will not correspond to the same number of grams of water per cubic meter of air at a different temperature

Grams of water by cubic meter of air related to relative humidity and air temperature

°C	20%	40%	80%	100%
10	2	3.8	7.5	9.4
20	3.5	7	13.8	17.4
30	6	17.1	24.3	30.5
35	7	14	29	38

It is made of nylon because of its two specific hygroscopic characteristics.

- The rate of elongation according to the change of relative humidity. This rate is about 0.2% at 50% relative humidity and is the largest of all plastics. This is the same magnitude order than human hair, which were once used to measure the relative humidity.

- The permeability of the nylon to water vapor, and specially the speed at which it exchanges water vapor with the environment. This parameter is characterized by testing according to ASTM (measure of "moisture vapor transmission rate, MVTR" also known as "water vapor transmission rate," WVTR)

The water molecules in the air have a diameter of about 0.05 microns. They produce polar bonds with amide groups of the molecules of nylon and insert themselves between them, causing the expansion of these molecules. Some varieties of nylon can absorb up to 2.7% by weight of water at 50% relative humidity and up to 9.5% at saturation (at room temperature). The result is an elongation of the molecular matrix of nylon. This process is completely reversible. According to the method of manufacture of nylon film and its subsequent treatment, the water vapor molecules will penetrate more or less quickly in the film, and the reaction time of the latter to changes in relative humidity in the air will be modified.

The reaction time of the nylon film to reduced relative humidity becomes excessively long for values below 20%. This is why hygrometers settings begin at this value.

The selection of the ribbon raw material film is essential. Obviously, then, the exchange surface of the film must be optimized, and in particular its thickness must be as small as possible, while maintaining the tensile strength mechanical properties needed to actuate the micro-switch.

This is the difficult optimization of all these parameters that provides an efficient humidistat, without drift in time

3 : The 2 levers transmission mechanism.

These two levers will maintain the nylon ribbon and transmit its elongation to the electrical contact device. Their relative position is determined by the adjustment shaft.

4 : Adjustment shaft

This adjustment shaft can be located on the front or on the side of the humidistat. It comprises a cam which ensures the movement of the levers above depending on the relative humidity to achieve. It also includes stops that will ensure the mechanical locking of the contact (open or closed depending on the position) at minimum and maximum angulation. This is the shape of the cam which provides the humidity setting range. It is therefore possible to make specific setting ranges, but it requires to make a specific plastic injection mold for each range. The adjustment shaft length, size and position of its flat can be made on request with the same constraints.

5 : Plunger

This plunger provides the interface between the levers holding the nylon ribbon and the electrical part of the micro-switch. It transmits the movement to a snap action contact blade.

6: The micro-switch (For more information on the electrical contacts, see the technical introduction of the “Thermostats for incorporation” catalogue)

The force developed by the nylon film for actuating the electrical contact device is very small (a few grams). Applications of this product (humidifiers and dehumidifiers) require relatively high breaking capacity in 230/240V, so it is necessary to use a snap-action mechanism for this. Therefore, the electrical contact mechanism is a critical point in the humidistat.

The nature of the contacts, their shapes must be optimized to reach the rating requested by the application.

In addition, these humidistats are used in critical environmental conditions, close to the dew point, which means that condensation may occur.

For this reason, humidistats should not be used on voltages higher than 24V in conditions specifications above 90% relative humidity. We also recommend the use of gold-plated silver contacts to prevent the contacts oxidation, at least during the storage period before use, if storage relative humidity is high.

7 : Calibration screw

Hygrostats are calibrated with this screw under conditions of constant temperature and humidity (42% relative humidity and 22°C). This screw, which is not intended by a user setting, sets the correct adjusting shaft position at the humidity calibration value.

8 : Differential adjustment screw

The humidistat differential is the relative humidity difference between the value at which the contact will open and at which it will close. This is a factory parameter set with this screw. This screw is sealed, without user access and must not be tampered.

The value of the humidistat differential is given at the calibration point (see above calibration). Because of the mechanical properties of the nylon film, the differential value is not the same over the entire adjustment range, and increases with the relative humidity value.

9 : Electrical connection

Electrical connection for humidistat for incorporation are made by two or 3 tabs 6.3 x 0.8 mm. On models with protection housings, or on demand of incorporation devices, they are equipped with screw terminals.

10: The protection housing (optional)

- Humidistats for incorporation (without protection housing) are rated IP00 and are intended for integration by professional customers, usually the OEM of the machine or equipment in which it is used. So this is the machine or equipment that must provide protection against water, dust, shock and other contaminants.

- Wall mounting humidistats and Din Rail mounting humidistats for electrical cabinets

The protection housing of these devices is intended for in-door application. To ensure proper control of the relative humidity, it should be placed appropriately in an area where the air circulates naturally.

Given the needs of air circulation around the measuring element, it provides limited protection against penetrating objects (IP20) and shock (IK02). These devices must be installed by a qualified electrician and in accordance with electrical regulations and safety standards.

- Protection against explosive atmospheres, gas and dust: these humidistats are not designed for use in these environments and do not meet the standards in this application.



C/ Use and installation of humidistats

1- Absolute humidity, relative humidity and dew point.

The amount of water that may contain air, vapor invisible, is limited and linked to the temperature.

Beyond a given limit, one sees fog and condensation. This is the dew point (or saturation value).

The saturation value in g/m³ is the maximum quantity of water that air may contain in the form of invisible vapor, before the appearance of fog or condensation. This saturation value is a function of temperature. For more information about these values, see the Mollier diagram at the end of volume. Absolute humidity is represented by the number of grams of water per cubic meter of air.

But the feeling of moisture and visible phenomena related to moisture are not only due to the amount of water contained in the air.

example:

- Air with a 6 g/m³ absolute humidity and a temperature of 5 °C seems humid, fog is present, a sheet of paper tends to soften, the laundry does not dry, the salt in the kitchen gets wet.

- Air having the same absolute humidity of 6g/m³ but at a temperature of 30 °C.

feels dry, it is clear, the paper is rigid, laundry dries quickly, the salt is dry.

The absolute humidity (defined by the weight of water per M³ of air) is not sufficient to describe the concept of humidity, it is necessary to take into account the ambient temperature.

The relative humidity (RH) is the combination of these two factors.

Hygrostats provide control depending on the relative humidity.

2- Humidistats applications

The main uses of humidistats are:

- Limit or avoid condensation in rooms or enclosures.
- Maintain a humidity level in a zone called "comfort zone," neither too dry nor too wet. The comfort zone is generally defined as being between 20 and 25 °C and 40 to 60% relative humidity.
- Avoid desiccation of products sensitive to low humidity, such as wood (furniture, barrels) bottles corks in wine cellars.

3- Impact of the outdoor temperature and its dew point

When the temperature outdoor is less than -1 °C, the windows and improperly insulated walls temperature can reach the dew point, and this will cause the formation of condensation on the windows (vapor) and walls.

The diagram below provides guidance on the setting of maximum humidity depending on the outdoor temperature.

If condensation appears at suggested set points, then lower the setting by successive steps of 5%. After each setting, wait 6 hours to achieve stabilization before changing the setting.

Outdoor temperature	-20	-10	-5	0	+20
Set point adjustment	25 %	30 %	35 %	40 %	50/55%

4- Dehumidification

Dehumidification control can be used to keep the relative humidity constant during unoccupied periods, whatever the ambient temperature, to maintain the humidity in the comfort zone if this rate is too high due to external climatic conditions (Humid tropical islands and zones nearby sea or lakes) or in areas of the home where high humidity may occur because of the activity that is performed or equipment installed therein (kitchen, bathroom, laundry room, gym, swimming pool). This method maintains the relative humidity constant avoiding high moisture levels associated with the formation of mold.

In this system the humidistat controls a dehumidifier, or a ventilation system (if the outdoor humidity is lower than the relative humidity of the house area).

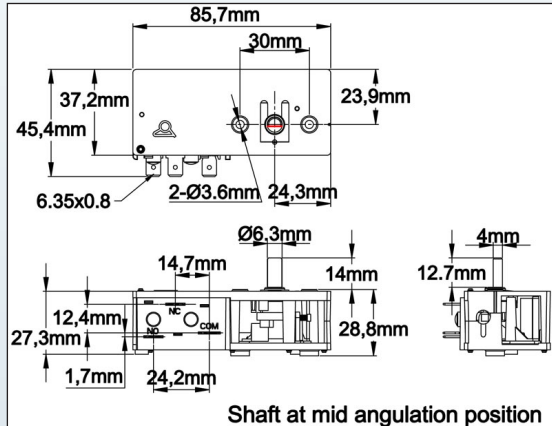
5- Humidification

In winter, when the air is too dry, and / or when the heating system or air conditioning dries the air, the humidistat will allow, by starting a humidification system, the rise the relative humidity, thus providing comfort to the breath. This also prevents the furniture and wood to cracks because they shrink. Used in a wine cellar, it prevents corks and wood barrels to shrink.

Mechanical humidistats for incorporation, front shaft adjustment

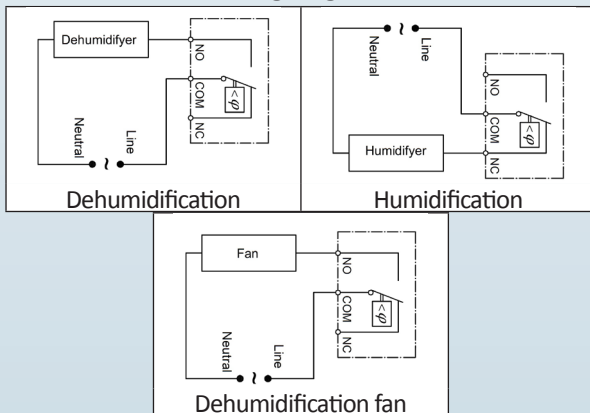
Type : Q88F

DIMENSIONS



Shaft at mid angulation position

Wiring diagrams



MAIN FEATURES

SENSING ELEMENT: hygroscopic polymer film with special treatment, guaranteeing a fast response, long lifetime and high stability

HOUSING: Fiber glassfilled Makrolon, high humidity resistance, very high electrical insulation properties. Do not use in places with risk of condensation.

MOUNTING: front fixing by two screws, 30 mm distance. The same fixing is also available at the backside.

SETTING: with 6.4 mm diameter shaft, 14 mm long, with 4 mm flat, front located.

SHAFT ROTATION: Standard mechanical rotation 295°.

ADJUSTMENT RANGE:

Range 20-80%: on 235° angular.

Range 10-60%: on 224° angular.

CALIBRATION: at mid position at 42% RH and 22 ° C. Calibration tolerance at mid-point: + / -5% relative humidity. Minimum and maximum positions have positive contact actuation

CONTACT STYLE:

- SPDT, the NC opens when the relative humidity goes above the set-point (humidification applications), the NO contact closes when the relative humidity goes above the set-point (ventilation or dehumidification applications)

- NC: NC opens when the relative humidity goes above the set-point (humidification applications)

- NO: NO contact closes when the relative humidity goes above the set-point (ventilation or dehumidification applications)

CONTACT MATERIAL:

- **Gold plated silver:** recommended when storage at high humidity conditions may occur, or when the product is used in low voltage application (electronic control boards)

- **Silver:** recommended for standard resistive load application or low inductive loads

ELECTRICAL CONNECTIONS: 6.3 x 0.8 mm tabs

AMBIENT CONDITIONS :

Humidity: 5 to 95% without condensation

Ambient temperature: 5 to 40°C

RATING:

- UL and CSA: 6A resistive, 20A LRA, FLA 3.7A, 240V

- EC: 6A resistive, (3.7A inductive) 250V

OPTIONS: Change in angular position, reverse rotation, flat and shaft length and orientation change (with MOQ and/or tooling cost)

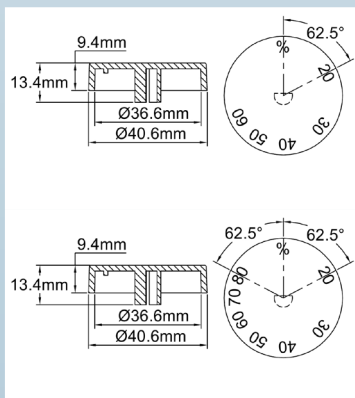
REFERENCES :

(mechanical knob rotation 295 °, 14 mm long shat, flat horizontal position topside at mid adjustment range)

Contact style	Gold plated contact	Silver contact	Adjustment range	Rotation to increase set-point
NC	Q88F1G14H1060900	Q88F1S14H1060900	10-60%	Clockwise
NO	Q88F2G14C2080900	Q88F2S14C2080900	20-80%	Counter-clockwise
SPDT	Q88F3G14C2080900	Q88F3S14C2080900	20-80%	Counter-clockwise

Accessories

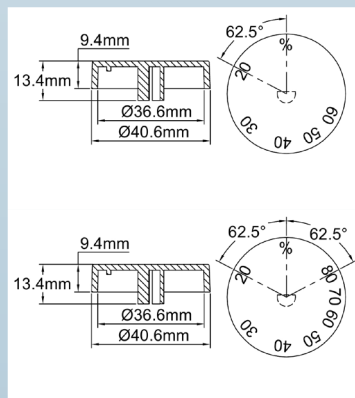
Knobs for humidistats with 6.3mm dia. shaft



20-60% RH printed knob, **counterclockwise** set point increase, for 6.35 mm shafts with 4mm flat.

Reference

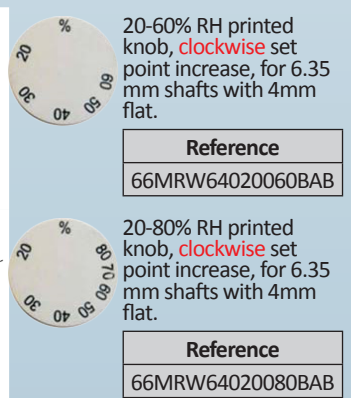
66MRW640200602AB



20-80% RH printed knob, **counterclockwise** set point increase, for 6.35 mm shafts with 4mm flat.

Reference

66MRW640200802AB



20-60% RH printed knob, **clockwise** set point increase, for 6.35 mm shafts with 4mm flat.

Reference

66MRW64020060BAB

20-80% RH printed knob, **clockwise** set point increase, for 6.35 mm shafts with 4mm flat.

Reference

66MRW64020080BAB



Mechanical humidistats for incorporation, side shaft adjustment

Type : Q88S

DIMENSIONS



MAIN FEATURES

SENSING ELEMENT: hygroscopic polymer film with special treatment, guaranteeing a fast response, long lifetime and high stability

HOUSING: Fiber glass Makrolon, high humidity resistance, very high electrical insulation properties. Do not use in places with risk of condensation.

MOUNTING: front side mounting by two screws, 30 mm distance. The same mounting is also available at the backside.

SETTING: with 6.4 mm diameter shaft, 14 mm long, with 4 mm flat, located on the small lateral side

SHAFT ROTATION: Standard mechanical rotation 295°.

ADJUSTMENT RANGE:

Range 20-80%: on 235° angular.

Range 10-60%: on 224° angular.

CALIBRATION: at mid position at 42% RH and 22 °C. Calibration tolerance at mid point: + / -5% relative humidity. Minimum and maximum positions have positive contact actuation

CONTACT STYLE:

- SPDT, the NC opens when the relative humidity goes above the set-point (humidification applications), the NO contact closes when the relative humidity goes above the set-point (ventilation or dehumidification applications)

- NC: NC opens when the relative humidity goes above the set-point (humidification applications)

- NO: NO contact closes when the relative humidity goes above the set-point (ventilation or dehumidification applications)

CONTACT MATERIAL:

- **Gold plated silver:** recommended when storage at high humidity conditions may occur, or when the product is used in low voltage application (electronic control boards)

- **Silver:** recommended for standard resistive load application or low inductive loads

ELECTRICAL CONNECTIONS: 6.3 x 0.8 mm tabs

AMBIENT CONDITIONS :

Humidity: 5 to 95% without condensation

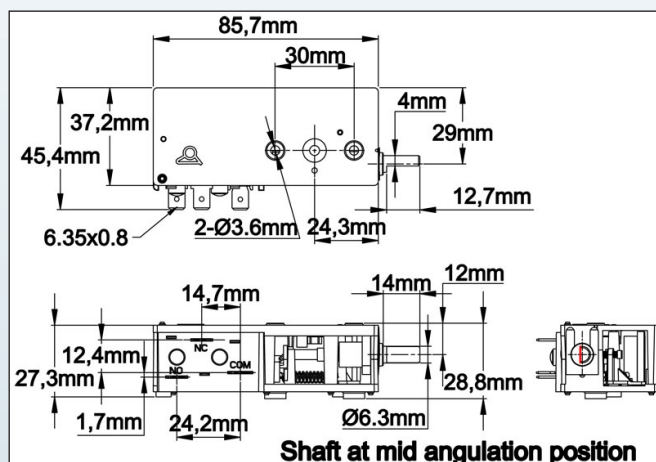
Ambient temperature: 5 to 40°C

RATING :

- UL and CSA: 6A resistive, 20A LRA, FLA 3.7A, 240V

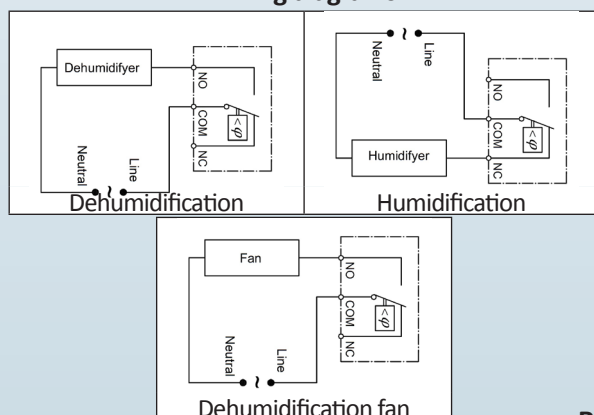
- EC: 6A resistive, (3.7A inductive) 250V

OPTIONS: Change in angular position, reverse rotation, flat and shaft length and orientation change (with MOQ and/or tooling cost)



Shaft at mid angulation position

Wiring diagrams



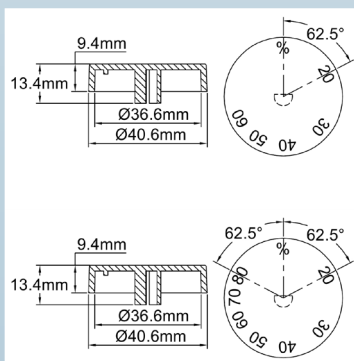
REFERENCES :

(Mechanical knob rotation 295° , 14 mm long shat, flat horizontal position topside at mid adjustment range)

Contact style	Gold plated contact	Silver contact	Adjustment range	Rotation to increase set-point
NC	Q88S1G14H1060900	Q88S1S14H1060900	10-60%	Clockwise
NO	Q88S2G14C2080900	Q88S2S14C2080900	20-80%	Counter-clockwise
SPDT	Q88S3G14C2080900	Q88S3S14C2080900	20-80%	Counter-clockwise

Accessories

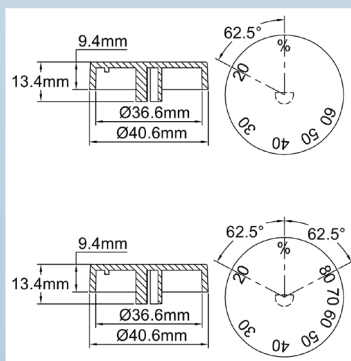
Knobs for humidistats with 6.3mm dia. shaft



20-60% RH printed knob, **counterclockwise** set point increase, for 6.35 mm shafts with 4mm flat.

Reference

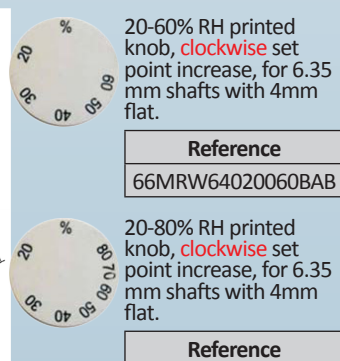
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20-80% RH printed knob, **counterclockwise** set point increase, for 6.35 mm shafts with 4mm flat.

Reference

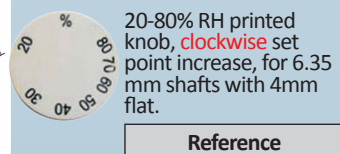
66MRW640200802AB



20-60% RH printed knob, **clockwise** set point increase, for 6.35 mm shafts with 4mm flat.

Reference

66MRW64020060BAB



20-80% RH printed knob, **clockwise** set point increase, for 6.35 mm shafts with 4mm flat.

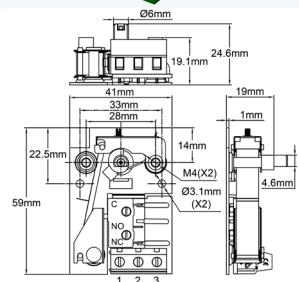
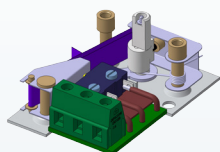
Reference

66MRW64020080BAB

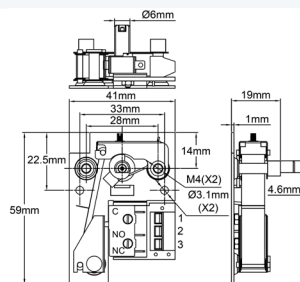
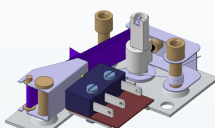


Miniature mechanical humidistat module, for incorporation. 30-100% relative humidity range

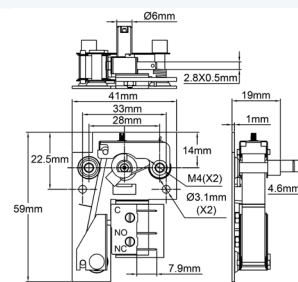
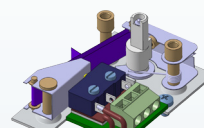
Type Q7A



Bottom side connection block



Right side connection block



Without connection block

MAIN FEATURES

APPLICATION: module for installation inside wall mounting housings, cabinet humidity housings, or mounting board of controls, to control fans, humidifier or dehumidifier. The incorporation and ingress protection must be made by the integrator

MEASURING ELEMENT: hygroscopic polymer film with special treatment, produced by Ultimheat, ensuring a fast response, long life and high stability

FRAME: stainless steel.

MOUNTING: two M4 screws, 28 mm distance (European standard). The steel frame has also 2 holes dia 3 mm allowing rear mounting

SETTING: dia. 6 mm shaft with a 4.6 flat, allowing the use of European standard knobs.

SHAFT ROTATION: 270 ° mechanical rotation

ADJUSTMENT RANGE: 30 to 100%, clockwise set point increase

CALIBRATION: at mid angulation, at 42% relative humidity and 22 °C ambience. Calibration point accuracy: + / - 5% relative humidity.

CONTACT: SPDT, silver contacts. Can be used in humidification, dehumidification or ventilation

ELECTRICAL RATING: 5A 250VAC, res.

ELECTRICAL CONNECTION:

- Connection block for wires up to 2.5 mm²
- Simplified version with micro-switch connection tabs 2.8 x 0.5 (MOQ apply)

AMBIENT:

- Ambient temperature: 5 to 85 ° C
- Humidity: 5 to 95% (non condensing)
- Air velocity: 15m /s max

PRECAUTIONS FOR USE: This product is not intended for applications with voltages above 48V when there is a risk of condensation.

OPTIONS: Special rotation and humidity span, clockwise set point increase, special shaft diameter or length, gold plated contacts (MOQ and / or tooling costs apply)

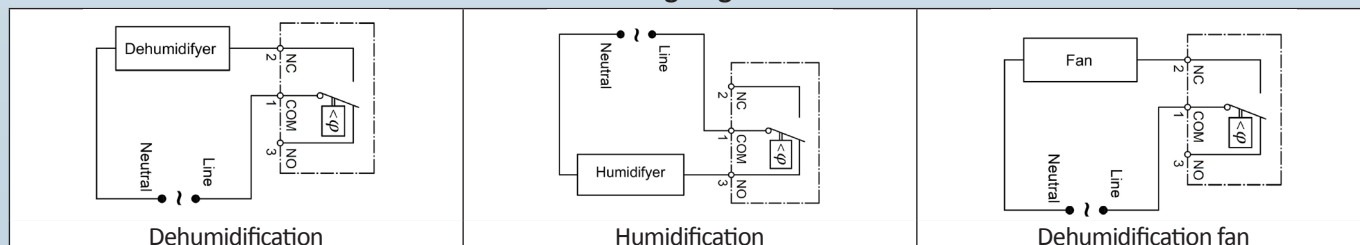
MAINTENANCE: No maintenance required in applications in dust free clean air. Solvent vapors, spray, aerosol, fume may contaminate the film and make it insensitive to humidity. Dust deposits increase response time and can be removed by smooth air spray.

References

Connection	3 x 2.5 mm ² connection block, bottom side	3 x 2.5 mm ² connection block, right side	Microswitch 3 tab terminals 2.8 x 0.5 mm
References	Q7A030100I001B00	Q7A030100I001R00	Q7A030100I001M00*

*MOQ apply

Wiring diagram



Accessories

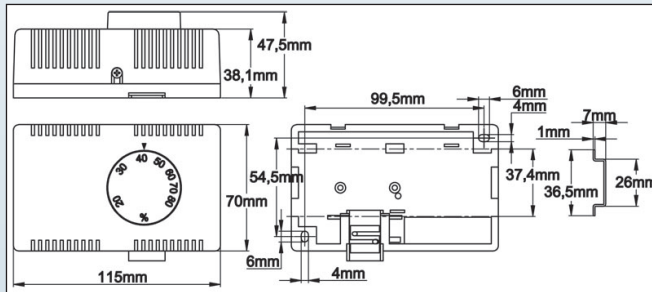
Printed knob	Bezel	Miniature knob	Adhesive printed label
66MZ0060301002FW	66EN1	66MCG060000020L0	66CG130030100BSY



Wall mounting mechanical room humidistats, Universal use

Type : Q88F-R

DIMENSIONS



MAIN FEATURES

SENSING ELEMENT: hygroscopic polymer film with special treatment, guaranteeing a fast response, long lifetime and high stability

HOUSING: Wall mounting, with vents. IP30.

Housing must be placed in a naturally ventilated area to ensure a good humidity measurement and be protected against the risk of splashing water. Do not use in rooms with risk of condensation.

MOUNTING: wall mounting by two screws accessible after removing the cover. In standard this cabinet also provides a backside clip to snap on symmetrical DIN rail

ADJUSTMENT: by knob graduated in % relative humidity, from 20 to 80% on 235 ° angular.

CALIBRATION: at mid position at 42% RH and 22 ° C. Calibration tolerance at mid point: + / -5% relative humidity. Minimum and maximum positions have positive contact actuation

CONTACT STYLE :

SPDT, the NC opens when the relative humidity goes above the set-point (humidification applications), the NO contact closes when the relative humidity goes above the set-point (ventilation or dehumidification applications)

CONTACT MATERIAL :

- **Gold plated silver:** recommended when storage at high humidity conditions may occur, or when the product is used in low voltage application (electronic control boards)

- **Silver:** recommended for standard resistive load application or low inductive loads

ELECTRICAL CONNECTIONS: screw terminals

AMBIENT CONDITIONS :

Humidity: 5 to 95% without condensation
Ambient temperature: 5 to 40°C

RATING:

- UL and CSA: 6A resistive, 20A LRA, FLA 3.7A, 240V
- EC: 6A resistive, (3.7A inductive) 250V

OPTIONS: Customized housing or knob (MOQ Apply)

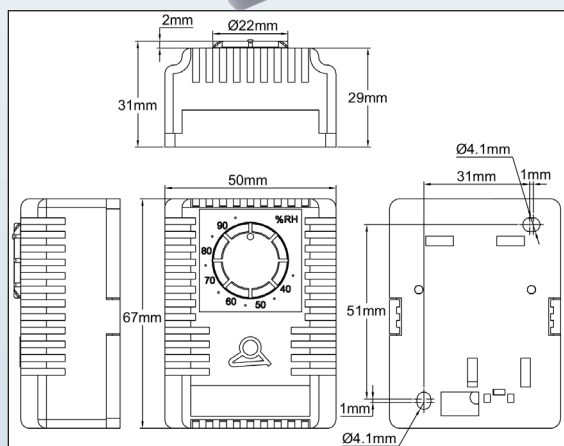
REFERENCES :

Gold plated contact	Silver contact	Adjustment range	Rotation to increase set-point
Q88F3G14C208090R	Q88F3S14C208090R	20-80%	Counter clockwise

Wall mounting miniature humidistat

Type : Q7B

DIMENSIONS



MAIN FEATURES

Main Application: This humidistat is designed for indoor application to switch on a heater or a ventilating fan. It can also be used to switch on humidifiers, dehumidifiers, or other devices. It must be vertically wall mounted in a ventilated area.

Humidity sensing element: hygroscopic polymer film with special treatment, produced by Ultimheat, ensuring a fast response, long life and high stability

Setting range: 35 to 95% RH

Measuring accuracy: $\pm 5\%$ RH

Differential at 50% RH: 8% RH ($\pm 3\%$ RH)

Measuring medium: air, pressure-less, non-aggressive

Electrical contact: silver contacts, SPDT, 5A 250V

Connection: 3 screw terminals for 1.5mm² wires, max torque 0.5Nm

Mounting: wall mounting, with 2 screws dia 4 mm max, distance 31 x 51 mm

Operating temperature: 0 to +60°C (+32 to +140°F)

Storage temperature: -20 to +70°C (-4 to +158°F)

Mounting position: vertical

Voltage supply: the humidistat should be mounted such that there is no buildup of condensate on or in the device. If the voltage supply is higher than 48V there is a risk of voltage arcing in the event of water condensation on the micro-switch or connecting terminals which might destroy the control.

Ingress protection class: IP30

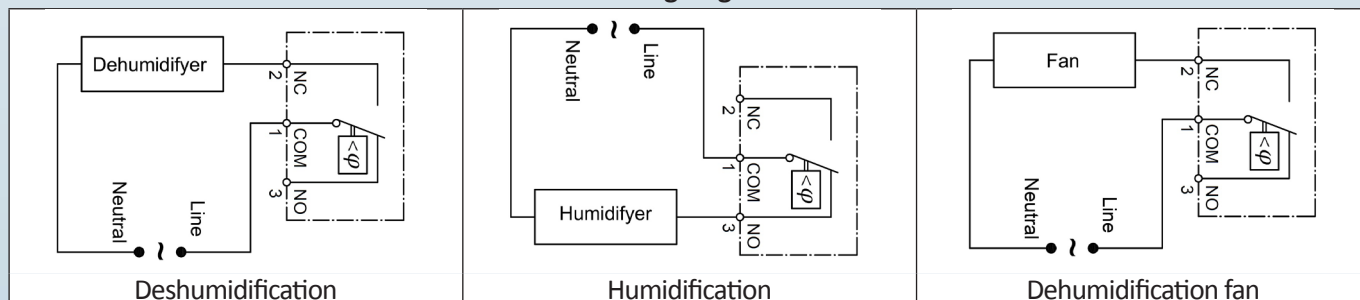
Dimension: 67x50x29mm

Maintenance: The humidity sensing ribbon is maintenance-free in clean air. Air containing solvent can cause measuring errors and failure, depending on the type and concentration. Deposits such as resin aerosols, lacquer aerosols, smokes, which eventually form a water-repellent film are harmful for the measuring element.

Reference

Q7B030100I001R00

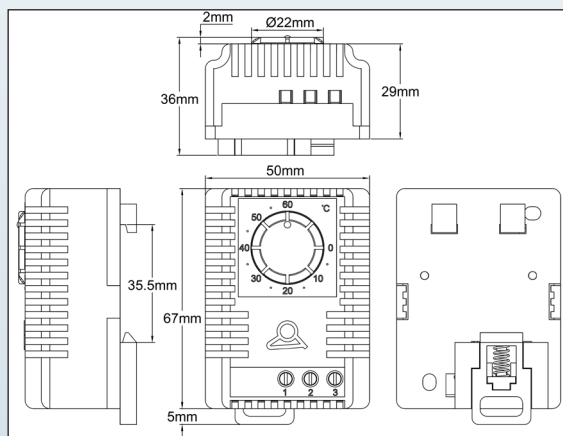
Wiring diagram



Din rail mounting miniature humidistat for electrical cabinets

Type : Q7C

DIMENSIONS



MAIN FEATURES

Main Application: condensation in electrical enclosures and cabinets can be critical for electrical components and safety. This humidistat is designed to switch on a heater or a ventilating fan when the relative humidity raises at dangerous levels, when there is a risk to reach the dew point usually around 65%.

It can also be used to switch on humidifiers, dehumidifiers, or other devices.

Humidity sensing element: hygroscopic polymer film with special treatment, produced by Ultimheat, ensuring a fast response, long life and high stability

Setting range: 35 to 95% RH

Measuring accuracy: $\pm 5\%$ RH

Differential at 50% RH: 8% RH ($\pm 3\%$ RH)

Measuring medium: air, pressure-less, non-aggressive

Electrical contact: silver contacts, SPDT, 5A 250V

Connection: 3 screw terminals for 1.5mm² wires, max torque 0.5Nm

Mounting: clip for 35mm DIN rail EN50022

Operating temperature: 0 to +60°C (+32 to +140°F)

Storage temperature: -20 to +70°C (-4 to +158°F)

Mounting position: vertical

Voltage supply: the humidistat should be mounted such that there is no buildup of condensate on or in the device. If the voltage supply is higher than 48V there is a risk of voltage arcing in the event of water condensation on the micro-switch or connecting terminals which might destroy the control.

Ingress protection class: IP30

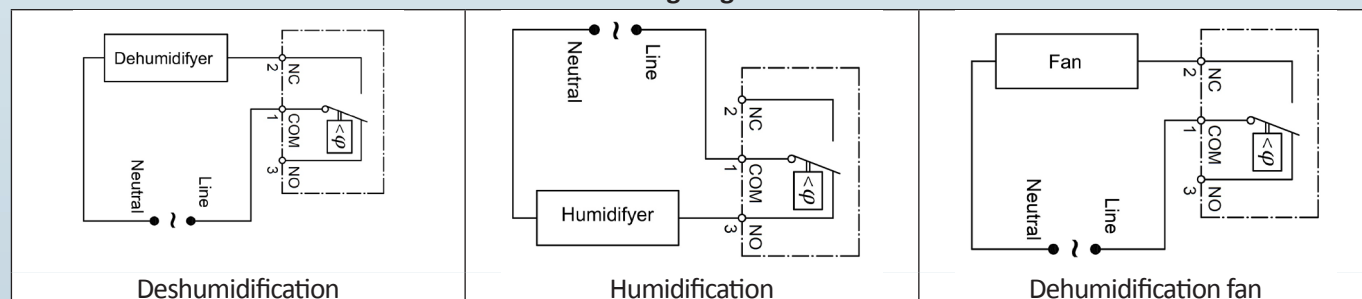
Dimension: 67x50x36mm

Maintenance: The humidity sensing ribbon is maintenance-free in clean air. Air containing solvent can cause measuring errors and failure, depending on the type and concentration. Deposits such as resin aerosols, lacquer aerosols, smokes, which eventually form a water-repellent film are harmful for the measuring element.

Reference

Q7C030100I001R00

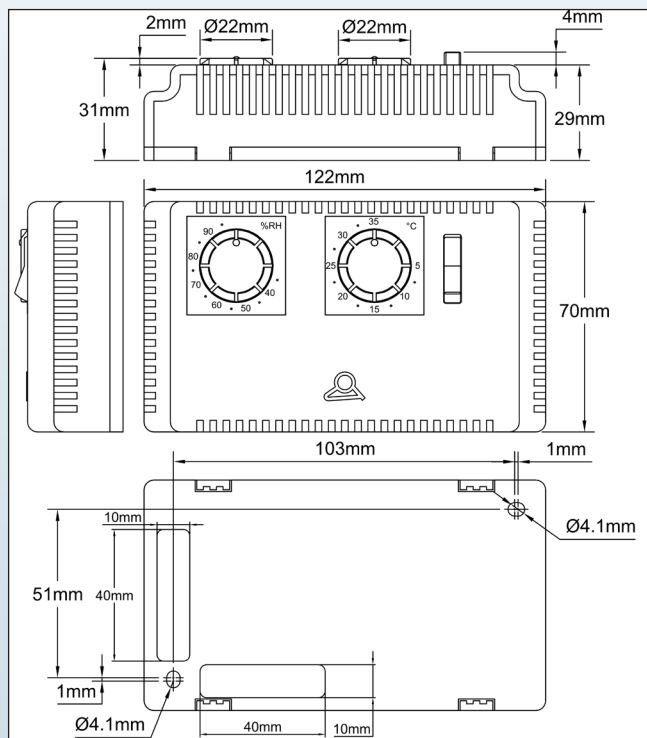
Wiring diagram



Room humidistat and thermostat combination, wall mounting, for swimming pools areas and air conditioning

Type Q4

DIMENSIONS



MAIN FEATURES

Main Application: This device is a combination of a humidistat and a room thermostat. It is especially suited for use in air conditioning control of indoor swimming-pool halls. Its aesthetics and small size housing (122x70x31mm) allows mounting in most of these applications, but must be protected from splashing water, and used only in ambient air free of chemical contamination or corrosive ingredients.

It is designed to turn on heating or cooling, ventilation, humidifiers, dehumidifiers, and heat pumps. It must be vertically wall mounted in a naturally ventilated area

Humidity sensing element: hygroscopic polymer film with special treatment, produced by Ultimheat, ensuring a fast response, long life and high stability

Humidity setting range: 35 to 95% RH

Humidity measuring accuracy: $\pm 5\%$ RH

Differential at 50% RH: 8% RH ($\pm 3\%$ RH)

Measuring medium: air, pressure-less, non-aggressive

Electrical contact: silver contacts, SPDT, 5A 250V, res. For use in humidifier, dehumidifier or ventilation control.

Maintenance: The humidity sensing ribbon is maintenance-free in clean air. Air containing solvent can cause measuring errors and failure, depending on the type and concentration. Deposits such as resin aerosols, lacquer aerosols, smokes, which eventually form a water-repellent film are harmful for the measuring element.

Temperature measuring element: Bimetal strip

Temperature adjustment range: 5-35°C

Differential: 0.6/+0.3°C

Electrical contact: silver contacts, SPDT, 5A 250V, res. For use in heating or cooling applications

Options:

- On Off switch
- Thermal anticipator, that provides thermal differential reduction (Needs Neutral+ Line power supply, 230 or 24V)
- Remote set point reduction (Needs Neutral+ Line power supply, 230 or 24V)
- Temperature printings in °F

Connection: screw terminal connection block for 1.5mm² wires, max torque 0.5Nm

Mounting: wall mounting, with 2 screws dia 4 mm max, distance 100 x 50 mm. These units must be installed by a professional, according to the wiring diagram inside the housing cover. The existing safety regulations and local standards must be observed.

Operating temperature: 0 to +60°C (+32 to +140°F)

Storage temperature: -20 to +70°C (-4 to +158°F)

Mounting position: vertical

Voltage supply: the device should be mounted such that there is no buildup of condensate on or in the device. If the voltage supply is higher than 48V there is a risk of voltage arcing in the event of water condensation on the micro-switch or connecting terminals which might destroy the control.

If there is risks that relative humidity exceeds 95%, or any risk of condensation, do not use this device on voltage higher than 24V

Housing: ABS-PC plastic, 122x70x31mm

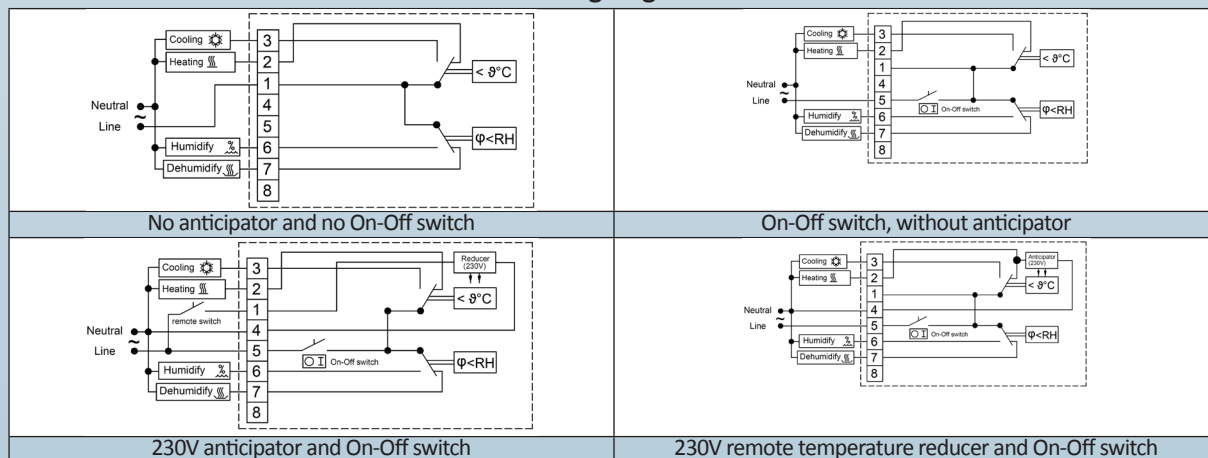
Ingress protection class: IP30

Reference	On off switch	Thermal anticipation(230V)**	Remote temperature set point reduction (230V)**
Q4D35C95HI001V00*	No	No	No
Q4E35C95HI001V00*	Yes	No	No
Q4F35C95HI001V23	No	Yes	No
Q4G35C95HI001V23	Yes	Yes	No
Q4H35C95HI001V23	No	No	Yes
Q4J35C95HI001V23	Yes	No	Yes

*Standard product

**24VAC on request, (replace 23 at end of the references by 02)

Wiring diagram

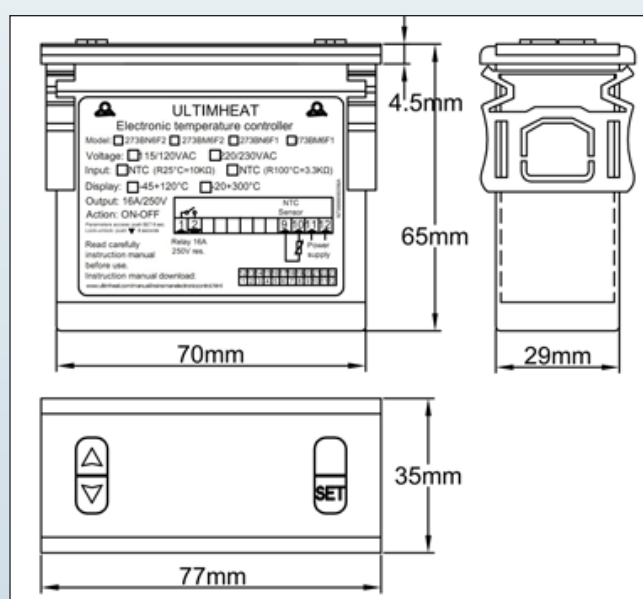


Electronic humidity / temperature Controllers

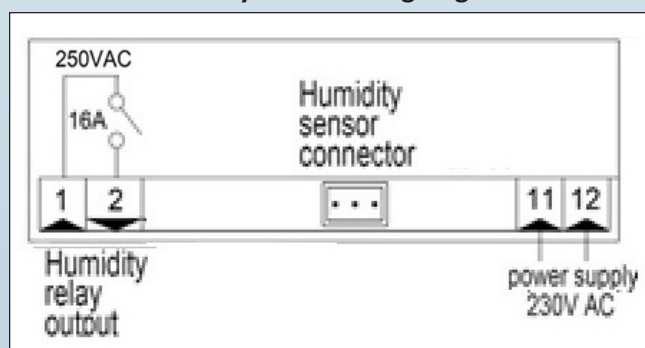
Type : 273D and 273B

77 x 35mm intelligent humidity controller, On/Off action

DIMENSIONS



Humidity control wiring diagram



MAIN FEATURES

Mini-sized and integrated intelligent controller, with very simple end-user interface: Change of set point is made without password, with up and down keys.

Input Humidity: capacitive sensor

Input temperature (if T° option exists): NTC R@25°C: 10Kohms (±1%), B@25/50°C: 3380Kohms (±1%)

Output relays: 16A 250V res. and (or) 10A 250V res. depending on models.

Output relay action for temperature (if T° option exists): customer set to open on temperature rise or close on temperature rise

Temperature differential (if T° option exists): adjustable by customers, from 1 to 10 °C

Output relay action for humidity: customer set to open by humidity rise or close by humidity rise

Temperature display: (if T° option exists) -45°C +120° ±1°C or 0.3% FE ± one digit. Customer setting of display in °C or °F.

Humidity display: 1-99% (+/-5%)

Humidity adjustment range: 20 to 99%

Humidity differential adjustment range: 1 to 70%

Other settings: start delay time and offset

Power supply: AC 220-230V 50-60Hz

Self-testing: Over-scale, under-scale, and open circuit sensor display.

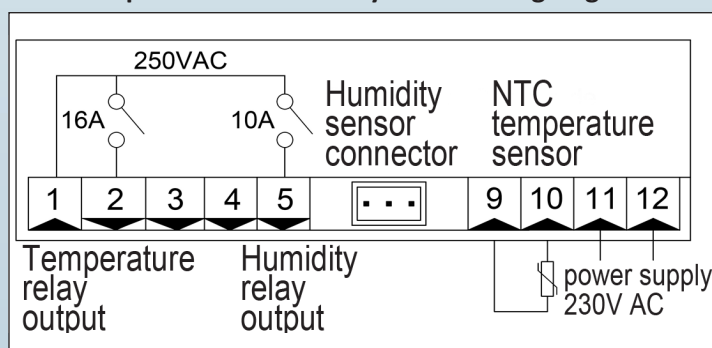
Dimensions: 77 x 35 X 60mm. Panel cut-out 71x29mm

Ambient temperature: -10 to 60°C, 20 to 85% relative humidity, non-condensing.

References

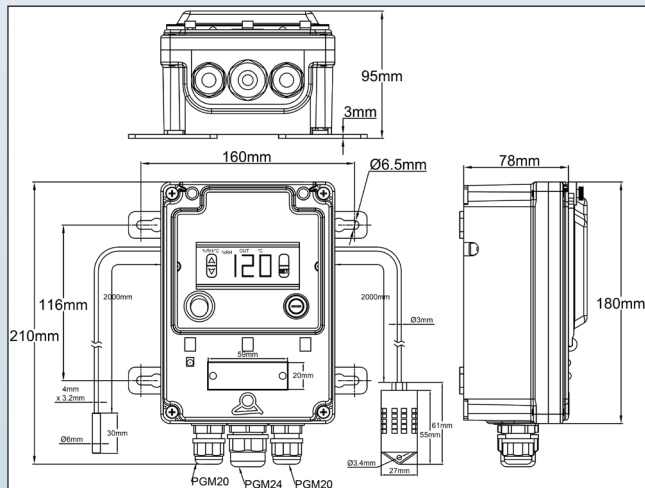
Humidity control	Humidity and temperature control
273BH6F2	273DD2F2

Temperature and humidity control wiring diagram



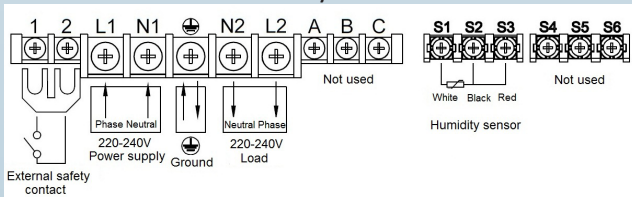
Electronic on-off relative humidity controllers with IP 65 enclosure, Types: Q8WHH and Q8WHM

DIMENSIONS

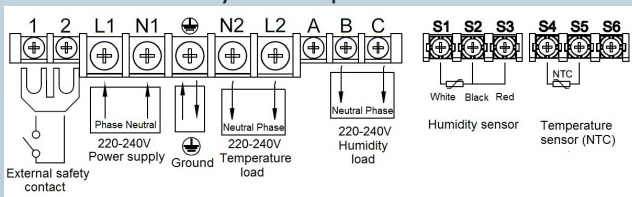


Wiring diagrams

Humidity control



Humidity and temperature control



MAIN FEATURES

Applications: Relative humidity display or control in cold rooms and commercial applications.

Sensing element: capacitive sensor, protected by plastic housing, with 2 meter cable.

Electronic control features: Miniature intelligent controller (see description P13).

Main advantages:

- The simplest and most economical electronic controller with digital display.
- Heavy duty housing for outside use, IP65 and IK10.
- Simple configuration by user
- Adjustable temperature differential and selection of heating or cooling action, adjustable humidity differential and selection of humidifying or dehumidifying action
- If open circuit or missing temperature sensor and if no power supply, output relay will open (Fail safe action)

Standard equipment:

- Fuse for internal circuit protection
- Illuminated on-off switch
- 4 wall mounting removable legs
- Connection block with 5 terminals for 6 mm² wires and 5 terminals for 2.5 mm² wires. The connection block is equipped with a jumper between terminals 1 and 2, it allows connecting a safety device, a timer, or an external wired remote control.

Cable outputs:

- Cable gland output board is equipped in standard with two M20 + 1 M24 cable glands (Other cable gland board: 2 x M25)
- The two back side M20 X 1.5 outputs are equipped with cable glands with silicone gasket to seal the temperature sensor (if this option exists) and the humidity sensor outlet.

Standard Accessories:

- 10 PA66 red plastic seals, English-French installation manual.
- Temperature sensor with waterproof PVC probe is included in the control box (if this option exists). Other available temperature sensor, see P15 of this catalogue

Options:

- Infrared remote control
- Enclosure heater
- 115-120V power supply.

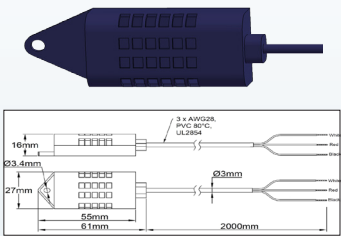
Power relays: many variations are possible, and are described in the catalogue N°3

References

Humidity control, remote sensor, relay output 16A 250V	Q8WHHE3000000CF3
Humidity and temperature control, remote sensors, relay output 16A 250V for temperature, 10A 250V for humidity	Q8WHMM3000000CF3



Ambient relative humidity sensor



These sensors are designed to monitor or control the percentage of relative humidity in atmosphere. They are used to maintain a constant humidity level in a room or a ventilation circuit. They are of the capacitive type.

Humidity measuring range: 10 to 95% Relative Humidity

Temperature range: -30+80°C

Storage temperature range: -40+85°C/ 0-100% RH

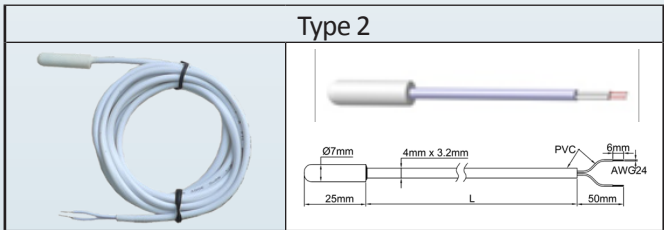
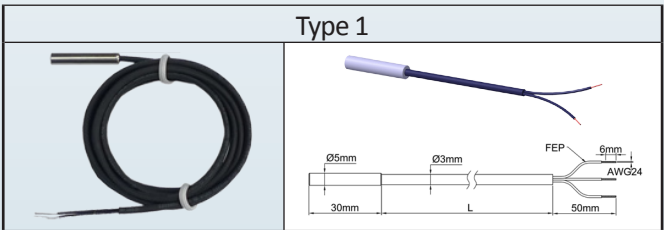
Accuracy and tolerances: +/-5% from 20 to 85%

Connection cable: 3 x AWG28, PVC80°C, UL 2854 style, external sleeve dia. 3 mm, protected by a metal braid, 2 meter length.

Reference	QC01009501P2000H
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NTC Thermistors

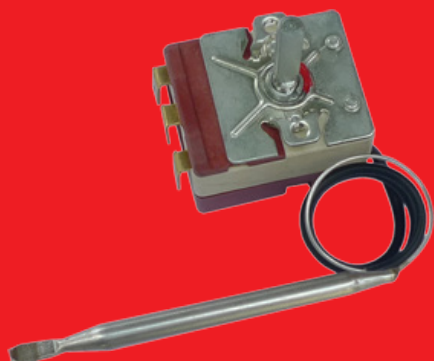
NTC thermistors (whose resistance decreases with temperature) are cheap and interchangeable. Their high resistance makes them insensitive to the resistance of the measuring line and thus a two-wires connection is allowed. **Polarity:** without polarity



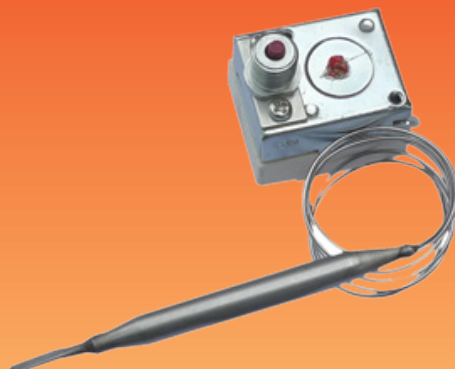
References	Temperature range	R	B	Probe type	Cable (L)	Applications	Type
TLR60030I20001F6	-20+120°C	R@25°C = 10kΩ+/-1%	B25/50°C = 3380+/-1%	Nickel plated copper 6 x 30 mm	FEP, L=2M	Standard applications, ambient and up to 120°C, with 273 type controllers	1
TNR60030I20001F6	-30+50°C	R@25°C = 10kΩ+/-1%	B25/50°C = 3380+/-1%	PVC, water-proof, 7 x 25 mm	PVC 80°C, L=2M	Cold rooms and ambient up to 50°C, with 273 type controllers	2

Because of permanent improvement of our products, drawings, descriptions, features used on these data sheets are for guidance only and can be modified without prior advice

Many other Ultimheat components are used in humidity control products and appliances



Bulb and capillary thermostats



Fail safe manual reset thermostats



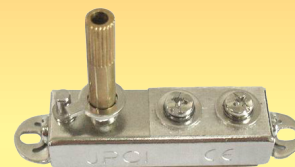
Bimetal disc thermostats



Float level switches



3 pole manual reset disc thermostats



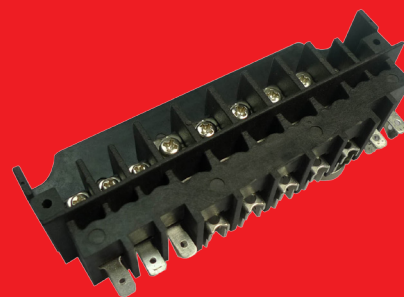
Bimetal thermostats



Electrical cabinet thermostats



Thermal cut out



Connection blocks

Other catalogues

 **ULTIMHEAT®** 1



ELECTROMECHANICAL AND ELECTRONIC THERMOSTATS RANGE
for incorporation

For these thermostats incorporated inside various boxes, housing and cabinets: See catalogues N°2 and 3
Explosion proof versions: See catalogue N°4

The professional solution: an extended, rational, and consistent range of products

Technical catalogue for R&D department
Edition 20/10/2012

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 **ULTIMHEAT®** 2



THERMOSTATS WITH INGRESS PROTECTION HOUSINGS
and connection boxes for heating elements

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 **ULTIMHEAT®** 3



INDUSTRIAL ELECTRONIC AND THERMOSTAT CONTROLS
electronic controllers, thermostatic control boxes, sub-assemblies and accessories for temperature control in electro-thermal equipment Y6-Y7-Y8 series

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Types Y9

For industrial and high end applications in non-hazardous area: See our catalogue 3
For standard applications with ingress protection housing, in non-hazardous area: see our catalogue 2
For incorporation in non-hazardous area see our catalogue 1

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 **ULTIMHEAT®** 9



FIRE DETECTION FUSIBLE LINKS
A fusible link is a mechanical part that breaks at a preset temperature, they are used in fire detection system to open or close door, dampers, vents etc., if ambient temperature rise upon a certain value.

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 **ULTIMHEAT®** 10



CERAMIC CONNECTION BLOCKS
and Special connectors

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