



ULTIMHEAT

HEAT & CONTROLS



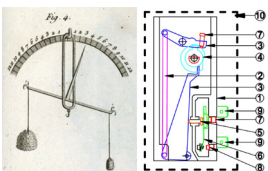
HUMIDISTATS & ELECTRONIC HUMIDITY CONTROLS

- Flow switches & combination controls:
- Thermally responsive devices for fire detection:

See catalogue No.5

See catalogue No.9

Contact us

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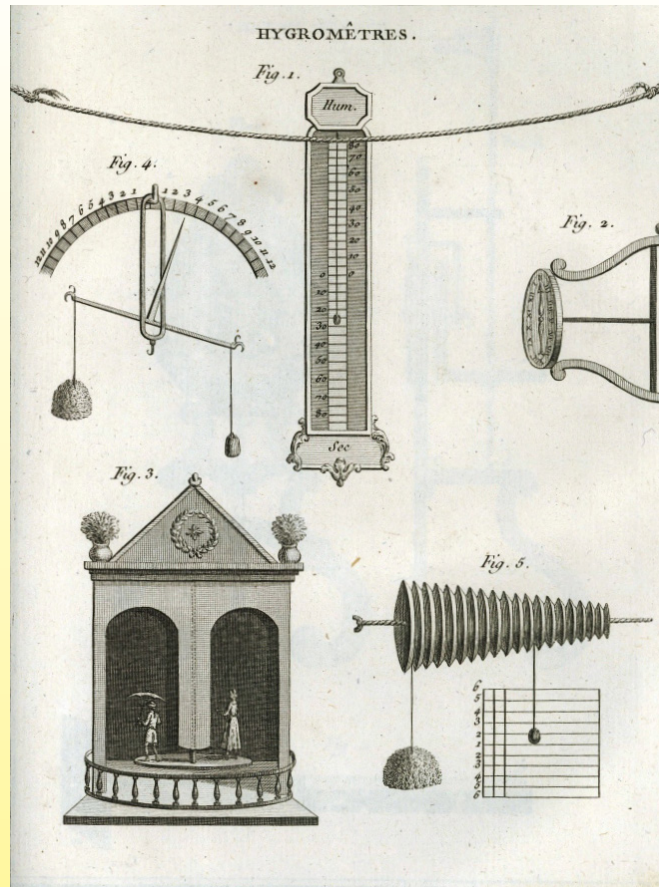
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Historical introduction





Some humidity measurement devices, 18th 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, experiments 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 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 inconvenient was a gradual change of 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, hairs were replaced by 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 Ultimheat use specially processed nylon ribbons, with a few microns thickness.

Introduction to nylon ribbon humidistats technology

(other names : Humidostats, hygrostats, humidity switches)

A/ Operation principle

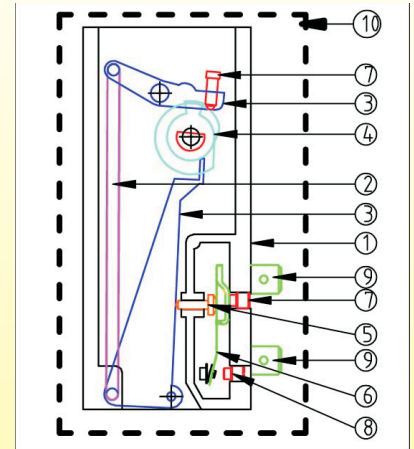
JPC humidistats are constructed according to the hygroscopic nylon film technology. Nylon is a particularly hygroscopic material, which has the property of expanding in the presence of moisture.

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

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) |



Schematic diagram

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 hygrostats 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 0.8mm. 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.



References list





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66MCG060000020L0	9
66MRW640200602AB	7.8
66MRW64020060BAB	7.8
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Electromechanical humidistats



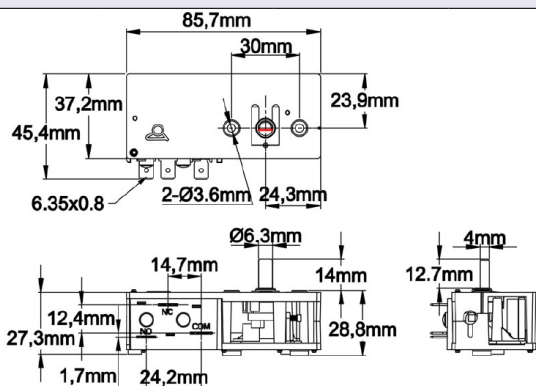
Because of permanent improvement of our products, drawings, descriptions, features used on these data sheets are for guidance only and can be modified without prior advice

Mechanical humidistats for incorporation, front shaft adjustment

Type : Q88F

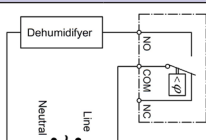


DIMENSIONS

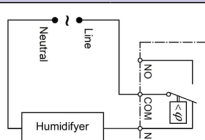


Shaft at mid angulation position

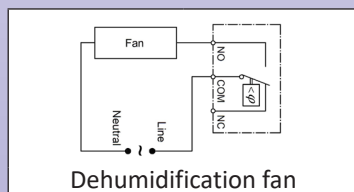
Wiring diagrams



Dehumidification



Humidification



Dehumidification fan

MAIN FEATURES

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

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

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

SETTING: with 6.4mm diameter shaft, 14mm long, with 4mm 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 0.8mm 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)

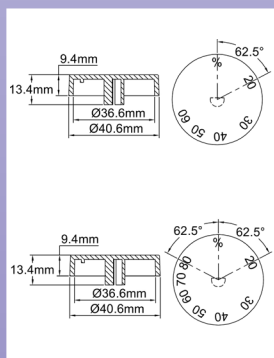
REFERENCES :

(mechanical knob rotation 295°, 14mm 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 6.35mm shafts with 4mm flat.

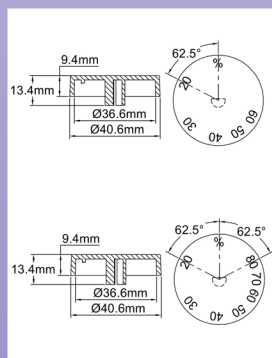
Reference

66MRW640200602AB

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

Reference

66MRW640200802AB



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

Reference

66MRW64020060BAB

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

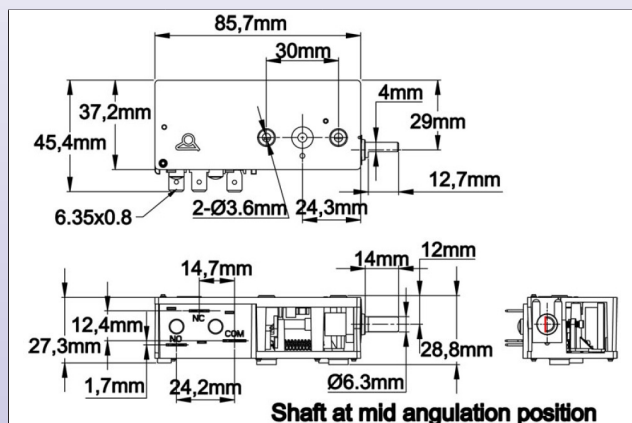
Reference

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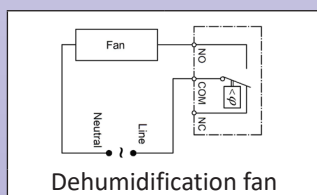
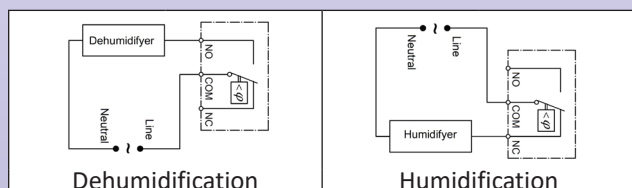
Mechanical humidistats for incorporation, side shaft adjustment Type : Q88S



DIMENSIONS



Wiring diagrams



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, 30mm distance. The same mounting is also available at the backside.

SETTING: with 6.4mm diameter shaft, 14mm long, with 4mm 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: $\pm 5\%$ 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)

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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 0.8mm 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)

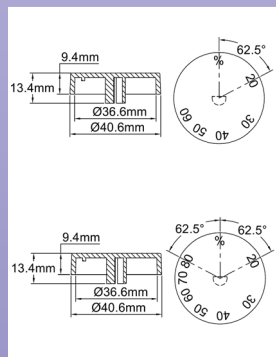
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(Mechanical knob rotation 295°, 14mm long shat, flat horizontal position topside at mid adjustment range)

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

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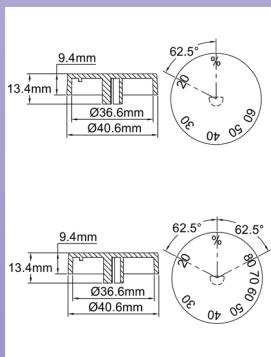
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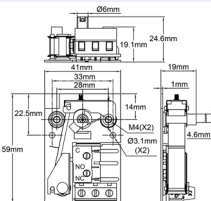
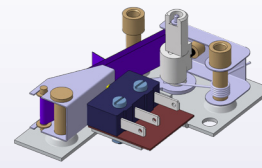
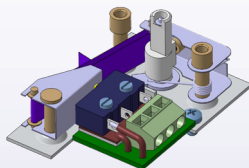
Reference

66MRW64020060BAB

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

Reference

66MRW64020080BAB



Technical drawing of the 3D printer showing top, front, and side views with dimensions:

- Top View:** Shows a rectangular base with a width of 41mm and a depth of 59mm. The distance between the two main mounting holes is 33mm, with 28mm between the center holes. The distance from the front edge to the first hole is 22.5mm. The distance from the side edge to the first hole is 14mm. The mounting holes are M4(X2).
- Front View:** Shows the printer's profile with a total height of 19mm. The distance from the base to the top of the main body is 1mm. The distance from the base to the top of the extruder assembly is 4.6mm. The extruder assembly has a diameter of Ø6mm.
- Side View:** Shows the printer's profile with a total height of 19mm. The distance from the base to the top of the main body is 1mm. The distance from the base to the top of the extruder assembly is 4.6mm. The extruder assembly has a diameter of Ø3.1mm (X2).

Technical drawing of the M4(X2) robot head assembly, showing three views: top, side, and front. Dimensions are provided in millimeters (mm).

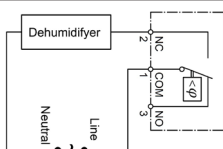
- Top View:** Shows a square base with a central hole of diameter 6mm. The overall width is 41mm. The distance from the center to the top edge is 33mm. The distance from the center to the bottom edge is 28mm. The distance from the center to the left edge is 22.5mm. The distance from the center to the right edge is 14mm. The distance from the center to the front edge is 59mm. The distance from the center to the back edge is 7.9mm. The distance from the center to the top edge is 4.1mm. The distance from the center to the bottom edge is 3.3mm. The distance from the center to the left edge is 2.8mm. The distance from the center to the right edge is 2.8mm. The distance from the center to the front edge is 2.8mm. The distance from the center to the back edge is 2.8mm.
- Side View:** Shows the profile of the head. The total height is 19mm. The distance from the top to the bottom of the head is 16mm. The distance from the top to the bottom of the neck is 4.6mm. The distance from the top to the bottom of the base is 19mm. The distance from the top to the bottom of the neck is 4.6mm. The distance from the top to the bottom of the base is 19mm.
- Front View:** Shows the front profile of the head. The total height is 19mm. The distance from the top to the bottom of the head is 16mm. The distance from the top to the bottom of the neck is 4.6mm. The distance from the top to the bottom of the base is 19mm. The distance from the top to the bottom of the neck is 4.6mm. The distance from the top to the bottom of the base is 19mm.

Without connection block

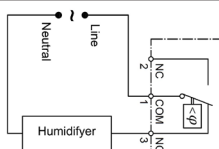
MAINTENANCE: No maintenance required in applications in dust free clean air. Solvent vapors, spray, aerosol, fume may contaminate the film and make it insensitive to humidity. Dust deposits increase response time and can be removed by smooth air spray.

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

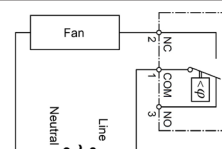
Wiring diagram



Dehumidification



Humidification



Dehumidification fan

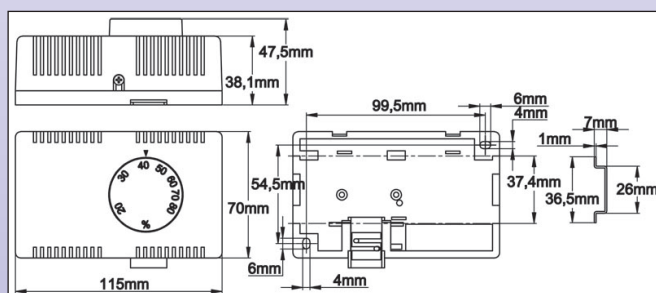
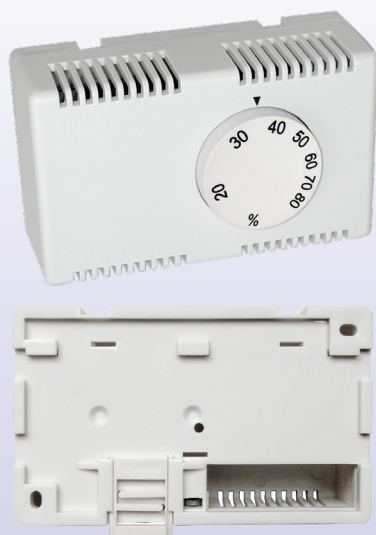
Printed knob	Bezel	Miniature knob	Adhesive printed label
66MZ0060301002FW	66EN1	66MCG060000020L0	66CG130030100BSY

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: $\pm 5\%$ 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

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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 4mm max, distance 31 x 51mm

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

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

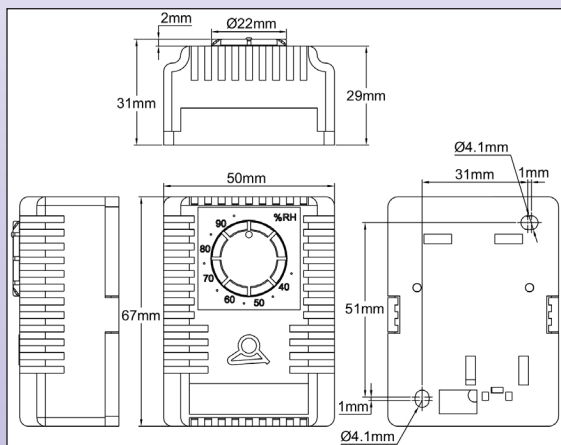
Mounting position: vertical

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

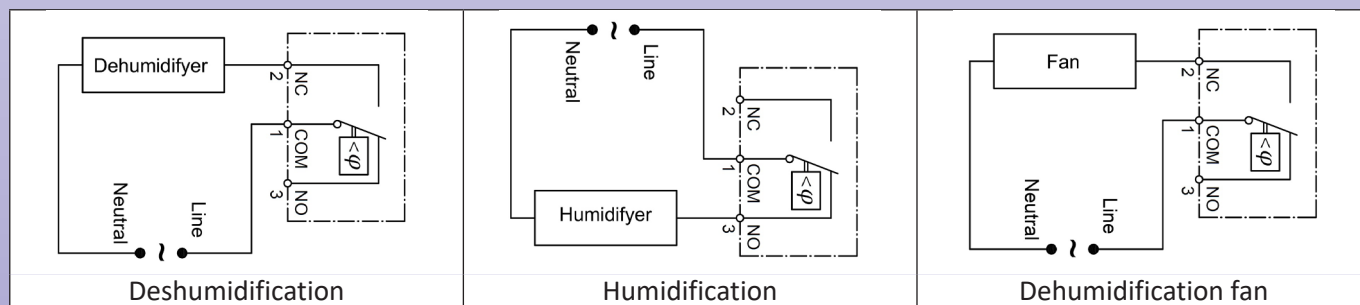
Maintenance: The humidity sensing ribbon is maintenance-free in clean air. Air containing solvent can cause measuring errors and failure, depending on the type and concentration. Deposits such as resin aerosols, lacquer aerosols, smokes, which eventually form a water-repellent film are harmful for the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



Reference

Q7B030100I001R00

Wiring diagram

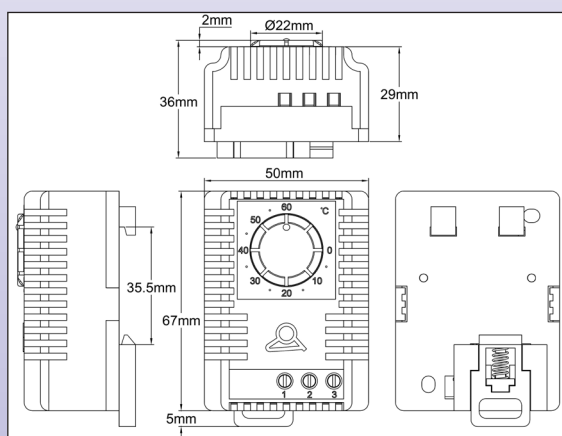


Din rail mounting miniature humidistat for electrical cabinets

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

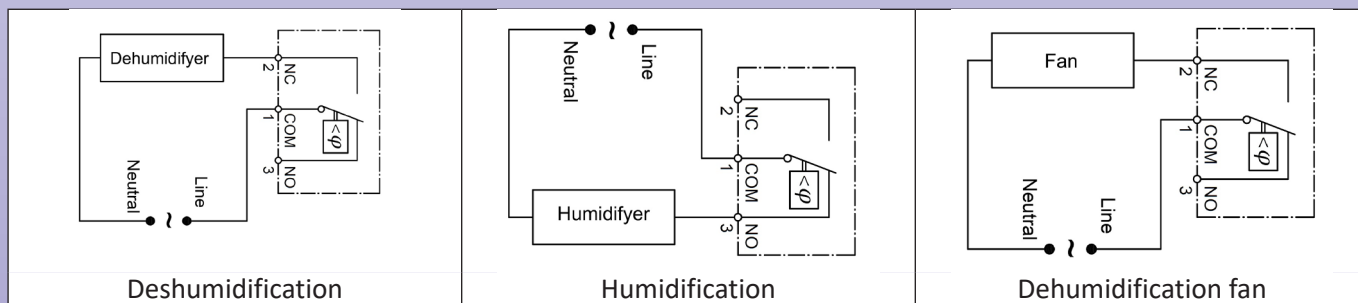
Dimension: 67x50x 36mm

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





Electronic relative humidity controls



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Electronic humidity / temperature Controllers

Type : 273D and 273B



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



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

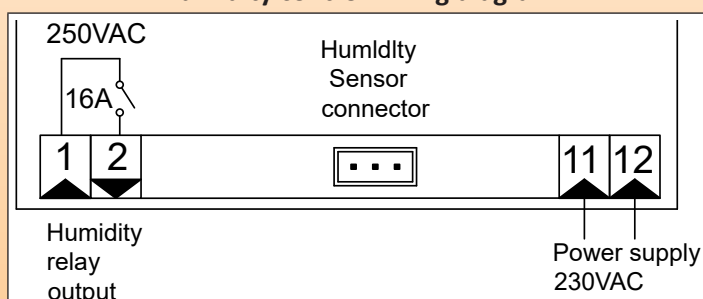
Self-testing: Over-scale, under-scale, and open circuit sensor display.

Dimensions: 77 x 35 x 60mm. Panel cut-out 71 x 29mm

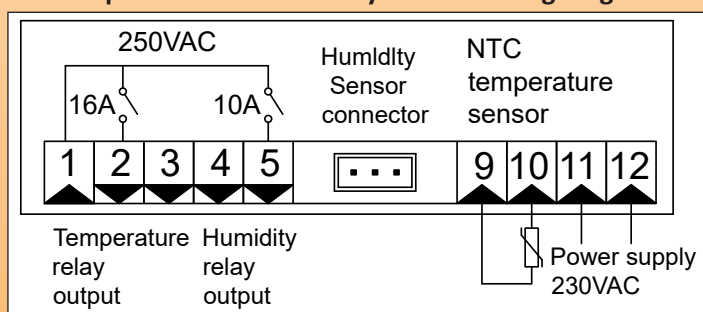
Ambient temperature: -10 to 60°C, 20 to 85% relative humidity, non-condensing.

References

Humidity control wiring diagram

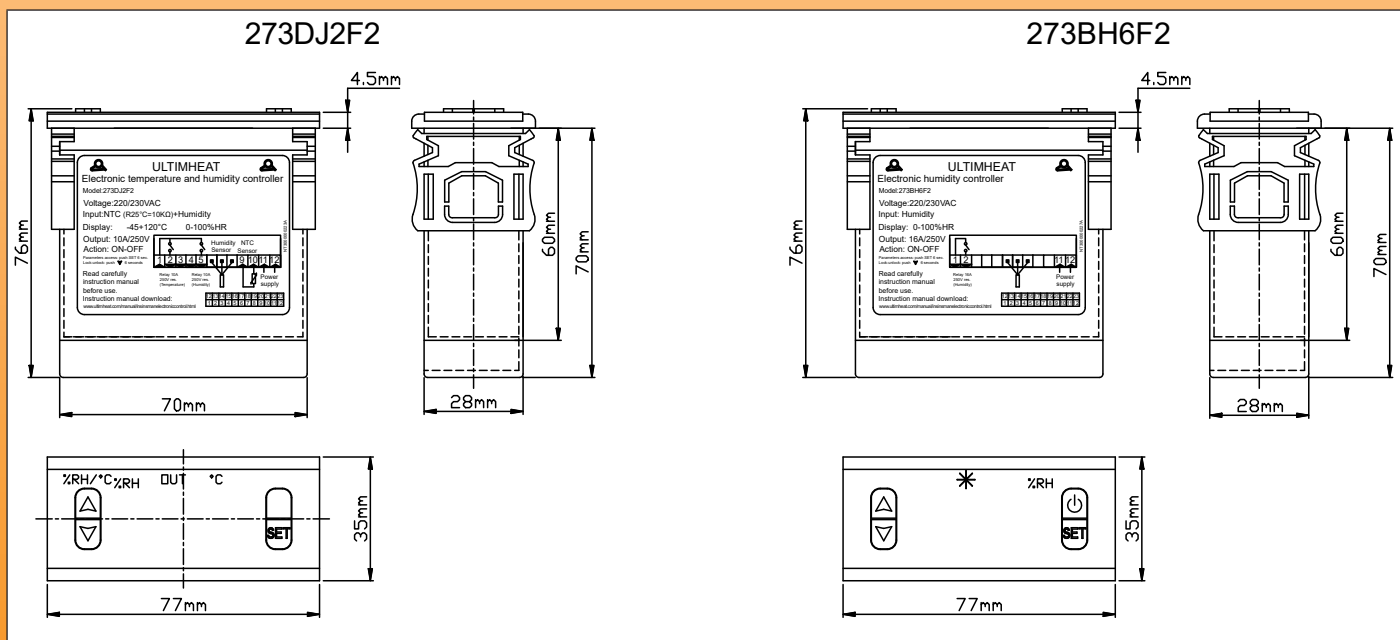


Temperature and humidity control wiring diagram



Humidity control	Humidity and temperature control
273BH6F2	273DJ2F2

DIMENSIONS



Update 2026/07/07

Contact us

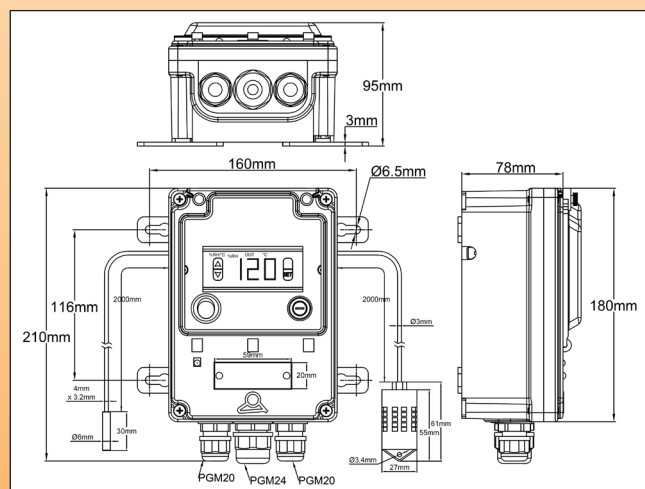
www.ultimheat.com

Cat8-5-3

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

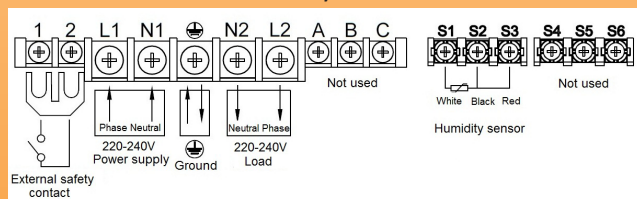


DIMENSIONS

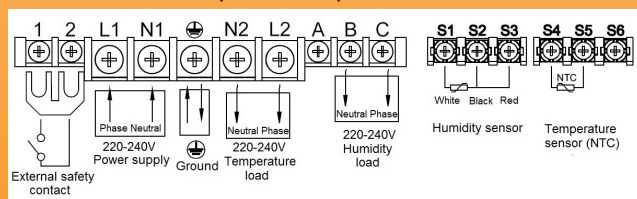


Wiring diagrams

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 P3 of section 5).

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 6mm² wires and 5 terminals for 2.5mm² 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	Q8WHM-M3000000CF3



Relative humidity sensors and associated temperature sensors

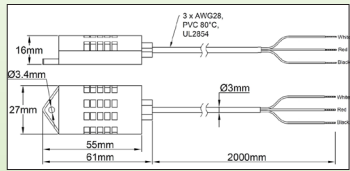


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Sensors

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

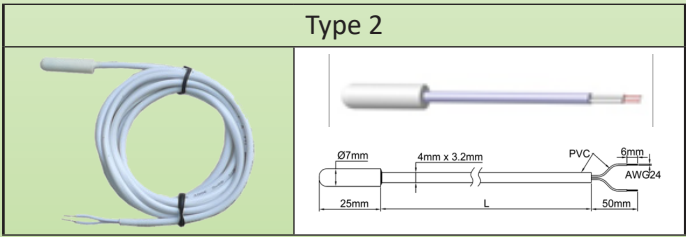
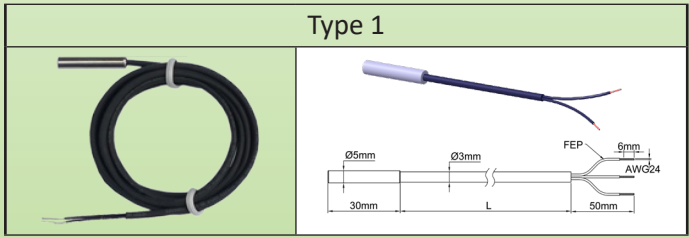
Accuracy and tolerances: ±5% from 20 to 85%

Connection cable: 3 x AWG28, PVC80°C, UL 2854 style, external sleeve dia. 3mm, 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 30mm	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, waterproof, 7 x 25mm	PVC 80°C, L=2M	Cold rooms and ambient up to 50°C, with 273 type controllers	2



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