

ETF 012 Redesign

The electronic components of the Hygrotherm ETF 012 have been redesigned. This change improves the product specifications and supports the use of the Hygrotherm in even more areas of application.



Article Numbers

There will not be new article numbers for the redesigned Hygrotherm. The two standard product versions from the catalogue will be updated with improved specifications:

01230.0-00

01230.9-00

Based on the improved specifications, the two following product versions will no longer be needed and will eventually be discontinued:

01230.0-01 (230V with °F scale)

01230.9-01 (120V with °C scale)

Customers can easily replace these with the standard:

01230.0-01 (230V with °F scale) => 01230.9-00 (100-240V with °F scale)

01230.9-01 (120V with °C scale) => 01230.0-00 (100-240V with °C scale)

The non-standard versions will be available for some time, but will be discontinued later in the year. We kindly ask you to inform your customers soon to get the conversion to the standard product versions in their applications started.

This product enhancement helps your customers to reduce stock and to keep administrative work small.

Improved Specifications

1. Supply Voltage/Operating Voltage

The internal power supply unit of the ETF 012 was re-engineered. The result is a Hygrotherm with a wide-range input voltage of AC 100 to 240 V. This allows the product to be used for all common supply voltages worldwide, whether 100V in Japan, 120V in the US or 230V in Europe. It is no longer necessary to consider country specific supply voltages when specifying a Hygrotherm.

2. Operating Temperature Range

The Hygrotherm can now be operated and stored at temperatures as low as -40 °C. This opens up new areas of application and ways of use which could not be met with the previous minimum operating temperature of 0°C.

In the past it was sometimes not possible to specify or use the Hygrotherm ETF 012 in projects requiring an operating temperature of -40°C for regulators. These types of requirements are specified for enclosures which need to be “rebooted” at ambient temperatures of -40°C. Our heaters and regulators are to be used to pre-heat the enclosure under such conditions. The purpose of heaters and regulators are to generate adequate temperatures for the other equipment before it can be “booted”. The most commonly known branch is the wind power industry, but these requirements have also been set for machines/automats such as parking meters, etc. which are to be installed in colder regions (e.g. in higher altitudes).

Considering laws of physics, moisture detection at temperatures below freezing point does not make sense. Temperature measurement, however, is useful.

3. Switching Capacity

Using a technically advanced relay increased the switching capacity furthermore. Permanent currents can now be switched safely up to 10 (1.6) A. Also, inrush currents are now acceptable up to 30 A. The higher switching capacity opens a wider range of use, not only in combination with our heaters. You can now connect the 120 V versions of the Fan Heaters CR 030/CR 130, 950 W, and CS 030/CS 130, 1,200W, directly to the NC contact of the redesigned Hygrotherm ETF 012.

Calculation: 950W @ 120V = 7.9A
1,200W @ 120V = 10A

The NC contact of the previous Hygrotherm ETF 012 versions was limited to 6A, and only our 230V heaters of these series could be connected to the NC contact.

New DC Version

We can now also offer a product version which is suitable for operating voltages of 24-48VDC.

This version is intended for applications where control and power ranges are built up with different voltages.

Control ranges are working with a secure low voltage of 24 or 48VDC. Sensing devices, photoelectric sensors, etc. are such devices that are supplied with DC voltages.

A power range is built up with alternating voltage (120 or 230VAC), switching larger loads, e.g. electric motors, contactors, heaters.

The internal relay of the ETF 012 can switch DC voltages between 20 and 60V with a switching capacity of max. 0.6 A. In most cases this is sufficient to control a power relay.

If it is necessary to switch DC currents above 0.6 A, the ETF 012 can be used in combination with our Switch Module SM 010.

There are currently no plans for a Hygrotherm that can switch higher DC voltages.

Additional Information

PCB Design

(PCB = Printed Circuit Board)

The design of the ETF 012 electronics has been further optimized. While the internal heat dissipation has always been small, the influence of the self-heating on the sensor was even further improved.

Setting Range

The setting ranges for switching temperature (0 to 60°C and 32 to 140°F) and relative humidity (50 to 90% RH) have not change.

Definition of Terms

Storage Temperature: This is the ambient temperature to which the product can be exposed in idle condition (not powered by a supply voltage).

Operating Temperature: This is the temperature to which the product can be exposed while powered by a supply voltage.

Setting Range: This is the range in which a switching temperature can be set with the adjustment knob of the regulator.

A heater operating with the Hygrotherm raises the temperature and therefore prevents a decrease of the interior temperature below 0°C. In this case the minimum setting corresponds to the minimum operating temperature. If a system is "preheated" with recurring supply voltage, lower temperatures as the set value may occur.

Casing

The plastic housing of ETF 012 has not changed. Only the electronics of the Hygrotherm ETF 012 was subject to the redesign.

Logistics

Effective from 4 February, 2013 all deliveries of article numbers 01230.0-00 and 01230.9-00 (date code 035/13 and following) will be new versions only. You can easily recognize the new ETF 012 either by the indication of the wide voltage range on the label or from the date code.

It is not possible to return your stock of ETF 012 with "old" specifications.

Hygrotherm ETF 012 with external sensor

Simultaneously to the redesigned ETF 012 we can offer a product version with external sensor. This version allows the customer to take precise temperature/humidity measurements anywhere in the enclosure or in another compartment of the enclosure.

In this case it is not necessary to consider installation conditions (in respect to density) and influences of other components on the ETF 012, as the sensor is not integrated in the ETF 012 housing. Instead the sensor can be placed at the most optimal place for the application anywhere in the enclosure.

We can offer our customers two mounting options for the sensor: the sensor casing can either be clipped or screwed onto a DIN rail.



The Hygrotherm with external sensor is available in two different cable lengths - 1 m and 2 m. The article number determines the cable length of the sensor. It is not possible to deliver cable and sensor separately.

The sensor is connected to the ETF 012 via a connection plug. This „push-pull connector“ has a detachable lock function (similar to a LAN plug) to make sure that the connection plug cannot “slip out” of the Hygrotherm casing upon external influences, such as vibration.

The sensor element itself is identical to the sensor used in the standard ETF 012 with integrated sensor. It also takes temperature and humidity measurements, electronically evaluates and then switches the output relay appropriately.

It is not possible to „upgrade“ the standard Hygrotherm ETF012 (Art. No.s 01230.x-00) with the external sensor. External sensors can only be connected to product versions with Art. No.s 01231.x-xx and following.

Comparison of "old" and "redesigned" specifications:

	"Old"	Neu (Redesigned)	Comments	Advantages
Operating voltage	AC 230 V, 50/60 Hz or AC 120 V, 50/60 Hz	AC 100-240 V, 50/60 Hz	Wide voltage range	one product for all countries, ordering and stock keeping simplified
Additional Info: Operating voltage tolerances	+/- 10 %: 207 .. 253 V or 108 .. 132 V	+/- 10%: 90 .. 265 V	ETF 012 now covers a wide voltage range	a wider voltage range is covered with one product
Operating temperature	0 to 60 °C	-40 to 60 °C	Temperatures below zero allowed	it is possible to use the ETF 012 in new applications (e.g. "pre-heating")
Storage temperature	-20 to 80 °C	-40 to 60 °C	The storage temperature for temperatures below zero was extended to -40 °C, but restricted to +60 °C (but who will store these regulators above 60 °C!)	it is possible to use the ETF 012 in new applications (e.g. "pre-heating")
Max. switching capacity (relay output)	NC: AC 240 V / AC 120 V, 6 (1) A NO: AC 240 V / AC 120 V, 8 (1.6) A DC 100 W @ DC 24 V	AC 240 V, 10 (1.6) A DC 60 V, 0.6 A	Higher switching capacity	it is possible to use the ETF 012 in new applications CR 030/130 and CS030/130 in 120 V can now directly be connected
Max. inrush current	AC 16 A for 10 sec.	AC 30 A for 10 sec.	higher inrush currents	-
Service life	NC: > 50,000 cycles NO: > 100,000 cycles	NC/NO: VDE > 15,000 cycles UL: > 30,000 cycles	the higher switching capacity results in a reduction of the service life cycles	15,000 cycles correspond to more than 8 years at 5 heating cycles a day
External sensor	-	optional	with 1 or 2 m cable length and with „push-pull connector“	temperature and humidity measurement anywhere in the enclosure