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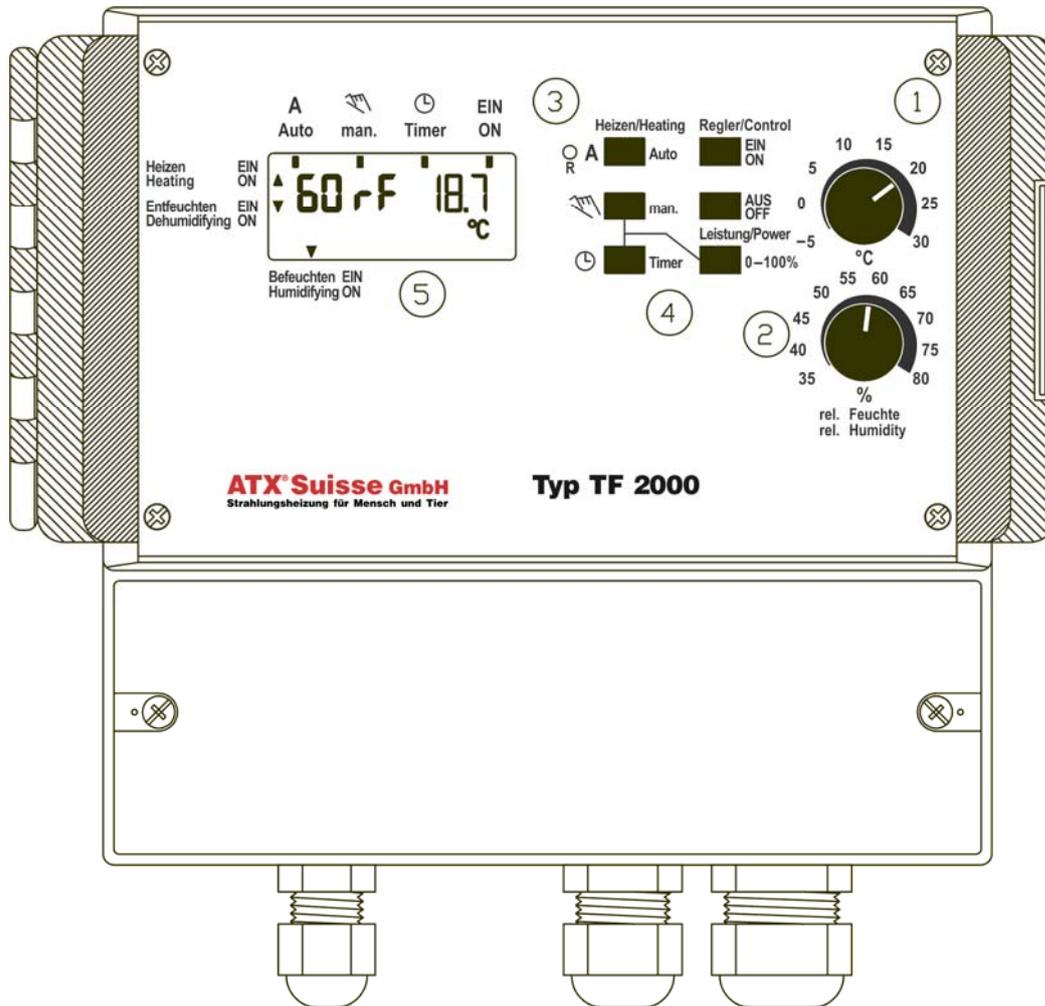
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1. Short Description

The controller with combi feeler measures temperature and relative humidity according to heating settings or humidity requirements.

Additionally, manual setting is possible either in continuous mode or in the timer mode.

2. Operational Controls



1. Control button temperature
2. Control button relative humidity
3. Reset button
4. Keyboard, operation, programming
5. Display, operational indicator

3. Operating Methods, Functions

The controller can be turned ON or OFF with the buttons “ON” or “OFF”.

ON: The controller is turned on to automatic mode.

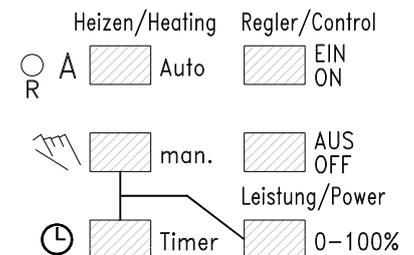
OFF: The controller is turned off.

The “Auto”, “man” and “Timer” buttons select between the different heating methods:

Auto: Automatic operation according to chosen settings.

man.: Continual operation, the heating is continually turned on.

Timer: Timer mode, the heating operates at a certain set time.



3.1. On / Off

The appliance is turned on and functions in automatic mode after one touch of the “Regler / Control EIN / ON” button. The relevant indicators will be shown in the display. The appliance is turned off with the “Regler / Control AUS / OFF” button.

Even when turned off the current temperature and humidity values are still shown in the display.

Attention: Even in the OFF mode the device is still under voltage. The mains supply has not been disconnected. Before any work is carried out on the appliance it should be disconnected.

3.2. Heating, Automatic

The desired temperature (-5 to +30°C) is adjusted with the top swivel button (1). During adjustment the temperature is simultaneously shown in the display. 3 seconds after the last manipulation the device automatically returns to the current temperature.

When the temperature falls lower than the set value the heating will be turned on.

The desired humidity (35 to 80% rH) is adjusted with the lower swivel button (2). During adjustment the humidity level is shown simultaneously in the display.

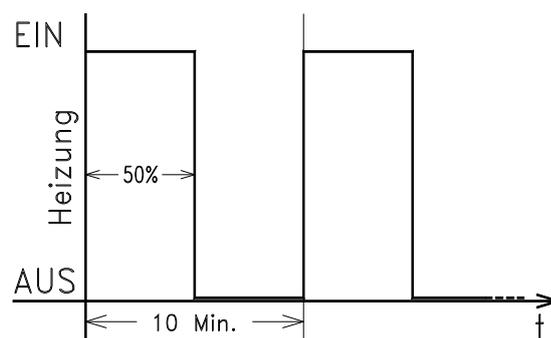
If the set humidity level is exceeded the heating will be turned on.

In this case a maximum temperature limit of 27°C is foreseen. If the temperature is set at a higher value than this, the heating continues until the desired temperature is reached.

During periods of high outdoor humidity, when “dry heating” is almost impossible, the heating capacity will be throttled by 50% when the humidity has not been essentially reduced after a period of 60 minutes. This reduction will be continued for half the set time (30 mins.) after which, as necessary, the dry heating will be restarted. If the 50% heating capacity during the dry heating phase is inadequate to hold the set temperature, the capacity is increased.

The heating output is synchronized in order to reach a quasi proportional control character. The greater the difference from the set temperature or humidity values the longer the heating output. (The heating capacity is increased). The values for the proportional ranges are programmed. See technical data.

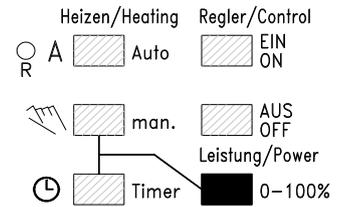
Example: With a pulse duration of 10 minutes and a control deviation of 50% the heating is turned on for 5 minutes and off for 5 minutes.



3.2. Heating, manual

In this mode the heating is continually in operation until another mode is chosen manually. Temperature limits are not considered.

The heating output is synchronized and the pulse duration is in automatic mode. The synchronization can be adjusted with the “Power 0 – 100%” button in 10% steps. The initial value is 100%. The set value is shown in the display for 10 seconds after pressing the “Power” button.

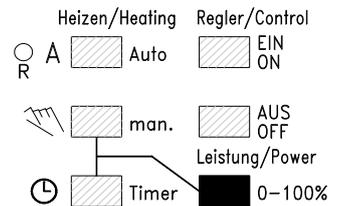
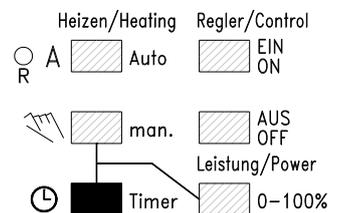


3.3. Heating, Timer mode

In this mode the heating is continually turned on for a certain set time. Temperature limits are not considered. At the end of the set time the automatic mode takes over.

The duration of the timer can be adjusted in 30 minute steps after pressing the timer button several times. The maximum adjustable duration is given in a parameter in the hidden menu. To check the remaining timer duration press the timer button once. The time is shown in the display for 10 seconds.

The heating output is synchronized and the pulse duration is in automatic mode. The synchronization can be adjusted with the “Power 0 – 100%” button in 10% steps. The initial value is 100%. The set value is shown in the display for 10 seconds after pressing the “Power” button.



4. Reset

Two different resets are possible

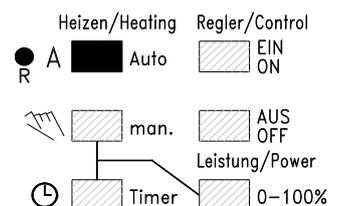
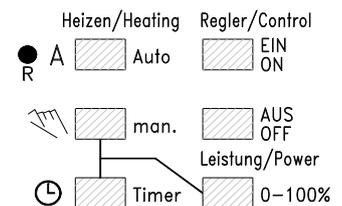
4.1. Startup-Reset

The reset button (3) enables a new start after a possible power failure. The set values remain.

4.2. Global Reset

In order to reinstate the device to the original settings the “Auto” and “Reset” buttons should be pressed simultaneously. After releasing the “Reset” button the “Auto” button should be kept held down until the number (Id:20.....) appears in the display.

Attention: All set values are lost.



5. Installation instructions

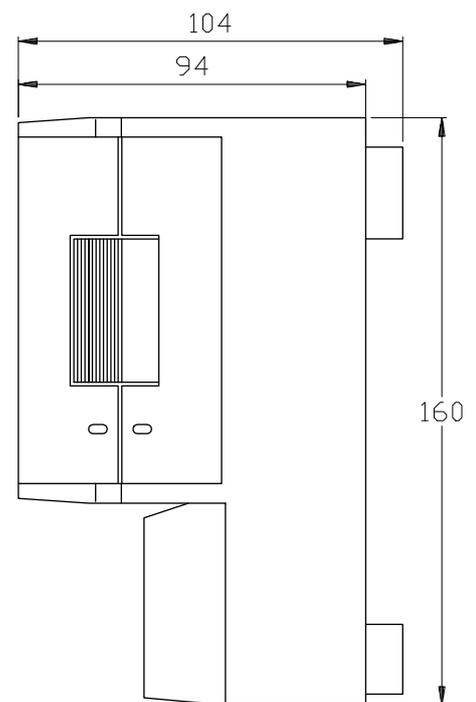
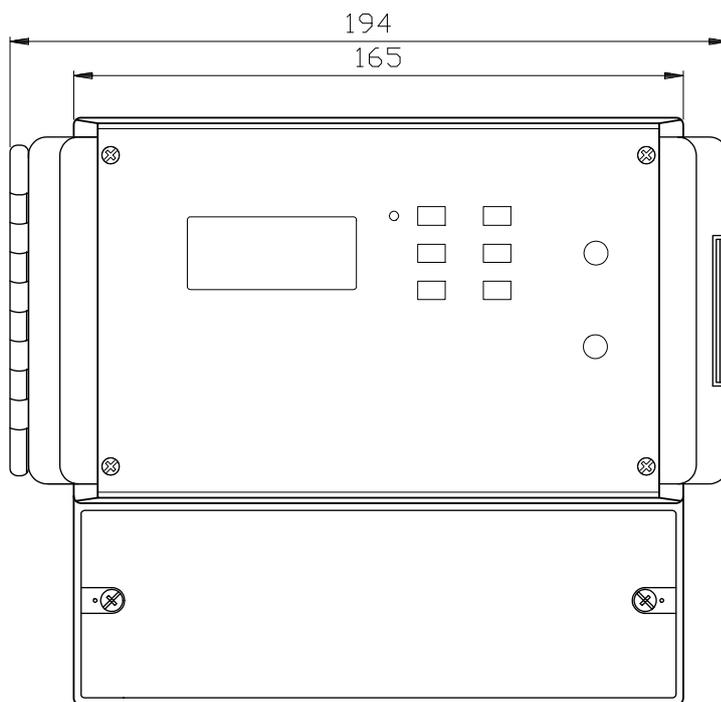
Only for the electrician!

Attention: Faults in the connection can lead to damage of the control device. No liability accepted for defects caused by wrong connection and / or improper handling!

- Before any work is carried out on the appliance it must be disconnected from the mains!
- **The appliance is only suitable for connection to electric circuits which are continually under voltage (no load management).**
- The appliance is only for use in closed rooms.
- The ready assembled flexible connections and sensory leads should be installed with a cord grip. The cable fittings are not considered as cord grips.
- Attention should be paid to the VDE 0100, the EN 60730, Part 1, as well as the specifications of the local EVU.
- If the appliance fails to work check first the connection and voltage supply.

6. Mounting

The control device and cable entry are conceived for mounting on plastered walls.



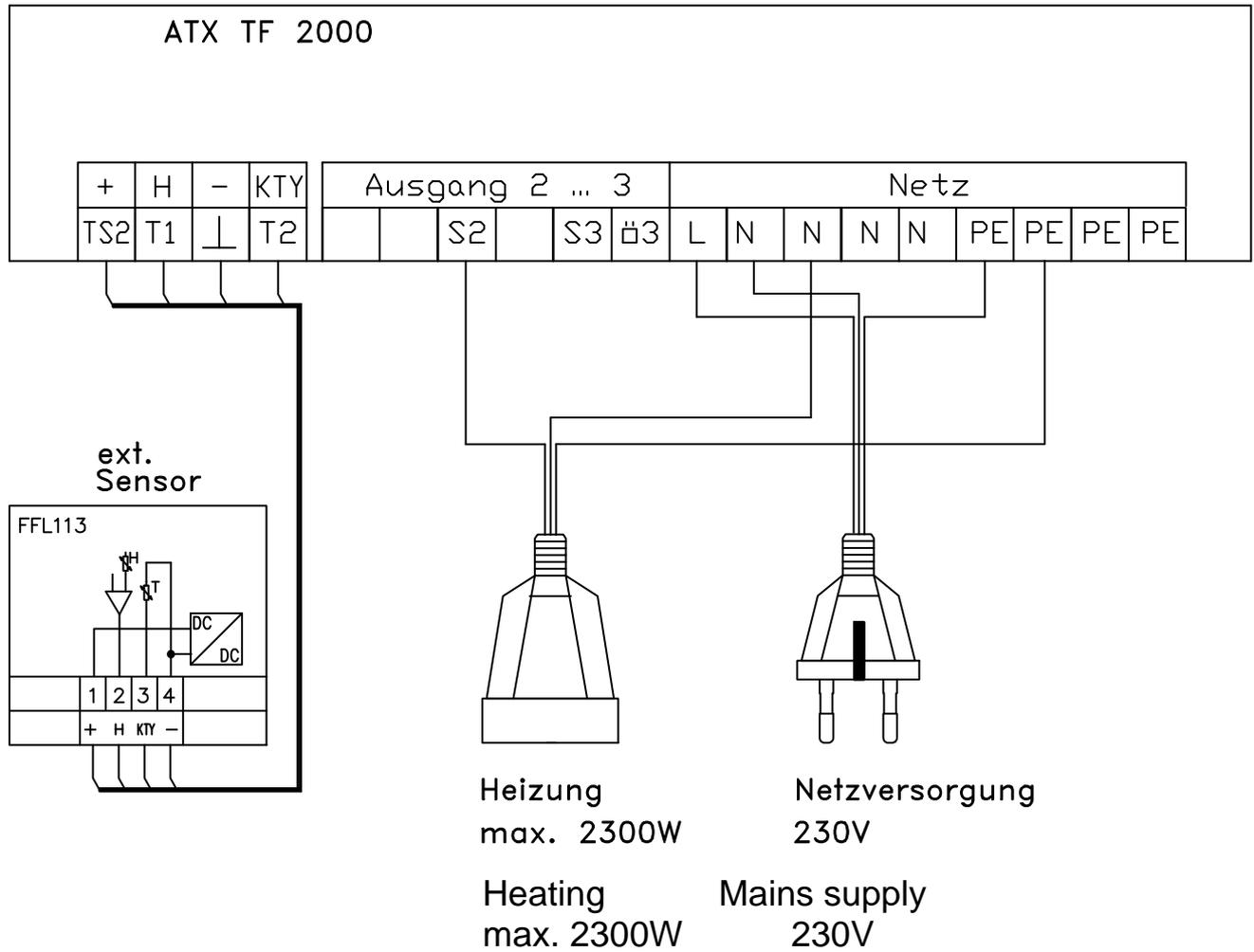
7. Technical Data

Typ	TF 2000
Temperature range	-5 to + 30°C
Temperature sensor	KTY (external)
Feeler tolerance	+ / - 1K
Temperature proportional to heating	2 K
Pulse duration heating	5 to 30 mins.
Humidity range	35 to 80% rH
Humidity sensor	external active sensor, 0-10V signal
Feeler tolerance	+ / - 3% rH at +25°C
Humidity proportional to heating	10% rH
Differential gap humidity	+ / - 5% rH
Display	LC Display
Voltage	230V AC (+/- 10%)
Power input	approx. 2 VA
Relay contact	2 alternators
Max. Switching current	10(4)A 230V AC per relay
Electric connection	Clamping screws
Electronic life span	0.5 x 10 ⁵ switching cycle
Max. permitted surrounding temperature	-10 - +50°C
Storage temperature	-10 - +70°
Casing: Material	Synthetic ABS
Protective system	IP 54
Protection category	1 after DIN EN 60730
Dimensions	194 x 160 x 104mm (WxHxD)
Mounting	Wall mounting
Power supply	For AP cables
Weight	approx. 750 g

ATTENTION!

The load current must not exceed the sum of 10A at the exits. Safety measures should be taken into consideration.

8. Connection diagram



Subject to change