U 468 931 002 910-02

Installation and Operating Instructions

Electronic Clock Thermostat easy 3f

Warning!

This unit must not be opened and installed except by authorized persons and in compliance with the circuit diagram provided inside the cover. It is mandatory in all work on the unit to observe the current safety regulations.

In order to classify for protection class II it is necessary to take adequate installation measures.

This separately mounted unit is designed for temperature control exclusively in dry and closed rooms with standard environment. The unit features radio-interference suppression in compliance with VDE 0875 T.14 and EN 55014, respectively and works according to operating principle 1C (EN 60730)

1. Applications

The easy 3f electronic clock thermostat is designed for floor temperature control in conjunction with:

- electric floor heating systems
- hot-water floor heating systems
- etc.

Features

- very simple operation
- comfort and setback temperature adjustable
- 5 operating modes (by rotary switch) for:
  - permanent comfort temperature (10…50°C)
  - permanent setback temperature (10…50°C)
  - clock mode (automatic)
  - frost protection (5°C fixed)
  - OFF
- Indicator lamps for:
  - heat demand
  - setback mode
- available with daily or weekly timer
- output signal PWM (cycle time adjustable via jumper)
- relay output, 1 x changeover contact
- with remote sensor for recording floor temperature
- emergency operation at sensor failure
- hinged cover
- new design 2000

2. Function description

The clock thermostat is designed to control the floor temperature.

In the automatic mode, a changeover is effected between comfort and setback mode by the built in timer.

In setback mode the green indicator lamp lights up.

If room temperature drops below set value, heating will start, the red indicator lamp will light up.

Indicator lamps

red indicates when controller demands heat,
green indicates when setback mode is activated.
red flashing for failure.
Operating voltage to be switched OFF and ON again.

Controller heat demand at PWM

If floor temperature drops below the set value, heating mode will start. The controller output is in the form of pulses of varying length (PWM). The length of the pulses depends on the difference between set and actual room temperature.

The sum of pulse and pause times can be selected with J 4 (between 10 or 25 min).

If there are large temperature differences, the controller will switch ON or OFF permanent, e.g. when changing over to temperature setback mode.

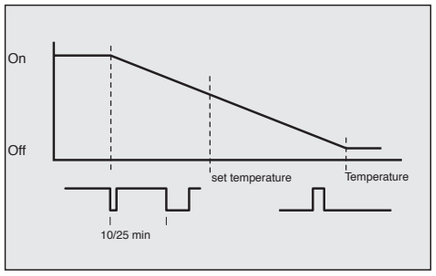


Fig. 1: Characteristic of impulse pause ratio depending on temperature

Cycle time setting

For inert applications (e.g. burners) we recommend the long cycle time.

For quick applications (e.g. electric direct heaters) we recommend the short cycle time.

Plug-in jumper J4 (right side of board)	**Time**
Double-pole jumper connection	25 min (as-delivered condition)
Single-pole jumper connection	10 min

3. Installation

The controller should be arranged in a place within the room which is easily accessible for operation.

Mounting directly on conduit box or with adapter frame ARA easy.

Electric connection

Warning! disconnect electric circuit from supply.

Proceed as follows:

- pull off temperature setting knob
- push retaining hook outwards using screwdriver
- remove housing cover
- make connection in compliance with wiring diagram (see housing cover).

Remote sensor

The remote sensor is extendable to max. 50 m, using a 230 V cable.

The remote sensor (type F 193 720) should be installed into a protection tube (pocket). This facilitates later replacement.

Warning!

Sensor cables carry operating voltage.

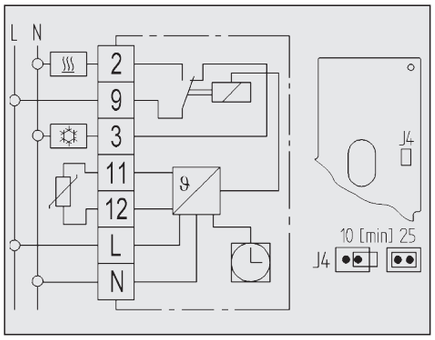
In case of failure (break or short-circuit) the controller switches into emergency operation and heating capacity will be 30% .

4. Technical data

Type		easy 3ft with daily timer easy 3fw with weekly timer
Article No.	easy 3ft easy 3fw	517 270 5 51 100 517 270 6 51 100
Operating voltage		195…253 V AC 50/60 Hz
Power consumption		<1.5 W
Temperature setting range: comfort temperature setback temperature frost protection		 1…5 (≙10…50°C) 1…5 (≙10…50°C) approx. 5°C fixed
Regulation		proportional controller (due to PWM quasi-continuous, see Fig. 1)
Cycle period		adjustable 10 or 25 min. (sum of PWM ON and OFF times)
Proportional band		1.5 K
Output		relay, 1 volt-free* changeover contact
Switching current		10 mA…16 A cos φ = 1 max. 4 A cos φ = 0,6 max. 10 electro-thermal actuators
Switching voltage		24…250 V AC
Mode selector switch		comfort/automatic/setback/frost protection/OFF
Indicator lamp: red: green:		 controller demands heat setback mode
Remote sensor: sensor characteristics		type F 193 720 length 4 m, type F 190 021 (wall mounting) both extendable up to 50 m 42 kΩ at 20°C 26 kΩ at 30°C
Range limitation		inside setting knob
Clock: accuracy switching time setting power reserve		 <10 min./year every 15 min. with daily timer every hour with weekly timer approx. 100 h
Protection class of housing		IP 30
Degree of protection		II (see Warning!)
Ambient temperature		–10…40°C, without condensation
Storage temperature		–25…65°C
Dimensions		160 x 80 x 36 mm
Weight		approx. 220 g

*** The volt-free contact of this mains-operated unit does not ensure the requirement for the use of safety extra-low voltage (SELV).**

5. Wiring diagram



Symbol explanation

Heating Cooling Remote sensor

6. Operation

Temperature setting

1 **Comfort temperature** (daytime temperature) is set by means of externally visible setting knob (1)

2 **Setback temperature** (night temperature) is set by means of adjustment knob (2) beneath cover.

Time setting

3 by putting one finger on dial (3) and turning in any direction, you can set the time.

4 Arrow (4) points to the selected time.

Switching time setting

5 Bring movable tappets (5) into required position using a pointed object.

Outer ring = comfort temperature
Inner ring = setback temperature

6 **Mode selector switch** (6) – externally

- Comfort temperature, permanent
- Automatic mode, time-controlled changeover between comfort and setback temperature
- Setback temperature, permanent
- Frost protection, permanent (10°C)
- OFF, there is no control activity. The controller itself is not disconnected from operating voltage.