Operating Instructions

Electronic Temperature Controller

Type UTR-524 72

Attention 1!
The separately mounted unit must not be opened except by authorised persons, and this should not be attempted unless it is isolated from the power supply. For the connections refer to the circuit diagram provided inside the cover. It is mandatory in all work on the unit to observe the current safety regulations of the VDE, or its national equivalent, and those of the local power supply companies.

In order to qualify for protection class II, it is necessary to comply with the guidelines of VDE 0100, or national equivalent standards.

1. Applications

The controller is suitable for universal use, e.g. for:

Floor direct, floor storage or open area heating systems, swimming pool control, air conditioning.

2. Function

The controller is suitable for:
- heating
- cooling

a) Heating (Terminal 1-5)

If the temperature measured by the sensor (actual value) is below the setpoint, the controller is switched ON (relay picks up).
If the temperature measured is above the setpoint, the controller is switched OFF (relay in de-energized position).

b) Cooling (Terminal 1-4)

If the temperature measured by the sensor (actual value) is below the setpoint, the controller is switched OFF (relay de-energized).
If the temperature measured exceeds the setpoint, the controller is switched ON (relay picks up).

c) Hyseresis

Apart from the setpoint, the temperature at which the controller switches over depends also on the hysteresis adjusted (switching differential), see Fig. 1. It can be changed by means of the adjuster "hysteresis."

d) Temperature setback :

(lowered setpoint) is effected by closing a **external-floating** contact between terminal 10-11, e.g. by means of an external timer.

The green indicating lamp is lighted when the relay is in on state.

The red indicating lamp warns of sensor failure.

In the event of sensor failure, controller is switched ON. This state is maintained until the fault has been remedied. (Another variant is available which will be in off state if a sensor failure occurs).

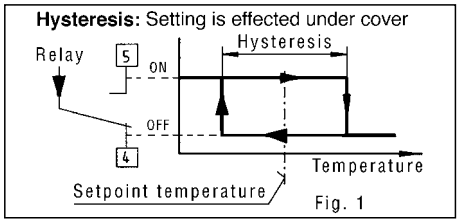


Fig. 1

3. Installation / Connection

Fix base of housing by means of the 4 holes provided to a suitable surface. Enter cable for power supply and load through the M16 screwed glands. Enter cable for -switching contact and sensor through the PG-16 screwed gland. Cut out -cable opening. Firmly tighten up screwed glands; tightening torque is 25 Nm.

Tightly seal unused screwed glands using suitable material.

Modifikation for internal temperature setting

Proceed as follows:

1. Remove cover by taking out 4 screws
2. Lever out cap at top of adjusting knob. See Fig 2
3. Slacken screw and pull off adjusting knob
4. Push spindle down into the interior
5. Firmly press the closure plug supplied into the hole from the outside (see Fig. 3)
6. Re-place cover.

Attention 2!
In order to qualify for degree of protection class IP 65, it is necessary that the closure plug should be pressed in solidly with the rubber gasket.

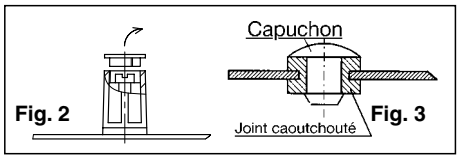


Fig. 2 Fig. 3

Cable for sensor and -contact:

Use screened cables where leads are installed in cable ducts or where they are run in parallel with power cables for some distance.

For sensors:

May be extended to a maximum of **100 m** with 1.5 mm² conductor area.

For -contact:

May be extended to a maximum of 10 m with 1.5 mm² conductor area.
Cable diameter: 8.6 mm ±0.3 mm.

Installation of sensors:

When installing the sensor, make sure that satisfactory contact exists with the heat source. The sensor should be able to follow the temperature changes in the medium to be controlled.

When installing the **standard type of sensor** in liquid media or in areas where access is difficult, it is absolutely necessary to provide a protective tube (to facilitate replacement).

A **pipe-mounted sensor** should contact the pipe as fully as possible.

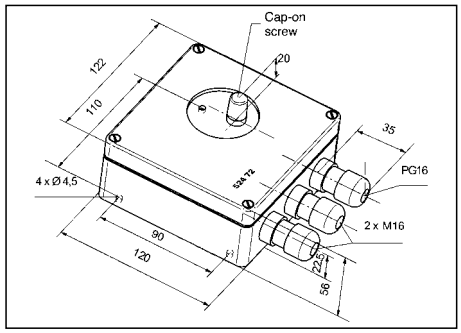
In the case of **in-air sensors,** care should be taken to ensure that the slot openings are positioned in the direction of the air flow.

For **electric connection,** refer to the circuit diagram provided inside the controller. All leads to the controller must be fixed in place.

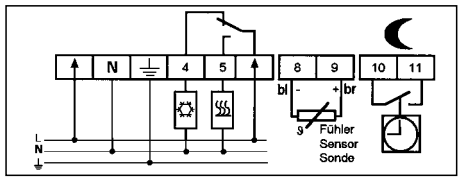
Attention 3!
The timer contact must be floating (basic insulation); **parallel connection** of several timer contacts is **not permissible.**

Never apply mains voltage to a **floating** timer contact (this will cause destruction of the controller).

4. Drawing



5. Wiring diagram



6. Technical data:

Order No.	UTR 20 (–40 °C … 20 °C) UTR 60 (0 °C … 60 °C) UTR 100 (40 °C … 100 °C) UTR 160 (100 °C … 160 °C)
EDP No.:	0524 72 14 x xxx
Operating voltage:	230 V AC (207 … 244 V) 48 V … 62 Hz
Power consumption:	≤4 VA
Operating temperature:	–20 °C … 50 °C
Storage temperature:	–40 °C … 70 °C
Controller type:	ON/OFF
Switching contact:	Relay 1 x c/o contact, floating*
Switching current: (250 V AC):	≤16 A cos φ = 1 ≤ 4 A cos φ = 0.6
Hysteresis:	±0.5 … ± 5 K (T ≤100 °C) ±0.5 … ±10 K (T >100 °C)
Temperature setback :	Approx. 5 K fixed
Type of sensor:	PTC (KTY 83-110)
Protection class:	II (see Attention 1)
Degree of protection:	IP 65
Cable entry:	Screwed glands: 2 x M16; 1 x PG16
Ordering No. PG 16:	000 19 3829 000
Weight:	Approx. 440 g

*Also for switching safety extra-low voltage (SELV)

Technical data of sensors:

Ⓐ Standard sensor:

Ordering No.	Ambient temperature	Cable lenght	Protection class	Time constant approx
F 894 002	–50…175 °C	1.5 m	IP 67	30 s
F 891 000	–5… 70 °C	4.0 m	IP 67	30 s

Ⓑ Pipe-mounted sensors:

Ordering No.	Ambient temperature	Cable lenght	Protection class	Time constant approx
F 892 002	–40…120 °C	1.5 m	IP 67	60 s

Ⓒ Air-monitoring sensors:

Ordering No.	Ambient temperature	Cable lenght	Protection class	Time constant approx
F 893 002	–40…100 °C	1.5 m	IP 30	10 s

Ⓓ Outdoor sensors:

Ordering No.	Ambient temperature	Cable lenght	Protection class	Time constant approx
F 897 001	–40…80 °C	none	IP 65	180 s

Sensor characteristics: (for all types):

C	Ohm	C	Ohm	C	Ohm
-55	500	**25**	**1000**	110	1774
-50	525	30	1039	120	1882
-40	577	40	1118	125	1937
-30	632	50	1202	130	1993
-20	691	60	1288	140	2107
-10	754	70	1379	150	2225
0	820	80	1472	160	2346
10	889	90	1569	170	2471
20	962	100	1670	175	2535