

## Operating Instructions

### Electronic Temperature Controller

### BARTEC Control ETC 220



#### Caution 1!

The device may only be opened and installed according to the circuit diagram on the device or these instructions by a qualified electrician. The existing safety regulations must be observed. In order to comply with safety class II, the necessary installation steps must be taken. This independently mountable electronic device is designed for controlling the temperature. The device confirms to EN 60730, it works according operating principle 1C.

## 1. Applications

Control of trace heating systems for frostprotection

## 2. Function

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).

### 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."

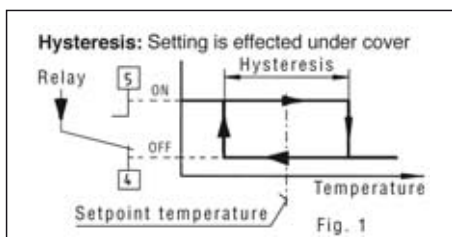
### Temperature setback $\curvearrowleft$ :

(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).



## 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 M 16 screwed glands. Enter cable for  $\curvearrowleft$ -switching contact and sensor through the PG-16 screwed gland. Cut out  $\curvearrowleft$ -cable opening. Firmly tighten up screwed glands; tightening torque is 25 Nm.

Tightly seal unused screwed glands using suitable material.

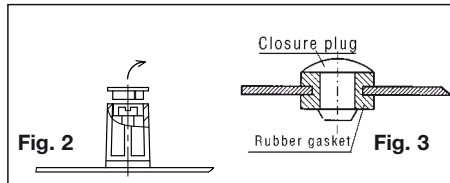
### Modifikation for internal temperature setting

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.

#### Caution 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.



### Cable for sensor and $\curvearrowleft$ -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 mm<sup>2</sup> conductor area.

### For $\curvearrowleft$ -contact:

May be extended to a maximum of 10 m with 1.5 mm<sup>2</sup> conductor area.

Cable diameter: 8.6 mm  $\pm$ 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.

### Sensor characteristics:

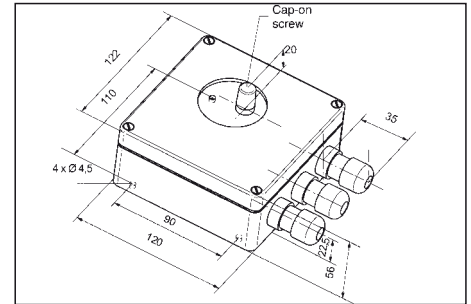
C	Ohm	C	Ohm	C	Ohm
-55	500	25	1000	110	1774
-50	525	30	1039	120	1882
-40	577	40	1118	125	1937
-30	632	50	1202	130	1993
-20	691	60	1288	140	2107
-10	754	70	1379	150	2225
0	820	80	1472	160	2346
10	889	90	1569	170	2471
20	962	100	1670	175	2535

#### Caution 3!

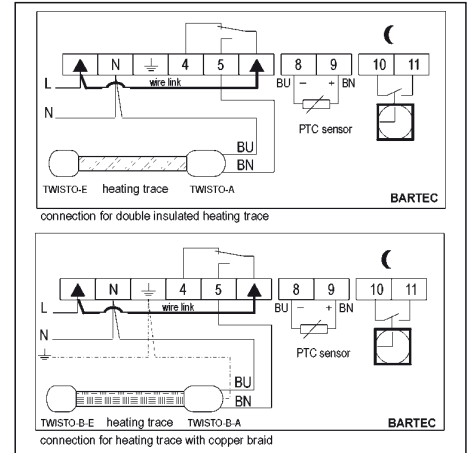
The timer contact must be floating (basic insulation); **parallel connection** of several timer contacts is **not permissible**.

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. BARTEC Control ETC 220

EDP No.: 10 111 002

Temperature range: 0...60°C

Operating voltage: 230 V AC (207...244 V)  
48...62 Hz

Power consumption:  $\leq$ 4 VA

Operating temperature: -20°C...40°C

Storage temperature: -40°C...70°C

Controller type: ON/OFF

Switching contact: Relay 1 x c/o contact, floating\*

Switching current:  $\leq$ 16 A cos  $\varphi$  = 1

(250 VAC):  $\leq$  4 A cos  $\varphi$  = 0.6

Hysteresis:  $\pm$ 0.5... $\pm$  5K (T  $\leq$ 100°C)

Temperature setback  $\curvearrowleft$ : Approx. 5K fixed

Type of sensor: PTC (KTY 83-110)

Protection class: II (see Caution 1)

Degree of protection: IP 65

Pollution degree 2

Rated impulse voltage: 4 KV

Ball pressure test

temperature: 75  $\pm$  2°C

Voltage and Current for the

for purposes of interference

measurements 230V; 0.1 A

Cable entry: Screwed glands:

1 x M20, 1 x M25, 1 x M16

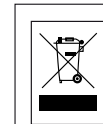
Sensor as replacement 61 100 001

Weight: Approx. 440 g

Energy class I = 1 %

(acc. EU 811/2013, 812/2013, 813/2013, 814/2013)

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



This product should not be disposed of with household waste.

Please recycle the products where facilities for electronic waste exist. Check with your local authorities for recycling advice.