

# TERMOMAT 3

## MOUNTING AND OPERATING INSTRUCTIONS

ART.NO 8003

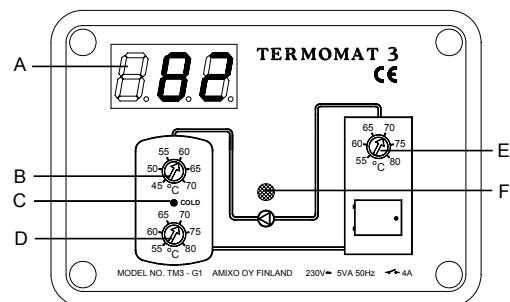
TERMOMAT 3 is a differential temperature control and performance monitor designed to charge a storage tank with a pellets or oil heated boiler. TERMOMAT 3 controls the burner and the heat collecting pump. It has a 3-digit display and two LED indicators. All essential settings are adjustable.

### DELIVERY PARTS

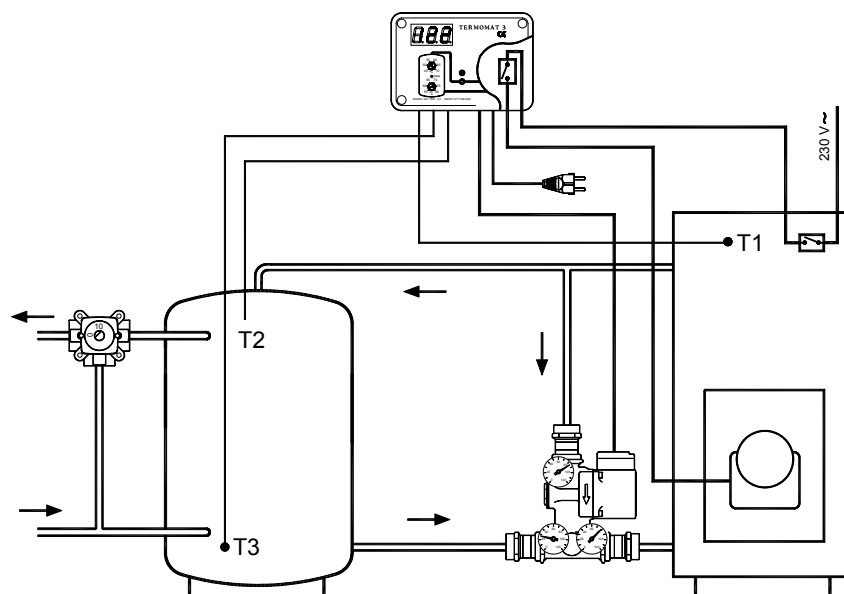
1. Electronic control unit TM3-G1
2. Temperature sensor for heating boiler (T1)
3. Temperature sensor for upper part of storage tank (T2)
4. Temperature sensor for lower part of storage tank (T3)
5. Three sensor housings with G 1/2" threads
6. Socket with screws for wall mounting
7. Mounting and operating instructions

### CONTROL UNIT TM3-G1

- A. Digital display
- B. Temperature setting (2P) in upper part of tank
- C. LED: Tank cold, burner runs
- D. Temperature setting (3P) in lower part of tank
- E. Temperature setting (1P) in boiler
- F. LED for pump



### SKETCH



**MOUNTING**

The installation should be made with a TERMOVAR LOADING UNIT to guarantee a high return temperature to the boiler during charging and a correct heat levelling in the tank.

**Control unit TM3-G1** is to be mounted in a dry place near the boiler where the temperature display is easy to read.

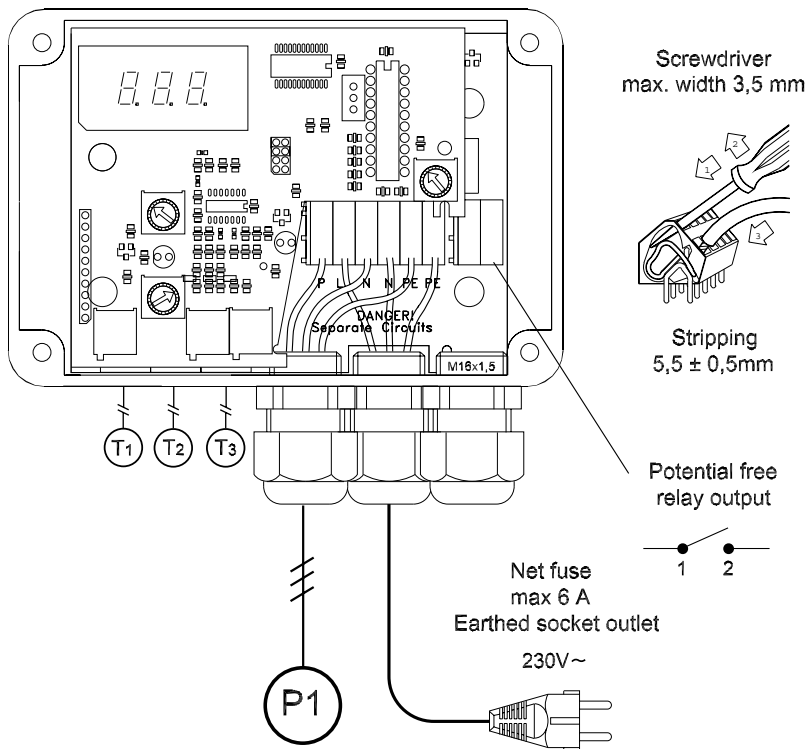
**Temperature sensor T1** is to be placed inside the sensor housing on the upper part of the boiler. **N.B!** The sensor must not be placed on the outgoing pipe as this might disturb the function.

**Temperature sensor T2** is to be placed inside the sensor housing on the upper part of the storage tank.

**Temperature sensor T3** is to be placed inside the sensor housing at the bottom of the storage tank.

**WIRING**

Termomat 3 must not be used as an only working thermostat for the heating boiler. It shall always be connected over the normal working thermostat and the overheating protection of the boiler.



**WARNING! SHUT OFF THE VOLTAGE BEFORE OPENING THE CONTROL UNIT.**

## FUNCTION

TERMOMAT 3 measures the temperature difference between storage tank and heating boiler. It controls the pellets or oil burner and the charging pump. When the storage tank is out of energy, burner and pump start working. A digital display shows the temperatures T1, T2 and T3.

1. The burner starts when temperature T2 drops below the selected value 2P (45°C ... 70°C).  
The factory setting is 70°C.
2. The burner stops when temperature T3 is higher than the selected value 3P (55°C ... 80°C).  
The factory setting is 70°C. The tank is fully charged.
3. The pump starts. The charging from boiler to tank starts when:  
Temperature T1 is higher than the selected value 1P (boiler is hot) and  
Temperature T1 is higher than temperature T2 (tank is colder than boiler).
4. The pump stops when:  
Temperature T1 is more than 3°C below the selected value 1P.  
Temperature T2 is higher than temperature T1. The tank is fully charged.  
There is a 3 min delay before the pump stops.  
The display shows d3, d2 or d1 depending on how many minutes delay there is left.

## DIGITAL DISPLAY

When starting the display shows the program information as follows:

- ◆ The programmed version in microprocessor, for example "P1"
- ◆ Flashes 1P and 70 (setting range 55°C ... +80°C, factory setting 70°C)
- ◆ Flashes 2P and 60 (setting range 45°C ... +70°C, factory setting 60°C)
- ◆ Flashes 3P and 70 (setting range 55°C ... +80°C, factory setting 70°C)

If the sensor temperature is below 15°C, the display shows **-II-**.

If the display shows **-II-** and the sensor temperature is not below +15°C there is a short-circuit in the sensor.

If the display shows **I--I** and the sensor temperature is not above +110°C is the sensor broken or not connected.

If the temperature T2 is under 46°C, the display shows **LO** for low energy. The tank is getting cold.

If the temperature T3 is above the selected value, the display shows **HE** for high energy.

## ALARM AND TROUBLE SIGNALS

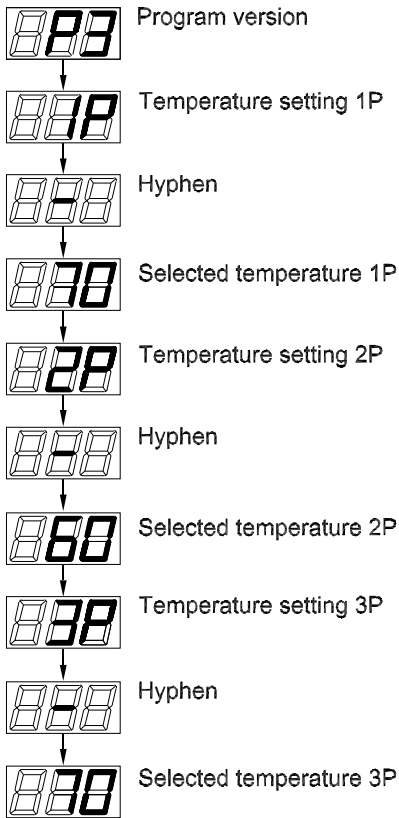
The display shows **-II-**

**Sensor temperature below +15°C or short-circuit in sensor.**

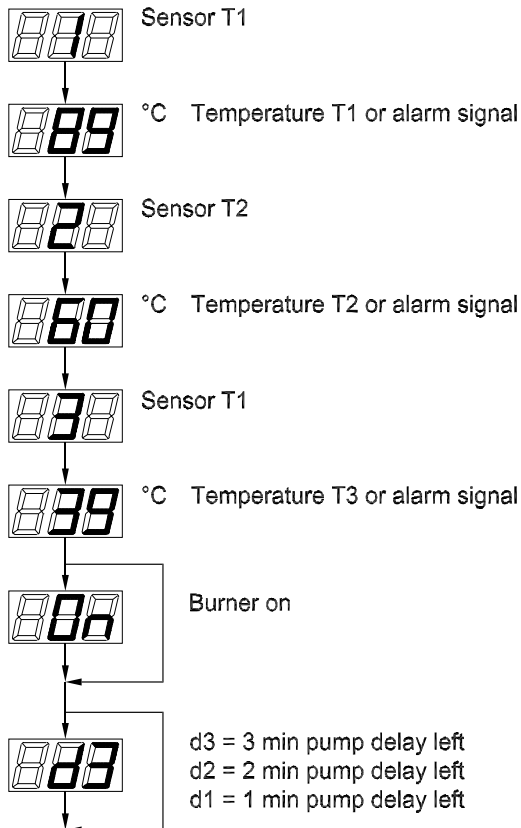
The display shows **I--I**

**Sensor temperature above +110C, sensor not connected or broken.**

**PROGRAM INFORMATION IMMEDIATELY AFTER CONNECTED VOLTAGE**

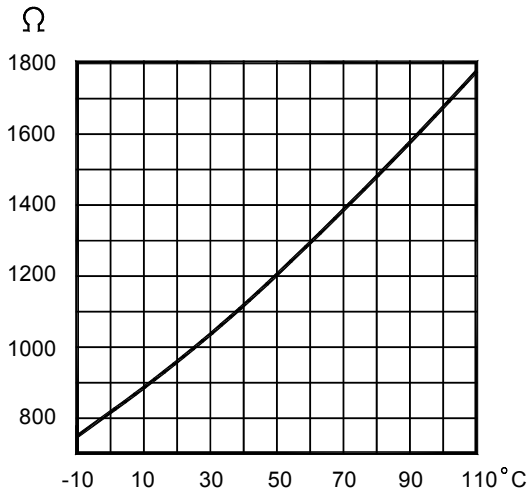


**NORMAL TEMPERATURE DISPLAY**



**SENSOR RESISTANCE**

The sensors are of type KTY. Sensor resistance is measured at the two middle wires of the 4-wire cable contact.



20 °C	963 Ω
30 °C	1039 Ω
40 °C	1119 Ω
50 °C	1202 Ω
60 °C	1289 Ω
70 °C	1379 Ω
80 °C	1472 Ω
90 °C	1569 Ω
100 °C	1670 Ω
110 °C	1774 Ω

**TECHNICAL DATA**

Type of control	On-off, microprocessor
Voltage	230 VAC 50 Hz
Power consumption	3 VA
Output relay contact ratings	2 A, 250 VAC, max. 100 W
Relay protection	VDR 250 VAC
Sensors	Type KTY T1 = 3 m, T2 = 5 m, T3 = 5 m
Lengthening wire, optional	Art.no 8802, length 10 m, delivered with connection box
Temperature range of sensors	From -30°C to +120°C
Digital display	Measuring range from +15°C to +110°C, LED 3-digits
LED indicators	Red LED – pump runs Blue LED – burner on
Main wire	Earthed, length 1,3 m
Relay wires	Max. Ø 10,3 mm, 3 x 1,5 mm <sup>2</sup>
Protection class	IP40
Dimensions	75 mm x 90 mm x 130 mm
Weight	0,9 kg