

# Phasefale TA1

## Precision Alarm Thermostat

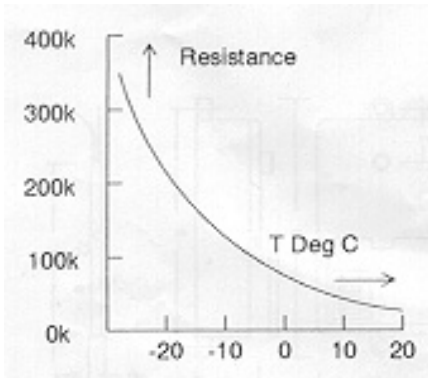
### Installation & Commissioning

#### Operation

The TA-1 is a pre-set alarm thermostat which gives a red LED over-temperature indication when the setting has been exceeded. Pre-set temperatures are set for Frozen Food, Meat or Dairy by the concealed switches 2, 3 or 4. An isolate function can be set by closing switch 1. Non standard pre-set temperatures are optionally available at extra cost in the range from -40<198> to +140<198> Celsius. The TA1 is designed to operate in a failsafe condition (that is, generate an alarm condition) if the sensor is either open or short circuit, or if there is a power loss to the control.

#### Specifications

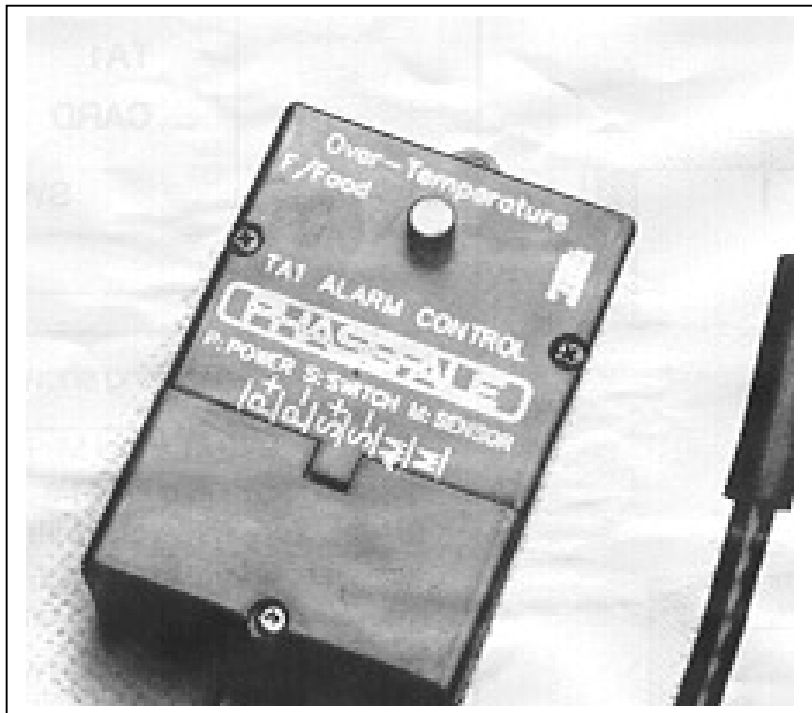
**Supply** 8-12 V DC, 2mA max.  
**Range** Frozen Food (-12C, Meat(+5.5C) or Dairy(+8.5C)  
**Accuracy** 1°C or better  
**Repeatability** 0.2°C  
**Output(S+,S-)** 50mA Transistor, off above pre-set  
**Sensor** (M,M) Thermistor type Mprobe 6 metre, lead interchangeable  
**Box** 80Hx53Wx21D,(excluding Lugs)  
**Box Material.** ABS Black



**Sensor Resistance vs Temp C**

#### Options

**PTESTER** Field service test unit for TA1's

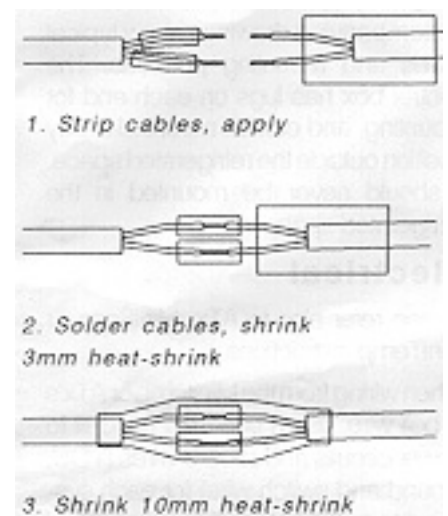


#### Temperature Sensor Installation

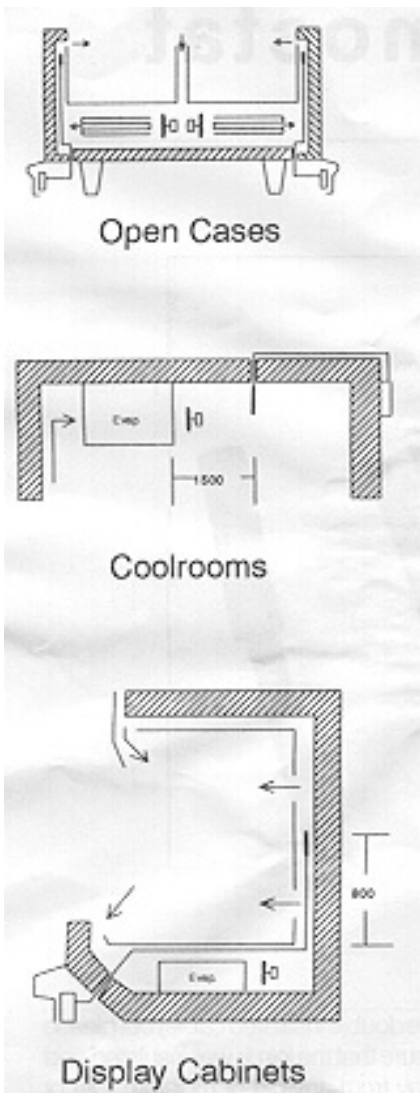
The following points may be useful;

- The sensor is ideally mounted in a position where refrigerated or heated air is circulating, for example in cool rooms position the sensor 500-1500 mm in front of the evaporator.
- Ensure that at least 150mm of the sensor cable is in the monitored space to ensure accurate temperature sensing.
- The sensor is an NTC thermistor of extreme accuracy, and has a non-linear resistance temperature characteristic as shown in the chart. The chart can be used to check a sensor which is disconnected from the main circuit board.
- The sensor cable is double insulated, and therefore does not need to be enclosed in a conduit. Where necessary the sensor cable may be extended up to 100 meters by joining extra cable (use

double insulated cable) **BUT** please ensure that the join is well insulated and away from any dirt or moisture. Dirt or moisture at the join will reduce the resistance of the probe and result in a higher temperature reading than normal.



**Extending probe cable**

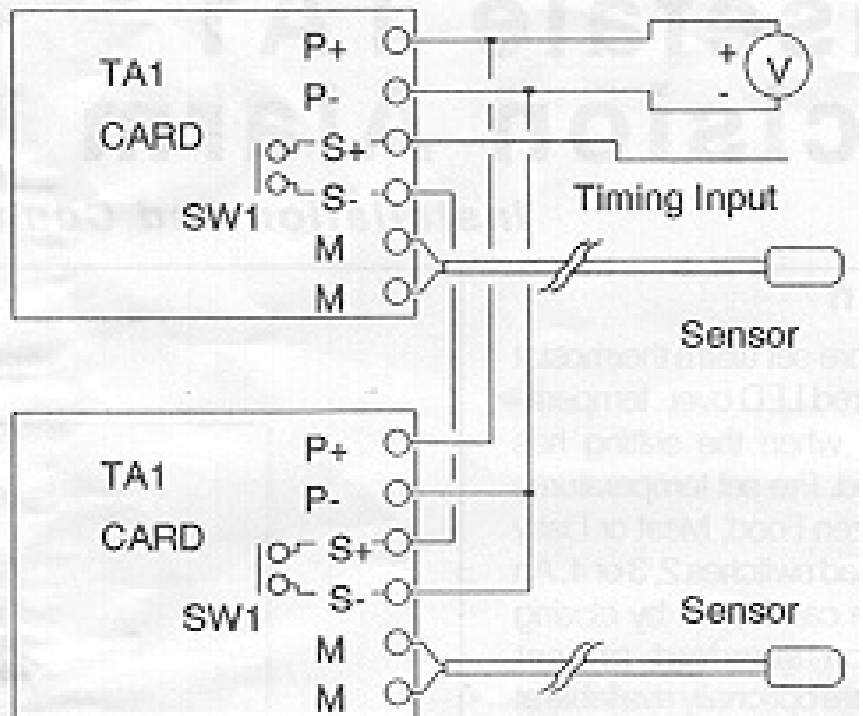


**Typical TA1 Mounting positions**  
**Mounting**

Accompanying drawings show typical cases and mounting positions. The control box has lugs on each end for mounting, and can be mounted in any position outside the refrigerated space. It should never be mounted in the refrigerated space.

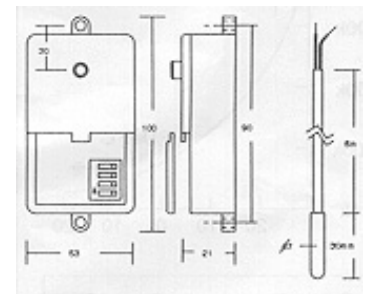
**Electrical**

Please refer also to ATx, MiniScan or MiniTemp instructions.  
When wiring from the Minitemp or ATx's in bell wire, use a separate conduit to power circuits and allow 3 wires (+DC, ground and switch wire) for each system. Up to 8 TA1's can be connected in series to an ATx or Minitemp input. A maximum of 40 TA1's may be connected to an 8 channel Minitemp, and a maximum of 30 TA1's per TA12 power supply. After wiring to the removable blue connector, check



**Above: TA1 Wiring showing 2 TA1's in series Below: Mechanical details**

the following before plugging on; M,M sensor resistance is within resistance limits per chart. Approx. 12 V DC is across P+,P-. No AC reading is obtained. One of the switches 2,3 or 4 is ON to set the control to Frozen Food, Meat or Dairy and switch 1 is OFF. Once the above points are checked, plug on the connector.



**IMPORTANT!**

If more than one of switches 2,3 or 4 is switched ON, the temperature setting is not defined. Switching on 3 and 4 DOES NOT give a setting between Meat and Dairy.

**Test.**

In a series connection of TA1's any overtemp. LED being ON will give a timing indication on the ATx or MiniTemp. When all LED's are off, the timing indication will be off. The voltage at S+ will be 6-12V DC when the TA1 temperature is above the pre-set, and 0.5V DC or less when below.

**Troubleshooting.**

If a faulty control is suspected, follow the following procedure; Identify all TA1's connected to a system. Unscrew the terminal cover and check that each unit has +12V +/-2V across P+ and P-. Isolate ALL the TA1's by closing switch 1. The timing indicator on

the ATx or MiniTemp should extinguish, if it doesn't there is a wiring fault. Open each switch individually to identify the source of the alarm. Once the faulty TA1 is identified, check sensor resistance after unplugging connector. By now it should be apparent if the sensor or card is at fault. A new circuit card can be quickly fitted by unscrewing the two philips head screws on the cover and fitting replacement card. Circuit cards and sensors are available separately.

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