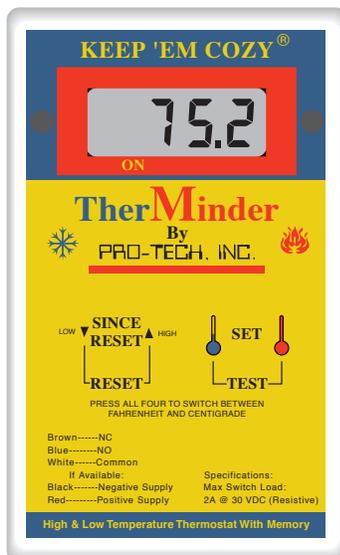


# The TherMinder

The TherMinder adds up to be a modern medical tool, as well as a diagnostic tool for today's agriculture.

## Features:

- A. PIC16C558 EPROM-Based 8 Bit CMOS Microcontroller. This processor was chosen because it uses low power to achieve high-speed CMOS EPROM technology.
- B. DS1620 Dallas Digital Thermometer and Thermostat. The Dallas chip measures temperature in increments of .5°C or .9°F and reports it to the PIC processor as a digital output. Accuracy is fantastic! The Dallas chip measures temperature from -50°C (-58°F) and 77°C (171°F). High and low temperature set-points are operable in the same range.
- C. LCD Display. This low power display indicates the current temperature, if the relay is on or off, and whether it is measuring temperature in degrees F or C. It can indicate "LOW BATTERY" for 30 days before the battery must be replaced.
- D. A four button keyboard allows the operator to do the following:
1. Set the high and low temperature set-points.
  2. Look at the high set-point for the alarm.
  3. Look at the low set-point for the alarm.
  4. Test the output.
  5. See the extreme low temperature since the TherMinder was last reset.
  6. See the extreme high temperature since the TherMinder was last reset.
  7. Reset the memory so it is clear to start recording the high and low.
  8. Change between degrees F and C and convert set-points.



- \*\* TURN ON ALARM SYSTEMS WHEN TEMPERATURE IS HOT AND/OR COLD.
- \*\* DROP CURTAINS ON HIGH TEMPERATURE.
- \*\* BACK-UP VENTILATION SYSTEMS.
- \*\* BACK-UP HEATING.
- \*\* CONTROL ZONE HEATING FOR BROODERS.
- \*\* MONITOR EGG STORAGE ROOMS.

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JACKSON DOB

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# The TherMinder

## What is its Purpose?

The TherMinder is designed to accurately display temperature in degrees Fahrenheit or Celsius. It is reasonably weatherproof so it can be used in poultry and livestock rearing facilities. It can also be used to monitor conditions around perishables. Not only can the TherMinder display temperature, but it has high and low set-points to trigger an internal relay which can activate an alarm system. In addition, the TherMinder records the high and low temperatures the unit was exposed to since it was last reset. For instance, when the caretaker checks his chickens just before going to bed, the high and low temperature recording can be reset. The next morning the caretaker can check the high and low temperature extremes since the previous night. The caretaker can reset the memory at this time and begin another recording of extremes.

## What are its uses?

The TherMinder should be used to monitor growing and storage conditions where correct temperature can be precious and dear. The output can be wired to alarm systems, Curtain-Minders (to drop curtains on high temperature), and to back up ventilation systems. There are both Normally Open (NO) and Normally Closed (NC) contacts. The TherMinder can be used to match your alarm system and the desired degree of protection.

## What's available?

Two units at this printing. The basic TherMinder operates on a 9 volt alkaline battery, which is included. This unit replaces most high and low temperature sensors, especially the ones with Normally Open outputs. It uses two conductor wire for either NO or NC sensing circuits.

The TherMinder-2L has two lights and it is powered by the 12 volt DC from the alarm system. This unit requires 4 conductor wire from the alarm panel. Two wires supply 12 volts DC to the RED and BLACK wires, and the other two can be either NC or NO wiring. Adding two conductors of wire can be very rewarding!

## The operation:

The basic TherMinder operates on a 9 volt battery. We expect the battery to last 8 months or longer, depending on how much you check it. It is a management tool, so the TherMinder wants you to use it.

We make a TherMinder-2L with two lights. This one works well on most alarm systems, especially the ones made by Pro-Tech, Inc. (My employees told me I must say that.) This unit requires four conductor wire to each TherMinder. The TherMinder uses the power from the alarm panel instead of the 9 volt battery. For the extra wiring, here's what you get. (1) You no longer need to replace the 9 volt battery. The unit has one red light and one green light. (2) The Green light is on as long as there is power from the alarm panel and the microprocessor is running in the TherMinder. This is a status light which tells you the unit is in the "GO" condition. Very little can go wrong with this light on, but it will. (3) The Red light does a little "talking". (A) When the red light is blinking slowly, the TherMinder is sensing a low temperature below set-point. (B) When the red light blinks fast, the unit is sensing high temperature above set-point. (C) When the red light makes 3 fast blinks and then off, and repeats, the TherMinder