

## Limited Warranty

Sealed Unit Parts Co., Inc. hereby warrants that it will repair or replace, at its option, any part of the CR87HT High Temperature Recorder, which proves defective by reason of improper workmanship or material, free of charge for parts and labor, for a period of one year from the date of original purchase by the buyer. This warranty does not apply if, in the sole opinion of Sealed Unit Parts Co., Inc., the CR87HT High Temperature Recorder has been intentionally damaged due to misuse, neglect, improper packing, shipping, modification of servicing by other than Sealed Unit Parts Co., Inc., or personnel authorized by Sealed Unit Parts Co., Inc.. For information on how to obtain service under this warranty contact the dealer where your CR87HT High Temperature Recorder was purchased, or Sealed Unit Parts Co., Inc. at the address printed below:

Sealed Unit Parts Co., Inc.  
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## Liability Disclaimer Statement

Sealed Unit Parts Co., Inc. (hereafter known as Supco) makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does Supco assume any liability arising out of the application or use of any product, and specifically disclaims any and all liability, including without limitation consequential or incidental damages.

Supco products are not designed, intended, or authorized for use as components in life support systems, or for any other application in which the failure of the Supco product could create a situation where personal injury or death or significant financial loss may occur.

Should any person or persons purchase or use Supco products for any such unintended or unauthorized application, that person or persons shall indemnify and hold Supco, and its officers, employees, affiliates, and distributors harmless against all claims, costs, damages, expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury, death or financial loss associated with such unintended or unauthorized use, even if such claim alleges that Supco was negligent regarding the design or manufacture of the product in question.

## INTRODUCTION

The CR87HT is a precision instrument used to monitor and record temperature on a 6" circular chart. The CR87HT may be carried as a portable instrument or mounted in a fixed location.

The CR87HT offers a variety of features to meet any temperature recording requirements. A combination of three temperature ranges and four chart speeds provide a high degree of flexibility. In addition, the chart rotation may be set for single or continuous turn operation as required by a particular application. To protect the data being recorded, the CR87HT uses an automatic battery backup to maintain operation during a power outage.

## CR87HT FEATURES AND CONTROLS

1. The **3 DIGIT TEMPERATURE DISPLAY** provides precision temperature reading of the environment monitored by the thermocouple sensor. When the CR87HT is operating on battery power, the display will flash on once every several seconds to indicate battery operation and to conserve battery power. When the batteries are nearly discharged, the display will alternate the display reading and "LO" to advise the operator that the batteries are discharged and the CR87HT will shortly cease operation.

**NOTE:** The battery backup feature of the CR87HT is primarily intended for use in situations where primary power is lost for short periods of up to 48 hours. The CR87HT is not intended to be used as a battery powered instrument. If the CR87HT is to be stored for an extended period, it is strongly advised to disconnect the battery pack and remove the batteries to avoid damage to the instrument from battery leakage.

2. The **TEMPERATURE RANGE SELECTOR** allows the user to choose the desired temperature range for measurement and recording.
3. The **CHART SPEED SELECTOR** allows the user to select recording time of one full chart revolution. The corresponding chart has to be chosen according to the desired chart speed and temperature scale. Chart part numbers are listed in this manual.
4. **PEN POSITION ADJUSTMENT KNOB** allows the user to adjust the position of the chart pen to match that of the digital display. Usually, this adjustment will be required after replacing the chart pen.
5. **CHART ADVANCE BUTTON** is used to set the chart to the correct time. Press and hold the Chart Advance button until the desired time lines up with the Time Pointer (Item 11). The chart is rotated counterclockwise only. **Movement of the Chart Spindle (Item 9) by hand can cause permanent damage to the chart mechanism.**



6. **TEMPERATURE ADJUSTMENT** feature allows the user to adjust the digital display during periodic calibration and certification. The CR87HT has been factory calibrated and requires no adjustment to meet all published specifications.
7. **POWER ON/OFF / CONTINUOUS / SINGLE CHART SELECTOR** allows the user to apply power to the CR87HT and to select Continuous or Single Turn for the chart rotation. When power is first applied to the CR87HT, the display will show "888" to test each segment of the display, and the pen will move to the edge of the chart. The display will then show the temperature at the thermocouple sensor and the pen will move to the correct position on the chart. If the chart range does not match the temperature at the thermocouple sensor the pen will move to the upper or lower range of the chart, whichever is closest to the temperature at the sensor, and stay there until the correct chart range is selected or the temperature at the thermocouple sensor moves within the range of the chart being used. In the Continuous switch position, the chart will rotate until power is removed. In the Single Turn switch position, the chart will make one complete revolution and stop. A blinking dot (Item 1) will indicate that the chart has made one complete revolution and stopped. **To reset the chart for another revolution**, place the switch in the Continuous switch position until the blinking dot goes out and then slide the switch back to the Single Turn position. The chart will make one complete revolution and stop.

**DO NOT** move the pen by hand or interrupt the pen movement. Failure to observe this will cause the pen to read incorrectly and may result in damage to the pen mechanism.

8. The **RECORDING PEN** contains special ink. The pen has a wrap-around arm latch which makes the pen replacement "A SNAP!" To replace the pen, gently lift up the PEN ARM, (do not over bend pen arm) release the pen latch by pushing it down, and remove the pen; place a new pen on top of the pen arm, align the notches on the pen arm with the notches on the pen latch and close the latch by wrapping it around the pen holder until it is secured. Replace cap on the pen tip when the CR87HT is not used to insure long pen life. *For pen installation see Fig. 1*
9. The **CHART SPINDLE** holds and rotates the chart during the recording operation. **DO NOT ROTATE THE SPINDLE BY HAND AS IT MAY DAMAGE THE INTERNAL MECHANISM.**
10. The **PAPER CHART** is 6 inches in diameter. Replacement charts are available from any of Sealed Unit Parts Co., Inc. authorized distributors in a box of 60 charts each. The chart part numbers are listed in manual.

**TO INSTALL A NEW CHART** disconnect power from the CR87HT by selecting **OFF** with the Power/Single/Continuous Chart Selector. Place pen cap on point. Gently lift the pen arm, and while holding it, remove the old chart. Slide a new chart under the pen holder and align the chart with the

chart spindle. Apply power to the CR87HT and rotate the chart by depressing the chart advance button until the time pointer is aligned with the line on the chart representing the right time of day. Remove pen cap. If necessary, adjust the pen position according to the front panel display reading (see PEN POSITION ADJUSTMENT KNOB Item 4).

11. The **TIME POINTER** is simply a point against which the current time is being read during a chart rotation. Initially a new chart has to be rotated until the time pointer shows the right time and day when using a 7 day chart.
12. The **HANDLE** for carrying, folds towards the back of the case to be out of the way when CR87HT is mounted on the panel or on the wall.
13. **KEYHOLE SLOTS** located on the back of the case are provided for wall or panel mounting.
14. The **REAR COMPARTMENT** was designed to store the battery holder for battery backup as well as the connection for the adapter box.
15. The **THERMOCOUPLE SENSOR** is interchangeable. The furnished sensor has 15 feet of cable. The sensor is a type J thermocouple and uses the industry standard connector for thermocouple sensors. Different sensors from third party manufacturers may be used, but Supco can not be responsible for the quality or accuracy of any sensor not manufactured by Supco.

The recorder should be placed outside the chamber being monitored. **DO NOT PLACE THE RECORDER DIRECTLY IN AREAS OF EXTREME TEMPERATURES, HIGH HUMIDITY OR HEAVY CHEMICALS.**

16. The **BATTERY HOLDER** is stored in the rear compartment for backup batteries. Use of alkaline "AA" batteries is required for proper operation.
17. **12VDC WALL TRANSFORMER** provides primary power for the CR87HT. Alternate sources of 12 Volt power may also be used. This allows use of the CR87HT in automotive, marine or other mobile applications.
18. The **POWER CONNECTOR** is a connection jack for the 12VDC wall transformer or alternate source of 12VDC power.
19. Snap on **EXTRA SUPPORT LEGS** for better stability.

**SPECIFICATIONS**

Temperature Scale Selectable (Fahrenheit Model)	0°F to +250°F, 0°F to +500°F, +500°F to +1000°F
Temperature Scale Selectable (Celsius Model)	0°C to +120°C, 0°C to +250°C +250°C to +500°C
Chart Speed Selectable	6 Hours, 24 Hours, 7 Days, 31 Days
Chart Speed Accuracy	+/-1%
Chart Diameter	6 Inches
Temperature Display	3 Digit LED 0.5"
Temperature Accuracy	+/-2°F (+/-1°C)
Temperature Sensor	6" High Temperature Wire Sensor
Recording Pen	Ink Type
Primary Power Supply	12VDC, 120VAC adapter (240VAC adapter available)
Battery Backup	8 Alkaline "AA" Cells (not included)
Battery Operating Time	48 Hours (Overage)
Operating Ambient Temperature Range	+32°F to +120°F (0°C to +49°C)
Operating Relative Humidity Range	96% Maximum
Dimensions	9" x 7" x 2"
Weight	4 lbs., 7 oz.

**CHARTS**

Temperature Ranges	Chart Speeds			
	6 Hours	24 Hours	7 Days	31 Days
0°F to 250°F	CR1000-4	CR1000-1	CR1000-7	CR1000-19
0°F to 500°F	CR1000-5	CR1000-2	CR1000-8	CR1000-20
+500°F to 1000°F	CR1000-6	CR1000-3	CR1000-9	CR1000-21
0°C to +120°C	CR1000-13	CR1000-10	CR1000-16	CR1000-22
0°C to +250°C	CR1000-14	CR1000-11	CR1000-17	CR1000-23
+250°C to +500°C	CR1000-15	CR1000-12	CR1000-18	CR1000-24