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# User's Guide

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## CT89 SERIES Temperature Recorder



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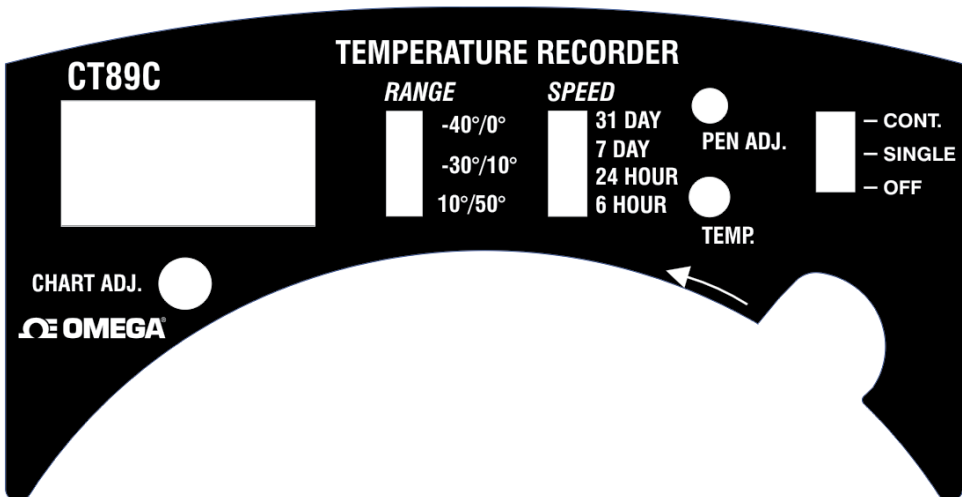
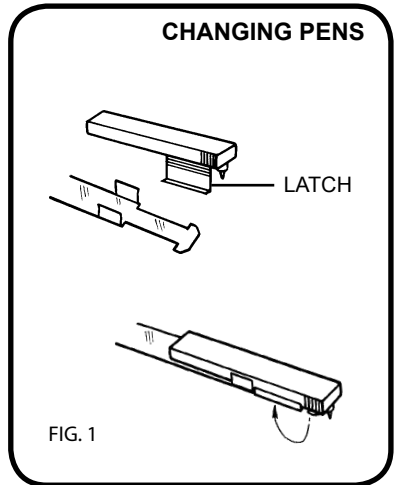
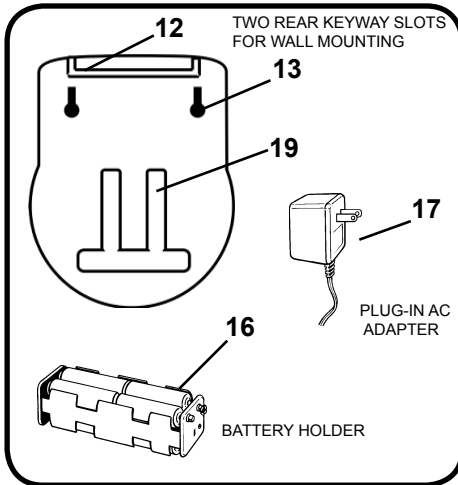
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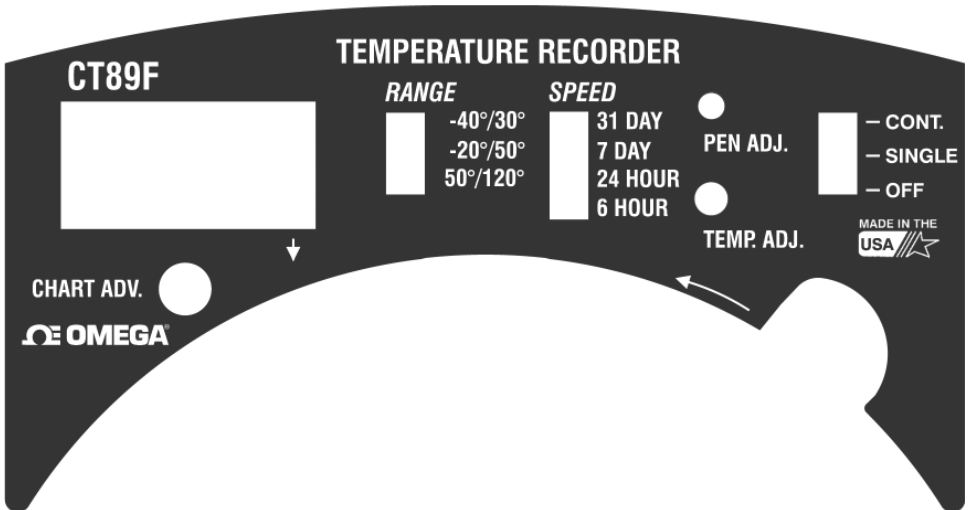
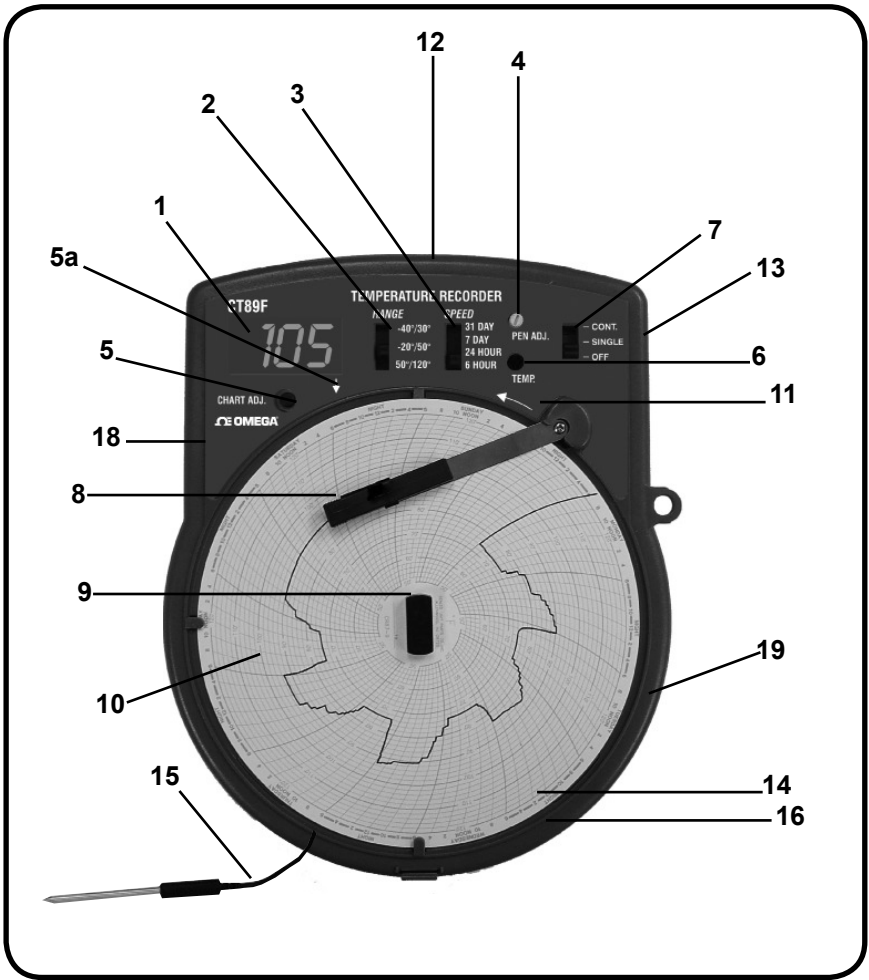
**WARNING:** These products are not designed for use in, and should not be used for, human applications.

## INTRODUCTION

The CT89 is a precision instrument used to monitor and record temperature on a 6" circular paper chart. The CT89 may be carried as a portable instrument or mounted in a fixed location.

The CT89 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 CT89 uses an automatic battery backup to maintain operation during a power outage.





## CT89 FEATURES AND CONTROLS

1. The **3 DIGIT TEMPERATURE DISPLAY** shows temperature of the environment being monitored. 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 CT89 will shortly cease operation.

**NOTE:** The battery backup feature of the CT89 is primarily intended for use in situations where primary power is lost for short periods of up to 48 hours. The CT89 is not intended to be used as a battery powered instrument. If the CT89 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 the time of one full chart revolution. The corresponding chart has to be chosen according to the desired chart speed. Chart part numbers are listed in this manual.
4. The **PEN POSITION ADJUSTMENT KNOB** allows the user to adjust the position of the chart pen.
5. The **CHART ADVANCE BUTTON** allows the operator 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. The chart is rotated counterclockwise only. **CAUTION: Movement of the Chart Spindle (Item 9) by hand may cause permanent damage to the chart mechanism.**

### 5a. The **TIME POINTER**

6. **TEMPERATURE ADJUSTMENT** feature allows the user to adjust the reading of the digital display during periodic calibration. The CT89 has been factory calibrated and requires no adjustment to meet all published specifications.
7. The **POWER ON/OFF / CONTINUOUS / SINGLE CHART SELECTOR** allows the user to apply power to the CT89 and to select Continuous or Single Turn for the chart rotation. When power is first applied to the CT89, the display will show “888” to test each segment of the display, and the pen will move to the edge of the chart. The pen will then move to the correct position on the chart. 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 on the display (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 CT89 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, in a box of 60 charts each. The chart part numbers are listed on the following page.

**TO INSTALL A NEW CHART** disconnect power from the CT89 by selecting OFF with the Power / Single/ Continuous Chart Selector. Place pen cap on pen point. Gently lift the pen arm and while holding it remove the old chart. Slide a new chart under the pen holder and the chart holding tabs. Align the chart with the chart spindle. Apply power to the CT89 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 or day. Remove the pen cap. If desired, adjust the pen position according to the scale you wish to record.

11. The **ROTATION POINTER** indicates direction of chart rotation.
12. The **HANDLE** for carrying folds towards the back of the case to be out of the way when CT89 is mounted on the panel or on the wall.
13. The **KEYHOLE SLOTS** located on the back of the case are provided for wall or panel mounting.
14. The **FRONT COMPARTMENT** under chart was designed to store the battery holder for battery backup as well as the connection for the adapter box.
15. The **REMOTE TEMPERATURE SENSOR** is interchangeable. The furnished 4" stainless steel sensor has 15 feet of cable. The temperature sensor is an electronic digital proprietary design for precision and very high interference immunity. It utilizes the standard RCA connector.

**Note:**

The 4 inch metal probe tip may be immersed in fluids compatible with 304 stainless steel. The black plastic probe sheathing is moisture resistant, but should not be submerged. If moisture is present the sheathing should be protected or probe failure will occur.

16. The **BATTERY HOLDER** is stored in the front compartment for backup batteries. Use of 8 alkaline "AA" batteries is required for proper operation.
17. The **12VDC PLUG IN WALL ADAPTER** provides primary power for the CT89. Alternate sources of 12 Volt power may also be used. This allows use of the CT89 in automotive, marine or other mobile applications.
18. The **POWER CONNECTOR** is a connection point for the 12VDC wall adapter or alternate source of 12VDC power.
19. **Back Brace** for counter top use.

### LOW TEMPERATURE (CT89) CHART PART NUMBERS

CT87C- -40-30F / 24H	CT87 - -40-0C / 24H
CT87C- -40-30F / 6H	CT87C- -40-0C / 6H
CT87C- -40-30F / 7D	CT87C- - 40-0C / 7D
CT87C- -20-50F / 24H	CT87C- -30-10C / 24H
CT87C- -20-50F / 6H	CT87C- -30-10C / 6H
CT87C- -20-50F / 7D	CT87C- -30-10C / 7D
CT87C-50-120F / 24H	CT87C-10-50C / 24H
CT87C-50-120F / 6H	CT87C-10-50C / 6H
CT87C-50-120F / 7D	CT87C-10-50C / 7D
CT87C-LF-MIX	CT87C-LC-MIX

### SPECIFICATIONS

Temperature Scale Selectable (Fahrenheit Model)	-40°F to +30°F, -20°F to +50°F, +50°F to +120°F
Temperature Scale Selectable (Celsius Model)	-40°C to 0°C, -30°C to +10°C, +10°C to +50°C
Chart Speed Selectable	6 Hours, 24 Hours, 7 Days, 31 Day
Chart Speed Accuracy	+/-1%
Chart Diameter	6 Inches
Temperature Display	3 Digit LED 0.5"
Temperature Accuracy	+/-2°F (+/-1°C)
Temperature Sensor	Stainless steel tip submersible with 15 ft. of cable
Recording Pen	Ink Type
Power Supply	120 VAC, 50/60 Hz. or 220/240 VAC, 50Hz.
Battery Backup	8 Alkaline "AA" cells (Not included)
Battery Life	48 Hours
Operating Ambient Temperature Range	+32°F to +120°F (0°C to +49°C)
Relative Humidity	96% maximum
Dimensions	9 1/4" x 7 1/4" x 2 3/4"
Weight	4 lbs., 7 oz.

**CAUTION:** The Temperature Recorder should be placed outside the chamber being monitored. DO NOT PLACE THE RECORDER DIRECTLY IN AREAS OF EXTREME TEMPERATURES, HIGH HUMIDITY OR HEAVY CHEMICAL CONTENT.



## WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

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## RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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