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Instruction Manual

MODEL CTH200
THERMO-HYGROGRAPH

BEFORE OPERATION

This chapter describes the preparations to be made
before you can operate the CTH200 recorder. To use the CTH200, it is necessary to read this instruction manual.

OPERATION

1. Opening and Closing the Cover and Removing Pen Arm Positioning Material

- Place the recorder on a flat surface. Press the latch ① located on upper side of the recorder and lift both sides of the cover ②.
- When closing the cover, be sure to it gently, pressing down on both side ② in a reverse manner from opening, until the latch ① clicks shut.
- Remove from the foam rubber piece used in transport between the necks of the pen arms.

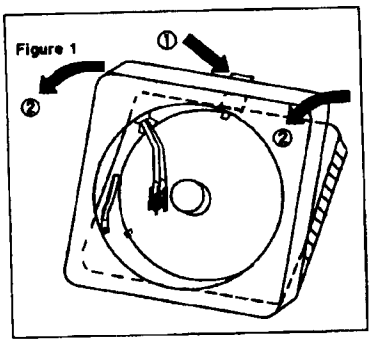


Figure 1

2. Installing the Battery and the Pens

- Remove the chart hub cover and install the included two batteries (IEC R6P, ANSI AA) in the holder located on the right of the panel.
- Slightly lift the pen rest and turn it clockwise as shown in Figure 2.
- Take the pen cartridges out of the packages and remove the caps. Place the caps on the holders (projection) as seen in the upper right corner in the figure.
- Attach the pen cartridges, referring to Figure 3, with the red pen attached to the pen arm marked ℃ or℉ for temperature recording and the blue pen to the arm marked % for humidity recording.
  - ① Press the two ends indicated by the arrows to release the sides of the spring clip A-B.
  - ② Attach the pen cartridge so that the guide pins fit into the guide holes on the pen arm.
  - ③ Press the sides of the clip indicated by the arrows to engage the clip and secure the pen. Be sure that the cartridge fits snugly on the arm, as observed from the side.

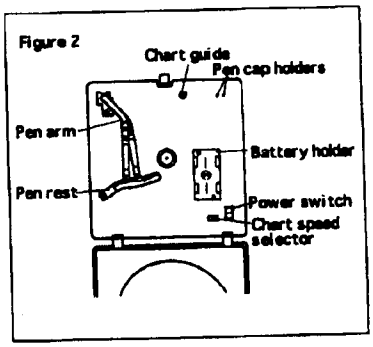


Figure 2

To attach or replace the blue pen cartridge (the bottom cartridge) when the red-pen arm is directly above, move the arm for the blue pen to the 0% side. Never move it to the 100% side.

- After attaching the pen cartridges, return the pen rest to where it was. If the pen rest is on the recording chart, the recording chart does not often move.

3. Selecting of Chart Speed

- The chart speed is set 8 days of revolution before shipment. If you desire 1 day or 32 days, change the chart speed selector.
- Take out the desired chart paper from the attached chart papers and install it according to the next chapter.

4. Installing the Recording Chart Paper

- Make sure that both pen cartridges are on the pen rest properly.
- Put the center hole of chart paper into the fixed axis of the recorder. Make sure that the chart paper is inside the chart guide.
- Fix the chart paper by the chart hub cover.

5. Starting Measurement (Recording)and Setting the Time

- Return the pen rest to where it was.
- The lower left chart guide has a dented mark. At this dented mark ,set the time scale printed on the chart paper to the current time.
- The chart drive mechanism has a play in rotation of approximately one hour.(when setting 8 days). To adjust the time precisely, turn the chart paper clockwise to align the time scale to the current time. When adjusted, the tip of the red pen nearly points to the current time.
- Turn on the power switch, then the recording starts.

6. Stopping Measurement (Recording)

- When stopping measurement or when measurement for a prescribed period is completed, turn off the power switch.
- Place the pen caps back on the pen cartridges to prevent the ink from volatilizing.
- Remove the batteries.

Figure 3

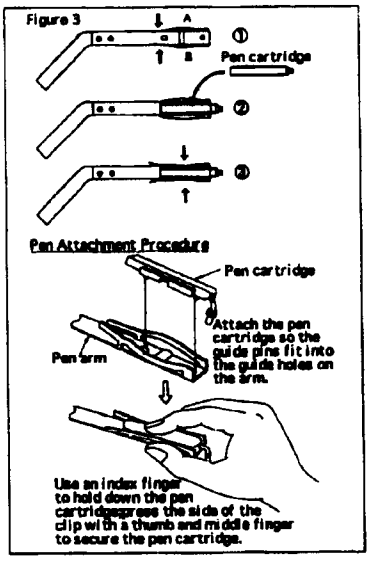
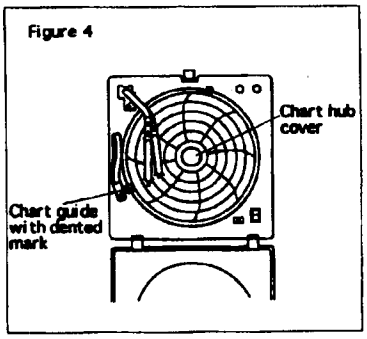
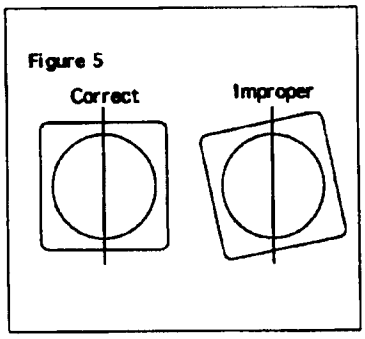


Figure 4



INSTALLATION

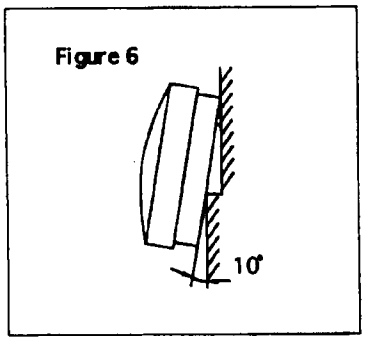
1. Mounting Position
   Basically, this recorder should be mounted on the wall.
   - ☐ To view the recorder from the front, be sure that it is mounted vertically as shown in Figure 5. Tilted mounting will cause a reading error.
   - ☐ A forward or backward inclination with in ± 10° is allowed, as shown in Figure 6.



2. Installation Procedure
   - ☐ Hang the recorder on a wall or column. Use the attached wood screw if necessary.
   - ☐ Avoid using the type of self-adhesive hooks available at many hardware stores. The hook may come off if it must constantly support the weight of the recorder.

3. Precaution on Installation Location
   - ☐ Do not seal the ventilation openings on the sides and at the bottom of the case since there are temperature and humidity sensors in it.

     Be sure there is nothing within 10 cm around the recorder.
   - ☐ Do not install the recorder where it will be exposed to direct sunlight, on a stove, or near the duct of an air-conditioner.
   - ☐ Do not install the recorder in an environment where dust or poisonous gases are present, where vibration or mechanical shock may occur, or where it will be exposed to the elements of nature.



OPERATIONAL PRECAUTIONS

- ☐ When the cover becomes dirty, wipe it with a clean, soft damp cloth. If dirt cannot be wiped off, use a soft damp cloth with a weak solution of neutral detergent and completely wipe off any remaining dampness with a soft dry cloth. Never use a chemical liquid such as alcohol, benzene, or a thinner and never spray an insecticide or organic solvent. This may cause a deformity or discoloration.
- ☐ Note that the battery included in the packing with the recorder may not last a full year after delivery.
- ☐ Never insert the battery incorrectly. Be sure that the positive and negative poles are not reversed from the markings on the recorder. Otherwise, the chart will not turn.
- ☐ Omega Engineering Inc. is not responsible for any damage to users caused by the use of this recorder.

PROHIBITED ACTIONS

- ☐ Never loosen the white painted screws. Otherwise, the temperature and humidity readings cannot be guaranteed and warranty is voided.
- ☐ This recorder cannot be used for any accounting or certification transactions.

SPECIFICATIONS

Type :	Self-recording, wall mounted
Number of pens :	One red and one blue. Last for six months.
Recording chart :	Circular chart 165mm in diameter (6.6 inch). Scale length 58mm
Recording time :	One revolution one day, eight days, and thirty-two days switchable.
Power supply :	Two 1.5V batteries(IEC R6P, ANSI AA) The service life is one year
Sensors :	Built in Temperature : Bimetal Humidity : Nylon film
Scale ranges :	Temperature : -10℃ to 40℃ or 10℉ to 110 °F Relative humidity : 0% to 100%RH
Accuracy :	Temperature : ± 2℃ or ± 4 °F (minimum scale on chart:1℃ or 2 °F) Relative humidity : ± 5%RH between 30% and 90%RH (minimum scale on chart : 2%)
External dimensions :	200 × 200 × 60mm (8 × 8 × 2.4 inch)
Color of cover:	Metallic silver
Weight:	Approx. 700g(1.6lb)(Net)

Model Number	Range
CTH200-F	10 to 110 °F and 0 to 100%
CTH200-C	-10℃ to 40℃ and 0 to 100%

Included with each CTH200 series recorder:

- Circular recording chart paper 10 sheets each of one day, 8 days and 32 days.
- A set of disposable pen cartridges (one red, one blue).
- Two batteries (IEC R6P, ANSI AA).
- One mounting wood screw.
- Instruction Manual

Accessories:

Model Number	Description
CTH100-C-1D-F	Chart Paper ℉-1 day
CTH100-C-8D-F	Chart Paper ℉-8 day
CTH100-C-32D-F	Chart Paper ℉-32 day
CTH100-C-1D-C	Chart Paper ℃-1 day
CTH100-C-8D-C	Chart Paper ℃-8 day
CTH100-C-32D-C	Chart Paper ℃-32 day
CTH100-STAND	Stand for CTH200
CTH100-PENSET	Replacement Pen Set (one each: 1 red pen and 1 blue pen)

Note: *The pen cartridges are designed to last for six months without replacement, but this period may vary depending on the Installation environment.*

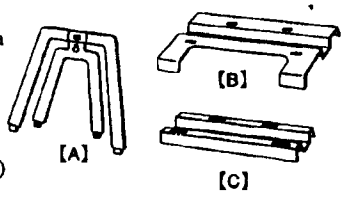
WHAT TO DO IF YOU SUSPECT THERE IS A PROBLEM

What you see	Reason	What to do
Too thin a pen trace	The pen tip is too sharp.	•Remove the pen from the arm. Rub the tip against the chart to blunt it and then use it again.
Discontinuous pen trace	The pen is improperly attached to the arm.	•Re-attach the pen, referring to the manual.
	The lifted pen is not in contact with the chart.	•Return your recorder to the distributor or manufacturer.
Color change in pen trace(mix of colors)	If a pen traces over a trace that is still wet, some of the wet ink is sucked up into the pen.	•Let the recording continue and the original color will return after a while. Or, replace the pen with a new one.
Scratchy pen trace	The ink has dried up because the pen was left unused.	•Use water to wet the pen tip. If this is not effective in loosening the dried ink, replace the pen with a new one.
No pen trace whatsoever	The pen is completely used up.	•Replace the pen with a new one.
Chart not turning	The battery is improperly inserted (the positive and negative poles are reversed).	•Insert the battery correctly.
	The battery is dead.	•Replace the battery with a new one(IEC R6P, ANSI AA)
	Too much friction is preventing the chart from turning.	•Turn the pen rest to the standard position. •Check the back of the chart. If it is wet, wipe off the dampness or replace the chart with a new one.
	The chart drive fails to function.	•If the above measures are not effective, return your recorder to the distributor or manufacturer.
Inaccurate temperature or humidity readings	Environmental conditions or the measurement method results in errors.	•Install the recorder in a different location and compare the recording with the reference equipment.
	The temperature and humidity recording pens' paths cross, and the pens touch each other.	• Consult your local distributor.
	There is stress on the sensor due to a harsh environment beyond the operating temperature limits resulting in an error.	

Optional Accessory
(Not included in CTH200)

Omega Engineering,Inc.
CTH100-STAND

The CTH100-STAND is designed for two types of display applications. It can be used to mount the CTH200 as an offset wall mounting or it can be used to display on a surface at a more easily read angle.



Parts included in the CTH100-STAND		Approx.Size
Vertical recorder bracket	(A) 1 piece	(6.5" × 7.6")
Bottom stand mount	(B) 1 piece	(7.75" × 3.75")
Bottom wall mount	(C) 1 piece	(7" × 1")
Wall mount screw	1 piece	

(1) Surface Stand configuration:
The surface configuration for applications where the CTH200 is to be used on a stand alone location utilizes parts (A) and (B) only. Carefully insert the tabs on part (A) into the openings on part (B) as shown in Fig. #1. No glue is necessary as the parts will hold adequately by friction alone. Also, this allows disassembly for reconfiguration as a wall mount stand if desired at a later date. In this configuration, part (C) and the wall mounting screw are not needed. Please refer to section (3) of this instruction sheet for reference of additional features of the CTH100-STAND.

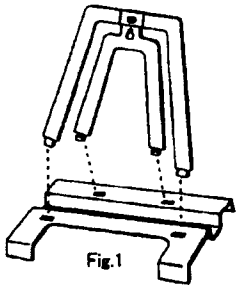


Fig.1

(2) Wall mount Stand configuration:
The wall mount configuration is for applications where it is desirable for the CTH200 to be removed from direct contact with the wall surface. One reason for such a mounting would be where the wall surface was and outside wall and either or both heat and cold from direct contact with the wall might cause inaccurate readings. To assemble the wall mount configuration of the CTH100-STAND parts(A)and (C) are needed, as well as the screw. Assemble parts as shown in Fig.#2. Insert tabs on (A) into slots of (C). Friction is sufficient to hold the stand together. No glue is necessary. Also, this allows disassembly for reconfiguration as a surface mount stand if desired at a later date.

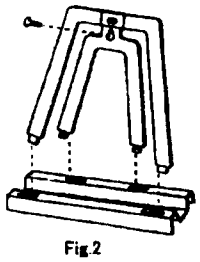


Fig.2

(3) Surface mount stand configuration feature:
When the CTH100-STAND is used for a surface mount an additional feature applies. The chart paper packet (30 charts) may be stored easily as shown in Fig. #3 for quick reference.

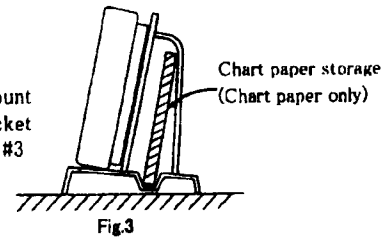


Fig.3

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 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 being 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 which wear are not warranted, including but 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
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