

OPERATIONAL PRECAUTIONS	SPECIFICATIONS
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- 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.
- Kokusai Chart Corporation is not responsible for any damage to users caused by the use of this recorder.

Type	Self-recording, wall mounted
Number of pens	One red and one blue Last for six months.
Recording chart	Circular chart 165 mm in diameter (6.6 inch)
Recording Time	One revolution every day, eight days, or thirty-two days
Power Supply	One 1.5V battery (IEC R6P, ANSI AA) The service life is one year before replacement is necessary.
Sensors	Built in Temperature: Bimetal Humidity: Nylon film
Scale ranges	Temperature: -10°C to 40°C or 10°F to 110°F Relative humidity: 0% to 100% RH
Accuracy	Temperature: ±2°C or ±4°F (minimum scale on chart 1°C or 2°F) Relative humidity: ±5% RH between 30% and 90% RH (minimum scale on chart: 2%)
External dimension	Approx. 200mm x 200mm x 60mm (8x8x2.4inch)
Color of cover	Green or ice-white
Weight	Approximately 650g (1.5lb)
<b>Standard accessories</b>	
30 sheets of circular recording-chart paper	
A set of disposable pen cartridges (one red, one blue)	
One battery (IEC R6P, ANSI AA)	
One mounting wood screw	
<b>Optional consumables</b>	
Model No. CTH100-1D (1day recording model)	
Model No. CTH100-8D (8day recording model)	
Model No. CTH100-32D (32day recording)	
30 sheets of circular recording chart paper	
A set of disposable pen cartridges (one red, one blue)	
□: C for °C, F and °F	

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

### PROHIBITED ACTIONS

- Never loosen the white screw. Otherwise, the temperature and humidity readings cannot be guaranteed.
- This recorder cannot be used for any accounting or certification transactions.

### 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 no 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.	

### LIMITED WARRANTY

OMEGA ENGINEERING INC. warrants this instrument to be free from defects in materials and workmanship and to give satisfactory service for a period of twelve months after delivery. If the instrument should malfunction, it must be returned to the seller for evaluation. Upon examination by OMEGA ENGINEERING INC, if the instrument is found to be defective it will be repaired or replaced at no charge at OMEGA ENGINEERING INC.'s option. This warranty is void if the instrument shows evidence of having been tampered with or shows evidence of being damaged as a result of accident, abuse, improper installation and application as determined by OMEGA ENGINEERING INC. OMEGA ENGINEERING INC makes no further warranty of any kind with regard to this manual, including, but not limited to, implied warranty of merchantability and fitness for a particular purpose.



## Instruction Manual

### CTH100 TEMP/RH RECORDER

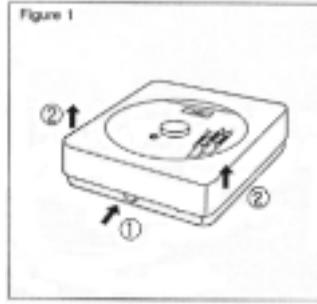


## OPERATION

### 1. First-time Use

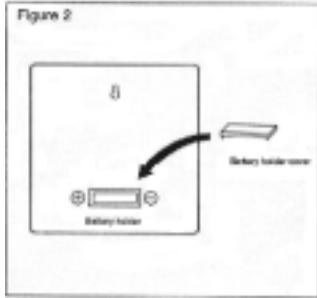
#### (1) Opening and Closing the Cover and Removing Pen Arm Positioning Material

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



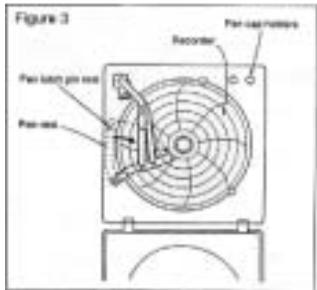
#### (2) Installing the Battery

- Install the included battery (IEC R6P, ANSI AA) in the holder with its + pole facing left. Installing the battery starts running the chart.
- See Figure 2. Attach the battery holder cover at the rear of the recorder.



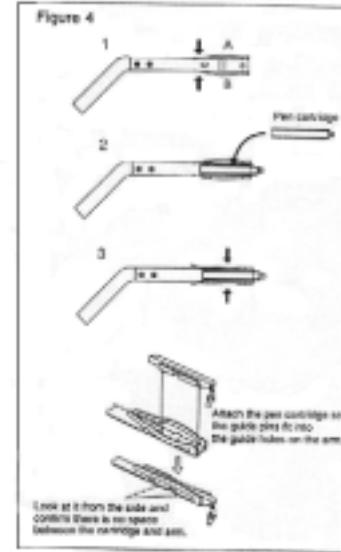
#### (3) Attaching the Pens

- Slightly lift the tip of the pen rest to release it from its latch pin and turn it clockwise until the recording pen tips are supported on the rest, as show in Figure 3. (The pen rest keeps the pens from making marks on the chart.)
- Take the pen cartridges out of the package and remove the caps. Place the caps on the holders (projections) as seen in the upper right corner in the figure.
- Attach the pen cartridges, referring Figure 4, with the red pen attached to the pen arm marked "°C" or "°F" 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 fits 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.
- 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.



#### (4) Starting Measurement (Recording) and Setting the Time

- To start recording, simply move the pen rest to its original position.
- The tips of the chart guide on the left-hand side (from among two guides) projects to a point. Place the recording chart so that the tip points to the current time on the time scale on the chart.
- The chart's drive mechanism has a play in rotation of approximately one hour. (for an 8-day recording model).
- To adjust the recording time precisely, turn the chart clock-wise to align the time scale to the current line. When adjusted, the tip of the red (temperature) pen nearly points to the current time.
- Replace the chart with a new one every eight days from an 8-day recording model (likewise, every day and every 32 days for the 1-day and 32-day recording models).
- The chart can be replaced with the recorder installed.
- To install the recorder, refer to INSTALLATION.

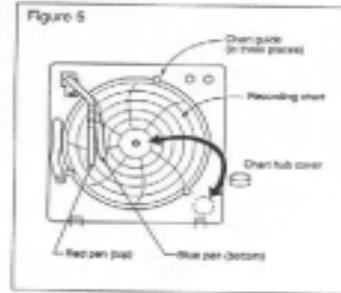


#### (5) Stopping Measurement (Recording)

- When stopping measurement or when measurement for a prescribed period is completed, place the caps back on the recording pens to prevent the ink from volatilizing.
- Remove the battery.

### 2. Replacing the Recording Chart

- Slightly lift the tips of the pen rest to release it from its latch pin and turn it clock-wise until the recording pen tips are supported on the rest.
- Lift the chart's magnetized hub cover off and replace the chart with a new one.
- Verify that the new chart is correctly positioned under the three chart guides.



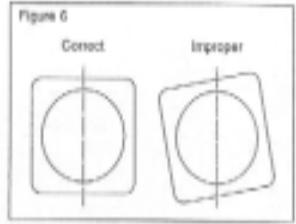
- When not in use, the hub cover can be set on the recorder panel in the magnetized bottom right corner, as shown in Figure 5, to avoid losing it.

## INSTALLATION

### 1. Mounting Position

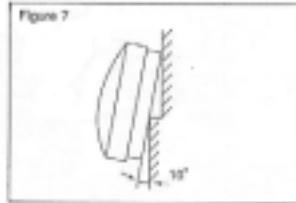
Basically, this recorder should be mounted on the wall.

- To view the recorder from the front, be sure that it is mounted vertically as show in Figure 6. Tilted mounting will cause a reading error.
- A forward or backward inclination within  $\pm 10^\circ$  is allowed, as show in Figure 7.



### 2. Installation Procedure

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



### 3. Precautions 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 20 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 installed 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 elements of nature