DICKSON

GETTING STARTED

7-day chart rotation
0 to 100ºF (TH6P3)
+32 to 100F (TH6P1/2)

QUICK START

1. Remove the protective pen caps.

2. Connect Sensor: TH6P1/2: Make sure the R200 replaceable sensor is connected firmly to the recorder. TH6P3: Make sure the R250 sensor is connected firmly to the 10' extension cable and the extension cable in plugged in firmly to the recorder.

3. Insert 4AA batteries and plug in AC adapter (See Figure 3). Unit will power on.

4. The instrument will move pens to the appropriate readings.

5. Install the chart that matches selected Dip Switch settings (See p.4).

    Press the **PEN HOME** key to move the pens to the outside of the chart. The pens are automatically raised off the chart.

    Remove the old chart, place the new chart on the Chart Hub being certain that the edge of the chart slides under the Chart Guide Clip located at the outside of the chart.

6. Set the appropriate time. There are two ways to adjust the chart and set the appropriate time:

    a. Set the chart time manually by inserting a coin into the groove in the chart hub and turning clockwise until the correct hour (and day if applicable) on the chart is referenced to the timing arrow (just to the right of the pens tip on the dial). Press **Pen Home** to move the pens back onto the chart.
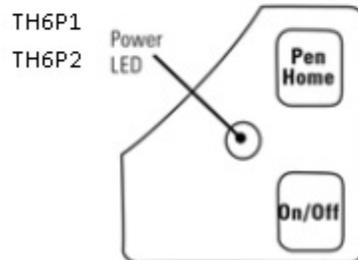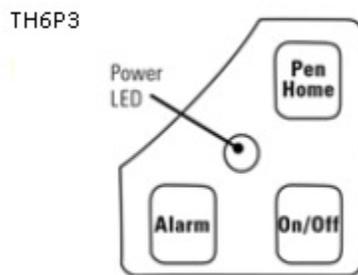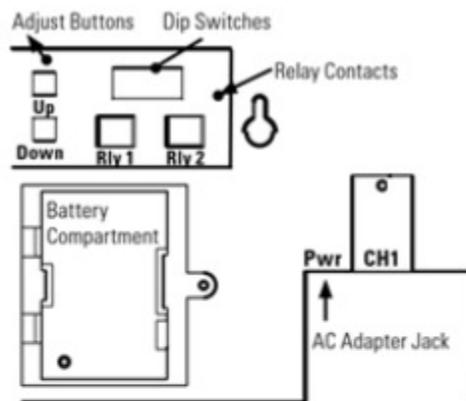
DISPLAY SYMBOLS TH6

Figure 1

Figure 2   Figure 3

Keypad and Button Functions

On/Off
The On/Off key turns the unit on and off.

Pen Home
If the pens are located on the outside edge of the chart, press **Pen Home** to move pens to recording position. If the pens are located on the chart, press **Pen Home** to move the pens to the outside edge of the chart.

Alarms (TH6P3)

Pen 1 = Red Pen
Pen 2 = Blue Pen

1. To set the alarm, make sure unit is on and press and hold the **Alarm** button. The LED will blink red rapidly for about five seconds, then the LED will turn solid green. Release the **Alarm** button and the LED will turn solid red. At this point the display will show "On" or "Off".
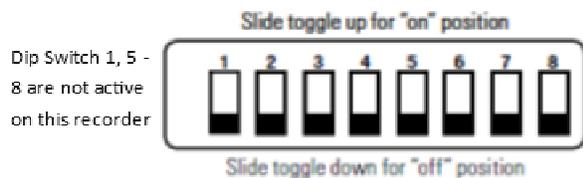
   Pressing either the **Adjust-Up** or **Adjust-Down** buttons, located on the back of the unit next to the dip switch, will toggle the alarm on or off.

2. Pressing **PEN HOME** will scroll to the next alarm option. The options are as follows:
   a. Alarm on or off
   b. Pen 1 alarm minimum
   c. Pen 1 alarm maximum
   d. Pen 2 alarm minimum
   e. Pen 2 alarm maximum

3. In order to set pen alarm minimums and maximums, pressing **Adjust-Up** will increase the alarm value, and pressing **Adjust-Down** will decrease the alarm value. There is acceleration if the **Adjust-Up** button is held down.

   Repetitively pressing the **Pen Home** button will scroll through the five options until the **Alarm** button is pressed to exit from alarm adjust. Each press of the **Pen Home** or **Alarm** button will store the new settings. The unit will take one minute to exit Alarm Set Mode once the **Alarm** button is pressed.

4. If the alarm is triggered, the LED will show as solid red and the alarm will sound. Press the **Alarm** button to silence the audible alarm.

DIP SWITCH SETTINGS

Dip Switch 1, 5 - 8 are not active on this recorder

Slide toggle up for "on" position

Slide toggle down for "off" position

Recording Time: The TH6 recorder has two different recording time options	
7 Day	#2 Down
24 Hour	#2 Up
Temperature Range: Select the temperature ranges that matches the chart paper	
0 to +100 F (TH6P3)	#3 Down #4 Down
32 to +100 F (TH6P1/2)	#3 Down #4 Down
0 to +185 F (TH6P3)	#3 Down #4 Up
-0 to +50C (All Models)	#3 Up #4 Down
0 to +85C (TH6P3)	#3 Up #4 Up

PENS

The blue pen has a longer pen arm and records humidity. The red pen has a shorter arm and records temperature. The pens are offset to allow the red pen to glide under the blue pen. The blue pen indicates the correct time and the red pen precedes it by 3/16 of an inch.

POWER

The TH6 operates on AC power with an optional 4AA battery backup. Depending on chart rotation selected and model; battery backup will last approximately 3 days.

Note: Alarm will not operate under battery only power.

LED Indicators
- AC Power with Battery Backup - Solid Green
- AC Power with Low Battery or No Battery - Blinks Red
- Battery Only - Blinks Green
- Battery Only (Low Battery) - Solid Red

PEN HOME ADJUST

If over time the pen location does not match the display, you may need to adjust the pens location on the chart. A Pen Home Adjustment will not affect calibration of the sensor, but rather corrects for the natural drift that occurs with mechanical moving parts over time.

1. While the unit is on, press and hold both **Pen Home** and **On/Off** buttons until the LED is solid green.   Release the **Pen Home** and **On/Off** buttons. The LED will flash amber and green for one second then the LED will turn off.
   Note: Press **Pen Home** first so the unit will not turn off

2. Both pens will move to the outer edge of the chart, and then the shorter **red** pen will move to the outer chart ring (maximum temperature/RH line).

3. If the red pen tip does not line up with the outer chart ring line, use the **Adjust-Up** and **Adjust- Down** buttons (on the back of the unit) to move the red pen so that the pen tip is on top of the outer chart ring.

4. Once the shorter red pen is set, press **Pen Home** to switch pen positions moving the longer blue pen to the out chart ring line.

5. If the blue pen tip does not line up with the outer chart ring line, use the **Adjust-Up** and **Adjust-Down** buttons to move the blue pen so that the pen tip is on top of the outer ring line.

6. Once the blue pen is set, pressing the **Pen Home** button will move the longer blue pen to the outer edge of the chart and the shorter red pen will move to the outer chart ring line.

7. Each time **Pen Home** is pressed the two pens will switch positions (moving the most recently adjusted position) until **On/Off** is pressed to exit pen adjust mode.

Note: Pressing the On/Off button will exit the adjustment and return the unit to normal operation. Each time the Pens Home or On/Off button is pressed, the adjustment currently in progress will be stored. The unit will take one minute to exit Pens Adjust Mode once the On/Off button is pressed.

CALIBRATION

The R200/R250 Replaceable Sensor was carefully tested and calibrated before being shipped from the factory. For greatest accuracy, we recommend replacing the sensor every 6-12 months (does not include N400 and N450).

To order a Calibrated Replacement Sensor Call customer service at (630) 543-3747 or go to www.dicksondata.com.

When your new Replaceable Sensor arrives, simply turn off the recorder, remove and discard the old sensor, plug in the new one and power the recorder back on. Your recorder will continue to record temperature and humidity without interruption.

USER CALIBRATION

If you have an accurate standard to compare against, the Replaceable Sensor calibration can be adjusted at one point. This will not adjust the span and is not as accurate as replacing the Replaceable Sensor with a newly calibrated one.

1. To activate Calibration mode, turn the unit on and press and hold both the **On/Off** and the **Adjust-Down** button until the LED is solid green. The LED will then blink amber and at which point only the pen being adjusted will show on the display.
   Note: Make sure to press the Adjust-Down button first so the unit will not turn off

2. To raise the unit of measurement, press the **Adjust-Down** button. To lower the unit of measurement, press the **Adjust-Up** button.   Pressing **Pen Home** switches between the red and blue pens and stores the current adjustment value.

3. When Calibration is complete, press the **On/Off** button. The adjustment is stored in memory even after you turn the unit off or if AC power fails.

   Note: After two hours, if no buttons are pressed, the unit will time out of Calibration mode and resume normal operation. If you wish to cancel the Calibration, simply enter Calibration mode and toggle through the steps without adjusting displayed readings. Exit by pressing the **On/Off** button. You have now restored factory calibration settings.

   Note: It is recommended that you use a controlled chamber when determining if Calibration is necessary. Adjusting the pens in an opens room is not recommended as air flow can vary greatly within a very small area.

TROUBLE SHOOTING

Why isn't the chart keeping time or running slow?
- The chart may be hung up or restricted, possibly caused by a rip on the outer edge of the chart or the chart hub, or the chart may be caught between the arm and pens(s) arm platform.
- Incorrect chart installed for the selected chart speed.

Why did the chart stop turning?
- Chart hung up or restricted, (ripped chart)
- Unit may be "locked up", this can be confirmed by pressing any of the buttons on the keypad, if the unit is locked up there will be no response to button presses and the Chart Recorder may appear to be working, but the readings won't change, also the chart will not rotate. Remove power and battery, and then re-power.

Why don't the display and chart match?
- Dip switches set for a specific range, but using chart for another range, or vice versa.
- Pens(s) not inserted on pens arm(s) all the way
- To adjust pens(s) to match chart see "Pens Home Adjust" in the "Need to Know" section of this manual.

Why does the display read PROB?
- Check the sensor pod. Make sure it is properly plugged into the unit.
- Is the unit locked up? This can be confirmed by pressing any of the buttons on the keypad, if the unit is locked up there will be no response to button presses and the unit may appear to be working, but the readings won't change, also the chart will not rotate. Remove power and battery, and then re-power.

Why does calibration seem to be off?
- What is the tolerance of the unit it's being compared to?
- It's ok if the unit is within the sum of the two tolerances.
- Has an outside calibration house attempted calibration? It may not have been adjusted properly.
- Walk through calibration adjustment, found in the manual

Why won't the battery back-up work?
- Are there good batteries in the Chart Recorder?
- Keep in mind that battery backup varies significantly depending on temperature, pens movement and chart rotation speed.
- If there was a momentary power outage (Brown out), the unit may not have had enough time to recognize this and switch to battery mode. (The Chart Recorder may lock up or shut off in this situation) This situation may also occur if the unit is plugged into an outlet that shares the circuit with other machinery that has phase motors or compressors that cycle periodically. As these other machines cycle, they momentarily have a high current draw, therefore drawing from the unit.

Why won't the chart recorder respond to changes?
- Is the unit locked up? This can be confirmed by pressing any of the buttons on the keypad, if the unit is locked up there will be no response to button presses and the unit may appear to be working, but the readings won't change, also the chart will not rotate. Remove power and batteries, and then re-power.

Why won't the unit power up?
- Remove the batteries and power adapter for a minute or two, this will reset the unit. The unit should respond when the adapter is plugged in.

<u>WARRANTY</u>

Dickson warrants that this line of instruments will be free from defects in material and workmanship under normal use and service for a period of twelve months after delivery.

This warranty does not cover routine calibration and battery replacement.

For Specifications and Technical Support go to www.DicksonData.com

<u>FACTORY SERVICE AND RETURNS</u>
Contact Customer Service (630.543.3747) for a Return Authorization (RA) Number before returning any instrument. Please have the model number, serial number and a PO number ready before calling.

Replaceable Sensor Certificate of Validation

Dickson ensures that the Replaceable Sensors / Instruments listed below were developed, tested and validated together.

   Replaceable Sensor Model: R200 / R250

   Instrument Model: TH6P1 / TH6P2 / TH6P3

Operation: The Instruments and Replaceable Sensor models listed above were specifically designed to work together. No other sensors will work with the Instrument models listed. No other Instrument will work with the Replaceable Sensors listed. The Replaceable Sensor must be connected to the Instrument for the Instrument to operate properly.

Calibration: Only the Replaceable Sensor is calibrated. The sensor, and all calibration defaults and adjustments are stored on the Replaceable Sensor. Accuracy is strictly controlled by the sensor – no adjustments are made by the Instrument. Readings are sent from the Replaceable Sensor to the Instrument for storage purposes only. Certificates of Calibration / NISTs are only supplied for the Replaceable Sensor for this reason.

Recalibration: When a Replaceable Sensor is due for recalibration the existing Replaceable Sensor can be replaced with a new Replaceable Sensor thus eliminating the need to return the entire instrument for recalibration. Replaceable Sensors can be returned for recalibration as well.