

DICKSON

TH6

Temperature / Humidity Recorder Operation

Quick Start

Your TH6 recorder has been preset to operate using the most popular settings.

TH6

Recording Time: 7-day

Temperature Range: 0 to 100°F (Remote Probe unit)

The pens and a chart have already been installed for your convenience. All you need to do to start using your TH6 recorder with the settings listed is follow these quick start instructions:

1. Insert 9V battery and plug in AC adapter.
2. Remove the protective pen caps, and place on Pen Cap Holders.
3. Press the ON/OFF key to turn instrument on (Diagram identifies keys, see page 4).

4. The instrument will enter a 5 second warm-up phase, ending with the pens moving to the appropriate readings. Under warm-up mode the green LED flashes until ready. When ready, LED will stay solid green and the display will alternately display the temperature & humidity readings.
5. Set the appropriate time by pressing the CHART ROTATION key on the lower right of the dial plate. The chart will turn clockwise while the button is depressed. (CAUTION: Do not manually try to turn chart hub. Doing so will damage the instrument) Continue the rotation until the correct hour and day on the chart is referenced to the time arrow. (See "Instrument Anatomy" on page 3.)

Specifications

TH6 Temperature Ranges (self contained):

+32 to +100°F, 0 to +50°C

Remote Probe Units: 0 to +100°F,
0 to +50°C, 0 to +185°F, 0 to +85°C

Humidity Range: 0 to 95% (non-condensing)

Temperature Accuracy: ±0.5% of chart
range ±1.8°F (±1°C)

Humidity Accuracy: ±2% from 0 to 60%,
±3% from 60 to 95%

TH6 Sensors:

Temperature: High Precision Thermistor
Humidity: High Precision Capacitance Type

Recording Times:

24-hour, 7-day

Display Resolution (optional):

0.1 °F/°C or 0.1% RH

Chart: 6" diameter (15.2 cm)

Power Supply:

120V AC adapter with 9V battery for back-up power (240V AC also available).

Alarms (optional): Maximum and minimum settings with alarm contacts, audio and visual alarms.

TH6 Default Alarms:

0°MIN & 100° MAX
0% RH MIN & 100% RH MAX

Dimensions: 7 9/16" x 7 9/16" x 3 1/4"
(192mm X 192 mm X 83mm)

Weight: Approximately 3 lbs (1250g)

Ambient Operating Conditions:

+32 to +122°F (0 to +50°C) 0 to 95% RH
(non-condensing)

Note: Response time is slower when using battery power source.

Installation

Before you install your TH6 recorder, read through this entire manual to find out about all the options that are available to you.

Place the TH6 on a flat vibration-free surface. Be sure it is in a vertical position and level. For best performance and longevity, the location should be a clean environment, free from dust and corrosive fumes. Do not exceed temperature specifications.

Wall Mount: Keyhole slots are provided on the TH6 for wall mounting.

Panel Mount: See the dimensional drawing for exact panel mount cut out dimensions.

Case is designed to be mounted with #8, type B screws.

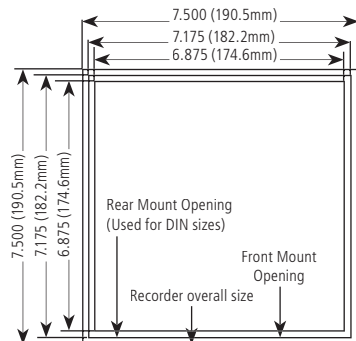


Figure 2.5

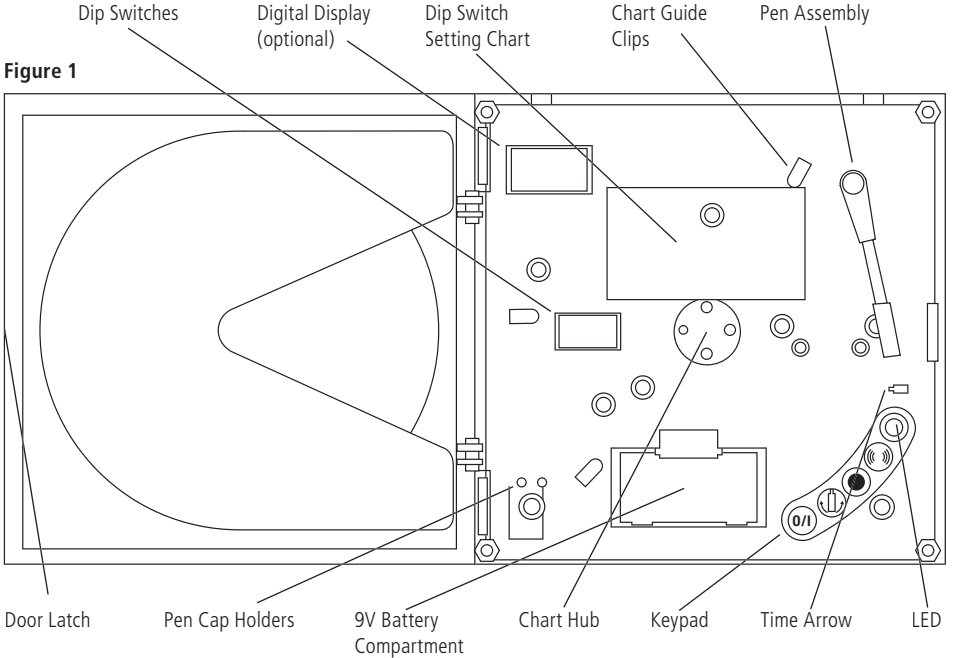
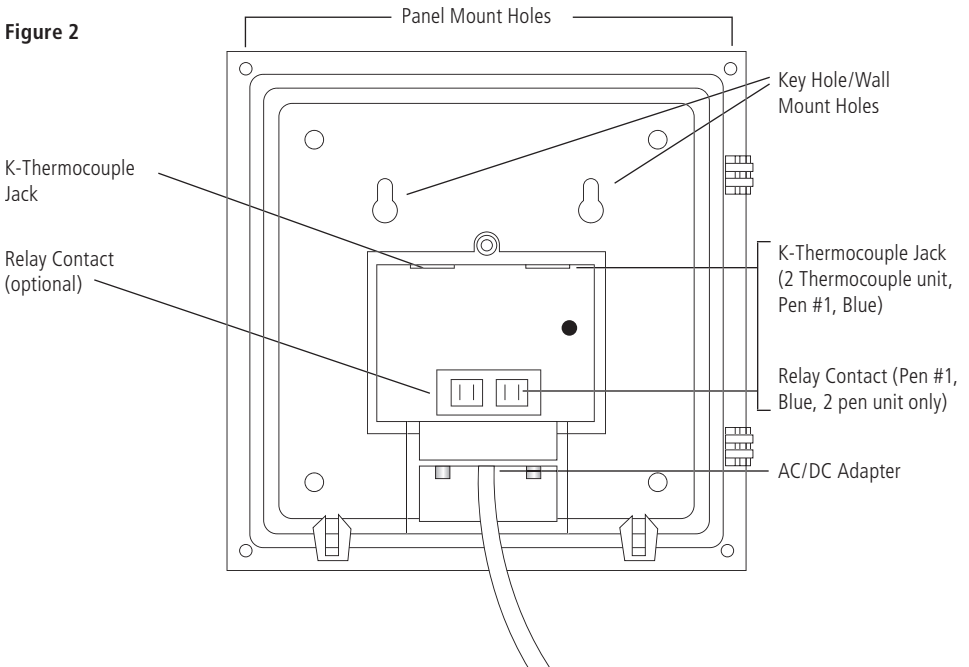


Figure 2



Operating Information

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. [Display Models: Hysteresis (a property that occurs when tension is applied to an object) causes the pens to move in increments across the chart as the sensor readings change. However, the display readings are not affected by the property of hysteresis. For this reason the display provides smoother and faster readings than the pens. At any given time there may be a slight discrepancy in the position of the pen and the reading on the display. For visual spot checks the display is the most accurate but both are within the stated specifications of the unit. (See Specifications on page 2.)

Probe: The TH603 probe comes with a standard 6' cable. An extension cable can be ordered to allow for remote sensing capabilities. NOTE: The TH601 & TH602 models are self-contained.

Alarm Relays (Optional)

The SPST 24V 500mA relay contacts are normally open and will close on alarm conditions when the alarms are enabled. Relay contacts are always functional when the alarm is enabled. Dip Switch #8 has no effect on the relay. The relay will close only during minimum and maximum alarm conditions.

Power Supply: We recommend using AC power with one 9V battery installed as a back-up power source. This ensures that your recording will not be interrupted when there is a power failure.

Note: When the unit is in battery back-up mode, the recorder will update temperature/humidity readings at a much slower rate. The battery should be replaced once a year and after power failures of more than a few hours.

To replace the battery:

1. Open the door of the recorder by depressing the door latch.
2. Press pen home key.
3. Lift the chart, if there is one present, to fully expose the battery compartment and press down on the tab to release battery compartment door.
4. Replace 9V battery.

For compliance to CE directives do not remove the rubber cover from the alarm relay terminals when the terminals are not used.

Display Symbols (Optional)

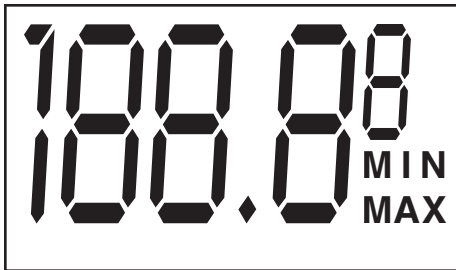


Figure 4

C
Indicates °C

F
Indicates °F

H
Indicates %RH

O
Zero calibration mode

A
Alarm set mode

MIN
This symbol is displayed when you are setting a minimum alarm or during a minimum alarm condition when alarms are enabled.

MAX
This symbol is displayed when you are setting a maximum alarm or a maximum alarm condition when alarms are enabled.

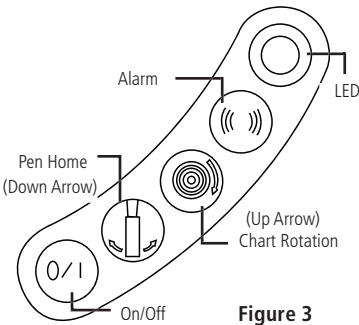


Figure 3

On/Off

The ON/OFF key turns the unit on and off. Alarm and calibration settings are restored to the most recent values when the unit is turned on. If the unit is using AC power and power fails, the unit will switch to battery power without interrupting the recording capabilities. Alarms, if present are off if power fails when the battery is not present, the pen will remain on the chart in recording position.

Pen Home (also Down Arrow)

If the pens are located outside the chart, press the HOME key to move pen to recording position. Press the HOME key with the pen in recording position, and the pen will move to the outside of the chart and up the pen lift ramp (home). The PEN HOME key is also used as a down arrow key to decrease values when setting the optional alarms or calibration values.

Chart Rotation (also Up Arrow)

The CHART ROTATION key sets the chart to the desired time setting. Press the CHART ROTATION key to rotate chart. Continue pressing until the chart reaches the desired time setting on the blue pen. The chart rotation will reach full speed after a few seconds of holding down the key. Do NOT attempt to rotate the chart manually. The CHART ROTATION key is also used as an up arrow key to increase values when setting alarms or calibration values.

Alarm (Optional)

The ALARM key turns the alarm on or off. When the

alarm is on the display will flash the MAX & MIN indicators. Holding the ALARM key for 2 seconds will cause the unit to enter into the alarm set mode for Pen 1 (Humidity). Pressing and holding the Alarm key a second time will put the unit in Alarm Set mode for Pen 2 (Temperature) For a visual alarm the display will read MIN if a minimum alarm is activated or MAX if the maximum alarm is activated. The alarm condition will also trigger an audio alarm if the audio alarm is enabled (dip switch #8 is off). The alarm will sound until it is disabled, or until the alarm condition no longer applies. The PEN HOME and CHART ROTATION keys are used for setting alarms. The PEN HOME key decreases the alarm value and the CHART ROTATION key increases the alarm value.

1. To set the alarms press the ALARM key and hold for 2 seconds. The humidity alarm minimum set point will be displayed with A and MIN will also be displayed.
2. Use the HOME key to decrease the minimum alarm setting and the CHART ROTATION key to increase the minimum alarm setting.
3. Press ALARM key a second time and the humidity alarm maximum set point will be displayed along with A and MAX indicating that you can now set the maximum alarm. Use the same procedure as in step #2 for setting the maximum alarm setting.
4. Press and hold the Alarm key for 2 seconds and the temperature alarm minimum set point will be displayed along with A and MAX indicating that you can now set the minimum alarm. Use the same procedure as in Step #2 for setting the minimum alarm setting.
5. When you have set the alarms press the ALARM key again to exit the alarm setting mode.
6. To activate the alarm, press the ALARM key.

LED

The LED will be green whenever the unit is activated. The LED will flash green during initialization and warm-up. The LED showing red indicates the unit is in calibration mode. The LED turns orange during shut down. The LED will also flash when the unit is on and if the AC power has failed at any time since the unit has exited the warm-up period.

Dip Switch Setup

To set-up the TH6 for your specific application, you might need to change some of the Dip Switches. The Dip Switches are located underneath the chart. Use a pen or small screw driver to flip the switches. **Remember to install correct chart to match corresponding Dip Switch setting.**

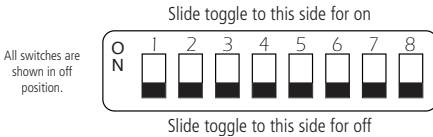


Figure 5

Dip Switch #1 is not active on TH6

Dip Switch #2 is not active on TH6

Recording Time

The TH6 has two different recording time options: 24 hour and 7-day. Dip switch #3 controls the recording time.

24 hour #3 On (1 min logging sample interval)

7 day #3 Off (6 min logging sample interval)

Calibration

Your instrument was carefully tested and calibrated before being shipped from the factory. Additional calibration is not required. However, should calibration be desired in the future, we recommend that it be at our lab. Call Customer Service at 630-543-3747. (For the TH603 only) If you wish to calibrate yourself, follow these procedures:

1. Identify a standard that is more accurate than this unit.
2. Place the probe of the unit (or for units without probe place the entire unit) and the standard into a controlled environment, allowing unit to completely stabilize. For best results, calibrate the unit at levels typically monitored during normal operation.
3. To activate the calibration mode, turn the unit off. Now press the ON/OFF key and the ALARM key at the same time. The unit is in the "User Calibration" mode when the red LED is on. The display will show a \underline{C} during the warm up period and then will flash between O & H. Match the reading of the recorder to the

Temperature Range TH6

Dip Switches for ranges

0 to +100°F	+32 to +100°F	#4 Off
Removeable Probe Only	Self Contained	#5 Off
0 to +185°F	Removeable Probe Only	#4 Off
Removeable Probe Only	Self Contained	#5 On
0 to +50°C		#4 On
		#5 Off
0 to +85°C	Removeable Probe Only	#4 On
		#5 On

Dip Switch #6 is not active on TH6

Dip Switch #7 is not active on TH6

Alarm Speaker

The alarm speaker may be activated or deactivated with the use of dip switch #8.

Deactivated	#8 On
Activated	#8 Off

The Alarm speaker will sound during minimum and maximum alarm conditions.

Note: Dip switch settings are only updated when the unit is turned on.

reading of the reference standard. (The pen not under calibration will position itself at the center of the chart.)

4. To raise the humidity press the CHART ROTATION (Up Arrow) key. To lower the humidity press the HOME (Down Arrow) key.
5. Press the alarm button to switch from temperature to humidity or humidity to temperature. Repeat step 4 for temperature calibration.

To ensure you have matched the standard allow the pen to stabilize for at least 30 seconds before exiting calibration mode.

6. When calibration is complete simply press the ON/OFF key to save the calibration settings.

Calibration is stored in memory even after you turn the unit off. User calibration information will not be lost if AC power fails, even without battery backup.

Chart Installation

Use the following procedure to install or replace a chart in the recorder.

1. Open the door by pressing the door latch.
2. Press the HOME key to move the pens to the pen lift position. The pens are automatically raised off the chart.
3. Remove the old chart, place the appropriate new chart on the chart hub — being certain that the edge of the

chart slides under the chart guide clips located at the outside of the chart.

4. Press the HOME key to move the pens onto the chart.
5. Set the time by pressing the CHART ROTATION key, which rotates the chart. The chart will continue to rotate until the key is released. Release the CHART ROTATION key when the appropriate time is indicated at the time indicator clip.

Pen Installation

Disposable fiber-tipped pens are installed in this recorder. When pen replacement becomes necessary, use the following procedure:

1. Press the PEN HOME key to return the pens to the home position.
2. Gently lift the pen slightly and slide it off the pen arm.
3. Slide the new pen of the same color on the pen arm until the notch in the pen is secure to the pen arm.

4. Remove the pen cap. Insert on the Pen Cap Holder.
5. Press the PEN HOME key to return the pen to recording position.

Note: To prolong pen life, replace pen cap when recorder is not in use. The pen cap can be stored on pen cap holder located on the dial plate of the recorder.

Replacement Parts

Charts (60/pack)

TH6 Ranges	24-hour Chart	7-day Chart
0 to +50°C	C664	C663
0 to +100°F (0 to +85°C)	C658	C657
0 to +185°F	C667	C665

Accessories/Probes

NIST Traceable Calibration, 3-point (new unit)*	N300
NIST Traceable Calibration, 1-point (new unit)*	N100
A2LA Accredited Calibration, 3-point (new unit)*	N400
Pens (3 red & 3 blue)	P246
10' Probe Extension Cable (TH603)	A880
50' Probe Extension Cable (TH603)	A881
100' Probe Extension Cable (TH603)	A882
Extended 2-year Warranty	E200
Calibration Kit (33% & 75%)	A834
Probe Dust Filter (TH603)	A867

*Must be requested when ordering, add one week to delivery time.

Troubleshooting

Symptom	Cause	Check/Remedy
Pen trace too fine or absent.	Tip too sharp, cartridge dried out.	Sand tip, moisten or replace pen.
Readings of pen and display do not match exactly.	Wrong Chart Pen not on properly Line thickness	CHECK DIP SWITCH #4,#5 Push pen completely onto pen arm. Check to see that proper chart is installed.
Und	Far Below range of recorder	Check temperature range
Out of calibration or Questionable accuracy	Harsh environments, stressful conditions, or time.	See Calibration Procedure on p.6 or Return to factory for recalibration.
Ovr	Far Above range of recorder	Check temperature range
Prb	Probe missing	Plug remote probe into back of the recorder (See diagram on pg. 3)

Factory Service & Returns

We recommend that damaged instruments be returned to our factory for complete repair. Before returning any instrument or package, please call for a Return Authorization (RA) number. When calling, please have the following information available:

1. P.O. number for out-of-warranty units.
2. Serial number of unit.

3. Model number of unit.
4. The problem you're experiencing with unit.

Clearly mark the RA number on the outside of the package and return the instrument, shipping prepaid. Delivery will be refused for packages sent without RA numbers.

The Dickson Warranty

Dickson warrants the TH6 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. In the event of a claim under this warranty, the product or part must be returned to the factory for repair or replacement (shipping prepaid) with a Return Authorization Number (See repair information above). It will be repaired or replaced at Dickson's option without charge.

This warranty does not cover routine calibration, pen, chart and battery replacement. The foregoing warranty and remedy are exclusive and in lieu of all other warranties either expressed or implied. Dickson shall not be liable for consequential or incidental damages resulting from failure or malfunction of its products. Dickson makes no warranty for products not manufactured by it or for any products modified by buyer, or subject to misuse or neglect.

DICKSON

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rev. 12/03