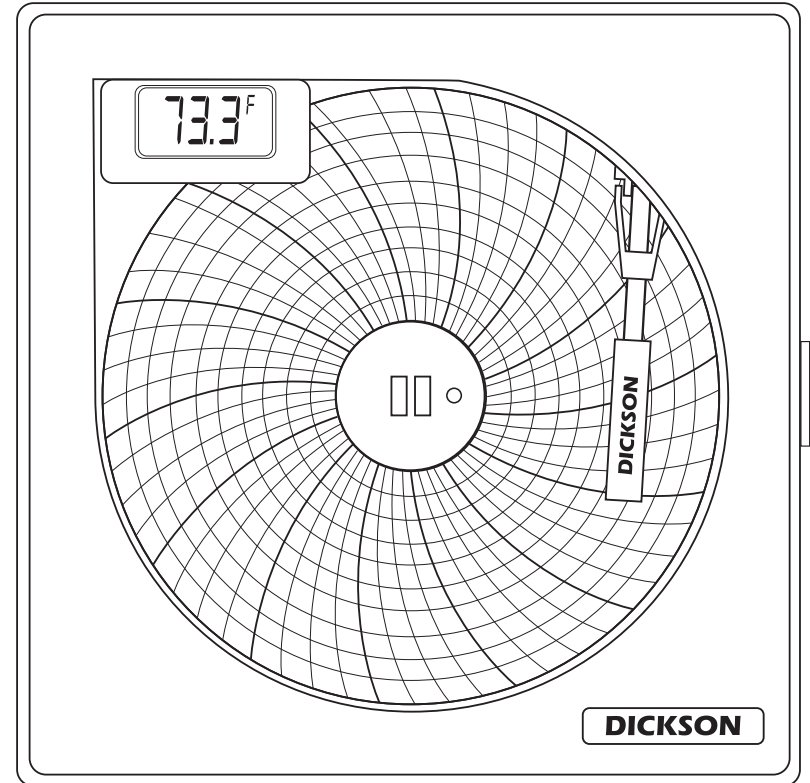
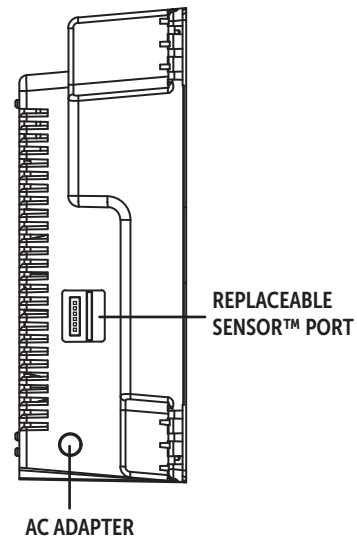
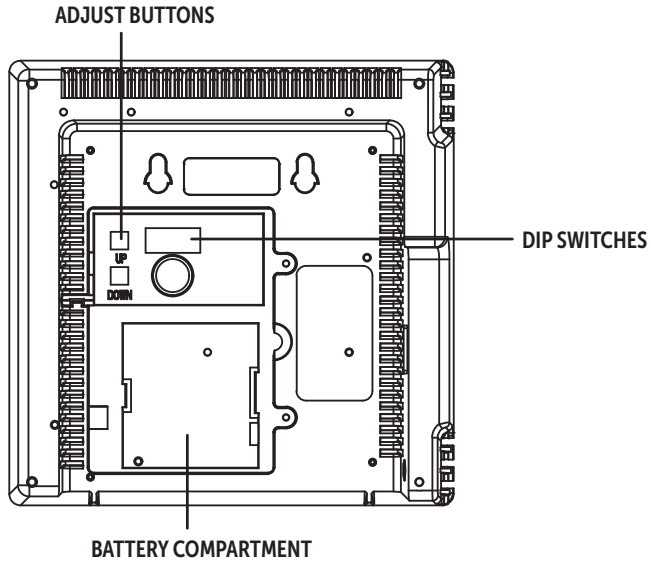


**REFERENCE GUIDE**

**DICKSON**  
Environmental Monitoring + Compliance Experts

**USER MANUAL &  
PRODUCT GUIDE**



**Need additional support?**

**Web:** DicksonData.com  
**Telephone:** 630.543.3747  
**Email:** support@dicksondata.com  
930 S. Westwood Avenue  
Addison, IL 60101

REV 09/2019

**KT6**  
6" TEMPERATURE CHART RECORDER

## GETTING STARTED

### 7-DAY CHART ROTATION 0 TO 100°F

#### IMPORTANT

Dickson Chart Recorder accuracy specifications are only valid with the use of authentic Dickson brand charts and pens. The specifications for chart printing, die cutting and paper absorption rates, and the complementary bleed rate specifications of pens are critical factors in determining system accuracy.

## QUICK START

### TO BEGIN OPERATION

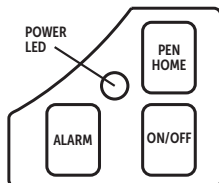
1. Remove the protective pen cap.
2. Connect probe. Make sure the KTC probe is connected firmly to the Replaceable Sensor™ and that the Replaceable Sensor™ is plugged in firmly to the chart recorder.
3. Insert 4AA batteries and plug in AC adapter (Reference Guide on back). Unit will power on.
4. The instrument will move pen to the appropriate readings.
5. Install the chart that matches the DIP SWITCH settings (Reference settings label on the battery door to set the correct dip switch positions for the chart)
6. Press the PEN HOME key to move the pen to the outside of the chart. The pen is automatically raised off the chart.
7. 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.
8. Set the appropriate time. 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 pen tip on the dial). Press PEN HOME to move the pen back onto the chart.

## POWER

The KT6 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 and RELAYS will not operate under battery only power.*

#### LED Indicators

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



(Alarm button on KT6P5 only)

## KEYPAD AND BUTTON FUNCTIONS

### ON/OFF

The ON/OFF key turns the unit on and off.

### PEN HOME

If the pen is located on the outside edge of the chart, press PEN HOME to move pen to recording position. If the pen is located on the chart, press PEN HOME to move the pen to the outside edge of the chart.

### ALARM (KT6P5)

- 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.
- Pressing PEN HOME will scroll to the next ALARM option. The options are as follows:
  - » ALARM on or off
  - » Pen 1 ALARM minimum
  - » Pen 1 ALARM maximum
- In order to set pen ALARM minimum and maximum, 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 three options until the ALARM button is pressed to exit from ALARM adjust. Each press of

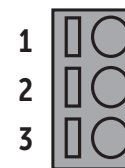
the PEN HOME or ALARM buttons will store the new settings. The unit will take one minute to exit ALARM Set Mode once the ALARM button is pressed.

- 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.

### ALARM RELAYS (KT6P5)

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. The RELAY will close only during minimum and maximum ALARM conditions. RELAYS will not operate under battery only power conditions.

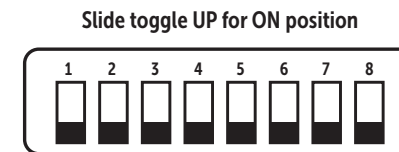


#### CH1 = PINS 1,2,3

- Pins 1 and 2 make contact when CH1 is in alarm
- Pins 1 and 3 make contact when CH1 is not in alarm

## DIP SWITCH SETUP

To setup the KT6 recorder for your specific application, you might need to change some of the DIP SWITCHES. The DIP SWITCHES are located on the back of the unit. Use a pen or small screw driver to flip the switches.



#### Slide toggle DOWN for OFF position

Dip Switches 7 and 8 are not active on this recorder

RECORDING TIME	
7 Day	#2 DOWN
24 Hour	#2 UP
RECORD IN °F OR °C	
°F	#3 DOWN
°C	#3 UP
TEMPERATURE RANGE	
Select the temperature range that matches the chart paper	
0° to +100° F/C	#4 DOWN — #5 DOWN — #6 DOWN
-50° TO 0° F/C	#4 DOWN — #5 DOWN — #6 UP
-100° TO 0° F/C	#4 DOWN — #5 UP — #6 UP
-50° TO 50° F/C	#4 UP — #5 DOWN — #6 DOWN
0° to 50° F/C	#4 DOWN — #5 UP — #6 DOWN
50° to 100° F/C	#4 UP — #5 UP — #6 UP
0° to 500° F	#4 UP — #5 UP — #6 DOWN
0° to 250° F/C	#4 UP — #5 DOWN — #6 UP

## PEN HOME ADJUST

If over time the pen location does not match the display, you may need to adjust the pen 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. The pen will move to the outer edge of the chart, and then the red pen will move to the outer chart ring (maximum temperature line). If the red pen tip does not line up with the outer chart ring, 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.
3. Once set, press ON/OFF to save and exit PEN HOME adjust.

**Note:** Pressing the ON/OFF button will exit the adjustment and return the unit to normal operation. Each time the PEN HOME or ON/OFF button is pressed, the adjustment currently in progress will be stored. The unit will take one minute to exit Pen Adjust Mode once the ON/OFF button is pressed.

## CALIBRATION

The R400 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 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.
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.

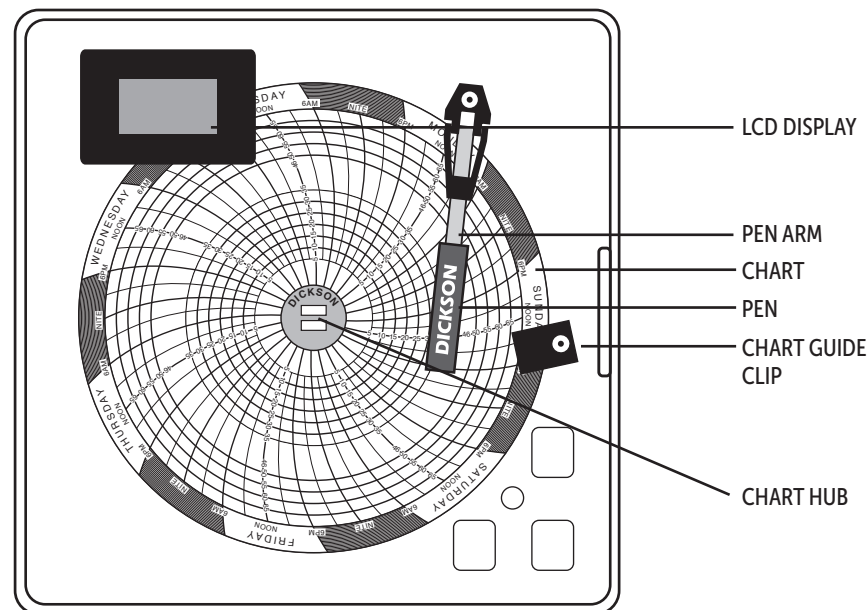
**Note:** Hold ADJUST-UP or ADJUST-DOWN button for 1-2 seconds to increment readings.

**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 pen in an open room is not recommended as air flow can vary greatly within a very small area.

**Note:** User calibration invalidates Dickson's Certificate of Calibration.

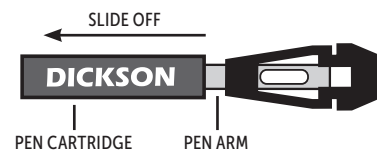
## CHART REPLACEMENT



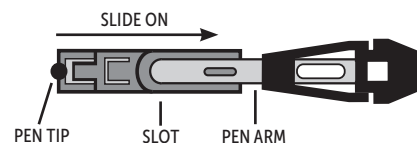
1. Flip pen arm up and away from chart. Slip your finger under the chart and lift the chart off the CHART HUB
2. Put one new chart on the recorder
3. Make sure the center of the chart, between CHART HUB, is not torn
4. Set the time by inserting a coin in CHART HUB and turning clockwise until the current hour is referenced by the time indicator
5. Flip pen arm down

## PEN REPLACEMENT

### TOP SIDE OF PEN



### BOTTOM SIDE OF PEN



1. Flip pen arm up
2. Slide used pen cartridge off pen arm
3. Slide new pen cartridge on pen arm
4. Make sure end of pen arm comes into contact with pen tip
5. Remove pen cap
6. Flip pen arm down

## TROUBLESHOOTING

### 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 pen 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.
- Pen not inserted on pen arm all the way
- To adjust pen to match chart see "PEN HOME Adjust" section of this manual.

### Why does the display read PROB?

- Check the sensor pod and KTC probe. 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, pen 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.

## WARRANTY

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 DicksonData.com.

## FACTORY SERVICE AND RETURNS

Contact Customer Service at 630.543.3747 for a Return Authorization Number (RA) before returning any instrument. Please have the model and serial numbers and PO ready before calling.

*Note: Dickson shall not be liable for consequential or incidental damages resulting from failure or malfunction of its products.*

### REPLACEABLE SENSOR™ CERTIFICATE OF VALIDATION

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

Replaceable Sensor™ Model: R400

Instrument Model: KT6P1, KT6P2, KT6P5

**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.