

**DICKSON****KTx****Remote Sensing Temperature Chart Recorder****Contents:**

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# Product Specifications



<b>KTX Temperature Ranges (user selectable):</b>	-50 to +50°F/C, 0 to +100°F/C, 0 to +250°F/C, 0 to +500°F
<b>KTxE Temperature Ranges (user selectable):</b>	0 to +250°F/C, 0 to +500°F/C, 0 to +1000°F/C, 0 to +2000°F
<b>Recorder Times:</b>	24 hour, 7 day & 31 day (user selectable)
<b>Temperature Sensor:</b>	(KTX)Flexible, 4' Bead Wire K Thermocouple probe, teflon coated (suitable for most gas, liquids & semi-solids) to +500°F (max) or (KTXE) 6" high temperature basic K-thermocouple probe with 4' teflon coated cable suitable to +2100°F (max)
<b>Temperature Accuracy:</b>	±0.3% of full scale, ±1.8°F (±1°C)
<b>Ambient Operating Conditions:</b>	0 to 95% RH (non-condensing), +32°F to +122°F (0 to +50°C)
<b>Display Resolution:</b>	1°F/C
<b>Chart Size:</b>	8" (20.3cm) Diameter
<b>Power:</b>	120V AC adapter with 4 "D" batteries for back-up power (batteries not included)
<b>Power Cord Length:</b>	2 meters
<b>Alarms:</b>	Audio/Visual High & Low alarms
<b>Approvals:</b>	CE
<b>Calibration:</b>	User: zero point; Factory: zero point and span
<b>Digital Display:</b>	LCD 3.5 digit
<b>Response Time:</b>	15 second time constant
<b>Mounting:</b>	Portable or wall mount
<b>Enclosure:</b>	ABS
<b>Dimensions:</b>	10.5" x 13.2" x 2.8" (26.7cm x 33.5cm x 7.1cm)
<b>Weight:</b>	Approximately 7 lbs. (3.2 kgs)
<b>Free With Recorder:</b>	AC Adapter, pen, Probe: 4" Beadwire (KTX) or High Temperature Basic (KTXE) & Starter Pack of Charts (KTX: C412, KTXE:C440)

## Product Features

- Model KTxE records temperature from 0 to +2000°F
- Records on large 8" diameter chart
- User setup of recording parameters including alarms, recording times and recording ranges
- Designed for remote sensing, use any remote K-Thermocouple probe with mini connector
- Large digital display
- AC powered w/ battery backup
- Alarms: Audio/Visual with High/Low setting capabilities

# Operating Information

## Probe

A submersible K-thermocouple probe is supplied with your unit. This probe may be used as a disposable attachment and re-ordered when needed.

## Power Supply

We recommend using AC power with four "D" batteries installed as a back-up power source. This ensures that your recording will not be interrupted when there is a power failure. The AC adapter plugs

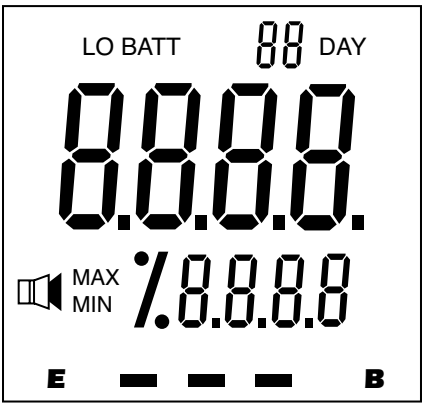
into the back of the recorder beneath the probe.

NOTE: If batteries are used as the main power source, the recorder will update temperature readings at a much slower rate.

## Door Lock

The KTx is equipped with a locking door. This is an important security feature because it will allow you to set the dip switches and then lock the recorder door to prevent tampering.

# Display Symbols



**Lo Batt:** Low battery indicator

**UC:** the unit is in "User Calibration" mode. This is shown in the upper right hand corner of the display.

**Reading Update Indicator:** These rectangles will flash along the bottom of the display as long as the recorder is taking readings. If you are using batteries as the power source the update indicator rectangles will still flash but the rate will be very slow in some modes and "B" will light on display. The rectangle furthest to the right is lit continuously when the unit is using battery power.

**MIN:** This symbol is displayed when you are setting a maximum alarm or when you have pressed the "MIN/MAX" key and the maximum value is being displayed.

**MAX:** This symbol is displayed when you are setting a minimum alarm or when you have pressed the "MIN/MAX" key and the maximum value it being displayed.

Alarm is on.

**Figure 4**

## Charts (for current pricing go to [www.dicksonweb.com](http://www.dicksonweb.com) or call 1-800-323-2448)

<b>KTX</b>			
<b>Range</b>	<b>24 Hour Chart</b>	<b>7 Day Chart</b>	<b>31 Day Chart</b>
-50 to +50°F/C	<b>C411</b>	<b>C414</b>	<b>C406</b>
0 to +100°F/C	<b>C410</b>	<b>C412</b>	<b>C409</b>
0 to +250°F/C	<b>C432</b>	<b>C439</b>	<b>C407</b>
0 to +500°F	<b>C428</b>	<b>C459</b>	<b>C408</b>

<b>KTXE</b>			
<b>Range</b>	<b>24 Hour Chart</b>	<b>7 Day Chart</b>	<b>31 Day Chart</b>
0 to +250°F/C	<b>C432</b>	<b>C439</b>	<b>C407</b>
0 to +500°F/C	<b>C428</b>	<b>C459</b>	<b>C408</b>
0 to +1000°F/C	<b>C441</b>	<b>C440</b>	
0 to +2000°F	<b>C443</b>	<b>C444</b>	

## Accessories (for current pricing go to [www.dicksonweb.com](http://www.dicksonweb.com) or call 1-800-323-2448)

<b>Description</b>	<b>Order #</b>
NIST Traceable Calibration 3-pt. (new unit)	<b>N300</b>
A2LA Accredited Calibration 3-pt. (new unit)	<b>N400</b>
Pens (6 red)	<b>P222</b>
Carrying Case	<b>A709</b>
Extended 2-year Warranty	<b>E200</b>
4" Piercing Probe, 5' Coiled Cable, +1650°F (+900°C)	<b>D605</b>
5" Immersion Probe, 5' Coiled Cable, +1650°F (+900°C)	<b>D608</b>
6" High Temperature Basic Probe, +2100°F 316 Stainless Steel	<b>A203</b>
10' Straight Extension Cable (for probe)	<b>D617</b>
100' Straight Extension Cable (for probe)	<b>A202</b>
1/8" Compression Fitting (for D164 & A203 probes)	<b>D163</b>
Replacement Bead-wire Probe (Type K) +500°F	<b>R013</b>
Angled Surface Probe, 5' Coiled Cable, +1200°F (+649°C)	<b>D606</b>

## Calibration

Your instrument was carefully tested and calibrated before being shipped from the factory. For greatest accuracy, we recommend factory re-calibration every 6-12 months. Call customer service at (630) 543-3747. If you wish to do calibration yourself, follow these procedures.

1. Identify a standard that is more accurate than your unit.
2. Place the probe of the unit and the standard into a controlled environment, allowing the 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 up arrow key at the same time. The "UC" symbol will appear in the display to indicate you are in "User Calibration" mode. Match the reading of the recorder to the reading of the referenced standard.

4. To raise the temperature, press the up arrow key. To lower the temperature press the down arrow key.

5. When calibrating is complete, simply press the "On/Off" key to save calibration setting.

Calibration is stored in memory even after you turn the unit off. User calibration information will not be lost if AC power fails.

Your KTx unit is calibrated at the factory with the probe provided with the unit. If you are going to use an extension cable (length 50', 15, 24 meters or greater) you will need to re-calibrate the KTx (with the extension cable connected) to receive optimum accuracy. Likewise, if you switch back to using less than 50' of cable with a unit that you have calibrated for use with an extension cable that is 50' or greater, you will need to re-calibrate the unit for the shorter length.

# Instrument Anatomy

Figure 1

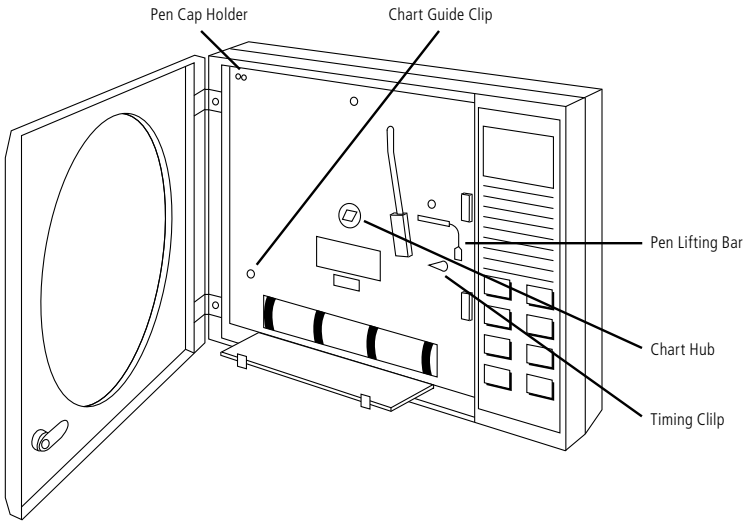
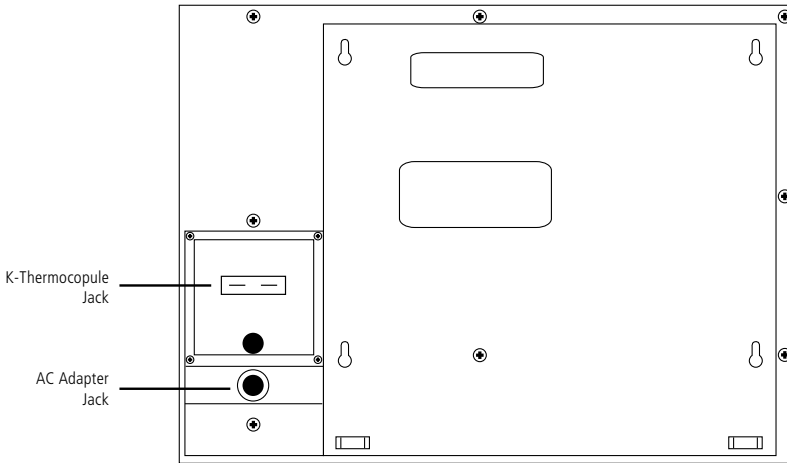


Figure 2



# Getting Started

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

## KTx

Recording Time: 7 day

Temperature Range: 0 to 100°F/C

## KTxE

Recording Time: 7 day

Temperature Range: 0 to 1000°F/C

A set of batteries, a pen and a chart have already been installed for your convenience. All you need to do is start using your KTx recorder with the settings listed and follow these quick start instructions.

## Chart Installation

1. Press the "Pen Home" key to make pens move to the outside of the chart.
2. Press the pen lifting bar to raise the pens. Remove the recorded chart if present.
3. Place the new appropriate 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. NOTE: The chart should lay flat on the dial face.
4. Set time 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 clip.
5. Lower the pen lifting bar so that the pen tips rest firmly on the paper.
6. Press the pen home key to return the pens to position. At the end of tone recording time cycle, simply repeat steps 1-5, replacing the used chart with a new one.

## Pen Installation

1. Press the "Pen Home" key to return pen to the home position.
2. Use the "Pen Arm" lifter to raise the pens.
3. Simply slide used pen cartridge off and slide new one on. Lower pen arm lifter.
4. Press the "Pen Home" key to return pen to chart position.

# Keypad Operation

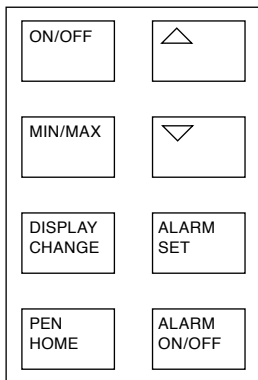


Figure 3

## On/Off

When you press the “ON/OFF” key the pens will move to the correct reading.

## Alarm Set

The alarm set keys are labeled with arrows that point up and down. You can set a minimum and maximum alarm for both of the two variables you are recording.

1. To set the alarms press the “ALARM SET” key. The MIN symbol will be displayed and the temperature will flash.
2. Use the up arrow button to increase the minimum temperature alarm setting and the down arrow to decrease the minimum temperature alarm setting.
3. Press “ALARM SET” key a second time. The MAX symbol will appear and the temperature will flash indicating that you can now set the maximum temperature alarm. Use the same procedure as in step 2 above for setting the temperature maximum alarm setting.
4. When you have set alarms press “Alarm Set” a final time to lock in setting.

NOTE: Alarm settings will return to the default when AC power fails and there are no batteries installed for back-up power.

## Alarm ON/OFF

This button turns the alarms on and off. When alarms are “ON” the alarm symbol appears on the display. When alarm sounds it will sound audibly for approximately 1 minute and then it will stop. For a visual alarm the display will flash until the alarm is reset.

## MIN/MAX

1. Press the “MIN/MAX” key once and the minimum values, during the recording time, will be displayed for 7 seconds.
2. Press the “MIN/MAX” key again and the maximum values, during the recording time, will be displayed for 7 seconds.
3. Press the “MIN/MAX” key a third time during this period and the display will show current readings. The unit will always return to current readings mode after 7 seconds.

NOTE: Turning the unit off resets the minimum and maximum values.

## Pen Home

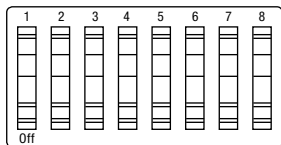
Press the “PEN HOME” key while the unit is operating and the pens move to the outside of the chart. Press the “PEN HOME” key again and the pens will return to current reading points on the chart.

## Display Change

Press the “DISPLAY CHANGE” key and the display will temporarily show the reading opposite of what is being recorded.

# Dip Switch Setup

To set-up the KTx for your specific application, you might need to change some of the Dip Switches. Every time you change a dip switch setting, you must push the up arrow key on the keypad to activate the new dip switch settings.



**Figure 5**

## Recording Time

The KTx has four different recording time options: 1 day, 7 day, 14 day and 31 day. Dip Switch #1 and #2 control the recording time.

7 day	#1 off #2 off
1 day	#1 off #2 on
14 day	#1 on #2 off
31 day	#1 on #2 on

NOTE: Remember to install correct chart to match corresponding switch setting.

## °F/°C

You can record in °F or °C with the THDx by using dip switch #3.

°F	#3 off
°C	#3 on

# Warranty

Dickson warrants that the products it sells 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 pre-paid) with a Return Authorization Number (see Return Information above). It will be repaired 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.

## Temperature Range

KTx dip switches for ranges

0 to 100°	#4 off #5 off
-50 to 50°	#4 off #5 on
0 to 250°	#4 on #5 off
0 to 500°F (°F only)	#4 on #5 on

KTxE dip switches for ranges

0 to 250°	#4 on #5 off
0 to 500°	#4 off #5 on
0 to 1000°	#4 off #5 off
0 to 2000°F (°F only)	#4 on #5 on

## Display On/Off

Dip switch #7 will allow you to turn the display on and off.

Display On	#7 off
Display Off	#7 on

## Keypad Lock

For security purposes it is possible to lock the key pad with the use of dip switch #8.

Keypad Unlocked	#8 off
Keypad Locked	#8 on



# Troubleshooting

Symptom	Cause	Check/Remedy
Pen trace too fine or absent	Tip too short, cartridge dried out	Sand tip, moisten or replace
Readings of pen and display do not match exactly	Hysteresis or wrong chart	Hysteresis is a naturally occurring mechanical discrepancy up to 2% of range Check to see that the proper chart is installed
Display not lit	Display disabled	Switch dip switch #7 off
Rectangle on the left portion of the display is lit	System Error	Send to factory for repair (see below for repair procedure)
Display keys not working	Keypad is locked	Switch dip switch #8 off
PROB displayed	Probe not plugged into recorder	Plug "K-thermocouple" into back of recorder (see diagram, page 3)
ERR displayed	Error	Change dip switch combination
Out of calibration or Questionable Accuracy	Harsh environments, stressful conditions, or time	See Calibration Procedure on page 5 or Return to factory for recalibration

## Factory Service & Returns

Contact the factory (630-543-3747) for a Return Authorization (RA) Number before returning any instrument. The model number, serial number and a purchase order number will be requested before an RA number is issued.

- Carefully repack the instrument, label the outside of the box with the RA# and return the instrument (freight pre-paid) to Dickson.
- All instruments that do not have the RA# clearly marked on the outside of the box will be refused. When returning instruments for credit, please include all accessories in shipment.
- Calibration/Freight charges are non-refundable.

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

### Customer Satisfaction

Dickson takes pride in providing you, the customer, with the highest quality instrumentation. We welcome the opportunity to help you in any way possible. Whether it be a question or a new idea in documentation, the Dickson Company would like to hear your response. Please call our Customer Service Department at 1-800-323-2448 or (630) 543-3747 (in Illinois).

### Software Return Policy

IMPORTANT - Read your Software License Agreement carefully before installing software. Dickson will accept returns for replacement of defective disks and CDs only.

## DICKSON

930 South Westwood Avenue  
Addison, Illinois 60101

Phone: (630) 543-3747 • E-mail: DicksonCSR@dicksonweb.com

**Step 1 - Bill To:**

Name \_\_\_\_\_  
 Company \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_  
 State \_\_\_\_\_ Zip \_\_\_\_\_  
 Phone (        )        - \_\_\_\_\_  
 Email \_\_\_\_\_




**Step 2 - Ship To** (if different than above)

Name \_\_\_\_\_  
 Company \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_  
 State \_\_\_\_\_ Zip \_\_\_\_\_  
 Phone (        )        - \_\_\_\_\_  
 Email \_\_\_\_\_

**Step 3 - Ordering Information**

Order #	Quantity	Price/Unit	Total
_____	_____	\$ _____ /each	\$ _____
_____	_____	\$ _____ /each	\$ _____
_____	_____	\$ _____ /each	\$ _____
_____	_____	\$ _____ /each	\$ _____
			Subtotal: \$ _____
In Illinois, add 7.5% sales tax ▶			Tax: \$ _____
			Freight: \$ _____
<b>All Prices in U.S. Dollars ▶</b>			<b>Total: \$ _____</b>

**Step 4 - Payment Method**

Check: Check # \_\_\_\_\_  
 Money Order  
 Credit Card:        
 Credit Card Number: \_\_\_\_\_ Expires: (mm/yy) \_\_\_\_\_  
 \_\_\_\_\_ / \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_ Signature \_\_\_\_\_  
 Purchase Order: P.O.# \_\_\_\_\_ (Net 15 days for established customers)  
 Customer #: \_\_\_\_\_

**U.S.A. Freight Charges**

Total Order	UPS 2nd Day	UPS Next	UPS Ground
\$0-100	\$16	\$33	\$10
\$101-400	\$20	\$42	\$15
\$401-700	\$28	\$57	\$18
\$701-1,000	\$37	\$60	\$26
\$1,001-1,500	\$56	\$77	\$39
\$1,501-2,000	\$74	\$97	\$46

\$2,001-over Please call Dickson Customer Service  
 All shipments UPS 2nd day unless otherwise requested.

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