

DICKSON

ESX

Universal Input Recorder

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Product Applications

The Dickson ESX Electrical Signal Recorder offers the flexibility of a standardized input recorder that can be used for a wide variety of applications. This microprocessor-based electrical signal recorder offers high accuracy, flexibility and many features normally offered on higher priced recorders.

Useful Features

- Microprocessor controlled
- User selectable output and recording times
- 2 screw terminals on the back of the instrument to allow easy connection of the input transmitter
- Remote sensing capability with voltage or current transmitters
- HIGH/LOW alarms feature and display of MIN/MAX readings
- User selectable decimal point placement to manipulate desired output range on the display
- Locking control keypad and door
- User Calibration
- AC power with battery backup
- Keyhole slots for wall mounting
- Large digital display
- Large 8" diameter chart

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Product Specifications



Input Ranges:	0-20mA, 4-20mA, 0-5Vdc, 1-5Vdc (user-selectable)		
Output Ranges (user-selectable, including decimal point selectability):	0 to +10	0 to +200	0 to +45
	0 to +100	0 to +2000	0 to +500
	0 to +1000	0 to +250	0 to +60
	0 to +14	0 to +30	+40 to +110
	0 to +150	0 to +300	-10 to +10
Accuracy:	0.3% full scale, ± 1 digit (recorder only)		
Sensor Capability:	Any powered voltage or current transmitter with specified recorder input range (see input ranges above)		
Display Resolution:	0.001, 0.01, 0.1 or 1 depending on range selected		
Chart Size:	8" DIA (20.3 cm)		
Recording Time:	24 hour, 7 day, 31 day (user-selectable)		
Average Response Time:	20 seconds full scale, depending on transmitter		
Ambient Operating Range (recorder):	0 to 90% RH (non-condensing) +32 to +122°F (0 to +50°C)		
Calibration Adjustment:	User zero calibration		
Alarms:	HIGH/LOW, Audio/Visual		
Power Supply:	120V AC adapter, (other adapters can be obtained for international markets), 4 "D" batteries used for back-up power (not-included)		
Maximum Input Voltage:	5 volts (instrument records direct current - DC)		
Dimensions:	10.5" x 13.2" x 2.8" (26.7 cm x 33.5 cm x 7.1 cm)		
Weight:	7 lbs. (3.2 kg)		
Mounting:	Free standing or wall mountable		
Includes:	Pen (red), starter pack of charts, AC adapter and instruction manual		

Charts (for current pricing go to www.dicksonweb.com or call 1-800-323-2448)

Range	24 Hour Chart	7 Day Chart	31 Day Chart
0 to +10	C420	C489	
0 to +100	C410	C412	C409
0 to +14	C457	C453	
0 to +200	C456	C436	
0 to +30	C424	C463	

Accessories (for current pricing go to www.dicksonweb.com or call 1-800-323-2448)

Pens (6 red)	P222
Carrying Case	A709
Extended 2-year warranty	E200

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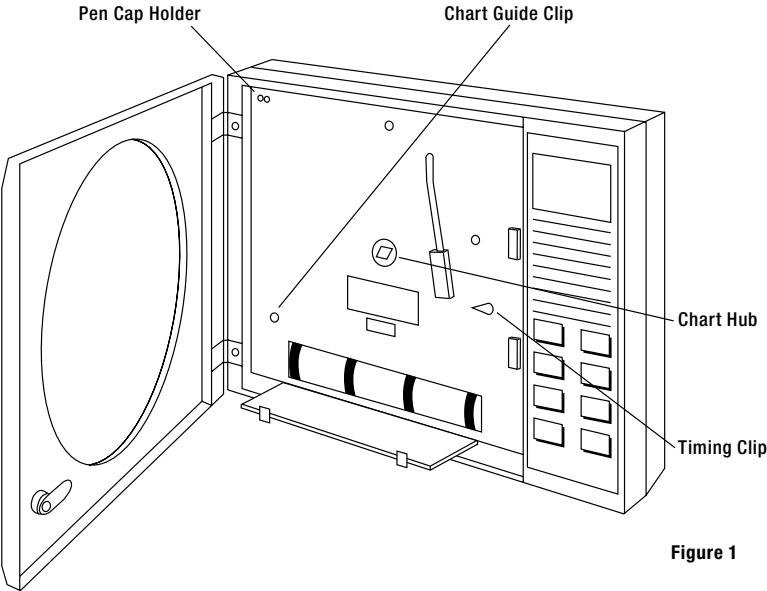
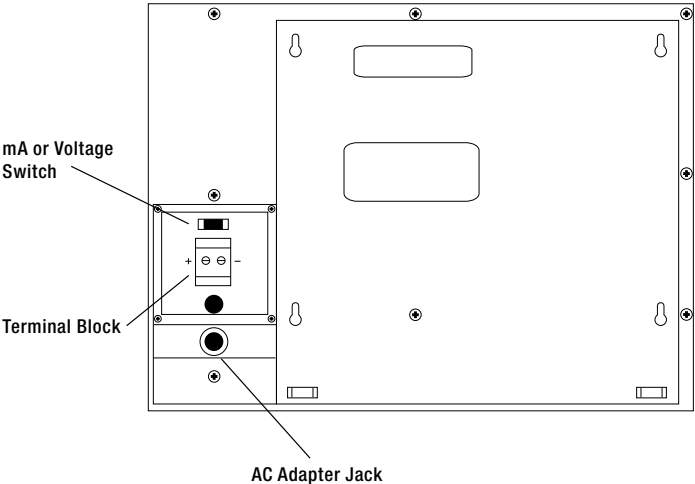


Figure 1



Getting Started

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

Recording Time: 7 day
Range: 0.0 to 100.0
Signal: 0 -5 Vdc

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

1. Plug in the AC adapter
2. Hook up your 0 -5 Vdc transmitter (see "Instrument Anatomy")

NOTE: Be sure to observe proper polarity when connecting wires from transmitter.

3. Set the appropriate time by inserting a coin into the groove in the chart hub and turning clockwise until the correct hour and day on the chart is referenced to the timing clip. (see "Instrument Anatomy")
4. Remove the protective pen cap from red pen and insert on Pen Cap Holder.
5. Press the "ON/OFF" key and the pen will move to the current reading; a powered transmitter must be used to receive a reading.

Operating Instructions

Transmitter/Sensor:

A powered transmitter is required to operate the ESX. Any powered transmitter with a 4-20mA, 0-20mA, 0-5VDC, 1-5DV output signal may be used.

To connect a transmitter to the recorder, locate the terminal block on the back of the recorder (see "Instrument Anatomy"). Connect the positive wire of the transmitter to the positive terminal (left) of the recorder and negative wire of the transmitter to the negative terminal (right) of the recorder. Tighten the screws in the terminal block to hold in transmitter wires. **It is vitally important to be sure the voltage/milliamp switch in the back of the unit, together with dip switch #3 properly corresponds to the transmitter used (i.e. if using a 4-20mA transmitter be sure the voltage/milliamp switch in back is on mA position and dip switch #3 is set in "ON" position).** If the unit is receiving too much power from the transmitter, the unit will make a loud beeping sound. Disconnect the transmitter immediately and check switch setting.

Recorder 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 alarm.

Chart Replacement:

1. Press the "PEN HOME" key to make the pen move to the outside of the chart.
2. Press the pen lifting bar to raise the pen. Remove the recorded chart if present.
3. Place the 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. Be sure the chart is appropriate for the output setting chosen via the dip Switches.
4. Set time by inserting a coin into the groove in the chart hub and turn clockwise until the correct hour (and day of applicable) on the chart is referenced to the timing clip.

Pen Installation:

When pen replacement becomes necessary, use the following procedure:

1. Press the "PEN HOME" key to make the pen move to the home position.
2. Gently lift the pen slightly and slide it off the pen arm.
3. Slide the new pen back onto the arm until you feel the notch in the pen arm seat securely around the plastic portion of the pen clip.
4. Remove the pen cap. Insert on the "PEN CAP HOLDER"
5. Press the "PEN HOME" key to return pen to recording position.

Dip Switch Setup

To set up the ESX for your specific application, you might need to change some of the Dip Switches. The switches are located under the chart in the lower half of the dial plate. A pointed object can be used to change the settings. In battery mode, you may need to push the "Up Arrow" key after establishing the new dip switch setting. Remember to install the correct chart to match corresponding dip switch setting.

Recording Time:

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

1 day	#1 OFF #2 ON
7 day	#1 OFF #2 OFF
14 day	#1 ON #2 OFF
31 day	#1 ON #2 ON

Range:

You can record different signals with the ESX by using Dip Switch #3 in conjunction with V/mA switch in the back of the recorder.

0-5V or 0-20mA	#3 OFF
1-5V or 4-20mA	#3 ON

NOTE: The V/mA switch on the back of your ESX controls which signal your recorder will read: Volts or Milliamps.

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. There are two phases of calibration. One is the unit calibration which should be performed using an accurate electronic signal generator. The second phase is calibrating the unit in conjunction with the transmitter to be used. When calibrating with a transmitter, a compatible standard should be used. For example, use a highly accurate temperature standard to calibrate the ESX using a temperature transmitter.
2. The calibration procedure is the same whether calibrating the unit only, using an electrical signal calibrator, or calibrating the unit in conjunction with a transmitter. When calibrating with a transmitter, the calibration must be performed using a separate standard with which to adjust the unit and transmitter.
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 (this procedure is easiest if the unit is lying on its back). The "UC" symbol will appear in the upper right hand corner of the display to indicate you are in the "USER CALIBRATION" mode.
4. To raise the reading press the "UP ARROW" key. To lower the reading press the "DOWN ARROW" key. Be careful to wait several seconds between each key press to give the unit sufficient time to respond.
5. 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. **NOTE:** Voltage and Milliamp ranges must be calibrated independently.

Reading Range:

The ESX will record in many ranges. Dip Switches #4, #5, #6 and #7 allow you to select the range.

	#4	#5	#6	#7
0 to 100.0	OFF	OFF	OFF	OFF
0 to 140.0	ON	OFF	OFF	OFF
0 to 150.0	OFF	ON	OFF	OFF
0 to 200.0	ON	ON	OFF	OFF
0 to 250.0	OFF	OFF	ON	OFF
0 to 300.0	ON	OFF	ON	OFF
0 to 450.0	OFF	ON	ON	OFF
0 to 500.0	ON	ON	ON	OFF
0 to 600.0	OFF	OFF	OFF	ON
40.0 to 110.0	ON	OFF	OFF	ON
-10 to 10.0	OFF	ON	OFF	ON
-15.0 to 25.0	ON	ON	OFF	ON
-20.0 to 50.0	OFF	OFF	ON	ON
-20.0 to 120.0	ON	OFF	ON	ON
-30.0 to 50.0	OFF	ON	ON	ON
-50.0 to 50.0	ON	ON	ON	ON

Keypad Lock:

For security purposes it is possible to lock the keypad with the use of Dip Switch #8

Keypad Unlocked	
#8 OFF	
Keypad Locked	#8 ON

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Troubleshooting

Problem	Solution
Pen & Display do not match	<ul style="list-style-type: none">• Check dip switch setting & proper chart.• Hysteresis is a naturally occurring mechanical discrepancy up to 2% of range.
Instrument is not responding to key presses	<ul style="list-style-type: none">• Keypad may be locked, check dip switch #8• Slower, firmer key presses (may take multiple presses).
Display shows DC and indicator on the left part of the digital display	<ul style="list-style-type: none">• Factory repair is necessary, send to Dickson for repair.
Display shows E (lower left of digital display)	<ul style="list-style-type: none">• System error or error in calibration, send to Dickson.
Out of calibration or questionable accuracy	<ul style="list-style-type: none">• Instrument exposed to harsh environments or stressful conditions, see "CALIBRATION" procedure in manual.• Return to factory for re-calibration
Display won't light up	<ul style="list-style-type: none">• Check dip switch #7. Switch should be OFF
Unit won't work at all	<ul style="list-style-type: none">• Check dip switches #7 & #8. Both should be off to allow operation.

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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.

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

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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: \$ _____
All Prices in U.S. Dollars ▶			Total: \$ _____

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	UPSGround
\$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.			