

DICKSON

ET855

Universal Input Chart Recorder

GETTING STARTED

7-day chart rotation

Range: 0 to 100

Input Range Channel 1 (Red Pen): 0-5V

Input Range Channel 2 (Blue Pen): 0-5V

QUICK START

1. Find out the output voltage of the transmitter/transducer that will be connected to the recorder. If the output is not 0-5V, change dipswitch settings per the dipswitch sticker located on the back on the unit.
2. If using a range other than 0 to 100 change the dipswitch settings to match the chart range selected per the dipswitch sticker located on the back of the unit.
3. Connect the transmitter/transducer output wires to the screw terminals on the uncompensated plug, making sure the wires do not touch. Plug the uncompensated plugs into the jack outlets on the back of the recorder.
4. Remove the protective pen caps.
5. Insert batteries and plug in AC adapter (See Figure 3). 4 AA batteries backup power only (See Power section for backup life). Unit will power on.
6. The instrument will move pens to the appropriate readings.
7. Install the chart that matches the Dip Switch settings (See Dip Switch Setup).

Press the **PEN HOME** key to move the pens to the outside of the chart. The pen is 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 Clips located at the outside of the chart.

8. 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 pen tip on the dial). Press **Pen Home** to move the pens back onto the chart.

The following feature should be used for fine adjustments only.

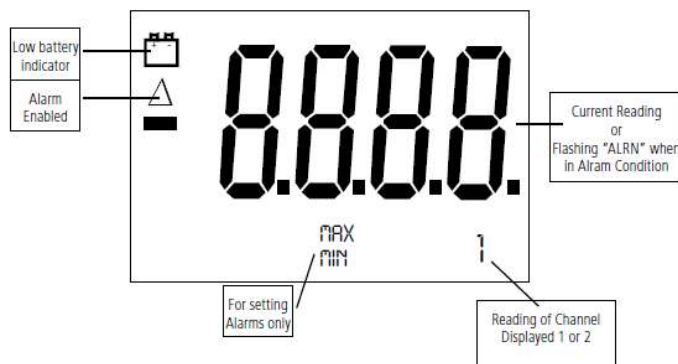
- b. To adjust the chart time, press and hold **Adjust-Up** and **Adjust-Down** buttons located on the back of the unit next to the dip switch (see Figure 3).

The green LED will blink rapidly for about five seconds, then the LED will remain solid green. While in this state the **Adjust-Up** button will move the chart backward (counter clockwise) and the **Adjust-Down** button will move the chart forward (clockwise).

Rotate the chart until the correct hour (and day if applicable) on the chart is referenced to the timing arrow. Once you have set your chart, press the **Pen Home** button to exit Chart Adjust Mode. The unit will take one minute to exit the Chart Adjust Mode once **Pen Home** is pressed. Press **Pen Home** to move the pens back onto the chart.

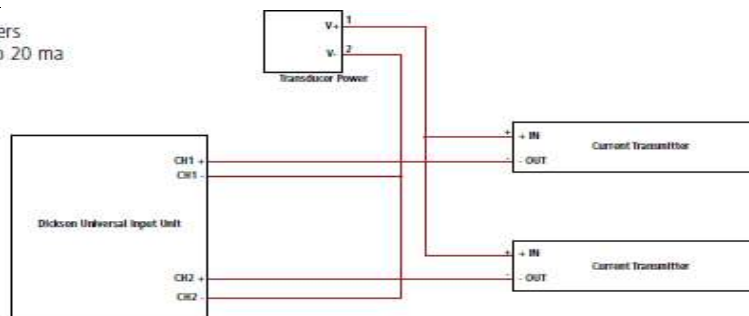
- c. Place the ET8 recorder on a flat vibration-free surface. Be sure it is in a vertical position and level. For best performance and longevity, the location should be a clean environment, free from dust and corrosive fumes. Do not exceed temperature specifications. Wall Mount: Keyhole slots are provided on the ET8 recorder for wall mounting.

DISPLAY SYMBOLS ET8

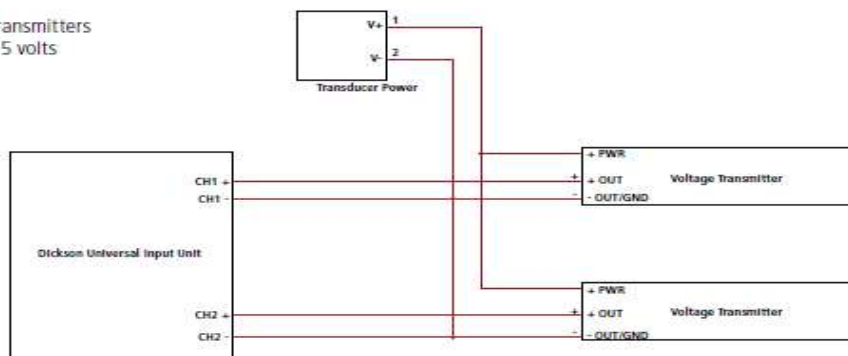


WIRING DIAGRAM

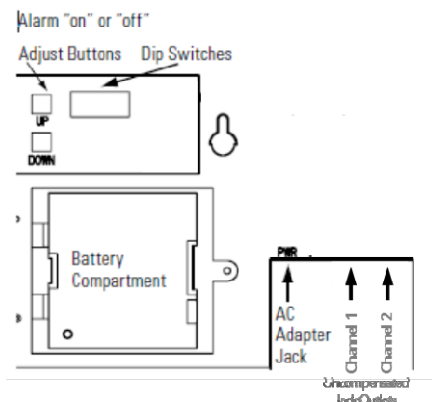
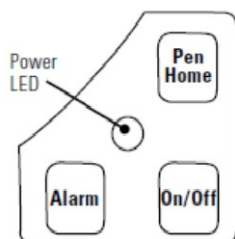
ET8 ma transmitters
0 to 20 ma or 4 to 20 ma



ET8 voltage transmitters
0 to 5 or 1 to 5 volts



BUTTON OPERATION



On/Off

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

Pen Home (Down Arrow)

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

Alarm Optional

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 options.
 - Pen 1 alarm minimum
 - Pen 1 alarm maximum
 - Pen 2 alarm minimum
 - 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.

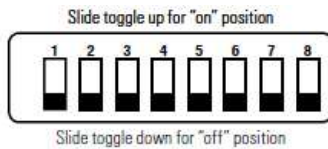
Repetitively pressing the **Pen Home** button will scroll through the five options until the **Alarm** button is pressed to exit from alarm adjust. Each press of the **Pen Home** or **Alarm** button will store the new settings. The unit will take one minute to exit Alarm Set Mode once the **Alarm** button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

To setup the ET8 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. Remember to install the correct chart to match the corresponding Dip Switch setting.



| DICKSON ET8 Dip Switch Settings: | | | | | | | |
|---|---|---|---|---|---|---------------|---|
| Up = On; Down = Off | | | | | | | |
| Switches 1 - 8 | 1 | 2 | 3 | 4 | 5(ch2)/6(ch1) | 7(ch2)/8(ch1) | |
| 7 Day | D | | | | | | |
| 24 Hour | U | | | | | | |
| 0.0 to 100.0 | | D | D | D | | | |
| 0 to 1000 | | D | D | U | | | |
| 0.0 to 14.0 | | D | U | D | | | |
| 0.0 to 150.0 | | D | U | U | | | |
| 0.0 to 200.0 | | U | D | D | | | |
| 0.0 to 300.0 | | U | D | U | | | |
| -10.0 to 10.0 | | U | U | D | | | |
| -150.0 to 250.0 | | U | U | U | | | |
| 0.0 to 5.0 volts | | | | | D | | D |
| 0.0 to 20.0 ma | | | | | D | | U |
| 1.0 to 5.0 volts | | | | | U | | D |
| 4.0 to 20.0 ma | | | | | U | | U |
| Remember to install the correct chart to match corresponding switch setting | | | | | Channel 1 = Red Pen Channel 2 = Blue Pen | | |
| Dickson - Addison, IL www.dicksonweb.com | | | | | | | |

Dip Switches for Ranges:

Recording Time

The ET8 recorder has two different recording time options:

- 24 Hour #1 Up
- 7 Day #1 Dow

Recording Range

| Range | #2 | #3 | #4 |
|-----------------|------|------|------|
| 0.0 to 100.0 | Down | Down | Down |
| 0.0 to 1000.0 | Down | Down | Up |
| 0.0 to 14.0 | Down | Up | Down |
| 0.0 to 150.0 | Down | Up | Up |
| 0.0 to 200.0 | Up | Down | Down |
| 0.0 to 300.0 | Up | Down | Up |
| -10.0 to 10.0 | Up | Up | Down |
| -150.0 to 250.0 | Up | Up | Up |

Channel Input

(Channel 1 = Red Pen; Channel 2 = Blue Pen)

| Channel | Input | #5 | #6 | #7 | #8 |
|-----------|----------------|------|------|------|------|
| Channel 2 | 0.0 to 5.0V | Down | | Down | |
| Channel 2 | 0.0 to 24.0 ma | Down | | Up | |
| Channel 2 | 1.0 to 5.0V | Up | | Down | |
| Channel 2 | 4.0 to 24.0 ma | Up | | Up | |
| Channel 1 | 0.0 to 5.0V | | Down | | Down |
| Channel 1 | 0.0 to 20.0 ma | | Down | | Up |
| Channel 1 | 1.0 to 5.0V | | Up | | Down |
| Channel 1 | 4.0 to 20.0 ma | | Up | | Up |

NOTE: Make sure switches 5, 6, 7 & 8 are set correctly to match the type of transducer you are using and that the transducer is plugged into the correct jack.

POWER

The ET8 operates on AC power with an optional 4 AA battery backup. Depending on chart rotation selected and model; battery backup will last

24 Hour Chart Rotation = 1 Day Backup

7 Day Chart Rotation = 2 Day Backup

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 pen location on the chart. A Pen Home Adjustment 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 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 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.

USER CALIBRATION

If you have an accurate standard to compare against, the ET8 can be adjusted at one point. This will not adjust the span.

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 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 on a two pen unit 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.

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 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(s) not inserted on pen arm(s) all the way
- To adjust pen to match chart see "Pen Home Adjust" in this manual.

Why does the recorder not match the transducer/transmitter outputs?

- Check the uncompensated jacks to make sure they are properly plugged into the correct plugs and that the wires are connected properly to the screw terminals.
- Verify the output voltage/ma from the transmitter/transducer and make sure the dip switch settings (for 5-8) match.
- 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 back up 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 battery, 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 www.DicksonData.com

FACTORY SERVICE AND RETURNS

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.