

LIMITED WARRANTY

Sealed Unit Parts Co., Inc. hereby warrants that it will repair or replace, at its option, any part of the DLAV Data Logger, which proves defective by reason of improper workmanship or material, free of charge for parts and labor, for a period of one year from the date of original purchase by the buyer. This warranty does not apply if, in the sole opinion of Sealed Unit Parts Co., Inc., the DLAV Data Logger has been intentionally damaged due to misuse, neglect, improper packing, shipping, modification or servicing by other than Sealed Unit Parts Co., Inc., or personnel authorized by Sealed Unit Parts Co., Inc.. For information on how to obtain service under this warranty contact the dealer where your DLAV Data Logger was purchased, or Sealed Unit Parts Co., Inc. at the address printed below:

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DLAV DATA LOGGER INSTRUCTIONS

The SUPCO DLAV Data Logger is a self-contained precision instrument for recording AC voltage. The DLAV can store up to 16,000 measurements for each recording. The recordings can be read using the supplied PC interface, the optional SUPCO Data Plotter or the recording can be retrieved on the spot using the optional SUPCO DataStor.

The Windows™ compatible software allows the user to set the DLAV for a recording session, read the recorded data in text or graphical format, and to store the recorded data for future reference or analysis. Applications include monitoring of compressor and fan run cycles, new installation tests, trouble shooting intermittent problems, monitoring line voltage, etc. Refer to the following instructions for explanations of how to record and how to retrieve AC voltage recordings.

SOFTWARE INSTALLATION

The **Data Logger to PC** program is supplied on 3-1/2" floppy disks. To install the software follow the instructions below:

1. Insert disk 1 of 2 into Drive A.
2. If you are using Window™98 /95, click on **START**, then click on **RUN**.
3. Type **A:SETUP** and press **Enter**.
4. If you are using Windows™3.1, click on **Program Manager**.
5. Select **FILE**, and select **RUN**.
6. Type **A:SETUP** and press **Enter**.

To get the latest product information and current release of the Data Logger to PC software, visit the SUPCO website at www.supco.com

If you are not familiar with the above commands, refer to the instructions that are supplied with your version of Windows™.

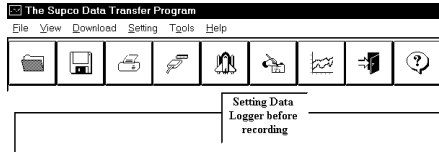
SETTING THE DATA LOGGER

The DLAV recording interval or, sampling rate, is the time between each voltage measurement that is saved in the logger's memory. This interval is set from the PC interface program (supplied), from the optional SUPCO Data Plotter or the DataStor. This interval can be set from 5 seconds to 60 minutes. A user message of up to 20 characters can also be stored in the DLAV. This message can be used to identify a customer's location or identify a particular logger for tracking purposes. Use the example below to set a DLAV logger.

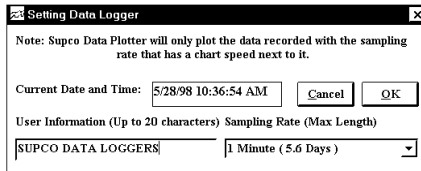
1. Plug the PC interface cable (DLS) into the printer port of the computer being used to set the DLAV. Plug the DLAV being set to the cable from the PC interface cable DLCABLE (part of DLS package).
2. Start the Data Logger program. If you are using Windows™98/95, click on **Start**, click on **Programs**, click on **Supcolog**, click on **SUPCOLOG**. If you

are using Windows™ 3.1, double-click on the window labeled **Supcolog**, then double-click on the **SUPCOLOG** icon.

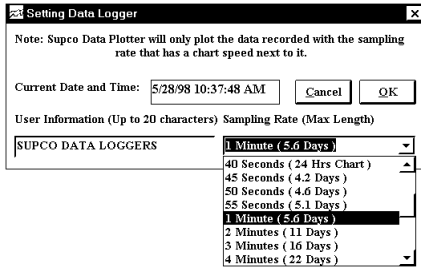
- The program will open with a blank window showing no text or graph. On the toolbar located along the top of the screen, click on the **Setting Data Logger** before recording button. This will open a secondary window **Setting Data Logger**.



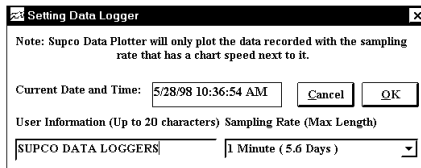
- If a user message is desired, click in the **User Information** field and add the desired message. Note that the last message will be displayed and will remain until it is erased or changed by the user.



- To select the sampling rate, click on the down arrow in the **Sampling Rate** box. This will open a drop-down menu with the recording interval selections. Note that the maximum recording times are indicated in parentheses next to the recording interval. The recording intervals that correspond to charts used by the SUPCO Data Plotter show the appropriate chart selection instead of a maximum recording time.



- Click on the desired sampling rate. You may need to use the up or down arrows on the drop down menu to see more of the available recording intervals.
- The time and date the logger is set to will be the same time as the PC clock. It is important to make sure the time set in the PC is correct. The PC time will be displayed as the **Voltage Date and Time** in the setting window. Refer to the owner's manual for your computer to find instructions on setting the PC time if it is not correct.

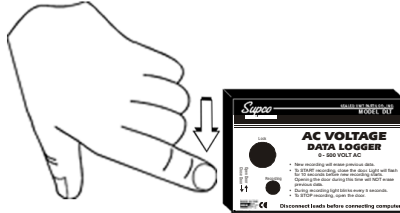


- When all of the settings for the DLAV are to your satisfaction, click on **OK** to store the setting in the DLAV and to close the window.

9. The DLAV is now set and ready to begin a new recording. Disconnect the DLAV from the PC interface.
10. You can now connect a different DLAV or exit the program. To exit the program, click on the **Exit** button on the tool bar.

TO START A RECORDING

To begin a new recording slide the access door closed. The LED indicator will begin to flash for 10 seconds. During this period the recording can be canceled without losing the data previously recorded. When the LED indicator stops flashing, a new recording has begun and any previous data has been erased.



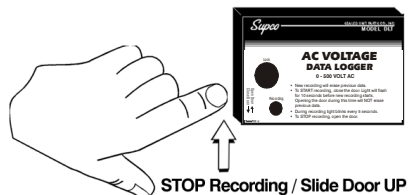
The DLAV recording function can be “locked” on by passing a Ty-Wrap™ or similar restriction through the logger-mounting opening. This can be used to prevent accidental or intentional disruptions of a temperature recording.

The LED will flash every 5 seconds to indicate operation. A bright flash of the LED is used to indicate that the AC voltage has been sampled and recorded. A dim flash is used to indicate that the DLAV is operating properly and the voltage has not been sampled or recorded. The LED indicator will continue to flash, until the user stops the recording or the memory has reached its maximum capacity of 10,000 samples.

NOTE: If the battery is exhausted during a recording, the DLAV will automatically terminate the recording and save any data recorded up to that point. The LED will stop flashing and the DLAV will not allow a new recording to be started until the battery has been replaced. Recorded data can be retrieved regardless of the condition of the battery.

TO STOP A RECORDING

Slide the access door open (If locked, remove the restriction device first.) The LED indicator will stop flashing. The recorded data can now be retrieved using the supplied Windows™ compatible software and PC interface, or the recording can be plotted on a circular chart using the optional SUPCO Data Plotter.



NOTE: Do not close the door until a new recording is desired! It is important to leave the door open until you want to start a new recording. Starting a new recording now will erase the previous recording. To prevent accidental erasing of recordings, the access door of the DLAV can be “locked” open by passing a Ty-Wrap™ or similar restriction through the lock opening. The AC voltage re-

ording will remain in the DLAV until a new recording is started. The recordings may be retrieved as many times as required or the battery can be removed with no effect on the stored data.

CONNECTING THE DLAV

Plug each clip lead firmly into the DLAV. Make sure that there is no strain that could pull the clip leads out of the DLAV socket. Connect the clip leads to the points that the voltage is being measured. Make sure that the leads will not interfere with any moving pieces of equipment and will not pull loose any wires or other connections. The clips leads and DLAV are not water resistant! Do not expose to rain or snow.

CAUTION!

Electrical connection to any type of operating equipment is

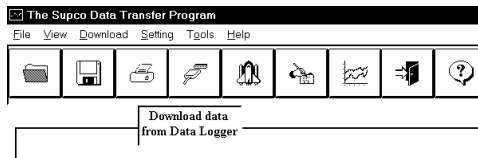
Dangerous!

The DLAV leads should only be connected when it has been determined that the power is off and the equipment is safe to touch!

Always remove the DLAV leads before connecting the DLAV to your computer!

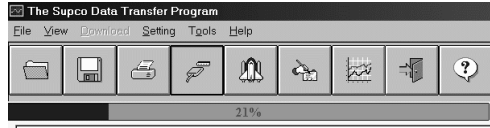
RETRIEVING AC VOLTAGE RECORDINGS

1. **Disconnect the DLAV from the AC voltage being measured.** Plug the PC interface into the printer port of the computer being used to read the DLAV. Plug the DLAV being read to the cable from the PC interface.
2. Start the Data Logger program. If you are using Windows™ 98/95 click on **Start**, click on **Programs**, click on **Supcolog**, click on **SUPCOLOG**.
3. If you are using Windows™ 3.11, double-click on the window labeled **Supcolog**, double-click on the **SUPCOLOG** icon.
4. The program will open with a blank window showing no text or graph. Connect the DLAV now if it is not already connected. On



the toolbar located along the top of the screen click on the **Download data from Data Logger** button. A **Data Transfer** window will open.

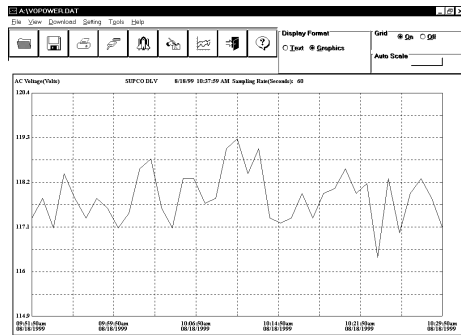
- The program will begin to retrieve the recording. A status bar along the top of the window will show the progress of information being retrieved.



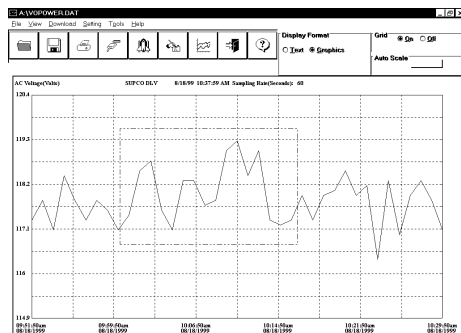
- When the information has been retrieved, the program will automatically display the recording in the display mode that has been selected. If you have been using the text mode, then the recording will be displayed in the text mode. If you have been using the graph mode, then the recording will be displayed as an auto scaled graph.

VIEWING A RECORDING AS A GRAPH

- When information is retrieved or when a file is opened, it will automatically be displayed in the most recently used mode. To view a recording as a graph, select the graph option in the Display Format box. The program will display the entire recording as a plotted graph with the AC voltage on the vertical scale and the time on the horizontal scale.



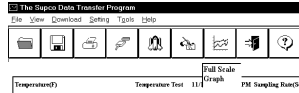
- To zoom to a particular part of the graph, place the mouse cursor in a corner of an imaginary box that will enclose the area of interest.



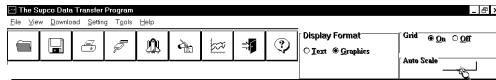
- Press and hold the left mouse button and move the cursor in a diagonal direction from the original position of the cursor. A dashed line forming a box will be displayed.

Move the cursor until the box encloses the area of interest and release the left mouse button.

- The box will now be stationary on the screen. Move the mouse cursor so that it is inside the box and click the left mouse button.
- The enclosed area of the box will now be zoomed so that it fills the entire window. This may be repeated if additional magnification of an area of the graph is desired.
- To return to the original graph with no auto scaling, click on the **Full Graph** button.



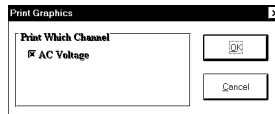
- To auto-scale the graph, click on the Auto Scale button. The graph will automatically be readjusted to fill the vertical axis of the screen.



- The graph on the screen may be printed at any time by clicking on the **Print** button. Note that the printout will be what is displayed on the screen when the button is clicked.

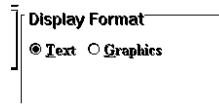


- A prompt window will open in the middle of the screen. Click **OK** to print, or **Cancel** if you change your mind.

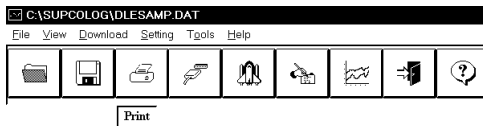


VIEW A RECORDING AS TEXT

- When a recording is retrieved, or when a saved recording is opened, it is displayed in the most recently used mode. The recording can be viewed as a text listing or a plotted graph.
- To view a recording as text when a graph is on the screen click the **Text** button located in the display box.
- Use the Windows™ scroll bar on the right hand side of the screen to scroll through the text information

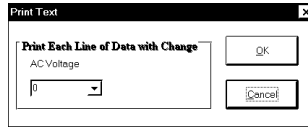


- To print the text information as text data, click on the **Print** button. A window will open in the middle of the screen. In the lower left of the window will be a drop-down menu which will allow you to select the number of volts the AC voltage has to change before the new value is printed. This feature will prevent needless



printing of the AC voltage when no change in the voltage has occurred. If you wish to print all the recorded information, leave this value at zero.

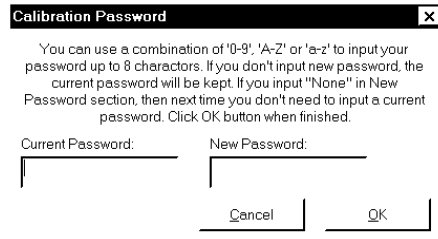
- When you have selected the amount of AC voltage change to print (if any) click on the **OK** button to start printing.



DATA LOGGER CALIBRATION

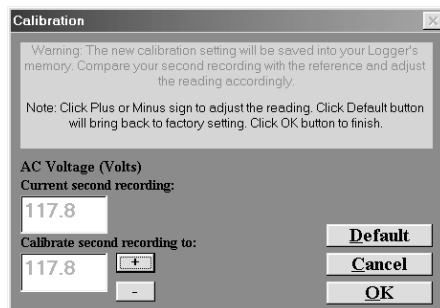
You can calibrate the DLAV data logger to make its reading match an external reference or standard. Set the DLAV sampling rate long enough to allow the logger and reference AC voltage to stabilize. Make a recording along with an external reference in a controlled environment so that the reference AC voltage for the second sample can be measured and recorded.

The calibration routine will use the second recording sample to make the logger reading match with the external reference. Click **Tools** on the menu and click **Calibrate Logger**. A calibration password window will open. Type your password in the Current Password section. If you want to have a new password next time,



you can type a new password in the New Password section. Click the **OK** button when finished. If this is the first time you are calibrating the DLAV, no password is needed. You can click the **OK** button or press the **Enter** key to continue. If you have typed a password before and you don't want password protection for the calibration function, you can input None as the new password and this will clear the password protection.

After you type the correct password and click **OK**, a calibration window will open. You can click the **plus** or **minus** button to make the data logger reading match with the reference reading that you recorded at the same time and same place with the DLAV. Click the **OK** button and the software will make a new data retrieval based on your new calibration setting. The new calibration setting will be saved in the DLAV and apply to all future recordings.



BATTERY INSTALLATION AND REPLACEMENT

The Supco Data Loggers use a 9-volt Alkaline battery (not supplied), which will have an average life of 1 year. The actual life of the battery will depend on a variety of factors such as the temperature the battery is used in, the sampling rate of the logger, and how often the Data logger is used. Extreme temperatures will result in reduced battery life. If the battery is exhausted during a recording, the Data Logger will automatically terminate the recording and save any data recorded up to that point. The LED will stop flashing and the Data Logger will not allow a new recording to be started until the battery has been replaced. Recorded data can be retrieved regardless of the condition of the battery.

When the logger will not be used for an extended period, or when the battery is exhausted, it is strongly recommended to remove the battery to avoid damage to the logger from battery leakage. **Use only Alkaline batteries.**

Substitution of a different battery can result in reduced performance or permanent damage to this instrument.

To install or replace the Data Logger's battery follow the steps below:

1. Make sure the logger is not set in the recording position. If so, slide the door open. Any information recorded up to this point will not be lost and is automatically saved.
2. Remove the rear battery cover.
3. The battery and battery clip may be extended from the battery compartment to facilitate replacement.
4. If you are replacing the battery remove the discharged battery from the battery clip and dispose of properly. **Allow at least one minute to elapse before attaching a new battery. Failure to do so will result in the logger not resetting properly and the logger will not function.**
5. Line up the connector of the new battery and push onto the pins of the battery clip with a firm fluid motion. It is important not to make repeated momentary contact, as this will cause a reset failure in the logger. **Do NOT reverse the battery connection, even momentarily, as this can result in loss of data or permanent damage to the logger.**
6. Place the battery in the battery compartment of the Data Logger.
7. Replace the battery cover.
8. Test the logger by closing the door and observing that the LED begins flashing within 5 seconds of the door being closed. If the LED does not flash or the LED stays on constantly go back to step 4 and repeat the replacement procedure.

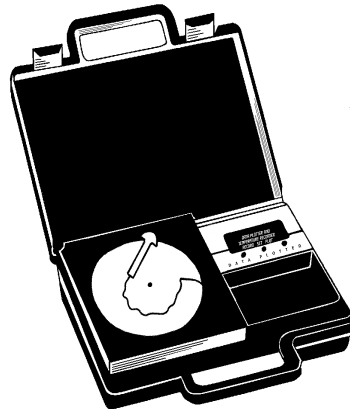
Once the battery has been replaced it will be necessary to reset the logger's internal clock. Refer to the section **Setting the Data Logger** for instructions on how to do this.

DLAV PRODUCT SPECIFICATIONS

Ambient Operating Temperature Range	+10°F to +150°F (-12°C to +65°C)
Storage Temperature	-40°F to +170°F (-40°C to +76°C)
Time Accuracy	+/- 100ppm @ 75°F
Voltage Range	0 to 450VAC
Voltage Resolution	0.15VAC
Voltage Accuracy	+/-1 VAC
Memory Capacity	16,000 Data Samples
Size	2.5" x 3.6" x 1.1"
Weight	0.26 lbs.
Power Source	9 Volt Alkaline Battery (Not Supplied)
Battery Life	1 Year (Average)

DP3 DATA PLOTTER

The SUPCO DP3 is an optional accessory instrument that allows the user to retrieve data and program SUPCO data loggers in the field without the need of a computer. Using the DP3 you can plot recorded information from a data logger or change the settings of a data logger prior to making a different data recording. The DP3 can be operated from batteries or from the supplied AC adapter. The DP3 uses a series of structured menus to provide a user friendly intuitive style of operation. The DP3 also serves as a conventional temperature recorder similar to the popular SUPCO CR87 series of temperature recorders.



DATASTOR

The DataStor is a battery powered, hand-held instrument that allows the user to retrieve and store recordings made with any of Supco's data loggers. The user can then transfer the stored recordings to a PC or print them on the spot to virtually any parallel printer without using a PC. The DataStor can save up to 31 full recordings from any of Supco's data loggers. Each recording is individually numbered and the user can transfer a single recording or all of the saved recordings to a PC using the software supplied with every data logger. An alphanumeric display and structured menu's provide easy intuitive operation.

