

# DEVAR Inc.

706 Bostwick Ave., Bridgeport CT 06605

Tel 203 368 6751 Fax 203 368 3747

<http://www.devarinc.com> e-mail: [devarinc@worldnet.att.net](mailto:devarinc@worldnet.att.net)

## INSTRUCTION MANUAL 990650 AC CURRENT LOGGER MODEL LIAC

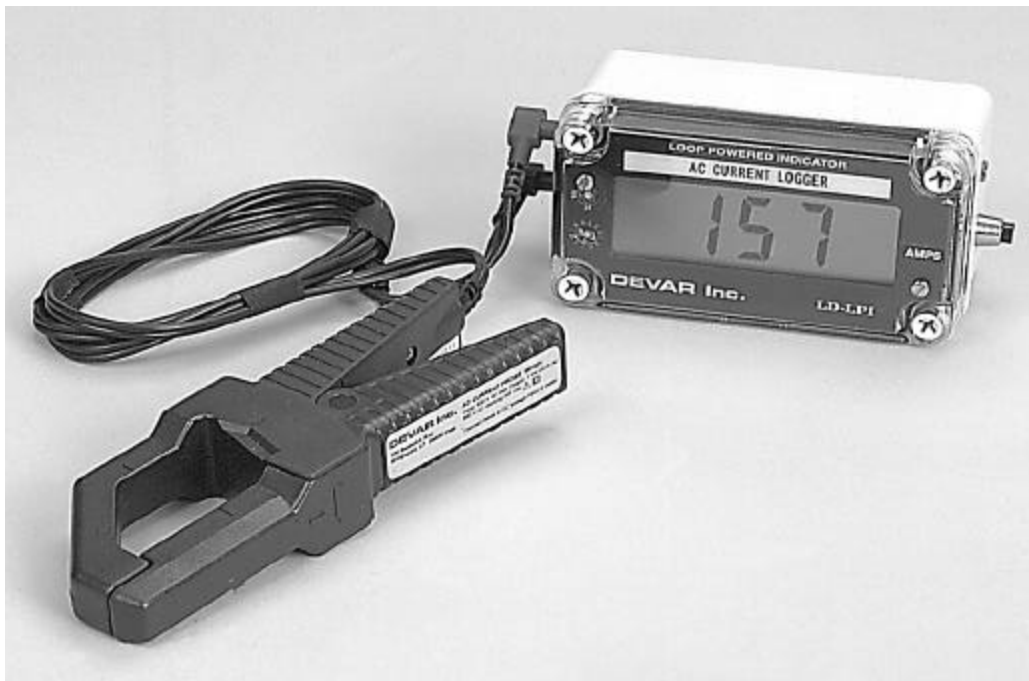


TABLE OF CONTENTS

	Page
1.0 General description.....	3
2.0 Using the Smart Chart II data logger.....	3
3.0 Monitoring current with the LIAC current logger.....	4
4.0 Downloading data into the computer.....	5
5.0 Calibration.....	5
6.0 Specifications.....	6

ATTACHMENTS

1. Technical bulletin: Model LIAC Logging Indicator.....	990051-0001
2. Help Contents for Software Program.....	Smart Chart II
3. Technical bulletin: Smart Chart II.....	990018-0003
4. Technical bulletin: MD301 AC Current Probe.....	MD301

1.0 General Description

The Model LIAC AC Current Logger consists of a clamp on current probe, a three digit liquid crystal display, a data logger and a plug in power supply. The MD301 clamp on current probe produces a 0 to 500 mV DC output which is proportional to 0 to 500 amps AC. The millivolt output from the probe is applied to the input jacks of the LIAC. The measured current is displayed in amps on the 3 digit display at the front of the unit. As data is displayed it is also being recorded by the Smart Chart II-8K data logger, which can record up to 8192 data points.

The Smart Chart II data logger can be allowed to record data for any length of time with out fear of overflowing its memory. This is accomplished through the use of time extension recording. The logger initially records data at its highest sampling rate. Each time the memory is filled the logger doubles the sampling interval and discards every other previously recorded data point. In this way the logger is always sampling at the optimum rate for the length of the recording session.

The LIAC can be powered from the internal 9 volt battery or it can be AC powered using the external 9 volt power pack .The power pack plugs into the jack located next to the on-off button located on the side of the LIAC. The Smart Chart II data logger is powered from it's own internal battery.

## 2.0 Using the Smart Chart II Data Logger

To operate the LIAC first push the on button on the side of the unit. The LIAC will now display the current being sensed by the current probe. To begin logging data, press the button on the front of the Smart Chart II data logger. The LED will produce double flashes and the logger will begin to record data. Once data is recorded, press the button a second time to put the logger into the standby mode. The LED will now produce single flashes. In this mode, the logger does not record new data but retains the previously recorded data until it can be downloaded into the computer. Holding the button down for several seconds, while in the standby mode, puts the logger into the sleep mode and the LED will stop flashing. The logger must never be put into the sleep mode before the stored data is downloaded into the computer.

To download data to the computer, plug the RS232 cable into the Smart Chart II jack, labeled PC. From the Smart Chart II software open the *Function* window and select *4 to 20 mA*. Set 4 mA to 100, 20 mA to 500 and units to AMPS, see figure 1. From the main menu select *Download*. The data is downloaded from the Smart Chart II into the computer, however, the data is not saved in the computer until you save it. To save the data go to *File* and then select *Save as TXT*. Enter the new file name and the file location and then click on *OK* to save the data.

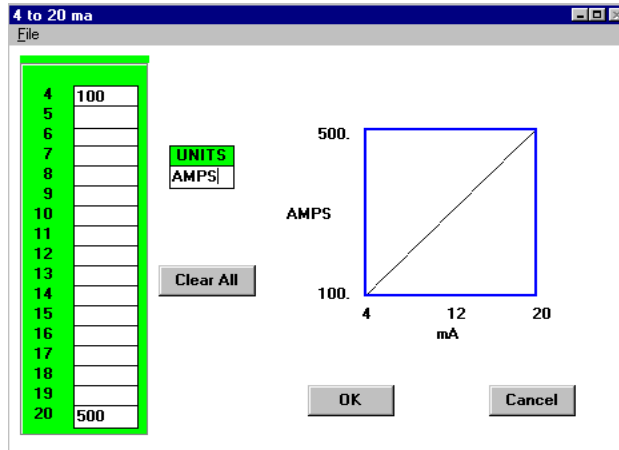


Fig.1: 4 to 20 mA function window

### 3.0 Monitoring current with the LIAC Current Logger

The following section describes the procedure to be followed when using the LIAC Current logger. For proper operation, each step should be performed in the proper sequence as listed below.

1. Attach the clamp-on current probe to the logger.
2. Clamp the probe around the conductor being monitored.
3. Push the on-off button to apply power to the current logger.  
( at this point the display comes on and the AC current is displayed )
4. To enter the recording mode, push the button on the front the Smart Chart II.  
( the LED will begin double flashing and the logger will begin to record data )
5. To end the recording session, put the Smart Chart II into the standby mode by pressing the Smart Chart II button a second time.  
( the LED will now single flash and recording will stop )
6. Unclamp the current probe from around the conductor.
7. Push the on-off button to turn off power to the current logger.

#### CAUTION:

1. Remember to put the Smart Chart II into the standby mode at the end of the recording section. If the logger is not put into the standby mode it will continue to record useless information. Also remember that if the logger is left in the recording mode the time scale will continue to expand, causing a loss of valid data points.
2. Never put the Smart Chart II into the sleep mode before data is downloaded into the computer. If the Smart Chart II is put to sleep before the data is saved the data will be lost.

### 4.0 Downloading data into the computer

1. Connect the Smart Chart II to the serial port of the computer using the provided cable.
2. Start the Smart Chart II software.
3. Go to *Function* on the main menu bar and select *4 to 20 mA*. Set 4 mA to 100, 20 mA to 500 and units to AMPS, see figure 1.
4. Go to *Download* on the main menu bar and download the data into the computer.
5. Go to *File* on the main menu bar and select *Save As TXT*.
6. Enter a file name and the destination for the data and then save the data to the hard drive.
7. The Smart Chart II can now be put into the sleep mode.

## 5.0 Calibration

The LIAC current logger has been calibrated at the factory and should not need to be recalibrated. However the standard calibration procedure is as follows:

1. Disconnect the clamp on probe from the LIAC.
2. Connect a millivolt source to the jacks at the side of the LIAC ( + red , - black ).
3. Start the Smart Chart software and connect the Smart Chart to the computer.
4. Go to *Function* and configure the software for a standard 0 to 500 amp input, see procedure above.
5. Turn the LIAC on by pushing the on-off button on the side of the housing. The liquid crystal display will turn on displaying a three digit number.
6. Input 0 mV into the LIAC.
7. Put the Smart Chart into the read mode. The real time data will appear in red on the computer screen.
8. If the real time data does not read 0.0 adjust the single turn pot inside of the Smart Chart until it does. CAUTION steps 5, 6, 7 and 8 must be performed in proper sequence, if you fall out of sequence, put the Smart Chart into the sleep mode and start over
9. Input 500 mV into the LIAC.
10. Adjust the "cal. pot." until 500.0 is displayed on the computer screen. The "cal. pot." is located on the P.C. board behind the cover of the LIAC, see figure 2.
11. Input 0 mV into the LIAC.
12. Adjust the "zero pot." until 000 is displayed on the front of the LIAC.
13. Input 500 mV into the LIAC.
14. Adjust the "span pot." until 500 is displayed on the front of the LIAC.

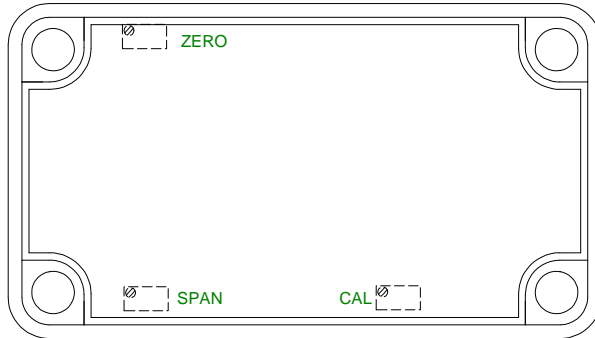


Figure 2: Potentiometer location

## 6.0 Specifications

1.	Input Range (clamp on probe).....	2 to 500 Amp AC
2.	Input Range (logger unit).....	0 to 500mV DC
3.	Display Range.....	0 to 500 Amp
4.	Accuracy (clamp on Probe).....	± 5 % @ 25 Amp
		± 2 % @ 100 Amp
		± 1 % @ 250 Amp
		± 1 % @ 500 Amp
5.	Accuracy (logger).....	± 1 % of span
6.	Accuracy (display).....	± 2 counts
7.	Memory.....	8192 data points
8.	Sampling Interval.....	Initially 0.879 sec.
		(Doubles each time memory fills)