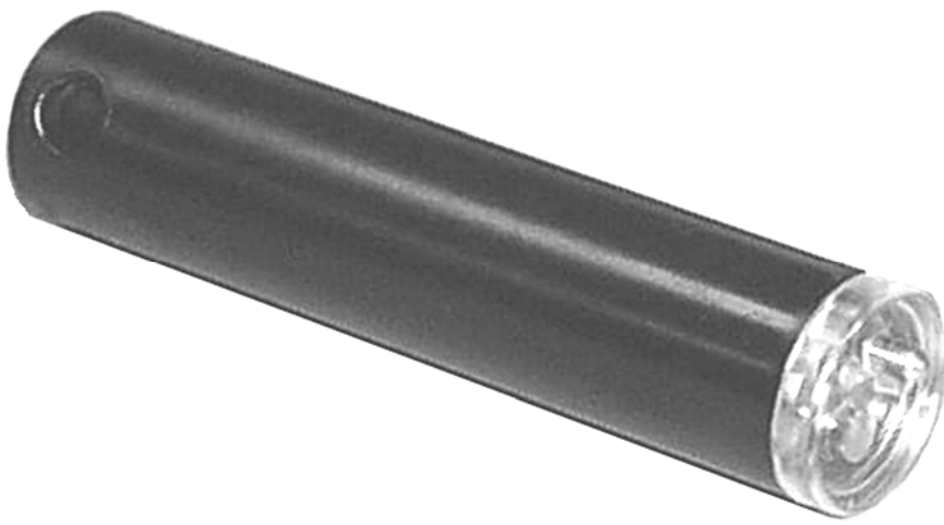


MINILOG MANUAL

V3.09



December 9, 2011

AMIRIX Systems Inc.
Warranty and Disclaimer

WARRANTY

AMIRIX Systems Inc., doing business under its trade name VEMCO, provides a one (1) year warranty period for the Product from date of shipment.

VEMCO warrants that on the date of shipment all Products manufactured by VEMCO are free from defects in material and workmanship under normal use and service. This warranty applies to the components necessary for equipment upgrades, i.e. the VR1/VR2 to VR2W upgrade. With respect to transmitter products, while VEMCO is able to predict battery life with some certainty, VEMCO cannot guarantee that these Products will remain functional while submerged for extended periods of time. This warranty does not apply to any equipment, materials or design supplied by Buyer or a third party; re-battery services provided by VEMCO; Products for which VEMCO has not received payment; problems that results from: external causes such as accident, abuse, misuse; servicing not authorized by VEMCO; usage not in accordance with Product instructions; failure to follow the Product instructions or failure to perform preventative maintenance; usage of accessories, parts or components not supplied by VEMCO.

This warranty shall survive delivery only on the conditions and subject to the limitations set forth below.

NOTICE PERIODS

To receive a warranty remedy for a Product, Buyer must contact VEMCO's Customer Support Department during the warranty period to receive the Return Material Authorization ("RMA") instructions. Each defective Product returned for warranty remedy must be shipped at the Buyer's expense according to the RMA instructions and must include reasonable proof that the claimed defect is due to a matter embraced within the warranty set forth above and that such defect did not result from any act or omission of Buyer, including but not limited to any failure to operate and maintain the Product in accordance with VEMCO's applicable written instructions.

REMEDY

VEMCO's liability, and the Buyer's exclusive remedy under this warranty, as to a defect in material or workmanship, is limited to the repair of such defect in the accessory, equipment or part in which the defect appears or, at VEMCO's option, to the replacement of such accessory, equipment or part with a similar item free from defect. As to any item repaired by VEMCO or furnished as a replacement by VEMCO, VEMCO's liability and the Buyer's exclusive remedy to the repair or replacement of such item for any further defect in material or workmanship, provided VEMCO receives written notice at Halifax, Nova Scotia, of such further defect from BUYER within ninety (90) days after the repaired or replaced item is shipped to BUYER and provided that BUYER returns same to VEMCO as provided under "Notice Periods".

RETURNED ITEMS

All repairs, replacements and corrections described above shall be performed by VEMCO at its plant at Halifax, Nova Scotia, or at such other place as may be mutually agreeable, and with reasonable care and dispatch in order that the Product, accessory, equipment or part will not be kept out of service longer than necessary. Return to BUYER of a repaired, replacement, or corrected accessory, equipment, part or Product shall be at VEMCO's expense. Title to and risk of loss of the Product, accessory, equipment, or part returned to VEMCO pursuant hereto shall at all times remain with the BUYER, except that title to a returned accessory, equipment, part, or Product shall pass to VEMCO concurrently with shipment to BUYER of any item furnished by VEMCO to BUYER as a replacement therefore. VEMCO shall have only such responsibility for any Product, accessory, equipment, or part owned by the BUYER and in the possession of VEMCO as is chargeable by law to a bailee for hire, but shall not be chargeable for loss of use thereof.

WEAR AND TEAR

Normal wear and tear and the need for regular maintenance shall not constitute a defect under this warranty.

DISCLAIMER AND RELEASE

THE WARRANTIES, OBLIGATIONS AND LIABILITIES OF VEMCO AND THE REMEDIES OF BUYER SET FORTH HEREIN ARE EXCLUSIVE AND IN SUBSTITUTION FOR, AND BUYER HEREBY WAIVES AND RENOUNCES, ALL OTHER WARRANTIES AND OBLIGATIONS OF VEMCO AND ANY ASSIGNEE OF VEMCO AND ALL RIGHTS, CLAIMS AND REMEDIES OF BUYER AGAINST VEMCO, EXPRESS OR IMPLIED, ARISING BY LAW OR OTHERWISE, WITH RESPECT TO ANY NON-PERFORMANCE OR DEFECT IN THE PRODUCT OR IN ANY OTHER THING DELIVERED UNDER THIS AGREEMENT, INCLUDING BUT NOT LIMITED TO:

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EXPORT

Products and associated materials supplied or licensed hereunder may be subject to various export laws and regulations. It is the responsibility of BUYER to comply with such laws and regulations.

NEGOTIATED AGREEMENT

It is fully understood by the parties that the price of the Product and other mutual agreements of the parties set forth in this agreement were arrived at in consideration of this warranty, SPECIFICALLY INCLUDING THE WAIVER, RELEASE AND RENUNCIATION BY BUYER SET FORTH ABOVE (DISCLAIMER AND RELEASE).

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MINILOG DATA LOGGERS

INTRODUCTION

The VEMCO Minilog-T is a miniature data logger that records temperature at a user programmed time interval. The Minilog-TD is a miniature data logger that records both temperature and depth. The data recorded in the Minilog can be uploaded and plotted using the Minilog-Windows-PC interface, an IBM/PC/AT computer, and the Minilog software.

Features

- Housed in a waterproof cylinder.
- Offloads data to an IBM/PC/AT computer with wireless infrared light interface.
- No end caps to open, or connectors needed, to read data.
- Time delayed activation.
- Up to five years of battery life.
- Up to 20 years of data retention.
- Temperature sensor mounted in a protruding stainless probe.
- Three temperature scales available
- Six full scale depth sensor options available.

NOTE: For detailed instructions on any points in the Minilog manual see the Help file in the Minilog software (topic names are included in brackets). For details on using the Help file, see the Help section of this manual.

COMPUTER SETUP

System Requirements

Minilog is a Windows©95/NT/98SE/2000/XP/Vista based software application that can be executed on any IBM compatible personal or mobile computer with the following configuration:

Minimum Pentium Processor, 100MHz
Minimum 512 kilobytes Video RAM
Minimum VGA Monitor 16 Colour (600 x 800 pixel)
CD drive for program installation
One serial port for Minilog-Windows-PC interface (required)

Software Installation

Minilog is a Windows©95/NT/98SE/2000/XP/Vista application. VEMCO assumes customer familiarity with Windows 95© terminology. Follow the steps listed below to install the MinilogPC software.

- Step 1: Insert the Install compact disc into the computer's CD drive.
- Step 2: From the Start menu in Windows©95/Windows NT©, select Run.
- Step 3: Type D:\MinilogSetup.exe (Assuming D is the name of the CD drive).
- Step 4: Follow the on-screen instructions.

Connect Minilog-Windows-PC Interface to Computer

Connect the DB-9 connector, found on the cable from the Minilog-Windows-PC Interface, to a serial port on the IBM/PC/AT computer to be used. If more than one serial port is available, note the number of the serial port (also known as a com port) being used. This information will be required by the Minilog software.

HARDWARE

Minilog

The Minilog is a microprocessor controlled data logger that stores data to internal Electrically Erasable Programmable Read Only Memory (EEPROM). The Minilog uses a lithium cell battery, which can power the logger for up to 5 years or approximately 1000 deployments. The temperature and depth readings are taken with an 8 bit Analog to Digital (A/D) converter.

The Sample Period within a study can range from 1 second to 6 hours. This value is set when a new study is initialized (see New Study) and determines the length of the study, which may be between 2¼ hours and 5 years. Data is stored in the internal EEPROM, which has a data retention of 20 years. Data is read from the Minilog by a personal computer interface (Minilog-Windows-PC) using infrared light.

Minilogs are available in two general types. The TR Minilog records temperature only, while the TDR version records both temperature and depth.

Minilog12

The Minilog12 is similar to the Minilog, but uses a 12 bit A/D converter instead of an 8 bit converter. It has a standard memory of 16 kbytes.

Minilog-Windows-PC

Minilog-Windows-PC includes an interface unit, three feet of cable, and Windows©95 software that runs on IBM/PC/AT or compatible computer. The software is provided on a 3½ inch diskette. The internal 9 volt battery is user replaceable. The Minilog-Windows-PC has three indicator LED lights, two show the progress of data communication with the Minilog and the third indicates when the 9 volt battery voltage is low.

The Minilog-Windows-PC is activated only when communicating with the Minilog program. For this reason, the battery low LED will appear to flash on and off when the battery is low.

NOTE: The Minilog-Windows-PC (for use with the Windows software) contains different internal hardware than the Minilog-PC (for use with the DOS software). The DOS software will function with either reader, but the Windows software will only function with the Minilog-Windows-PC.

USING MINILOGS

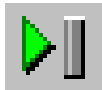
Setting Up For the First Time

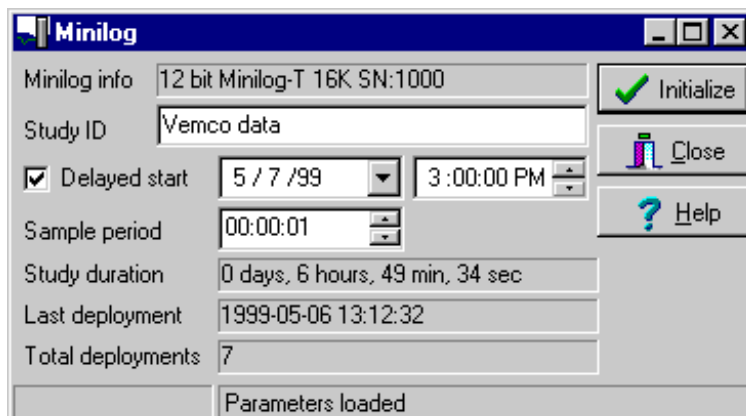
The following list need only be used when first setting up a computer for use with the Minilog software. The Minilog software will save any changes when the program is closed.

1. Install the Minilog software in the desired directory (see *Software Installation* section of this manual).
2. Open the Minilog software. Set the data directory (see *Data directory*), com port number (see *Com port*), and units (see *Units*).
3. Ensure that the Minilog-Windows-PC has been properly connected to the computer's com port (see *Connect Minilog-Windows-PC Interface to Computer* section of this manual).
4. Insert a Minilog into the Minilog-Windows-PC receptacle.
5. Load the test data from the Minilog (see *Load data*). Each Minilog is shipped with test data stored in its memory.
6. View the data, if desired. Data can be viewed as either a graph (see *Graph*) or an ASCII file (see *Create an ASCII file*).

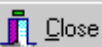

Using a Minilog

1. Initialize Minilog:

- a. Run Minilog Windows software.
- b. Place the Minilog in the cup in the top of the Minilog Windows PC computer interface so the serial number on the back of the Minilog is facing up.
- c. Rotate the Minilog in the interface until the silver temperature sensor drops into the guide hole in the interface. The serial number on the Minilog should be in the same orientation as the text on the top of the interface.
- d. Click the *Initialize Minilog* button with the green arrow, shown here on the right. The software will communicate with the Minilog and display the Minilog information in the Minilog window (see below). 
- e. Enter the study identification, delayed start date (optional), and the sample period.
 - i. **Study ID** - Enter any identification that will help keep track of the data.
 - ii. **Delayed start** - If the delayed start box is not checked, the Minilog will begin recording data as soon as the initialization is completed. If the box is checked, the Minilog will not begin recording data until the date and time specified (see *Minilog Help* for additional information).
 - iii. **Sample period** - Select the length of time between data readings. The *Study duration* line directly below the *Sample period* will reflect the time required to fill the memory given the chosen sample period.
- f. Click the *Initialize* button in the top right corner (with a green checkmark).
- g. Wait while the Minilog is initialized. A prompt will appear informing you that the Minilog is initialized.
- h. Remove the Minilog from the computer interface. NOTE: Do not communicate with the Minilog again until the data is collected. Any communication will take the Minilog out of recording mode (stop the study).



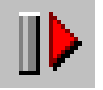
The screenshot shows the 'Minilog' software window with the following fields and controls:

| | | | |
|---|---------------------------------|---|--|
| Minilog info | 12 bit Minilog-T 16K SN:1000 | <input checked="" type="checkbox"/> Initialize | |
| Study ID | Vemco data |  Close | |
| <input checked="" type="checkbox"/> Delayed start | 5 / 7 /99 | 3:00:00 PM |  Help |
| Sample period | 00:00:01 | | |
| Study duration | 0 days, 6 hours, 49 min, 34 sec | | |
| Last deployment | 1999-05-06 13:12:32 | | |
| Total deployments | 7 | | |
| Parameters loaded | | | |

2. Collect Data:

- a. Deploy the Minilog as desired. The temperature sensor is in the silver point protruding from one end of the Minilog. The pressure sensor (if applicable) is the silver disc next to the temperature sensor. **WARNING:** Do not deploy the Minilog to a depth greater than the pressure sensor's rated depth or the sensor will be damaged.
- b. Retrieve the Minilog when data collection is complete.
- c. Dry the Minilog completely to prevent any water from coming in contact with the electronics in the computer interface.

3. Load data from Minilog:

- a. Run Minilog Windows software.
- b. Place the Minilog in the Minilog Windows PC computer interface as described in Steps 1.b and 1.c.
- c. Click the *Load data from Minilog* button with the red arrow, shown here on the right. The software will communicate with the Minilog and begin to download the data from the Minilog's memory. 
- d. Wait while the data is downloaded from the Minilog. A bar in the bottom left corner of the *Downloading data* window shows the progress of the download.
- e. Select the YES button when prompted if you want to view the graph of the data.
- f. Remove the Minilog from the computer interface.

USING THE HELP FILE

Help can be accessed by clicking on an available Help button within a window, by selecting *Help topics* in the *Help* menu, or by pressing the F1 key.

Help Topics

Contents

To select a general topic for overall help, use the *Contents* feature. Open a topic by double clicking on the book symbol next to the name, or on the name itself. A list of sub-topics will appear to choose from. Double clicking on one of these sub-topics will open the help topics related to that general topic.

Index

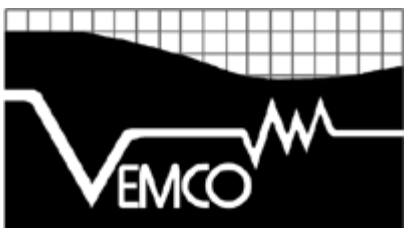
To select a specific topic, use the *Index* feature, which will display the complete list of topics in the help file. To select a topic, either move through the list (using the arrow keys or the scroll bar) until the desired topic is highlighted, or type the name in the box at the top of the window. Once the topic is highlighted, either select *Display* at the bottom of the window, or double click on the topic name.

Find

To search for a specific word within a topic use the *Find* feature. Follow the on-screen instructions. A list of topics containing the desired word is listed in the third box from the top. Select a topic and click the *Display* button at the bottom of the window.

Printing from a Help file

To print a topic within the Help file, open the desired topic and select *Print* at the top of the window.



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