

FIELD READER USER MANUAL



*How to use the VEMCO Field Reader
and LoggerVUE software.*



www.vemco.com

23 Jul 2013

DOC-4762-11

Table of Contents

| | | |
|----------|--|-----------|
| 1 | Introduction | 3 |
| 2 | Getting Started | 4 |
| 2.1 | Connect VEMCO Field Reader to PC | 4 |
| 2.2 | Change Minilog Adapters | 4 |
| 2.3 | Configure VEMCO Field Reader | 5 |
| 2.4 | Initialize Minilog Prior to Deployment | 6 |
| 3 | Data Related | 7 |
| 3.1 | Offload Minilogs to Reader in the Field | 7 |
| 3.2 | Copy Data From VFR to PC | 8 |
| 3.3 | Offload Minilogs Directly to PC | 9 |
| 3.4 | View Data Files in LoggerVUE | 10 |
| 3.5 | Export Charts to Other File Formats | 11 |
| 4 | VFR Status Lights | 12 |
| 5 | Additional Information | 14 |
| 5.1 | VFR Battery Instructions | 14 |
| 5.2 | VFR Cleaning and Storage Instructions | 15 |
| 5.3 | VEMCO Minilog Lens Cleaning Instructions | 15 |
| 6 | Troubleshooting | 16 |
| 6.1 | Field Reader Troubleshooting | 16 |
| 6.2 | LoggerVUE Troubleshooting | 17 |
| 7 | Appendix | 17 |
| 7.1 | Contact Information | 17 |
| 7.2 | VEMCO Field Reader (VFR) Specifications | 18 |
| 7.3 | Minilog-II-T data logger Specifications | 19 |
| 7.4 | Warranty and Disclaimer | 20 |

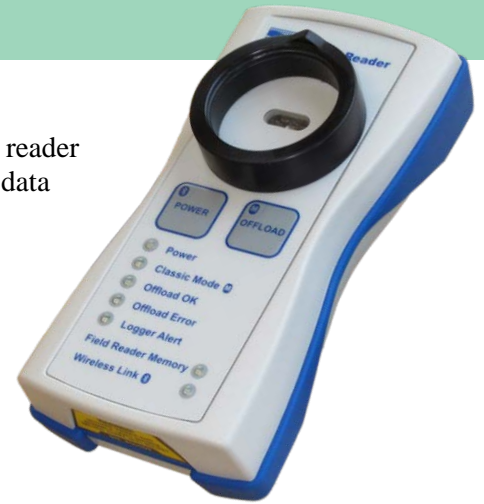
© (2013) AMIRIX Systems Inc. All rights reserved. The information contained herein includes information which is confidential and proprietary to AMIRIX Systems Inc. and may not be used or disclosed without prior written consent of AMIRIX Systems Inc.

The *Bluetooth*® word mark and logos are owned by the Bluetooth SIG, Inc. and any use of such marks by AMIRIX Systems Inc. is under license. Other trademarks and trade names are those of their respective owners.

1 Introduction

The autonomous VEMCO Field Reader is a rugged, water resistant, handheld reader that allows you to offload data in the field from the Minilog-II-T temperature data logger and all existing VEMCO Minilog data loggers and copy later to your computer.

The VEMCO Field Reader uses LoggerVUE PC Software to initialize, configure and upload data from all VEMCO Minilog data loggers. LoggerVUE boasts enhanced graphing which allows for the overlay of many loggers' data onto the same graph. LoggerVUE also has the ability to export graphs to many formats (PDF, JPG, PNG, CSV, etc.).



Features:

- Reader alerts user if the data logger battery or memory is low (Minilog-II-T only)
- Bluetooth® wireless technology enables high speed data uploads to your PC
- Storage capacity for up to 100s of data loggers
- Reader operating temperature range of -10°C to 40°C
- Water resistant to IP-x4 standard (splash proof)
- Three replaceable AA batteries good for 100s of uploads (up to 1000s depending on study size)
- The VEMCO Field Reader and Logger VUE PC Software work with all VEMCO Minilog data loggers. Logger VUE requires Windows XP SP3, VISTA, Win 7, or Win 8 operating system.



VEMCO Field Reader (center) with the Minilog-Classical and Minilog-II loggers and their adapters.

VEMCO strongly recommends you use alkaline batteries in your VEMCO Field Reader. Your Reader requires three 'AA' batteries.

The VEMCO Field Reader is housed in a splash proof case (IP-x4). Store it in a dry location when not in use.

2 Getting Started

2.1 Connect VEMCO Field Reader to PC

The VEMCO Field Reader (VFR) is connected to a PC to initialize a Minilog or to transfer data. The steps required are listed below; the first two steps may not be required for every communication.

1. Install the VEMCO LoggerVUE software on your PC by running the setup.exe file which is included on your products CD (LoggerVUE software download is also available at www.vemco.com).
2. Attach the VEMCO supplied Bluetooth® USB adapter (may not appear as shown) to any USB port on your PC. If the “Found New Hardware Wizard” window opens, which may happen if your PC uses Windows XP or Vista, then select “Cancel” and continue with these instructions.

If you are using Windows XP or Vista, then you must install LoggerVUE 1.2.0 or greater for the proper adapter drivers. Windows 7 and greater have the necessary drivers installed.



3. Press and hold the Reader’s Power button until the Wireless Link LED starts to flash. Select the ‘Scan for new VEMCO Field Reader’ from the Icon Toolbar in the lower left corner and click ‘Start Scan’. Highlight the Reader in the window you wish to connect to and click ‘Select Reader’.
4. Connecting may take several seconds. When LoggerVUE is connected to the Reader, the Reader’s Wireless Link LED will be solid green. All of the icons on the Icon Toolbar will be enabled and the LoggerVUE connection indicator will be solid green (circle lower right). Note that LoggerVUE will automatically reconnect to the last reader used.

Note: Always ensure your Reader and PC clocks are synchronized. This is done in the VEMCO Field Reader Configuration dialog box.

2.2 Change Minilog Adapters

The Field Reader can be altered to accommodate both the Minilog-Classic and the Minilog-II. This alteration involves attaching the correct adapter to the face of the Field Reader, as described in the steps below.

To attach either the Minilog-Classic or Minilog-II adapter, align the ‘Vs’ and snap into place (see photo at right).

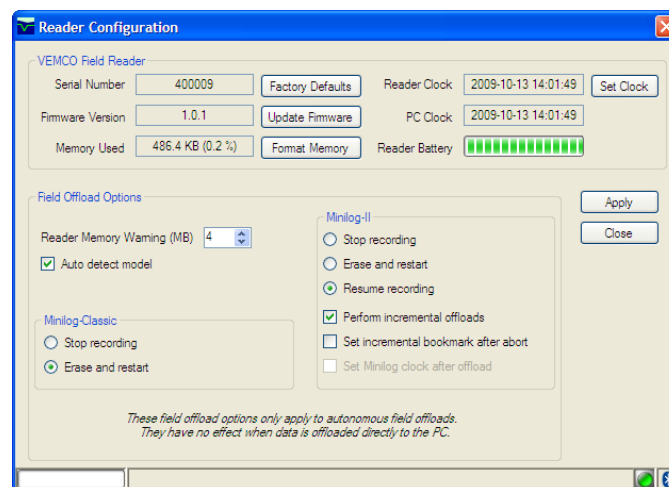
To remove the adapter, twist and pull off.



2.3 Configure VEMCO Field Reader

Although your VEMCO Field Reader comes configured from the factory, you have the option to change the configuration settings using LoggerVUE software.

1. Run the 'Connect VEMCO Field Reader to PC' procedure (see section 2.1). Select 'Configure the VEMCO Field Reader' from the Icon Toolbar to bring up the Reader Configuration dialog box.
2. To synchronize your Reader clock with your PC clock, set your PC clock to the correct time then select 'Set Clock'.
3. If reconfiguring your Reader for remote offloads of your Minilogs, change the Field Offload Options and select 'Apply'. Note that these settings apply only to Minilogs offloaded autonomously in the field. The settings have no effect on Minilogs offloaded directly to PC.
4. The Minilog-Classical is set by default to erase the data that was just offloaded in the field and restart recording using the same study parameters set during the Minilog's original initialization process. The other option is to 'Stop recording'. The Minilog-II is set by default to resume recording without erasing the offloaded data. The other options are to 'Stop recording' or 'Erase and restart'.
5. The Reader is also set by default to perform incremental offloads of the Minilog-II-T data logger (not supported for the Minilog-Classical) in which all data since the last upload is uploaded to the Reader. This can be changed in the Reader Configuration dialog box.



2.4 Initialize Minilog Prior to Deployment

Initializing a Minilog allows you to personalize parameters such as the time the Minilog will start recording data, how often it will make those recordings, and how long it will take recordings. To initialize a Minilog, follow the steps listed below.

1. Attach the Minilog-Classic or Minilog-II adapter and follow the ‘Connect VEMCO Field Reader to PC’ procedure (see section 2.1).
2. When the Reader is connected via *Bluetooth* to LoggerVUE, insert the matching Minilog into its adapter.
3. From the Icon Toolbar, select the ‘Initialize Minilog-Classic’ icon or ‘Initialize Minilog-II’ icon. Set your study parameters and select ‘Initialize’. Note that the Minilog-II dialog box also has an Extended Options tab.
4. The LED at the bottom of your Minilog will blink to indicate the Minilog is now initialized and ready for deployment. The various LED blink patterns indicate the following:
 - For both the Minilog-Classic and the Minilog-II:
 - a ten (10) second blink rate means the study is in active sampling mode
 - a five (5) second blink rate means the study is in delayed start mode
 - For the Minilog-II only:
 - a one (1) second blink rate for 60 seconds means a new study has just been started

If a start time is not specified, then sampling will be aligned to the beginning of Unix time (1970-01-01 00:00:00).

If the start time is set in the past, sampling begins immediately but remains aligned to the start time.

Initialize Minilog-Classic:

Initialize Minilog-II:

If the “Enable Multiple Loggers” option is checked, a dialog box will appear asking the user if they would like to initialize another Minilog with the same settings as the Minilog that was just initialized.

Minilog Blink Patterns

- Ten (10) second blink rate = the study is in active sampling mode
- Five (5) second blink rate = the study is in delayed start mode
- One (1) second blink rate for 60 seconds = a new study has just been started (Minilog-II only)

3 Data Related

3.1 Offload Minilogs to Reader in the Field

The ability to offload the data from a Minilog without needing a PC in the field makes collecting data much easier. To offload the data to the VEMCO Field Reader, follow the steps below.

1. Attach the Minilog-Classic or Minilog-II adapter and power on the Reader.
2. Insert the matching Minilog into its adapter.
3. Press offload. While data is offloading, the Offload OK LED will be flashing. When the offload is complete, this LED will remain on.
4. Repeat with remaining data loggers.
5. After offloading data to your Reader in the field, the Minilog-Classic is set by default to erase the data that was just offloaded and restart recording using the same study parameters set during the Minilog's original initialization process. The Minilog-II is set by default to resume recording without erasing the offloaded data. You can change these settings in the Reader Configuration dialog box by selecting 'Configure the VEMCO Field Reader' from the Icon Toolbar.



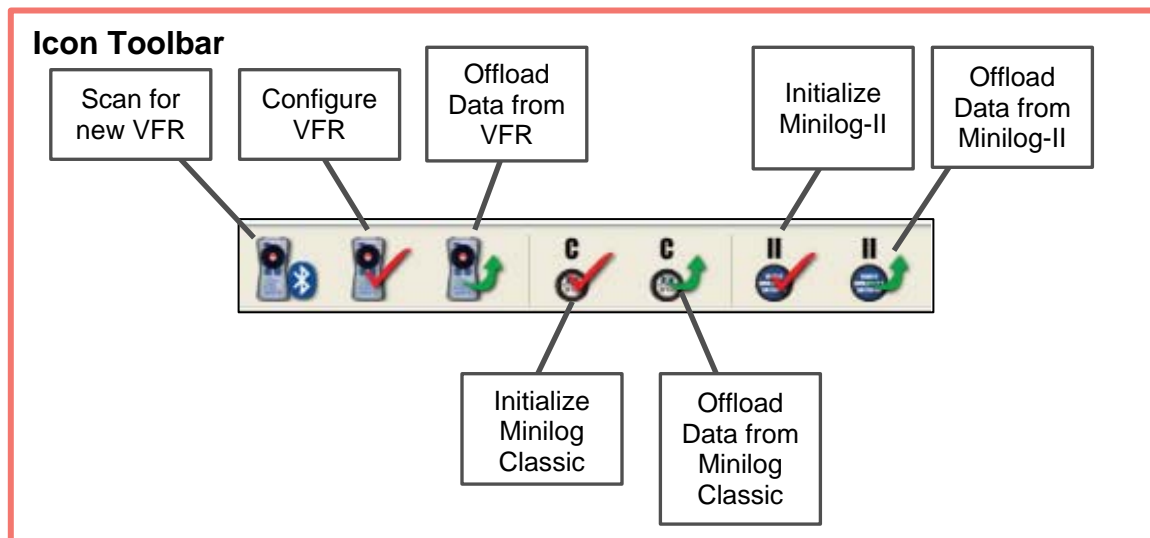
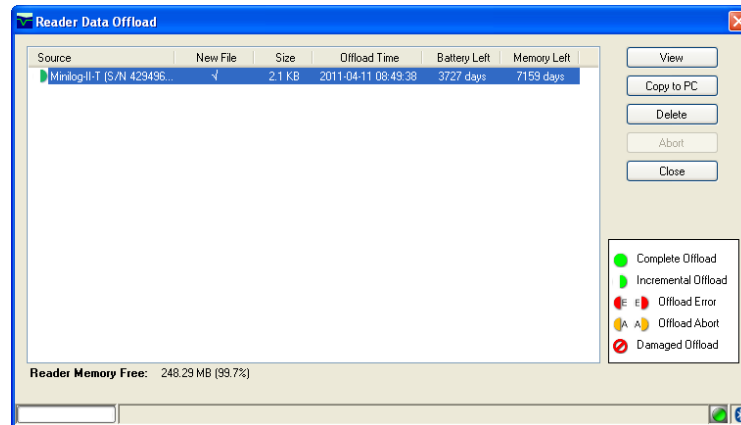
3.2 Copy Data From VFR to PC

Data that has been gathered to the VEMCO Field Reader needs to be copied to the PC using the LoggerVUE software. Follow the steps listed below to make this transfer.

1. Follow the 'Connect VEMCO Field Reader to PC' procedure (see section 2.1).
2. From the Icon Toolbar, select the 'Offload Data from the VEMCO Field Reader' icon. In the Reader Data Offload dialog box (see figure on following page), highlight the files you want to copy to your PC then select 'Copy to PC'. The file is stored on your computer once the green symbol disappears from the beginning of the file name. Battery life and memory capacity remaining in Minilog-II-T data loggers are also captured with each Minilog-II-T download file. Note that LoggerVUE cannot show battery life or memory capacity remaining for the older Minilog-Classics.



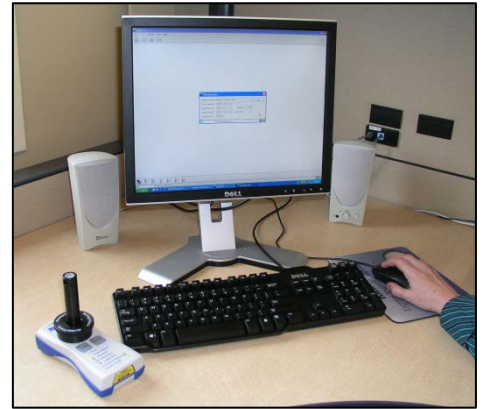
Regardless of the offload method (remote or direct), all files are saved to a default directory on your PC under My Documents/VEMCO/LoggerVUE. You can change the default directory in the Tools Menu, by selecting 'Options' and then 'Files'.



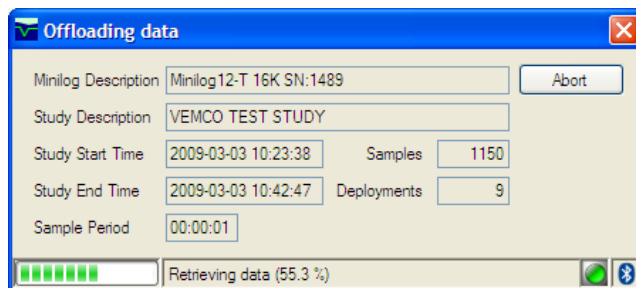
3.3 Offload Minilogs Directly to PC

You can use your Reader as an interface to transfer files directly from your Minilogs to your PC.

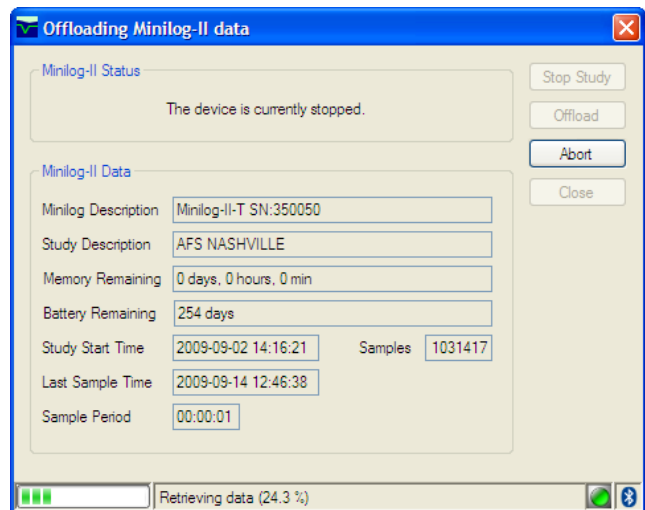
1. Attach the Minilog-Classic or Minilog-II adapter and run the 'Connect VEMCO Field Reader to PC' procedure (see section 2.1).
2. Insert the matching Minilog into the adapter. From the Icon Toolbar, select 'Offload Data from a Minilog-Classic' or 'Offload Data from a Minilog-II'.
3. After offloading your Minilog data, you may choose to view your data right away. Whether you select 'Yes' or 'No', you will then be prompted to 'Stop' or 'Restart' the recording for the Minilog-Classic. For the Minilog-II, you will be asked to 'Stop', 'Restart' or 'Continue' the recording. If you are not redeploying right away, select 'Stop'. If you are redeploying soon, make another selection other than 'Stop' and the 'Initialize Minilog' dialog box will appear with that Minilog's most recent study parameters. You may 'Initialize' using these parameters or set new ones and then 'Initialize'.



Regardless of the offload method (remote or direct), all files are saved to a default directory on your PC under My Documents/VEMCO/LoggerVUE. You can change the default directory in the Tools Menu, by selecting 'Options' and then 'Files'.



Offloading data from a Minilog-Classic

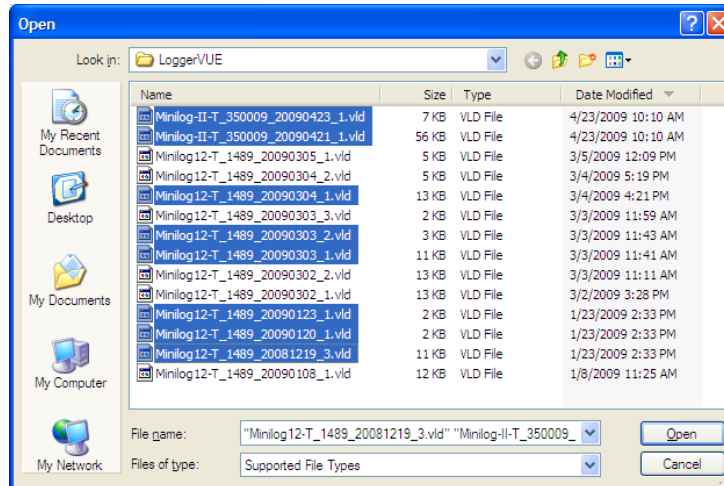


Offloading data from a Minilog-II

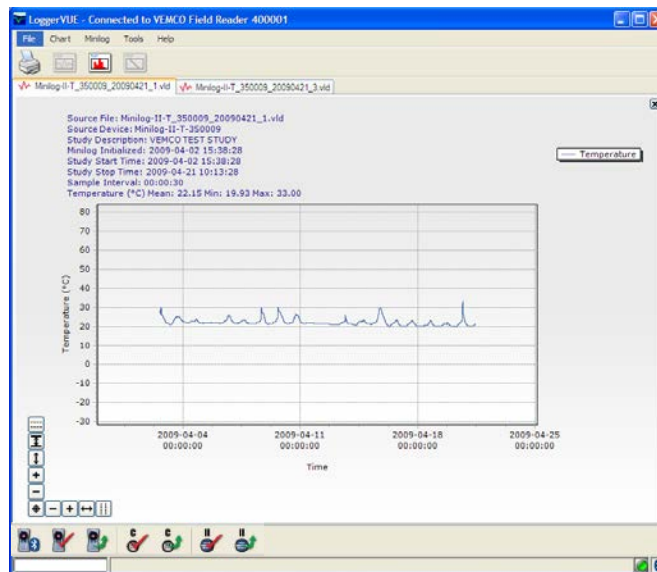
3.4 View Data Files in LoggerVUE

Once your files are stored on your computer, you may view and analyze the data at any time.

1. From the LoggerVUE File menu, select 'Open'. All data files that were previously downloaded from your Reader or Minilogs appear in the window. Each file name contains the Minilog type, serial number and the time and date the file was downloaded.
2. Highlight the file or files you wish to view (press and hold the Ctrl key when selecting multiple files) and select 'Open'.

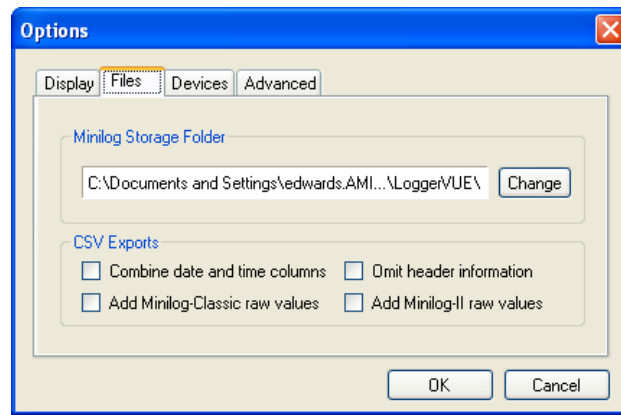


3. Files are set to display as Time charts by default but can be displayed as Histograms or Bivariate charts. You can change the default under the Tools Menu by selecting 'Options' then 'Display' and changing the Default Charts (see figure below).



3.5 Export Charts to Other File Formats

1. To convert your chart files into text format, first open the files you wish to convert. Select the Chart Menu then 'Export Chart As...'. Choose the file type Comma Separated Values (.csv) and select 'Save'.
2. You can also export your chart files to PDF format, as well as a variety of image formats (Bitmap, EPS, PNG, TIFF and SRV).
3. If you wish to include the raw data when exporting chart files to text format (.csv), select 'Tools' then 'Options' and then select the 'Files' tab. Depending on which type of VEMCO Minilog data you are exporting, check either the 'Add Minilog-Classic raw values' box or the 'Add Minilog-II raw values' box under CSV Exports before exporting.



4 VFR Status Lights

The VEMCO Field Reader (VFR) has seven status lights on front of the reader. Each of these lights, also referred to as Light Emitting Diodes (LED), has a meaning explained below. All VEMCO Field Readers have a Status LEDs Quick Guide mounted on the back.

Power

- If LED is On Solid, the Power is on.
- If LED is Flashing, the Reader's battery is low.

Classic Mode

- If LED is On Solid, the Reader is in Minilog-Classical mode.
- If LED is Off, the Reader is in Minilog-II-T mode.
- If LED is Flashing, the Reader is auto detecting.



Status LEDs Quick Guide mounted on back of VFR

Toggle Communication Mode: The Field Reader is by default configured for auto detect mode which means it will attempt to automatically detect which type of logger you are using – Minilog-Classical or Minilog-II-T. If you are only using one type of logger, you can set the communications mode directly which may speed up your data uploads. To change the communications mode from Minilog-II-T to Minilog-Classical, press and hold the Offload button for at least two seconds until the Classic Mode LED is on solid. To change it back to Minilog-II, again press and hold the Offload button for at least two seconds until the Classic Mode LED turns off.

Offload OK

- If LED is Flashing, the data offload is in progress. This LED will begin flashing as soon as you press the OFFLOAD button when retrieving data from your Minilogs and will remain flashing until the offload has completed.
- If LED is On Solid, the offload completed successfully.

Offload Error

- If LED is Flashing, there is a communication error between the Minilog and Reader or the user has deliberately aborted the transmission. If the reader is configured for autodetect – you may briefly see this LED flash as the reader changes communications modes. If the Offload Error LED turns off and the Offload OK LED turns on solid, your data offload completed successfully.
- If LED is On Solid, the offload did not complete successfully or the user has deliberately aborted the offload. This can occur if the Field Reader Communications mode is set to the wrong type of logger (Minilog-Classical vs Minilog-II-T). The reader by default is set to autodetect mode and will correctly identify and connect to the Minilog that is attached. However, if the autodetect mode has been manually disabled and the reader is set to the wrong communications mode for the attached Minilog,



then the offload will fail and the Offload LED will turn on. The communications mode can be changed manually – see above “Toggling Communication Mode”.

An offload error may also occur if the “lens” on the bottom of the Minilog is dirty. Gently clean with a soft cloth and try to offload your data again. In the case of the Minilog-Classic, an offload error may occur if the battery is too low to complete the data transfer. In this case you can return your Minilog-Classic to VEMCO for data retrieval. The Minilog-II-T has been designed to reserve enough battery power to offload its data and so this is unlikely to be the cause of an offload error.

How to Abort an Offload:

Press and hold the OFFLOAD button for at least two seconds until the Offload Error LED flashes.

Logger Alert

- If LED is Flashing or On Solid when Offloading the Minilog-Classic, please contact VEMCO for assistance.
- If LED is Flashing when Offloading the Minilog-II-T, the Minilog-II-T memory and/or battery is low.
- If LED is On Solid when Offloading the Minilog-II-T, the Minilog-II-T memory is full or the battery has reached the end of its life.

Minilog-II-T Preset Memory/Battery Threshold: The Minilog-II-T’s memory and battery threshold is factory preset to 30 days. The Logger Alert LED will begin flashing when the remaining life in the logger study is limited to less than the threshold based on either the memory capacity or remaining battery life. You can change the threshold limits when initializing Minilog-II-T data loggers. The logger datafiles, offloaded to the Field Reader will indicate the remaining battery life and memory in the Minilog-II loggers. These can be viewed in LoggerVUE by connecting the Field Reader to a Laptop or PC.

Note that this feature is not supported for Minilog-Classics.

Field Reader Memory LED

- If LED is Flashing, the Reader’s memory is low.
- If LED is On Solid, the Reader’s memory is full.

Reader Preset Memory Threshold: The Reader’s memory threshold is preset at the factory to 4MB and the LED will begin flashing when this threshold is met. You can change this setting in the Reader Configuration dialog box. Ensure you offload your data and clear the Reader’s memory before going back in the field to offload more data loggers.

Wireless Link LED

- If LED is Flashing, the Reader is attempting to connect to your PC.
- If LED is On Solid, the Reader is connected to your PC and wireless communication is enabled.

How to Enable Wireless Link: When the Reader is idle, press and hold the POWER button for at least two seconds until the Wireless Link LED begins to flash.

5 Additional Information

5.1 VFR Battery Instructions

Battery Type

- 3 'AA' alkaline batteries / IEC-LR6 / ANSI-15A.

Battery Replacement

- Use a Phillips head screwdriver to remove battery cover plate on the back of the Reader.
- Replace the batteries with three 'AA' alkaline batteries.
- Do not put the batteries in backwards. Ensure the positive (+) and negative (-) ends are facing in the correct directions.
- Replace the battery cover plate securely.



WARNING – Battery Leakage

Leakage of battery fluid can cause personal injury as well as damage to your VEMCO Field Reader. If battery leakage occurs, thoroughly wash the affected skin and clothes. Keep battery fluid away from your eyes and mouth. Leaking batteries may make popping sounds.

To Avoid Battery Leakage:

- Do not mix used and new batteries (replace all batteries at the same time).
- Do not mix different types or brands of batteries.
- Do not leave batteries in the VEMCO Field Reader for long periods of non-use.
- Do not recharge alkaline or non-rechargeable batteries.
- Do not put the batteries in backwards. Make sure that the positive (+) and negative (-) ends are facing in the correct directions.
- Do not use damaged, deformed or leaking batteries.
- Do not dispose of batteries in a fire.

5.2 VFR Cleaning and Storage Instructions

Cleaning Instructions

- Clean with a damp cloth. Do not use harsh solvents or abrasives.
- If the window fogs up, open the battery door for a period of time.

Storage Instructions

Before storing in a water/airtight container, clean the Reader with a damp cloth and allow it to air dry (to avoid seepage).

5.3 VEMCO Minilog Lens Cleaning Instructions

The optical lenses of VEMCO Minilog data loggers are made of polycarbonate plastic.

Cleaning Instructions

- When cleaning the clear polycarbonate lens, it is recommended that lukewarm water with a little detergent is used. This should be wiped over the polycarbonate's surface with a soft, non-abrasive cloth or sponge. Using any other form of cleaning product or oil could cause damage to the polycarbonate lens.
- Cleaning the lens when it is dry can lead to scratching. This is due to the polycarbonate's surface.
- Never use abrasive cleansers, abrasive pads, or gritty cloths.
- Do not remove dirt by scraping with a sharp tool, such as a razor blade or putty knife.
- Do not clean with window cleaning fluids or strong solvents such as gasoline, denatured alcohol, carbon tetrachloride, or acetone.



6 Troubleshooting

6.1 Field Reader Troubleshooting

1. **Offload Error:** If the Offload Error LED is flashing, there is a communication error between the Minilog and Reader or the user has deliberately aborted the transmission. If the reader is configured for autodetect – you may briefly see this LED flash as the reader changes communications modes. If the Offload Error LED turns off and the Offload OK LED turns on solid, your data offload was completed successfully. To abort an offload, press and hold the OFFLOAD button for at least two seconds until the Offload Error LED flashes.

If the Offload Error LED is on solid, the offload did not complete successfully or the user has deliberately aborted the offload. This can occur if the Field Reader Communications mode is set to the wrong type of logger (Minilog-Classic vs Minilog-II-T). The reader by default is set to autodetect mode and will correctly identify and connect to the Minilog that is attached. However, if the autodetect mode has been manually disabled and the reader is set to the wrong communications mode for the attached Minilog, then the offload will fail and the Offload LED will be turned on. (The communications mode can be changed manually – see “Toggling Communication Mode” in section 4.).

An offload error may also occur if the “lens” on the bottom of the Minilog is dirty. Gently clean with a soft cloth and try to offload your data again. In the case of the Minilog-Classic, an offload error may occur if the battery is too low to complete the data transfer. In this case you can return your Minilog-Classic to VEMCO for data retrieval. The Minilog-II-T has been designed to reserve enough battery power to offload its data.

2. **Logger Alert:** If the Logger Alert LED is flashing, the Minilog-II-T memory and/or battery is low. If the Logger Alert LED is on solid, the Minilog-II-T memory is full or the battery has reached the end of its life.
3. **Field Reader Memory:** If the Field Reader Memory LED is flashing, the Reader’s memory is low. If the Field Reader Memory LED is on solid, the Reader’s memory is full.
4. **Field Reader Battery Status:** The Reader’s battery status can be checked in the Reader Configuration dialog box in LoggerVUE by selecting the ‘Configure the Field Reader’ icon from the Icon Toolbar.

6.2 LoggerVUE Troubleshooting

1. **Bluetooth:** If there is a red X through the Bluetooth logo (lower right corner), run the Bluetooth installer from the 'Tools' menu. Note: Select Cancel if "Found New Hardware Wizard" window opens.
2. **LoggerVUE Connection to Field Reader Status:** If the circle in the lower right corner is flashing yellow, it indicates that LoggerVUE is attempting to connect to a Reader. To connect, press and hold the Reader's Power button until its Wireless Link LED begins to flash. Once connected, this LED will remain on solid and the circle will turn green. If the circle is red, it means the LoggerVUE's connection to the Reader has timed out. Select 'Scan for New VEMCO Field Reader' from the Icon toolbar then select 'Reconnect'.
3. **Field Reader Timeout:** Your Reader is programmed to automatically turn off after it has been left idle for 30 minutes. Press and hold the Power button until the Wireless Link LED starts to flash and LoggerVUE will automatically reconnect to your Reader (assuming LoggerVUE hasn't timed out as well).

7 Appendix

7.1 Contact Information

Product manufactured by

VEMCO Division
AMIRIX Systems Inc.
20 Angus Morton Drive
Bedford, Nova Scotia
Canada B4B 0L9

Phone: +1-902-450-1700

Fax: +1-902-450-1704

Web Site: www.vemco.com

7.2 VEMCO Field Reader (VFR) Specifications

Regulatory Compliance Information

The VEMCO Field Reader (VFR) complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

The VEMCO Field Reader has been tested and found to comply with the limits for a Class B digital devices, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Warning: Changes or modifications not expressly approved by AMIRIX Systems Inc. could void the user’s authority to operate the equipment.

IMPORTANT - Please Use Equipment Properly

If the VEMCO Field Reader is not used according to the directions specified by the manufacturer, protection may be impaired.

| VEMCO Field Reader Specifications | |
|--------------------------------------|---|
| Size: | 161 mm length x 82 mm width x 58 mm height (including adapter) |
| Battery: | AA Alkaline (3) / IEC-LR6 / ANSI-15A. |
| Battery Life: | 100s of uploads (up to 1000s depending on study size) |
| Memory: | Storage capacity for up to 100s of data loggers at up 1-million samples per data logger |
| Operating Temperature: | -10°C to +40 °C |
| Ingress Protection: | Water resistant to IP-x4 standard (splash proof) |
| Current Consumption: | 45 uA Off, 40 mA Idle, 82 mA Offl oading |
| Bluetooth® Wireless Certifi cations: | Bluetooth ID: B012394 FCC ID: ED9LMX9838 Industry Canada ID: IC-1520A-LMX9838 |

7.3 Minilog-II-T data logger Specifications

Regulatory Compliance Information

The Minilog-II-T data logger complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

The Minilog-II-T data logger has been tested and found to comply with the limits for a Class B digital devices, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Warning: Changes or modifications not expressly approved by AMIRIX Systems Inc. could void the user's authority to operate the equipment.

IMPORTANT - Please Use Equipment Properly

If the Minilog-II-T data logger is not used according to the directions specified by the manufacturer, protection may be impaired.

| VEMCO Minilog-II-T Specifications | |
|--|--|
| Operating Temperature Range | -30°C to 80°C |
| Temperature Accuracy Specified: | +/- 0.1°C from -5°C to 35°C |
| Resolution | 0.01°C |
| Physical Size: | Length: 9.8 cm |
| Diameter: | 2.3 cm |
| Weight | 52.2 g |
| Battery: | 2/3 AA Lithium |
| Battery Life: | 10 years at typical sampling rate (1 sample per 2 minutes) |
| Storage: | 1 million samples per deployment |
| Clock Stability: | +/- 1 minute per month at room temperature |
| Sample Rates: | 1 sample per second to 1 sample per day |
| Ingress Protection: | IPx8 (submersible up to 500m) |
| Start Time: | Selectable between delayed or immediate |

7.4 Warranty and Disclaimer

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:

- (A) ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE;
- (B) ANY IMPLIED WARRANTY ARISING OUT OF COURSE OF PERFORMANCE, COURSE OF DEALING OR USAGE OF TRADE;
- (C) ANY OBLIGATION, LIABILITY, CLAIM OR REMEDY IN TORT, WHETHER OR NOT ARISING FROM THE NEGLIGENCE OF VEMCO OR ANY ASSIGNEE OF VEMCO, ACTUAL OR IMPUTED;
- (D) ANY OBLIGATION, LIABILITY, RIGHT, CLAIM, OR REMEDY FOR LOSS OF OR DAMAGE TO THE PRODUCT, FOR LOSS OF USE, REVENUE, OR PROFIT WITH RESPECT TO THE PRODUCT; OR FOR ANY OTHER DIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES; AND
- (E) VEMCO MAKES NO REPRESENTATION THAT THE PRODUCT WILL NOT INFRINGE ANY PATENT OR OTHER RIGHTS OF ANY PERSON AND BUYER AGREES TO INDEMNIFY VEMCO AND HOLD VEMCO HARMLESS FROM ANY AND ALL CLAIMS AND LIABILITIES WITH RESPECT TO SAME TOGETHER WITH ANY CLAIMS AND LIABILITIES WITH RESPECT TO ANY INFRINGEMENT OF ANY PATENT OR OTHER RIGHTS OF ANY PERSON ARISING AS A RESULT OF BUYER'S PRODUCTS, TECHNOLOGY, ACTIVITIES, OR OTHERWISE.

LICENSE AGREEMENT

VEMCO grants to the Buyer a limited, personal license, with no right to sub-license, to use the Intellectual Property ("IP") and Embedded Software in the manner set out in the Documentation. The Embedded Software and IP are not sold to Buyer. All property rights, including Intellectual Property Rights, remain with VEMCO. All rights related to the Embedded Software not expressly licensed to the Buyer are reserved to VEMCO. BUYER shall not permit any person other than BUYER and its employees to use or make use of the Embedded Software and/or IP. BUYER shall not, and shall not permit any third party to, modify, adapt, translate, reverse engineer, decompile, disassemble, or create derivative works based on the Embedded Software and/or IP. This license is assigned to the Product with which you have acquired the Embedded Software and/or IP. If the Product purchased is a Transmitter product, be advised that the license life is equal to the operational life.

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, REFUSAL AND RENUNCIATION BY BUYER SET FORTH ABOVE (DISCLAIMER AND REFUSAL)