MERLIN
Transformer Rectifier Monitor

Quick Start Guide

&

Safety Information

www.abriox.com

ABOUT THIS DOCUMENT

This document has been issued as a guide only; in all instances please refer to the full MERLIN Transformer Rectifier Monitor Installation Instructions for further information.

HOW TO OBTAIN FULL INSTALLATION INSTRUCTIONS

1) Go to www.abriox.com and click the Customer Portal link under the Support menu located at the top of the page.

2) Enter the Username and Password as shown on your Licence Certificate.

3) Click the link for the MERLIN Transformer Rectifier Monitor and download the required files for viewing online or for printing at your own convenience.

Note

To download the full installation documentation you will need your Abriox-issued Username and Password; these can be found on the licence certificate issued.

If you do not have a copy of the licence certificate, please contact our technical support team by emailing support@abriox.com.

DISCLAIMER

If this equipment is used in a manner not specified by Abriox, the protection provided by the equipment may be impaired. Please ensure you follow all guidance for safe and correct use of your equipment.

SAFETY INFORMATION

Please ensure you are familiar with the safety regulations of your company and observe them at all times.

General Safety Summary

This document contains information and warnings that must be observed to keep the unit in a safe condition and ensure safe operation.

To use the unit correctly and safely, read and follow all precautions given.

Please ensure you fully understand all instructions throughout this document that relate to specific measurement functions.

In addition, please follow all generally accepted safety practices and procedures required when working with and around electricity.

Safety Symbols

The table below lists safety symbols that appear on the MERLIN Transformer Rectifier Monitor and within this document.

Symbol	Description
CAT III	Installation Category (Overvoltage Category) III
CAT IV	Installation Category (Overvoltage Category) IV
⚠	Risk of danger. Important information. See Installation Instructions.
⚠	Hazardous voltage. Voltage > 30V AC (42.4V peak) or 60V DC may be present

Maximum Input Voltage for ON/OFF Potential Channel ⚠

The ON/OFF Potential channel of the MERLIN Transformer Rectifier Monitor is intended to measure ±4V. It can handle a maximum input voltage of 70V AC (RMS) and 70V DC without damage.

Maximum Input Voltage for TR Volts Channel ⚠

The TR Volts channel of the MERLIN Transformer Rectifier Monitor has a maximum input voltage of 150V AC and 150V DC. The unit has protection against high voltage transients built in, but there is a limit to the amount of energy it can dissipate.

Maximum Input Voltage for TR Shunt Channel

The TR Shunt channel of the MERLIN Transformer Rectifier Monitor provides readings up to 100mV AC and ±100mV DC. The channel itself should not be exposed to voltages greater than ±4V peak. Voltages greater than this will cause the channel input protection to activate which can only protect the unit for a limited period of time.

Danger of Electric Shock ⚠

When using the MERLIN Transformer Rectifier Monitor on rectifiers with an output greater than 60V DC, care should be taken as there is a danger of electric shock.

Channel Input Protection ⚠

Channels 1 and 3 have CAT IV surge protection at their rate input voltage ranges. Channel 2 has CAT III surge protection at its rated input voltage range.

Battery Replacement

The MERLIN Transformer Rectifier Monitor uses a MERLIN battery pack and is specific to the product. Battery packs can be replaced. Please contact Abriox to order replacements.

WEEE Directive

This symbol indicates that this product is not to be disposed of with your household waste, according to the WEEE Directive (2002/96/EC) and your national law. This product should be handed over to a designated collection point, e.g., on an authorised one-for-one basis when you buy a new similar product or to an authorised collection site for recycling waste electrical and electronic equipment (EEE).

Improper handling of this type of waste could have a possible negative impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. At the same time, your cooperation in the correct disposal of this product will contribute to the effective usage of natural resources. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, waste authority, approved WEEE scheme or your household waste disposal service.

Batteries Directive—Information for Users

In the European Union (EU) this symbol indicates that the batteries in this product should be collected separately and not be disposed of with household waste. Substances in batteries can have a potential negative impact on health and environment and you have a role in recycling waste batteries thus contributing to the protection, preservation and improvement of the quality of the environment.

COMPLIANCE

Declaration of Conformity CE

This product is CE marked which means that Abriox declares that the product or equipment complies with all applicable European Directives. A copy of the Certificate of Conformity can be obtained from Abriox.

FCC Rules FC

This device 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.

Note

This equipment has been tested and found to comply with the limits for a Class B digital device, 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 instructions, 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 or more of the following measures:

i) Reorient or relocate the receiving antenna

ii) Increase the separation between the equipment and receiver

Do not make any changes or modifications to the equipment unless otherwise specified in the manual. If such changes or modifications should be made, you could be required to stop operation of the equipment.

INSTALLATION INSTRUCTIONS

This document has been issued as a guide only; in all instances please refer to the full MERLIN Transformer Rectifier Monitor Installation Instructions for further information.

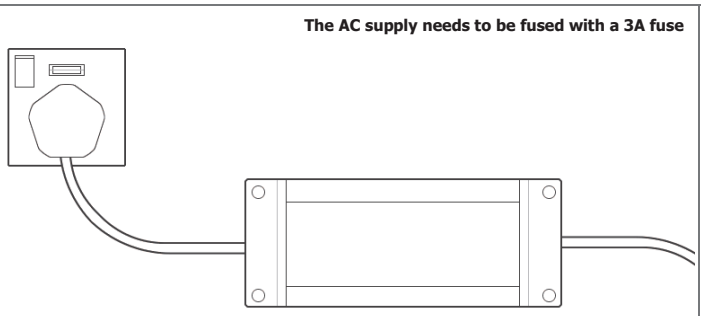
PLEASE ENSURE YOU ARE FAMILIAR WITH THE SAFETY REGULATIONS OF YOUR COMPANY AND OF THIS EQUIPMENT AND OBSERVE THEM AT ALL TIMES.

Step 1 - Software Check

For standalone **CPSM** users, the CPSM software and modem must be installed and running in order to receive messages from the MERLIN Transformer Rectifier Monitor. Make a note of the HQ number (SIM card number fitted in the modem) as this is required to successfully configure the MERLIN Transformer Rectifier Monitor.

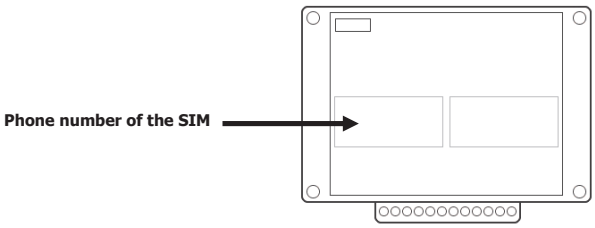
iCPSM users, please ensure you have received your Licence Certificate which details your HQ number, username and password. Make a note of the HQ number as this is required to successfully configure the MERLIN Transformer Rectifier Monitor.

Step 2 - On Site Check



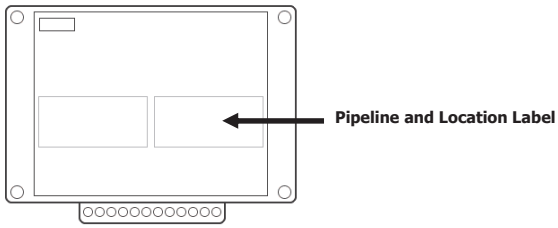
The Power Supply Unit (PSU) that comes with the MERLIN Transformer Rectifier Monitor should be powered from the AC supply to the rectifier (this enables the unit to report an AC outage). Make sure beforehand that there is a suitable power point available so that you can plug or wire the PSU in easily on site.

Step 3 - Check the MERLIN Monitor



Check the MERLIN Transformer Rectifier Monitor has a SIM card fitted and the SIM card (phone) number is clearly noted on the front label. This is the phone number the system uses to communicate with the MERLIN Transformer Rectifier Monitor.

Step 4 - Name the MERLIN CP Monitor (Optional)



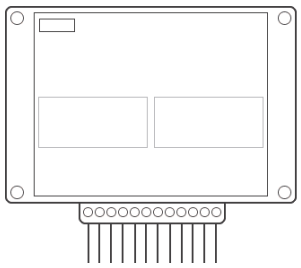
To aid installation and management, write (or print using a label maker) the name of the Pipeline and a Location name on the label of the MERLIN Transformer Rectifier Monitor in the space provided.

Step 5 - Gather Equipment for Installation

To install the MERLIN Transformer Rectifier Monitor at the rectifier you will need:

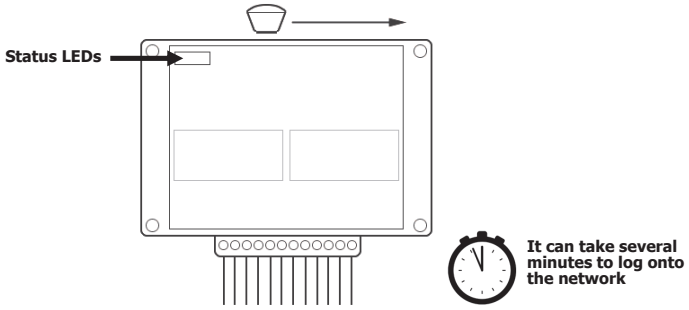
- Shunt - of correct value
- A magnet - to activate the MERLIN Transformer Rectifier Monitor
- Consumables - for making the connections at the test post
- Multimeter - for confirming the voltage and current readings
- Cell/Mobile phone - for configuring and installing the MERLIN Transformer Rectifier Monitor
- Installation Instructions
- Any accessories - mounting brackets, external antennas, lightning arrestor, relay, surge filter

Step 6 - Physical Installation



Make the connections to the MERLIN Transformer Rectifier Monitor. The unit has up to 12 connections (labelled A to L) and are briefly described on the front label. The connections correspond with the labelled terminal block. Fit any accessories (mounting brackets, external antenna, lightning arrestor, relay, surge filter), please refer to the full MERLIN Transformer Rectifier Monitor Installation Instructions for further information.

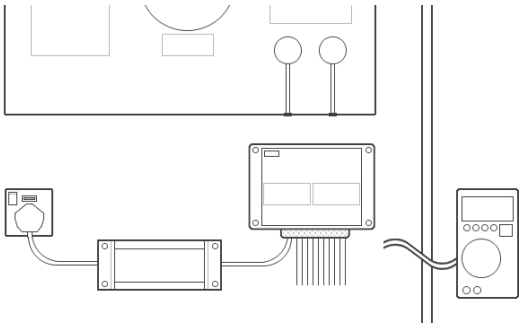
Step 7 - Activation



Activate the MERLIN Transformer Rectifier Monitor by running a strong magnet along the side of the Reset switch where shown on the label. The green status LED should flash twice to show that the unit is waking up.

After approximately 60 seconds, the green LED should start flashing once every 2 seconds, this confirms the unit has logged onto the network. If the green LED is double-flashing every 2 seconds, then the unit is running but cannot log onto the network.

Step 8 - Take a Reading (Optional)



Send the text command **CMD:READ** from your phone to the number on the MERLIN Transformer Rectifier Monitor. The unit will take a reading on all channels and sent the results back to your phone. A reply will look similar to: **CPM:20 UNIT 10000001 TR VOLTS:18.00V SHUNT:20mV ON:0mV OFF:0mV**

Take a reading on the terminals using a multimeter and compare the measurements against the readings given by the MERLIN Transformer Rectifier Monitor. If any of the readings are inconsistent with the multimeter, check the wiring and the condition of the reference cell.

Step 9 - HQ Configuration and Installation



1) Send the text command **CMD:CONFIG HQ1:XXXX** - where XXXX is your HQ number.
2) Send the text command **CMD:INSTALL PIPE:YYYY LOC:ZZZZ** - where YYYY and ZZZZ match the names assigned in Step 4.

Step 10 - Post Site Configuration and Installation

Once deployed you will need to enter the shunt value in the CPSM/iCPSM software. You will also need to specify the alert thresholds, measurement time and time zone. Further configuration and operational features can be carried out directly via the software. Please refer to the full Installation Instructions for further information.