

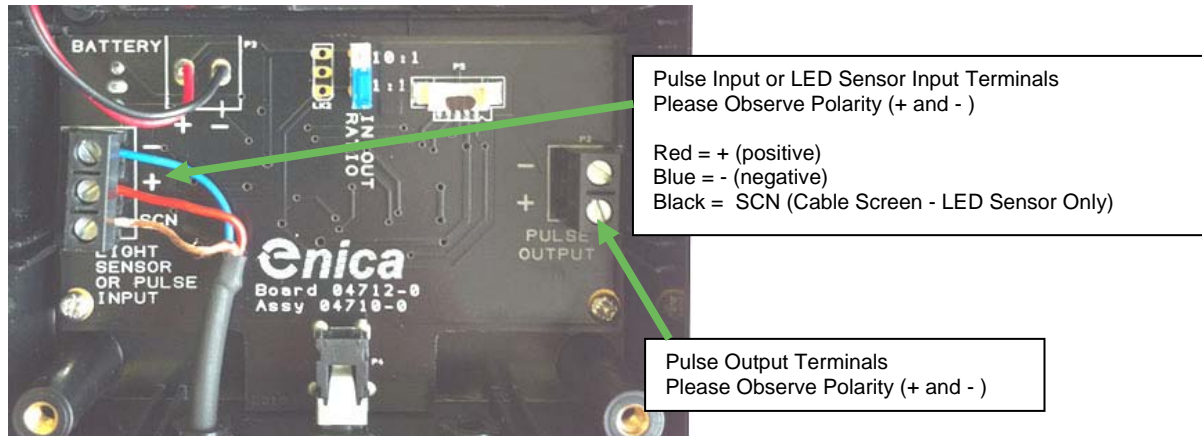
# Enica Opti-Pulse Logger Installation Guide

The Enica Opti-Pulse Logger is designed to datalog either volt-free/transistorised pulse outputs from meters or the red flashing kWh LED light on many electricity meters. As standard the device is supplied in pulse mode. The optional Flashing LED Sensor is added simply by connecting the sensor to the input cable.

The Enica Opti-Pulse Logger can also be used to create pulse outputs from the Flashing LED Sensor.

## 1. Hardware Installation

**Step 1:** If used as a pulse logger, connect the pulse output from the meter to the pulse input terminals of Opti-Pulse Logger. On some meters this connection may be polarity sensitive. The Opti-Pulse Logger has a green flashing LED that will flash once for every pulse received. If the meter is operating and the Opti-Pulse Logger does not flash, try reversing the polarity of the pulse connection.



**Step 2:** If used as a flashing LED logger, connect the flashing LED sensor head to the input cable. Remove adhesive tape from sensor head. Carefully position the sensor over the kWh flashing red LED light on the meter ensuring that the cross-hairs and the dome of the sensors arm are aligned over the meter's kWh LED light. The LED on the Opti-Pulse flashes for every light flash received.

**Step 3:** Note the pulse or flashing LED ratio of the meter (See section 4 of this manual) so that the data can be scaled and valued accordingly. Locate the Opti-Pulse Logger adjacent to the meter. Use mounting brackets x2 + longer box screws as supplied.

## 2. LED Status Indicator

The Enica Opti-Pulse Logger has a single LED light located on the front of the device.

GREEN FLASH = Received Pulse or Flash from Meter and Device IS Logging  
ORANGE FLASH = Received Pulse or Flash from Meter and Device NOT in Logging Mode  
RED FLASH = Batteries LOW and require replacement

## 3. Starting Datalogging and Downloading Data

The Opti-Pulse Logger uses a unique USB data download cable to communicate between the device and its PC based software. The USB cable and PC software is used to programme the logging parameters, start logging and download the data.

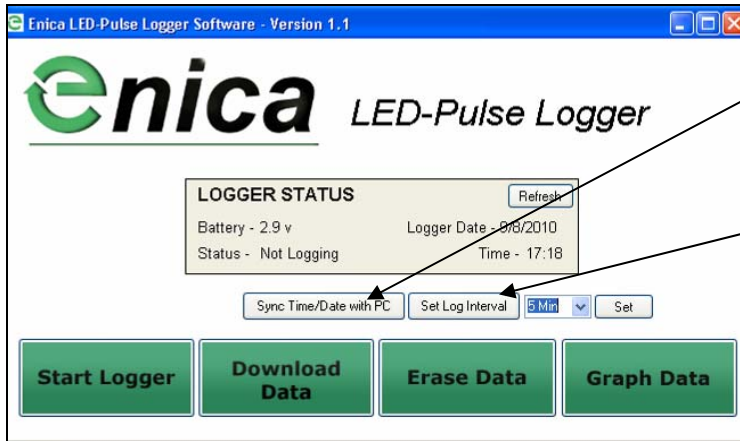
### 1. Setting Log Parameters and Starting the Logger

**Step 1:** Download the Opti-Pulse Logger software (available from [www.enica.co.uk](http://www.enica.co.uk)). Install this software to your PC. Once installation is complete, insert the USB data cable into the PC and wait for drivers to be automatically installed. DO NOT START THE ENICA SOFTWARE UNTIL THE USB DRIVERS HAVE BEEN AUTOMATICALLY INSTALLED. Your PC may need to be connected to the internet to automatically download the USB cable drivers.

**Step 2:** Start the PC software by double clicking on the Enica Pulse Logger software icon located either on the desktop or in your list of programmes. The USB cable must be inserted into the PC before the software is started if you wish to communicate with the device. Plug the USB cable into the Opti-Pulse Logger.

**Step 3:** Click on the button "Sync Time/Date with PC". This will use the time and date set on your PC and apply this to the Opti-Pulse Logger.

**Step 4:** Click on the "Set Log Interval" button. Select the logging resolution you wish to use (5 minute, 15 minute or 30 minute). Click the "Set" button once your selection has been made. The data will be logged and stored at the resolution you have chosen.



“Sync Time/Date with PC” button – used to synchronise the logger’s time and data your PC time and date

“Set Log Interval” button – used to set the datalogging time resolution between 5, 15 and 30 minutes. Click the “Set” button to save the settings.

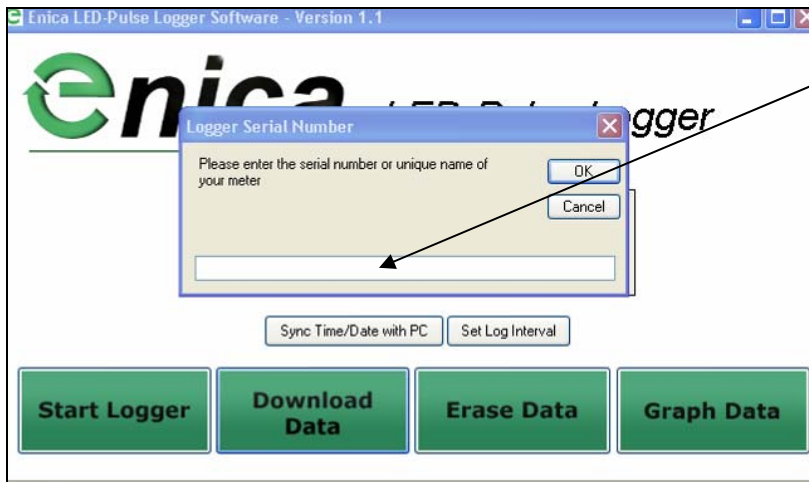
**Step 5:** Click on the “Start Logger” button to set the logger running. The software will show that logging has been started and the LED on the logger will start flashing GREEN for every pulse received. The device settings and status can be checked at any time by clicking the “Refresh” button. If the logger is active, this will be shown in the status as well as the logging interval. The USB cable can now be removed and the logger can now be left on site.

## 2. Downloading Data and Erasing the Log

**Step 1:** With the logger attached via USB, click the “Download Data” button. You will now be asked to select a location to save the logger data. Select a suitable location on your PC, desktop or similar.

**Step 2:** Enter a unique serial number or name for the meter that has been logged or provide a unique name or serial number for the data you want to save. Click “OK” and the data will be downloaded to your selected location. This may take several minutes subject to the quantity of data held in the logger. The file saved to the PC will be in .csv format and can be readily opened in Excel or similar.

**Step 3:** Choose whether you wish to erase the logger’s data. If the data is not erased, the logger will continue to log with its current settings. If the data is erased, logging will stop and will need to be re-started if required.



Enter a suitable unique name or serial number of the meter being datalogged.

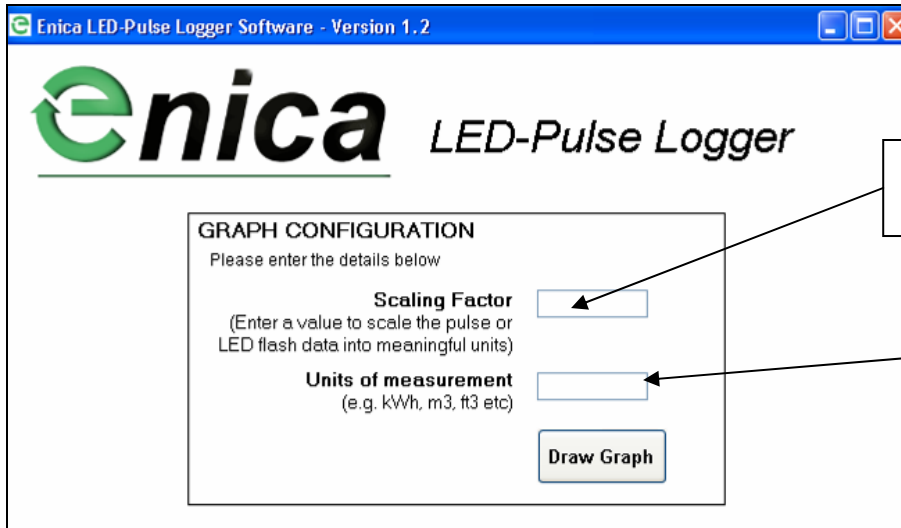
## 3. Graphing and Viewing Data

The Opti-Pulse Logger software also includes a data graphing function. This allows basic navigation of the data which has been downloaded from the logger and saved to PC. The USB cable does not need to be attached to graph and view data.

**Step 1:** Click on the “Graph Data” button. You will then be asked to select the logger data file which has been downloaded in the previous steps.

**Step 2:** Enter a “Scaling Factor”. The logger data will be saved as a simple “count” of the number or pulses or flashes that occurred within each 5, 15 or 30 minute logging period. This “count” must be scaled to make sense of the data values. If 1 pulse or flash = 0.1kWh, the data will be scaled by 0.1 to provide a true kWh graph. If 1 pulse = 0.01m<sup>3</sup>, then the data will be scaled by 0.01 to provide a true m<sup>3</sup> graph.

The scaling factor is different for many types of meters. Please consult your meter manufacturers for further details.

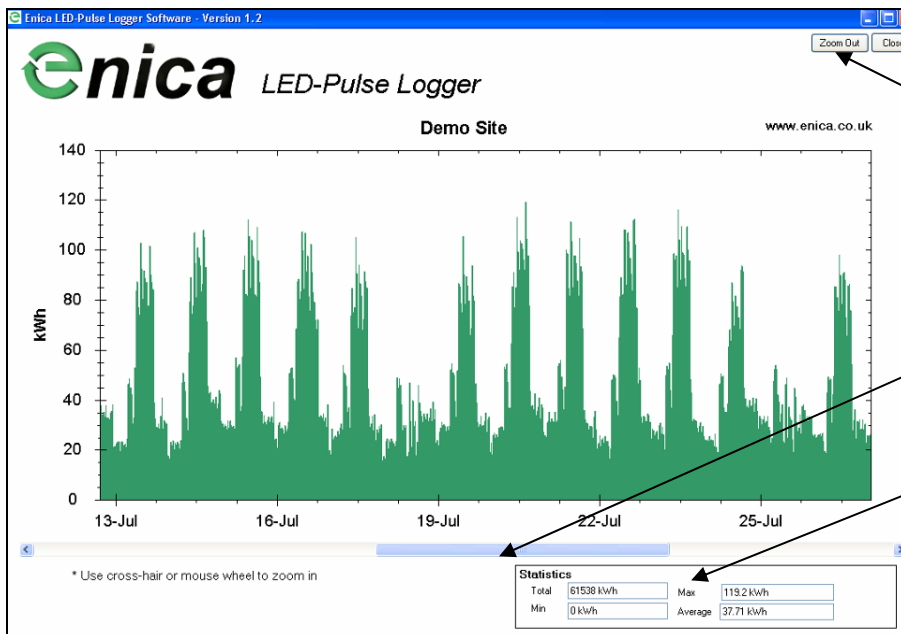


Enter the scaling factor to convert simple pulse count or LED flash count into meaningful units.

Enter the Units of Measurement for the axis label.

**Step 3:** Enter a value (text or number) to be displayed as the label for the Axis e.g. m<sup>3</sup>, kWh or ft<sup>3</sup>. Click the “Graph” button to draw the graph of the data.

**Step 4:** The data will now be shown in graph form. Use the mouse cursor to select an area of the graph to zoom in. Use the zoom out button or right click to zoom out.



Zoom Out and Close Buttons

Left/Right Date Scroll Bar

Data Statistics – Displays the Total, Average, Maximum and Minimum values within the whole dataset

## 4. Understanding what 1 Flash at the Meter LED Equals (LED MODE ONLY)

The Opti-Pulse Logger works with nearly all electricity meters with red flashing LED lights. The user will need to understand the LED pulse value of the meter in order for correct scaling and understanding of kWh Units.

Technical Note: Electric Meters that have kWh and kVARh flashing LED's very close together (<20mm) can cause some inaccuracy of the Opti-Pulse Classic as the light generated by the kVARh LED can sometimes stray into the Enica LED sensor. This is a common feature of many electricity meters manufactured by Ampy. Some PRI Calmu meters have a very small flashing LED. These flashing LEDs are unable to be sensed by the Opti-Pulse Logger.

The calculations below are indicative to the majority of meters available. Some meters may work differently in the value of each LED flash. Please consult each meters operating manual for further information.

### If Meter is Direct Connect Type (Not Current Transformer Operated)

**Step 1:** Note the LED flash value written on the meter. This normally reflects directly what 1 flash equals.

### If Meter is Current Transformer Operated

On some Current Transformer operated electric meters, the LED flash rate printed on the meter may need to be adjusted according to the Current Transformer and/or Voltage Transformer details.

The following outlines the steps required to establish the LED flash value for an Elster A1700 electric meter.

**Step 1:** Note the LED flash value written on the meter. If the LED flash value is written in Wh/Imp (Watt Hours per Impulse), divide this value by 1000 to convert into kWh.

**Step 2:** Note the Current Transformer (CT) Ratio value written on the meter or shown within the meter display. Divide the CT ratio numbers (e.g if says 200:5 then divide 200 by 5).

**Step 3:** Multiply the LED Flash value (Step 1) by the CT ratio (Step 2) to determine what 1 flash of the meter LED equals.

#### Meter Flashing LED Values for Common Meters

##### **Elster A1700**

CT Ratio 150:5 = 6 watt hours per flash on the meter (0.006 kWh per flash)  
CT Ratio 200:5 = 8 watt hours per flash on the meter (0.008 kWh per Flash)  
CT Ratio 300:5 = 12 watt hours per flash on the meter ( 0.012 kWh per flash)  
CT Ratio 500:5 = 20 watt hours per flash on the meter (0.02 kWh per flash)

### If Meter also has Voltage Transformers

**Step 4:** Note the voltage transformer ratio (usually 11,000:110 or similar) either printed on the meter or shown on the meter display. Divide these two values e.g.  $11,000 \div 110 = 100$ . Simply take this value and multiply this by the value calculated in Step 3 above.