

## Tinytag Energy Logger



**The Tinytag Energy Logger can be used to monitor single and three phase energy supplies. It combines the level of performance required by experts with the level of simplicity required by those that are new to energy management.**

The logger is ideal for monitoring building energy supply, sections within a building or individual pieces of equipment.

Data from the Tinytag Energy Logger can be used to identify power hungry or inefficient equipment and peak load times, and can highlight equipment that is left powered up or idling unnecessarily.

The Tinytag Energy Logger provides visibility of energy usage so that effective measures can be taken to reduce electricity bills, lower carbon footprint and improve environmental performance.

### Features

- Simple to use
- High accuracy
- Non-invasive
- Small size/lightweight
- Three different coil sizes to chose from

### Popular Applications

- Before and after equipment installation monitoring
- Equipment troubleshooting
- Long-term energy usage
- Equipment spot-checks
- Meeting ISO 14001 energy reduction targets

# Tinytag Energy Logger

## Benefits



- **Portable** - supplied in its own carry case, the unit is small and lightweight making it ideal for use in on-site visits.
- **Easy to use** - select the required wiring configuration and the logger will display step-by-step instructions for the coil and cable connections.
- **Quick and easy coil fitting** - current is measured using non-invasive flexible coils that can easily be clipped around conductors (where larger rigid clamps may not fit) and the voltage reading is taken from a standard mains cable.
- **Self-configuring** - once connected the unit will self-configure and current, voltage, power and power factor readings will be displayed.
- **No complicated set up procedures** - current coils do not have to be connected in the direction of the current flow and coils do not have to be matched to specific sockets. Three different coil sizes are available.
- **Spot checks or long-term monitoring** - the unit can be used for spot checks or for longer term monitoring to build up energy usage profiles.
- **Onsite PC not necessary** - logging is started at the press of a button; no computer is required to start the data logger. Recording can be started and stopped multiple times to allow different pieces of equipment to be monitored in one visit. Separate files are created for each logging run, ready for viewing in Tinytag Explorer.
- **Simple download, display and management of data** - data is viewed and managed using the intuitive Tinytag Explorer software and data can be easily exported to spreadsheet programmes such as Excel. For profiling buildings, data can be combined with temperature and relative humidity data from other loggers in the Tinytag range.
- **Hanging option** - there is a magnet fitted to the back of the logger so it can be attached to metal panels whilst in use.

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## What Does the Logger Record?

| Property   | Logger Display | Tinytag Explorer Software                  |
|--|----------------|--|
| <b>RMS Current (A)</b><br>Instantaneous<br>Peak over logging interval<br>Average over logging interval | Per phase      | Per phase<br>Per phase                     |
| <b>RMS Voltage (V)</b><br>Instantaneous  | Single         | Single                                     |
| <b>Power (kW)</b><br>Instantaneous<br>Peak over logging interval<br>Average over logging interval      | Overall        | Overall & per phase<br>Overall & per phase |
| <b>Power Factor</b>  | Per phase      | Per phase                                  |
| <b>Energy (kWh)</b>  |                | Overall & per phase                        |

- **Display** - the unit's display shows instantaneous rms current (A) from all three phases, the instantaneous rms voltage (V) and an instantaneous overall power figure (kW).
- **Automatic software calculations** - when data is downloaded in the Tinytag Explorer software, the following information is calculated and displayed:
  - peak and average current
  - peak and average power
  - overall peak and average power
  - energy usage information (kWh)
  - a power factor for each phase
- **Automatic waveform detection** - the voltage reference records the waveform of one of the phases and this is used as a reference for the other two.
- **High Accuracy** - the logger samples a 5kHz burst of data every few seconds, building up an accurate profile of the waveform. This makes the unit very good at accurately reading inductive and complex loads where the waveform may not be a true sine wave.
- **Logging** - when logging three phase current and voltage, the unit will record six weeks of data at the default five minute logging interval (this can be changed to anything from 30 seconds to once every 10 days, using the Tinytag Explorer software).
- **Battery power option** - when monitoring with the voltage connected, the unit will power itself from the mains. When logging current without the voltage connected, the unit can record for two months using four user replaceable AA batteries.

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## Measurement Specification

|  |   |
|--|---|
| <b>Range</b>   |   |
| <b>Current</b>   | 2,000A AC RMS (Momentary peak surge current: 2x rated range)                          |
| <b>Voltage</b>   | 200-253V AC nominal   |
| <b>Frequency</b>   | Nominal 50/60Hz   |
| <b>Display Resolution</b>                                      |   |
| <b>Current</b>   | 0.1A  |
| <b>Voltage</b>   | 0.1V  |
| <b>Power</b>   | 0.1 or 0.01kW (depending on the size of the load being measured).                     |
| <b>Accuracy</b>  |   |
| <b>Current (RMS)*</b>  | 1% of reading $\pm$ 0.5A (above 10A)  |
| <b>Voltage (RMS)</b>   | 0.5% of reading   |
| <b>Power (kW)</b>  | 2% of reading   |
| <b>Power Factor</b>  | <0.02 error (above 1kW)   |
| *Temperature Stability of Current Accuracy 0.1%/°C (from 25°C) |   |
| <b>Sampling Frequency</b>                                      | 5kHz burst of samples every 2 seconds (every 5 seconds when logging on battery power) |
| <b>Coils</b>   |   |
| <b>Absolute Maximum Current</b>                                | 5kA AC RMS  |

## Logging Specification

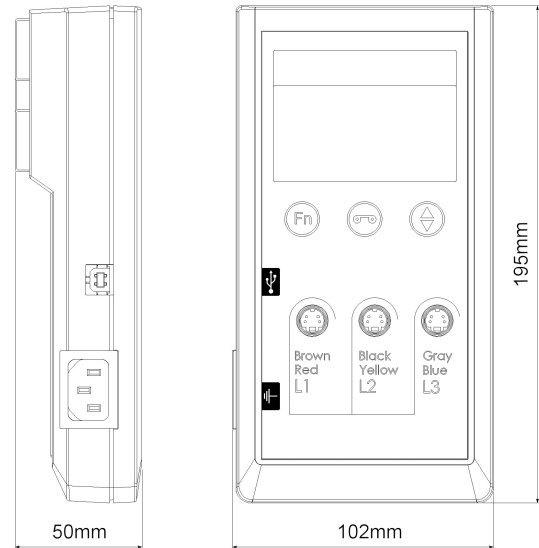
|                         |  |
|-------------------------|--|
| <b>Logging Interval</b> | 30 seconds to 10 days                              |
| <b>Reading Capacity</b> | Six weeks at the default 5 minute logging interval |

## Battery Information

|                     |   |
|---------------------|---|
| <b>Battery Type</b> | 4 x 1.5V AA alkaline batteries (supplied)                 |
| <b>Battery Life</b> | 60 days, typical, based on a battery capacity of 2500mAH* |

\*When a mains lead is plugged in, the logger will be mains-powered. If the mains should fail, the batteries in the logger will typically keep it recording for 60 days.

## Physical Specification



This logger is suitable for indoor use only.

|                                      |                      |
|--------------------------------------|----------------------|
| <b>Operational Temperature Range</b> | 0 to +50 °C          |
| <b>Maximum Humidity</b>              | 95% (non-condensing) |
| <b>Case Dimensions</b>               |                      |
| <b>Length</b>                        | 195mm                |
| <b>Width</b>                         | 102mm                |
| <b>Depth</b>                         | 50mm                 |
| <b>Weight (Including batteries)</b>  | 600g                 |
| <b>PC Connection</b>                 | USB                  |

## Approvals

Gemini Data Loggers (UK) Ltd. operates a Business Management System which conforms to ISO 9001 and ISO 14001.

EMC: EN 61326-1 Electrical equipment for measurement, control and laboratory use – EMC requirements.

Safety: EN 61010-1:2010, IEC 61010-1 (Third Edition):2010 and IEC 61010-2-030: 2010 (First Edition) Safety requirements for electrical equipment for measurement, control and laboratory use.



# Tinytag Energy Logger

## In The Box

Tinytag Energy loggers are supplied in a carry case that contains the following items:

|                                  |                   |
|----------------------------------|-------------------|
| 1 x Tinytag Energy Logger        | 3 x Current coils |
| 1 x UK mains lead                | 1 x EU mains lead |
| 1 x Tinytag Explorer software CD | 1 x USB cable     |
| 1 x User Manual                  |                   |

There are three different coils sizes to choose from, as below:

|  |   |   |
|--|---|---|
| <p><b>TGE-0001 (Standard Coils)</b></p> <p><b>Coil Specification</b></p> <p><b>Part Number</b> ACS-0020</p> <p><b>Coil Thickness</b> 8mm</p> <p><b>Inner Loop Diameter</b> 85mm (typical)</p> <p><b>Cable Length</b> 1m</p> <p><b>Weight</b> 72g</p>   |   |   |
| <p><b>TGE-0002 (Large Coils)</b></p> <p><b>Coil Specification</b></p> <p><b>Part Number</b> ACS-0021</p> <p><b>Coil Thickness</b> 8mm</p> <p><b>Inner Loop Diameter (typical)</b> 175mm (typical)</p> <p><b>Cable Length</b> 1m</p> <p><b>Weight</b> 125g</p>  |  |  |
| <p><b>TGE-0003 (Small Tear-drop Coils)</b></p> <p><b>Coil Specification</b></p> <p><b>Part Number</b> ACS-0022</p> <p><b>Coil Thickness</b> 8mm</p> <p><b>Inner Loop Diameter</b> 38mm (typical)*</p> <p><b>Cable Length</b> 1m</p> <p><b>Weight</b> 100g</p> <p>*The loop diameter can be minimised by fitting a cable tie around the lower part of the coil, once it has been clipped around a conductor (as shown).</p> |  |  |