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GREEN ENERGY FOR OUR PLANET

EGM-PWM ENERGY METER

Energy Meter
Energiemessgerät
Energiemeter
Compteur d'énergie
Измеритель мощности и энергии
Вимірювач потужності та енергії

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Features

- USB Energy Meter, allows insight in your energy consumption (voltage/current/power)
- Power Manager software helps calculate the actual energy costs of your equipment
- Software provides basic power consumption readings (home use) and advanced readings (business/scientific use)

Specifications

- Input: 220-240 V AC 50-60 Hz
- Load max: 10 A
- Power consumption max: 1.2W
- USB 1.1 or 2.0 compatible interface
- Computer measurements: voltage and current measuring (RMS values), true power measuring, real energy consumed during a time period (kWh)
- Measurements range: up to 250 V AC, 10 A (RMS), 2500 W, 22 MW a year
- Measurements accuracy: ± 2% (within 50 W - 2500 W power range)
- Working conditions: (+ 10 to 40) °C, below 90 % humidity
- Dimensions: 130 mm x 92 mm x 72 mm
- Net weight: 0.3 kg

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1. Indicators and controls of the EGM-PWM

Figure #1

Socket

Day/Night mode indicator

Load indicator

USB socket

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• Indicator "Day/Night mode" is lit – it means that the night mode is active (when the day/night mode are enabled – see section 7 below)

• Indicator "Load" is lit up – it means that the connected equipment is consuming energy

2. Hardware requirements

• A free USB port
• Windows XP/2000/Vista/Windows 7/Windows 8

3. Package contents

• EGM-PWM
• User manual
• USB cable
• CD with Power Manager software for Windows

4. Installation of EGM-PWM

To install your EGM-PWM please follow the steps below:

1. Install the Power Manager software (see chapter 5 below).
2. Plug the EGM-PWM into the wall socket

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Note:

- Avoid damp or wet places for installation

- EGM-PWM should be connected to a European AC wall socket of the DIN 49 440 (German Schuko type) standard

- It is possible to connect the EGM-PWM to the power mains via socket strips, surge protectors, voltage regulators or a UPS

3. Connect the EGM-PWM (see Figure #1 above) to your computer with the supplied USB cable.

4. Plug any device into the *Socket* (see Figure #1 above) of the EGM-PWM and you are ready to measure its energy consumption.

5. Software installation

- Insert software CD into the PC CD-ROM drive.

- If for any reason the automatic setup does not work, please use the "My computer" window to open the CD-ROM drive folder and launch SETUP.EXE from the CD.

- Follow the on-screen instructions of the installation software.

- Once the setup is completed the Power Manager software will open automatically (see chapter 6 below).

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6. Power Manager

Your EGM-PWM has an *offline* and an *online* working mode.

It is "offline" whenever it is not connected to a PC, or when the PC is turned off. The device will come "online" automatically when it is connected to a PC with the Power Manager software running. In this mode the software keeps downloading the power readings from the EGM-PWM into a database. In the *offline* mode the EGM-PWM will only save Energy consumption data (kWh), which will be logged into the database when the device comes online again. The measured data can be viewed and analysed with the Power Manager software. The software shows different energy characteristics changing over time – including the money spent and the power consumption (kWh). When the software is started, the main power manager window will appear, which shows a list of all connected devices (see Figure #2 below).

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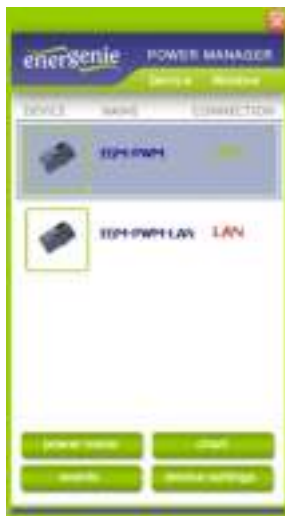
Figure #2

Push the *Device settings* button (bottom right here) to set the device-specific options (see Figure #3 below)

Figure #3

In the settings screen you are able to change the name of your device (in the *Name* field) and the data downloading frequency (in the *Measurement reading period* field) - from 2 to 10 seconds.

To delete all previous recorded data, just push the *Clear database* button.

Note: *Device IP*, *Port* and *Enabled* fields will be grey – these functions are only available on the LAN version of the EGM-PWM

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To open the Power Meter window, select your EGM-PWM device from the list (see Figure #2 above) and then click the *Power meter* button (see the chapter 7 below).

7. Power Meter

The Power Meter window can be opened in either a minimized or maximized mode. The minimized Power Meter window is shown in Figure #4 below. This window is useful for monitoring selected measured values. It displays:

- A single measured value (e.g. money spent)

Note: Click with the right mouse button over this field to choose a different measured value to display

- Two warning indicators. These indicators by default would show you when the voltage is beyond its limits (too high or too low)
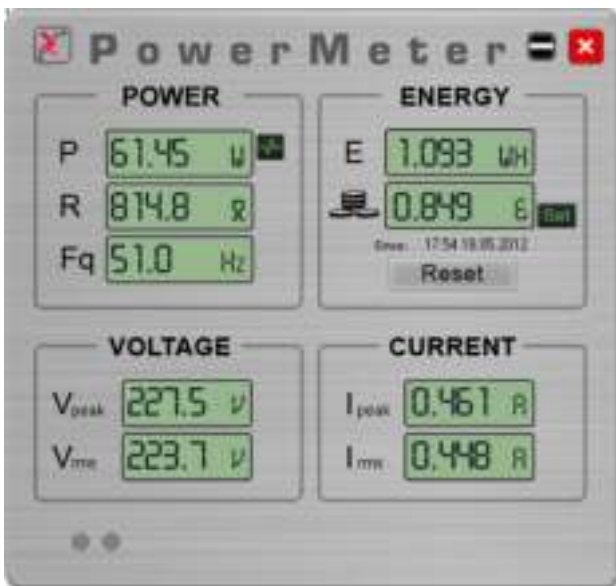
Note: Read Chapter #9 below if you wish to customize these indicators

Figure #4

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Push Maximize button in this window to open the full-size Power Meter window – see Figure #5 below.

Figure #5

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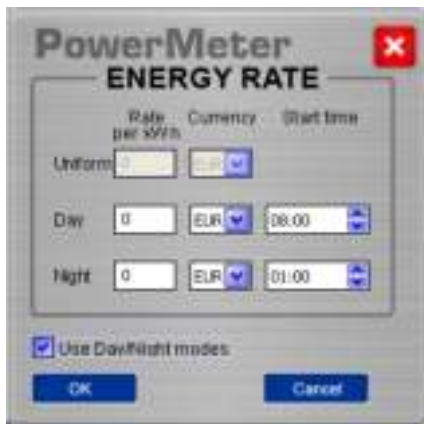
This window displays all the measured values:
- Real power (P)
- Active impedance (R)
- Frequency of current (Fq)
- Energy consumed (E)
- The cost of energy consumed (money sign)
- RMS voltage (V rms)
- Peak voltage (V peak)
- RMS current (I rms)
- Peak current (I peak)

It is beyond the scope of this manual to explain the physical meaning of these values. For most consumers the energy and its cost are the most interesting.

The *Energy (E)* value shows the accumulated energy consumption (in watt-hours) since a certain date (the last time when *Reset* button was pressed). This date is shown below the *Cost* display. The *Cost* value is based on the amount of energy consumed and the energy costs. Push the *Set* button (near the *Cost* value) to specify the energy costs for your home or office situation– see Figure # 6 below.

By Pushing the *Reset* button both Energy and Cost counters will be reset to zero.

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Figure #6

Choose the rate (per kWh) and currency. If you have different rates for peak hours and off-peak hours, just check the box *Use Day/Night modes*. You will then be able to enter the dual rates and the start/finish times for these modes.

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8. Using the charts

In the *online* mode the values of P, R, Fq, Irms, Vrms and Cost are continuously logged into the database. These readings can be used to build time charts. To display the charts just click on the desired value in the Main Power Meter window (see Figure #5 above) or push the *Chart* button in the Power Manager window (see Figure #2 above). This will open the Chart window as displayed in Figure # 7 below.

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Figure #7
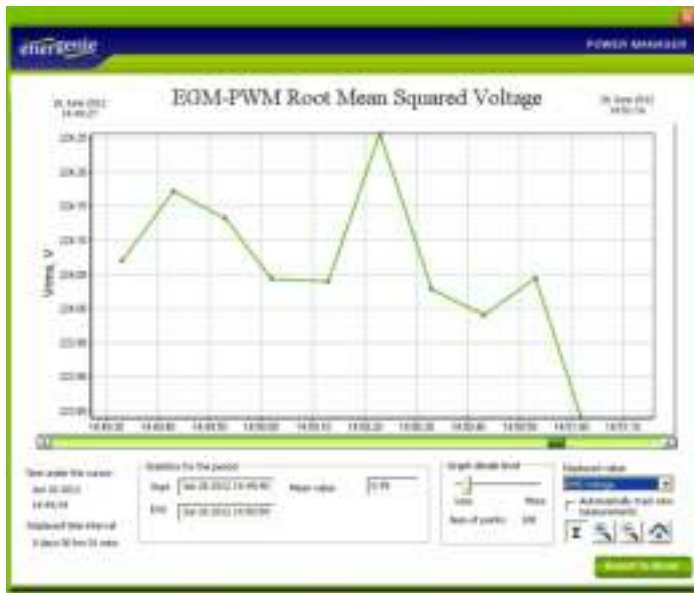
The horizontal axis represents the date/time and the vertical axis represents the values of the chosen parameter.

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Note: The scale of the vertical axis changes automatically once you browse or zoom the chart. The scale will be chosen in such a way that all the values within the displayed time period fit onto the screen.
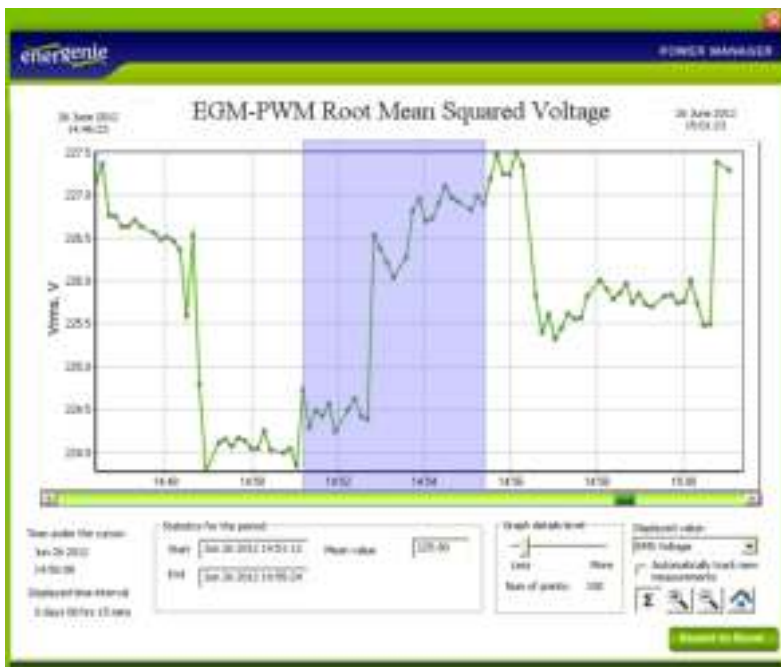
Some extra tools are placed under the chart:

- From the *Displayed value* list box you can choose the value which you wish to display in the graph area...

- The displayed chart normally shows the average values of the chosen parameter. You can determine the data point density with the *Graph details level* slider. With this slider you actually change the number of points within the chosen time interval for the averaging. Fewer points mean less details and a smoother chart. More points mean more details and a more precise chart.

- $\boxed{\Sigma}$ - The Sum tool is used to calculate energy statistics within a selected time period. Push the Σ- button to activate this feature and then select a time period on the chart area by dragging and dropping with the left mouse button. Doing so you will select the period as shown on the Figure # 8 below. The chosen period will be selected on the chart and the start and finish values of the interval will be shown in the corresponding fields inside *Statistics for the period* box. The calculated average value will be shown in the *Mean value* field.

Tip: You can calculate the total energy consumption within a certain period using this function in Real power chart.

Note: you can also adjust the *Start* and *Finish* fields manually.

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Figure #8

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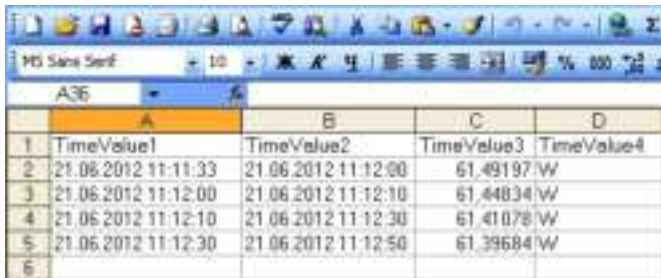
- ▣ ▣ - The zooming tool allows changing the time scale of the chart. Push the zooming tool button and then click with the left mouse button to adjust the scale to the desired level

- ⌂ - When you select the home tool, the chart displays every record from the whole period where the selected parameter has any records in the database

- **Export to Excel** - The Excel tool exports the average values of the selected period into an Excel file for further analysis or archiving – see Figure #9 below.

Figure #9

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9. Advanced features

The Power Manager software also allows you to define a number of user-defined events. Possible events are: Lighting up the indicators in the Power Meter window (see Chapter 7 above), or run a user-specified application. To set the parameters for such events (see Figure #10 below), just push the *Events* button in the Power Manager window (see Figure #2 above)

Figure #10

To define your event, first choose the parameter of your interest from the *Value* list box. If you wish the event to be triggered when the value of this parameter exceeds a certain maximum – fill in the *Max* field then. If you wish the event to be triggered when the value of this parameter drops

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below a certain minimum – fill in the *Min* field. Secondly you select the desired action from the *Action* list box. If you choose to execute a specific application or program, you can select the path to this application in the *Path* field. It is possible to give the event a practical name in the *Name* field.

Select the *Use growth* checkbox if you are interested in the difference between the current value of the parameter and its previous value, rather than in its absolute value.

Tip: *Use growth* checkbox might be particularly useful if you wish to do something whenever a certain device gets switched on or off.

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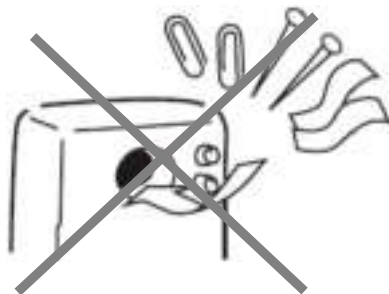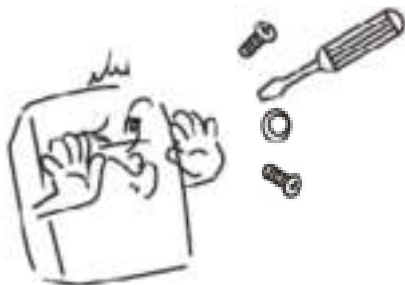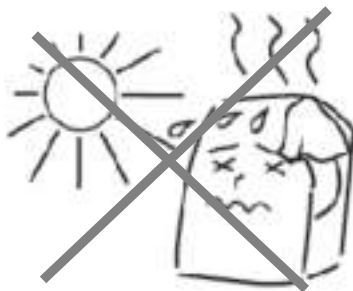
EC Declaration of Conformity

We hereby certify that the following product complies with all the relevant
Safety Requirements of § 4 EMVG and of the Directives 2006/95/EC, 93/68/EEC and 2004/108/EC.

Applicant :   Gembird Europe BV
                          Wittevrouwen 56,
                          1358CD, Almere, The Netherlands

Equipment :   Computer parts
Model Nos. :   EGM-PWM
Product description :   EGM-PWM Energy Meter

European standards

EN60022:2006; EN55024:1998+A1:2001+A2:2003; EN61000-3-2:2006;
EN61000-3-3:2008; EN60336:2002+A13:2008; EN55014:2006;
EN55014-2:1997+A2:2008

The following manufacturer/WITHIN Europe is responsible for this declaration:

Gembird Europe BV
Wittevrouwen 56, 1358CD, Almere, The Netherlands
Tel: +31-(0)36-5211888, Fax: +31-(0)36-5347836

_____
                          Director

The Netherlands / Feb. 16, 2011
Place and Date   _____
                                        Authorized signature

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Waste disposal:	Entsorgungshinweise:
Do not deposit this equipment with the household waste. Improper disposal can harm both the environment and human health. For Information about waste collection facilities for used electrical and electronic devices, please contact your city council or an authorized company for the disposal of electrical and electronic equipment.	Werfen Sie dieses Gerät nicht in den Hausmüll. Unsachgemäße Entsorgung kann sowohl der Umwelt als auch der menschlichen Gesundheit schaden. Informationen zu Sammelstellen für Altgeräte erhalten Sie bei Ihrer Stadtverwaltung oder einer autorisierten Stelle für die Entsorgung von Elektro-und Elektronikgeräten.
Richtlijnen m.b.t. afvalverwerking	Traitement des déchets:
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The warranty period is 24 months and begins with the sale to the end user. The receipt must clearly list the date of purchase and the part number, in addition it should be printed. Keep the receipt for the entire warranty period since it is required for all warranty claims. During the warranty period the defective items will be credited, repaired or replaced at the manufacturer's expense. Work carried out under the warranty neither extends the warranty period nor starts a new warranty period. The manufacturer reserves the right to void any warranty claim for damages or defects due to misuse, abuse or external impact (falling down, impact, ingress of water, dust, contamination or break). Wearing parts (e.g. rechargeable batteries) are excluded from the warranty. Upon receipt of the RMA goods, Gembird Europe B.V. reserves the right to choose between replacement of defective goods or issuing a credit note. The credit note amount will always be calculated on the basis of the current market value of the defective products	Die Garantie beträgt 24 Monate ab Verkaufsdatum an den Endverbraucher. Das Kaufdatum und der Gerätetyp sind durch eine maschinell erstellte Kaufquittung zu belegen. Bitte bewahren Sie Ihren Kaufbeleg daher für die Dauer der Garantie auf, da er Voraussetzung für eine eventuelle Reklamation ist. Innerhalb der Garantiezeit werden alle Mängel, wahlweise durch den Hersteller entweder durch Instandsetzung, Austausch mangelhafter Teile oder im Austausch, behoben. Die Ausführung der Garantieleistung bewirkt weder eine Verlängerung noch einen Neubeginn der Garantiezeit. Eine Garantieleistung entfällt für Schäden oder Mängel die durch unsachgemäße Handhabung oder durch äußere Einwirkung (Sturz, Schlag, Wasser, Staub, Verschmutzung oder Bruch) herbeigeführt wurden. Verschleißteile (z.B. Akkus) sind von der Garantie ausgenommen.
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