

DIREKTRONIK

GREEN ENERGY FOR OUR PLANET



**EGM-PWML
ENERGY METER WITH MEMORY**

**USER MANUAL
HANDBUCH
HANDLEIDING
MANUEL DESCRIPTIF
РУКОВОДСТВО ПОЛЬЗОВАТЕЛЯ
КЕРІВНИЦТВО КОРИСТУВАЧА**

Energy Meter with memory

Energiemessgerät

EnergieMeter

Compteur d'énergie avec de la mémoire

Измеритель мощности и энергии

Вимірювач потужності та енергії



Features

- USB Energy Meter, creates exact insight in your energy consumption (voltage/current/power)
- No permanent computer connection required
- Stores 34 hours of energy consumption data in the internal memory
- Power Meter software helps calculating 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: $\pm 2\%$ (within 50 W - 2500 W power range)
- FLASH memory: 128 KB
- Working conditions: (+ 10 to 40) C, below 90 % humidity
- Dimensions: 130 mm x 92 mm x 72 mm
- Net weight: 0.3 kg

1. Indicators and controls of the EGM-PWML



Figure #1

2. Hardware requirements

- A free USB port
- Windows XP/2000/Vista/Windows 7

3. Package contents

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

4. Installation of EGM-PWML

To use EGM-PWML please follow next steps:

1. Install the software.
2. Connect the EGM-PWML to the PC with USB cable.
 - It is strongly recommended to avoid damp or wet places for installation.
 - EGM-PWML should be connected to the European AC wall socket of the standard DIN 49 440;

- It is possible to connect the EGM-PWML to the power source via other multi-plugs, surge protectors, voltage regulators or UPS.

5. Software installation

- a. Insert CD with the software into the PC CD-ROM drive.
- b. If for any reason the automatic setup does not work, then open CD-ROM drive in the “My computer” window and launch SETUP.EXE from the CD.

Follow instructions of the installation software.

6. Power Manager

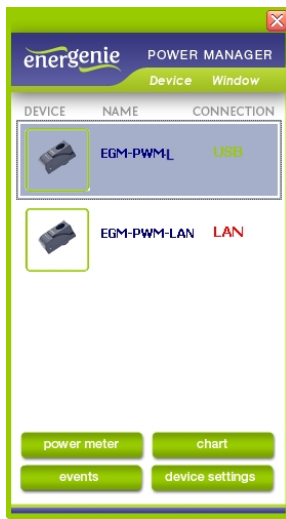
Your EGM-PWML has an *offline* and an *online* working mode.

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-PWML into a database. In *offline* mode, the EGM-PWML records the real power consumed and stores it into the internal memory. The internal memory capacity is enough for around 34 (thirty four) hours of continuous recording.

Records in EGM-PWML are downloaded and added into the database by Power Manger automatically every time, when EGM-PWML is recognized. When chart window is opened charts are rebuilt. After succesfull download the recordings into the database, recordings memory is cleared automatically.

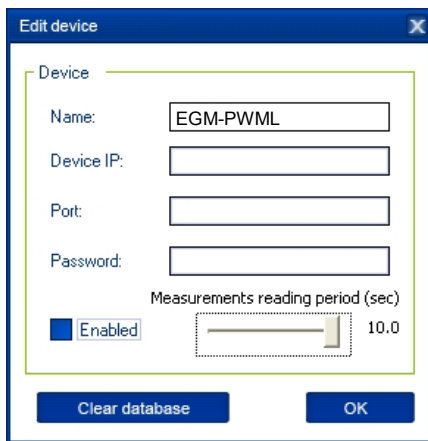
The data can then be viewed and analysed with the Power Manager software. The software shows different energy characteristics changing over time – including the money spent and the power consumption (kWh). When the software is started, the main power manager window will appear, which shows a list of all connected devices (see Figure #2 below).

Figure #2



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

Figure #3



The screenshot shows a window titled "Edit device" with a close button (X) in the top right corner. The window contains a "Device" section with the following fields:

- Name:** A text box containing "EGM-PWML".
- Device IP:** An empty text box.
- Port:** An empty text box.
- Password:** An empty text box.
- Measurements reading period (sec):** A section containing a blue "Enabled" checkbox and a slider control. The slider is positioned at the right end, and the value "10.0" is displayed to its right.

At the bottom of the window, there are two buttons: "Clear database" and "OK".

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-PWML.

To open the Power Meter window, select your EGM-PWML 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:

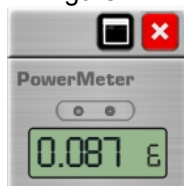
- A single measured value (e.g. money spent)

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)

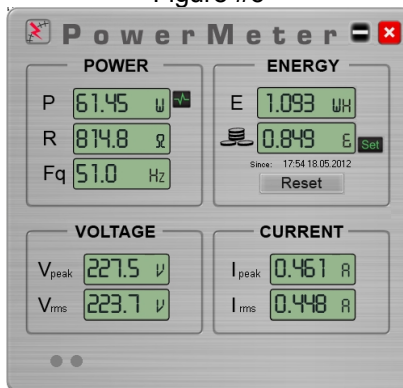
Note: Read Chapter #9 below if you wish to customize these indicators

Figure #4



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

Figure #5



This window displays all the measured values:

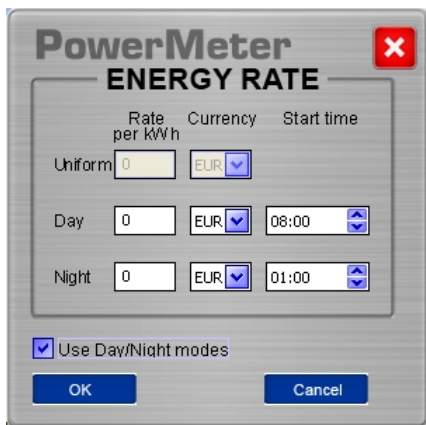
- Real power (P)
- Active impedance (R)
- Frequency of current (Fq)
- Energy consumed (E)
- The cost of energy consumed (money sign)
- RMS voltage (V rms)
- Peak voltage (V peak)
- RMS current (I rms)
- Peak current (I peak)

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.

Figure #6



The screenshot shows a window titled "PowerMeter ENERGY RATE" with a red close button in the top right corner. The window contains a table for configuring energy rates:

	Rate per kWh	Currency	Start time
Uniform	0	EUR	
Day	0	EUR	08:00
Night	0	EUR	01:00

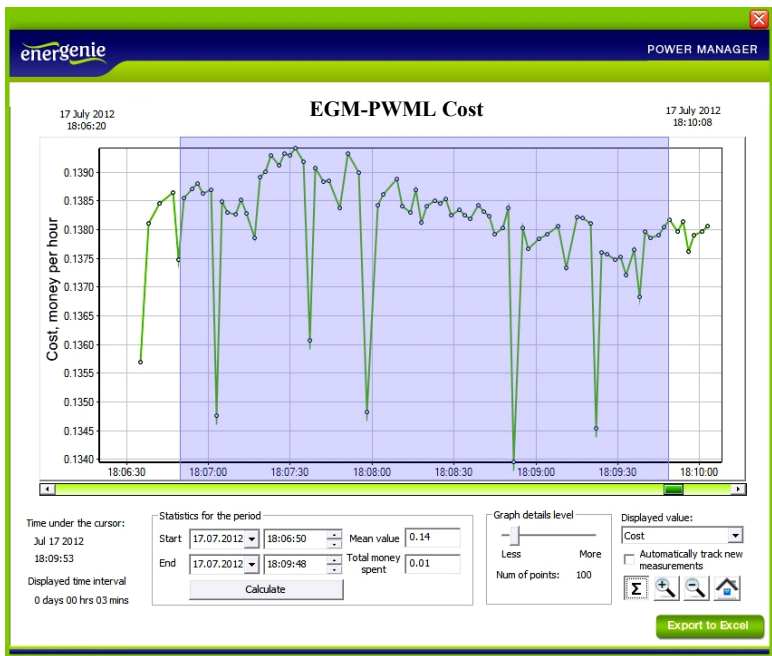
Below the table, there is a checked checkbox labeled "Use Day/Night modes". At the bottom of the window are two buttons: "OK" and "Cancel".

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.

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.

Figure #7



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

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.

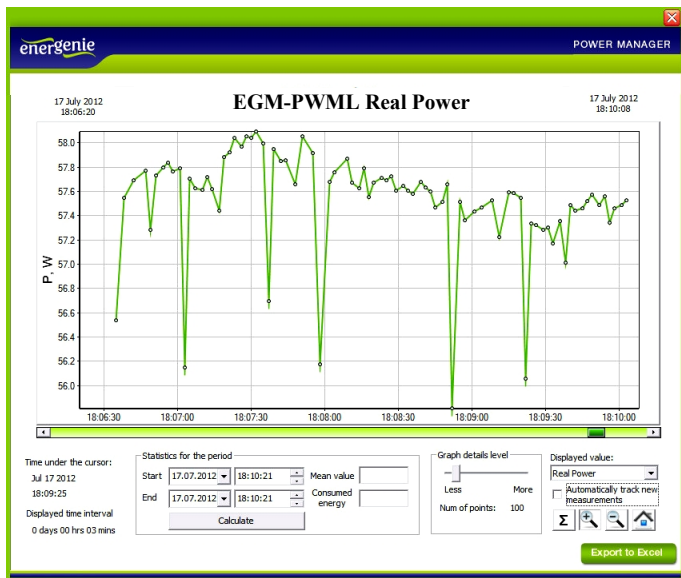
Some extra tools are placed under the chart:

- 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.
- Σ - 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.

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

Tip: You can calculate the total energy consumption within a certain period pushing the *Calculate* button - see Figure #8 below

Figure #8






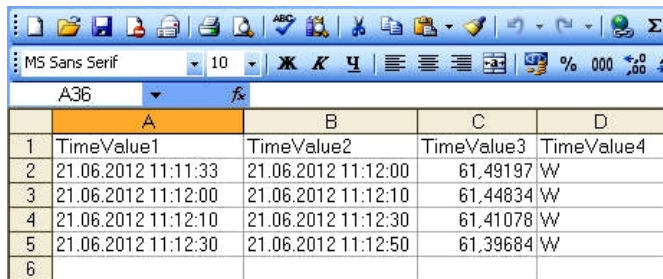
-  - The zooming tool allows changing the time scale of the chart. Push the zooming tool button and then click with the left mouse button to adjust the scale to the desired level
-  - When you select the home tool, the chart displays every record from the whole period where the selected parameter has any records in the database
-  - 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

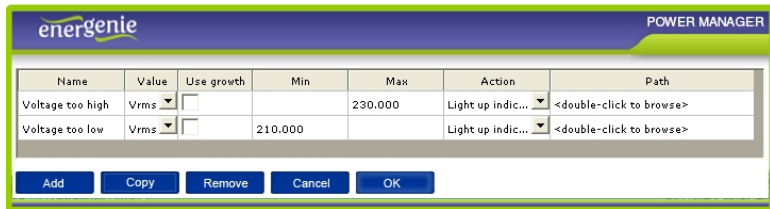


	A	B	C	D
1	TimeValue1	TimeValue2	TimeValue3	TimeValue4
2	21.06.2012 11:11:33	21.06.2012 11:12:00	61,49197	W
3	21.06.2012 11:12:00	21.06.2012 11:12:10	61,44834	W
4	21.06.2012 11:12:10	21.06.2012 11:12:30	61,41078	W
5	21.06.2012 11:12:30	21.06.2012 11:12:50	61,39684	W
6				

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



The screenshot shows the 'energenie POWER MANAGER' window. It contains a table with the following data:

Name	Value	Use growth	Min	Max	Action	Path
Voltage too high	Vrms ▾	<input type="checkbox"/>		230.000	Light up indic... ▾	<double-click to browse>
Voltage too low	Vrms ▾	<input type="checkbox"/>	210.000		Light up indic... ▾	<double-click to browse>

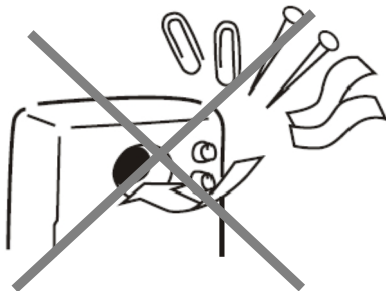
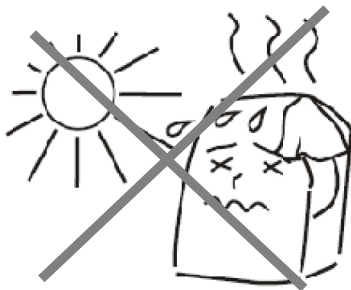
Below the table are five buttons: Add, Copy, Remove, Cancel, and OK.

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 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.



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-PWML

Product description : EGM-PWML Energy Meter with memory

European standards:

EN55022:2006; EN55024:1998+A1:2001+A2:2003; EN61000-3-2:2006;
EN61000-3-3:2008; EN60335:2002+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)36-5211588. Fax: +31-(0)36-5347835

Director

The Netherlands / Dec. 6, 2010

Place and Date



Authorized signature

Waste disposal:



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.

Entsorgungshinweise:



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



Batterijen en accu's dienen als kleinchemisch afval afgeleverd te worden bij toegewezen afvalverzamelpunten (zie www.afvalgids.nl). U dient ervoor te zorgen dat de batterijen/accu's leeg zijn en dus geen stroom meer kunnen leveren. Let op, de batterijen/accu's dienen onbeschadigd ingeleverd te worden.

Gooi dit product niet weg in uw vuilnisbak. Dit kan zowel het milieu als de menselijke gezondheid schade toebrengen. Informatie over het inleveren van dit product kunt u inwinnen bij uw gemeentelijke vuilnisdienst of andere geautoriseerde instelling in uw buurt.

Traitement des déchets:



Ne jetez pas cet appareil dans les déchets domestiques. Un traitement inapproprié peut être dommageable à l'environnement et à la santé humain.

Vous trouvez des informations sur les centres de rassemblement des appareils vieux chez l'administration municipale ou

chez un centre autorisé pour le traitement des appareils électriques ou électroniques.

WARRANTY CONDITIONS 	GARANTIE BEDINGUNGEN   
<p>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</p>	<p>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.</p> <p>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.</p>
<p>Gembird Europe B.V. Wittevrouwen 56, 1358CD Almere The Netherlands www.gembird.nl/support support@gmb.nl Tel. +31-36-5211588</p>	<p>GEMBIRD Deutschland GmbH Coesterweg 45, 59494 Soest Deutschland www.gembird.de/support support@gembird.de Tel. +49-180 5-436247 0,14 € pro Minute aus dem deutschen Festnetz. Mobilfunkpreise können abweichen</p>

GARANTIE VOORWAARDEN 	CONDITIONS DE GARANTIE 
<p>De garantietermijn bedraagt 24 maanden en gaat in op de aankoopdatum van het product door de eindgebruiker. Op de aankoopbon moeten de aankoopdatum en productomschrijving duidelijk vermeld staan. Gelieve de aankoopbon de gehele garantietermijn te bewaren, deze is ten alle tijden benodigd voor alle garantie aanspraken. Tijdens de garantietermijn zullen alle gebreken verholpen of vervangen worden door de fabrikant d.m.v. reparatie, omruiling van het defecte onderdeel of het gehele apparaat. Aanspraken tijdens de garantietermijn leiden niet tot verlenging hiervan. Garantieaanspraak vervalt bij schade of gebreken die ontstaan zijn door oneigenlijk gebruik, misbruik of invloeden van buitenaf (vallen, stoten, water, stof, vuil of breken). Slijtagegevoelige onderdelen (b.v. batterijen) zijn uitgesloten van garantie. Bij ontvangst van de RMA goederen behoudt Gembird zich het recht om te kiezen tussen vervanging van de defecte waren of het uitgeven van een kredittota. Het bedrag van de kredittota zal altijd gecaluleerd zijn op basis van de huidige marktprijs voor het defecte product.</p>	<p>Garantie est de 24 mois à partir de la date d'achat de l'utilisateur final. Le talon de garantie doit énumérer clairement la date d'achat et le type d'appareil. Conservez le reçu d'achat pendant toute la durée de la garantie car elle est nécessaire pour toute réclamation. Au cours de la période de garantie tous les défauts doivent être remplacé aux frais du fabricant, soit par la réparation ou la remplacement de la pièce défectueuse ou l'ensemble du produit. Les travaux effectués sous garantie ne prolongent pas la période de garantie ni ne commencent pas une nouvelle période de garantie. Le fabricant se réserve le droit d'annuler toute demande de garantie pour les dommages ou défauts dus à une mauvaise utilisation, abus ou les effets externes (chute, choc, pénétration de l'eau, la poussière, etc...). Les pièces d'usure (par exemple les piles rechargeables) sont exclus de la garantie. Dès réception de la marchandise sous garantie, le SAV de Gembird Europe BV se réserve le droit de choisir entre le remplacement des produits défectueux ou de délivrer un avoir. Le montant d'avoir sera toujours calculée sur la base de la valeur actuelle du marché des produits défectueux.</p>
<p>Gembird Europe B.V. Wittevrouwen 56, 1358CD Almere The Netherlands www.gembird.nl/support support@gmb.nl Tel. 0900-4362473 € 0,15 p/m binnen Nederland Exclusief mobiele telefoonkosten</p>	<p>Gembird Europe B.V. Wittevrouwen 56 1358CD Almere, The Netherlands www.gembird.nl/support support@gmb.nl Tel. +31-36-5211588 Prix d'appel depuis telephone fixe Pays-Bas : 0.15 euro / min Prix d'appel depuis telephone mobile / autre pays - selon operateur</p>

ГАРАНТИЙНЫЙ ТАЛОН 	УМОВИ ГАРАНТІЙНОГО ОБСЛУГОВУВАННЯ 
<p>1. Гарантийное обслуживание предоставляется в течение срока гарантии, при наличии правильно и четко заполненного гарантийного талона, и изделия в полной комплектации. Серийный номер и модель изделия должны соответствовать указанным в гарантийном талоне.</p> <p>2. Гарантийное обслуживание представляет собой бесплатное устранение всех неполадок (ремонт), или замену изделия на новое (аналогичное).</p> <p>3. Гарантия не распространяется на неисправности, вызванные следующими причинами:</p> <ul style="list-style-type: none"> • использование изделия не по назначению. • нарушение условий эксплуатации, хранения или перевозки изделия, которые указаны в настоящей инструкции. • подключение нестандартных или неисправных периферийных устройств, аксессуаров. • механические повреждения, попадание внутрь изделия посторонних предметов, веществ, жидкостей, насекомых. • ремонт изделия не уполномоченными на то лицами. <p>4. Комплектность и внешний вид изделия проверяются Покупателем при получении товара в присутствии персонала фирмы.</p> <p>Послепродажные претензии по укомплектованности и внешнему виду не принимаются.</p> <p>Наименование изделия: _____</p> <p>Модель _____</p> <p>Серийный номер _____</p> <p>Срок гарантии _____</p> <p>Дата продажи « ____ » _____ 20 ____ года</p> <p>Фирма-продавец: _____</p> <p>Адрес и телефон фирмы-продавца: _____</p> <p>М.П. С условиями гарантии ознакомлен и согласен: _____</p> <p>Продавец: _____ Покупатель: _____</p>	<p>1. Гарантийное обслуживание надається протягом терміну гарантії, при наявності Гарантійного талону, заповненого належним чином, та виробу в повній комплектації.</p> <p>2. Гарантійне обслуговування не підтримується в разі порушення правил експлуатації, зберігання або перевезення виробу, що зазначені в інструкції по експлуатації виробу.</p> <p>3. Гарантійне обслуговування скасовується у випадках:</p> <ul style="list-style-type: none"> - наявності механічних пошкоджень або слідів стороннього втручання; - пошкодження викликані стихійним лихом або нещасним випадком, включаючи й блискавку, потраплянням у виріб сторонніх предметів, рідин, комах, тощо; - пошкодження викликані застосуванням або підключенням нестандартних або несправних периферійних пристроїв, аксесуарів; <p>4. Гарантія не поширюється на витратні матеріали та додаткові аксесуари;</p> <p>3 гарантійними умовами згоден.</p> <p>Підпис покупця: _____</p> <p>ГАРАНТІЙНИЙ ТАЛОН № _____</p> <p>Товар/модель _____</p> <p>Серійний номер _____</p> <p>Термін гарантії _____</p> <p>Дата продажу _____</p> <p>Продавець (назва, телефон) _____</p> <p>Печатка та підпис продавця _____</p> <p>3 гарантійних питань звертайтеся до сервісних центрів Gembird. Про адреси та контакти Ви можете дізнатись на сайті www.gembird.ua або по телефону 044-4510213.</p>