

Hardware User's Manual

Individual rotation counter



References:

LE902CC (76-0242)

Publication:

PB-MF-MAN-065-REV1.1

Limitation of Liability

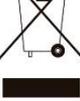
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Some symbols may have more than one interpretation by professionals unaccustomed to their usage.

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1. SYMBOLS TABLE

Recognising the symbols used in the manual will help to understand their meaning:

DESCRIPTION	SYMBOL
Warning about operations that must not be done because they can damage the equipment	
Warning about operations that must be done, otherwise the user can be exposed to a hazard.	
Protection terminal ground connection.	
Warning about a hot surface which temperature may exceed 65°C	
Warning about a metal surface that can supply electrical shock when it's touched.	
Decontamination of equipments prior to disposal at the end of their operative life	
Waste Electrical and Electronic Equipment Directive (WEEE)	

2. GOOD LABORATORY PRACTICE

Check all units periodically and after periods of storage to ensure they are still fit for purpose. Investigate all failures which may indicate a need for service or repair.

Good laboratory practice recommends that the unit be periodically serviced to ensure the unit is suitable for purpose. You must follow preventive maintenance instructions. In case equipment has to be serviced you can arrange this through your distributor. Prior to Inspection, Servicing, Repair or Return of Laboratory Equipment the unit must be cleaned and decontaminated.



Decontamination prior to equipment disposal

In use this product may have been in contact with bio hazardous materials and might therefore carry infectious material. Before disposal the unit and accessories should all be thoroughly decontaminated according to your local environmental safety laws.

3. UNPACKING AND EQUIPMENT INSTALLATION



WARNING: Failure to follow the instructions in this section may cause equipment faults or injury to the user.

- A. No special equipment is required for lifting but you should consult your local regulations for safe handling and lifting of the equipment.
- B. Inspect the instrument for any signs of damage caused during transit. If any damage is discovered, do not use the instrument and report the problem to your supplier.
- C. Ensure all transport locks are removed before use. The original packing has been especially designed to protect the instrument during transportation. It is therefore recommended to keep the original carton with its foam parts and accessories box for re-use in case of future shipments. Warranty claims are void if improper packing results in damage during transport.
- D. Place the equipment on a flat surface and leave at least 10 cm of free space between the rear panel of the device and the wall. Never place the equipment in zones with vibration or direct sunlight.
- E. Once the equipment is installed in the final place, the main power switch must be easily accessible.
- F. Only use power cords that have been supplied with the equipment. In case that you have to replace them, the spare ones must have the same specs that the original ones.



- G. Make sure that the AC voltage in the electrical network is the same as the voltage selected in the equipment. **Never connect the equipment to a power outlet with voltage outside these limits.**



WARNING

For electrical safety reasons you only can connect equipment to power outlets provided with earth connections .

This equipment can be used in installations with category II over-voltage according to the General Safety Rules.

The manufacturer accepts no responsibility for improper use of the equipment or the consequences of use other than that for which it has been designed.

PC Control

Some of these instruments are designed to be controlled from a PC. To preserve the integrity of the equipment it is essential that the attached PC itself conforms to basic safety and EMC standards and is set up in accordance with the manufacturers' instructions. If in doubt consult the information that came with your PC. In common with all computer operation the following safety precautions are advised.



- WARNING**
- To reduce the chance of eye strain, set up the PC display with the correct viewing position, free from glare and with appropriate brightness and contrast settings
 - To reduce the chance of physical strain, set up the PC display, keyboard and mouse with correct ergonomic positioning, according to your local safety guidelines.

4. MAINTENANCE



WARNING: Failure to follow the instructions in this section may cause equipment fault.

- **PRESS KEYS SOFTLY** – Lightly pressing the keys is sufficient to activate them.
- Equipments do not require being disinfected, but cleaned for removing urine, faeces and odour. To do so, we recommend using a wet cloth or paper with soap (which has no strong odour). **NEVER USE ABRASIVE PRODUCTS OR DISSOLVENTS.**
- **NEVER** pour water or liquids on the equipment.
- Once you have finished using the equipment turn it off with the main switch. Clean and check the equipment so that it is in optimal condition for its next use.
- The user is only authorised to replace fuses with the specified type when necessary.



Figure 1. Power inlet, main switch and fuse holder.

FUSE REPLACEMENT

In case of an over-voltage or other incident in the AC net making it impossible to turn on the equipment, check fuses according to the following procedure.

- 1 Remove power cord from the power inlet

- 2 Open fuse-holder by pulling the flange with a regular screwdriver



Figure 2. Open fuse-holder door.

- 3 Extract fuse holder using the screwdriver.

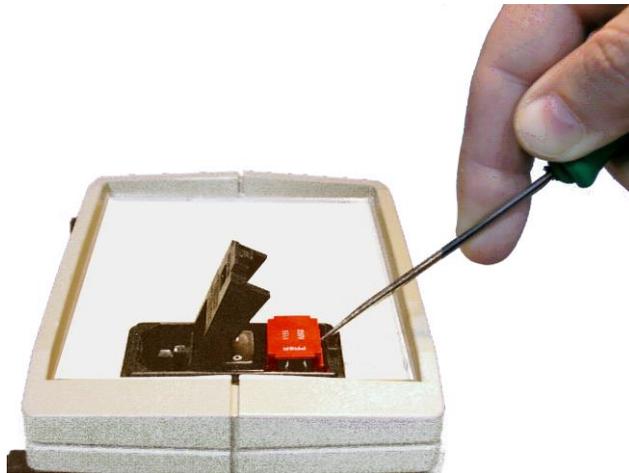


Figure 3. Extract fuse-holder.

- 4 Replace fuses if necessary. Insert fuses in the fuse-holder in the correct position.



CORRECT



INCORRECT

Figure 4. Fuses position.

- 5 Insert again fuse-holder, both possible positions are correct because power supply is universal.
- 6 If the fuses blow again unplug the equipment and contact technical service.



WARNING

For electrical safety, never open the equipment. The power supply has dangerous voltages.

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6. INTRODUCTION

The LE902CC is a two-channel counter that is used altogether with the LE902SR rotameter.



Figure 5. LE902CC Double counter

The LE 902/Sr Rotation Sensor provides a separate output for right and left turns (always considering right/left sides from the perspective of looking down on the device). The output signal can be adjusted from 1 to 16 pulses/turn.

7. EQUIPMENT DESCRIPTION

7.1. FRONT PANEL

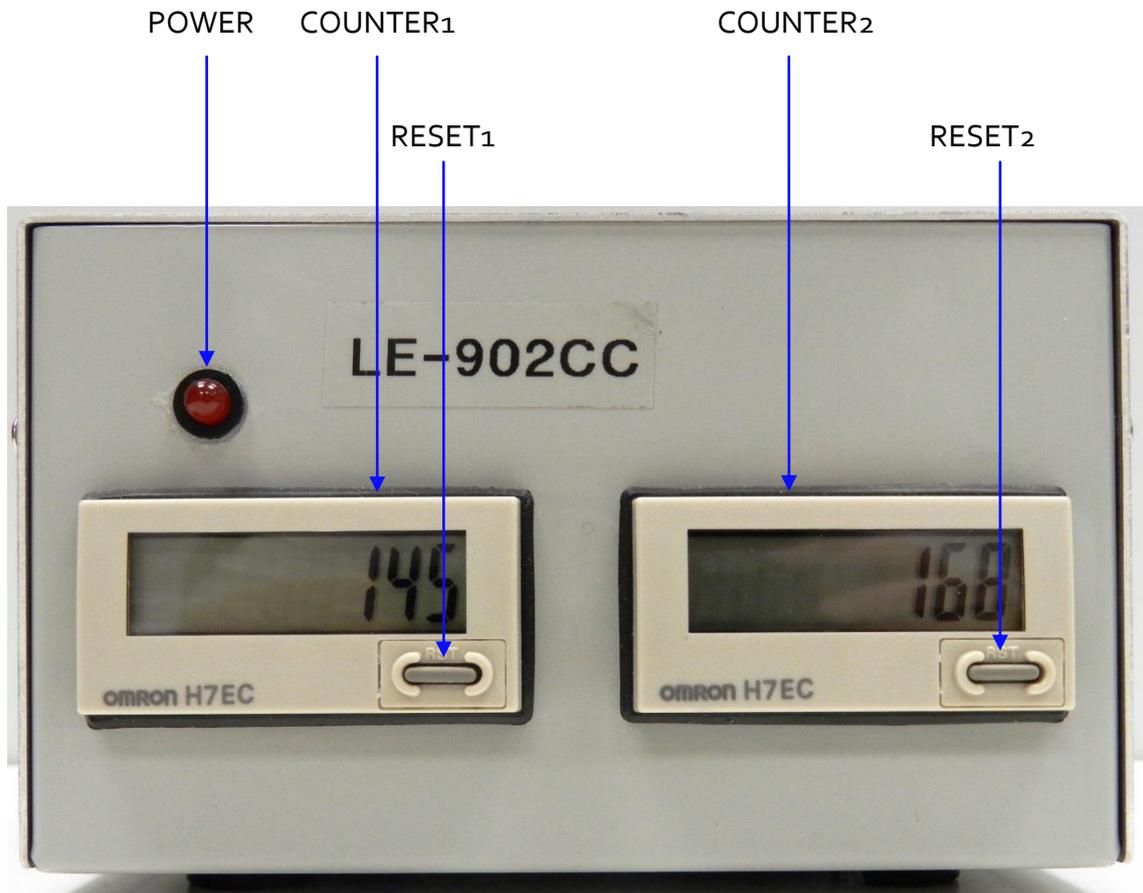


Figure 6. Front panel

- **POWER:** Red LED of 5mm that indicates that the equipment is running.
- **COUNTER1:** Displays the number of pulses that come from the rotameter clockwise.
- **COUNTER2:** Displays the number of pulses that come from the rotameter counter-clockwise.
- **RESET1:** Puts counter1 to zero.
- **RESET2:** Puts counter2 to zero.

7.2. REAR PANEL

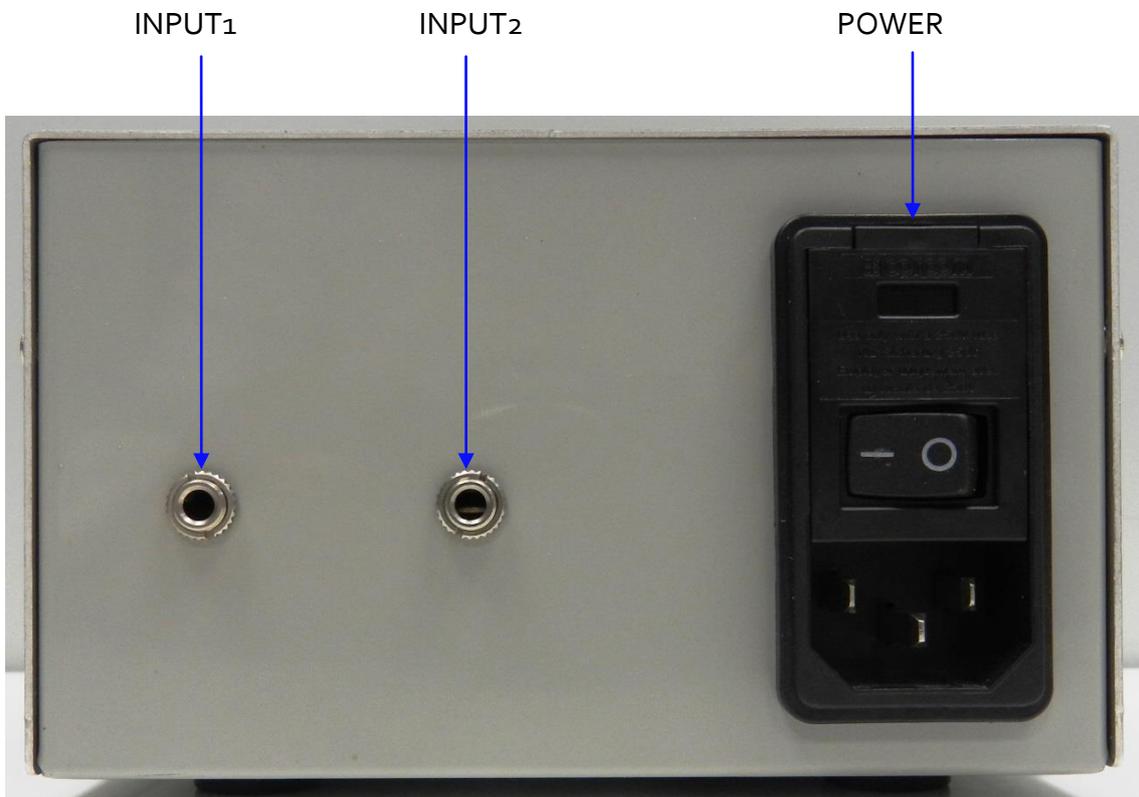


Figure 7. Rear panel

- **INPUT1:** Jack connection that matches counter2 and counts the clockwise turns.
- **INPUT2:** Jack connection that matches the counter1 and counts the counter-clockwise turns.
- **POWER:** Power connector, main switch and fuse holder.

8. EQUIPMENT CONNECTION

Each LEg02C can only connect to one LEg02 Rotameter. Each LEg02CC has two entries, one for each rotation direction (*clockwise, counter-clockwise*).

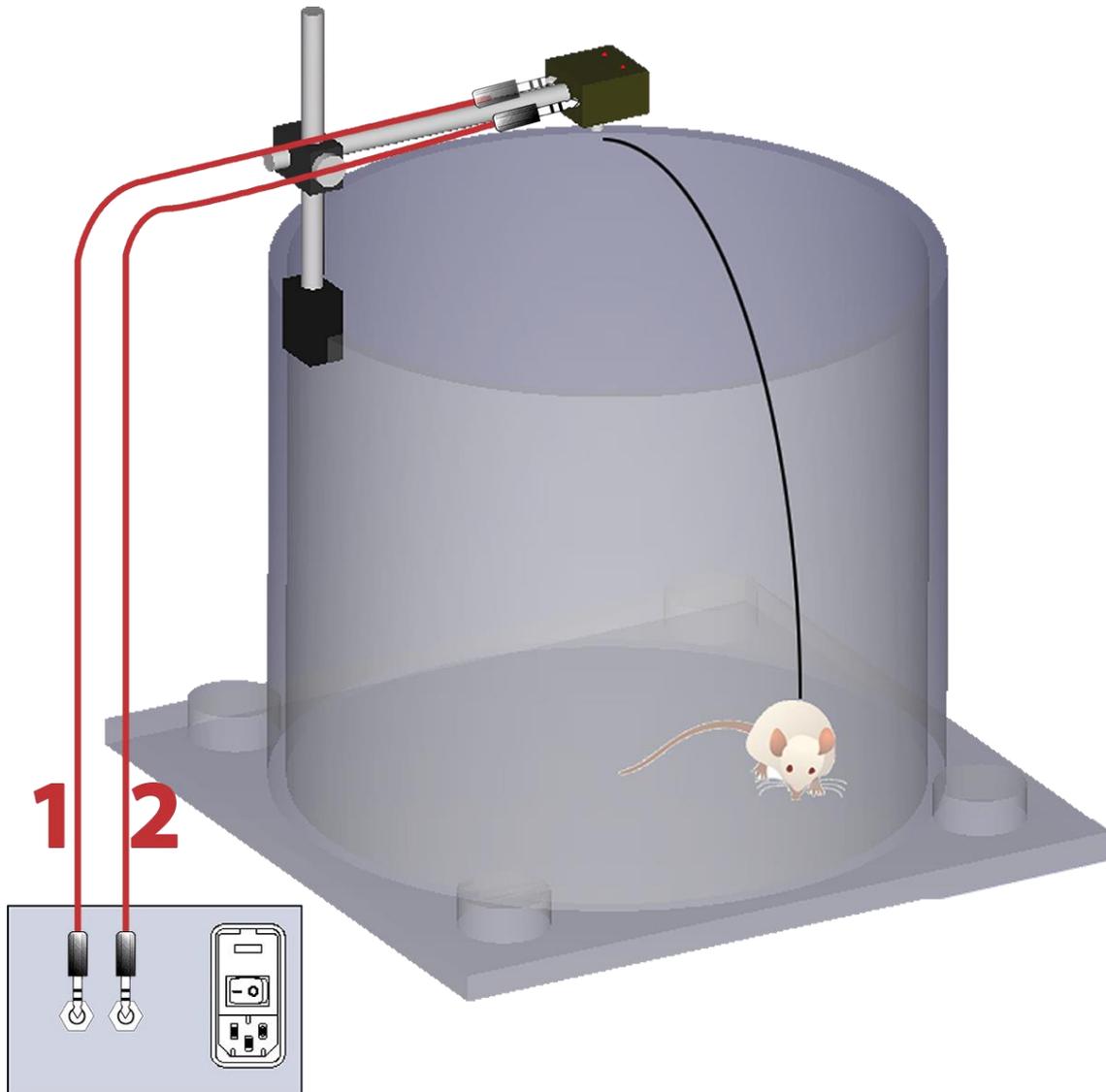


Figure 8. Connection to LE g02CC.

The cables and connections needed are listed in the following table:

	FROM	TO	CABLE
1	LE g02 right	LE g02CC right	Jack stereo of 3,5mm
2	LE g02 left	LE g02CC left	Jack stereo of 3,5mm

9. WORKING WITH THE EQUIPMENT

9.1. MAKING AN EXPERIMENT

1. Connect the two outputs from the rotameter to each input from the double counter LE902CC for each rotation direction.
2. Switch on the double counter LE902CC.
3. Press the reset buttons for setting each counter to zero.
4. Place the animal inside the cylindrical or oval container depending on the case.
5. Secure the animal to the rotameter with the provided harness.
6. The clockwise and counter-clockwise counters will be adding pulses during the experiment.
7. Once the experiment has finished remove the animal from the container.
8. Clean the container so that everything is ready for the next experiment.

9.2. CLEANING THE CONTAINER



WARNING: For cleaning the container never use alcohol nor derived products, otherwise stripes will appear.

For cleaning the container a slightly humid cloth can be used and then it can be dried with a dry cloth. If it is too dirty a soapy solution can be used instead of water, afterwards remove the foam with a humid cloth and finally dry it with a dry cloth.

10. TROUBLESHOOTING

This table features instructions to solve the most frequent problems.

PROBLEM	SOLUTION
The equipment does not start up	<ul style="list-style-type: none"> • Check the condition of the fuses.
When connecting the rotameter the counters of the LEgo2CC are not set to zero	<ul style="list-style-type: none"> • When the rotameters cables are connected a parasite pulse can be produced. Simply press the reset buttons to set the counters to zero.
The counters do not count the pulses	<ul style="list-style-type: none"> • Check that the cables are connected correctly. • Check that when turning the axis of the rotameter in both directions the LEDS are blinking. • Check that the double counter is powered. • Check that the animal has not gnawed the wires.

11. PREVENTIVE MAINTENANCE

	EXPERIMENT
CLEANING OF THE TRANSPARENT CONTAINER	<input checked="" type="checkbox"/>
CHECK THE CONNECTIONS AND THE CABLES STATE	<input checked="" type="checkbox"/>

12. SPECIFICATIONS

<p>POWER SUPPLY</p> <p>Input voltage: Frequency: Fuse: Maximum power: Conducted noise:</p>	<p>100 -240 VAC 50 /60 Hz 2 fuses 5x20mm 1A 290V fast 5 W EN55022 /CISPR22/CISPR16 class B</p>
<p>ENVIRONMENTAL CONDITIONS</p> <p>Temperature range: Operating relative humidity: Storage temperature:</p>	<p>10°C - 40°C 0% a 85% RH, condensation-free 0°C a +50°C, condensation-free</p>
<p>INPUTS</p> <p>Connectors Quantity Power supply</p>	<p>Female Jack connector from panel of 3,5 mm stereo 2 +5V DC</p>
<p>COUNTERS</p> <p>Technology Number of digits Controls</p>	<p>Liquid crystal 8 Reset button</p>
<p>DIMENSIONS</p> <p>Width x Height x Depth: Weight:</p>	<p>8 mm x 12,5 mm x 16 mm 0,5 kg</p>

**DECLARACIÓN DE CONFORMIDAD
DECLARATION OF CONFORMITY
DECLARATION DE CONFORMITÉ**

Nombre del fabricante: **Panlab s.l.u.**
 Manufacturer's name: www.panlab.com
 Nom du fabricant: info@panlab.com

Dirección del fabricante: **Energía, 112**
 Manufacturer's address: **08940 Cornellà de Llobregat**
 Adresse du fabricant: **Barcelona SPAIN**

Declaro bajo su responsabilidad que el producto: **CONTADOR DOBLE**
 Declares under his responsibility that the product:
 Déclare sous sa responsabilité que le produit:

Marca / Brand / Marque: **PANLAB**

Modelo / Model / Modèle: **LE-902CC**

Cumple los requisitos esenciales establecidos por la Unión Europea en las directivas siguientes:
 Fulfils the essential requirements established by The European Union in the following directives:
 Remplit les exigences essentielles établies pour l'Union Européenne selon les directives suivantes:

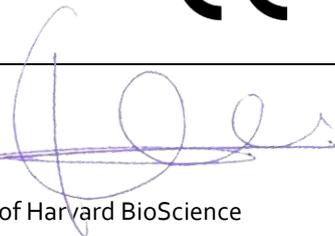
- 2006/95/EC** Directiva de baja tensión / Low Voltage / Basse tension
- 2004/108/EC** Directiva EMC / EMC Directive / Directive CEM
- 2012/19/EU** La Directiva de Residuos de Aparatos Eléctricos y Electrónicos (WEEE) / The Waste Electrical and Electronic Equipment Directive (WEEE) / Les déchets d'équipements électriques et électroniques (WEEE)
- 2011/65/EU** Restricción de ciertas Sustancias Peligrosas en aparatos eléctricos y electrónicos (ROHS) / Restriction of the use of certain Hazardous Substances in electrical and electronic equipment (ROHS) / Restriction de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques (ROHS)
- 2006/42/EC** Directiva mecánica / Machinery directive / Directive mécanique

Para su evaluación se han aplicado las normas armonizadas siguientes:
 For its evaluation, the following harmonized standards were applied:
 Pour son évaluation, nous avons appliqué les normes harmonisées suivantes:

- Seguridad / Safety / Sécurité: **EN61010-1:2011**
- EMC: **EN61326-1:2013 Class B**
- Safety of machinery: **EN ISO 12100:2010**

En consecuencia, este producto puede incorporar el marcado CE:
 Consequently, this product can incorporate the CE marking:
 En conséquence, ce produit peut incorporer le marquage CE:



En representación del fabricante:
 Manufacturer's representative:
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 General Manager
 Panlab s.l.u., a division of Harvard BioScience

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 19/06/2014

(GB) Note on environmental protection:



After the implementation of the European Directive 2002/96/EU in the national legal system, the following applies:

Electrical and electronic devices may not be disposed of with domestic waste. Consumers are obliged by law to return electrical and electronic devices at the end of their service lives to the public collecting points set up for this purpose or point of sale. Details to this are defined by the national law of the respective country. This symbol on the product, the instruction manual or the package indicates that a product is subject to these regulations. By recycling, reusing the materials or other forms of utilising old devices, you are making an important contribution to protecting our environment.

(E) Nota sobre la protección medioambiental:



Después de la puesta en marcha de la directiva Europea 2002/96/EU en el sistema legislativo nacional, Se aplicara lo siguiente:

Los aparatos eléctricos y electrónicos, así como pilas y baterías, no se deben tirar a la basura doméstica. El usuario está legalmente obligado a llevar los aparatos eléctricos y electrónicos, así como pilas y baterías, al final de su vida útil a los puntos de recogida municipales o devolverlos al lugar donde los adquirió. Los detalles quedaran definidos por la ley de cada país. El símbolo en el producto, en las instrucciones de uso o en el embalaje hace referencia a ello. Gracias al reciclaje, a la reutilización de materiales i a otras formas de reciclaje de aparatos usados, usted contribuirá de forma importante a la protección de nuestro medio ambiente.

(F) Remarques concernant la protection de l'environnement :



Conformément à la directive européenne 2002/96/CE, et afin d'atteindre un certain nombre d'objectifs en matière de protection de l'environnement, les règles suivantes doivent être appliquées.

Elles concernent les déchets d'équipement électriques et électroniques. Le pictogramme "picto" présent sur le produit, son manuel d'utilisation ou son emballage indique que le produit est soumis à cette réglementation. Le consommateur doit retourner le produit usager aux points de collecte prévus à cet effet. Il peut aussi le remettre à un revendeur. En permettant enfin le recyclage des produits, le consommateur contribuera à la protection de notre environnement. C'est un acte écologique.

(D) Hinweis zum Umweltschutz:



Ab dem Zeitpunkt der Umsetzung der europäischen Richtlinie 2002/96/EU in nationales Recht gilt folgendes:

Elektrische und elektronische Geräte dürfen nicht mit dem Hausmüll entsorgt werden. Der Verbraucher ist gesetzlich verpflichtet, elektrische und elektronische Geräte am Ende ihrer Lebensdauer an den dafür eingerichteten, öffentlichen Sammelstellen oder an die Verkaufsstelle zurückzugeben. Einzelheiten dazu regelt das jeweilige Landesrecht. Das Symbol auf dem Produkt, der Gebrauchsanleitung oder der Verpackung weist auf diese Bestimmungen hin. Mit der Wiederverwertung, der stofflichen Verwertung oder anderer Formen der Verwertung von Altgeräten leisten Sie einen wichtigen Beitrag zum Schutz unserer Umwelt.

(I) Informazioni per protezione ambientale:



Dopo l'implementazione della Direttiva Europea 2002/96/EU nel sistema legale nazionale, ci sono le seguenti applicazioni:

I dispositivi elettrici ed elettronici non devono essere considerati rifiuti domestici. I consumatori sono obbligati dalla legge a restituire i dispositivi elettrici ed elettronici alla fine della loro vita utile ai punti di raccolta collerici preposti per questo scopo o nei punti vendita. Dettagli di quanto riportato sono definiti dalle leggi nazionali di ogni stato. Questo simbolo sul prodotto, sul manuale d'istruzioni o sull'imballo indicano che questo prodotto è soggetto a queste regole. Dal riciclo, e re-utilizzo del material o altre forme di utilizzo di dispositivi obsoleti, voi renderete un importante contributo alla protezione dell'ambiente.

(P) Nota em Protecção Ambiental:



Após a implementação da directiva comunitária 2002/96/EU no sistema legal nacional, o seguinte aplica-se:

Todos os aparelhos eléctricos e electrónicos não podem ser despejados juntamente com o lixo doméstico. Consumidores estão obrigados por lei a colocar os aparelhos eléctricos e electrónicos sem uso em locais públicos específicos para este efeito ou no ponto de venda. Os detalhes para este processo são definidos por lei pelos respectivos países. Este símbolo no produto, o manual de instruções ou a embalagem indicam que o produto está sujeito a estes regulamentos. Reciclando, reutilizando os materiais dos seus velhos aparelhos, esta a fazer uma enorme contribuição para a protecção do ambiente.