TECHNICAL MANUAL

GATEWAY2K

Gateway for NG-TRX system with serial interface

Addressee for this information: U User | I Installer

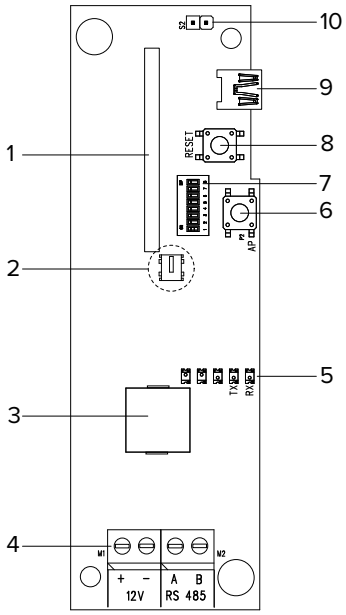
1 DESCRIPTION

GATEWAY2K is an accessory of NG-TRX system.
It allows receiving signals from and sending signals to all NG-TRX wireless devices.
Being part of NG-TRX products series, the device adopts a proprietary two-way encrypted protocol to communicate with the control unit. Data are communicated through three channels with dynamic selection. An advanced anti-collision protocol ensures that transmissions do not overlap/collide.
GATEWAY2K can be programmed using BrowserOne software or via DIP switch.
Its LEDs indicate serial line activity, radio signal strength and tamper protection status.
GATEWAY2K is compatible with:

Compatible control unit	Hardware version	Firmware version
VIDOMO2K	all	8.2.0 or above
PREGIO series	A2 or above	2.3.0 or above
PROXIMA series	all	1.0.2 or above

The device can be connected over RS485 ULTRABUS serial line.
The device is supplied in a plastic housing protected against cover opening and removal from the mounting surface.
The device is suitable for indoor installations.
GATEWAY2K is certified IMQ - Security Systems.

2 PCB



1 Wireless module NG-TRX
2 Button against removal (P3 on the rear panel)
3 Buzzer
4 Terminal board
5 LED indicators
6 Button against opening
7 Dip switches
8 Reset button
9 USB connector
10 Jumper to enable protection against removal (S2)

3 TECHNICAL DATA

Model		GATEWAY2K	
General features			
Operating voltage	Power supply	12	V
	Minimum power supply	6,0	V
Consumption at power voltage	Idle mode	41 (1)	mA
	Transmitting	67,0	mA
Wireless range	maximum	1600 (2)	m
	nominal	300 (2)	m
Max power in transmission mode		25	mW
Transmission frequencies		868.120, 868.820, 869.525 (3)	
IMQ certified		EN 50131-5-3: grade 2	
Environmental class		2	
Protection class		IP3X	
Working temperature		-10 ÷ +55 (4)	°C
Weight		71	g

(1) receiving mode
(2) measured in open field, except for limits due to operating conditions
(3) 3 channels selectable with setup browser
(4) guaranteed by the manufacturer

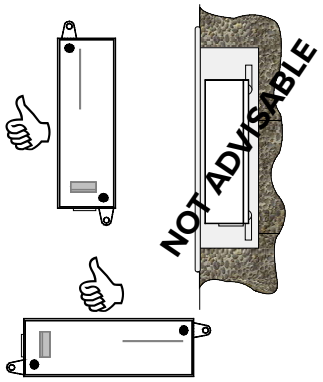
Parts supplied: side fixing hinges (not mounted), two 2.9 × 6.5 mm screws for board fixing, screws and inserts for protection against removal and case fixing, technical manual.
GATEWAY2K is compatible with Pregio control units equipped with A2 hardware or above only.
Hardware version can be checked on control unit keypad.

4 PRECAUTIONS BEFORE DEVICE MOUNTING

⚠ *General warnings are at the end of this manual.*

⚠ *The electronic board of the detector may be damaged by electrostatic discharges. The installer must completely avoid any presence of electrostatic discharges.*

- It is advisable to position the device at 1 m height from floor minimum.
- It is advisable to flush mount the device or use a plastic housing. A mounting recessed into the wall may affect performances negatively. Do avoid installing the device inside a metal housing.



- The maximum number of GATEWAY2K that can be connected depends on control unit type:

VIDOMO2K	3
PREGIO series	4
PROXIMA series	4

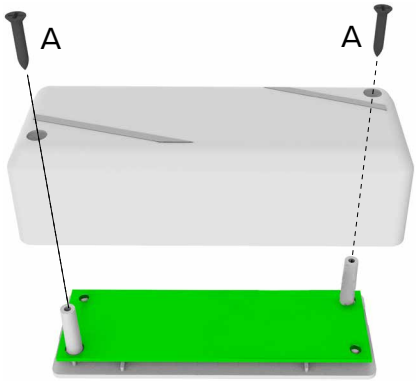
Environment limits

The use of some building materials may reduce the detector wireless signal strength.
Example:
- plywood and honeycomb walls: 90-100% of full strength;
- solid / hollow brick walls 65-95% of full strength;
- concrete walls or metal sheet and plaster: 0-70% of full strength.

Metal grids, metal gates, and glasses may also affect (i.e. diminish) detector strength.

5 DEVICE MOUNTING

- **Opening the housing**

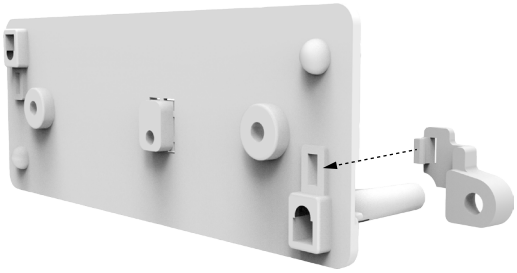


– unscrew cover fixing screws (A)
– remove the cover

- **Removing the electronic board**

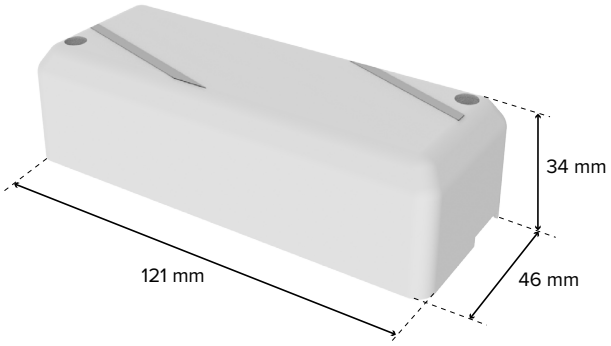
– unscrew board fixing screws (B)
– extract the board from the supports

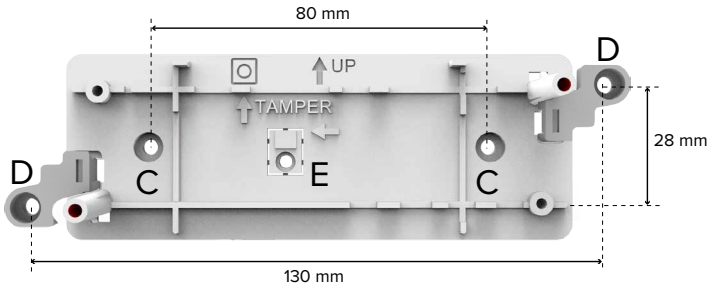
- **Side hinges mounting (optional)**



– insert hinges in the suitable base holes
– push until they click in place

- **Base wall mount**

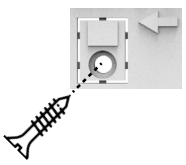




– install the base on the mounting surface with screws and inserts using central holes (C) or side hinges holes (D)

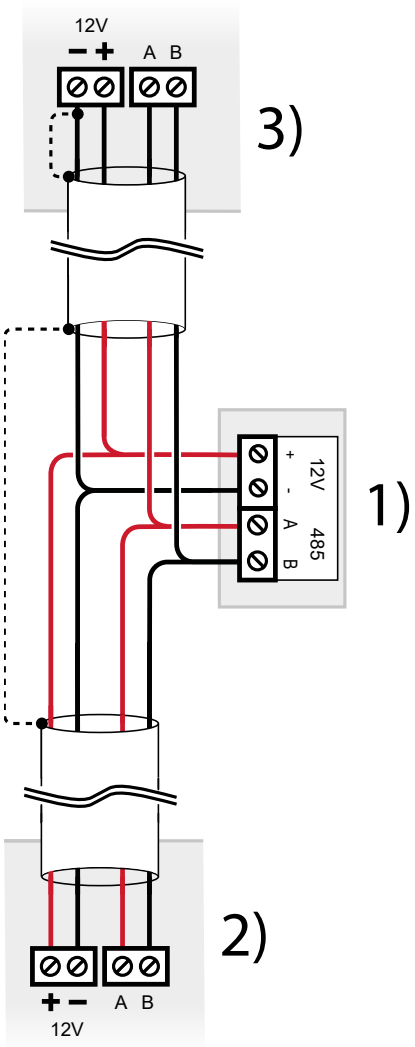
⚠ *Make sure the UP arrow is on the upper side.*

Protection against removal from the mounting surface



– insert a countersunk screw suitable for S4 plug into hole E

- **Wirings**



1 GATEWAY2K terminal board
2 Previous device over serial line
3 Next device over serial line

– wire terminals

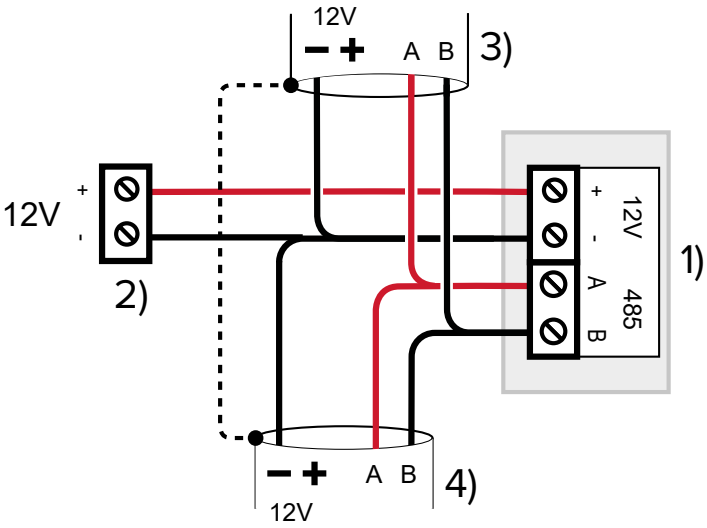
Use cables with the following section: 2 × 0.75 mm² (power) + 2 × 0.22 mm² (signal).

⚠ *Wire cable screen as indicated in picture (dashed line)*

The serial line may be extended with branches, provided that the following rules are followed:

- the sum of the lengths of the branches must not exceed 1 km
- 680 Ω termination resistors must be connected to the ends of the two longest branches

Alternatively, the device can be powered with a remote power box as illustrated below:



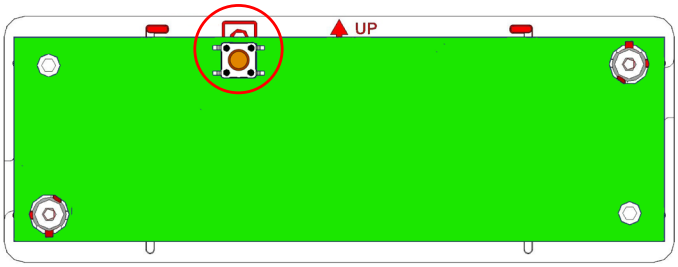
1 GATEWAY2K terminal board
2 External power supply terminals
3 Previous device over serial line
4 Next device over serial line

- **Device setup**

Proceed with device setup (see chapter 6 *p. 4*).

- **Board positioning**

Remove the board following the steps in reverse order:
– position the electronic board between the supports



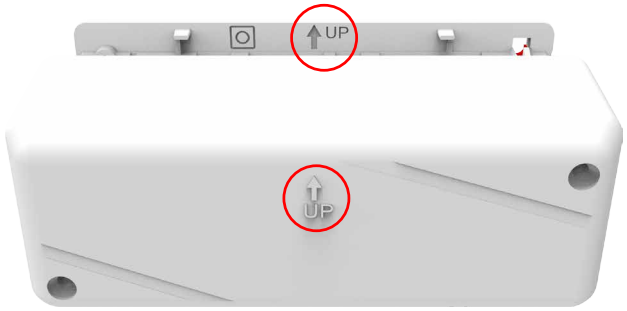
Make sure the switch for protection against opening (on board top) is on the upper side as indicated by the symbol on case base.
Make sure the button protecting against removal remains pressed: position the board so that such button (P3) position corresponds to the base elevated support
– fix the board with the screws

- **Cables passage**

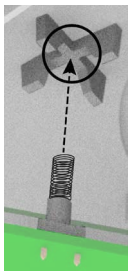
– remove plastic from one of the indicated points to let the cables into the housing

- **Closing the housing**

– position the cover on the base



Make sure the arrow on cover is on the upper side, like the one on the base.



Verify that the spring protecting against housing opening is positioned correctly.
– fix the cover with the screws

6 STARTING THE DEVICE

6.1 DIP switch settings

Some detector functions can be set using board DIP switch. To access it, open the cover as illustrated in the mounting procedure.

▼ **Set the address**

DIP 1	DIP 2	Address
OFF	OFF	Address 1
ON	OFF	Address 2
OFF	ON	Address 3
ON	ON	Address 4

▼ **Exclude tamper**

DIP 4	Tamper exclusion status
OFF	Tamper active
ON	Tamper excluded

▼ **Set operating mode**

DIP 5	Mode
OFF	Standard operating mode
ON	Firmware update mode

See paragraph 8.1.1 *p. 6*.

▼ **Enable/disable LED**

DIP 8	Enable LED
OFF	LEDs disabled
ON	LEDs enabled

DIP 3, 6 and 7 are not used.

6.2 Enable protection against removal

To enable the protection against removal, use jumper S2.

Status	Function
Closed (default)	Protection against removal disabled
Open	Protection against removal enabled

6.3 Setup via BrowserOne

The device can be set using BrowserOne 3.5.0 or above.
– load the latest module available for the control unit in use
– start control unit connection
– select **Read setup** key to read control unit setup

– click on **Serial devices**
– select the grid row corresponding to the device
– in column **Type**, in correspondence with the device, select **Gateway GATEWAY2K**

6.3.1 Serial devices

Use this section to set device parameters.

▼ **Device name**
Associate a name to the device.

▼ **Type**
Select **Gateway GATEWAY2K** from drop-down menu.

▼ **Address**
Set address of device on serial line.

▼ **Pertaining areas**
GATEWAY2K is associated to all areas by default.

Press **Read information** button to view further details: firmware version of the device, bootloader and wireless module.

6.3.2 Enable for commands transmission

– on BrowserOne main page, select **System Options**
– select tab **Options NG-TRX**

Receiving multichannel and **Options NG-TRX** tabs allow setting the communication parameters between NG-TRX devices and the control unit.
For further information, please see programming manual of the control unit.
Use **Transmissions of NG-TRX command** tab to select GATEWAY2K devices (connected to the control unit) to enable for commands transmission (to NG-TRX sirens, actuators, and other compatible devices).
– select option **Enable GATEWAY2K n for transmitting commands** corresponding to GATEWAY2K devices to be activated

For commands transmission up to 2 NG-TRX transmitters can be enabled per control unit.
When using a VIDOMO2K unit, one of the following option can be alternatively enabled:
- 2 GATEWAY2K
- onboard transmitter and 1 GATEWAY2K

⚠ *Only VIDOMO2K onboard module can control sirens or actuators of wireless systems of a previous generation.*

Note: each GATEWAY2K device, regardless of its permission to send commands, will receive from and transmit to NG-TRX devices.

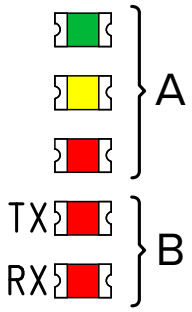
6.3.3 Status

To display GATEWAY2K operating status:
– on BrowserOne main page, select **Status** page
– select **Serial devices Status** tab

If the device remains longer than 2 minutes in firmware update mode, such condition will trigger a fault event.
"**Low battery**" indication does not concern this product.

7 OPERATING MODE

LEDs indicate device working activity.

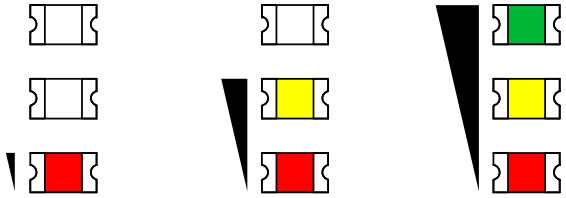


A LED indicators (from top: green, yellow, red)
B LED indicators for serial line activity (red)

7.1 LED indications

Signal strength

In standard operating mode, LEDs indicate the reception signal strength.



Other indications

Condition	Indication
Start up sequence at power on or after a reset.	Power on in sequence: Red LED - Green LED - Red LED
Tamper	Yellow LED ON

8 MAINTENANCE

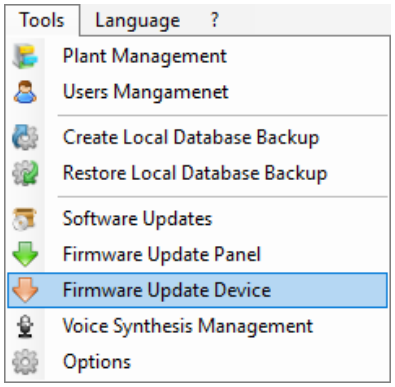
8.1 Firmware update

It is possible to update GATEWAY2K regularly to take advantage of new functions and improve firmware performance.
When GATEWAY2K is connected over serial line to a working system, update it using control unit connection.
When GATEWAY2K is not connected to a working system, update it using the direct connection to the device via USB.

8.1.1 Firmware update via USB

The USB update requires the direct connection of the PC to the device, and not the connection of the device to the system.

– use a USB-MiniB cable to connect the device to a PC equipped with BrowserOne software
– start BrowserOne and update it to the latest version available



– select **Firmware update device** in **Tools** menu
– select "USB" then press **Next**
– in the window displayed select the device to be updated: in drop-down menu select "Gateway GATEWAY2K"

Select the update file in the displayed window.
Select the download path:

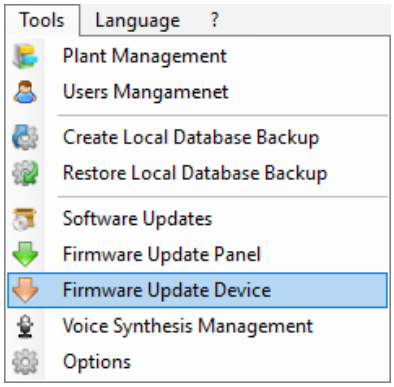
– select **Sync with online archive** to download the file from a network archive (selection recommended): in the window displayed, select the update file then click on **Ok**
– click on **Browse** to select an update file already stored on the PC: find it and select **Open**
– click on **Next** to continue
– a summary window will open: select **Next**
– select Virtual COM serial port to which USB Mini-B cable is connected to (if such port is not listed, select update icon) then select **Next**
– set the device in "Firmware Update" mode: move DIP 5 to ON, then press and release RESET button
– once done, select **Next**
– the communication will start and the device will be updated: select **Next**
– set the device to standard operating mode again: move DIP 5 to OFF, then press and release RESET button
– follow displayed instructions until the confirmation message pops up, then press **End**

Note: setup via USB procedure shall be considered as an emergency procedure, therefore it WILL NOT allow device firmware pre-reading, nor boot status due to DIP position.

8.1.2 Firmware update with control unit

The update via control unit requires the connection of the same unit to BrowserOne and the connection of GATEWAY2K over serial line.

– start BrowserOne and update it to the latest version available



– select **Firmware update device** in **Tools** menu
– select "Bus 485"then press **Next**
– in the window displayed select the device to be updated: in drop-down menu select "Gateway GATEWAY2K"
– click on **Next**
– the software application will search for all GATEWAY2K connected over serial line: select the device to be updated on the list, then select **Next**

⚠ *This procedure allows updating only one device at a time. In case of connection of more then one GATEWAY2K it will have to be done for each device individually.*

Select the update file in the displayed window.
Select the download path:
– select **Sync with online archive** to download the file from a network archive (selection recommended): in the window displayed, select the update file then click on **Ok**
– click on **Browse** to select an update file already stored on the PC: find it and select **Open**
– click on **Next** to continue
– a summary window will open: select **Next**
– follow displayed instructions until the confirmation message pops up, then press **End**

8.1.3 Notes on update

In case of failed firmware update (both in RS-485 connection and via USB) caused by connection problem, by DIP 5 wrong position during operation mode or interrupted by users, the device will remain in setup mode (bootloader, all LED indicators on) for about 2 mins. After such interval, if the firmare is not updated the device will send a fault event to the control unit. As soon as the device is properly setup (and DIP 5 for setup via USB goes back to OFF) the fault event will automatically be reset.
If the device is in bootloader status, the browser detection will be as follows:
- among device infos, on **Serial devices** page, there is ****
- during setup procedure via RS485, device firmware pre-reading will display --- **** instead of firmware

8.2 Parts cleaning

Clean the product with a damp cloth, using non-corrosive cleansers suitable for electronic appliances.
Do not spray any liquid substance directly on the case.

EU DECLARATION OF CONFORMITY

Hereby, EL.MO. Spa declares that the radio equipment GATEWAY2K is in compliance with Directive 2014/53/EU.
The full text of the EU declaration of conformity is available at the following internet address: www.elmospa.com – registration is quick and easy.

GENERAL WARNINGS

This device has been designed, built and tested with the utmost care and attention, adopting test and inspection procedures in compliance with current legislation. Full compliance of the working specifications is only achieved in the event the device is used solely for its intended purpose, namely:
Gateway for NG-TRX system with serial interface.
The device is not intended for any use other than the above and hence its correct functioning in such cases cannot be assured. Consequently, any use of the manual in your possession for any purpose other than those for which it was compiled - namely for the purpose of explaining the product's technical features and operating procedures - is strictly prohibited.
Production processes are closely monitored in order to prevent faults and malfunctions. However, the components adopted are subject to an extremely modest percentage of faults, which is nonetheless the case with any electronic or mechanical product.
Given the intended use of this item (protection of property and people), we invite you to adapt the level of protection offered by the system to suit the actual situation of risk (allowing for the possibility of impaired system operation due to faults or other problems), while reminding you that there are specific standards for the design and production of systems intended for this kind of application.
We hereby advise you (the system's operator) to see that the system receives regular routine maintenance, at least in accordance with the provisions of current legislation, and also check on as regular a basis as the risk involved requires that the system in question is operating properly, with particular reference to the control unit, sensors, sounders, dialler(s) and any other device connected. You must let the installer know how well the system seems to be operating, based on the results of periodic checks, without delay.
Work involved in the design, installation and maintenance of systems incorporating this product should be performedonly by personnel with suitable skills and knowledge required to work safely so as to prevent any accidents. It is vital that systems be installed in accordance with current legislation. The internal parts of certain equipment are connected to the mains and therefore there is a risk of electrocution when maintenance work is performed inside without first disconnecting the primary and emergency power supplies. Certain products include batteries, rechargeable or otherwise, as an emergency backup power supply.
If connected incorrectly, they may cause damage to the product or property, and may endanger the operator (explosion and fire).

INSTALLER WARNINGS

Comply strictly with current standards governing the installation of electrical systems and security systems, and with the manufacturer's directions given in the manuals supplied with the products.
Provide the user with full information on using the system installed and on its limitations, pointing out that there are different levels of security performance that will need to suit the user's requirements within the constraints of the specific applicable standards. See that the user looks through the warnings given herein.
Work involved in the design, installation and maintenance of systems incorporating this product should be performedonly by personnel with suitable skills and knowledge required to work safely so as to prevent any accidents. It is vital that systems be installed in accordance with current legislation. The internal parts of certain equipment are connected to the mains and therefore there is a risk of electrocution when maintenance work is performed inside without first disconnecting the primary and emergency power supplies. Certain products include batteries, rechargeable or otherwise, as an emergency backup power supply.
If connected incorrectly, they may cause damage to the product or property, and may endanger the operator (explosion and fire).

USER WARNINGS

Check the system's operation thoroughly at regular intervals, making sure the equipment can be armed and disarmed properly.
Make sure the system receives proper routine maintenance, employing the services of specialist personnel who meet the requirements prescribed by current regulations.
Ask your installer to check that the system suits changing operating conditions (e.g. changes in the extent of the areas to be protected, change in access methods, etc...)

MAIN SAFETY RULES

The use of the device is forbidden for children and unassisted disabled individuals.
Do not touch the device when bare footed, or with wet body parts. Do not directly spray or throw water on the device.
Do not pull, remove or twist the electric cables protruding from the device even if the same is disconnected from the power source.

DISPOSAL WARNINGS

IT08020000001624

In accordance with Directive 2012/19/EU on waste electrical and electronic equipment (WEEE), please be advised that the EEE was placed on the market after 13 August 2005 and must be disposed of separately from normal household waste.

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