

# AT22K

**NG-TRX wireless actuator with 2 × 5 A relay outputs and 2 control inputs**



Addressee for this information: **U** User | **I** Installer

## 1 DESCRIPTION

AT22K is a wireless actuator.

It features two relay outputs that can be independently controlled.

Two wired inputs allow to control each one a specific output even locally.

AT22K is suitable, in particular, to allow NG-TRX control units to interact with shutter automation systems.

Output control can take place

- remotely, conveniently configuring the outputs and integrating the device into e-Connect;
- locally, wiring switches (optional) to the actuator control inputs.

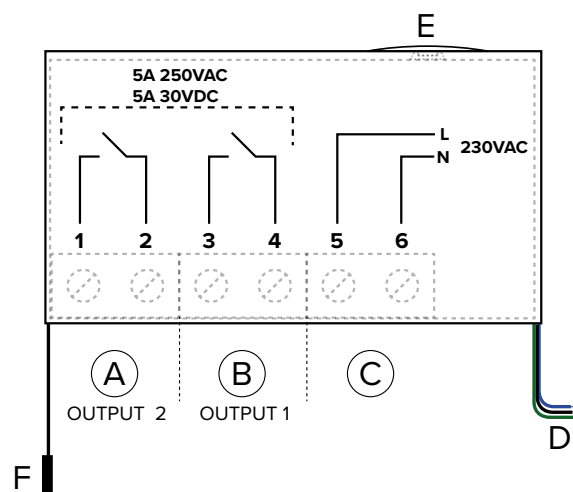
Can be programmed using the BrowserOne software.

A LED indicator signals device status.

AT22K is compatible with devices that use the NG-TRX protocol, such as VIDOMO2K and GATEWAY2K.

Control unit	Firmware version
VILLEGGIO NG-TRX series	8.6.6 or above
PREGIO series	3.0.2 or above
PROXIMA series	1.0.2 or above

## 2 VIEW OF THE DEVICE



- A** 5 A / 250 Vac / 30 Vdc relay output (terminals 1 - 2) \*
  - B** 5 A / 250 Vac / 30 Vdc relay output (terminals 3 - 4) \*
  - C** 230 Vac power terminals (terminals 5 - 6)
  - D** Input wires for local control
  - E** Learning button
  - F** Antenna
- \* Maximum applied load 500VA.

### 3 TECHNICAL DATA



Model		AT22K	
Identification			
Use		For indoor use	
General features			
Operating voltage	Power supply	230 ±10%	Vac
	Frequency	50	Hz
Consumption at power voltage	Typical	8	mA
	Maximum	16 (1)	mA
Wireless range	nominal	1000 (2)	m
	maximum	2000 (2)	m
Transmission frequencies		868,120; 868,820; 869,525	
Max power in transmission mode		25	mW
Number of supported outputs (max)		2	
Dimensions		H 43 × L 22 × D 38 (3)	mm
Weight		36	g
Environmental class		II (general, indoor)	
Working temperature		-10 ÷ +55	°C

- (1) with both outputs activated  
 (2) Ranges refer to the reception of 99% of the transmitted packets, with the devices in open field at 1.5 m height from the ground, respectively without and with the antenna oriented in the best direction.  
 (3) can be housed inside a recessed box, occupation: 1 module

*The device has been designed for indoor use only.*

Relay outputs have the following features:

5 A relay outputs			
$\Delta V_{MAX}$	direct current	30	V
	alternate current	230	V
Max power		800	W
Max load	resistive load @ 30 V <sub>DC</sub> max	5	A
	resistive load @ 230 V <sub>AC</sub>	5	A
Maximum applied load		500	VA
Expected life	with 5 A load	7×10 <sup>4</sup>	cycl.
	with 2 A load	3×10 <sup>5</sup>	cycl.

**Note:** the use of a non resistive load may generate pulsed currents beyond the maximum value allowed by outputs, even with an average power consumption greatly below the value stated for the same outputs.

#### Parts supplied:

- technical manual

### 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.*

- AT22K is designed to be housed inside a recessed box. It occupies the room of one module.
- AT22K is suitable for controlling a mains-voltage-supplied asynchronous single-phase motor for automation of shutters and similar devices. The installation must be performed by technically qualified personnel in full compliance with the laws, safety and electrical regulations in force.

#### Environment limits

Please consider that the usage of some building materials may affect wireless signal range.

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 gratings, large metal doors and gates, reinforced-concrete walls and mirrors may affect the operating range negatively.

### 5 DEVICE MOUNTING



*Do not open or drill the housing.*

- wire terminals (see chapter 6 p. 2)
- proceed with device learning (see chapter 7.1 p. 4)
- house the actuator inside a recessed box

### 6 WIRINGS



*AT22K is powered at 230 Vac and can control circuits working at 230 Vac. Make sure none of the circuits used for the installation is powered during installation or maintenance.*

*Absolutely avoid cutting the antenna cable.*

- connect a 230Vac power cable to terminals 5 and 6
- it is advisable to protect the mains input using a fuse (maximum value 3.15 A)

**Note:** keep power cables separate from the other cables.

- wire output terminals

The output relays feature NO contacts: the diagrams show this type of connection.

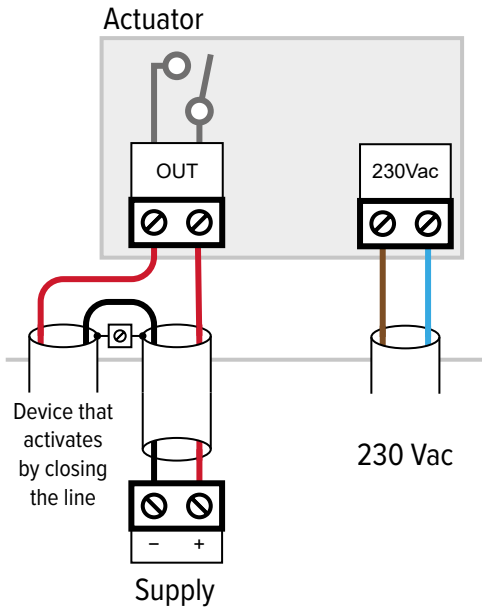
It is possible to achieve NC operation through appropriate programming.

All relays works with either direct current volts or alternate current volts.

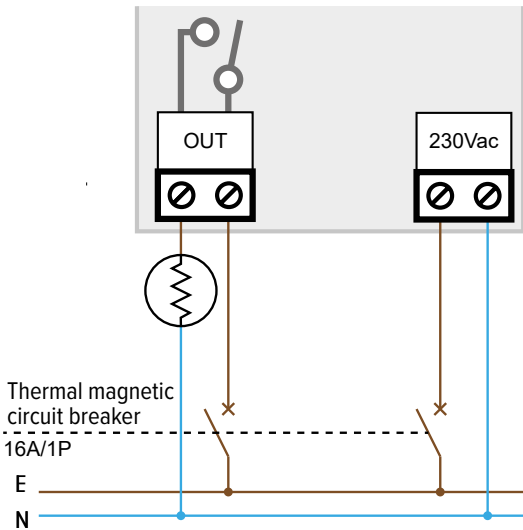
*Wire cables screens too.*

For voltage and current use only maximum values indicated in chapter 3 p. 2.

**Direct current NO output**



**Alternate current NO output**



In the alternate current example, only one magneto-thermal circuit breaker is used.

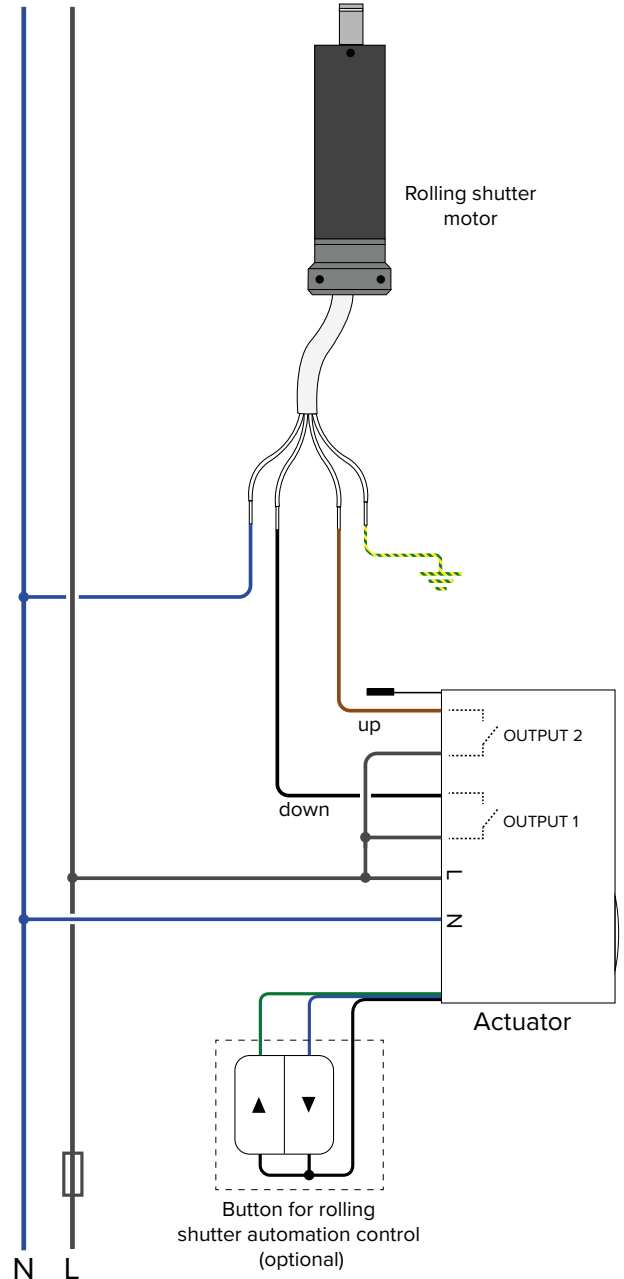
In fact, it is possible that the controlled resistive loads are part of different lines and each has its circuit breaker.

– if required, it is possible to use the input wires to control the relay outputs locally: see paragraph 6.2 p. 4

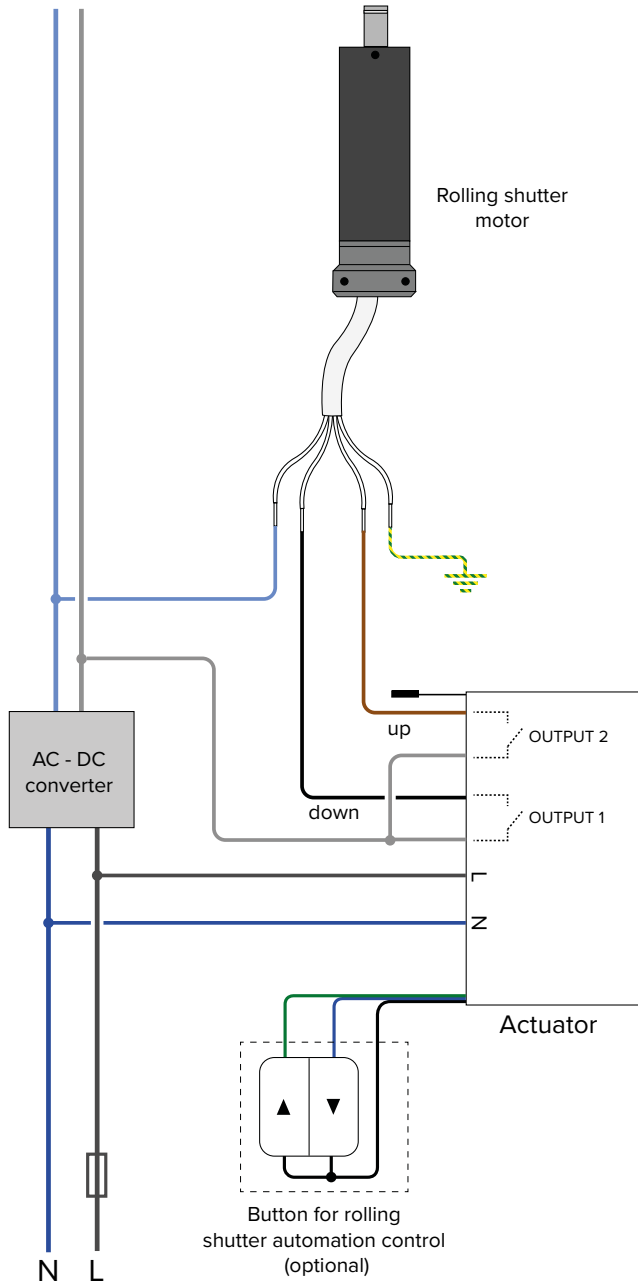
**6.1 Connection to a shutter automation system**

AT22K can be used to control motorised shutters. The pictures below show an example of wiring for this purpose.

**Connection to an AC motor**



### Variation: connection to a DC motor



– wire terminals

**!** We recommend activating output interlock in order to protect the motor from the accidental activation of both commands at the same time. See paragraph 7.3 p. 5.

– for local shutter control, it is possible to wire switches (not supplied) to AT22K dedicated input wires: see paragraph 6.2 p. 4

### 6.2 Local output control

It is also possible to locally control the relay outputs using the dedicated input wires.

Each couple of wires, when short-circuited, activates a relay:

couple of input wires	controlled relay output
blue - black	output 2 (terminals 1 - 2)
green - black	output 1 (terminals 3 - 4)

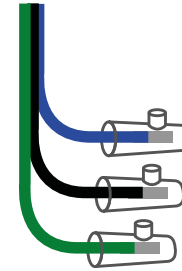
**Note:** the control wires are automatically interlocked. The interlock can be disabled via BrowserOne, for actuators with firmware version 1.10 or higher.

If necessary, it is possible to extend wire length up to 3 meters.

**!** The input wires might be energised: wire them to suitably insulated switches.

**!** Do not handle the input wires while the device is powered.

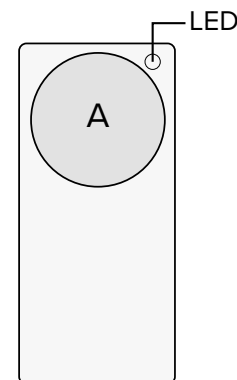
**Note:** in case the input wires are not used, provide them with appropriate insulation.



## 7 STARTING THE DEVICE



### 7.1 Learning function



- keep learning button (on area A in picture) pressed on the actuator until the blue LED starts blinking
- enter setup menu from control unit keypad
- enter submenu TX ACTUATOR CODE
- select the address to assign to the actuator
- press OK

– wait for the control unit to learn the actuator

When the device is acknowledged, the unit will beep for confirmation.

If the actuator is not learned within 10 s, press OK again to repeat transmission.

- exit learning menu and confirm data saving when required

### 7.2 Setup via BrowserOne

AT22K can be set using BrowserOne 3.14.10 or above.

- load the latest module available for the control unit in use
- to start control unit connection select **Connect to...**

- select **Read setup** key to read control unit setup
- open **Radio actuators** or **Radio peripherals** page according to control unit model
- select the grid row corresponding to AT22K
- select **Radio actuators** or **Radio peripherals** tab according to control unit model

**When setup is finished:**

- to write the setup to control unit memory select **Write setup**

### 7.2.1 Management

#### Peripheral control

- set actuator name
- to delete an actuator from control unit memory press **Delete actuator**

#### General management

To change actuator code:

- press **Generate siren/actuator code again**
- to write the setup to control unit memory select **Write setup**
- repeat learning procedure (see chapter 7.1 p. 4)
- select **Read setup** key to read control unit setup

### 7.2.2 NG-TRX options

Use this section to set actuator parameters.

- ▼ **Supervision interval**  
Set the interval for transmissions used to verify the presence and the correct working of AT22K.
- ▼ **Delay anomaly supervision**  
Select the box to delay the signals caused by lack of supervision for a time equal to 6 times the supervision interval set.
- ▼ **Associated outputs**  
It allows selecting control unit outputs to be repeated by AT22K.  
The two repeated outputs shall be consecutive. Select the first one.  
In case AT22K is being used to control motorised shutters, select an odd output as first output: thus, the interlock will work properly.  
The area on the side shows the two selected outputs.
- ▼ **Outputs with automatic reset**  
Select an output box so the correspondent output will go back to its original status after **Automatic Reset Timeout**.  
For proper operation, the activation of this function requires that control logics programming at control unit side has a corresponding reset state.  
Enabling this function only guarantees that, after activation, the outputs will be reset to the set idle state even in case of radio connection loss.
- ▼ **Automatic Reset Timeout**  
Select the interval after which the outputs selected in **Outputs with automatic reset** menu will reset (in

millisecond.)

All outputs share the same timer.

- ▼ **Outputs idle condition**

It defines the output idle condition, i.e. the default output state at device powering (before the control unit sends any command) and the reset state of the outputs if the **Outputs with automatic reset** option is enabled. Regardless of this option, the outputs are always deactivated in case the device is unpowered.

Select NO (OFF, default) or NC (ON).

- ▼ **?Disable manual inputs with system armed**

If selected, the control inputs will be disabled when sectors belonging to the actuator pertaining areas are armed.

- ▼

Option available for actuators with firmware version 1.10 or higher, using BrowserOne 3.15.20 or higher and the latest version of the module for the control unit in use.

If selected, the control inputs can be controlled by the control unit.

For further information, see paragraph 7.5 p. 6.

- ▼

Option available for actuators with firmware version 1.10 or higher, using BrowserOne 3.15.20 or higher and the latest version of the module for the control unit in use.

Select to disable control input interlock.

- ▼

Option available for actuators with firmware version 1.10 or higher, using BrowserOne 3.15.20 or higher and the latest version of the module for the control unit in use.

Option available only if option is flagged.

If selected, each output will activate by shortly pressing the relevant control input, with no necessity to keep it pressed for the desired duration.

For further information, see paragraph 7.5 p. 6.

- ▼ **Upload default settings**

It reset all parameters of this section to default values.

- ▼ **Copy setup**

It memorises parameters of this section to copy them on another device.

- ▼ **Paste setup**

Set all parameters of this section to the values copied from a different device.

### 7.3 Output interlock

In case AT22K is used to control motorised shutters, it is necessary to prevent the simultaneous activation of both commands (ascent and descent).

In order to protect the motor from this eventuality, we recommend activating output interlock in the dedicated BrowserOne page.

- open **Output** page
- select the grid row corresponding to the first of the two outputs associated to AT22K

 *For interlock proper operation, the first output must be odd.*

- select **Interlock with output n** option on page bottom
- A pair will be defined including the selected output and the following one.

This function allows to interlock pairs of outputs: they cannot be enabled simultaneously.  
For further information, see programming manual of the control unit.

## 7.4 Outputs with back-to-idle timer

If the control unit output is programmed to activate and to subsequently go idle after a certain time (e.g. to control a rolling shutter):

- set the corresponding AT22K output to **Outputs with automatic reset**
- set for this output an **Automatic Reset Timeout** equal or slightly higher than the control unit output's back-to-idle timer

This way, the well-timed return to the idle condition of the actuator's output will happen even in case of a radio communication delay, anomaly or fault.

## 7.5 Control input configuration

As already specified, it is possible to control the relay outputs even locally by wiring switches to the control input wires.

By default (option disabled):

- the control inputs command the relevant actuator outputs without any control by the control unit, that ignores their state;
- an output is activated only as long as the relevant control input is kept closed (the switch **is kept pressed**).

### Control input command from control unit

If option is flagged, the control inputs can be controlled by the control unit.

The variation of their state will be reported to the control unit and they can be employed to define logics.

It will be necessary to redefine the association between control inputs and controlled outputs:

- open **Output** page
- identify the two outputs associated to AT22K
- for each output, set **Manual control** as Output function and **Set/Reset** as Mode


### Pulse command

It is possible to set control inputs so that pressing a switch once shortly is enough to activate the relevant output, with no necessity to keep it pressed for the desired duration.

To enable this mode, select option.

When a switch wired to an input is pressed shortly, the relevant output is activated and it remains active until the limit switch is reached (e.g. in case of connection of a rolling shutter motor) or, however, for the duration set in **Automatic Reset Timeout** field.

## 8 OPERATING MODE

 *A disconnection from the power supply will set all outputs to the idle status as long as the disconnection lasts.*

When restoring the power supply, all outputs will align to the current status of the control unit.

### 8.1 LED indications

Condition	Indication
Standard operating mode	Steady light
Sending/receiving	Blinking
Learning function	Constant blinking

## 9 MAINTENANCE

### 9.1 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.

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## EU DECLARATION OF CONFORMITY

Hereby, EL.MO. Spa declares that the radio equipment AT22K 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](http://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:

**NG-TRX wireless actuator with 2 × 5 A relay outputs and 2 control inputs**

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 performed only 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 performed only 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...)

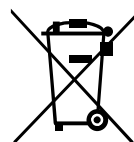
## MAIN SAFETY RULES

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



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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.