KATO ADV RADIO

EN

INSTRUCTION MANUAL

CHAIN ACTUATOR

Force 300N – Maximum stroke 400 mm
Electrical feeding 100-240V~ 50/60Hz

nekos products have been manufactured in accordance with safety standards and conforms to the stipulations of current standards in force.
When correctly assembled, installed and used according to the present instructions, they will not generate any danger for persons, animals or items.

Symbols used in the manual

	DANGER	*This indication draw the attention about potential dangers for safety and health of peoples and animals.*
	INFORMATION	*This information give further suggestions.*
	ATTENTION	*This indication draw the attention about potential dangers for the product itself.*
	WARNING	*This indication draw the attention about potential damages to goods.*
	ENVIRONMENTAL INSTRUCTION	*Environmental indication draw the attention about potential dangers for the environment.*

Contents

1. Security rules

PLEASE NOTE: IMPORTANT SAFETY INSTRUCTIONS. CAREFULLY OBSERVE ALL THE FOLLOWING INSTALLATION INSTRUCTIONS TO ENSURE PERSONAL SAFETY. IMPROPER INSTALLATION CAN SERIOUSLY ENDANGER SAFETY. KEEP THESE INSTRUCTIONS AFTER INSTALLATION.

MANDATORY RISK ANALYSIS AND PROTECTION MEASURES.

The Nekos electrical actuators comply with the Machinery Directive (2006/42/EC), Standard IEC 60335-2-103 (Particular requirements for drives for gates, doors and windows) and other directives and regulations indicated in the attached Declarations of Incorporation and CE Conformity (at the end of the manual). According to the Machinery Directive, actuators are “partly completed machinery” intended for incorporation into doors and windows. The manufacturer/supplier of the window is required, with exclusive responsibility, to ensure the compliance of the entire system with the applicable standards and to issue CE certification. We strongly discourage any use of the actuators other than that specified and therefore, in any case, the supplier of the complete system retains full liability.

For systems installed at a height of less than 2.5 m above floor level or other levels accessible to users, the manufacturer/supplier of the window must conduct **risk analysis** regarding potential harm (violent blows, crushing, wounds) caused to people by normal use or possible malfunction or accidental breakage of the automated windows, and to implement suitable protective measures in view of these. Such measures include those recommended by the specified standard:

- controlling the actuators via a “deadman’s button” placed near the system and within the operator’s field of view, to ensure that people are out of the way during operation. The button should be placed at a height of 1.5 m and operated by key if accessible to the public; or:
- use of contact safety systems (also included in the actuators) that ensure a maximum closing force of 400/150/25 N, measured in accordance with paragraph BB.20.107.2 of IEC 60335-2-103; or:
- use of non-contact safety systems (lasers, light grids); or:
- use of fixed safety barriers that prevent access to moving parts.

Automated windows are deemed adequately protected if they:
- are installed at a height of >2.5 m; or:
- have a leading-edge opening of <200 mm and a closing speed of <15 mm/s; or:
- are part of a smoke and heat evacuation system for emergency use only.

In any case, moving parts of windows that could fall below 2.5 m following breakage of a system component need to be fixed or secured in order to prevent them from suddenly falling or collapsing: e.g. the use of safety arms on bottom-hung windows.

The device is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lacking experience and knowledge. Do not allow children to play with the fixed controls and keep any remote-control units out of their reach.

The actuator is destined exclusively for installation indoors. For any special application we recommend you consult the manufacturer beforehand.

After removing packaging, check for any damage on the appliance.

MAINTENANCE and REPAIRS
Periodically check the installation by inspecting the cables, springs, rods and

mechanical parts for wear or damage. Do not use if repair or adjustment is required.
Disconnect the power supply during cleaning or maintenance operations.
Do not use solvents or jets of water to wash the appliance. The appliance should not be submerged in water.
In the event of breakage or malfunction, switch the appliance off at the general switch and call for the services of a qualified technician.
Repairs should only be performed by qualified personnel at assistance centres authorised by the manufacturer.

Always request exclusive use of original spare parts. Failure to respect this condition could compromise safety and invalidate the benefits contained in the warranty for the appliance.

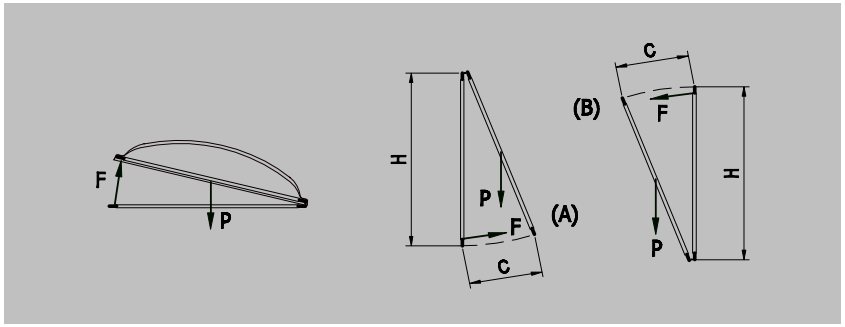
In the event of any problems or queries, consult your agent or contact the manufacturer directly.

2. Formulas and recommendations for installation

2.1. Calculation of opening / closure force

Using the formulas below, approximate calculations can be made for the force required to open or close the window considering all the factors that determine the calculation.

Symbols used for the calculation	
F (Kg) = Force for opening or closing	P (Kg) = Weight of the window (mobile sash only)
C (cm) = Opening stroke (actuator stroke)	H (cm) = Height of the mobile sash



For horizontal light domes or skylights

F = 0.54 x P

(Eventual weight of snow or wind on the cupola should be calculated separately).

For vertical windows

- **TOP HUNG WINDOWS, OUTWARD OPENING** (A)
- **BOTTOM HUNG WINDOWS** (B)

F = 0.54 x P x C : H

(Eventual load of favourable or unfavourable wind on the sash should be calculated separately.)

2.2. Maximum opening according to height of sash

The actuator stroke is in accordance with the height of the sash and its application. Check that the actuator stroke does not touch the profile of the sash and that the chain does not exert force on the window frame (measurements in mm).

ATTENTION. For safety reasons the actuator should not be assembled if dimensions are inferior to those indicated in the table below. In the event that the height of the sash should be lower, call on the manufacturer to check the appliance.

Mode of installation	*Selection of actuator stroke*			
	100	***200***	***300***	***400***
Light domes, skylights or vertical top hung windows opening outwards with frontal assembly	**150**	**250**	**350**	**450**
Top hung windows opening outwards with horizontal assembly	**150**	**250**	**350**	**450**
Bottom hung windows *(motor on frame)*	**250**	**450**	**600**	**700**
Bottom hung windows *(motor on sash)*	**Consult manufacturer**			

3. Technical information about function

The chain operated actuator opens and closes windows by means of a steel chain located inside the cover. Movement is powered by electricity which powers a gear motor controlled by an electronic function device.
Window opening can be programmed to open at 100, 200, 300 and 400 mm *(see respective chapter)*.
During closure the end course uses a self-regulating electronic process with power absorption and therefore requires no regulation.
The actuator leaves the factory with factory settings of +1 cm for the return course which allows the actuator to be assembled without electricity, with the window in closed position after assembly is complete.

4. Manufacture and reference standards

INTENDED USE The KATO ADV RADIO chain actuator is designed and built to open and close awning and bottom-hung windows, dormer windows, domes and skylights used for ventilation and climate control in rooms; any other use is strongly discouraged, with the supplier of the entire system in any case retaining sole liability. It can also be used in combination with the **NRS1**/ **NRS1R** operated rain sensors.

The actuator is manufactured in accordance with the EC Directives and Regulations listed in the attached Declaration of Incorporation and Conformity CE.

Electrical connections must conform to regulations in force for the design and set up of electrical equipment.
To ensure efficient separation from the grid, an approved type of bipolar “dead-man” switch should be used. An omnipolar general power switch with minimum distance of 3 mm between contacts should be installed upstream of the control line.

The KATO ADV RADIO actuator is packed in one single carton. Each package contains:

- Actuator with 2 metre (±5%) lead.
- Standard support brackets with distancer (A).
- Bracket for vertical assembly of the actuator (B).

- Bracket for transom window (C).
- Bracket for outward opening fixture (D).
- Template for boring.
- Instruction manual.

5. Technical data

MODEL	KATO ADV RADIO
Pressure and traction force	300 N
Track runs *(can be selected at any time)*	100, 200, 300, 400 mm
Voltage	100-240V~ 50/60 Hz
Current consumption at nominal charge	0,31-0,24 A
Current consumption with no charge	0,084-0,042 A
Charge absorbed at nominal load	23-27 W
No load speed	15,7 mm/s
No load duration *(400 mm)*	25 s
Double electrical insulation	YES
Type of service	S_2 of 3 min
Working temperature	- 5 + 65 °C
Protection index	IP30
Adjustment of socket at casing	Autopositioning
Holding nominal force *(it can vary according to the chosen brackets)*	1.600 N
Connection of two or more devices in parallel	YES
Limit switch stop at opening	Electronic by means of dip-switches
Limit switch stop at closure	At absorption of charge
Dimensions	386,5x59x37
Weight	1,000 kg

Any information reported in this table is not binding and may be susceptible to variations without notice

6. Label data and markings

The Machine Directive classifies actuators as “partly completed machinery” and they are supplied with a Declaration of Incorporation, attached to this booklet; with regard to the electrical side, they bear CE marking and come under the LVD and CEM Directives and the other Regulations listed in the attached Declaration of Conformity. With this marking, the actuators can be sold and used throughout the European Union with no further requirements. The plate data is displayed on an adhesive label placed on the outside of the container, printed in black on a grey background.

7. Electric power supply

Warning. Check that the electric power supply used corresponds to that specified on the “technical data” label attached to the machine.

The manufacturer cannot be held liable for damage due to an application which is incorrect or non-compliant with regulatory requirements.

The actuator is powered by a mains voltage, in alternating current, of 100-240V~ with a frequency of 50/60 Hz.

The actuator is already equipped with a power supply cable which is 2 meters long. The cable has two colored conductors: Phase (brown) and Neutral (sky-blue).

The connection between the line and the power supply cable of the actuator must be protected by a magnetothermic switch between the line and actuator.

7.1. Selecting the cross-section of electric power supply cables

The cross-section of the electric power supply conductors must comply with current standards on electrical systems, without prejudice to standard EN 60335 for connected electrical devices.

8. Electric power supply and sensor connection

8.1. Electric power supply cable

The power supply cable is already wired to the actuator. It is used for the electric power supply of the system and should be connected to the electricity mains. The power supply cable has two conductors: sky-blue, brown.

8.2. Cable entry to the terminal block

The cables entering on the left, in the same cable feedthrough, are the following low-voltage cables:

- Rain sensor cable *(five conductors for the NRS1 sensor, two for NRS1R and three for the P2 sensor)*.
- Manual open/close control cable.

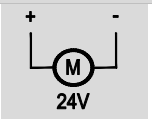
After the wiring is completed *(see the “Electrical connection” chapter)* and the cables and cable feedthrough are arranged properly, it is recommended that the cable entry be sealed with a drop of silicone; this will prevent humidity or water from entering.

9. Electrical connection

ELECTRIC SHOCK HAZARD.
Before beginning any work on the machine's wiring, make certain that the electric power has been disconnected; failure to observe this rule may compromise safety.

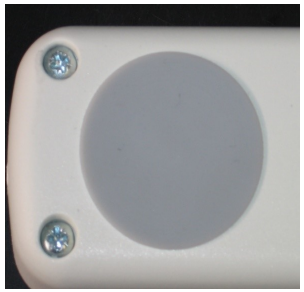
Cable entry to the terminal block

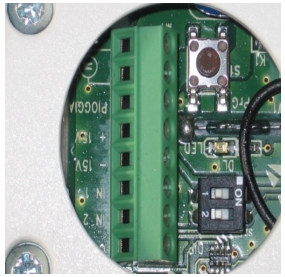
- No connection to the symbols indicated to the side.
  FUNCTION NOT PRESENT in this system



- Connection of the rain detection sensor. Two different rain sensor models can be connected:
  - Model **NRS1** with five conductors:
    - Red (+) connected to **+15V**,
    - Black (-) connected to **-15V**,
    - Blue (N.O. contact) connected to "**PIOGGIA**",
    - Green (common) connected to **-15V**,
    - Violet (N.C. contact) not used and should be electrically isolated.
  - Model **NRS1R** with two conductors:
    - Red (+) connected to **+15V**,
    - Black (-) connected to **-15V**,
  - Model **P2** with three conductors:
    - White (+) connected to **+15V**,
    - Yellow (-) connected to **-15V**,

  Blue (signal) connected to "**PIOGGIA**".





- Connection of the manual control with 3 conductors [the common conductor on (**COM**), the conductor for opening on (**IN 1**) and the conductor for closing on (**IN 2**)].

10. Open and close commands

10.1. Remote electronic control (Radio remote control)

The **PIK** radio remote control is the standard-equipped device for controlling the KATO ADV RADIO motor.

For more details on the characteristics and operation of the **PIK** radio remote control, consult the instructions manual provided with the radio remote control itself.

Some functions of the radio remote control are not discussed in this manual.

THE TRANSMITTER IS NOT FACTORY-PROGRAMMED.

First follow the radio remote control instructions and then those provided below concerning the specific operation of the machine you would like to control.

10.1.1. Saving the radio remote control

The radio remote control supplied is the **PIK** model, with 30 channels and a display, which transmits at the radio frequency of 433.92 MHz; no other radio remote control model is provided for the **KATO ADV RADIO**. Several actuators can be controlled with a single radio remote control, however each channel must correspond to a KATO ADV RADIO actuator and thus a window.

The encoding used varies for each channel, so each transmission will send a signal that is different from all the others. It follows that the receiver must be able to recognize the enabled transmitters, thus the transmission codes should be saved following the procedure below:

- Equip yourself with the radio remote control, checking beforehand that it is working, has charged batteries and is in good condition.
- Select the desired channel on the radio remote control. *(Consult the instructions manual of the PIK radio remote control)*.
- On the KATO ADV RADIO, briefly press *(for about 1 second)* the small "**PRG**" button located near the terminal block. The slowly flashing LED indicates that it is waiting to receive a valid radio code.
- Within 10 seconds, press any one of the up arrow ▲, **STOP** or down arrow ▼ buttons two times *(once to activate the display of the radio remote control and the second time to transmit the radio code)*.
- If the code is saved correctly, the LED will emit one long flash *(1 sec.)* to confirm; then the LED will go out and remain at rest.
- If the code is not saved correctly - due to the memory being full, for example, or the radio remote control being incompatible - the LED will emit a series of quick flashes for about 1 second; then the LED will go out and remain at rest.

10.1.2. Erasing the radio memory

To completely erase the memory of the radio remote control on the machine, press the "**PRG**" button and hold it pressed for about 20 seconds until the LED begins to flash quickly. At this point you can release the button; the flashing continues until the memory has been completely erased.

10.1.3. Remotely saving a radio remote control

A new radio remote control can be saved remotely – i.e., without accessing the **PRG** button – only if at least one radio remote control has already been saved as described in point 10.1.1 and you have the radio remote control which is already recognized. To remotely save a radio remote control, follow the procedure below:

- Equip yourself with the PIK radio remote control to be saved and set it on the desired channel *(see the instructions provided with the radio remote control)*.
- Equip yourself with the radio remote control already saved and operating on the KATO ADV RADIO in question.
- On the already saved radio remote control, press the following buttons in sequence: **F1**, **F2** and then **STOP**. This sequence "opens" the memory of the KATO ADV RADIO *(in the same way as pressing the PRG button)*.
- Within 10 seconds, press any one of the up arrow ▲, **STOP** or down arrow ▼ buttons of the (new) radio remote control that you want to program two times *(once to activate the display of the radio remote control and the second time to transmit the radio code)*.

10.2. Control with conventional button

If necessary, due to unavailability of the radio remote control or other reason, the controls can be connected by cable.

The control must have a clean (voltage-fee) single-pole contact, normally open, or a deadman's button, but not a stable switch. It should be connected to the left terminal block in the actuator, as indicated in the previous "Electrical connection" chapter.

Warning. <u>The IN1 and IN2 controls prevail over the radio commands</u>.
The manual control prevails over radio remote control.

10.3. Ventilation function

The commands issued by the radio remote control can include a specific function called "VENTILATION", which has the purpose of ventilating the room naturally for a specified time.
To activate this function, press the following buttons in sequence: **F1**, **F2**, up arrow ▲.
The window opens and, if no other commands are given, closes again automatically after 5 minutes. In the case in which the rain sensor, a manual command or radio command intervened, the ventilation function stops; to restore the function, the sequence of buttons must be pressed again.

11. Rain detection sensor

The rain sensor should be installed outside on the window frame and fixed with a screw or weather-resistant adhesive system. The device acts only on the commands of the chain actuator.

***<u>Warning</u>**. The command coming from the rain sensor prevails over any other command; if a stable switch is assembled with the manual control and forced opening is instructed, after having reached the opening stroke-end the window closes again, then it opens again, then closes again, etc.*
In order to prevent this problem from arising, do not assemble a stable control switch.

As described above in Chapter 9 (Electrical connection), three types of rain sensors can be connected to the KATO ADV RADIO chain actuator with radio control; the **NRS1** model, the **NRS1R** model (Radio) and the **P2** model.
All three detectors are capacitive sensors equipped with a heater in order to render the detection area insensitive to the formation of dew, humidity and ice and allow it to dry quickly after rainfall.

- **NRS1** is a universal sensor with relay output and voltage-free change-over contact *(it can also be used by other systems)*, with a heater that operates below +4 °C. The **NRS1R** is the radio version of the same sensor, able to communicate rain presence through a radio frequency transmission at 433,92MHz.

  If necessary, the heater can be excluded by a dip-switch. The 5-conductor cable provided is 5 m long, with a highly weather-resistant PVC sheath which is also non fire-propagating and resistant to UV radiation.

- **P2** has a 3-conductor cable, 3 m long, with a PVC sheath having low resistance. The heater operates when the temperature is below +8 °C.

12. Predominance of the commands

The rain sensor intervenes when it rains regardless of the state of the commands, i.e., the closing command due to rain, if activated, prevails over any manual command.

13. Programming actuator

13.1. Limit switches at opening

Four (4) positions can be selected for the limit switch of the outgoing chain. To program, adjust the two dip-switches near left terminal board, as indicated in the following table.

Limit switch at: (mm)	*Dip-switch n°*	
	1	*2*
100	**OFF**	**OFF**
200	**ON**	**OFF**
300	**OFF**	**ON**
400	**ON**	**ON**

After the limit switches have been programmed, run a few check manoeuvres. In the event of error, programming can be repeated to give the desired track run.

The actuator comes from production set on longer stroke (400 mm), dip-switch 1 in ON; dip-switch 2 in ON.

13.2. Limit switches at closure

The limit switch at closure is automatic, electronically operated and cannot be programmed. The actuator stops when the charge is absorbed when the window is completely closed and the weather stripping is completely depressed.

***<u>Attention</u>**. The actuator at maximum charge, exercises a force enough to crush fingers in the event of distraction.*

After each closure or intervention of the electrical protection mechanism, the chain moves in the opposite direction for around 1,0/1,5 mm. This is to loosen the tension of the mechanical parts and gives correct pressure to the weather stripping.

14. Assembly

These indications are intended for the attention of technicians and specialized personnel. Basic job and safety techniques are therefore not included.

All preparatory operations, assembly and electrical connections must be carried out by technical and specialized personnel to guarantee best performances and good function of the KATO ADV RADIO chain operated actuator. First of all, please check that the following fundamental points have been satisfied:

Before installing the actuator, check that the moving parts of the window on which it is to be installed are in perfect working condition and that they open and close properly and are well balanced (where applicable).

Check that the electrical supply used corresponds to the indications on the "TECHNICAL DATA" label attached to the machine and that the given temperature range is compatible with the place of installation.

Actuator specifications must be sufficient for movement of the window without encountering any obstacle. The limits indicated in the technical data table must not be superseded *(page 7)* and the most appropriate stroke should be selected. Calculations should be checked using the formula indicated on page 5.

Ensure that the actuator has not been damaged during transport, first visually and then by powering in both directions.

Check that the width of the inside of the window (where the actuator is to be assembled) is over 405 mm, otherwise the actuator should not be installed.

Check that once the actuator has been installed the distance between the fixed part of the window frame (where the actuator is to be assembled) and the mobile part of the window frame (where the bracket is to be fixed) is greater than or equal to 0 mm (Fig. 1). If this is not the case the actuator will not function correctly as the window will not close correctly. If required, add additional thickness below the support brackets to reset the quota.

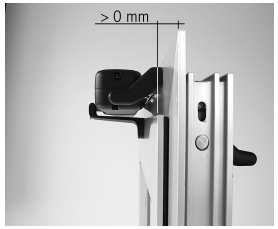


Figure 1

14.1. Preparation of actuator for assembly

Before starting assembly of the actuator, prepare the following material for completion, equipment and tools.

- For fixing onto metal window frames: M5 threaded inserts *(6 pieces)*, M5x12 flat headed metric screws *(6 pieces)*.
- For fixing onto wooden window frames: self-threading screws for wood Ø4.5 *(6 pieces)*.
- For fixing onto PVC window frames: self-threading screws for metal Ø4.8 *(6 pieces)*.
- Equipment and tools: measuring tape, pencil, drill/screwdriver, set of drill heads for metal, insert for screwing in, electricians pliers, screwdrivers.

14.2. Assembly with outward opening window.

Aside the drawing of specific application using accessories provided. For different mountings, please contact manufacturer.

A. Pencil in an “X” over the centre line of the window frame (*Fig. 2*).

B. Select the correct form of brackets (*Fig. 3*).

C. Attach the template to the window frame *(fixed part)* and line axis up with the centre line “X” traced earlier *(Fig. 4)*. **Warning**: for window frames not on the same plane, cut the part of the template coloured in grey and fix this to the moveable part of the window frame, taking care to keep it in the same position.

D. Bore holes in the window frame at the points indicated on the template *(Fig. 5)*.

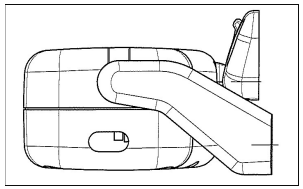

Outward application

Figure 2

E. Assemble the two brackets with the distancer *(to help position correctly. Once it has served its purpose it can be removed)*. Mount the supports onto the frame with the appropriate screws provided. Check that everything is aligned both horizontally and vertically.

F. Mount the bracket for outward opening windows onto the moveable part of the frame in accordance with the markings indicated on the template.

G. Complete assembly of the chain terminal with the safety clip inserted onto the pin Ø4x32 *(provided)* in median position *(see fig. 6)*.

H. Mount the actuator onto the brackets by inserting the two openings at each side onto the corresponding pins on the brackets.

I. Rotate the actuator 90°, bring the chain terminal up to the bracket and insert the pin into the opening on the bracket. Insert the safety clip into the bracket.

J. Check that the exit on the chain is perfectly aligned with the bracket. If the chain is not aligned with the bracket, loosen the fixing screws and reposition the bracket correctly.

K. Check all electrical connections with the diagram on the label attached to the lead and and in conformity to indications on chapter 9 – Electrical connection.

L. Carry out a complete check of opening and closure of the window. Once the closure phase has been completed, check that the window frame is completely closed by checking the pressure on the weather strips.

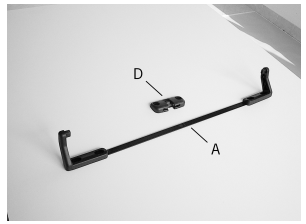


Figure 3


Figure 4


Figure 5


Figure 6

14.3. Assembly on transom window

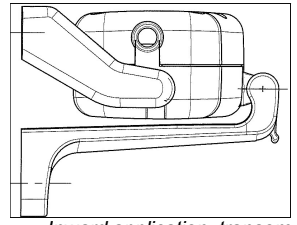
Aside the drawing of specific application using accessories provided. For different mountings, please contact manufacturer.

Before starting, check that there are at least two mechanical compass safety stops or other form of stops connected to the frame, and ensure that the stops can prevent any accidental fall of the window. Your safety is at hand.

A. Pencil in an “X” over the centre line of the window frame (Fig. 7).

B. Select the correct form of brackets (Fig. 8).

C. Attach the template to the window frame (fixed part) and line axis up with the centre line “X” traced earlier (Fig. 9). **Warning**: for window frames not on the same plane, cut the part of the template coloured in grey and


Inward application–transom window

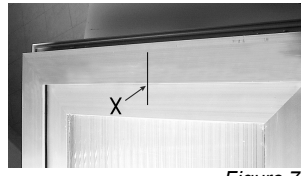


Figure 7

fix this to the moveable part of the window frame, taking care to keep it in the same position.

D. Bore holes in the window frame at the points indicated on the template (Fig. 10).

E. Assemble the two brackets with the distancer (to help position correctly. Once it has served its purpose it can be removed). Mount the supports onto the frame with the appropriate screws provided. Check that everything is aligned both horizontally and vertically.

F. Mount the bracket for outward opening windows onto the moveable part of the frame in accordance with the markings indicated on the template.

G. Complete assembly of the chain terminal with the safety clip inserted onto the provided pin Ø4x32 in median position (see fig. 11).

H. Mount the actuator onto the brackets by inserting the two openings at each side onto the corresponding pins on the brackets.

I. Rotate the actuator 90°, bring the chain terminal up to the bracket and insert the pin into the opening on the bracket. Insert the safety clip into the bracket.

J. Check that the exit on the chain is perfectly aligned with the bracket. If the chain is not aligned with the bracket, loosen the fixing screws and reposition the bracket correctly.

K. Check all electrical connections with the diagram on the label attached to the lead and in conformity to indications on chapter 9 – Electrical connection.

L. Carry out a complete check of opening and closure of the window. Once the closure phase has been completed, check that the window frame is completely closed by checking the pressure on the weather strips.

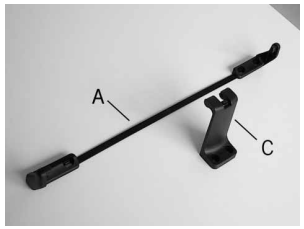


Figure 8

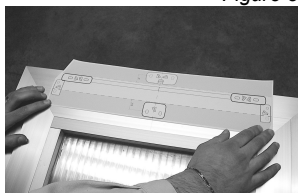


Figure 9

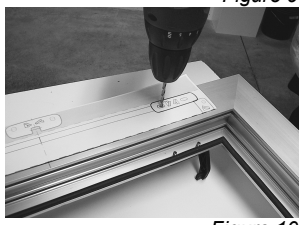


Figure 10

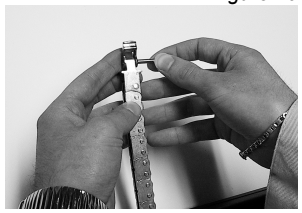


Figure 11

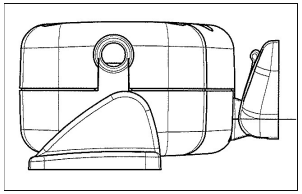
14.4. <u>Assembly of actuator onto bay or outward opening window.</u>

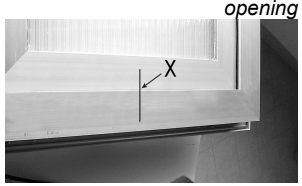
Aside the drawing of specific application using accessories provided. For different mountings, please contact manufacturer.

A. Pencil in an “X” over the centre line of the window frame (fig. 12).

B. Select the correct form of brackets (fig. 13).

C. Fold the template along the green dotted line and keep in position at 90°. Attach one part to the window frame (fixed part), taking care to line up the axis with the “X” previously pencilled in on the central line and line the folded part up against the moveable part of the frame. **Warning**: as various different applications are possible, place the actuator in a central position and adjust the positions of the brackets, taking care to keep the actuator aligned with the window section.


Vertical assembly on outward opening



D. Bore holes into the window frame at the points indicated (fig. 14).

E. Mount the bracket for outward opening windows onto the moveable part of the frame in accordance with the markings indicated on the template.

F. Complete assembly of the chain terminal with the safety clip inserted onto the provided pin Ø4x32 in median position (see fig. 15).

G. Mount the two brackets on to the sides of the actuator.

H. Position the actuator onto the window frame and line up with the holes bored earlier. Fix the actuator.

I. Bring the chain terminal up to the bracket and insert the pin into the hole on the bracket. Attach the safety clip to the bracket.

J. Check that the exit of the chain is perfectly aligned with the bracket. If the chain is not aligned, loosen the fixing screws and reposition the bracket correctly.

K. Check all electrical connections with the diagram on the label attached to the lead and in conformity to indications on chapter 9 – Electrical connection.

L. Carry out a complete check of opening and closure of the window. Once the closure phase has been completed, check that the window frame is completely closed by checking the pressure on the weather strips.

Figure 12

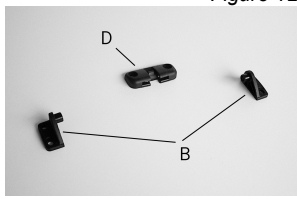


Figure 13

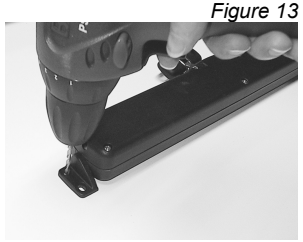


Figure 14

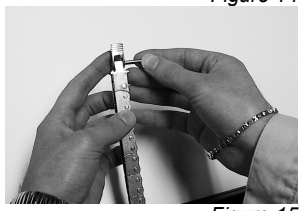


Figure 15

15. Meaning of the LED flashing mode

The LED can be seen on the electronic board after removing the closure plug. In some cases it flashes in different ways depending on the signal it is emitting; the different flashing modes indicate the precise behavior of the actuator during the programming of the machine, radio remote control or rain sensor.

The table below summarizes the meaning of the LED flashing mode.

Ref.	*Flashing*	*Flashing frequency*	*Meaning*
1	Off		Actuator at rest, no alarm is active
2	Steady-on		Function not provided for
3	Slow flashing for 10 seconds	1 per second	The machine is waiting to receive a valid radio remote control code.
4	On for 2 seconds	Steady-on	The machine has saved the radio remote control correctly
5	Flashing for 2 seconds	2 per second	The machine has not saved the radio remote control
6	Fast continuous flashing	2 per second	Rain sensor active
7	Flashing for 5 seconds	2 per second	Erasing the radio remote control memory

16. Checking for correct assembly

Check that the window has closed completely, even at the corners, and check there are no obstacles caused by assembly in the wrong position.

Check that when the window frame is closed, the chain terminal is at least a couple of millimetres distant from the actuator body. This will ensure correct closure of the window with correct pressure on the weather stripping. If the chain terminal is not positioned as stated there is no guarantee the window will close correctly.

Check that all attachments and support brackets are tightly fixed to the window frame and that all screws are correctly tightened.

Check that the window moves to the desired position in accordance with the limit switch selected.

17. Emergency manoeuvres, maintenance and cleaning

Should the window have to be opened manually in the event of no electricity, mechanical failure, or for normal maintenance or cleaning of the external surface of the window frame, the following instructions should be followed:

1. Release the safety clip locking the chain terminal to the bracket.
2. Hold the window with one hand and pull the pin out of the opening with the other hand (Fig. 16).
3. Manually open the window frame.

   ***ATTENTION**: DANGER – the window could fall as the sash is no longer held in position by the chain.*
4. After maintenance and/or cleaning repeat points 1 and 2 in reverse order.

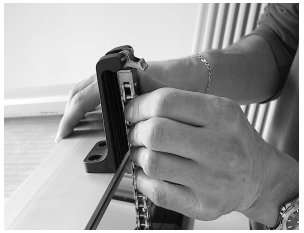


Figure 16

18. Troubleshooting

Please consult the following table for any eventual problems with function during installation or normal use:

Problem	***Possible cause***	***Solution***
Actuator doesn't work	• No electricity supply for feeder. • Connecting cable not connected or wire not connected. • Winder on the transformer is broken.	• Check state of safety switch. • Check all electrical connections of gear motor. • Replace the electronics card of the feeder.
LED is lit but actuator doesn't work.	• Gear motor is damaged due to a shock. Motor connection has unsoldered or has been disconnected.	• Send actuator to a Service Centre.
Although selection has been carried out correctly the gearmotor will not take a limit switch.	• Programming hasn't been carried out correctly. • Irregular function or break in the electrical contact for the dip-switch.	• Repeat programming for dip-switch. • Send actuator to a Service Centre.
Actuator does not move.	• The radio command has not been accepted by the radio receiver.	• Repeat the memorisation procedure for the radio command.
Rain sensor does not close window.	• The sensor is not a **NRS1**, **NRS1R** or **P2** model. • Sensor if faulty.	• Replace the sensor with a proper model. • Send sensor to a Service Centre.

19. Environmental protection

All materials used in the manufacture of this appliance are recyclable.
We recommend that the device itself, and any accessories, packaging, etc. be sent to a centre for ecological recycling as established from laws in force on recycling.
The device is mainly made from the following materials: aluminium, zinc, iron, plastic of various type, cuprum. Dispose materials in conformity with local regulations about removal.

20. Certificate of guarantee

The manufacturer will guarantee good function of the appliance. The manufacturer shall undertake to replace defective parts due to poor quality materials or manufacturing defects in accordance with article 1490 of the Civil Code. The guarantee covers products and individual parts for **2 years** from the date of purchase. The latter is valid as long as the purchaser possesses proof of purchase and completion of all agreed conditions of payment.Guarantee of good function of appliances agreed by the manufacturer implies that the latter undertakes to repair or replace free of charge and in the shortest period possible any parts that break while under warranty.The purchaser is not entitled to any reimbursement for eventual direct or indirect damage or other expenses incurred. Attempt to repair by personnel unauthorised by the manufacture shall render the warranty null and invalid. The warranty does not cover fragile parts or parts subject to natural wear and tear or corrosion, overload, however temporary etc. The manufacturer will accept no responsibility for eventual damage incurred by erroneous assembly, manoeuvre or insertion, excessive stress or inexpert use. Repairs performed under guarantee are always "*ex factory of the manufacturer*". Respective transport expenses (out/back) are the responsibility of the purchaser.

21. Dichiarazione di Incorporazione (per una quasi macchina) e Dichiarazione CE di Conformità / Declaration of incorporation (for a partly completed machine) and EC Declaration of Conformity

Con la presente il / Hereby the

Costruttore: *Manufacturer:*	**Nekos Srl** Via Capitoni 7/5- 36064 Mason Vicentino (Vicenza) - Italy Tel +39 0424 411011 – Email info@nekos.it

dichiara sotto la propria responsabilità che i seguenti prodotti:

declare under its own responsibility that the following products:

Descrizione prodotto : *Product Designation:*	**Attuatore a catena per finestre** *Window chain drive*
Modello: *Type :*	**230 V : KATO ADV RADIO**

Anno di costruzione dal / *Year of manufacturing from:* **2017**

Soddisfa gli applicabili requisiti essenziali della **Direttiva Macchine 2006/42/EC, Allegato I**
*Fulfil the essential requirements of the Machinery Directive **2006/42/EC, Annex I,*** **Art. 1.1.2, 1.1.3, 1.1.5, 1.2.1, 1.2.2, 1.2.3, 1.2.4.1, 1.2.6; 1.3.2, 1.3.4, 1.3.9, 1.5.1, 1.5.2, 1.5.6, 1.5.7, 1.5.8, 1.5.9, 1.5.10, 1.5.11, 1.7.1, 1.7.1.1, 1.7.3, 1.7.4.2, 1.7.4.3**

La documentazione tecnica pertinente è compilata secondo l'**Allegato VII, sezione B**
*The relevant technical documentation is compiled in accordance with **Annex VII, Part B***

La persona autorizzata a costituire la documentazione tecnica pertinente è:
The person authorised to compile the relevant technical documentation is: **ing. Matteo Stefani – Nekos S.r.l.**

Su richiesta adeguatamente motivata delle autorità nazionali, la documentazione tecnica dei citati prodotti sarà resa disponibile, via e-mail, entro un tempo compatibile con la sua importanza.
In response to a reasoned request by the national authorities, we will provide, via e-mail, the relevant information on the product listed above within an adequate period proportional to its importance.

Inoltre i succitati prodotti sono conformi alle disposizioni pertinenti delle seguenti Direttive:

Furthermore the products listed above complies with the provisions of followings Directives :

- **2014/53/EU Direttiva Apparati Radio** / *Radio Equipment Directive (RED)*
- **2011/65/EU Direttiva sulla restrizione dell'uso di determinate sostanze pericolose nelle apparecchiature elettriche ed elettroniche (Direttiva RoHS)** / *Restriction of the use of certain hazardous substances Directive (RoHS Directive)*

e delle seguenti norme armonizzate e/o specifiche tecniche:
And of the following harmonised standards and/or technical specifications:

ETSI EN 300 220-1 V3.1.1 – ETSI EN 300 220-2 V3.1.1; ETSI EN 301 489-1 V2.1.1 – ETSI EN 301 489-3 V2.1.1
EN 60335-2-103 ; EN 61000-6-3:2007 + A1:2011; EN 61000-6-2:2005 + AC:2005
EN 60335-1:2012 + EN 60335-1/A11:2014; EN 50581:2012

La messa in moto di una macchina completa che includa la quasi macchina sopra menzionata, da noi fornita, non è permessa finché non sia accertato che l'installazione sia stata fatta secondo le specifiche e le indicazioni di installazione contenute nel "Manuale d'istruzioni" fornito con la quasi-macchina, e che sia stata espletata e documentata, in apposito protocollo, una procedura di accettazione da parte di un tecnico abilitato.

Commissioning of the complete machinery including the above mentioned drives delivered by us is not allowed until it is ascertained that the installation of the complete machinery was performed in accordance with the specifications and the operating and installation advice given in our Mounting Instructions, and that the acceptance procedure was duly carried out and documented in an acceptance protocol by a specialist.

Questa dichiarazione è fatta dal costruttore / *This is declared by the manufacturer :*
NEKOS SRL - Via Capitoni 7/5 - 36064 Mason Vicentino (Vicenza) - Italy

Rappresentato da / Represented by :

Giuliano Galliazzo – A.D. Presidente / President CEO

Firma / Valid signature

Luogo e data / Place and date : Mason Vicentino **28/07/2017**

nekos
my home technology

NEKOS S.r.l.
I - 36064 - MASON VICENTINO (VI) - Via Capitoni, 7/5
Telephone *(+39)* **0424 411011** Fax *(+39)* **0424 411013**
info@nekos.it - http://www.nekos.it