

# KATO 305

KATO 305, KATO 305 SYNCRO<sup>3</sup>, KATO 305RWA, KATO 305 RWA SYNCRO<sup>3</sup>

IT

MANUALE ISTRUZIONI

## ATTUATORE A CATENA

Forza 300N – Corsa massima 500 mm  
Alimentazione elettrica 110-230V~ 50/60Hz e 24V---

EN

INSTRUCTION MANUAL

## CHAIN ACTUATOR

Force 300N – Maximum stroke 500 mm  
Electrical feeding 110-230V~ 50/60Hz and 24V---

DE

BETRIEBSANLEITUNG

## KETTENANTRIEB

Kraft 300N – Maximalhub 500 mm  
Spannungsversorgung 110-230V~ 50/60Hz und 24V---



## USER INSTRUCTIONS

**CAUTION.** Carefully observe all the following installation instructions to ensure personal safety.

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.

Have installation checks performed periodically by qualified personnel from a service centre authorised by the manufacturer. Do not use if repair or adjustment is required.

**CAUTION:** if the power cable is damaged, it must be replaced by qualified personnel from a service centre authorised by the manufacturer.

**CAUTION.** 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 fault or malfunction, switch off the device at the main switch. All repairs and adjustments (e.g. setting the stroke) must only be performed by qualified personnel from a service centre 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.

The A-weighted sound pressure level is less than 70dB(A).

Carefully preserve these instructions after installation.

# INSTALLER INSTRUCTIONS

**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.*

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## 1. SECURITY RULES



**CAREFULLY OBSERVE ALL THE FOLLOWING INSTALLATION INSTRUCTIONS TO ENSURE PERSONAL SAFETY. IMPROPER INSTALLATION CAN SERIOUSLY ENDANGER SAFETY.**



### **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 must 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.

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.

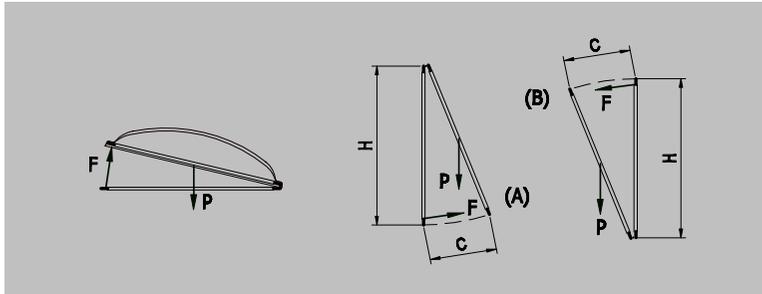
## 2. FORMULAS AND RECOMMENDATIONS FOR INSTALLATION

### 2.1. Calculation of opening / closure force

Using the formulas on this page, 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

$$F = 0.54 \times P$$

(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)

$$F = 0.54 \times P \times C : H$$

(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		
	200	300	500
Light domes, skylights or vertical top hung windows opening outwards with frontal assembly	250	350	600
Top hung windows opening outwards with horizontal assembly	200	300	600
Bottom hung windows (motor on frame)	200	300	500
Bottom hung windows (motor on sash)	Consult manufacturer		

## 3. USE OF ACTUATOR IN 'SYNCRO<sup>3</sup>' VERSION

In the SYNCRO<sup>3</sup> version the actuator has been equipped with the new system patented by NEKOS for coordinated synchronisation of chain movement. Electronic control of speed is completely automatic and does not require any external control station: connect the RED and WHITE cables on the feeder cable to each other (see diagram on page 29).

### 3.1. Recognition

To recognise on sight chain actuator Syncro<sup>3</sup> pay attention to these important differences:

- Label with Syncro mark
- Electrical feeding cable with 5 wires



### 3.2. Window assembly

The SYNCRO<sup>3</sup> actuator is assembled when two or more latch points are required for particularly heavy or wide windows (from 1.2m) and a single actuator does not permit perfect closure of the window frame.

Note that the force exerted by the actuators individually is the same as that of a similar actuator. For example, when two actuators are assembled the force exercised on the window is doubled. Movement of the window frame is uniform, synchronised and coordinated without interruptions and/or variations in speed for the actuators.

In the event that one of the actuators should cease function due to mechanical or electrical cause, the others will also stop function, thus guaranteeing the integrity of the window.

**IMPORTANT: when calculating the dimensions of a system with multiple Syncro<sup>3</sup> actuators, it is advisable to consider the force of each actuator as 90% of that stated on the plate.**

## 4. TECHNICAL INFORMATION ABOUT FUNCTION

The chain actuator opens and closes the window using a double row steel chain inside a sheath. Movement is generated using electrical energy that powers a reduction motor controlled by a functional electrical device. Windows can be programmed to open and the device allows chain opening at 200, 300 and 500 mm. When the window returns to start position, that is during closure, the stroke-end uses an electronic self regulating process with absorption of energy and no regulation is therefore required.

The actuator is produced by the factory with the chain 1 cm out. This allows the actuator to be assembled without electrical energy powering movement and means that the window remains closed after assembly.

The joint between actuator and support brackets is quick, requires no fixing screws (NEKOS patent) and allows the actuator to rotate to follow the track of the chain even on shorter windows.

## 5. CONSTRUCTION AND STANDARDS



**INTENDED USE.** The Series 305 KATO chain actuator has been designed and manufactured to open and close top hung windows opening outwards, bottom hung windows, dormer windows, light domes and skylights. Specific use is for ventilation and airing of areas as well as moving casements in extractor systems for smoke and heat alongside the KATO 305 RWA actuator; any other use is strongly discouraged, with the supplier of the entire system in any case retaining sole liability.

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

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 actuator is individually packaged in a cardboard container and each pack contains:

- 110-230V~ 50/60Hz or 24V=== electrical actuator.
- 2 (2,5) metre (±5%) cable.
- Standard support brackets (A).
- Adhesive boring template.
- Instructions manual.
- Bracket for bottom hung assembly (C) (*supplied separately only on request*).
- Bracket for top hung outward opening assembly (D) (*supplied separately only on request*).

**IMPORTANT.** The Syncro<sup>3</sup> version of the actuator is packed in a cardboard box with two units and all accessories needed and is shipped already tested. However, the RESET procedure must still be performed.

When installing a system that requires the use of several Syncro<sup>3</sup> actuators or a BK-LOCK electro-lock, a new RESET procedure must be performed.

## 6. TECHNICAL DATA

Model	KATO 305 230V	KATO 305 24V
Force exerted by thrust and traction (F <sub>N</sub> )	300 N	
Strokes (S <sub>V</sub> )	200, 300, 500 mm	
Power supply voltage (U <sub>N</sub> )	110-230V~ 50/60Hz	24V===
Rated absorbed current (I <sub>N</sub> )	0,320 A - 0,210 A	0,950 A
Power absorbed at nominal load (P <sub>N</sub> )	25-28 W	23 W
No load speed	9,2 mm/s	9,2 mm/s
Duration of no load stroke (500 mm)	54 s	54 s
Electrical insulation	Class II	Class III (Selv)
Type of service (D <sub>R</sub> )	2 cycles	5 cycles
Operating temperature	- 5 + 65 °C	
Protection index for electrical devices	IP32	
Adjustment of connection to window frame	Automatic definition of position	
Parallel powering of two or more motors	YES (max 10)	
Synchronised function	YES ( <i>mod. SYNCRO<sup>3</sup>- MAX 8</i> )	
Holding nominal force ( <i>it can vary according to the chosen brackets</i> )	2000N	
Stroke-end at opening	Electronic by means of dip-switches	
Stroke-end at closing	At absorption of power	
Signalling 'window open/window closed'	No	No
Length of power cable	2 m, SYNCRO <sup>3</sup> 2,5 m	
Dimensions	456x60x43 mm	
Weight	1,55 Kg	1,55 Kg

*The data indicated in these figures is not binding and is subject to variation without notification.*

## 7. ID PLATE AND MARKING DATA

The KATO 305 actuators have CE marking and comply with the Standards listed in the Declaration of Conformity. They also come with a Declaration of Incorporation, due to their classification by the Machinery Directive as "partly completed machines". Both declarations are included in the final pages of this manual.

The plate data is displayed on an adhesive label placed on the outside of the casing, which must remain intact and visible.

The main information it displays includes: manufacturer's address, product name - model number, technical characteristics, production date and serial number.

In the event of a complaint, please indicate the serial number (SN) displayed on the label.

An explanation of the symbols used on the label to abbreviate the technical characteristics is given in the table in the chapter on "TECHNICAL DATA".

## 8. ELECTRICAL POWER SUPPLY

The Series 305 KATO actuator is commercially available in four versions:

1. **KATO 305 230V:** runs on grid tension of 110-230V~ 50/60Hz with a three wire cable (**LIGHT BLUE**, common neutral; **BLACK**, phase open; **BROWN**, phase closed).
2. **KATO 305 SYNCRO<sup>3</sup> 230V:** runs on grid tension of 110-230V~ 50/60Hz with a five wire cable (**LIGHT BLUE**, common neutral; **BLACK**, phase open; **BROWN**, phase closed). The additional wiring (**RED** and **WHITE**) is for electronic synchronisation (NEKOS Patent).
3. **KATO 305 24V,** for smoke and heat extraction: runs on 24V=== with three wire cable **RED "1"**, connected to the + (positive) closes; **BLACK "2"**, connected to the + (positive) opens. A third wire **GREEN "3"**, is used for the possible connection to the BK-LOCK electromechanical lock.
4. **KATO 305 SYNCRO<sup>3</sup> 24V.** Like the previous actuator, this version is destined for the smoke and heat extraction, and runs on 24V===, with five wire cable, **BLACK "1"**, connected to the + (positive) closes; **BLACK "2"**, connected to the + (positive) opens. The third wire **BLACK "3"**, is used for the possible connection to the BK-LOCK electromechanical lock. The additional wiring (**RED** and **WHITE**) is for electronic synchronisation (NEKOS Patent).

Low tension actuators 24V=== can't be powered using a specific station RWA with emergency battery or security feeder with an output tension of 24V=== (min. 20.4V, max. 28.8V).

### 8.1. Selection of power cable section

For 24V=== power supply cable section must be checked and calculated according to cable length. The following table indicates maximum cable lengths for connection to motors.

CABLE SECTION	Actuator fed at		
	24V ===	110V~	230V~
0.50 mmq	~20 m	~300 m	~1400 m
0.75 mmq	~30 m	~450 m	~2100 m
1.00 mmq	~40 m	~600 m	~2800 m
1.50 mmq	~60 m	~900 m	~4000 m
2.50 mmq	~100 m	~1500 m	~6800 m
4.00 mmq	~160 m	~2500 m	~11000 m
6.00 mmq	~240m	~3700 m	~15000 m

## 9. INSTRUCTIONS FOR ASSEMBLY

**These indications are for specialised technical personnel and basic work and safety techniques are not indicated.**

All preparatory, assembly and electrical connection operations must be performed by specialised technical personnel to guarantee optimal function and service of the actuator. Check that the following fundamental conditions have been met:



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).

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 24*) and the most appropriate stroke should be selected. Calculations should be checked using the formula indicated on page 22.



**Attention.** Check that the electrical power supply corresponds to that indicated on the TECHNICAL DATA label on the machine.

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 500 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. 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.

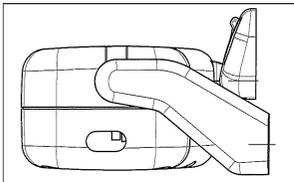
For bottom hung window frames injury could be caused by accidental falls of the window. An appropriately sized flexible link arm or fall prevention safety system designed to resist a force equal to at least three times the total weight of the window **MUST** be installed.

### 9.1. Preparation of actuator for assembly

Before starting assembly of the actuator, prepare the following material for completion, equipments 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.

### 9.2. Assembly for top hung windows, outward opening



Outward application

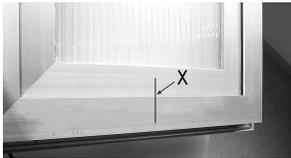


Figure 2

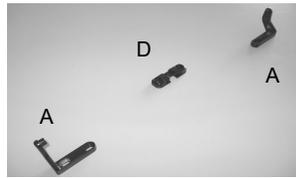


Figure 3



Figure 4



Figure 5



Figure 6

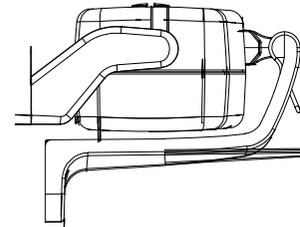
Above the drawing of specific application using standard accessories. For different mountings, please contact manufacturer.

- A. Trace centrepoint X in pencil onto the window frame (Fig.2) or fairly divide it in case of use of more Syncro<sup>3</sup>.
- B. Use brackets "A" art. 4010044 (provided) and hinge "D" art. 4010039 (sold separately) (Fig.3).
- C. Apply the adhesive template onto the window frame (fixed part), taking care to ensure that the axis of the template coincides with centrepoint X traced earlier (Fig.4). **Attention:** for non coplanar window frames, cut the grey part of the template along the red line and apply onto

the mobile part of the window frame, taking care to keep it in the same reference position for the X axis.

- D. Bore the window frame at the points indicated on the adhesive template (Fig.5).
- E. Apply the brackets (A) to the window frame using flat head screws as indicated above. Check both horizontal and vertical alignment of brackets.
- F. Assemble the hinge for top hung windows (D) onto the mobile part of the window frame using the reference points indicated on the template.
- G. Complete assembly between chain terminal and quick hook using the Ø4x32 pin provided and insert into central position (Fig.6).
- H. Hook the actuator onto the brackets inserting the two channels at the end of the actuator into the pins provided.
- I. Rotate the actuator 90°, bring the chain terminal up to the hinge and insert the pin into the channel of the latter. Connect the quick hook onto the bracket. At initial connection the hook will present some resistance, this is normal as pieces need to adjust to their sockets.
- J. Perform the electrical connections according to the diagram below or the label on the feeder cable.
- K. Check that the output of the chain is perfectly aligned with the bracket. In the event that this should not be the case, loosen the fixing screws and reposition the bracket correctly.
- L. Perform a complete test of opening and closing of the window frame. After closure, check that the window frame is completely closed and check pressure against the seals.
- M. The stroke-end of the actuator during return is automatic. The appliance exerts traction to guarantee perfect pressure against the seals.

### 9.3. Assembly for bottom hung windows



Inward application – transom window



Figure 7

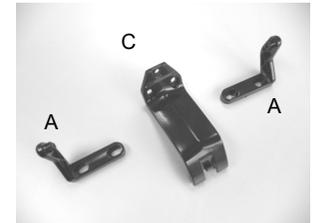


Figure 8



Figure 9



Figure 10

Above the drawing of specific application using standard accessories. For different mountings, please contact manufacturer.

- A. Before starting works, at least two flexible mechanical link arms or other form of safety stops **MUST** be installed to guarantee hold and prevent accidental falling of the window in order to provide safe working conditions.
- B. Trace centrepoint X in pencil onto the window frame (Fig.7) or fairly divide it in case of use of more Syncro<sup>3</sup>.
- C. Use brackets "A" art. 4010044 (provided) and hinge "C" art. 4010038 (sold separately) (Fig.8).

- D. Apply the adhesive template onto the window frame (fixed part), taking care to ensure that the axis of the template coincides with centrepoint X traced earlier (Fig.9). *Attention: for non complanar window frames, cut the grey part of the template along the green line and apply onto the mobile part of the window frame, taking care to keep it in the same reference position for the X axis.*
- E. Bore the casement at the points indicated on the adhesive template (Fig.5).
- F. Apply the brackets (A) to the window frame using flat head screws as indicated above. Check both horizontal and vertical alignment of brackets.
- G. Assemble the bracket for bottom hung windows onto the mobile part of the window frame using the reference points indicated on the template.
- H. Complete assembly between chain terminal and quick hook using the Ø4x32 pin provided and insert into central position (Fig.6).
- I. Hook the actuator onto the brackets inserting the two channels at the end of the actuator into the pins provided.
- J. Rotate the actuator 90°, bring the chain terminal up to the hinge and insert the pin into the channel of the latter. Connect the quick hook onto the rod (Fig. 10).
- N. Perform the electrical connections according to the diagram below or the label on the feeder cable.
- K. Check that the output of the chain is perfectly aligned with the bracket. In the event that this should not be the case, loosen the fixing screws and reposition the bracket correctly.
- L. Perform a complete test of opening and closing of the window frame. After closure, check that the window frame is completely closed and check pressure against the seals.
- M. The stroke-end of the actuator during return is automatic. The appliance exerts traction to guarantee perfect pressure against the seals.

## 10. ELECTRICAL CONNECTIONS

Appliances are equipped with cable manufactured in accordance with safety standards and protection against radio disturbances. Before performing the electrical connection consult the table below and check correspondence between the feeder cable and the tension data on the actuator label.

Tension	Cable length	Number of wires	Wire colours	Colour of wires used for notification
110-230V~ 50/60Hz	2 m	3	LIGHT BLUE BLACK BROWN	-
24V---	2 m	3	RED "1" BLACK "2"	GREEN "3" (WITH BK-LOCK)
110-230V~ 50/60Hz SYNCRO <sup>3</sup>	2,5 m	5	LIGHT BLUE BLACK BROWN	WHITE RED
24V--- SYNCRO <sup>3</sup>	2,5 m	5	BLACK "1" BLACK "2"	WHITE RED BLACK "3"

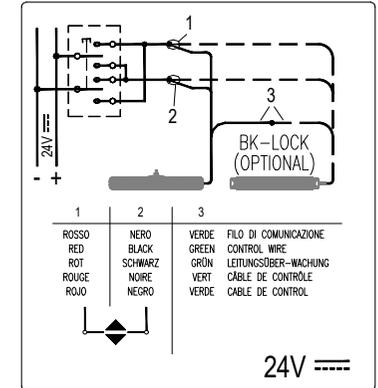
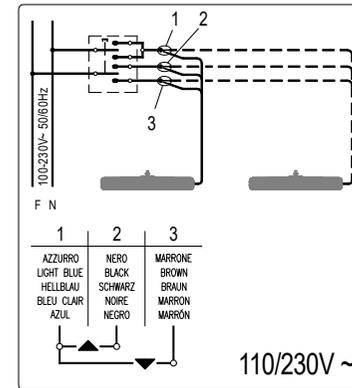
If feeder cables require extending to the control button for low voltage actuators (24V---), cable sections should be selected accordingly. Conductor sections are indicated in the table on page 25 (*Selection of cable section*).

### 10.1. Connections of Kato 305 (+ optional BK-Lock electro lock)



**IMPORTANT FOR PRODUCT SAFETY:** on actuators with 24V--- supply voltage, Kato 305 version, the green wire "3", if not used with BK-LOCK electro lock, must be insulated.

For cabling, follow the diagrams below.



### 10.2. Connections of Kato 305 Syncro<sup>3</sup>.

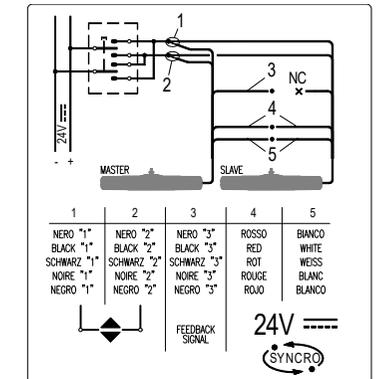
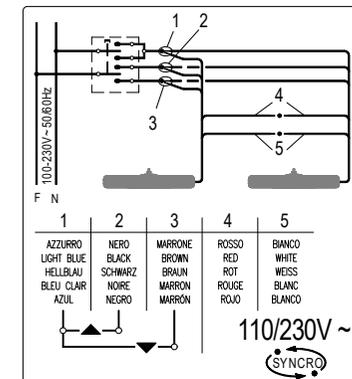
Cable supplied together with the SYNCRO<sup>3</sup> actuator is 2,5m long and it's calculated in accordance with safety rules. See table on page 26 for conductor section indications.

Electrical connection of the two wires should be performed using a simple appropriately sized bell clamp (*supplied with the appliance*). Secure connections with good electrical contact are vital as the passage tension is very low.



**IMPORTANT FOR PRODUCT SAFETY:** on actuators with 24V--- supply voltage, Kato 305 Syncro<sup>3</sup> version, the black wire "3", if not used, must be insulated.

For cabling, follow the diagrams below.



## 11. PROGRAMMING THE ACTUATOR

### 11.1. Programming Kato 305 actuator

#### Opening stroke-end

3 (three) positions can be selected for the limit switch of the outgoing chain. To program, adjust the two dip-switches at the side of the LED.

Programming is simple, immediate and can be carried out at any time by adjusting the two dip-switches as indicated in the following table.

Limit switches	Dip-Switch	
	Nr. 1	Nr. 2
200 mm	ON	OFF
300 mm	OFF	ON
500 mm	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.

### Closing stroke-end

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. After each closure or intervention of the electrical protection mechanism, the chain moves in the opposite direction for around 1 mm. This is to loosen the tension of the mechanical parts and gives correct pressure to the weather stripping. When the window frame is closed, check that the chain terminal is at least a couple of millimetres away from the actuator body. This ensures proper closure for the window and ensures all weather stripping is sealed. If the chain terminal is not positioned correctly there is no guarantee that the window will close completely. Check that attachments and support brackets are firmly fixed to the window frame and that all screws have been correctly tightened. On aluminum frames do not use self-threading or self-drilling screws to avoid profile ripping after manoeuvres; use metric screws with threaded inserts (see indications on page 23).

### 11.2. Programming Kato 305 Syncro<sup>3</sup> actuator

The actuators leave the factory programmed and synchronized in pairs, thus the user only needs to select the desired stroke. It is recommended that you check to ensure that all the chains are in the same position and the actuators are connected properly as per paragraph 10.2. In the event the settings are lost, a new synchronization must be performed according to the procedures described below. The tables below explain the meaning of the dip-switches for the Syncro or Solo operating mode (a Syncro machine that works individually) and paired with other devices.

Mode	DIP-SWITCH No. 3
SOLO	ON
SYNCRO	OFF

Mode	DIP-SWITCH No. 4
With electromechanical lock	ON
Without electromechanical lock	OFF

### Opening stroke-end

Three (3) stroke-end positions can be set for the chain in excursion. The setting is done by adjusting the dip-switches No. 1 and No. 2 appropriately. The setting is simple, immediate and executable at any time, and it is achieved by operating on the levers of the dip-switches as shown in the table below.

STROKE-END	DIP-SWITCH	
	No. 1	No. 2
200 mm	ON	OFF
300 mm	OFF	ON
500 mm	ON	ON

After setting the stroke-end, it is recommended that you make at least one test manoeuvre. In case of error, the setting can be repeated in order to obtain the desired stroke.

### Closing stroke-end

(See specific chapter for Kato 305 at point 11.1).

#### 11.3. Setting for SOLO operation of a Kato 305 Syncro<sup>3</sup>

- Ensure that all the connections of the wires have been made correctly (for the connections of the electromechanical lock, see the respective instruction manual).
- Isolate the actuators from the power source.
- Remove the chains from the attachment of the window.
- Position the dip-switches of the machine as shown in the table below.

Dip-switch	No. 1	No. 2	No. 3	No. 4
With electromechanical lock	OFF	OFF	ON	ON
Without electromechanical lock	OFF	OFF	ON	OFF

- Power the machine in any direction: the machine automatically moves the chain in the closing and then opening direction, stopping automatically in the end position (about 8 cm).
- Cut off power to the machine.
- Position dip-switches No.1 and No.2 according to the desired stroke (see the opening stroke-end table).
- Connect the machine to the power supply again and carry out some opening and closing manoeuvres.

#### 11.4. Setting for synchronized operation (chain alignment and address acquisition)

**IMPORTANT.** This procedure should be carried out for all the actuators that you want to synchronize with one another (max 8).

**NOTE.** In the case of just 2 actuators, they are already factory-set; if there are more than 2 or in the event of replacements, follow the instructions below.

- Ensure that all the connections of the wires, including the synchronization wires, have been made correctly (for the connections of the electromechanical lock, see the respective instruction manual).
- Isolate the actuators from the power source.
- Remove the chains from the attachment of the window.
- Position the dip-switches of the machines as shown in the table below.

Dip-switch	No. 1	No. 2	No. 3	No. 4
With electromechanical lock	OFF	OFF	ON	ON
Without electromechanical lock	OFF	OFF	ON	OFF

- Power the machines in any direction: the machines automatically move the chain in the closing and then opening direction, stopping automatically in the end position (about 8 cm).
- Ensure that all the machines have the chains aligned at the same position (about 8 cm). If the chains are not at the same position, repeat the procedure from the beginning.
- Cut off power to the machines.
- Position the dip-switches according to the table below for acquisition of the addresses.

Dip-switch	No. 1	No. 2	No. 3	No. 4
With electromechanical lock	OFF	OFF	OFF	ON
Without electromechanical lock	OFF	OFF	OFF	OFF

- Power the machines again in any direction.
- The machines now communicate with one another and acquire an address. The LED (near the Dip-switches) of each machine begins to flash in relation to its address; ensure that the LEDs flash with different numbers of flashes (machine No.1 → 1 flash – pause - 1 flash - pause; machine No.2 → 2 flashes – pause – 2 flashes - pause). Repeat the procedure in case of error.
- Cut off power to the machines.
- Position dip-switches No.1 and No.2 according to the desired stroke (see the opening stroke-end table).
- Now the machines are synchronized. Connect the machines to the power supply again and carry out some opening and closing manoeuvres.

#### 11.5. Light signals of the LED (for Kato 305 Syncro<sup>3</sup>)

In case of a problem during installation or operation of the machines, consult the possible causes listed below:

LED Function	Meaning	Solution
1 flash – pause – 1 flash - pause	Overload due to an obstacle	Remove the obstacle
2 flashes – pause – 2 flashes - pause	Communication error	Check the connections between the machines
Continuous flash	General synchronism error	Check the settings of the dip-switches or repeat the procedure for alignment and address acquisition

#### 12. CHECKING FOR CORRECT ASSEMBLY

- Check that the window is perfectly closed at corners and that there are no obstacles caused by incorrect positioning during assembly.
- Check that when the window frame is closed the chain terminal is at least a few millimetres away from the actuator body. This will ensure the window is properly closed and seals are correctly compressed. In the event that this should not be the case there is no guarantee that the window is closed correctly.
- Check that hinges and support brackets are aligned to each other and tightly fixed against the window frame with screws fixed correctly into position.
- Check that the window reaches the desired position according to the stroke-end selected.

#### 13. EMERGENCY MANOEUVRES, MAINTENANCE OR CLEANING

In the event that the window frame should require manual opening due to power failure or problem with the mechanism or for normal maintenance or external cleaning of the window frame, the NEKOS patent allows rapid unhooking of the chain. To perform this operation, proceed as follows:

1. Unhook the flap of the quick hook locking the chain terminal to the bracket.
2. Hold the window in one hand and remove the pin of the chain terminal from the two u channels on the bracket with the other. *(this operation should be performed with the window open at least 10 cm to facilitate unhooking of the chain).*



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.

#### 14. 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.

#### 15. 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.

## 16. DECLARATION OF INCORPORATION (FOR A PARTLY COMPLETED MACHINE) AND EC DECLARATION OF CONFORMITY

Hereby the

Manufacturer:	<b>Nekos Srl</b> Via Capitoni 7/5- 36064 Colceresa - VI - Italy Tel +39 0424 411011 – Email <a href="mailto:info@nekos.it">info@nekos.it</a>
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declare under its own responsibility that the following products:

Product Designation:	<b>Window chain drive</b>
Type :	<b>24V KATO 305 RWA - KATO 305 SYNCRO<sup>3</sup> RWA INKA 356 RWA - INKA 356 SYNCRO<sup>3</sup> RWA 230V KATO 305 - KATO 305 SYNCRO<sup>3</sup> INKA 356 - INKA 356 SYNCRO<sup>3</sup></b>

Year of manufacturing from: **2017**

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, 1.2.3, 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**  
The relevant technical documentation is compiled in accordance with **Annex VII, Part B**

The person authorised to compile the relevant technical documentation is: **ing. Matteo Stefani – Nekos S.r.l.**

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.

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

- **2014/30/EU ElectroMagnetic Compatibility Directive (EMCD)**
- **2014/35/EU Low Voltage Directive (LVD)**
- **2011/65/EU Restriction of the use of certain hazardous substances Directive (RoHS Directive)**
- **2015/863/EU Delegated Directive amending Annex II of Directive 2011/65/EU of the European Parliament and of the Council regarding the list of substances with usage restrictions**

and of the following harmonised standards and/or technical specifications:

**EN 60335-2-103; EN 61000-6-3:2007 + A1:2011 + AC:2012; EN IEC 61000-6-2:2019;  
EN 60335-1:2012 + AC:2014+A11:2014; EN 50581:2012;  
Only for RWA products EN 12101 – 2**

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.

This is declared by the manufacturer:

**NEKOS SRL** - Via Capitoni 7/5 - 36064 Colceresa - VI - Italy

Represented by: **Giuliano Galliazzo** – President CEO

Place and date: Colceresa **04/03/2020**

*Giuliano Galliazzo*  
Valid signature

## 17. TEST REPORT RWA – RWA TEST REPORT - PRÜFBERICHT RWA

### Nachweis

Verhalten von natürlichen Rauch- und Wärmeabzugsgeräten

Prüfung der Wärmebeständigkeit

Prüfbericht 13-000921-PR02 (PB-A04-01-de-01)



Auftraggeber	Nekos srl via Capitoni, 7/5 36064 MASON VICENTINO VI Italien
Produkt	Natürliches Rauch- und Wärmeabzugsgerät
Bezeichnung	"GU NRW System (Gutmann)"
Elementaußenabmessung (B x H)	3000 mm x 2000 mm
Flügelaußenmaß (B x H)	2948 mm x 1948 mm
Lichte Öffnung (B x H)	2936 mm x 1936 mm
Rahmenmaterial	thermisch getrennte Aluminium-Profile
Bauart	einflügeliges Kippfenster einwärts öffnend
Einbauart	Wandebau 90°
Antrieb	Kettenantrieb "KATO 305 RWA SYNCRO"
Besonderheiten	-

Grundlagen  
DIN EN 12101-2:2003-09:  
Rauch- und Wärmefreihaltung  
Teil 2: Bestimmung für natürliche Rauch- und Wärmeabzugsgeräte  
Prüfung der Wärmebeständigkeit nach Anhang G. Klassifizierung nach Abschnitt 7.5.

Prüfbericht 10-001173-PB01-A04-01-de-01 vom 15. Dezember 2010  
Darstellung



Verwendungshinweise  
Dieser Prüfbericht dient zum Nachweis des Verhaltens von natürlichen Rauch- und Wärmeabzugsgeräten (NRWG) unter Wärmewirkung.  
Dieser Prüfbericht ist kein bauaufsichtlicher Verwendbarkeitsnachweis!

Gültigkeit  
Die genannten Daten und Ergebnisse beziehen sich ausschließlich auf den geprüften und beschriebenen Probekörper.

Veröffentlichungshinweise  
Es gilt das ift-Merkblatt „Bedingungen und Hinweise zur Benutzung von ift-Prüfdokumentationen“.  
Das Deckblatt kann als Kurzfassung verwendet werden.  
Inhalt  
Der Nachweis umfasst insgesamt 27 Seiten  
1 Gegenstand  
2 Durchführung  
3 Einzelergebnisse  
Anlage 1 (Zeichnungen, Bilder)  
Anlage 2 (Messstellenplan)



Natürliche Rauch- und Wärmeabzugsgeräte NRWG

Erreichte Klassifizierung nach DIN EN 12101-2:2003-09 Anhang G

**B 300**

ift Rosenheim  
17. April 2013



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Number Body No. 0757  
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