

# MR28-B

EN

INSTRUCTION MANUAL

**TUBULAR GEARMOTOR FOR BLINDS – Ø28MM**

Electrical feeding 24V---



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## 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



**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. CONSTRUCTION AND STANDARDS

**INTENDED USE.** The MR28-B tubular gear motor is destined exclusively for moving curtains and small blinds; 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 **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.



## 3. TECHNICAL DATA

Model	MR28-B / 24V
Voltage supply ( $U_n$ )	24V <sub>---</sub>
Traction force ( $C_n$ )	0,70 Nm
Theoretical capacity load on tube Ø28	5,5 Kg
Limit switches maximum programming height	5 m
Power absorbance ( $I_n$ )	0,340A
Power absorbance on charge ( $P_n$ )	8,8W
Feeding cable	2x0,50 mm <sup>2</sup> – 3m
Speed at nominal charge ( $v_n$ )	24 rpm
No load speed ( $v_0$ )	32 rpm
Electrical insulation	Class III
Service ( $D_r$ )	5 cycles
Working temperature	- 5 + 65 °C
Electrical device protection rating	IP44
End stroke	By encoder, programmable
Connection of two or more devices in parallel	Yes
Dimensions	Ø24,5 x 210 mm
Device weight	0,282 Kg

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

## 4. ID PLATE AND MARKING DATA

MR28-B gear motors 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”.

## 5. ELECTRICITY SUPPLY

MR28-B gear motors can use 24V<sub>---</sub>. For this reason, a feeder with an outgoing tension correspondent to the one indicated on the technical data label attached to device and which transforms supply mains voltage (230V~50Hz or other) in 24V<sub>---</sub> should be used. Correct functioning is guaranteed if a feeder type approved or suggested by the manufacturer is used. The manufacturer also provides the **ALi-SW** power supply



device, built specifically for this type of application, which can directly power and control the gear motor of the blind. The power supply device is designed to be inserted in the Italian 3-module recessed power and switching box, and the gear motor control uses the innovative touch-switch technology that activates the control by simply touching the “deadman's switch” key or in automatic steps. The touch-switch board can be applied on any commercial hole-cover element maintaining an elegant electric control integrated in the design of the home environment.

### 5.1. Section choice of supply cables

In low tension supply systems, tension falls due to current passage in conductors is a basic aspect for safety and good appliance function. It is therefore extremely important that the conductor section in function of cable length is calculated correctly.

The following table indicates cable lengths for a gear motor connected to a 24V<sub>---</sub> feeder, with power suitable for moving a motor on its nominal charge. In the event that only a feeder is used to furnish energy to various gear motors, divide the cable length for the number of gear motors connected.

CABLE SECTION	Actuator fed at 24V <sub>---</sub>
0.50 mmq	~40 m
0.75 mmq	~60 m
1.00 mmq	~80 m
1.50 mmq	~120 m
2.50 mmq	~200 m
4.00 mmq	~320 m
6.00 mmq	~480m



**Never connect two feeders to the same gear motor.**

## 6. 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 MR28-B tubular gear motor. First of all, please check that the following fundamental assumptions have been satisfied:



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.

Gear motor performances must be sufficient to move the curtain; any limits indicated in the technical data table on the product cannot be exceeded (page 5).

Ensure the gear motor has not been damaged during transport, first visually and then by working it in both directions.

Check that the inner section of the window length is over 270 mm in length. Anything shorter than this will not allow for assembly of the gear motor.

Before mounting gear motor into position, ensure supports have been adequately prepared. These operations must be carried out "at the bench" with the help of minimum equipment.

### 6.1. Blind support tube and end cap

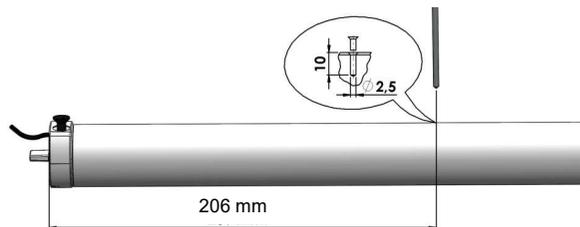
**CAUTION: the blind support tube must have an internal diameter of 26 mm.**

After cutting the blind support tube to the desired length, which depends on the width of the window, the tube must be cleaned of all burr caused by the cutting; it is recommended that a deburring knife be used to round the internal edges in order to facilitate insertion of the support end caps.

### 6.2. Gear motor

- Insert the gear motor into the tube until it reaches the stop of the sliding bush.
- At a distance of **206 mm** from the head unit of the gear motor (see figure 1), drill 2 holes at 180° to one another with  $\varnothing 2.5$  mm and 10 mm deep.

Figure 1



- Use a conical tool to make a small flare at 90° which will contain the head of the screw.
- Take the M3x8 countersunk head screws provided and screw them into the two holes. The holes do not require tapping since these are self-tapping screws.
- Fix each screw until the head disappears completely.
- **Caution. If the head of the screw protrudes from the windup tube, the depth of the flare must be increased accordingly. Any protrusion of the screw from the tube may damage the fabric being wound up around the roller.**

### 6.3. Assembly of the supports

Follow the steps below.

- Carefully select the position at which to fix the supports. Horizontal fixing uses the holes in line with the tube, whereas orthogonal fixing uses the holes located at 90° on the bracket.
- The support bracket with the cross slots should be positioned near the motor, i.e., where the power supply cable comes out.
- Take the plastic bush with  $\varnothing 4$  hole that can be found in the bag of small metal parts and assemble it in the hole of the other bracket; this requires a certain amount of pressure so an appropriate tool should be used.
- Mark the positions of the holes with a pencil.
- Depending on the type of support (*wall, frame or other*), use a drill bit to drill a hole with the selected diameter in the points marked previously with the pencil.
- Screw in the screws without tightening them and check the linearity and orientation of the brackets.

### 6.4. Assembly of motorization

- Insert opposite motor cover pin in opening provided on bracket.
- Insert protruding tongue of motor head into cross threading slot and position in alignment with curtain.
- Check that wrapping tube is horizontal. Should this not be the case, loosen fixing screws and reset properly. Remember that even a slight inclination of the mounting means that the curtain is not aligned and will produce waves in the fabric.
- Fix bracket screws permanently into position.

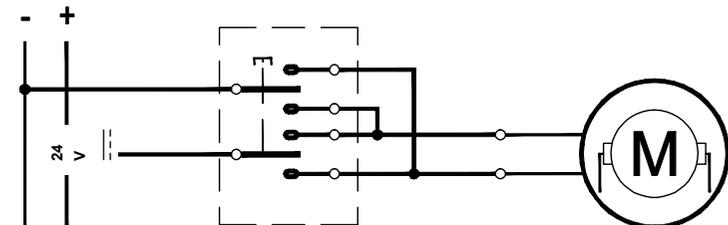
## 7. ELECTRICAL CONNECTIONS

The cable furnished with the MR28-B tubular gear motor is 2 m long and has been calculated in accordance with safety rules. In the event that the distance between the gear motor and feeder should exceed this length, the cable should be extended.

See table on page 6 for conductor section indications.

After connecting electricity supply to feeder, check that up key function opens the curtain and down key function closes it. In the event that keys function to the contrary, invert cable positions.

For harness, please follow the diagram indicated on this page.



## 8. LUMINOUS INDICATIONS ON LED

Before activating the gear motor, familiarise yourself with messages indicated by the red led on the head of the gear motor. This will allow you to check machine is functioning properly or allow you to recognize possible anomalies.

LED function	Meaning
Constantly on	Motor in use. Limit switch programming active.
300ms on – 300ms off	Motor not programmed; limit switch programming phase.
100ms on – 1sec off	Motor in electrical protection due to excessive charge.
1sec on – 1sec off	Motor has regularly reached a limit stop but is still connected to electricity supply.
100ms on – 100ms off	Encoder error

## 9. ADJUSTMENT OF THE TWO STROKE-ENDS

The gear motor allows you to adjust the stopping position of the blind at the desired upper or lower points. Both stroke-ends are programmed in the same step, by using the up and down control button and removing the plug located on the head unit of the gear motor.

The motor is factory set with a random stroke-end, i.e., not following any particular logic. The programming procedure is simple and immediate; just strictly follow the steps below:

1. Remove the plug (which looks like a screw) housed on the head unit of the gear motor (see figure to the side). The plug has a small magnet used to block the programming of the two stroke-ends.
2. Operate the control button in one direction (either up or down, it doesn't matter) and move the blind into the desired position without ever reversing the direction of travel; there can be intermediate stops as long as the next command is in the same direction.
3. During the control action, the LED must be flashing. This means that the stroke-ends are being programmed.
4. Operate the control button to reverse the direction of travel and move the blind to the opposite desired position, again without ever reversing the direction of travel.
5. The LED must be flashing during the entire control phase.
6. Insert the plug into its position (see figure to the side). Now the programming is finished.
7. Perform a complete stroke up and down of the blind and check that it stops in the desired position. In this case the LED should remain steady-on during the entire control phase.
8. Otherwise, repeat steps 1 to 6. The programming of the stroke-ends can be repeated as often as necessary.
9. Perform a few maneuvers to check the blind's operation.



## 10. TROUBLESHOOTING

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

Problem	Possible cause	Solution
Gear motor doesn't work.	No electricity supply for feeder.	Check state of safety switch.
	Connecting cable not connected or wire not connected.	Check all electrical connections of gear motor.
Led is lit but gear motor doesn't work.	Feeder doesn't deliver foreseen tension (24V <sub>---</sub> ).	Possible transformer winding break down.
	Limit switch programming is too close.	Loosen screw on head and reset limit switch programming.
In spite of programming, gear motor doesn't get one or both limit switches.	Gear motor is damaged due to a shock. Motor connection has unsoldered.	Send gear motor to a Service Centre.
	Programming hasn't been carried out correctly.	Repeat programming.

## 11. INDICATIONS FOR CORRECT ASSEMBLY

- Check that curtain is perfectly spread without any folds or looseness.
- Check that both up and down limit switches have reached the desired positions
- Check that the gear motor support brackets are aligned and the four fixing screws are firmly screwed into position

## 12. 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.

## 13. 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.

#### 14. 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:	<b>NEKOS S.r.l.</b> Via Capitoni 7/5- 36064 Colceresa (Vicenza) - Italy Tel +39 0424 411011 – Email <a href="mailto:info@nekos.it">info@nekos.it</a>
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dichiara sotto la propria responsabilità che i seguenti prodotti:  
declare under its own responsibility that the following products:

Descrizione prodotto: Product Designation:	<b>Attuatore a cremagliera, lineare a stelo, elettroserratura, tubolare per tende</b> <i>Rack and pinion drive, linear drive, electromechanical lock, tubular drive</i>	
Modello: Type:	<b>230 V: SKY450 – SKYRO 650 – SKYRO 850</b> <b>ROCK – FLIK</b>	<b>24 V: SKYRO 650 – SKYRO 850; ROCK</b> <b>K-LOCK – BK-LOCK</b> <b>MR28-B – FLIK</b>

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

Soddisfano gli applicabili requisiti essenziali della <b>Direttiva Macchine 2006/42/EC, Allegato I</b> <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, 1.2.3, 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</i> La documentazione tecnica pertinente è compilata secondo l' <b>Allegato VII, sezione B</b> <i>The relevant technical documentation is compiled in accordance with Annex VII, Part B</i>
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La persona autorizzata a costituire la documentazione tecnica pertinente è:

The person authorised to compile the relevant technical documentation is: **Giuliano Galliazzo – 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:

- **2014/30/EU Direttiva Compatibilità Elettromagnetica / ElectroMagnetic Compatibility Directive (EMCD)**
- **2014/35/EU Direttiva Bassa Tensione / Low Voltage Directive (LVD)**
- **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)**
- **2015/863/EU Direttiva Delegata recante modifica dell'allegato II della Direttiva 2011/65/EU del Parlamento Europeo e del Consiglio per quanto riguarda l'elenco delle sostanze con restrizioni d'uso/ 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**

e delle seguenti norme armonizzate e/o specifiche tecniche:

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

<b>EN 60335-2-103;</b>	<b>EN 61000-6-3:2007 + A1:2011 + AC:2012;</b>	<b>EN IEC 61000-6-2:2019;</b>
<b>EN 60335-1:2012 + AC:2014+A11:2014;</b>	<b>EN 50581:2012;</b>	

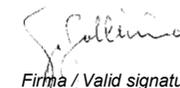
La messa in moto di una macchina completa che includa la quasi macchina sopra menzionata, da noi fornita, non è permessa finché non sia accertato che l'installazione sia stata fatta secondo le specifiche e le indicazioni di installazione contenute nel "Manuale d'istruzioni" fornito con la quasi-macchina, 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 S.r.l.** - Via Capitoni 7/5- 36064 Colceresa (Vicenza) - Italy

Rappresentato da / Represented by: **Giuliano Galliazzo** – A.D. / CEO



Firma / Valid signature

Luogo e data / Place and date: Colceresa **22/09/2021**

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