CHAIN OPERATED ACTUATOR _____ **CLOUD SYNCRO**

FORCE 300 N - MAXIMUM STROKE 400 MM
ELECTRICAL FEEDING 230VAC 50 HZ
OR 24VDC

INSTRUCTION MANUAL

ENGLISH

Third edition - 2014/01

MASTER products are specially manufactured in safe materials in compliance with the requirements of legislation in force. When correctly mounted, installed and used in accordance with the present instructions, our products constitute no danger to people, animals or property.

Products subject to EU directives comply with the essential requirements stipulated by the latter. CE markings mean that our products can be sold and installed throughout the European Union without any further formality.

The CE mark on our products, packaging and user manuals provided with the product, indicate “presumed in conformity with directives” issued by the EU. **MASTER** holds the technical file with all the documentation to show that our products have all been inspected to ensure compliance with directives conformity.

Contents

1. Safety indications

ATTENTION: PLEASE READ THE FOLLOWING SAFETY INDICATIONS CAREFULLY BEFORE ATTEMPTING INSTALLATION OF THIS APPLIANCE. THESE INDICATIONS WILL HELP TO AVOID CONTACT WITH ELECTRICAL CURRENT, INJURY AND OTHER ACCIDENTS. PLEASE KEEP THIS MANUAL FOR FUTURE CONSULTATION.

The **CLOUD SYNCRO** chain operated actuator has been designed exclusively for moving windows. **Any use of the actuator for applications other than those indicated must previously be authorized by the manufacturer upon technical verification of the application**.

Carefully observe the followings safety indications.

- The device must only be installed by competent and qualified technical staff.
- After removing all packaging, please verify that all parts of the appliance are present.
- Any plastic bags, polystyrene, or small metallic parts such as nails, clips, etc. must be stored out of the reach of children as they constitute potential sources of danger.
- Before connecting the appliance to the electricity supply, check that the electricity supply in use has the same characteristics as those indicated on the technical data label on the device.
- This appliance is destined exclusively for the use for which it has been designed and the manufacture cannot be held responsible for any damages incurred by improper use.
- The chain operated actuator has been designed for the exclusive purpose of internal installation. The manufacturer must be consulted for any other application.
- Installation of the device must be carried out in accordance with the instructions set out by the manufacturer. Failure to follow these instructions could compromise safety.
- Electricity supply installation must be carried out in accordance with regulations in force.
- To ensure effective separation from the electricity grid, we suggest installation of a temporary approved type bipolar switch (push button). A multi-pole main switch with minimum contact opening of 3 mm should be installed at the start of the command line.
- Never clean the device with solvents or jets of water. Never immerse appliance in water.
- Eventual repairs must only be carried out by qualified staff at a service centre authorized by the manufacturer.
- Always require exclusive use of original spare parts. Failure to comply with this stipulation could compromise safety and forfeit warranty benefits for the device.
- In the event of trouble or doubts, please refer to your trust retailer or directly to producer.

WARNING

Risk of injury in the event that the window should fall on outward opening window frames. A safety system should be mounted onto the window to guard against falls. This system should be able to withstand at least three times the total weight of the window.

This device may cause injury by crushing or dragging. During function, when the actuator closes the frame, it applies a pressure force of 300N against the ledge of the casing, and all due measures, care and attention should be taken to avoid any crushing of fingers.

Check that limit switch selection is less than at least one centimetre with respect to the mechanical stops, limit switches or any eventual obstacles preventing opening of the wing.

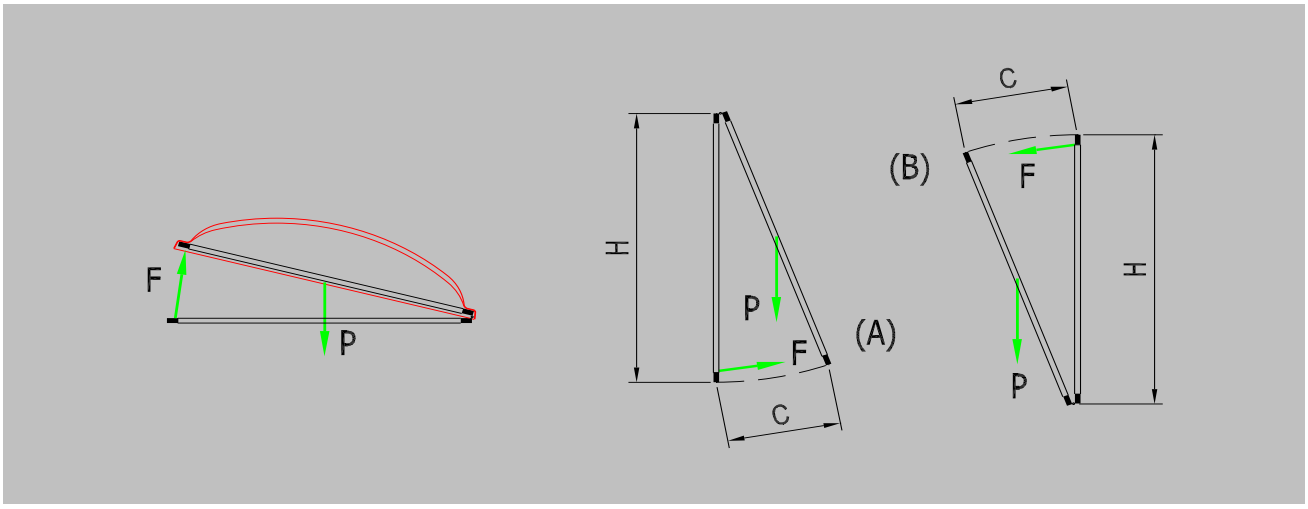
In the event of damage or malfunction, switch off the device, disconnect any electrical connections and request the intervention of a qualified technician.

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 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***	***400***
Light domes, skylights or vertical top hung windows opening outwards with frontal assembly	**150**	**250**	**450**
Top hung windows opening outwards with horizontal assembly	**200**	**300**	**500**
Bottom hung windows *(motor on frame)*	**250**	**450**	**700**
Bottom hung windows *(motor on sash)*	**Consult manufacturer**		

3. Use of Cloud Syncro

CLOUD SYNCRO chain actuator is provided with the patented system for the coordinated synchronization of chain movement. Electronic speed control is completely automatic and don't need any external control unit; it is sufficient to connect among them red and white cables already existent on feeding cable (see scheme on page 10).

3.1. How to recognise it

To recognise on sight chain actuator CLOUD SYNCRO from other actuators of CLOUD series, there are only three details:

- Label with Syncro mark attached near the one which reports actuator technical data.
- Electrical feeding cable which is with 5 wires (3 – blue, black, brown +2 – white, red) for 230V~ version and with 5 wires (3 numbered "1", "2", "3" + 2 – white, red) for 24V⎓ version.
- Dip-switch on actuator hip has four switches.

3.2. When it has to be mounted

CLOUD SYNCRO chain actuator is mounted when are necessary two attach points because window is particularly heavy or large and a single actuator doesn't allow the perfect frame closure.
Please remind that force executed from a single actuator is 300N; so mounting two actuators the force applied on frame is double.
Frame movement occurs uniformly, synchronized and coordinated without interruptions and/or speed variations of two actuators.
In case of one of the two actuators doesn't run for any mechanical or electrical impediment, the other stops too, guarantying in this way frame integrity.

4. Accessories

CLOUD SYNCRO actuator is packed in carton boxes. Each package contains:

- 2 actuators with 2,5 metres lead.
- Standard support brackets with distancer (A).
- Template for boring.
- Small parts packaging.

- Instruction manual.

Note: brackets for bottom hung (ref. C) and top hung (ref. D) windows have to be requested apart.

5. Technical data

MODEL	***CLOUD SYNCRO 230V***	***CLOUD SYNCRO 24V***
Pressure force	300 N	
Traction force	300 N	
Track runs *(can be selected at any time)*	100, 200, 400 mm	
Voltage	230VAC 50 Hz	24VDC
Current consumption at nominal charge	0,115 A	0,950 A
Charge absorbed at nominal load	~ 25 W	
No load speed	8,5 mm/s	
No load duration *(400 mm)*	48 s	
Double electrical insulation	YES	
Type of service	S_2 of 3 min	
Working temperature	- 5 + 65 ºC	
Protection index	IP30	
Adjustment of socket at casing	Autopositioning	
Connection of two or more devices in parallel	YES	
Limit switch stop at opening	Electronic	
Limit switch stop at closure	At absorption of charge	
Dimensions	386,5x59x37	
Weight	1,180 Kg	1,150 Kg

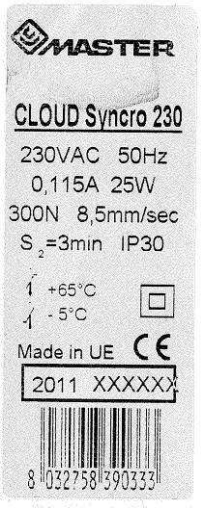
Any information reported in this table is not binding and may be susceptible to variations without notice

6. Label data and markings

The actuators have been assigned CE marking and can be sold onto the market and used throughout European Union territory without further requirement.

The CE marking on the product, packaging and user warnings indicate "*presumed conformity to directives*" issued by the EEC.

The manufacturer holds technical archives with documentation to prove that products have been examined to assess conformity to directives. Rating plate data is located on an adhesive polyethylene label on the outside of the container, printed in blue on a grey background. All data conform to stipulations required by community standards in force.



7. Electricity supply

The CLOUD SYNCRO actuator is commercially available in two versions identified according to electrical specifications:

1. **CLOUD SYNCRO 230VAC**: runs on grid tension of 110/230V~ (a.c.), 50/60Hz (±10%), 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).
2. **CLOUD SYNCRO 24VDC**: runs on 24V⎓ (d.c.), with five wire cable, ***BLACK "1"**, connected to the + (positive) closes; **BLACK "2"**, connected to the + (positive) opens*. The third wire ***BLACK "3"*** has to be insulated and never connected (it's used for special applications). The additional wiring (**RED** and **WHITE**) is for electronic synchronisation (NEKOS Patent).

Low tension actuators 24V⎓ (d.c.) can be powered using a feeder with an output tension of 24V⎓ (d.c.) *(-15% ÷ +20%, or min. 20.4V, max. 28.8V)*. The feeder must be approved and class II *(double safety insulation)*.

7.1. 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 an actuator connected at nominal charge.

Cable section	Actuator using	
	24 V⎓	230V~
4,00 mm²	**~ 1.000 m**	**~ 3.000 m**
2,50 mm²	**~ 750 m**	**~ 2,200 m**
1,50 mm²	**~ 450 m**	**~ 1,350 m**
0,75 mm²	**~ 160 m**	**~ 500 m**
0,50 mm²	**~ 130 m**	**~ 400 m**

8. 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 CLOUD SYNCRO chain operated actuator. First of all, please check that the following fundamental points have been satisfied:


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 6) and the most appropriate stroke should be selected. Calculations should be checked using the formula indicated on page 4.


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 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.

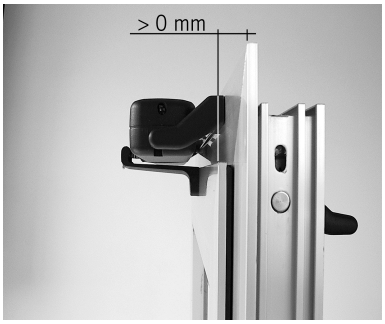


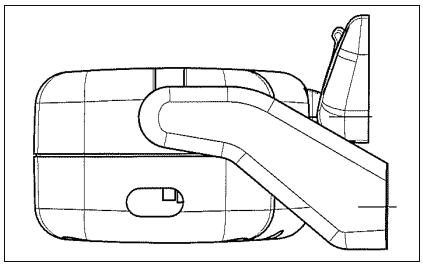
Figure 1

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.

8.1. Assembly with outward opening window.

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

A. Divide the frame in 3 parts and trace two “X”.
B. Select the correct form of brackets (Fig. 2).
C. Attach the template to the window frame (fixed part) and line axis up with the 2 “X” traced earlier (Fig. 3). 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. 4).
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 rapid release hook inserted onto the pin Ø4x32 (provided) in median position (Fig. 5).
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 rapid release hook into the bracket. For the first few times, this may fairly stiff, but in time the pieces involved will adapt to their positions.


Outward application

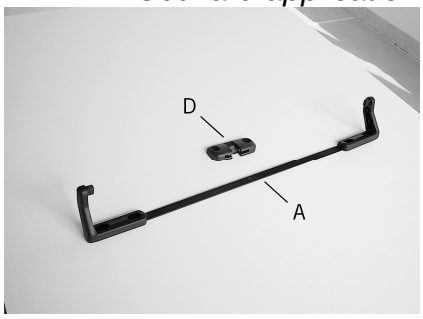


Figure 2

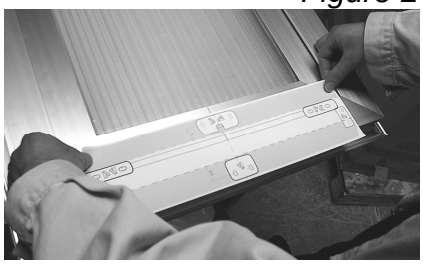


Figure 3

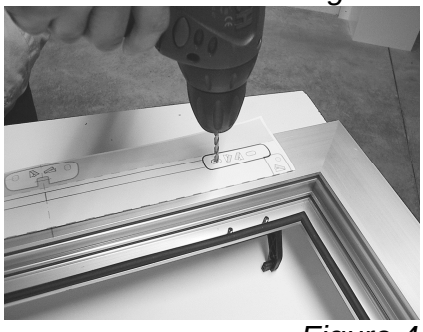


Figure 4

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.
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.

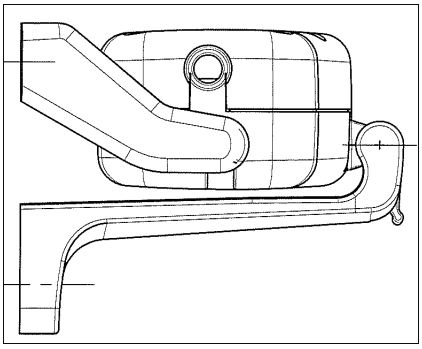
Figure 5

M. On re-entry the actuator limit switch functions automatically. The device exerts a traction force of over 300 N to guarantee perfect sealing up of the weather strips.

8.2. Assembly on transom window

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

A. 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.
B. Divide the frame in 3 parts and trace 2 “X”.
C. Select the correct form of brackets (Fig. 6).
D. Attach the template to the window frame (fixed part) and line axis up with the centre line “X” traced earlier (Fig. 7). 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.
E. Bore holes in the window frame at the points indicated on the template (Fig. 8).
F. 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.
G. Mount the bracket for outward opening windows onto the moveable part of the frame in accordance with the markings indicated on the template.
H. Complete assembly of the chain terminal with the rapid release hook inserted onto the provided pin Ø4x32 in median position (Fig. 9).
I. Mount the actuator onto the brackets by inserting the two openings at each side onto the corresponding pins on the brackets.



Inward application – transom window

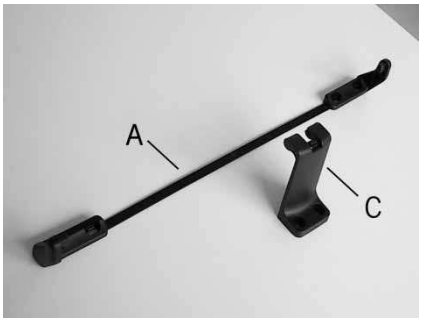


Figure 6

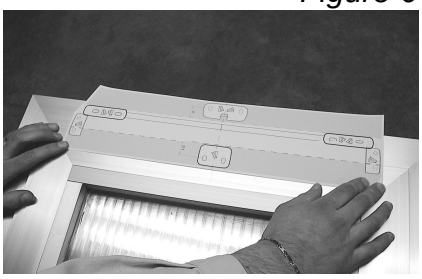


Figure 7

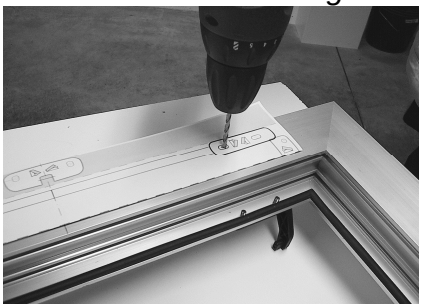


Figure 8

J. Rotate the actuator 90°, bring the chain terminal up to the bracket and insert the pin into the opening on the bracket. Insert the rapid release hook into the bracket.
K. 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.
L. Check all electrical connections with the diagram on the label attached to the lead.

Figure 9

M. 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.
N. On re-entry the actuator limit switch functions automatically. The device exerts a traction force of over 300 N to guarantee perfect sealing up of the weather strips.

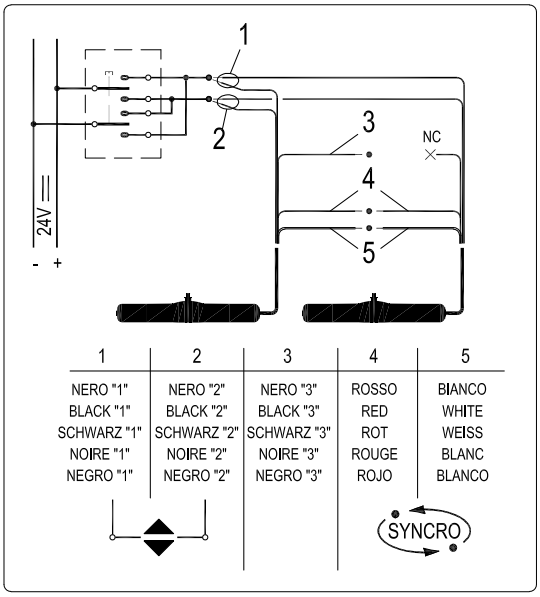
9. Electrical connections

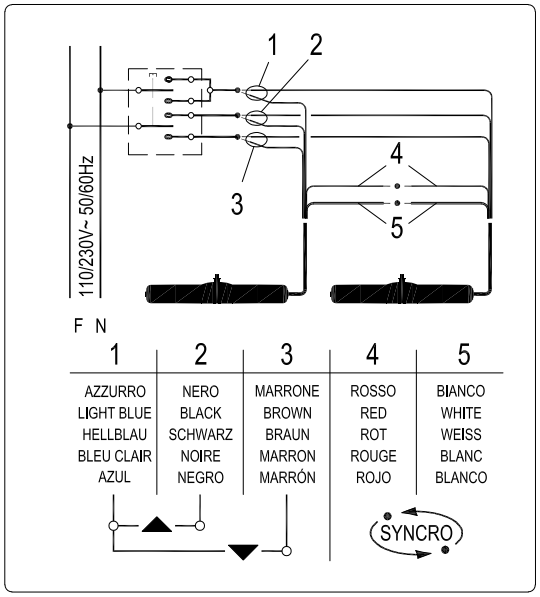
Cable supplied together with actuator is 2,5 m (±5%) long and it is calculated in accordance with safety rules. See table on page 7 for conductor section indications.

Electrical connection of cables white and red has to be done with a loose connector of proper dimensions (clamp is on equipment). Fundamental importance has a steady connection, with a good electrical contact because passing tension is very low.

<u>IMPORTANT</u>: in 24V actuators, wire Black “3” if not used must be insulated and never connected.

For harness, please follow these diagrams.





10. Programming the actuator

10.1. Limit switches at opening

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 9. 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*	*DIP-SWITCH No. 4*
SOLO	ON	OFF
SYNCRO	OFF	OFF

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*
100 mm	ON	OFF
200 mm	OFF	ON
400 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.

10.2. 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, or when the charge absorbed is more than 10% of the nominal charge. In this case, at maximum charge the actuator exercises a traction force of over 330N. 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.

10.3. Setting for SOLO operation of a Syncro

- Ensure that all the connections of the wires have been made correctly.

- 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***
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.

10.4.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.

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.
- 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***
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***
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.

10.5. Light signals of the LED (for Cloud Syncro)

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

11. 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.

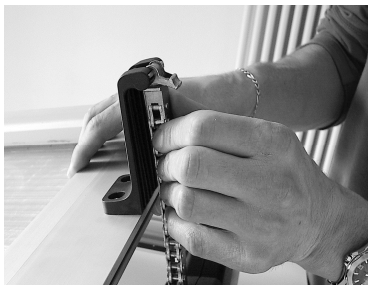
Check that the window moves to the desired position in accordance with the limit switch selected.

Check that the gear motor support brackets are aligned and the four fixing screws are firmly screwed into position.

12. 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 rapid release hook 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.
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.

13. 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. • Feeder doesn't deliver foreseen tension (24V).	• Check state of safety switch. • Check all electrical connections of gear motor. • Possible transformer winding break down.
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 dipswitch. • Send gear motor to a Service Centre.

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.

15. Warranty

The Manufacturer guarantees good machine function and undertakes to replace any defective parts due to bad quality materials or construction defects in accordance with article 1490 of the Civil Code. This warranty covers products for a period of **2 years** from the date of purchase. The warranty is valid if the buyer can present proof of purchase and has satisfied any conditions of payment accorded. The guarantee of good function of the device accorded by the manufacturer is understood to cover the replacement of any eventual parts that should be damaged when under warranty. The Buyer has no right to any compensation for possible damages, direct or indirect, or other expenses. Any attempt at repair by unauthorised persons renders this warranty null and void. All fragile parts and those parts exposed to natural wear, as well as parts submitted to agents or corrosive processes, temporary overload etc. are excluded from this warranty. The Manufacturer will not accept responsibility for possible damages caused by erroneous assembly, movement or insertion, use of excessive stress or improper use. Any repairs carried out under warranty are always intended *"Ex-factory producer"*. Relative transport expenses (outgoing / return) will be the responsibility of the Buyer.

The total or partial removing of the sticker label (with the identification code of the article) invalidates the warranty.

Before the intervention of an authorized technician, the buyer has to prove the presence of the original power cable, that must be no shorter than 30 cm

16. Certificato di conformita'

DECLARATION OF CONFORMITY

MASTER S.r.l.
s.p.37 Conversano-Castiglione km. 0,7 - z.i.
70014 Conversano (Bari) Italy - C.P. 81 - ITALY
☎ +39 080.4959823 – Fax +39 080.4959030
http://www.masteronline.biz info@masteronline.biz

Il sottoscritto legale rappresentante della ditta **MASTER** S.r.l.
The undersigned, representative of the following company

dichiara
declares

che il prodotto elettrico:
that the electrical product:

***Modello** / Model*	***Designazione** / Designation*
CLOUD SYNCRO 230V	**Attuatore a catena 230VAC** *Chain actuator 230VAC*
CLOUD SYNCRO 24V	**Attuatore a catena 24VDC** *Chain actuator 24VDC*

è conforme alle disposizioni legislative che traspongono le seguenti direttive:

- Direttiva 2004/108 CE (Direttiva EMC) e successivi emendamenti
- Direttiva 2006/95 CE (Direttiva Bassa Tensione) e successivi emendamenti

Is in accordance with the following Directives:

- *2004/108 EC Directive (EMC Directive) and subsequent amendments*
- *2006/95 EC Directive (Low Voltage Directive) and subsequent amendments*

Ultime due cifre dell'anno in cui è affissa la marcatura CE: **11**
Last two figures of the year of the CE marking:

Luogo: **Conversano (BA) - Italy**
Place:

Data: **26/07/2011** / *2011/07/26*
Date:

Firma: **Maria Luigia Lacatena**
Signature: *Legal representative*

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