

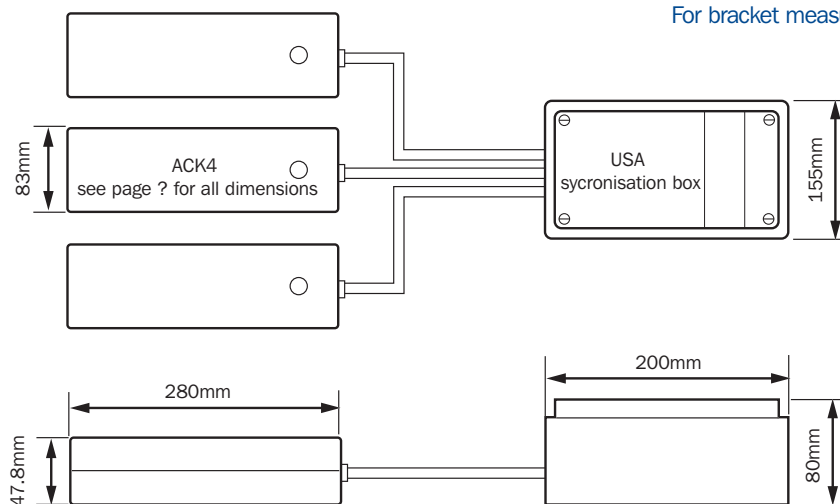
USA2/3 – ACK4

CHAIN ACTUATOR

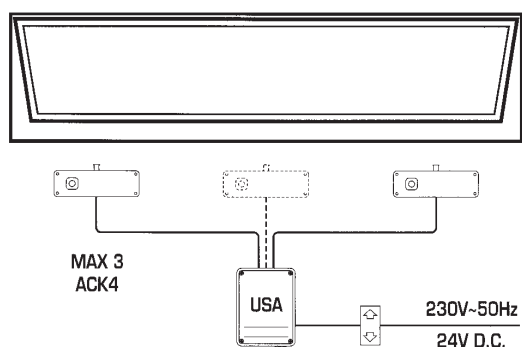


DIMENSIONS

For bracket measurements see ACK4 p55



INSTALLATION LAYOUT



230v**24v****600N
800N****60kg
80kg****100–400_{mm}**

USA2/3 – ACK4

TECHNICAL SPECIFICATIONS

	USA2/3-ACK4 230v	USA2/3-ACK4 24v
Voltage Supply	230v	24v
Thrust Force	600N/800N	600N/800N
Traction Force	400N/600N	600N/800N
Stroke	100 - 400mm adjustable	100 - 400mm adjustable
Absorbed Current	0.64/0.96 amps	4.2/6.3 amps
Time Rating	S2 2mins	S2 3mins
Limit Stop	electronic	electronic
Safety Stop	electronic	electronic
Wiring	3 core	2 core
Speed	~ 28mm/s	~ 18mm/s
Double Insulated	yes	no
Protection Class	IP55	IP55
Parallel Connection Option	yes	yes
Weight	3.8kg, 5.7kg	3.8kg, 5.7kg
Colours Available	white / black / silver	white / black / silver

PRODUCT SUMMARY

- The electronic control of the chain allows seven stroke end positions. It is easily adjustable at any moment by acting on the width adjusting screw, situated on both sides of the actuator.
- The aesthetic design makes the actuator suitable for most locations.
- The electric parts are double insulated (therefore earth wire is not necessary).
- On the chain end (double-linked and made of STAINLESS steel) it is possible to effect a 10mm adjustment. The maximum available stroke is 400mm.
- Comes with 8 metre cable option
- The actuator is **CE** marked and complies with the CEE EN 60335-1, 89/336 CEE (electromagnetic compatibility) regulations.

PRODUCT CODES

PRODUCT CODE	PRODUCT DESCRIPTION
AT-USA2-230	ACK4-USA2 230v
AT-USA2-24	ACK4-USA2 24v
AT-USA3-230	ACK4-USA3 230v
AT-USA3-24	ACK4-USA3 24v
AT-USA2-230-8M	ACK4-USA2 230v with 8 metre cable
AT-USA2-24-8M	ACK4-USA2 24v with 8 metre cable

BRACKET CODE	BRACKET DESCRIPTION
BRAT-L	ACK4 long bracket
BRAT-LS	ACK4 large swivel bracket
BRAT-S	ACK4 small swivel brackets
BRAT-U	ACK4 'u' shaped brackets



USA2 - USA3

CONTROL UNIT AND SYNCHRONIZER FOR TOPP'S CHAIN ACTUATORS

CE

DECLARATION OF "CE" CONFORMITY

TOPP SPA - Via Galvani, 59 36066 SANDRIGO (VI) - ITALIA

declares that the electric device:USA2 – USA3

Called: Control and synchronising unit for chain actuators

Model: USA2 – USA3

Serial No.: see data plate and CE marking applied on the equipment

Year of manufacture: 2004

complies with the requirements of the following directives:

73/23/EEC

(Low Voltage Directive: electrical equipment destined to be used within given voltage limits)

89/336/EEC

(Electromagnetic Compatibility Directive - on the approximation of the laws of the Member States relating to electromagnetic compatibility)

and, besides, it declares that the following harmonized standards have been applied:

EN 60950:1992- 08; EN 60950 EC:1992-10; EN 60950/A1:1993;

EN60950/A2:1993- 08; EN 60950/A3:1995- 10; EN 60950/A3 EC:1996- 01;

EN 60950/A4:1997- 03; EN 60950/A11:1997- 10; EN55022:1998;

EN61000- 3- 2:1995; EN61000- 3- 3:1995; EN61000- 3- 2/A1:1998;

EN61000- 3- 2/A2:1998; EN50130- 4:1995; EN50130- 4/A1:1998

GENERAL INSTRUCTIONS I

BEFORE INSTALLING AND USING THE DEVICE, IT IS COMPULSORY THAT THE INSTALLER AND THE USER CAREFULLY READ AND UNDERSTAND THIS MANUAL IN ALL ITS PARTS.

THIS MANUAL IS INTEGRAL PART OF THE DEVICE AND MUST COMPULSORILY BE PRESERVED FOR FUTURE REFERENCE.

THE MANUFACTURER HAS NO LIABILITY FOR ANY EVENTUAL DAMAGE TO PERSONS, ANIMALS AND THINGS DUE TO THE INOBSERVANCE OF THE STANDARDS DESCRIBED IN THIS MANUAL.

INSTALLER AND USER

THE DEVICE INSTALLATION CAN BE PERFORMED EXCLUSIVELY BY COMPETENT AND QUALIFIED TECHNICAL PERSONNEL SATISFYING THE PROFESSIONAL AND TECHNICAL REQUIREMENTS FORESEEN BY THE LAWS IN FORCE IN THE COUNTRY OF INSTALLATION.

THIS DEVICE CAN BE USED EXCLUSIVELY BY A USER ACTING IN CONFORMITY WITH THE INSTRUCTIONS CONTAINED IN THIS MANUAL.

DESTINATION OF USE

THE DEVICE HAS BEEN DESIGNED AND MANUFACTURED ONLY TO FEED AND CONTROL "ORIGINAL TOPP" MOTORS: WINDOW AUTOMATION ACTUATORS.

USE LIMITS

THE DEVICE HAS BEEN DESIGNED AND MANUFACTURED EXCLUSIVELY FOR TOPP PRODUCT, THEREFORE, ANY OTHER TYPE OF USE IS STRICTLY FORBIDDEN IN ORDER TO ASSURE IN ANY MOMENT THE SAFETY OF THE INSTALLER AND OF THE USER, AS WELL AS THE EFFICIENCY OF THE DEVICE ITSELF.

IT IS STRICTLY FORBIDDEN TO USE THE DEVICE FOR IMPROPER USES, DIFFERING FROM THE ONE FORESEEN BY THE MANUFACTURER.

IT IS STRICTLY FORBIDDEN TO INSTALL THE DEVICE ON THE EXTERNAL SIDE OF THE ROOM SUBJECT TO ATMOSPHERIC AGENTS (RAIN, SNOW, ETC.).

THE USE OF THE DEVICE IN ENVIRONMENTS WITH POTENTIALLY EXPLOSIVE ATMOSPHERE IS STRICTLY FORBIDDEN.

IT IS COMPULSORY TO KEEP THE PACKAGE AND THE DEVICE OUT OF REACH OF CHILDREN.

SHOULD ANY ANOMALY BE DETECTED, IT IS FORBIDDEN TO INSTALL THE DEVICE, AND IT IS COMPULSORY TO REQUIRE TECHNICAL ASSISTANCE FROM YOUR DEALER OR THE MANUFACTURER.

THE PACKAGING (PAPER, PLASTIC, ETC.) HAS TO BE DISPOSED ACCORDING TO THE LAWS IN FORCE.

PROTECTIONS AGAINST ELECTRIC HAZARD

THE DEVICE IS PROTECTED AGAINST ELECTRIC HAZARD DUE TO DIRECT AND INDIRECT CONTACTS. THE PROTECTION MEASURES AGAINST DIRECT CONTACTS AIM AT PROTECTING PEOPLE AGAINST HAZARDS DUE TO CONTACT WITH ACTIVE PARTS, USUALLY LIVE PARTS; WHILE THE PROTECTION MEASURES AGAINST INDIRECT CONTACTS AIM AT PROTECTING PEOPLE AGAINST HAZARDS DUE TO CONDUCTING PART, WHICH ARE USUALLY INSULATED, BUT COULD BECOME LIVE IN CASE OF FAILURE (INSULATION FAILURE).

THE ADOPTED PROTECTION MEASURES ARE THE FOLLOWING:

- 1) INSULATION OF LIVE PARTS BY MEANS OF A PLASTIC MATERIAL BODY;
- 2) ENCLOSURE WITH SUITABLE PROTECTION DEGREE;
- 3) PROTECTION OF PASSIVE TYPE GIVEN BY THE USE OF COMPONENTS WITH DOUBLE INSULATION, ALSO CALLED COMPONENTS OF CLASS II OR WITH EQUIVALENT INSULATION (IT IS FORBIDDEN TO PERFORM THE CONNECTION TO THE EARTHING PLANT OF THE DEVICES EQUIPPED WITH DOUBLE INSULATION).

RESIDUAL RISKS

THE DEVICE DOES NOT HAVE RESIDUAL RISKS. THE INSTALLER AND THE USER ARE HEREWITH INFORMED THAT AFTER THE ACTUATORS HAVE BEEN INSTALLED ON THE WINDOW, THE AUTOMATIC ENABLING OF THE SAME CAN ACCIDENTALLY GENERATE THE FOLLOWING RESIDUAL RISK:

RESIDUAL RISK:

HAZARD OF SQUASHING OR DRAGGING OF BODY PARTS INSERTED BETWEEN THE MOVABLE AND THE FIX PART OF THE WINDOW FRAME.

EXPOSURE FREQUENCY:

ACCIDENTAL AND WHEN THE INSTALLER OR THE USER DECIDES TO PERFORM A WRONG VOLUNTARY ACTION.

SEVERITY OF THE DAMAGE:

LIGHT LESIONS (USUALLY REVERSIBLE).

ADOPTED MEASURES:

1) MANUAL CONTROL (REMOTE CONTROL, RADIO CONTROL OR PUSH-BUTTON): IT IS COMPULSORY TO VERIFY THAT NEAR THE WINDOW THERE ARE NOT PERSONS, ANIMALS OR THINGS WHOSE SAFETY MAY BE ACCIDENTALLY JEOPARDIZED. DURING ACTUATOR OPERATION, IT IS COMPULSORY TO BE IN A SAFE CONTROL POSITION ASSURING VISUAL CONTROL ON THE WINDOW MOVEMENT.

2) AUTOMATIC CONTROL (SENSORS): IT IS COMPULSORY TO PLACE ON THE WINDOW SUITABLE SAFETY SIGNALS AND/OR TO INSTALL A SUITABLE ACOUSTIC/LIGHT SIGNALLER NEARBY.

GENERAL INSTRUCTIONS II

THE DEVICE INSTALLATION CAN BE PERFORMED EXCLUSIVELY BY COMPETENT AND QUALIFIED TECHNICAL PERSONNEL SATISFYING THE PROFESSIONAL AND TECHNICAL REQUIREMENTS FORESEEN BY THE LAWS IN FORCE IN THE COUNTRY OF INSTALLATION.

BEFORE CONNECTING THE MOTORS (ACTUATORS) TO THE FEEDING AND CONTROL UNIT, VERIFY THAT THEY ARE CORRECTLY INSTALLED ON THE FRAMES IN COMPLIANCE WITH THE RELATED "INSTALLATION AND USE INSTRUCTIONS".

THE DEVICE HAS TO BE PLACED WITHIN THE ROOM IN A SUITABLE POSITION ACCORDING TO THE DISTANCE OF THE MOTORS (ACTUATORS) TO BE CONTROLLED IN COMPLIANCE WITH THE SAFETY CONDITIONS FORESEEN BY THE LAWS IN FORCE IN THE COUNTRY OF USE.

ELECTRICAL CONNECTIONS

THE ELECTRIC CONNECTION OF THE FEEDING UNIT CAN BE PERFORMED ONLY BY COMPETENT AND QUALIFIED TECHNICAL PERSONNEL MEETING THE TECHNICAL AND PROFESSIONAL REQUIREMENTS FORESEEN BY THE LAW IN FORCE IN THE COUNTRY OF INSTALLATION.

BEFORE PERFORMING THE ELECTRIC CONNECTION OF THE FEEDING UNIT, VERIFY THE CORRECT INSTALLATION OF THE MOTORS (ACTUATORS).

THE MAINS TO WHICH THE FEEDING UNIT IS CONNECTED MUST COMPLY WITH THE REQUIREMENTS OF THE LAWS IN FORCE IN THE COUNTRY OF INSTALLATION, AS WELL AS SATISFY THE TECHNICAL FEATURES GIVEN IN TAB.1 AND ON THE RATING PLATE AND THE "CE" MARKING, AS WELL AS BE EQUIPPED WITH A SUITABLE "EARTHING PLANT".

THE SECTION OF THE MAINS CABLES MUST BE PROPERLY SIZED ACCORDING TO THE ABSORBED ELECTRIC POWER (SEE RATING PLATE AND "CE" MARKING).

ANY TYPE OF ELECTRIC MATERIAL (PLUG, CABLE, TERMINALS, ETC.) USED FOR THE CONNECTION MUST BE SUITABLE FOR THE USE, WITH "CE" MARKING, AND COMPLYING WITH THE REQUIREMENTS FORESEEN BY THE LAWS IN FORCE IN THE COUNTRY OF INSTALLATION.

IT IS COMPULSORY TO INSTALL UPSTREAM OF THE MAINS A SECTIONING DEVICE WITH A 30 MA DIFFERENTIAL PROTECTION, ASSOCIATED TO THE EARTHING PLANT.

IT IS FORBIDDEN TO PERFORM THE CONNECTION OF THE FEEDING AND CONTROL UNIT TO THE EARTHING PLANT.

USE OF THE DEVICE

THIS FEEDING UNIT CAN BE USED EXCLUSIVELY BY A USER ACTING IN CONFORMITY WITH THE INSTRUCTIONS CONTAINED IN THIS MANUAL.

BEFORE USING THIS FEEDING UNIT, THE USER MUST CAREFULLY READ AND UNDERSTAND THIS HANDBOOK IN ALL ITS PART.

BEFORE ENABLING IN MANUAL MODE (REMOTE CONTROL, RADIO CONTROL, AND PUSH-BUTTON) THE MOTORS (ACTUATORS) CONNECTED TO THE FEEDING UNIT, THE USER MUST VERIFY THAT NEAR AND/OR UNDER THE WINDOW THERE ARE NOT ANY PERSONS, ANIMALS AND THINGS WHOSE SAFETY MAY BE ACCIDENTALLY JEOPARDIZED (SEE PAR.4.2). MOREOVER, THE USER MUST BE IN A SAFE CONTROL POSITION ASSURING THE VISUAL CONTROL OF THE WINDOW MOVEMENT.

THE FUNCTION EFFICIENCY AND THE RATED PERFORMANCE OF THE ACTUATOR, OF THE WINDOW FRAME ON WHICH IT IS INSTALLED AND OF THE ELECTRIC EQUIPMENT MUST BE VERIFIED STEADILY IN TIME BY PERFORMING, WHEN NECESSARY, INTERVENTIONS OF ROUTINE AND SUPPLEMENTARY MAINTENANCE ASSURING THE OPERATION CONDITIONS IN COMPLIANCE WITH THE SAFETY REGULATIONS.

GENERAL INSTRUCTIONS III

THE USE OF "NON-ORIGINAL" SPARE PARTS AND ACCESSORIES WHICH MAY ENDANGER THE SAFETY AND THE EFFICIENCY OF THE FEEDING UNIT IS FORBIDDEN. THIS ACTION SHALL INVOLVE THE WARRANTY EXPIRATION.

ORIGINAL SPARE PARTS AND ACCESSORIES HAVE TO BE REQUESTED EXCLUSIVELY TO YOUR DEALER OR TO THE MANUFACTURER STATING TYPE, MODEL, SERIAL NUMBER, AND YEAR OF CONSTRUCTION OF THE FEEDING UNIT.

WARRANTY

THE DEVICE WARRANTY EXPIRES, IF ITS USE DOES NOT COMPLY WITH THE INSTRUCTIONS AND PRESCRIPTIONS DESCRIBED IN THIS MANUAL, AS WELL AS IF NON-ORIGINAL COMPONENTS, ACCESSORIES, SPARE PARTS, AND CONTROL SYSTEMS ARE USED (SEE LAST PAGE).

TECHNICAL ASSISTANCE

FOR THE TECHNICAL ASSISTANCE APPLY TO YOUR DEALER OR TO THE MANUFACTURER.

RESERVED RIGHTS

The reserved rights on this manual "Installation and use instructions" remain property of the Manufacturer. Each information herein contained (text, drawings, diagrams, etc.) is reserved. None part of this manual can be reproduced and disclosed (totally or partially) by any reproduction means (photocopies, microfilms or other) without written authorization of the Manufacturer.

In case of problems or doubts contact your retailer or directly:



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Tel. +39 0444 656700 - Fax +39 0444 656701
Info@topp.it - www.topp.it

MANUFACTURING SPECIFICATIONS

- The **USA2** and **USA3** control units have been manufactured according to the regulations of the European Union and comply with the requirements of the **CE** mark.
- The product has been built to feed, control and synchronize two or three TOPP actuators among the models indicated in the technical data tables, provided to the connection. Any other equipment cannot be connected, as the safety regulations will not be observed. The manufacturer rejects any responsibility caused by the non-observance of the safety regulations and the instructions reported in this handbook.
- The actuators connected to the control unit are manufactured according to the current "specifications" and regulations issued by the "European Unit".
- The wiring connection of the control unit must be according to the "Community" regulations on the electric systems.
- **NOTE:** motors fitted on the same window might run different speeds. The USA unit synchronises the chain speeds and allows max 2 cm error between each (in any case, the frame should be elastic enough to deaden it). If one chain exceeds this limit, causing a temporary skew of the motors, the synchronising device slows the faster motor down till all of them run the same speed. Any temporary skew will be balanced when the actuators reach the chain end position in closing or opening. To ensure a correct working of the system, we

recommend that the distance among each motor is minimum 150 cm. If it is not possible, please contact your retailer or direct TOPP.

TECHNICAL DATA

Model ACK4	USA2	USA3	USA2	USA3
Voltage supply	230V ~		24 V DC (*)	
Exit voltage	230V ~		24 V DC (*)	
Max. power consumption	0,64 A	0,96 A	4,2 A	6,5 A
Service	S1 – continuous			
Working temperature	- 5 + 50 °C			
Min. distance among the motors	150 cm			
Feeding cable's length	220 cm			
Overall dimensions	360x190x230 mm			
Thrust force	600 N	800 N	600 N	800 N
Traction force	400 N	600 N	600 N	800 N

Model C30	USA2	USA3	USA2	USA3
Voltage supply	230V ~		24 V DC (*)	
Exit voltage	230V ~		24 V DC (*)	
Max. power consumption	0,64 A	0,96 A	2,6 A	3,9 A
Service	S1 – continuous			
Working temperature	- 5 + 50 °C			
Min. distance among the motors	150 cm			
Feeding cable's length	220 cm			
Overall dimensions	370x270x190 mm			
Thrust force	600 N	800 N	600 N	800 N
Traction force	400 N	600 N	600 N	800 N

Model C40	USA2	USA3	USA2	USA3
Voltage supply	230V ~		24 V DC (*)	
Exit voltage	230V ~		24 V DC (*)	
Max. power consumption	0,48 A	0,72 A	2,2 A	3,3 A
Service	S1 – continuous			
Working temperature	- 5 + 50 °C			
Min. distance among the motors	150 cm			
Feeding cable's length	220 cm			
Overall dimensions	450x370x200 mm			
Thrust force	700 N	900 N	700 N	900 N
Traction force	700 N	900 N	700 N	900 N

(*)

The difference between the max. and the min. instantaneous value by the continuous voltage supply should be lower than 0,5% (ripple<0,5%).

ACCESSORIES

Any control unit is equipped with:

- ◆ No. 4 fairleads (Ø 6) for connection's cables.
- ◆ Packing with wall plugs and fixing screws.

MOUNTING INSTRUCTIONS

***THESE INSTRUCTIONS ARE ADDRESSED TO A TECHNICAL AND SKILLED PERSONNEL.
THEREFORE, THE MAIN WORKING AND SAFETY OPERATIONS ARE NOT COMMENTED.***

The **USA2** and **USA3** control units are designed to supply, control and synchronise 2 or 3 **TOPP** actuators among the models indicated in the technical data tables. The control unit is fed by the actuator's opening/closing control.

The connection to the control unit provides that the actuators must be pre-set with a five-wire cable for the 230V version and a four-wire cable for the 24V, already wired in by the manufacturer. Any standard, non pre-set actuator cannot be connected to the control unit as it does not have the synchronising signal.

More USA control units may be connected in parallel. On the contrary, it is not possible to operate any single motors by the same control as the unit's.

Proceed as follows to guarantee a good performance of the system and simplify the mounting operations:

1. Make sure that the equipment has not been damaged during transit.
2. Choose the proper position to locate the control unit according to the distance from the actuators to control. Choose an intermediate position among them to make maximum use of the cable length.
3. Drill diagonally **3.5mm** holes for fixing screws. ***ATTENTION: care must be taken not to touch the electronic board when drilling. It could cause irreparable damages.***
4. The control unit's case shows the drilling positions for the power supply cable's changeover. Fit in holes the **supplied fairleads**.
5. Position the equipment box in the desired position and mark the mounting points with a pencil. Check horizontal and vertical alignment.
6. Using the appropriate bit, drill holes for the wall plugs.
7. Align the equipment box with holes and tighten fixing screw.
8. Fit the power supply cables of the motors to be connected in the supplied fairleads (previously mounted). ***BE CAREFUL: the USA2 control unit provides terminal boards no. 1 and no. 2 only (terminal board no. 3 is not used).*** The control units are already pre-set for the connection, to ensure correct working it is therefore necessary to use the right terminal board.
9. The electric wiring has to be carried out in accordance with the regulations in force and the wiring diagrams on page no. 20 or 21.
10. Do not close the box cover. Leave it open for further tests.
11. Follow what reported in chapter "**TECHNICAL INFORMATION, INSPECTION AND WORKING**" carefully. The result will be a quick and correct mounting.

TECHNICAL INFORMATION, INSPECTION AND OPERATING

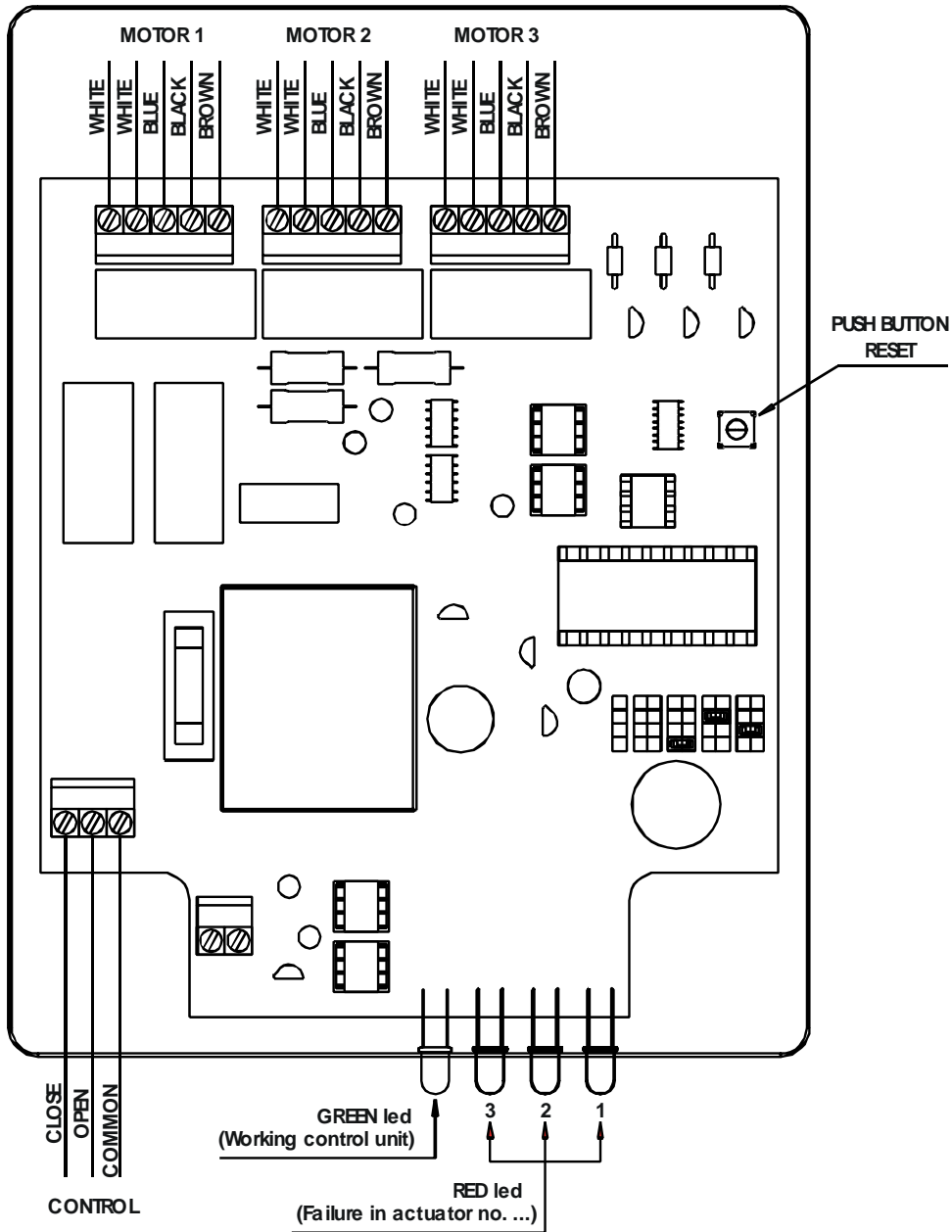
The **USA** control unit feeds and controls the connected actuators both manually and automatically. The manual control provides an approved bipolar push button.

ATTENTION: If more units are connected in parallel and the wiring is incorrect, they may be damaged. We recommend that you check that the control units are properly wired, before connecting voltage supply.

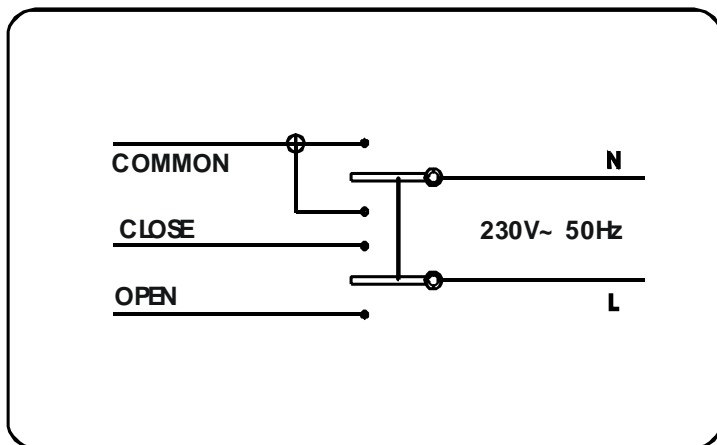
Carry out electrical connections (*see previous chapter*) and perform the following zero setting.

1. The actuators have to be in the closed position, i.e. with the chain fully in the housing.
2. Choose the required stroke by means of the selector. (*Refer to the ACK4 manual instructions*). In case of different strokes, the control unit recognizes the shortest one.
3. Carry out a manual opening control of the window (partial as well).
4. Press the "RESET" button (*see wiring diagram*).
5. While pushing the "RESET" button close the window (*operating switch*). If the previous operations have been carried out correctly, red LED's will light. (*The "RESET" push button can be released a few seconds after the closing control*).
6. Wait until the actuators have completed the closing cycle, i.e. with the chain fully returned in the housing.
7. When the LED's have in turn switched off, the manual control can be released after a few seconds.
8. To verify the correct working of the equipment perform some cycles without the "RESET" push button.
9. If all operations have been carried out properly, also the equipment will work properly.
10. In case of fault, the control unit stops all motors. The defective actuator can be found during the opening/closing cycle by verifying the corresponding **RED LED**.
11. In case of fault, by the following opening/closing control the unit carries out an automatic zero setting. Repeat this procedure twice. If the fault has not been corrected, the control unit stops feeding the actuators and at the same time the fault will be indicated by the red LED's lighting.
12. After having solved the problem, repeat the zero setting manually from inside the box, starting from point 1 of this chapter.
13. If it is necessary for the structure of the system, more control units can be connected in parallel in the same way as to connect a series of motors.

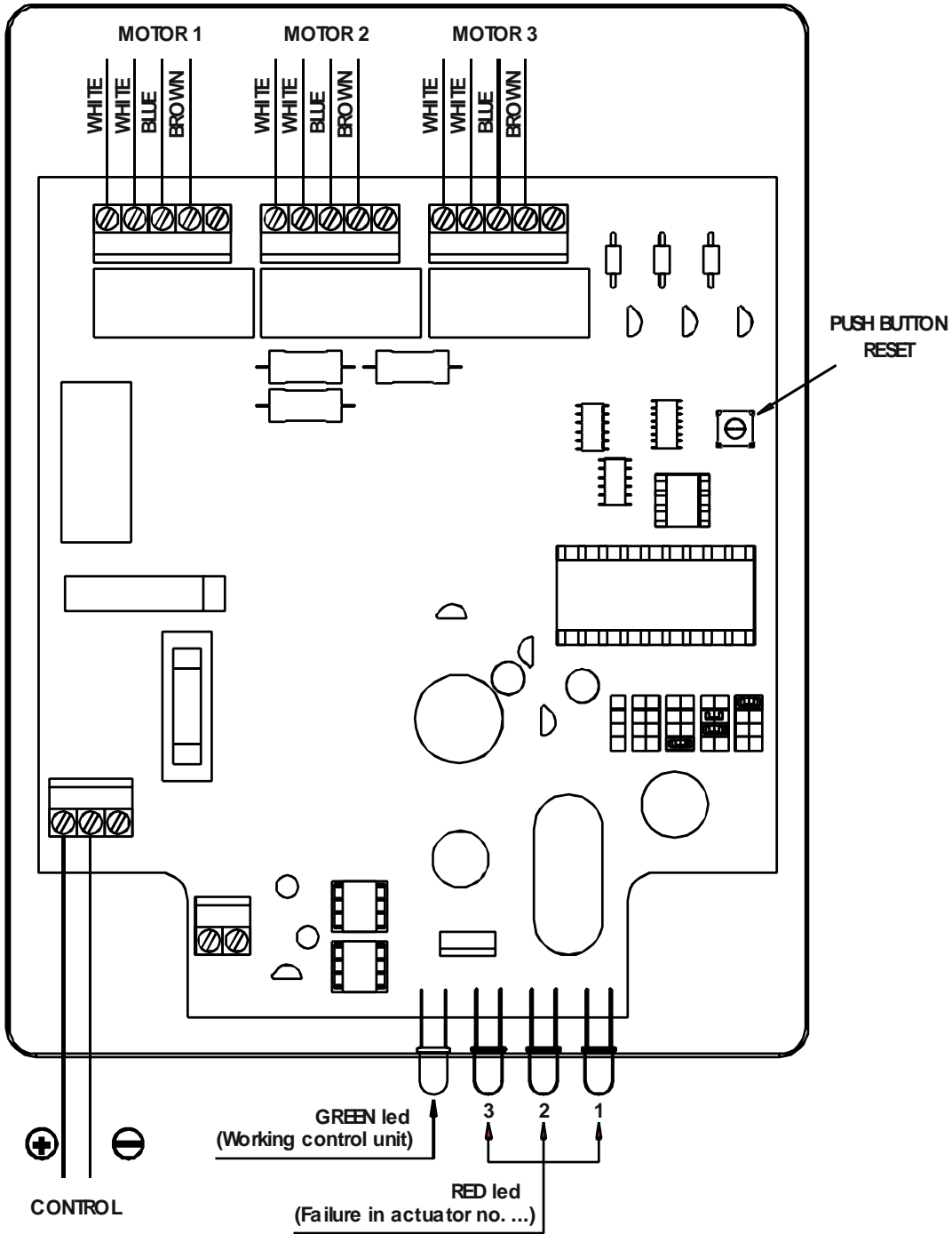
230V A.C. MOTORS WIRING DIAGRAM



230V A.C. MOTORS MANUAL CONTROL WIRING



24V D.C. MOTORS WIRING DIAGRAM



24V DC MOTORS MANUAL CONTROL WIRING

