



windows automation

TQPP
movement technologies

Studio Mediterraneo, charged by TOPP with the project of its new industrial headquarters, unifies the working spaces and their related technological and architectural details with the design of the advertising and graphic line, defining a single style of expression. In this way, a working space is created, aiming at softening the contrast between the industrial area and the Veneto country. It is inserted quietly in the environment, seeking a dialogue between outside and inside, as well as among man, technology and nature. The colour of sun on sand, contrasting with the grey world of the industrial culture, is paramount: from stone flooring to the lime walls, and to the wooden furnishing.



TOPP means automation, safety and remote controls for windows. A clear and strong company policy, creativity and synthesis of aesthetic taste and convenient solutions in an exclusive combination of technology and design. An industrial action on high profile production concepts, searching for the best performances to put ideas and solutions based on safety, quality and reliability concepts in concrete form.

TOPP means technical know-how and decennial experience in the production of cutting-edge products and technological research in materials and manufacture methods. The use of a laser sintering machine for fast prototyping accelerates the product design and industrialization process. The company headquarters comprise management, technical and commercial offices, warehouse, production and a laboratory for strict tests on prototypes, materials and finished products. The commercial administration is carried out by a professional and technically experienced staff, prepared to provide support for any information related to the window automation systems.

The success of TOPP is the conquest of an increasingly assorted and demanding market that enhances, involves and stimulates the research for new, innovative and essential ideas. TOPP converts these ideas in advanced creations.



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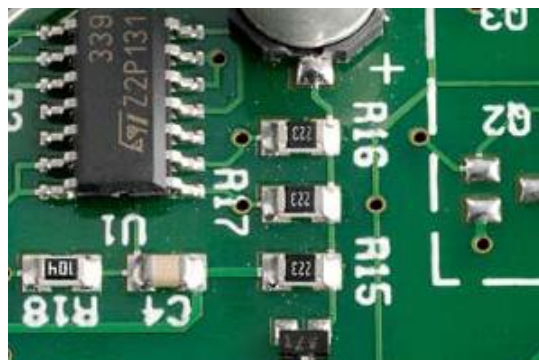
C20

Chain actuator – Thrust force 300N – Max stroke 360 mm

Double link chain with very high resistance on top loads



High stroke, together with a reduced size of the actuator, to allow applications that require minimum size (international patent on the chain path).



End of stroke during closing action with current absorption, to avoid adjustments during closing action and avoid possible positioning errors of the actuator.

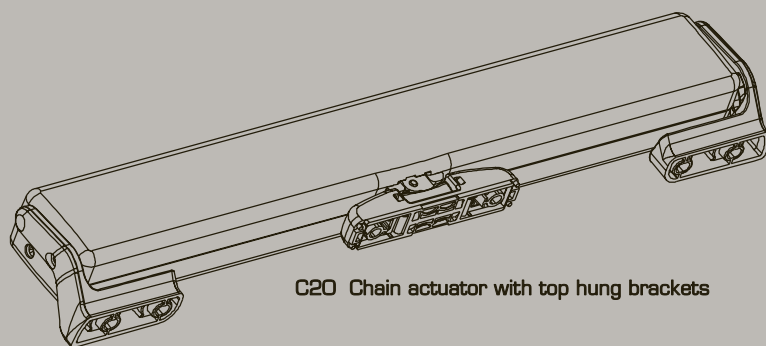


Tandem connection available, both at 230V and 24V, when 2 push points are requested on the same frame.

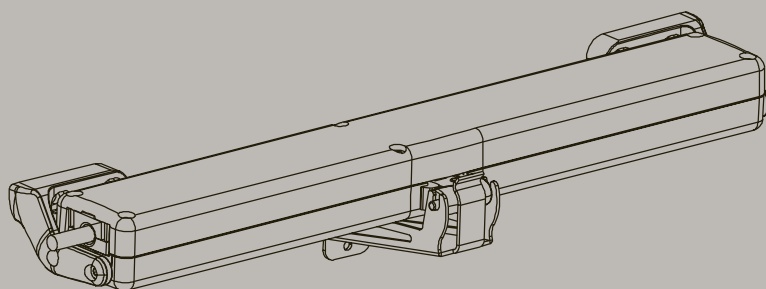
Fast hooking and unhooking system to the window (international patent).

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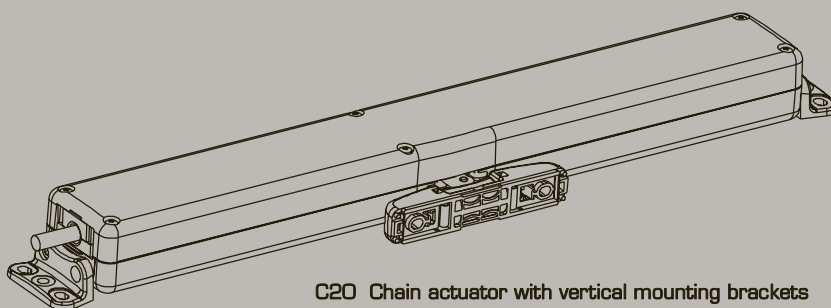




C20 Chain actuator with top hung brackets



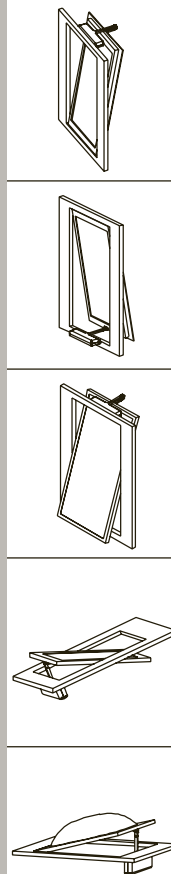
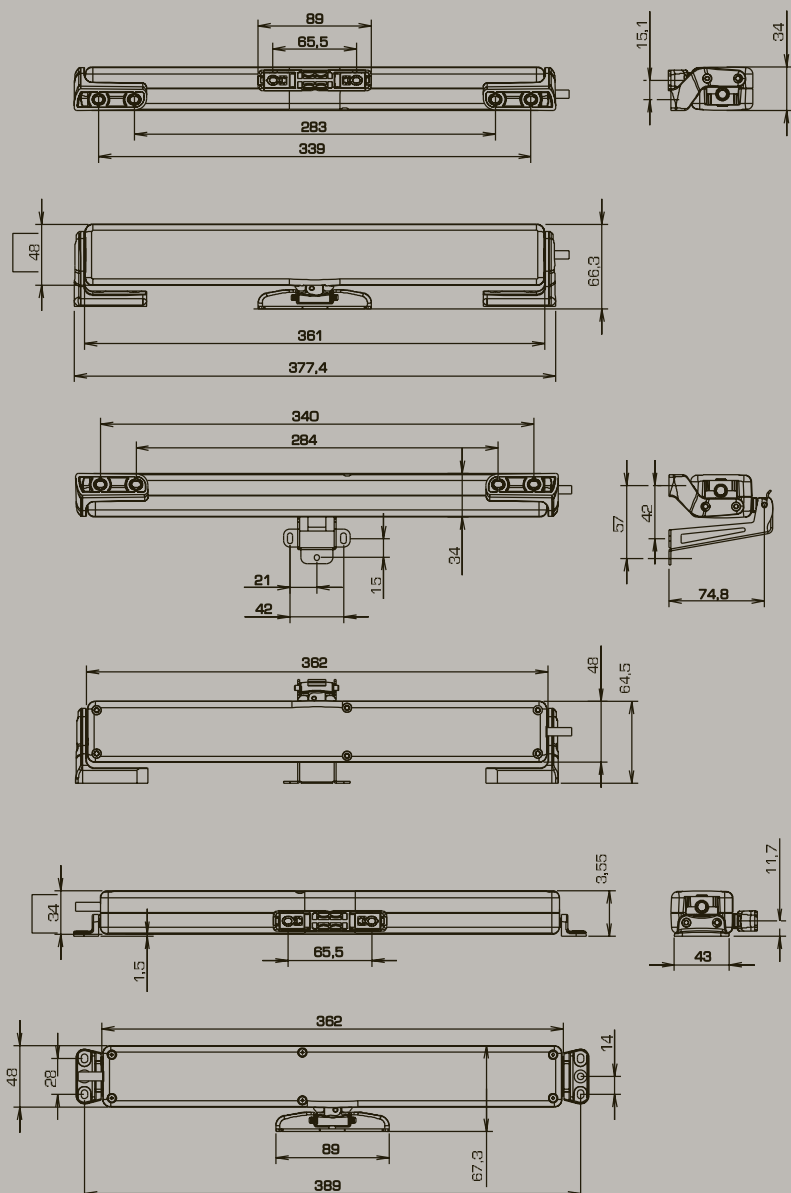
C20 Chain actuator with bottom hung brackets



C20 Chain actuator with vertical mounting brackets

Technical characteristics

	C20/230	C20/24
Power supply voltage	230V~50Hz	min. 21V - max. 28V d.c.
Max recommended load in thrust position		300N
Max recommended load in traction position		200N
Stroke adjustable at		240 and 360 mm
Absorbed current	0,12A	0,43A
Idle translation speed	8 mm/s	7,5 mm/s
Duration of the idle stroke	46 s	48 s
Double electric insulation	yes	-
Service type		S2 of 4 min.
Operating temperature		- 5 +50° C
Protection degree of electric devices		IP 30
Stroke end regulation (in closure) to window frame		not necessary
Connection of two or more actuators in parallel		yes
Stroke end	electronic in opening - by amperometric absorption in closure	
Dimensions		362x48x34 mm
Weight*	0,970 kg	0,940 kg
*the weight indicated in the table is subject to eventual variations according to the accessories chosen		



Description for technical specifications

Electric actuator TOPP, model C20 with double link articulated chain, contained in a suitable casing, complete with support and fitting accessories for top and bottom hung windows. Operation at 230V~ 50Hz or, as an alternative, at 24 V d.c. Maximum applicable load 300N. Rapid coupling for the adjustment to the frame. Stroke adjustable by an external selector, at 24 and 36 cm. CE marked device complying with the following directives: EEC 89/336, EEC 73/23 and following amendments.





C30

Chain actuator – Thrust force 300N – Max stroke 380 mm



Double link chain with very high resistance on top loads.



Fast hooking and unhooking system to the window (international patent).



Simple swivel bracket for fast installations to windows of any type and size.

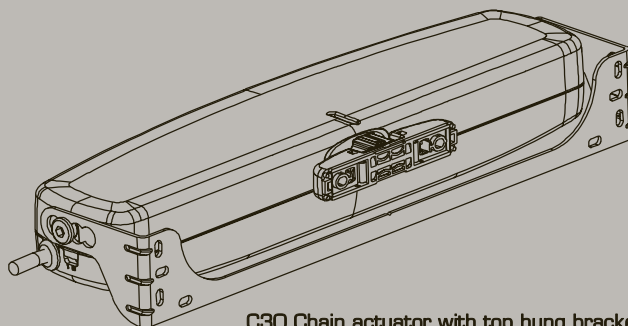


Telescopic chain terminal with fast adjustment (from 0 to 15 mm) also with totally retracted chain, for application on windows with overhung element (international patent).

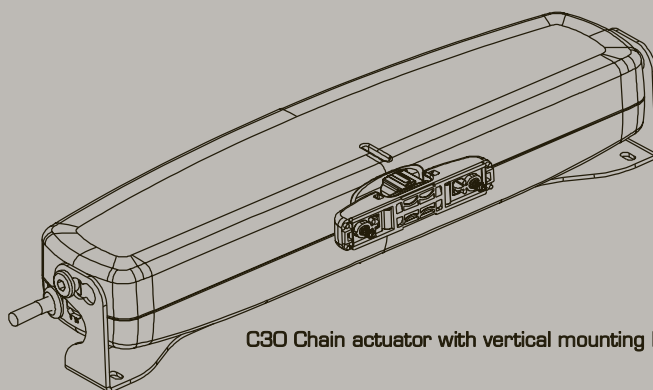
Swivel bracket with additional adjusting system of 15 mm for application on windows with overhung element.

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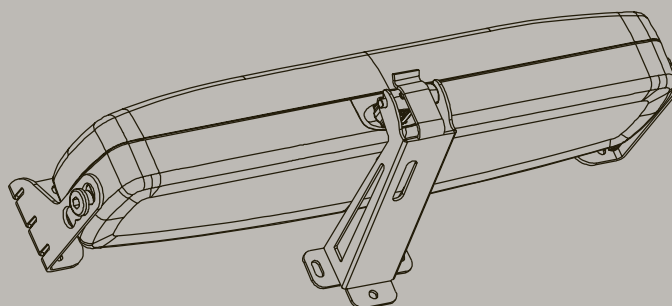




C30 Chain actuator with top hung bracket



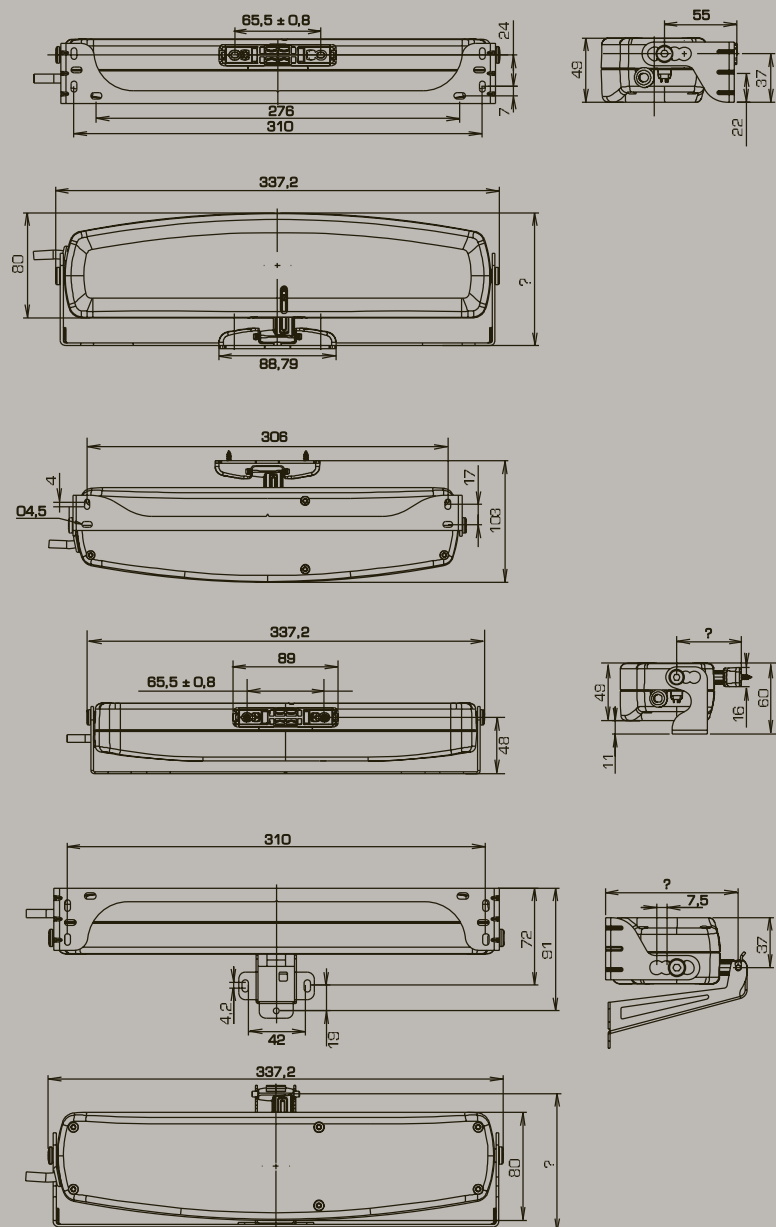
C30 Chain actuator with vertical mounting bracket



C30 Chain actuator with bottom hung brackets

Technical characteristics

	C30/230	C30/24
Power supply voltage	230V~50Hz	24V d.c.
Maximum applicable load in thrust:		300 N
Maximum applicable load in traction:		300 N
Stroke adjustable at		200 and 380 mm
Absorbed current	0,26 A	1,3 A
Idle translation speed	27 mm/s	17 mm/s
Duration of the idle stroke	14 s	22 s
Double electric insulation	yes	-
Service type		S2 of 4 min.
Operating temperature		- 5 +50° C
Protection degree of electric devices		IP30
Adjustment of the window frame connection		15mm.
Pins adjustment for swivel brackets		15mm.
Connection in parallel of two or more actuators		yes
Connection and synchronization of two C30* on the same window		with control unit USA2 only
Chain position control		yes
End of stroke		by encoder
Electronics with acoustic device to warn the user of wrong installation (buzzer)		yes
Dimensions		337,2x80x49 mm
Weight** of installed equipment		1,1 Kg
* minimum distance among the two motors: 1500 mm		
**the weight indicated in the table is subject to eventual variations according to the accessories chosen		



Description for technical specifications

Electric actuator TOPP, model C30 with double link articulated chain, contained in a suitable casing, complete with support and fitting accessories for top and bottom hung

windows. Operation at 230V~ 50Hz or, as an alternative, at 24 V d.c..

Maximum applicable load 300 N. Rapid coupling for the adjustment to the frame.

Stroke adjustable by an external selector, at 20 and 38 cm.

Electronics with acoustic device that warns of any eventual incorrect installations.

If required, pre-set version for the USA2synchronization unit available,

for the simultaneous running of 2 actuators on the same window.

CE marked device complying with the following directives: EEC 89/ 336, EEC 73/23

and following amendments.





C40

Chain actuator – Thrust force 400N – Max stroke 500 mm



Double link chain with very high resistance on top loads



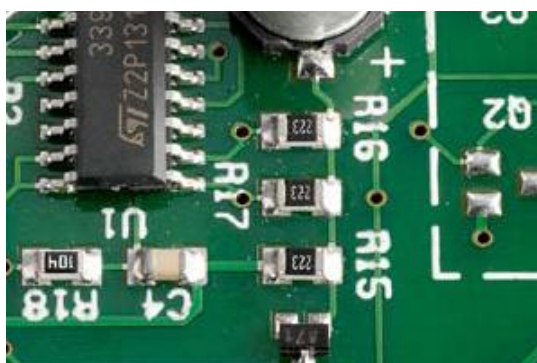
Adjustment of the stroke in 7 positions from 100 to 500 mm.



Fast hooking and unhooking system to the window (international patent).

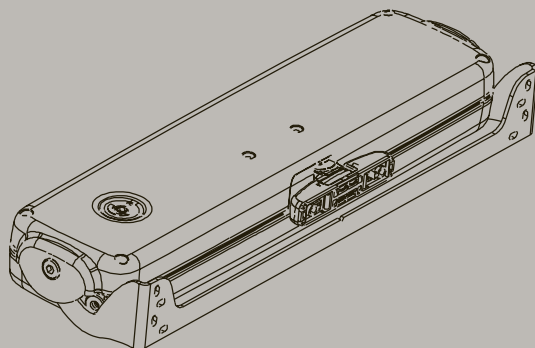


End of stroke in closure by current absorption, to avoid adjustments in closure and possible positioning errors of the actuator.

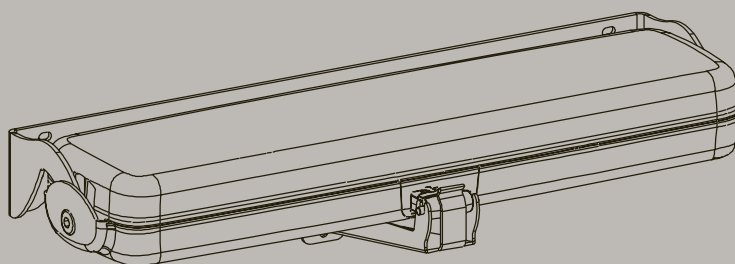


High protection degree IP 55.

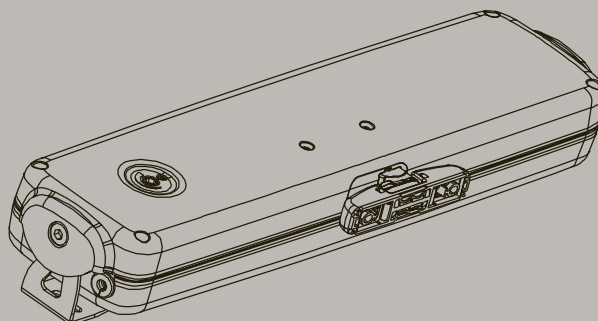




C40 Chain actuator with top hung bracket



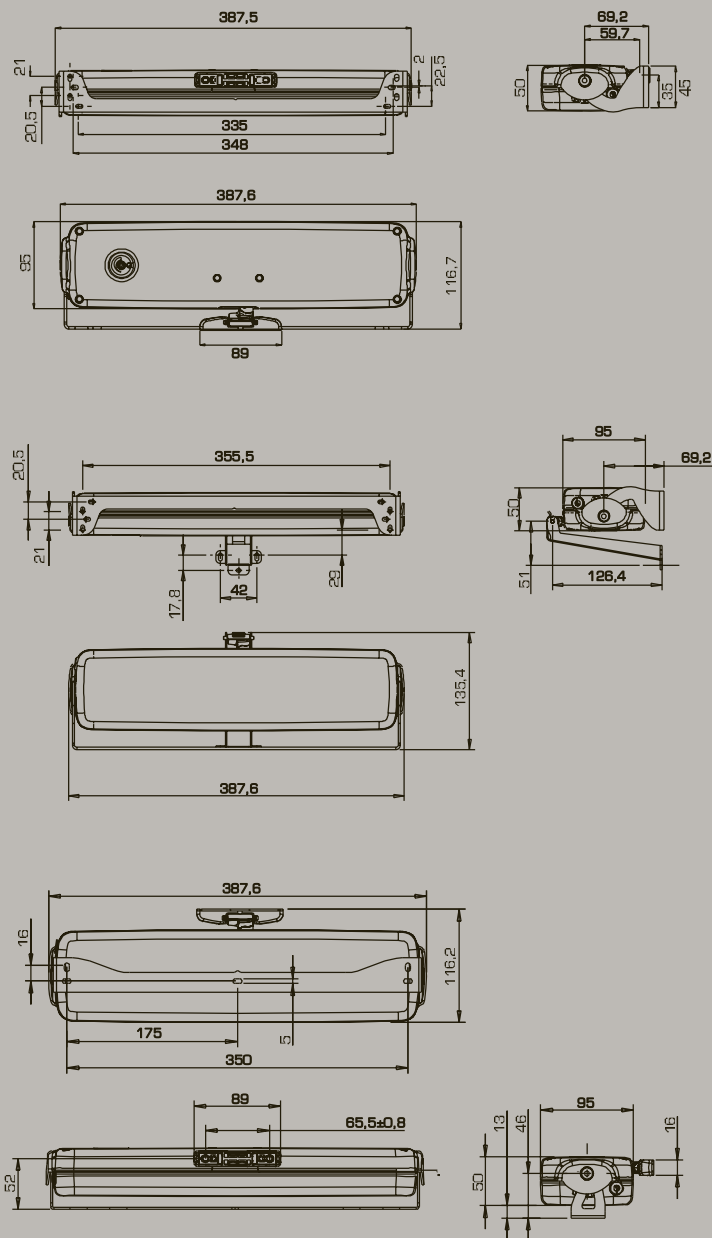
C40 Chain actuator with bottom hung brackets



C40 Chain actuator with vertical mounting bracket

Technical characteristics

	C40/230	C40/24
Power supply voltage	230V~50Hz	24V d.c.
Maximum applicable load in thrust		400 N
Maximum applicable load in traction		400 N
Strokes (may be selected in any moment)	100, 150, 200, 250, 300, 400, 500 mm	
Absorbed current	0,24 A	1,1 A
Idle translation speed	18,5 mm/s	10,5 mm/s
Duration of the idle stroke	27 s	48 s
Double electric insulation	yes	-
Service type	S2 of 5 min.	S2 of 8 min.
Operating temperature		- 5 +50° C
Protection degree of electric devices		IP 55
Adjustment of the window frame connection		not necessary
Connection in parallel of two or more actuators		yes
Connection and synchronization of two C40* on the same window		only with control unit USA 2
Chain position control		yes
End of stroke	electronic in opening - with current absorption in closing	
Electronics with acoustic device to warn the user of wrong installation		yes
Dimensions		387,6x95x50 mm
Weight** of installed equipment		1,9 Kg
* minimum distance among the two motors: 1500 mm		
**the weight indicated in the table is subject to eventual variations according to the accessories chosen		



Description for technical specifications

Electric actuator TOPP, model C40 with double link articulated chain, contained in a suitable casing, complete with support and fitting accessories for top and bottom hung windows

Operation at 230V~ 50Hz or, as an alternative, at 24 V d.c. Maximum applicable load 400N.

Rapid hooking for the adjustment to the frame. Max stroke 50 cm. Electronic adjustment of the end of stroke at 10, 15, 20,25, 30, 40, 50 cm. by an external handgrip.

Stroke-end in closure through current absorption. Safety device for traction force reduction in the last 10 cm. Protection degree of electric devices IP 55. If required, pre-set version for the USA2 synchronization unit available, for the simultaneous running of 2 actuators on the same window. CE marked device complying with the following directives: EEC 89/336, EEC 73/23 and following amendments.

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ACK4

Chain actuator – Thrust force 300N – Max stroke 400 mm

Adjustment of the stroke in 7 positions from 100 to 400mm
(international patent).



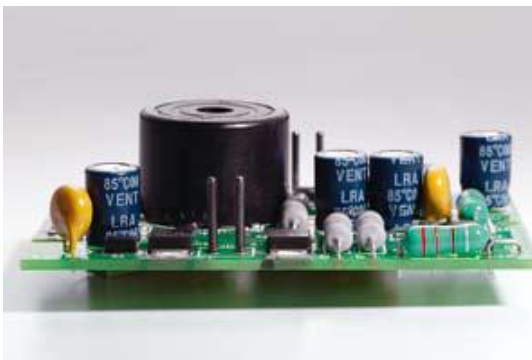
Double link stainless steel chain.



Simple swivel brackets, fast and suitable for windows of any type and size
(not included in the packaging).



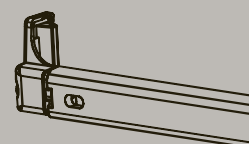
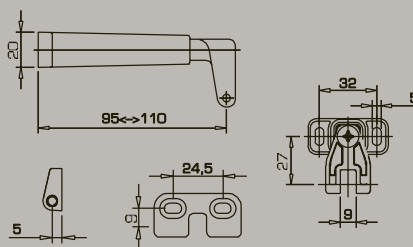
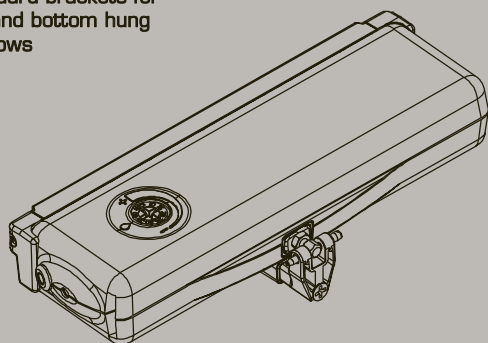
Acoustic device to indicate wrong installation (buzzer).



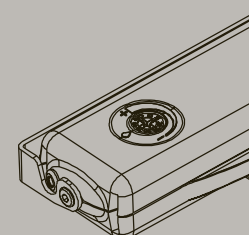
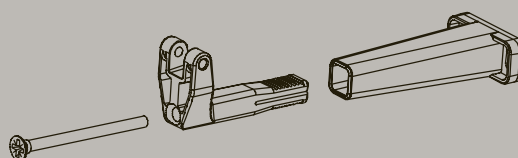
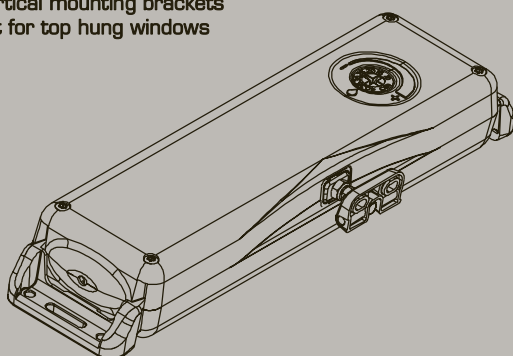
High protection degree IP 55.



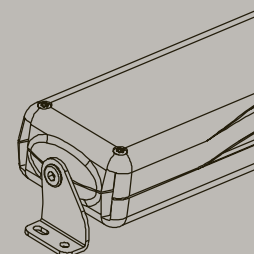
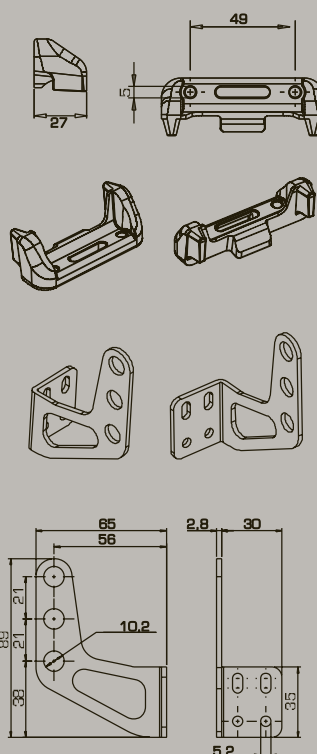
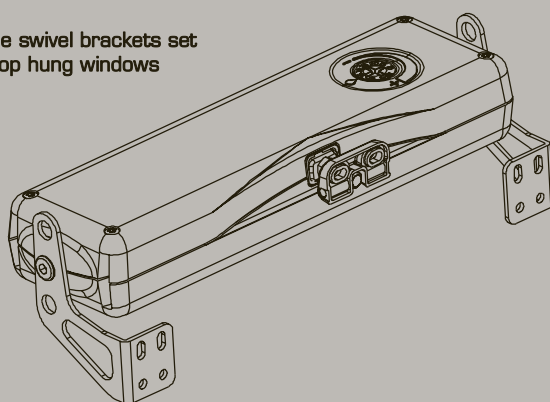
Standard brackets for top and bottom hung windows



Vertical mounting brackets set for top hung windows

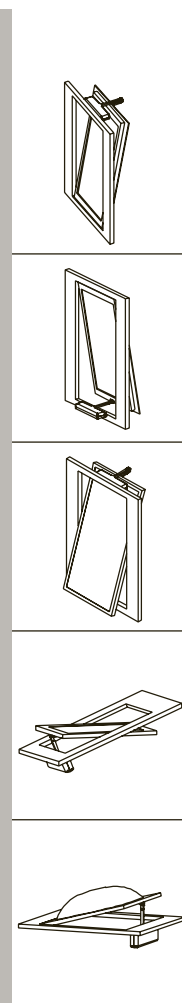
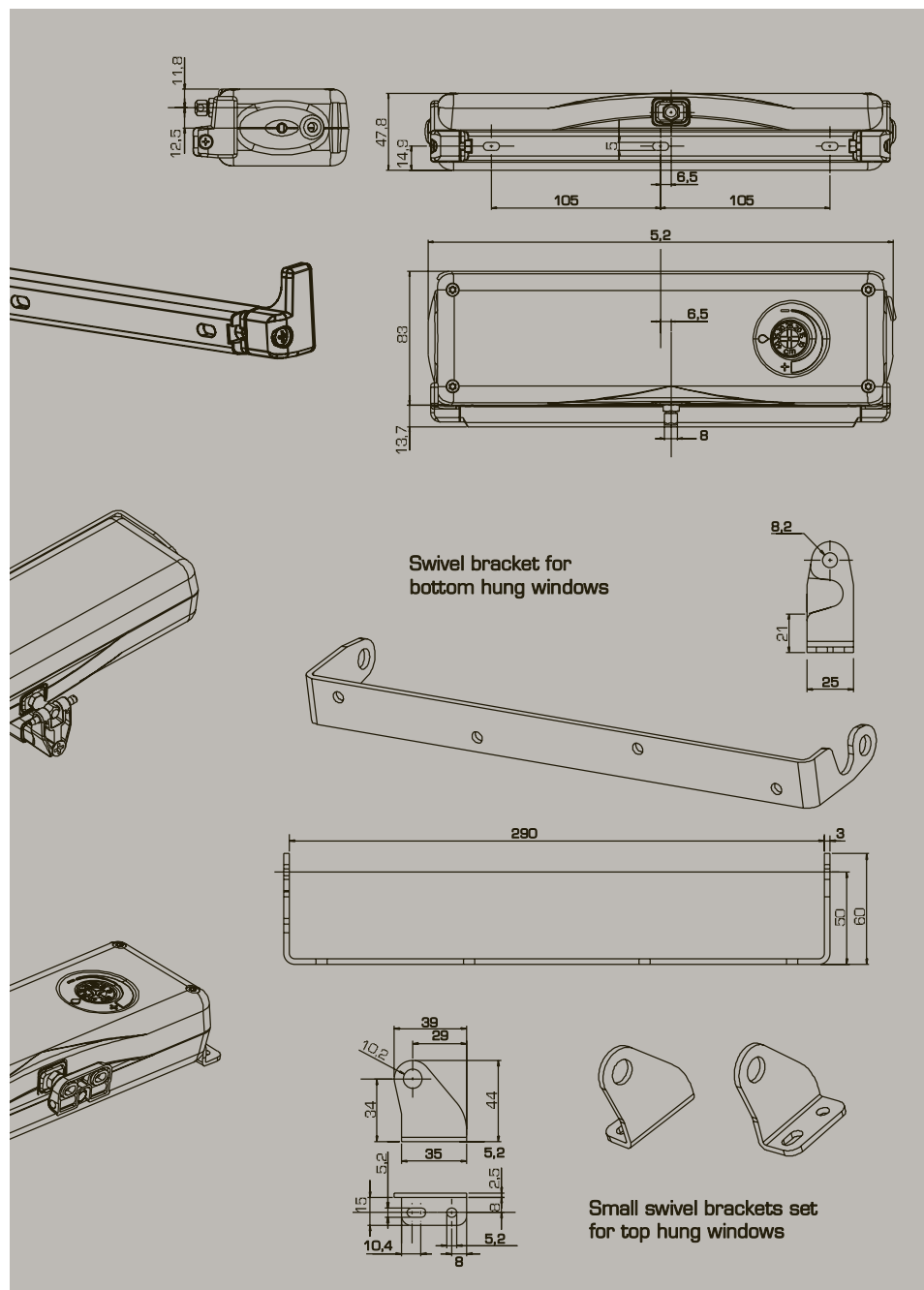


Large swivel brackets set for top hung windows



Technical characteristics

	ACK4/230	ACK4/24
Power supply voltage	230V~50 Hz	24V d.c.
Max recommended load in thrust/traction position	300 N	
Stroke end adjustable at	100-150-200-250-300-350-400 mm	
Absorbed current	0,32 A	2,10 A
Idle translation speed	28 mm/s	18 mm/s
Duration of the idle stroke	14 s	22 s
Double electric insulation	yes	-
Service type	S2 of 2 min	S2 of 3 min
Operating temperature	-5 +50 °C	
Protection degree of electric devices	IP55	
Stroke end regulation (in closing) to window frame	10 mm	
Connection of two or more actuators in parallel	yes	
Connection/synchronisation of two ACK4 * on the same window	with kit USA2 only	
Chain position control	yes	
End of stroke	by encoder	
Electronics with acoustic device to warn the user of wrong installation	yes	
Dimensions	288,5x83x47,8 mm	
Weight** of installed equipment	1,9 Kg	
* min. distance between the motors: 1500 mm		
* *the weight indicated in the table is subject to eventual variations according to the accessories chosen		



Description for technical specifications

Electric actuator TOPP model ACK4 with double-link chain made of STAINLESS steel,
contained in a die-cast body of aluminum alloy coated by epoxy powders, complete with
support and fitting accessories for top and bottom hung windows.
Operation at 230V~ 50Hz, as an alternative, at 24V d.c.. Max. traction and thrust force
300N. Max. stroke of 400 mm. Electronic stroke-end adjustable every 5 cm.
by an external handgrip. Electronics with acoustic device that warns of any eventual incor -
rect installations. Electronic stroke end through an external handgrip on both sides of the
actuator body. If required, USA 2 synchronization unit available, for the simultaneous
running of 2 actuators on the same window. Protection degree of electric devices IP 55.
CE marked device complying with the following directives: EEC 89/ 336, EEC 73/23
and following amendments.



C240

Dual push points chain actuator – Thrust Force 400N - Max. Stroke 360 mm

Custom-made profile length according to the window width
(International patent).



Swivel fitting bracket adjustable in any position along the profile.



Motor supplied with cable (on request, cable exit can be chosen).



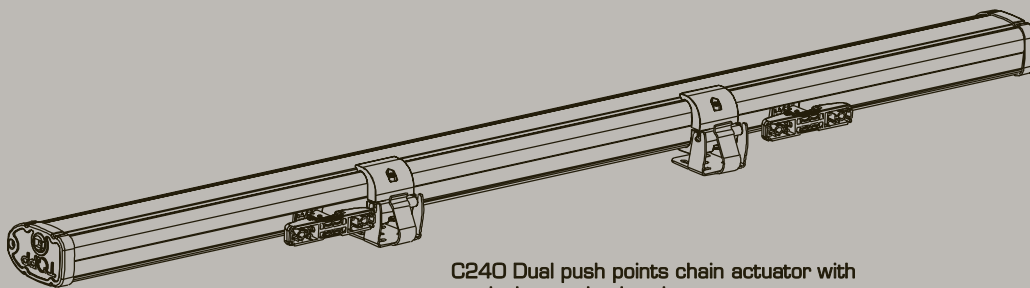
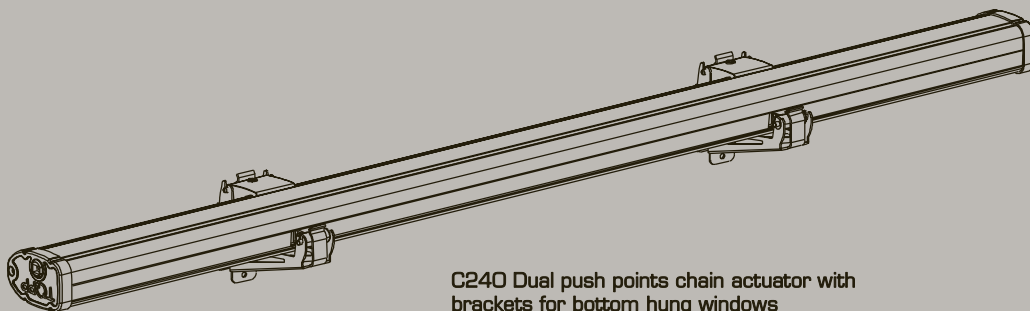
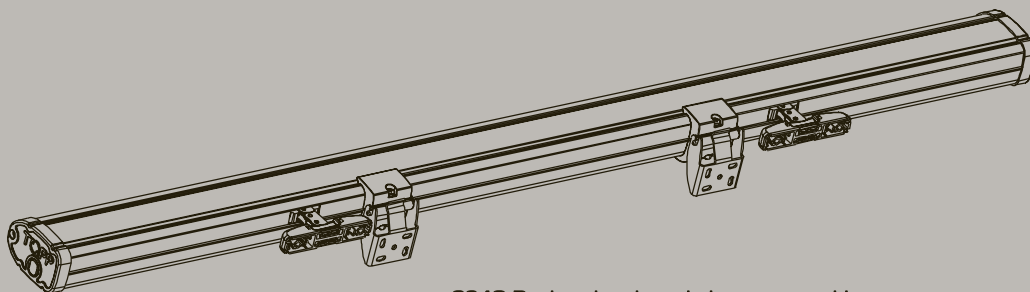
Fast hooking and unhooking system to the window (international patent).

C240TOPP
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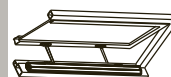
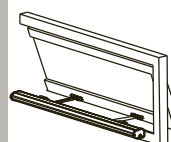
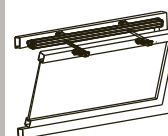
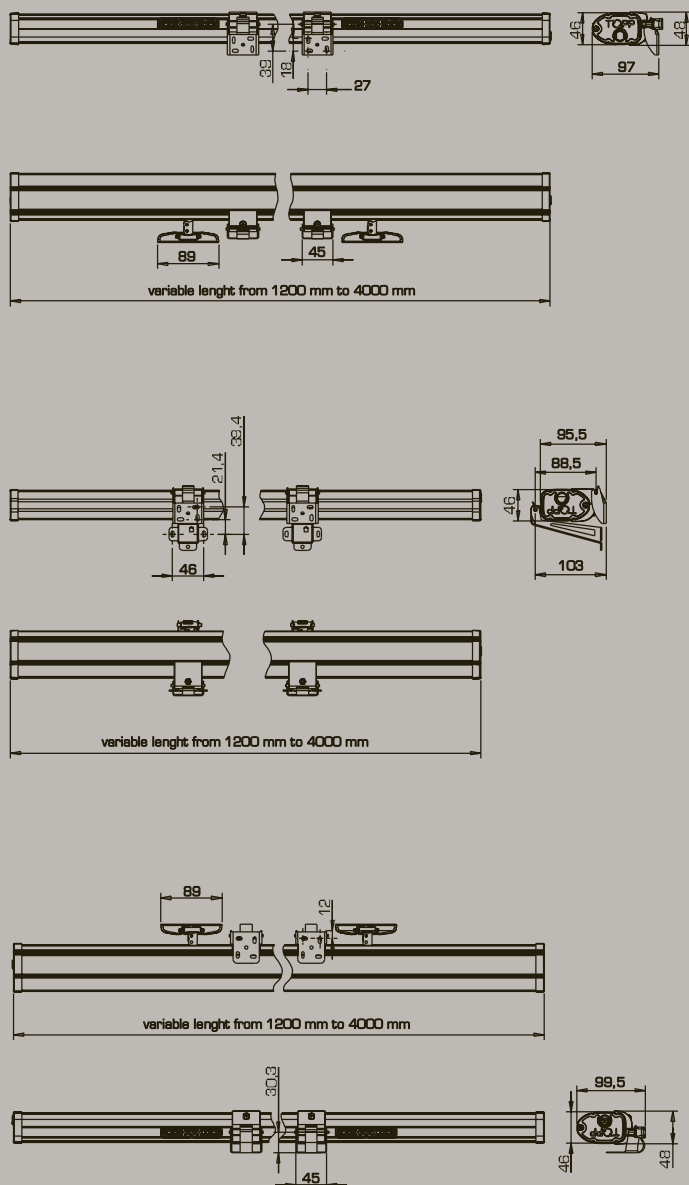
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Innovative design.





	C240/230	C240/24
Power supply voltage	230V~50Hz	24V d.c.
Max recommended load in thrust		400 N
Max recommended load in traction		400 N
Strokes		up to 360 mm
Absorbed current	0,22 A	0,75 A
Idle translation speed	8 mm/s	7,5 mm/s
Duration of the idle stroke	46 s	48 s
Double insulation	yes	-
Service type		S2 of 4 min.
Operating temperature		- 5 + 50 °C
Protection degree of electric devices		IP 30
Stroke end regulation in closure		not necessary
Connection of two or more actuators in parallel		yes
End of stroke	electronic in opening - by amperometric absorption in closure	
Dimensions	variable from 1200 to 4000x70,3x58 mm	



Description for technical specifications

Electrical actuator Topp model C240 with double-link chain, in an elegant die-cast aluminium profile, with custom-made length from 1200 mm to 4000 mm, complete with brackets and accessories for top and bottom hung windows.

Operation at 230V~50Hz or, as an alternative, at 24V DC. Max. traction and thrust force 400N. Fast hooking and unhooking system to the window frame.

Standard stroke 360 mm (special strokes on request only). CE marked device complying with the following directives: EEC 89/336, EEC 73/23 and following amendments.

C240 TOPP
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TOPP



SL60

Linear stem actuator – Thrust force 600N – Max stroke 750 mm

Machine composed by an electrically operated geared motor and a thrust actuator, which can be assembled, to reduce warehousing costs.



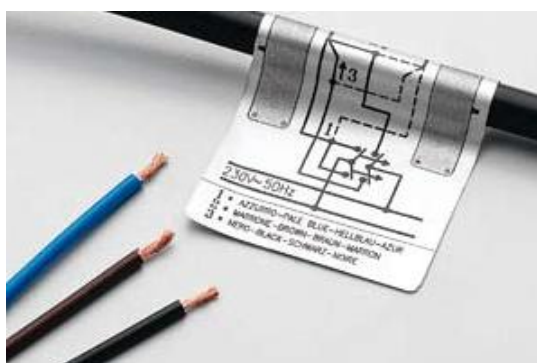
Rapid hooking system between electrically operated geared motor and thrust actuator.



Easy and fast assembly and adjustment thanks to the pathways for the connection of the strong steel support.



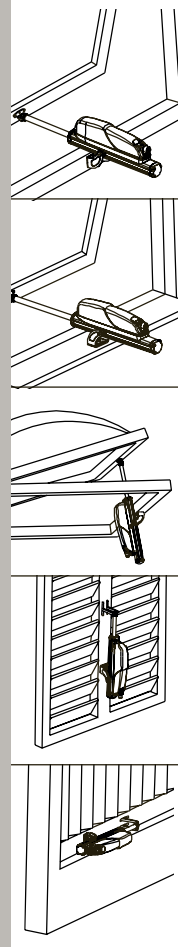
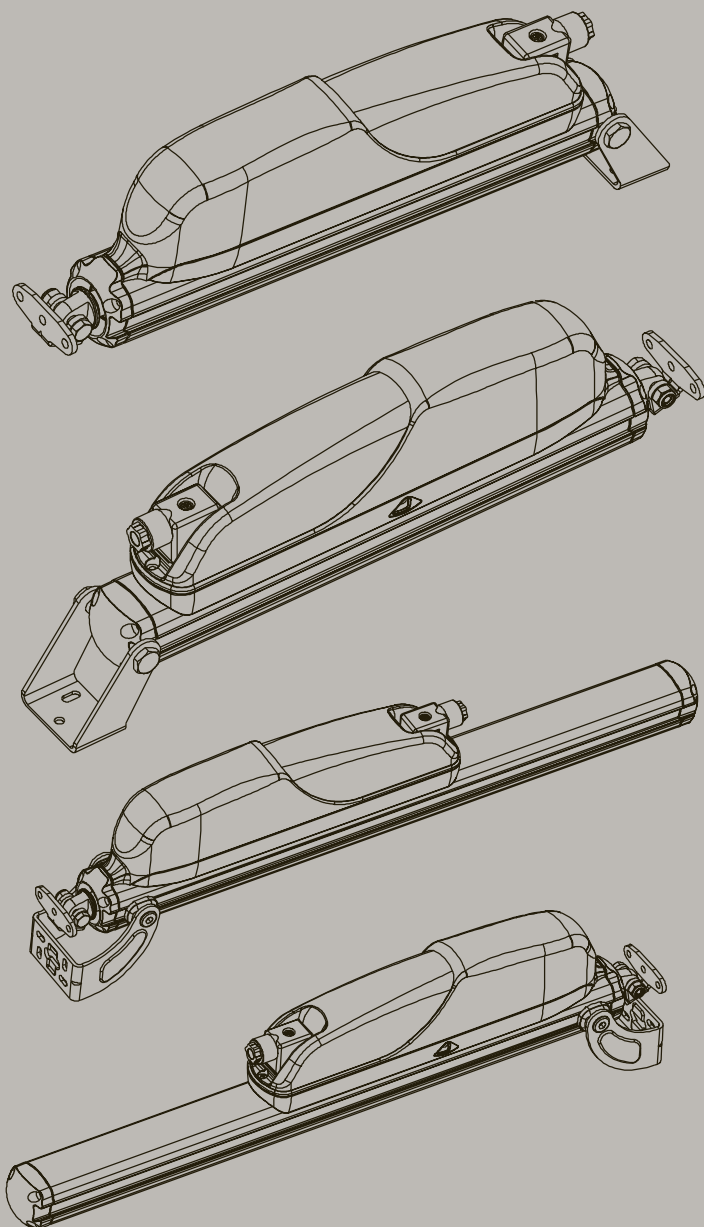
Electric parts in double insulation (no ground cable required).



High protection degree IP 55.

SL60 TOPP
movement technologies





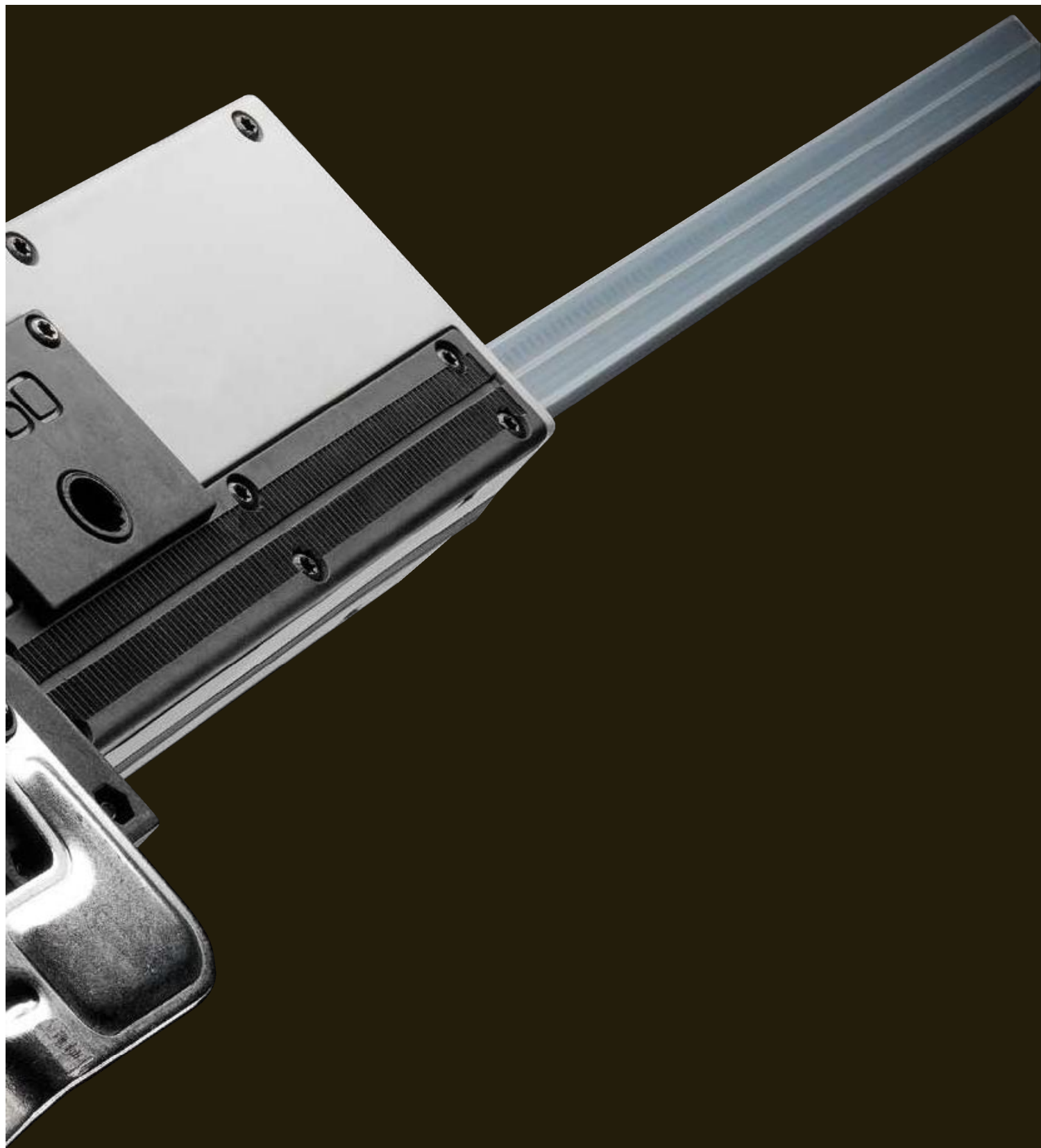
Description for technical specifications

Linear electric actuator TOPP model SL60 with self-aligning tilting movement, complete with support and fitting accessory for top hung window. Operation at **230V~ 50Hz, or at 24V d.c.** Max. traction and thrust force of **600N**. Pre-set for the connection in parallel of two or more actuators, with end of stroke microswitches.

Available strokes: 180 – 230 – 350 - 550 – 750 mm. CE marked device complying with the following directives: EEC 89/336, EEC 73/23 and following amendments.

SL60 TOPP
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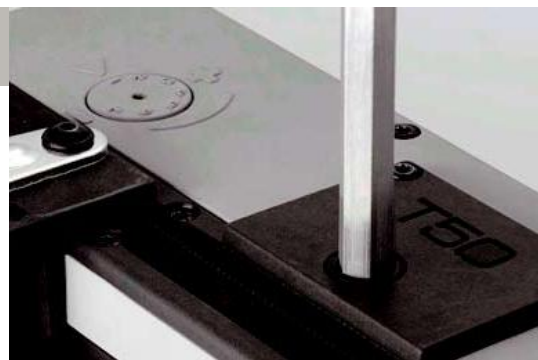
T50 TOPP



T50

Rack actuator - Thrust force 500N - Max stroke 500 mm

Possibility to connect more push points on the same window frame through instantaneous clutch of the transmission rod.



Rapid installation with no feeding due to the easy adjustment of the self-aligning sliding bracket that allows the regulation of the end of stroke along the actuator's side guides every 2 cm.



Stroke adjustable in 7 positions: from 150 to 500 mm.



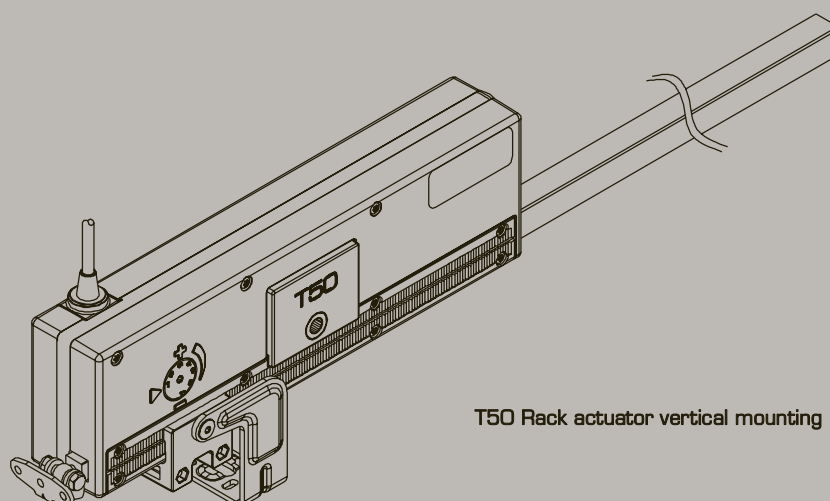
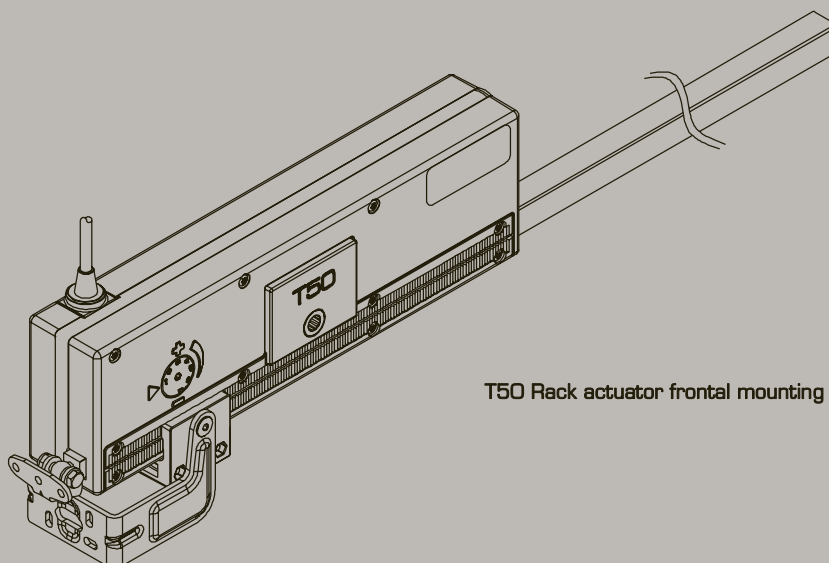
Protection degree of electronic devices IP 55.



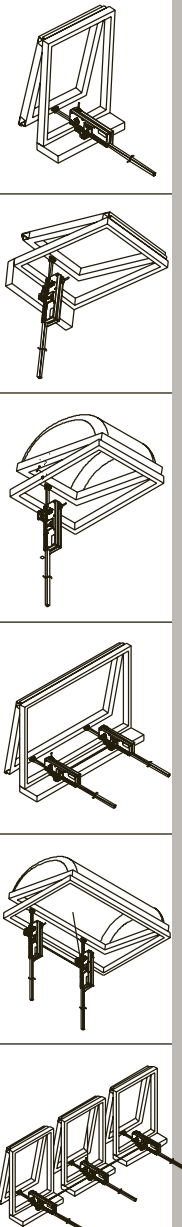
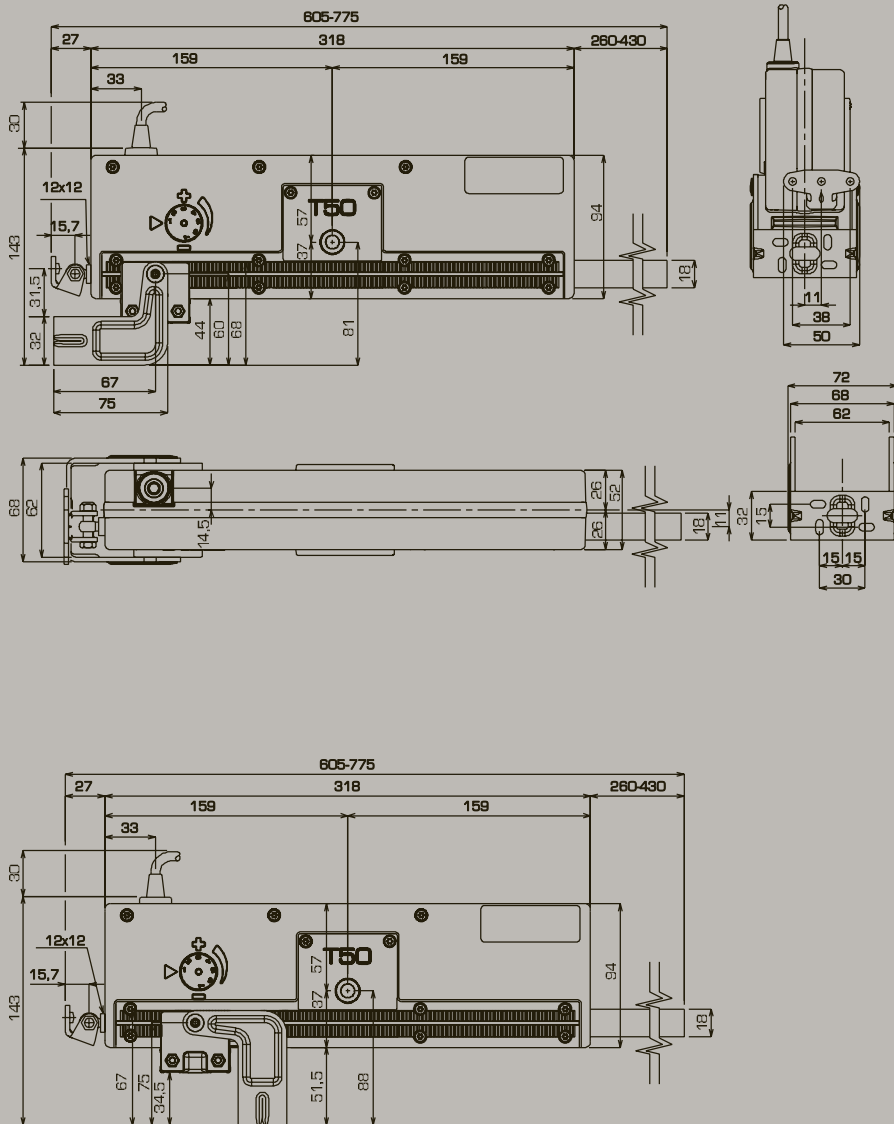
Industrial, geometrical and clear-cut design.

T50 TOPP 
movement technologies





Technical characteristics



Description for technical specifications

Topp rack actuator, model T50, with self-aligning swivel movement,
complete with brackets and fitting accessories for top hung windows.

Available at 230V~50 Hz or 24V d.c.

Max. applicable force 500N, max. stroke 500 mm+/- 20 mm.

Stroke adjustable about every 50 mm by external adjusting selector.

Preset for the mechanical connection of 2 or more push points.

CE marked device complying with the following directions: CEE 89/ 336, EEC 73/23
and following amendments.

T50 TOPP
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T80

Rack Actuator - Thrust Force 800N

Max. Stroke 1000 mm

Possibility to connect more push points on the same window frame either mechanically by transmission rod or electronically through synchronisation unit.



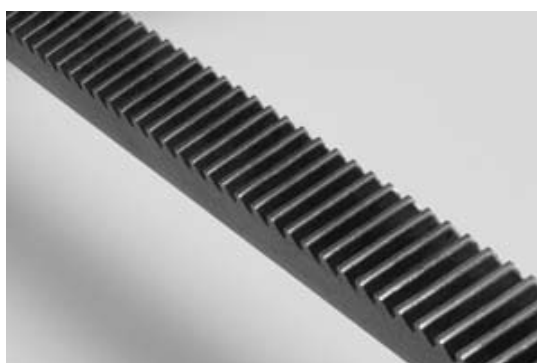
Fast installation also without power assured by the steel bracket easily adjustable along the dovetail guides.



High protection degree IP55.



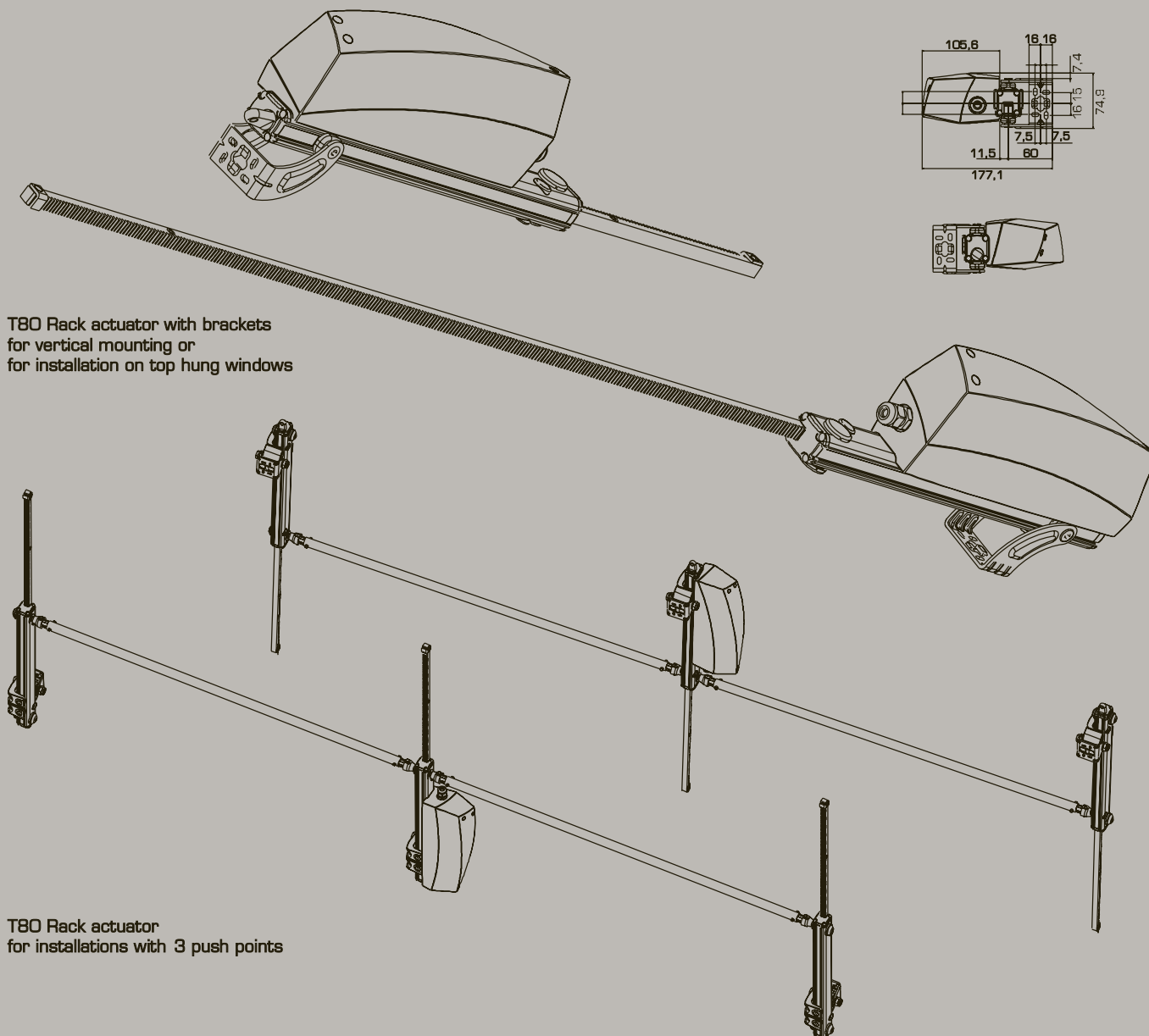
Special rack with very high resistance on top loads.



Innovative design.

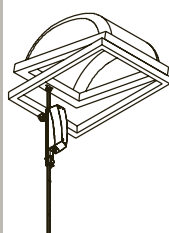
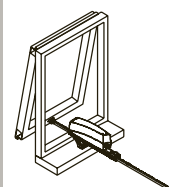
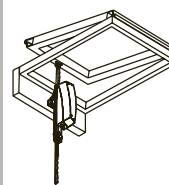
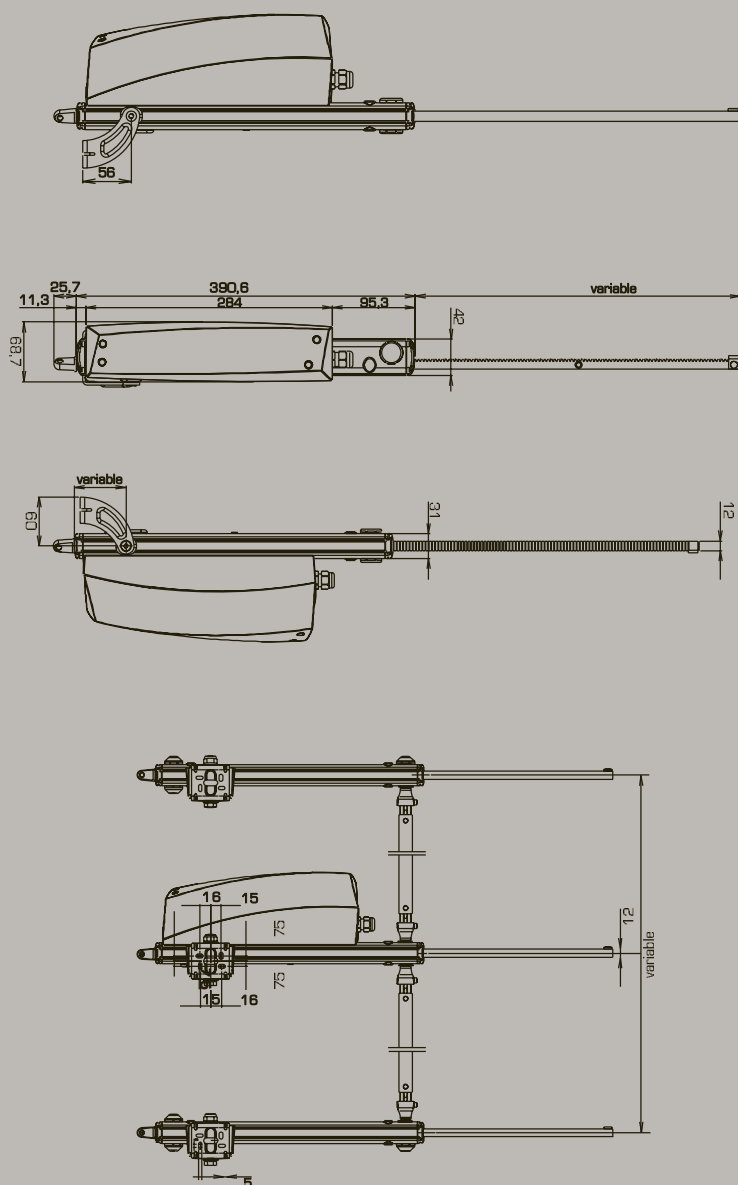
T80 TOPP 37
movement technologies





T80 Rack actuator
for installations with 3 push points

	T80/230	T80/24
Power supply voltage	230V~50Hz	24V d.c.
Max recommended load in thrust/traction		800N
Max recommended load with 2 push point (1 master + 1 slave)		750N
Max recommended load with 3 push point (1 master + 2 slaves)		700N
Available Strokes	180 - 230 - 350 - 550 - 750 - 1000 mm	
Absorbed current at max. load (80 kg)		0,35 A
Idle translation speed		12 mm/s
Duration of the idle stroke	(stroke / idle translation speed)	
Double insulation	yes	-
Service type		S2 of 4 min
Operating temperature		- 5 +55° C
Protection degree of electric devices		IP 55
Connection of two or more actuators in parallel		yes
Stroke end		electronic
Dimensions	variable from 571,6 to 1391,6x68,7x137,4 mm	



Description for technical specifications

Electrical linear actuator Topp model T80, with tilting self-aligning movement,

with rack, with brackets and accessories for top hung windows.

Operation at 230V~50Hz or, as an alternative, at 24V DC.

Max. traction and thrust force 800N.

Pre-set for the mechanical or electronic connection of two or more push points.

Limit switch by Diodo hall. CE marked device complying with the

following directives: EEC 89/336, EEC 73/23

and following amendments.

T80 TQPP
movement technologies

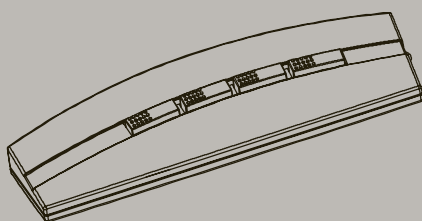
CE



TR8

Infra-red / Radio Remote Control – 8 Channels

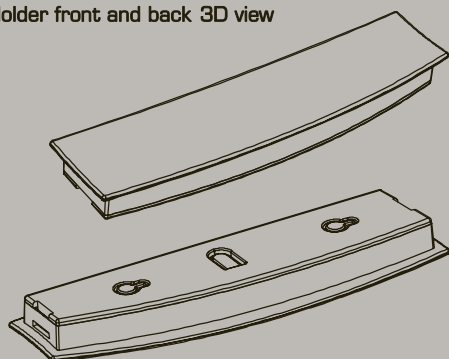
Remote control front 3D view



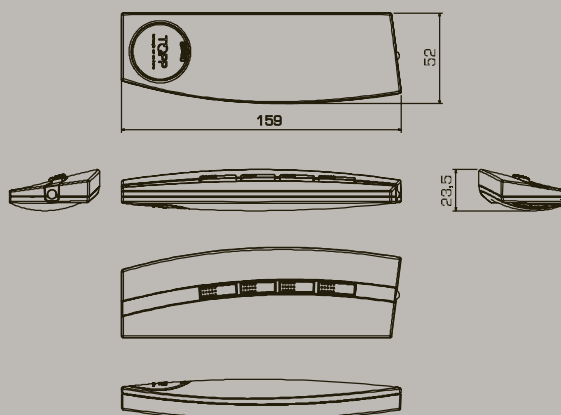
Remote control back 3D view



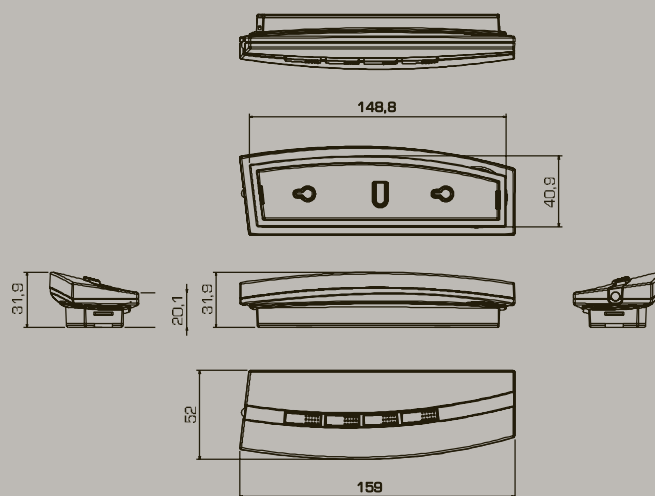
Holder front and back 3D view



Remote control dimensions



Remote control and holder dimensions



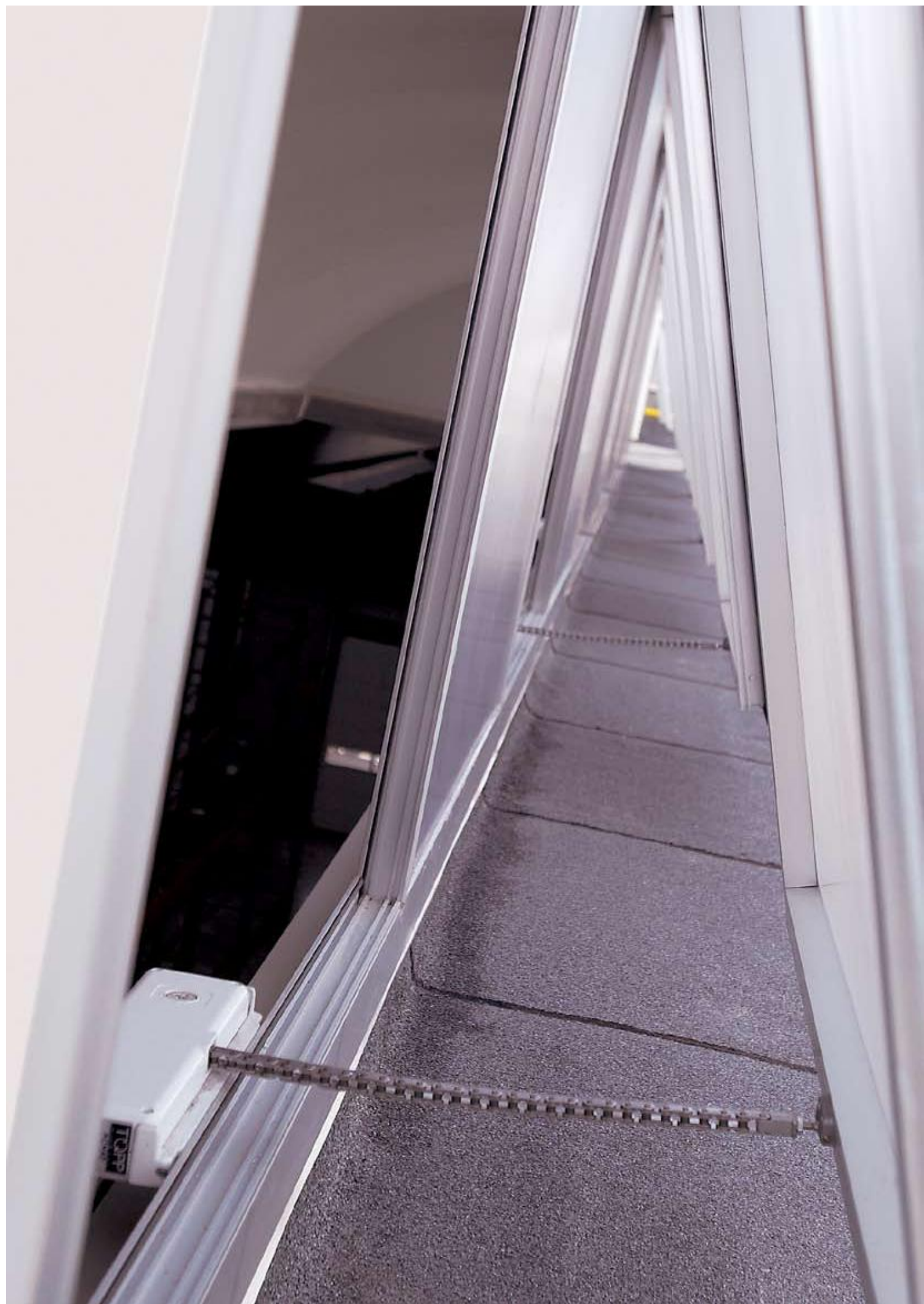
Description for technical specifications

Remote control available as radio at 433,92 Mhz with rolling-code and as infra-red, with 8 silicon rubber buttons, blue backlit, battery-operated by two 3V CR2032 batteries. The transmitter is supplied with holder for wall fixing.

Technical characteristics

Transmission frequency	433,92 MHz
Transmission frequency tolerance	± 30 KHz
Modulation	ask
Power supply voltage	2xCR2032
Average absorbed current	14 mA
Operating temperature	-10 + 55° C
Relative humidity	< 95 %
Range	< 20 meters
Dimensions (only remote control)	52x159x20 mm

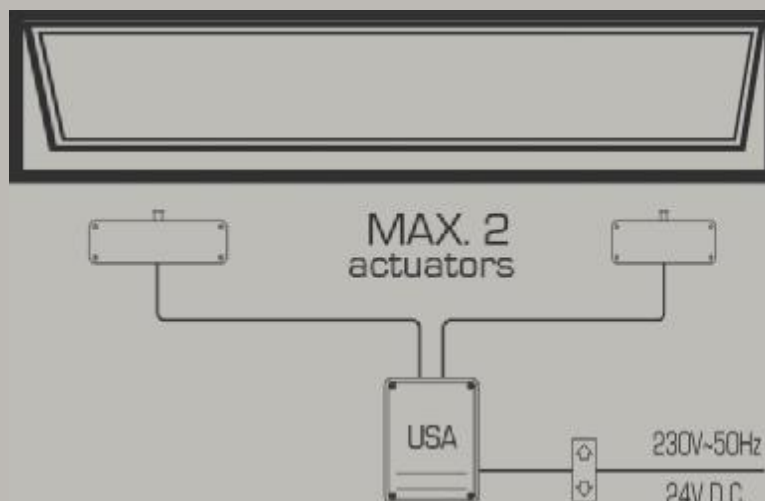






USA2

Connection and synchronization unit for 2 ACK4, C30 or C40



Description for technical specifications

The USA (synchronisation unit for actuators) is a device that synchronizes, controls and monitors the simultaneous running of actuators fitted on the same frame. It becomes essential when two actuators are set up on large size windows, providing a regular and even movement of the vents, to guarantee the security of the frame and connected motors.

The microprocessor of this unit checks in real time the actuators feeding power, consumption and speed. When any one of the checked parameters does not meet the standard, the USA automatically disconnects the feeding and signals, by a pilot light, which actuator is causing the failure. Only two actuators, preset with a suitable cable, can be linked to the USA 2. The unit is fitted in a grey shock-resistant plastic case. The unit and the actuators can work either at 230V – 50Hz or 24V d.c., and is preset for connection to all wind, rain, air-conditioning, smoke and heat evacuation systems.

CE marked device complying with the following regulations: EEC 89/ 336, EEC 73/23 and following amendments.

Technical characteristics

	USA2/230	USA2/24
Power supply voltage	230 V~50 Hz	24 V d.c.
Autput voltage	230 V~50 Hz	24 V d.c.
Total max. absorption applied (ACK4)	0,64 A	4,2 A
Total max. absorption applied (C30)	0,64 A	2,6 A
Total max. absorption applied (C40)	0,48 A	2,2 A
Operating temperature	- 5 +50° C	
Minimum distance between the actuators on the same frame	1,5 m	
Length of the cables for power supply	2,2 m	
Overall dimensions	200x155x80 mm	
C30 - Thrust force	600N	600N
C30 - Traction force	400N	600N
C40 - Thrust force	700N	700N
C40 - Traction force	700N	700N
ACK4 - Thrust force	600N	600N
ACK4 - Traction force	400N	600N



TF33

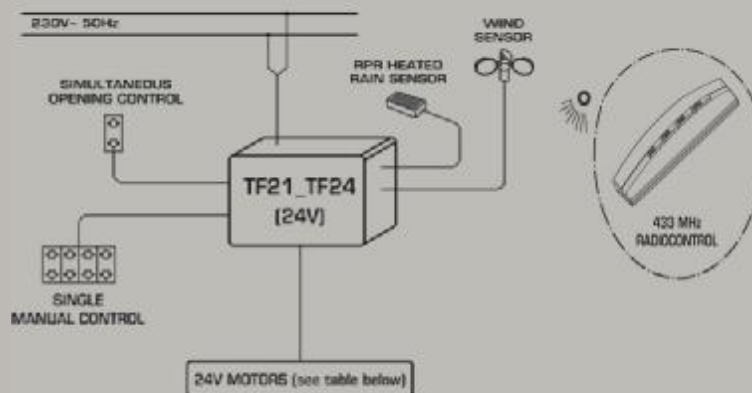


TF44

TF41

TF21/24_TF41/44_TF33

Control and power units for actuators at 24V and 230V



Description for technical specifications

TF21/24 - The TF21/24 (24V output voltage) and TF41/44 (230V output voltage) control units feed and control TOPP actuators at 24V or 230V, either automatically or by "man-present" push button.

Fixed working time at 120 seconds. The remote control works with sequential step system (opening – stop – closing – stop). Separate inputs or a single input are available to operate the actuators. Built-in radio receiver at 433,92 MHz with rolling-code.

Pre-set for RW wind sensor with pre-selectable wind speed threshold by dip-switch.

Pre-set for RD rain sensor at 12V. Control unit functions (exclusion of the rain sensor, manual operation, etc.) can be set by dip-switch.

CE marked device complying with the following directives: EEC 89/336, EEC 73/23 and following amendments.

TF33 - The TF33 control unit feeds and controls up to 3 actuators at 24V DC, either automatically or by "man-present" push button. For each actuator there is an amperometric control that verifies the motor mechanical stress and stops it in case of anomaly, such as failure, shutdown, etc. Possibility to operate an actuator at 230V with an additional electronic board. Separate inputs for the opening and closing of the 3 motors. With receiver for the remote control, either at 433,92 MHz with rolling-code or infra-red. The remote control operates the actuators individually by open-close mode or by sequential step system. Input for one RW wind sensor with pre-selectable wind speed threshold by trimmer. Possibility to operate two RD 12V rain sensors simultaneously.

Three blue LEDs indicate the control unit and remote control condition. Emergency opening and closing through transmitter or by the same switch used to store the remote controls.

Control unit functions (exclusion of the rain sensor, manual operation, thermostat connection, etc.) can be set out by dip-switch. CE marked device complying with the following directives: EEC 89/336, EEC 73/23 and following amendments.

Technical characteristics

	TF33	TF21R	TF24R	TF41R	TF44R
Power supply voltage	230V~50Hz				
Output voltage	24V - 230V	24V d.c.	24V d.c.	230V	230V
Max power consumption	20W	15W	45W	300W	1200W
Max absorbed current	0,6A	0,36A	1,5A	1,3A	5,2A
Service type	S1 – Continuous				
Pre-set for	wind and rain sensors, manual switches				
Operating temperature	- 5° +50° C				
Overall dimensions	150x80x55 mm 150x80x28 mm	max 160x120x75 mm			
C20 that can be connected	3 pcs	1 pc	4 pcs	6 pcs	16 pcs
ACK4 that can be connected		-	-	4 pcs	16 pcs
C30 that can be connected		-	1 pc	4 pcs	16 pcs
C40 that can be connected		-	1 pc	5 pcs	20 pcs
C240 that can be connected		-	2 pcs	3 pcs	8 pcs
SL60 that can be connected		-	1 pc	4 pcs	16 pcs
T50 that can be connected		-	1 pc	2 pcs	8 pcs
T80 that can be connected		-	1 pc	2 pcs	8 pcs



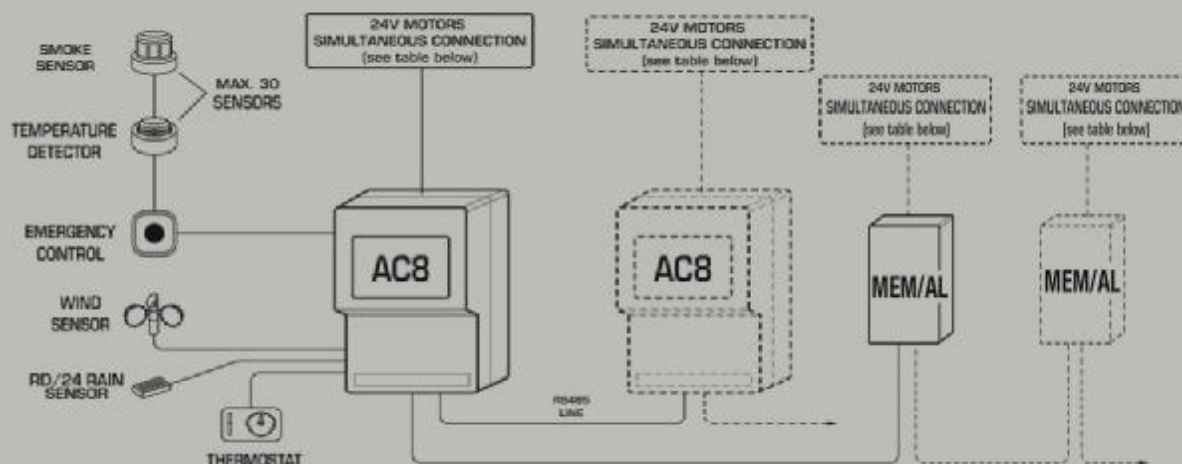
AC8



MEM/AL

AC8_MEM/AL

Modular surveying units of control and detection for actuators at 24V



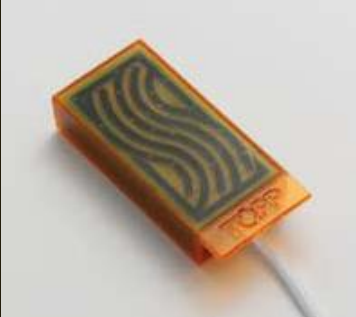
The AC8 is a modular detection and control unit for security, ventilation and smoke evacuation systems.

In the ventilation system actuators at 230V can also be used, fed by the mains and controlled by our TF44 combined to the ACB control unit. To the latter also safety detectors such as wind and rain sensors, smoke and heat detectors, can be connected. Each detector generates an alarm control and autonomously manages the windows opening and closing.

Technical characteristics



RW



RD



RF811



RF813



PM1_PM2_PM3

RW_RD_RF811

RF813_PM1_PM2_PM3

RW wind sensor

The RW wind sensor, connected to our control units, closes the windows when the wind speed exceeds a pre-set value. It is contained in a weatherproof plastic, with rotating blade system to seize the wind speed.

RD/12_RD/24 rain sensors

Like the wind sensor, the RD rain sensor must be located outside, exposed to rain.

The RD12V sensor may be connected to the TF21, TF24, TF41, TF44 and TF33 control units, whereas the RD/24 may be connected to the AC8 control unit.

They automatically close windows when the comb sensor is wet. Since they are heated, they dry off very quickly and are insensitive to fog, ice, dew and damp.

RF811 Smoke Detector

The RF811 is an optic smoke sensor for indoor smoke detection. It can be connected to the AC8 unit in smoke evacuation systems. UNI EN54 regulated, it secures high reliability and is protected against false alarms.

RF813 Temperature Detector

The RF813 analogical temperature detector is realised with a static fixed element pre-set to 60° degrees which reacts immediately to rapid increases in temperature. It can be connected to the AC8 control unit in smoke evacuation systems and is UNI EN 54 regulated.

PM1_PM2_PM3 Keyboards

PM keyboards control one or more actuators. Designed to be fitted against the wall, they have 1 or 2 buttons according to the required model. The box is in shockproof plastic and is equipped with a 10A double switch button with 6 clamps, and a Ø 5x20 fuse block.

TECHNICAL REMARKS

How to choose the right actuator for your window

The selection of the right window actuator is very important and should allow to get maximum results.

The following technical details are to guide you in your final choice of actuator and should be considered before any decision is made.

There are mainly two types of actuators: linear/rack actuators (rigid rod) and chain actuators (flexible chain).

The linear/rack actuator can offer great performance and push high loads, but has a requirement both physical and aesthetic which is not always acceptable. The actuator body has to move in a pivoting motion from its brackets, therefore it is necessary to verify that there are no obstacles to its rotational movement.

This has to be done to prevent damage to the actuator itself or to the window.

If a rod actuator is unsuitable, a chain actuator must be used, subject to weight restrictions.

The chain actuator operates generally at a lower thrust power and requires a limited space, as well as being aesthetically pleasing.

On top or bottom hung windows less than 800mm in length, the chain actuator require the installation of swivel brackets. This allows the unit to pivot whilst the chain operates and thus not damage the unit.

For bottom hinged windows that open inward, chain actuators are definitely preferable, although the height of the window must be checked.

For windows having a width larger than 1500-2000mm, a single actuator is not enough.

With this size the window and the safety of the installation require the application of more than one actuator, usually linked to a synchronization device.

The following simplified formulas can help you to determine the requested closure and opening force.

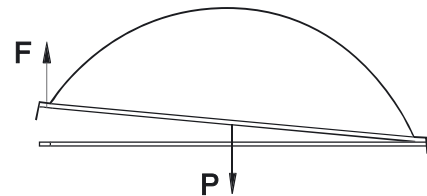
The indicated loads do not include the force exerted by wind or other extreme weather conditions.

FORMULAS TO CALCULATE TRACTION AND THRUST FORCE (KG)

Horizontal windows

F = Required force for opening and closing (kg)

P = Window sash weight (kg)



$$F = 0,54.P$$

Top hung windows (a) or bottom hung windows (b)

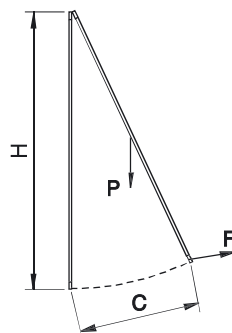
F = Required force for opening and closing (kg)

P = Window sash weight (kg)

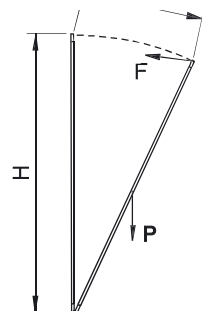
C = Window opening stroke (mm)

H = Window height (mm)

(a)



(b)



$$F = (0,54.P) \cdot (C/H)$$



TOPP spa . via Galvani 59 . 36066 Sandrigo (VI)
tel. +39 0444 656700 . fax +39 0444 656701 | www.topp.it | info@topp.it