Assembly and Commissioning Instructions

according to Machinery Directive 2006/42/EC (annex VI)



KSA S12 24V DC / KSA S12 230V AC CHAIN DRIV FOR WINDOWS



CE

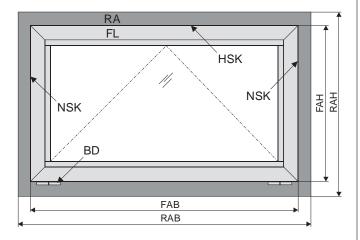
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ABBREVIATIONS

Index of abbreviations

These abbreviations are used consistently throughout these assembly & operating instructions. Unless stated differently, all dimensions indicated in this document are in mm. General tolerances in accordance with DIN ISO 2768-m.

Α	drive
AK	connection cable / drive cable
AP	cover cap
BD	hinge
Fxxx	casement bracket
FAB	overall width of casement
FAH	overall height of casement
FG	casement weight
FL	casement
FÜ	casement overlap
HSK	main closing edge
Kxxx	frame bracket
L	construction lenghth of drive
MB	central hinge
NSK	side closing edge
RA	frame
RAB	overall width of frame
RAH	overall height of frame
SL	snow load
\rightarrow	opening direction



TARGET GROUP

These instructions are intended for trained personnel and operators of systems for natural smoke ventilation (NRA / SHEV) (natural smoke exhaust system / smoke and heat exhaust system) and natural ventilation via windows, who are knowledgeable of operating modes as well as the remaining risks of the system.

WARNING AND SAFETY SYMBOLS IN THESE IN-STRUCTIONS:

The symbols used in the instructions shall be strictly observed and have the following meaning:



Failure to comply with the warning notes results in irreversible injuries or death.



Failure to comply with the warning notes can result in irreversible injuries or death.



Failure to comply with the warning notes can result in minor or moderate (reversible) injuries.



Failure to comply with the warning notes can lead to damage to property.



Caution / Warning

Danger due to electric current.



Caution / Warning

Risk of crushing and entrapment during device operation (is provided as a sticker with the drive).



Attention / Warning

Risk of damage to / destruction of drives and / or windows.

This device is not intended for use by persons (including children) with physical, sensory or mental limitations or lacking experience and / or knowledge, unless they are supervised by a person who is responsible for the safety or were instructed by him on the usage of this equipment. Children should be supervised to ensure that they are not playing with this device.

Cleaning and operator's maintenance may not be performed by children without supervision.

INTENDED USE

Area of application / Scope of application

This drive is intended for the electromotive opening and closing of windows in facade and roof areas.

The prime task of this product, in combination with a window and a suitable external control unit, is to evacuate hot smoke and combustion gases in case of fire, to safe human lives and protect material assets. Furthermore, combined with a suitable external control unit, the electromotive operated window ensures fresh air supply for the natural ventilation of the building.

Note

By attaching the drive to a movable element of the window a so-called "power-operated window" is created which, according to the Machinery Directive 2006 / 42 / EG, represents a machine.

Intended use according to the Declaration of Conformity

The drive is intended for stationary installation and electrical connection at the window as part of a building.

In accordance with the attached Declaration of Conformity the drive, in combination with an external Control Unit from Aumüller, is released for its intended use at a power-operated window without an additional on-site risk assessment for the following use:

- Application for natural ventilation
 - with an installation height of the drive of at least 2,5 m above the floor, or
 - with an opening width at the HSK of the operated element of < 200 mm by a simultaneous speed of < 15 mm/s at the HSK in closing direction.
- Application as NSHEV (natural smoke and heat exhaust ventilators) for ventilation without dual function for ventilation in accordance with EN12101-2.

№ WARNING

Attention must be paid to possible hazards when used with tilting or rotating windows, whose secondary closing edges are located at less than 2,5 m installation height above the floor, under consideration of the Control Unit and usage!

We as manufacturers are well aware of our duties and responsibilities regarding the development, manufacturing and placing of safe window drives on the market and consistently implement them. Ultimately, however, we have no direct influence on the usage of our drives. Therefore, as a precaution, we point out the following:

- The constructor or his agent (architect, specialist planner) are obligated by law to evaluate the hazards to persons, originating from the usage, installation position, opening parameters as well as the planned type of installation of the power operated window and the external Control Unit, already in the planning phase and to establish necessary protective measures.
- The constructor / manufacturer of the machine "power-operated window" must implement the planned protective measures at the installation site or, if not yet established, determine them by theire own responsibility and detect or minimize possible remaining risks.

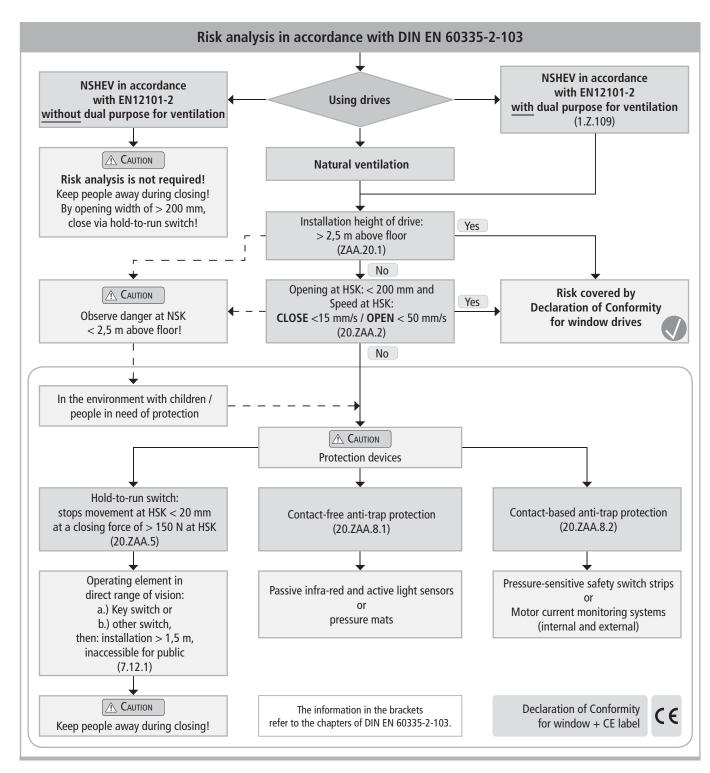
The need for a risk assessment at the installation site due to the reasonably foreseeable misuse.

A risk assessment in accordance with the Machinery Directive 2006 / 42 / EG for the usage of the power-operated window for natural ventilation is absolutely necessary under the following conditions:

- the installation height of the drive is < 2,5 m above the floor and
- the opening width at the HSK > 200 mm, or
- the closing speed at the HSK is > 15 mm/s, or
- the opening speed at the HSK is > 50 mm/s, or
- the closing force at the HSK is > 150 N

The following flow chart can be applied, which also includes the protective measures in accordance with EN 60335-2-103/2016-05.





Casement data

Facade: bottom-hung window, top-hung win-

dow, side-hung window.

Roof: roof window / sky light. Opening direction: inward / outward opening.

Profile material:

aluminum, steel, plastic or wood.

Note

The casement measurements supplied are only for orientation purposes.

It is imperative that the force-path **diagram** of the drives are observed.

When inspecting the drives for conformity with on-site requirements the following items must be observed:

- total weight of casement (glass + frame),
- additional loads: snow load / wind load (suction / pressure),
- casement size (FAB x FAH),
- side ratio FAB / FAH,
- installation / inclination angle,
- required opening area (geometric / aerodynamic),
- crosswind influences,
- driving force and stroke,
- mounting site at the window frame and casement frame.

SAFETY INSTRUCTIONS



It is important to follow these instructions for the safety of persons. These instructions shall be kept in a safe place for the entire service life of the products.

Risk of crushing and entrapment! Window can close automatically!

The integrated load cut-off stops the drive during closing and opening when the drive is overloaded.

The compressive force is absolutely sufficient to crush fingers in case of carelessness.

Area of application

The drive shall only be used according to its intended use. For additional applications consult the manufacturer or his authorized dealer.



Do not misuse the drive for other lifting operations! Do not allow children to play with this drive or its regulating and / or control units, including the remote control!

Always check whether the system complies with current regulations. Special attention must be paid to the opening width, the opening area, the opening time and the opening speed of the window, the temperature range of the drives / external devices and cables as well as the cross section of the connecting cables as function of the cable length and power consumption.



All devices must be permanently protected from dirt and moisture, if the drive is not explicitly suitable for use in wet areas (see technical data).

Installation

These instructions address expert and safety-conscious electricians and / or qualified personnel knowledgeable in electrical and mechanical drive installation.

Note

The safe operation, avoidance of injury to persons and damage to property, as well as risks, is only guaranteed by proper installation and setting according to these installation instructions.

All specifications for installation must be checked independently and, if necessary, adjusted at the installation site. The connection assignment, the electrical supply data (see machine plate) and performance limits (see technical data) as well as the mounting and installation instructions of the drive must be strictly observed and adhered to!



Never connect 24 V DC drives to 230 V AC mains voltage!

Danger to life!

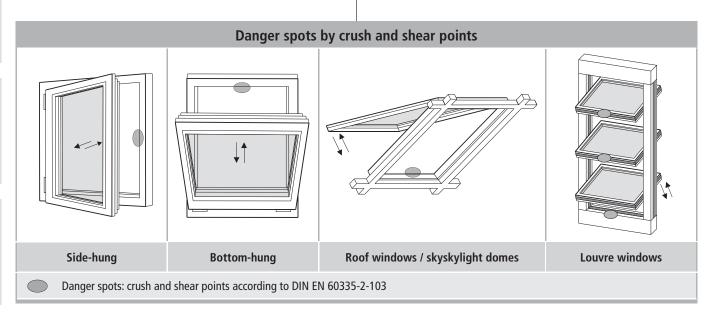
Do not reach into the window rabbet or the operating element (chain or spindle) during installation and operation! Ensure that, based on the installation position and the opening movement of the casement, persons cannot be trapped between the driven part of the window and surrounding fixed components (e.g. wall).

Mounting material

The required mounting material must be modified to fit the drive and occurring load and, if necessary, supplemented.

Note

Before installing the drive, check whether the casement is in good mechanical condition, the weight in balance and whether it opens and closes easily!



Crush and shear points

To avoid injuries, **crushing and shear points** between casement and frame must be secured **against entrapment up to an installation height of 2,5 meters above the floor** with appropriate measures. This can be achieved e.g. by using contact-based or contactless protective devices against entrapment, which stop the motion through contact or through interruption by a person. At a force higher than 150 N at the main closing edge the motion must stop within 20 mm. A warning symbol at the opening element must indicate this clearly.

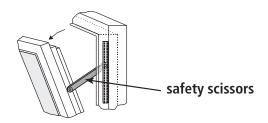
Unintentional or independent opening or falling

Casements are to be hinged or secured such way that in case one of the mounting elements fails it will not crash / slam down or move in an uncontrolled manner by e.g. using double suspensions, safety scissors, casement stays.

Tilting windows shall be equipped with safety scissors or similar devices to avoid damages and risks of injury for persons through improper installation and operation. The safety scissors must be adjusted to the opening stroke of the drive (see technical data) to avoid blocking. The opening width of the safety scissors must be bigger than the drive stroke.



The movable casement must be secured against unintentional or independent opening as well as falling down.



Routing cables and electrical connection

Routing or installing electrical lines and connections may be performed only by approved specialist companies. Never operate drives, control units, operating elements and sensors at operating voltages and connections contrary to the specifications of the manufacturer.

All relevant instructions shall be observed for the installation, specifically:

- VDE 0100 Setting up high-voltage systems up to 1000 V
- VDE 0815 Wiring cables
- Specimen Guideline on Conduits German designation (MLAR).



All-pole disconnecting devices shall be installed in the permanent electrical installation or external Control Unit for the drive.

The mains supply lines 230 V / 400 V AC shall be protected separately!



Damaged mains supply lines of drives with plug connectors may only be replaced by the manufacturer or qualified service / maintenance personnel!

Power cables which are fixed to the drive casing cannot be replaced. If the cable is damaged the device must be scrapped!

The types of cable, cable lengths and cross-sections shall be selected in accordance with the manufacturer's technical data. If necessary, the cable types shall be coordinated with the competent local authorities and energy supply companies. Low-voltage lines (24 V DC) shall be routed separate from the high-voltage lines. Flexible cables may not be flush-mounted. Freely suspended cables shall be equipped with strain reliefs.



Cables must be laid such way that they cannot be sheared off, twisted or bent during operation. Drive cables laid into closed window profiles must be protected by insulating tubes with a sufficient temperature resistance. Through holes shall be equipped with cable sleeves!

Clamping points shall be checked for tightness of threaded connections and cable ends. Access to junction boxes, clamping points and external drive control systems shall be ensured for maintenance work.

Commissioning, operation and maintenance

After the installation and after each modification in the set up all functions shall be checked with a trial run. It shall be ensured that drive and casement are set correctly and that security systems, if available, are functioning properly. After the installation of the system is completed the end-user shall be introduced to all important operating steps. If necessary, he must be advised of all remaining risks / dangers.

The end-user shall be instructed in intended use of the drives and, if necessary, the safety instructions. The end-user shall be specifically instructed that no additional forces, except for the pressure and tension in the opening and closing direction of the casement, may be applied to the spindle, chain or lever of the drive.

Note

Post warning signs!

During the proper assembly of drives with mounting elements at a window, and the connection to an external control unit, the interfaces resulting from mechanical and electrical performance characteristics of single elements shall be observed.

△ CAUTION

Other persons must be kept away from the casement when a hold-to-run switch (pushbutton) is operated or when a window, which has been opened by a smoke and heat exhaust system, is closing!

The operating element of hold-to-run switches must be installed within direct view from the window, but apart from moving elements. If the switch is not a key-operated switch it must be installed at a minimum height of 1,5 m and inaccessible to the public!



CAUTION

Do not allow children to play with permanently mounted control devices and keep remote controls out of reach for children!



During cleaning, maintenance work and while exchanging parts the drive must be completely disconnected from the power supply and secured against unintentional reactivation.



Do not use drive or casement when repair or re-setting work has to be performed!

Replacement parts, fasteners and controls

The drive shall only be operated with control devices from the same manufacturer. There is no liability, warranty or customer service if third-party parts are used. Exclusively original replacement parts of the manufacturer shall be used for mounting elements or expansions.

Ambient conditions

The product may not be subjected to impacts or falls, or to vibrations, moisture, aggressive vapors or other harmful environments, unless the manufacturer released it for one or more of these environmental conditions.

• Operation:

Ambient temperature: -5 °C ... +75°C Relative humidity: < 90% less 20°C;

< 50% less 40°C;

no formation of condensation

• Transport / Storage:

Storage temperature: -5°C ... +40°C Relative humidity: < 60%

Accident prevention regulations and workmen's compensation insurance guidelines

For work on or in a building or building part the provisions and instructions of the respective accident prevention regulations (UVV and workmen's compensation insurance quidelines (BGR /ASR) shall be observed and adhered to.

Declaration of Conformity

The drive is manufactured and inspected in accordance with European guidelines. The respective Declaration of Conformity is on hand.

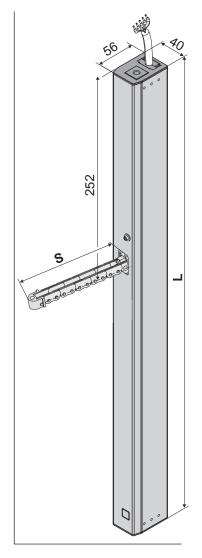
In case the operation of the drive differs from the intended use, a risk evaluation for the complete power-operated window system shall be performed and a Declaration of Conformity according Machinery Directive 2006 / 42 / EG issued.



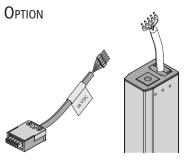
DATA SHEET KSA S12 24V AND KSA S12 24V Z

- Application: natural ventilation, SHEV, ferralux®-NSHEV
- Internal Intelligent Control Electronics S12
- Adjustable chain tension / Mechanical chain unlocking
- Version "Z": Programmable feedback limit position "OPEN" and "CLOSE" (max. 24V, 500 mA) Equipment:
- Additional **Aumüller-Click plug set** for multi-drive operation

- Programmable special functions
- M-COM for automatic synchronised run of multi drive systems and automatic sequence control with locking drives (S3 / S12)



TECH	INICAL DATA	
U_{N}	Rated voltage	24V DC (± 20 %), max. 2 Vpp
I _N	Rated current	0,9 A
I _A	Cut-off current	1,2 A
P_N	Rated power	22 W
ED	Duty cycle	30 % (ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
1	Ambient temperature range	-5 °C +75 °C
F_z	Pulling force max.	600 N
F _A	Pushing force s > 800 mm only for pulling application	F (N) 700 600 400 300 200 100 200 400 600 800 1000 1200 1400 1500
$F_{\rm H}$	Pullout force	3.000 N (fastening depended)
	Chain	Stainless steel
	Connecting cable	non-halogen, grey 5 x 0,5 mm², ~ 3 m
V	Speed	s < 400
S	Stroke	250 – 1.500 mm (± 5 %)
L	Length	see order data
Soun	d pressure level A	≤ 70 dB (A)



Aumüller chain drives have an integrated cable routing with connection sockets on both housing ends. This enables the following options:

Aumüller-Click plug solution (for 24 V DC) with various cabel lengths

Part.-No.: **501250** - 1 m cable length

501258 - 2 m cable length

501251 - 3 m cable length **501252** - 5 m cable length

501253 - 10 m cable length

- Series connection of several drives into multi drive systems
- Power supply from both sides

24V

02

ORDER DATA					
s [mm]	L [mm]	Version	Finish	PU / pcs.	PartNo.
250	515	KSA 250 S12 24V	E6/C-0	1	522725
300	591	KSA 300 S12 24V	E6/C-0	1	522730
400	591	KSA 400 S12 24V	E6/C-0	1	522740
500	693	KSA 500 S12 24V	E6/C-0	1	522750
600	693	KSA 600 S12 24V	E6/C-0	1	522760
800	794	KSA 800 S12 24V	E6/C-0	1	522780
1000	896	KSA 1000 S12 24V	E6/C-0	1	522810
1200	998	KSA 1200 S12 24V	E6/C-0	1	522812
1500	1151	KSA 1500 S12 24V	E6/C-0	1	522815

ORDER DATA					
s [mm]	L [mm]	Version	Finish	PU / pcs.	PartNo.
250	515	KSA 250 S12 24V Z	E6/C-0	1	522723
300	591	KSA 300 S12 24V Z	E6/C-0	1	522733
400	591	KSA 400 S12 24V Z	E6/C-0	1	522743
500	693	KSA 500 S12 24V Z	E6/C-0	1	522753
600	693	KSA 600 S12 24V Z	E6/C-0	1	522763
800	794	KSA 800 S12 24V Z	E6/C-0	1	522783
1000	896	KSA 1000 S12 24V Z	E6/C-0	1	522813
1200	998	KSA 1200 S12 24V Z	E6/C-0	1	522823
1500	1151	KSA 1500 S12 24V Z	E6/C-0	1	522853

OPTIONS						
Special model	PU / pcs.	PartNo.				
Drive housing painted/powder coated in other RAL colours						
Lump sum for coating		516030				
	1 - 20	516004				
Specificat order stage:	21 - 50	516004				
Specify at order stage:	51 - 100	516004				
	up 101	516004				
Microprocessor programming S12						
Electronic stroke reduction 24V S12		524190				
Programming drives 24V / 230V S12		524180				
Optional accessories	PU / pcs.	PartNo.				
M-COM® Click Configuration module for synchronised multi-drive systems	1	524167				
M-COM Click Configuration module for synchronised multi-drive systems	1	524177				
Aumüller-Click plug solution 24 V - cable length 1 m	1	501250				
А им ü LLER- Click plug solution 24 V - cable length 2 m	1	501258				
А им ü LLER- Click plug solution 24 V - cable length 3 m	1	501251				
А имüller-Click plug solution 24 V - cable length 5 m	1	501252				
А им ü LLER- Click plug solution 24 V - cable length 10 m	1	501253				

EXPLANATIONS ON THE VERSION "Z" (FOR EXAMPLE KSA S12 24V Z) 24V

230V

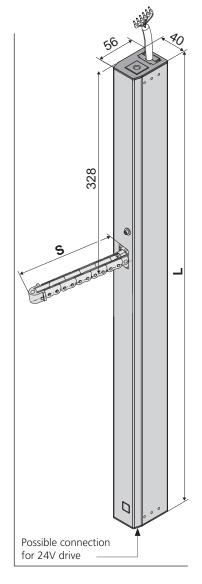
Drives with version "Z" (e.g. KSA S12 24V Z) have an additional volt free contact with connection for an external signal monitoring.

The volt free contact (max. 24V, 500mA) is open when the drive is in **CLOSED** position.

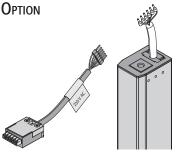


DATA SHEET KSA S12 230V AND KSA S12 230V Z

- Application: natural ventilation
- Internal Intelligent Control Electronics S12
- Adjustable chain tension / Mechanical chain unlocking
- Parallel connection up to 8 drives in one group
- Additional connection of a 24V drive possible (on the 24V side)
- Version "Z": Programmable feedback limit position "OPEN" and "CLOSE" (max. 24V, 500 mA) Equipment:
- Additional **Aumüller-Click plug set** for multi-drive operation **Options**
- Programmable synchronised run (max. 4 drives) and special functions (not version "Z")



TECH	INICAL DATA	
U_{N}	Rated voltage	230V AC (50 Hz)
I _N	Rated current	0,2 A
I_A	Cut-off current	0,2 A
P_{N}	Rated power	46 W
ED	Duty cycle	30 % (ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
1	Ambient temperature range	-5 °C +75 °C
F _z	Pulling force max.	600 N
$F_{\!\scriptscriptstyle{A}}$	Pushing force s > 800 mm only for pulling application	F(N) 700 600 500 400 300 200 100 200 400 600 800 1000 1200 1400 1500
F _H	Pullout force	3.000 N (fastening depended)
	Chain	Stainless steel
	Connecting cable	non-halogen, grey 6 x 0,75 mm², ~ 3 m
V	Speed	X ₌ 8,0 mm/s 1 8,0 mm/s
S	Stroke	250 – 1.500 mm (± 5 %)
L	Length	see order data
Soun	nd pressure level A	≤ 70 dB (A)



Aumüller chain drives have an integrated cable routing with connection sockets on both housing ends. This enables the following options:

Aumüller-Click plug solution (for 230 V AC) with various cabel lengths

Part.-No.: **501271** - 1 m cable length

501272 - 2 m cable length

501273 - 3 m cable length **501275** - 5 m cable length

501280 - 10 m cable length

- Series connection of several drives into multi drive systems
- Power supply from both sides

230V

ORDER I	ORDER DATA					
s [mm]	L [mm]	Version	Finish	PU / pcs.	PartNo.	
250	591	KSA 250 S12 230V	E6/C-0	1	497025	
300	667	KSA 300 S12 230V	E6/C-0	1	497030	
400	667	KSA 400 S12 230V	E6/C-0	1	497040	
500	769	KSA 500 S12 230V	E6/C-0	1	497050	
600	769	KSA 600 S12 230V	E6/C-0	1	497060	
800	870	KSA 800 S12 230V	E6/C-0	1	497080	
1000	972	KSA 1000 S12 230V	E6/C-0	1	497110	
1200	1074	KSA 1200 S12 230V	E6/C-0	1	497112	
1500	1227	KSA 1500 S12 230V	E6/C-0	1	497115	

ORDER I	ORDER DATA					
s [mm]	L [mm]	Version	Finish	PU / pcs.	PartNo.	
250	591	KSA 250 S12 230V Z	E6/C-0	1	497023	
300	667	KSA 300 S12 230V Z	E6/C-0	1	497033	
400	667	KSA 400 S12 230V Z	E6/C-0	1	497043	
500	769	KSA 500 S12 230V Z	E6/C-0	1	497053	
600	769	KSA 600 S12 230V Z	E6/C-0	1	497063	
800	870	KSA 800 S12 230V Z	E6/C-0	1	497083	
1000	972	KSA 1000 S12 230V Z	E6/C-0	1	497113	
1200	1074	KSA 1200 S12 230V Z	E6/C-0	1	497123	
1500	1227	KSA 1500 S12 230V Z	E6/C-0	1	497153	

OPTIONS		
Special model	PU / pcs.	PartNo.
Drive housing painted/powder coated in other RAL colours: Lump sum for coating		516030
	1 - 20	516004
Specify at order stage:	21 - 50	516004
specify at order stage.	51 - 100	516004
	up 101	516004
Microprocessor programming S12		
Programming synchronised multi-drive systems 230V S12	495588	
Electronic stroke reduction 24V S12		524190
Programming drives 24V / 230V S12	524180	
Optional accessories	PU / pcs.	PartNo.
А им ü LLER -Click plug solution 230 V - cable length 1 m	1	501271
А им ü LLER- Click plug solution 230 V - cable length 2 m	1	501272
А им ü LLER- Click plug solution 230 V - cable length 3 m	1	501273
А им ü LLER -Click plug solution 230 V - cable length 5 m	1	501275
А им ü LLER- Click plug solution 230 V - cable length 10 m	1	501280

EXPLANATIONS ON THE PRODUCT LABEL

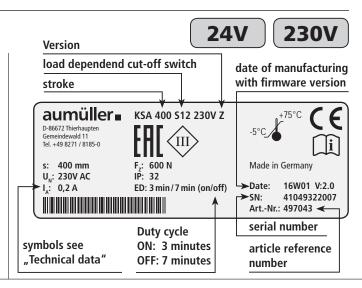
The product label provides information on the most important caracteristics, such as:

- manufacturer's address
- article reference number and name
- technical caracteristics
- date of manufacturing with firmware version
- serial number

Nоте

Never install and operate damaged products.

In the event of any complaints, please indicate the product serial number (SN) (see product label).



Areas of application and casement sizes

24V

230V

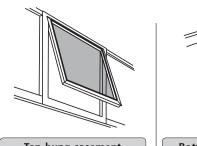
Areas of application and casement sizes:

Mounting of drives up to a casement size of max. 4m2 (depending on the system)

Top-hung casement and bottom-hung casement inward opening

FAB min. = L + 100 mm

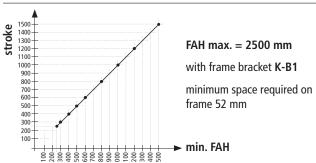
FAB max. = 1400 mm / solo = 2500 mm / tandem





Top-hung casement

Bottom-hung casement



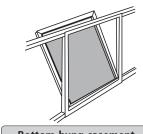
Top-hung casement and bottom-hung casement outward opening

FAB min. = L + 100 mmFAB max. = 1400 mm / solo FAH min. = 500 mm

= 2500 mm / tandem

(for stroke 500) FAH max. = 2500 mm





Bottom-hung casement

Roof window

FAB min. = L + 100 mmFAB max. = 1400 mm / solo

= 2500 mm / tandem

FAH min. = 450 mm FAH max. = 2500 mm

total weight casement including snow load

KSA 250 mm stroke ≤ max. 110 kg

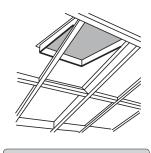
KSA 300 mm stroke ≤ max. 110 kg

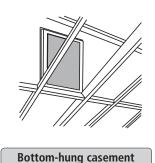
KSA 400 mm stroke ≤ max. 110 kg

KSA 500 mm stroke ≤ max. 110 kg

KSA 600 mm stroke ≤ max. 110 kg

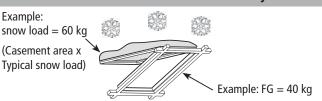
KSA 800 mm stroke ≤ max. 50 kg





Top-hung casement

Snow load on roof windows for SHEV-systems



Example calculation

Establish snow loading based on national standards /directives (in Germany according to DIN 1055-5) total weight = FG + snow loadtotal weight = (40 kg + 60 kg) = 100 kg

INSTALLATION STEP 1: INSPECTION BEFORE THE INSTALLATION

24V

230V



Important instructions for a safe installation. Observe all instructions, wrong installation may result in serious injury!

Storage of drives at the construction site

Protective measures against damages, dust, moisture or contamination shall be taken. Store drives intermediately only in dry and well ventilated rooms.

Inspection of drives before installation

Check drives and window before installation for good mechanical condition and completeness. The chains / spindles of the drives must be extendable or retractable easily. The casement must run smoothly and the weight must be in balance.

Note

We recommend the use of our test kit for the inspection of drives with the rated voltage 24V= / 230V~ (see table below). Damaged products may not be operated under any circumstance.

Test kit for drives

Order number:

533981

230V AC

Application:

Test kit to check running direction and communication of drives 24V DC or

230V AC (including batteries)

Supply voltage:

Drive types: 24V DC / 230V AC

Drive current: max. 3 A

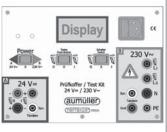
Display: drive current, battery charge

Ambient temperature: $-5 \, ^{\circ}\text{C} \dots + 75 \, ^{\circ}\text{C}$ Plastic housing: $250 \times 220 \times 210 \, \text{mm}$

Weight: approx. 3,6 kg

Feature / equipment: Control elements: 2 switches + 1 button





The test procedure of drives may only be performed on a non-slip and secured mat or a test fixture. During the test run the test element must not be interfered with. The test my only be conducted by or under the supervision of expert personnel.

For testing chain drives the chain must be extended and retracted at an angle of approx. 90°. The spindle tubes of spindle drives in round housing tubes must be secured against independent spinning before starting the test to avoid deviations in the position encoder.

Inspection of the intended use

The planned use of the drive must be checked for compliance with its intended use. If used otherwise the liability and warranty claim expires.

Predictable misuse

It is imperative that foreseeable misuse of drives is avoided! Here are a few examples:

- do not connect 24 V DC drives to a 230 V AC mains voltage,
- observe synchronous run and sequence control by drives with multiple interconnection,
- use drives only indoors,
- avoid additional force influences, e.g. transverse forces.

Testing mechanical requirements

Prior to the start of the installation check whether:

- the support surface and the profile static for the load transmission is sufficient,
- a support construction for the secure fastening of the drives is required,
- cold bridges (thermal separation) are avoidable at action points,
- there is sufficient space for the swivel movement of the drive.

If not, counter measures must be taken!



The support surface of the frame brackets or casement brackets must rest completely on the window or frame profile. There must be no tilting of the fastening elements during extension and retraction of the drives. A safe and solid fastening must be ensured at the window profile.

⚠ CAUTION

It is imperative that the sufficiently mechanical stiffness of the fastener type as well as of the swivel range of the drive is observed.

If this is not guaranteed another type of fastening or another type of drive must be selected.



INSTALLATION STEP 2: INSTALLATION PREREQUISITE AND INSTALLATION PREPARATION

The following conditions must be fulfilled for the installation of the drives so they can be properly assembled with other parts and constructed to a complete machine at the window without impairing the safety and health of persons:

- 1. The design of the drive must fulfill the requirements.
- 2. The fastening accessories (casement brackets or frame brackets) must fit the window profile; the profile-dependent hole lay-out must be complied with.
- 3. The space required for the installation of the drive on the frame and casement profile must be sufficient.
- 4. The window must be in perfect mechanical condition before the installation. It should open and close easily.
- 5. The fastening material for the installation of the drive must fit the window material (see table).

Wood windows	wood screws: i.e. DIN 96, DIN 7996, DIN 571 with head-type: round head with slot, round head with cross, hex head,special type		
self-tapping screws, thread screws, sheet-metal screws i.e. ISO 4762, ISO 4017, ISO 7049, ISO 7085, DIN 75 with head-type: cylinder head with hex socket, internal serration (To Phillips head or external hex head blind rivet nut			
plastic windows	i.e. DIN 95606, DIN 95607, ISO 7049, ISO 7085, DIN 7500 with head-type: round head with cross, external hex head, Torx	Recommendation: if possible, screw through two cavity webs	

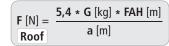
Tools required

- Marker,
- Grains,
- Hammer.
- Screwdriver (slotted-head, cross or Torx) size by site conditions,
- Hexagonal wrench size 3 / 4 / 5 / 6,
- Torque wrench,
- Power drill.
- Threadlock adhesive,
- possibly a tool for blind rivet nuts (size 6).

Check window data on site

- Measure FAB and FAH.
- Check / calculate weight of casement. If unknown, it can be determined approximately with the following formula:

Check / calculate the required drive force and compare with drive data . If unknown, it can be determined approximately with the following formula:



Distance of action point to hinges

= Drive force

= Stroke







Scope of delivery:

Prior to assembly, check items quantity in the delivery for completeness.



INSTALLATION STEP 3:

24V 230V

Adjusting the initial chain tension and smooth running

Adjust the initial chain tension on site (bottom-hung casements only)

The smooth running of the drive can be optimised under low load by screwing in the studs (clockwise).

At the factory setting the studs protrude with 3.5 mm out of the housing. In this position the chain is fully tensioned.



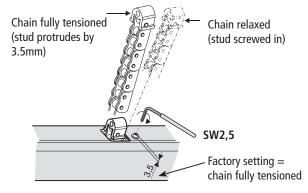
Bottom-hung casements only! Do not change the factory setting for other types of casements!

■ The initial chain tension (pre-tension) is reduced by screwing in the stud (max. 5 mm = 7 complete screw rotations).



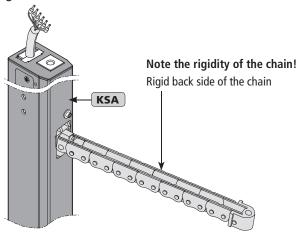
Optimise the smooth running carefully and check the chain tension.

Otherwise, the chain can buckle (backlash) during operation in the thrust (push) direction.



Always note the force-path diagram (see chapter "DATA SHEET KSA S12 24V / KSA S12 230V ") and rigidity of the chain, depending on the installed position!

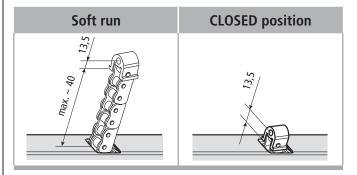
In inclined and vertical uses, ensure that the chain becomes rigid automatically. This is secured if the drive is installed with the motor side (cable outlet) at the top (e.g. for side-hung windows with drive installed at the main closing edge).



Soft run setting after manual unlocking of the chain

The drive has an electronic position detection. Just before the CLOSED position the chain retracts with reduced speed in the **soft run mode**, to protect the window and the drive.

- If the chain is unlocked manually and is completely pulled out by hand, on starting up ensure that the chain moves with reduced speed in soft run mode from approx. 40 mm before the CLOSED position.
- If necessary repeat this step several times.



Manual unlocking of chain

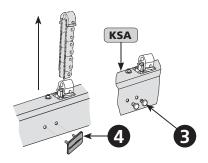
If soft run mode is **not** achieved on retracting the chain:

- Use the Chain unlocking key **4** to unlock both chains and completely pull them out manually.
- Re-close the drive completely electrically and note the soft run mode of app. 40 mm before the CLOSED position.
- Insert cover caps 3.

If the soft run mode begins too early, it is adjusted automatically by the drive's electronics the next time the window is closed.



The manual chain unlocking function may only be used for **installation** purposes!





If the chain does not retract in soft run mode, the drive's transmission can be damaged, resulting in drive failure!

For multiple application the chains should always be pulled out of manually and moved in a CLOSE direction electrically with the same space interval.

INSTALLATION STEP 4: DETERMINE THE CASEMENT BRACKETS

24V 230V

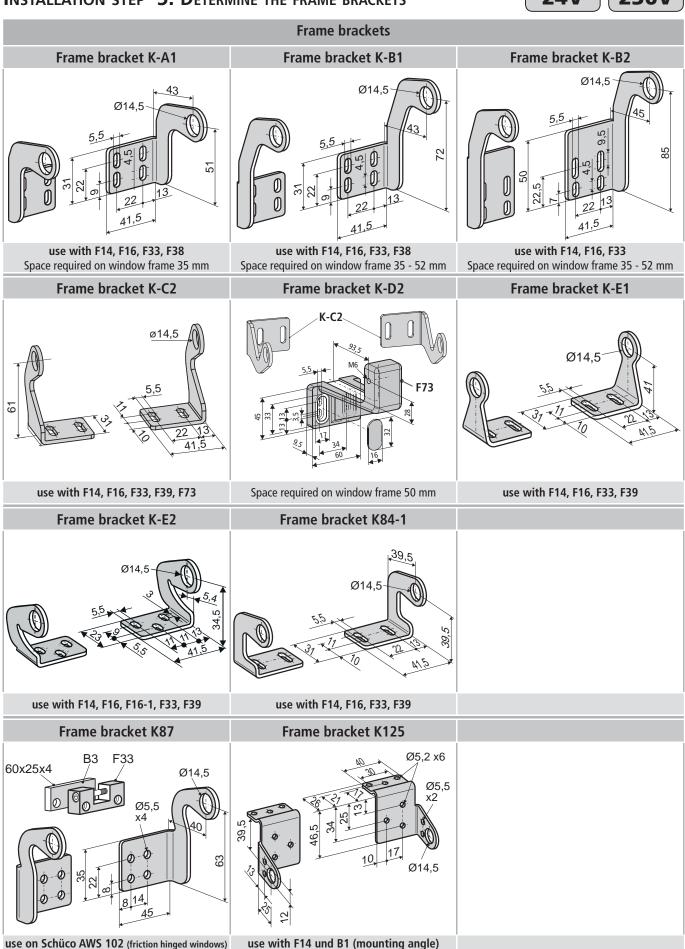
TISTALE THE CHEETER STATES IN LEGISLATION OF THE CHEETER STATES IN LIGITATION OF THE CHEETER S					
Casement brackets					
Casement bracket F14	Casement bracket F16	Casement bracket F16-1			
3x Ø5,5 Lo	2x Ø5,5	2x Ø5,5			
use with K-A1, K-B1, K-B2, K-C2, K-E1, K-E2, K-F, K84-1, K125	use with K-A1, K-B1, K-B2, K-C2, K-E1, K-E2, K84-1, K87	use on roof windows Schüco AWS 57RO			
Casement bracket F29-2	Casement bracket F33	Casement bracket F38			
2x M5 38,5 4x Ø6,5 80	2x Ø5,5 Daseplate for F33	3x Ø5,5 40 70 855 75			
use on roof windows Heroal 085 / 180 with F16	use with K-A1, K-B1, K-B2, K-C2, K-E1, K84-1, K87	use with K-A1, K-B1			
Casement bracket F39	Casement bracket F73				
3x Ø11 / Ø6,5 80 3x Ø11 / Ø6,5 87 88 88 88 88 88 88 88 88 8	45 M6 M6 M6 M6 M6 M6 M6 M6 M6 M6				
use with K-C2, K-E1, K-E2, K84-1	use with K-C2				

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INSTALLATION STEP 5: DETERMINE THE FRAME BRACKETS

24V

230V



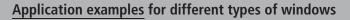
on the kerb (upstand) of dome rooflights

Space required on window frame 35 mm

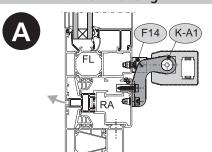
APPLICATION EXAMPLES

24V

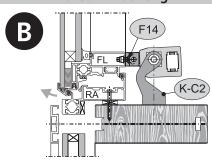
230V



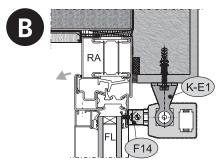
Top-hung outward opening Frame mounting



Top-hung outward opening Transom mounting



Bottom-hung outward opening Transom mounting

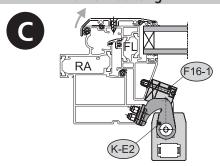


Detail of mounting on aluminium window

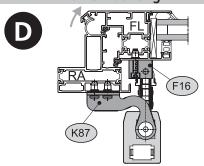
Detail of mounting on aluminium window

Detail of mounting on aluminium window

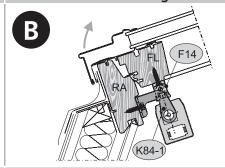
Roof Frame mounting



Roof
Frame mounting



Roof
Frame mounting

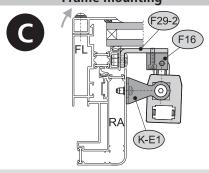


Detail of mounting on aluminium window

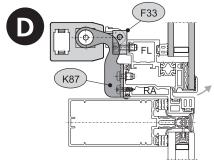
Detail of mounting on aluminium window

Detail of mounting on wooden window

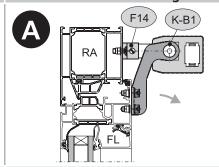
Roof Frame mounting



Friction hinged outward opening Frame mounting



Bottom-hung inward opening Casement mounting

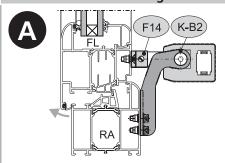


Detail of mounting on aluminium window

Detail of mounting on aluminium window

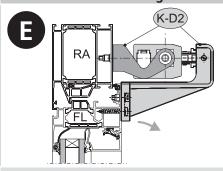
Detail of mounting on aluminium window

Top-hung outward opening Frame mounting



Detail of mounting on aluminium window

Bottom-hung inward opening Frame mounting



Detail of mounting on aluminium window

INSTALLATION STEP 6:

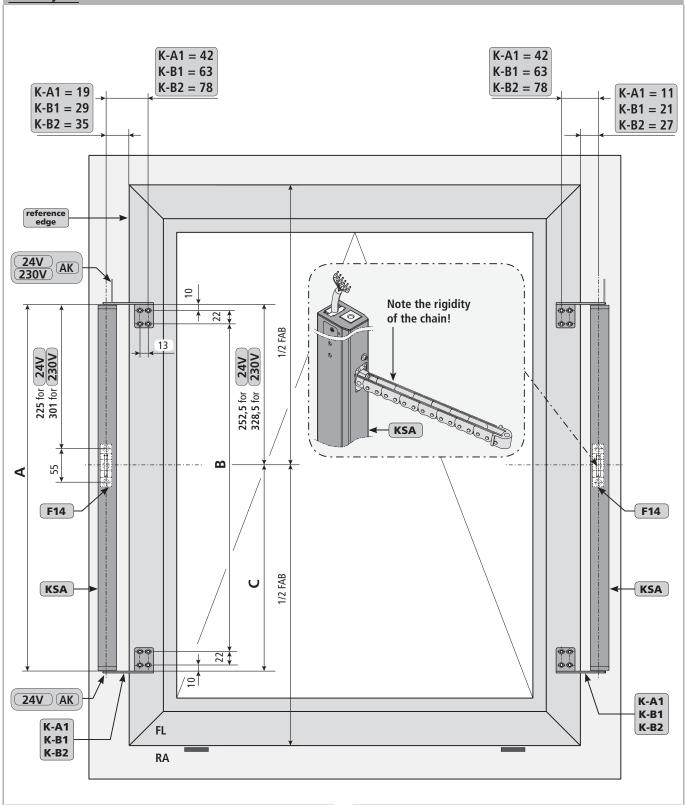
HOLE LAYOUT FOR FRAME BRACKET AND CASEMENT BRACKET

24V

230V

Drive mounting on the casement - auxillary closing edge - inward opening windows Hole layout for the frame brackets K-A1 / K-B1 / K-B2 with casement bracket F14

NSK



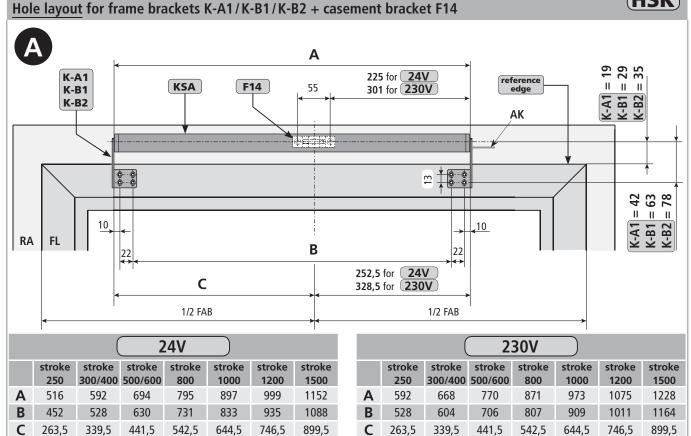
	stroke	stroke	stroke	stroke	stroke	stroke	stroke				
	250	300/400	500/600	800	1000	1200	1500				
Α	516	592	694	795	897	999	1152				
В	452	528	630	731	833	935	1088				
C	263,5	339,5	441,5	542,5	644,5	746,5	899,5				

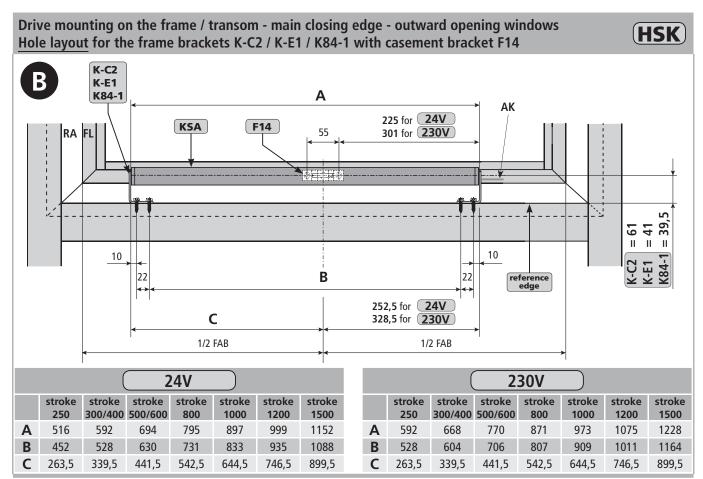
	230V											
	stroke 250	stroke 300/400	stroke 500/600	stroke 800	stroke 1000	stroke 1200	stroke 1500					
Α	592	668	770	871	973	1075	1228					
В	528	604	706	807	909	1011	1164					
C	263,5	339,5	441,5	542,5	644,5	746,5	899,5					

HOLE LAYOUT: SOLO

Drive mounting on the casement - main closing edge - inward opening windows







516

452

263,5

В

05

592

528

339,5

694

630

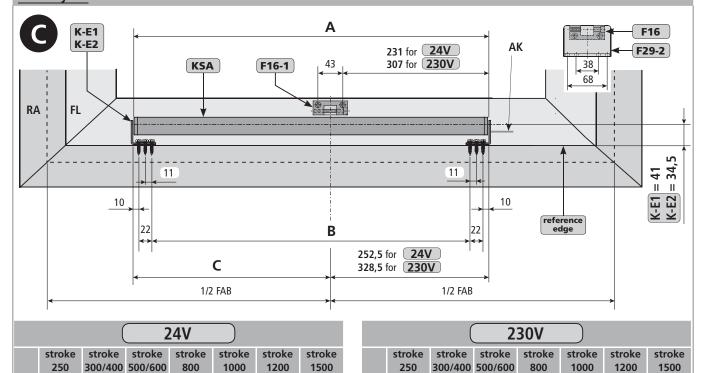
441,5

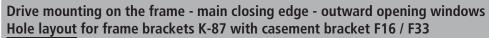
795

731

542,5

HSK





999

935

746,5

1152

1088

899,5

A

В

592

528

263,5

668

604

339,5

770

706

441,5

871

807

542,5

973

909

644,5

1075

1011

746,5

897

833

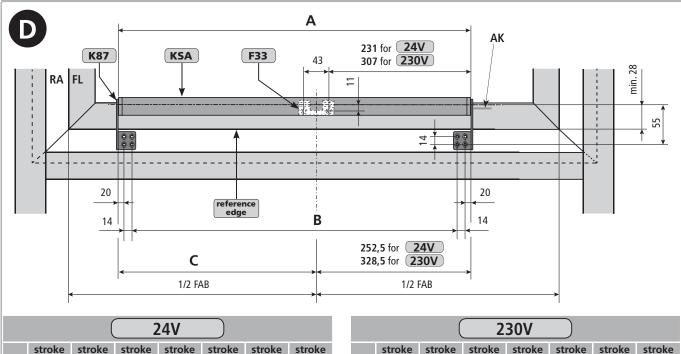
644,5

HSK

1228

1164

899,5



Assembly	Instruction
	K C A C 1

592

524

339,5

300/400 500/600

694

626

441,5

800

795

727

542,5

1000

897

829

644,5

1200

999

931

746,5

1500

1152

1084

899,5

250

592

524

263,5

Α

В

300/400 500/600

770

702

441,5

668

600

339,5

800

871

803

542,5

1000

973

905

644,5

1200

1075

1007

746,5

1500

1228

1160

899,5

250

516

448

263,5

Α

В

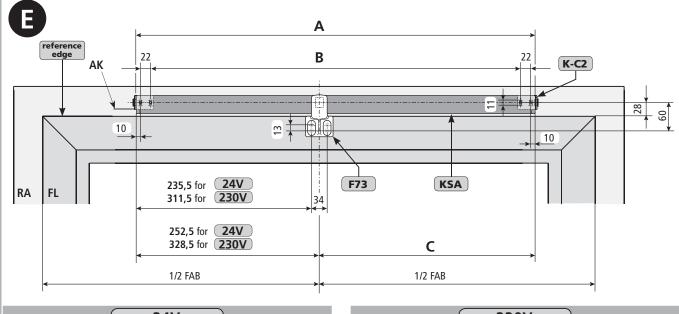
HOLE LAYOUT: SOLO

24V

230V

Drive mounting on the frame - main closing edge - inward opening windows Hole layout for frame brackets K-D2 (K-C2 with casement bracket F73)





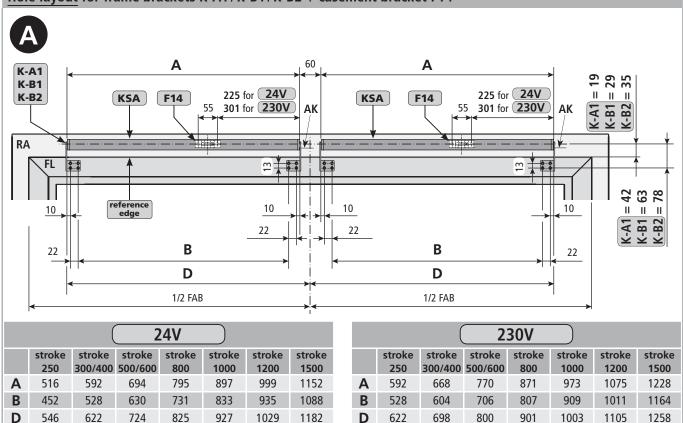
<u>24V</u>											
	stroke	stroke	stroke	stroke	stroke	stroke	stroke				
	250	300/400	500/600	800	1000	1200	1500				
Α	516	592	694	795	897	999	1152				
В	452	528	630	731	833	935	1088				
C	263,5	339,5	441,5	542,5	644,5	746,5	899,5				

	<u>230V</u>											
	stroke	stroke	stroke	stroke	stroke	stroke	stroke					
	250	300/400	500/600	800	1000	1200	1500					
Α	592	668	770	871	973	1075	1228					
В	528	604	706	807	909	1011	1164					
C	263,5	339,5	441,5	542,5	644,5	746,5	899,5					

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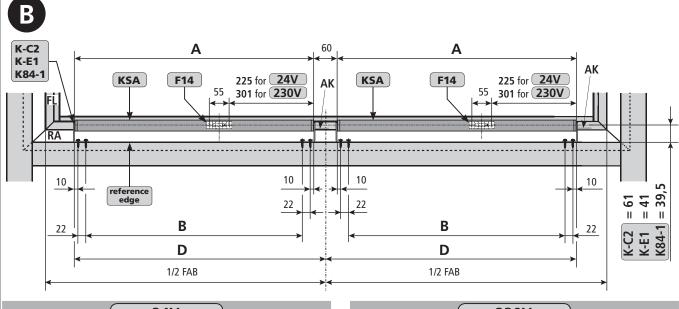
Drive mounting on the casement - main closing edge - inward opening windows Hole layout for frame brackets K-A1/K-B1/K-B2 + casement bracket F14

HSK



Drive mounting on the frame / transom - main closing edge - outward opening windows Hole layout for the frame brackets K-C2 / K-E1 / K84-1 with casement bracket F14

HSK



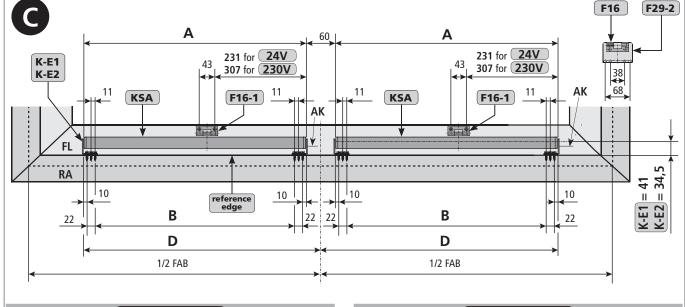
	stroke 250	stroke 300/400	stroke 500/600	stroke 800	stroke 1000	stroke 1200	stroke 1500				
Α	516	592	694	795	897	999	1152				
В	452	528	630	731	833	935	1088				
D	546	622	724	825	927	1029	1182				

230V											
	stroke 250	stroke 300/400	stroke 500/600	stroke 800	stroke 1000	stroke 1200	stroke 1500				
Α	592	668	770	871	973	1075	1228				
В	528	604	706	807	909	1011	1164				
D	622	698	800	901	1003	1105	1258				



Drive mounting on the frame / transom - main closing edge - outward opening windows Hole layout for the frame brackets K-E1 / K-E2 with casement bracket F16-1 / F16 + F29-2



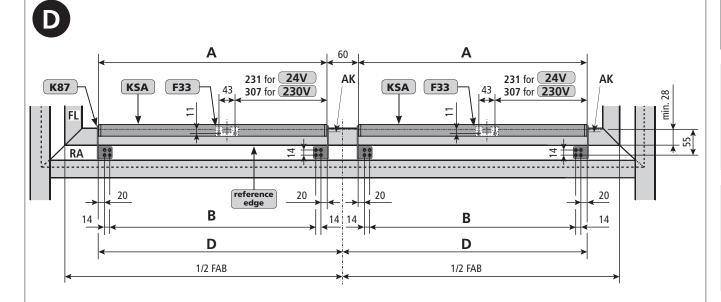


	stroke	stroke	stroke	stroke	stroke	stroke	stroke					
	250	300/400	500/600	800	1000	1200	1500					
Α	516	592	694	795	897	999	1152					
В	452	528	630	731	833	935	1088					
D	546	622	724	825	927	1029	1182					

	(230V)											
	stroke	stroke	stroke	stroke	stroke	stroke	stroke					
	250	300/400	500/600	800	1000	1200	1500					
Α	592	668	770	871	973	1075	1228					
В	528	604	706	807	909	1011	1164					
D	622	698	800	901	1003	1105	1258					

Drive mounting on the frame - main closing edge - outward opening windows Hole layout for frame brackets K-87 with casement bracket F16 / F33





<u>24V</u>											
	stroke 250	stroke 300/400	stroke 500/600	stroke 800	stroke 1000	stroke 1200	stroke 1500				
Α	516	592	694	795	897	999	1152				
В	448	524	626	727	829	931	1084				
D	546	622	724	825	927	1029	1182				

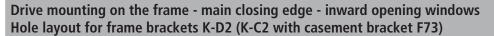
	<u> 230V</u>											
	stroke 250	stroke 300/400	stroke 500/600	stroke 800	stroke 1000	stroke 1200	stroke 1500					
Α	592	668	770	871	973	1075	1228					
В	524	600	702	803	905	1007	1160					
D	622	698	800	901	1003	1105	1258					



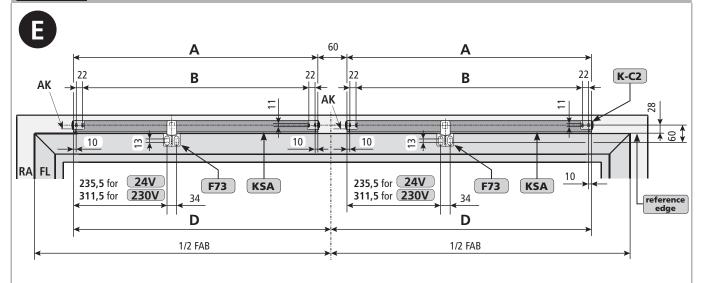


24V

230V







	stroke	stroke	stroke	stroke	stroke	stroke	stroke					
	250	300/400	500/600	800	1000	1200	1500					
Α	516	592	694	795	897	999	1152					
В	452	528	630	731	833	935	1088					
D	546	622	724	825	927	1029	1182					

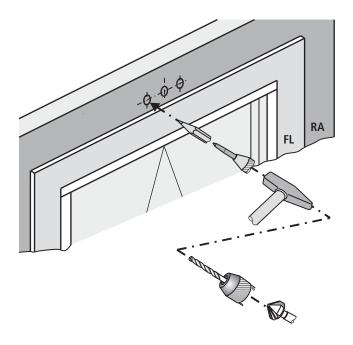
230V							
	stroke 250	stroke 300/400	stroke 500/600	stroke 800	stroke 1000	stroke 1200	stroke 1500
Α	592	668	770	871	973	1075	1228
В	528	604	706	807	909	1011	1164
D	622	698	800	901	1003	1105	1258

INSTALLATION STEP 7: ASSEMBLY CASEMENT BRACKET

24V

230V

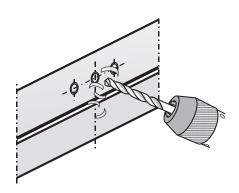
- Determine fastenings.
- Produce drill holes with appropriate cross-section. For the mounting dimensions please refer to the above-mentioned hole layout drawings (Installation-step 4 6) or project-specific documents and drawings).



/i/

Carefully clear away drilling swarfs to prevent seals from being damaged.

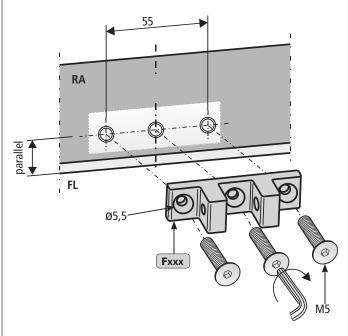
Avoid surface scratches, for example by using masking tape.



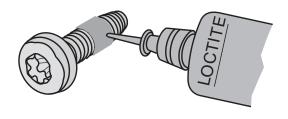
■ Fit casement bracket **Fxxx** (**M5**).



Make sure it is parallel to casement edge. "Casement bracket" center and "chain output" must be in line.



■ Secure fasteners against loosening; i. e. by applying removable thread-locking compound such as "Loctite".



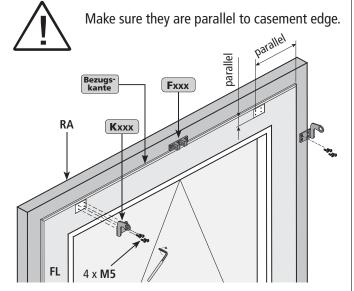
INSTALLATION STEP 8A:

SWIVELING DRIVE MOUNTING ON THE CASEMENT - main closing edge or auxillary closing edge

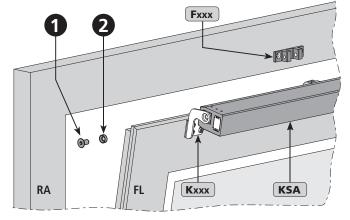


■ Produce drill holes with appropriate cross-section. For the mounting dimensions please refer to the above-mentioned hole layout drawings (Installation-step 4 - 6) or project-specific documents and drawings).

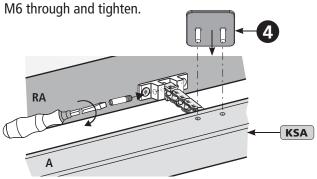
Fit frame brackets **Kxxx** (**M5**).



- Attach drive to the frame brackets.
- Insert brass washers ② and firmly tighten with countersunk screws M8 ①. Drive should freely swivel.



- Insert the Chain unlocking key ④ in the hole.
- Pull both chains out manually by the same distance (Installationstep 3: "Adjusting the Initial Chain Tension and Smoot Running".
- Connect chain with casement bracket. Pass shaft screw



■ Route cable on or in the casement.

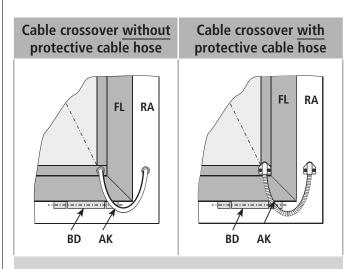
Cable on casement Cable in glazing bead KSA Cable duct glued on (in addition secured with countersunk screws against breaking away). Cable duct glued on (cable bushing protects against damage to cable).

Connection cable routing on the casement:

- The drive and its connection cable are swivelling.
 As a consequence, foresee cable routing with a loop.
- Cable must be protected against damage (shearing-off, kinking, splitting), i.e. by using bushings.



Upon removal of the glazing bead is the danger that the glass may fall.



Connection cable routing on the hinge side:

- Make sure that during opening or closing procedure the cable will not be damaged by shearing-off, kinking, crushing.
- Protect cable feedthrough in profile e.g. by using cable bushings, cable transitions.

MONTAGE-SCHRITT 8B: SWIVELING

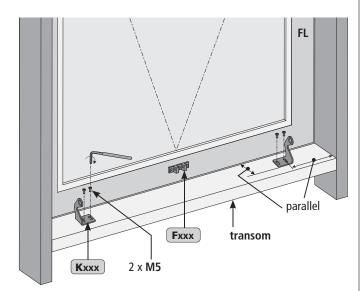
SWIVELING DRIVE MOUNTING ON THE WINDOW FRAME OR TRANSOM - main closing edge - outward opening windows



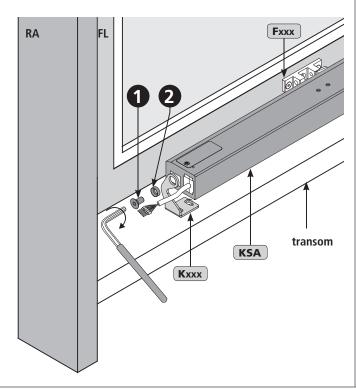
- Produce drill holes with appropriate cross-section. For the mounting dimensions please refer to the above-mentioned hole layout drawings (Installation-STEP 4 6) or project-specific documents and drawings).
- Fit frame brackets **Kxxx** (**M5**).



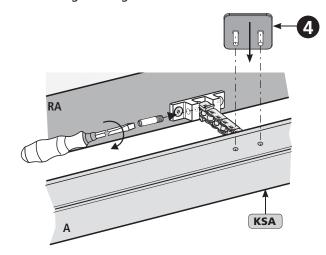
Make sure they are parallel to casement edge.



- Attach drive to the frame brackets.
- Insert brass washers ② and firmly tighten with countersunk screws M8 ①. The drive should freely swivel between the frame brackets **Kxxx**.

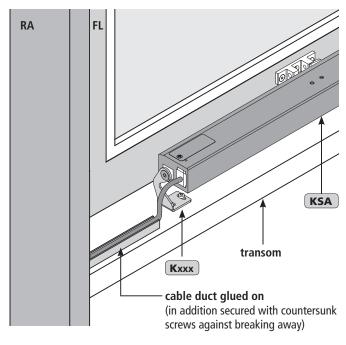


- Insert the Chain unlocking key **4** in the hole.
- Pull both chains out maually by the same distance (see "Installation-step 3").
- Connect chain with casement bracket. Pass shaft screw M6 through and tighten.



■ Route cable on the frame or mullion/transom.

The drive and its connection cable are swivelling. As a consequence, foresee cable routing with a loop. Cable must be protected against damage (shearing-off, kinking, splitting).





Note softlauf modus! (see Installation step 3: Soft run mode)

Check swiveling area (Installation step 12: AFETY CHECK AND PERFORMING TEST RUN).

Ensure that drive and connection cable can swivel freely.

Installation step 9: Concealing the drive

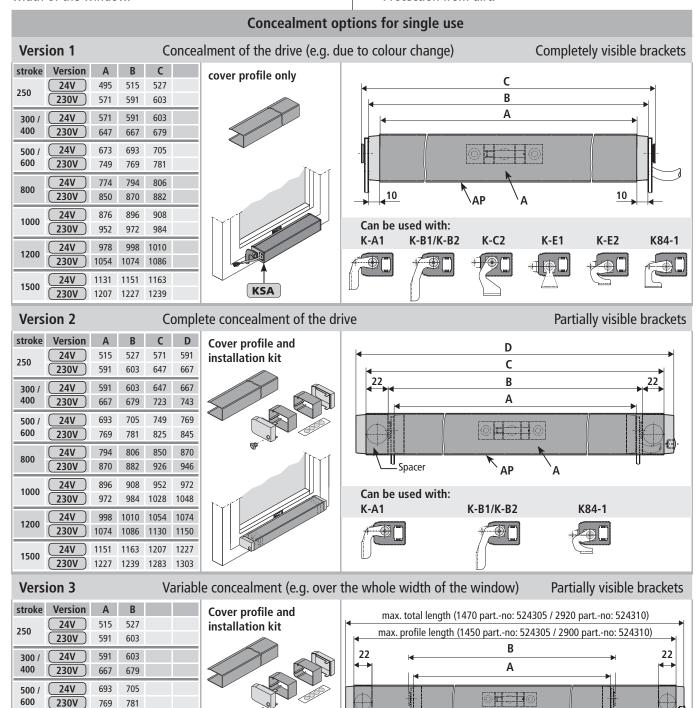
24V

230V

The housing of the chain drive is covered using the cover profile kit (e.g. in case of change in colour).

In case of complete concealment (versions 2 and 3) the brackets are also partly covered and are hardly visible. Equally, it is possible to install the facing across the whole width of the window.

- Uniform appearance.
- Individual choice of colour (cover profile available in RAL colours).
- Adjustment to the frame dimensions, through the possibility of shortening the cover profile.
- Protection from dirt.



Spacer

Can be used with:

K-B1/K-B2

K84-1

06

24V

24V

24V

230V

230V

230V

200

1000

1200

1500

794

870

896

972

998 1010

1074

24V 1151

230V 1227

806

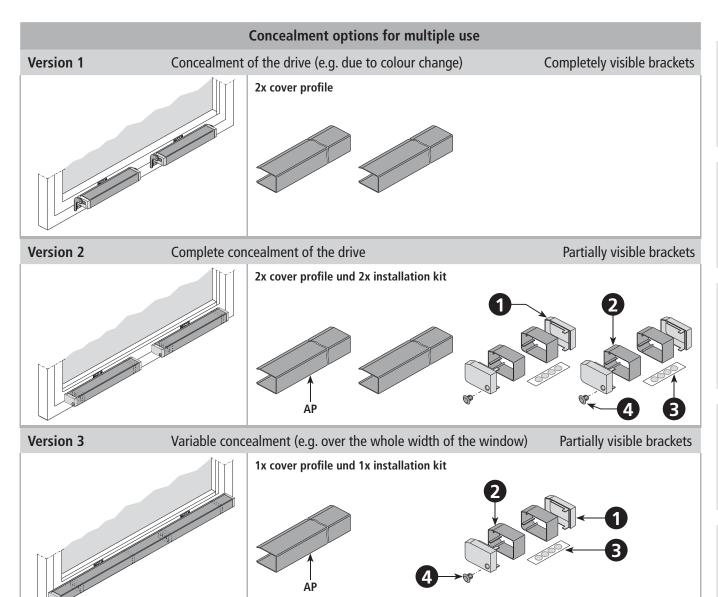
908

1086

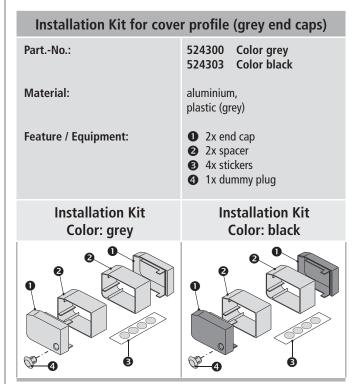
1163

1239



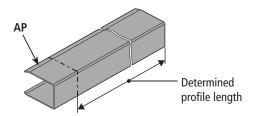


Cover-profile					
PartNo.:	524305 L = 1,45 m (*) 524310 L = 2,90 m (*) 524302 L = kundenspezifisch				
Application:	Cover profile for surface mounted drives KSA / KSA-Twin with frame bracket sets K-A1, K-B1, K-B2, K-C2, K-E1, K-E2, K84-1; Profile length adjustable to the length of the drives or of the casement.				
Material:	aluminium + plastic (grey)				
Feature / Equipment:	incl. mounting aid for cover profile shortening on the job site + mounting set.				
	(*) Length without cover caps)				

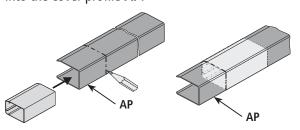


Installing the cover profile

- Select the drive facing variant required.
- Determine the profile length. Please refer to the above tables in this chapter: "Concealing the drive" or the project-specific planning documents for length dimensions.



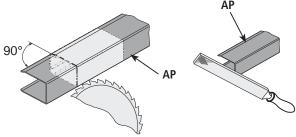
- Mark the required length.
- Push the mounting aid (piece of drive housing profile) into the cover profile **AP**.



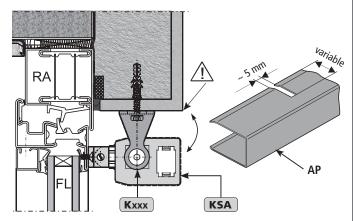
- Use a saw to shorten the cover profile AP to the required length.
- Deburr saw cut edge.



Ensure that you saw the profile perpendicular.

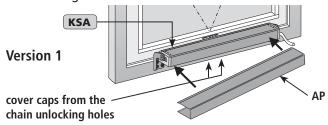


Check the swivel area of the drive and if necessary cut out the cover profile **AP** in the area of the brackets.

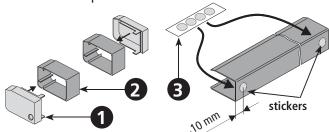


■ If necessary, paint the cover profile **AP** with the required colour.

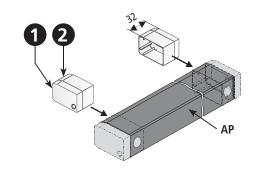
■ Push on the cover profile **AP** so that it fits tightly. If necessary, remove the cover caps from the chain unlocking holes.



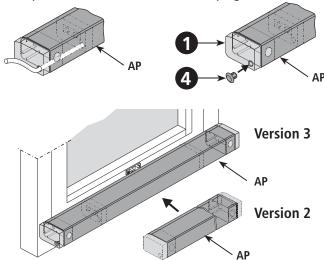
- Push end caps **①** onto the spacers **②** so that they are flush.
- Glue stickers ③ on both sides in the cover profile.
- Remove the protective film.



- Push the spacers ② together with the end caps into the profile from the front.
- Align so that they are flush.
- Press on all parts firmly in the area of the stickers 3.



■ If necessary, feed the cable through the hole in the end cap or close off the hole with blind plugs ④.



24V

230V

Direction

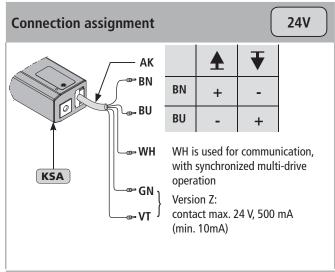
Installation step 10: Electric connetction

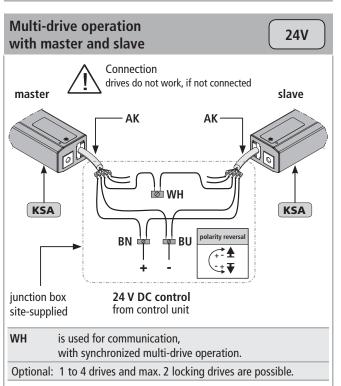


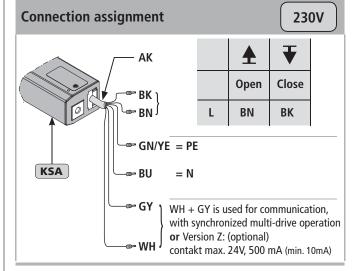
Make sure when establishing the connection that there is no voltage at the terminals!
Unused wires must be safely insulated!

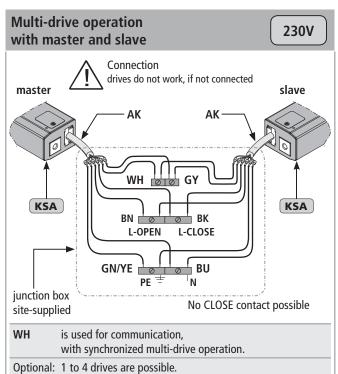
The running direction of the 24V-drive may be changed by interchanging (polarity reversal) the wires "BN – (brown)" - "BU – (blue)".

Wire colo	of travel		
Colour	DIN IEC 757	OPEN 🛧	
black	BK	01 EN	
white	WH	CLOSE ▼	
brown	BN		
blue	BU	polarity	
green / yellow	GN / YE	reversal	
green	GN	\rightarrow	
violet	VT	+-4	
grey	GY	→	





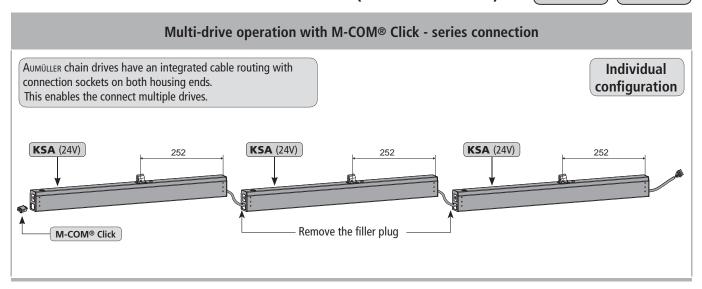




24V DRIVE CONFIGURED WITH M-COM® Click (SERIES CONNECTION)

24V

230V



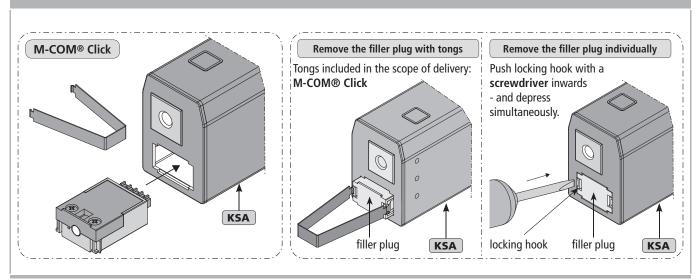
230V- AND 24V DRIVE CONFIGURED WITH M-COM® Click

24V

230V

Multi-drive operation with M-COM® Click - series connection Aumüller chain drives have an integrated cable routing with connection sockets on both housing ends. This enables the connect multiple drives. Individual configuration Remove the filler plug M-COM® Click 252 Remove the filler plug Aumüller chain drives have an integrated cable routing with connection sockets on both housing ends. This enables the connect multiple drives.

Installation: M-COM® Click in series connection

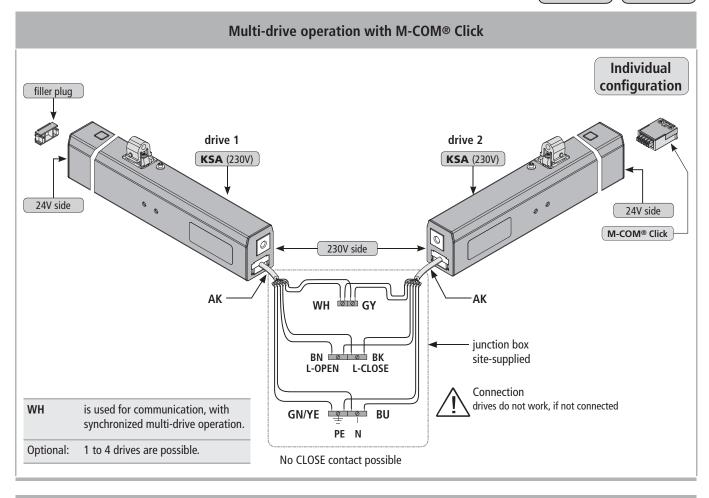


07

230V DIRVEEB MIT M-COM® Click

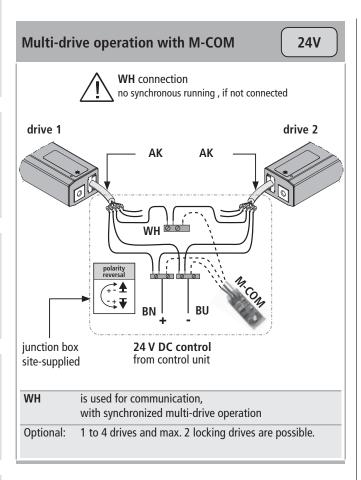
24V

230V



Multi-drive operation with M-COM and locking drive - star wiring Individual configuration Programmable special functions and sequence control with locking drive. In multi-drive systems can be used, up to four individual drives and two locking drives. Configuration is done by M-COM. FVM locking drive 24V **KSA** (230V) 24V side 230V side **KSA** (24V) × ΒU 252 328 WH BN = brownjunction box BU = bluesite-supplied WH = white

24V



M-COM (Main control unit)

24V

Order number:

Configuration module for the automatic Application:

configuration and monitoring of max. 4 opening / 2 locking drives type S12 / S3 in multi-drive systems.

Rated voltage: 24V DC +/- 20%, (max. 2 Vss)

Current consumption: <12 mA

Drive type: **S12**

Protection class: IP30 rubber jacket

Dimensions: 45 x 17 x 6 mm

Connecting wires: 3 wires 0,5 mm² x 50 mm

0 °C ... + 70 °C

Feature / Equipment: printed circuit board with connecting wires for integration in site-supplied junction box.

Ambient temperature:



M-COM® Click (Main control unit)

24V

Order number: 524167

Application:

Configuration module for the automatic configuration and monitoring of max. 4 opening / 2 locking drives type S12 / S3 in multi-drive systems.

Rated voltage: 24V DC +/- 20%, (max. 2 Vss)

Current consumption: <12 mA

S12 Drive type: **Protection class:** IP30

0 °C ... + 70 °C Ambient temperature: **Dimensions:** 40 x 26 x 15 mm

Connection: for Aumüller chain drives

with Aumüller-Click plug solution.

Equipment: Tongs for removing the M-COM® Click

Feature:

configured by simply plugging in the last drive of the multi-drive operation.

Supply lines form the line voltage 24V or 230V possible, but can only be used on the 24V side.



24V

230V

UniPC with configuration interface

24V

230V

Order number:

Application:

Hard- and software for configuration of drives supplied by Aumüller Aumatic GmbH

Rated voltage.

24V DC +/-20%

Parameterizable drives:

24V DC type MP, S3, S12, S12 V.2 230V AC type S12, S12 V.2

Scope of delivery:

software UniPC (Downloadlink*), Interface "ParInt", USB cable, connection cable

* http://www.aumueller-gmbh.de/Downloads

Features / **Equipment:**

Power supply 24V DC is not included in the scope of delivery! Any extended settings require a software licence.



Any reconfiguration of a drive is entirely at the user's own risk and responsibility.

24V

AUMÜLLER-Click plug solution

Order number: 501250 - 1 m cable length - 24 V DC 501258 - 2 m cable length - 24 V DC 501251 - 3 m cable length - 24 V DC **501252 - 5 m cable length** - 24 V DC 501253 - 10 m cable length - 24 V DC

Application:

Unitary plug-solution for all AUMÜLLER chain drives and **A**UMÜLLER folding arm drives

Rated voltage:

24V DC (± 20 %), max. 2 Vpp

Connecting cable:

non-halogen, grey 5 x 0,5 mm²

Terminal:

to 1,5 mm² - 5 pieces

- Flexible cable length
- Connect multiple drives in series connection
- Torsion-plug
- Locking hooks prevent withdrawal of the plug under tensile load
- Strain relief according DIN EN 60335-1 by screwing the housing halves



Cable junction box **24V** (for renewal)

Order number: 513344

Application:

to extend a drive cable

Rated voltage:

only for low voltage

to max. 50V DC/AC

Material:

stainless steel (V2A)

Protection class:

IP 40

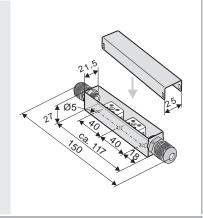
Dimensions:

25 x 27 x 150 mm

Equipment:

with cable gland (grey) including strain relief, with 2 loose ceramic terminals

(bipolar).



AUMÜLLER-Click plug solution

230V

Order number:

501271 - 1 m cable length - 230 V AC

501272 - 2 m cable length - 230 V AC

501273 - 3 m cable length - 230 V AC

501275 - 5 m cable length - 230 V AC

501280 - 10 m cable length - 230 V AC

Application:

Unitary plug-solution for all AUMÜLLER chain drives and **Aumüller** folding arm drives

Rated voltage: 230 V AC (± 20 %)

Connecting cable:

non-halogen, grey 6 x 0,75 mm²

Terminal:

to 1,5 mm² - 6 pieces

- Flexible cable length
- Connect multiple drives in series connection
- Torsion-plug
- · Locking hooks prevent withdrawal of the plug under tensile load
- Strain relief according DIN EN 60335-1 by screwing the housing halves



Note

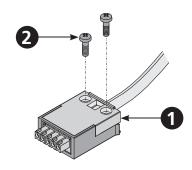
aumüller.

Aumüller-Click plug solution -

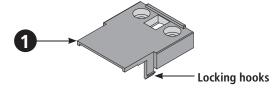
SITE-SUPPLIED CUSTOMISED CONSTRUCTION

The Aumüller-Click plug solution enabling the use of site-supplied cable. It simplifies assembly and the electrical connection of the drives.

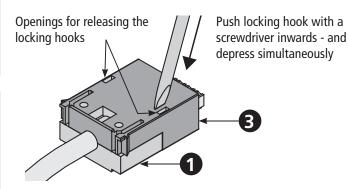
■ Loosen the screws ② and remove the housing cover ①.

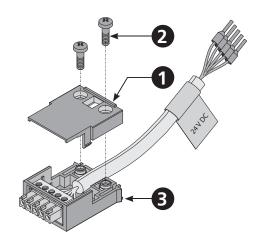


Note Locking hooks - at the housing cover • prevent withdrawal of the plug under tensile load.



On the underside of the plug housing 3 are two openings for releasing the locking hooks. Push locking hook with a screwdriver inwards - and depress simultaneously.





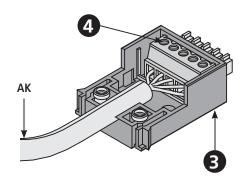
24V

230V

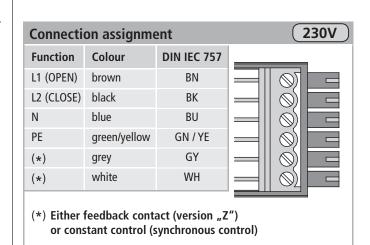
- Replace cable set provided by the customer in place of connecting cable.
- Moung the housing cover **①** with the both screws **②**.

Terminals 4 to 1,5 mm².

The performances (especially the fire behavior) of locally provided cables, must be checked on own responsability on compliance with the application-specific local regulations!



Connection assignment				24V
Function	Colour	DIN IEC 757		 1
OPEN / CLOSE	blue	BU		
OPEN / CLOSE	brown	BN	=	
Data	white	WH		
Rel: NO	violet	VT		
Rel: NO	green	GN		



07

INSTALLATION STEP 11: SUPPLY LINES OF DRIVES TO THE CONTROL UNIT

Observe current regulations and guidelines e.g. DIN 4102-12 regarding the "Fire behavior of building materials-circuit integrity maintenance of electric cable systems" (E30, E60, E90) and the "Specimen Guideline on Conduits German designation - MLAR", and also prescribed constructional regulations!

RECOMMENDATION

For safety reasons a cable of the next higher wire cross section should be selected.

Formula to calculate the required wire cross-section of a supply line $A \text{ mm}^2 = \frac{I_{A \text{ (total)}} * L_{m \text{ (length supply line)}} * 2}{2.0^{\text{ V}} \text{ (voltage drop)} * 56 \text{ m/ (}\Omega^*\text{mm}^2\text{)}}$

Available data:

- cut-off current per drive (i. e. 2 x 4.0A) from data sheet
- length to be bridged from the last window to the control unit (i. e. 10 meters)

$$A = \frac{(2 * 4,0A) * 10m * 2}{2,0V * 56m / (\Omega*mm^2)}$$

 $A = 1,42 \text{mm}^2 -> 1,5 \text{mm}^2 \text{ chosen}$

Laying and connecting the drive cable

- Avoid extreme temperature differences in the installation area (danger of condensation).
- Set clamping point close to window and ensure accessibility.
- Ensure expansion possibilities of the drive and the drive cable.
- Consider the cable length of drives.

Installation step 12: Safety check and Test run

Check the mounted system for its safety; perform test run and commissioning.

Safety test:

- Connect operating voltage.
- Check fastening (frame brackets, casement brackets) for firm fit or tightening.

Test run:

- Visual inspection of casement movements.
- Stop immediately by malfunction!
- Pay attention to collision with facade construction and correct installation, if required.

Risk evaluation:

Before operating a power-operated window to which window drives were mounted, which were sold by the manufacturer as incomplete machines according to installation declaration, the possible risk to ahazard of persons must be determined, evaluated and minimized by taking appropriate technical measures in accordance with the Machinery Directive. Separate documents for performing a risk assessment can be downloaded from the homepage of

Firm Aumüller Aumatic GmbH (www.aumueller-gmbh.de).

Operation of the power-operated window

When operating the power-operated window safety instructions must be observed, specifically those pertaining to commissioning, operation and maintenance.



Help in case of Malfunctions, Repairs and Maintenance

Professional repair of a defect drive can only be performed at the manufacturer's factory or manufacturer-certified specialist company. Unauthorized opening or manipulation of the drive terminates warranty.

- 1. Exchange defect drives or have them repaired by the manufacturer.
- 2. In case of problems during installation or normal operation the following table might be useful:

following table might be useful:					
Problem	Possible causes	Possible solutions			
Drive does not start	Duration of mains power supply too short	 Adjust supply voltage as specified in the technical documen- tation 			
	Drive run direction not correct	Check drive cables			
	Connecting cable not connected	• Check all connection cables			
	Power supply / Control Unit voltage incorrect, too high or too low (see data sheet)	Check power supply unit and replace if necessary			
	 No mains supply to power supply unit / Control Unit (no voltage) 	Connect power supply			
	Drive has shut down on overload	• First move drive in CLOSE position			
Drive doesn't start after having been in operation several times	 Operating time has been exceeded, drive has been overheated See possible solutions above associated with "Drive doesn't start" 	 Wait until drive has cooled down and start again See possible solutions associated with: "Drive doesn't start" 			
Drive doesn't close	 Closing edge safety mechanism has been triggered See possible solutions above associated with "Drive doesn't start" 	 Release safety area for operation and reset closing edge safety mechanism See possible solutions associated with: "Drive doesn't start" 			
Drive travels uncontrolled in open and close direction	 Residual ripple of power supply / control unit too hight Fault in power supply unit / control unit 	 Adjust drive voltage to the required value of drive. (values see data sheet of drive) Check output voltage of power supply unit or control unit 			
Drive closes, but after about 10 mm the drive open	• Close the window outside the 40 mm (Soft run mode).	Drive mounted so, that the closing process takes place within the 40 mm (e.g. use spacer under the casement			

bracket).

Maintenance and modification

To ensure continuous function and safety of the drive periodic maintenance by a specialist company is required at least once a year (as mandated by law for smoke and heat exhaust systems). Operational readiness must be checked regularly. Frequent inspection of the system for imbalance and signs of wear or damages of cables and fastening elements must be performed.

During maintenance contaminations must be removed from the drive. Fastenings and clamping screws must be checked for tightness. Test runs during the opening and closing procedure of the devices must be performed.

The drive itself is maintenance-free. Defect devices may only be repaired in our factory. Only replacement parts of the manufacturer may be used. When the connection cable of this device is damaged it must be replaced by the manufacturer or his customer service or a similarly qualified person to avoid endangerment.

It is recommended to conclude a maintenance contract. A sample maintenance contract can be downloaded from the homepage of

Firm Aumüller Aumatic GmbH (www.aumueller-gmbh.de).

While cleaning the windows, drives may not have direct contact with water or cleaning agents. Drives must be protected from dirt and dust during the construction phase or renovations.

Maintenance process

- 1. Open or extend power-operated casement completely.
- **2.** Completely disconnect the system from the mains and secure it against automatic or manual activation.
- 3. Check windows and fittings for damages.
- **4.** Check all mechanical fastenings (if required, observe information on torques in installation instructions).
- 5. Check electric drives for damages and contaminations.
- **6.** Check connecting cables (drive cable) for:
 - tightness of the cable screw
 - functionality of the strain relief
 - damages
- Check the mobility of hinges and fittings and re-adjust or apply lubricant, e.g. silicone spray (observe the instructions of the manufacturer of this window system).
- 8. Check peripheral seal, remove contaminations or replace.
- **9.** Perform cleaning to maintain functionality (e.g. clean extending elements of the drive, such as chains or spindles by damp wiping them with acid or lye-free agents and drying them and, if required, lubricate them with cleansing oil e.g., Ballistol).
- 10. Turn on operating voltage.
- **11.** Open and close the power-operated window via the operating voltage (functional test).
- If available, check and re-adjust protection systems of the safe guard fixture.
- **13.** Check the intactness of the CE label at the power-operated system (e.g. SHEV/Natural smoke and heat exhaust ventilators).
- 14. Check the intactness of warning instructions and labels at the respective drive.
- **15.** Perform a risk assessment in accordance with Machinery Directive 2006 / 42 / EG, if required, e.g. after modifying the machine.

07



DEMOUNTING AND DISPOSAL

The drives are demounted by reversing the steps, as for the installation. The adjustments are omitted.

- Completely disconnect the system from the power supply before demounting a drive.
- After demounting a drive the window must be secured against independent opening.

Dispose of parts according to the locally applicable legal provisions.

LIABILITY

We reserve the right to change or discontinue products at any time without prior notice. Illustrations are subject to change. Although we take every care to ensure accuracy, we cannot accept liability for the content of this document.

WARRANTY AND CUSTOMER SERVICE

In principal apply our:

"General Terms for the Supply of Products and Services of the Electrical Industry (ZVEI)".

The warranty corresponds with legal provisions and applies to the country in which the product has been acquired.

The warranty includes material and manufacturing defects incurred during normal use.

The warranty period for delivered material is twelve months.

Warranty and liability claims for personal injuries or material damages are excluded, if caused by one or more of the following:

- Improper use of the product.
- Improper installation, commissioning, operation, maintenance or repair of the product.
- Operating the product by defect and improper installed or not functioning safety and protection devices.
- Ignoring instructions and installation requirements in these instructions.
- Unauthorized constructional modifications at the product or accessories.
- Disaster situations due to effects of foreign bodies and Acts of God.
- Wear and tear.

Point of contact for possible warranty claims or for repair parts or accessories is the responsible branch office or the responsible person at

Firm Aumüller Aumatic GmbH.

Contact data are available at our homepage

(www.aumueller-gmbh.de)

VdS Schadenverhütung bescheinigt die Anwendung eines

Qualitätsmanagementsystems

für



Zertifikats-Nr.: S 814040

Gültig bis:

10.10.2014

09.10.2017

Geltungsbereich des Zertifikates:

Entwicklung, Herstellung und Vertrieb von Produkten und Systemen für Rauch- und Wärmeabzug, natürliche Gebäudelüftung, automatische Tür- und Toranlagen sowie damit verbundene Wartungs-, Dienst- und Serviceleistungen Das Zertifikat umfasst ausschließlich das Qualitätsmanagementsystem in dem angegebenen Geltungsbereich. Die gegenwärtige Gültigkeit kann unter www.vds.de verifiziert werden.

Das Zertifikat gibt keine Auskunft über die Zertifizierung von Qualitätsmanagementsystemen oder die VdS-Anerkennungen von Errichterfirmen, Wach- und Sicherheitsunternehmen, Produkten, Verfahren, o. ä. Hierfür sind gesonderte Nachweise

Das Zertifikat darf nur unverändert und mit sämtlichen Anlagen vervielfältigt werden. Während der Gültigkeit des Zertifikates muss das Qualitätsmanagementsystem der Organisation stets die Forderungen der Zertifizierungsgrundlagen erfüllen. Dies wird durch VdS Schadenverhütung regelmäßig begutachtet.

Jegliche Werbung mit dem Zertifikat muss den Inhalt korrekt wiedergeben und darf nicht auf wettbewerbsrechtswidrige Art und Weise erfolgen.

Zertifizierungsgrundlagen:

DIN EN ISO 9001 Qualitätsmanagementsysteme Anforderungen Ausgabe Dezember 2008 Qualitätsmanagementhandbuch des Zertifikatsinhabers

Köln, den 10.10.2014

Akkreditierungsstelle D-ZM-11149-01-01

Reinermann Geschäftsführer

ppa. Urban

Leiter der Zertifizierungsstelle

VdS Schadenverhütung GmbH Zertifizierungsstelle Amsterdamer Str. 174 D-50735 Köln

Ein Unternehmen des Gesamtverbandes der Deutschen Versicherungswirtschaft e.V. (GDV)

Akkreditiert als Zertifizierungsstelle für Qualitätsmanagementsysteme von der DAkkS - Deutsche Akkreditierungsstelle GmbH

KONFORMITÄTSERKLÄRUNG DECLARATION OF CONFORMITY

Hersteller Manufacturer

aumüller.

Aumüller Aumatic GmbH Gemeindewald 11 86672 Thierhaupten Germany

Produktart | Product type: Kettenantriebe für Fenster | Chain drives for windows

Produktbaureihe | Product series: KSA xxxx S12 - 24V / 24V Z
KSA xxxx S12 - 230V / 230V Z

Ab Seriennummer | From serial number: XXXXXX-XXX

Ab Datum | From date: (Year-W-Week) 16W10

Wir bestätigen die Konformität des oben bezeichneten Produktes mit folgend gelisteten EU-Richtlinien sowie Normen: We herewith confirm the conformity of the above mentioned product with EC Directives and the standards listed below;

KONFORMITÄT CONFORMITY

Richtlinie über elektromagnetische Verträglichkeit 2014/30/EU Directive relating to Electro-Magnetic Compatibility 2014/30/EU

> Niederspannungsrichtlinie 2014/35/EU Low Voltage Directive 2014/35/EU

HARMONISIERTE NORMEN HARMONIZED STANDARDS

DIN EN 60335-2-102:2016-05
DIN EN 61000-6-1:2007-10
DIN EN 61000-6-2:2006-03
DIN EN 61000-6-3:2011-09
DIN EN 61000-6-4:2011-09

SONSTIGE TECHNISCHE NORMEN UND SPEZIFIKATIONEN FURTHER TECHNICAL STANDARDS AND SPECIFICATIONS

DIN EN 12101-2:2003-09 (in ferralux® NRWG - 24 V DC)

Montageanweisung | Installation instructions

Thierhaupten, 01.03.2016

K. Meinzer

Geschäftsführer / Verantwortlich für die technische Dokumentation Managing Director / Head of technical documentation



Die Sicherheitshinweise der mitgelieferten Produktdokumentation sind zu beachten!

The safety instructions of the supplied product documentation are to be observed!

Translation of the original instructions (German)

Once the assembly and commissioning has been completed, the installer of a machine "power-operated window and door" shall hand these instructions over to the end-user. The end-user shall store these instructions in a safe place for further reference and use, if required.

Important note:

We are aware of our responsibility, which is why we present life-supporting and value-preserving products with greatest possible conscientiousness. Although we make every effort to ensure that the data and information are as correct and up-to-date as possible, we still cannot guarantee that they are free from mistakes and errors.

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Basically the General Terms and Conditions of Aumüller Automatic GmbH apply to all offers, supplies and services.

The publication of these assembly and commissioning instructions supersedes all previous editions.

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AUMÜLLER AUMATIC GMBH Gemeindewald 11 86672 Thierhaupten Tel. +49 8271 8185-0 Fax +49 8271 8185-250 info@aumueller-gmbh.de

www.aumueller-gmbh.de

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