

BA PA-LS(A)-50/xxx PA-LS(A)-75/xxx EN 1.0

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ATTENTION

Actuators of the PA-LS(A) series are not compatible with actuators of the EA-L/S(-A) series!

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**These operating instructions are only valid with the supplied
supplementary sheet „Safety instructions and Warranty conditions“!**

Figures

1. Figures

Figure 1: Slit actuator

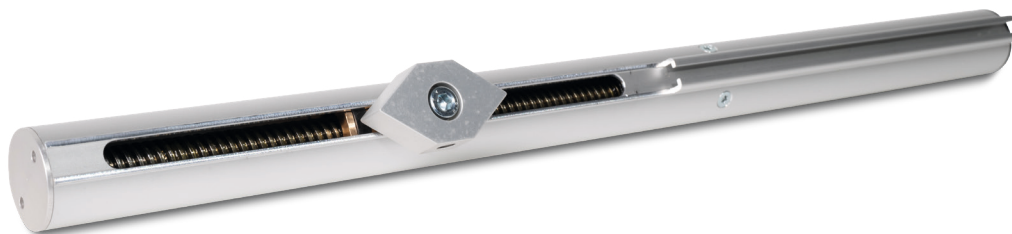


Figure 2: Dimensions

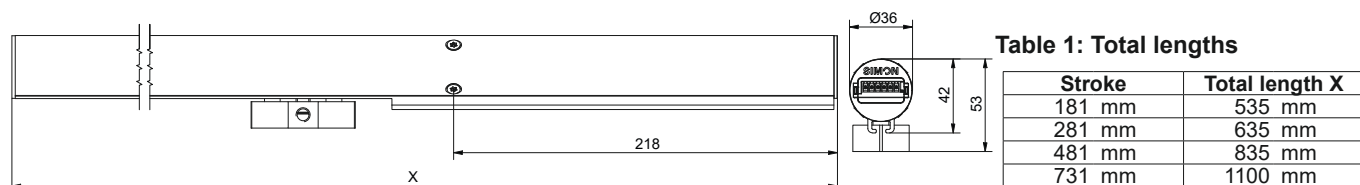
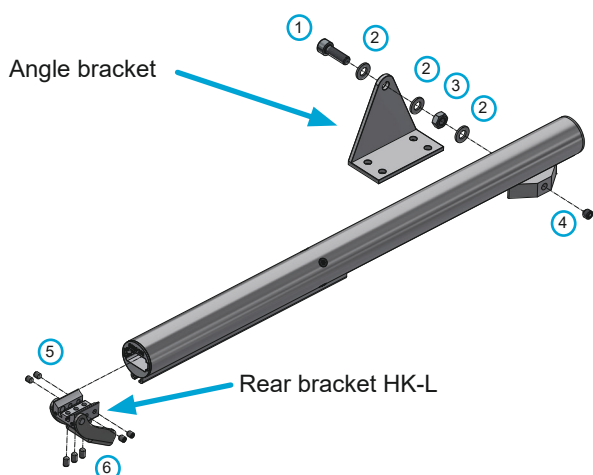
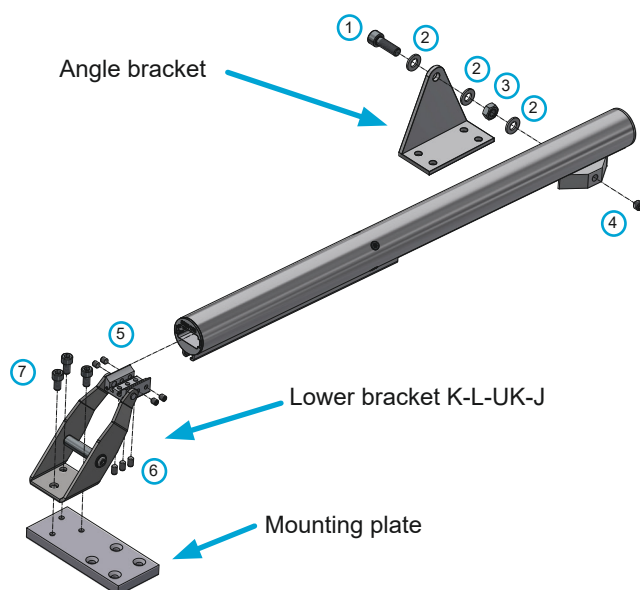


Figure 3: Scope of delivery, inward opening (PA-LS-XX/XXX)



- 1 = Cylinder head screw with hexagon socket M8 x 24
- 2 = Washers (3 Pieces)
- 3 = Hexagon nut M8
- 4 = Stud bolt M8 x 8
- 5 = Grub screws M5 x 6 with hexagon socket (4 Pieces)
- 6 = Grub screws M5 x 10 with hexagon socket (3 Pieces)
- 7 = Pan-head screws, torx, M6 x 12 (3 Pieces)

Figure 4: Scope of delivery, outward opening (PA-LSA-XX/XXX)



INFORMATION

Angle brackets in other sizes for special applications are available on request. The application must be checked with profile drawings.

2. General

2.1. Use for the intended purpose

See supplementary sheet „Safety instructions and Warranty conditions“!

3. Mounting

3.1. Safety instructions

See supplementary sheet „Safety instructions and Warranty conditions“!

3.2. Mechanical connection

The exact position of the actuator at the rear / lower bracket can always be re-adjusted by unscrewing the studs.



ATTENTION

Consider the static properties of the frame when installing the actuator.

Use appropriate fastenings depending on the material of the window onto which the actuator is to be mounted.

Fastenings are not included!

- Finally, carry out a visual check.

3.2.1. Inward opening window

- Depending on the mounting side of the actuator on the frame, the angle bracket can be mounted on the left or right side of the console mounting block of the actuator.
- The attachment of the angle bracket is done by a cylinder head screw with hexagon socket M8 x 24 mm (with locking varnish), three washers and one hexagon nut M8 (see Figure 3 on page 2).
- Turn in the stud bolt M8 x 8 on the unused side of the console mounting block.
- Place the rear bracket HK-L on the rail of the actuator and fix it with the M5 x 6 grub screws.



ATTENTION

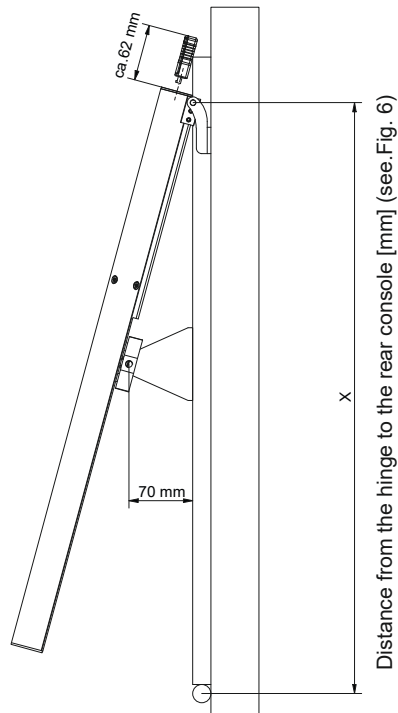
To ensure the correct running direction, the rear bracket resp. the SICO PLUG must be aligned with the main closing edge of the window (see Figure 5).



ATTENTION

After installation, make sure that the SICO PLUG at the rear of the actuator is accessible. Alternatively, the SICO LINK adapter (SD1 8522, available separately) can be used.

Figure 5



3.2.2. Two windows and three actuators

When using three slit actuators on two hung windows, an additional angle bracket is required for mounting the central actuator. In this case, the actuator must be attached to both sides of the console mounting block.

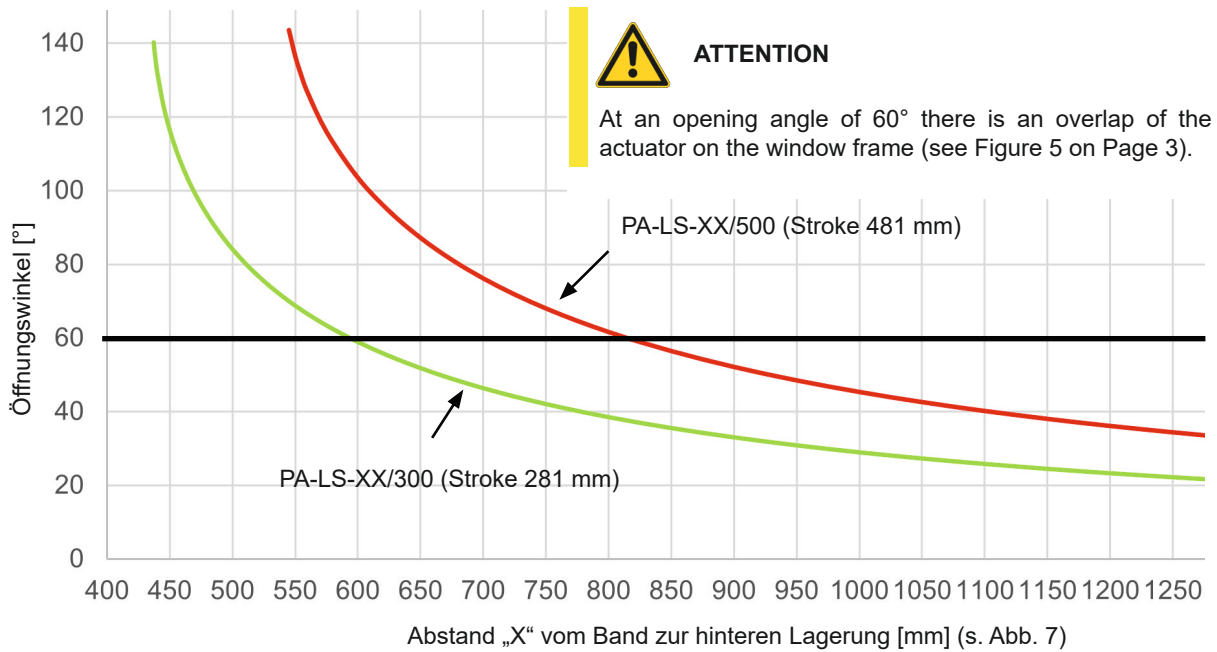


ATTENTION

We recommend using synchro actuators for this application.

General/Mounting

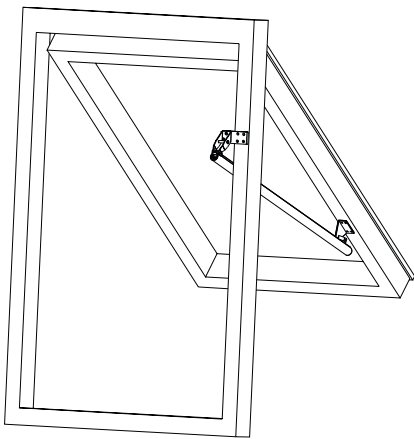
Figure 6: Opening angle (inward opening)¹



3.2.3. Outward opening window

- Mount the angle bracket according to chapter 3.2.1. Screw the lower bracket K-L-UK-J to the mounting plate with the M6 x 12 pan-head screws.
- Put the lower bracket K-L-UK-J on the rail of the actuator and fix it with the grub screws M5 x 6 (see figure 4 on page 2).

Figure 7



¹ This description is valid for an ideal window (bands and brackets in a plane), at different positions of the bands deviations may occur.

Mounting

3.3. Electrical connection

See the attached sheet “**safety instructions and warranty conditions**”!



ATTENTION

Unused wires must be electrically insulated.

The wires **C1** and **C2** must not be connected to each other during normal operation.

3.3.1. Power supply

The supply voltage must be dimensioned sufficiently for the actuator. Voltage and current must fit the specifications on the type label.

3.3.2. Feedback – volt-free contact

The normally open contact (NO1, NO2) is activated in direction “CLOSE” when the actuator is cut off in end position “CLOSE”. The message is stroke-dependent and can be evaluated as a “CLOSED” messages. The relay can be freely parameterized via software.



ATTENTION

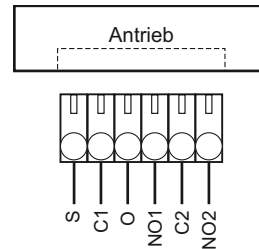
The maximum load capacity of the contact must not be exceeded.

3.3.3. Preparation for installation

Before starting the installation, the required connection cable must be assembled. For this purpose use the plug included in the scope of delivery (see instructions in the accessory bag with SICO PLUG). For NSHEV according to EN 12101-2, the silicone connecting cable approved by the manufacturer must be used.

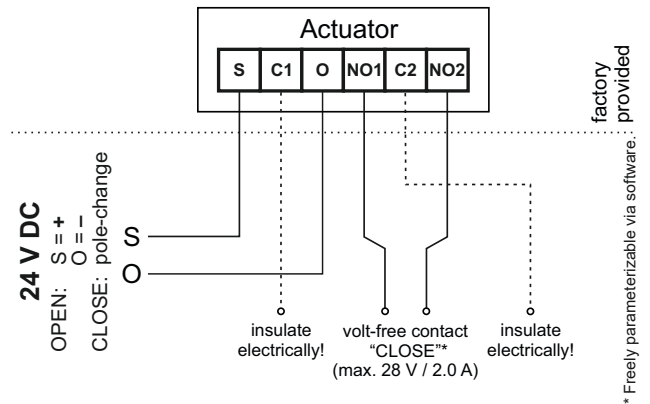


3.3.4. SICO PLUG assignment



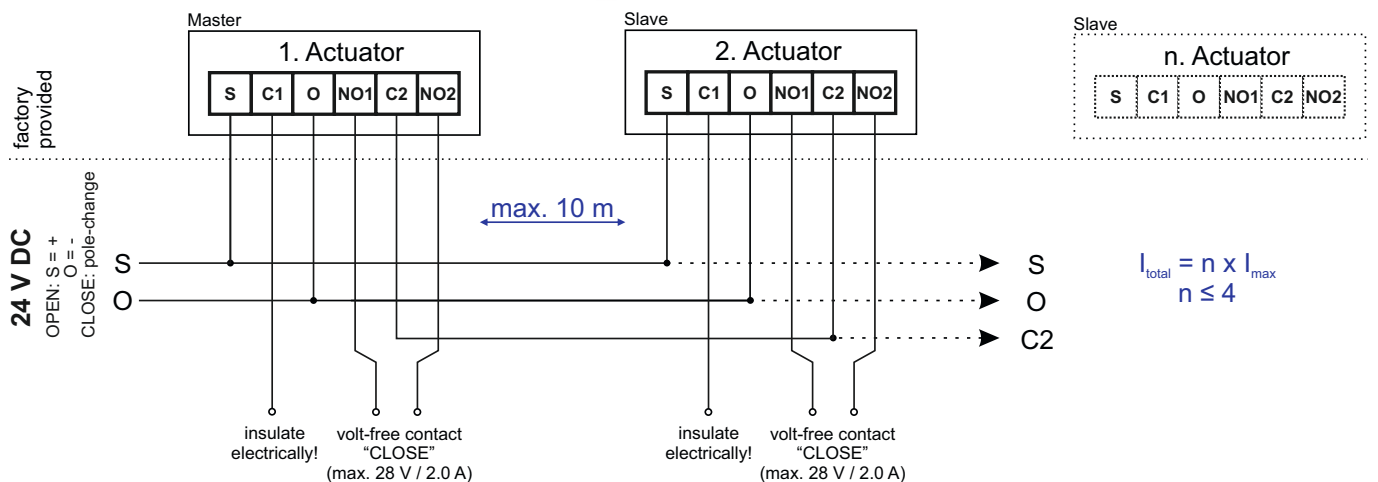
3.3.5. Single operation

➤ Connect wires according to the the wiring diagram.



3.3.6. Synchronous operation

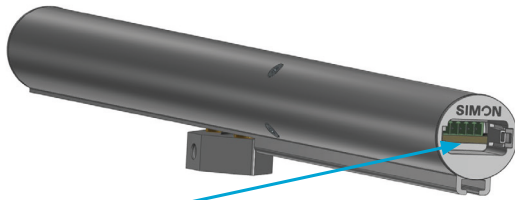
➤ Connect wires according to the wiring diagram.



3.4. Setting options

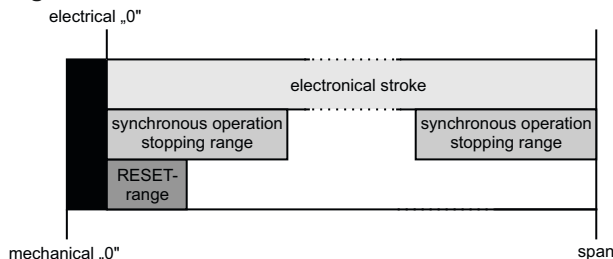
You can set **single operation** or **synchronous operation mode MASTER / SLAVE** via SICO LINK or manually.

Figure 8: Interface for SICO LINK



Connection for SICO-USB-110

Figure 9: Stroke behaviour



RESET-range: When the actuator is cut off on overload within the RESET-range, the electronic zero point will be set new.

Synchronous operation stopping range: If an actuator cuts off in synchronous operation in direction "OPEN" or "CLOSE" within the **stopping range**, the remaining actuators continue to run until cutoff in the respective end position.

3.4.1. Synchronous actuators

The synchronous actuators of the PA-L series are identified by the suffix "S" in the part number (e.g. PA-L-50/750-S).



INFORMATION

Solo actuators can be converted to synchronous actuators on site via SICO LINK using SICO tokens.

3.4.2. Zero point/RESET-range

It's necessary to reset the zero point, if the closed position of the actuator is out of the RESET-range after installation. (SICO LINK / RESET-run).

3.4.3. Operating modes synchronous actuator

If a synchronous actuator is to be used as a single actuator, the operating mode must be set to "Single operation" (SICO LINK or RESET-run) – factory setting.

If several actuators are to be used in synchronous operation, one actuator must be set to "Synchro Master" and the remaining actuators to "Slave" (SICO LINK or manual MASTER/SLAVE setting).



ATTENTION

In order to recalibrate the synchronous function, the actuator must be fully closed in the reset range after max. 50 cycles.

3.5. Manual setting

3.5.1. MASTER/SLAVE setting



ATTENTION

Manual setting: One MASTER and one SLAVE possible.
SICO LINK: ONE MASTER and up to four SLAVES possible.

- Drive the actuator in direction "CLOSE" (S="-" O="+") and let it cut off in the end position. If the actuator does not reach the „mechanical ZERO“ position due to its mounting position, a RESET-run must be performed.
- Leave the actuator energized!
- Connect the wires **C1** and **C2** directly. A relay click can be heard.
 - ◆ After 5 seconds you can hear a relay click, the actuator is set to MASTER with one connected SLAVE. Separate wires.
 - ◆ After 10 seconds a further relay click can be heard, the actuator is now set to SLAVE. Separate wires.
- Disconnect the actuator from power supply!
- Connect the two actuators in according to chapter 3.3.6: „Synchronous operation“ on page 5.

3.5.2. RESET-run

A RESET-run should be carried out,

- if the opening width of the closed actuator at the window is outside the RESET-range.
- if the MASTER/SLAVE setting needs to be reset.
- Disconnect the actuator(s) from power supply!
- Connect the wires **C1** and **C2** of each actuator directly with each other.
- Drive each actuator in direction "CLOSE" (S="-" O="+") and let it be cut-off in the end position!
- Again disconnect the actuator(s) from power supply and disconnect the wires **C1** and **C2**!
- The zero point is set.
- In case of "synchro capable" actuators, the operating mode is reset to "single operation" by the RESET-run. In this mode, the actuators can be operated standalone.

Technical data

4. Technical data

Table 2: Electrical characteristics

Actuator type	PA-LS(A)-50/xxx PA-LS(A)-75/xxx	PA-LS(A)-50/xxx-S PA-LS(A)-75/xxx-S
Rated voltage	24 V DC	
Permissible rated voltage range	24 V DC \pm 15%	
Ripple of rated voltage V _{pp}	max. 500 mV	
Undervoltage detection	Yes	
Rated current ⁽¹⁾	500 N: 1.0 A 750 N: 1.1 A	
Soft close current	0.5 A	
Current consumption after cut-off (closed current)	35 mA	
Cut-off via	built-in electronic overload cut-off	
Maximum permissible number of actuators connected in parallel (synchro mode)	—	4
Cable length between two actuators in synchro mode	—	max. 10 m
Protection class	III	

(1) Maximum current consumption with nominal load.

Table 3: Feedback contact

Actuator type	PA-LS(A)-50/xxx PA-LS(A)-75/xxx	PA-LS(A)-50/xxx-S PA-LS(A)-75/xxx-S
Rated voltage	24 V DC	
Relay contact load	1 A	

Table 4: Connection and operation

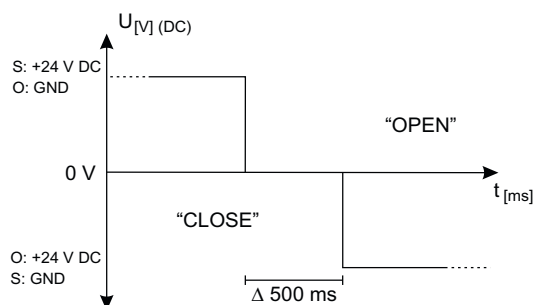
Actuator type	PA-LS(A)-50/xxx PA-LS(A)-75/xxx	PA-LS(A)-50/xxx-S PA-LS(A)-75/xxx-S
Pause time during change of direction ⁽²⁾	min. 500 ms	
Switch-on duration	ED 30	
Stability of opening and closing cycles	> 11,000	
Sound level ⁽³⁾	< 70 dB (A)	
Deadlock according to prEN 12101-9 / ISO 21927-9	allowed	
Multiple triggering after stop	allowed	
Maintenance	See supplementary sheet "Safety instructions and Warranty conditions"!	

(2) For the change of direction (pole reversal) it is necessary that the power supply ensures a pause time (zero-volt range) of at least 500 ms (see Figure 10).

(3) Measured at a distance of one metre under normal conditions.

Technical data

Figure 10: Zero voltage range at changing of direction



ATTENTION

Voltage stability/quality: only defined cut-off processes are permitted (cut-off time from rated voltage 24 V to 0 V in $t < 10$ ms).

This applies in particular for switching operations from primary (mains operation) to secondary energy source (emergency power batteries).

Table 5: Installation and environmental conditions

Actuator type	PA-LS(A)-50/xxx PA-LS(A)-75/xxx	PA-LS(A)-50/xxx-S PA-LS(A)-75/xxx-S
Rated operating temperature	20 °C	
Permissible ambient temperature range	-5 °C – 75 °C	
Temperature - stability (SHEV)	300 °C	
Ingress protection	IP 54	
Usage range	Central European environmental conditions ≤ 2,000 metres above sea level	

Table 6: Approvals and certificates

Actuator type	PA-LS(A)-50/xxx PA-LS(A)-75/xxx	PA-LS(A)-50/xxx-S PA-LS(A)-75/xxx-S
CE conformity	In accordance with EMC directive 2014/30/EU and the low voltage directive 2014/35/EU	
Further approvals	On request	

Table 7: Mechanical characteristics

Actuator type	PA-LS(A)-50/xxx PA-LS(A)-75/xxx	PA-LS(A)-50/xxx-S PA-LS(A)-75/xxx-S
Maximum pushing force ⁽¹⁾	500 N / 750 N	
Maximum pull force ⁽¹⁾⁽²⁾	500 N / 750 N	
Condition of loading	Opening against nominal load Closing with nominal load support	
Nominal locking force	≤ 2000 N in "OPEN" and "CLOSE"	
Nominal stroke ⁽³⁾	181 mm / 281 mm / 481 mm / 731 mm	
Stroke speed at nominal load	500 N: 7.7 mm/s 750 N: 7.6 mm/s	500 N: 7.7 mm/s 750 N: 7.6 mm/s
Material / Surface	Alu E6/EV1 Coatings in all RAL and DB colours possible	
Dimensions (L × W × H)	See figure 2 „Dimensions“ on page 2	
Weight approx.	1.9 kg / 2.1 kg / 2.5 kg / 3.0 kg	

(1) Force can be reduced by reducing the rated current.

(2) Other values are optionally possible.

(3) The nominal stroke can deviate by ± 3%, but not more than 20 mm, due to mechanical damping and tolerances.