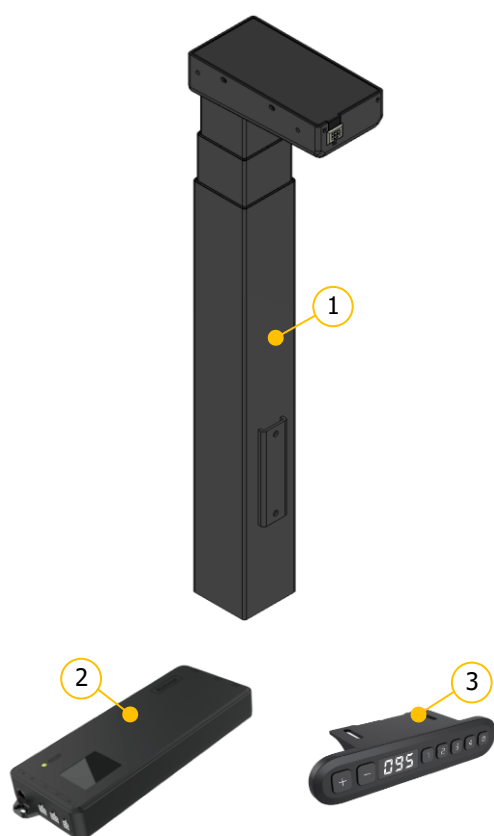


Operating manual – Lifting systems EA



It is essential to read this operating manual thoroughly before commissioning the system. The manual must be kept in close proximity to the system for future reference.



- ① Lifting column type EA
- ② Control box EA2/EA4 100-240V
- ③ Hand switch E-M1 Memory



- 2-leg and 4-leg frame
- ④ Carrier plate
- ⑤ Teleskopik Crossbar
- ⑥ Table foot

Errors and technical changes reserved.

Ergoswiss AG does not assume any liability for operating errors or using the products outside of the intended purpose use.

At the time of delivery Ergoswiss AG will replace or repair defect products within accordance with the warranty provisions. In addition, Ergoswiss assumes no other liability.

For your questions and special custom demand Ergoswiss AG will be at your disposal.

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This operating manual applies to:

Lifting systems EA

Example: Lifting system EA 2665 EU CH UK 42 (Part number: 801.20053-PP01)

	Description	Standard variations
EA	Lifting element type	SA
2665	Number of lifting elements	2, 4
2665	Spindle pitch in mm	16 mm
2665	Stroke length in cm	65 cm
EU	Country specific power cable	EU, CH, UK, US
42	Hand switch Memory	Memory

Frame EA

Example: Frame EA 2665 EU CH UK 42 (Part number: 801.30053-PP01)

	Description	Standard variations
EA	Lifting element type	SF
2665	Number of lifting elements	1, 2
2665	Spindle pitch in mm	12 mm
2665	Stroke length in cm	30 cm, 40 cm
EU	Country specific power cable	EU, CH, UK, US
42	Hand switch Memory	Memory

Notes about the operating manual:

Lifting systems from Ergoswiss AG are intended for installation in an overall system (e.g. assembly table) and classified under the category of incomplete machines in accordance with the Machinery Directive 2006/42/EC.

This operating manual contains information on the commissioning, handling and safety of the lifting system and is aimed at the further- user and manufacturer of the entire system. The further-user of this lifting system is obliged to create an operating manual with all usage information and hazard warnings for the entire system.

The declaration of incorporation is only valid for the Ergoswiss lifting system and not for the overall system created by the further-user.

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1 Safety requirements

The safety instructions must be paid attention to! If the system is operated improperly or not in accordance with the intended use, there may be a risk to persons and property!

Before installing and operating the lifting system, this operating manual must be read and understood. The manual must be kept in the close proximity to the system for future reference.

1.1 Explanations of the symbols and notes

The following explanations of symbols and notes must be observed. These are classified according to ISO 3864-2 (ANSI Z535.4).

DANGER



Indicates an imminent danger.
Failure to follow the information will result in death or severe physical injury (disability).

WARNING



Indicates a potentially dangerous situation.
Failure to follow the information will result in death or severe physical injury (disability).

ATTENTION



Indicates a potentially dangerous situation.
Failure to follow the information will result in damage to property and minor or medium physical injuries will result.



NOTE
Indicates general information, useful user tips and work recommendations, which have no impact on the health and safety of staff.

2 System description

2.1 General

The basic functionality of a spindle lifting system SF by Ergoswiss AG is the lifting and lowering of work surfaces, machine parts, profile systems, etc.

An operative spindle lifting System EA consists of a minimum of following components:

- Lifting column EA
- Control box EA 100-240V
- Hand switch
- Country specific power cable

The lifting column EA consists of 3 powder coated steel profiles, a polymer linear guide system and an electromechanical spindle drive. In combination with the EA2 control box

two colorless anodized aluminium profiles which are guided with plastic guides. The inner profile is moved by an inline spindle drive. Two lifting columns can be connected to the EA2 control box or four lifting columns can be connected to the EA4 control box and be operated synchronously.

The control box EA 100-240V is equipped with a highly efficient switched-mode power supply and a monitoring software (overload, duty cycle, overheat). Due to the optimised driving comfort, the end positions are gently approached as low-speed zones up to the standstill.


With the hand switch Memory the lifting system can be operated comfortably, the work surface will be adjusted steplessly in its height.

The current height of the work surface is shown continuously on the display (in cm or inches). In addition, up to four different memory positions can be saved and approached individually. Errors that occur are also shown on the display.

2.2 Intended purpose use

System is designed for:	No intended purpose use
<ul style="list-style-type: none"> → Height adjustment of worktops → Height adjustment of machine parts → Height adjustment of profile systems → ... the list is not complete 	<ul style="list-style-type: none"> → Clamping tool or press → Security component → Lifting podium / passenger transport only in consultation with Ergoswiss AG

2.2.1 General safety instructions

ATTENTION	
	The safety instructions must be paid attention to! If the system is operated improperly or not in accordance with the intended use, there may be a risk to persons and property!

The lifting system may be used if:

- it is located in closed rooms, in a dry and non-explosive environment.
- the ambient temperature is between +10 °C and +40 °C.
- the relative humidity range is between 30% and 70% (non-condensing).
- there are no strong electromagnetic fields nearby.
- This device can be used by children aged 8 and over and by persons with reduced physical, sensory or mental abilities or lack of experience and knowledge if they are supervised or have been instructed in the safe use of the device and the resulting dangers to understand.

The lifting system must not be:

- operated outside of the performance data (max. tensile, compressive, bending moment loads).
- subjected to impulse, impact and impact forces (e.g. setting down loads).
- operated with an incorrect mains voltage! Adhere to the type plate of the control box!
- designed for continuous operation (below the duty cycle ratio of 2/18).
- operated on unstable or sloping ground.
- operated with impermissible or non-designated components.
(e.g. different types of lifting elements; replacement of the control (control software))
- operated with damaged components.
- opened, reworked or rebuilt.
- operated if the power cable is not freely accessible. Disconnect the power cord in the event of a fault.
- Children must not play with the device. Cleaning and user maintenance shall not be made by children without supervision.

When installing and operating the lifting system, the intended use of the entire system must be adhered to. Commissioning is prohibited until the entire system complies with the provisions of the EC Directives 2006/42/EC (Machinery Directive). For this purpose, it is essential to perform a risk analysis, so that possible residual hazards can be reacted to (e.g. through constructive measures or through instructions in the operating manual and/or through safety indication on the system). In the event of improper use, the liability of Ergoswiss AG and the general operating permit for the lifting system will expire.

2.3 Target group and prior knowledge

Before installing and operating the lifting system, this operating manual must be read and understood. The manual must be kept in close proximity to the system for future reference.

This operating manual addresses the following groups of people:

The **manufacturer of the overall system** who integrates this lifting system into an overall system and integrates this operating manual into the operating manual for the overall system.

The **commissioning personnel** who install the lifting system in a workplace, a machine, etc. and put it into operation. For commissioning basic mechanical and electrical knowledge are required.

2.4 Performance characteristics

2.4.1 Lifting column EA 1665

	Lifting column EA 1665
Cross-section	75 x 75 mm (2.95" x 2.95")
Standard stroke length	650 mm (25.6")
Installation length	585 mm (23")
Weight	7.95 kg (17.5 lbs)
Max. allowed pressure load	1'000 N (225 lbf)
Max. allowed tensile load	$F_{\text{Tensile stat. 500 N (112 lbf) ; } F_{\text{Tensile dyn. 50 N (11 lbf) } ①$
Max. allowed bending moment	$M_b \text{ stat. 400 Nm ; } M_b \text{ dyn. 150 Nm}$
Power consumption	4-6 A
Voltage	24 V
Lifting speed	20 mm/s (0.79"/s)
Noise level	< 60 dBA
Protection class (DIN EN 60529)	IP 30
Electrical connection	Molex MiniFit plug 6 pin; cable length 2 m (78.7")
End switch	No, storage of end positions (reading encoder)
Tested product life span	10'000 double strokes, with 650 mm (25.6") stroke length, 1'000 N (225 lbf) pressure load, duty cycle 2/18 ②

① stat. = during standstill; dyn. = during stroke movement

② Duty cycle 2/18; operating max. 2 min, pause 18 min

2.4.2 Control boxes EA 100-240V

	Control box EA2	Control box EA4
Dimensions (L x W x H)	264 x 95 x 40 mm (10.4" x 3.74" x 1.6")	341 x 125 x 40 mm (10.4" x 4.9" x 1.6")
Weight	0.6 kg (1.3 lbs)	1 kg (2.2 lbs)
Power	200 VA; 4 A @ 24 V DC	500 VA; 6 A @ 24 V DC
Supply voltage	100-240 V; 50/60 Hz	
Primary standby power	≤0.3 W	
Protection class (DIN EN 60529)	IP 20	
Performance Level (DIN EN 13849-1)	PL b	

2.4.3 Hand switch

Electrical connection	Plug RJ45; Cable length 2 m (78")
Supply voltage	5 VDC ± 10 %
Power consumption (average)	50 mA
Protection class (DIN EN 60529)	IP 30

2.4.4 System data

# Lifting elements	Max. system load [kg] (lbs)	Stroke length [mm] (in)	Lifting element type	Control box type	Lifting speed	① Duty cycle [On/Off]
2	200 (440)	650 (25.6")	EA 1665	EA2 (100-240V)	20 mm/s (0.79"/s)	2/18
4	400 (880)	650 (25.6")	EA 1665	EA4 (100-240V)		

① Duty cycle 2/40; operating max. 2 min, pause 18 min

NOTE



The lifting system can be subjected to uneven loads as long:

- the max. load on the single lifting element is not exceeded,
- the max. bending torque of the lifting element is not exceeded,
- the entire system is located on sufficient safe ground

... and the entire plant has been constructed in accordance with the provisions of the mechanical equilibrium. → Conducting a risk analysis

ATTENTION



High pulse / impact forces due to the discontinuation of loads are not allowed.
(e.g. discontinuation of loads in feed with crane or forklift)

3 Initial operation

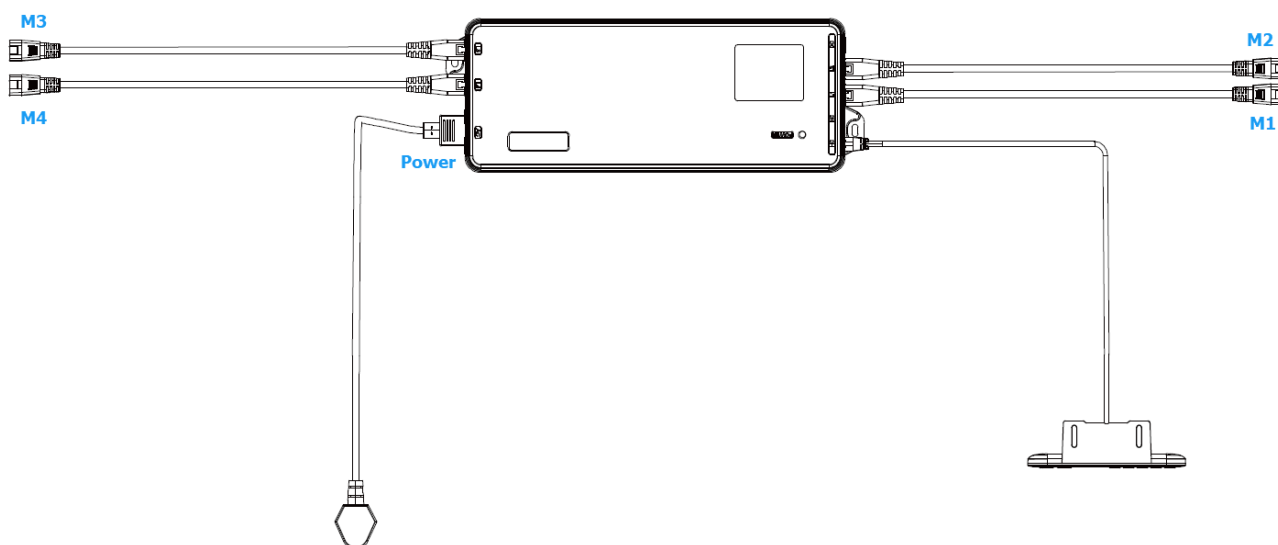
3.1 Preparation for initial operation

ATTENTION



Connecting homemade products to the control box is prohibited!
Only use supplied components.

1. Connect the motor cables of the columns to the control box (EA2: M1+M2; EA4: M1+M2+M3+M4).
2. Connect the hand switch to the control box.
3. Connect the power cable to the control box.



NOTE

Before connecting the power cable to the mains the following must be verified:

- Does the mains voltage correspond to the value on the name plate of the control box?
- Is the entire lifting system assembled according to the assembly instructions?

4. Connect power cable to the mains (ready for initial operation).

3.2 Initial operation

ATTENTION



Danger of squeezing during height adjustment!

ATTENTION



It must be possible to fully retract the lifting element to its lower block position at any time (also in the operating state).

If the lifting element cannot retract completely and hits a stop before it reached its lower block position, the zero position is set incorrectly. This leads to a collision when moving up to the upper block position.

ATTENTION



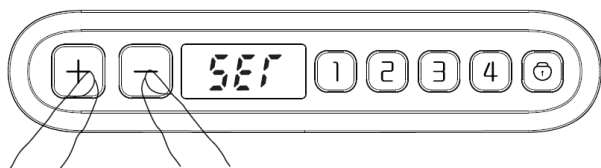
The system may only be fully loaded after the initial operation has been completed.

During the initial operation, the lifting system may be loaded with max. 50% of the system load.



NOTE



During the initial operation, the lifting system drives with half speed.








1. Keep the button and pressed to drive to the lower block position.
The system moves downwards slowly. Upward movement is disabled.
(Display will show the number of connected legs (001/002/003/004)).
2. After reaching the block position, the system will drive out a few millimeters and the control box will give a signal. Now you can let go of the buttons.

4 Operation with Hand switch type Memory

4.1 Drive Up / Down

Press the button  to drive up. Press the button  to drive down.

4.2 Setting and approaching a memory position

Drive to the desired position and press the button , ,  or  together with  for 3s. The display will flash for 3s and a beeping sound will indicate the saving of the desired memory position.




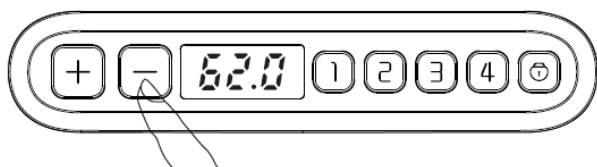
To approach a stored memory position:




Keep one of the buttons , ,  or  pressed until the desired working height is reached.

4.3 Change the shown height on the display

The displayed height can be adjusted with this feature (default 62 cm).

1. Drive to the lowest height and press the button  for 10s.







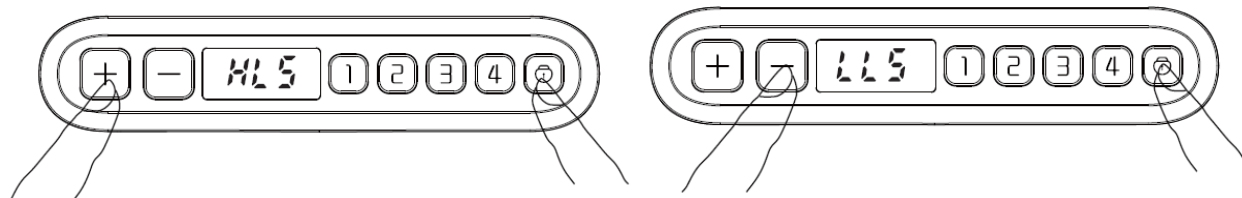
2. With the buttons  and  the height on the display can be changed in 1mm steps.
While doing so, the system does not move!
3. Press the button  for 5s to save the height shown on the display.

4.4 Duty cycle monitoring




The duty cycle monitoring checks the ratio between the operation time and standstill time. To avoid overheating of the system a duty cycle of 2/18 (ON/OFF) should be maintained. The maximum continuous operating time is 2 minutes. Afterwards a pause of at least 18 minutes needs to be observed before the system can be operated again.

4.5 Setting a stroke limit (Container-Stop/Shelf-Stop)

1. Drive to the desired highest or lowest end position.
2. Keep the buttons  and  pressed for 3s. The display shows «HLS» (highest limit set).
Keep the buttons  and  pressed for 3s. The display shows «LLS» (lowest limit set).





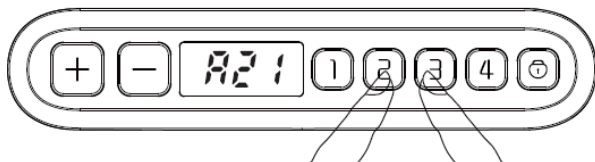
Cancel stroke limit:

1. Drive to the set end position (Container-Stop/Shelf-Stop).
2. Keep the buttons ,  and  pressed for 3s. The display shows «LS-».
Press any button to exit the menu.

4.6 Change the unit of measurement (cm/inch)

«A21» = cm «A22» = inch

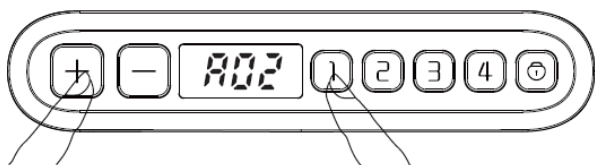
Press the buttons  and  for 3s. The display changes between «A21» and «A22».
Press any button to exit the menu.



4.7 Change Overcurrent/collision detection sensitivity

«A01» = high sensitivity «A02» = middle sensitivity (default) «A03» = low sensitivity

Press the buttons  and  for 3s. The display changes between «A01», «A02» and «A03».



4.8 Safety lock

Press the button  for 5s to activate/deactivate the safety lock.



4.9 One-touch mode

ATTENTION



Danger of squeezing during unattended height adjustment!

«A11» = Height adjustment only while pressed button (default) «A12» = One-touch mode

Press the buttons  and  for 3s. The display changes between «A11» and «A12».
Press any button to exit the menu.



4.10 Reset «SET»

ATTENTION



Before the reset, it must be ensured that:

- the lifting element can retract completely.
- the lifting system is loaded with a maximum of 50% of the maximum allowed system load.

1. Drive the system to the programmed lowest position.
2. Keep the buttons  and  pressed for 3s.
The display shows «SET» and the system slowly moves downwards.
(Display will show the number of connected legs (001/002/003/004)).
3. After reaching the block position, the system will drive out a few millimeters and the control box will give a signal. Now you can let go of the buttons.

4.11 Error codes on the display

Display	Cause	Trouble shooting
E01	Motor signal lost / height differential	Reset the system.
EL1	Motor connected to interface 1 is faulty	Check the connected cable and replace it if necessary. If the error still occurs, replace the column and conduct a reset.
EL2	Motor connected to interface 2 is faulty	
EL3	Motor connected to interface 3 is faulty	
EL4	Motor connected to interface 4 is faulty	
E02	Max. allowed duty cycle time exceeded	Let the system cool down for 20 minutes.
E03	Accidental loss of power	Restore power and reset the system.

NOTE



If the E01 error remains unresolved even after doing a reset, you can check which motor interface has a problem by redoing a reset and lowering the system by 1 cm. Now the control box will beep four times. Press any button – the control box will beep one time. The display now shows which motor interface is the problem («EL1»/ «EL2»/ «EL3»/ «EL4»).

5 Maintenance, cleaning and disposal

The lifting system is maintenance-free during normal operation.

ATTENTION



The control box and the hand switch must only be cleaned with a dry or damp cloth. Before cleaning, the power cable has to be separated from the mains!
No liquid is allowed to enter the plug connections!

Repairs must only be conducted by specialists. Only original replacement parts may be used. For all repair work the system must always be unloaded and disconnected from the mains.

ATTENTION



In no case may the control box be opened! There is the risk of an electrical shock!

When decommissioning and disposing of the lifting system, the electronic parts must be disposed separately. The system consists of components that can be fully recycled and thus they are quite safe from an environmental protection perspective. The electronic parts comply with the RoHs directive.

The lifting system is not covered by the Electrical and Electronic Equipment Act (WEEE Directive 2012/19/EU).

Lifting systems from Ergoswiss AG are intended for installation in an overall system (e.g. assembly table) and classified under the category of incomplete machines in accordance with the Machinery Regulation (EU) 2023/1230.

Therefore, these systems are not intended for private use.