

## LL-SMI-24/0,9Nm VB



Lovoline  
SMI-Line

LL21 SMI 24V DC Motordrive

Art-No.: **01010051**

Lovoline motor for controlling sun protection systems.



Installation and Operating Instructions

How to handle and use ISOLETTE

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#### WARNING!

##### Important safety information.

Follow all installation instructions, as incorrect installation can lead to serious injuries.

- Before mounting the motor, all unnecessary cables have to be removed and all equipment not needed for the operation, should be placed out of service.
- The actuating element of manual release has to be placed at a height under 1.8 m.
- If a motor is controlled by a switch with OFF-default setting, the switch has to be mounted in sight of the device, but has to be removed from moving parts, at a height over 1.5 m.
- Stationary mounted control units have to be fixed in sight.
- The rated torque and the rated operating time must be in compliance with the attributes of the driven parts.

### 1. Safety precautions



#### WARNING!

##### Important safety information.

- Contact a professional electrician for installation.
- Check the motor for signs of mechanical damage after unpacking. If you notice any shipping damage, do not start up the motor and notify your supplier immediately.
- The motor should only be used for the purpose specified by the manufacturer (refer to the operating instructions). Any changes or modifications thereof are not permissible and will result in loss of all warranty claims.
- If the motor or the connected sunshade cannot be operated without presenting a hazard, it must be switched off.
- When performing work on the windows, motor or connected shades, protect them against unauthorised or unintentional operation.
- Technical data can be found on the type label of the motor.

### 2. Short description

- **LL21** SMI-Lovoline-Motordrive 24VDC – sidewise drive
- For precise control of blinds in parallel operation ...
  - in **SMI-mode** (*I-06 M1 SMI-Cor*) of up to 16 motordrives via bidirectional communication between motor and **SMI-controller**
  - in **Switch mode** (*I-06 M1 Switch*) of up to 8 motordrives by switch, remote (VRS) or KNX via **LL21-controller** (no SMI !!!)

#### Properties and functions:

- **LL-soft set**: Precise blind correction by turning in lower end pos.
- **LL-slow run**: Slow approach and retraction in the end positions
- **LL-safe stop**: obstacle detection and brake functionality
- **LL-reverse run**: Electronic change of direction (LL-Progset)
- Programmable upper and lower end position (LL-Progset)
- Programmable intermediate blind position (LL-Progset)
- Motor connection cable with IP67-plug (frame rebate space)
- Setting of positions and run direction by LL-Progset-ME24/SMI-24 (Art.-Nr.: 54185735)

### 3. Intended use

This type of motor listed in this manual is a low-voltage motor, that is specifically for precise control of venetian blinds and designed for indoor applications. The motor can be used in switch or in BUS mode.

The motor cannot be used in potentially explosive area. This type of motor is designed for using in a single sunshade system.



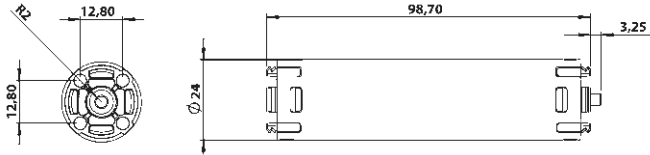
#### WARNING!

##### Important safety information.

Follow these instructions to ensure the safety of persons. The instructions must be stored.

- Children are not allowed, to play with fixed controls. Keep remotes away from children.
- The installation has to be checked frequently for imbalance or of signs of wear, damaged cables or springs, if applicable.

**4. Technical data**



Article		LL-SMI-24/0,9Nm VB
Application: Venetian blinds	Art.-no.:	01010051
Supply voltage range:	VDC	22–28
Supply voltage (nominal):	VDC	24
Rated power (idle):	W <sup>1)</sup>	0,2
Rated power (nominal):	W <sup>1)</sup>	6
Rated power (maximum):	W <sup>1)</sup>	12
Torque (nominal):	Ncm	65
Torque (maximum):	Ncm <sup>2)</sup>	90
Maximum on time:	Min.	10 min. at +25 °C (77 °F) ambient temp.
Output speed:	rpm	5–30
Operating temperature:	°C	-10 °C (14 °F) to +85 °C (185 °F)
Protection degree:	IP	20
Connecting terminal:		Pancon 4 pin
Power consumption (maximum):	A	0,5

<sup>1)</sup> At recommended supply voltage.  
<sup>2)</sup> At a motor speed of 23 rpm.

**6. Installation, assembly, disassembly**



**ATTENTION!**

Parallel connection of tubular motor with electronic limit position are allowed. The maximum switching contact load of the connected control device (switch, motor control, actuators etc.) must be observed.



**ATTENTION!**

**Tubular motor might be switched off before reaching the limit position:**

Extraordinary large increases of load (anti-block-function) – obstacles, sunshade system keeps jamming, tubular motor is overloaded.

**Remedy action:**

- Removing the obstacle.
- Check the mechanical parts of the sunshade system.
- Use the correct tubular motor according the specification of the sunshade system.

**5. Standard Motor Interface**

**What is SMI?**

SMI is the abbreviation for **S**tandard **M**otor **I**nterface. SMI has been developed to connect intelligent motors for roller shutters and sun protection devices. SMI allows the transmission of messages from the control system to the motor and vice versa. SMI allows products from different manufacturers to be combined. The SMI interface simplifies the use of highquality solutions and increases the compatibility between standard motors and controls from different manufacturers. Applications for sunscreens require the greatest robustness and economy. SMI was developed to meet these requirements.



**ATTENTION!**

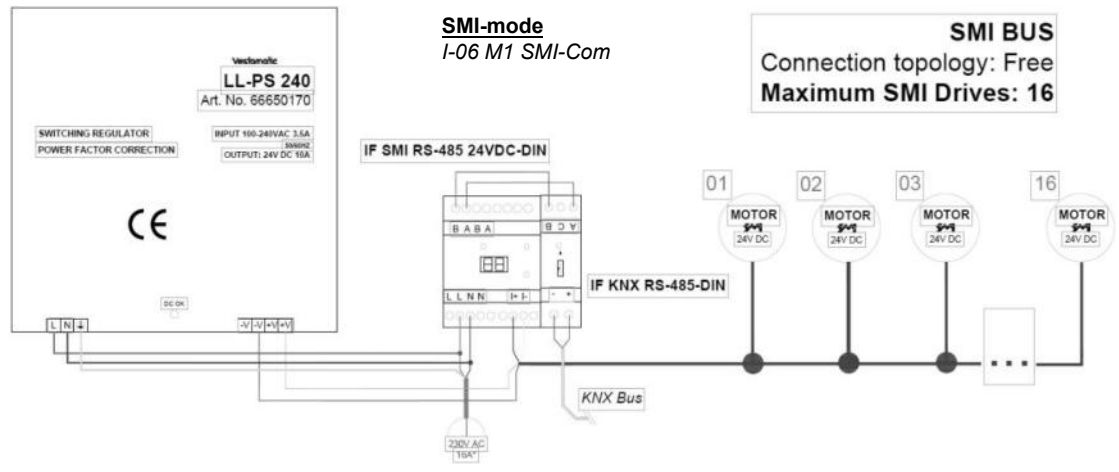
SMI-Motors must be connected to certified SMI-Actuators. Parallel connection of tubular motor with electronic limit position are allowed. The maximum switching contact load of the connected control device (switch, motor control, actuator, etc.) must be observed.

The combination of different operating modes is not allowed. To change the operating mode from communication mode to switch mode, push sequential the UP- and DOWN-button.

Also in the switch mode, we recommend the wiring between the motor and the switch with a 4-wire cable.

**SMI-mode**

*I-06 M1 SMI-Com*

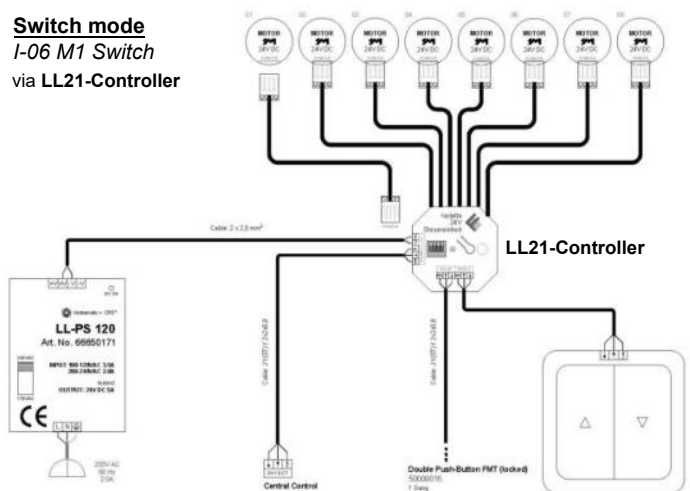


**SMI BUS**

Connection topology: Free  
Maximum SMI Drives: 16

**Switch mode**

*I-06 M1 Switch via LL21-Controller*

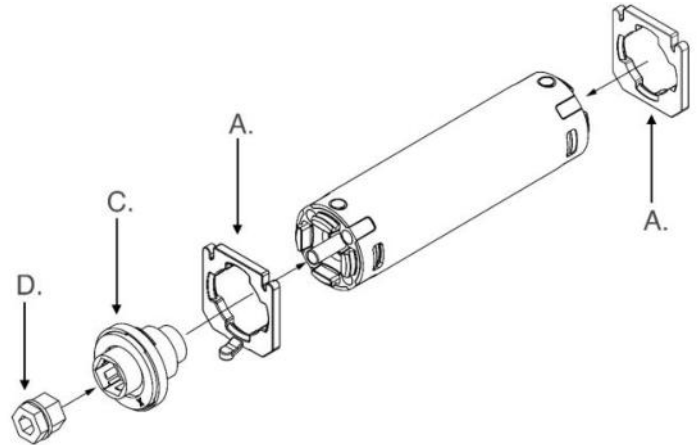
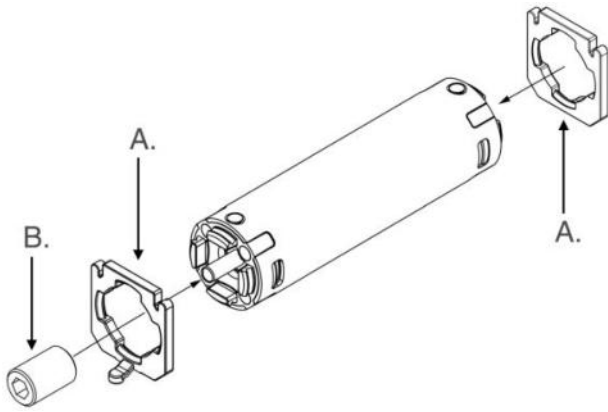


Please regard different circuit diagrams!

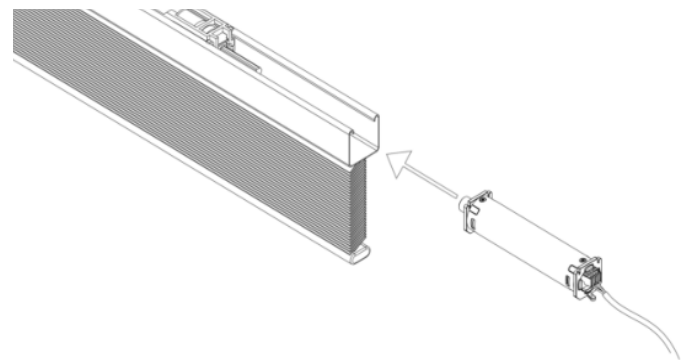
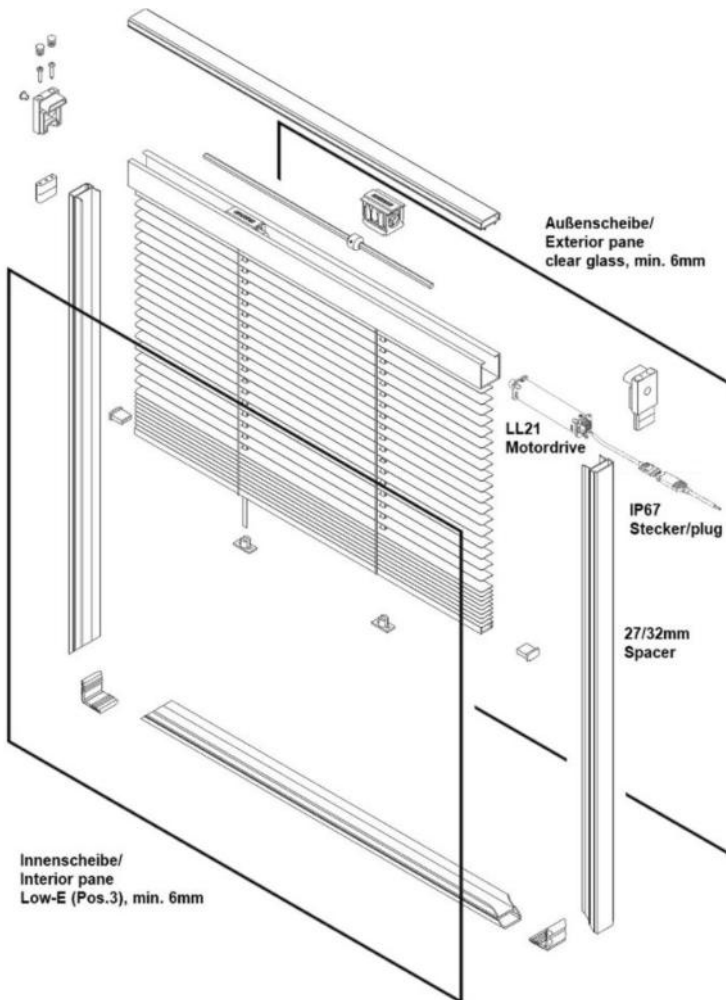
The motor has a terminal connection Pancon MAS-CON Series CE / CT 100. The electrical connection must be carried out according to the wiring dia-gram (see next page). You will find suitable connection cables in the accessory program (not included in the scope of delivery).

**Assembly Shaft adapter (rigid)**

**Assembly Shaft adapter (flexible)**

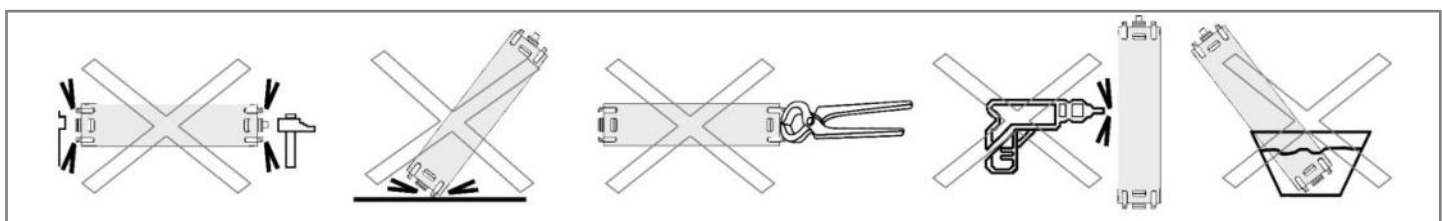


**Installation in head rail**



**IMPORTANT:**

- Regard installation direction!  
(Label on top, Plug pins on the lower part)
- Remark Motor-ID/Key-ID (SMI) on manufacturing documents!
- Add additional label to the product delivery! (necessary for drive installation in SMI-Mode and drive specification)



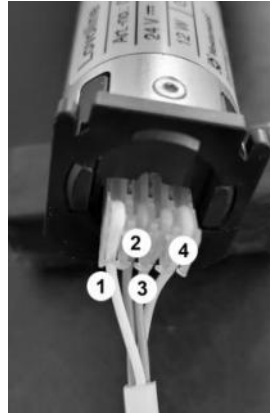
6.1 Wiring diagram

**Regard direction!**

- Label on top
- Plug pins on lower part



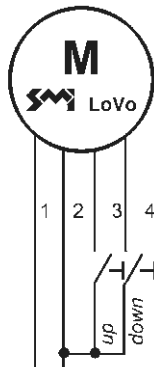
- 1 GND - / white
- 2 24VDC + / brown
- 3 SMI-BUS - / UP / green
- 4 SMI-BUS + / DOWN / yellow



**Switch mode**

I-06 M1 Switch

Up / down switch mode

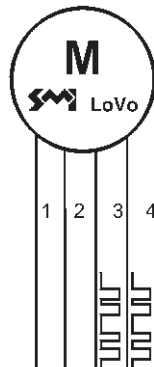


24VDC via LL21-Controller

**SMI-mode**

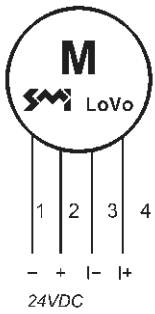
I-06 M1 SMI-Com

Communication mode



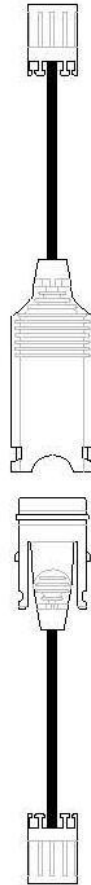
24VDC via SMI-Controller

**Connections**



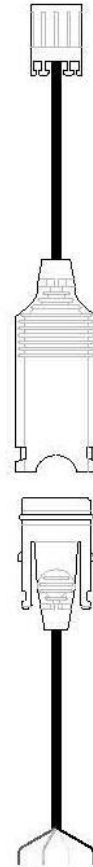
- 1 GND - / white
- 2 24VDC + / brown
- 3 SMI-BUS - / UP / green
- 4 SMI-BUS + / DOWN / yellow

Motor



LL-EXT LINK-M to PAN 0,5m

Motor



LL-EXT PAN to LINK-F 4m  
LL-EXT PAN to LINK-F 8m

cable transition  
Kabelübergang



LL21-Controller

SMI-Controller or cable transition

LL21-Controller

6.2 Electronic limit position setting with Installation tool

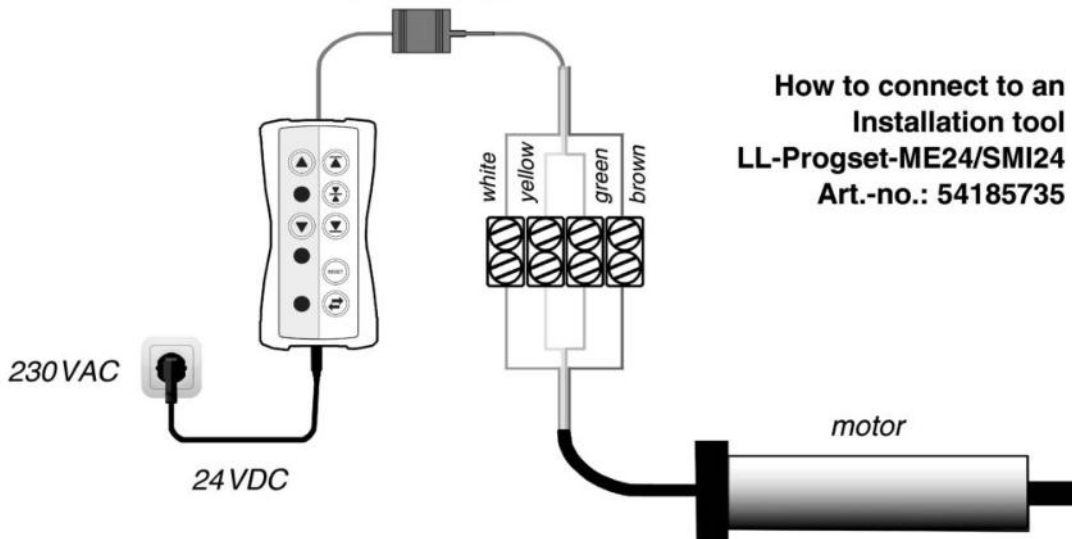
How to connect to an Installation tool (LL-Progset-ME24/SMI24 / Art.-no.: 54185735).



**IMPORTANT!**

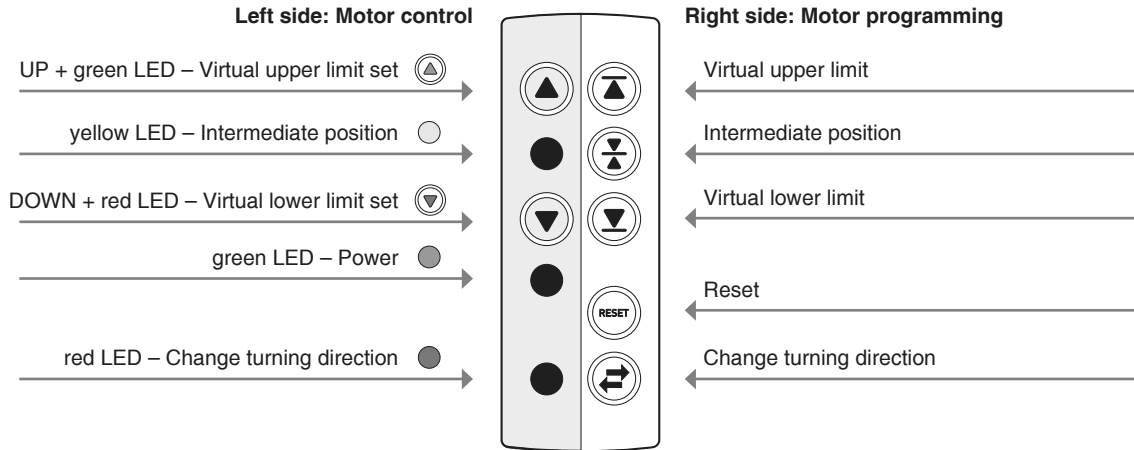
- Switch off the power supply. Connect the individual wire to the motor and to the installation tool.
- It is important that the motor-wire-colors correspond with the installation-tool-wire-colors, otherwise the motor turning direction could be set incorrect. Switch on the power supply.
- The installation tool is not suitable for continuous operation and should only be used for setting the limit positions.

LL-Progtool  
Art.-no.: 54185737

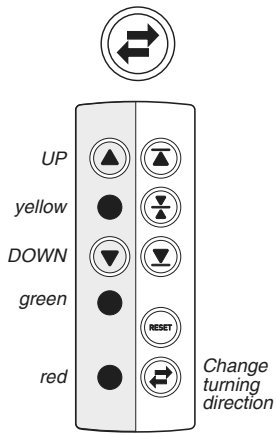


**How to connect to an Installation tool**  
LL-Progset-ME24/SMI24  
Art.-no.: 54185735

**6.3 Description of installation tool LL-Progset-ME24/SMI24**



Motor control		Motor programming		
<p><b>Button</b> Control motor in <b>UP</b> direction Hold down the button to move the motor in <b>UP</b> direction.</p>				
<p><b>LED</b> <b>green LED</b> – upper limit position:</p> <p><i>OFF</i> when no “Upper limit” is set.</p> <p><i>Blinking</i> when “Upper limit” or „Reset“ programming is in progress.</p> <p><i>Lit solid</i> when “Upper limit” programming sequence has completed.</p>	 green		<p><b>Button</b> Set “Virtual upper limit position”.</p>	
<p><b>LED</b> <b>yellow LED</b> – Intermediate position:</p> <p><i>OFF</i> when no “Intermediate position” is set.</p> <p><i>Blinking</i> when “Intermediate position” programming is in progress.</p> <p><i>Lit solid</i> when “Intermediate position” programming sequence has been completed.</p>	 yellow		<p><b>Button</b> Set “Intermediate position”.</p>	
<p><b>Button</b> Control motor in <b>DOWN</b> direction Hold down the button to move the motor in <b>DOWN</b> direction.</p>				
<p><b>LED</b> <b>red LED</b> – Virtual lower limit position:</p> <p><i>OFF</i> when no “Virtual lower limit” is set.</p> <p><i>Blinking</i> when “Virtual lower limit” or „Reset“ programming is in progress.</p> <p><i>Lit solid</i> when “Virtual lower limit” programming sequence has completed.</p>	 red		<p><b>Button</b> Set “Virtual lower limit position”.</p>	
<p><b>LED</b> <b>green LED</b> – Power:</p> <p><i>OFF</i> when powerless (it is safe to connect a motor to the Installation Tool).</p> <p><i>Lit solid</i> when attached to mains 230VAC.</p>	 green		<p><b>Button</b> Reset</p>	
<p><b>LED</b> <b>red LED</b> – Change turning direction:</p> <p><i>OFF</i> when no “Change turning direction” is used.</p> <p><i>Blinking</i> when “Change motor turning direction” programming sequence is in progress.</p> <p><i>Lit solid</i> when “Change motor turning direction” programming sequence has completed.</p>	 red		<p><b>Button</b> Change motor turning direction.</p>	



**Changing motor turning direction**

- Hold down the button or to check the motor turning direction.
- When the motor reacts in opposite direction (motor goes down when you press UP and vice-versa), you need to change the motor direction. Motor direction can only be changed during installation phase, when no limit positions are set.
- Press the button shortly.
- The *red* LED starts blinking as long as the change motor turning direction process is in progress.
- The *red* LED lit solid if the process is finished and the motor will give a feedback (short UP/DOWN movement).

**Setting electronic limit position**



**IMPORTANT!**

The motor starts to move with a short delay time during installation phase, when no limit positions are set.

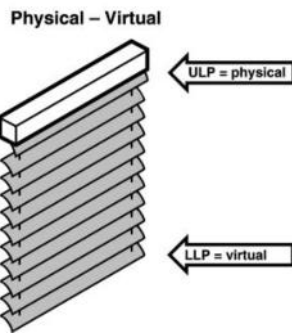
**Electronic limit position setting combination**

ULP = is an abbreviation for Upper Limit Position.

LLP = is an abbreviation for Lower Limit Position.

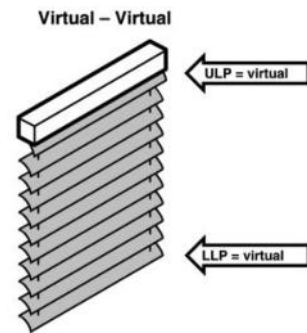
Following combinations virtual/physical limit position settings are possible:

**Physical - Virtual**

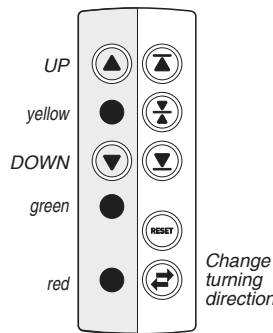


Upper limit position is physical, lower limit position is virtual.

**Virtual - Virtual**



Both upper and lower limit position are virtual.

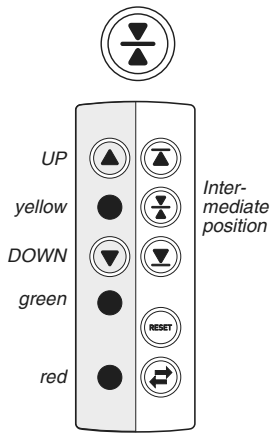


**Start with lower limit position setting**

- Hold down the button to move the motor in the requested *lower* limit position. For precise moving of the motor briefly press the button , press again and hold.
- Press the button shortly.
- The *red* LED of button starts blinking as long as the limit setting process is in progress.
- The *red* LED of the button lit solid if the process is finished and the motor will give a feedback (short up/down movement).
- Hold down the button till motor stops automatically at the *upper* limit position.
- The motor then relieves the slat pack slightly below the physical upper limit position.
- The *green* LED of button lit solid if the process is finished.
- The installation procedure is finished and the limit position settings are saved.
- Press the button or for more than 5 seconds = self-locking. Press the opposite button to stop drive.
- Briefly press the button or = Changing the slat position (Fine adjustments).

**Start with upper limit position setting**

- Hold down the button to move the motor in the requested *upper* limit position. For precise moving of the motor briefly press the button , press again and hold.
- Press the button shortly.
- The *red* LED of button starts blinking as long as the limit setting process is in progress.
- The *red* LED of the button lit solid if the process is finished and the motor will give a feedback (short UP/DOWN movement).
- Hold down the button to move the motor in the requested *lower* limit position. For precise moving of the motor briefly press the button , press again and hold.
- Press the button shortly.
- The *green* LED of button starts blinking as long as the limit setting process is in progress.
- The motor then moves to the physical stop. After that it returns to the virtual upper limit position.
- **Attention:** The motor must not be interrupted by other commands during this process.
- The installation procedure is finished and the limit position settings are saved.
- Press the button or = self-locking.
- Press the opposite button to stop drive.



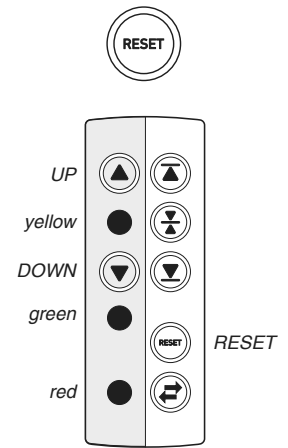
### Save intermediate position

- The intermediate position can be saved only after the lower and upper limit positions have been saved finally.
- Press the button or for more than 5 seconds = selflocking. Press the opposite button to stop drive.
- Briefly press the button or = Changing the slat position.
- Press the button "Intermediate position" shortly to confirm the settings.
- The yellow LED starts blinking as long as the intermediate position is in progress.
- The yellow LED lit solid if the process is finished. The motor will give a feedback (short UP/DOWN movement) to confirm that the installation procedure has ended.
- The stored intermediate position can be changed/overwritten at any time.

### Motor - RESET

#### Delete the limit position settings of the motor

- Press the RESET button, till the LEDs start blinking.
  - The LEDs keep blinking as long as the motor RESET process is in progress.
  - When the process is finished, the LEDs turn off.
- The motor limit positions have been cleared, and can be set again. The motor will shortly move during the RESET sequence.
- After successful RESET the motor gives a short feedback (UP/DOWN movement).



### 7. Note for operat.

When the lower limit position is reached, the motor still performs a reversal (fan out of the slats) in order to ensure that all the slats lie neatly in the conductor cord and do not stick together.

The slats are then closed in the lower limit position (factory setting).

If the slats are supposed to have a different position (angle) after reaching the lower limit position, an intermediate position with the desired angle can be stored on the level of the lower limit position.

#### Manual operation via push button:

- Press the or button for more than 5 seconds = self-locking. The motor moves to the respective limit position or to the intermediate position (if stored).
  - Press the opposite button to stop drive.
  - Briefly press the button or = Changing the slat position (Fine adjustments).
  - Slow turning by pressing the or button for a longer time, complete turning takes approximately 4 seconds.
- Skipping the intermediate position (if stored):  
Press or for more than 5 seconds = self-locking.  
If the motor is in self-locking mode, briefly press the same or button again.

#### Performance of a reference run:

- After 10 complete cycles (up/down) or when the motor was deenergized.
- To test the shutter mechanism, which can change under the influence of temperature and humidity.
- A reference run is always carried out at the end of an ascent, by driving/ detecting the motor against the physical stop. Then it moves back into the position of the upper limit position.

### 8. Warranty

Principally, the General Terms and Conditions of the manufacturer, Vestamatic GmbH apply. The terms and conditions are part of the sales documents and handed over to the operator upon delivery. Liability claims for personal or material damages are excluded when they can be attributed to one or more of the following causes:

- Unintended use of the product.
- Opening of the product by the customer.
- Improper installation, commissioning, or operation of the product.
- Non-compliance with the technical specifications.
- Non-observance of the safety provisions and instructions of the Operating Instructions.
- Operation of the product with improperly installed connections, defective safety devices or improperly installed safeguards.
- Modifications to the product.

### 9. Declaration of conform.

This product complies with the essential requirements. The Declaration of Conformity concerning this product is available on our website: [www.vestamatic.com](http://www.vestamatic.com).

### 10. Maintenance

The motor is maintenance free.

### 11. Disposal of waste

#### The disposal of electrical equipment and batteries in household waste is strictly forbidden.

The symbol (dustbin crossed out, in line with WEEE Appendix IV) indicates separate collection of electrical and electronic products in EU countries. Do not dispose of the device or battery in your household waste. Ask your town or local council about the return and collection systems available in your area to dispose of this product.

### 12. Service / Contact

**Vestamatic GmbH**  
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info@vestamatic.com  
Tel.: +49 2161/29 408-0

