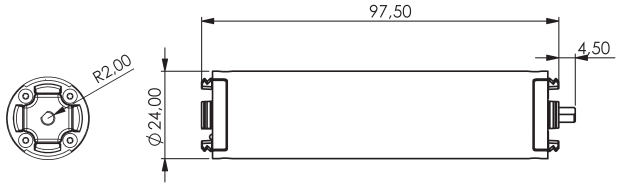
DATASHEET

LL21 Motor 24V DC SMI

PRODUCT INFO

Product name	Item number
LL21 Motor 24V DC SMI	01010051-C
LL21 Setup-Tool LT	01077451

Dimensions



SHORT DESCRIPTION

- SMI-LoVo side motor for automatic control of venetian blinds (recommended for ***ISOLETTE***® and **Interial**®).
- In Switch-Mode: Simple operation via standard push-button.
- In Switch-Mode: Group control via LL21-Controller.
- In SMI-Mode: Bidirectional communication between the motor and (central-) control.
- In SMI-Mode: Parallel operation with up to 16 LL21-motors.
- Adjustable motor speed—soft start and soft stop in end positions.
- Upper and lower end position electronically programmable.
- Change of direction of rotation electronically programmable.
- Obstacle detection and overload cut-off.
- 4-pin Pancon connector (MAS-CON Series CE / CT 100).
- Adjustment only by authorized qualified personnel via LL21 Setup-Tool LT - Art. 01077451.

INTENDED USE

The SMI LoVo-motor described in these instructions is a low-voltage motor developed specifically for the precise control of venetian blinds in integrated systems. The motor can be used in switch mode or in SMI mode.

The motor must not be used in potentially explosive atmospheres. The motor is designed for use as a side motor in single installations only.

Subject to change without notice!

TECHNICAL DATA

Device type	SMI LoVo side motor
Rated torque (Nm)	0.9
Speed (min^{-1})	5–30
Supply voltage range (VDC)	22–28
Nominal supply voltage (VDC)	24
Maximum power consumption (W)	12
Maximum current consumption (A)	0.5
Max. duty cycle	10 minutes at a room temperature of +25 °C
SMI-manufacturer-ID	19d (13h)
Protection type	IP 20
Length (mm)	97.5
Diameter (mm)	24
Area of application	Indoor
Operating temperature range	–10 °C (14 °F)… +85 °C (185 °F)
Housing material	AL6063-T5 / PA6.6
Housing color	Anodized aluminum

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STANDARD MOTOR INTERFACE

Was ist SMI?

SMI means **S**tandard **M**otor **I**nterface.

SMI was developed to connect intelligent motors for roller shutters and sun shading systems. SMI enables the transmission of signals from the motor to the control system and vice versa. SMI allows products from different manufacturers to be combined. The SMI interface facilitates the use of high-quality solutions and enhances compatibility between commercially available motors and controls from various manufacturers. Sun shading applications require exceptional robustness and cost-efficiency; SMI was designed to meet these requirements.

ATTENTION!
SMI motors must only be connected to certified SMI actuators. Motors with electronic limit switches can be connected in parallel. The maximum switching capacity of the connected control device (switch, motor controller, actuator, etc.) must be observed. Combining different operating modes is not permitted. To prevent an unintentional switch from communication mode to push-button mode, the following procedure has been implemented: the "Up" and "Down" buttons must be pressed sequentially once. Additionally, there must be no bus voltage present between "I+" and "I-".
Even in switch mode, we recommend using a 4-core cable for the wiring between the motor and the push-button.

INSTALLATION and ASSEMBLY

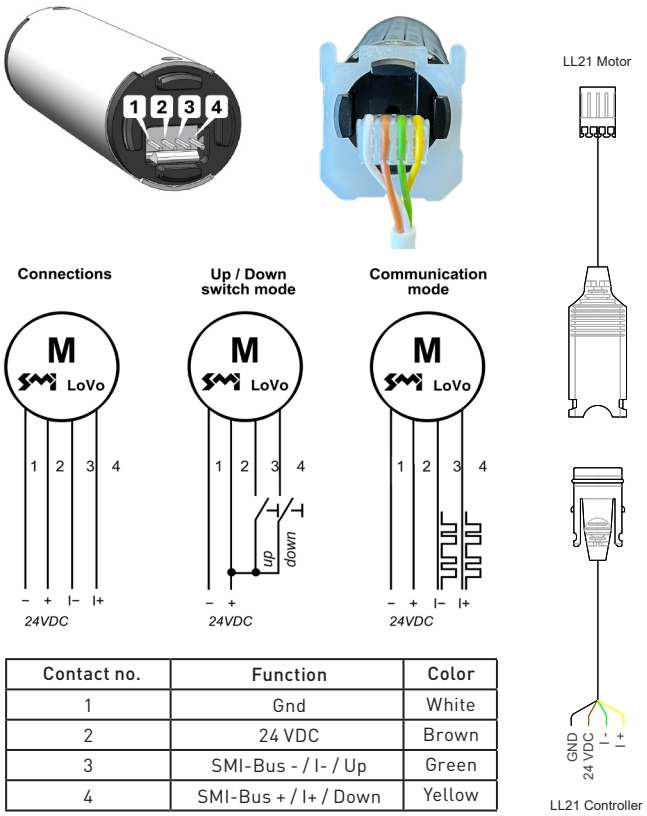
ATTENTION!
Motor cut-off before the set limit positions are reached:
The overload protection is triggered in the event of an excessive increase in load—for example, due to obstacles, the shading system becoming jammed, or motor overload (e.g., regarding pulling weight).
Possible remedy:

- Remove the obstruction.
- Check mechanical parts of the sun shading system.
- Select the motor in accordance with sun shading system specifications and instructions.

The motor is designed for installation in various headrails. The corresponding clip adapters are included. Please select the appropriate shaft adapter for connecting the motor shaft to the system shaft from the range of accessories (not included). The motor features a Pancon MAS-CON Series CE / CT 100 terminal connection. The electrical connection must be made in accordance with the wiring diagram (see connection examples). Please select suitable connection cables from the range of accessories (not included).
Please refer to the separate circuit diagrams and data sheets! (Available in download area at *www.isolette.de*)

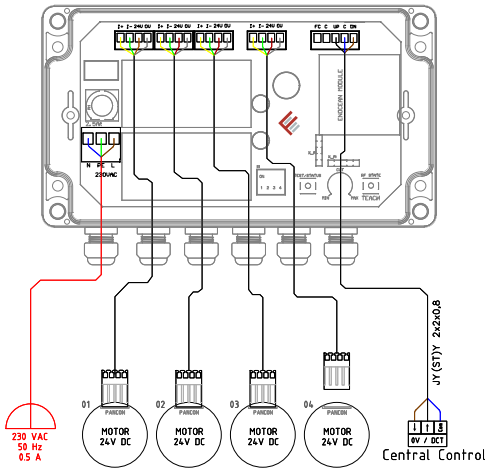
Subject to change without notice!

CONNECTION DIAGRAM

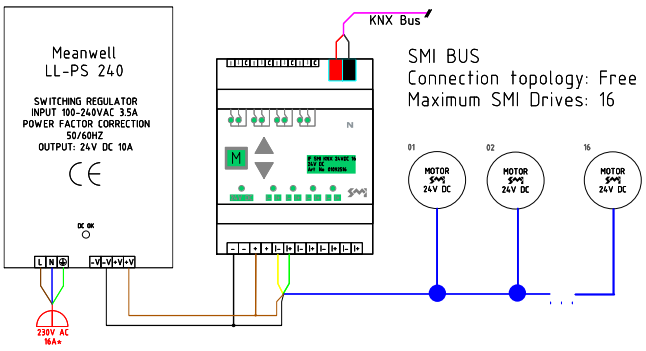


Contact no.	Function	Color
1	Gnd	White
2	24 VDC	Brown
3	SMI-Bus - / I- / Up	Green
4	SMI-Bus + / I+ / Down	Yellow

Switch-Mode: Connection example with LL21 Controller RS4 Duo



SMI-Mode: Connection example with SMI KNX actuator



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LL21 Motor 24V DC SMI

SETTING

Important!

- Configuration by using the LL21 Setup Tool LT (Art. No. 01077451).
- Switch off the power supply. Connect the appropriate cable to the motor and the installation tool.
- It is important that the wire colors of the motor and the installation tool match to ensure communication.
  Switch on the power supply.
- The installation tool is not suitable for continuous operation and is used only for setting the limit positions.
- To save the physical upper end position, please refer to the instructions in the "Setting limit positions" mode (blue).

The LL21 setup tool features multiple menu levels (modes). The LED color above the "Mode" button indicates the current menu level.

Green = Motor operating mode
Blue = Setting limit positions (short press of "Mode" button)
Violet = Reset and change rotation direction (long press "Mode")

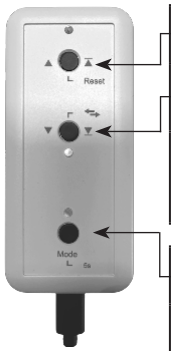
Recommendation for setting the end position:

1. Operate the motor in "Mode" Green.
2. Check for the correct direction of rotation.
   To change the direction of rotation, switch to "Mode" Violet.
3. Move to the desired lower end position.
   Then switch to "Mode" Blue to save it.
4. You can now set the upper end position as follows.

Option A: Physical upper end positon	Option B: Virtual upper end positon
Run the motor upwards until it stops automatically. The motor then relieves the tension on the slat stack just below the physical upper limit position. The physical upper end position is now saved. The setting process is complete.	Move the motor to the desired upper limit position. Then switch to "Blue Mode" to save it. The motor automatically moves upwards until it reaches the limit stop. It then moves back to the virtual end position. The setup process is complete.

Note!
The setting limit positions mode (blue LED) is locked after the setup process is complete.
To reset the limit positions, the motor must be reset.
(see *Mode: Reset and change turning direction*).

Mode: Drive = Green LED



	Press UP to drive the motor in the upward direction.
	Press DOWN to drive the motor in the downward direction.
	• Hold the respective button for more than 3 sec. the motor switches to self-holding mode. LED flashes yellow. • Stop the motor by pressing the opposite button.
	„Mode“ button switches between the setting options.
	Standard drive mode = Green LED flashing

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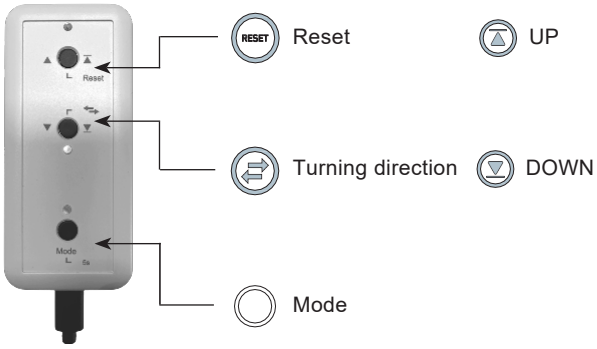
Mode: setting limit positions = Blue LED

	Press UP to save the upper (virtual) end position.
	The LED flashes blue during the process. The motor then performs a short DOWN–UP movement.
	Press DOWN to save the lower end position.
	The LED flashes blue during the process. The motor then performs a short UP–DOWN movement.
	„Mode“ button switches between the setting options.
	Press the button briefly. The LED changes from green to blue.
	After 3 seconds of inactivity or after execution of a command, the tool automatically switches back to drive mode.



Mode: Reset and change turning direction = Violet LED

RESET	Press "Reset" to reset the motor.
	The LED flashes red during the reset. After the reset, the motor performs a short UP–DOWN movement. The end positions are then deleted and can be re-taught.
	Press to change the turning direction. Can only be used if no end positions have been set yet.
	The LED flashes during the direction change. The motor then performs a short UP–DOWN or DOWN-UP movement.
	„Mode“ button switches between the setting options.
	Hold the button for more than 3 seconds. The LED changes from green to violet.
	After 3 seconds of inactivity or after execution of a command, the tool automatically switches back to drive mode.

Reference run

- Is performed after 50 complete cycles (up/down runs) or when the motor has been disconnected from power.
- The reference run serves to check and adjust the blind mechanics which can change under the influence of temperature and air-pressure.
- If a reference run is scheduled, it is always performed at the end of an upward run: the motor drives against the physical stop until cut-off, then drives back to the saved upper end position.

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LL21 Motor 24V DC SMI

IMPORTANT INSTRUCTIONS

- Installation must be carried out by a certified electrician.
- The motor must be checked for damage. Damaged units must not be put into operation.
- The supplier must be notified in the event of transport damage.
- The motor must only be used for its intended purpose. Alterations or modifications will void the warranty.
- If safe operation can no longer be guaranteed, the motor must be taken out of service immediately. The blind system and its components must be secured against accidental operation.
- Technical specifications can be found on the motor's rating plate.
- Children must not play with electrical components. Keep them out of the reach of children.
- Regular inspections by qualified personnel are required.

Maintenance

The motor is maintenance-free.

Disposal

This device must not be disposed of as unsorted household waste. Owners of end-of-life equipment are legally obliged to dispose of this device properly. Information is available from your city or municipal administration.

CE We hereby declare that this device complies with the essential requirements and relevant directives. The Declaration of Conformity for this device is available in the download area of our website.

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