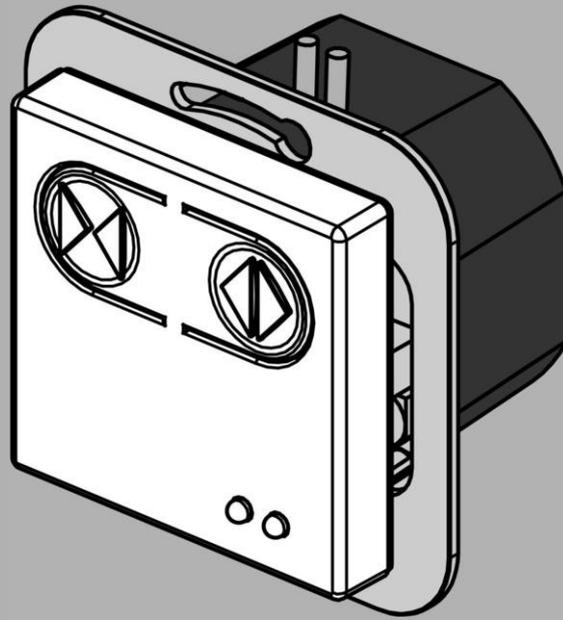


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INSTRUCTION MANUAL



24V motor control device for flush box mounting

1 Functional description

The motor control device is designed for operation with a 24V DC motor. The motor usually drives a sliding door or a sliding shutter, to which it is connected by a timing belt. The motor control device is controlled by potential free inputs (0 / Open / Close).

Motor control device

The control device is designed to fit in a standard flush box, according to DIN 49073. The control device disappears into the flush box, including its electrical connections. For operation a removable switch is provided, which fits into commercial available switch ranges with standard dimensions of 55mm.

Mounting and look

The control device is powered by an integrated 24V power supply.

Power supply

For electrical connections, screw clamps are provided:
Motor (clamps 1 and 2) and Inputs (clamps 3,4 and 5).

Electrical connection

The control device provides the possibility to set up different parameters via a potentiometer, a DIP-switch with 4 channels and a reset key. Two LEDs display the operation state and simplify the initial operation.

Display and settings

The control device can be operated in semiautomatic mode or as deadman's control:

Operation modes

- In semiautomatic mode, the drive operates as long as no obstruction is detected or the end is not reached, even if the control signal is no longer applied.
- In deadman's control mode, the drive operates as long as no obstruction is detected or the end is not reached, but it stops instantly, when the control signal is removed..

When the control device is correctly installed and the initial operation is done, the control device drives the connected 24V DC motor. When the motor current raises above a limit, the control device shuts down the motor. This is called power operated shutdown, because by limiting the motor current, the motor torque is also limited. In this way, the control device recognizes obstructions and switches off the motor.

Power operated shutdown

The power operated shutdown is also used to recognize the end positions. Because the current consumption of the motor rises, when it reaches the end position, the control device shuts the motor down.

During initial operation, the control device measures the duration of a normal cycle. A short time before the wing reaches the end, the motor slows down. This reduces mechanical wear and increases safety.

The control device can also be operated generally in slow speed.

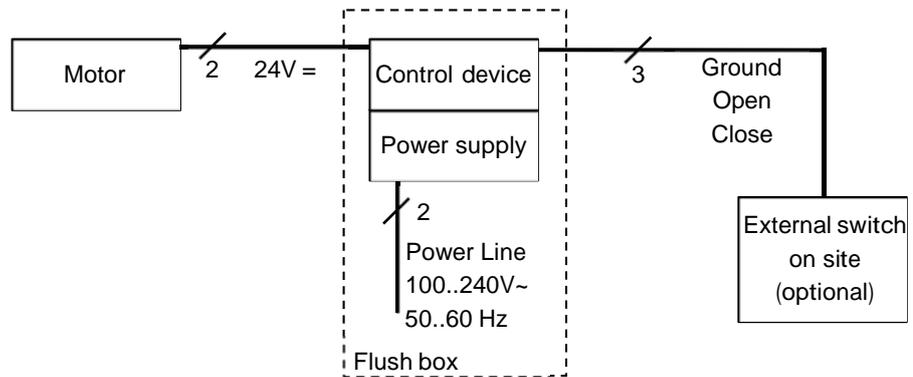
Low Speed

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2 Wiring

2.1 Wiring diagram



2.2 Wiring requirements

The following specifications are minimum requirements.

Wire	Type of wire
Between motor and motor control device	Motor power supply (24V =) up to 20 m: 2 x 0,50 mm ² 20 to 50 m: 2 x 0,75 mm ² 50 to 100 m: 2 x 1,50 mm ²
Between external switch and motor control device	optional up to 50 m: 3 x 0,25 mm ²

Table 1 – Wire types

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3 Mounting and electrical connection

WARNING



Wrong installation

- Install this control device only in flush boxes in dry interior.

3.1 Mounting in a flush box

Dimensions of this control device are designed to fit into flush boxes according to DIN 49073 or similar boxes.



Hint

Mounting of the flush box, cable laying, installation of switch range, etc. is not explained in this document.

- Complete cable installation
- Disconnect main power supply
- Protect against power up
- Prepare cables to motor and power supply for connection
- Install control device in flush box
- Carry out electrical connections
 - Electrical connections, refer to chapter 3.2
- Fix control device with two screws
- Start initial operation
 - Initial operation, refer to chapter 4
- Place cover (not included) over control device
- Plug switch through cover into control device
- ✓ Control device and switch are mounted

Mount the control device

Mount the switch

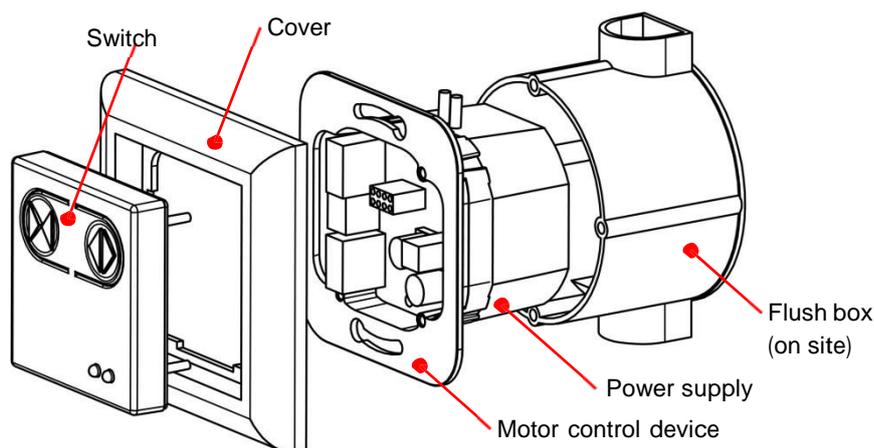


Figure 1 – Installation

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3.2 Electrical connection

⚠ CAUTION



Wrong installation

Damage of control device through wrong installation.

- Watch polarity of connections
- Use potential free input signals (only clamp 1 to 3)

- Disconnect main power supply
- Protect against power up
- Connect integrated power supply to AC line
- Connect motor: clamps 4 and 5
- Polarity determines direction of operation
- Connect on site switches (optional):
Clamps 1, 2 and 3
- ✓ Control device is connected

Prepare electrical connections

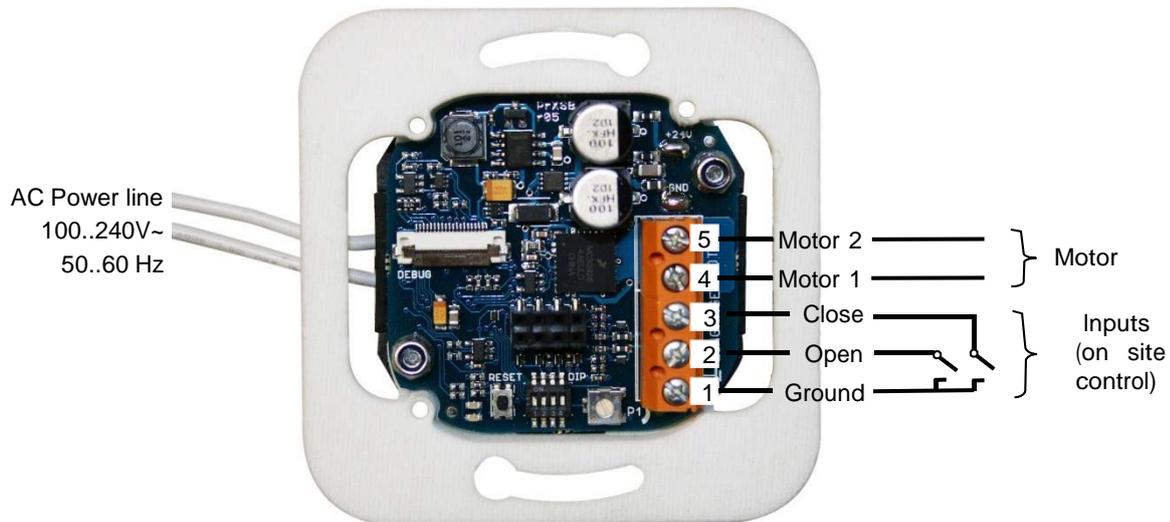


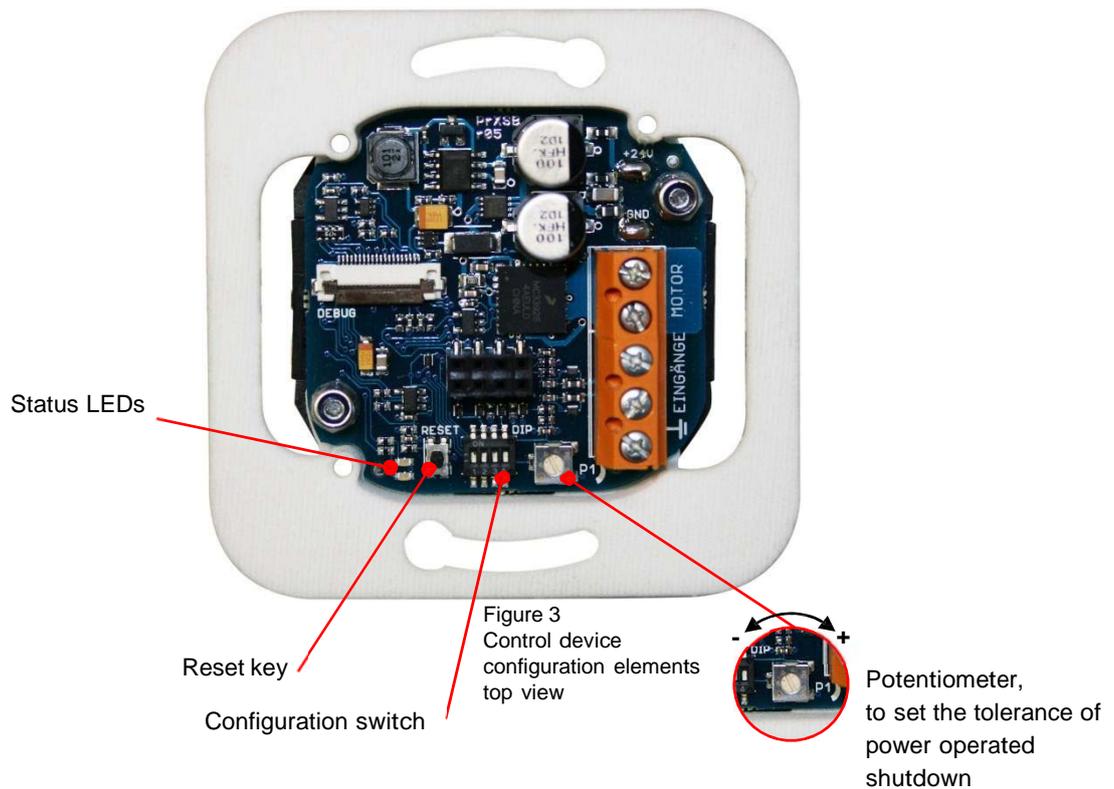
Figure 2 – Control device connections, top view

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4 Initial operation

When the control device is mounted and electrically connected, the initial operation must be performed.

The following sections describe the parts of the control device, which are relevant for the initial operation. The following chapters describe step by step, which functions must be set up and how the initial operation is done.



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5.1 Configuration

NOTICE

Overtightened potentiometer

Damage of control device may result in malfunction.

Potentiometers have a right and a left stop, which must not be overtightened.

- Adjust potentiometer only with low force and with an appropriate screw driver.



Hint

Changes in configuration when the initial operation is done, will force the control device to perform a new initial operation.

→ Perform initial operation, refer to chapter 5.2

5.1.1 Tolerance of power operated shutdown

In some cases the drive will not shut down correctly during or after initial operation. Or the drive stops, before it has reached the end position. This particularly happens, when a very heavy or a very lightweight wing is used.

NOTICE

Motor overload

Damage of components by motor overload.

- Check after any change of configuration, if the control device shuts down correctly.
- Do not set tolerance too high.

When the drive stops early

- Turn potentiometer 1 clockwise
- ✓ Drive switches off later

Increase tolerance

When the drive does not stop

- Turn potentiometer 1 counterclockwise
- ✓ Drive switches off sooner

Decrease tolerance



Hint

After a maximum time of 5 minutes, the drive switches off in each case.

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5.1.2 Configuration switch

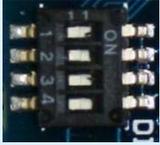
	Switch	Description	OFF	ON
	1	Deadman's control	Semi automatic	Deadman's control
	2	Motor type	NOT USING	XS/120
	3	Maximum speed	normal	reduced
	4	Motor generation	XS-2	NOT USING

Table 1 – DIP-switch

1. Semiautomatic function /Deadman's control
 When the semiautomatic function is active, the drive is active as long as no obstruction is detected or the end position is not reached, even if the control input is not active any more.
 When the deadman's control is active, the drive is active as long as no obstruction is detected or the end position is not reached, but it stops instantly, if the control input becomes inactive.
2. Motor type
 Set switch according to used motor = **always ON**
3. Maximum speed
 Set this switch to ON, if the drive should run in reduced speed only.
4. Motor generation
 Set switch according to used motor = **always OFF**

5.2 Steps during initial operation

WARNING



Moving wing

Danger of injury by squashing, shearing or collision, caused by moving wing.

- Wing moves independently during initial operation.
- Keep danger area clear during initial operation.

- Prepare electrical connections
→ Refer to chapter 3.2
- Set configuration
→ Refer to chapter 5.1

Prepare control device

- Switch power supply on
- ✓ Control device in delivery status or after power cut:
Red LED blinks continuously twice with a short break of 1.5 sec
- Press RESET for 2 seconds

Reset control device



- ✓ Red LED blinks continuously
- Check driving direction of motor
When pressing OPEN, wing has to open and when pressing CLOSE, wing has to close
→ When driving direction is wrong:
Swap motor cables (clamp 4 and 5), check driving direction again
- Press RESET again for 2 seconds



- ✓ Red LED lights up permanently,
Green LED lights up, when motor is active
- ✓ Drive performs a few runs.
- ✓ LEDs go out



- ✓ Red LED starts blinking continuously
- In this state (about 30 seconds) additional complete cycles may be performed.
These cycles have to be triggered by user and are optional.
- ✓ After 30 seconds without any function, the LED goes out



- Check desired function
- In case of malfunction, check electrical connections and configuration
→ Electrical connection, refer to chapter 3.2
→ Configuration, refer to chapter 5.1
→ Repeat initial operation, if necessary
- ✓ Initial operation is completed, when function is correct

Check function

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