

TECHNICAL MANUAL DICTAMAT OPENDO

You can find the current version of our manual on our website under «Downloads»:

<https://en.dictator.de/products/door-drives-gate-drives/operators-sliding-doors/dictamat-opendo/>

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1. General notes

1.1 TARGET GROUP

This manual is intended for qualified personnel only. Installation may only be carried out by technically trained and qualified persons. The electrical connection may also only be carried out by a specialist.

1.2 WARNING

This document contains important information on installation, electrical connection and commissioning of the product. The document must be read before any work is carried out on the electrical and electronic systems and must be kept accessible at all times as part of the product.

1.3 REQUIREMENTS

In addition to this document, other documents, directives, standards and laws for products of this type must be observed.

1.4 GENERAL SAFETY INSTRUCTIONS



ATTENTION

Danger to life from electric shock!

Dangerous injuries, death and damage to property can be caused by dangerous electrical voltages! The operation of all components is only permitted in undamaged condition.

Always disconnect from the power supply before carrying out any work and secure against being switched on again.

All accident prevention regulations must be observed.

1.5 CABLES TO USE

Cable	Type of cable	
Between motor and controller	up to 20 m: 20 to 50 m: 50 to 100 m Rotary encoder: up to 50 m:	2 x 0,50 mm ² 2 x 0,75 mm ² 2 x 1,50 mm ² 4 x 0,25 mm ²
Between push button and controller (optional)	up to 50 m:	4 x 0,25 mm ²
Between power pack and controller	up to 20 m: 20 bis 50 m: 50 bis 100 m:	2 x 0,50 mm ² 2 x 0,75 mm ² 2 x 1,50 mm ²

2. Components

2.1 COMPONENTS INCLUDED 710650

For single-leaf wooden doors up to 1100 mm width

- Door drive with clamping block and counter plate for rail
- Power pack 230 VAC / 24 VDC
- Controller with push-button OPEN/CLOSE
- Cover frame for flush-mounted box provided by customer
- Idler pulley
- Door actuator
- 4100 mm of toothed belt
- Aluminum rail, length 3000 mm
- 4 aluminum brackets for wall mounting of the rail including spacer plates
- 2 wheel hangers with slide bearings
- 1 floor guide
- 2 final stopping devices for installation in the rail

2.2 COMPONENTS INCLUDED 710651

For single-leaf wooden doors up to 1100 mm width; AISI 316 wheel hangers

- Door drive with clamping block and counter plate for rail
- Power pack 230 VAC / 24 VDC
- Controller with push-button OPEN/CLOSE
- Push-button OPEN/CLOSE
- 2 cover frames for flush-mounted boxes provided by customer
- Idler pulley
- Door actuator
- 4100 mm of toothed belt
- Aluminum rail, length 2000 mm
- 4 aluminum brackets for wall mounting of the rail including spacer plates
- 2 AISI 316 wheel hangers with ball bearings
- 1 floor guide
- 2 final stopping devices for installation in the rail

2.3 COMPONENTS INCLUDED 710652

For single-leaf glass doors up to 1100 mm width

- Door drive with clamping block and counter plate for rail
- Power pack 230 VAC / 24 VDC
- Controller with push-button OPEN/CLOSE
- Cover frame for flush-mounted box provided by customer

- Idler pulley
- Door actuator
- 4100 mm of toothed belt
- Aluminum rail, length 2000 mm
- 4 aluminum brackets for wall mounting of the rail including spacer plates
- 2 wheel hangers with slide bearings
- 1 floor guide
- 2 final stopping devices for installation in the rail

2.4 COMPONENTS INCLUDED 710653

For single-leaf wooden doors up to 1600 mm

- Door operator with terminal block and counter plate for rail
- Power pack 230 VAC / 24 VDC
- Controller with push-button OPEN/CLOSE
- Cover frame for flush-mounted box provided by customer
- Idler pulley
- Door actuator
- 6100 mm of toothed belt
- Aluminum rail, length 3000 mm
- 4 aluminum brackets for wall mounting of the rail including spacer plates
- 2 wheel hangers with slide bearings
- 1 floor guide
- 2 final stopping devices for installation in the rail

2.5 COMPONENTS INCLUDED 710654

For double-leaf wooden doors up to 1058 mm width per door leaf

- Door drive with clamping block and counter plate for rail
- Power pack 230 VAC / 24 VDC
- Controller with push-button OPEN/CLOSE
- Push-button OPEN/CLOSE
- 2 cover frames for flush-mounted boxes provided by customer
- Idler pulley
- Door actuator
- 8100 mm of toothed belt
- 2 aluminum rails, length 2000 mm
- 8 aluminum brackets for wall mounting of the rail including spacer plates
- 4 AISI 316 wheel hangers with ball bearings
- 2 floor guides
- 3 final stopping devices for installation in the rail

3. Installation

3.1 INSTALLING THE DRIVE

The drive is mounted directly on the supplied rail. To do this, insert the clamping block into the rail, place the lateral mounting plate and counter plate underneath the rail and screw all components together with the supplied M6 x 25 mm screws.

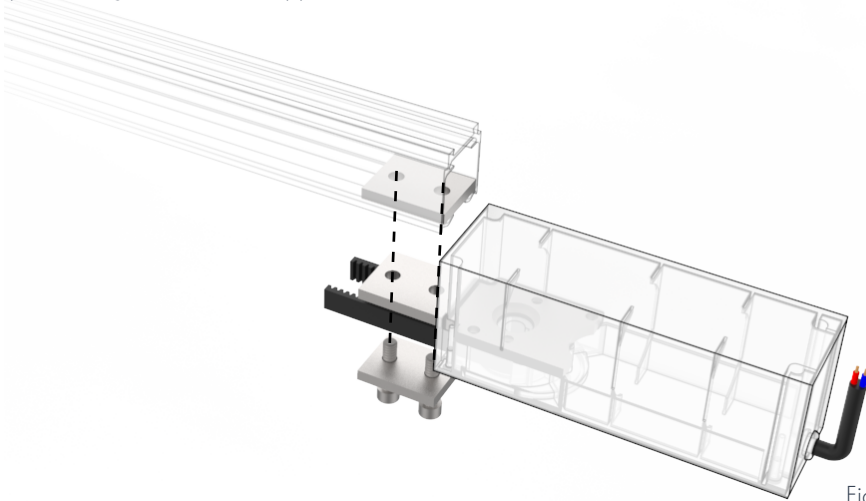


Fig. 1

3.2 PREPARING THE DOOR

Now screw the door actuator and both wheel hangers firmly to the door. The door actuator should always be fixed in the middle of the door leaf. Make sure that the wheel hangers are fixed at a sufficient distance from the outer edge of the door. This distance should be kept so that the drive and the idler pulley still have sufficient space in the rail next to the wheel hangers.

Recommended: 125 mm distance to the outer edge on both sides of the door. If not already present, an additional slot must be prepared in the door leaf for the floor guide (Fig. 12).

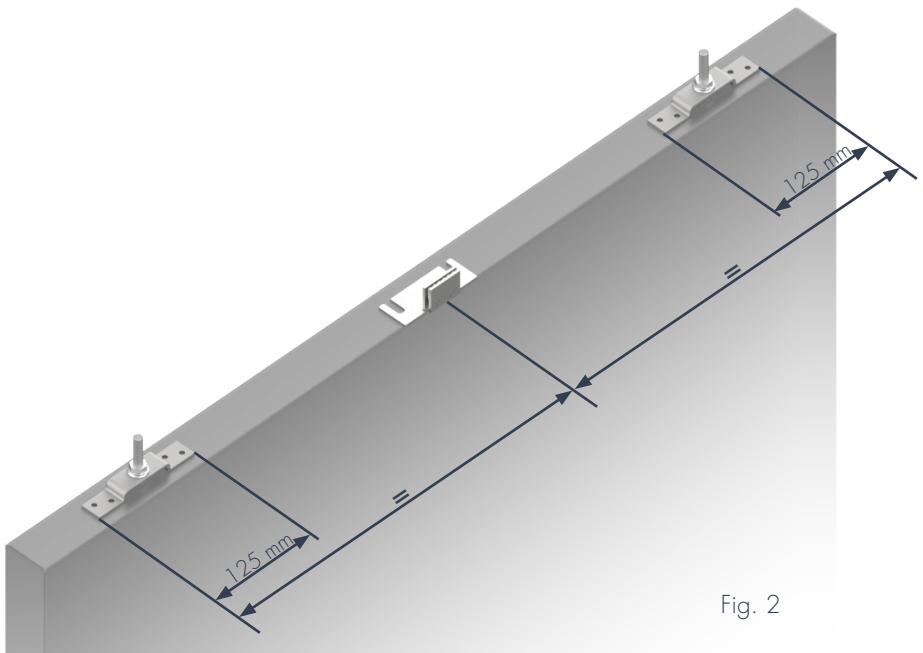


Fig. 2

3.3 INSERTING THE COMPONENTS INTO THE RAIL

Insert all components into the rail in the following order: Final stopping device, wheel hanger, wheel hanger and idler pulley.

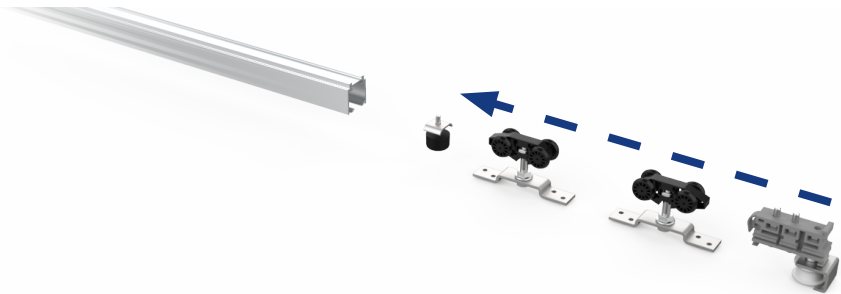


Fig. 3

3.4 FASTENING THE RAIL

To fix the rail, the supplied aluminum brackets are inserted into the upper guide of the rail. In addition, the spacer plates can be used if the bracket cannot be fixed directly to the wall (Fig. 4).

In order to ensure a stable hold of the rail, please ensure a distance of max. 600 mm between the individual brackets during installation (Fig. 5).

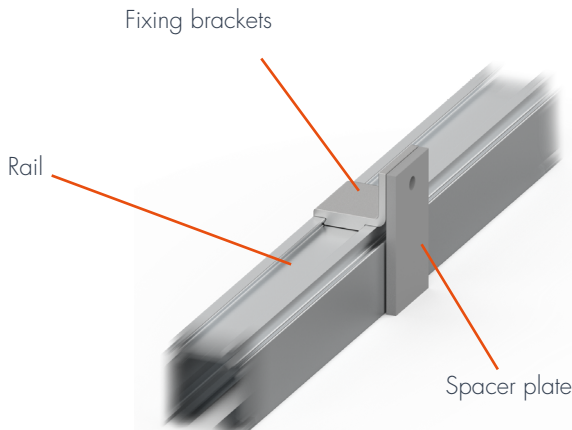


Fig. 4



Fig. 5

3.5 ADJUSTING THE DOOR

Now the door can be hung up and adjusted to the required height with the screws of the hangers.

Then secure the door with the lock nuts.

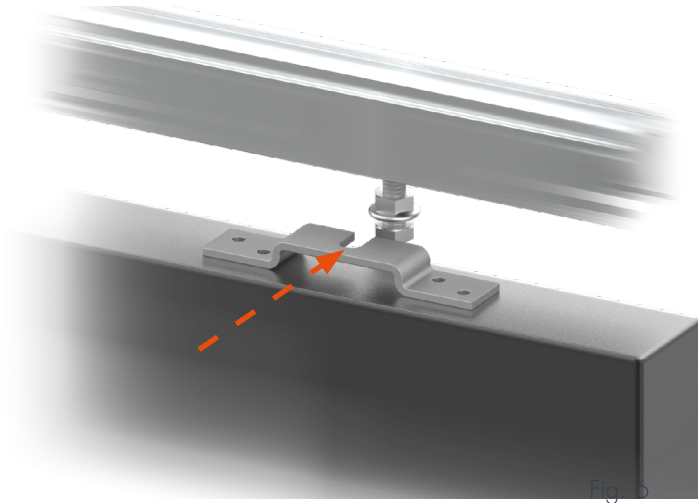


Fig. 6

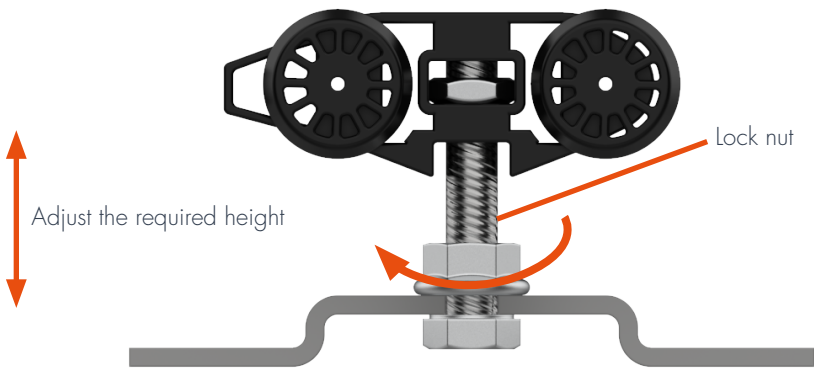


Fig. 7

3.6 PLACING AND TIGHTENING THE TOOTHED BELT

To tighten the toothed belt, first remove the cover cap on the drive (Fig. 8) and loosen the clamping plate on the door actuator. Now guide the toothed belt around the toothed pulley on the drive and the idler pulley (Fig. 9), shorten to the required length and secure it again on the door actuator through the clamping plate (Fig. 10, Pg. 11).

To tension the toothed belt, move the idler pulley in the rail until the belt is well tensioned. This must not hang slack in the system. Then secure the position by tightening the idler pulley.

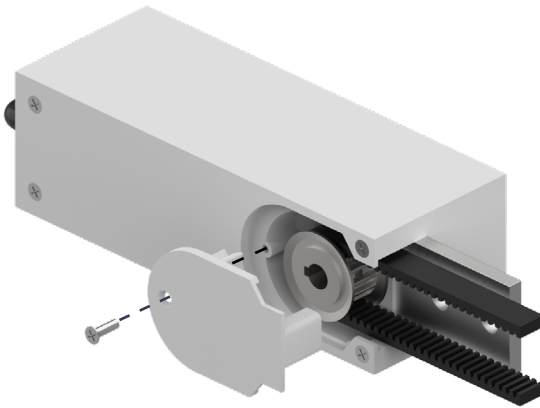


Fig. 8

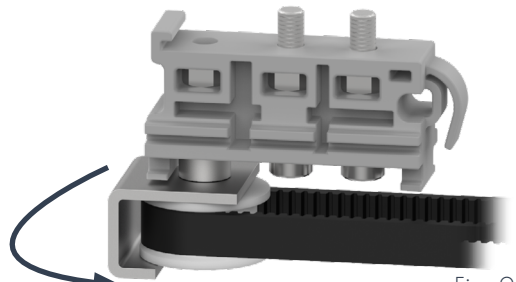


Fig. 9

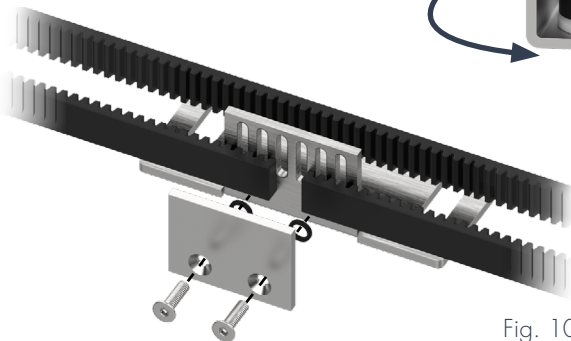


Fig. 10

3.7 INSTALLING THE CONTROLLER

The supplied OPEN/CLOSE button, the control unit, the cover frame and the power pack are installed in a single flush-mounted box (see Fig. 11). This must first be installed by the customer (flush-mounted box according to DIN 49073, rocker dimension 55 mm; installation opening 60 mm).

Information on the electrical connection can be found on page 13.

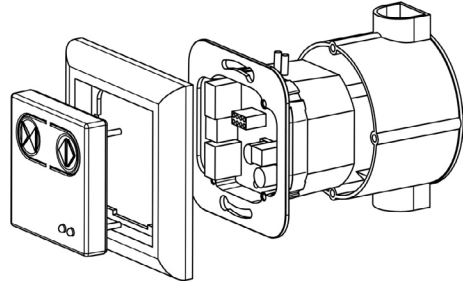


Fig. 11

3.8 FLOOR GUIDE AND FINAL STOPPING DEVICES

When mounting the floor guide, make sure that it does not jam. It may be necessary to adjust the width or height of the slot for the floor guide. If necessary, check again that the door hangs vertically (Fig. 13).

The final stopping devices can easily be secured in the desired position using grub screws.

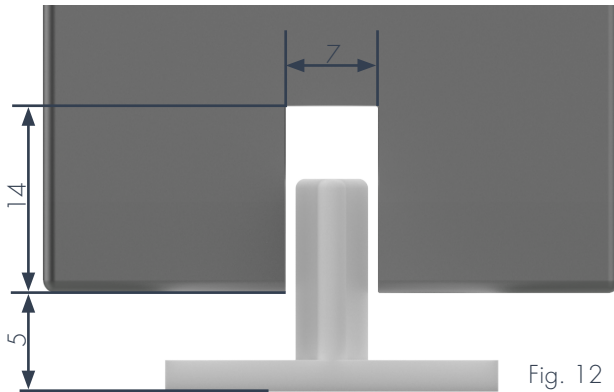


Fig. 12

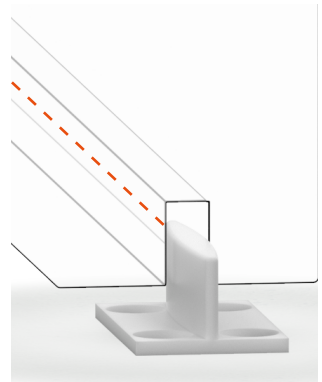


Fig. 13

4. Technical data

Door width	standard version for single-leaf doors: 675 mm to 1600 mm
	standard version for double-leaf doors, per leaf: 675 mm to 1058 mm; both door leaves must have the same dimensions!
Door weight	single-leaf doors: max. 80 kg double-leaf doors: max. 40 kg/leaf
Door thickness	wood: 19 - 48 mm, glass 10 or 12 mm
Speed	max. 0.25 m/s; adjustable, depends on door weight: 80 kg => max. 0.2 m/s; 60 kg => max. 0.23 m/s; 40 kg => max. 0.25 m/s
Hold-open time	adjustable between 5 and 30 s
Rated input voltage	100 to 240 VAC, 50 to 60 Hz
Motor rating	50 W
Safety	microprocessor controlled switch-off in case of obstacles
IP rating	IP 55
Operating temperature	-20° to +50 °C
Operational life	min. 400 000 cycles
Max. number of operations	up to 50 operations per hour

5. Electrical connection



ATTENTION

Damage to the component due to incorrect connection!

When connecting, it is imperative that the correct polarity is observed!

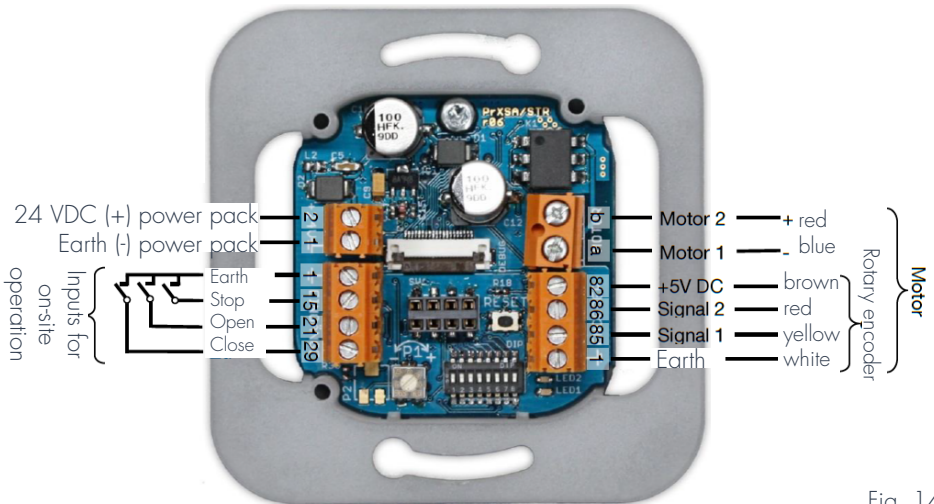


Fig. 14

6. Setting the desired functions

6.1 CONTROL FUNCTIONS

The DICTAMAT OpenDo enables many different functions.

It should be noted that the functions in deadman mode and in impulse mode may differ (see table below).

For opening and closing the door by radio or motion detector, it is absolutely necessary to set the impulse mode.

Basic operating mode	Deadman operation	Impulse operation
OPEN	only per button	<ul style="list-style-type: none"> ■ per button (Standard) ■ Push-and-go (pushing the door shortly by hand activates the door operator which will automatically open the door) ■ Radar or radio
CLOSE	only per button	<ul style="list-style-type: none"> ■ per button (Standard) ■ Automatic closing (door closes automatically after an adjustable time) ■ Radar oder radio
Safety (detection of obstacles) in OPEN and CLOSE	stop	<ul style="list-style-type: none"> ■ Reversing (the door stops and then moves in the opposite direction) ■ Stop: only possible when no automatic closing has been set.
Door permanently open	Door remains open until next CLOSE command	Also possible with automatic closing time set by key combination (press OPEN and CLOSE simultaneously).
Moving the door in case of power cut	Can be moved by hand with little effort.	

6.2 OVERVIEW

The settings of the OpenDO are made by means of the potentiometer P1, the DIP switches and the RESET button on the control unit.

The following diagram shows where these components are located on the controller.

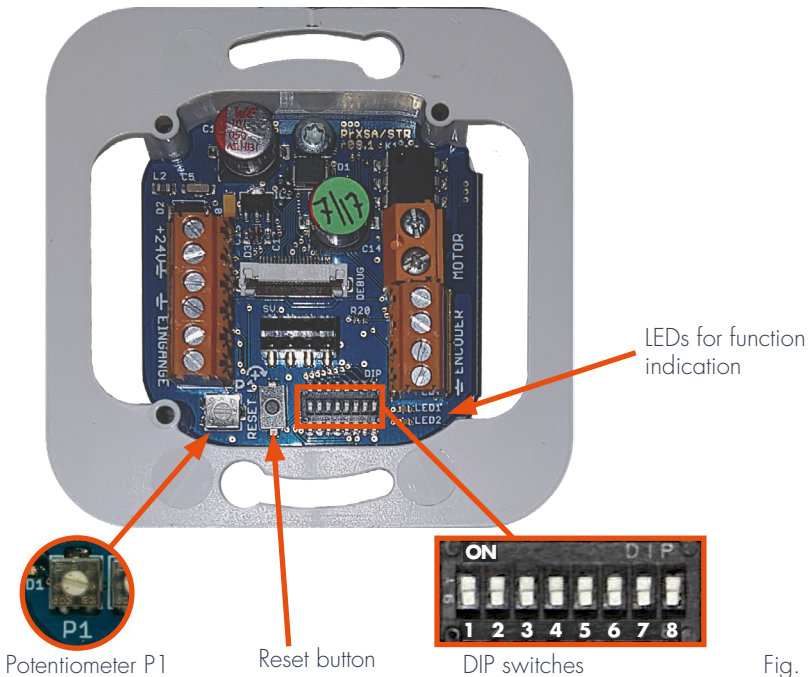


Fig. 15

6.3 ADJUSTING THE POTENTIOMETER

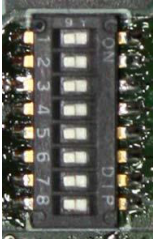
The potentiometer can be used to set the hold-open time of the door operator. The following applies:

- Turning clockwise: Hold-open time is extended
- Turning counterclockwise: Hold-open time is reduced

IMPORTANT: The potentiometer has a stop in both directions of rotation which must not be overtightened! The potentiometer must therefore always be turned with extreme caution and suitable tools! Damage can lead to malfunctions.

6.4 SETTING THE DIP SWITCHES

The DIP switches can be used to configure the operating modes listed in 6a, among others. Please always make sure to carry out changes in the deenergized state!!

	Switch	Description	OFF	ON
 <p>OFF ← ON</p> <p>Fig. 16</p>	1	Function	Semi-automatic	Automatic
	2	Deadman	Deactivated	Activated
	3	Push & Go	Deactivated	Activated
	4	Behavior in case of obstacle	Reverse	Stop
	5	Closing speed	50%	Full
	6	Door leaf max. 80 kg	Deactivated	Activated
	7	Door leaf max. 60 kg	Deactivated	Activated
	8	Door leaf max. 40 kg	Deactivated	Activated

1. In semi-automatic mode, the door operator does not close automatically. The hold-open time set at potentiometer P1 is ignored. In automatic mode, the door operator closes after the hold-open time set at potentiometer P1.
2. In deadman mode the door drive only runs as long as the operator push-button is pressed. If DIP switch 2 is set to ON, the position of DIP switch 1 is ignored! If DIP switch 2 is set to OFF, the settings of DIP switch 1 apply.
3. When Push & Go is activated, the door drive starts moving automatically as soon as the door is pushed. Only possible in OPEN direction!
4. If reversing is active, the door drive moves in the opposite direction if an obstacle is detected during the closing movement. During the opening movement, the drive stops. When reversing, the drive always moves at reduced speed. If DIP switch 4 is set to ON (STOP), the drive stops when an obstacle is detected, both during opening and closing.
5. This setting refers to the closing speed of the DIP switches 6 - 8. In position OFF the closing speed is only 50 % of the speed set in 6 - 8.
6. to 8.
The closing speed to be set refers to the weight of the door leaf:
6. Weight of door leaf max. 80 kg: 20 cm/s
7. Weight of door leaf max. 60 kg: 23 cm/s
8. Weight of door leaf max. 40 kg: 25 cm/s

6.4 ACCEPTING THE SETTINGS

After all desired settings have been made via the potentiometer and the DIP switches, they must be accepted via the reset button.

IMPORTANT: If commissioning has not yet been carried out, please jump to point 7. The settings are also adopted by the commissioning.

To adopt the settings after commissioning and during operation, the following steps must be taken:

- Press the reset button for approx. 2 s.
→ LED starts flashing red continuously. The controller is in configuration mode.



- If not already done, set the desired configuration. Then press the reset button for less than 0.5 s.

The controller exits the configuration mode.

→ LED starts flashing red twice in quick succession with a pause of 1.5 s.

The control unit is in start state.



- Now perform a movement in any direction. The door drive moves in creep speed.
→ The red LED goes out, the configuration has been accepted.

7. Commissioning



ATTENTION

Danger from moving door!

The door moves automatically during commissioning.

Please keep the danger area clear during commissioning.

To put the DICTAMAT OpenDO into operation a complete reset must be carried out. This reset also takes over previously configured settings, so step 6e, „Accepting the settings“ is not necessary.

The following steps must be carried out for the reset:

- Connect the controller to the power supply
→ LED starts flashing red twice in quick succession with a 1.5 s pause.



- Press reset button for approx. 2 s.
→ LED starts flashing red continuously.



- Check direction of rotation. Open with OPEN button or close with CLOSE button. If the running direction is wrong:
→ Turn motor cable and check direction of rotation again. For this the power supply must be disconnected beforehand!
- Move the door leaf to the middle position with the keys. Now press the reset button again for approx. 2 s.
- The red LED is now permanently lit. The yellow LED lights up during motor activity.
The drive moves to the end position Open.
The drive moves to end position Closed.
The drive moves to end position Open.

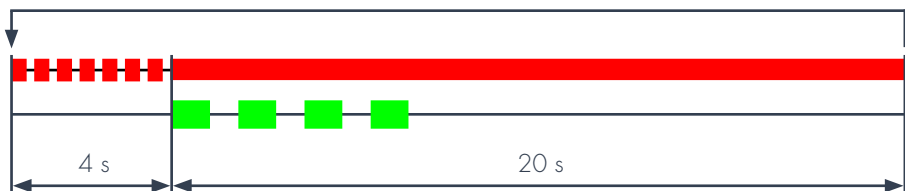


- The LEDs go out, now the desired functions can still be checked. If these functions work, commissioning is now complete.

8. Error indication

Error	Description	Code*
Unknown error	There is an unknown cause of error.	1
Self-test - Multiple errors	The self-test has detected several errors.	2
Self-test - Oscillator error	Defective oscillator	4
Self-test - Relay defective	Defective relay	5
Self-test - Driver defective	Defective driver	6
Self-test - Current measurement defective	Current measurement does not function properly.	7
Self-test - Driver error detection defective	The performance driver no longer issues an error message.	8
Hardware - Encoder error	The encoder is not correctly connected or defective.	9
Hardware - Voltage not permissible	The supply voltage is outside the permissible range.	10
Memory - RAM defective	A defect in the RAM was detected.	11
Memory - ROM defective	The program memory was changed or is defective.	12
Memory - EEPROM defective	The data memory is defective.	13

*The red and green LEDs indicate the respective detected error. First the red LED flashes quickly, then it is permanently lit for approx. 20 s. The green LED flashes according to the error code. The cycle is repeated until the error is reset.



Example for error code 4

In case of a defect, please always contact our technical support, if possible with information about the code.

9. Maintenance

Device switched off

- Clean the moving parts.
- Check the toothed belt tension.
- Clean the sensors.
- Check the stability of the sliding door operator and make sure that all screws are tightly screwed.
- Check whether all components are still aligned.

Device switched on

- Check that the door is stable and that there is no friction during movement.
- Check functions for correctness or check correct operation of all functions.
- Check whether the resulting forces comply with the current standards (e.g. in escape routes).

Component	Function description	Possible wear characteristics	Maintenance interval	Replacement interval
Idler pulley	Guides toothed belt in the system	Cracks; slip; wear	6 months after installation, then annually.	Every 10 years*
Wheel cover	Cover to protect the toothed wheel	Cracks; slip; wear	6 months after installation, then annually.	**
Toothed belt	Power transmission	Cracks/notches; elongation; discoloration	6 months after installation, then annually.	Every 2 years*
Motor	Force transducer	Frequent error messages	6 months after installation, then annually.	**
Wheel hangers	Door hanger and movement	Deposits/dirt on door or rail	6 months after installation, then annually.	**

* Depends on type of use

** Only recommended if the function is no longer ensured due to visible wear.

10. Inspection book

This inspection book contains technical notes and records for installation, maintenance, repair and modification. It must be accessible to authorized personnel. The book should be kept by the installing company and passed on to the end user.

INSTALLATION AND DOOR OPERATOR SPECIFICATIONS

Customer:

.....

Order number:

.....

Dimensions & weight:

.....

Construction project:

.....

LIST OF INSTALLED COMPONENTS

Motor/Door operator:

.....

Switch(es):

.....

Remote control:

.....

Motion detector:

.....

Checklist:

Filled in declaration of conformity

All documents handed over to end user

Filled in inspection book

Signature on receipt

Warning signs placed in suitable locations