

Technical Manual

DICTAMAT SPR

You can find the current version of our manual on our website under «Downloads»:
<https://en.dictator.de/products/door-drives-gate-drives/operators-hinged-doors/>

Table of Contents	
I. General Safety Instructions	<u>3</u>
I. General Safety Instructions - cont.	<u>4</u>
II. Machinery Directive	<u>5</u>
III. Technical Data	<u>6</u>
III. Technical Data - cont.	<u>7</u>
3.1 Operating Instructions	<u>7</u>
3.2 Dimensions	<u>7</u>
IV. Installation Example	<u>8</u>
V. Main Components	<u>9</u>
VI. Mechanical Installation	<u>10</u>
6.1 Removing the housing	<u>10</u>
VII. Installation with SBS Sliding Arm	<u>11</u>
VIII. Installation with the Articulated Arm SBA	<u>12</u>
IX. Installation with the Three-part Articulated Arm SPRBRAS	<u>13</u>
X. Installing the Final Stop on the Floor	<u>14</u>
XI. Electrical Connections	<u>15</u>
11.1 Electrical Connections for 230 V~ / 120 V~ Power Supply	<u>15</u>
XI. Electrical Connections - cont.	<u>16</u>
11.2 Electrical Connections for 24 V power supply	<u>16</u>
XII. Connecting the Power Supply	<u>17</u>
XIII. Commands/Switches	<u>18</u>
13.1 Testable Safety Devices	<u>18</u>
XIV. Outputs and Accessories	<u>19</u>
XIV. Outputs and Accessories - cont.	<u>20</u>
14.1 Operating Mode Selector Switch	<u>20</u>
XIV. Outputs and Accessories - cont.	<u>21</u>
XV. Electromagnetic Emissions	<u>22</u>
XVI. Adjustments	<u>23</u>
16.1 Activation Procedure	<u>23</u>
16.2 DIP Switches	<u>23</u>
XVI. Adjustments - cont.	<u>24</u>
XVI. Adjustments - cont.	<u>25</u>
16.3 Trimmers	<u>25</u>
16.4 Signals	<u>25</u>
XVII. Requirements for Doors for Use in Low Energy Mode	<u>26</u>
XVIII. Commissioning	<u>27</u>
XVIII. Commissioning - cont.	<u>28</u>
XIX. Troubleshooting	<u>29</u>
XIX. Troubleshooting - cont.	<u>30</u>
XX. Regular Maintenance Plan	<u>31</u>
XXI. Installation Example with Operation Selector Switch	<u>32</u>

I. General Safety Instructions

Failure to comply with the information contained in this manual may result in injury or damage to the unit.

Keep this manual for future reference!

This installation manual is intended for qualified personnel only. The installation, electrical connection and adjustment work must be carried out in accordance with the manual and in compliance with all relevant standards and regulations.

Read the instructions carefully before installing the product. Incorrect assembly can lead to injuries and property damage.

The packaging materials (plastic, polystyrene, etc.) must be disposed of properly and must not get into children's hands as they are a potential source of danger.

Before installing the product, make sure it is in perfect condition.

Do not install the product in explosive areas and atmospheres: the presence of inflammable gas or fumes represents a serious safety hazard. Before mounting the drive, make any necessary structural changes to ensure that safety clearances are maintained and that any pinch, shear, movement or general hazard areas are safeguarded or isolated.

Check that the existing structure meets the requirements for strength and stability. The manufacturer of the unit is not responsible for the lack of stability of the technical construction of the doors where the units are to be installed, nor for any deformations that may occur when using the units.

When installing and setting the safety devices (light barriers, contact edges, emergency stops, etc.), be sure to observe the applicable standards and directives, the criteria of the technical rules of conduct, the installation environment, the operating logic of the system and the forces developed by the motorised door.

The safety devices serve to protect against crushing, shearing, retraction and other danger areas of the motorised door.

The prescribed information signs must be provided to identify the danger areas.

For each installation, the characteristic data of the motorised door must be attached in a visible place.

If necessary, connect the automated door to an effective earthing system that complies with safety standards.

During installation, maintenance or repair work, disconnect the power supply before opening the cover to access the electrical equipment.

The protective housing of the operator must only be removed by qualified personnel.

I. General Safety Instructions - cont.

Interventions on the electronic devices may only be carried out with antistatic earthed arm protection. The manufacturer of the drive declines all liability for the installation of components that are unsuitable in terms of safety and operation.

Only original spare parts may be used when repairing or replacing the products.

The fitter is obliged to provide the operator of the system with all necessary information on the automatic, manual and emergency operation of the motorised door and to hand over the operating instructions.

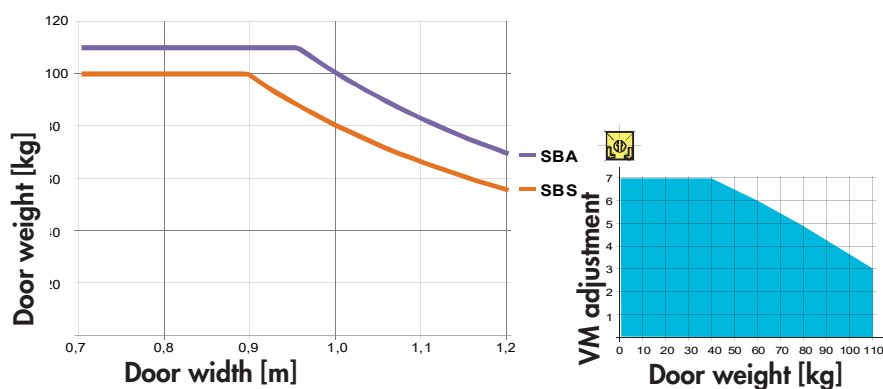
II. Machinery Directive

According to the Machinery Directive (2006/42/EC), the installer who motorises a door or gate is subject to the same obligations as a machine manufacturer and therefore has to do the following:

- Preparation of the technical file, which must contain the documents referred to in Annex V of the Machinery Directive; (The technical file must be kept and made available to the national authorities for at least ten years. This period starts from the date of manufacture of the motorised door.)
- Drawing up the EC Declaration of Conformity according to Annex II-A of the Machinery Directive and handing it over to the customer;
- Affixing the EC marking to the motorised door in accordance with point 1.7.3. of Annex I of the Machinery Directive.

III. Technical Data

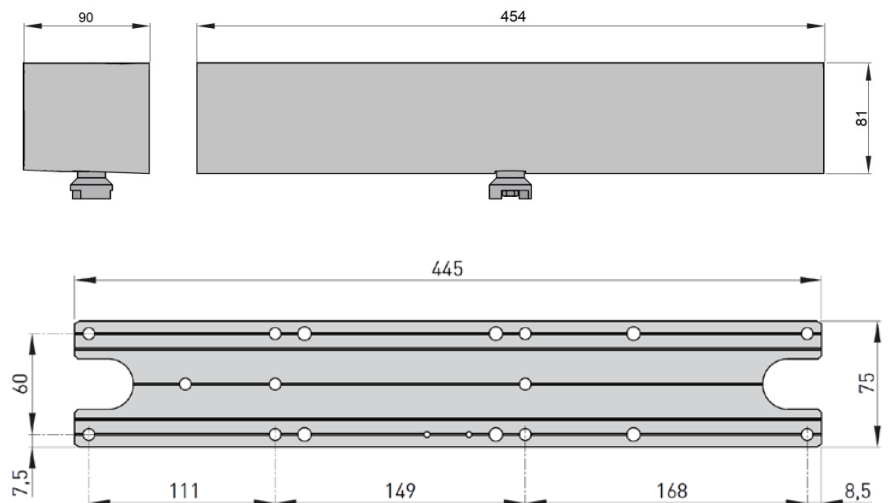
	SPR PN - P - V - INOX	SPR L - L INOX
Power supply	230 VAC / 50/60Hz	24 VDC (requires protection by external fuse)
Power consumption	0.5 A	3 A
Rating	120 W	120 W
Torque	25 Nm	25 Nm
Insulation class	class 2	/
Opening time	min 3 s / 90° max 6 s / 90°	min 3 s / 90° max 6 s / 90°
Closing time	min 4 s / 90° max 7 s / 90°	min 4 s / 90° max 7 s / 90°
Service class	5 - VERY INTENSE	5 - VERY INTENSE
Duty cycle	S3 = 80%	S3 = 80%
Type of operation	Opening and closing by motor	Opening and closing by motor
Max load (door leaf 0.9 m)	110 kg	110 kg
Max load (door leaf 1.2 m)	70 kg	70 kg
Temperature	min -20°C max +55°C	min -20°C max +55°C
Temperature with batteries	min -10°C max +50°C	min -10°C max +50°C
IP rating	IP30	IP30
Electronic control system	EL38	EL38
Power pack	AL05	/
F1 fuse	F1A	/
Motor output	24 V / 3.5 A	24 V / 3.5 A
Power supply of the accessories	24 V / 0.3 A	24 V / 0.3 A



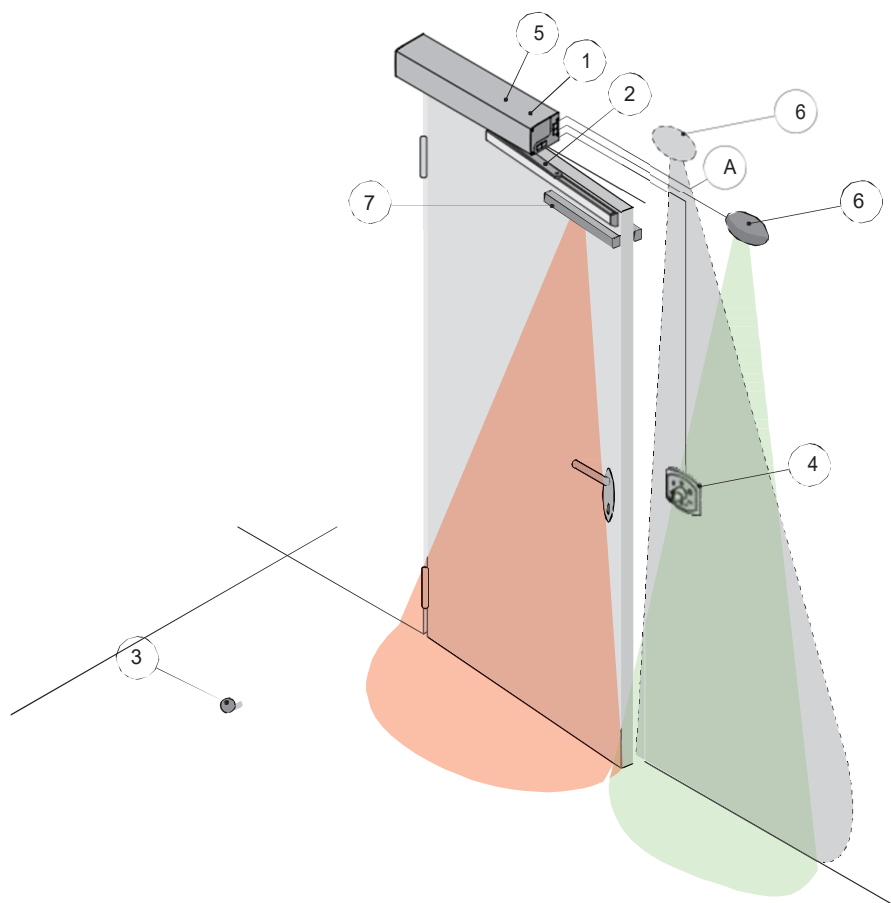
III. Technical Data - cont.**3.1 Operating Instructions**

Service class: 5 (minimum 5-year working life with 600 cycles per day).
Applications: VERY INTENSE (for entrances with very intense pedestrian use).

- The performance characteristics refer to the recommended weight (approx. 2/3 of the maximum permitted weight). When used with the maximum permitted weight, a reduction in the above mentioned performance levels can be expected.
- The service class, running times and number of consecutive cycles are merely indicative, having been statistically determined under average operating conditions and therefore not necessarily applicable to specific conditions of use.
- Every automatic door has variable factors, such as: Friction, compensation processes as well as environmental conditions can fundamentally change both the life and the quality of operation of the door drive or part of its components (such as the automatic systems). It is up to the installer to provide appropriate safety coefficients for each situation.

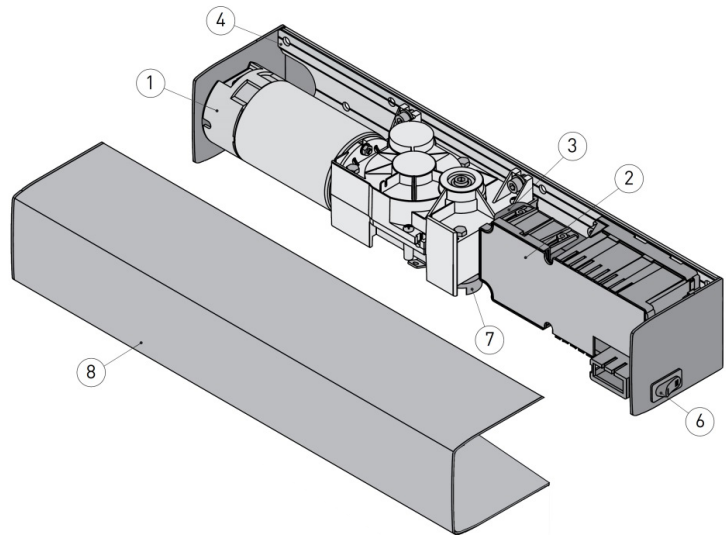
3.2 Dimensions

IV. Installation Example



Ref.	Code	Description
1	SPR	Door drive
2	SBA SBS SPRBRAS FBA	Articulated arm Sliding arm Three-part articulated arm End stop for articulated arm
3	Optional	End stop on the floor
4	Optional	Function selector switch
5	Optional	Battery kit
6	Optional	Opening sensor
ATTENTION TO THE FIXING POSITION		
7	Optional	Sensor for safe opening and closing
A		Connect the power supply to a type-approved omnipolar switch, with a contact opening distance of at least 3 mm (not supplied). Connection to the mains must be via an independent channel, separate from the connections to the control and safety devices.

V. Main Components



Ref.	Code	Description
1		24 V motor with encoder
2	EL38	Electronic control system
3	SPRBAT	Battery kit
4		Base plate
5		ON/OFF button
6		Function selector switch
7		Arm support
8		Stainless steel housing [SPR V - SPR LV - SPR VJ]

VI. Mechanical Installation

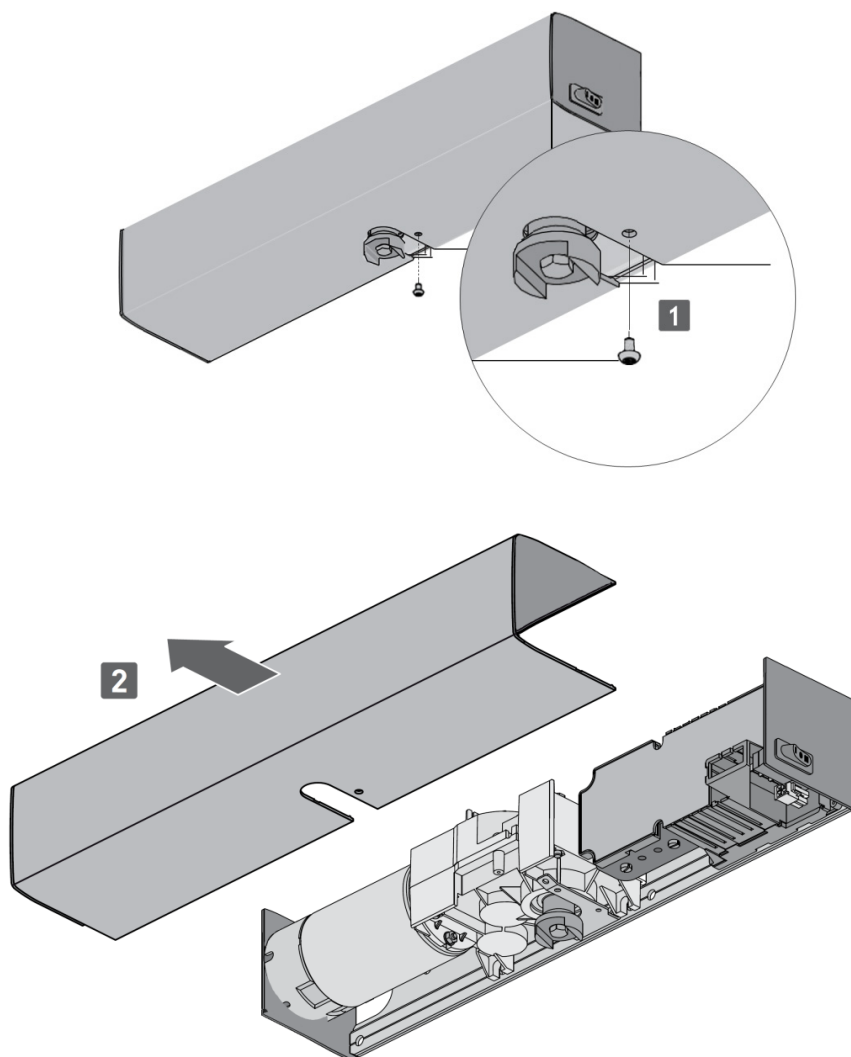
Check the stability and weight of the door wing. Make sure it moves smoothly, without any friction (reinforce the frame if necessary). Any existing door closers must be removed or, alternatively, completely deactivated.



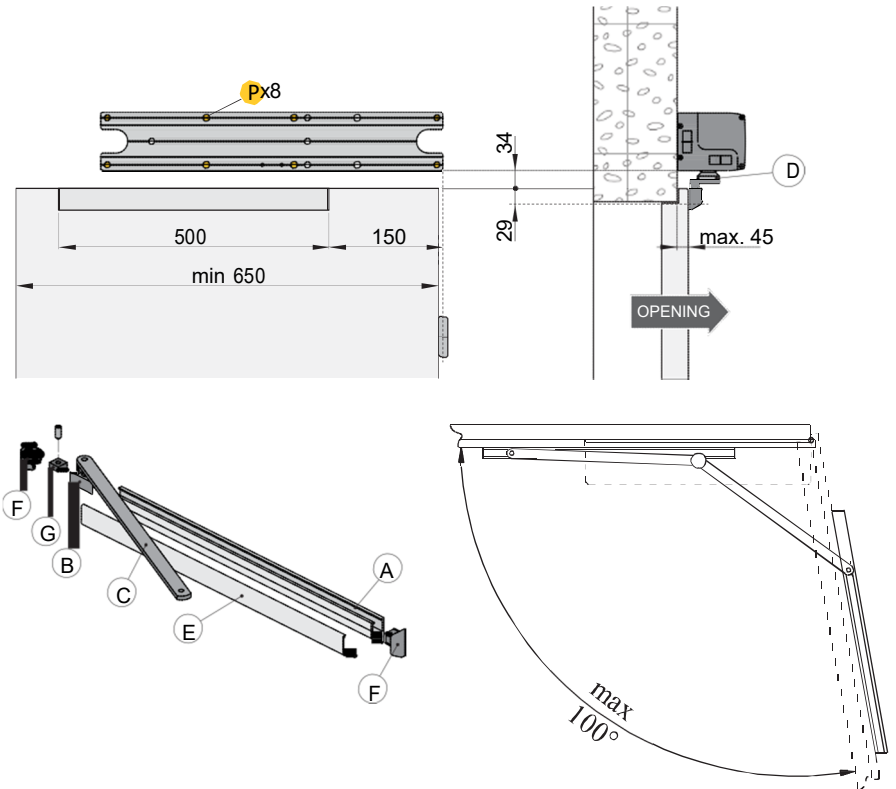
ATTENTION

When installing on doors that separate areas with different pressure levels, check that they function properly.

6.1 Removing the housing



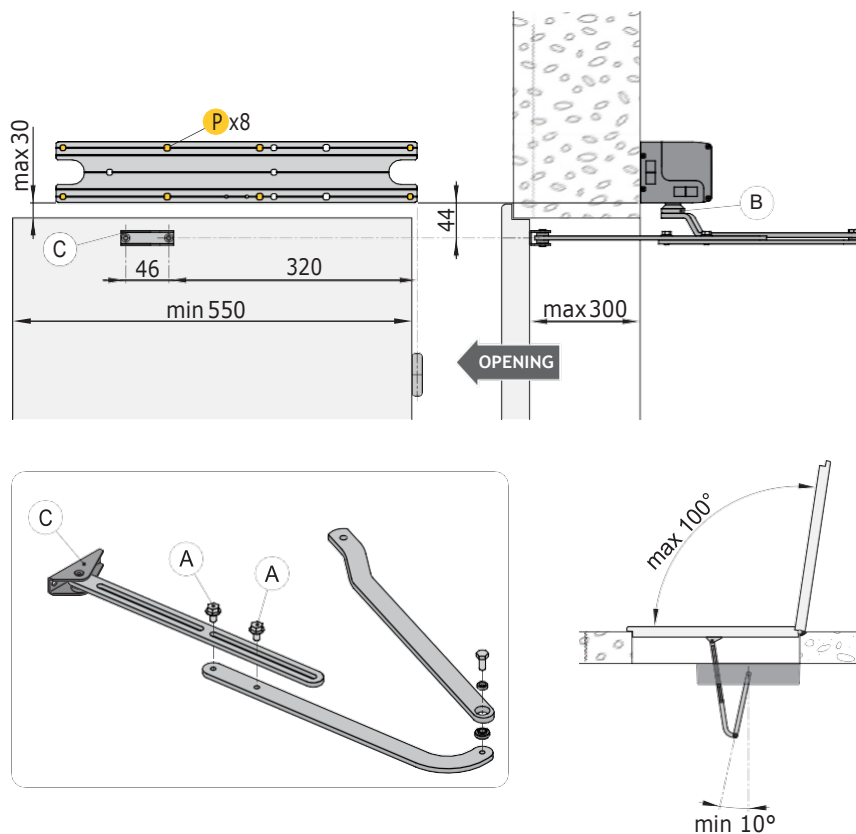
VII. Installation with SBS Sliding Arm



Use the SBS sliding arm for doors that open inwards (as seen from the operator side).

- Remove the housing and fix the drive to the wall at the points indicated (P) so that it is stable and horizontal, respecting the dimensions indicated in the figure: refer to the axis of the hinges.
- Drill the guide [A] and fix it to the door.
- Insert the sliding block [B] of the sliding arm in the guide [A]. Fix the arm [C] to the operator, making sure it is inserted in the arm support seat [D].
- Position the cover [E] and the two heads [F].
- Adjust the internal end stop [G] in the best position

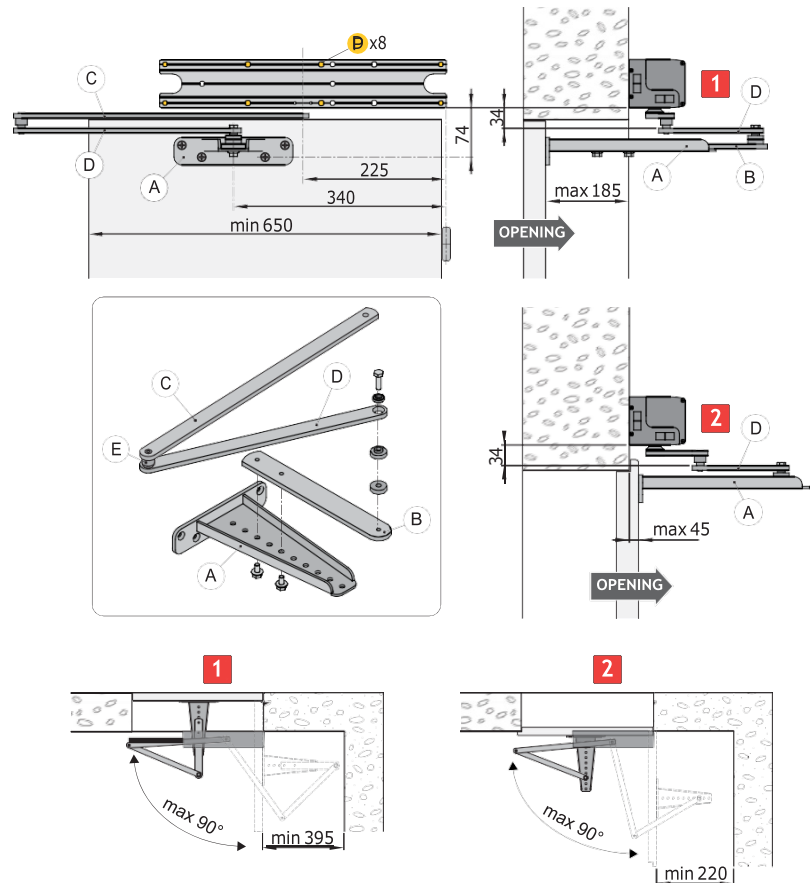
VIII. Installation with the Articulated Arm SBA



Use the articulated arm SBA for doors that open outwards (as seen from the operator side).

- Remove the housing and fix the drive to the wall at the points indicated (P) so that it is stable and horizontal, respecting the dimensions indicated in the figure: refer to the axis of the hinges.
- Mount the articulated arm without tightening the expanding screws [A] and fix it to the drive. Make sure it engages in the arm support seat [B].
- Attach the bracket [C] to the door.
- Adjust the arm with the door closed and tighten the expanding screws [A].

IX. Installation with the Three-part Articulated Arm SPRBRAS



Use the SPRBRAS sliding arm for doors that open inwards (as seen from the operator side).

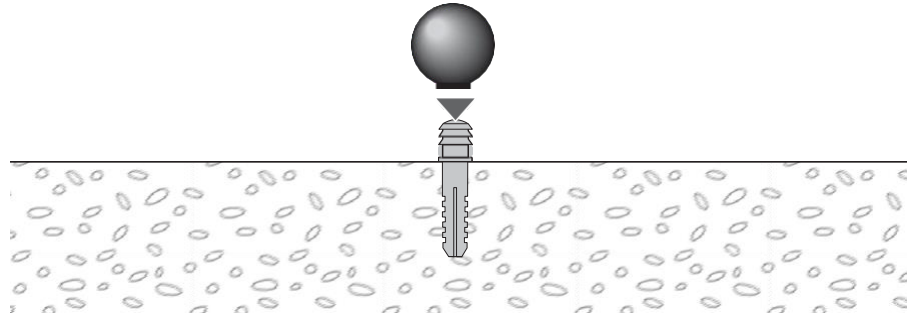
- Remove the housing and fix the drive to the wall at the points indicated (P) so that it is stable and horizontal, respecting the dimensions indicated in the figure: refer to the axis of the hinges.
- Adjust the length of the bracket [A] and the arm [B] so that there is an angle of 80 - 90° to the arm [C] when the door is closed. NOTE: The articulated arm SPRBRAS is intended for left-opening leaves. For a right-opening leaf, disconnect the arm [D] from the arm [C] by removing the pin [E], turn the two arms 180° and reassemble.
- For distances between 45 mm and 20 mm, remove the arm [B] and fix the arm [D] directly to the bracket [A] with the spacer and screw supplied so that there is always an angle of 80-90° to the arm [C].



ATTENTION

The mounting distance of the drive to the door leaf can be between 185 mm and 45 mm.

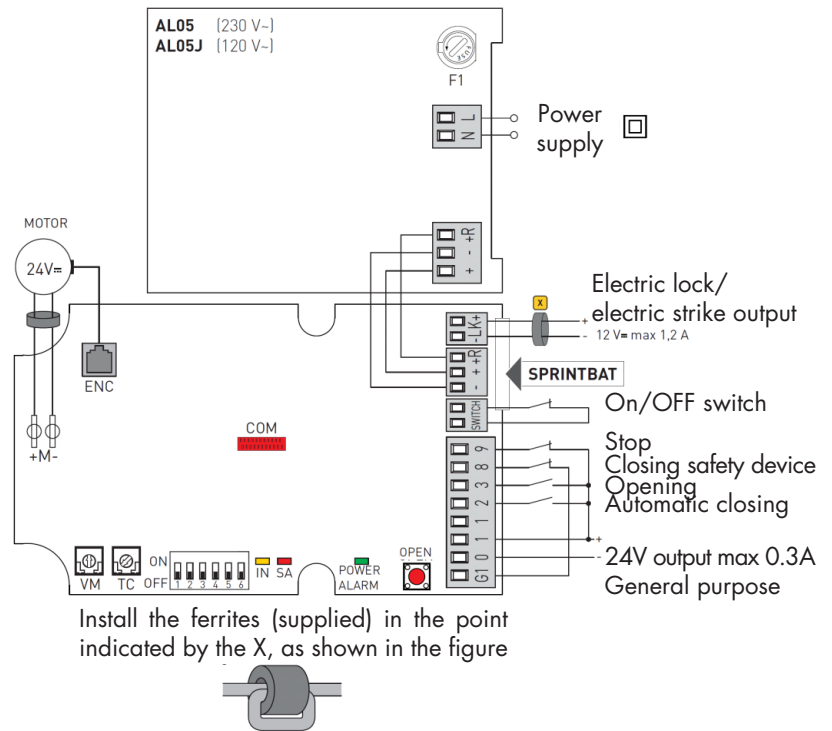
X. Installing the Final Stop on the Floor



Fix the final stop on the floor as a mechanical stop when opening.

XI. Electrical Connections

11.1 Electrical Connections for 230 V~ / 120 V~ Power Supply

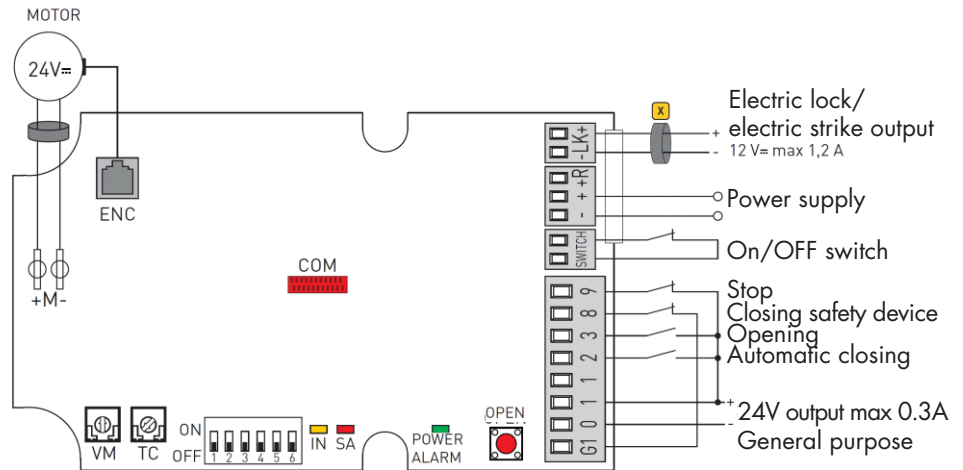


The illustration shows the most important connections of the EL 38 electronic control unit.

XI. Electrical Connections - cont.

11.2 Electrical Connections for 24 V power supply

Please note: At 24 V, protection by an external fuse F5A is required. This is not included in the scope of delivery.



Install the ferrites (supplied) in the point indicated by the X, as shown in the figure



XII. Connecting the Power Supply

Before connecting to the mains, make sure that the data on the type plate match those of the power supply network.

Install an all-pole switch/disconnector with an opening distance of the contacts of at least 3 mm on the power supply network.



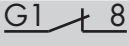


Check whether there is a suitable residual current circuit breaker and overcurrent protection upstream of the power supply system.

Use a mains cable of type H05RN-F 2G1.5 or H05RR-F 2G1.5 and connect it to the terminals L (brown) and N (blue) provided in the drive. Secure the cable with the appropriate cable tie and pull it off only at terminal level.

The connection to the mains supply outside the drive must be made through a separate duct from the connections to the control and protection devices. Ensure that there are no sharp edges that could damage the power cable.

Make sure that the power supply conductors (230 V) and the conductors feeding the additional devices (24 V) are separated.

XIII. Commands/Switches


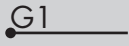
Command	Function	Description
 N.O.	Closing	Closing the contact activates the closing operation.
	Automatic closing	The permanent closure of the contact (bridge) activates the automatic closing.
 N.O.	Opening	The closing of the contact activates the opening movement.
 N.C.	Safety device for closing	With DIP6 = OFF, the opening of the contact causes the reversal of the movement (re-opening) during the closing phase.
 N.C.	Stop	Opening the contact stops any movement and disables any normal or emergency operation.
Open 	N.O. Opening	A short press activates the opening.



ATTENTION

Bridge all de-energised contacts when not in use. The terminals with the same number are equivalent.

13.1 Testable Safety Devices






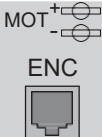
Command	Function	Description
 N.C.	Safety device for closing	The opening of the contact triggers the reversal of the movement (re-opening) during the closing phase.
	Safety test	With DIP6 = OFF, connect the G1 terminal of the electronic control to the corresponding test terminal of the safety device. With terminal G1, a test of the safety device is activated at each cycle. If the test fails, the SA LED lights up and the test is repeated.




NOTE

For further configurations, use the SPR SET plug-in card.

XIV. Outputs and Accessories

Output	Value - Accessories	Description
	24 V / 0,3 A	<p>Power supply of the accessories. Output for the power supply of the external accessories.</p> <p>NOTE: The maximum current consumption of 0.3 A corresponds to the sum of all terminals 1.</p>
	12 V / 1,2 A	<p>Electric lock / electric strike Power supply output for electric lock/electric strike</p> <p>The power supply of the electric lock / electric strike has a lead time of 0.1 s and a duration of 1 s.</p>
	24 V / 30 mA	<p>General purpose output With DIP6 = ON, the output provides a positive pulse each time an opening movement is started. With DIP6 = OFF, a test is activated on the safety sensor after each completed opening movement. If the test fails, the SA LED lights up and the test is repeated.</p>
		<p>ON/OFF switch On and off switch When switched on (ON position), the first movement is carried out with learning of the stop dimensions. When switched off, the mains connection and the batteries (if present) are disconnected from the electronic control. ATTENTION: If the contact is not used, it must be bridged.</p>
	SPRSET	<p>Allows the operation of the G1 output to be determined by the SPRSET adjustment module. ATTENTION: Insertion and removal of the module must be done without power supply.</p>
		<p>Motor encoder connection Connect the motor and the encoder to the electronic control using the cables supplied.</p>

XIV. Outputs and Accessories - cont.

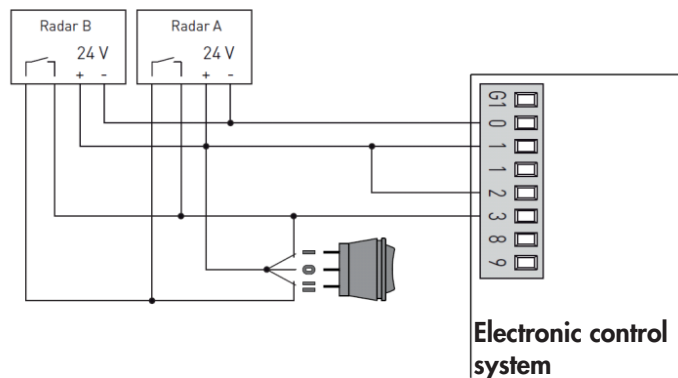
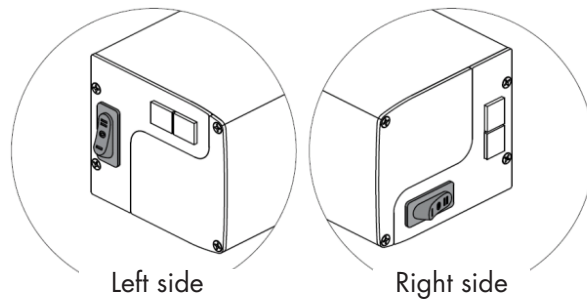


SPRBAT
1 x 12 V / 1,2 Ah




Batteries for anti-panic operation
 In the event of a mains voltage failure, the operator performs an opening movement at low speed. When the door is open, the electronic control unit is not powered. To charge the batteries, connect the mains and the battery pack at least 30 minutes before starting the system. ATTENTION: To enable charging, the battery pack must always be connected to the electronic control unit. Regularly check the efficiency of the battery pack.

Batteries for continuous operation
 In the event of a mains voltage failure, the battery pack ensures uninterrupted operation. To charge the batteries, connect the mains and the battery pack at least 30 minutes before starting the system. ATTENTION: To enable charging, the battery pack must always be connected to the electronic control unit. Regularly check the efficiency of the battery pack.

14.1 Operating Mode Selector Switch



XIV. Outputs and Accessories - cont.

	Ref.	Description
I		Door open Command for permanent opening 1-3.
0		Door closed The commands of the radar sensors (A-3) are switched off. The door can be opened or pushed open via command 1-3 if the Push & Go function has been activated. The door closes automatically (contact 1-2).
II		Bidirectional operation

XV. Electromagnetic Emissions



ATTENTION

In accordance with Directive 2004/108/EC, the enclosed ferrites must be installed as shown on page 16.

Pull the cable through the ferrite, make one turn and protect it against shocks with the help of a heat shrink tube or similar.
The ferrite must be attached to the cable near the terminal strips (approx. 50 mm away from them).

XVI. Adjustments

16.1 Activation Procedure

The trimmers and DIP switches influence the safety function of the force limitation. Their setting must be carried out in the manner indicated, otherwise the changes will not be accepted, which is indicated by the IN LED flashing.

- Establish the power supply (mains and batteries). Attention! No signal devices must be activated.
- Press the OPEN key for 4 seconds (the IN LED flashes).
- Within 5 minutes, set the trimmers and select the DIP switches.
- To end the process, press the OPEN key for 2 s or wait until the time limit has expired.

16.2 DIP Switches

Description	OFF	ON
DIP 1 Push & Go function Pushing against the door activates an automatic opening movement.	Deactivated	Activated To deactivate when the motor is closing, use the SPR SET plug-in card.
DIP 2 Electric lock / electric strike function	The impulse is given at the same time as the motor starts up when opening.	Before the opening movement, a closing thrust is initiated simultaneously to the actuating impulse of the electric lock / electric strike plate. At approx. 20° from the closing stop, the door increases the force/speed to ensure correct closing.
DIP 3 Energy-saving mode See the chapter Requirements for handicapped accessible doors on page 26.	Deactivated	Activated
DIP 4 Selection of the opening direction The opening direction must be understood with the drive viewed from the inspection side.	SEE ILLUSTRATION	SEE ILLUSTRATION

XVI. Adjustments - cont.

DIP 5	Selection of the arm type	Articulated arm SBA SEE ILLUSTRATION	Sliding arm SBS Articulated arm BRAS SEE ILLUSTRATION
DIP 6	Selecting the mode of operation Output G1	Activates the test on the safety sensor.	Positive pulse at each start of an opening movement.



NOTE

When the door is closed, the closing pressure is maintained by the motor. To deactivate the closing pressure of the motor, use the additional plug-in card SPR SET.

Arm SBA	DIP4	DIP5	Arm SBS - BRAS	DIP4	DIP5
	<input checked="" type="checkbox"/> ON	<input type="checkbox"/> OFF		<input type="checkbox"/> OFF	<input checked="" type="checkbox"/> ON
	<input type="checkbox"/> OFF	<input type="checkbox"/> OFF		<input checked="" type="checkbox"/> ON	<input checked="" type="checkbox"/> ON

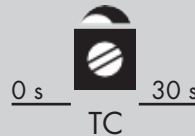
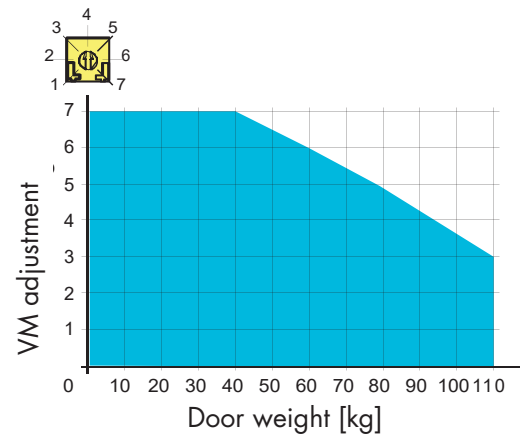
XVI. Adjustments - cont.

16.3 Trimmers

Trimmer	Description
---------	-------------



Adjustment of the movement speed.
Regulates the movement speed of the drive. The closing speed is equal to 2/3 of the opening speed.
ATTENTION: Set the correct movement speed according to the use indications in the weight diagram and check that the movement and impact force between the leaf and the obstacle is below the values indicated in the EN 16005 standard.



Automatic closing time setting.
Controls the time that elapses between the end of the opening movement and the start of the automatic closing.

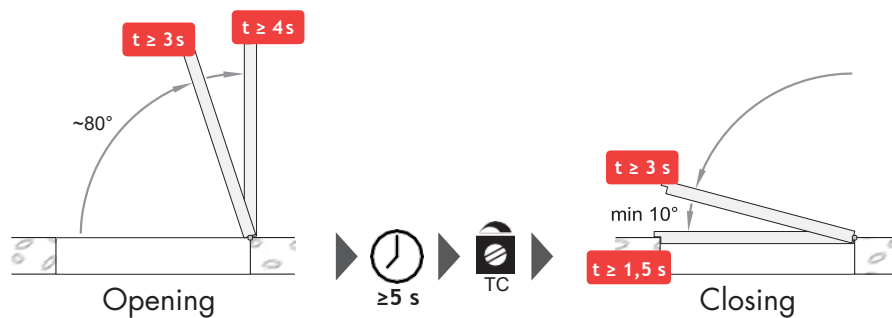
16.4 Signals

LED	On	Flashing
IN 	Arrival of a command 1-3	Change of state of a DIP switch or the command 1-2. Trimmer activation procedure underway.
SA 	The safety contact is open.	Failure of the safety test (DIP6 = OFF).
POWER ALARM 	Power supply available	Encoder not operating or drive malfunction.

XVII. Requirements for Doors for Use in Low Energy Mode

		Weight of the door leaf [kg]				
		50	60	70	80	90
Width of the door leaf [mm]	750	3,0 s	3,0 s	3,0 s	3,0 s	3,5 s
	850	3,0 s	3,0 s	3,5 s	3,5 s	4,0 s
	1000	3,5 s	3,5 s	4,0 s	4,0 s	4,5 s
	1200	4,0 s	4,5 s	4,5 s	5,0 s	5,5 s

In addition, carry out the settings indicated in the illustration:



XVIII. Commissioning



ATTENTION

Before commissioning, make sure that the drive is not powered and the batteries are not connected. The movements under point 4 are carried out without safety devices.

The trimmers can only be adjusted when the drive is stationary.

ATTENTION: To perform the settings, the activation procedure must be carried out as indicated in point XVI.

1. Select the drive force via DIP3 and select the correct opening direction via DIP4. Set DIP1 and DIP2 according to the type of installation.
2. Set the trimmer TC to the minimum and the trimmer VM to the middle.
3. Bridge the safety devices (1-8) and the stop (1-9).
4. Connect the power supply (mains and batteries). ATTENTION: Each time the electronic control unit is switched on, it performs an automatic POWER RESET and the first opening or closing movement is performed at low speed. This allows the automatic learning of the stop dimensions (sensing). Check the operation of the operator with successive opening and closing commands and set the desired movement speed with the VM trimmer.
5. Remove the jumpers and connect the safety devices (1-8) and the stop (1-9).
6. Set the automatic closing with the trimmer TC (enabled by command 1-2).
7. If desired, activate the Push&Go function with DIP1.
8. Connect any accessories and check their operation.
9. If the operator encounters an obstacle during the closing movement, it reverses the movement. If the drive encounters an obstacle during the opening movement, it stops the movement. If the obstacle is detected twice in succession, it is considered a new stop until it is removed.

XVIII. Commissioning - cont.



ATTENTION

Check that the moving force and the impact force between the leaf and the obstacle are below the values listed in the EN 16005 standard.



NOTE

Repeat the starting procedure in the event of maintenance work or if the electronic control unit is replaced.

XIX. Troubleshooting

Problem	Possible cause	Action
The drive does not open or close.	Absence of power supply (POWER ALARM LED off).	Check that the electronic control is correctly powered.
	Short circuit on the accessories (POWER ALARM LED off).	Disconnect all accessories from terminals 0-1 (there must be a voltage of 24 V) and reconnect them one after the other.
	Main fuse blown (POWER ALARM LED switched off).	Replace the fuse F1.
	The stop contact is open.	Check terminal 9 of the electronic control and the position of the function selector switch (if present).
	The drive is locked by interlocks and locks.	Ensure that the leaves move freely.
	The safety contacts are open (SA LED on).	Check terminal 8 on the electronic control.
	The safety devices are activated (SA LED switched on).	Check the cleanliness and functionality of the safety devices.
	The radar motion detectors are activated.	Ensure that the radar is not subject to vibrations, does not take false readings or that there are no moving parts within its operating radius.
	The automatic closing does not work.	Check jumper 1-2 and the position of the function selector switch (if present).
The drive opens by itself.	Failure of the safety test (DIP6 = OFF) - (LED SA lights up).	Check the position of DIP6 and terminal 8 on the electronic control.
	The radar motion detectors are unstable or detect moving objects.	Make sure that the radar is not subject to vibrations, does not take false readings or that there are no moving objects within its operating range.

XIX. Troubleshooting - cont.

The drive opens/closes for a short distance and then stops.	Encoder not connected, wrong encoder contacts, encoder defective (POWER ALARM LED flashing).	Check correct encoder connection, clean the contacts by inserting the encoder plug into the contacts and pulling it out, or replace the encoder.
	The connection wires of the motor are reversed (POWER ALARM LED flashes).	Check the connecting wires of the motor.
	There is friction.	Manually check that the leaves move freely and if necessary adjust the leaf by lifting it.

XX. Regular Maintenance Plan

Carry out the following operations and checks every 6 months, depending on how often the drive is used.

Switch off the 230 V power supply, remove the batteries (if any) and set the on/off switch to OFF:

- Clean and lubricate the moving parts.
- Check the fastening screws for tightness.
- Check all electrical connections.
- Check the efficiency of the batteries.

Switch on the 230 V power supply again, reinsert the batteries (if any) and set the on/off switch to ON:

- Check the stability of the door and that it moves smoothly and evenly.
- Check the condition of the door hinges.
- Check the correct operation of all control and safety devices..



NOTE

For spare parts, please refer to the spare parts list.



NOTE

Only original spare parts may be used when repairing or replacing the products. The installer is obliged to provide the operator of the installation with all the necessary information on automatic and manual operation, as well as emergency operation of the motorised door or gate, and to hand over the operating instructions. The installer must prepare the maintenance booklet in which he must record all scheduled and unscheduled maintenance work carried out.

XXI. Installation Example with Operation Selector Switch

The door opens with the commands of the radar sensors PAS (1-3), safety during opening is provided by the device REM (G1-8). The operating mode of the door is set via the operating mode selector switch COMH-K.

