



Last version of this manual

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# Ditec



## Ditec BOX

Technical Manual

Automation for  
balanced up and over doors

(Traduction des instructions d'origine)

# Index

General safety precautions .....	25
Declaration of incorporation of partly completed machinery .....	26
UK Declaration of Conformity .....	27
1. Technical data .....	28
1.1 Operating instructions .....	29
1.2 Machinery Directive.....	29
2. Standard installation .....	30
3. Dimensions .....	31
4. Main components.....	31
5. Installation.....	32
5.1 Preliminary checks .....	32
5.2 Base plate fastening .....	32
5.3 Geared motor installation .....	34
5.4 Installing the left-hand gearmotor .....	36
5.5 Manual release.....	37
6. Electrical connections .....	38
7. Automation closure.....	39
8. Routine maintenance plan.....	39
Operating instructions .....	40
Manual release instructions .....	42

## Legend



This symbol indicates instructions or notes relating to safety which require special attention.



This symbol indicates useful information for the correct operation of the product.

# General safety precautions



**ATTENTION!** Important safety instructions. Please follow these instructions carefully.

Failure to observe the information given in this manual may lead to severe personal injury or damage to the equipment. Keep these instructions for future reference.

This manual and those for any accessories can be downloaded from [www.ditecautomations.com](http://www.ditecautomations.com)

This installation manual is intended for qualified personnel only • Installation, electrical connections and adjustments must be performed by qualified personnel, in accordance with Good Working Methods and in compliance with the current regulations • Read the instructions carefully before installing the product. Wrong installation could be dangerous • Before installing the product, make sure it is in perfect condition.



The packaging materials (plastic, polystyrene, etc.) should not be discarded in the environment or left within reach of children, as they are a potential source of danger • Do not install the product in explosive areas and atmospheres: the presence of inflammable gas or fumes represents a serious safety hazard • Make sure that the temperature range indicated in the technical specifications is compatible with the installation site • Before installing the motorization device, make sure that the existing structure, as well as all the support and guide elements, are up to standards in terms of strength and stability. Verify the stability and smooth mobility of the guided part, and make sure that no risks of fall or derailment subsist. Make all the necessary structural modifications to create safety clearance and to guard or isolate all the crushing, shearing, trapping and general hazardous areas • The motorization device manufacturer is not responsible for failure to observe Good Working Methods when building the frames to be motorized, or for any deformation during use • The safety devices (photocells, safety edges, emergency stops, etc.) must be installed taking into account the applicable laws and directives, Good Working Methods, installation premises, system operating logic and the forces developed by the motorized door or gate • The safety devices must protect against crushing, cutting, trapping and general danger areas of the motorized door or gate. Display the signs required by law to identify hazardous areas • Each installation must bear a visible indication of the data identifying the motorized door or gate • Before connecting the power supply, make sure the plate data correspond to those of the mains power supply. An omnipolar disconnection switch with a contact opening distance of at least 3 mm must be fitted on the mains supply. Check that there is an adequate residual current circuit breaker and a suitable overcurrent cutout upstream of the electrical installation in accordance with Good Working Methods and with the laws in force • When requested, connect the motorized door or gate to an effective earthing system that complies with the current safety standards • Before commissioning the installation to the end user, make sure that the automation is adequately adjusted in order to satisfy all the functional and safety requirements, and that all the command, safety, and manual release devices operate correctly.



During maintenance and repair operations, cut off the power supply before opening the cover to access the electrical parts • The protection cover of the operator must be removed by qualified personnel only.



The electronic parts must be handled using earthed antistatic conductive arms. The manufacturer of the motorization declines all responsibility if component parts not compatible with safe and correct operation are fitted • Only use original spare parts for repairing or replacing products • The installer must supply all information concerning the automatic, manual and emergency operation of the motorized door or gate, and must provide the user with the operation and safety instructions.

# Declaration of incorporation of partly completed machinery

(Directive 2006/42/EC, Annex II-B)

We,  
ASSA ABLOY Entrance Systems AB  
Lodjursgatan 10  
SE-261 44 Landskrona  
Sweden,

declare, under our sole responsibility, that the type of equipment with the name:  
Ditec BOX                    Automation for swing gates

complies with the following directives and their amendments:

2006/42/EC Machinery Directive (MD), regarding the following essential health and safety requirements:  
1.1.2, 1.1.3, 1.2.1, 1.2.2, 1.2.3, 1.2.4.2, 1.2.6, 1.3.9, 1.4.3, 1.7.2, 1.7.3, 1.7.4, 1.7.4.1, 1.7.4.2.  
2014/30/EU Electromagnetic Compatibility Directive (EMCD)  
2014/35/EU Radio Equipment Directive (RED)  
2011/65/EU Restriction of Hazardous Substances (RoHS 2)  
2015/863/EU Restriction of Hazardous Substances (RoHS Amendment 2)

Harmonised European standards which have been applied:

EN 61000-6-3:2007 + A1:2011 + AC:2012  
EN 60335-1:2012 + AC:2014 + A11:2014 + A13:2017 + A1:2019 + A14:2019 + A2:2019 + A15:2021

Other standards or technical specifications which have been applied:

IEC 60335-1:2010 + C1:2010 + C2:2011 + A2:2013 + C1:2014 + A2:2016 + C1:2016  
EN 12453:2017

The manufacturing process guarantees that the equipment complies with the technical documentation.

Responsible for the technical documentation:

Matteo Fino  
Ditec S.p.A.  
Largo U. Boccioni, 1  
21040 Origgio (VA)  
Italy

Signed on behalf of ASSA ABLOY Entrance Systems AB by:

Place	Date	Signature	Position
Origgio	2023-06-08	 Matteo Fino	CEO Ditec

# UK Declaration of Conformity

We:

ASSA ABLOY Entrance Systems AB  
Lodjursgatan 10  
SE-261 44 Landskrona  
Sweden

Declare under our sole responsibility that the types of equipment with names:

Ditec BOX                      Automation for swing gates

complies with the following directives and their amendments:

- Supply of Machinery (Safety) Regulations 2016
- Electromagnetic Compatibility Regulations 2016
- Radio Equipment Regulations 2017
- The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 (RoHS)

Harmonized European standards that have been applied:

EN 61000-6-3:2007 + A1:2011 + AC:2012

EN 60335-1:2012 + AC:2014 + A11:2014 + A13:2017 + A1:2019 + A14:2019 + A2:2019 + A15:2021

Other standards or technical specifications that have been applied:

IEC 60335-1:2010 + C1:2010 + C2:2011 + A2:2013 + C1:2014 + A2:2016 + C1:2016

EN 12453:2017

The manufacturing process ensures the compliance of the equipment with the technical file.

Responsible for technical file:



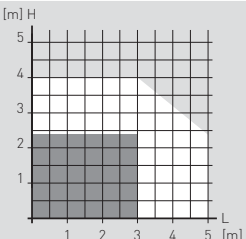
Matteo Fino  
Ditec S.p.A.  
Largo U. Boccioni, 1  
21040 Origgio (VA)  
Italy

Signed for and on behalf of ASSA ABLOY Entrance Systems AB by:

Place	Date	Signature	Position
Origgio	2023-06-08	Matteo Fino	CEO Ditec



# 1. Technical data

	BOX3EH	BOX3H
Power supply	230 V~ 50/60 Hz	-
Motor power supply	24 V $\overline{=}$	
Absorption	8 A	
Torque	300 Nm	
Opening time	15÷30 s	
Maximum weight	11,40 kg	
Service class	3 - FREQUENT (tested up to 150.000 cycles)	
Intermittence	S2= 30 min (T= 25°C) S3= 50% (T= 25°C)	
Cycles / hour *	45 (T= 25°C)	
Continuous cycles **	41 (T= 25°C)	
Temperature [T]	 -20°C  +55°C	
Degree of protection	IP40	IP44
Control panel	E1HBOX	-
Applications H= door height L= door width		
<div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 15px; height: 15px; background-color: #808080; margin-right: 5px;"></div> <span>BOX3EH</span> </div> <div style="display: flex; align-items: center;"> <div style="width: 15px; height: 15px; background-color: #FFFFFF; margin-right: 5px;"></div> <span>BOX3EH + BOX3H</span> </div>		

**\*** Indicative cycles consider a time per opening/closing maneuver of 20 sec and pause time of 20 sec. Full cycle time of 80 sec.

**\*\*** Indicative cycles consider a time per opening/closing maneuver of 20 sec and pause time of 2 sec. Full cycle time of 44 sec.

## 1.1 Operating instructions

**Use: FREQUENT** (for vehicle or pedestrian for single-family or multi-family with frequent use).

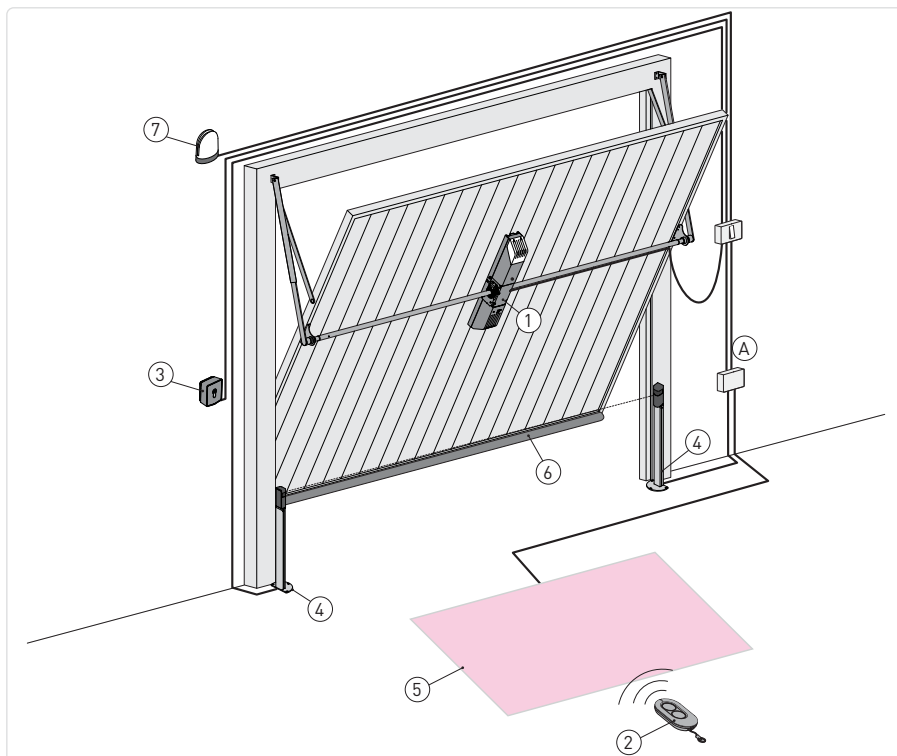
- Performance characteristics are to be understood as referring to the recommended weight (approx. 2/3 of maximum permissible weight). A reduction in performance is to be expected when the access is made to operate at the maximum permissible weight.
- Service class, running times, and the number of consecutive cycles are to be taken as merely indicative having been statistically determined under average operating conditions, and are therefore not necessarily applicable to specific conditions of use. During given time spans product performance characteristics will be such as not to require any special maintenance.
- The actual performance characteristics of each automatic access may be affected by independent variables such as friction, balancing and environmental factors, all of which may substantially alter the performance characteristics of the automatic access or curtail its working life or parts thereof (including the automatic devices themselves). When setting up, specific local conditions must be duly borne in mind and the installation adapted accordingly for ensuring maximum durability and trouble-free operation.

## 1.2 Machinery Directive

Pursuant to Machinery Directive (2006/42/EC) the installer who motorizes a door or gate has the same obligations as the manufacturer of machinery and as such must:

- prepare the technical file which must contain the documents indicated in Annex V of the Machinery Directive;  
(The technical file must be kept and placed at the disposal of competent national authorities for at least ten years from the date of manufacture of the motorized door);
- draw up the EC Declaration of Conformity in accordance with Annex II-A of the Machinery Directive and deliver it to the customer;
- affix the EC marking on the motorized door in accordance with point 1.7.3 of Annex I of the Machinery Directive.

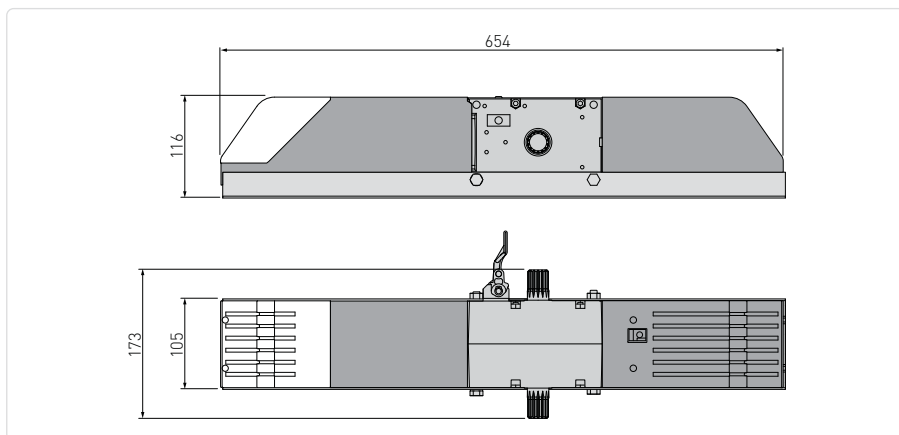
## 2. Standard installation



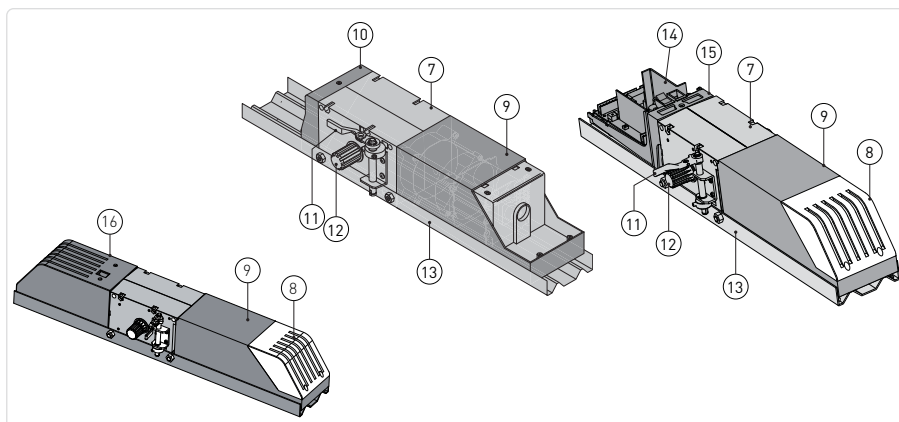
Ref.	Code	Description	Cable
A		Connect the power supply to a certified-compliant omnipolar switch (not included) with a contact opening distance of at least 3mm. Connection to the mains must be via an independent conduit, separated from the connections to the command and safety devices.	
1	BOX3EH	Gearmotor	3G x 1.5 mm <sup>2</sup>
2	ZEN	Transmitter	/
	AXK4	Digital combination wireless keypad	/
3	AXK5M AXK5N AXK5NM AXK5NI	Wall-mounted key-operated selector switch with European cylinder Semi-recessed key-operated selector switch with European cylinder Wall-mounted key-operated selector switch without cylinder Semi-recessed key-operated selector switch without cylinder	4 x 0.5 mm <sup>2</sup>
	AXR7	RFID reader unit	5 x 0.5 mm <sup>2</sup>
4	LIN2 LIN2B AXP2 LAB4	Photocells	4 x 0.5 mm <sup>2</sup>
5	LAB9	Magnetic loop	2 x 1,5 mm <sup>2</sup>
6	SOFAP20 SOF2M20-SOF3M20 SOFA15-SOFA20-SOFA25	Safety edge	2 x 0,5 mm <sup>2</sup> min
7	FLM FL24	Flashing light	2 x 1 mm <sup>2</sup>
		Antenna (integrated in the flashing light)	coax cable RG-58 (50 Ω)



### 3. Dimensions



### 4. Main components



Ref.	Code	Description
7		Gearmotor
8		Courtesy light
9		Casing
10		Bottom casing
11		Manual release
12		Gearmotor shaft
13	<b>BOXSL</b>	Base plate Base platee L=2500
14	<b>E1HBOX</b>	BOX3EH's control panel
15		Control panel support
16		Control panel casing

# 5. Installation

The given operating and performance features can only be guaranteed with the use of DITEC accessories and safety devices. Unless otherwise specified, all measurements are expressed in millimetres (mm).

## 5.1 Preliminary checks

Check the dimensions, balancing and condition of the door, the type of installation, the use limits of the gearmotor and the necessary accessories.

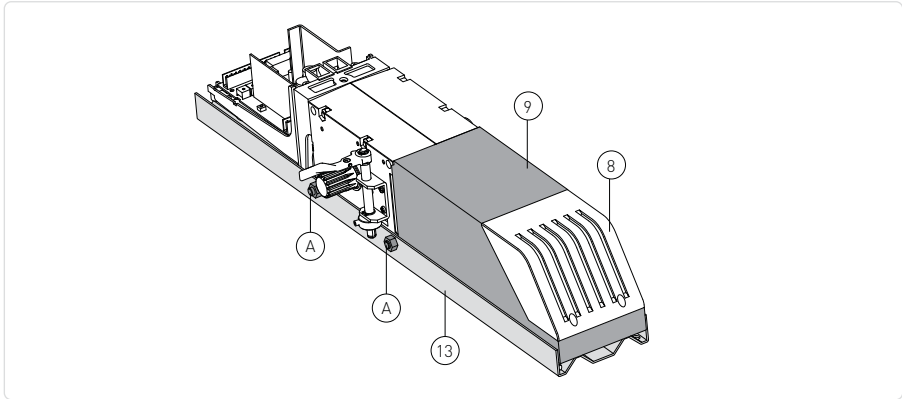
## 5.2 Base plate fastening

- Remove the automation from its packaging.

**ATTENTION:** the plastic parts are inserted but not fixed.

- Remove the courtesy light plastic [8] and the casing [9] and separate the gearmotor from the base plate [13] by unscrewing the screws A.

**ATTENTION:** the bulb is not fixed in position. Handle with care.



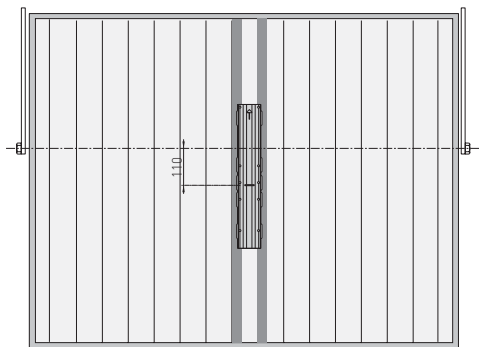
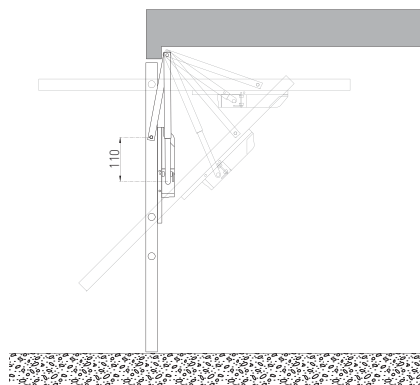
- Fix the base plate [13] to the door, respecting the measurements indicated on page 10.

**ATTENTION:** arrange a solid fastening surface for the gearmotor at the height of the frame of the up and over door.

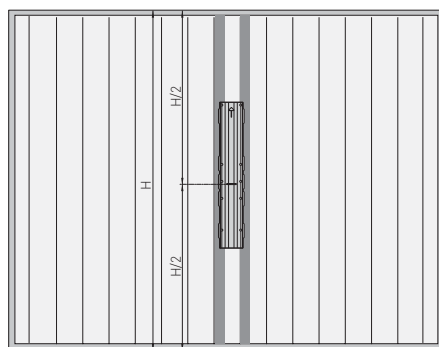
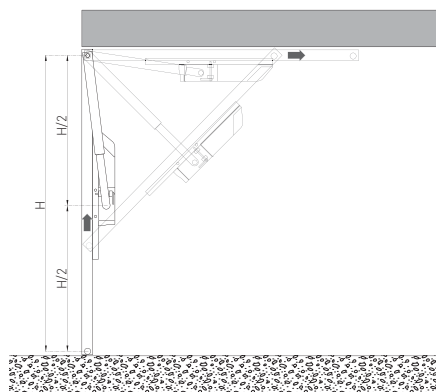
If using the BOXSL base plate:

- fix the BOXSL on the up and over door;;
- insert the gearmotor with the base plate [13] on the BOXSL and fasten it with the 2 screws supplied.

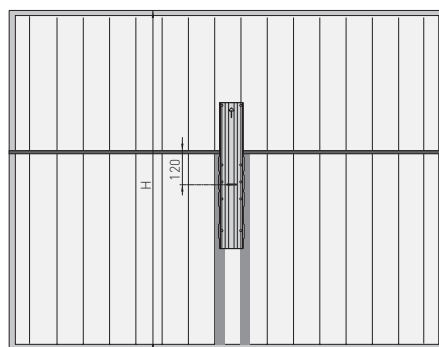
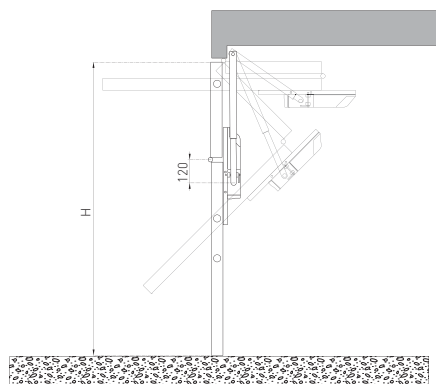
### Standard balancing door



### Totally concealing balancing door



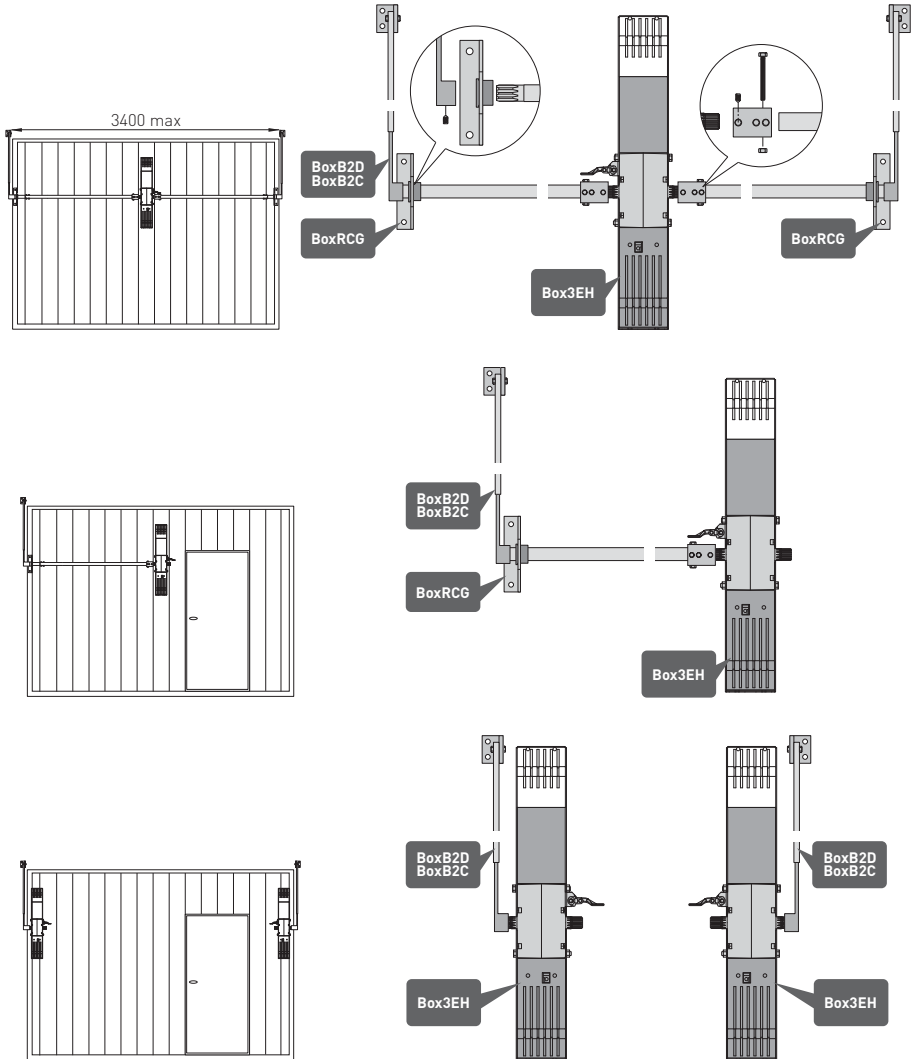
### Articulated panel balancing door

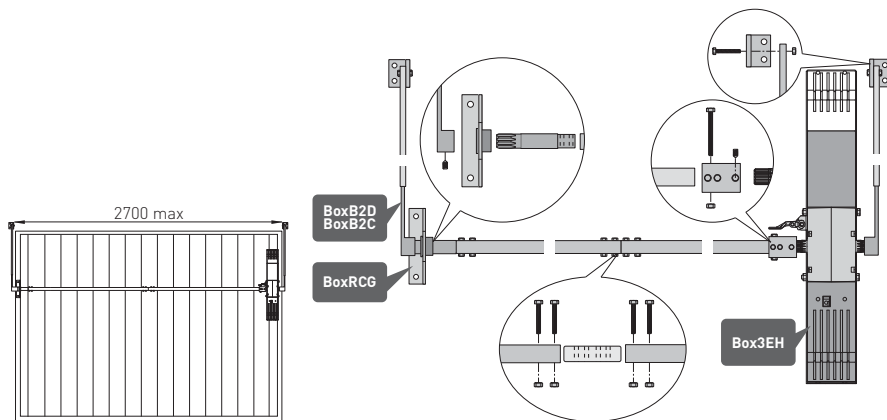


IP1529EN

## 5.3 Geared motor installation

- Fix the gearmotor to the base plate and the accessories as shown in the examples.





For up and over doors with  $L > 2700\text{mm}$ , it is necessary to extend the transmission shaft, using the accessories BOXA (pole) and BOXG (coupling for poles).  
If the arms are not long enough, use the extensions BOX2P.

- [1] Fix the corner-joint [A] onto the upper frame of the up and over door, in line with the motor arm.
- [2] If the corner-joint [A] cannot be fixed onto the upper frame of the door, respect the dimensions shown in the figure.



**WARNING:** the dimensions of the poles, the position of the transmissions and the wall coupling for the corner-joint [A] must be calculated so that the motor arms do not collide with the support arms of the door.



If the BOXB2D straight arms collide with the support arms of the door, use the BOXB2C curved arms.



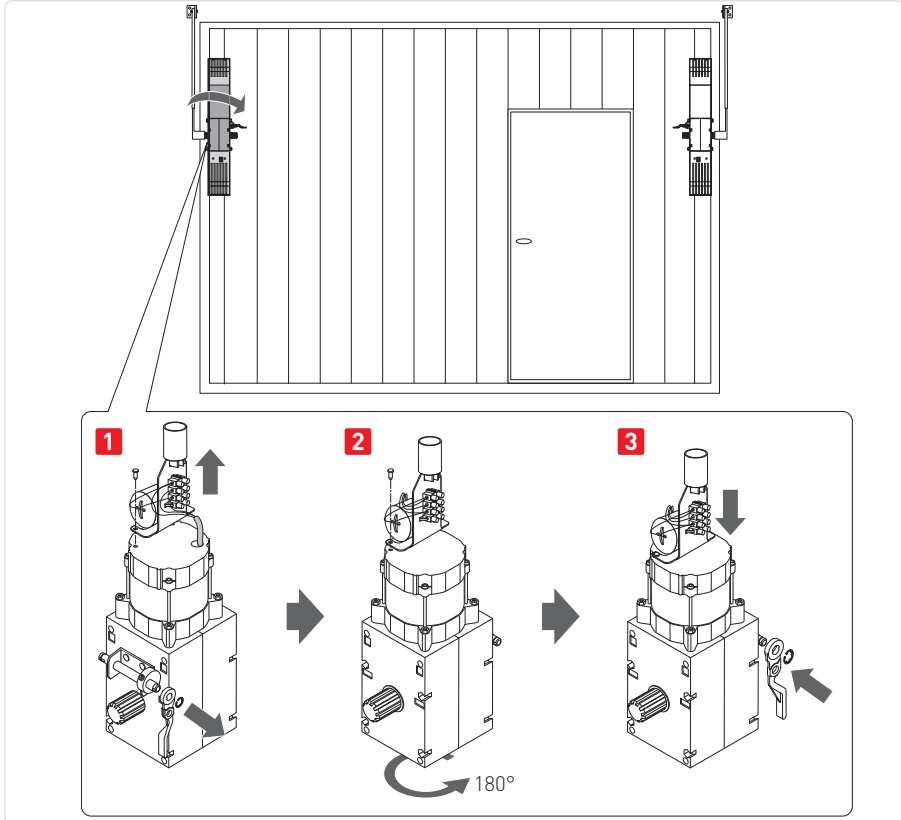
**WARNING:** check that when the door is open, the BOXB2C curved arms do not protrude and touch the ceiling.

After installing the motor(s) on the up and over door, release the motor and check the door can be easily moved by hand.

If the door is unbalanced, the weight of the counterweights must be increased/reduced until the frame is fully balanced.

## 5.4 Installing the left-hand gearmotor

In the event of left-hand side assembly, it is necessary to rotate the gearmotor 180° so that the release shaft is pointing towards the centre of the up and over door.



[1] Disassemble the snap ring, unthread the lever and disassemble the upper bracket.

[2] Rotate the gearmotor 180°.

[3] Thread the lever (also rotated 180°) back on, then fasten the snap ring back on and reassemble the upper bracket.

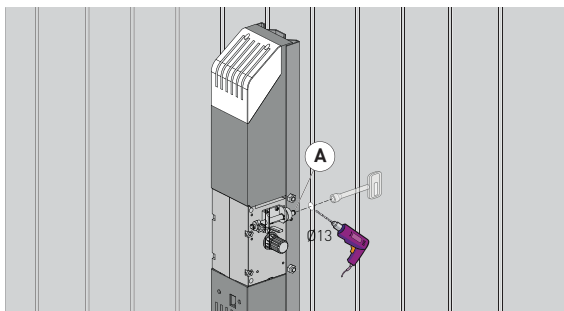


**WARNING:** The BOX3H geared motor is supplied for left side mounting together with the BOX3EH geared motor.

## 5.5 Manual release

To release the gearmotor from the outside, drill a  $\varnothing 13$  hole in the tilting door in line with the release pin A and release using the supplied key.

**i** **NOTE:** The gearmotor can also be released using the BOXSBC accessories. For more information, refer to the relevant installation manuals.



# 6. Electrical connections

**i NOTE:** the electrical wiring and the start-up of the gearmotors are shown in the control panel installation manuals.

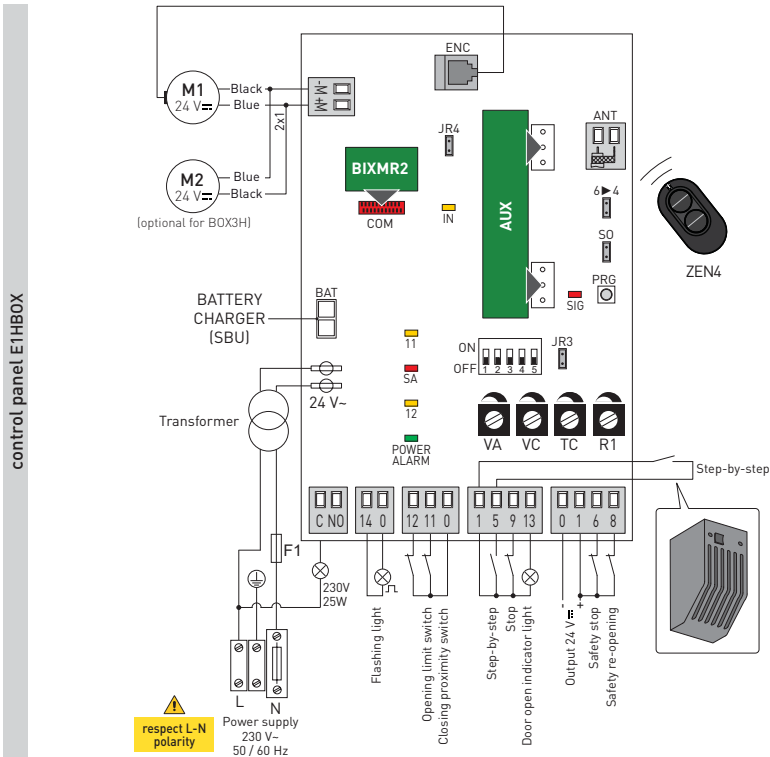
Before connecting the power supply, make sure that the data on the plate correspond to the electricity distribution network data. Provide an omnipolar switch/disconnector on the power network with a contact opening distance of 3 mm or more. Check that there is a suitable residual-current device and surge protector upstream of the electrical system. Use an H05RN-F 3G1.5 electrical cable and connect it to terminals L (brown) and N (blue) inside the automation system. Connect the earth cable (⊕) (yellow/green) to the earth terminal.

**! ATTENTION:** always observe L-N polarity when connecting to the mains.

Secure the cable by means of the cable clamp and only unsheathe it at the terminal. Connections to the electrical distribution network and any other low-voltage conductors (230 V), in the section outside the automation system, must be made with corrugated pipes that are independent and separate from the path of connections to the control and safety devices (SELV = Safety Extra Low Voltage). Make sure there are no sharp edges that could damage the power cord.

**! Ensure that the mains connection cables, any other low-voltage cables (230 V), and safety extra-low voltage safety accessory connection cables in the portion located inside the product are kept well separated from the gear motor body.**

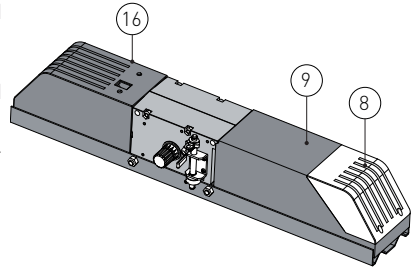
To reverse the rotation direction reverse the polarity of the motor phases.





## 7. Automation closure

- Insert the casing [9] and fix it using the supplied screws.
- Screw the bulb into the bulb support.
- Fix the courtesy light casing [8] using the supplied screws.
- Drill a hole in the control panel casing for the wiring. Fix the cable gland fastening bracket.
- Fix the casing [16] to the control panel.



## 8. Routine maintenance plan

Perform the following operations and checks every 6 months according to intensity of use of the automation.

Without power supply and batteries if present:

- Clean and lubricate the moving parts, using neutral grease.
- Check the stability of the automatic system and make sure that all screws are correctly tightened.
- Check the resistance of the fixing points.

Reconnect the 230 V- power supply and batteries if present:

- Check the power adjustment.
- Check that all commands and safety functions (photocells) are operating correctly.
- Check the batteries are working (continuously) if present, by removing the power supply and making a series of operations. Once performed, turn on power supply again.



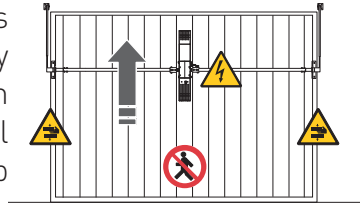
**NOTE:** For spare parts, see the spares price list.

# Operating instructions

## General safety precautions for the user

ATTENTION! Important safety instructions

- Please follow these instructions carefully
- Failure to observe the information given in this manual may lead to severe personal injury or damage to the equipment
- Keep these instructions for future reference.



WARNING! Disconnect power supply before

- any cleaning or maintenance operation
- This manual and those for any accessories can be downloaded from [www.ditecautomations.com](http://www.ditecautomations.com)

These precautions are an integral and essential part of the product and must be supplied to the user. Read them carefully since they contain important information on safe installation, use and maintenance. These instructions must be kept and forwarded to all possible future users of the system

- This product must be used only for the specific purpose for which it was designed. Any other use is to be considered improper and therefore dangerous. The manufacturer cannot be held responsible for any damage caused by improper, incorrect or unreasonable use
- Avoid operating in the proximity of the hinges or moving mechanical parts. Do not enter within the operating range of the motorized door or gate while it is moving. Do not obstruct the motion of the motorized door or gate, as this may cause a dangerous situation
- Lock and release the door or gate wings only when the motor is switched off. Do not enter within the action range of the door or gate wing(s)
- In case of operation in "hold-to-run" ("dead man") mode, the corresponding command devices must be located so to have direct and complete view of the door or gate during the maneuvers, away from any moving parts, at a minimum height of 1.5 m, and out of reach of the public
- The motorized door or gate may be used by children over the age of 8 and by people with reduced physical,



sensorial or mental abilities, or lack of experience or knowledge, as long as they are properly supervised or have been instructed in the safe use of the device and the relative hazards • Children must be supervised to make sure they do not play with the device, nor play or remain in the area of action of the motorized door or gate. Keep remote controls and/or any other command devices out of the reach of children, to avoid any accidental activation of the motorized door or gate • Cleaning and maintenance work intended to be done by the end user must not be carried out by children unless they are supervised. In the event of a product fault or malfunction, turn off the power supply switch. Do not attempt to repair or intervene directly.

Any repair or technical intervention must be carried out by qualified personnel. Failure to comply with the above may cause a dangerous situation • To ensure that the system works efficiently and correctly, the manufacturer's indications must be complied with and only qualified personnel must perform routine maintenance on the motorized door or gate. In particular, regular checks are recommended in order to verify that the safety devices are operating correctly • All installation, maintenance and repair work must be documented and made available to the user.

## Manual release instructions

In the event of a fault or an interruption in the power supply, insert the key supplied [C] and turn it anticlockwise, or move the lever [D] as shown in the figure.

Move the tilting door manually.

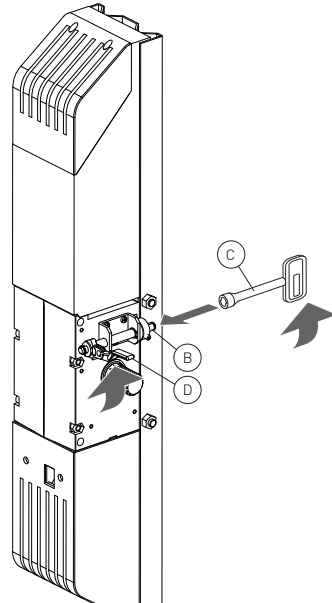
To block the up and over door again, bring the lever [D] back to its original position.



**WARNING:** the door wing block and release operations must be performed with the motor idle.



**NOTE:** The gearmotor can also be released using the BOXSBC accessories.  
For more information, refer to the relevant installation manuals.



For any problems and/or information, contact the Technical Service.


Installer's stamp	Operator
	Date of intervention
	Technician's signature
	Customer's signature

Intervention performed \_\_\_\_\_

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 The crossed-out wheellie bin symbol indicates that the product should be disposed of separately from normal household waste. The product should be recycled in accordance with local environmental regulations for waste disposal. By separating a product marked with this symbol from household waste, you will help reduce the volume of waste sent to incinerators or land-fill and minimise any potential negative impact on human health and the environment.



ASSA ABLOY Entrance Systems AB  
Lodjursgatan 10  
SE-261 44, Landskrona  
Sweden  
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