

**EN** Instructions for Fitting, Operating and Maintenance

Hinged gate operator DX250 SA

# Table of content

<b>1</b>	<b>NOTES AND CONFORMITY</b>	<b>3</b>
1.1	General safety instructions . . . . .	3
1.2	Declaration of incorporation for an incomplete machine . . . . .	3
1.3	About these Instructions . . . . .	4
1.4	Further applicable documents for customer/users . . . . .	4
1.5	Caution Indications . . . . .	4
<b>2</b>	<b>SAFETY PRECAUTIONS</b>	<b>4</b>
2.1	Intended use. . . . .	4
2.2	Inappropriate use . . . . .	4
2.3	Fitter qualification . . . . .	4
2.4	Important instructions for a safe installation . . . . .	4
2.5	Checking the gate / gate system . . . . .	4
2.6	Warnings . . . . .	5
<b>3</b>	<b>WARRANTY</b>	<b>5</b>
3.1	Warranty period . . . . .	5
3.2	Prerequisites. . . . .	5
3.3	Performance. . . . .	5
<b>4</b>	<b>GATE DRAWINGS</b>	<b>6</b>
<b>5</b>	<b>PREPARATION FOR INSTALLATION</b>	<b>7</b>
5.1	Install the gate operator . . . . .	7
<b>6</b>	<b>ELECTRICAL CONNECTION</b>	<b>9</b>
6.1	Mains voltage . . . . .	9
6.2	Connect operator . . . . .	9
<b>7</b>	<b>HINGED GATE OPERATION</b>	<b>10</b>
7.1	Instructing users . . . . .	10
7.2	Behaviour during a power failure . . . . .	10
7.3	optional unlock by bowden cable . . . . .	10
<b>8</b>	<b>TECHNICAL DETAILS DX250 SA</b>	<b>11</b>
8.1	Internal operator wiring. . . . .	11
8.2	Abbreviations for colour identifying used . . . . .	11
<b>9</b>	<b>INSPECTION AND MAINTENANCE</b>	<b>11</b>
<b>10</b>	<b>OPTIONAL ACCESSORIES</b>	<b>11</b>
<b>11</b>	<b>DISMANTLING AND DISPOSAL</b>	<b>11</b>
<b>12</b>	<b>CABLE LAYING - TRACK PLAN</b>	<b>12</b>

## 1 NOTES AND CONFORMITY

### 1.1 General safety instructions



## CAUTION

To install gate correctly, read these instructions carefully. If installed wrongly or in case of incorrect working process, serious injury can be caused.

- Packaging materials (plastic, polystyrene, etc.) should not be stored in reach of children. If necessary please dispose properly.
- This product has been developed and produced for the use mentioned in these instructions only. Different use may be source to damage and risks.
- The producer refuses every liability for damages caused by improper or not intended use of the drive.
- **Conformity to EN-Standards:**  
Mechanical elements: EN 12604 and EN 12605.  
Installation: EN 132411.  
Safety devices: EN 12978

*For countries not being part of the European Union the above mentioned norms as well as the national legal directives must be respected.*

- The producer rejects every responsibility for consequences, caused by non-professional production of closing mechanisms or by deformation caused during operation.
- Before every interference switch off power supply and prevent from being switched on again.
- Install an all-poles separating safety switch with a contact distance of at least 3mm before the power supply line. In addition install an error current safety switch using a trigger threshold of 0,03 A.
- Check if the grounding system was installed properly. All metallic parts must be grounded.
- Install all safety devices (e.g. light barrier, safety strips etc.) which avoid a person getting injured by jamming, cutting or being dragged along.
- We recommend at least one flashing device for every gate situation. In addition a warning sign should be installed in sight.



No pedestrians, prohibition sign

- The producer rejects every liability regarding safety and functioning of the installation site, if components of a different brand are used.
- For maintenance and repair only original parts may be used.
- No changes must be made to the components of the installation site without permission of the producer.

- Familiarize the operator of the installation with the correct handling of the installation. Explain the emergency unlocking in case of power failure and hand over the mounting instructions/ manual.
- No children or adults should stay near the installation when in operation.
- The radio controls and every other transmitter should be out of the reach of children to avoid an accidental activation of the gate.
- The passing through should only take place when gate does not move.
- The operator should not perform repairs or direct interferences himself, he is supposed to contact qualified professional staff.
- **Service:** Check functioning of gate, but especially functioning of safety devices (including push force of drive) and unlocking device at least twice a year.
- All procedures, not explicitly mentioned in this manual, are not valid.

### 1.2 Declaration of incorporation for an incomplete machine

Partly completed machinery as defined in the EC Directive 2006/42/EC is only intended to be incorporated into or assembled with other machinery or other partly completed machinery or equipment, thereby forming machinery to which this Directive applies. This is why this product must only be put into operation after it has been determined that the entire machine/system in which it will be installed corresponds with the guidelines of the EC Directive mentioned above.

**After installation, the installer of the gate system must declare conformity to DIN EN 13241-1 in accordance with the scope of application.**

Dear Customer,

Thank you for choosing this quality product from our company.

### 1.3 About these Instructions


- These instructions are original **translation** of an **operating instructions**, outlined in the EC Directive 2006/42/EC.
- Read through all of the instructions carefully, as they contain important information about the product.
- Pay attention to and follow the instructions provided, particularly the safety instructions and warnings.
- Please keep these instructions in a safe place and make sure that they are available to all users at all times.

### 1.4 Further applicable documents for customer/users

Please ensure that the following guides were ultimately delivered to the customer who uses the product:

- this guide / instructions
- Digital control board **MS1024** guide
- Hinged gate guide / instructions

### 1.5 Caution Indications

	The general warning symbol indicates a danger that can lead to <b>injury</b> or <b>death</b> .
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In the text, the general warning symbol will be used in connection with the caution levels described below. In the illustrated section, an additional instruction refers back to the explanation in the text.

	<b>DANGER!</b>
Indicates a danger that leads directly to death or serious injuries.	
	<b>WARNING!</b>
Indicates a danger that can lead to death or serious injuries.	
	<b>CAUTION!</b>
Indicates a danger that can lead to minor or moderate injuries.	
	<b>ATTENTION!</b>
Indicates a danger that can lead to damage or destruction of the product.	

## 2 SAFETY PRECAUTIONS

### 2.1 Intended use

The hinged gate operator is designed and intended exclusively for the operation of smooth-running hinged gates in the **domestic** and **commercial** sector. The maximum permissible gate size and maximum weight must not be exceeded. The gate must be easy to open and close by hand.

Please observe the manufacturer's specifications regarding the door and operator combination. Possible hazards as defined in EN 12604, EN 12445 and EN 12453 are prevented by the design itself and by carrying out installation in accordance with our guidelines. Gate systems used by the general public and equipped with a single protective device, e.g. force limit, may only be used when monitored.

### 2.2 Inappropriate use

The gate-operator is **not** designed for use with **larger heavy-weight** or **sluggish** gates or gates with an **ascending slope**.

### 2.3 Fitter qualification

Only correct fitting and maintenance in compliance with the instructions by a competent/specialist company or a competent/qualified person ensures safe and flawless operation of the system. According to EN 12635, a specialist is a person with suitable training, specialist knowledge and practical experience sufficient to correctly and safely fit, test, and maintain a gate system.

Work to be carried out (mounting, maintenance, repair and dismantling) by qualified service personal only! Should the hinged gate operator fail, a specialist must be immediately entrusted with its inspection / repair.

### 2.4 Important instructions for a safe installation

Any further processing must ensure that the national regulations governing the operation of electrical equipment are complied with.

#### 2.4.1. After installation

The installer of the gate system must declare conformity to DIN EN 13241-1 in accordance with the scope of application.

### 2.5 Checking the gate / gate system

The design of the operator is **not** suitable **nor** intended for the opening and closing of heavy gates, i.e. gates that can no longer be opened or closed manually. Before installing the operator, it is therefore necessary to check the gate and make sure that it can also be easily moved by hand.

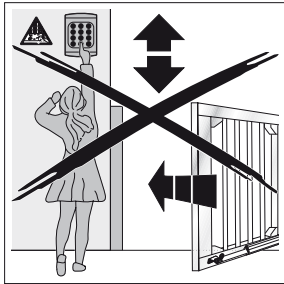
In addition, check the entire gate system (gate pivots, bearings and fastenings) for wear and possible damage. Check for signs of corrosion or fractures. The gate system may not be used if repair or adjustment work needs to be carried out. Always remember that a fault in the gate system or a misaligned gate can also cause severe injury.

#### Note

Before installing the operator and in the interests of personal safety, make sure that any necessary repairs to the gate are carried out by a qualified service engineer.

## 2.6 Warnings

### **WARNING!**



#### **Danger of injury due to unexpected gate travel!**

Incorrect assembly or handling of the operator may trigger unwanted gate travel that may result in persons or objects being trapped.

Follow all the instructions provided in this manual. Incorrectly attached control devices (e.g. buttons) may trigger unwanted gate travel. Persons or objects may be trapped as a result.

- Install control devices at a height of at least 1.5 m (out of the reach of children).
- Fit permanently installed control devices (such as buttons) so that the entire area of travel of the gate is visible, but they are still away from moving parts.

#### **Persons or objects may be trapped if the installed safety equipment fails.**

- In accordance with BGR 232, install at least one clearly visible and easily accessible emergency command unit (emergency OFF) near the gate so the gate can be brought to a standstill in the case of danger.

## 3 WARRANTY

- We shall be exempt from our warranty obligations and product liability in the event that the customer carries out his own structural alterations or undertakes improper installation work or arranges for same to be carried out by others without our prior approval and contrary to the fitting guidelines we have provided.
- Moreover, we shall accept no responsibility for the inadvertent or negligent use of the operator and the accessories nor for improper maintenance of the gate and its counterbalance.

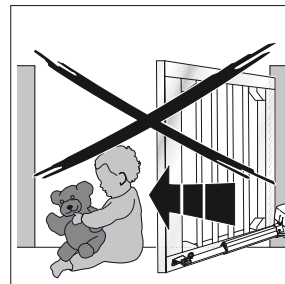
### 3.1 Warranty period

- In addition to the statutory warranty provided by the dealer in the sales contract, we grant the following warranty for parts from the date of purchase:
  - 2 years for the operator mechanics, motor, motor control, radio equipment, accessories.
  - There is no warranty on consumables (e.g. fuses, batteries, lamps).
  - Claims made under the warranty do not extend the warranty period. For replacement parts and repairs the warranty period is six months or at least the remainder of the warranty period.

### 3.2 Prerequisites

- A claim under this warranty is only valid for the country in which the equipment was bought. The product must have been purchased through our authorised distribution channels.

### **WARNING!**



#### **Danger of injury during gate travel!**

Gate motion can lead to injuries or damage.

- Make sure that no children play within the gate area and no persons or objects are in the gate's travel range and between the gate and the operator mechanics.
- Operate the gate operator if you are within sight of the gate's area of travel and safety features are installed.
- Monitor the gate travel until the gate has reached the end-of-travel position.
- Drive or pass through remote control gate systems only if the gate stands still in its end-position GATE-OPEN!

- A claim under this warranty exists only for damage to the object of the contract itself. Reimbursement of expenditure for dismantling and fitting, testing of corresponding parts, as well as demands for lost profits and compensation for damages, are excluded from the warranty.
- The receipt of purchase substantiates your right to claim under the warranty.

### 3.3 Performance

- For the duration of the warranty we shall eliminate any product defects that are proven to be attributable to a material or manufacturing fault.
- We pledge to replace free of charge and at our discretion the defective goods with nondefective goods, to carry out repairs, or to grant a price reduction.

#### **Damages caused by the following are excluded:**

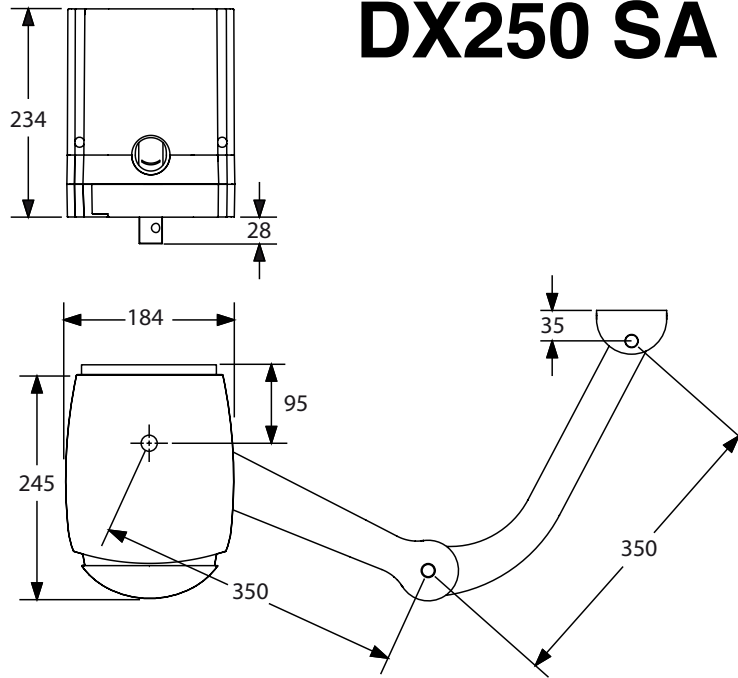
- improper fitting and connection
- improper initial start-up and operation
- external factors such as fire, water, abnormal environmental conditions
- mechanical damage caused by accidents, falls, impacts
- negligent or intentional destruction
- normal wear or deficient maintenance
- repairs conducted by unqualified persons
- use of non-original parts
- removal or defacing of the data label

**Replaced parts become our property.**

4 GATE DRAWINGS

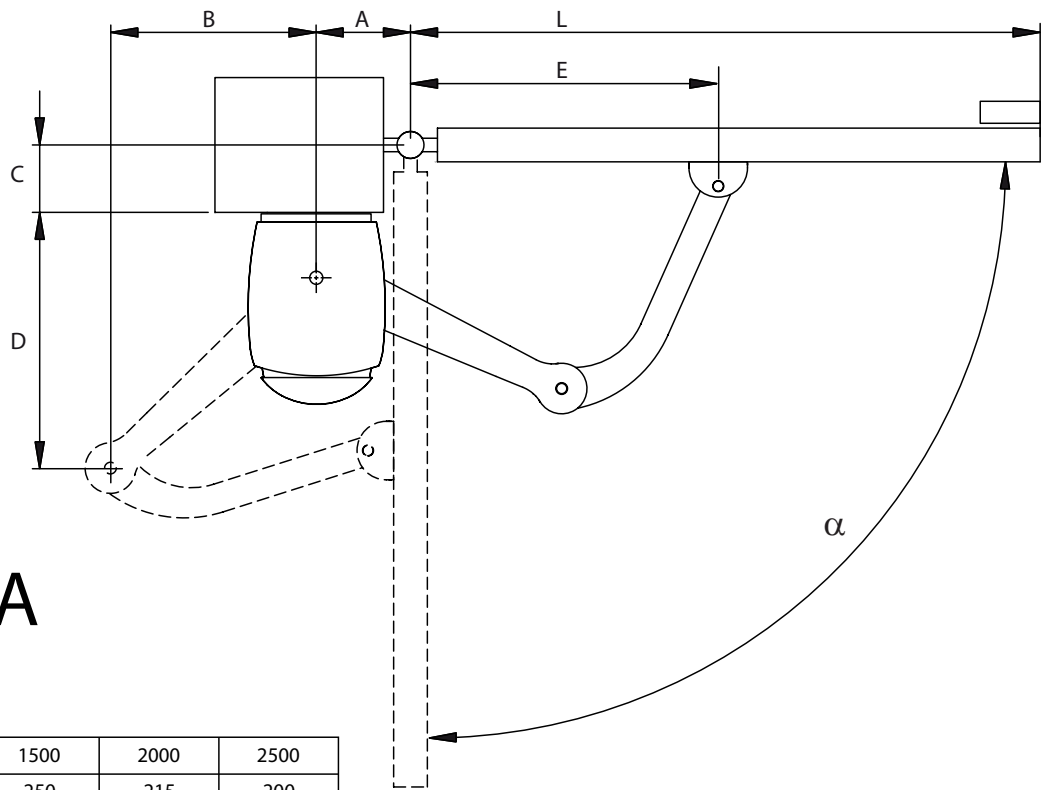
1

**DX250 SA**



01 - Dimensions of housing

2



**DX250 SA**

L (mm)	1000	1500	2000	2500
max. kg	300	250	215	200

A (mm)	140	140	140	140	160	200	200	200
B (mm)	253	261	264	260	220	147	327	309
max. C (mm)	0	50	100	150	185	200	0	100
D (mm)	382	373	370	375	412	417	2266	305
E (mm)	470	470	470	470	470	440	420	420
max. α	90°	90°	90°	90°	90°	90°	110°	105°

02 - gate dimensions

## 5 PREPARATION FOR INSTALLATION



### WARNING!

#### Danger of injury due to damaged components!

A fault in the gate system or an incorrectly aligned gate may lead to serious injuries!

- Do not use the gate system if repair or adjustment work must be conducted!
- In addition, check the entire gate system (gate pivots, bearings, springs and fastenings) for wear and possible damage.
- Check for the presence of rust, corrosion, and cracks.
- For your own safety, only have a specialist conduct maintenance and repair work!

Before installing the operator and in the interests of personal safety, make sure that any necessary repairs to the gate system are carried out by a qualified specialist. Only correct fitting and maintenance in compliance with the instructions by a specialist company or qualified person ensures safe and flawless operation of the system. The specialist carrying out the work must ensure that installation is conducted in compliance with the prevailing national job safety rules and regulations and those governing the operation of electrical equipment. The relevant national directives must be observed. Potential hazards are avoided by construction and fitting according to our guidelines.

- Prior to fitting, deactivate or completely disassemble any mechanical locks not needed for power operation of the gate. This includes in particular any locking mechanisms connected with the gate lock.
- In addition, check that the gate is in a flawless mechanical condition, so that it can be easily operated manually and opens and closes properly (EN 12604).

#### Note

Check all safety and protective functions **monthly**.

- Instruct all persons who use the gate system on the proper and safe use of the hinged gate operator. Demonstrate and test the mechanical release as well as the safety return.



### WARNING!

#### Danger of injury during gate travel

Risk of injury on hand/fingers; do **not** touch/hold any edges of the gate while the gate is moving.

If people or objects are in the area around the gate while the gate is in motion, this can lead to injuries or damage.



### WARNING!

#### Unsuitable fixing material

Use of unsuitable fixing material may mean that the operator is insecurely attached and could come loose.

- The fitter must check that the fitting materials supplied are suitable for the purpose and the intended fitting location.

## 5.1 Install the gate operator

#### Note

dimensions given in „01 - *Dimensions of housing*“ and „02 - *gate dimensions*“ on page 6 are valid for gates with a max. width of 1.5 metres. For higher gates, leafs must be smaller.

Do not use this operator for gates with ascending slope!

**Mechanical limit stops** for end-positions gate **CLOSE** and **OPEN** should be mounted!

Use an **electronic key lock** at gate-**CLOSED**, if gates with leafs >2.5 metres are used.



### CAUTION!

#### Dirt

Drilling dust and chippings from drilling work can lead to malfunctions.

- Cover the operator during drilling work.

### 5.1.1 Establishing the mounting dimensions

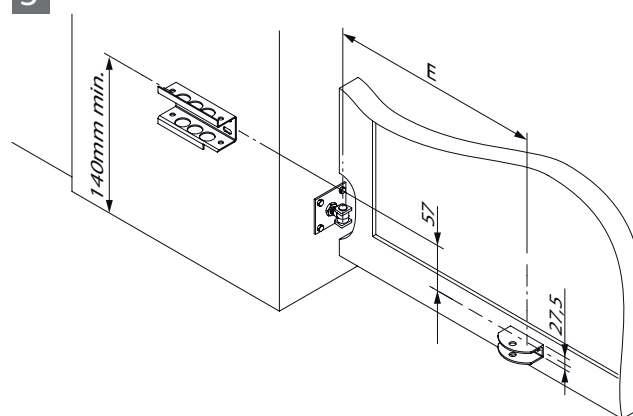
**Always** observe the mounting dimension, see **page 6**.

#### Note

wrong mounting dimension lead to bad function of the gate-movement or even to failure. Adhere strictly the given dimensions!

### 5.1.2 Fix gate-tarnish to post

3

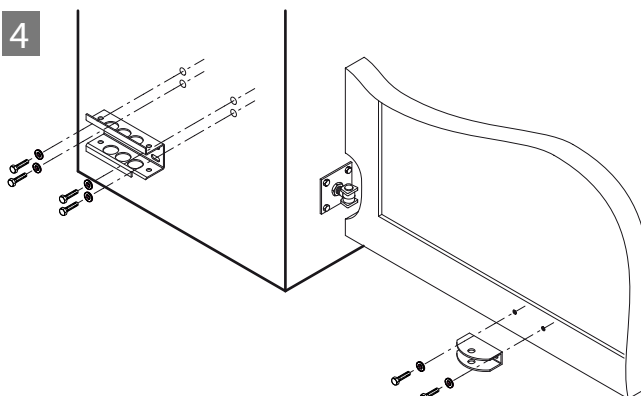


03 distance to ground

### 5.1.3 Mount plate to post

- **At least 140 mm** distance from ground to mid of plate.
- Use four heavy-duty dowel for stiff and solid fixing.

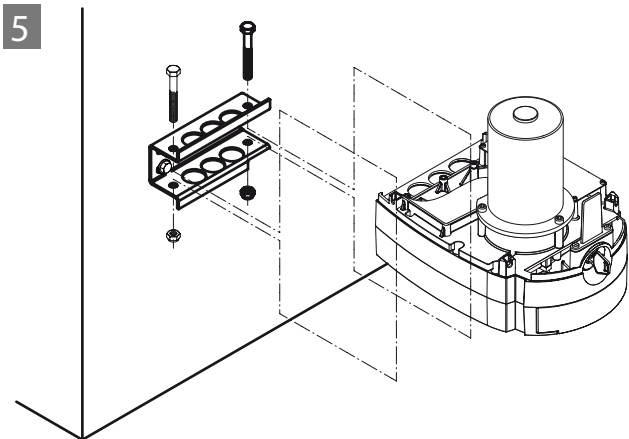
4



04 - mount plate to post

**5.1.4 Mount operator motor**

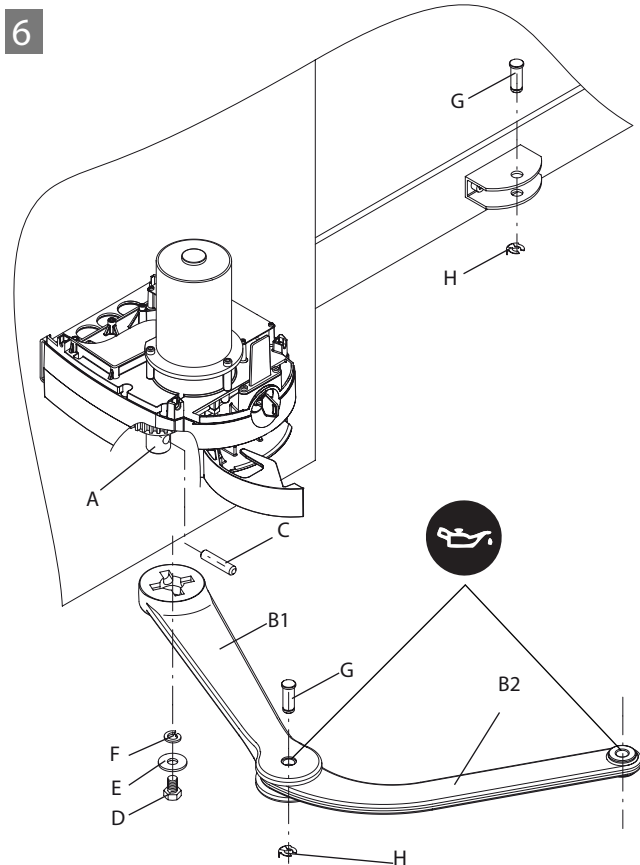
- Insert motor to plate, fix with screws/nuts.



05 mount motor

**5.1.5 Mount articulated arm**

- Mount articulated arm, fix arm on motor.



**Note**

Grease articulations before mounting. Switch on operator **not earlier** than after complete mounting on gate

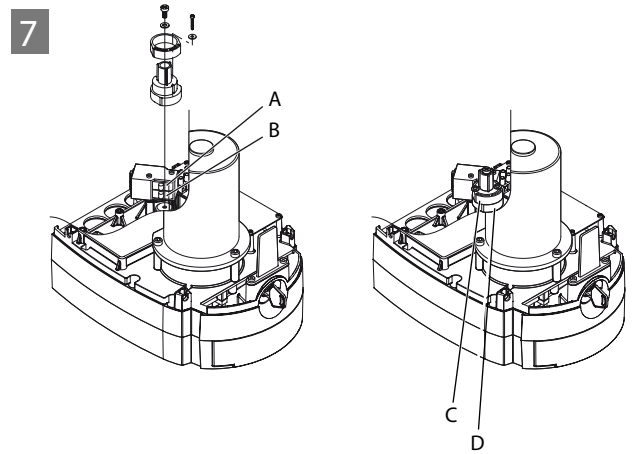
**5.1.6 Adjust interruptor of end travel**

- Antrieb entriegeln, Tor langsam von Hand bis zur gewünschten
- Endlage Tor-AUF / Tor-ZU bewegen. (Einstellringe müssen beim
- Erreichen der Endlagen Tor-AUF bzw. Tor-ZU den entsprechenden
- Endschalter betätigen)
- ●● Unteren Einstellring mit der mittleren Schraube, oberen Einstellung mit
- beiden seitlich angeordneten Schrauben gegen verdrehen sichern.
- unlock the motor.
- place the leaf by unlocking „Emergency unlocking“.

**5.1.7 Adjust end of travel: GATE CLOSED**

- move gate into desired gate-CLOSED position.

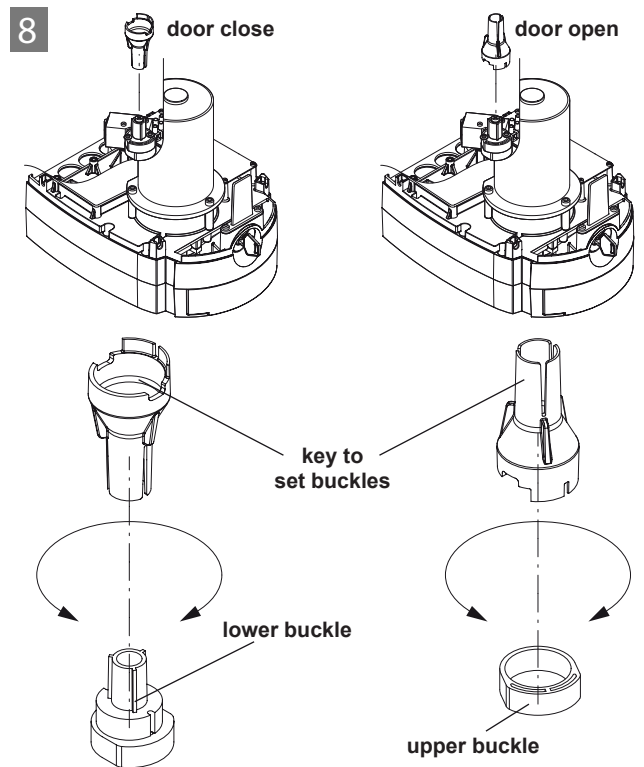
- turn upper buckle (by key) until the end-switch is activated.
- fix both screws on the outside.



07 adjustment end travel interruptor

A = interruptor end travel OPEN  
C = buckle OPEN

B = interruptor end travel CLOSE  
D = buckle CLOSE



08 adjustment of buckles



**Caution!**

Mechanical limit stops for end-positions gate CLOSE and OPEN should be mounted!

Adjust both buckles to switch off at a position, the gate contacts the mechanical limit stops. This way, the gate will not „whip“ back!

Check adjustment after the gate is completely installed. Open and close the gate several times. For smooth operation, a „fine-adjustment“ is suggested.



## 6 ELECTRICAL CONNECTION

### 6.1 Mains voltage



# DANGER!

#### Mains voltage

Contact with the mains voltage presents the danger of a deadly electric shock. For that reason, observe the following warnings under all circumstances:

- Electrical connections only be made by a qualified electrician.
- On-site electrical installation must conform to applicable protective regulations (230/240 V AC, 50/60 Hz)!
- Ensure that the national regulations governing the operation of electrical equipment are complied with.
- Before undertaking any electrical work, disconnect the system from the mains supply and ensure that it cannot be inadvertently turned on.

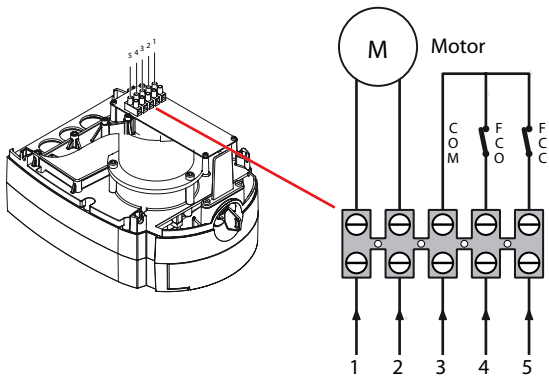
#### External voltage on the connecting terminals

- External voltage on the connecting terminals of the control will destroy the electronics.
- Do not apply any mains voltage (230/240 V AC) to the connecting terminals of the control.

### 6.2 Connect operator

- Lay cables (NYY power cable 5 x 1.5 mm<sup>2</sup>) to both operators, max. 20 m.
- All cables must be inserted into the control unit from below and free from distortion.

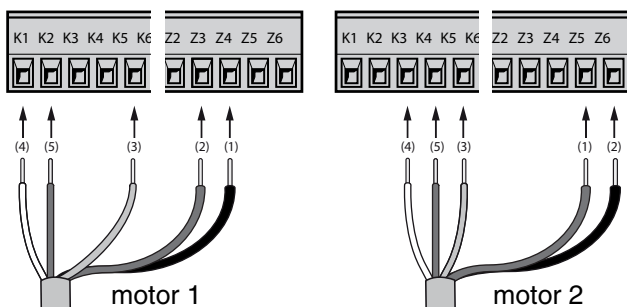
9



09 mains connection operator

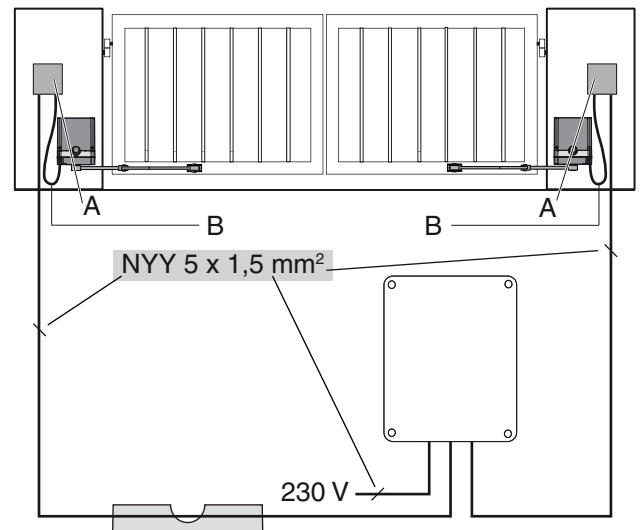
#### 6.2.1. Connect operator as follows:

- 1 = motor (-)  
 2 = motor (+)  
 3 = end-of-travel switch common  
 4 = end-of-travel switch gate OPEN  
 5 = end-of-travel switch gate CLOSED



09 connect motors with MS1024 control board

10



10 lay cables

- A spraywater protected junction B flexible connection cable for motor

Motor-connection and end-of-traffic switches (opener contact) are already wired on a terminal strip inside the MS1024 control board.

#### 6.2.2. Connect control board as follows:

##### motor 1 - (mounting left)

- Clamp Z3 motor (-)  
 Clamp Z4 motor (+)  
 Clamp K5 end-of-travel switch common  
 Clamp K1 end-of-travel switch gate OPEN  
 Clamp K2 end-of-travel switch gate CLOSED

##### motor 1 - (mounting right)

- Clamp Z3 motor (+)  
 Clamp Z4 motor (-)  
 Clamp K5 end-of-travel switch common  
 Clamp K1 end-of-travel switch gate OPEN  
 Clamp K2 end-of-travel switch gate CLOSED

##### motor 2 - (mounting left)

- Clamp Z5 motor (-)  
 Clamp Z6 motor (+)  
 Clamp K5 end-of-travel switch common  
 Clamp K3 end-of-travel switch gate OPEN  
 Clamp K4 end-of-travel switch gate CLOSED

##### motor 2 - (mounting right)

- Clamp Z5 motor (+)  
 Clamp Z6 motor (-)  
 Clamp K5 end-of-travel switch common  
 Clamp K3 end-of-travel switch gate OPEN  
 Clamp K4 end-of-travel switch gate CLOSED

#### Note

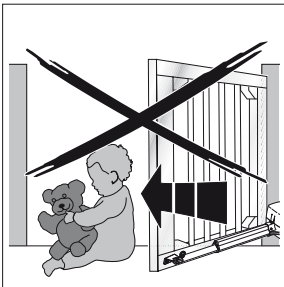
If the motors turns into the wrong way, change connections Z3/Z4 or Z5/Z6 with each other.

Install accessories **after** a trial-run with complete controller functionality, a control device and correct setting of end-of-travel switches.

## 7 HINGED GATE OPERATION



### WARNING!



#### Danger of injury during gate travel!

If people or objects are in the area around the gate while the gate is in motion, this can lead to injuries or damage.

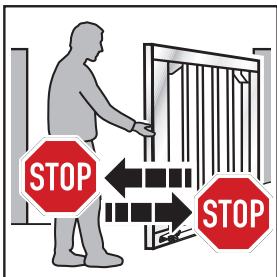
#### Make sure that:

- Children are not allowed to play near the gate system.
- Make sure that no persons or objects are in the gate's travel range.
- Make sure that no persons or objects are located between the gate and the operator mechanics.



- If the gate has only one safety feature, only operate the gate operator if you are within sight of the gate's area of travel.
- Monitor the gate travel until the gate has reached the end-of-travel position.
- Only drive or pass through remote control gate systems if the gate is in the OPEN end-of-travel position!

### 7.2.1. Function tests



Check the function of the mechanical release **monthly**.

- To check the safety reversal, stop the gate with both hands while it is closing. The gate system must stop and initiate a safety reversal.
- In the event of a failure of the safety reversal, a specialist must be commissioned immediately for the inspection and repair work.

### 7.1 Instructing users

- Instruct all persons who use the gate system on the proper and safe use of the hinged gate operator.
- Demonstrate and test the mechanical release as well as the safety return.

## 7.2 Behaviour during a power failure



### WARNING!

#### Danger of injury due to unexpected gate travel!

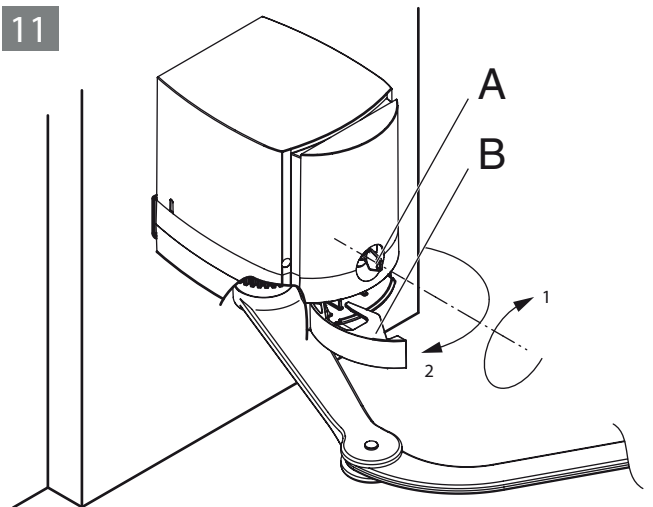
Unexpected gate travel can result if the gate system is inadvertently actuated by other persons.

- Disconnect the mains plug when performing any work on the gate system.
- Safeguard the gate system against being switched on again without authorisation.

To open or close the hinged gate during a power failure, it must be disengaged from the operator.

- Turn key (A) clockwise to unlock hand gear (B).
  - Unlock operator from gate by open hand gear (B).
- If any other devices to lock are in use, unlock them.

11



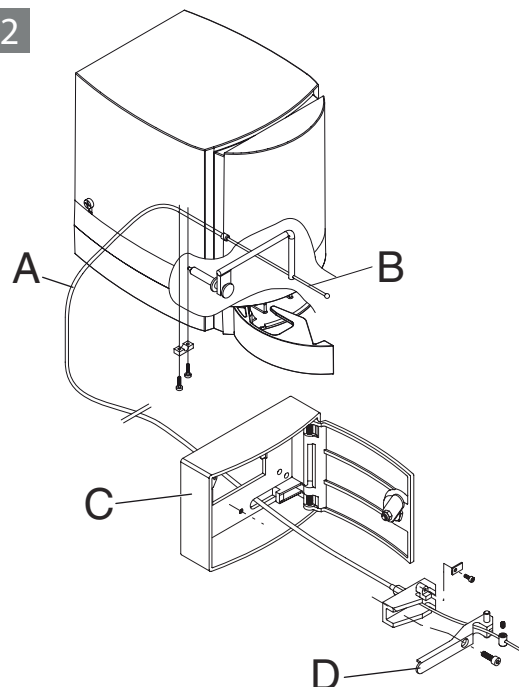
11 disengage operator from gate

A key (unlock operator)

B hand gear (unlock operator)

## 7.3 optional unlock by bowden cable

12



12 unlock by bowden cable (optional)

A bowden cover cable

B bowden cable

C box for unlocking

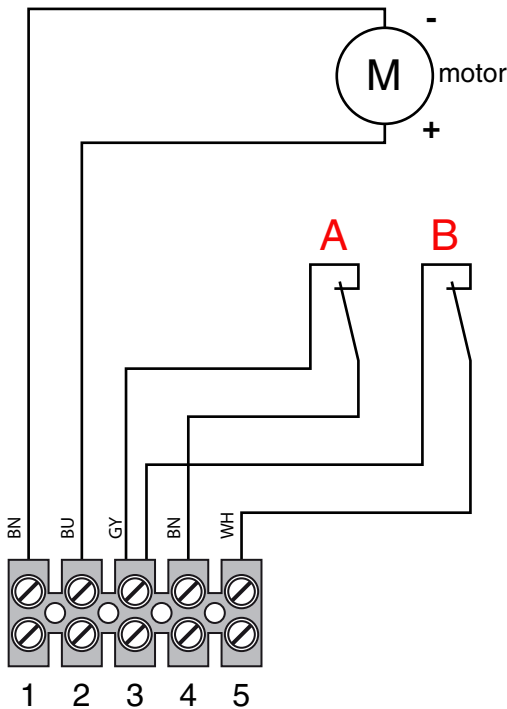
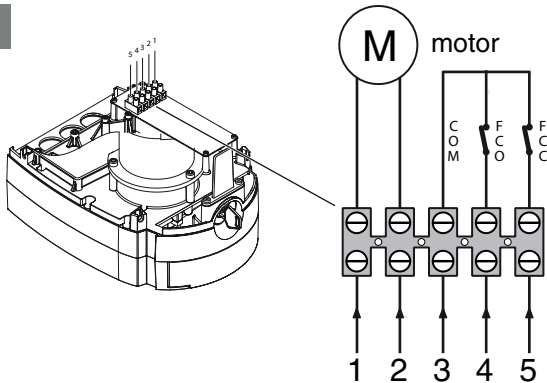
D hand gear for unlocking

## 8 TECHNICAL DETAILS DX250 SA

Motor voltage	24 VDC
Current consumption	5 A
Power	80 W
Duty rating	60%
Max. torque	180 Nm
Duration gate open/close	13 - 24 sec. / 90°
Operating Temperature	-20 ÷ +60 °C
Weight	8.3 Kg

### 8.1 Internal operator wiring

13



13 internal wiring

A End-of-travel switch  
gate opened

B End-of-travel switch  
gate closed

### 8.2 Abbreviations for colour identifying used

Abbreviations of the colours for identifying the cables, conductors and components comply with the international colour code according to IEC 757:

BK	black	RD	red
BN	brown	WH	white
GN	green	YE	yellow
BU	blue	GY	grey

## 9 INSPECTION AND MAINTENANCE

- The gate operator is maintenance-free.
- In the interest of your own safety, we recommend having the gate system inspected and maintained by a qualified person in accordance with the manufacturer's specifications.



### WARNING!

#### Danger of injury due to unexpected gate travel!

Unexpected gate travel can result during inspection and maintenance work if the gate system is inadvertently actuated by other persons.

- Disconnect the mains plug and, if applicable, the plug of the emergency battery when performing all work on the gate system.
- Safeguard the gate system against being switched on again without authorisation.

An inspection or necessary repairs may only be carried out by a qualified person. Contact your supplier for this purpose.

A visual inspection may be carried out by the operator.

- Check all safety and protective functions **monthly**.
- Malfunctions and/or defects at hand must be rectified **immediately**.
- We would like to point out that any repairs not carried out properly or with due professionalism shall render the warranty null and void.

## 10 OPTIONAL ACCESSORIES

Optional accessories are not included in the scope of delivery.

Loading of the operator by all electrical accessories:  
max. 500 mA.

The following accessories are available:

- External radio receivers
- External impulse buttons (e.g. key switch)
- External code and transponder switches
- One-way photocell
- Warning lamps/warning lights
- Electric lock for post locking
- Electric lock for floor locking
- Stop plate
- Security contact-strip
- Spray-water protected junction box

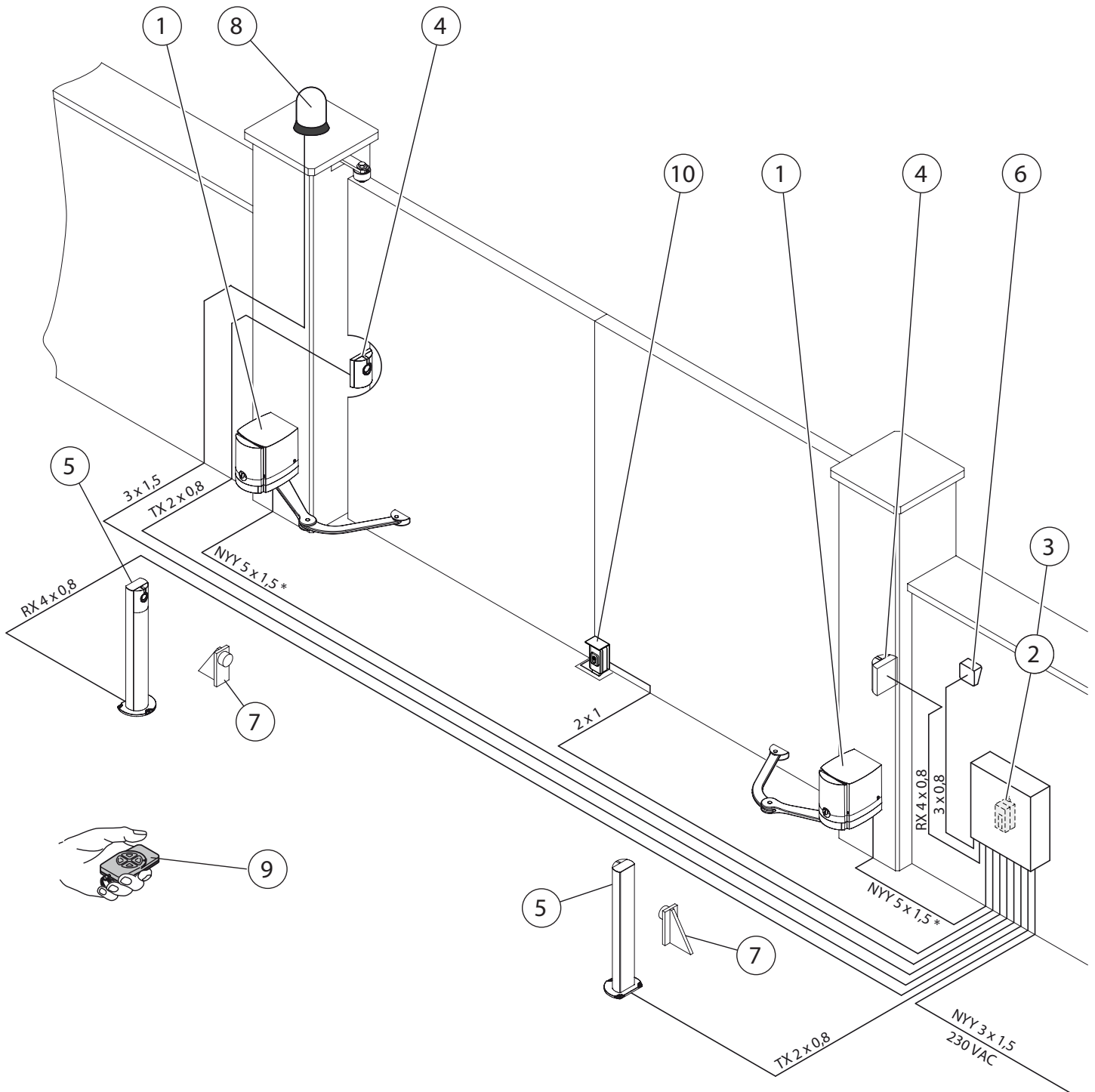
## 11 DISMANTLING AND DISPOSAL

#### Note

When disassembling, observe the applicable regulations regarding occupational safety.

Have a specialist dismantle the gate operator in the reverse order of these instructions and dispose of it properly.

12 CABLE LAYING - TRACK PLAN



overview hinged gate

\* NYY 5 x 1,5 mm<sup>2</sup> (< 10 m cable length)  
 NYY 5 x 2,5 mm<sup>2</sup> (> 10 - max. 20 m cable length)

1	hinged gate operator	2	control board	3	radio receiver	4	photocell type 2 system, mounted outside	5	photocell type 1 system, mounted inside
6	key switch	7	mechanical end-stop gate opened	8	warning-/flashing light	9	hand transmitter	10	electronic key-lock mechanical end-stop gate closed