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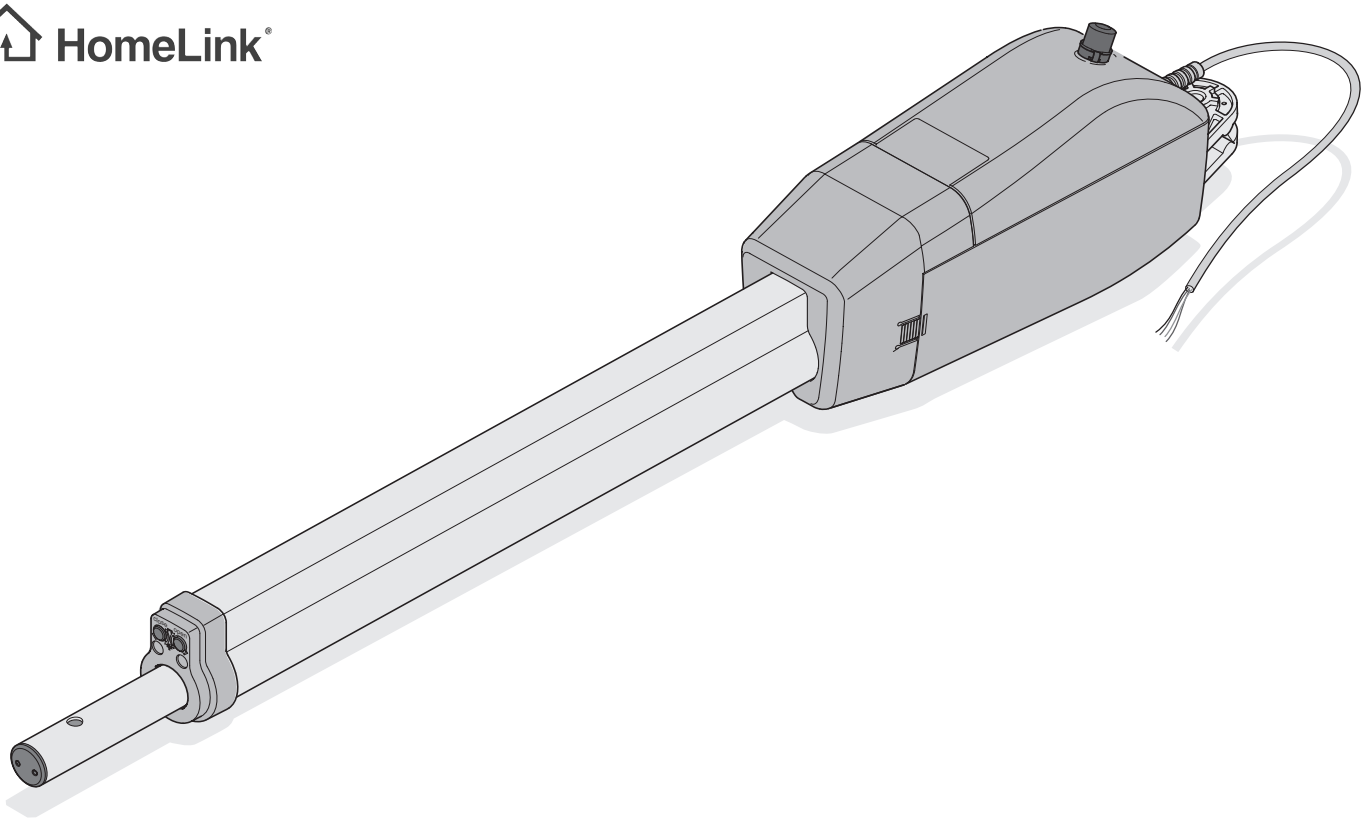

twist 350

GB Installation and Operating Instructions 1 - 38

GB

Serial number

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General Information

Symbols

ATTENTION SYMBOL:
Important safety instructions!
To ensure personal safety, it is important to observe all instructions. Save these instructions!

NOTE SYMBOL:
Information, useful advice!

1 (1) Refers to a respective picture in the introduction or main text.

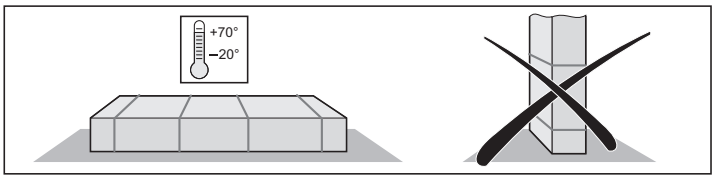
Safety instructions

General

- These installation and operating instructions must be read, understood and complied with by persons who install, use or perform maintenance on the drive.
- The manufacturer does not accept liability for damage or interruptions to business resulting from non-observance of the installation and operating manual.
- Always ensure compliance with accident prevention regulations and current standards in each respective country.
- All applicable Directives and standards must be observed for installation and operation, such as: EN 12453, EN 12604, EN 12605.
- Follow and comply with the "ASR A1.7 Technical Regulations for Workplaces" of the committee for workplaces (ASTA). (Applies to operators in Germany).
- Before working on the gate or the drive, always disconnect the plant and lock to prevent reactivation.
- All electrical wires must be fitted tightly and secured against shifting.
- There is a risk of persons being crushed or cut by the mechanism or sharp edges of the gate.
- Never operate a damaged drive.
- After installation and commissioning, all users must be instructed in the function and operation of the swing gate drive.
- Only use OEM (Original Equipment Manufacturer) spare parts, accessories, and mounting material.

Storage

- The drive must be stored in an enclosed, dry area at a room temperature between -20 and +70 °C.
- The drive should be stored horizontally.



Operation

- Do not allow children or persons who have not been instructed to operate the gate control unit.
- Open and close the gate only if there are no children, persons, animals, or objects within its range of motion.
- Actuate the gate system by remote control only if you have a clear view of the gate.
- Never put your hand near the gate when it is moving or near moving parts.
- Regularly check the safety and protection functions and repair faults when they are detected. see Care and maintenance.
- Drive through the gate only when it has opened completely.
- Set the force tolerance as low as possible.
- For automatic closing the main and auxiliary closing edges must be secured in accordance with the applicable directives and standards.
- Always remove the key to ensure that unauthorized persons cannot unlock the drive and open the gates.

Radio remote control

- The remote control must only be used for devices and systems in which radio interference will not endanger people, animals or objects or the risk is reduced by other safety devices.
- The user must be made aware that systems that pose an accident risk should only be remote controlled, if at all, if the user can actually see the gate.
- The radio remote control may only be used if the gate's movement can be watched and no persons or objects are within the range of movement.
- Store the hand-held transmitter so that unintended operation, e.g., by children or animals, is impossible.
- The operator of the radio system is not protected from faults due to other telecommunications equipment or devices (e.g. radio-controlled systems that are licensed to operate in the same frequency range). If substantial interference occurs, please contact your appropriate telecommunications office which has radio interference measuring equipment (radiolocation).
- Do not operate the hand-held transmitter in areas with sensitive radio communications or systems (e.g. airports, hospitals).

Type plate

- The type plate is inside the cover of the control unit.

Intended use

NOTE!
After installation of the drive the person responsible for the installation must complete an EC declaration of conformity for the gate system in accordance with the Machinery Directive 2006/42/EC and apply the CE mark and a type plate. This is also required for private installations and also if the drive is retrofitted to a manually operated gate. This documentation and the Installation and Operating Instructions are retained by the operator.

- The drive is intended exclusively to open and close gates. Any other use does not constitute intended use. The manufacturer accepts no liability resulting from use other than intended use. The user bears the sole responsibility for any risk involved. The warranty expires as a result.
- Gates automated with a drive must comply with all valid standards and directives: e.g. EN 12453, EN 12604, and EN 12605.
- The safety distances between the gate wing and the environment can be found in standard EN 12604.
- The drive must be in good technical condition, and it must be used for its intended purpose with awareness of the hazards as described by the installation and operating manual.
- Faults that may affect safety must be repaired without delay.
- The gate must have very little play in the hinges.
- The gates must be stable and resistant to twisting, i.e. they must not bend or twist when opening and closing.
- The DTA-1 control unit and the twist 350 drive must only be used together.
- The DTA-1 control unit and the twist 350 drives are designed for private use.
- The electric drive is designed exclusively for opening and closing one or two-wing swing gate installations.

General Information

Improper use

- Opening or closing flaps, e.g. for access to roofs or similar.

Combined operation

- Mixed operation with 1 x twist 200 E/EL and 1 x twist 350 is permitted only in combination with the twist XS #3248V000 (five-wire technology) conversion kit on the twist XL (DTA-1) control unit.
- Mixed operation with 1 x twist 350 and 1 x twist XL is permitted only in combination with the twist XL (DTA-1) control unit.

Permitted gate wing dimensions

Weight:	Max. 300 kg
Gate inclination:	0%

Height (m)	Degree of fill (%)					
3	100	100	100	90	60	45
2.5	100	100	100	100	75	55
2	100	100	100	100	90	68
1.5	100	100	100	100	100	90
1	100	100	100	100	100	100
0.5	100	100	100	100	100	100
Length (m)	1.2	1.5	2	2.5	3	3.5

* Valid with B-dimension 300 mm + A-dimension 100 mm.

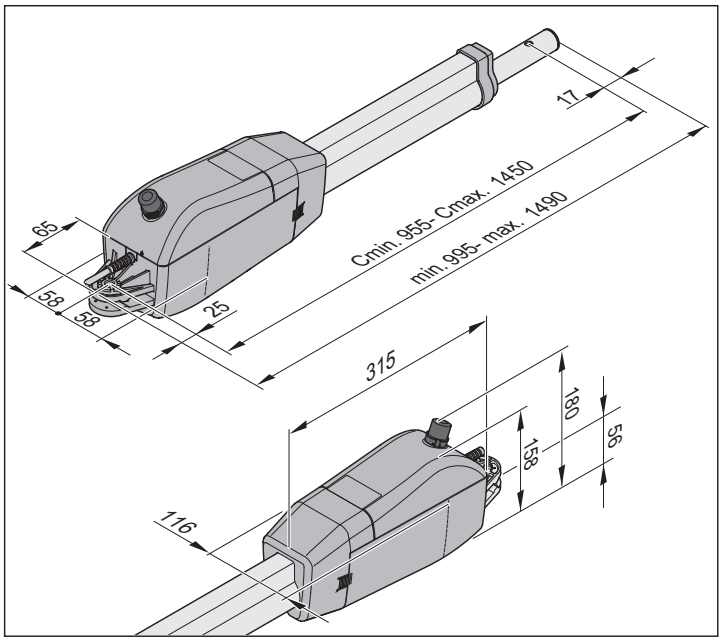
Technical data

	1-wing	2-wing	Unit
General			
Runtime depending on A/B size	Approx. 12 …25	Approx. 15 …34	Seconds
Protection type			
Operator	IP 44	IP 44	
Control unit housing	IP 65	IP 65	
Rated voltage	220 - 240	220 - 240	AC/V
Rated frequency	50/60	50/60	Hz
Operating temperature range			
Operator	-30 +70	-30 +70	°C
Control unit housing	-30 +70	-30 +70	°C
Lift (per drive)	450	450	mm
Max. tension and compress. force	2500	2500	N
Duty cycle:	40	40	%
Stand by			
Rated current consumption	33.6	33.6	mA
Rated wattage	2.2	2.2	W
Rating			
Motor voltage:	Approx. 22	Approx. 20	DC/V
Rated current consumption:	Approx. 1.7	Approx. 3	A
Rated power consumption:	Approx. 400	Approx. 680	W

Workplace-related emission value < 75 dBA – drive only.

Dimensions

All dimensions are in millimeters.



Functional description

NOTE!
The end positions ("Gate OPEN" + "Gate CLOSE") are set by internal limit switches in the drive and detected during operation.

The gate wing is opened and closed by retracting and extending the gate operator. When the defined end positions are reached, the drive is automatically switched off by the limit switch.

Closing the gate

NOTE!
A mechanical end stop is essential when the gate operator is fully extended. An electric lock can be installed as an additional lock.

The gate wing does not require a lock, because the drive is self-locking. The gate cannot be pushed open manually without damaging the drive or the fittings.

Wireless actuation

The drive can be actuated with the included hand-held transmitter once the transmitter has been set to the radio receiver.

Safety devices

The control system has an automatic force monitor. If the drive requires more force for opening or closing than the value saved during the learning run, the drive stops and reverses ("Gate CLOSE" direction) or remains stationary ("Gate OPEN" direction).

Various safety devices can be connected to the control unit (see additional functions and connections).

E.g.

- Photo eye.
- Safety contact strip with additional evaluation unit.

Declaration of Installation

for the installation of an incomplete machine
in accordance with the Machinery Directive 2006/42/EC, Appendix II, Section 1 B

SOMMER Antriebs- und Funktechnik GmbH
Hans - Böckler - Straße 21 - 27
73230 Kirchheim unter Teck
Germany

hereby declares that the control unit

twist 350

as of the identification, twist 350 complies with the Machinery Directive 2006/42/EC and is intended for installation in a gate system.

- The following fundamental safety requirements have been applied and observed in accordance with Appendix I:

- General principles No. 1

- 1.2 Safety and reliability of control units
  Safety input I terminals 17 + 18: Cat 2 / PL C
  Internal force limitation Cat 2 / PL C
  Safety categories in accordance with EN 13849 - 1:2008

- Compliant with the regulations of the EC Building Products Directive 89/106/EC.
  For the operating forces part, the respective initial testing has been carried out in consultation with recognized inspecting authorities. In doing so, the harmonized standards EN 13241-1, EN 12453 and EN 12445 have been applied. For the tested combinations, refer to the "Reference list" table in the Internet under www.sommer.eu.
- Compliant with the Low Voltage Directive 2006/95/EC.
- Compliant with the Directive on Electromagnetic Compatibility 2004/1 08/EC.

- The technical documentation was drawn up in accordance with Appendix VII B.

The product may only be put into operation after it has been established that the door system complies with the regulations of the Machinery Directive.

CE

i.V.

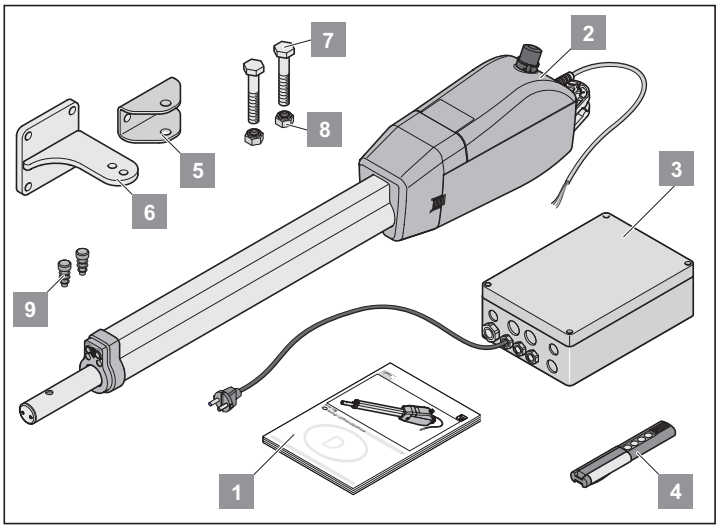
Kirchheim, 25-02-2013

Jochen Lude
Responsible for documents

Installation preparations

Scope of supply

- Check the package before installation to avoid unnecessary work and expense if a part is missing.
- The actual scope of supply may vary depending on the design of the drive.



Complete set	1-wing	2-wing	
Weight	14	22	kg
Package (L x W x H):	1190 x 246 x 203		mm
1. Installation and Operating Instructions	1 x	1 x	
2. Drive with cable	1 x	2 x	
3. Control unit in housing (including radio receiver, transformer, and power plug)	1 x	1 x	
4. Hand-held transmitter, including battery	1 x	1 x	
5. Fittings for gate wing	1 x	2 x	
6. Fittings for post or pillar	1 x	2 x	
7. Stainless steel hex bolt M10x45	2 x	4 x	
8. Stainless steel locknut M10	2 x	4 x	
9. Plug	2 x	4 x	

D Funkempfänger

EU-Konformitätserklärung

Die Firma

SOMMER Antriebs- und Funktechnik GmbH
Hans-Böckler-Straße 21-27
D-73230 Kirchheim/Teck

erklärt, daß das nachfolgend bezeichnete Produkt bei bestimmungsgemäßer Verwendung den grundlegenden Anforderungen gemäß Artikel 3 der R&TTE-Richtlinie 1999/5/EG entspricht und daß die folgenden Normen angewandt wurden:

Produkt: RF Remote Control for Doors & Gates

Typ: RM01-868, RM02-868-2, RM02-868-2-TIGA
RM03-868-4, RM04-868-2, RM08-868-2
RM01-434, RM02-434-2, RM03-434-4, RM04-434-2
RX04-RM02-868-2, RX04-RM02-868-2-TT
RX04-RM02-434-2, RX04-RM02-434-2-TT

Angewandte Richtlinien und Normen sind:
- ETSI EN 300220-2:2007-06
- ETSI EN 301489-1:2008-04
- DIN EN 60950-1:2006

Kirchheim/Teck, 21.06.2010
Jochen Lude
Dokumentenverantwortlicher

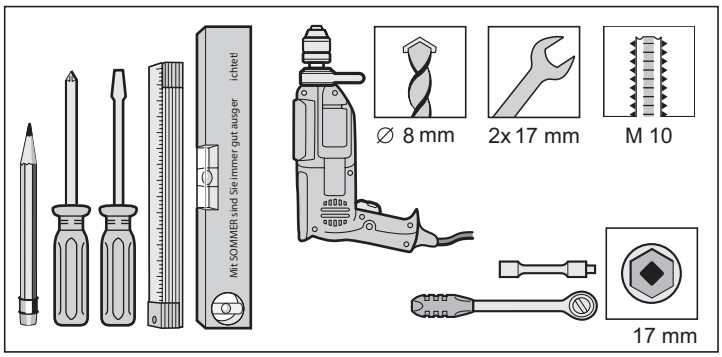
Safety instructions

NOTE!
The control unit is delivered with a mains cable. This cable may be used only for the mounting of the drives.
After the conclusion of mounting, the mains cable must be disconnected and replaced by a permanently laid line.
The mains cable is not approved for constant or outdoor operation.

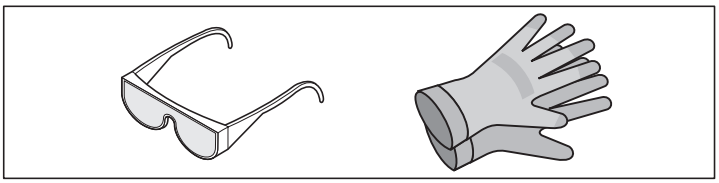
NOTE! DANGER OF DESTRUCTION BY VOLTAGE FLUCTUATIONS.
Voltage fluctuations, e.g. from welding machine, can destroy the control unit.
Do not connect the control unit until all mounting tasks on the power mains has been concluded.

- Install all wiring for the drive in ducts approved for the purpose (e.g. for underground installation).
- The control unit must be connected to the power supply by an electrician only.
- Installation must be in accordance with the installation and operating manual.
- Remove or disable locking devices (electric locks, bars etc.) before installing the drive.
- Ensure that the drive is securely fastened to posts, pillars, and gate wings to withstand forces generated when opening and closing the gate.
- Cover or remove the drive when welding fittings to posts, pillars, or gate wings to prevent damage from sparks.
- If a button is used for opening or closing, it must be installed at a height of at least 1.6 m to prevent operation by children.
- Use only approved fasteners (e.g. wall plugs or anchor pins 12 x 100) in public areas.

Tools required

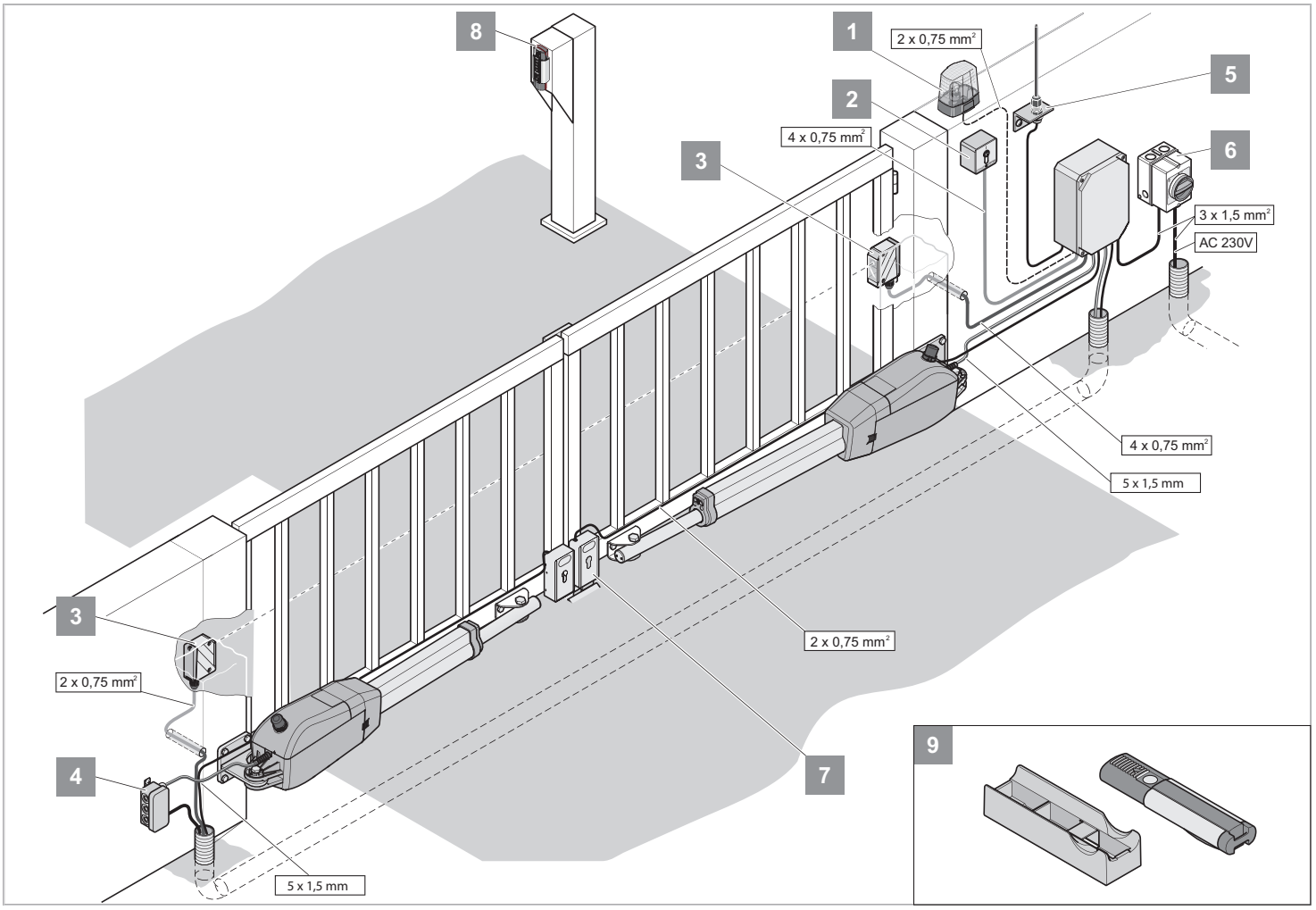


Personal safety equipment



- Safety glasses (for drilling).
- Work gloves.

Installation



Tips for installation

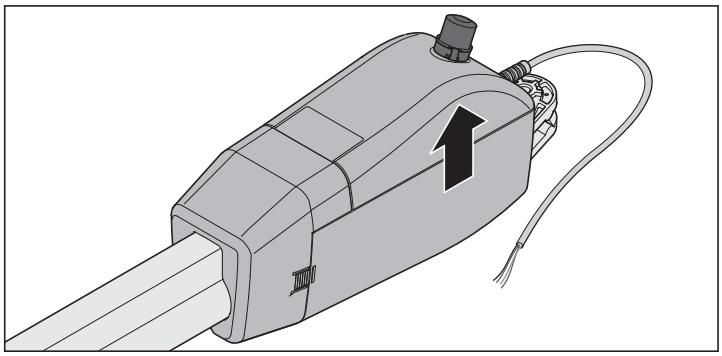
- Define the installation location together with the operator.
- Do not install the housing where it could be seen from the street, otherwise the housing and control unit may be damaged by vandalism.
- If the gate wings are larger than 3 m or there are two wings, attach a threshold or a threshold bar to the gate.

NOTE!
Additional pulse transmitters are: hand-held transmitters, Telecody, wireless indoor switches and key switches. In the case of the hand-held transmitter, Telecody or the wireless indoor switches a connecting line to the drive is not required (contact your dealer).

1.	Warning light DC 24 V/25 W.
2.	Key switch (1 or 2 contact).
3.	Photo eye.
4.	Connector wiring set 7 m.
5.	Main switch (lockable).
6.	Rod antenna (including cable).
7.	DC 24 V electric lock—an electric lock can be mounted separately on each gate wing.
8.	Telecody.
9.	Car/wall holder for hand-held transmitter.

Drive installation position

Install drive horizontally. Note installation position of motor; it must always point upright.



A/B dimension table (reference value)

NOTE!
Before mounting, define the A/B dimensions. Without these dimensions, the drive cannot be correctly installed and operated.

- Note different post or pillar dimensions.

W \ A	100	120	140	160	180	200	220	240	260
120	90°	96°	96°	110°	110°	110°	121°	110°	92°
140	92°	99°	102°	105°	111°	117°	121°	110°	92°
160	91°	94°	100°	100°	106°	111°	109°	106°	92°
180	91°	94°	99°	100°	100°	106°	107°	101°	92°
200	91°	93°	97°	98°	100°	102°	100°	95°	92°
220	91°	93°	97°	98°	100°	98°	95°	91°	
240	91°	93°	97°	98°	100°	93°	90°		
260	91°	93°	96°	98°	93°				
280	91°	93°	94°						
300	91°	92°							
320	91°								

NOTE!
Select A/B dimensions in such a way that the desired opening angle is reached. The specified opening angle (D) is reference value for the largest possible angle.
In case of gate wings greater than 3 m, the B dimension must amount to at least 160 mm.

- Dimensions A, B in mm.
- D = largest possible opening angle in degrees.
- 1 revolution = 1.25 mm adjustment path when adjusting the limit switch.

NOTE!
The reference values in the table have been calculated based on the following data:

- **Gate wing height 2 m**
- **Gate wing length 3.5 m**
- **Wind load 32.6 m/s**
- **Max. permissible axial force ≤ 20 KN**

Installation of fittings

NOTE!
The strength of the included fittings is designed for the drive (twist 350). If other fittings are used, the warranty will not apply.

NOTE!
If the B dimension is smaller than the smallest B dimension in the table, install a spacer plate under the post fitting to ensure that the B dimension is at least 120 mm (see A/B dimension table).

- ➢ Cover or remove the drive when welding fittings to posts, pillars, or gate wings to prevent damage from sparks or welding beads.
- ➢ With thick brick or concrete pillars attach the fittings so the wall plugs cannot come loose during operation. Adhesive-bonded anchors, with which a threaded pin is cemented to the brickwork without tension, are more suitable than steel and plastic expanding plugs.

NOTE!
Only use permissible fastening materials.

- ➢ Clearances between the gate wing and post or gate wing and drive must be maintained in accordance with the applicable standards.

Steel posts

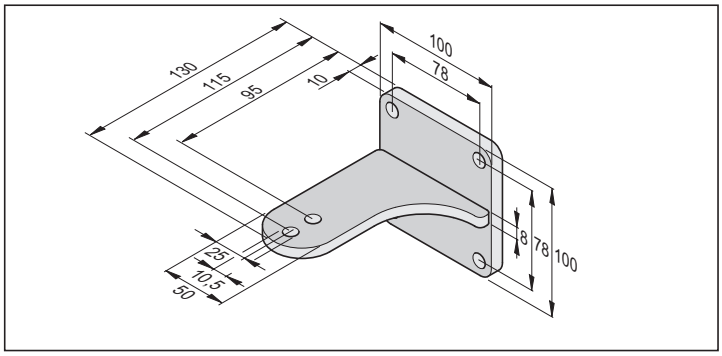
Note the thickness of the post!
The fitting can be welded or bolted directly to steel posts.

Brick or concrete pillars

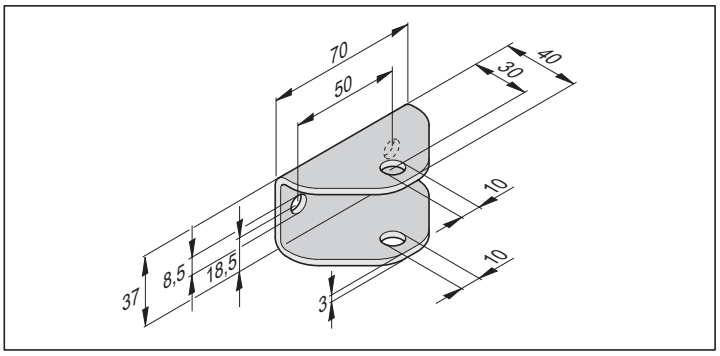
When attaching the fitting to the brick pillar, ensure that the holes are not too close to the edge of the pillar. The distance may vary depending on the type of plug. The plug manufacturer will provide recommended distances.

NOTE!
After mounting the fittings, do not perform any more welding or grinding. Residues of such work will result in rapid corrosion of fittings.

Post or pillar fitting



Gate wing fitting

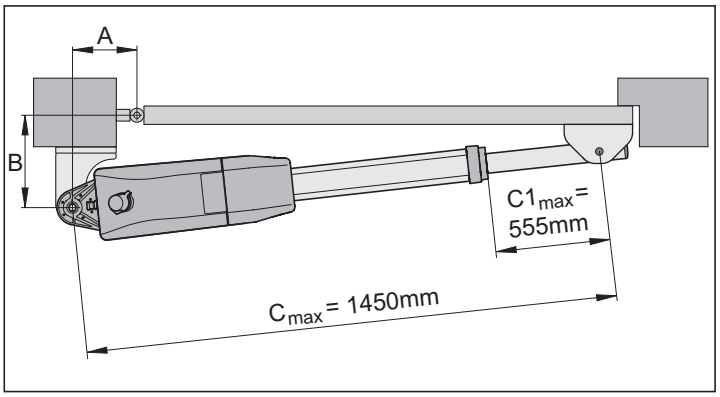


NOTE!

Fix post and pillar fittings into place accordingly using a clamp before permanent mounting and then check the installation situation and installation dimensions. Even if everything is correct, the fitting must be permanently mounted.

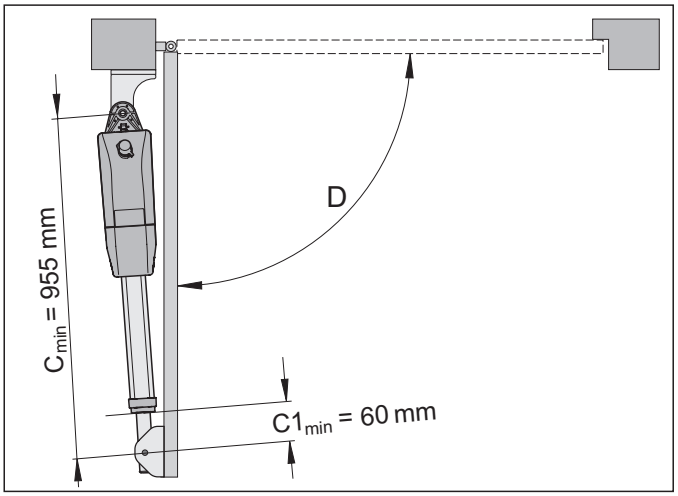
To achieve the greatest possible stability, the C1 dimension should be as small as possible.

For this reason. the dimensions should amount to $C1_{min}$ = 60 mm.



1. Close the gate manually.
2. Measure the A and B dimensions and compare them with the A/B dimension table.
3. Mount the post fitting onto post in accordance with the selected A/B dimensions.

   ⇒ Fastening height of at least 50 mm from the ground



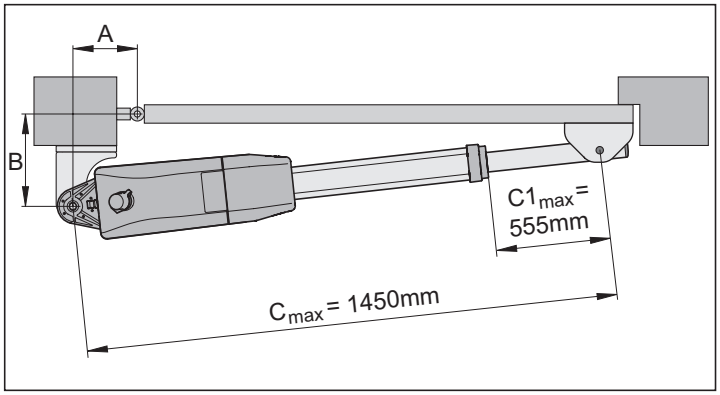
4. Bring the gate into position that will later be the "Gate OPEN" position. In the process, note the maximum possible opening angle D from the A/B dimension table.
5. Remove the drive from the packaging, hang it in the post fitting, and secure it with a screw.

   ⇒ The drive is at maximum retraction as delivered.

   ⇒ Unscrew the gate operator by one turn.
6. Fix the gate wing fitting to the gate operator of the drive.

   ⇒ Insert the screw from above.
7. Fasten the drive temporarily to the gate with the gate fitting (e.g. with a clamp).
8. Close the gate manually.

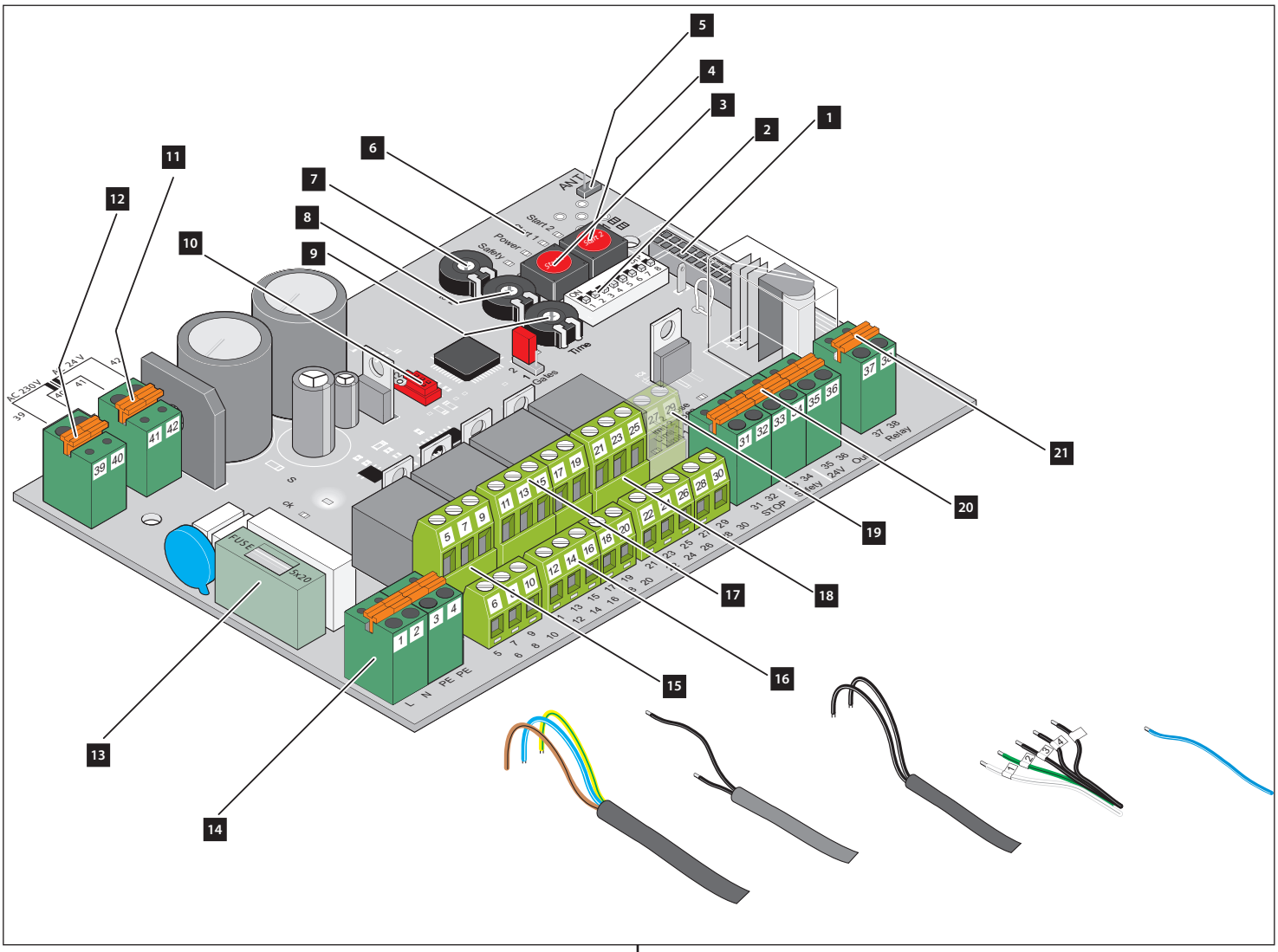
   ⇒ Unlock the drive to do so (see "Unlocking the drive").



9. Measure the C1 dimension on the drive and make sure that the $C1_{max}$ dimension does not amount to more than 555 mm.
10. Check whether the drive is horizontal in the following positions:
    - "Gate OPEN"
    - "Gate CLOSE"
    - Opened by 45°
11. Check the position of the fittings.

    ⇒ Fix the fittings to the gate when it is correctly positioned.
12. Screw in the nuts of the connecting screws (drive to fittin) only tight enough that the drive can still be turned easily.

Installation

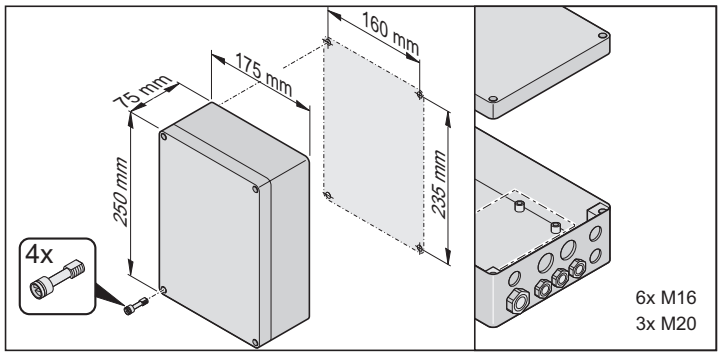


1. Slot for four-channel radio receiver.
2. DIP switches.
3. Button (Start 1).
4. Button (Start 2).
5. Connection of the external antenna.
6. LED (Start 1, Start 2, Power, Safety).
7. Potentiometer (Gate 2) for force tolerance of Motor 2.
8. Potentiometer (Gate 1) for gate wing length of Motor 1.
9. Potentiometer (Time) for automatic closing function.
10. TorMinal interface.
11. Secondary transformer.
12. Primary transformer.
13. Fuse 1.6 A, slow-acting.
14. Mains connection.
15. Connecting strip for accessories.
16. Connecting strip for motor 2.
17. Connecting strip for motor 1.
18. Connecting strip for button.
19. LEDs (limit switches).
20. Connecting strip for safety accessories.
21. Potential-free relay contact.

Installing the control unit

NOTE!
The control unit is supplied with a mains cable for use in installing the drives only. On completion of installation disconnect the mains cable and replace it with permanent wiring. The mains cable is not approved for continuous or outdoor operation.

NOTE!
Implement the mains connection according to EN 12453 (all-pole line disconnector).



ATTENTION: DANGER OF DESTRUCTION BY WATER
Penetration of water may destroy the control unit.
Use the fixture points provided for screwing on the housing. Do not drill through the rear wall of the housing. The housing is not sealed, water will penetrate and the control unit will be destroyed.

- Disconnect the power to the control unit before working on it.
- Dry any moisture that enters the housing with a fan.
- The control unit must be connected to the power supply by an electrician only.
- Install the control unit housing in a perpendicular position with the wire feed at the bottom without strain to prevent penetration of water and the cover is watertight.
- The wire feeds are approved only for wires 1.5 mm² to 2.5 mm² in cross section.
- Use the fixture points provided for screwing on the housing. Do not drill through the rear wall of the housing. Otherwise, the housing is leaky.

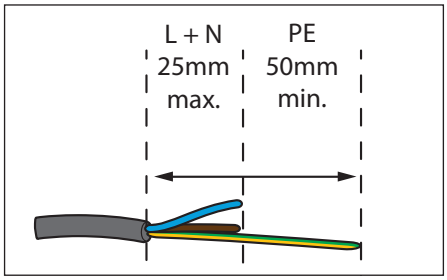
Connection to power mains (AC 230 V)

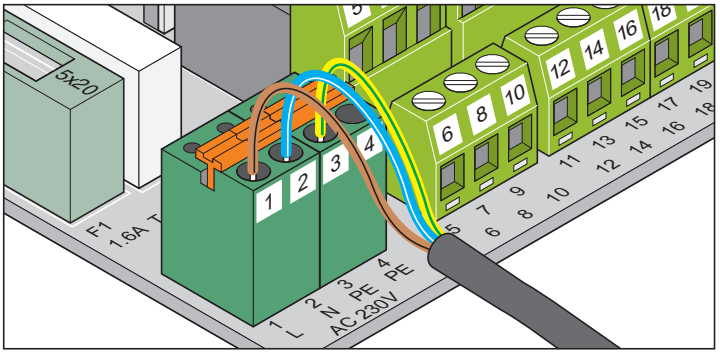
NOTE!
The control unit must be connected to the power mains by an electrician.

NOTE!
Approved wire cross sections for all terminals:
0.5 mm² - 2.5 mm².

NOTE!
Insert the sheeth of the connecting line into the control unit housing.
Do not remove the sheath of the mains supply line until it is in the control unit housing!

NOTE!
Remove the sheath as shown in the graphic!





Terminal	Description	Description
1	L	Mains supply line AC 230 V.
2	N	Neutral wire.
3 + 4	PE	Protective earthing conductor.

NOTE!
Secure the line with a cable binder against being moved!

Connect the drive to the control unit.

ATTENTION

Connect the drives only with the control unit disconnected from the mains voltage and locked to prevent reactivation. The control unit recognises the connected drives only under these circumstances.

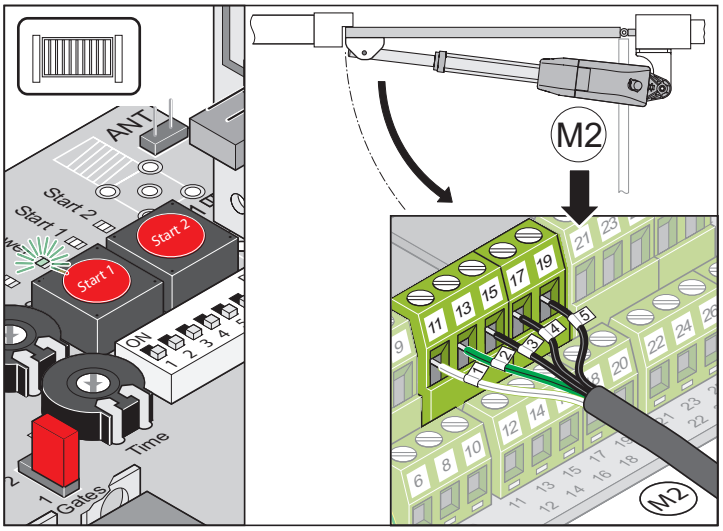
NOTE!

Never connect the drive directly to the AC 230 V. This will destroy the motor immediately.

NOTE!

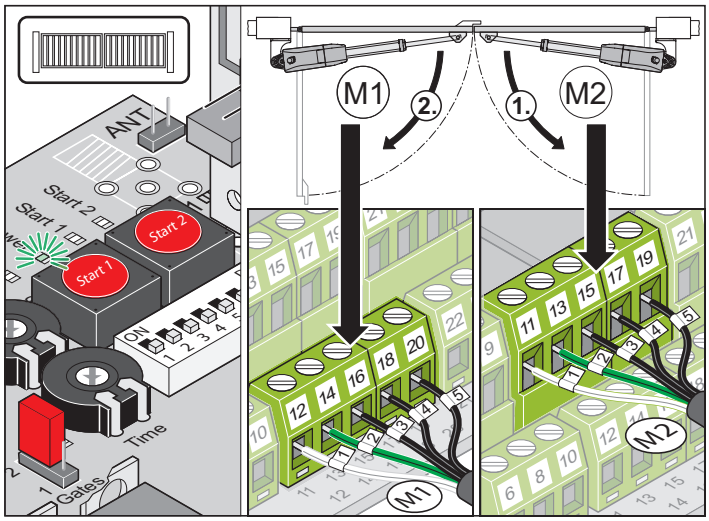
Note the jumper setting!

Gate 1 wing



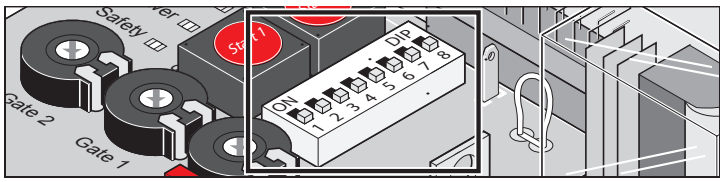
Terminal	Contact	Function	Description
11	1	Motor	1 wing: Connection for the motor.
13	2	Motor	2 wing: Connection for motor 2. The motor must be on the gate wing that opens first or rather, which has no external stop bar.
15	3	"Gate CLOSE" limit switch	
17	4	"Gate OPEN" limit switch	
19	5	Earth limit switch	

Gate 2 wing

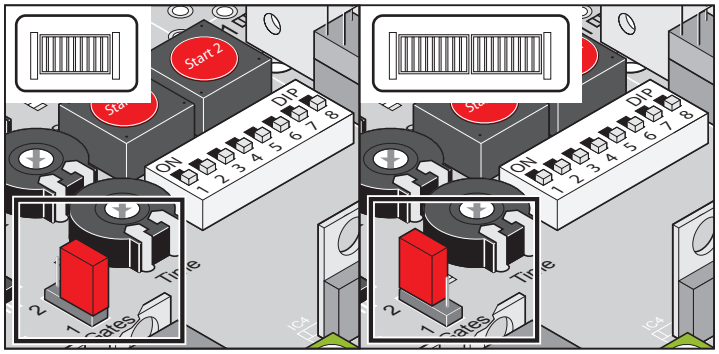


Terminal	Contact	Function	Description
12	1	Motor	2 wing: Connection for motor 1. The motor must be on the gate wing that opens second or, rather, that has an external stop bar.
14	2	Motor	
16	3	"Gate CLOSE" limit switch	
18	4	"Gate OPEN" limit switch	
20	5	Earth limit switch	
11	1	Motor	1 wing: Connection for the motor.
13	2	Motor	2 wing: Connection for motor 2. The motor must be on the gate wing that opens first or rather, which has no external stop bar.
15	3	"Gate CLOSE" limit switch.	
17	4	"Gate OPEN" limit switch	
19	5	Earth limit switch.	

1. Connecting drive to control unit.
   - First connect and adjust the drive for the gate with stop (M1) and then the drive for the walk-through gate (M2).



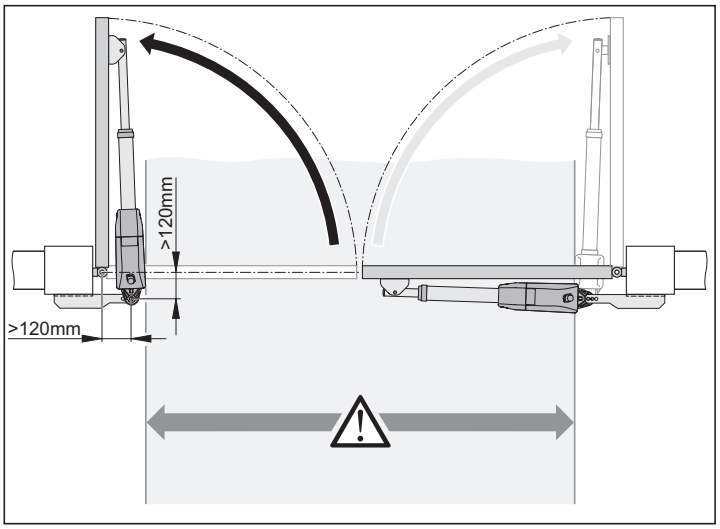
2. Set all DIP switches to “OFF”.



3. Set jumpers: 1 or 2-wing gate system.
4. Connect control unit to the power supply.
   ⇒ "POWER" LED lights, "Status" LED flashes, and all other LEDs are off.

⇒ LEDs for the limit switches (limit 1 + 2 open, limit 1 + 2 close) light or are off (depending on whether the gate operator is retracted or extended).

Opening gate outwards



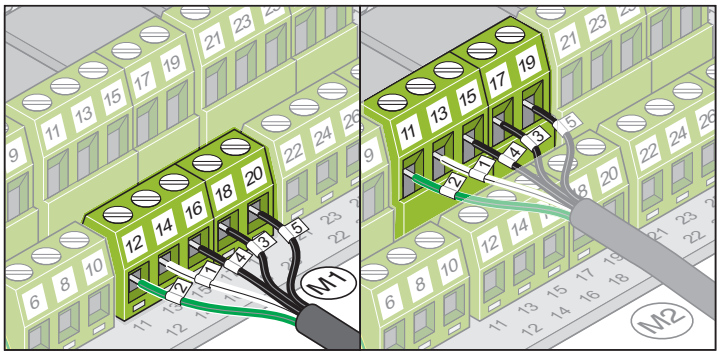
ATTENTION

Depending on the actual installation, the passage width will be reduced by about 180 mm on each side because the drives project into the passage.
The A/B dimensions must each be at least 120 mm.

➢ Prepare the post or pillar fitting on site. It must always be fitted to the actual dimensions of the post or pillar.

Connecting drive to control unit

NOTE!
In the case of this installation situation (opening the gate towards the outside), the connection deviates from the standard connection.
Observe the following connection diagram!



Terminal	Contact	Function	Description
12	2	Motor	2 wing: Connection for motor 1. The motor must be on the gate wing that opens second or, rather, that has an external stop bar.
14	1	Motor	
16	4	"Gate OPEN" limit switch	
18	3	"Gate CLOSE" limit switch	
20	5	Earth limit switch	
Terminal bloc for single-wing operation: Connection for motor 2			
11	2	Motor	1 wing: Connection for the motor.
13	1	Motor	2 wing: Connection for motor 2. The motor must be on the gate wing that opens first or, rather, that has no external stop bar.
15	4	"Gate OPEN" limit switch	
17	3	"Gate CLOSE" limit switch	
19	5	Earth limit switch	

Setting the end positions

NOTE!
Before setting the limit switches, the following "Information Regarding the Adjustment of the End Positions" absolutely must be observed!
A non-observance of the notices and instructions can cause irreparable damage to the drive and control unit!

NOTE!
Do not adjust limit switches with a battery-powered screwdriver or a similar tool. This may destroy the limit switches.

NOTE!
Never connect drive to 230V. This will destroy the motor immediately.

NOTE!

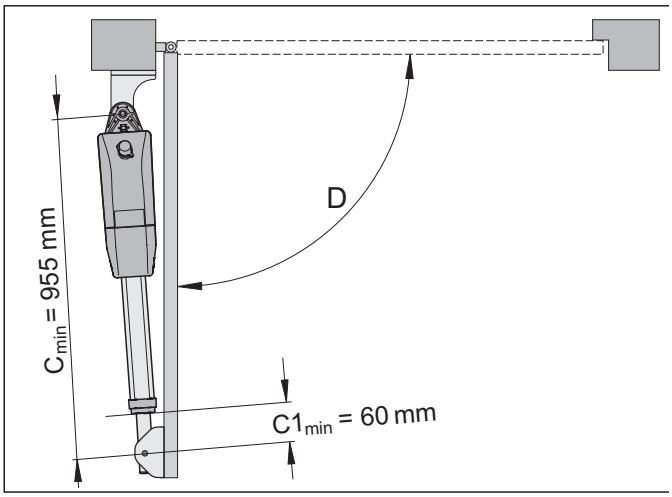
When Motor 1 is not connected, the "Limit 1 open" and "Limit 1 close" LEDs light constantly.

NOTE!

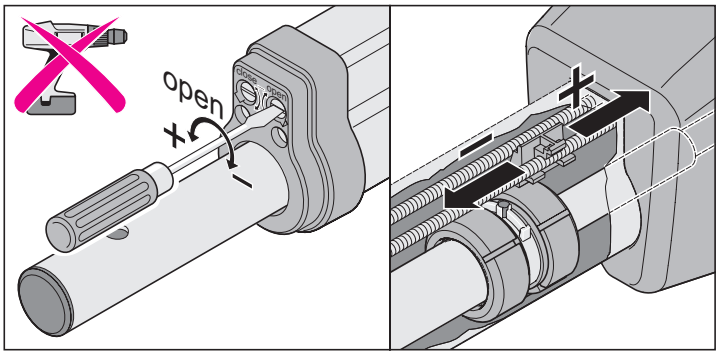
Follow these instructions to set the end positions. This ensures that:

- The drive has maximum rigidity in the "CLOSE position."
- The maximum possible running distance is utilised completely.
- Only one "CLOSE position" limit switch must be set.

1. Setting of the end position for "Gate OPEN"



NOTE!
Gate "Gate OPEN" end position preset, approx. C1 = 60 mm.

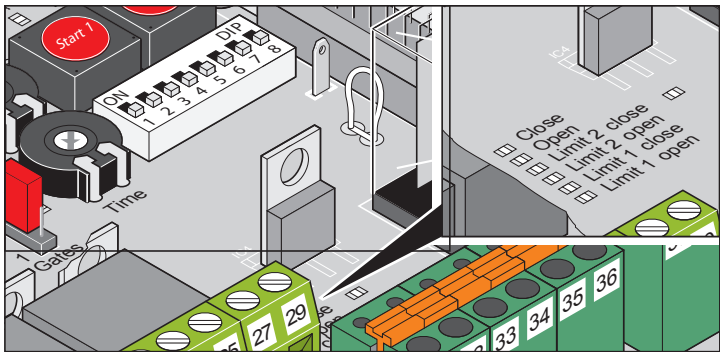


As required, the end position can be set or readjusted.

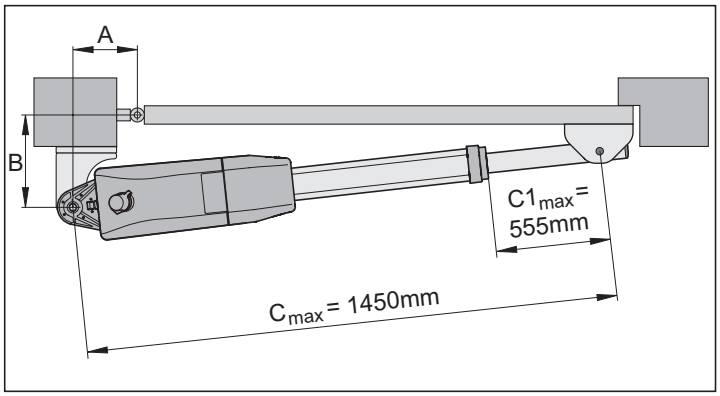
For this purpose, the "Open" setscrew must be adjusted using a screwdriver.

- Turning in the (+) direction extends the movement stroke.
- Turning in the (-) direction shortens the movement stroke.

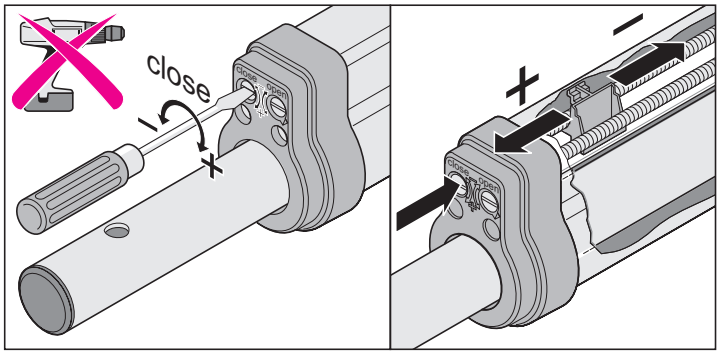
NOTE!
When the switching point of the limit switch is reached, the "Limit 1 open" or "Limit 2 open" LED lights.



2. Setting of the end position for "Gate CLOSE"



NOTE!
"Gate CLOSE" end position preset, approx. C1 = 555 mm. This corresponds to the maximum possible value for C1 or Cmax! Do not exceed maximum values for C1 = 555 mm and C = 1450 mm!

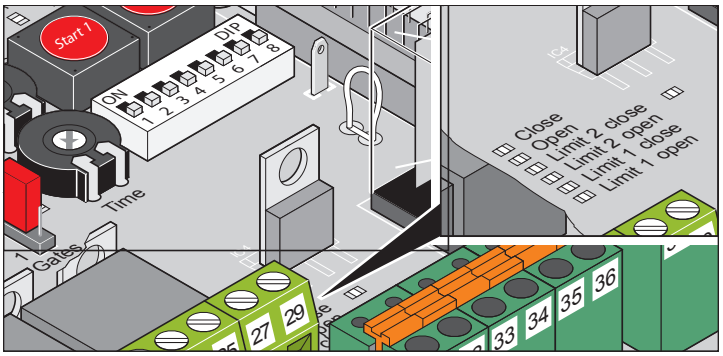


As required, the end position can be set or readjusted.

For this purpose, the "Close" setscrew must be adjusted using a screwdriver.

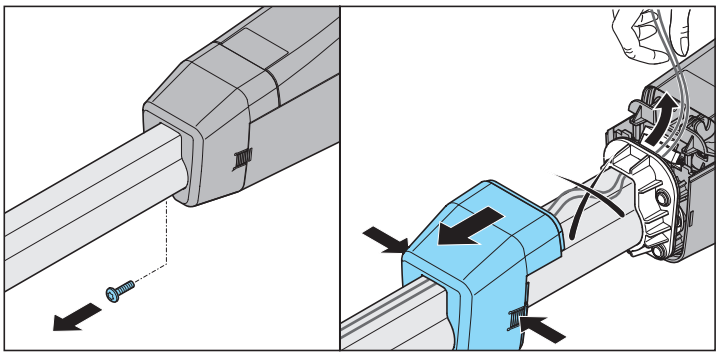
- Turning in the (+) direction extends the movement stroke.
- Turning in the (-) direction shortens the movement stroke.

NOTE!
When the switching point of the limit switch is reached, the "Limit 1 close" or "Limit 2 close" LED lights.



Instructions for setting the end positions

NOTE!
Always reposition the limit switch connector cable after adjustment to prevent it from being jammed in the gate operator.



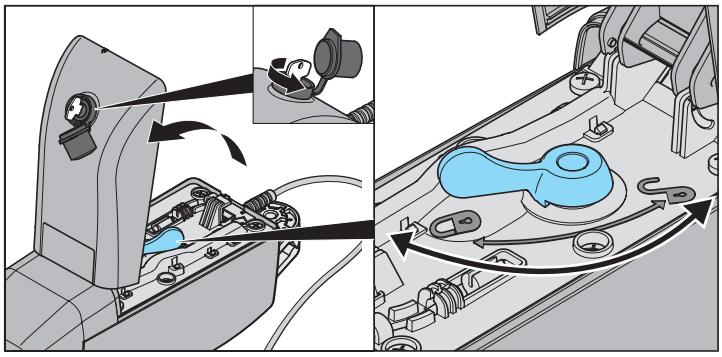
Locking and unlocking the drive

NOTE!
Actuate the emergency lock only with the control disconnected from the power and locked to prevent reactivation.

NOTE!
The emergency release level must be pushed into the desired position with the necessary force. Engaging can be heard audibly.

In case of power failure, the gate can be opened or closed manually after being unlocked, regardless of its current position.

Unlocking the drive



1. Raise the dust cap.
2. Insert the key and turn it 90° to the right.
3. Open the cover.
4. Set the emergency release lever from the "Closed" position to the "Open" position.
5. Close the cover.
6. Turn the key 90° to the left and remove it.
7. Put the dust cap in place.

   ⇒ The gate can now be moved by hand.

Locking the drive

1. Raise the dust cap.
2. Insert the key and turn it 90° to the right.
3. Open the cover.
4. Set the emergency release lever from the "Open" position to the "Closed" position.
5. Close the cover.
6. Turn the key 90° to the left and remove it.
7. Put the dust cap in place.

   ⇒ The gate can now only be moved using the drive

Initial operation

General information

NOTE!
After installation of the drive, the person responsible for the installation must complete an EC declaration of conformity for the gate system in accordance with Machinery Directive 2006/42/EC and apply the CE mark and a type plate. This is also required for private installations and also if the drive is retrofitted to a manually operated gate. This documentation and the Installation and Operating Instructions are retained by the operator.

NOTE!
The adjustment of the force tolerance is safety-relevant and must be performed by qualified personnel with upmost care. If the adjustment of the spring unit is excessively high, people or animals could be injured and objects damaged. Select a force tolerance that is as low as possible so that obstacles are detected quickly and safely.

NOTE!
Always run learning procedure under supervision, because the drives traverse at full power and half speed. This is dangerous for persons, animals and object within the range of motion of the gates.

- "Status" LED and a connected warning light (accessory) flash during the learning procedure and as a visual warning at standstill.
- In the commissioning process the force required for opening and closing, the runtime and the closing delay are learned and saved by the control unit.

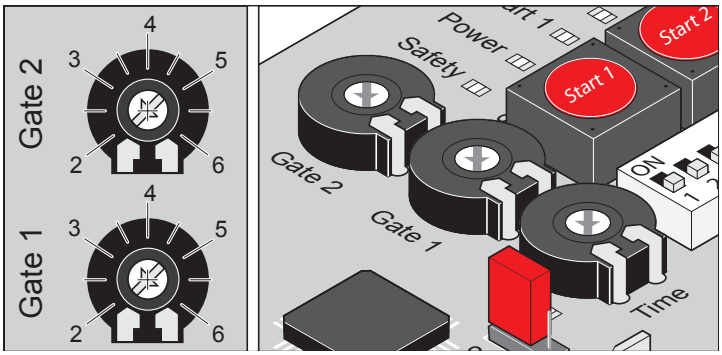
Preparations for continuous operation

ATTENTION! DANGER OF SHORT-CIRCUIT!
Before switching the DIP switches, disconnect the power supply to the control unit.

1. Selection of single-wing or two-wing, desired components connected, and settings made; see additional functions and connections.
2. Mains power connected and voltage (AC 230 V) at control unit ("POWER" LED on).
3. Fittings bolts tightened, drives can be moved easily.
4. Close the gate.
5. Set emergency unlock and lock with padlock.

Adjusting the gate wing length

- Maximum force = learnt force + force tolerance (this is set at the “Gate 1 (M1) / Gate 2 (M2)” potentiometer depending on the gate wing length).
- Changes to the setting after configuring the drive are not taken into account. First reset the control unit, reconfigure the potentiometer and repeat the learning procedure.



The length of the gate wing is set at the control unit with the “Gate 1 (M1) + Gate 2 (M2)” potentiometers. The speed of movement and the force tolerance for the separate wings of the gate installation are determined based this setting.

- Setting 2 = gate wing length approx. 2 m (small gate -> high speed -> lower force tolerance).
- Setting 3.5 = gate wing length approx. 3.5 m (large gate -> low speed -> higher force tolerance).
- Setting 3.5 - 6 = for compensation of the influences through the A and B dimensions.

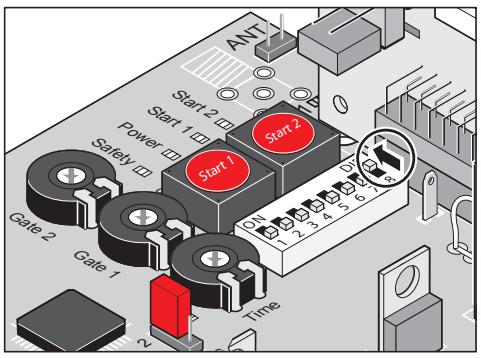
Performing the learning run and activating continuous operation

"Status" LED flashes until the force values, runtimes, and closing delays are learned and saved.

Two-wing gate system!
Gate wing 1 (M1 gate with stop) closes first and then gate wing 2 (M2 walk-through gate). This prevents an incorrect closing sequence in the case of gates with different runtimes.

- Check the setting of the limit switches. Open and close gate. If the drive switches off correctly at both end positions, run learning procedure.

NOTE!
Set DIP switch 8 to "ON," perform the learning run, and leave the DIP switch in this position.



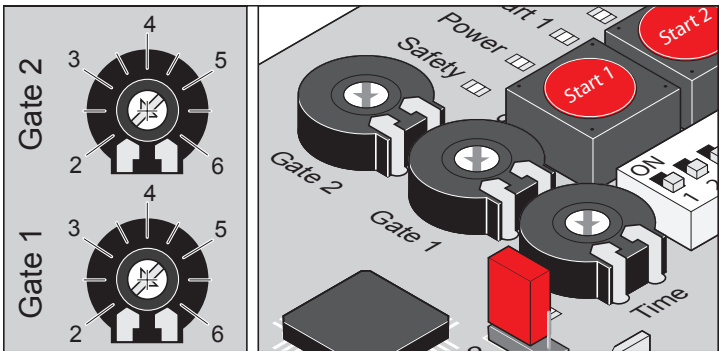
Checking the direction of running

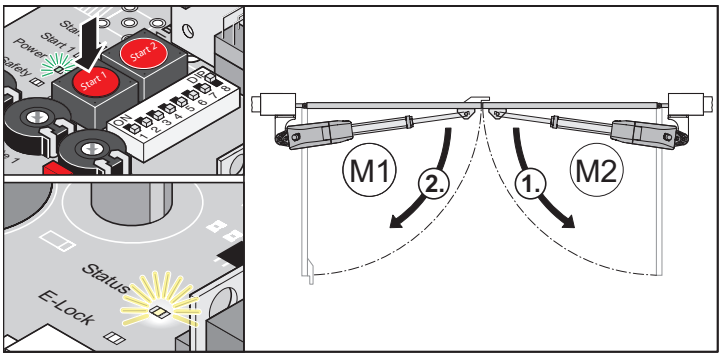
- After the first command the drive must traverse in the gate "OPEN" direction. If the drive traverses to "Gate CLOSE," reverse the drive connector cable on the control unit. Learn the drive (run the learning procedure at least twice).

Initial operation

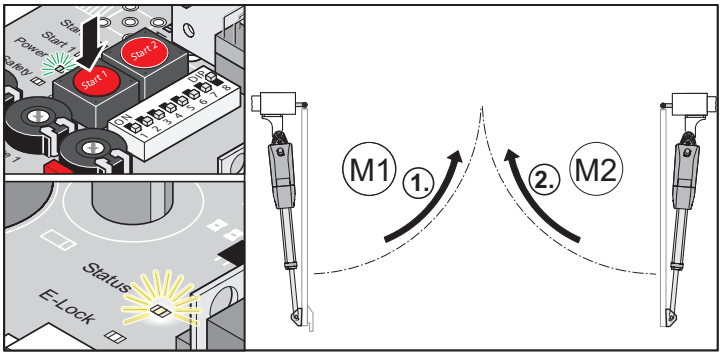
Learn the drive (run the learning procedure at least twice).

NOTE!
To perform the learning runs, the drive must be locked (see "Unlocking and locking the drive").





1. Press (Start 1) button, drive traverse to gate "OPEN" end position. (DIP switch 8 must be in the "ON" position.)
   ⇒ "POWER" LED lights and "Status" LED flashes.



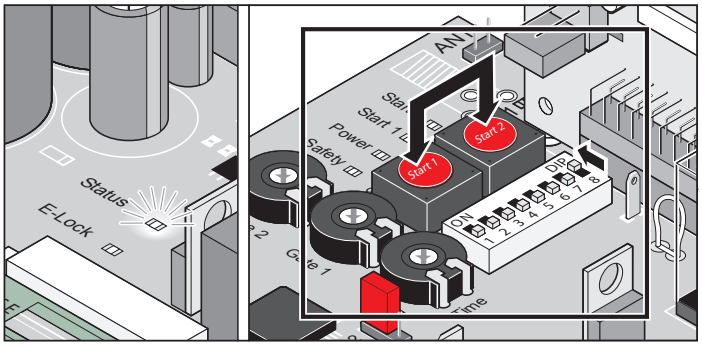
2. Press (Start 1) button, drive traverse to gate "CLOSE" end position.
   ⇒ "POWER" LED lights and the "Status" LED always flashes during the run.
3. Repeat item 1 + 2.
   ⇒ The "Status" LED extinguishes when the end position is reached and all values are learned.
   ⇒ During the run, the LED "Status" flashes constantly.

At the next command the gates are started and stopped with soft running. Every time the gates are opened, the control unit monitors the force, runtime, and closing delay and adjusts them incrementally when the end position is reached.

NOTE!
If the learning procedure is not correctly completed (drives traverse without soft running, "Status" LED flashes during gate operation), reset the control unit (delete saved values, see control unit reset) and run the learning procedure again.

Control unit reset

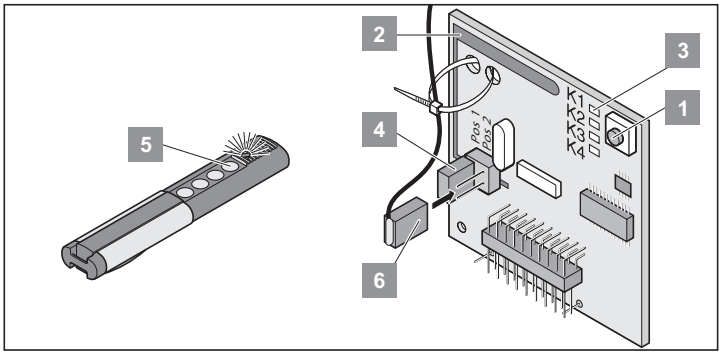
The control unit reset deletes all learnt values (e.g. force values: force required by drive to open or close the gate, closing delay). It may be necessary to reset the control unit to delete the saved values and reprogram the unit.



1. Press and hold the button (Start 1 + Start 2).
   ⇒ The "Status" LED flashes.
2. "Status" LED off - all values deleted. Release button.
   ⇒ The "Status" LED flashes.
3. Run learning procedure again, see activating continuous operation.

Programming the hand-held remote control

NOTE!
Before programming the hand-held transmitter for the first time, always clear the radio receiver memory completely.



Deleting the radio receiver memory

1. Press and hold the Learn button (1).
   ⇒ After 5 seconds the LED flashes - after another 10 seconds the LED is steady.
   ⇒ After a total of 25 seconds all LEDs light.
2. Press the learn button (1).
   ⇒ All LEDs off - clearing process complete.

Programming the hand-held remote control

Gate system 1-wing:

- Button 1 on radio channel 1

Gate system 2-wing:

- Button 1 on radio channel 1 (both gate wings open).
- Button 2 on radio channel 2 (only the walk-through gate opens).

1. Press the Learn button (1).
   - 1 x for channel 1; LED (K1) lights.
   - 2 x for channel 2; LED (K2) lights.
2. Press the desired hand-held transmitter button (5) until the LED is off.
   - The hand-held transmitter has transferred the radio code to the radio transmitter.
   ⇒ LED extinguishes - programming is finished.
3. Cancelling the Learn mode: Press the Learn button (1) until no more LEDs are lit.

NOTE!
If no radio code is sent within 10 seconds, the radio receiver switches to normal operation.

Control

1. Press button 2, walk-through gate wing opens.
2. Press button 1, both gate wings open.
3. Repeat the above steps to program additional hand-held transmitters.
   - The radio receiver can save a maximum of 112 different radio codes (hand-held transmitter buttons).

Safety instructions

- Never operate a damaged drive.
- During opening or closing, no children, people, animals, or objects may be in the range of movement of the gate.
- Do not operate the hand-held transmitter in areas with sensitive radio communications or systems (e.g. airports, hospitals, etc.).
- Actuate the gate wirelessly only if you have an unobstructed view of it.
- Store the hand-held transmitter so that unintended operation, e.g., by children or animals, is impossible.
- Use the radio remote control only if a non-hazardous force tolerance is set. Set the force tolerance low enough to eliminate any danger of injury by the closing force.

Normal mode

The force required for opening and closing may be affected by changes to the gate as a result of damage, moisture absorption, ground subsidence, outside temperature, etc.

If the force required for opening or closing increases within the defined tolerance on the potentiometer, the new value is automatically learned by the control unit. The control unit also learns a reduced force requirement in the same way.

If the force required for opening or closing exceeds the permitted force tolerance (e.g. at an obstacle), the drive stops and reverses a short distance. This is referred to as a power cut-off with reverse and is required for safety.

Obstacle detection

NOTE!
Obstacle detection requires a correctly completed learning run.

If the gate wing contacts an obstacle when opening or closing, this is detected. The gate wing will react differently depending on the direction of motion and the settings of the DIP switches. The direction of motion following a detected obstacle is always away from it.

Summer-winter mode

Weather differences between summer and winter mean that the drive requires different forces for opening or closing the gate. If the gate will not open or close, reset the control unit and run a new learning run.

Temperature differences between summer and winter may means that the gate wings have different end positions. This must be compensated by adjusting the limit switches.

Intermediate stop

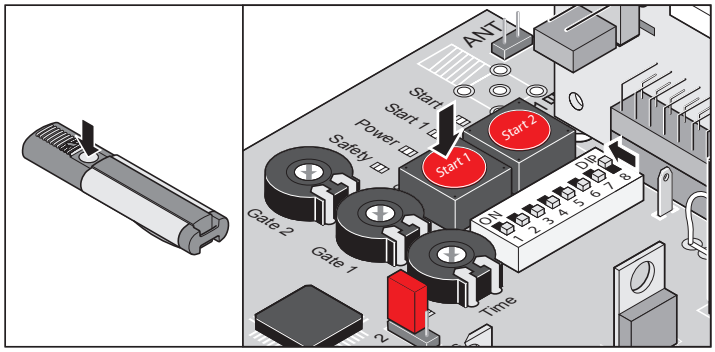
2-wing gate system:

Open gate wing with the pulse command and then send the stop command immediately after. If gate wing 1 is not yet open, the open walk-through gate can only be closed with the walk-through gate command.

Opening and closing gate

Requirements:

- Set DIP switch 8 set to "ON" and learning run completed.
- Hand-held transmitter (button 1 on channel K1, button 2 on channel K2) learnt.



Single-wing procedure

1. Press button (Start 1) or hand-held transmitter (button 1).
2. Gate opens to "Gate OPEN" end position.
   ⇒ "OPEN + Status" LED lights.
   ⇒ "Gate OPEN" end position reached - LED "OPEN + Status" extinguishes.

Two-wing procedure - both gate wings

1. Press button (Start 1) or hand-held transmitter (button 1).
   ⇒ Gate wing 2 (M2/walk-through gate) opens first and then gate wing 1 (M1) after a delay of 3 seconds - "OPEN + Status" LED lights.
   ⇒ "Gate OPEN" end position reached - LED "OPEN + Status" extinguishes.
2. Press button (Start 1) or hand-held transmitter (button 1).
   ⇒ Gate wing 1 (M1) closes first and then gate wing 2 (M2/walk-through gate) after a delay of 5 seconds - "CLOSE + Status" LED lights.
   ⇒ "Gate CLOSE" end position reached - "Close + Status" LED extinguishes.

Two-wing procedure - walk-through gate wing

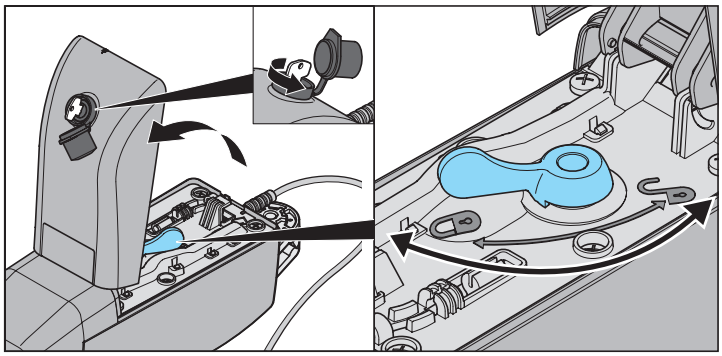
1. Press button (Start 2) or hand-held transmitter (button 2).
   ⇒ Gate opens to "Gate OPEN" end position - "OPEN + Status" LED lights.
   ⇒ "Gate OPEN" end position reached - LED "OPEN + Status" extinguishes.
2. Press button (Start 2) or hand-held transmitter (button 2).
   ⇒ Gate closes to "Gate CLOSE" end position - "CLOSE + Status" LED lights.
   ⇒ "Gate CLOSE" end position reached - "Close + Status" LED extinguishes.

Emergency release in case of power failure

NOTE!
Actuate the emergency lock only with the control disconnected from the power and locked to prevent reactivation.

NOTE!
The emergency release level must be pushed into the desired position with the necessary force. Engaging can be heard audibly.

In case of power failure the gate can be opened or closed manually, regardless of its position.

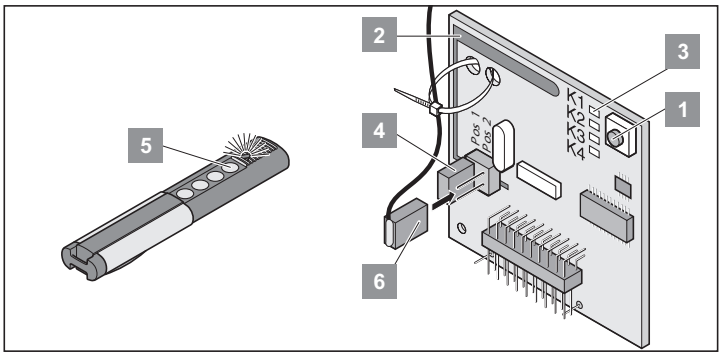


1. Raise the dust cap.
2. Insert the key and turn it 90° to the right.
3. Open the cover.
4. Set the emergency release lever from the "Closed" position to the "Open" position.
5. Close the cover.
6. Turn the key 90° to the left and remove it.
7. Put the dust cap in place.
   ⇒ The gate can now be moved by hand.

Locking the drive

1. Raise the dust cap.
2. Insert the key and turn it 90° to the right.
3. Open the cover.
4. Set the emergency release lever from the "Open" position to the "Closed" position.
5. Close the cover.
6. Turn the key 90° to the left and remove it.
7. Put the dust cap in place.
   ⇒ The gate can now only be moved using the drive

Display and button explanation



1	Learn button.
2	Internal antenna.
3	LEDs: show which channel has been selected. K1 = radio channel 1 -> same function as “Start 1“ button K2 = radio channel 2 -> same function as “Start 2“ button *! K3 = radio channel 3 -> no function* *! K4 = radio channel 4 -> no function.*
4	Connection for external antenna (6) Use an external antenna if the range with the internal antenna is not sufficient. See accessories.
6	External antenna.

Programming the hand-held remote control

NOTE!
Before programming the hand-held transmitter for the first time, always clear the radio receiver memory completely.

1. Press the Learn button (1).
   - 1 x for channel 1; LED (K1) lights.
   - 2 x for channel 2; LED (K2) lights.
2. Press the desired hand-held transmitter button (5) until the LED is off.
   - Depending on which channel that has been selected.
     The hand-held transmitter has transferred the radio code to the radio transmitter.
   - ⇒ LED extinguishes - programming is finished.

NOTE!
If no radio code is sent within 10 seconds, the radio receiver switches to normal operation.

3. Cancelling the Learn mode: Press the Learn button (1) until no more LEDs are lit.
4. Programming additional hand-held remote controls. Repeat the above steps. A maximum of 112 storage locations are available.
   Deleting a hand-held remote control button from the radio receiver

If a user moves to a group garage unit and wishes to use the hand-held transmitter with it, all radio codes in the transmitter must be deleted from the radio receiver.

Deleting a hand-held remote control button from the radio receiver

NOTE!
For safety reasons every button and all button combinations must be deleted from the hand-held transmitter.

1. Press the learn button (1) and hold it down for five seconds until any LED flashes.
2. Release the learn button (1) - the radio receiver is in delete mode.
3. Press the button on the hand-held transmitter corresponding to the radio code you want to delete - the LED extinguises.
   - ⇒ LED off - wipe procedure complete.

Deleting all radio codes of a channel

1. Press and hold the Learn button (1).
   - 1 x for channel 1; LED (K1) lights.
   - 2 x for channel 2; LED (K2) lights.
   - ⇒ The LED for the accordingly selected channel lights.
   - ⇒ After 5 seconds, the LED flashes - after another 10 seconds, the LED lights constantly.
2. Release the Learn button (1) - the deletion procedure is ended.

Deleting the radio receiver memory

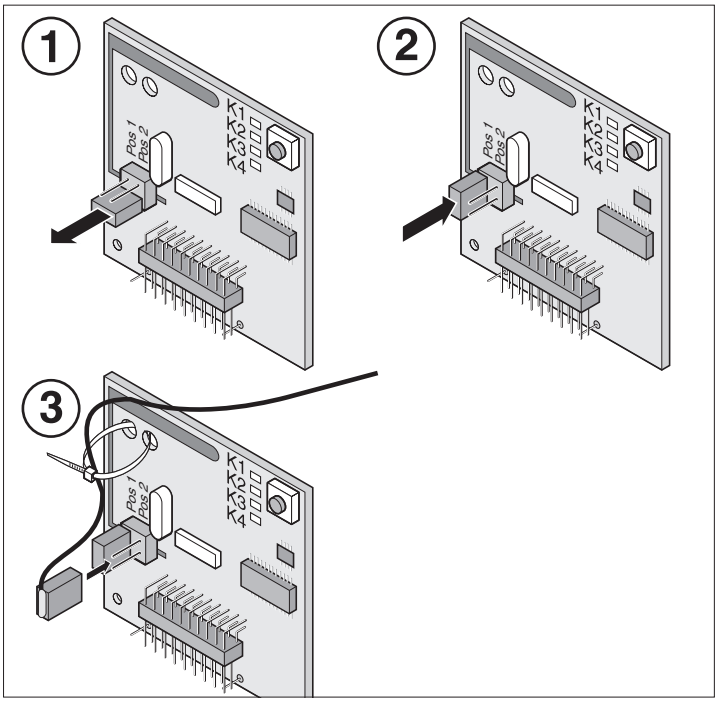
If a hand-held transmitter is lost, all channels in the radio receiver must be deleted for security reasons!

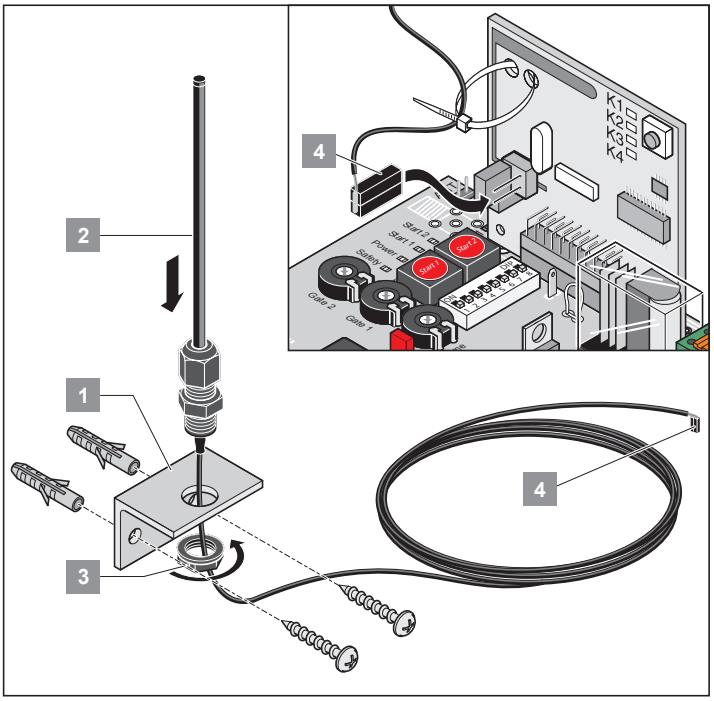
After that, reprogram all hand-held transmitters in the radio receiver.

1. Press and hold the Learn button (1).
   ⇒ After 5 seconds, the LED flashes - after another 10 seconds, the LED lights constantly.
   ⇒ After a total of 25 seconds all LEDs light.
2. Release the Learn button (1).
   ⇒ All LEDs off - clearing process complete.

External antenna

- The antenna cable may not exert any mechanical force on the radio receiver. A means of tension relief must be attached.
- If reception is inadequate with the radio receiver internal antenna, an external antenna can be connected.
- The connecting plug absolutely must be connected so that the external antenna works.
- Define the installation location of the antenna together with the plant owner.





Troubleshooting

All LEDs flashing:

- Attempt to set more than 112 memory slots on the radio receiver. If additional hand-held transmitters are to be learnt, delete other hand-held transmitters from the radio receiver first.

LED on:

- Learn mode: radio receiver is waiting for a radio code from a hand-held transmitter.
- Radio receiver is receiving a radio code from a hand-held transmitter.

Functions and connections

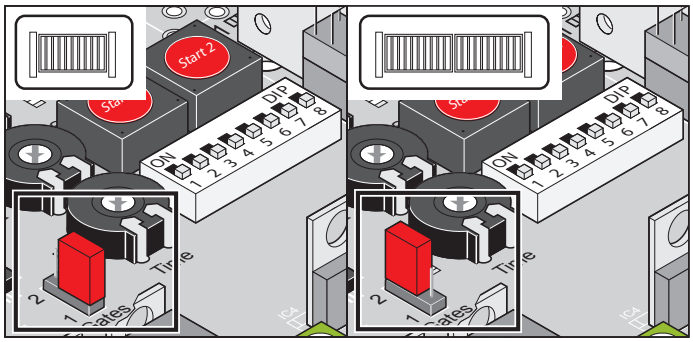
Safety instructions

- Approved wire cross sections for all terminals:
  max. 0.25 mm² - 2.5 mm².
- 10 m max. permissible cable length for terminal:
  5 + 6, 7 + 8, 9 + 10, 35 + 36.
- 30 m max. permissible cable length for terminal:
  21 + 22, 23 + 24, 25 + 26, 27 + 28, 29 + 30, 31 + 32, 33 + 34.

Jumper

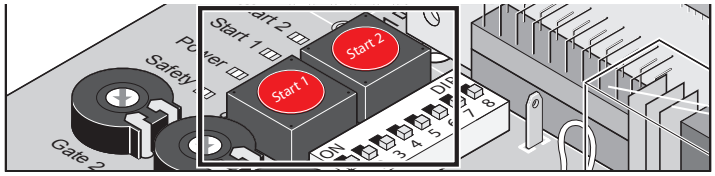
Selection of gate system, 1 or 2-wing.

NOTE!
After moving the jumper reset the control unit and run a learning procedure again.



Label	Description
Gates 1 / 2	Jumper on top pins = 2-wing.
	Jumper on bottom pins or not connected = 1-wing.

Button on control unit



Label	Description
Start 1	Pulse button: opens both gate wings. Actuating the button while the walk-through gate is moving stops it. If the walk-through wing is open, the button also open gate wing 1. Function sequence: Open - Stop - Close - Stop - Open …
Start 2	Walk-through button: opens walk-through wing only. Pressing the button opens the walk-through wing only of a 2-wing gate. Walk-through wing always opens first in gate systems with the stop bar outside. Function sequence: Open - Stop - Close - Stop - Open …

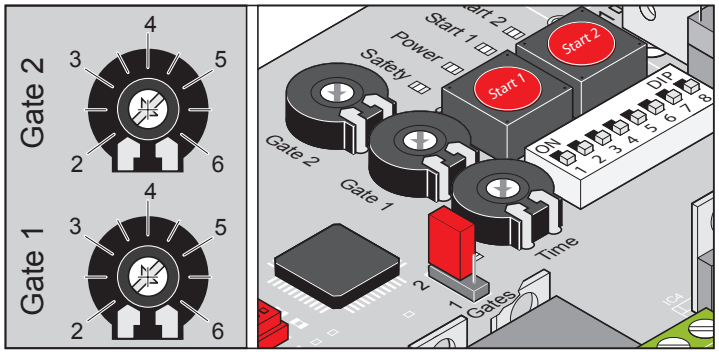
NOTE!
Button (Start 2) operates only if wing 1 is fully closed.

Control unit reset:

To reset the control unit to the factory settings ("RESET"), press and hold both buttons simultaneously for 5 seconds - until the "Status" LED extinguishes.

Potentiometer for gate wing length

- Maximum force = learnt force + force tolerance (depending on the gate wing length. This set on the "Gate 1 (M1) / Gate 2 (M2)" potentiometer).
- Changes to the setting after configuring the drive are not taken into account. First reset the control unit, reconfigure the potentiometer and repeat the learning procedure.

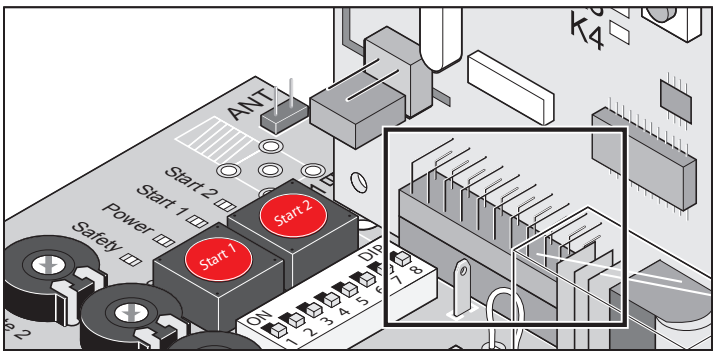


The length of the gate wing is set at the control unit with the “Gate 1 (M1) + Gate 2 (M2)” potentiometers. The speed of movement and the force tolerance for the separate wings of the gate installation are determined based this setting.

- Setting 2 = gate wing length approx. 2 m (small gate -> high speed -> lower force tolerance).
- Setting 3.5 = gate wing length approx. 3.5 m
  (large gate -> low speed -> higher force tolerance).
- Setting 3.5 - 6 = for compensation of the influences through the A and B dimensions.

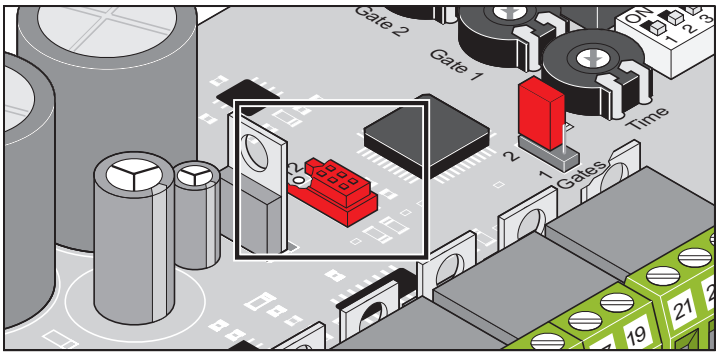
Radio connector

The radio receiver is plugged in here (mounted at delivery).



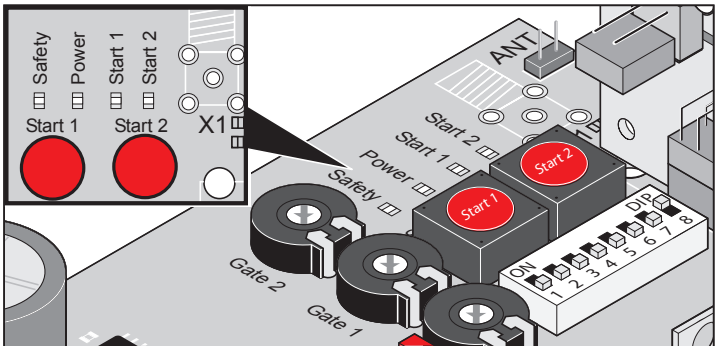
TorMinal interface

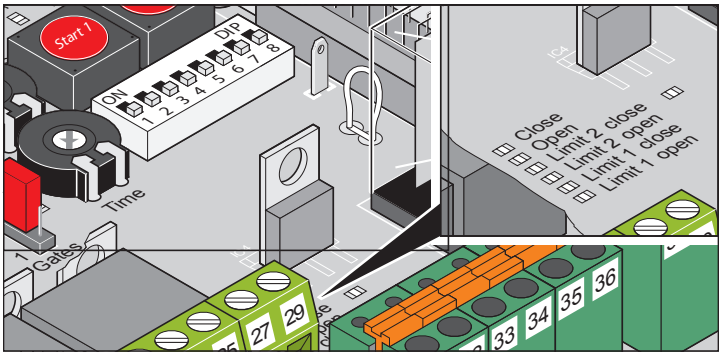
See TorMinal owner’s manual.

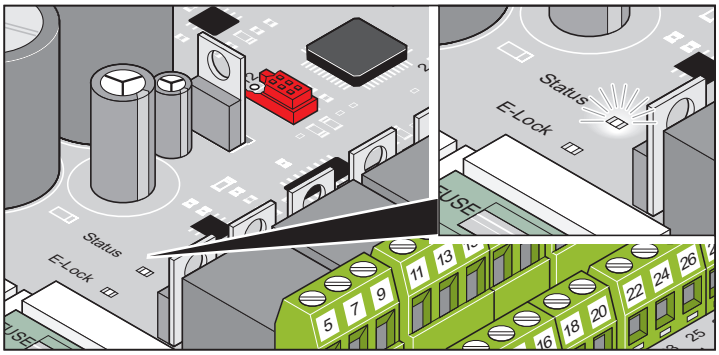


Light-emitting diodes (LED)

Show the status of the control unit.







Label	Colour	Description
Safety	Red	Off = idle. On = safety connection was interrupted (e.g.: photo eyes triggered).
Power	Green	Off = no power supply to control unit. On = power supply to control unit.

ATTENTION! DANGER OF ELECTROCUTION!
If the fuse is burnt out, this LED will not be on, but there may still be mains voltage (230 V AC) at terminals 1 and 2.

Label	Colour	Description
Start 1	Yellow	Off = idle. On = Start 1 button or radio channel 1 actuated.
Start 2	Yellow	Off = idle. On = Start 2 button or radio channel 2 actuated.
Close	Yellow	Off = idle. On = gate is closing.
Open	Yellow	Off = idle. On = gate opens.

NOTE!
If both LEDs are on ("Limit 2 close/open" or "Limit 1 close/open"), neither a motor nor a twist 200 E (not permitted!) is connected.

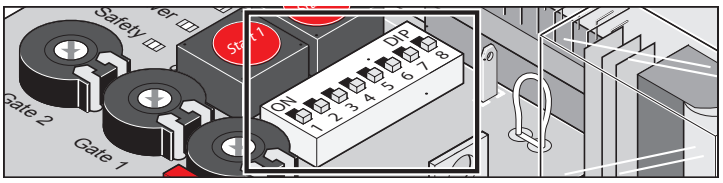
- Mixed operation with 2 x twist 200 E/EL is permitted only in combination with the twist XS #3248V000 (five-wire technology) conversion kit on the twist XL (DTA-1) control unit.
- Mixed operation with 1 x twist 200 E/EL and 1 x twist 350 is permitted only in combination with the twist XS #3248V000 (five-wire technology) conversion kit on the twist XL (DTA-1) control unit.
- Mixed operation with 1 x twist 350 and 1 x twist XL is permitted only in combination with the twist XL (DTA-1) control unit.

Label	Colour	Description
Limit 2 close (CLOSE) (M 2)	Red	On = • "Gate CLOSE" limit switch activated. • twist 200 E connected. • No motor connected. Off = idle.
Limit 2 open (OPEN) (M 2)	Red	On = • "Gate OPEN" limit switch activated. • twist 200 E connected. • No motor connected. Off = idle.
Limit 1 close (CLOSE) (M 1)	Red	On = • "Gate CLOSE" limit switch activated. • twist 200 E connected. • No motor connected. Off = idle.
Limit 1 open (OPEN) (M 1)	Red	On = - "Gate OPEN" limit switch activated. • twist 200 E connected. • No motor connected. Off = idle.
E-lock	Yellow	Off = idle. On = E-lock actuated.
Status	Yellow	Off = idle with learnt force values. Flashing = in test mode, with DIP switch 8 set to OFF. • In drive learning mode (even at standstill), with DIP switch 8 set to ON. • At every gate movement, "Gate OPEN" or "Gate CLOSE." On = can be set with TorMinal only. Acts as with flashing, warning light only on.

DIP switches

NOTE!
Before switching the DIP switches, disconnect the power supply to the control unit then switch it on again.

Factory setting: OFF.



DIP	Function in "OFF" setting	Function in "ON" setting
1	No reaction to triggering safety input with "Gate OPEN."	The gate stops when the safety connection triggered (terminals 33 + 34) in case of "Gate OPEN".
2	Safety connection (terminals 33 +34) set to NC contact.	Safety connection (terminals 33 + 34) set to two-wire photo eye.
3	Short reverse when safety connection triggered (terminals 33 + 34) in case of "Gate CLOSED."	Gate opens completely when safety connection triggered (terminals 33 + 34) in case of "Gate CLOSED." DIP 1 ON and safety connection interrupted: gate reverses and stops.
4	Relay contact (terminals 37 + 38) is the time relay*.	Relay contact (terminals 37 + 38) is the status display; see DIP 6 for more information.
5	Early warning time "OFF".	Early warning time 3 sec. Warning light flashes before gate moves.
6	Only in case of DIP 4 ON! Status display via relay contact (terminals 37 + 38): Gate open -> open Gate closed -> closed.	Only in case of DIP 4 ON! Status display via relay contact (terminals 37 + 38): Gate open -> closed Gate closed -> open.
7	No function.	The gate closes five seconds after the photo eye is activated, e.g., after the vehicle drives through. (without activation, after a set opening time).
8	**Test mode:** The drive can run without force values having to be learnt. Setting for setting the limit switches.	**Continuous operation:** • The drive learns force values, runtime, and closing delay for opening and closing after switching from "OFF" to "ON." • Gate opens or closes.

NOTE!
The gate and its movement zone must always be in sight.

NOTE
DIP switch 8 after learning: always leave in ON position.

* For additional settings see TorMinal owner's manual.

Automatic closing function

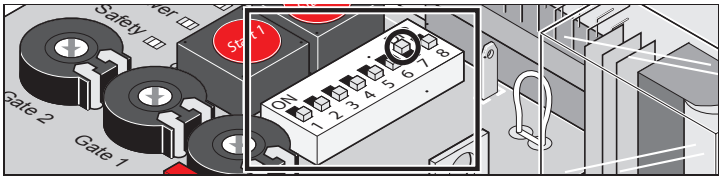
In the case of the automatic closing function, two variants are differentiated:

1. Semi-automatic closing function.
   ⇒ The gate can also be closed manually before the set time during the opening time.
   ⇒ After the photo eye is interrupted, the opening time amounts to five seconds.
2. Fully automatic closing function.
   ⇒ During the opening time, the gate cannot be closed manually.
   ⇒ The gate does not close until the set opening time has expired completely.

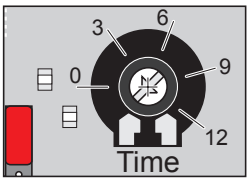
These two basic variants also have subvariants that permit various fine settings.

Basics

The **semi-automatic closing function** is activated by setting DIP switch 7 to the "ON" position.



The **fully automatic closing function** is activated by setting an opening time using the "Time" potentiometer (the numbers printed on the potentiometer refer to the duration of the opening time in minutes). If the potentiometer is at the left stop, the fully automatic closing function is deactivated.



When both variants are activated at the same time, the fully automatic closing function has priority!

Fully automatic closing function

Variant 1:

- A premature closing by button or radio before the opening time has expired is **not** possible.
- When the opening time has expired, the gate closes.
- If a button/radio command is received during closing, the gate opens again completely.
- If the photo eye is interrupted during closing, the gate (independently of the position of DIP switch 3) opens again completely. The opening time restarts as soon as the photo eye is released again. The gate remains open for the duration.
- If a button/radio command is received whilst the opening time is running out, the opening time restarts. If a constant signal is present, the opening time restarts as soon as the signal ends.

Settings:

"Time" potentiometer	Sets the opening time.
DIP 7	OFF

Variant 2:

- A premature closing by button or radio before the opening time has expired is **not** possible.
- When the opening time has expired, the gate closes.
- If a button/radio command is received during closing, the gate opens again completely.
- If the photo eye is interrupted during opening or in the "Gate OPEN" end position, the opening time is shortened to five seconds.
- If the photo eye is interrupted during closing, the gate (independently of the position of DIP switch 3) opens again completely. The opening time (five seconds) restarts as soon as the photo eye is released again. The gate remains open for the duration.
- If a button/radio command is received whilst the opening time is running out, the opening time restarts. If a constant signal is present, the opening time restarts as soon as the signal ends.

Settings:

"Time" potentiometer	Sets the opening time.
DIP 7	ON

Variant 3:

- A premature closing by button or radio before the opening time has expired is **not** possible.
- When the opening time has expired, the gate closes.
- If a button/radio command is received during closing, the gate opens again completely.
- If the photo eye is interrupted during opening, the gate stops. After the photo eye is released, the opening time starts.
  - ⇒ Either after the time set on the "Time" potentiometer
  - ⇒ Or after five seconds if DIP 7 is in the "ON" position.
- If the photo eye is interrupted during closing, the gate (independently of the position of DIP switch 3) opens again completely. The opening time (five seconds) restarts as soon as the photo eye is released again. The gate remains open for the duration.
- If a button/radio command is received whilst the opening time is running out, the opening time restarts. If a constant signal is present, the opening time restarts as soon as the signal ends.

Settings:

"Time" potentiometer	Sets the opening time.
DIP 7	ON (opening time of five seconds) / "OFF" (opening time as set on the potentiometer).

Semi-automatic closing function

NOTE
If an intermediate position is approached in a targeted manner (using the button/radio command), the semi-automatic closing function is deactivated; i.e., after the photo eye is interrupted, the gate is no longer closed automatically.

After the next starting command, the semi-automatic closing function is active again.

NOTE
After every power cut-off, the semi-automatic closing function is deactivated.

Variant 4:

- A premature closing by button or radio before the opening time has expired is not possible.
- When the drive reaches the "Gate OPEN" end position, an opening time of 60 seconds elapses.
  - ⇒ This time is preset at the factor and can be changed using a TorMinal.
- If the photo eye is interrupted during opening, the gate continues to open. The opening time is shortened to five seconds, however, after the "Gate OPEN" end position is reached and the photo eye is released.
- If the photo eye is interrupted during closing, the drive reverses (independently of the position of DIP switch 3 and the duration of the photo eye signal) completely. The opening time is shortened to five seconds, however, after the "Gate OPEN" end position is reached.
- If a button/radio command is received whilst the opening time is running out, the opening time restarts. If a constant signal is present, the opening time restarts as soon as the signal ends.

Settings:

"Time" potentiometer	Left stop (deactivated).
DIP 7	"ON" (opening time of five seconds).
DIP 1	"OFF" (no reaction to the triggering of the safety input in case of "Gate OPEN").

Variant 5:

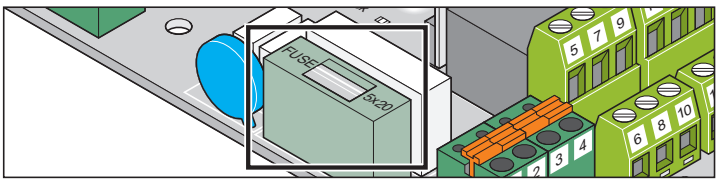
- A premature closing by button or radio before the opening time has expired is not possible.
- When the drive reaches the "Gate OPEN" end position, an opening time of 60 seconds elapses.

  ⇒ This time is preset at the factor and can be changed using a TorMinal.
- If the photo eye is interrupted during opening, the drive stops. After the release of the photo eye, the gate is closed after five seconds.
- If the photo eye is interrupted during closing, the drive reverses completely up to the "Gate OPEN" end position. If the photo eye is still interrupted two seconds after the reversal, however, the drive stops. The opening time then amounts to five seconds (this applies both to the "Gate OPEN" end position and the intermediate position).
- If a button/radio command is received whilst the opening time is running out, the opening time restarts. If a constant signal is present, the opening time restarts as soon as the signal ends.

Settings:

"Time" potentiometer	Left stop (deactivated).
DIP 7	ON (opening time of five seconds).
DIP 1	ON (no reaction to the triggering of the safety input in case of "Gate OPEN").

Fuses



Label	Size	Description
F1	1.6 A, slow-acting	Mains supply line AC 230 V

Connection to power mains (AC 230 V)

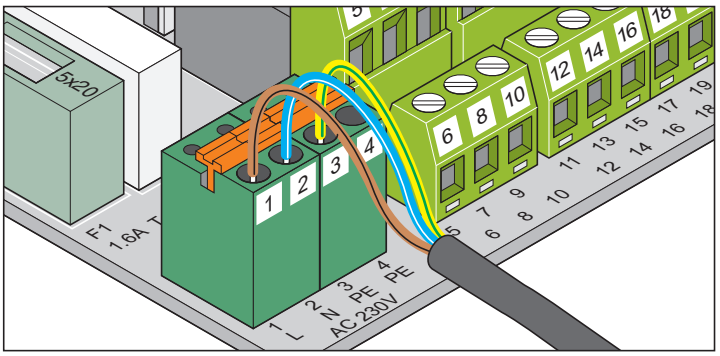
NOTE!
The control unit is delivered with a mains cable. This cable may be used only for the mounting of the drives.
On completion of installation disconnect the mains cable and replace it with permanent wiring. The mains cable is not approved for continuous or outdoor operation.

NOTE!
The control unit must be connected to the power mains by an electrician.

NOTE!
Approved wire cross sections for all terminals:
0.5 mm² - 2.5 mm².

NOTE!
Insert the sheeth of the connecting line into the control unit housing.
Do not remove the sheath of the mains supply line until it is in the control unit housing!

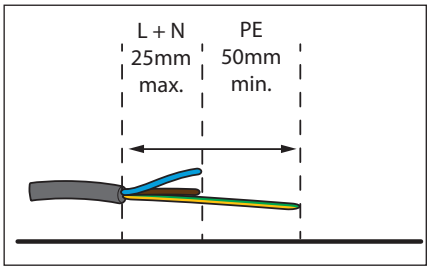
NOTE!
Remove the sheath as shown in the graphic!



Terminal	Description	Description
1	L	Mains supply line AC 230 V
2	N	Neutral wire
3 + 4	PE	Protective earthing conductor

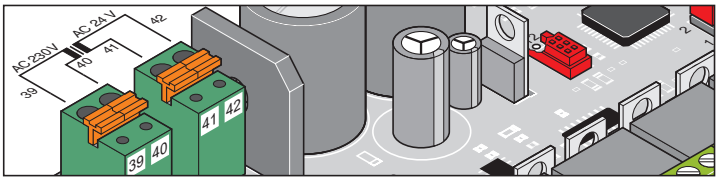
➢ The control unit must be connected to power mains by an electrician.

NOTE
Guide the line with the sheath into the control unit housing. Do not remove the sheath until the line is in the housing so that the sheathing still protrudes into the housing. Remove the sheath as shown in the graphic!



NOTE!
Secure the line with a cable binder against being moved!

Transformer terminal

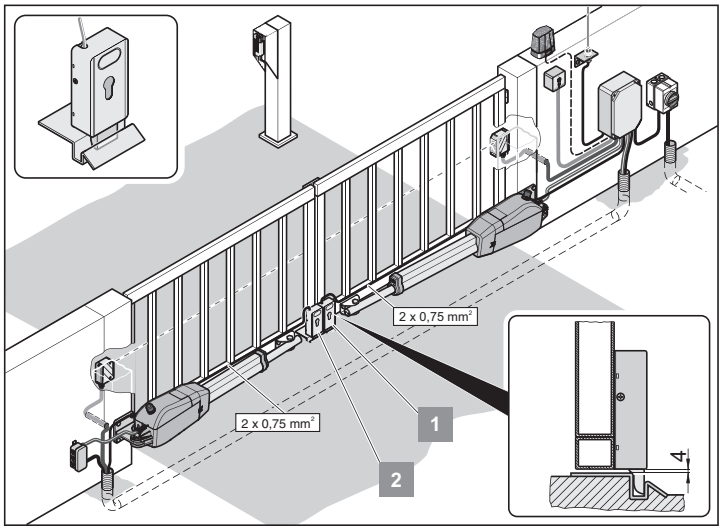


Terminal	Description	Description
39 + 40	230 V AC	Mains supply line (primary winding), brown
41 + 42	AC 24 V	Output (secondary winding): Supply line to control unit, white

Electric lock DC 24 V

INFORMATION

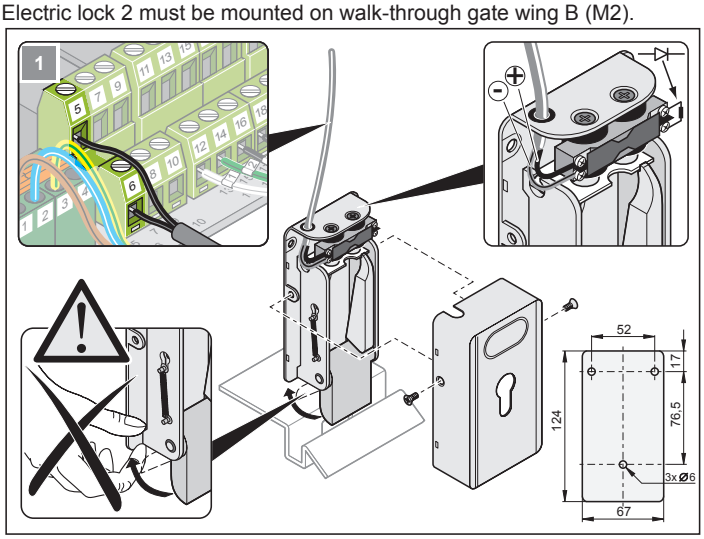
- Readjust the for "Gate CLOSE" end position after mounting.
- Install the lock in a perpendicular position, otherwise it may become jammed during closing or opening.
- The distance between lock and strike plate must be between 4 mm and 6 mm.
- Note the polarity of the electric lock.

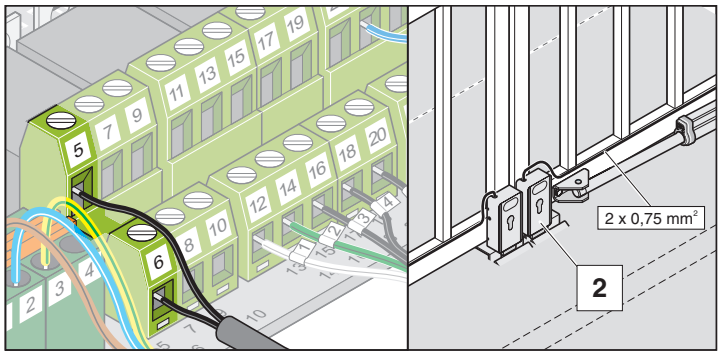


Connect electric lock 2

Available as an accessory.

Electric lock 2 must be mounted on walk-through gate wing B (M2).





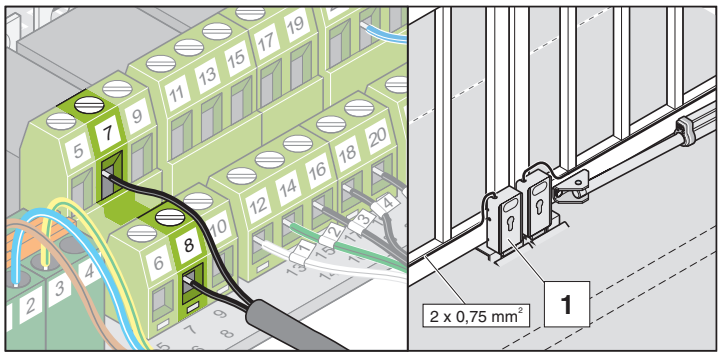
Terminal	Description	Description
5	Earth	Connection for DC 24 V electric lock, limited to 2 A at max. 24 W power.
6	DC 24 V	

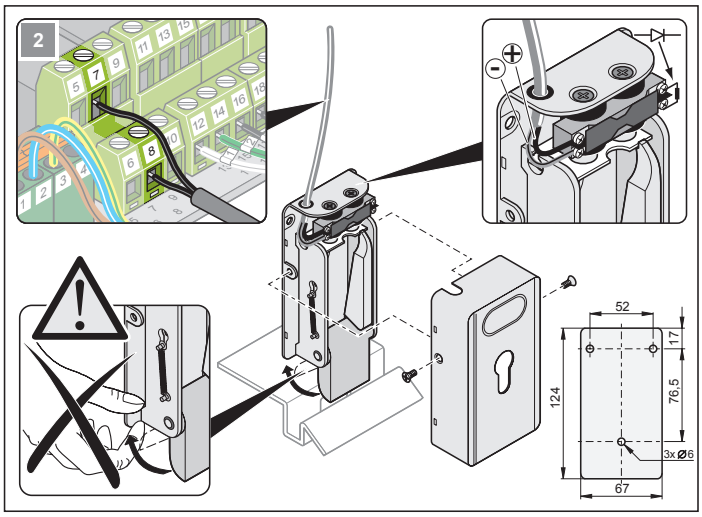
NOTE
It is direct-current, unregulated transformer voltage. This can fluctuate between DC 22 V and DC 32 V under full load.

Connect electric lock 1

Available as an accessory.

Electric lock 1 must be mounted on the gate wing (M1).



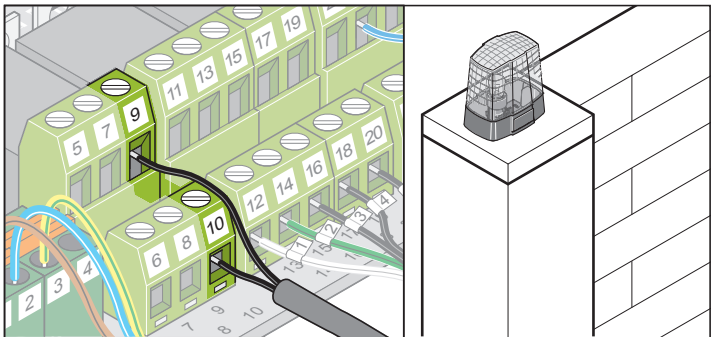


Terminal	Description	Description
7	Earth	Connection for DC 24 V electric lock, limited to 2 A at max. 24 W power.
8	DC 24 V	

NOTE
It is direct-current, unregulated transformer voltage. This can fluctuate between DC 22 V and DC 32 V under full load.

Connecting warning light

Available as an accessory.



Setting the function, see DIP switch 5.

Continuous light on is programmable with TorMinal.

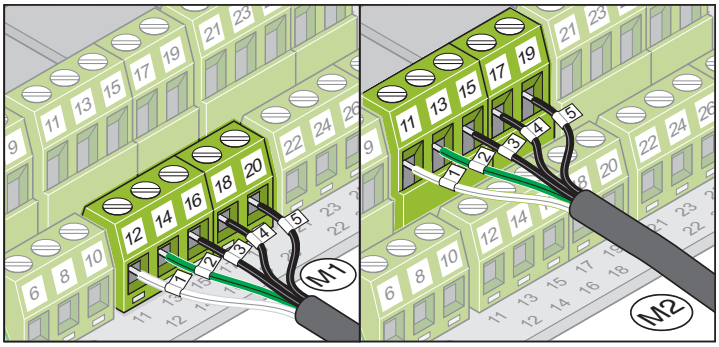
Terminal	Description	Description
9	Earth	Connection for DC 24 V warning light, limited to 1 A at max. 25 W power.
10	DC 24 V	

NOTE
It is direct-current, unregulated transformer voltage. This can fluctuate between DC 22 V and DC 32 V under full load.

Connecting drives

ATTENTION

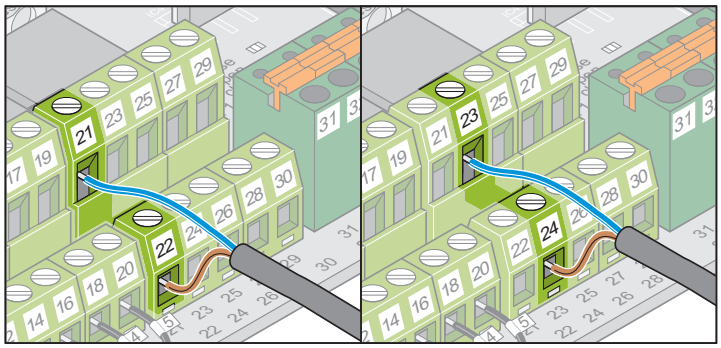
Connect the drives only with the control unit disconnected from the mains voltage and locked to prevent reactivation. The control unit detects only the connected drives correctly (type of limit switch).



Terminal -> wire with no.	Description	Description
12 -> 1	Motor	2 wing: Connection for motor-1: The motor must be on the gate wing that opens second or on which there is an outside stop bar.
14 -> 2	Motor	
16 -> 3	"Gate CLOSE" limit switch	
18 -> 4	"Gate OPEN" limit switch	
20 -> 5	Earth limit switch	
11 -> 1	Motor	1 wing: Connection for the motor
13 -> 2	Motor	2 wing: Connection for motor 2: The motor must be on the gate wing that opens first or on which there is no outside stop bar.
15 -> 3	"Gate CLOSE" limit switch	
17 -> 4	"Gate OPEN" limit switch	
19 -> 5	Earth limit switch	

Connecting button

Pulse sequence: OPEN-STOP-CLOSE.



Terminal	Description	Description
21	Earth	Connection for pulse transmitter for actuating one or both wings.
22	Signal	
23	Earth	Connection for pulse transmitter for actuating gate wing 2 or walk-through gate.
24	Signal	

NOTE!

Only use the connection for potential-free closer contacts. External voltage can trigger severe power surges and damage or destroy the control unit.

A double-contact button is required for a two-wing gate only if the walk-through function is used.

The buttons (Start 1 + 2) have the same function in a 1-wing gate system.

1-contact button connection:

- 1-wing gate buttons at terminals 21 + 22 or 23 + 24.
- 2-wing gate buttons at terminals 21 + 22.

2-contact button connection:

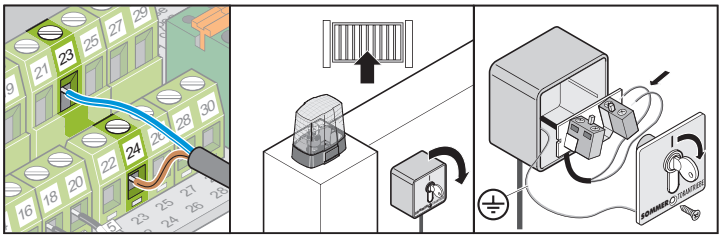
- Walk-through terminal 23 + 24.
- Both gate wings 21 + 22.

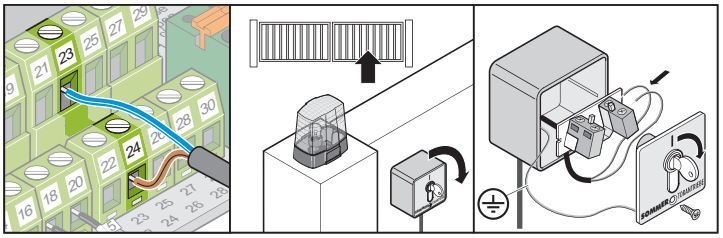
Functions and connections

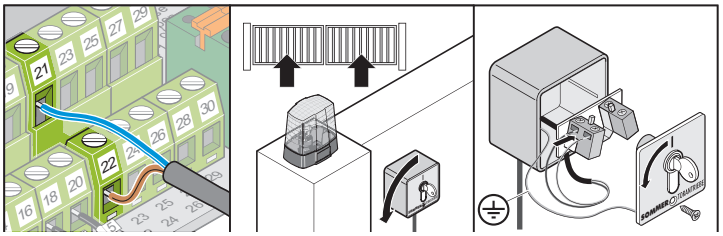
Key switch

NOTE!
When actuating the key switch the operator must keep clear of the movement zone of gate and must have a direct view of it.

- Never lay the switch cable along a power line. This can lead to malfunctions in the control unit.
- Permanently install the switch cable.

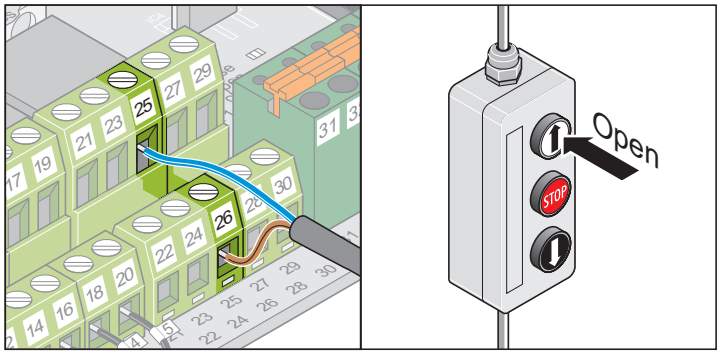






- Install key switch at a suitable, accessible position.

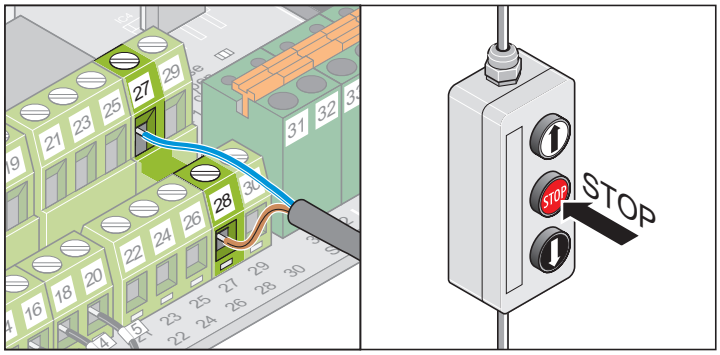
Connecting button (gate OPEN)



Terminal	Description	Description
25	Earth	Connection for pulse transmitter for actuating one or both wings, only in "Gate OPEN."
26	Signal	

NOTE!
Only use the connection for potential-free NO contacts. External voltage can trigger severe power surges and damage or destroy the control unit.

Connecting button (gate STOP)

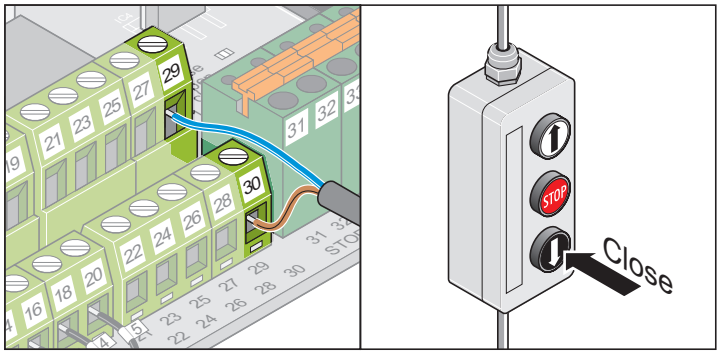


Remove the wire bridge before connection.

Terminal	Description	Description
27	-	Connection for pulse transmitter for actuating one or both wings, only in "Gate STOP."
28	Signal	

NOTE!
Only use the connection for potential-free NC contacts. External voltage can trigger severe power surges and damage or destroy the control unit.

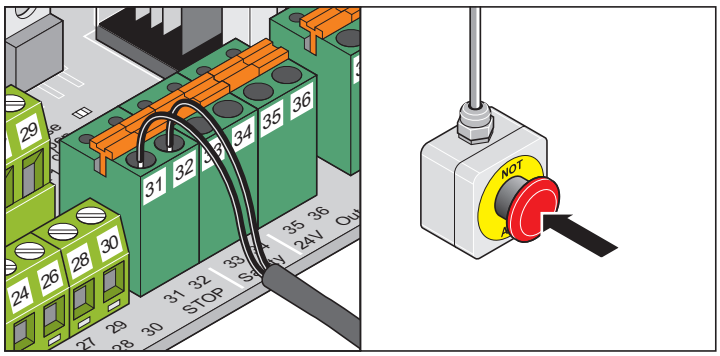
Connecting button ("Gate CLOSE")



Terminal	Description	Description
29	Earth	Connection for pulse transmitter for actuating one or both wings, only in "Gate CLOSE."
30	Signal	

NOTE!
Only use the connection for potential-free closer contacts. External voltage can trigger severe power surges and damage or destroy the control unit.

Connecting EMERGENCY STOP



Remove the wire bridge before connection.

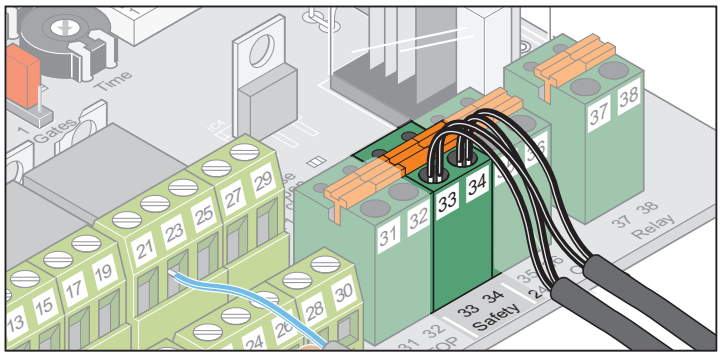
Functions and connections

Terminal	Description	Description
31	-	EMERGENCY STOP interrupts all control unit functions. Deadman's operation is also not possible.
32	Signal	

NOTE!
Only use the connection for potential-free NC contacts. External voltage can trigger severe power surges and damage or destroy the control unit.

Connect a two-wire photo eye

Available as an accessory.



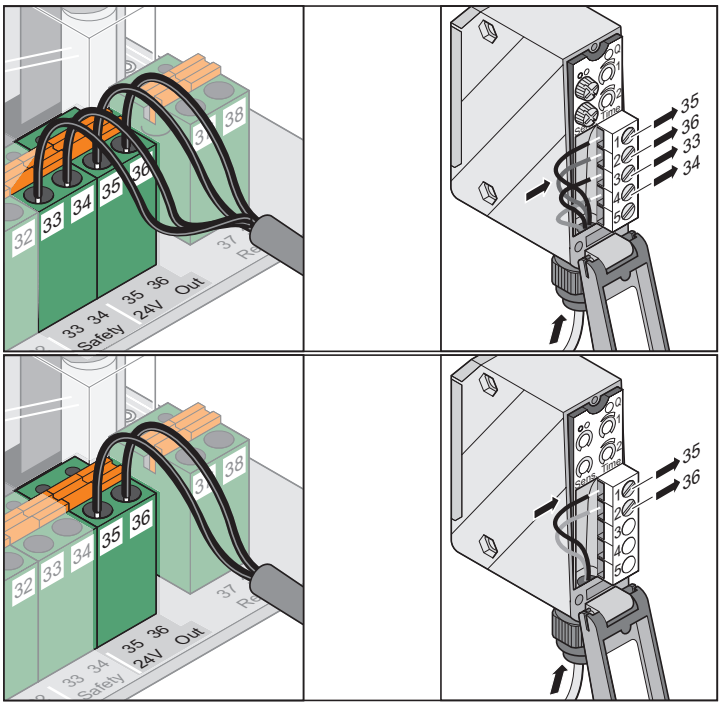
DIP switch 2 ON.

Remove the wire bridge before connection.

Terminal	Description	Description
33 + 34	-	Connection of 2-wire photo eyes (polarity-protected) If the connection is not used, install a bridge between the terminals (delivery status) and set DIP switch 2 to "OFF".

Connecting safety device

As-delivered status: bridge between terminals 33 + 34.



NOTE!
When using the automatic closing function, ensure compliance with standard EN 12453 (e.g. install photo eye).

DIP switch 2 "OFF".

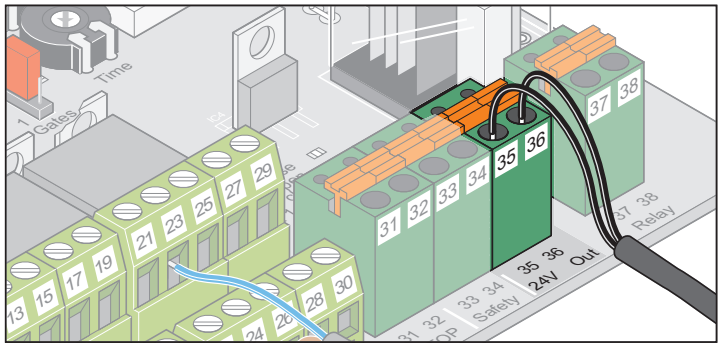
Remove the wire bridge before connection.

Terminal	Description	Description
33	Earth	Connection for safety device, e.g. • Photo eye. • Safety contact strip requires additional evaluation unit. The contact must be closed when the safety device is in non-actuated status. If the connection is not used, install a bridge between the terminals (delivery status).
34	Signal	

NOTE!
Only use the connection for potential-free NC contacts. External voltage can trigger severe power surges and damage or destroy the control unit.

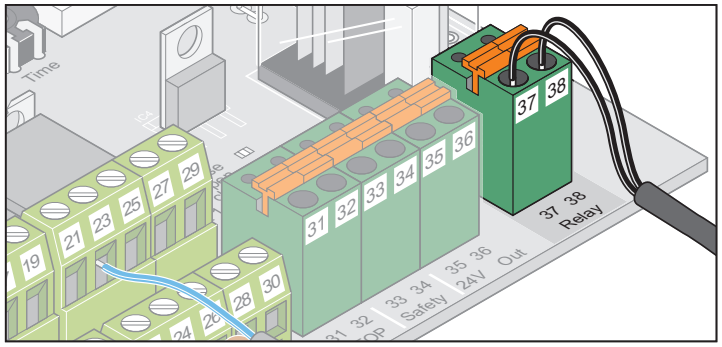
Terminal	Description	Description
35	DC 24 V	DC 24 V output, max. 100 mA.
36	0 V (Earth)	

Connecting external consumers



Terminal	Description	Description
35	DC 24 V	DC 24 V output, max. 100 mA.
36	0 V (Earth)	

Potential-free relay contact



Terminal	Description	Description
37 + 38	Relay	Connection for e.g. light max 8 A, 230 V under resistance load.

Maintenance and care

Safety instructions

DANGER!
Never use a hose or high-pressure cleaner to spray down the drive or the control unit housing.

- Do not use acids or alkalis for cleaning.
- Keep drive clean and clean the gate operator with a dry cloth regularly.
- Check the control unit house regularly for insects and moisture. Dry and clean as required.
- Check the mounting screws and bolts of the fittings for tightness and tighten if necessary.
- Check that the control unit housing cover is correctly seated.

Regular testing

- Regularly check that the safety devices function correctly; no less than every six months. See EN 12453:2000.
- Check that pressure-sensitive safety devices (e.g. safety contact strip with extra evaluation unit) are operating correctly every four weeks (see EN 60335-2-95:11-2005).

Testing	Behaviour	Yes or No	Possible cause	Remedy
Force cut-off. Try to stop the gate wing by hand while it is closing. Do not try to hold the gate wing.	Gate stops and reverses when lightly held?	Yes	• The force cut-off works without limitations.	• Leave all settings as they are.
		No	• Potentiometer at right stop. Force tolerance too high.	• Reduce the force tolerance. Rotate potentiometer counterclockwise until the test is successful. First open and close the gate completely twice under supervision.
			• Control unit defective.	• Decommission the gate and lock it to prevent reactivation. Contact customer service!
Emergency release. Procedure as described in "Emergency unlock in power failure".	The gate must be easily opened and closed by hand. Drive can be released?	Yes	• Everything is OK.	
		No	• Hinges rusted.	• Grease hinges.
Safety contact strip, if present. Open and close the gate and actuate the strip at the same time.	Adjust the behaviour of the gate, as set with DIP switch 1, 2 or 3.	Yes	• Everything is OK.	
		No	• Cable breakage, terminal loose.	• Check the wiring; retighten the terminals.
			• DIP switch adjusted.	• Set the DIP switch.
			• Strip defective.	• Decommission the system and lock it to prevent reactivation. Then, contact customer service.
Photo eye, if present. Open and close the gate while interrupting the photo eye.	Adjust the behaviour of the gate, as set with DIP switch 1, 2 or 3. "Safety" LED lights.	Yes	• Everything is OK.	
		No	• Cable breakage, terminal loose.	• Check the wiring; retighten the terminals.
			• DIP switch adjusted.	• Set the DIP switch.
			• Photo eye dirty.	• Clean the photo eye.
			• Photo eye defective.	• Decommission the system and lock it to prevent reactivation. Then, contact customer service.

Miscellaneous

Disassembly

IMPORTANT!
Observe safety information.

The sequence is identical to that described in the "Mounting" section, but in reverse order. Ignore the setting instructions.

Disposal

Observe applicable national regulations.

Warranty and customer service

The warranty complies with statutory requirements. Please contact your specialist retailer/supplier if you have any queries regarding the warranty.

The warranty is only valid in the country in which the product was purchased.

Batteries, fuses and bulbs are excluded from the warranty.

Ownership of replaced parts passes to us.

If you require after-sales service, spare parts or accessories, please contact your specialist retailer/supplier.

We have tried to make the Installation and Operating Instructions as easy as possible to follow. If you have any suggestions as to how we could improve them or if you think more information is needed, please send your suggestions to us:

Fax.: 0049-7021-8001-403

E-mail: doku@sommer.eu

Troubleshooting

Tips on troubleshooting

If you cannot find the malfunction in the table and eliminate it, take the following actions:

- Reset the control units (delete force values).
- Disconnect any connected accessories (e.g. photo eye).
- Set all DIP switches to the factory setting.
- Set potentiometer to the factory setting.
- If settings have been changed using TorMinal, perform the control unit reset with TorMinal.

If this does not help, contact your specialist dealer for assistance or consult our website at http://www.sommer.eu.

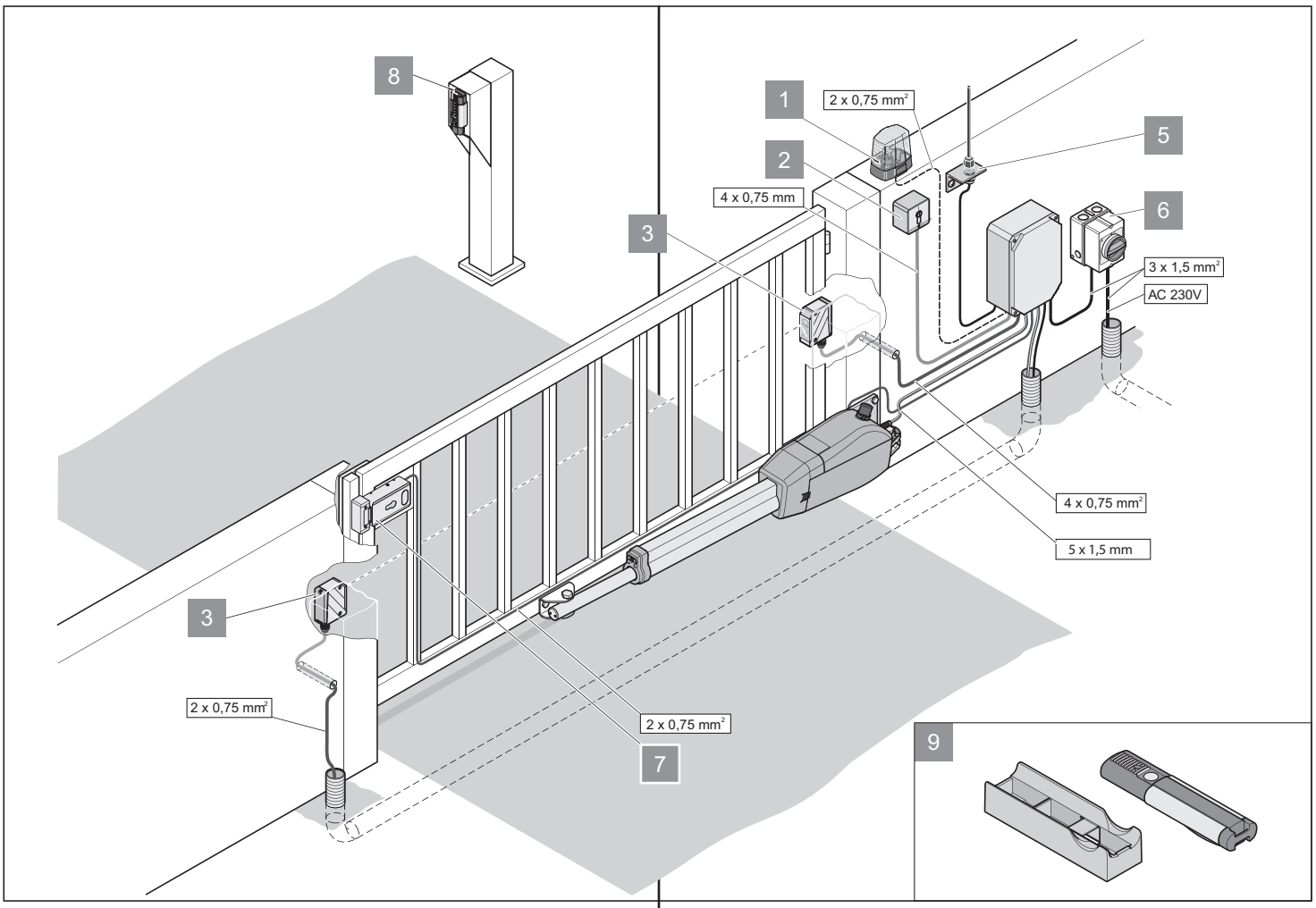
Fault	Control	Yes or No	Possible cause	Remedy
Gate cannot be opened or closed with buttons or hand-held transmitter.	"POWER" LED on?	No	• No supply voltage.	• Check connection and connect if necessary.
			• Mains fuse defective.	• Check fuse and replace if necessary.
		Yes	• Gate jams.	• Gate wing has sunk or distorted because of high temperature variations.
			• Motor hums but does not move.	• Switch off immediately. Possible motor or control unit fault. Contact customer service.
			• Drive displaced.	• Locking of drive.
			• Wire insulation too long and no contact	• Disconnect wire, shorten insulation and reconnect.
			• Gate frozen.	• Clear snow and ice from gate and hinges.
			• Too much snow in the movement zone of gate	• Clear snow.
			• Wiring on motor PCB disconnected.	• Connect wiring.
	Is the LED on the hand-held transmitter on?	No	• Battery flat.	• Replace battery.
			• Battery incorrectly inserted.	• Insert battery correctly.
			• Transmitter defective.	• Replace the hand-held transmitter.
		Yes	• Hand-held transmitter battery too weak and range reduced.	• Replace battery.
			• Radio receiver defective.	• Replace radio receiver.
			• Hand-held transmitter not learnt.	• Programming the hand-held remote control.
			• Poor reception.	• Install external antenna (see accessories).
			• Incorrect frequency.	• Check frequency; hand-held transmitter and radio receiver must be on the same frequency.
	Does an LED on the radio receiver come on if a button on the transmitter is pressed?	No	• Radio receiver not properly plugged in.	• Plug in radio receiver properly.
			• No radio receiver power supply, possible fault.	• Replace radio receiver.
			• Hand-held transmitter not learnt.	• Programming the hand-held remote control.
			• Hand-held transmitter battery flat.	• Replace battery.
			• Battery incorrectly inserted.	• Insert battery correctly.
			• Transmitter defective.	• Replace the hand-held transmitter.
	Is the "POWER + OPEN/ CLOSE" LED on?	Yes	• Continuous signal pending.	• Pulse transmitter defective - disconnect all connected pulse transmitters.
	“POWER + Safety” LED on?	Yes	• Photo eyes interrupted*.	• Remove interruption.
	Fault occurs intermittently or for short time.	Yes	• Very powerful public address systems in hospitals or industrial areas may interfere with radio.	• Change radio frequency. • Contact source of interference.
	"Safety" LED flashes quickly.	Yes	• Control unit has saved erroneous values, e.g. as a result of a brief power interruption.	• Reset control unit and reprogram drive. If this is not possible, remove control unit and send it to the manufacturer, call a technician.

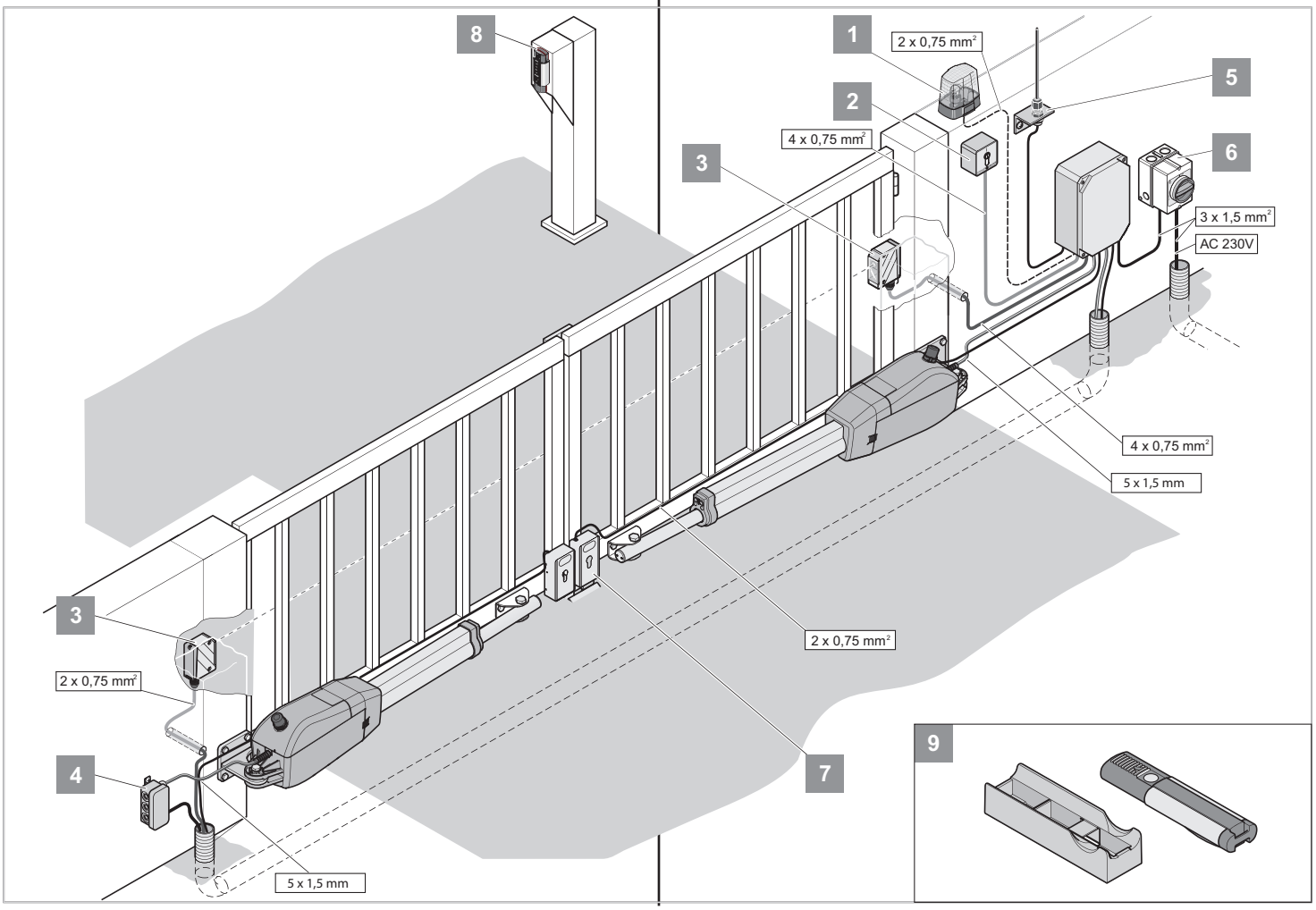
Troubleshooting

Gate cannot be opened or closed with a connected key switch.	"POWER + Start 1/ Start 2" LED lights.	Yes	• Wire connections loose. • Key switch defective. • Broken wire.	• Tighten terminal screw. • Replace key switch. • Replace wire.
		No	• Pulse transmitter (key switch) defective.	• Check pulse transmitter and replace if faulty.
Gate remains stationary and reverses during opening and closing.	Obstacle in range of motion.	No	• Hinges stiff.	• Lubricate hinges.
			• Post or pillar has changed.	• Call a technician.
			• Limit switch out of adjustment.	• Adjust limit switch.
		Yes	• Power cut-off tripped	• Remove obstacle.
	Does the gate wing vibrate when moving?	Yes	• Gate wing unstable.	• Reinforce gate wing.
	Was there a strong wind?	Yes	• Wind pressure too strong.	• Simply open and close gate again.
Gate remains stopped when opening.	Photo eye interrupted.	Yes	• Obstacle in light beam.	• Remove obstacle.
		No	• Connection for external consumers overloaded (terminals 35 +36), voltage drop when drive starts.	• note max. connection power and connect corresponding accessories only.
Gate does not open or close completely.	Gate stops before required end position?	No	• Gate fittings not installed correctly.	• Change the gate bracket.
		Yes	• Limit switch incorrectly adjusted.	• Adjust limit switch.
Closing sequence incorrect.			• Drives incorrectly connected.	• Connect drives to control unit as specified in the manual.
Drive does not learn the force values.			• DIP switch 8 in "OFF" position.	• Set DIP switch 8 to "ON".
			• Limit switch incorrectly adjusted, drive stops and reverses - power cut-off.	• Adjust limit switches.
Gate does not stop at an obstacle.			• Gate in learning mode. • Force tolerance too high.	• Force tolerance responds after the learning movement reduce force tolerance (see "Setting force tolerance").
Drive stops at pillar.	Measure A/B dimensions again	No	• A or B dimension not correct.	• Adjust fastening of drive to post or pillar.
		Yes	• Limit switch out of adjustment.	• Adjust limit switch.
Gate moves unevenly.			• Unequal A/B dimensions	• Change dimension if possible.
Walk-through gate does not open with hand-held transmitter.			• Hand-held button not learnt.	• Program button (see "Programming hand-held transmitter").
Drives do not start.	"Safety" LED flashes quickly.	Yes	• Jumper was moved with learnt force values.	• Replace jumper in previous position. • Resetting the control system. • Place jumper in desired position. • Run learning procedures.

* If photo eyes are uninterrupted, the drive can be moved in dead man mode with the "Open" and "Close" buttons. However, there is still a force cut-off if the gate meets an obstacle.

Connection diagram





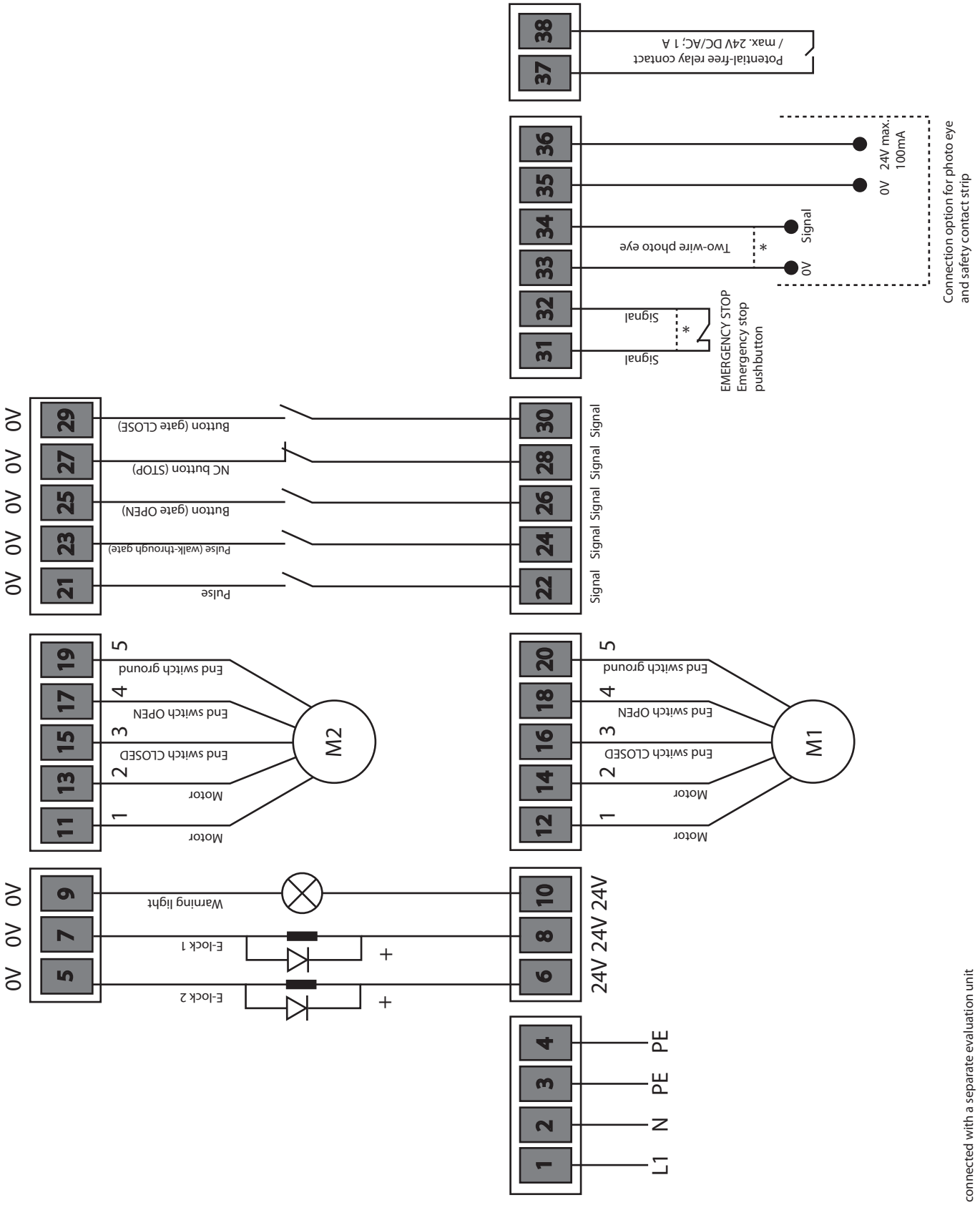
DIP switches

DIP switch and TorMinal settings of DTA-1 control unit

Switches	Function in "ON" setting	Comments	Comments
1	**No reaction** when the safety connection responds whilst the **gate opens.**	**Stop** when the safety connection responds whilst the **gate opens.**	Terminals 33 + 34.
2	**Four-wire photo eye:** The safety connection of terminals 33 + 34 is the NC contact.	**Two-wire photo eye:** The safety connection of terminals 33 + 34 is set to the two-wire photo eye function.	Terminals 33 + 34.
3	The **gate reverses** when the safety connection responds when the gate closes.	The **gate opens completely** when the safety connection responds when the gate closes.	Terminals 33 + 34 if DIP 1 = ON, then stop when the gate opens.
4	**The relay contact is a time relay:** Settable via TorMinal MEM 22.	**The relay contact is a gate status relay:**	Terminals 37 + 38.
5	**Prewarning time warning light** off.	**Prewarning time warning light** (3 seconds) activated.	Time changeable via TorMinal MEM 16 (1-10 seconds).
6	**"Gate CLOSE" display:** When the gate is closed, the relay contact is closed.	"**Gate CLOSE" display:** When the gate is open, the relay contact is closed.	Terminal 37 + 38 only in case of DIP 4 ON.
7	**Premature closing OFF** (in case of automatic closing function).	**Premature closing ON** (in case of automatic closing function) 5 seconds after the photo eye is passed.	Time changeable via TorMinal MEM 21 (1-20 seconds).
8	**Test mode: Drive** opens or closes the gate without force values being learnt.	**Continuous operation:** Force vaues are learnt and constantly adapted.	**In constant operaiton, DIP 8 must always be ON!**

TorMinal	**Setting of force tolerance 2** MEM 14: VAL = 4.		For small, and lightweight gates, the power cut-off is more sensitive.
TorMinal	**Warning light lights** (e.g. rotating, flashing beacon) MEM 14: VAL = 0.	**Warning light flashes.** MEM 14: VAL = 1.	Attention: In case of combinations of functions in MEM 14, the values must be added.
TorMinal	**Deadman's operation** MEM 14: VAL = 2.		
TorMinal	**Switching duration of relay contact** MEM 22: VAL = 1 - 225 seconds.		
TorMinal	**Coastdown of motor 2 in "Gate CLOSE"** MEM 42: 0-2 seconds.		After reaching the "Gate CLOSE" end position, the drive continues to run in order to close the gate cleanly. The gate wings are braced with each other in this process. Use during operation without threshold.

Wiring diagram



*Delivery status with wire jumper

**Safety contact strip can only be connected with a separate evaluation unit