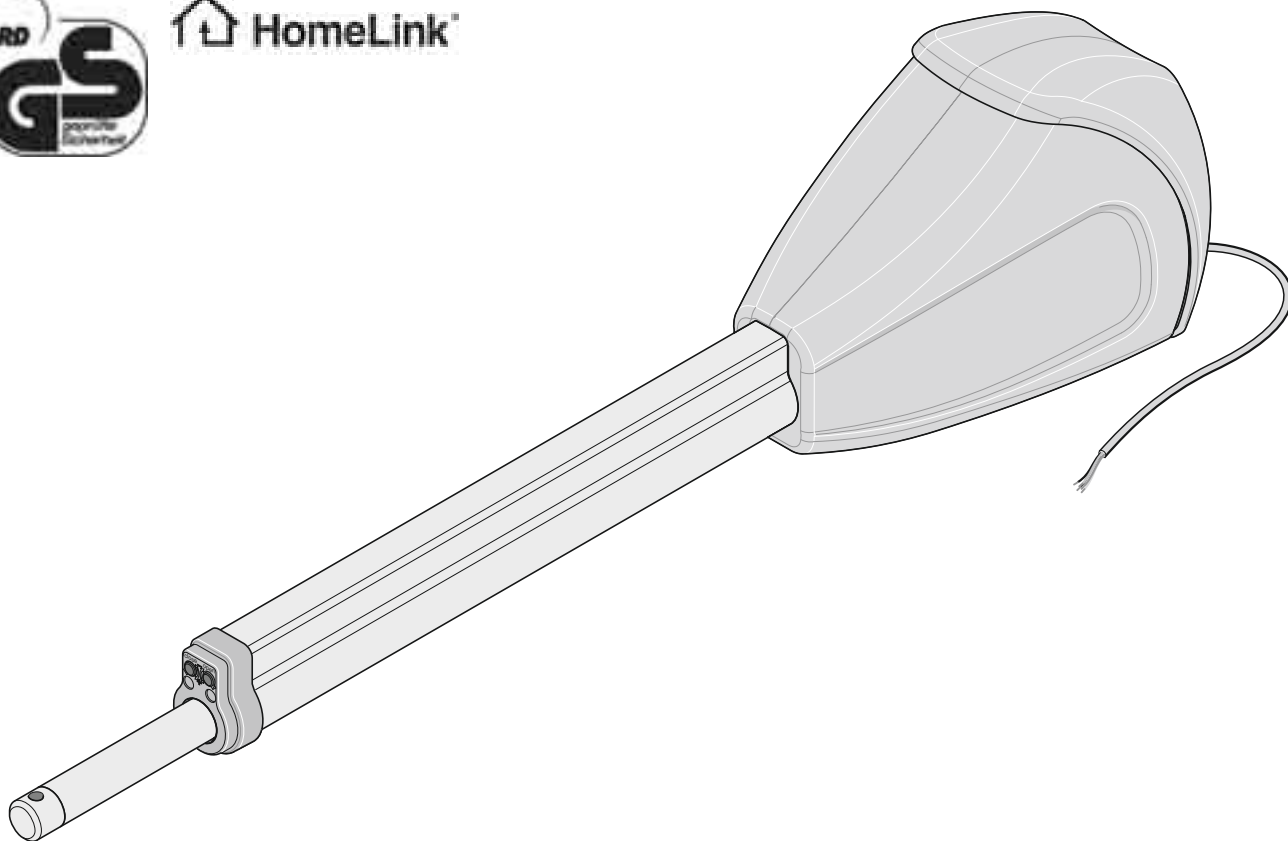




↑ HomeLink™



twist XL

Ⓞ Original installation and operating instructions

1 - 30



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EU Conformity Declaration

Messrs

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

declares herewith that the product designated below complies with the relevant fundamental requirements as per Article 3 of the R&TTE Directive 1999/5/EG, insofar as the product is used correctly, and that the following standards apply:

Product: RF Remote Control for doors & gates

Type: RM04-868-2, RM03-868-4, RX01-868-2/4,
RFSDT-868-1, RFSW-868-1, RM02-868-2,
RM06-868-2, RM04-868-1, RM02-868-2-TIGA,
RM08-868-2, RM01-868,
RM02-434-2, RM03-434-4, RM04-434-2

The relevant guidelines and standards are:

- ETSI EN 300220-1:09-2000, -3:09-2000
- ETSI EN 301489-1:07-2004, -3:08-2002
- DIN EN 60950-1:03-2003

Kirchheim/Teck, 04.08.2004
Frank Sommer
Managing Director



General information

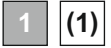
Symbols



Indicates a potential risk!
Failure to comply with the instructions may result in serious injury or damage to property!



Information, useful advice.



(1) Refers to the relevant illustration in the introduction or the main text of this manual.

Safety instructions

General safety instructions

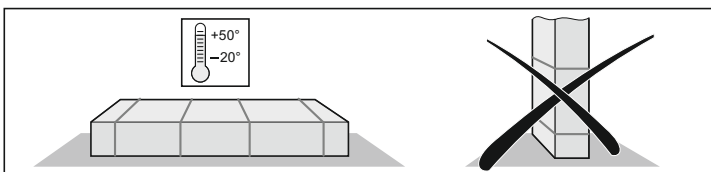
- All persons in charge of the installation, maintenance or operation of the drive system must read, fully understand and observe these instructions. All instructions must be strictly adhered to.
- The manufacturer accepts no liability for damage or malfunction resulting from non-compliance with the instructions in this manual.
- Always comply with the statutory health and safety regulations and the applicable standards.
- The installation and operation of the drive system is governed by the following standards: EN 12453, EN 12604, EN 12605
- Prior to any work at the gate or drive, disconnect drive system from the power supply and secure it against inadvertent reconnection or actuation.
- There is a risk of injury from crushing at the closing edges of the gates or near the mechanical parts.
- Never operate the drive if you suspect that it might be faulty or damaged.
- After installation and commissioning, all persons operating the drive must be instructed on its functions and proper operation.
- Use only original spare parts, accessories and fixtures supplied by the manufacturer.

Operation

- Ensure that the drive is never operated by children or persons who have not been specifically instructed.
- Before opening or closing the gate, ensure that no persons, especially children, animals or objects are within the opening range of the gate.
- Only operate the gate with the remote control device when you have full view of the gate.
- Never reach into the gate or any of its moving parts.
- Regularly inspect the safety devices. Immediately repair damaged or defective parts. For details, see maintenance instructions.
- Only drive through the gate after it has been fully opened.
- Adjust the force tolerance to the minimum level.
- At gates with automatic closing mechanism, all edges must be secured according to the applicable regulations and standards.
- Always remove the key to prevent unauthorised operation.

Storage

- The drive mechanism may only be stored indoors, in a dry, sealed environment at an ambient temperature of between -20°C and +50°C.
- Store drives in horizontal position.



Radio remote control

- The radio remote control may only be used for equipment and systems in which defective remote operation of the transmitter or receiver does not constitute a risk to people, animals or property, or in cases where this risk is eliminated by means of additional safety facilities.
- All persons operating the gate must be instructed that systems, where there is a risk of injury or damage, may not be operated by remote control, or that such operation is only permitted if all movements of the gate can be supervised.
- The radio remote control device may only be used if the operator can fully supervise the movement of the device and if no persons or objects are within the movement range of the gate.
- Keep the remote control device out of reach of children or animals and prevent any inadvertent use.
- The operator of this radio-controlled equipment is not in any way protected against interference from other telecommunication systems and facilities (e.g.: other radio-controlled equipment that is licensed to operate at the same frequency range). If such interference occurs, please contact the local radio and telecommunications authority requesting a radiolocation.
- Do not use remote control devices near locations or installations that are susceptible to radio interference (e.g. airports, hospitals).

Rating plate

The rating plate is located on the cover of the control unit housing.

Normal use

i After the drive system has been installed, the person responsible for the installation must complete an EU Declaration of Conformity according to Machine Directive 98/37/EU and attach a CE mark at the type plate of the drive. This also applies in cases where the owner of the system is a private person, as well as to manually operated gates that have been upgraded with a drive. The above documents and the instructions for installation and operation must be handed over to the operator.

- The drive is exclusively intended for opening and closing revolving gates (henceforth referred to as gates) in accordance with EN 12433-1. Any other use is deemed improper. The manufacturer shall not be liable for damages resulting from improper use. The user accepts sole responsibility for any risks thereby incurred. Improper use shall void all warranty.
- Gates that are to be upgraded with an automatic drive system must comply with the applicable standards and directives: e.g. EN 12453, EN 12604, EN 12605.
- Observe the safety distances according to EN 12604 between gate leaves and other objects.
- The drive system may only be operated if it is in proper working order. Always follow standard safety procedures and adhere to the instructions in this installation and operating manual.
- Immediately eliminate any defects that might impair the safety of the equipment.
- The gate leaves must only have minimum play at the hinges.
- The gate leaves must be stable and warp-proof, i.e. they may not bend or warp during opening or closing operation.
- The DT-A-1 control unit and twist XL drive must only be used in combination.
- This electric drive may only be used for the opening and closing of gates with one or two leaves.

Incorrect use

- Opening and closing flaps, e.g. for accessing rooftops or similar.
- Operation with 2x twist 200/twist 200 E and a combined operation (1x twist XL + 1x twist 200/twist 200 E) are not permitted.

General Information

Permitted gate leaf dimensions

- Weight: max. 500 kg
- Slope: 0%

Height (m)	Filling (%) *				
	100	100	50	25	20
5	100	100	50	25	20
4	100	100	65	35	25
3	100	100	85	45	35
2	100	100	100	70	50
1	100	100	100	100	100
Length (m)	1.2	2	3	4	5

* Valid for dimension 300 mm B + dimension A 100 mm

Technical data

General	1-leaf	2-leaf	
Runtime, depending on A/B	appr. 10 to 40	appr. 15 to 60 seconds	
Protection class			
Drive	IP 44	IP 44	
Control unit housing	IP 54	IP 54	
Rated voltage	220 ...240	220 ...240	ACV
Rated frequency	50	50	Hz
Operating temperature			
Drive	-20 ...+70	-20 ...+70	°C
Control unit housing	-20 ...+70	-20 ...+70	°C
Travel (per drive)	450	450	mm
Max. traction and pressure force:	4500	4500	N
Operating factor:	40	40	%

Stand-by

Rated current consumption	20	20	mA
Rated power consumption	2.2	2.2	W

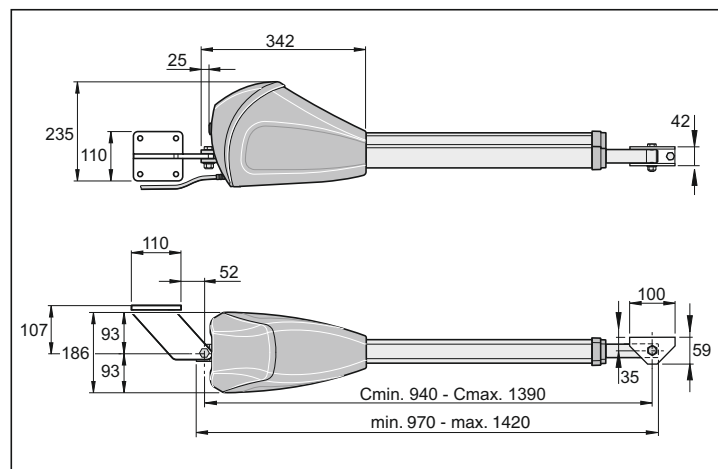
Rated operation

Motor voltage	approx. 22	approx. 20	DC/V
Rated current consumption:	approx. 3	approx. 6	A
Rated power consumption:	approx. 118	approx. 234	W

Workplace noise emission < 75 dBA - drive only

Dimensions

All dimensions in mm.



Functions

i The stop positions (gate OPEN + CLOSE) are adjusted by means of internal limit switches and are thus detected during operation.

The gate leaf is opened and closed by extending or retracting the push rod. When the preset stop positions are reached, the drive is automatically switched off by means of limit switches.

Locking of gate

i For gates with leaf lengths of more than 2.5 m and for 2-leaf gates, we recommend the installation of a centre respond at gate "CLOSE". An electric lock may be mounted for additional safety.

The gate does not require a lock to be kept closed, as the drive mechanism is self-locking (with connection to the control system). The gate can thus not be forced open by hand without damaging the drive system or fittings.

Remote control

The drive can be operated by remote control with the supplied remote control device, provided that this remote control device and the radio receiver have been properly programmed.

Safety devices

The control unit is equipped with an automatic force monitoring system. If there is more force required for opening or closing the gate as has been programmed during the programming run, the drive is set into reverse motion (gate direction "CLOSE") or halted (direction "OPEN").

The operator has the option to extend the control with various safety devices. For details, see chapter Functions and connections.

E.g.:

- Light barrier
- Safety contact unit with auxiliary monitoring system

EU-Manufacturer's declaration

The company

SOMMER Antriebs- und Funktechnik GmbH
Hans-Böckler-Strasse 21-27
73230 Kirchheim/Teck, Germany

herewith declares that its drive system:

- twist XL

complies with the following Directives:

- Machine Directive 98/37/EU
- Low-Voltage Directive 2006/95/EU
- EU Directive on Electromagnetic Compatibility 2004/108/EEC

The equipment fulfils the requirements of the following standards:

- EN 12453:2000, EN 61508:2001, EN ISO 13849-1:2006

Note:

The gate system may not be commissioned until it has been established that the system in which the above drive is to be installed fulfils all specifications of the relevant EU Directives.

Kirchheim, 20.11.2007

Frank Sommer
Managing Director

Preparations of installation

Safety instructions

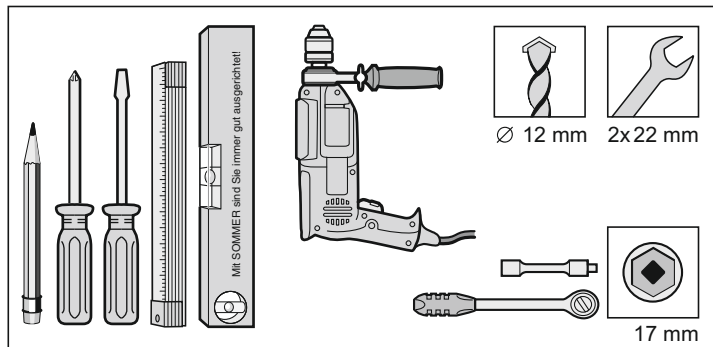
⚠ The power cable supplied with the control unit may only be used for the installation of the drive systems. After completion of the installation, disconnect the cable and replace it with a duct-laid cable. It is forbidden to use the supplied power cable for standard operation of the gate.

⚠ **Caution! Risk of damage from voltage fluctuations**
Voltage fluctuations, e.g.: caused by welding machines, can damage the control unit.

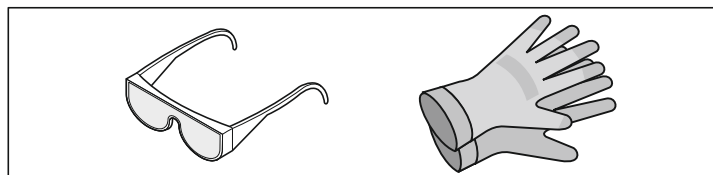
- Only connect the control unit to the power supply after all installation work has been completed.

- Ensure that all cables of the drive are laid in suitable conduits (e.g. for underground cabling).
- The control unit may only be connected to the power supply by a qualified electrician.
- Always comply with the instructions in this manual.
- Locking devices (electrical keys, locking bolts, etc.) must be removed and disabled prior to installation of the drive system.
- Ensure that the gate leaves are properly secured to the posts as considerable forces are applied to the devices during opening and closing of the gate.
- Prior to welding of fittings to posts or gate leaves, remove or cover the drive unit to prevent damage from sparks, etc.
- If the gate is operated by means of a switch, it must be installed at a minimum height of 1.6 m above ground to prevent inadvertent activation by children.
- In public areas, use only approved fittings and securing devices (e.g. dowels or anchoring bolts 12 x 100).

Tools required



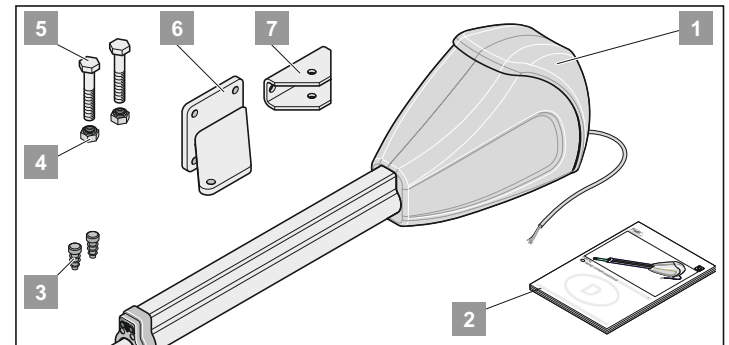
Personal protection equipment



- Safety goggles (for drilling)
- Work gloves

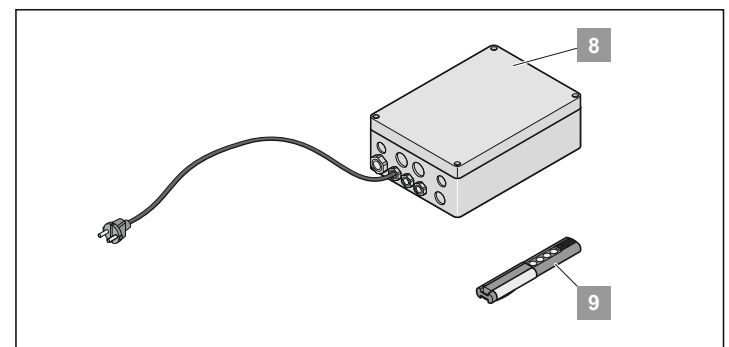
Supplied components

- Prior to installation, check delivery to ensure that it contains all necessary parts.
- Depending on the design of your drive system, the delivery might deviate from the standard delivery.



Drive kit

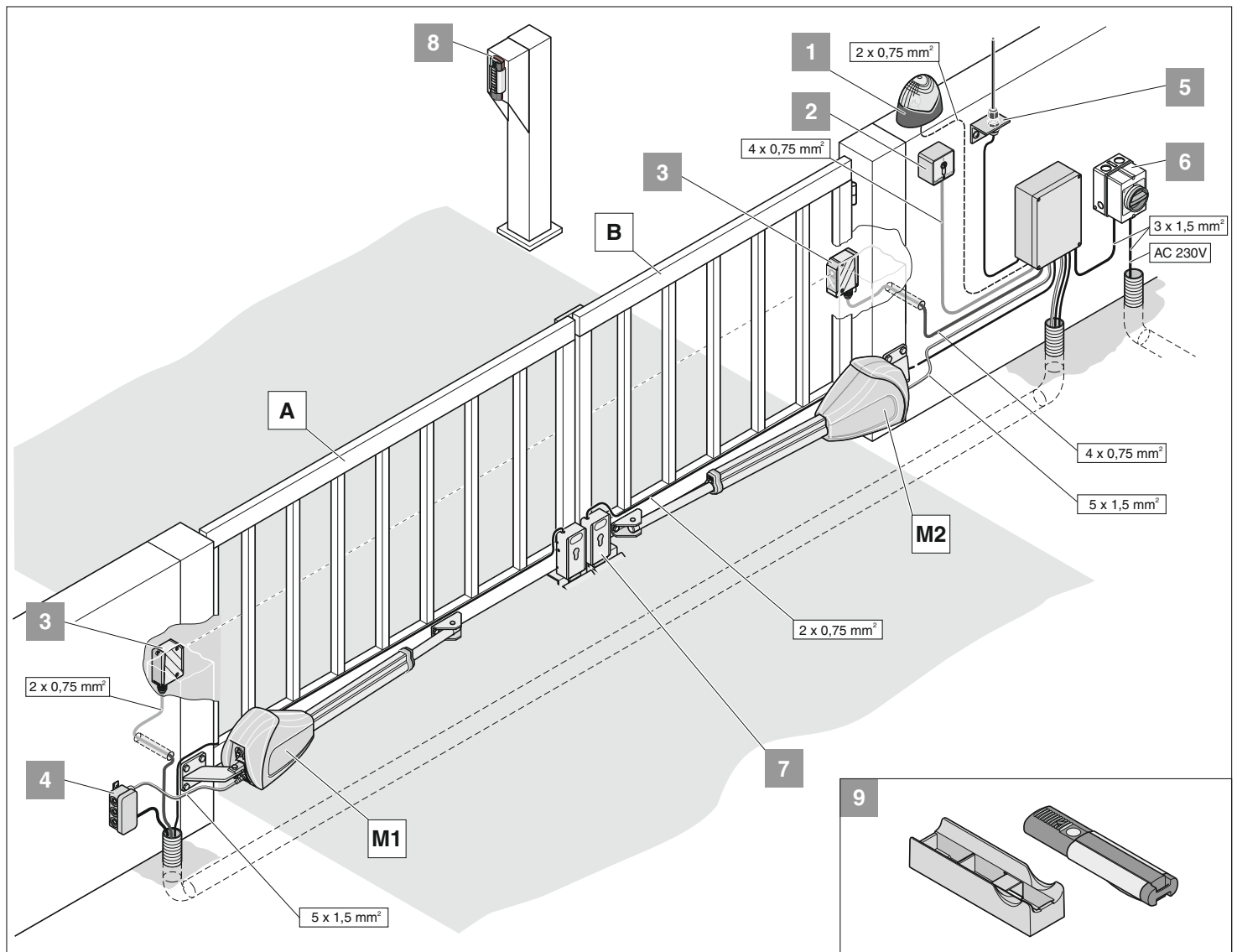
	1 leaf	2 leaf	
Weight (drive only)	12.5	2 x 12.5	kg
Packaging (L x W x H):	982 x 243 x 202		mm
1. Drive unit including cables	1 x	2 x	
2. Installation and operating manual	1 x	1 x	
3. Plug	2 x	4 x	
4. M12 locking nut	2 x	4 x	
5. M12 x 70 hexagon screw	2 x	4 x	
6. Post fittings	1 x	2 x	
7. Gate leaf fittings	1 x	2 x	



Control unit kit

	1 leaf	2 leaf	
Weight (control unit only)	2.8		kg
Packaging (L x W x H):	120 x 245 x 285		mm
8. Control system, in housing (with radio receiver, transformer and mains plug)	1 x	1 x	
9. Remote control device incl. battery	1 x	1 x	

Installation



Installation tips

- Consult the operator when deciding on the location for installation of the control unit.
- Do not install the housing where it is visible from the street, in order to protect it against vandalism.
- For gates with leaf lengths of more than 2.5 m and for 2-leaf gates, we recommend the installation of a centre respond at gate "CLOSE".

i The gate can be operated with a number of different control devices: remote control device, Telecody, interior push-button and key switch. With the remote control device, Telecody and interior push-button, there is no need for cables as they are radio controlled. For more information, contact the supplier.

1. Warning light DC 24 V
2. Key switch (1 or 2 contact)
3. Light barrier
4. Connecting cables 12 m
5. Rod aerial (incl. cable)
6. Main switch (lockable)
7. 24 V DC electric lock. An electric lock can be fitted to each individual gate leaf.
8. Telecody
9. Holder for remote control device for installation in car or on wall

Terms

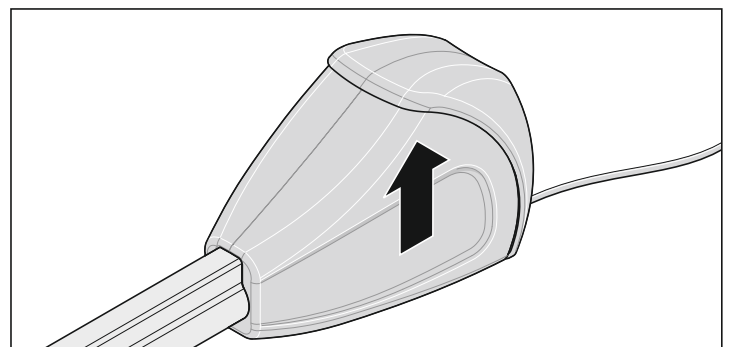
- A. Gate leaf 1 has the stop bar on the outside if the gate opens inwards.
- B. Gate leaf 2 or pedestrian leaf
This gate leaf 2 always opens first with a 2-leaf gate system. This gate leaf can be opened on its own using the Start 2 key to let a person through, for example, which is why it is referred to as a pedestrian leaf.

M1 Motor 1 is always fitted to gate leaf 1

M2 Motor 2 is always fitted to gate leaf 2/pedestrian gate

Mounting position of drive

- Mount drive in horizontal position. The motor must always be at the top of the drive system.



Installation

Preparation for stop position settings

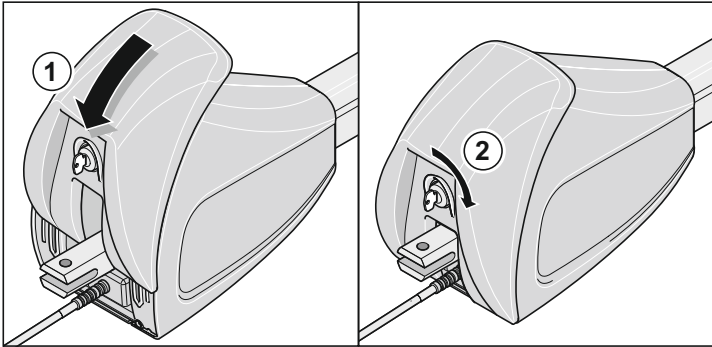
i All the information in this document concerning working procedures and settings always relates to installing the drives on the inside of the gate with the gate opening inwards. See diagram on page 5.

! Never adjust limit switches with a power drill or similar tool, as the switches could thereby be pulled from the holders.

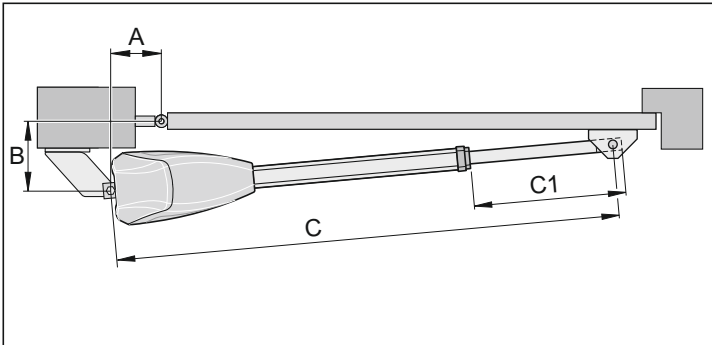
! Never connect drive to 230V power, as this would immediately destroy the motor.

! First install and adjust the limit switches for "gate OPEN" and "gate CLOSE". Ensure that the gate leaf does not touch the housing to prevent damage to the drive.

- Upon the first command, the drives must move the gate in direction "OPEN". If the drive moves to gate "CLOSE", switch the drive connecting cables at the control unit.



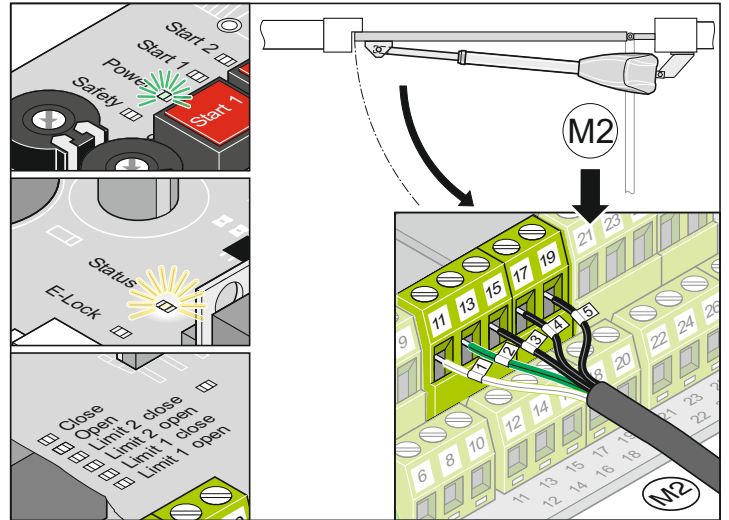
1. Engage drive (1) and lock it (2).



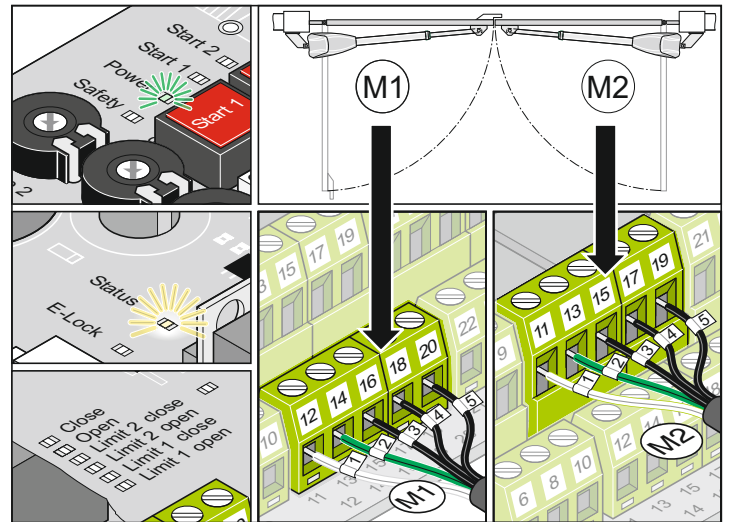
2. Pull out push rod to a length of $C1 = 270$ mm.
3. Measure dimensions A and B, look up dimensions C1 and C2 in the A/B dimension table.

! **ATTENTION**
Only connect the drives if the control system is not powered and is secured against inadvertent activation. The control unit only then correctly recognises the connected drives (type of limit switch).

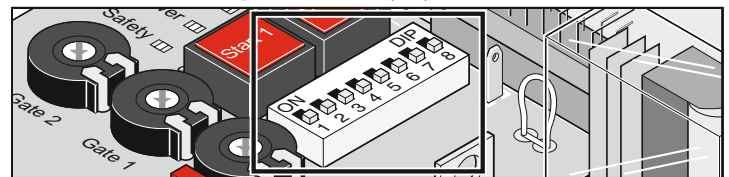
Single-leaf gate



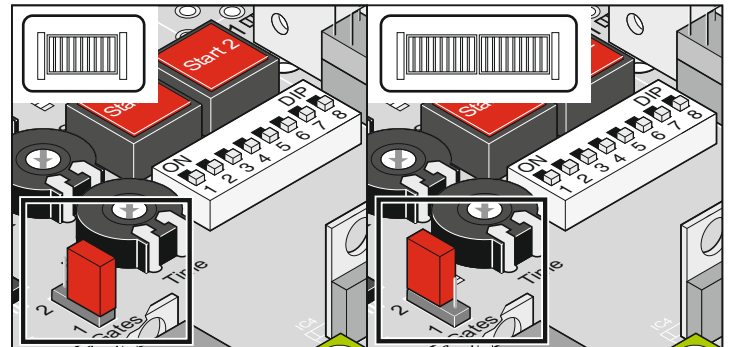
Double-leaf gate



4. Connect drive to control unit.
- First connect and adjust drive at the leaf with stop (M1), then install drive for pedestrian leaf (M2).



5. Set all DIP switches to OFF.

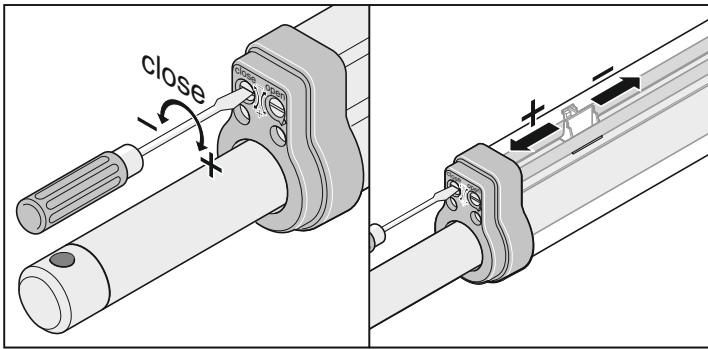


6. Set jumper: single-leaf or double-leaf gate
7. Connect control unit to power supply.
"POWER" LED illuminates and "Status" flashes.

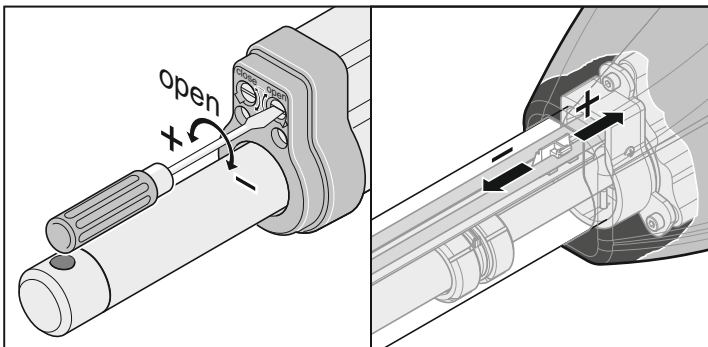
Installation

Limit switch settings

Gate CLOSE



Gate OPEN



Installation of fittings

i The strength of the supplied fittings has been specifically chosen to suit the supplied drive system (twist XL). The manufacturer shall not be held liable for damages, if fittings other than those supplied are used.

i If dimension B is smaller than the smallest value in the above table, install a spacer plate below the post fittings to ensure that dimension B is at least 160 mm.

- Prior to welding of fittings to posts or gate leaves, remove or cover the drive unit to prevent damage from sparks, etc.
- At solid stone and concrete posts, mount fittings in such a way that the plugs cannot loosen during operation. Instead of steel or plastic straddling dowels, we recommend using adhesive bond anchors that allow for the tension-free adhesion of the threaded pin in the post.
- Ensure that the distances between the gate leaf and the post, and the gate leaf and the drive system conform with the applicable standards.

Steel posts

Take into account wall thickness of post!

The fittings can be welded directly to the post or fixed by means of screws.

Stone and concrete posts

When mounting fittings onto stone posts, ensure that the boreholes for the screws are not too close to the edge of the post. The distance to be maintained may vary, depending on the dowel used. Please follow the instructions of the dowel producer.

! Do not carry out any more welding or grinding work after the fittings have been installed. The residue resulting from such work lead to accelerated corrosion at the fittings.

Installation

A/B dimension table (standard values)

i Prior to installation, define dimensions A/B. Without knowing these dimensions, it is not possible to properly install and operate the drive system. Select dimensions that allow for the desired opening angle.

The standard values in the table have been calculated on the basis of the following information:

1) Wind speed 25 m/s, 2) Gate height 3 m, 3) Gate filling 35% evenly distributed over the entire gate leaf, 4) no E-lock

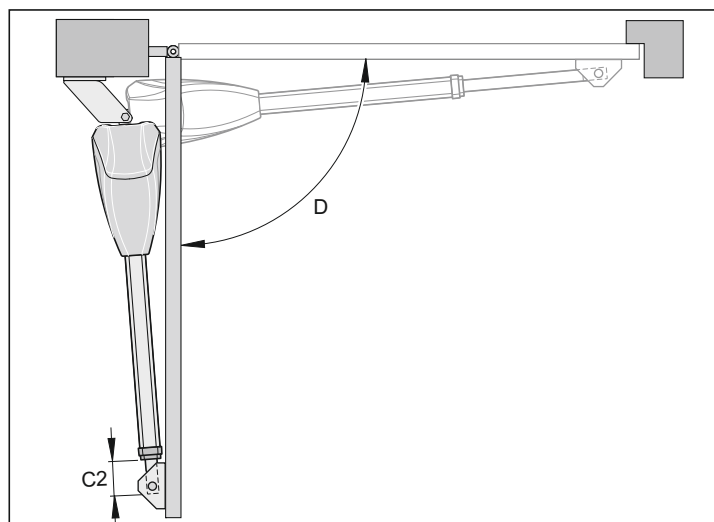
If these standard values are unsuitable for the planned gate system, please contact your specialist dealer. The dimensions (standard values) can be determined individually at any time.

- The greater dimension B, the more sensitive the power cut-off function.
- Pay attention to different post dimensions.

B	A													
	100		120		140		160		180		200		220	
	C D	C1 L	C D	C1 L	C D	C1 L	C D	C1 L	C D	C1 L	C D	C1 L	C D	C1 L
160	1208 92°	337 3.5												
180	1229 92°	359 4.0	1260 98°	390 4.0	1292 104°	422 4.0	1325 109°	455 4.0						
200	1250 92°	380 4.0	1280 97°	411 4.0	1312 103°	442 4.0	1344 107°	470 4.0	1377 112°	507 4.0	1389 106°	519 4.0	1390 99°	520 4.0
220	1272 92°	403 4.0	1302 97°	432 4.0	1332 102°	462 4.0	1363 106°	493 4.0	1389 107°	519 4.0	1390 98°	520 4.0		
240	1295 92°	425 4.5	1323 96°	453 4.5	1353 101°	483 4.5	1383 105°	513 4.5	1390 98°	520 4.5				
260	1317 91°	448 4.5	1345 96°	475 4.5	1374 100°	504 4.5								
280	1340 91°	471 4.5	1368 95°	498 4.5										
300	1363 91°	494 5.0	1390 95°	520 5.0										

Dimensions A, B, C, C1 in mm
D = maximum opening angle
L = max. gate leaf length in m
1 revolution = 1.25 mm setting step

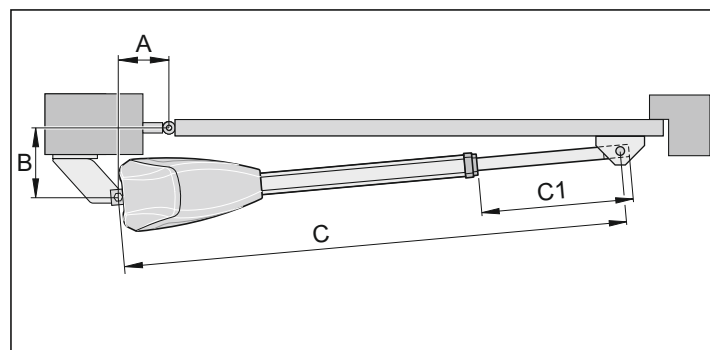
Adjustment of gate stop position "OPEN"



i Stop position for gate "OPEN": approx. C2 = 70 mm.

1. Press key (Start 1). Gate moves to end position gate "OPEN". Hold push rod to prevent it from rotating, as it would otherwise not be retracted.
2. When the end position is reached, measure dimension C2.
3. Set limit switch for gate "OPEN" to required dimension C2. Prior to adjusting the limit switch, move gate slightly in direction gate "CLOSE".
4. Press key (Start 1). Gate moves to end position gate "OPEN".
5. Repeat steps 1 to 4 until the desired value for dimension C2 is reached.

Adjustment of gate stop position "CLOSE"

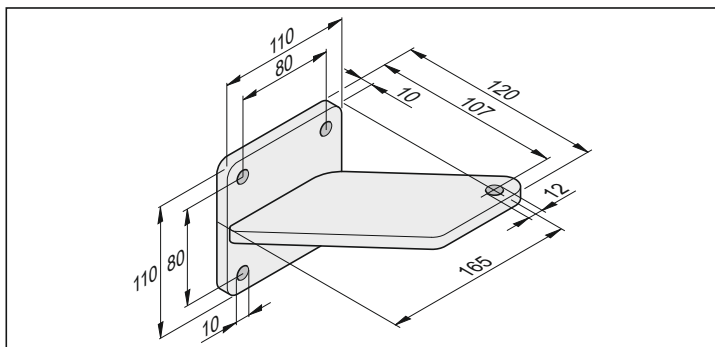


i Factory settings for gate "CLOSE": approx. C1 = 450 mm.

1. Press key (Start 1). Gate moves to end position gate "CLOSE". Hold push rod to prevent it from rotating, as it would otherwise not be retracted.
 2. When the end position is reached, measure dimension C1.
 3. Set limit switch for gate "CLOSE" to required dimension C1. Prior to adjusting the limit switch, move gate slightly in direction gate "OPEN".
 4. Press key (Start 1). Gate moves to end position gate "CLOSE".
 5. Repeat steps 1 to 4 until the desired value for dimension C1 is reached.
- ✓ After the end positions for gate "OPEN" and "CLOSE" have been adjusted, now mount the post fittings.

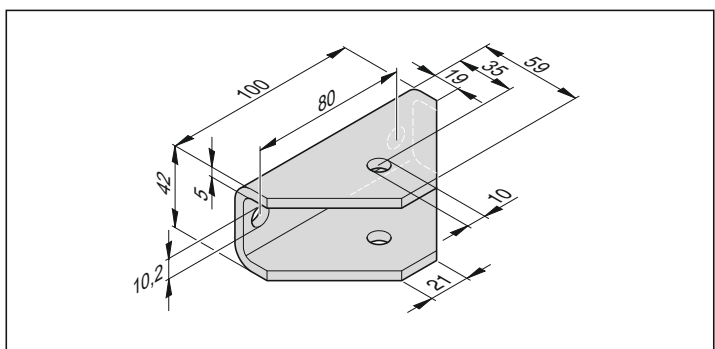
Installation

Post fittings



1. Minimum distance between ground and bottom edge of hinge plate at least 50mm. However, ensure that the drive can be properly mounted onto the gate leaf.
2. Tighten nut at screw, ensuring that the drive can still be easily moved.

Gate leaf fittings

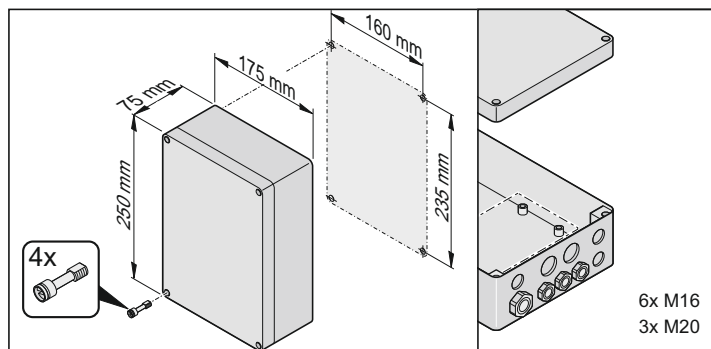


1. Close gate.
2. Mount hinge plate at the push rod of the drive. Insert screws but do not tighten.
3. Clamp the hinge plate to the gate leaf and complete a programming run to ensure that the limit switch settings are correct.
4. Check horizontal alignment of drive in 3 positions:
 - A. Gate "CLOSE"
 - B. Gate "OPEN"
 - C. Gate 45° open
5. Check position of hinge plate; if ok, secure hinge plate to leaf.
6. Tighten nut at screw, ensuring that the drive can still be easily moved.

Installation of control unit

! The power cable supplied with the control unit may only be used for the installation of the drive systems. After completion of the installation, disconnect the cable and replace it with a duct-laid cable. It is forbidden to use the supplied power cable for standard operation of the gate.

i Establish power connection according to EN 12453 (all-pole disconnecting switch).

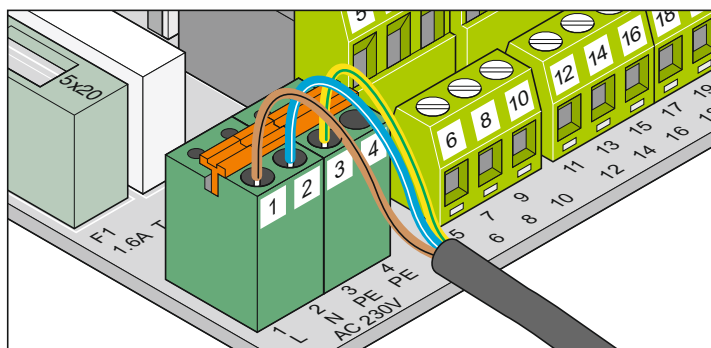


! **CAUTION: Risk of damage from water**
Penetrating water can destroy the control unit.
Only screw housing to provided attachment points, do not drill though the rear panel of the housing. This will make the housing leak, water will penetrate the housing and the control unit will be damaged.

- Prior to carrying out any work at the control unit, disconnect it from the power supply.
- If there is humidity inside the housing, dry it with a blower.
- The control unit may only be connected to the power supply by a qualified electrician.
- Install control unit in upright position (cable ducts at base) and without applying any strain. The cover must fully close to prevent water from penetrating the housing.
- The cable ducts are only permitted for 1.5 mm² to 2.5 mm² cables.
- Only screw housing to provided attachment points, do not drill though the rear panel of the housing. The housing will leak.

Connection to power supply (AC 230 V)

i Permissible cable cross-sections for all terminals:
0.5 mm² - 2.0 mm².



Terminal	Name	Function
1	L	AC 230 V power supply cable
2	N	Neutral conductor
3 + 4	PE	Protective earth conductor

The control unit must be connected to the power supply by a qualified electrician.

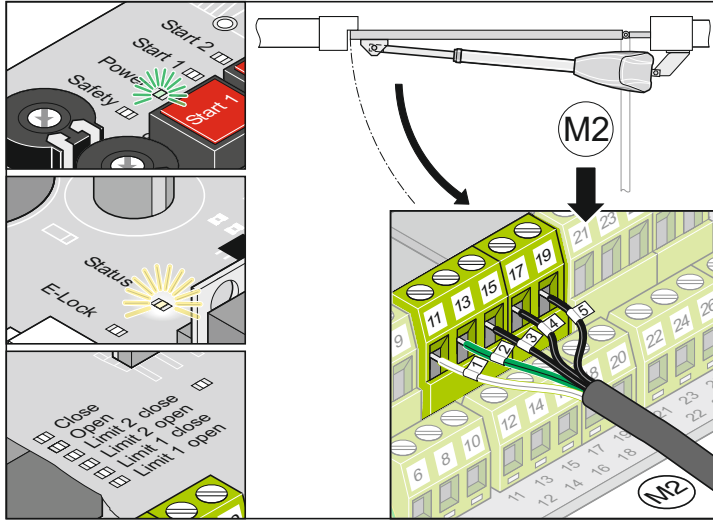
Installation

Connecting drive to control unit

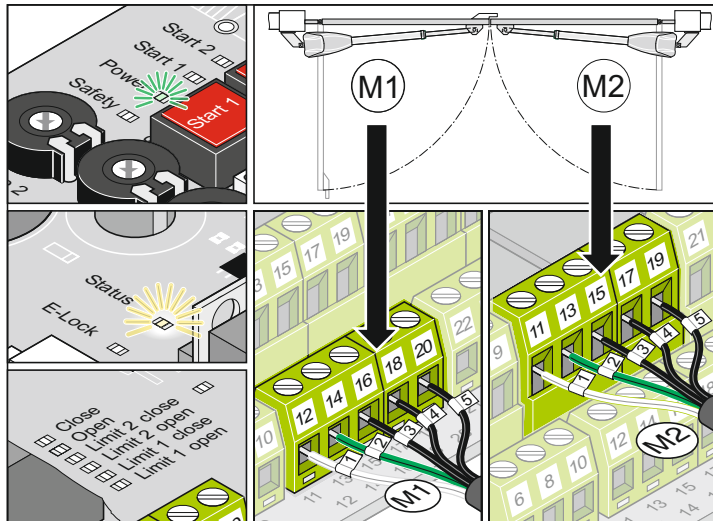
! Never connect the drive directly to the AC 230 V mains supply, as this could destroy the motor.

! **ATTENTION**
Only connect the drives if the control system is not powered and is secured against inadvertent activation.
The control unit only then correctly recognises the connected drives (type of limit switch).

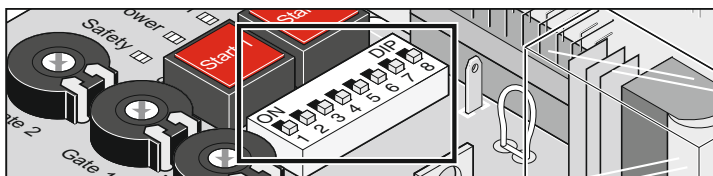
Single-leaf gate



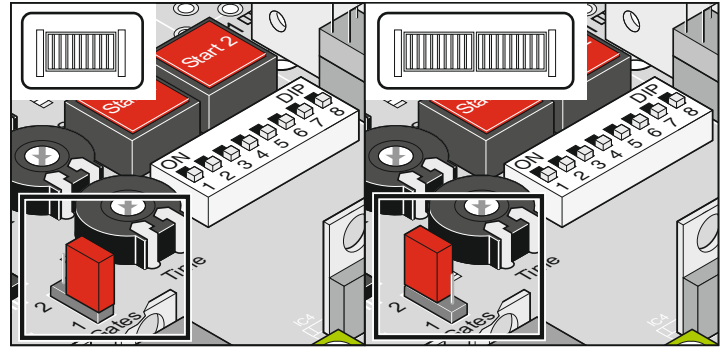
Double-leaf gate



1. Connecting drive to control unit
- First connect and adjust the drive at the leaf with stop (M1), then install the drive for pedestrian leaf (M2).

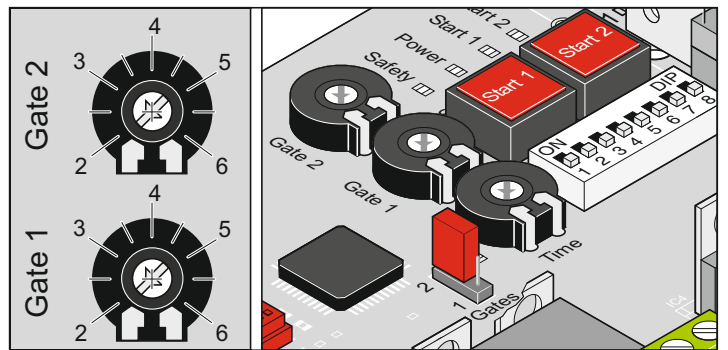


2. Set all DIP switches to OFF.



3. Set jumpers: single-leaf or double-leaf gate
4. Connect the control system to the power supply.
- "POWER" LED illuminates, "Status" LED flashes and all other LEDs are off.
- Limit switch LEDs (Limit 1 + 2 open, Limit 1 + 2 close) illuminated or off, depending on push rod position (projected or retracted).

Adjusting gate leaf length



The gate leaf length is adjusted at the control unit using the "Gate 1 (M1) + Gate 2 (M2)" potentiometers. On the basis of this setting, the running speed and the force tolerance are determined for the relevant leaf of the gate system.

- Setting 2 = Gate leaf length approx. 2 m (small gate -> high speed -> low force tolerance)
- Setting 5 = Gate leaf length approx. 5 m (large gate -> low speed -> high tolerance)
- Setting 6 = For compensating for the effects of dimensions A and B.

1 leaf gate system

1. Gate leaf length measurement, gate 2 (M2) (item B in figure on page 5)
2. Adjust gate 2 (M2) potentiometer accordingly.

2 leaf gate system

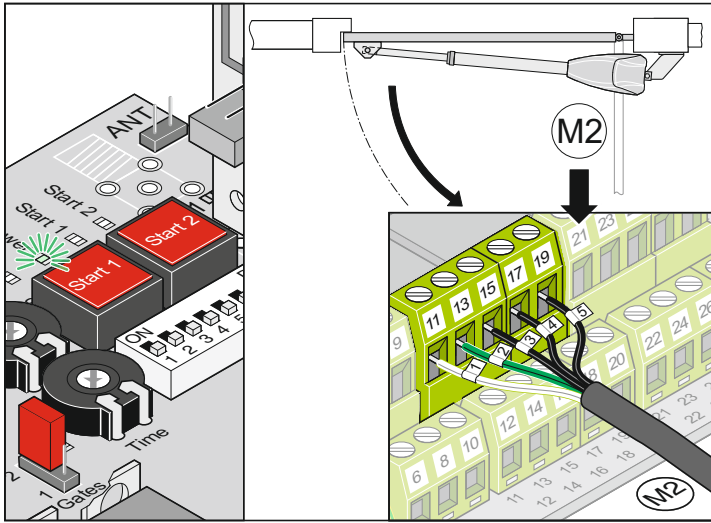
1. Gate leaf length measurement, gate 1 (M1) (item A in figure on page 5)
2. Adjust gate 1 (M1) potentiometer accordingly.
3. Gate leaf length measurement, gate 2 (M2) (item B in figure on page 5)
4. Adjust gate 2 (M2) potentiometer accordingly.

Installation

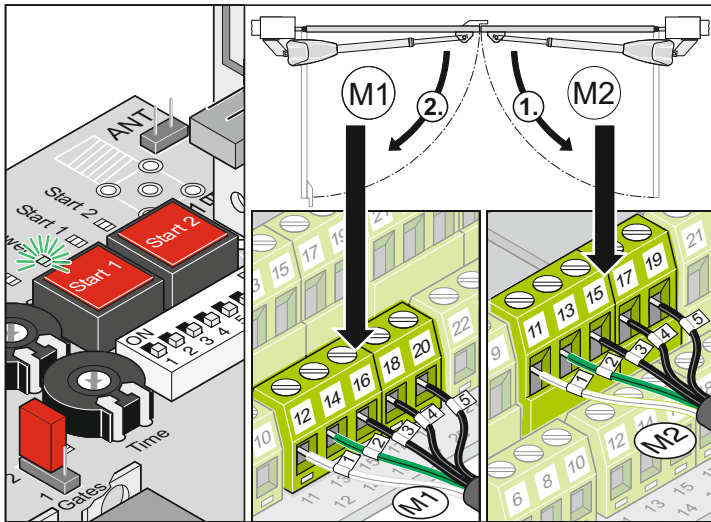
Checking direction of drive

- Upon the first command, the drives must move the gate in direction "OPEN". If the drive moves to door "CLOSE", switch the drive connecting cables at the control unit.

Single-leaf gate



Double-leaf gate

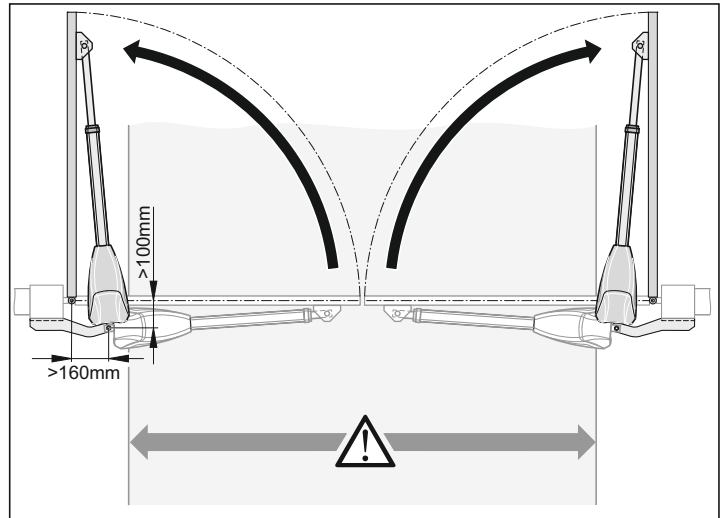


Terminal -> Cable no. Name Function

12 -> 1	Motor	2-leaf: Connection for motor-1: The motor must be at the gate leaf that opens second and which has a stop bar on the outside.
14 -> 2	Motor	
16 -> 3	Limit switch "Gate CLOSE"	
18 -> 4	Limit switch "Gate OPEN"	
20 -> 5	Earth limit switch	

11 -> 1	Motor	1-leaf: Connection for motor 2-leaf: Connection for motor-2: The motor must be at the gate leaf that opens first and which does not have a stop bar on the outside.
13 -> 2	Motor	
15 -> 3	Limit switch "Gate CLOSE"	
17 -> 4	Limit switch "Gate OPEN"	
19 -> 5	Earth limit switch	

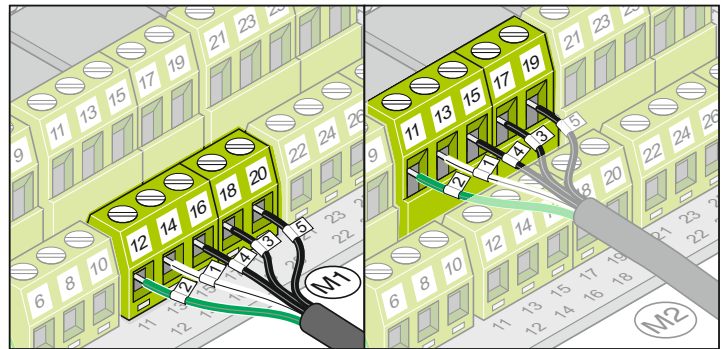
Gate opening outwards



- Caution!**
Depending on the installation, the clearance width is reduced by approx. 250 mm on each side as the drive units protrude into the clearance of the gate.
The A/B dimensions must be at least 100/160 mm.

- Install post fittings in such a way that they suit the dimensions of the post.

Connecting drive to control unit



Commissioning

General instructions

! After the drive system has been installed, the person responsible for the installation must complete an EU Declaration of Conformity according to Machine Directive 98/37/EU and attach a CE mark to the type plate of the drive.

This also applies in cases where the owner of the system is a private person, as well as to manually operated gates that have been upgraded with a drive. The above documents and the instructions for installation and operation must be handed over to the operator.

! The force settings are relevant for the system's safety and must therefore be adjusted with due care and attention. If the force tolerance is outside the permitted range, there is a serious risk of injury and damage.

Select the lowest possible force tolerance in order to ensure that obstacles are immediately and reliably detected.

! All programming runs must be supervised, as the drives operate at full force. Ensure that no persons or objects are located within the operating range of the gate.

- The "Status" LED and a connected warning lamp (accessories) flash as a visual warning during the programming run and when the equipment is stationary.
- During the commissioning runs, the force necessary to properly open and close the gate, the runtime and the delay upon closing are evaluated and stored by the control system.

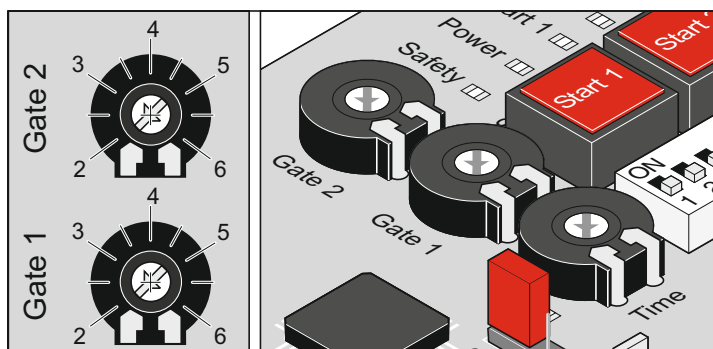
Preparation for standard operation

! **Attention: Risk of short circuit!**
Before adjusting the DIP switch settings, disconnect the control unit from power supply.

1. Select 1 or 2 leaf option, connect desired components and complete settings (see Functions and connections).
2. Connect control unit to power supply (AC 230 V) ("POWER" LED is on).
3. Tighten all screws at the fittings so that the drives can easily be moved.
4. Close gate.
5. Engage emergency release and secure with lock.

Adjusting gate leaf length

- Maximum force = programmed force + force tolerance (set using "Gate 1 (M1) / Gate 2 (M2)" potentiometer, depending on gate leaf length).
- Changes that are made to this setting after the drive has been programmed are not taken into consideration. First perform a control unit reset, adjust potentiometer and then repeat the programming run.



The gate leaf length is adjusted at the control unit using the "Gate 1 (M1) / Gate 2 (M2)" potentiometers. On the basis of this setting, the running speed and the force tolerance are determined for the relevant leaf of the gate system.

- Setting 2 = Gate leaf length approx. 2 m (small gate -> high speed -> low tolerance)
- Setting 5 = Gate leaf length approx. 5 m (large gate -> low speed -> high tolerance)
- Setting 6 = For compensating for the effects of dimensions A and B.

Activating standard operation

"Status" LED flashes, until the values for force, runtime and closing delay have been registered and stored.

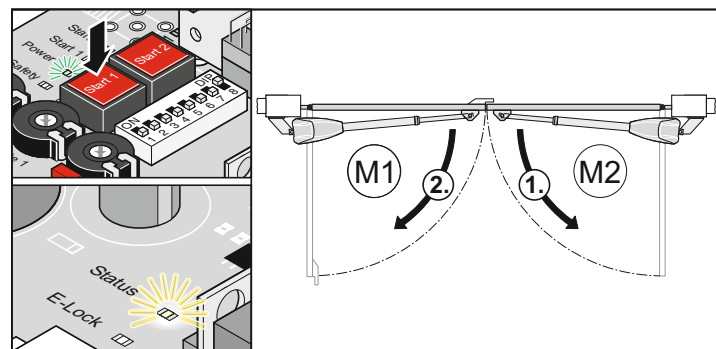
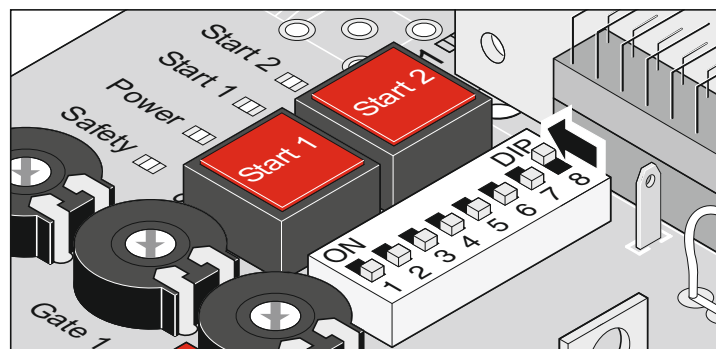
2 leaf gate!

Leaf 1 (M1 leaf with stop) is closed first, followed by leaf 2 (M2 pedestrian leaf). This prevents gates with different runtimes from closing in the wrong sequence.

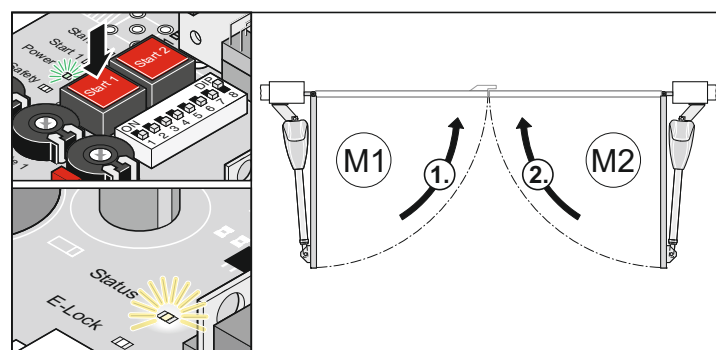
- Check limit switch settings. Open and close the door. If the drive switches off when an end position is reached, complete a teaching-in process.

i Set DIP switch 8 to ON and leave it in this setting.

Programming the operator (Complete procedure at least twice)



1. Press key (Start 1), drive moves to the gate "OPEN" end position
- The "POWER" LED and the "Status" LED flashes.



2. Press key (Start 1), drive moves to the gate "CLOSE" end position.
- The "POWER" LED illuminates and the "Status" LED flashes.
 3. Repeat steps 1 + 2.
- ✓ When the "Status" LED stops flashing, all values have been programmed and stored.

The gates are started and stopped using the "soft run" with the next command. During each opening and closing operation, the control unit checks the force, run time and closing delay, and adapts them in stages when the end position is reached.

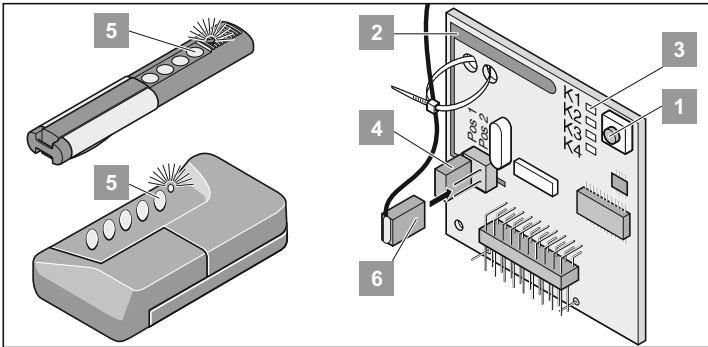
i If the programming run could not be properly completed (drives not in soft run mode, "Status" LED flashes), the control system should be reset (all stored values are deleted, see control reset).

Start a new programming run.

Commissioning

Programming the remote control device

i Prior to the initial programming of the remote control device, clear the memory of the radio receiver.



Clearing radio receiver memory

1. Press and hold down the programming key (1).
 - After 5 seconds, the LED begins to flash. After another 10 seconds, the LED is continuously on.
 - After 25 seconds, all LEDs are on.
2. Release programming key (1).
 - ✓ All LEDs off - the memory is cleared.

Programming the remote control device

Gate system with 1 leaf:

- Key 1 to radio channel 1

Gate system with 2 leaves:

- Key 1 to radio channel 1 (both leaves open)
- Key 2 to radio channel 2 (only the pedestrian leaf opens)
 1. Press programming key (1)
 - 1x for channel 1; LED (K1) is on
 - 2x for channel 2; LED (K2) is on
 - If no other code signal is transmitted within 10 seconds, the radio receiver switches to standard operation.
 - Aborting programming: repeatedly press programming key (1) until all LEDs are off.
 2. Press and hold the desired remote control key (5) until the LED is off.
 - LED is on, indicating the selected channel. The respective code is transmitted to the radio receiver.
- ✓ LED is off - the programming process is completed.

Check

Press key 2. The pedestrian gate leaf opens.

Press key 1. Both leaves open.

"Teaching" additional remote control devices. Repeat the above steps.

Max. 112 different radio codes (remote control keys) can be stored in the radio receiver.

Operation

Safety instructions

- Never operate the drive if you suspect that it might be faulty or damaged.
- Before opening or closing the gate, ensure that no persons, especially children, animals or objects are within the opening range of the gate.
- Never use remote control device at locations where it might interfere with other important radio systems (e.g. airports, hospitals).
- Only operate the gate with the remote control when you have full view of the gate.
- Keep the remote control device out of reach of children or animals and prevent any inadvertent use.
- Use remote control device only if the force tolerance is set to a permitted value. Select the lowest possible force tolerance to reduce the risk of injury.

Standard operation

Damage to the gate, humidity, subsidence, extreme temperature, etc. may affect the force that is required to open and close the gate.

If the force required to open or close the gate is increased within the tolerance range set at the potentiometer, the force settings are automatically adjusted accordingly. In the same way, the drive adjusts the settings, if less force is required.

If the force required to open or close the gate exceeds the permitted force tolerance (e.g. because of an obstacle), the drive stops and moves a little way in the opposite direction. This is known as a force cut-off with reversal and is for safety purposes.

Obstacle detection



A prerequisite for obstacle detection is a correctly performed programming run.

If the moving gate leaf touches an obstacle, it is identified as such. Depending on the actual movement and DIP switch settings, the gate leaf responds in different ways. The next gate movement is always away from the obstacle.

Operation in summer/winter

Due to the temperature variations between summer and winter, the forces required for opening and closing the gate might vary considerably. If the gate cannot be opened or closed, reset the control system and complete a programming run.

The temperature difference might also affect the end position of the leaves. If necessary, adjust positions at the limit switch.

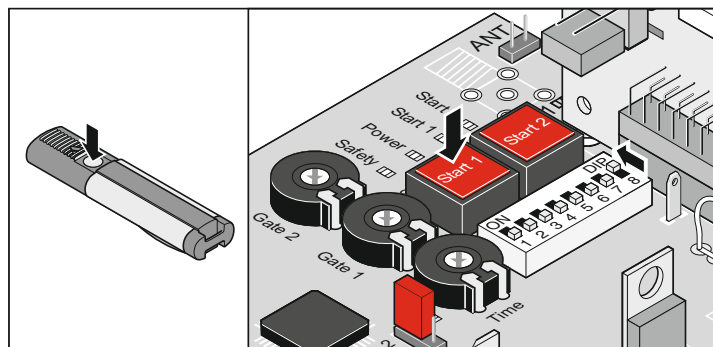
Intermediate stop

2 leaf gate system

Open the gate leaf using the pulse command and issue a stop command shortly after. If gate leaf 1 has not yet opened, the open pedestrian gate leaf can only be closed using the pedestrian gate command.

Opening and closing gate

- **DIP switch 8 set to ON and programming run completed.**
- **Remote control programmed (key 1 to channel K1, key 2 to channel K2).**



Procedure for 1-leaf gates

1. Press key (Start 1) or remote control key (Key 1).
2. Gate opens until end position "OPEN" is reached.
 - LEDs "OPEN" + "Status" are on.
 - After end position "OPEN", "Open + Status" LEDs switch off.

Procedure for 2-leaf gates - operation of both leaves

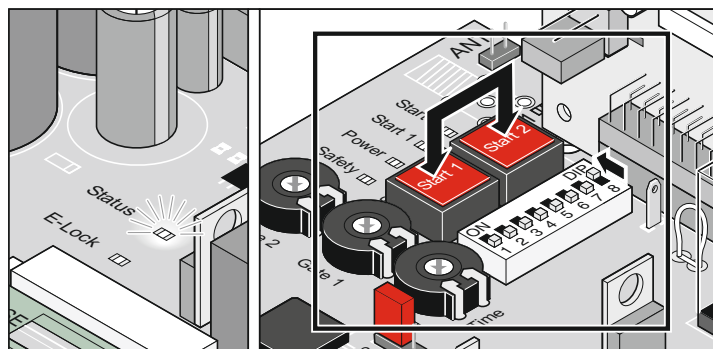
1. Press key (Start 1) or remote control key (Key 1).
 - Leaf 2 (M2/pedestrian leaf) opens first. After 3 seconds, leaf 1 (M1) opens - LEDs "OPEN + Status" are on.
 - After end position "OPEN", "OPEN + Status" LEDs switch off.
2. Press key (Start 1) or hand-held transmitter key (Key 1).
 - Leaf 1 (M1) closes first. After 5 seconds, leaf 2 (M2/pedestrian leaf) closes - LEDs "Close + Status" are on.
 - After end position "CLOSE", "Close + Status" LEDs switch off.

Procedure for 2-leaf gates - operation of pedestrian gate

1. Press key (Start 2) or remote control key (Key 2).
 - Leaf opens until end position "OPEN" is reached - LEDs "Open + Status" are on.
 - After end position "OPEN", "OPEN + Status" LEDs switch off.
2. Press key (Start 2) or remote control key (Key 2).
 - Gate closes until end position "CLOSE" is reached - LEDs "Close + Status" are on.
 - After limit position "CLOSE", "Close + Status" LEDs switch off.

Resetting control

The control unit reset deletes all programmed values (e.g. force values: drive force required to open or close gate, closing delay). Under certain circumstances, it might be necessary to delete all stored values and reprogram the system.



1. Press keys (Start 1 + Start 2) and hold until "Status" LED begins to flash.
2. LED "Status" is off - all data is deleted. Release keys.
3. LED "Status" flashes.
4. Complete programming run, see chapter "Activating standard operation".

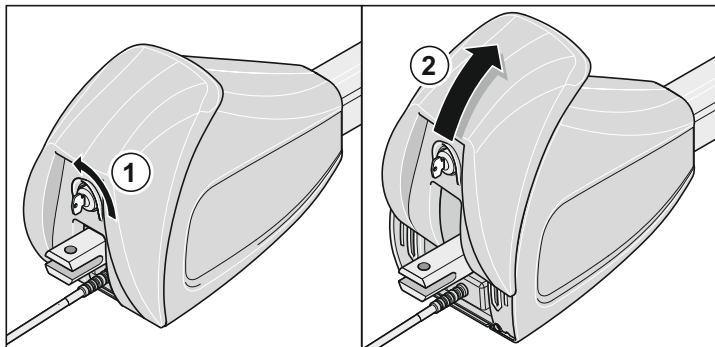
Operation

Emergency release in the event of a power failure

⚠ This procedure should only be applied if the control system is not powered and is secured against inadvertent activation.

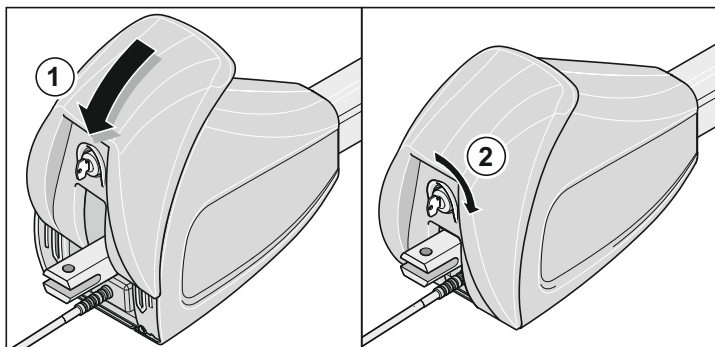
In the event of a power failure, the gate can be manually opened or closed, irrespective of its initial position.

Releasing the drive system



1. Turn key (1) 90° anticlockwise and remove.
2. Pull emergency release handle (2) as far as it will go, motor is released.

Engaging the drive system



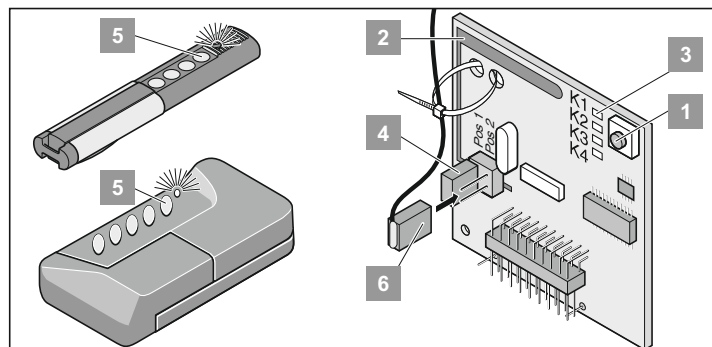
1. Complete above steps in reverse order.

Radio receiver

Safety instructions

- The operator of this radio-controlled equipment is not in any way protected against interference from other telecommunications systems and facilities (e.g. other radio-controlled equipment that is licensed to operate at the same frequency range).
- In the event of poor reception, replace the battery of the remote control.

Display and keys



- 1 Programming key
- 2 Internal aerial
- 3 LEDs: indicate the selected channel.
K1 = radio channel 1 -> same function as "Start 1" key
K2 = radio channel 2 -> same function as "Start 2" key
! K3 = radio channel 3 -> no function assigned
! K4 = radio channel 4 -> no function assigned
- 4 Connection for external aerial (6)
If the internal aerial does not have the necessary reach, connect an external aerial to the device. For details, see accessories.
- 5 Remote control key
- 6 External aerial

Programming the remote control device

i Prior to the initial programming of the remote control devices, clear the memory of the radio receiver.

1. Press programming key (1)
once for channel 1; LED (K1) is on
twice for channel 2; LED (K2) is on
- If no code is transmitted within the next 10 seconds, the radio receiver is reset to standard mode.
- Aborting programming: repeatedly press programming key (1) until all LEDs are off.
2. Press and hold the desired remote control key (5) until the LED is off.
- LED is on, indicating the selected channel. The respective code is transmitted to the radio receiver.
✓ LED is off - the programming process is completed.

"Teaching" additional remote control devices. Repeat steps described above. Max. number of memory blocks available is 112.

Operation

Cancelling remote controller button from radio receiver

If, for instance, a user of a parking facility is moving house and wishes to keep his remote control device, all radio codes for this device must be deleted from the receiver.

i For reasons of safety, we recommend deleting every single key and possible key combination!

1. Press programming key (1) and hold for 5 seconds until one of the LEDs is flashing.
 2. Release programming key (1) - the radio receiver is not in delete mode.
 3. Press the remote control key whose radio code is to be deleted from the radio receiver. The LED is switched off. The deletion process is complete
- ✓ LED is off - the deletion process is completed.

Deleting all radio codes of a channel

1. Press and hold down the programming key (1).
 - 1x for channel 1; LED (K1) is on.
 - 2x for channel 2; LED (K2) is on.
 - LED is on, depending on which channel has been selected.
 - After 5 seconds the LED starts to flash and then after an additional 10 seconds is continuously illuminated.
2. Release programming key (1) - the deletion process is completed.

Clearing radio receiver memory

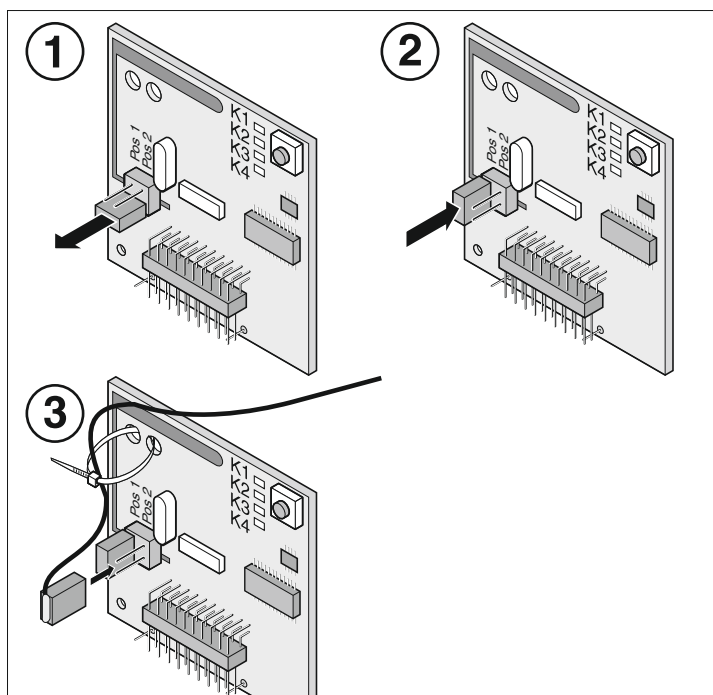
If a remote control transmitter is lost, for security reasons the radio receiver must be cleared!

All remote control devices must subsequently be programmed again.

1. Press and hold down the programming key (1).
 - After 5 seconds, the LED begins to flash. After another 10 seconds, the LED is continuously on.
 - After 25 seconds, all LEDs are on.
 2. Release the 'Program' button (1).
- ✓ All LEDs are off - the memory is cleared.

Connecting external aerials

- Ensure that the aerial cable is laid in such a way that there is no physical impact to the radio transmitter. Install tension protection, if necessary.



Troubleshooting

All LEDs are flashing:

Attempt to assign more than 112 memory blocks to the radio receiver. If you wish to program additional remote control devices, first disable other remote control devices to free up memory blocks

LED is on:

- Programming mode: the radio receiver is waiting for a signal from a remote control device.
- Radio receiver is receiving a signal from a remote control device.

Functions and connections

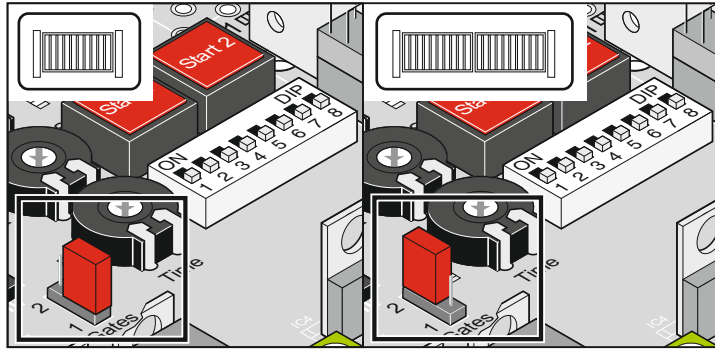
Safety instructions

- Permissible cable cross-sections for all terminals: max. 0.5 mm² to 2.0 mm².
- 10 m max. cable length for terminals:
5 + 6, 7 + 8, 9 + 10, 35 + 36
- 30 m max. cable length for terminals:
21 + 22, 23 + 24, 25 + 26, 27 + 28, 29 + 30, 31 + 32, 33 + 34,

Jumper

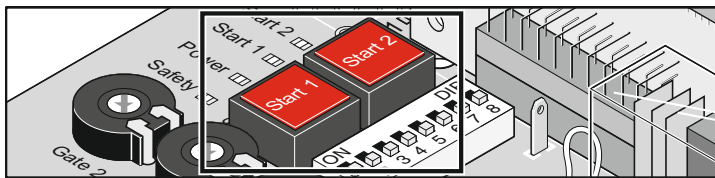
Selection of gate system (single-leaf or double-leaf)

i After changing the jumper settings, reset the control system and perform a new programming run.



Label	Function
Gates 1 / 2	Jumper on the upper pins = 2-leaf Jumper on the lower pins or not connected = 1-leaf

Control panel keys



Label	Function
Start 1	Pulse key: opens both gate leaves Operating the key while the pedestrian gate leaf is in motion stops the pedestrian gate. If the pedestrian gate is open, the key also opens gate leaf 1. Function sequence: open - stop - close - stop - open ...
Start 2	Pedestrian gate key: only opens the pedestrian gate Operating the key only opens the pedestrian gate if it is a 2-leaf gate. In gate systems with an outer stop bar, the pedestrian gate is always the first gate leaf to open. Function sequence: open - stop - close - stop - open ...



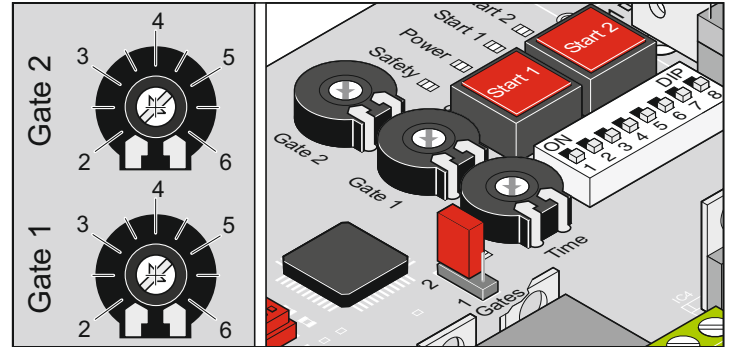
Key (Start 2) only functions if gate leaf 1 is completely closed.

Control reset:

To reset the control unit to its initial state (RESET), hold down both keys at the same time for 5 seconds - until LED (Status) is off.

Potentiometer for gate leaf length

- Maximum force = programmed force + force tolerance (set using "Gate 1 (M1) / Gate 2 (M2)" potentiometer depending on gate leaf length).
- Changes that are made to this setting after the drive has been programmed are not taken into consideration. First perform a control unit reset, adjust potentiometer and then repeat programming run.

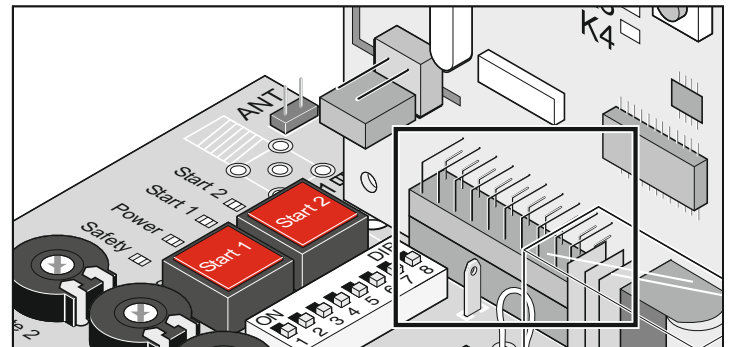


The gate leaf length is adjusted at the control unit using the "Gate 1 (M1) / Gate 2 (M2)" potentiometers. On the basis of this setting, the running speed and the force tolerance are determined for the relevant leaf of the gate system.

- Setting 2 = gate leaf length approx. 2 m (small gate -> high speed -> low tolerance)
- Setting 5 = gate leaf length approx. 5 m (large gate -> low speed -> high tolerance)
- Setting 6 = For compensating for the effects of dimensions A and B.

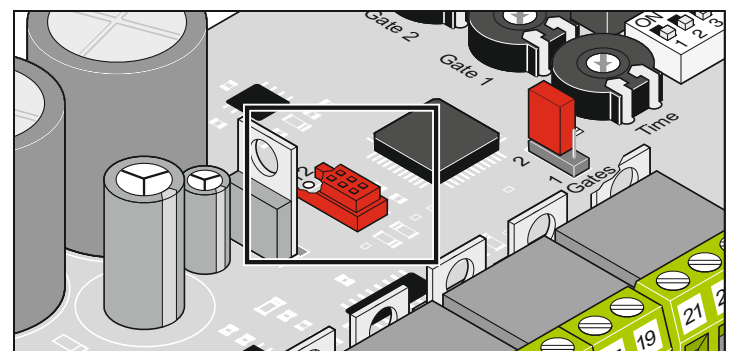
Radio remote transmission slot

This is where the radio receiver is plugged in. It is installed prior to delivery.



TorMinal interface

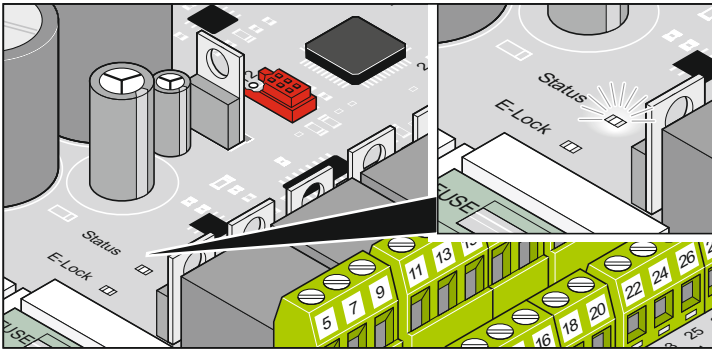
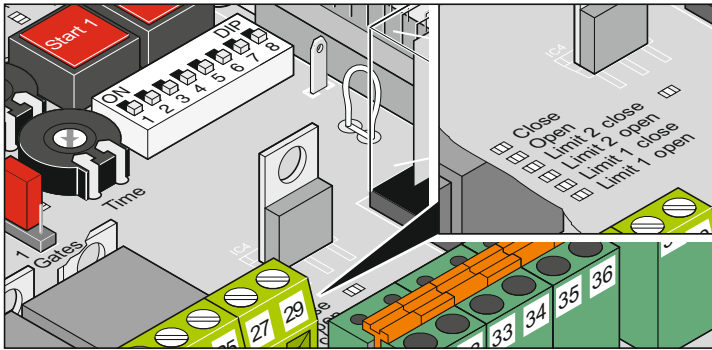
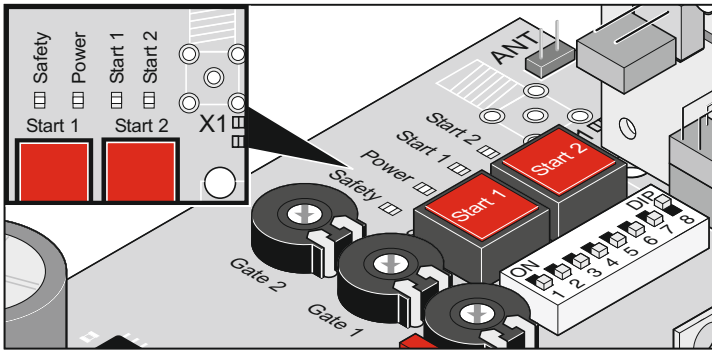
See TorMinal operating manual



Functions and connections

LEDs

The LEDs indicate the control system status.



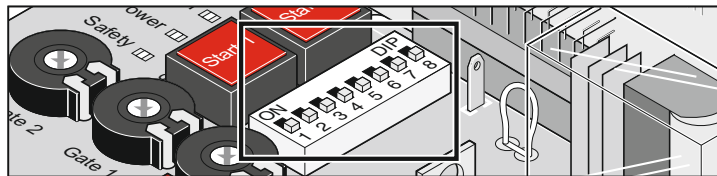
Label	Colour	Function
Safety	red	off = Idle
		on = Safety connection interrupted (e.g.: light barrier activated).
Power	green	off = No power supply to control unit
		on = Control unit power supply present.
<p>! If both LEDs illuminate (Limit 2 close/open or Limit 1 close/open), there is either no motor or a twist 200 E (Not permitted!) connected.</p>		
Start 1	yellow	off = Idle
		on = Start 1/radio channel 1 key pressed.
Start 2	yellow	off = Idle
		on = Start 2/radio channel 2 key pressed.
Close	yellow	off = Idle
		on = Gate closing
Open	yellow	off = Idle
		on = Gate opening
<p>i If both LEDs are lit (Limit 2 close/open or Limit 1 close/open), either a twist 200 E is connected or no motor is connected.</p>		
Limit 2 close (CLOSE) (M2)	red	on = - Limit switch gate CLOSE activated - Twist 200 E connected - No motor connected
		off = Idle
Limit 2 open (OPEN) (M2)	red	on = - Limit switch gate OPEN activated - Twist 200 E connected - No motor connected
		off = Idle
Limit 1 close (CLOSE) (M1)	red	on = - Limit switch gate CLOSE activated - Twist 200 E connected - No motor connected
		off = Idle
Limit 1 open (OPEN) (M1)	red	on = - Limit switch gate OPEN activated - Twist 200 E connected - No motor connected
		off = Idle
E-Lock	yellow	off = Idle
		on = E-lock operated
Status	yellow	off = Idle, with programmed force values.
		flash = Test mode, where DIP switch 8 is set to OFF. - When programming the drive (also in idle state), whereby DIP switch 8 is ON. - During every gate movement, gate OPEN or CLOSE.
		on = Setting only possible with TorMinal. Same behaviour as flashing, but warning lamp comes on.

Functions and connections

DIP switches


 Prior to adjusting the DIP switch settings, disconnect the control unit from the power supply.

Factory settings: OFF




Switch	Function in OFF position	Function in ON position
1	No response to safety connection activation with gate OPEN.	Gate stops if safety connection activated (terminals 33 + 34) with gate OPEN.
2	Safety connection (terminals 33 + 34) set to break contact.	Safety connection (terminals 33 + 34) set to 2-wire light barrier.
3	Brief reversal if a signal is received at the safety connection (terminals 33 + 34) with gate CLOSE.	Gate opens all the way when a signal is received at the safety connection (terminals 33 + 34) with gate CLOSE. DIP 1 ON and safety connection interrupted: the gate reverses and stops.
4	Relay contact (terminals 37 + 38) is a time relay*.	Relay contact (terminals 37 + 38) is a status display, see DIP 6 for further information.
5	Early warning time OFF	Early warning time approx. 3 seconds. Warning lamp flashes before gate starts.
6	Only if DIP 4 ON! Status display via relay contact (terminals 37 + 38): Gate open -> open Gate closed -> closed	Only if DIP 4 ON! Status display via relay contact (terminals 37 + 38): Gate open -> closed Gate closed -> open
7	No function assigned	Gate closes 5 seconds after the light barrier has been activated, e.g.: after a car has passed through.
8	Test mode: Drive can operate without force values being programmed. Setting for adjusting the limit switch.	Standard mode: - After moving from OFF to ON, drive is programmed with the force values, run time and closing delay for opening and closing. - Gate opens or closes.

 Operate the gate only with full view of the gate's operating range.

 After programming, leave DIP switch 8 in position ON.

* For additional settings see TorMinal operating manual.

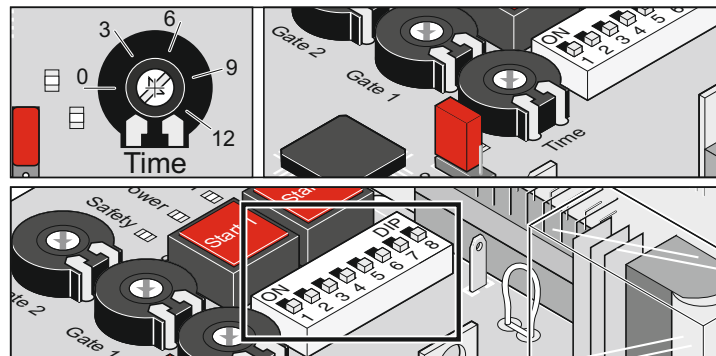
Automatic close mode

 For operation with automatic close mode, comply with EN 12453 (e.g. installation of light barrier).

The gate closes automatically after the time for GATE OPEN set at the potentiometer has lapsed. The gate can only be opened by means of a command issued via a push-button or remote control. When the gate is opening, no command issued can stop it from doing so.

Automatic closing is activated as soon as the gate OPEN end position is reached, from which point the GATE OPEN timer starts to run.

When it is closing automatically and a further command is given, the gate opens fully. If a command is issued during the GATE OPEN period, this period is restarted.



The GATE OPEN time can be adjusted using the potentiometer (Time):

- Time adjustable between 2 and 120 seconds
- Off → left stop

Drive system behaviour when a signal is received at the safety connection

Gate OPEN:
Drive behaves according to the settings of DIP switch 1.


Gate CLOSE:
Drive behaves according to the settings of DIP switch 3.

Automatic close mode, option 1

Settings:

- Set potentiometer to the desired time (2 to 120 seconds)
- DIP switch 7 OFF
- DIP switch 8 ON
- Other DIP switches set as required

Automatic close mode + light barrier, option 2

 This option allows for the manual interruption of the automatic closing motion.

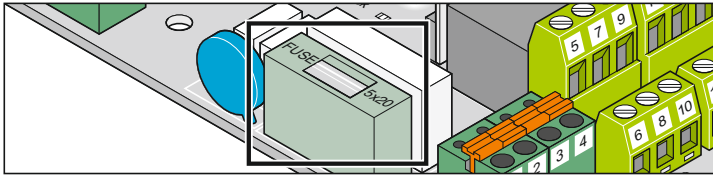
Similar to the option described above; the gate is, however, automatically closed 5 seconds after the light barrier has been triggered.

Settings:

- Set potentiometer to the desired time (2 to 120 seconds)
- DIP switch 7 ON
- DIP switch 8 ON
- Other DIP switches set as required

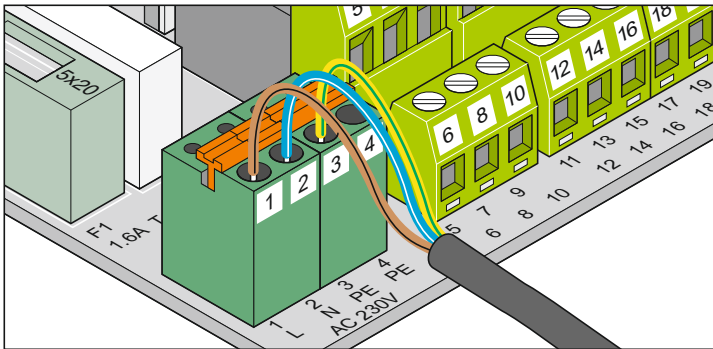
Functions and connections

Fuses



Label	Capacity	Function
F1	1.6 A, slow	AC 230 V power supply cable

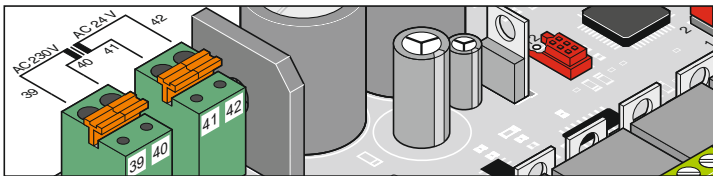
Connection to power supply (AC 230 V)



Terminal	Name	Function
1	L	AC 230 V power supply cable
2	N	Neutral conductor
3 + 4	PE	Protective earth conductor

The control unit must be connected to the power supply by a qualified electrician.

Connection of transformer

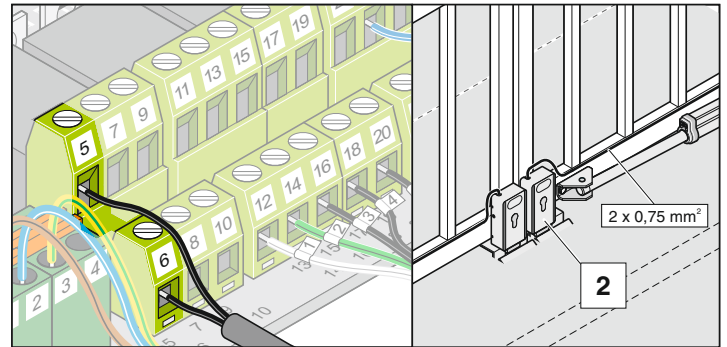


Terminal	Name	Function
39 + 40	AC 230 V	Power cable (primary winding), brown
41 + 42	AC 24 V	Output (secondary winding): Control unit supply cable, white

Connecting electric lock 2

Available as optional accessories.

Electric lock 2 must be fitted to the pedestrian gate B (M2).



Terminal	Name	Function
5	Earth	Connection for DC 24 V electric lock, limited to 2 A with max. output of 24 W.
6	DC 24 V	

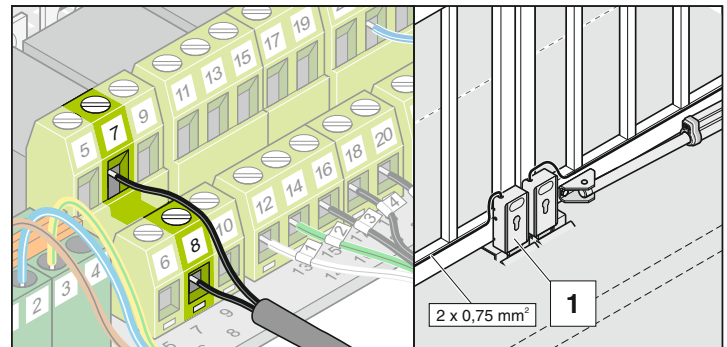


Rectified, not stabilised transformer voltage, which may fluctuate between DC 22 V and DC 32 V under full load.

Connecting electric lock 1

Available as optional accessories.

Electric lock 1 must be fitted to the pedestrian gate (M1).



Terminal	Name	Function
7	Earth	Connection for DC 24 V electric lock, limited to 2 A with max. output of 24 W.
8	DC 24 V	

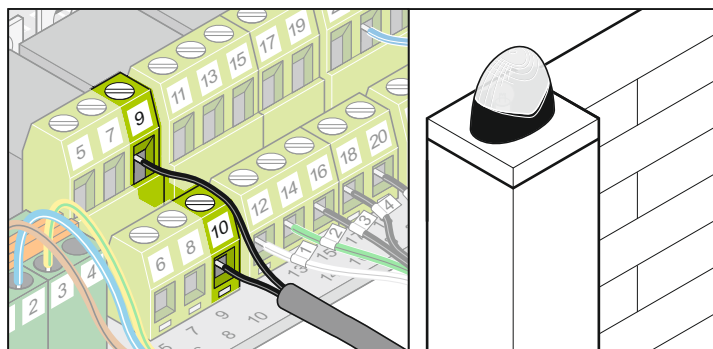


Rectified, not stabilised transformer voltage, which may fluctuate between DC 22 V and DC 32 V under full load.

Functions and connections

Connecting warning lamp

Available as optional accessories.



For function settings, see DIP switches 4 + 5

Terminal	Name	Function
9	Earth	Connection for DC 24 V warning lamp, limited to 1 A at max. output of 24 W.
10	DC 24 V	



Rectified, not stabilised transformer voltage, which may fluctuate between DC 22 V and DC 32 V under full load.

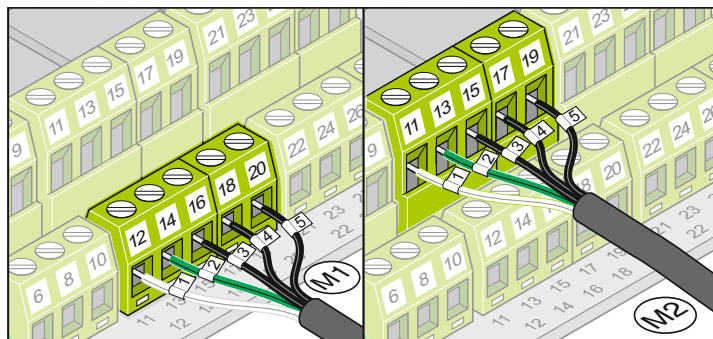
Connecting drives



ATTENTION

Only connect the drives if the control unit is not powered and is secured against inadvertent activation.

The control unit only then correctly recognises the connected drives (type of limit switch).



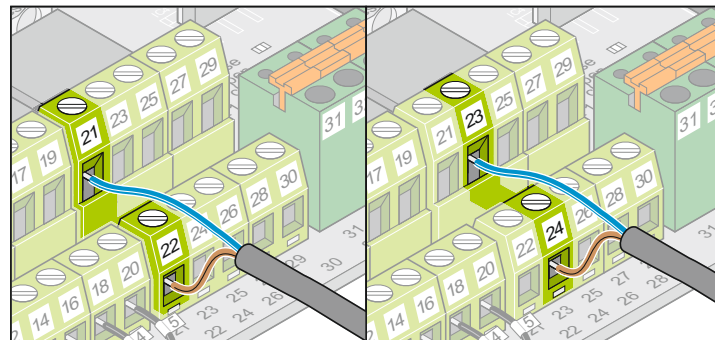
Terminal ->
Cable no.

Name

Function

12 -> 1	Motor	2-leaf: connection for motor-1: The motor must be on the gate leaf that opens second and which has a stop bar on the outside.
14 -> 2	Motor	
16 -> 3	Limit switch "Gate CLOSE"	
18 -> 4	Limit switch "Gate OPEN"	2-leaf: connection for motor-2: The motor must be at the gate leaf that opens first and which does not have a stop bar on the outside.
20 -> 5	Earth limit switch	
11 -> 1	Motor	1-leaf: connection for motor
13 -> 2	Motor	
15 -> 3	Limit switch "Gate CLOSE"	2-leaf: connection for motor-2: The motor must be at the gate leaf that opens first and which does not have a stop bar on the outside.
17 -> 4	Limit switch "Gate OPEN"	
19 -> 5	Earth limit switch	

Connecting keys



Terminal

Name

Function

21	Earth	Pulser connection for operating one or both gate leaves.
22	Signal	
23	Earth	Pulser connection for operating gate leaf 2/pedestrian gate.
24	Signal	



Use the contact only for potential-free normally closed contacts. External voltage may damage or destroy the control unit.

A 2-contact key is only required for double-leaf gates and if the pedestrian gate function is to be used.

The keys (Start 1 + 2) have the same functionality with a 1-leaf gate system.

Connection key 1-contact:

single-leaf gate system, key to terminals 21 + 22 or 23 + 24

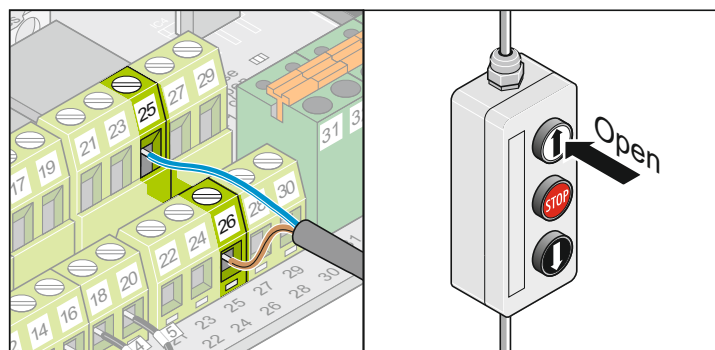
double-leaf gate system, key to terminals 21 + 22

Connection key 2-contact

Pedestrian gate terminals 23 + 24

Both leaf terminals 21 + 22

Connecting keys (gate OPEN)



Terminal

Name

Function

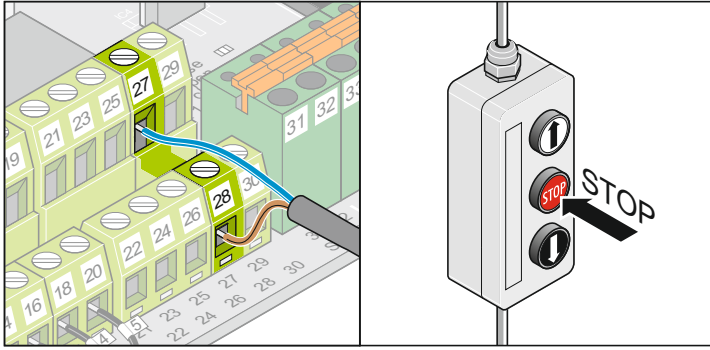
25	Earth	Pulser connection for operating one or both gate leaves, only with gate OPEN.
26	Signal	



Use the contact only for potential-free normally closed contacts. External voltage may damage or destroy the control unit.

Functions and connections

Connecting keys (gate STOP)



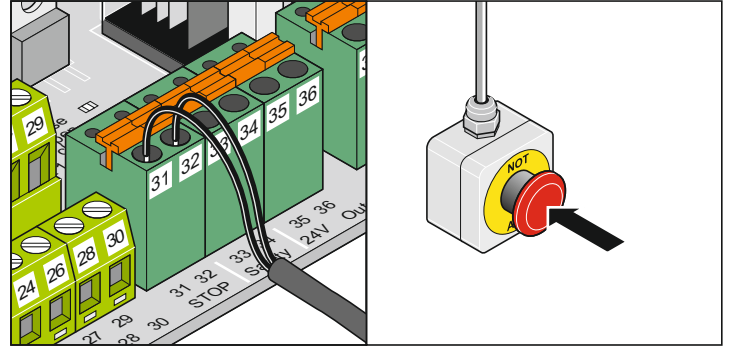
Remove wire bridge before connecting.

Terminal	Name	Function
27	Earth	Pulsar connection for operating one or both gate leaves, only gate STOP.
28	Signal	



Only use the connection for N.C. contacts. External voltage can damage or destroy the control unit.

Connecting the EMERGENCY STOP key



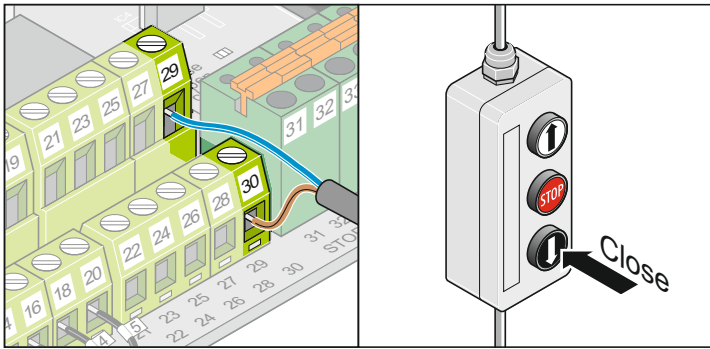
Remove wire bridge before connecting.

Terminal	Name	Function
31	Earth	EMERGENCY STOP interrupts all control unit functions, including dead man operation.
32	Signal	



Only use the connection for N.C. contacts. External voltage can damage or destroy the control unit.

Connecting keys (gate CLOSE)



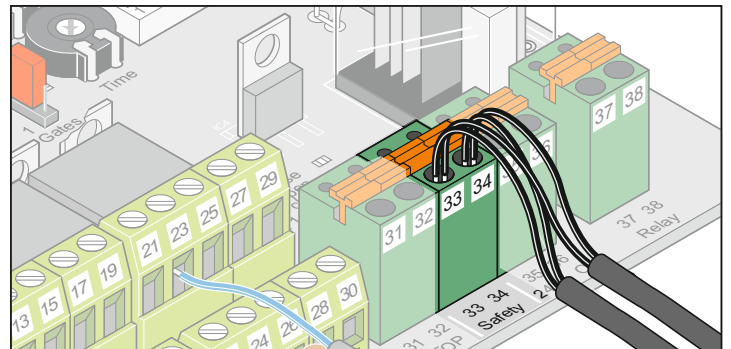
Terminal	Name	Function
29	Earth	Pulsar connection for operating one or both gate leaves, only with gate CLOSE.
30	Signal	



Use the contact only for potential-free normally closed contacts. External voltage may damage or destroy the control unit.

Connecting the 2-wire light barrier

Available as optional accessories.



DIP switch 2 ON

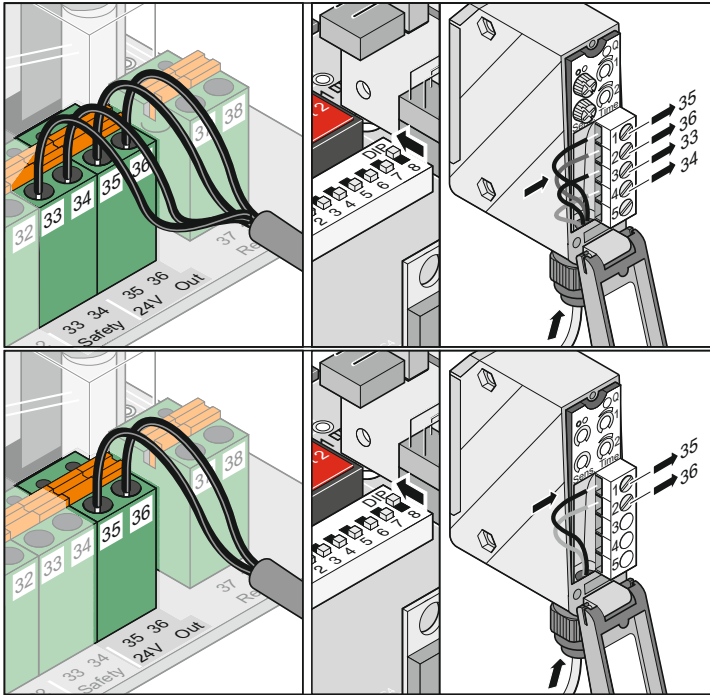
Remove the wire bridge before connecting.

Terminal	Name	Function
33 + 34		2-wire light barrier connection (with polarity reversal protection) If connection is not used, fit bridge between terminals (factory settings) and DIP switch 2 must be OFF.

Functions and connections

Connecting safety devices

As-delivered condition: Bridge between terminals 33 + 34.



i For operation with automatic close mode, comply with EN 12453 (e.g. installation of light barrier).

DIP switch 2 OFF

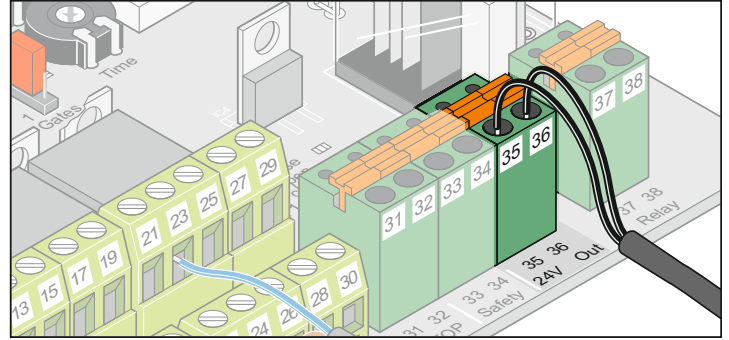
Remove the wire bridge before connecting.

Terminal	Name	Function
33	Earth	Safety device connection, e.g. - Light barrier - Safety contact bank only possible with additional evaluation unit.
34	Signal	
Contact must be closed if safety equipment has not been activated. If connection is not used, fit bridge between terminals (factory settings).		
35	DC 24 V	DC 24 V output, max. 100 mA
36	0 V (earth)	



Use the contact only for potential-free normally open contacts. External voltage may damage or destroy the control unit.

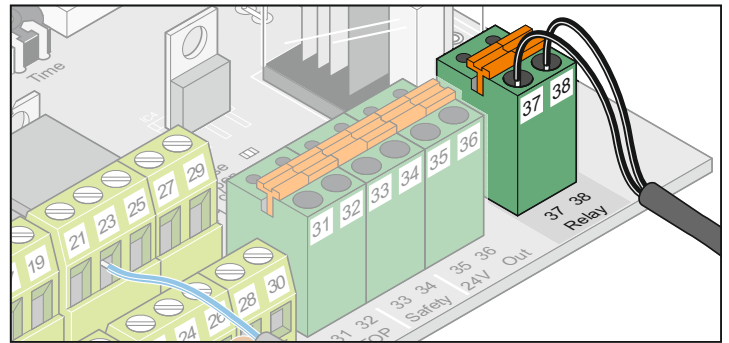
Connecting external device



Terminal	Name	Function
35	DC 24 V	DC 24 V output, max. 100 mA
36	0 V (earth)	

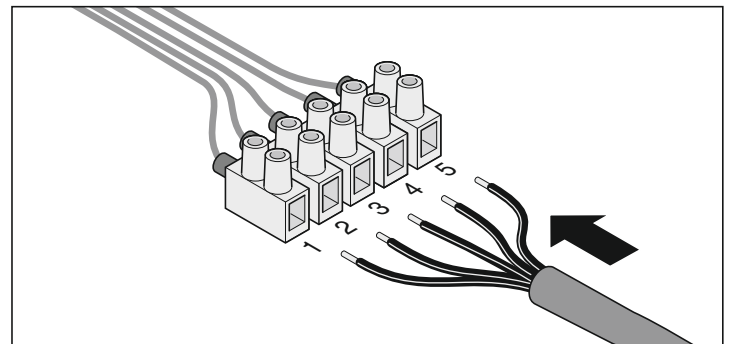
! Rectified, not stabilised transformer voltage, which may fluctuate between DC 22 V and DC 25 V under full load.

Potential-free relay contact



Terminal	Name	Function
37 + 38	Relay	Connection for e.g. light max. 8 A, 230 V with ohmic load

Motor connecting terminal



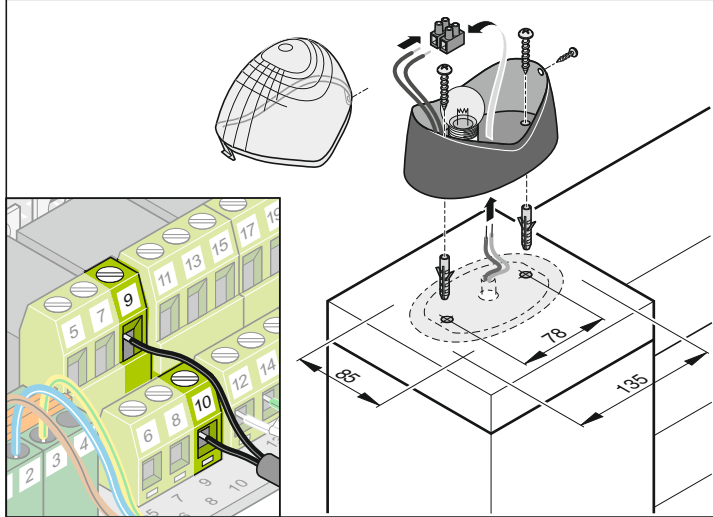
Cable number	Cable colour	Function
1	white	Motor
2	green	Motor
3	blue	Gate "CLOSE" limit switch
4	yellow	Gate "OPEN" limit switch
5	blue + yellow	Earth Gate "OPEN + CLOSE" limit switch

Accessories

Safety instructions

⚠ Caution!
Prior to any work at the gate or drive, disconnect the control unit from the power supply and secure it against inadvertent reconnection or actuation.

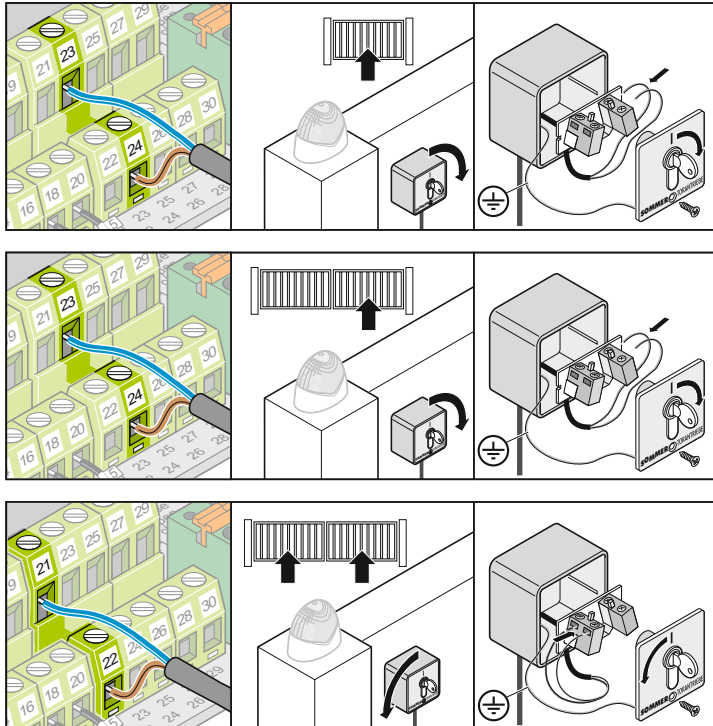
1. Warning lamp



2. Key switch

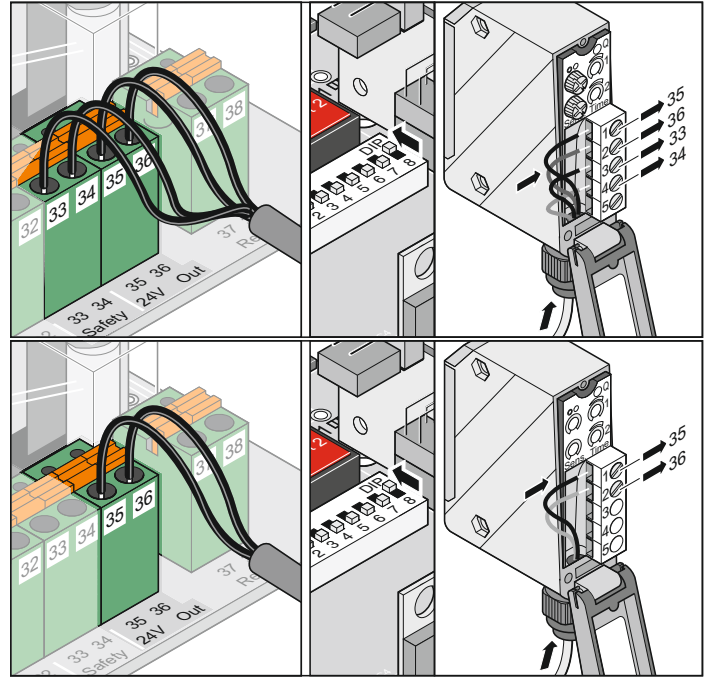
⚠ When the key switch is operated, the operator must not be inside the operating area of the gate and must have a direct view of the gate.

- Never lead the key switch cable along the power line, as this could lead to interference in the control system.
- The key cable must be properly laid.



- Install key switch box at a suitable location where it can be easily accessed.

3. Light barrier



4. Connecting cables

- Secure distribution box with screws at the provided eyelets.

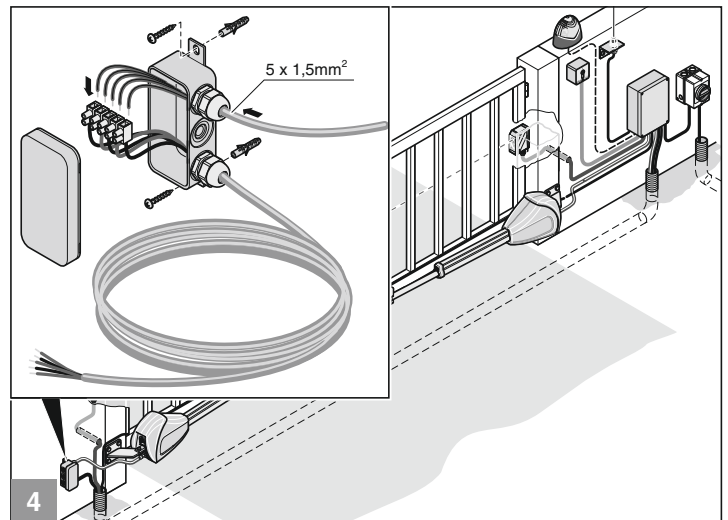
Installation

Only connect cables with the same numbers, i.e.:

- 1 to 1
- 2 to 2
- etc.

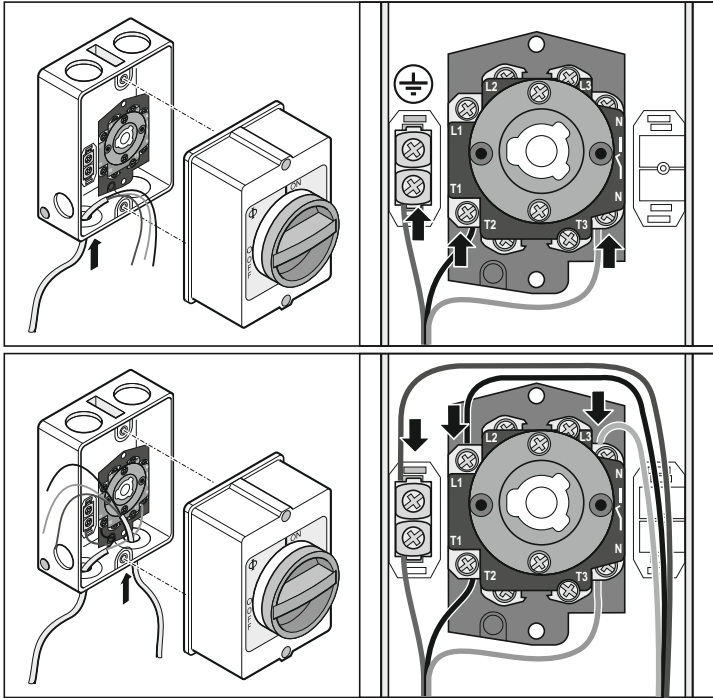
Secure screws tightly to prevent moisture from penetrating the distribution box. After installation, connect distribution box to power supply.

Connecting diagram:



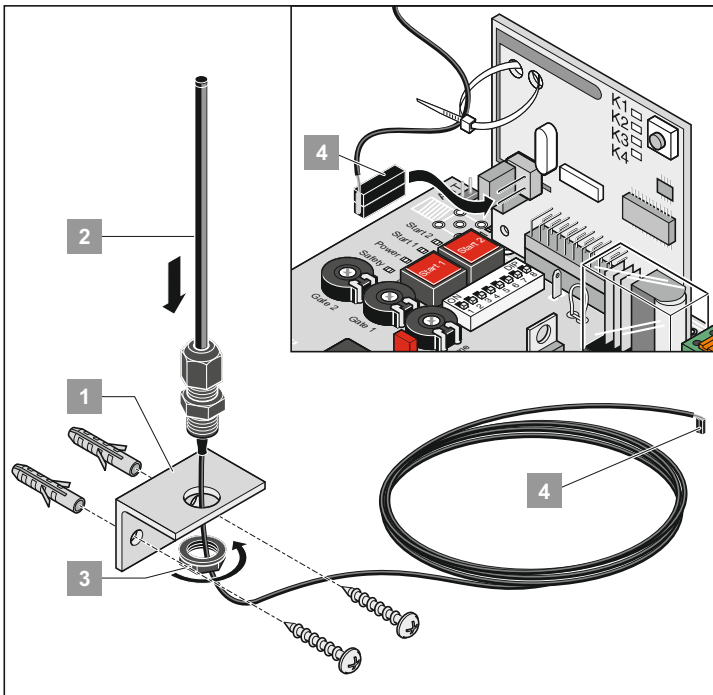
Accessories

5. Main switch



6. External aerial

- If the built-in aerial is not sufficient for the proper operation of the gate, you have the option to connect an external aerial to the system.
- Ensure that the aerial cable is laid in such a way that there is no physical impact to the radio receiver. Install tension protection, if necessary.
- Consult the operator/owner of the system in order to find a suitable location for the external aerial.

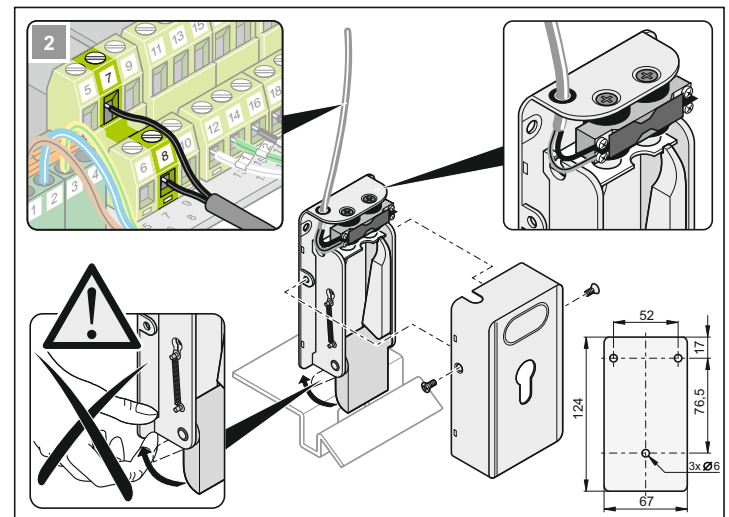
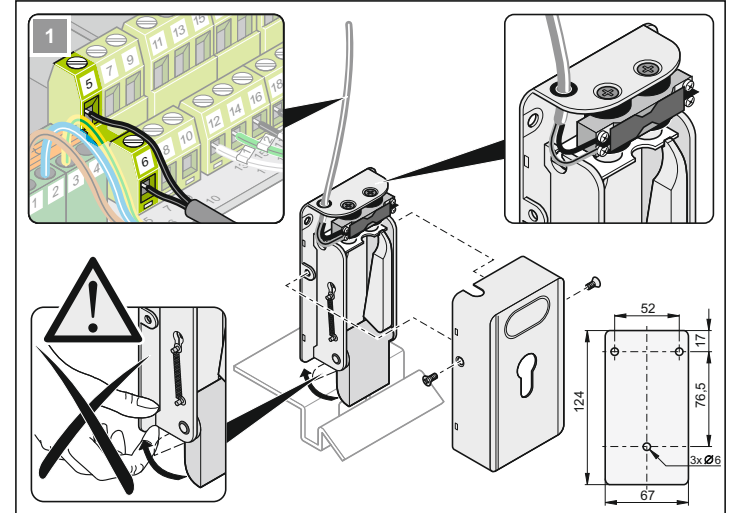
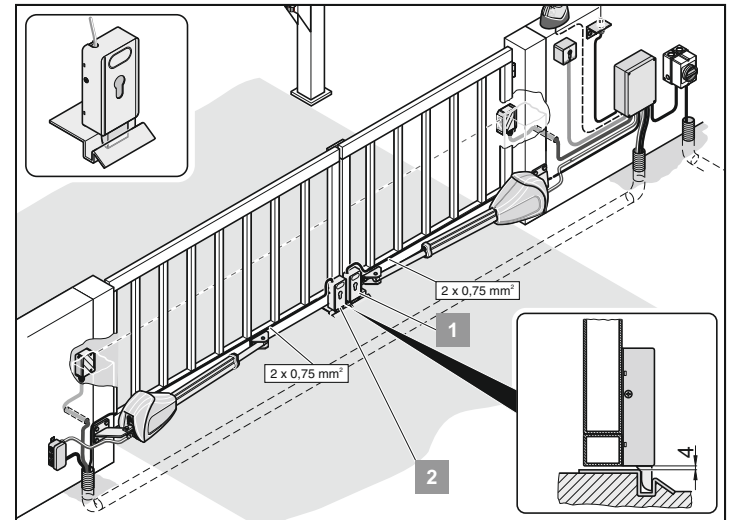


7. DC 24 V electric lock

- After completion of the installation, adjust end position gate "CLOSE".
- Mount the lock horizontally, as it might otherwise be jammed when the gate is operated.
- Distance between lock and closing plate: min. 4 mm, max. 6 mm.


Connecting diagram for DC 24 V electric lock

i This connecting diagram is designed for DC 24 V electric locks only. DC 12 V electric locks may only be connected after consultation with the manufacturer.



Maintenance

Safety instructions

 **Never clean the drive system or control unit with a water hose or power washer.**

- Never clean the drive with alkaline or acidic solutions.
- Carefully remove dirt from the drive system and clean the push rod from time to time with a dry cloth.
- Check control unit housing for insect infestation and moisture at regular intervals, dry and clean as required.
- Regularly inspect all screws at the fittings and retighten, if necessary.
- Check that the control unit housing is correctly sealed.

Regular inspection

- Check safety devices regularly – but at least every six months – to ensure proper functioning. See EN 12453:2000.
- Safety devices that are sensitive to pressure (e.g. safety contact unit with auxiliary monitoring system) should be checked every 4 weeks to ensure proper functioning, see EN 60335-2-95.

Service and warranty

The warranty granted complies with statutory requirements. In the event of a repair that is covered by warranty, please contact your dealer/specialist stockist. Warranty entitlements only apply to the country in which the product has been purchased.

Batteries, fuses and light bulbs are not covered by warranty.

Replaced parts remain the property of the service agent.

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

We have made every effort to ensure that these instructions are as clear and concise as possible. However, if you have any queries or wish to comment on this document, please contact us with your suggestions:

Fax: 0049 / 7021 / 8001-403

E-mail: doku@sommer.eu

Disassembly

Observe safety instructions!

The procedure is the same as the one described in the "Installation" chapter, but in reverse order. There is of course no need to adjust settings.

Test	Behaviour	yes/no	Possible cause	Remedy
Force cut-off				
While the leaf is closing, try to stop it by hand. Do not try to hold the leaf.	Does the gate stop and move in opposite direction after it has been halted?	yes	• Force cut-off works properly	• Do not change settings.
		no	• Potentiometer at right stop. Force tolerance set too high. • Control system defective	• Set force tolerance to lower value by turning the potentiometer in anticlockwise direction until the test is successful. Prior to test, open and close the gate twice watching its operation. • Shut down the gate and secure against switching on. Contact customer service!
Emergency release system				
Proceed as described in section "Emergency release in the event of a power failure".	It must be possible to open/close the gate by hand without special effort. Can the drive be released?	yes	• Everything OK!	
		no	• Gate fittings rusty	• Lubricate gate fittings
Safety contact unit (optional)				
Open/close gate and interrupt motion by triggering the safety contact strip.	Gate behaviour according to settings of DIP switches 1, 2 and 3.	yes	• Everything OK!	
		no	• Cable defective, terminal screw loose • DIP switch settings changed • Contact strip defective	• Inspect wiring, retighten terminal screws • Check DIP switch settings and adjust • Shut down gate system and secure against inadvertent switching on. Contact customer service!
Light barrier (optional)				
Open/close gate and interrupt motion by triggering the light barrier.	Gate behaviour according to settings of DIP switches 1, 2 and 3. "Safety" LED is on.	yes	• Everything OK!	
		no	• Cable defective, terminal screw loose • DIP switch settings changed • Light barrier dirty • Light barrier defective	• Inspect wiring, retighten terminal screws • Check DIP switch settings and adjust • Clean light barrier • Shut down gate system and secure against inadvertent switching on. Contact customer service!

Troubleshooting

Tips for troubleshooting

Should you be unable to identify and eliminate a fault using this table, please take the following steps:

- Carry out a reset of the control system (deletion of set force values).
- Disconnect any accessories (e.g. light barrier) connected to your system.
- Reset all DIP switches to the default settings.
- Reset potentiometer to the default settings.
- If settings have been changed with TorMinal, reset the control system with the TorMinal software.

Fault	Check	yes/no	Possible cause	Remedy
Gate cannot be opened or closed with the switch or the hand-held transmitter.	Is "Power" LED on?	no	<ul style="list-style-type: none"> • No mains power • Mains fuse blown 	<ul style="list-style-type: none"> • Check power line and reconnect, if necessary • Check fuse and replace, if necessary
		yes	<ul style="list-style-type: none"> • Gate jammed • Motor makes a sound but does not move • Drive disengaged • Cable insulation too long, preventing contact • Gate frozen to ground/posts • Gate obstructed by snow • Cable disconnected from motor board 	<ul style="list-style-type: none"> • A gate leaf has been pushed down or has warped due to high temperature differences • Shut down unit. Possible motor and/or control system failure. Contact customer service • Engage drive. • Disconnect cable, remove insulation and reconnect again • Remove ice and snow from gate and hinges. • Remove snow • Reconnect cable to motor board
	Is LED at the remote control device on?	no	<ul style="list-style-type: none"> • Battery empty • Battery incorrectly inserted • Remote control defective 	<ul style="list-style-type: none"> • Replace battery • Insert battery correctly • Replace remote control device
		yes	<ul style="list-style-type: none"> • Remote control battery nearly empty; resulting in limited radio range • Radio receiver defective • Remote control not programmed • Poor reception • Wrong frequency 	<ul style="list-style-type: none"> • Replace battery • Replace radio receiver • Programme remote control device • Install external aerial, see section "Accessories" • Check frequency; remote control and radio receiver must be set to the same frequency
	Is at least one LED at the receiver on when a remote control key is pressed?	no	<ul style="list-style-type: none"> • Radio receiver not properly mounted • Radio receiver not powered, or defective • Remote control not programmed • Empty remote control battery • Battery incorrectly inserted • Remote control defective 	<ul style="list-style-type: none"> • Check and readjust radio receiver • Replace radio receiver • Programme remote control device • Replace battery • Insert battery correctly • Replace remote control device
		yes	<ul style="list-style-type: none"> • Permanent signal 	<ul style="list-style-type: none"> • Pulsar defective; disconnect all pulsers
	Are LEDs "POWER" + "Safety" on?	yes	<ul style="list-style-type: none"> • Light barrier triggered 	<ul style="list-style-type: none"> • Remove object triggering the barrier
	Disruption occurs only from time to time or temporarily	yes	<ul style="list-style-type: none"> • Powerful radio transmitters (pager systems) of hospitals or industrial plants might interfere with your gate system. 	<ul style="list-style-type: none"> • Change radio frequency. • Contact telecommunication authority.
	Is the "Safety" LED flashing rapidly?	yes	<ul style="list-style-type: none"> • Control system has registered incorrect values, e.g. due to short-term power failure. 	<ul style="list-style-type: none"> • Reset the control and repeat programming procedure. If this is not possible, dismantle the control unit and return it to the manufacturer, or consult a specialist technician.

Troubleshooting

Fault	Check	yes/no	Possible cause	Remedy
Gate cannot be opened/closed with a key switch.	"POWER + Start 1/Start 2" LED's illuminate	no	<ul style="list-style-type: none"> • Cable connections loose • Key switch defective • Cable defective 	<ul style="list-style-type: none"> • Retighten terminals • Replace key switch • Replace cable
		yes	<ul style="list-style-type: none"> • Pulser (key switch, remote control) defective 	<ul style="list-style-type: none"> • Check pulser and replace, if defective
Gate is stopped or continues in reverse motion.	Obstacle in operating range?	no	<ul style="list-style-type: none"> • Hinges too stiff • Post has moved • Limit switch settings incorrect 	<ul style="list-style-type: none"> • Lubricate hinges • Contact specialist • Readjust limit switch
		yes	<ul style="list-style-type: none"> • Force cut-off triggered 	<ul style="list-style-type: none"> • Remove obstacle
	Is gate leaf hopping at start?	yes	<ul style="list-style-type: none"> • Leaf not stable 	<ul style="list-style-type: none"> • Reinforce leaf
	Is there strong wind?	yes	<ul style="list-style-type: none"> • Wind pressure too high 	<ul style="list-style-type: none"> • Simply open and close gate again
Door stops when opening.	Light barrier triggered	yes	<ul style="list-style-type: none"> • Obstruction in light beam. 	<ul style="list-style-type: none"> • Remove obstacle
		no	<ul style="list-style-type: none"> • Connection for external consumer overloaded (terminals 35 + 36), voltage drops when drive starts up 	<ul style="list-style-type: none"> • Pay attention to maximum connected load and only connect appropriately suitable accessories.
Gate does not fully open or close.	Does gate stop before it has reach its end position?	no	<ul style="list-style-type: none"> • Leaf hinge incorrectly mounted 	<ul style="list-style-type: none"> • Change fittings at leaf
		yes	<ul style="list-style-type: none"> • Limit switch settings incorrect 	<ul style="list-style-type: none"> • Readjust limit switch
Incorrect closing sequence			<ul style="list-style-type: none"> • Drive wires incorrectly connected at terminals 	<ul style="list-style-type: none"> • Read the instructions and reconnect drives to the control unit
Drive cannot be properly programmed			<ul style="list-style-type: none"> • DIP switch 8 is in position OFF • Limit switch set incorrectly; the drive stops and is reversed, or force cut-off. 	<ul style="list-style-type: none"> • Set DIP switch 8 to ON • Adjust limit switch settings
Gate is not stopped by an obstacle			<ul style="list-style-type: none"> • Gate is completing a programming run • Force tolerance set too high 	<ul style="list-style-type: none"> • After the programming, the force cut-off is operational • Reduce force tolerance, see "Adjusting force tolerance".
Drive touches the post	Have dimensions A/B been remeasured?	no	<ul style="list-style-type: none"> • Incorrect dimension A or B 	<ul style="list-style-type: none"> • Readjust connection of drive at the post
		yes	<ul style="list-style-type: none"> • Limit switch settings incorrect 	<ul style="list-style-type: none"> • Readjust limit switch
Irregular gate movement			<ul style="list-style-type: none"> • Incorrect dimensions A/B 	<ul style="list-style-type: none"> • Adjust dimensions, if possible
Pedestrian leaf cannot be opened with remote control			<ul style="list-style-type: none"> • Remote control key not programmed 	<ul style="list-style-type: none"> • Program key, see section, see "Programming the remote control device".
Drive cannot be started	"Safety" LED flashes rapidly	yes	<ul style="list-style-type: none"> • Position of jumper with programmed force values has been changed 	<ol style="list-style-type: none"> 1. Reset jumper to previous position 2. Reset control unit 3. Position jumper as desired 4. Complete programming runs

Connecting diagram

