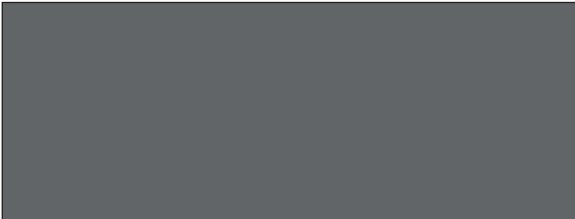


EN TRANSLATION OF THE ORIGINAL INSTALLATION AND OPERATING MANUAL

# Swing gate operator twist XL



Download the current manual:



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# General Information

## Symbols



### CAUTION SYMBOL:

**Important safety instructions!**

**To ensure personal safety, it is important to observe all instructions. Save these instructions!**



### IMPORTANT INFORMATION SYMBOL:

**Information, useful advice!**

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

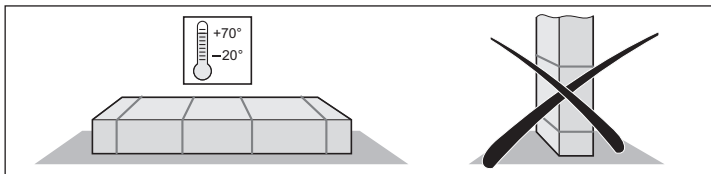
## Safety instructions

### General

- These installation and operating manual must be read, understood and complied with by persons who install, use or perform maintenance on the operator.
- 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 and complied with for installation and operation, such as: EN 12453, EN 12604, EN 12605.
- Observe and comply with the "ASR A1.7 Technical Regulations for Workplaces" of the German Committee for Workplaces (ASTA), which is mandatory for the operator in Germany.
- Before doing any work on the gate or operator, disconnect it from the power supply and lock it to prevent reconnection.
- Electrical wiring must be firmly secured to prevent displacement.
- There is danger due to the crushing and shearing points presented by the mechanism and the closing edges of the gate.
- Never operate a damaged operator.
- After installation and commissioning, all users must be instructed in the function and operation of the swing gate operator.
- Only use OEM (Original Equipment Manufacturer) spare parts, accessories, and mounting material.

### Storage

- The operator must be stored in an enclosed, dry area at a room temperature between  $-20\text{ °C}$  to  $+70\text{ °C}$ .
- The operator 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 area of movement.
- 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 immediately. See "Care and maintenance".
- Do not drive through the gate until it is fully open.
- Set the force tolerance as low as possible.
- For automatic closing, secure the main and auxiliary closing edges in accordance with the applicable directives and standards.
- Remove the key to prevent unauthorised use.

### Radio remote control

- If a risk of injury could occur due to radio malfunctions on the transmitter or radio receiver, use additional safety devices.
- Only use the radio remote control when the range of movement of the gate is visible and free of obstacles.
- Store the transmitter so that it is protected from unintended operation, e.g., by children or animals.
- Do not use the radio remote control in areas with sensitive radio communications or systems, e.g. airports or hospitals.
- When significant interference occurs due telecommunications equipment, contact the responsible Telecommunications Office which has radio interference measuring equipment (radio location).

### Type plate

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

### Intended use



#### IMPORTANT INFORMATION!

**After installation of the operator, 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 operator is retrofitted to a manually operated gate. This documentation and the installation and operating manual are retained by the operator.**

- The operator is designed exclusively for opening and closing one- and two-leaf swing gate installations. Any other use does not constitute intended use.
- The manufacturer accepts no liability resulting from use other than intended use and the warranty expires. The user bears the sole responsibility for any risk involved.
- The operator must be in good technical condition, and it must be used for its intended purpose with awareness of the hazards. Observe the installation and operating manual.
- Only operate the twist XL with DTA-1 control unit.
- Only use the twist XL operator and DTA-1 control unit in private, non-industrial settings.
- Repair faults without delay.
- Only use operator on gates which comply with all valid standards and directives: e.g. EN 12453, EN 12604, and EN 12605.
- Uphold safety distances between the gate leaf and the environment in accordance with EN 12604.
- Only use stable and rigid gate leaves. Gate leaves must not bend or twist when opening and closing.
- Ensure there is little play in the hinges of the gate leaf.

### Improper use

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

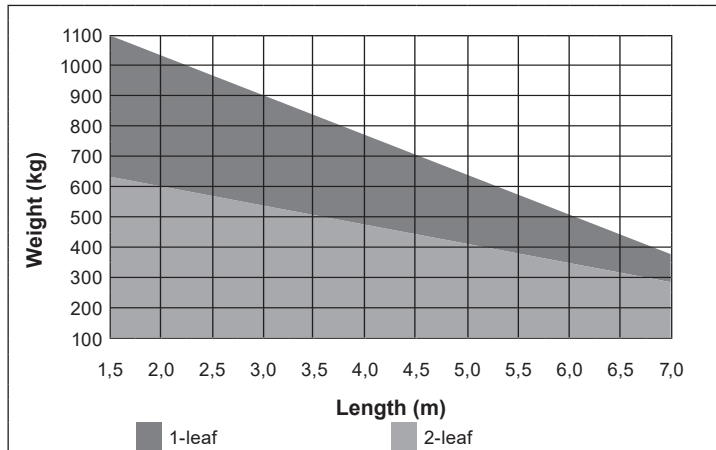
# General Information

## Combined operation

- 1x twist XL and 1x twist 350 mixed operation possible.
- 1x twist XL and 1x twist 200 E or 200 EL mixed operation only possible in connection with DTA-1 control unit and the "twist XS" conversion set (Item number: 3248V000).

## Permitted gate leaf dimensions

- Gate inclination: 0 %




## Fill table

| Height (m) | Fill (%) |     |     |     |     |    |    |
|------------|----------|-----|-----|-----|-----|----|----|
|            | 1,5      | 2   | 3   | 4   | 5   | 6  | 7  |
| 5          | 100      | 100 | 70  | 40  | 20  | –  | –  |
| 4          | 100      | 100 | 90  | 50  | 30  | 20 | –  |
| 3          | 100      | 100 | 100 | 60  | 40  | 30 | 20 |
| 2          | 100      | 100 | 100 | 100 | 60  | 40 | 30 |
| 1          | 100      | 100 | 100 | 100 | 100 | 90 | 60 |
| Length (m) | 1,5      | 2   | 3   | 4   | 5   | 6  | 7  |

Specifications valid for B dimensions 300 mm and A dimensions 140 mm; recorded values for gate panel thickness 50 mm and centre rotation point, related to the maximum given gate weight.

## With lift gates

**CAUTION!**  
 **Risk of injury from uncontrolled shutting in unlocked state with lifting gates which are not weight-balanced.**

- Only use weight-balanced lifting gates.
- Only use lifting gates with special gate fittings: Gate fitting (Item number: 7634V000).

- Weight: max. 300 kg
- Length: min. 1,5 m  
max. 5 m
- Gate inclination: max. 10 %

## Technical data

|   | twist XL                                   |
|---|--|
| Mains voltage                                     | AC 220–240 V                               |
| Rated frequency                                   | 50–60 Hz                                   |
| Storage locations in radio receiver               | 112 <sup>(1)</sup>   40/450 <sup>(2)</sup> |
| Operating time                                    | S3 = 40 %                                  |
| travel length   movement range                    | 450 mm                                     |
| Operating temperature                             | –25 °C to +70 °C                           |
| Emission value according to operating environment | 58 dB(A)                                   |
| IP protection class control unit                  | IP65                                       |
| IP protection class operator                      | IP44                                       |
| IP-code   | I  |
| Max. feed speed                                   | 20 mm/s                                    |
| Max. traction and pressure force (per leaf)       | 4,500 N                                    |
| Rated, pulling and pushing force (per leaf)       | 1,500 N                                    |
| Max. power consumption (per leaf)                 | 245 W                                      |
| Max. current consumption (per leaf)               | 1.2 A                                      |
| Rated power consumption (per leaf)                | 115 W                                      |
| Rated current consumption (per leaf)              | 0.6 A                                      |
| Power consumption on power-saving mode            | 4.5 W                                      |
| Max. gate weight (per leaf)                       | 1,100 kg                                   |
| Min. leaf length (per leaf)                       | 1,5 m                                      |
| Max. leaf length** (per leaf)                     | 7 m  |
| Gate inclination***                               | 10 %                                       |

\* With max. 1.5 m gate leaf width, 1-leaf system.

\*\* With max. 400 kg, 1-leaf system and max. 300 kg, 2-leaf system.

\*\*\* See "With lift gates" on page 4.

(1) 112 Somloq Rollingcode

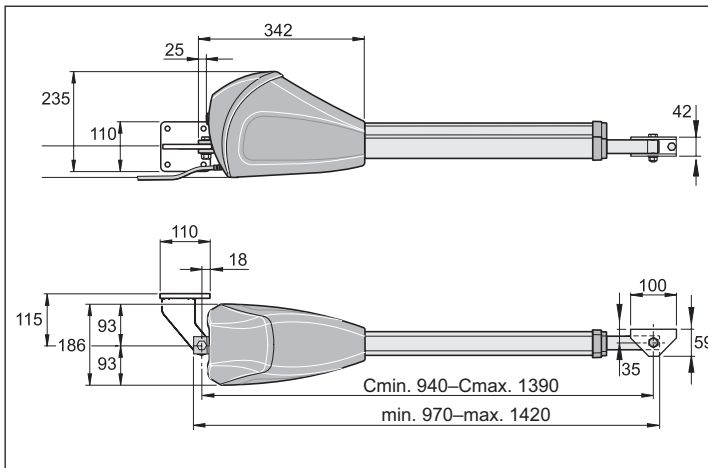
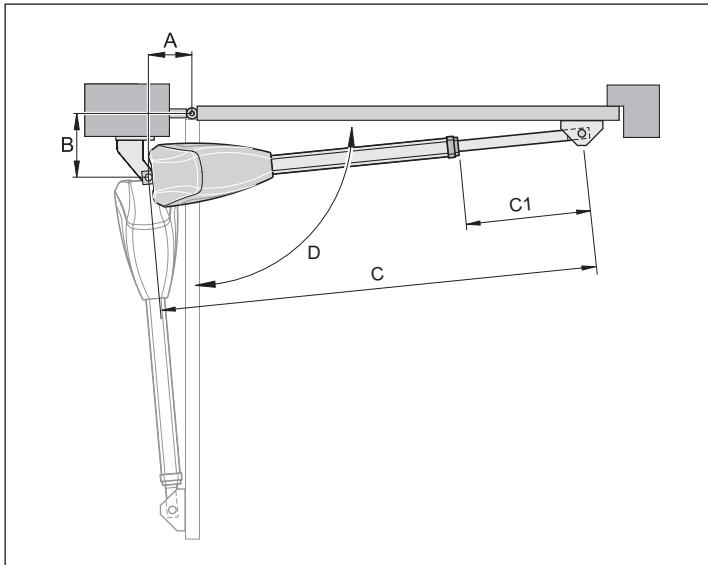
(2) 40 SOMloq2 (Memo 450)



# General Information

## Dimensions

All dimensions are in millimetres.



## Functional description



### IMPORTANT INFORMATION!

The "Gate OPEN" + "Gate CLOSE" end positions are set by internal limit switches in the operator and detected during operation.

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

## Closing the gate



### IMPORTANT INFORMATION!

A mechanical stop at the "Gate OPEN" and "Gate CLOSE" end position is absolutely essential. An electric lock can be used as an additional lock.

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

## Wireless actuation

The operator can be operated with the supplied transmitter. The transmitter must be programmed for the radio receiver.

## Safety facilities

The control unit has an automatic force monitor. The necessary force must be programmed during a learning run.

When the operator requires a higher force than the one saved, the operator stops and reverses.

Various safety devices can be connected to the control unit, see chapter "Functions and connections".

Examples:

- Photo eye
- Safety contact strip with separate evaluation unit

## Simplified declaration of conformity

SOMMER Antriebs- und Funktechnik GmbH hereby declares that the radio system (twist XL) complies with Directive 2014/53/EU. You can see the full text of the EU Declaration of Conformity for the radio system at:



<https://som4.me/mrl>

# General Information

## Declaracion of incorporation

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 27

73230 Kirchheim/Teck

Germany

hereby declares that the control unit

### twist XL

was designed, developed and manufactured in compliance with

- Machinery Directive 2006/42/EC
- Low Voltage Directive 2014/35/EU
- Directive on Electromagnetic Compatibility 2014/30/EU
- RoHS Directive 2011/65/EU.

The following norms were used:

- EN ISO 13849-1, PL "C" Cat. 2 Safety of machines – Safety-related parts of controls – Part 1: General design guidelines
- EN 60335-1/2, where applicable Safety of electrical appliances/operators for gates
- EN 61000-6-3 Electromagnetic compatibility (EMC) – interference
- EN 61000-6-2 Electromagnetic compatibility (EMC) – interference resistance
- EN 60335-2-103 General safety requirements for household and similar electrical appliances – Part 2: Special requirements for operators for gates, doors and windows

The following requirements of Annex 1 of the Machinery Directive 2006/42/EC are met:

1.1.2, 1.1.3, 1.1.5, 1.2.1, 1.2.2, 1.2.3, 1.2.4, 1.2.6, 1.3.2, 1.3.4, 1.3.7, 1.5.1, 1.5.4, 1.5.6, 1.5.14, 1.6.1, 1.6.2, 1.6.3, 1.7.1, 1.7.3, 1.7.4

The special technical documentation was prepared in accordance with Annex VII Part B and will be submitted to regulators electronically on request.

The incomplete machine is intended for installation in a gate system only to form a complete machine as defined by the Machinery Directive 2006/42/EC. The gate system may only be put into operation after it has been established that the complete system complies with the regulations of the above EC Directive.

The undersigned is responsible for compilation of the technical documents.

Kirchheim,  
20-04-2016



i.V. 

Jochen Lude  
Responsible for documents

# Installation preparations

## Safety instructions



**CAUTION!**  
**DANGER OF DESTRUCTION BY VOLTAGE PEAKS.**

Voltage peaks, e.g. from welding machines, can destroy the control unit.

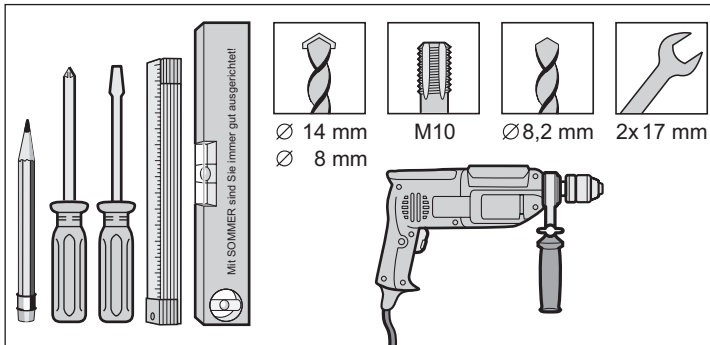
- Do not connect the control unit until all mounting tasks on the power supply have been concluded.



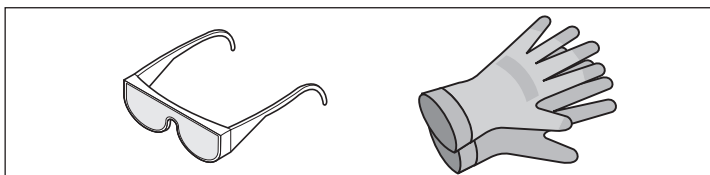
**CAUTION!**  
Before doing any work on the gate or operator, disconnect the control unit from the power supply and secure it to prevent reconnection.

- Lay cables in conduits approved for this purpose, e.g. for laying in underground installations.
- Only qualified electricians may connect the control unit to the power supply.
- Install in accordance with the installation and operating manual.
- Before installing the operator, take locking mechanisms which are not compatible with the operator (e.g. electric locks or bars) out of operation or disassemble them.
- Ensure that the operator is securely fastened to posts, pillars, and gate leaves to withstand large forces generated when opening and closing the gate.
- Flying sparks can damage the operator, e.g. when welding on posts or gate leaves. Cover or disassemble operator before welding.
- If a button is used for opening or closing, it must be installed out of the reach of children at a height of at least 1.6 m.
- Only use permissible fastening materials.

## Tools required



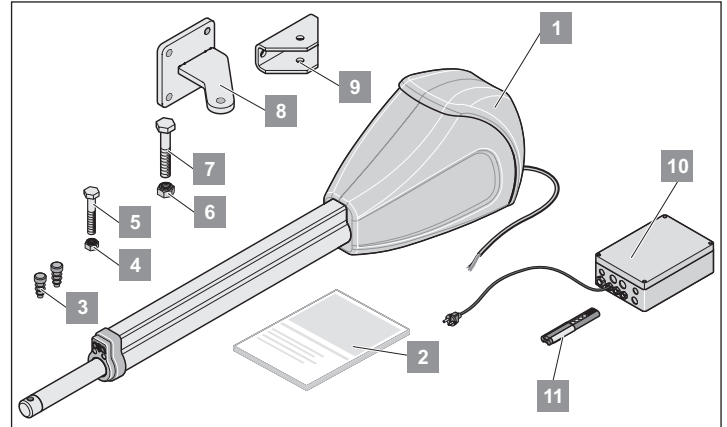
## Personal protective equipment



- Safety glasses (for drilling)
- Work gloves

## Scope of delivery

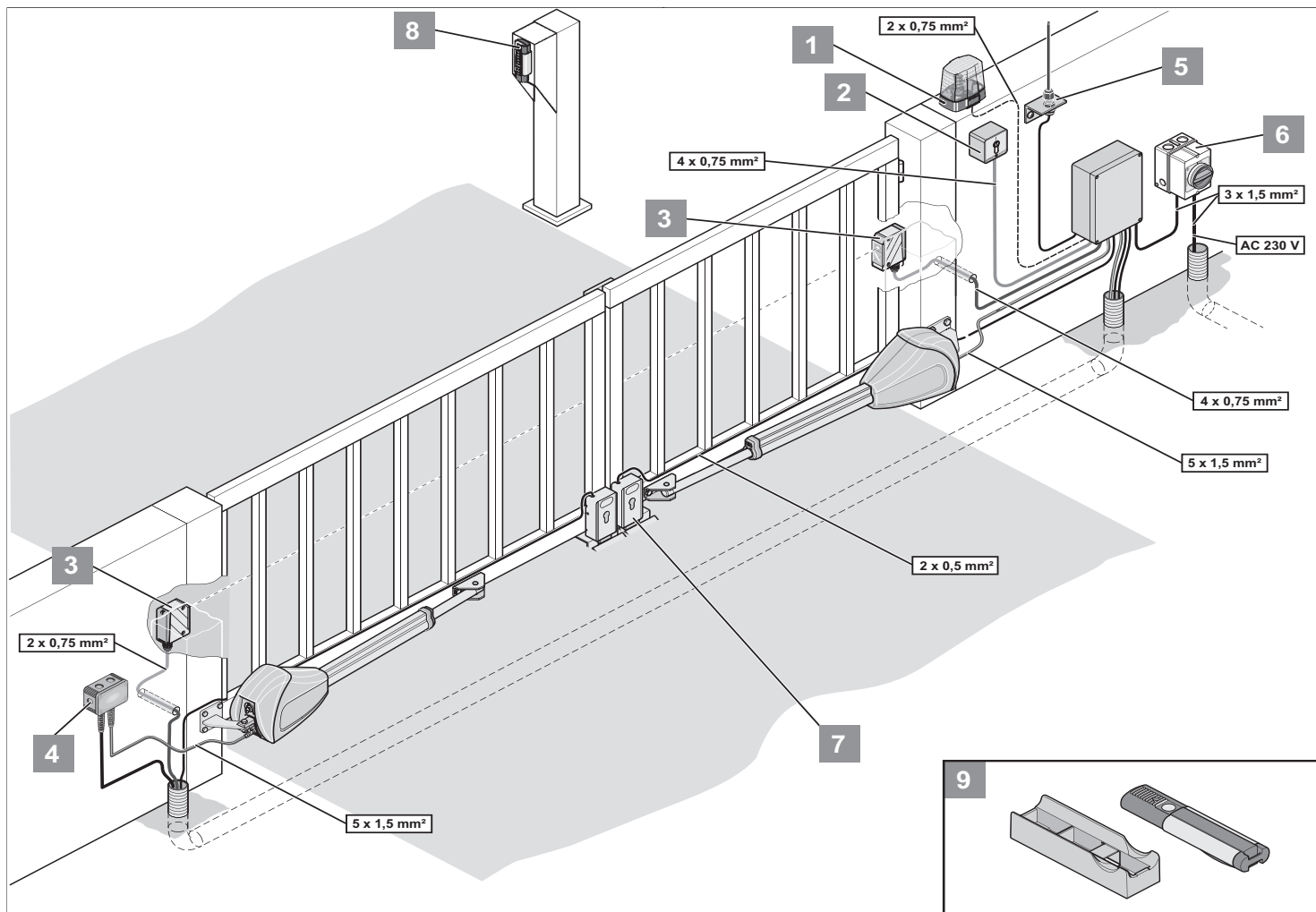
- Check the scope of delivery before installation to prevent unnecessary work and costs.
- The actual scope of supply may vary depending on the operator version.



| Operator set           |                                   | 1-leaf             | 2-leaf      |
|------------------------|-----------------------------------|--------------------|-------------|
| Weight (operator only) |                                   | 12.5 kg            | 2 x 12.5 kg |
| Package (L x W x H)    |                                   | 982 x 243 x 202 mm |             |
| 1                      | Operator with cable               | 1x                 | 2x          |
| 2                      | Installation and operating manual | 1x                 | 1x          |
| 3                      | Lamellar plug                     | 2x                 | 4x          |
| 4                      | Locknut (M10)                     | 1x                 | 2x          |
| 5                      | Hex bolt (M10 x 55 mm)            | 1x                 | 2x          |
| 6                      | Locknut (M12)                     | 1x                 | 2x          |
| 7                      | Hex bolt (M12 x 50 mm)            | 1x                 | 2x          |
| 8                      | Fittings for post or pillar       | 1x                 | 2x          |
| 9                      | Fittings for gate leaf            | 1x                 | 2x          |

| Controller set             |   | 1-leaf             | 2-leaf |
|----------------------------|---|--------------------|--------|
| Weight (control unit only) |   | 2.8 kg             | 2.8 kg |
| Package (L x W x H)        |   | 120 x 245 x 285 mm |        |
| 10                         | Control unit in housing (including radio receiver, transformer, and power plug) | 1x                 | 1x     |
| 11                         | Hand-held transmitter, including battery  | 1x                 | 1x     |

# Installation



|   |   |
|---|---|
| 1 | Warning light DC 24 V/24 W  |
| 2 | Key switch (1 or 2 contact)   |
| 3 | Photo eye   |
| 4 | Connecting cable set 12 m (IP67)  |
| 5 | External antenna (including cable)  |
| 6 | Main switch (lockable)  |
| 7 | DC 24 V electric lock/An electric lock can be connected to each gate leaf |
| 8 | Telecody  |
| 9 | Car/wall holder for transmitter   |

## Tips for installation

Define the installation location of the control unit together with the operator.

Install the housing so that it is hidden from unauthorised persons to prevent deliberate damage to the housing and control unit.

Attach threshold or stop bar to the gate:

- Gate leaf length longer than 2.5 m
- 2-leaf gate

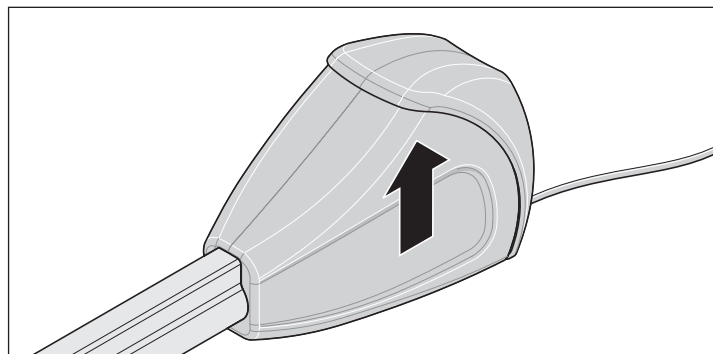


### IMPORTANT INFORMATION!

Additional pulse transmitters are: transmitters, Telecody, wireless indoor switches and key switches.  
For transmitters, Telecody or the radio interior push-buttons, no connecting line must be installed for operation.

## Operator installation position

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



# Installation

## A/B dimension table (reference values)



### IMPORTANT INFORMATION!

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

- Observe the different post and pillar dimensions.

**White fields:** Installation range only for horizontal gates

**Grey fields:** Installation range for lift and horizontal gates

**Attention:** Only use lifting gates with special gate fittings:  
Gate fitting (Item number: 7634V000).

| B   | A    |     | 140  | 160 | 180  | 200  | 220  | 240  |      |     |      |     |
|-----|------|-----|------|-----|------|------|------|------|------|-----|------|-----|
|     | C    | C1  |      |     |      |      |      |      |      |     |      |     |
| 160 | 1243 | 360 | 1273 | 391 | 1314 | 431  | 1360 | 477  | 1385 | 503 | 1385 | 501 |
|     |      |     | 91°  | 93° | 102° | 110° | 110° | 103° |      |     |      |     |
| 180 | 1265 | 382 | 1295 | 412 | 1335 | 452  | 1372 | 490  | 1384 | 501 | 1377 | 494 |
|     |      |     | 91°  | 95° | 102° | 108° | 103° | 96°  |      |     |      |     |
| 200 | 1287 | 404 | 1317 | 434 | 1354 | 471  | 1383 | 500  | 1376 | 493 | 1385 | 502 |
|     |      |     | 91°  | 95° | 101° | 103° | 95°  | 93°  |      |     |      |     |
| 220 | 1306 | 423 | 1339 | 456 | 1373 | 490  | 1385 | 502  | 1385 | 502 |      |     |
|     |      |     | 90°  | 95° | 100° | 97°  | 92°  |      |      |     |      |     |
| 240 | 1328 | 446 | 1361 | 478 | 1390 | 507  | 1386 | 503  |      |     |      |     |
|     |      |     | 90°  | 95° | 98°  | 91°  |      |      |      |     |      |     |
| 260 | 1351 | 468 | 1381 | 498 | 1390 | 507  |      |      |      |     |      |     |
|     |      |     | 90°  | 94° | 91°  |      |      |      |      |     |      |     |
| 280 | 1374 | 491 |      |     |      |      |      |      |      |     |      |     |
|     |      |     | 90°  |     |      |      |      |      |      |     |      |     |
| 300 | 1397 | 514 |      |     |      |      |      |      |      |     |      |     |
|     |      |     | 90°  |     |      |      |      |      |      |     |      |     |

| Max. gate leaf width<br>Without electric lock |
|---|
| 3.5 m   |
| 4.0 m   |
| 4.5 m   |
| 5.0 m   |



### IMPORTANT INFORMATION!

Select A/B dimensions so the desired opening angle (D) is reached. The specified opening angle is a reference value for the largest possible angle.

In case of gate leaf lengths greater than 3.5 m, the B dimension must amount to at least 260 mm.

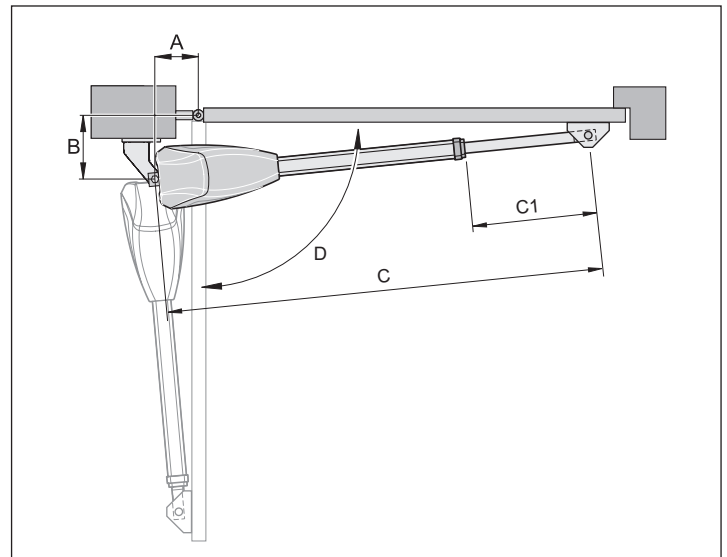
As the data in the table may vary depending on the gate mechanism, they should be checked in advance.



### IMPORTANT INFORMATION!

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

- Wind speed 28.3 m/s
- Gate height 2.0 m
- Gate width 2.5 m
- Gate filling 35 %, uniformly distributed
- Without electric lock



# Installation

## Fittings



### IMPORTANT INFORMATION!

The strength of the included fittings is designed for the operator. The warranty expires if other fittings are used.



### IMPORTANT INFORMATION!

The B dimensions must be at least 160 mm (see "A/B dimension table"). Compensation for smaller B dimensions with a space plate under the post fitting.

- Clearances between the gate leaf and post or gate leaf and operator must be maintained in accordance with the applicable standards.



### CAUTION!

Only use permissible fastening materials.

- Fasten fittings on stone or cement pillars with expansion dowels or adhesive-bonded anchors. The fastenings must not loosen during operation.
- Flying sparks can damage the operator, e.g. when welding on posts or gate leaves. Cover or disassemble operator before welding.



### CAUTION!

Welding and grinding residues accelerate corrosion of the fittings.

- After mounting the fittings, do not perform any more welding or grinding work.

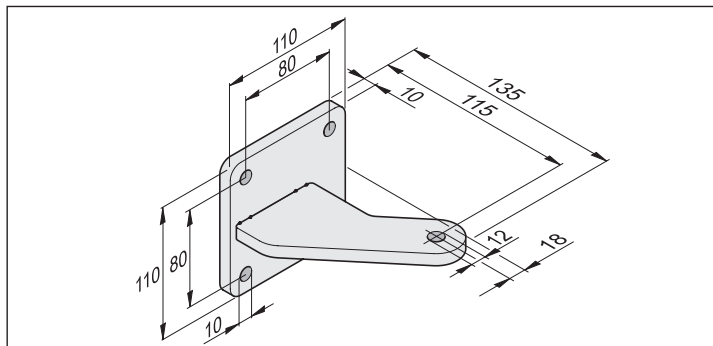
## Steel posts

- Note the thickness of the post.
- Weld or bolt the fitting directly to steel posts.

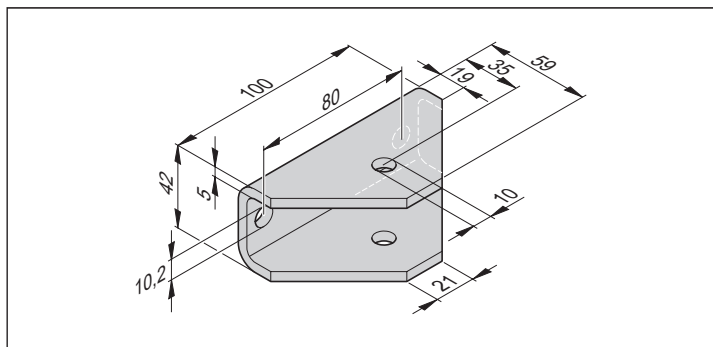
## Brick or concrete pillars

- Uphold the distance of the fastening holes from the pillar edge. The distance depends on the type of expansion dowels or adhesive-bonded anchors. Observe the recommendations of the manufacturer.

## Post/pillar fitting

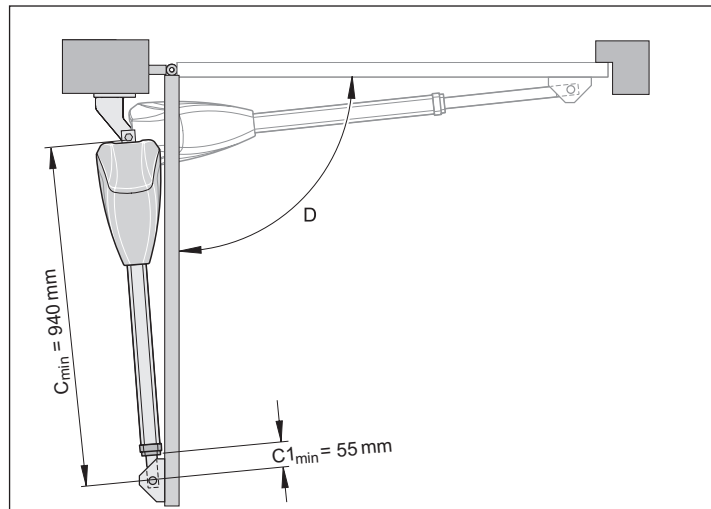


## Gate leaf fitting

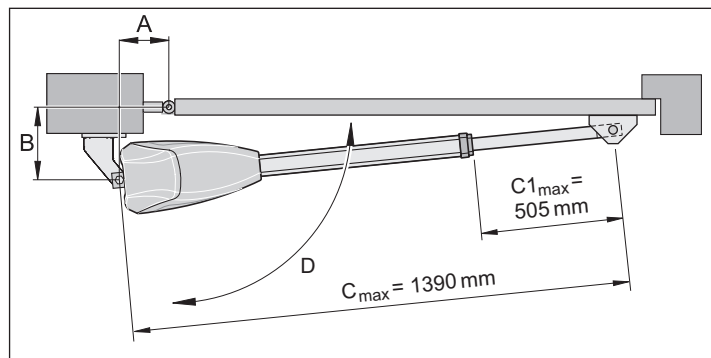


## Installing fittings

1. Close the gate by hand.
2. Compare the A/B dimensions with the A/B dimension table.
3. Fasten the post/pillar fitting temporarily (e.g. with a clamp).
4. Check installation situation and dimensions.
  - ⇒ Uphold distance to the floor: at least 50 mm.
5. Fasten post/pillar fitting.



6. Manually move the gate to the "Gate OPEN" position. Note the maximum possible opening angle D from the A/B dimension table.
7. Hang the operator in the post fitting and secure it with a screw.
  - ⇒ The operator push rod is at maximum retraction as delivered.
8. Unscrew push rod, at least to  $C1_{min}$ .
9. Fix the gate leaf fitting to the push rod.
10. Insert the screw from above.
11. Fasten the gate leaf fitting temporarily to the gate (e.g. with a clamp).
12. Unlock the operator, see chapter "Locking and unlocking the operator".
13. Close the gate by hand.



### IMPORTANT INFORMATION!

The smaller the C1 dimension, the higher the stability.

14. Measure C1 dimensions and set between  $C1_{min}$  and  $C1_{max}$ . Do not exceed  $C1_{max}$ .

# Installation

15. Check that the operator is horizontal in the positions:
  - "Gate OPEN"
  - "Gate CLOSE"
  - Opened 45°
16. Check the position of the gate leaf fittings.
17. Fix gate leaf fittings.
18. Screw in the nuts of the connecting screws (operator to fitting) only tight enough that the gate with the operator can still be turned easily.

## Observe spare cable

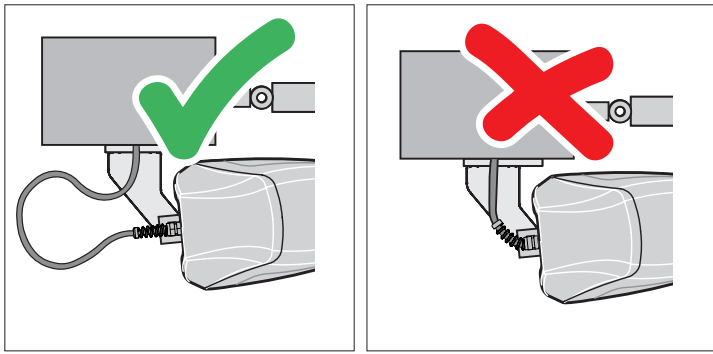


Fig. 1 correct

Fig. 2 incorrect

1. Allow for a corresponding spare cable length (cable connection) depending on the installation situation and gate opening (inwards/outwards).



### IMPORTANT INFORMATION!

Select an adequately large cable radius to prevent tension on the cable.

Cable breakage may result if the radius is too small.

## Deviation of post fittings

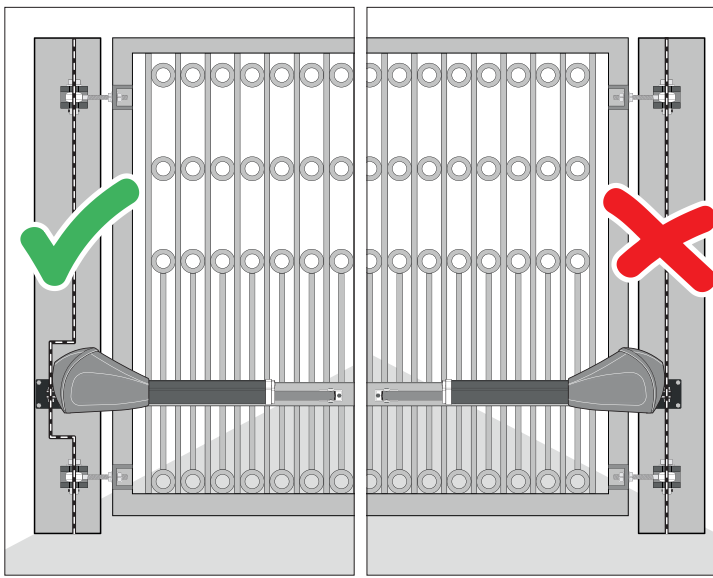


Fig. 1 Rotation point correct

Fig. 2 Rotation point incorrect

1. Rotation point of the operator installed offset to gate hinge (in acc. with specifications A/B dimension table).
2. Rotation point of the operator and gate hinge are installed parallel in one line (**A dimension = 0**). Gate can no longer be opened to 90°!

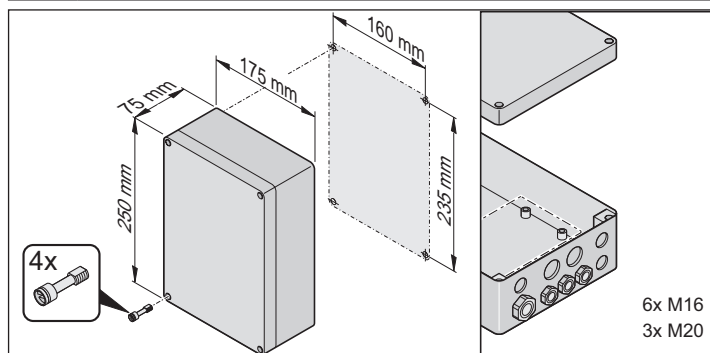
## Installing the control unit



### CAUTION! DANGER OF DESTRUCTION BY MOISTURE!

Penetration of moisture destroys the control unit.

- Only screw the housing on the intended fixing points.
- Install the housing vertically with the cable conduits facing downwards.
- Permitted cross-section of cable conduits: 1.5 mm<sup>2</sup> to 2.5 mm<sup>2</sup>. If cable cross-sections are smaller, a bushing must be attached on-site.
- Place the cover so it sits flush.





# Installation

## Connecting control unit to power mains (AC 230 V)



### CAUTION! DANGER OF ELECTROCUTION!

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

- Implement the mains connection according to EN 12453 (all-pole line disconnecter).
- Before doing any work on the gate or operator, disconnect it from the power supply and lock it to prevent reconnection.



### CAUTION!

The supplied mains cable is not approved for constant or outdoor operation.

- Only use this power cord for the mounting and commissioning of the operators.
- After completion of installation and commissioning: Replace power cord with a permanently laid line.



### IMPORTANT INFORMATION!

In order to maintain the functionality of the technical equipment, we recommend that you observe the specified maximum lengths and minimum cross-sections for power cables!

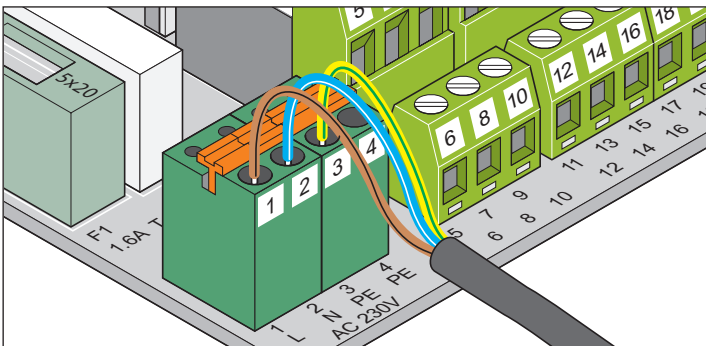
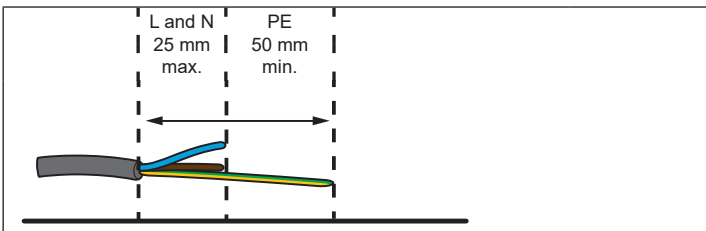
| Connection lines                          | Signal lines        |
|---|---------------------|
| Maximum length 20 m                       | Maximum length 25 m |
| Minimum cross-section 1.5 mm <sup>2</sup> |                     |

Approved wire cross sections for all terminals:  
1 mm<sup>2</sup>–2.5 mm<sup>2</sup>.



### IMPORTANT INFORMATION!

- Do not remove the sheath of the supply line until it is in the housing!
- Insert the sheath of the connecting line into the control unit housing.
- Remove the line sheaths as shown in the graphic



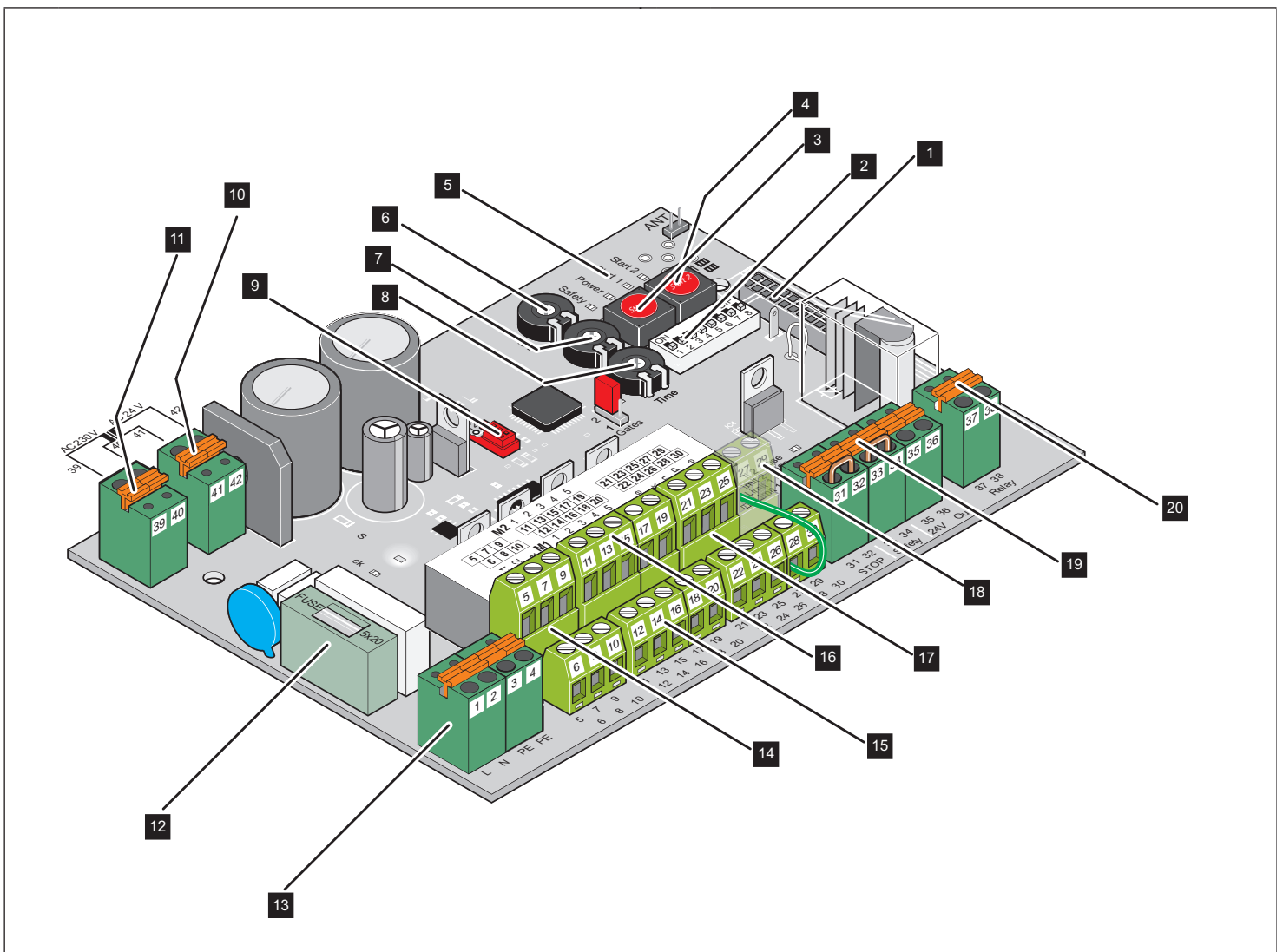
| Terminal | Description | Description                   |
|----------|-------------|-------------------------------|
| 1        | L1          | Outer conductor AC 230 V      |
| 2        | N           | Neutral wire                  |
| 3 + 4    | PE          | Protective earthing conductor |



### IMPORTANT INFORMATION!

Secure the line from being moved with cable binders!

# Installation



- |     |   |     |                              |
|-----|---|-----|------------------------------|
| 1.  | Radio connector   | 11. | Primary transformer          |
| 2.  | DIP switches  | 12. | Fuse 1.6 A, slow-acting      |
| 3.  | Button (Start 1)  | 13. | Mains connection             |
| 4.  | Button (Start 2)  | 14. | Connection for accessories   |
| 5.  | LEDs (Start 1, Start 2, Power, Safety)                      | 15. | Motor 1 (M1) connection      |
| 6.  | Potentiometer (Gate 2) for force tolerance of Motor 2 (M2)  | 16. | Motor 2 (M2) connection      |
| 7.  | Potentiometer (Gate 1) for gate leaf length of Motor 1 (M1) | 17. | Button connection            |
| 8.  | Potentiometer (Time) for automatic closing function         | 18. | LEDs (limit switch)          |
| 9.  | TorMinal interface  | 19. | Safety device connection     |
| 10. | Secondary transformer                                       | 20. | Potential-free relay contact |

# Installation

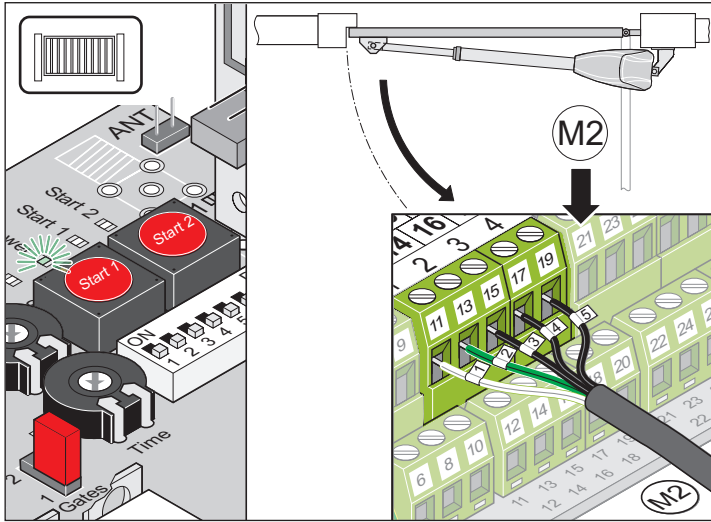
## Connecting operator to control unit

**CAUTION! DANGER OF ELECTROCUTION!**  
 Before doing any work on the gate or operator, disconnect it from the power supply and lock it to prevent reconnection.  
 The operator is only correctly detected by the control unit after connection in a de-energised state.

**CAUTION!**  
 Never connect the operator directly to the AC 230 V mains power. Risk of deadly electric shock!

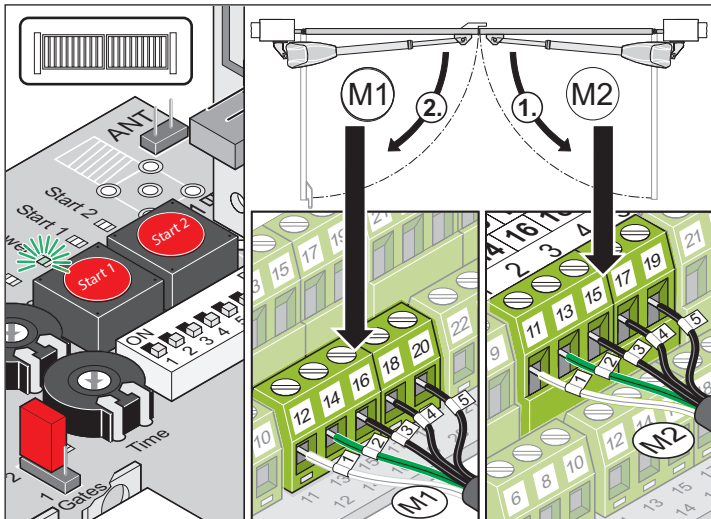
**IMPORTANT INFORMATION!**  
 Observe jumper setting for 1- and 2-leaf gate systems!

### 1-leaf gate



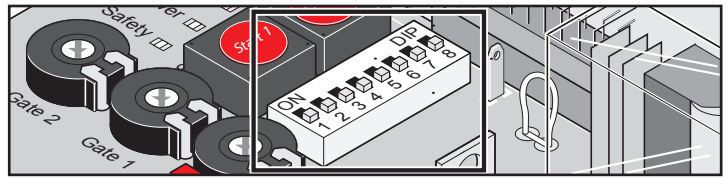
| Terminal | Description | Description             |
|----------|-------------|-------------------------|
| 11       | 1           | Motor 2 (M2) connection |
| 13       | 2           |                         |
| 15       | 3           | Gate CLOSE limit switch |
| 17       | 4           | Gate OPEN limit switch  |
| 19       | 5           | GND limit switch        |

### 2-leaf gate

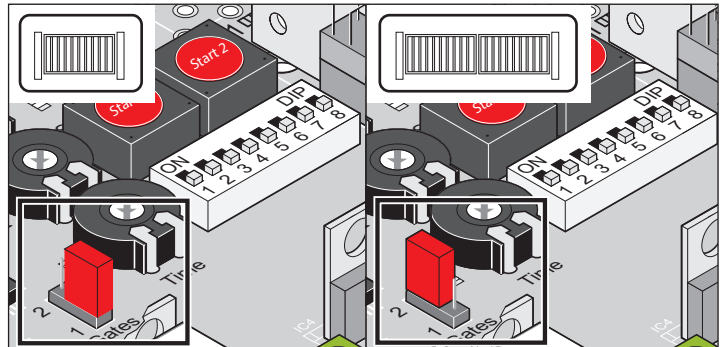


| Terminal | Description | Description                     |
|----------|-------------|---------------------------------|
| 12       | 1           | Motor 1 (M1) connection         |
| 14       | 2           | Gate leaf with stop opens last. |
| 16       | 3           | Gate CLOSE limit switch         |
| 18       | 4           | Gate OPEN limit switch          |
| 20       | 5           | GND gate limit switch           |
| 11       | 1           | Motor 2 (M2) connection         |
| 13       | 2           | Active leaf opens first.        |
| 15       | 3           | Gate CLOSE limit switch         |
| 17       | 4           | Gate OPEN limit switch          |
| 19       | 5           | GND gate limit switch           |

1. Connect and set inactive leaf Motor 1 (M1).  
(Inactive leaf: gate leaf which opens second and closes first)
2. Connect and set active leaf motor 2 (M2) on control unit.  
(Active leaf: gate leaf which opens first and closes second)



3. Set all DIP switches to "OFF".



4. Set jumpers: Set 1- or 2-leaf gate.
5. Connect control unit to the power supply.
  - ⇒ "Power" LED on.
  - ⇒ The "Status" LED flashes.
  - ⇒ LEDs for the limit switches ("Limit 1 open" LED, "Limit 1 close" LED, "Limit 2 open" LED and "Limit 2 close" LED) on or off (depending on whether the push rod is extended or retracted).

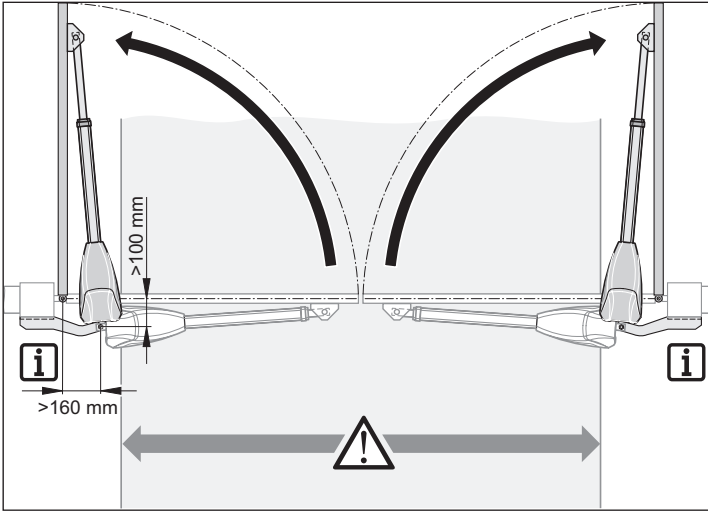
# Installation

## Installation situation: “Opening gate outwards”



### IMPORTANT INFORMATION!

The gate post fittings in the diagram below are examples of fittings. These fittings must be manufactured individually by a door builder or metalworker, depending on the size of the gate and the posts.



### CAUTION!

Depending on the installation situation, the operators protrude roughly 250 mm per side into the drive-through and reduce the drive-through width.

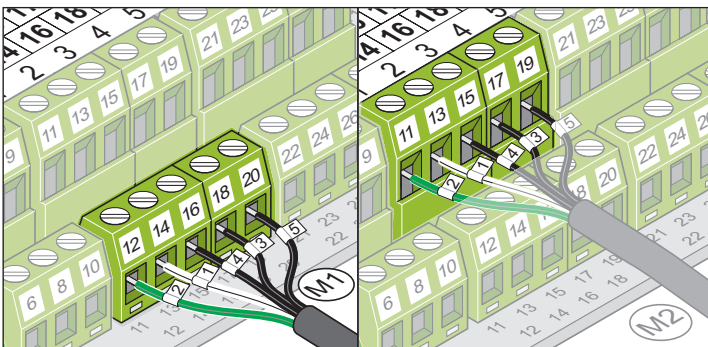
- Swapping A/B dimensions:  
A dimensions = B dimension in the A/B dimension table.  
B dimensions = A dimension in the A/B dimension table.
- Set post and pillar fittings according to A/B dimensions.



### IMPORTANT INFORMATION!

In the case of this “opening gate outwards” installation situation, the connection deviates from the standard connection. Observe the following connection diagram!

The logic of the limit stops is also reversed; see note on Page 16.



## 1-leaf gate

| Terminal | Description | Description             |
|----------|-------------|-------------------------|
| 11       | 2           | Motor 2 (M2) connection |
| 13       | 1           |                         |
| 15       | 4           | End switch CLOSE        |
| 17       | 3           | End switch OPEN         |
| 19       | 5           | End switch GND          |

## 2-leaf gate

| Terminal | Description | Description                                   |
|----------|-------------|---|
| 12       | 2           | Motor 1 (M1) connection                       |
| 14       | 1           | Gate leaf with stop opens last.               |
| 16       | 4           | End switch OPEN                               |
| 18       | 3           | End switch CLOSE                              |
| 20       | 5           | End switch GND                                |
| 11       | 2           | Motor 2 (M2) connection                       |
| 13       | 1           | Gate leaf with walk-through gate opens first. |
| 15       | 4           | End switch OPEN                               |
| 17       | 3           | End switch CLOSE                              |
| 19       | 5           | End switch GND                                |

# Installation

## Adjust end positions

**CAUTION! DANGER OF ELECTROCUTION!**  
 Before doing any work on the gate or operator, disconnect it from the power supply and lock it to prevent reconnection.

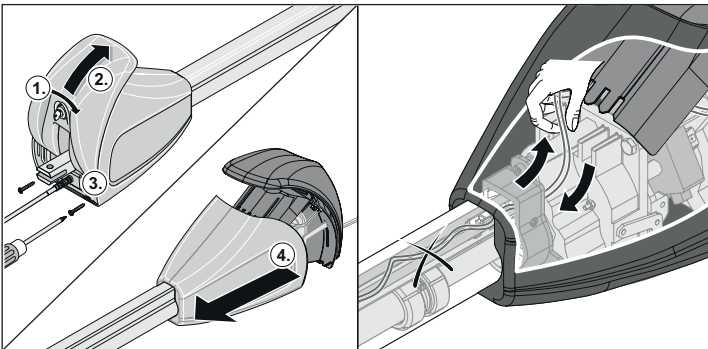
**CAUTION!**  
 Never connect the operator directly to the AC 230 V mains power. Risk of deadly electric shock!

**CAUTION!**  
 Adjusting the limit switches with a battery-powered screwdriver or similar tool destroys the limit switches.  
 • Use recommended tools.

**CAUTION!**  
 Connecting cables can jam when adjusting the limit switches in the protective tube.  
 • When adjusting the limit stops, always insert and bundle the connecting cable to prevent individual wires becoming pinched/trapped in the housing.

**IMPORTANT INFORMATION!**  
 1 revolution = 1.25 mm adjustment path when adjusting the limit switch.

**IMPORTANT INFORMATION!**  
 In the installation situation “opening gate outwards”, see Page 15, the logic of the limit stops is reversed. The “Gate OPEN” end position is set via the “close” screw and the “Gate CLOSE” end position via the “open” screw.

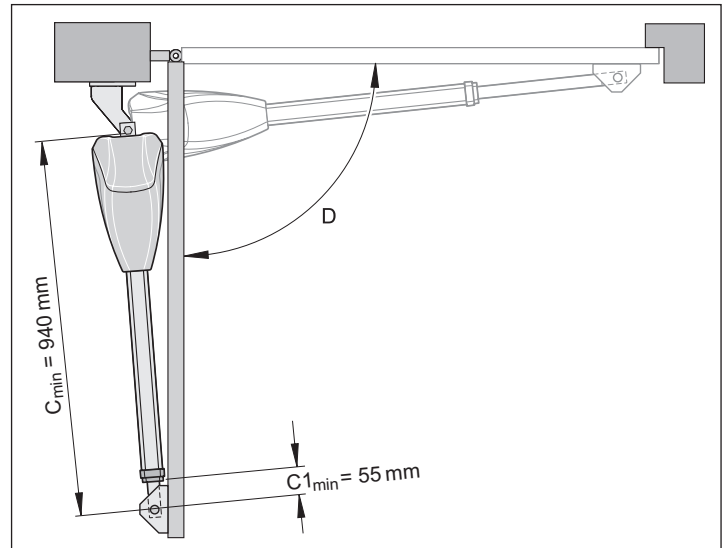


**IMPORTANT INFORMATION!**  
 When no Motor 1 is connected, the “Limit 1 open” and “Limit 1 close” LEDs light constantly.

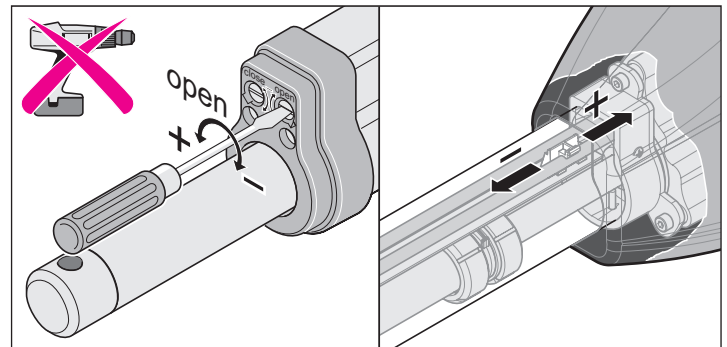
## 1. Check end position setting

- Unlock operator, see Section “Unlocking operator” on page 17.
- Move operator to end position by opening and closing the gate by hand.
- When the respective end position of the operator is reached, the “Limit 1 or 2 open” or “Limit 1 or 2 close” LEDs light up.

## 2. Setting “Gate OPEN” end position



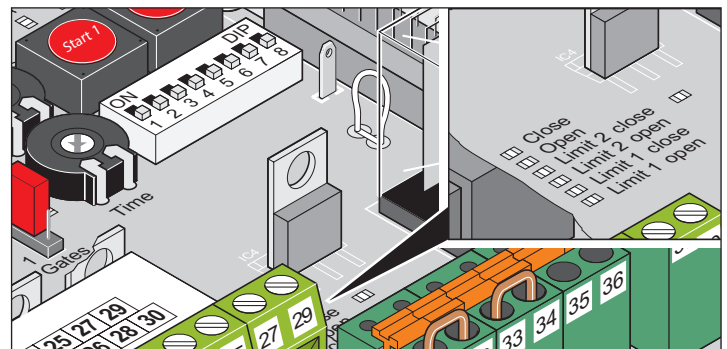
**IMPORTANT INFORMATION!**  
 “Gate OPEN” end position preset to  $C1_{min}$ .



If necessary, readjust end position with a screwdriver.

- Extending travel length: Turn “open” setscrew in (+) direction.
- Reducing travel length: Turn “open” setscrew in (-) direction.

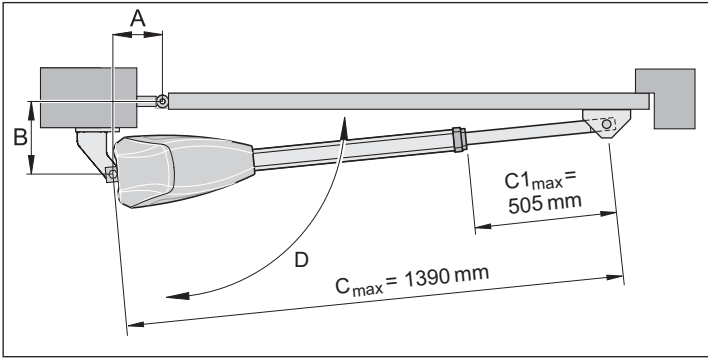
**IMPORTANT INFORMATION!**  
 When the switching point of the limit switch is reached, the “Limit 1 open” or “Limit 2 open” LED is on.



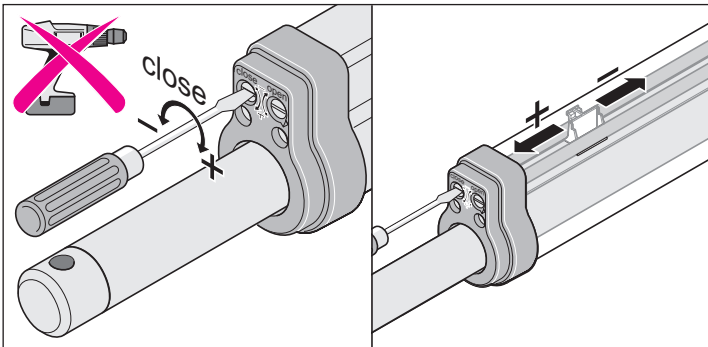


# Installation

## 3. Setting "Gate CLOSE" end position



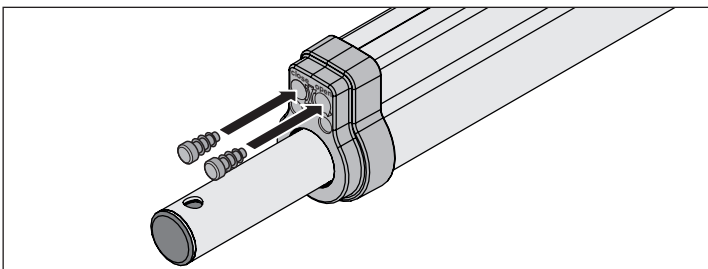
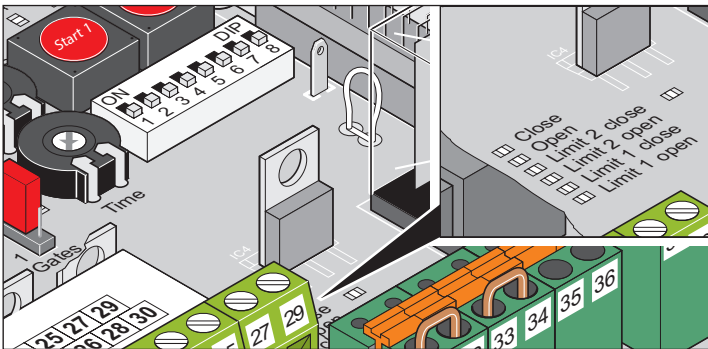
**i** **IMPORTANT INFORMATION!**  
 "Gate CLOSE" end position preset to  $C1_{max}$ .  
 Do not exceed maximum values:  $C1_{max}$  and  $C_{max}$ .



If necessary, readjust end position with a screwdriver.

- Extending travel length: Turn "close" setscrew in (+) direction.
- Reducing travel length: Turn "close" setscrew in (-) direction.

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



- Insert lamellar plug when setting work has been completed.

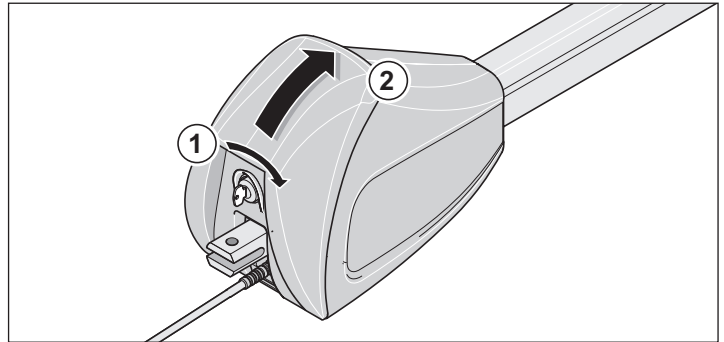
## Locking and unlocking the operator

**!** **CAUTION!**  
 Before doing any work on the gate or operator, disconnect it from the power supply and lock it to prevent reconnection.

**i** **IMPORTANT INFORMATION!**  
 The emergency release handle can only be adjusted with application of force and it engages noticeably.

In the event of a power failure, the gate can be moved by hand after unlocking.

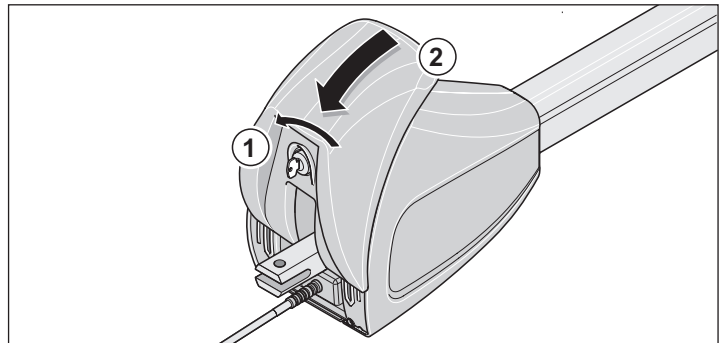
### Unlocking operator



1. Insert the key (1) and turn it 90° clockwise.
2. Push emergency release handle (2) up to the stop.
  - ⇒ The motor is unlocked.
  - ⇒ The gate can now be moved by hand.

### Lock operator


1. Press emergency release handle (2) downwards and engage.





2. Turn key (1) 90° anti-clockwise and remove it.
  - ⇒ The motor is locked.
  - ⇒ The gate can now only be moved using the operator.


# Commissioning

## Safety instructions

**CAUTION!**  
 After installation of the operator, 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 operator is retrofitted to a manually operated gate. This documentation and the installation and operating manual are retained by the operator.


**CAUTION!**  
 The adjustment of the force tolerance is safety-relevant and must be performed by qualified personnel with the utmost 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.

**CAUTION!**  
 Always perform learning run under supervision, because the operators traverse at full power. This is dangerous for persons, animals and object within the range of motion of the gates.

**CAUTION!**  
 Before working on the gate or the operator always disconnect the control unit from the power supply and lock to prevent reactivation.

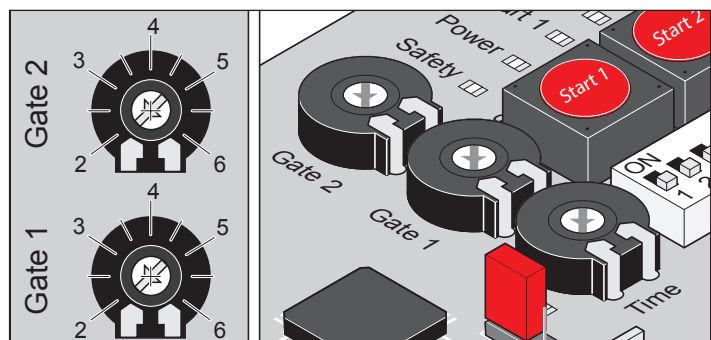
- "Status" LED and a connected warning light (accessory) flash during the learning run and as a visual warning at standstill.
- In the commissioning process the force required for opening and closing, the runtime and the closing delay are learned and saved by the control unit.

## Preparing continuous operation

**IMPORTANT INFORMATION!**  
 Do not use a metal object to set the DIP switches, because this may damage the DIP switches or the circuit board. The DIP switches can be set with a narrow, flat plastic object.

- Components for 1- or 2-leaf gate are connected and set, see chapter "Functions and connections".
  - Mains power is connected and voltage (AC 230 V) is present at control unit: "Power" LED on.
  - The fittings bolts are tightened, operators can be moved easily.
1. Lock operator and connect with padlock.
  2. Close the gate.

## Adjusting the gate leaf length




| Setting  | Gate leaf length | Description   |
|----------|------------------|---|
| 2        | approx. 2 m      | Small gate<br><ul style="list-style-type: none"> <li>• High speed</li> <li>• Low force value</li> </ul> |
| 3.5      | approx. 3.5 m    | Large gate<br><ul style="list-style-type: none"> <li>• Low speed</li> <li>• High force value</li> </ul> |
| 3.5 to 7 |                  | Compensation of influences by A and B dimensions  |

## Changing gate leaf length after programming the operator

1. Reset the control unit.
2. Set the gate leaf length.
3. Perform learning run.

## Enabling continuous operation

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

**IMPORTANT INFORMATION!**  
 2-leaf gate close sequence.

- Motor 1 (M1) on the gate leaf with the stop closes first.
- Motor 2 (M2) on the gate leaf with walk-through gate closes last.

1. Check the setting of the limit switches.
2. Open and close gate.
3. If the operator switches off correctly at both end positions: Perform learning run.



# Commissioning

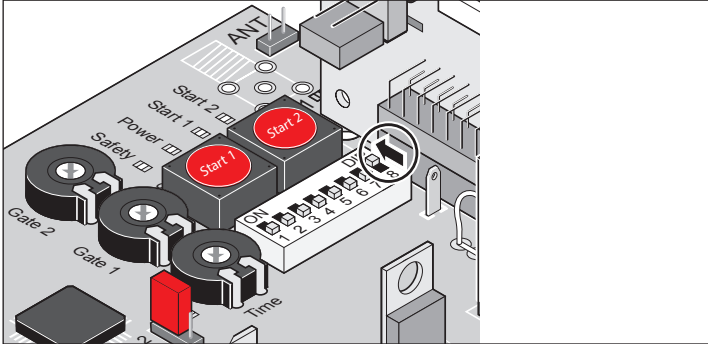
## Performing learning run



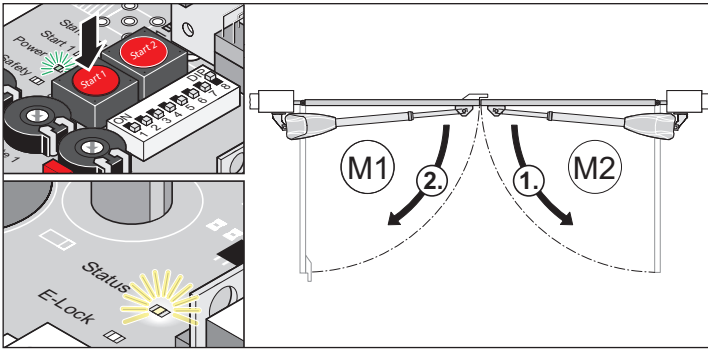
### CAUTION!

Always perform learning run under supervision, because the operators traverse at full power. This is dangerous for persons, animals and object within the range of motion of the gates.

1. Lock the operator, see chapter "Locking and unlocking the operator".



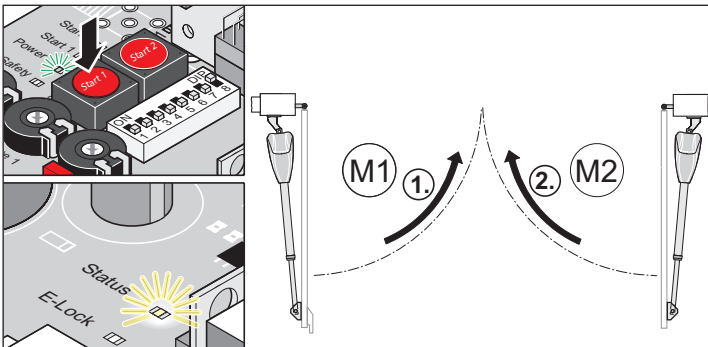
2. Set DIP switch 8 to ON.



### IMPORTANT INFORMATION!

**Checking direction of running:** After the first command, the operator must traverse in the "Gate OPEN" direction. If the operator moves in direction "Gate CLOSE", reverse the operator connector cable on the control unit.

3. Press button (Start 1).
  - ⇒ Operators move into the "Gate OPEN" end position.
  - ⇒ "POWER" LED lights, "Status" LED flashes.



4. Press button (Start 1).
  - ⇒ Operators move into the "Gate CLOSE" end position.
  - ⇒ "POWER" LED lights, "Status" LED flashes.

5. Repeat steps 3 and 4.
  - ⇒ If all values are programmed: The "Status" LED goes out in both end positions.
6. Programming process completed.
7. After successful programming run.
  - ⇒ Operators are started and stopped with soft running. Every time the gates are opened and closed, the control unit monitors the required force, runtime, and closing delay and adjusts them incrementally when the end positions are reached.



### IMPORTANT INFORMATION!

After the programming run, the operators must open and close the gate several times to allow the control unit to set the soft run for the end positions correctly. Depending on the gate, 5–10 gate movements may be necessary.

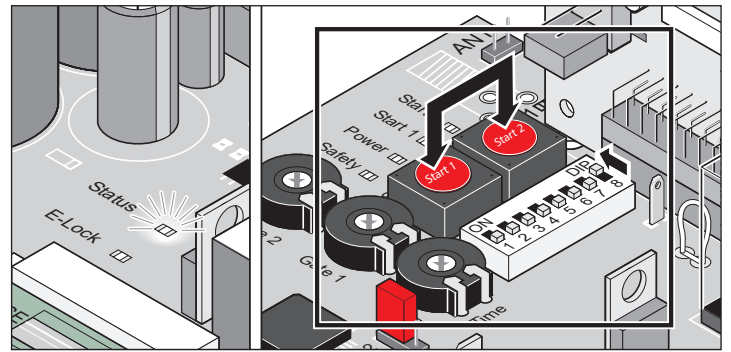
8. Leave DIP switch 8 "ON".

## Detecting faulty learning runs

- Operators run without soft running.
  - "Status" LED flashes in both end positions.
1. Reset the control unit.
  2. Perform learning run.

## Resetting the control unit

The control unit reset deletes all programmed values (e.g. force values: force required by operator to open or close the gate, closing delay).



1. Press and hold the button (Start 1 + Start 2).
  - ⇒ The "Status" LED flashes.
  - ⇒ The "Status" LED goes out.
  - ⇒ All values deleted.
2. Release button.
  - ⇒ The "Status" LED flashes.
3. Perform a learning run, see chapter "Performing learning run".

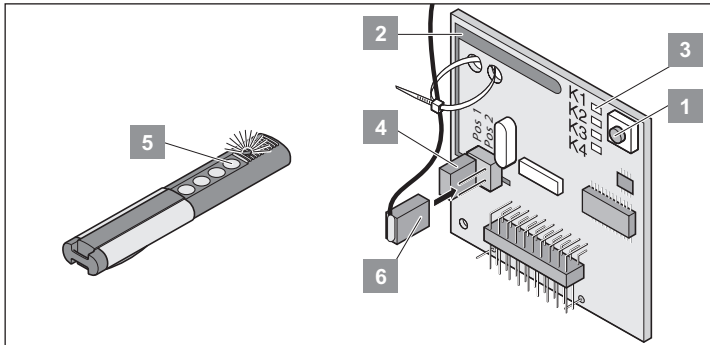
# Commissioning

## Radio receiver (version Somloq Rollingcode)

### Safety instructions

- The operator is not protected against interference caused by other telecommunications equipment or devices (e.g. wireless systems which are being operated properly in the same frequency range).
- Replace the hand-held transmitter unit's batteries if you experience reception problems.

### Display and button explanation



| No. | Description   |
|-----|---|
| 1   | Teach-in button   |
| 2   | Internal antenna  |
| 3   | <b>LEDs show selected channel</b><br>K1 = radio channel 1 -> same function as "Start 1" (pulse)<br>K2 = radio channel 2 -> same function as "Start 2" (active leaf)<br>! K3 = radio channel 3 -> no function<br>! K4 = radio channel 4 -> no function |
| 4   | Connection of the external antenna (6)  |
| 5   | Handheld transmitter button   |
| 6   | External antenna  |

\* See chapter "Opening and closing gate".

**i** **IMPORTANT INFORMATION!**  
Before programming transmitters: Delete the radio receiver memory.

### Deleting the radio receiver memory

- If a hand-held transmitter is lost, all transmitters 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 Teach-in button (1).  
⇒ After 5 seconds, the LED flashes – after another 10 seconds, the LED is lights up steadily.  
⇒ After a total of 25 seconds, all LEDs light.
  2. Release the Teach-in button (1).  
⇒ All LEDs go out – memory clearing process complete.

## Programming transmitter

### 1-leaf gate

- Button 1 on radio channel 1.

### 2-leaf gate

- Button 1 on radio channel 1 (both gate leaves open).
- Button 2 on radio channel 2 (only the active leaf opens).

1. Press the Teach-in button (1):
  - 1x for channel 1; LED "K1" lights.
  - 2x for channel 2; LED "K2" lights.
2. Press one of the transmitter buttons (5).  
⇒ The transmitter has sent the radio code to the radio receiver.  
⇒ When the radio code has been programmed: LED goes out.
3. Cancelling the teach-in mode: Press the Teach-in button (1) several times until no more LEDs are lit.

**i** **IMPORTANT INFORMATION!**  
If no radio code is sent within 10 seconds, the radio receiver switches to normal operation.

### Control

1. Press button 2.  
⇒ Only the gate leaf with walk-through gate opens.
  2. Press button 1.  
⇒ Both gate leaves open.
  3. Programming additional transmitters: Repeat "Programming transmitter".
- The radio receiver can save a maximum of 112 different radio codes (transmitter buttons).
  - If a user moves a mutually used gate system and also takes the transmitter, all radio codes of the transmitter must be deleted from the radio receiver.

### Deleting radio code

1. Press Teach-in button (1) and keep it pressed for 5 seconds.  
⇒ LED "K1" or "K2" flashes.
2. Release the Teach-in button (1).  
⇒ The radio receiver is in Deletion mode.
3. Press the transmitter button of the radio code.  
⇒ LED goes off – wipe procedure complete.

### Deleting all radio codes of a channel

1. Press Teach-in button (1) and keep it pressed for 5 seconds.
  - 1x for channel 1
  - 2x channel 2
 ⇒ The channel LED flashes.
2. Keep the Teach-in button (1) pressed for another 10 seconds.  
⇒ The channel LED lights up.
3. Release Teach-in button (1) – the deletion procedure is ended.

# Commissioning

## Troubleshooting

### All LEDs flashing

- All 112 storage locations of the radio receiver are occupied. If additional transmitters are to be programmed, delete radio codes from the radio receiver.

### 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.

## Important note for more detailed information

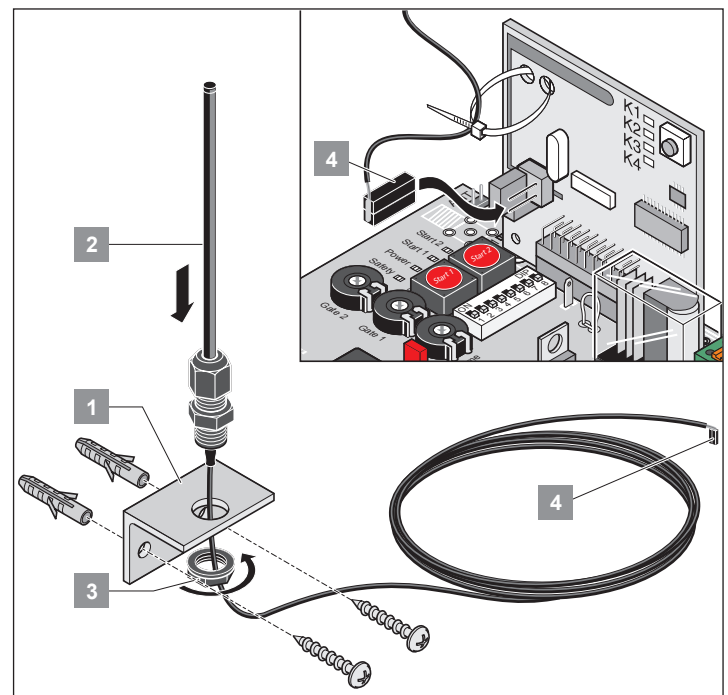
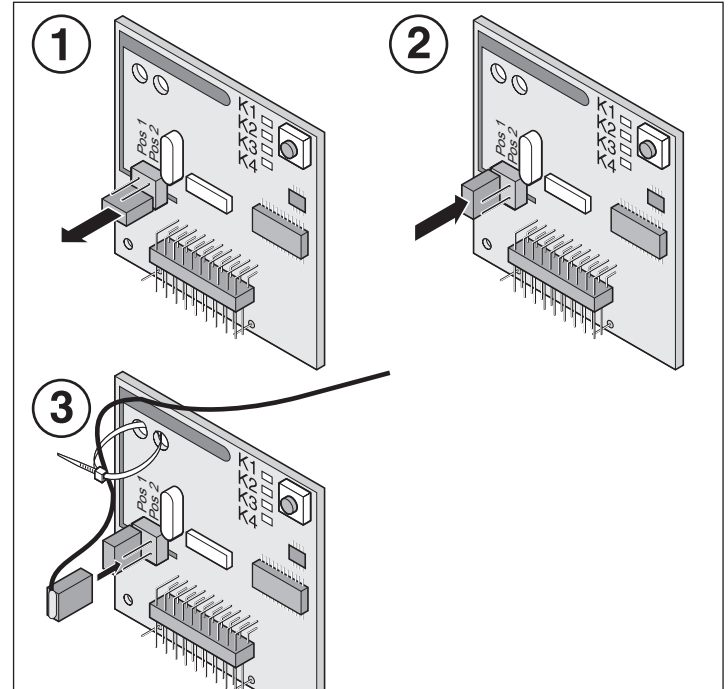
You can get the separate Installation and Operating Manual (radio receiver, 4-channel – Somloq Rollingcode/868.8 MHz/434.42 MHz) by scanning the QR code.



<https://downloads.sommer.eu/?category=40>

## Connecting external antenna

- Attach a strain relief on the antenna cable to prevent mechanical stresses on the radio receiver.
- If the range of the internal antenna is insufficient, connect external antennas.
- Attach connecting cables of the external antenna.
- Define the installation location together with the operator.



# Commissioning

## Radio receiver (version SOMloq2)

### Information on SOMloq2

The bidirectional data transmission between the transmitter and receiver allows a wide range of functions. Transmission is tap-proof and particularly reliable thanks to the special coding. Separate antennas or other installations are not necessary.



#### IMPORTANT INFORMATION!

The receiver is SOMlink-compatible!

### Safety instructions



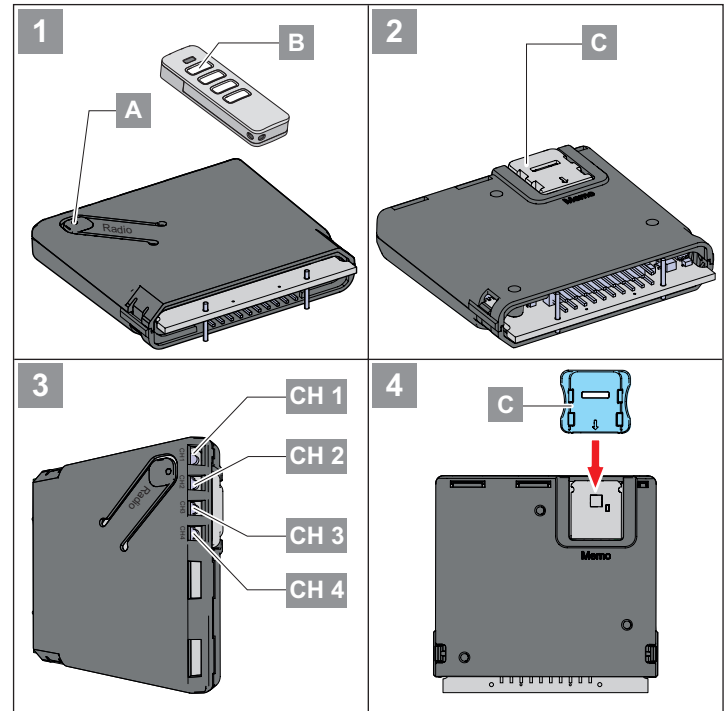
#### CAUTION!

- Opening the device is strictly prohibited and will cause loss of any claims for warranty service.
- Have faulty devices repaired by a technician authorised by the manufacturer.
- The local safety regulations for the system must be observed to ensure safe operation! Information is available from electrical utility companies, VDE (Association for Electrical, Electronic & Information Technologies) and professional associations.

### Intended use

- Systems that pose an accident risk should not be operated by remote control unless the complete range of movement of the system is visible to the user!
- Remote control of devices and systems with increased accident risk (e.g. hoists) is prohibited!
- The remote control must only be used for devices and systems in which radio interference in the handheld transmitter or radio receiver will not endanger people, animals or objects, or the risk is reduced by other safety devices.
- The operator of the radio system has no protection against interference from other telecommunications systems or terminal equipment (e.g. including other radio systems that are licensed to operate in the same frequency range).
- After a power interruption, (e.g. in the event of a power failure), the radio receiver sets all outputs to **OFF**. Switch on an actuated alarm system again after a power interruption or use a backup battery.

### Explanation of display and buttons



#### IMPORTANT INFORMATION!

- If no button is detected as pressed on the handheld transmitter within 30 seconds, the LED for the selected radio channel (CH) goes out and programming mode is ended.

1. Press the Radio button (A) on the control unit repeatedly to select the desired radio channel (CH).

|      | 1x | 2x | 3x | 4x |
|------|----|----|----|----|
| LED  |    |    |    |    |
| CH 1 |    |    |    |    |
| CH 2 |    |    |    |    |
| CH 3 |    |    |    |    |
| CH 4 |    |    |    |    |

| LED  | Description   |
|------|---|
|      | <b>LEDs show selected channel</b>                           |
| CH 1 | Radio channel 1 -> same function as "Start 1" (pulse)       |
| CH 2 | Radio channel 2 -> same function as "Start 2" (active leaf) |
| CH 3 | Radio channel 3 -> no function                              |
| CH 4 | Radio channel 4 -> no function                              |

# Commissioning

## Programming the transmitter



### IMPORTANT INFORMATION!

The transmitter that is to be programmed must be located near the receiver during the programming process!

1. Press button **(A)** briefly.
  - 1x for channel 1,  
⇒ LED CH 1 lights up green.
  - 2x for channel 2,  
⇒ LED CH 2 lights up green.
  - 3x for channel 3,  
⇒ LED CH 3 lights up green.
  - 4x for channel 4,  
⇒ LED CH 4 lights up green.

⇒ If no command is transmitted within 30 seconds, the radio receiver switches over to normal mode.

⇒ Cancelling programming mode: Press the Teach-in button **(A)** repeatedly until no more LEDs are lit.
2. Press and hold the desired handheld transmitter button **(B)** until the LED for the selected channel blinks quickly and goes out.
  - ⇒ Programming is finished.
3. Repeat steps 1–2 to program other handheld transmitters to this radio receiver.

## Installing accessories

Only **SOMMER** accessories may be connected.

## Programming by radio (HFL)

### Function

Each handheld transmitter that has already been programmed can put the receiver into programming mode by radio. This allows additional transmitters to be programmed without having to press button **(A)** on the receiver. The button assignment on handheld transmitter **A (Fig. HFL)** (which activated the receiver) is also used for handheld transmitter **(B)** which needs to be programmed. Both handheld transmitters must be located within the range of the radio receiver.



### IMPORTANT INFORMATION!

Only the programming of identical handheld transmitters by radio is recommended!

If different handheld transmitter types are used, only the first button command is transferred from handheld transmitter 1 to important information! handheld transmitter 2.

### Procedure

1. Press and hold buttons (1+2) of the previously programmed handheld transmitter A for 3–5 seconds until LEDs (CH 1 and CH 2) on the receiver fast flash inverted green.
2. Release buttons (1+2).
  - ⇒ If a command is not transmitted within another 30 seconds, the radio receiver switches over to normal mode.
3. Press any button on the new handheld transmitter B.
  - ⇒ LEDs (CH 1–CH 4) on the receiver blink quickly and go out.
  - ⇒ Commands and key assignment on handheld transmitter B and handheld transmitter A are now identical.

### Operation

1. Press transmitter button **(B)** briefly.
  - ⇒ LED for the programmed channel lights up orange as long as the button is pressed.
  - ⇒ The assigned output switches.

## Deleting a transmitter button from the radio channel

1. Select radio channel with button **(A)** and hold the button pressed for 15 to 20 seconds until the LED for the selected channel flashes red.
2. Release Teach-in button **(A)**.
  - ⇒ To cancel delete mode: Press button **(A)**; LED goes out.
  - ⇒ If no command is transmitted within 30 seconds, the radio receiver switches over to normal mode.
3. On the transmitter, press the button for which the command is to be deleted in the radio receiver.
  - ⇒ LED blinks quickly – delete complete.
  - ⇒ Radio receiver switches to normal mode – delete complete.

## Deleting a transmitter from the radio receiver

1. Press and hold button **(A)** for 20 to 25 seconds until LED (CH 1) blinks red.
2. Release button **(A)**.
  - ⇒ To cancel delete mode: Press button **(A)**; LED (CH 1) goes out.
  - ⇒ If no command is transmitted within 30 seconds, the radio receiver switches over to normal mode.
3. Press any button on the transmitter that is to be deleted from the receiver memory.
  - ⇒ Radio receiver deletes the transmitter, LED (CH 1) blinks quickly.
  - ⇒ Radio receiver switches to normal mode – delete complete.

# Commissioning

## Deleting a radio channel



### IMPORTANT INFORMATION!

This action cannot be interrupted!

1. Select the radio channel to be deleted with button **(A)** and hold button **(A)** pressed for 25–30 seconds until the LED for the selected channel lights up red.
2. Release button **(A)**.
  - ⇒ The channel is deleted from the radio receiver.
  - ⇒ Receiver switches to normal mode – delete complete.

## Deleting the entire memory of the radio receiver



### IMPORTANT INFORMATION!

This action cannot be interrupted!

If a transmitter is lost, all channels in the radio receiver must be deleted for security reasons! Then reprogramme all transmitters.

1. Press and hold button **(A)** for more than 30 seconds until the LEDs (CH 1–CH 4) simultaneously light up red.
2. Release button **(B)**.
  - ⇒ Radio receiver deletes the memory.
  - ⇒ Radio receiver switches to normal mode – delete complete.

## If the memory capacity has been reached

A total of 40 handheld transmitter commands are available for all channels. If an attempt is made to program additional transmitters, the red LEDs of radio channels CH 1–4 blink.

## Information on Memo

The memory capacity can be extended to 450 handheld transmitter commands using the optional Memo accessory part.

When the Memo is plugged in, all available transmitters are transferred from the internal memory to the Memo and stored there. The Memo must remain plugged in on the control unit. No more transmitters are then stored in the internal memory. Stored transmitters cannot be transferred from the Memo back to the internal memory. All radio channels, including the memory of the Memo, can be deleted.

## Installing the Memo



### CAUTION!

If the Memo is removed, the receiver memory is empty. Radio commands need to be programmed again!

1. Turn off the power supply to the operator control unit.
2. Disconnect the receiver from the operator control unit.
3. Plug the Memo **(C)** into the slot.
4. Reconnect the receiver to the operator control unit.
5. Restore the power supply.
  - ⇒ A total of 450 memory positions is now available for radio commands.

You can get the separate Installation and Operating Manual (radio receiver SOMup4 – SOMloq2/868.95 MHz) by scanning the QR code.



<https://downloads.sommer.eu/?category=36>



# Operation/Use

## Safety instructions

- Never operate a damaged operator.
- 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 system by remote control only if you have a clear view of the gate.
- Keep the hand-held transmitter so that an unintended operation e.g., by children or animals, is prevented.
- 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.

## Emergency release in case of power failure

See chapter "Locking and unlocking the operator".

## Normal mode

Changes to the gate affect the force needed for opening and closing.

Examples for changes to the gate:

- Damage
- Moisture absorption
- Ground submergence
- Changes in weather in summer-winter mode
- Obstacles

## Obstacle detection

- ⇒ We offer a range of different safety strips. It includes both active (trigger an immediate stop of the gate at contact) and passive (take up part of the inertial mass of the moving gate) strips.

### Obstacle detection by photocell

**CAUTION!**  
**A photocell must be used for object protection only.**  
**A photocell must not be used for personal protection!**

- Wire the photocell in accordance with Chapter "Installation".

**IMPORTANT INFORMATION!**  
**Obstacle detection requires a correctly completed learning run.**

A tolerance for the force required for opening or closing can be set on the potentiometer.

- If the force required increases or decreases within the set tolerance, the control unit automatically learns this value.
- If the force required is outside the set tolerance (e.g. due to an obstacle), the operator stops and reverses a short distance. This power deactivation with reverse is required for safety.

## Summer-winter mode

Differences in weather between summer and winter can influence the operators:

- The force required varies for opening and closing.
- The gate reverses without a noticeable obstacle.
- The end positions of the gate leaf change.

If the gate will not open or close or reverses without a noticeable obstacle:

1. Perform a control unit reset, see chapter "Resetting the control unit".
2. Perform a learning run, see chapter "Performing learning run".

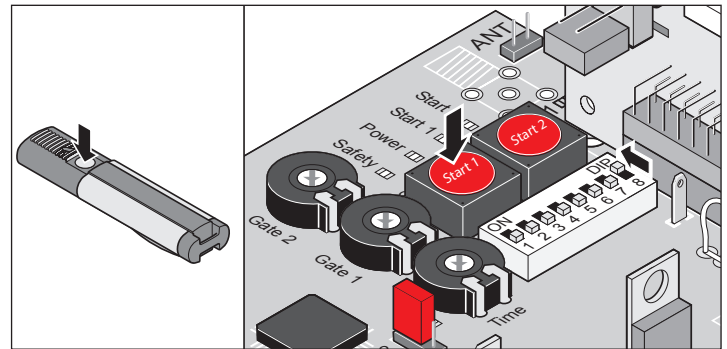
If the end positions have changed:

1. Adjust limit switch.

## Opening and closing gate

### Requirements

- DIP switch 8 to ON.
- Learning run performed.
- Transmitter programmed: Button 1 to channel K1, button 2 on channel K2.



### 1-leaf gate

1. Press button (Start 1) or transmitter button (Button 1).
  - ⇒ Gate opens up to "Gate OPEN" end position – "Limit 1 open" and "Limit 1 close" LEDs light up. "Open" and "Status" LEDs light up.
  - ⇒ Gate opens until "Gate OPEN" end position – "Limit 2 open", "Limit 1 open" and "Limit 1 close" LEDs light up. "Close" and "Status" LEDs go out.

### 2-leaf gate – both gate leaves

1. Press button (Start 1) or transmitter button (Button 1).
  - ⇒ Gate leaf with walk-through gate opens.
  - ⇒ Gate leaf with stop opens with a delay of approximately 3 seconds – "Open" and "Status" LEDs light up.
  - ⇒ "Gate OPEN" end position reached – "Limit 1 open" and "Limit 2 open" LEDs light up. "Close" and "Status" LEDs go out.
2. Press button (Start 1) or transmitter button (Button 1).
  - ⇒ Gate leaf with stop closes.
  - ⇒ Active leaf closes with a delay or simultaneously (depending on installation situation) – "Close" and "Status" LEDs light up.
  - ⇒ "Gate CLOSE" end position reached – "Limit 1 close" and "Limit 2 close" LEDs light up. "Close" and "Status" LEDs go out.



## 2-leaf gate – gate leaf with walk-through gate

1. Press button (Start 2) or transmitter button (button 2).
  - ⇒ Gate opens up to “Gate CLOSE” end position – “Open”, “Status” and “Limit 1 close” LEDs light up.
  - ⇒ “Gate CLOSE” end position reached – “Limit 2 open” and “Limit 1 close” LEDs light up. “Close” and “Status” LEDs go out.
2. Press button (Start 2) or transmitter button (button 2).
  - ⇒ Gate closes up to “Gate CLOSE” end position – “Close”, “Status” and “Limit 1 close” LEDs light up.
  - ⇒ “Gate CLOSE” end position reached – “Limit 1 close” and “Limit 2 close” LEDs light up. “Close” and “Status” LEDs go out.

# Functions and connections

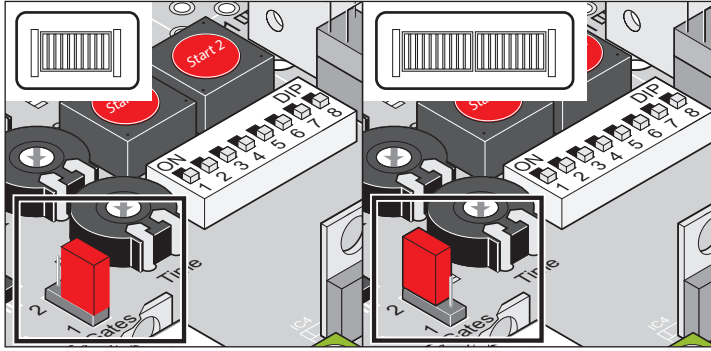
## Safety instructions

➤ Observe cable requirements:

| Property       | Value                    | Terminals          |
|----------------|--------------------------|--------------------|
| Cross-section  | 0.25–2.5 mm <sup>2</sup> | All terminals      |
| Maximum length | 10 m                     | 5 to 10<br>35 + 36 |
| Maximum length | 30 m                     | 21 to 34           |

## Jumper

Select 1- or 2-leaf gate.

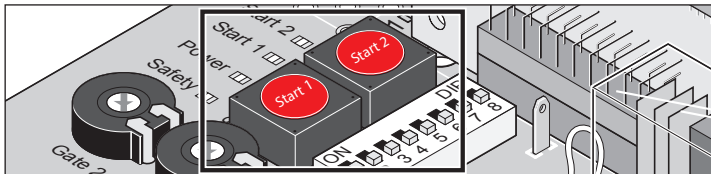


| Label     | Description                              |
|-----------|--|
| Gates 1/2 | 1-leaf: Jumper on bottom pins or removed |
|           | 2-leaf: Jumper on top pins               |

## Setting 1- or 2-leaf gate (jumper)

1. Reset the control unit.
2. Replug jumpers.
3. Reset the control unit.
4. Perform learning run.

## Button on control unit



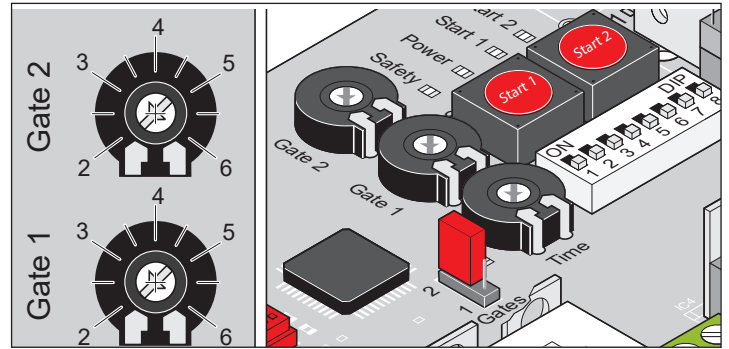
| Label   | Description   |
|---------|---|
| Start 1 | <p>Pulse button</p> <ul style="list-style-type: none"> <li>• opens both gate leaves.</li> <li>• Stops moving gate leaf with walk-through gate.</li> <li>• Gate leaf with walk-through gate open: Opens gate leaf with stop.</li> <li>• Function sequence: Open – Stop – Close – Stop – Open...</li> </ul> |
| Start 2 | <p>Walk-through gate button</p> <ul style="list-style-type: none"> <li>• Opens gate leaf with walk-through gate.</li> <li>• Function sequence: Open – Stop – Close – Stop – Open...</li> </ul>  |



### IMPORTANT INFORMATION!

Button (Start 2) operates only if the gate leaf with stop is fully closed.

## Potentiometer for gate leaf length



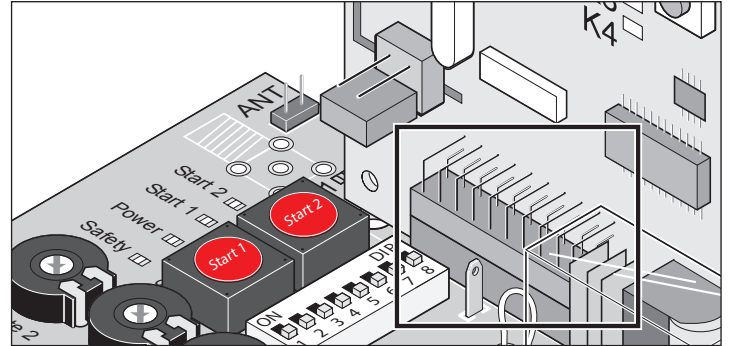
The gate leaf length is set with the “Gate 1” (M1/gate leaf with stop) + “Gate 2” (M2/gate leaf with walk-through gate) potentiometers.

The gate leaf length determines the speed of movement and the force tolerance for the separate leaves.

- Maximum force = learned force + force tolerance

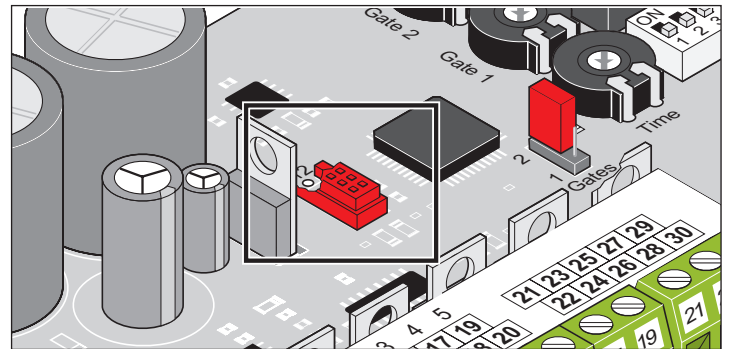
## Radio connector

Slot for radio receiver. Installed on delivery.



## TorMinal interface

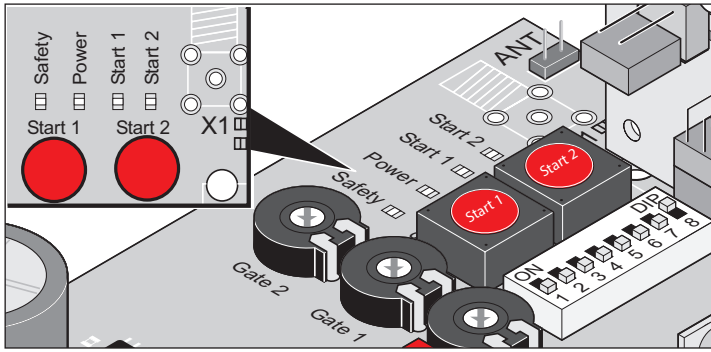
See TorMinal installation and operating manual.



# Functions and connections

## Light-emitting diodes (LED)

Shows the status of the control unit.

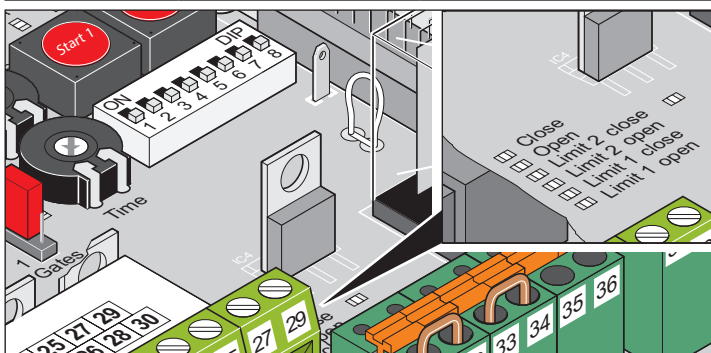


| Label  | Colour | Status | Description                                       |
|--------|--------|--------|---|
| Safety | Red    | Off    | Idle mode   |
|        |        | On     | Safety input interrupted (e.g. photo eye tripped) |

**CAUTION! DANGER OF ELECTROCUTION!**  
 If the fuse is burnt out, the "Power" LED will not be on although the mains voltage (AC 230 V) is present on the control unit.

- Before doing any work on the gate or operator, disconnect it from the power supply and lock it to prevent reconnection.

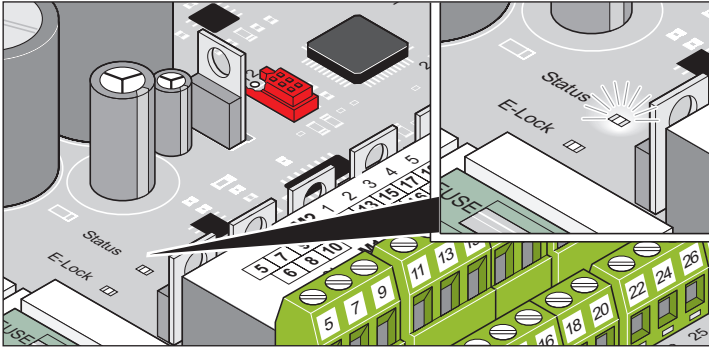
| Label   | Colour | Status | Description                             |
|---------|--------|--------|---|
| Power   | Green  | Off    | Power supply interrupted                |
|         |        | On     | Mains voltage present                   |
| Start 1 | Yellow | Off    | Idle mode                               |
|         |        | On     | Start 1 button/radio channel 1 actuated |
| Start 2 | Yellow | Off    | Idle mode                               |
|         |        | On     | Start 2 button/radio channel 2 actuated |



**IMPORTANT INFORMATION!**  
 If both LEDs are on (LED "Limit 2 close" and "Limit 2 open" or "Limit 1 close" and "Limit 1 open"), either no motor is connected or an impermissible operator is connected. See chapter "Mixed operation".

| Label                       | Colour | Status | Description   |
|-----------------------------|--------|--------|---|
| Close                       | Yellow | Off    | Idle mode   |
|                             |        | On     | Gate closes   |
| Open                        | Yellow | Off    | Idle mode   |
|                             |        | On     | Gate opens  |
| Limit 2 close (CLOSE) (M 2) | Red    | Off    | Idle mode   |
|                             |        | On     | <ul style="list-style-type: none"> <li>• "Gate CLOSE" limit switch actuated</li> <li>• Impermissible mixed operation</li> <li>• No motor connected</li> </ul> |
| Limit 2 open (AUF) (M 2)    | Red    | Off    | Idle mode   |
|                             |        | On     | <ul style="list-style-type: none"> <li>• "Gate OPEN" limit switch actuated</li> <li>• Impermissible mixed operation</li> <li>• No motor connected</li> </ul>  |
| Limit 1 close (M 1)         | Red    | Off    | Idle mode   |
|                             |        | On     | <ul style="list-style-type: none"> <li>• "Gate CLOSE" limit switch actuated</li> <li>• Impermissible mixed operation</li> <li>• No motor connected</li> </ul> |
| Limit 1 open (M 1)          | Red    | Off    | Idle mode   |
|                             |        | On     | <ul style="list-style-type: none"> <li>• "Gate OPEN" limit switch actuated</li> <li>• Impermissible mixed operation</li> <li>• No motor connected</li> </ul>  |

# Functions and connections



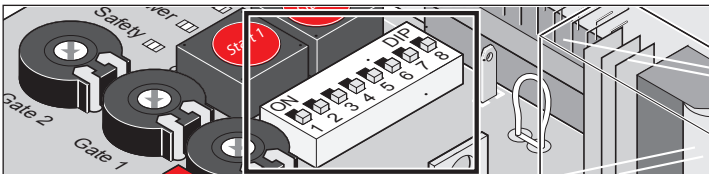
| Label  | Colour | Status  | Description  |
|--------|--------|---------|--|
| E-lock | Yellow | Off     | Idle mode  |
|        |        | On      | E-lock actuated  |
| Status | Yellow | Off     | Idle mode with programmed force values   |
|        |        | Flashes | <ul style="list-style-type: none"> <li>• Test mode</li> <li>• Programming (even in dead man mode)</li> <li>• During every gate movement, "Gate OPEN" or "Gate CLOSE".</li> </ul> |
|        |        | On      | <ul style="list-style-type: none"> <li>• Setting only possible with TorMinal.</li> <li>• Behaves as when flashing, warning light also on.</li> </ul>                             |

## DIP switches

**CAUTION!**  
 Before switching the DIP switches, disconnect the power supply to the control unit then secure against switching on again.

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

Factory setting for all DIP switches: OFF



| DIP | Function setting "OFF"  | Function setting "ON"   |
|-----|---|---|
| 1   | Response to triggering the safety input (terminals 33 + 34) while the gate opens: <ul style="list-style-type: none"> <li>• No response</li> </ul> | Response to triggering the safety input (terminals 33 + 34) while the gate opens: <ul style="list-style-type: none"> <li>• Gate stops</li> </ul>  |
| 2   | Safety input setting: <ul style="list-style-type: none"> <li>• 4-wire photo eye normally NC contact</li> </ul>                                    | Safety input setting: <ul style="list-style-type: none"> <li>• 2-wire photo relay</li> </ul>  |
| 3   | Response to triggering the safety input while the gate closes: <ul style="list-style-type: none"> <li>• Gate reverses</li> </ul>                  | Response to triggering the safety input while the gate closes: <ul style="list-style-type: none"> <li>• Gate opens completely</li> </ul> Response to triggering the safety input when position DIP 1 = ON: <ul style="list-style-type: none"> <li>• Gate reverses and stops.</li> </ul> |

| DIP | Function setting "OFF"  | Function setting "ON"  |
|-----|---|--|
| 4   | Relay contact (terminals 37 + 38) <ul style="list-style-type: none"> <li>• Time relay*</li> </ul>   | Relay contact (terminals 37 + 38): <ul style="list-style-type: none"> <li>• gate status display   door status display   door status indicator</li> <li>• For additional settings, see DIP 6</li> </ul>   |
| 5   | Pre-warning time warning light: <ul style="list-style-type: none"> <li>• OFF</li> </ul>   | Pre-warning time warning light: <ul style="list-style-type: none"> <li>• 3 seconds</li> <li>• Warning light flashes before gate moves</li> </ul>   |
| 6   | Only if DIP 4 = ON (status display): <ul style="list-style-type: none"> <li>• Gate open – relay contact open</li> <li>• Gate closed – relay contact closed</li> </ul> | Only if DIP 4 = ON (status display): <ul style="list-style-type: none"> <li>• Gate open – relay contact closed</li> <li>• Gate closed – relay contact open</li> </ul>  |
| 7   | Premature closing (automatic closing): <ul style="list-style-type: none"> <li>• OFF</li> </ul>  | Premature closing (automatic closing): <ul style="list-style-type: none"> <li>• ON</li> </ul> Closing delay after actuating the photo eye: <ul style="list-style-type: none"> <li>• 5 seconds</li> </ul> Closing delay without actuating the photo eye: <ul style="list-style-type: none"> <li>• Set stay open time (SOT)</li> </ul> |

\* For additional settings see TorMinal owner's manual.



### IMPORTANT INFORMATION!

After a learning run, leave DIP switch 8 ON. The OFF position immediately deletes all stored values.

| DIP | Function setting "OFF"  | Function setting "ON"  |
|-----|---|--|
| 8   | Test mode: <ul style="list-style-type: none"> <li>• Operator does not learn any values</li> <li>• Setting the limit switches</li> </ul> | Continuous operation: <ul style="list-style-type: none"> <li>• The operator learns continuously while the gate opens and closes:</li> <li>• Force values</li> <li>• Running time</li> <li>• Closing delay</li> </ul> |

# Functions and connections

## Automatic closing function

There are two basic variants for automatic closing.

Every basic variant has sub-variants with other settings.

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

### Fully automatic closing function



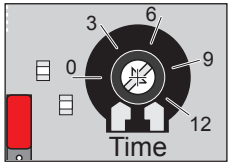
#### IMPORTANT INFORMATION!

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

- The gate does not close until the set opening time has expired completely.
- Command via button or radio control system during closing:
  - ⇒ The gate completely opens.
- Command via button or radio control system while the SOT expires:
  - ⇒ SOT starts again.
- Continuous signal while the SOT expires:
  - ⇒ The SOT restarts as soon as the continuous signal ends.

### Activating fully automatic operation

- Set SOT (2–120 seconds) on the “Time” potentiometer.



#### IMPORTANT INFORMATION!

**After every power deactivation, the fully automatic closing function is deactivated.**

### Deactivating fully automatic operation

- Turn SOT on the “Time” potentiometer to the left stop.

### Sub-variant 1

- Photo eye interrupted during closing:
  - ⇒ The gate completely opens (independent of DIP 3 position).
  - ⇒ Gate remains open until the photo eye is released.
  - ⇒ The SOT restarts as soon as the photo eye is released.

|                      |                       |
|----------------------|-----------------------|
| “Time” potentiometer | Sets the opening time |
| DIP 7                | OFF                   |

### Sub-variant 2

- Photo eye interrupted during opening:
  - ⇒ SOT is 5 seconds.
- Photo eye interrupted in “Gate OPEN” end position:
  - ⇒ SOT is 5 seconds.
- Photo eye interrupted during closing:
  - ⇒ The gate completely opens (independent of DIP 3 position).
  - ⇒ Gate remains open until the photo eye is released.
  - ⇒ SOT is 5 seconds.

|                      |                       |
|----------------------|-----------------------|
| “Time” potentiometer | Sets the opening time |
| DIP 7                | ON                    |

### Sub-variant 3

- Photo eye interrupted during opening:
  - ⇒ Gate stops until the photo eye is released.
  - ⇒ The SOT restarts as soon as the photo eye is released.
  - ⇒ DIP 7 position determines the SOT:
    - DIP 7 ON: SOT is 5 seconds.
    - DIP 7 OFF: SOT is the time set on the “Time” potentiometer.
- Photo eye interrupted during closing:
  - ⇒ The gate completely opens (independent of DIP 3 position).
  - ⇒ Gate remains open until the photo eye is released.
  - ⇒ The SOT restarts as soon as the photo eye is released.
  - ⇒ SOT is 5 seconds.

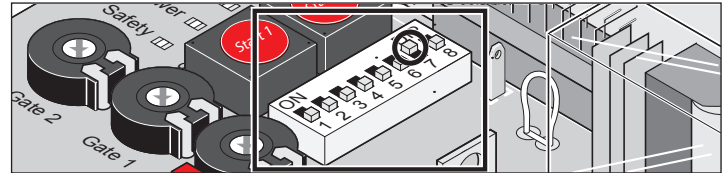
|                      |   |
|----------------------|---|
| “Time” potentiometer | Sets the opening time   |
| DIP 7                | ON (opening time of 5 seconds)<br>OFF (SOT set on the “Time” potentiometer) |

### Semi-automatic closing function

- Command via button or radio control system while the SOT expires:
  - ⇒ Gate can be closed prematurely.
  - ⇒ SOT starts again.
- Continuous signal while the SOT expires:
  - ⇒ The SOT restarts as soon as the continuous signal ends.
- Photo eye interrupted:
  - ⇒ SOT is 5 seconds.
- “Gate OPEN” end position reached:
  - ⇒ SOT is 60 seconds.  
Factory setting, can be changed with the TorMinal.

### Activating semi-automatic closing

- Set DIP switch 7 to ON.



#### IMPORTANT INFORMATION!

**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 closes automatically.**

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



#### IMPORTANT INFORMATION!

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

# Functions and connections

## Sub-variant 1

- Photo eye interrupted during opening:
  - ⇒ Gate opens until the "Gate OPEN" end position is reached.
  - ⇒ "Gate OPEN" end position reached:
  - ⇒ The SOT restarts as soon as the photo eye is released.
  - ⇒ SOT is 5 seconds.
- Photo eye interrupted during closing:
  - ⇒ The gate completely opens (independent of DIP 3 position).
  - ⇒ Gate remains open until the photo eye is released.
  - ⇒ The SOT restarts as soon as the photo eye is released.
  - ⇒ SOT is 5 seconds.

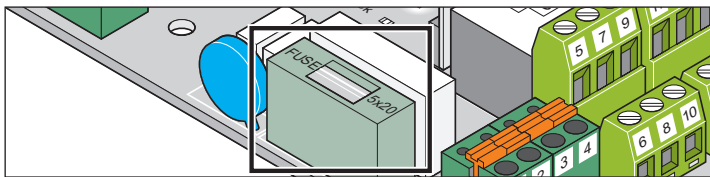
|                      |  |
|----------------------|--|
| "Time" potentiometer | Left stop (deactivated)  |
| DIP 7                | ON (opening time of 5 seconds)   |
| DIP 1                | OFF (no response to the triggering of the safety input with "Gate OPEN") |

## Sub-variant 2

- Photo eye interrupted during opening:
  - ⇒ The gate stops.
  - ⇒ The SOT restarts as soon as the photo eye is released.
  - ⇒ SOT is 5 seconds.
  - ⇒ The gate closes on expiration of the SOT.
- Photo eye interrupted during closing:
  - ⇒ The gate completely opens.
  - ⇒ Gate remains open until the photo eye is released.
  - ⇒ The SOT restarts as soon as the photo eye is released.
  - ⇒ SOT is 5 seconds.

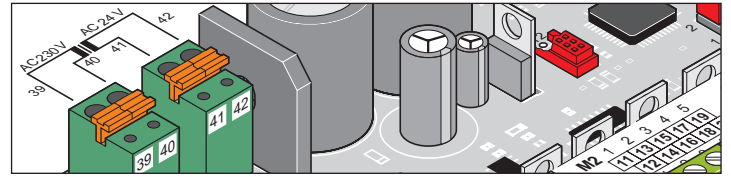
|                      |  |
|----------------------|--|
| "Time" potentiometer | Left stop (deactivated)  |
| DIP 7                | ON (opening time of 5 seconds)                                       |
| DIP 1                | ON (response to the triggering of the safety input with "Gate OPEN") |

## Fuses



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

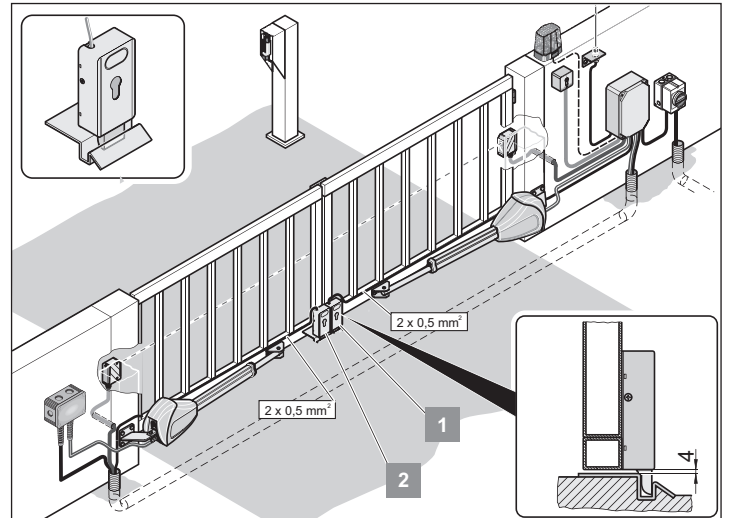
## Transformer terminal



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

## DC 24 V electric lock

- Reset control unit before assembly.
- After installation, reset the "Gate CLOSE" end position.
- Uphold the distance between lock and strike: min. 4 mm and max. 6 mm.
- Note the polarity of the electric lock.
- Install lock in a perpendicular position, otherwise it may become jammed during closing or opening.





# Functions and connections

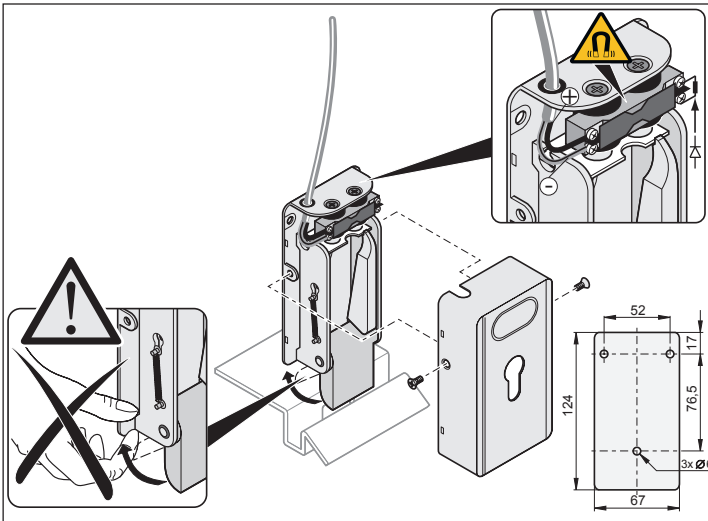
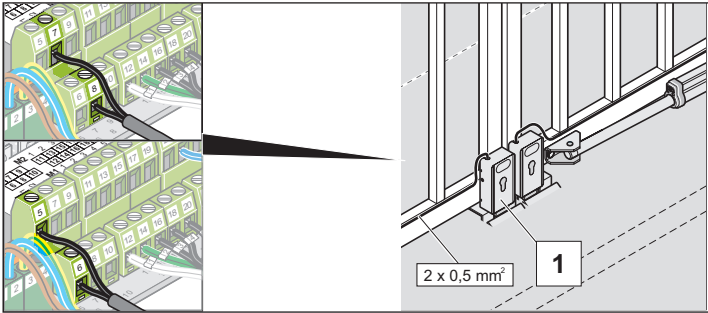
## Connecting electric locks

Available as an accessory.



### IMPORTANT INFORMATION!

The electric lock is operated with direct-current, unregulated transformer voltage. The transformer voltage can fluctuate between DC 22–32 V when fully loaded.



| Terminal | Description | Description  |
|----------|-------------|--|
| 5        | DC 24 V     | Connection for DC 24 V electric lock with max. 15 W power (unstabilised DC 22–32 V). |
| 6        |             |  |
| 7        | DC 24 V     | Connection for DC 24 V electric lock with max. 15 W power (unstabilised DC 22–32 V). |
| 8        |             |  |

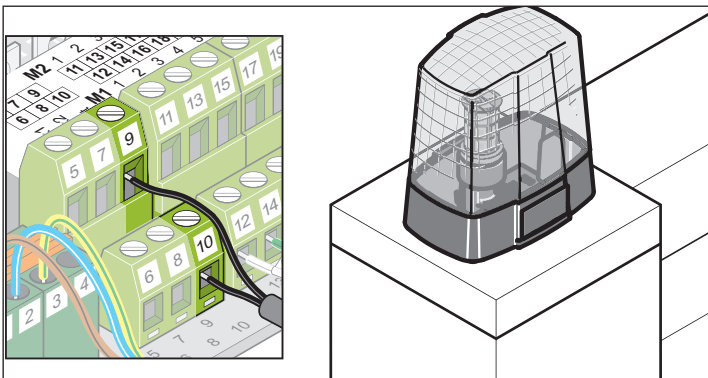
## Connecting warning light

Available as an accessory.



### IMPORTANT INFORMATION!

The warning light is operated with direct-current, unregulated transformer voltage. The transformer voltage can fluctuate between DC 22–32 V when fully loaded.



Setting the function, see chapter “DIP switch DIP 5”.

Continuous light on is programmable with TorMinal.

| Terminal | Description | Description  |
|----------|-------------|--|
| 9        | DC 24 V     | Connection for DC 24 V warning light with max. 24 W power (unstabilised DC 22–32 V). |
| 10       |             |  |

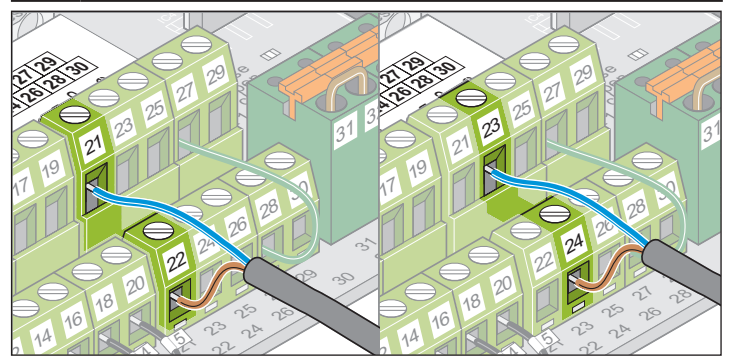
## Connecting button

Pulse sequence: OPEN-STOP-CLOSE



### CAUTION!

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





# Functions and connections

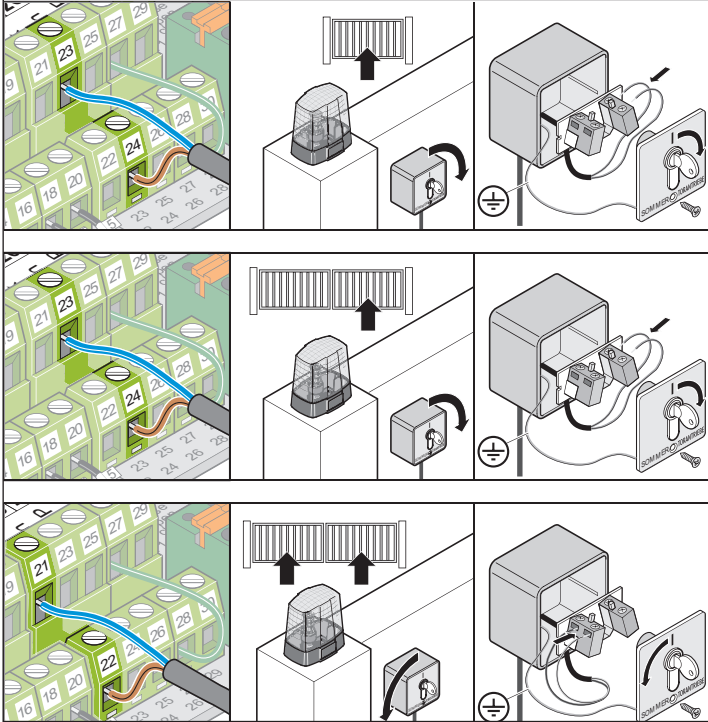
## Connecting key switch



### CAUTION!

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 cable of the key switch along a power line to prevent control unit faults.
- Permanently install the switch cable.
- Install key switch at an accessible position.

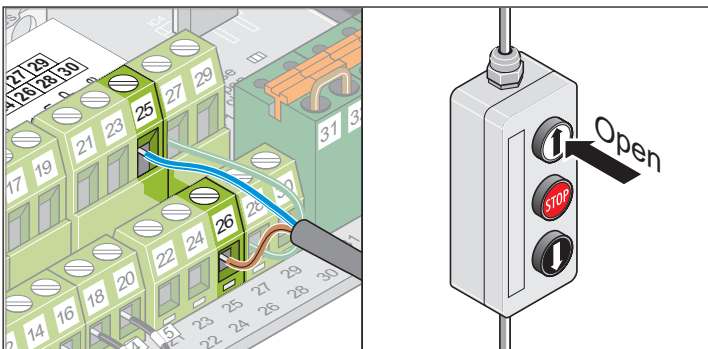


## Connecting button (defined opening)



### CAUTION!

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



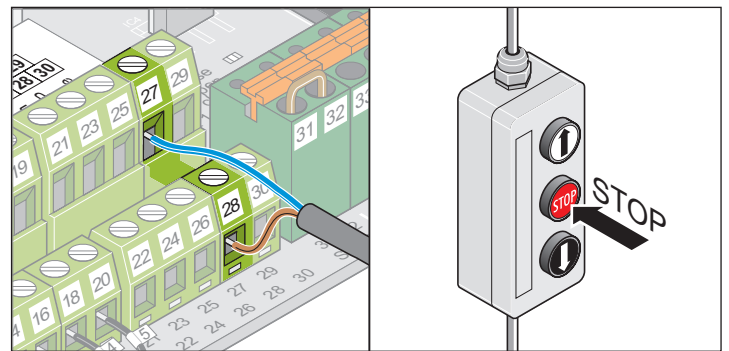
| Terminal | Description | Description  |
|----------|-------------|--|
| 25       | GND         | Connection for pulse transmitter for actuating one or both leaves, "Gate OPEN" only. |
| 26       | Signal      |  |

## Connecting button (Gate STOP)



### CAUTION!

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



Remove wire bridge before connection.

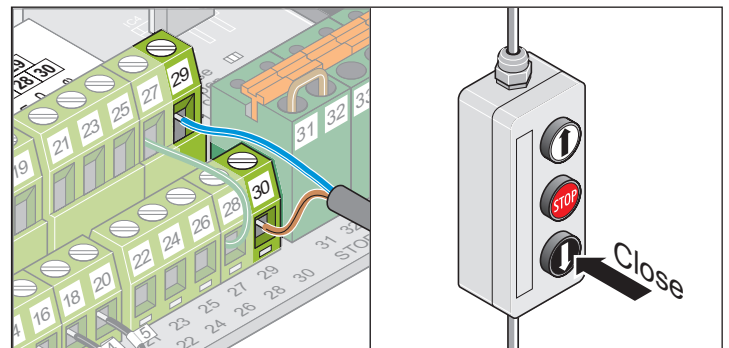
| Terminal | Description | Description  |
|----------|-------------|--|
| 27       | Signal      | Connection for pulse transmitter for actuating one or both leaves, "Gate STOP" only. |
| 28       |             |  |

## Connecting button (defined closing)



### CAUTION!

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



| Terminal | Description | Description   |
|----------|-------------|---|
| 29       | GND         | Connection for pulse transmitter for actuating one or both leaves, "Gate CLOSE" only. |
| 30       | Signal      |   |

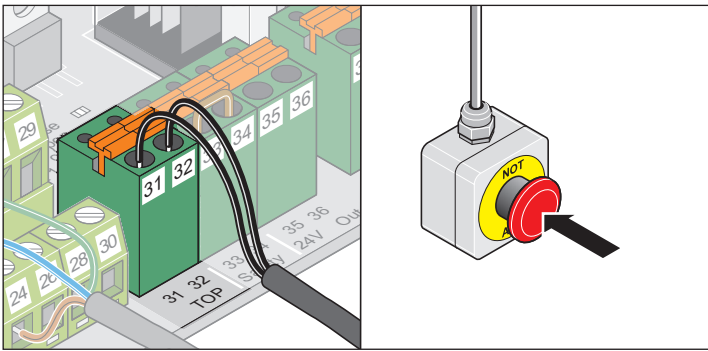
# Functions and connections

## Connecting EMERGENCY STOP



### CAUTION!

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



Remove wire bridge before connection.

| Terminal | Description | Description   |
|----------|-------------|---|
| 31       | Signal      | EMERGENCY STOP interrupts all control unit functions, including dead man operation. |
| 32       |             |   |

## Connecting 2-wire photo eye

Available as an accessory.



### CAUTION!

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



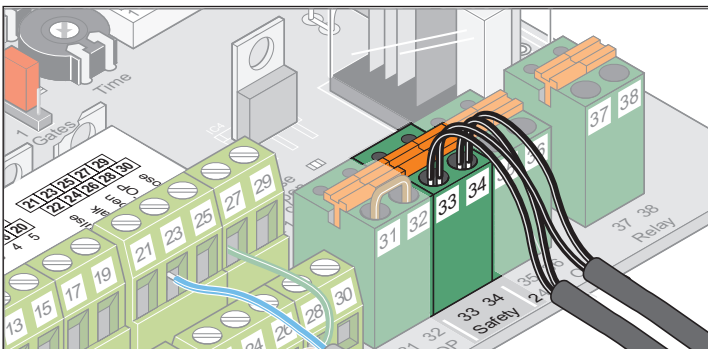
### IMPORTANT INFORMATION!

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

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

Remove wire bridge before connection.

DIP switch 2 "ON".



| Terminal | Description | Description   |
|----------|-------------|---|
| 33       | GND         | Connection of 2-wire photo eye (polarity-protected). If the connection is not used, install a jumper between the terminals (delivery status). |
| 34       | Signal      |   |

## Connecting 4-wire photo eye

Available as an accessory.



### CAUTION!

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



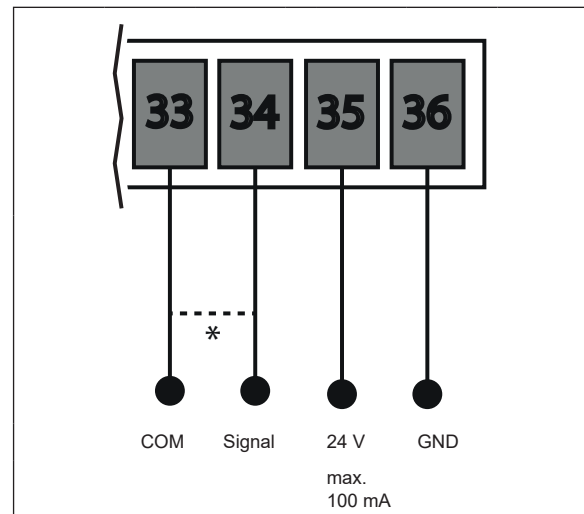
### IMPORTANT INFORMATION!

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

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

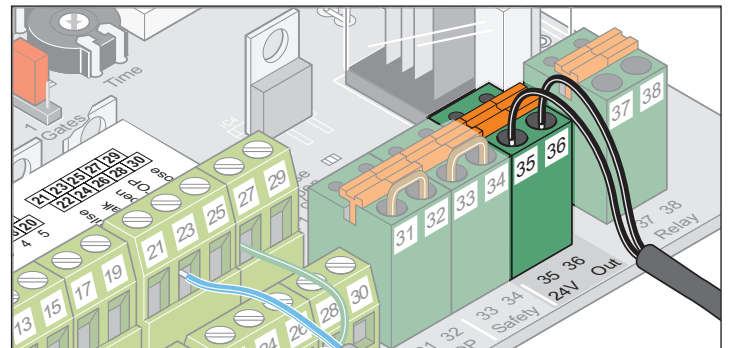
Remove wire bridge before connection.

DIP switch 2 "OFF".



| Terminal | Description            | Description   |
|----------|------------------------|---|
| 33       | GND                    | Safety device connection<br>• Photo eye<br>If the connection is not used, install a jumper between the terminals (delivery status). |
| 34       | Signal                 |   |
| 35       | DC 24 V<br>max. 100 mA | DC 24 V output, max. 100 mA<br>Photo eye power supply for transmitter and receiver.   |
| 36       | GND                    |   |

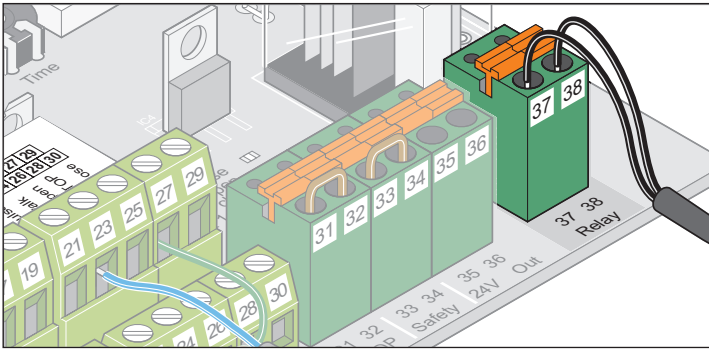
## Connecting external consumers



| Terminal | Description            | Description                 |
|----------|------------------------|-----------------------------|
| 35       | DC 24 V<br>max. 100 mA | DC 24 V output, max. 100 mA |
| 36       | GND                    |                             |

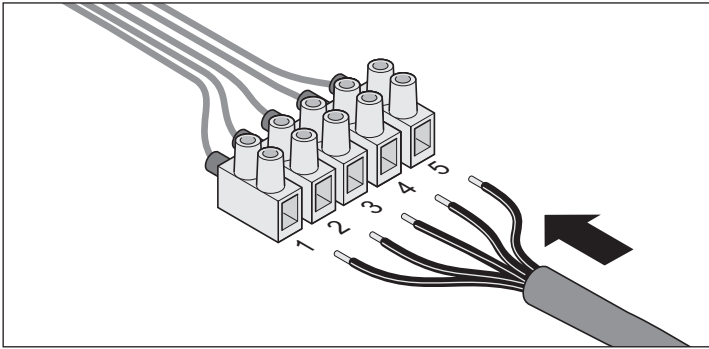
# Functions and connections

## Connecting potential-free relay contact



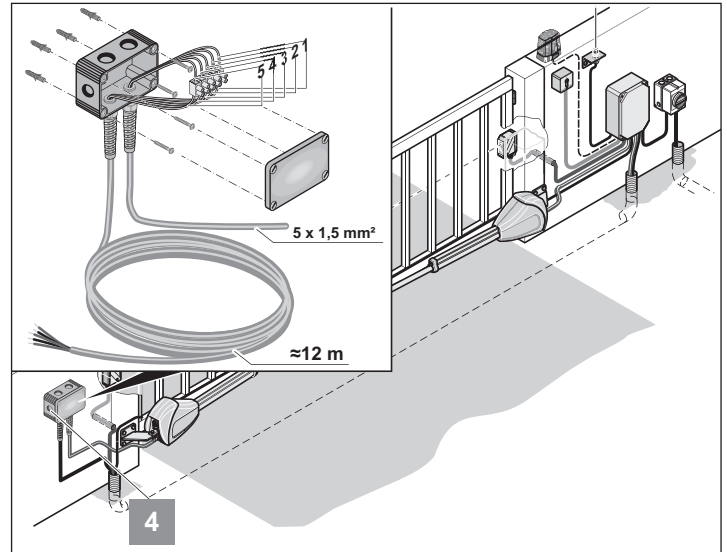
| Terminal | Description                  | Description                              |
|----------|------------------------------|--|
| 37       | Potential-free relay contact | Connection, e.g. light, max. AC/DC 24 V. |
| 38       |                              |  |

## Connecting motor



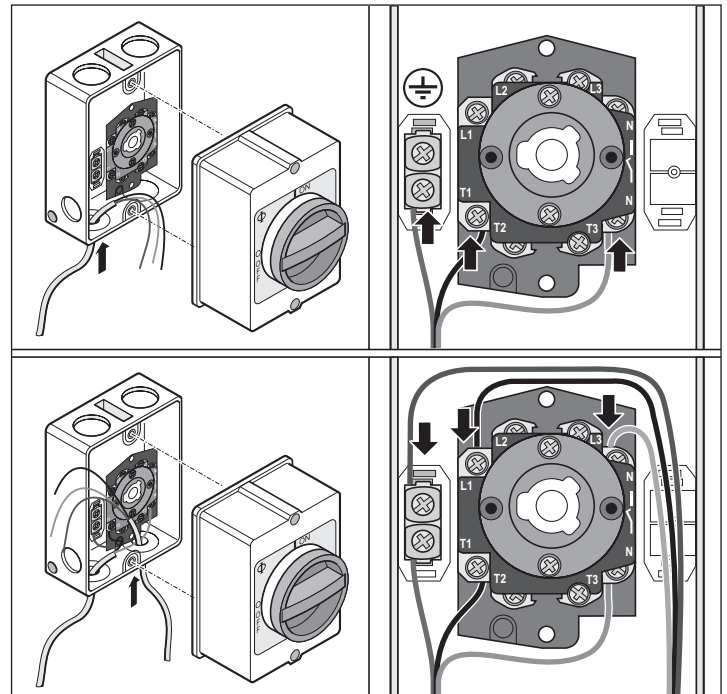
| Cable number | Cable colour  | Description   |
|--------------|---------------|---|
| 1            | Green         | Motor   |
| 2            | White         | Motor   |
| 3            | Blue          | "Gate CLOSE" limit switch                               |
| 4            | Yellow        | "Gate OPEN" limit switch                                |
| 5            | Blue + yellow | Earth<br>"Gate OPEN" + and<br>"Gate CLOSE" limit switch |

## Attaching connecting cable set



1. Attach the junction box appropriately for the respective supporting surface (e.g. concrete, masonry, wood, etc.).
2. Connect cable with the same number:
  - 1 : 1
  - 2 : 2
  - etc.
3. Tighten fasteners well to prevent ingress of moisture into the terminal box.
4. Close terminal box.

## Main switch



# Maintenance and care

## Safety instructions



### DANGER!

**Never use a water hose or high-pressure cleaner to spray down the operator or the control unit housing.**

- Do not use acids or alkalis for cleaning.
- Keep operator clean and clean the push rod with a dry cloth when needed.
- Check the control unit housing regularly for insect infestation and clean if necessary.
- Check the control unit housing regularly for moisture and dry if necessary.
- Check that all screws and bolts of the fittings are tightened. Retighten loose fixing bolts.
- Check that the connection control unit housing cover is free of leaks.

## Regular testing

Safety devices must be tested at intervals which do not exceed six months and which must be prescribed in the maintenance instructions for the door, in accordance with EN 12453-1/2.

Check every 4 weeks that pressure-sensitive safety devices (e. g. safety contact strips) are operating correctly, in accordance with EN 60335-2-103.

| Testing   | Behaviour  | Yes or No  | Possible cause            | Remedy  |
|---|--|--|---------------------------|---|
| <b>Power deactivation</b>   |  |  |                           |   |
| Stop the gate leaf by hand while it is closing.<br>Do not clutch the gate leaf. | Does the gate stop and reverse when lightly held?                                  | Yes  |                           | No action necessary.  |
|   |  | No   | Force tolerance too high. | Reducing force tolerance: <ul style="list-style-type: none"> <li>• Open and close the gate completely twice under supervision.</li> <li>• Rotate the "Gate 1" or "Gate 2" potentiometer completely to the left until the test is successful.</li> </ul> |
|   |  |  | Control unit defective.   | <ul style="list-style-type: none"> <li>• Decommission the gate and lock it to prevent reactivation.</li> <li>• Call customer service!</li> </ul>  |
| <b>Emergency release</b>  |  |  |                           |   |
| Procedure as described under "Locking and unlocking operator".                  | Can the gate be opened and closed easily by hand?<br>Can the operator be unlocked? | Yes  |                           | No action necessary.  |
|   |  | No   | Hinges rusted.            | Lubricate gate hinges.  |
| <b>Safety contact strip, if present</b>   |  |  |                           |   |
| Open/close the gate and actuate the strip.                                      | Does the gate behave as set with DIP switch 1, 2 or 3?                             | Yes  |                           | No action necessary.  |
|   |  | No   | Cable broken.             | <ul style="list-style-type: none"> <li>• Check wiring.</li> <li>• Replace broken cables.</li> </ul>   |
|   |  |  | Terminal loose.           | Tighten terminal.   |
|   |  |  | DIP switch adjusted.      | Set the DIP switch.   |
|   | Safety contact strip defective.<br>Safety contact strip evaluation unit defective. | <ul style="list-style-type: none"> <li>• Decommission the gate and lock it to prevent reactivation.</li> <li>• Call customer service!</li> </ul> |                           |   |
| <b>Photo eye, if present</b>  |  |  |                           |   |
| Open/close the gate and interrupt photo eye.                                    | Does the gate behave as set with DIP switch 1, 2 or 3?<br>"Safety" LED on?         | Yes  |                           | No action necessary.  |
|   |  | No   | Cable broken.             | <ul style="list-style-type: none"> <li>• Check wiring.</li> <li>• Replace broken cables.</li> </ul>   |
|   |  |  | Terminal loose.           | Tighten terminals.  |
|   |  |  | DIP switch adjusted.      | Set the DIP switch.   |
|   |  |  | Photo eye soiled.         | Clean the photo eye.  |
|   | Photo eye fault.   | <ul style="list-style-type: none"> <li>• Decommission the gate and lock it to prevent reactivation.</li> <li>• Call customer service!</li> </ul> |                           |   |

## Disassembly



### IMPORTANT!

Observe the safety notices!

See “Safety instructions”, page 3.

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

## Disposal



### DANGER CAUSED BY HAZARDOUS SUBSTANCES!

**Improper storage, use or disposal of accumulators, batteries and operator components pose a risk to the health of humans and animals. Serious injury or death may result.**

- ▶ Accumulators and batteries must be stored out of the reach of children and animals.
- ▶ Keep accumulators and batteries away from chemical, mechanical and thermal influences.
- ▶ Do not recharge old accumulators and batteries.
- ▶ Components of the operator as well as old accumulators and batteries must not be disposed of with household waste. They must be disposed of properly.
- ▶ Batteries may contain hazardous chemical substance which damage the environment and pose a risk to the health of humans and animals. Caution must be exercised, in particular when handling batteries containing lithium, as these can easily ignite and cause fires if not handled correctly.
- ▶ Batteries and accumulators in electrical appliances and which can be removed non-destructively must be disposed of separate from the appliance.



### NOTE!

This device is labelled in accordance with European Directive 2012/19/EU on used electrical and electronic devices (WEEE – waste electrical and electronic equipment).



This Directive provides the framework for the EU-wide return and recycling of used equipment.

Operator components that have been taken out of service as well as old accumulators and batteries must not be disposed of with household waste. Components which are no longer in use, old accumulators and batteries must be disposed of properly. You must observe the local and national regulations here. Contact your specialist retailer to find out more about current disposal channels.



Points de collecte sur [www.quefairedemesdechets.fr](http://www.quefairedemesdechets.fr)  
Privilégiez la réparation ou le don de votre appareil !

## 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.



# Troubleshooting

## Tips on troubleshooting

| 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.  | <ul style="list-style-type: none"> <li>• Check connection.</li> <li>• Establish missing connection.</li> </ul>   |
|  |  |  | Fuse defective.   | <ul style="list-style-type: none"> <li>• Check fuse.</li> <li>• Replace defective fuse.</li> </ul>   |
|  |  | Yes  | Gate jammed. Gate leaf has sunk or distorted because of high temperature variations.  | Fix misaligned gate leaves.  |
|  |  |  | Motor hums but does not move.   | <ul style="list-style-type: none"> <li>• Switch off immediately! Possible motor or control unit fault.</li> <li>• Contact customer service.</li> </ul> |
|  |  |  | Operator unlocked.  | Lock operator.   |
|  |  |  | Cable does not have a contact.  | Check the cable connection.  |
|  |  |  | Gate frozen.  | Clear snow and ice from gate and hinges.   |
| Snow is blocking the movement zone of gate.                            | Clear snow.  |  |   |  |
| Is the LED on the transmitter on?                                      | No   | Battery flat.  | Replace battery.  |  |
|  |  | Battery incorrectly inserted.  | Insert battery correctly.   |  |
|  |  | Hand-held transmitter defective.   | Replace the hand-held transmitter.  |  |
|  | Yes  | Range of the transmitter too short due to weak battery.  | Replace battery.  |  |
|  |  | Radio receiver defective.  | Replace radio receiver.   |  |
|  |  | Hand-held transmitter not programmed.  | Program transmitter.  |  |
|  |  | Poor reception.  | Install external antenna, see chapter "Accessories".  |  |
| Incorrect frequency.   | <ul style="list-style-type: none"> <li>• Check frequency.</li> <li>• Check that transmitter and radio receiver are on the same frequency.</li> </ul> |  |   |  |
|  | No   | Radio receiver not properly plugged in.  | Plug in radio receiver properly.  |  |
|  |  | Radio receiver defective.  | Replace radio receiver.   |  |
|  |  | Radio receiver without power supply.   | Replace radio receiver.   |  |
| Transmitter not programmed.  |  | Program transmitter.   |   |  |
| Is the "POWER + OPEN/CLOSE" LED on?                                    | Yes  | Continuous signal pending. Pulse generator defective.  | <ul style="list-style-type: none"> <li>• Check pulse generator.</li> <li>• Replace defective pulse generator.</li> </ul>  |  |
| "POWER + Safety" LED on?   | Yes  | Photo eye interrupted.*  | Remove interruption.  |  |
| Does the fault occur intermittently or for a short time?               | Yes  | Very powerful public address systems in hospitals or industrial areas may interfere with the radio control system. | <ul style="list-style-type: none"> <li>• Change radio frequency.</li> <li>• Contact source of interference.</li> </ul>  |  |
| Does "Safety" LED flash quickly?                                       | Yes  | The control unit has stored faulty values (e.g. due to a short power failure).                                     | <ul style="list-style-type: none"> <li>• Reset the control unit.</li> <li>• Reprogram the operator.</li> <li>• If not possible, call customer service.</li> </ul> |  |

# Troubleshooting

| Fault  | Control   | Yes or No  | Possible cause  | Remedy   |
|--|---|--|---|--|
| Gate cannot be opened or closed with a connected key switch.     | "POWER + Start 1/Start 2" LEDs on?                | Yes  | Cable connections interrupted?  | Tighten terminal.  |
|  |   |  | Key switch defective.   | Replace key switch.  |
|  |   |  | Permanent contact due to damaged wire insulation.   | <ul style="list-style-type: none"> <li>Check wiring.</li> <li>Replace damaged cables.</li> </ul>   |
| Gate remains stationary and reverses during opening and closing. | Is there an obstacle outside the range of motion? | No   | Hinges stiff.   | Lubricate hinges.  |
|  |   |  | Post or pillar has changed.   | Align posts/pillars.   |
|  |   |  | Limit switch out of adjustment.   | Adjust limit switch.   |
|  | Does the gate leaf vibrate when moving?           | Yes  | Gate leaf unstable.   | Reinforce gate leaf.   |
|  |   | Yes  | Wind pressure too strong.   | Open and close gate again.   |
| Gate remains stopped when opening.                               | Photo eye interrupted?                            | Yes  | Obstacle in light beam.   | Remove obstacle.   |
|  |   | Yes  | Photo eye soiled.   | Clean the photo eye.   |
|  | No  | Connection for external consumers overloaded (terminals 35 + 36). Voltage drop when operator starts. | <ul style="list-style-type: none"> <li>Observe maximum connection power.</li> <li>Only connect suitable tools.</li> </ul> |  |
| Gate does not open or close completely.                          | Does the gate stop before the set end position?   | No   | Gate fittings not installed correctly.  | Change the gate bracket.   |
|  |   | Yes  | Limit switch incorrectly adjusted.  | Adjust limit switch.   |
| Closing sequence incorrect.                                      |   |  | Operators incorrectly connected.  | Connect operators as specified in the manual.  |
| Operator does not learn the force values.                        |   |  | DIP switch 8 to OFF.  | Set DIP switch 8 to ON.  |
| Gate does not stop at an obstacle.                               |   |  | Gate in learning mode. DIP switch 8 to ON. Force tolerance too high.  | <ul style="list-style-type: none"> <li>After learning mode the power cut-off responds.</li> <li>Set DIP switch 8 to OFF.</li> <li>Reduce force tolerance.</li> </ul>           |
| Operator stops at pillar.  | Are the A/B dimensions correct?                   | No   | A or B dimension not correct.   | Adjust fastening of operator to post or pillar.  |
|  |   | Yes  | Limit switch out of adjustment.   | Adjust limit switch.   |
| Gate moves unevenly.   |   |  | A/B dimensions unequal.   | Change installation dimension.   |
| Walk-through gate does not open with transmitter.                |   |  | Hand-held button not programmed.  | Program button.  |
| Operators do not start.  | Does "Safety" LED flash quickly?                  | Yes  | Jumper was moved with programmed force values.  | <ul style="list-style-type: none"> <li>Place jumper in previous position.</li> <li>Reset the control unit.</li> <li>Replug jumpers.</li> <li>Perform learning runs.</li> </ul> |

\* If photo eye is uninterrupted, the operator can be moved in dead man mode with the "Open" and "Close" buttons. If an obstacle is detected, power deactivation also occurs in this operating mode.

## Additional support during troubleshooting

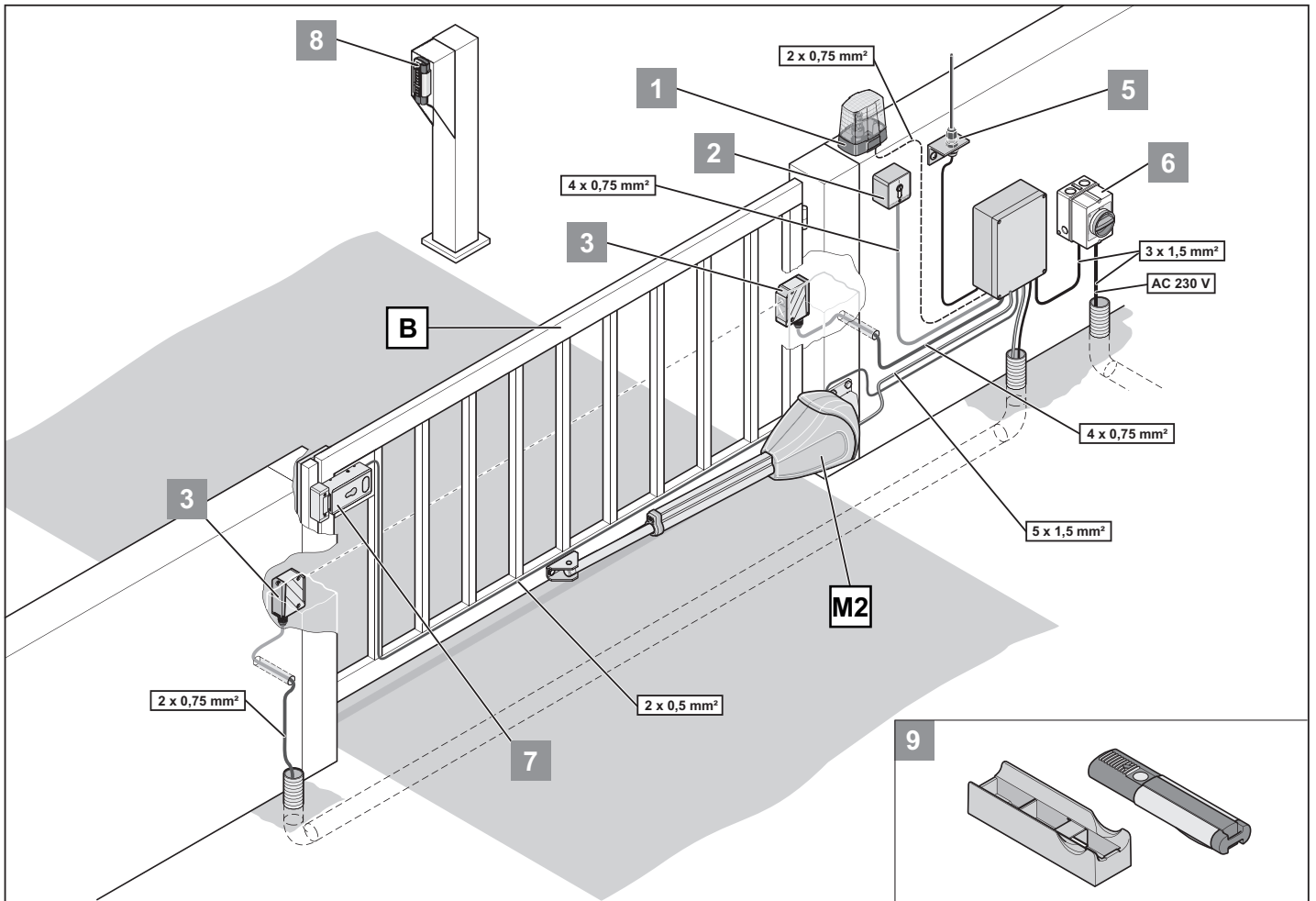
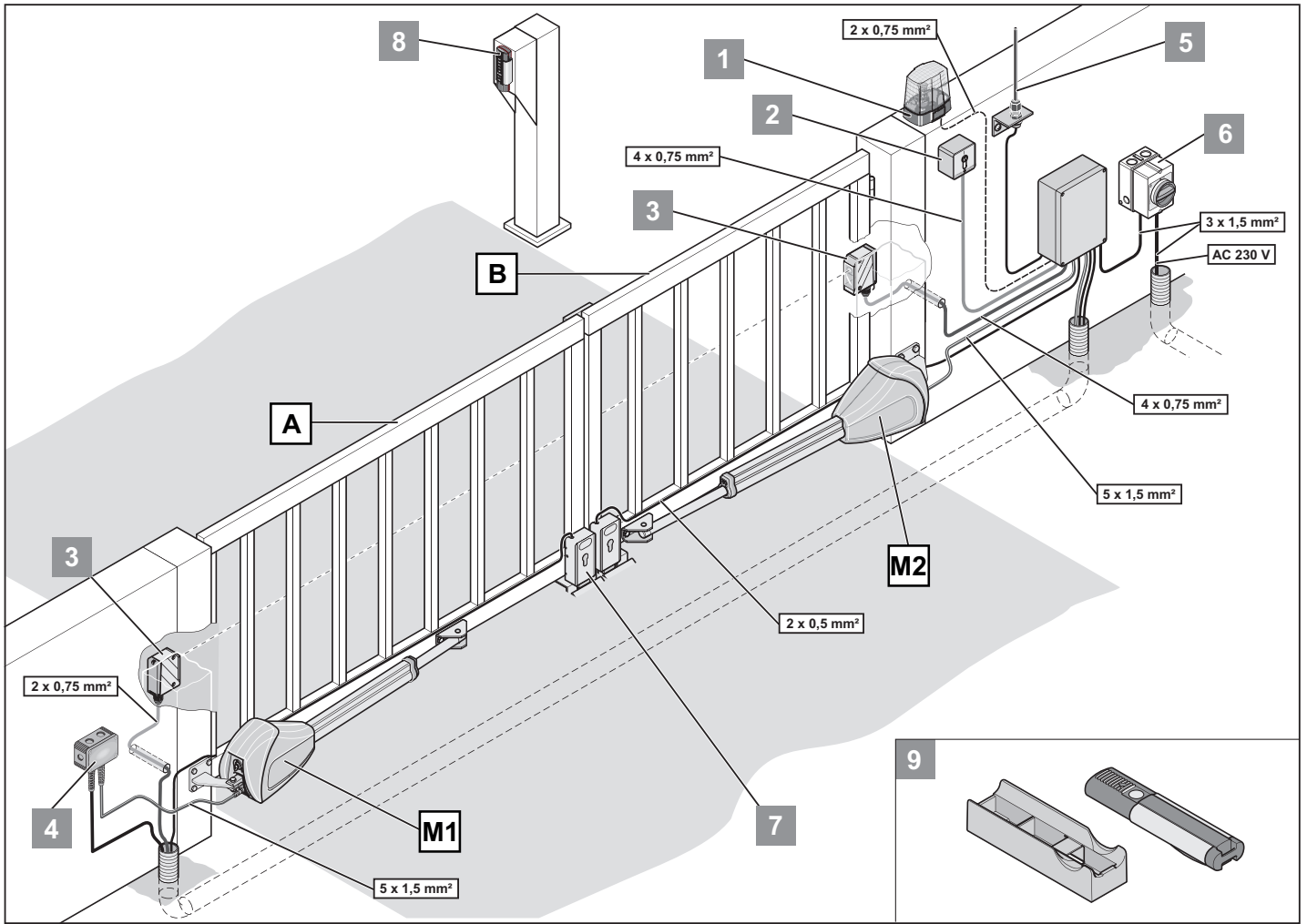
When the troubleshooting tips are not successful, take the following measures:

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

Dealers offer additional support during troubleshooting and elimination of faults.



# Connection diagram



# DTA-1 control unit

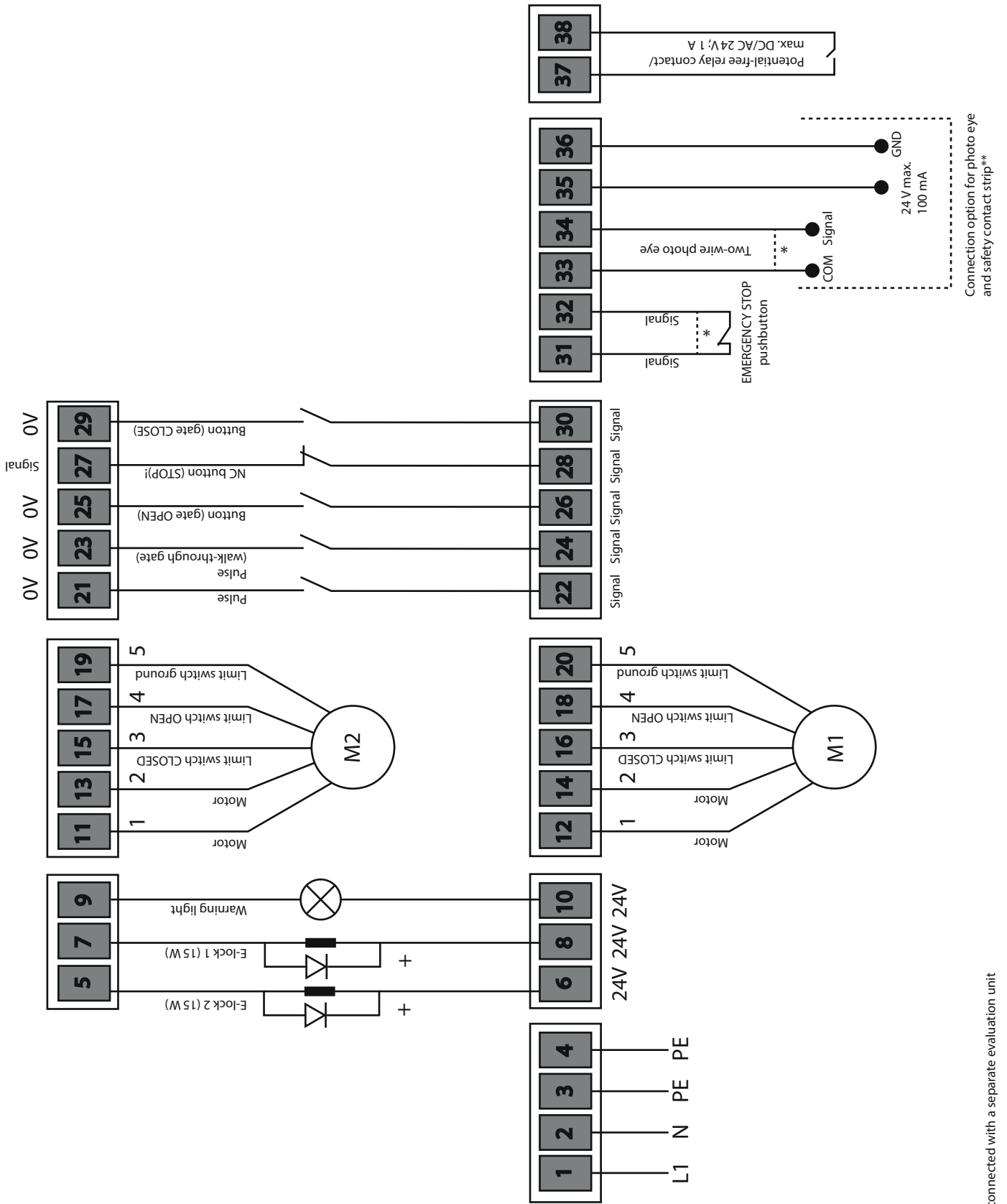
## DIP switch settings

| Switch | Function in "OFF" setting  | Function in "ON" setting  | Comments   |
|--------|--|---|--|
| 1      | Response to triggering the safety input (terminals 33 + 34) while the gate opens:<br>• No response               | Response to triggering the safety input while the gate opens:<br>• Gate stops   | Terminals 33 + 34                                    |
| 2      | Safety input setting:<br>• 4-wire photo eye normally NC contact  | Safety input setting:<br>• 2-wire photo eye   | Terminals 33 + 34                                    |
| 3      | Response to triggering the safety input while the gate closes:<br>• Gate reverses                                | Response to triggering the safety input while the gate closes:<br>• Gate opens completely<br>Response to triggering the safety input when position DIP 1 = ON:<br>• Gate reverses and stops.                                    | Terminals 33 + 34                                    |
| 4      | Relay contact:<br>• Time relay   | Relay contact:<br>• Gate status display   door status display   door status indicator<br>• For additional settings, see DIP 6   | • Terminals 37 + 38<br>• TorMinal Mem 022            |
| 5      | Pre-warning time warning light:<br>• OFF   | Pre-warning time warning light:<br>• 3 seconds<br>• Warning light flashes before gate moves   | TorMinal Mem 016                                     |
| 6      | Only if DIP 4 = ON (status display):<br>• Gate open – relay contact open<br>• Gate closed – relay contact closed | Only if DIP 4 = ON (status display):<br>• Gate open – relay contact closed<br>• Gate closed – relay contact open  | Terminals 37 + 38                                    |
| 7      | Premature closing (during automatic closing):<br>• OFF   | Premature closing (during automatic closing):<br>• ON<br>Closing delay after actuating the photo eye, e.g. after drive-throughs:<br>• 5 seconds<br>Closing delay without actuating the photo eye:<br>• Set stay open time (SOT) | TorMinal Mem 021                                     |
| 8      | Test mode:<br>• Operator does not learn any values<br>• Setting the limit switches                               | Continuous operation:<br>The operator learns continuously while the gate opens and closes:<br>• Force values<br>• Running time<br>• Closing delay   | Leave DIP switch 8 in ON position after programming. |

## TorMinal settings

| Storage location | Setting range | Value | Increment | Functional description   |
|------------------|---------------|-------|-----------|--|
| Mem              | Val           | Val   | Val       |  |
| 014              | 0–15          | 0–7   |           | Warning light, dead man operation, power deactivation 2<br>Example:<br>Warning light is to flash (1) + power deactivation 2 (4): 1 + 4 = 5, enter 5 and save this value.                       |
|                  |               | 0     |           | Warning light lights up during a gate movement   |
|                  |               | 1     |           | Warning light flashes during a gate movement   |
|                  |               | 2     |           | Dead man operation   |
|                  |               | 4     |           | Switch power deactivation (1 -> 2):<br>More sensitive activation for smaller B dimensions and smooth-running gates.  |
| 016              | 8–40          |       | 0.25 s    | Pre-warning time<br>Early warning time period<br>Example: Displayed value 40 = 10 seconds  |
| 021              | 1–20          |       | 1 s       | Closing time photo eye<br>Duration of the stay open time, after driving through the photo eye, only in conjunction with automatic closing function.  |
| 022              | 1–255         |       | 1 s       | Switching duration relay contact<br>Duration that the relay contact is closed after motor start.   |
| 042              | 0–8           |       | 0.25 s    | Motor 2: Close trailing gate<br>After reaching the gate CLOSE end position, the operator continues to run in order to close the gate cleanly (gate leaves are braced with each other by this). |

# Wiring diagram



**E-lock  
# 3205V003**

\* delivery status with wire jumper

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



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