

Comfort 515 / Control x.51

Operator system for Hinged Gates

GB



[EOS] EASY
OPERATING
SYSTEM]



Manual for installation and operation

Marantec

Door operators ➤ automatically the best choice

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1. Meaning of symbols

Controls and motor unit symbols

-  Photocell or closing edge safety device (CESD)
-  Gate position OPEN
-  Has no function
-  Gate position CLOSED
-  Has no function
-  Has no function
-  Impulse
(remote control, external control elements)
-  Operation
-  Closing edge safety device
-  STOP
-  External control elements
-  Modular antenna

Advice



Caution! Danger of personal injury!

The following safety advice must be observed at all times in order to avoid personal injury!



Attention! Danger of material damage!

The following safety advice must be observed at all times in order to avoid material damage!



Advice / Tip



Check



Reference

Type plate, motor unit 1

Type: _____

Art. No.: _____

Product-No.: _____

Type plate, control unit

Type: _____
Art. No.: _____
Product-No.: _____

Type plate, motor unit 2 (only double wing)

Type: _____
Art. No.: _____
Product-No.: _____

2. Table of contents

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3. General safety advice



Please read carefully!

Target group

This operator system may only be installed, connected and put into operation by qualified and trained professionals! Qualified and trained specialist personnel are persons

- who have knowledge of the general and special safety regulations,
- who have knowledge of the relevant electro-technical regulations,
- with training in the use and maintenance of suitable safety equipment,
- who are sufficiently trained and supervised by qualified electricians,
- who are able to recognise the particular hazards involved when working with electricity,
- with knowledge regarding applications of the EN 12635 standard (installation and usage requirements).

Warranty

For an operations and safety warranty, the advice in this instruction manual has to be observed. Disregarding these warnings may lead to personal injury or material damage. If this advice is disregarded, the manufacturer will not be liable for damages that might occur.

Batteries, fuses and bulbs are excluded from warranty.

To avoid installation errors and damage to the gate and operator system, it is imperative that the installation instructions are followed. The system may only be used after thoroughly reading the respective mounting and installation instructions.

The installation and operating instructions are to be given to the gate system user, who must keep them safe. They contain important advice for operation, checks and maintenance.

This item is produced according to the directives and standards mentioned in the Manufacturer's Declaration and in the Declaration of Conformity. The product has left the factory in perfect condition with regard to safety.

Power-operated windows, doors and gates must be checked by an expert (and this must be documented) before they are put into operation and thereafter as required, but at least once a year.

Correct use

The operator system is designed exclusively for opening and closing hinged doors and gates.

Gate requirements

The short version operator system - Comfort 515 is suitable for:

- hinged doors and gates with a gate wing width of 2.5 m and a gate wing weight of 200 kg.

**Beside the advice in these instructions, please observe the general safety and accident prevention regulations!
Our sales and supply terms and conditions are effective.**

3. General safety advice



Please read carefully!

Information on installing the operator system

- Ensure that the gate is in good mechanical condition.
- Ensure that the gate opens and closes properly.
- Remove all unnecessary components from the gate (e.g. cables, chains, brackets).
- Render any installations inoperable that will no longer be needed after the operator system has been installed.
- Before commencing cabling works it is very important to disconnect the operator system from the electricity supply. Ensure that the electricity supply remains disconnected throughout the cabling works.
- Adhere to the local protection regulations.
- Lay the electricity supply cables and control cables; these MUST be laid separately. The controls voltage is 24 V DC.
- Install all the impulse transmitters and control devices (e.g. remote control buttons) within sight of the gate and at a safe distance from the moving parts of the gate. A minimum installation height of 1.5 m must be observed.
- Ensure that no part of the gate extends across public footways or roads when the installation is complete.

Information on commissioning the operator system

After initial operation, the persons responsible for operating the gate system, or their representatives must be familiarised with the use of the system.

- Make sure that children cannot access the gate control unit.
- Before moving the gate, make sure that there are neither persons nor objects in the operating range of the gate.
- Test all existing emergency command devices.
- Never insert your hands into a running gate or moving parts.
- Pay attention to any parts of the gate system that could cause crushing or shearing damage or accidents. The EN 13241-1 regulations must be observed.

Information on servicing the operator system

To ensure proper operation, the following items must be checked regularly and repaired if necessary.

Before any works to the gate system are undertaken, the operator system must be disconnected from the mains.

- Check once a month that the operator system stops and reverses in every position when the gate touches an obstacle. Place an obstacle in the path of the gate to check this.
- Check the settings of the OPEN and CLOSE automatic cut-out function.
- Check all movable parts of the gate and operator system.
- Check the gate system for signs of wear or damage.
- Check whether the gate can be easily moved by hand.

Information on cleaning the operator system

Never use water jets, high pressure cleaners, acids or bases for cleaning.

4. Product overview

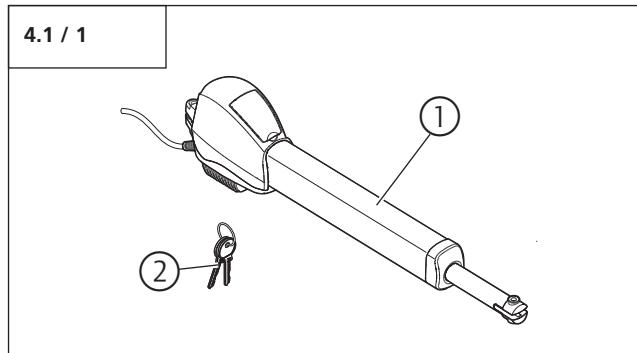
4.1 Comfort 515 supply package

The Comfort 515 standard delivery package comprises:

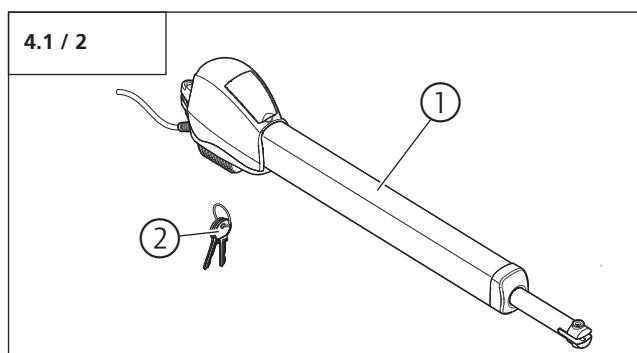
- motor unit
- controls
- fixing materials for controls and motor unit
- remote control

The Comfort 515 is available in the following versions, as required:

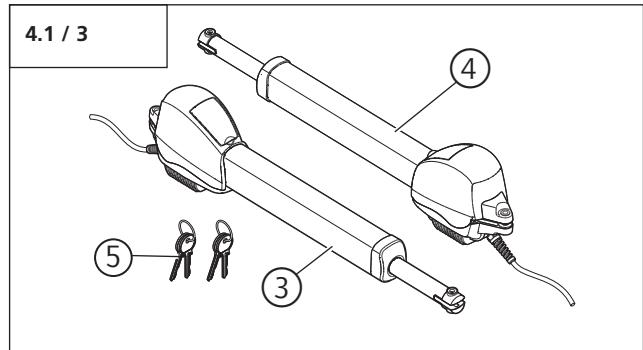
Single wing gate system (Short version – Comfort 515)



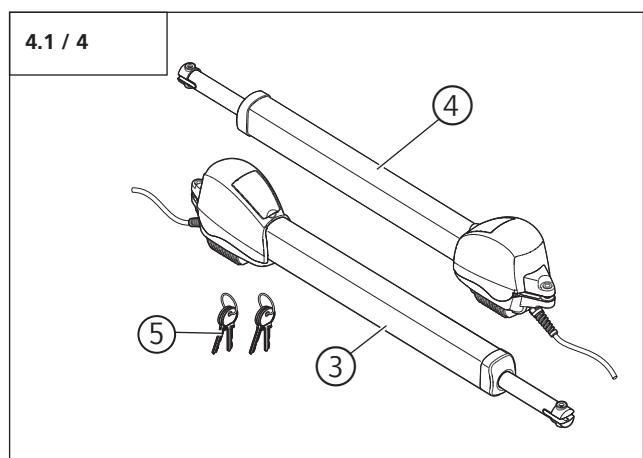
Single wing gate system (Long version – Comfort 515 L)



Double wing gate system (Short version – Comfort 515)



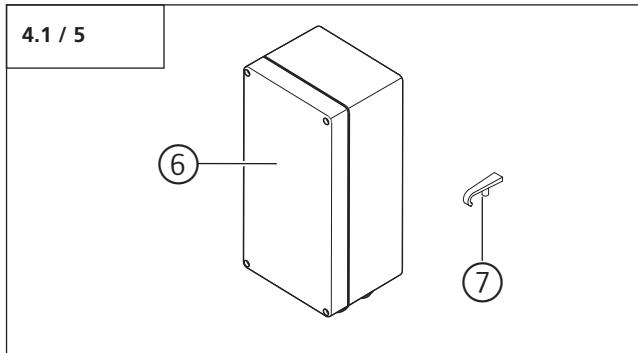
Double wing gate system (Long version – Comfort 515 L)



- 1 Motor unit with short connection cable (1.5 m)
2 Key (2x)

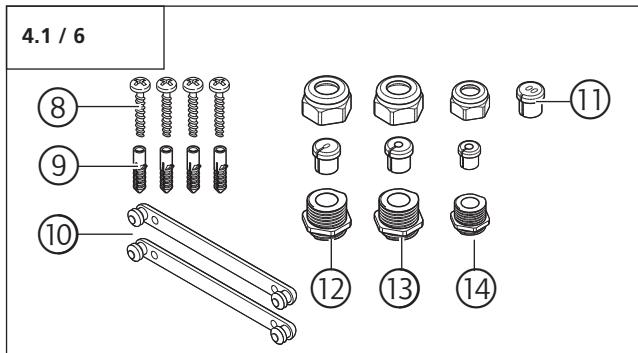
4. Product overview

Control unit



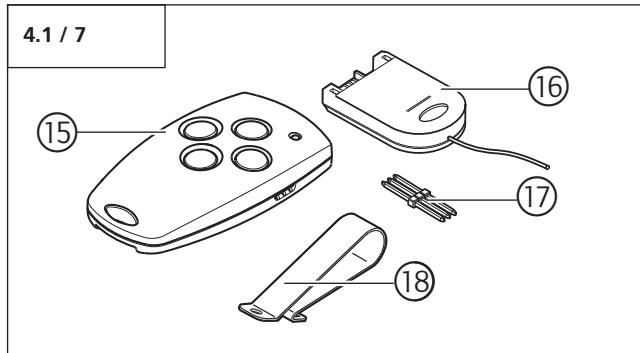
- 6 Control x.51
7 Handle

Mounting kit for control unit



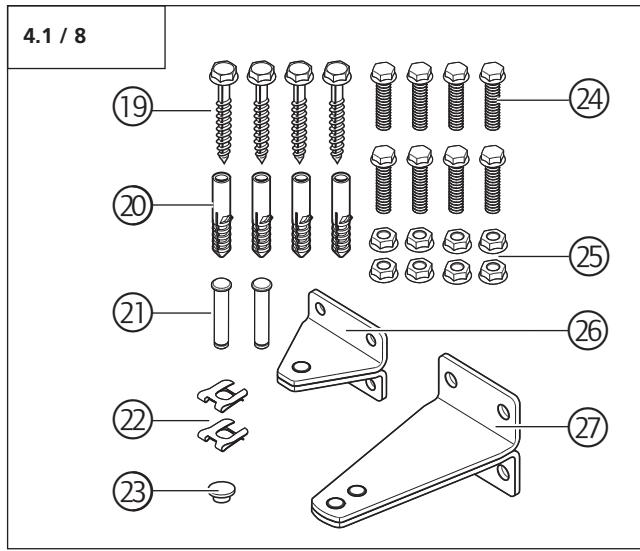
- 8 Screws 3.5 x 32 (4x)
9 Wall plugs S6 (4x)
10 Spacer elements (2x)
11 Screw fixing insert with 2 flat cable openings
12 M20 screw fixing with flat cable insert
13 M20 screw fixing with round cable insert
14 M16 screw fixing with round cable insert

Remote control



- 15 Hand transmitter
16 Module antenna
17 Transmission plug
18 Sun visor clip

Single wing gate system installation set

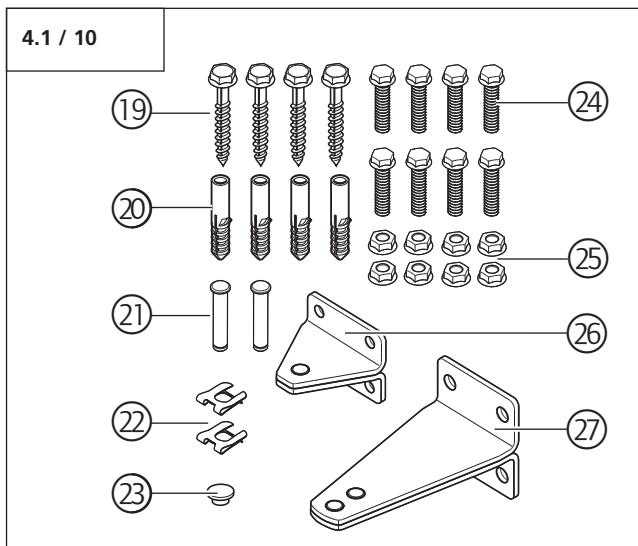
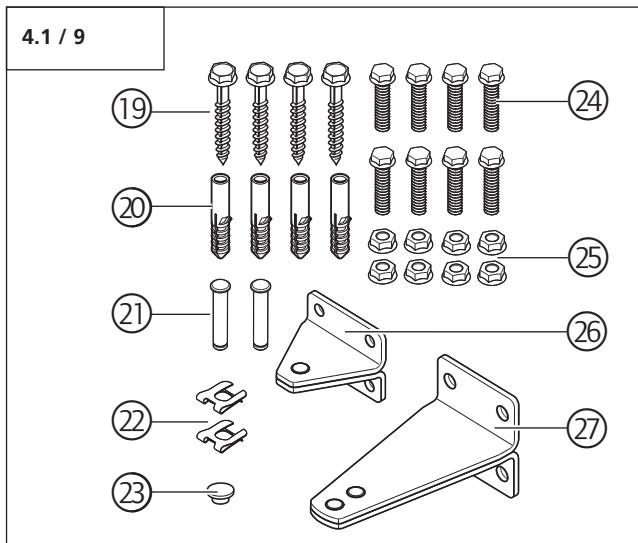


- 19 Wood screws 8 x 60 (4x)
20 Wall plugs S10 (4x)
21 Bolts 10 x 49 (2x)
22 Locking plates (2x)
23 Cover cap
24 M8 x 25 (8x)
25 Nuts M8 (8x)
26 Gate bracket
27 Post bracket

4. Product overview

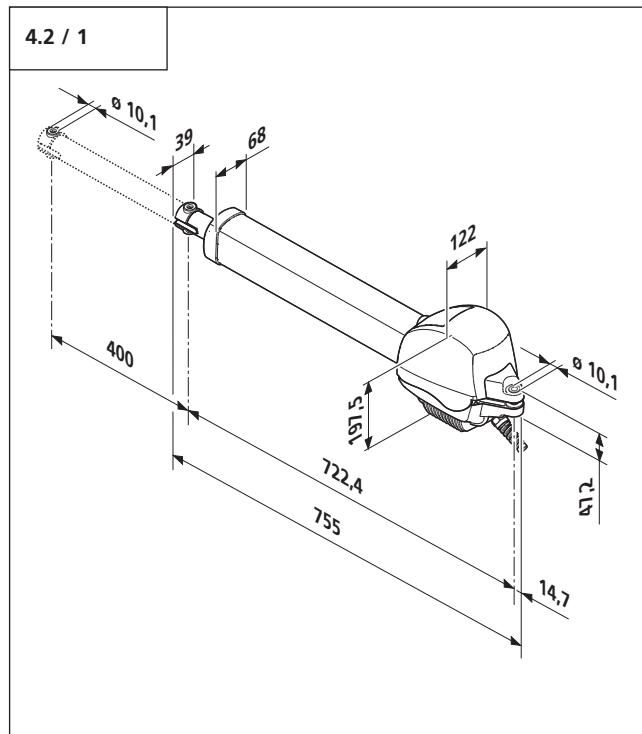
4.2 Dimensions

Double wing gate system installation set

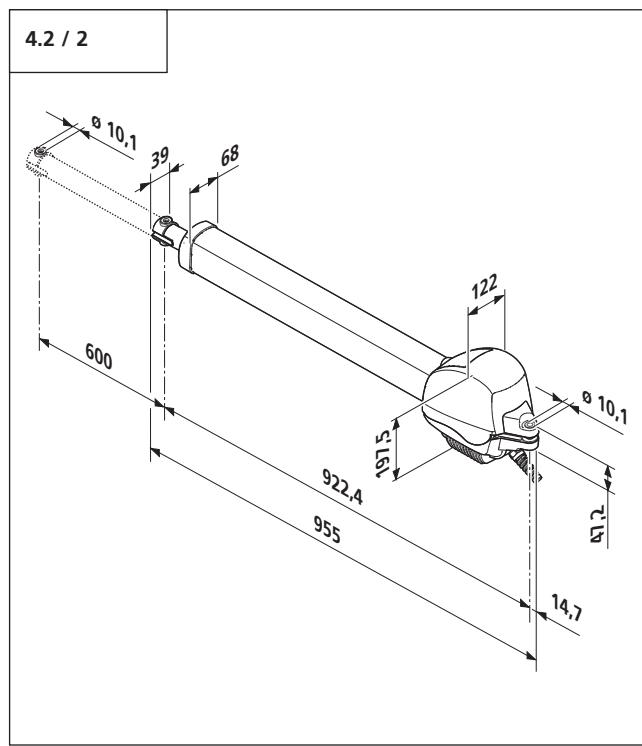


- 19 Wood screws 8 x 60 (8x)
- 20 Wall plugs S10 (8x)
- 21 Bolts 10 x 49 (4x)
- 22 Locking plates (4x)
- 23 Cover caps (2x)
- 24 M8 x 25 (16x)
- 25 Nuts M8 (16x)
- 26 Gate brackets (2x)
- 27 Post brackets (2x)

Short version – Comfort 515



Long version – Comfort 515 L

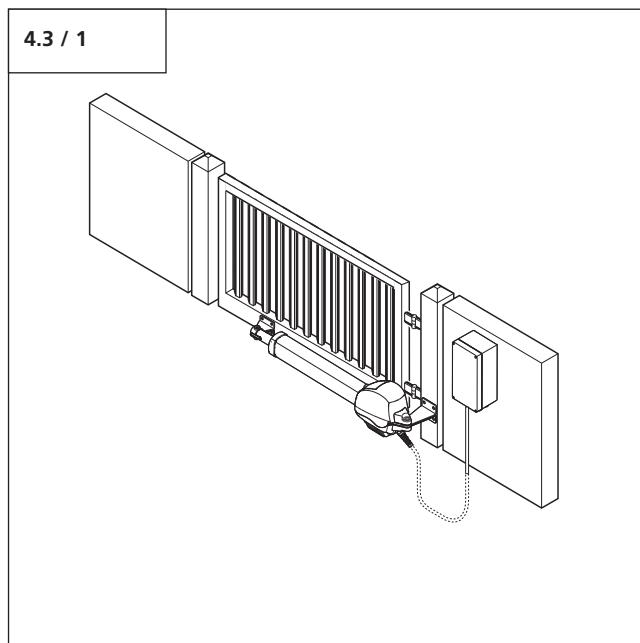


4. Product overview

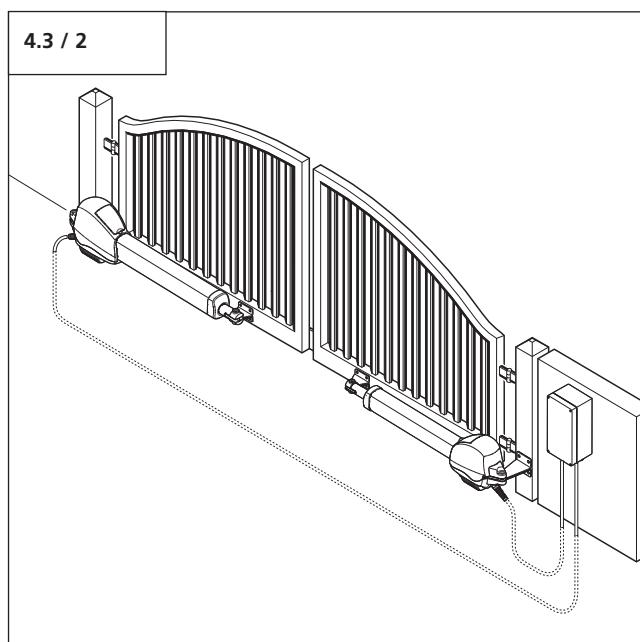
4.3 Gate variations

The standard supply package is suitable for the following types of gate.

Single wing gate system



Double wing gate system



5. Preparation for mounting

5.1 General notes

The pictures in these instructions are not true-to-scale.
Dimensions are always given in millimetres (mm)!

The motor unit and the controls must be installed on the inside of the gate system.

For correct mounting you will need the following tools:

5.1 / 1	 13	 13	 2
	 2	 5	 Ø 6
	 Ø 6.5	 M 8	 Ø 10
			

5.2 Checks



Attention!

In order to guarantee correct mounting, carry out the following checks before installing.

Supply package

- Check the package to ensure that all the parts are included.
- Check that you have all the additional components that are necessary for your particular installation requirements.

Gate system

- Ensure that your gate system has an appropriate electricity supply connection and a facility for disconnecting the mains. The minimum cross-sectional area of the earth cable is $3 \times 1.5 \text{ mm}^2$.
- Ensure that all cables are suitable for outdoor use (UV resistant and cold resistant).
- Make sure that your gate system has a stop plate/block in the closing direction.
- Remove the gate fasteners or latches or render them inoperative.
- Make sure that the gate is easy to move manually.
- Ensure that the following requirements are met:
Width of gate wing:
- Comfort 515 min. 1 m - max. 2,5 m
- Comfort 515 L min. 1,5 m - max. 3,5 m
Gate height: min. 1.5 m - max. 2.5 m
Weight of gate wing: max. 200 kg
Open area: min. 50%
Gate incline: max. 2%



Advice:

The use of an electric lock is recommended for a gate wing wider than 2 m.

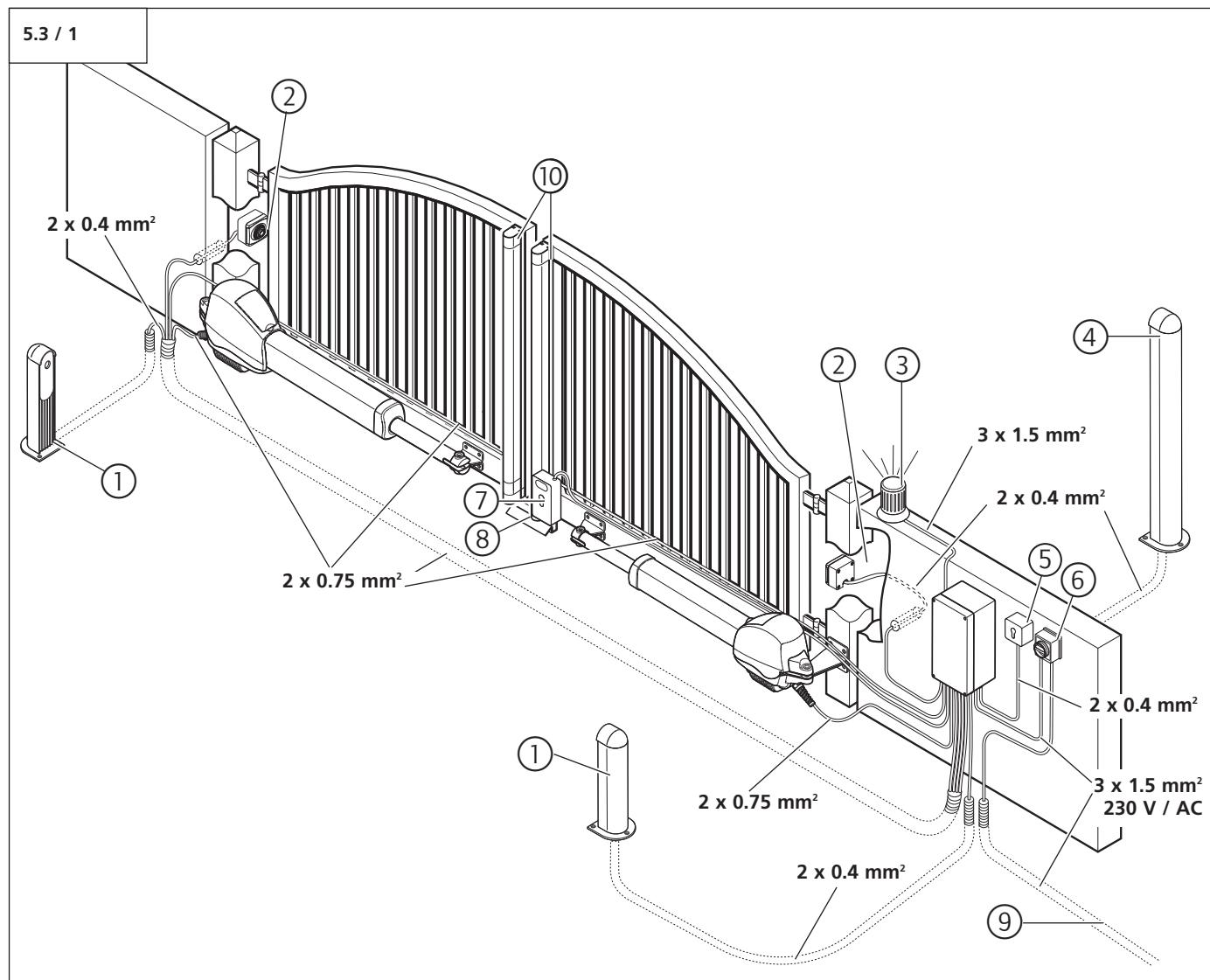
5. Preparation for mounting

5.3 Cabling layout



Advice:

This is just an example of a cabling layout; the layout can vary according to the type of gate and the associated equipment.



- | | |
|---|-------------------------------|
| 1 | Photocell |
| 2 | Photocell |
| 3 | Signal light |
| 4 | Code button, transponder, ... |
| 5 | Key switch |

- | | |
|----|--|
| 6 | Mains isolator switch (mains disconnection facility) |
| 7 | Electric lock |
| 8 | Stop plate |
| 9 | Mains supply cable |
| 10 | Closing edge safety device (CESD) |



Reference:

For the installation and cabling of the gate sensors, control elements and safety equipment, the relevant installation instructions must be observed.

6. Installation

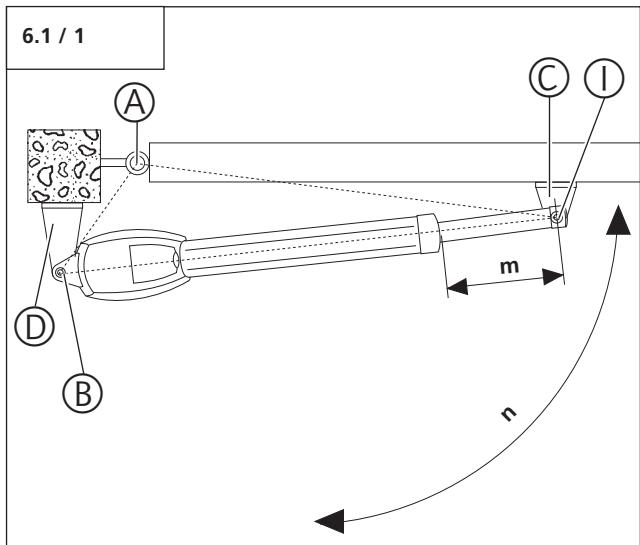
6.1 Mounting conditions



Attention!

For trouble-free operation, choose the positions of the brackets such that they meet all following conditions:

- The motor unit must be located in a triangle of forces and should not be parallel to the gate at the OPEN and CLOSED gate positions.
- The length of travel should be as large as possible.



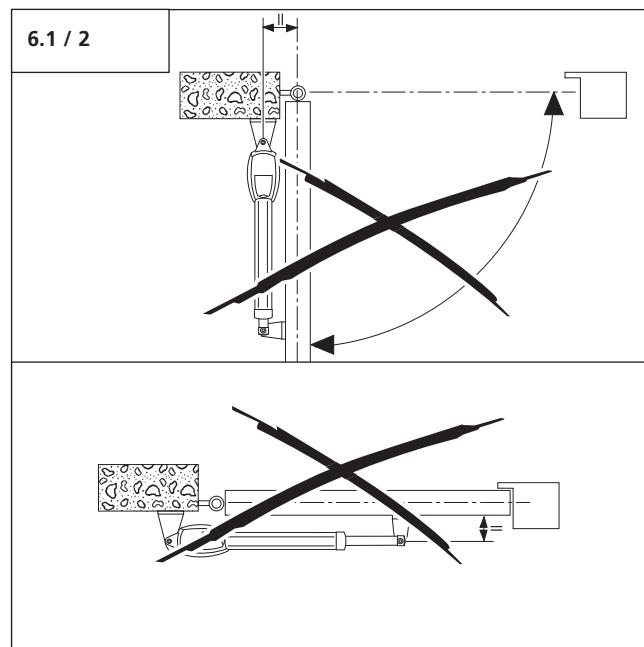
The mounting positions of the gate bracket (C) and the post bracket (D) are dependent on your gate configuration.

The positions of the gate bracket (C) and the post bracket (D) influence the following factors:

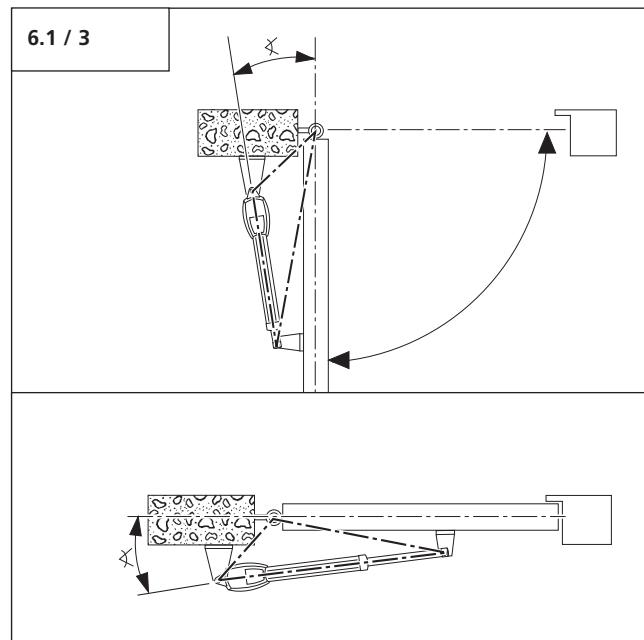
- Opening angle (n)
- Utilisation of the movement stroke (m)
- Gate travelling speed

A triangle of forces is formed by the gate pivot (A), the post bracket pivot (B) and the gate bracket pivot (I).

Motor unit is parallel to the gate



Motor unit is within the triangle of forces



6. Installation

6.2 Prepare installation dimensions

The approximate position of the gate bracket and of the post bracket on the gate can be determined with the help of the dimension tables.

Dimension table for Comfort 515

	a = 80	a = 100	a = 120	a = 140	a = 160	a = 180	a = 200	a = 220	a = 240	a = 260	a = 280	a = 300
b = 110	c = 938 c1 = 255 c2 = 50 c = 95°	c = 970 c1 = 285 c2 = 50 d = 105°	c = 997 c1 = 313 c2 = 50 d = 107°	c = 1.040 c1 = 357 c2 = 50 d = 114°	c = 1.084 c1 = 396 c2 = 50 d = 124°	c = 1.118 c1 = 429 c2 = 50 d = 125°	c = 1.122 c1 = 438 c2 = 50 d = 115°	c = 1.122 c1 = 438 c2 = 50 d = 108°	c = 1.118 c1 = 433 c2 = 50 d = 103°	c = 1.122 c1 = 438 c2 = 50 d = 97°	c = 1.120 c1 = 436 c2 = 50 d = 96°	c = 1.122 c1 = 438 c2 = 50 d = 90°
b = 130	c = 955 c1 = 273 c2 = 50 d = 95°	c = 986 c1 = 304 c2 = 50 d = 105°	c = 1.015 c1 = 331 c2 = 50 d = 105°	c = 1.048 c1 = 364 c2 = 50 d = 110°	c = 1.095 c1 = 412 c2 = 50 d = 120°	c = 1.118 c1 = 430 c2 = 50 d = 115°	c = 1.122 c1 = 438 c2 = 50 d = 110°	c = 1.122 c1 = 438 c2 = 50 d = 104°	c = 1.120 c1 = 434 c2 = 50 d = 98°	c = 1.118 c1 = 430 c2 = 50 d = 93°	c = 1.116 c1 = 431 c2 = 50 d = 92°	c = 1.122 c1 = 440 c2 = 50 d = 87°
b = 150	c = 975 c1 = 296 c2 = 50 d = 95°	c = 1.005 c1 = 324 c2 = 50 d = 102°	c = 1.032 c1 = 350 c2 = 50 d = 104°	c = 1.068 c1 = 385 c2 = 50 d = 110°	c = 1.110 c1 = 426 c2 = 50 d = 110°	c = 1.118 c1 = 434 c2 = 50 d = 116°	c = 1.120 c1 = 438 c2 = 50 d = 109°	c = 1.122 c1 = 439 c2 = 50 d = 103°	c = 1.118 c1 = 436 c2 = 50 d = 98°	c = 1.118 c1 = 430 c2 = 50 d = 92°	c = 1.118 c1 = 440 c2 = 50 d = 90°	c = 1.122 c1 = 440 c2 = 50 d = 90°
b = 170	c = 993 c1 = 316 c2 = 50 d = 95°	c = 1.022 c1 = 343 c2 = 50 d = 100°	c = 1.055 c1 = 371 c2 = 50 d = 104°	c = 1.088 c1 = 405 c2 = 50 d = 108°	c = 1.125 c1 = 440 c2 = 50 d = 108°	c = 1.118 c1 = 434 c2 = 50 d = 114°	c = 1.116 c1 = 435 c2 = 50 d = 100°	c = 1.105 c1 = 425 c2 = 50 d = 97°	c = 1.120 c1 = 440 c2 = 50 d = 90°	c = 1.120 c1 = 440 c2 = 50 d = 90°	c = 1.120 c1 = 440 c2 = 50 d = 87°	
b = 190	c = 1.020 c1 = 345 c2 = 50 d = 93°	c = 1.045 c1 = 363 c2 = 50 d = 98°	c = 1.072 c1 = 392 c2 = 50 d = 103°	c = 1.105 c1 = 423 c2 = 50 d = 106°	c = 1.120 c1 = 438 c2 = 50 d = 102°	c = 1.122 c1 = 438 c2 = 50 d = 96°	c = 1.120 c1 = 438 c2 = 50 d = 92°	c = 1.120 c1 = 435 c2 = 50 d = 88°	c = 1.116 c1 = 435 c2 = 50 d = 86°			
b = 210	c = 1.035 c1 = 356 c2 = 50 d = 92°	c = 1.063 c1 = 383 c2 = 50 d = 97°	c = 1.087 c1 = 407 c2 = 50 d = 100°	c = 1.117 c1 = 437 c2 = 50 d = 101°	c = 1.120 c1 = 440 c2 = 50 d = 95°	c = 1.120 c1 = 440 c2 = 50 d = 90°	c = 1.122 c1 = 440 c2 = 50 d = 87°					
b = 230	c = 1.065 c1 = 390 c2 = 50 d = 92°	c = 1.085 c1 = 404 c2 = 50 d = 97°	c = 1.110 c1 = 428 c2 = 50 d = 98°	c = 1.119 c1 = 438 c2 = 50 d = 93°	c = 1.120 c1 = 440 c2 = 50 d = 88°	c = 1.120 c1 = 440 c2 = 50 d = 85°						
b = 250	c = 1.085 c1 = 407 c2 = 50 d = 92°	c = 1.102 c1 = 425 c2 = 50 d = 95°	c = 1.117 c1 = 437 c2 = 50 d = 92°	c = 1.120 c1 = 440 c2 = 50 d = 87°								
b = 270	c = 1.105 c1 = 433 c2 = 50 d = 91°	c = 1.110 c1 = 437 c2 = 50 d = 90°										



Advice:

The preferred dimensions for the **Comfort 515** are shaded in grey in the table (for gate wings up to 2.5 m wide and weighing up to 200 kg).

6. Installation

Dimension table for Comfort 515 L

	a = 80	a = 100	a = 120	a = 140	a = 160	a = 180	a = 200	a = 220	a = 240	a = 260	a = 280	a = 300
b = 110			c = 1.197 c1 = 312 c2 = 50 d = 105°	c = 1.240 c1 = 356 c2 = 50 d = 112°	c = 1.286 c1 = 397 c2 = 50 d = 123°	c = 1.313 c1 = 428 c2 = 50 d = 125°	c = 1.342 c1 = 458 c2 = 50 d = 125°	c = 1.378 c1 = 492 c2 = 50 d = 125°	c = 1.403 c1 = 518 c2 = 50 d = 125°	c = 1.435 c1 = 550 c2 = 50 d = 130°	c = 1.487 c1 = 603 c2 = 50 d = 135°	c = 1.522 c1 = 640
b = 130			c = 1.216 c1 = 331 c2 = 50 d = 105°	c = 1.256 c1 = 371 c2 = 50 d = 110°	c = 1.293 c1 = 411 c2 = 50 d = 120°	c = 1.328 c1 = 445 c2 = 50 d = 125°	c = 1.360 c1 = 476 c2 = 50 d = 125°	c = 1.390 c1 = 508 c2 = 50 d = 125°	c = 1.420 c1 = 533 c2 = 50 d = 125°	c = 1.450 c1 = 566 c2 = 50 d = 125°	c = 1.488 c1 = 603 c2 = 50 d = 125°	c = 1.512 c1 = 629
b = 150			c = 1.200 c1 = 311 c2 = 50 d = 95°	c = 1.234 c1 = 374 c2 = 50 d = 102°	c = 1.268 c1 = 385 c2 = 50 d = 105°	c = 1.310 c1 = 425 c2 = 50 d = 115°	c = 1.344 c1 = 462 c2 = 50 d = 125°	c = 1.367 c1 = 486 c2 = 50 d = 120°	c = 1.395 c1 = 513 c2 = 50 d = 117°	c = 1.420 c1 = 533 c2 = 50 d = 120°	c = 1.457 c1 = 570 c2 = 50 d = 120°	c = 1.485 c1 = 600 c2 = 50 d = 120°
b = 170	c = 1.198 c1 = 310 c2 = 50 d = 90°	c = 1.223 c1 = 335 c2 = 50 d = 95°	c = 1.255 c1 = 368 c2 = 50 d = 102°	c = 1.282 c1 = 395 c2 = 50 d = 102°	c = 1.320 c1 = 431 c2 = 50 d = 108°	c = 1.344 c1 = 459 c2 = 50 d = 110°	c = 1.378 c1 = 496 c2 = 50 d = 115°	c = 1.410 c1 = 525 c2 = 50 d = 115°	c = 1.421 c1 = 534 c2 = 50 d = 110°	c = 1.443 c1 = 558 c2 = 50 d = 110°	c = 1.467 c1 = 583 c2 = 50 d = 115°	c = 1.514 c1 = 628
b = 190	c = 1.219 c1 = 332 c2 = 50 d = 90°	c = 1.248 c1 = 360 c2 = 50 d = 95°	c = 1.275 c1 = 389 c2 = 50 d = 100°	c = 1.298 c1 = 414 c2 = 50 d = 100°	c = 1.330 c1 = 445 c2 = 50 d = 105°	c = 1.353 c1 = 468 c2 = 50 d = 105°	c = 1.386 c1 = 504 c2 = 50 d = 105°	c = 1.419 c1 = 533 c2 = 50 d = 110°	c = 1.432 c1 = 546 c2 = 50 d = 107°	c = 1.444 c1 = 559 c2 = 50 d = 105°	c = 1.483 c1 = 581 c2 = 50 d = 110°	c = 1.515 c1 = 629
b = 210	c = 1.239 c1 = 354 c2 = 50 d = 90°	c = 1.268 c1 = 348 c2 = 50 d = 95°	c = 1.298 c1 = 410 c2 = 50 d = 100°	c = 1.320 c1 = 433 c2 = 50 d = 100°	c = 1.342 c1 = 459 c2 = 50 d = 100°	c = 1.370 c1 = 485 c2 = 50 d = 102°	c = 1.395 c1 = 515 c2 = 50 d = 105°	c = 1.415 c1 = 535 c2 = 50 d = 105°	c = 1.435 c1 = 549 c2 = 50 d = 105°	c = 1.435 c1 = 569 c2 = 50 d = 102°	c = 1.476 c1 = 592 c2 = 50 d = 105°	c = 1.514 c1 = 624
b = 230	c = 1.264 c1 = 378 c2 = 50 d = 90°	c = 1.292 c1 = 402 c2 = 50 d = 95°	c = 1.315 c1 = 432 c2 = 50 d = 100°	c = 1.344 c1 = 460 c2 = 50 d = 100°	c = 1.368 c1 = 484 c2 = 50 d = 100°	c = 1.388 c1 = 505 c2 = 50 d = 100°	c = 1.417 c1 = 530 c2 = 50 d = 102°	c = 1.425 c1 = 543 c2 = 50 d = 102°	c = 1.443 c1 = 559 c2 = 50 d = 102°	c = 1.468 c1 = 584 c2 = 50 d = 100°	c = 1.486 c1 = 604 c2 = 50 d = 100°	c = 1.510 c1 = 626
b = 250	c = 1.285 c1 = 400 c2 = 50 d = 90°	c = 1.310 c1 = 426 c2 = 50 d = 95°	c = 1.336 c1 = 454 c2 = 50 d = 97°	c = 1.362 c1 = 480 c2 = 50 d = 97°	c = 1.383 c1 = 498 c2 = 50 d = 97°	c = 1.409 c1 = 528 c2 = 50 d = 100°	c = 1.420 c1 = 535 c2 = 50 d = 97°	c = 1.442 c1 = 563 c2 = 50 d = 97°	c = 1.448 c1 = 563 c2 = 50 d = 97°	c = 1.457 c1 = 573 c2 = 50 d = 97°	c = 1.485 c1 = 599 c2 = 50 d = 97°	c = 1.500 c1 = 616
b = 270	c = 1.310 c1 = 425 c2 = 50 d = 90°	c = 1.340 c1 = 452 c2 = 50 d = 95°	c = 1.358 c1 = 476 c2 = 50 d = 97°	c = 1.380 c1 = 496 c2 = 50 d = 97°	c = 1.403 c1 = 520 c2 = 50 d = 97°	c = 1.430 c1 = 545 c2 = 50 d = 97°	c = 1.444 c1 = 556 c2 = 50 d = 97°	c = 1.470 c1 = 588 c2 = 50 d = 97°	c = 1.474 c1 = 590 c2 = 50 d = 97°	c = 1.490 c1 = 606 c2 = 50 d = 96°		

6. Installation

	a = 80	a = 100	a = 120	a = 140	a = 160	a = 180	a = 200	a = 220	a = 240	a = 260	a = 280	a = 300
b = 290	c = 1.334 c1 = 448 c2 = 50 d = 90°	c = 1.357 c1 = 475 c2 = 50 d = 95°	c = 1.380 c1 = 498 c2 = 50 d = 97°	c = 1.405 c1 = 524 c2 = 50 d = 95°	c = 1.422 c1 = 538 c2 = 50 d = 95°	c = 1.447 c1 = 563 c2 = 50 d = 95°	c = 1.457 c1 = 573 c2 = 50 d = 95°	c = 1.478 c1 = 595 c2 = 50 d = 95°	c = 1.495 c1 = 610			
b = 310	c = 1.359 c1 = 472 c2 = 50 d = 90°	c = 1.380 c1 = 495 c2 = 50 d = 95°	c = 1.408 c1 = 526 c2 = 50 d = 97°	c = 1.424 c1 = 540 c2 = 50 d = 95°	c = 1.448 c1 = 564 c2 = 50 d = 95°	c = 1.476 c1 = 590 c2 = 50 d = 95°	c = 1.484 c1 = 598 c2 = 50 d = 95°	c = 1.502 c1 = 622				
b = 330	c = 1.383 c1 = 496 c2 = 50 d = 90°	c = 1.403 c1 = 518 c2 = 50 d = 95°	c = 1.433 c1 = 550 c2 = 50 d = 97°	c = 1.451 c1 = 564 c2 = 50 d = 95°	c = 1.470 c1 = 585 c2 = 50 d = 95°	c = 1.490 c1 = 608 c2 = 50 d = 95°	c = 1.508 c1 = 624					
b = 350	c = 1.406 c1 = 522 c2 = 50 d = 90°	c = 1.426 c1 = 543 c2 = 50 d = 95°	c = 1.453 c1 = 571 c2 = 50 d = 97°	c = 1.474 c1 = 588 c2 = 50 d = 95°	c = 1.495 c1 = 611 c2 = 50 d = 95°	c = 1.516 c1 = 634						
b = 370	c = 1.430 c1 = 554 c2 = 50 d = 90°	c = 1.452 c1 = 566 c2 = 50 d = 95°	c = 1.478 c1 = 594 c2 = 50 d = 97°	c = 1.497 c1 = 614 c2 = 50 d = 95°	c = 1.518 c1 = 634							
b = 390	c = 1.453 c1 = 598 c2 = 50 d = 90°	c = 1.475 c1 = 590 c2 = 50 d = 95°	c = 1.500 c1 = 617 c2 = 50 d = 97°	c = 1.520 c1 = 636 c2 = 50 d = 95°								
b = 410	c = 1.481 c1 = 595 c2 = 50 d = 90°	c = 1.502 c1 = 618 c2 = 50 d = 95°	c = 1.520 c1 = 636									
b = 430	c = 1.502 c1 = 618 c2 = 50 d = 90°	c = 1.520 c1 = 637 c2 = 50 d = 93°										
b = 450	c = 1.522 c1 = 640 c2 = 50 d = 90°											



Advice:

The preferred dimensions for the **Comfort 515 L** are shaded in grey in the table (for gate wings up to 3.5 m wide and weighing up to 200 kg).

6. Installation

Installation dimensions

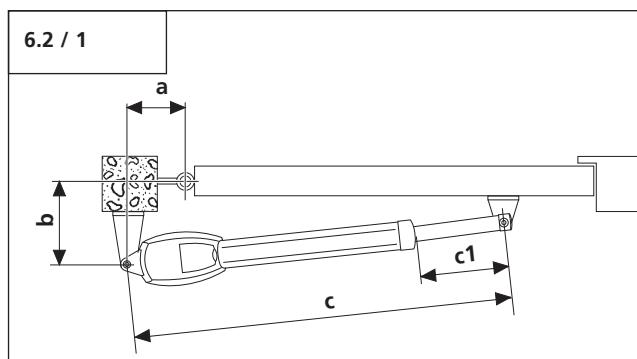
The installation dimensions depend upon the local conditions.

The relevant possible combinations are shown in the dimensions table.

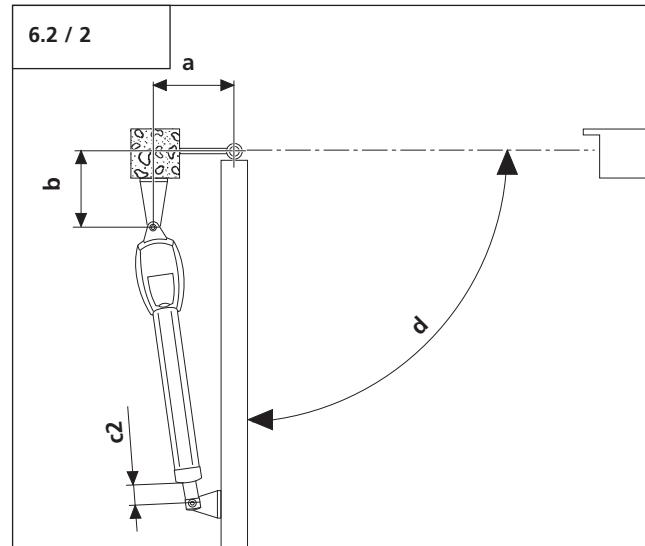
The following applies here:

- The opening angle (d) is determined by the person installing the gate.
- The installer also measures out the dimension (b), which is fixed and cannot be changed.
- When the opening angle (d) and dimension (b) are known, the corresponding dimension (a) and the CLOSING movement stroke (c1) can be determined using the dimension table.
- In the ideal case, dimension (a) and dimension (b) are approximately equal. This ensures that the hinged gate moves as smoothly as possible.
- The movement stroke in the OPENING direction (c2) is fixed and always measures 50 mm.

Gate OPEN



Door in OPEN position / opening angle



- Move the gate into the desired OPEN position.
- Measure the opening angle (d).
- Move the door to the CLOSED position.
- Determine dimensions (a) and (b).

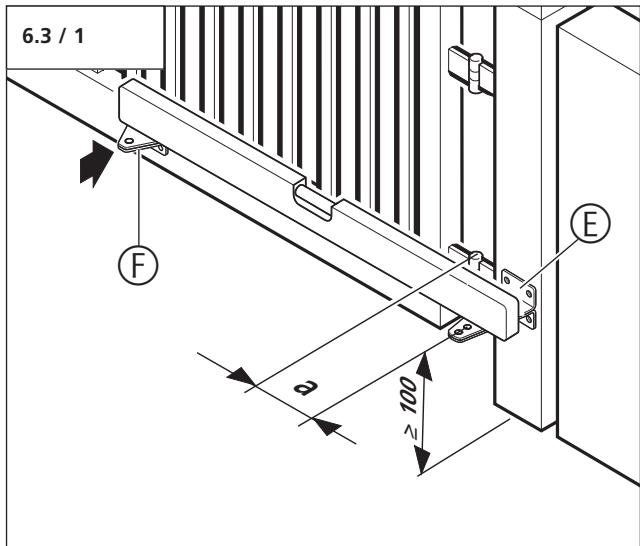
The opening angle (d) and dimensions (a) and (b) provide the value for dimension (c1).

- Determine dimension (c1) using the dimension table.
- Adjust the limit switch to the dimension determined for (c1).
- Extend the piston rod.

a	Dimension (a)
b	Dimension (b)
c	Max. length of motor unit
c1	Movement stroke CLOSING
c2	Movement stroke OPENING
d	Max. opening angle

6. Installation

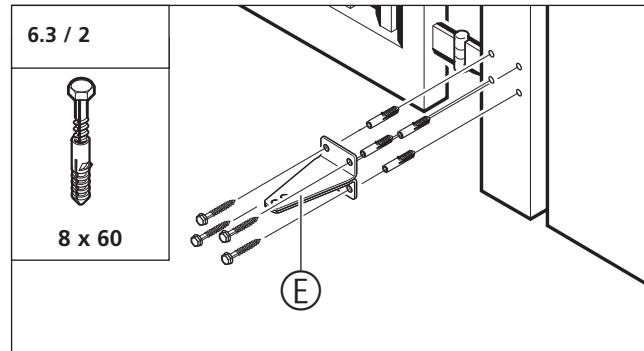
6.3 Fixing the post bracket



The vertical position of the gate bracket (E) is dependent on the position of the gate bracket (F).

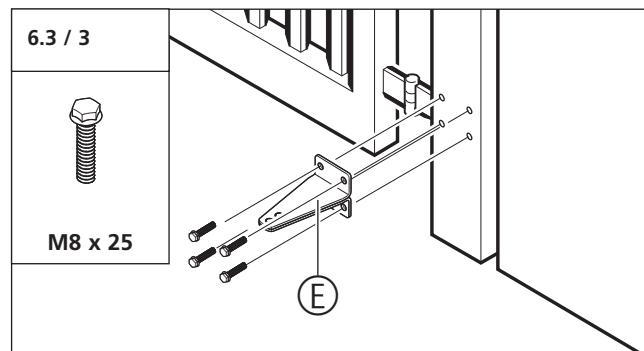
- Determine the horizontal position of the gate bracket (E) on the post with the help of dimension (a).
- Determine the position of the gate bracket (F) on the gate.
- Transfer the level to the gate bracket (E) using a spirit level.
- Mark the screw positions on the post.

Fixing to a concrete or stone pillar



- Screw the gate bracket (E) to the post.

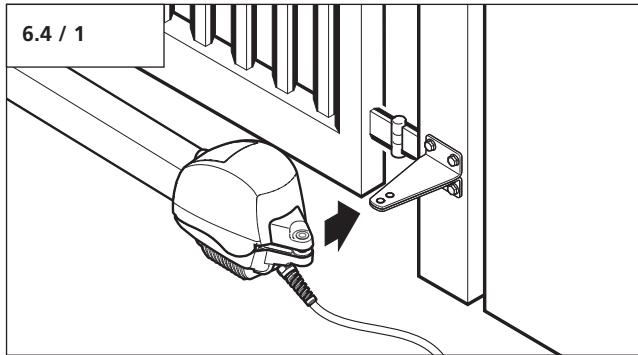
Fixing to a metal post



- Screw the gate bracket (E) to the post.
- For double wing gate systems, fix the second gate bracket accordingly on the other side.

6. Installation

6.4 Fixing the motor unit to the post bracket

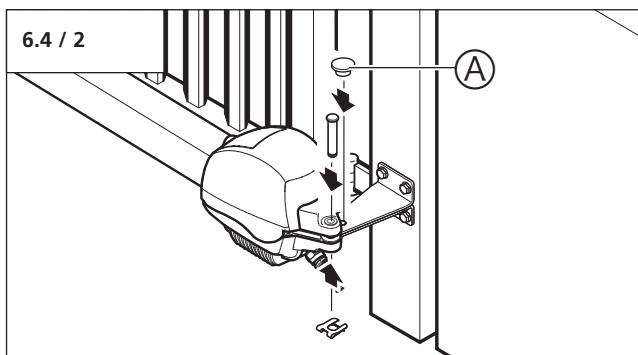


- Position the operator on the gate bracket.



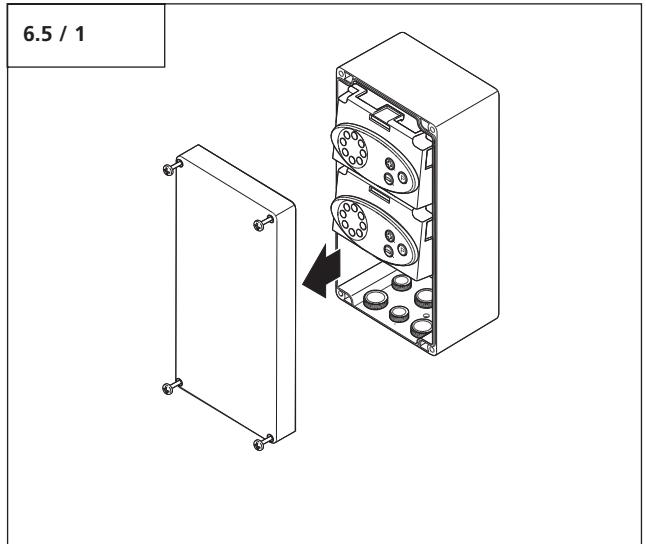
Caution!

To avoid injury, the redundant hole in the gate bracket must be sealed using the cover cap (A).



- Fix the motor unit with the bolt and the locking plate.
- Push the cover cap (A) into the redundant hole from above.
- For double wing gate systems, fix the second motor unit accordingly on the other side.

6.5 Fixing the control unit

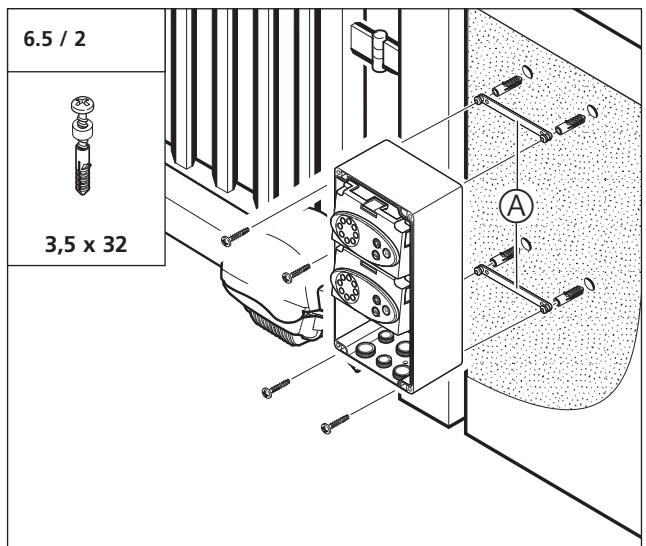


- Open the control unit.



Attention!

The control unit must be installed in such a way that the motor cable can be fed through the screw fixing at the base of the control unit.



- Mount the control unit using the spacer elements (A).

6. Installation

6.6 Connection of control elements



Caution!

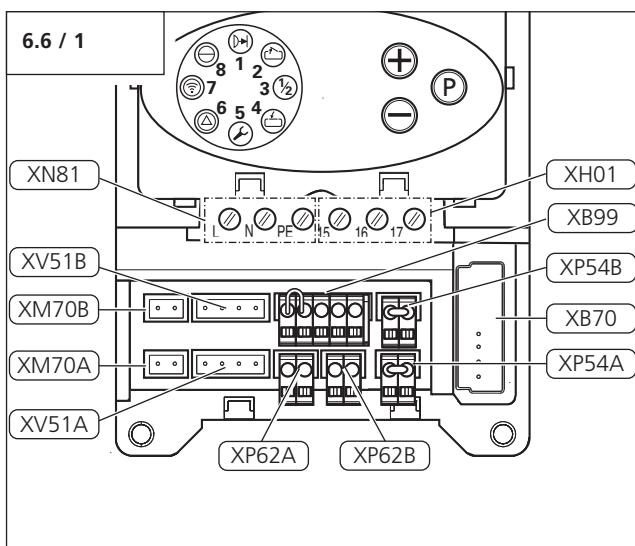
Danger of electric shock:
Before any cabling works begin, it must be ensured that the cables are disconnected from the power supply. During cabling works, it must be ensured that the cables remain disconnected from the power supply at all times (e.g. prevent reconnection).



Attention!

In order to avoid damaging the controls:

- The local safety regulations must be complied with at all times.
- It is very important that mains cables are laid separately from control cables.
- The controls voltage must be 24 V DC.
- If external voltages are applied at terminals XM70A, XV51A, XM70B, XV51B, XB99, XP54B, XP54A, XP62B, XP62A or XB70, the entire electronic system will be destroyed.
- Only potential-free contacts may be connected to terminals B9, 5, 34, 3 and 8 (XB99).



Label	Type / function	
XB70	Connection of modular antenna	8.1
XB99	Connection of external control elements	6.6 / 2 6.6 / 3 6.6 / 4 6.6 / 5
XH01	Connection for programmable output 16/17 (e.g. signal light, 24 V DC, 0,5 A, max 24 V/10 W) Electric lock 15/16 (24 V DC)	6.6 / 6 6.6 / 7
XM70A	Connection for motor unit (MASTER)	6.7 / 5 6.7 / 8
XM70B	Connection for motor unit (SLAVE)	6.7 / 5 6.7 / 8
XN81	Connection for mains cable	6.6 / 6 6.8
XP54A	Connection for closing edge safety device, gate travelling direction CLOSE	6.6 / 8
XP54B	Connection for closing edge safety device, gate travelling direction OPEN	6.6 / 8
XP62A	Connection for photocell, gate travelling direction CLOSE	6.6 / 9
XP62B	Connection for photocell, gate travelling direction OPEN	6.6 / 9
XV51A	Connection has no function	-
XV51B	Connection has no function	-



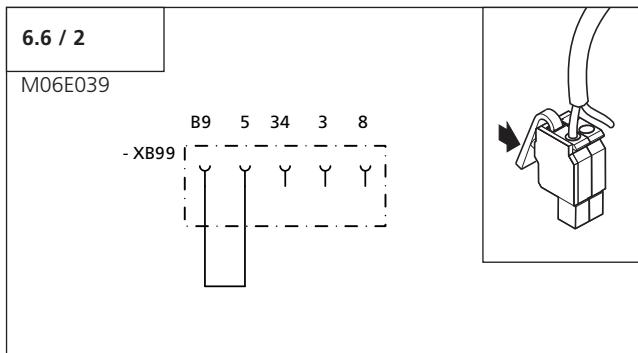
Reference:

When installing external control elements, or safety and signal equipment, the relevant instructions must be observed.

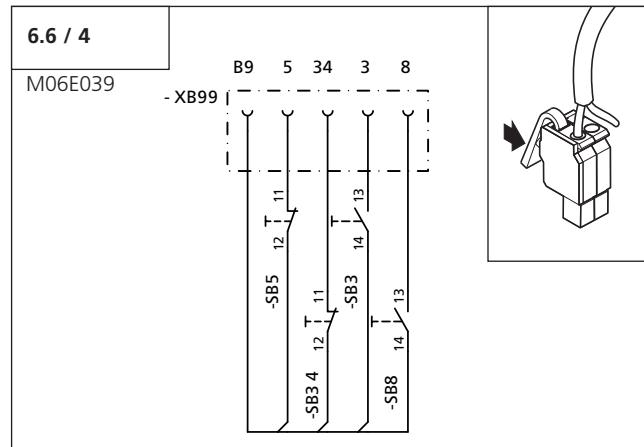
6. Installation

Terminal XB99

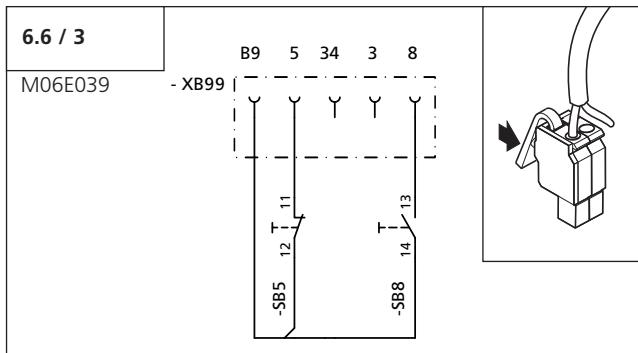
Factory settings:
B9 and 5 bridged



Connection option 2:



Connection option 1:



Label	Type / function
3	Active wing connection
5	Stop connection
8	Impulse connection
34	Connection for closing prevention device (Photocell)
B9	+24 V DC connection
SB3	Active wing connection
SB5	STOP button
SB8	Impulse button
SB34	Button for closing prevention device (Photocell) / Drive system stops and reverses



Reference:

The connection configuration depends on the programming of the special functions. Depending on the programming, impulse or direction buttons can be connected.

Programming the special functions is described in Section 9.4 (Level 5).

6. Installation



Advice:

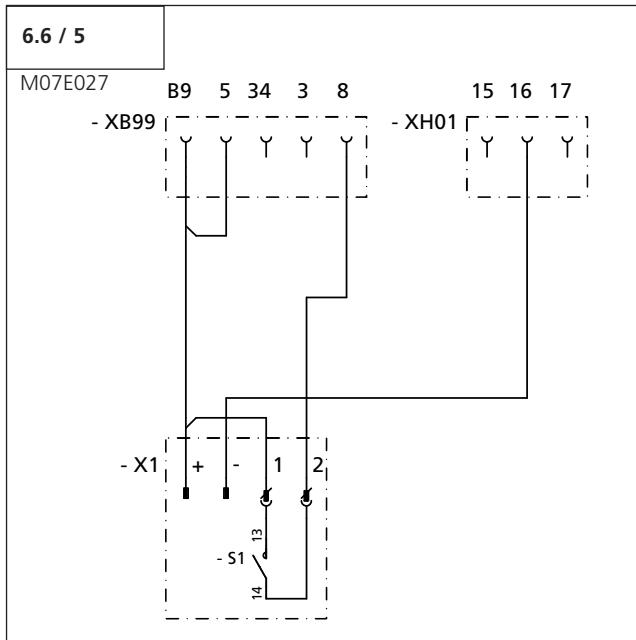
If a closing prevention device (photocell, timer, ...) is connected to XB99, the controls will recognise it automatically after "Mains On" (contact SB34 must be closed). The photocell can be deactivated later (Level 8 / Menu 1).

When the contacts of a closing prevention device are open, the gate can no longer be closed.

Additional external control elements, and safety and signal devices with 24 V connections must be connected to XB99 and XH01.

Connection option 3:

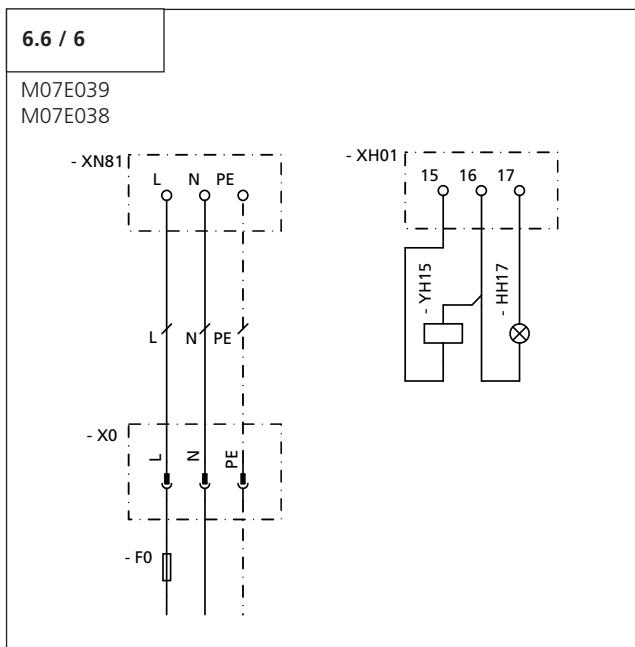
- External radio receiver



Label	Type / function
XB99	Connection of external control elements
3	Active wing connection
5	Stop connection
8	Impulse connection
34	Connection for closing prevention device (Photocell)
B9	24 V DC connection
X1	Connection for external receiver
1	Connection of potential-free normally open contact
2	Connection of potential-free normally open contact
+	24 V DC connection
-	GND connection
S1	Normally open contact, receiver, potential-free
XH01	Connection of control unit output
15	Connection for electric lock, 24 V DC
16	GND connection
17	Connection for programmable output

6. Installation

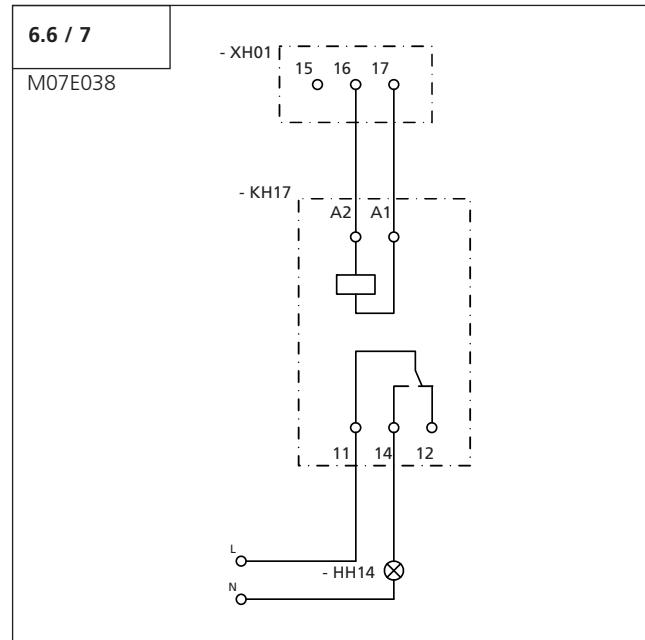
Terminals XN81 / XH01



Label	Type / function
L	Connection for phase
N	Connection for neutral wire
PE	Earth wire connection
15 / 16	Connection for electric lock, 24 V DC
16	GND connection
16 / 17	Connection of programmable output (24 V DC / 0.5 A)
HH14	Signal light
HH17	Signal light 24 V
KH17	User's relay 24 V
YH15	Electric lock (provided by the customer)

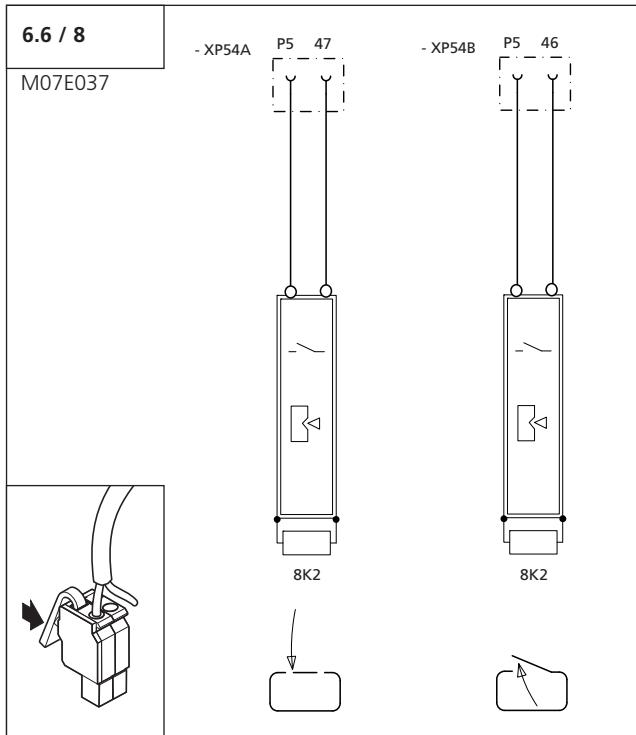
Connection option:

- Connection for signal light with external relay



6. Installation

Terminals XP54A / XP54B



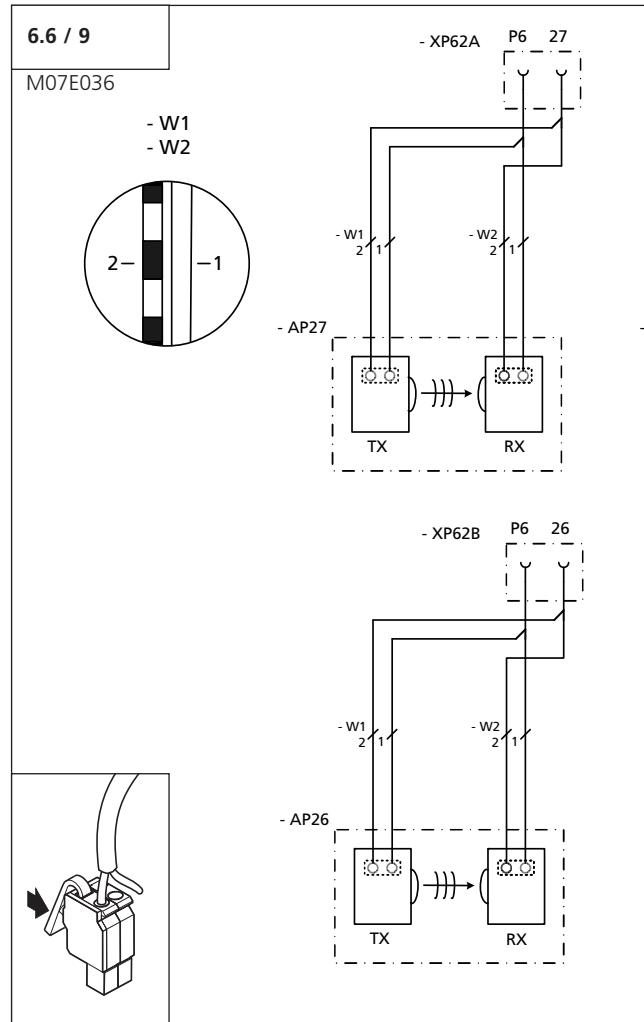
Label	Type / function
P5	GND connection
46	Connection for signal of closing edge safety device Gate travelling direction OPEN (XP54B)
47	Connection for signal of closing edge safety device Gate travelling direction CLOSE (XP 54A)



Attention!

If an 8.2 kΩ contact strip closing edge safety device is connected, the 8.2 kΩ resistors installed at terminals XP54B closing edge OPEN and XP54A closing edge CLOSE must be removed.

Terminals XP62A / XP62B



Label	Type / function
P6	GND connection
26	Connection for photocell signal gate travelling direction OPEN (XP62B)
27	Connection for signal of photocell, gate travelling direction CLOSE (XP62A)
RX	Receiver for the two-wire photocell
TX	Transmitter for the two-wire photocell

6. Installation

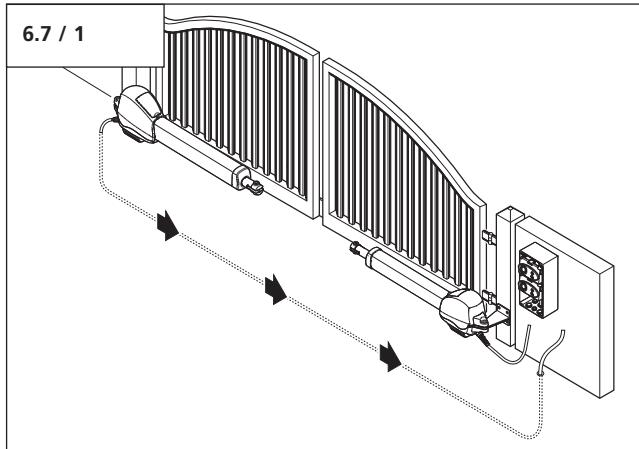


Advice:

A two-wire photocell connected to terminals XP62B / XP62A will be recognised automatically by the controls after "Mains On".
The photocell can be deactivated later (Level 8 / Menu 1).

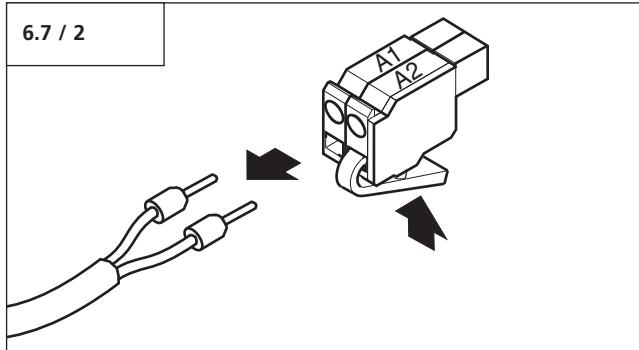
If the contacts of a closing prevention device are open, the gate can no longer be closed.

6.7 Connecting the operator to the controls



Advice:

For double-wing gate systems, both the mains cables must be laid to the controls.



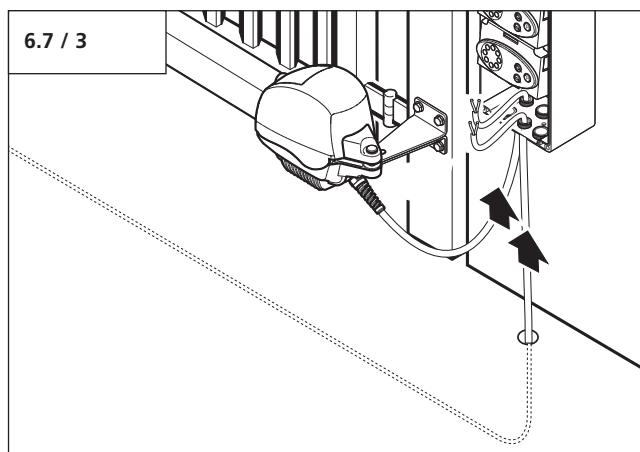
- Pull the leads out of the motor plug.

6. Installation



Attention!

In order to guarantee the protection grade of the controls, the cables must be fed through the corresponding screw fixing (A).

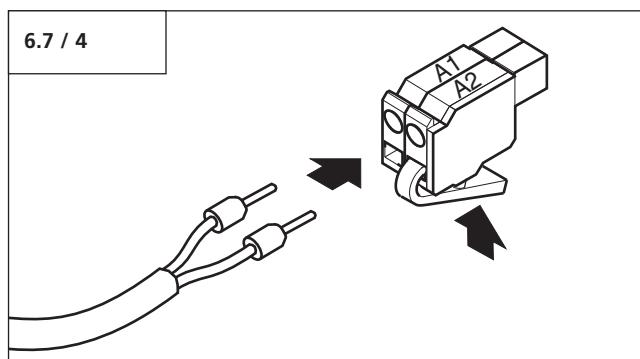


- Feed the cables from the motor units into the control unit through the screw fixings.



Attention!

To ensure that the motor unit rotates in the correct direction, the poles of the plug must be connected correctly.

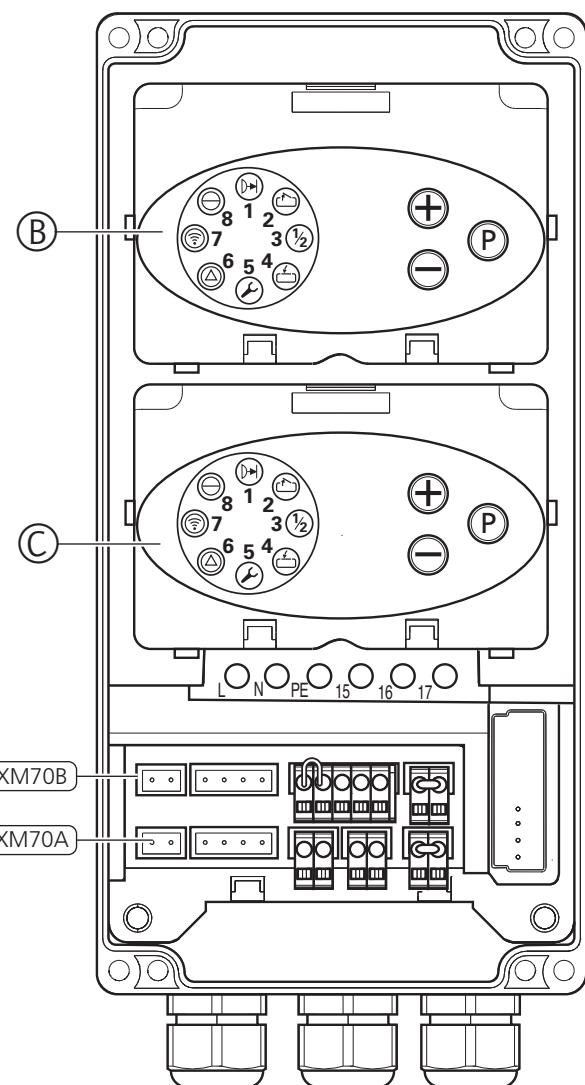


Poles:

A1 Brown lead
A2 Green lead

- Insert the leads into the motor plug.

6.7 / 5



Label	Type / function
B	Control module SLAVE (only for double wing gates)
C	Control module MASTER
XM70A	Connection for motor unit (Master)
XM70B	Connection for motor unit (Slave)

6. Installation

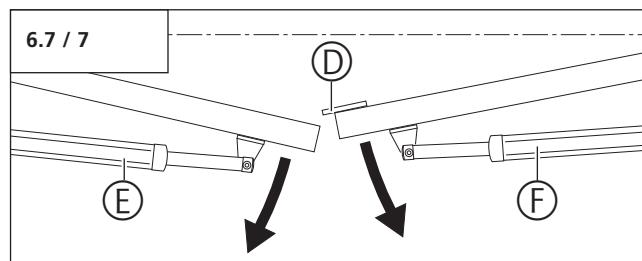
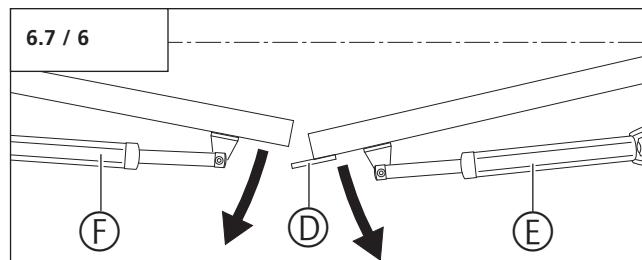
6.8 Connection of the mains cable



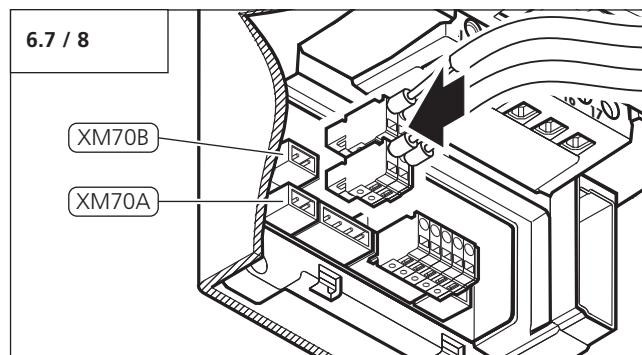
Attention!

To ensure trouble free operation, the following must be ensured:

- For a single-wing gate system, the motor unit must always be connected to the MASTER (XM70A) connection.
- For a double-wing gate system, the overlap (D) must be taken into consideration when connecting the motor units.



E SLAVE motor unit
F MASTER motor unit



- Connect the motor units to the controls.



Caution!

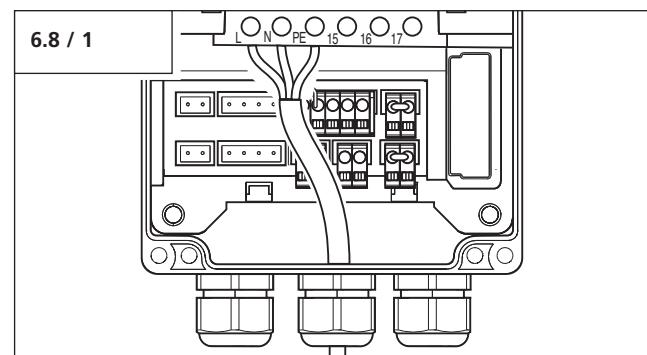
- During cabling works, the supply cables must be disconnected from the power supply. It must be ensured that the cables remain disconnected from the supply for the duration of the cabling works.
- The fixed connection of a mains supply requires a universally poled mains disconnection facility.



Attention!

In order to guarantee the protection grade of the controls, the cable must be passed through the correct screw fixing.

- Feed the cable through the screw fitting into the control unit.



- Connect the power supply leads to the control unit.
- Connect the control unit to the electricity supply.



Advice:

All the control lights light up for approx. 3 seconds. Then LED 8 is lit. Other LEDs may also be lit.

6. Installation

6.9 Setting the CLOSED and OPEN gate positions

6.9.1 Setting the gate CLOSED position

The CLOSED gate position is determined by the length of the connecting rod (A).

To achieve the correct CLOSED gate position, the length of the visible part of the connecting rod (A) must be equal to the CLOSING movement stroke (c1) as given in the dimensions table.

The CLOSING movement stroke (c1) is dependent on the site-dependent dimensions (a) and (b).



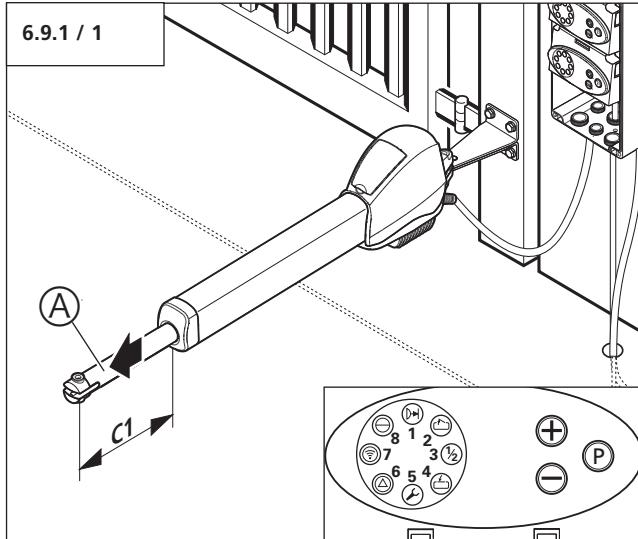
Reference:

The relevant dimensions are given in the table in Section 6.2.



Attention!

The connecting rod (A) must be held in position when closing the gate to prevent it from turning as the gate turns.



- Drive the gate in the direction of CLOSING by pressing the (-) button.
- Measure the movement stroke (c1):

The CLOSING movement stroke (c1) must be adjusted using the adjusting screw (C) if the values disagree.

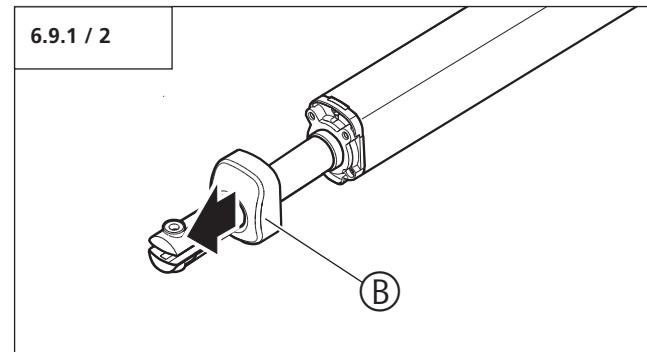
Increase the movement stroke:

Turn the adjusting screw (C) in the (+) direction.

Decrease the movement stroke:

Turn the adjusting screw (C) in the (-) direction.

Turning the adjusting screw (C) by 360° adjusts the movement stroke by 1.25 mm.



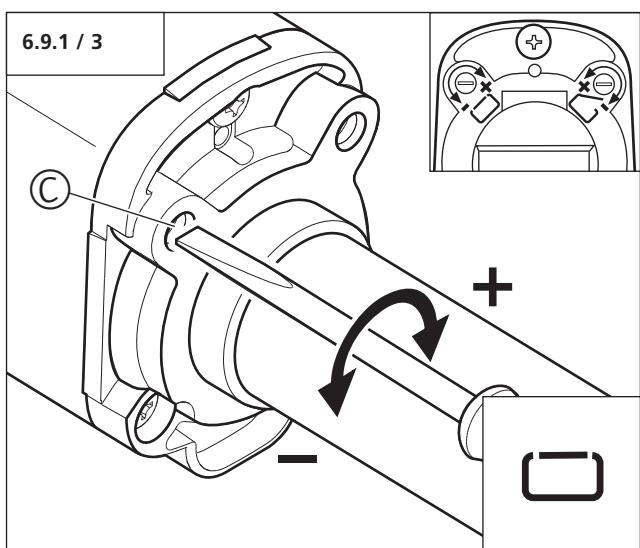
- Take off the protective cap (B).

6. Installation



Attention!

The CLOSED position may only be adjusted using a manual screw driver, to ensure that the adjusting mechanism is not damaged.



- Turn the adjusting screw in the (+) or (-) direction to set the CLOSED position.
- Drive the gate a little in the OPENING direction by pressing the (+) button.
- Drive the gate back to the CLOSED position by pressing the (-) button.
- Compare the movement stroke (c1) from the dimensions table with the movement stroke (c1) as measured.
- Repeat the process until the CLOSING movement stroke (c1) from the dimensions table agrees with the measured CLOSING movement stroke (c1).

6.9.2 Setting the gate OPEN position

The gate OPEN position is pre-set.



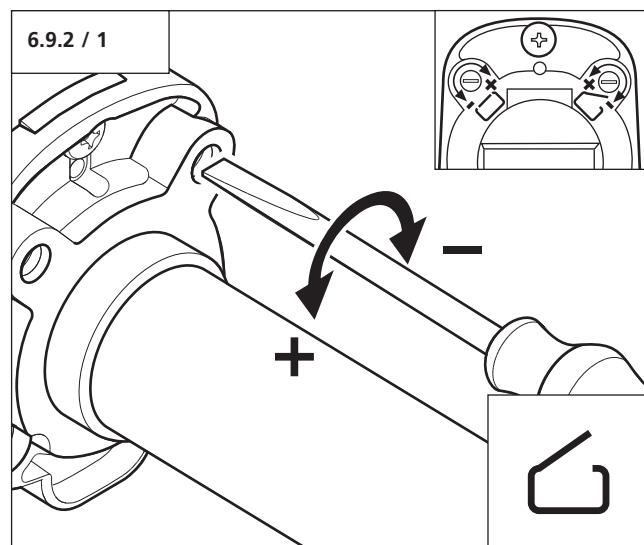
Attention!

The OPEN position may only be adjusted using a manual screw driver, to ensure that the adjusting mechanism is not damaged.

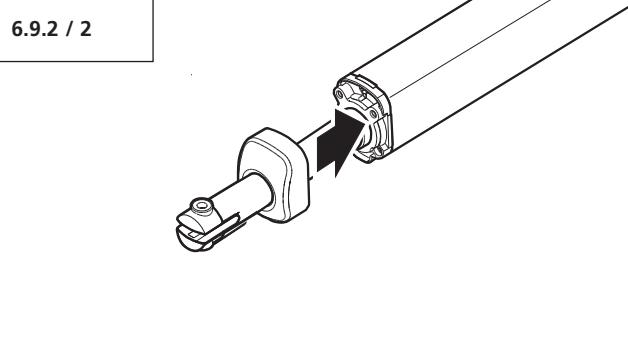


Advice:

Fine adjustments to the gate OPEN position can be made by turning the adjusting screw in the (+) or (-) directions.



6.9.2 / 2



- Fit the protective cap on the motor unit.

6. Installation

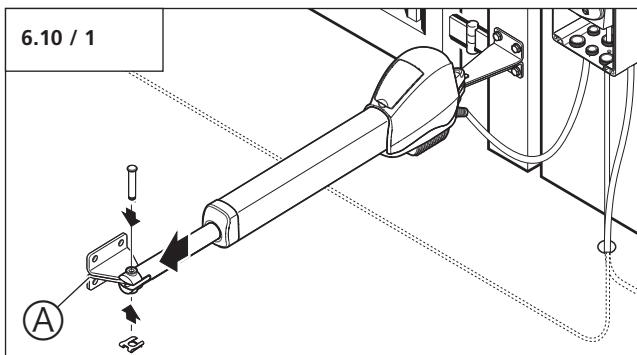
6.10 Mounting the gate bracket



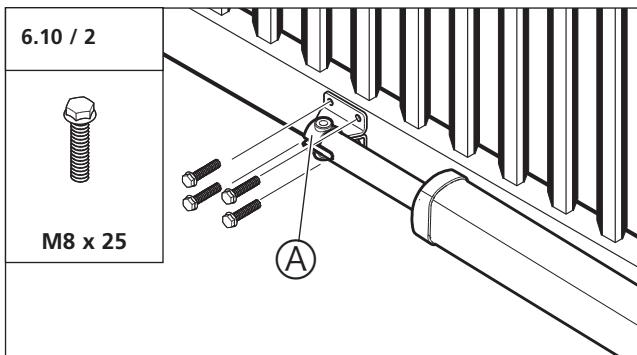
Attention!

To ensure the successful mounting of the gate bracket:

- The motor unit must be in the CLOSED position.
- The gate must be closed.



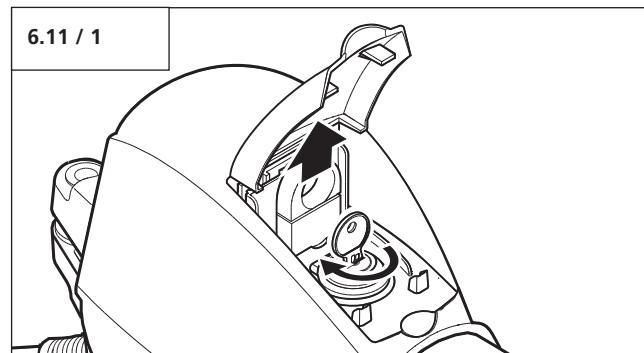
- Drive the motor unit to the gate CLOSED position.
- Secure the gate bracket (A) with the bolt and the locking plate.



- Close the gate.
- Screw the gate bracket (A) to the gate.
- For double-wing gates, mount the second gate bracket accordingly on the opposite side.

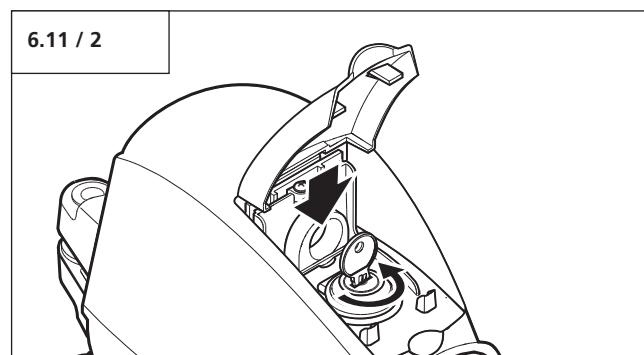
6.11 Release

Releasing



- Turn the key through 180°.
- Lift up the red release lever.
- Turn the key 180° in the opposite direction to secure the released position.

Locking



- Turn the key through 180°.
- Press down the red release lever.
- Turn the key 180° in the opposite direction to secure the locked position.

7. Hand transmitter

7.1 Operation and accessories



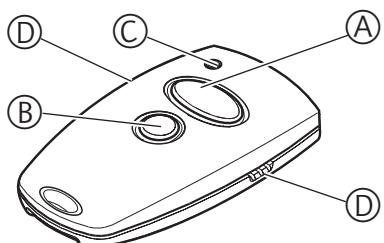
Caution!

Children are not allowed to operate the hand transmitters!

Before operating the hand transmitter, make sure that there are neither persons nor objects in the operating range of the gate.

Overview

7.1 / 1



- A Operating button - large
- B Operating button - small
- C Battery - transmission control light
- D Transmission socket

Another operator system can be operated using the second operating button.

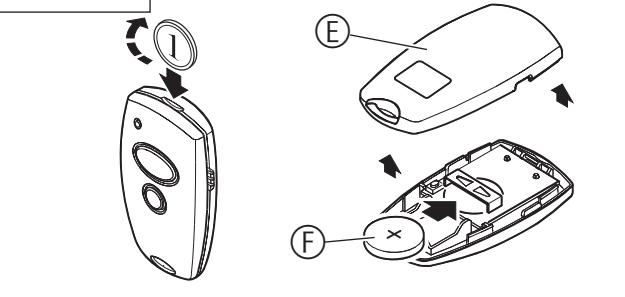


Reference:

The procedure for programming hand transmitters (remote controls) to operate the operator system is described in Section 8.4.3.

Change batteries

7.1 / 2



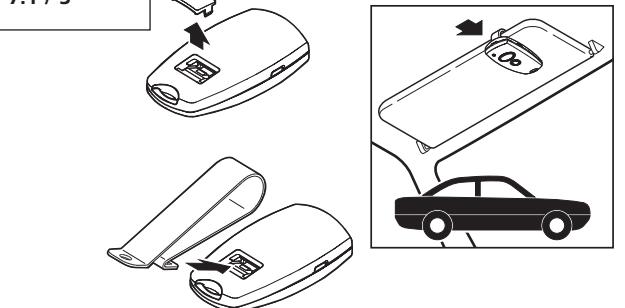
E Back of hand transmitter

F Battery 3V CR 2032

- Open the back of the hand transmitter (E), e.g. with a coin.
- Change the battery (F) and observe correct poling.

Accessory

7.1 / 3



Visor clip, for attaching the hand transmitter to a visor in a car.

7. Hand transmitter

7.2 Hand transmitter coding

7.2.1 Transfer the coding

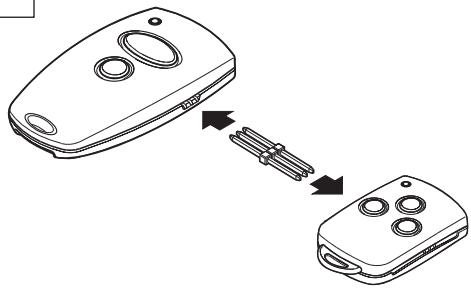
Using this function it is possible to transfer the coding of a hand transmitter that has already been programmed for operating the operator system (master transmitter) to another hand transmitter.



Caution!

Before operating the hand transmitter, ensure that there are neither persons nor objects in the operating range of the gate.

7.2.1 / 1



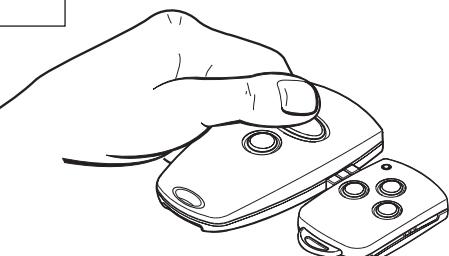
- Connect both transmitters with the enclosed transmission plug.



Advice:

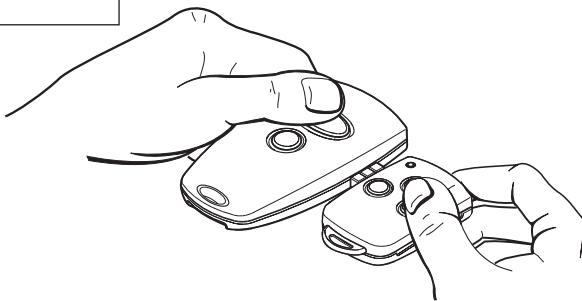
The plug connections on both sides of the hand transmitter are identical.

7.2.1 / 2



- Actuate the master transmitter and hold the button. The transmitter LED lights up.

7.2.1 / 3



- Whilst keeping the button on the master transmitter depressed, press the desired button on the other hand transmitter. The LED flashes.

After 1 – 2 seconds, the LED on the newly programmed transmitter lights up permanently. The programming procedure is complete. The coding of the master transmitter has now been transferred to the other hand transmitter.

- Remove the transmission plug.



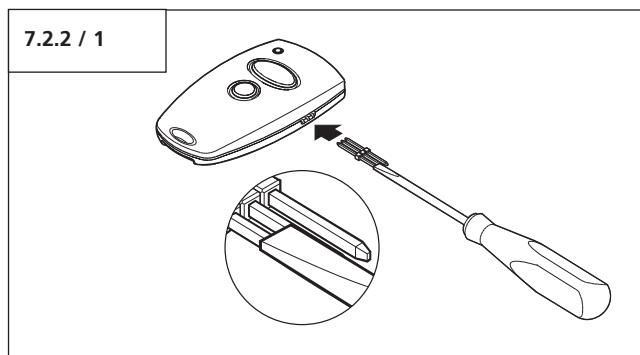
Advice:

For multi-channel hand transmitters, the coding procedure has to be carried out for each button separately.

7. Hand transmitter

7.2.2 Change coding

If a hand transmitter has been lost, this function can be used to change the coding of the remaining remote control transmitters.



- Connect one end of the transmission plug to the hand transmitter.
- At the free end of the transmission plug, short-circuit one of the outer pins with the centre pin adjacent to it (e.g. using a screw driver).
- Press the desired button on the hand transmitter. A new code is then generated by the integrated random coding facility.
The LED flashes quickly.

As soon as the LED lights up permanently, the hand transmitter has been programmed with a new code. The button can then be released and the transmission plug removed.



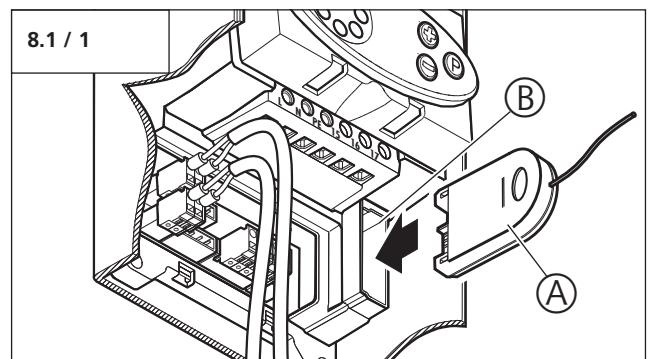
Advice:

After the hand transmitter has been re-programmed, the operator system must also be re-programmed to respond to the new code.

For multi-channel transmitters, the programming process must be carried out for each button separately.

8. Initial operation

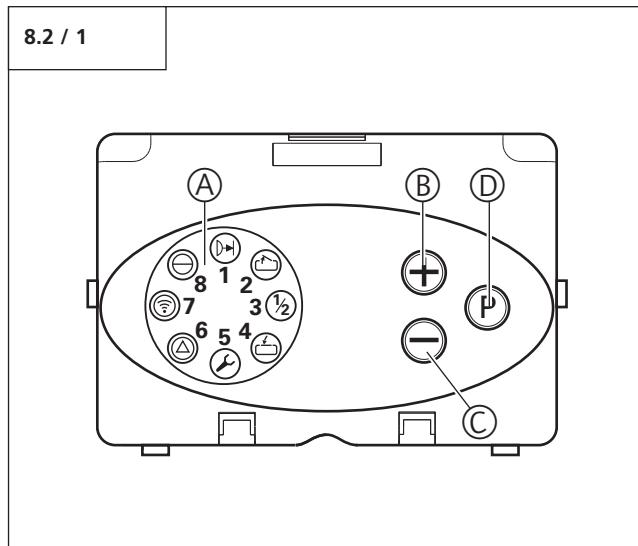
8.1 Connecting the modular antenna



- Insert the modular antenna (A) into the antenna socket (B).

8. Initial operation

8.2 Overview of the control unit



Operating elements

Label	Type / function	
A	Carousel display	8.3
B	OPEN button (+) (e.g. to drive the gate to the OPEN position or to increase parameters when programming)	-
C	CLOSE button (-) (e.g. to drive the gate to the CLOSED position or to decrease parameters when programming)	-
D	STOP button (p) (e.g. to switch to programming mode or to save parameters)	-

8.3 Overview of the display functions

LED displays in operating mode

	Photocell or the CESD has been interrupted (display: master only)
	Gate moving towards OPEN position (display: master and slave)
	Gate in OPEN position (display: master and slave)
	Gate moving towards CLOSED position (display: master and slave)
	Gate in CLOSED position (display: master and slave)
	Permanent actuation of an external control element (display: master only)
	Remote control is actuated (display: master only)
	Operating voltage (display: master and slave)

Legend:

LED off	
LED on	
LED flashes slowly	
LED pulses	
LED flashes quickly	
Factory default setting	
Not possible	

8. Initial operation

8.4 Express programming

8.4.1 General notes on express programming



Attention!

In order to ensure proper operation, the express programming must be carried out at the MASTER control unit.

The following works must be carried out before the operator can be put into operation successfully:

- The remote control must be programmed in the express programming procedure.
- The soft running feature must be set up by means of four learning runs.

After switching on (mains on):

- The controls do not show a gate position signal yet.
- The system always runs in the direction of the OPEN position after the first impulse.

When the system is already in the OPEN position, only the display changes after the first impulse, to indicate the OPEN position. After a second impulse the gate then runs in the direction of the CLOSED position.

8.4.2 Programming buttons

The controls are programmed using the plus (+), minus (-) and (P) buttons.

If no buttons are pressed within 120 seconds while in programming mode, the controls revert to operating mode.

A corresponding message is displayed.



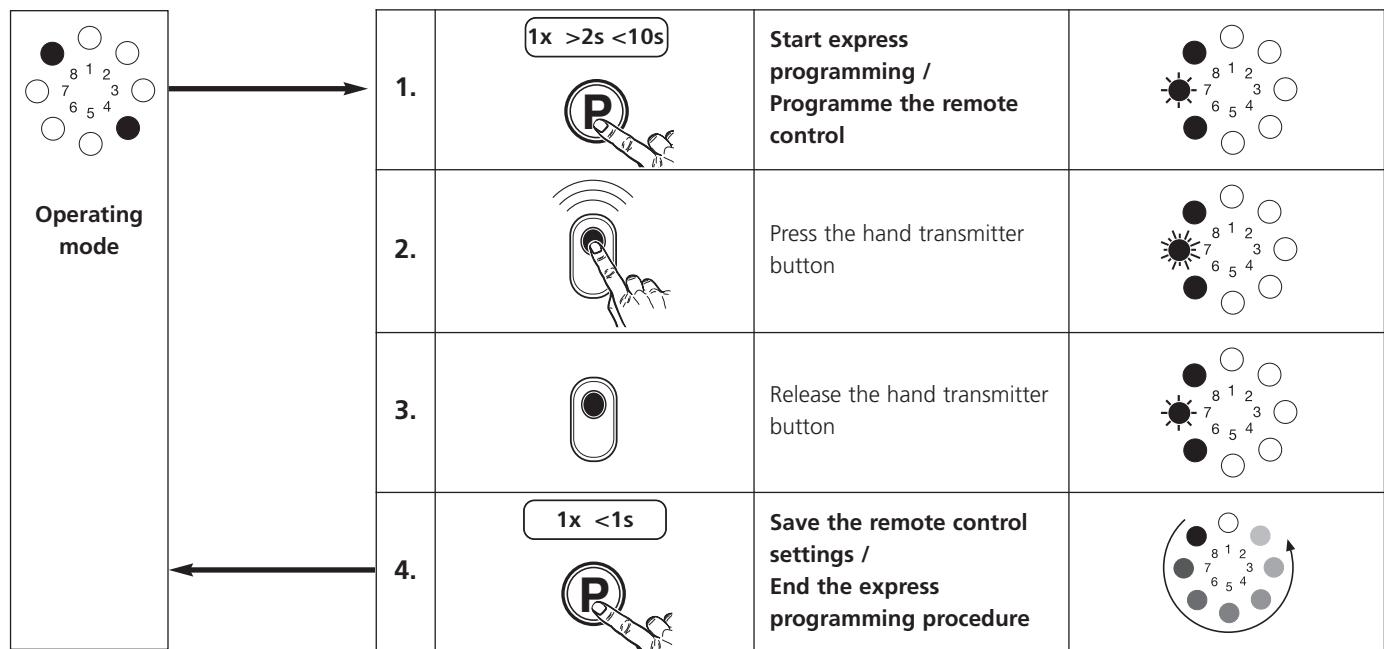
Reference:

The messages are explained in Section 10.

- Carry out the express programming according to the following procedure.

8. Initial operation

8.4.3 Express programming sequence



Legend:

LED off	○
LED on	●
LED flashes slowly	◆
LED pulses	◆◆
LED flashes quickly	◆◆◆
Factory default setting	■
Not possible	-

8. Initial operation

8.5 Function test

8.5.1 Learning run for soft-run

- Use the operator system (with the door coupled) to drive the door to the CLOSED position.
- Use the operator system (with the door coupled) to drive the door once from the CLOSED position to the OPEN position and back to the CLOSED position without interruption.

**Advice:**

After a disconnection of the power supply, the soft run must be reactivated with two complete runs between the door positions OPEN and CLOSED.

Test:

1.		After pressing the (+) button: The gate must open and travel to the saved OPEN end position.
2.		After pressing the (-) button: The gate must close and travel to the saved CLOSED end position.
3.	 A small signal wave is shown above the button.	After pressing the hand transmitter button: The operator system must move the gate in either the OPEN or CLOSE direction.
4.	 A small signal wave is shown above the button.	After pressing the hand transmitter button while the operator system is running: The operator system must stop.
5.	 A small signal wave is shown above the button.	When the button is pressed again, the operator system moves in the opposite direction.

8.5.2 Checking the automatic cut-out

**Caution!**

The automatic cut-out must be correctly programmed for the CLOSE and OPEN directions to prevent damage to persons or property.

- Place an obstacle in the path of the gate in both the OPEN and CLOSE directions.
- For each direction, drive the gate into the obstacle.

The operator system must stop and reverse when it hits the obstacle.

**Advice:**

The parameter settings are still saved if the power supply is disconnected. Only a reset causes the driving power settings for the OPEN and CLOSE directions to revert to the factory settings.

9. Extended operator functions

9.1 General notes on extended operator functions

Additional functions can be programmed for the operator system using the extended functions.



Caution!

Important factory default settings can be changed using the extended functions.

All the parameters must be set correctly to avoid damage to persons or property.



Advice:

The MASTER and SLAVE controls must be programmed independently of one another.

Take care to observe the programming settings of the individual menus.

The programming facility is divided into three areas:

Area 1: Levels

The adjustable functions have been grouped in 8 levels according to the type of function.

Each level can have up to 8 menus.

The (+) and (-) buttons are used to scroll through the selections within the levels.

Levels that are not used are displayed but cannot be opened.

Levels-Exit switches from programming to operating mode.

Area 2: Menu

Each menu sets one parameter.

The (+) and (-) buttons are used to scroll through the settings within the menus.

Menus that are not in use are skipped over and are not displayed.

You can return to the first level via Menu-Exit.

Area 3: Parameters

Each function has a maximum of 16 settings.

The (+) and (-) buttons are used to scroll through the settings for the adjustable parameters.

Parameters that cannot be adjusted are skipped over and not displayed.

It is not possible to overshoot by pressing the (+) and (-) buttons.

Pressing the (P) button saves the parameters you have set.

End Programming

The programming session can be ended in two ways:

1. Via Levels-Exit by pressing the (P) button.

The controls then switch to operating mode.

2. By pressing the (P) button for longer than 5 seconds at any time and from any area.

The controls then switch to operating mode.

If a parameter had been changed, it will be saved in the process.

When the programming session ends, all the LEDs light up and then go out one after the other, in sequence from 8 to 1.

If no buttons are pressed within 120 seconds while in programming mode, the controls revert to operating mode.

A corresponding message is displayed.



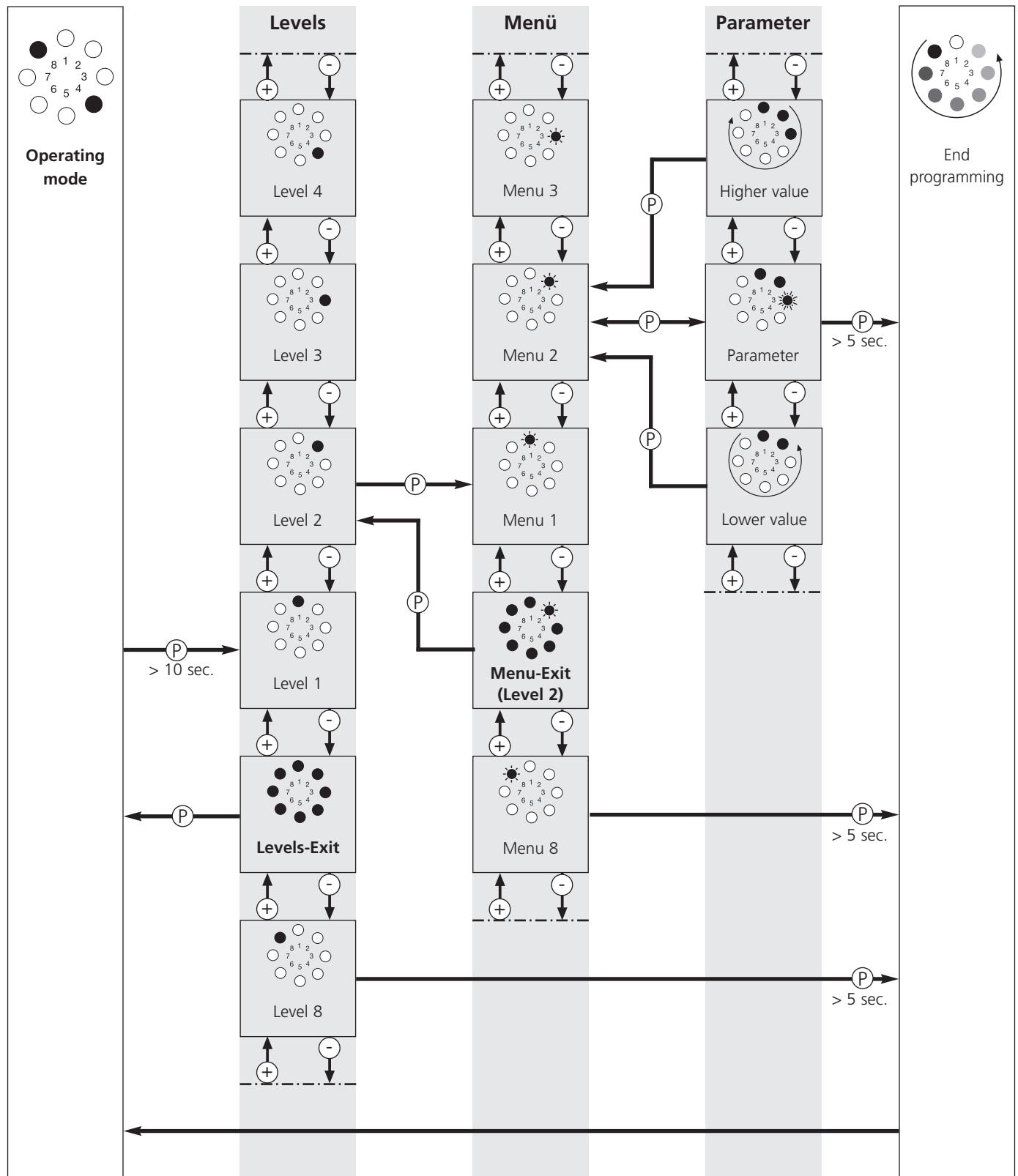
Reference:

- All the available levels and menus are described in the overview of the programmable functions (Section 9.3).

- The messages are explained in Section 10.

9. Extended operator functions

9.2 Programming structure for extended operator functions (Example for Level 2, Menu 2)



9. Extended operator functions

9.3 General overview of the programmable functions

Level	Menu	Factory default setting
Level 1 – Basic functions	Menu 7: Relay output	Signal light
	Menu 8: RESET	No reset
Level 2 – Operator settings	Menu 1: Required driving power OPEN	Setting 5
	Menu 2: Required driving power CLOSE	Setting 5
Level 3 – Automatic closing timer	Menu 1: Automatic closing timer	Deactivated
	Menu 3: Gate open duration	15 seconds
	Menu 4: Warning time	5 seconds
	Menu 5: Start-up warning	0 seconds
	Menu 7: Signal light	Door movement / warning: light flashes Door stationary: light is off (energy-saving)
Level 4 – Remote programming	Menu 2: Active wing	–
Level 5 – Special function	Menu 1: Programmable impulse input	Active wing / Impulse (OPEN/STOP/CLOSE)
	Menu 2: Start delay for second motor unit	2 seconds
	Menu 4: Lighting duration	180 seconds
Level 6 - Variable speed	Menu 1: Speed OPEN	Setting 16
	Menu 2: Soft run speed OPEN	Setting 8
	Menu 4: Speed CLOSE	Setting 16
	Menu 6: Soft run speed CLOSE	Setting 8
Level 8 – System settings	Menu 1: Photocell	Operation without photocell
	Menu 2: Closing edge safety device	Gate reverses a little (OPEN/CLOSE)
	Menu 4: Operating modes	Press-and-release (OPEN/CLOSE)
	Menu 5: Function of the direction command transmitters	Not active
	Menu 6: Function of the impulse command transmitters	Stop function active

9. Extended operator functions

9.4 Functions overview for the levels

Level 1 – Basic functions																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Menu 7: Relay output – terminal 16/17 (MASTER only)																
	A7	B7	C7	D7	E7	F7	G7	H7	-	-	-	-	-	-	-	-

Menu 8: RESET (MASTER + SLAVE)																
	No	Yes	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Attention!

After a reset, all the parameters revert to the factory settings.

In order to guarantee the proper operation of the MASTER and SLAVE controls:

- all the required functions must be re-programmed,
- the remote control unit must be re-programmed,
- the MASTER and SLAVE motor units must be driven to the OPEN and CLOSED positions once.

Reset

- Reset the SLAVE controls first and complete the controls test.
- Then reset the MASTER controls.

For a different sequence, the control unit must be disconnected from the mains and then switched on again.



Advice:

If the automatic closing function (Level 3 / Menu 1) is activated, the relay output (Level 1 / Menu 7) can be reprogrammed if required.



Reference:

- The function of the signal light (A7) can be adjusted in level 3, menu 7.
- The lighting function (H7) is set in Level 5, Menu 4.

Menu 7: Relay output

- | | | | |
|----|----------------------------|----|--|
| A7 | Signal light | E7 | Intermediate position CLOSED |
| B7 | Gate position OPEN | F7 | Motor starts (wiping impulse – 1 second) |
| C7 | Gate CLOSED position | G7 | Fault |
| D7 | Intermediate position OPEN | H7 | Lighting |

9. Extended operator functions

Level 2 – Operator settings																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Menu 1: Required driving power OPEN (sensitivity on a scale from 1 to 16*) (MASTER + SLAVE)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Menu 2: Required driving power CLOSE (sensitivity on a scale from 1 to 16*) (MASTER + SLAVE)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

*The higher the setting, the higher the driving power.

Level 3 - Automatic closing timer																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Menu 1: Automatic closing timer (MASTER only)																
	A1	B1	C1	D1	E1	F1	G1	H1	-	-	-	-	-	-	-	-
Menu 3: Gate open duration (in seconds) (MASTER only)																
	2	5	10	15	20	25	30	35	40	50	80	100	120	150	180	255
Menu 4: Warning time (in seconds) (MASTER only)																
	1	2	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Menu 5: Start-up warning (in seconds) (MASTER only)																
	0	1	2	3	4	5	6	7	-	-	-	-	-	-	-	-
Menu 7: Signal light																
	A7	B7	C7	D7	E7	F7	-	-	-	-	-	-	-	-	-	-

Advice:

- The automatic closing timer can only be programmed if a photocell barrier is connected.
- The functions in Menu 1 can be altered as desired via the time settings in Menus 3 and 4.



9. Extended operator functions

Menu 1: Automatic closing timer

Setting	Gate open duration	Warning time	Automatic closing timer	other functions
A1	-	-	deactivated	-
B1	15	5	activated	Renewal (restart) of the gate open duration after the photocell barrier has been driven past
C1	30	5	activated	
D1	60	8	activated	
E1	15	5	activated	Interruption of the gate open duration after the photocell barrier has been driven past
F1	30	5	activated	
G1	60	8	activated	
H1	unlimited	3	activated	Closes after the photocell barrier has been driven past / closing prevention



Advice:

Without a connected photocell or closing prevention device, only parameter A1 can be adjusted.

Menu 7: Signal light

Setting	Gate movement / Warning	Gate stoppage
A7	flashing	OFF (Electricity saving)
B7	lighting	OFF (Electricity saving)
C7	flashing	flashing
D7	lighting	lighting
E7	flashing	lighting
F7	lighting	flashing



Reference:

The signal light connection can be adjusted in level 1, menu 7.

9. Extended operator functions

Level 4 – Remote programming	
Menu 2: Active wing – remote impulse to operate one gate wing only (MASTER ONLY)	
	LED 7 flashes slowly -> press hand transmitter button -> LED 7 flashes quickly

Level 5 – Special function																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Menu 1: Programmable impulse input - XB99 (MASTER ONLY)																
	A1	B1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Menu 2: Start-delay for second motor unit (in seconds) (MASTER ONLY)																
	A2	B2	C2	D2	E2	F2	G2	H2	I2	J2	K2	L2	M2	N2	O2	P2
Menu 4: Lighting duration (in seconds) – Terminal 16/17																
	2	5	10	15	20	25	30	35	40	50	80	100	120	150	180	255

Menu 1: Programmable impulse input

A1 Connection option 1:

Terminal B9/3: Active wing

Terminal B9/8: Impulse (OPEN/STOP/CLOSE)

B1 Connection option 2:

Terminal B9/3: Direction command transmitter, CLOSE

Terminal B9/8: Direction command transmitter, OPEN



Reference:

The programming of the special function is dependent on terminal XB99.

Terminal XB99 is described in Section 6.6.

The programmed lighting time is only active if the relay output (Level 1 / Menu 7) is set to "Lighting" (H7).

9. Extended operator functions

Menu 2: Start-delay for second motor unit (in seconds) (MASTER ONLY)

Separate adjusting facilities for OPEN and CLOSE direction of travel (in seconds)

Setting	OPEN direction	CLOSE direction
A2		Deceleration deactivated
B2	1	1
C2		2
D2		3
E2		4
F2	2	5
G2		6
H2		10
I2		15
J2		3
K2		4
L2		5
M2	3	6
N2		10
O2		15
P2		20

9. Extended operator functions

Level 6 - Variable speed																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Menu 1: Speed OPEN (in increments) (MASTER + SLAVE)																
	-	-	-	-	-	-	7	8	9	10	11	12	13	14	15	16
Menu 2: Soft run speed OPEN (in increments) (MASTER + SLAVE)																
	-	-	-	-	5	6	7	8	9	10	11	12	13	14	15	16
Menu 4: Speed CLOSE (in increments) (MASTER + SLAVE)																
	-	-	-	-	-	-	7	8	9	10	11	12	13	14	15	16
Menu 8: Soft run position CLOSED (MASTER + SLAVE)																
	-	-	-	-	5	6	7	8	9	10	11	12	13	14	15	16



Advice:

The operation speed must be set higher than the soft run speed.

After altering the driving speed, the system must be disconnected from the mains once when in the CLOSED position.

After switching on and a learning run to the OPEN and CLOSED door positions has been carried out, the drive system is ready for operation.



Reference:

If changes are made in Menus 1, 2, 4 and 6 in Level 6, a new performance check must be carried out (Section 8.6).

9. Extended operator functions

Level 8 – System settings																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Menu 1: Photocell																
	A1	B1	C1	D1	E1	F1	G1	H1	I1	J1	-	-	-	-	-	-
Menu 2: Closing edge safety device																
	A2	B2	C2	D2	-	-	-	-	-	-	-	-	-	-	-	-
Menu 4: Operating modes																
	A4	B4	C4	D4	-	-	-	-	-	-	-	-	-	-	-	-
Menu 5: Function of the direction command transmitters																
	A5	B5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Menu 6: Function of the impulse command transmitters																
	A6	B6	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Attention!

If a photocell is connected, it is automatically recognised by the controls after MAINS ON.
The photocell can be reprogrammed later.



Advice:

Photocells and closing edge safety devices that are not required must be disconnected, or the controls will recognise them. Disconnected closing edge safety devices must be replaced with an 8.2 kΩ resistance.

If an external photocell is connected at terminals B9 and 34, the power supply must be switched off and on again before programming the automatic closing timer.

9. Extended operator functions

Menu 1: Photocell

	Photocells				Gate movement, OPEN	Gate movement, CLOSE
2-wire photocells						
A1	A	B	C	D	Operation without photocell	
B1	A	B	C	D	Gate stops	not active
C1	A	B	C	D	not active	Gate reverses completely ²
D1	A	B	C	D	Gate stops	Gate reverses completely ²
E1	A	B	C	D	not active	Gate reverses completely ²
2-wire photocells and photocells with potential-free relay contacts						
F1	A	B	C	D	not active	Gate reverses completely ²
G1	A	B	C	D	Gate stops	Gate reverses completely ²
H1	A	B	C	D	not active	Gate reverses completely ²
I1	A	B	C	D	Gate stops	Gate reverses completely ²
J1	A	B	C	D	not active	Gate reverses completely ²

- A Photocell OPEN (terminal XP62B)
- B Photocell CLOSE1 (terminal XP62A)
- C Photocell at terminals B9 and 34 (only in CLOSE direction)
- D Photocell CLOSE2 (terminal XP62B)
- Black** Photocell active
- Grey** Photocell not active

Menu 2: Closing safety edge device

	Gate movement, OPEN	Gate movement, CLOSE
A2	Gate reverses a little ¹	Gate reverses a little ¹
B2	Gate reverses a little ¹	Gate reverses completely ²
C2	Gate reverses completely ²	Gate reverses a little ¹
D2	Gate reverses completely ²	Gate reverses completely ²

9. Extended operator functions

Menu 4: Operating modes

	OPEN	CLOSE
A4	press and hold	press and hold
B4	automatic closing	press and hold
C4	press and hold	automatic closing
D4	automatic closing	automatic closing

Menu 5: Function of the direction command transmitter

	Direction command transmitters	Explanations
A5	not active	The direction command transmitters only give a command when the gate is stationary.
B5	STOP only	A moving gate is stopped by every direction command transmitter.

Menu 6: Function of the impulse command transmitter

	Impulse command transmitters	Explanations
A6	not active	The impulse command transmitters only give a command when the gate is stationary.
B6	STOP only, then standard sequence	A moving gate is stopped by every impulse command transmitter. The next command starts the drive system running in the opposite direction (OPEN - STOP - CLOSE - STOP - OPEN).

¹ Gate reverses a little: The drive system moves the gate a short distance in the opposite direction in order to free an obstacle.

² Gate reverses completely: The drive system moves the gate to the opposite end position.

10. Messages

10.1 Status messages

In addition to messages regarding the gate position, status messages give information regarding the status of the operator system during operation.

Safety elements:

-  During operation LED 1 serves as a status indicator for the safety elements connected (closing edge safety device, photocell). If the safety element in question is triggered, LED 1 lights up whilst it is activated.

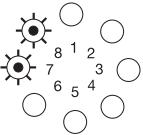
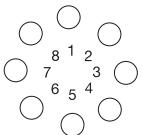
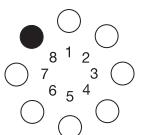
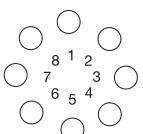
Control elements / remote controls:

-  During operation and when carrying out component tests, LED 7 serves as a status indicator for the control elements connected (OPEN, CLOSE, STOP, half OPEN, etc.). If the control element in question is triggered, LED 7 lights up whilst it is activated.

-  If a remote signal is received, LED 7 flashes quickly.

10.2 Fault messages

Malfunctions in the system are indicated by a corresponding message number. The controls switch to message mode.

1.	Message number is displayed for approx. 3 seconds (example: Message 15).	
2.	Pause between messages for approx. 1 second.	
3.	Operating mode is displayed for approx. 3 seconds (example: operating voltage).	
4.	Pause between messages for approx. 1 second.	
5.	Messages 1 to 4 are repeated.	



Advice:

- The controls show the message numbers via one or more rhythmically flashing LEDs.
- The message number is found by adding together the numbers next to the flashing LEDs.
- During programming, all status messages and other messages are suppressed. The messages in programming mode are always unambiguous.

Legend:	
LED off	○
LED on	●
LED flashes slowly	
LED pulses	
LED flashes quickly	
Factory default setting	
Not possible	-

10. Messages

The message numbers serve two purposes:

1. They indicate why the controls were unable to carry out the drive command given.
2. They indicate which components are faulty. This facilitates better and faster service on site, and only the control components identified as being faulty need be replaced.

The controls remain in message mode until they switch to operating mode or diagnostic mode.

Switching to operating mode

The controls switch to operating mode as soon as they receive a movement impulse.

Switching to diagnostic mode

The controls can be switched to diagnostic mode from either message mode or operating mode.

- Give the (P) button a short press.

The controls switch to diagnostic mode and display the last fault.

10. Messages

10.3 Rectifying faults

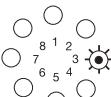
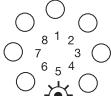
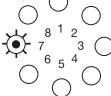
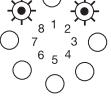
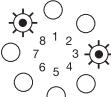
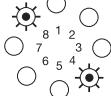
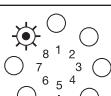
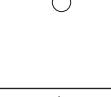
10.3.1 Malfunctions without error messages

Error	Cause	Solution
LED 8 does not light up.	- No voltage.	- Check that the mains power supply is operational. - Check the connection to the mains power supply.
	- Thermal overload protection in power transformer was activated.	- Allow the power transformer to cool down.
	- Defective control unit.	- Have the operator system checked.
No reaction on impulse.	- The connection terminals for the "impulse" button were by-passed, e.g. due to a short-circuit or flattened terminals.	- Try temporarily disconnecting any key switches or interior push buttons that are connected to the control unit (Section 6.6): Remove the lead from socket XB99 and then bridge terminals B9 and 5; insert jumper plug and check for cabling errors.
No reaction on impulse from hand transmitter.	- Module antenna is not plugged in.	- Connect the module antenna to the control unit (Section 8.1).
	- The hand transmitter coding does not correspond to the receiver coding.	- Activate hand transmitter again (Section 8.4.3).
	- Hand transmitter battery is empty.	- Insert new battery (Section 7.1).
	- Defective hand transmitter, control unit electronics or module antenna.	- Have all 3 components checked.

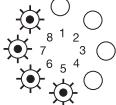
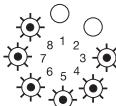
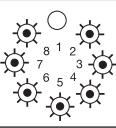
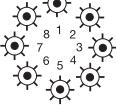
Legend:	
LED off	○
LED on	●
LED flashes slowly	◆
LED pulses	◆◆
LED flashes quickly	◆◆◆
Factory default setting	■
Not possible	-

10. Messages

10.3.2 Malfunctions with error messages

Error	Cause	Solution
Message 3 	- Closing edge safety device OPEN was activated.	- Remove the obstacle or have the closing edge safety device checked. - Deactivate or connect the closing edge safety device.
Message 5 	- Closing edge safety device CLOSE was activated.	- Remove obstacle or have the closing edge safety device checked. - Deactivate or connect the closing edge safety device.
Message 7 	- If no buttons are pressed within 120 seconds, the programming mode terminates automatically.	
Message 10 	- Gate movement too stiff. - Gate blocked.	- Ensure that the gate moves easily.
	- Maximum driving power setting is too low.	- Have the max. driving power (Section 9.4 / Level 2 / Menu 1+2) checked by an expert.
Message 11 	- Excess travel stop.	- Have the operator system checked.
Message 12 	- CESD test in OPEN direction not OK.	- Check closing edge safety device. - Programme out the closing edge safety device if there is no CESD present (Section 9.4 / Level 8 / Menu 2). - Reinsert an 8.2 kOhm resistance.
Message 13 	- CESD test in CLOSED direction not OK.	- Check closing edge safety device. - Programme out the closing edge safety device if there is no CESD present (Section 9.4 / Level 8 / Menu 2). - Reinsert an 8.2 kOhm resistance.
Message 15 	- External photocell interrupted or defective.	- Remove obstacle or have the photocell checked.
	- Programmed for photocell, but no photocell is connected.	- Deactivate or connect the photocell.
Message 16 	- Power sensor for the automatic cut-out is defective.	- Have the motor unit checked.

10. Messages

Error	Cause	Solution
Message 26	 <ul style="list-style-type: none"> - Undervoltage, operator system overloaded at maximum power setting, 16. 	<ul style="list-style-type: none"> - Have the external power supply checked.
Message 33	 <ul style="list-style-type: none"> - Rise in temperature due to overheating. 	<ul style="list-style-type: none"> - Allow the motor unit to cool down.
Message 35	 <ul style="list-style-type: none"> - Electronics are defective. 	<ul style="list-style-type: none"> - Have the operator system checked.
Message 36	 <ul style="list-style-type: none"> - Wire jumper removed, but stop button not connected. 	<ul style="list-style-type: none"> - Connect stop button or wire jumper B9/5 (Section 6.6).
	 <ul style="list-style-type: none"> - Closed circuit interrupted. 	<ul style="list-style-type: none"> - Lock the operator system.

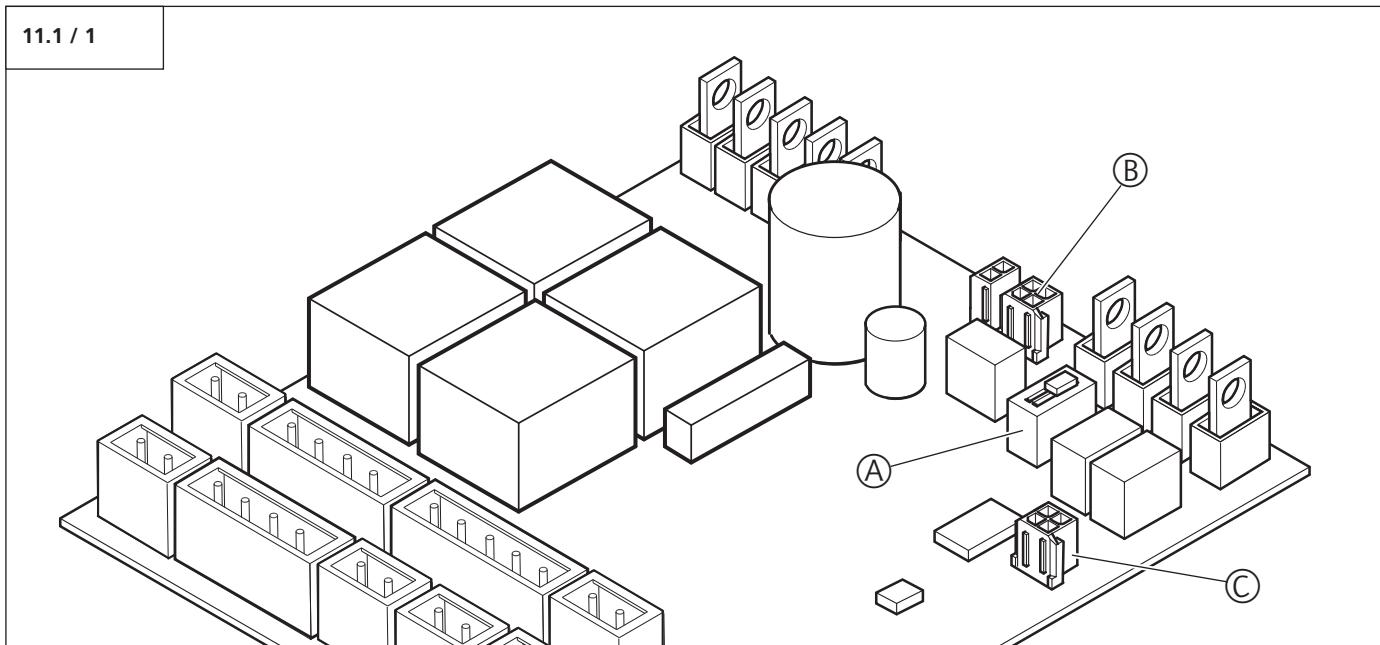
Legend:

LED off	
LED on	
LED flashes slowly	
LED pulses	
LED flashes quickly	
Factory default setting	
Not possible	

11. Attachment

11.1 Connection diagram Comfort 515

Expansion module



Expansion module legend

Designation	Description
A	DIP switch ON/OFF for the stop circuit plug B (hinged gate stop circuit ON)
B	Connection of release mechanism - sliding gates only
C	Connection of extension module for potential-free limit switch

11. Attachment

11.2 Technical Data for Comfort 515

Electrical data		
Voltage rating *)	V	120 / 230 / 260
Rated frequency	Hz	50 / 60
Current input	A	1,0
Power consumption in operation	KW	0,2
Power consumption on standby	W	1
Operating mode (connection period)	Min.	KB 8
Controls voltage	V DC	24
Protection category for motor unit		IP 44
Protection category for controls		IP 65
Protection class		II
*) For country-specific version: see type plate		

Mechanical data		
Max. push and pull force	N	1,000
Travel speed	mm/sec.	15–20
Opening phase (specific to gate)	sec.	approx. 15–25

General data		
Motor unit dimensions Short version	mm	120x200x780
Motor unit dimensions Long version	mm	120x200x980
Dimensions of controls	mm	120x240x100
Weight (single-wing system)	kg	11,20
Weight (double gate system)	kg	18,00
Weight of controls	kg	2,50
Temperature range	°C	-20 to +60

Supply package **)		
Motor unit Comfort 515 with motor supply cable (1.5 m)		
Motor unit Comfort 515 (for double gate systems only) with motor supply cable (8.5 m)		
Separate control unit, Control x.51		
Multibit remote control, 315 / 433 / 868 MHz, incl. Digital 304 Mini Hand Transmitter, 4-channel *)		
Mounting brackets: gate and post brackets		
Fixing materials for controls and motor unit		
*) For country-specific version: see type plate		
**) subject to country-specific alternations		

Application		
Comfort 515 up to 200 kg		
- gate wing 2.5 m tall x 2.5 m wide, max. 50% infill area		
Comfort 515 L up to 200 kg		
- gate wing 2.5 m tall x 3.5 m wide, max. 50% infill area		

Features / Safety functions		
Electricity saving technology		x
Safety limit switch – technical systems		x
Soft start, soft stop		x
Excess travel stop		x
Lockable uncoupling system		x
Connections for push-buttons, code buttons and key switches		x
Connections for photocell, gate travelling directions OPEN and CLOSE		x
Connection for signal light 24 V DC		x
Connection of gate position message system		x
Connection of extension module for gate position message system		x
Connection for closing edge safety device OPEN and CLOSE 8.2 kΩ		x
Connection for electric lock 24 V DC		x
Integrated evaluation 8.2 kΩ		x
Automatic cut-out OPEN and CLOSE, can be programmed separately		x
Programmable active wing function		x
Gate travelling speed can be programmed		x
Soft run speed OPEN and CLOSE can be programmed separately		x
Automatic closing function		x
Retrofit measures for potential-free signal relay possible, for:	<ul style="list-style-type: none"> - Signal light - Wiping impulse - 3 minute lighting - Travel limit message - Error message 	
Fault signalling		x
Reset function		x

Accessories		
Multibit remote control		x
Modular antenna, 868 MHz, IP 65		x
Signal light 24 V DC		x
Closing edge safety device 8.2 kΩ		x
Photocell		x
Electric lock		x
Transponder system		x
Key switch		x
Code button		x
Interior push button		x
Signal light relay retrofit kit 24 V DC		x
Expansion module		x



11. Attachment

11.3 Manufacturer's Declaration

We herewith declare that the product sold by us and mentioned below corresponds in its design, construction and version to the relevant and basic safety and health requirements of the following EC regulations: EMC Directive, Machinery Directive and Low Voltage Directive.
Product changes made without our consent will render this Declaration void.

Product: Comfort 515

Relevant EC Regulations:

- EC EMC Directive (89/336/EWG),
- Machinery Directive (98/37/EG) and
- Low Voltage Directive (73/23/EWG and 93/68/EWG).

Applied harmonised standards, in particular:

EN 292-1
EN 61000-6-2
EN 61000-6-3
EN 55014
EN 61000-3-2
EN 61000-3-3
EN 60335-1
EN 60335-2-103
EN 12445
EN 12453
EN 300220-1
EN 301489-3
ETS 300683



02.01.2008

pp K. Goldstein

11.4 EC Declaration of Conformity

We herewith declare that the product sold by us and mentioned below corresponds in its design, construction and version to the relevant and basic safety and health requirements of the following EC regulations: EMC Directive, Machinery Directive and Low Voltage Directive.

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Product:

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EN 292-1
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EN 12445
EN 12453
EN 300220-1
EN 301489-3
ETS 300683

Date / Signature

English

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Subject to changes which are in the interest of technical improvements.



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