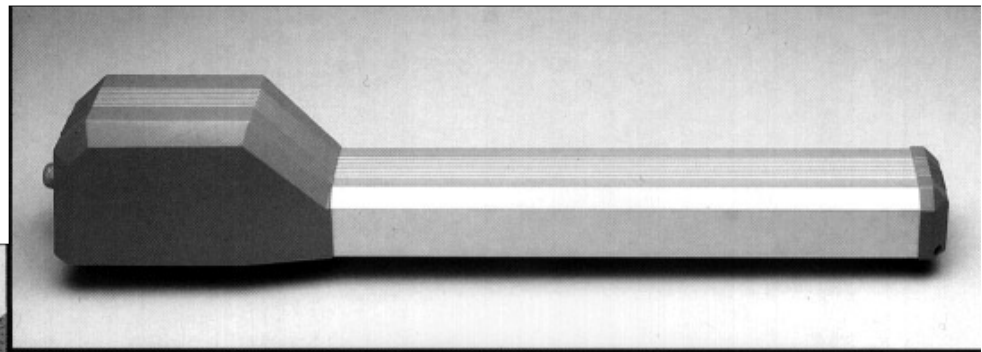


Comfort 500 S

Spindle drive operator for hinged gates

Installation Instructions



1 Overview of spindle drive unit for hinged gates

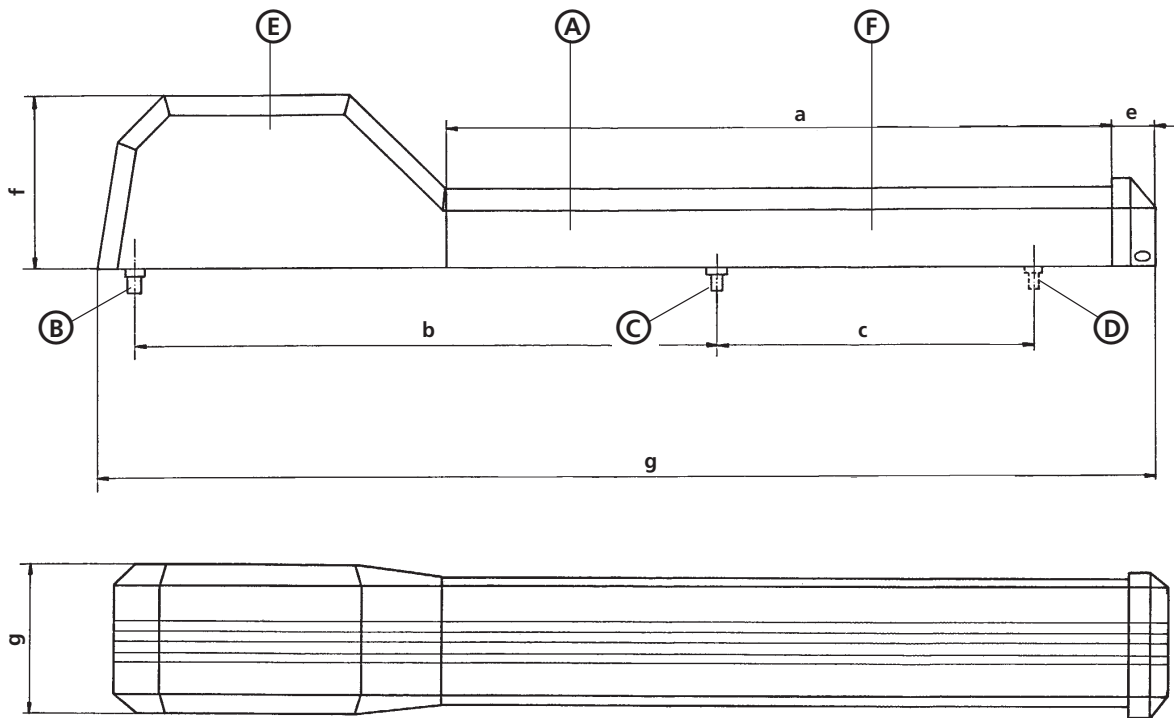
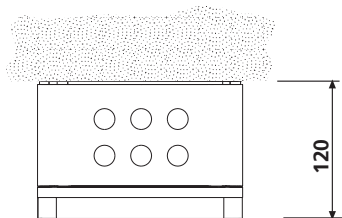
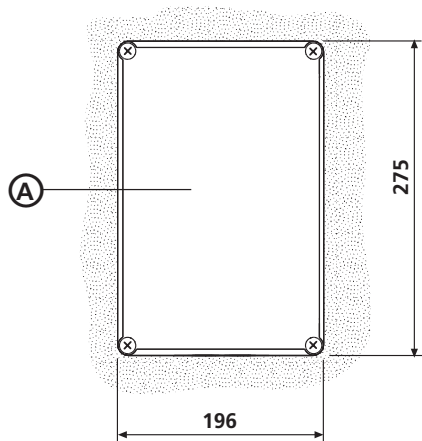


Table 1: Drive unit dimensions

	a	b	c	d	e	f	g
"Standard" version	535	465	300	816	27	140	120
"Long" version	735	565	400	1016	27	140	120

- A Spindle drive unit
- B Pivot - post
- C Pivot - gate wing, "open" position
- D Pivot - gate wing, "closed" position
- E Motor with positional sensor (speed registration)
- F Reference point

2 Overview of control unit

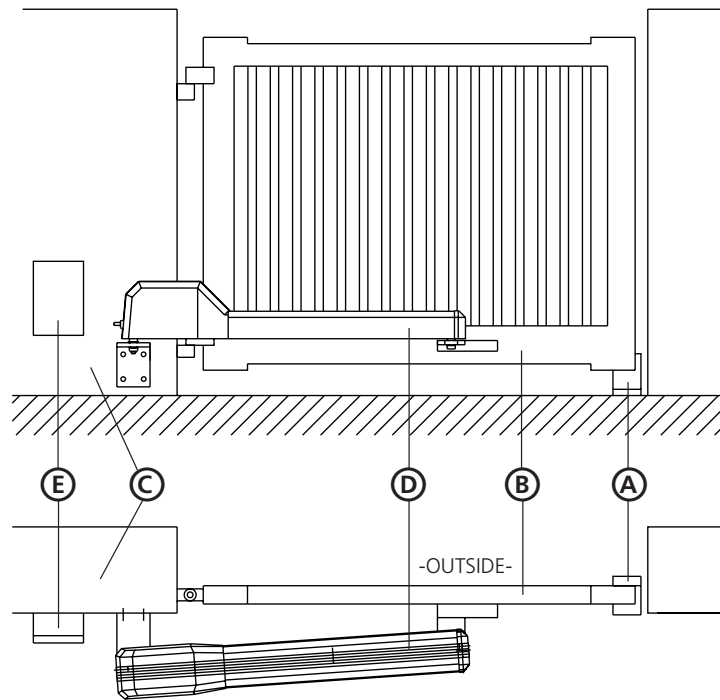


A Electronic control unit

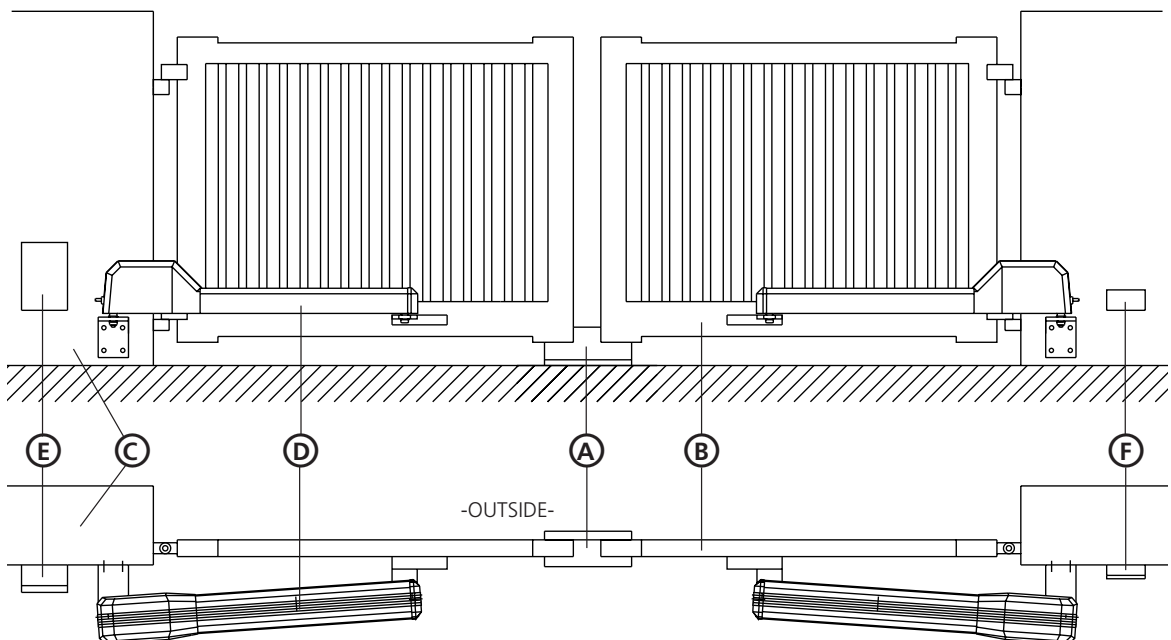
Voltage:	220 - 240 V, 50 Hz
Current input:	1 A max.
Power input:	0.24 kW max.
Temperature tolerance:	-30°C to +70°C
Operation:	4 min. short-term action
Motor:	Spindle unit with 36 V D.C. worm gear motor
Control voltage:	Low voltage under 24 V
Motor unit pulling and thrust power:	1000 N
Motor unit travel speed:	10.5 mm/sec
Opening time for 90°:	20 - 30 sec. depending on gate size
Travel time limit:	50 sec.
Automatic cut-out:	Programmable electronic power limit, separately adjustable for both operational directions.
Final cut-off:	Electronic, through microprocessor, with incremental hodometry (path measuring system)
Emergency release:	With release mechanism in the gate wing mounting bracket
Total weight (single-wing version):	12 kg
Total weight (double-wing version):	18 kg
Safety type motor:	IP 44
Safety type control unit:	IP 65

3 Fixing the pivot points, fitting the bracket to the post and gate wing

3a Overview of single-wing version

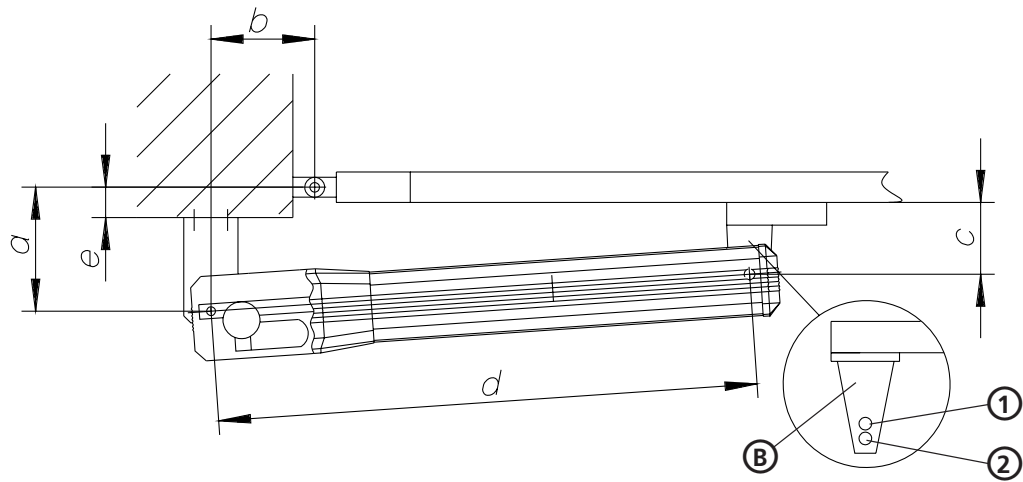


3b Overview of double-wing version

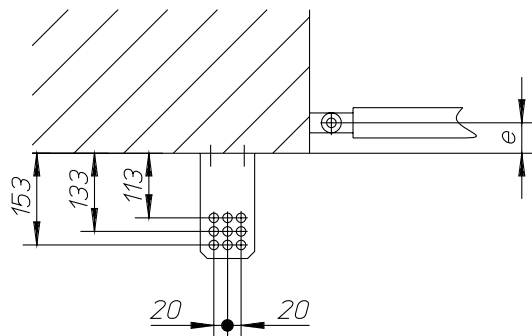


- A Stop plates with lock
- B Gate wing
- C Gate post
- D Spindle drive unit
- E Control unit
- F junction box

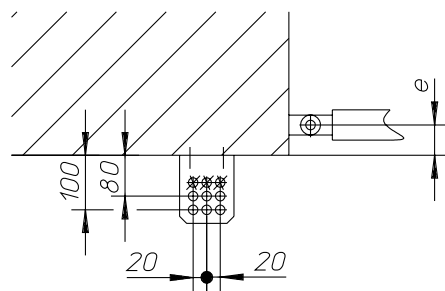
3c Fixing the pivot points



- * Distance „c“ for LH hinging (drive operator on left gate wing): drill hole 1
- * Distance „c“ for RH hinging (drive operator on right gate wing): drill hole 2



"Standard" version



"Long" version

- e = On-site building-in depth
- A Post mounting bracket
- B Release box on the gate wing



Installing the fittings

Post mounting bracket

In order to ensure an opening angle of 90 degrees, the addition of measurements a + b should roughly correspond to the spindle stroke.

a + b = 225 ... 285 mm for the „standard“ version

a + b = 240 ... 380 mm for the „long“ version

For larger gate wings, the full working stroke should be used in order to limit the gate speed of the wing outer edges. Anchor the post mounting bracket in the masonry (see fig. 3c).

Building-in dimensions are specified in tables 2 + 3.

If the on-site maximum building-in measurement „e max“ exceeds the specified values, then the drive operator must be set into the masonry with the mounting bracket.

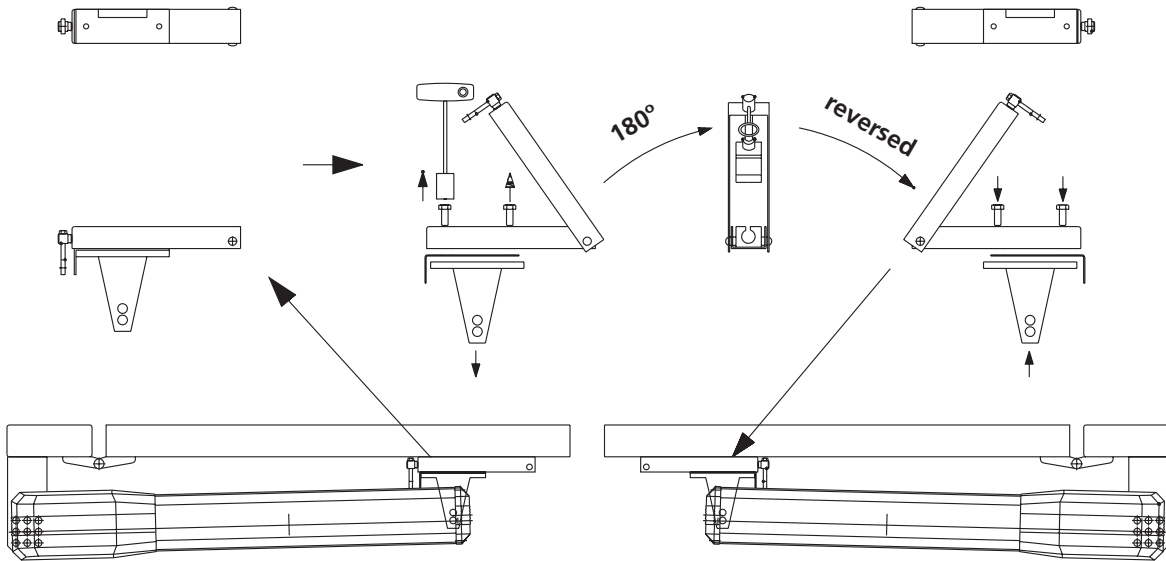
Insert the hinged gate drive operator into the corresponding drill hole of the post mounting bracket and screw tight with an M10 hexagon nut.

Table 2: If the building-in dim. is less than 40 mm, use the „standard“ version of the spindle drive operator										
		Preferred dimensions for gate wing width <2000			Preferred dimensions for gate wing width >2000			Preferred dimensions for largest possible opening angle		
Building-in dim. e mm	a mm	b mm	Opening angle degrees	Opening time sec.	b max. mm	Opening angle degrees	Opening time sec.	b min. mm	Max. Opening angle degrees	Opening time sec.
less than 0	125	100	90°	16	160	90°	21	140	110°	22
0 - 20	135	100	90°	18,5	140	90°	21	120	105°	22
20 - 40	155	100	90°	20	115	90°	21	115	100°	22

Table 3: Building-in dim. e = 40 ... 200 mm. Use the „long“ version of the spindle drive operator										
		Preferred dimensions for gate wing width <2000			Preferred dimensions for gate wing width >2000			Preferred dimensions for largest possible opening angle		
Building-in dim. e mm	a mm	b mm	Opening angle degrees	Opening time sec.	b max. mm	Opening angle degrees	Opening time sec.	b min. mm	Max. Opening angle degrees	Opening time sec.
40 - 60	140	100	90°	18,5	240	90°	28	180	120°	29
60 - 80	160	100	90°	19,5	220	90°	28	180	115°	29
80 - 100	180	100	90°	21,5	200	90°	28	160	110°	29
100 - 120	200	100	90°	22	180	90°	29	160	100°	29
120 - 140	220	100	90°	24	160	90°	29	140	100°	29
140 - 160	240	100	90°	26	140	90°	29	120	100°	29
160 - 180	260	100	90°	28	120	90°	29	100	95°	29
180 - 200	280	100	90°	29	100	90°	29	100	90°	29

Release box

(for single-wing version, this may have to be reversed, depending on which side the gate is hinged)



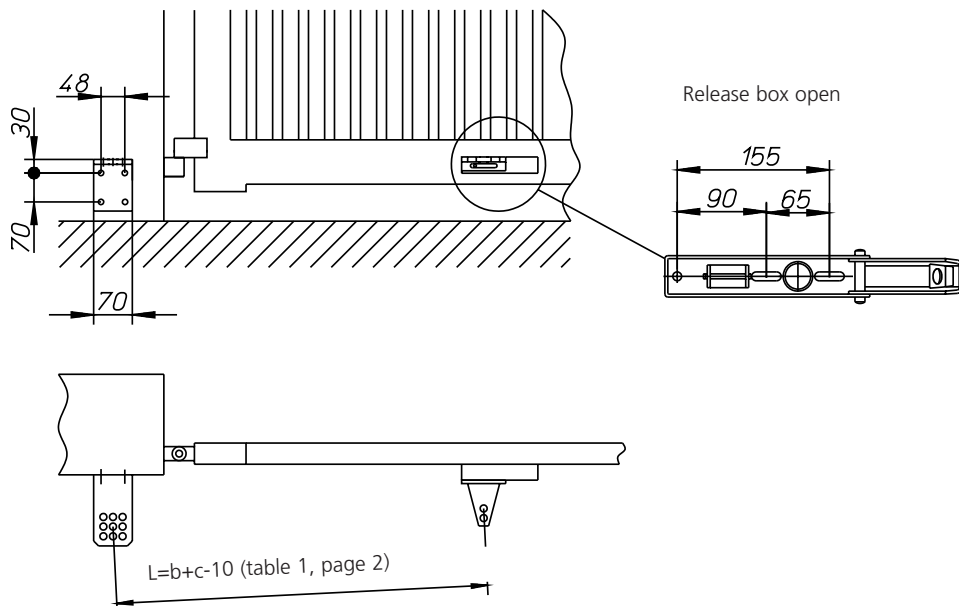
Fitting the release box to the gate wing

To establish the fixing points on the gate wing:

With the spindle fully extended, connect the hinged gate operator in alignment with the release box and mark the position.

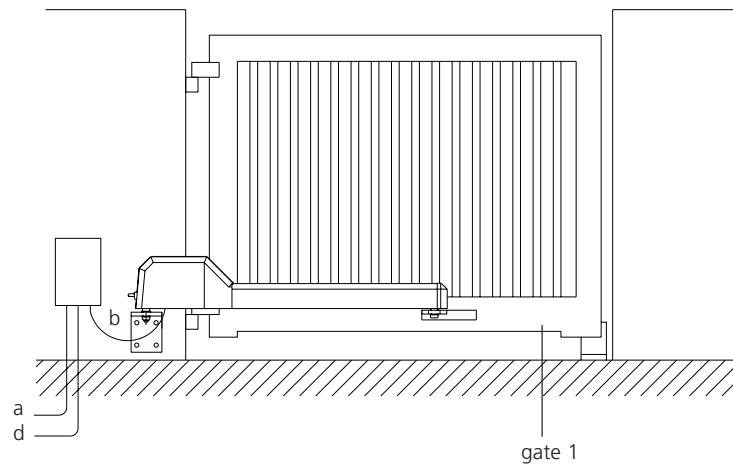
Open the release box and drill 2 holes centrally within the elongated holes (6 mm dia. drill). Make the release box and the drive operator secure, then make a test run. Carry out any necessary fine adjustment via the elongated holes.

Remove rotary latch. Drill the outer hole and then screw the centrally located screw into this drill hole. This will prevent the box from sliding sideways. Push rotary latch back in again. Place on washer and tighten hexagon nut until rotary latch is sluggish to operate.

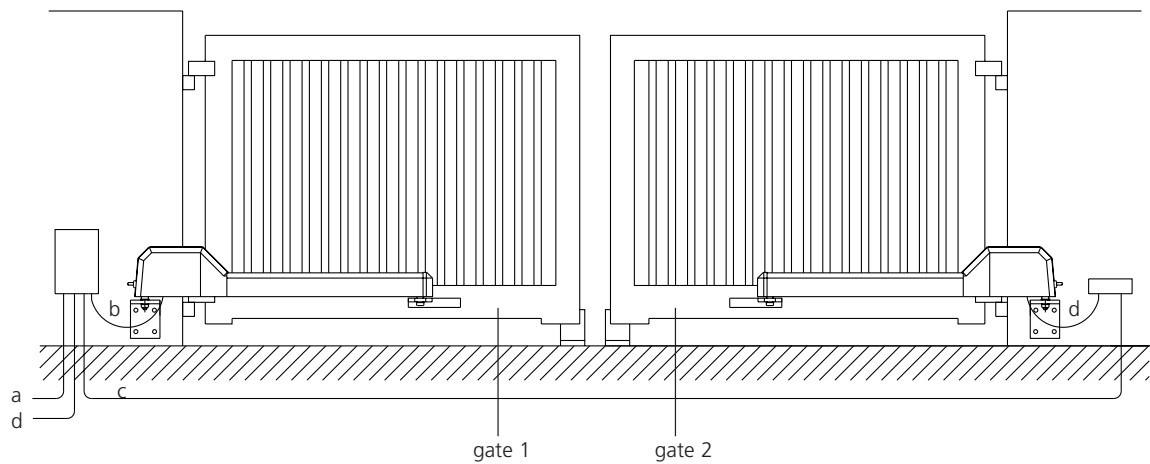


4 Overview of cable layout

4a Single-wing gate construction



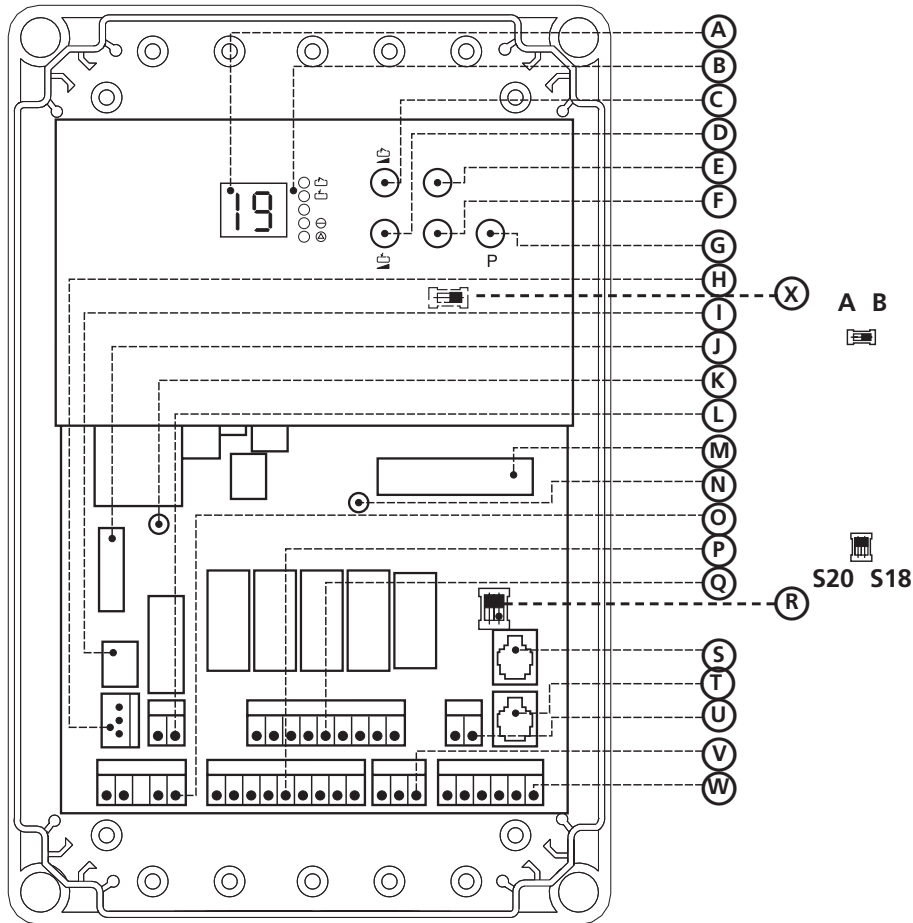
4b Double-wing gate construction



Secure the control unit to the post using wall plugs and screws, then plug into mains and make a test run. On completing the test run, remove the mains lead with plug and have the control unit properly connected to the electricity supply by a qualified electrician.

- a Mains lead 240 V 50 Hz (e.g. NYY 3 x 1.5 on site by the customer)
- b Connecting cable for motor (by the factory)
- c Connecting cable for motor (by the factory or NYY - 0 9 x 1.5 with junction box - on site by the customer)
- d Control cable for push button, key switch (e.g. NYY - 0 6 x 1.5 on site by the customer).
- * If the control unit cannot be installed near the gate, please request a corresponding cable layout plan.

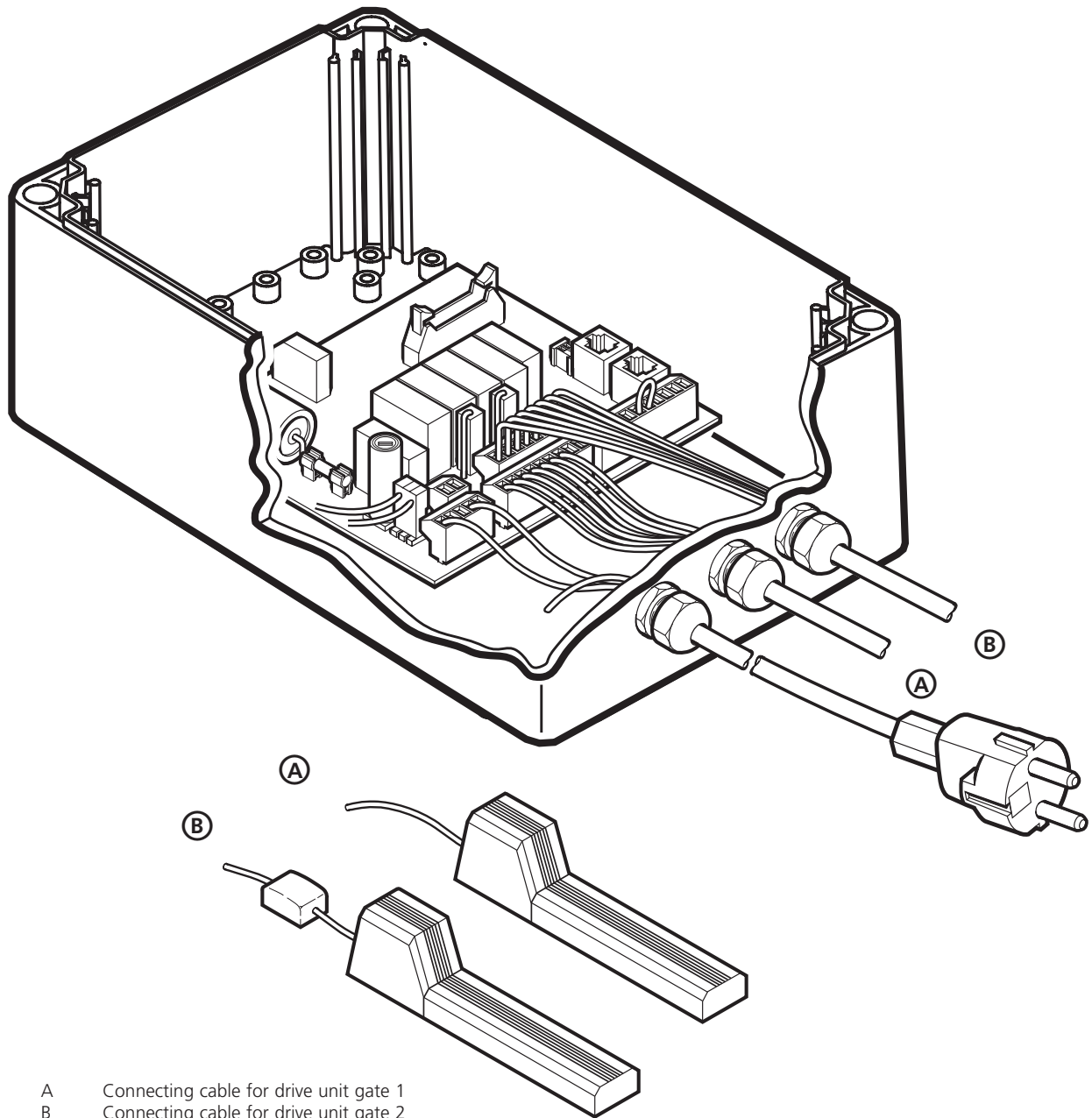
5 Overview of control unit 500; single- and double-wing versions



- A Display
- B LED
- C Power limit "open"
- D Power limit "close"
- E Test button "open"
- F Test button "close"
- G Programming button
- H Plug-in connection transformer 220 V
- I Mains fuse F1, 1A max.
- J Motor fuse F2 4A max.
- K LED motor voltage
- L Socket for on-site lighting
- M Plug-in connection control panel
- N LED socket
- O Plug-in terminal X2a mains voltage
- P Plug-in terminal X2e motor connection gate wing 1
- Q Plug-in terminal X2d motor connection gate wing 2
- R Switches S 18, S 20
- S System socket for electronic aerial
- T System socket X5 open - close - stop
- U Plug-in terminal X2d open - close gate wing 1
- V Plug-in terminal X2f photocell 24 V
- W Plug-in terminal X2e open - close - stop
- X Change-over switch S23: A = single-wing version
B = double-wing version

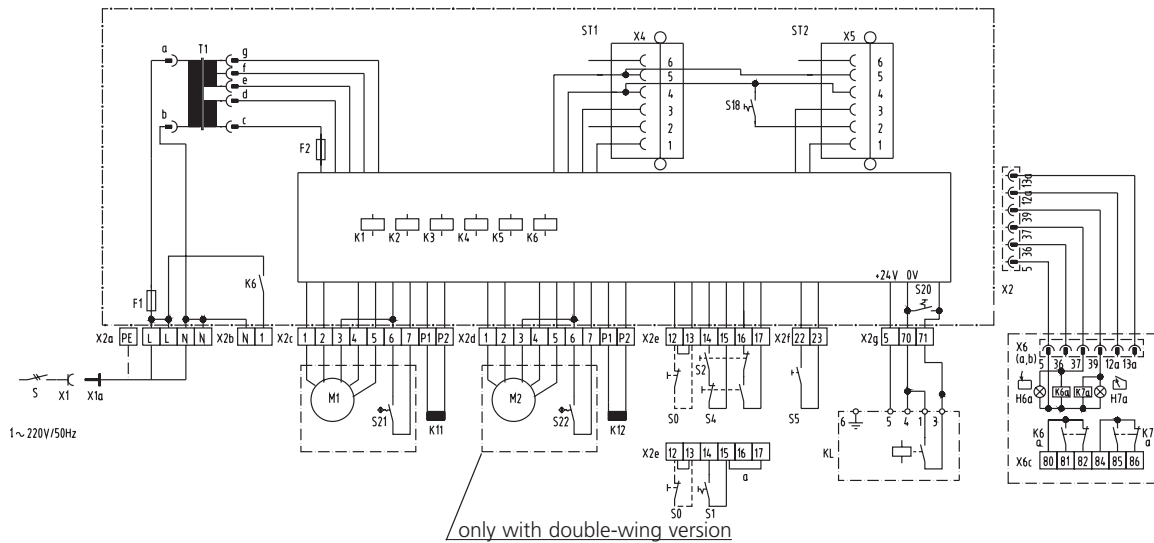
6 Overview of connecting plan and circuit diagram

6a Control 500 connecting plan; single- and double-wing versions



6b

Control 500 circuit diagram; single- and double-wing versions



- | | | | |
|-----|---|-----|---|
| F1 | Fuse 1A max | S18 | Programmingbutton 2nd "stop" button |
| F2 | Fuse 4A max | S20 | Programmingbutton photocell |
| H4 | LED reference point | S21 | Reed contact reference point (bistable) gate wing 1 |
| H20 | On-site lighting (250V,60W max) | S22 | Reed contact reference point (bistable) gate wing 2 |
| K1 | Relay "open" gate wing 1 | S23 | Change-over switch single- and two-wing version |
| K2 | Relay "close" gate wing 1 | ST1 | Socket for external control elements |
| K3 | Relay "open" gate wing 2 | ST2 | Electronic aerial |
| K4 | Relay "close" gate wing 2 | T1 | Transformer |
| K5 | Relay magnetic lock | X1 | Safety electric socket |
| K6 | Relay light | X1a | Safety plug |
| K11 | Magnetic lock gate wing 1* | X2a | Socket mains connection |
| K12 | Magnetic lock gate wing 2* | X2b | Socket for on-site lighting |
| KL | Photocell | X2c | Socket motor connection gate wing 1 |
| M1 | Motor 36V DC, gate wing 1 | X2d | Socket motor connection gate wing 2 |
| M2 | Motor 36V DC, gate wing 2 (only w.2-wg.vers.) | X2e | Socket connection button open,stop,close |
| S | Main switch or button "Emergency - off"* | X2f | Socket connection "impulse" button gate wing 1 |
| S0 | "Stop" button | X2g | Socket connection photocell |
| S1 | "Impulse" button gate wing 1 & gate wing 2* | X4 | Socket "electronic aerial" |
| S2 | "Open" button gate wing 1 & gate wing 2* | X5 | Socket connection button open,stop,close |
| S4 | "Close" button gate wing 1 and gate wing 2* | | |
| S5 | "Impulse" button gate wing 1 | | |
- * if installed

On connecting, remove bridge or ensure programming button a OFF.

Factory-bridged terminals, coding switch			
Description	Terminal block	Bridged terminals	Programming button
"Stop" button	X2	12-13	-
"Stop" button	ST1	-	S18
Photocell	KL	-	S20
"Impulse" button	X2e	a	-

Caution! Low voltage!

External voltage at the terminals will completely destroy the electronics.

Important: Observe local safety regulations!

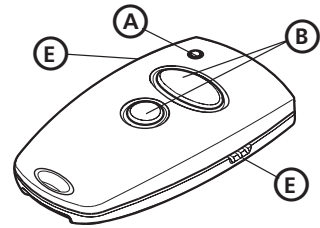
Always lay mains cable and control cable separately.

Control voltage 24V DC
Motor voltage 40V DC

7 Hand transmitter - Operation and accessories

- A Battery - transmission control light
- B Operating buttons
- C Battery cover
- D Battery 3V CR 2032
- E Coding plug

- Please open the cover to change or insert the battery.
Observe right poling when changing the battery.



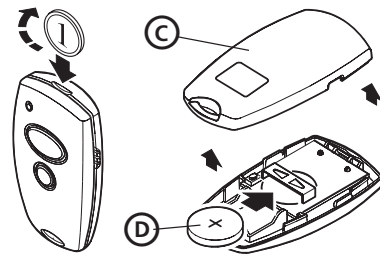
Attention!

Only operate the hand transmitter after you have made sure that there are neither persons nor objects in the operating range of the door.

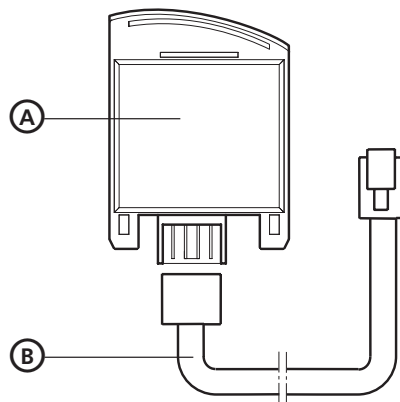


Attention!

- Children are not allowed to play with hand transmitters!
- Batteries are excluded from warranty.



8 Module aerial



Plug electronic aerial into the control unit (socket ST2) as shown in fig. 5, point "S".
The range may vary with different digital security codings.

- A Module aerial
- B Connecting lead with plug

9 Adjustment and coding

9a Putting into operation

Switch on at the mains. LED \ominus lights up. After pressing the test buttons \uparrow \downarrow , the gate first moves in the direction of the reference point.

If the drive unit is not installed, the swivel joint (fig 1 "C" must be held in a vertical position).

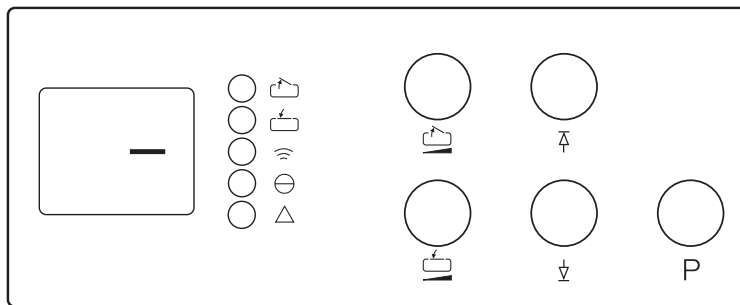
Important: The limit stop is pre-set at the factory.

The power limit can now be set in accordance with fig. 9c.

Proceed with programming the remote control as illustrated in fig. 9d.

Press the \uparrow button to bring the gate into the final "open" position, then proceed with programming the final positions in accordance with figs 9g/9h/9i. The programming procedure terminates automatically 30 seconds after the last entry, or can be terminated manually by pressing the "P" button (see figs. 9d/9e/9f/9g/9h and 9i).

9b Function display



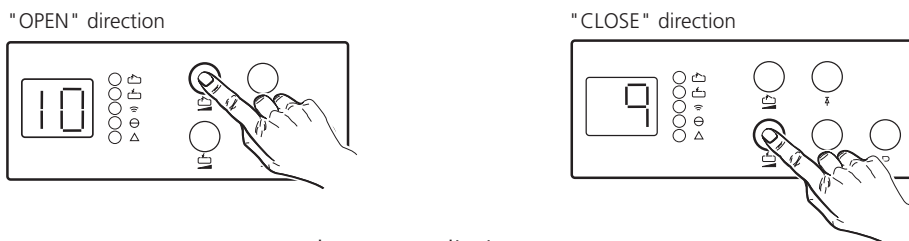
- P Programming button
- Power setting "open"
- Power setting "close"
- \uparrow Test button "open"
- \downarrow Test button "close"
- Final "open" position
- Final "close" position
- Remote control
- \ominus Operate / program
- \triangle Fault message

9c Setting the power limits

Press the button to set the power limit "open", and press the button to set the power limit "close". The set value will be displayed.



By repeatedly pressing the appropriate button, the power limit can be set in stages from 0 (most sensitive value) to 19 (pre-set value = 9).

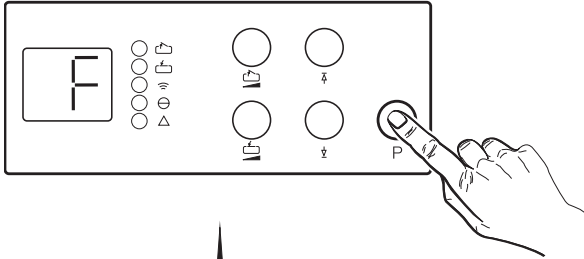
Attention: To protect persons as well as the mechanical parts of the door and operator, set the power limit as sensitively as possible - on no account exceed 150 N (approx. 15 kg.)



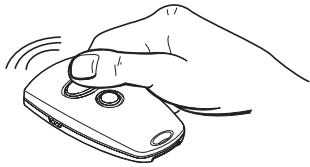
The power limits are now set.

9d Coding the receiver for single-wing version (only with electronic aerial)

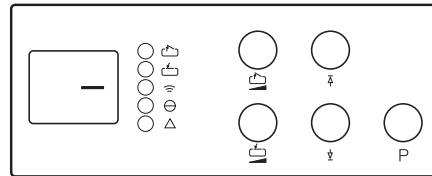
Press button "P" for 2 seconds
 "F" is displayed
 LED  lights up
 LED  flashes



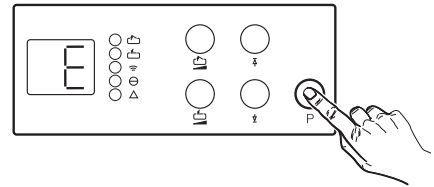
Multi-channel hand transmitter:
 Press any button.



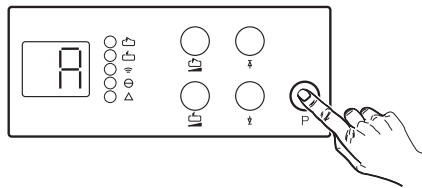
Display "-"
 Receiver coding is stored
 (only with electronic aerial)



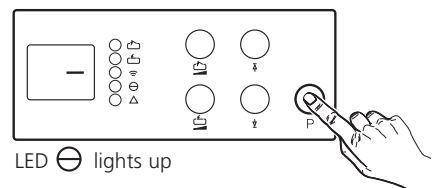
Press button "P"



Press button "P" only with autom. timed return



Press button "P"





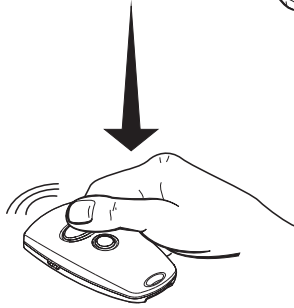
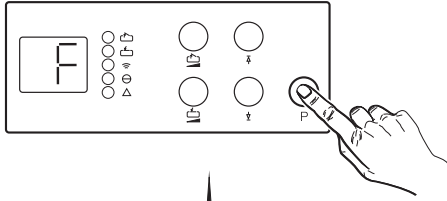
LED  lights up

Programming is completed.

9e

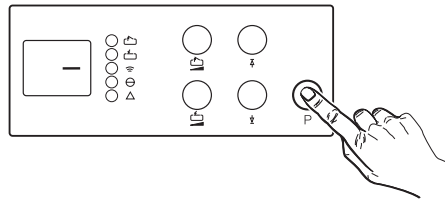
Programming the receiver for two-wing version (only with electronic aerial)

Press button "P" for 2 seconds
"F" is displayed
LED  lights up
LED  flashes

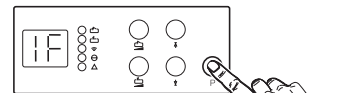


Multi-channel hand transmitter:
Press any button.

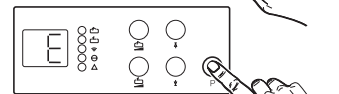
Display "-"
Receiver programming is stored



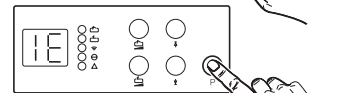
Press button "P"



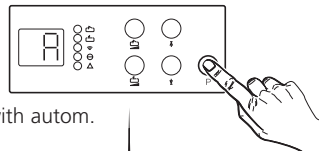
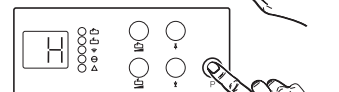
Press button "P"



Press button "P"

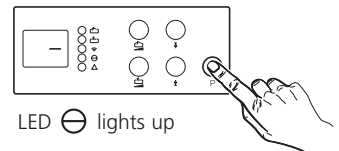


Press button "P"



Press button "P" only with autom.
timed return

Press button "P"



LED  lights up

Programming is completed.

9f

Programming the receiver for the double-wing version - gate 1 only

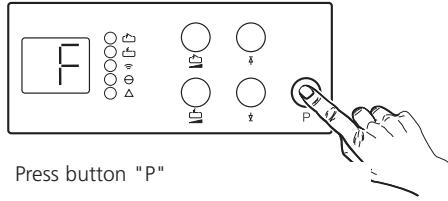
(only with multi-channel hand transmitter, e.g. button "B" with two-wing version and with electronic aerial)

Press button "P" for 2 seconds

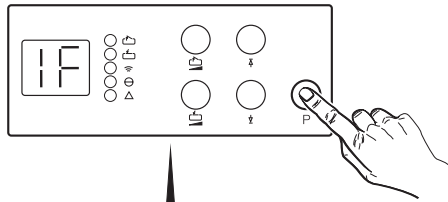
"F" is displayed

LED  lights up

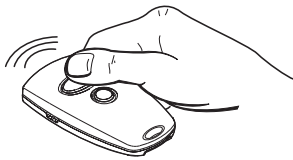
LED  flashes



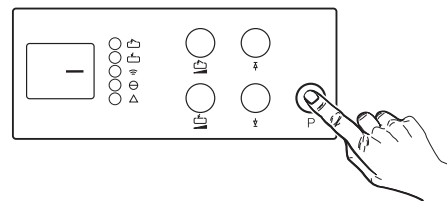
Press button "P"



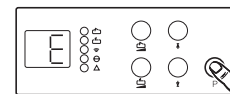
Operate hand transmitter



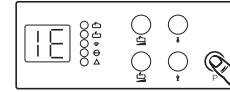
Display "-"
Receiver programming is stored



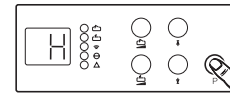
Press button "P"



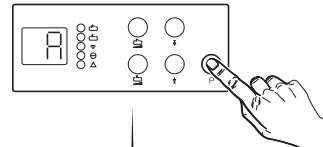
Press button "P"



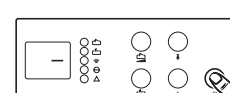
Press button "P"



Press button "P" only
with autom. timedreturn



Press button "P"



LED  lights up

Programming is completed.

9g

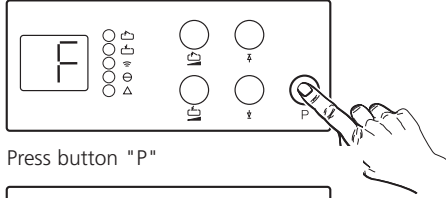
Setting the limit stops for single-wing version (gate must be in "OPEN" position)

Press button "P" for 2 seconds

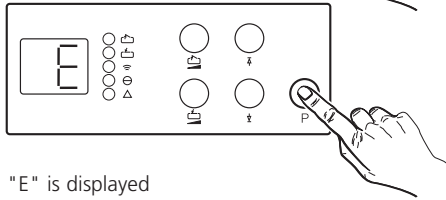
"F" is displayed

LED  lights up

LED  flashes






Press button "P"



"E" is displayed

LED  flashes

Press the  button and keep it depressed until the gate has reached the final "close" position.

Fine adjustment can be made by briefly pressing button  or button  which increases or reduces the travel distance of the gate by approx. 4 mm, without the gate moving!

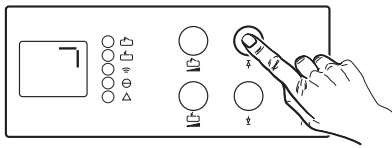
The final "close" position (limit stop) is stored.

Press the  button and keep it depressed until the gate has reached the final "open" position.

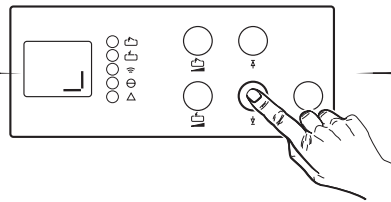
Make fine adjustment as described above.

The final "open" position (limit stop) is stored.

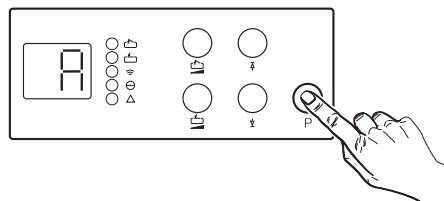
"OPEN" direction



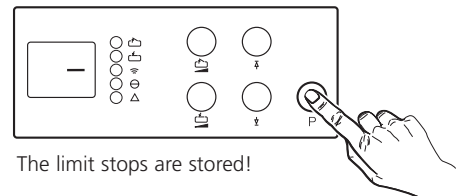
"CLOSE" direction



Press button "P" only with autom. timed return



Press button "P"





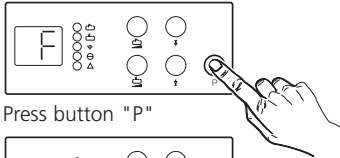
The limit stops are stored!

Programming is completed.

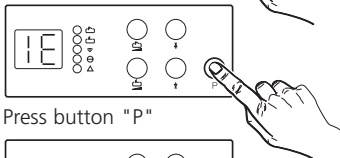
9h

**Setting the limit stops for the double-wing version - gate 1
(gate must be in "OPEN" position)**

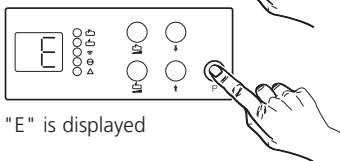
Press button "P" for 2 seconds
 "F" is displayed
 LED  lights up
 LED  flashes



Press button "P"







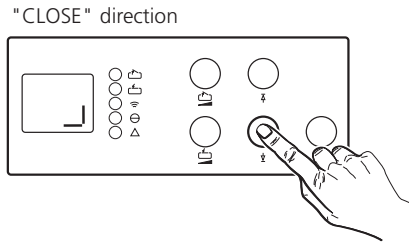
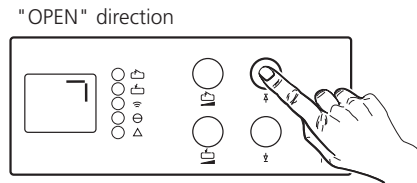
Press button "P"



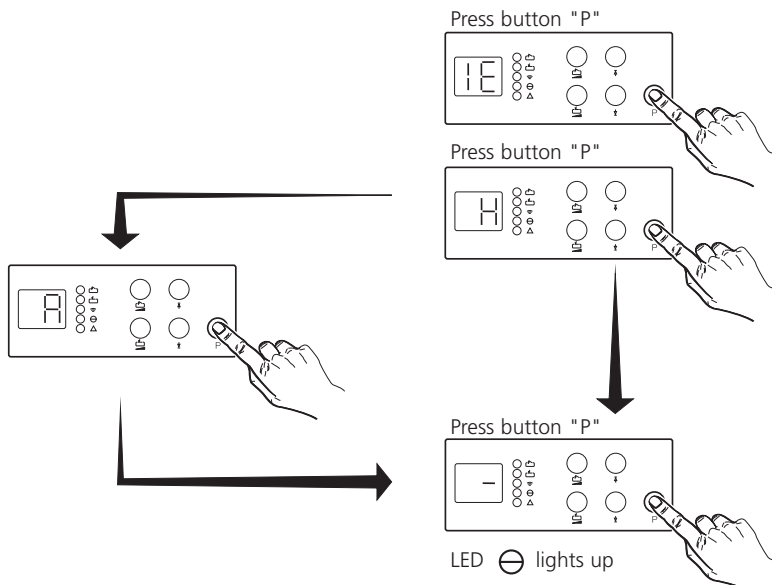
"E" is displayed

LED  flashes

Press button  and keep it depressed until the gate has reached the final "CLOSE" position.
 Fine adjustment can be made by briefly pressing button  or button  which increases or reduces the travel distance of the gate by approx. 4 mm, without the gate moving!
 The final "CLOSE" position (limit stop) is stored.
 Press button  and keep it depressed until the gate has reached the final "OPEN" position.
 Carry out fine adjustment as described above.
 The final "OPEN" position (limit stop) is stored.



Press button "P" only with autom. timed return




Programming is completed.



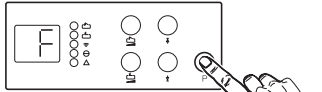
Setting the limit stops for the double-wing version - gate 2

Press button "P" for 2 seconds

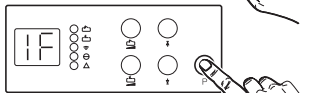
"F" is displayed

LED  lights up

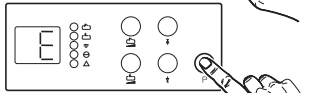
LED  flashes



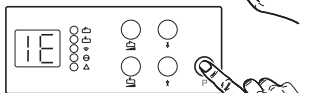
Press button "P"



Press button "P"





Press button "P"




Display "IE"

LED  flashes

Press button  and keep it depressed until the gate has reached the final "CLOSE" position.

Fine adjustment can be made by briefly pressing button  or button  which increases or reduces the travel distance of the gate by approx. 4 mm, without the gate moving!

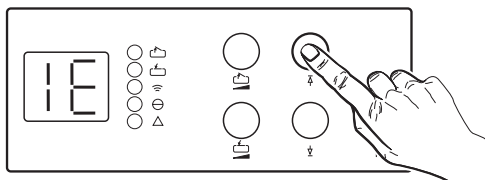
The final "CLOSE" position (limit stop) is stored.

Press button  and keep it depressed until the gate has reached the final "OPEN" position.

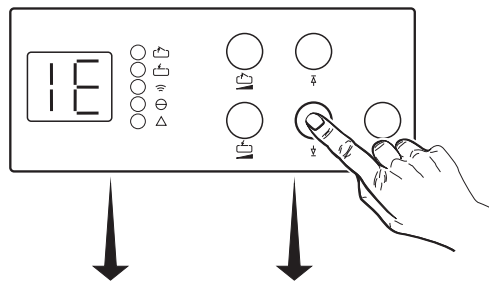
Carry out fine adjustment as described above.

The final "OPEN" position (limit stop) is stored.

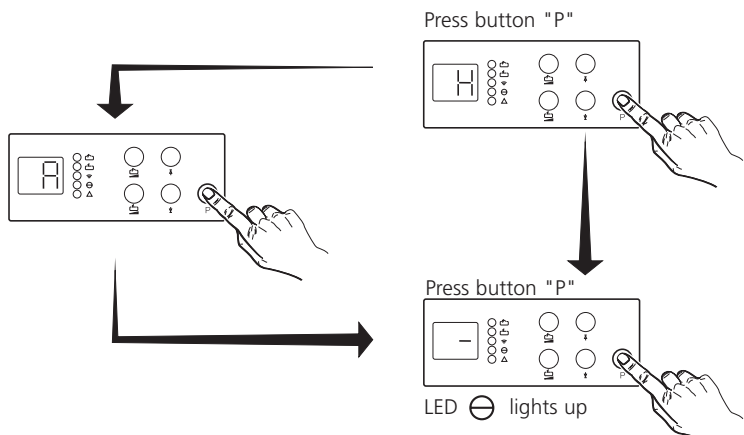
"OPEN" direction



"CLOSE" direction



Press button "P" only with autom. timed return



Programming is completed.



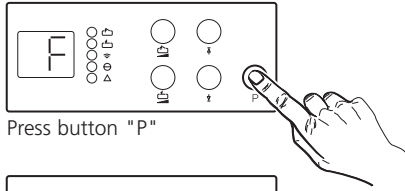
Setting the time-delayed start for the double-wing version

Press button "P" for 2 seconds

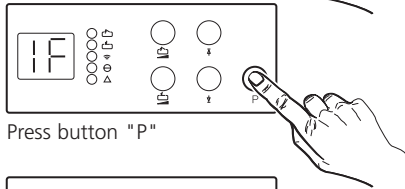
"F" is displayed

LED  lights up

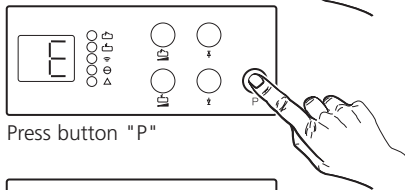
LED  flashes



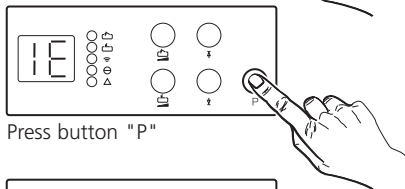
Press button "P"



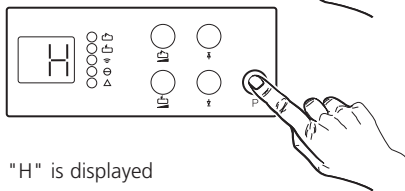
Press button "P"




Press button "P"



Press button "P"

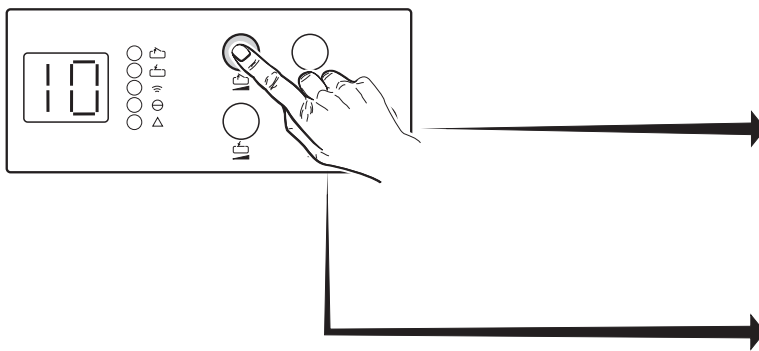


"H" is displayed

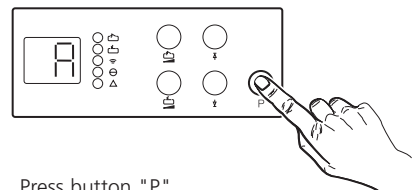
To program the time-delayed start, press button . The set value is displayed.

By repeatedly pressing the button, the time delay can be set in stages from 0 to 19 (pre-set value = 2).

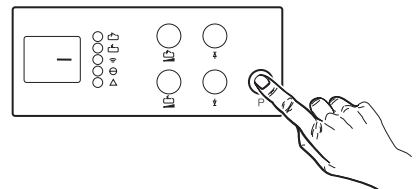
Display	Time delay
0	0.5 sec.
1	1.0 sec.
2	2.0 sec.
3	3.0 sec.
4	4.0 sec.
5	5.0 sec.
6	6.0 sec.
7	7.0 sec.
8	8.0 sec.
9	9.0 sec.
10	10.0 sec.
11	11.0 sec.
12	12.0 sec.
13	13.0 sec.
14	14.0 sec.
15	15.0 sec.
16	16.0 sec.
17	17.0 sec.
18	18.0 sec.
19	19.0 sec.



Press button "P"



Press button "P"




9k Programming the type of operation

5	-B55	Impulse/stop/impulse in opposite direction
6	-B5/B6	Open/close with self-hold
7	-B5/B6	Open/close with self-hold and autom.timed return
8	-B5/B6	Open/close with self-hold and autom.timed return after driving past the site photocell

B55/B5/B6, B5/B6 with autom. timed return (pre-programmed at the factory for sequential phase control B55 - do not alter unless necessary).

Programming

Press button  while switching the unit on.

Select with button , and store selected setting with button "P" (after 30 seconds storage is automatic).

Display 7 or 8:

Setting the "prewarning" or "gate open time" in accordance with fig. 9j.

Connection of red traffic light H20 to terminal 1 and N (X2b as per fig. 6b)

9l Programming the light relay K6

Indicator/Display for operating mode 2 to 6

1	3-minute light phase
2	Flashing impulse
3	Gate operation


Indicator/Display for operating mode 7, 8, 9

2	Flashing light
3	Revolving beacon

(pre-set at the factory for 3-minute light phase, do not alter unless necessary).

Programming

Press button  while switching the unit on.

Select with button  and store selected setting by pressing button "P" (after 30 seconds storage is automatic).

If the self-hold function has been programmed on display 7 or 8, programming the light relay will be ineffective.

Connect up site lighting, flashing light or beacon in accordance with the circuit diagram.

9m Display

Function messages		Fault messages	
Display	Function	Display	Display Fault
0	Stop button	8	Reference contact without function motor 1 /
2	Impulse OPEN (button/remote control)	9	Hybrid photocell (RPM detector) w/out function motor 1
4	Impulse CLOSE (button/remote control)	10	Power limit motor 1
6	Driveway photocell	11	Operation time limitn
7	Programming aborted	16	Power limit self-monitoring not o.k.
		17	Reference contact without function motor 2
		18	Hybrid photocell (RPM detector) w/out function motor 2
		19	Power limit motor 2


9n Cancelling the settings

Press button "P" while switching the unit on.
"c" appears in the display.

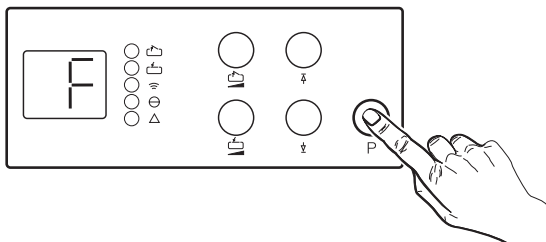
90 Setting the automatic timed return (only with operation types 7 and 8 in accordance with fig. 9j)

Press button "P" for 2 seconds

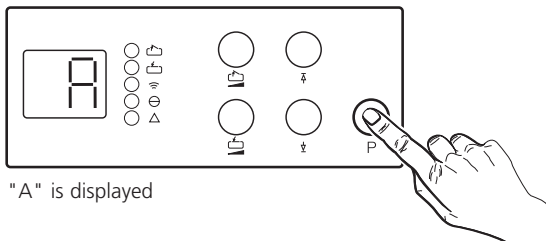
"F" is displayed

LED  lights up

LED  flashes

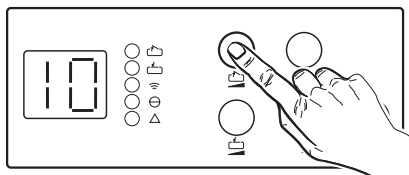


Press button "P" again until "A" appears in the display.

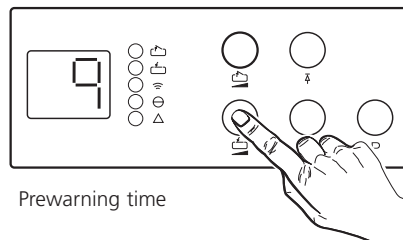


"A" is displayed

Display	Open time	Prewarning time
0	5 sek.	2 sek.
1	10 sek.	4 sek.
2	15 sek.	6 sek.
3	20 sek.	8 sek.
4	25 sek.	10 sek.
5	30 sek.	12 sek.
6	35 sek.	14 sek.
7	40 sek.	16 sek.
8	50 sek.	18 sek.
9	60 sek.	20 sek.
10	80 sek.	22 sek.
11	100 sek.	24 sek.
12	120 sek.	26 sek.
13	150 sek.	28 sek.
14	180 sek.	30 sek.
15	255 sek.	32 sek.



Open time

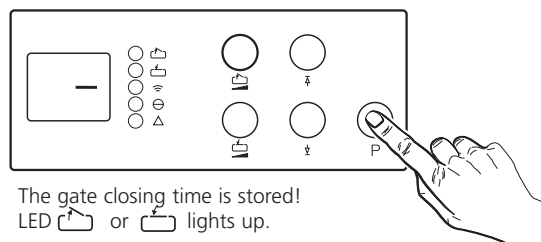


Prewarning time

Press button  or button  - selected setting is displayed.

By repeatedly pressing the appropriate button, the "open time" and the "prewarning time" can be set in stages from 0 to 15. (pre-set value = 1).

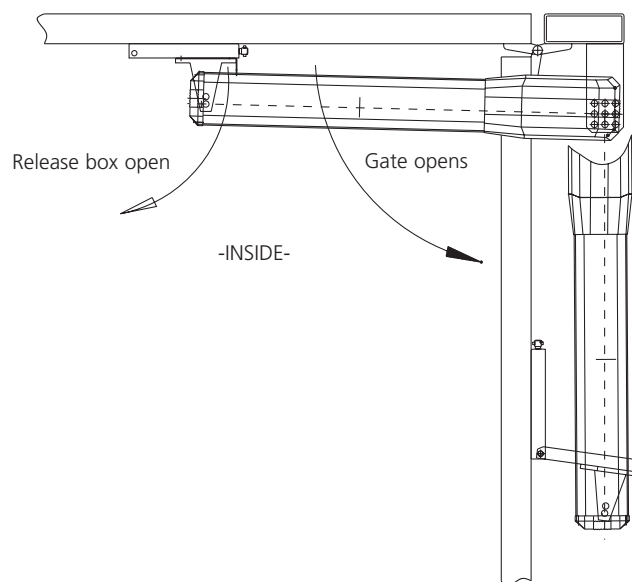
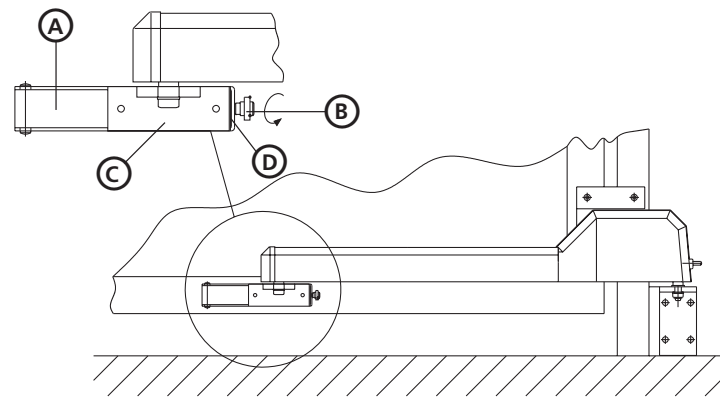
Press button "P"



The gate closing time is stored!
LED  or  lights up.

Programming is completed.

10 Disengaging the drive operator in the event of a power failure



- a) Release from the inside
Turn rotary latch (B) around 90°. The release box (A) opens. The gate can then be operated manually.
- b) Release from the outside (not part of the supply package)
Insert the key, turn 180 degrees clockwise and withdraw the key with the inner cylinder until the release box opens. The gate can then be opened manually.

Important: Before resuming power-operation, allow the gate to latch into the release box manually and lock.

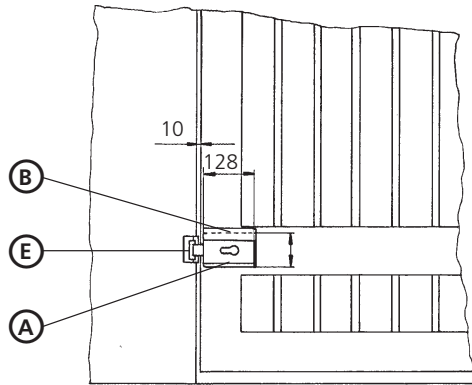
It is advisable to test the release mechanism from time to time to ensure it is in good working order.

Note: After actuating the release, the gate can be fully opened in the closed position but cannot be closed in the open position. In this instance, the drive operator must be unscrewed from the gate.

- A Release box
- B Rotary latch
- C Location piece
- D Location hole for shackle-type lock (not part of the supply package) to secure the rotary latch.

11 Fitting the electr. lock (optional accessory - to be used for gate wings wider than 2000 mm)

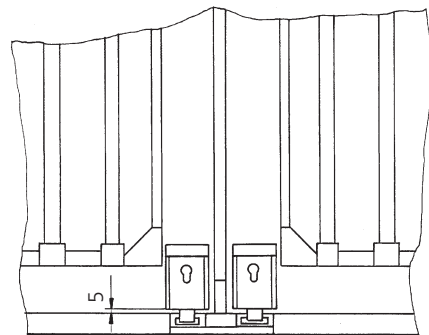
11a Electr. lock on single-wing hinged gate (electr. gate post lock, code no. 564 512, required)



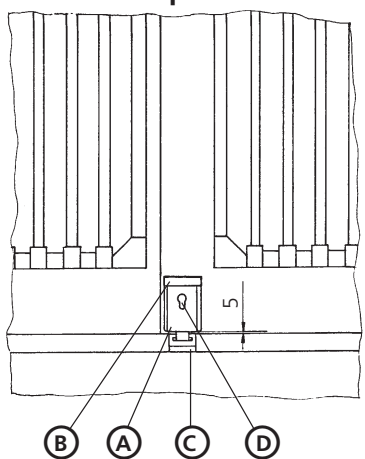
Screw mounting plate (B) to gate wing and fit electr. lock (A). Secure striking plate (E) to the post. Wire the electr. lock in accordance with the circuit diagram.

11b Electr. lock on each wing of a double-wing gate construction (2 x electr. ground locks, code no. 564 509 and - if not provided - stop plate with opening to accept electr. lock bolt, code no. 564 518, required).

Screw mounting plate (B) to gate wing and fit electr. lock (A). Attach stop plate (C). Wire electr. lock in accordance with the circuit diagram.

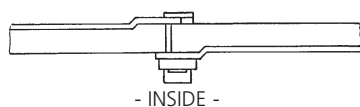


11c Electr. lock on double-wing hinged gate construction with stop bars (electr. ground lock, code no. 564 509 and - if not provided - stop plate with recess to accept bolt of electric lock, code no. 564 518, required).



Screw mounting plate (B) to gate wing and fit electr. lock (A). Attach stop plate (C). Wire electr. lock in accordance with the circuit diagram.

- A Electr. lock
- B Mounting plate
- C Stop plate
- D Locking cylinder
- E Striking plate



- INSIDE -

12

Test Instructions (only for the specialist!)

Trouble shooting:

Fault	Cause	Remedy
No green light on operation lamp.	No voltage.	Check mains supply. Check mains fuse F1.
	Thermal protection is activated.	Allow trafo to cool down.
Fault indicator flashing "red". display 10 or 19	Automatic cut-out set too sensitively. Door operation too sluggish. Door blocks.	Adjust automatic cut-out to be less sensitive as per fig. 9c. Ensure door moves easily.
Display 9 or 18 Drive operates without self-hold.	Positional sensor is defective.	Replace positional sensor in motor.
No function.	Defective electronics.	Disconnect drive unit from the mains. Remove electronic circuit boards and have them tested.
No reaction on impulse.	"impulse" button bridged, e.g. due to short-circuit or wrong terminal connection.	Temporarily isolate wired key switches or push buttons to trace wiring fault.