

mod. **ACE401**

mod. **ACE601**

mod. **ACE801**



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Fig. A

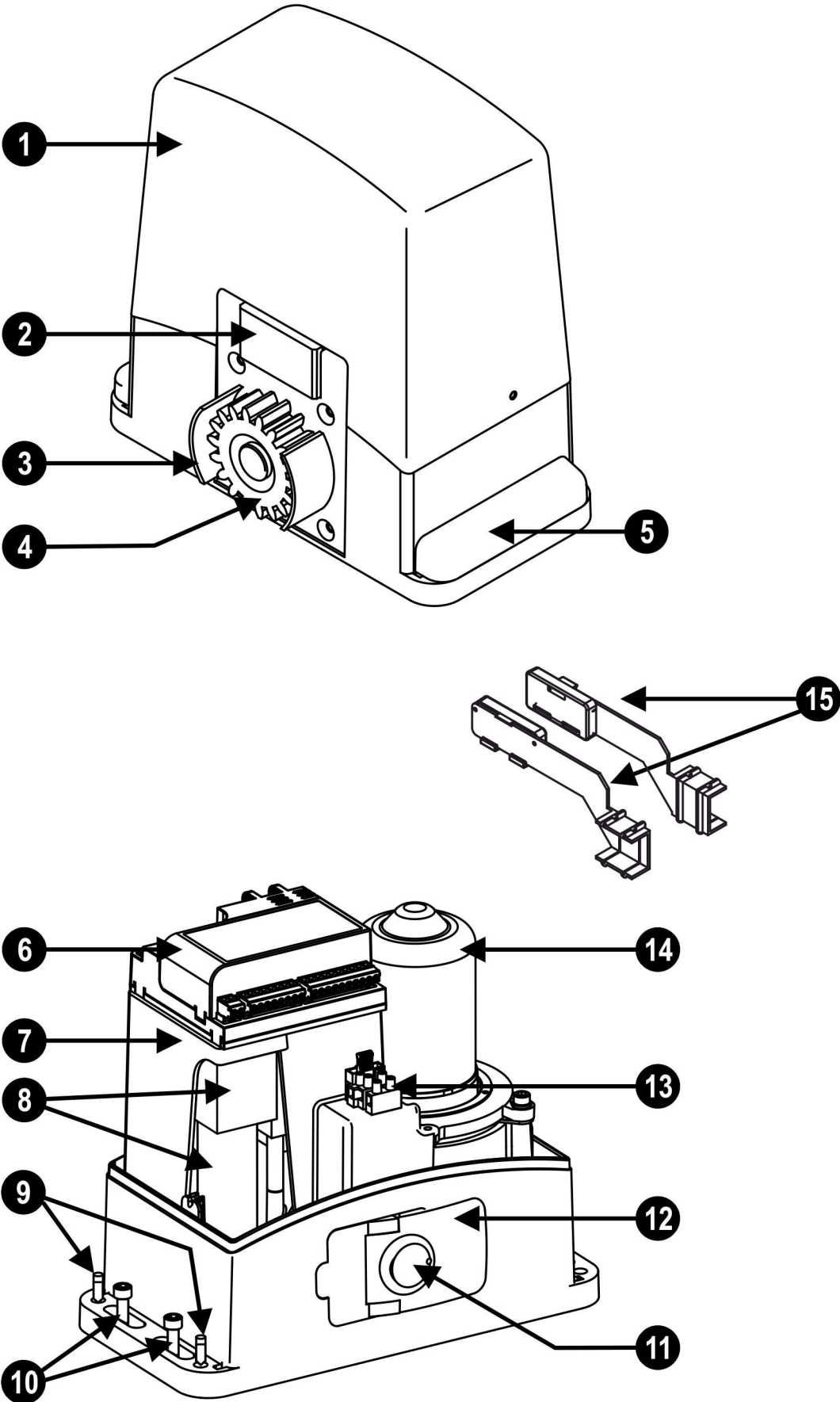


Fig. B

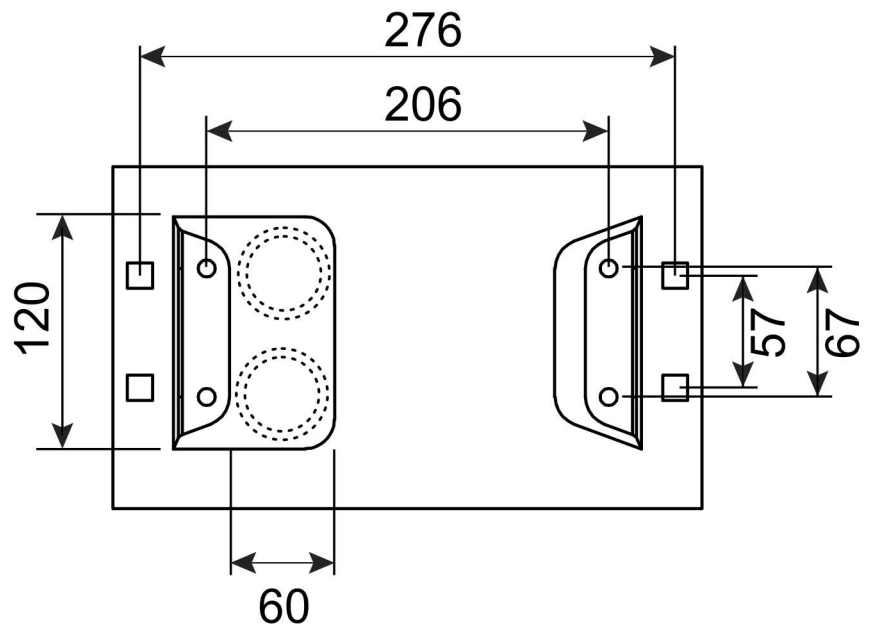
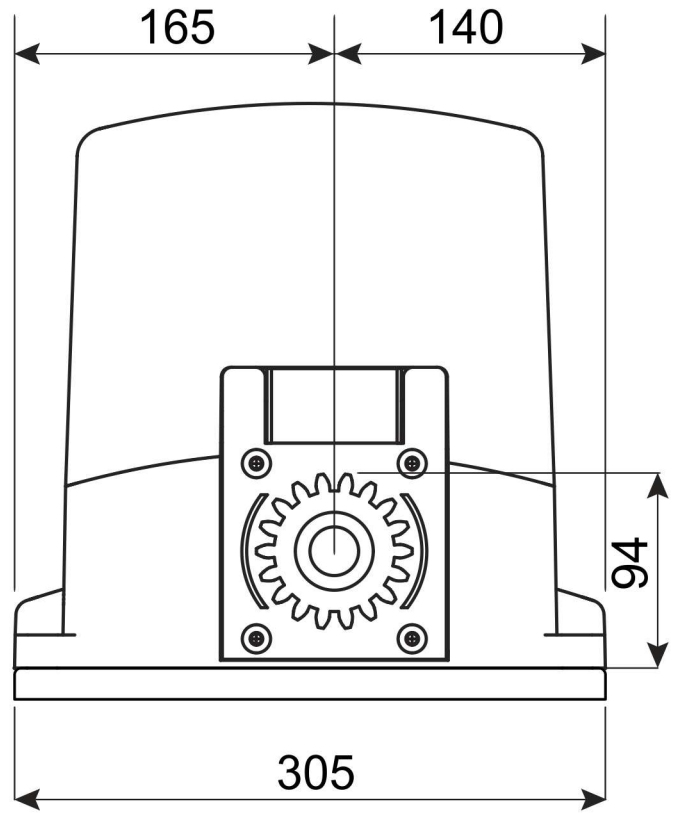
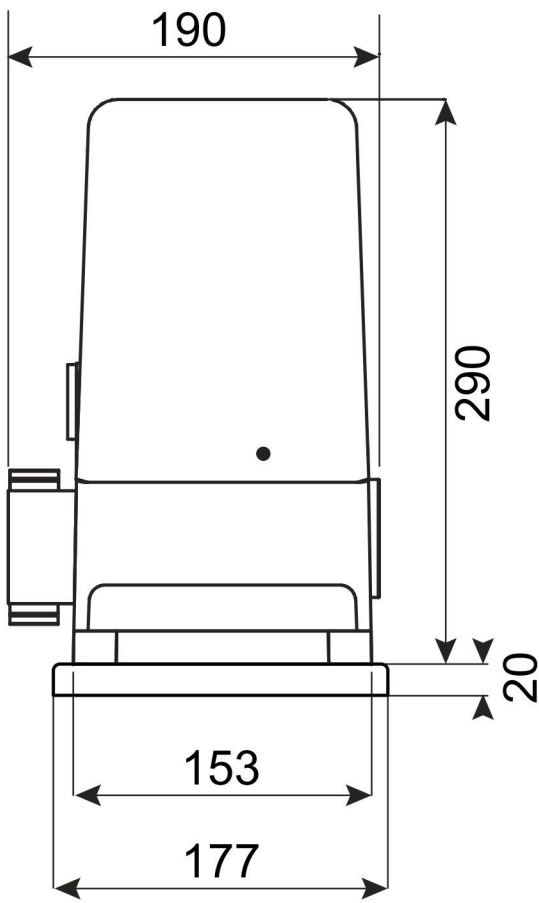


Fig. C

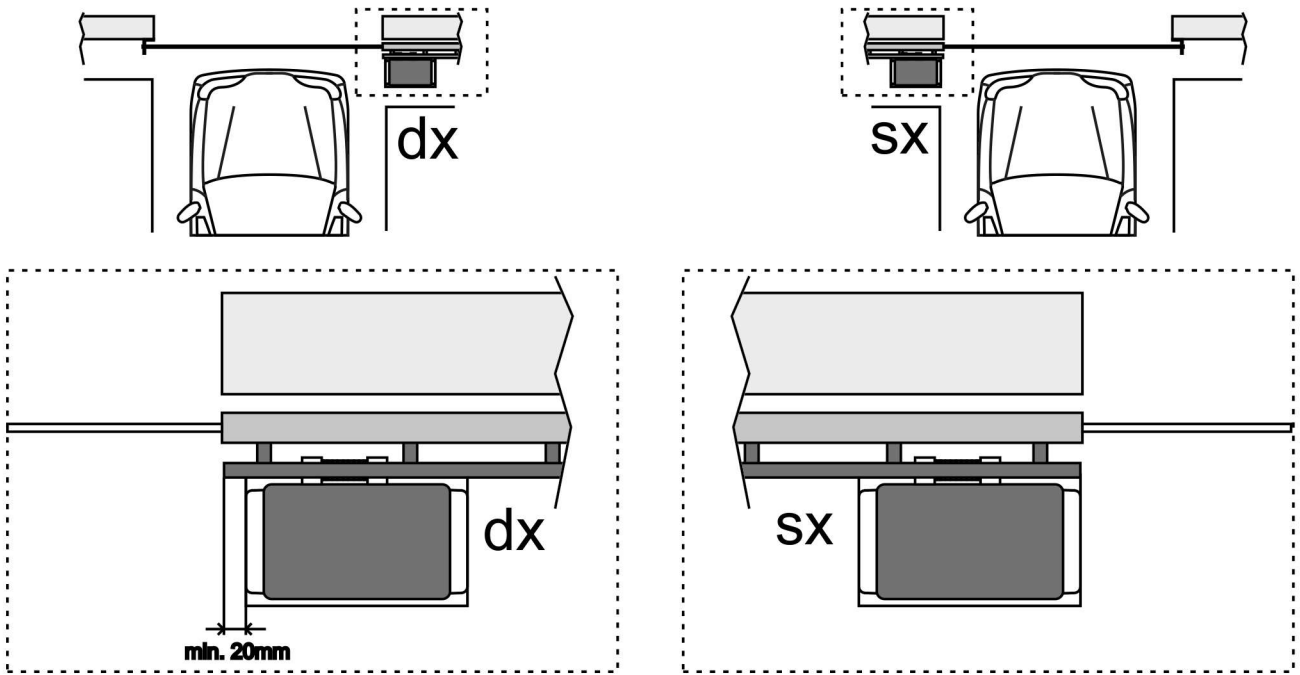


Fig. D

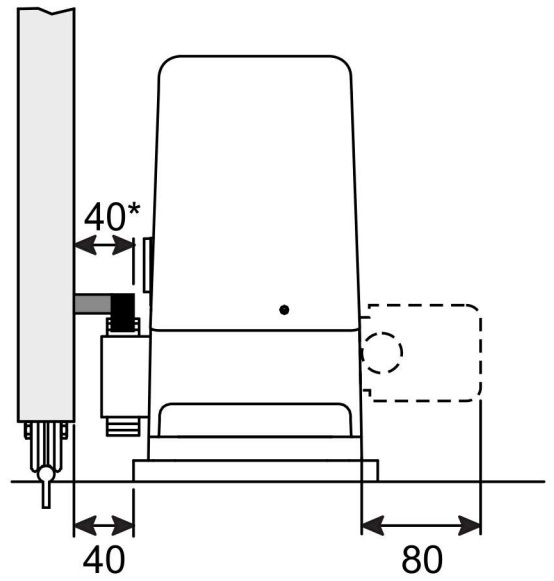
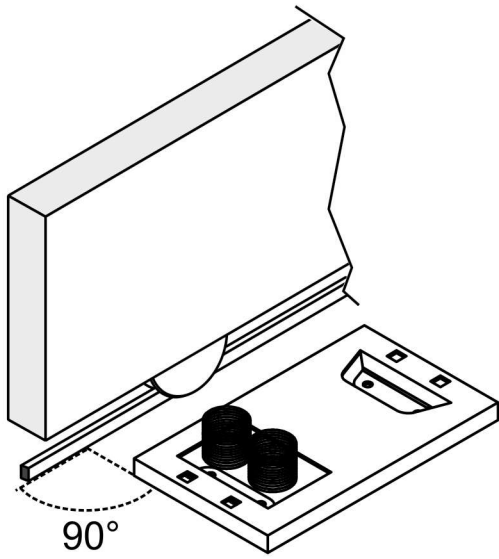


Fig. E

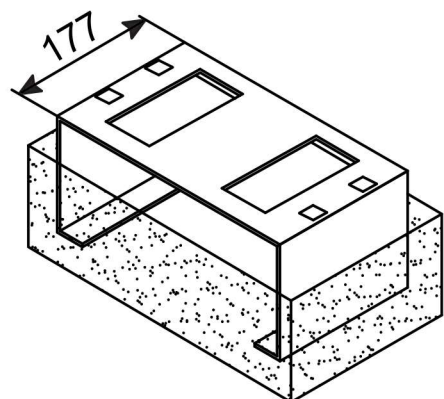
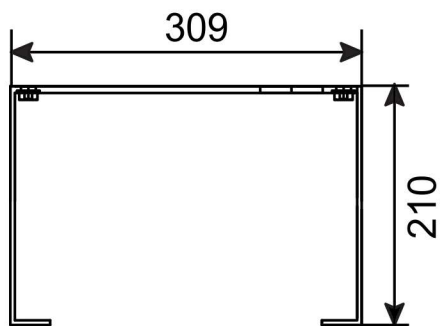


Fig. F

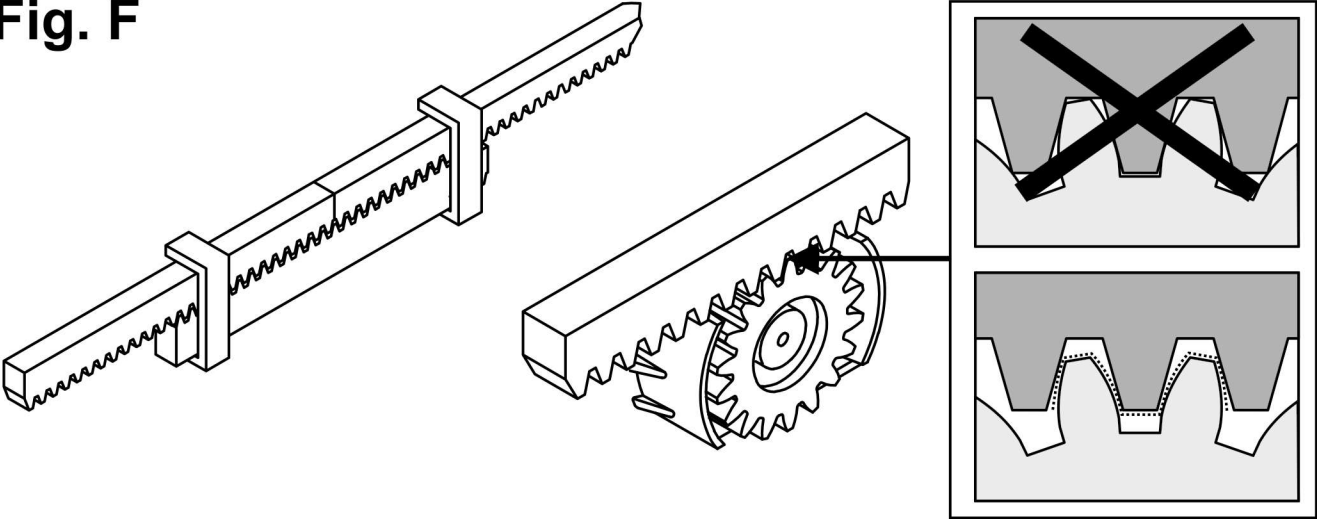


Fig. G

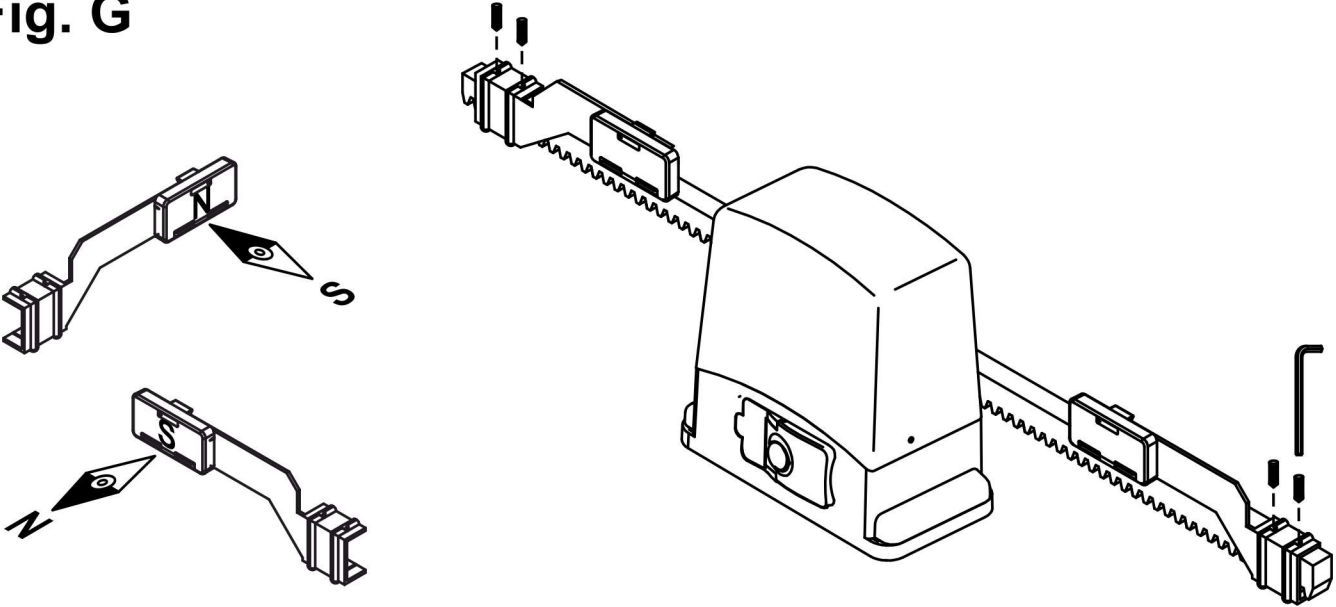
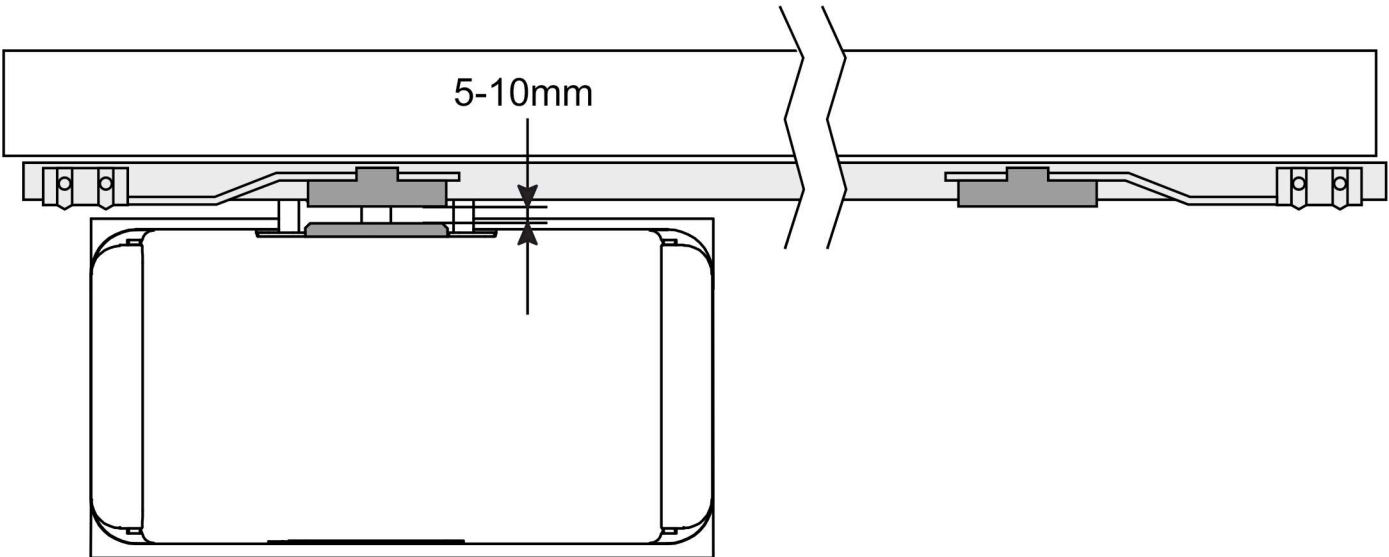


Fig. H



## CHARACTERISTICS AND PARTS DESCRIPTION

ACE series gearmotors (2013) are extremely versatile units for the automation of sliding gates up to 800Kg. This manual covers three models with different powers and gear reducers but the same dimensions and installation procedure; electrical connections and programming are also standardised.

The ECU of each model is programmed with different parameters to ensure an excellent power/sensitivity to obstacles ratio. In addition to the encoder control, units have two balanced sensitive edge inputs and a connection for synchronising the movement of two leaves.

### Parts description (fig. A)

1. motor cover
2. magnetic limit switch sensors
3. pinion guard
4. pinion
5. side covers
6. ECU
7. ECU support
8. 12V 1.2Ah battery compartment (ACE401 only)
9. motor height adjustment stud bolt
10. motor fixing crews
11. motor release lock
12. motor release lever
13. 230V mains power connection terminal board
14. motor
15. brackets with limit switch magnet

## TECHNICAL DATA

MOTOR	U.M.	ACE401	ACE601	ACE801
Power supply voltage	Vac	230	230	230
Motor voltage	Vdc	24	24	24
Max. motor current	A	6	8	12
Max. absorbed power	W	150	250	300
Maximum torque	Nm	5	10	15
Max. torque during the starting	Nm	10	16	24
Max. thrust force	N	400	600	800
Max. gate weight	Kg	400	600	800
Max. gate speed	m/min	10	16	10
Duty cycle intensity		intensive	intensive	intensive
Encoder		YES	YES	YES
Magnetic limit switch		YES	YES	YES
Protection class	IP	44	44	44
Operating temperature	°C	-20 +55	-20 +55	-20 +55
Weight	Kg	10	10	10
Control unit	mod.	A124A4	A124A6	A124A8
Control unit power supply	Vdc	24 ± 10%		
Compatible with Sun Power		YES	YES	YES
Electronic deceleration		YES	YES	YES
Motor speed control		YES	YES	YES
Inputs for 8K2 safety edges		YES	YES	YES
Master/Slave control		YES	YES	YES
Battery compartment	mod.	12V 1.3Ah (optional)	/	/



## PRELIMINARY CHECKS AND IMPORTANT SAFETY NOTES FOR INSTALLATION

### Before proceeding with installation, checks should be made on:

1. the solidity of the existing structure (posts, hinges and leafs) in relation to the force generated by the motor.
2. the provision of mechanical stops of suitable strength at the ends of the gate opening and closing strokes.
3. the bottom wheel/rail system and upper roller/guide system to ensure there is no rubbing or excessive clearance.
4. the disabling of any manual locks.
5. the condition of any wiring already installed in the system.

### Important safety notes:

1. The automation system must be installed to good workmanship standards by qualified staff meeting the legal prerequisites and in accordance with machinery directive 2006/42/EC and the EN13241-1, EN12453 and EN12445 standards.
2. Analyse the risks of the automation system and adopt any appropriate safety and warning measures.
3. Install controls, such as the key-operated selector switch, in such a way that the user is not in a hazard zone.
4. Affix the CE nameplate or label containing the hazard information and ID data of the automation.
5. Consign the instructions for use, safety information and EC declaration of conformity to the final user.
6. Ensure that the user has understood how to operate the automation correctly in automatic, manual and emergency modes.
7. After installation, try out the automation safety, signalling and release devices several times.
8. Inform the user in writing (for example, in the operating instructions):
  - a. of any residual risks for which no protection is provided, and foreseeable misuse.
  - b. That the power supply must be disconnected before the gate is released, when performing routine maintenance or during cleaning of the automation area.
  - c. That the automation must be inspected frequently for visible damage, notifying the installer at once if any is found
  - d. That children must not be allowed to play in the immediate vicinity of the automation
  - e. That the radio remote controls and other control devices must be kept out of the reach of children.
9. A maintenance plan must be provided for the system (at least every 6 months) and the work done recorded in a log.

## FIXING THE GEARMOTOR AND RACK

Decide the position of the motor, depending on whether the installation is right-hand (R) or left-hand (L).

Allow a minimum gap between the base of the motor and the end of the rack. In right-hand (R) installations, the motor must be retracted by at least 20 mm to allow the magnetic limit switch to be fitted.

Before fixing the plate, make sure that:

- the surface is level and solid enough for effective mounting
- the passage for the electric wiring is on the correct side (fig.D)
- the base is perpendicular to the direction of travel (fig.D)
- the distance from the leaf allows the pinion to be correctly aligned with the rack (fig.D)
- the height allows the pinion and rack to mate correctly
- the gate can be released smoothly (fig.D)
- the 4 nuts provided have been fitted underneath the square holes.

For new installations where no solid base is available, a CPEVO foundation plate (optional) can be used, sunk into the concrete or welded to existing structures (fig. E).

This replaces the plate supplied and must be positioned considering the factors already listed above.

Place the geared motor on the plate and fit the four screws (10, fig. A) in the slotted holes that allow horizontal adjustment if necessary and if necessary use the 4 stud bolts (9, fig A) to correct the height and/or levelling of the motor.

For details on fixing the rack, follow the manufacturer's instructions. We generally recommend:

- the rack must have a M4 module and be specified to support the weight of the gate.
- the joints must not create jolts during gate travel.
- fix a piece of rack temporarily with clamps (fig. F) if it is difficult to achieve an even pitch at the joints.
- some models of rack can be installed with screws, using extra-long holes; in this case, it is useful to subdivide the margin of adjustment by placing the screws in the middle of the slots.

**Warning! We consider correct mating of the rack and pinion as fundamentally important.**

**They must be as centrally aligned as possible and above all there must always be a minimum clearance to prevent abnormal loads on the pinion. Release the motor and ensure that the system runs evenly through the entire travel stroke.**

**If wear on the structure has created sagging which cannot be compensated for easily, the parts should be overhauled.**

Once all adjustments and checks are complete, screw down the 4 screws (10, fig. A) and fit the covers (5).

## MAGNETIC LIMIT SWITCHES (fig. G)

These gearmotors come complete with two brackets with magnets (15 fig. A) and the relative sensor, fitted above the pinion (2 fig. A).

**Warning! The two magnets are fitted on the bracket in a position that enables their recognition by the ECU. Dismantling and swapping the position of either magnet may impair programming and/or operation.**

Fit the fixing stud bolts and fit the two brackets temporarily to the opposite ends of the rack (fig. G).

Perform a series of checks with the motor released, moving the gate by hand.

- with the gate closed, the magnet must be facing the sensor
- open the gate and check the same situation with the opening magnet.
- the gap between the magnet and the sensor must not exceed 10mm (fig. H)
- the magnetic limit switch must not be tripped when the gate reaches the mechanical stop; this should occur at least 10 mm earlier.

Do not finally tighten the limit switch brackets; wait for the first operating tests. It may be necessary to correct the positions due to the motor speed or gate inertia.

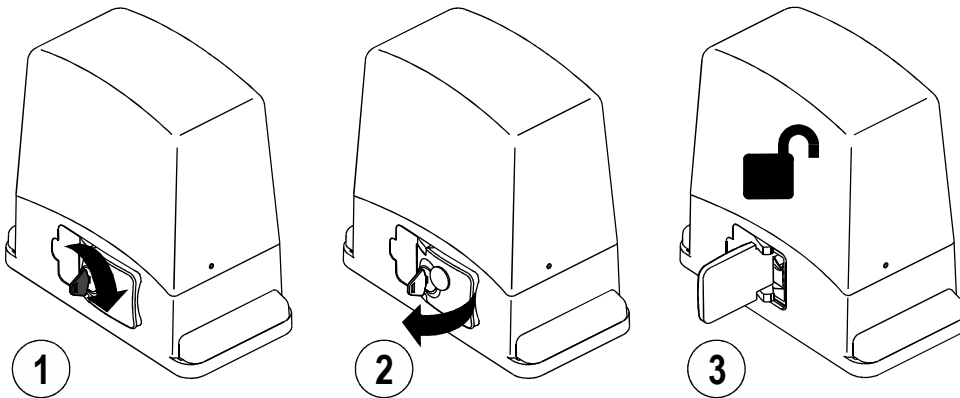
**Warning! The use of magnetic or electric limit switches is not an alternative to the installation and maintenance of mechanical limit stops for the gate. These devices must restrict the gate's maximum travel in all situations.**

## GEAR MOTOR RELEASE AND LOCK PROCEDURE

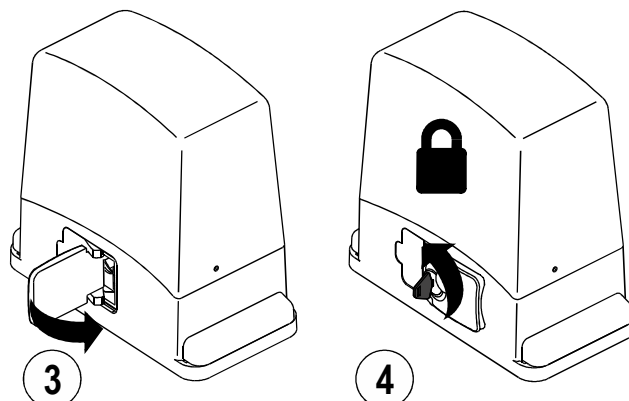
These two operations are required only in the event of a fault or power failure, and the user or assigned personnel must be trained by the installer, who should provide a copy of these instructions to be kept with care together with the release key.

**Before performing either of these procedures, ensure that the power supply is disconnected from the entire automation, even in the event of a power failure.**

**RELEASE:** 1) insert the key and turn clockwise 2) pull the lever through approx. 90° 3) the motor is released and the leaf can be moved manually. To keep the leaf blocked, proceed as follows.

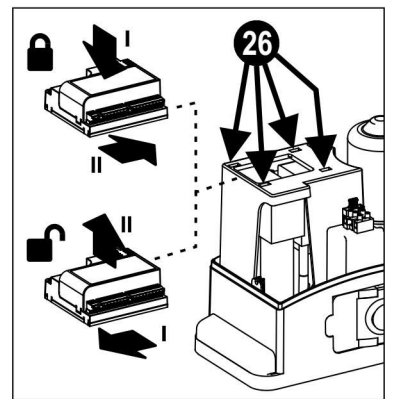
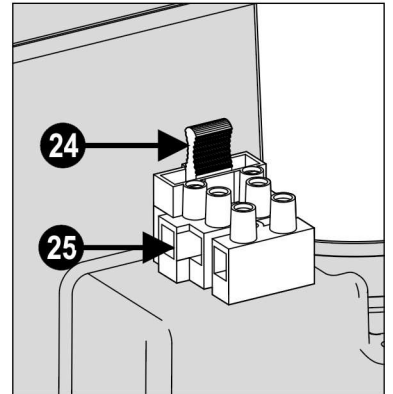
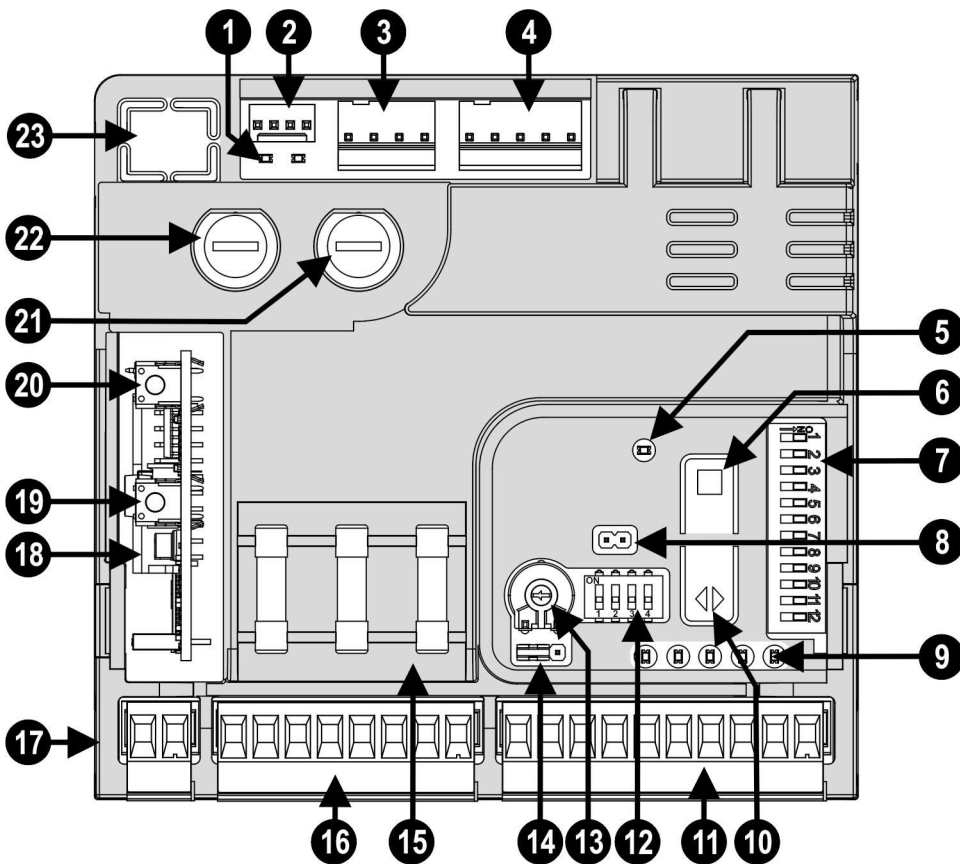


**LOCK:** 3) close the lever 4) turn the safety key anti-clockwise; the gearmotor is then locked and the leaf can only be moved electrically.



## Vezérlő elektronika részeinek ismertetése

### Fig. L



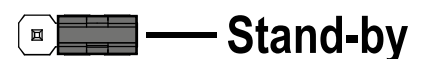
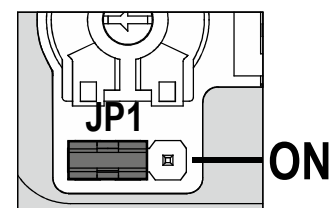
- |   |   |
|---|---|
| 1) Végállaskapcsoló érzékelő LED  | 14) Focella állandó tápfeszültség jumper JP1              |
| 2) Mágneses végállaskapcsoló csatlakozó   | 15) Tartalék biztosíték                                   |
| 3) 24V tápfeszültség csatlakozó   | 16) Kimenet sorkapcsok                                    |
| 4) Motor + encoder csatlakozó   | 17) Radio antenna bemenet sorkapocs                       |
| 5) Programozó LED (LD1)   | 18) OC2 rádióvevő csatlakozó                              |
| 6) Programozó és Stop gomb  | 19) OC2 programozó gomb 2 (optional)                      |
| 7) Funkció dip kapcsolók  | 20) OC2 programozó gomb 1 (P/P "step-by-step") (optional) |
| 8) ECU reset. Short-circuiting the 2 pins for a moment is equivalent to cutting off and restoring the power supply. | 21) Motor biztosíték (16A gyors)                          |
| 9) Bemenet visszajelző LEDek (világít = bemenet zárva)  | 22) Külső eszközök és ECU biztosíték (2A gyors)           |
| 10) Step-by-step működési gomb  | 23) Programozó csatlakozó                                 |
| 11) Bemenet sorkapcsok  | 24) 230V hálózati biztosíték (T 2A)                       |
| 12) Biztonsági bemenetek tiltó dip kapcsolói  | 25) 230V hálózati sorkapocs                               |
| 13) Motor erő beállító trimmer  | 26) Snap connection for ECU                               |

### 24V kimenet működése JP1 (5 és 6 sorkapcsok)

Mielőtt elvégzi a bekötéseket, a JP1 segítségével állítsa be a 24V kimenet működését.

- Ha JP1 ON állásban van, a kimenet mindig aktív és külső eszközök, fotocellák táplálására használható.

- Ha JP1 Standby állásban van, a kimeneten csak akkor van a fotocella számára tápfeszültség, ha a kapu mozgási ciklus véget ért. Ez a beállítás csökkenti az energiafogyasztást és meghosszabbítja az infratorompó élettartamát.



## Elektromos bekötés

Make sure that the mains power supply has been disconnected and make the electrical connections.

Take care when stripping cables not to reduce the insulation between terminals or other metal parts.

Ensure that polarities are correct.

After making the connections, check the tightness of screw terminals once more.











	Sorkapocs	Funkció / Eszköz	V/I max	Megjegyzés
	1 Braid 2 Control	Rádió antenna bemenet	/	Csak OC2-es vevő esetén szükséges bekötni. Használjon 433 MHz (50 Ohm) antennát
24V	3 (+) 4 (-)	Külső eszköz tápkimenet	24dc/1A	Ellenőrizze a polaritás helyes bekötését.
24V FT	5 (+) 6 (-)	Infrásorompó tápkimenet (*)	24dc/1A	A kimenet csak mozgási művelet, és szünetidő alatt aktív. Ha JP1-et ON állapotba állítja, akkor a kimenet folyamatosan aktív lesz.
	7 (+) 8 (-)	Villogó kimenet	24dc/1A	A motor mozgását jelzi.
na 	9 10	Kimenet választható funkcióval	/	Funkció dip kapcsolósor 3-4. kapcsoló. Lásd dip kapcsolók beállításai
	11	SLAVE parancs kimenet	/	2 szinkronizált kapu összeköttetéséhez; csatlakoztassa ezt a kimenetet a Slave motor Jolly bemenetéhez
	12 (com) 13	Biztonsági szegély bemenet, zárás közben aktív	8K2/NC	Input enabled during closing. Connect 8K2 edges or an NC contact with 8K2 resistance in series (Fig. O). If not used (terminal free), set dip-switch 1 of item 12 to ON
	12 (com) 14	Biztonsági szegély bemenet, nyitás közben aktív	8K2/NC	Input enabled during opening. Connect 8K2 edges or an NC contact with 8K2 resistance in series (fig. O). If not used (terminal free), set dip-switch 2 of item 12 to ON
	12 (com) 15	Infrásorompó bemenet	NC	Zárás közben megfordítja az irányt. Ha nincs használatban, akkor kapcsolja ON állásba a dip 3-at a Funkció dip kapcsolósoron
	12 (com) 16	Bemenet választható funkcióval	/	Jolly bemenet, Funkció dip kapcsolósor 3-4. kapcsoló
	17 20 (com)	STOP gomb bemenet	NC	Minden funkciót blokkol. Ha nem használja, állítsa a "biztonsági bemenetek" kapcsolósoron a DIP4=ON állapotba.
	18 20 (com)	Kiskapu nyitás bemenet	NA	A kapu részben nyit, beállított méretre (ld. "kiskapu nyitás programozás").
	19 20 (com)	Parancs sorrend bemenet (P/P)	NA	Funkció dip kapcsolósor 1-2.
	21 (L) 22 (GND) 23 (N)	Hálózati tápfeszültség	230/2A	Csatlakoztassa 230 V hálózathoz.

Fig. M

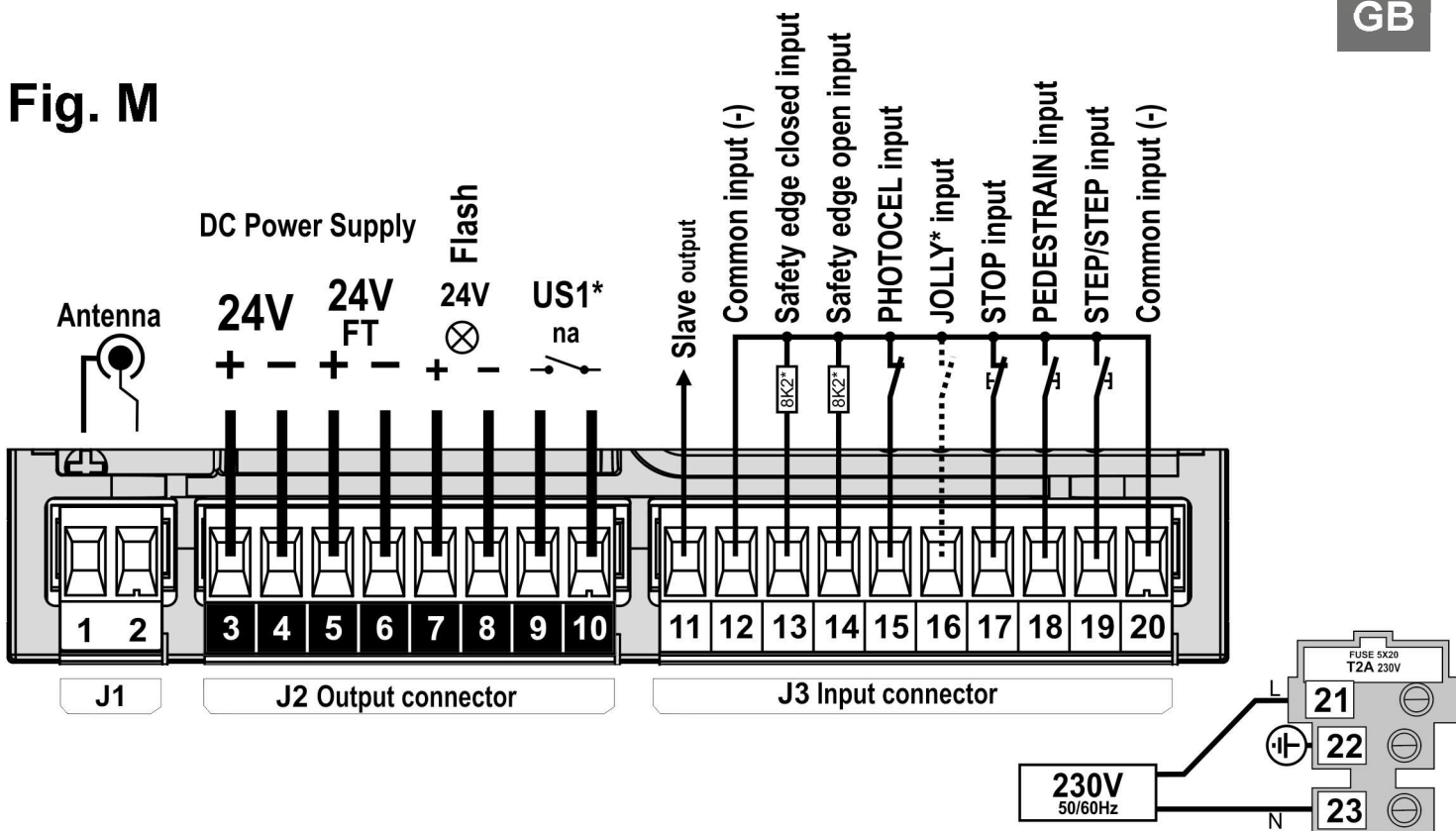


Fig. N

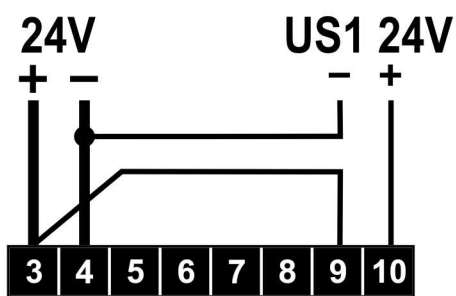
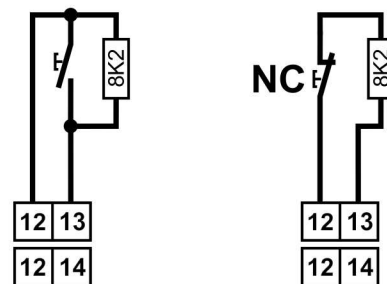


Fig. O



### Biztonsági bemenet tiltó kapcsolók

Ezek a dip kapcsolók tiltják azokat a biztonsági bemeneteket, amik nincsenek használatban.

Function	n.	Off_On	Description	Notes
<b>BSC</b>	1		OFF	Zárási biztonsági szegéllyel szerelve
			ON	Zárási biztonsági szegély tiltva. <b>Figyelem! A 13-as sorkapcsot nem szabad bekötni.</b>
<b>BSA</b>	2		OFF	Nyitási biztonsági szegéllyel szerelve
			ON	Nyitási biztonsági szeély tiltva. <b>Figyelem! A 14-es sorkapcsot nem szabad bekötni.</b>
<b>FT1</b>	3		OFF	Infrasorompóval szerelve
			ON	Infrasorompó bemenet tiltva. Azonos, ha a 15-ös bemenet a COM-mal rövidre van zárva.
<b>STP</b>	4		OFF	STOP gombbal szerelve
			ON	STOP bemenet tiltva. Azonos, ha a 17-es bemenet a COM-mal rövidre van zárva.

## DIP kapcsolók beállításai

Select the options required and perform a reset (part. 7, fig. L) to render the changes operational.

Funkció	n.	Off On	Mód	Leírás
PARANCSOR ÉS RÁDIÓVEVŐ 1-ES CSATORNA	1		NYIT - STOP - ZÁR	Nyitás alatt: a P/P gomb megnyomásával a kapu megáll, majd újbóli megnyomásával bezáródik. Zárás alatt: a P/P gomb megnyomásával a kapu megáll, majd újbóli megnyomásával kinyílik.
			NYIT - ZÁR	Nyitás alatt: a P/P gomb megnyomásával a kapu megáll, majd pár másodperc elteltével bezáródik. Zárás alatt: a P/P gomb megnyomásával a kapu megáll, majd pár másodperc elteltével kinyílik.
			MINDIG NYIT FUNKCIÓ	Nyitás alatt: a P/P gomb megnyomásának nincs hatása. Szünetidő alatt: a P/P gomb megnyomásának nincs hatása. Zárás alatt: a P/P gomb megnyomásával a kapu megáll, majd pár másodperc elteltével kinyílik.
			NYIT - ZÁR (nyitás közben nincs visszafordítás)	Nyitás alatt: a P/P gomb megnyomásának nincs hatása. Szünetidő alatt: a P/P gomb megnyomásával a kapu bezáródik. Zárás alatt: a P/P gomb megnyomásával a kapu megáll, majd pár másodperc elteltével kinyílik.
JOLLY BEMENET HASZNÁLATA	3		Óra	Becsukja a kaput ha ez a kontaktus nyitott, kinyitja a kaput, ha ez a kontaktus zárt.
			SLAVE-bemenet	A vezérlő végrehajtja a MASTER vezérlőtől kapott parancsokat.
			"Hold-to-Run" zárás gomb	A kapu addig csukódik, amíg a bemenet aktív. Ha a zárás gombot elengedik, a kapu leáll.
			Zárás	Zárás bemenet. A P/P bemenet következő funkciója a nyitás
ELŐVILLOGÁS	5		OFF	A fényjelző a motor működésével egyidőben kapcsol be.
			ON	A fényjelző a motor működése előtt 5mp-cel kapcsol be.
VISSZAZÁRÁS	6		OFF	Automata visszazárás tiltva
			ON	Automata visszazárás aktív, a szünetidő letelte után a kapu becsukódik.
Motor sebesség	7		gyors	
			közepes 2	
			közepes 1	
			lassú	
Lassítás	9		OFF	Nincs lassítás.
			ON	A motor végállás előtt fele sebességre lassít le.
Többfunkci ós kimenet (száraz kontaktus)	10		Courtesy light contact	Kerti világítás vezérlésére. A kimenet bekapcsol a mozgási ciklus kezdetén és a végétől további 3 percig aktív.
			Dry contact	Ez a kontaktus a kapu állapotát jelzi. Aktív a nyitás kezdetétől, kikapcsol, ha a zárás befejeződött.
			2. rádió csatorna	Csak ha egy 2 csatornás vevőkártya van csatlakoztatva.
			Warning light	Ez a kimenet a kapu aktuális állapotát jelzi: Kapu zárva= ki; nyitás alatt = lassú villogás; zárás alatt= gyors villogás; szünetidő alatt = 2 villanás szünettel; kapu blokkolva stop bemenettel = folyamatosan világít.
INFRASOROMPÓ UTÁNI VISSZAZÁRÁS	12		OFF	Funkció figyelmen kívül lesz hagyva
			ON	Infrasorompó aktiválódása esetén a szünetidő 2mp-re módosul (bármennyire is volt felprogramozva előtte).

# PROGRAMMING THE GATE TRAVEL STROKE AND PAUSE TIME

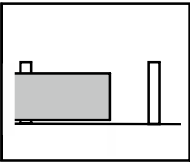
The control unit autolearns the working and pause times during the programming procedure. The programming procedure involves repeated operation of the P/P control (10, fig. L), or otherwise the P/P control (terminal 19, fig. M) or the remote control (if memorised) can be used.

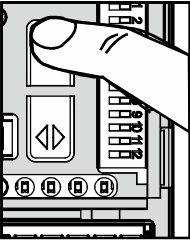
**Important notes before programming:**

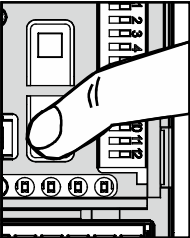
- A. Power up the control unit and check that the control inputs are operating correctly by checking the relative LEDs (the LEDs of the NC contacts must be on).
- B. Remove all obstacles from the gate's operating zone.
- C. The limit switch LEDs (1, fig. L) must be on when the gate is half-open. When the gate is moved to the closed travel limit position, one of the LEDs (e.g. LD2) must go out; the other LED (e.g. LD3) must go out when it reaches the open travel limit position.

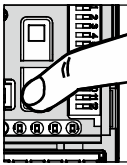
**For precise stopping on the limit switch positions, activate the deceleration function.**

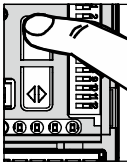
**Programming:**

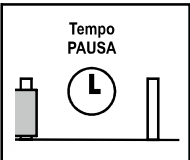
①  Place the gate manually in mid-travel position.

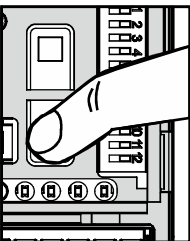
②  Press the PROG button (6, fig. L) and hold it down for about 3 seconds, until LED LD1 (5, fig. L) remains constantly on. The control unit is now in programming mode.

③  Press the P/P button (10, fig. L). The gate will move for a few seconds.

④  - If it is travelling in the closing direction, press the P/P button again.

 - If it is travelling in the opening direction, press the PROG button (6, fig. L) to close the gate.

⑤  The gate reaches the closed position and automatically starts to open again, stopping on the open travel limit position. The control unit now starts to memorise the pause time.

⑥  After the pause time required, press the P/P button. The gate closes again, stopping on the closed travel limit position. LED LD1 goes out to indicate the end of the programming procedure.

## PROGRAMMING THE DECELERATION ZONES

To set deceleration zones different from the default zones, proceed as follows.

- during opening, when programming the gate stroke, press the P/P button in the point where you wish the deceleration to start. The gate stops for a moment then restarts and completes its opening stroke.
- during closing, (after the pause time, in the gate stroke programming procedure), press the P/P button in the point where you wish the gate to start to slow down.

## PROGRAMMING PEDESTRIAN OPENING

Pedestrian opening is already programmed in the factory at about 1-1.5 metres.

If this opening requires modification, proceed as follows using the PED input, terminal 18:

**First, the total gate travel stroke must be programmed.**

- 1) With the gate closed, access the programming mode by holding the PROG button down until LD1 illuminates
- 2) Press the PED button; the gate opens.
- 3) Press the PED button again, in the point required as the pedestrian opening position.
- 4) The gate stops and then closes. The control unit then quits the programming mode.

## PROGRAMMING THE PAUSE TIME

Procedure for modifying the pause time entered during previous programming.

This operation must be carried out with the gate closed.

- 1) Press the PROG button (5 in fig. L) and hold it down until the LED LD1 (4, fig. L) remains constantly on.
- 2) Press the PROG button again; LED LD1 starts to blink and the control unit starts to memorise the pause time.
- 3) Press the PROG button again at the end of the pause time required. LED LD1 goes out and the procedure ends.

## ADJUSTMENT OF SENSITIVITY

EN 12445 requires that every automation system must pass impact tests measured with a special instrument.

Carry out the impact tests and change the encoder sensitivity through the trimmer (part 13 fig. L).

If adjustments are insufficient to make values fall within the graph indicated by the above standard, we recommend installing a soft rubber profile on the leading edge of the gate in order to soften impact.

If the requirements of the standard can still not be met after having adjusted the sensitivity and mounted the rubber profile, alternative devices must be mounted, such as a safety edge on the leading edge of the gate.

## PAIR OF OPPOSITE GATES, MASTER-SLAVE FUNCTION

This installation mode is able to operate two gates sliding in opposite direction, operating in synchrony.

- 1) Install the two motors, making the various settings and carrying out the programming as for two separate automation systems.
- 2) Select the main (MASTER) automation and connect all the system functions to it (controls, radio receivers, safety devices, photocells, etc.).
- 3) Leave all the factory settings on the SLAVE automation. Only connect any sensitive edges fitted.
- 4) Set dip-switch 3 (6, fig. L) as ON and 4 as OFF. Reset the system by bridging the pins 7 fig. L for a moment.
- 5) Connect the Slave output (terminal 11) of the MASTER automation to the multipurpose input (terminal 16) of the SLAVE automation. Connect the "COM" terminals (terminals 12 or 20) of the two control units together. If the connection is correct, the LED corresponding to the multipurpose input of the SLAVE automation starts to blink.
- 6) Test the system by trying out the various controls and safety devices of the two automations.





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