

TELCOMA

OPERATORS FOR SWING GATES STONE 300-400-600 GR / 220V

INSTALLATION MANUAL

Our compliments for your excellent choice. The STONE 300-400-600 GR electro-mechanical gear motor has been produced for reliability and high quality.

This Manual will offer information you may need to install your gear motor assuring long-lasting performance and to safeguard your safety.

HOWEVER CAUTION IS UNQUESTIONABLY INDISPENSABLE AND NOTHING IS BETTER THAN PREVENTING ACCIDENTS.

GR products have been made to conform with rules and laws in force at time of manufacture.



This manual is designed exclusively for the specialized installation expert in the criteria of construction and equipment to assist in the protection against accidents in the installation and use of the gate; door and automation of such gates (adhere to the rules and laws in force).



On completion the installer should issue to the end consumer an instruction manual according to EN 12635.



Before proceeding with the installation the installer must provide an analysis of the identification and management of risks as per the standards EN 12453 and EN 12445.



All wiring of the various external electrical components connected to the automation (e.g. Photocells, flashing lights, keypads etc) must be carried out according to EN 60204-1 and the amendments made of the point 5.2.2 of EN 12453.



It is prohibited to do any repair or adjustment of the equipment if you have not taken all necessary precautions to avoid possible accidents (example: power supply disconnected, engine block). All mechanisms in motion must be equipped with appropriate protections.



The mains power line must be protected for maximum current in locked rotor condition as per government electrical laws.



Install the gear motor on gates that conform to EN 12604.



Perform the measure of strength developed by the gear motor and adopt the measures as per EN 12445.



Positioning photocells: These safety devices must be installed at a height not exceeding 70cm from the ground and at a distance from the floor movement of the door of no more than 20cm. Their proper functioning of the photocells must be verified at the end of installation according to Section 7.2.1 of EN12445.



Keep the activation controls of automation out of reach of children. The controls should be installed at a minimum 1.5m height above the ground and outside the range of actions of moving parts such as the gate.



All activation actions must be executed only at points from where the automation is fully visible.



Operate the remote only in view of automation.



Store carefully this manual in a suitable place known to all interested people.



Any unauthorized and arbitrary modification made to this product, releases the company CARDIN ELETTRONICA Spa and from any liability resulting from damage or injury to things, people or animals.



The non-observance of regulations and of safety standards here listed releases the company CARDIN ELETTRONICA Spa from any liability resulting from damage or injury to things, people or animals.



The automation must be coupled to a control board equipped with torque regulation that provides an anti crushing safety as described in EN 12453 - EN 12445

SAFETY RULES

During the installation and the use of the automation, pay attention to the following safety rules:



Distance security!



Mechanisms moving!



Do not install automation in an environment saturated with explosive mixtures!



Electric Shock!



Use gloves!



Use welding glasses!



Maintain ear protection!

MAINTENANCE



All repairs must be carried out by qualified people.



Before each intervention remove power through the switch and lock in that position



The equipment must be maintained so as to preserve the conditions that ensure safe and efficient operation



Always use original spare parts



Do not make interventions that modify the machine.



The modified equipment requires new CE mark



The settings of the operator must be performed by qualified personnel, in accordance with the rules of reference. During these operations provide the presence of two operators for safety.

DEMOLITION

You have to operate the elimination of the materials in conformity with the regulations in force. All materials must be divided by type (copper, aluminium, plastic, electrical parts, etc)

DISMANTLING

In order to move away the automation, follow these instructions:

- 1 - cut off the power supply and disconnect the electrical installation;
- 2 - dismantle the control console and all the other components of the installation.

If you have noticed that some components have been damaged, you have to replace them.

CONFORMITY DECLARATION:

It's in accordance with Machine Directive 39/89/CE and following modify.

It's in accordance with the following directive CE:

Electromagnetic compatibility Directive 89/336/CEE and following modify.

Low tension Directive 73/23/CEE and following modify.

Have been applied the following harmonized norms:

EN292/1/2, EN 294, EN60335-1, UNI EN 12453, and what applicable of the EN12445-2000.

USE OF THE AUTOMATION

The gearmotor STONE 300-400-600 GR was designed and built for the opening of gates with max of 5 m leaf or weight max. 200kg. The CARDIN ELETTRONICA Spa assumes no responsibility for a purpose other than that provided by gearmotor STONE 300-400-600 GR. Since automation can be put into motion in view by button or remotely by remote control, it is essential to check frequently the perfect efficiency of all safety devices. It is advisable to check periodically (every six months) the regulation of electronic friction of which must be equipped the electronic control board.

PRELIMINARY CHECKS

- 1 - Read carefully the instructions enclosed in this manual.
- 2 - Make sure that the gate has a rather solid structure and that there is no friction points in its movement.
- 3 - Make sure that the leaf is suitably balanced, even after the installation of the gear motor.
- 4 - Check that the electrical installation is in accordance with the characteristic required by the gear motor.

TECHNICAL DATA

	STONE 300 GR	STONE 400 GR	STONE 600 GR
Maximum length of the gate	3,0m	4,0 m	5,0 m
Maximum weight of the gate	200Kg	200Kg	200Kg
Stroke	30cm	40cm	60cm
Power	180 W	180 W	180 W
Power supply	220 V	220 V	220V
Absorption	0,9 A	0,9 A	0,9 A
Max. Thrust	1600 N	1600 N	1600 N
Operating temperature	-25°C +60°C	-25°C +60°C	-25°C +60°C
Opening time	17sec.	22sec.	33sec.
Thermal protection	150°C	150°C	150°C
Use frequency	35%	35%	35%
Lubrication	GREASE		

SCHEDULED MAINTENANCE

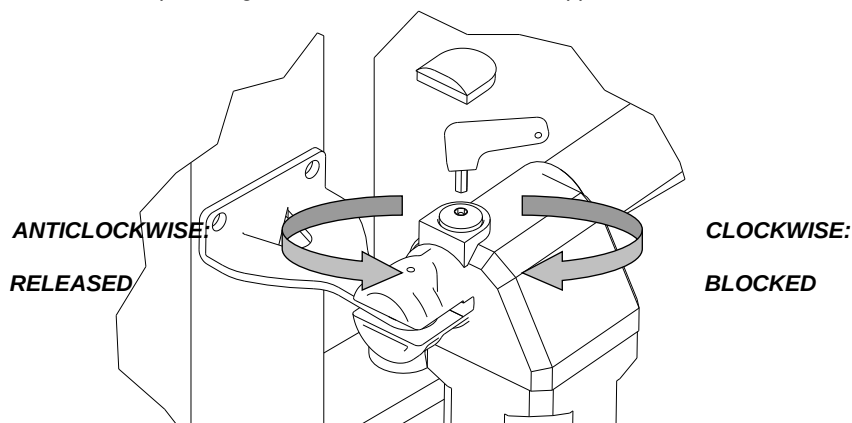
DESCRIPTION	FREQUENCY	ENTRUSTED	OPERATION
Photocells cleaning	Monthly	Operator	Clean with damp cloth
Control of gate hinges and supports, balancing of the gate	Annual	Operator	Check the status of welds and corrosion. Unhook the engine and check the balancing and the eventual points of friction.
Controlling the sensitivity of electronic friction (torque adjustment) of the control board.	Semiannual	Technician	Check the adjustment of the couple as described in EN 12453 - EN 12445
Monitoring current dispersion	Annual	Technician	Verify that the dispersion of current is less than 7.5 A
Control of signals	Semiannual	Operator	Verify that the safety warning signage is complete and intact

EMERGENCY MANOEUVRE

For the manual door locking and unlocking act with the supplied key on the screw C (See FIG 1-2).

- 1 - Remove the protection cap
- 2 - insert the key into the seat allocation as in Figure 1
- 3 - Turn the key in the sense of the arrow to the top of the gearmotor to unlock and in the opposite block.

FIG 1



INSTALLATION

- A** – Pillar bracket
B – Gate bracket
D – Piston rod
C – Release

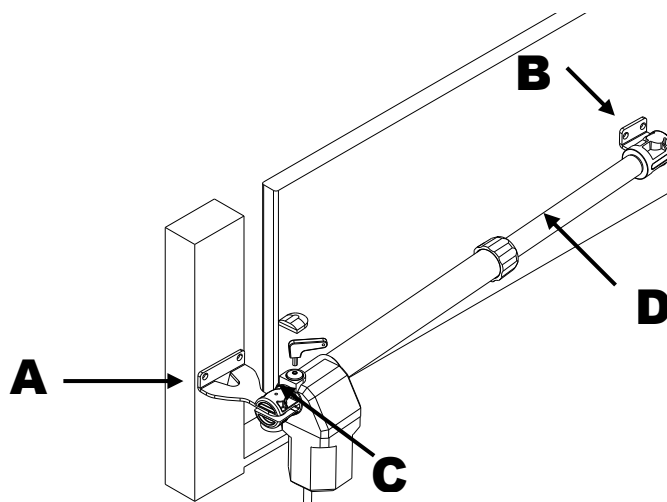


FIG 2

INSTALLATION

To operate a good installation of the gear motors STONE 300-400-600 GR, follow these instructions:

- 1 - Open the box and take out gear motor. Make sure that it has not been damaged during the transport.
- 2 - Make sure that the leaf of the gate is perfectly horizontal.
- 3 - Place the gear motor inclined approximately 1° below the horizontal line (picture 3)

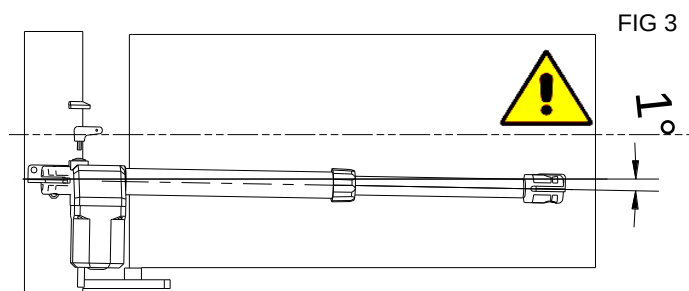
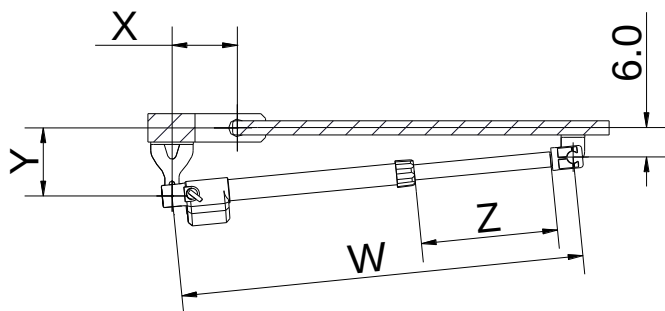


FIG 3

- 4 - Fix the support plate A on the pillar beside the leaf, taking in account the measures shown in Table 1. Do not forget inclination.

FIG 4



- 5 - Install the gear motor on to the support plate A and fix it with the bolt.

- 6 - With gate's leaf closed, turn and slide the screw of gear motor's D shaft, until the end of the stroke-

- 7 - Screw D shaft back on 1 complete turn of 360° . (picture 5)

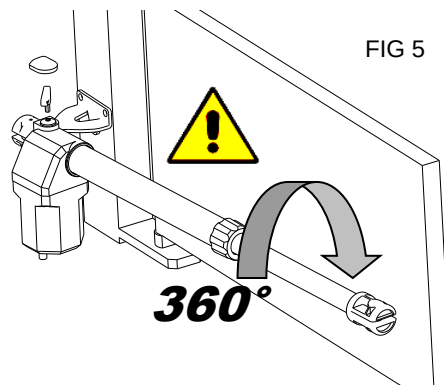


FIG 5

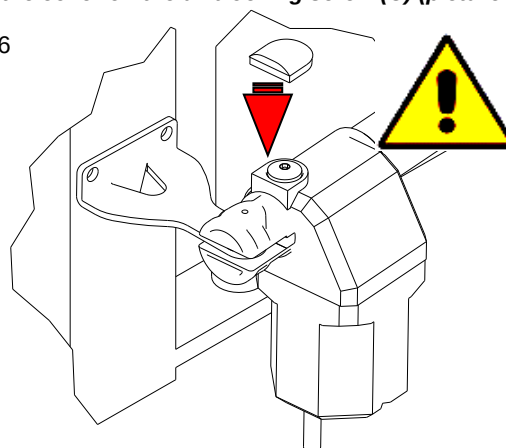
- 8 - Place B support plate in the hole of D shaft and position it against the gate leaf. Fix it to the gate leaf taking in account the inclination (point nr.3).

- 9 - Proceed in the same way with the other gate leaf.

- 10 - Connect the electrical wires and safety devices: Place the mechanical limit stops

- 11 - Place the cover on the unblocking screw (C) (picture 6)

FIG 6

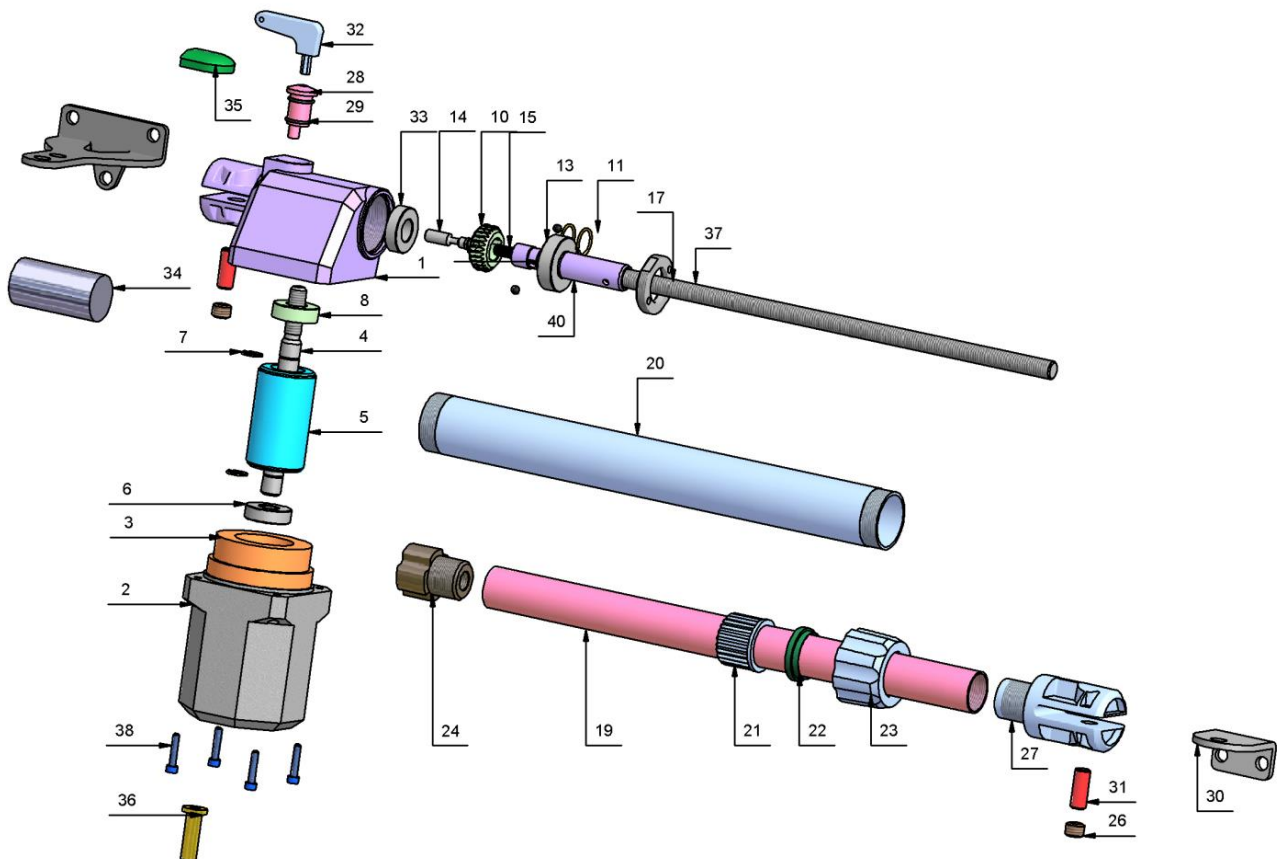


TAB 1

MOTOR	ROTATION 95°				ROTATION 120°			
	W	X	Y	Z	W	X	Y	Z
STONE300	922	140	140	378	922	160	120	378
STONE400	1122	145	145	478	1122	170	110	478
STONE600	1532	280	280	678	1532	310	120	678

SPARE PARTS

PART	QTy	CODE	DESCRIPTION	PART	Q.TY	CODE	DESCRIPTION
1	1	100645	REDUCTION GEAR COVER LF. BLACK	20	1	100715	BLACK ALUMINIUM TUBE 400mm STROKE
1	1	100644	REDUCTION GEAR COVER RG. BLACK	20	1	100763	GREY ALUMINIUM TUBE 400mm STROKE
1	1	100759	REDUCTION GEAR COVER LF. GREY	20	1	100739	BLACK ALUMINIUM TUBE 600mm STROKE
1	1	100758	REDUCTION GEAR COVER RG. GREY	20	1	100764	GREY ALUMINIUM TUBE 600mm STROKE
2	1	100647	MOTOR CASING RG. BLACK	21	1	100829	PISTON ROD GUIDE
2	1	100761	MOTOR CASING RG. GREY	22	1	100625	SCRAPER RING
3	1	100840	STATOR 220V 4 POLES 45mm 1400rpm	23	1	100827	PISTON ROD LOCK NUT
4	1	100651	IRREVERSIBLE MOTOR SHAFT	24	1	100828	FEMALE SCREW
5	1	100841	ROTOR 45mm	25	1	100823	WALL BRACKET
6	1	100278	BEARING 6202 ZZ	26	2	100705	GRUB SCREW M14X10
7	2	100706	HELASTIC RING E15	27	1	100646	ALUMINIUM PISTON ROD TERMINAL BLACK
8	1	100291	BEARING 6202 2RS	27	1	100906	ALUMINIUM PISTON ROD TERMINAL GREY
10	1	100650	IRREVERSIBLE TOOTH WHEEL	28	1	100624	ALUMINIUM UNCLAMPING
11	2	100789	HELASTIC RING E20	29	2	100657	O-RING
12	1	100709	BEARING 6004 ZZ	30	1	100825	GATE BRACKET
13	2	100658	TOWING BALL	31	2	100654	PIN
14	1	100655	UNCLAMPING PIN	32	1	100218	UNCLAMPING KEY
15	1	100641	UNCLAMPING SPRING	33	1	100707	BEARING 6003 ZZ
17	1	100661	ALUMINIUM LOCK NUT	34	1	100184	CAPACITOR 8 μ F
17		100909	FIBRE LOCK NUT	35	1	100755	UNCLAMPING CAP
19	1	100712	STAINLESS STEEL TUBE 300mm STROKE	36	1	100748	CABLE PRESS
19	1	100713	STAINLESS STEEL TUBE 400mm STROKE	37 + 40	1	100716 + 100998	ENDLESS SCREW 40 + release shaft
19	1	100738	STAINLESS STEEL TUBE 600mm STROKE	37 + 40	1	100717 + 100998	ENDLESS SCREW 50 + release shaft
20	1	100714	BLACK ALUMINIUM TUBE 300mm STROKE	37 + 40	1	100740 + 100998	ENDLESS SCREW 70 + release shaft
20	1	100762	GREY ALUMINIUM TUBE 300mm STROKE	38	4	100313	CAP SCREW M5X16



Instruction manual	Series	Model	Date
ZVL593.00	PRG230M2	V0.2	01-04-2016

Questo prodotto è stato testato e collaudato nei laboratori della casa costruttrice, la quale ne ha verificato la perfetta corrispondenza delle caratteristiche con quelle richieste dalla normativa vigente. This product has been tried and tested in the manufacturer's laboratory who have verified that the product conforms in every aspect to the safety standards in force. Ce produit a été testé et essayé dans les laboratoires du fabricant. Pour l'installer suivre attentivement les instructions fournies. Dieses Produkt wurde in den Werkstätten der Herstellerfirma auf die perfekte Übereinstimmung ihrer Eigenschaften mit den von den geltenden Normen vorgeschriebenen getestet und geprüft. Este producto ha sido probado y ensayado en los laboratorios del fabricante, que ha comprobado la perfecta correspondencia de sus características con las contempladas por la normativa vigente.

PROGRAMMATORE ELETTRONICO PER IL COMANDO DI PORTE E PORTONI MOTORIZZATI ELECTRONIC PROGRAMMER CONTROLLING MOTORISED GATES AND DOORS PROGRAMMATEUR ÉLECTRONIQUE POUR LA COMMANDE DE PORTES ET PORTAILS MOTORISÉS ELEKTRONISCHER STEUERUNGSEINHEIT FÜR DIE AUTOMATISIERUNG VON TÜREN UND TOREN PROGRAMADOR ELECTRONICO PARA EL CONTROL DE LAS PUERTAS MOTORIZADAS

230 Vac Motors



FRANÇAIS



ATTENTION! Avant de commencer la pose, lire attentivement les instructions!

Déclaration de conformité	Page	2
Consignes importantes	Page	13
Branchement électrique	Pages	13-14
Procédé de programmation	Pages	15-16
Commande via radio	Page	17
Modes de fonctionnement	Page	17
Indications de l'afficheur	Page	17
Caractéristiques techniques	Page	28

DEUTSCH



ACHTUNG! Bevor mit der Installation begonnen wird, sollte die Anleitung aufmerksam gelesen werden.

Konformitätserklärung	Seite	2
Wichtige Hinweise	Seite	18
Elektrischer Anschluss	Seiten	18-19
Programmierverfahren	Seiten	20-21
Funkbefehl	Seite	22
Betriebsmodus	Seite	22
Displayanzeigen	Seite	22
Technische Eigenschaften	Seite	28

ITALIANO



ATTENZIONE! Prima di iniziare l'installazione leggere le istruzioni attentamente!

Dichiarazione di conformità	Pagina	2
Avvertenze importanti	Pagina	3
Collegamento elettrico	Pagine	3-4
Procedura di programmazione	Pagine	5-6
Comando via radio	Pagina	7
Modalità di funzionamento	Pagina	7
Indicazioni del display	Pagina	7
Caratteristiche tecniche	Pagina	28

ENGLISH



ATTENTION! Before installing this device read the following instructions carefully!

Conformity declaration	Page	2
Important remarks	Page	8
Electrical connection	Pages	8-9
Programming procedure	Pages	10-11
Remote control	Page	12
Function modes	Page	12
Indications on the display	Page	12
Technical specifications	Page	28

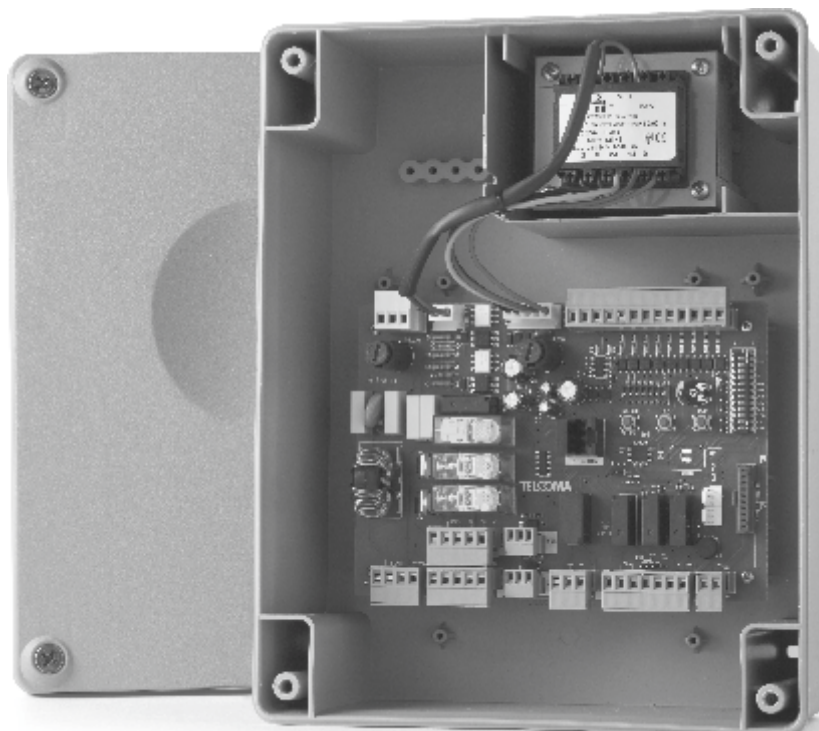
ESPAÑOL



¡ATENCIÓN! Antes de iniciar la instalación del sistema, leer atentamente las instrucciones.

Declaración de conformidad	Página	2
Advertencias importantes	Página	23
Conexiónado eléctrico	Páginas	23-24
Procedimiento de programación	Página	25-26
Mando vía radio	Página	27
Modalidad de funcionamiento	Página	27
Indicaciones en el display	Página	27
Datos técnicas	Página	28

mod. T600



I

CENTRALE COMANDO PER 1-2 MOTORI 230V
Istruzioni d'uso e di programmazione

F

CENTRALE DE COMMANDE POUR 1-2 MOTEURS 230V
Notice d'emploi et de programmation

E

CENTRAL DE MANDO PARA 1 O 2 MOTORES DE 230 V
Instrucciones de uso y programación

GB

ELECTRONIC CONTROL UNIT FOR 1 or 2 230V-MOTORS
Programming and user instructions

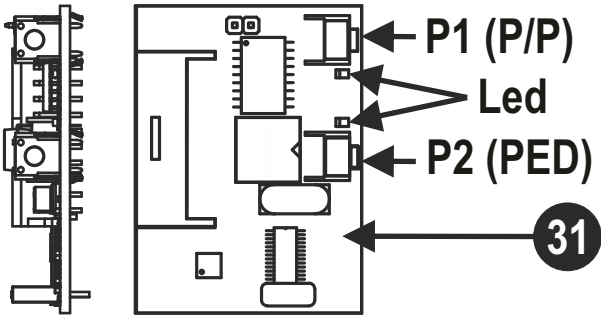
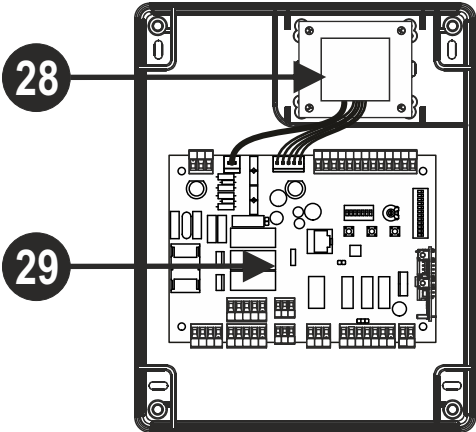
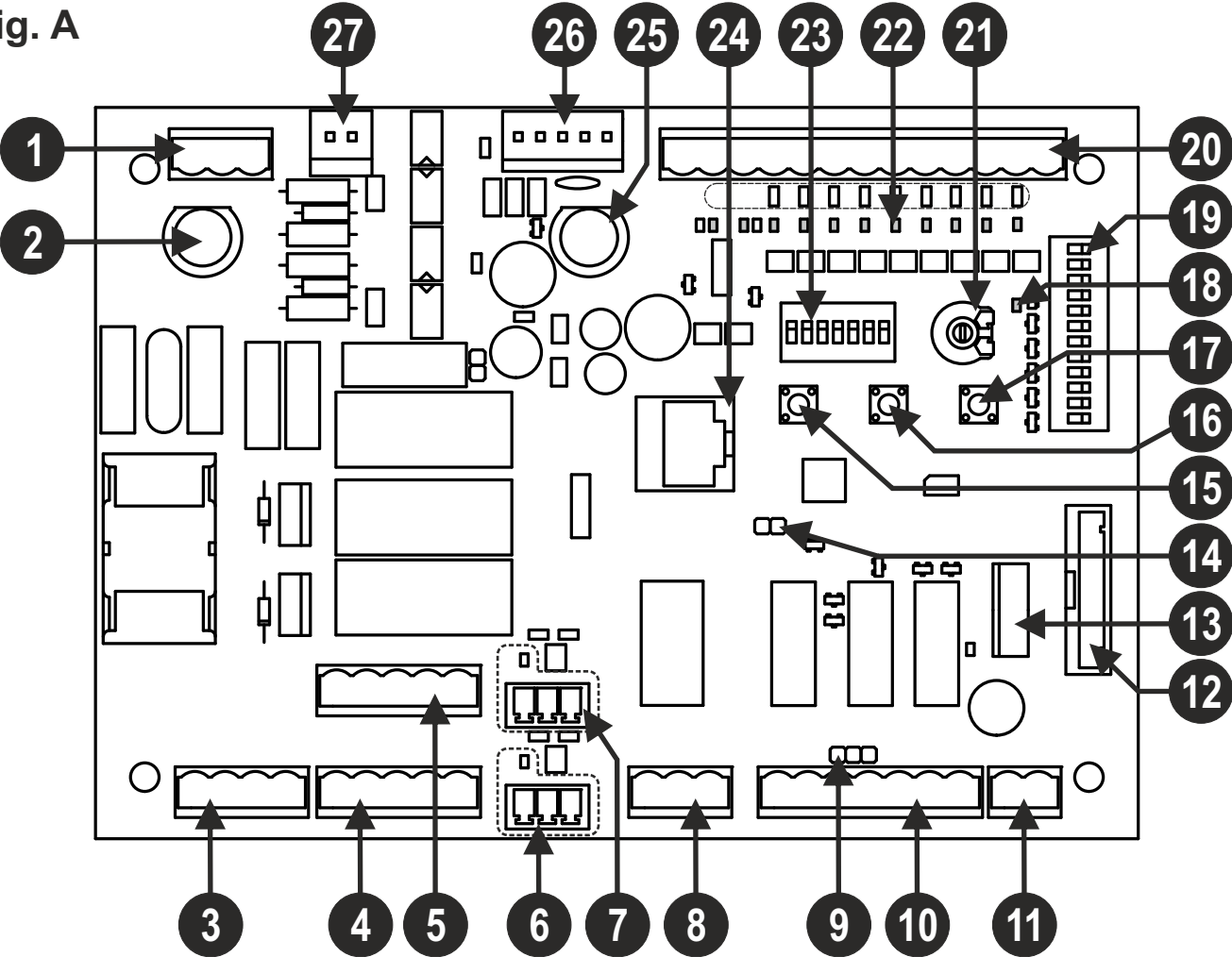
D

STEUERZENTRALE FÜR 1-2 MOTOREN MIT 230V
Gebrauchs- und Programmierungsanweisungen

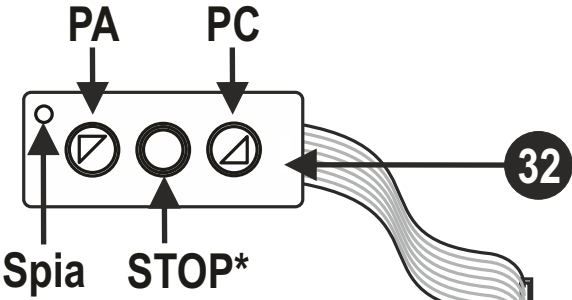
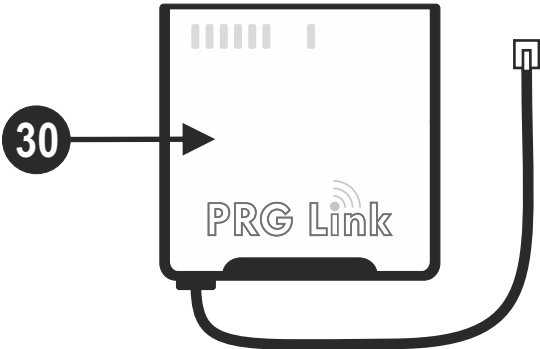
NL

BESTURINGSKAST VOOR 1-2 230V MOTOREN
Gebruiksaanwijzing en programmeerinstructies

Fig. A

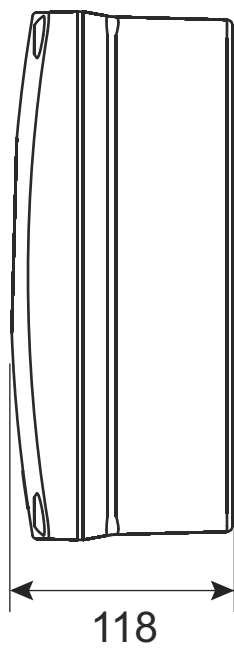


Art. XXXOC2



Art. TAST 3F

Fig. B



(mm)

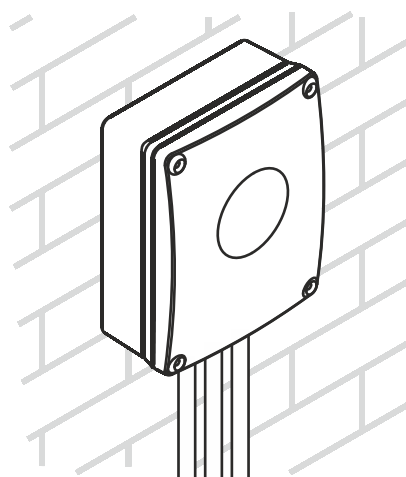
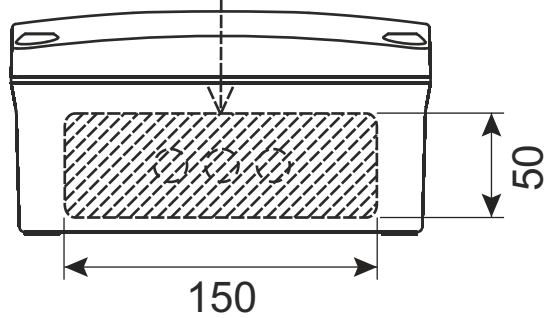
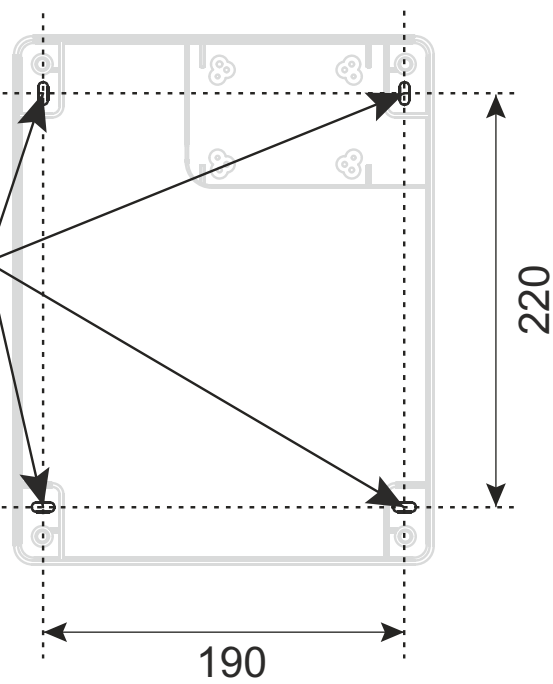
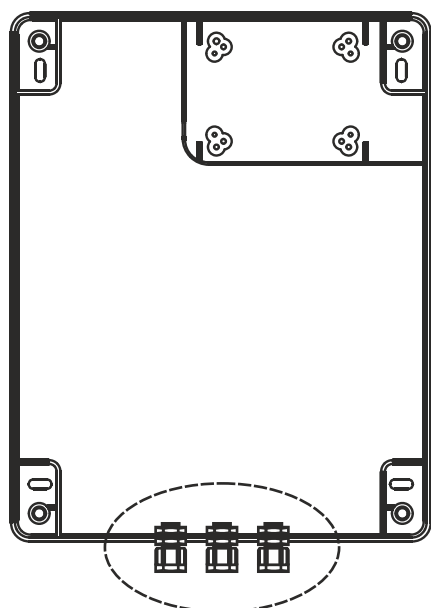
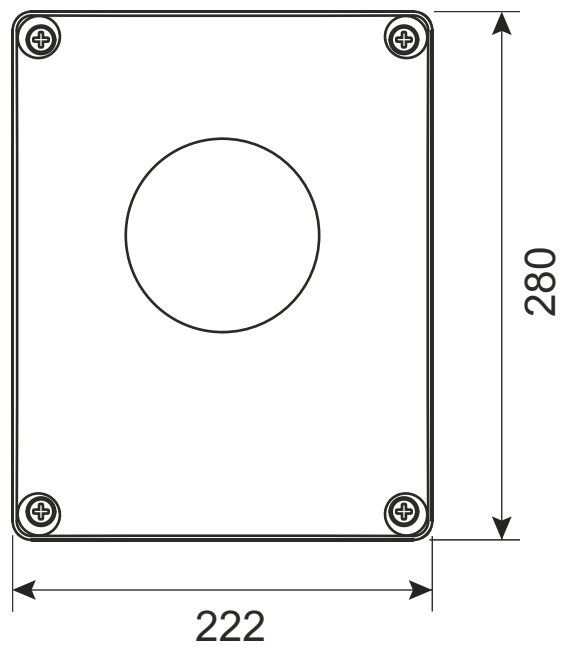
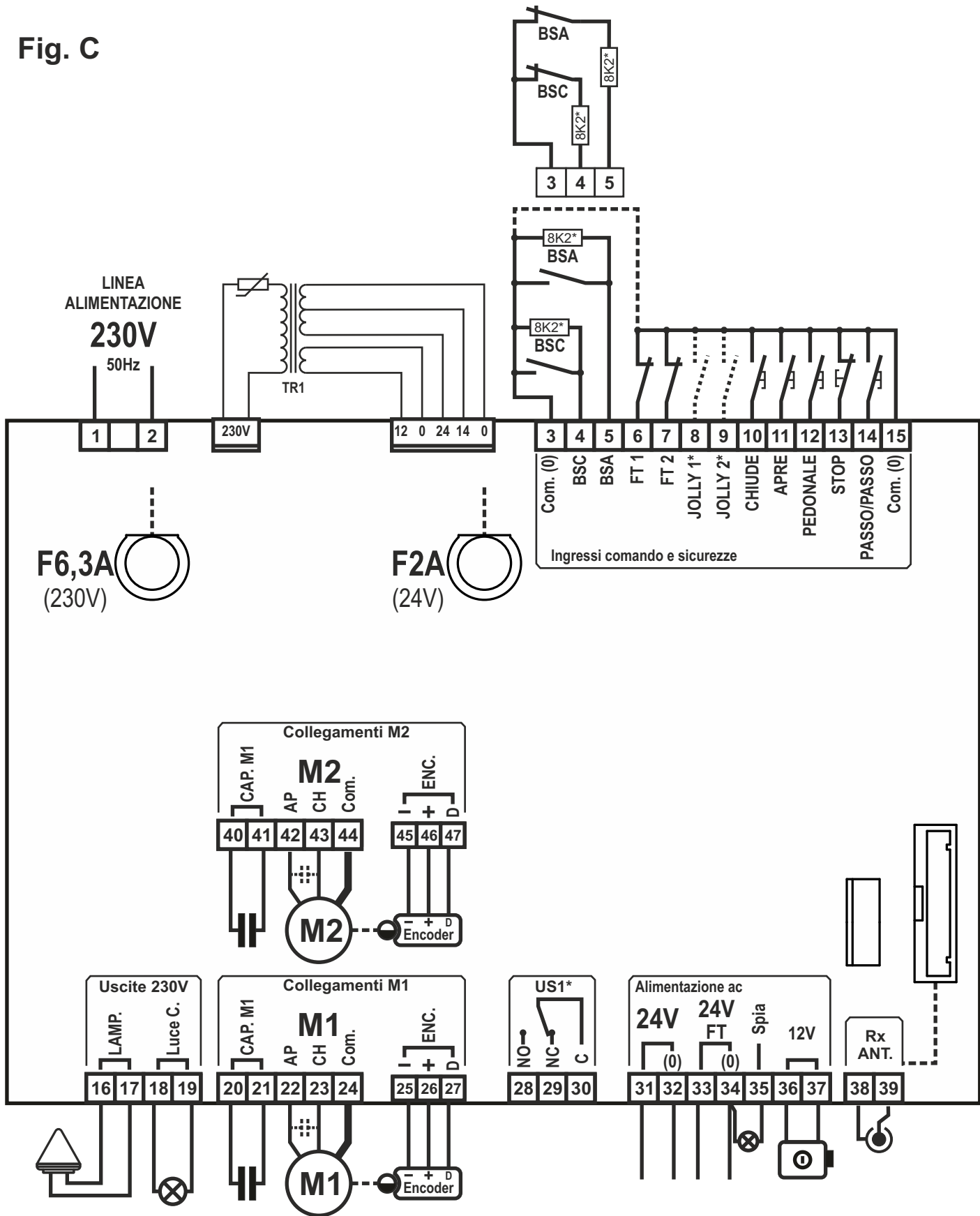
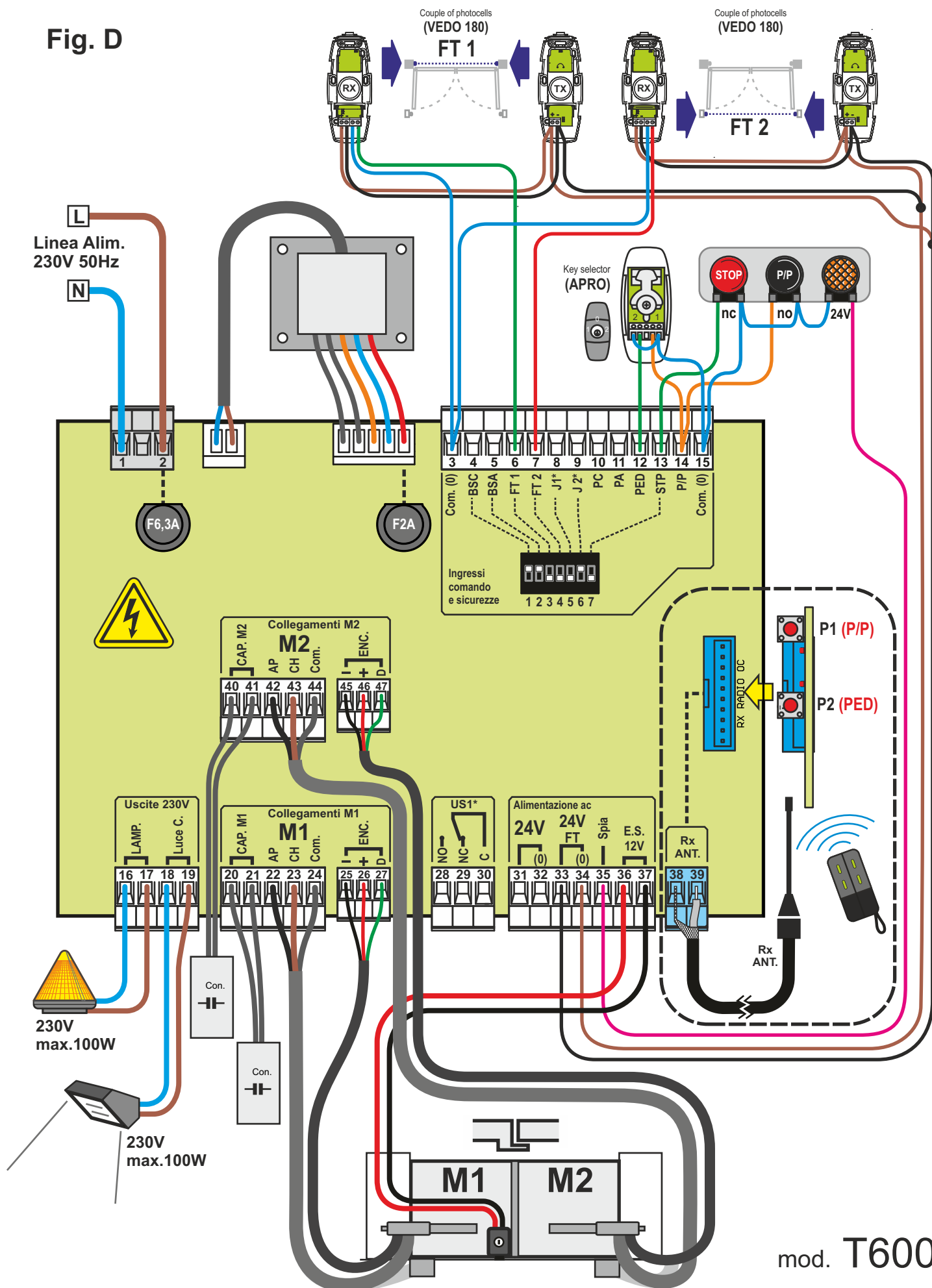


Fig. C



mod. T600

Fig. D



mod. T600

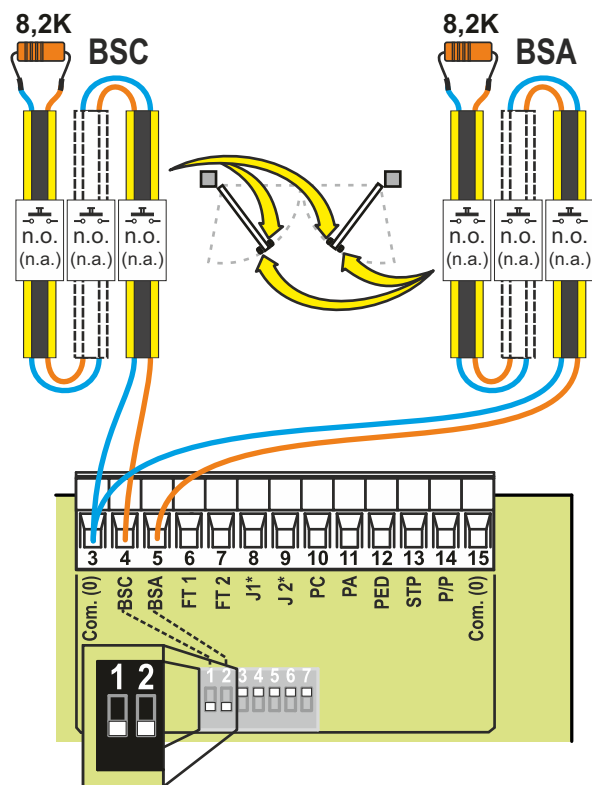


Fig. E

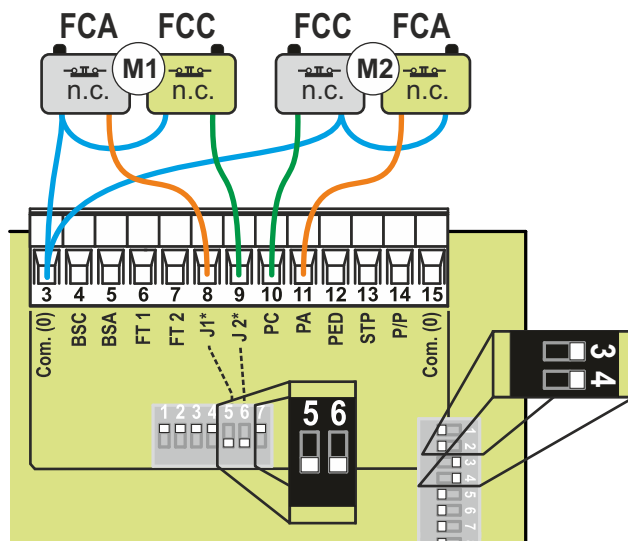
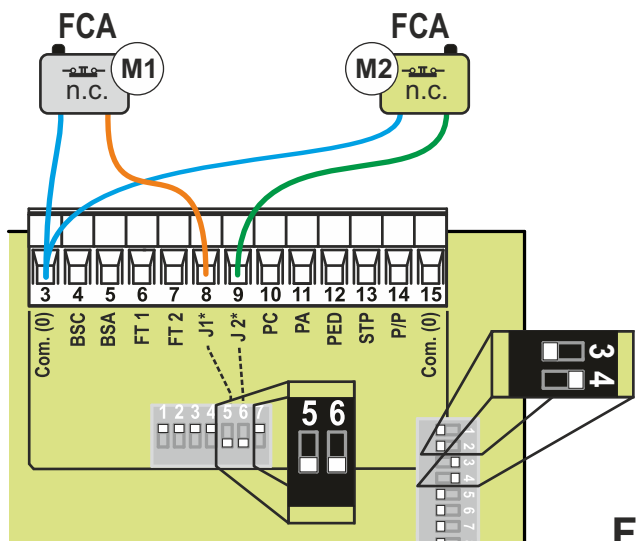
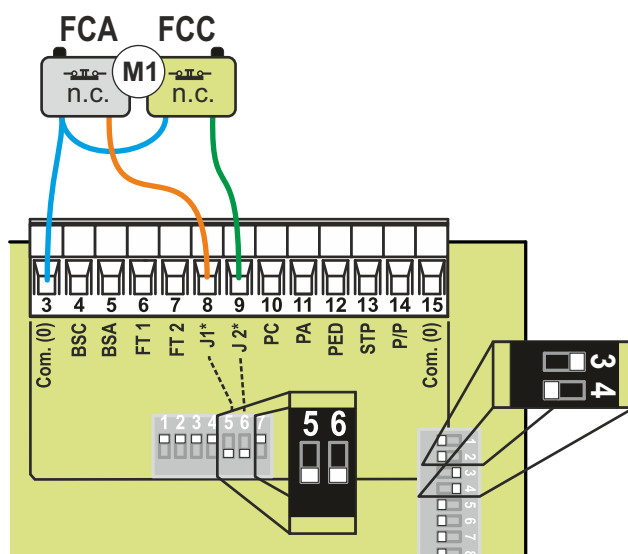
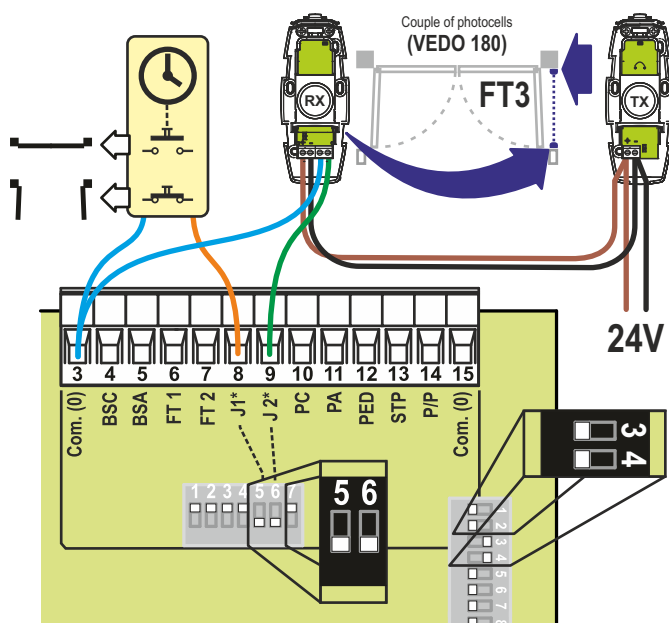
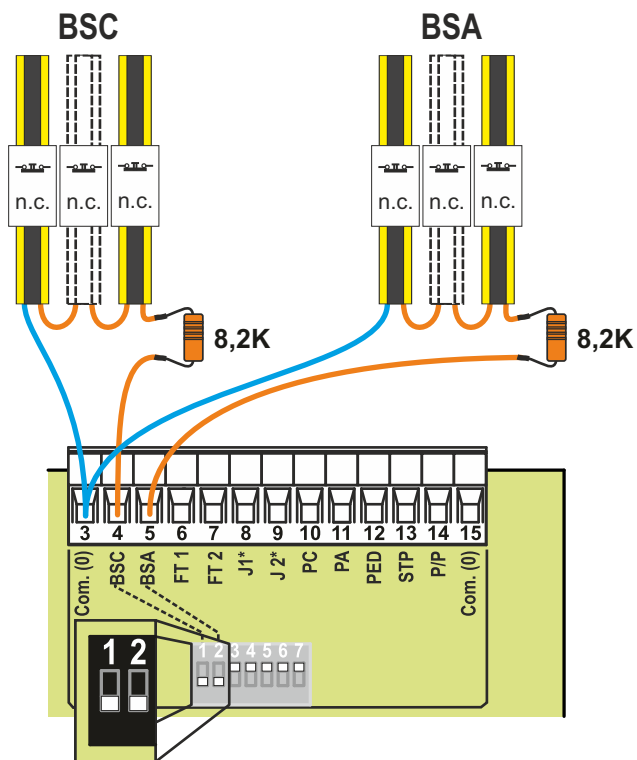


Fig. F

CHARACTERISTICS AND COMPONENT DESCRIPTIONS

ECU for the command and control of 1 or 2 gate opening motors (230V).

The main characteristics are:

- 230V-motor output with TORQUE LIMITATION, DECELERATION and SOFT-START.
- TWO INPUTS for the direct control of SAFETY EDGES (8,2K)
- Versatile gate movement control and limitation using ENCODER or TIMER CONTROLLED SENSORS
- EVOLVED PROGRAMMING AND DIAGNOSTICS via the new PRG-Link (optional)
- Network filter and inputs with optical insulation protecting against noise disturbance
- UNUSED SECURITY DEVICE INPUTS ARE EASILY EXCLUDED.

Component descriptions (fig. A)

- | | |
|--|---|
| 1. 230V power supply binding post | 16. P3 button |
| 2. 5A 230V power supply fuse | 17. Step-by-step (P/P) button |
| 3. 230V output binding post for warning lights and courtesy lights | 18. programming led |
| 4. 230V output binding post for motor M1 | 19. selection dip-switch for optional ECU functions |
| 5. 230V output binding post for motor M2 | 20. safety and command input terminal board |
| 6. ENCODER M1 input binding post | 21. trimmer for maximum torque adjustment |
| 7. ENCODER M2 input binding post | 22. safety device / command status leds |
| 8. US1 contact output binding post | 23. dip-switch excluding unused safety devices |
| 9. Photocell continuous power supply Jumper | 24. PRG-Link connection |
| 10. 12/24V output auxiliary terminal block | 25. 2A fuse protecting the 12/24V auxiliary devices |
| 11. receiver aerial input binding post OC2 | 26. external transformer secondary connection |
| 12. receiver connector OC2 | 27. external transformer primary connection (230V) |
| 13. keypad TAST 3F connector | 28. external power supply transformer |
| 14. active procedure reset terminals | 29. T600 electronic circuit |
| 15. PROGRAMMING and STOP button | 30. PRG-Link (optional) |
| | 31. OC2 receiver (optional) |
| | 32. adhesive keypad TAST 3F (optional) |

PRELIMINARY CHECKS AND IMPORTANT INSTALLATION INFORMATION

BEFORE INSTALLING THE PRODUCT PLEASE CHECK:

1. that the structure is in good working order (posts, hinges, gate leaves) in relation to the power generated by the motors.
2. that sufficiently robust mechanical travel limits have been installed at the gates opening and closing points.
3. that there is no friction or excessive spaces between the lower castors/wheels and the upper roller/guide system.
4. that the original manual locking system has been excluded.
5. that all electrical wiring and cables are in good working order.



Important warnings:

1. The installation of the automation must be carried out correctly by professionally qualified personnel in conformity with the machine directive 98/37/CE and the standards EN13241-1, EN 12453 and EN 12445.
2. Carry out risk analysis of the closing system and the solutions used and adopt all necessary security and visual warning devices.
3. Install the command devices (e.g. selector switches) in such a way that the user cannot find himself in dangerous positions.
4. Apply a CE panel or adhesive to the installation containing all danger information and the installation identification data.
5. Make sure the operating instructions, general warnings for a safe installation and the CE conformity declaration have been given to the end user.
6. Make sure that the end user has correctly understood the automatic, manual and emergency operations to be carried out.
7. Once the installation has been completed, carry out a series of tests to make sure that the safety devices, warning signals and release mechanisms are all working correctly.
8. Write the following information down for the user (in the instruction manual for example):
 - a. the presence of any residual risk factors that have not been protected and factors that could arrive from unforeseen use of the system.
 - b. The end user must disconnect the mains power supply before releasing the gate, carrying out ordinary maintenance intervention or attempting to clean the area of the installation.
 - c. The end user must frequently check the installation for visible signs of damage and immediately inform the installer should any arise.
 - d. Make sure that the end-user is aware that children must not be allowed to play within the area of an automatic installation and that radio control devices and other command devices are kept out of their reach.
9. Draw up a maintenance plan for the installation (at least every six months) and write the interventions carried out in a maintenance register.

	Term. n.	Function / Device	V/I max	Notes
230V ➔	1 (L) 2 (N)	power supply input	230/6A	Connect to the 230V power supply.
BSC 	3,15 (com) 4	Safety edge input Cuts in during CLOSING	8K2/NC	Input for closing direction enabled. Connect 8,2K safety edges or an N.C. contact with 8,2K resistance in series (fig. E). If unused (binding post free), set dip 1 to ON (part. 23 fig. A).
BSA 	3,15 (com) 5	Safety edge input Cuts in during OPENING	8K2/NC	Input for opening direction enabled. Connect 8,2K safety edges or an N.C. contact with 8,2K resistance in series (fig. E). If unused (binding post free), set dip 2 to ON (part. 23 fig. A).
FT1 	3,15 (com) 6	Photoelectric cell input	NC	Travel direction inversion during closing. If unused (binding post free), set dip 3 to ON (part. 23 fig. A).
FT2 	3,15 (com) 7	Photoelectric cell input	NC	Temporary movement block during the opening stage. Travel direction inversion during closing. If unused (binding post free), set dip 4 to ON (part. 23 fig. A).
J1 	3,15 (com) 8	Input for selectable functions	-	See dip-switch setting 3 and 4 (part. 19 fig. A). If unused, set dips 3 and 4 to OFF and then set dip 5 (part. 23 fig. A) to OFF.
J2 	3,15 (com) 9	Input for selectable functions	-	See dip-switch setting 3 and 4 (part. 19 fig. A). If unused, set dips 3 and 4 to OFF and then set dip 6 (part. 23 fig. A) to ON.
PC 	3,15 (com) 10	Command input CLOSE	NA	CLOSING only command, during opening it inverts and closes.
PA 	3,15 (com) 11	Command input OPEN	NA	OPENING only command, during closing it inverts and opens.
PED 	3,15 (com) 12	PEDESTRIAN command input	NA	With a 2 motor installation, only M1 opens. With a 1 motor installation it opens partially for a set amount of time (see "programming pedestrian opening").
STP 	3,15 (com) 13	STOP button input	NC	Blocks all functions. If unused, set dip 7 to ON (part. 23 fig. A)
P/P 	3,15 (com) 14	STEP BY STEP command	NA	See settings for dip 1 and 2 (part. 19 fig. A)
 230V	16 17	WARNING LAMP output	230V/1A	Output active while the motor is working
 230V	18 19	COURTESY LIGHT output	230V/1A	Output active for the entire manoeuvre plus 120" after complete closing.

	Term. n.	Function / Device	V/I max	Notes
	20 (CON.) 21 (CON.) 22 (AP) 23 (CH) 24 (Com)	Output motor M1	230/4A	Motor M1 moves first in the opening direction and is delayed during closing. An eventual electric lock should be fitted to this gate leaf.
ENC 1	25 (-) 26 (+) 27 (D)	Encoder sensor input motor M1	5-12V	For the motor-ECU connection use a separate cable (e.g. 3x0,35) with a max. length of 10m
	40 (CON.) 41 (CON.) 42 (AP) 43 (CH) 44 (Com)	Output motor M2	230/4A	M2 is the second motor to move and the first one to close.
ENC 2	45 (-) 46 (+) 47 (D)	Encoder sensor input motor M2	5-12V	For the motor-ECU connection use a separate cable (e.g. 3x0,35) with a max. length of 10m
US1 	28 (no) 29 (nc) 30 (c)	Contact for selectable functions	/4A	See settings for dip 7 (part. 19 fig. A)
24V 	31 32 (0)	Output for auxiliary device power supply	24ac/0,5A	e.g. photocells, external receivers or other 24Vac devices
24V FT 	33 34 (0)	Output for Transmitter / Photocell power supply	24ac/0,5A	Output only active during the manoeuvre and the reclosing pause period, connect the photoelectric cell projectors so that the minimum amount of power is used. If the jumper (part. 9 di fig. A) is set to ON this output will be continuously active.
24V 	35 34 (0)	Indicator light output	24ac/0,2A	Status indication: automation CLOSED – led off during OPENING – flashes slowly during CLOSING – flashes quickly STOP (block) – remains lit during the RECLOSING PAUSE – double flashing with pause
12V 	36 37 (0)	Electric lock output	12dc/1,5A	Activates, for a couple of seconds at the beginning of each opening cycle
	38 Calza 39 Cent.	Receiver aerial input	/	Connection is only necessary if OC2 is inserted

SAFETY DEVICE EXCLUSION DIP-SWITCHES

Use these dip-switches (part. 7 fig. L) to excluded inputs of unused safety devices.

A dip-switch set to ON (Excluded) is the same as bridging the Common (binding post 6) and any one of these 7 inputs.

Function	n.	OFF-ON	Modo	Description
BSC	1	OFF 		With a closing safety edge installed
		ON 	EXCLUDED	Excludes the closing safety edge input. Attention! Binding post 4 must remain disconnected.
BSA	2	OFF 		With an opening safety edge installed
		ON 	EXCLUDED	Excludes the opening safety edge input. Attention! Binding post 5 must remain disconnected.
FT1	3	OFF 		With installed photoelectric cells
		ON 	EXCLUDED	Excludes the input for photocell 1. The same as bridging binding post 6 with the common
FT2	4	OFF 		With installed photoelectric cells
		ON 	EXCLUDED	Excludes the input for photocell 2. The same as bridging binding post 7 with the common
J1	5	OFF 		With a device installed
		ON 	EXCLUDED	Excludes the input J1. The same as bridging binding post 8 with the common
J2	6	OFF 		With a device installed
		ON 	EXCLUDED	Excludes the input J2. The same as bridging binding post 9 with the common
STP	7	OFF 		With a STOP button installed
		ON 	EXCLUDED	Excludes the STOP input. The same as bridging binding post 13 with the common

DIP-SWITCH SETTING

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

Function	n.	Off - On	Mode	Description
STEP-BY-STEP INPUT AND RADIO CHANNEL MODE (CH1)	1	OFF 	OPEN - STOP - CLOSE	During opening, upon pressing the P/P button the gate stops, pressing it again the gate closes. During closing, upon pressing the P/P button the gate stops, pressing it again the gate opens.
		ON 		
	2	OFF 	OPEN - CLOSE	During opening, upon pressing the P/P button the gate stops for a few seconds and then closes. During closing, upon pressing the P/P button the gate stops for a few seconds and then opens.
		ON 	ALWAYS OPENS "CONDOMINIUM"	During opening, pressing the P/Pbutton has no effect. During the pause, pressing the P/Pbutton has no effect. During closing, upon pressing the P/P button the gate stops for a few seconds and then opens.
		ON 	OPENS-CLOSES with no reversal during opening	During opening, pressing the P/Pbutton has no effect. During the pause, upon pressing the P/Pbutton the gate closes. During closing, upon pressing the P/P button the gate stops for a few seconds and then opens.

Function	n.	Off - On	Mode	Description
JOLLY INPUT MODE	3	OFF 	J1 = TIMER J2 = FT3	J1=TIMER input; closes the gate when the contact is opened and opens it when the contact is closed. J2=third photocell input (FT3); intervenes only during opening and forces closing. Use N.C. contacts.
		ON 	J1 = FCA M1 J2 = FCC M1	Stops only motor M1 using electric travel limits. Use N.C. contacts
		OFF 	J1 = FCA M1 J2 = FCA M2	Motors are stopped during OPENING using electric travel limits. Use N.C. contacts
		ON 	J1 = FCA M1 J2 = FCC M1 PA = FCA M2 PC = FCC M2	For installations with 4 travel limits. Connect the travel limits of motor M1 to the inputs FCC and FCA. Connect the travel limits of motor M2 to the inputs J1 and J2. Use N.C. contacts
PREFLASH	5	OFF 	EXCLUDED	The flashing light operates together with the motor.
		ON 	INSERTED	The flashing light operates 5 seconds before any operation.
RE-CLOSURE TIMER	6	OFF 	EXCLUDED	After one complete opening, the control unit only closes again with a manual control.
		ON 	INSERTED	After one complete opening, the control unit closes automatically after the programmed pause time.
US1 OUTPUT	7	OFF 	Dray contact	This contact gives information regarding the status of the gate. The relay activates as the gate begins to open and deactivates only after complete closing has been achieved.
		ON 	Channel 2 (OC2)	Second radio channel output. If you don't use this function the second radio channel will activate pedestrian opening.
GATE RELEASE JOLT	8	OFF 	EXCLUDED	Function excluded.
		ON 	INSERTED	The gate release jolt is needed to release the electric lock. The gate with M1 installed will carry out a brief closing movement before starting the opening cycle.
SLOWDOWN	9	OFF 	EXCLUDED	There is no slowdown in the last part of travel.
		ON 	INSERTED	With the slowdown function connected, the motor halves its speed towards
POWER CLOSING JOLT	10	OFF 	EXCLUDED	Power closing is not carried out.
		ON 	INSERTED	The ECU will end the closing manoeuvre with a brief increase to full power on motor M1.
1 - 2 MOTORS	11	OFF 	1 MOTOR	Only the M1 output is enabled. The pedestrian command partially opens and closes motor M1
		ON 	2 MOTORS	Enables both motor outputs (M1 and M2). The pedestrian command completely opens and closes the gate with motor M1.
RECLOSING AFTER THE PHOTOELECTRIC CELLS	12	OFF 	EXCLUDED	Function excluded.
		ON 	INSERTED	The activation of photoelectric cell reduces the pause time for whatever is value previously was to 2

PROGRAMMING THE TRAVEL DISTANCE AND PAUSE TIMES

Programming detects and memorises all the work times necessary for the motor to complete each individual opening and closing manoeuvre, including the automatic reclosing times.

During the learning stage you'll either press the P/P several times (part. 17, fig. A) or you can use a P/P command at (binding post 14, fig. C) or a radio control with the channel already memorised (P1).

The sequence of operations changes according to the type of installation and whether or not electrical travel limits or encoder control has been fitted which the ECU will recognise automatically.

Important considerations before starting programming:

A. Make sure the gate is free from obstacles and that you are standing outside the range of action of any photoelectric cells and sensors that have been connected to the ECU.

B. Make sure the mechanical opening and closing travel limits have been installed on both the automatic gates.

These must be sufficiently solid in order to stop the movement of the gates.

C. Set the trimmer (part 21, fig. A) at a halfway setting for the first programming attempt and if the motor doesn't manage to complete the manoeuvre the torque can be increased by rotating the trimmer clockwise.

Choose one of the following programming types:

PROGRAMMING TWO SWING-TO GATES, WITHOUT ENCODER CONTROL AND WITHOUT ELECTRICAL TRAVEL LIMITS

In this case the installer will have to manually (using the P/P command) input all the travel limits and gate delay information. It is also possible to input the deceleration times at this point (for the final part of the gates movement) or you may try the default settings by moving dip 9 to ON after programming.

DIP 9 set to OFF during programming: Deceleration times will not be modified.

DIP 9 set to ON only after programming: Default deceleration times will be set.

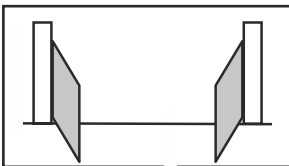
DIP 9 set to ON during programming will oblige you to input ALL the deceleration start values after points: 4a, 4c, 6b and 6d.

Before starting programming check the correct setting and connection of the inputs using the status leds (part. 22, fig. A):

Leds **BSC, BSA, FT1, FT2, J2 and STP** must be **ON**.

Leds **J1, PC, PA, PED and P/P** must be **OFF**.

①

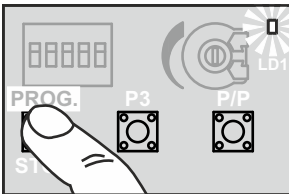


Switch off the power to the ECU.

Release the motors and move the gates to the position "almost open".

Re-engage the motors and switch on the power to the installation.

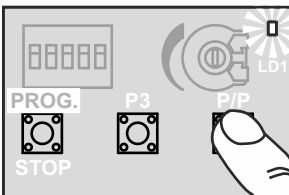
②



Hold down the PROG button (part. 15, fig. A) for about 3 seconds until led LD1 lights up (part. 18, fig. A)

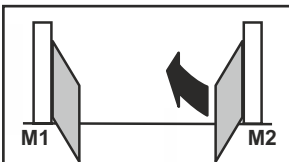
The ECU is now in the programming stage.

③a

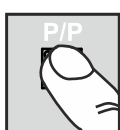
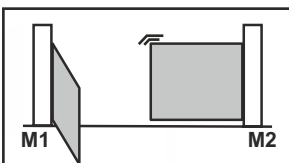


Press the P/P button (part. 17, fig. A) the gate with motor M2 should begin to close, if it moves in the opening direction instead, stop programming by switching off the power, invert the wires of motor M2 and repeat the procedure from point (1).

③b



③c

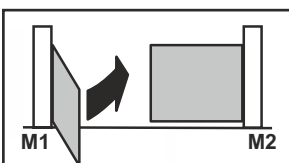


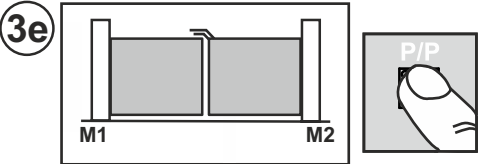
When the gate with motor M2 has completely closed, press P/P, the motor will stop and the other motor (M1) will begin to close.

Should the motor move in the opening direction instead, switch off the power, invert the wires of motor M1 and repeat the procedure from point (1).

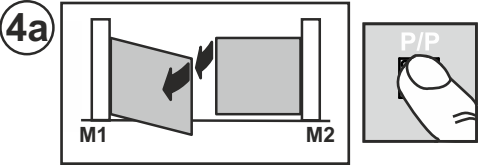
If the motors stop before reaching the travel limits increase the torque level using the trimmer.

③d

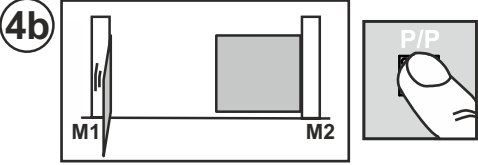




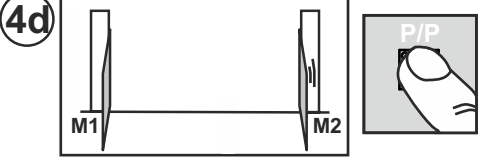
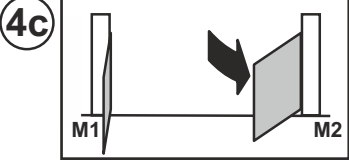
Once M1 has reached the completely closed position, press P/P, the motor will stop and begin to open automatically.



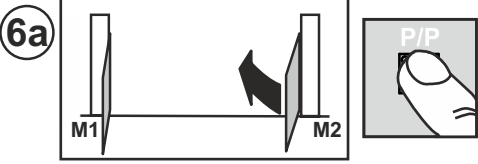
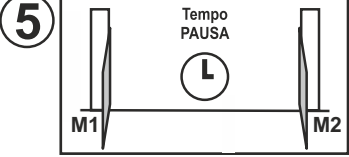
Press P/P again when M1 has reached the desired gate delay angle, the motor will stop for a second and then begin to open again.
At this point you must manually insert the DECELERATION start point using P/P if DIP 9 is set to ON. The motor will stop for a second and then begin to move again.



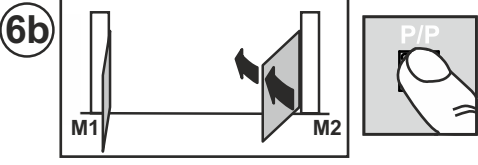
When the gate with M1 has opened completely (reaching the mechanical stop) press P/P to stop the motor, the other motor (M2) will then start to open automatically.
At this point you must manually insert the DECELERATION start point using P/P if DIP 9 is set to ON. The motor will stop for a second and then begin to move again.



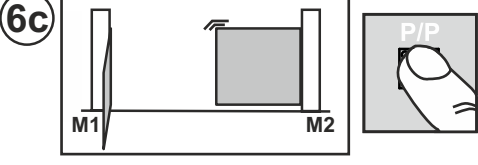
When the gate with M2 has opened completely (reaching the mechanical stop) press P/P to stop the motor, pause time memorisation will start (if automatic reclosing is not being used you may move directly to point (6a)).



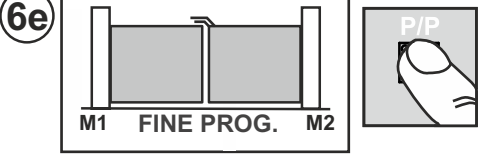
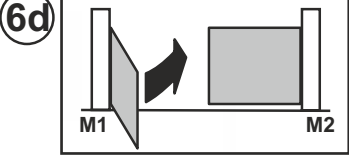
Once the desired pause time has elapsed, press button P/P and motor M2 will begin to close.



Press P/P again when M2 has reached the desired gate delay angle, the motor will stop for a second and then begin to close again.
At this point you must manually insert the DECELERATION start point using P/P if DIP 9 is set to ON. The motor will stop for a second and then begin to move again.



When the gate with M2 has closed completely (reaching the mechanical stop) press P/P to stop the motor, the other motor (M1) will begin to close.
At this point you must manually insert the DECELERATION start point using P/P if DIP 9 is set to ON. The motor will stop for a second and then begin to move again.



When the gate with M1 has completely closed, press P/P, the motor will stop, led LD1 will switch off and the ECU will quit the programming mode.
Checks: force, times and stopping points. We advise you to consider inserting deceleration points (DIP 9 set to ON) to reduce impact against the travel limits so reducing wear and tear on the mechanical parts.
Repeat programming if you have modified the mechanical travel limits.

PROGRAMMING TWO SWING-TO GATES, WITH ENCODER CONTROL AND WITHOUT ELECTRICAL TRAVEL LIMITS

In this case the ECU will automatically detect all the travel limit information. Programming is more precise and quicker thanks to the encoder sensors. The gate delay between the two gate leaves and deceleration points and times will be inserted automatically. To modify them you need only insert the new values during EVOLVED programming after point 3e.

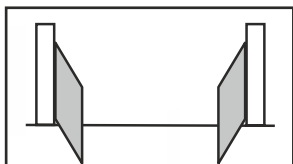
Before starting programming check the correct setting and connection of the inputs using the status leds (part. 22, fig. A):

Leds **BSC**, **BSA**, **FT1**, **FT2**, **J2** and **STP** must be **ON**.

Leds **J1**, **PC**, **PA**, **PED** and **P/P** must be **OFF**.

Even with Encoder control the mechanical opening and closing travel limits must be installed on both the automatic gates. **These must be sufficiently solid in order to stop the movement of the gates.**

1

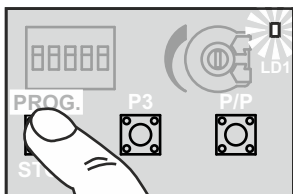


Switch off the power to the ECU.

Release the motors and move the gates to the position "almost open".

Re-engage the motors and switch on the power to the installation.

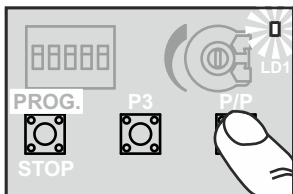
2



Hold down the PROG button (part. 15, fig. A) for about 3 seconds until led LD1 lights up (part. 18, fig. A)

The ECU is now in the programming stage.

3a

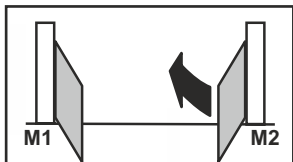


Press button P/P (part. 17, fig. A) the gate with motor M2 should begin to close, if it moves in the opening direction instead, stop programming by switching off the power, invert the wires of motor M2 and repeat the procedure from point (1).

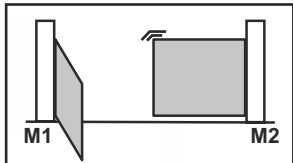
A led close to the ENC M2 terminal block will light up (flashing) (part. 7, fig. A) during movement indicating the correct operation of encoder M2.

If the motors stop before reaching the travel limits increase the torque level using the trimmer.

3b



3c

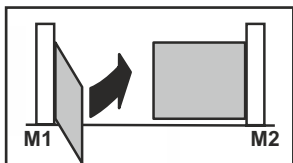


When the gate with motor M2 has completely closed, the motor will stop and the other motor (M1) will begin to close.

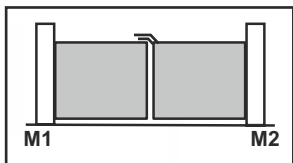
Should the motor move in the opening direction instead, switch off the power, invert the wires of motor M1 and repeat the procedure from point (1).

If the motors stop before reaching the travel limits increase the torque level using the trimmer.

3d



3e

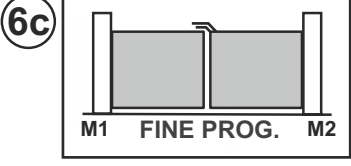
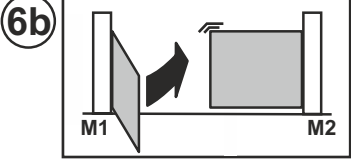
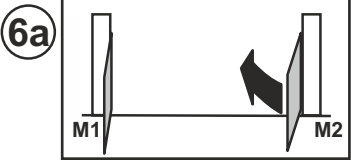
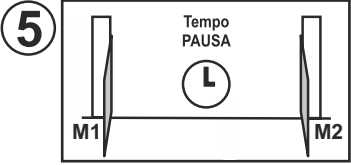
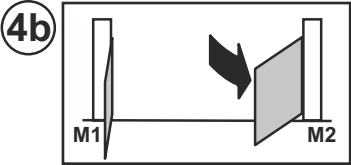
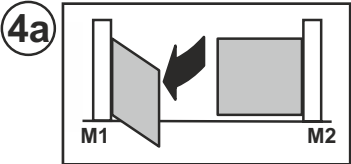


When the gate with motor M1 has completely closed, the motor will stop and begin to open automatically.

From this point on we can proceed in two ways:

STANDARD programming using the default GATE DELAY and DECELERATION values, move on to point 4a.

Evolved programming, move on to point 7a to insert personalised GATE DELAY and deceleration values.



STANDARD programming
After having found the M1 closing travel limit it will open automatically.

When the gate with M1 finds the opening travel limit, the other motor M2 will begin to move.

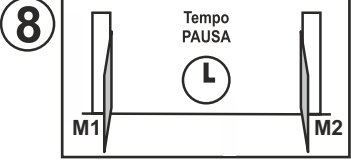
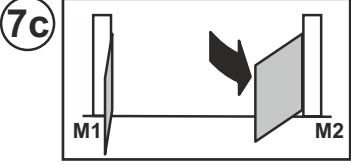
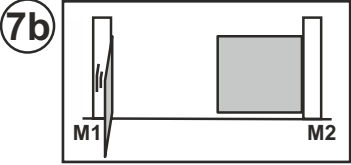
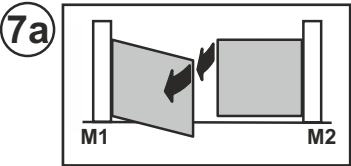
When the gate with M2 has opened completely (reaching the mechanical stop), pause time memorisation will start (if automatic reclosing is not being used you may move directly to point (6a).

Once the desired pause time has elapsed, press button P/P and motor M2 will begin to close.

When the gate with M2 has found the closing travel limit, the other motor M1 will begin to close.

When the gate with M1 has closed completely, the motor will stop, led LD1 will switch off and the ECU will quit programming
Checks: force, times and stopping points. We advise you to consider inserting deceleration points (DIP 9 set to ON) to reduce impact against the travel limits so reducing wear and tear on the mechanical parts.
Repeat programming if you have modified the mechanical travel limits.

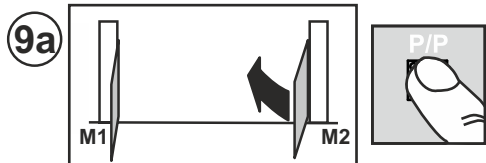
EVOLVED programming
DIP 9 set to OFF during programming: Deceleration times will NOT be modified.
DIP 9 set to ON only after programming: Default deceleration times will be set.
DIP 9 set to ON during programming: the ECU is ready to receive personalised deceleration values.
You do not have to set all the values.



After point 3e the gate with M1 will start to open.
Press P/P when M1 has reached the desired gate delay angle, the motor will stop for a second and then continue the opening cycle.
After this point we can manually insert the DECELERATION start points using P/P (DIP 9 set to ON) the motor will stop for a second then start again. Otherwise wait until the gate reaches the travel limit.

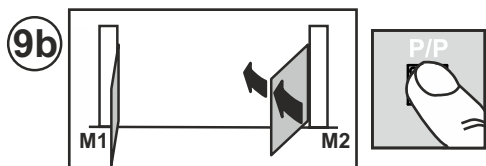
When the gate with M1 has opened completely, the motor will stop and the other motor (M2) will start to move automatically.
After this point we can manually insert the DECELERATION start points using P/P (DIP 9 set to ON) the motor will stop for a second then start again. Otherwise wait until the gate reaches the travel limit.

When the gate with M2 has opened completely (reached the travel limit), the motor will stop and the pause time memorisation will start (if automatic reclosing is not being used you may move directly to point (6a).



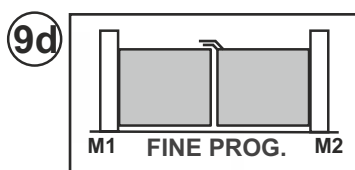
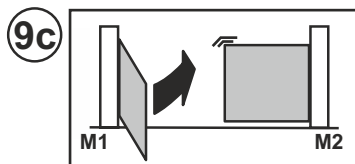
Press P/P again when M2 has reached the desired gate delay angle, the motor will stop for a second and then begin to close.

After this point we can manually insert the deceleration start points using P/P (DIP 9 set to ON) the motor will stop for a second then start again. Otherwise wait until the gate reaches the travel limit.



When the gate with M2 reaches the closing travel limit, the other motor M1 will move.

After this point we can manually insert the deceleration start points using P/P (DIP 9 set to ON) the motor will stop for a second then start again. Otherwise wait until the gate reaches the travel limit.



When the gate with M1 has closed completely, the motor will stop, led LD1 will switch off and the ECU will quit programming.

Checks: force, times and stopping points. We advise you to consider inserting deceleration points (DIP 9 set to ON) to reduce impact against the travel limits so reducing wear and tear on the mechanical parts.

Repeat programming if you have modified the mechanical travel limits.

PROGRAMMING ONE SWING-TO GATE, WITHOUT ENCODER CONTROL AND WITHOUT ELECTRICAL TRAVEL LIMITS

Motor wired to the output M1 and DIP11 set to OFF

In this case the installer will have to manually (using the P/P command) input all the travel limit information. It is also possible to input the deceleration times at this point (for the final part of the gate movement) or you may try the default settings by moving dip 9 to ON after programming.

DIP 9 set to OFF during programming: Deceleration times will not be modified.

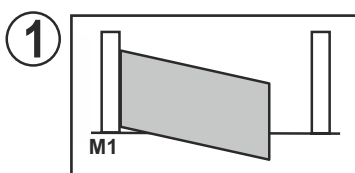
DIP 9 set to ON only after programming: Default deceleration times will be set.

DIP 9 set to ON during programming will oblige you to input ALL the deceleration start values after points: 4a, 4c, 6b and 6d.

Before starting programming check the correct setting and connection of the inputs using the status leds (part. 22, fig. A):

Leds **BSC, BSA, FT1, FT2, J2 and STP** must be **ON**.

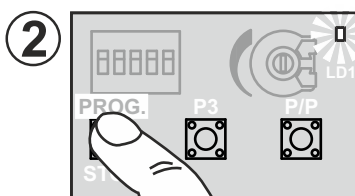
Leds **J1, PC, PA, PED and P/P** must be **OFF**.



Switch off the power to the ECU.

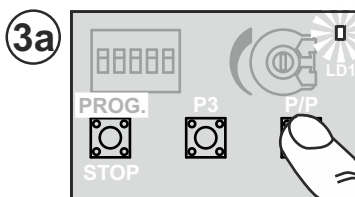
Release the motor and move the gate to the position "almost open".

Re-engage the motor and switch on the power to the installation.



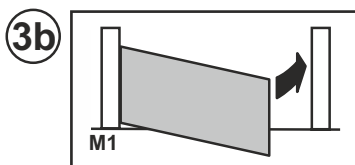
Hold down the PROG button (part. 15, fig. A) for about 3 seconds until led LD1 lights up (part. 18, fig. A)

The ECU is now in the programming stage.

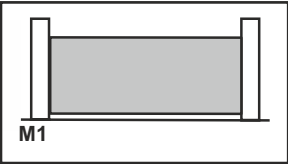


Press the P/P button (part. 17, fig. A) the gate should begin to close, if it moves in the opening direction instead, stop programming by switching off the power, invert the wires of the motor and repeat the procedure from point (1).

If the motor stops before reaching the travel limits increase the torque level using the trimmer.

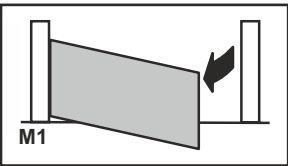


3c



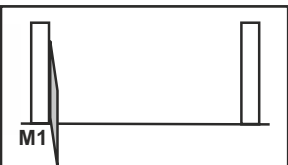
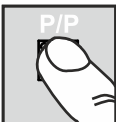

When the gate has completely closed, press P/P, the motor will stop and begin to open automatically.

4a



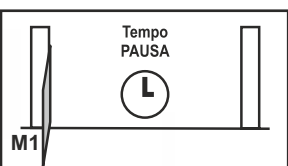
At this point you may manually insert the **DECELERATION** start point using P/P if DIP 9 is set to ON. The motor will stop for a second and then begin to move again.

4b

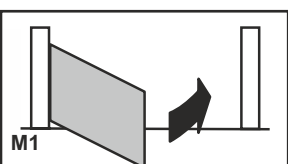
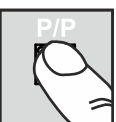
When the gate has opened completely (reaching the mechanical stop) press P/P to stop the motor, pause time memorisation will start (if automatic reclosing is not being used you may move directly to point (6a).

5



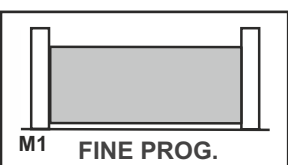
Once the desired pause time has elapsed, press button P/P and the motor will begin to close.

6a

At this point you may manually insert the **DECELERATION** start point using P/P if DIP 9 is set to ON. The motor will stop for a second and then begin to move again.

6b




When the gate has completely closed, press P/P, the motor will stop, led LD1 will switch off and the ECU will quit the programming mode.
Checks: force, times and stopping points. We advise you to consider inserting deceleration points (DIP 9 set to ON) to reduce impact against the travel limits so reducing wear and tear on the mechanical parts.
Repeat programming if you have modified the mechanical travel limits.

PROGRAMMING ONE SWING-TO GATE, WITH ENCODER CONTROL AND WITHOUT ELECTRICAL TRAVEL LIMITS

The procedure is the same as the previous paragraph but you do not need to press P/P at points 3c, 4b and 6b.

In this case the ECU will AUTOMATICALLY detect all the travel limit information. Programming is more precise and quicker thanks to the encoder sensor. The deceleration points and times will be inserted automatically. To modify them you need only insert the new values during programming (DIP9 set to ON).

MODIFYING THE PAUSE TIMES

- This procedure allows you to modify the pause time set during a previous programming procedure. This operation must be carried out with the gate closed.
- 1) Press the PROG button (part. 15, fig. A) and hold it down until the Led LD1 remains lit (part. 18, fig. A)
 - 2) Press the PROG button again, led LD1 will start to flash and the ECU will begin to memorise the pause time.
 - 3) Once the desired pause time has elapsed, press the PROG button. Led LD1 will switch off and the procedure will terminate.

SENSITIVITY ADJUSTMENT

According to the standard EN 12445 every automation installation must pass the impact test measured with the specific instrument.

Carry out the impact test and adjust the motor force by rotating the trimmer (part. 21, fig. A).

If this is not sufficient to remain within the boundaries of the graph supplied by the standards in force, we advise you to install a rubber protective edge at the head of the gate so as to soften the impact.

If you have adjusted the sensitivity setting and added a rubber profile to the head of the gate and you are still unable to satisfy the standards in force, you will need to add other safety devices such as a sensitive safety edge to the moving part of the gate.

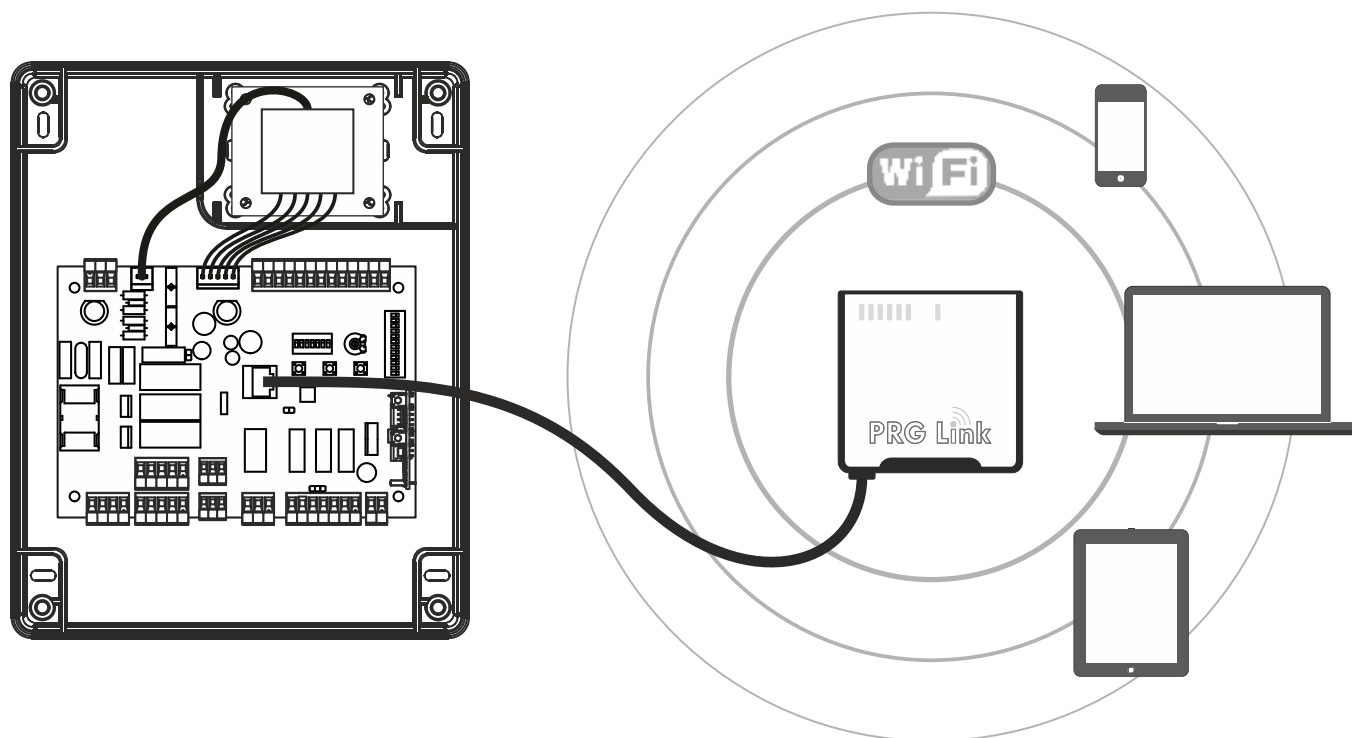
MODIFYING AND CONTROLLING SETTINGS USING PRG-Link (optional)

The PRG LINK system is a WI-FI interface dedicated to programming, control and diagnostics of the latest generation Telcoma ECU's.

Using PRG LINK and its dedicated software application, the operator takes advantage of a powerful Wi-Fi network that allows him to intervene on the ECU without having to directly access the dip-switches.

A laptop, tablet or smart phone is all that's needed to run quick and precise diagnostic processes.

An advantageous solution for all those who have to manage installations on a daily basis and in the future would like to do so by means of a long-distance Wi-Fi connection.



TECHNICAL DATA

	U.M.	T600
Mains power supply	Vac/Hz	230/50
Maximum electrical input	A	6
Number of motor outputs		2
Motor power supply	V	230
Maximum motor power	W	2 x 800 (1 x 1200)
Protection class	IP	56
Operating temperature	°C	-20 +55

DISPOSAL

This product is made up of various components that could contain pollutants. Dispose of properly! Make enquiries concerning the recycling or disposal of the product, complying with the local laws in force.



CARDIN ELETTRONICA spa

Via del lavoro, 73 – Z.I. Cimavilla 31013 Codognè (TV) Italy
Tel.: (+39) 04 38 40 40 11
Fax: (+39) 04 38 40 18 31
e-mail (Italy): sales.office.it@cardin.it
e-mail (Europe): sales.office@cardin.it
http: www.cardin.it

CODICE

DCE105

SERIE

PRG

MODELLO

230 V

DATA

22-03-2016



Dichiarazione di Conformità CE
(Dichiarazione del costruttore)



Il costruttore:

CARDIN ELETTRONICA S.p.A.

DICHIARA CHE L'APPARECCHIATURA DESTINATA AD ESSERE INSERITA IN
MACCHINE E NON FUNZIONANTE IN MODO INDIPENDENTE:

Nome dell'apparato Centralina elettronica per 1 o 2 motori 230 Vac
Tipo di apparato Centralina elettronica
Modello PRG230M2 - T600
Marchio Cardin Elettronica
Anno di prima fabbricazione 2016

è conforme alle disposizioni delle seguenti direttive comunitarie:

- Direttiva 2014/30/EU (Compatibilità Elettromagnetica)
- Direttiva 2014/35/EU (Bassa Tensione)

e sono state applicate le seguenti norme e/o specifiche tecniche:

- EN 55014-1 : 2006+A1+A2
- EN 55014-2 : 1997+A1:2001+A2:2008
- EN 61000-3-2 : 2006+A1+A2
- EN 61000-3-3 : 2013
- EN 60335-1 : 2011
- EN 62233 : 2008

DICHIARA CHE L'APPARECCHIATURA È IDEATA PER ESSERE INCORPORATA IN UNA MACCHINA O PER ESSERE ASSEMBLATA CON ALTRI MACCHINARI PER COSTITUIRE UNA MACCHINA CONSIDERATA DALLA DIRETTIVA 2006/42/CE E SUCCESSIVI EMENDAMENTI. INOLTRE DICHIARA CHE NON È CONSENTITO METTERE IN SERVIZIO L' APPARECCHIATURA FINO A CHE LA MACCHINA NELLA QUALE SARÀ INCORPORATA E DELLA QUALE DIVENTERÀ COMPONENTE NON SIA STATA IDENTIFICATA E DICHIARATA LA CONFORMITÀ ALLE DISPOSIZIONI DELLA DIRETTIVA 2006/42/CEE E SUCCESSIVI EMENDAMENTI.

Cardin Elettronica si impegna a trasmettere, in risposta a una richiesta adeguatamente motivata delle autorità nazionali, informazioni pertinenti sulla quasi-macchina in oggetto.

Codognè il 20/10/2015

Persona autorizzata a costituire la documentazione tecnica

Rappresentante legale dell'azienda



CARDIN ELETTRONICA S.p.A.
Via del Lavoro, 73 - Z.I. Cimavilla
31013 CODOGNÈ (TV)
C.F. e P.IVA: IT00681370268
Tel. +39-0438-404011 Fax +39-0438-401831

CARDIN ELETTRONICA S.p.A.
Via del Lavoro, 73 - Z.I. Cimavilla
31013 CODOGNÈ (TV)
C.F. e P.IVA: IT00681370268
Tel. +39-0438-404011 Fax +39-0438-401831

Ing. A. Fiorotto (Responsabile tecnico R&D Laboratory)

Dott. Cristiano Cardin (Amministratore delegato)

- La dichiarazione di conformità CE per i prodotti Cardin è disponibile in lingua originale nel sito www.cardin.it nella sezione "norme e certificazione" attraverso il link:

- Les déclarations de conformité CE des produits Cardin sont disponibles dans la langue originale sur le site www.cardin.it dans la section "normes et certificats" par le lien :

- Las declaraciones de conformidad CE de los productos Cardin se encuentran disponibles en el idioma original en el sitio www.cardin.it en la sección "normas y certificaciones" en el enlace:

- The CE conformity declaration for Cardin products is available in original language from the site www.cardin.it under the section "Standards and Certification" via the link:

- Die CE-Konformitätserklärungen für die Cardin-Produkte stehen in der Originalsprache auf der Homepage www.cardin.it im Bereich "Normen und Zertifizierung" zur Verfügung unter dem Link:

<http://www.cardin.it/Attachment/dce105.pdf>