



Note well: the installation of this electronic control board requires a specific technical knowledge and must be carried out by professionally qualified people and habilitated according to the safety norms in force. It is important that these instructions be carefully read and followed to avoid that the electronic control board be used and/or installed in the wrong way. Elpro 12 EVO has been designed and constructed to control NYOTA 115 EVO electromechanical operators for sliding gates (including the previous versions of them). Any other use or application, different from that specified in this manual is strictly prohibited.

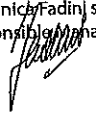
Meccanica Fadini declines any responsibility for damage caused to properties or persons due to possible incorrect installations or failure of the system to comply with the applicable regulations; it is compulsory that the machinery directive 2006/42/CE be implemented. Maintenance or inspections to assess the product status must be carried out by qualified and professionally trained technicians.

Before any servicing is made to the board, disconnect mains power supply. It is also recommended that the Safety Norms manual be read, available from Meccanica Fadini on request. The manufacturing company does not take any liability for improper use of the electronic control board.

CE DECLARATION OF CONFORMITY of the manufacturer:

Meccanica Fadini snc (Via Mantova, 177/A - 37053 Cerea - VR - Italy) declares under own responsibility that **Elpro 12 EVO** complies with the 2006/42/CE Machinery Directive, and also that it is sold to be installed in an "automatic system", along with original accessories and components as indicated by the manufacturing company. The manufacturer is not liable for possible incorrect use of the product. The product complies with the following specific norms: Low Voltage Directive 2014/35/UE, Electromagnetic Compatibility Directive 2014/30/UE. In order to certify the product, the Manufacturer declares under own responsibility the compliance with the EN 13241-1 PRODUCT NORMS.

Meccanica Fadini s.n.c.
Responsible Manager



General description: Elpro 12 EVO electronic board has been produced in order to provide an ideal solution to the control of the sliding gate operator Nyota 115 EVO (including the previous versions), and incorporates self-learning programming of the gate cycle, encoder input, electronic brake and slowdown in opening and closing phases.

Power supply: 230 V \pm 10% 50 Hz single-phase.



IMPORTANT:

- The control board should be installed in a sheltered, dry place inside its own protection box.
 - Make sure that power supply to the electronic control board is 230 V \pm 10%.
 - Make sure that power supply to the electric motor is 230 V \pm 10%.
 - In case of distances wider than 50 meters, increase the wire section.
 - Fit the power supply to the control board with a 0,03 A high sensibility, magneto-thermal circuit breaker.
 - For the power supply, electric motor and flasher use 1,5 mm² section wires up to 50 m of distance.
 - For the limit switches, photocells, command switches and accessories use 1 mm² section wires.
 - If no photocells are used bridge terminals 1 and 2.
 - If no stop button is used bridge terminals 3 and 6.
- N.W.: for applications such as lights control, CCTV, etc. use solid state relays to prevent interference with the microprocessor.

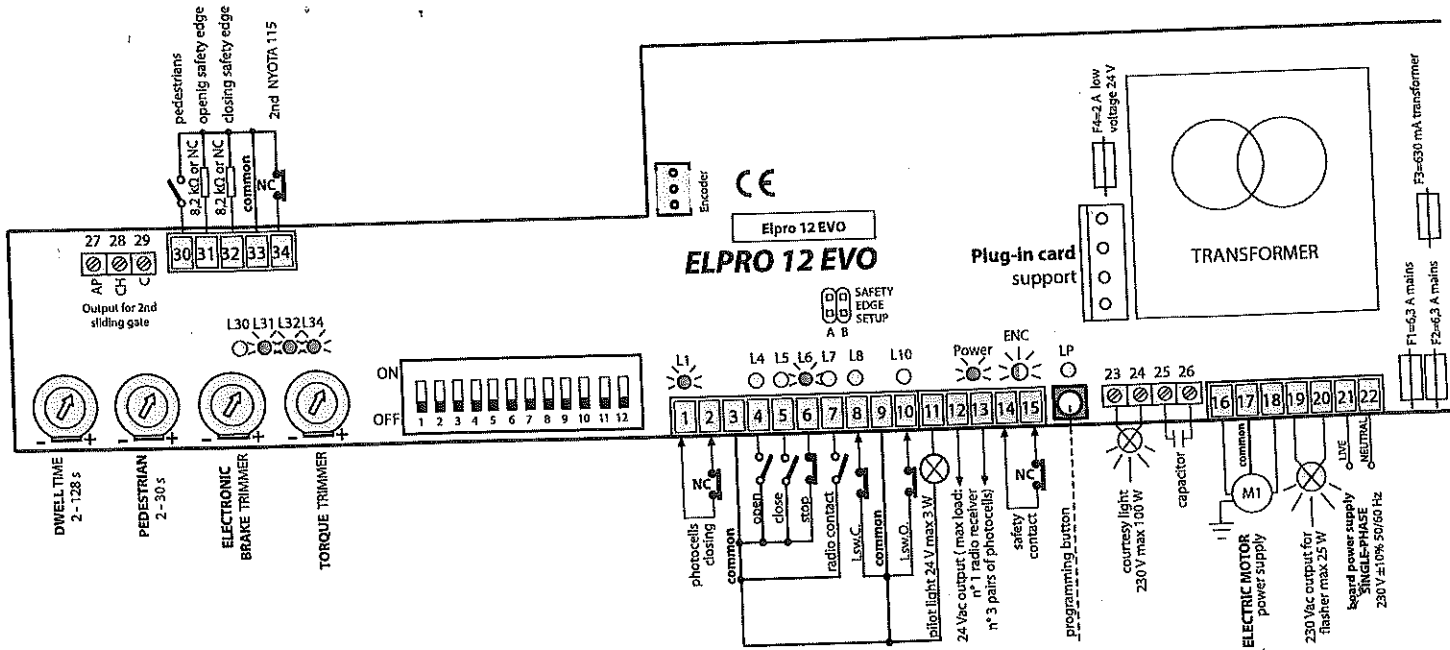
TROUBLE SHOOTING IN CASE OF FAILURE:

- Make sure that power supply to the electronic control board is 230 V \pm 10% 50 Hz.
- Make sure that power supply to the electric motor is 230 V \pm 10% 50 Hz.
- In case of distances wider than 50 meters, increase the wire section.
- Check the fuses.
- Check all the N.C. contacts in the control board.
- Make sure that no voltage drop is occurring between control board and electric motor.



In cases where Elpro 12 EVO is to be used in compatibility with Elpro 12 PLUS for NYOTA 115 old series, therefore without encoder, electronic brake, slowdown and reversing on obstacle impact, the following settings are required:

- set the **electronic brake** trimmer to the lowest
- set dip-switch no. **9** to **ON**
- set the **torque** trimmer to the highest as the mechanical clutch will be used.



green led, it must be always ON

red led, it must be always OFF, it goes ON whenever a contact or a command are given

flasher red led: board on programming phase, waiting for a pulse by the programming button

DIP-SWITCH

- 1 = **ON** Photocells stop gate in opening
- 2 = **ON** Radio does not reverse (and not stop gate) in opening
- 3 = **ON** Automatic closing
- 4 = **ON** Pre-flashing activated
- 5 = **ON** Radio step-by-step mode, stop in between
- 6 = **ON** Deadman control (Dip 4 = OFF and Dip 3 = OFF)
- 7 = **ON** Flasher off in dwell time
- 8 = **ON** Reclosing on photocells engagement during opening and dwell time
- 9 = **ON** Slowdowns and encoder disabled (to replace ELPRO 12 PLUS)
- 10 = **OFF** Blank, function to define
- 11 = **OFF** Nyota 115 (1,0 HP), **ON** Nyota 115 (0,5 HP)
- 12 = **ON** Secondary board activated (slave mode)



Symbols

- NO contact
- NC contact
- Resistive contact 8,2 kΩ or NC
- Led ON
- Led OFF
- Pilot light or lamp
- Flasher

DIAGNOSTICS BY LEDs

- L1 (green ON)** = Photocells, switches to OFF when an obstacle is detected
- L4 (red OFF)** = Open, switches to ON when a command pulse to open is given
- L5 (red OFF)** = Close, switches to ON when a command pulse to close is given
- L6 (green ON)** = Stop, switches to OFF when a command pulse to stop is given
- L7 (red OFF)** = Radio, switches to ON when a transmitter button is pushed
- L8 (red OFF)** = Limit switch close, OFF with gate in closed position
- L10 (red OFF)** = Limit switch open, OFF with gate in open position
- L30 (red OFF)** = Pedestrian, switches to ON whenever a pulse is given to the pedestrian command
- L31 (green ON)** = Safety edge or photocells in opening, no obstacle detected
- L32 (green ON)** = Safety edge in closing, no obstacle detected
- L34 (green ON)** = 2nd Nyota 115 EVO input
- POWER (green ON)** = Board under 230 V power supply and F1, F2, F3, F4 fuses intact

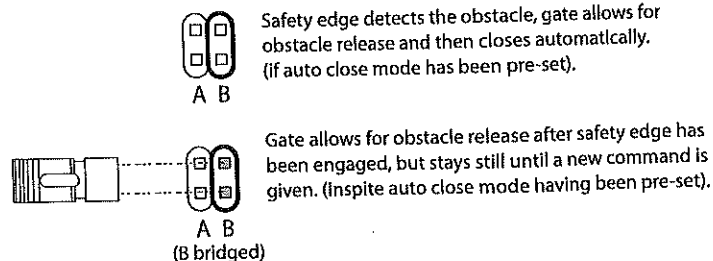
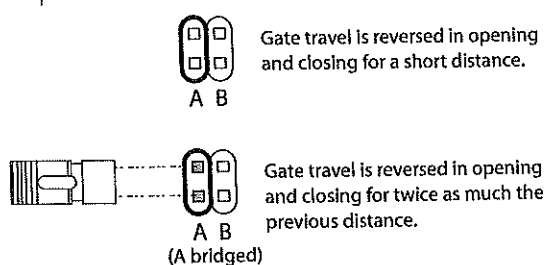
! All the possible connections to the control board terminals are also described in the instructions sheets of the respective accessories.

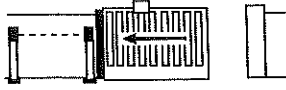
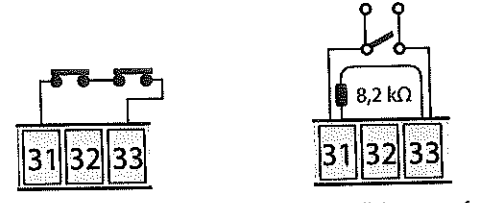

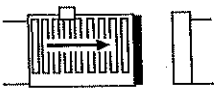
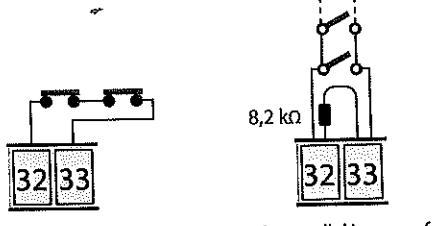

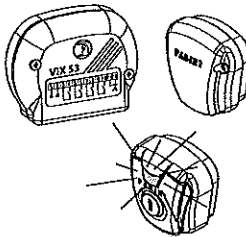
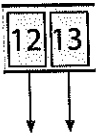
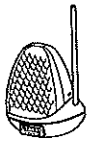
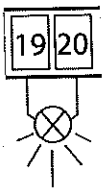
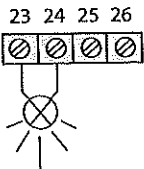
! **NOTEWELL: THE INSTALLATION OF NON FADINI ORIGINAL ACCESSORIES MAY DAMAGE THE PC BOARD. MAKE ALWAYS USE OF FREE CONTACTS FOR THE NO-NC INPUTS. BRIDGE ALL THE NC CONTACTS NOT IN USE.**

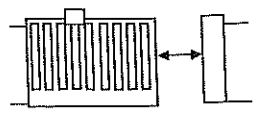
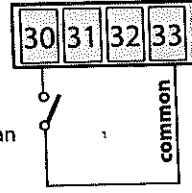

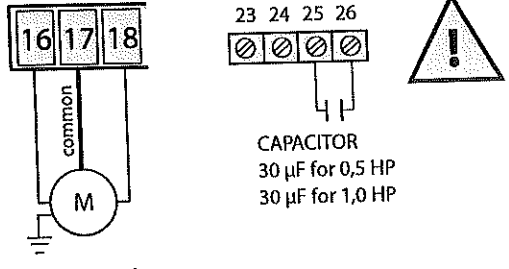



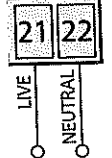
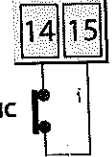

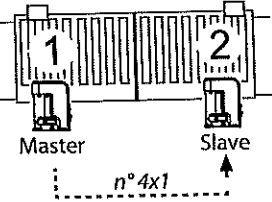
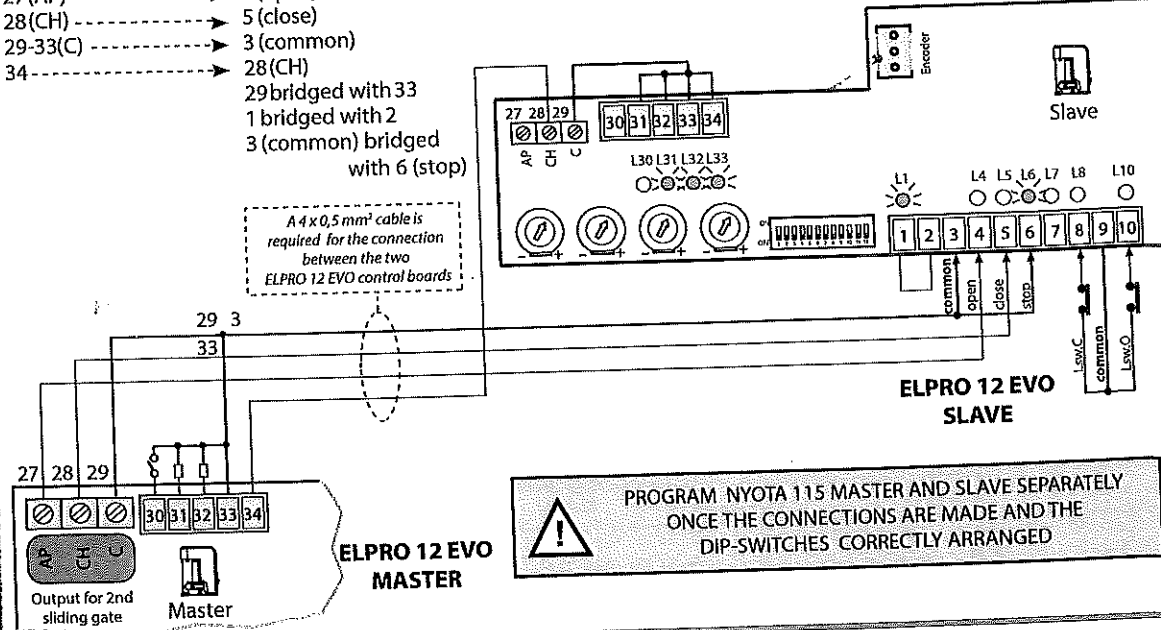

SAFETY EDGES

The two inputs, dedicated to the control of the safety edges, are separated for the opening and closing phases and are recognized by Elpro 12 EVO during the programming phase. Thanks to the presence of a circuit with microcontroller, specifically dedicated and separately fitted on to the board, the integrity and correct functioning of the safety edges are monitored all the time. All possible faults or loss of efficiency are indicated by L31 and L32 LEDs flashing. In case an obstacle is detected by the safety edges (or photocells in opening), gate travel is reversed for a short distance allowing the obstacle to be freed and rem

Selecting mode of functioning:



Accessory	Electrical connections	Dip-switch and LED indication of the various functions
<p>Input for photocells and safety edges in opening</p> 	 <p><i>In series in case of NC mechanical edges</i></p> <p><i>In parallel in case of resistive 8,2 kΩ edges</i></p>	 L31 green on = when edge is engaged the led turns off
<p>Input for safety edges in closing</p> 	 <p><i>In series in case of NC mechanical edges</i></p> <p><i>In parallel in case of resistive 8,2 kΩ edges</i></p>	 L32 green on = when edge is engaged the led turns off
<p>24 V output - max 500 mA:</p> 	 <p>24 Vac output max load 500 mA: n° 1 radio receiver n° 3 pairs of photocells n° 1 led in Chis 37/Chis-E 37 or DGT 61 card. Full instructions are enclosed along with the respective command accessory.</p>	
<p>Flasher 230 V max 25W</p> 	 <p>FLASHER 230 V - 25 W max</p>	<p>DIP-SWITCH N° 4:</p> <p><input checked="" type="checkbox"/> ON: pre-flashing</p> <p><input type="checkbox"/> OFF: no pre-flashing</p> <hr/> <p>DIP-SWITCH N° 8:</p> <p><input checked="" type="checkbox"/> ON: flasher deactivated during dwell time in auto close mode</p> <p><input type="checkbox"/> OFF: flashes in dwell time, auto close mode</p>
<p>Relay output for courtesy light 230 V - 100 W</p>	 <p>Courtesy light output 230 V max 100 W</p>	

Accessory	Electrical connections	Dip-switch and LED indication of the various functions																		
<p>Input for pedestrian opening</p> 	 <p>On pedestrian opening mode it is recommended that Dip 3=ON for auto close). The "pedestrian opening" function is not activated during the first cycle following a voltage cut off.</p>	<p>L30 red off = no PEDESTRIAN contact, it goes on whenever a pulse for pedestrian opening is given</p>  <p>PEDESTRIAN OPENING 2 - 30 s</p>																		
<p>Motor output</p>	 <p>Power supply SINGLE-PHASE 230 V ELECTRIC MOTOR</p> <p>23 24 25 26 CAPACITOR 30 µF for 0,5 HP 30 µF for 1,0 HP</p> 	 <p>DWELL TIME 2 - 128 s</p>  <p>TORQUE TRIMMER controls the force applied to the gate</p>																		
<p>PCB power supply</p>	 <p>SINGLE-PHASE power supply 230 V ±10% 50/60 Hz</p>																			
<p>Safety contact</p>	 <p>As long as this connection is not made the control board does not work</p>	 <p>POWER green on = It goes off when the safety contact is released</p>																		
<p>Connections for 2 NYOTA 115 sliding gate operators</p> 	<p>It is important to establish which Elpro 12 EVO is the MASTER commanding/controlling Elpro 12 EVO SLAVE by Dip-switch 12.</p> <p>All the accessories for command, signalling and safety purposes must be connected to Elpro 12 EVO MASTER, that controls and commands the entire installation.</p> <p>If the two gates are not equally large, install Elpro 12 EVO Master on the larger one.</p> <p>The following connections are to be made:</p> <table border="0"> <tr> <td>Elpro 12 EVO MASTER</td> <td>Elpro 12 EVO SLAVE</td> </tr> <tr> <td>Dip-switch 12=OFF:</td> <td>Dip-switch 12=ON:</td> </tr> <tr> <td>27 (AP) -----></td> <td>4 (open)</td> </tr> <tr> <td>28 (CH) -----></td> <td>5 (close)</td> </tr> <tr> <td>29-33 (C) -----></td> <td>3 (common)</td> </tr> <tr> <td>34 -----></td> <td>28 (CH)</td> </tr> <tr> <td></td> <td>29 bridged with 33</td> </tr> <tr> <td></td> <td>1 bridged with 2</td> </tr> <tr> <td></td> <td>3 (common) bridged with 6 (stop)</td> </tr> </table> <p>A 4 x 0,5 mm² cable is required for the connection between the two ELPRO 12 EVO control boards.</p>  <p>ELPRO 12 EVO MASTER</p> <p>ELPRO 12 EVO SLAVE</p>	Elpro 12 EVO MASTER	Elpro 12 EVO SLAVE	Dip-switch 12=OFF:	Dip-switch 12=ON:	27 (AP) ----->	4 (open)	28 (CH) ----->	5 (close)	29-33 (C) ----->	3 (common)	34 ----->	28 (CH)		29 bridged with 33		1 bridged with 2		3 (common) bridged with 6 (stop)	<p>DIP-SWITCH N° 12:</p> <p>ON: ELPRO 12 EVO SLAVE (2nd Nyota 115 EVO)</p> <p>OFF: ELPRO 12 EVO MASTER (1st Nyota 115 EVO)</p> <p>L34 green on = in both boards as a confirmation of the correct communication between the two ELPRO 12 EVOs</p> <p>See the previous pages for the array of the Dip-switches related to the individual accessories and functions. Dip-switches and accessories to be set and connected only on ELPRO 12 EVO Master.</p> <p>PROGRAM NYOTA 115 MASTER AND SLAVE SEPARATELY ONCE THE CONNECTIONS ARE MADE AND THE DIP-SWITCHES CORRECTLY ARRANGED</p> 
Elpro 12 EVO MASTER	Elpro 12 EVO SLAVE																			
Dip-switch 12=OFF:	Dip-switch 12=ON:																			
27 (AP) ----->	4 (open)																			
28 (CH) ----->	5 (close)																			
29-33 (C) ----->	3 (common)																			
34 ----->	28 (CH)																			
	29 bridged with 33																			
	1 bridged with 2																			
	3 (common) bridged with 6 (stop)																			



The following setting is required when Elpro 12 EVO is to be used in compatibility with Elpro 12 PLUS for NYOTA 115 old series and therefore without encoder, electronic brake, slowdown and reversing on obstacle detection:

- set the electronic brake trimmer to the lowest
- set dip-switch 9 to ON
- set the torque trimmer to the highest as the mechanical clutch will be used.



SELECTION OF NYOTA 115 EVO EITHER 1,0 HP OR 0,5 HP

It is fundamental that the required model of Nyota 115 EVO be properly selected by dip-switch 11:

DIP-SWITCH N° 11:

- ON: Nyota 115 EVO 0,5 HP
- 11 OFF: Nyota 115 EVO 1,0 HP

FUNCTIONING ON SLIDING GATES

Dip-switch and LED indication of the various functions

Description

AUTOMATIC / SEMIAUTOMATIC:

Automatic operation: on pulsing an open command, the gate opens, stays open until dwell time expires as set by the dwell trimmer, then closes automatically.

Semiautomatic operation: on pulsing an open command, the gate opens and stops in open position. A close pulse is needed for the gate to close.

DIP-SWITCH N° 3:

- ON: automatic closing
- 3 OFF: semiautomatic



Dwell trimmer: dwell time is required to be set when automatic mode is selected. 2 s up to 128 s

RICLOSING ON PHOTOCELL ENGAGEMENT: in opening and dwell phases (DIP-SWITCH N° 3=ON)

This function allows the gate to auto close after 3 s the photocell beam has been crossed.

DIP-SWITCH N° 8:

- ON: auto closing on photocell engagement after 3 seconds
- 8 OFF: no auto closing on photocell engagement

DEADMAN CONTROL (hold-on-switched):

Open and close commands are performed "by holding a switch on" (no relay self-holding is involved) therefore a physical attendance is required to keep the gate running until either the button or key are released.

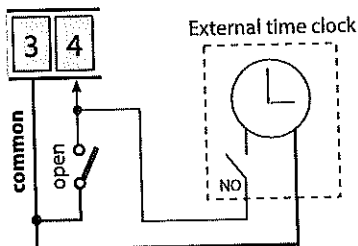
DIP-SWITCH N° 6:

- ON: deadman control activated
- 6 OFF: deadman control deactivated

PARTY FUNCTION

OPENING BY EXTERNAL TIME CLOCK:

Connect the NO contact of the time clock to terminals 4 OPEN and 3 COMMON, set the board to auto closing by Dip-Switch 3=ON.



How it works: set the clock to the required opening time. On the pre-set time the gate is opened and held open (the flasher goes off), and no more commands (even by radio) are accepted until the clock pre-set time expires. On expiring, and after the pre-set dwell time, auto closing is performed. During dwell time with gate in open position on "time clock" command, the pilot light gives out two short flashes followed by a longer pause.

DIP-SWITCH N° 3:

- ON: auto closing
- 3

IMPORTANT: always and only with Dip N° 3=ON

ELECTRONIC BRAKE SETTING

Description

- **Trimmer set to 0:** electronic brake deactivated.



Important: set it always to this position for Nyota 115 old series fitted with mechanical brake.

- **Adjusting the electronic brake:** it is possible to adjust brake intensity by the dedicated trimmer



Important: use the electronic brake function only with Nyota 115 EVO

Trimmer



Electronic brake trimmer: set it to 0 for Nyota 115 with mechanical brake



Electronic brake trimmer: set it as required to control brake intensity with Nyota 115 EVO

! **IMPORTANT:** Programming Nyota 115 must be carried out on the first installation and is retained even in case of a voltage cut off. Any time the position of the limit switches is varied, it is required that gate travel be programmed again in the same way.

! **IMPORTANT:** make sure that gate stops are duly fitted to the system in open and closed gate stop positions, whereas the open and close limit switch striking plates are to be fixed on to the gear rack in the engaging positions are required.

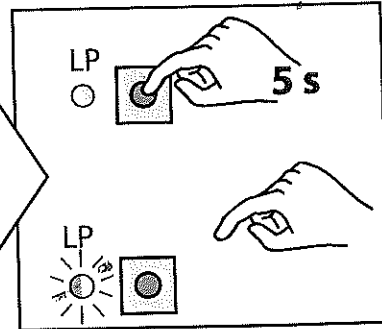
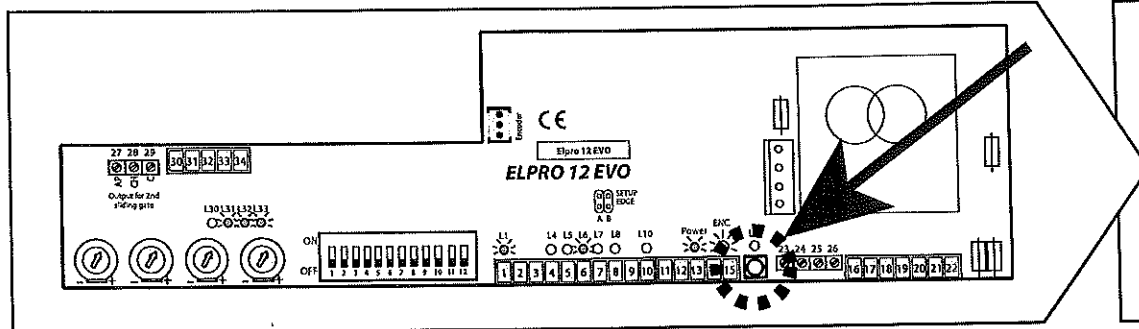
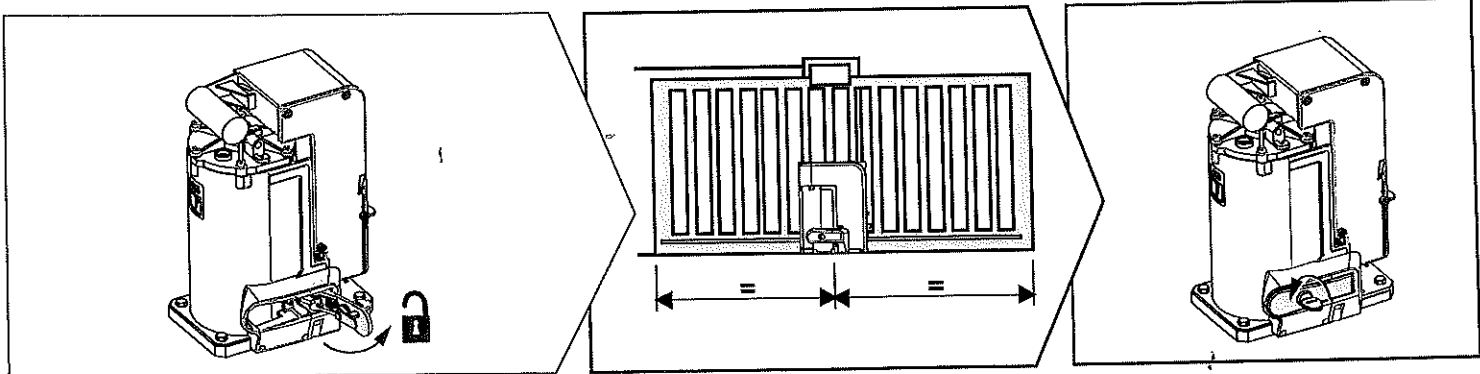
PROGRAMMING AND GATE TRAVEL SELF-LEARNING

1st operation: by the coded key open the release handle until it stops (more than 90°). In this way Nyota 115 is disengaged from the gate. Pull gate by hand to **approximately half way of the total travel**. Lock back the operator by closing the handle.

2nd operation: gate travel and slowdowns learning.
Press and hold button P for 5 seconds then let it go: led LP will start flashing, so indicating that programming phase has started.

3rd operation: programming can be carried out either by pressing the dedicated P button, or remotely by the encoded transmitter.
It is most important that both gate stops, in open and close gate positions, be provided as well as the mechanical limit switch striking plates or the magnetic ones in correspondence with the final open and closed gate positions as required.

! **NOTE WELL:** During the first programming phase, the gate must start with the opening operation. Should it not, reverse motor phases and check the limit switches.



Pulse once:
Nyota 115 will start **opening**

Starting slowdown in opening: give one pulse when it is required that slowdown phase starts and wait until limit switch reading point is reached

Pulse once:
Nyota 115 will start **closing**

Starting slowdown in closing: give one pulse when it is required that slowdown phase starts and wait until limit switch reading point is reached

At the end of the programming operations, wait for LP led to flash and then go off permanently.