

EN INSTALLATION AND PROGRAMMING INSTRUCTIONS

The following manual is intended qualified technical personnel responsible for the installation. We recommend reading these instructions carefully before proceeding with the installation. Any improper use of the product or misplaced connection may compromise the correct functioning of the product itself and the safety of the final user.

TECHNICAL DATA

Power Supply: 230Vac
 Motor power: 1 Kw
 Motor Output: Three Phase 230Vac - Mono Phase 230Vac Operating
 Temperature: -20°C/ +55°C

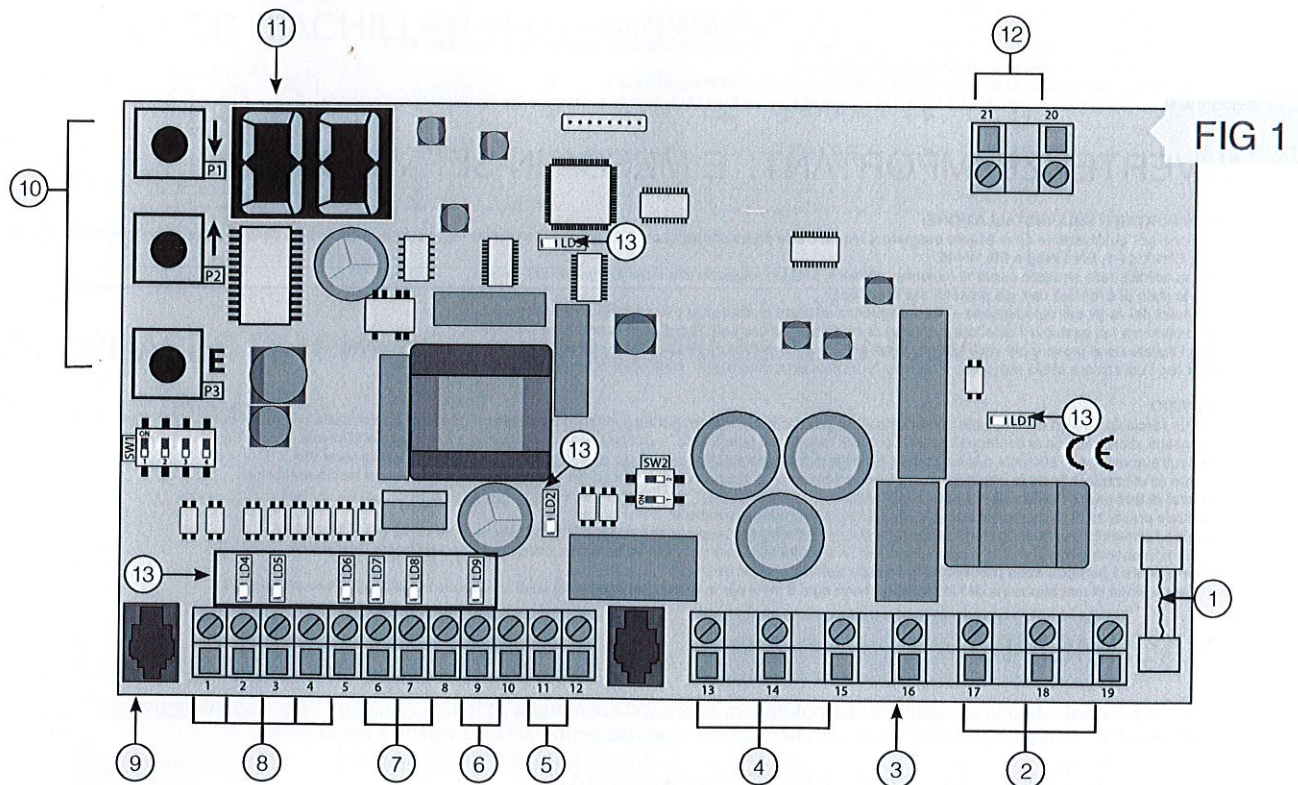
Three Phase motor connection: Triangle
 Accessories power supply: 12Vdc-500mA(6W)
 Mono Phase motor connection: no capacitor
 Install external transformer for higher input power

INTENDED USE AND LIMITATIONS OF USE

SA2100 by Stagnoli is a control unit designed for 230 and 400V Achilles automations. Made only from first-choice materials, it has been designed to have a low absorption at rest, allowing for net energy savings. Special attention has been given by the professionals in this sector to facilitate the programming of the control unit by means of a multi-language display.

- Protected switching power supply
- Motor protected by fuse and electronic control
- Filter capacitors on
- Electronically and varistor-protected power circuits

PARTS DESCRIPTION



1. 230V line fuse (T10A 5x20)
2. 230 Vac Power supply input
3. 230V flashing light output
4. Motor power supply output
5. Auxiliary power supply 12Vdc
6. Clean contact output
7. Limit switch input
8. Accessories inputs, control devices and safety edges
9. Serial port for external programmer
10. Programming buttons
11. Programming display
12. UPS power supply input
13. State LED

DISPLAY MESSAGES

Attention!
Electrical connections must be managed without power supply and with UPS device disconnected, when applicable.

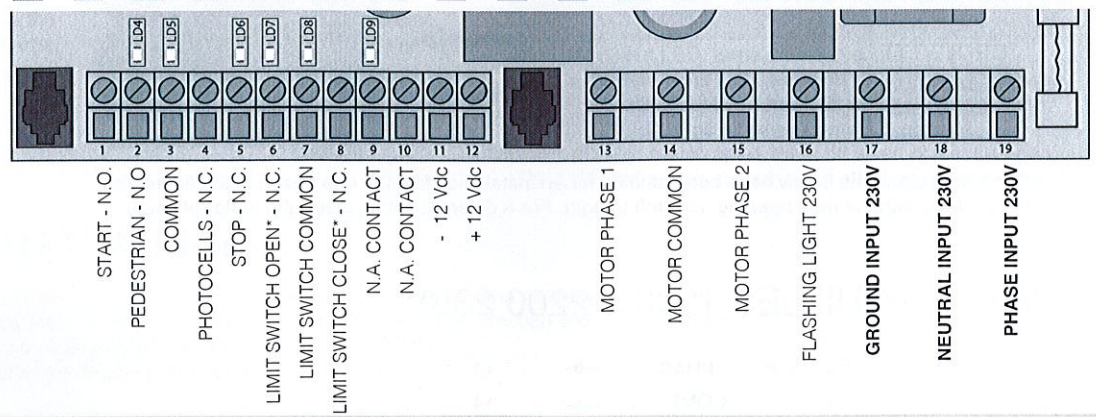


FIG 2

Attention!
When not in use, N.C. contacts 4 and 5 must be bridged to the common.

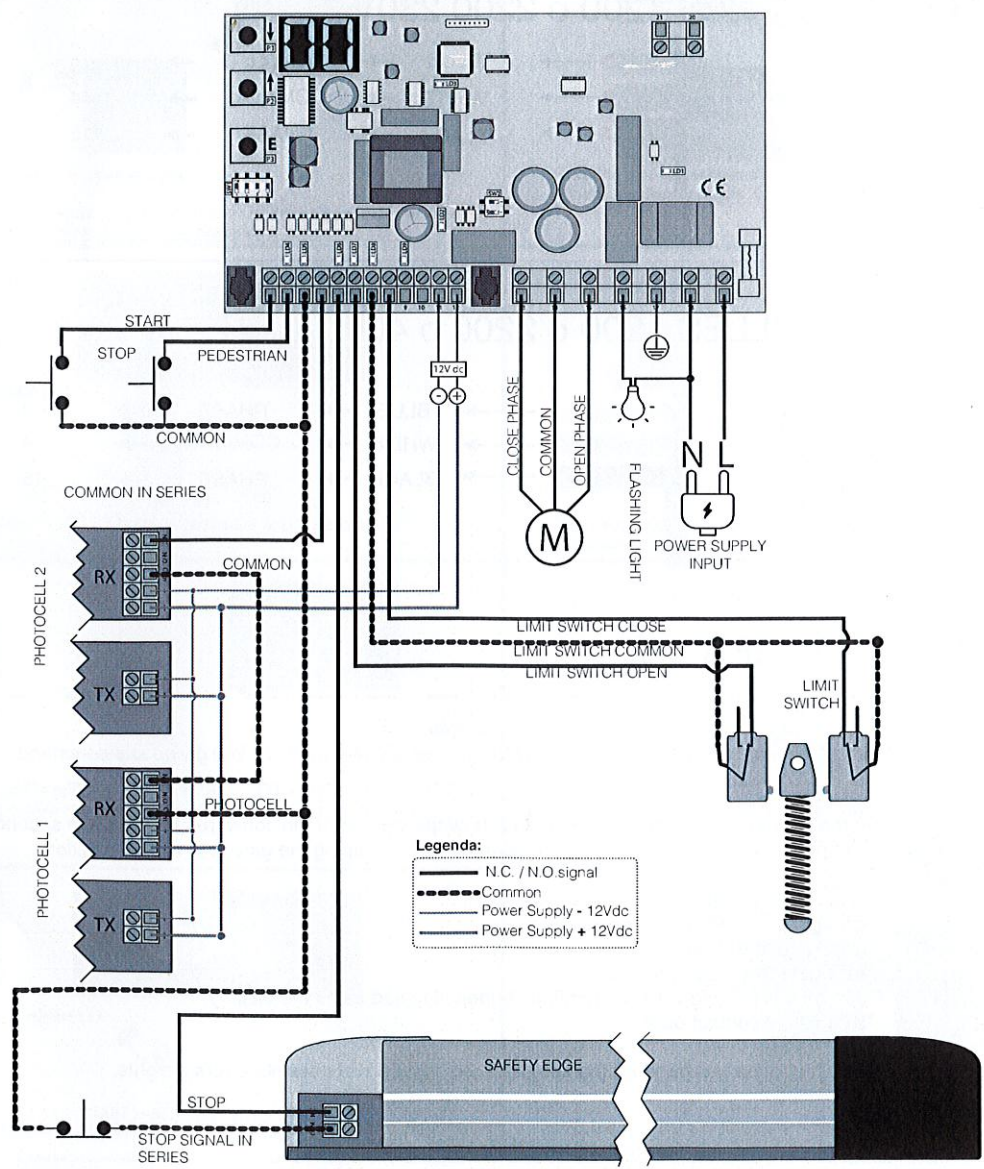
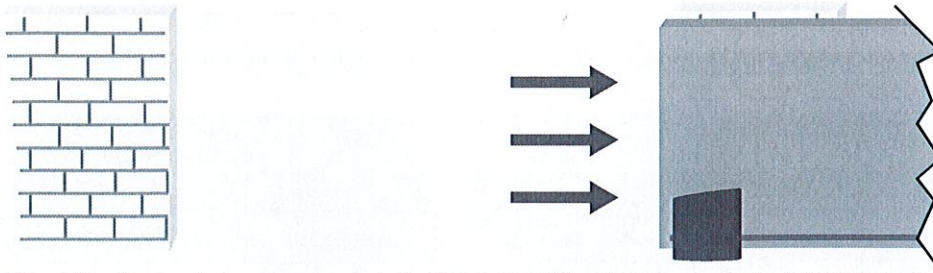


FIG 3

MOTOR WIRING

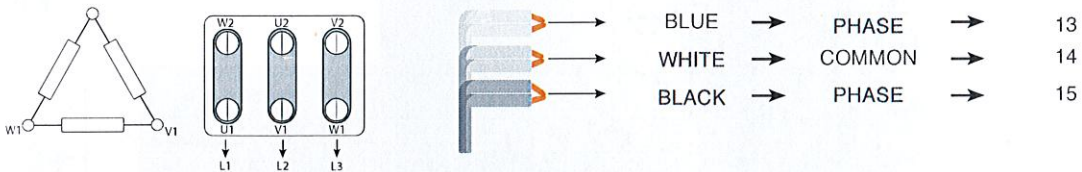


The wiring diagrams below have been studied for an installation like the one drawn in the figure above, thus with the gate opening from left to right. For a different setup, invert the motor phases.

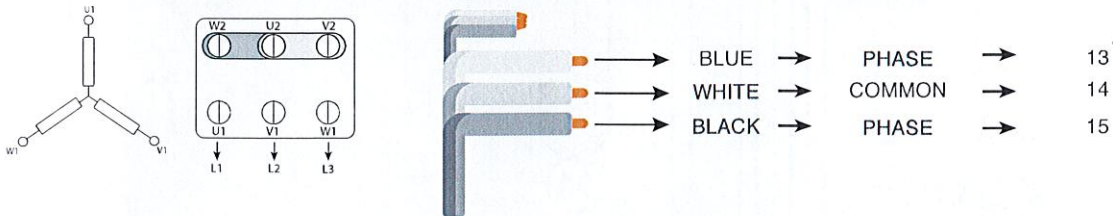
SINGLE-PHASE ACHILLES 1200 o 2200 230V



THREE-PHASE ACHILLES 1200 o 2200 230V



THREE-PHASE ACHILLES 1200 o 2200 o 4000 400V

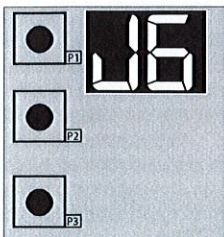


DISPLAY MESSAGES



Attention!

While in the menu, any command input will be ignored. Exit the menu before giving any command.



At the board's power up, the display will show the version of the software "17" for a few seconds. Afterwards, the gate position will be displayed on the screen: "CH", meaning the gate is in closed position.

Other icons which may appear are:

- "CL": gate is closing
- "OP": gate is opening
- "AP": gate is in open position
- "J6": gate is moving via the directional buttons located aside the display
- "ST": STOP contact open

NOTE: see the last page for the complete description and possible errors insights.

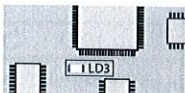
LED BEHAVIOR DESCRIPTION



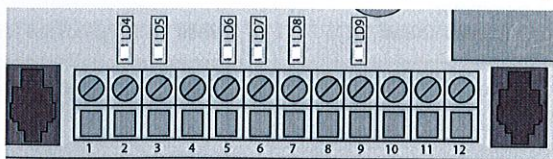
LD1:
LED indicating the capacitors' charge; do not attempt to disconnect until this LED is completely off.



LD2:
LED indicating presence of low tension power supply.



LD3:
LED indicating microcontroller activity.



LD4: Start input LED, turns on when contact is closed.
LD5: Pedestrian input LED, turns on when contact is closed.
LD6: Photocells input LED, turns off when contact is open.
LD7: STOP LED turns off when contact is open.
LD8: LED limit switch open, turns off when contact is open.
LD9: LED limit switch closed, turns off when contact is open.

AUTO-LEARNING

With this maneuver, the control board will memorize work times and slowdown processes.
 Before starting the auto-learning sequence, verify the sense of direction and make sure that:
 - the gate starts closing by pressing P1
 - the gate starts opening by pressing P2

After doing so, follow the steps below:

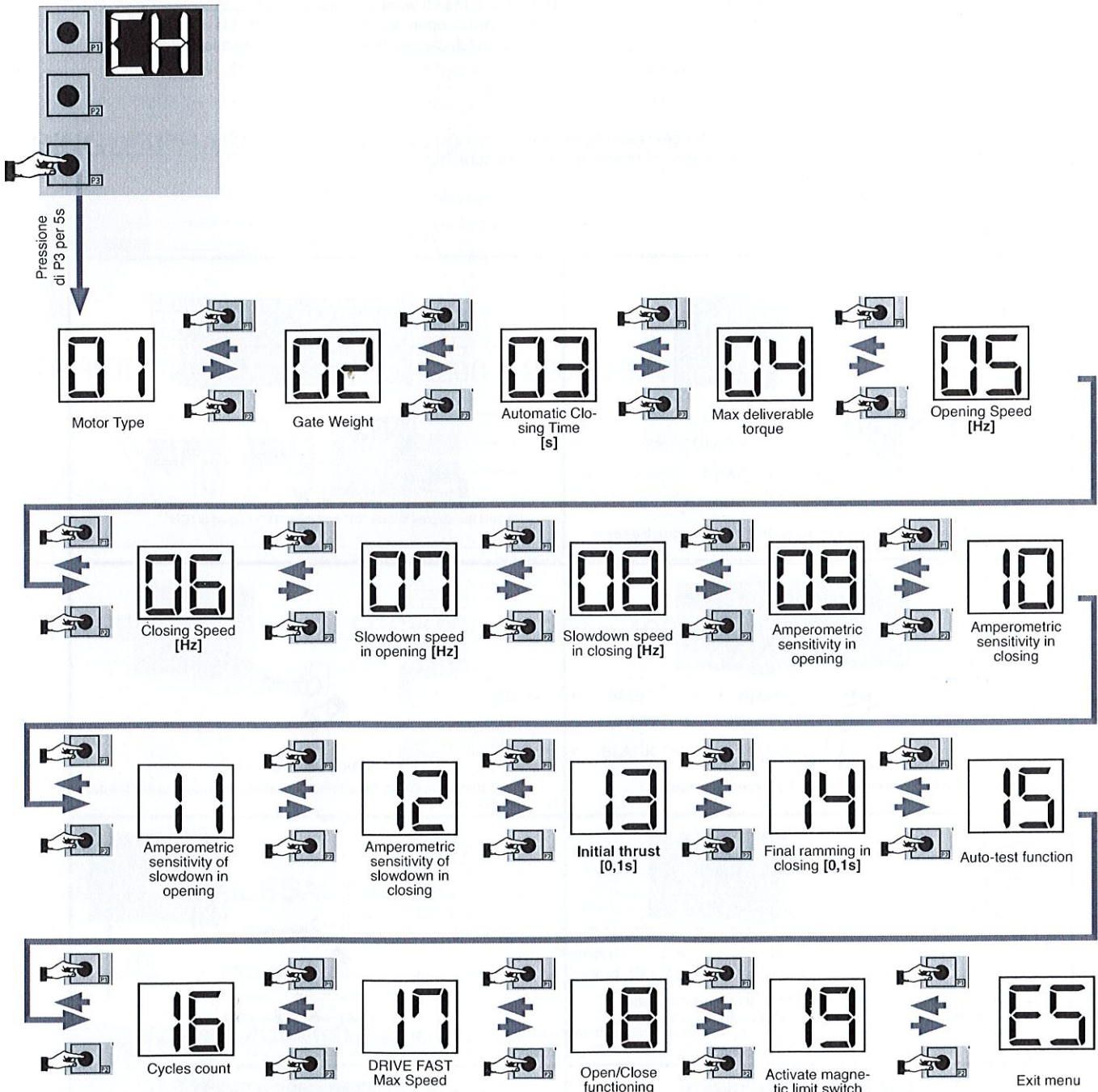
<p>Press and hold P1 to close the gate.</p> <p>A N.B: it will be necessary to press the button multiple times since the power supply timing is limited due to safety reasons.</p>	<p>Once the gate is closed and the display shows "CH", press and hold button P3 until the display shows "01" and then "TE" instead of "CH".</p> <p>B</p>
<p>Press any start button to begin the auto-learn opening sequence.</p> <p>C</p>	<p>Press start again during the auto-learn opening sequence to select the desired slowdown spot.</p> <p>D</p>
<p>Once the gate is opening, wait a desired amount of time for the pause. N.B.: it's possible to modify the pause time using the menu functions.</p> <p>E</p>	<p>Press any start button to begin the auto-learn closing sequence.</p> <p>F</p>
<p>Press start again during the auto-learn closing sequence to select the desired slowdown spot.</p> <p>G</p>	<p>Auto-learn is over once the gate is in closed position and the closure limit switch is triggered.</p> <p>H</p>

NAVIGATING THE MENU

In order to modify a parameter:

1. Press P3 until the display shows "01".
2. Scroll through the menu by directing up/down using P1 or P2 and select the chosen function.
3. Press P3 to select the function.
4. Change the value by pressing P1 or P2.
5. Press P3 to save a parameter and exit.
6. To exit the menu, scroll all the way to ES and press P3.

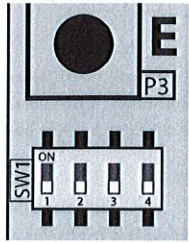
MENU DIAGRAM



Attention!
 After selecting the parameter with P3, the board will exit such parameter and might not answer commands for a few seconds while it's memorizing the newly modified parameter.

Attention!
 Strengths and speeds have to be set following active regulations.
 Stagnoli does not take any responsibility for unsupervised adjustments.

DIP SWITCH MEANING



	DIP1	DIP2	DIP3	DIP4 *
ON	automatic closing active	inversion on start input while closing active	does not accept start while opening and when open	"DRIVE FAST AND SAFE" in both OPENING and CLOSING
OFF	automatic closing inactive	inversion on start input while closing inactive	accepts start while opening and when open	"DRIVE FAST AND SAFE" in OPENING only

* more information about "DRIVE FAST & SAFE" at PAG. 16

PARAMETERS DESCRIPTION

01	(Type of motor) = single phase motor normally wired; if motor is three phase use triangle wiring. (see diagram on page 4) if this is not applied the motor may not have enough force to move the gate.	Default: 1.P Monophase: 1.P Triphase: 3.P
02	(Gate weight)= a. Light, may be paired with Achilles 1200 b. Medium, may be paired with Achilles 2200 c. Heavy, may be paired with Achilles 4000	Default: b Min: a Max: c
03	(Automatic closing time) = indicates the time expressed in seconds during which the gate stays open before starting the automatic closing sequence.	Default: 0.4. sec Min: 0.0. sec Max: 9.9. sec
04	(Max deliverable torque) = indicates the max force (expressed in ampere percentage) that can be given to the motor.	Default: 9.9. Min: 0.1. Max: 9.9.
05	(Opening speed - in Hz) = indicates the frequency in the opening of the gate. Changing this will affect the opening speed of the gate.	Default: 5.0. Hz Min: 4.0. Hz Max: 9.9. Hz
06	(Closing speed - in Hz) = indicates the frequency in closing of the gate. Changing this will affect the closing speed of the gate.	Default: 5.0. Hz Min: 4.0. Hz Max: 9.9. Hz
07	(Slowdown speed in opening - in hz)*= indicates the frequency of the slowdown sequence during the opening of the gate. Changing the frequency will result in a quicker or slower slowdown of the gate.	Default: 2.5. Hz Min: 0.4. Hz Max: 9.9. Hz
08	(Slowdown speed in closing - in hz)*= indicates the frequency of the slowdown sequence during the closing of the gate. Changing the frequency will result in a quicker or slower slowdown of the gate.	Default: 2.5. Hz Min: 0.4. Hz Max: 9.9. Hz
09	(Amperometric sensitivity in opening)**= indicates amperometric sensitivity in opening phase. 0.1 - high sensitivity, 9.9 - low sensitivity.	Default: 3.5. Min: 0.0. Max: 9.9.
10	(Amperometric sensitivity in closing)**= indicates amperometric sensitivity in closing phase. 0.1 - high sensitivity, 9.9 - low sensitivity.	Default: 3.5. Min: 0.0. Max: 9.9.
11	(Amperometric sensitivity of slowdown in opening)**= indicates amperometric sensitivity of slowdown in opening phase. 0.1 - high sensitivity, 9.9 - low sensitivity.	Default: 3.5. Min: 0.0. Max: 9.9.
12	(Amperometric sensitivity of slowdown in closing)**= indicates amperometric sensitivity of slowdown in closing phase. 0.1 - high sensitivity, 9.9 - low sensitivity.	Default: 3.5. Min: 0.0. Max: 9.9.
13	(Initial thrust) = this value, in tenths of a second, raises the power of the motor during the initial phase of opening.	Default: 0.0. sec Min: 0.0. sec Max: 2.0. sec
14	(Final ramming in closing) = this value, in tenths of a second, raises the power of the motor when the gate passes the closing limit switch.	Default: 0.0. sec Min: 0.0. sec Max: 2.0. sec
15	(Auto-test function) = this function serves the purpose of stress-testing the gate. Auto-test gives a start command to open the gate normally; during the closing sequence after completing the maneuver, the gate will wait for as long as it's scheduled instead of stopping and will then proceed to start another complete maneuver in a cyclical way. Select a parameter greater than zero to enable the auto-test function.	Default: 0.0. Min: 0.0. Max: 9.9.
16	(Cycles count) = shows the number of complete opening and closing cycles carried out by the board. Press P3 to visualize tens and units. Press P2 for hundreds and thousands.	


17	(Max Speed) = DRIVE FAST indicates the max frequency that can be utilized during the maneuver.	Default: 9.0. Min: 5.1. Max: 9.9.
18	(Open/Close functioning) = by activating this function, the start input becomes OPEN and the PEDESTRIAN START becomes CLOSE.	Default: NO Min: NO Max: SI
19	(Activate magnetic limit switch) = if a magnetic limit switch is present, this function must be set to N.O. In all other cases, it must be set to N.C.	Default: NC Min: NC Max: NO
ES	(Exit menu) = if you don't wish to continue programming, select ES and press P3.	

***ATTENTION:** before setting the slowdown, make sure the gate is installed properly. As a matter of fact, during this phase the motor has less force and the setting of this parameter may influence the security of the whole system. Once the setup of these parameters is complete, check the gate's impact force.

****ATTENTION:** setting these two parameters may influence the security of the whole system. Stagnoli recommends to set a safety boundary of at least +10 more than the maximum current consumed by the motor in both opening and closing sequences. Low values indicate higher sensitivity of anti-crushing. After the installation is complete, confirm that impact forces follow the regulation EN12453.

“DRIVE FAST AND SAFE” FUNCTION

ATTENTION!

 The “Drive fast and safe” function will be activated only by holding the START command pressed (via transmitter or key selector) even when selected. This function should be regarded as an emergency solution/ occasional necessity.

WARNINGS

- if the “drive fast and safe” function is active, it won't be possible to interface the board with an external timer for programmed maneuvers.
- ! • During the “drive fast and safe” maneuver, the flashing light will flash at double the regular speed.
- The maximum frequency the motor can obtain from the SA2100 control unit during the “drive fast and safe” maneuver can be changed by setting FUNCTION 17.

The “Drive fast and safe” function is a patented function which allows you to change the maneuvering speed of your gate whenever it may be necessary. This is accomplished by holding the start command for an additional 3 seconds. Then, depending on how function 17 and DIP4 have been set, the board will launch an acceleration ramp which will cease when the designated speed is reached.

ERROR DIAGNOSTICS

The board is capable of detecting problems or alarms caused by the setup and it will display a few messages in the main menu to help identifying the issue:

E1 Open/Close limit switches pressed together.
Control the limit switches' wiring and if they have been wired normally closed (limit switches should be normally closed).

E2 Short Circuit.
Check that the motor phases aren't causing short circuits and that the motor doesn't have power exceeding 1 Kw.

E3 Failed Setup FF.
Call for assistance.

E4 Missing charge capacity.
Check that the power supply tension isn't too low.

E5 Overheating.
When the max operational temperature is reached, increase pause time before re-closing for a better functioning.

E6 Sudden Overcurrent.
Check that the acceleration ramps aren't too fast and make sure the motor doesn't exceed the power of 1 Kw.

E7 Delayed Overcurrent.
Check that the acceleration ramps aren't too fast and make sure the motor doesn't exceed the power of 1 Kw.

E8 Bus Overvoltage.
Check whether the motor regenerates during stopping maneuvers. If this is happening, increase the deceleration/arrest ramps to decrease regeneration.

E9 Lack of encoder impulses.
This indicates the lack of encoder impulses in the version with encoder management. Check the wiring and installed encoder's activity.

FINAL TEST

Always execute a final test after programming:

- unblock the motor and make sure the gate swings freely when a force of less than 390 Nm is applied, then block it again
- check for the correct functioning of the safety devices (safety edges, stop button, photocells, etc.)
- check for the correct functioning of the signaling devices
- check for the correct functioning of the command devices (transmitters, selectors, etc.)
- set the motor's working forces (04,09,10,11,12) based upon reg. EN12445 in order to guarantee the safety of the setup

IMPORTANT WARNINGS AND FIRST START-UP

IMPORTANT WARNINGS ABOUT INSTALLATION:

- Automation systems must be installed by qualified technical staff in compliance with legal requirements and meeting the requirements of the law.
- Verify the conditions of any cables already present in the system.
- Analyze automation risks and take the necessary safety and signal precautions accordingly.
- Install controls (for example key selectors) to keep users out of danger zones.
- Once installation has been completed, test safety, signaling and automation unlocking devices a few times (see FINAL TESTING).
- Make sure that users have understood correct automatic, manual and emergency operation of automation.

FIRST START-UP:

- Draft a system technical file containing: Installation drawing, Wiring diagram of connected cables, analyses of risks present and adopted solutions, analyses of residual risks still present, declaration of conformity of all products drafted by the manufacturer and a declaration of conformity relative to installation completed by the installer.
- Affix the CE label or plate containing hazard information and identifying data (serial number, etc.) to the machine.
- Deliver instructions for use, safety warnings, CE declaration of conformity and a copy of the technical file to the end user.

Also make sure to inform the end user:

- regarding the possible presence of unprotected residual risks and foreseeable improper use.
- of the importance of disconnecting power supply when performing cleaning in the automation area or when performing small maintenance operations (i.e. repainting).
- on the need to frequently verify that there is no visible damage to automation or, if any is detected, to immediately alert the installer.
- with regards to the danger of letting children play in the immediate vicinity of automation.
- Prepare a system maintenance schedule (at least every 6 months for safety devices), keeping notes regarding operations performed in a log.

DISPOSAL

This product is composed of various components which in turn may contain pollutants. Do not litter! Inquire about recycling or disposal of products according to the laws in force at the local level.

NOTE PARAMETERS AND FUNCTIONS:

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19

NOTE:

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