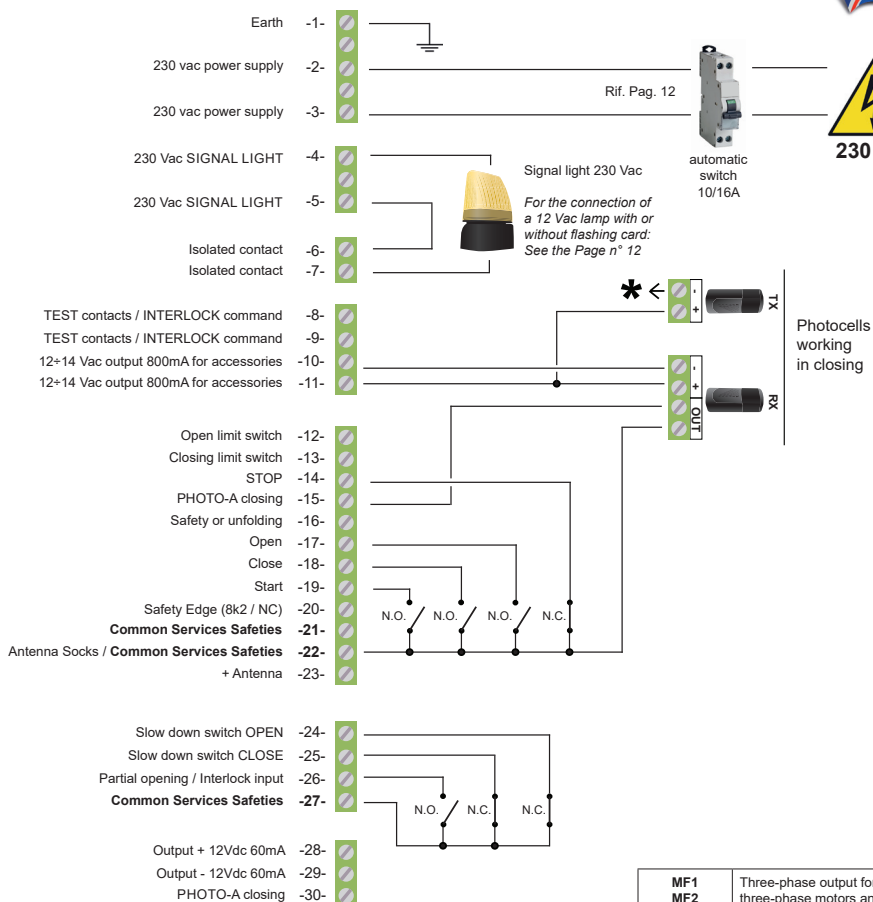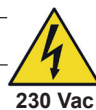- 230 Vac control unit with inverter
- 230 Vac for three-phase motors with delta connections

START-S12-M

Instructions and warnings for the installer

Earth	-1-	
230 vac power supply	-2-	
230 vac power supply	-3-	Rif. Pag. 12

automatic switch 10/16A

230 Vac

230 Vac SIGNAL LIGHT	-4-
230 Vac SIGNAL LIGHT	-5-

Signal light 230 Vac

For the connection of a 12 Vac lamp with or without flashing card: See the Page n° 12

Isolated contact	-6-
Isolated contact	-7-

∗ ←

TX

Photocells working in closing

TEST contacts / INTERLOCK command	-8-
TEST contacts / INTERLOCK command	-9-
12÷14 Vac output 800mA for accessories	-10-
12÷14 Vac output 800mA for accessories	-11-

RX
OUT

Open limit switch	-12-
Closing limit switch	-13-
STOP	-14-
PHOTO-A closing	-15-
Safety or unfolding	-16-
Open	-17-
Close	-18-
Start	-19-
Safety Edge (8k2 / NC)	-20-
Common Services Safeties	**-21-**
Antenna Socks / **Common Services Safeties**	**-22-**
+ Antenna	-23-

N.O. / N.O. / N.O. / N.C.

Slow down switch OPEN	-24-
Slow down switch CLOSE	-25-
Partial opening / Interlock input	-26-
Common Services Safeties	**-27-**

N.O. / N.C. / N.C.

Output + 12Vdc 60mA	-28-
Output - 12Vdc 60mA	-29-
PHOTO-A closing	-30-

MF1 **MF2** **MF3**	Three-phase output for three-phase motors and "delta" connections
FR1 **FR2**	Output for brake

∗ Connect this point to terminal no. 8 for the photo-test. Otherwise connect it to the terminal board no. 10

www.nolgo.info
www.ebtechnology.it
Vers. firmware 1602
START-S12-M_190116_VXX26_GB

Foreword

This manual provides all the specific information you need to familiarize yourself with and correctly operate your unit. Read it very carefully when you purchase the instrument and consult it whenever you have doubts regarding use and before performing any maintenance operations. Nologo has the right to modify the product without previous notice.

Environmental protection measures

Information regarding the environment for customers within the European Union. European Directive EC 2002/96 requires that units bearing this symbol on the unit and/or on the packaging be disposed of separately from undifferentiated urban wastes.

The symbol indicates that the product must not be disposed of with the normal household wastes. The owner is responsible for disposing of this product and other electrical and electronic equipment through specific waste collection facilities indicated by the government or local public agencies. Correct disposal and recycling help prevent any potentially negative impact on the environment and human health. To receive more detailed information regarding disposal of your unit, we recommend that you contact the competent public agencies, the waste collection.

Small legend

LSO or FCA	Open limit switch
LSC or FCC	Close limit switch
START	Control to drive the gate
PEDESTRIAN	in sliding units: control partial opening
Vac	(alternate current) corrente alternata
Vdc	(discrete current) corrente continua
NC	normally closed
NA o NO	normally open
Isolated contact	isolated from power supply

Index

Safety precautions

We remind that the installations of gates and automatic doors must be executed from qualified personnels according to the norms. Before installing check the strength and mechanic part of the gate or door, check that the mechanical stops are suitable to stop immediatelly the cycle of the gate or door even in case of faulty limit switches or during the manual cycle. For your security we recommend to install a STOP switch when activated it stops immediatelly the gate. The switch has a N.C. opening in case is activated (as shown in par. no. 3.7)

Symbols and warning

|	Dangerous This is a warning and if it is not respec it can provoque material damage		Damage For safety reasons, protect your face during the connection
	Device under tension The installation should be done only from professional installer		Read carefully the operating manual Read carefully this manul before installation and keep it for the future
	Dangerous for overheated surface		

Network filter for CE norms
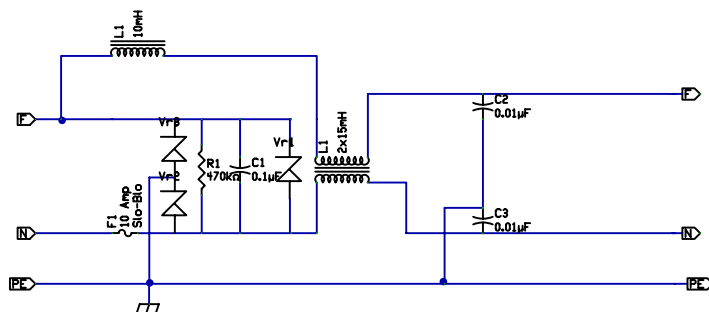
FILTER-S12
Option for CE Norms

Type of installation

The control board START-S12-M can be used for Industrial rapid doors and for sliding automation with threephase motors (delta connection) up to 3 Hp with ventilation systems.

Rapid doors

FOTO A
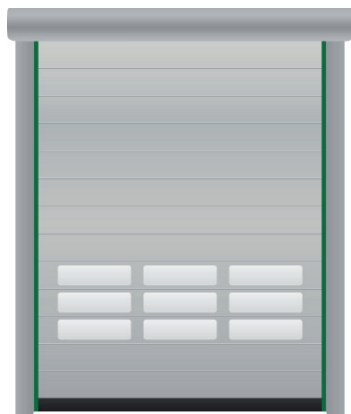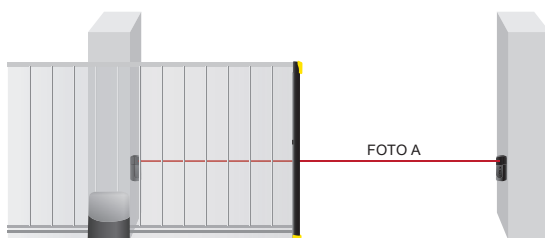
Sliding automation

Check the software version and compatibility with the operating manual

When the control unit is turn on, you can see 4 numbers in the display. This is the software number. We suggest to check this number with the version on the manual. (see pic).

CODE

1602

Vers. firmware 1602

! **Check that the number on the display correspond to the firmware on the operating manual.**

1   Scheme of the control unit

LED POWER ON
Indicates the
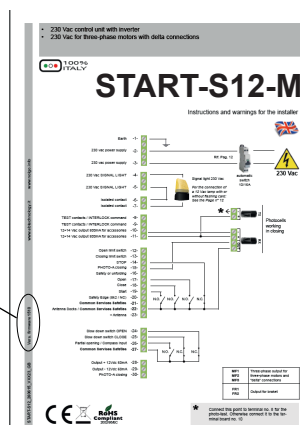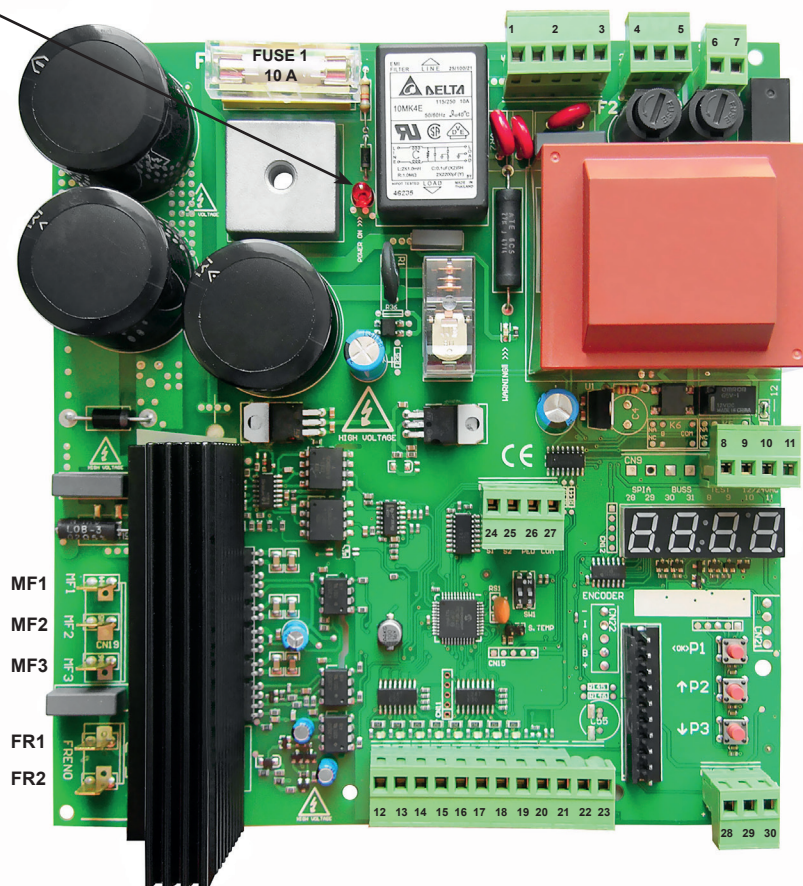network power

WARNING!
We remind you that the safety devices, accessories should be installed
when the control unit is not powered.

P1 P2 P3 Set the control unit
DIP *not used*
JP1 Connector for temperature sensor
F1 Fuses protection motor and power: *10A*
F2 Fused protection terminal boards (4, 5): *1.6A*
F3 Fuses for power supply for accessories and safeties: *200mA*

MF1-2-3 Three-phases output for 230Vac motors delta connection
FR1-2 Output for brake motor
LED WARNING Indicates that the capacitors are still charged, be-
fore taking the central wait until the LED turns off.

The **red led** in the input **LSO-LSC-STOP-PHOTO-UNFOLDING EDGE** are **always lit on**
The **green led** in the inputs **OPEN-CLOSE-START** are **normally lit on**

LSO	LSC	STOP	PHOTO	UNFOLDING		OPEN	CLOSE	START
🔴	🔴	🔴	🔴	🔴		🟢	🟢	🟢

WARNING: If the inputs are desactivated from display with **S13**, **S14**, **S15**, **S16**, **S17** red leds are **SWITCHED OFF**

Recommended wiring diagram

NETWORK FILTER

FILTER RING

CABLE MOTOR
OUTPUT
1 TURN

ELECTRICAL
GROUND BAR

SHIELDED
CABLE
ENGINE

MOTOR
TERMINAL
BOARD

MOTOR
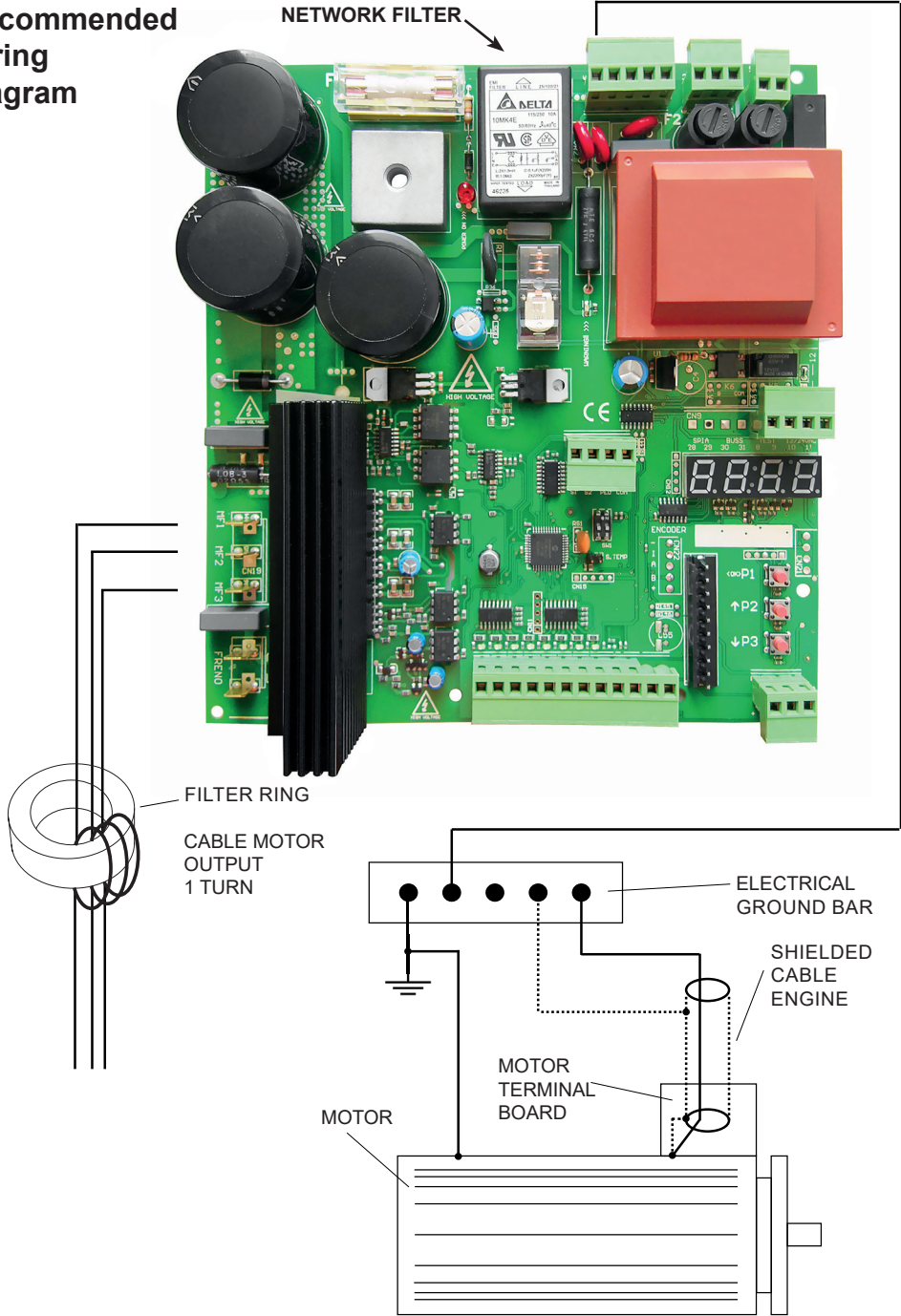
1.1   Description of the electrical connections

Earth	**1**		Earth
230 Vac (N)	**2**		230 Vac 50Hz, power supply, neutral
230 Vac (L)	**3**		230 Vac 50Hz, power supply, phase

Signal light	**4**		230 Vac Signal light
	5		Max power 40 W
	6		*For the connection of a 12 Vac lamp or 230Vac signal ligth:*
Signal light	**7**		*See the par 3.2, page number 12*

Test	**8**		Isolated contact for TEST / Interlock command
Test	**9**		Isolated contact for TEST / Interlock command
Out 12 Vac	**10**		12÷14 Vac output 800mA for accessories
Out 12 Vac	**11**		12÷14 Vac output 800mA for accessories

LSO	**12**		Open limit switch
LSC	**13**		Closing limit switch
Stop	**14**		STOP
Photo A	**15**		PHOTO-A closing
Safety edge	**16**		Safety or unfolding
Open	**17**		OPEN
Close	**18**		CLOSE
Start	**19**		START
Costa	**20**		SAFETY edge - NC / 8k2 contact
Common	**21**		**Common Services Safeties**
Common	**22**		**Antenna Socks / Common-Services-Safeties**
+ Antenna	**23**		+ Antenna

Switch Slow OP	**24**		Slow down switch OPEN
Switch Slow CL	**25**		Slow down switch CLOSE
Pedestrian	**26**		Partial opening / Interlock input
Common	**27**		**Common Services Safeties**

Out + 12 Vdc	**28**		Output + 12Vdc 60mA
Out - 12 Vdc	**29**		Output - 12Vdc 60mA
Photo A	**30**		Photo-A closing

2   Use and functions of the control panel

START-S12-M has a display for a simple and fast programming. The menu has been designed for a clear and fast set up of the working time and the logic of the control unit. You can set up the control unit only when the door is closed.

2.1   State of the control unit

If you don't press any button, the display shows the position and the temperature of the heat sink.

P.Fcc t23c

In this case the door is with closing limit switch and that the heat temperature is 23°C.

2.2   Settings and parameters
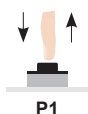
ACCESS TO THE fUNCTIONS
Press **P1** when the gate is closed

P1
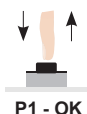
SELECTION OF THE LETTER ADJUSTMENT
Press button **P2** and **P3** to select the group
and press **P1** to confirm.

P2 - UP   P3 - DOWN   P1 - OK

-t-
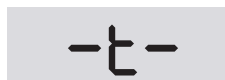
Set up T
Set up of the Time
programming

-S-

Set up S
Logic of the control unit

-L-

Set up L
Set up of the programm
(Speed, power...)

-r-

Set up R
Activation of the outputs
Displays information
about the control unit

-E-

Set up E
Back to the standard functions
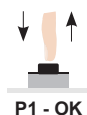
SELECTION OF NUMBER SET UP
Press **P2** and **P3** to select the set up
Press **P1** to confirm

P2 - UP   P3 - DOWN   P1 - OK
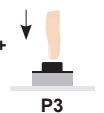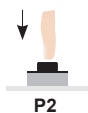
GO BACK
To go back to the previous
group press **P2 and P3**

P2   P3

SELF-RESET
If the control unit is not used for more
than one minute, the control unit go out
from the programming saving
programs and all changes.

2.3   Example how to use the MENU and information

You can read the information through a display: you can read if it is working properly, the manoeuvre counter and the sink temperature. Some information can be shown only on the **R** function (see Chapter no.4)
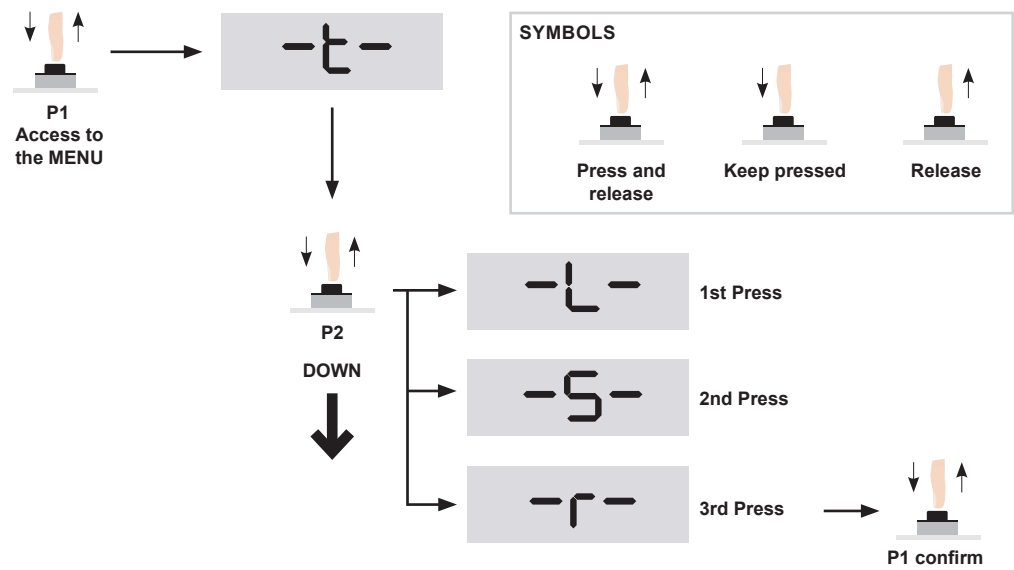
P1
Access to
the MENU

SYMBOLS

Press and release   **Keep pressed**   **Release**

P2

DOWN

-L-   **1st Press**

-S-   **2nd Press**

-r-   **3rd Press**

P1 confirm

In the function **R** if you press **P1**, you can choose the group function: first select **P2** and **P3** and then confirm with **P1**. Now you can go to the function **R07**, **R08**, **R09** and **R10**

P2   **DOWN**

r 07   **P1**   Show the TENSION in the CAPACITORS   **P1**

r 08   **P1**   Show TEMPERATURE of the IGBT   **P1**

P3   **UP**

r 09   **P1**   Show the resistive value in the SAFETY EDGE INPUT (terminal board no.20)   **P1**

r 10   **P1**   Show the cycle counters *(point indicated the thousands)*   **P1**
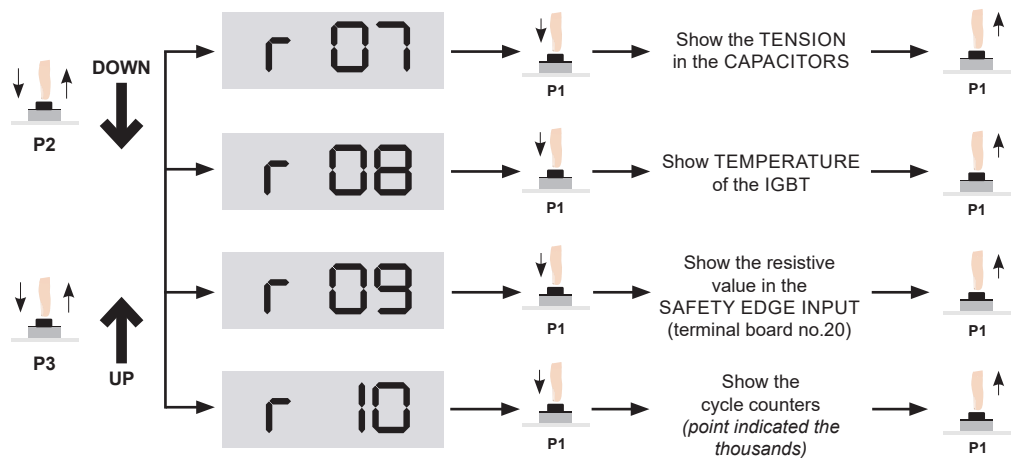
2.4   Set up a password for programming

To save all changes it is possible to select a password of 4 numbers. To activate this function make as follow:

- **PASSWORD ACTIVATION:**
Press **P1**, **P2** and **P3** in the function **S32** and then confirm with **P1**.

P1
Access to the menu

P2
2nd press
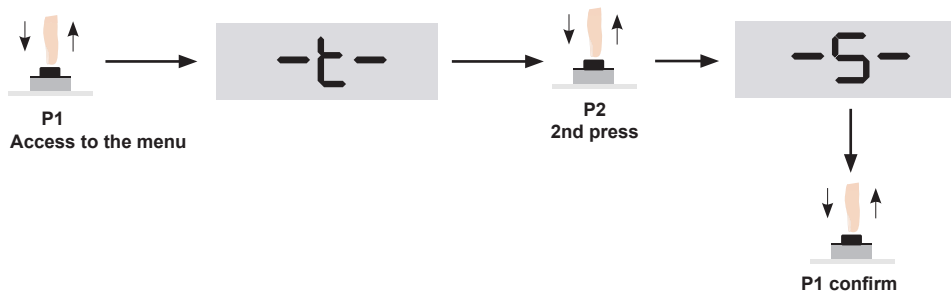
P1 confirm

In the function **S** if you press **P1**, you can choose the group function: first select **P2**, now you can go to the function **S32** and then confirm with **P1**.

P2

P1 - OK
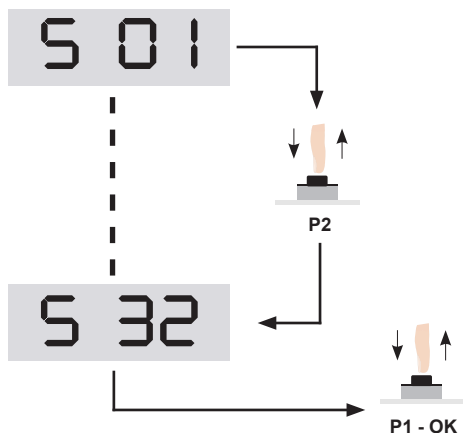
- **INSERT PASSWORD**
Choose the first number with the buttons **P2** and **P3** then confirm with **P1**. The same procedure applies to the other digits.

finished entering the 4 digit. Press **P1** to confirm. To cancel press **P1**, within 10 seconds. Otherwise, the next access will be required the security code.

> **! Pay attention in case you forget the password it is not possible to enter in control board as well.**

- **DEACTIVATION OF THE PASSWORD**

P1 - OK

If you select the fucntion no. **S33** you can cancel the password. Wait 10 seconds to confi rm the operation.

2.5   Cancel of the operation

When you confirm the operation you can read the following message to cancel the operation. If you press **P1** in 10 seconds, this operation will be cancelled.

P 110   ·····   P 109   ····················   P 100

2.6   Display the number of cycles and the speed of the motor

• **CYCLE COUNTER**

It is possible to show the number of cycles even pressing **P3** *(expressed in ten cycles)*

P3

The counter counts up to 999'999 openings. The display shows the first 4 most significant digits.

344.2 If you read these number, it means that the installation has made 344200 cycles.

• **MOTOR SPEED**

Press **P1** when the door is open, the display shows the SPEED of the MOTOR

P1

2.7   Desactivation of the cycle when the control panel wil be turned on

When the tension has been interrupted and you turn on the control board again it will make a new cycle. To exclude this operation make as follow:

DESACTIVATE THE COMPLETE CYCLE OF THE CYCLE FUNCTION WHEN THE TENSION HAS BEEN INTERRUPTED:
keep pressed **P1** when turns on.

P1

3   Installation of the control unit

3.1   Connection of the TENSION and MOTOR POWER SUPPLY
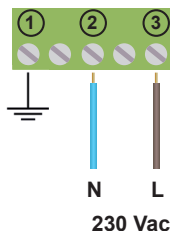
• The control unit is equipped with a net-work filter

We recommend:

• Install an automatic switch 10/16A

• Check the network power: 230 Vac: -5% +10%

THREE PHASE MOTOR "DELTA" CONNECTION
It is recommended to use shielded cables

N   L
230 Vac

MF3

M

MF1 ———   ——— MF2
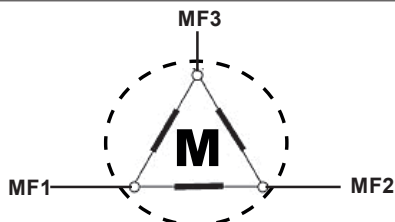
3.2   Connection of the lamp 230 Vac or 12 Vac

It is shown the connection of a **230V** lamp with or without flashing card.

LAMP 230 Vac

It is shown the connection of a **12 Vac** lamp with or without flashing card.

LAMP 12 Vac

• **SET UP OF THE LIGHTING**
In case the lamp has no flashing card, set **S12** in 1:

S 12
FLASHING
1 - Activated *(standard)*
0 - Deactivated

• **LAMP IN PAUSE TIME**
To activate the function lamp in pause TIME, set **S05** as shown:

S 05
LAMP IN PAUSE
1 - Activated
0 - Deactivated *(standard)*
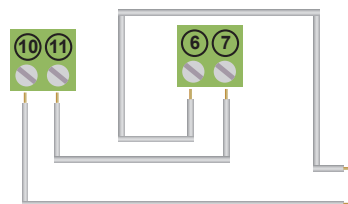
3.3   Pre-flashing time

It is possible to increase or reduce the time of pre-flashing when the door is closed or open, make as follow with **T07** and **T08**:

t 07
PRE -FLAS HIN G TIME WHEN THE DOOR IS CLOSED
From 0 to 10 s
Standard value 0.5 s

t 08
PRE-FLASHING TIME WHEN THE DOOR IS OPEN
From 0 to 10 s
Standard value 2 s

3.4   Connection of the ANTENNA

In case the antenna is only a cable of 17cm for 433.92Mhz, connect it to the terminal board no. 23.
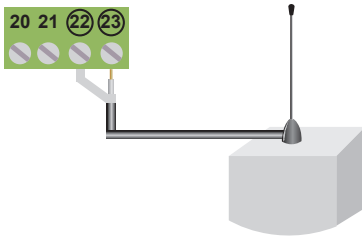
3.5   STOP connection
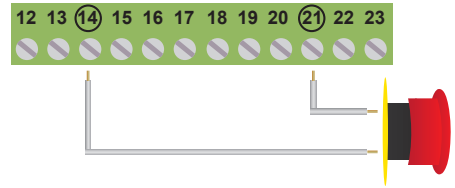
Button: Stop until a new command
Switch: it keep the automation stopped until a new command

STOP
1 - Activated
0 - Deactivated

The connection of the safety devices is prevued with a button or a normally closed contact
More devices should be connected in parallel.

3.6   Connection of the 8k2 safety edge or N.C. contact
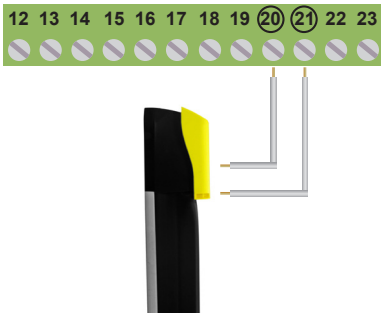
Connect the safety edge at terminal board no. 20 and 21

SAFETY EDGE
1 - Activated *(Standard)*
0 - Deactivated

SAFETY EDGE contact
0 - NC contact
1 - 8K2 contact *(Standard)*

3.7   Connection of the Open and Close limit switch

The picture shows the connection of both limit switches but you can connect it separately. You can use only LSO or only LSC.
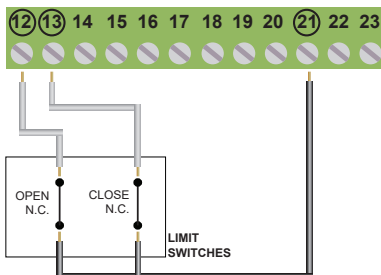
LSO
1 - Activated
0 - Deactivated

LSC
1 - Activated
0 - Deactivated

! *If the input LSO & LSC is not used, set S13 & S14 in 0*

3.8   The connection of PARTIAL OPENING or START

| 12 | 13 | 14 | 15 | 16 | 17 | 18 | ⑲ | 20 | ㉑ | 22 | 23 |
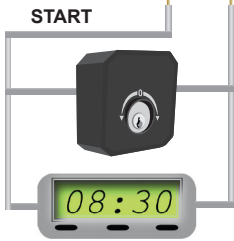
START

The connection of a START command can be done with a button or with a N.O. contact. When more devices are available, connect them in parallel.

08:30

| 24 | 25 | ㉖ | ㉗ |
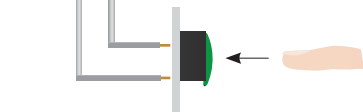
Partial OPENING

The connection of PARTIAL OPENING can be done with a button or a normally open contact.

It is possible to connect a timer in the terminal board no. 19 and 21 to program the opening time of the gates. The contact of the timer should be normally open (N.O.) and it should be closed for all the time the gate is open. If the conncection of opening command is available in the terminal board no 19, connect it in parallel.

3.9   Connection of the PHOTO-BEAMS with cable (only when closing)

The terminal boards **28-29-30** are available for the connection of the photo-beams with cable like IRPA 1/ SENSOR-3DD. You can see a standard installation:

| ㉘ | ㉙ | ㉚ |

RX   **TX**

Output + 12Vdc 60mA   -28-
Output - 12Vdc 60mA   -29-
PHOTO A when closing -30-

IRPA 1 / SENSOR-3DD

! *Please read the manual IRPA1 / SENSOR-3DD*
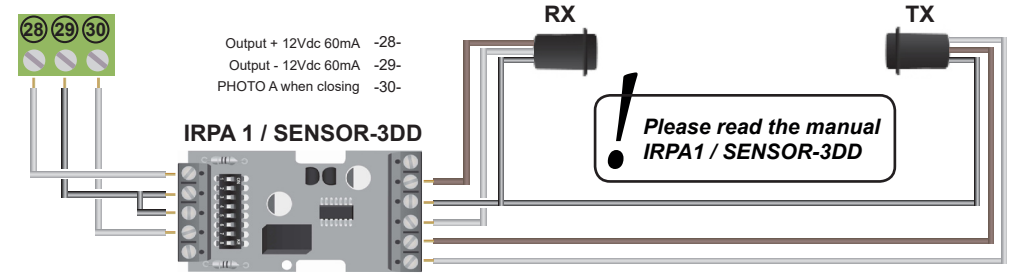
3.10   CONNECTION of the safety or UNFOLDING FUNCTION

In case the control units is installed in rapid-rise-doors is possible to connect photobeam for unfolding the curtain. In case the intervention of safeties, the doors stops and reverse the cycle of 1.5sec.

| 12 | 13 | 14 | 15 | ⑯ | 17 | 18 | 19 | 20 | ㉑ | 22 | 23 |

| 8 | 9 | ⑩ | ⑪ |

12 Vac

RX   **TX**

5 17
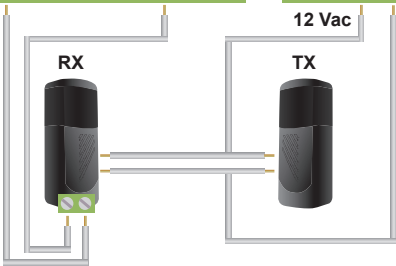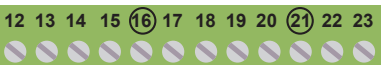
INPUT UNFOLDING
1 - Activated
0 - Deactivated

! *If the input is not used, set S17 at 0*

NC Contact

The connection of more safety devices can be done with each button or a N.C. contact. More safety devices should be connected in serial.

3.11   Connection of the PHOTO-BEAMS (only when closing)

8   9   (10) (11)   12 13 14 (15) 16 17 18 19 20 21 (22) 23

TX

RX

12 Vac
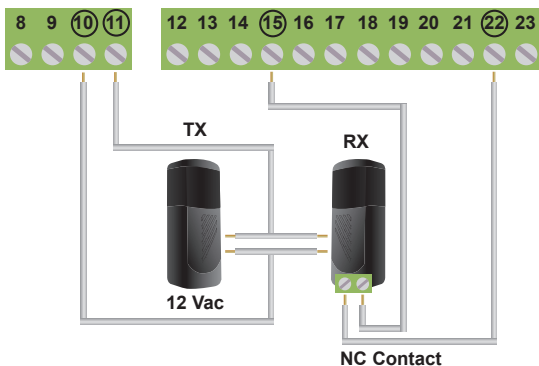
NC Contact

The contact of the receiver should be:
- **Isolated** *(isolated from tensions)*
- **Normally closed**

! **If the input PHOTO
is not used, set S16 in 0**

3.12   Connection of the photo-beam (activated when closing) with TEST

(8) (9) (10) (11)   12 13 14 (15) 16 17 18 19 20 21 (22) 23

TX

RX

12 Vac

NC Contact
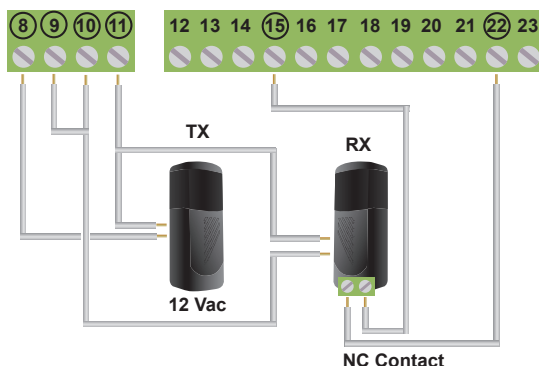
The TEST of the photo-beam works only if the photo-beams are installed properly. The control unit will check all connections before opening!

In case the photo-beam are not working properlym the control unit will lit on for 5 seconds and the gate is not moving.

If you go back to function without TEST, do the connection as in Par. 3.08 and put in **0** the **S06** and **S09** *(deactivate if are inputs are not in test)*

To activate the **TEST** set **1** in the **PHOTO-A:**

S 09 TEST IN PHOTO OUTPUT
1 - Activated
0 - Deactivated

S 06 TEST IN THE INPUT SAFETIES
1 - Activated
0 - Deactivated

3.13   Deactivation of the PHOTOCELL A when the gate is closing

S 03 Photocell A deactivated
1 - Activated
0 - Deactivated

If you set S03 it deactivates the PHOTO A after intervention of slow down LS. If **S03 is 1** the time of function **T11** is not considered

3.14   SLOW DOWN SWITCH

For the beginning of the slow down it is possible to connect the switch OPEN and CLOSE. Connect the switch to terminal board no. **24-25-27** as shown in the pic. The switches are not installed, the slow down can be programmed with **T03** (open) and **T04** (close).

OPEN

CLOSE

Common Switch

$S\ 20$	Switch input when OPENING 1 - Activated *(Standard)* 0 - Deactivated

$S\ 21$	Switch input when CLOSING 1 - Activated *(Standard)* 0 - Deactivated
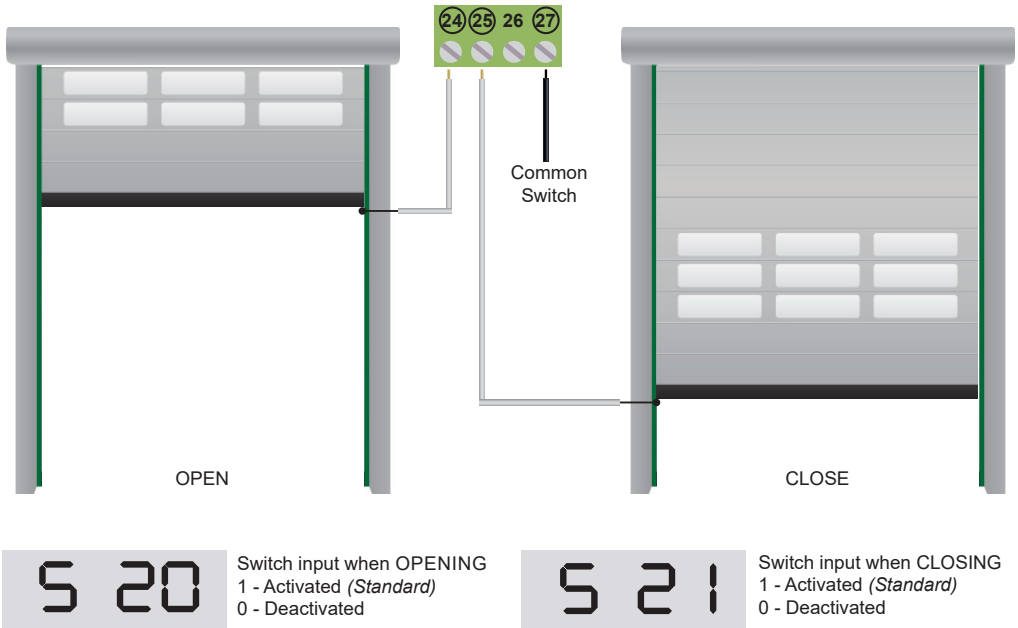
3.15   Connection of the brake (FR1-FR2) and internal brake

Pay attention when you connect the brake and pay attention of the polarity. Program with **S19** according to the type of brake:

$S\ 19$	POLARITY OUTPUT OF THE BRAKE 0 - brake deactivate with tension *(Standard)* 1 - brake activate with tension

You can activate the INTERNAL BRAKE (S37), activating this function, the internal brake is activated for 2 seconds after engine shutdown.

$S\ 37$	INTERNALE BRAKE 1 - light decelaration 2 - 3 - 4 - high deceleration	5 - no aceleration, no brake 6 - light braking 7- 8- 9 - high braking

4   ACTIVATE the single OUTPUTS

START-S12-M can open and close separately and the outputs for lamps and test. This is useful in case you want to check the single outputs.

P1
Access to the functions

SYMBOLS

Press and release   **Keep pressed**   **Release**

P2

-t-

-L-   **P2 - 1st press**

-S-   **P2 - 2nd press**

-r-   **P2 - 3td press**

In the function **R** if you press **P1**, you can choose the subfunction group function: first select **P2** and **P3** and then confirm with **P1**. Now you can go to the function **R01**, **R02**, **R03** ...

P1 confirm

DOWN

P2

r 01 → P1 → OPEN with set up acceleration → P1

r 02 → P1 → CLOSE with set up acceleration → P1

r 03 → P1 → OPENING with slow down → P1

r 04 → P1 → CLOSING with slow down → P1

P3   **UP**

r 05 → P1 → Activate the LIGHT → P1

r 06 → P1 → ACTIVATE the TEST output → P1

r 11 → P1 → ACTIVATE the BRAKE output → P1

5   Functions

5.1   Logic of functions

Imp. N°	Val.	Functions	Description
S 01	**1**	**Signal Reverse**	By each START command inverts: **OPEN-CLOSE** It recloses automatically
	2	**Automatic**	The START command can open or recharge the pause time. It recloses automatically
	3	**Bistable function**	By each START command it follows: **open-stop-close-stop-open**... It doesn't recloses automatically
	4	**Stable function with automatic reclosing after pause time**	By each START command it **opens-stops-closes-stops-opens...** It recloses automatically after pause time
	5	**Signal reverse + Dead-man function**	Same as function S01 - 1 OPEN and CLOSE with "Dead-man function" function
	6	**Collective use + Dead-man function**	Same as function S01 - 2 OPEN and CLOSE with "Dead-man function" function
	7	**Bistable function + Dead-man function**	Same as function S01 - 3 OPEN and CLOSE with "Dead-man function" function
	8	**Bistable function with automatic reclosing after pause time + Dead-man function**	Same as function S01 - 4 OPEN and CLOSE with "Dead-man function" function
S 02	**1**	**Reclosing when turning on** *(Standard value 0)*	Complete open and close. ONLY when the tension has been interrupted when the gate is open.
S 04	**1**	**It detects the passage** *(Standard value 0)*	The access will be detected from the photo-beams, if **S07** is **0** the pause time is 2sec.
S 07	**1**	**It reverse in case of access** *(Standard value 1)*	Put **S04** in **1**. When the gate is opening, the control unit inverts the direction and close.
S 08	**2**	**Logic of the Obstacle Detection** *(Standard value 2)*	1 - Function as limit switch 2 - Function as STOP 3 - Function as REVERSE and then STOP 4 - Automatic adjustment of motor torque, function L09 choose the right function according to the motor installed *(not for sliding gates or safety devices).*

5.2   Working time

You can see how to program the control unit with **T** function:
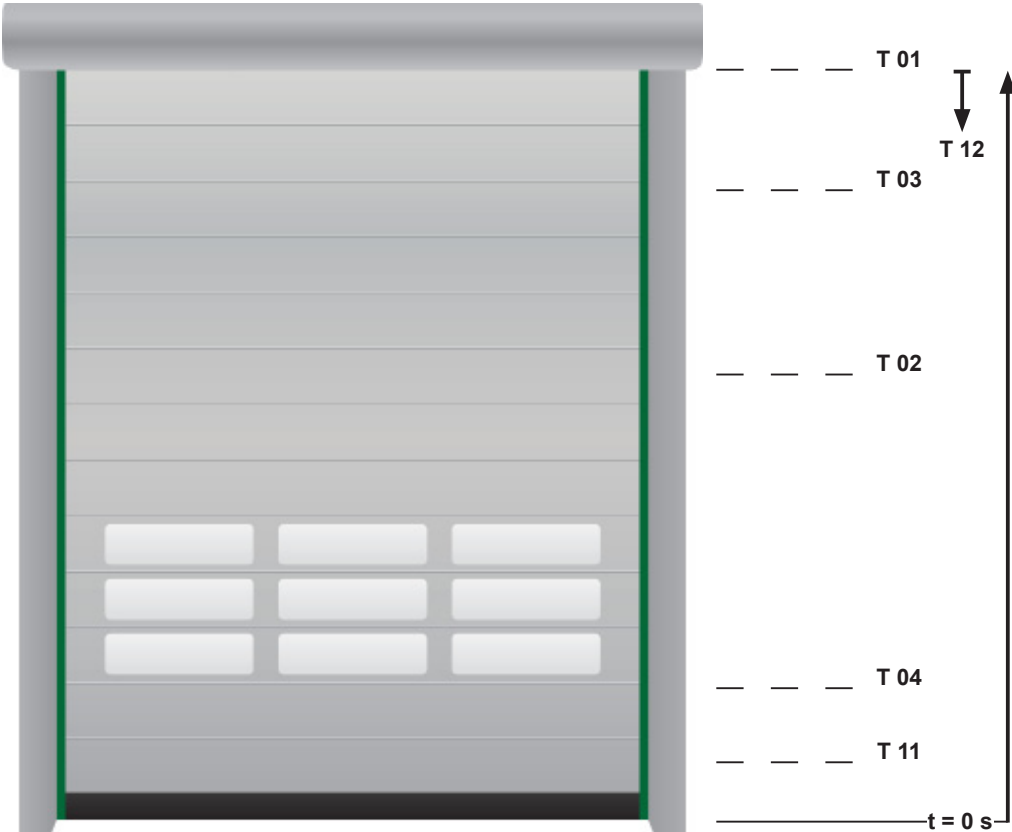
SET UP	DESCRIPTION		STANDARD - seconds -
T 01	Set up the fully opening time of the door/gate	value from 0,1 s	4,0
T 02	Set up the opening time of partial opening	value from 0,1 s	3,0
T 03	Set up the start position of OPEN decelerating time	value from 0,1 s	2,0
T 04	Set up START position of the CLOSING deceleration time	value from 0,1 s	1,0
T 11	Set up start position of deactivation of the photocelle. It is not considered if S03 is set in 1	value from 0,1 s	0,5
T 12	Deactivation Time of the input SAFETY EDGE (term.S16) from starting of LSO. *This function is useful in case of anti-folding to avoid the unroll of the curtain which can temporary cover the photocell and the door will start opening again.*		1,0

5.3   Set SPEED and ACCELERATION

Are now given the parameters that allow you to set SPEED, ACCELERATION and ABSORPTION:

Set up	Description	Values Accepted	Standard
L 01	Minimum speed OPENING	from 1 to 200	30
L 02	Minimum speed CLOSING	from 1 to 200	20
L 03	Maximum Speed OPENING	from 1 to 200	80
L 04	Maximum speed CLOSING	from 1 to 200	40
L 05	OPENING acceleration	from 1 to 99	8
L 06	CLOSING acceleration	from 1 to 99	8
L 07	OPENING deceleration	from 0 to 25	8
L 08	CLOSING deceleration	from 0 to 25	8
L 09	Motor absorption in case of STOP	Ampere	5,0
L 10	Motor absorption in case of problems	Ampere	7,0
L 11	Power in the BRAKE OUTPUT	from 1 to 70	50

5.4   SCHEME relation between SPEED and FREQUENCY of the motor

Here is the relation between speed and frequency of the motor:

SPEED SETTING	FREQUENCY [Hz]	SPEED SETTING	FREQUENCY [Hz]
1	12	105	64.50
5	14.50	110	67.00
10	17.00	115	69.50
15	19.50	120	72.00
20	22.00	125	74.50
25	24.50	130	77.00
30	27.00	135	79.50
35	29.50	140	82.00
40	32.00	145	84.50
45	34.50	150	87.00
50	37.00	155	89.50
55	39.50	160	92.00
60	42.00	165	94.50
65	44.50	170	97.00
70	47.50	175	99.50
75	49.50	180	102.00
80	52.00	185	104.50
85	54.50	190	107.00
90	57.00	195	109.50
95	59.50	200	112.00
100	62.00		

6   INTERLOCK Function

WARNING: The TEST function and the PARTIAL OPENING are not available in this function!!!
To activate the INTERLOCK function use function **S35** and connect the 2 control units.

CONTROL BOARD A
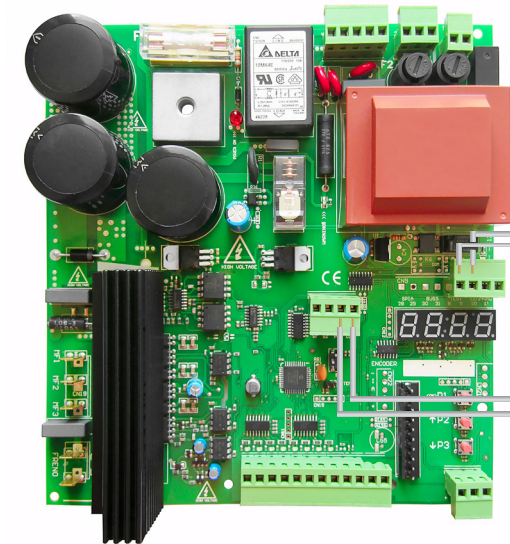
When one control uniti is working, you can see in the display FBUSS, and it cannot accept other commands.

INTERLOCK FUNCTION
1 - Activated
0 - Deactivated

CONTROL BOARD B
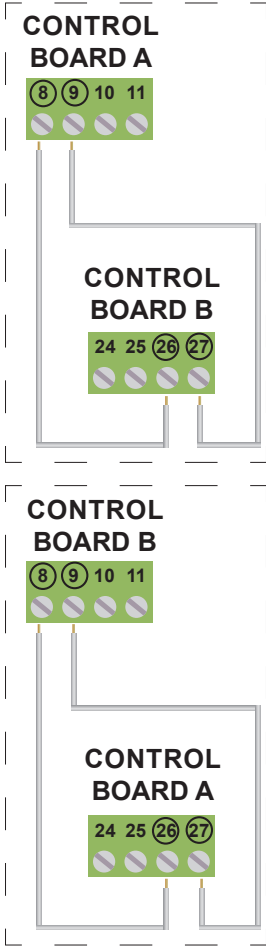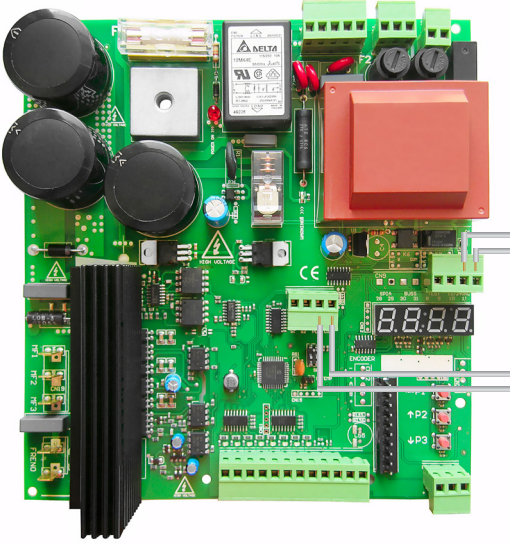
7   RESET of the control unit and restore of factory default settings

The control panel allows users to restore parameters to their standard values (see par. 8) also allows you set up the default factory settings of rapid doors (4.5 m - 3.5 m - 2.5 m) and sliding gates.

7.1   Restore factory settings

Checking those paramenter of the parameters (Chapter no.8), yuo can look the set up during the RESET of the control unit. Select the paragraph S18 as shown.

P1
Access to the functions

P2
2nd press

P1 confirm

S 01

P2

S 18

P1 - OK

P 110

Wait 10 seconds, otherwise, if you press **P1** in 10 seconds, this operation will be cancelled.

! *WARNING:*
This operation
cancel all settings
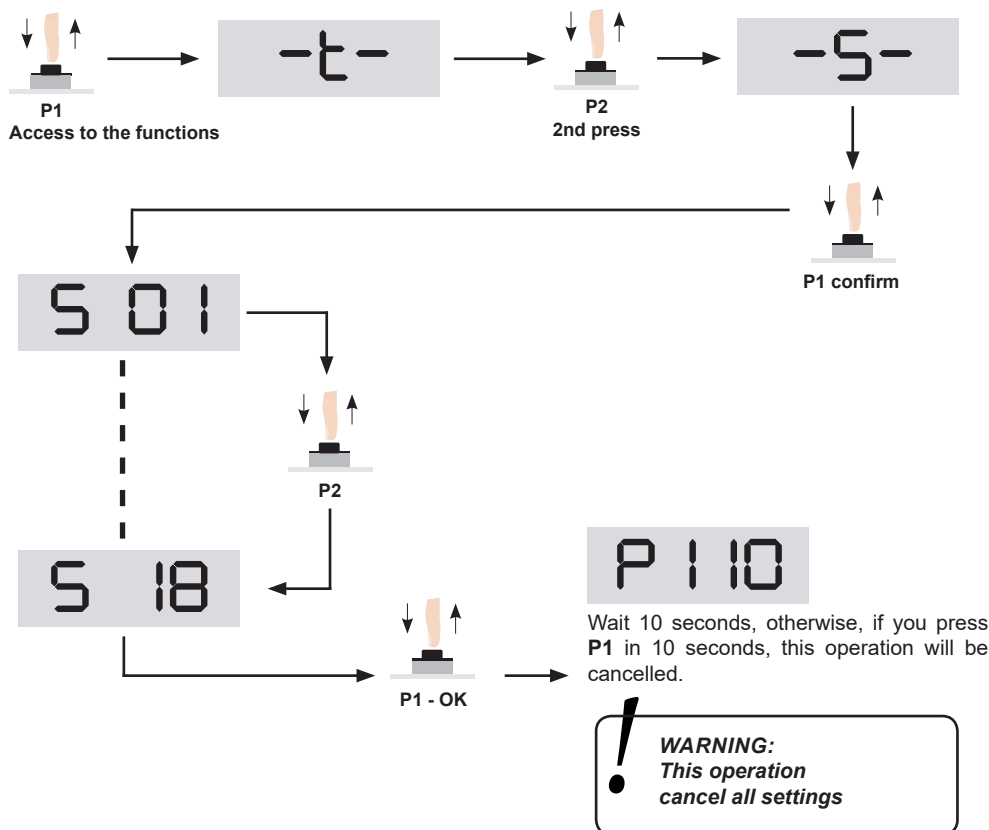
For standard values see table at pag no. 27 and following.

7.2   WARNING of the SETTING PARAMETERS

The first paramenters are indicated for high speed doors, depending on the height of the door. The paramenter no.4 is for industrial sliding gates.

S 27	↓🌷↑ P1	S 28	↓🌷↑ P1	S 29	↓🌷↑ P1
Set up STANDARD 1		Set up STANDARD 2		Set up STANDARD 3	

STANDARD 1 (High-speed doors h4,5m)		STANDARD 2 (High-speed doors h3,5m)		STANDARD 3 (High-speed doors h2,5m)	
Set up	Val.	Set up	Val.	Set up	Val.
T01	4,5	T01	3,5	T01	2,5
T02	2,5	T02	2,5	T02	2,0
T03	3,0	T03	2,0	T03	1,0
T04	1,5	T04	1,0	T04	0,5
T05	3,0	T05	3,0	T05	3,0
T06	3,0	T06	3,0	T06	3,0
T07	0,0	T07	0,0	T07	0,0
T08	0,0	T08	0,0	T08	0,0
T09	0,0	T09	0,0	T09	0,0
T10	5,5	T10	4,5	T10	3,5
T11	0,5	T11	0,5	T11	0,5
T12	0,0	T12	0,0	T12	0,0
T13	0,1	T13	0,1	T13	0,1
T14	0,1	T14	0,1	T14	0,1
T15	0,0	T15	0,0	T15	0,0
T16	0,0	T16	0,0	T16	0,0
T17	12	T17	12	T17	12

STANDARD 1 - 2 - 3 (These parameters are the same for all 3 set up)					
Set up	Val.	Set up	Val.	Set up	Val.
L01	20 *(13 Hz)*	L05	8	L09	11 *[A]*
L02	20 *(13 Hz)*	L06	8	L10	15 *[A]*
L03	80 *(50 Hz)*	L07	8	L11	50
L04	40 *(25 Hz)*	L08	8		

S 30

P1

Set up
STANDARD 4

For sliding gates

STANDARD 4 (sliding gates)	
Set up	**Val.**
T01	20,0
T02	10,0
T03	17,0
T04	3,0
T05	10,0
T06	10,0
T07	2,0
T08	2,0
T09	120,0
T10	5,0
T11	0,0
T12	0,0
T13	1
T14	10
T15	0
T16	0

Set up	**Val.**
L01	30 *(19 Hz)*
L02	30 *(19 Hz)*
L03	80 *(50 Hz)*
L04	80 *(50 Hz)*
L05	4
L06	4
L07	4
L08	4
L09	3,0 *[A]*
L10	5,0 *[A]*
L11	70

7.3   SAVE SET UP and CHECK of the PARAMETERS

STARTS12 has 2 memory slots saving all manually set up and you can check it again. See how to check the set up with functions **S23**, **S24**, **S25**, **S26**. Once all parameters are set up, it is possible to change.

Thanks of the 2 memory slots, it is possible to save and check 2 differents set up.

- **MEMORY 1 (slot 1)**

S 23

Press P1
Save all set up
MEMORY 1

S 25

Press P1
Charge set up of
MEMORY 1

- **MEMORY 2 (slot 2)**

S 24

Press P1
Save all set up
MEMORY 2

S 26

Press P1
Charge set up of
MEMORY 2

8   LIST of the FUNCTIONS

Group functions "T"

SET UP	DESCRIPTION		VALUES ACCEPTED	STANDARD - seconds -	MEMO
T 01	Complete opening cycle time	step from 0,1 s		4,0	
T 02	Partial opening time	step from 0,1 s		3,0	
T 03	Set up deceleration by opening	step from 0,1 s		2,0	
T 04	Set up deceleration by closing	step from 0,1 s		1,0	
T 05	Pause time for START or OPEN	step from 0,5 s	from 2 to 127.5 s	2,0	
T 06	Pause time for PARTIAL OPENING	step from 0,5 s	from 2 to 127.5 s	5,0	
T 07	PRE-LIGHTING time by opening	step from 0,5 s	from 2 to 127 s	0,5	
T 08	PRE-LIGHTING time by closing	step from 0,5 s	from 2 to 127 s	2,0	
T 09	*(Not used)*				
T 10	Time to research of the limit switch	step from 0,1 s		5,0	
T 11	Stop the detection of input of the photo-beam. Not considered if S03 is set 1	step from 0,1 s		0,5	
T 12	*Time to stp to detecte the SAFETY EDEGE INPUT (terminal board. 16)*	step from 0,5 s		1,0	
T 13	Time block the check of the absorption of the motor when the gate is opening or closing	step from 0,1 s	from 0 to 2 s	0,2	
T 14	Pause time of reverse of the direction of the motor	step from 0,1 s	from 0 to 2 s	0,1	
T 15	STOP of the motor after detecting the LSO	step from 0,1 s	from 0 to 3 s	0 s	
T 16	Time of delay of the motor when detecting the LSC	step from 0,1 s	from 0 to 3 s	0 s	
T 17	Lead time on the release of the brake before starting the engine *(in tenths of seconds)*		from 0 to 20	12	

Group functions "L"

SET UP	DESCRIPTION	VALUES ACCEPTED	STANDARD - seconds -	MEMO
L 01	Minimum opening speed	from 1 to 200	30	
L 02	Minimum closing speed	from 1 to 200	20	
L 03	Maximum opening speed	from 1 to 200	80	
L 04	Maximum closing speed	from 1 to 200	40	
L 05	Opening acceleration	from 1 a 99	8	
L 06	Closing acceleration	from 1 a 99	8	
L 07	Opening deceleration	from 0 to 25	8	
L 08	Closing deceleration	from 0 to 25	8	
L 09	Maximum absorption of the motor to STOP the door	in Ampere from 0,5 to 15,5	5,0	
L 10	Maximum absorption of the motor in case of trouble	in Ampere from 0,5 to 15,5	7,0	
L 11	Power of the output BRAKE	from 0 to 70	50	

Group functions "S"

SET UP	DESCRIPTION	VALUES ACCEPTED	STANDARD	MEMO
S 01	*Logic of the motor:* 1 - Fast reverse 2 - Collective use 3 - Bistable function 4 - Bistable function with automatic reclosing 5 - Fast reversing and "Dead's man" function 6 - Collective use and "Dead's man function 7 - Bistable funciton and "Dead's man" function 8 - Bistable function with automatic reclosing and "Dead's man" function	from 1 to 8	1	
S 02	Opening-closing cycle when the door is not closed	0 Off - 1 On	0	
S 03	Deactivate the input PHOTO A after intervention of the slow down LSC	0 Deactivated - 1 Activated	0	
S 04	Passage Detection	0 Off - 1 On	0	
S 05	Signal light in pause time	0 Off - 1 On	0	
S 06	Activation TEST in the safeties inputs	0 Off - 1 On	0	
S 07	Logic passage detection	0 Off - 1 On	0	
S 08	Logic of the Obstacle Detection	1 - Considered as LIMIT SWITCH 2 - Considered as STOP 3 - Reverse motor of 2 sec, at min.speed 4 - According to the set up of function L09 and according to the motor *(not for sliding gates of safety devices)*	2	
S 09	Activate the TEST in the input PHOTOCELL	0 Off - 1 On	0	
S 10	Activate the TEST in the SAFETY EDGE input	0 Off - 1 On	0	
S 11	Activate the TEST in the input STOP	0 Off - 1 On	0	
S 12	Activate the flashing in the signal light input	0 Off - 1 On	1	
S 13	Activate the input LSO	0 Off - 1 On	1	
S 14	Activate the input LSC	0 Off - 1 On	1	
S 15	Activate STOP input	0 Off - 1 On	1	
S 16	Activate the PHOTOCELL by closing	0 Off - 1 On	1	
S 17	Activate the input ANTIFOLDING	0 Off - 1 On	1	
S 18	Reset of the control unit at factory's settings			
S 19	Polarity of the brake output	0 - deactivated with tension 1 - brake activated with tension	0	
S 20	Activated the input SWITCH for opening slowing down	0 Off - 1 On	1	
S 21	Activate the input swicht for CLOSING slowing down	0 Off - 1 On	1	
S 22	Activate the input for SAFETY EDGE (terminal 20-21)	0 Deactivated - 1 Activated	1	

SET UP	DESCRIPTION	VALUES ACCEPTED	STANDARD	MEMO
S 23	Copy set up of memory 1			
S 24	Copy set up of memory 2			
S 25	Charge the set up of memory 1			
S 26	Charge the set up of memory 2			
S 27	Charge the standard set up 1			
S 28	Charge the standard set up 2			
S 29	Charge the standard set up 3			
S 30	Charge the standard set up 4			
S 31	Charge the standard set up 5			
S 32	Activate of a password to set up with a code of 4 numbers. Put the new code and let the time goes.			
S 33	You can deactive the access of the set up with a password			
S 34	Activation of the security closing after intervention of the edge (20-21)	0 deactivated - 1 activated	0	
S 35	Activation of the INTERLOCK function	0 deactivated - 1 activated	0	
S 36	Check of the input UNFOLDING (terminal board no.16)	0 deactivated - 1 activated	0	
S 37	Integrated electric brake (activated for 2 seconds after motor stopping)	1= light acceleration 4 = heavy acceleration 5=neither acceleration nor braking 6= light braking 9= heavy braking	0	
S 38	Safety edge - contact terminal board no.20-21	0: N.C. contact - 1: 8K2 contact	1	

Group functions "R"

SET UP	DESCRIPTION
R 01	Activate Opening until P1 has been released with acceleration set up
R 02	Activate CLOSING until P1 has been released with acceleration set up
R 03	Activate the OPENING until P1 has been released with slow down acceleration
R 04	Activate CLOSING until P1 has been released with slow down set up
R 05	Activate LIGHT/SIGNAL LIGHTH until P1 has been released
R 06	Activate TEST output until P1 has been released
R 07	Display the tension of the capacitors until P1 has been released
R 08	Display temperature of the IGBT until P1 has been released
R 09	Display the resistive value in the SAFETY EDGE input (terminal board no.20) until P1 has been released
R 10	Display the number of cycles number of cycles until P1 has been released *(point indicated the thousands)*
R 11	Activate the brake output

9   Problems

Here are listed some functions issue indicated in the display. You can see the causes and the procedure to solve the issue.

Problem	Description	Solution
Er01	OVERVOLT on vbus	There is a tension of 240 Vac in the capacitors. *Check the network tension.*
Er02	OVERCURRENT in the MOTOR	The overcurrent level of programm L10 has been exceeded. *If necessary increase the value.*
Er03	Tension in the capacitors too low	The tension in the capacitors is too low. *Check the network tension.*
Er04	Absorption at 1.5 A when the motor is not working	The control unit has an absorption of more than 1,5A even if the motor is not working. *Check the accessories and the motor.*
Er05	Security code not correct	Code not correct. *Try a new code.*
Er06	Exceeded temperature of the spendthrift IGBT	*Wait until the temperature in the spendthrift is reduced.*
Er07 Er17 Er27 Er67 Er77	Signal error of the encoder	Check the encoder connections
Er57	The barriers doesn't detect the cycle of the door when the motor is powering.	Check the curtains

10   Note

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11   Declaration of CE conformity

(according to EC Directive 2006/42, Attachment II, part 1, ses. A)

Company:	**EB TECHNOLOGY SRL**
Address:	Corso Sempione 172/5
	21052 Busto Arsizio VA Italy
Product's name:	**START-S12-M**
	Centrale Inverter 230Vac

The undersigned Ernestino Bandera, Administrator

DECLARES THAT:

$C \epsilon$

THE PRODUCT COMPLIES	with what is outlined in the European Community directive:
2006/42/CE	EC DIRECTIVE 2006/42 ISSUED BY THE EUROPEAN PARLIAMENT AND COUNCIL on may 17, 2006 harmonizing the legislation of the member countries regarding machinery.

Reference: Attachment II, part 1, ses. A (EC Declaration of Conformity issued by the manufacturer).

THE PRODUCT COMPLIES	with what is outlined in the European Community directives:
2006/95/CE	EEC DIRECTIVE 2006/95 ISSUED BY THE EUROPEAN COUNCIL on December 12, 2006 harmonizing the legislation of the member countries regarding electric materials for use within certain voltage limits

Reference to harmonized standards: EN 60335-1

2004/108/CE	EEC DIRECTIVE 2004/108/CE ISSUED BY THE EUROPEAN COUNCIL on December 15, 2004, harmonizing the legislation of the member countries regarding electromagnetic compatibility.

Reference to harmonized standards: EN 61000-6-2   EN 61000-6-3

IL PRODOTTO E' CONFORME	with the essential requirements of article 3 of the following European Community Directive, for the use for which the product is designede
1999/5/CE	EC DIRECTIVE 1999/5 ISSUED BY THE EUROPEAN PARLIAMENT AND COUNCIL on March 9, 1999 regarding wireless units and telecommunications terminals and their reciprocal recognition

Reference to harmonized standards: ETSI EN 300 220-3   ETSI EN 301 489-1   ETSI EN 301 489-3

The directive 2006/42/CE remind that it is not allowed the function of the product until the machine, for which the product is included, is not indentify and declared conformed to the 2006/42/CE directive.

Dairago, 1 february 2012
The Administrator
Ernestino Bandera

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$C \epsilon$ RoHS COMPLIANT 2002/95/EC

DICHIARAZIONE DI CONFORMITA'

Il sottoscritto, rappresentante il seguente costruttore, dichiara che l'apparecchio denominato

START-S12-M

risulta conforme a tutte le norme tecniche relative al prodotto entro il campo di applicabilità delle Direttive Comunitarie 2006/42/CE, 2006/95/CE, 2004/108/CE e 99/5/CEE

Sono state eseguite tutte le necessarie prove di radiofrequenza

EB TECHNOLOGY SRL
Corso Sempione 172/5
21052 Busto Arsizio (Va)
Italia

Questa dichiarazione viene emessa sotto la sola responsabilità del costruttore e, se applicabile, del suo rappresentante autorizzato.

Italia, 01/02/2012

Amministratore

DECLARATION OF CONFORMITY

The undersigned, representative of the following manifacturer, hereby certifies that the equipment known as

START-S12-M

complies with all technical requirements concerning this product within the domain of application of the EC Directives 2006/42/CE, 2006/95/CE, 2004/108/CE and 99/5/CEE

All necessary radiofrequency tests have been performed

EB TECHNOLOGY SRL
Corso Sempione 172/5
21052 Busto Arsizio (Va)
Italia

This declaration is rendered under the manifactu-rer's sole responsability, and if applicable, under responsability of his authorized representative.

Italia, 01/02/2012

Administrator

DÉCLARATION DE CONFORMITÉ

Le soussigné, représentant du constructeur suivant certifie que les appareils ci-dessus référencés

START-S12-M

sont conformes à toutes les normes techniques relativement au produit dans le domaine d'application des Directives Européennes 2006/42/CE, 2006/95/CE, 2004/108/CE et 99/5/CEE

Toutes les essais de radiofréquence nécessaires ont été effectués

EB TECHNOLOGY SRL
Corso Sempione 172/5
21052 Busto Arsizio (Va)
Italia

Cette déclaration est présentée sous la seule responsabilié du constructeur et, si applicable, de son représentant autorisé.

Italia, 01/02/2012

Administrateur

KONFORMITÄTSZERTIFIKAT

Der Unterzeichner bescheinigt, dass das Produkt

START-S12-M

allen technischen Produktegesetzen, laut den Europäische Gesetzen 2006/42/CE, 2006/95/CE, 2004/108/CE e 99/5/CEE, entspricht.

Alle Radiofrequenzprüfungen haben bei der nachstehenden Firma stattgefunden:

EB TECHNOLOGY SRL
Corso Sempione 172/5
21052 Busto Arsizio (Va)
Italia

Diese Bescheinigung wird unter der alleinigen Verantwortung des Herstellers ausgestellt und dort woanwenbar, auch unter der des befugten Vertreters.

Italia, 01/02/2012

Verwalter

DECLARACIÓN DE CONFORMIDAD

El abajo firmante, representante el fabricante siguiente, declara que el equipo denominado

START-S12-M

es conforme con todas las normas técnicas correspondientes al producto en el campo de aplicación de las Directivas Comunitarias 2006/42/CE, 2006/95/CE, 2004/108/CE y 99/5/CEE

Han sido realizadas todas las necesarias pruebas de radiofrequencia.

EB TECHNOLOGY SRL
Corso Sempione 172/5
21052 Busto Arsizio (Va)
Italia

Esta declaración se expide bajo la exclusiva responsabilidad del fabricante y, si de aplicación, de su representante autorizado.

Italia, 01/02/2012

Administrador

DECLARACÃO DE CONFORMIDADE

O abaixo-assinado, represendo o seguinte construtor declara que o aparelho denominado

START-S12-M

é conforme a todas as normas técnicas relativas ao produto dentro o campo de aplicabilidade das Diretivas Comunitarias 2006/42/CE, 2006/95/CE, 2004/108/CE e 99/5/CEE

Foram executadas todas as necessárias provas de rádio frequência.

EB TECHNOLOGY SRL
Corso Sempione 172/5
21052 Busto Arsizio (Va)
Italia

Esta declaração verm emitida somente com a responsabilidade do construtor e, se aplicável, do seu representante autorizado.

Italia, 01/02/2012

Administrador