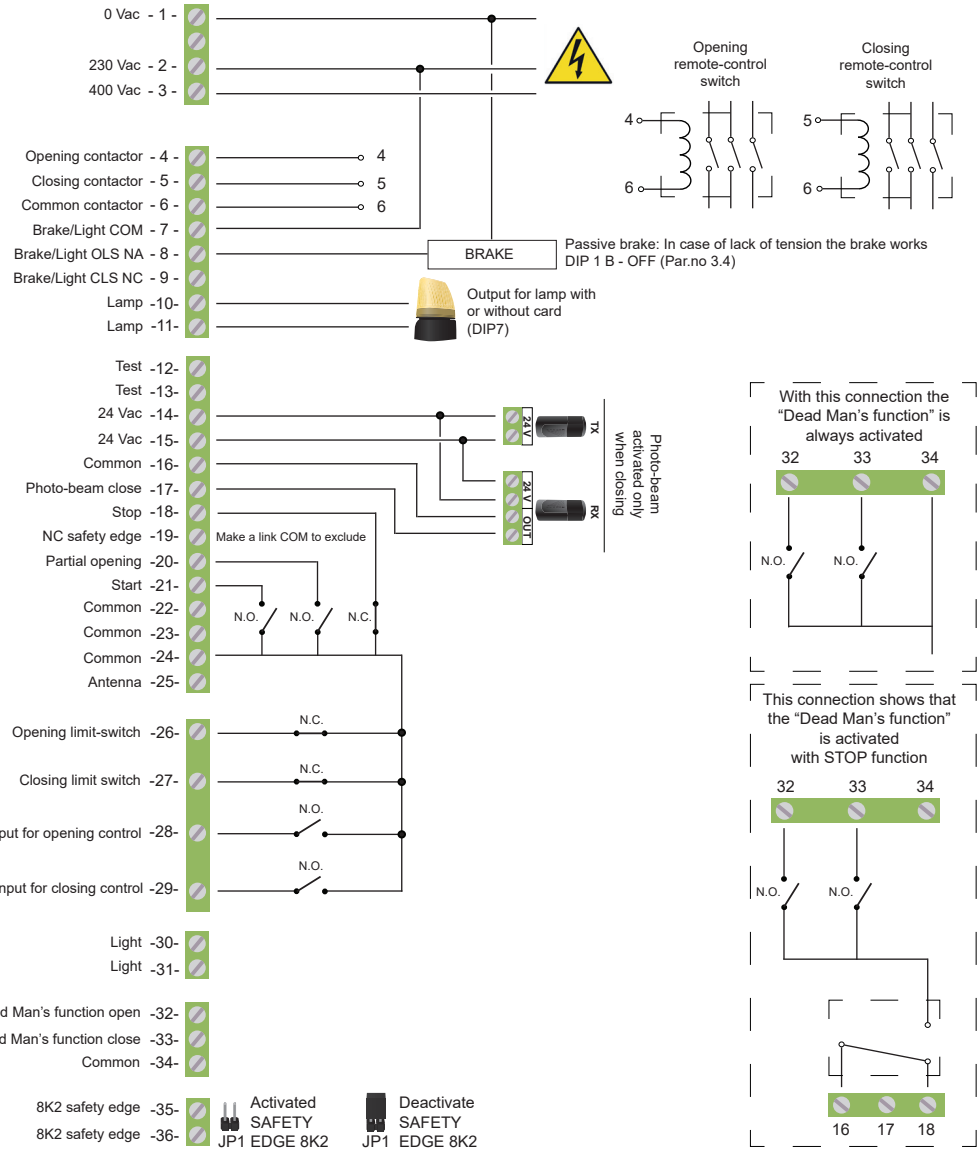
100% ITALY

START-S5PV-K

230/400 Vac

Manual for the installer



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. The producer 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 service or the shop where you purchased the product.

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1 Introduction

1.1 Safety precautions

Using the unit improperly and performing repairs or modifications personally will void the warranty. The producer declines any responsibility for damages due to inappropriate use of the product and due to any use other than the use the product was designed for. The producer declines any responsibility for consequential damages except civil liability for the products.

Remember that systems for automatic gates and doors must be installed by highly qualifi ed technicians only and in full compliance with current law. Before starting installation, check that the mechanical consistency and sturdiness of the gate or door, check that the mechanical stops are suitable to stop the movement of the gate or door even if the electrical limit switches should fail or during manual operations.

1.2 Symbols and warning

DANGEROUS

This is a warning and if it is not respec it can provoque material 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 manual before installation and keep it for the future

1.3 Security system

These two simple diagrams show only one of the possible applications for this control unit. The risks inherent to the “MACHINE” and the user’s requirements must be analyzed in depth in order to establish how many elements need to be installed.

For a sure installation we suggest to install a STOP SWITCH, when it is working it stops immediatelly the door. The SWITCH should have a normally closed contact and it opens when it is working (see Par. 2.10)

1.4 Preliminary checks

Making the correct choice of installation is essential to ensuring adequate safety and good protection against atmospheric agents. Remember that the control unit contains powered parts and electronic components which by their very nature are sensitive to infi ltrations and moisture. The control unit is supplied in a container which guarantees an IP55 protection rating if adequately installed. Install the control unit on a permanent surface that is perfectly flat, adequately protected against impacts and at least 40 cm off the ground.

The cables must enter the control unit from the bottom only; we recommend using wire leads and water-tight connections. When using tubing that could fi ll up with water or if the tubing comes from an underground well, the wires must enter a first shunting box placed at the same height as the control unit and then, from there, the wires must be passed into the container holding the control unit, again entering from the bottom. This prevents any evaporation of the water in the tubing from forming condensation inside the control unit itself.

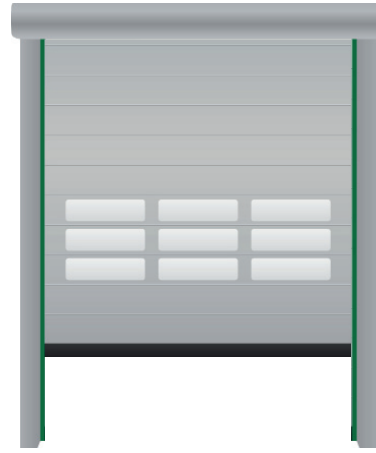
1.5 Type of electrical wires

Depending on the installation, the type and number of devices installed, the number of cables needed can vary. The table below shows the cables needed for a typical installation. The cables used in the installation must be IEC 60335 compliant.

⇨	Power supply line	Cable 3x1,5 mm^2
⇨	Motor cable (if not equipped)	Cable 4x1,5 mm^2
⇨	Flashing signal light	Cable 2x1,5 mm^2
⇨	Antenna radio	Shielded cable type RG58
⇨	Key selector	Cable 3x0,5 o 0,75 mm^2
⇨	Photo Tx	Cable 4x0,5 o 0,75 mm^2
⇨	Photo Rx	Cable 3x0,5 o 0,75 mm^2

1.6 Type of installation

START-S5PV-K control unit is designed for roll-up doors or rapid doors.



1.7 Connections Notes

To guarantee operator safety and to prevent damaging the components, never make connections or insert wireless receiver boards while the control unit is powered. Power the control unit through a 3 x 1.5 mm^2 cable. If the distance between the control unit and the ground system connection is more than 30 m, a ground plate must be installed in proximity to the control unit.

- Power the control unit with a 3x1,5mm^2. If the distance between the installation and the control unit is more than 30mt, It is necessary an earth electrode near the control unit.
- If the motors do not have a cable, use the 4 x 1.5 mm^2 cable (open + close + common + ground).
- In connecting the part with an extremely low safety voltage, use cables with a minimum section of 0.5 or 0.75 mm^2.
- Use shielded cables if the length exceeds 30m and connecting the ground braid only from the side of the control unit.
- Do not connect the cables in underground cases even if they are water-tight.
- If they are not used, the inputs to the Normally Closed (NC) contacts must be jumpered to the common"
- If the same input has more than one contact (NC), they are placed in series.
- If they are not used, the inputs to the Normally Open (NO) contacts are left loose.
- If the same input has more than one contact (NO), they are to be placed in series.
- The contacts must be mechanical and free of any potential.

Remember that systems for automatic gates and doors must be installed by highly qualifi ed technicians only and in full compliance with current law.

2 Installation of the control unit

2.1 Description of the electrical connections

0 Vac	1		0 Vac
230 Vac	2		230 Vca 50 Hz power supply
400 Vac	3		400 Vca 50 Hz power supply

Opening r.c.s.	4		Output for OPEN remote control switch
Closing r.c.s.	5		Output for CLOSE remote control switch
Common r.c.s.	6		Output for COMMON remote control switch
Common	7		Braking system or a signal light (opening limit switch) can be connected to the terminal board no.7-8-9. Use DIP B according to the instructions of Par. No.3.4
N.O.	8		
N.C.	9		
Lamp	10		Output for light or 230Vac courtesy light, maximum power for 100W lamp
	11		

Test	12		Dry contact for PHOTO-TEST
	13		
24 Vac	14		Output 24 Vac
	15		
Common	16		Common contact for: services, safeties.
Photo-beam close	17		Input for photo-beam (the PHOTO will work only when closing)
Stop	18		Input for STOP
Safety Edge	19		Input for NC SAFETY EDGE
Partial opening	20		Input for PARTIAL OPENING
Start	21		Input for START control
Common	22		Common contact for: services, safeties
Common	23		Common contact for: services, safeties
Common	24		Common contact for: services, safeties, coaxial antenna cable
Antenna	25		+ Antenna

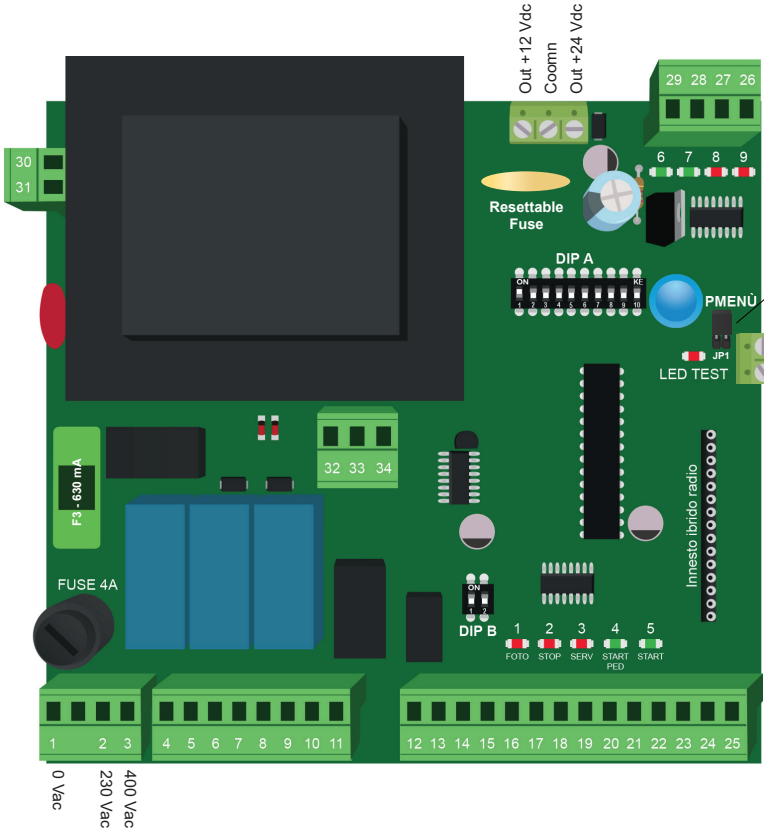
LSO	26		Input for OPENING limit switch
LSC	27		Input for CLOSING limit switch
Open	28		Input for OPEN
Close	29		Input for CLOSE

Dry contact	30		dry contact for light
Dry contact	31		dry contact for light

Dead man's - OPEN	32		Contact for Dead's man function OPEN
Dead man's - CLOSE	33		Contact for Dead's man function CLOSE
Common	34		Common

8k2 safety edge	35		8K2 safety edge *Close JP1 to exclude the contact*
8k2 safety edge	36		

2.2 Scheme of the control board



1 → 2	230 Vac power supply of the control unit
1 → 3	400 Vac power supply of the control unit
4 → 11	230 Vac power supply of the motor, 230Vac contact for signal lights
12 → 25	Voltage for accessories, inputs services and safeties
26 → 27	Input for closing limit switch
28 → 29	Input for open and close control
30 → 31	Free contact for light
32 → 34	Dead's man function with open and close
DIP A	Set up the function of the control unit
DIP B	Set up the function of the control unit
Button **P**	For radio decode, power adjustment, increase of the pause time
Fusibili di protezione	Fuse for Transformer power supply, Signal Light (term. board 10-11) and fuse for remote-control switch (term. board 4-5-6): **F1 - 4A**
	Fuse accessories and logic: **F2 Resettable Fuse**
	Fuse for braking system : **F3 - 630mA**

LED
When the control unit is powered, the lights LED are turned on when the common contact is closed.

LED TEST - RED
It indicates if the control unit is working properly. It flashes each second and it indicates that the micro-processor is activated and it is waiting for controls.

1 - RED - ON
PHOTO contact closed.

2 - RED - ON
STOP contact closed.

3 - RED - ON
SERVICES contact closed.

4 - GREEN
It turns on when the partial opening contact is closing.

5 - GREEN
It turns on when the START contact is closing.

6 - GREEN
It turns on when the CLOSE contact is closed.

7 - GREEN
it turns on when the OPEN contact is closed.

8 - RED - ON
Closing limit switch (NC)

9 - RED - ON
Opening limit switch (NC)

WARNING!
This control can be used only with limit-switches

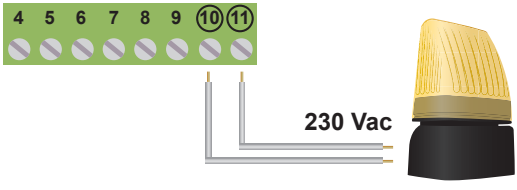
2.3 Connection of the VOLTAGE

Connection of the VOLTAGE. It can be two ways of powering the control unit:

The power supply of the control unit should be protected from a magnet-switch or from a couple of 5A fuses.

A circuit breaker switch is suggested if it is already available in the installation.

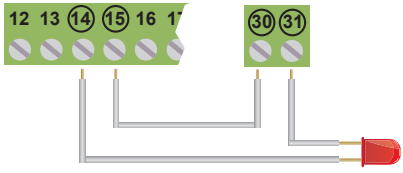
2.4 Connection of the LAMP



DIP A 7 ON
In case the lamp without flashing light

DIP A 7 OFF
In case the lamp has a flashing light

2.5 Connection of a 24V light for working and opening gate



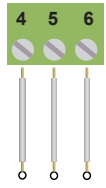
Terminal board 14-15
Power supply of the accessories
Tension: 24Vac
Maximum current: 300mA

2.6 Connection of a REMOTE CONTROL SWITCH

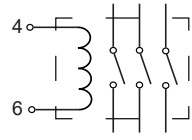
Pay attention not to invert the poles OPEN and CLOSE.

In case of doubts put manually the gate in the middle.

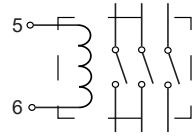
Be ready to stop the gate with STOP command.To make sure of the opening and closing try to interrupt the photo-beams, if the gate closes it means that the connection is not correct and you need to invert the cables of the motor OPEN AND CLOSE.



Open REMOTE CONTROL SWITCH



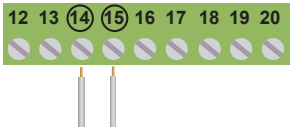
Close REMOTE CONTROL SWITCH



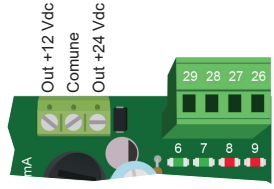
Description of securities

The control unit dispose of inputs for **CLOSING PHOTO-BEAM** and **STOP**. The first contact is activated only when the motor is closing or is in pause time; if the safety edge is working while the motor is closing, the control unit stops and invert the motor until new completely opening, while if the intervention is during the pause time it recharge the pause time and it doesn't reclose.
The input **STOP** is activated in any condition. If this input is not connected to the common input (terminal board 16-18) the control unit won't accept any control and it stops immediately the motor if it is moving.

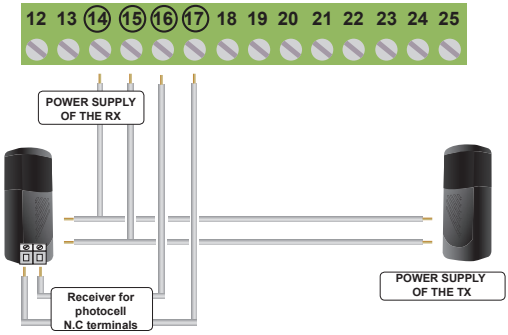
2.7 Power supply for accessories



Terminal Board 14-15
Power supply accessories
Voltage: 24Vac
Maximum current: 300mA



2.8 Connection of the PHOTO-BEAM



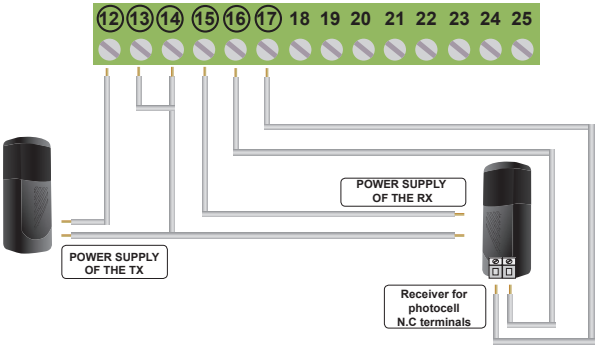
The contact of the receiver of the photo-beam should be:

- dry
- normally closed

If you install more photo-beams make a serial connection.

If the input PHOTO is not used, make a link (16-17)

2.9 Connection of the PHOTO-BEAM with PHOTO-TEST



To activate the PHOTO-TEST put in ON the micro-switch 6 of DIP A

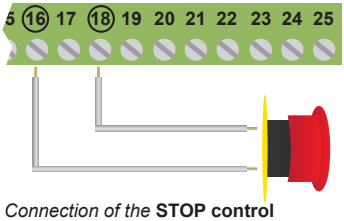
The contact of the receiver of the photo-beam should be:

- dry
- normally closed

If you install more couple of photo-beams make a serial connection.

The photo-test make sure that the automation is working properly. The control unit will first do a test before opening. In case the installation of photo-beam is not correct, the control unit will turn on the lamp for 5 seconds and the gate won't working.

2.10 Connection of STOP devices



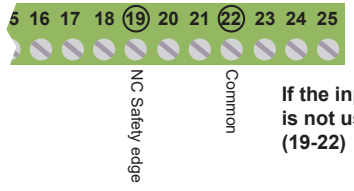
Connection of the **STOP control**
BUTTON: it stops temporary the control unit until a new command.
SWITCH: the automation stops until a new reset.

If the input STOP is not used make a link. (16-18)

Connection of the **SAFETY EDGE**:
Stop the gate and reverse the door for 1,5 seconds

8K2 SAFETY EDGE

NC SAFETY EDGE

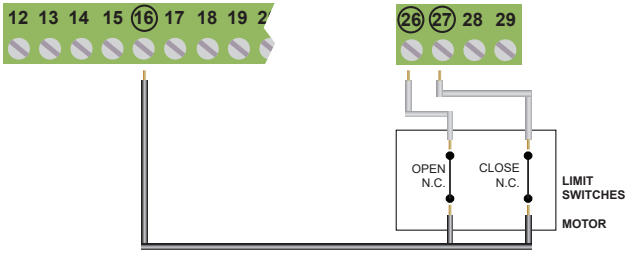


If the input NC Safety edge is not used make a link. (19-22)

The connection of safety devices can be done with every button or a NC contact. If more devices are available they can be serial connected.

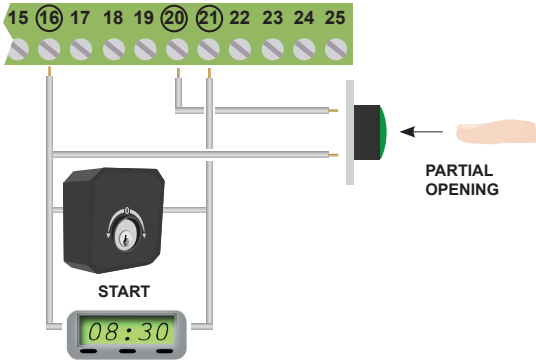
2.11 Connection of the OPENING and CLOSING limit switches

You can see both limit switches in the picture but in this control unit you can use separately.
The contact of the limit switches are NORMALLY CLOSED



If the inputs LSO (opening limit switch) or LSC (closing limit switch) are not used, make a link. (26-16) (27-16)

2.12 Connection of the control OPENING “START” and “PARTIAL OPENING”



The connection of openinc control with START can be done with every button or N.A. contact. If more devices are available, they should be parallel connected.

The connection of PARTIAL OPENING can be done with every button or a NORMALLY OPEN contact.

You can connect a TIMER to plan the opening and closing time of the gate, with the terminal board no.16 and 21. The contact should be NORMALLY OPEN and it should be closed for all time the gates is open. If the connection of the opening is available in the terminal board no.21, connect it in parallel.

3 Functions and adjustment

The control unit dispose of DIP A which can used to activate different functions to make the installation suitable to the customer's requirements and for more safety.

3.1 Set up of the START control and PARTIAL OPENING of the DIP A

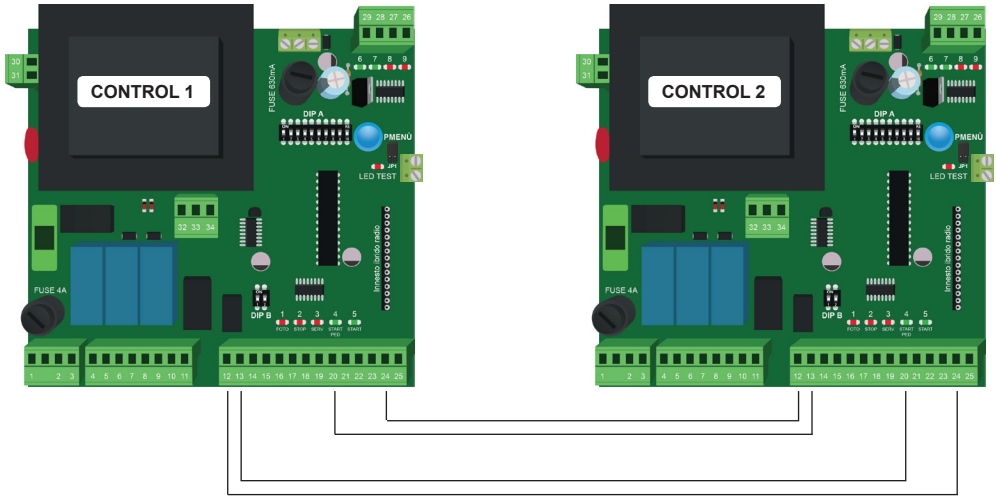
	1-OFF 2-OFF		Each control the motor invert. It recloses after pause time
	1-ON 2-OFF		When opening it ignore the controls, when closing it renverse and re-open, when pause it recharges the pause time.
	1-OFF 2-ON		When opening and when closing the motor stops and they renverse at the next commande. IT DOESN'T RECLOSE AUTOMATICALLY
	1-ON 2-ON		When opening and when closing the motors stop and the invert at the next control. IT RECLOSE AUTOMATICALLY
	3-ON	**Deactivate the opening command**	It inhibits the opening control if the photo-beam has been obscured when the door is closed

3.2 INTERLOCK FUNCTION function of DIP A

Control 1			Control 2	
test	12	-	24	common
test	13	-	20	pedestrian
common	24	-	12	test
pedestrian	20	-	13	test

DIP A 4 can activate the "interlock function"

DIP A 4 ON
Activate the INTERLOCK function



3.3 Resume of the functions with other DIP A micro-switches

The control board several micro-switches DIP A for different function according the customer requirements and for a safe installation:

	5-ON	**Working time memorization**	Working time memorization with START and PARTIAL OPENING.
	5-OFF	**Reset of the MEMORY CODE**	It cancel all CODES in the memory.
	6-ON	**Photo-test**	Activate the PHOTO-TEST for the PHOTO-BEAM.
	7-ON	**Lamp without electronic card**	It activate the flashing light for lamp, 230V output for lamp.
	7-OFF	**Lamp with electronic card**	It activate the flashing light of the electronic card of the lamp, 230 V output for lamp.
	8-ON	**Delay in delay reverse**	It activate a delay of 2 seconds before each reverse.
	9-ON	**Exclude the input SAFETY EDGE**	It exclude the SAFETY EDGE
	10-ON	**Exclude the input PHOTO BEAM**	It excludes the input for PHOTO-BEAM

If the door will be removed manually at not with limit-switch, or with Dead's man funtion function at the next START control it always opens.

The contact no.7-8 (N.O.) is closed when the door arrives at the opening limit switch and the contact 7-9 (N.C.) changes the opposite condition of contact 7-8.

3.4 Set up of the DIP B

	1 - OFF	**Brake output**	It is possibile to connect a braking system to the terminals 7-8-9
	1 - ON	**LSO Light**	It is possible to connect a light for LSO at the terminals 7-8-9
	2 - OFF	**Search time LS = 5s**	For limit switch search time at 5 s *(Standard)*
	2 - ON	**Search time LS = 30s**	For limit switch search time at 30 s

4 Installation of the receiver and managing of the REMOTE CONTROL

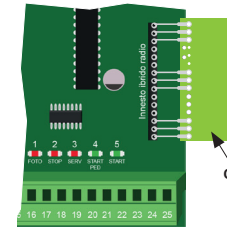
To manage the remote controls, the control unit should have a receiver. The control unit can manage different type of codes, the first memorized code will determine the type of code, consequently it cannot be memorized different codes from the first. The receiver will accept 12 to 64 bit codes.

4.1 Installation of the hybride

! WARNING! The installation of the receiver should be done when the control unit is not powered.

! WARNING! The hybride should be plug-in in the correct side: components at the exterior side of the control unit

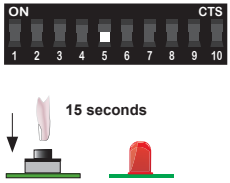
! WARNING! If the hybride will take away and the codes are already memorized, you have to cancel the memory (see next chapter CODICI; CANCELLATION OF THE MEMORY)



Component side at the exterior side of the control unit

4.2 Cancellation of the MEMORY CODE

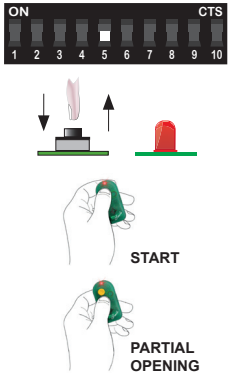
This operation cancel all codes. It is not possible to cancel one of a single code.
It is necessary to reset the memory before learning the first remote control.
The cancellation of the memory is possible only when the gate is closed.



1	Make sure that the micro-switch no.5 of DIPA is in OFF position. The door is closed.
2	Keep pressed the button P until the led TEST start flashing
3	Wait until the led TEST starts flashing

4.3 MEMORIZATION of a single remote control

The memorization of a code is possible when the gate is CLOSED:



1	Make sure that the micro-switch no.5 of DIAP are in OFF position. The door is closed.
2	Make sure that the micro-switch no.5 of DIP A are in OFF position. The door is closed.
3	Press and release slowly the button of the remote control which should be associated to the control START. The led TEST flashes 6 times and 1 time slowly and then it is lit on for 10 seconds (START code memorized)
4	You have 10 seconds time to press and release slowly the button of the remote control which should be associated to the PARTIAL OPENING control (second button of the remote control). The led TEST flashes fastly for 6 times and then normally.

- If you need to memorize another remote control repeat the passage no.1
- If you don't need to associate any control to PARTIAL OPENING, don't do the passage no.4 wait for 8 seconds and 1 flashing for the l.e.d. TEST and then the lamp flashes normally.
- If you press the remote control and the l.e.d. TEST is lit on, it means that the remote control is not COMPATIBLE
- If you press the remote control and the l.e.d. TEST flashes slowly it means that the memory is full.
- This control unit cannot cancel one single code

5 Turn on and program of the control unit

When the control unit has been well connected, the gree l.e.d. TEST should flash while STOP, FOTO, FCA, FCC e EDGE, SHOULD BE LIT ON (if the gate is close OLS is turned off). L.E.D START and PED have to be turned off. When the control unit is turned on and the motor starts opening, it means that the control unit has been previously turned off (tension cut off).

If you have to set up the working time:
Turn off the control unit , close the gate
Put the dip-switch no.5 of DIPA in ON and give power supply again

Put the micro-switch no.5 in ON of DIPA, the control unit is ready to be programmed. In this way is possible to set up the working time.

5.1 Working time memorization

Herewith the processing for the working time memorization.
It is necessary to use the control START and PARTIAL OPENING.
These controls can be used from a device connected to the terminal boards 16-21 for opening START or 16-20 for opening of PARTIAL OPENING (see " CONNECTION OF AN OPENING CONTROL" and " CONNECTION OF A PARTIAL OPENING CONTROL) or from a memorized remote control (see "MEMORIZATION OF A REMOTE CONTROL")

The operation can only be performed when door is closed.
Starting for the beginning,
put in ON position the micro-switch 5 of DIPA before powering

5.2 Working time memorization with PARTIAL OPENING control

The PARTIAL OPENING control can be used for a partial opening of the door and permit the passage of people or small vehicles just to avoid the complete opening of the gate.

PARTIAL OPENING

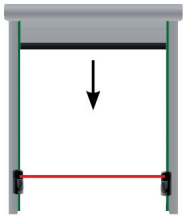
1	Put the dip-switch no.5 of DIPA in ON	The gate is closed
2	Press the PARTIAL OPENING button (everything which is connected to the input no.20 or 2nd channel of the remote control)	The automation starts OPENING
3	Press the PARTIAL OPENING to stop the gate in the special point (stop partial opening)	The automation STOPS
4	Leave the gate opens	The door is in pause time
5	Press PARTIAL OPENING to start closing	The door starts in CLOSING
6	wait until the gate automatically clos	The door is closed
7	Put in OFF the micro-switch no.5 of DIPA to go back to the normal condition. The lamp turns off and the green led are working normally.	End of the operation

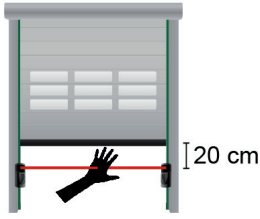
5.3 Memorization of the working time with the OPENING CONTROL “START”

1	Put in ON the micro-switch no. 5 of DIPA .	DOOR is closed
2	Press START (everything which is connected to the input 21 or 1st channel of the remote control).	The door starts opening
3	Wait until the door stops.	The door STOPS
4	Let the time goes until the door should be open.	The automation is in pause time
5	Press the control START for closing.	The door closes
6	Wait until the automation stops automatically.	The automation is CLOSED
7	Put in OFF the micro-switch no.5 of DIPA to go back to the normal status. The lamps is turning on and the green l.e.d. go back to the normal status.	End of the operation

5.4 Inhibition PHOTOCELL during closing

IT can happen that when the door is closing, the curtain can obscure the ray of the photocell and this can re-open the photocell. To avoid this inconvenience follow this process:

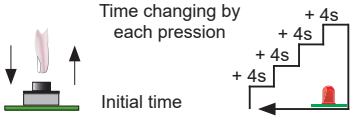




A	If you follow correctly point no.5 the working time of the START command, the door is closing.
B	To deactivate the photo-beams you need, during the memorization of the working time, intterupt with the hand the rays of the photocells at 20 cm before the curtain reach the photo-beams.
C	Now the control panel memorize the exact point where the photocells must be deactivated. Go back to point no. 7 of the previous paragraph and follow the process.

5.5 Increase the PAUSE TIME

It is possible to increase the pause time without repeating the working time.
When the door is in pause, each pression of button P, the pause time increases of 4 seconds. There are 5 pression to increase the pause time until 20 seconds. (5 pression x 4 sec.each) At the 6th pression , the pause time is at 2 seconds. (LED START and PARTIAL OPENING are flashing)



! This operation is possible when the gate is on pause while opening.

6 Note

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7 Declaration of CE conformity

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

The undersigned Ernestino Bandera, Administrator

DECLARES THAT:

Company: **EB TECHNOLOGY SRL**
Address: Corso Sempione 172/5
21052 Busto Arsizio VA Italy
Product's name: **START-S5PV-K**
Universal control unit

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:
2014/35/EU
DIRECTIVE 2014/35/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits.
Reference to harmonized standards: EN 60335-1
2014/30/EU
DIRECTIVE 2014/30/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.
Reference to harmonized standards: EN 61000-6-2 EN 61000-6-3
THE PRODUCT COMPLIES with the essential requirements of article 3 of the following European Community Directive, for the use for which the product is designede:
2014/53/CE
DIRECTIVE 2014/53/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment
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, 31 march 2017
Administrator
Ernestino Bandera

RoHS Compliant 2002/95/EC