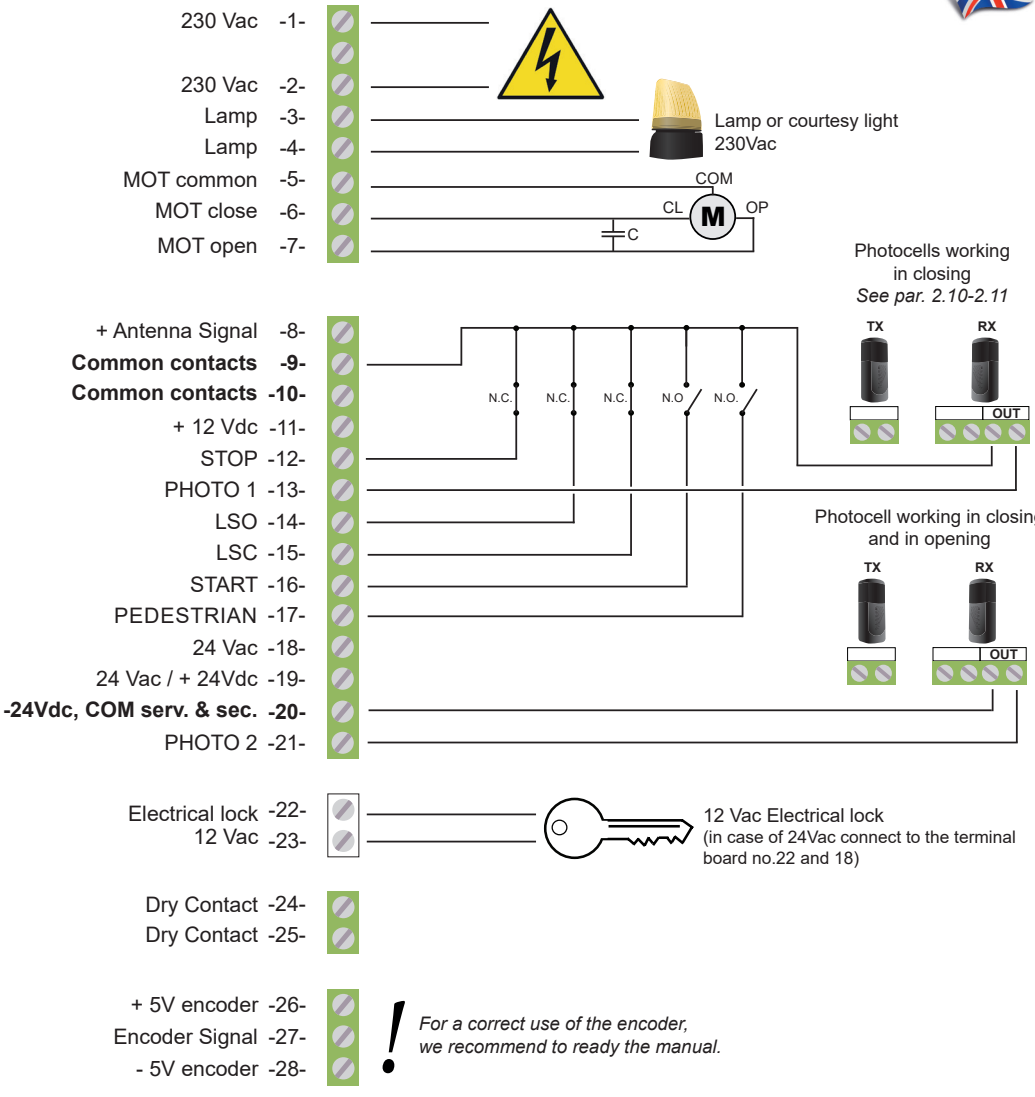
- Single-phase control unit for 1 motor 230Vac
- For sliding gates or swing gate with 1 motor, roll-up doors, rolling shutters with electrical lock and encoder option
- 433.92 Radio receiver integrated with obstacle detection

100% ITALY

ISO 9001:2008
Cert. n. 3614/2
Quality System Certified

KEQS08

Radio receiver



For a correct use of the encoder, we recommend to ready the manual.

Foreword

This manual provides all the specifi c 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 factory 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 undiff erentiated 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.

Symbols and warning

DANGEROUS

This is a warning and if it is not respec it can provoque material damage.

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.

Index

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.

Every programming and/or every maintenance service should be done by qualified technicians.

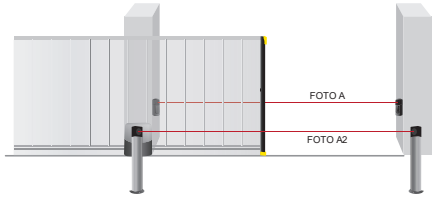
1.2 Field of application

The KEQS08 electronic control unit is used to control the movement of entrances, swinging gateways, rolling gates and automatic doors. It can be connected to a hydraulic or electromechanical actuator equipped with an asynchronous, single-phase motor operating at a voltage of 230 Vac.

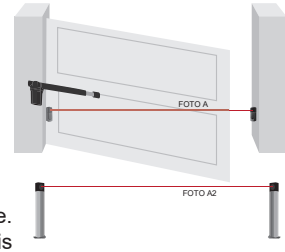
1.3 Type of installation

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. All photocells have a system of synchronism that makes it possible to eliminate interference between two pairs of photocells (for other details, see the instructions for the photocells). In the diagram, the pair of photocells **“Photo A”** (considered in this control unit) has no eff ect during opening while it causes a total inversion during closing. **“Photo A2”** is connected in series to **“Photo A”**.

Installation for sliding gates



Installations for swing gates



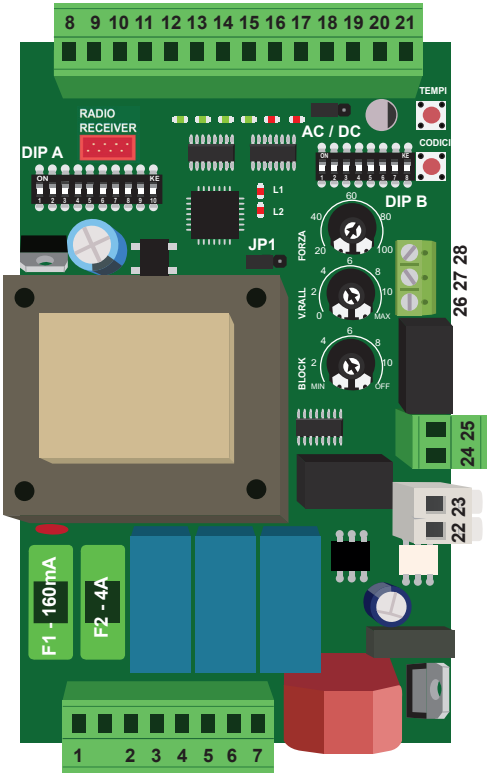
We recommend to install a STOP switch which stops immediatelly the gate. The switch has a normally close contact which opens the contact when it is working. See Par. 2.7

1.4 Technical description

Dimensions	87 x 150 x 45	mm
Weight	0.6	Kg
MAX power of single motor	1 750 4	HP W A
MAX power of signal light 230 Vac	40	W
MAX consumption for dry	2	A
MAX consumption 24 Vac/dc	300	mA
MAX consumption 12 Vdc	50	mA
MAX consumption 12 Vac	1	A

2 Installation

2.1 Diagram of the control unit and electrical connections



1 → 2	Control unit power supply 230Vac
3 → 7	Power supply for 230Vac motor and for 230Vac Signal Light
8 → 21	Power supply for accessories and inputs and securities
22 → 23	Electrical lock, Power supply of the accessories
24 → 25	“Dry” contacts for light or photocell TEST or signal light without flashing control card
26 → 28	Connection of the encoder
JUMPER AC/DC	Selection of the power supply, 24 Vac output or dc on terminals 18-19-20
JUMPER JP1	“Death man” function (Par. 3.3)
DIP **A**	Set up of the logic of the control unit
DIP **B**	Exclusion of the inputs, activation of Soft-start (gradual start)
Button **P**	Managing of the remote controlsd, force adjustment, increase of the pause time

Connection of the POWER SUPPLY LINE 230 Volt Single-phase alternate current. The control unit power supply line must always be protected with a magnetic-thermal switch or a pair of 5A fuses.

An earth leakage circuit breaker is recommended but not necessary if already available in the site if one is already installed on the plant.

Connection of the MOTOR
Pay attention not to invert the OPEN and CLOSE poles.

When in doubt as to the correct connection, if possible, manually position the automation at the midpoint of its stroke. Be ready to stop the system using the STOP control!

To be sure that the opening is really “opening”, try to block the photocells: if the gate begins to close, the connection is incorrect and the motor OPEN and CLOSE wires must be inverted.

2.2 Description of the electrical connection

230 Vac	1		Electrical power supply 230 Vac 50 Hz
230 Vac	2		Electrical power supply 230 Vac 50 Hz
Signal Light	3		Output for 230 Vac signal or courtesy light maximum power 40W
	4		
MOT common	5		Output for connection of COMMON motor pole
MOT close	6		Output for connection of CLOSING motor pole
MOT open	7		Output for connection of OPENING motor pole

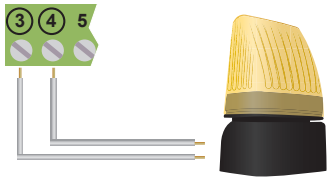
+ Antenna	8		Input for antenna signal
Common	**9**		Common for all inputs: services, safety devices, coaxial cable, 12 Vdc
Common	**10**		
+ 12Vdc	11		Output +12 Vdc maximum current 50mA (positive)
Stop	12		STOP input
PHOTO 1	13		Input for photocell 1 (intervention only when closing)
Lso	14		Input for opening limit switch
Lsc	15		Input for closing limit switch
Start	16		Input for bistable START
Pedestrian	17		Input for bistable partial PEDESTRIAN opening (same setting as START)
24Vac	18		Output 24Vac (See Par. 2.10 & 2.11)
+ 24Vdc / 24Vac	19		Output + 24Vac/dc (See Par. 2.10 & 2.11)
- 24Vdc	20		Output - 24Vdc (See Par. 2.10 & 2.11)
PHOTO 2	21		Input for photocell 2 (intervention in opening and closing) DIP6A

Electrical lock	22		0 Vac Electrical lock (See Par. 2.13)
12 Vac	23		Out 12 Vac Electrical lock

Dry contact	24		“Dry” contacts for light or photocell TEST or flashing light without intermittence circuit board
Dry contact	25		

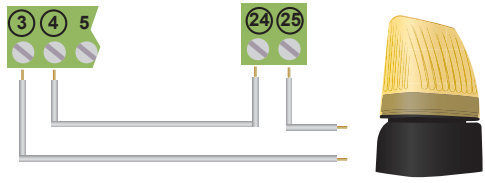
+5 Vdc	26		power supply of the Encoder
Signal for encoder	27		Signal for encoder
-5 Vdc	28		power supply of the Encoder

2.3 Connection of the 230 Vac SIGNAL LIGHT



Signal light
with flashing control card

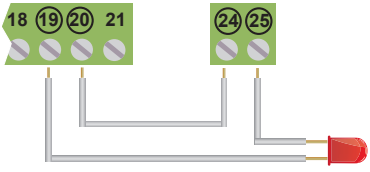
DIP 4 - OFF



Signal Light without flashing control card

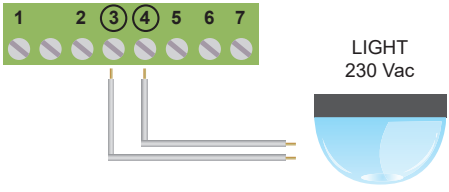
If you use the photocells test,
or a 24V light, this connection cannot be used.

2.4 Connection of one 24V LIGHT for open or moving gate



If you use the photocells test,
or a 24V light, this connection cannot be used.

2.5 Connection of the COURTESY light



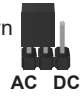
DIP 4 - ON

Terminals 3 and 4 are powered when the gate is opening up to 2 min. after gate closing

2.6 Power supply of the ACCESSORIES

Terminal board 10 (-) / 11 (+)
Voltage: 12 Vdc
Maximum current: 50 mA

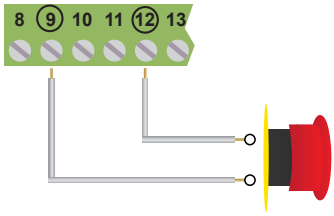
Terminal board 18 / 19
Voltage: 24 Vac
Max current: 300 mA
Put **JUMPER**
JAC/DC as shown
in the picture



Terminal board 19 (+) / 20 (-)
Voltage: 24 Vdc
Max current: 300 mA
Put **JUMPER**
JAC/DC as shown
in the picture

2.7 Connection of the STOP and PHOTO 2

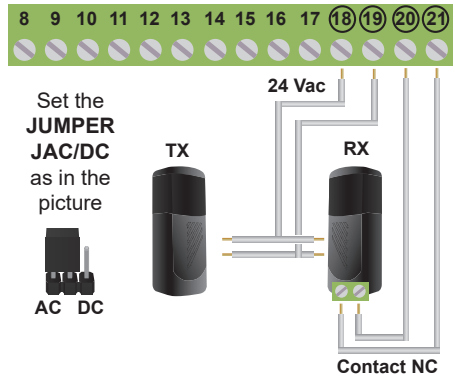
Connection of the **STOP** *control*
Push-button: stops and temporarily prevents all control unit function until it is pressed again.
Switch: keeps the automation blocked until the swicht will be activated again.



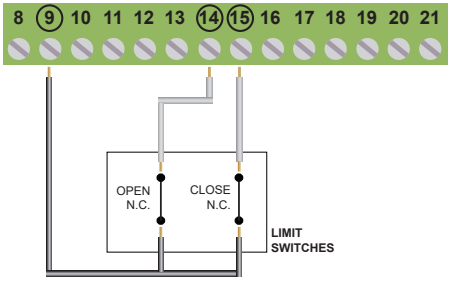
If the STOP input is NOT used put the DIP 1B on ON. If the input PHOTO 2 is not used, put the DIP 5B on ON.

Connection of the safety devices requires the use of any push-button or N.C. (normally closed) contact.
If more devices are available, connect in parallel.

Connection of the **PHOTO2** *control*:
For operation see DIP 6 A page. 11



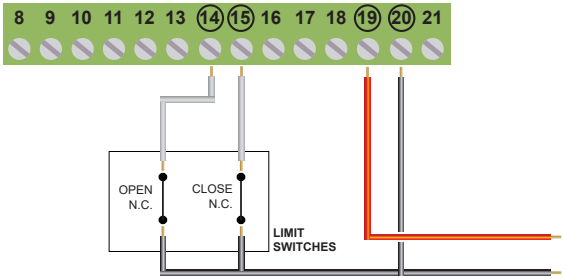
2.8 Connection of LIMIT SWITCHES LSO and LSC



The picture shows the connection of both limit switches, however, on this control unit they can be used separately. The limit switch contacts must be N.C. (normally closed) contacts.

If the LSO or LSC inputs aren't used:
put the ON DIP3B for LSO
put the ON DIP4B for LSC

2.9 Connection of the MAGNETIC LIMIT SWITCHES



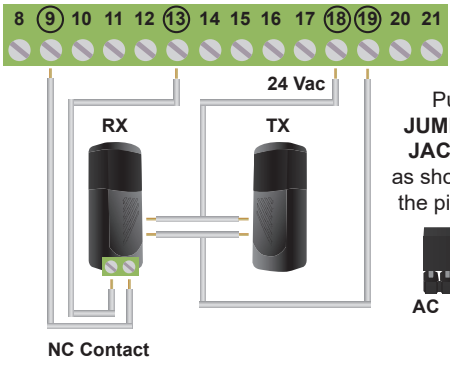
Power Supply magnetic limit switches 24 Vdc

JUMPER AC/DC

Bring the Jumper in DC

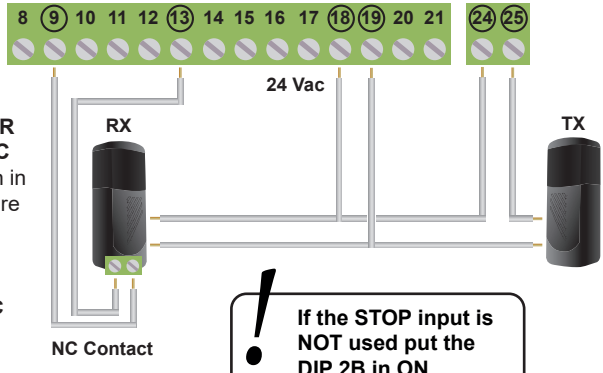
2.10 Connection of the 24 Vac photocell 1 only closing

Without TEST



Put **JUMPER JAC/DC** as shown in the picture

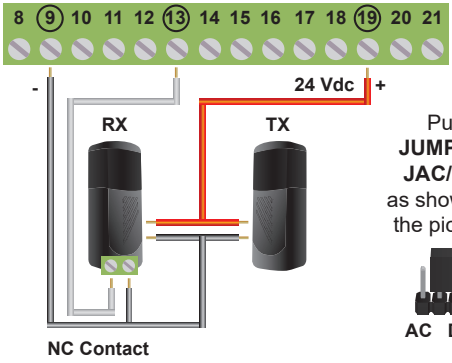
With TEST



If the STOP input is NOT used put the DIP 2B in ON.

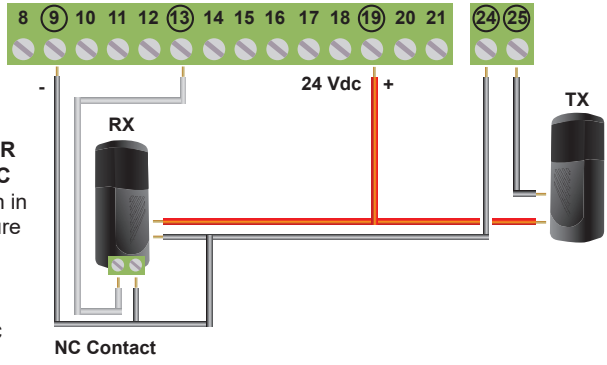
2.11 Connection of the 24 Vdc photocell 1

Without TEST



Put **JUMPER JAC/DC** as shown in the picture

With TEST



The photocell TEST ensures the gate is working when the photocells are functioning properly. In fact, the control unit performs the test before each opening. if the photocells are not working properly, the signal light will be lit on for 5 seconds and the gate stops.

The control unit automatically activates the test only after the START command times have been learnt. If you wish to return to the LIGHT function on terminals 24 and 25, the photocells must be connected without the test and then you must repeat the times learning operation with the START command.

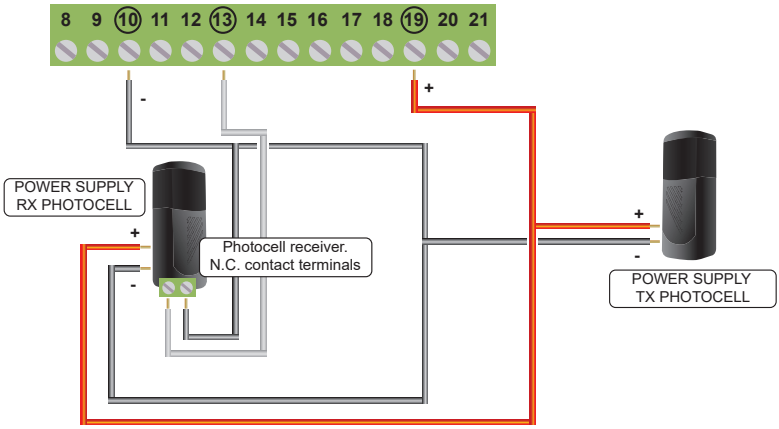
The TEST function is compatible with slow response devices (for example TRANSCEIVER) so the gate be slowly while opening. The TEST can be done also from some devices in the INPUT COSTA (safety edge) and STOP. After the TEST connections, memorize the working time for the START control during this time the control unit check the devices which are under TEST.

The photocell receiver contact must be:

- **dry** (isolated from power supply voltages)
- **type N.C.** (Normally closed)

If more photocells are available, connect them in parallel, they must be connected in series.

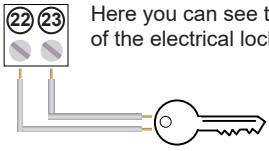
2.12 Connect the 3 WIRES PHOTO 1 24 Vdc



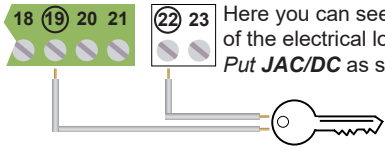
Bring **JUMPER AC/DC** as shown in the picture

Voltage: 24 Vdc
Maximum current: 300 mA

2.13 Electrical lock connection: 12 or 24 Vac

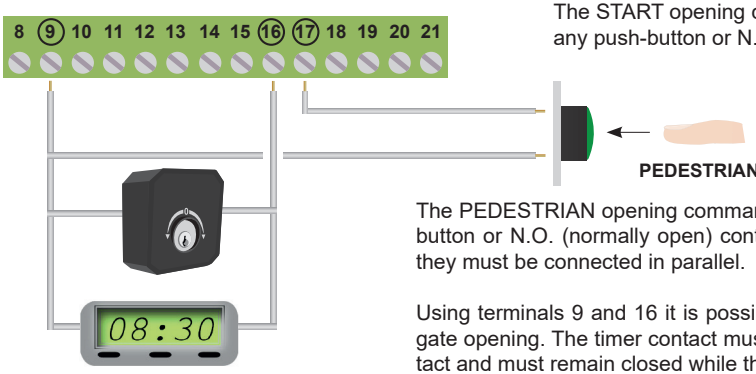


Here you can see the connections of the electrical lock: 12 Vac



Here you can see the connections of the electrical lock: 24 Vac
*Put **JAC/DC*** as shown in the picture:

2.14 Connection of the “START” and “PEDESTRIAN” commands



START

The START opening command can be connected to any push-button or N.O. (normally open) contact.

PEDESTRIAN

The PEDESTRIAN opening command can be connected to any push button or N.O. (normally open) contact. If several devices are used, they must be connected in parallel.

Using terminals 9 and 16 it is possible connect a TIMER to program gate opening. The timer contact must be an NO (normally open) contact and must remain closed while the gate remains open.

If an opening command is connected to terminal 16, it must be connected in parallel.

2.15 Checking connections

LED L1 indicates the correct working of the control unit. It flashes each second to indicate the micro-processor is activated and waiting for commands. *If it flashes softly it means that the input SAFETY EDGE is not in the standard mode.*

When the control unit is powered, the warning lights, set on the inputs, are ON when the contacts on the inputs are closed toward the common:

Normally the red lights on inputs **STOP - PHOTO - LSO - LSC** are **ON**
Normally the green lights on the control inputs **START - PEDESTRIAN** are **OFF**

3 Functions and adjustments of DIP SWITCHES

The control board has several micro-switches to activate a lot of functions in order to fi nd suitable solutions for the user and to make the installation more safe.

3.1 Use of the DIP B

	1-ON	**STOP** 12	Exclude the input STOP
	2-ON	**PHOTO** 13	Exclude the input PHOTO 1
	3-ON	**LSO** 14	Exclude the input LSO
	4-ON	**LSC** 15	Exclude the input LSC
	5-ON	**Safety edge 8K2** 21	Exclude the input PHOTO 2
	6-ON	**Soft-Start**	The gate is opening with a gradual speed
	7-ON	**Industrial use**	The Partial Opening became a CLOSE COMMAND while the START command is OPEN COMMAND. DIP1A OFF and DIP2A ON -> it doesn't close automatically DIP1A ON and DIP2A ON -> it close automatically
	8-ON	-	Not used

3.2 Use of the DIP A

	1-OFF 2-OFF	**Automatic 1**	It inverts: **open and close**. It closes automatically at the end of the pause time
	1-ON 2-OFF	**Condominium**	In opening and pause time doesn't accept commands. it re-closes automatically at the end of the pause time.
	1-OFF 2-ON	**Semi automatic**	By every command **open-stop-close-stop-open etc.** It doesn't re-close automatically
	1-ON 2-ON	**Automatic 2**	By every command **open-stop-close-stop-open etc.** It recloses automatically at the end of the pause time.

	3-ON	**Reversing Stroke**	It allows the electrical lock to be released
	4-ON	**Courtesy light**	Terminals 3 and 4 are powered when the gate is opening until 2 minutes after closing,useful incase the courtesy light needs to be powered
	5-ON	**Pre-lighting**	ON: Pre-lighting 4 seconds OFF: Pre-lighting deactivated
	6	**Photo 2**	ON: In opening and closing it stops and reverses the motion for 2s after 1 minute it closes again. OFF: During opening and closing, it stops and reopens with the obstacle removed (folding door function), re-closes after pause time.
	7	**Motor starting 3 sec after LSC**	ON: The motor runs for 3 seconds OFF: The motor runs until LSC activation
	8-ON	**Phototest**	Activates the TEST in the inputs PHOTO, STOP and SAFETY EDGE (COSTA) *(when a TRANSCEIVER is availalbe, see Chap no. 7)*
	9-ON	**Logic of the obstacle detection: (A)**	In closing, it reverses the direction of travel up to FCA, pauses for 1 minute and then closes again. With a new START command it closes after pause time. In opening it reverses to close for 2 seconds, after one minute it closes completely. If you give a command START the gate reopens.
	9-OFF	**Logic of the obstacle detection: (B)**	Works as limit switch
	10-ON	**Programming time, advanced system**	It activate the advanced working time

3.3 JP1 function: "Death man" function

	JP1 close	**"Death man" function**	The command START open, the PARTIAL OPENING closes. Motors stops immediatelly when the button will be released

4 Using the remote controls

This receiver can manage standard codes from 12 till 64 bit and rolling codes HCS©. The fi rst learned transmitter establish the code's type that the receiver has to manage, it means that the transmitter has to have the same code's type. Concerning the rolling codes it is possible to activate or disactivate the key'scontrol and the rolling counter. With this function you can choose the security level of the receiver.

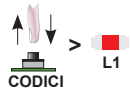
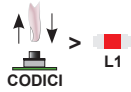
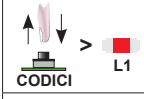
4.1 FULL CANCELLATION of the memory

This operation cancels all codes in the memory. You cannot cancel of a single remote control code. It is necessary to reset the memory before learning new remote controls. The cancellation of the memory (all codes) is possible only when the gate is closed.

	**1**	Make sure that the gate is **CLOSED** Press and keep pressed the **CODICI BUTTON**
	**2**	Wait until **LED L1** start flashing, then release it. Wait the reset of the memory.

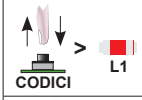
4.2 ROLLING CODE ACTIVATION OR DEACTIVATION

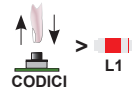
Fixed code MODE (L1 - one flash)
The receiver manages standard codes from 12 to 64 bit and HCS© rolling code (only the fixed part)
Rolling code MODE (L1 - flashes twice):
You can control the rolling code counter and the remote cannot be duplicated

	**1**	Press and release the button CODICI, LED L1 will lit on. Wait until the memory has been cancelled.
	**2**	Press and release the button CODICI again, LED L1 flashes and lit on
	**3**	Press the button CODICI again, LED L1 flashes twice, it activate the rolling code counter.
	4	To return to the fixed code mode, repeat the operation from point no.1 in this way LED L1 will flash only once.

4.3 Learning of the remote controls

The remote controls can be learnt ONLY when the gate is **CLOSED**.
CONNECT THE ANTENNA CABLE AFTER MEMORIZATION OF THE REMOTE CONTROLS (terminals 8-9)

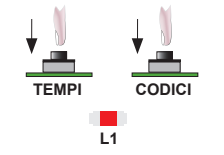
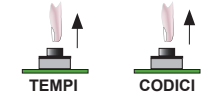
	1	Make sure that the gate is **CLOSED**
	2	Press and release the CODICI button, the LED L1 will stay lit ON.
	3	Press the button of the remote control, ex: button no.1: if it is memorized **LED L1** will flash

	1	Press and release the CODICI button, the LED L1 will lit ON.
	2	Press again the CODICI button, the LED L1 will flash and lit ON
	3	Press the button of the remote control, ex: button no.2: if it is memorized LED L1 will flash

- If you need to learn a new remote control repeat the same operation.
- When you push the remote control's button and the L.E.D. codes is switched ON, it means that the remote control is not compatible
- When you push the remote control's button and the L.E.D. codes flashes slowly, it means that the memory is FULL.
- It is not possible to cancel a single code

5 Reset of the memory at factory settings

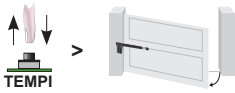
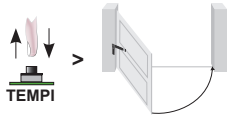
The reset of the control unti set all parameters at factory settings. It doesn't cancel the remote controls codes, there are two different memories available:

	1	Press the buttons **CODICI** and **TEMPI** **LED L1** lit **ON**
	2	Wait 10 seconds until **LED L1** will switch **OFF**
	3	Release the buttons **CODICI** and **TEMPI**

6 Time learning

IF YOU DON'T USE AN ENCODER:
SET THE SPEED WITH THE TRIMMERS

6.1 Time learning: STANDARD WAY

1		**The gate is in closed position** **set the control board in Semiautomatic mode** **(DIP 1A OFF - DIP 2A ON - DIP 7B OFF)**
2		Put in **OFF** the switch no. **10** of the **DIP A**
3		Push the button **TEMPI *** **The motor OPENS**
4		**Wait that the first leaf is open**, if the limit switches are available read from point no. 6 otherwise press the button TEMPI to stop the first leaf.
5		**When motor stops**, let the time leave until the gate should be opened **(pause time)**
6		Press the button **TEMPI (times)** to close. First leaf starts opening
7		Wait the gate is closed, Working time memorization completed

***** When you press button TEMPI for the first time you can use a START command from terminal no.16 or from a remote control

6.2 Time learning PARTIAL OPENING

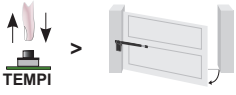
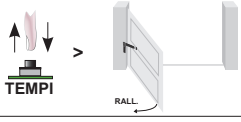
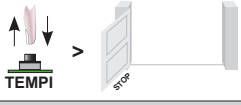
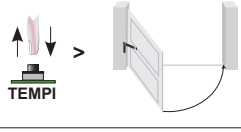
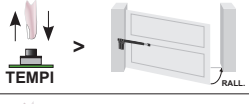
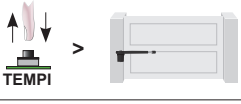
		The gate is in closed position	
 TEMPI	1	Press and keep pressed the TIMES button till the control board starts motor in OPEN, then release the TEMPI button	Motor OPENS
 TEMPI	2	Press the TEMPI button	Motor STOPS
		Let the pause time run for the PARTIAL OPENING	
 TEMPI	3	Press the TEMPI button	Motor CLOSES
 TEMPI	4	Push the button TEMPI (if the closing limit switches is not available)	Motor stops. The door is closed. Operation completed
	4 a	**... If the limit switch is available wait until the motor (partial opening use) stops**	Motor stops by closing limit switches. The door is closed. Operation completed

6.3 Time learning: pause (easy way)

		The gate is in PAUSE	
 TEMPI	1	Press and release the TEMPI button	The L.E.D. lights for opening and closing are LIT ON
		Let the new pause time run…	
 TEMPI	2	Press and release the TEMPI button	The gate CLOSES. **Time learning completed**

6.4 Time learning: ADVANCED SYSTEM

IF YOU DON'T USE AN ENCODER:
SET UP THE SPEED WITH TRIMMERS

		**The gate is in closed position** **set the control board in Semiautomatic mode** **(DIP 1A OFF - DIP 2A ON - DIP 7B OFF)**	
1		Put in **ON** the **DIP 10A**	Gate is closed
2		***** Push the button **TEMPI**	The motor OPENS
3		Push the button TEMPI (or START) ... If the slowing down is activated... trimmer V RALL	The motor opens slowly
4		Push the TEMPI button (or START) (if the opening limit switches is not available).	Motor stops, starts the pause time
5		**... If the limit switch is available wait until the motor stops**	motor stops, the counting of the pause time starts
		Let the pause time run…	
7		Push the TEMPI button (or START)	The motor CLOSES
8		Push the TEMPI button (or START) if the slowing down is activated (trimmer see V.RALL)	The motor closes slowly
9		Push the button TIMES (or START) ... if the closing limit switches no.1 is not available...	Motor stops. Advanced learning time completed
10		**... if the limit switches is available wait motor stops**	Motor stops. Advanced learning time completed

***** When you press button TEMPI for the first time you can use a START command from terminal no.16 or from a remote control

7 OPERATING GUIDE FOR TEST

The TEST function is compatible with slow response devices (for example TRANSCEIVER) so when those devices are available the response time can be slower. You can test the devices in the STOP input.

Follow this procedure to know if some devices connected ot the inputs FOTO and STOP are under TEST.

Connect the devices under Test according to the operating guide

	**1**	When the control is switched OFF, put in OFF dip 8 of DIP A
 **LED**	**2**	Power the control unit and wait the LED is flashing
	**3**	Put in ON DIP 8 of DIP A
 **START**	**4**	Open the gate with a START command or with the Working time learning see par. 6.1

The control unit detect the accessories under test and the opening manoeuvre can be delayed for a while

8 Adjustment of the Trimmers

Adjust of the force of the motor from 20% up to 100%

Speed of slowing down (MINIMUM OFF) deactivation of the slowing down. For the majority of the motors the best value is from MIN to 4. You need to adjust a speed of 1/3 of the motor speed.

To deactivate the slowing down, turn the trimmer in OFF

OBSTACLE DETECTION: If you turn to MIN it needs only a little bit of force to stop the motor, the more you turn the trimmer the more you need force. If you turn to OFF the function is deactivated.

8 Declaration of CE conformity

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

The undersigned,
Administrator

DECLARES THAT:

Product's name: **KEQS08**
Single phase for 230 Vac 1 motors

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 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.

2 february 2017
the Administrator

RoHS Compliant 2002/95/EC

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