

14A

Modular control unit for one or two 24 Vdc motors



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1 - SAFETY WARNINGS

ATTENTION !

ORIGINAL INSTRUCTIONS - important safety instructions. Follow the instructions since incorrect installation can lead to severe injury! Save these instructions.

Read the instructions carefully before proceeding with installation.

The design and manufacture of the devices making up the product and the information in this manual are compliant with current safety standards. However, incorrect installation or programming may cause serious injury to those working on or using the system. Compliance with the instructions provided here when installing the product is therefore extremely important.

If in any doubt regarding installation, do not proceed and contact the Key Automation Technical Service for clarifications.

Under European legislation, an automatic door or gate system must comply with the standards envisaged in the Directive 2006/42/EC (Machinery Directive) and in particular standards; EN 12453; EN 12635 and EN 13241-1, which enable declaration of presumed conformity of the automation system.

Therefore, final connection of the automation system to the electrical mains, system testing, commissioning and routine maintenance must be performed by skilled, qualified personnel, in observance of the instructions in the "Testing and commissioning the automation system" section.

The aforesaid personnel are also responsible for the tests required to verify the solutions adopted according to the risks present, and for ensuring observance of all legal provisions, standards and regulations, with particular reference to all requirements of the EN 12453 standard which establishes the test methods for testing door and gate automation systems.

ATTENTION !

Before starting installation, perform the following checks and assessments:

ensure that every device used to set up the automation system is suited to the intended system overall. For this purpose, pay special attention to the data provided in the "Technical specifications" section. Do not proceed with installation if any one of these devices is not suitable for its intended purpose;

check that the devices purchased are sufficient to guarantee system safety and functionality;

perform a risk assessment, including a list of the essential safety requirements as envisaged in Annex I of the Machinery Directive, specifying the solutions adopted. The risk assessment is one of the documents included in the automation system's technical file. This must be compiled by a professional installer.

Considering the risk situations that may arise during installation phases and use of the product, the automation system must be installed in compliance with the following safety precautions:

never make modifications to any part of the automation system other than those specified in this manual. Operations of this type can only lead to malfunctions. The manufacturer declines all liability for damage caused by unauthorised modifications to products;

if the power cable is damaged, it must be replaced by the manufacturer or its after-sales service, or in all cases by a person with similar qualifications, to prevent all risks;

do not allow parts of the automation system to be immersed in water or other liquids. During installation ensure that no liquids are able to enter the various devices; should this occur, disconnect the power supply immediately and contact a Key Automation Service Centre. Use of the automation system in these conditions may cause hazards;

never place automation system components near to sources of heat or expose them to naked lights. This may damage system components and cause malfunctions, fire or hazards;

ATTENTION !

The drive shall be disconnected from its power source during cleaning, maintenance and when replacing parts. If the disconnect device is not in a visible location, affix a notice stating: "MAINTENANCE IN PROGRESS":

connect all devices to an electric power line equipped with an earthing system;

the product cannot be considered to provide effective protection against intrusion. If effective protection is required, the automation system must be combined with other devices;

the product may not be used until the automation system "commissioning" procedure has been performed as specified in the "Automation system testing and commissioning" section;

the system power supply line must include a circuit breaker device with a contact gap allowing complete

disconnection in the conditions specified by class III overvoltage;

use unions with IP55 or higher protection when connecting hoses, pipes or cable glands;

the electrical system upstream of the automation system must comply with the relevant regulations and be constructed to good workmanship standards;

this appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved;

before starting the automation system, ensure that there is no-one in the immediate vicinity;

before proceeding with any cleaning or maintenance work on the automation system, disconnect it from the electrical mains;

special care must be taken to avoid crushing between the part operated by the automation system and any fixed parts around it;

children must be supervised to ensure that they do not play with the equipment;

that the drive cannot be used with a driven part incorporating a wicket door unless the drive can only be operated with the wicket door in the safe position;

install any fixed control at a height of at least 1,5m and within sight of the door but away from moving parts;

after installation, ensure that parts of the door do not extend over public footpaths or roads;

when the appliance is provided with a separate stop button, that stop button shall be unambiguously identifiable;

install the automation exclusively on gates operating on flat surfaces, that is, they are not installed on an up or down tilt;

install exclusively on gates that are sturdy enough and suitable to withstand the loads generated by the automation itself;

do not subject the automation to direct jets of water, such as sprinklers or pressure washers;

if the automation system exceeds 20 kg in weight, it must be handled using safety lifting devices (IEC 60335-2-103: 2015);

provide appropriate safety protections in order to avoid crushing and becoming trapped between the moving guided part and any surrounding fixed elements;

make sure that any protection or safety devices, in ad-

dition to the manual release, work correctly;

place the automation identification plate at a clearly visible point;

keep the manuals and technical files of all the devices used to create the automation;

at the end of the automation installation it is advisable to hand over the manuals relating to the warnings intended for the end user;

ATTENTION !

Frequently examine the installation for imbalance where applicable and signs of wear or damage to cables, springs and mounting. Do not use if repair or adjustment is necessary.

ATTENTION !

The automation system component packaging material must be disposed of in full observance of current local waste disposal legislation.

Key Automation reserves the right to amend these instructions if necessary; they and/or any more recent versions are available at www.keyautomation.it.

2 - INTRODUCING THE PRODUCT

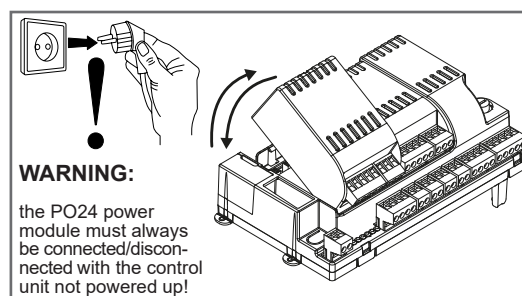
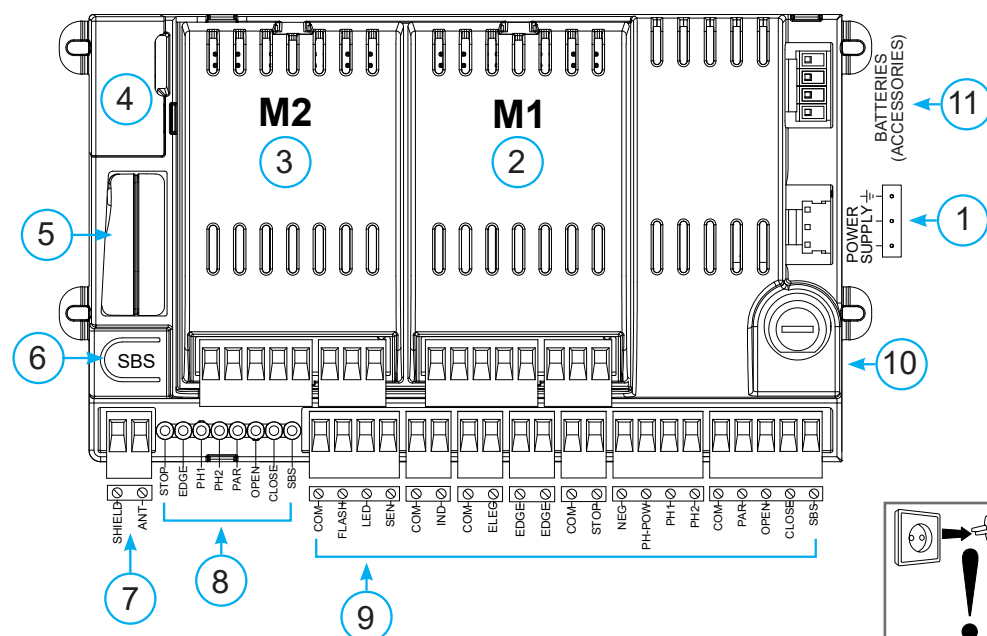
2.1 - Description of the control unit

The 14A control unit is a modular system for the control of Key Automation motors for the electric opening and closure of swing and sliding gates, barriers and garage doors.

The 14A has a programmer with display (optional) allowing easy

programming and constant monitoring of the control unit's status; the menu structure also allows easy setting of working times and operating modes. The display menu is multilingual.

All other, improper, use of the control unit is forbidden.



2.2 - Description of the connections

- | | |
|--|--|
| 1. Control unit power supply connection 24 Vac | 7. External antenna connections |
| 2. M1 power module socket | 8. Input status indicator LEDs |
| 3. M2 power module socket | 9. Accessory/input connection terminal board |
| 4. Display programmer connector / KUBE PRO | 10. Protective fuse, 2.5AT |
| 5. Receiver compartment RX4Y | 11. Battery connection |
| 6. Integrated STEP BY STEP control button | |

2.3 - Models and technical characteristics

CODE	DESCRIPTION
14A	Control unit with 1 PO24 power module for the control of 1 24V motor for swing and sliding gates
14AF	Control unit with 1 PO24 power module for the control of 1 24V FASTLINE motor for swing and sliding gates
14AB	Control unit in box with 2 PO24 power modules for the control of 2 24V motors and 150VA transformer for swing gates
14AB2	Control unit in box with 2 PO24 power modules for the control of 2 24V motors and 250VA transformer for swing gates
14AB2F	Control unit in box with 2 PO24 power modules for the control of 2 24V FASTLINE motors and 250VA transformer for swing gates

- | | |
|---|--|
| <ul style="list-style-type: none"> • Power supply with protection against short-circuits inside the control unit, on motors and on the connected accessories. • Obstacle detection by means of current sensor. • Anti-crush safety device. | <ul style="list-style-type: none"> • Automatic learning of working times. • Programmable deceleration during opening and closure. • Safety input deactivation by means of software. • Control panel with microprocessor logic. |
|---|--|

TECHNICAL CHARACTERISTICS	14A	14AF	14AB	14AB2 *	14AB2F **
Power supply (L-N)	24Vac (+10%-15%) 50/60 Hz		230Vac (+10%-15%) 50/60 Hz		
Rated power	-	-	maximum 210W	maximum 300W	maximum 300W
Photocell power supply output	24Vdc (without regulation) max 250mA				
Flashing light output	24Vdc (without regulation) 25W				
Courtesy light output	24Vdc (without regulation) 15W				
Electric lock output	12Vac maximum 15VA				
Gate open warning light output	24Vdc (without regulation) 5W				
Antenna input	50Ω RG58 type cable				
Operating temperature	-20°C + 55°C				
Accessory fuses	2,5AT				
Power supply line fuses	-		2AT		
Use in particularly acid, saline or explosive atmospheres	NO				
Protection class	IP20	IP20	IP54		
Control unit dimensions	183 x 102 x 59 H mm		222 x 110 x 275 H mm		
Weight	0.9 kg	0.9 kg	4.3 kg	4.5 kg	4.5 kg

* Compulsory for motors: RAY4024E, SN-50-24 and UND24 when in two-leaf configuration

** Compulsory for motors FASTLINE when in two-leaf configuration

2.4 - List of cables required

The cables required for connection of the various devices in a standard system are listed in the cables list table. The cables used must be suitable for

the type of installation; for example, an H03VV-F type cable is recommended for indoor applications, while H07RN-F is suitable for outdoor applications.

ELECTRIC CABLE TECHNICAL SPECIFICATIONS

Connection	Cable	Maximum permitted limit
Power line	1 x cable 3 x 1,5 mm ²	20 m *
Flashing light, Courtesy light, ambient light sensor	4 x 0,5 mm ² **	20 m
Antenna	1 x RG58 type cable	20 m (< 5 m recommended)
Electric lock	1 x cable 2 x 1 mm ²	10 m
Transmitter photocells	1 x cable 2 x 0,5 mm ²	20 m
Receiver photocells	1 x cable 4 x 0,5 mm ²	20 m
Sensitive edge	1 x cable 2 x 0,5 mm ²	20 m
Key-operated selector switch	1 x cable 4 x 0,5 mm ² **	20 m
Motor power supply line	1 x cable 2 x 1,5 mm ²	10 m
Encoder power supply line	1 x cable 3 x 0,5 mm ²	10 m

* If the power supply cable is more than 20 m long, it must be of larger gauge (3x2.5mm²) and a safety grounding system must be installed near the automation unit.

** Two cables of 2 x 0.5 mm² can be used as an alternative

3 - PRELIMINARY CHECKS

Before installing the product, perform the following checks and inspections:

- check that the gate is suitable for automation;
- the weight and size of the gate must be within the operating limits specified for the automation system in which the product is installed;
- check that the gate has firm, effective mechanical safety stops;
- make sure that the product fixing zone is not liable to flooding;
- high acidity or salinity or proximity to heat sources might cause the product to malfunction;
- in case of extreme weather conditions (e.g. snow, ice, wide temperature variations or high temperatures), friction may increase, causing a corresponding rise in the force needed to operate the system; the starting torque may therefore exceed that required in normal conditions;


- check that, when operated by hand, the gate moves smoothly without any areas of greater friction or derailment risk;
- check that the gate is well balanced and will therefore remain stationary when released in any position;
- check that the electricity supply line to which the product is to be connected is suitably earthed and fitted with magnetothermal and differential protection;
- the system power supply line must include a circuit breaker device with a contact gap allowing complete disconnection in the conditions specified by class III overvoltage;
- ensure that all the material used for installation complies with the relevant regulatory standards.

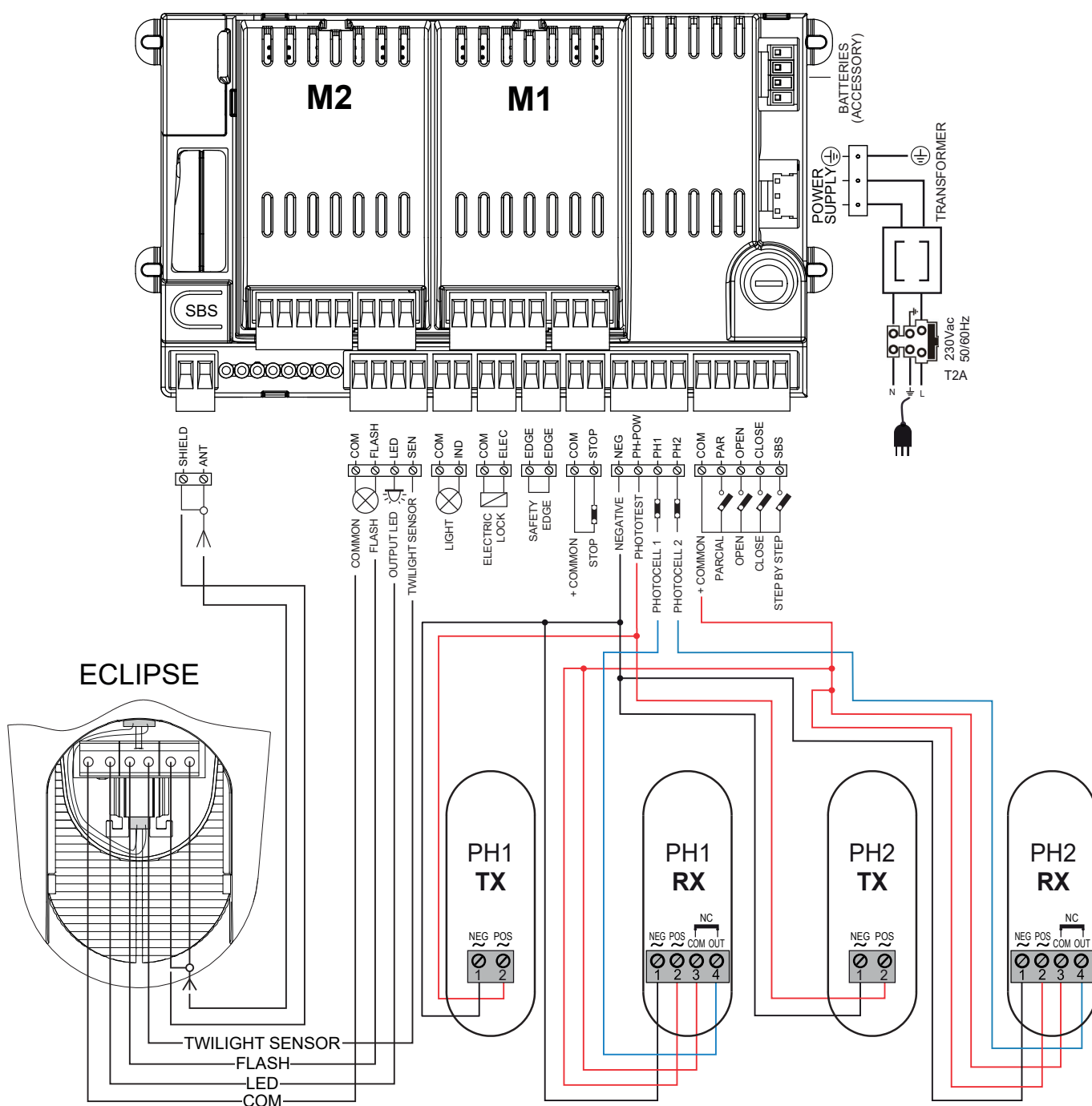
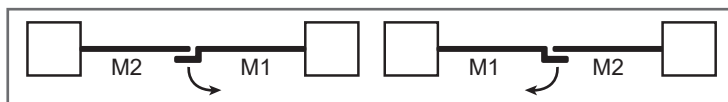
4 - INSTALLING THE PRODUCT

4.1 - Electrical connections

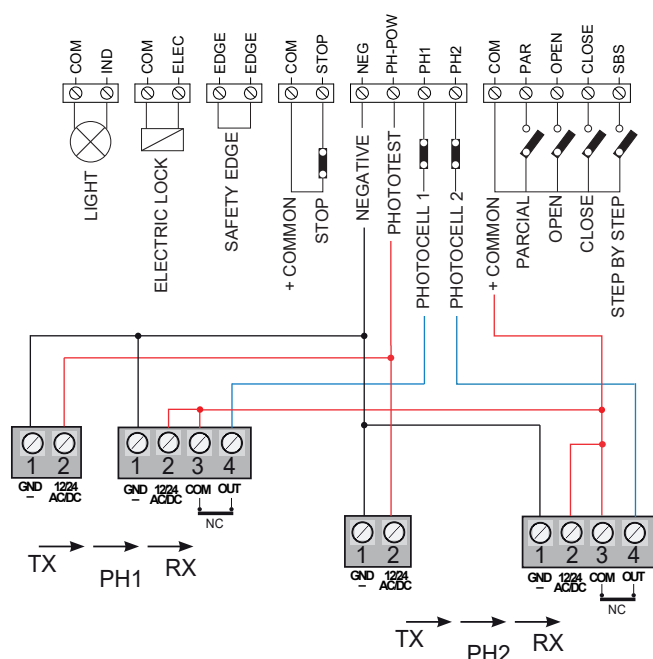
WARNING - Before making the connections, ensure that the control unit is not powered up

POWER SUPPLY CONNECTIONS

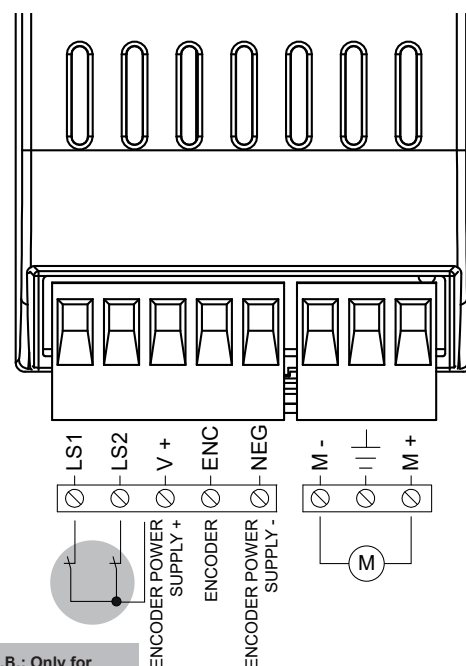
L	Power supply 230 Vac 50-60 Hz
	Earth
N	Power supply neutral 230 Vac 50-60 Hz



ELECTRICAL CONNECTIONS FOR ENERGY SAVING



PO24 POWER MODULE (M1 - M2)



PO24 CONNECTIONS

LS1	Limit switch 1 input (only for SUN)
LS2	Limit switch 2 input (only for SUN)
V+	Limit switch / encoder power supply positive common (12 Vdc 50 mA MAX)
ENC	Encoder S signal input
NEG	Encoder power supply negative
M-	Motor output
	Earth
M+	Motor output

MA24 ELECTRIC CONNECTIONS

SHIELD	Antenna - shield -
ANT	Antenna - signal -
COM	Common for FLASH, LED, SEN inputs / outputs
FLASH	Flashing light output 24Vdc (without regulation) maximum 25W
LED	Courtesy light output 24Vdc (without regulation) maximum 15W (radio channel 4 selecting COURTESY LIGHT START = 2, COURTESY LIGHT TIME = 0)
SEN	Ambient light sensor input
COM	IND output common
IND	Gate open warning light output, 24Vdc (without regulation) maximum 4W
COM	ELEC output common
ELEC	Electric lock output 12Vac, maximum 15VA
EDGE/EDGE	Sensitive edge output, NC contact or resistive 8k2
COM	STOP output common
STOP	Safety STOP NC contact between STOP and COM. This input is considered as a safety device; the contact may be broken at any time, cutting out the automation at once and disabling all functions, including automatic closure. EDGE Sensitive edge output, NC contact or resistive 8k2
NEG	Photocell power supply negative output
PH-POW	Photocell power supply positive output, 24Vdc (without regulation, maximum 250mA)
PH1	Photocells (closure), NC contact between PH1 and COM. The photocell is tripped at any time during closure of the automation, stopping movement at once and reversing the travel direction
PH2	Photocells (opening), NC contact between PH2 and COM. The photocell is tripped at any time during opening and closure of the automation, stopping movement at once; the automation will continue opening when the contact is restored if it was opening, or continue closing if it was closing (see parameter "PHOTO 2")
COM	Common for PAR, OPEN, CLOSE and SBS outputs
PAR	PARCIAL opening command, NO contact between PAR and COM Used to open the gate partially, depending on the software setting

OPEN	OPEN command, NO contact between OPEN and COM Contact for the opening function
CLOSE	CLOSE command, NO contact between CLOSE and COM Contact for the closing function
SBS	Stepping command, NO contact between SBS and COM Open/Stop/Close/Stop command, or as set in the software

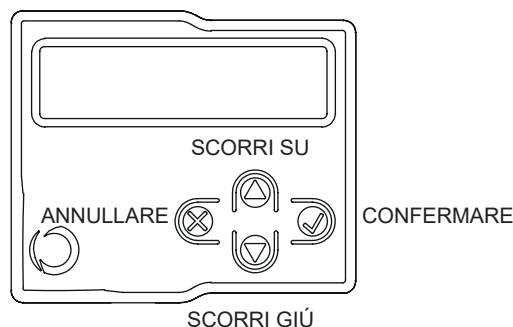
4.2 - Using the display programmer

To customise the programmer's language and contrast, proceed as follows:



N.B.: The first time the display is switched on, the user is prompted to select the language. Press ▲ or ▼ to select the language required and then confirm with V.
If no language is selected (X key pressed), the control unit will use the default language (ENGLISH) until the next time it is switched on.

In normal mode, i.e. when the system is powered up normally and the display programmer is connected, press X until the name KEY AUTOMATION appears. This will display the following status messages:



Il diagramma di flusso completo del programmatore display si trova al punto 6.3 a pag. 15.

EVENT	DESCRIPTION	KEY TO MAIN CONTROL FLASHING LIGHT AND LEDS
opening	Gate opening	
closure	Gate closing	
automatic closure	Gate open with timed reclosure active	
stop during closure	Gate stopped during closure	
stop during opening	Gate stopped during opening	
open	Gate completely open without automatic reclosure	
closed	Gate completely closed	
programming	during the programming phase	2 quick flashes + pause + 1 flash
M1 obstacle	Motor 1 obstacle detected	4 quick flashes + pause, 3 times
M2 obstacle	Motor 2 obstacle detected	4 quick flashes + pause, 3 times
photo 1!	Photocell 1 tripped	2 quick flashes + pause, 3 times
photo 2!	Photocell 2 tripped	2 quick flashes + pause, 3 times
sensitive edge!	Sensitive edge tripped	5 quick flashes + pause, 3 times
parcial opening	Parcial opening in progress	
automatic parcial closure	Gate opening to parcial position with timed reclosure activated	
realignment	Realignment after a manual release	
FLASH/NLS error	Night Light System line overload	6 quick flashes + pause, 3 times
ELEC/IND error	Electric lock / gate open light line overload	6 quick flashes + pause, 3 times
Phototest error	Phototest error detected	3 quick flashes + pause, 3 times
Limit switches error!	Limit switch/mechanical end stop error detected	8 quick flashes + pause, 3 times

4.3 - Auto-learning of the travel stroke

The first time the control unit is powered up, an auto-learning procedure must be carried out to acquire fundamental parameters

such as the travel stroke length and deceleration points.

QUICK PROGRAMMING

If this programming mode is used, the decelerations will reset to the default values with the same percentage during both opening and closing.

Follow the chart below with the programmer display.

N.B. If the decelerations are also to be programmed, move straight on to the next table.

1. Select the type of installation and the relative type of motor to be installed:



WARNING! Selecting a motor different from the one connected may damage the system.

2. CHECKING CONNECTION OF THE SAFETY DEVICES (PHOTO 1 - PHOTO 2 - SENSITIVE EDGE - STOP BUTTON).

During programming, you will be asked whether there are any safety devices connected to the system. If additional safety devices are connected later, they are simply activated in the relative menu (see advanced parameter table).

3. SAFETY DEVICES ACTIVE/DEACTIVATED DURING AUTO-LEARNING OF TRAVEL STROKE.

If there are safety devices connected, during travel stroke programming, the safety devices can be deactivated to prevent accidental interruption of this operation. At the end of the auto-learning procedure, the safety devices selected earlier will be reactivated.

4. QUICK AUTO-LEARNING OF TRAVEL STROKE AND DECELERATIONS.

Release the motors and lock them in place again halfway through the travel stroke. If the first motor operation is not opening, press ▲ or ▼ to reverse the travel direction. M1 must always open before M2. If the motors are inverted, stop the procedure in the control unit by pressing button X on the display, swap the power supply terminals of the two motors and start again from the beginning. Follow the instructions on the display.

FULL PROGRAMMING

If this programming mode is used, both the opening and the closing decelerations can be customised.

If no customised settings are made during programming, the control unit will set the default values automatically. Follow the chart below with the programmer display.

1. Select the type of installation and the relative type of motor to be installed:



WARNING! Selecting a motor different from the one connected may damage the system.

2. CHECKING CONNECTION OF THE SAFETY DEVICES (PHOTO 1 - PHOTO 2 - SENSITIVE EDGE - STOP BUTTON).

During programming, you will be asked whether there are any safety devices connected to the system. If additional safety devices are connected later, they are simply activated in the relative menu (see advanced parameter table).

3. SAFETY DEVICES ACTIVE/DEACTIVATED DURING AUTO-LEARNING OF TRAVEL STROKE.

If there are safety devices connected, during travel stroke programming, the safety devices can be deactivated to prevent accidental interruption of this operation. At the end of the auto-learning procedure, the safety devices selected earlier will be reactivated.

4. COMPLETE AUTO-LEARNING OF THE TRAVEL STROKE AND DECELERATIONS.

Release the motors and lock them in place again halfway through the travel stroke. If the first motor operation is not opening, press ▲ or ▼ to reverse the travel direction. M1 must always open before M2.

If the motors are inverted, stop the procedure in the control unit by pressing button X on the display, swap the power supply terminals of the two motors and start again from the beginning.

When prompted, press the V key to set the motor's deceleration point, following the instructions on the display.

It is important to allow for the gate's moment of inertia and to check that the decelerations set allow the motors to brake the leaves of the gate before they reach the limit position.

N.B. COMPLETE PROGRAMMING is no longer possible in the 14A FAST control unit

4.4 - Operating the automation using the display programmer

To operate the gate in manual mode and check the automation after programming of the travel stroke, proceed as follows:



Use ▲ for step-by-step operation. Use ▼ to switch the night lights on and off. Use V for partial opening and closing to exit the property.

4.5 - Operating the automation using the receiver

Channel 1: step-by-step

Channel 2: parcial

Channel 3: open

Channel 4: lights ON/OFF (note 1)

Note 1: The ON/OFF command switches the lights on or off in manual mode.

If the Night Light System is active, normal operation of the system will restart at the next cycle.

If the Night Light System is not active, pressing the switch once forces switch-on of the lights, while pressing it again resets the courtesy light operating logic.

4.6 - Diagnostic

A number of parameters, including the current absorption or motor speed, can be viewed at any time using this function. Proceed as follows:



MOTOR 1 CURRENT (mA)
MOTOR 2 CURRENT (mA)
MOTOR 1 POSITION (%)
MOTOR 2 POSITION (%)
MOTOR 1 SPEED (%)
MOTOR 2 SPEED (%)
TOTAL CYCLES (CYCLES)
CYCLES LEFT BEFORE SERVICE
SOFTWARE VERSION

4.7 - Customising the system - Basic settings

If necessary, users may select the BASIC SETTINGS, which allow modification of the control unit's basic parameters. Proceed as follows:

CAUTION: the parameters may vary with respect to those in the table below, depending on the motor to be installed.



	PARAMETERS	DESCRIPTION	DEFAULT	MIN.	MAX.	UNIT
1	AUTOMATIC CLOSING TIME	Automatic reclosure time (0 = off) Seconds of delay before the gate recloses automatically after opening	0	0	900	s
2	AUTOMATIC CLOSING AFTER TRANSIT	Reclosing time after transit (0 = off) Seconds of delay before the gate recloses automatically after excitation of photocell 1 during opening or with the gate open.	0	0	30	s
3	SENSITIVITY	Motor sensitivity, sensitivity when detecting an obstacle. 0 = minimum sensitivity, maximum force on obstacle 10 = maximum sensitivity, minimum force on obstacle	3	0	10	
4	OPENING SPEED	Motor speed during opening 1 = minimum 2 = low 3 = medium 4 = high 5 = maximum	4	1	5	
5	SLOW DOWN OPENING SPEED	Motor speed during opening deceleration phase. 1 = minimum 2 = low 3 = medium 4 = high 5 = maximum	1 *	1	5	
5	SLOW DOWN OPENING SPEED FASTLINE	Motor speed during opening deceleration phase. 1 = minimum 2 = low 3 = medium	1	1	3	
6	CLOSING SPEED	Motor speed during closing 1 = minimum 2 = low 3 = medium 4 = high 5 = maximum	4	1	5	

PARAMETERS		DESCRIPTION	DEFAULT	MIN.	MAX.	UNIT
7	SLOW DOWN CLOSING SPEED	Motor speed during closing deceleration phase. 1 = minimum 2 = low 3 = medium 4 = high 5 = maximum	1 *	1	5	
7	SLOW DOWN CLOSING SPEED FASTLINE	Motor speed during closing deceleration phase. 1 = minimum 2 = low 3 = medium	1	1	3	
8	STEP BY STEP	SBS configuration: 0 = Normal (OP-ST-CL-ST-OP-ST...) 1 = Alternate STOP (OP-ST-CL-OP-ST-CL...) 2 = Alternate (OP-CL-OP-CL...) 3 = Apartment block – timer (always opens) 4 = Apartment block with immediate reclosure (always opens. Closes if gate is open)	0	0	4	
9	MOTOR 2 DELAY	Leaf 2 opening delay with gate closed 0 - 60 sec.	2	0	60	s
9	MOTOR 2 DELAY FASTLINE (swing gate only)	Leaf 2 opening delay with gate closed 0 - 60 sec.	2	0	60	s
10	SLOW DOWN LENGTH	Deceleration distance 0 = Customised decelerations 1 to 100 = Motor deceleration percentage during opening and closure. With KUBE, programmable deceleration during opening and closure will be individually adjustable for each engine	20 **	0	100	% (step of 1)
10	SLOW DOWN LENGTH FASTLINE	Deceleration distance 20 to 100 = Motor deceleration percentage during opening and closure	20	5	100	% (step of 1)
11	ENERGY SAVING	Energy saving: enables photocell switch-off when gate is closed 0= disabled 1= enabled	0	0	1	
12	BLACK OUT	0 = OFF 1 = When the power line is restored, the motor will automatically re-close	0	0	1	

* For SUN4024 sliding gate motors the parameter will be DEFAULT 1 - MIN 1 - MAX 2

** For SUN4024 sliding gate motors the parameter will be DEFAULT 15 - MIN 15 - MAX 100

4.8 - Night lights

The night lights function automatically with the Eclipse flashing light connected appropriately.



To customise, proceed as follows:

PARAMETERS		DESCRIPTION	DEFAULT	MIN.	MAX.	UNIT
1	AUTOMATIC LIGHT	0 = Night Light System deactivated 1 = Night Light System active (automatically activated during learning of the stroke with the ECLIPSE flashing light connected)	0	0	1	
2	LIGHT INTENSIVITY	1 to 5 = Brightness at which LEDs switch on during the night	3	1	5	
3	EXTERNAL LIGHT LEVEL	1 = Light sensor tripped with low outdoor light 2 = Light sensor tripped with medium outdoor light 3 = Light sensor tripped with bright outdoor light	2	1	3	
4	LIGHT SWITCH-OFF TIMER	0 = OFF (automatic lights) From 1 to 12 = time for which lights remain on from automatic activation of Night Light System	0	0	12	hours

The Night Light System switches the lights on or of 15 minutes after the set threshold is exceeded. This delay is to prevent false

switch-on or switch-off due to external light sources such as car headlights.

5 - TESTING AND COMMISSION THE AUTOMATION

The system must be tested by a qualified technician, who must perform the tests required by the relevant standards in relation to the risks present and must check that the installation complies with

the relevant regulatory requirements, especially with the EN12453 standard which specifies the test methods for gate and door automation systems.

5.1 - Testing

All the system components must be tested following the procedures described in their respective operator manuals;

ensure that the recommendations in Chapter 1 – Safety Warnings - have been complied with;

check that the door can move freely once the automation is released and that it is in balance and therefore remains stationary if left in any position;

check that all the connected devices (photocells, sensitive edges, emergency buttons, etc.) are operating correctly by performing door opening, closing and stop tests using the connected control devices (transmitters, buttons or switches);

perform the impact measurements as required by the EN12453 standard, adjusting the control unit's speed, motor force and deceleration functions if the measurements do not give the required results, until the correct setting is obtained.

5.2 - Commissioning

Once all (and not just some) of the system devices have passed the testing procedure, the system can be commissioned;

the system's technical dossier must be produced and kept for 10 years. It must contain the electrical wiring diagram, a drawing or photograph of the system, the analysis of the risks and the solutions adopted to deal with them, the manufacturer's declaration of conformity for all connected devices, the operator's manual for every device and the system maintenance plan;

fix a plate on the door indicating the automation data, the name of the person responsible for commissioning, the serial number, the year of construction and the CE mark;

also fit a plate specifying the procedure for releasing the system by hand;

draw up the declaration of conformity, the instructions and precautions for use for the end user and the system maintenance plan and consign them to the end user;

ensure that the user has fully understood how to operate the system in automatic, manual and emergency modes;

the end user must also be informed in writing about any risks and hazards still present;

ATTENTION !

After detection of an obstacle, the door stops on opening and automatic closing is excluded; to resume movement, press the control button or use the transmitter.

6 - FURTHER DETAILS

6.1 - Customising the system - Advanced settings

If necessary, users may select the ADVANCED SETTINGS, which allow modification of the control unit's advanced parameters. Proceed as follows:

CAUTION: the parameters may vary with respect to those in the table below, depending on the motor to be installed.



PARAMETERS	DESCRIPTION	DEFAULT	MIN.	MAX.	UNIT
1	PHOTO 1 Use of PHOTO1 when starting <u>from closed</u> 0 = PHOTO 1 deactivated 1 = PHOTO1 is checked 2 = the gate starts even with PHOTO1 activated	2	0	2	
2	PHOTO 2 Use of PHOTO2 0 = PHOTO 2 deactivated 1 = enabled during both opening and closing OP/CL 2 =only enabled during opening OP	1	0	2	
3	PHOTOTEST Photo-device test 0 = off 1 = PHOTO1 on 2 = PHOTO2 on 3 = PHOTO1 and PHOTO2 on	0	0	3	
4	EDGE TYPE Sensitive edge type 0 = off 1 = 8k2 sensitive edge 2 = NC contact 3 = double sensitive edge 8k2 in parallel	1	0	3	
5	SAFETY EDGE Sensitive edge tripping mode 0 = only tripped during closure with direction reversal* 1 = stops the automation during both opening and closure and retreats from the obstacle with short direction reversal	0	0	1	
6	PARCIAL OPENING LENGHT Parcial opening	50	30	100	% (step of 1)
7	AUTOMATIC CLOSING FROM PARCIAL OPEN Time for automatic closure from parcial opening (0=off) 1 to 900 Seconds of delay before automatic closure from parcial opening	0	0	900	s
8	FLASH LIGHT Flashing light output setup 0 = Fix 1 = Flashing	1	0	1	
9	PRE-FLASHING Pre-flashing time (0 = off)	0	0	20	s
10	COURTESY LIGHT START Courtesy light setup 0 = ON at end of operation for courtesy light time 1 = ON if gate not closed + courtesy light duration time at end of operation 2 = ON if courtesy light timer has not gone out since start of operation	0	0	2	
11	COURTESY LIGHT TIME Courtesy light duration time (0 = off)	30	0	900	s
12	LIGHT INTENSIVITY AT END OF MOVEMENT 0 = light off after operation 5 = maximum brightness with motor stopped	2	0	5	
13	STOP / SAFETY EDGE 0 = NC stop button not connected 1 = NC stop button connected 2 = NC contact** 3 = 8k2 sensitive edge** 4 = double sensitive edge 8k2 in parallel**	1	0	4	

* If the parameter is set to "0", the intervention will be with brief reversal of motion on sliding gates and total reversal on swing gates.

** To activate **PARAMETER No. 13**, **PARAMETER No. 5** (Sensitive Edge) must be set to "0". If active, the **EDGE** input will only activate on closing and the **STOP** input will only activate on opening, always with a short reversal of motion.

PARAMETERS	DESCRIPTION	DEFAULT	MIN.	MAX.	UNIT
14	DEAD MAN 0 = off 1 = on (safety devices disabled)	0	0	1	
15	GATE OPEN INDICATOR 0 = deactivated 1 = gate open light ON/OFF 2 = gate open light proportional 3 = electric lock for partial gate *** 4 = electric lock for partial gate with relay interface **** 5 = Traffic light When open COM/IND activated and COM/ELEC deactivated (GREEN) Not open COM/IND deactivated and COM/ELEC activated (RED)	0	0	5	
16	MAINTENANCE Service interval cycle threshold	10	1	200	x 1000 cycles
17	MAINTENANCE FLASH Enabling of continuous flashing when service is required (only active with gate closed). 0 = off 1 = on	0	0	1	
18	ELECTROLOCK ACTIVATION 0 = magnetic electrolock. Output works only when the gate is closed. We recommend to set the pre-flash to 2 seconds ***** Activated for from 1 to 20 seconds when the motors start to open the gate	2	0	20	s
19	WATER HAMMERING IN OPENING From motor M1 closed 0 = off Motor M1 activated for from 1 to 30 seconds in the closing direction to ensure that the electric lock releases	0	0	30	s
20	WATER HAMMERING IN CLOSING From motor M1 closed 0 = off Motor M1 activated for from 1 to 30 seconds in the closing direction to ensure that the electric lock engages	0	0	30	s
21	MOTOR RELEASE AT STOP Motor release from limit switch. Useful for lightweight gates 0 = off 1 to 10 release levels (1 = minimum release, 10 = maximum release)	0 *****	0	10	
22	START UP BOOST (NO FASTLINE) High-speed motor start-up. Useful for heavy gates in winter 0 = off 1 = on 2 = maximum	0	0	2	
23	CLOSING DELAY M 1 Leaf 1 closing delay with gate open 0 = Off 1 = 1 to 180 Seconds On	1	0	180	s
24	ENCODER (NO FASTLINE) 1 = Off (use of virtual encoder) 2 = On (use of motor's physical encoder)	1	1	2	
25	ENCODER PULSES (NO FASTLINE) 1 to 10 pulses per revolution of the physical encoder (only with 24 set as "2")	1	1	10	
26	CIRCUIT BOARD INPUT LOCKING 0 = Circuit board inputs active 1 = SBS-CLOSE-OPEN-PAR circuit board inputs deactivated WARNING! If the parameter is set as 1, the control unit will request a 4-figure numerical password, which will have to be entered again to return the parameter to 0	0	0	1	
27	DEFAULT Restoring the default values	0	0	1	

*** The OPEN command from the transmitter and the 14A control unit will activate the partial gate electric lock when the parameter is set on 3 or 4. The activation time is as set in parameter 18

**** If the setting is 4, the GATE OPEN WARNING LIGHT output must be connected to the coil of a relay (24 Vdc coil). Interface the relay contact with the electric lock

***** For RÉVO motors, DEFAULT = 2

***** Gate closed = output activated; Gate not closed = output deactivated

6.2 - RX4Y receiver

If necessary, users may select the RX4X RECEIVER MENU, used to manage the parameters relating to the radio unit.
Proceed as follows



ADD TX	Allows a new code to be memorised in the receiver
DELETE TX	Allows deletion of a code from the receiver
DELETE ALL	Clears the receiver's entire memory
READ MEMORY	Displays the codes in the memory
MEMORY LOCK/UNLOCK	Unlocks or locks the receiver's memory

ADDING A TX USING THE DISPLAY

This procedure allows one or more transmitters to be memorised in the receiver.

(WARNING: if there is not already at least one transmitter in the memory, the first transmitter entered will establish the type of code - rolling code or fixed code).



2. Select the type of channel in which the button is to be saved (CHANNEL 1= step by step; 2= parcial opening; 3= open; 4= lights on/off; 5= memorisation of all 4 codes with preset functions as specified above). Press V to confirm.

3. Press the button of the TX to be memorised.

4. After the button is pressed, the display will show: TRANSMITTER MEMORISED.

5. To add another code, start the procedure again from point 2. To quit the menu, press "X".

The "X" button is effective at any point in the procedure.

If no commands are given for 10 seconds, the receiver automatically quits the memorisation mode.

DELETING A TX USING THE DISPLAY

This procedure allows a radio code to be deleted from the memory of the RX4Y receiver using the transmitter memorised.



2. Press the button of the TX to be deleted when prompted.

3. After the button is pressed, the display will show: TRANSMITTER DELETED.

4. To add another code, start the procedure again from point 2.

To quit the menu, press "X". The "X" button is effective at any point in the procedure.

If no commands are given for 10 seconds, the receiver automatically quits the memorisation mode.

CLEARING THE MEMORY OF THE RX4Y RECEIVER

This procedure is used to clear the entire memory of the receiver.



2. Confirm the request by pressing "V" or exit using "X".

3. On confirmation, the display will show: MEMORY DELETED.

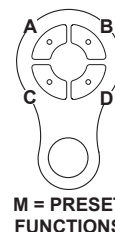
READING THE RECEIVER MEMORY

This procedure is used to view the radio codes present in the memory of the RX4Y receiver.



2. Use ▲ and ▼ to scroll through the codes in the memory. The number of the transmitter in the memory, the radio code saved and the relative button and channel will appear on the first line of the display, while the second line will indicate that the code can be deleted, confirming with V.

3. To quit the menu, press "X". The "X" button is effective at any point in the procedure.



MEMORY LOCK/UNLOCK

This procedure is used to lock or unlock the memory of the RX4Y receiver.

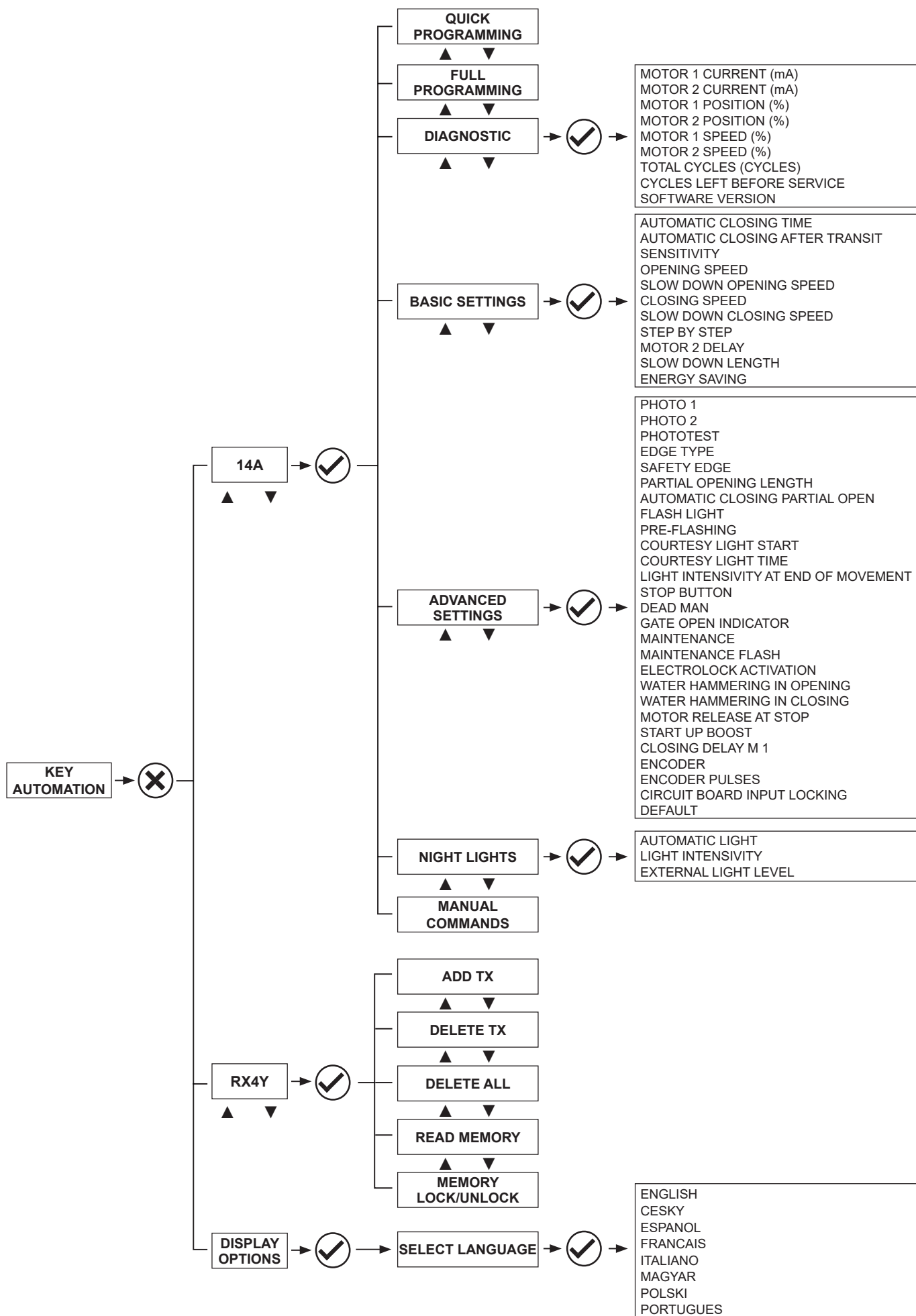


0=OFF memory unlocked

1= ON memory locked

N.B. if the receiver is blocked by means of the XR MANAGER device, refer to the user manual of the latter.

6.3 - Programmer flow chart



7 - DECLARATION OF CONFORMITY

DECLARATION OF INCORPORATION OF PARTLY COMPLETED MACHINERY

I

The undersigned Nicola Michelin, General Manager of the company

Key Automation srl, Via Meucci, 23 - 30027 San Donà di Piave (VE) – ITALIA

declares that the product type:

14A

Centrale di comando modulare a 24 Vdc
24 Vdc modular control unit

Models:

14AB, 14AB2, 14AB2F, 14AB2L, 14AB2FL, MA24, MA24F, PO24, PO24R

Is in conformity with the following community (EC) regulations:

Direttiva macchine / *Machinery Directive 2006/42/EC*
Direttiva compatibilità elettromagnetica / *EMC Directive 2015/30/EU*
Direttiva bassa tensione / *Low voltage Directive 2014/35/EU*
Direttiva RoHS / *RoHS Directive 2011/65/UE*

In accordance with the following harmonized standards regulations:

EN 55014-1:2006 + A1:2009 + A2:2011
EN 55014-2:1997 + A1:2001 + A2:2008
EN 62233:2008
EN 60335-1:2012 + A1 + A11, EN 60335-2-103:2015
EN 61000-3-2:2014, EN 61000-3-3:2013
EN 61000-6-2:2005, EN 61000-6-3:2007
EN 60950-1:2006: + A11:2009 + A1:2010 + A12:2011 + A2:2013

Declares that the technical documentation is compiled in accordance with the directive 2006/42/EC Annex VII part B and will be transmitted in response to a reasoned request by the national authorities.

He also declares that is not allowed to use the above mentioned product until the machine, in which this product is incorporated, has been identified and declared in conformity with the regulation 2006/42/EC.

San Donà di Piave (VE), 12/04/17

Amministratore Delegato
General Manager
Nicola Michelin



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Instruction version

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