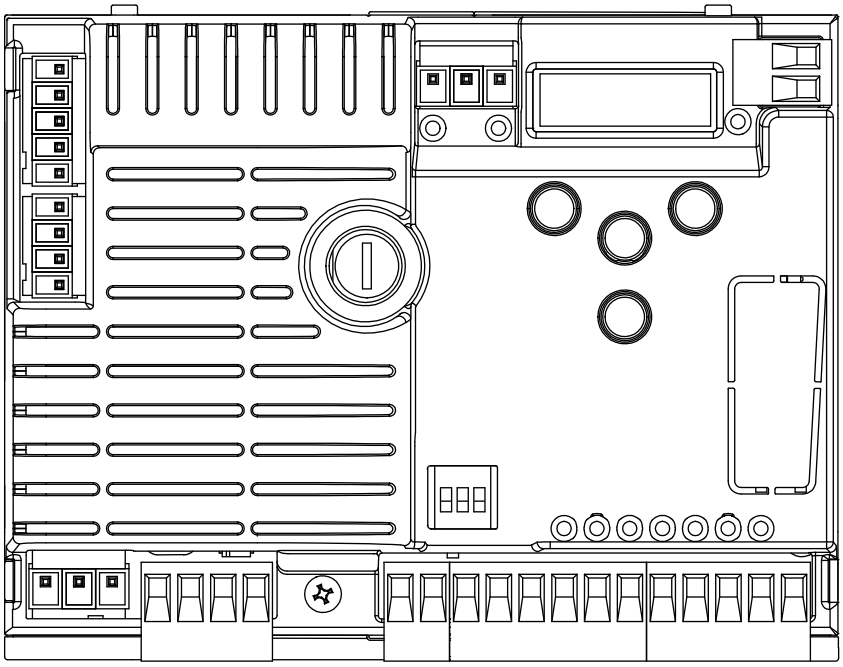
Istruzioni ed avvertenze per l'installazione e l'uso
Instructions and warnings for installation and use
Instructions et avertissements pour l'installation et l'usage
Instrucciones y advertencias para su instalación y uso
Anleitungen und Hinweise zu Installation und Einsatz
Instruções e advertências para a instalação e utilização
Instrukcje i zalecenia dotyczące instalacji i użytkowania



CT102 24

Centrale per un motore 24 Vdc, per cancello scorrevole, portone basculante o barriera
Control unit for a 24 Vdc motor, for a sliding gate, up-and-over door or barrier
Logique de commande pour un moteur 24 Vdc, pour portail coulissant, porte basculante ou barrieres
Central para un motor 24 Vdc, para puerta de corredera, portón basculante o barreras
Steuergerät für einen Motor 24 Vdc, für Schiebetor, Schwingtor oder Schrankenöffnung
Unidade para um motor 24 Vdc, para portão de correr, portão basculante ou barreira
Centrala do silnika 24 Vdc, napędzającego przesuwną bramę ogrodzeniową, uchylną bramę garażową lub szlaban

Management System
ISO 9001:2008

www.tuv.com
ID 9105043769

EN

TABLE OF CONTENTS

1 - SAFETY WARNINGS

CAUTION – ORIGINAL INSTRUCTIONS - important safety instructions. Compliance with the safety instructions below is important for personal safety. 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 12445; 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 12445 standard which establishes the test methods for testing door and gate automation systems.

WARNING - 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;

all operations requiring opening of the protective housings of various automation system components must be performed with the control unit disconnected from the power supply. 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;

users are advised to install an emergency stop button close to the automation system (connected to the control PCB STOP input) to allow the door to be stopped immediately in case of danger;

this device is not intended for use by persons (including children) with impaired physical, sensory or mental capacities, or with lack of experience or skill, unless a person responsible for their safety provides surveillance or instruction in use of the device;

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.

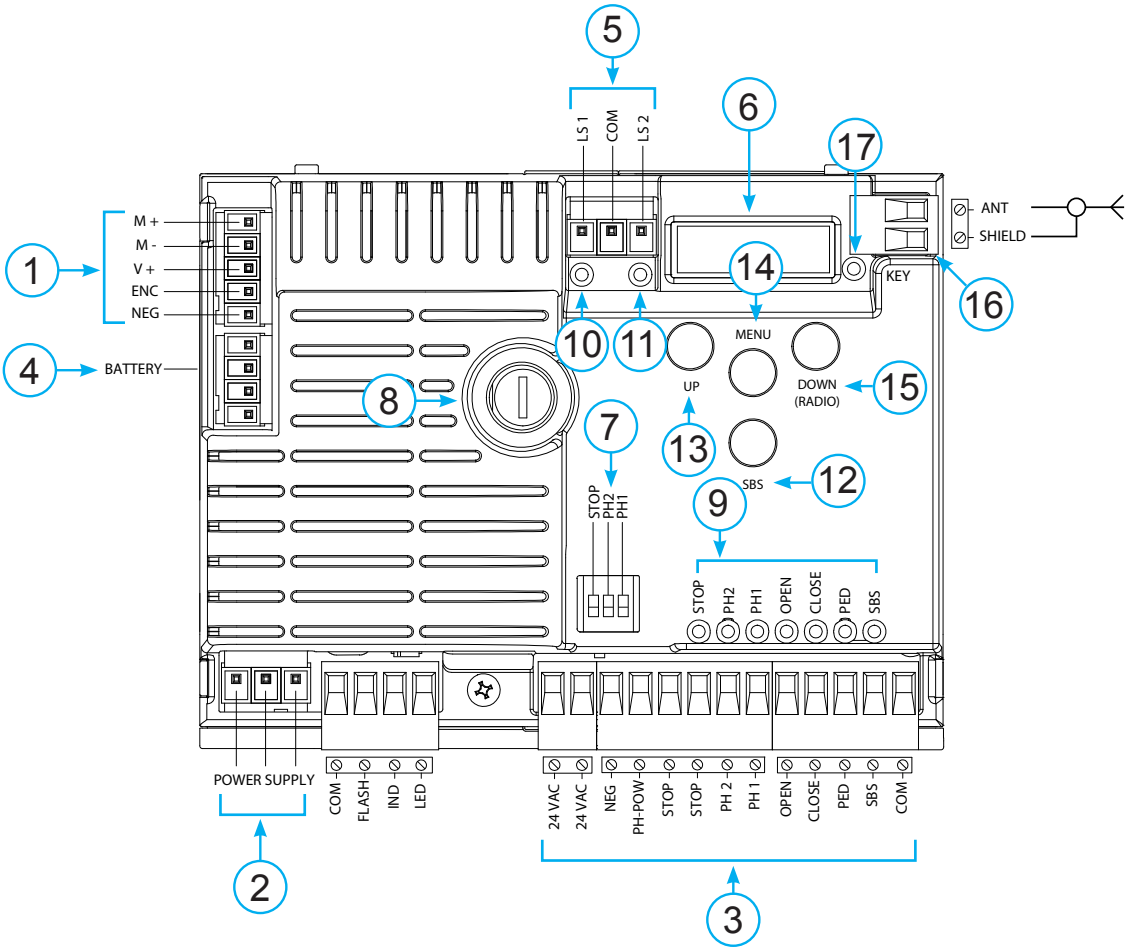
WARNING - The automation system component packaging material must be disposed of in full observance of current local waste disposal legislation.

WARNING - The data and information in this manual are subject to modification at any time, with no obligation on the part of Key Automation S.r.l. to provide notice.

2 - INTRODUCING THE PRODUCT

2.1 - Description of the control unit

The CT10224 control unit is the most modern, efficient system for the control of Key Automation motors for the electric opening and closure of sliding gates, up-and-over doors and electromechanical barrier.
All other, improper, use of the control unit is forbidden. The CT10224 has a display allowing easy programming and constant monitoring of the input status; the menu structure also allows easy setting of working times and operating modes.



2.2 - Description of the connections

1- Motor power supply connections and encoder
2- Transformer power supply connections
3- 24Vdc and 24Vac output connections to controls and safety devices
4- Connector for battery charger KBP
5- Limit switch connector
6- Functions display
7- Safety device dip switch
8- Fuse 2A slow-acting
9- STOP-PH2-PH1-OPEN-CLOSE-PED-SBS safety led and led input led
10- Limit switch indicator LED LSC
11- Limit switch indicator LED LSO
12- STEPPING SBS button
13- UP + button
14- MENU button
15- DOWN - button
16- Antenna
17- KEY led

2.3 - Models and technical characteristics

CODE	DESCRIPTION
900CT10224	24V control unit for sliding gates, up-and-over doors or electromechanical barrier

- Power supply with protection against short-circuits inside the control unit, on motors and on the connected accessories.
- Obstacle detection.
- Automatic learning of working times.
- Safety device deactivation by means of dip switches: there is no need to bridge the terminals of safety devices which are not installed - the function is simply disabled by means of a dip switch.

TECHNICAL SPECIFICATIONS:	
Power supply (L-N)	230 Vac (+10% - 15%) 50-60 Hz
Max motor load	150 W
Output for Vac accessories power/device test power Vdc	24 Vac without regulation 200 mA / 24 Vdc without regulation 250 mA
Courtesy light output	24 Vdc 25 W
Flashing light output	24 Vdc 25 W
Pause time	Adjustable 0-900 sec.
Operating temperature	-20 °C + 55 °C
230 Vac power supply line fuses	1.6 A slow-acting
Max. number of transmitters storage FIX CODE	150 transmitters
Max. number of transmitters storage ROLLING CODE	150 transmitters

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 allowable limit**
Control unit power supply line	1 x cable 3 x 1,5 mm^2	20 m *
Flashing light, courtesy light Antenna	3 x 0,5 mm^2 ** 1 x cable type RG58	20 m 20 m (advised < 5 m)
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-switch	1 x cable 4 x 0,5 mm^2 **	20 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.

3 - PRELIMINARY CHECKS

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

check that the gate, the door or the barrier is suitable for automation;

the weight and size of the gate or door and the balance of the barrier boom must be within the operating limits specified for the automation system in which the product is installed;

heck that the gate or door has firm, effective mechanical safety stops;

make sure that the product fixing zone is not subject to flooding;

high acidity or salinity or nearby 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, the door or the barrier moves smoothly without any areas of greater friction or derailment risk;

check that the gate, door or the barrier is well balanced and will therefore remain stationery when released in any position;

check that the electricity supply line to which the product is to be connected is suitably earthed and protected by an overload and differential safety breaker device;

he 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 - PRODUCT INSTALLATION

4.1 - Electrical connections

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

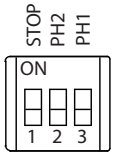
MOTOR CONNECTOR	
Power supply connection terminal board	
M +	Power supply motor
M -	Power supply motor
V +	Power supply encoder
ENC	Encoder signal
NEG	Maximum encoder power supply

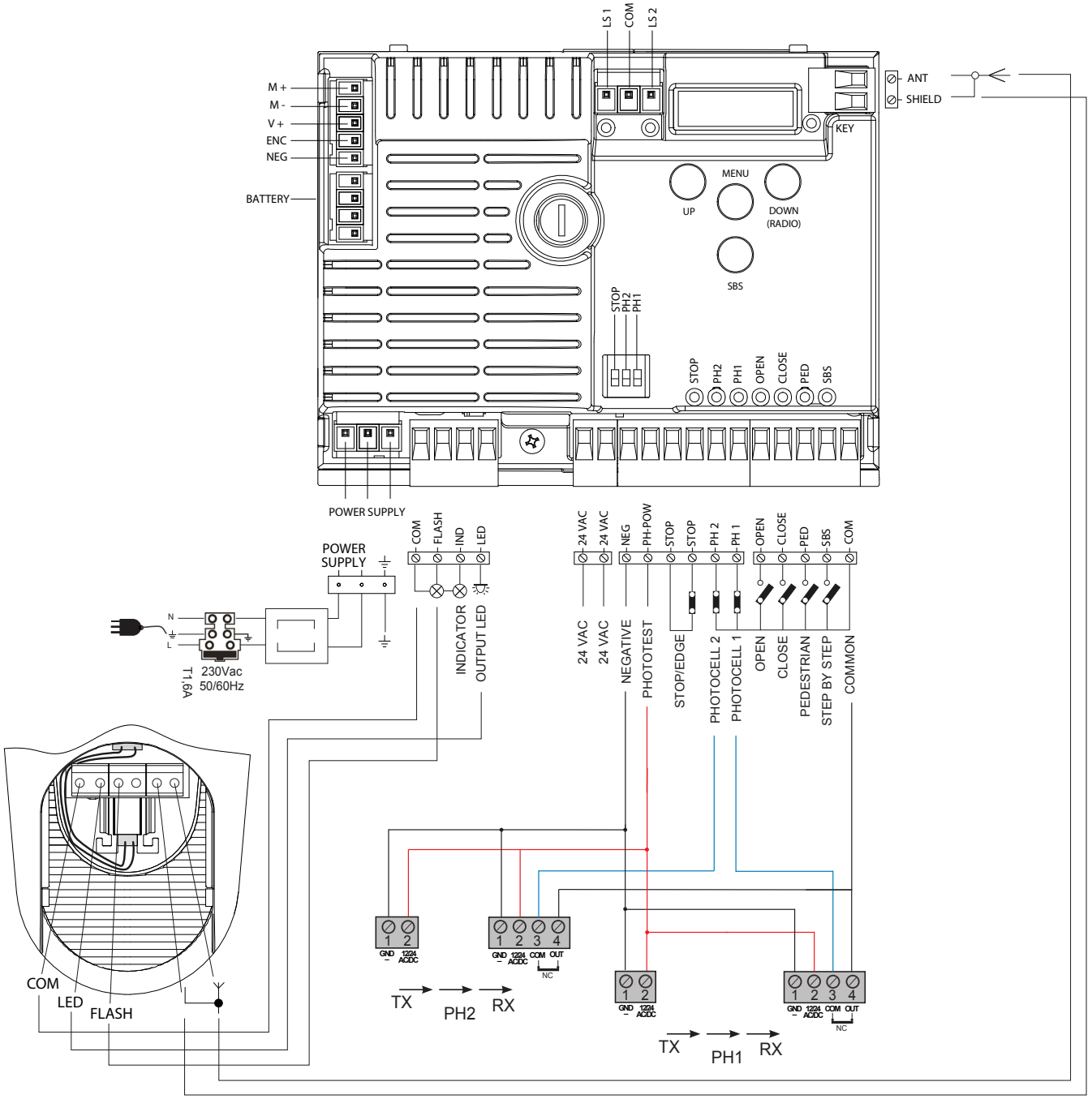
POWER SUPPLY CONNECTOR	
L	Power supply live 230 Vac (120 Vac) 50-60 Hz
N	Power supply neutral 230 Vac (120 Vac) 50-60 Hz
⏚	Earth

DIP SWITCH

Set on “ON” to disable inputs STOP, PH1, PH2
Eliminates the need to bridge the terminal board inputs.

WARNING - with the dip switch ON, the safety devices are disabled





SAFETY AND CONTROL DEVICE CONNECTOR	
COM	Common for the FLASH-IND-LED inputs
FLASH	Flashing light output 24Vdc (without regulation), maximum 25W
IND	IND output for gate open indicator light 24 Vdc not regulated 4W MAX / Electric lock output 12Vac, 15VA maximum selectable with parameter I n.d.
LED	Courtesy light output 24Vdc (without regulation), maximum 25W, controllable also via radio ON-OFF command (radio channel 4 selecting FC.y. = 2, tC.y. = 0)
24 VAC	Accessories power supply 24 Vac without regulation, 200 mA (with battery operation output not active)
24 VAC	Accessories power supply 24 Vac without regulation, 200 mA (with battery operation output not active)
NEG	Accessories power supply negative
PH-POW	Photocells PH1 and PH2 power supply positive; phototest can be selected with parameter tP.h. 24 Vdc, 250 mA
STOP	STOP safety device, NC contact between STOP and STOP (warning, with dip switch 1 ON the safety device input is off). This input is classified as a safety device; the contact can be deactivated at any time, cutting out the automation system and disabling all functions, including Automatic Closure. Safety sensor edge, ON/OFF, NC contact or resistive 8K2 between STOP and STOP. Input selectable with parameter Ed.M.
PH2	Photocells (opening), NC contact between PH2 and COM (warning, with dip switch 2 ON the PHOTOCELL 2 safety device input is off). The photocell is tripped at any time during opening of the automation system, halting operation immediately; the automation system will continue opening when the contact is restored. In the event of intervention on closure (parameter Ph.2. = 0) the device stops and on release re-opens.
PH1	Photocells (closing), NC contact between PH1 and COM (warning, with dip switch 3 ON the PHOTOCELL 1 safety device input is off) The photocell is tripped at any time during closing of the automation system, halting operation immediately and reversing the travel direction.
OPEN	OPEN command NO contact between OPEN and COM Contact for the HOLD-TO-RUN function. The gate OPENS as long as the contact is held down
CLOSE	CLOSE command NO contact between CLOSE and COM Contact for the HOLD-TO-RUN function. The gate CLOSES as long as the contact is held down
PED	PEDESTRIAN command NO contact between PED and COM Used to open the gate partially, depending on the software setting (not active in barrier/up-and-over mode)
SBS	STEPPING command NO contact between SBS and COM Open/Stop/Close/Stop command, or as set in the software
COM	Common for the PH2-PH1-OPEN-CLOSE-PED-SBS inputs
SHIELD	Antenna - shield -
ANT	Antenna - signal -

4.2 - Display during normal operation

In “NORMAL OPERATING MODE”, i.e. when the system is powered up normally, the 3-figure LCD display shows the following status messages:

MESSAGES	MEANING
--	Gate closed or switch-on after shutdown
OP	Gate opening
CL	Gate closing
SO	Gate stopped during opening
SC	Gate stopped during closure
F 1	Photocell 1 tripped
F2	Photocell 2 tripped
HA	Gate stopped by external event
ALI	Re-alignment procedure
oP	Gate stopped without automatic reclosure
OPd	Gate in pedestrian opening mode
PE	Gate in pedestrian opening position without automatic reclosure
-tC	Gate open with timed reclosure Flashing dash counting in progress Dash replaced by figures 0..9 countdown (last 10s)
-tP	Gate in pedestrian opening position with timed reclosure Flashing dash counting in progress Dash replaced by figures 0..9 countdown (last 10s)
L--	Learning started on limit switch (move the gate off the limit switch to continue the learning procedure) or learning stopped due to trip of safety device or motor inversion.
LOP	Learning opening
LCL	Learning closure

In addition, the dots between the figures illustrate the status of the limit switches, as described in greater detail below:

MESSAGES	MEANING
-.-	Limit switch CLOSED (one dot between the two lines)
tC.	Limit switch OPEN (a point to the right)
SO	No limit switch active (no dots present)

EVENT	DESCRIPTION	KEY TO MAIN CONTROL FLASHING LIGHT AND KEY LEDS CONTROL UNIT
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	
programmation	During the programming phase	2 quick flashes + pause + 1 flash
obstacle M1	Motor 1 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
pedestrian opening	Pedestrian opening in progress	
automatic pedestrian closure	Gate opening to pedestrian position with timed reclosure activated	
realignment	Realignment after a manual release	
phototest error	Phototest error detected	3 quick flashes + pause, 3 times
encoder error	Encoder error detected	7 quick flashes

Malfunctions

This section lists a number of malfunctions which may occur.

SURGE OVERLOAD ALARM	The motor's current drawdown has increased very quickly
EOL	1. The gate has struck an obstacle.
	2. Friction on runners or rack (see motor current [A]).
SAFETY EDGE ALARM	**The control unit has received a signal from the safety edge**
EEd	1. The safety edge has been pressed.
	2. The safety edge is not connected correctly.
LIMIT SWITCH ALARM	**The limit switches are not working properly**
ELS	1. The limit switches are damaged.
	2. The limit switches are not connected.
	3. Check the travel time which has passed without tripping of the limit switches.
PHOTOCELL ALARM/SAFETY EDGE	**Phototest fail outcome.**
EPH	1. Check the photocell and the safety edge connections.
	2. Check that the photocells and the safety edg are operating correctly.
ENCODER ALARM	**Encoder encoder (only if encoder is present)**
EEn	1. Check the encoder connections.
	2. Check that the encoder are operating correctly.

After eliminating the cause of the alarm, to delete all errors simply press the "DOWN -" key or press the SBS (STEPPING) command

The display returns to the normal screen.

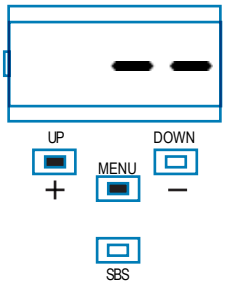
Press "UP" to read the following parameters on display.

DISPLAY	MEANING
Status display (--, OP, CL, SO, ecc..)	Description of the control unit (--, OP, CL, SO, ecc..)
Maneuvers performed	Counter displays alternating the thousands (without dots) and the units (with dots).
Motor current [A]	Current absorbed by the motor

4.3 - Autolearning of the travel stroke

The first time the control unit is powered up, an autolearning procedure must be carried out to acquire fundamental parameters such as the travel stroke length and deceleration points.

AUTOLEARNING OF THE TRAVEL STROKE AND MAIN PARAMETERS
The decelerations will be those set in the menu, with the same percentage during both opening and closing.
1. Release the gate or door, move it onto the central position and lock it in place again.
2. Hold down the + and MENU buttons SIMULTANEOUSLY for more than 5 seconds, until the screen shows LOP and get ready to press the DOWN key (see illustration) if necessary.
3. If the first operation is NOT opening of the gate, press the DOWN key to stop the autolearning. Then press SBS to restart the acquisition: the gate starts moving again, in the right direction. The motor opens the gate at low speed to the opening limit switch. On reaching the opening limit switch, the gate re-starts in the closing direction at low speed until it reaches the closing limit switch, displaying LCL.
4. Perform a number of opening, closing and sudden stop commands to ensure that the system is solid with no assembly defects.

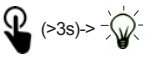


All the main parameters are set with the default settings by the control unit. To customise the installation, proceed as described in point 4.5 below.

4.4 - Learning a transmitter

A transmitter can be “learned” via the specific programming menu or by remote memorisation, using a previously memorised transmitter.

MEMORISING A REMOTE CONTROL	
If you are in programming mode exit pressing the MENU button until -- appears. Press the DOWN (RADIO) button for more than 2 seconds. Until the display shows the word “rad” (radio), then release the button	
1. Press and release the DOWN (RADIO) button a number of times equal to the number of the output to be activated: once for output STEP BY STEP, twice for output PEDESTRIAN, three times for output ONLY OPEN, four times for output LIGHT ON/OFF, five times for output PRESET (button 1 = output 1, button 2 = output 2, button 3 = output 3, button 4 = output 4)	
2. The KEY LED will flash a number of times equal to the number of the output selected, with 1 second pauses between flashes	
3. Press the key of the remote control to be memorised within 7 seconds, holding it down for at least 2 seconds	
4. If the memorisation has been successful, the KEY LED will give one long flash	
5. To memorise another remote control on the same output, repeat point 3	
N.B If no commands are given for 7 seconds, the receiver automatically quits the programming mode	

DELETING A REMOTE CONTROL	
If you are in programming mode exit pressing the MENU button until -- appears. Press the DOWN (RADIO) button for more than 2 seconds. Until the display shows the word “rAd” (radio), then release the button	
1. Press the DOWN (RADIO) button until the LED lights up (about 3 seconds)	
2. Press the key of the remote control to be deleted within 7 seconds, holding it down until the KEY LED goes out. Release the remote control key	
3. About 1 second after the key is released, the KEY LED starts to flash	
4. Confirm the deletion by pressing the DOWN (RADIO) button	
5. If the deletion has been successful, KEY LED will give one long flash	
N.B If no commands are given for 7 seconds, the receiver automatically quits the programming mode	

CLEARING THE ENTIRE RECEIVER MEMORY	
If you are in programming mode exit pressing the MENU button until -- appears. Press the DOWN (RADIO) button for more than 2 seconds. Until the display shows the word “rad” (radio), then release the button	
1. Press the DOWN (RADIO) button and hold it down until the LED lights up (about 3 seconds) and then goes out (about 3 seconds).Release the key	(>3s)-> (>3s)->
2. About 1 second after the key is released, the KEY LED starts to flash	(1s)+ (1s)+
3. Press the key on the receiver as the LED flashes for the third time	
4. If the deletion has been successful, the KEY LED will give one long flash	3s

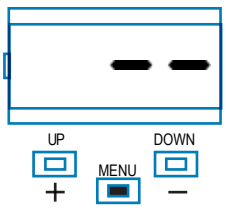
REMOTE MEMORISATION OF A REMOTE CONTROL WITH A REMOTE CONTROL ALREADY MEMORISED	
A transmitter can be memorised without accessing the receiver. The user needs to have a transmitter memorised previously, after which the procedure is as described below. The remote copy procedure must be carried out in the area served by the receiver.	
1. Press the key of the new remote control to be memorised, holding it down for at least 5 seconds	>5s
2. Press the key of the old remote control to be copied (if phase 1 has been successful, the automation system will not respond)	>3s
3. Press the key of the new remote control to be memorised, holding it down for at least 3 seconds	>3s
4. Press the key of the old remote control to be copied, holding it down for at least 3 seconds, to confirm and quit the programming mode	>3s
N.B If no commands are given for 7 seconds, the receiver automatically quits the programming mode	

4.5 - Customising the system - BASIC MENU

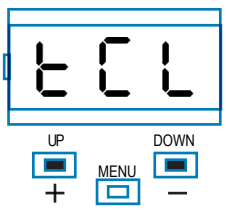
If necessary, users may select a BASIC MENU which allows modification of the control unit’s basic parameters. To select the BASIC MENU proceed as described below.

WARNING: to be certain of accessing the NORMAL OPERATION display state, the starting point for accessing the BASIC MENU, press the MENU key twice

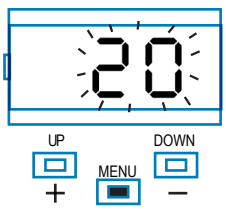
Exampling of modifying a BASIC MENU parameter



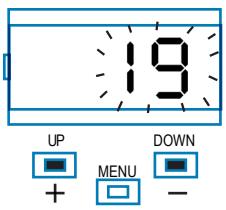
Press the MENU key for 1 second to access the basic menu.



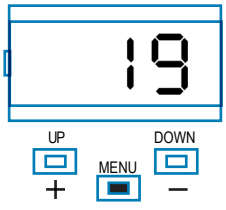
After accessing the BASIC MENU, press the + and – keys to scroll through the functions.



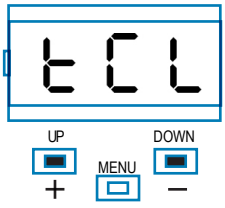
To access the value modification function, press the MENU key for 1 second, until the value starts to flash quickly.



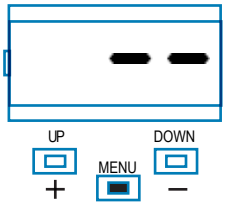
Press the + and – keys to to modify the value.



Press the MENU key for 1 second to display the parameter in order to save the modified value, or MENU quickly to quit the function without saving.



Press the + and – keys to scroll through the functions to modify other parameters.



Press the MENU key quickly to quit the menu.

	PARAMETERS	DESCRIPTION	DEFAULT	MIN	MAX	UNIT
1	tCL	Automatic reclosure time (0 = off)	0	0	900	s
2	ttr	Reclosing time after transit on PH1 (0 = off)	0	0	30	s
3	SEI	Sensitivity on obstacles 0 = Maximum impact force 10 = Minimum impact force	3	0	10	
4	SFO	Motor speed during opening 1 = minimum 2 = low 3 = medium 4 = high 5 = maximum	4	1	5	
5	SSO	Motor speed during opening deceleration phase 1 = minimum * 2 = low * 3 = medium 4 = high 5 = maximum	1	1	5	
6	SFC	Motor speed during closing 1 = minimum 2 = low 3 = medium 4 = high 5 = maximum	4	1	5	
7	SSC	Motor speed during closing deceleration phase 1 = minimum * 2 = low * 3 = medium 4 = high 5 = maximum	1	1	5	
8	Sbs	STEP BY STEP or SBS configuration: 0 = Normal (AP-ST-CH-ST-AP-ST…) 1 = Alternate STOP (AP-ST-CH-AP-ST-CH…) 2 = Alternate (AP-CH-AP-CH…) 3 = Apartment block – timer 4 = Apartment block with immediate reclosure	0	0	4	
9	LSI	Deceleration distance 0 to 100 = Motor deceleration percentage during opening and closure	20	0 **	100	%
10	bLt	Post blackout procedure 0 = No action, remains stationery 1 = Closure	0	0	1	s
11	Sby	Energy saving: enables photocell switch-off when gate is closed 0= disabled 1= enabled	0	0	1	

* = only for SUN4224
** = for SUN4224 min 15

5 - TESTING AND COMMISSIONING THE AUTOMATION SYSTEM

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, to check that the installation complies with the relevant regulatory requirements, especially the EN12445 standard which specifies the test methods for gate and door automation systems.

5.1 Testing

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

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

check that the gate or door is able to move freely once the automation system has been released and is well balanced, meaning that it will remain stationery when released in any position;
check that all connected devices (photocells, sensitive edges, emergency buttons, etc.) are operating correctly by performing gate or door opening, closing and stop tests using the connected control devices (transmitters, buttons or switches);

perform the impact measurements as required by the EN12445 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 dataplate with the details of the automation, the name of the person who commissioned it, the serial number and year of construction and the CE marking on the gate or door;

also fit a sign 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;

WARNING - after detecting an obstacle, the gate or door stops during its opening travel and automatic closure is disabled; to restart operation, the user must press the control button or use the transmitter.

6 - FURTHER DETAILS - ADVANCED MENU

The ADVANCED MENU allows the system to be further customised by modifying parameters not accessible from the basic menu.

To access the ADVANCED menu, press the MENU key and hold it down for 5 seconds.

To modify ADVANCED MENU parameters, proceed as described for the BASIC MENU.

LEGENDA:

SL= sliding gate
BA= barrier
OH= up-and-over door

N.B. Some default functions/display items may vary with respect to the type of motor selected.

	PARAMETS	DESCRIPTION	DEFAULT	MIN	MAX	UNIT	TYPE
1	SP.h.	Use of PHOTO1 when starting from closed 0 = PHOTO1 is checked 1 = The gate starts even with PHOTO1 excited	1	0	1		SL/BA/ OH
2	Ph.2.	Use of PHOTO2 0 = Enabled during both opening and closing AP/CH 1 =Only enabled during opening AP	1	0	1		SL/BA/ OH
3	tP.h.	Photo-device test 0 = off 1 = PHOTO1 on 2 = PHOTO2 on 3 = PHOTO1 and PHOTO2 on	0	0	3		SL/BA/ OH
4	Ed.n.	STOP input selection 0 = STOP contact (NC) 1 = Resistive safety edge (8k2) 2 = Contact safety edge (NC)	0	0	2		SL/BA/ OH
5	iE.d.	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	0	0	1		SL/BA/ OH
6	tE.d.	Edge test 0 = off 1 = on	0	0	1		SL/BA/ OH
7	LP.o.	Pedestrian opening	50	10	100	%	SL
8	tP.C.	Time for automatic closure from pedestrian opening (0=off)	0	0	900	s	SL
9	FP.r.	Flashing light output setup 0 = Steady 1 = Flashing 2 = Two-colour LED strip for barrier (MODE 1) - gate closed steady red - gate open LEDs off - during opening flashing green - during closing flashing red - stopped not on limit switch flashing red 3 = two-colour LED strip for barrier (MODE 2) - gate closed steady red - gate open steady green - during opening flashing green - during closing flashing red - stopped not on limit switch flashing red N.B.: if this parameter is set as 2 or 3, the settings of parameter Fnd. will be ignored. If this parameter is set as 2 or 3, the flashing light and gate open light outputs will be used for operation with the LED strip	1	0	3		SL/BA/ OH
10	tP.r.	Pre-flashing time (0 = off)	0	0	20	s	SL/BA/ OH
11	FC.y.	Courtesy light setup 0 = On at end of operation for time TCY 1 = On if gate not closed + duration of TCY 2 = On if courtesy light timer (TCY) time not out	0	0	2		SL/BA/ OH
12	tC.y.	Courtesy light on time	0	0	900	s	SL/BA/ OH

	PARAMETS	DESCRIPTION	DEFAULT	MIN	MAX	UNITA'	TIPO
13	CL.E.	Clearance. Allows to stop before the fully open position: it is useful to avoid mechanical stress during opening.	0	0	30	%	BA/OH
14	dE.A.	Hold-to-run 0 = off 1 = on	0	0	1		SL/BA/ OH
15	In.d.	0 = deactivated 1 = gate open light ON/OFF 2 = gate open light proportional - Slow flashing with gate opening - Quick flashing with gate closing - Steady light if gate open - 2 flashes + pause with gate stationary (position other than closed) 3 = Electric lock 4 = Magnetic electric lock function with output active when gate/door is closed N.B. interface with an external relay with 24 Vdc winding. To activate this function, the pre-flash must be enabled at the recommended value of 1 sec (tP.r. ≠ 0) 5 = LED strip for gate open light (MODE 1) - steady light when open and closed - flashing light in all other positions 6 = LED strip for gate open light (MODE 2) - gate closed steady red - gate open LEDs off flashing red in all other positions	0	0	6		SL/BA/ OH
16	SE.r.	Service interval cycle threshold. (0 = off)	10	0	200	x 1000 cycles	SL/BA/ OH
17	SE.F.	Enabling of continuous flashing indicating service required with SE.r. ≠ 0 (only active with gate closed). 0 = off 1 = on	0	0	1		SL/BA/ OH
18	EL.t.	Electric lock activation time in seconds	4	1	10	s	SL/BA/ OH
19	St.P.	High-speed motor start-up. 0 = on 1 = off	0	0	1		SL/BA/ OH
20	En.C.	1 = Off (use of virtual encoder) 2 = On (use of motor's physical encoder)	1	1	2		SL/BA/ OH
21	nE.P.	1 to 10 pulses per revolution of the physical encoder	4	1	10		SL/BA/ OH
22	dE.F.	0 = deactivated 1 = Restore of factory settings for sliding gate motor SUN4224 2 = Restore of factory settings for sliding gate motor SUN7224, SC7224 3 = Restore of factory settings for sliding gate motor SUN11224, SC11224 4 = Factory setting restore for 4/6 mt barrier and up-and-over door 5 = Factory setting restore for 8 mt barrier	0	0	5		SL/BA/ OH

To set the default values: 1) access the advanced programming function; 2) select the "dEF" parameter"; 3) activate the modification mode ("0" on display"); 4) accept the modification (press "MENU" and hold it down). A countdown should now appear: 49,48...,1 down to "don". Release the key when finished.

To use both colours of a two-colour LED strip, make the connections as explained in the CTLIGHT instructions and modify parameters FP.r. as required (setting 2 or 3).

To use just one colour of a LED strip, make the connections as explained in the CTLIGHT instructions and modify parameter In.d. as required (setting 5 or 6); parameter FP.r. cannot be set on 2 or 3.

7 - INSTRUCTIONS AND WARNINGS FOR THE END USER

Key Automation S.r.l. produces systems for the automation of gates, garage doors, automatic doors, roller blinds and car-park and road barriers. However, Key Automation is not the manufacturer of your complete automation system, which is the outcome of the analysis, assessment, choice of materials and installation work of your chosen installer. Every automation system is unique, and only your installer has the experience and skill required to produce a safe, reliable, durable system tailored to your needs, and above all that complies with the relevant regulatory standards. Although your automation system complies with the regulation safety level, this does not rule out the presence of "residual risk", meaning the possibility that hazards may occur, usually due to reckless or even incorrect use. We would therefore like to give you some advice for the correct use of the system:

• before using the automation system for the first time, have the installer explain the potential causes of residual risks to you;

• keep the manual for future reference, and pass it on to any new owner of the automation system;

• reckless use and misuse of the automation system may make it dangerous: do not operate the automation system with people, animal or objects within its range of action;

• a properly designed automation system has a high level of safety, since its sensor systems prevent it from moving with people or obstacles present so that its operation is always predictable and safe. However, as a precaution children should not be allowed to play close to the automation system, and to prevent involuntary activation, remote controls must not be left within their reach;

• as soon as any system malfunction is noticed, disconnect the electricity supply and perform the manual release procedure. Never attempt repairs on your own; call in your installation engineer. In the meantime the door or gate can be operated without automation once the geared motor has been released using the release key supplied with the system. In the event of safety devices out of service arrange for repairs to the automation immediately;

• in the event of malfunctions or power failures: while waiting for the engineer to come (or for the power to be restored if your system is not equipped with buffer batteries), the door or gate can be used just like any non-automated installation. To do this, the manual release procedure must be carried out;

• manual release and operation: first bear in mind that the release procedure can only be carried out with the door or gate stationery.

• Maintenance: Like any machine, your automation system needs regular periodic maintenance to ensure its long life and total safety. Arrange a periodic maintenance schedule with your installation engineer. Key Automation recommends that maintenance checks should be carried out every six months for normal domestic use, but this interval may vary depending on the level of use. Any inspection, maintenance or repair work must only be carried out by qualified staff.

• Never modify the automation system or its programming and setup parameters: this is the responsibility of your installation engineer.

• Testing, routine maintenance and any repairs must be recorded by the person who performs them and the documents must be conserved by the system's owner.

The only procedures you are capable of, and which you are recommended to perform, are cleaning of the photocell glass and removal of any leaves or stones that may obstruct the automation system. To prevent anyone from activating the gate or door, release the automation system before starting. Clean only with a cloth dipped in a little water.

At the end of its useful life, the automation system must be dismantled by qualified personnel, and the materials must be recycled or disposed of in compliance with the legislation locally in force.

If after some time your remote control seems to have become less effective, or stops operating completely, the battery may be flat (depending on the level of use, this may take from several months up to more than a year). You will realise this because the transmission confirmation light does not come on, or only lights up for a very short time.

Batteries contain pollutants: do not dispose of them with normal waste but follow the methods specified by the local regulations.

Thank you for choosing Key Automation S.r.l.; please visit our Internet site www.keyautomation.it for further information.

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Instruction version
580ISCT10224 REV.06