



BOXLED

Control unit for LED lights



1 - SAFETY WARNINGS

⚠ CAUTION !

To ensure personal safety it is important to follow these instructions and keep them for future reference.

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.

2 - INTRODUCING THE PRODUCT

In combination with the QUADRO light sensor, BOXLED control unit is able to switch the Key Automation LED garden lights on and off automatically.

BOXLED is able to operate up to 20 LED lights automatically during the hours of darkness (FIG.1), BOXLED XL up to 64 LED lights (FIG.2). The Night Light System turns the lights on or off 15 minutes after the set threshold is exceeded.

The control unit enables the user to dim the led light of each output to 5 different brightness settings, by simply pressing and holding the transmitter button or associated button inputs. The set led light brightness will be memorised for subsequent activations

CODE	DESCRIPTION
BOXLED	Key Automation led light control unit, up to 20 lights
BOXLEDXL	Key Automation led light control unit, up to 64 lights

ELECTRICAL DATA		BOXLED	BOXLED XL
power supply	Vac	90 ~ 260 50-60 Hz	90 ~ 260 50-60 Hz
max power	W	25	100
power stand-by	W	<0,5	<0,5
maximum output load	24Vdc	25W MAX	1=20W (MAX 40W) 2=20W 3=20W 4= 20W (MAX 40W) 80W MAX TOTAL
		five 18-led lights for each of the 4 outputs / twenty 18-led lights for 1 output	sixteen 18-led lights for each of the 4 outputs / thirty-two 18-led lights for outputs 1, 4

GENERIC DATA		BOXLED	BOXLED XL
protection degree	IP	54	54
dimensions (L - D - H)	mm	160 - 90 - 200	222 - 110 - 275
operating temperature	°C	-20 + 55	-20 + 55
max. number of transmitters storage		30 transmitters	30 transmitters

ELECTRIC CABLE TECHNICAL SPECIFICATIONS

Use a TWO-WIRE CABLE of suitable gauge for every single output; all the common wires must arrive and be interconnected inside the control unit.

3 - PRELIMINARY CHECKS

⚠ CAUTION !

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

- Position the QUADRO night-light sensor in a sunny area
- Fix the BOXLED in a sheltered location not exposed to direct sunlight
- Use electrical connections suitable for the currents required
- Check that the power supply conforms to the values in the technical specifications

4 - INSTALLING THE PRODUCT

ELECTRIC CONNECTIONS

- Plan and design the system on the plan of your garden (Fig.3), taking care to check the maximum number of lights for each zone and the maximum length and consequent gauge of each cable in advance. Do not exceed the maximum number of connectible lights.

⚠ CAUTION !

The number of lights refers to the number of strips of 18 LEDs each inside each lamp and does NOT necessarily correspond to the number of lamps (refer to TABLE 1 and Fig.4)

TABLE 1

STIKDW, STIKDB, STIKDD, STIKUW, STIKUB, STIKUD, STIKMW, STIKMB, STIKMD, STIKFW, STIKFB, STIKFD, STIKVW, STIKVB, STIKVD	1 LIGHT
STIKTW, STIKTB, STIKTD	2 LIGHTS
TONDA*	3 LIGHTS
ST60, ST100	4 LIGHTS

*Light intensity is not adjustable (always 100%)

• After counting the total number of lights verify if the model of BOXLED chosen is correct referring to TABLE 2

TABLE 2

	Max. total lights	Max. lights mod. TONDA
BOXLED	20 (25W)	4 TOTALS
BOXLEDXL	64 (80W)	5X2 CHANNEL (10 TOTALS)

EXAMPLE OF MAXIMUM LIGHTS PER OUTPUT

	1	2	3	4
BOXLED	20	0	0	0
BOXLEDXL	32	0	0	32

EXAMPLE OF MAXIMUM LIGHTS WITH TONDA LIGHT

	1	2	3	4
BOXLED	4 (TONDA)	3	3	2
BOXLEDXL	5 (TONDA)	17	17	5 (TONDA)

CABLE GAUGE FOR SINGLE OUTPUTS (U1)

LENGTH [M]	NUMBER OF LIGHTS			
	1 - 5	6 -10	11 - 20	21 - 32
10	2X0,75 H05RNF	2X0,75 H05RNF	2X0,75 H05RNF	2X0,75 H05RNF
15	2X0,75 H05RNF	2X0,75 H05RNF	2X0,75 H05RNF	2X1 H05RNF H07RNF
25	2X0,75 H05RNF	2X0,75 H05RNF	2X1 H05RNF H07RNF	2X1,5 H07RNF
50	2X0,75 H05RNF	2X1 H05RNF H07RNF	2X1,5 H07RNF	2X1,5 H07RNF
75	2X0,75 H05RNF	2X1 H05RNF H07RNF	2X2,5 H07RNF	2X2,5 H07RNF
100	2X1 H05RNF H07RNF	2X1,5 H07RNF	2X2,5 H07RNF	2X2,5 H07RNF

BOXLED BOXLED XL

- Place the control unit in a zone which is always visible from the position where you intend to operate the radio transmitter. All connections from the control unit to the lights are in safety extra-low voltage (Fig.5).
- Place the light sensor close to the control unit in a sunny position; connect it between COM and SEN (Fig. 1 and 6). The connection is at safety extra-low voltage.
- Parallel-connect the lights to the chosen output between COM and 1, between COM and 2, between COM and 3 or between COM and 4 (Fig. 1). Do not exceed the maximum number of connectible lights for each output (Tab.2). Cables can be joined together using the optional self-stripping, pre-insulated connector 3MJ (max gauge 1.5 mm²) (Fig. 7).
- Connect any extra-low voltage "hold-to-run" buttons to the specific inputs between COM and INP1, between COM and INP2, between COM and INP3 or between COM and INP4 (Fig. 1). Every button controls the relative zone. Holding the button down dims the lights in the relative zone.
- Connect the power supply plug (Fig.8). The control unit power supply is at voltage 90 – 260 Vac. If it is not possible to use the power supply plug provided, have the mains connection made by a qualified electrician.

⚠ CAUTION !

DO NOT tamper with the power supply plug and DO NOT connect the mains power supply unless you are a qualified electrician!

For each of the cables connected to the control unit, an appropriately sized cable gland must be used. Furthermore, to prevent condensation, water infiltration or rodents entry, the entrance must be sealed using specific gels.

- Program the control unit as described in the next point

PROGRAMMING WITH OPTIONAL DYL EXTERNAL DISPLAY

Apart from with the buttons on the control unit, the system can also be programmed with the optional DYL external display. Some advanced functions can only be programmed using the DYL (Fig.9-EN)

ADJUST LED BRIGHTNESS/TONDA FUNCTION

This setting enables adjustment of the led intensity during night-time hours.

After memorising a 4-channel transmitter, the brightness of each associated output can be adjusted as required by pressing and holding the transmitter button. On release of the button, the light brightness will also be memorised for subsequent activations

PH.	DESCRIPTION	EXAMPLE
1	Press and release the MENU button a number of times equal to the number of the output to be activated: once for output 1, twice for output 2, three times for output 3, four times for output 4	
2	The D1 LED will flash a number of times equal to the number of the output selected, with 1 second pauses between flashes	
3	Press and hold the button MENU for more than 3 seconds	
4	The led remains off	
5	Release button MENU	
6	The led emits some slow flashes. Press the MENU button corresponding to the required brightness 1st flash: level 1 (low brightness) 2nd flash: level 2 3rd flash: level 3 (factory setting) 4th flash: level 4 5th flash: level 5 (high brightness) 6th flash TONDA function: ATTENTION in this mode you cannot adjust light intensity	
7	After pushing MENU button, the led emits 4 quick flashes	

AMBIENT LIGHT LEVEL ADJUSTMENT

This setting enables adjustment of the light sensor activation on the basis of ambient light.

PH.	DESCRIPTION	EXAMPLE
1	Press the button MENU five times	
2	LED D1 emits five quick flashes followed by a pause	
3	Press and hold the button MENU for more than 3 seconds	
4	The led remains off	
5	Release button MENU	
6	The led emits 3 slow flashes. Press the MENU button corresponding to the required brightness 1st flash: level 1 (activation with low ambient light) 2nd flash: level 2 (activation with medium ambient light - factory setting) 3rd flash: level 3 (activation with high ambient light)	
7	After pushing MENU button, the led emits 4 quick flashes	

PROGRAMMING THE 4 OUTPUTS (1, 2, 3 AND 4) WITH DYL

Operation of each single output with the QUADRO light sensor can be disabled using the DYL external programmer display. When the value is set as 1, the sensor is disabled and the output will only be activated using the transmitter or the button connected by wire. When the value is set as 2 (default), the output will be activated by the QUADRO light sensor. In this case, the status of the output can be changed using the transmitter or button, but the next day automatic control of the output by the sensor will be restored.

TRANSMITTER PROGRAMMING

CAUTION: when BOXLED is powered, LED D2 will flash a set number of times corresponding to the type of radio code set:

- 1 long flash = no radio code set
- 2 flashes = FIXED CODE
- 3 flashes = ROLLING CODE

PH.	DESCRIPTION	EXAMPLE
1	Press and release RADIO button a number of times equal to the number of the output to be activated: once for output 1, twice for output 2, three times for output 3, four times for output 4 five times for output PRESET (button 1 = output 1, button 2 = output 2, button 3 = output 3, button 4 = output 4)	
2	The LED D2 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 10 seconds, holding it down for at least 2 seconds	
4	If the memorisation has been successful, the LED D2 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 control board automatically quits the programming mode	

CANCELLATION OF A SINGLE TRANSMITTER

PH.	DESCRIPTION	EXAMPLE
1	Press the RADIO button on the receiver until the LED lights up (about 3 seconds). Release the key	
2	Press the key of the remote control to be deleted within 10 seconds, holding it down until the LED D2 goes out. Release the remote control key	
3	About 1 second after the key is released, the LED D2 on the receiver starts to flash	
4	Confirm the deletion by pressing the RADIO button	
5	If the deletion has been successful, the LED D2 will give one long flash	
N.B.	If no commands are given for 7 seconds, the control board automatically quits the deletion mode	

COMPLETE CANCELLATION OF RADIO CODES

PH.	DESCRIPTION	EXAMPLE
1	Press the button RADIO and hold it down until the LED D2 lights up (about 2 seconds) and then goes out (about 2 seconds). Release the key	
2	About 1 second after the key is released, the LED D2 starts to flash	
3	To clear the entire memory, press the RADIO button on the third flash	
4	If the deletion has been successful, the LED D2 will give one long flash	

RESET CONTROL UNIT

DEFAULT PARAMETERS	VALUES	DEFAULT
CHANNEL 1 LIGHT INTENSITY	1 - 6	3
CHANNEL 2 LIGHT INTENSITY	1 - 6	3
CHANNEL 3 LIGHT INTENSITY	1 - 6	3
CHANNEL 4 LIGHT INTENSITY	1 - 6	3
OUTPUT 1 LIGHT SENSOR	1 - 2	2
OUTPUT 2 LIGHT SENSOR	1 - 2	2
OUTPUT 3 LIGHT SENSOR	1 - 2	2
OUTPUT 4 LIGHT SENSOR	1 - 2	2
AMBIENT LIGHT LEVEL	1-3	2

PH.	DESCRIPTION	EXAMPLE
1	Press the MENU button and hold it down until the LED D1 lights up (about 3 seconds) and then goes out (about 3 seconds). Release the key	
2	About 1 second after the key is released, the LED D1 starts to flash	
3	To reset and restore the factory settings, press the MENU button on the third flash	
4	If the deletion has been successful, the LED D1 will give four quick flashes	

ERROR MESSAGES


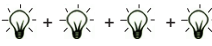





2 rapid flashes on led D1+ PAUSE = overload on output 1
 3 rapid flashes on led D1+ PAUSE = overload on output 2
 4 rapid flashes on led D1+ PAUSE = overload on output 3
 5 rapid flashes on led D1+ PAUSE = overload on output 4
 6 quick flashes of LED D1 + pause = OVERHEATING
 To reset the error, disconnect the power supply to the control unit.

5 - TESTING AND COMMISSIONING

The system may be put into operation after testing 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.

EXCLUSION TWILIGHT FUNCTION ON AN OUTPUT

With this programming you can exclude twilight function on the desired output. Excluding the twilight function, the output will only work via radio control or via the input on the control unit.

PH.	DESCRIPTION	EXAMPLE
1	Press and release the MENU button for a specific number of times of the output that you want to turn off twilight function: 6 times output 1, 7 times output 2, 8 times output 3, 9 times output 4,	
2	The D1 LED performs a number of flashes corresponding to the number of presses carried out with a pause of 1 second between flashes.	
3	Press and hold the MENU button for more than 3 seconds	
4	The LED remains OFF	
5	Release the MENU button	
6	The LED will start emitting 2 slow flashes. Press the MENU button during the flash of the desired function 1st flash twilight function OFF 2nd flash twilight function ON	
7	After pushing MENU button, The D1 LED will perform 4 fast flashes	

TEMPORARY EXCLUSION TWILIGHT FUNCTION OF AN OUTPUT

To temporarily exclude twilight sensor function on an output, activate the input corresponding to the output to be excluded for more than 35 seconds. At this point, the output will be switched off as long as the input is active. Once the input is no longer activated the output will resume normal operation.

Fig 1 - BOXLED

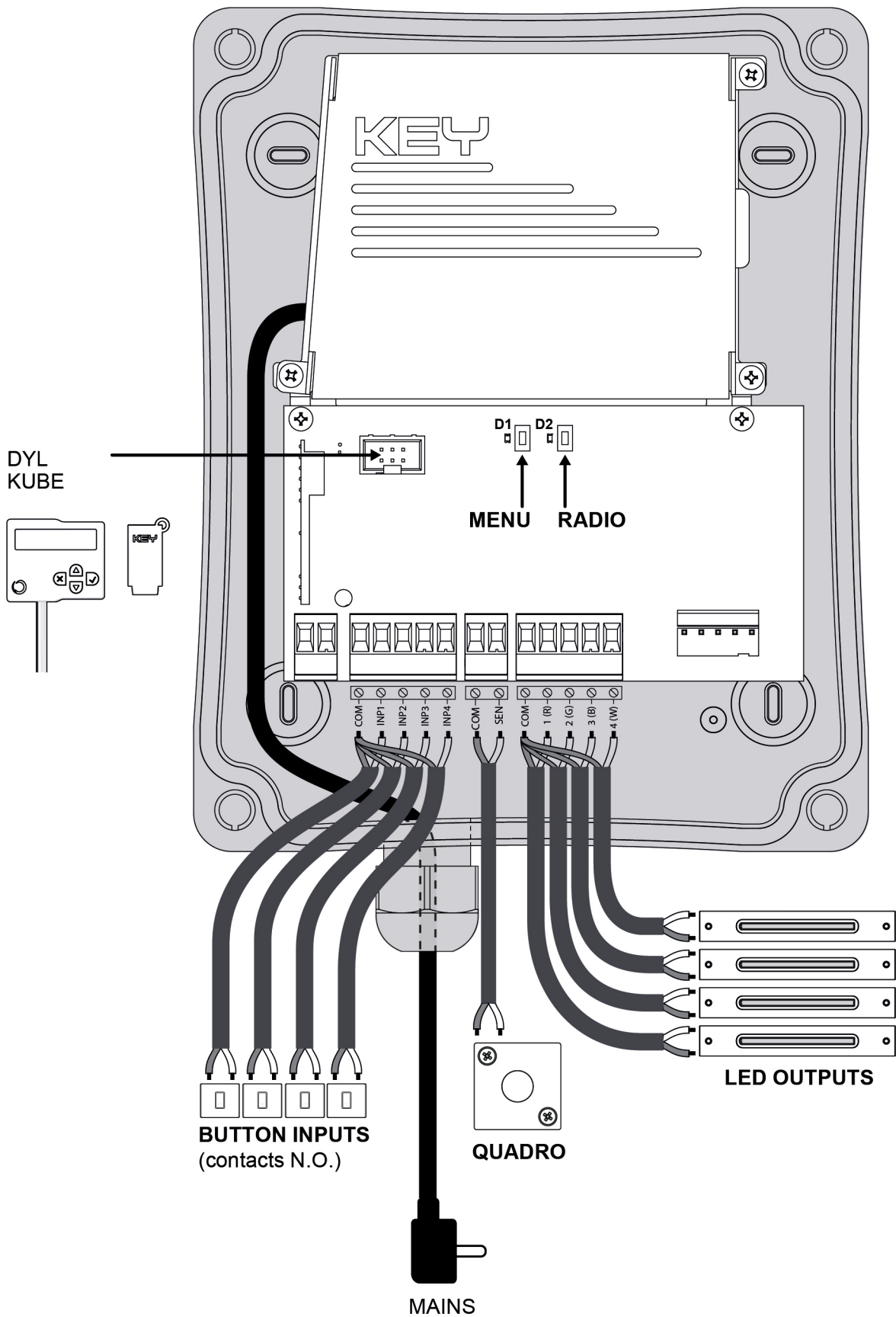


Fig 2 - BOXLED XL

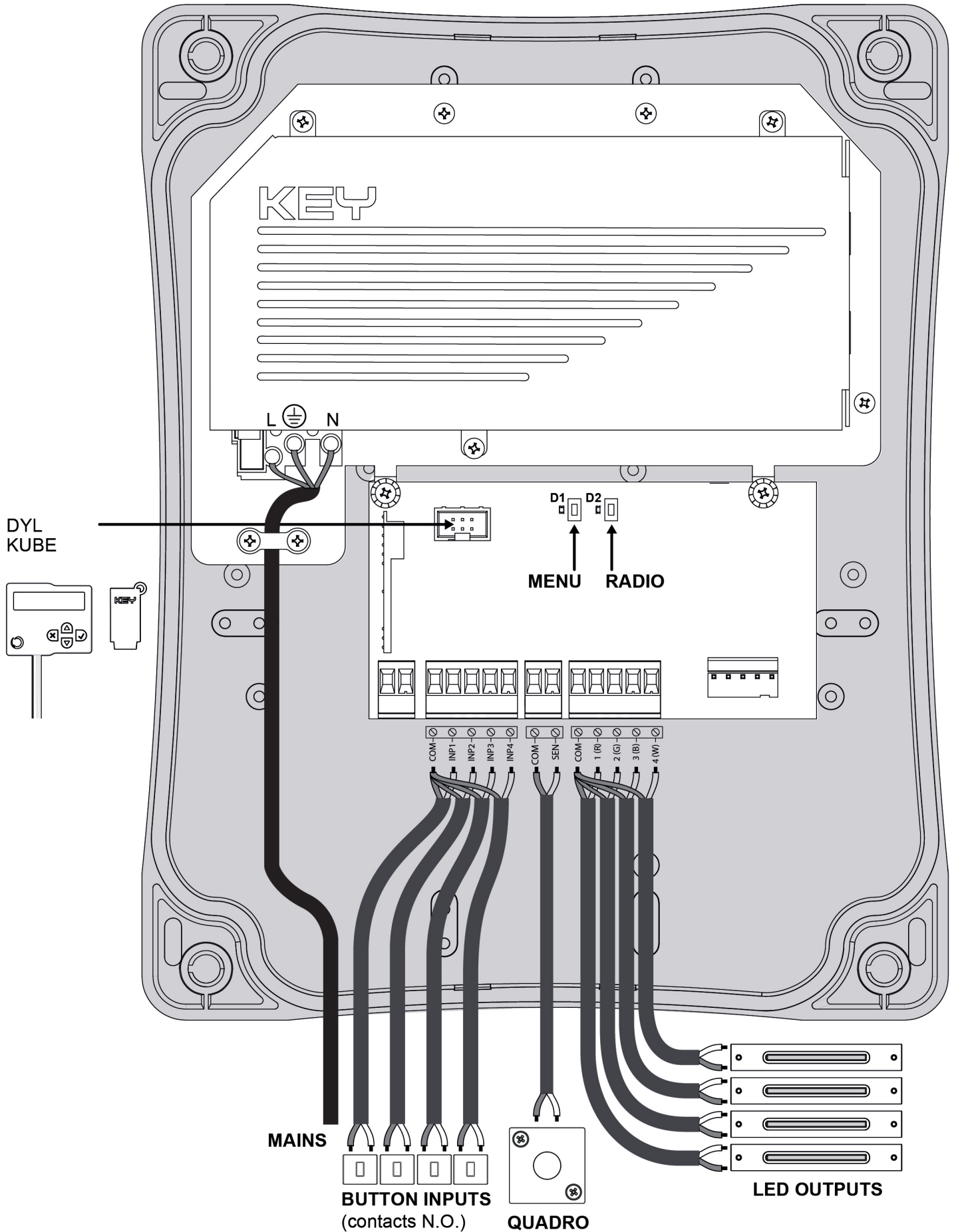


Fig 3

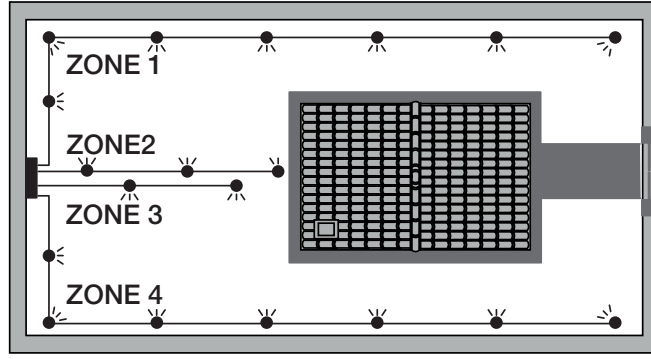


Fig 4



Fig 5

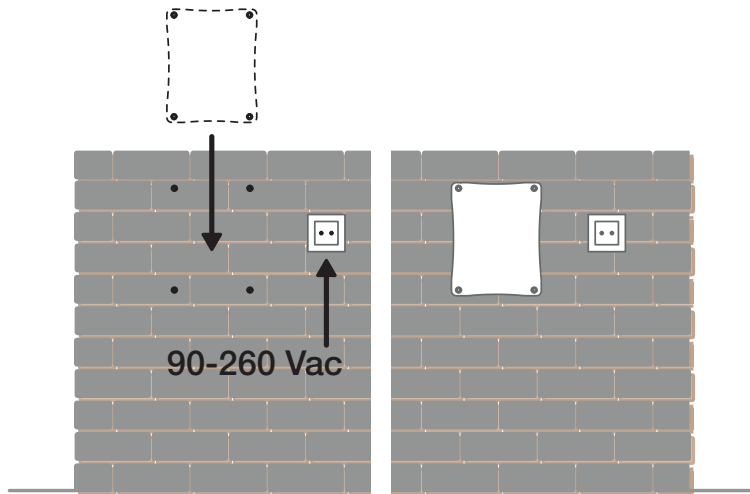


Fig 6

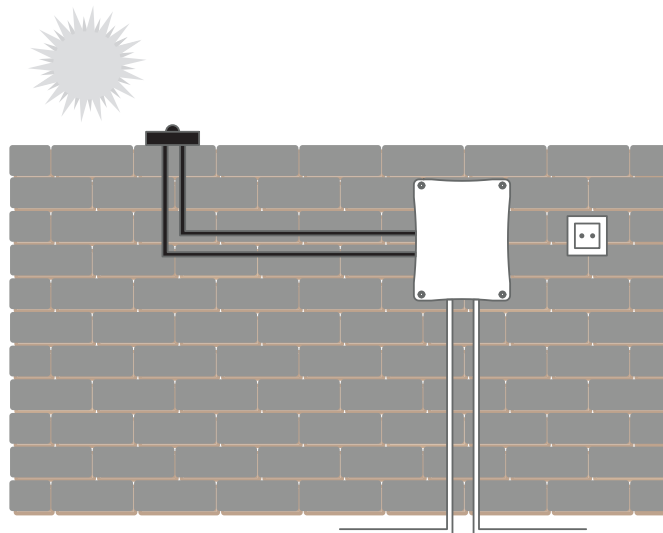


Fig 7

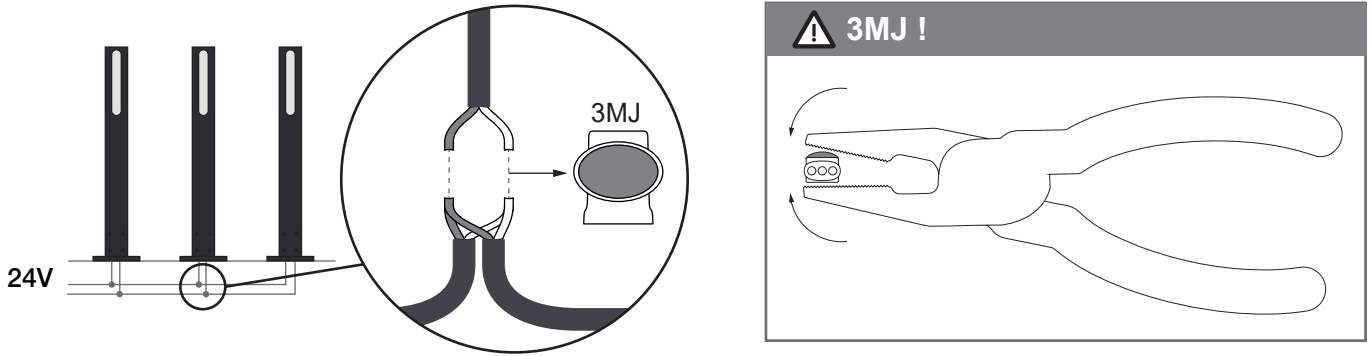


Fig 8

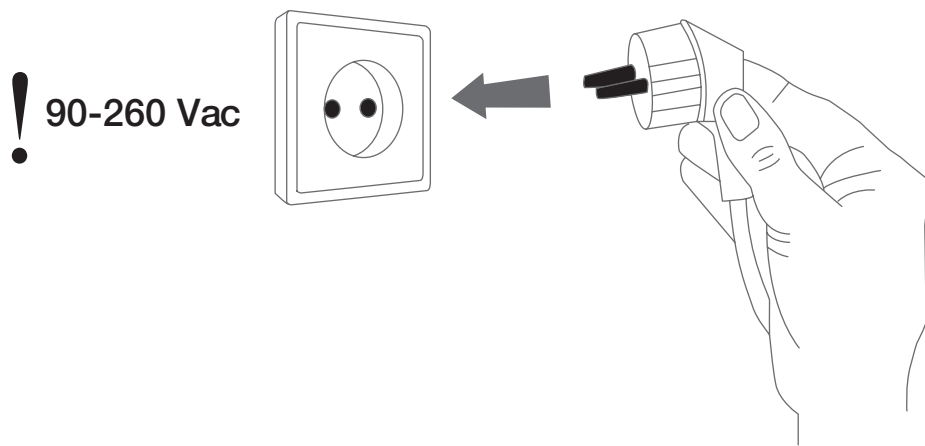
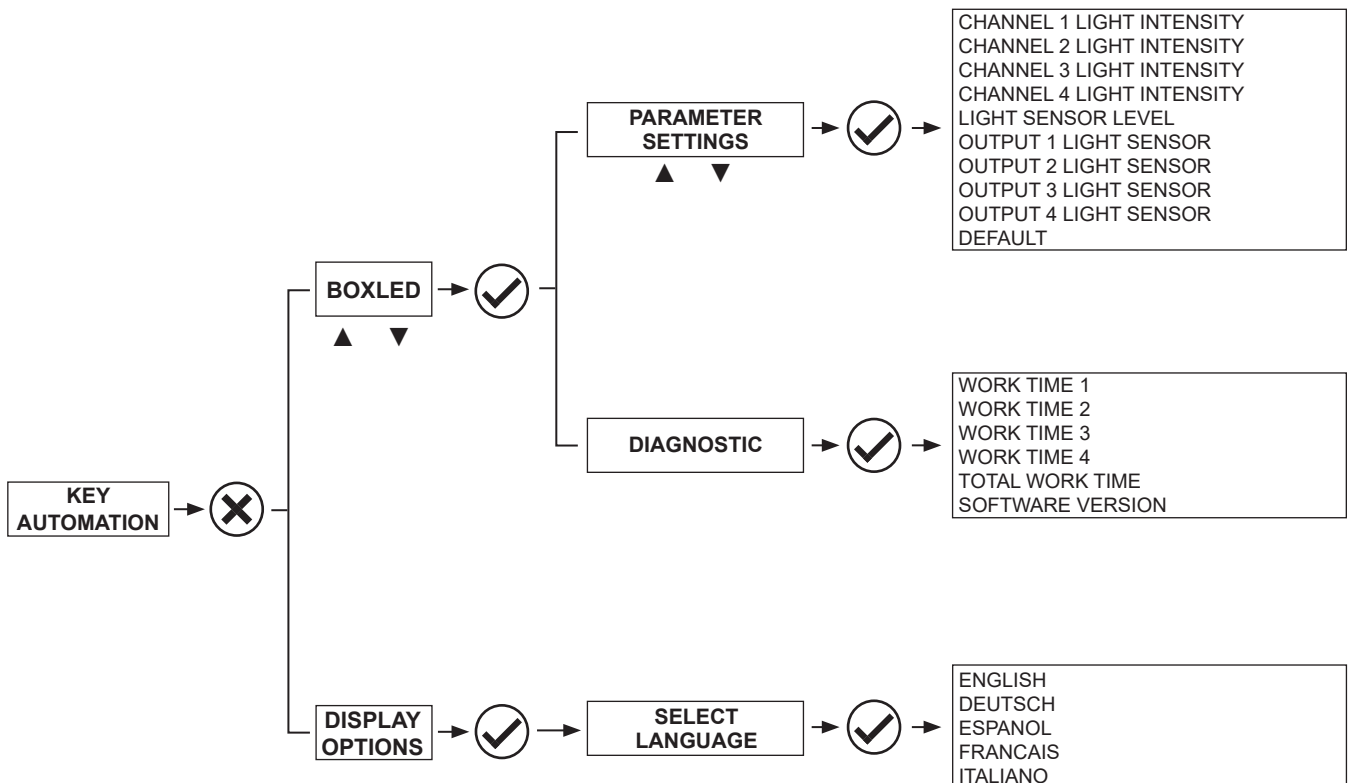
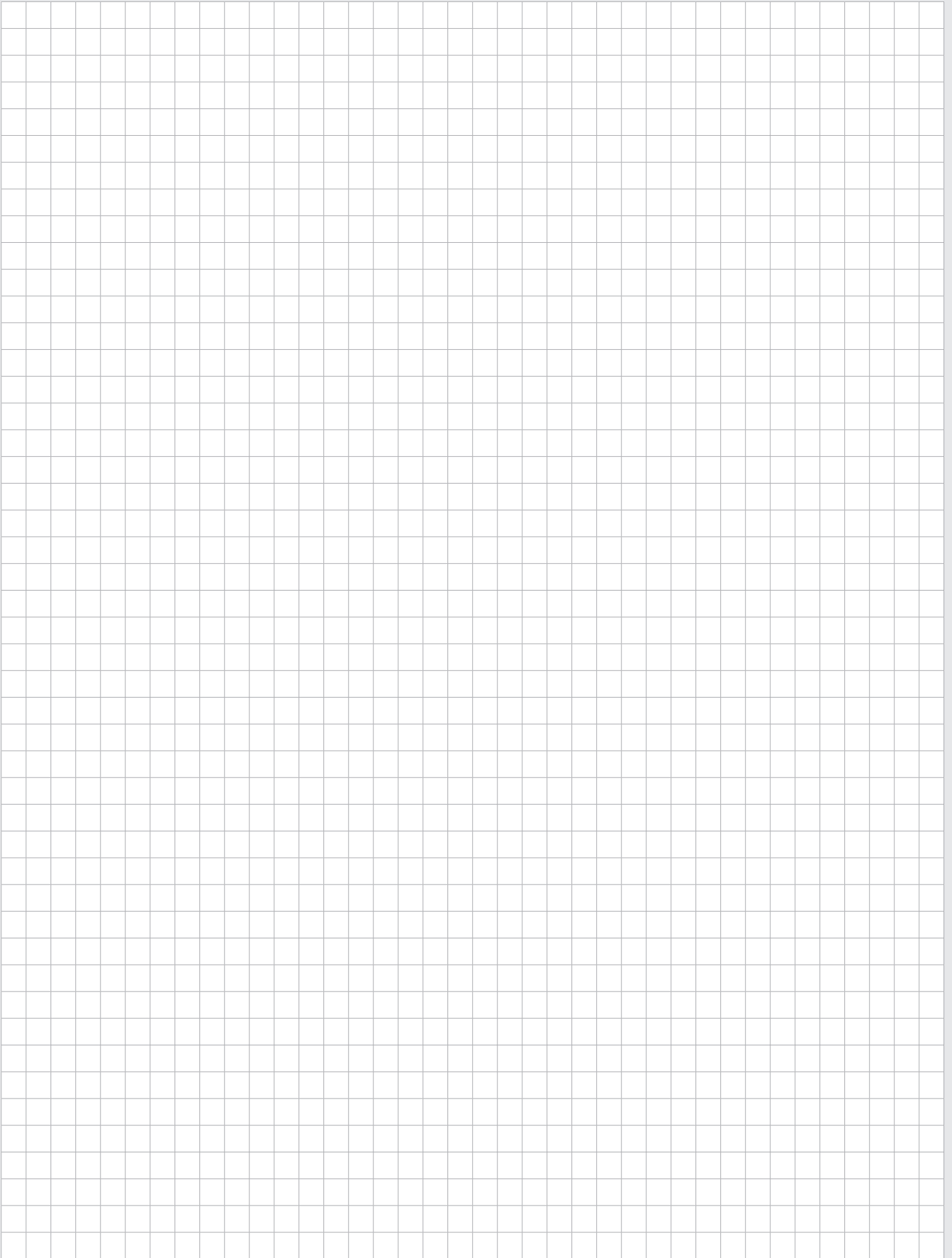


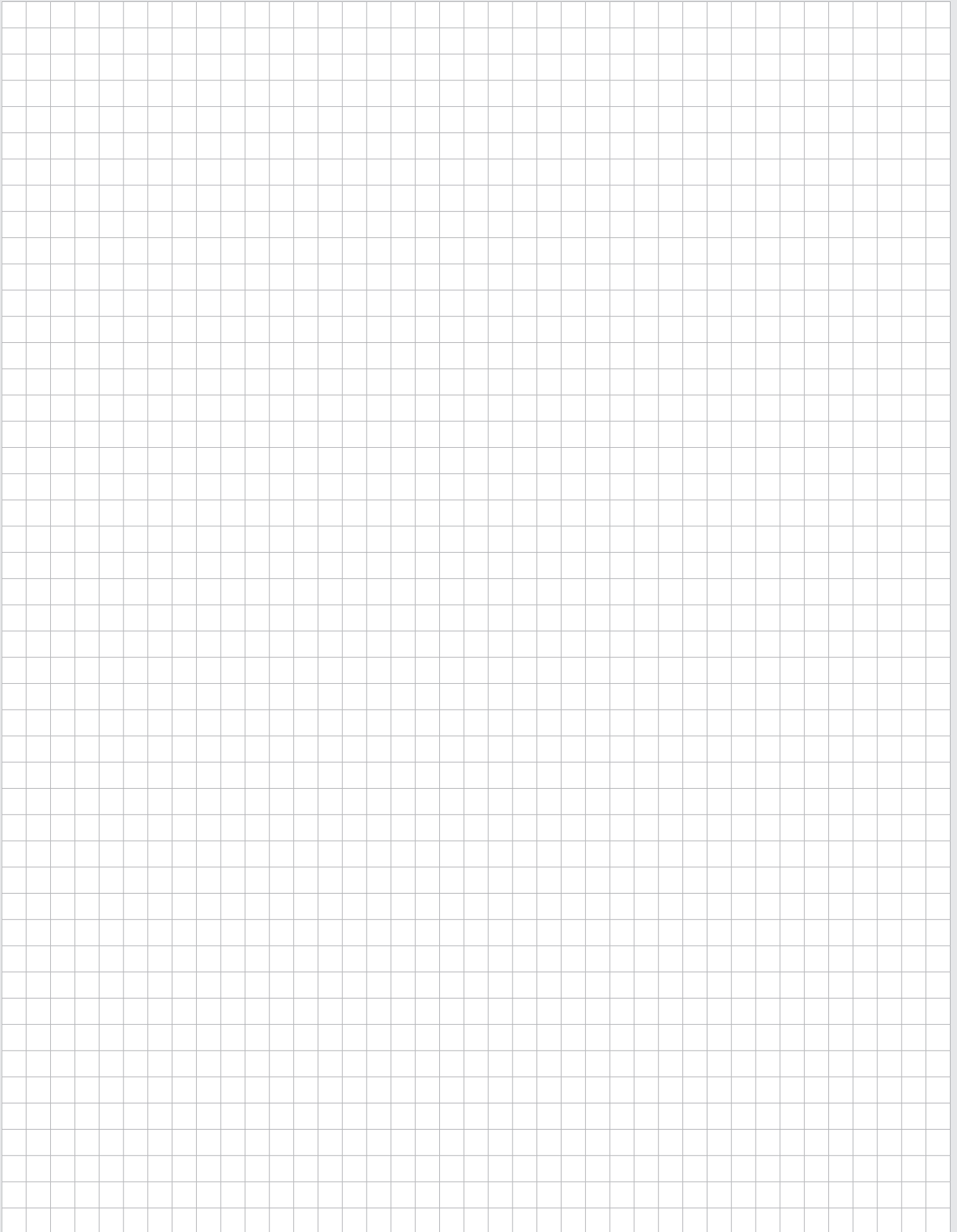
Fig 9 - EN



NOTE



NOTE



DECLARATION OF CONFORMITY

DECLARATION OF INCORPORATION OF PARTLY COMPLETED MACHINERY

The undersigned Nicola Michelin, General Manager of the company

Key Automation srl, Via Alessandro Volta, 30 - 30020 Noventa di Piave (VE) – ITALIA

declares that the product
type:

BOXLED
Control unit for garden lights with built-in radio receiver

Models:

BOXLED, BOXLEDXL

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

Direttiva macchine / Machinery Directive 2006/42/EC
Direttiva compatibilità elettromagnetica / EMC Directive 2014/30/EU
Direttiva bassa tensione / Low voltage Directive 2014/35/EU
Direttiva radiofrequenza / RED Directive 2009/125/EC
Direttiva ErP / ErP Directive 2009/125/EC
Direttiva RoHS / RoHS Directive 2011/65/UE

In accordance with the following harmonized standards
regulations:

ETSI EN 301489-3 V1.6.1, ETSI EN 301489-1 V1.9.2
ETSI EN 300220-2 V2.4.1
EN 61347-1:2015, EN 61347-1:2015
EN 61000-3-2:2014, EN 61000-3-3:2013
EN 61000-6-1:2009, EN 61000-6-3:2007 + A1:2011
EN 62493:2010
EN 55015:2013 + A1
EB 60598-1:2015

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.

Noventa di Piave (VE), 03/04/17

Amministratore Delegato
General Manager
Nicola Michelin



Key Automation S.r.l.
Via A. Volta, 30
30020 Noventa di Piave (VE)
P.IVA 03627650264 C.F. 03627650264
info@keyautomation.it

Capitale sociale 154.000,00 i.v.
Reg. Imprese di Venezia 03627650264
REA VE 326953
www.keyautomation.it



Organizzazione con sistema di gestione certificato
ISO 9001:2008

Key Automation S.r.l.

Via Meucci - 30027 San Donà di Piave (VE)
T. +39 0421.307.456 - F. +39 0421.656.98
info@keyautomation.it - www.keyautomation.it

Instruction version
580BOXLED REV.04