CONTROL PANEL FOR SLIDING GATES

24V dc

Programming Manual

Q20S

Control panel for sliding gates - 24V dc

- Display for programming and trouble-shooting.
- Electronic adjustment of working and slowdown times.
- Dual programming modes: automatic with obstacle detection feature or sequential step-by-step.
- Quick closing.
- Pedestrian opening.
- Multi-occupation function.
- Pre-blinking.
- Second radio channel interface (available as accessory).
- Integrated radio receiver 433,92MHz (99 users) suitable for both fixed and rolling-code Proteco's transmitters.
- Individual output for **MECHANICAL** N.C. and **RESISTIVE 8K2** safety edges.
- Operational self diagnostic.

TECHNICAL FEATURES

Item	PQ20S, PQ20S1D
Dimensions	137 x 84 x 37 mm
Box dimensions	220 x 290 x 90 mm
Pcb's weight	160 g
Main power	1700 g
Tension to control unit	230V ac ~ 50-60 Hz -10% +20%
Main power tolerance	20V ac
Transformer	230/20V – 130 VA
Main fuse	2 A
Battery fuse	10 A
Rated power input	250 W
Max. absorption rate	10 A
Absorption in stand-by	40 mA
Blinker	24V dc, max 20 W
Accessories	24V dc , max 5 W
Working temperature	-20 +60 °C
IP rate (boxed)	IP55

1. WARNINGS AND INSTALLATION TIPS

WARNING: This manual contains important information concerning personal safety. An incorrect installation or an improper use may lead to severe injuries.

Read carefully and pay particular attention to the safety sections marked by the symbol ⚠ .

Store this manual safely for future use

⚠ **Do not allow children or pets near your gate. Never let children operate or play with gate controls. Keep the remote controls away from children and unauthorised users.**

⚠ **All wirings or operations on the control panel must be performed with the control panel disconnected from the power supply.**

Wiring, settings and commissioning of this control board must be carried out by qualified and experienced personnel only. The installation has to comply to laws and regulations in force, with particular reference to EN 12445 provisions.

This appliance is only to be used with the power supply unit provided with the appliance.

Means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules and wiring diagram (please see paragraph 3).

When operating a based-off switch, make sure that other persons are kept away.
Frequently examine the installation for signs of wear or damage to cables.

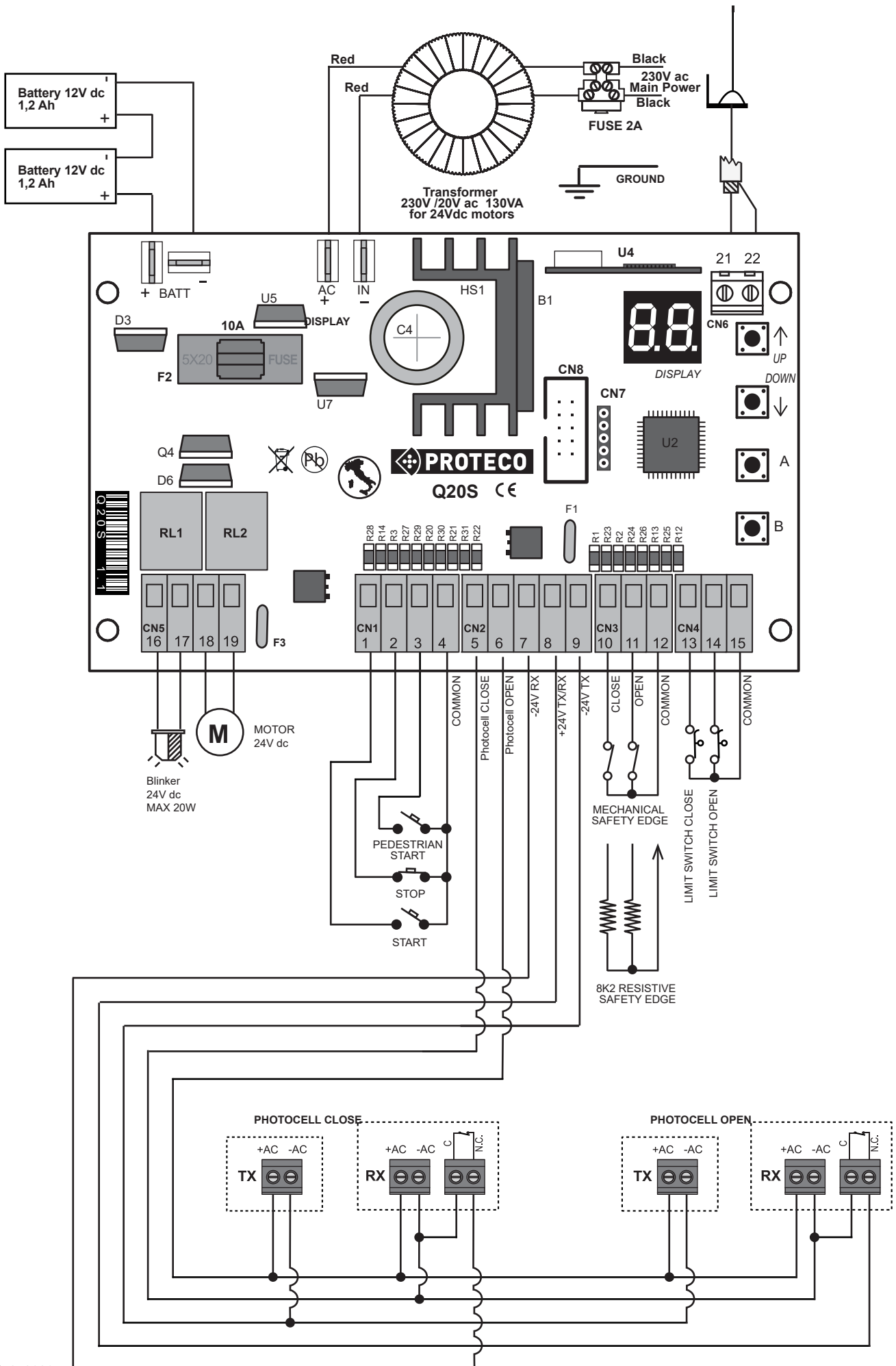**Do not use if repair or adjustment is needed.**

2. COMPONENTS
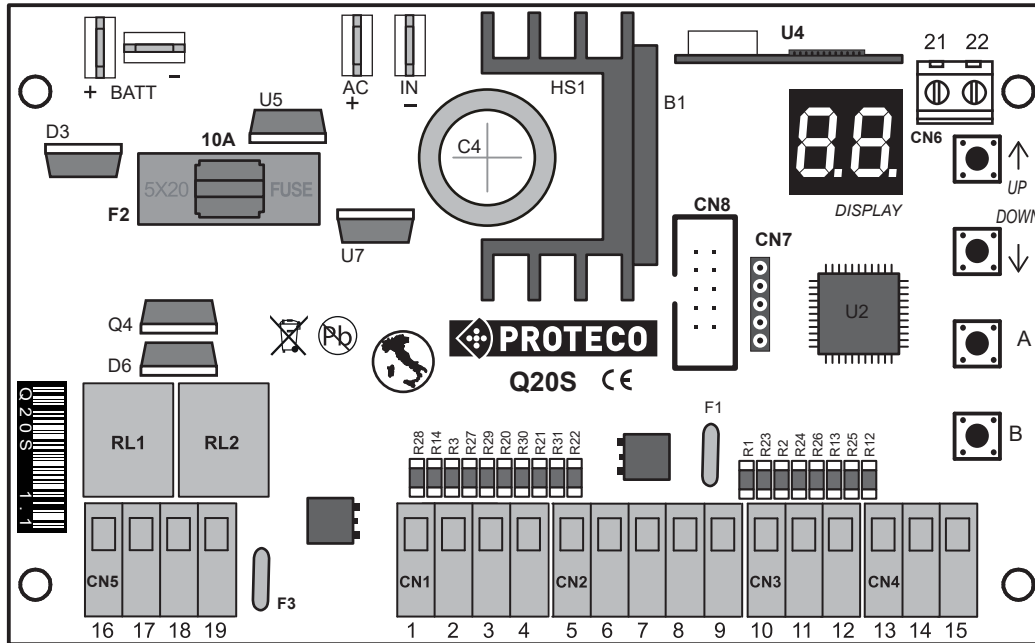
DISPLAY	= LCD display
U4	= radio receiver
F1	= self-restoring fuse ACCESSORIES 24V - 0,5A
F2	= BATTERY fuse 10A
F3	= self-restoring fuse BLINKER 24V - 1,6A
F4	= self-restoring fuse ELECTRIC LOCK 12V - 1,6A
RL1	= motor relay OPEN
RL2	= motor relay CLOSE
CN1	= START contacts
CN2	= PHOTOCELLS contacts
CN3	= safety edge
CN4	= limit switch
CN5	= motor and blinker
CN6	= external aerial
CN7	= software plug
CN8	= 2° radio channel interface plug
AC IN	= secondary transformer 24Vac
BATT	= battery

PROGRAMMING KEYS

A ⬚	**ENTER /** settings selection
B ⬚	**EXIT / SAVE**
⬚ ↑ UP	**UP** or **START** command
⬚ DOWN ↓	**DOWN** or **PEDESTRIAN command**

3. WIRING TABLE

motors 24Vdc

Battery 12V dc 1,2 Ah

Battery 12V dc 1,2 Ah

Red

Red

Black
230V ac Main Power
Black

FUSE 2A

GROUND

Transformer 230V /20V ac 130VA for 24Vdc motors

U4

21 22

+ BATT

U5

AC +

IN -

HS1

B1

CN6

DISPLAY

D3

10A

5X20 FUSE

F2

U7

C4

CN8

CN7

U2

DISPLAY

UP

DOWN

A

B

Q4

D6

PROTECO

Q20S CE

F1

RL1

RL2

R28 R14 R3 R27 R29 R20 R30 R21 R31 R22

R1 R23 R2 R24 R26 R13 R25 R12

CN5
16 17 18 19

F3

CN1
1 2 3 4

CN2
5 6 7 8 9

CN3
10 11 12

CN4
13 14 15

COMMON

Photocell CLOSE

Photocell OPEN

-24V RX

+24V TX/RX

-24V TX

CLOSE

OPEN

COMMON

LIMIT SWITCH CLOSE

LIMIT SWITCH OPEN

COMMON

Blinker 24V dc MAX 20W

M MOTOR 24V dc

PEDESTRIAN START

STOP

START

MECHANICAL SAFETY EDGE

8K2 RESISTIVE SAFETY EDGE

PHOTOCELL CLOSE

+AC -AC

TX

+AC -AC C N.C.

RX

PHOTOCELL OPEN

+AC -AC

TX

+AC -AC C N.C.

RX

Q20S_2_2020

4

Terminals (INPUTS / OUTPUTS)

CN1 = START contacts

1	START (contact N.O.)
2	STOP push button (contact N.C.)
3	PEDESTRIAN START (contact N.O.)
4	COMMON
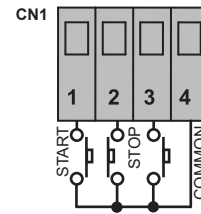
CN2 = PHOTOCELLS

5	CLOSE (contact N.C.
6	OPEN (contact N.C.)
7	RX PHOTOCELL -24V
8	TX/RX +24V
9	TX PHOTOCELL -24V
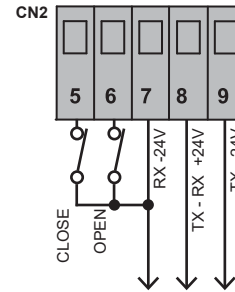
CN3 = SAFETY EDGES

10	CLOSE
11	OPEN
12	COMMON
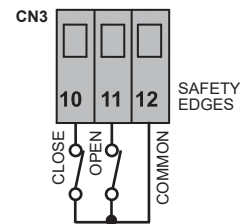
CN4 = LIMIT SWITCH

13	CLOSE
14	OPEN
15	COMMON
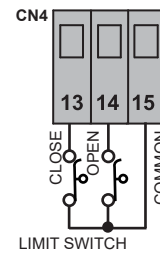
CN5 = BLINKER and MOTOR

16 **17** }	Blinker 24V dc 20W mx.
18 **19** }	Motor 24V dc
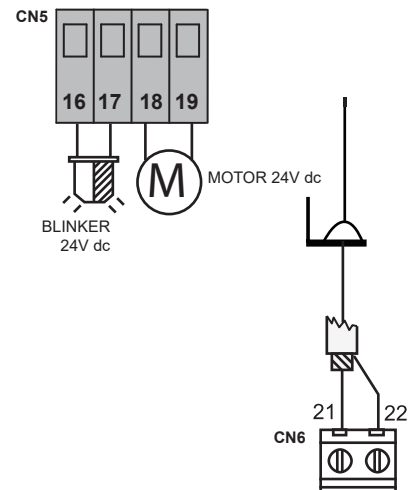
CN6 = EXTERNAL AERIAL

21	Coaxial wire 1 (SIGNAL)
22	Coaxial wire 2 (EARTH)

CN8 = 2° radio channel interface plug
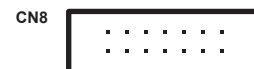
AC IN = Secondary transformer 24Vac

BATT = Battery

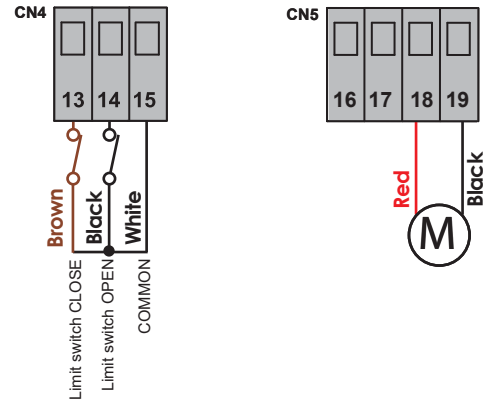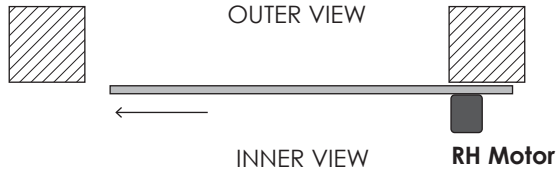## 3.1   MOTOR and LIMIT SWITCH wiring

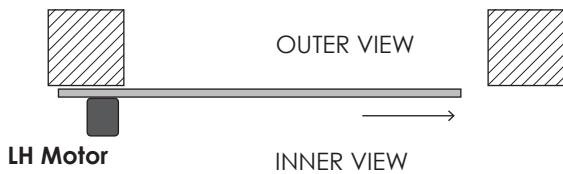Once the motor has been positioned, wire as shown below.

⚠️ **By default the motor comes RH pre-wired (inner view).**

3.1.1 Motor with MECHANICAL LIMIT SWITCH

Motor positioned to the RIGHT of the gate

OUTER VIEW

INNER VIEW   **RH Motor**

CN4   13 14 15

Brown — Limit switch CLOSE
Black — Limit switch OPEN
White — COMMON

CN5   16 17 18 19

Red   Black
(M)

Motor positioned to the LEFT of the gate

OUTER VIEW

LH Motor   INNER VIEW

If the motor is positioned to the LEFT (inner view), change the operational direction, going to `C6` and setting `01` (motor inversion)

⚠️ **By default the motor comes RH pre-wired (inner view)**

3.1.2 Motor with MAGNETIC LIMIT SWITCH

If the motor is fitted with MAGNETIC limit switch, go to `C7` and set `01` (magnetic limit switch mode ON).

CN4   13 14 15

Red   Black   Red   Black

CN5   16 17 18 19

Red   Black
(M)
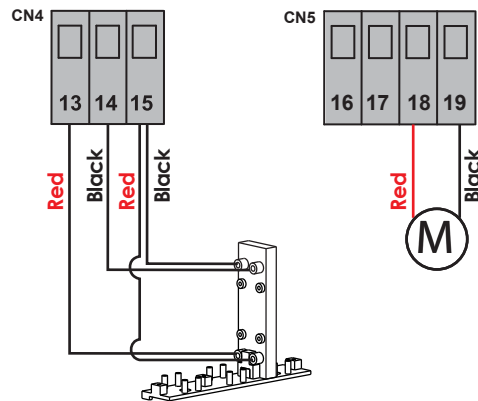
Motor positioned to the RIGHT of the gate (inner view)
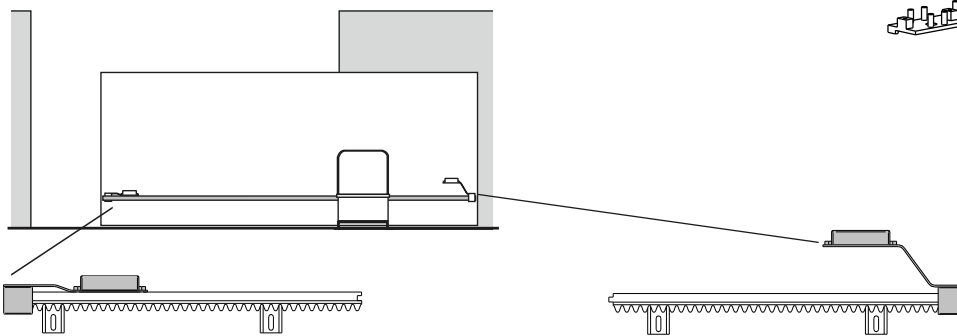
The **SMALL magnetic switch** must always be positioned to the **LEFT in OPENING**.

The **BIG magnetic switch** must always be positioned to the **RIGHT in CLOSING**.

Motor positioned to the LEFT of the gate (inner view)

If the motor is positioned to the LEFT (inner view), change the operational direction, going to `C6` and setting `01` motor / limit switch inversion).

English

3.2   MAIN POWER

Once all wirings are done, power the control unit. Connect the 230V to the **transformer** (**130VA**, primary **230V** – secondary **20V**) and the transformer's output to AC IN.

3.2.1 BATTERY
In case of power cut it is possible to connect no. 2 back-up batteries 12V 1,2Ah to **BATT**.

3.2.2 DC TENSION
It is possible to power the control unit DC.
Replace the transformer by any other kind of power bank and wire to **AC IN**, as picture shows.
Pay attention to polaritiy (**+ / -**).
If polarity is inverted, the control unit automatically goes to low consumption mode.

If main power supply delivers more than 10A, it is necessary to wire en series a fuse of 10A.
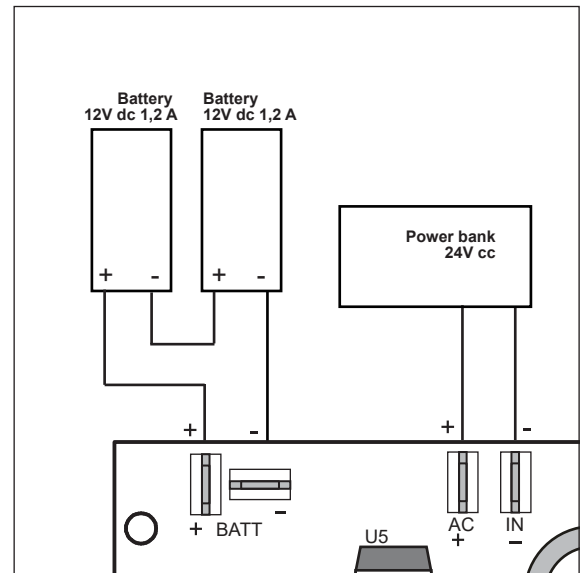
3.3   START PUSH BUTTON

It is possible to connect a START PUSH BUTTON (contact N.O.) to **1-4**, terminal **CN1.**

An additional START PUSH BUTTON shall be wired in **PARALLEL** (contact N.O.).

3.3.1 TIMER

It is possible to connect a TIMER (contact N.O.) to **1-4**, terminal **CN1**.

When the TIMER is fitted, the gate remains OPENED for the whole time set and then CLOSES automatically.

ATTENTION!:
If a TIMER is connected, it is necessary to set the
MULTI-OCCUPATION function, $H1$ **on** 01 .
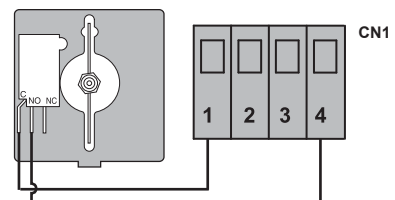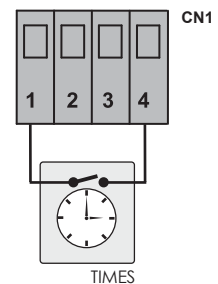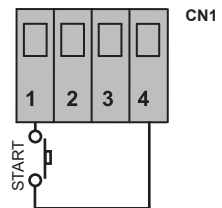
3.3.2 KEY SWITCH

It is possible to connect a KEY SWITCH (contact N.O.) to **1-4**, terminal **CN1**.

3.4   PEDESTRIAN OPENING

PEDESTRIAN START contacts (N.O.) must be wired to **3-4**, terminal **CN1**.

Additional PEDESTRIAN START contacts shall be wired in **PARALLEL** (contact N.O.)
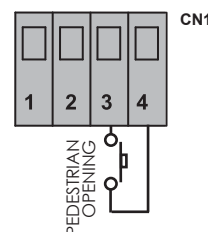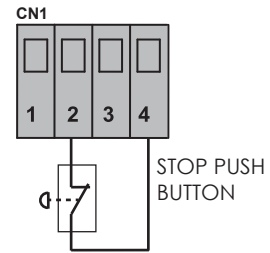
3.5   STOP PUSH BUTTON

Wire the STOP push button (contact N.C.) to **2-4**, terminal **CN1**.
Additional STOP push buttons shall be wired in **series** (contact N.C.).

⚠️ **The emergency STOP push button is highly recommended for safety of people and objects**

NB: If no STOP PUSH BUTTON is connected, set **P1** to **00** .

3.6   PHOTOCELLS

3.6.1 Photocells in CLOSING
Wire the photocells to **7-8-9**, terminal **CN2**.
Wire the N.C. contact of the photocells to **5-7**, terminal **CN2**.
An additional set of photocells can be connected, wiring in **SERIES** the N.C. contacts.
- If the photocell beam is interrupted during CLOSING, the gate **STOPS** and reverses for 1,5 seconds.
- If the photocell beam is interrupted during opening, the gate keeps on working normally.

⚠️ **For safety reasons a set of photocells must be installed to protect the gate OPENING area**

NB: If no PHOTOCELL in OPENING is connected, set **P2** to **00** .

3.6.2 Photocells in OPENING
Wire the photocells to **7-8-9**, terminal **CN2**.
Wire the N.C. contact of the photocells to **6-7**, terminal **CN2**.
An additional set of photocells can be connected, wiring in **SERIES** the N.C. contacts.
- If the photocell beam is interrupted during opening, the gate **STOPS**.
- Once the beam is free from obstacles, the gate **RESTARTS** opening normally.

⚠️ **For safety reasons a set of photocells must be installed to protect the gate OPENING area.**

NB: If no PHOTOCELL in OPENING is connected, set **P3** to **00** .
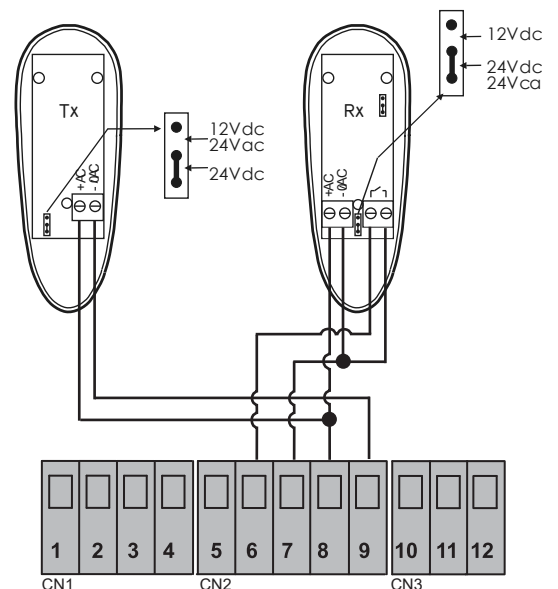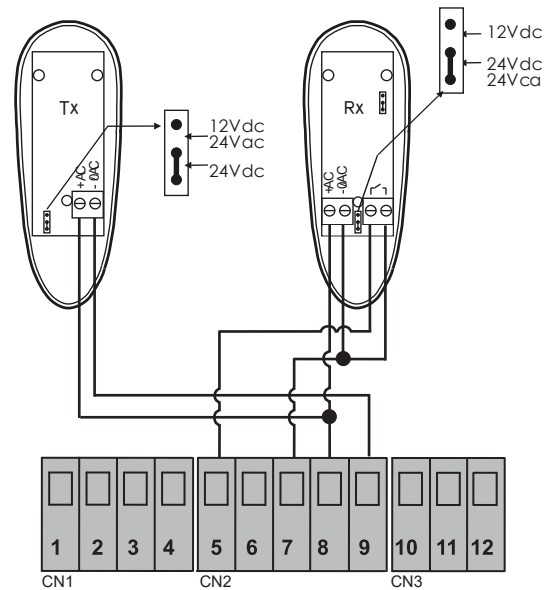
3.7 SAFETY EDGE

3.7.1 SAFETY EDGE IN CLOSING

P4

01 MECHANICAL safety edge → MECHANICAL safety edge — N.C. — 10 11 12 CN3

02 RESISTIVE safety edge → RESISTIVE safety edge — 8K2 — 10 11 12 CN3
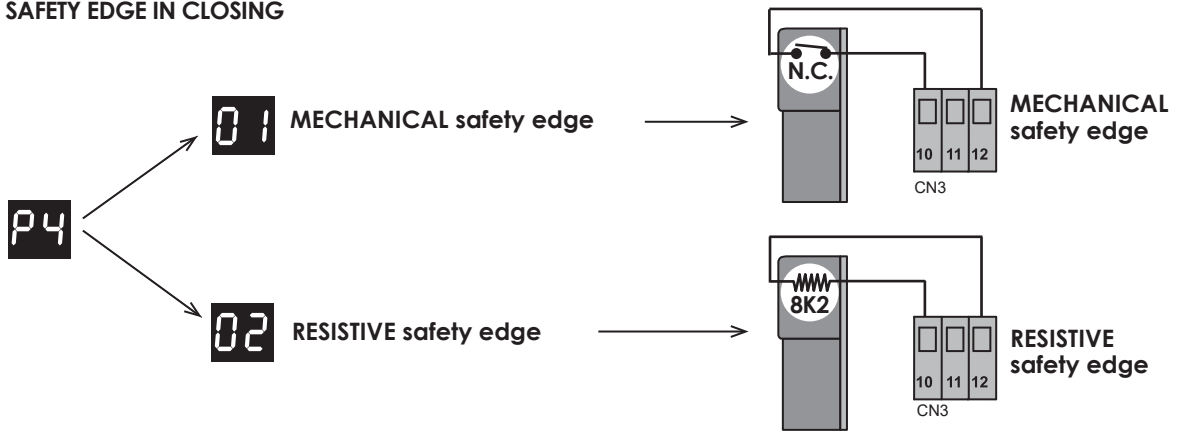
Wire the SAFETY EDGE to **10 – 12**, terminal **CN3**.

NB: If no SAFETY EDGE is connected in CLOSING, set **P4** to **00** .

⚠ The operation of the SAFETY EDGE in **CLOSING stops the gate and reverses to opening position**.
The gate remains opened as long as another **CLOSING command** is given.

The operation of the SAFETY EDGE in **OPENING doesn't affect the normal duty cycle**.

3.7.2 SAFETY EDGE IN OPENING

P5

01 MECHANICAL safety edge → MECHANICAL safety edge — N.C. — 10 11 12 CN3

02 RESISTIVE safety edge → RESISTIVE safety edge — 8K2 — 10 11 12 CN3
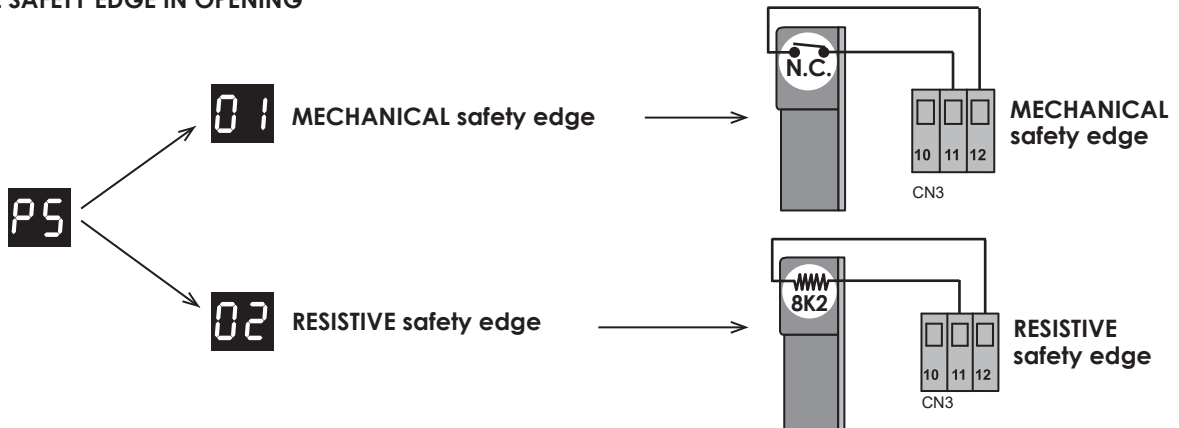
Wire the SAFETY EDGE to **11 – 12,** terminal **CN3**.

NB: If no SAFETY EDGE is connected in OPENING, set **P5** to **00** .

⚠ The operation of the SAFETY EDGE in **OPENING stops the gate and reverses to closing position for 10 cm**.
The gate remains still as long as another **OPENING command** is given.

The operation of the SAFETY EDGE in **CLOSING doesn't affect the normal duty cycle**.

3.8 BLINKER

Wire the blinker (max 20W) to **16– 17**, terminal **CN5**.

- **SLOW** flash → **OPENING**
- **QUICK** flash → **CLOSING**
- Light **ON and FIXED** → **COUNTDOWN**

NB:

The `HL` setting allows to choose the outgoing tension: `00` intermittent tension (Default), or `01` fixed tension.

CN5

| 16 | 17 | 18 | 19 |

BLINKER
24V dc
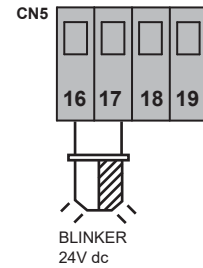
3.9 Second radio channel AUX / WARNING LIGHT / COURTESY LIGHT / MAGNETIC LOCK

⚠️ **Switch the POWER OFF before plugging the interface.**

Plug the interface **MRX02** (sold as optional) into **CN8** according to the driving slot.

Go to `AA` and set `A6` .

(sold separately)

MRX02

**RELAY
MAX 1A - 24V**

SETTINGS TABLE

⚠️ DEFAULT settings are marked by this symbol [🏭]
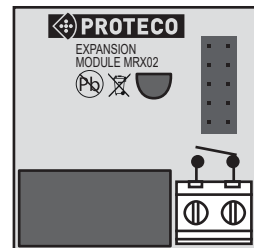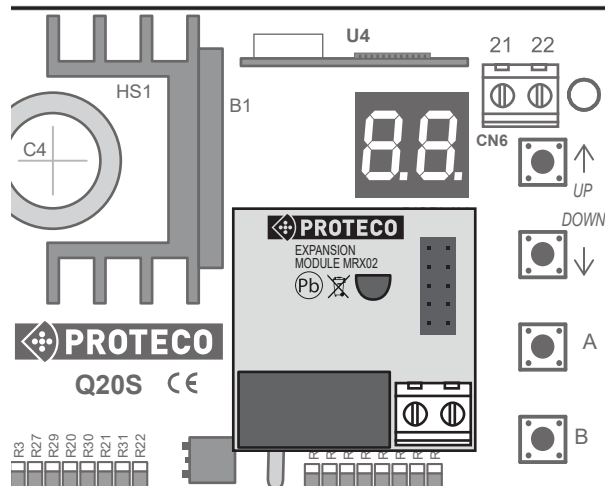
AA	**RADIO settings**		
A1	RECORDING a transmitter as OPENING COMMAND		01......99 (users) FL = full memory
A2	RECORDING a transmitter as PEDESTRIAN OPENING		01......99 (users) FL = full memory
A3	RECORDING a transmitter as SECOND RADIO CHANNEL **(optional)**		01......99 (users) FL = full memory
A4	DELETING a single transmitter		01......99
A5	DELETING all transmitters at once		
A6	SETTING the 2° radio channel interface		01......05
CC	**PROGRAMMING**		
C1	AUTOMATIC with OBSTACLE DETECTION feature		
C2	SEQUENTIAL (step by step without obstacle detection)	[🏭]	
C3	Return to the DEFAULT SETTINGS		
C6	MOTOR positioning, **RH or LH**	[🏭] RH	
C7	**ELECTROMECHANICAL** or **MAGNETIC** LIMIT SWITCH	[🏭] MECHANICAL	
FF	**MOTOR TORQUE / OBSTACLE DETECTION**		
F3	OBSTACLE DETECTION - AUTOMATIC MODE ONLY C1		
F5	SLOWDOWN SPEED		01 (min)..05 [🏭]...... 10 (max)
HH	**FUNCTIONS**		
H1	MULTI-OCCUPATION		00 = OFF [🏭] 01 = ON
H2	PRE-BLINKING		00 = OFF [🏭] 01 = ON
H4	PHOTOCELL TEST		00 = OFF 01 = ON [🏭]
H7	SOFT START Function		00 = OFF [🏭] 01 = ON
H8	QUICK CLOSING		00 = OFF [🏭] 01 = ON
HA	SEPARATE PUSH-BUTTONS Function		00 = OFF [🏭] 01 = ON
HC	MOTOR TEST		00 = OFF 01 = ON [🏭]
HL	BLINKER TENSION		00 = INTERMITTENT [🏭] 01 = FIXED
HP	DEAD MAN'S SWITCH mode		00 = STANDARD mode [🏭] 01 = DEAD MAN'S SWITCH mode
LL	**TIMES**		
L3	AUTOMATIC CLOSING		00 = OFF 01 (min)...03 [🏭]...... 99 (max)
L4	PEDESTRIAN AUTOMATIC CLOSING		00 = OFF 01 (min)...03 [🏭]...... 99 (max)
L7	SLOWDOWN		00 = OFF 01 (min)...07 [🏭]...... 10 (max)
L9	PEDESTRIAN OPENING		01 (min)...07 [🏭]...... 25 (max)

English

PP	SAFETY DEVICES	
P1	STOP push button	00 = OFF 🏭 01 = ON
P2	PHOTOCELL in CLOSING	00 = OFF 🏭 01 = ON
P3	PHOTOCELL in OPENING	00 = OFF 🏭 01 = ON
P4	SAFETY EDGE in CLOSING	00 = OFF 🏭 01 = MECHANICAL 02 = RESISTIVE
P5	SAFETY EDGE in OPENING	00 = OFF 🏭 01 = MECHANICAL 02 = RESISTIVE

UU	MAINTENANCE and SERVICE	
U1	Cycles performed (no possibility of RESET)	**EX.: 12573 cycles** Display shows the cycles performed in 3 sequences 01 25 73
U2	Set maintenance COUNTDOWN	00 = OFF 🏭 **EX: 123 cycles left to maintenance** 00 01 23
U3	Set WORKING CYCLES	00 = OFF 🏭 02 = 2000 cycle 01 = 1000 cycles 99 = 99000 cycles (max)
U4	Show INSTALLATION DATE	00 = OFF 🏭 day month year 10 08 18
U5	Set INSTALLATION DATE	00 = OFF 🏭 day month year 10 08 18
U6	Motor DIRECT COMMAND	o1 = OPEN c1 = CLOSE

	SELF DIAGNOSTIC -Fault messages		
--	Control unit ready to program	St	START
FC	PHOTOCELL in Closing	Pd	PEDESTRIAN START
FA	PHOTOCELL in Opening	rd	THE TRANSMITTER is compatible and can be saved
bC	SAFETY EDGE in Closing	A	OBSTACLE DETECTION operating
bA	SAFETY EDGE in Opening	Sd	SAVE settings
SP	STOP - open contact. Close the contact		
88	MOTOR operating →	QUICK ROTATION = normal operation SLOW ROTATION = slowdown	

MAIN TABLE

A ⬛ Go to main settings

⬛▲ UP ⬛▼ DOWN up/down

A ⬛ Confirm

B ⬛ EXIT / SAVE

Display	Main Settings
AA	RADIO
CC	PROGRAMMING
FF	MOTOR TORQUE/ OBSTACLE DETECTION
HH	FUNCTIONS
LL	WORKING TIMES
PP	SAFETY DEVICES
UU	MAINTENANCE

4. PROGRAMMAING

4.1 AA RADIO Settings

The control unit can manage both fixed and rolling code transmitters: once the first transmitter has been recorded, the control unit will only accept that kind of radio code.
Therefore if the radio code entered is fixed code, the control unit will recognize just fixed code transmitters and viceversa.
NO RESET POSSIBLE.

The radio capacity can store till 99 different users.

Press A ⬛ and use ⬛▲ UP ⬛▼ DOWN to go to setting AA

Press again A ⬛ to select the RADIO MENU: the display shows A_

Use ⬛▲ UP ⬛▼ DOWN to choose the setting you wish within the RADIO MENU.

A1	**Recording a TRANSMITTER as START command**	
	Press one of the transmitter's key, the display shows: rd = radio compatible or 01 02 .... 99 = transmitter **in storage**	
1	Scroll ⬛▲ UP ⬛▼ DOWN to go to setting:	A1
2	**Press and hold the transmitter and at the same time press** A ⬛ The display shows the radio code position.	01 02 .... 99 (max)
3	The display shows FL when memory is full	FL
	Repeat step 1 and 2 to store any additional transmitter.	
4	Press B ⬛ to return to previous setting, then press B ⬛ again as many times as the display shows: or wait 20 seconds, to go out of the programming automatically.	Sd (setting saved)

A2 | **Recording a transmitter as PEDESTRIAN OPENING**

Press one of the transmitter's key, the display shows:

rd = radio **compatible**

or

01 02 .... **99** = transmitter **in storage**

1	Scroll ▲UP ▼DOWN to go to setting:	**A2**
2	**Press and hold the transmitter and at the same time press A ●** The display shows the radio code position.	**01** **02** .... **99** (max)
3	The display shows **FL** when memory is full	**FL**

Repeat step 1 and 2 to record any additional transmitter as PEDESTRIAN OPENING.

4	Press B ● to return to previous setting, then press B ● . again as many times as the display shows:	**Sd** (setting saved)
	or wait 20 seconds, to go out of the programming automatically.	

A3 | **Recording a transmitter on SECOND RADIO CHANNEL**

⚠ **It is mandatory to plug the interface MRX02 into the according slot with power OFF**

Press one of the transmitter's key, the display shows:

rd = radio **compatible**

or

01 02 .... **99** = transmitter **in storage**

1	Scroll ▲UP ▼DOWN to go to setting:	**A3**
2	**Press and hold the transmitter and at the same time press A ●** The display shows the radio code position.	**01** **02** .... **99** (max)
3	The display shows **FL** when memory is full	**FL**

Repeat step 1 and 2 to record any additional transmitter as SECOND RADIO CHANNEL.

4	Press B ● to return to previous setting, then press B ● again as many times as the display shows:	**Sd** (setting saved)
	or wait 20 seconds, to go out of the programming automatically.	

English

A4 — Deleting a single transmitter

⚠️ **To delete a single transmitter keep a full list of users.**

1	Scroll [●]▲ UP [●]▼ DOWN to go to setting:	A4
2	Press A[●] to confirm	
3	Use [●]▲ UP [●]▼ DOWN to select the radio code to delete	01...02 99
4	**Hold** A[●] for about **5 seconds until the display shows:**	Sd
5	Release A[●] . The control unit goes back to stand-by position	--
	Repeat the procedure to delete any transmitter.	
6	Press B[●] to return to previous setting, then press again B[●] as many times as the display shows: or wait 20 seconds, to go out of the programming automatically.	Sd (setting saved)

⚠️ **The TRANSMITTER POSITION DELETED will be subsequently available to save a NEW ONE.**

A5 — Deleting all transmitters at once

1	Scroll [●]▲ UP [●]▼ DOWN to go to setting:	A5
2	**Press and hold** A[●] for about **10 seconds** untill the display shows: All codes are now deleted	Sd
3	Release A[●] . The control unit goes back to stand-by position	--
4	Press B[●] to return to previous setting, then press again B[●] as many times as the display shows: or wait 20 seconds, to go out of the programming automatically.	Sd (setting saved)

A6	**Setting the 2° RADIO CHANNEL INTERFACE**		
1	Scroll ⬛▲ ⬛▼ to go to setting:		A6
2	Press A⬛ to confirm		
3	Use ⬛▲ ⬛▼ to select the function:	MONOSTABLE contact BISTABLE contact TIMER PILOT LIGHT COURTESY LIGHT MAGNETIC LOCK	01 02 03 04 05 06
4	Press B⬛ to return to previous setting, then press again B⬛ as many times as the display shows:		Sd (setting saved)
	or wait 20 seconds, to go out of the programming automatically..		

01   **MONOSTABLE contact**
The contact CLOSES only when the transmitter is pressed.

02   **BISTABLE contact**
The contact CLOSES or OPENS each time the transmitter is pressed.

03   **TIMER**
The contact CLOSES when pressing the transmitter and remains closed during 90 seconds.

04   **PILOT LIGHT when GATE IS OPENED**
The contact CLOSES when the gate starts OPENING and OPENS only when reaching the CLOSING position, no matters if the gate STOPS during operation.

05   **COURTESY LIGHT**
The contact CLOSES when the gate starts OPENING and OPENS 90 seconds after reaching the CLOSING position.

English

4.2 ⟦CC⟧ PROGRAMMING

Press ᴬ⟦●⟧ and scroll ⟦●⟧▲ ⟦●⟧▼ to go to setting ⟦CC⟧

Then press ᴬ⟦●⟧ to go to PROGRAMMING: display shows ⟦C_⟧

Use ⟦●⟧▲ ⟦●⟧▼ to select the according setting.

4.2.1 Setting the Programming mode.

⟦C1⟧	AUTOMATIC programming with OBSTACLE DETECTION feature	
	ATTENTION: **AUTOMATIC PROGRAMMING can only be performed with ground stops in Opening and Closing.**	
1	Scroll ⟦●⟧▲ ⟦●⟧▼ to go to setting:	⟦C1⟧
2	**Press and hold** ᴬ⟦●⟧ for about 1**0 seconds.** When starting the programming the gate: • Closes till reaching the **CLOSING limit switch** (from any position). • Stops and starts opening till reaching the **OPENING limit switch**. • Stops briefly (about 3 sec.), then starts **CLOSING**, slowing down till reaching the **CLOSING limit switch**. ⚠ **THIS OPERATION IS MANDATORY IN ORDER TO DETECT MOTOR ABSORPTION**.	
3	Now the control unit has saved automatically all working parameters and returns to stand-by position.	

N.B.:
If OBSTACLE DETECTION works uncorrect (stops + reverses) change the sensibility rate, ⟦F3⟧ .

C2   **SEQUENTIAL STEP BY STEP programming**

MANUAL setting of working times.

⚠️ The obstacle detection gets automatically turned OFF.

ATTENTION:
    The SEQUENTIAL PROGRAMMING can only be performed with ground stops in Opening and Closing.

SEQUENTIAL PROGRAMMING can be performed direct from A[●]   or using a **transmitter** previously recorded.

1	Scroll [●]▲ [●]▼ go to setting:	*C2*
2	Press A[●] to confirm. Display shows:	*n1*
3	Make sure the gate is in **CLOSING POSITION**.	
4	Press the **transmitter** (or A[●]).The gate starts **OPENING**.	
5	At 90% of the opening cycle, press the **transmitter** (or A[●]), the gate starts **slowdown** till reaching the **OPENING limit switch**.	
6	The gate stops briefly (about 3 sec.), then starts **CLOSING**, slowing down till reaching the **CLOSING limit switch**. ⚠️ THIS OPERATION IS MANDATORY IN ORDER TO DETECT MOTOR ABSORPTION.	
7	Now the control unit has saved automatically all working parameters and returns to stand-by position.	

4.2.2 Return to default settings
The control unit is set with default working times and functions. If you wish to return to default settings follow the below procedure:

C3   **RESTORE FACTORY DATA** (Default)

1	Scroll [●]▲ [●]▼ to go to setting :	*C3*
2	**Press** A[●] for about **5 seconds**.	
3	Factory data are restored and display shows:	*Sd* (setting saved)

4.2.3 Motor positioning (RH and LH)

C6	**How to position the motor, RH or LH** (see paragraph **3.1**)	
	The control unit allows to switch electronically the motor direction, from **RH** (default) to **LH** as follows:	
1	Scroll ▲ UP ▼ DOWN to go to setting:	**C6**
2	Press A to confirm.	
3	Scroll ▲ UP ▼ DOWN to select:	
	RH motor closing to LEFT (inner view)	**00** (DEFAULT)
	LH motor closing to RIGHT (inner view)	**01**
4	Press B to return to previous setting, then press B again as many times as display shows	**Sd** (setting saved)
	or wait 20 seconds, to go out of the programming automatically.	

4.2.4 Limit switch

C7	**MAGNETIC / ELECTROMECHANICAL limit switch**	
	The control unit allows to manage both **MECHANICAL** (NC contact) and **MAGNETIC l**imit switches (NO contact)	
1	Scroll ▲ UP ▼ DOWN to go to setting:	**C7**
2	Press A to confirm.	
3	Scroll ▲ UP ▼ DOWN to select:	
	MECHANICAL limit switch (NC)	**00** (DEFAULT)
	MAGNETIC limit switch (NO)	**01**
4	Press B to return to previous setting, then press B again as many times as display shows	**Sd** (setting saved)
	or wait 20 seconds, to go out of the programming automatically.	

4.3 FF MOTOR TORQUE / OBSTACLE DETECTION settings

Use this function to adjust the MOTOR TORQUE or the OBSTACLE DETECTION sensibility,
AUTOMATIC PROGRAMMING only C1 .

Press A ⊙ and scroll ⊙▲ UP ⊙▼ DOWN to go to setting FF

Press A ⊙ to go to setting F_

Use ⊙▲ UP ⊙▼ DOWN to select the according function.

F3 TORQUE/OBSTACLE DETECTION adjustment

1	Scroll ⊙▲ UP ⊙▼ DOWN to go to setting:	F3
2	Press A ⊙ to confirm. The display shows the OBSTACLE DETECTION rate set.	
3	Use ⊙▲ UP ⊙▼ DOWN to adjust the sensibility value 00 OFF 01 MINIMUM 10 MAXIMUM	00 (OFF) 01 (min) .... 10 (max)
4	Press B ⊙ to return to previous setting, then press B ⊙ again as many times as display shows	Sd (setting saved)
	or wait 20 seconds, to go out of the programming automatically.	

N.B.:
If OBSTACLE DETECTION works uncorrect (stops + reverses) adjust F3 .

F5 SLOWDOWN speed

1	Scroll ⊙▲ UP ⊙▼ DOWN to go to setting:	F5
2	Press A ⊙ to confirm. Press A to confirm. The display shows the SPEED set.	01 (min) 05 (Default)
3	Use ⊙▲ UP ⊙▼ DOWN to adjust the **SLOWDOWN SPEED.**	.... 10 (max)
4	Press B ⊙ to return to previous setting, then press B ⊙ again as many times as display shows	Sd (setting saved)
	or wait 20 seconds, to go out of the programming automatically.	

⚠️ **If SLOWDOWN speed has been changed, repeat the whole PROGRAMMING procedure**

4.4 HH FUNCTIONS

Use this menu to TURN ON/OFF any special function.

00 = **OFF** function DEACTIVATED

01 = **ON** function ACTIVATED

Press A [●] and use [●]▲ UP [●]▼ DOWN to go to setting HH

Press again A [●] to enter the menu: display shows H_

Use [●]▲ UP [●]▼ DOWN to select the according setting.

H1 MULTI-OCCUPATION

This function gives priority to **OPENING:**
During the OPENING cycle, additional START commands will be ignored for all the duration of OPENING and COUNT DOWN.

1	Scroll [●]▲ UP [●]▼ DOWN to go to setting:	H1
2	Press A [●] to confirm.	
3	Use [●]▲ UP [●]▼ DOWN to turn: Function **OFF** Function **ON**	00 01
4	Press B [●] to return to previous setting, then press B [●] again as many times as display shows:	Sd (setting saved)
	or wait 20 seconds, to go out of the programming automatically.	

H2 PRE-BLINKING

This function activates a **pre-blinking during 4-5** seconds before any opening and closing cycle.

1	Scroll [●]▲ UP [●]▼ DOWN to go to setting:	H2
2	Press A [●] to confirm.	
3	Use [●]▲ UP [●]▼ DOWN to turn: Function **OFF** Function **ON**	00 01
4	Press B [●] to return to previous setting, then press B [●] again as many times as display shows:	Sd (setting saved)
	or wait 20 seconds, to go out of the programming automatically.	

H4 PHOTOCELL TEST

The photocell test allows to check the good operation of the photocells at every opening and closing cycle.

1	Scroll [●]▲ [●]▼ to go to setting:	H4
2	Press A[●] to confirm.	
3	Use [●]▲ [●]▼ to turn: Function **OFF** Function **ON**	00 01
4	Press B[●] to return to previous setting, then press B[●] again as many times as display shows:	5d (setting saved)
	or wait 20 seconds, to go out of the programming automatically.	

PHOTOCELL TEST OPERATION

At every OPENING/CLOSING cycle, the control unit temporarily turns the power off from the photocell transmitter, to check the receiver relay performance.
If the check is successfull and the relay contact exchange is correct (N.C. → N.O.→ N.C.), the power is restored, for normal operation.
If a fault is detected the display shows FE (PHOTOCELL TEST FAILED).

H7 SOFT START

If SOFT START is on the control unit gives full power to the motors gradually to prevent the gate from flapping/salmming

1	Use [●]▲ [●]▼ buttons to move inside the menu, till the display shows:	H7
2	Press button A[●] to confirm.	
3	Use [●]▲ [●]▼ buttons to select: START PULSE Function **OFF** START PULSE Function **ON**	00 01
4	Press button B[●] to go back to the top level menus, then press button B[●] again till the display shows:	5d
	or wait the timeout (20 seconds) to exit.	

H8 QUICK CLOSING

By activating this function, the gate closes **1 second** after passing through the photocell beam in closing (once the opening cycle has been completed of course).
If the photocells are not involved, the gate will close according to the **AUTOMATIC CLOSING TIME** set.

1	Scroll [●]▲ [●]▼ to go to setting:	H8
2	Press A[●] to confirm.	
3	Use [●]▲ [●]▼ to turn: Function **OFF** Function **ON**	00 01
4	Press B[●] to return to previous setting, then press B[●] again as many times as display shows:	5d (setting saved)
	or wait 20 seconds, to go out of the programming automatically.	

HA — SEPARATE PUSH-BUTTONS Function

This allows to use to different push-buttons/controls for opening and closing.
To use this function, you need to wire:
- opening push-button/control to **START** terminals
- closing push-button/control to **PEDESTRIAN START** terminals

1	Use [●]▲ [●]▼ buttons to move inside the menu, till the display shows:	HA
2	Press button A[●] to confirm.	
3	Use [●]▲ [●]▼ buttons to select: SEPARATE PUSH-BUTTONS Function **OFF** SEPARATE PUSH-BUTTONS Function **ON**	00 01
4	Press button B[●] to go back to the top level menus, then press button B[●] again till the display shows:	Sd
	or wait the timeout (20 seconds) to exit.	

HC — MOTOR TEST

This function allows to check the good operation of the motor in **opening and closing**.

1	Scroll [●]▲ [●]▼ to go to setting:	HC
2	Press A[●] to confirm.	
3	Use [●]▲ [●]▼ to turn: Function **OFF** Function **ON**	00 01
4	Press B[●] to return to previous setting, then press B[●] again as many times as display shows:	Sd (setting saved)
	or wait 20 seconds, to go out of the programming automatically.	

HL — BLINKER TENSION

This function allows to choose the blinker output tension.

1	Scroll [●]▲ [●]▼ to go to setting:	HL
2	Press A[●] to confirm.	
3	Use [●]▲ [●]▼ to set the output tension: **INTERMITTENT (Default)** **FIXED**	00 01
4	Press B[●] to return to previous setting, then press B[●] again as many times as display shows:	Sd (setting saved)
	or wait 20 seconds, to go out of the programming automatically.	

HP | **DEAD MAN'S SWITCH Mode**

Use these settings to control the gate by a **DEAD MAN'S SWITCH**. The gate opens/closes only if the button is hold pressed, as soon as the button is released the gate stops opening/closing.
Wirings to the push-buttons have to be separated as follows:

START plug ⟶ **OPENING** push-button
PEDESTRIAN START plug ⟶ **CLOSING** push buttons

If this function is enabled any other radio command will be ignored and all safety systems (obstacle detection, photocells, sensitive edges,..) are not working.

1	Use ▲ UP ▼ DOWN buttons to move inside the menu, till the display shows:	*HP*
2	Press button A to confirm	

3	Use ▲ UP ▼ DOWN buttons to select:
	                    STANDARD opening/closing mode
	                    DEAD MAN'S SWITCH opening/closing mode
		00
		01

4	Press button B to go back to the top level menus, then press button B again till the display shows:	*Sd*
	or wait the timeout (20 seconds) to exit.	

4.5 ⌊⌊ TIMES settings

This menu enables to set any **WORKING TIME**.

Press A [●] and scroll [●]▲ [●]▼ DOWN to go to setting ⌊⌊ .

Press again A [●] to confirm, the display shows ⌊_ .

Use [●]▲ UP [●]▼ DOWN to select the according setting.

⚠ **Working time adjustment has been excluded, since limit switches in OPENING and CLOSING SET the proper working time.**
However a default SAFETY TIME of 120 sec. has been included in case of gate uncorrect operation.

⌊3 AUTOMATIC CLOSING

This function enables to set the countdown for the **AUTOMATIC CLOSING**.

1	Scroll [●]▲ UP [●]▼ DOWN to go to setting:	⌊3
2	Press A [●] to confirm.	
3	Use [●]▲ UP [●]▼ DOWN to set the automatic closing time: Setting to 00 the automatic closing is turned OFF	00 (OFF) 01 99
4	Press B [●] to return to previous setting, then press B [●] again as many times as display shows:	5d (setting saved)
	or wait 20 seconds, to go out of the programming automatically.	

⌊4 PEDESTRIAN AUTOMATIC CLOSING

This function enables to set the countdown for the **PEDESTRIAN AUTOMATIC CLOSING**.

1	Scroll [●]▲ UP [●]▼ DOWN to go to setting:	⌊4
2	Press A [●] to confirm.	
3	Use [●]▲ UP [●]▼ DOWN to set the pedestrian automatic closing time Setting to 00 the function is turned OFF	00 01 .... 99 (max)
4	Press B [●] to return to previous setting, then press B [●] again as many times as display shows:	5d (setting saved)
	or wait 20 seconds, to go out of the programming automatically.	

L7 SLOWDOWN

This function enables to set the SLOWDOWN time in **closing and opening**.

1	Scroll [●]▲UP [●]▼DOWN to go to setting:	L7
2	Press A[●] to confirm.	
3	Use [●]▲UP [●]▼DOWN to increase or decrease the **slowdown time**: Setting to **00** the slowdown is turned **OFF**	00 (OFF) 01 (min) .... 10 (max)
4	Press B[●] to return to previous setting, then press B[●] again as many times as display shows: or wait 20 seconds, to go out of the programming automatically.	Sd (setting saved)

L9 PEDESTRIAN OPENING

This function enables to set the **PEDESTRIAN OPENING time**.

1	Scroll [●]▲UP [●]▼DOWN to go to setting:	L9
2	Press A[●] to confirm	
3	Use [●]▲UP [●]▼DOWN to set the pedestrian opening working time:	01 (min) .... 25 (max)
4	Press B[●] to return to previous setting, then press B[●] again as many times as display shows: or wait 20 seconds, to go out of the programming automatically.	Sd (setting saved)

4.6 PP SAFETY DEVICES

This menu helps setting and handling the **safety devices.**

Press A [●] and scroll [●]▲ UP [●]▼ DOWN to go to menu PP

then press A [●] to go to submenu P_

Use [●]▲ UP [●]▼ DOWN to select the according setting

P1 STOP emergency push button

1	Scroll [●]▲ UP [●]▼ DOWN to go to setting:	P1
2	Press A [●] to confirm.	
3	Use [●]▲ UP [●]▼ DOWN to turn the contact: **OFF – stop button deactivated** **ON – stop button activated**	00 01
4	Press B [●] to return to previous setting, then press B [●] again as many times as display shows:	Sd (setting saved)
	or wait 20 seconds, to go out of the programming automatically.	

P2 PHOTOCELL in CLOSING

1	Scroll [●]▲ UP [●]▼ DOWN to go to setting:	P2
2	Press A [●] to confirm.	
3	Use [●]▲ UP [●]▼ DOWN to turn the contact: **OFF – photocell in closing deactivated** **ON – photocell in closing activated**	00 01
4	Press B [●] to return to previous setting, then press B [●] again as many times as display shows:	Sd (setting saved)
	or wait 20 seconds, to go out of the programming automatically.	

P3 PHOTOCELL in OPENING

1	Scroll [●]▲ UP [●]▼ DOWN to go to setting:	P3
2	Press A [●] to confirm.	
3	Use [●]▲ UP [●]▼ DOWN to turn the contact: **OFF – photocell in opening deactivated** **ON – photocell in opening activated**	00 01
4	Press B [●] to return to previous setting, then press B [●] again as many times as display shows:	Sd (setting saved)
	or wait 20 seconds, to go out of the programming automatically.	

P4 — SAFETY EDGE in CLOSING

1	Scroll ▲ ▼ to go to setting:	P4
2	Press A to confirm.	
3	Use ▲ ▼ to turn the contact: **OFF –** safety edge in **closing deactivated** **ON –** MECHANICAL safety edge in **closing activated** (N.C.) **ON –** RESISTIVE safety edge in **closing activated** (8K2)	00 01 02
4	Press B to return to previous setting, then press B again as many times as display shows:	
	or wait 20 seconds, to go out of the programming automatically.	

P5 — SAFETY EDGE in OPENING

1	Scroll ▲ ▼ to go to setting:	P5
2	Press A to confirm.	
3	Use ▲ ▼ to turn the contact: **OFF –** safety edge in **opening deactivated** **ON –** MECHANICAL safety edge in **opening activated** (N.C.) **ON –** RESISTIVE safety edge in **opening activated** (8K2	00 01 02
4	Press B to return to previous setting, then press B again as many times as display shows:	
	or wait 20 seconds, to go out of the programming automatically.	

4.7 ⟦UU⟧ MAINTENANCE and SERVICE SETTINGS

This menu displays all data and maintenance status of your electric gate.

Press A ⟦●⟧ and scroll ⟦●⟧▲ UP ⟦●⟧▼ DOWN to go to main menu ⟦UU⟧

then press A ⟦●⟧ to go to ⟦U_⟧

Use ⟦●⟧▲ UP ⟦●⟧▼ DOWN to select the according setting

⟦U1⟧ Cycles performed (no possibility of reset)

This feature shows **how many OPERATIONS** your gate performed.

1	Scroll ⟦●⟧▲ ⟦●⟧▼ to go to setting:	⟦U1⟧
2	Press A ⟦●⟧ Display shows the number of complete cycles performed. **ex:** a control unit that perfromed **12573 cycles**, the display will show 3 views in sequence ⟦01⟧ First view ⟦25⟧ Second view ⟦73⟧ Third view	
3	Press B ⟦●⟧ to return to previous setting, then press B ⟦●⟧ again as many times as display shows:	⟦Sd⟧ (setting saved)
	or wait 20 seconds, to go out of the programming automatically.	

⟦U2⟧ Maintenance countdown

This feature shows **the number of cycles left to MAINTENANCE**

1	Scroll ⟦●⟧▲ ⟦●⟧▼ to go to setting:	⟦U2⟧
2	Press A ⟦●⟧ • If display shows 3 times ⟦00⟧ maintenance countdown has not been set (default) • if display shows 3 sequences like: ⟦00⟧ First view ⟦01⟧ Second view ⟦23⟧ Third view **It means 123 cycles are left to maintenance service.** ⚠️ When countdown comes to the end, the blinker flashes 5 times every 5 minutes, after every full operation, while the display shows ⟦U3⟧ proceed now to maintenance.	⟦00⟧
3	Press B ⟦●⟧ to return to previous setting, then press B ⟦●⟧ again as many times as display shows:	⟦Sd⟧ (setting saved)
	or wait 20 seconds, to go out of the programming automatically.	

U3   Setting maintenance recall

This function enables to set the number of **CYCLES** to next maintenance service.

1	Scroll ▲ ▼ to go to setting:	U3
2	Press A ●	
3	Use ▲ ▼ to set the desired number of cycles till next maintenance service. The number of cycles entered in U3 will be automatically transferred as well to setting U2 (cycles left to maintenance)	(1000 cycles) 01 (2000 cycles) 02 (55000 cycles) 55 (99000 cycles) 99
4	Press B ● to return to previous setting, then press B ● again as many times as display shows: or wait 20 seconds, to go out of the programming automatically.	Sd (setting saved)

U4   Displaying installation date

This function shows the **INSTALLATION DATE**.

1	Scroll ▲ ▼ to go to setting:	U4
2	Press A ● to confirm: • If display shows 3 times 00 installation date has not been set. • if display shows a view in 3 sequences, installation date has been set: 10 day 08 month 18 year	00
3	Press B ● to return to previous setting, then press B ● again as many times as display shows: or wait 20 seconds, to go out of the programming automatically.	Sd (setting saved)

U5   Set installation date

This function enables to set **the date of first INSTALLATION**.

1	Scroll ▲ ▼ to go to setting:	U5
2	Press A to confirm: If display shows 3 times **00** installation date has not been set	00
3	Use ▲ ▼ to set the **day** and press A to confirm. Use ▲ ▼ to set the **month** and press A to confirm. Use ▲ ▼ to set the **year** and press A to confirm ex: **10** day **08** month **18** year	
4	Press B to return to previous setting, then press B again as many times as display shows: or wait 20 seconds, to go out of the programming automatically.	Sd (setting saved)

U6   Motor direct command

This function enables to check the **correct motor direction** and allows to reach electrically the **limit switches in Opening/Closing** without unlocking the motor.

|		
1	Scroll ▲ ▼ to go to setting:	U6
2	Press A to select	Π1
3	Use ▲ ▼ to. Π1 ⟶ UP ↑ **OPEN** while holding the key DOWN ↓ **CLOSE** while holding the key	
4	Press B to return to previous setting, then press B again as many times as display shows: or wait 20 seconds, to go out of the programming automatically.	Sd (setting saved)

5. TROUBLE SHOOTING

The control unit is designed to display the most common faults.
Here below the fault table and possible solutions.

	Fault	Probable cause	Solution
8.8.	DISPLAY TURNED OFF	• No tension. • Fuses damaged. • Transformer damaged.	Check the power supply. Find the cause and replace the fuse. Check wiring as well as in/out transformer's tension.
FC	PHOTOCELL **CLOSING**	• Non-calibrated photocell. • Obstacle in between. • Incorrect wiring. • Non-powered photocell. • Disconnected photocell, disconnected output.	Check the calibration between receiver and transmitter. Remove the obstacle and clean the lenses from dirt. Check the wiring. Check the tension on the transmitter and receiver. Turn **P2 OFF**. (see paragraph **3.6.1**)
FA	PHOTOCELL **OPENING**	• Non-calibrated photocell • Obstacle in between. • Incorrect wiring. • Non-powered photocell. • Disconnected photocell, disconnected output.	Check the calibration between receiver and transmitter. Remove the obstacle and clean the lenses from dirt. Check the wiring. Check the tension on the transmitter and receiver. Turn **P3 OFF**. (see paragraph **3.6.2**)
FE	PHOTOCELL TEST	• Incorrect wiring. • Non-compatible photocells.	Check the wiring. Use Proteco's photocells.
bC	SAFETY EDGE **CLOSING**	• Safety edge disconnected. • Incorrect wiring. • Input disabled. • Incorrect mode selection (MECHANICAL - RESISTIVE) • Incorrect micro adjustment.	Check the wiring. Check the wiring. Turn **P4 OFF**. Check the safety edge type and set **P4** accordingly. Adjust the inox wire tension.
bA	SAFETY EDGE **OPENING**	• Disconnected safety edge. • Incorrect wiring. • Input disabled. • Incorrect mode selection (MECHANICAL - RESISTIVE) • Incorrect micro adjustment.	Check the wiring. Check the wiring. Turn **P5 OFF**. Check the safety edge type and set **P5** accordingly. Adjust the inox wire tension.
SP	STOP PUSH BUTTON	• Disconnected button. • Incorrect wiring.	Check the stop button wiring or turn **P1 OFF**. (see paragraph **3.5**) Check the wiring. (paragraph **3.5**)
St	START COMMAND	• Permanent start command.	Check the good operation of all devices connected to START (contact N.O.) (see paragraph **3.3**).
Pd	PEDESTRIAN COMMAND	• Pedestrian start command.	Check the good operation of all devices connected to PEDESTRIAN START (contact N.O.) (see paragraph **3.4**).
ΠE	MOTOR TEST	• Disconnected motor. • Incorrect wiring. • Capacitor damaged.	Wire the motor according to the wiring table. Check motor wiring (paragraph **3.1**). Use a tester to check the stator's tension.
EL	LIMIT SWITCH	• Limit switch in opening/closing failed • Broken contacts.	Replace the limit switch Check the limit switch wiring
rd	PERMANENT RADIO SIGNAL	• Unknown TRANSMITTER not in memory.	Check the transmitter's keys. If a key sticks, the transmitter led remains on and fixed. Remove the transmitter's battery and make sure the fault disappears from display.
01 **02** ... **50** ... **99**	PERMANENT RADIO SIGNAL	• Permanent start command from an existing transmitter.	Check the transmitter's keys. If a key sticks, the transmitter led remains on and fixed. Remove the transmitter's battery and make sure the fault disappears from display.
U3	COUNTDOWN COMPLETED blinker flashes every 5 sec.	• Proceed to maintenance service.	Reset the maintenance service.

6.   BOX Installation

Fig. 1

190,5

263

Fig. 3

Fig. 4

Fig. 2

Fig. 5
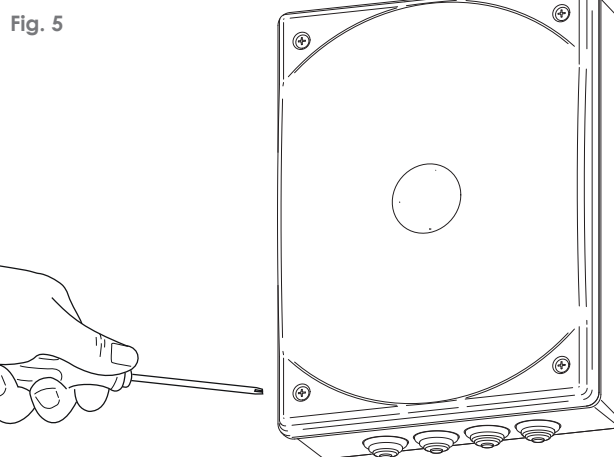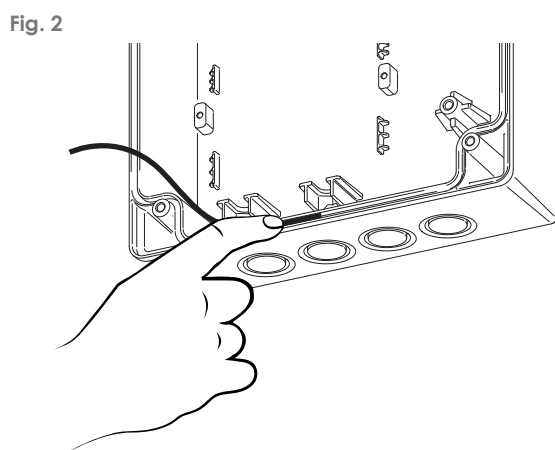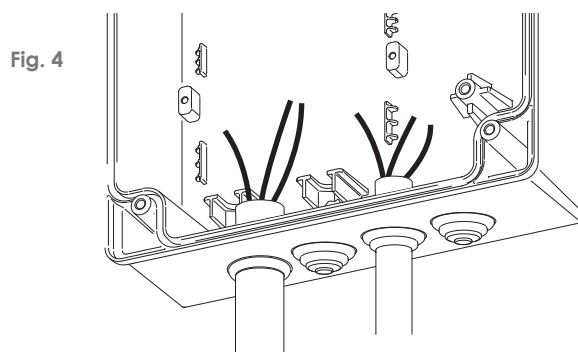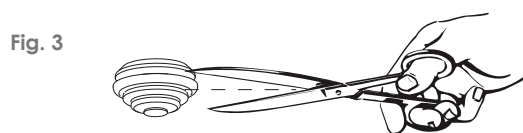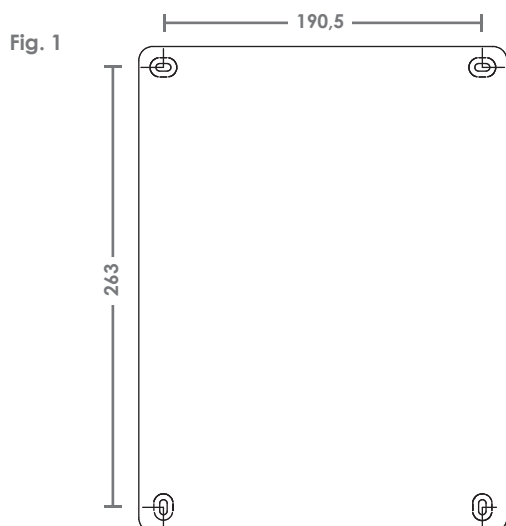
1) Choose the place for the box and mark the fixing points on the wall.
   Pay attention to respect the distances between the holes (fig. 1).
2) Make the drillings and fix the box with the pre-drilled holes downwards.
3) Slip the washer round the edge of the box, starting from centre down (fig. 2).
   Do not extend the washer, just push it into its housing and cut any excess.
4) Cut the rubber grommets the same size of the wires/cables for electrical wirings (fig. 3) so that the grommet perfectly adheres to the cable/wire. Do not cut the rubber grommets you're not going to use.
5) Put all the grommets in the pre-drilled holes of the box and drive the cables/wires (fig. 4).
6) Once wirings and installation are finished close the box and screw the cover on the box (fig. 5).

7.   DISPOSAL

⚠ **Do not pollute the environment**

Some electronic components may contain polluting substances.
Ensure materials are passed to the authorised collection centres, according to the laws and the regulations on force, for safe disposal.