Q36A NEW
CONTRL UNIT FOR SWING GATE SINGLE OR DOUBLE LEAF 230V

TRASFORMER 230V / 23V

RED / RED / BLACK / BLACK

M1
230V L N
24V
V1
V2
AC AC AC
SC
CN
A B C SI+ D NO
DISPLAY
K1 K2 K3
Z2
F2
A
F1
1 2 3 4
M 2A
7 8 9 10 11 12
M 2B
13 14 15 16 17 18
M 3
19 20
M 4

Professional **PROTECO®** gate automations

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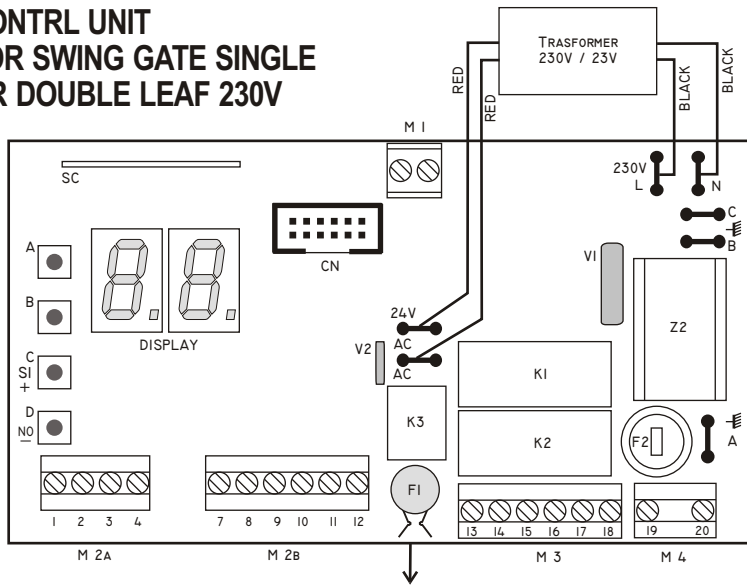
CONTROL UNIT COMPONENTS

A	TOP LEVEL MENU BUTTON
B	LOWER LEVEL MENU BUTTON
C	BUTTON TO INCREASE OR CHANGE TO YES (SI)
D	BUTTON TO DECREASE OR CHANGE TO NO
F1	24V FUSE (RESTORABLE) 1,6A
F2	230V FUSE 2,5A
DISPLAY	7 SEGMENTS DISPLAY
M1	RADIO/AERIAL TERMINAL BLOCK
M2A/M2B	CONTROLS AND SAFETY DEVICES TERMINAL BLOCKS
M3	MOTORS TERMINAL BLOCK
M4	MAIN POWER TERMINAL BLOCK
A C B	EARTH CONNECTIONS
SC	RADIO UNIT
CN	ELECTROLOCK INTERFACE PCB CONNECTOR
Z2	FILTER
K1/ K2	MOTORS RELAY
K3	BLINKER RELAY
V1	PRIMARY VARISTOR
V2	SECONDARY VARISTOR

PARAMETERS

B   use **button B** to move to next parameter
C   use **button C** to **INCREASE** a numeric value or change **NO** to **YES**
D   use **button D** to **DECREASE** a numeric value or change **YES** to **NO**
To save changes and to ensure that they are not lost when power is removed, use **button B** to step through SU parameter, the press and hold **button C** until the display reverts to idle display .

RESTORABLE FUSE 24V
IMPORTANT: If a temporary short circuit occurs the fuse will restore itself after few seconds.

IN CASE OF A PERMANENT SHORT CIRCUIT, CUT THE MAIN POWER OFF, REMOVE THE TERMINAL BLOCKS 2A AND 2B, WAIT FEW SECONDS AND THEN POWER THE UNIT AGAIN. THE FUSE WILL BE AUTOMATICALLY RESTORED. FIND AND REMOVE THE SHORT CIRCUIT CAUSE BEFORE PLUGGING THE TERMINAL BLOCKS IN.

BUTTON A — Cycle round the top level menu
BUTTON B — Move from the top level menu to the lower level menu
BUTTON C — Increase time or change to YES
BUTTON D — Decrease time or change to NO
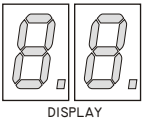
DISPLAY SIGNALS
- AP Opening
- CH Closing
- tP Delay time before automatic **Closing**

TOP LEVEL MENU
- $--$ **STAND BY**
- PA **PARAMETERS**
- rA **RADIO**
- dE **DEFAULT**
- AS **SEQUENTIAL PROGRAMMING**

CODE	FUNCTIONS
$r:$	Show stored codes
tc	New remote control code acquisition
CP	Remote control code acquisition with STOP function
Pd	Remote control code acquisition with PEDESTRIAN function
rC	Delete ALL remote control codes

CODE	FUNCTIONS
rP	Press & hold button C to set defaults for **LEADER, ACE** or **SHARK**.
ADVANTAGE MOTOR DEFAULTS dS	Press & hold button C to set defaults for **ADVANTAGE**
WHEELER DRIVE DAFAULTS dr	Press & hold button C to set defaults for **WHEELER**

DISPLAY	FUNCTIONS
$1n$	Only 1 Motor
$2n$	2 Motor

	DISPLAY	TIMES	STANDARD DEFAULT VALUES rP	ADVANTAGE DEFAULT VALUES dS	WHEELER DEFAULT VALUES dr
BUTTON B	$n1$	MOTOR 1 WORKING TIME 0 - 99	21	13	9
BUTTON B	$n2$	MOTOR 2 WORKING TIME 0 - 99	21	13	9
BUTTON B	$F1$	MOTOR 1 TORQUE 6 - 19	14	10	12
BUTTON B	$F2$	MOTOR 2 TORQUE 6 - 19	14	10	12
BUTTON B	Fr	MOTOR POWER DURING DECELERATION 6 - 19	19	19	19
BUTTON B	$r1$	MOTOR 1 DECELERATION TIME 0 - 99	7	4	4
BUTTON B	$r2$	MOTOR 2 DECELERATION TIME 0 - 99	7	4	4
BUTTON B	$t5$	MOTORS' CLOSING DIFFERENTIAL TIME DELAY 0 - 99	3	3	2
BUTTON B	SA	MOTORS' OPENING DIFFERENTIAL DELAY TIME 0 - 15	3	3	2
BUTTON B	tP	DELAY TIME BEFORE AUTOMATIC CLOSING 0 - 99	3	3	3
BUTTON B	Pd	PEDESTRIAN OPENING TIME 0 - 99	7	7	3
BUTTON B	tC	LOCK PULSE TIME 0=½ SECONDS, 1= 1 SECS. 2=1½ SECS. ETC........	0	0	0

	FUNCTIONS	STANDARD DEFAULT VALUES rP	ADVANTAGE DEFAULT VALUES dS	WHEELER DEFAULT VALUES dr
BUTTON B → SU	PRESS & HOLD **BUTTON C** TO SAVE CHANGES. PRESS **BUTTON D** TO ABANDON CHANGES	NO	NO	NO
BUTTON B	$P8$ Photocells test	SI	SI	SI
BUTTON B	$P7$ Motors test	SI	NO	SI
BUTTON B	$P6$ Deceleration on	SI	SI	SI
BUTTON B	$P5$ Only one motor	NO	NO	NO
BUTTON B	$P4$ Pre blinking	NO	NO	NO
BUTTON B	$P3$ Automatic closing step by step	SI	SI	SI
BUTTON B	$P2$ Multi occupation	NO	NO	NO
BUTTON B	$P1$ Electro lock	NO	NO	SI
BUTTON B	$P0$ Water hammer	NO	NO	NO

PROGRAMMING THE RADIO `r A`

IMPORTANT: BEFORE PROGRAMMING FOR THE FIRST TIME THE RADIO RECEIVER, DELETE ALL THE RECORDED TEST CODES. SEE FUNCTION `r C` AT THE BOTTOM OF THIS CHAPTER

`r :` DISPLAYING STORED CODES
Press the **button A** repeatedly until the display shows `r A`
Press **button B** until the display shows `r :`
The display will now cycle trough each stored code from 01 to 50.

TO ERASE A SINGLE STORES CODE
Press **button D** when the number of the code to be removed is displayed

`t c` STORING NEW REMOTE CONTROL CODE
- Press the **button A** repeatedly until the display shows `r A`
- Press **button B** until the display shows `t c`
- Press and hold the remote control button until a dot appears on the display (this means that the receiver is ready to store a new code) and simultaneously press **button C** to store the new code

`C P` STORING NEW REMOTE CONTROL CODE with STOP function
- Press **button A** repeatedly until the display shows `r A`
- Press **button B** until the display shows `C P`
- Press and hold the remote control button until the dot appears on the display and simultaneously press **button C** to store the new code.

### `Pd` STORING NEW REMOTE CONTROL CODE with PEDESTRIAN function
- Press the **button A** repeatedly until the display shows `r A`
- Press **button B** until the display shows `Pd`
- Press and hold the remote control button until the dot appears on the display and simultaneously press **button C** to store the new code

`r C` DELETING ALL STORED CODES
- Press the **button A** repeatedly until the display shows `r A`
- Press **button B** until the display shows `r C`
- Press and hold **button D** until the display shows `r :`
This indicates that all the codes have been erased

SELF-DIAGNOSIS DISPLAY MESSAGES

`E F`	Photocell's test error
`t A`	Opening phase photocell beam interrupted or wiring fault
`t C`	Closing phase photocell beam interrupted or wiring fault
`F H`	Both opening and closing phase photocell beam interrupted or wiring fault
`S t`	Stop pressed (or open circuit between terminal 2 & 8)
`P E`	Pedestrian start signal (short circuit between terminal 7 & 8)
`Go`	Start signal (short circuit between terminal 1 & 8)
`-.-`	Radio fob continuously transmitting
`N 1`	Motor 1 problem (wiring fault, obstruction or torque setting too low)
`N 2`	Motor 2 problem (see 'N1' above)
`N r`	Both motors problem (see 'N1' above)

PROGRAMMING THE Q36A PARAMETERS `P A`

Method **1** = **STANDARD**
Method **2** = **SEQUENTIAL**

Warning:
Before powering up and programming the control unit refer to the wiring scheme and then:
1. Check that the motor connections are correct
2. Check that the photocell connections are correct
   Important:
   If the photocells are not installed in closing phase, you must link terminals 3 and 9.
   If the photocells are not installed in opening phase, you must link terminals 3 and 9.
3. Check that the control connections are correct.
   Important:
   If an emergency stop button is not fitted, you must link terminals 2 and 8.
4. Use the motor release key supplied to disengage the electric motor from the mechanical drive; then close the gate and re-engage.
5. Power the control unit up

### STANDARD PROGRAMMING PROCESS (*Method 1*)

a) Give a **START** signal by either turning the key s:witch or by another control device (terminals 1 and 8)
b) Wait until the gate has finished a complete (pre-programmed) **OPEN/STOP/WAIT/CLOSE** cycle.
c) Give another **START** signal and not which parameter need adjusting
d) Press **button A** on the control unit to select the Parameters menu.
e) Press **button B** repeatedly until the display shows the parameter that you need to change
f) Use **buttons C** and **D** to change or confirm each parameter as necessary
   IMPORTANT: press **button B** repeatedly until the display shows `S U` and then press **button C** to save the changes.

Example :
Increase the **Motor 1** working time by **2 seconds**

With the control board switched on, ensure that the display shows:	→ `- -`
Press **button A** (steps thru the top menu) until the display shows	→ `P A`
Press **button B** (steps thru the sub-menu) until the display shows	→ `N1`
Wait until the display shows the currents setting, for example	→ `21`
Press **button C** twice until the display shows	→ `23`
Press **button B** repeatedly until the display shows	→ `S U`
Press and hold **button C** until the relays click and the display shows	→ `- -`

SEQUENTIAL PROGRAMMING (*method 2*)

SEQUENTIAL programming for gates with only one leaf

a) Press **button A** (steps thru the top menu) until the display shows `A S`
b) Press **button B** (steps thru the sub-menu) until the display shows `In`
c) Give a **START** signal: the leaf starts opening and the display shows `N1`
d) Wait until the leaf has done the 90% of the opening cycle and then give another **START** signal: the display shows `r1` and the deceleration phase begins
e) Wait 4/5 seconds after the opening cycle has completely finished and give a **START** signal.
f) The display shows `t P`, the control unit has stored the opening and deceleration times and is now calculating the **"stay open"** time
g) Give a **START** signals to stop calculating the **"stay open"** time and start the **CLOSING CYCLE**.
g) When the closing cycle has completely finished, the control unit automatically exits from the sequential programming process and all the working times have been saved.

SEQUENTIAL programming for gates with two leaf

a) Press **button A** (steps thru the top menu) until the display shows `A S`
b) Press **button B** (steps thru the sub-menu) until the display shows `2N`
c) Give a **START** signal:
The leaf 1 starts opening and the display shows `N1`
d) Wait until the **leaf 1** has done the 90% of the opening cycle and then give another **START** signal: the display shows `r1` and the deceleration phase of **leaf 1** begins
e) Wait 4/5 seconds after the **leaf 1** has completely opened and give another **START** signal. The display shows `N2` and the **leaf 2** starts opening
f) Wait until the **leaf 2** has done the 90% of the opening cycle and then give another **START** signal: the display shows `r2` and the deceleration phase of **leaf 2** begins
g) Wait 4/5 seconds after the **leaf 2** has completely opened and give another **START** signal.
h) The display shows `t P`, the control unit has stored the opening and deceleration times of both leaves and is now calculating the **"stay open"** time
i) Give a **START** signals to stop calculating the **"stay open"** time and **start the closing cycle**.
l) When the **closing cycle** has completely finished, the control unit automatically exits from the sequential programming process and all the working times have been saved.

SPECIAL FUNCTIONS

`P 3` AUTOMATIC CLOSING FUNCTION
When set to YES ("SI"):
- an impulse during the opening phase will stop the motors until another impulse is received
- an impulse during the closing phase will stop and reverse the motors

When set to NO, the step-by-step operation is active:
- 1st impulse starts the **opening phase**
- 2nd impulse stops the **opening phase**
- 3rd impulse starts the **closing phase**
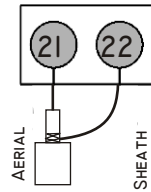
`P 2` MULTI-USER FUNCTION
when set to YES ("SI"):
The control unit will not accept any command during the opening phase

TERMINAL BLOCK CONNECTIONS
All the connections must be done without power supply.

TERMINAL BLOCK 1

AERIAL — SHEATH

21   22

TERMINAL BLOCK 2A

1   2   3   4

START   STOP   CONTACT PHOTO 1   CONTACT PHOTO 2

COMUNE +24 Vdc

TERMINAL BLOCK 2B

7   8   9   10   11   12

PEDESTRIAN   COMMON   +24 PHOTO RX   +24 PHOTO TX   COM. -24 PHOTO RX/TX   BLINKER 24V MAX 20W

TERMINAL BLOCK 3

13   14   15   16   17   18

OPEN   COM.   CLOSING   OPEN   COM.   CLOSING

M1   M2

CAPACITOR   CAPACITOR

TERMINAL BLOCK 4

19   20

N   L

NEUTRAL   PHASE

EARTH TERMINAL BLOCK CONNECTIONS
Connect the yellow/green motors cable to earth terminals **B / C**.
Connect the yellow/green network cable to earth terminal **A**.

TERMINAL BLOCK 1 CONNECTIONS

21	**Aerial or radio receiver signal**
22	**Sheath or negative for radio receiver**

TERMINAL BLOCK 2 CONNECTIONS

|	
1-8	**Start control** normally open (NA) for button, key selector, radio receiver or Timer clock connections. The Start control starts the programmed running cycle.
2-8	**Stop control** normally closed (NC). Emergency button. When pressed the gate stops immediately. In Opening phase: at the first impulse the gate closes. Break-time: at the first impulse the gate closes In Closing phase: at the first impulse the gate opens. **If temporarily the Stop contact is not used, link terminal 2 with terminal 8.**
3-8	**Input of one safety photocell in closing phase.** **Input of safety rubber edges and of safety photocell in closing phase.** **Input of several safety photocells in closing phase**. The receiver contacts must be connected in series. Normally closed (NC). In opening phase: does not work In closing phase: Stop, break-time for 2 seconds, opening phase again. **If temporarily the photocell contacts are not used, link terminal 3 with terminal 9.**
3-9	**Input only for safety rubber edges in closing phase.** The contacts must be connected in series if there is more than one safety rubber edge. Normally closed (NC). In opening phase: does not work. In closing phase: Stop, break-time for 2 seconds, opening phase again.
4-8	**Input for safety photocells in opening phase (for swing gate).** Normally closed (NC). In opening phase: Stops until the obstacle has not been removed In closing phase: Stops and changes direction when the obstacle has been removed If you also want to connect the safety rubber edges, you must connect in series their contacts with the photocell ones. **If temporarily the photocell contacts are not used, link terminal 4 with terminal 9.**
4-9	**Input for safety rubber edges in opening phase (for swing gate).** Normally closed (NC). In opening phase: Stops until the obstacle has not been removed In closing phase: Stops and changes direction when the obstacle has been removed The contacts should be connected in series.
7-8	**Pedestrian start input**. Normally open (NA).
8-10	**Output for photocell receiver power supply.** **Output for extra 24V dc accessories power supply.** With all Standard accessories included 100 mA are still available for extra accessories.
9-10	**Output for photocell transmitter power supply.**
11-12	**Blinker intermittent output.** 24V 20W max**.**

TERMINAL BLOCK 3 CONNECTIONS

|	
13	**Motor M1- output** (13 Brown; 14= Blue; 15= Black)
14	Leaf that opens firstly and that delays in closing phase.
15	In case of a gate of one single leaf connect the motor to output **M1**, select parameter $P\,5$ on SI, confirm with $5\,U$ and save with push **button C**. CAPACITOR between terminal 13 and 15
16	**Motor M2- output** (16=brown - 17=Blue - 18= Black)
17	Leaf that opens secondly.
18	CAPACITOR between terminal 16 and 18

TERMINAL BLOCK 4 CONNECTIONS

19-20	Power input 230-240 Vac - 50/60 Hz. (19=Neutral - 20=phase)
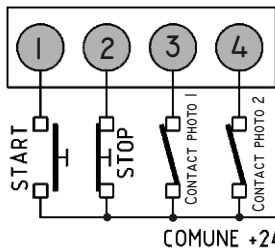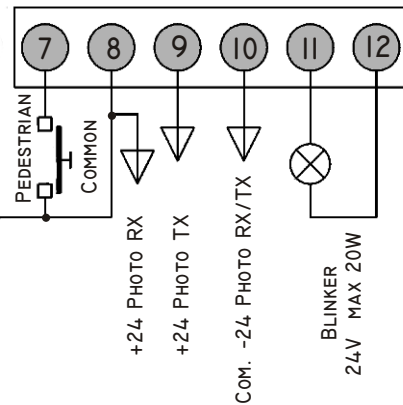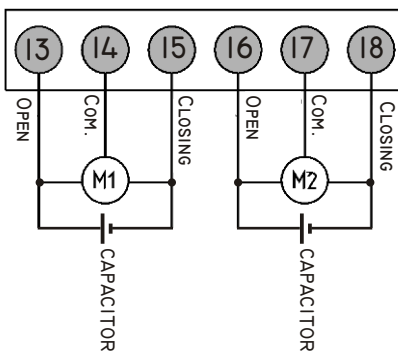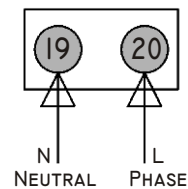
WIRING SCHEME FOR THE Q36A NEW CONTROL UNIT

1 START

TERMINAL BLOCK 2A — 1 2 3 4
TERMINAL BLOCK 2B — 7 8 9 10 11 12
START

2 PEDESTRIAN START

TERMINAL BLOCK 2B — 7 8 9 10 11 12
START PEDESTRIAN
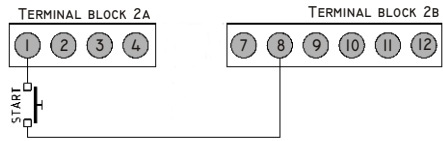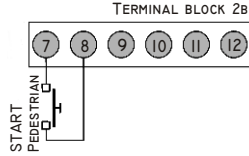
3 PERMANENT START COMMAND WITH TIMER

TERMINAL BLOCK 2A — 1 2 3 4
TERMINAL BLOCK 2B — 7 8 9 10 11 12
CLOCK

TERMINAL BLOCK 2A — 1 2 3 4
KEY SWITCH
TERMINAL BLOCK 2B — 7 8 9 10 11 12
BLINKER MAX 20 W

4 EMERGENCY STOP BUTTON

TERMINAL BLOCK 2A — 1 2 3 4
TERMINAL BLOCK 2B — 7 8 9 10 11 12
SAFETY EMERGENCY BUTTON

N.B.: Link terminals **2** and **8** if, an emergency **STOP** button is NOT USED.

TERMINAL BLOCK 2A — 1 2 3 4
TERMINAL BLOCK 2B — 7 8 9 10 11 12
LINK TERMINALS 2-8
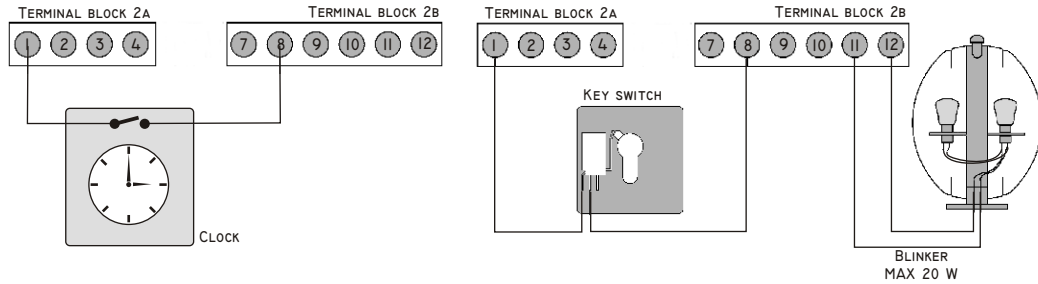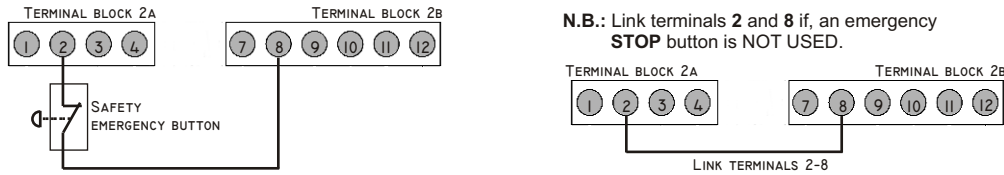
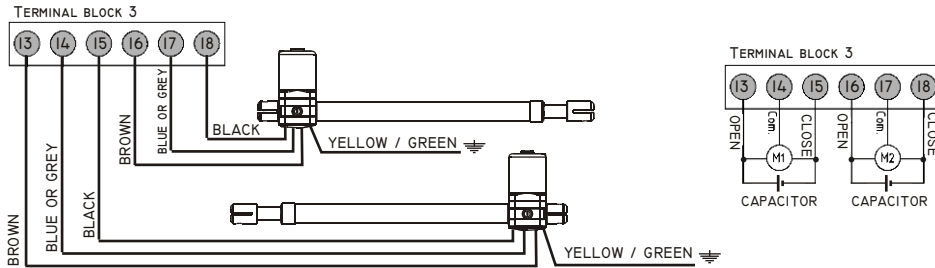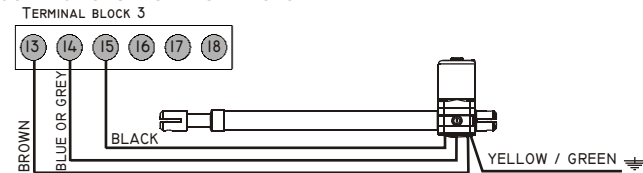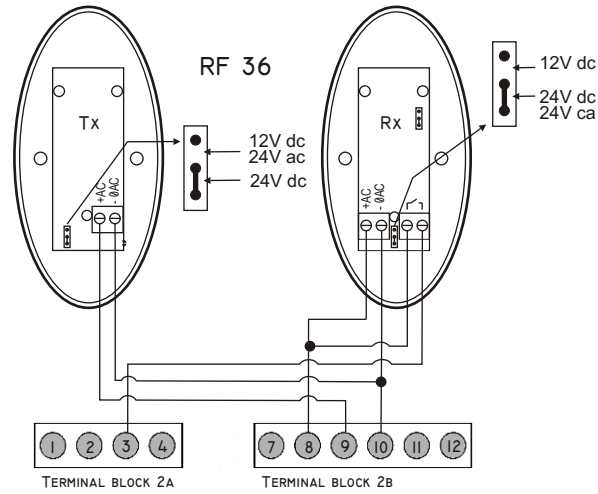## 5 MOTORS CONNECTIONS

MOTOR 1
Leaf with electro-lock and/or leaf that opens first
13 OPEN = BROWN motor wire + WHITE Capacitor wire
14 COMMON = BLUE or GREY motor wire
15 CLOSE = BLACK motor wire + WHITE capacitor wire

MOTOR 2
Leaf that opens second
16 OPEN = BROWN motor wire + WHITE Capacitor wire
17 COMMON = BLUE or GREY motor wire
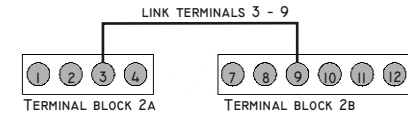18 CLOSE = BLACK motor wire + WHITE capacitor wire

TERMINAL BLOCK 3 — 13 14 15 16 17 18
BROWN, BLUE OR GREY, BLACK, BROWN, BLUE OR GREY, BLACK
YELLOW / GREEN
YELLOW / GREEN

TERMINAL BLOCK 3 — 13 14 15 16 17 18
OPEN Com CLOSE OPEN Com CLOSE
M1 M2
CAPACITOR CAPACITOR

CONNECTIONS IF ONLY ONE MOTOR
TERMINAL BLOCK 3 — 13 14 15 16 17 18
BROWN, BLUE OR GREY, BLACK
YELLOW / GREEN

6 CONNECTING PHOTOCELL IN CLOSING PHASE

RF 36
Tx — 12V dc / 24V ac / 24V dc
Rx — 12V dc / 24V dc / 24V ca
TERMINAL BLOCK 2A — 1 2 3 4
TERMINAL BLOCK 2B — 7 8 9 10 11 12

PHOTOCELLS CONNECTIONS
8 = Power supply + PHOTO RX
9 = Power supply + PHOTO TX
10= Power supply - COM. PHOTO TX/RX

3 - 8 = Photocells connection

3 - 9: Link terminals **3** and **9** if the photocells are not used in the closing phase.

LINK TERMINALS 3 - 9
TERMINAL BLOCK 2A — 1 2 3 4
TERMINAL BLOCK 2B — 7 8 9 10 11 12

CONNECTING PHOTOCELL IN OPENING PHASE

RF 36
Tx — 12V dc / 24V ac / 24V dc
Rx — 12V dc / 24V dc / 24V ca
TERMINAL BLOCK 2A — 1 2 3 4
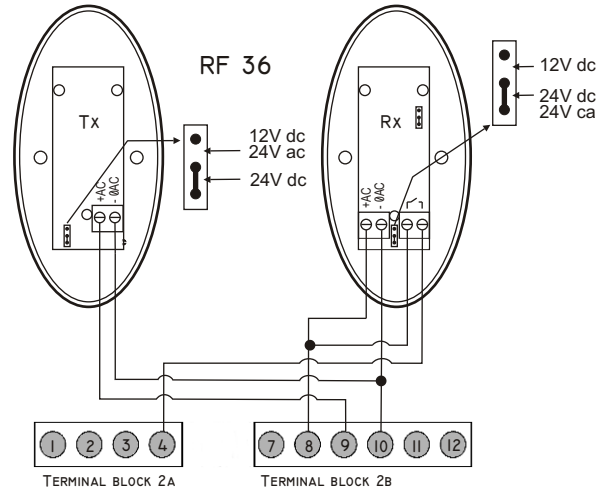TERMINAL BLOCK 2B — 7 8 9 10 11 12

PHOTOCELLS CONNECTIONS
8 = Power supply + PHOTO RX
9 = Power supply + PHOTO TX
10= Power supply - COM. PHOTO TX/RX

4 - 8 = Photocells connection

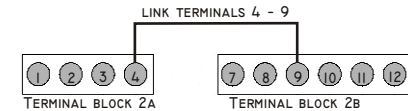**4 - 9:** Link terminals **4** and **9** if the photocells are not used in the opening phase.

LINK TERMINALS 4 - 9
TERMINAL BLOCK 2A — 1 2 3 4
TERMINAL BLOCK 2B — 7 8 9 10 11 12

7 ELECTRO-LOCK INTERFACE BOARD(MEL)
IF YOU WANT TO CONNECT THE **MEL** INTO **CN**
• CONNECT THE ELECTRO LOCK
• CHANGE THE PARAMETERS $P0 - P1$ AND tC

12V 15W
ELECTRO LOCK
CN
MEL