MILAN® Gate automations

CONTROL UNIT FOR SWING GATE SINGLE OR DOUBLE LEAF 230V

EXTERNAL RADIO PANEL

THE RADIO PANEL CAN ALSO PLACED INSIDE THE BLINKER TO FURTHER IMPROVE THE RADIO RANGE

EXTERNAL RADIO PANEL
WHITE BLACK
AERIAL

TRASFORMER 230V / 23V
RED BLACK BLACK
RED
230V L N
€ A B C
24V AC AC
K1 F2 Z2
K2 F1
K4 K3 F3
V1

DISPLAY
A
B
C + -
D NO

M 2A   M 2B   M 3   M 4
1 2 3 4 5 6 7 8 9 10   11 12 13 14 15 16 17 18   19 20

CONTROL UNIT COMPONENTS

A	top level menu button
B	lower level menu buttom
C	button to increase or change to yes (si)
D	button to decrease or change to no
F1	230V fuse 5A
F2	cocoon fusesfuse motor 2 1,6 A
F3	cocoon fusesfuse motor 1 1,6 A
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
ABC	earth connection
MR	radio unit
Z2	filter
K1/K2/K3	motors relay
K4	binker relay
V1	Primary 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.

SELF-RESTORABLE FUSE 24V

IMPORTANT: if a temporary short circurs occurs the fuse will **restore tself after few seconds.**

In case of a permanent 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

DISPLAY SIGNALS

AP   Opening
CH   Closing
tP   Delay time before automatic Closing

CODE   FUNCTIONS

rc   Show stored codes
tc   New reote 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 DEIVE DEFAULTS
dr   Press & hold button C to set defaults for WHEELER

TOP LEVEL MENU

- -   STAND BY
PA   PARAMETERS
rA   RADIO
dE   DEFAULT
AS   SEQUENTIAL PROGRAMMING

DISPLAY   FUNCTIONS
N1   Start run sequential programming

TIMES

DISPLAY	TIMES	standard default values rP	advantage default values dS	wheeler default values dr
N1	Motor 1 working time 0 → 99	21	13	9
N2	Motor 2 working time 0 → 99	21	13	9
F1	Motor 1 Torque 8 → 19	14	10	12
F2	Motor 2 Torque 8 → 19	14	10	12
Fr	Motor power during deceleration 10→19	19	19	19
r1	Motor 1 deceleration time 0 → (N1 - 2")	7	4	4
r2	Motor 2 deceleration time 0 → (N2 - 2")	7	4	4
t5	Motors' closing differential time delay 0 → N2	3	3	3
SA	Motors' opening differential delay time 0 → (N1 - r1)	3	3	3
tP	Delay time before automatic closing 0 → 99	3	3	3
Pd	Pedestrian opening time 0 → (N1 - r1)	7	7	7
tC	Lock pulse time 0=½ seconds, 1= 1 secs. 2=1½ secs. Etc........	0	0	0

FUNCTIONS

	FUNCTIONS	standard default values rP	advantage default values dS	wheeler default values dr
SU	Press & hold button C to SAVE changes / Press button D to ABANDON changes	NO	NO	NO
CP	Photo transiant 6 second	NO	NO	NO
P9	SOFT START	SI	SI	SI
P8	Photocells test	SI	SI	SI
P7	Motors test	SI	NO	SI
P6	Deceleration on	SI	SI	SI
P5	Only one motor	NO	NO	NO
P4	Pre blinking	NO	NO	NO
P3	Automatic closing step by step	SI	SI	SI
P2	Multi occupation	NO	NO	NO
P1	Electro lock	NO	NO	SI
P0	Reversing stroke	NO	NO	NO

PROGRAMMING THE RADIO r A

IMPORTANT: BEFORE PROGRAMMIN FOR THE FIRST TIME THE RADIO RECEIVER. DELETE ALL THE RECORDED TEST CODES. SEE FUNQTION r C AT THE BOTTOM OF THIS CHAPTER

IN CASE OF TRANSMITFERS WITH DIP-SWITCHES, SET THE MICROSWITCHES TO CREATE A NEW PERSONAL CODE.
(For security reasons avoid to set the microswitches all in OFF or all in ON position),

IN CASME OF HIT TYPE TRANSMITTERS. THE ABOVE MENTIONED PROCEDURE IS NOT NECESSARY BECAUSE EACH TRANSMITTER COMES WITH ITS OWN CODE RANDOM.

DISPLAYING STORED CODES

r =
- 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 sloted 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

STORING NEW REMOTE CONTROL CODE

t c
- Press the **buttonA** 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

STDRING NEW REMOTE CONTROL CODE with STOP function

C P
- Press the **buttonA** repeatedly unitl 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.

D I STORING NEW REMOTE CONTROL CODE with PEDESTRIAN function

Pd
- 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

DELETINGALLSTORED CODES

r C
- Press the **button A** repeatedly until the display s 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

EF	Photocells test error	Go	Start signal (short circuit between terminal 1 & 8)
tA	Opening phase photcell beam interrupted or wiring fault	-,-	Radio fob continuously transmitting
tC	Closing phase photocell beam interrupted Or Wiring fault	n1	Motor 1 problem (wiring fault, obstruction or torque setting too low)
FH	Both opening and closing phase photocell beam interrupted or wiring fault	n2	Motor 2 problem (see 'ni' above)
St	Stop pressed (or open circuit between terminal 2 Sr 8)	nr	Both motors problem (see 'n1' above)
PE	Pedestrian start signal (short circuit between terminal 2 or 8)		

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PROGRAMMING 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
   Impotant:
   if the photocells are not installed in closing phase, you must link terminals 3 and 9.
   If the pilotocells are not installed in opening phase, you must link terminals 4 and 9.
3 Check that the control connections are correct,
   Important:
if an errnergency stop button is not fitted, you must link terminals 2 and 8.
4 Use the motor release key supplied to dlsengage the electrlc motor from the mechanical drlve; then close the gate and re-engage,
5 Powertie control unit up

STANDARD PROGRAMMING PROCESS (*Method 1*)
a) Give a **START** signal by either turning the Key switch or by another control device (terminals 1 and 8)
b) Wait until the gate has finished a complete (pre-programmed)
OPEN/STOP/WAIT/C LOSE 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 untit 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 **bulton A** (steps thru the lop menu) until the display shows   → P A
Press **button B** (steps thru the sub-menu) untl the display shows   → n1
Wait until the display shows the currents setting for exarnple   → 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   → - -

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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 A5
b) Press **button B** the leaf starts opening and the display shows n1
d) Wait until the leaf has done the 90% of the opening cycle and glve 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 step calculating lite "**stay open**" time and start the **CLOSING CYCLE.**
h) When the closing cycle has completely finished, the control unit automatlcally 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 A5
b) Press **button B** The leafi starts opening and the display shows n1
c) Walt until the **leaf 1** has done the 90% ofthe opening cycle and then give another **START** signal: the display shows r1 and the deceleration phase of leaf 1begins
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 leaf2 begins
g) Wait 4/5 seconds after the **leaf 2** has completely opened and give another **START** slgnal.
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,**
j) 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
AUTOMATICCLOSING FUNCTION
When set to YES ("SI"):
- an tmpulse during the opemng phase WMI stop the motors untrt another impulse rs received
- an impuVse during the dosing phase will stop and reverse the motors

When set to NO. the step-by-step operation rs active:
- 1ˢᵗ impulse starts the **opening phase**
- 2ʳᵈ imputse stops the **opening phase**
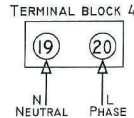- 3ʳᵈ imputse starts the **closing phase**

P 2
MULTI-USER FUNCTION
when set to YES ("SI"):
The control unit will not accept any command during the opening phase

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EXTERNAL RADIO PANEL

BLACK WHITE RED

AERIAL

TERMINAL BLOCK 2A

① ② ③ ④

START
STOP
CONTACT PHOTO 1
CONTACT PHOTO 2

COMMON +24V DC

TERMINAL BLOCK 2B

⑤ ⑥ ⑦ ⑧ ⑨ ⑩

PEDESTRIAN
COMMON
+24 PHOTO RX
+24 PHOTO TX
COM. -24 PHOTO RX/TX
Electro Lock 12 V 15 w

TERMINAL BLOCK 3

⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱

BLINKER 220 V
OPEN
COM. M1
CLOSING
APRE
COM. M2
CHIUDE

CAPACITOR   CAPACITOR

TERMINAL BLOCK 4

⑲ ⑳

NEUTRAL   PHASE
N   L

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

EARTH TERMINAL BLOCK CONNECTIONS

Connect the yellow/green network cable and the yellow/green motor cables to earth terminals **A B C.**
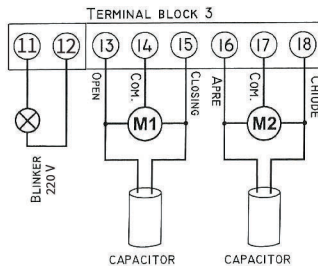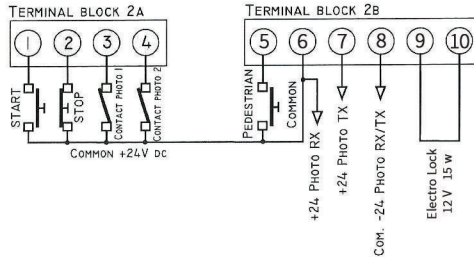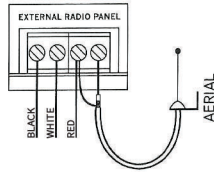
TERMINAL BLOCK 2 CONNECTIONS

1-6	**Start control** normally open (NA) for button, key selector, radio receiver or Timer clock connections. The Start control starts the programmed running cycle.
2-6	**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 6.**
3-6	**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 7.**
3-7	**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.
4-6	**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, linkterminal 4 with terminal 7.**
4-7	**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.
5-6	**Pedestrian start input.**Normally open (NA) .
6-8	**Outputfor photocell receiver power supply.** **Output for extra 24V dc accessories power supply.** With all Standard accessories included 100 m Aare still available for extra accessories.
7-8	**Output for photocell transmitter power supply.**
9-10	**Electro Lock output.** 12V 15W.

TERMINAL BLOCK 3 CONNECTIONS
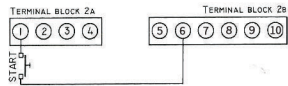
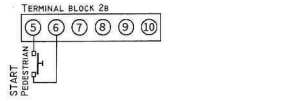|	
11-12	Blinker intermittent output. 220V.
13-14-15	**Motor M1- output** Leaf that opens firstly and that delays in closing phase. In case of a gate clone single leaf connect the motor to output **M1**, select parameter on SI, confirm with and save with push **button C.** CAPACITOR between terminal 13 and 15
16-17-18	**Motor M1- output** Leaf that opens secondly. CAPACITOR between terminal 16 and 18

TERMINAL BLOCK 4 CONNECTIONS

19-20	Power input 23O-240 Vac -50/60 Hz. (19=Neutral - 20=phase)

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WIRING SCHEME FOR CONTROL UNIT

1 START

TERMINAL BLOCK 2A
① ② ③ ④

TERMINAL BLOCK 2B
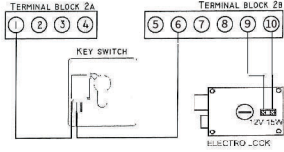⑤ ⑥ ⑦ ⑧ ⑨ ⑩

START

2 PEDESTRIAN START

TERMINAL BLOCK 2B
⑤ ⑥ ⑦ ⑧ ⑨ ⑩

START PEDESTRIAN

3 PERMANENT START COMMAND WITH TIMER

TERMINAL BLOCK 2A
① ② ③ ④

TERMINAL BLOCK 2B
⑤ ⑥ ⑦ ⑧ ⑨ ⑩

CLOCK

TERMINAL BLOCK 2A
① ② ③ ④

TERMINAL BLOCK 2B
⑤ ⑥ ⑦ ⑧ ⑨ ⑩

KEY SWITCH

ELECTRO LOCK 12V 15W

4 EMERGENCY STOP BUTTON

TERMINAL BLOCK 2A
① ② ③ ④

TERMINAL BLOCK 2B
⑤ ⑥ ⑦ ⑧ ⑨ ⑩
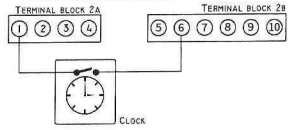
SAFETY EMERGENCY BUTTON
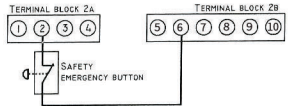
N.B.: Link terminals **2** and **6** if, an emergency **STOP** button is NOT USED.

TERMINAL BLOCK 2A
① ② ③ ④

TERMINAL BLOCK 2B
⑤ ⑥ ⑦ ⑧ ⑨ ⑩

LINK TERMINALS 2-6
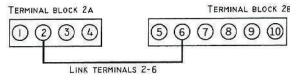
5 MOTORS CONNECTIONS

MOHEST
First opening leaf, **RIGHT**

M2 sx   INSIDE   M1 dx

Terminal block 3
⑬ ⑭ ⑮ ⑯ ⑰ ⑱

BLACK
BLUE OR GREY
BROWN
BROWN
BLUE OR GREY
BLACK

M2 sx   M1 dx

YELLOW / GREEN   YELLOW / GREEN

Terminal block 3
⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱

OPEN
COMO
CLOSING
CLOSING
COMO
OPENING

M1   M2

BLINKER   CAPACITOR   CAPACITOR

First opening leaf, **LEFT**

M1 sx   INSIDE   M2 dx

Terminal block 3
⑬ ⑭ ⑮ ⑯ ⑰ ⑱

BROWN
BLUE OR GREY
BLACK
BLACK
BLUE OR GREY
BROWN

M1 sx   M2 dx

YELLOW / GREEN   YELLOW / GREEN
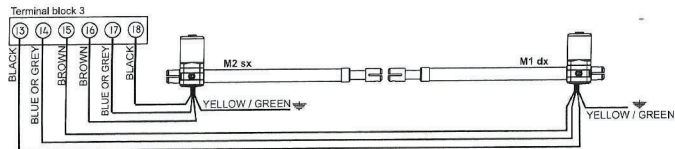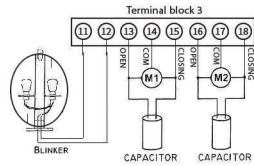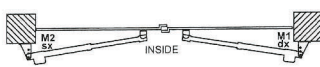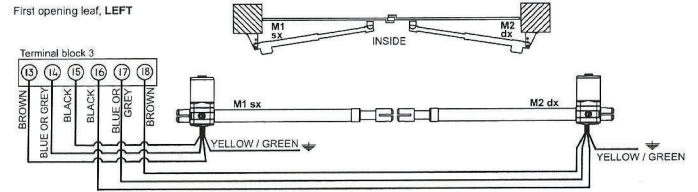
ONE MOTOR ONLY (RIGHT) CONNECTION

Terminal block 3
⑬ ⑭ ⑮ ⑯ ⑰ ⑱

BLACK
BLUE OR GREY
BROWN

M1 dx

YELLOW / GREEN
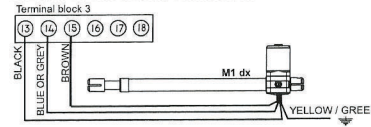
ONE MOTOR ONLY (LEFT) CONNECTION SX

Terminal block 3
⑬ ⑭ ⑮ ⑯ ⑰ ⑱

BROWN
BLUE OR GREY
BLACK

M1 sx

YELLOW / GREEN

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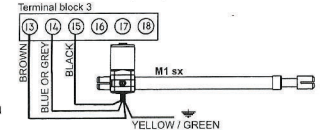
6 CONNECTION PHOTOCELL IN CLOSING PHASE
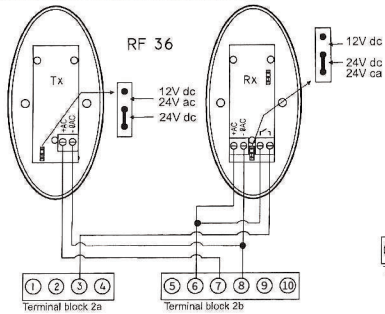
RF 36

Tx

Rx

12V dc
24V ac
24V dc

12V dc
24V dc
24V ca

PHOTOCELLS CONNECTIONS

6 = Power supply + PHOTO RX
7 = Power supply + PHOTO TX
8 = Power supply - COM. PHOTO TX/RX

3 - 6 = Photocells connection

3 - 7 : Link terminals 3 and 7 if the photocells are not used in the closing phase.

link terminals 3 - 7

① ② ③ ④   ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

Terminal block 2a   Terminal block 2b

① ② ③ ④

Terminal block 2a

⑤ ⑥ ⑦ ⑧ ⑨ ⑩

Terminal block 2b
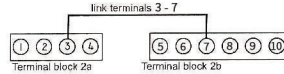
CONNECTING PHOTOCELL IN OPENING PHASE

RF 36

Tx

Rx

12V dc
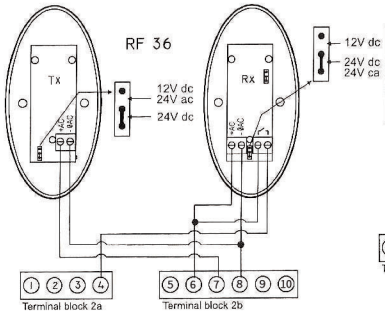24V ac
24V dc

12V dc
24V dc
24V ca

PHOTOCELLS CONNECTIONS

6 = Power supply + PHOTO RX
7 = Power supply + PHOTO TX
8 = Power supply - COM. PHOTO TX/RX

4 - 6 = Photocells connection

4 - 7 : Link terminals 4 and 7 if the photocells are not used in the opening phase.

link terminals 4 - 7

① ② ③ ④   ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

Terminal block 2a   Terminal block 2b

① ② ③ ④

Terminal block 2a

⑤ ⑥ ⑦ ⑧ ⑨ ⑩

Terminal block 2b

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