

KIT PRINCE 24V

PATENTED



Operatore
Opérateur
Operator
Torantrieb
Operador

Alimentazione
Alimentation
Power Supply
Stromspannung
Alimentacion

Peso max cancello
Poids maxi portail
Max gate weight
Max Torgewicht
Peso máx verja

Spinta
Poussée
Thrust
Schubkraft
Empuje

Spinta max
Poussée maxi
Max thrust
Max Schubkraft
Empuje max.

codice
code
code
code
codigo

KIT PRINCE 24V

230V 50/60Hz
120V 60Hz

200Kg/550lbs

100Kg/275lbs

140Kg/385lbs

AD00732
a richiesta/on request

KIT PRINCE PLUS 24V

230V 50/60Hz
120V 60Hz

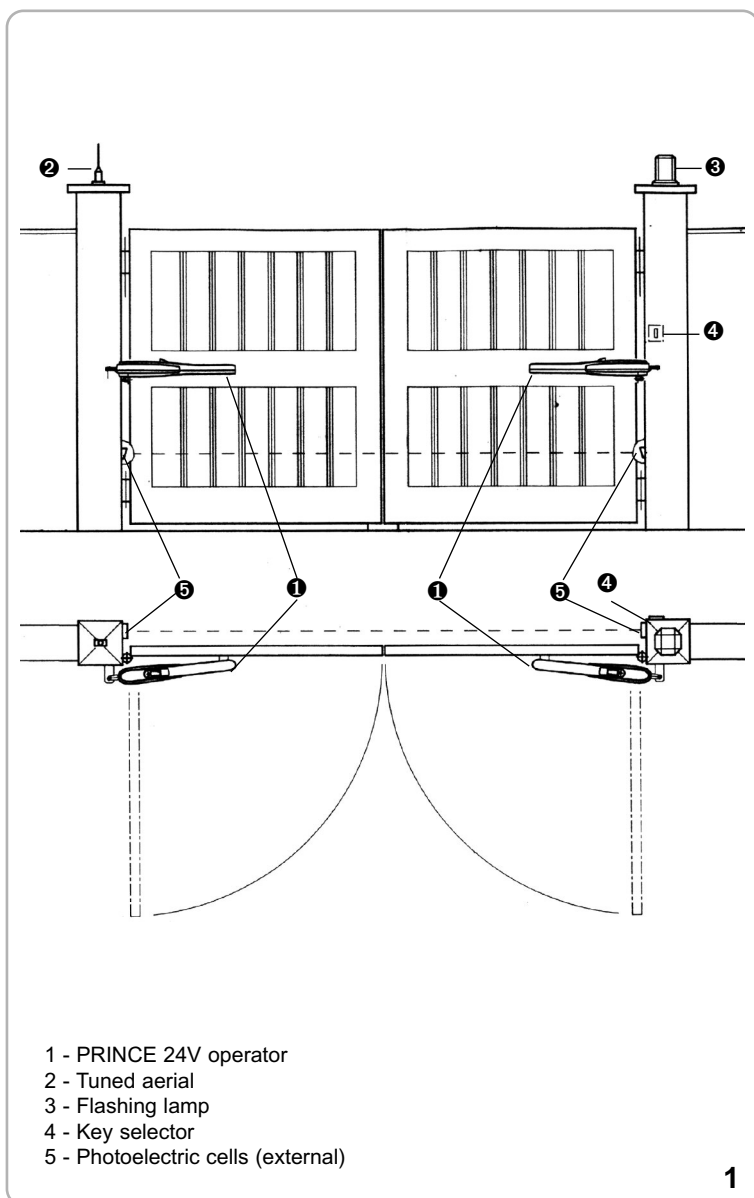
200Kg/550lbs

100Kg/275lbs

140Kg/385lbs

AD00730
AD00731





TECHNICAL FEATURES

PRINCE 24V is a linear operator designed for swing gates long up to 2 m and weight up to 200 kg (Pic. 1).

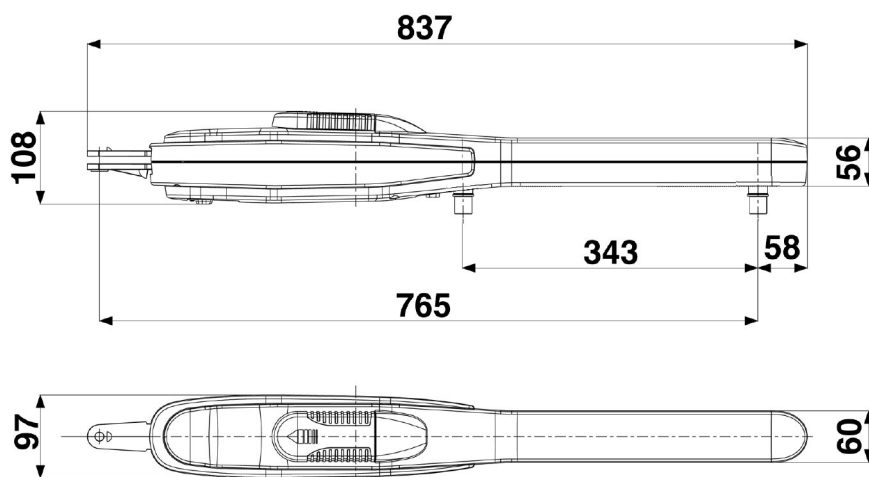
PRINCE 24V works without electric limit switches, but with mechanical stoppers.

A few seconds after that the gate leaf reaches the end of the stroke, either a time or a current sensor device, will cut out the motor (power supply).

N.B.: It is advisable to fit an electrical lock to ensure an efficient gate locking.

TECHNICAL DATA	PRINCE 24V
Max. gate leaf length	m. 2
Max. gate leaf weight	kg 200
Max. travel	mm 343**
Average opening time	s. 14
Operating speed	m/s. 0,0134
Power supply	24Vdc
Nominal Motor capacity	W 12
Max Motor capacity (blocked)	W 89
Nominal Power absorbed	A 0,88
Max Power absorbed (blocked)	A 3,72
Nominal Thrust force	N 1000
Max Thrust force (blocked)	N 1500
Normative cycles	n° ∞ - 14s/2s
Daily operations suggested	n° 60
Service	80%
Guaranteed consecutive cycles	n° 60/14s
Weight of the PRINCE 24V	kg 10
Noise	db <70
Operating Temperature	°C -30 ÷ +55°C
Protection grade	IP 44

** With incorporated mechanical stopper that cuts out during opening. If the mechanical stopper is used also during the closing (optional), the maximum stroke is reduced by 30 mm.



Measurements in mm 2

PRE-INSTALLATION CHECK LIST

The gate leaves must be firmly fixed to the hinges on the gate pillars, they must not flex during the movement and they must swing without any friction. Before installing the operator, make sure you have enough room to fix the operator on the pillar.

In case the gate is like the one depicted in Pic. 1, there is no need for any modification.

Gate features and installation must comply with local regulations and standards.

The gate can be automated only if it is in good conditions and complies with EN12604 norms.

The gate leaf must not have a pedestrian doors in its frame. Should there be a pedestrian opening, take the appropriate steps according to EN12435 norms (e.g. cutting out the motor when the pedestrian door is opened by fixing a safety micro switch connected to the control board).

Make sure not to create any trapping points or areas (e.g. with the gate completely opened, between any opening in the gate frame and the side wall).

EMERGENCY MANUAL RELEASE

This applies only if the unit is not equipped with back-up batteries. In case of a black-out, the gate can be pulled open after the operator has been unlocked with the emergency key provided (rotate the key by 90° clockwise, Pic. 3).

Caution

In order to be able to manually open the gate leaf make sure of the following:

- The gate leaves must be endowed with appropriate handles;
- Position of the handles onto the gate leaves must be in risk free area;
- The manual force necessary to move the gate leaves should not be higher than 225 N, in case of installations at domestic/private dwellings, and 390N in case of installations in business premises (according to points 5.3.5 of the EN12453 norm).

Note: in case of an installation with an overlapping two leave swing gate to ensure a safe/proper locking a mechanical bolt must be installed along with an electric lock. The mechanical bolt (ACG5000) must be installed at the bottom of the first gate leaf to close so that it will be simply operated by the pressure of the second gate leaf. The electric lock will simply latch one gate leaf to the other.

FIXING THE ACTUATOR ATTACHMENT TO THE COLUMN

To obtain a correct movement of the gate leaf, it is necessary to comply with the measurements given.

In case an iron pillar is available, weld the bracket straight to it.

In case you need to fix the bracket onto a concrete pillar, use the fixing plate as shown in picture 4, that will have to be fastened with 4 Fischer screws of Ø 8 mm.

In case you have a wall parallel to gate leaves when in open position, you must allow for a niche in which the operator can fit in.

FIXING THE ACTUATOR ATTACHMENT TO THE GATE

Weld the second bracket to the gate (pictures 5,6)

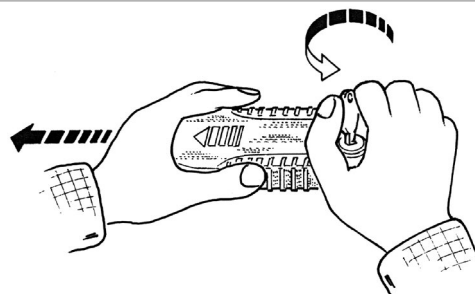
During installation make sure to comply with the measurements mentioned in the table below.

Fix the PRINCE and try several times to open and to close the gate, controlling that the cover does not touch the moving gate.

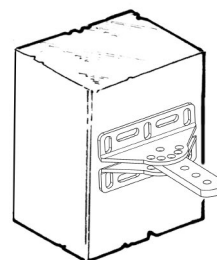
Parts to install to comply EN 12453 standard COMMAND TYPE

COMMAND TYPE	USE OF THE SHUTTER		
	Skilled persons (out of public area)	Skilled persons (public area)	Unrestricted use
with manned operation	A	B	non possible
with visible impulses (e.g. sensor)	C or E	C or E	C and D, or E
with not visible impulses (e.g. remote control device)	C or E	C and D, or E	C and D, or E
automatic	C and D, or E	C and D, or E	C and D, or E

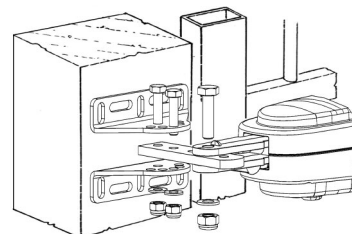
A: Command button with manned operation, like code ACG2013
 B: Key selector with manned operation, (gate operating as long as the button is held pressed) like code ACG1010.
 C: Adjustable power of the motor.
 D: Safety edges, like code ACG3010 to keep thrust force within the limits of EN12453 regulation - Appendix A.
 E: Photocells, like code ACG8026 (to install every 60÷70 cm from top to bottom of the gate ,to a maximum of 2,5 m - EN 12445 point 7.3.2.1)



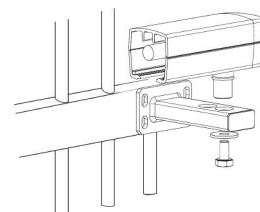
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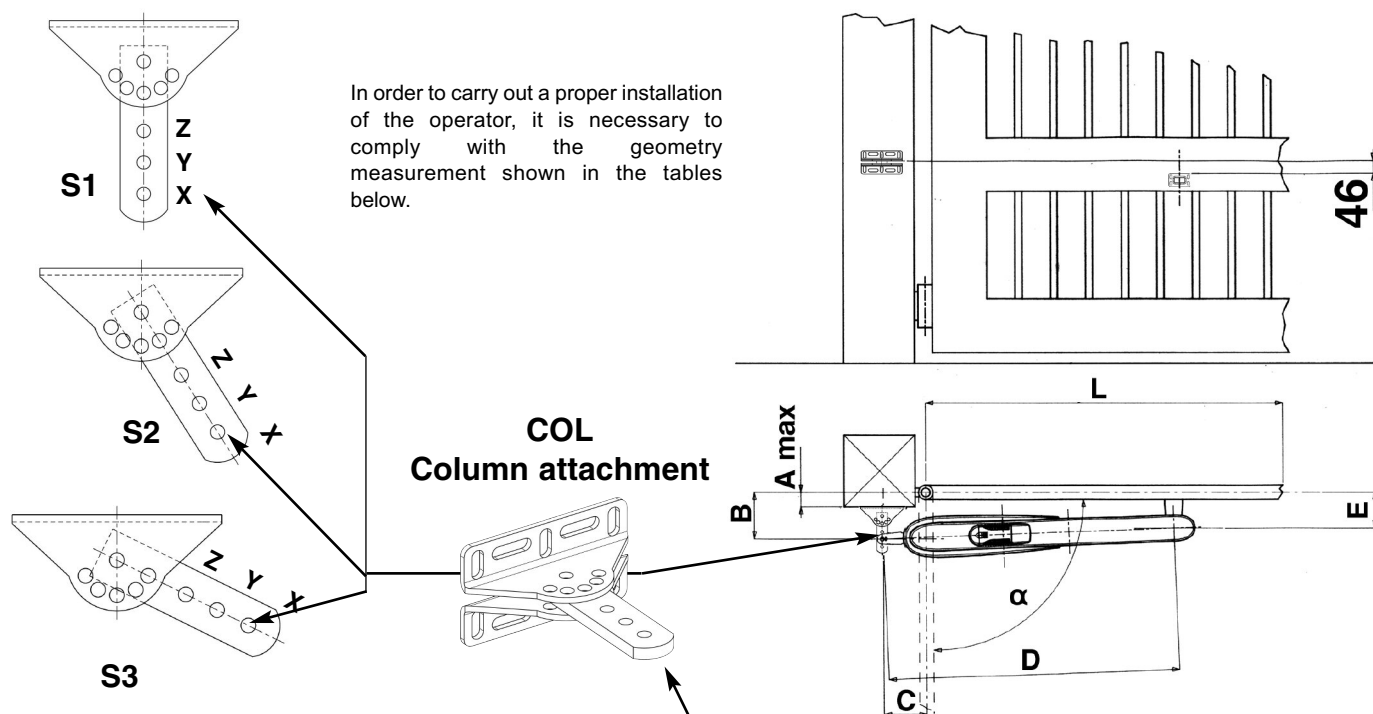
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5



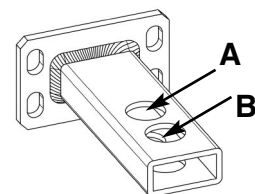
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Respect the measures for a correct installation

L Min.-Max	α	A max	B	C	D	E	T sec	COL	ANT
1÷2	90°	0	100	100	765	90	13,5	S2-X	A
		20	100	100	765	90	13,5	S2-Y	A
		40	100	100	765	90	13,5	S3-X	A
		60	110	100	765	90	14	S3-Y	A
		80	140	110	765	115	17	S3-X	B
		100	160	110	765	115	18	S3-X	B
		120	180	110	765	115	19,5	S3-X	B
		140	210	110	765	115	21,5	S1-Z	B
		150	220	120	765	115	23	S1-Z	B
	110°	20	110	140	765	90	17	S1-Y	A

ANT
Leaf attachment



If the pillar is too large, and it is not possible to adjust the actuator complying the measurements (B), you must make a niche in the pillar or you have to move the gate closer to the edge of the pillar.

Measures WITH 2 MECHANICAL STOPPERS

L Min.-Max	α	A max	B	C	D	E	T sec	COL	ANT
1÷2	90°	0	100	100	730	90	13,5	S2-X	A
		20	100	100	730	90	13,5	S2-X	A
		40	100	100	730	90	13,5	S3-X	A
		60	110	100	730	90	14	S3-X	A
		80	140	110	730	115	17	S3-X	B
		100	160	110	730	115	18	S3-X	B
		110	180	120	730	115	20	S1-Z	B
	110°	20	100	140	730	90	16	S2-Y	A

MECHANICAL STOPPER - OPTIONAL (Code ACG8088)

Optional mechanical stopper to stop the closing, if the gate is not fitted with a floor stopper.

MECHANICAL STOPPER ADJUSTMENT

To adjust the stoppers you have to follow the scheme (Pic. 9).

To set the opening limit it is enough to fix the stopper (A) in the needed position by tightening the 8mA screw with a n. 13 key.

To obtain the desired closing limit you must adjust the stopper (B) (OPTIONAL) in the needed position and tighten it as for stopper (A).

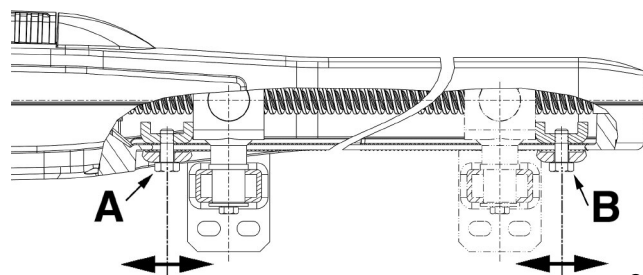
MAINTENANCE

Maintenance should be carried out by skilled and qualified staff only, after switching off the mains supply.

Regularly lubricate the hinges of the gate every 6 months and keep the thrust needed to move the gate leaf monitored (according to EN12453).

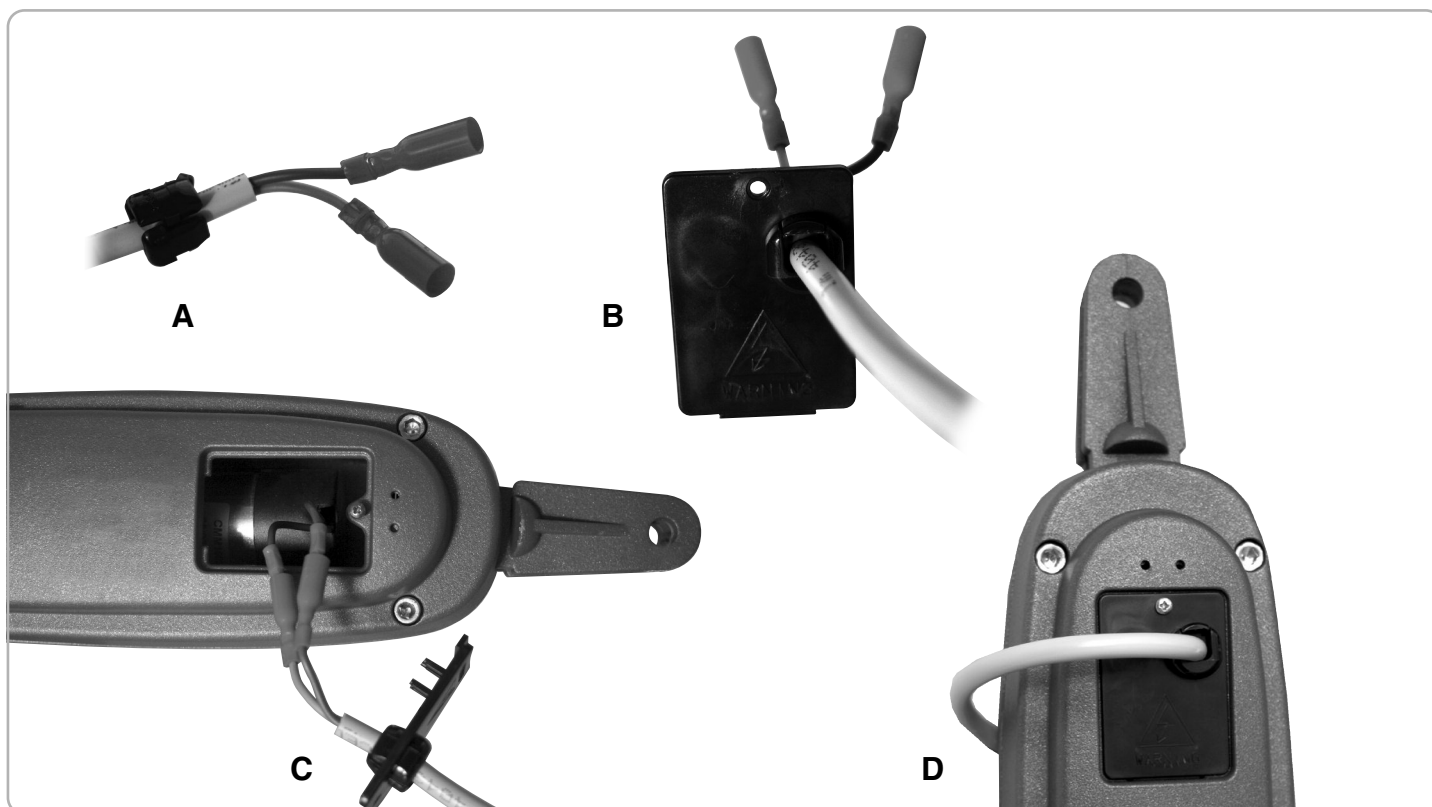


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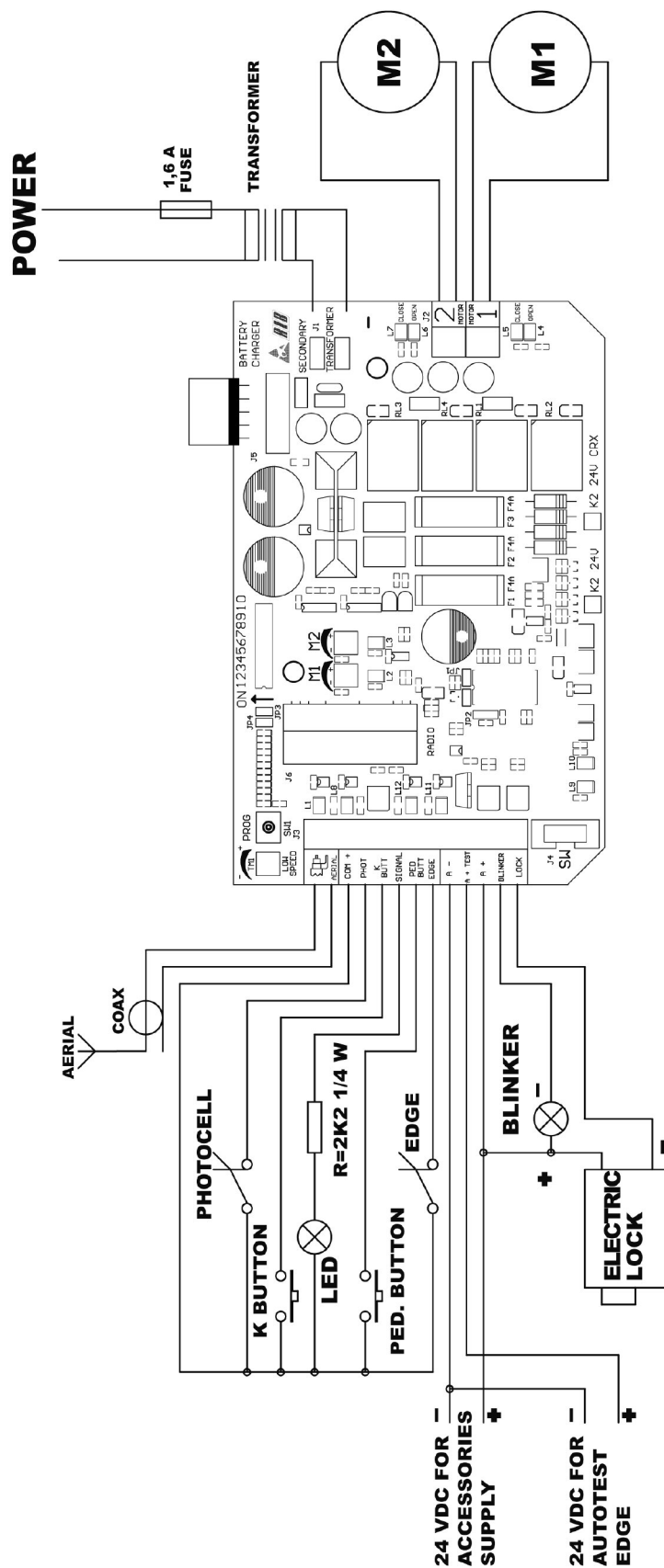


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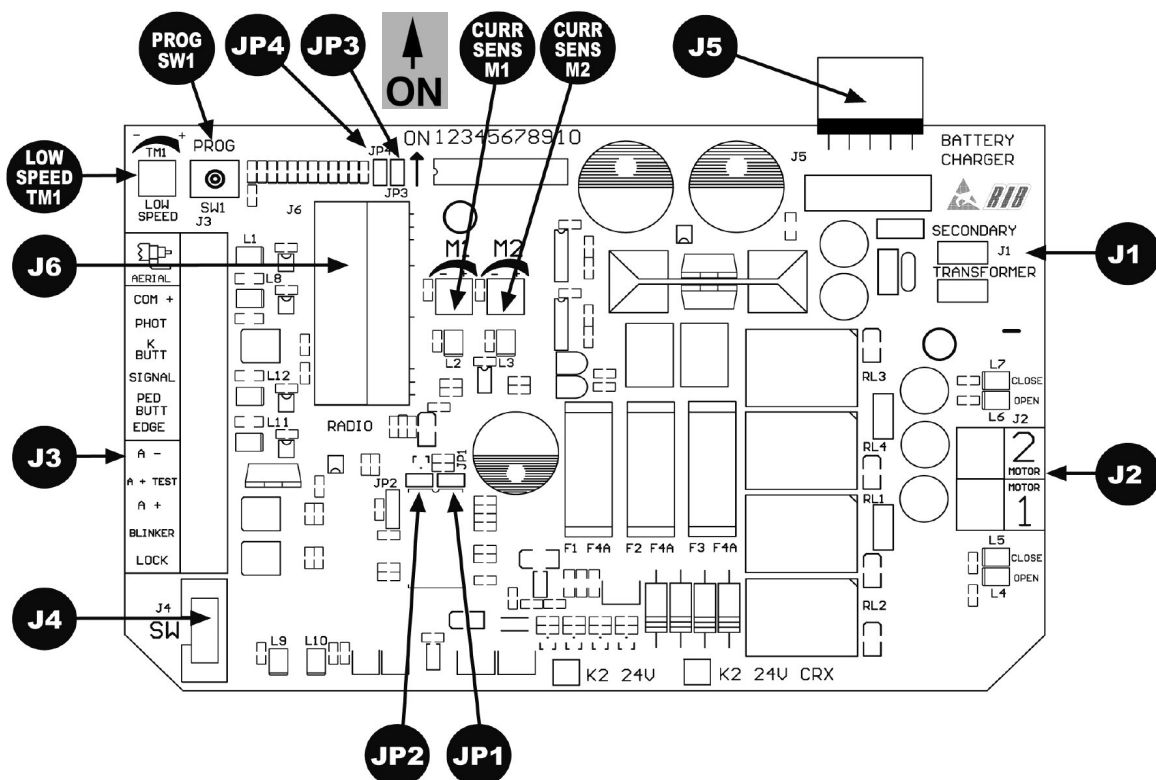
ELECTRIC CONNECTIONS



Safety strip power connection => A+TEST/A-
Photocells power connection => A+/A-



POINT A - CONTROL PANEL FEATURES



J1	SEC.TRANSF.	Connection to secondary coil of transformer
J2	MOTOR 1 MOTOR 2	Connection MOTOR 1 (no polarity) Connection MOTOR 2 (no polarity)
J3	AERIAL COM. PHOT. K BUTT. SIGNAL	Radio Antenna Common contact (common line for all the command and safety inputs) Photocells contact (NC) Single pulse contact (NO) Gate open state and battery state output indicator (12Vdc 3W max)
	PED. BUTT. EDGE A - A+TEST A+ BLINKER LOCK	Pedestrian opening contact (NO) Safety strip contact (NC) - 24Vdc accessories power supply + 24Vdc safety strip self-test power supply + 24Vdc accessories power supply - 24Vdc flashing light (cod. ACG7061) power supply Pay attention to the polarity -12Vdc electrical lock power supply (MAX 15W 12V)
J4	SW 	Connector for microprocessor firmware upgrade. Do not fit any jumper into the connector.
J5	BATTERY CHARGER	Connector for charge card of 24Vdc battery (cod. ACG4648)
J6	RADIO	Built-in radio module (model CRX), or connector for radio receiver RIB, 24 Vdc supply
	L1 - N	Main power supply 230 Vac 50/60 Hz (120V/60Hz upon request)

POINT B - SETTINGS

DIP 1 MOTOR ROTATION DIRECTION CHECK (SEE POINT C) 

DIP 2 PROGRAMMING (SEE POINT D)

DIP 1-2 STORING/ERASING RADIO CODES FOR MOTOR CONTROL (ONLY CRX CONTROL BOARD) (SEE POINT G, H AND I)

DIP 2-1 PROGRAMMING OF THE PEDESTRIAN OPENING (SEE POINT F)

DIP 3 ON - Automatic Closing ENABLED

OFF - Automatic Closing DISABLED

DIP 4 ON - Photocells active only in closing

OFF - Photocells always active

DIP 5 ON - blinker pre-flashing

OFF - blinker normal-flashing

DIP 6 ON - STEP BY STEP

Single pulse contact (K BUTT)

Pedestrian button (PED BUTT)

Radio Receiver command

OFF - AUTOMATIC

Single pulse contact (K BUTT)

Pedestrian button (PED BUTT)

Radio Receiver command

DIP 7 ON - current sensor DISABLED

OFF - current sensor ENABLED

DIP 8 ON - electric lock command ENABLED

OFF - electric lock command DISABLED

DIP 9 ON - Hammering on complete close position to ease Manual Release

- Hammering before opening to ease electric lock unlocking

OFF - no impulse

DIP 10 ON - Extra thrust when reached closing position to make sure that the mechanical bolt is fixed into the ground

OFF - no impulse

JP1 => RESET

JP2 => Pay attention that the jumper is inserted!

JP3 => OPEN 1 motor (M1) - 1 leaf

CLOSE 2 motors (M1 and M2) - 2 leaves

JP4 => OPEN safety strip self-test DISABLED

CLOSE safety strip self-test ENABLED

PROG => SW1 Programming button

LOW SPEED => **TM1 Electronic regulator for low speed on approach**

Adjustment of low speed is carried out using the LOW SPEED Trimmer which varies the output voltage to the head/s of the motor/s (turn clockwise to increase speed). Adjustment is carried out to establish the correct speed at the completion of opening and closing, depending on the structure of the gate, or if there is any light friction that could compromise the correct working of the system.

M1 => Regulator for current sensor of motor 1

M2 => Regulator for current sensor of motor 2

LED SIGNALS

L1 photocell contact (NC) (red)

L2 ---

L3 ---

L4 gate opening M1 (green)

L5 gate closing M1 (red)

L6 gate opening M2 (green)

L7 gate closing M2 (red)

L8 control button K BUTT (green)

L9 programming activated (red)

L10 radio code programming (green)

L11 pedestrian opening button PED BUTT (green)

L12 safety strip contact (NC) (red)

RELAYS

RL1 RELAY CLOSE MOTOR 1

RL2 RELAY OPEN MOTOR 1

RL3 RELAY CLOSE MOTOR 2

RL4 RELAY OPEN MOTOR 2

FUSES

F 1.6A TRANSFORMER PROTECTION FUSE (into the terminal block external to the PK2 24 control board)

F1 4A ACCESSORIES PROTECTION FUSE

F2 4A MOTOR 1 PROTECTION FUSE

F3 4A MOTOR 2 PROTECTION FUSE

POINT C - MOTOR ROTATION DIRECTION CHECK AND CURRENT SENSOR SENSITIVITY ADJUSTMENT

1 - Unlock the operators with the Manual Release, swing open the leaves about halfway, lock the operators.

2 - **Fully rotate trimmers M1 and M2 clockwise (+).**

3 - Turn **DIP1** to **ON** position, LED L9 starts blinking.

4 - **Press the PROG button and hold it** (movement is now performed in "man present" mode, open-stop-close-open-etc.).

When RED LEDS L5 and L7 are on, the gate leaves are closing (with a phase shift of 4 seconds).

When GREEN LEDS L4 and L6 are on, the gate leaves are opening (with a phase shift of 2 seconds).

Should any of the leaf open instead of closing, release PROG button, turn off the main power and reverse the two wires of the relevant motor.

5 - **Press the PROG button and hold it to CLOSE** completely the gate, check leaves swinging and the closing mechanical stopper position.

6 - **Press the PROG button and hold it to OPEN** completely the gate, check the leaves swinging and the opening mechanical stopper position.

7 - **CURRENT SENSOR SENSITIVITY ADJUSTMENT.** Once the leaves have reached the closing position, hold the PROG button and the operators will push against the mechanical stoppers. By gently rotating anticlockwise the trimmers M1 and then M2, the current sensor edge is reduced and the current sensor sensitivity will be increased. Keep turning anticlockwise the trimmers M1 and M2 until the RED closing LED L5 (for M1) and LED L7 (for M2) turn off. If this adjustment is carried out in opening position, do the same as above, with the difference that the operators will push the gate open. LEDs will be GREEN opening LED L4 (for M1) and LED L6 (for M2). Adjustment can be carried out several times either in open position or fully closed.

8 - Close completely the gate.

9 - Turn **DIP1** to **OFF** position, LED L9 turns off.

During Point C procedure, safety devices (photocells and safety strip) are not active.

(#) In Point D, Point E and Point F procedures, all the safety devices (photocells and safety strip) will be active, so they must be properly installed and connected to the control board. Any changing of the safety devices input state, will stop the Point D, Point E or Point F procedure that must be repeated from the beginning.

POINT D - PROGRAMMING FOR 2 MOTORS (#)

DURING THE PROGRAMMING, THE CURRENT SENSOR IS ALWAYS ACTIVE.

1 - The gate must be fully closed.

2 - Turn **DIP2** to **ON** position, LED L9 starts blinking.

3 - **Press PROG. Button**, motor M1 opens.

4 - Once reached the open position, the CURRENT SENSOR will cut out motor M1 and the travelling of M1 will be stored.

5 - Motor M2 opens, automatically.

6 - Once reached the open position, the CURRENT SENSOR will cut out motor M2 (time travel of M2 has now been just stored with this

operation). The gap of time between now (stop of motor M2) and the next pressing of the PROG. button (see step 7 below) will be then stored as waiting time for Automatic Closing feature.

- 7 - **Press PROG. button**, M2 closes and the Automatic Closing time is stored (see DIP3 function to enable or disable the Automatic Closing feature). The gap of time between now (close of motor M2) and the next pressing of the PROG. button (see step 8 below) will be stored as time delay between motor M2 and motor M1 closing, during normal operations.
 - 8 - **Press the PROG. button**, motor M1 closes thus setting the delay time between M2 and M1, as explained in step 7 above.
 - 9 - The LED L9 will turn OFF, signalling exit from the Point D procedure. Closing of the gate will be carried out at normal speed and only on approaching total closing at low speed (depending on the adjustment of LOW SPEED trimmer).
 - 10 - **Turn DIP2 to OFF** position.
- During Point D procedure, the safety devices (photocells and safety strip) are active.

POINT E - PROGRAMMING FOR 1 MOTOR (M1) (#)

ATTENTION: in order to manage one motor only, OPEN JUMPER JP3.

DURING THE PROGRAMMING, THE CURRENT SENSOR IS ALWAYS ACTIVE.

- 1 - The gate must be fully closed.
- 2 - Turn **DIP2 to ON** position, the LED L9 starts blinking.
- 3 - **Press PROG. button**, the motor M1 opens.
- 4 - Once reached the open position, the CURRENT SENSOR will cut out motor M1 (time travel of M1 has now been just stored with this operation). The gap of time between now (stop of motor M1) and the next pressing of the PROG. button (see step 5 below) will be then stored as waiting time for Automatic Closing feature.
- 5 - **Press PROG. button**, M1 closes and the Automatic Closing time is stored (see DIP3 function to enable or disable the Automatic Closing feature).
- 6 - The LED L9 will turn OFF, indicating exit from the Point E procedure. Closing of the gate will be carried out at normal speed and only on approaching total closing at low speed (depending on the adjustment of LOW SPEED trimmer).
- 7 - Turn **DIP2 to OFF** position.

During Point E procedure, the safety devices (photocells and safety strip) are active.

SHOULD THE GATE LEAVES NOT COMPLETELY CLOSED (FOR INSTANCE FRICTIONS DURING THE TRAVEL, WINDY AREA, ETC.) AFTER PROGRAMMING, YOU MIGHT DISACTIVATE THE CURRENT SENSOR DURING THE SLOW SPEED (DIP7 ON). IN THIS CASE IS NECESSARY INSTALLING SAFETY DEVICES (ES. SAFETY-STRIPS) TO COMPLY WITH EN12453 REGULATION.

POINT F - PROGRAMMING OF PEDESTRIAN OPENING (#)

- 1 - The gate must be fully closed.
- 2 - Turn **DIP2 to ON** position, the LED L9 starts blinking quickly.
- 3 - Immediately, turn also DIP1 to ON position, the LED L9 starts blinking slowly.
- 4 - **Press the pedestrian pushbutton PED. BUTT**, motor M1 opens.
- 5 - When the motor M1 leaf is opened enough for the pedestrian crossing, press the pedestrian pushbutton to stop the travel (thus defining the opening stroke of motor M1). The gap of time between now (stop of motor M1) and the next pressing of the PROG. button (see point 6 below) will be stored as waiting time for Pedestrian Automatic Closing

feature.

- 6 - **Press the pedestrian pushbutton PED. BUTT**, M1 closes and the Pedestrian Automatic Closing time is stored (see DIP3 function to enable or disable the Automatic Closing feature).
 - 7 - Turn **DIP1 to OFF** position.
 - 8 - Turn **DIP2 to OFF** position.
- During Point F procedure, the safety devices (photocells and safety strip) are active.

POINT G - RADIO CODE STORING (ONLY FOR CRX) (MAX 32 CODES)

- 1 - The gate must be fully closed.
- 2 - Turn **DIP1 to ON** position, the LED L9 starts blinking quickly.
- 3 - Immediately, turn also **DIP2 to ON** position, the LED L9 starts blinking slowly. Each code must be programmed within 10 seconds.
- 4 - **Press one of the buttons on the remote control** (usually channel A). If the remote control is stored correctly green LED L10 (on the PK2 24 CRX control board) emits a flash. The 10 seconds' time within storing radio code is automatically renewed to allow the storing of the next remote control.
- 5 - To end radio code storing **either press PROG. button or let 10 seconds pass**. The LED L9 and LED L10 turn ON.
- 6 - Turn **DIP1 to OFF** position.
- 7 - Turn **DIP2 to OFF** position.
- 8 - LED L9 and LED L10 turn OFF.

POINT H - RADIO CODE ERASING (only for CRX)

- 1 - The gate must be fully closed.
- 2 - Turn **DIP1 to ON** position, the LED L9 starts blinking quickly.
- 3 - Immediately, turn also **DIP2 to ON** position, the LED L9 starts blinking slowly. Code erasing must be carried out within 10 seconds.
- 4 - **Press the PROG. button and hold it for 5 seconds**, the total memory erasing will be indicated by two flashes of green LED L10. LED L9 will blink for 10 seconds and it will be possible to store new radio codes following the Point G procedure described above.
- 5 - To end radio code storing either press PROG. button or let 10 seconds pass. The LED L9 and LED L10 turn ON.
- 6 - Turn **DIP1 to OFF** position.
- 7 - Turn **DIP2 to OFF** position.
- 8 - LED L9 and LED L10 turn OFF.

POINT I - RADIO CODE FULL MEMORY TEST (only for CRX)

- 1 - The gate must be fully closed.
- 2 - Turn **DIP1 to ON** position, the LED L9 starts blinking quickly.
- 3 - Immediately, turn also **DIP2 to ON** position, the LED L9 starts blinking slowly. If the Green LED L10 flashes six times, it means that the radio code memory is FULL (maximum codes to be stored 32).
- 4 - Turn **DIP1 to OFF** position.
- 5 - Turn **DIP2 to OFF** position.
- 6 - LED L9 and LED L10 turn OFF.

FUNCTIONING OF CONTROL ACCESSORIES

STEP BY STEP or AUTOMATIC commands

(K BUTT button, PED BUTT button, RADIO REMOTE button)

DIP 6 - ON => The K BUTT, the PED BUTT button, the RADIO REMOTE

buttons perform the cyclic command open-stop-close-open-stop-etc.

DIP 6 - OFF => The K BUTT, the PED BUTT button, the RADIO REMOTE buttons perform:

- the open command, if pressed with the gate completely closed
- the close command, if pressed with the gate completely opened
- no effect, if pressed during the gate opening
- the gate re-open, if pressed while the gate is closing

The K BUTT opens the gate completely, whereas the PED BUTT opens the gate partially as described in Point F.

CLOCK FUNCTION (available ONLY with DIP 6 OFF)

The Clock Function permits to keep the gate opened even if, for example, the Automatic Closing is enabled (DIP3 ON) or somebody commands the gate closing. It is useful during rush hours, when traffic is heavy and the flow is slow (e.g. entrance/exit of employees, emergencies in residential areas or car parks and, temporarily, for removal vans) and it's necessary to keep the gate opened.

It can be done by connecting a switch and/or a daily/weekly clock either in parallel to the K BUTT button or instead of the K BUTT button. When the control board receives this command, the gate will open and by keeping this contact closed for all the time of the gate opening, the Clock Function is automatically activated. In fact, once reached the open position, the gate will remain opened and all of the control board functions are blocked. Only when K BUTT contact is released, the control board functions are re-activated and the Automatic Closing restarts (if enabled) doing the countdown to the gate closing.

PEDESTRIAN command (PED BUTT - COM)

This command is useful to open the gate partially, just enough, for example, to permit a pedestrian crossing. In fact, the Pedestrian command (see Point F) is carried out only by opening the motor M1 just enough for a pedestrian to pass, as described into the Point F procedure.

From the Pedestrian opening position the Automatic Closing can be enabled or disabled with DIP3.

From the Pedestrian opening position, the gate can be completely opened by the OPEN or by the K BUTT button or by the RADIO button.

AUTOMATIC CLOSING (from the COMPLETE open position)

The Automatic Closing from the complete open position can be enabled turning ON the DIP3.

The maximum gap of time that can be programmed is 5 minutes (see Point D and E).

AUTOMATIC CLOSING (from the PEDESTRIAN open position)

The Automatic Closing from the pedestrian open position can be enabled turning ON the DIP3. The maximum gap of time that can be programmed is 5 minutes (see Point F).

ELECTRIC LOCK (LOCK A+) command

The **DIP 8** in the ON position enables the Electric Lock (MAX 15W 12V) command. The Electric Lock (LOCK A+) will be automatically turned ON each time the gate opens.

If the DIP8 is OFF, the Electric Lock command is DISABLED.

MANUAL RELEASE FACILITY

The **DIP 9** in the ON position enables the Manual Release Facility. Once the gate has completely closed, a short reversal manoeuvre (0.2 seconds) will be done to ease manual release (current sensors in this phase are not enabled).

ELECTRIC LOCK unlocking FACILITY

The **DIP 9** in the ON position enables the Electric Lock unlocking Facility. From close position, just before opening, the gate will perform a short closing manoeuvre (0.5 seconds) to ease unlocking from electric lock.

ELECTRIC LOCK coupling FACILITY

The **DIP 10** in the ON position enables the Electric Lock coupling Facility. Once the gate has closed, a short hammering close pulse (0.5 seconds) will be done at full power to guarantee the electric lock or mechanical bolt coupling (the current sensors in this phase are not enabled).

GATE FUNCTIONING AFTER A BLACKOUT

(in case it's NOT equipped with batteries)

It's recommended to close completely the gate manually when the main AC power resumes. Only in the closing position of the gate the control board realigns itself.

In case the gate is already closed, no need of special procedures, the gate is ready to work.

In case the gate is completely opened and the Automatic Closing is enabled (DIP3 in ON position), countdown of Automatic Closing will start automatically the moment AC power is available.

During this phase all the safety devices (photocells and safety strip) are active.

PHOTOCELL (PHOT - COM)

In case the switch **DIP4** is in the OFF position, the photocells are active both in gate opening and in gate closing. In this configuration, if an obstacle cuts the photocell beam:

- while the gate is closing, the gate will open
- while the gate is opening, the gate will stop and will restart opening when the obstacle is removed
- while the gate is still, it will not move neither in opening nor in closing.

In case of the switch **DIP4** is in the ON position, the photocells are active only in gate closing.

In this configuration, if an obstacle cuts the photocell beam:

- while the gate is closing, the gate will open
- while the gate is opening, the gate will continue open
- while the gate is still, it will open if a open command is request, it will remain still if a close command is request.

The photocell input (PHOT - COM) is a NORMALLY CLOSED contact.

In case there are more couple of photocells, the contacts from all the photocell receivers must be connected in series.

In case the photocells are not installed, this contact must be short circuited with a wire jump (from PHOT to COM) to permit the gate to operate.

SAFETY STRIP (EDGE - COM)

If an obstacle presses the safety strip:

- while the gate is still, it will not move neither in opening nor in closing
- while the gate is closing, the gate will open
- while the gate is opening, the gate will close.

In case the safety strip is held pressed a further quick reversion, after 2 seconds, is performed. The gate interrupts any movement and this alarm state is indicated by 1 minute Blinker flashing. The normal gate operations can be restored by pressing any push button or radio commands.

The safety strip input (EDGE - COM) is a NORMALLY CLOSED contact.

In case there are more than one safety strip, all their contacts must be connected in series.

In case the safety strip is not installed, this contact must be short circuited with a wire jump (from EDGE to COM) to permit the gate to operate and the Safety Strip test must be disabled (JP4 OPENED).

TESTING THE SAFETY STRIP equipment

The JUMPER JP4 CLOSED enables to test the safety strip equipment. The test is performed every time the gate completes a full opening. The test is available only if the safety strip device is equipped with a dedicated power supply input.

In fact, the safety strip equipment power supply input can be connected to the A+TEST and A- outputs (JP4 closed). Automatically, every time the gate completes a full opening, just before closing, the control board switches OFF the A+TEST and A- power supply output for a very short time. While the safety strip power supply is switched OFF, if everything is working fine the safety strip contact (EDGE - COM) must open. In case the test fails, no other gate manoeuvre will be allowed.

NOT ALL THE SAFETY STRIPS CAN BE TESTED, THUS THE JUMPER

JP4 MUST BE LEFT OPEN.

FLASHING LIGHT (BLINKER - A+)

Connect the flashing light to outputs A+ and BLINKER, use flashing lights ACG7061 and 24V bulbs of 20W maximum.

NB: This electronic PK2-24V board can only supply power to FLASHING LIGHTS with inbuilt flashing circuit.

PRE-FLASHING function

The DIP 5 in the ON position enables the pre-flashing, the FLASHING LIGHT starts blinking 3 seconds before every movement of the gate.

The DIP 5 in the OFF position disables any pre-flashing, the FLASHING LIGHT and the motors will start at the same time.

CURRENT SENSOR ALARM

The CURRENT SENSOR, permits the obstacle detection. In fact, during opening or closing of the gate, if any of the gate leaf finds an obstacle, the gate reverses its movement. The obstacle detection sensitivity can be adjusted on each motor, by the trimmers M1 and M2 (POINT C).

Should the sensor detect another obstacle during the reverse movement, the gate will reverse another time for just 1 second and then stop. This ALARM STATE is indicated by the FLASHING LIGHT that blinks for 1 minute. The normal gate function can be restored pressing any push button or radio commands.

GATE OPEN INDICATOR (SIGNAL - COM)

Should you need to have an indication about the leaf position, the output SIGNAL - COM can be connected to a 12Vdc bulb of 3W maximum. It is turned ON when the gate is open or partially open, it is turned OFF only when the gate is completely closed.

WE RECOMMEND NOT TO OVERLOAD THE INDICATOR OUTPUT (SIGNAL - COM) OTHERWISE THE GATE FUNCTIONING COULD BE COMPROMISED OR THE CONTROL BOARD COULD BE DAMAGED.

TECHNICAL SPECIFICATIONS

- Humidity	< 95% without condensation
- Power supply voltage	230V~ $\pm 10\%$ (120V/60Hz upon request)
- Frequency	50/60 Hz
- Battery power supply	20-24,5Vdc
- Transformer power	130VA - primary 230Vac - Secondary 18Vac
- Maximum absorption	25 mA
- Interruptions in electricity supply	100ms
- Maximum power of gate open indicator	12Vdc 3W (equivalent to 1 bulb of 3W or 5 LED with serial resistance of 2,2 k Ω)
- Maximum load of blinker output	24Vdc 20W
- Current available for photocells and accessories	1A $\pm 15\%$
- Current available on radio connector	200mA

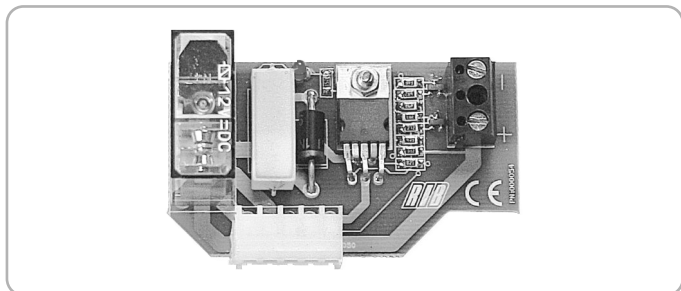
TECHNICAL SPECIFICATIONS OF RADIO (model K2 24V crx)

- Reception frequency	433,92MHz
- Impedance	52 OHM
- Sensitivity	>2,24 μ V
- Time of excitation	300ms
- Time of discharge	300ms

- All inputs must be used as clean contacts as the power supply is generated internally (secure voltage) to the card and is arranged so as to guarantee respect of double or reinforced isolation with regard to the parts with dangerous voltage.
- Any connection of external circuits made to the exits of the control unit must be carried out with the guarantee of double or reinforced isolation with regard to the parts with dangerous voltage.
- All inputs are handled by a programmed integrated circuit which carries out an auto-control at the beginning of every movement.

ACCESSORIES - For the connections and the technical data of the optional equipments follow the relevant handbooks.

BATTERY CHARGE CARD



The time needed to charge completely the 12Vdc 2,2Ah batteries (n° 2 batteries connected in series, optional cod. ACG9515), upon first installation, is 24 hours, with a charging current of 0.03A.

WORKING WITH BATTERIES - STATE OF BATTERY INDICATOR (SIGNAL - COM)

Should you need to have an indication about the leaf position, the output SIGNAL - COM can be connected to a 12Vdc bulb of 3W maximum. It is turned ON when the gate is open or partially open, it is turned OFF only when the gate is completely closed.

Besides, in case the operator is equipped with batteries, the same indicator will emit 2 brief flashes followed by a pause of 2 seconds if the gate is in closed position during a blackout, indicating that the operator is powered by the batteries. The functioning of the gate is guaranteed till a minimum of a charge level of approximately 20V. A lower charge will stop the gate and the indicator will flash continuously to signal that the batteries are too low.

Only when the main AC voltage returns, the indicator will turn off, all the gate controls will be restored and the batteries will be recharged.

WE RECOMMEND NOT TO OVERLOAD THE INDICATOR OUTPUT (SIGNAL - COM) OTHERWISE THE GATE FUNCTIONING COULD BE COMPROMISED OR THE CONTROL BOARD COULD BE DAMAGED.

During this phase the safety devices are active.

code ACG4648

MECHANICAL BOLT



Mechanical bolt suitable for 2 leaves gate to latch closed the gate to the ground.
code ACG5000

ELECTRIC LOCK



Horizontal lock - right external view - 12Vac

Horizontal lock - left external view - 12Vac

Vertical lock - 12Vac

code ACG8660

code ACG8670

code ACG8650

BATTERY



Battery 2,2Ah 12V

code ACG9515