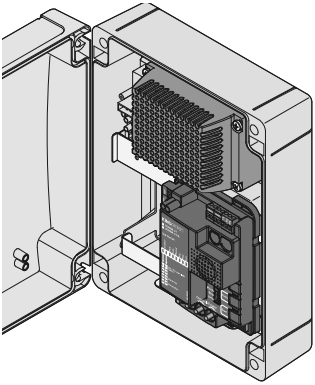
STARG8 24

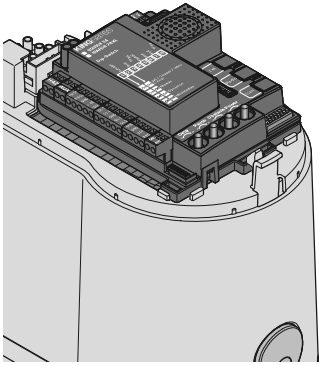
Control unit for 24V sliding and swing gates motors

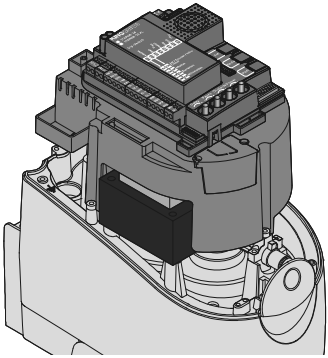
Installation instructions



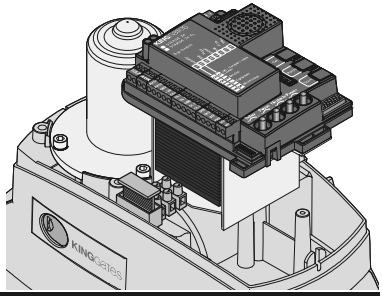
STARG8 24 BOX
Control unit for Jet 24, Jet 24 XL, Couper, Linear 24V or Intro 24-400

Control unit for Minimodus





Control unit for Modus280, Modus420 or Modus XL



Control unit for Dynamos 24

Made in Italy

KINGGATES

Contents

Note: Professional programming is not required for standard installations. When special functions and adjustments are required, refer to the advanced / professional programming on the manual instruction (supplied with the unit and available on our website).

1. Product description

1.1 - Commissioning

To start-up the system, the following steps must be carried out:

1 - Check cabling, tighten all connections and terminals. Follow cabling standards and regulations of the country/region.

2 - Set the dip switches (par. 3.1) and knobs (par. 3.2) according to the desired typs of operation and the system structural configuration.

3 - Memorise the transmitters (Paragraph 4).

4 - Programme the gate travel path (Paragraph 5) so that the control unit learns the gates open and close points.

5 - Perform the checks described in the "Testing and commissioning" paragraph (Paragraph 6).

⚠ **If, after completing these steps, the control unit should malfunction, consult Paragraph 7, "LEDs indication", to identify any issues, and Paragraph 9, "Troubleshooting", to attempt to solve it.**

1.2 - Main Features

- Automated access command for 1 or 2 24V motors.
  Configuration of dip switch one and two specify the type of motor in use
- Flasher control with/without integrated intermittency function (Paragraph 9.3).
- Integrated management for electric locks 24V max. 15VA (Paragraph 9.4).
  This output can also be used to control courtesy lights (Paragraph 13).
- Double NC input for opening and closing limit switch (Paragraph 9.8).
- Inputs for start, stop and pedestrian opening wired commands, customisable to open, stop and close (Paragraph 9.9).
- Double input for safety devices: "PHO1" during closing and "PHO2" during closing and/or opening (Paragraph 9.5).
- Possibility of powering 24VDC accessories (Paragraph 9.6).
- Input for gate status pilot light signalling the position of the leaves (Paragraph 9.7).
- Input for external antenna that can be used for increasing the range of the transmitters (Paragraph 9.10).
- Staggered closing of gate leaves adjustable through the knob (Paragraph 3.2).
- Pause time for automatic re-closing adjustable to between 0 and 180 sec. with knob (Paragraph 3.2).
- Obstacle sensitivity adjustment with knob (Paragraph 3.2).
- Motor force adjustment with knob (Paragraph 3.2).
- Incorporated radio receiver (433.92MHz), compatible with KingGates rolling transmitters.
- 6 indication LEDs (Paragraph 7).
- Slow-speed opening and closing (customisable through dedicated programming).

1.3 - Technical features of the control unit

Mains power supply*	230 Vac ±10%, 50 - 60 Hz
Motor power supply	24V DC 280W and 10A peak motor
Warning light power supply	24V max 15W
Gate pilot lamp power supply	24Vdc max 10 W
Accessories' power supply (photocells...)	24 Vdc max 10 W
Radio receiver frequency	433.920 MHz
Storable remote controls	170
Radio antenna input	RG58
Operating temperature	-20 ÷ 50 °C

1 - SAFETY NOTICE

- This Instructions Manual (Instructions) contains important information regarding safety
- Read the entire document before you install any of the equipment
- Installation must be carried out by qualified installers
- Installation must be in accordance with all state and federal laws and regulations relating to Electrical Safety in your area
- Make sure that all cabling and wiring are in accordance with Wiring Rules AS 3000:2007
- Do not modify the equipment unless directed to by the Instructions. Modifications may cause irreversible damage to the equipment and result in malfunction. King-Gates and LiteStart disclaim any liability for damage resulting from modified equipment.
- Ensure that no damage will be caused by automating the gate. Pay particular attention to any damage that may be caused by impact, crushing, shearing, dragging, etc. as well as other general dangers.

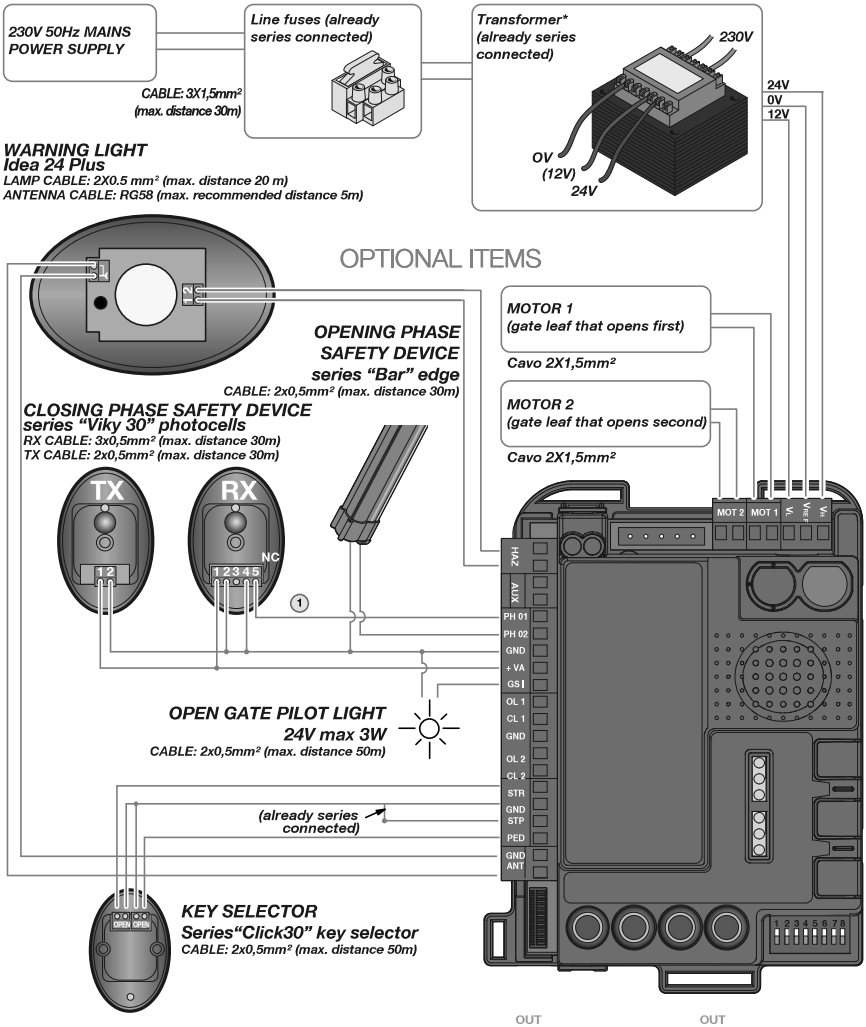
Before installing any of the equipment ensures that the gate can move freely through its motion and that nothing is blocking or interfering with its path of travel.

- During installation and use, ensure that solid objects or liquids cannot enter the control box.

Before connecting the control box to the mains power

1 - Verify that all wirings done as described in section 2 above
2 - Ensure that the gate can move freely through its motion and that nothing is blocking or interfering with its path of travel
3 - Ensure that no damage will be caused by automating the gate
4 - Motor's terminals MUST be plugged in before powering the box

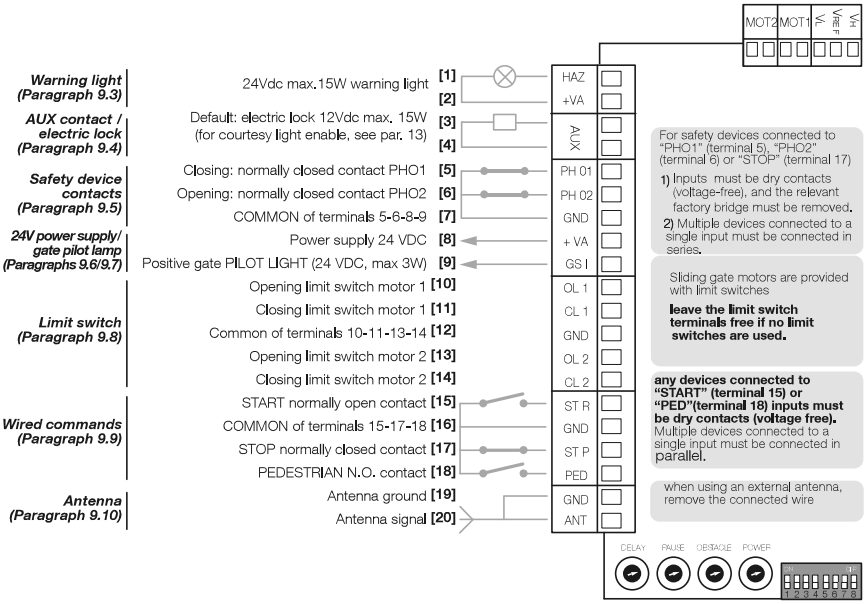
2.3 - StarG8 24 Accessories wiring connection of a typical system



⚠ Safety devices connected to PH01 are typically installed outside the gate. Safety devices connected to PH02 are typically installed inside the gate (see the alongside scheme).

(1) Safety devices connected to PH01 terminal are active just in closing phase. Connect photocells to PH02 to activate it in opening and closing phases as per DIP5 setup.

2.4 - StarG8 24 Accessories wiring connection

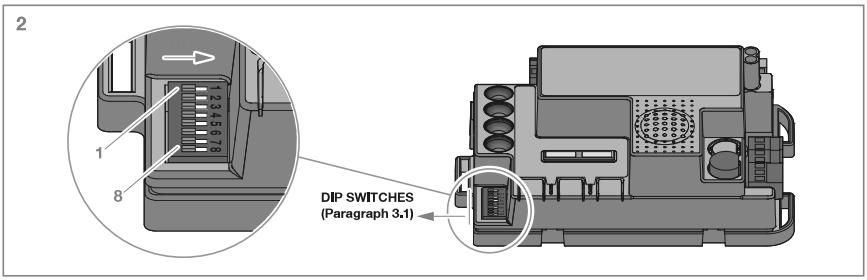


⚠ TIMER FUNCTION: if START contact is kept closed (for instance through a timer-controlled or bistable relay), control unit opens the gate and leaves the gate opened. The automation does not accept closing commands (neither automatic nor wired) until START contact is reopened.
In this mode, dip switch 3 STEP is set to OFF and dip 4 AUTO to ON

⚠ If START contact is kept closed during the control unit starting after a blackout, the gate will immediately execute the start command.

3. Control unit setting

3.1 - Dip-switch adjustment



DIP	DIP-SWITCH status		Description of operation
DIP 1-2 MOTOR	1 ON 2 ON		Connected gearmotors: swing series "Jet 24V", "JetXL 24V", "Linear 24V", "Intro 24-400" or "Couper24"
	1 ON 2 OFF		Connected gearmotors: "Modus" series swing gate
⚠	1 OFF 2 ON		Connected gearmotor: sliding series "Dynamos 24V"
	1OFF 2 OFF		Connected gearmotor: swinging series "Minimodus"
DIP 3 STEP	3 ON 4 OFF		Step-by-step command mode: Open / Stop / Close / Stop
	3 ON 4 ON		Step-by-step with automatic closing (time set with the "Pause" knob)
DIP 4 AUTO	3 OFF 4 ON		Opening only command mode with automatic closing (condominium function)
	3 OFF 4 OFF		Open / Close / Open command mode (no Stop)
DIP 5 PHO2	ON		Safety devices connected to "PH 02" set as photocells (stop of the movement both in opening and closing phases with opening manoeuvre after PH 02 clearance)
	OFF		Safety devices connected to "PHO2" set as edges (immediate inversion; active just in opening phase)
DIP 6 HAZ	ON		Warning light flashing during cycle
	OFF		Warning light on during cycle
DIP 7 FAST	ON		Gate recloses immediately after vehicle passes "PH 01" safety devices (photocells)
	OFF		Standard operation - safety devices do not command a reclosing manoeuvre
DIP 8 FUNC	SWINGING (see DIP 1-2)	ON	Ram function enabled
		OFF	Ram function disabled
	SLIDING (see DIP 1-2)	ON	Reverse opening direction (automation's movement must be programmed afterwards)
		OFF	Reverse opening direction (automation's movement must be programmed afterwards)

⚠ **A variation of DIP 1-2 "MOTOR" and DIP 8 "FUNC" (if the control unit is set to sliding gate) will not become effective until a new gate travel path is programmed (Paragraph 5).**

DIP1-2 "MOTOR":

Set these dip switches to suit the type of motors in use for this installation.

DIP3 "STEP" :

ON - step by step, a command will open, stop, or close the gate

OFF - setup for fully automatic, condominium (apartment block)

DIP4 "AUTO":

If the dip-switch is put to **ON**, the automatic re-closing function is activated. The control unit automatically closes the leaves after the time set through the "**PAUSE**" trimmer (see Paragraph 3.2). If the "**AUTO**" dip-switch is put to **OFF**, the automatic re-closing function is deactivated. To close the leaves, therefore, a command must be given (either wired or via transmitter).

DIP5 "PHO2":

ON - Gate will stop on opening and closing (for photocells)

OFF - Gate will stop and retract in the opposite direction slightly (for safety edge)

DIP6 "HAZ":

If the dip-switch is put to **ON**, the warning light is powered (terminals 1, 2) in the intermittent mode. If the **"HAZ"** dip switch is set to OFF, power to the flasher is constant (terminals 1 and 2).

DIP7 "FAST":

ON - the rapid reclosing function is activated. In this mode, the gate will close as soon as the gate photocells connected to PHO1 input are obscured and cleared without waiting for the pause time.

OFF - the rapid reclosing function is deactivated.

DIP8 "FUNC":

SWING GATE (DIP1/2= ON ON / ON OFF/ OFF OFF)

If the **"FUNC"** dip switch is set to **ON** this activates the ram function, which is recommended if an electric lock is installed (par. 9.5). This delivers a transient voltage peak at the start of the opening stroke and the end of the closing stroke to overcome the resistance of the pawl.

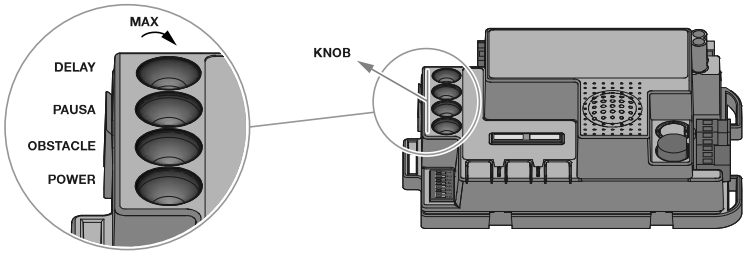
If the **"FUNC"** dip switch is set to **OFF** the ram function is disabled.

SLIDING GATE (DIP1/2= OFF/ON)

Changing the position of the **"FUNC"** dip switch changes the opening stroke direction. This is read only at the beginning of basic or advanced programming of automation's movement.

3.2 - Knob adjustment

3



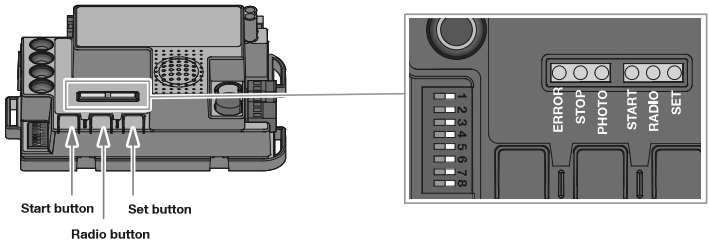
Knob	Description
POWER	Power: adjustment of motor speed and power. Turning the knob clockwise increases the motor's power and speed. **To validate the modification it is necessary to programme again the gate travel.**
OBS	Obstacle, sensitivity to obstacles: adjustment of the obstacle detection function. Turning the knob clockwise increases time before obstacle detection (less sensitivity). OBSTACLE set at half position (50%) corresponds to 0,75 seconds of pushing against an obstacle before reversing the movement).
PAUSE	Pause time before automatic gate closing. Turning the knob clockwise increases the pause time from 0 to 180 seconds. Please note: this knob is functional only when AUTO dip-switch 4 is put to ON.
DELAY	This knob adjusts the delay in movement between the two gate wings. Turning the knob clockwise increases the delay from 0 to 20 seconds. Open delay is half of closure delay (motor 1 starts opening and motor 2 waits half delay value). DELAY at maximum value: motor 2 waits total open of motor 1. Motor 1 waits total close of motor 2.

⚠ **After adjusting the "POWER" knob, it's necessary to programme again the gate travel. (par.5).**

⚠ **In normal operation, gate leaves must be offset to prevent overlapping. If the "DELAY" knob is set too low and leaf 1 arrives before leaf 2, the control unit will automatically open the gate slightly and then close leaves in the correct order (anti-overlapping mechanism).**

4. Transmitter (remote control unit) programming

4



⚠ The transmitters to be programmed must be of the "Stylo4K" or "Stylo2K" series by King Gates. See adjacent pictures.

⚠ if "set" "radio" and "start" LEDs are flashing, it means that the programming protections have been activated – see Paragraph 16.1. Therefore radio transmitters learning is not possible.

⚠ To interrupt any of the following procedures at any time, press the SET and RADIO buttons simultaneously or wait 10 seconds

"Stylo4K" "Stylo2K"

4.1 - Start button programming

This procedure allows to programme a button of the transmitter (remote control) to the controll unit .

1. ON THE CONTROL UNIT PRESS THE **RADIO** BUTTON FOR 1 SECOND	→	2. PRESS THE DESIRED BUTTON ON EVERY TRANSMITTER TO BE PROGRAMMED	→	3. PRESS THE **RADIO** BUTTON UNTIL RADIO LED TURNS OFF OR WAIT 20 SECONDS TO EXIT THE PROCEDURE
The red "radio" LED turns steady on (if not, see paragraph 16.1)		The red "radio" LED flashes		The red "radio" LED turns off

4.2 - Pedestrian opening button programming

This procedure allows to programme a button of the transmitter for partial / pedestrian opening to the control unit.
This opening width can be customised following the procedure described in Paragraph 5.2.

1. PRESS THE **RADIO** BUTTON FOR 1 SECOND	→	2. PRESS THE **START** BUTTON FOR 1 SECOND	→	3. PRESS THE DESIRED BUTTON OF ALL THE TRANSMITTERS TO BE PROGRAMMED
The red "radio" LED turns steady on (if not, see paragraph 16.1)		The red "radio" LED remains lit and the green "start" LED turns on		The red "radio" LED flashes and the green "start" LED turns on

↓

3. PRESS THE **RADIO** BUTTON UNTIL RADIO LED TURNS OFF OR WAIT 20 SECONDS TO EXIT THE PROCEDURE
The red "radio" LED and the green "start" LED turn off

4.3 - Deleting all memorised transmitters

This operation deletes all memorised transmitters from the memory.

1. PRESS THE **RADIO** BUTTON FOR 4 SECONDS AND RELEASE WHEN RADIO LED FLASHES	→	2. PRESS THE **RADIO** BUTTON AGAIN FOR 1 SECOND	→	3. MEMORY DELETION COMPLETED
The red "radio" LED flashes (if not, consult Paragraph 16.1)		The red "radio" LED flashes fast		The red "radio" LED turns off

4.4 - Deleting a single transmitter

This operation deletes a single transmitter from the memory.

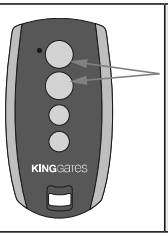
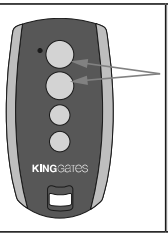
1. PRESS THE **RADIO** BUTTON FOR 4 SECONDS AND R ELEASE WHEN RADIO LED FLASHES	→	2. PRESS THE **SET** BUTTON FOR 1 SECOND	→	3. PRESS A BUTTON ON THE TRANSMITTER YOU WISH TO DELETE
The red "radio" LED flashes (if not, consult Paragraph 16.1)		The red "radio" LED flashes and the yellow "set" LED turns on		The red "radio" LED flashes and the yellow "set" LED flashes

↓

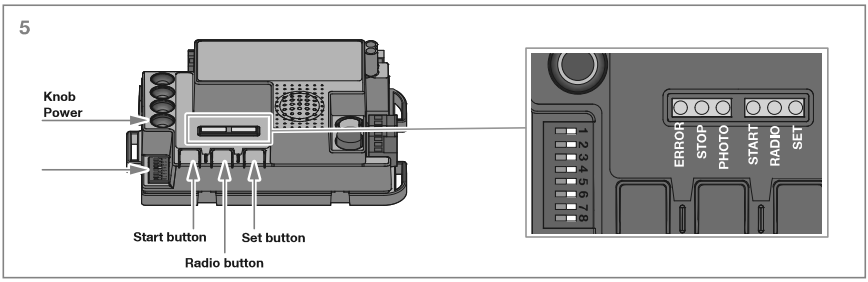
3. PRESS THE **RADIO** BUTTON UNTIL RADIO LED TURNS OFF OR WAIT 20 SECONDS TO EXIT THE PROCEDURE
The red "radio" LED and the yellow"set" LED turn off

4.5 - Transmitter (Remote) tools - free programming

This procedure enables you to program a new transmitter ("Stylo2K" or "Stylo4K") without accessing the control unit, by staying close to it.
To run the procedure you will require a previously programmed transmitter and you need to be at the gate

	ON A PREVIOUSLY PROGRAMMED TRANSMITTER, HOLD DOWN **BUTTONS 1** AND **2** TOGETHER FOR **4 SECONDS**	→		ON THE TRANSMITTER YOU WANT TO PROGRAM, HOLD DOWN **BUTTONS 1** AND **2** TOGETHER FOR **4 SECONDS**

5. Programming the gate travel path



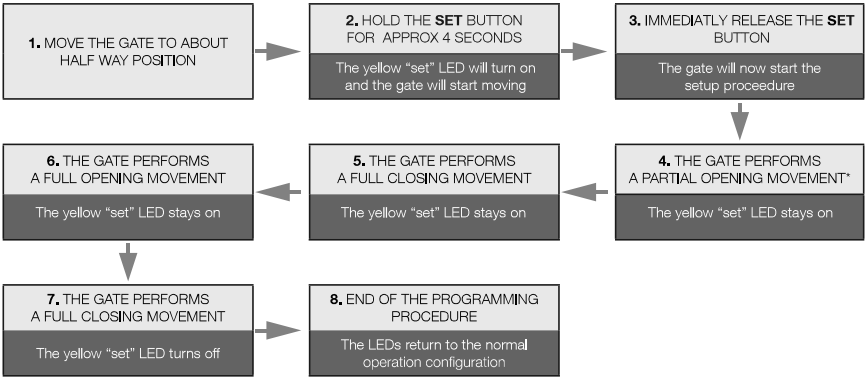
Initial basic setup of the gate travel must be done prior to using the gate

⚠ If, at the start of the following procedures, the "set", "radio" and "start" LEDs flash, it means that the programming protection has been activated – see Paragraph 16.1.

⚠ To interrupt the following programming sequences at any time, press the SET and RADIO buttons simultaneously or wait 10 seconds.

5.1 - Basic programming of the gate travel pass

In this procedure, the control unit will learn the gate travel time and force to determine a default slowdown point. This procedure is sufficient for most installations. To cancel or change slowdown points see section 5.3.



⚠ NOTE - if the automation starts a closing stroke instead of an opening stroke, proceed as follows:

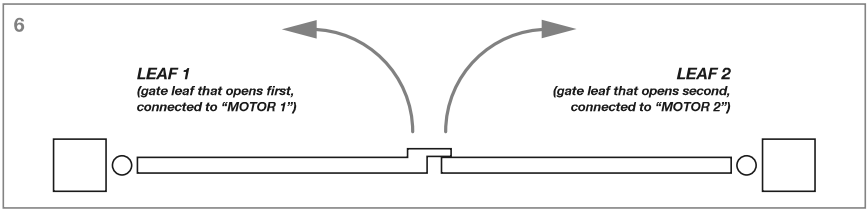
1. quit programming by pressing SET and RADIO simultaneously:

for SWING GATE MOTORS: swap the motor phases (terminals MOT1, MOT2) and the inputs of any limit switches (terminals 10-11, 13-14) for SLIDING GATE MOTORS: change the setting of DIP8, see par. 3.1. Alternatively, swap motors' direction through the KING SPECIALIST APP.

2. reprogram the stroke from point 1.

⚠ If the operator does not recognise the mechanical stops (end of the travel for swing gates) even with the OBS knob set to its minimum, you can select the open and closed points during programming by pressing the "SET" button (or a programmed transmitter's button) at the end of points 5, 6 and 7. In the event of two gate leaves, use the "SET" button for both leaves.

⚠ The red ERROR LED flashes during travel and at the end of travel points. This occurs when the motor is using high current. It is normal for the error light to flash briefly during travel. If the error light up longer than brief interval then increase the obstacle dial and check again. (make sure you have enough force with the obstacle adjustment so the gate will not stop in winds.



5.2 - Programming the pedestrian (partial) opening width

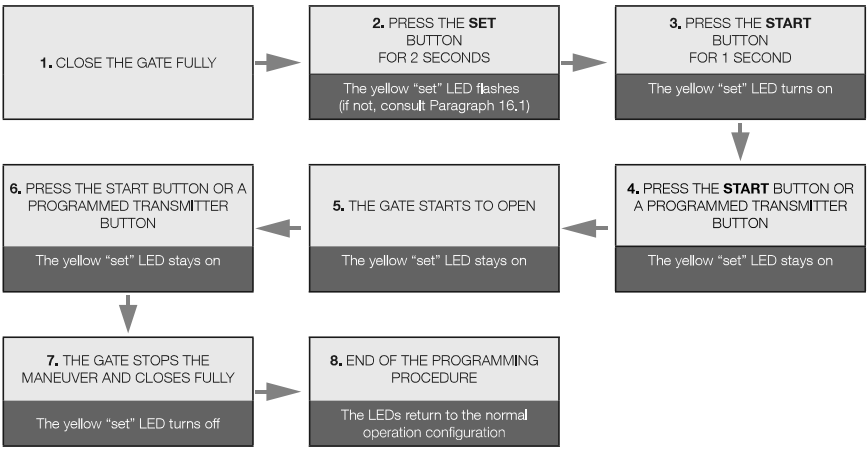
This procedure allows to change the default pedestrian opening gap.

Default opening settings:

- swing gates: Motor 1 fully open
- sliding gate: 30% of the total travel

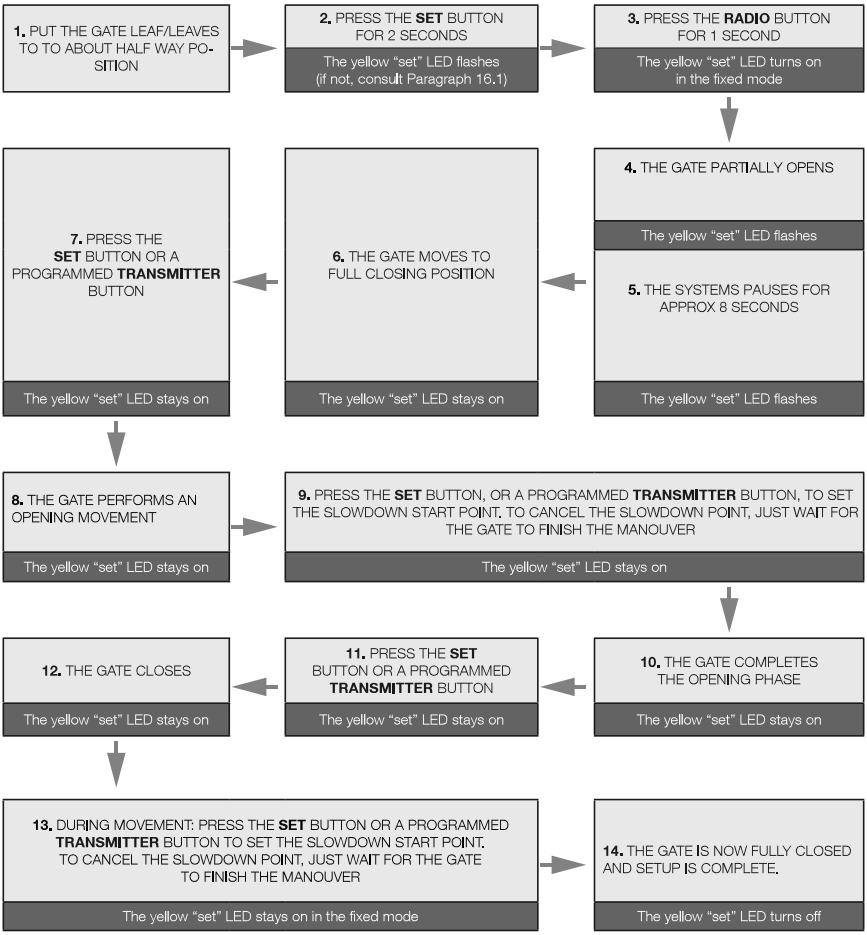
To control the pedestrian opening, it is necessary to either program a radio control button (see Paragraph 4.2) or connect a wired control device on the "PED" contact (see Paragraph 2.2).

⚠ Prior to proceeding with this programming procedure, make sure that either basic programming or advance programming of the gate travel have been completed.



5.3 - Advanced programming of the gate travel path

With this procedure, you will set the slow down points or remove them completely



⚠ With double hinged gate, the control unit will open and close one leaf at a time.

⚠ After any "POWER" knob adjustment, the gate travel learning must be reprogrammed.

⚠ If the operator does not recognise the mechanical stops (end of the travel for swing gates) even with the OBS knob set to its minimum, you can select the open and closed points during programming by pressing the "SET" button (or a programmed transmitter's button) at the end of points 6, 9 and 13. In the event of two gate leaves, use the "SET" button for both leaves.

TABLE A

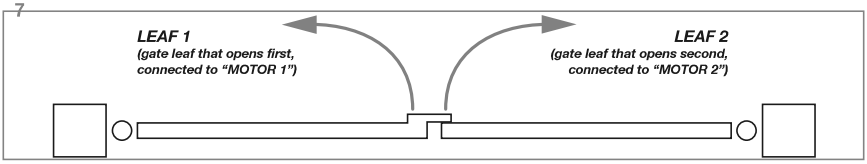
Procedure 1: REVERSING THE DIRECTION OF THE GATE SECTION 1 (MOTOR 1) OPENING STROKE

1. PRESS THE **RADIO** BUTTON FOR 3 SECONDS	2. LEAF 1 MOVES TO VERIFY THAT THE MOTOR OPENS	3. THE CONTROL UNIT RETURNS TO STAND-BY MODE FOR 8 SECONDS (Point 5 of the programming sequence)
The yellow "set" LED flashes fast	The yellow "set" LED flashes	The yellow "set" LED flashes

Procedure 2: REVERSING THE DIRECTION OF THE GATE SECTION 2 (MOTOR 2) OPENING STROKE

1. PRESS THE **START** BUTTON FOR 3 SECONDS	2. LEAF 2 MOVES TO VERIFY THAT THE MOTOR OPENS	3. THE CONTROL UNIT RETURNS TO STAND-BY MODE FOR 8 SECONDS (Point 5 of the programming sequence)
The yellow "set" LED flashes fast	The yellow "set" LED flashes	The yellow "set" LED flashes

7



6. Testing and commissioning

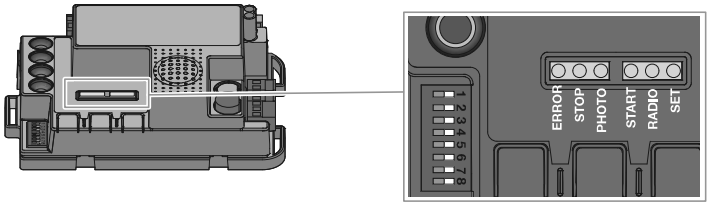
Once the programming setup has been completed, verify that:

- the motors turn off after a few seconds once the opening or closing phases end (also "error" LED turns off);
- the control unit responds to the connected wired commands: "START" (terminal 15), pedestrian opening (terminal 18) and "STOP" (terminal 17);
- all programmed radio transmitters are operational;
- the safety devices connected to"PHO1" (terminal 5) intervene while the gate closes and prevent the open gate from closing;
- the safety devices connected to"PHO2" (terminal 6) intervene while the gate opens and prevent the closed gate from opening;

If the "PHO2" dip-switch is put to ON, check that they intervene also when the gate closes and that they prevent the opened gate from closing.

7. LED indication

8



When the control unit switched on (and with no protection activated), the yellow "**Set**" led flashes briefly. If everything is correctly connected, the green "**Photo**" and "**Stop**" LEDs turn on indicating that the two safety contacts are closed circuits.

7.1 - Input status indication LEDs

The following signals refer to the standby mode (after 12seconds after power up and inactivity).

GREEN PHOTO LED:
- ON in the fixed mode if the PHO1 and PHO2 contacts (terminals 5-6-7) are closed
- OFF if at least one of the PHO1 or PHO2 contacts (terminals 5-6-7) is opened

GREEN STOP LED:
- ON if the STOP contact (terminals 16-17) is closed
- OFF if the STOP contact (terminals 16-17) is open

GREEN START LED:
- ON if the START contact (terminals 15-16) is closed
- OFF if the START contact (terminals 15-16) is open

RED RADIO LED:
- flashes when a command is received through King Gates transmitter
- is off when the control unit is in standby mode

7.2 - Error status LED

RED "ERROR" LED:
The red "error" LED has two functions:

- **The red "Error" LED flashes during the automation movement when a mechanical stress point is detected (this corresponds to increased motor effort). During travel, only occasional LED Error flashes are normal. If LED Error flashes for longer times, adjust OBS knob (slightly turn it clockwise). Check gate mechanics if LED ERR flashing continues.**
- In standby mode, the LED shows the current error type with a series of regular ashes according to the following scheme:

Number of flashes per series	Error description
1	On-board memory fault.
2	Photo-test of safety devices failed. See Paragraph 14.1 (advanced programming manual) for solving the problem.
3	Gate travel path programming required. See Paragraph 5
4	Input "PHO2" set as a resistive edge and check failed. See Paragraph 14.3 (advanced programming manual) for solving the problem.

GREEN START LED:

When START is activated by pressing the button or by wire command, the green LED flashes three times without gate movement. this indicates that the "wire inputs" are in lock mode. to modify, see par. 15.2 (advanced programming manual).

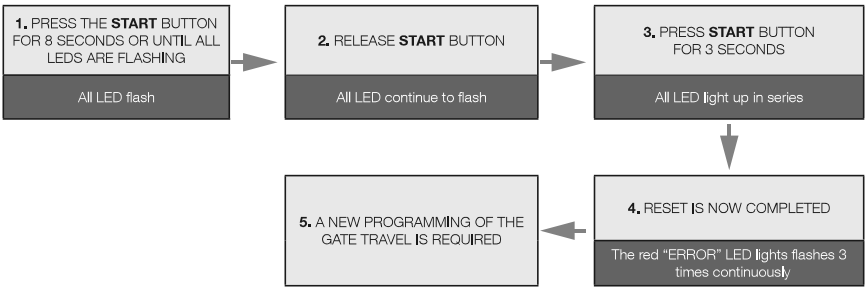
GREEN START LED, RED RADIO LED AND YELLOW SET LED:

- If, when attempting to enter into any programming scheme, the **"Set"**, **"Radio"** and **"Start"** LEDs flash fast three times, it means that the "control unit protection" is activated. See Paragraph 16.1 (advanced programming manual) for solving the problem.

8. RESET procedure

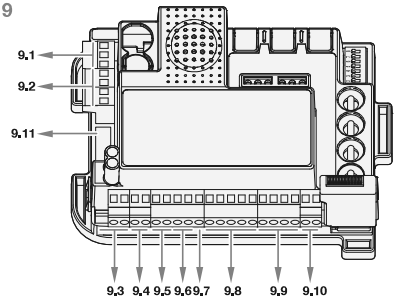
Reset procedure deletes gate travel parameters (par. 5) and all advanced functions (par. 10). It can be performed in case of programming mistakes and it brings the STARG8 control board to factory settings.

⚠ This reset doesn't affect memorised radio transmitters (see par. 4 for radio transmitters management).



9. Devices connectable to the control unit

9



The numbers refer to the paragraphs below corresponding to the terminals

The control unit is designed to interface with different devices dedicated to system control, system safety and other additional functions. Below is a list of their connections and corresponding functions.

9.1 - Transformer

Standard transformer of the system (supplied and connected) is 230Vac*(primary) to 0-12-24Vac (secondary) to the control unit.

**** The control unit also operates with 110V, 50/60 Hz power. In this case, make sure to:***
- a transformer with 110V primary voltage;
- 7A line fuse is required..

9.2 - Motors

TERMINALS: sliding = see Paragraph 2.1 / 2.2
swing = see Paragraph 2.1 / 2.2

In case of a single motor (sliding or swing), connect it to MOTOR 1 terminal.

The maximum connectable load is 70W (max3A) per motor.

9.3 - Warning light

TERMINALS: 1-2 (see Paragraph 2.4).

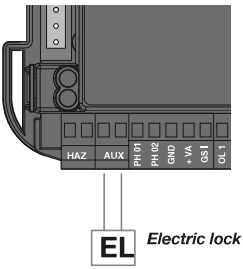
The warning light is an accessory used for signalling any movement of the gate leaf.

Connected lamps: 24V 15W maximum power.

"HAZ" dip-switch 6 (see Paragraph 3.1), select constant (DIP 6 ON) or flashing signal (DIP 6 OFF).

9.4 - AUX contact

10



⚠ When an electric lock is connected, enabling the ram function by setting "RAM" dip switch 8 to ON (see Paragraph 3.1) is recommended.

TERMINALS: 3-4 "AUX" (see Paragraph 2.4).

Default setting: 12V electric lock operation.

The AUX can be set to electric lock, magnetic lock, courtesy light (monostable or bistable). Voltage setting can be 12V o 24V.

To change the AUX setup refer to the advanced programming functions of Paragraph 13:

- Selection of AUX output type (Paragraph 13.2) = set as lock or courtesy light;
- Selection of AUX operating mode (Paragraph 13.3) = allows for customising the contact's operation;;
- Selection of AUX contact voltage (Paragraph 13.4) = allows for selecting the AUX contact voltage (12V or 24V).

9.5 - Safety devices

TERMINALS: 5-6-7 (see Paragraph 2.4).

Control unit has two safety inputs available for voltage free (dry contact) connection(s).

"PHO1" CLOSING PHASE SAFETY DEVICES

Terminals 5,7 allow connection of safety devices active during closing phase. This input is normally closed (NC). For infra-red photocells and safety edges with micro-switch contact.

The factory wire bridge connected to PHO1 must be removed when using this input.

These devices intervene during the gate's closing phase.

In particular:

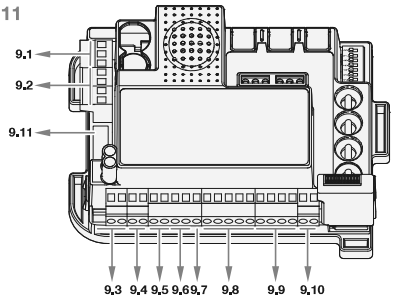
- during the closing phase they invert the movement direction and re-open the gate fully;
- during the opening phase they have no effect;
- with the closed gate they do not intervene;
- with the opened gate they lock closing commands.

Figures 11a, 11b and 11c show examples of King Gates "Viky30" photocell connections.

⚠ When multiple devices are connected on this contact, they must be series connected (see Fig. 11c).

⚠ If more photocell pairs are connected, RX and TX units of the safety set should be cross installed (see Fig. 11c).

11



The numbers refer to the paragraphs below corresponding to the terminals

"PHO2" OPENING OR OPENING/CLOSING PHASE SAFETY DEVICES

It is possible to connect devices (e.g. photocells or edges) with normally closed (NC) contact to the "**PHO2**" input (terminal 6-7).

The factory wire bridge connected to PHO2 must be removed when using this input.

These devices intervene while the gate is moving, according to the setting of DIP5 (see par. 3.1).

DIP5 set to ON (operation as photocells)::

- in **closing phase** they continue the movement as soon the device has been cleared
- in **opening phase** they continue the movement as soon the device has been cleared
- if the **access is closed** they inhibit the opening commands.
- if the **access is open** they inhibit the closing commands.

DIP5 set to OFF (operation as opening edge):

- during the **closing phase** they have no effect
- during the **opening phase** they re-close the gate fully
- with the **gate closed** they lock the opening commands.
- with the **gate open** they have no effect.

Figures 11a, 11b and 11c show examples of King Gates "Viky30" photocell connections.

⚠ **When multiple devices are connected on this contact, they must be series connected (see Fig. 11c).**

⚠ **If more photocell pairs are connected, RX and TX units of the safety set should be cross installed (see Fig. 11c).**

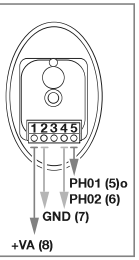
11a

Connection of the TX transmitter

See Paragraph 2.4

11b

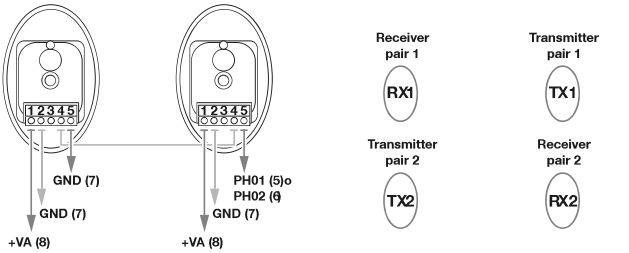
Connection of RX receiver Viky30



See Paragraph 2.4

11c

Connection of multiple receiver pairs Viky30



See Paragraph 2.4

9.6 - 24VDC accessories' power supply

TERMINALS: 7-8 (see Paragraph 2.4).

Nominal voltage 24VDC, max. 250mA, output for powering external accessories as photocells, radio receivers, etc.

⚠ **Real voltage output can be greater then nominal value, check the compatibility of external accessories.**

9.7 - Gate open pilot light

TERMINALS: 7-9 (see Paragraph 2.4).

When photo-test (deactivated by default - see Paragraph 14.1) is not used, it is possible to connect a gate indication light 24Vdc max 3W to the "GSI" input (terminal 9). This light will signal the gate's position:

gate closed: light off

gate open: light turned on in fixed mode

gate opening: light flashes

gate closing: light flashes fast

⚠ **Maximum 3W/24VDC.**

9.8 - Limit switches

TERMINALS:

sliding = 10-11-12 (see Paragraph 2.4).

swing = 10-11-12-13-14 (see Paragraph 2.4).

The limit switch inputs are NC dry contacts (voltage free).

These terminals must be left free if no limit switches are used to define gate travel.

9.9 - Wired commands

TERMINALS: 15-16-17-18 (see Paragraph 2.4).

Inputs for the start, stop and pedestrian wired commands can be customised to open, stop and close (Paragraph 15.1).

They can be locked to prevent tampering with the system (Paragraph 15.2).

START CONTACT

The "START" input (terminals 15-16) is a normally open gate activation command by wire.

The activation method is set up by dip switches 3 and 4 - see Paragraph 3.1 .

This input is a voltage free (dry contact) only. Connecting power to this input will void warranty.

⚠ **TIMER FUNCTION: if START contact is kept closed (for instance through a timer-controlled or bistable relay), control unit opens the gate and leaves the gate opened. The automation does not accept closing commands (neither automatic nor wired) until START contact is reopened.**
In this mode, dip switch 3 STEP is set to OFF and dip 4 AUTO to ON to ensure that the gate never remains locked open.

⚠ **If multiple START contacts are connected, connect the contacts in parallel.**

⚠ **If START contact is kept closed during the control unit starting after a blackout, the gate will immediately execute the start command.**

PEDESTRIAN CONTACT (terminals 16-18)

The pedestrian "PED" input (terminals 16-18) is a partial opening gate command (for pedestrian access) by wire.

With double swing gate only **MOTOR1** is opened by it.

To customise the opening width, the pedestrian programming sequence must be carried out (see Paragraph 5.2).

This input is a normally open and voltage free (dry contact) only.

Connecting power to this input will void warranty.

STOP CONTACT

The "**STOP**" input (terminals 16-17) is for immediately stopping and locking any movement of the gate.

This input is a normally closed and voltage free (dry contact) only.

Connecting power to this input will void warranty.

To restore operation this contact must be closed.

9.10 - Antenna

TERMINALS: 19-20 (see Paragraph 2.4)

Antenna terminal for transmitter signal reception. The preconnected wire acts as antenna.

For extending the reception range, an external antenna can be connected (present in the King Gates flashing lights range).

⚠ **If an external antenna is connected, the preconnected wire must be disconnected.**

9.11 - Back-up battery / Energy saving

StarG8 control unit can be equipped with Back up battery or solar power system (optional).

To connect the back up battery and charger (BATM016+BATK3) or the solar kit (GO GREEN), see their dedicated manuals.

The back up battery is charged all times by the mains power and it automatically powering the gate in case of power breakdown.

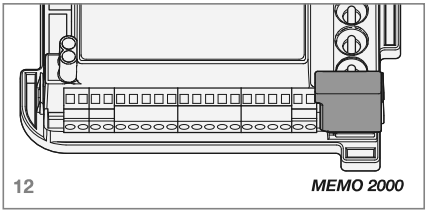
Note: it is recommended to use the energy saving modality when back up battery (or the GO GREEN solar kit) is used.

See Paragraph 16.3 for activate this modality and for photocell's energy saving connection.

(This function shuts off power to the photocells when the control unit is in standby, thus reducing consumption and increasing battery life).

⚠ **If energy saving modality is activated, the control panel's LEDs will only remain lit for two minutes after the last operation in order to reduce energy consumption.**

10. MEMO 2000 - backup and restore (optional)



12 *MEMO 2000*

Memo 2000 is an accessory memory module with two functions:

- **alternative radio memory with a storable capacity of 1500 radio transmitters.** It can be permanently installed in STARG8 control unit and then all memorized remote controls saved by the procedure of paragraph 4 are stored into this module.
- **backup and restore device.** It allows to transfer saved radio transmitters from the internal STARG8 memory to MEMO 2000 (backup) and vice versa (restore).

10.1 - Backup

⚠ **Every new backup procedure erases all the data already present in the MEMO 2000 and the new data will be save.**

Turn power OFF, plug in MEMO2000 dongle and power UP.

1. PRESS THE **START** BUTTON FOR 8 SECONDS OR UNTIL ALL LEDS ARE FLASHING
All LED flash

→ **2.** RELEASE **START** BUTTON
All LED continue to flash

→ **3.** PRESS **RADIO** BUTTON FOR 3 SECONDS AND RELEASE WHEN RADIO LED FLASHES
"Radio" LED flashes

↓

4. DOUBLE CLICK **RADIO** BUTTON QUICKLY
The yellow "SET", red "RADIO", green "START" LEDs, flash quickly 4 times together

→ **5.** TURN OFF POWER, UNPLUG THE MEMO2000 DONGLE, POWER UP AND CHECK TRANSMITERS OPERATION.

⚠ **After backup procedure, the memorized radio transmitters are now also stored in MEMO 2000 and are still saved into the STARG8 internal memory.**

10.2 - Restore

⚠ **Restore procedure copies just the first 170 radio transmitters present into the MEMO 2000 and save them into the STARG8 internal memory (170 max storable remote controls).**

1. PRESS THE **START** BUTTON FOR 8 SECONDS OR UNTIL ALL LEDS ARE FLASHING
All LED flash

→ **2.** RELEASE **START** BUTTON
All LED continue to flash

→ **3.** PRESS **RADIO** BUTTON FOR 3 SECONDS AND RELEASE WHEN RADIO LED FLASHES
"Radio" LED flashes

↓

4. DOUBLE CLICK **SET** BUTTON QUICKLY
The yellow "SET", red "RADIO", green "START" LEDs, flash 2 times together

→ **5.** TURN OFF POWER, UNPLUG THE MEMO2000 DONGLE, POWER UP AND CHECK TRANSMITERS OPERATION.

⚠ **After restore procedure, the first 170 memorized radio transmitters are now also stored in STARG8 internal memory and are still saved into MEMO 2000.**

11. F.A.Q.

	Problem	Symptoms / Causes	Solution
9a	The control unit LEDs are turned off	No power to the control unit.	Check for mains power – see Paragraph 2.2 / 2.3. For solar/ battery power check 24VDC power to the board.
		The fuses blown. You must disconnect power before touching fuses. Check for no short-circuits or problems before replacing fuse with same value ones.	Replace the fuses (see Paragraph 2.3). If the fuses blow up again, check for short circuits or damages of power circuits, cables, wires, accessories, transformer and control unit.
		The control unit is operating in the energy saving mode (see Paragraph 16.3) or operating voltage is below the minimum level.	Deactivate energy saving mode, check that mains power is available.
9b	The control unit cannot enter to programming mode	When the SET button is pressed and all the indication LEDs flash the control unit is in protection mode.	Deactivate the protection – see Paragraph 16.1
9c	The control unit completes the programming setup, but does not respond to commands in the standard operating mode	Problem with safety and/or stop circuits if Photo and/or Stop green LEDs ar off. Those LEDs must be lit green unless the gate will not work.	Check that the "PHO1", "PHO2" and "STOP" circuits are closed.
		Photo-test of safety devices failed. After a command is pressed for a few seconds, the red "Error" LED turns on.	Deactivate the photo-test – see Paragraph 14.1.
9d	Gate is moving but not all the way to fully close and/or open.	Obstacle detection problems. The control unit detects power draw peaks during the manoeuvre and goes into obstacle mode.	1. Disengage the gate from the motor(s) with manual release; check gate to move free all the way. If not, please fix. 2. Turn the "OBS" knob slightly clockwise (see Paragraph 3.2) A) make sure that control unit stops powering the motor(s) at the end of the travel. 3. If not sufficient, turn the "POWER" knob slightly clockwise and reprogram automation's movement. 4. Avoid/reduce slowdown travel phase (see Paragraph 5.3)
		Intervention of the safety devices. Check that the green "photo" and "stop" LEDs remain lit throughout the entire manoeuvre. If there are multiple photocell pairs, these may signal false obstacles.	Apply the bridges to "PH01", "PH02" and "STOP" to check if the problem is from the control unit or other circuits connected to these terminals (see paragraph 2.4 and image 11C).
9e	The radio transmitter does not function	Check that LED on the transmitter is flashing, if not replace the transmitter's battery	Check that radio LED of the control unit flashes while presing a button on the transmitter. If yes, try to reprogram the radio transmitter.
9f	The transmitter has little range	Note: transmitter's range varies in relation to the environmental conditions	Replace the transmitter's battery. Connect an external antenna (see Paragraph 9.10) if not sufficient.
9g	The gate does not slow down	Repeating the automation's movement programming is required	1. Repeat the automation's movement programming (see Paragraph 5.1) 2. If not sufficient, do the advanced programming of the automation's movement (Paragraph 5.3) and set a longer slowdown area.
9h	The control unit functions correctly, but does not accept wired start and pedestrian commands	When start and pedestrian contacts are closed, the green "start" LED flashes briefly. The wired command lock mode is active.	Deactivate the start and pedestrian lock. See paragraph 15.2.
9i	Adjusting or setting dipswitches or knobs has no effect at all	The control unit protection (lock mode) is active.	Deactivate the control unit lock. See Paragraph 16.1
		No effect with "POWER" knob, dip-switch 1-2 "motor" or dip-switch 8 "func"	To make "POWER" knob and dip-switch 1-2 changes effective, it is necessary to repeat the automation's movement programming. If not possible, deactivate the control unit lock. See Paragraph 16.1
9l	The accessories remain powered with the energy saving function active	With the control unit in standby mode, the accessories nonetheless remain powered	Accessories not connected properly. See Paragraph 16.3. If the accessories remain powered only during the opening phase, the DIP7 should be ON

11. Professional (Advanced) programming

The following programming sequences are not necessary for standard installations.

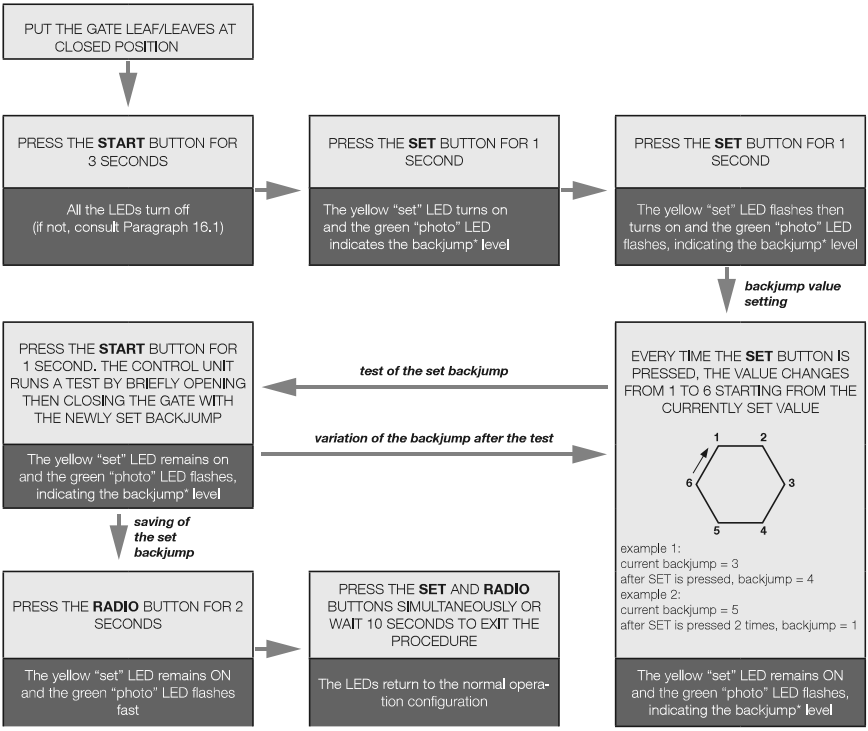
EN

12. Backjump adjustment

This procedure allows for adjusting or eliminating the backjump function. Backjump is inverting the gate movement at the end of the travel to facilitate easy unlocking and manual release as well as to safeguard the mechanical system. On certain motors backjump is unnecessary, therefore the value is set to 1 by default. On certain motors backjump is compulsory and therefore default is set to 2.

DEFAULT: Jet, Couper, Intro or Dynamos motors (see dip-switch 1 and 2 settings) backjump = value 1
Minimodus motors (see dip-switch 1 and 2 settings) = value 2
Modus motors (see dip-switch 1 and 2 settings) = value 2

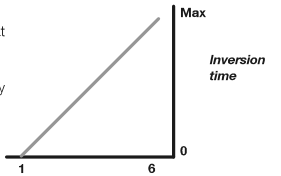
⚠ **Prior to proceeding with this programming procedure, first verify whether either the "basic path programming" or the "advanced path programming" have been completed.**



* The backjump value is indicated by the number of flashes of the green "photo" LED series, based on the set value.

When the series consists of one flash, the backjump value is zero (no inversion of movement at end-of-path), when there are 6 flashes, the backjump is set to the maximum value.
Clearly, the other series indicate growing intermediate values from 1 to 6.

The backjump value can be seen at any time after the SET button is pressed the first time, by counting the number of flashes of the green "photo" LED.



⚠ **If the backjump value is set too high, some undesired clearance may remain between the door and the mechanical stop.**

EN

13. AUX output programming

These programming sequences are not essential to the system's operation, though they allow for setting the type (lock or courtesy light), work mode and output voltage of the devices connected to the AUX output.

⚠ **To interrupt the following programming sequences at any time, press the SET and RADIO buttons simultaneously or wait 10 seconds.**

AUX USED AS SWITCHING FOR COURTESY LIGHT etc

If the AUX output is used as courtesy light for controlling the lamps, a relay **must be connected.**

The Aux output is maximum 15W. If higher consumption is required for courtesy light then you must use an external relay with a 24v coil and sufficient contact power supply

See paragraph 13.3 to choose the appropriate voltage for the relay.

ACTIVATION OF THE LIGHT THROUGH A DEDICATED TRANSMITTER BUTTON AND TIMER-BASED SWITCHING OFF:

- connect **a relay** and set the desired switch-on time for the light; (this can be done with the King Specialist APP only)
- set the AUX output on courtesy light (see Paragraph 13.1);
- set the monostable work mode (see Paragraph 13.3);
- programme the desired transmitter button for the light command (see Paragraph 13.1).

The light will switch on with the programmed transmitter and switch off after the time set on the relay elapses.

SWITCHING ON/OFF OF THE LIGHT THROUGH A DEDICATED TRANSMITTER BUTTON:

- connect as a **monostable relay;**
- set the AUX output on courtesy light (see Paragraph 13.2);
- set the bistable work mode, ON/OFF (see Paragraph 13.3);
- programme the desired transmitter button for the light command (see Paragraph 13.1).

The light switches on/off whenever the programmed transmitter is pressed.

ACTIVATION OF THE COURTESY LIGHT LINKED TO THE WIRED START INPUT OR TRANSMITTER

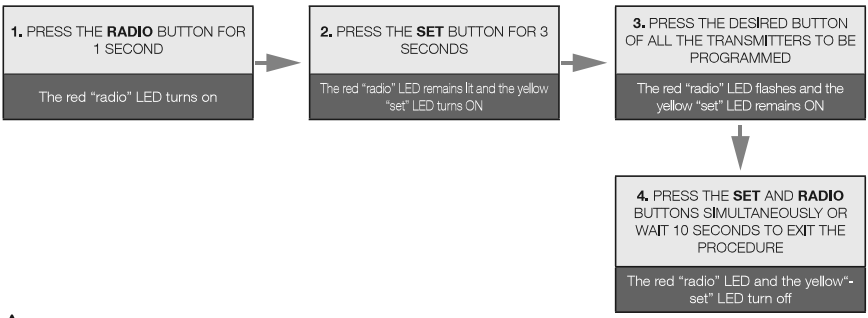
- connect as a **timer relay** and set the desired switch-on time for the light;
- set the AUX output as electric lock (see Paragraph 13.2);
- set the work mode as electric lock (see Paragraph 13.3);
- if desired, programme the transmitter button for the START command (see Paragraph 4.1).

At every wired or transmitter start command, the light will switch on for the set time.

13.1 - Programming of the button linked to the "AUX" output

This procedure allows for programming the button of the radio control linked to the "AUX" output (terminals 3-4).

To use this function, the AUX output must be set to courtesy light – see Paragraph 13.2.



⚠ **If, at the start of this procedure, the "set", "radio" and "start" LEDs flash, it means that the programming protection has been activated – see Paragraph 16.1.**

EN

13.2 - Selection of device connected to “AUX” output

Default = electric lock 12V

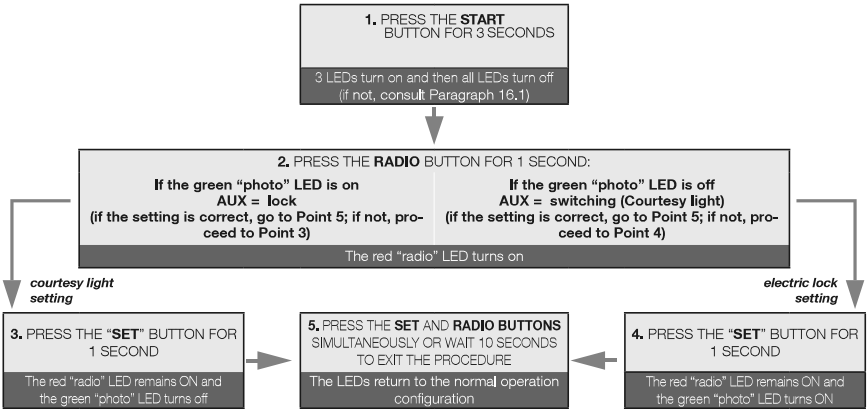
This procedure allows for setting the “AUX” output for the operation as:

ELECTRIC LOCK: the control unit closes the AUX contact (terminals 3-4) whenever a command is received.

By default the contact is closed for 2 seconds (electric lock mode). To change the work mode, see Paragraph 13.3.

COURTESY LIGHT: the control unit closes the AUX contact (terminal 3-4) whenever a radio command is received (the AUX button must be programmed – see Paragraph 13.1). By default the command is monostable. To change the work mode, see Paragraph 13.3.

⚠ **To control the AUX output when it has been set as a courtesy light output, you need to register a transmitter by following the procedure in paragraph 13.1 and connect a suitable relay.**

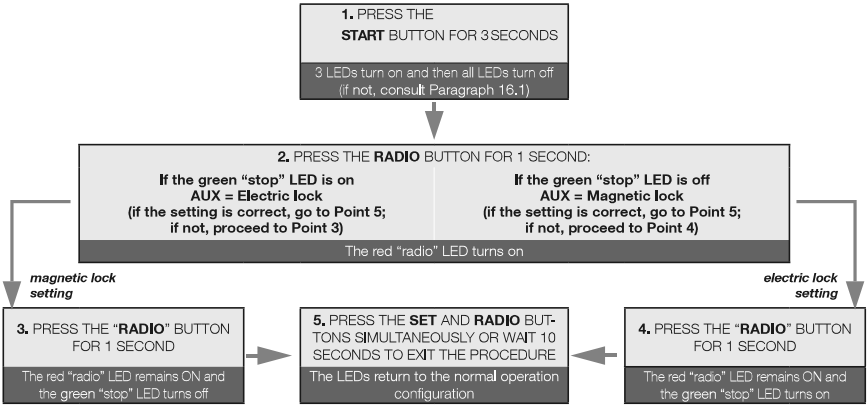


13.3 - Selection of “AUX” as lock output electric or magnetic

WHEN THE “AUX” OUTPUT IS SET AS LOCK (see Paragraph 13.1)

Default = electric lock

The work mode (i.e. how the contact behaves at every wired or radio START command) can be set as:
ELECTRIC LOCK: at every command, the control unit closes the contact for 2 seconds
MAGNETIC LOCK: the control unit closes the contact only when the automation is fully closed

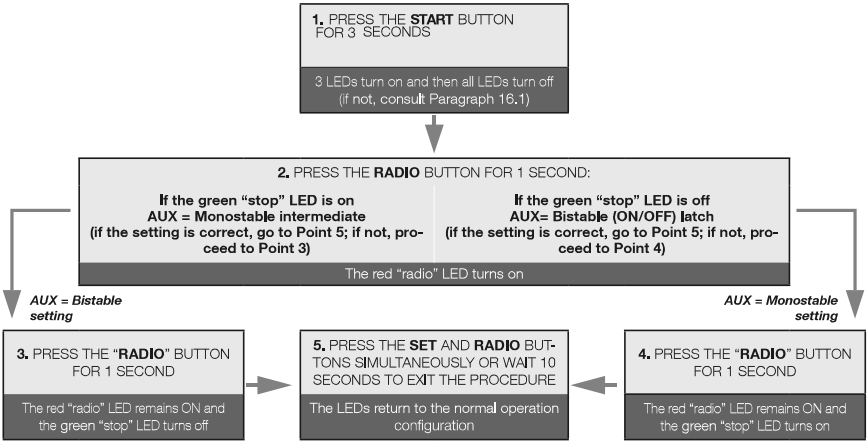


EN

IF THE "AUX" OUTPUT IS SET AS COURTESY LIGHT (see Paragraph 13.2)

Default = monostable

When a command is received from a transmitter pulse, it is possible to set the AUX contact work mode as:
MONOSTABLE: after every radio command, the control unit closes the contact for 3 seconds.
BISTABLE, ON/OFF: after every radio command, the control unit changes the status from open to closed.



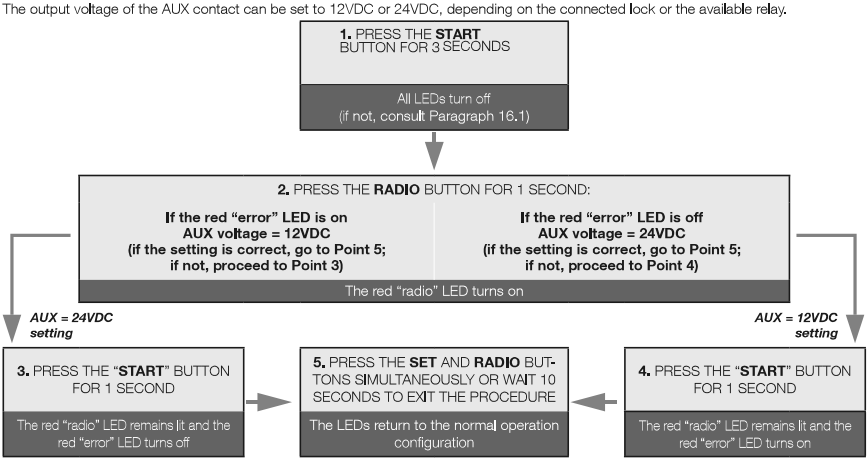
⚠ **To control the AUX contact set as courtesy light, a radio command must be registered through the procedure indicated in Paragraph 13.1 and connect a suitable relay (see paragraph 13).**

13.4 - Selection of "AUX" output voltage (only for STARG8 24)

STARG8 AC (FIXED VOLTAGE OF 12V AC)

STARG8 24: Default=12VDC

The output voltage of the AUX contact can be set to 12VDC or 24VDC, depending on the connected lock or the available relay.



14. Safety device advanced programming sequences

These programming sequences are not essential to the system's operation, but they allow for controlling the safety devices by activating the photo-test—when photocells are installed—or controlling the resistance when 8.2kOhm resistive edges are mounted.

⚠ **To interrupt the following programming sequences at any time, press the SET and RADIO buttons simultaneously or wait 10 seconds.**

14.1 - Photo-test activation/deactivation

Default = deactivated

The photo-test is a check aimed at verifying whether the 24VDC-powered photocells function properly.

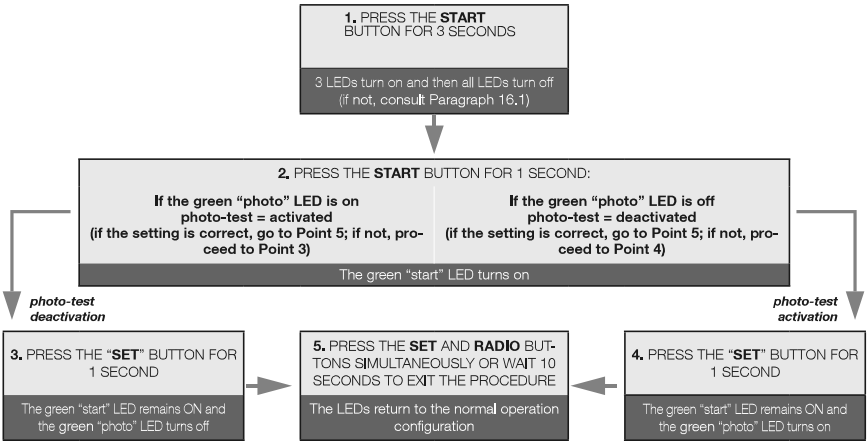
It consists in cutting off the power supply to the transmitter photocell (TX) from the control unit, while subsequently verifying that the contact (PHO1, or PHO1 and PHO2, depending on the settings in Paragraph 14.2) opens. Subsequently, the control unit restores the power supply to the transmitter photocell and verifies that the contact closes.

This occurs before each movement of the automation.

For the test to work, the photocells must be wired according to the following scheme:

+24V RX photocell = terminal 8

+24V TX photocell = terminal 9



⚠ **The photo-test can only work with photocells powered at 24VDC.**

⚠ **By default the phototest function works on both contacts "PHO1" and "PHO2". To set this test only on the contact "PHO1", please see paragraph 14.2.**

⚠ **By enabling the photocells test, you will lose the "gate status indicator" function (GSI).**

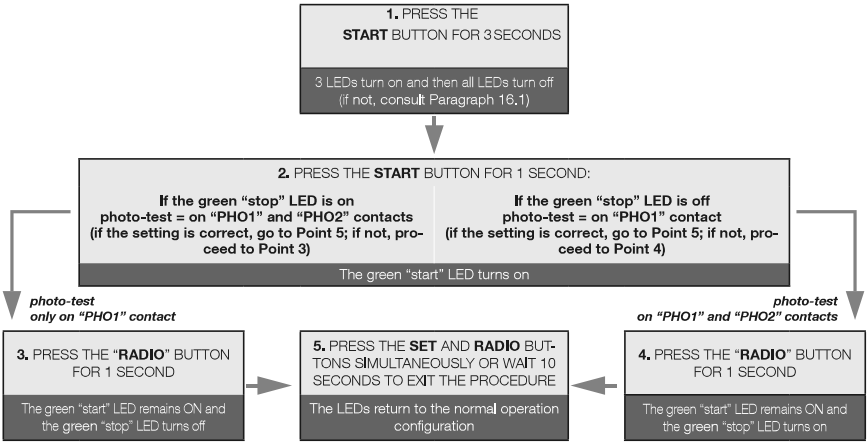
⚠ **If "PHO2" is set as safety edge (DIP 5 OFF) the phototest will only be active on contact "PHO1".**

EN

14.2 - Selection of the outputs linked to the photo-test

Default = PHO1 and PHO2 contacts (terminals 5-6)

With this procedure, it is possible to decide on which safety devices to carry out the photo-test.



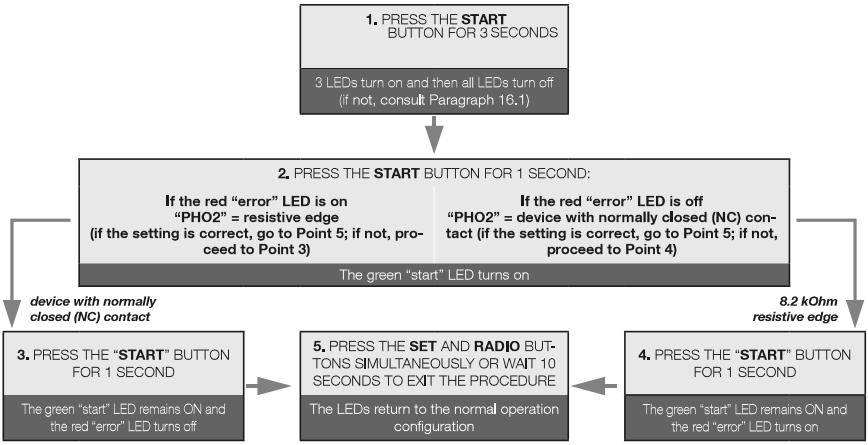
⚠ **The photo-test can only work with photocells powered at 24VDC.**

14.3 - Selection of the type of devices linked to "PHO2"

Default = "PHO2" set for devices with normally closed contact (terminal 6)

This procedure allows for setting the "PHO2" output for managing 8.2kOhm resistive edges.

The control unit constantly verifies the integrity of the edge by measuring the resistance between the two dedicated terminals.



⚠ **The connected edges must be of the resistive type with 8.2 kOhm.**

15. Setting the wired commands

EN

These programming sequences allow:
1) for locking wired commands, ONLY transmitters working
2) changing the wired commands start and pedestrian inputs to OPEN and CLOSE

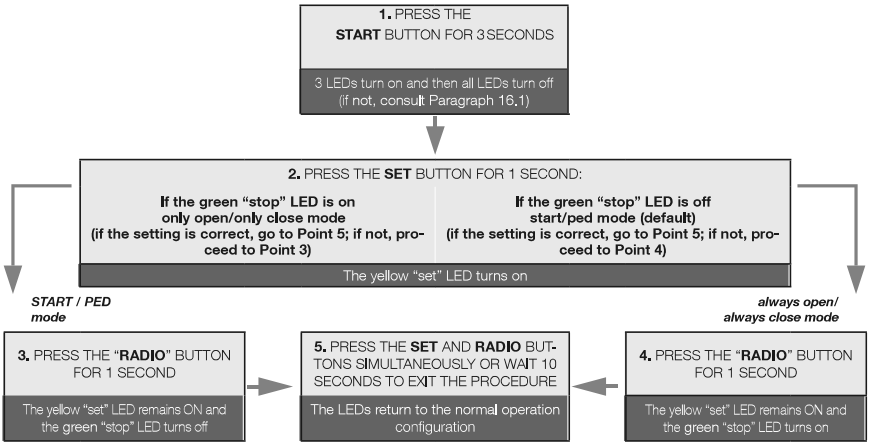
⚠ If, at the start of the following procedures, the "set", "radio" and "start" LEDs flash, it means that the programming protection has been activated – see Paragraph 16.1.

⚠ To interrupt the following programming sequences at any time, press the SET and RADIO buttons simultaneously or wait 10 seconds.

15.1 - Selecting the wired command modes

Default = "START" (terminal 15) function as per the setup of dip-switches 3.4.7 (see section 3.1) and "PED" is a partial opening command (termainal 18).

This programming changes the commands "START" become open only and "PED" becomes close only



⚠ For controlling the automation also via radio with separate open/close commands, an external radio receiver must be installed.

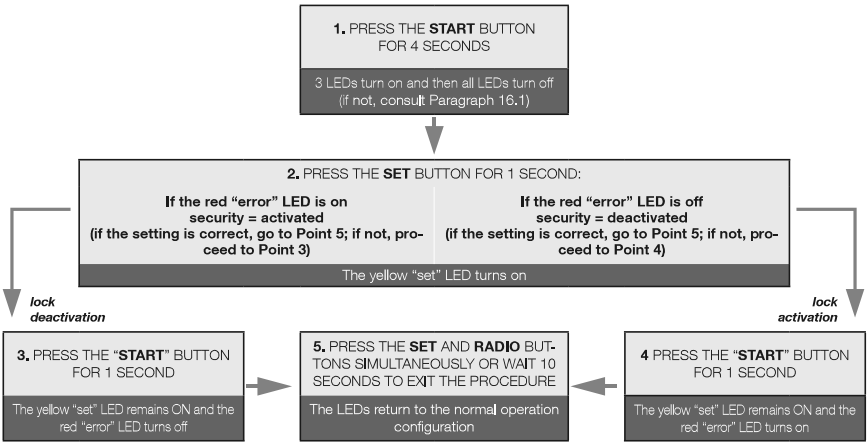
⚠ If you enable the mode "open / close", the dip STEP will affect only the radio commands.

EN

15.2 - Activating/deactivating start and pedestrian security mode

Default = wired start input and start button of the control unit are activated

This programming sequence allows for better security by disabling the operation of the "start" / "ped" wired input and the start button on the control unit. The control unit is now activated with the transmitter only.



⚠ If the security command lock is activated, any device connected to the "start" and "ped" contacts will not be detected by the control unit. When these contacts are closed, the green "start" LED will emit brief flashes.

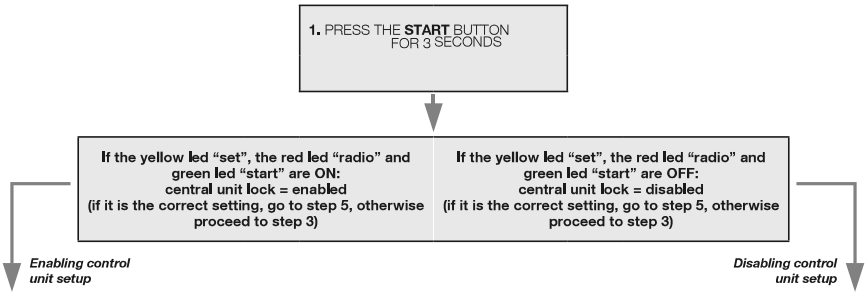
16. Other functions

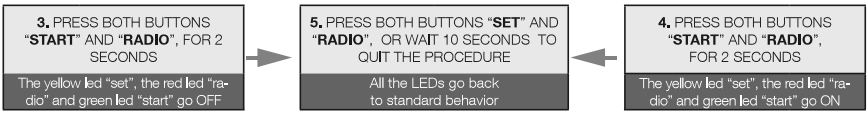
⚠ To interrupt the following programming sequences at any time, press the SET and RADIO buttons simultaneously or wait 10 seconds.

16.1 - Activating/deactivating the control unit protection device

Default = control unit protection device not active.

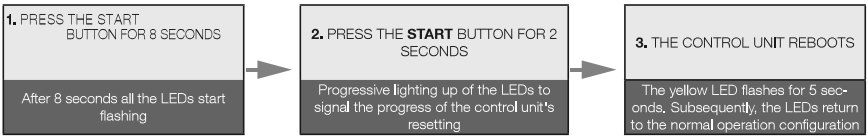
⚠ This programming sequence allows for locking all control unit programming sequences and the settings adjustable through the dip-switches. To perform a new programming sequence or make a dip-switch/trimmer modification effective, the protection must be deactivated.





16.2 - Resetting the control unit's default parameters

⚠ This procedure allows for restoring the control unit's parameters to their default values.
The procedure leaves the memorised radio transmitters unaltered. To reset the radio memory as well, see Paragraph 4.3.



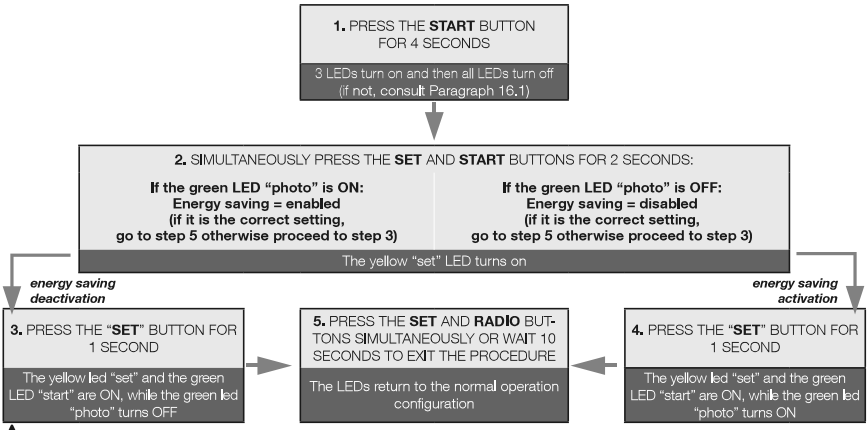
⚠ At the end of this procedure, the red LED "error" will flash 3 times periodically to indicate a new learning procedure is needed.

16.3 - Energy saving mode (only for STARG8 24)

This feature cuts the power supply to the photocells when the control unit is on standby, therefore it decreases the power consumption. It is useful in case of battery power supply conditions.

⚠ When the energy saving mode is activated, the open gate pilot light function is deactivated (Paragraph 8.7)

⚠ The energy saving mode can only be used with safety accessories powered with 24VDC.



⚠ Connection of accessories with the energy saving mode activated

Once the function is activated, it is necessary to connect the 24VDC positive pole of the safety accessories (for example: photocells) to terminal 9 "GSI".

The control devices (e.g.: receivers, spires or photocells connected to the Start contact) must be connected to terminal 8 "+VA".

⚠ If DIP-SWITCH 7 "fast" is put to ON, with the control unit open the accessories remain powered to retain the re-closing function.

⚠ If you activate the power saving mode all the LEDs will turn off after 2 minutes of stand-by

ISSTARG824_COMBO_rev9

Installer details

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