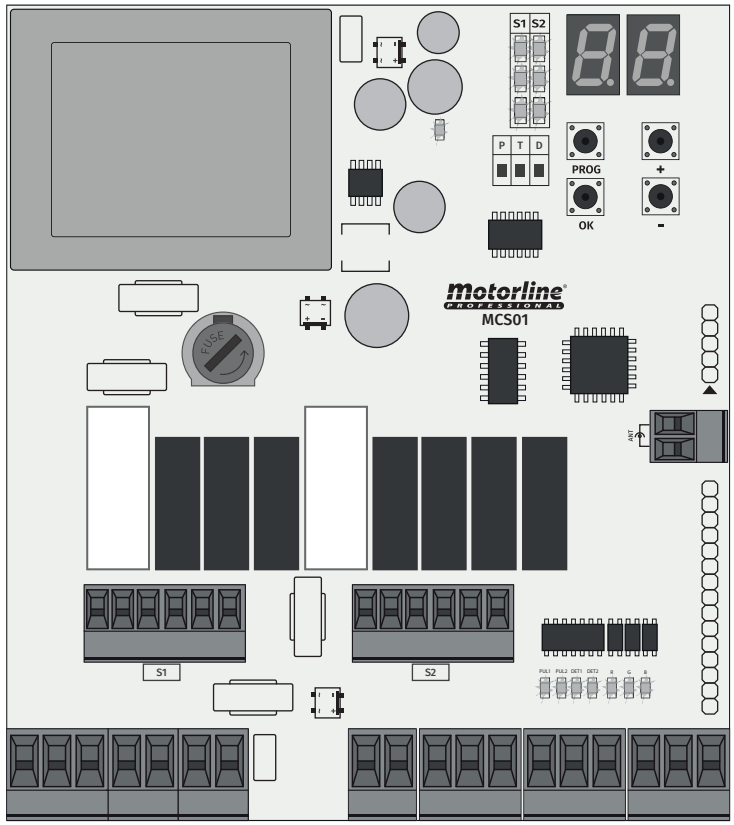
PORTUGAL

EN

MCS01

USER/INSTALLER MANUAL



Motorline®
PROFESSIONAL

v1.0
REV. 05/2021

00. CONTENT

INDEX

01. SAFETY INSTRUCTIONS 1B

02. THE PRODUCT

TECHNICAL SPECIFICATIONS 4A
LEDs | BUTTONS | CONNECTORS 4B
CONNECTIONS 4B
PROGRAMMING MODE 5A
FUNCTIONS CHART 5B

03. CONFIGURATION

CONNECTIONS SCHEME 6
FUNCTIONS 7B
GREEN COLOR TIME SET OF THE TRAFFIC LIGHT 1 7B
YELLOW COLOR TIME SETTING OF THE TRAFFIC LIGHT 1 7B
RED COLOR TIME SETTING OF THE TRAFFIC LIGHT 1 7B
GREEN COLOR TIME SET OF THE TRAFFIC LIGHT 2 7B
YELLOW COLOR TIME SETTING OF THE TRAFFIC LIGHT 2 7B
RED COLOR TIME SETTING OF THE TRAFFIC LIGHT 2 8A
SET THE INITIAL COLOR OF THE TRAFFIC 1 8A
SET THE INITIAL COLOR OF THE TRAFFIC 2 8A
TIME SETTING IF THERE IS NO ACTIVITY 8A
DET 1 TIME SETTING 8A
DET 2 TIME SETTING 8B
SET PUL 1 AND PUL 2 8B
SET DET 1 AND DET 2 8B
FLASHING TIME SETTING OF THE TRAFFIC LIGHT 1 GREEN COLOR 8B
FLASHING TIME SETTING OF THE TRAFFIC LIGHT 2 GREEN COLOR 8B
DEFINE MAXIMUM VEHICLE CAPACITY 9A
MANUALLY ALTERATION OF THE CURRENT AMOUNT OF VEHICLES 9A
RESET TO FACTORY VALUES 9A
USING WITH PUSH BUTTONS 9A
USING SIMPLE DETECTION MODE WITH PUFF AND DET 9A
PROGRAMMING A REMOTE CONTROL 9A
REMOVE ALL REMOTE CONTROLS 9B
USING RGB INPUTS 9B
SET TIME TO PERFORM DETECTION AFTER USING REMOTE CONTROL 9B
OPERATING MODES 9B
DETECTION METHODS 10B
OPERATION EXAMPLES 12A
CONTROL VIA EXTERNAL BOARDS 12B

01. SAFETY INSTRUCTIONS

ATTENTION:

CE	This product is certified in accordance with European Community (EC) safety standards.
RoHS	This product complies with Directive 2011/65/EU of the European Parliament and of the Council, of 8 June 2011, on the restriction of the use of certain hazardous substances in electrical and electronic equipment and with Delegated Directive (EU) 2015/863 from Commission.
 	(Applicable in countries with recycling systems). This marking on the product or literature indicates that the product and electronic accessories (eg. Charger, USB cable, electronic material, controls, etc.) should not be disposed of as other household waste at the end of its useful life. To avoid possible harm to the environment or human health resulting from the uncontrolled disposal of waste, separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources. Home users should contact the dealer where they purchased this product or the National Environment Agency for details on where and how they can take these items for environmentally safe recycling. Business users should contact their vendor and check the terms and conditions of the purchase agreement. This product and its electronic accessories should not be mixed with other commercial waste.
	This marking indicates that the product and electronic accessories (eg. charger, USB cable, electronic material, controls, etc.) are susceptible to electric shock by direct or indirect contact with electricity. Be cautious when handling the product and observe all safety procedures in this manual.

01. SAFETY INSTRUCTIONS

GENERAL WARNINGS

- This manual contains very important safety and usage information. very important. Read all instructions carefully before beginning the installation/usage procedures and keep this manual in a safe place that it can be consulted whenever necessary.
- This product is intended for use only as described in this manual. Any other enforcement or operation that is not mentioned is expressly prohibited, as it may damage the product and put people at risk causing serious injuries.
- This manual is intended firstly for specialized technicians, and does not invalidate the user's responsibility to read the "User Norms" section in order to ensure the correct functioning of the product.
- The installation and repair of this product may be done by qualified and specialized technicians, to assure every procedure are carried out in accordance with applicable rules and norms. Nonprofessional and inexperienced users are expressly prohibited of taking any action, unless explicitly requested by specialized technicians to do so.
- Installations must be frequently inspected for unbalance and the wear signals of the cables, springs, hinges, wheels, supports and other mechanical assembly parts.
- Do not use the product if it is necessary repair or adjustment is required.
- When performing maintenance, cleaning and replacement of parts, the product must be disconnected from power supply. Also including any operation that requires opening the product cover.
- The use, cleaning and maintenance of this product may be carried out by any persons aged eight years old and over and persons whose physical, sensorial or mental capacities are lower, or by persons without any knowledge of the product, provided that these are supervision and instructions given by persons with experienced in terms of usage of the product in a safe manner and who understands the risks and dangers involved.
- Children shouldn't play with the product or opening devices to avoid the motorized door or gate from being triggered involuntarily.

WARNINGS FOR TECHNICIANS

- Before beginning the installation procedures, make sure that you have all the devices and materials necessary to complete the installation of the product.
- You should note your Protection Index (IP) and operating temperature to ensure that is suitable for the installation site.
- Provide the manual of the product to the user and let them know how to handle it in an emergency.
- If the automatism is installed on a gate with a pedestrian door, a door locking mechanism must be installed while the gate is in motion.
- Do not install the product "upside down" or supported by elements do not support its weight. If necessary, add brackets at strategic points to ensure the safety of the automatism.
- Do not install the product in explosive site.
- Safety devices must protect the possible crushing, cutting, transport and danger areas of the motorized door or gate.
- Verify that the elements to be automated (gates, door, windows, blinds, etc.) are in perfect function, aligned and level. Also verify if the necessary mechanical stops are in the appropriate places.
- The central must be installed on a safe place of any fluid (rain, moisture, etc.), dust and pests.
- You must route the various electrical cables through protective tubes, to protect them against mechanical exertions, essentially on the power supply cable. Please note that all the cables must enter the central from the bottom.
- If the automatism is to be installed at a height of more than 2,5m from the ground or other level of access, the minimum safety and health requirements for the use of work equipment workers at the work of Directive 2009/104/CE of European Parliament and of the Council of 16 September 2009.

01. SAFETY INSTRUCTIONS

- Attach the permanent label for the manual release as close as possible to the release mechanism.
- Disconnect means, such as a switch or circuit breaker on the electrical panel, must be provided on the product's fixed power supply leads in accordance with the installation rules.
- If the product to be installed requires power supply of 230Vac or 110Vac, ensure that connection is to an electrical panel with ground connection.
- The product is only powered by low voltage satefy with central (only at 24V motors)

WARNINGS FOR USERS

- Keep this manual in a safe place to be consulted whenever necessary.
- If the product has contact with fluids without being prepared, it must immediately disconnect from the power supply to avoid short circuits, and consult a specialized technician.
- Ensure that technician has provided you the product manual and informed you how to handle the product in an emergency.
- If the system requires any repair or modification, unlock the automatism, turn off the power and do not use it until all safety conditions have been met.
- In the event of tripping of circuits breakers of fuse failure, locate the malfunction and solve it before resetting the circuit breaker or replacing the fuse. If the malfunction is not repairable by consult this manual, contact a technician.
- Keep the operation area of the motorized gate free while the gate in in motion, and do not create strength to the gate movement.
- Do not perform any operation on mechanical elements or hinges if the product is in motion.

RESPONSABILITY

- Supplier disclaims any liability if:
  - Product failure or deformation result from improper installation use or maintenance!
- Safety norms are not followed in the installation, use and maintenance of the product.
- Instructions in this manual are not followed.
- Damaged is caused by unauthorized modifications
- In these cases, the warranty is voided.

SYMBOLS LEGEND:


- Important safety notices


- Useful information


- Programming information


- Potentiometer information


- Connectors information

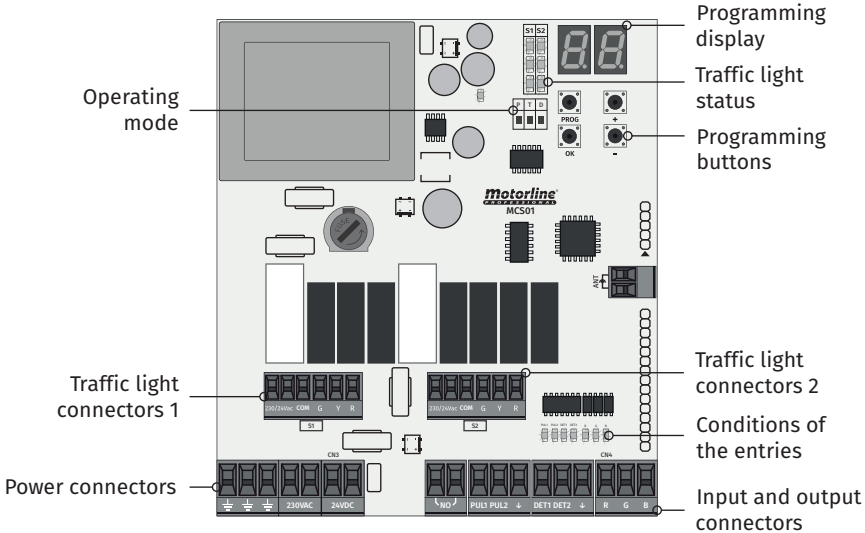

- Buttons information

TECHNICAL SPECIFICATIONS

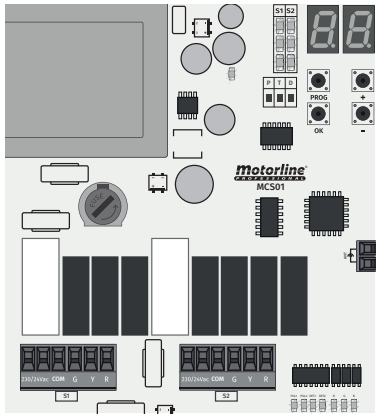
MCS01 is a module it allows to control 2 traffic lights of 2 or 3 colors, the perfect solution for places with excessive traffic, places with poor visibility, garages with entry and exit through the same access, two-way parking ramps, access to companies with bidirectional barriers, bridges and rustic accesses, roads in works with a single traffic lane, all situations where it is necessary to regulate the movement of vehicles.

It allows the configuration of four operating modes:
Park Mode - The change of lights is carried out through detectors and is able to store the number of vehicles that have entered a park up to a maximum of 99;
Timer Mode - The change of lights is performed in timed manner;
Detector mode - The change of lights is carried out through detectors.

• Power supply	230Vac 50-60Hz, 24Vac/dc
• Traffic lights power supply	230Vac, 24 Vac (independent of the board power)
• Traffic light maximum power	500W
• Number of traffic lights	2 traffic lights - possibility to use 2 or 3 colors
• Dimensions	105 x130 x 35mm
• Operating temperature	-25°C ~ 55°C
• Built-in RF receiver	433,92MHz
• Code types	Rolling Code
• Vertical fuse	0,315mA
• Horizontal fuse	2A



LEDs | BUTTONS | CONNECTORS



LED LEGEND
S1 • 3 LEDs Traffic light 1 (indicate the status of traffic light 1)
S2 • 3 LEDs Traffic light 2 (indicate the status of traffic light 2)
P • "Park" mode active
T • Motor "Timer" active
D • "Detector" mode active

BUTTONS LEGEND
+/- • Used to browse through the menus and select the desired values.
OK • Used to enter the submenus and save the settings.
PROG. • Used to reset/cancel the settings, exit the operating mode and return to the menu.

CONNECTOR'S DESCRIPTION

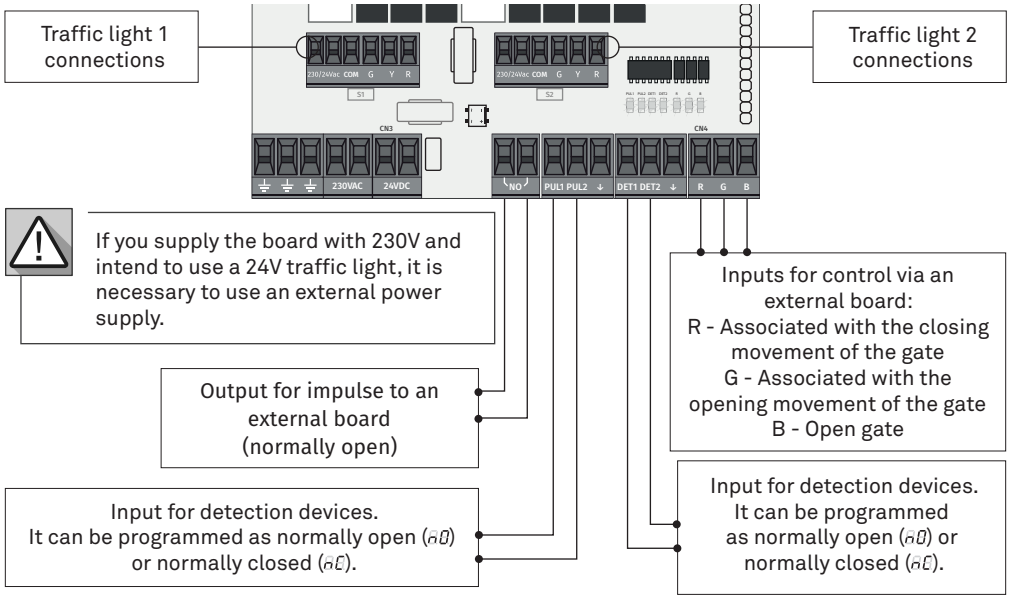
Traffic light connectors 1	**G**	Green color output
	Y	Yellow color output
	R	Red color output
	C	Common Line (COM)
	230/24Vac	Input Power Supply

Traffic light connectors 2	**G**	Green color output
	Y	Yellow color output
	R	Red color output
	C	Common Line (COM)
	230/24Vac	Input Power Supply

Power, input and output connectors	⏚	Grounding connection
	230Vac	230V Power Supply
	24Vdc/ac	24V Power Supply
	NO	Output for impulse to an external board (normally open)
	PUL 1	Input for detection devices - traffic light 1
	PUL 2	Input for detection devices - traffic light 2
	↓	Common of inputs
	DET 1	Input for detection devices - traffic light 1
	DET 2	Input for detection devices - traffic light 2
	RGB	Input for color control via an external board. R - "closing" condition, G - "opening" condition, B - "open" condition. Need to connect to board's common
ANT	Antenna and protection	

02. THE PRODUCT

CONNECTIONS



PROGRAMMING MODE

The Programming Mode allows the configuration of all parameters related to the functioning of the devices.

NAVIGATION IN PROGRAMMING MODE

01 • When connecting on the control board, entered in programming mode.
02 • Use + and - to cycle through the menus nA, nC, nL and nH.
03 • Press **OK** to access the selected menu.
04 • Use + and - to cycle through the submenus.
05 • Press **OK** to access the selected submenu.
06 • Use + and - to cycle through the options.
07 • Press **OK** to set the selected option.

FUNCTION CHART

MENU	MAX. MIN. PROGRAMMABLE	STATUS		FACTORY VALUE
nA	-	A0	Return to the main menu	-
	min. 0s – 99s max.	A1	Adjust time of the green color - traffic light 1	20s
		A2	Adjust time of the yellow color - traffic light 1	0s
		A3	Adjust time of the red color - traffic light 1	20s

03. CONFIGURATION

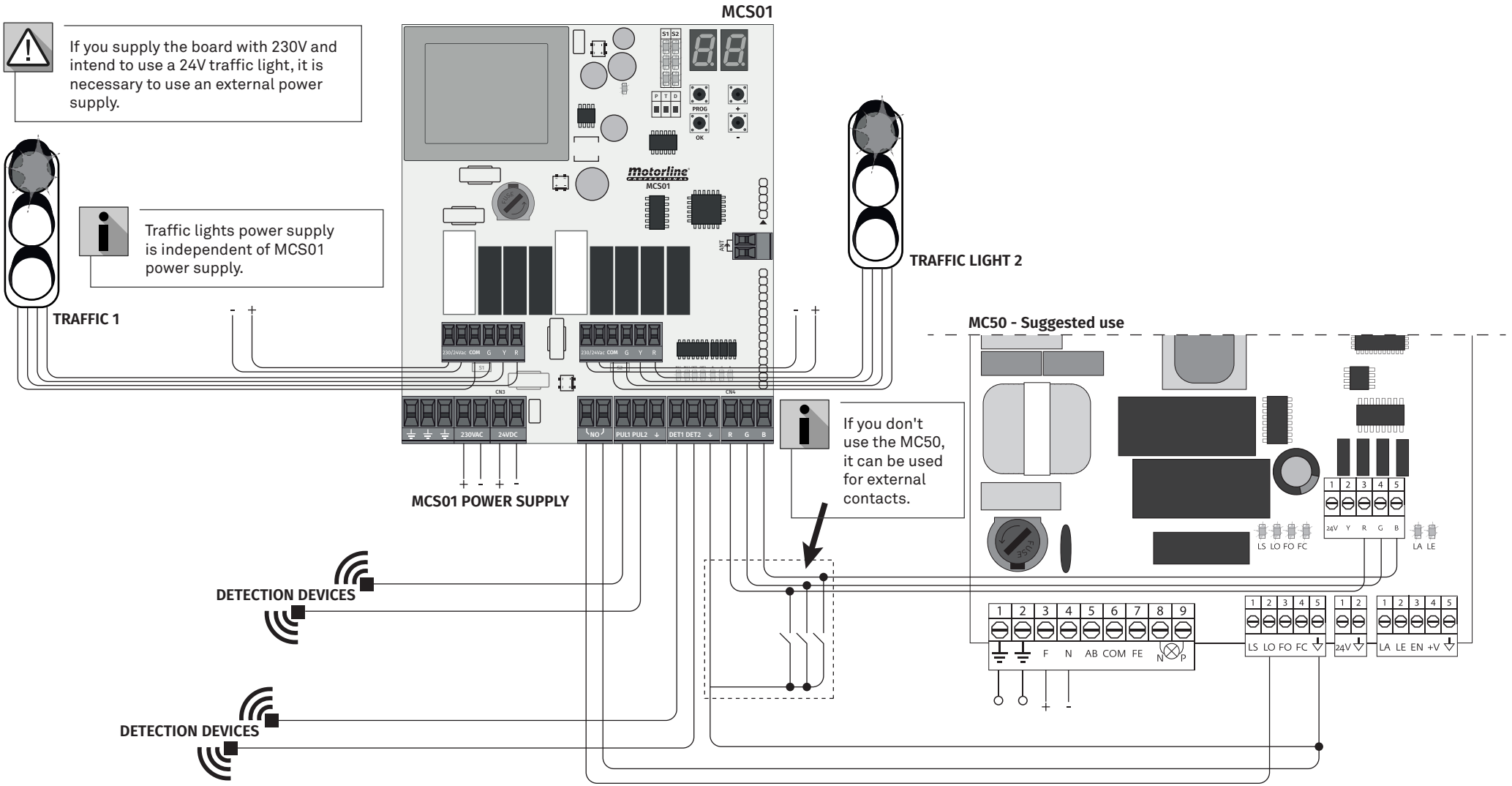
FUNCTION CHART

MENU	MAX. MIN. PROGRAMMABLE	STATUS		FACTORY VALUE
nA	min. 0s – 99s max.	A4	Adjust time of the green color - traffic light 2	20s
		A5	Adjust time of the yellow color - traffic light 2	0s
		A6	Adjust time of the red color - traffic light 2	20s
	-	A7	Set the initial color of traffic light 1 (green or red)	-
	-	A8	Set the initial color of traffic light 2 (green or red)	-
	15m 30m 45m 60m	A9	Time adjustment if there is no activity	0m
nC	-	C0	Return to the main menu	-
	-	C1	Set time to validate a detection in "single detection" mode or set the time to pass the second detector after the first detection in "double detection" mode - DET1	0s
	-	C2	Set time to validate a detection in "single detection" mode or set the time to pass the second detector after the first detection in "double detection" mode - DET2	0s
	min. 0s – 99s max.	C3	Set PUL1 and PUL2 - normally open (nO) and normally closed (nC)	0
		C4	Set DET1 and DET2 - normally open (nO) and normally closed (nC)	0
		C5	Set the time for the green color of traffic light 1 to flash	0s
		C6	Set the time for the green color of traffic light 2 to flash	0s
	0 ~ 99	C7	Maximum vehicles capacity within a park	0
	0 ~99	C8	Change the number of vehicles within a park manually	0
	-	C9	Reset to factory settings	0
nL	-	L0	Return to the main menu	-
	-	L1	Using with push buttons	0
	-	L2	Using simple detection mode with PUFF and DET	0
	-	L3	Programming a remote control	0
	-	L4	Remove all remote controls	0
	-	L5	Using RGB inputs	0
	-	L6	Set time to perform detection after using command	0
nH	-	H0	Return to the main menu	0
	-	H1	Park Mode	0
	-	H2	Timer Mode	0
	-	H3	Detector mode	0

* All values are limited to a maximum value of 99.

03. CONFIGURATION

CONNECTIONS SCHEME



FUNCTIONS

The MCS01 module works with two or three color traffic lights. Allows you to choose the polarities of the inputs (A0 or AC), if you want them to be supplied independently of the board's supply with 230Vac or 24Vac / dc to allow the use of high or low voltage lamps.

For traffic lights be in tune, access the submenus A7 and A8 and set the initial color of each traffic light.

FUNCITONS A7 AND A8
Use the + button to define the starting color of traffic light 1 (S1) and traffic light 2 (S2).

This setting is mandatory for the Timer and Detector operating modes, unless the purpose is to work as a simple rotating traffic light.

To configure the operating mode, access the submenus C3 and C4.
Note • The PUL and DET inputs have no factory settings.

FUNCITONS C3 AND C4
Use the **+** and **-** to set the desired parameter:
00 • Not configured.
NO • Normally open.
NC • Normally closed.

This configuration is mandatory for the operating modes, except if the objective is to work as a simple rotating traffic light.

If you want a detection mode of operation, with only the DET inputs programmed or double detection with time between the 2 inputs, you must configure the required detection time for the DET inputs.
Access the initial menu AC and the submenus C1 (associated with DET1) and C2 (associated with DET2) and put at least 1 second.

In order to be able to select an operating mode, all parameters for that specific mode must be programmed. It is not necessary to program all options in general.
If the programming is not carried out successfully, you will not be able to choose any of the programs.

In the C9 of AC menu option, it is possible to reset the card and set all values to 0 (except the programmed RF coats).

All settings can be changed at any time. Once stored in the system, even if there is a power failure, it does not lose the settings it has changed and continues to function based on them, as soon as the board is switched on.

A1 GREEN COLOR TIME SET OF THE TRAFFIC LIGHT 1

This menu allows to configure the time that the green color of traffic light 1 will be ON during its operation.

To use the Timer mode, you need to configure this option, except if the L5 is active.

PROGRAMMABLE VALUES
0s → 99s

A2 YELLOW COLOR TIME SETTING OF THE TRAFFIC LIGHT 1

This menu allows to configure the time that the red color of traffic light 1 will be ON during its operation.

Yellow (3-color traffic light) is optional. To activate it, use one of the programmable values (minimum 1 second).

PROGRAMMABLE VALUES
0s → 99s

A3 RED COLOR TIME SETTING OF THE TRAFFIC LIGHT 1

This menu allows to configure the time that the red color of traffic light 1 will be ON during its operation.

To use the Timer mode, you need to configure this option, except if the L5 is active.

PROGRAMMABLE VALUES
0s → 99s

A4 GREEN COLOR TIME SET OF THE TRAFFIC LIGHT 2

This menu allows to configure the time that the green color of traffic light 2 will be ON during its operation.

To use the Timer mode, you need to configure this option, except if the L5 is active.

PROGRAMMABLE VALUES
0s → 99s

A5 YELLOW COLOR TIME SETTING OF THE TRAFFIC LIGHT 2

This menu allows to configure the time that the yellow color of traffic light 2 (3-color traffic light) will be ON, during its operation.

Yellow (3-color traffic light) is optional. To activate it, use one of the programmable values (minimum 1 second).

PROGRAMMABLE VALUES
0s → 99s

A6 RED COLOR TIME SETTING OF THE TRAFFIC LIGHT 2

This menu allows to configure the time that the red color of traffic light 2 will be on, during its operation.

To use the Timer mode, you need to configure this option, except if the L5 is active.

PROGRAMMABLE VALUES
0s → 99s

A7 SET THE INITIAL COLOR OF THE TRAFFIC 1

This menu allows to configure the initial color (green or red) that you want for traffic light 1.

To use the Timer or Detector mode, you need to configure this menu.

PROGRAMMABLE VALUES
green → red

A8 SET THE INITIAL COLOR OF THE TRAFFIC 2

This menu allows to configure the starting color you want for traffic light 2, you can choose between green or red.

To use the Timer or Detector mode, you need to configure this menu.

PROGRAMMABLE VALUES
green → red

A9 TIME SETTING IF THERE IS NO ACTIVITY

This menu allows you to configure the time that traffic lights are OFF if there is no activity until a new detection is made or a button is pressed.

It does not work in Parking mode.

PROGRAMMABLE VALUES
15 → 30 → 45→ 60min

C1 DET 1 TIME SETTING

This menu allows to configure the time that DET1 has to be blocked to validate a detection. The double detection setting (DET and PUL) will determine the time you have to activate the PUL1 input after passing DET1.

Configure the DET1 time setting only if you want to use the DET or dual detection inputs with time.

PROGRAMMABLE VALUES
0s → 99s

C2 DET 2 TIME SETTING

This menu allows to configure the time that DET2 has to be blocked to validate a detection. The double detection setting (DET and PUL) will determine the time you have to activate the PUL2 input after passing DET2.

Configure the DET2 time setting only if you want to use the DET or dual detection inputs with time.

PROGRAMMABLE VALUES
0s → 99s

C3 SET PUL1 AND PUL2

This menu allows to configure **PUL1** and **PUL2** as normally open (nO) or normally closed (nC).

If you don't want to use PUL ignore this option or set 00 to delete any previously defined definition.

PROGRAMMABLE VALUES
00 → nO → nC

C4 SET DET1 AND DET2

This menu allows to configure **DET1** and **DET2** as normally open (nO) or normally closed (nC).

If you don't want to use DET ignore this option or set 00 to delete any previously defined definition.

PROGRAMMABLE VALUES
00 → nO → nC

C5 FLASHING TIME SETTING OF THE TRAFFIC LIGHT 1 GREEN COLOR

This menu allows to configure the time that the flashing green color (replacing the yellow color) of traffic light 1 will be on during its operation.

To use in Timer mode, you need to set the desired time. For other modes, you only need to set it to 1.
Ignore this menu if you use yellow color or don't want the green light to flash.

PROGRAMMABLE VALUES
0s → 99s

C6 SETTING THE GREEN COLOR OF THE TRAFFIC LIGHT 2 FLASHING

This menu allows to configure the time that the flashing green color of traffic light 2 will be on during its operation.

To use in Timer mode, you need to set the desired time. For other modes, you only need to set it to 1.
Ignore this menu if you use yellow color or don't want the green light to flash.

PROGRAMMABLE VALUES
0s → 99s

07 DEFINE MAXIMUM VEHICLE CAPACITY

This menu allows to configure the maximum vehicle capacity inside the park.

Mandatory for the Parking operating mode.

PROGRAMMABLE VALUES
0s → 99

08 MANUALLY ALTERATION OF THE CURRENT AMOUNT OF VEHICLES

This menu allows to manually change the number of vehicles within a park, in real time, in case of errors caused by false detections or other external factors.

PROGRAMMABLE VALUES
0 → 99

09 RESET TO FACTORY VALUES

This menu allows to reset to factory values, eliminating all previously programmed settings.

The display flashes once 00, indicating that the reset was successful.

0A USING WITH PUSH BUTTONS

This menu allows you to configure the detection of new vehicles.
Example: If there is a detection in PUL1 while timing a triggered input in PUL2, the cycle of PUL2 will continue and, once it is finished, the cycle of PUL1 starts.

PROGRAMMABLE VALUES
00 → On

0C USING SIMPLE DETECTION MODE WITH PUFF AND DET

This menu allows to configure the PUL1 and PUL2 inputs as detectors (as well as the DET1 and DET2 inputs).

For use in Detector mode only.

PROGRAMMABLE VALUES
00 → On

0B PROGRAMMING A REMOTE CONTROL

This menu allows you to program a remote control (programming a RF remote control):
01 • Access this menu.
02 • Press the OK button. It will appear AA on the display.
03 • Press one of the buttons on the remote control to save.
04 • Will appear 03 on the display. Repeat the process to store more remote controllers.

04 REMOVE ALL REMOTE CONTROLS

This menu allows you to delete all programmed remote controls.
After accessing, press OK, AA it flashes, indicating that all remote controls have been removed.

05 USING RGB INPUTS

This menu allows to define the use of RGB inputs, to determine the color of each traffic light.

PROGRAMMABLE VALUES
00 → On

06 SET TIME TO PERFORM DETECTION AFTER USING REMOTE CONTROL

This menu allows to program the time to activate a detector, after using the remote control.

If there is no detection during the defined time, nothing happens to the state of the gate.

PROGRAMMABLE VALUES
0 → 99

OPERATING MODES

After programming the card, to activate one of the operating modes, select one of the following options:

H1 PARKING MODE

The "parking" feature will allow the user to define a number of vehicles that can enter in a certain direction, with the traffic light turning red when that number is reached. The system will count vehicles using detection methods. For this, one of these methods must be chosen and programmed, as well as its proper installation.

Traffic light 1 (S1) will be the indicator that the car park is full, as well as signaling whether circulation is allowed towards the entrance. To do this, it must be left outside. Traffic light 2 (S2) will only serve as an indication that it is possible or not to travel in the exit direction. To do this, it must be left inside the park.
In this operating mode, both traffic lights are green by default to signal that it is possible to drive in both directions.
It is possible to send a signal to open and close a gate.

In this operating mode, the LED lights up red under the letter "P".

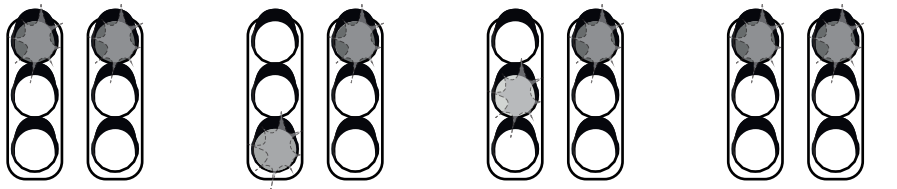
H2 TIMER MODE

The "timer" feature will allow the user to define the time that each light must remain active to regulate, through time, the circulation in a bidirectional way. The system will count the programmed time, in a sequenced way, to make the regulation and, through the use of one of the detection methods, it will be possible to know which sequence to perform to give access in that direction. If no detection method is programmed, the system will function as a continuous rotating traffic light.

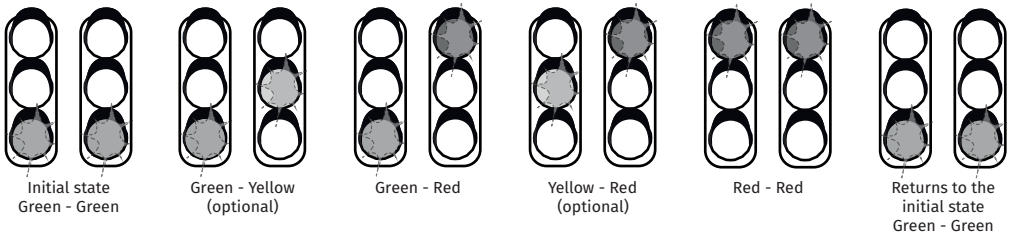
OPERATING MODES

In this operating mode, it is possible to choose the colors that each traffic light should have in a resting situation. It is also possible to send an impulse to indicate an opening signal at the gate, as well as to control the colors of the traffic light through an external plate with RGB outputs that will allow you to know the state of the gate at all times.

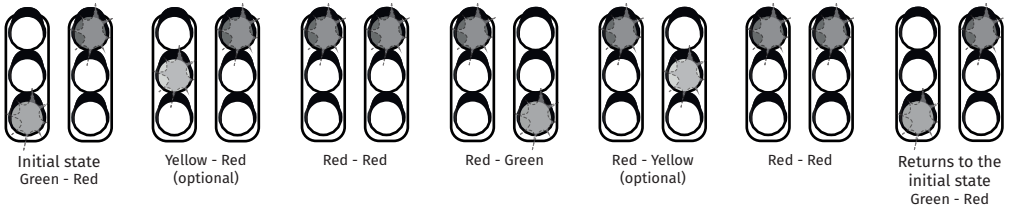
OPERATION WITH BOTH TRAFFIC LIGHTS STARTING IN RED



OPERATION WITH BOTH TRAFFIC LIGHTS STARTING IN GREEN



METHOD OF OPERATION FOR TRAFFIC LIGHTS WITH ALTERNATING COLORS



In this operating mode, the LED will light red under the letter "T".
The configuration of the traffic lights to be off after a while without any interaction is present in this operating mode, except if it is operating with a simple rotating traffic light.

OPERATING MODES

H3 DETECTOR MODE

The "detector" feature will allow changing the status of traffic lights through detection. The system will count vehicles passing at the beginning of a road, using previously programmed detection methods, so that traffic lights will only return to the initial state when the detectors at the end of the road recognize the same number of vehicles that passed on the start.

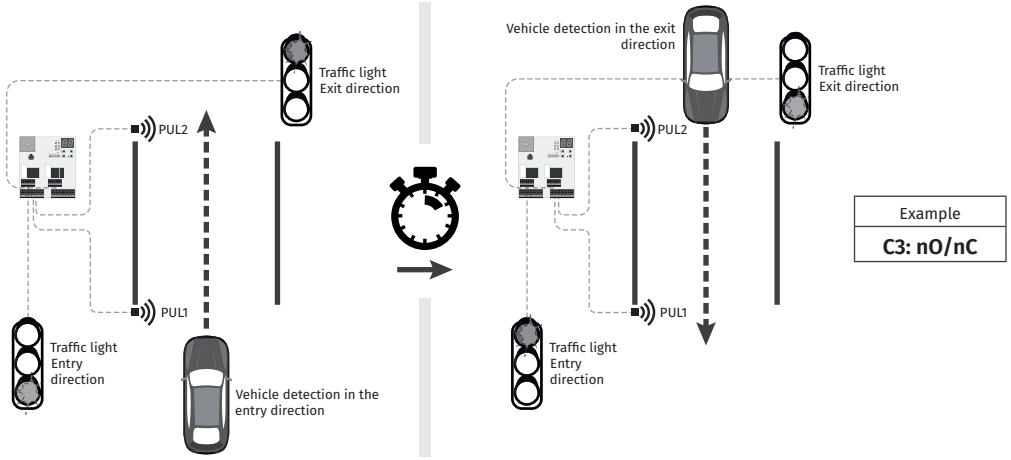
In this operating mode, it is possible to choose the colors that each traffic light should have in a resting situation. It is also possible to send an impulse to indicate an opening signal at the gate, after the first detection and subsequently an impulse to close the gate, when the exit of the last vehicle from the track is detected.

In this operating mode, the LED will light red under the letter "T".
The configuration of the traffic lights to be off after a while without any interaction is present in this operating mode.

DETECTION METHODS

You can find working examples of the detection methods on pages 12A and 12B.

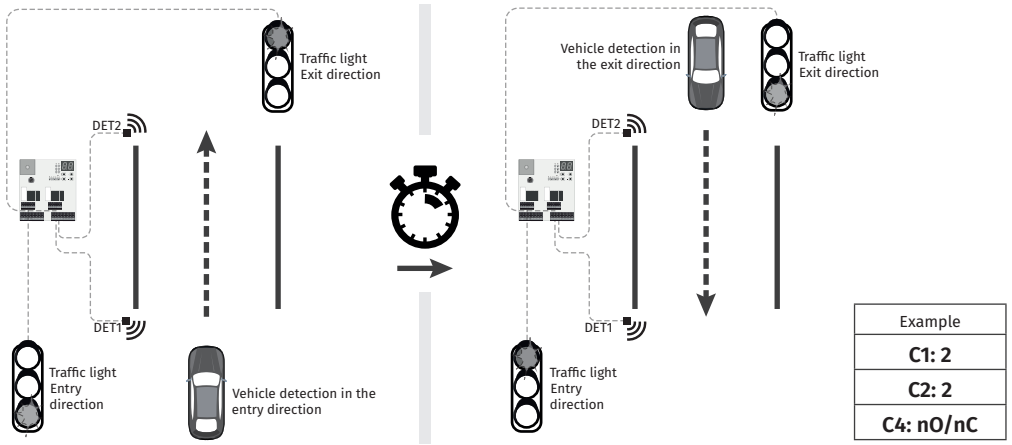
Detection only with PUL inputs: The vehicle will be detected at the exact moment that the entry status changes.
To use only the PUL inputs, it is necessary to program the "C3" to define whether it will be a normally open or normally closed entrance.



03. CONFIGURATION

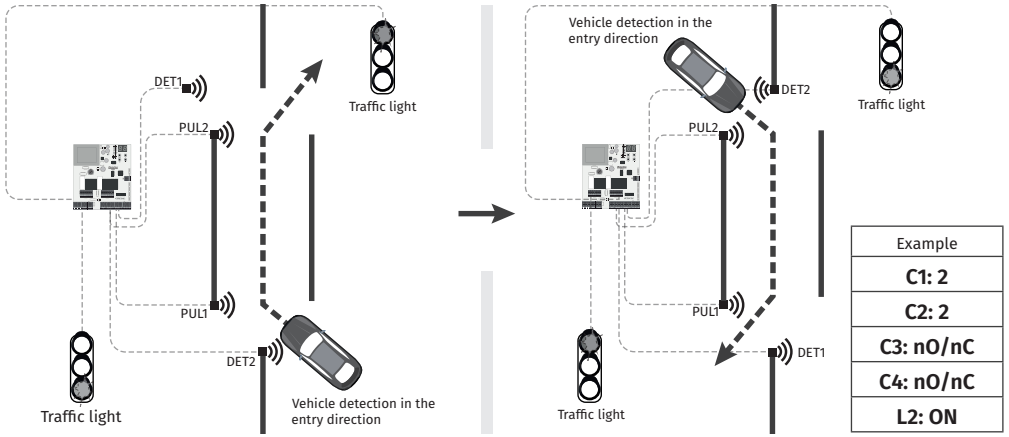
DETECTION METHODS

Detection only with DET inputs: The vehicle will be detected only when the entry status is changed for the seconds configured in "C1" and "C2". This time allows to prevent false detections, such as the passage of pedestrians on the road.
To use only DET inputs, it is necessary to program "C4" to define whether it will be a normally open or normally closed input as well as "C1" and "C2" to configure the time the input state is changed.



Example
C1: 2
C2: 2
C4: nO/nC

Detection with PUL and DET inputs (Detector operating mode only): Detections on the road will be carried out via the DET inputs and the outputs via the PUL inputs. This detection mode will allow you to have two different inputs and two outputs that at a given moment share a bidirectional path. To use this detection mode, the programming of the option "C3" and "C4" is necessary to define whether it will be a normally open or normally closed input, the programming of the option "C1" and "C2" to configure the time that the status of input is changed as well as putting "L2" to "ON".

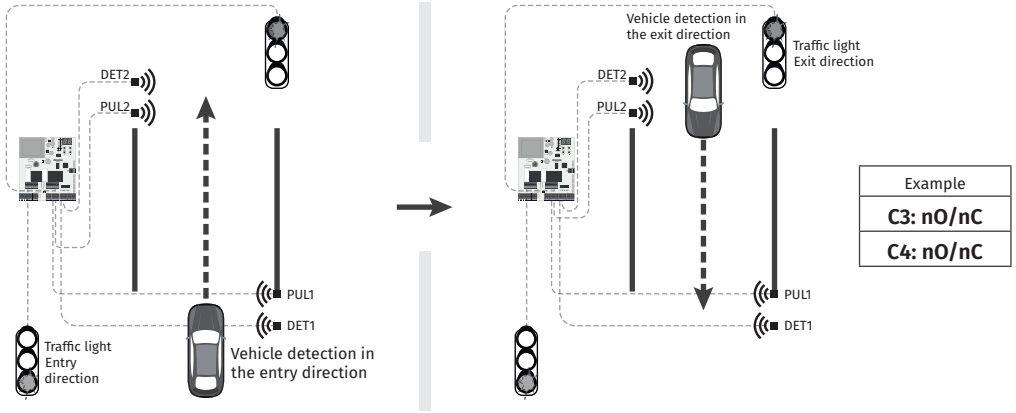


Example
C1: 2
C2: 2
C3: nO/nC
C4: nO/nC
L2: ON

03. CONFIGURATION

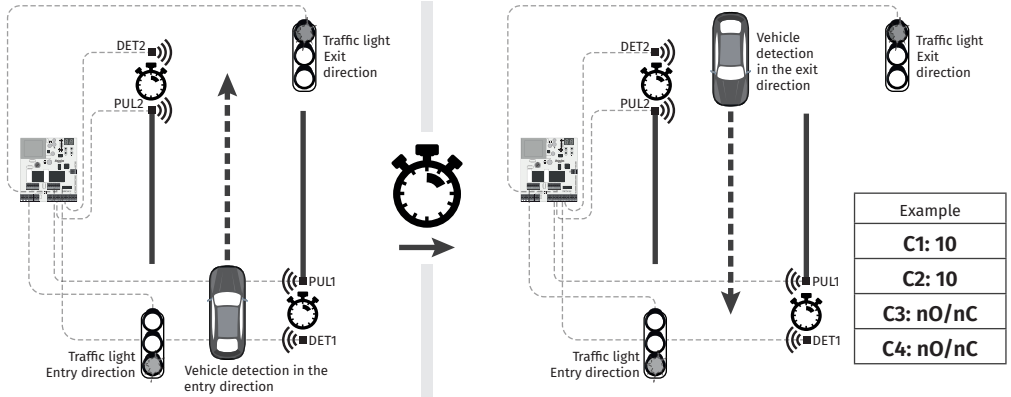
DETECTION METHODS

Detection with PUL and DET inputs without time: The vehicle will be detected only if DET1 and PUL1 or DET2 and PUL2 change the state at the same time. The DET detector will make the initial detection and once the detection through the PUL input is done simultaneously, it will validate an input. The outputs will be validated in reverse, first a PUL detection followed by a DET detection at the same time. This detection mode provides that the inputs are at a certain distance to function as a double detection method where both detectors have to change the state at the same time. If it is intended to use the DET and PUL inputs simultaneously without time, it is necessary to program the option “C3” and “C4” to define the state of the inputs.



Example
C3: nO/nC
C4: nO/nC

Detection with PUL and DET inputs with time: The vehicle will initially be detected in DET1 or DET2 and from that moment the vehicle has “X” seconds to pass in PUL1 or PUL2 to validate the entry of a vehicle on the lane. To validate the vehicle's exit from the lane, it will have to pass the detectors PUL1 or PUL2 and, from that moment, you have “X” seconds to pass DET1 or DET2 to validate the exit. This detection mode foresees that the inputs are at a certain distance to function as a double detection mode. If you want to use the DET and PUL inputs simultaneously with time, it is necessary to program the option "C3" and "C4" to define the status of the inputs, as well as the programming of the option "C1" and "C2" for setting the time the vehicle will have to pass the second detector, in order to validate the detection.



Example
C1: 10
C2: 10
C3: nO/nC
C4: nO/nC

OPERATION EXAMPLES

PARKING - Double detection with PUL and DET inputs without time

For this example we will configure a traffic light with 3 colors, using the detection method with pulsers and detectors without time.
The inputs used will be PUL1, DET1 and PUL2, DET2 with the PUL normally open and the DET normally closed.
The maximum capacity of the park will be 30 vehicles.

Parameter	Value
A2	1
A5	1
C3	nO
C4	nC
C7	30

DETECTOR - Detection only with DET inputs

For this example we are going to configure a traffic light with 2 colors, with the green light flashing. The initial colors will be green at both traffic lights and the entrances used will have two photocells (DET1 and DET2) normally closed with a detection time of 2 seconds. We will also define that if there are no detections within 45 minutes, the traffic lights will be off.

Parameter	Value
A7	Green
A8	Green
A9	45
C1	2
C2	2
C4	nC
C5	1
C6	1

TIMER - Detection only with PUL inputs

For this example we are going to configure a traffic light with 3 colors, with red as the starting color in both traffic lights. Traffic light 1 will be on for 20 seconds with the green light, 4 seconds with the yellow light and 10 seconds with the red light. Traffic light 2 will be 15 seconds with green light, 3 seconds with yellow light and 10 seconds with red light. The inputs used will have two magnetic loops (PUL1 and PUL2) normally open.

Parameter	Value
A1	20
A2	4
A3	10
A4	15
A5	3
A6	10
A7	Red
A8	Red
C3	nO

TIMER - Detection only with DET + remote control inputs

For this example we are going to configure a traffic light with 3 colors, with red as the starting color in both traffic lights. An RF remote control will be used which, after being pressed, has 10 seconds to detect the vehicle. A DET photocell will be used at the entrance and another at the exit, with a required detection time of 2 seconds. The traffic light colors are controlled by an external card via the RGB inputs.

Parameter	Value
A2	1
A5	1
A7	Red
A8	Red
C1	2
C2	2
C4	nO
L3	RF remote control
L5	nO
L6	10

03. CONFIGURATION

OPERATION EXAMPLES

DETECTOR - Double detection with PUL & DET inputs with time

For this example we are going to configure a 2-color traffic light, with red as the starting color for both traffic lights. A double detection mode with 4 photocells will be used, with a maximum detection time between the cells of traffic light 1 (DET1 and PUL1) of 8 seconds and traffic light 2 (DET2 and PUL2) of 8 seconds. All entrances will be as normally closed.

Parameter	Value
A7	Red
A8	Red
C1	8
C2	8
C3	nC
C4	nC

DETECTOR - 2 Independent Inputs and 2 Outputs

For this mode of operation, we will configure a 3-color traffic light, with green as the starting color for both traffic lights. A detection method will be used where the PUL and DET inputs will be used as independent detectors. In this case, the four photocells will be as normally open and will have to be blocked for at least 3 seconds to validate a detection.

Parameter	Value
A2	1
A5	1
A7	Green
A8	Green
C1	3
C2	3
C3	nO
C4	nO
L2	On

CONTROL VIA EXTERNAL BOARDS

The MCS01 allows the connection to external boards in order to control the color of the traffic lights through the "R", "G" and "B" inputs, as well as the opening and closing of a barrier/gate through an output relay.
To use this control it is necessary to configure:

- **L3** - for programming a remote control;
- **L5** - to use the outputs "R", "G" and "B" of the Motorline boards, allowing no desynchronization between the traffic light colors and the state of the gate (both plates will be working in tune)
- **L6** - to program the time between pressing the remote until a detection exists.

If you are using this control with the Timer Mode connected to a Motorline board, it is not necessary to program the color times of the traffic lights. After the detection of a vehicle, a signal will be sent to the external board for the opening of the barrier/gate and the traffic lights will change color to give access to the side where the detection occurred. The time that the gate must remain open must be programmed on the outer board. If you are not using a Motorline board, it will be necessary to program the times that each color should remain on, so that the gate performs an opening and closing cycle. Unlike a board with "R", "G" and "B" outputs, it is not possible to guarantee the synchronization between the traffic light colors and the state of the gate at any given time. If you are using this control in the capacity and detector mode, after detecting a vehicle, a signal will be sent to the external plate to open the barrier/gate and the traffic lights will change color to give access to the side where the detection occurred. The gate will remain open as long as bi-directional exit detection is not carried out. If more than one vehicle is detected in one direction, the barrier/gate will only close when the last vehicle is detected.