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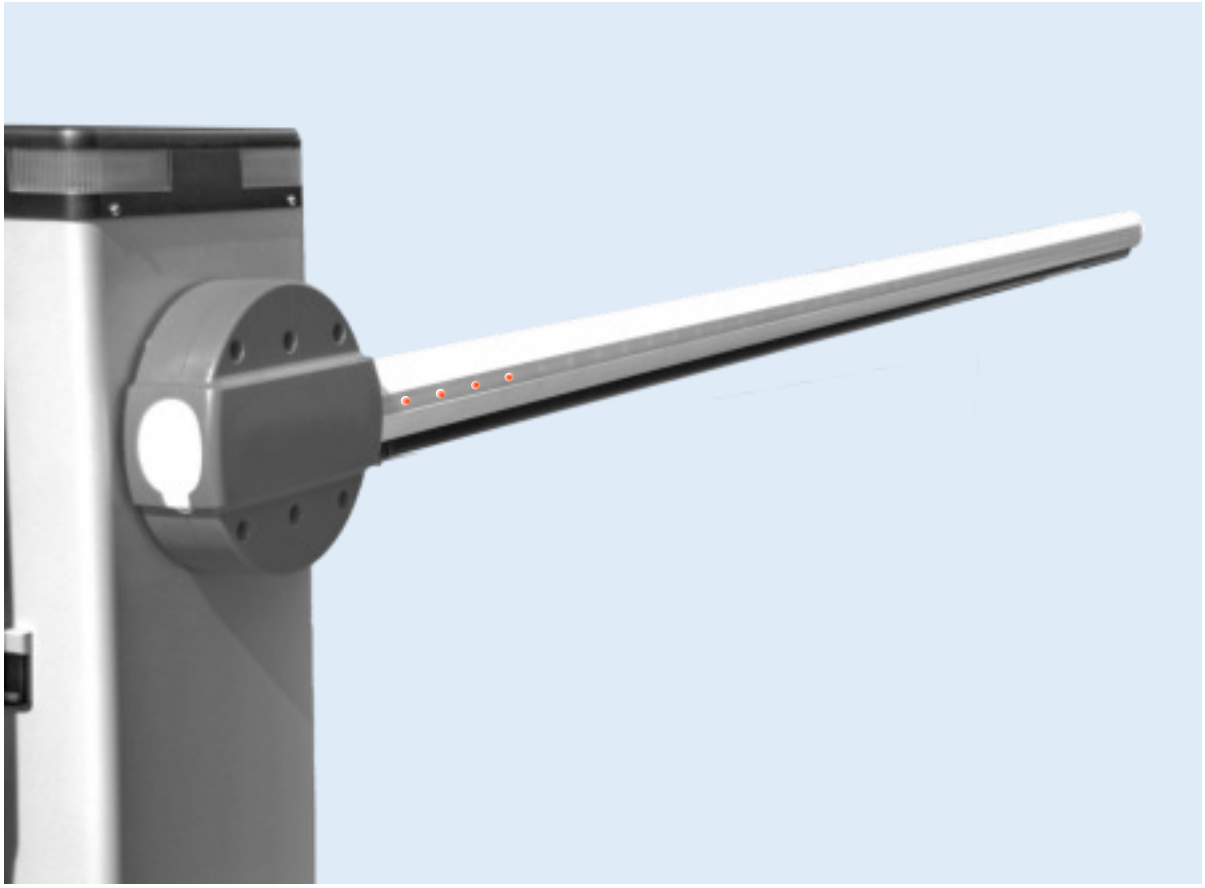
T: +61 7 3205 1123 www.rotech.com.au e: info@rotech.com.au

SENTINEL AG SERIES BOOM GATE
Control Panel Instructions V1 (0317)



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EN

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1 Introduction to instructions and warnings

This manual is intended only for qualified technical staff authorized to install the machine.
The informations in this manual are not intended for the final user.
This manual refers to AG/CTRL control units for automation made of a ROGER AGILIK barrier; it should not be used for other devices.


Danger of Electric shock


WARNINGS

Carefully read this section before installing the machine.
In order to avoid risk of electrocution and physical injuries, before performing any operation on the device, please cut off the power supply.
The machine must be installed only by qualified staff, following the laws in force.
Perform the connections using appropriate cables for the required current and voltage, respecting the technical features of the product. Check the compliance of the grounding system and the continuity between the grounding of the motor and the terminal of the control unit.

2 Product description

AG/CTRL control unit enables automation control by means of two high resolution magnetic encoders: encoder 1 mounted on the rear side of the brushless motor and controls the motor, while encoder 2 is mounted on the side of the gear reducer controls the position of the barrier, even when is set to manual mode; digital signal generation ensures high performance, reliability and intensive use. The cover cap is suitable for the installation of a double LED signalling system, consisting of a MASTER board and a SLAVE board.
It is also possible to install the lights on the barrier, the photocells, a safety edge, keyboards, key selectors, an external flash, a radio receiver, a led that indicates the open/closed status, an electric locking system and a clock.
There are two configuration levels: a simple one that satisfies the majority of the installations and an extended one (advanced level) where the automation can be customised.
In the case of installation of two opposing barriers, only for firmware versions 1.1 (n611, see table on page 21) or later, you can enable RS485 communication. The RTMS485 communication protocol developed by ROGER TECHNOLOGY allows you to manage access to an entrance in MASTER or SLAVE mode; the commands, general STOP, photocells and the sensitive edge are connected to the control unit configured as MASTER; only the individual STOP command (if applicable) and any sensitive edge are connected to the SLAVE station.
The RS485 connection allows you to transfer commands from MASTER to SLAVE, resulting in synchronised operation of the two barriers, simplifying the wiring and configuration procedure: except for the parameter that defines the function of MASTER or SLAVE, and the one that defines the presence of the sensitive edge, all other parameters are set on the MASTER, and from this are passed automatically to the SLAVE.

3 Technical features

SUPPLY VOLTAGE:	230Vac ± 10% 50Hz
MAXIMUM POWER ABSORBED BY THE NETWORK	270W
NUMBER OF MOTORS THAT CAN BE CONNECTED	1
MOTOR POWER SUPPLY	36Vac
TYPE OF MOTOR	sinusoidal brushless (ROGER BRUSHLESS)
TYPE OF MOTOR CONTROL	“sensored” with field orientation (FOC)
MASTER-SLAVE SYNCHRONISATION	with RS485 connection (only for firmware version n611 or later)
MAXIMUM MOTOR POWER	220W
MAXIMUM EXTERNAL FLASHING LIGHT RATING	5W 24Vdc (model R92/LED24 ROGER)
MAXIMUM BARRIER LIGHTS rating	12W 24Vdc
MAXIMUM ELECTRIC LOCKING SYSTEM RATING	10W 12Vdc
MAXIMUM LIGHT SIGNALLING RATING	3W 24Vdc
ACCESSORIES POWER OUTPUT	10W 24Vdc
OPERATING TEMPERATURE	-20°C … +55°C
PROTECTION RATING	IP4X
PRODUCT SIZE	size in mm. 166x150x48 Weight: 0,254 Kg

4 Connections and fuses description

Figure 1 shows the position of the board inside the unit, the power supply connection and the fuses.
The supply terminal is provided with a 5x20mm delayed-action fuse of 1A 250V (T1A), **F4**, that protects the main circuit of the transformer.
The board is equipped with 3 automotive-type blade fuses (ATO257):

F1 10A, for the protection of the power circuit
F2 4A, for the protection of the electric locking system
F3 3A, for the protection of the control logic and of the peripheral devices

Figures 2,**3** and **4** indicate the connections of the inputs and of the outputs. The description of each terminal can be found below:

1 **BATTERY+**, positive terminal of the 24V battery
2 **BATTERY-**, negative terminal of the 24V battery
3,4 **SEC2**, secondary circuit of the transformer for logic and peripheral devices supply (19Vac)
5,6 **SEC1**, secondary circuit of the transformer for motor supply (26Vac)
7,8,9 Phases **X,Y,Z** motor Roger Brushless
10 **COM**, common terminal for low voltage inputs and outputs
11 **+SC**, “open/closed” led (24Vdc, 3W); optional, to this terminal can also be connected the supply cable of the photocells TX (only after setting the parameter A802, on “extended” mode) so that the “test photocell” function is enabled; as an alternative, by connecting both TX and RX of the photocells to this terminal and setting par. A803 or 04 with battery supply, you can obtain the shut-down of the photocells when the barrier is completely closed or opened (par. A804 also enables the photo-test)
NOTE: on the control unit configured as SLAVE, the output only has the main function of “open/closed”.
12 **+LUCI,** signalling lights on the bar (+24Vdc), optional
13 **COM**, common terminal for low voltage inputs and outputs
14 **+24V**, power supply for external devices maximum 10W
15 **+ES**, electric locking system (+12Vdc): max.10W
16 **+LAM**, external flashing light (+24Vdc): max.5W
17 **COM**, common terminal for low voltage inputs and output
18 **COM**, common for RS485 connection. Connect terminal 18 (MASTER) with terminal 18 (SLAVE)
19.20 Lines **LNA** and **LNB** of the RS485 communication for installation of opposing barriers MASTER-SLAVE. Connect the **LNA**(MASTER) with **LNA**(SLAVE) and **LNB**(MASTER) with **LNB**(SLAVE)

21 **ST**, STOP command (N.C. contact) [(a)]
MASTER-SLAVE mode, if the MASTER crashes, so does the SLAVE; if instead the SLAVE crashes, the MASTER can be enabled individually

22 **COM**, common terminal for low voltage inputs and output

23 **COS**, anti-crushing safety edge (NC contact, or 8.2kOhm) [(a)]

24 **FT**, photocell (NC contact) [(a)]

25 **COM**, common terminal for low voltage inputs and output

26 **ANT**, antenna pole for plug-in radio receiver (if using an external antenna, connect it with the RG58 cable)

27 Receiver antenna braid

28 **COM**, common terminal for low voltage inputs and output

29 **PED**, input of pedestrian opening command (N.O. contact) The **PED** command always fully opens the bar; in the case of MASTER-SLAVE installation, open completely the MASTER bar. The command is executed only if the bar is completely closed. If par. 83 02 or 83 03, the input is used to enable an open command from an underground loop (see **paragraph 13**).

30 **PP**, input of the step-by-step command (contact N.A.)

31 **CH**, input of the closing command (contact N.A.)

32 **AP**, input of the opening command (contact N.A.)

33 **ORO**, input of the clock command (contact N.A.)

34 **COM**, common terminal for low voltage inputs and output

IMPORTANT REMINDERS:

[(a)] all uninstalled safety devices that are provided with a closed contact, must be bridged to the **COM** terminals (common terminal for all inputs/outputs) or disabled using the appropriate extended parameters (par. 50, 51, for the photocells; par. 73 for the sensitive board – see paragraphs below). CAUTION! Only par. 73 is configurable on the SLAVE, the other two being imposed by the MASTER.

There are also some connectors present; their function is described below:

ENC1, connector for encoder 1 (7 wires, installed on the motor, **figure 6**)

ENC2, connector for encoder 2 (6 wires, installed on the gear reducer, **figure 6**)

LED LIGHT, connector for lamps or semaphore signalling (**figure 7**).

LOCKS, connectors for safety stops (release system, inspection door opening). Both connectors must be connected; if there is only one safety device connected, please insert the bridge on the other connector (**figure 5**).

RECEIVER CARD, connector for plug-in radio receiver

BATTERY CHARGER, connector for battery charge board with coupling

4.1 Standard configuration of the photocells

In standard configuration the input **FT** is enabled.
Below is indicated the standard configuration of the photocell and relative parameters:

FT ignored during opening	50 00
interruption of the FT while closing, generates backward movement, therefore it opens	51 02
It allows the activation of the motors opening mode if the FT is engaged	52 01

IF THE PHOTOCELL IS NOT INSTALLED
Set 50 00 and 51 00
Or bridge the **FT** terminal with the **COM** terminal.

4.2 Standard configuration of the safety edge

In standard configuration the input **COS** is disabled.
If the safety edge is present, please set parameter 73 of the extended version on 1 if it is switch type (normally closed contact) or on 2 if it is resistive types (8k2Ω).
The sensitive board is active only while the barrier is closing, causing its complete aperture.

4.3 Connection of the motor to the encoder

The motor is connected in factory.
WARNING! If for any reason, the wires of the motor get disconnected from its terminal, a stroke programming should be performed (because along with it is also performed the motor timing).
WARNING! Disconnect and reconnect the connection cable to the encoder only if the power supply to the control unit is cut off: otherwise, a motor malfunction may appear, generating possible abnormal activation.

4.4 Plug-in radio recceiver

The receiver (see **figure 1**) offers tow remote control functions via radio; in standard configuration, they are assigned as follows:

PR1 step-by-step command (can be changed using parameter 76 in the extended mode)

PR2 pedestrian opening command (can be changed using parameter 77 in the extended mode)

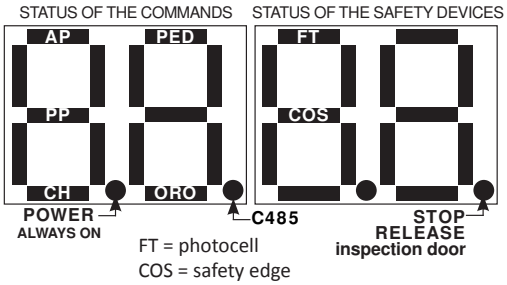
5 Display functioning mode

Depending on the operating mode of the control unit, on the display can be viewed the following information:

- **SAFETY DEVICES AND CONTROLS STATUS MODE**: in the two digits on the left is indicated the status of the control inputs; in the two digits on the right is indicated the status of the safety devices. After powering up the control unit, the display enters this mode. If the display appears differently, you just need to press more times keys **UP** or **DOWN** until the status of the inputs is no longer displayed or you can press shortly key **PROG**. The status of the inputs can be found after the last parameter and before the first parameter. Please see paragraph 5.1 for complete description.
- **PARAMETERS MODE**: the two digits on the left indicate the name of the parameter; the two digits on the right indicate its numerical value. Please see paragraph 5.2 for complete description.
- **STANDBY MODE**: the LED "POWER" blinks indicating the presence of power (decimal point of the left-most digit). Please see paragraph 5.3 for complete description.
- **TEST MODE**: the two digits on the left indicate the name of the active command (for 5 seconds, then it turns off); the two digits on the right display, blinking, the number of the terminal of the safety device in alarm (if any); the blinking code 00 is displayed if the control unit is ready to perform a command. In order to exit this mode, press once again the **TEST** button. Please see paragraph 5.4 for complete description.

5.1 Controls and safety device status mode

The inputs are indicated on the display as follows:

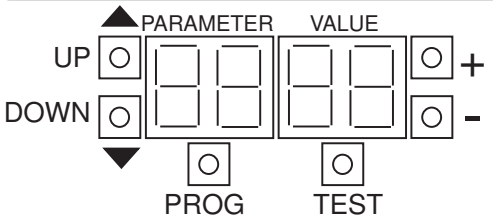


If the input is closed, the corresponding segment is on. The segments corresponding to the commands are usually off (the contacts are usually opened); they will turn on when a command will be received. The segments corresponding to the installed safety devices must be on (the contacts are usually closed); if they are turned off, they are in alarm status.

SAFETY DEVICES DISABLED FROM PARAMETER: the corresponding LED segment blinks.

C485: if par.A0 other than zero, it is on steady when RS485 communication is stable; it is off if there is no communication.

5.2 Parameters mode



UP	next parameter
DOWN	previous parameter
+	increases by 1 the value of the parameter
-	decreases by 1 the value of the parameter
PROG	stroke programming (see paragraph 6)
TEST	it activates the test mode (see paragraph 5.4)

5.2.1 Modification of a parameter

Use the keys **UP** and **DOWN** to view the parameter to be changed, then using keys **+** and **–** change its value (the number on the right starts blinking).

By keeping the key pressed, after a second the quick scroll will be activated, allowing you to change the settings more quickly. In order to save the value set

on the display, wait 4 seconds or move to another parameter using the keys **UP** and **DOWN**: the entire display flashes quickly indicating that the setting was saved.

NOTE: the modification of the parameters numerical value using the keys + and - is possible only if the motor is stopped; the parameters can be viewed at any time.

If RS485 communication is enabled, the parameters must be changed on the MASTER and are automatically passed to the SLAVE; on the SLAVE, you can only change par. A0 and 13.

PARAMETER AND STANDARD VALUE	FUNCTION	VALUE ON DISPLAY	DESCRIPTION
0 - 02	Barrier length selection	00	up to 3m.
		01	from 3m to 4.5.
		02	from 4.5m to 6m
1 - 00	Automatic closure	00	Disabled
		01 - 15	NUMBER of closing attempts (interrupted by the photocell) before leaving it opened
		99	always try to close
2 - 30	Break time	00 -90	Break Time
		92 -99	2 minutes…9 minutes of time-out
3 - 00	Automatic closure after restoring power supply	00	disables the closing after restoring the power supply
		01	enables the closing after restoring the power supply
4 - 00	Barrier light setup	00	always off
		01	always on
		02	on while it is closed, blinking when it is moving
		03	quick flashing while it stands still, blinking when it is moving
5 - 00	Pre-flashing	00	disabled.
		01 -60	pre-flashing seconds
		99	5 seconds of pre-flashing while closing
6 - 00	Step-by-step input setup	00	open stop close stop open stop close ...
		01	shared, restores the break time
		02	shared, closes the barrier from completely open position
		03	open close open close ...
		04	open close stop open ...
7 - 02	Flashing light setup	00	fixed
		01	slow blinking activation
		02	slow blinking while opening, quick blinking while closing
8 - 10	Duration of acceleration phase while opening	01 - 10	01 = short acceleration period ... 10 = prolonged acceleration period
9 - 04	Speed during the opening movement	01 - 10	01 = minimum speed …. 10 = maximum speed
A - 10	Duration of deceleration phase while opening	01 - 10	01 = short deceleration period ... 10 = prolonged deceleration period
b - 10	Duration of deceleration phase during closing	01 - 10	01 = short acceleration period ... 10 = prolonged acceleration period
C - 04	Speed during the closing movement	01 - 10	01 = minimum speed … 10 = maximum speed
d - 10	Duration of deceleration phase while closing	01 - 10	01 = short deceleration period ... 10 = prolonged deceleration period
E - 09	Anti-crushing function adjustment	01 -09	01 = fast response … 09 = slow response
		10	disabled.
F - 08	Brake adjustment	01 - 10	01 = sudden braking … 10 = soft braking
G - 01	Position of the barrier body in relation with the passage	00	placed to the left, watching the passage from the inside
		01	placed to the right, watching the passage from the inside

The parameters sequence in the simplified mode is indicated in the table of the previous page.

IMPORTANT NOTE: the selection of the parameter 0- (A1 in extended mode) must comply with the body of the machine, keeping in mind that the 6 meters barrier uses a different gear reducer from the one corresponding to the 3m and 4m versions. WARNING! The selection of this parameter is very important for proper functioning of the automation and for avoiding mechanical damages to the gear reducer; this is why the factory set parameter is that corresponding to the 6m barrier that has lower speed and acceleration.
In relation to the selection of the parameter 0- (A1 in extended mode) not all the indicated values of the parameters 8-, 9-, A-, b-, C- d-, E- and F- (respectively 33, 40, 11, 34, 41, 12, 31, 65 in extended mode) will be available: this happens for safety reasons and is the responsibility of the installer to set them correctly.

WARNING! The parameters 0- and C- (A1 and 71 in extended mode) are particularly critical and their modification, if the system is already on, may cause malfunctions; in order to avoid them, the power supply must be cut off while changing their values; after this, the system must be restarted and the stroke must be set once again.

5.2.2 Restoring the standard factory parameters

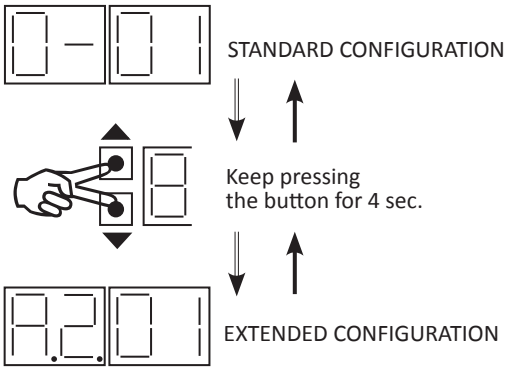
NOTE: this procedure can be performed only if a data protection password has not been set.

Cut off the power supply of the control unit, keep the keys **UP** and **DOWN** pressed, then restore the power supply and hold the keys pressed: after 4 seconds, on the display appears rES- blinking, indicating that the values were restored.
The parameters A0 and A1 remain unchanged, as they have to be configured depending on the type of installation.

5.2.3 Change between standard/ extended parameters mode

The control unit allows two configuration modes: standard or extended (advanced level).
In the extended configuration, the installer may change a large number of parameters, but more accurate knowledge of the product is required.
The standard configuration was designed to facilitate the installation; there is only a reduced number of parameters that can be changed, satisfying the most of the installations. This is a recommended mode for an installer that is unfamiliar with the product and when no particular configurations are required.

WARNING!
The product leaves the factory with the standard configuration
On the control unit configured as SLAVE, the display always remains in full mode; it is not possible to change the display mode.



If you want to switch to the extended mode, keep both keys **UP** and **DOWN** pressed for 4 seconds; then on the display will appear the first one of the extended version parameters, that is indicated:
- by the presence of two decimal points on the first two digits on the left (that represent the number of the parameter)
- by letter A for parameters lower than 10, to distinguish them from the ones corresponding to the standard configuration (that are different)

NOTE: the operation can be performed more than once, switching from one configuration to another.

The table in paragraph 11 contains the parameters corresponding to the extended configuration.

NOTE: the sequence of the parameters in the simplified configuration is not the same as the one corresponding to the extended configuration; therefore, always consult the instructions.

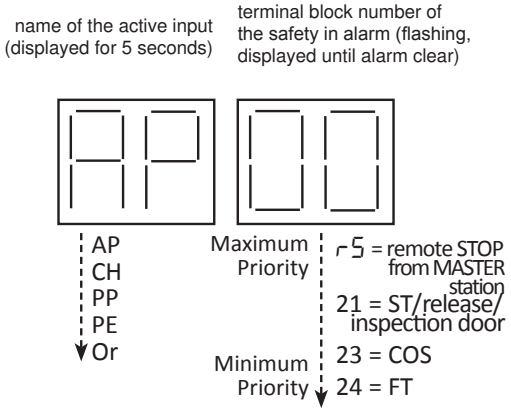
5.3 Standby mode

After 30 minutes of inactivity, the control unit enters in standby mode, and on the display will appear only a blinking point.
The activation of the standby, automatically restores the standard configuration.

This mode keeps the display in standby, but the control unit is always ready to perform the commands; in order to restart the display, one of the keys **UP,DOWN,+,-** should be pressed.

5.4 TEST mode

It is activated by pressing the **TEST** key, only if the motor is at standstill; otherwise, the **TEST** key performs a **STOP** command; in order to enable the test mode, you must press this key once again.
The display is as follows:



It allows to visually check the activation of the command and of the safety devices: every time they are activated, the control unit shortly activates the flashing light as well as the Open Door Light (terminal no. **11**, **SC**).
On the display is indicated:

- the active command, as a stationary message (on the left side, for 5 seconds)
- the terminal block number of the safety device in alarm, as a blinking number (on the right side, displayed as long as the safety device is in alarm).

If no other safety device is in alarm, the code 00 is displayed and the control unit is enabled to perform the commands.
After 10 seconds of inactivity, it returns to safety devices and commands status. In order to exit the test mode, just press **TEST**. The output **SC** returns to its standard function.
The SLAVE will show the status of the sensitive edge and its **STOP** command; the only signal from the MASTER is r5 to indicate when the MASTER is blocked (thus blocking also the SLAVE).
CAUTION! If the SLAVE is in TEST mode, the MASTER bar can still be operated; when exiting the TEST mode, the SLAVE bar will align the MASTER bar after a forced pre-flashing of 5 seconds.

6 Installation

The stroke length must be programmed to allow proper functioning of the automation.

WARNING! Before proceeding, make sure that:

- Par. A1 is set correctly for the barrier model and for the length of the installed bus bar
- Par. 71 In the case of MASTER-SLAVE installation, the selection made on the MASTER automatically sets the opposite value on the SLAVE. is set correctly in relation to the placement of the barrier body compared to the gap (left/right).
- In the case of MASTER-SLAVE operation: the control inputs and photocells are connected to the MASTER; only one STOP contact and the sensitive edge can be connected to the SLAVE. Check that A011 is set on the MASTER and A010 on the SLAVE. The MASTER is the one that opens in response to a **PED** command.
- the spring is properly balanced: unlock the mechanical release of the barrier and bring it to the half of the stroke (45°); the barrier must stay balanced; by moving it upwards, it tends to go up; by moving it downwards, it tends to go down. If this condition is not met, adjust the spring as indicated in the mechanical installation instructions. Before locking the barrier, manually move it until reaching complete closure position.
- The connected safety devices are in standby and those that are not present, are bridged or excluded from the relative parameter.
- The setup mode cannot be accessed if one of the safety devices is active. The display switches to TEST mode and indicates the input in alarm that obstructs the activities.
- The setup mode cannot be accessed if the mode “human present” is enabled (par. A701), on display appears APPE.

PLEASE NOTE:

- **The setup will be interrupted (error message** APPE will appear**) if**:
  - **TEST** key is pressed.
  - One of the safety devices is activated (photocells, safety edge, **STOP** key).

  In this case, the stroke setup must be repeated.
- Once in setup mode, instead of **PROG** key can be used the radio-control key enabled for the step-by-step function.

6.1 Stroke programming sequence

WARNING!

- Before proceeding make sure that the mechanical stops are adjusted as to ensure vertical and horizontal position of the barrier; any change in the position of the stops requires a new stroke setup.
- Place the barrier in complete close position before entering the setup mode.

In order to access the setup mode, keep the key **PROG** pressed for 4 sec.: on display appears the message AP P- .

Turn the release key counter-clockwise, making sure to rotate it by several turns until it reaches the limit switch: after a few seconds, the display shows the wording ASPH and starts the motor timing, which consists in measuring its operation parameters and must be carried out with the mechanics completely unlocked.
If the motor tuning phase fails, on the display will appear the message noPH: repeat the setup procedure.
If the problem persists, make sure that the encoder 1 connection cable (**ENC1**, **figure 6**) on the motor is in proper shape and properly inserted in its connector.

If the motor tuning phase has been completed successfully, the parameters will be saved in the non-volatile EEPROM memory and the message PH AS blinks on the display.
Turn the mechanical release system key clockwise until reaching the end of the stroke: the mechanical system is once again connected to the motor, and at this point the actual stroke setup begins.
On display appears the message Auto and the motor is started. After reaching the mechanical coupling, the barrier will move inside the opening at low speed (the speed is established by selecting the parameter A 1 and it cannot be changed). After reaching the opening stop, after a short pause (indicated by the message Auto blinking on the display) the closing process starts, after which:

- if the setup failed, the message AP PE appears: repeat the setup procedure
- if completed successfully, on the display appears the status of the inputs and of the safety devices: proceed with the adjustments (paragraph 6.2).

6.2 Adjustments

After setting up the stroke, proceed with setting up the accelerations, the cruise speed and the decelerations, making sure that the chosen values are appropriate for the proper operation of the barrier.
When the barrier reaches the end of the stroke, it must come intro contact with the mechanical stop at a very low speed, and lean on it, generating just a slight pressure to block the movement.
This phase is adjusted using parameters 42, 43 and 44. The par.42 sets up the approaching speed towards the mechanical stop; usually, a value within 01 and 03 is suitable, as slower the approaching speed, the better the overall movement (free of vibrations).
The approaching distance is set by par.43 (for the opening stop) and by par.44 (for the closing stop): for barriers up to 4m long a maximum value 10 (1 mechanical turn of the motor) should meet all the requirements, while for the 6m long barrier will be necessary a greater value, also in relation to the presence of a supporting foot. The approaching adjustment in closing phase, allows avoiding a possible incorrectly leaning of the foot as well as a series of noisy oscillations that may affect the mechanics of the barrier.

7 PHOTOCELLS TEST mode

To enable the test mode of the photocells connect the supply of the photocells transmitter to the terminal **SC** (no. **11, figure 8**) instead of terminal no. **13** and set the parameter A8 02 in the extended configuration.
For every transmitted command, the control unit turns off and on the photocells and makes sure that the contact status changes accordingly: if all goes well, the command will activate the engine; otherwise, the system remains locked as there is a fault at the photocells level.
NOTE: in this mode, at the terminal **SC** is always present a voltage of 24Vdc, therefore that output can no longer be used for the open door light.
If the battery is installed, it is advisable to connect the supply of all external devices to terminal **11** (**SC**, see **figure 9**) and set A8 03 or A8 04. For both settings, the supply to terminal **11** (**SC**) is cut off when the automation is still in fully opened or fully closed mode and it is powered by battery, thus limiting the consumption of the back-up battery. If using the setting A8 04, the test function at the photocells input will be activated.

8 Error signals

The operating parameters are stored in a non-volatile memory (EEPROM) using control codes that ensure their validity; "a possible" error at the parameters level will be indicated on the display and at the same time the control unit will block the command activation.

Example: if an error should appear in parameter 21, on the display will appear the error message 21EE.

EE indicates the presence of the error; the control unit will be locked until the correct value is restored; the operator must use the keys **+** and **-** to select the numerical value appropriate for the installation and then save it.

NOTE: if an error should appear, on the display will always appear the "extended mode" numbering indicated in the table on paragraph 11, even if activated the simplified mode.

The following errors regarding the motor control will be displayed:

- OFSt calibration error (offset), system blocked. Cut off the power supply and wait for 10" then repeat the calibration.
- PrOt intervention of the motor ampere level (excessive force). In order to start the motor press 2 times the key TEST or give 3 movement commands.
- dAtA error in the data regarding the length of the stroke; a new setup should be performed. The display can be unlocked to display the parameters, by pressing the TEST key.
- Not Motor not connected
- StoP The mechanical release is active, or the inspection door is open, or the **STOP** button (if installed) is active for more than 3 seconds. The signal is blinking
- FUSE indicates that fuse **F1** is broken (no signal if you are working in battery mode)

There are also encoder-related errors:

- EnE1 encoder 1 not connected; check the connection and if the error does not disappear, consider to replace the device
- EnE2 encoder 2 not connected
- EnE3 serious malfunction of encoder 1; press the **TEST** key and see if it recurs or not; in this case cut off the power supply and after 5" power up once again the control unit. If the error persists, please replace the encoder
- EnE4 serious malfunction of encoder 2. Proceed as indicated for error EnE3
- EnE5 transitory malfunction of encoder 1; press the **TEST** key and see if the problem disappears; otherwise, please replace the encoder
- EnE6 transitory malfunction of encoder 2; act as indicated for error EnE5
- EnE7 error in measuring the angle of encoder 1
- EnE8 error in measuring the angle of encoder 2
- tEMP thermal protection of the inverter (see par.0186): the bar is blocked; when the temperature returns to acceptable levels, operation resumes normally.

In the case of MASTER-SLAVE configuration, the system also displays the following errors:

- CON1 RS485 communication absent: check the connection of terminals **LNA**, **LNB** and **COM** of the MASTER and SLAVE; check the settings of parameter A0 of the two stations
- CON2 interference on the communication bus: 2 MASTER stations detected, check the settings of parameter A0. The stations are configured automatically with parameter A0 00 (disabling RS485 communication)
- CON3 cannot transfer parameters from MASTER to SLAVE
- CON4 measured difference in digital signatures of MASTER and SLAVE: you are connecting two station models that are not compatible
- CON5 incompatibility detected between versions of firmware for the RS485 communication: command synchronisation is not possible, see par. n7 and make sure that the control units connected to each other have the same firmware version.

In order to temporarily cancel the alarm from the display, press the **TEST** key; the message will not be displayed once the system enter in the parameters display mode. When a command is received, if the cause was not removed, the signal will re-appear on the display.

9 Mechanical release enabling

When mechanically unlocking the barrier, in order to manually move it, if the control unit is powered up, the following functions will be performed:

- Unlocking will be signalled by blinking message StoP on the display; it will disappear as soon as the blocking situation will be restored
- The manual movement of the barrier will be indicated by activating the flashing light and the signalling lights on the barrier

- starting from the moment in which the barrier stands still (mechanically hooked) the control unit will perform a second position reading, with subsequent blinking signalling.

Controlling the angular position of the barrier, the first command after the manual movement of the barrier will be fully operative, allowing therefore the performance of standard accelerations and decelerations.

10 Battery operation mode

If the battery kit (**AG/BAT/KIT**, **figure 14**) is installed, in absence of mains voltage, operation is ensured by the 24Vdc/4500mAh buffer battery assembled in a separate box.
To obtain improved performance, it is recommended to supply the photocells (transmitter and receiver) and any other devices that do not have the function of activating the system (therefore excluding external radio receivers) by connecting the positive terminal of their power supply to terminal **SC** (**figure 16**); set the parameter A8 03 (or A8 04 , if you also want the photo-test): that way, when the bar is fully open or fully closed and the battery is supplying power, power is cut-off from devices connected to terminal **SC**.
Battery operation is shown on the display by the message bAtt and by activation of the flashing light with reduced frequency (saving on consumption) and as the battery voltage drops, bar speed and its acceleration decrease. When the battery voltage drops below a minimum safety value, the commands given to the control unit are no longer running and the display shows bt LO (battery low); the function is restored when voltage is supplied to the main or the possible recovery of battery power, during forced inactivity.
If a blackout occurs while the motor is running, the motor stops with automatic recovery of drive after a break of stabilisation (2").

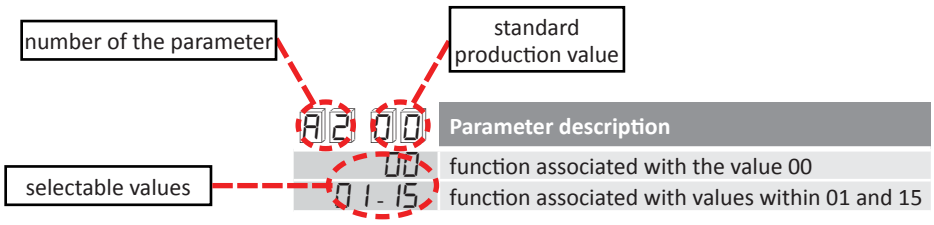
We recommend to regularly check efficiency of the batteries every six months.
If the bar lights are enabled (par. 79 other than 00), with the battery operating, the light will always stop when the bar is completely open, and flash intermittently when the bar is stopped in other positions; the flashing frequency is reduced to save on battery consumption.
You can enable an automatic opening command when the battery voltage (with bar stopped) falls below a preset threshold: this is achieved by setting par. 85 to 01 (minimum battery voltage = 21 Vdc), 02 (minimum voltage 22Vdc) or 03 (minimum voltage 23Vdc).
The function is available on a station that is operating in standard (A0 00), or MASTER mode.
Once you have activated the opening command, the bar stays open, rejecting any commands until the return of the mains voltage or disabling of this function.

11 Extended operating mode

NOTE: if using only the standard mode, the value of the hidden parameters - for a new control unit or after every restore of the standard parameters - is the one indicated next to the parameter, and is the one considered to be the most useful in installations.

WARNING! Depending on the selected mode, some parameters may not be displayed, as they do not concern the installation. For the same reason, for parameters 11, 12, 33, 34, 40, 41, 43, 44 and 65 may not be available all the values indicated in the table.

Below is indicated the table with the parameters concerning the extended mode. Next to the number of the parameter is indicated the standard production value.



Parameter description	
00	function associated with the value 00
01 - 15	function associated with values within 01 and 15

A0 00	Enabling RS485 communication (MASTER-SLAVE)
00	Disabled
10	Enabled with SLAVE function
11	Enabled with MASTER function

NOTE: pedestrian opening (limited opening, **PED** input) is performed only by the MASTER, fully opening the bar.
By enabling MASTER-SLAVE communication, the alignment function is enabled, which will enable independently the misaligned position of the bar, after a pre-flashing signal of 5 seconds (not disabled). Example: If the MASTER bar is completely open and the SLAVE is not, enabling communication causes the SLAVE bar to open.

A1 02	Selection of the barrier length
00	up to 3m
01	from 3m to 4.5
02	from 4.5m to 6m (the barrier body contains a gear reducer specific for this application)

NOTE: parameter 0- in standard mode
A correct selection of the length of the barrier, also made in relation to the body of the machine to be used, is fundamental for obtaining a proper functioning without risking causing any damages to the mechanical part. Regarding the value of this parameter, there are some limitations concerning the parameters: 11, 12, 31, 33, 34, 40, 41, 43, 44 and 65.
Changes to parameter A1 also involve restoring the default value of all these parameters (see the following table):

	Par. 11	Par. 12	Par.31	Par.33	Par.34	Par.40	Par.41	Par.43	Par.44	Par.65
A100	8	6	7	5	7	7	7	10	10	4
A101	9	9	8	6	8	6	5	10	10	6
A102	10	10	9	10	10	4	4	15	30	8

A2 00	Automatic closing after pause time
00	OFF (automatic closing will not be performed)
01 - 15	NUMBER of closing attempts (interrupted by the photocell) before leaving it opened
99	tries to close without limiting the number of attempts

NOTE: parameter 1- in standard mode
In order to restore closing, this parameter should be set to a number different from 00; only by setting the value 99 the closing will always be performed after the pause time. If setting a number within 01 and 15, that is the maximum number of closing attempts that will be performed. For example, by setting the value 01, if during the closing process, something will cross the beam of the inversion photocells, the barrier would reopen without closing (only one closing attempt is just been performed).
The automatic closing is performed only if the barrier reaches the full opened position.
NOTE: the value of the parameter 49 is subordinated to the value chosen for parameter A2; the maximum value of parameter 49 can be equal to that of parameter A2.
NOTE: parameter is not displayed if par.A0 other than 00, and if par.83 is other than 00.

A3 00	**Automatic closing after blackout**
00	OFF (closing procedure will not be performed after restoring the power supply)
01	ON (closing procedure will be performed after restoring the power supply)

NOTE: parameter 3- in standard mode
If this parameter is set to 01 at power-up, the control unit performs the closing procedure after a 5 sec pre-flashing (even if parameter A5 disabled). This function is useful when the supply voltage is missing during the closing process as it ensures that the barrier gets closed after power supply restoration.
NOTE: parameter not displayed if par.A0 other than 00.

A4 00	**STEP-BY-STEP (PP) setup**
00	OPEN - STOP - CLOSE - STOP - OPEN
01	PP SHARED, when completely open, the command PP renews the pause time
02	PP SHARED, when completely open, the command PP closes
03	OPEN - CLOSE - OPEN - CLOSE
04	OPEN - CLOSE - STOP - OPEN

NOTE: parameter 6- in standard mode
Shared means that during the opening process, the command **PP** is ignored.
In installations where there is the possibility that multiple users arrive at the same time, and therefore activate the remote control while the barrier is being handled, it is useful to ensure the completion of the opening: prevents two activations by two different users that may cause the barrier to close.
WARNING: by setting the shared mode (value 01 and 02) the automatic closing will be automatically activated (parameter A2).
By setting the parameter to 01, if the barrier is closed, the activation of the step-by-step command will not trigger the closing process; it will reset the standby time counter.

A5 00	**Pre-flashing**
00	OFF (the flashing light is active only when there is movement)
01-10	DURATION IN SECONDS of flashing light activation before the movement
99	not performed during opening procedure; 5 seconds of pre-flashing before closing

NOTE: parameter 5- in standard mode

A6 00	**Shared function on the pedestrian command (PED)**
00	OFF (pedestrian command performs OP-ST-CL-ST-OP- ...)
01	ON (pedestrian command activated while the opening process is ignored)

A7 00	**Man present**
00	OFF (the commands function normally)
01	ON (the bar moves only if keys OP or CL are kept pressed)

The motor remains active only if there is a continuous command active; the only enabled commands are **OP** and **CL**; when the command is released, the motor stops.
Controls should be located in order to enable visual check of the barrier.
NOTE: parameter not displayed if par.B3 other than 00.

A8 00	Open barrier light / +SC output operating mode
00	if the barrier is closed, the light is off; otherwise it is on
01	slow blinking during opening, fast blinking during closing, standing still light if completely opened, turns off for two times after every 15 seconds if the barrier stops in an intermediate position
02	the output **+SC** is used to supply the photocells and performs a test on them
03	the output **+SC** in battery mode does not supply the external charges when the barrier is completely opened or completely closed; if supply voltage is present, the output **+SC** always provides power
04	the same as for value 03, plus the photo-test function

NOTE: values 03 and 04 are unavailable if the RS485 communication is enabled (A0 other than 00).
The parameter is not displayed on the SLAVE, and the function of output **SC** is equivalent to A8 00.

11 10	Duration of the incoming deceleration when the barrier is completely opened
12 10	Duration of the incoming deceleration when the barrier is completely closed
01 - 10	01 quick deceleration … 10 slow deceleration

NOTE: parameters A- and d- in standard configuration
A low value (01) implies a quick deceleration, just before reaching the limit stroke, a high value (10) triggers the start of the deceleration in advance. By choosing a high value, the maximum speed of the barrier may be limited.
These parameters can be changed even if the stroke has already been set.
NOTE: the available values can be limited by choosing the par. A1.

21 30	Pause time for automatic closing
00 - 90	SECONDS
92 - 99	from 2 to 9 MINUTES

NOTE: parameter 2- in standard mode.
When one of the photocells is engaged, the timer will be reset and the counter restarts once the photocell is disengaged.

29 00	Enabling the electric locking system
00	DISABLED
01	ENABLED

The output is enabled for a fixed period of time (2”).

31 09	Adjustment of the anti-crushing
01 - 09	01 = low intervention time … 09 = high intervention time
10	disabled

NOTE: parameter E- in standard mode.
The intervention of the anti-crushing safety device is enabled during the entire closing process, and immediately reverses the movement, bringing the barrier in complete open position, exactly as if the safety edge would have interfered. During the opening process, it reverses the movement only if it occurs in the first 60 ° of movement.
The ability to perform an automatic closing is then determined by the selection of par.49 (max 3 attempts).

33 10	**Acceleration duration during opening movement**
34 10	**Acceleration duration during closing movement**
01 - 10	01 quick start … 10 very slow start

NOTE: parameters 8- and b- in simplified mode.
A low value (01 choosing a high value can limit the maximum speed of the bar) implies a high acceleration, a high (10) makes the acceleration more gradual.
These parameters can be changed even if the stroke has already been set.
NOTE: the available values can be limited by choosing the par. A1:

40 04	**Nominal speed during opening movement**
41 04	**Nominal speed during closing movement**
01 - 10	01 = 10% ... 10 = 100%, maximum speed

NOTE: the available values can be limited by choosing the par. A1:

42 01	**Slow approaching speed towards the stop**
01 - 10	01 = 10 RPM ... 10 = 100 RPM (RPM: revolutions of the motor per minute)

It establishes the speed of the motor while approaching the opening/closing stop; the duration of this phase is determined by the values set for par.43 and 44.

43 10	**Approach distance to the opening stop**
44 10	**Approach distance to the closing stop**
05 - 30	tenths of one mechanical revolution of the engine at a speed set in par.42

NOTE: the available values can be limited by choosing the par. A1:

49 00	**Attempts of automatic closing after the intervention of the safety edge or of the anti-crushing device**
00	no automatic closing after the intervention of the safety edge or of the anti-crushing device
01-03	number of closing attempts

If the value exceeds the one set in parameter A2, it will automatically be considered equal to the value of parameter A2.

50 00	**Mode if photocell FT is interrupted while opening**
00	IGNORE, no action or FT1 not installed
01	STOP, the bar stands still until the next command
02	QUICK REVERSE, closes
03	TEMPORARY STOP, the opening movement continues even if the beam is not engaged
04	REVERSE WHEN DISABLED, if the beam is not engaged, the closing movement starts

NOTE: parameter not displayed if par.83 other than 00.

51 02	Mode if photocell FT is interrupted while closing
00	IGNORE, no action or FT1 not installed
01	STOP, the bar stands still until the next command
02	QUICK REVERSE, opens
03	TEMPORARY STOP, the closing movement continues even if the beam is not engaged
04	REVERSE WHEN DISABLED, if the beam is not engaged, the opening movement starts

NOTE: parameter not displayed if par.83 other than 00.

52 01	If the barrier is closed, the opening movement is allowed even if FT is engaged
00	does not allow the opening movement
01	opening movement enabled
02	OPEN WHEN ENGAGED

NOTE: parameter not displayed if par.83 other than 00.

56 00	If the barrier is completely open, it closes after 6 seconds from the moment in which the photocell is engaged
00	OFF (the interruption of the photocell triggers no action)
01	the interruption of the photocell generates the closing movement

NOTE: this parameter is not available if you set parameter A8 03 or A8 04, or if par.83 is other than 00.

65 08	Brake regulation
01 - 10	01 sudden braking ... 10 soft braking

The brake is applied when reversing due to user commands, or to intervention of the photocells; does not apply in the case of intervention of the safety edge, of the anti-crushing device or of the STOP (because in these cases is used and instantaneous brake).
By setting this parameter to a low value, the braking distance is reduced to a minimum; by setting this parameter to a high value, a "soft-stop" will be obtained, this being very useful for the 4m barriers or longer, avoiding sudden shocks and vibrations.
Make sure that the adjustment does not cause an excessive stop movement, that may generate a risk of collision.

71 01	Position of the barrier body in relation with the passage
00	placed to the left, watching the passage from the inside
01	placed to the right, watching the passage from the inside

NOTE: parameter G- in standard mode.
NOTE: If MASTER-SLAVE communication is enabled, this parameter must be set on the MASTER and the SLAVE automatically saves the opposite setting.
Any changes to this parameter require repetition of the travel (both barriers in the case of MASTER-SLAVE).

73 00	Safety edge Configuration
00	Not present
01	SWITCH, inverts only while closing
02	8k2, inverts only while closing

76 00	**Configuration radio channel 1°**
77 01	**Configuration radio channel 2°**
00	PP
01	PEDESTRIAN
02	OPEN
03	CLOSE
04	STOP
07	PP with safety configuration (through radio function no.2)
08	PEDESTRIAN with safety confirmation (through radio function no.2)
09	OPEN with safety confirmation (through radio function no.2)
10	CLOSE with safety confirmation (through radio function no.2)

The remote command with safety confirmation (values 07 - 08 - 09 - 10) prevents the erroneous pressure of a button on the remote control that can enable the automation; this function can be enabled in a freely and independently manner for both of the two functions **PR1** and **PR2** available on the plug-in receiver.
Example: by setting parameters 76 07 and 77 01, using the key CHA from the remote control stored on function 1 of the radio and key CHB from the remote control stored on function 2 of the radio, by activating the key CHA a count-down will start, and only if within 2" the key CHB activates, the "step-by-step" command will be performed. If CHB is enabled, the pedestrian opening command will be immediately activated.

78 02	**Flashing light/ lamps Configuration**
00	STILL (the flashing is given by the electronics of the lamp)
01	slow flashing activation
02	slow flashing activation while opening; quick flashing activation while closing

NOTE: parameter 7- in standard mode
The flashing light turns on when there is a movement phase there can be a continuous activation (for flashing lights with temporised electronics on board) or directly controlled by the control unit (for flashing lights made of a simple light).
If setting the parameter 78 01 or 02, in the final movement phase, when the barrier approaches the mechanical stop, the flashing frequency decreases.

79 00	**Configuration of the signalling lights on the barrier**
00	OFF (lights always disabled)
01	lights always on
02	lights on when the barrier still, flashing when the barrier is moving
03	quick blinking lights when the barrier is still, flashing when the barrier is moving
04	lights flashing intermittently (for a few seconds) with bar closed, flashing steady with bar moving, off with open bar

NOTE: parameter 4- in standard mode
In battery operation, value 04 is forced (to reduce current consumption).

80 00	**Clock Configuration**
00	When the clock input is closed (ORO), opens it and then ignores all other commands
01	When the clock input is closed (ORO), opens it but accepts any other commands

B1 00	Closing enabling ensured (“anti-wind” function)
00	DISABLED (NOTE: par.B2 will not be displayed)
01	ENABLED

It is enabled when you want to make sure that the barrier does not remain open under unforeseen circumstances; for example due to an unexpected activation of the step-by-step command moving away from the bar while it was closing, or due to a strong wind blow that activates the anti-crushing protection, the barrier would remain open waiting for a new command.
After a period of time set in parameter B2 the control unit starts a 5” pre-flashing (even if not enabled by par. A5) and then commands the start of the closing process.
The function will be enabled only if a **STOP** command was given (from the keyboard) or if the safety edgeintervened and the value set in parameter A2 was exceeded.

B2 01	Waiting time to activate the ensured closure
01-90	SECONDS
02-99	from 2 to 9 MINUTES

B3 00	Selecting the parking access mode
00	Disabled
01	Quick closure: the crossing and subsequent release of **FT** immediately enables closure, both in entry/exit from/to the parking lot
02	Directional mode 1: at the loop to the parking lot, command **AP** opens the bar and after activating and releasing the **FT** input, closes it; leaving the parking lot, the underground loop command (**PED**) opens the bar and crossing and release of **FT** closes
03	Directional mode 2: in exit from parking lot, the underground loop command **PED** opens the bar and after enabling and release of the FT input, closes it.

NOTE: setting a value other than 00, par. A7, 50, 51, 52, 56 are no longer visible; closing of photocell **FT** always causes an inversion (unless par.B401 has been set)

B4 00	Forced closure by photocell
00	Disabled
01	If photocell **FT** is interrupted during closing, it does not reverse drive, but stops the bar; when released, it continues to close

NOTE: parameter not displayed if par.B3 is set to 00

B5 00	Automatic opening due to low battery
00	Disabled
01	In battery mode, when the voltage drops below 21 VDC, the bar opens after a forced pre-flashing of 5 seconds and no commands are accepted until the return of the mains voltage (normal)
02	As for 01, but the voltage threshold is 22Vdc (cautious)
03	As for 01, but the voltage threshold is 23Vdc (extremely cautious)

NOTE: this function is available for station configured with A0 00 (standard operation) or A011 (MASTER). Parameter not displayed in SLAVE mode.

86 01	**Enabling thermal protection of the inverter**
00	Disabled
01	Enabled

When this function is enabled, if the (estimated) temperature of the inverter exceeds the critical threshold, it blocks the automation, with signal tEMP on the display; operation resumes automatically when the temperature drops within safety levels.

90 00	**Restoring the factory settings**

After displaying number 90, press the keys **+** and **-** at the same time for 4 seconds: on the display appears the message rES- blinking indicating that the standard factory settings were restores (indicated next to the parameters numbers).
WARNING! After the restoration, make sure that the parameters are appropriate for the type of installation. Parameters A0 and A1 retain their value (must be changed manually).
Parameter 90 is not visible in the station configured as SLAVE (par. A0 10)

n0 01	**Version HW**
n1 23	**Year of production**
n2 45	**Week of production**
n3 67 n4 89 n5 01	**Serial Number:**
n6 23	**Version FW**
n7 45	**Version of communication RS485**

The serial number is obtained by combining the values of the parameters n0 up to n6. For example in this table are indicated the values (next to the parameters, are not default values) from which is obtained the serial number 01 23 45 67 89 01 23.
n7 determines the RS485 communication compatibility with other stations.

oN 01 o0 23 o1 45	**Performed operations**

The number of performed operations can be obtained by combining the values of the parameters oN up to o1 and adding 2 zeros. For example in this table are indicated the values (next to the parameters, are not default values) from which is obtained the the number of 01 23 45 00, that are 1234500 operations.

h0 01 h1 23	**Operating hours**

The number of operating hours is obtained by combining the values of the parameters h0 up to h1. For example in this table are indicated the values (next to the parameters, are not default values) from which is obtained the number 01 23, that are 123 operating hours.

d0 01 d1 23	**Number of days in which the control unit was on**

The number of days in which the control unit was on is obtained by combining the values of the parameters d0 up to d1. For example in this table are indicated the values (next to the parameters, are not default values) from which is obtained the number 01 23, that are 123 days in which the control unit was on.

P1 00 P2 00 P3 00 P4 00	**Password**
CP 00	**Password change**

NOTE: these parameters are not visible in the station configured as SLAVE (par. A0 10). In the case of MASTER/SLAVE installation, inserting or changing the password has to be done on the MASTER.
Storing a password enables the protection of data in memory, allowing only those who know it to change its value. The password entering procedure is the following:

- enter the eight numbers that form the password in parameters P1, P2, P3 and P4
- view on display the parameter CP: press at the same time the keys **+** and **-** for 4 seconds. When the display flashes, the new setting has been saved.

The protection will be immediately activated after restarting the control unit or after 30 minutes of standby.

WARNING! When the password protection is active, the keys **+** and **-** do not allow changing the value of a certain parameter and parameter CP is set to 01.

Parameters unlocking procedure (temporary): enter in parameters P1, P2, P3 and P4 the previously stored password, then view on display the parameter CP and make sure that its value is 00 (protection disabled).

The password can be removed only by someone who knows it, proceeding as follows: enter the password, store the password P1 00, P2 00, P3 00, P4 00, and confirm it with parameter CP.

If the password is forgotten, the control unit can be unlocked by contacting the technical support.

12 MASTER-SLAVE operation mode (opposing bars)

In the case of installation of two online barriers that regulate access to the same entrance, it is possible (for firmware version nb 11 or later) to manage the second barrier (configured as SLAVE, par. 10 A0 11). The connection is made with a cable with three conductors, minimum cross-section 0.5 mm^2 and with a maximum length of 100 metres (see **figure 12**).A0) through an RS485 connection coming from the station configured as MASTER (par.
All the commands, the main **STOP** key and the photocells must be connected to the MASTER. The sensitive edge, if installed, is always connected to the corresponding station (the one of the SLAVE, therefore, must be connected to the SLAVE station, just as a SLAVE STOP key must be connected to its terminal ST, and if not installed, a jumper must be assembled between the ST and COM).
RS485 communication allows you to send synchronised commands to the SLAVE and receive alarm signals from it (anti-crushing intervention or sensitive edge) by reacting accordingly also the MASTER. A bump found on a bar determines its fast backward run, while the other bar will perform the same operation, but with standard times.
Apart from parameters A0 and 73, all other parameters must be set on the MASTER, and hence are transferred to the SLAVE; parameter 71, depending on its type (right/left installation) is saved in the memory of the SLAVE with the opposite value chosen for the MASTER. If the parameter is 01 for the MASTER, it will be 00 for the SLAVE and vice versa.

On the SLAVE, parameters A2, A3 and 15 in extended mode are not visible, the remaining parameters can be viewed but not modified.
Alarm signals are supplied separately on the displays of the two stations.
Travel must be programmed separately for the two stations; this situation, together with the pedestrian opening (which only opens the MASTER bar), are the only ones where the two bars are not synchronised.
If for some reason, the MASTER bar is completely open or closed, and the SLAVE bar is stopped in the middle position, the alignment procedure immediately activates a command on the SLAVE to bring its bar in the correct position. The manoeuvre, being performed as an automatism, is anticipated by a pre-flashing for 5 seconds (not disabled).
The same thing happens when the situation is the opposite, therefore the SLAVE is in full position open/close position and the MASTER isn't: in this case the command to the MASTER is given after 5 seconds of inactivity.
CAUTION! If you have enabled the Deadman mode (par. A7 01), the alignment procedure is not performed.
When you configure par. A0 11 (MASTER), the message SrCH appears for a few seconds on the display, indicating the search on the RS485 bus bar of the SLAVE station. If the search is successful, the display will again show the input/safety device status and the C485 decimal point lights up (stable communication, see section 5.1).
Otherwise, the display will show the message CO n1 (no communication) and you must check the electrical connection and setting of par. A0 10 on the SLAVE.
If the message CON2 appears, the setting of the SLAVE is definitely wrong, and both stations are automatically configured to value A0 00 (disabling RS485 communication); in this case, reconfigure.
NOTES:

- Enabling a command (or safety device) connected to the MASTER will also show up on the display of the SLAVE station.
- TEST mode on the SLAVE station displays the status of the inputs used, **ST** and **COS**; only signal from the MASTER station is r5 (when the MASTER is locked).
- By pressing the TEST key on the SLAVE while the bar is moving will lock the bar (and therefore also the bar of the MASTER).

CAUTION! In order for the system to work properly even in absence of mains voltage, the battery kit must be installed on both the barriers; otherwise, the bar will lock with signal CON1 appearing on the display.

13 Parking lot access operation mode

The **AG/CTRL** station lets you manage the terminal block inputs **AP**, **PED** and **FT** specifically for access to parking lots.
CAUTION: contact **FT** should be normally closed, so if you use a ground loop, you should use this type of output contact.
If you want to have two opening commands, one (**AP**) can be activated by a beacon equipped with magnetic card reader or other technology (or alternatively by remote control, after setting par. 76 or 77) and the other by the underground loop inside the parking lot in front of the bar (see **figures 14 and 15**). Setting par. 83 to 02 or 03 makes available the **PED** as the opening command from within, and this allows to recognise direction of access to the parking lot.
Automatic re-closing is always enabled; the pause time (par. 21), however, guarantees that it will trigger the closure (you will have to set a pause time greater than that expected for normal crossing, so that as a rule the closure takes place according to one of the modes described below).
Enabling of input **FT** during closing causes the reopening, and is ignored during opening; parameters 50, 51, 52 and 56 are not managed.

13.1 Bi-directional mode

Parameter 83 01; see **figure 13**.
CAUTION: operation is the same both in entry/exit.
The opening is enabled with command **AP**, or by remote control.
The closure is activated as soon as you pass the **FT** zone (contact **FT** open when the vehicle is on the loop, closes when the vehicle leaves the loop).

13.2 Directional mode 1

Parameter 83 02; see **figure 14**.
Entry: the opening is enabled by command **AP** or by remote control; closing is enabled after crossing the **FT** zone, when the **PED** zone is past (contact **PED**, closed when the vehicle is on the loop, opens when the vehicle leaves the loop).
Exit: the opening is enabled by command **PED**; closing is enabled as soon as you pass the **FT** zone.

13.3 Directional mode 2

Parameter 83 03; see **figure 15**.
Entry: the opening is enabled by command **AP** or by remote control; closing is enabled at the end of the pause time (set by par. 21).
Exit: the opening is enabled by command **PED**; closing is enabled as soon as you pass the **FT** zone.

13.4 Forced closure by photocell

To deter a second car in the queue from trying to access behind the one that authorised opening of the bar, there is an additional mode: setting par. 84 to 01, enabling of input **FT** during closing does not invert drive, but blocks the bar in the position it is in that moment; the situation changes only when the input FT returns to standby (receding of the vehicle) and the closing sequence completes.

14 Testing

Check the response to all the connected commands.
Check the stroke and the decelerations.
Check the forces of impact.
Check the way in which the safety devices intervene.
If any crushing occurs, make sure to be far away from the limit switch or any obstacles that increase the risk of crushing.

15 Maintenance

Perform a scheduled maintenance once every 6 months making sure that they are clean and operational.
If there are any signs of dirt, moisture, insects or other, cut off the power, disconnect the battery and clean the board and the support. Run again the Testing procedure.
If there is oxide on the printed circuit evaluate the replacement.

16 Disposal

The product should always be uninstalled by qualified personnel using the appropriate procedures for the proper removal of the product.
This product is made of various kinds of materials, some of them can be recycled, others must be disposed of through recycling or disposal systems according to the local regulations concerning this category of product.
You should not dispose of this product using normal recycle bins. Perform the "separate collection" for disposal in accordance with the methods specified by local regulations; or return the product to the retailer when buying an equivalent new product.
Local regulations may set heavy penalties for illegal disposal of this product.
Warning: Some parts of the product may contain pollutants or toxic substances; if disposed of, could cause harmful effects on the environment and human health.