



Vehicle Access Control  
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# SENTINEL H23 SWING GATE



## Electrical Installation Instructions (0717)



## CONTENTS

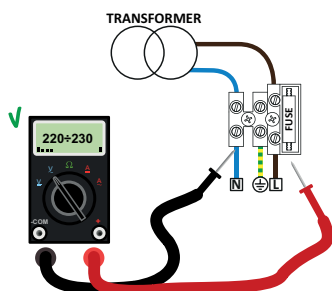
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### 3 Technical characteristics of product

	B70/2DC/BOX	B70/2DC115/BOX
MAINS POWER VOLTAGE	230 Vac $\pm$ 10% 50 Hz	115 Vac $\pm$ 10% 60 Hz
MAXIMUM MAINS POWER ABSORPTION	350 W	
FUSES	<b>F1</b> = 15A (ATO257) motor power circuit protection. <b>F2</b> = 4A (ATO257) accessories power supply protection <b>F3</b> = T1A (5x20 mm)	
CONNECTABLE MOTORS	2	
MOTOR POWER SUPPLY	24 Vac , with self-protected inverter	
MOTOR TYPE	sinusoidal drive brushless (ROGER BRUSHLESS)	
MOTOR CONTROL TYPE	sensorless field oriented control (FOC)	
RATED MOTOR POWER	40 W	
MAXIMUM MOTOR POWER	110 W	
MAXIMUM POWER, FLASHING LIGHT	25 W (24 Vdc)	
FLASHING LIGHT DUTY CYCLE	50%	
MAXIMUM POWER	100 W 230 Vac - 40 W 24 Vac/dc (potential free contact)	
GATE OPEN LIGHT POWER	3 W (24 Vdc)	
ELECTRIC LOCK POWER	15 W (12 Vdc)	
MAXIMUM ACCESSORY CURRENT ABSORPTION	10 W (24 Vdc)	
OPERATING TEMPERATURE	 -20°C  +55°C	
DEGREE OF PROTECTION	IP54	
PRODUCT DIMENSION	dimensions in mm 330x230x115 Weight: 3,9 kg	

### 4 Description of connections

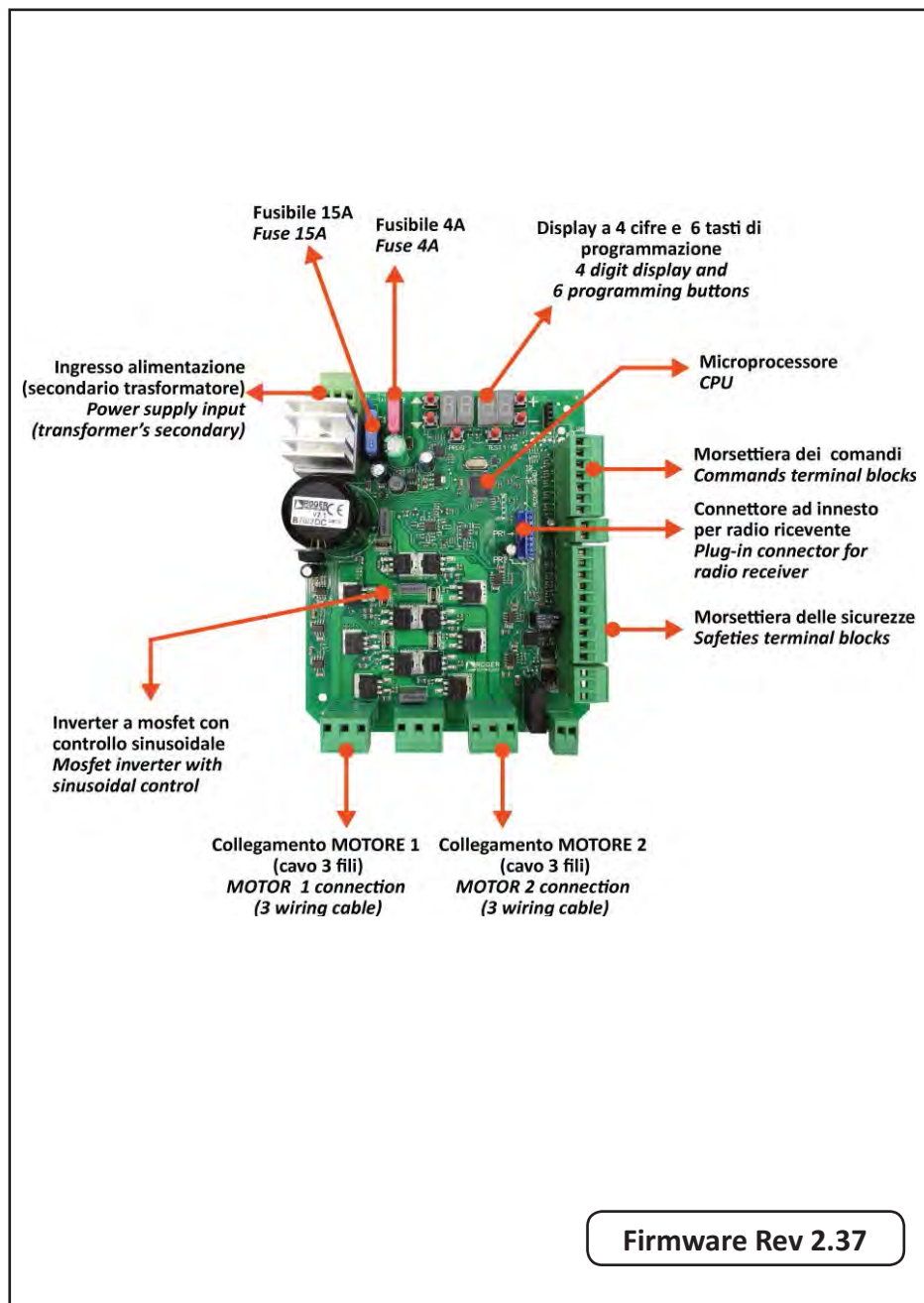
Figure 1 shows connection diagrams.



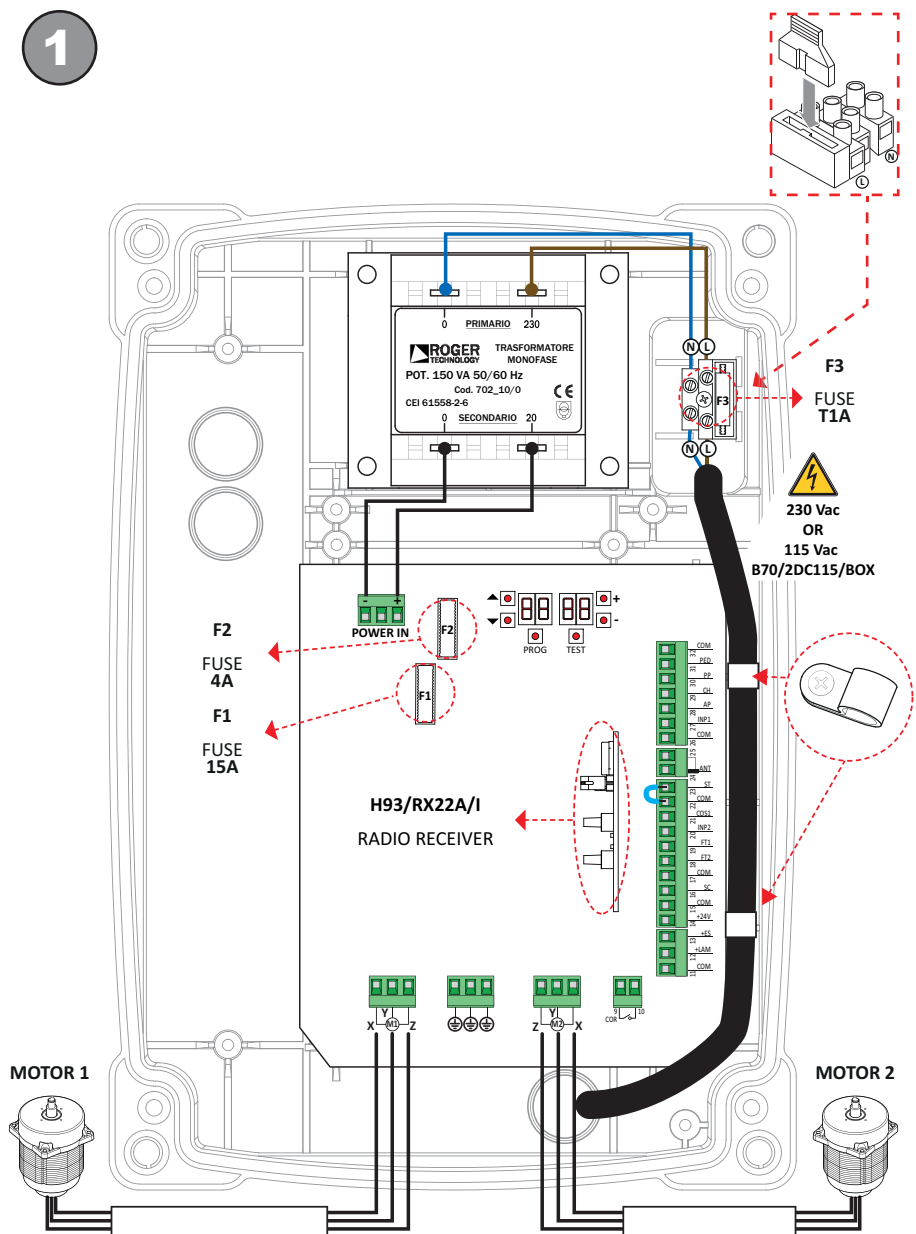
Measure the voltage on the primary mains power connection with a tester.

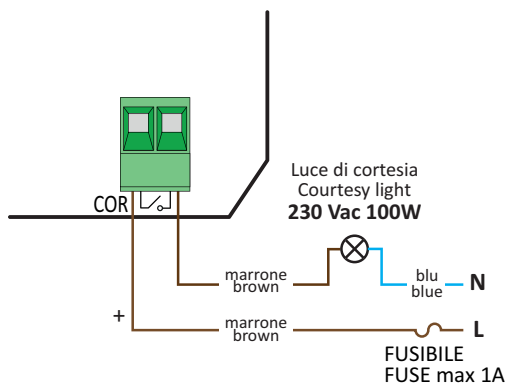
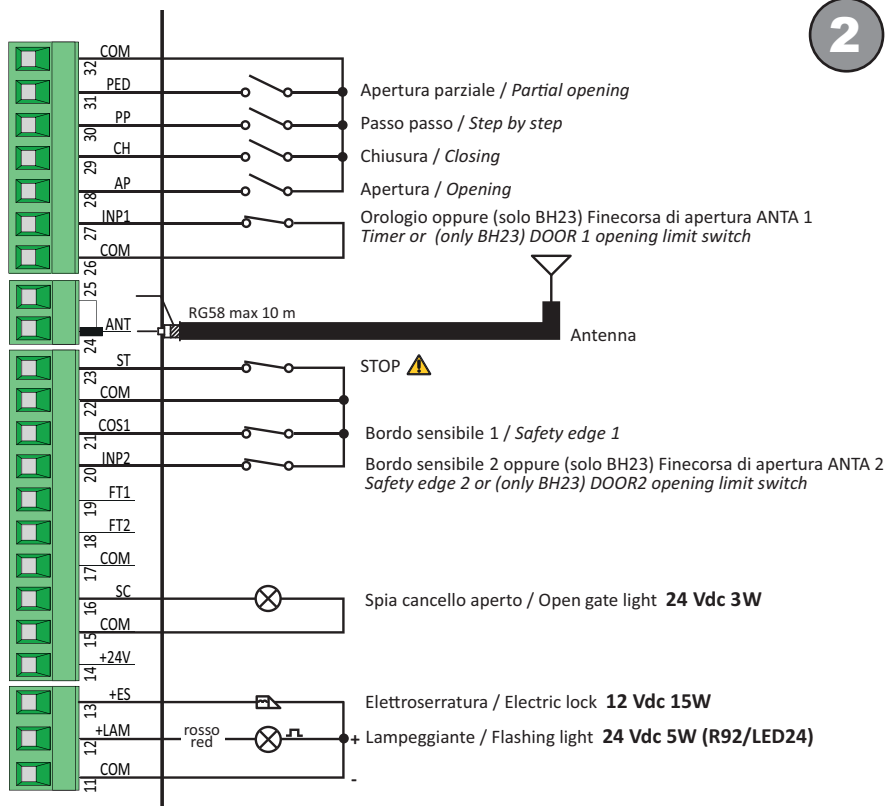
For the Brushless automation system to function correctly, the mains power voltage must be at least 230Vac (115 Vac)  $\pm$  10%.

If the voltage measured is not as indicated above or is unstable, the automation system may not work correctly.



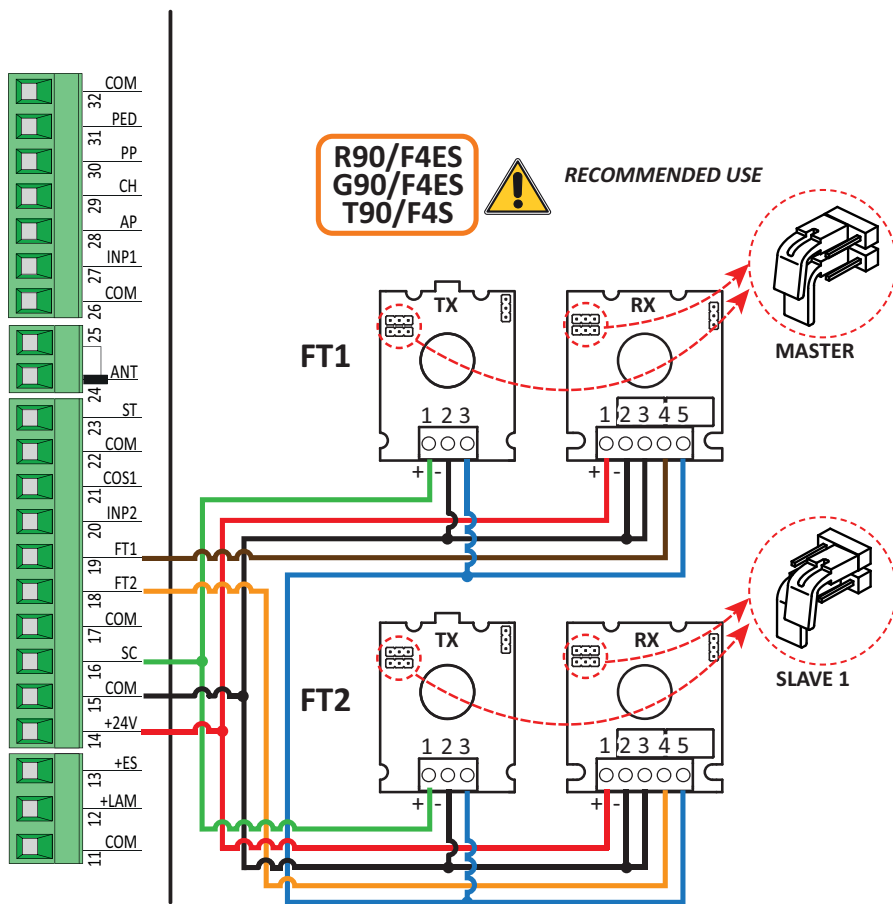
1



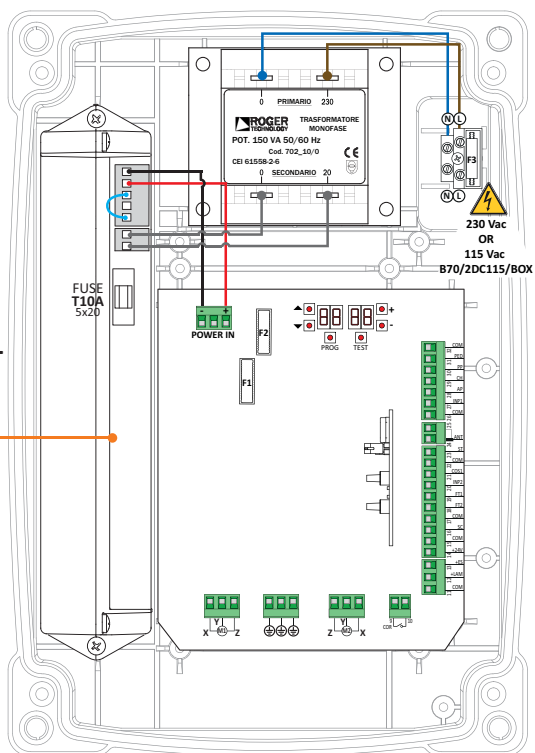


# PHOTOCELLS TEST (impostare / set AB 02)

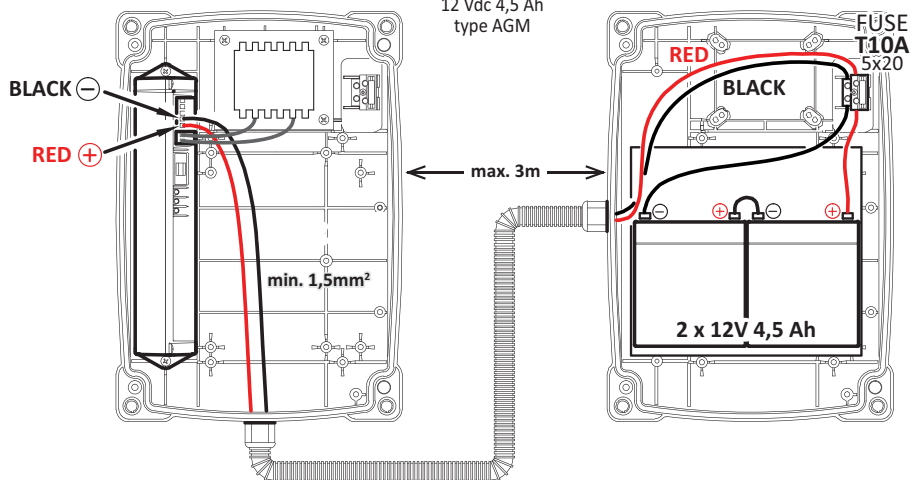
4



**B71/BC/INT**  
2 batteries  
12 Vdc 1,2 Ah  
type AGM



**B71/BC/EXT**  
2 batteries  
12 Vdc 4,5 Ah  
type AGM





## 4.1 Electrical connections

### CONNECTING CONTROL UNIT TO MAINS ELECTRICITY

Power supply 230 Vac  $\pm 10\%$

CONNECTING CONTROL PANEL TO MOTORS	L cable	
	1÷10 m	10÷30 m
Motor 1	3x2,5 mm <sup>2</sup>	3x4 mm <sup>2</sup>
Motor 2	3x2,5 mm <sup>2</sup>	3x4 mm <sup>2</sup>

CONNECTING CONTROL PANEL TO ACCESSORIES	L cable = 1÷20 m
Photocells - Receiver	4x0,5 mm <sup>2</sup>
Photocells - Transmitter	2x0,5 mm <sup>2</sup>
Keypad H85/TDS - H85/TTS (connecting to control panel to decoder board)	2x0,5 mm <sup>2</sup>
Key selector R85/60	3x1 mm <sup>2</sup>

### CONNECTING CONTROL PANEL TO FLASHING LIGHT

Power supply 24 Vdc - LED (25 W power consumption)	2x1,5 mm <sup>2</sup> (max 10 m)
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### CONNECTING CONTROL PANEL TO GATE OPEN INDICATOR

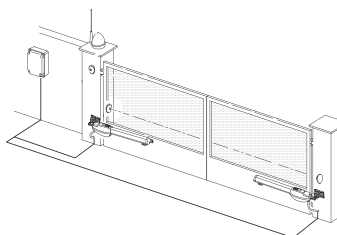
CONNECTING CONTROL PANEL TO GATE OPEN INDICATOR	L cable
	1÷20 m
Power supply 24 Vdc (3 W power consumption)	2x1 mm <sup>2</sup>

### CONNECTING CONTROL PANEL TO COURTESY LIGHT

CONNECTING CONTROL PANEL TO COURTESY LIGHT	L cable = 1÷20 m
Power supply 230 Vac (100 W power consumption)	2x1 mm <sup>2</sup>

### CONNECTING CONTROL PANEL TO ANTENNA

Cable type RG58	max 10 m
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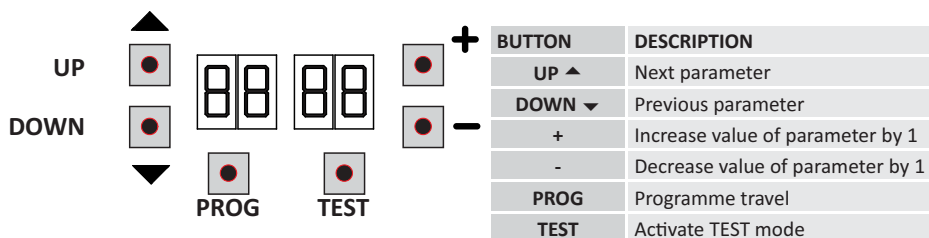
**SUGGESTIONS:** in the case of a new installation, we recommend using cables with a cross section of 3x2.5 mm<sup>2</sup> and not exceeding 10 m in length to connect the motor with the control unit.

With existing installations, we recommend checking the cross section of the cables and that the cables themselves are in good condition.

**WARNING:** old cables or previous generation cables, especially if with a cross section of 3x1.5mm<sup>2</sup>, may impair the performance of the digital brushless motor.

	DESCRIPTION
	<p>Mains power supply 230 Vac <math>\pm 10\%</math> connection. (<b>B70/2DC115/BOX</b>: 115 Vac <math>\pm 10\%</math> 60Hz). Fuse 5x20 T1A.</p>
<p><b>POWER IN</b></p>	<p>Power feed input from transformer (or from <b>B71/BC</b> battery charger, if used). <b>N.B.:</b> Ready wired in factory by ROGER TECHNOLOGY.</p>
<p><b>X-Y-Z</b></p>	<p>Connection to ROGER brushless MOTOR 1.</p> <p><b>Warning!</b> If the motor rotates in the wrong direction, simply swap any two of the three motor connectors. Check the connections illustrated in fig. 3.</p>
<p><b>Z-Y-X</b></p>	<p>Connection to ROGER brushless MOTOR 2.</p> <p><b>Warning!</b> If the motor rotates in the wrong direction, simply swap any two of the three motor connectors. Check the connections illustrated in fig. 3.</p>

## 5 Function buttons and display



- Press the UP ▲ and/or DOWN ▼ buttons to view the parameter you intend to modify.
- Use the + and - buttons to modify the value of the parameter. The value starts to flash.
- Press and hold the + or - button to scroll quickly through values, to modify the parameter more quickly.
- To save the new value, wait a few seconds or move onto another parameter with the UP ▲ or DOWN ▼ button. The display flashes rapidly to indicate that the new value has been saved.
- Parameters can only be modified while the motor is not running. Parameters can be viewed at any time.

## 6 Switching on or commissioning

Power the control unit.

The firmware version of the control unit is displayed briefly.

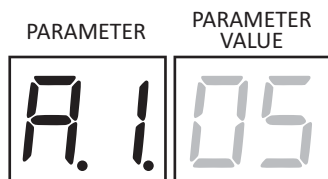
Version installed: 2.37.



Immediately afterwards, the display enters the commands and safety device status mode. See chapter 7.

## 7 Display function modes

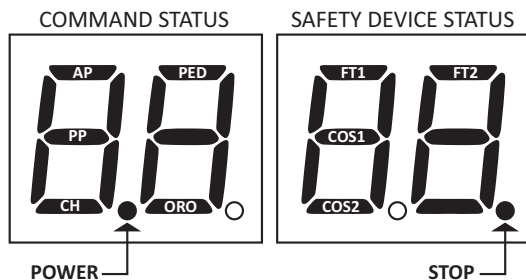
### 7.1 Parameter display mode



See chapter 10 for detailed descriptions of the parameters.

## 7.2 Command and safety device status display mode

### BM20 - BR20 - BR21 -BE20 Serie



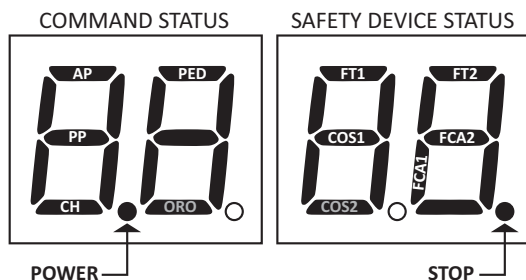
#### COMMAND STATUS:

The command status indicators on the display (segments AP = open, PP = step mode, CH = close, PED = partial opening, ORO = clock) are normally off. They illuminate when a command is received (e.g.: when a step mode command is received, the segment PP illuminates).

#### SAFETY DEVICE STATUS:

The safety device status indicators on the display (segments FT1/FT2=photocells, COS1/COS2 = sensing edge, STOP) are normally on. If an indicator is off, the relative device is in alarm state or is not connected. The an indicator is flashing, the relative device has been disabled with a specific parameter.

### BH23 Serie



#### COMMAND STATUS:

The command status indicators on the display (segments AP = open, PP = step mode, CH = close, PED = partial opening) are normally off. They illuminate when a command is received (e.g.: when a step mode command is received, the segment PP illuminates).

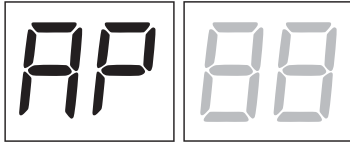
#### SAFETY DEVICE STATUS:

The safety device status indicators on the display (segments FT1/FT2=photocells, COS1=sensing edge, FCA1/FCA2=gate open limit switches, if enabled, STOP) are normally on. If an indicator is off, the relative device is in alarm state or is not connected. The an indicator is flashing, the relative device has been disabled with a specific parameter.  
N.B.: If the gate open limit switches are enabled (72 = 01), the codes ORO and COS2 flash.  
N.B.: If the gate open limit switches are NOT enabled (72 = 00), the codes FCA1 and FCA2 flash.

### 7.3 TEST mode

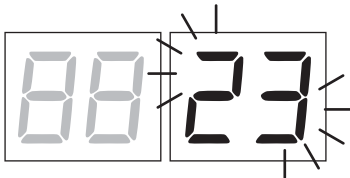
The TEST mode is used to test activation of the commands and safety devices with visual confirmation. To activate the mode, press the TEST button with the automatic gate system at rest. If the gate is moving, pressing TEST stops the gate. Pressing the button again enables TEST mode. If the flashing light and the gate open indicator lamp illuminate for one second each time a control is used or a safety device is activated.

The command signal status is shown on the left hand side of the display for 5 seconds, ONLY when the respective command signal is active (AP, CH, PP, PE, OR). For example, if the gate open command is activated, the letters AP appear on the display.



The status of the safety devices/inputs is shown on the right hand side of the display. The number of the terminal relative to the safety device in alarm state flashes.

Example: STOP contact in alarm state.



00	No safety device in alarm state, and no limit switch activated
23	STOP.
21	Sensing edge COS1.
20	Sensing edge COS2.
19	Photocell FT1.
18	Photocell FT2.
27	Gate open limit switch MOTOR 1 (BH23 Serie, if enabled - 72 0 I).
20	Gate open limit switch MOTOR 2 (BH23 Serie, if enabled - 72 0 I).

**NOTA:** If one or more contacts are open, the gate will not open or close. This does not apply for the limit switch signal state, however, which is shown on the display but does not prevent normal operation of the gate.

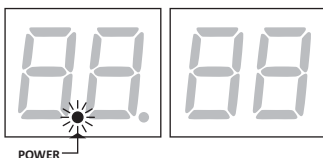
If more than one safety device is in alarm state, once the problem relative to the first device is resolved, the alarm for the next device is displayed. Any further alarm states are also displayed with the same logic.

Press the TEST button again to exit test mode.

After 10 seconds with no user input, the display returns to command and safety device state display mode.

### 7.4 Standby mode

This mode is activated after 30 minutes with no user input. The POWER LED flashes slowly. Press UP ▲, DOWN ▼, +, = to reactivate the control unit.



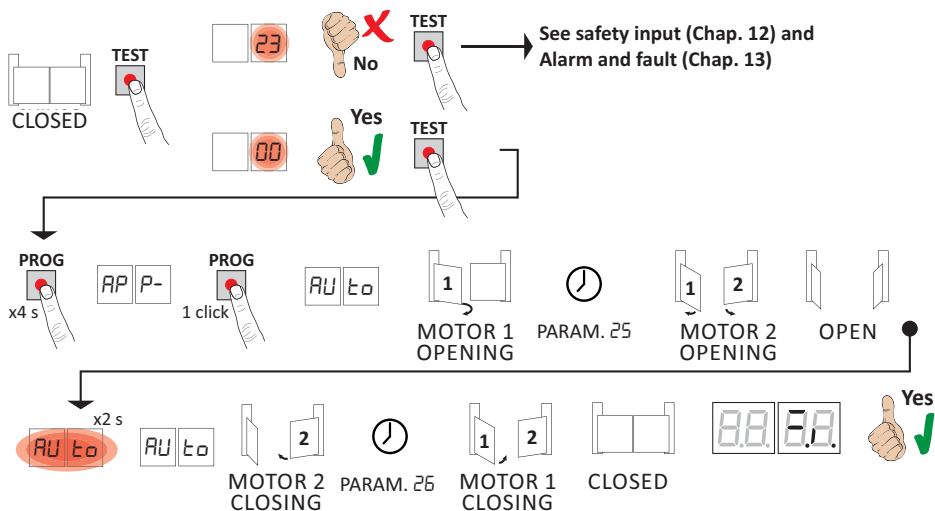
## 8 Travel acquisition

For the system to function correctly, the gate travel must be acquired by the control.

Before starting:

1. Select the automation system model installed with the parameter *AI*. The default setting for this parameter is motor type BE20.
2. Select the number of motors installed with the parameter *TI*. This parameter is set for two motors by default.
3. Check that the operator present function is not enabled (*AI* 00).
4. Install mechanical stops in both the open and closed positions.
5. Move the gate into the closed position.
6. Press **TEST** (see TEST mode in chapter 7) and check the command signal and safety device states. If any safety devices are not installed, jumper the relative contact or disable the device from the relative parameter (*S0*, *S1*, *S3*, *S4*, *T3* and *T4*).

### ACQUISITION PROCEDURE:



- Press and hold **PROG** for 4 seconds. *AP P-* is shown on the display.
- Press **PROG** again. *AU t0* is shown on the display.
- MOTOR 1 starts opening at low speed.
- After the delay time set with parameter *25*, MOTOR 2 starts an opening manoeuvre.
- Once the gate open mechanical stop is reached, the gate stops briefly. The message *AU t0* flashes on the display for 2 s.
- When the message *AU t0* stops flashing and is steadily lit on the display, MOTOR 2 closes first (with a default time setting of 3 s) and then, after a delay set with parameter *25* (default setting 5 s), MOTOR 1 closes until the gate closed mechanical stop is reached.

If the acquisition procedure is completed successfully, the display enters the command and safety device state display mode.

If the following error messages are shown on the display, repeat the acquisition procedure:

- *AP PE*: acquisition error. Press the TEST button to clear the error, and check the safety device in alarm state.
- *AP PL*: travel length error. Press the TEST button to clear the error, and check that both gate leaves are completely closed.

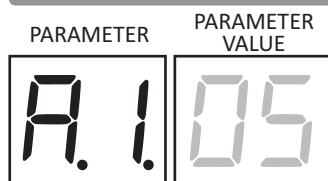
**i** For more information, see chapter 13 “Alarms and faults”.

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52	01	Photocell (FT1) mode with gate closed	49
53	00	Setting photocell mode during gate opening (FT2)	49
54	00	Setting photocell mode during gate closing (FT2)	49
55	01	Photocell (FT2) mode with gate closed	49
56	00	Enable close command 6 s after activation of photocell (FT1-FT2)	49
65	05	Motor stop distance setting	49

PARAM.	FACTORY DEFAULT	DESCRIPTION	PAGE
70	02	Select number of motors installed	50
72	00	Enable limit switches	50
73	03	Configuring sensing edge COS1	50
74	00	Configuring sensing edge COS2	50
76	00	Configuring radio channel 1 (PR1)	50
77	01	Configuring radio channel 2 (PR2)	50
78	00	Configuring flashing light frequency	51
79	60	Selecting courtesy light mode	51
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81	00	Enable safeguarded gate closure/opening	51
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90	00	Restoring factory default values	52
n0	01	HW version	52
n1	23	Year of manufacture	52
n2	45	Week of manufacture	52
n3	67	Serial number	52
n4	89		52
n5	01		52
n6	23	FW version	52
o0	01	View manoeuvre counter	52
o1	23		52
h0	01	View manoeuvre hour counter	52
h1	23		52
d0	01	View control unit days on counter	52
d1	23		52
P1	00	Password	53
P2	00		53
P3	00		53
P4	00		53
CP	00	Password change protection	53

## 10 Parameters menu



<b>A105</b>	<b>Selecting automation system model</b> <b>WARNING!</b> If this parameter is not set correctly, the automation system may not function properly. <b>N.B.:</b> in the event of a reset to restore the default parameters, this parameter must be set again manually.
01	BM20 series - Irreversible piston.
02	BR20 series - Irreversible piston.
03	BH23 series - Gear motor with irreversible articulated arm.
04	BR21 series - In-ground irreversible gear motor.
05	BE20 series - Irreversible piston.
<b>A200</b>	<b>Automatic closure after time pause (from gate completely open)</b>
00	Disabled.
01-15	From 1 to 15 of gate closure attempts after photocell is triggered. Once the number of attempts set is reached, the gate remains open.
99	The gate tries to close indefinitely.
<b>A300</b>	<b>Automatic gate closing after mains power outage</b>
00	Disabled. The gate does not close automatically when mains power is restored.
01	Enabled. If the gate is NOT completely open, when mains power is restored, the gate closes after a 5 second warning signalled with the flashing light (independently of the value set with the parameter A5). The gate closes in "position recovery" mode (see chapter 16).
<b>A400</b>	<b>Selecting step mode control function (PP)</b>
00	Open-stop-close-stop-open-stop-close...
01	Condominium function: the gate opens and closes after the set automatic closing time. The automatic closing timer restarts if a new step mode command is received. Step mode commands are ignored while the gate is opening. This allows the gate to open completely and prevents the gate from closing when not required. If automatic closing is disabled (A2 00), the condominium function automatically attempts a closing manoeuvre A2 01.
02	Condominium function: the gate opens and closes after the set automatic closing time. The automatic closing timer does NOT restart if a new step mode command is received. Step mode commands are ignored while the gate is opening. This allows the gate to open completely and prevents the gate from closing when not required. If automatic closing is disabled (A2 00), the condominium function automatically attempts a closing manoeuvre A2 01.
03	Open-close-open-close.
04	Open-close-stop-open.



<b>A5 00</b>	<b>Pre-flashing</b>
00	Disabled. The flashing light is activated during opening and closing manoeuvres.
01-10	Flashing warning signal for 1 to 10 seconds prior to every manoeuvre.
99	5 second flashing warning signal prior to closing manoeuvre.

<b>A6 00</b>	<b>Condominium function for partial open command (PED)</b>
00	Disabled. The gate opens partially in step mode: open-stop-close-stop-open...
01	Enabled. Partial commands are ignored during gate opening.

<b>A7 00</b>	<b>Enabling operator present function.</b>
00	Disabled.
01	Enabled. The open (AP) or close (CH) button must be pressed continuously to operate the gate. The gate stops when the button is released.

<b>A8 00</b>	<b>Gate open indicator / photocell test function and "battery saving"</b>
00	The indicator is off when the gate is closed, and steadily lit during manoeuvres and when the gate is open.
01	The indicator flashes slowly during opening manoeuvres, and is lit steadily when the gate is completely open. It flashes quickly during closing manoeuvres. If the gate is stopped in an intermediate position, the lamp extinguishes twice every 15 seconds.
02	Set 02 if the output <b>SC</b> is used for the photocell test. See fig. 4.
03	Set to 03 if the output <b>SC</b> is used for the "battery saving" function. See fig. 5. When the gate is completely open or closed, the control unit deactivates any accessories connected to terminal <b>SC</b> to reduce battery consumption.
04	Set to 04 if the output <b>SC</b> is used for the "battery saving" function and photocell test function. See fig. 5.

<b>11 04</b>	<b>Setting deceleration MOTOR 1</b>
<b>12 04</b>	<b>Setting deceleration MOTOR 2</b>
01-05	01= the gate decelerates near stops and the limit switch (if installed). ... 05= the gate decelerates long before stops and the limit switch (if installed).

<b>13 05</b>	<b>Adjusting LEAF 1 position control when completely opens or closes</b> The value selected must ensure that LEAF 1 is opened/closed correctly when it reaches the respective (open or closed) mechanical stop. The position of LEAF 1 is calculated by the system from the number of motor revolutions and the motor reduction gear ratio. <b>Warning!</b> Excessively low values cause the gate to reverse when it reaches the gate open/closed stop. <b>N.B.:</b> with <b>BR21</b> automation systems, with the gate leaf in the completely closed position, adjust the inner mechanical stop so that the lever of the gear motor can move by a few millimetres.
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<b>14 05</b>	<b>Adjusting LEAF 2 position control when completely opens or closes</b> The value selected must ensure that LEAF 2 is opened/closed correctly when it reaches the respective (open or closed) mechanical stop. The position of LEAF 2 is calculated by the system from the number of motor revolutions and the motor reduction gear ratio. <b>Warning!</b> Excessively low values cause the gate to reverse when it reaches the gate open/closed stop. <b>N.B.:</b> with <b>BR21</b> automation systems, with the gate leaf in the completely closed position, adjust the inner mechanical stop so that the lever of the gear motor can move by a few millimetres.
01-10	Motor revolutions.

15 99	<b>Partial opening adjustment (%)</b> N.B.: with double leaf swing gate installations, this parameter is set by default as the completely open position of LEAF 1. With single leaf swing gate installations, this parameter is set to 50% of total opening.
15-99	From 15% to 99% of total gate travel.
19 00	<b>Adjusting stop advance of LEAF 1 when opening</b>
20 00	<b>Adjusting stop advance of LEAF 2 when opening</b>
00	The leaf stops against the opening stop.
0 1-15	A leaf stop advance of 1 to 15 motor turns before the completely open position may be set.
21 30	<b>Setting automatic closing time</b> The timer starts from the gate open state and continues for the set time. Once the set time is reached, the gate closes automatically. The timer count restarts if a photocell is triggered.
00-90	Pause time settable from 00 to 90 s.
92-99	Pause time settable from 2 to 9 min.
25 03	<b>Adjusting opening delay of MOTOR 2</b> During opening, MOTOR 2 starts with an adjustable delay after MOTOR 1.
00-10	From 0 to 10 s.
26 05	<b>Adjusting closing delay of MOTOR 1</b> During closing, MOTOR 1 starts with an adjustable delay after MOTOR 2.
00-30	From 0 to 30 s.
27 03	<b>Setting reverse time after activation of sensing edge or obstacle detection (crush prevention).</b> This sets the reverse manoeuvre time after activation of the sensing edge or the obstacle detection system.
00-60	From 0 to 60 s.
29 00	<b>Enable electric lock</b>
00	Disabled.
0 1	Enabled. When LEAF 1 approaches the gate closed stop, the controller delivers supplementary power to MOTOR 1 to latch the electric lock.
02	Enabled. When LEAF 1 approaches the gate closed stop, the controller delivers maximum power to MOTOR 1 to latch the electric lock. The obstacle detection system is disabled.
30 07	<b>Setting motor torque</b> Increasing or decreasing the value of the parameter increases or decreases motor torque and, as a result, adjusts obstacle detection sensitivity. Use values below 03 SOLO ONLY for particularly lightweight installations not exposed to severe weather conditions (strong winds or very cold temperatures). In installations with gate leaves of different lengths, they torque value may be set separately, setting a value for parameter 33 between 0 1 and 09.
0 1-09	01= -35%; 02= -25%; 03= -16%; 04= -8% (reduced motor torque = increased sensitivity). 05= 0%. 06= +8%; 07= +16%; 08= +25%; 09= +35% (increased motor torque = reduced sensitivity).

<b>31 15</b>	<b>Setting obstacle impact force sensitivity MOTOR 1</b> If the reaction time to obstacle impact force is too long, reduce the value of the parameter. If the impact force exerted on obstacles is too high, reduce the value of parameter 30.
0 1- 10	Low motor torque: 01 = minimum obstacle impact force ... 10 = maximum obstacle impact force <b>N.B.:</b> only use these settings if the medium motor torque values are not suitable for the installation.
11- 19	Medium motor torque. <b>Recommended setting for adjusting force settings correctly.</b> 11 = minimum obstacle impact force ... 19 = maximum obstacle impact force.
20	Maximum motor torque. May only be used if the gate is equipped with a sensing edge.

<b>32 15</b>	<b>Setting obstacle impact force sensitivity MOTOR 2</b> If the reaction time to obstacle impact force is too long, reduce the value of the parameter. If the impact force exerted on obstacles is too high, reduce the value of parameter 30 (or 33, if enabled: 33 different from 10)
0 1- 10	Low motor torque: 01 = minimum obstacle impact force ... 10 = maximum obstacle impact force <b>N.B.:</b> only use these settings if the medium motor torque values are not suitable for the installation.
11- 19	Medium motor torque. <b>Recommended setting for adjusting force settings correctly.</b> 11 = minimum obstacle impact force ... 19 = maximum obstacle impact force.
20	Maximum motor torque. May only be used if the gate is equipped with a sensing edge.

<b>33 10</b>	<b>Setting motor torque MOTOR 2</b> Increasing or decreasing the value of the parameter increases or decreases motor torque and, as a result, adjusts obstacle detection sensitivity. Use values below 03 SOLO ONLY for particularly lightweight installations not exposed to severe weather conditions (strong winds or very cold temperatures).
0 1- 09	01= -35%; 02= -25%; 03= -16%; 04= -8% (reduced motor torque = increased sensitivity). 05= 0%. 06= +8%; 07= +16%; 08= +25%; 09= +35% (increased motor torque = reduced sensitivity).
10	The torque is set with parameter 30.

<b>34 08</b>	<b>Setting start acceleration MOTOR 1</b>
<b>35 08</b>	<b>Setting start acceleration MOTOR 2</b>
0 1- 10	01= the gate accelerates rapidly at start of manoeuvre. ... 05= the gate accelerates slowly and progressively at start of manoeuvre.

<b>38 00</b>	<b>Enable electric lock release reverse impulse</b>
00	Disabled.
0 1	Enabled. The controller applies a brief closing force (max. 4 s) to release the electric lock. Enabling the lock release reverse impulse automatically enables the electric lock 29 = 0 1.

<b>40 05</b>	<b>Setting speed (%)</b>
0 1- 05	01= 60% minimum speed ... 05= 100% maximum speed.

<b>49 01</b>	<b>Setting number of automatic closure attempts after activation of sensing edge or obstacle detection (crush protection)</b>
00	No automatic closure attempts.
0 1- 03	From 1 to 3 automatic closure attempts. We recommend setting a value equal to or lower than the value set for parameter A2. Automatic closure is only performed if the gate is completely open.

50 00	Setting photocell mode during gate opening (FT1)
00	DISABLED. Photocell is not active or not installed.
01	STOP. The gate stops and remains stationary until the next command is received.
02	IMMEDIATE REVERSE. The gate reverses immediately if the photocell is activated during gate opening.
03	TEMPORARY STOP. The gate stops as long as the photocell is obstructed. The gate resumed opening when the photocell is cleared.
04	DELAYED REVERSE. The gate stops if the photocell is obstructed. The gate closes when the photocell is cleared.

51 02	Setting photocell mode during gate closing (FT1)
00	DISABLED. Photocell is not active or not installed.
01	STOP. The gate stops and remains stationary until the next command is received.
02	IMMEDIATE REVERSE. The gate reverses immediately if the photocell is activated during gate closure.
03	TEMPORARY STOP. The gate stops as long as the photocell is obstructed. The gate resumed closing when the photocell is cleared.
04	DELAYED REVERSE. The gate stops if the photocell is obstructed. The gate opens when the photocell is cleared.

52 01	Photocell (FT1) mode with gate closed
00	If the photocell is obstructed, the gate cannot open.
01	The gate opens when an open command is received, even if the photocell is obstructed.
02	The photocell sends the gate open command when obstructed.

53 00	Setting photocell mode during gate opening (FT2)
00	DISABLED. Photocell is not active or not installed.
01	STOP. The gate stops and remains stationary until the next command is received.
02	IMMEDIATE REVERSE. The gate reverses immediately if the photocell is activated during gate opening.
03	TEMPORARY STOP. The gate stops as long as the photocell is obstructed. The gate resumed opening when the photocell is cleared.
04	DELAYED REVERSE. The gate stops if the photocell is obstructed. The gate closes when the photocell is cleared.

54 00	Setting photocell mode during gate closing (FT2)
00	DISABLED. Photocell is not active or not installed.
01	STOP. The gate stops and remains stationary until the next command is received.
02	IMMEDIATE REVERSE. The gate reverses immediately if the photocell is activated during gate closure.
03	TEMPORARY STOP. The gate stops as long as the photocell is obstructed. The gate resumed closing when the photocell is cleared.
04	DELAYED REVERSE. The gate stops if the photocell is obstructed. The gate opens when the photocell is cleared.

55 01	Photocell (FT2) mode with gate closed
00	If the photocell is obstructed, the gate cannot open.
01	The gate opens when an open command is received, even if the photocell is obstructed.
02	The photocell sends the gate open command when obstructed.

<b>56 00</b>	<b>Enable close command 6 s after activation of photocell (FT1-FT2)</b> N.B.: This parameter is not visible if <b>88 03</b> or <b>88 04</b> is set.
00	Disabled.
01	Enabled. When the photocell gate FT1 is crossed, a close command is sent 6 seconds later.
02	Enabled. When the photocell gate FT2 is crossed, a close command is sent 6 seconds later.

<b>65 05</b>	<b>Setting motor stop distance</b>
01-05	01= faster deceleration/shorter stop distance ... 05= slower deceleration/longer stop distance.

<b>70 02</b>	<b>Select number of motors installed</b>
01	1 motor.
02	2 motors. IMPORTANT: Use the same type of motor for both gate leaves.

<b>72 00</b>	<b>Enable limit switches</b> N.B.: This parameter is visible only if <b>81 03</b> .
00	No limit switch installed.
01	Gate open limit switches installed.

<b>73 03</b>	<b>Configuring sensing edge COS1</b>
00	Sensing edge NOT INSTALLED.
01	NC contact (normally closed). The gate reverses only when opening.
02	Contact with 8k2 resistor. The gate reverses only when opening.
03	NC contact (normally closed). The gate always reverses.
04	Contact with 8k2 resistor. The gate always reverses.

<b>74 00</b>	<b>Configuring sensing edge COS2</b> N.B.: This parameter is not visible if <b>81 03</b> and <b>72 01</b> .
00	Sensing edge NOT INSTALLED.
01	NC contact (normally closed). The gate reverses only when closing.
02	Contact with 8k2 resistor. The gate reverses only when closing.
03	NC contact (normally closed). The gate always reverses.
04	Contact with 8k2 resistor. The gate always reverses.

<b>76 00</b>	<b>Configuring radio channel 1 (PR1)</b>
<b>77 01</b>	<b>Configuring radio channel 2 (PR2)</b>
00	STEP MODE.
01	PARTIAL OPENING
02	OPENING
03	CLOSING.
04	STOP.
05	Courtesy light. The output COR is managed from the remote control. The light remains lit as long as the remote control is active. The parameter <b>79</b> is ignored.
06	Courtesy light ON-OFF (PP). The output COR is managed from the remote control. The remote control turns the courtesy light on and off. The parameter <b>79</b> is ignored.
07	STEP MODE with confirmation for safety. <sup>(1)</sup>
08	PARTIAL OPENING with confirmation for safety. <sup>(1)</sup>

09	OPENING with confirmation for safety. <sup>(1)</sup>
10	CLOSURE with confirmation for safety. <sup>(1)</sup>

<sup>(1)</sup> To prevent gate manoeuvres caused by accidentally pressing a remote control button, confirmation is required to enable the command. Example: parameters 76 01 and 77 01 set:

- Pressing the CHA button on the remote control selects the step mode function, which must be confirmed within 2 seconds by pressing CHB on the remote control. Press CHB to activate partial opening.

78 00	<b>Configuring flashing light frequency</b>
00	The frequency is set electronically from the flashing light unit.
01	Slow flash.
02	Light flashes slowly when gate opens, rapidly when gate closes.

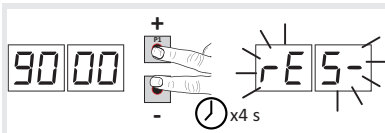
79 60	<b>Selecting courtesy light mode</b>
00	Disabled.
01	PULSE. The courtesy light illuminates briefly at the start of each manoeuvre.
02	ACTIVE. The light remains lit for the entire duration of the manoeuvre.
03-90	From 3 to 90 s. The light remains lit for the time period set after the manoeuvre is completed.
92-99	From 2 to 9 minutes. The light remains lit for the time period set after the manoeuvre is completed.

80 00	<b>Clock contact configuration (INP1)</b> When the clock function is active, the gate opens and remains open. At the end of the programmed time set with the external device (clock), the gate closes. <b>N.B.:</b> This parameter is not visible if A1 03 and 72 01.
00	When the clock function is active, the gate opens and remains open. Any command signal received is ignored.
01	When the clock function is active, the gate opens and remains open. Any command signal received is accepted. When the gate returns to the completely open position, the clock function is reactivated.

81 00	<b>Enable safeguarded gate closure/opening</b> Enabling this parameter ensures that the gate is not left open due to an incorrect and/or accidental command. This function is <b>NOT</b> enabled if: <ul style="list-style-type: none"> <li>the gate receives a STOP command;</li> <li>the sensing edge is activated;</li> <li>the number of closure attempts set by parameter A2 has been reached;</li> <li>the acquired position is lost (perform position recovery, see chapter 16).</li> </ul>
00	Disabled. The parameter B2 is not displayed.
01	Safeguarded closure enabled. After a period of time set with parameter B2, the control unit signals a 5 second warning with the flashing light, regardless of the parameter A5, and then closes the gate.
02	Safeguarded closure / opening enabled. If the gate is closed as a result of a step mode command, after a period of time set with parameter B2, the control unit signals a 5 second warning with the flashing light (regardless of the parameter A5), and then the gate closes. If the gate is stopped by the obstacle detection system during a closure manoeuvre, the gate closes after a period of time set with parameter B2. If the gate is stopped by the obstacle detection system during an opening manoeuvre, the gate closes after a period of time set with parameter B2.

82 03	<b>Setting safeguarded closure/opening activation time</b> <b>N.B.:</b> this parameter is not visible if the value of parameter B1 = 00.
02-90	Wait time settable from 2 to 90 s.
92-99	Wait time settable from 2 to 9 min.

90 00

**Restoring factory default values****NOTE** This procedure is only possible if NO data protection password is set.

**Warning!** Restoring default settings cancels all settings made previously except for parameter  $R1$ : after restore, check that all parameters are suitable for the installation.

The default factory settings may also be restored using the + (PLUS) and/or - (MINUS) buttons as follows:

- Turn off the power.
- Press and hold the + (PLUS) and - (MINUS) button until the unit switches on.
- The display flashes after 4 s  $rE5$ .
- The default factory settings have now been restored.

**Identification number**

The identification number consists of the values of the parameters from  $n0$  to  $n5$ .

**N.B.:** The values shown in the table are indicative only.

n0 01

**HW version.**

n1 23

**Year of manufacture.**

n2 45

**Week of manufacture.**

n3 67

n4 89

**Serial number.**

n5 01

n6 23

**FW version.**

Example: 01 23 45 67 89 01 23

**View manoeuvre counter**

The number consists of the values of the parameters from  $m0$  to  $m1$  multiplied by 100.

**N.B.:** The values shown in the table are indicative only.

m0 01

**Manoeuvres performed.**

m1 23

Example: 01 23 x100 = 12.300 manoeuvres.

**View manoeuvre hour counter**

The number consists of the values of the parameters from  $h0$  to  $h1$ .

**N.B.:** The values shown in the table are indicative only.

h0 01

**Manoeuvre hours.**

h1 23

Example: 01 23 = 123 hours.

**View control unit days on counter**

The number consists of the values of the parameters from  $d0$  to  $d1$ .

**N.B.:** The values shown in the table are indicative only.

d0 01

**Days with unit switched on.**


d1 23

Example: 01 23 = 123 days.

	<b>Password</b> Setting a password prevents unauthorised persons from accessing the settings. With password protection active ( $CP=01$ ), parameters may be viewed, but the values CANNOT be modified. <u>Only a single password is used to control access to the gate automation system.</u> <b>WARNING:</b> Contact the Technical Support Service if you lose your password.
$P1\ 00$ $P2\ 00$ $P3\ 00$ $P4\ 00$	<b>Password activation procedure:</b> <ul style="list-style-type: none"> <li>• Enter the desired values for parameters <math>P1</math>, <math>P2</math>, <math>P3</math> and <math>P4</math>.</li> <li>• Use the UP ▲ and/or DOWN ▼ buttons to view the parameter <math>CP</math>.</li> <li>• Press and hold the + and - buttons for 4 seconds.</li> <li>• The display flashes to confirm that the password has been saved.</li> <li>• Switch the control unit off and on again. Check that password protection is activated (<math>CP=01</math>).</li> </ul> <b>Temporary unlock procedure:</b> <ul style="list-style-type: none"> <li>• Enter the password.</li> <li>• Check that <math>CP=00</math>.</li> </ul> <b>Password cancellation procedure:</b> <ul style="list-style-type: none"> <li>• Enter the password (<math>CP=00</math>).</li> <li>• Save the values <math>P1</math>, <math>P2</math>, <math>P3</math>, <math>P4 = 00</math></li> <li>• Use the UP ▲ and/or DOWN ▼ buttons to view the parameter <math>CP</math>.</li> <li>• Press and hold the + and - buttons for 4 seconds.</li> <li>• The display flashes to confirm that the password has been cancelled (the values <math>P1\ 00</math>, <math>P2\ 00</math>, <math>P3\ 00</math> and <math>P4\ 00</math> indicate that no password is set).</li> <li>• Switch the control unit off and on again (<math>CP=00</math>).</li> </ul>
$CP\ 00$	<b>Changing password</b>
$00$	Protection deactivated.
$01$	Protection activated.





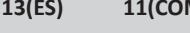




## 11 Commands and Accessories










 If not installed, safety devices with NC contacts must be jumpered at the COM terminals, or disabled by modifying the parameters **50**, **51**, **53**, **54**, **73** and **74**.

KEY:

N.A. (Normally Open) .

N.C. (Normally Closed).

CONTACT	DESCRIPTION
<b>9 (COR)</b> <b>10</b> 	Output (potential free contact) for connecting courtesy light. 230 Vac 100 W - 24 Vac/dc 40 W (fig. 2).
<b>12(LAM)</b> <b>11(COM)</b> 	Connection for flashing light (24 Vdc - duty cycle 50%). The settings for the pre-manoeuve flashing warning signal may be selected with parameter <b>85</b> , while the flashing mode is set with parameter <b>78</b> .
<b>13(ES)</b> <b>11(COM)</b> 	Input for connecting electric lock, 12 Vdc max. 15 W
<b>14(+24V)</b> <b>11(COM)</b> 	Power feed for external devices. See technical characteristics.
<b>16(+SC)</b> <b>15(COM)</b> 	Connection for gate open indicator lamp. 24 Vdc 3 W (fig 2). The function of the indicator lamp is determined by parameter <b>88</b> .
<b>16(+SC)</b> <b>15(COM)</b> 	Photocell test connection and/or battery saving (fig. 4 and 5). The power feed for the photocell transmitters (TX) may be connected to this. Set the parameter <b>88 02</b> to enable the test function. Each time a command is received, the control unit switches the photocells off and on to check that the contact changes state correctly. Power feeds for all external devices may be connected to reduce battery consumption (if batteries are used). Set <b>88 03</b> or <b>88 04</b> . <b>WARNING!</b> If contact <b>16 (SC)</b> is used for the photocell test function or battery saving function, a gate open indicator lamp cannot be connected.
<b>18(FT2)</b> <b>15(COM)</b> 	Input (NC) for connecting photocells <b>FT2</b> (fig. 3-4-5). The photocells <b>FT2</b> are configured by default with the following settings: <ul style="list-style-type: none"> <li>– <b>53 00</b> . Photocell <b>FT2</b> disabled when gate is opening.</li> <li>– <b>54 00</b> . Photocell <b>FT2</b> disabled when gate is closing.</li> <li>– <b>55 01</b> . The gate opens when an open command is received if photocell <b>FT2</b> is obstructed.</li> </ul> If the photocells are not installed, jumper the terminals <b>15(COM)</b> - <b>18(FT2)</b> or set the parameters <b>53 00</b> and <b>54 00</b> . <b>WARNING!</b> Use <b>R90/F4ES</b> , <b>G90/F4ES</b> or <b>T90/F4S</b> series photocells.
<b>19(FT1)</b> <b>15(COM)</b> 	Input (NC) for connecting photocells <b>FT1</b> (fig. 3-4-5). The photocells <b>FT1</b> are configured by default with the following settings: <ul style="list-style-type: none"> <li>– <b>50 00</b> . Photocell triggers only during gate closure. Photocell is ignored during gate opening.</li> <li>– <b>51 02</b> . Movement is reversed if the photocell is triggered during gate closure.</li> <li>– <b>52 01</b> . The gate opens when an open command is received if photocell <b>FT1</b> is obstructed.</li> </ul> If the photocells are not installed, jumper the terminals <b>19(FT1)</b> - <b>15(COM)</b> or set the parameters <b>50 00</b> and <b>51 00</b> . <b>WARNING!</b> Use <b>R90/F4ES</b> , <b>G90/F4ES</b> or <b>T90/F4S</b> series photocells.

CONTACT	DESCRIPTION
<b>20(INP2) 22(COM)</b> 	<p>Auxiliary input for connecting either a sensing edge or a gate open limit switch on LEAF 2 (fig. 2).</p> <ol style="list-style-type: none"> <li>A sensing edge <b>COS2</b> in addition to <b>COS1</b>. The sensing edge is configured by default with the following settings: – 74 00. The sensing edge <b>COS2</b> (NC contact) is disabled.</li> <li>If the sensing edge is not installed, jumper the terminals <b>20(INP2) - 22(COM)</b> or set the parameter 74 00.</li> </ol> <p>BH23 series swing gate automation systems with articulated arm (A1 03), gate open limit switch on LEAF 2. The gate open limit switch for LEAF 2 is disabled by default 72 00.</p>
<b>21(COS1) 22(COM)</b> 	<p>Input (NC or 8 kOhm) for connecting sensing edge <b>COS1</b> (fig. 2). The sensing edge is configured by default with the following settings: – 73 03. If the sensing edge <b>COS1</b> (NC contact) is enabled, the gate always reverses.</p> <p>If the sensing edge is not installed, jumper the terminals <b>21(COS1) - 22(COM)</b> or set the parameter 73 00.</p>
<b>23(ST) 22(COM)</b> 	<p>STOP command input (NC). The current manoeuvre is arrested if the safety contact opens. <b>N.B.:</b> the controller is supplied with this contact already jumpered by ROGER TECHNOLOGY.</p>
<b>24 (ANT) 25</b> 	<p>Antenna connector for slot-in radio receiver board. Use RG58 if an external antenna is used; maximum recommended length: 10 m. <b>N.B.:</b> do not make joints in cable.</p>
<b>27(INP1) 26(COM)</b> 	<p>Auxiliary input for connecting either a timer clock contact or a gate open limit switch on LEAF 1 (fig. 2).</p> <ol style="list-style-type: none"> <li>Clock timer contact input (N.O.). When the clock function is active, the gate opens and remains open. At the end of the programmed time set with the external device (clock) the gate closes.</li> <li>BH23 series swing gate automation systems with articulated arm (A1 03), gate open limit switch on LEAF 1. The gate open limit switch for LEAF 1 is disabled by default 72 00.</li> </ol>
<b>28(AP) 32(COM)</b> 	<p>Open control signal input (N.O.).</p>
<b>29(CH) 32(COM)</b> 	<p>Close command input (N.O.).</p>
<b>30(PP) 32(COM)</b> 	<p>Step by step mode command input (N.O.). The function of the control is determined by parameter A4.</p>
<b>31(PED) 32(COM)</b> 	<p>Partial open control signal input (N.O.). On double leaf gate automation systems, by default, the partial opening command opens LEAF 1 completely. With single leaf swing gate installations, by default, partial opening is 50% of total opening.</p>
<b>RECEIVER CARD</b>	<p>Connector for plug-in radio receiver board. The control unit has two radio remote control functions by default: – <b>PR1</b> - step mode command (modifiable with parameter 75). – <b>PR2</b> - partial opening command (modifiable with parameter 77).</p>
<b>BATTERY CHARGER B71/BC</b>	<p>In the event of a mains power loss, the control unit is powered by the batteries. When battery power is used, <b>BAtt</b> is shown on the display and the flashing light flashes briefly at intervals until mains power is restored or until the battery voltage drops below the minimum permissible limit. In this case, <b>bEL0</b> (Battery Low) is shown on the display and the control unit accepts no commands. If mains power is lost while the gate is moving, the gate stops and then automatically resumes the interrupted manoeuvre after 2 seconds.</p>

CONTACT	DESCRIPTION
<b>BATTERY KIT</b> 2x12 Vdc 1,2 Ah. <b>(B71/BC/INT)</b> <b>or</b> 2x12 Vdc 4,5 Ah <b>(B71/BC/EXT)</b>  Only <b>AGM</b> type	<p>Two battery kits are available (see fig. 6):</p> <ul style="list-style-type: none"> <li>• Two 12 V DC, 1.2 Ah batteries installed in the automation system itself.</li> <li>• Two 12 V DC, 4.5 Ah batteries installed in an external case.</li> </ul> <p>To reduce battery consumption, the positive power feed wire of the photocell transmitters and receiver may be connected to terminal <b>SC</b> (see fig. 4-5). Set <i>AB 03</i> or <i>AB 04</i>. In this configuration, the control unit disconnects power from the accessory devices when the gate is completely open or completely closed.</p> <p><b>WARNING!</b> the batteries must always be connected to the electronic control unit in order to charge. Periodically (at least every 6 months), check that the batteries are in good working order.</p> <p>For more information, refer to the installation manual for the <b>B71/BC</b> battery charger.</p>

## 12 Safety input and command status (TEST mode)

With no currently active commands, press the TEST button and check the following:

DISPLAY	POSSIBLE CAUSE	ACTION BY SOFTWARE	PHYSICAL CORRECTIVE ACTION
88 23	The safety <b>STOP</b> contact is open.	-	Install a <b>STOP</b> button (NC) or jumper the <b>ST</b> contact with the <b>COM</b> contact.
88 21	Sensing edge <b>COS1</b> not connected or incorrectly connected.	Set the parameter 73 00 if not used or to disable.	Jumper contact <b>COS1</b> with contact <b>COM</b> , if not used or to disable
88 20	Sensing edge <b>COS2</b> not connected or incorrectly connected ( <b>BM20</b> , <b>BR20</b> , <b>BR21</b> , <b>BE20</b> or <b>BH23</b> series, if parameter is set to 72 00)	Set the parameter 74 00 if not used or to disable.	Jumper contact <b>INP2</b> with contact <b>COM</b> , if not used or to disable.
88 19	Photocell <b>FT1</b> not connected or incorrectly connected.	Set the parameter 50 00 e 51 00 if not used or to disable.	Jumper contact <b>FT1</b> with contact <b>COM</b> , if not used or to disable. Check connection referring to relative connection diagram (figure 4).
88 18	Photocell <b>FT2</b> not connected or incorrectly connected.	Set the parameter 53 00 e 54 00 if not used or to disable.	Jumper contact <b>FT2</b> with contact <b>COM</b> , if not used or to disable. Check connection referring to relative connection diagram (figure 4).
88 27	LEAF 1 open limit switch not connected (for <b>BH23</b> series only if parameter is set to 72 01).		Check connection of limit switches.
88 20	LEAF 2 open limit switch not connected (for <b>BH23</b> series only if parameter is set to 72 01).		Check connection of limit switches.
PP 00	If occurs with no voluntary command, the contact (N.O.) may be faulty or one of the buttons may be incorrectly connected.	-	Check <b>PP</b> - <b>COM</b> contacts and connections to buttons.
CH 00		-	Check <b>CH</b> - <b>COM</b> contacts and connections to buttons.
AP 00		-	Check <b>AP</b> - <b>COM</b> contacts and connections to buttons.
PE 00		-	Check <b>PED</b> - <b>COM</b> contacts and connections to buttons.
00 00	If occurs with no voluntary command, the contact (N.O.) may be faulty or the timer may be incorrectly connected.	-	Check <b>INP1</b> - <b>COM</b> contacts. Contact must not be jumpered if not used.

**N.B:** press TEST to exit TEST mode.

We recommend troubleshooting safety device and input status errors with “corrective action by software” only.

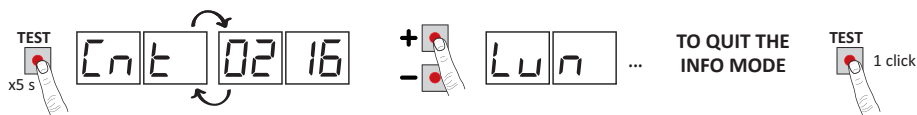
## 13 Alarms and faults

PROBLEM	ALARM	POSSIBLE CAUSE	ACTION
The gate does not open or close.	POWER LED off	No power.	Check power cable.
	POWER LED off	Fuses blown.	Replace fuse. Always disconnect from mains power before removing fuses.
	OF St	Input mains power voltage fault. Control initialisation failed.	Disconnect from mains power, wait 10 seconds then reconnect to the mains and switch on. We recommend replacing the control unit if the problem persists.
	Pr Ot	Overcurrent detected in inverter.	Press the <b>TEST</b> button twice or perform 3 command requests in succession.
	dA tA	Incorrect travel length values.	Press the <b>TEST</b> button and check the safety device/s in alarm state and the connections of the safety devices. Check that the MOTOR 1 and MOTOR 2 limit switches are positioned correctly. Repeat acquisition procedure.
	Not 1	Motor 1 not connected.	Check the motor cable.
	Not 2	Motor 2 not connected.	Check the motor cable.
	Example: 15 EE 21 EE	Configuration parameter error.	Set configuration value correctly and save.
	btLO (btLO)	Flat batteries.	Wait for mains power to be restored.
Acquisition procedure does not complete correctly.	AP P.E	TEST button pressed accidentally.	Repeat acquisition procedure.
		Safety devices in alarm state.	Press the <b>TEST</b> button and check the safety device/s in alarm state and the connections of the safety devices.
	AP PL	Excessive voltage drop.	Repeat acquisition procedure. Check mains voltage.
Remote control has limited range and does not work while automated gate is moving.	-	Travel length error.	Move gate into completely closed position and repeat the procedure. Check cable of limit switches (if installed). Replace the cable if the problem persists. Reset default control unit parameters and repeat the procedure.
	-	The radio transmission is impeded by metal structures and reinforced concrete walls.	Install the antenna outside.
The flashing light is not working.	-	Flat batteries.	Replace the transmitter batteries.
Bulb / LED blown or flashing light wires disconnected.	-		Check LED circuit and/or connector wires.
Gate open indicator lamp does not work.	-	Bulb blown or wires disconnected.	Check the bulb and/or wires.
Gate does not perform desired manoeuvre.	-	Motor leads crossed.	Swap two wires on terminal X-Y-Z or Z-Y-X.

**N.B.:** Press the **TEST** button to temporarily cancel the alarm.

The next time a command is received, the alarm reappears on the display if the problem has not been resolved.

## 14 Procedural verifications - INFO Mode



INFO mode may be used to view certain parameters measured by the **B70/2DC** controller. Press and hold the TEST button for 5 seconds from the “View command signals and safety devices” mode with the motor stationary. The control unit displays the following parameters and the corresponding measured values in sequence:

Parameter	Function
Cnt 1    Cnt2	Displays the position of MOTOR 1 / MOTOR 2, expressed in revolutions and relative to total length, at the time of the test.
Lun 1    Lun2	View total length of MOTOR 1/ MOTOR 2 programmed travel , in motor revolutions.
rPN 1    rPN2	View MOTOR 1/MOTOR 2 speed, in revolutions per minute (rPM).
ANP 1    ANP2	View current absorption of MOTOR 1/MOTOR 2, in Amperes (e.g.: 001.1 = 1,1 A .... 016.5 = 16,5 A). If the MOTOR 1 / MOTOR 2 is stationary, the current absorption value is 0. Activate a command function to test current absorption.
bUS	System OK indicator. To check for overloading (e.g.: too many utilities connected to 24 V output) or if the mains voltage is too low, compare the parameters read with values indicated as follows with the motor stationary: mains voltage= 230 Vac (nominal), bUS= 28.5 mains voltage= 207 Vac (-10%), bUS= 25.5 mains voltage= 253 Vac (+10%), bUS= 31.5
CNP 1    CNP2	Display current, expressed in Amperes, used to compensate for strain detected by MOTOR 1 / MOTOR 2 due, for example, to low external temperatures (e.g.: 0 = 0 A ... 4 = +3 A). At the beginning of a manoeuvre from the completely open or completely closed position, if the control unit detects a strain higher than the value stored in its memory during the travel acquisition cycle, the controller automatically increases the current delivered to MOTOR 1 / MOTOR 2.
ASC 1    ASC2	Display current threshold, expressed in Amperes, at which the obstacle detection function (crush prevention) of MOTOR 1 / MOTOR 2 is triggered. This value is calculated automatically by the controller in relation to the settings of parameters 30, 31 and 32. For the motor to function correctly, ANP must always be lower than the value ASC.
tIn 1    tIn2	Indicates time taken by motor to detect an obstacle, as set with parameter 31/32, in seconds. E.g. 1.000 = 1 s / 0.120 = 0.12 s (120 ms). Ensure that the manoeuvre time is more than 0.3 s.
AbS 1    AbS2	MOTOR 1 / MOTOR 2 status OK indicator. In normal conditions, this value is less than 500. If the value exceeds 2000, the controller disables the motor. A value exceeding 500 indicates that the characteristics of the connection cable are inadequate for the installation or that the connection cable is too long or of inadequate cross section, or may indicate an electrical fault of the brushless motor.
UP	If the control unit is capable of identifying the position of the gate leaf when the test is conducted, the following is shown on the display: UP _ _ position known, normal operation. UP L _ LEAF 1 position unknown, position recovery in progress. UP L _ LEAF 2 position unknown, position recovery in progress. UP 12 positions of both leaves unknown, position recovery in progress.
OC	Indicates the state of the automation system (open/closed). OC OP automation system opening (motor active). OC CL automation system closing (motor active). OC -O automation system completely open (motor not actives). OC -C automation system completely closed (motor not actives).
UF	UF U mains voltage too low or overload. UF H motors overcurrent.

- If only one motor is connected to the control unit, the parameters relative to “MOTOR 1” only are displayed.
- Use the + / - buttons to scroll through the parameters. When the last parameter in the sequence is reached, press the - button to return through the previous parameters.
- In INFO mode, the automation system may be activated to test operation in real time.
- Press and hold the TEST button for a few seconds to exit INFO mode

## 15 Mechanical release

In the event of power failure, the gate may be unlocked by following the instructions given in the use and maintenance manual of the automation system.

On receiving the first command signal after mains power is restored, the control unit starts an opening manoeuvre in position recovery mode (see chapter 16).

## 16 Position recovery mode

On receiving the first command signal after a power failure or after detecting an obstacle in the same position three consecutive times, the control unit starts a manoeuvre in position recovery mode.

On receiving a command signal, the gate starts opening at low speed. The flashing light flashes with a different duty cycle than normal (3 s on, 1.5 s off).

The control unit recovers the installation data during this procedure. **Warning!** Do not use any controls until the gate has completed the opening manoeuvre.

In the case of **BH23** automation systems, position recovery is performed immediately when the limit switches (if installed) are activated.

If the gate is released in the completely open or completely closed position with the control unit powered, always return the gate leaves into their original positions before locking the gate release again. The gate will resume normal operation on receipt of the first control command.

**WARNING:** Releasing the gate in an intermediate position is not recommended, as it may cause the leaf position parameters to be lost (see parameters  $\text{Cn1}$  /  $\text{Cn2}$  in INFO mode). In this case, the control unit does not enable position recovery.

## 17 Initial testing

- Turn on the power supply.
- Check that the automation system motors rotate in the correct direction. If the motors do not rotate in the same direction, swap any two of the wires on the X-Y-Z terminal. On BH23 series automation systems with articulated arm, if the MOT1 and MOT2 connections are swapped, also swap the limit switch connections INP1 and INP2 (if installed).
- Check that all connected controls are working correctly.
- Check travel and deceleration.
- Check that the impact force is correct.
- Check that the safety devices are activated correctly.
- If the battery kit is installed, disconnect from mains and check that the batteries are working.
- Disconnect from mains power and disconnect the batteries (if used), then reconnect. Starting with the gate stopped in an intermediate position, check that the position recovery procedure is completed correctly.
- Check the limit switch settings (if installed).

## 18 Maintenance

Perform scheduled maintenance every 6 months.

Check cleanliness and function.

If the unit contains dirt, moisture, insects or other foreign matter, disconnect from mains power and clean the board and the housing.

Repeat the initial installation test procedure after cleaning.

If any corrosion is found on the printed circuit board, evaluate if it is necessary to replace the board itself.

Check that the battery is in good working order.

## 19 Disposal



The product may only be uninstalled by qualified technical personnel, following suitable procedures for removing the product correctly and safely. This product consists of numerous different materials. Some of these materials may be recycled, while others must be disposed of correctly at the specific recycling or waste management facilities indicated by local legislation applicable for this category of product.

Do not dispose of this product as domestic refuse. Observe local legislation for differentiated refuse collection, or hand the product over to the vendor when purchasing an equivalent new product.

Local legislation may envisage severe fines for the incorrect disposal of this product.

**Warning!** Some parts of this product may contain substances that are harmful to the environment or dangerous and which may cause damage to the environment or health risks if disposed of incorrectly.

## 21 Declaration of Conformity

I the undersigned, as acting legal representative of the manufacturer  
**Roger Technology - Via Botticelli 8, 31021 Bonisiolo di Mogliano V.to (TV)**

hereby DECLARE that the appliance described below:

Description: Controller unit for automatic gates

Model: **B70/2DC**

Is conformant with the legal requisites of the following directives:

- 2006/42/EC
- 2014/30/EU
- 2011/65/EC

and that all the standards and/or technical requirements indicated as follows have been applied:

EN 61000-6-3

EN 61000-6-2

Last two figures of year in which marking was applied **CE 13**.

Place: Mogliano V.to

Date: 04-02-2013

Signature