CE

H70/200AC
centrale di comando per 2 motori 230 Vac
Istruzioni originali

ROGER®
TECHNOLOGY
AUTOMAZIONI EVOLUTE

Morsettiere delle sicurezze
Safeties terminal blocks

Morsettiere dei comandi
Commands terminal blocks

Display a 4 cifre e 6 tasti di programmazione
4 digit display and 6 programming buttons

Uscita elettroserratura
Electric lock output

Microprocessore
CPU

Fusibile F630mA
Fuse F630mA

E5419457
230V 50/60Hz
2X12V 16VA

Morsettiere delle sicurezze
Safeties terminal blocks

Morsettiera antenna radio ricevente ad innesto
Antenna terminal blocks for plug-in radio receiver

Connettore ad innesto per radio ricevente
Plug-in connector for radio receiver

Fusibile F6,3A
Fuse F6,3A

Alimentazione 230 Vac
230 Vac power supply

Collegamento MOTORE 1
MOTOR 1 connection

Collegamento MOTORE 2
MOTOR 2 connection

Luce di cortesia e lampeggiante
Courtesy light and flashing light

Firmware Rev N6=14

1

ES

41 ST
40 COM
39 COS1
38 COS2
37 FT1
36 FT2
35 COM
34 SC
33 COM
32 24V~

31 COM
30 PED
29 PP
28 CH
27 AP
26 ORO
25 COM

F2
FUSE
F630mA

F630mA

▲ ▼ PROG TEST + -

F1
FUSE
F6,3A

F6,3A

H93/RX22A/I
RICEVITORE RADIO
RADIO RECEIVER

PR2 PR1

24 COM
23 FCC2
22 FCA2
21 FCC1
20 FCA1
19 COM
18 ENC2
17 ENC1
16 +5V

15 ANT
14 COM

L N ⏚

AP1 COM CH1 (M)   AP2 COM CH2 (M)   COR LAM

230Vac
L N ⏚

MOTORE 1
MOTOR 1

CONDENSATORE
CAPACITOR

CONDENSATORE
CAPACITOR

MOTORE 2
MOTOR 2

verde / green
blu/ blue
rosso / red

rosso/ red
blu / blue
verde / green

4

2

STOP ⚠

Bordo sensibile 1 / *Safety edge 1*
Bordo sensibile 2 / *Safety edge 2*

Spia cancello aperto / *Open gate light* **24 Vac 3W**

Apertura parziale / *Partial opening*
Passo passo / *Step by step*
Chiusura / *Closing*
Apertura / *Opening*
Orologio / *Timer*

ST	COM	COS1	COS2	FT1	FT2	COM	SC	COM	24V~		COM	PED	PP	CH	AP	ORO	COM
41	40	39	38	37	36	35	34	33	32		31	30	29	28	27	26	25

ES 46 47

▲ ▼ PROG TEST + -

3

Elettroserratura
Electric lock
12 Vac
16 VA

H70/EL

F1 FUSE **T1A**

N **230 Vac**
L

FUSE **T2A** F2

ST	COM
41	40

ES 46 47

4

(impostare · set 75 0 1)

ENC2 **ENC1**

COM — 24

FCC2 — 23 — Finecorsa chiusura anta 2 / Closing limit switch leaf 2

FCA2 — 22 — Finecorsa apertura anta 2 / Opening limit switch leaf 2

FCC1 — 21 — Finecorsa chiusura anta 1 / Closing limit switch leaf 1

FCA1 — 20 — Finecorsa apertura anta 1 / Opening limit switch leaf 1

COM — 19

ENC2 — 18

ENC1 — 17

+5V — 16

Marrone/Brown Blu/Blue Rosso/Red

ANT — 15

COM — 14

RG58 max 10 m

Antenna

E30/800

5

(impostare · set 75 02)

ENC2 **ENC1**

COM — 24

FCC2 — 23 — Finecorsa chiusura anta 2 / Closing limit switch leaf 2

FCA2 — 22 — Finecorsa apertura anta 2 / Opening limit switch leaf 2

FCC1 — 21 — Finecorsa chiusura anta 1 / Closing limit switch leaf 1

FCA1 — 20 — Finecorsa apertura anta 1 / Opening limit switch leaf 1

COM — 19

ENC2 — 18

ENC1 — 17

+5V — 16

Blu/Blue Bianco/White Marrone/Brown

ANT — 15

COM — 14

RG58 max 10 m

Antenna

6

R92/LED230

10 COR | 11 | LAM 12 | 13

230 Vac

FIXING LIGHT

Lampeggiante
Flashing light **230 V 40 W max**

Marrone/Brown — Blu/Blue **N**

Marrone/Brown — **L**

FUSIBILE / FUSE T500mA

Luce di cortesia
Courtesy light **230 V 100 W**

Marrone/Brown — Blu/Blue **N**

Marrone/Brown — **L**

FUSIBILE / FUSE max 1A

7

41 ST
40 COM
39 COS1
38 COS2
37 FT1
36 FT2
35 COM
34 SC
33 COM
32 24V~

31 COM
30 PED
29 PP
28 CH
27 AP
26 ORO
25 COM

TX
1 2
24V / COM

P1

RX
1 2 3 4 5
24V / COM

TX
1 2
COM / 24V

RX
1 2 3 4 5
COM / 24V

8 TEST FOTOCELLULE · PHOTOCELLS TEST (impostare · set AB 02)

41	ST	
40	COM	
39	COS1	
38	COS2	
37	FT1	
36	FT2	
35	COM	
34	SC	
33	COM	
32	24V~	
31	COM	
30	PED	
29	PP	
28	CH	
27	AP	
26	ORO	
25	COM	

TX RX
1 2   1 2 3 4 5
SC COM   24V COM

TX RX
1 2   1 2 3 4 5
COM SC   COM 24V

1 General safety precautions

Warning: incorrect installation may cause severe damage or injury.
Read the instructions carefully before installing the product.
This installation manual is intended for qualified personnel only.

ROGER TECHNOLOGY cannot be held responsible for any damage or injury due to improper use or any use other the intended usage indicated in this manual.

Installation, electrical connections and adjustments must be performed by qualified personnel, in accordance with best practices and in compliance with applicable regulations.

Before installing the product, make sure it is in perfect condition.
A switch or an omnipolar cut-off switch with a contact opening of at least 3 mm must be installed on the mains power line.

Ensure that an adequate residual current circuit breaker and a suitable overcurrent cut-out are installed ahead of the electrical installation in accordance with best practices and in compliance with applicable legislation.

The European standards EN 12453 and EN 12455 define the minimum safety requirements for the operation of automatic doors and gates. In particular, these standards require the use of force limiting and safety devices (sensing ground plates, photocell barriers, operator detection function etc.) intended to detect persons or objects in the operating area and prevent collisions in all circumstances.

Where the safety of the installation is based on an impact force limiting system, it is necessary to verify that the characteristics and performance of the automation system are compliant with the requisites of applicable standards and legislation.

The installer is required to measure impact forces and programme the control unit with appropriate speed and torque values to ensure that the door or gate remains within the limits defined by the standards EN 12453 and EN 12455.

When requested, connect the automation to an effective earthing system that complies with current safety standards.

Disconnect the mains electrical power before performing any work. Also disconnect any buffer batteries used.

Only use original spare parts when repairing or replacing products.

The packaging materials (plastic, polystyrene, etc.) should not be discarded in the environment or left within reach of children, as they are a potential source of danger.

2 Product description

The **H70/200AC** control unit is intended to control gate automation systems with 1 or 2 asynchronous single phase 230 V AC (or 115 V AC, in case of **H70/200AC/115V** version) ROGER motors. **Use the same type of motor for both gate leaves in automation installations for double leaf swing gates.** Adjust the opening and closure speed, deceleration and delay settings appropriately for the specific installation, ensuring that the gate leaves overlap correctly.

3 Technical characteristics of product

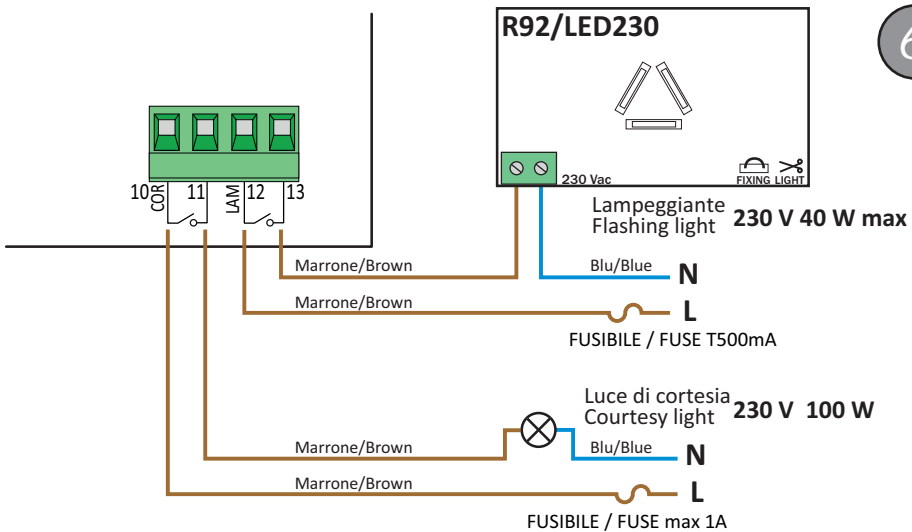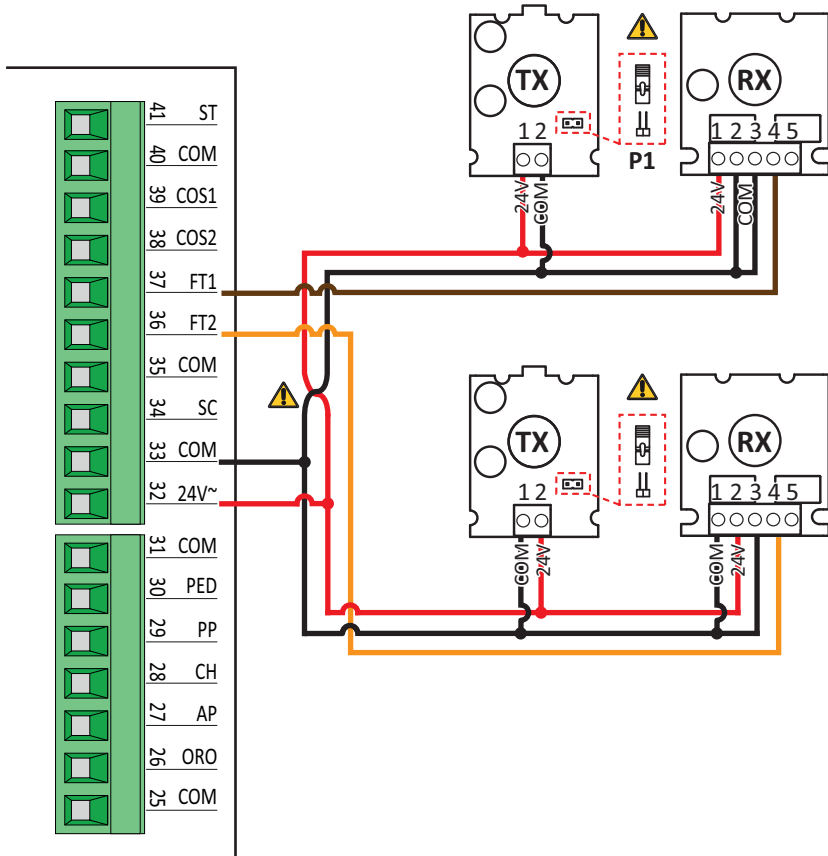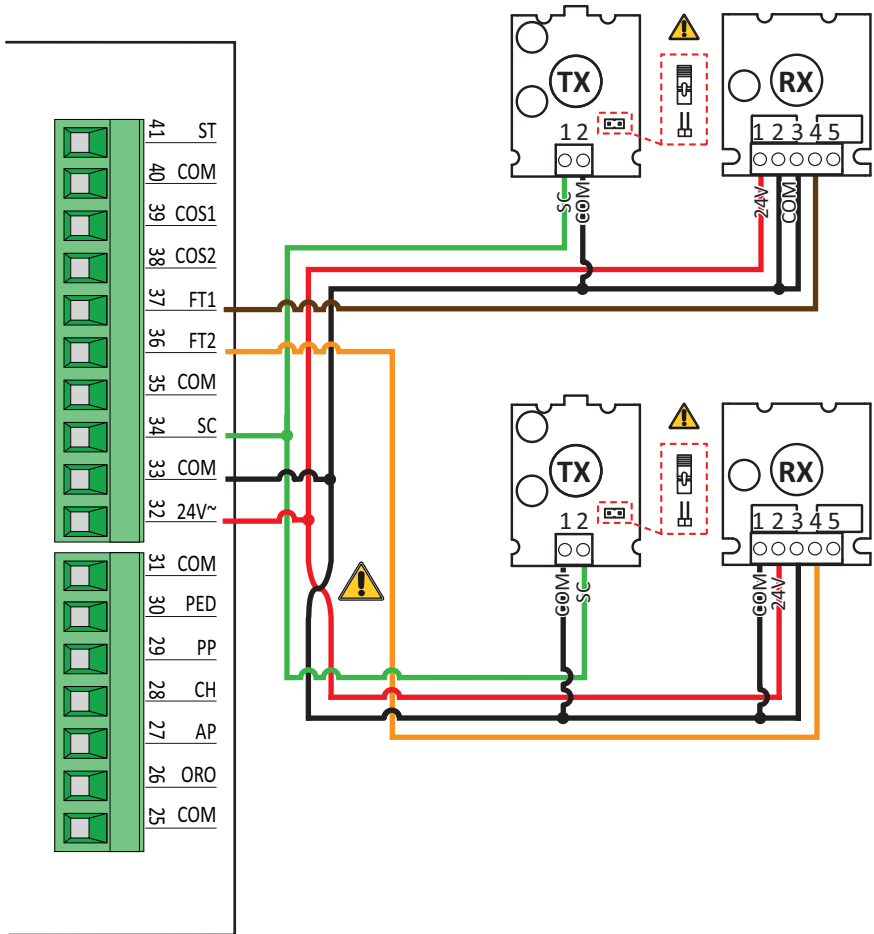|	H70/200AC/BOX	H70/200AC/115V/BOX
MAINS POWER VOLTAGE	230 Vac ± 10% 50 Hz	115 Vac ± 10% 60 Hz
MAXIMUM MAINS POWER ABSORPTION	1400 W	
FUSES	**F1** = F6,3A 250 V (5x20) motor power circuit protection **F2** = F630mA 250 V (5x20) accessories power supply protection	
CONNECTABLE MOTORS	2	
MOTOR POWER SUPPLY	230 Vac	115 Vac
MOTOR TYPE	single-phase asynchronous	
MOTOR CONTROL TYPE	triac phase control	
MAXIMUM MOTOR POWER	600 W	
MAXIMUM POWER, FLASHING LIGHT	40 W 230 Vac - 25 W 24 Vac/dc (potential free contact)	
MAXIMUM POWER COURTESY LIGHT	100 W 230 Vac - 25 W 24 Vac/dc (potential free contact)	
ELECTRIC LOCK POWER	25 W (potential free contact) max. 230 Vac	
GATE OPEN LIGHT POWER	3 W (24 Vac)	
MAXIMUM ACCESSORY CURRENT ABSORPTION	9 W	
OPERATING TEMPERATURE	-20°C +55°C	
DEGREE OF PROTECTION	IP44	
PRODUCT DIMENSION	dimensions in mm 137x156x43 Weight: 0,72 kg	

4 Description of connections

Figures show connection diagrams.

4.1 Electrical connections

CONNECTING CONTROL UNIT TO MAINS ELECTRICITY	L cable	
	1÷15 m	15÷30 m
Power supply 230 Vac ±10% (115 Vac ±10% **H70/200AC/115V**)	3x1,5 mm²	3x2,5 mm²

CONNECTING CONTROL PANEL TO MOTORS	L cable
Motor 1	4x1,5 mm²
Motor 2	4x1,5 mm²

CONNECTING CONTROL PANEL TO ACCESSORIES	L cable = 1÷20 m
Photocells - Receiver	4x0,5 mm²
Photocells - Transmitter	2x0,5 mm²
Keypad **H85/TDS - H85/TTD** (connecting to control panel to decoder board **H85/DEC**)	3x0,5 mm²
Key selector **R85/60**	3x0,5 mm²
Limit switches	4x0,5 mm²

CONNECTING CONTROL PANEL TO FLASHING LIGHT	
Power supply 230 Vac by LED (40 W max)	2x1 mm² (max 10 m)

CONNECTING CONTROL PANEL TO GATE OPEN INDICATOR	L cable
	1÷20 m
Power supply 24 Vdc (3 W max)	2x0,5 mm²

CONNECTING CONTROL PANEL TO COURTESY LIGHT	L cable
	1÷20 m
Power supply 230 Vac (100 W power consumption)	2x1 mm²

CONNECTING CONTROL PANEL TO ANTENNA	
Cable type RG58	max 10 m
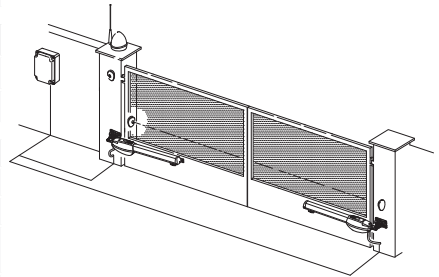
SUGGESTIONS: With existing installations, we recommend checking the cross section of the cables and that the cables themselves are in good condition.

	DESCRIPTION
L N ⏚	Mains power supply 230 Vac ±10% connection. (**H70/200AC/115V/BOX**: 115 Vac ± 10% 60Hz).
AP1-CM-CH1 AP1 CM CH1 Ⓜ	**Connection to ROGER MOTOR 1.** The gate open and/or gate closed stop limit switches may be connected to the control unit. When a limit switch is activated, power is cut to the motor opening/closing the gate. Connect the gate open limit switch to terminals **AP1-CM**, and connect the gate closed limit switch to terminals **CH1-CM**. **N.B.:** the value of the capacitor between **AP1** and **CH1** is indicated in the instructions for the motor installed.
AP2-CM-CH2 AP2 CM CH2 Ⓜ	**Connection to ROGER MOTOR 2.** The gate open and/or gate closed stop limit switches may be connected to the control unit. When a limit switch is activated, power is cut to the motor opening/closing the gate. Connect the gate open limit switch to terminals **AP2-CM**, and connect the gate closed limit switch to terminals **CH2-CM**. **N.B.:** the value of the capacitor between **AP2** and **CH2** is indicated in the instructions for the motor installed.

5 Function buttons and display

BUTTON	DESCRIPTION
UP ▲	Next parameter
DOWN ▼	Previous parameter
+	Increase value of parameter by 1
-	Decrease value of parameter by 1
PROG	Programme travel
TEST	Activate TEST mode

- 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. See chapter 7.

7 Display function modes

• Parameter display mode

See chapters 10 and 11 for detailed descriptions of the parameters in SIMPLIFIED and EXTENDED mode.

To switch from simplified mode to extended mode.
- press and hold the UP ▲ and DOWN ▼ buttons simultaneously for 4 seconds;
- the first parameter in extended mode is shown on the display.

Repeat the procedure to return to simplified mode.

- **Command and safety device status display mode**

COMMAND STATUS   SAFETY DEVICE STATUS

POWER   **ENC1**   **ENC2**   **STOP**
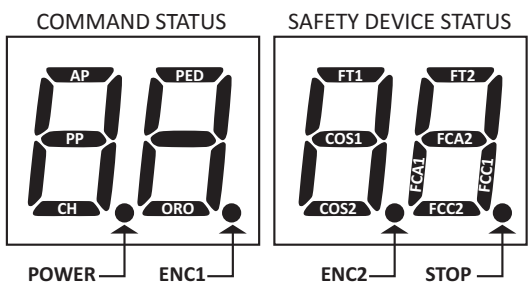
COMMAND STATUS:
The command status indicators on the display (segments AP = open, PP = step mode, CH = close, PED = partial opening, ORO= clock) are normally off. They illuminate when a command is received (e.g.: when a step mode command is received, the segment PP illuminates).

SAFETY DEVICE STATUS:
The safety device status indicators on the display (segments FT1/FT2=photocells, COS1/COS2 = sensing edge FCA1/FCA2 = gate open limit switches, FCC1/FCC2=gate close limit switches, ENC1/ENC2 = Encoder, 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.

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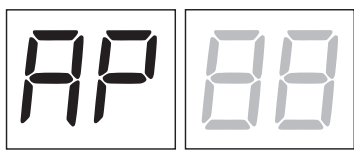
The command signal status is shown on the left hand side of the display for 5 seconds, ONLY when the respective command signal is active (AP, CH, PP, PE, OR). For example, if the gate open command is activated, the letters AP appear on the display.

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.

When the gate is completely open or completely closed, FA or FC is shown on the display to indicate that the gate has reached the gate open limit switch FA or gate closed limit switch FC.

Example: STOP contact in alarm state.
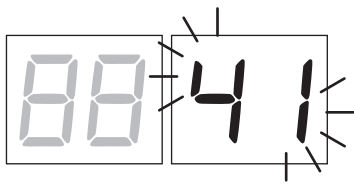
00	No safety device in alarm state, and no limit switch activated
41	STOP
39	Sensing edge COS1
38	Sensing edge COS2
37	Photocell FT1
36	Photocell FT2
FE	More than 3 limit switches activated
FA	Gate completely open / Gate open limit switch activated
FC	Gate completely closed / Gate closed limit switch activated
F1	Limit switch on gate leaf 1 error
F2	Limit switch on gate leaf 2 error
20	MOTOR 1 open limit switch activated
21	MOTOR 1 closed limit switch activated
22	MOTOR 2 open limit switch activated
23	MOTOR 2 closed limit switch activated

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.

- **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.

POWER
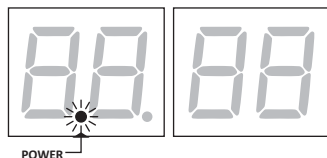
8   Travel acquisition

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

Before starting:
1. Select the number of motors installed with the parameter `7O`. This parameter is set for two motors by default.
2. Check that the operator present function is not enabled (`A7  OO`).
3. Install mechanical stops in both the open and closed positions.
4. Move the gate into the closed position.
5. 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 (`5O`, `5 I`, `53`, `54`, `73` and `74`).

Select the appropriate self-acquisition procedure for your installation:

A SELF-ACQUISITION PROCEDURE WITH ENCODER ENABLED, WITH OR WITHOUT LIMIT SWITCHES (see paragraph 8.1)**.**

B SELF-ACQUISITION PROCEDURE WITH LIMIT SWITCHES, WITHOUT ENCODER (see paragraph 8.2).

C SELF-ACQUISITION PROCEDURE WITHOUT LIMIT SWITCHES AND WITHOUT ENCODER (see paragraph 8.3).

8.1 SELF-ACQUISITION PROCEDURE WITH ENCODER ENABLED, WITH OR WITHOUT LIMIT SWITCHES (M20, H20, H23, E30 Series)   A

CLOSED — TEST

`41` — No — TEST → **See safety input (Chap. 14) and Alarm and fault (Chap. 15)**

`00` — Yes — TEST

PROG x4 s — `AP P-` — PROG 1 click — `AU to` — 1 MOTOR 1 OPENING — PARAM. `25` DELAY TIME — 1 2 MOTOR 2 OPENING — OPEN

x2 s `AU to` — `AU to` — 2 MOTOR 2 CLOSING — PARAM. `26` DELAY TIME — 1 2 MOTOR 1 CLOSING — CLOSED — `88.EA.` — Yes
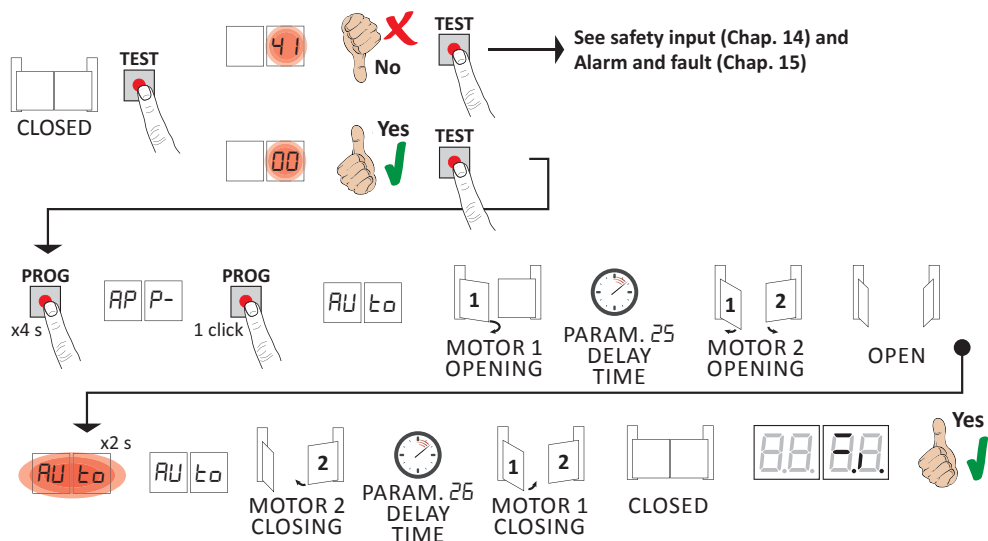
- Press and hold **PROG** for 4 seconds, `AP P-` is shown on the display.
- Press **PROG** again. `AU to` is shown on the display.
- MOTOR 1 starts opening at low speed.
- After the delay time set with parameter `25`, (with a default time setting of 3 s) MOTOR 2 starts an opening manoeuvre.
- Once the gate open mechanical stop is reached or the relative limit switch is activated, the gate stops briefly. The message `AU to` flashes on the display for 2 s.
- When the message `AU to` stops flashing and is steadily lit on the display, MOTOR 2 closes first and then, after a delay set with parameter `26` (default setting 5 s), MOTOR 1 closes until the gate closed mechanical stop or the relative limit switch 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.

ⓘ **For more information, see chapter 15 "Alarms and faults".**

8.2 SELF-ACQUISITION PROCEDURE WITH LIMIT SWITCHES, WITHOUT ENCODER (R20, R21, R23 Series)

B

WARNING: Before starting the self-acquisition procedure, set parameters 11 and 12 - Deceleration space setting.
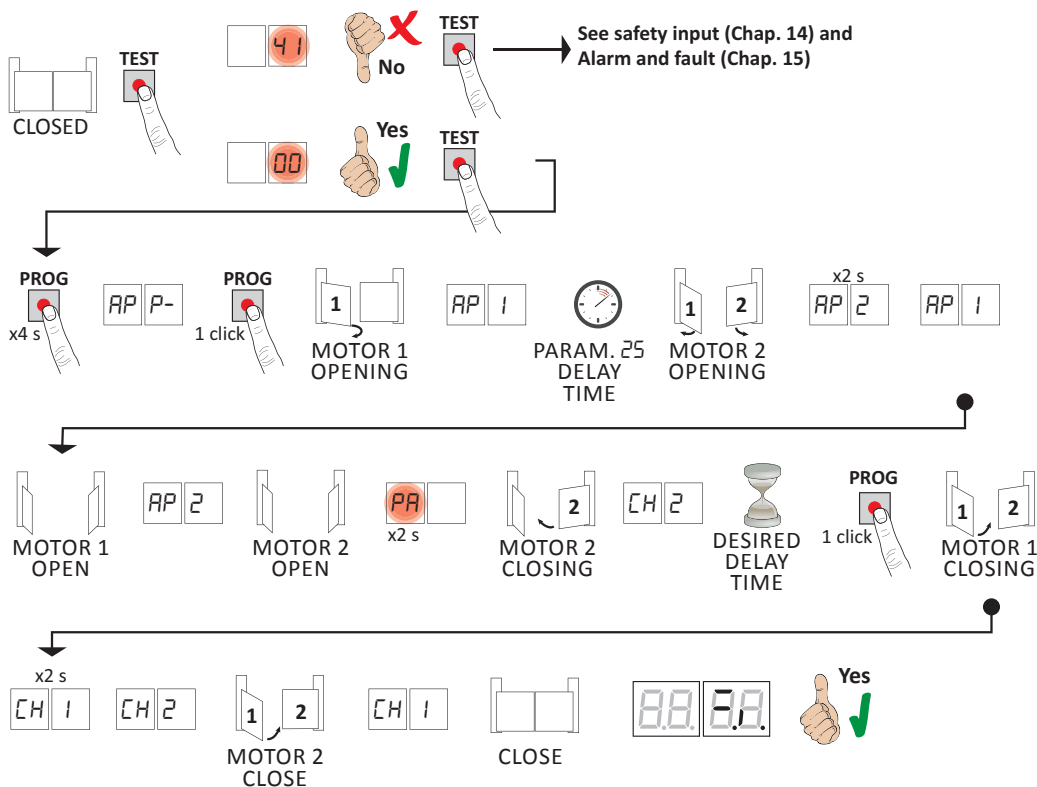
- Press and hold **PROG** for 4 seconds. AP $P-$ is shown on the display.
- Press **PROG** again.
- MOTOR 1 starts opening at normal speed. $AP1$ is shown on the display.
- After the delay time set with parameter 25, (with a default time setting of 3 s), MOTOR 2 starts an opening manoeuvre. $AP2$ is shown on the display for 2 s, and is immediately followed by $AP1$.
- $AP2$ appears on the display when MOTOR 1 reaches the open limit switch.
- PA flashes on the display for 2 seconds when MOTOR 2 reaches the open limit switch.
- After this 2 second interval, MOTOR 2 closes automatically. The message $CH2$ appears on the display.
- Press PROG after the required delay period (set automatically with parameter 26). $CH1$ appears on the display for 2 seconds and is immediately followed by $CH2$.
- $CH1$ appears on the display when MOTOR 2 reaches the closed limit switch.
- The self-acquisition procedure concludes when MOTOR 1 reaches the closed limit switch.

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.

ⓘ **For more information, see chapter 15 "Alarms and faults".**

42

8.3 SELF-ACQUISITION PROCEDURE WITHOUT MECHANICAL OR MAGNETIC LIMIT SWITCHES AND WITHOUT ENCODER

C

WARNING: Before starting the self-acquisition procedure, set parameters 11 and 12 - Deceleration space setting.

See safety input (Chap. 14) and
Alarm and fault (Chap. 15)
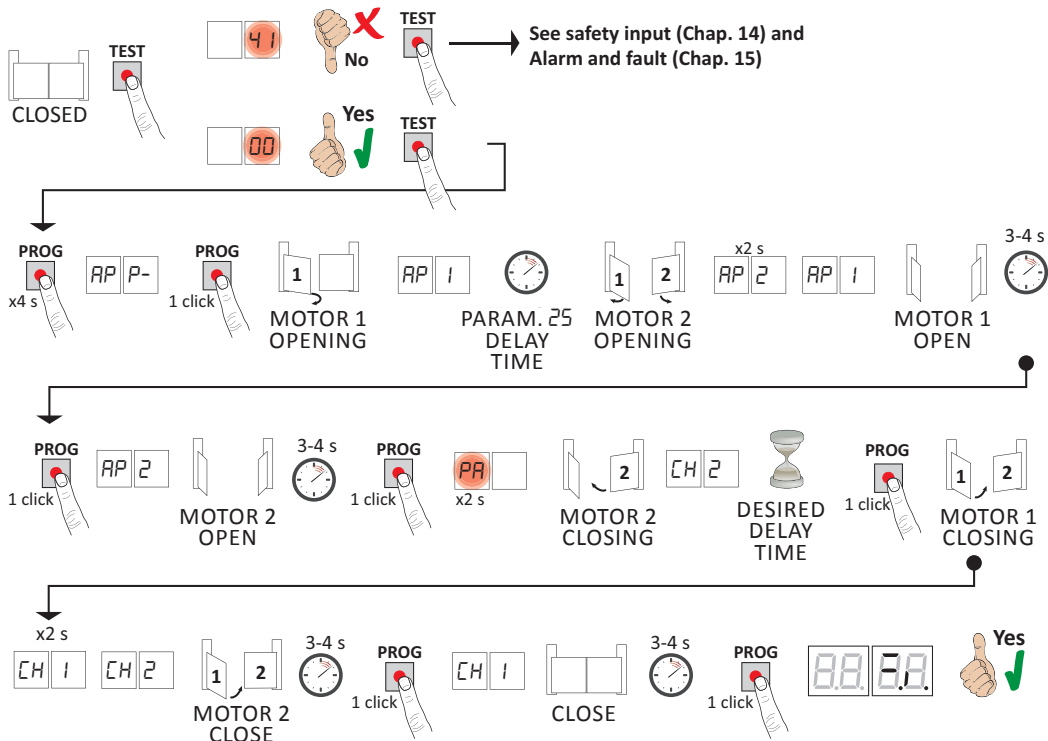
- Press and hold **PROG** for 4 seconds. $AP\ P-$ is shown on the display.
- Press **PROG** again.
- MOTOR 1 starts opening at low speed. $AP\ 1$ is shown on the display.
- After the delay time set with parameter 25 (with a default time setting of 3 s), MOTOR 2 starts an opening manoeuvre. $AP2$ is shown on the display for 2 s, and is immediately followed by $AP\ 1$.
- When MOTOR 1 reaches the open position mechanical stop, wait 3-4 seconds then press PROG. $AP2$ appears on the display.
- When MOTOR 2 reaches the open position mechanical stop, wait 3-4 seconds then press PROG. PA flashes on the display for 2 seconds.
- After this 2 second interval, MOTOR 2 closes automatically. The message $CH2$ appears on the display.
- Press PROG after the required delay period (set automatically with parameter 26). MOTOR 1 starts to close. The message $CH\ 1$ appears on the display for 2 seconds and is immediately followed by $CH2$.
- When MOTOR 2 reaches the closed position mechanical stop, wait 3-4 seconds then press PROG. $CH\ 1$ appears on the display.
- When MOTOR 1 reaches the mechanical stop, wait 3-4 seconds then press PROG.

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.

ⓘ **For more information, see chapter 15 "Alarms and faults".**

9 Index of parameters

PARAM.	FACTORY DEFAULT	DESCRIPTION	PAGE
A2	00	Automatic close after pause time (from gate completely open)	48
A3	00	Automatic gate closing after mains power outage (black-out)	48
A4	00	Selecting step mode control function (PP)	48
A5	00	Pre-flashing	49
A6	00	Condominium function for partial open command (PED)	49
A7	00	Enabling operator present function.	49
A8	00	Gate open indicator / photocell test function	49
11	15	Set MOTOR 1 deceleration space (%)	49
12	15	Set MOTOR 2 deceleration space (%)	49
13	10	Adjusting LEAF 1 position control	49
14	10	Adjusting LEAF 2 position control	49
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16	00	Setting additional time after direction inversion, with no encoder	50
21	30	Setting automatic closing time	50
22	20	Setting MOTOR 1 manoeuvre time	50
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24	00	Enable double manoeuvre time	50
25	03	Adjusting opening delay of MOTOR 2	50
26	05	Adjusting closing delay of MOTOR 1	50
27	02	Setting reverse time after activation of sensing edge or obstacle detection (crush prevention).	50
28	01	Setting electric lock activation lead time	50
29	03	Setting electric lock activation time	50
30	00	Enable anti-disturbance filter for power from generator	51
31	06	Set motor torque during manoeuvre	51
32	06	Set motor torque during deceleration	51
33	08	Adjusting of motor torque	51
34	02	Set initial acceleration when opening/closing (soft-start)	51
35	08	Set torque after activation of sensing edge or obstacle detection system	51
36	03	Set initial maximum torque boost time	51
37	00	Set open/closed stop approach distance	51
38	00	Enable lock release reverse impulse	51
41	01	Set deceleration during opening/closure	52
42	20	Set obstacle detection sensitivity during manoeuvres	52
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49	00	Number of automatic closure attempts after activation of sensing edge or obstacle detection (crush protection)	52
50	00	Setting photocell mode during gate opening (FT1)	52
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53	03	Setting photocell mode during gate opening (FT2)	53

PARAM.	FACTORY DEFAULT	DESCRIPTION	PAGE
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55	01	Photocell (FT2) mode with gate closed	53
56	00	Enable close command 6 s after activation of photocell (FT1-FT2)	53
60	00	Enable braking at open and closed mechanical stop/limit switch	53
61	00	Enable braking after activation of photocells	53
62	00	Enable braking after STOP command	53
63	00	Enable braking after open → close / close → open inversion	53
64	05	Set braking time	54
65	08	Set braking force	54
70	02	Select number of motors installed	54
72	00	Enable limit switches	54
73	03	Configuring sensing edge COS1	54
74	01	Configuring sensing edge COS2	54
75	00	Configure encoder	54
76	00	Configuring radio channel 1 (PR1)	55
77	01	Configuring radio channel 2 (PR2)	55
78	00	Configuring flashing light frequency	55
79	60	Selecting courtesy light mode	55
80	00	Clock contact configuration	55
90	00	Restoring factory default values	55
n0	01	HW version	56
n1	23	Year of manufacture	56
n2	45	Week of manufacture	56
n3	67		56
n4	89	Serial number	56
n5	01		56
n6	23	FW version	56
o0	01	View manoeuvre counter	56
o1	23		56
h0	01	View manoeuvre hour counter	56
h1	23		56
d0	01	View control unit days on counter	56
d1	23		56
P1	00		56
P2	00		56
P3	00	Password	56
P4	00		56
CP	00	Password change protection	56

10 Parameter menu in simplified mode

PARAMETER   PARAMETER VALUE
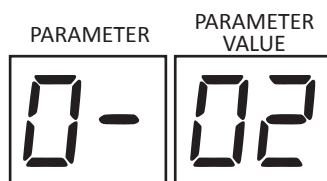
The control unit is configured in simplified display mode by default.
See chapter 11 for the extended parameter display mode.

0- 02	Select number of motors installed
0 1	1 motor.
02	2 motors.

1- 00	Automatic closure after pause time (from gate completely open)
00	Disabled.
0 1- 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.

2- 30	Setting automatic closing time 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.

3- 00	Automatic gate closing after mains power outage
00	Disabled. The gate does not close automatically when mains power is restored.
0 1	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 5-). The gate closes in "position recovery" mode (see chapter 17).

4- 05	Adjusting closing delay of MOTOR 1 During closing, MOTOR 1 starts with an adjustable delay after MOTOR 2.
00	Disabled.
0 1- 60	From 0 to 60 s of delay.

5- 00	Pre-flashing
00	Disabled. The flashing light is activated during opening and closing manoeuvres.
0 1- 10	Flashing warning signal for 1 to 10 seconds prior to every manoeuvre.
99	5 second flashing warning signal prior to closing manoeuvre.

| 6-00	**Selecting step mode control function (PP)**
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 (1-00), the condominium function automatically attempts a closing manoeuvre 1-01.
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 (1-00), the condominium function automatically attempts a closing manoeuvre 1-01.
03	Open-close-open-close.
04	Open-close-stop-open.

7-00	**Configuring flashing light frequency**
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.

8-00	**Enable limit switches** **N.B.:** if this parameter is modified, disconnect from 230 V AC mains power, wait for the display to turn off then reconnect to mains power. Repeat acquisition procedure.
00	No limit switch installed.
01	Gate open and close limit switches installed.
02	Finecorsa di apertura installati.

9-06	**Set motor torque during open/close manoeuvre** **N.B.:** if this parameter is modified, disconnect from 230 V AC mains power, wait for the display to turn off then reconnect to mains power. Repeat acquisition procedure.
01-08	1 = minimum motor torque ... 8 = maximum motor torque.

A-00	**Enable electric lock release reverse impulse**
00	Disabled.
01-04	Enabled. From 1 to 4 s.

b-00	**Configure encoder** **N.B.:** if no encoder is installed, time based control is used. if this parameter is modified, disconnect from 230 V AC mains power, wait for the display to turn off then reconnect to mains power. Repeat acquisition procedure.
00	No encoder installed.
01	Optical encoders installed (8 pulses/revolution).
02	Magnetic encoders installed (1 pulse/revolution). Only the **E30** series uses magnetic encoders.

11 Parameter menu in extended mode
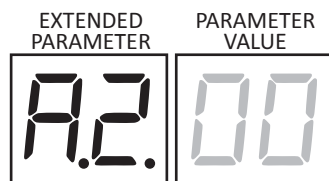
EXTENDED PARAMETER   PARAMETER VALUE

$$A.2. \quad 00$$

To switch from simplified mode to extended mode.
- press and hold the UP ▲ and DOWN ▼ buttons simultaneously for 4 seconds;
- the first parameter in extended mode is shown on the display.

$$0 - \quad 15 \qquad A.2. \quad 00$$

x4 s
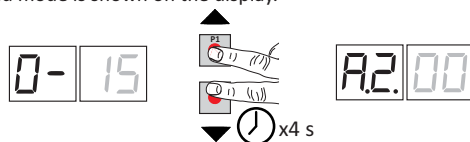
Repeat the procedure to return to simplified mode.
WARNING! The sequence of parameters in simplified mode is not the same as the sequence in extended mode - always refer to the instruction manual.

A2 00	Automatic closure after pause time (from gate completely open)
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.

A3 00	Automatic gate closing after mains power outage
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 17).

A4 00	Selecting step mode control function (PP)
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.

A5 00	**Pre-flashing**
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.

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

A7 00	**Enabling operator present function.**
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.

A8 00	**Gate open indicator / photocell test function**
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 **SC** is used for the photocell test. See fig. 8.

11 15	**Set MOTOR 1 deceleration space (%)** **N.B.:** if no encoder is installed, repeat the travel acquisition procedure after any change made to this parameter.
12 15	**Set MOTOR 2 deceleration space (%)** **N.B.:** if no encoder is installed, repeat the travel acquisition procedure after any change made to this parameter.
01-30	From 1% to 30% of the total gate travel.

13 10	**Adjusting LEAF 1 position control** The value selected must ensure that LEAF 1 is opened/closed correctly when it reaches the respective mechanical stop. **Warning**! Excessively low values cause the gate to reverse when it reaches the gate open/closed stop. **N.B.:** parameter visible only with encoder enabled (75 01 or 75 02) and if limit switches are not installed (72 00 or 72 02).
14 10	**Adjusting LEAF 2 position control** The value selected must ensure that LEAF 2 is opened/closed correctly when it reaches the respective mechanical stop. **Warning**! Excessively low values cause the gate to reverse when it reaches the gate open/closed stop. **N.B.:** parameter visible only with encoder enabled (75 01 or 75 02) and if limit switches are not installed (72 00 or 72 02).
01-40	Motor revolutions.

15 99	**Partial opening adjustment (%)** **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.
01-99	From 1% to 99% of total gate travel.

49

16 00	**Setting additional time after direction inversion, with no encoder** **N.B.:** parameter visible only if encoder is disabled *75 00*. In the event of photocell activation or a reverse command during an opening or closing manoeuvre, the gate reverses for the elapsed manoeuvre time plus an additional time to allow the manoeuvre to be completed.
00	3 s.
01	6 s. Recommended setting for installations with hydraulic motors.

2130	**Setting automatic closing time** 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.

22 20	**Set MOTOR 1 manoeuvre time** **N.B.:** parameter visible only if encoder is disabled *75 00*. **Warning!** Modifying this parameter influences the deceleration setting (parameter *11*).
23 20	**Set MOTOR 2 manoeuvre time** **N.B.:** parameter visible only if encoder is disabled *75 00*. **Warning!** Modifying this parameter influences the deceleration setting (parameter *12*).
00-99	Manoeuvre time settable from 00 to 99 s.

24 00	**Enable double manoeuvre time** Enabling this parameter is recommended for installations with particularly long operating times. **N.B.:** parameter visible only if encoder is disabled *75 00*.
00	Disabled.
01	Enabled.

25 03	**Adjusting opening delay of MOTOR 2** During opening, MOTOR 2 starts with an adjustable delay after MOTOR 1.
00-10	From 0 to 10 s.

26 05	**Adjusting closing delay of MOTOR 1** During closing, MOTOR 1 starts with an adjustable delay after MOTOR 2.
00-60	From 0 to 60 s.

27 02	**Setting reverse time after activation of sensing edge or obstacle detection (crush prevention).** This sets the reverse manoeuvre time after activation of the sensing edge or the obstacle detection system.
00-60	From 0 to 60 s.

28 01	**Set electric lock activation lead time** Sets the electric lock activation time before any manoeuvre.
00-02	From 0 to 2 s.

29 03	**Enable electric lock** Sets duration of electric lock activation time.
00	Disabled.
01-06	Enabled, with time from 1 to 6 s. This parameter must be set to a value higher than parameter *38* (if enabled).

30 00	**Enable anti-disturbance filter for power from generator**
01	Disabled.
02	Enabled. This parameter enables a supplementary digital filter function to improve the operation of the control unit when powered by a generator and optimise motor control.

31 06	**Set motor torque during open/close manoeuvre** This parameter must always be equal to or less than the value set for parameter *33*.
01-08	1 = minimum motor torque ... 8 = maximum motor torque.

32 06	**Set motor torque during deceleration**
01-08	1 = minimum motor torque ... 8 = maximum motor torque.

33 08	**Set motor torque boost at start of manoeuvre**
01-08	1 = minimum motor torque ... 8 = maximum motor torque.

34 02	**Set initial acceleration when opening/closing (soft-start)**
00	Disabled.
01-02	Enabled. The gate accelerates slowly and progressively at the start of the manoeuvre.
03-04	Enabled. The gate accelerates even more slowly and progressively at the start of the manoeuvre. N.B.: values available only if encoder is enabled (*75 01 / 75 02*). Setting a value of *04* is not recommended for heavy gates.

35 08	**Set motor torque after activation of sensing edge or encoder.**
00	Disabled. Torque applied is the value set for parameter *31*.
01-08	1 = minimum motor torque ... 8 = maximum motor torque.

36 03	**Enable maximum torque boost at start of manoeuvre** If this parameter is enabled, each time the motor starts the maximum boost torque is applied for a settable period of time to allow the gate to start moving.
00-20	From 0 to 20 s.

37 00	**Set open/closed stop approach distance**
00	Disabled.
01-05	*01* = 0.5 m long gate leaf; *02* = 1 m long gate leaf; *03* = 1.5 m long gate leaf; *04* = 2 m long gate leaf; *05* = gate leaf ≥ 2.5 m in length. If this function is enabled, the torque applied is reduced during the final part of the gate travel to reduce gate vibration when it reaches the stop. On installations with an electric lock, the torque applied is increased during the final part of the closing travel to ensure that the lock latches correctly. On installations with no electric lock, the torque applied is reduced during the final part of the gate travel to reduce gate vibration. N.B.: parameter visible only if encoder is enabled *75 01*.

38 00	**Enable electric lock release reverse impulse**
00	Disabled.
01-04	Enabled. At the start of each opening manoeuvre, the control unit applies a brief closing force (settable from 1 to 4 s) to release the electric lock. Enabling the electric lock release reverse impulse function automatically enables parameters *28 01* (electric lock lead time = 1 s) and *29 03* (electric lock activation time = 3 s).

51

`4101`	**Set deceleration during opening/closure**
`00`	Disabled.
`01`	Medium deceleration. N.B.: maximum settable value for 6 pole motors.
`02`	Maximum deceleration. IMPORTANT: DO NOT USE 6 pole motors.

`42 20`	**Set obstacle detection sensitivity during manoeuvres** The gate reverses immediately when an obstacle is detected during an opening or closing manoeuvre. N.B: set a value below `60` for 6 pole motors.
`43 50`	**Set obstacle detection sensitivity during deceleration** The gate reverses immediately when an obstacle is detected during opening or closing deceleration. N.B: set a value below `60` for 6 pole motors.
`01-99`	From 1% to 99%. `01` = minimum sensitivity ... `99` = maximum sensitivity.

`49 00`	**Setting number of automatic closure attempts after activation of sensing edge or obstacle detection (crush protection)**
`00`	No automatic closure attempts.
`01-03`	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.

`5102`	**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 03	**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 04	**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.

56 00	**Enable close command 6 s after activation of photocell (FT1-FT2)** **N.B.:** This parameter is not visible if _A8 03_ or _A8 04_ 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.

60 00	**Enable braking at open and closed mechanical stop/limit switch**
00	Disabled.
01	Enabled. The gate brakes at the end of the manoeuvre against the mechanical open and/or closed stop.

61 00	**Enable braking after activation of photocells**
00	Disabled.
01	Enabled. The gate brakes when the photocells are activated.

62 00	**Enable braking after STOP command**
00	Disabled.
01	Enabled. The gate brakes when the control unit receives a STOP command.

63 00	**Enable braking after open → close / close → open inversion**
00	Disabled.
01	Enabled. The gate brakes before inverting direction when the control unit receives a close command while the gate is opening, or an open command while the gate is closing.

`64 05`	**Set braking time** **WARNING:** preferably set low values to ensure that the gate stops correctly.
`01-20`	Settable from 1 to 20 tenths of a second.

`65 08`	**Set braking force** **WARNING:** preferably set low values to ensure that the gate stops correctly.
`01-08`	1 = minimum force ... 8 = maximum force.

`70 02`	**Select number of motors installed** **N.B.:** if this parameter is modified, disconnect from 230 V AC mains power, wait for the display to turn off then reconnect to mains power. Repeat acquisition procedure.
`01`	1 motor.
`02`	2 motors. **IMPORTANT**: Use the same type of motor for both gate leaves.

`72 00`	**Enable limit switches** **N.B.:** if this parameter is modified, disconnect from 230 V AC mains power, wait for the display to turn off then reconnect to mains power. Repeat acquisition procedure.
`00`	No limit switch installed.
`01`	Gate open and close limit switches installed.
`02`	Gate open limit switches installed.

`73 03`	**Configuring sensing edge COS1**
`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.

`74 01`	**Configuring sensing edge COS2**
`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.

| `75 00`	**Configure encoder** **N.B.:** if no encoder is installed, time based control is used. if this parameter is modified, disconnect from 230 V AC mains power, wait for the display to turn off then reconnect to mains power. Repeat acquisition procedure.
`00`	No encoder installed.
`01`	Optical encoders installed (8 pulses/revolution).
`02`	Magnetic encoders installed (1 pulse/revolution). Only the **E30** series uses magnetic encoders.

`76 00`	**Configuring radio channel 1 (PR1)**
`77 01`	**Configuring radio channel 2 (PR2)**
`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 `79` 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 `79` is ignored.
`07`	FLASHING LIGHT. The FLASHING LIGHT output is managed from the remote control. The light remains lit as long as the remote control is active. The parameter `78` is ignored.
`08`	FLASHING LIGHT ON-OFF. The FLASHING LIGHT output is managed from the remote control. The remote control turns the courtesy light on and off. The parameter `78` is ignored.

`78 00`	**Configuring flashing light frequency**
`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`	**Selecting courtesy light mode**
`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`	**Clock contact configuration** 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.
`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.

`90 00`	**Restoring factory default values** **NOTE** This procedure is only possible is NO data protection password is set.
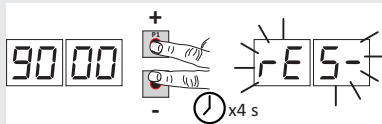
Warning! Restoring default settings cancels all settings made previously: after restore, check that all parameters are suitable for the installation.

The default factory settings may also be restored using the UP ▲ and/or DOWN ▼ buttons as follows:
• Turn off the power.
• Press and hold the UP ▲ and DOWN ▼ button until the unit switches on.
• The display flashes after 4 s `rES-` .
• The default factory settings have now been restored.

	Identification number
	The identification number consists of the values of the parameters from $n0$ to $n6$.
	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.**	
$n3\ 67$		Example: $01\ 23\ 45\ 67\ 89\ 01\ 23$
$n4\ 89$	**Serial number.**	
$n5\ 01$		
$n6\ 23$	**FW version.**	

	View manoeuvre counter
	The number consists of the values of the parameters from $o0$ to $o1$ multiplied by 100.
	N.B.: The values shown in the table are indicative only.

$o0\ 01$	**Manoeuvres performed.**
$o1\ 23$	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.

	Password
	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>
	WARNING: Contact the Technical Support Service if you lose your password.

$P1\ 00$ $P2\ 00$ $P3\ 00$ $P4\ 00$	**Password activation procedure:** • Enter the desired values for parameters $P1$, $P2$, $P3$ and $P4$. • Use the UP ▲ and/or DOWN ▼ buttons to view the parameter CP. • Press and hold the + and - buttons for 4 seconds. • The display flashes to confirm that the password has been saved. • Switch the control unit off and on again. Check that password protection is activated ($CP=01$). **Temporary unlock procedure:** • Enter the password. • Check that $CP=00$. **Password cancellation procedure:** • Enter the password ($CP=00$). • Save the values $P1$, $P2$, $P3$, $P4$ = 00 • Use the UP ▲ and/or DOWN ▼ buttons to view the parameter CP. • Press and hold the **+** and **−** buttons for 4 seconds. • The display flashes to confirm that the password has been cancelled (the values $P1\ 00$, $P2\ 00$, $P3\ 00$ and $P4\ 00$ indicate that no password is set). • Switch the control unit off and on again ($CP=00$).

$CP\ 00$	**Changing password**
00	Protection deactivated.
01	Protection activated.
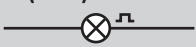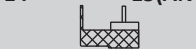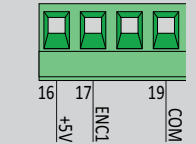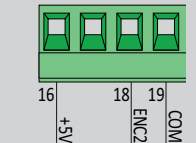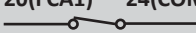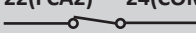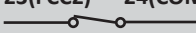
12 Commands and Accessories

⚠️ 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).

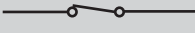| CONTACT	DESCRIPTION
10(COR) **11**	Output (potential free contact) for connecting courtesy light. 230 Vac 100 W - 24 Vac/dc 40 W (fig. 6).
12(LAM) **13**	Connection for flashing light (potential free contact) 230 Vac 40 W (fig. 6). The settings for the pre-manoeuvre flashing warning signal may be selected with parameter A5, while the flashing mode is set with parameter 78.
14 **15(ANT)**	Antenna connector for slot-in radio receiver board. Use RG58 if an external antenna is used; maximum recommended length: 10 m. **N.B.**: do not make joints in cable.
ENCODER 1 (16 +5V, 17 ENC1, 19 COM)	ENCODER 1 connection (fig .4-5). Encoders are disabled by default (75 00). **WARNING**! Always disconnect from electrical power before disconnecting or connecting the encoder cable.
ENCODER 2 (16 +5V, 18 ENC2, 19 COM)	ENCODER 2 connection (fig. 4-5). Encoders are disabled by default (75 00). **WARNING**! Always disconnect from electrical power before disconnecting or connecting the encoder cable.
20(FCA1) **24(COM)**	Input (N.C.) for connecting open limit switch for MOTOR 1 (fig.4). Use a 4x0.5 mm² cable to connect the limit switch to the control unit. The gate stops when the limit switch is activated.
21(FCC1) **24(COM)**	Input (N.C.) for connecting closed limit switch for MOTOR 1 (fig.4). Use a 4x0.5 mm² cable to connect the limit switch to the control unit. The gate stops when the limit switch is activated.
22(FCA2) **24(COM)**	Input (N.C.) for connecting open limit switch for MOTOR 2 (fig.4). Use a 4x0.5 mm² cable to connect the limit switch to the control unit. The gate stops when the limit switch is activated.
23(FCC2) **24(COM)**	Input (N.C.) for connecting closed limit switch for MOTOR 2 (fig.4). Use a 4x0.5 mm² cable to connect the limit switch to the control unit. The gate stops when the limit switch is activated.
26(ORO) **25(COM)**	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.
27(AP) **31(COM)**	Open control signal input (N.O.).
28(CH) **31(COM)**	Close command input (N.O.).
29(PP) **31(COM)**	Step by step mode command input (N.O.). The function of the control is determined by parameter A4.

| CONTACT	DESCRIPTION
30(PED) 31(COM)	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.
32(24V~) 33(COM)	Power feed for external devices 9 W.
34(SC) 35(COM)	Connection for gate open indicator lamp 24 Vdc 3 W (see fig. 2) The function of the indicator lamp is determined by parameter $A8$.
34(SC) 35(COM)	Photocell test connection (see fig. 8). feed for the photocell transmitters (TX) may be connected to this. Set the parameter $A8\ 02$ 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.
36(FT2) 33(COM)	Input (N.C.) for connecting photocells **FT2** (fig. 7). The photocells **FT2** are configured by default with the following settings: – $53\ 03$. During gate opening, the gate stops as long as the photocell is obstructed. The gate resumed opening when the photocell is cleared. – $54\ 04$. During gate closing, the gate stops if the photocell is obstructed. The gate opens when the photocell is cleared. – $55\ 01$. The gate opens when an open command is received if photocell **FT2** is obstructed. If the photocells are not installed, jumper the terminals **36(FT2)** - **33(COM)** or set the parameters $53\ 00$ and $54\ 00$.
37(FT1) 33(COM)	Input (N.C.) for connecting photocells **FT1** (fig. 7). The photocells **FT1** are configured by default with the following settings: – $50\ 00$. Photocell triggers only during gate closure. Photocell is ignored during gate opening. – $51\ 02$. Movement is reversed if the photocell is triggered during gate closure. – $52\ 01$. The gate opens when an open command is received if photocell **FT1** is obstructed. If the photocells are not installed, jumper the terminals **37(FT1) - 33(COM)** or set the parameters $50\ 00$ and $51\ 00$.
38(COS2) 40(COM)	Input (NC or 8 kOhm) for connecting sensing edge **COS2** (fig. 2). The sensing edge is configured by default with the following settings: – $74\ 00$. The sensing edge **COS2** (NC contact) is disabled. If the sensing edge is not installed, jumper the terminals **38(COS2) - 40(COM)** or set the parameter $74\ 00$.
39(COS1) 40(COM)	Input (NC or 8 kOhm) for connecting sensing edge **COS1** (fig. 2). The sensing edge is configured by default with the following settings: – $73\ 03$. If the sensing edge **COS1** (NC contact) is enabled, the gate always reverses. If the sensing edge is not installed, jumper the terminals **39(COS1) - 40(COM)** or set the parameter $73\ 00$.
41(ST) 40(COM)	STOP command input (NC). The current manoeuvre is arrested if the safety contact opens. **N.B.**: jumper the contact if it is not used.
46(ES) 47(COM)	Input for connecting electric lock (potential free contact) 230 Vac max 25 W (fig. 3).
RECEIVER CARD	Connector for plug-in radio receiver board. The control unit has two radio remote control functions by default: – **PR1** - step mode command (modifiable with parameter 76). – **PR2** - partial opening command (modifiable with parameter 77).

13 Example installation with two opposing automation systems
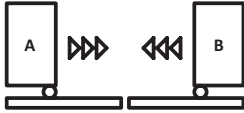
Two opposing sliding gate automation system may be connected to a single H70/200AC control unit.

Connect automation system **A** to terminals **AP1-CM-CH1** and connect automation system **B** to terminals **AP2-CM-CH2**.
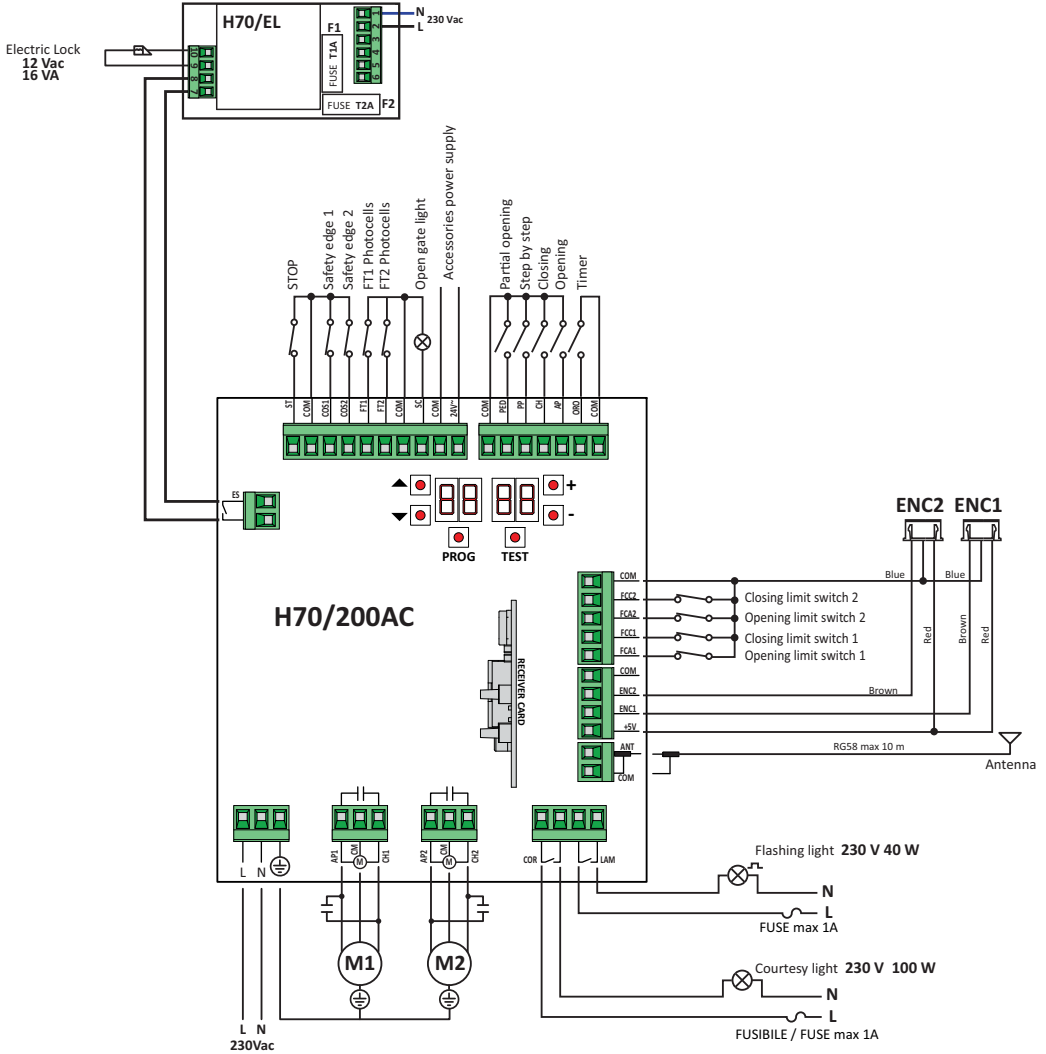
14 Safety input and command status (TEST mode)

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

DISPLAY	POSSIBLE CAUSE	ACTION BY SOFTWARE	PHYSICAL CORRECTIVE ACTION
88 41	The safety **STOP** contact is open.	-	Install a **STOP** button (NC) or jumper the **ST** contact with the **COM** contact.
88 39	Sensing edge **COS1** not connected or incorrectly connected.	Set the parameter 73 00 if not used or to disable.	Jumper contact **COS1** with contact **COM**, if not used or to disable
88 38	Sensing edge **COS2** not connected or incorrectly connected.	Set the parameter 74 00 if not used or to disable.	Jumper contact **COS2** with contact **COM**, if not used or to disable.
88 37	Photocell **FT1** not connected or incorrectly connected.	Set the parameter 50 00 e 51 00 if not used or to disable.	Jumper contact **FT1** with contact **COM**, if not used or to disable. Check connection referring to relative connection diagram (figure 7).
88 36	Photocell **FT2** not connected or incorrectly connected.	Set the parameter 53 00 e 54 00 if not used or to disable.	Jumper contact **FT2** with contact **COM**, if not used or to disable. Check connection referring to relative connection diagram (figure 7).
88 FE	At least 3 limit switches in open contact state or not connected.	-	Check connection of limit switches.
88 FA	Both gate leaves at open limit switch.	-	-
88 FA	Open limit switch not connected.	-	Check connection of limit switches.
88 FC	Both gate leaves at closed limit switch.	-	-
88 FC	Closed limit switch not connected.	-	Check connection of limit switches.
88 F1	LEAF 1 limit switches not connected or incorrectly connected.	-	Check connection of limit switches.
88 F2	LEAF 2 limit switches not connected or incorrectly connected.	-	Check connection of limit switches.
88 20	LEAF 1 open limit switch not connected or incorrectly connected. Or LEAF 1 is open.	-	Check connection of limit switches.
88 21	LEAF 1 closed limit switch not connected or incorrectly connected. Or LEAF 1 is closed.	-	Check connection of limit switches.
88 22	LEAF 2 open limit switch not connected or incorrectly connected. Or LEAF 2 is open.	-	Check connection of limit switches.
88 23	LEAF 2 closed limit switch not connected. Or LEAF 2 is closed.	-	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 **PP** - **COM** contacts and connections to buttons.
CH 00		-	Check **CH** - **COM** contacts and connections to buttons.
AP 00		-	Check **AP** - **COM** contacts and connections to buttons.
PE 00		-	Check **PED** - **COM** contacts and connections to buttons.
Or 00	If occurs with no voluntary command, the contact (N.O.) may be faulty or the timer may be incorrectly connected.	-	Check **ORO** - **COM** contacts. Contact must not be jumpered if not used.

N.B.: Press **TEST** button to exit from the **TEST** Mode.
We recommend troubleshooting safety device and input status errors with "corrective action by software" only.

15 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.
	Example: $IS\,EE$ $2\,I\,EE$	Configuration parameter error.	Set configuration value correctly and save.
	$24\,AC$ flashing	Fuse F2 disconnected or damaged. Accessories are not powered.	Refit fuse F2 correctly or replace.
Acquisition procedure does not complete correctly.	$AP\,PE$	TEST button pressed accidentally.	Repeat acquisition procedure.
		Safety devices in alarm state.	Press the TEST button and check the safety device/s in alarm state and the connections of the safety devices.
Remote control has limited range and does not work while automated gate is moving.	-	The radio transmission is impeded by metal structures and reinforced concrete walls.	Install the antenna outside.
	-	Flat batteries.	Replace the transmitter batteries.
The flashing light is not working.	-	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.

16 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 17).
Position recovery is performed immediately when the limit switches (if installed) are activated.

17 Position recovery mode

When it receives the first command signal after a power failure, after unlocking the motor or after an obstacle is detected in the same position three consecutive times (with encoders enabled), the control unit starts a manoeuvre in position recovery mode .
If encoder is installed the manoeuvre in position recovery mode happens at low speed; otherwise the manoeuvre happens at normal 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 and closing manoeuvre.
Position recovery is performed immediately when the limit switches (if installed) are activated.

18 Initial testing

• Turn on the power supply.
• Check that all connected controls are working correctly.
• Check travel and deceleration.
• Check that the impact force is correct, in compliance with EN 12453 and EN12445.
• Check that the safety devices are activated correctly
• Disconnect from mains power then reconnect. Check that the position recovery procedure is completed correctly.
• Check the limit switch settings (if installed).
• Check that the release system works correctly.