

**the electronic control unit for  
Achilles 400V/230V gear motors  
for industrial use**



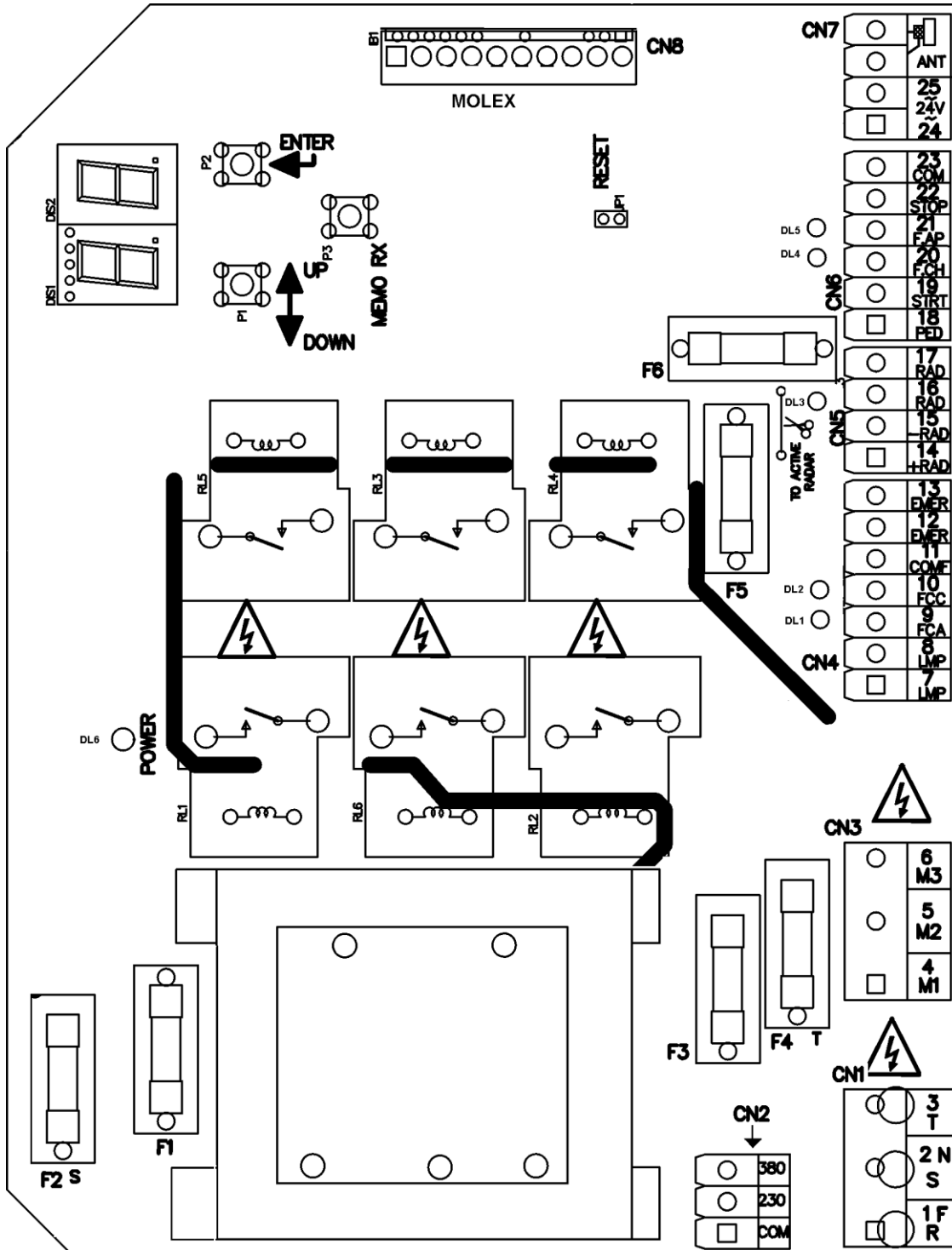


## **Attention!**

- This manual is for qualified technical personnel only, for installation purposes, and not intended for the end user; it's the installer's job to explain to the user how the automatism works, about possible hazards related to it and about the need for periodical maintenance.
- Installation must be carried out by qualified personnel only, observing current standards concerning automatic closing systems. More specifically, installation conformity calls for observance of directive 89/392 and standards EN 12453 and EN 12445.
- Use original components only. Stagnoli is not liable for damages if other components are used.
- Make certain power is disconnected before carrying out any work on the device.
- Do not work on the control unit if your hands or feet are damp or wet and do not leave it outdoors exposed to the weather.
- Pay particular attention when deciding which safety devices to install and their location. Always install an emergency stop device that will cut power off in the case of necessity.
- The power lead must only be connected to supply lines fitted with adequate electrical protection; a circuit breaker must also be installed to guarantee disconnection of all the phases from the mains with a distance of at least 3.5 mm between the contacts.
- Ensure that there is a differential switch up-line of the electrical system.
- This control unit must only be used for the purpose it has been expressly designed, any other use is considered improper and therefore dangerous.
- Only qualified personnel must be allowed to service the unit, including changing the courtesy light bulb whenever needed.
- It is compulsory that the power lead's earth pole be connected to a good earthing system in proximity of the gate.

## TECHNICAL DESCRIPTION AND WIRING DIAGRAM

Stagnoli's electronic control unit ACHILLES 230V/400V for electromechanical gear motors for industrial use is suitable for controlling single and three phase industrial motors with a maximum power of 2 Hp.



### CN2 – MAIN POWER SELECTION CONNECTOR:

- By shortcircuiting the COM – 230 outputs operation is set at 230V
- By shortcircuiting the COM – 380 outputs operation is set at 400V

## ELECTRICAL CONNECTIONS

1. Feed phase 230 V~ / 1st feed phase 400 V~
2. Feed neutral 230 V~ / 2nd feed phase 400 V~
3. 3rd feed phase 400 V~
  
4. Motor opening phase 230 V~ / 1st motor phase 400 V~
5. Motor neutral 230 V~ / 2nd motor phase 400 V~
6. Motor closing phase 230 V~ / 3rd motor phase 400
  
7. Flashing light/courtesy light output: 24Vdc 10W max. (positive pole)
8. Flashing light/courtesy light output: 24Vdc 10W max. (negative pole)
9. NC electrical contact of the opening limit switch (F.C.A.)
10. NC electrical contact of the closing limit switch (F.C.C.)
11. Common of the limit switches' electrical contacts (COMF)
12. Emergency Push Button Input (NC contact)
13. Emergency Push Button Input (NC contact)
  
14. Feed for radar connection: 24Vdc 10W max. (positive pole)
15. Feed for radar connection: 24Vdc 10W max. (negative pole)
16. Radar input (NC contact, in series with input 20)
17. Radar input (NC contact, in series with input 20)
  
18. NO electrical contact of the Pedestrian command (PED).
19. NO electrical contact of the Start command (STRT).
20. NC electrical contact of the photocell active in closing (FCH)
21. NC electrical contact of the photocell active in opening (FAP)
22. NC electrical contact of the stop push button (STOP).
23. Common terminal of the command and control devices (COM).
  
24. Accessories feed: 24Vdc 10W max.
25. Accessories feed: 24Vdc 10W max.
26. Antenna input (braid)
27. Antenna input (signal)



- **The power lead must only be connected to supply lines fitted with adequate electrical protection; a circuit breaker must also be installed to guarantee disconnection of all phases from the mains with a distance of at least 3.5 mm between the contacts.**
- **IT IS COMPULSORY to connect an EMERGENCY PUSH BUTTON but, if the opening is wider than 4 metres 2 EMERGENCY PUSH BUTTONS must be used connected in series, at the ends of the automation.**
- **To enable the Radar input, cut the connection above the corresponding input (indicated by the words "TO ACTIVE RADAR")**
- **IF THE CONTROL UNIT IS FED AT 230V~ TERMINAL NO. 3 MUST BE LEFT FREE**
- **Unused normally closed contacts must be short circuited.**
- **Unused normally open contacts must be left free.**

## DEFINITION OF THE CONTROL UNIT COMPONENTS

F1- TRANSFORMER FUSE (T 0.63A, 250V): protects the transformer's primary winding.

F2,F3, F4 – PHASE FUSES (T 10A, 250V): protect the control unit in the case of a short circuit or anomalies in current input along the main supply line.

F5 – FLASHING LIGHT FUSE ((T 0.63A, 250V): protects the Flashing Light output

F6 – ACCESSORIES FUSE ((T 0.63A, 250V): protects the control unit in the case of a short circuit of anomalies in current input by the accessory devices.

DISPLAY: to view the control unit operating parameters when programming as well as the automation's functioning mode.

ENTER: key to gain access to the parameters menu and their selection.

UP – DOWN: key to vary the parameters

INDICATOR LEDs:

- DL1 – OPENING LIMIT SWITCH LED: it turns off when the limit switch is pressed.
- DL2 – CLOSING LIMIT SWITCH LED: it turns off when the limit switch is pressed.
- DL3 –RADAR LED: it turns off subsequent to a Radar intervention.
- DL4 – PHOTOCCELL ACTIVE IN OPENING LED: it turns off subsequent to an intervention of the photocell active in opening.
- DL5 – STOP LED: it turns off after a Stop command has been given.
- DL6 - FEED LED: when this LED is on it indicates connection to the main power.

CN2 – MAIN POWER SELECTION CONNECTOR:

- By shortcircuiting the COM – 230 outputs operation is set at 230V
- By shortcircuiting the COM – 380 outputs operation is set at 400V

## DEFINITION OF THE INPUTS/OUTPUTS

- **CN1 – Feed input:** 230V~ (+/- 10%) or 400V~ (+/- 10%)
- **CN3 – Motor output:** 230V single-phase, 230V three-phase or 400V three-phase, 2 Hp max.
- **Auxiliary output** (24V dc, 10W max).
- **Flashing light/courtesy light output** (24Vdc, 10W max): the output for the flashing light or courtesy light can be set when programming.
- **Pedestrian input (PED):** to control partial opening and closing of the gate.
- **Open/close input (STRT):** to control gate opening and closing according to a logic that depends on programming (D=0/1)
- **Photocell active in closing input (F.CH Input):** activation of this input is ineffectual in opening, it stops and reopens the gate during closing and triggers it during pause time.
- **Photocell active in opening/closing input (F.AP Input):** when the gate is opening and the F.AP input is activated, it causes the gate to stop until the photocell becomes free. If "E = 1", the F.AP Input activation causes the gate to stop and reverse its movement during closure, while in opening, it causes the gate to stop until the photocell becomes free.
- **Stop input (STOP):** if the Stop command is active it prevents all cycles from starting and renders all start commands ineffectual. If a Stop command is given during gate movement the gate stops instantly. If a Stop command is given during pause time it stops the work cycle until a new closing command is given.
- **Emergency input (EMER):** when this N.C. input is activated it instantly cuts power off to the control unit.

- **CN5 – Radar input:** this input is for controlling a Radar system that detects obstacles. This input is normally closed (N.C.) and is in series with the photocell active in closing input. The jumper, indicated by the words “to active Radar” and by a scissors symbol, has to be cut to enable the Radar.
- **Antenna input (ANT):** for connecting an antenna to increase radio control reception.
- **CN8- Radio input connector (molex):** there is room on the control unit to plug in an additional radio receiver card. Channel 1 of the card is connected in parallel to the Open/Close input while channel 2 is connected in parallel to the Pedestrian input.

## **PROGRAMMING THE OPERATING PARAMETERS**

To gain access to the parameters menu, keep the ← ENTER key pressed until the first parameter “A” appears. Move forward in the parameters menu by pressing the ENTER key consecutively; press ↕ UP/DOWN key to change the parameter.

PARAMETERS MENU:

### **A. Work time**

1=10 Seconds ; 2 =15 Seconds; 3 =20 Seconds; 4 =25 Seconds  
5 =30 Seconds; 6 =35 Seconds; 7 =60 Seconds; 8 =120 Seconds

Attention: even though work time resets itself when the limit switches trip, it is still advisable to select a suitable length of time to have a maximum motor activation time in case the limit switches are damaged.

### **B. Partial opening time**

1= 3 Seconds; 2 =5 Seconds; 3 =7 Seconds; 4 =9 Seconds.

### **C. Automatic closing**

NOT ENABLED = 0

ENABLED: 1=10 Seconds; 2 =15 Seconds; 3 =25 Seconds; 4 =60 Seconds

### **D. Start command logic (STRT)**

OPEN/CLOSE COMMAND = 0          OPEN/STOP/CLOSE COMMAND = 1

### **E. Photocell logic (F.AP)**

Photocell Active ONLY in Opening = 0          Photocell Active in Opening & Closure = 1

### **G. LMP output logic**

FLASHING LIGHT OUTPUT = 0          COURTESY LIGHT OUTPUT = 1

### **H. Condominium logic**

CONDOMINIUM NOT ACTIVE = 0          CONDOMINIUM ACTIVE = 1

To exit parameters viewing, press the ENTER key several times until the automation closed condition is displayed, - - (two dashes)



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