ELECTRONIC CONTROL UNIT FOR BARRIERS
USE INSTRUCTIONS - INSTALLATION INSTRUCTIONS

1. GENERAL CHARACTERISTICS

Thanks to its high powered microprocessor, this control unit for barriers offers a wide range of performances and adjustments/settings. Moreover, it assures a high level of active security through electronic control of power.
A high-tech electronic control constantly monitors the power circuit and comes into action to shut down the control unit in the event of faults which could jeopardise correct operation of the electronic clutch. The main settings and operating modes are effected by dip switches. Time and motor power adjustments are effected by trimmers on the electronic board. 7 built-in LEDS provide an on-going overview of the status of inputs, outputs and any circuit faults.

2. TECHNICAL SPECIFICATIONS

Power supply	230 V~ (+6 -10%) - 50/60 Hz.
Absorbed power	550 W
Motor max load	500 W
Accessories max load	24Vdc 500 mA
Operating ambient temperature	-20°C +50°C
Protection fuses	2
Function logics	Parks/Automatic
Opening / closing time	30 sec.(fixed)
Pause time	Trimmer-adjustable (from 2 to 90 sec.)
Thrust force	Trimmer-adjustable
Starting time	1 sec. (fixed)
Reversing time	2 sec. (fixed)
Deceleration timer	1 sec. (fixed)
Terminal board inputs	Total opening / Closing / Closing photocells / Opening-closing limit-switch / STOP Mains power supply + Ground
Radio control connector	Radio receiver card
Module connector	Motor control module
Terminal board outputs	24 Vdc power supply to accessories / Flashing lamp / Motor
Dip-switch selectable functions	Operating modes / Closing photocell behaviour

3. CONNECTIONS

3.1 M1 TERMINAL BOARD

3.1.1 Mains

Terminals «17-18» (Neutral-Phase). Power supply 230 V~ - 50/60 Hz.
ATTENTION: to ensure the control unit operates correctly:
1) respecting the connections, Phase / Neutral of power supply, as it has shown on the electronic board
2) earth connection must be made to the **"GROUND"** terminal.

3.1.2 Flashing-lamp

Terminals «15-16» (Phase-Neutral). Use a flashing-lamp with operating voltage of 230 Vca.

3.2 M2 TERMINAL BOARD

3.2.1 Gearmotor

Terminals «12-13-14» (Open-Com-Close).
ATTENTION: if the gearmotor is not connected or incorrectly connected, the control unit disables itself and this status is signalled by rapid flashing of the **WORK LED.**
Notes:
1) To lay electric cables, use adequate rigid and/or flexible pipes.
2) Always separate the connection cables of low voltage accessories from the 230 V~ power cables. To supply power to the equipment, use cables with minimum diameter of 1.5mm². To avoid any interference, use separate sheaths.

3.3 M3 TERMINAL BOARD

3.3.1 Opening limit-switch

Terminals "10-11" (Normally Closed Circuit). The status of this input is signalled by the **FCA LED**. This circuit should be connected to the opening limit-switch. This circuit has a 1 second delayed effect, i.e. when the limit-switch is pressed, the barrier movement decelerates for one second.

3.3.2 Closing limit-switch

Terminals "9-11" (Normally Closed Circuit). The status of this input is signalled by the **FCC LED**. This circuit should be connected to the closing limit-switch. This circuit has a 1 second delayed effect, i.e. when the limit-switch is pressed, the barrier movement decelerates for one second.

3.3.3 Closing protection photocells

Terminals "8-11" (Normally Closed Circuit). The status of this input is signalled by the **FOTO LED**. This circuit should be connected to any safety device (photocells, pressure switch, detector, etc.) which, by opening a contact, has a security effect on the closing movement. The effect on opening is different, according to programming with dip-sw 3.

NB.: To install several safety devices, connect the NC contacts in series.

3.4 M4 TERMINAL BOARD

3.4.1 Close

Terminals «C-7» (Normally Open Circuit). The status of this input is signalled by the **CLOSE LED.** This circuit should be connected to any device (push-button, external radio control, etc.) which, by closing a contact, generates a barrier closing pulse.

3.4.2 Start

Terminals «6-7» (Normally Open Circuit). The status of this input is signalled by the **START LED**. This circuit should be connected to any device (push-button, external radio control, etc.) which, by closing a contact, generates a barrier opening only or opening / closing pulse according to how dip-switch 1 is selected.

N.B.: To install several pulse generators, connect the contacts in parallel. Barrier re-closure can be locked by connecting a 24h timer clock in parallel with the START circuit.

3.4.3 Stop

Terminals "5-7" (Normally Closed Circuit). The status of this input is signalled by the **STOP LED**. This circuit should be connected to any device (e.g. push-button) which, by opening a contact, stops barrier movement.

N.B.: If no STOP devices are connected, jumper connect the input. To install several STOP devices, connect the NC contacts in series.

3.4.4 Power supply to accessories

Terminals «3-4» (24 Vdc). **ATTENTION:** maximum load of accessories is 500 mA.

4. INSTALLING A RECEIVER CARD FOR REMOTE-CONTROL

The control unit is designed to house a 5-pin radio-receiver module. To install, cut out power and fit the module in the appropriate **M5** connector inside the control unit. Then follow the radio-receiver instructions for memory-storing the remote-control.

5. INSTALLING THE MOTOR CONTROL MODULE

The control unit is designed to house a motor control module (optional). To install, cut out power and fit the module in the appropriate **M6** connector inside the control unit. In case of impact with an obstacle, this module stops, reverses barrier motion for 0.5 seconds and disables the control unit, signalling this by a rapidly flashing **WORK LED**. This module allows the barrier to resume its set cycle only after the obstacle has been removed and another START command given.

6. CONTROL LEDS

LEDS	ON	OFF	**WORK LED**
STOP	**Command inactive**	Command activated	ON: barrier moving
START	Command activated	**Command inactive**	**OFF: barrier at rest**
CLOSE	Command activated	**Command inactive**	Rapid flashing:
FOTO - Photocell	**Safety devices disengaged**	Safety devices engaged	- motor incorrectly connected
FCC - Closing limit-switch	Limit-switch disengaged	**Limit-switch engaged**	- electronic clutch fault
FCA - Opening limit-switch	**Limit-switch disengaged**	Limit-switch engaged	- control module tripped

N.B.: LED statuses with barrier at rest shown in bold.

7. TRIMMER ADJUSTMENTS

7.1 PAUSE

To set pause duration, (for automatic operation) use the "**BREAK**" trimmer. Duration can be adjusted from 2 to 90 seconds.

7.2 ELECTRONIC CLUTCH

To set the tripping threshold of the anti-crushing system, use the "**POWER**" trimmer. You are recommended to set this torque to the current regulations.

8. ADJUSTMENTS WITH DIP-SWITCH SW1

	1	2	3	4
PARKS LOGIC				
START pulse opens only, CLOSE pulse closes only	ON			
STAR pulse: opens-closes-opens etc. CLOSE pulse closes only	OFF			
AUTOMATIC LOGIC				
Re-closes after pause time.		ON		
Disabled		OFF		
CLOSING PHOTOCELL OPERATION				
When closing locks and reverses, if closed locks START, when opening locks and restarts on release.			ON	
Locks and reverses motion.			OFF	
PARKS FUNCTION				
Does not perceive START pulses during opening; repeats pause time if in pause status.				ON
Disabled				

NB.: all adjustments/settings must be made with the control unit OFF and barrier closed.

9. FUNCTION LOGICS

BARRIER STATUS		PULSES			
		START	**CLOSE**	**STOP**	**PHOTOCELL**
PARKS	**CLOSED**	Opens	No effect	Locks START	No effect or locks START per dip-sw 3
	OPEN	No effect	Closes		
	CLOSING	Reverses motion	No effect	Stops operation and goes into STOP status	Locks and reverses motion
	OPENING	No effect	Reverses motion		No effect or locks and, on release, restarts per dip-sw 3
	STOPPED	Restarts motion in reverse direction	Restarts motion to close	Locks START	
AUTOMATIC	**CLOSED**	Opens, pauses and re-closes	No effect	Locks START	No effect or locks START per dip-sw 3
	OPEN ON PAUSE	Closes immediately or repeats pause time per dip-sw 4	Closes immediately	Stops operation and goes into STOP status	Locks START and, on release, resets pause time
	CLOSING	Reverses motion	No effect		Locks and reverses
	OPENING	No effect or reverses per dip-sw 1	Reverses motion		No effect or locks and, on release, restarts per dip-sw 3
	STOPPED	Restarts motion in reverse direction	Closes	Locks START	

10. PROTECTION FUSES

FUSE	PROTECTION	FUSE	PROTECTION
F1 = 2A/250V - 5x20	Logic / accessories	**F2** = 5A/250V - 5x20	Motor

11. CONNECTION LAY-OUT