



MPU/O4 ELECTRONIC CONTROL UNIT FOR SWING GATE OPERATORS

(cod. 23022005)

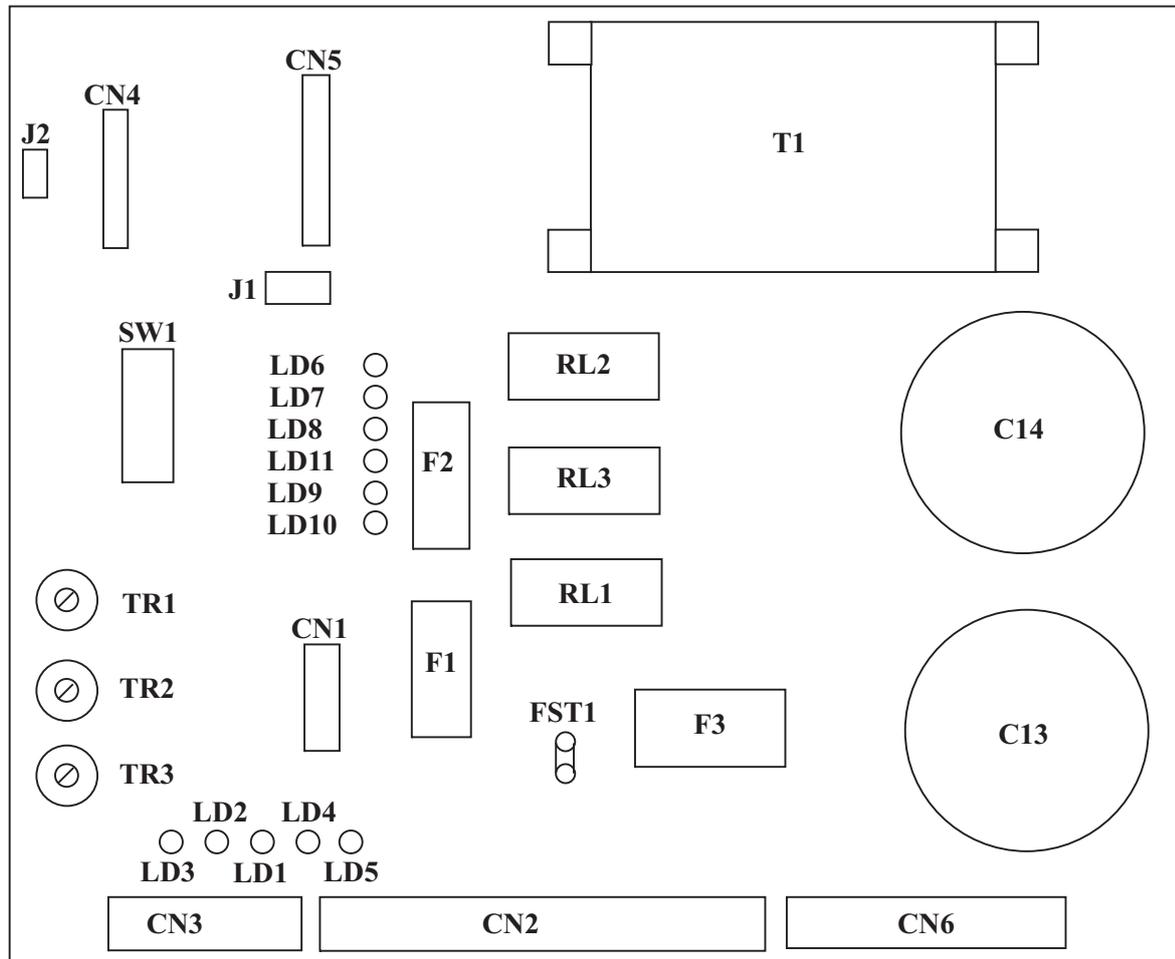
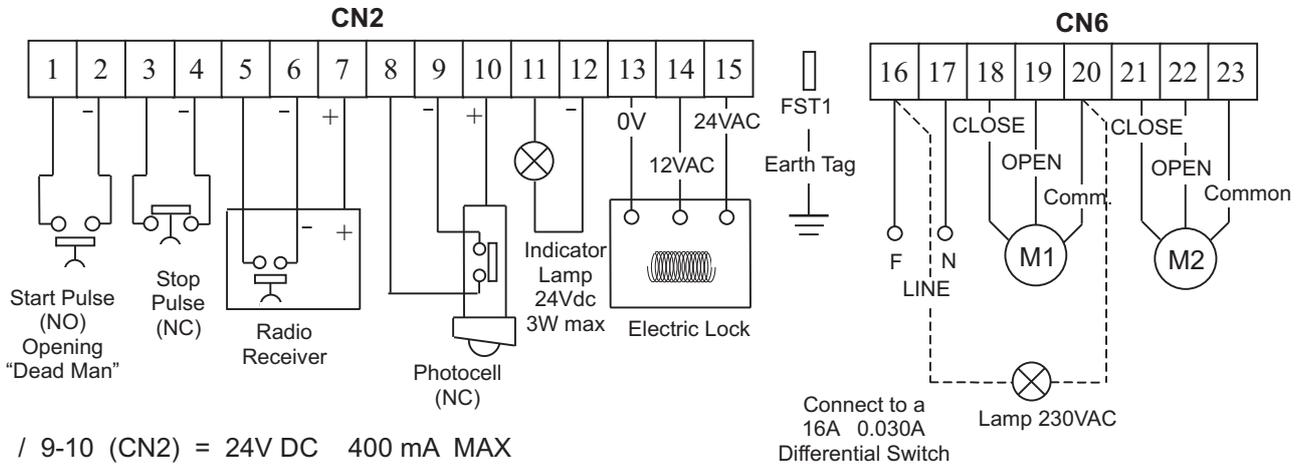


Fig. 1

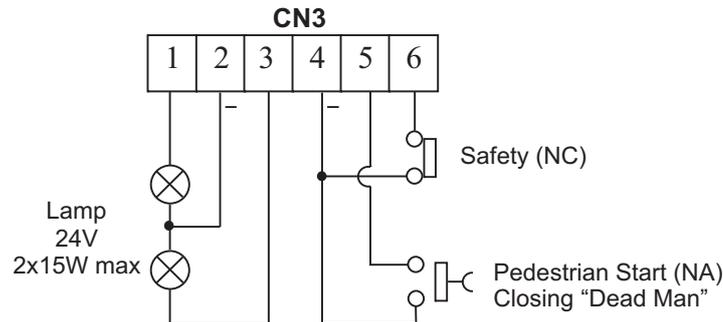
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|--------------------------------------|---|
| LD1: Security Led | CN3: Security, Pedestrian Start, Flashing Lamp Connector |
| LD2: Photocell led | CN4: Photo Board Connector |
| LD3: Stop Led | CN5: Expansion Unit Connector |
| LD4: Start Led | CN6: Main Terminals |
| LD5: Pedestrian Start Led | FST1: Earth Tag |
| LD6: Motor 1 Led | RL1: Motor 1 Relay |
| LD7: Motor 2 Led | RL2: Motor 2 Relay |
| LD8: Indicator Lamp Led | RL3: Direction Relay |
| LD9: Flashing Lamp 24V Led | SW1: Programming Dip-switches |
| LD10: Flashing Lamp 24V Led | J1: Electric Lock Jumper |
| LD11: Electric Lock Led | J2: Photo Board Jumper |
| F1: Electric Lock Fuse 2A (T) | TR1: Motor Run Time Trimmer |
| F2: Accessory Fuse 1A | TR2: Pause Time Trimmer |
| F3: Motor Fuse 3,15 A (T) | TR3: Leaf Delay in closing Trimmer |
| CN1: Radio Receiver Connector | T1: Transformer |
| CN2: Main Terminals | |

MPU/O CONNECTION DETAILS

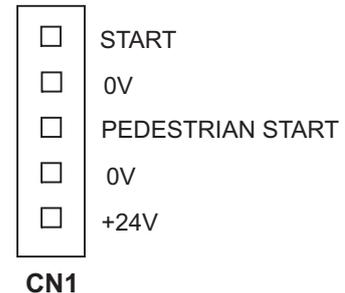
1 CONNECTOR BLOCK (CN2 , CN6)



2 SECURITY, PEDESTRIAN START AND FLASHING LAMP CONNECTOR (CN3)



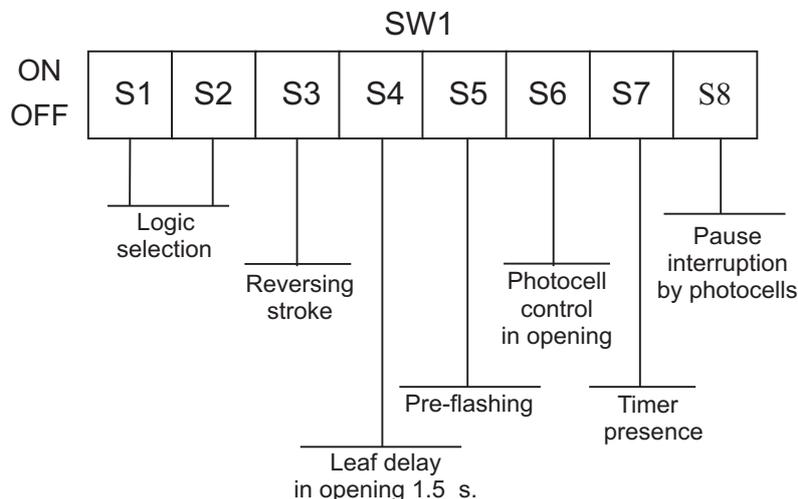
3 RADIO RECEIVER CONNECTOR



N.B.: The Stop Button, Safety or Photocells inputs require normally closed contacts (N.C.).
If any of these inputs are not being used the relevant connection terminals will require wire linking out. For example 3 to 4, 8 to 9 on Connector Block CN2 and 4 to 6 on Connector Block CN3.

PROGRAMMING INSTRUCTIONS

1 OPTIONS CHART





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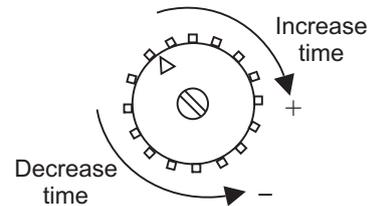
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2 LOGIC FUNCTION CHART

S1	S2	LOGIC
ON	OFF	S
OFF	OFF	A
ON	ON	E
OFF	ON	UP

Security
Automatic
Semi-automatic
Dead Man

3 - TIME REGULATION TRIMMER TR1, TR2, TR3



MPU/O4 FITTING INSTRUCTIONS

Important. Please fully read these instructions before installing this unit. If you have queries contact your supplier. The 240 Volt electrical supply to this control unit must have:

1. Conveniently placed isolated switch.
2. Trip fuse rated at 6A.
3. Residual current device (RCD/ELCB) 16A - 0,030A.
4. Mains earth bonded to the motors and the board.

Remember to switch off the power supply to the unit when working on the board or motors. Reference should be made to the 17th Edition of the IEE Regulations when carrying out the electrical installation. All cables should enter/exit via the bottom of enclosure. The control box should be fitted at a minimum height of 500mm. from ground level. When fitting the enclosure, check that it is not being distorted, seal the fixing screws to prevent from water ingress. When the circuit board is removed from the packing:

1. Lift the circuit board by the transformer.
2. Take care to the back of the board, do not put it directly on the ground or the top of a wall.

General description

The MPU/O is a micro-processor type control unit designed to control SEA electro-hydraulic swing gate operators and traffic barriers. It contains:

- Dial switch selection of logic and control features.
- Potentiometers to adjust the motor run, gate pause and leaf delay timings.
- The MPU/O unit will control a single operator, or two operators working as a pair.
- Pedestrian gate logic: one gate of a pair can be controlled to allow pedestrian use.
- Low voltage control inputs.
- Low voltage (30Vdc) supply for radio receiver, photocells or loop detectors.
- 240 volts capacitor start motor output.
- 12 Vac feed for a single electric lock or 24Vac for two locks wired in series.

MPU/O4 function, description and requirement

CN1 terminal block low voltage

- 1-2 START PULSE (N.O.) Volt free momentary pulse to activate the system, push button, key-switch etc..
- 3-4 STOP (N.C.) Momentary or held input dependent on requirement.
- 5-6-7 RADIO RECEIVER (N.O.) Momentary/negative switched return from a 24Vdc radio receiver.
- 8-9-10 SAFETY INPUT (N.C.) Negative switched return from Photocell/Loop detector for hold open safety.
- 11-12 STATUS INDICATOR LAMP FEED 24Vdc 5W max. on when opening and open, flashes when closing.
- 13-14 LOCK FEED 12Vac Pulsed feed for an electric lock.
- 13-15 LOCK FEED 24 Vac Pulsed feed for an electric lock.

FST1 MAINS EARTH CONNECTION , provides an earth for the double sided earth barrier tracks placed between mains and low voltage.

CN2 TERMINAL BLOCK 240 VAC

- 16 Neutral
- 17 Live 240 V supply feed
- 18 Open
- 19 Close Motor 1
- 20 Common (Blue)
- 21 Open
- 22 Close Motor 2
- 23 Common (Blue)

CN3 Security, Ped. Gates, Flashing Lamp (N.O.). Volt free impulse will open one gate of a pair (Motor 1).



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 **23022005**

Timing Functions

TR1 *Motor run time* 0-120 seconds.

TR2 *Motor pause time*, before automatically closing.

TR3 *Leaf delay time*, Motor 2 is delayed in closing by the time set.

Adjust timing with operators in closed position.

1. Logic selection

It is necessary to de-power the board when setting or changing logic or feature selections. The operators run towards opening on reinstatement of the power. Logic selection is controlled by switches 1 and 2 of the block of 8 dill switches. The following logic descriptions are given with feature switches 3-8 in the OFF position. Selection of some of the features will alter the standard logic described.

* E LOGIC (Semi-automatic)

With the operator stopped, an impulse from a push button or radio transmitter will send the operator in the opposite direction to its last cycle. If an impulse or safety signal is received while the operator is running towards closing, the operator stops and automatically re-opens, automatically adjusting the opening run time to the time the operator has run towards closing plus approx. 2 seconds. If an impulse is received when the operator is running open, the operator stops, the next impulse will send the operator towards closing with an automatically reduced run time. Hold open safety is recommended to be used in conjunction with any logic. On A and UP logic it is essential to install either full photocell or induction loop safety.

* A LOGIC (Automatic close logic).

If the operator is stopped in the closed position, a start impulse will run the operator in the opening direction for the time set after the pause time set has elapsed the operator will close, provided that the safety circuit is clear. The safety circuit will hold the operator on pause for the time set. If a start impulse is given while the operator is running towards open it is ignored. A start pulse given during the pause time erases the pause time and the operator will close. If a start impulse or safety signal is given while the operator is closing, the operator stops and re-opens with reduced run timings.

* S LOGIC (Security logic)

The working functions are the same as in A Logic, except for the gate movement will be inverted giving one impulse while the gate is opening.

* UP LOGIC (Dead Man)

TO OPEN: - A (N.O.) input given and maintained on terminals 1&2 block CN2 will run the operator towards open. The operator will stop as soon as the input is removed.
TO CLOSE: A (N.O.) input given on terminals 4 & 5 (CN3) will run the operator towards close for as long as the input is maintained.

Security Entrance

Terminals 4 & 6 on block CN3 (N.C. input). When this input is triggered, the operators movement is immediately stopped and reversed for 2 seconds.

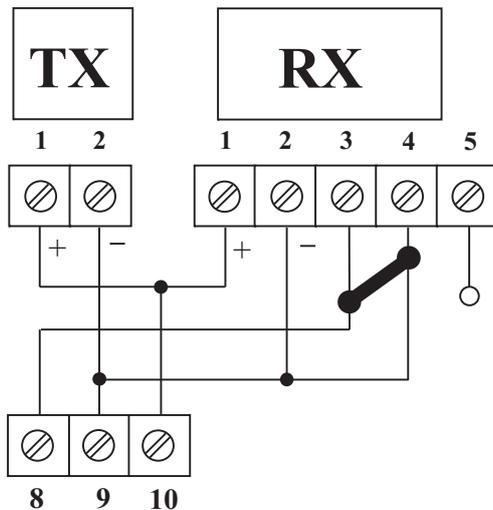
Feature selection

Switches 3-8 are used to select the following:

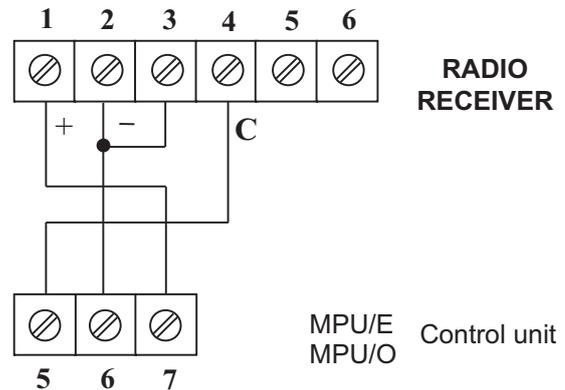
- S3 REVERSING STROKE. Used to relieve face pressure on the gate/electric lock, normally caused by the wind.
- S4 DELAY 1.5 s. On motor 2 in opening. It works to stop gates with rebate/slamming bars rubbing open or if some form of mechanical shoot bolt/locking mechanism is being used.
- S5 PRE-FLASHING. When automatic closing logic is being used, both the low voltage warning light and the status indication lamp flash for 5 seconds before pause time elapses and the operator starts to close.
- S6 PHOTOCCELL CONTROL IN OPENING. Courtyard logic. With the operator in the stopped and closed position and a safety device (loop or photocell) registering a presence. When a start impulse is given, the leaves run towards open for a second for signalling, then stop and hold the position, clearing the safety signal allows the leaves to continue opening.
- S7 PRESENCES. Input in to start terminals 1 & 2 CN1 will hold the operator on open pause. It is used when A logic is selected and a hold open facility is required, for example a switch or a time clock with clean contacts.
- S8 INTERRUPTION OF PAUSE TIME. Activation of the photocell (safety) input 8 & 9 block CN2 during an open pause, will cancel the set pause time. When the safety circuit is restored, pre-flashing is activated and the operator will close, ignoring the pause time set on trimmer TR2.

The JUMPER J2 must always be inserted when using the electronic control unit only with external photocells. If the card of the plugged photocell is used, the JUMPER J2 must be removed.

PHOTOCELLS CONNECTION DETAILS



RADIO RECEIVER CONNECTION



SAFETY PRECAUTIONS

All electrical installation works should conform to regulations. A 16A - 0,030A differential switch must be incorporated into the source of the gate main electrical supply and the entire system must be properly earth bonded. Remember to run separate mains (240V) carrying cables (supply and motor). Also all low voltage controls (push button, photocell, radio etc.) cables should be run in separate ducts to the mains to prevent from mains interference.

Note: Use "cable clips" and/or "duct/box pipes" fitting close to the control panel box so to protect the interconnection cables against pulling efforts.

SPARE PARTS

To obtain spare parts contact: **SEAs.r.l. ZONA Ind.le, 64020 S.ATTO Teramo Italia**

INTENDED USE

The MPU/O4 electronic control unit has been designed to be solely used as control unit for the automation of doors, gates, leaves and barriers.

SAFETY AND ENVIRONMENTAL COMPATIBILITY

We recommend not to spoil the environment with product and circuit packing material.

CONFORMITY REQUIREMENTS

The electronic control unit MPU/O4 conforms to the following:
 89/336/CEE (Rule on the Electromagnetic Compatibility)
 73/23/EC (Electric Safety)

STORAGE

STORAGE TEMPERATURES			
T_{min}	T_{Max}	Humidity _{min}	Humidity _{Max}
-40 °C	+85 °C	5% no condensation	90% no condensation

When being transported this product must be properly packaged and handled with care.

MAINTENANCE AND OUT OF SERVICE

The decommission and maintenance of this unit must only be carried out by specialised and authorised personnel.

LIMIT OF GUARANTEE

The MPU/O4 electronic control unit is guaranteed for a period of 24 months. The guarantee period starts from the date stamp printed on the unit. The MPU/O4 guarantee will be void if the unit has been incorrectly installed, not used for the purpose intended, tampered with or modified in any way. The validity of this guarantee only extends to the original purchaser of the unit.

NOTE: THE MANUFACTURER CAN NOT BE DEEMED RESPONSIBLE FOR ANY DAMAGE OR INJURY CAUSED BY IMPROPER USE OF THIS PRODUCT.

SEA reserves the right to do changes or variations that may be necessary to its products with no obligation to notice.