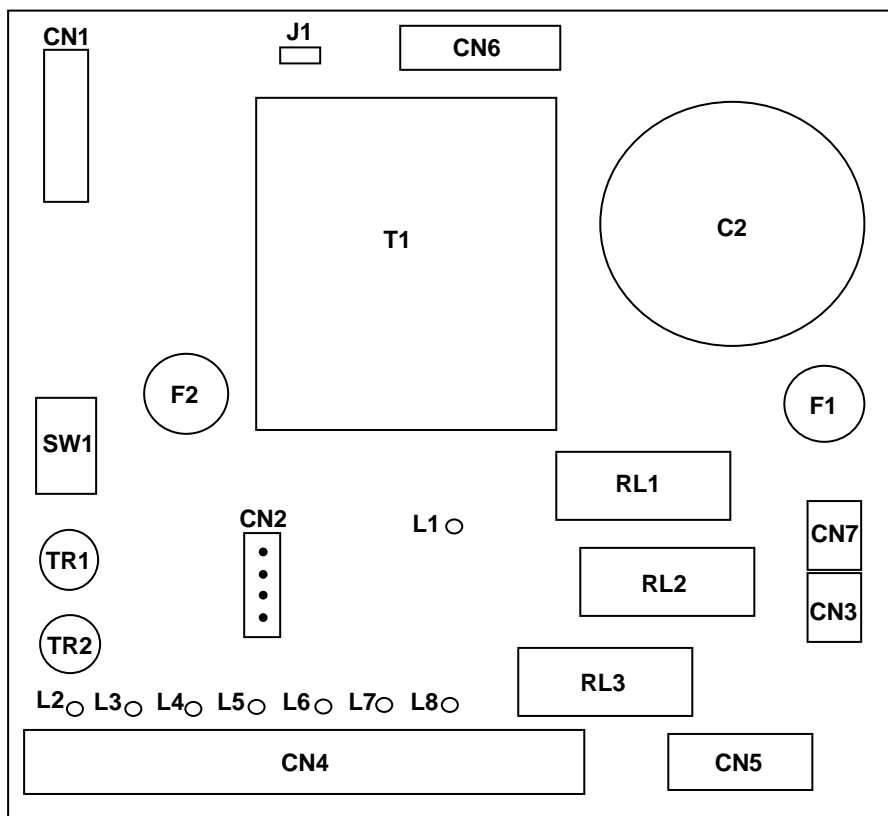


## **ELECTRONIC CONTROL UNIT AG/MPU/B4 – BR4**

(code 23010005) – (code 23010015)



**LD1:** Warning light Led

**LD2:** Opening Led

**LD3:** Closing Led

**LD4:** Stop Led

**LD5:** Photocell Led

**LD6:** Safety Led

**LD7:** Limit Switch Led

**LD8:** Limit Switch Led

**TR1:** Open Pause Time Trimmer

**TR2:** Motor Run/Slow-down Time Trimmer

**SW1:** Programming Switch

**F1:** Motor Fuse 3.15A delayed

**F2:** Control Fuse 1A delayed

**T1:** Transformer 6 VA

**C2:** Motor Capacitor

**CN1:** Radio Receiver Plug-in Connector

**CN2:** Temperature Sensor Connector

**CN3:** Service Relay Output

**CN4:** Low Voltage Connector

**CN5:** Motor Connector

**CN6:** Modular Photocell/auto-test Connector

**CN7:** High Voltage Connector

**J1:** Modular Photocell Able/Disable Link

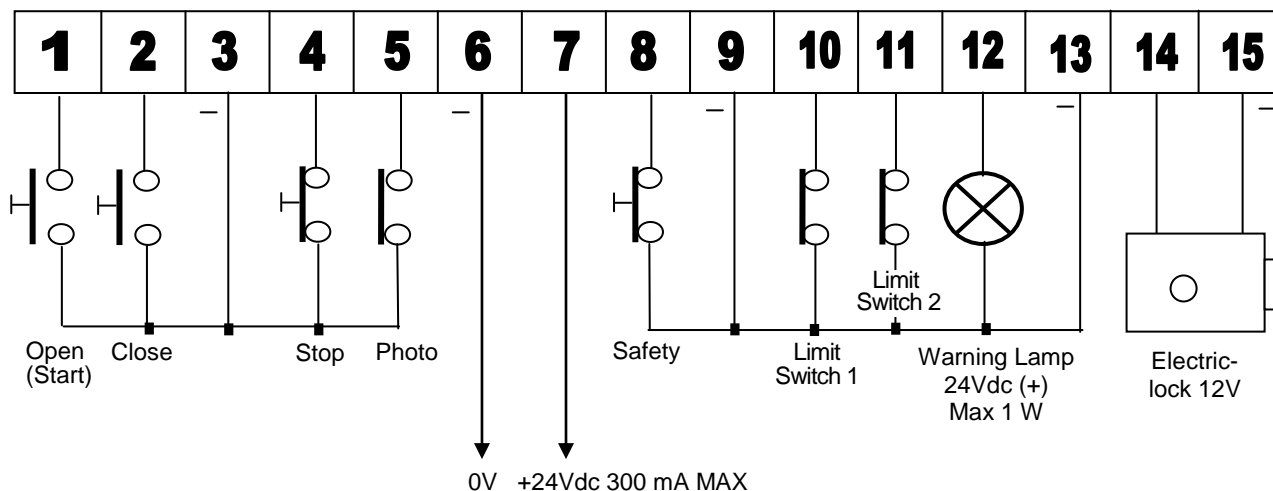
**RL1:** Mains Isolating Relay

**RL2:** Service Relay

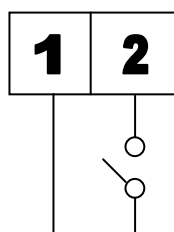
**RL3:** Direction Relay

## ELECTRICAL CONNECTION LAYOUT

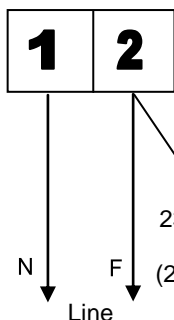
### LOW VOLTAGE TERMINAL BLOCK (CN4)



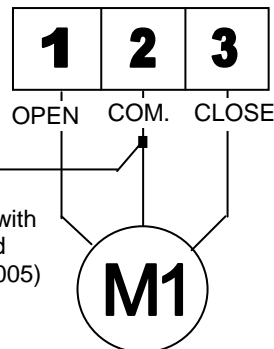
### SERVICE RELAY OUTPUT (CN3)



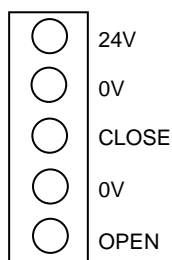
### HIGH VOLTAGE TERMINAL BLOCK (CN7)



### MOTOR TERMINAL BLOCK (CN5)

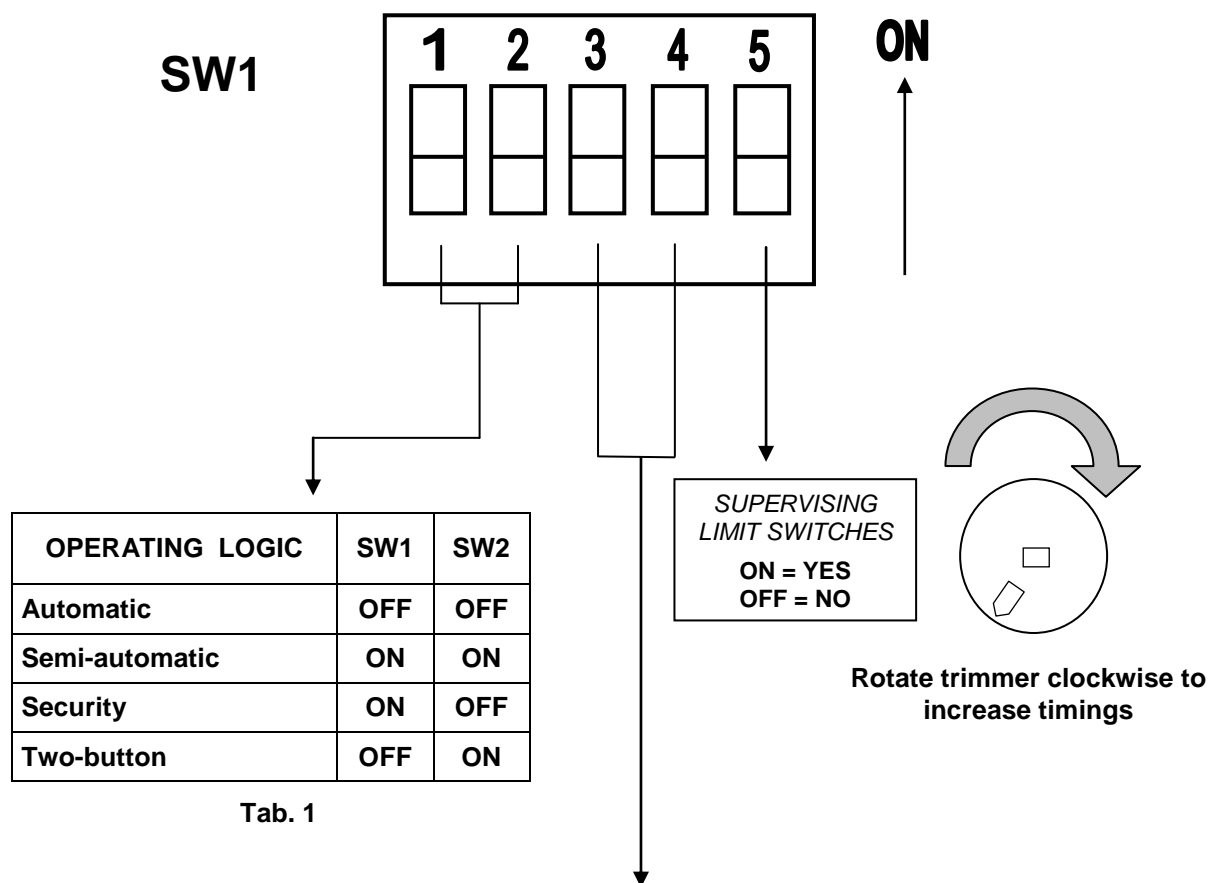


### (CN1) RADIO CONNECTOR



**Note:** Regarding normally closed inputs. In instances where a Stop button, Photocell or Security device is not installed, the relevant terminals must be wire linked for the board to function correctly (3 to 4 - 5 to 6 - 8 to 9 CN4).

## LOGIC PROGRAMMING TABLE



OPERATIONAL LOGIC	SW3	SW4
Large Barrier + Warning Light (via Service Relay)	OFF	OFF
Rapid Barrier + Ventilation Fan (via Service Relay)	OFF	ON
Garage Door Operator + 30 sec. Courtesy Light (via Auxiliary Relay)	ON	OFF
Garage Door Operator + 90 sec. Courtesy Light (via Auxiliary Relay)	ON	ON

**Tab. 2**

### Model and Function Description

The MPU/B4 has been designed to control SEA Traffic Barriers (*Ind.* or *Rapid*) with travel limits or a SEA Garage Door Operator without limits. The type of logic required is programmed via a block of Dip Switches (SW1). It is equipped with two trimmers for regulating timings of:

- Slowing-down or motor run time (TR2), dependent on type of operation selected.
- Open pause time (TR1).

### 1. Operational Logic

Selected by arranging Dip Switches 1 & 2 (SW1) as shown in table 1 on page 3.

#### • AUTOMATIC LOGIC

From closed: When an open impulse is given the operator will open and remain open for the time set on the pause trimmer (TR1), when the pause time has elapsed the operator will start to close. Subsequent impulses given while the operator is :

- Opening – are ignored.
- On open pause – cancel the pause time and immediately start to close.
- While closing – stop and re-open.

#### • SEMI-AUTOMATIC LOGIC

From closed: The first " Start" (Open) impulse will initiate an open cycle.

The operator will remain open until it receives a new Start command to close.

If a second " Start" (Open) impulse is given while:

- The operator is opening – the operator stops.
- Open – the operator will immediately close.
- The operator is closing – The operator stops and re-opens.

#### • SECURITY LOGIC

This logic works as Automatic Logic apart from: a " Start" (Open) impulse given when the operator is opening will stop and invert the motor direction to close.

#### • TWO-BUTTON LOGIC

This logic is similar to Semi-Automatic Logic excepting in the following respect. The closing cycle can only be initiated by the " Close" button.

During an opening cycle a " Close" input will stop and invert the operator direction to close.

During a closing cycle an " Open" impulse will stop and invert the operator direction to open.

#### • SUPERVISING THE LIMIT SWITCHES

In case of a garage door, the limit switches are supervised by setting Dip Switch 5 in "ON" position. The leaf will stop while reaching the limit in opening or closing with this option, respecting the working time set by Trimmer TR2.

In case it is being used with a *Rapid Barrier*, only Limit Switch 1 must be connected.

#### 2. "Open" and " Close" commands

An " Open" input will command both open and close cycles in *Automatic*, *Semi-Automatic* and *Security* logic.

A " Close" input will only initiate a closing cycle in "Two Button" logic.

#### 3. Regulating Timings

TR1 regulates the duration of the open pause.

TR2 regulates the braking time (0 – 6 sec.) when "Rapid Barrier" Logic has been selected (see Table 2).

If "Garage Door" or "Large Barrier" operating logic has been selected (see Table 2) TR2 regulates the duration of the motor run from 0 to 120 sec.

#### 4. Security Input

This control unit is equipped with a Normally Closed "Security" input on terminals 8 & 9 (CN4). If this normally closed contact is opened during an opening or closing cycle, it stops and reverses the operator direction of travel for 2 seconds, then stops travel again until the normally closed input is restored.

#### 5. Stop Input

A Normally Closed input (3 & 4 CN4) will immediately stop all operator movements until the Stop input is restored to closed and a further Start input is given.

#### 6. Photocell Input

A Normally Closed input (3 & 5 CN4). When opened it inhibits closing or stops and re-opens a closing operator.

#### 7. Limit Switch Input

A Normally Closed input (9 & 10 CN4). When the logic is programmed for use with a traffic barrier this input invokes braking (soft stop) in both directions.

#### 8. Configuring the type of operation required

The Dip Switches on SW1 block (Table 2) select the type of automation required.

### **Rapid Barrier**

When selected the Auxiliary Relay controls a ventilation fan.

### **Large Barrier (IND)**

When selected, the Auxiliary Relay controls a Warning Light without flashing light card (code 23104060) and TR2 regulates the working time.

### **Garage Door (a)**

When selected, Trimmer TR2 controls the motor run time and the Auxiliary Relay controls a courtesy light with a 30 seconds delay after the operator has stopped working. The electric-lock management is set automatically in this logic. It has no effect if the electric lock is not wired.

### **Garage Door (b)**

When selected, Trimmer TR2 controls the motor run time and the Auxiliary Relay controls a courtesy light with a 90 seconds delay after the operator has stopped working. The electric-lock management is set automatically in this logic. It has no effect if the electric lock is not wired.

## **SAFETY PRECAUTIONS**

All electrical work should be carried out by a competent electrician and conform to the latest edition of the IEE Regulations. A 16A – 0,030A differential switch must be incorporated into the source of the operator main electrical supply and the entire system properly earth bonded. Always run mains carrying cables in separate ducts to low voltage control cables to prevent 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: **SEA s.r.l. – ZONA Ind.le, 64020 S.ATTO – Teramo – Italia**

## **INTENDED USE**

The MPU/B4-BR4 electronic control unit has been designed to be solely used as a control unit for the automation of 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/B4-BR4 conforms to the following:

89/336/CEE (Rule on the Electromagnetic Compatibility)

73/23/EC (Electric Safety)

## **STORAGE**

STORAGE TEMPERATURES			
T <sub>min</sub>	T <sub>max</sub>	Humidity <sub>min</sub>	Humidity <sub>max</sub>
-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/B4 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/B4-BR4 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.*