

# User Manual

## SEQUENCE INJECTION TIMER



SEQUENCE INJECTION TIMER TS-780

Thank you very much for the choice of TempControls Product.

A content of manual can be different on each product version or by TempCube's reason.

Some parts of manual can be changed without notice to the users. Please contact to Head Office or Sales Office for questions of the product.

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## 1. Environments

- 1) Main power input : AC220V (50-60Hz)
- 2) Signal Input Power : DC24V or AC220V
- 3) Solenoid Valve<sup>I</sup> (Solenoid Valve) Output Power :  
DC24V Less than 100mA per GATE) or AC220V(Total less than 1A)

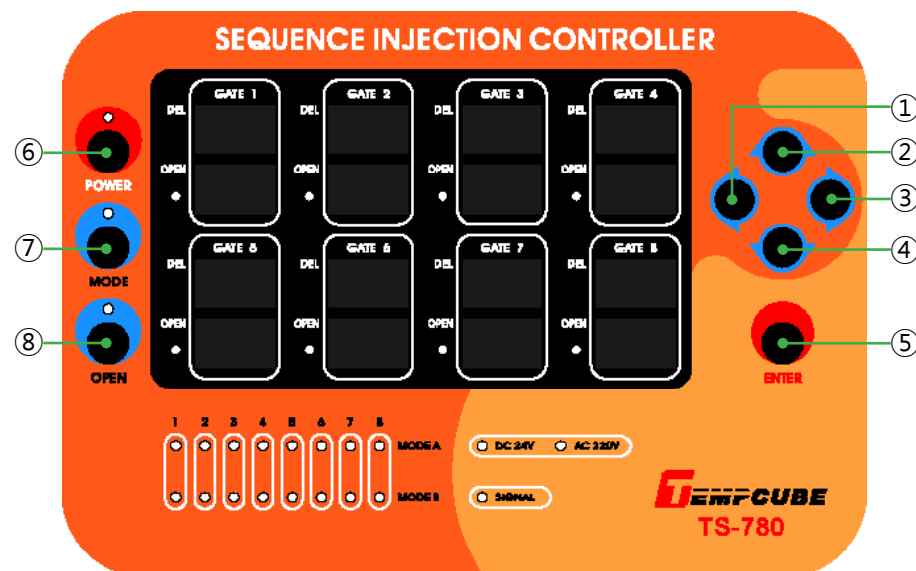
## 2. Composition of control module

- 1) CONTROL PCB : Power unit, MICOM, Input/Output unit
- 2) DISPLAY PCB : Display unit, Switch

## 3. Main Processing Unit

- 1) S.M.PS<sup>II</sup> : To transform input AC220V to DC24V/1A, DC15V/1A
- 2) MPU : To control input/output and display
- 3) RELAY : Solenoid Valve running element(DC24V or AC220V output)

## 4. Input



- I Solenoid Valve : Wire coils as screw shape in cylindrical insulating material
- II S.M.PS : Switching Mode Power Supply



- i) To move to gate for setting.
- ii) To set or to move.



- i) To select gate for setting.
- ii) To finalize set or to exit the gate selected.



- i) To select motion mode ( A mode > B mode > GATE off) for each gate
- ii) To set unit of each gate (999/99.9/9.99)



- i) To Open manually a gate or all gate



- i) To turn On/Off timer

## 5. Display

- 1) Display delay time and open time of each gate in display panel.
- 2) Display LED on while output on.
- 3) Display A mode or B mode of each gate with LED.
- 4) Display output voltage (DC24V or AC220V) to Solenoid Value with LED.
- 5) Display LED on while signal on.

## 6. Output

- 1) Put out DC24V or AC220V via relay for the open time of each gate.

## 7. Start to run

- 1) Connect cables

Connect to main input power, signal input from injection machine, output to mold.  
Make sure the main input voltage(Check the back side), output voltage to mold.

- 2) Power on : Power LED is blinking while power on.






- 3) Switch between actions : Press .

- i) Power LED blinks.
- ii) Display delay time value and open time value at each display panel.

- 4) Switch between A Mode, B mode and gate off








- A. Press  for 4 seconds.

- i) Buzzer rings and mode LED blinks.
- ii) Mode LED of 1st gate blinks.
- iii) Hit  ,  to switch A/B mode and gate off.
- iv) A mode or B mode LED blinks. Both A mode and B mode LED blinks when gate off
- v) Mode using  ,  between gates.
- vi) When move, A mode or B mode LED is blinking in the gate.
- vii) Press  to save, or keep idle for 4 seconds to automatic save.
- viii) When gate off, all display is off(A/B mode LED, DEL/OPEN display panel off)

- 5) Switch between units ( 999 / 99.9 / 9.99 )

- A. Move to the gate using  ,  , and press  for 4 seconds to confirm.

- i) Buzzer rings and mode LED blinks.
- ii) "UnI" displays in DEL panel and "999 (or 99.9 / 9.99)" displays in OPEN panel.
- iii) Switch units using  , .
- iv) Move gate using  , .
- v) Hit  to save, or keep idle for 4 seconds to automatic save.

- 6) Manual open

- A. All OPEN

- i) It keeps open while  pressed.

- B. A gate OPEN



- i) Move using  ,  ,  ,  to get gate.



- ii) It keeps open the gate while  pressed.

- 7) Set DEL time

- A. Move using  ,  ,  ,  to get gate and its DEL panel,  to confirm.

- i) Right digit in DEL panel blinks.






- ii) Set Time Using  , .

- iii) Move between digits using  , .

- iv) Hit  to save, or keep idle for 4 seconds to automatic save.

## 8) Set OPEN time

A. Move using  ,  ,  ,  to get gate and its OPEN panel,  to confirm.

- Right digit in OPEN panel blinks.
- Set time using  , .
- Move between digits using  , .
- Hit  to save, or keep idle for 4 seconds to automatic save.

## 8. Menu Setting

### 1) MODE A

When user select Mode A, get the injection signal and close the gate during Del TIME. After Del Time, open the gate and it keeps until finishing injection signal.

#### MODE A

INJECT	---	---	---	---
DELAY TIME	---	---	---	---
OPEN TIME	---	---	---	---
CNT OPEN	---	---	---	---

#### A. Example

- In case injection signal: 10sec and DEL time: 4sec, then after DEL time, it opens(Relay ON) for 6sec
- For the delay time, it counts down and displays it in DEL display panel, and just after DEL time, it opens (Relay ON).
- In case injection signal is off before delay time passed, it reset to set time.
- Even after DELAY time passed, injection signal is keeping on, it opens, and it counts up the open time and displays it in OPEN display panel.
- When injection signal is off, delay set time will be displayed in DEL display panel, and OPEN display panel displays counted open time until next injection signal comes on.

### 2) MODE B

When user select MODE B, get the injection signal and close the gate during DEL Time. After DEL Time, open the gate and it keeps during open time and then close the gate.

#### MODE B-1

INJECT	---	---	---	---
DELAY TIME	---	---	---	---
OPEN TIME	---	---	---	---
CNT OPEN	---	---	---	---

#### A. Example

- In case injection signal: 10sec, DEL time: 4sec and OPEN time: 4sec then when injection signal comes on, after DEL time, it opens for OPEN time(4sec)
- For the delay time, it counts down and displays it in DEL display panel.
- In case injection signal is off before delay time passed, it resets to set time.
- When injection signal is off, delay set time and open set time will be displayed in DEL display panel OPEN display panel respectively.

### 3) MODE B-2

When user selects Mode B-2, get the injection signal and go into stand-by during DEL Time. After DEL time, open the gate and it keeps during - open time and then close the gate.

## NOON H

NORMAL					
CHLANTIN					
-OPEN TIME					
CONT OPEN					

### A. Example

(injection time: 10 seconds, DEL time: 4 seconds, open time: - 4 seconds)

- i) It gets the injection signal and after 4 seconds open the gate then it keeps "open" during signal time. After being done signal, it keeps "open" next 4 seconds and then close the gate.
- ii) For the delay time, it counts down and displays it in "DEL" display panel. After "DEL" time it displays "OPEN" time until finishing signal. After that, it counts down and displays in "OPEN" display panel.
- iii) In case injection signal is off before delay time passed, it becomes initialization as setting time.

#### 4) Other Menu

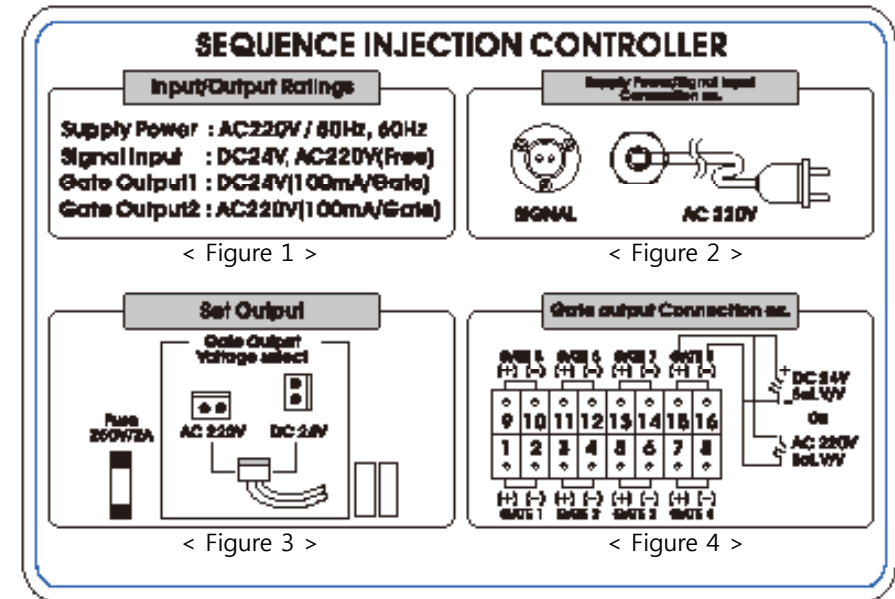
### A. Output Voltage Indicator

- Select output voltage DC24V or AC220V in compliance with Solenoid valve.
- Display output voltage in DC24V LED or AC220V LED.

### B. Input ON / OFF indicator

- iii) When input is on, SIGNAL LED is on.
- iv) When input is off, SIGNAL LED is Off.

## 9. Wiring Specification



- 1) Power Input Connection  
Connect power plug in AC 220V socket as <Figure 2>
- 2) Signal Input Connection  
Connect SIGNAL-1 and SIGNAL-2 to signal injection output.
- 3) Gate Output Connection  
Connect Solenoid Valve as referred to Figure 4.  
(Caution : Use the same electric poles using DC24V Solenoid Valve connection)
- 4) Gate Output Voltage Select  
When user open in back side of TS-780 Jumper connector is located on there  
<Figure 3> Connect AC220V in case that using AC220V Solenoid Valve and  
connect DC24V in case that using DC 24V Solenoid Valve.





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