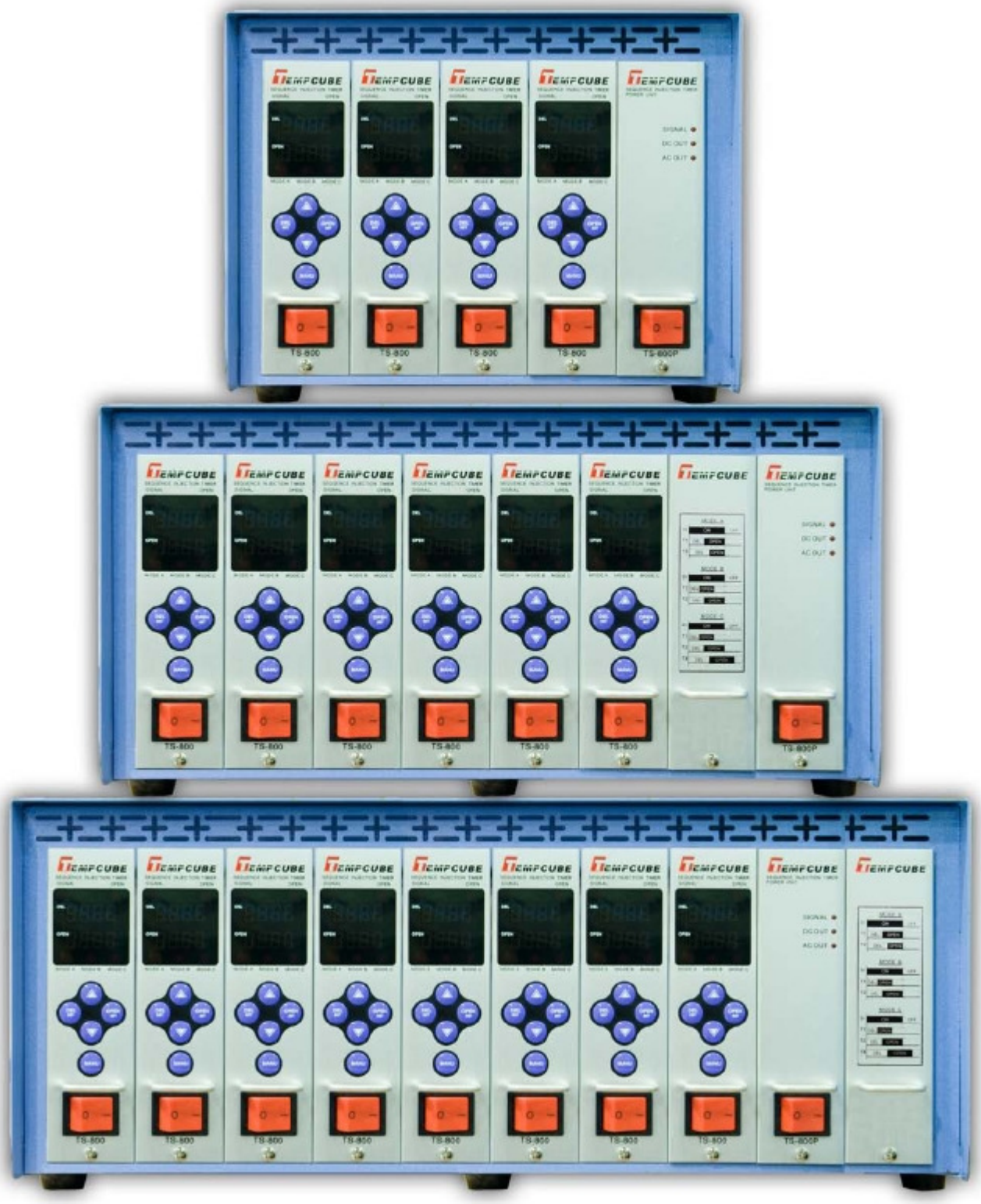
Instruction Manual

Sequence Injection Timer

TEMPCUBE

Model : TS-800


TEMPCUBE
TS-800
TS-800P
SIGNAL
DC OUT
AC OUT

Contents

1. Uses

The Sequence Injection Timer TS -800 provides a means of controlling the mould filling sequence when using Valve Gate Hot Runner Systems.

TS-800 enables the Valve Gates of a Hot Runner System to be individually controlled to provide the following benefits.

1.1 Removal or Positioning of Weld Lines

Quality of the moulded part can be improved by removing or re-positioning of weld lines on visual surfaces, or sections where a weld line would cause a weakness.

1.2 Regulation of the Injection Quantity by Gate Operation

Flash occurrence or short molding is improved by the regulation of the Injection Quantity from each individual gate.

1.3 Reduction of Clamping Force

Injection is performed with minimum clamping force because all of the gates are not opened simultaneously.

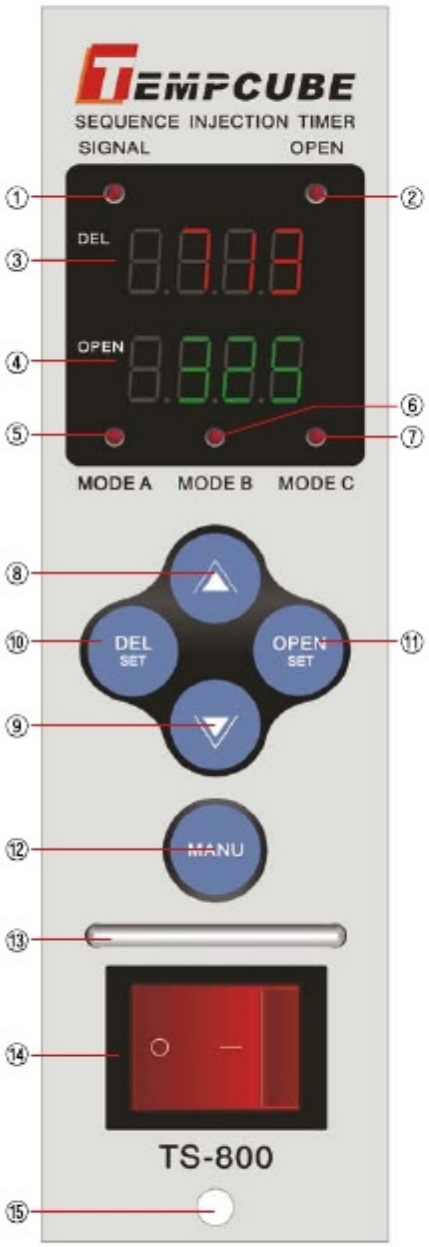
1.4 Reduction of Flow Marks

Flow marks are minimized by being able to raise the injection rate at the gate.

2. Power Supply

Mains Power Supply (Timer case)		**Single phase AC 220V (50/60 Hz)**
Injection Signal Input Power Supply		DC 24V, AC 110V, AC 220V (Free Voltage)
Solenoid Valve Voltage		DC 24V, AC 110V, AC 220V
Operating Temperature Range		-10℃~50℃
PCB Structure	- POWER PCB	Timer power
	- Main PCB	MPU out signal input.out injection
	- Display	Switch signal input, condition display

3. Control Panel Layout



① SIGNAL LED	If injection signal is entered, LED is turned on.
② OPEN LED	If gate is opened, LED is turned on. When it is manually operated in ⑫, LED is also turned on.
③ DEL	The time until gate is started to be opened after receiving injection signal. Mode A, MODE B, and MODE C operate in the same way. (default : 3 sec)
④ OPEN	The time when gate is being opened. Counting continues in mode A until injection signal ends. Gate opens only during setting time in mode B. (default : 3 sec).
⑤ MODE A LED	LED is turned on when it is set as A type.(Refer to mode setting method)
⑥ MODE B LED	LED is turned on when it is set as B type.(Refer to mode setting method)
⑦ MODE C LED	LED is turned on when it is being set as C type.(Refer to mode setting method)
⑧ UP	A key to set up time by pressing DEL SET key or OPEN SET Key.
⑨ DOWN	A key to turn down time setting by pressing DEL SET key or OPEN SET key.
⑩ DEL SET	A key to set gate closed time after injection signal. Setting Delay Time by pressing ⑧ UP key or ⑪DOWN key. (Setting value will be saved 3sec after setting. If signal is turned on before saving setting value, it operates with the previous value not changed value. If you turn off and on AC input power during setting, the Setting value is not saved.)
⑪ OPEN SET	A key to set the time when gate is being opened by pressing ⑧UP key or ⑪DOWN key. (Save function is the same as DEL SET key.)
⑫ MANU	A key to be operated when opening gate manually. Gate is opened only when key is being pressed.
⑬ UNIT Handle	
⑭ Power Switch	
⑮ Module Securing Screw	

4. Functions

4.1 Operation after power is selected

1) When the power is initially connected, the system conducts self-diagnosis.

2) After the 1st self-diagnosis, the memory status is indicated.

4.2 Mode and time unit setting

1) Convert into MODE setting, if you input power supply with pressing MANU + UP key simultaneously.

① "SET" is displayed in the DELAY TIME displaying SEGMENT.

② Saved unit of the setting time starts blinking in the OPEN TIME displaying SEGMENT. (999, 99.9, 9.99)

2) Press UP key and the MODE display LED indicates the selected mode by blinking.

(MODE A, B, C)

3) Press DOWN key and the open time display segment moves DOWN.

(999 => 99.9, 99.9 => 9.99, 9.99 => 999)

4) Setting is completed if there is no more input for 3 seconds.

4.3 Time Setting (No blinking)

1) Adjusting DELAY time

① You can set Delay time by pressing UP key or DOWN key within 3 seconds after pressing DEL SET key.

② All MODE A, B, C can be set.

③ Setting range (Delay Time)

	1 sec setting	0.1 sec setting	0.01 sec setting
Setting range	0~999 sec	0~99.9 sec	0~9.99 sec

④ If there is no adjustment key-in for 3 seconds, the setting is completed.

⑤ If INJECTION SIGNAL is input during setting time, it operates with values before setting. (The system functions even during adjustment)

⑥ If MANU is pressed during the period of setting, system operates manually. (Will not function during the period of adjustment)

⑦ If the adjustment key remains pressed, data can be entered continuously.

⑧ When data are saved from 1 Sec setting to the 999 Sec, 0.1 Sec setting is displayed as 99.9 Sec and 0.01 Sec setting as 9.99 Sec.
(Even the saved time is changed according to the multiple of the time setting.)

2) Adjusting OPEN time

① You can set OPEN time by pressing UP key or DOWN key within 3 seconds after pressing OPEN SET key.

② Only MODE B,C can be set.

③ Setting range (Open Time)

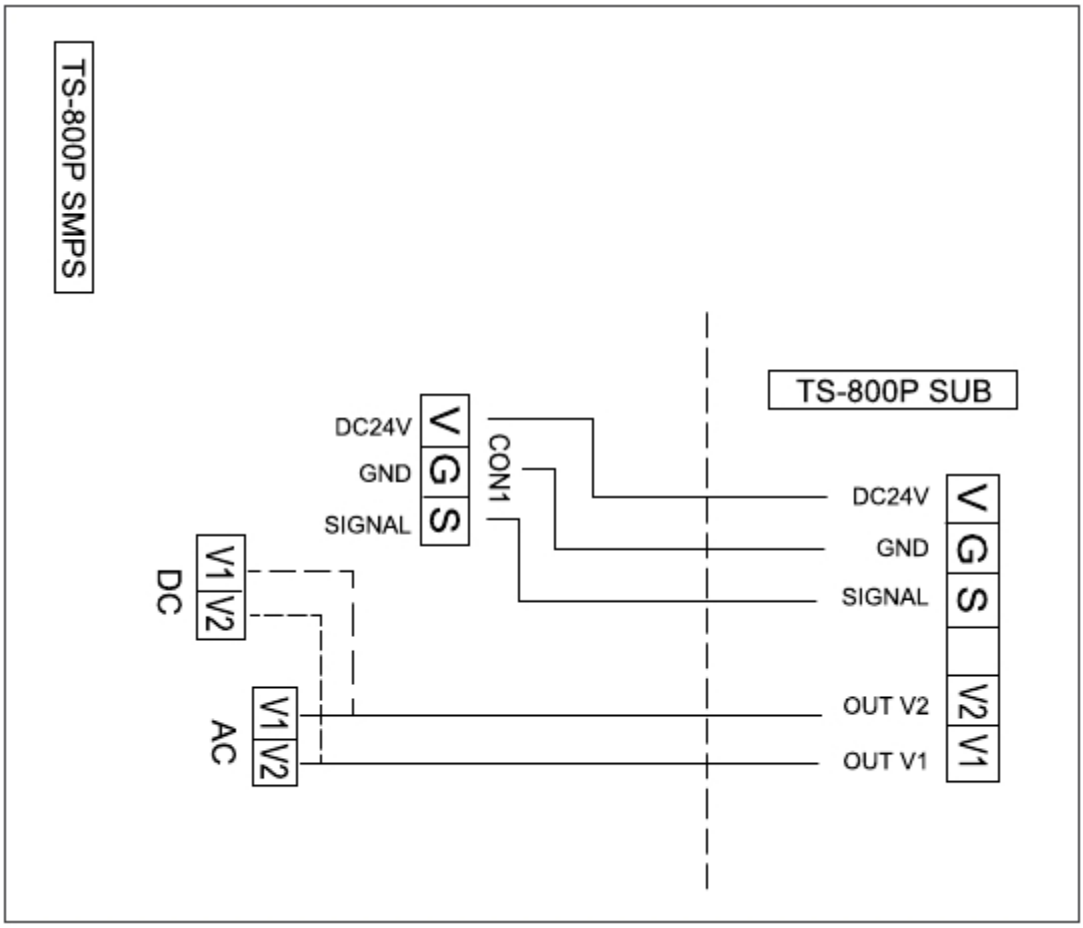
	1 sec setting	0.1 sec setting	0.01 sec setting
B MODE	0~999 sec	0~99.9 sec	0~9.99 sec
C MODE	0~999 sec 0~-999 sec	0~99.9 sec 0~-99.9 sec	0~9.99 sec 0~-9.99 sec

④ DELAY time adjustment item : ④ -- ⑧ is the same as 1)

⑤ To set DELAY time is available in C MODE (Open setting)

3) Setting output voltage

① Pull a Power Unit
② Insert the OUT_V1, OUT_V2 cables of the PCB into desired voltage DC 24V.
(Refer to the following figure.)
③ Match the selected voltage with the Solenoid Valve voltage specifications.
(default setting : DC 24V)

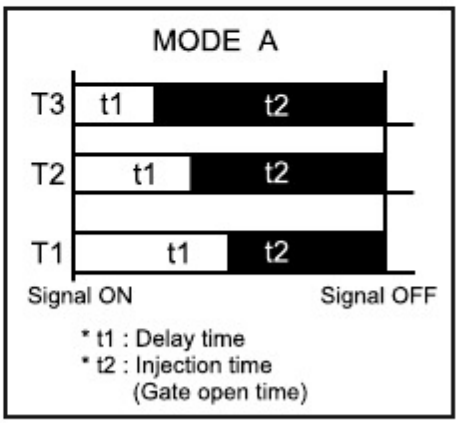


5. Mode Specification

TS-800 may be set in three modes.
The opening/closing operation of the gate differs according to the setting mode as illustrated below.

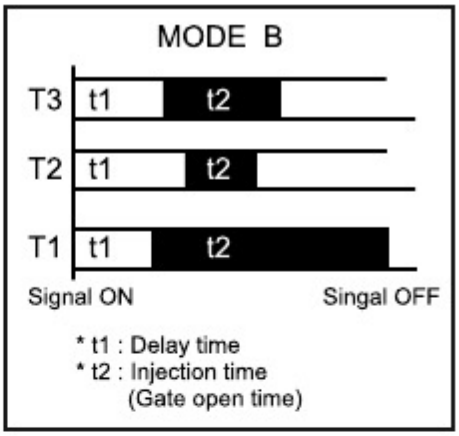
5.1 MODE A (LATCH MODE)

Selecting mode A- After the injection signal has been received, the gate remains Closed during the DEL time(t1). After the DEL time has elapsed, the gate Opens and remains open until the end of the injection signal.
ex) Injection time 10 sec/ DEL Time (t1) :
3 sec Gate opens 3 sec after receiving the injection signal, and remains open for 7 sec, and then closes.



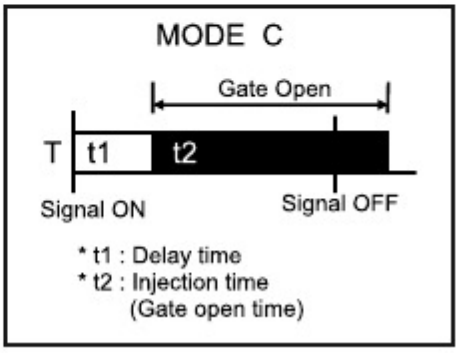
5.2 MODE B (ONE TIME MODE)

Selecting mode B - After injection signal has been received, the gatd remains Closed during the DEL time(t1). After the DEL time has elapsed, the gate Opens for the OPEN time setting (t2).
After the OPEN time has elapsed, the gate closes and remains closed.
ex) Injection time 10 sec/ DEL Time 3 sec/ OPEN time 4sec. Gate opens 3 sec after receiving the injection signal, and remains in the open condition for 4 sec, and then closes.



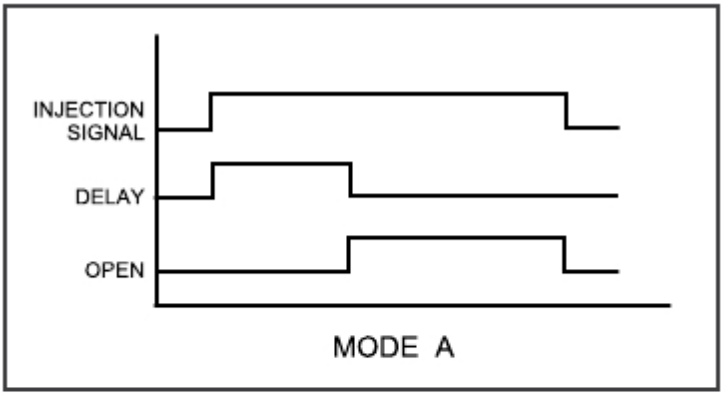
5.3 MODE C (OPEN DELAY TIME MODE)

Selecting mode C - After the injection signal has been received, the gate remains Closed during the DEL time (t1). And then if OPEN time is set 0~999(or 99.9 or 9.99), Gate Open operation is the same as in "MODE B". If OPEN time is set -999(or -99.9 or -9.99). Gate opens after DEL Time and remains opened continuously during set OPEN Time.

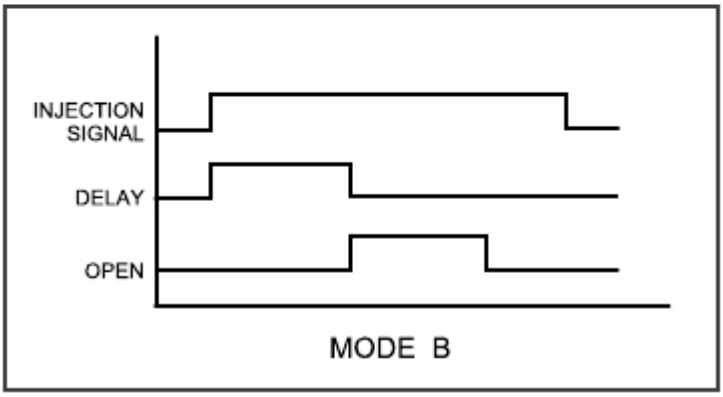


5.4 Gate Opening by Mode Type Selection

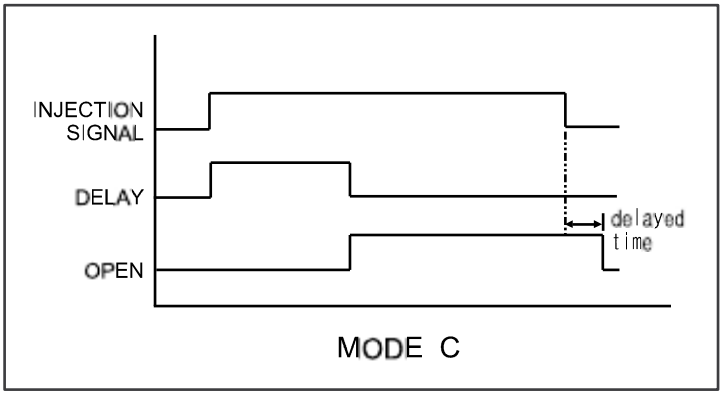
It is possible to set various conditions by selecting the DEL and OPEN timer setting as below.



MODE A



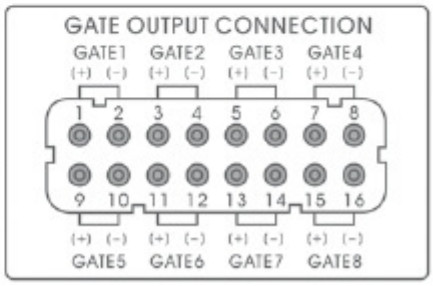
MODE B



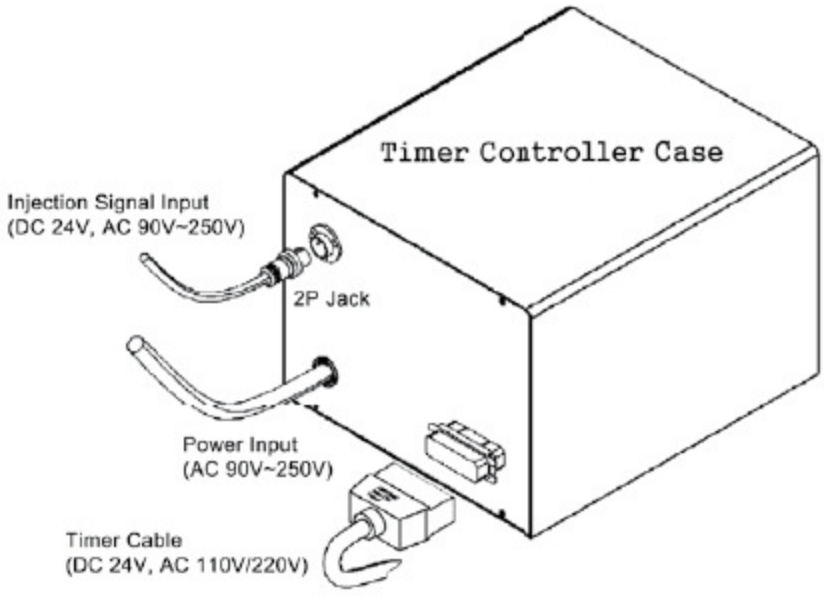
MODE C

6. Wiring Connectors

Connector Pin no		Sol Valve No	Connector사양
+	-		
1 (Black)	2 (Black+Stripe)	No. 1 Sol	HAN 16A (250V 16A) MALE P/N:09 20 016 2612 FEMALE P/N:09 20 016 2812
3 (Brown)	4 (Brown+Stripe)	No. 2 Sol	
5 (Red)	6 (Red+Stripe)	No. 3 Sol	
7 (Oragne)	8 (Orange+Stripe)	No. 4 Sol	
9 (Yellow)	10 (Yellow+Stripe)	No. 5 Sol	
11 (Green)	12 (Green+Spripe)	No. 6 Sol	
13 (Blue)	14 (Blue+Stripe)	No. 7 Sol	
15 (Pruple)	16 (Purple+Stripe)	No. 8 Sol	



7. Composition



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