CKD

SM-50661-A

Instruction Manual

Sequential control component for pulse jet valve

OMC2-10

OMC2-6

- Before operating the product, read this instruction manual without fail.
  Among all, carefully read safety-related descriptions.
- Keep this instruction manual in a safe place so that it can be referred to whenever necessary.

CKD Corporation

For safe operation of product

1. General precautions

- This instruction manual covers basic items related to the handling of the product including an outline of actions, control method, cable connection procedure and maintenance.

- Description about cable connection procedures in this instruction manual is for electricians.
  Request professional electricians for the work.
  Carefully read before designing or fabricating to assure safety of the machine and equipment and handle the product adequately.

- Full performance may not be achieved in some applications or methods, or even accidents may be caused. Product specification check and determination of the operation method matching the customer's applications and methods are up to the customer.

2. Safety precautions

- Handling precautions are provided at places so that personal injuries and damage to property can be avoided. Absolutely follow these precautions.

- While various safety measures are provided for the product, handling errors will cause accidents. To avoid errors, **read through the instruction manual and be familiar with the description when operating the product.**
  We will not assume responsibility for accidents caused by handling errors.

  Use care of the following in addition to other handling precautions written in this manual.

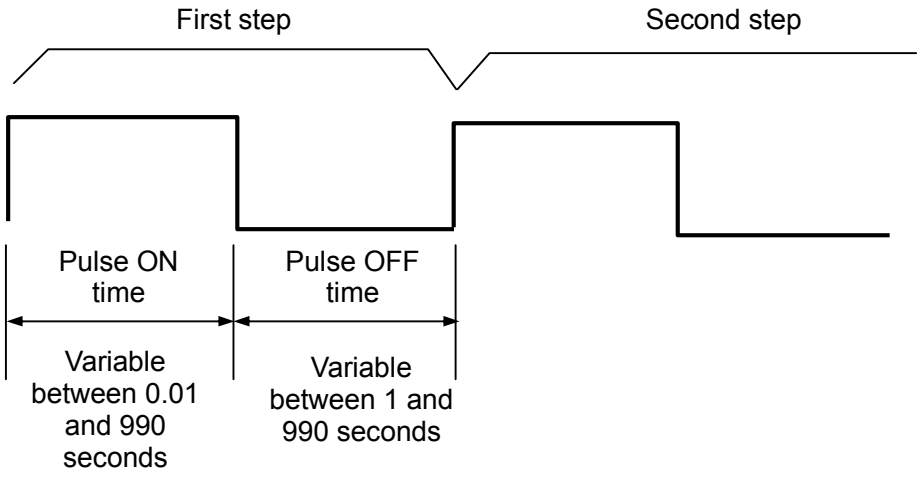
! CAUTION

- **Electric shock will hit you if you touch wiring connections (bare live parts) of the pulse jet controller.**
  Be sure to turn the power off when conducting wiring work.
  Keep away from parts other than switches, terminal blocks and jumpers.

[Contents]

1. Outline of Actions

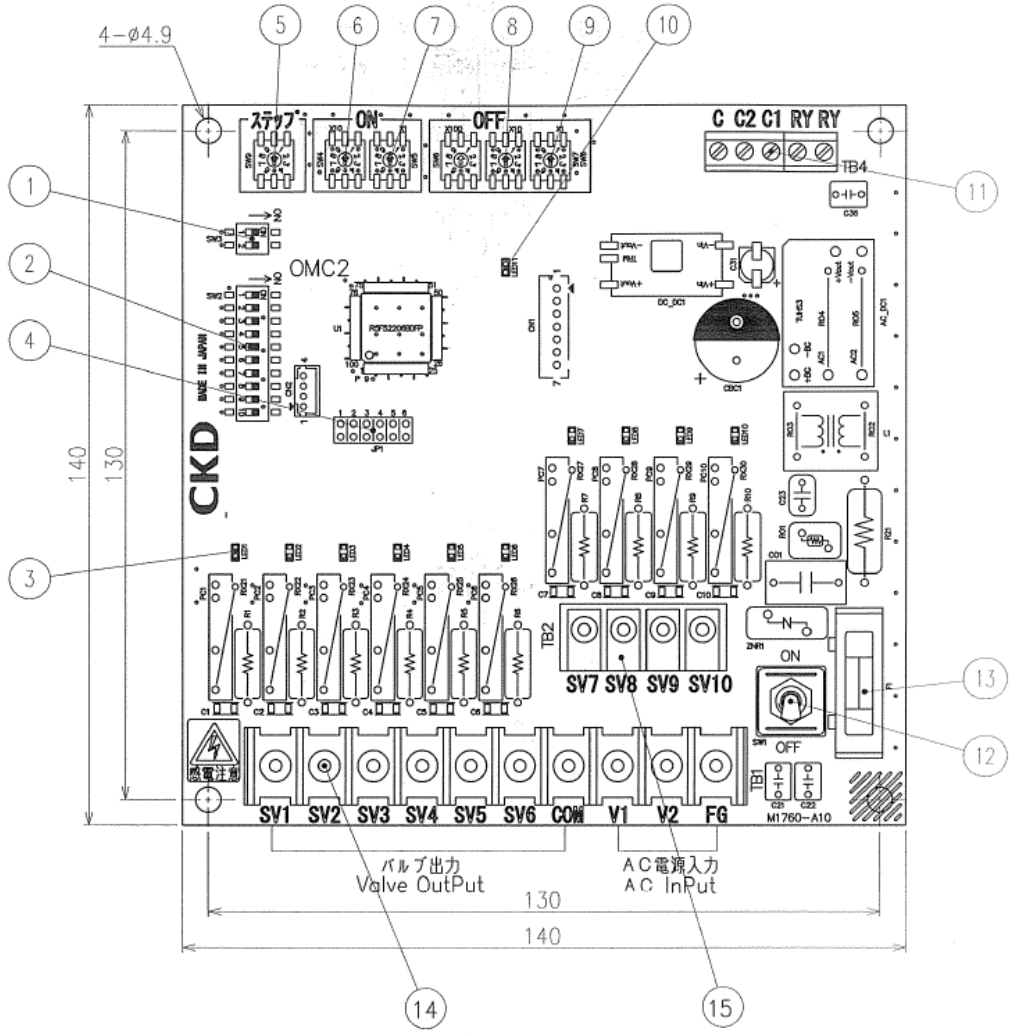
The pulse jet controller conducts sequence control of pulse jet valves of the dust collector according to the number of valves.
You can designate an arbitrary number of steps between 1 and 10 (1 and 6) according to the number of connected valves, and indicators show the operating valves.
The ON and OFF time can be designated independently of each other as shown in Fig 1-1.



(Fig. 1-1)

- The pulse ON time and pulse OFF time of the second and later steps are the same as those of the first step.

2. Name of Each Part

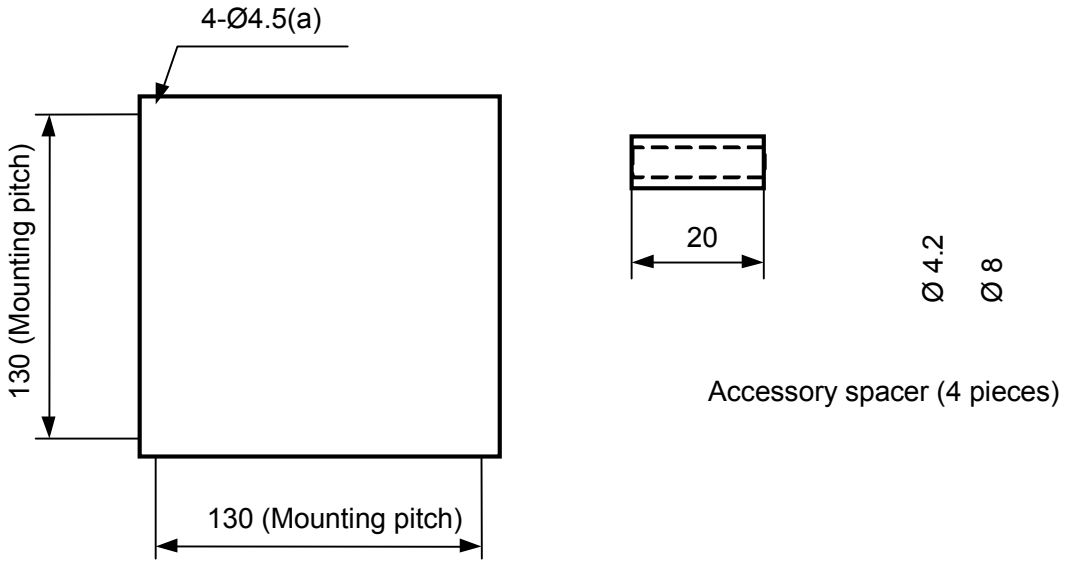


①	DIP switch (SW3)	Switches among the independent, master and slave actions.·····>	8,9
②	DIP switch (SW2)	Specify double hammering or interval timer. ·····>	13,14
③	LED(LED1 to 10(6))	Lights up upon a pulse.	
④	Jumper(J1 to 5)	Specify each function. (J6: Unused)·····>	11 to 17
⑤	DIP switch (step)	Specify the number of steps.·····>	10
⑥	DIP switch (ON x 10)	Specify the pulse ON time.·····>	11
⑦	DIP switch (ON x 1)	Specify the pulse ON time.·····>	11
⑧	DIP switch (OFF x 10)	Specify the pulse OFF time.·····>	12
⑨	DIP switch (OFF x 1)	Specify the pulse OFF time.·····>	12
⑩	LED (POWER)	Keeps lit while the power is turned on.	
⑪	Terminal block (TB4)	Ganged operation and stop input terminal·····>	9,16
⑫	Power switch	Power switch	
⑬	Fuse	250V 3A	
⑭	Terminal block (TB1)	Valve output terminals (SV1 to 6) and AC input terminal·····>	6
⑮	Terminal block (TB2)	Valve output terminals (SV7 to 10) (Not provided for OMC2-6)	

3. Fixing Method

CAUTION : Install the product free from dust and water splashes.

Round holes (at four places: a) are provided for the pulse jet controller as shown in Fig. 3-1. Use M4 screws to fix securely. Use accessory spacers when necessary.



(Fig. 3-1)

4. Wiring Method

CAUTION : Be sure to turn the source power off when conducting.

① Terminal block (for TB4) cable
Use 0.75mm^2 to 2mm^2 vinyl sheath cable.

② Termination method
Install a crimp terminal at the terminal of the AC input and valve output (TB1 and TB2) cables.

Applicable crimp terminal (example)

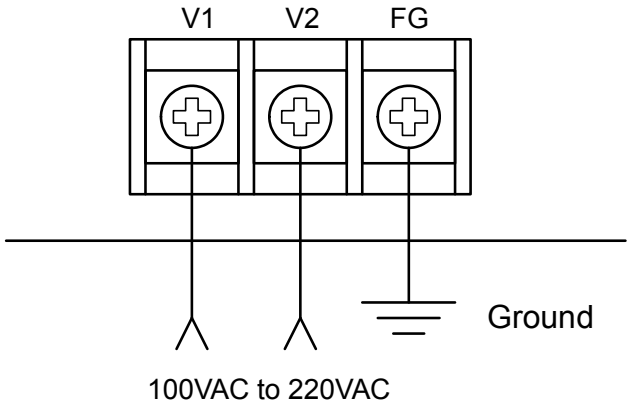
Manufacturer	Model	Applicable cable
J.S.T. Mfg.	V2-MS3	1.04 to 2.63mm^2

● The applicable cable varies according to the crimp terminal.

③ AC source voltage input and grounding

CAUTION : Connect the grounding cable without fail to avoid electric shock.

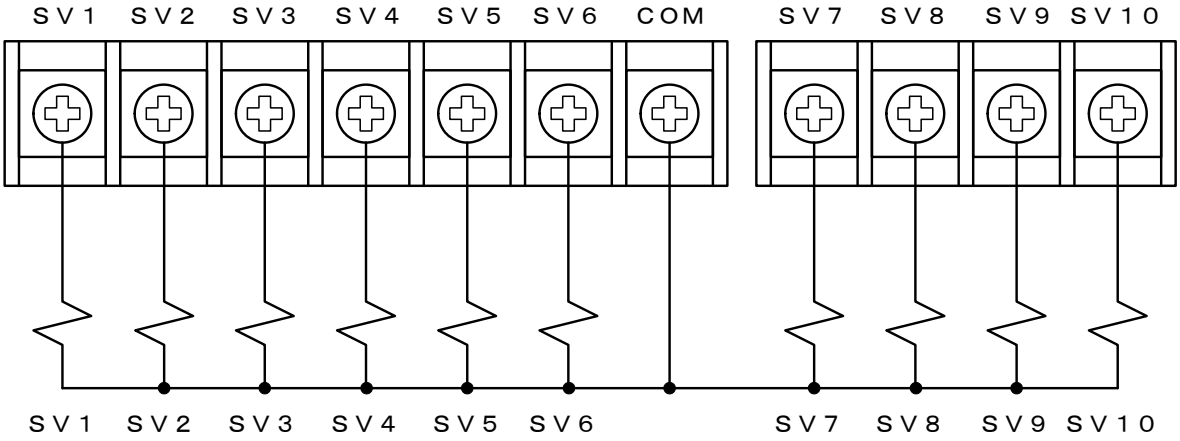
Check the voltage of the valve to be used, and connect the conforming voltage to the AC input terminals (V1 and V2).



(Fig. 4-1)

④ Valve output

Connect by the number of valves in order at the valve output terminal block, starting at SV1.



(Fig. 4-2)

CAUTION : Fit the transparent terminal cover in the original state after connecting cables.（TB1 Only）

5. Pre-operation Check

5.1 Appearance check

CAUTION : Turn the source power off.

- Check that the pulse jet controller is securely fixed.

5.2 Wiring check

CAUTION

- **Turn the source power off.**
- **After checking wiring, fit the terminal cover in the original state.（TB1 Only）**

- Check that screws at the terminal block are tight.
- Check the source voltage, using a multimeter or the like.
  Operate the product at voltage fluctuation within ±10% of the rated voltage.

6. Adequate Operation Method

CAUTION

- **Do not touch with wet hands.**
- **To change the setting at the jumper or DIP switch, turn the power switch off without fail to avoid electric shock.**
- **Do not disassemble or remodel.**
- **Do not insert a socket to jumper J6.**

- Do not operate the product at ambient temperatures below -10°C or above +60°C.

7. Initial Setting and Action

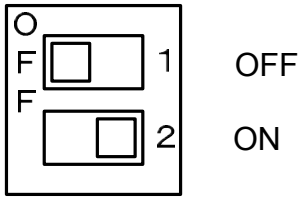
7.1 Independent action

① Outline

Operate the valve according to the set step with a single pulse jet controller.

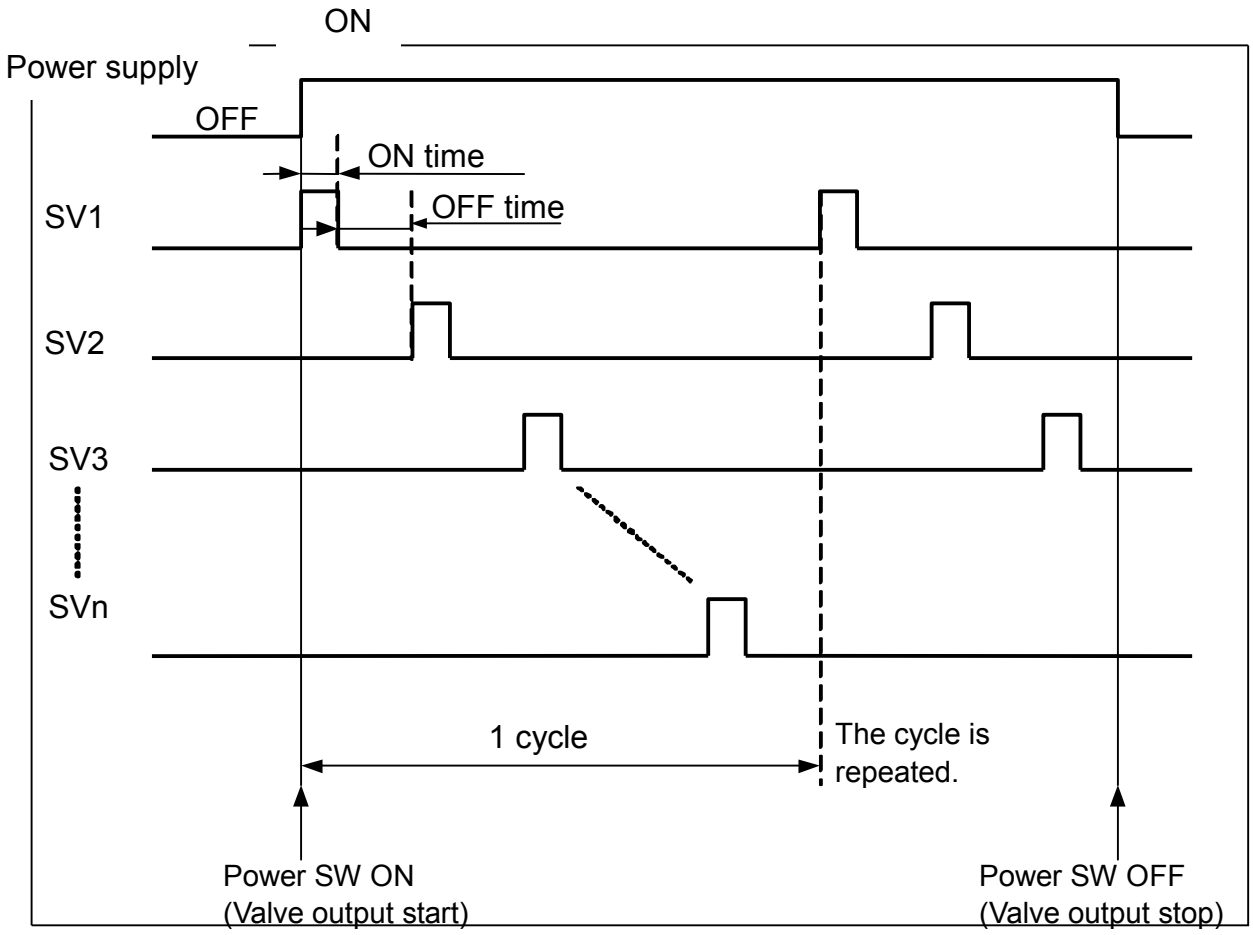
② Set DIP switch (SW3) as shown in Fig. 7-1.

(Use the tip of a precision regular screwdriver or the like to manipulate.)



(Fig. 7-1)

③ Action sequence



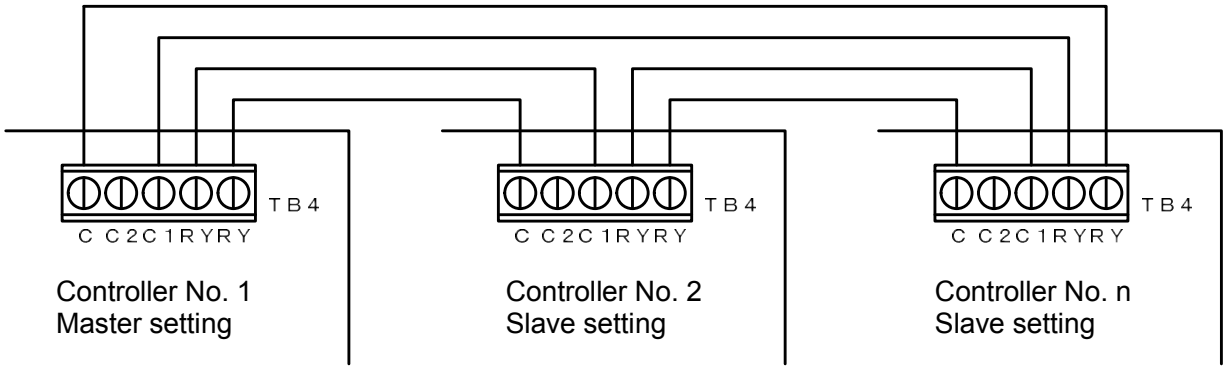
(Fig. 7-2)

● SVn: Valve of the specified number of steps

7.2 Master/Slave action

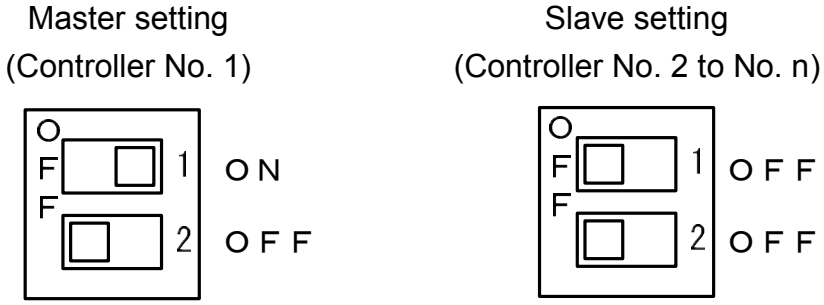
① Outline

While a single pulse jet controller can issue up to 10 output points, expansion can be made to 20 or 30 points through connection shown in Fig. 7-3.



(Fig. 7-3)

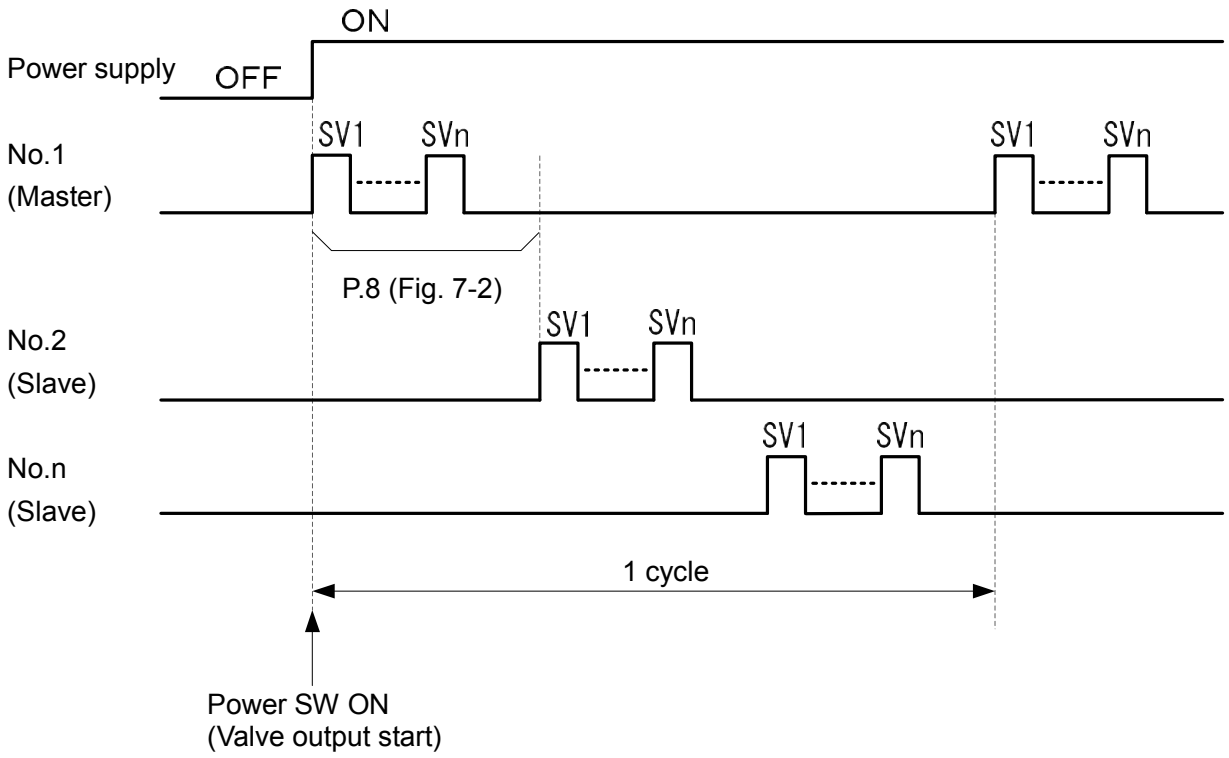
② Set DIP switch (SW3) as shown in Fig. 7-4.
(Use the tip of a precision regular screwdriver or the like to switch.)



(Fig. 7-4)

③ Action sequence

● Turn the master and slave on simultaneously or turn the slave on first.



(Fig. 7-5)

● SVn: Valve of the specified number of steps

7.3 Specifying the number of steps

① Adjust the DIP switch (step) to the number of valves.

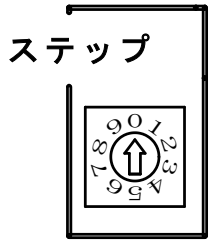
1 → 1 valve (SV1)

2 → 2 valves (SV1, SV2)

⋮

0 → 10 valves (SV1 to SV10)

Example: Step 10



(fig. 7-6)

● With OMC2-6, settings 7, 8, 9 and 10 indicate six valves.

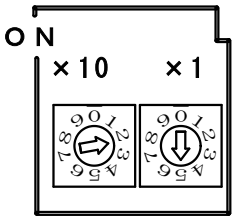
● The number of steps must be specified at all controllers both in the independent action mode and master/slave action mode.

7.4 Pulse ON time setting

① Use the DIP switch (ON) to specify the pulse ON time.
(Use the tip of a precision regular screwdriver or the like.)

● Specify in the two-digit number x 0.01 seconds (time range).

Example: 0.25 sec.

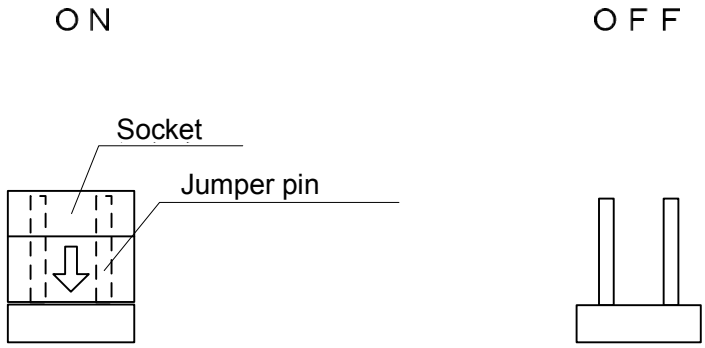


(fig. 7-7)

② The time range changes according to jumper combination (J3 and J4).

J3	J4	Time range	Setting time
OFF	OFF	× 0.01 sec.	0.01 to 0.99 sec.
OFF	ON	× 0.1 sec.	0.1 to 9.9 sec.
ON	OFF	× 1 sec.	1 to 99 sec.
ON	ON	× 10 sec.	10 to 990 sec.

● Insert a socket over jumper pins to activate.
(This rule applies to the other jumpers, too.)



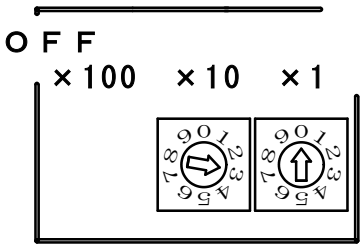
(Fig. 7-8)

7.5 Pulse OFF time setting

① Use the DIP switch (OFF) to specify the pulse OFF time.
(Use the tip of a precision regular screwdriver or the like.)

● Specify in the two-digit number x 1 second (time range).

Example: 30 sec.



(fig.7-9)

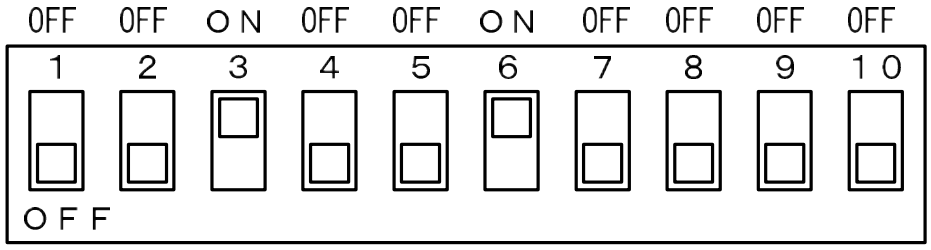
② The time range changes according to the setting of jumper (J2).

J2	Time range	Setting time
OFF	× 1 sec.	1 to 99 sec.
ON	× 10 sec.	10 to 990 sec.

7.6 Double hammering setting

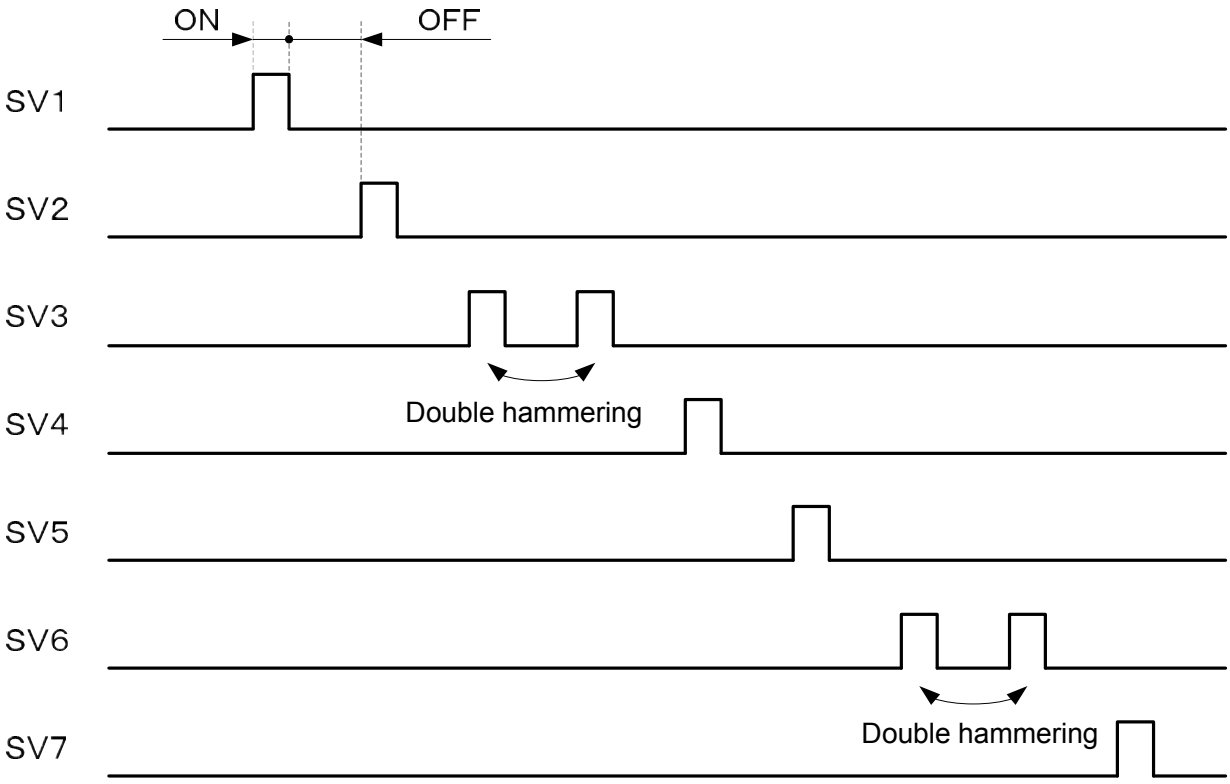
① Use DIP switch (SW2) to specify double or single hammering.

Example: Double hammering at SV3 and 6 only



(Fig. 7-10)

② Action sequence



(Fig. 7-11)

- SW2 is common for "double hammering" and "interval timer" settings, and it can be used for either purpose. For details, refer to Section "7.7 Interval Timer Setting."

7.7 Interval timer setting

① Insert jumper (J5) to specify the interval timer (pause in each cycle). (1 to 99 min.)

J5	Function of SW2
OFF	Double hammering
ON	Interval timer

- The interval timer is not accepted at the controller operating in the slave action mode.

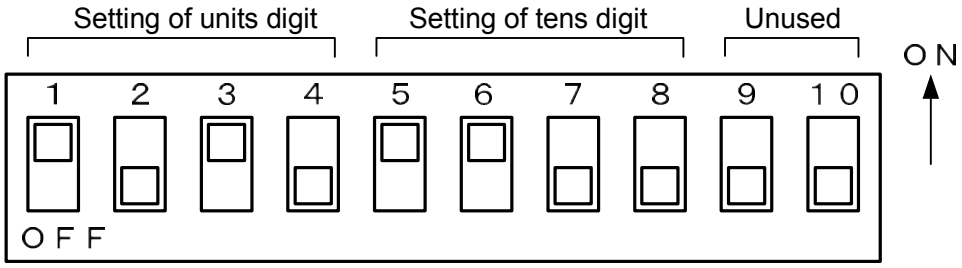
② Specify the interval timer with DIP switch (SW2).

- The interval timer is the sum of units digit and tens digit shown in Table 7-12.
- The settings shown in other than Table 7-12 is 0 minutes.

Table 7-12

Element number of SW2				Interval timer (units digit)	Element number of SW2				Interval timer (tens digit)
1	2	3	4		5	6	7	8	
OFF	OFF	OFF	OFF	0 min.	OFF	OFF	OFF	OFF	0 min.
ON	OFF	OFF	OFF	1 min.	ON	OFF	OFF	OFF	10 min.
OFF	ON	OFF	OFF	2 min.	OFF	ON	OFF	OFF	20 min.
ON	ON	OFF	OFF	3 min.	ON	ON	OFF	OFF	30 min. ◀
OFF	OFF	ON	OFF	4 min.	OFF	OFF	ON	OFF	40 min.
▶ ON	OFF	ON	OFF	5 min.	ON	OFF	ON	OFF	50 min.
OFF	ON	ON	OFF	6 min.	OFF	ON	ON	OFF	60 min.
ON	ON	ON	OFF	7 min.	ON	ON	ON	OFF	70 min.
OFF	OFF	OFF	ON	8 min.	OFF	OFF	OFF	ON	80 min.
ON	OFF	OFF	ON	9 min.	ON	OFF	OFF	ON	90 min.

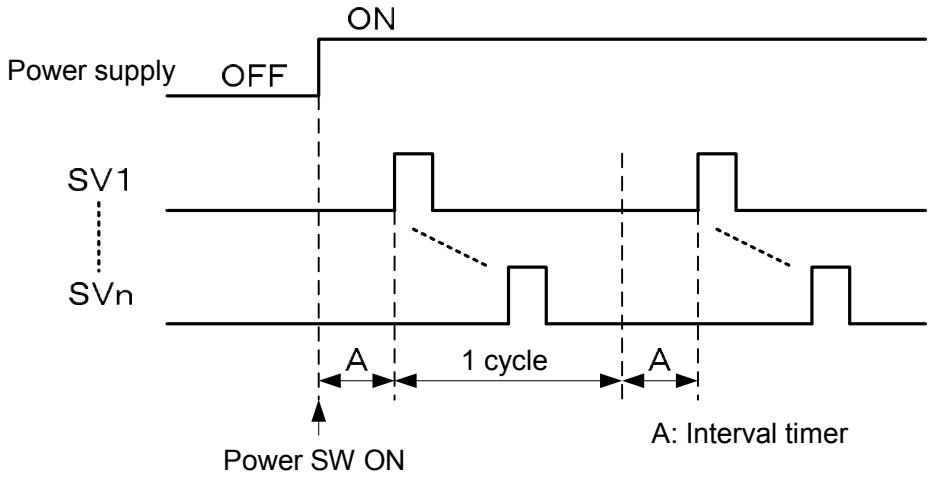
Example: 35 minutes (▶ marks in Table 7-12)



(Fig. 7-13)

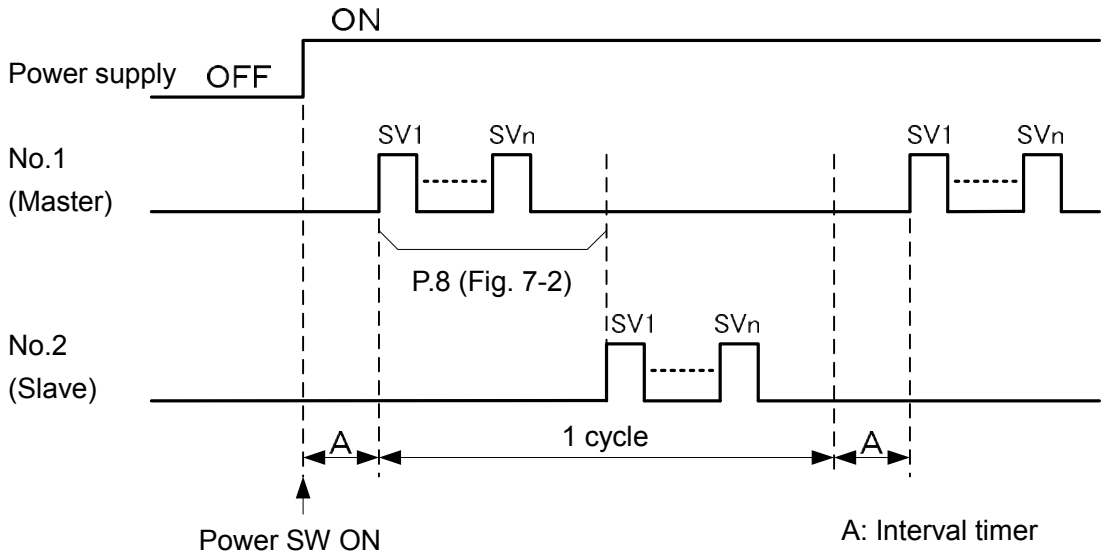
③ Action sequence

③-1. Independent action



(Fig. 7-14)

③-2. Master/Slave action

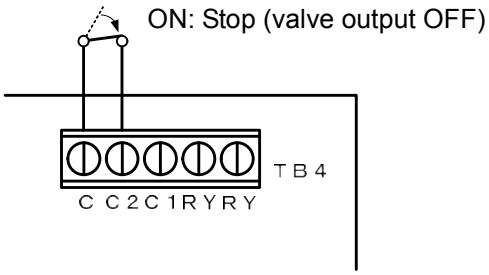


(Fig. 7-15)

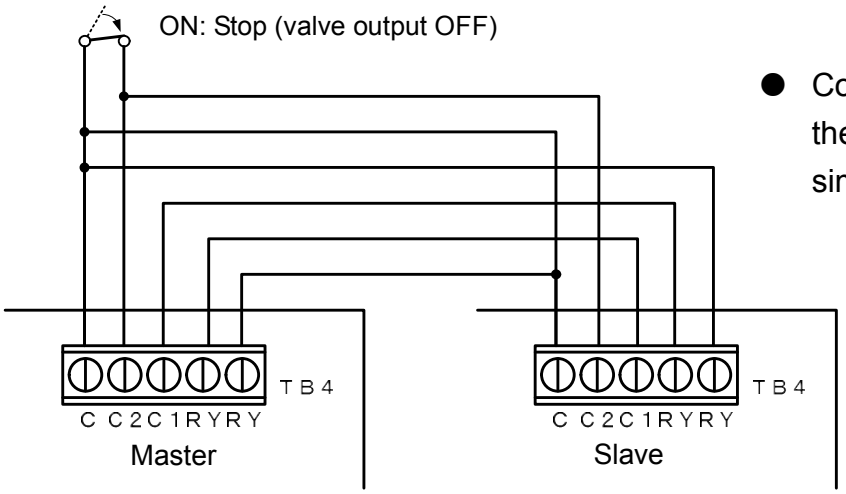
● SVn: Valve of the specified number of steps

7.8 Stopping action

① Short circuit across C and C2 of the terminal block (TB4) to turn off the valve output. Open to output from the next step. (Immediate stop)



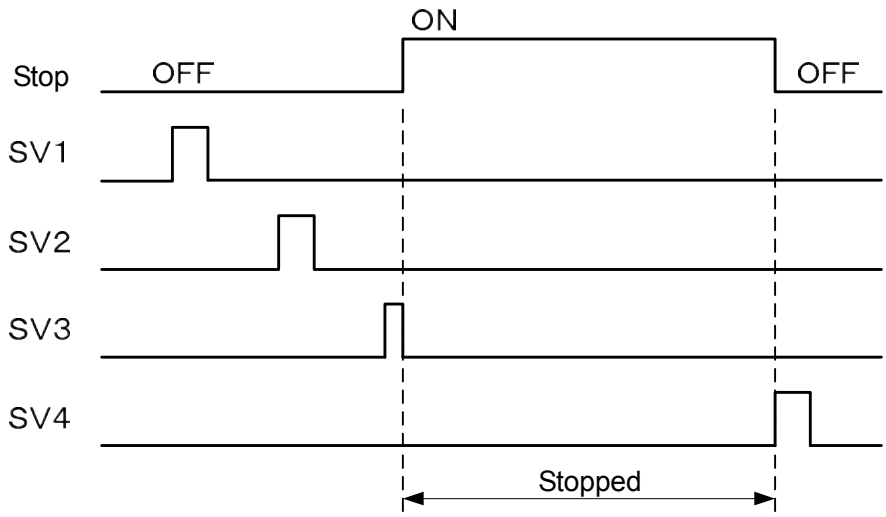
(Fig. 7-16. Immediate stop/Cycle stop in independent action mode)



- Connect cables to stop the master and slave simultaneously.

(Fig. 7-17. Immediate stop in master/slave action mode)

② Action sequence for immediate stop



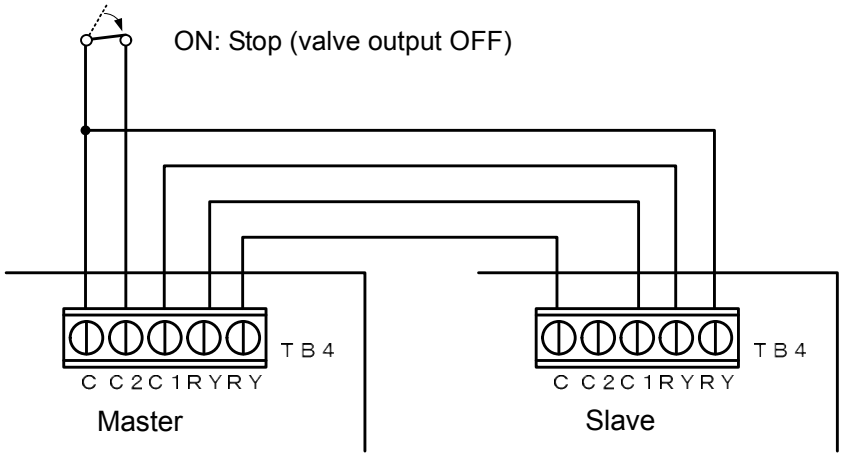
(Fig. 7-18)

③ Insert the jumper (J1) to stop at each cycle.
(Cycle stop)

J1	Stopping action
OFF	Immediate stop
ON	Cycle stop

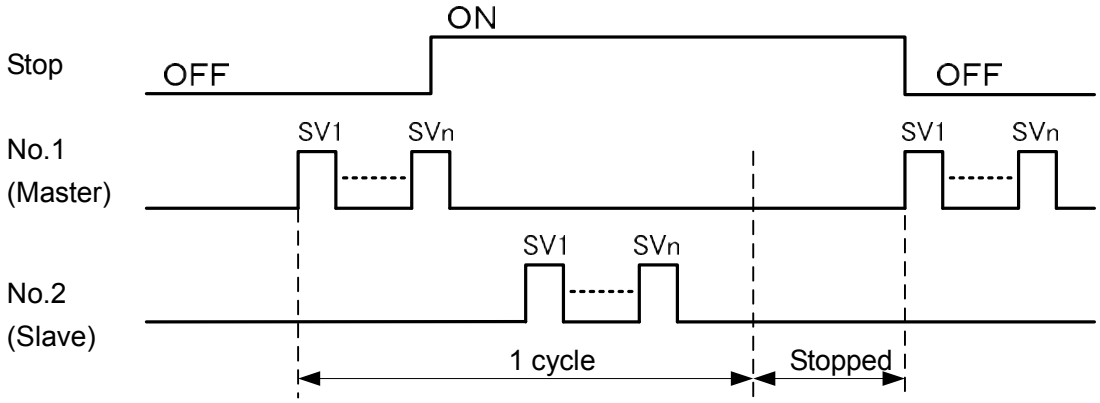
- Cycle stop is not accepted at the controller operating in the slave action mode.

- Connect the stop input to the master only in the master/slave action mode after cycle stop.



(Fig. 7-19. Cycle stop in master/slave action mode)

④ Action sequence at cycle stop



(Fig. 7-20)

8. Specifications of Product

Number of output steps:	6 (OMC2-6), 10 (OMC2-10)
Source voltage:	100 to 220VAC ±10% 50/60Hz
Current consumption:	Within 5VA (controller only)
Power supply fuse:	3A 250V
Operating ambient temperature:	-10 to +60°C
Relative humidity:	30 to 80%RH
Storage ambient temperature:	-20 to +70°C
Pulse ON time setting range:	(01 to 99) × (0.01sec. or 0.1sec. or 1sec. or 10sec.)
Pulse OFF time setting range:	(01 to 99) × (1sec. or 10sec.)
Setting time accuracy:	(Setting time) × (±5%) + 10msec or less
Action mode	
a) Independent:	Continuous operation mode of single unit
b) Interlock:	Series connection interlock mode of controllers operating in master and slave modes
Pulse repetition frequency:	Single/Double hammering (Interval time setting mode: single hammering only)
Stop:	Immediate stop/Cycle stop (either one selected)
Interval time:	1 to 99 min. (valid only in single hammering mode)
Isolation resistance:	10MΩ minimum (500VDC)
Dielectric strength:	1500VAC for 1 min.

9. Inspection

- Perform periodic inspection every six months to operate the product in the best condition.
- For details of inspection, refer to Section 5 "Pre-operation Check."

10. Accessories

The following parts are attached as accessories.

Part name	Model	Quantity
Spacer	CX-420 made by Hirosugi Keiki (marketed product)	4
Jumper socket	Model XJ8A-0211 made by Omron (marketed product)	5
Fuse	FGMB 3A 250V made by Fuji Tanshi (marketed product)	1