OM ELECTRIC ACTUATOR

OPERATION AND MAINTENANCE MANUAL

◆ PERFORMANCE

【12V / 24V】

Model No.	Torque (Nm)	Speed (90^0)	Motor Power	Motor Speed		12V DC/ AC			24V DC/ AC		
				12 V	24 V	Run	Start	Lock	Run	Start	Lock
OM-A	50	20 s	10 W	3600/min	3600/min	0.5A	3.0A	3.0A	0.7A	0.8A	1.4A
OM-1	35	15 s	10 W	3600/min	3600/min	0.5A	3.0A	3.0A	0.6A	0.8A	1.4A
OM-2	90	15 s	70 W	1800/min	1800/min	3.4A	5.0A	8.5A	3.0A	5.0A	13.0A
OM-3	150	22 s	70 W	1800/min	1800/min	3.4A	5.0A	8.5A	3.0A	5.0A	13.0A
OM-4	400	16 s	180W	1800/min	1800/min	12.0A	8.5A	30.0A	6.0A	8.0A	30.0A
OM-5	500	22 s	180W	1800/min	1800/min	13.0A	8.5A	30.0A	6.5A	8.0A	30.0A
OM-6	650	28 s	180W	1800/min	1800/min	14.0A	8.5A	30.0A	7.5A	8.0A	30.0A
OM-7									7.0A	8.0A	30.0A
OM-8									7.5A	8.0A	30.0A
OM-9									7.0A	8.0A	30.0A
OM-10									7.5A	8.0A	30.0A
OM-11									10.0A	10.0A	26.0A
OM-12									15.0A	15.0A	26.0A

【Single-Phase】

Model No.	Torque (Nm)	Speed (90^0)		Motor Power	Motor Speed		110V Current			220V-240V Current		
		60 Hz	50 Hz		60 Hz	50 Hz	Run	Start	Lock	Run	Start	Lock
BM-2	120	8 s	10 s	40W	1720/min	1450/min	1.3A	3.0A	1.8A	0.5A	1.5A	0.9A

M-A	50	20s	24s	10W	3600/min	3000/min	0.5A	1.5A	0.6A	0.3A	1.0A	0.5A
OM-1	35	12s	13s	10W	3600/min	3000/min	0.5A	1.5A	0.6A	0.3A	1.0A	0.5A
OM-2	90	15s	17s	40W	1720/min	1450/min	1.0A	3.0A	1.8A	0.5A	1.5A	0.9A
OM-3	150	22s	26s	40W	1720/min	1450/min	1.0A	3.0A	1.8A	0.5A	1.5A	0.9A
OM-4	400	16s	18s	120W	1720/min	1420/min	1.3A	3.1A	3.6A	0.6A	1.5A	1.8A
OM-5	500	22s	25s	120W	1720/min	1450/min	1.5A	3.0A	3.6A	0.7A	1.5A	1.8A
OM-6	650	28s	31s	120W	1720/min	1450/min	1.8A	3.0A	3.6A	0.8A	1.5A	1.8A
OM-7	1000	46s	55s	180W	1720/min	1450/min	3.2A	12.0A	10.0A	1.6A	4.0A	4.0A
OM-8	1500	46s	55s	220W	1720/min	1450/min	4.0A	14.0A	10.0A	2.0A	3.6A	5.0A
OM-9	2000	58s	70s	180W	1720/min	1450/min	3.2A	12.0A	6.0A	1.6A	5.0A	4.0A
OM-10	2500	58s	70s	220W	1720/min	1450/min	4.0A	12.0A	6.0A	2.0A	4.0A	3.0A
OM-11	3000	58s	70s	250W	1720/min	1450/min	3.0A	10.0A	5.0A	1.6A	4.0A	3.0A
OM-12	3500	58s	70s	300W	1720/min	1420/min	4.0A	14.0A	5.0A	2.0A	4.0A	3.0A

◆ PERFORMANCE

【Three-Phase】

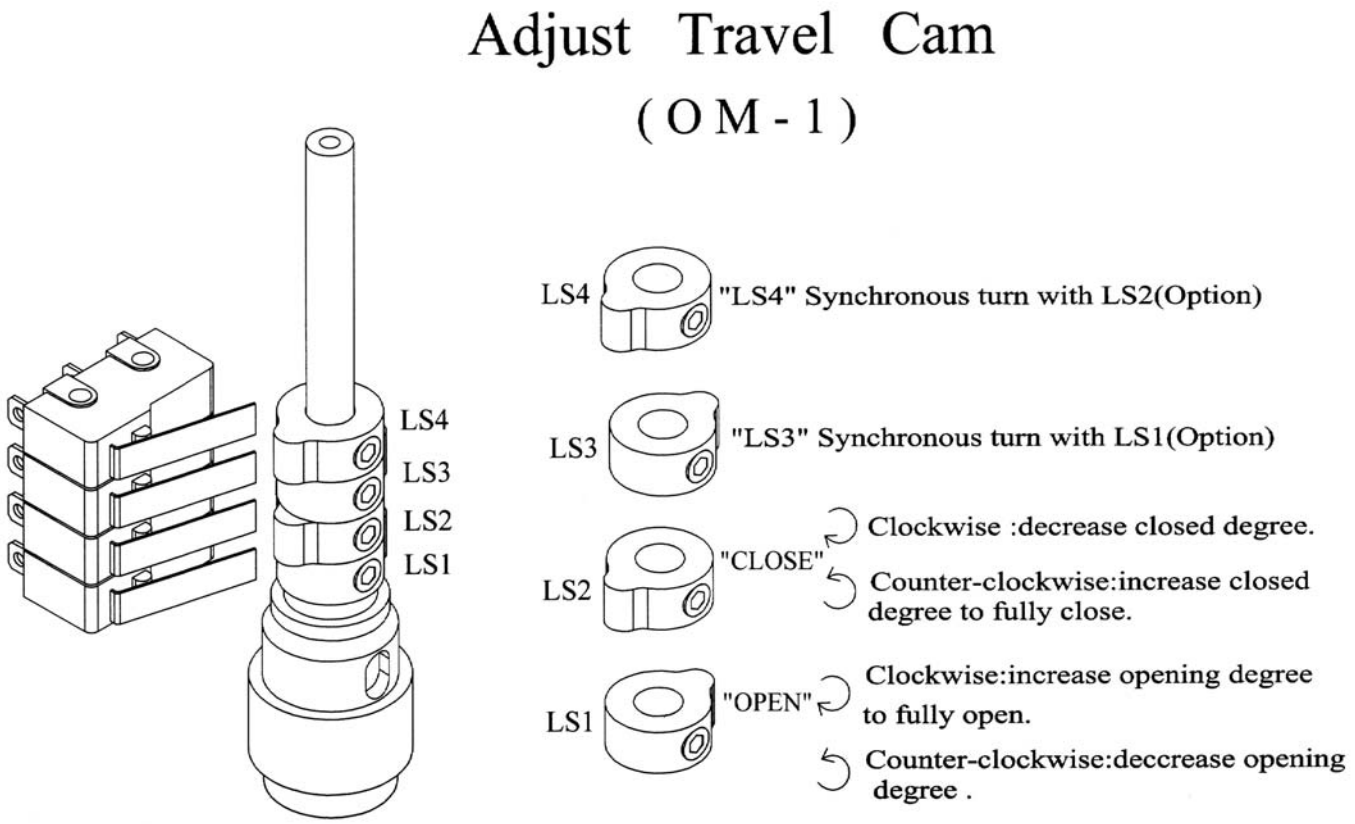
Model No.	Torque (Nm)	Speed (90^o)		Motor Power	Motor Speed		220V Current			380V Current			440V Current		
		60Hz	50Hz		60Hz	50Hz	Run	Start	Lock	Run	Start	Lock	Run	Start	Lock
BM-2	120	8 s	10 s	40W	1720/min	1450/min	06A	1.8A	1.1A	0.3A	1.0A	0.7A	0.4A	1.3A	0.7A
OM-2	90	15 s	17 s	40W	1720/min	1450/min	0.6A	1.8A	1.1A	0.3A	1.0A	0.7A	0.4A	1.3A	0.7A
OM-3	150	22 s	26 s	40W	1720/min	1450/min	0.6A	1.8A	1.1A	0.3A	1.0A	0.7A	0.4A	1.3A	0.7A
OM-4	400	16 s	18 s	120W	1720/min	1450/min	1.0A	3.0A	3.5A	0.7A	2.2A	2.0A	0.8A	2.5A	2.0A
OM-5	500	22 s	25 s	120W	1720/min	1450/min	1.0A	3.0A	3.5A	0.7A	2.2A	2.0A	0.8A	2.5A	2.0A
OM-6	650	28 s	31 s	120W	1720/min	1450/min	1.0A	3.0A	3.5A	0.7A	2.2A	2.0A	0.8A	2.5A	2.0A
OM-7	1000	46 s	55 s	180W	1720/min	1450/min	0.6A	0.8A	1.8A	0.4A	0.6A	1.0A	0.4A	0.6A	1.0A
OM-8	1500	46 s	55 s	220W	1720/min	1450/min	0.8A	1.0A	2.8A	0.6A	0.8A	1.6A	0.6A	0.8A	1.2A
OM-9	2000	58 s	70 s	180W	1720/min	1450/min	0.4A	0.6A	2.0A	0.4A	0.6A	1.0A	0.4A	0.6A	1.0A
OM-10	2500	58 s	70 s	220W	1720/min	1450/min	0.8A	1.0A	1.5A	0.4A	0.6A	1.0A	0.4A	0.6A	1.0A
OM-11	3000	58 s	70 s	250W	1720/min	1450/min	1.2A	1.2A	3.0A	0.6A	0.8A	1.5A	0.6A	0.8A	1.5A
OM-12	3500	58 s	70 s	300W	1720/min	1450/min	1.2A	1.4A	2.5A	0.6A	0.8A	1.5A	0.6A	0.8A	1.5A

◆ TRAVEL CAM & LIMIT SWITCHES ADJUSTMENT

The travel cams are set to control the open and closed position of the valve. The position is set to stop the travel of the actuator when the travel cams activate the limit switch.

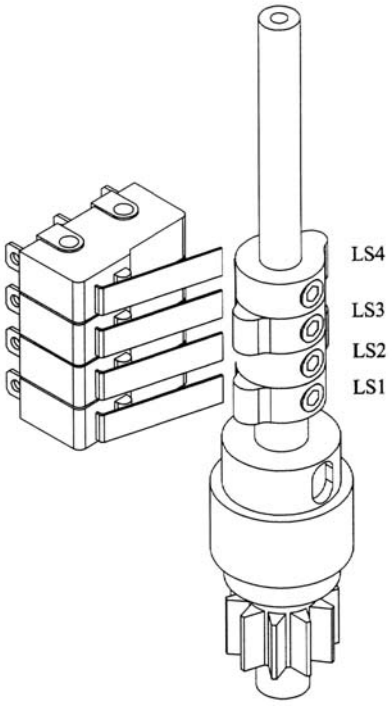
Standard is two limit switches, one for open, one for closed. The bottom limit switch is normally the open position (full CCW); the top limit switch is normally the closed position (full CW). 2-Auxiliary switches are available and are set independent of the two primary control limit switches.

The travel cams can be adjusted by 2.5mm Hex. Spanner.



TRAVEL CAM & LIMIT SWITCHES ADJUSTMENT

Adjust Travel Cam
(O M - A)



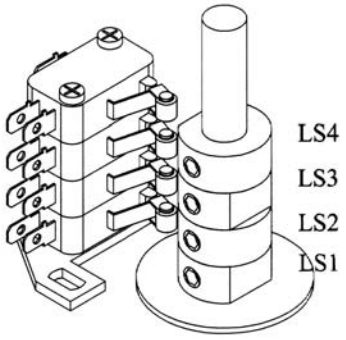
LS4 — "LS4" Synchronous turn with LS2(Option)

LS3 — "LS3" Synchronous turn with LS1(Option)

LS2 — "CLOSE"
- Clockwise :increase closed degree to fully close.
- Counter-clockwise:decrease closed degree.

LS1 — "OPEN"
- Clockwise:decrease opening degree.
- Counter-clockwise:increase opening degree to fully open.

Adjust Travel Cam
(BM-2) (OM-2~12)



LS4 — "LS4" Synchronous turn with LS2(Option)

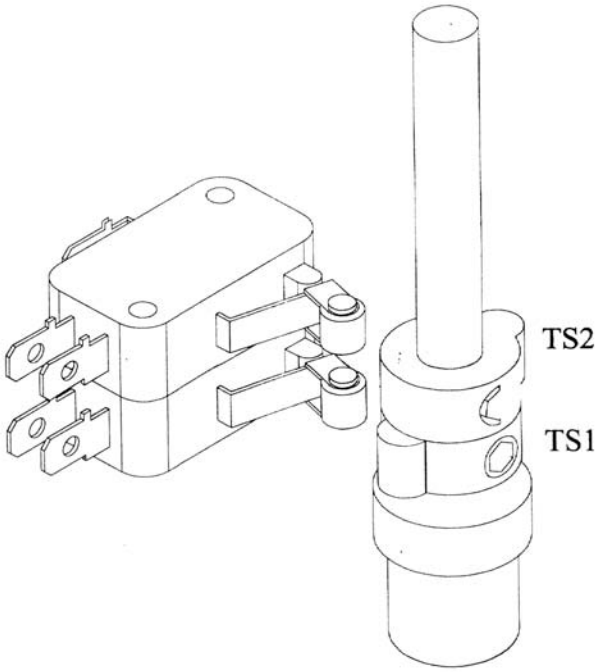
LS3 — "LS3" Synchronous turn with LS1(Option)

LS2 — "CLOSE"
- Clockwise:decrease closed degree.
- Counter-clockwise:increase closed degree to fully close.

LS1 — "OPEN"
- Clockwise:increase opening degree to fully open.
- Counter-clockwise:decrease opening degree.

◆ TRAVEL CAM & TORQUE SWITCHES ADJUSTMENT

Adjust Travel Cam
(OM-2~OM-8)



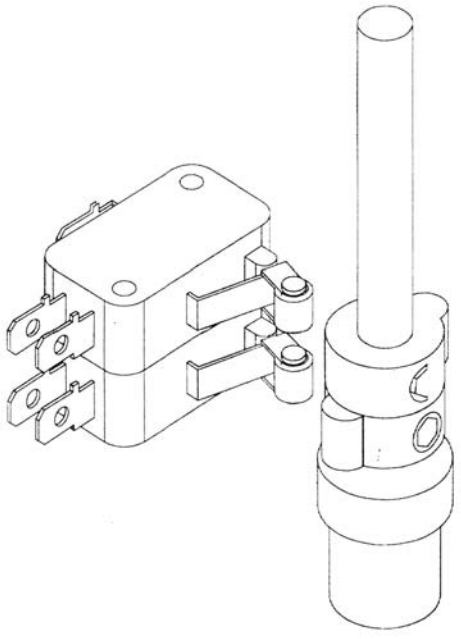
TS2 "CLOSE"

- Counter-clockwise:Decrease the degree of torque setting.
- Clockwise:Increase the degree of torque setting.

TS1 "OPEN"

- Counter-clockwise:Decrease the degree of torque setting.
- Clockwise:Increase the degree of torque setting.

Adjust Travel Cam
(OM-9~OM-12)



TS2 "CLOSE"

- Counter-clockwise:Increase the degree of torque setting.
- Clockwise:Decrease the degree of torque setting.

TS1 "OPEN"

- Clockwise:Increase the degree of torque setting.
- Counter-clockwise:Decrease the degree of torque setting.

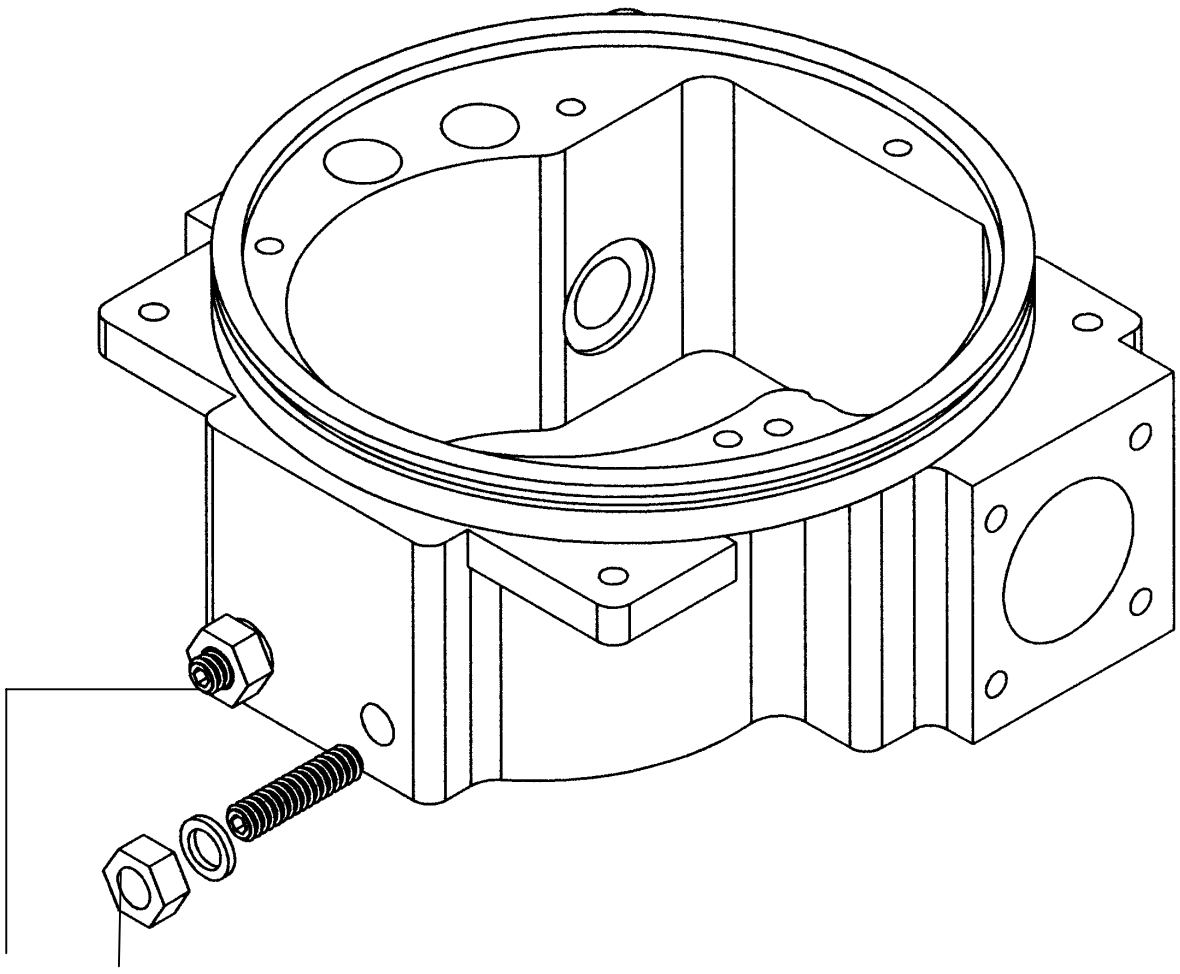
◆ MECHANICAL STOPS

(1) For Electric Operation

Please refer to " Travel Cam & Limit Switches Adjustment ".

(2) For Manual Operation

1. To loosen the screws.
2. To adjust limit switches & travel cams.
3. To adjust the screws.
4. To reverse one cycle.



OPEN】 【CLOSE】

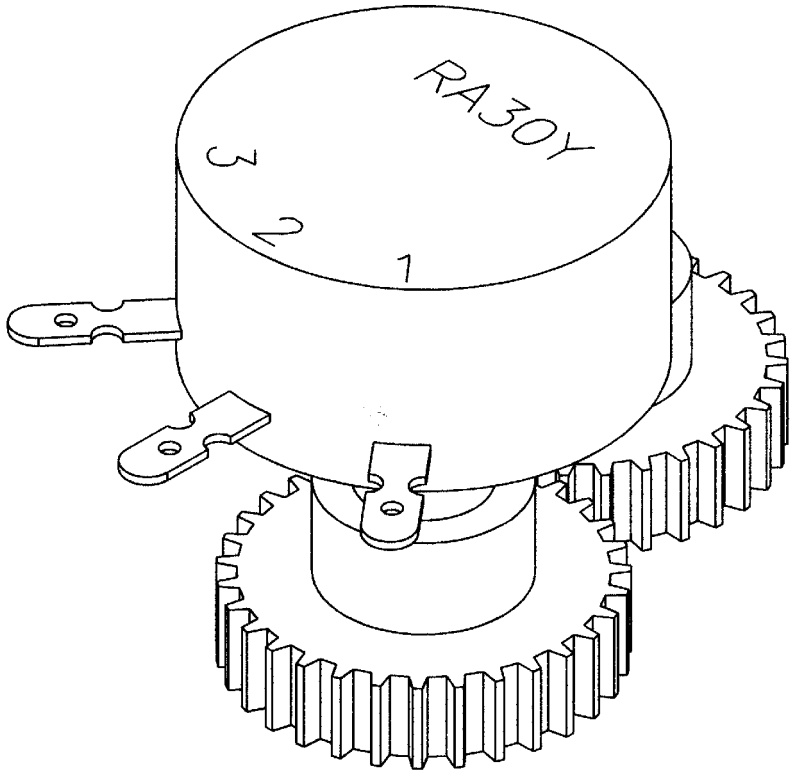
◆ POTENTIOMETER

Potentiometers turn with transmission shafts, and can provide a feedback signal for position indication.

Potentiometer points 1, 2, 3 are wired to terminal blocks 5, 6, 7.
When a valve is closed: 5, 6→ 1K Ohm.
6, 7 → 0K Ohm.
When a valve is opened: 5, 6 → 0K Ohm
6, 7 → 1K Ohm.

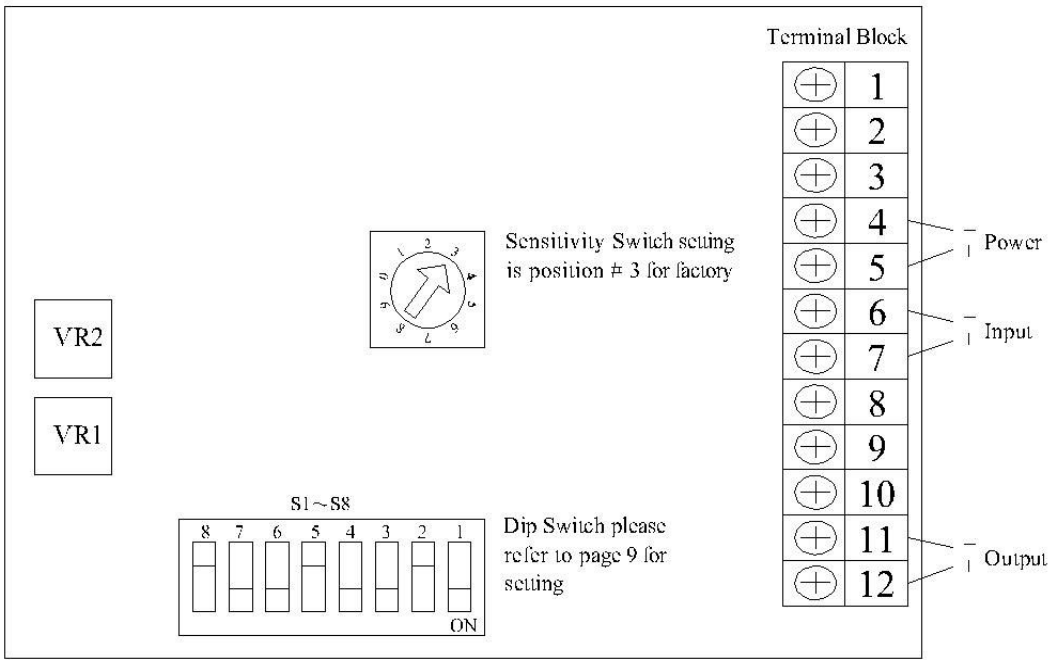
For modulating controllers, potentiometer points 1, 2, 3 are wired to terminal blocks 8, 9, 10.
When a valve is closed: 8, 9 → 5K Ohm.
9, 10 → 0K Ohm.
When a valve is opened: 8, 9 → 0K Ohm
9, 10 → 5K Ohm.

∗ Remark: OM-A is opposite. (i.e. 1,2,3 wired to 7,6,5; 1,2,3 wired to 10,9,8)

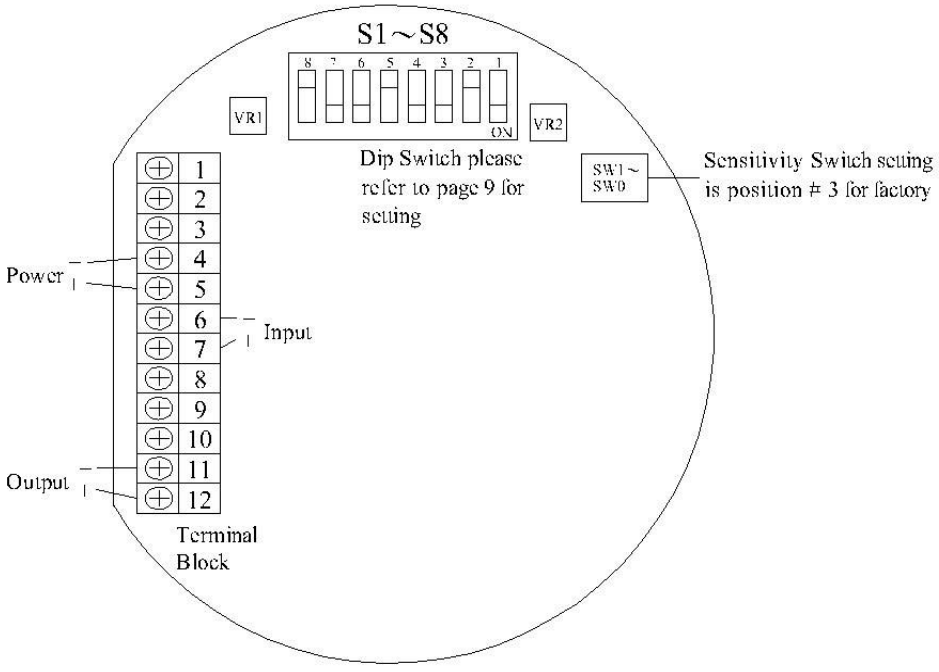


◆ MODULATING CONTROL BOARD：Interface

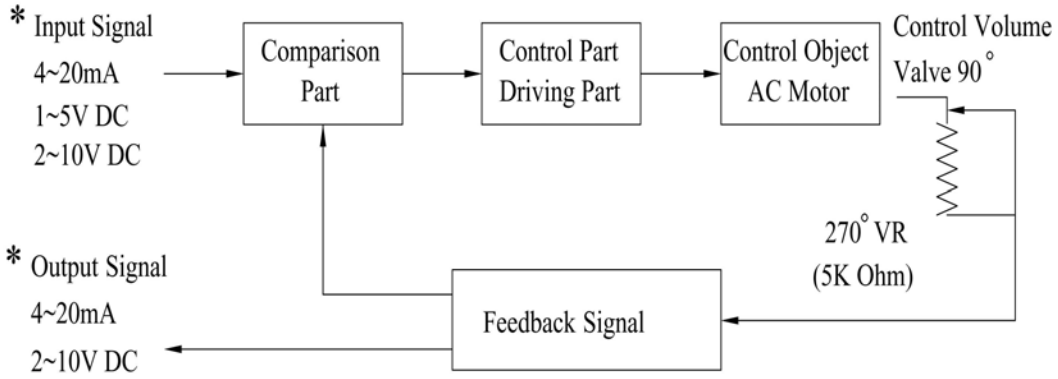
Modulating Control Board for OM2～12



Modulating Control Board for OM1,OMA



◆ MODULATING CONTROL BOARD



★Attention: TURN POWER OFF BEFORE CHANGING THE FOLLOWING SETTINGS:

S1,2: INPUT SIGNAL SELECT " 4~20mA " set 1-ON / 2-OFF.
" 1~5V " set 1-OFF / 2-OFF.
" 2~10V" set 1-OFF / 2-ON.

S3,4,5,: OUTPUT SIGNAL SELECT "2-10V" set 3-ON / 4-OFF / 5-ON.
"4-20mA" set 3-OFF / 4-ON / 5-OFF.

S6: Valve is fully-open when the input signal is 4mA, 2V or 1V and valve is fully-closed when the input signal is 20mA, 10V or 5V, set 6-ON.
S7,8: POSITION SELECT (When the feedback signal fails) "valve fully-closed" set 7-ON / 8-OFF；"valve fully-open" set 7-OFF / 8-ON；"valve stops" set 7-ON / 8-ON.

S6: Valve is fully-closed when the input signal is 4mA, 2V or 1V and valve is fully-open when the input signal is 20mA, 10V or 5V, set 6-OFF.
S7,8: POSITION SELECT (When the feedback signal fails) "valve fully-closed" set 7-OFF / 8-ON；"valve fully-open" set 7-ON / 8-OFF；"valve stops" set 7-ON / 8-ON.

SW1~0: Sensitivity switch:-

When switch to "1", the 0~90 degree can be divided up to around 80 times movement.
When switch to "0", the 0~90 degree can be divided up to around 17 times movement.
The sensitivity decreases 7 times movement by sectors from SW1 to SW2, SW2 to SW3, SW3 to SW4 and so on.

◆ LUBRICATION

The gearbox of the SUN YEH actuator is enclosed, and it has already been lubricated sufficiently with high temperature lubricant at the factory sufficient for use for up to two years.

◆ IMPORTANT NOTICES & MAINTENANCE

* **Notices**:

1. Make sure the voltage is correct before wiring.
2. Turn off before power for maintenance purposes.
3. Seal the casing and conduit entrance after wiring to prevent dusting or water contamination.
4. The angle of electric actuator installation must between 0~180 degree. Do not install upside down or below the horizontal.
5. Do not install when hazardous or explosive gases may be present.
6. The frequency of open and close is restricted to every 5 minutes. Avoid too high frequency.
7. When more than one electric actuator needs to operate simultaneously, please connect with the individual cables.
8. Please connect the ground wire to PE inside the electric actuator.
9. The warranty period of our product is for one year.

* **Storage**:

1. The actuator should be placed in a clean and dry place, and protected from the weather and extreme vibration.
2. If actuator needs be stored outside, it must be protected from excess moisture, dust, and weather.

◆ TROUBLE SHOOTING

Conditions	Possibilities	Solutions
Motor does not operate	1. Is the supplied power and voltage correct? 2. Any blisters on the capacitor? 3. Are the gear trains free?	1. Checking by meter. 2. If so replace. 3. Remove motor to check.
Motor stops running	1. Is power supply short circuited? 2. Any foreign objects in flow stream?	1. Check wiring. 2. Check for obstructions.
Unable to fully open/close	1. Loose/Misaligned cam? 2. Bent valve stem? 3. Mechanical stop adjustment incorrect?	1. Adjust/Tighten using spanner. 2. Replace valve stem. 3. Check position of stops.
Valve stops operating when motor is running.	1. Gear worn out? 2. Sleeve adapter worn out or broken? 3. Broken valve stem or actuator transmission shaft?	1. Replace gear. 2. Replace sleeve adapter. 3. Replace valve stem or actuator transmission shaft.
Abnormal control for operating two or more actuators simultaneously.	1. Controlling circuit connects in tandem or parallel?	1. Please refer to the wiring diagram.
Motor overheats.	1. Is the voltage correct? 2. Is valve too tight to operate? 3. High working frequency? 4. Is motor stem or bearing binding?	1. Checking by meter. 2. Replace valve. 3. Check duty cycle. 4. Replace the binding parts.
Abnormal on/off angle on 3-phase voltage.	1. Wrong phase wiring?	1. Change phase wiring.
Occasional on/off actuator failure.	1. Simultaneous input power on/off.	1. Check if the selection switch is normal.
Vibration when valve is closed.	1. Motor brake spring fatigued or Teflon worn?	1. Replace spring or Teflon.