

**OME**

SERIES

**Explosion-proof  
Quarter-turn  
Electric Valve Actuators**

Service Unique Nice Youthful Energy Honesty

**SUNYEH**

**OPERATION MANUAL**



**SUN YEH ELECTRICAL IND. CO., LTD.**

SY07-C003G-EN

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## 1 General Information

**⚠ Failure to follow safety instructions may cause serious injury, equipment damage, or voided warranty.**

### 1.1 Safety Instructions

- Installation, maintenance and repair works must be performed by trained personnel.
- The handling shall follow the safety and warning instruction contained in this manual.
- The user should read and follow instructions contained in this operation manual included with the product. Failure to do this may result in damages and void warranty. Sun Yeh will not be liable for damages due to operator negligence or misuse.
- Local health and safety legislation shall be complied with.
- In a few cases, the surface temperature may exceed 60°C (140 °F). Please check the surface temperature before operation, using an appropriate thermometer and wearing protective gloves before operation.

### 1.2 Installation Notices

- ⚠ All setting of opening the cover must be made in the safe place, prevent the spark from making the possibility of explosion.**
- ⚠ Operating by handwheel: Do not use excessive force when operating the handwheel as this can damage the actuator or valve.**

#### 1.2.1 General

- DO NOT install in ambient temperatures that exceed 70 °C (158 °F).
- DO NOT, under any circumstances, remove the cover of the actuator while in a hazardous location when the power is still live inside the actuator. This could cause ignition of a hazardous atmosphere.
- DO NOT, under any circumstances, use an explosion-proof electric actuator in a hazardous location that does not meet the specification which the actuator was designed for.
- Mount, test, and calibrate actuators in non-hazardous location.
- When removing the actuator, care must be taken not to scratch, scar or deform the flame path of the cover or base of the actuator. That will negate the protection rating of the enclosure in a hazardous location.
- The explosion-proof electric actuator is shipped with mating surfaces of the cover and base. When assembling them, pay attention to the mating number (QA code) to assure the protection rating in a hazardous location.

## 【OME Series】 Explosion-proof Quarter-turn Valve Actuator

- Please read operation manual and wiring diagram carefully before installation.
- Verify that supply voltage is in accordance with the data on nameplate to prevent short circuit or electrical/electronic parts damage caused by incorrect power input.
- Turn power off before wiring or maintenance.
- There are grounding devices both inside and outside of the actuator and the ground wires should be connected properly.
- The metal plugs in conduit entries are for transit only. For long term protection fit suitable flameproof cable gland and power cable should be with a minimum withstand temperature 105 °C (221 °F). Please refer to 1.2.3 (P.3).
- To avoid functional failure caused by static, do not touch any components on the PCB with metal tools or bare hands.
- Do not parallel wire multiple actuators together without using an extra relay.
- Use suitable explosion-proof and water-proof cable glands to ensure it fits the conduit entry size, diameter of the cable and the enclosure protection of the actuator when wiring. The explosion-proof and water-proof cable glands must be tightened and flattened to the cable after wiring procedure. Do not remove the explosion-proof and water-proof metal plugs from unused conduit entry, be sure to fasten the top cover of the actuator to reach explosion-proof and water-proof function.
- Actuator should be installed in an upright or horizontal position. Do not mount upside down or below a horizontal position.
- Periodically inspect actuator enclosure to prevent dust from accumulating.
- Perform below inspections prior to installation. Not allowed to adopt if any item is unqualified.
  - ✓ Check the marking and certificate number to see if it conforms to the indicated application.
  - ✓ All the parts of the housing are assembled in the right manner and fastened.  
**⚠ USE FASTENERS WITH YIELD STRESS  $\geq 700\text{MPa}$ .**
  - ✓ All the explosion-proof parts should be made without cracks or functional defects.

## 1.2.2 CSA Certification Considerations

- KEEP COVER TIGHT WHILE CIRCUITS ARE ALIVE.
  - ⚠ **AFTER DE-ENERGIZING, DELAY 10 MINUTES BEFORE OPENING THE COVER.**
- SEAL REQUIRED WITHIN 18 INCHES (450 mm) OF ENCLOSURE (for Divisions only).
- SEAL REQUIRED WITHIN 2 INCHES (50 mm) OF ENCLOSURE (for Zones only).

## 1.2.3 Cable Glands

- ⚠ **Please select the relatively explosion-proof cable connector according to the product specifications and Loctite 577 sealant is recommended for NPT cable glands to achieve IP rating.**

- **ATEX / UKEX / IECEX / JPEX / TS Certification :**
  - ✓ The actuator is delivered with two conduit entries plugged by metal plugs. Use cable glands with ATEX / UKEX / IECEX / JPEX / TS certification and in accordance with the technical characteristics required by Ex db IIB Gb, Ex tb IIIC Db. The electrical supply cable must be suitable for power rating and with a minimum withstand temperature 105 °C (221 °F).
- **CNEx / CCC Certification :**
  - ✓ The actuator is delivered with two conduit entries plugged by metal plugs. Use cable glands with CNEx certification and in accordance with the technical characteristics required by CNEx Ex db IIB T4 Gb, Ex tb IIIC T130 °C Db. The electrical supply cable must be suitable for power rating and with a minimum withstand temperature 105 °C (221 °F).
- **CSA Certification :**
  - ✓ The actuator is delivered with two conduit entries plugged by metal plugs. Use cable glands with CSA certification. The electrical supply cable must be suitable for power rating and with a minimum withstand temperature 105°C (221 °F).

## 1.3 Working Conditions

- **ATEX / UKEX / IECEX / JPEX / CNEx / CCC / TS Certification :**
  - ✓ Atmospheric pressure : 80 - 110 kPa.
  - ✓ Ambient temperature : - 30 °C to + 70 °C (- 22 °F to + 158 °F).
  - ✓ Relative humidity : Not more than 95 % (+ 25 °C / 77 °F).
  - ✓ The actuator can operate normally within tolerated variation of ± 10% of rated supply voltage or ± 1% of rated frequency.

# 【OME Series】 Explosion-proof Quarter-turn Valve Actuator

- **CSA Certification :**

- ✓ Atmospheric pressure : 80 - 106 kPa.
- ✓ Ambient temperature : -30 °C to +70 °C (-22 °F to +158 °F).
- ✓ Air with normal oxygen content : 21 % (Volume).

## 1.4 Standards

- **ATEX European Hazardous Area:** EN60079-0, EN60079-1, EN60079-31

Directive	Group	Ambient Temperature
ATEX II 2 GD	Ex db IIB T4 Gb	- 30 °C to + 70 °C ( - 22 °F to + 158 °F )
ATEX II 2 GD	Ex tb IIIC T130 °C Db	- 30 °C to + 70 °C ( - 22 °F to + 158 °F )

- **UKEX Great Britain Hazardous Area <sup>UK</sup>CA:** EN60079-0, EN60079-1, EN60079-31

Directive	Group	Ambient Temperature
UKCA II 2 GD	Ex db IIB T4 Gb	- 30 °C to + 70 °C ( - 22 °F to + 158 °F )
UKCA II 2 GD	Ex tb IIIC T130 °C Db	- 30 °C to + 70 °C ( - 22 °F to + 158 °F )

- **IECEx International Hazardous Area:** IEC 60079-0, IEC 60079-1, IEC60079-31

Group	Ambient Temperature
Ex db IIB T4 Gb	- 30 °C to + 70 °C ( - 22 °F to + 158 °F )
Ex tb IIIC T130 °C Db	- 30 °C to + 70 °C ( - 22 °F to + 158 °F )

- **CSA North American Hazardous Area:**

- ✓ **Zone System:**

CAN/CSA-C22.2 No. 0-20, CAN/CSA-C22.2 No. 60079-0, CAN/CSA-C22.2 No. 60079-1, CAN/CSA-C22.2 No. 60079-31, ANSI/UL 60079-0, ANSI/UL 60079-1, ANSI/UL 60079-31

Code	Hazard Class	Permitted Zone	Type of Protection	Groups	Temp Classification	Ambient Temperature
AEx / Ex	I	1	db	IIB, IIA	T4	- 30 °C to + 70 °C ( - 22 °F to + 158 °F )
AEx / Ex	II	21	tb	IIIC, IIIB, IIIA	T130°C	- 30 °C to + 70 °C ( - 22 °F to + 158 °F )

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✓ **Division System:**

CAN/CSA-C22.2 No. 0-20, CSA C22.2 No. 30-M1986, CSA C22.2 No. 25-17,  
FM 3600, FM 3615, FM 3616

Hazard Class	Permitted Division	Groups	Temp Classification	Ambient Temperature
I	1	C,D	T4	- 30 °C to + 70 °C ( - 22 °F to + 158 °F )
II	1	E,F,G	T130°C	- 30 °C to + 70 °C ( - 22 °F to + 158 °F )

● **CNEEx / CCC Certification:** GB/T 3836.1, GB/T 3836.2, GB/T 3836.31

Group	Ambient Temperature
Ex db IIB T4 Gb	- 30 °C to + 70 °C ( - 22 °F to + 158 °F )
Ex tb IIIC T130 °C Db	- 30 °C to + 70 °C ( - 22 °F to + 158 °F )

● **TS Certification:** IEC 60079-0, IEC 60079-1, IEC60079-31

Group	Ambient Temperature
Ex db IIB T4 Gb	- 30 °C to + 70 °C ( - 22 °F to + 158 °F )
Ex tb IIIC T130°C Db	- 30 °C to + 70 °C ( - 22 °F to + 158 °F )

● **JPEEx Japanese Hazardous Area:** JNIOSH-TR-46-1,JNIOSH-TR-46-2,JNIOSH-TR-46-9

Group	Ambient Temperature
Ex db IIB T4 Gb	- 30 °C to + 70 °C ( - 22 °F to + 158 °F )
Ex tb IIIC T130°C Db	- 30 °C to + 70 °C ( - 22 °F to + 158 °F )

## 1.5 Inspection, Storage, Transport

### 1.5.1 Receiving / Inspection

- Carefully inspect the package for any damages resulting from shipping and report all damages to the freight carrier and seller.
- After unpacking the product and information packet, please keep the cartons and any packing materials in case of product return or replacement. Verify that the items listed in packing slip or in bill of lading are the same as what were ordered. If there is any discrepancy, please contact the seller.
- Verify that the technical data on nameplate is in accordance with what was ordered.

### 1.5.2 Storage

- The actuator should be stored in a dry area with relative humidity of less than 90 % (  $20 \pm 5$  °C ) and at temperature between -20 °C to + 40 °C (-4 °F to + 104 °F).
- The product shall be stored with suitable protection from corrosive substance that can damage the metal and insulating parts.
- The metal plugs for temporary protection should not be removed until the actuator is ready to be cabled. Use suitable flameproof cable glands to ensure IP rated protection when installing. Please refer to 1.2.3 (P.3).

### 1.5.3 Transport

- Attach ropes or hooks for the purpose of lifting by hoist only to housing and not to handwheel.
- Actuators packaged in cartons can stand up to land, sea, or air transportation.
- Packaged actuators shall avoid of violent impact and strong vibrations and be protected from rain or snow.

### 1.5.4 Lubrication

- The gear train has been sufficiently lubricated at the factory. No additional lubrication is required.



## 2 Product Overview

OME series explosion-proof quarter-turn electric actuators are structured as flame-proof and combustible dust-proof and offer torque ranges from 35 Nm to 1,500 Nm ( 310 in.lb to 13,280 in.lb). Product design is based on a self-locking worm drive principal, which provides for a smooth running, dependable, robust drive system. All models are ISO 5211 compliant, have a visual position indicator on top of actuator cover and manual override except OME-A. The manual operation is non-clutch design that can be operated without any lever, clutch or brake upon power outage.

- **ATEX / UKEX / IECEx / JPEX / CNEx / TS Explosion-proof instructions :**



**II 2 GD Ex db IIB T4 Gb, Ex tb IIIC T130°C Db IP68**

- ✓ OME series Explosion-proof Quarter-turn Electric Valve Actuator (referred as "actuator") is a control device for valves and can be used in the places, where is classified as Zone 1 or Zone 2, contained Group II A and Group II B gases, Zone 21 or Zone 22, contained the combustible dust atmosphere or the mixture circumstance with the explosive gas atmospheres and the combustible dust atmospheres. Temperature group T1-T4.

- **Certificate Number :**

Sira17ATEX1243X

IECEX SIR17.0062X

CNEx22.5068X ( CCC : 2020312307000188)

(ITIR) 2018 No.07-00013X

CSAE 21UKEX1207X

CSAUK 21JPN036X (JPEX - Gas)

CSAUK21JPN037 (JPEX - Dust)

- **CSA explosion-proof instructions :**

- ✓ **Division System** where is classified as North American Division 1 or Division 2 of hazardous location, contains Group C and Group D gases and temperature group T1 - T4; or contains one or several flammable dusts with minimum flaming point over 130 °C; or include both above flammable gases and dusts.

- ✓ **Zone System** where is classified as North American Zone 1 or Zone 2 of hazardous location, contains Group II A and Group II B gases and temperature group T1 - T4; or in Zone 21 or Zone 22, contained one or several flammable dusts with the minimum flaming point over 130 °C; or include both above flammable gases and dusts.

- **Certificate Number :**

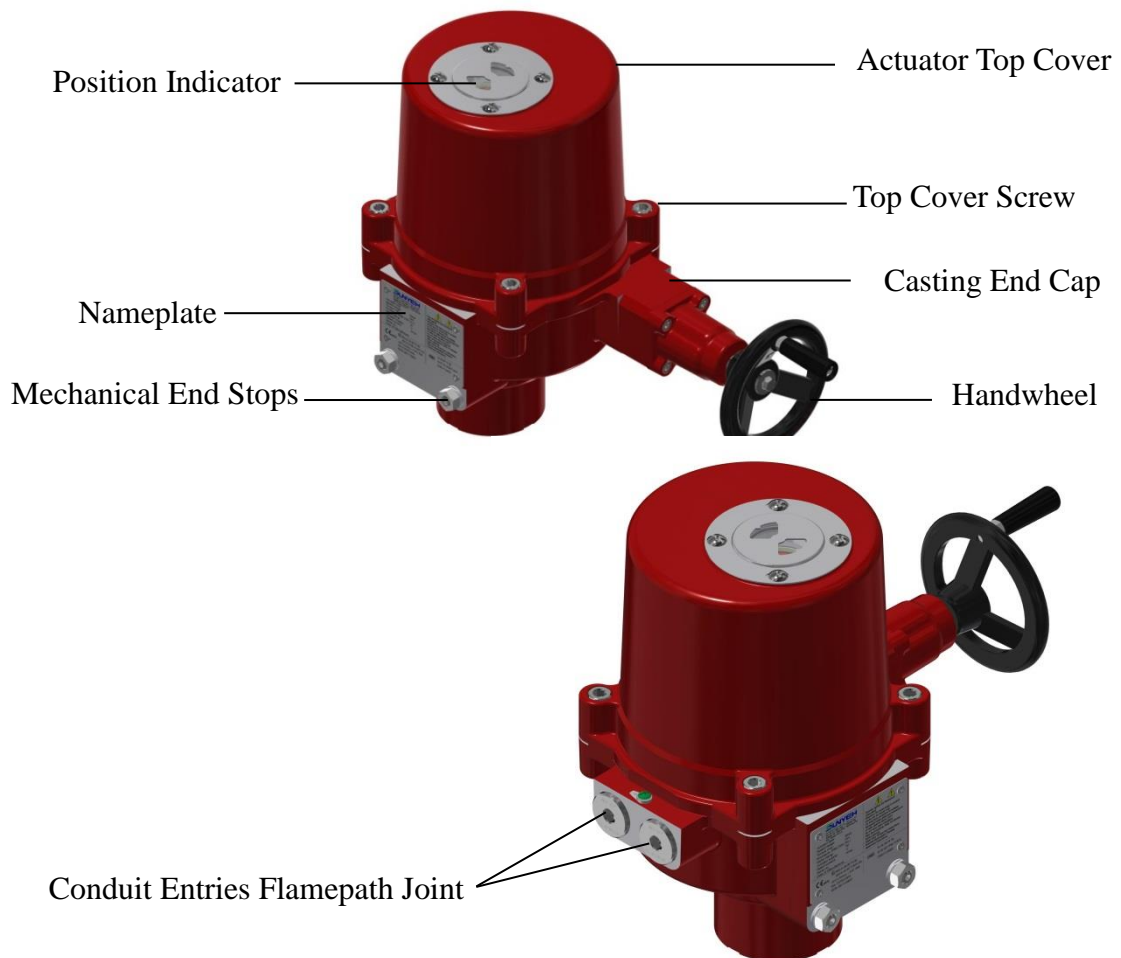
70156877

## 2.1 Features

- Enclosure conforms to the following standard:  
ATEX / UKEX / TS / CSA / JPEX: IP68 (7 m / 72 hrs)  
CNEEx / IECEEx: IP66 (available for OME-1, OME-A and OME-AM)  
IP68 (7 m / 72 hrs)
- Self-locking gear system.
- ISO 5211 mounting flange.
- Flatted position indication.
- Mechanical stops (except OME-1 / A / AM).
- Clutch-less manual override.
- Built-in thermal protection.

## 3 Product Mechanical Data

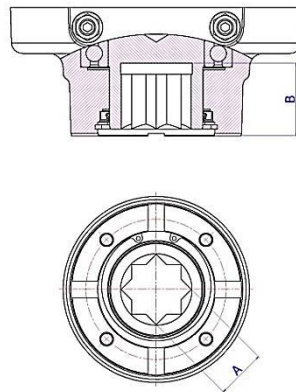
### 3.1 Parts Identification



### 3.2 Technical Information

Model	Max.Torque		Weight		Moto Power	Manual Override	Flange Type
	Nm	in-lb	kg	lb	W		ISO 5211
OME-1	35	310	3.5	8	10	Lever	F03 / F05
OME-AM	50	445	4.5	10	10		F07
OME-A	50	445	4.5	10	10		F07
OME-2	90	800	17	37.5	40	Handwheel	F07
OME-3	150	1330	17	37.5	40		F07
OME-4	400	3540	31	68.5	80		F10
OME-5	500	4430	31	68.5	80		F10
OME-6	650	5755	31	68.5	80		F10
OME-7	1000	8855	47	104	120		F12 or F14
OME-8	1500	13280	47	104	120		F12 or F14

### 3.3 Mounting Base Details



Model	Flange Type	Shaft (A)		Depth of Shaft (B)	
	ISO 5211	mm	inch	mm	inch
OME-1	F03 / F05	14	0.551	17	0.669
OME-A	F07	17	0.669	20	0.787
OME-AM	F07	17	0.669	20	0.787
OME-2 to OME-3	F07	22	0.866	30	1.181
OME-4 to OME-6	F10	36	1.417	48	1.889
OME-7 to OME-8	F12 or F14	36	1.417	50	1.968

### 3.4 Actuator Selection

OME- ① - ② - ③ - ④

① Type	② Voltage	③ Control Mode	④ Duty cycle
A AM 1 2 3 4 5 6 7 8	D12 : 12 V DC 24 : 24 V AC D24 : 24 V DC 120 : 110 - 120 V AC 1PH 220 : 220 - 240 V AC 1PH	F : Floating M : Modulating	30 : 30 % 75 : 75 %

### 3.5 Sizing

- a. The actuator shall be sized to ensure that its torque output meets the load requirements of valve and its ability to overcome the required duty cycle of application (As a MINIMUM, a 30% safety factor is suggested for the calculation of torque requirement).

- If the maximum torque of 5" valve is 80 Nm  $\rightarrow 80 \times 1.3$  (safety factor) = 104 Nm  
**104 Nm < 150 Nm (OME-3)  $\rightarrow$  OK!**  
 104 Nm > 90 Nm (OME-2)  $\rightarrow$  Not OK!

- b. In cases where the actuator does not fit directly onto the valve, a mounting kit is required. Please ensure the bracket and coupling are properly designed and manufactured to withstand the torque output of the actuator.

### 3.6 Duty Cycle

- The standard duty cycle for OME series is 30% or 75% is for option. The duty cycle is the relationship between the running time and resting time. It is calculated as below:

$$\text{Duty Cycle} = \frac{\text{Running Time (Sec)}}{\text{Running Time (Sec)} + \text{Rest Time (Sec)}} \times 100 \%$$

$$\Rightarrow \text{Rest Time (Sec)} = \frac{\text{Running Time (Sec)} \times (1 - \text{Duty Cycle})}{\text{Duty Cycle}}$$

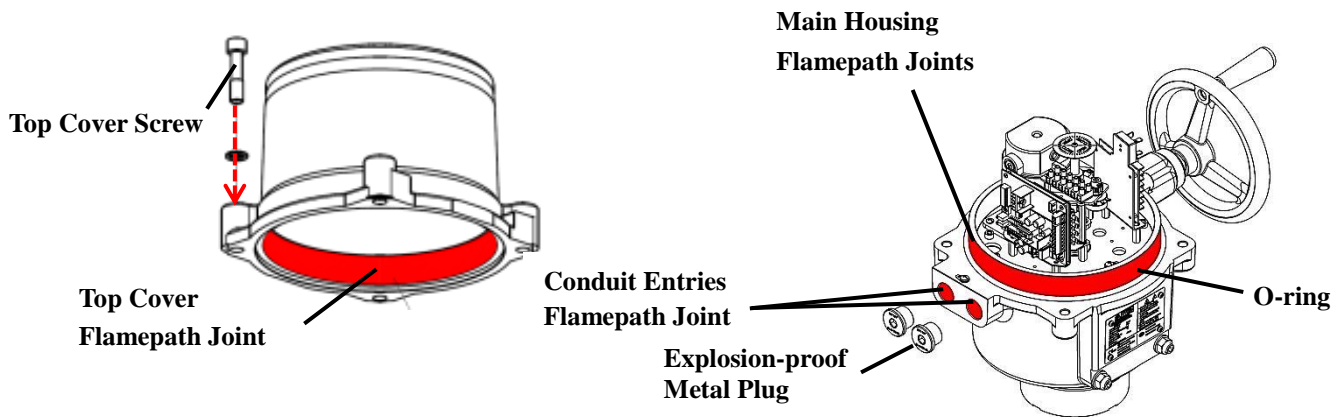
- If the running time for OME-2 is 15 sec, 30% duty cycle, the rest (off) time shall be calculated as below:  
 $\rightarrow 15 \times [ ( 1 - 30\% ) / 30\% ] = 35$  The rest time will be 35 sec.
- If the running time for OME-2 is 15 sec, 75% duty cycle, the rest (off) time shall be calculated as below:  
 $\rightarrow 15 \times [ ( 1 - 75\% ) / 75\% ] = 5$  The rest time will be 5 sec.

**Note: For higher duty cycles, choose the 75% duty cycle.**

**⚠ One cycle consists of open-rest-close-rest.**

### 3.7 Flamepath Joint

- ⚠ During cover removal and conduit entry removal, ensure that surfaces are free from scratches or scrapes.**
- ⚠ Actuator installation and maintenance must be performed by trained personnel.**



#### Cover Removal

Remove the conduit entry metal plugs to relieve the pressure inside the actuator for the ease of the top cover removal and gently remove the cover. DO NOT attempt to remove the top cover with a screwdriver as it will damage the surfaces.

#### Cover Installation

- ⚠ Please ensure that the O-ring seal is in good condition prior to cover installation. Slowly re-install the cover while being careful not to pinch the O-ring seal.**
- ⚠ The explosion-proof enclosures are labeled with a QA code on both of the middle plate and the cover, please verify the QA code inside the cover is the same as the one on middle plate when installation. The cover is not interchangeable.**

Please follow this table to tighten the cover screw:

Model	Screw	Allen Key	Torque
		mm	Nm
OME-A, OME-AM & OME-1	M6	5	8
OME-2 to OME-3	M10	8	43
OME-4 to OME-8	M12	10	75

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## 3.8 Nameplate Details

**⚠ Please make sure the explosion-proof specification for the product is consistent with nameplate and instruction.**

**SUNYEH**  
SUNYEH ELECTRICAL IND. CO., LTD.  
No. 68, Ln. 854, Sec. 1, Shatian Rd.,  
Dadu Dist., Taichung City, 432403, Taiwan

Model No.:  
Running Time: Sec/90°  
Torque: N·m  
Enclosure Rating: IP68 (72 h, 7 m)  
Motor Power: W  
Supply Voltage:  
Rated Current: A  
Serial No.:  
Date of Manufacture:

The metal conduit plugs are for transit purposes only.  
For long term protection, fit and tighten suitable flameproof and watertight cable glands.  
The withstand temperature of the cable shall not less 105°C (221°F).  
See instructions for cable entry threading.  
DO NOT OPEN WHEN ENERGIZED.  
AFTER ISOLATING POWER, DELAY 10 MINUTES BEFORE REMOVING COVER.  
Extreme care should be taken when removing cover as to not damage the flame path.  
See instructions on how to avoid any electrostatic charging hazards.  
USE FASTENERS WITH YIELD STRESS ≥ 700MPa.

CE 0470  
UK CA 0518  
II2GD Ex db IIB T4 Gb  
Ex tb IIIC T130°C Db  
-30°C ≤ Tamb ≤ +70°C IP68  
SIRA I7ATEX1243X  
IECEX SIR 17.0062X  
CSAE 21UKEX1207X

ATEX, UKEX & IECEx

**SUNYEH**  
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No. 68, Ln. 854, Sec. 1, Shatian Rd.,  
Dadu Dist., Taichung City, 432403, Taiwan

Model No.:  
Running Time: Sec/90°  
Torque: N·m  
Enclosure Rating: Type 4X  
Motor Power: W  
Supply Voltage:  
Rated Current: A  
Ambient Temp.: °C to + °C  
Serial No.:  
Date of Manufacture:

Please review Operation Manual and Wiring Diagram carefully before installation.  
DO NOT OPEN WHEN ENERGIZED.  
The metal plugs in conduit entries are for transit only. For long term protection, fit and tighten suitable flameproof and watertight cable glands.  
The withstand temperature of the cable shall not less 105°C (221°F).  
CONDUIT SEAL WITHIN 18 INCHES (450mm) OF ENCLOSURE. (For Division Classification only).  
CONDUIT SEAL WITHIN 2 INCHES (50 mm) OF ENCLOSURE. (For Zone Classification only).  
AFTER ISOLATING POWER, DELAY 10 MINUTES BEFORE REMOVING COVER.  
USE FASTENERS WITH YIELD STRESS ≥ 700MPa.  
Veuillez lire attentivement le manuel d'utilisation et le schéma de câblage avant l'installation.  
NE PAS OUVRIER LORSQU'ALIMENTÉ.  
Les bouchons métalliques dans les entrées de conduits sont uniquement destinés au transit. Pour une protection à long terme, fixez et serrez les presse-étoupes appropriés, anti-inflammatoires et étanches. La température que peut supporter le câble ne doit pas être inférieure à 105°C (221°F).  
Sous de conduit installé en-deçà de 450 mm de l'unité (Classification par Division uniquement).  
Sous de conduit installé en-deçà de 50 mm de l'unité (Classification par Zone uniquement).  
TOUJOURS ATTENDRE 10 MINUTES APRÈS AVOIR COUPÉ L'ALIMENTATION AVANT D'OUVRIR LE COUVERCLE.  
N'utiliser que des attaches ayant une limite d'élasticité en traction ≥ 700MPa.

Class I, Division 1, Groups C, D T4  
Class II, Division 1, Groups E, F, G T130°C  
Type 4X  
Ex db IIB T4 Gb (For Canada)  
Class I, Zone 1, AEx db IIB T4 Gb (For US)  
Ex tb IIIC T130°C Db (For Canada)  
Zone 21, AEx tb IIIC T130°C Db (For US)  
IP68 (72h, 7m)  
CSA 18.70156877X

CSA

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No. 68, Ln. 854, Sec. 1, Shatian Rd.,  
Dadu Dist., Taichung City, 432403, Taiwan

Model No.:  
Running Time: Sec/90°  
Torque: N·m  
Enclosure Rating: IP68 (72 h, 7 m)  
Motor Power: W  
Supply Voltage:  
Rated Current: A  
Serial No.:  
Date of Manufacture:

The metal conduit plugs are for transit purposes only.  
For long term protection, fit and tighten suitable flameproof and watertight cable glands.  
The withstand temperature of the cable shall not less 105°C (221°F).  
See instructions for cable entry threading.  
DO NOT OPEN WHEN ENERGIZED.  
AFTER ISOLATING POWER, DELAY 10 MINUTES BEFORE REMOVING COVER.  
Extreme care should be taken when removing cover as to not damage the flame path.  
See instructions on how to avoid any electrostatic charging hazards.  
USE FASTENERS WITH YIELD STRESS ≥ 700MPa.

CE 0470  
TD0404XY  
(ITR)2018第07-00013X號  
Ex db IIB T4 Gb  
Ex tb IIIC T130°C Db  
-30°C ≤ Tamb ≤ +70°C

TS

**SUNYEH**  
SUNYEH ELECTRICAL IND. CO., LTD.  
No. 68, Ln. 854, Sec. 1, Shatian Rd.,  
Dadu Dist., Taichung City, 432403, Taiwan

Model No.:  
Running Time: Sec/90°  
Torque: N·m  
Enclosure Rating: IP68 (72h, 7m)  
Motor Power: W  
Supply Voltage:  
Rated Current: A  
Serial No.:  
Date of Manufacture:

金屬堵头仅用于运输时使用。  
配线时安装合适的Ex电缆引入装置并按规定拧紧。电缆耐温不低于105°C (221°F)。  
- 电缆引入装置尺寸- 见使用说明书。  
- 拆装执行器时，须注意外壳隔爆接合面请勿刮伤、划伤或变形，否则可能影响外壳防爆性能。  
- 使用屈服应力≥450MPa的紧固件。  
- 警告：潜在静电放电危险- 见使用说明书。  
- 警告：严禁带电开盖。  
- 警告：断电后，10分钟方可开盖。

CNEEx  
CCC  
Ex db IIB T4 Gb  
Ex tb IIIC T130°C Db  
CNEEx22.5068X

CCC & CNEEx

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No. 68, Ln. 854, Sec. 1, Shatian Rd.,  
Dadu Dist., Taichung City, 432403, Taiwan

Model No.:  
Running Time: Sec/90°  
Torque: N·m  
Enclosure Rating: IP68 (72 h, 7 m)  
Motor Power: W  
Supply Voltage:  
Rated Current: A  
Serial No.:  
Date of Manufacture:

配線口の金属製プラグは運送時限りのみ適用されます。  
- 配線口には必ず防爆規格と防水等級に適合するケーブルゴンドラを使用してください。また耐温105°C(221°F)以上のケーブルを使用してください。  
- ケーブルゴンドラ仕様について、取扱説明書をご参照ください。  
- 運転時に、アクチュエータカバーは絶対に取外さないでください。  
- アクチュエータカバーは、電源を切り10分置いてから取り外し可能です。  
- アクチュエータカバーを取り外す時に、カバーと本体ベースの接合面にすり傷などをつけない、変形させたりしないようご注意ください。  
- 静電気による故障の防止について、取扱説明書をご参照ください。  
- 降圧耐力700 MPa以上のファスナーをご使用ください。

Ex db IIB T4 Gb IP68  
-30°C ≤ Tamb ≤ +70°C  
CSAUK 21JPN036X

勞 (2022.4) 検  
第CSAUK 21JPN036X号  
山野電機  
工業股份有限公司

JPEX - Gas

**SUNYEH**  
SUNYEH ELECTRICAL IND. CO., LTD.  
No. 68, Ln. 854, Sec. 1, Shatian Rd.,  
Dadu Dist., Taichung City, 432403, Taiwan

Model No.:  
Running Time: Sec/90°  
Torque: N·m  
Enclosure Rating: IP68 (72 h, 7 m)  
Motor Power: W  
Supply Voltage:  
Rated Current: A  
Serial No.:  
Date of Manufacture:

配線口の金属製プラグは運送時限りのみ適用されます。  
- 配線口には必ず防爆規格と防水等級に適合するケーブルゴンドラを使用してください。また耐温105°C(221°F)以上のケーブルを使用してください。  
- ケーブルゴンドラ仕様について、取扱説明書をご参照ください。  
- 運転時に、アクチュエータカバーは絶対に取外さないでください。  
- アクチュエータカバーは、電源を切り10分置いてから取り外し可能です。  
- アクチュエータカバーを取り外す時に、カバーと本体ベースの接合面にすり傷などをつけない、変形させたりしないようご注意ください。  
- 静電気による故障の防止について、取扱説明書をご参照ください。

Ex tb IIIC T130°C Db IP68  
-30°C ≤ Tamb ≤ +70°C  
CSAUK 21JPN037

勞 (2022.4) 検  
第CSAUK 21JPN037号  
山野電機  
工業股份有限公司

JPEX - Dust

### Nameplate Indication

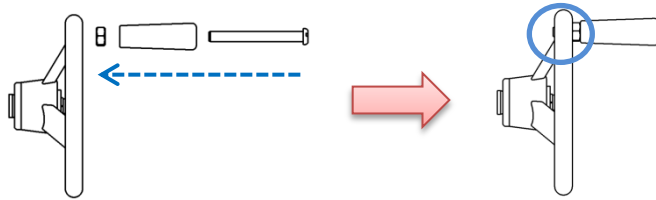
- |                       |                  |                 |                    |
|-----------------------|------------------|-----------------|--------------------|
| ① Model No.           | ② Running Time   | ③ Torque        | ④ Enclosure Rating |
| ⑤ Motor Power         | ⑥ Supply Voltage | ⑦ Rated Current | ⑧ Serial No.       |
| ⑨ Date of Manufacture | ⑩ Ambient Temp.  | ⑪ Warning       |                    |

## 4 Mounting And Setup (OME-2 to OME-8)

### 4.1 Manual Device Installation

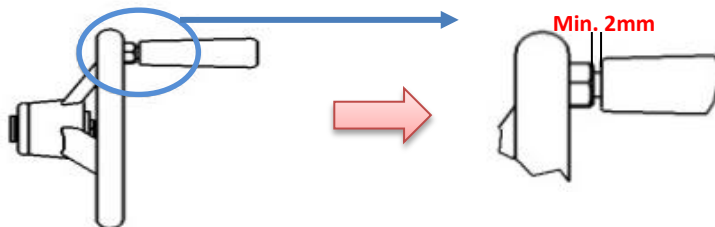
- a. Pass the screw through the handle and tighten the nut onto handwheel.

**⚠ Do not overtighten.**



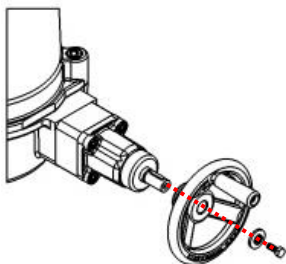
- b. Secure the handle to the wheel with the slotted screw and tighten the locknut all the way down to the wheel. Ensure that the locknut is locked between the wheel and the handle.

**⚠ Leave a 2 mm gap between the locknut and the handle as the figure below to allow the handle free to rotate and then to have a smooth manual operation.**

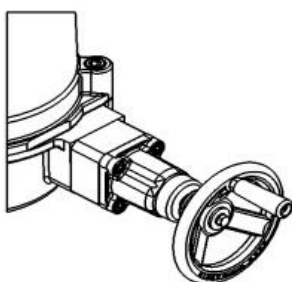


- c. Slide fixing screw through washers and handwheel and secure them to override shaft as shown in the figure below.

**⚠ Turn off power when installing handwheel.**

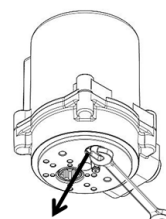


- d. Assembly completed as shown in the figure below.



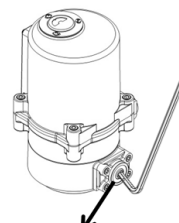
OME-1 & OME-AM

OME-1



Use a 8 mm wrench to rotate the shaft.  
Max. torque : 5 Nm

OME-AM

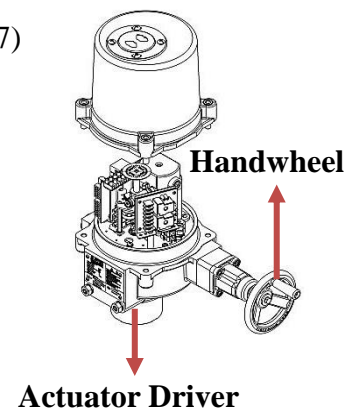


Use a 5 mm wrench to rotate the shaft.  
Max. torque : 5 Nm



## 4.2 Valve Mounting Instructions

- a. Make sure both the valve and actuator are in the same position before mounting, either fully-open or fully-closed. If not, use the manual override to correct this.
- b. Once mounted together, either directly or with a mounting kit, ensure that they are properly secured together and all fasteners are tightened.
  - ⚠ **Remove all of valve handle parts, for example, the handle or open/close mechanical stops so as to not interfere with the actuator.**
- c. Check again that the valve and actuator are in the same position.
- d. Remove the conduit entry plug to relieve the pressure inside the actuator for the ease of the top cover removal and gently remove the cover, please refer to 3.7 (P.11) for cover installation.
  - ⚠ **The power must be off before removing the cover.**
  - ⚠ **AFTER DE-ENERGIZING, DELAY 10 MINUTES BEFORE OPENING THE COVER.**
- e. Refer to section 4.3 (P.16) for wiring notices and connect the wires according to the wiring diagram labeled inside the cover of actuator.
- f. Supply power to actuator.
  - ⚠ **Care must be taken at all times as there are live circuits present that may cause electrical shock.**
- g. Re-calibration may be required for the end positions, refer to 4.4 (P. 17) for further instructions.
- h. For modulating units, refer to section 6 (P.24 - P.35) for setting instructions.
  - ⚠ **Use the insulated wires and length should be less than 30 m.**
  - ⚠ **A minimum of 18 AWG wire is recommended for all field wiring.**
  - ⚠ **Turn power off before changing any settings.**
- i. Assemble the cover and secure cover screws firmly after setting.
  - ⚠ **Refer to 3.7 (P.11) for installation and check if there is any foreign object between top cover flamepath joint and base.**
  - ⚠ **Please ensure that the O-ring seal is in good condition prior to cover installation.**
  - ⚠ **The explosion-proof enclosures are labeled with a QA code on both of the middle plate and the cover, please verify the QA code inside the cover is the same as the one on middle plate when installation. The cover is not interchangeable.**



## 4.3 Wiring Instructions

**⚠ Turn power off before making the electrical connection!**

- There are grounding devices both inside and outside of the actuator (green screw) and the ground wires should be connected properly.
- The conduit entries are attached two conduit entries plugged by metal plugs, and the specification as below. Each actuator is attached with two metal plugs to conduit entries.  
OME-A, OME-AM and OME-1: 1/2" NPT, M20.  
OME-2 to OME-8: 3/4" NPT, 1/2" NPT, M20, M25.  
**⚠ Use correct size of fittings so as to not damage the threads.**
- Verify the supply power is in accordance with the data on the nameplate to prevent a short circuit and an electrical shock.  
**⚠ Do not apply power to actuator before wiring, otherwise it can cause an electrical shock or damage components of the actuator.**
- After wiring, please tighten the conduit entries with suitable cable glands and cover properly. Unused conduit entries have to be sealed with metal plugs to reach explosion-proof function. Please refer to 1.2.3 (P.3).  
**⚠ Relating to OME series with Japanese explosion-proof certification, it is mandatory to select the cable gland of A2F series made by CMP Products Ltd to meet Japanese explosion-proof standards.**  
**⚠ Loctite 577 sealant is recommended for NPT metal plugs or cable glands to achieve IP rating.**

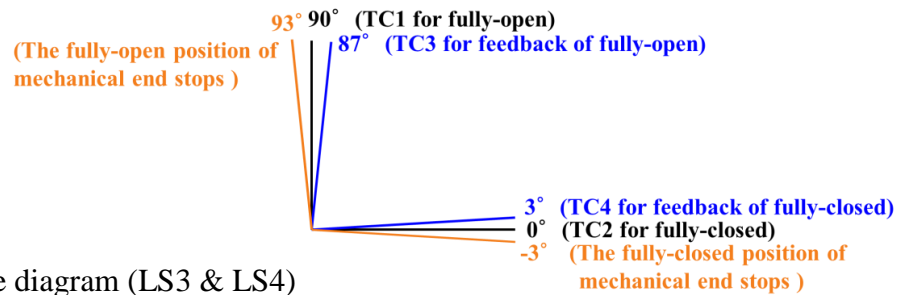
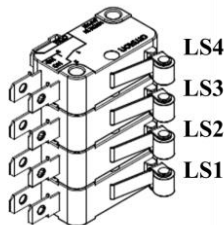
## 4.4 Actuator Set-up

- ⚠ The power must be off during this procedure so as to avoid damage to the actuator.**
- ⚠ Do not make adjustments to the mechanical end stops when actuator is in motion.**
- ⚠ All steps below must be completed before normal operation.**

The actuators have been set and calibrated at the factory. Most of products will not require recalibration of these settings. However these are general settings. After valve and actuator are bolted together, apply power to verify the end positions are correct. If an adjustment is required, please follow steps below. When the actuator is equipped with modulating controller, signal setting for open and close position has to be re-set accordingly, please refer to 6.1.5 and 6.2.5.

### 4.4.1 Instructions

- The travel cams are set to control the open and closed position of the actuator. See below procedure for corresponding actuator model:  
 OME-1, OME-A and OME-AM : The position is set to stop the travel of the actuator when the travel cams activate the limit switch.  
 OME-2 to OME-8 : The position is set to stop the travel of the actuator when the travel cams don't activate the limit switch.
- The standard is with two limit switches (LS1 & LS2).  
 LS1 & LS2: LS1 is for open and LS2 is for close. They limit the fully-open and fully-closed travel range by disabling the electric motor.  
 LS3 & LS4 are optional. They allow external equipment to confirm that the valve has reached the fully-open and fully-closed positions.



- Dry contact sequence diagram (LS3 & LS4)

【 OME-1, OME-A, OME-AM 】

Symbol	Contact	Position	
		100%	0%
LS4 (Dry Contact)	A - F	—————	-----
	A - E	-----	—————
LS3 (Dry Contact)	A - C	-----	—————
	A - B	—————	-----

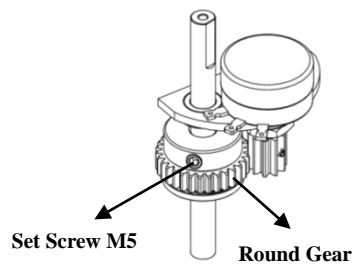
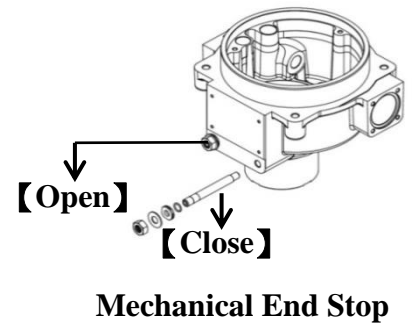
【 OME-2 ~ OME-8 】

Symbol	Contact	Position	
		100%	0%
LS4 (Dry Contact)	D - F	-----	—————
	D - E	—————	-----
LS3 (Dry Contact)	A - C	-----	—————
	A - B	—————	-----

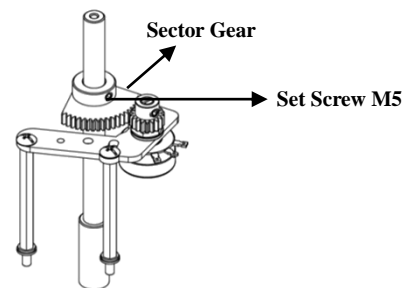
- Solid line (————) : Dry contact in conductive state.
- Dotted line (-----) : Dry contact in non-conductive state.

## 4.4.2 Adjustment Steps

- a. Turn power off.
- b. Loosen the locknut and unwind both Open and Close Mechanical end stop screws based on the actuator model listed below.
  - OME-2 to OME-6: 25 turns
  - OME-7 to OME-8: Remove the mechanical end stop screws completely.
- c. For modulating units, loosen the M5 set screw on the sector gear or round gear.



【OME-1, OME-A and OME-AM】



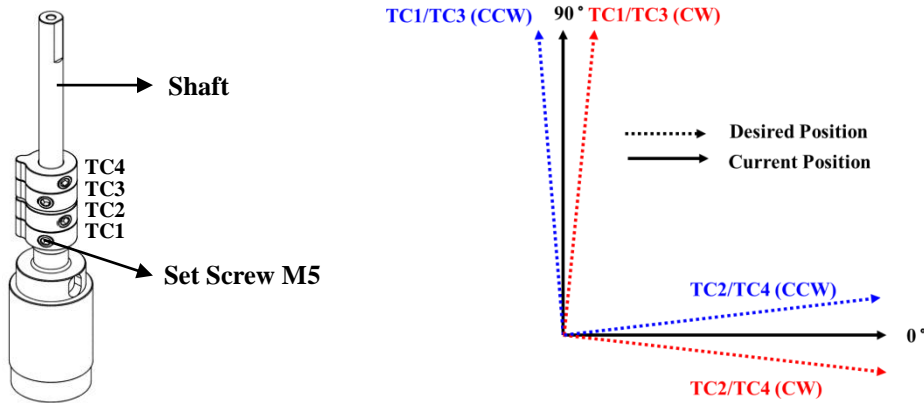
【OME-2 to OME-8】

- d. Adjust the **fully-open** position
  - ⚠ **OME-A is not available for the manual device setting.**
  - 1. Use the manual override to turn the valve to the fully-open position.
  - 2. Remove the cover.
    - OME-1, OME-A and OME-AM: Loosen the M5 set screw of cam TC1 with a 2.5 mm Allen Key.
    - OME-2 to OME-8: Loosen the M3 set screw of cam TC1 with a 2.5 mm Allen Key.
  - 3. Adjust the travel cam based on the corresponding actuator model below:
    - OME-A and OME-AM**
      - Rotate the cam TC1 **clockwise** to contact the switch arm.
      - Slowly rotate the cam TC1 **clockwise** until a light click is heard.
    - OME-1**
      - Rotate the cam TC1 **counter-clockwise** to contact the switch arm.
      - Slowly rotate the cam TC1 **counter-clockwise** until a light click is heard.
    - OME-2 to OME-8**
      - Rotate the cam TC1 **counter-clockwise** to contact the switch arm.
      - Slowly rotate the cam TC1 **counter-clockwise** until a light click is heard.
  - 4. Securely tighten the M5 / M3 set screw and apply power to check if the fully-open position is correct. If it is not correct, please repeat steps 1 to 3.
    - ⚠ **Do not remove the cover to supply power if the actuator is located in a hazardous environment. If so, please operate the unit manually.**
  - 5. Use the same method to reset the cam TC3.
    - ⚠ **Adjust cam TC3 so it trips just before cam TC1 does.**

6. After the adjustment is completed, check again that the M5 set screw is securely tightened.
- e. Adjust the **fully-closed** position
1. Use the manual override to turn the valve to the fully-closed position.
  2. OME-A, OME-AM and OME-1: Loosen the M5 set screw on switch TC2 with a 2.5 mm Allen key.  
OME-2 to OME-8: Loosen the M3 set screw of cam TC2 with a 2.5 mm Allen Key.
  3. Adjust the travel cam based on the corresponding actuator model below:  
**OME-A and OME-AM**
    - Rotate the cam TC2 **counter-clockwise** to contact the switch arm.
    - Slowly rotate the cam TC2 **counter-clockwise** until a light click is heard.**OME-1**
    - Rotate the cam TC2 **clockwise** to contact the switch arm.
    - Slowly rotate the cam TC2 **clockwise** until a light click is heard.**OME-2 to OME-13**
    - Rotate the cam TC2 **clockwise** to contact the switch arm.
    - Slowly rotate the cam TC2 **clockwise** until a light click is heard.
  4. Securely tighten the M5 / M3 set screw and apply power to check if the fully-closed position is correct. If it is not correct, please repeat steps 1 to 3.  
**⚠ Do not remove the cover to supply power if the actuator is located in a hazardous environment. If so, please operate the unit manually.**
  5. Use the same method to reset the cam TC4.  
**⚠ Adjust cam TC4 so it trips just before cam TC2 does.**
  6. After the adjustment is completed, check again that the M5 set screw is securely tightened.

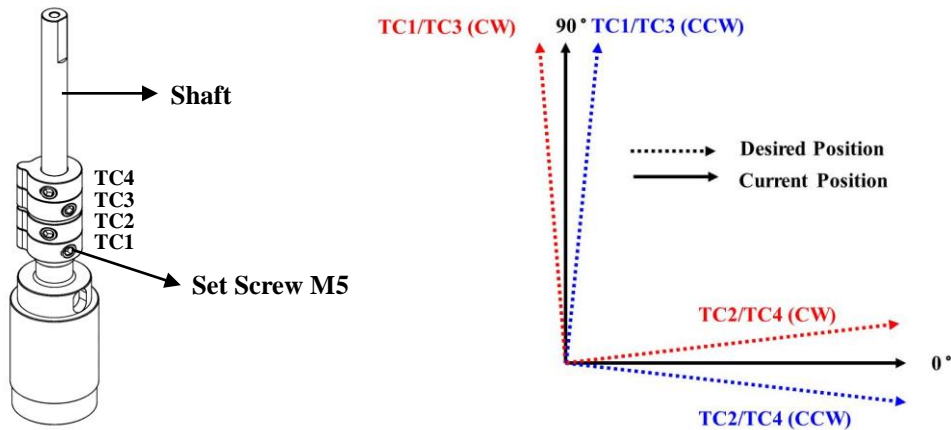
# 【 OME Series 】 Explosion-proof Quarter-turn Valve Actuator

## OME-A and OME-AM



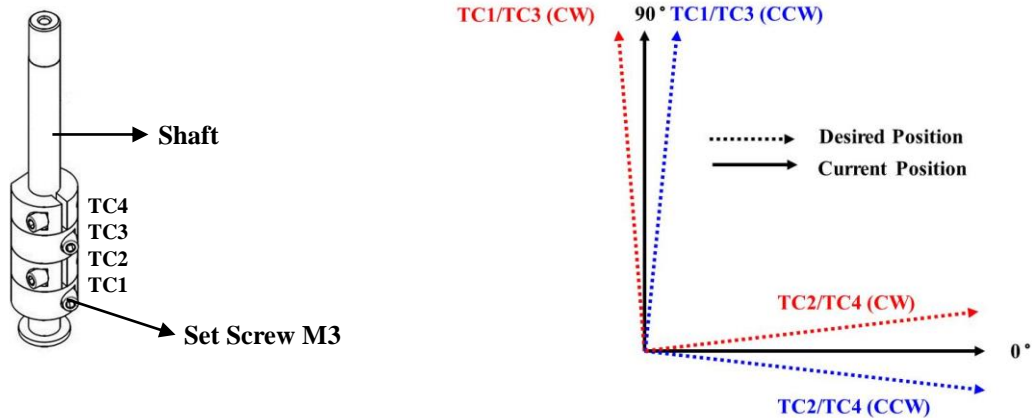
- TC2 “CLOSE” Clockwise: increase closing degree.
- TC4 (Optional Item) Counter-clockwise: decrease closing degree.
- TC1 “OPEN” Clockwise: decrease opening degree.
- TC3 (Optional Item) Counter-clockwise: increase opening degree.

## OME-1



- TC2 “CLOSE” Clockwise: decrease closing degree.
- TC4 (Optional Item) Counter-clockwise: increase closing degree.
- TC1 “OPEN” Clockwise: increase opening degree.
- TC3 (Optional Item) Counter-clockwise: decrease opening degree.

## OME-2 to OME-8



- TC2 “CLOSE”      ↻ Clockwise: decrease closing degree.
- TC4 (Optional Item)      ↺ Counter-clockwise: increase closing degree.
- TC1 “ OPEN”      ↻ Clockwise: increase opening degree.
- TC3 (Optional Item)      ↺ Counter-clockwise: decrease opening degree.

f. Supply power to the fully-open position. Screw in the Open (left) Mechanical end stop screw until it bottoms out (refer to P.18 4.4.2), then turn back for 1/2-1 turn based on the actuator model listed below.

**⚠ Do not remove the cover to supply power if the actuator is located in a hazardous environment. If so, for the following steps, operate the unit manually.**

- OME-2 to OME-3 : 1 turn.
- OME-4 to OME-8 : 1/2 turn.

g. Tighten the locknut.

h. Supply power to the fully-closed position. Screw in the Close (right) Mechanical end stop screw until it bottoms out (refer to P.18 4.4.2), then turn back for 1/2-1 turn based on the actuator model listed below.

**⚠ Do not remove the cover to supply power if the actuator is located in a hazardous environment. If so, for the following steps, operate the unit manually.**

- OME2 to OME-3 : 1 turn.
- OME4 to OME-8 : 1/2 turn.

i. Tighten the locknut.

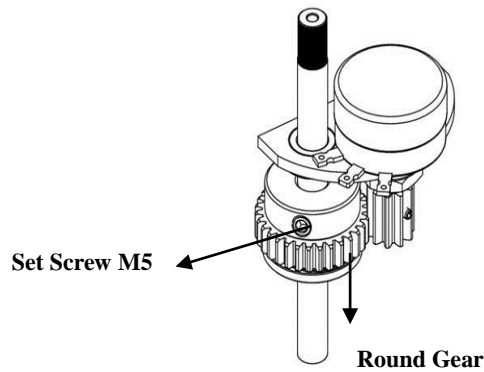
j. Supply the power to confirm that the limit switches achieve the fully open-close stroke.

## 【OME Series】 Explosion-proof Quarter-turn Valve Actuator

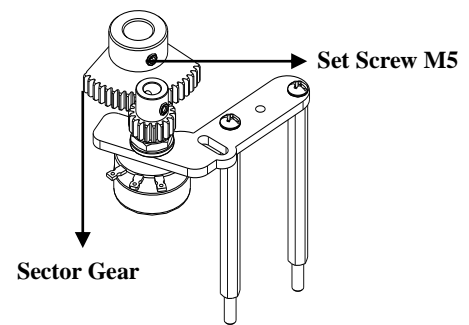
k. When choosing modulating units or VR:

Supply power to run the actuator to the fully-closed position. Adjust the gear and the set screws based on the actuator model listed below.

OME-A and OME-AM	Rotate the round gear counter-clockwise to the end and tighten the M5 set screw.
OME-1	Rotate the round gear clockwise to the end and tighten the M5 set screw.
OME-2 to OME-8	Rotate the sector gear clockwise to the end and tighten the M5 set screw.



**【OME-1, OME-A and OME-AM】**



**【OME-2 to OME-8】**

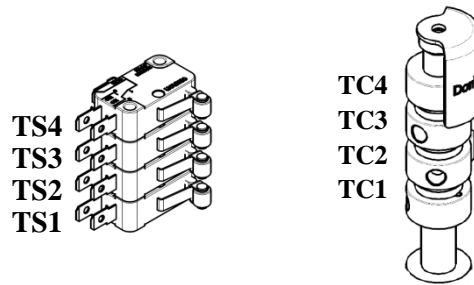
l. The setting procedure is now completed.



## 5 Torque Switch

### 5.1 Instructions

- The standard is with two torque switches (TS1 & TS2) and cams (TC1 & TC2). TS3 & TS4 can be added as feedback dry contacts.  
 TS1 & TS2 : TS1 is for open and TS2 is for close. They torque switch the open and closed travel range by provides torque overload protection.  
 TS3 & TS4 are optional. They allow external equipment to confirm that the valve has reached the torque limit value arbitrary.



- Dry contact sequence diagram (TS3 & TS4)

Symbol	Contact	Torque	
		Overload (Open)	Overload (Close)
TS4 (Dry Contact)	COM-NC	—	- - - -
	COM-NO	- - - -	—
TS3 (Dry Contact)	COM-NC	- - - -	—
	COM-NO	—	- - - -

- Solid line (—): Dry contact in conductive state.
- Dotted line (- - - -): Dry contact in non-conductive state.

## 6 Modulating Control Board Adjustment

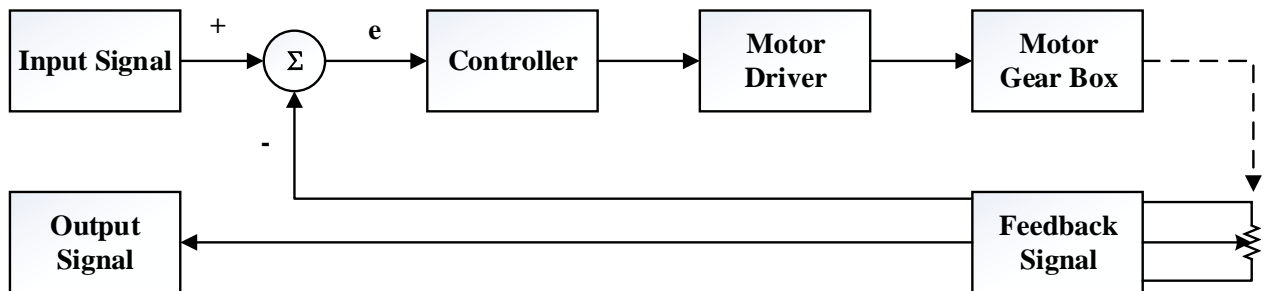
### 6.1 Modulating Control Board (OME-1, OME-A & OME-AM)

#### 6.1.1 Surface

The layout is based on 110 / 220 V AC voltage.

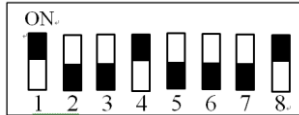


#### 6.1.2 Procedure



## 6.1.3 Dip Switch Setting (SW1)

The Dip Switch SW1 is a combination of 8 switches and equally divided in two rows. It is utilized to select signal type of input as well as output and fail positioning when the signal input fails. The sliders can be placed at either ON (upper) or OFF (lower) state position. Factory settings are switches 1, 4, 8 at ON state and switches 2, 3, 5, 6, 7 at OFF state.



Please follow steps below if an adjustment of these settings are required.

⚠ **Please restart the actuator after adjusting.**

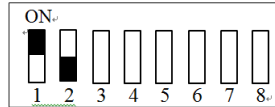
	1	2	3	4	5	6	7	8
<b>Factory Setting</b>	ON	OFF	OFF	ON	OFF	OFF	OFF	ON
4 - 20 mA input	ON	OFF						
1 - 5 V input	OFF	OFF						
2 - 10 V input	OFF	ON						
4 - 20 mA output			OFF	ON	OFF			
2 - 10 V output			ON	OFF	ON			
Input 20 mA / 5 V / 10 V to operate valve to fully-open position						OFF		
Input 20 mA / 5 V / 10 V to operate valve to fully-closed position						ON		
When signal input failed, driving valve to fully-open (when S6 sets at “ ON”).							OFF	ON
When signal input failed, driving valve to fully-closed (when S6 sets at “ ON”).							ON	OFF
When signal input failed, driving valve to fully-closed (when S6 sets at “ OFF”).							OFF	ON
When signal input failed, driving valve to fully-open (when S6 sets at “ OFF”).							ON	OFF
When signal input failed, valve stays at the last position.							ON	ON

a. Input Signal Setting (1 - 2)



Input Signal	State of Switch
4 - 20 mA	1 at ON, 2 at OFF
1 - 5 V	1 at OFF, 2 at OFF
2 - 10 V	1 at OFF, 2 at ON

b. Input Signal Setting (3 - 5)

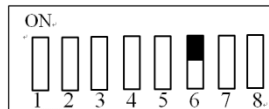


Input Signal	State of Switch
4 - 20 mA	3 at OFF, 4 at ON, 5 at OFF
2 - 10 V	3 at ON, 4 at OFF, 5 at ON

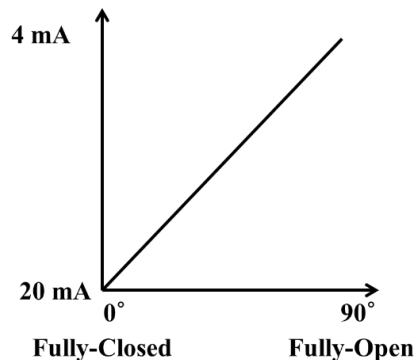
c. Setting of fail position when input signal fails (Switches 6 - 8)

- ⚠ **The input signal type is set by switches 1 and 2. And switch 6 is used to set the corresponding relationship between the input signal value and the angle of the actuator.**
- ⚠ **If you require S6 to be set at ON and Clockwise to open, please specify in purchase order to modify the internal wiring during production; otherwise, the output signal will be opposite to the input signal.**

**When S6 is set to ON**



- The program defines 20 mA or 5 V or 10 V as a command for fully-closed positioning. The line graph below shows the signal level and the corresponding position of actuator.



- When a low signal value is received, the actuator operates toward fully-open position and when a high signal value is received, the actuator operates toward fully-closed position.

Input Signal	Fully-Open ( 90° )	Fully-Closed ( 0° )
4 - 20 mA	4 mA	20 mA
1 - 5 V	1 V	5 V
2 - 10 V	2 V	10 V

## 【OME Series】 Explosion-proof Quarter-turn Valve Actuator

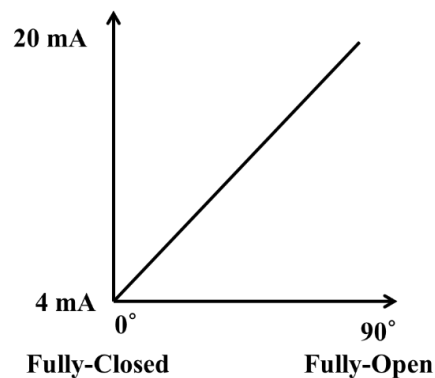
- The selection of the fail position while the input signal failed, please follow table below :

Signal Failed Position	State of Switch
Fully-Open ( 90° )	7 at OFF, 8 at ON
Fully-Closed ( 0° )	7 at ON, 8 at OFF
The Last Position	7 at ON, 8 at ON

When S6 is set to **OFF**



- The program defines 20 mA / 5 V / 10 V as a command for fully-open positioning. The line graph below shows the signal level and the corresponding position of the actuator.



- When a high signal value received, the actuator operates toward fully-open position and when a low signal value received, the actuator operates toward fully-closed position.

Input Signal	Fully-Open ( 90° )	Fully-Closed ( 0° )
4 - 20 Ma	20 mA	4 mA
1 - 5 V	5 V	1 V
2 - 10 V	10 V	2 V

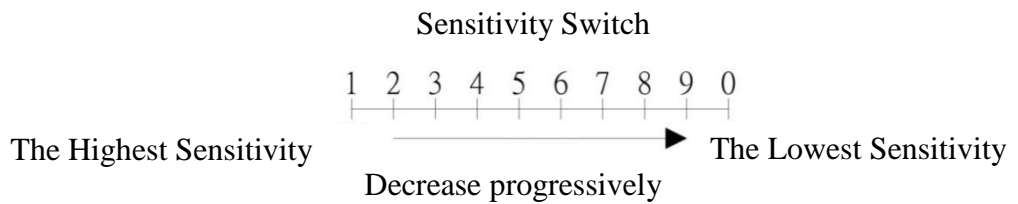
- The selection of the fail position while the input signal failed, please follow table below:

Signal Failed Position	State of Switch
Fully-Open ( 90° )	7 at ON, 8 at OFF
Fully-Closed ( 0° )	7 at OFF, 8 at ON.
The Last Position	7 at ON, 8 at ON.

## 6.1.4 Sensitivity Switch Setting (SW2)

When the sensitivity setting is higher, the resolution of the input signal will be higher, and relatively the dead band will be smaller. Excessive high sensitivity setting may cause the actuator to keep hunting and could not run to the desired position which will lead to the thermostat inside the motor to trip because of overheating, and finally the actuator will shut down. If this situation happens, it is suggested to turn down the sensitivity setting.

### a. Setting



- When switched to “1” : The Highest Sensitivity.
- When switched to “0” : The Lowest Sensitivity.

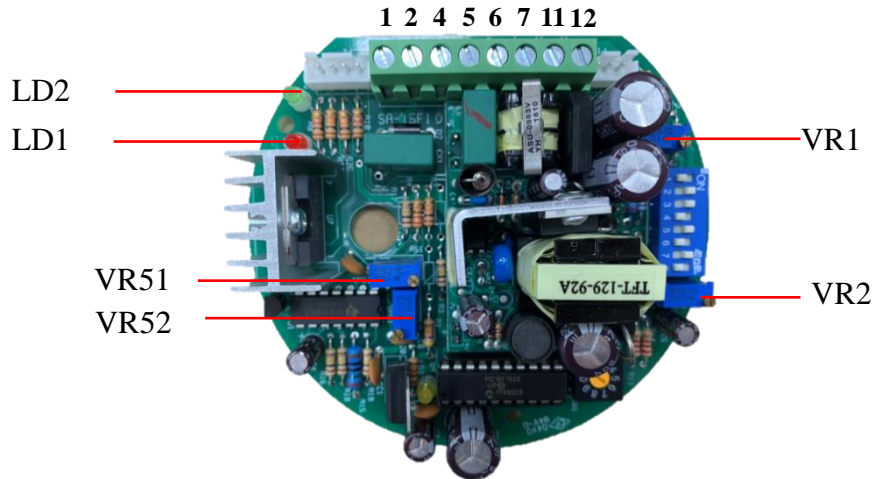
### b. Original Factory Setting

- OME-1, OME-A & OM-AM : 3.



### 6.1.5 Signal Setting for Open and Close Position

- ⚠ **These settings are set and calibrated at the factory. Be sure to reset the Signal Setting for Open and Close Position when recalibrating TC1 and TC2 for fully-open and fully-closed position or other signal types are required.**
- ⚠ **Use a multimeter to measure the output signal in accordance with the selected signal type.**
  - VR1, VR51, VR2 and VR52 are used to adjust signal input as well as output.



Variable Resistor	Signal type to be adjusted	Position to be adjusted
VR1	To adjust 5 V, 10 V, 20 mA input signal	Fully-Open
VR51	To adjust 10 V, 20 mA output signal	Fully-Open
VR2	To adjust 1 V, 2 V, 4 mA input signal	Fully-Closed
VR52	To adjust 2 V, 4 mA output signal	Fully-Closed

Lamp	Status
LD1	Fully-closed
LD2	Fully-open

- ⚠ **If VR51 and VR52 are adjusted, VR1 and VR2 must be adjusted accordingly.**

- **Signal setting for Fully-OPEN position**

Rotate **VR1** counter-clockwise until a light click is heard, then apply 5 V, 10V or 20mA to the modulating board. After that, slightly rotate **VR1** clockwise until the LD2 goes on and then adjust **VR51** to complete the setting. When adjusting **VR51**, if the LD2 is off, keep rotating **VR1** clockwise until the LD2 goes on.

VR51 Clockwise: decreasing signal value.  
 Counter-clockwise: increasing signal value.

- **Signal setting for Fully-CLOSED position**

Rotate **VR2** clockwise until a light click is heard, then apply 1 V, 2 V or 4 mA to the modulating board. After that, slightly rotate **VR2** counter-clockwise until the LD1 goes on and then adjust **VR52** to complete the setting. When adjusting **VR52**, if the LD1 is off, keep rotating **VR2** counter-clockwise until the LD1 goes on.

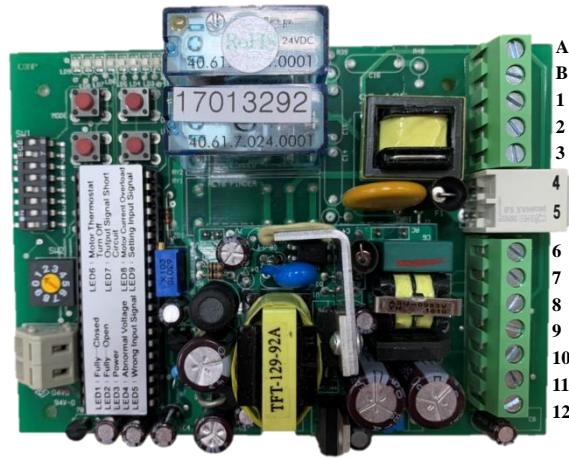
VR52 Clockwise: decreasing signal value.  
 Counter-clockwise: increasing signal value.

**After completing the above settings, press “SET” button to quit local setting.**

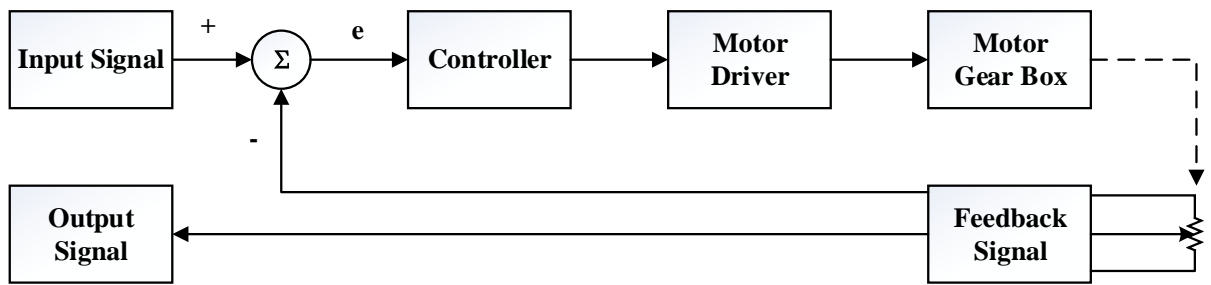
## 6.2 Modulating Control Board (OME-2 to OME-8)

### 6.2.1 Surface

The layout is based on 110 / 220 V AC voltage



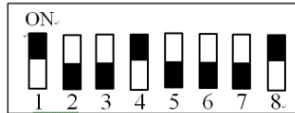
### 6.2.2 Programming





## 6.2.3 Dip Switch Setting (SW1)

The Dip Switch SW1 is a combination of 8 switches and equally divided in two rows. It is utilized to select signal type of input as well as output and fail positioning when the signal input fails. The sliders can be placed at either ON (upper) or OFF (lower) state position. Factory settings are switches 1, 4, 8 at ON state and switches 2, 3, 5, 6, 7 at OFF state.



	1	2	3	4	5	6	7	8
<b>Factory Setting</b>	ON	OFF	OFF	ON	OFF	OFF	OFF	ON
4 - 20 mA input	ON	OFF						
1 - 5 V input	OFF	OFF						
2 - 10 V input	OFF	ON						
4 - 20 mA output			OFF	ON	OFF			
2 - 10 V output			ON	OFF	ON			
Close direction setting: CW						OFF		
Close direction setting: CCW						ON		
When signal input failed, driving valve to fully-open							ON	OFF
When signal input failed, driving valve to fully-closed							OFF	ON
When signal input failed, valve stays at the last position							ON	ON
							OFF	OFF

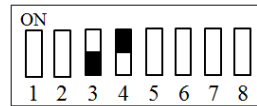
a. Input signal setting (Switches 1 - 2)



Input Signal	State of Switch
4 - 20 mA	1 at ON, 2 at OFF
1 - 5 V	1 at OFF, 2 at OFF
2 - 10 V	1 at OFF, 2 at ON

# 【OME Series】 Explosion-proof Quarter-turn Valve Actuator

b. Output signal setting (Switches 3 - 5)



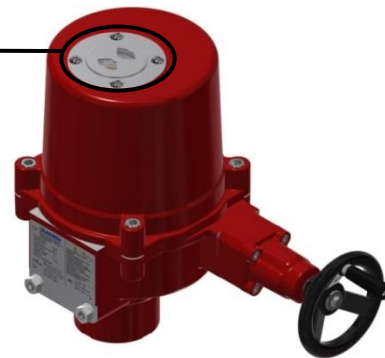
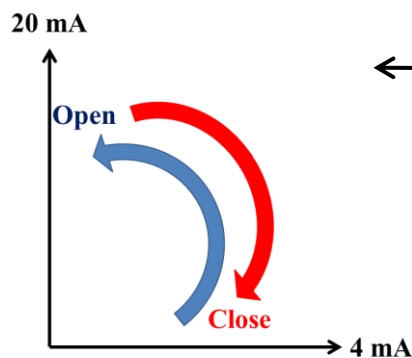
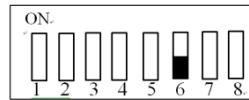
- Output signal can be fine-tuned by VR2.
- When resetting the Output Signal, be sure to fine-tune VR2 to match the setting either 2 - 10 V or 4 - 20 mA.

Output Signal	State of Switch
4 - 20 mA	3 at OFF, 4 at ON, 5 at OFF
2 - 10 V	3 at ON, 4 at OFF, 5 at ON

c. Close direction setting (switch 6)

- When S6 is set to OFF, the close direction is CW (clockwise).
  - When S6 is set to ON, the close direction is CCW (counterclockwise).
- ⚠ The input signal type is set by switches 1 and 2. And switch 6 is used to set the corresponding relationship between value of input signal and operation direction of actuator as shown in the figure below, e.g., 4 - 20 mA input signal.**
- ⚠ The operating direction of the actuator has been set and calibrated at the factory. Be sure to change the direction of the position indicator if different operating direction is required.**

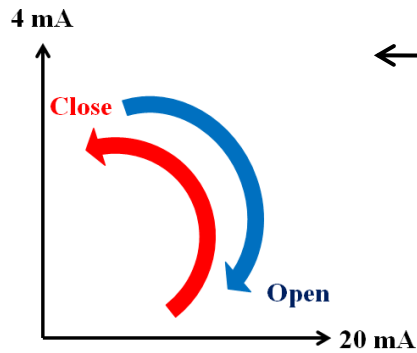
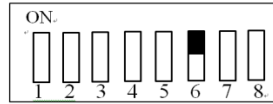
When S6 is set to **OFF**



Position Indicator (Fully-Open→Fully-Closed)	Operating Position	Input Signal	LED	Output Signal
<b>CW</b>	Fully-Closed	1 V, 2 V, 4 mA	LD1 ON	2 V, 4 mA
	Fully-Open	5 V, 10 V, 20 mA	LD2 ON	10 V, 20 mA

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When S6 is set to **ON**



Position Indicator (Fully-Open→Fully-Closed)	Operating Position	Input Signal	LED	Output Signal
<b>CCW</b>	<b>Fully-Closed</b>	1 V, 2 V, 4 mA	<b>LD1 ON</b>	2 V, 4 mA
	<b>Fully-Open</b>	5 V, 10 V, 20 mA	<b>LD2 ON</b>	10 V, 20 mA

d. Failed position setting while the input signal failed. (switches 7 and 8)

- When a low signal value is received, the actuator operates toward fully-open position and when a high signal value is received, the actuator operates toward fully-open position.

Input Signal	Fully-Open	Fully-Closed
4 - 20 mA	4 mA	20 mA
1 - 5 V	1 V	5 V
2 - 10 V	2 V	10 V

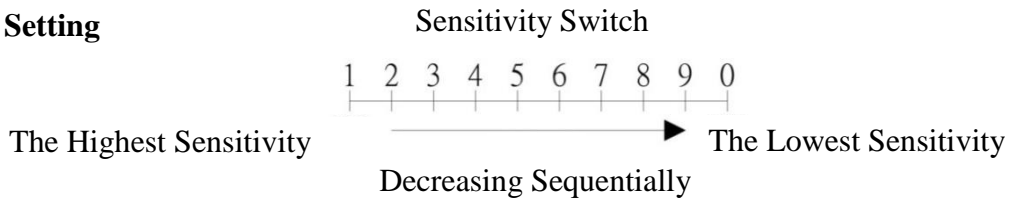
- The selection of the fail position while the input signal failed, please follow table below:

Signal Failed Position	State of Switch
Fully-Open	7 at ON, 8 at OFF
Fully-Closed	7 at OFF, 8 at ON
The Last Position	7 at ON, 8 at ON 7 at OFF, 8 at OFF

### 6.2.4 Sensitivity Switch Setting (SW2)

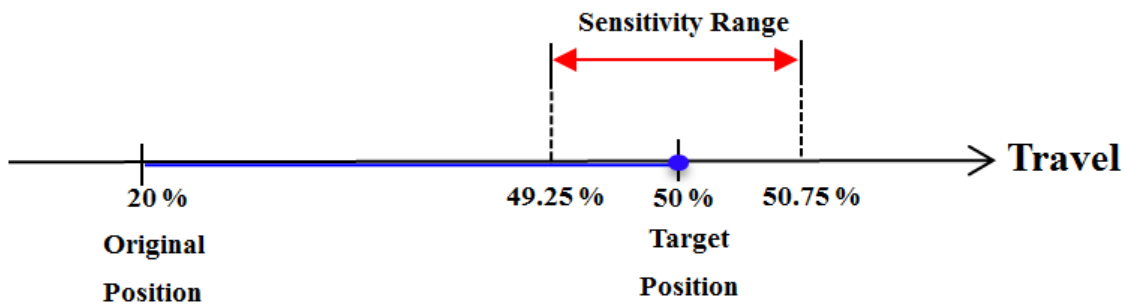
When the value of sensitivity (%) is lower, the resolution of the input signal will be higher, and relatively the dead band will be smaller. Excessive high resolution may cause the actuator to keep hunting and could not run to the desired position which will lead to the thermostat inside the motor to trip because of overheating, and finally the actuator will shut down. If this situation happens, it is suggested to adjust the sensitivity setting.

**a. Setting**



<b>Setting Value</b>	1	2	3	4	5	6	7	8	9	0
<b>Sensitivity (%)</b>	0.25	0.5	0.75	1	1.25	1.5	1.75	2	2.25	2.5

- When switched to “1”: The Highest Sensitivity.
- When switched to “0”: The Lowest Sensitivity.
- For example: When the sensitivity switch is set to “3” (0.75%) and the target position is 50%, the valid sensitivity range will be from 49.25% to 50.75% (50% ± 0.75%) as shown in the figure below.



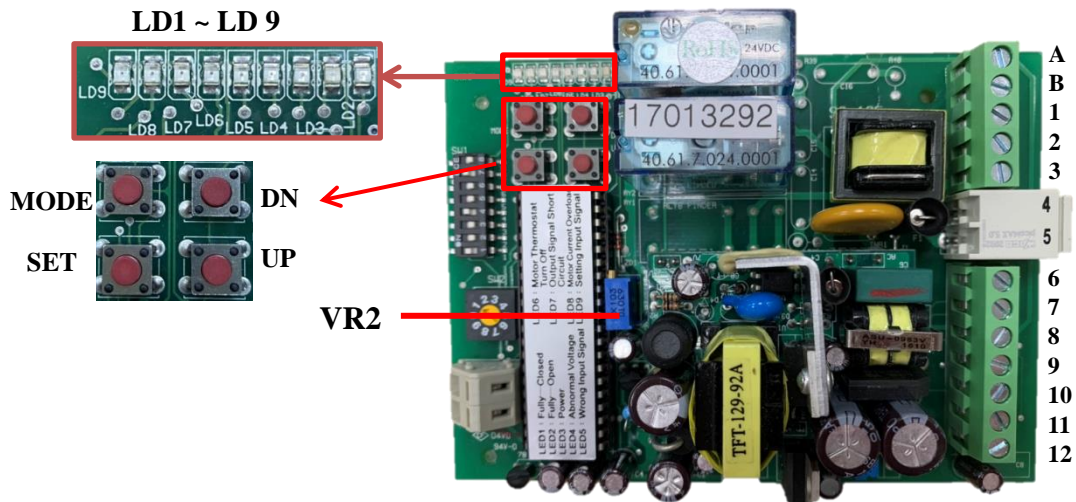
**b. Original Factory Setting**

- OME-2 to OME-8: 3



### 6.2.5 Signal Setting for Open and Close Position

- ⚠ **These settings are set and calibrated at the factory. Be sure to reset the Signal Setting for Open and Close Position when recalibrating TC1 and TC2 for fully-open and fully-closed position or other signal types are required.**
- ⚠ **Use a multimeter to measure the output signal in accordance with the selected signal type.**
  - Using UP, DN, MODE, SET buttons to set the open and close position.



Lamp	Status	Lamp	Status
LD1	Fully-closed	LD6	Motor thermal protector activated
LD2	Fully-open	LD7	Output signal short circuit
LD3	Power	LD8	Overcurrent in motor
LD4	Abnormal input voltage	LD9	Local setting mode
LD5	Wrong input signal		

Press and hold "SET" button for 2 seconds until LD 9 lights to enter local setting mode.

- **Signal setting for Fully-OPEN position**
  - a. Press and hold "UP" button to operate the actuator to open until it has reached fully-open position and LD2 lights and then input a signal 5 V or 10 V or 20 mA.
  - b. Press "MODE" button for 2 seconds until LD2 flashes to complete the setting of fully-open position.
- **Signal setting for Fully-CLOSED position**
  - a. Press and hold "DN" button to operate the actuator to close until it has reached fully-closed position and LD1 lights and then input a signal 1 V or 2 V or 4 mA.
  - b. Press "MODE" button for 2 seconds until LD1 flashes to complete the setting of fully-closed position.

⚠ See below description for VR2 adjustment:

- VR2
- ↻ Clockwise: decreasing signal value.
  - ↻ Counter-clockwise: increasing signal value.

**After completing the above settings, press "SET" button to quit local setting.**

### 6.2.6 Troubleshooting of Modulating Controller (OME-2 to OME-8)

- ⚠ In case LD3 does not light or any of LD4 to LD9 lights when the actuator is motorized, please refer to steps below for basic troubleshooting.**
- ⚠ Please do the troubleshooting when LD4 to LD8 lights, and then restart the power to turn the lights off.**

Status of LEDs	Possible problems	Solution
LD3 does not go on	<ul style="list-style-type: none"> <li>a. No power supplied.</li> <li>b. Incorrect connection of the lines #8, #9 of potentiometer.</li> <li>c. Modulating controller failed.</li> </ul>	<ul style="list-style-type: none"> <li>a. Check the power supply as well as wires connected to terminals #4 &amp; #5, please refer to 6.2 (P.30)</li> <li>b. Verify the actuator is wired properly as per wiring diagram.</li> <li>c. Send back to factory for inspection.</li> </ul>
LD4 goes on (for 24V units)	The voltage is under 20.4V.	Verify that the input voltage is within the allowable voltage deviation.
LD5 goes on	<ul style="list-style-type: none"> <li>a. An incorrect signal type inputted. For example, preset with 2-10 V input but input 4-20 mA.</li> <li>b. Input a voltage exceeding the rated. For example, preset with 2-10 V input but input 13.5V.</li> <li>c. An incorrect signal type inputted. For example, preset with 4 - 20 mA input but input 2 - 10V. In this case, the actuator still works in 2 - 7V. When the signal is over 7.2 V, the LD5 lights.</li> </ul>	Verify if the switch 1 is set in accordance with the type of input signal. Please refer to 6.2.3 (P.31 - P.33).
LD6 goes on	Motor thermal protector started.	<ul style="list-style-type: none"> <li>a. The duty cycle exceeded the rated, please refer to 3.5 (P.10).</li> <li>b. The contact of motor thermal protector (MOT) disconnected.</li> </ul>

## 【OME Series】 Explosion-proof Quarter-turn Valve Actuator

Status of LEDs	Possible problems	Solution
LD7 goes on	<ul style="list-style-type: none"> <li>a. Signal output short circuits.</li> <li>b. Both DIP switch #3 and #4 are set at ON or OFF.</li> </ul>	<ul style="list-style-type: none"> <li>a. Verify if the signal output with reversed polarity. The negative pole should be connected to terminal #11 and the positive pole should be connected to terminal #12.</li> <li>b. Reset the dip switches per actual output signal. Please refer to 6.2.3 (P.31 - P.33)</li> </ul>
LD8 goes on	Motor over-current.	<ul style="list-style-type: none"> <li>a. Duty cycle exceeded the rated, please refer to 3.6 (P.11) and reduce the duty rating.</li> <li>b. Check the load.</li> <li>c. Check if the motor rotor is locked (For example: Valve is stuck by foreign objects).</li> </ul>
LD9 goes on	Local setting mode - Setting position for open & close.	After completing the settings, press “SET” button to quit.

## 7 Troubleshooting

### Floating Controller

#### Motor does not operate or overheats

Possible problems	Solution
a. The limit switch for fully-closed does not trip.	a. Operate the actuator manually to fully-closed position and confirm if the limit switch trips.
b. Motor shaft or bearing were stuck.	b. Replace a new motor.
c. Power applied to terminals #3 and #4 simultaneously (Abnormal Wiring).	c. Follow the wiring diagram inside the cover to connect wires and make sure the wiring is correct.
d. Jammed pipe or valve seat stuck.	d. Check if any blockage or obstacle in pipe and remove.
e. The seating torque of valve increased caused by oxidized seals and has resulted in a torque overload on actuator.	e. Manual operate to check if it can be operated, if not, replace the valve.

#### The actuator operates but the motor is hot.

Possible problems	Solution
a. The mechanical stop screws ran into the output drive gearing.	a. Reset the mechanical end stops and travel cams, please refer to 4.4.2 (P.18 - P.22).
b. A torque overload caused by the valve.	b. This problem happened frequently after valve operating for a long time. It is suggested to replace with a new valve.
c. Wrong power supply.	c. Check the power supply.
d. Actuator operates too frequently and exceeded duty cycle rating.	d. Adjust the system bandwidth or reduce the frequency of operation, please refer to 3.6 (P.11).

#### To control two or more actuators, sometimes the actuator works abnormally and the motor is getting hot.

Possible problems	Solution
Parallel connection.	a. Install parallel board (Optional). b. Please contact your distributor to receive the wiring diagram for parallel connection.



## 【OME Series】 Explosion-proof Quarter-turn Valve Actuator

### The valve does not operate no matter under either electrical operation or manual operation.

Possible problems	Solution
a. The actuator was mounted to the valve improperly.	a. Please refer to 4.2 (P.15) valve installation instructions.
b. The set screw of the cam loosened and resulted in that the travel end positions misaligned.	b. Readjust the mechanical end stops and limit switches, please refer to 4.4.2 (P.18 - P.22).
c. The torque of valve is larger than the torque of actuator.	c. Replace with a new valve or a larger size actuator.
d. The actuator was mounted to the valve improperly.	d. Disassemble the actuator from the valve and reassemble them to verify that they are installed properly.

### When power is on, LED indicators did not function.

Possible problems	Solution
a. Blown fuse.	a. Replace a new fuse.
b. PCB failed.	b. Replace a new PCB.
c. Wrong supply voltage.	c. Check the power supply.

### The capacitor is failed.

Possible problems	Solution
Worked in an environment out of the with stand able temperature range.	Please use the capacitor at temperature between -30 °C to +65 °C (-22 °F to +149 °F).

## Modulating Controller

The LED indicators (LD4 - LD9) flash. (OME-2 to OME-8)

Solution
Please refer to 6.2.6 (P.36).

The LED indication functions properly but the actuator could operate to fully-open as well as fully-closed, modulating control was out of function.

Possible problems	Solution
The input signal with a reversed polarity, it means a signal failure.	Verify if the negative pole of signal input connected to terminal #6 and the positive pole connected to terminal #7.

Modulating control was out of function.

Possible problems	Solution
a. Potentiometer failed and causes actuator out of control in some section or abnormal feedback.	a. Replace a new potentiometer.
b. Input wrong signal type.	b. Check if the input signal is correct, please refer to 6.1.3 (P.25 - P.27).
c. Modulating board failed and causes actuator cannot operate or only operate in a single direction.	c. Replace a new modulating board..

## 8 Warranty

Sun Yeh Ele. Co. Ltd warrants that for a period of twelve months from the date of manufacture it will either repair or replace, at its option, any of its products which prove to be defective in material or workmanship. This warranty does not cover damage resulting from causes such as abuse, misuse, modification or tampering by users. This warranty is extended only to the immediate purchaser of the Sun Yeh product and is not transferable. To obtain service under this warranty, the purchaser must first acquire a return authorization from Sun Yeh. Products must be returned to Sun Yeh under freight prepaid.

This warranty is in lieu of all other obligations, liabilities or expressed warranties. Any implied warranties, including any implied warranty of merchantability are hereby expressly excluded. In no event shall Sun Yeh be liable for special, incidental or consequential damages arising in connection with the use of its products, or for any delay in the performance of this warranty due to cause beyond its control.

## 9 Disposal

Please obey the local environment regulation for equipment scrapping.



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