

QTS OM-serie

QUARTER-TURN ELECTRIC ACTUATOR



IMPORTANT NOTICES & MAINTENANCE

- Make sure if the voltage is correct before wiring.
- Power off before distribution or for maintenance purpose.
- Lock tight the casting and conduit entrance after power distribution to prevent from dusting or water spoiling.
- The angle of electric actuators must not be below the horizon or stands upside down.
- Avoid the zone of gas or any chemical agent that might be explosive.
- When electric actuators need two sets of unit for simultaneously, please connect with the individual cable.
- Don't install in the complete vacuum space directly.
- The warranty period of our products is one year.
- Actuators should be placed at clean and dry place for storage, and protected with outer carton from being affected by great temperature difference or serious vibration.

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◆ SPECIFICATIONS

【12V / 24V】

Model No.	Max Torque (Nm)	Speed (90°)	Motor Power	Motor Speed		12V DC/ AC			24V DC/ AC		
				12 V	24 V	Run	Start	Lock	Run	Start	Lock
BM-2	-	-	-	-	-	-	-	-	-	-	-
OM-A	50	20 s	10 W	3600/min	3600/min	0.5A	3.0A	3.0A	0.7A	0.8A	1.4A
OM-A-M	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	1000	46 s	220W	/	1800/min	/	/	/	7.0A	8.0A	30.0A
OM-8	1500	46 s	220W		1800/min				7.5A	8.0A	30.0A
OM-9	2000	58 s	220W		1800/min				7.0A	8.0A	30.0A
OM-10	2500	58 s	220W		1800/min				7.5A	8.0A	30.0A
OM-11	3000	58 s	250W		1800/min				10.0A	10.0A	26.0A
OM-12	3500	58 s	300W		1800/min				15.0A	15.0A	26.0A

【Single-Phase】

Model No.	Max Torque (Nm)	Speed (90°)		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
OM-A	50	20s	24s	10W	3600/min	3000/min	0.5A	1.5A	0.6A	0.3A	1.0A	0.5A
OM-A-M	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	2.2A	4.0A	3.0A
OM-13	4500	80s	95s	300W	1720/min	1420/min	3.5A	5.8A	8.0A	1.8A	2.8A	5.0A

Note: RUN-operating ; START-start to operate ; LOCK-When you input the power supply to the actuator, the actuator can't operate.



◆ SPECIFICATIONS (continued)

【Three-Phase】

Model No.	Max Torque (Nm)	Speed (90°)		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	0.6A	1.8A	1.1A	0.3A	1.0A	0.7A	0.4A	1.3A	0.7A
OM-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OM-A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OM-A-M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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
OM-13	4500	80 s	95 s	300W	1720/min	1450/min	1.0A	1.4A	3.8A	0.5A	0.8A	2.4A	0.5A	0.8A	2.3A

Note: RUN-operating ; START-start to operate ; LOCK-When you input the power supply to the actuator, the actuator can't operate.



◆ TRAVEL CAM & LIMIT SWITCHES ADJUSTMENT

The travel cams are set to control the open and closed position of the valve.

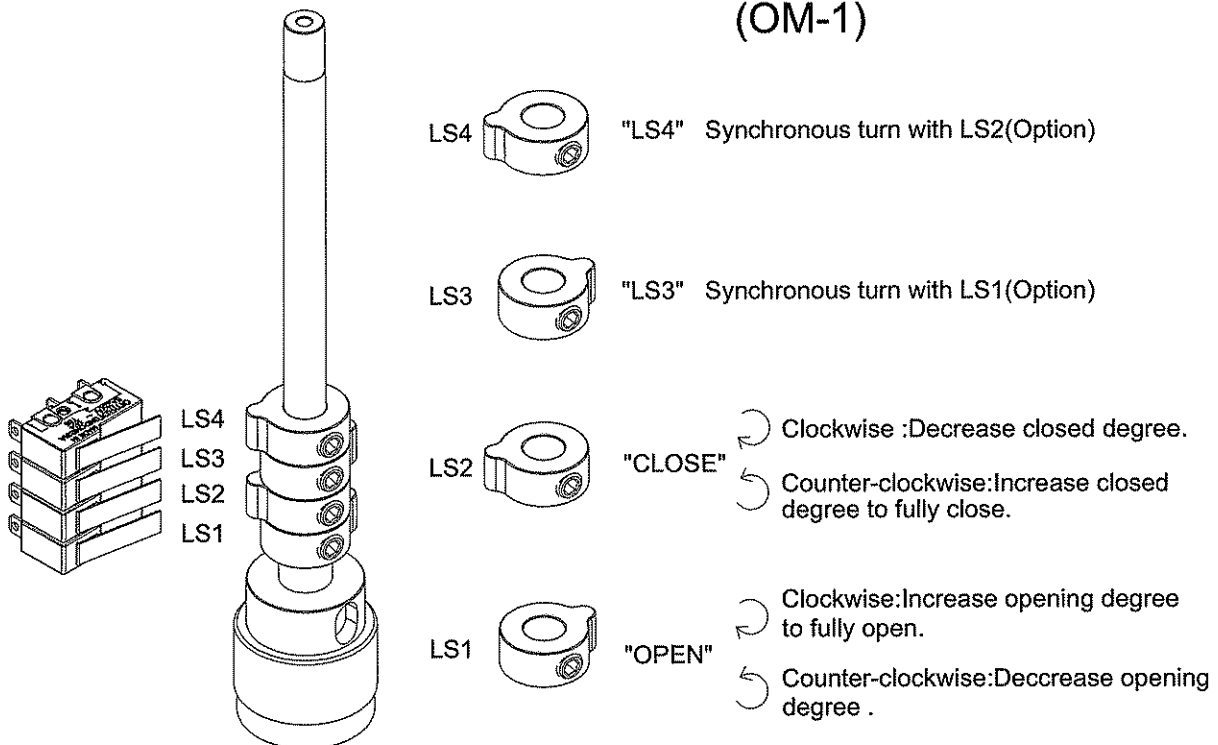
LS1 & LS2 limit the maximum range by disabling the electric motor.

LS3 & LS4 are optional. They allow external equipment to confirm that the valve has reached the fully open and fully closed positions.

IMPORTANT: If LS3 & LS4 are fitted, they should be set to operate before LS1 & LS2 prevent further travel.

A 2.5mm Hex Spanner will be required to adjust cam settings.

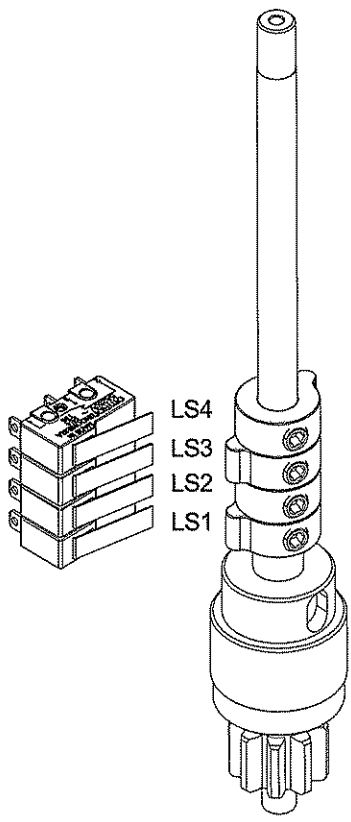
Adjust Travel Cam (OM-1)


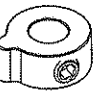



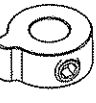






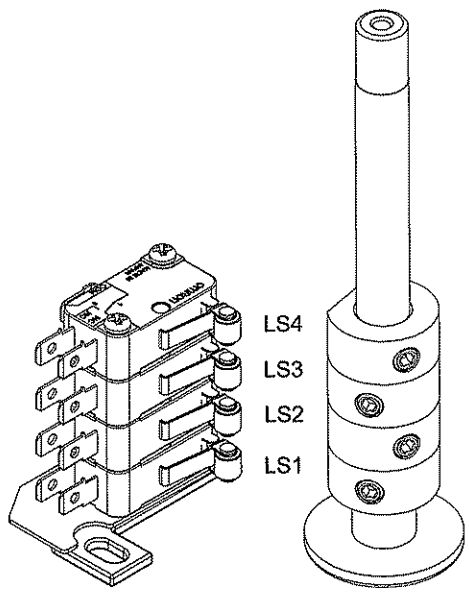
◆ TRAVEL CAM & LIMIT SWITCHES ADJUSTMENT

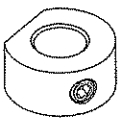
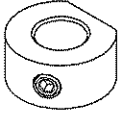
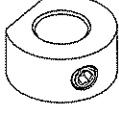


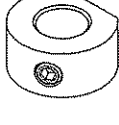


Adjust Travel Cam (OM-A)



- 
 LS4 "LS4" Synchronous turn with LS2(Optional)
- 
 LS3 "LS3" Synchronous turn with LS1(Optional)
- 
 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)

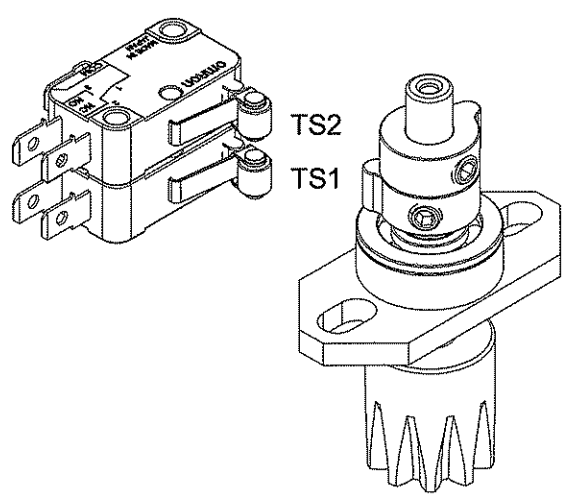


- 
 LS4 "LS4" Synchronous turn with LS2(Optional)
- 
 LS3 "LS3" Synchronous turn with LS1(Optional)
- 
 LS2 "CLOSE"
 -  Clockwise :Decrease closed degree.
 -  Counter-clockwise:Increase closed degree to fully close.
- 
 LS1 "OPEN"
 -  Clockwise:Increase opening degree to fully open.
 -  Counter-clockwise:Decrease opening degree .



◆ TRAVEL CAM & TORQUE SWITCHES ADJUSTMENT

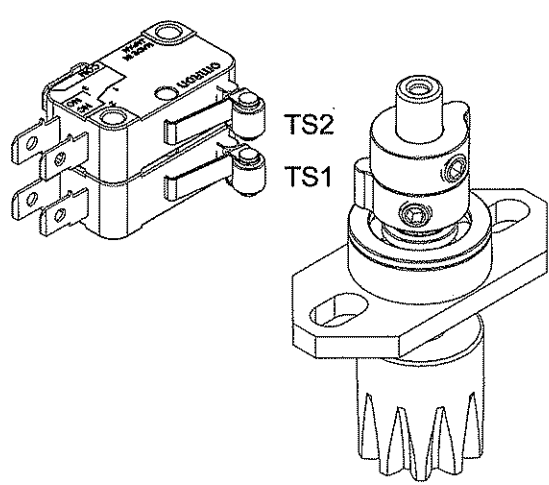
Adjust Travel Cam (OM-2~OM-8)



- 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

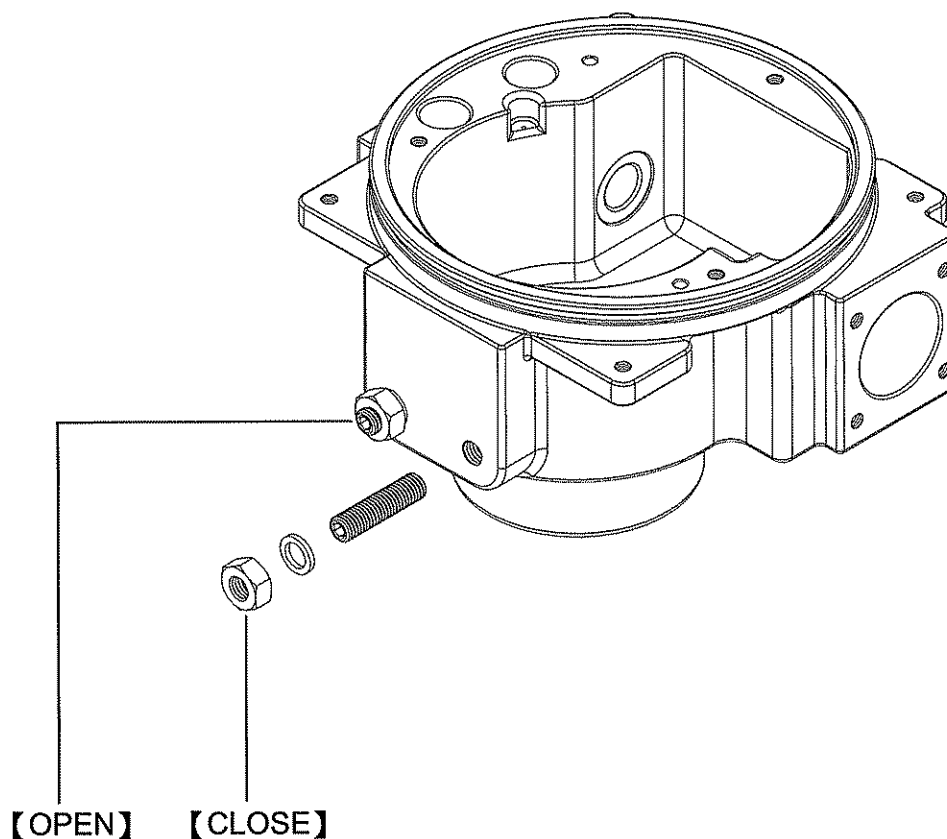
Mechanical stops should only be reached during manual operation. They are factory set, though in some cases adjustment may be required once a valve is fitted.

(1) For Electric Operation

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

(2) For Manual Operation

1. Remove power from actuator.
2. Loosen locknut and unwind it a few turns.
3. Unwind grub-screw.
4. Manually turn the actuator to desire limit position.
5. Screw in the grub-screw until it reached the internal cam, then reverse one cycle.
6. Tighten locknut.
7. Check that the electrical limit switches can still be reached.





◆ POTENTIOMETER

Potentiometers turn with the output shaft to provide feedback for position indication. Potentiometers that are intended to work with a modulating card have different resistance values, and are connected to different terminals.

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.

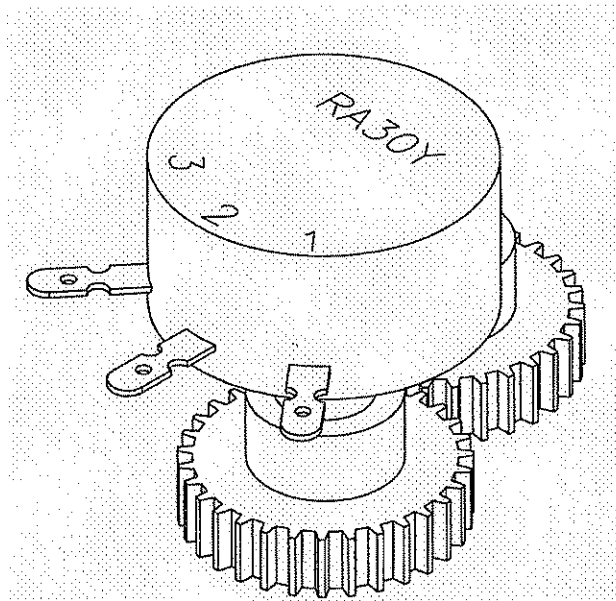
9, 10 → 0K Ohm.

When a valve is opened:

8, 9 → 0K Ohm

9, 10 → 5K Ohm.

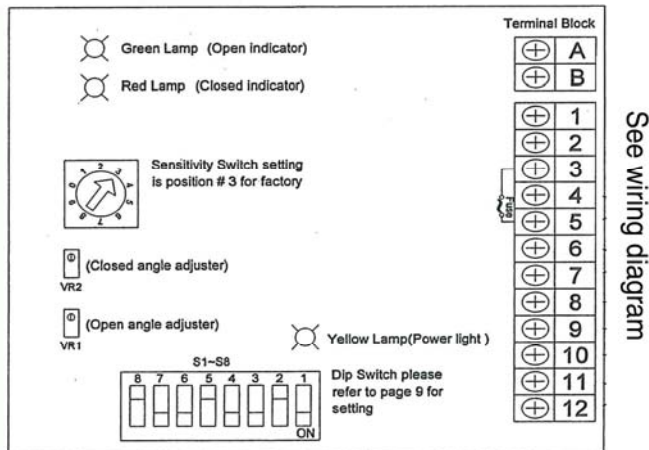
* Remark: OM-A is opposite. (i.e. 1,2,3 wired to 7,6,5; 1,2,3 wired to 10,9,8)



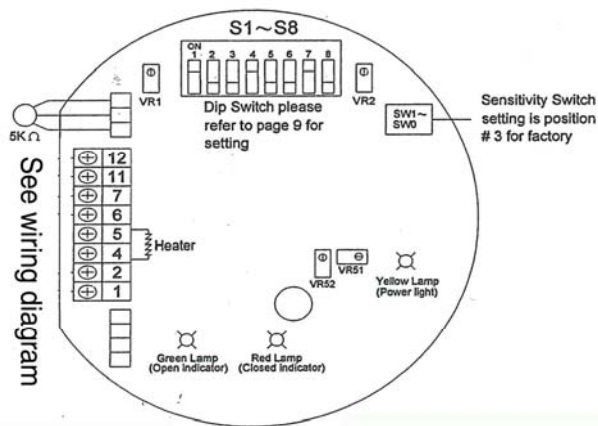


◆ MODULATING CONTROL BOARD : Interface

Modulating Control Board for OM2~12

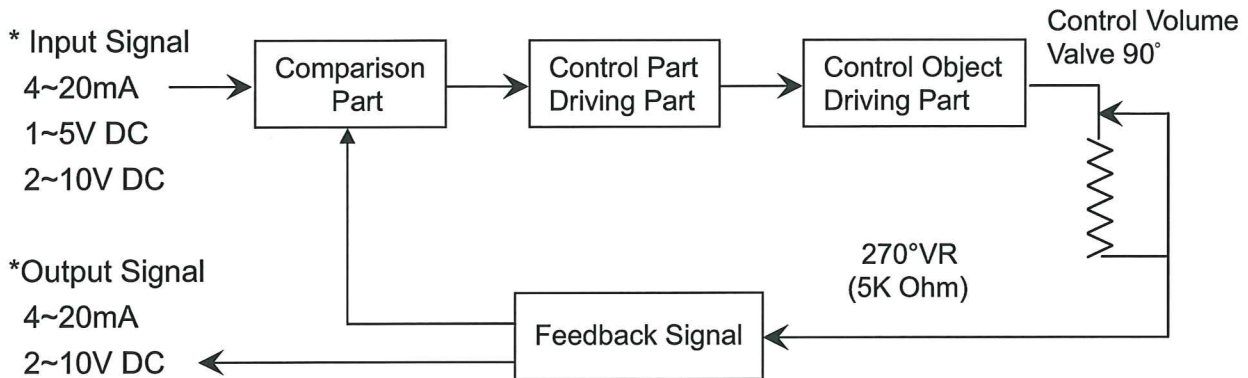


Modulating Control Board for OM1,OMA





◆ MODULATING CONTROL BOARD



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

DIP-SWITCH SETTING

IMPORTANT: Do not alter switch positions while actuator is turned on.

8	7	6	5	4	3	2	1	
ON	OFF	OFF	OFF	ON	OFF	OFF	ON	Factory setting
						OFF	ON	4-20mA input
						OFF	OFF	1-5V input
						ON	OFF	2-10V input
			OFF	ON	OFF	4-20mA output		
			ON	OFF	ON	2-10V output		
		OFF	20mA / 5V / 10V means valve fully-open					
		ON	20mA / 5V / 10V means valve fully-closed					
ON	OFF	Close valve if input signal disconnected						
OFF	ON	Open valve if input signal disconnected						

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": Highest Sensitive and the 0~90 degree can be divided up to around 80 times movement.

When switch to "0": Lowest Sensitive and 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.

※ **Note:** The standard factory presetting is 1, 4, 8 for ON and 2, 3, 5, 6, 7 for OFF.
Even if S6 is adjusted, the feedback signal will not change.

★ **SUPPLIED VOLTAGE:** 24V DC/AC, 110V/220V AC 1-PH.

★ **WORKING TEMPERATURE:** -30°C ~ +65°C.

★ **THE PROCEDURE FOR ADJUSTING VR1 & VR2.**

Calibration of actuator to input control signals:

⇒ VR2 adjusts 4mA, 2V, 1V (Fully-closed).
VR1 adjusts 20mA, 10V, 5V (Fully-open).

1. Turn VR2 fully clockwise.
2. Set the device that supplies the input signal (4mA) to "fully-closed".
3. Turn VR2 anticlockwise until the red LED comes on.
4. Turn VR1 fully anticlockwise.
5. Set the device that supplies the input signal (20mA) to "fully-open".
6. Turn VR1 clockwise until the green LED comes on.



◆ TROUBLE SHOOTING

Conditions	Possibilities	Solutions
Motor does not operate	<ol style="list-style-type: none"> 1. Is the supplied power and voltage correct? 2. Any blisters on the capacitor? 3. Are the gear trains free? 	<ol style="list-style-type: none"> 1. Checking by meter. 2. If so replace. 3. Remove motor to check.
Motor stops running	<ol style="list-style-type: none"> 1. Is power supply short circuited? 2. Any foreign objects in flow stream? 	<ol style="list-style-type: none"> 1. Check wiring. 2. Check for obstructions.
Unable to fully open/close	<ol style="list-style-type: none"> 1. Loose/Misaligned cam? 2. Bent valve stem? 3. Mechanical stop adjustment incorrect? 	<ol style="list-style-type: none"> 1. Adjust/Tighten using spanner. 2. Replace valve stem. 3. Check position of stops.
Valve stops operating when motor is running.	<ol style="list-style-type: none"> 1. Gear worn out? 2. Sleeve adapter worn out or broken? 3. Broken valve stem or actuator transmission shaft? 	<ol style="list-style-type: none"> 1. Replace gear. 2. Replace sleeve adapter. 3. Replace valve stem or actuator transmission shaft.
Abnormal control for operating two or more actuators simultaneously.	<ol style="list-style-type: none"> 1. Controlling circuit connects in tandem or parallel? 	<ol style="list-style-type: none"> 1. Please refer to the wiring diagram.
Motor overheats.	<ol style="list-style-type: none"> 1. Is the voltage correct? 2. Is valve too tight to operate? 3. High working frequency? 4. Is motor stem or bearing binding? 	<ol style="list-style-type: none"> 1. Checking by meter. 2. Replace valve. 3. Check duty cycle. 4. Replace the binding parts.
Abnormal on/off angle on 3-phase voltage.	<ol style="list-style-type: none"> 1. Wrong phase wiring? 	<ol style="list-style-type: none"> 1. Change phase wiring.
Occasional on/off actuator failure.	<ol style="list-style-type: none"> 1. Simultaneous input power on/off. 	<ol style="list-style-type: none"> 1. Check if the selection switch is normal.
Vibration when valve is closed.	<ol style="list-style-type: none"> 1. Motor brake spring fatigued or Teflon worn? 	<ol style="list-style-type: none"> 1. Replace spring or Teflon.



◆ LUBRICATION

The gearbox of the SUN YE H 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.

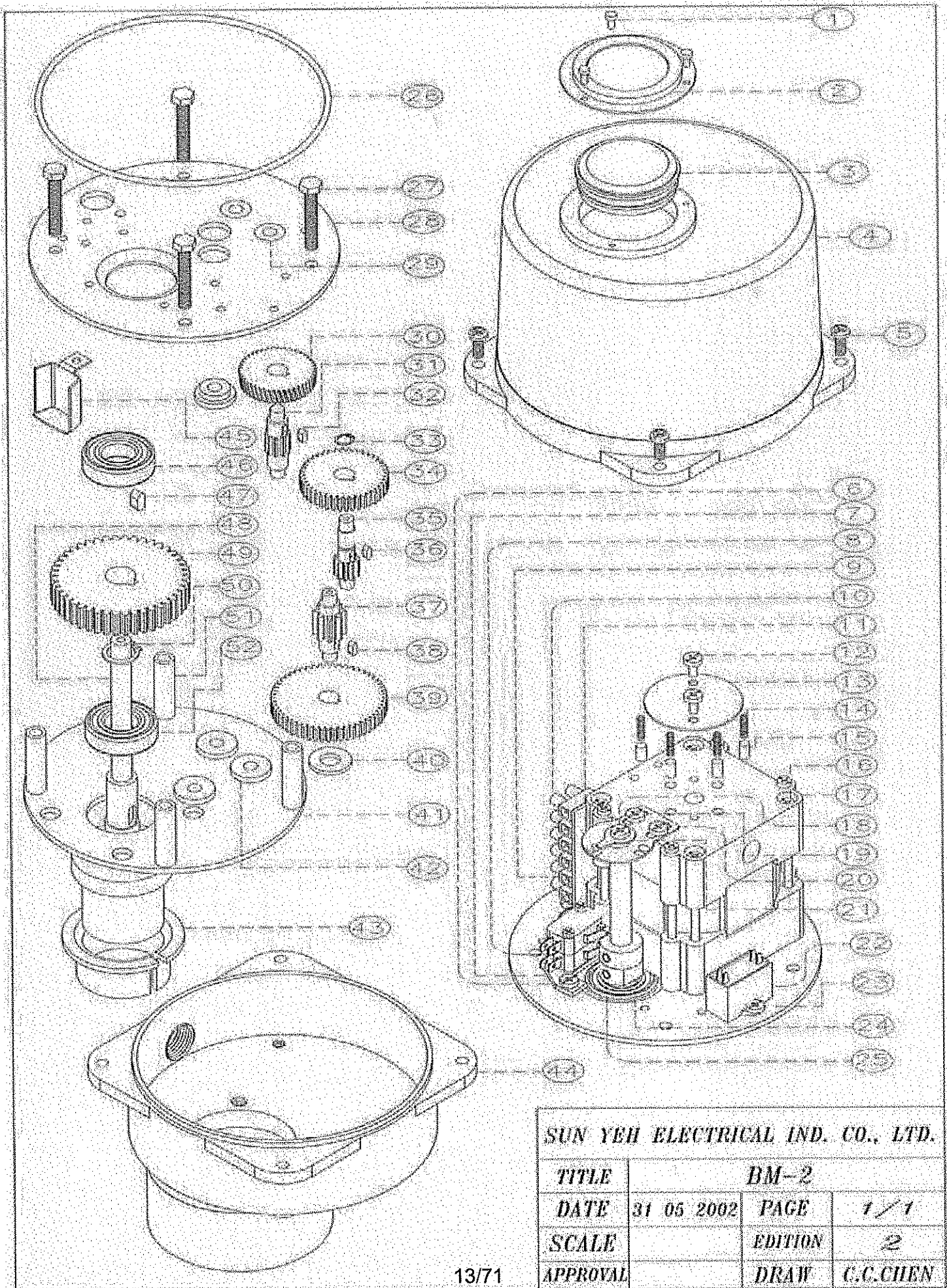
◆ IMPORTANT NOTICES & MAINTENANCE

* 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.



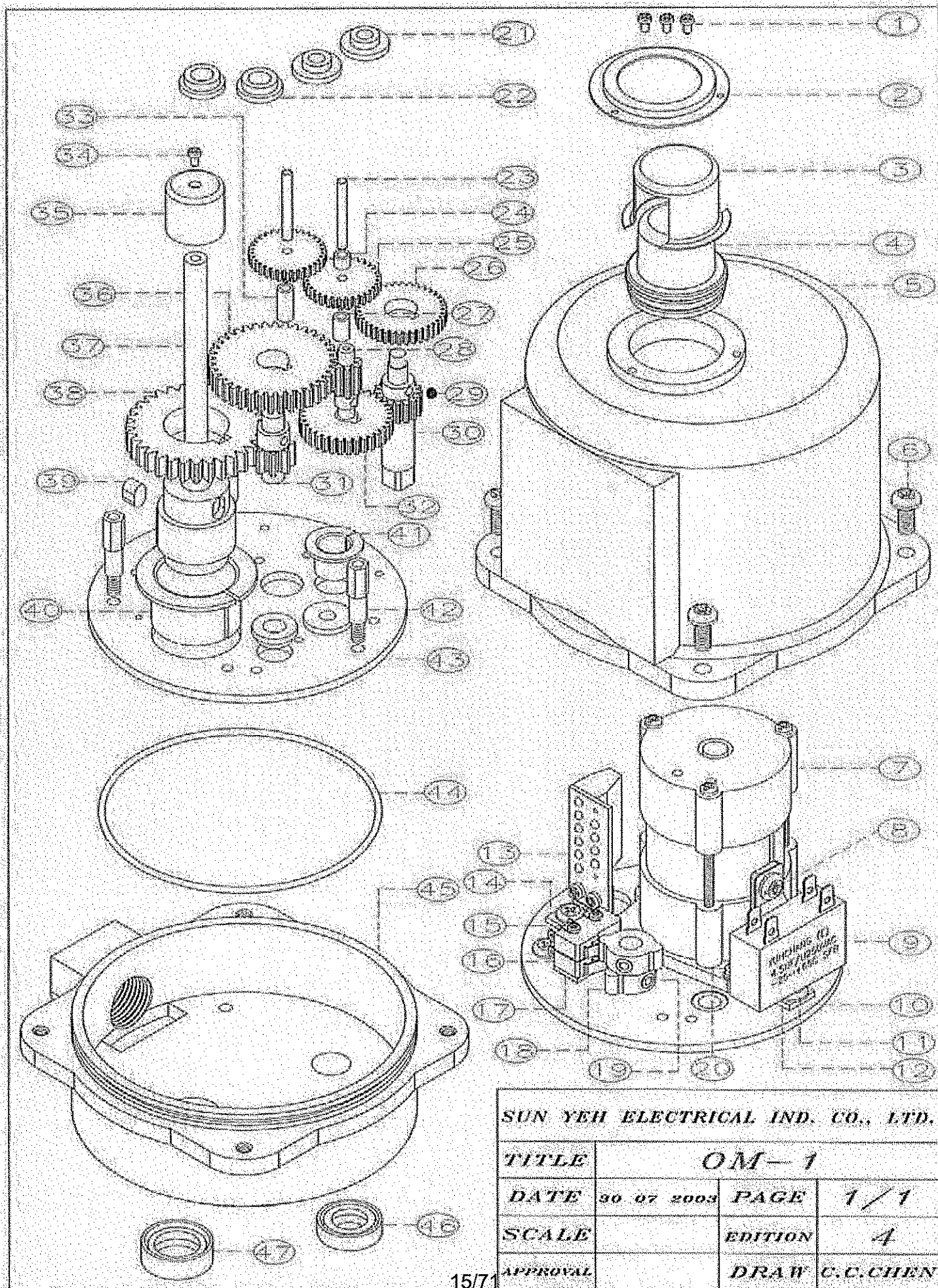
SUN YEH ELECTRICAL IND. CO., LTD.

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APPROVAL		DRAW	C.C.CHEN

SUN YEH ELECTRICAL IND. CO., LTD.

BM-2 Parts List

Ref. No.	Part Name	Size	Q'ty	Ref. No.	Part Name	Size	Q'ty
1	Screw	M3*6	3	45	Fender		1
2	Fixed Seat		1	46	Bearing	6202	1
3	Position Indicator		1	47	Thrust Key (Both Round)	M5*10	1
4	Top Cover		1	48	Drive Shaft		1
5	Screw	M5*12	4	49	4th Gear		1
6	Screw	M4*8	2	50	Lock Ring (C Type)	S15	1
7	Fixed Seat		1	51	Spacer		4
8	Limit Switch	V-105-1A5	2	52	Bearing	6003	1
9	Screw	M3*10	3				
10	Terminal Block	6P	1				
11	Terminal Block Bush		1				
12	Screw	M4*6	2				
13	Brake Spring Cover		1				
14	Brake Spring		4				
15	Motor Brake (PTFE)		4				
16	Screw	M4*80	4				
17	Motor	220V	1				
18	Screw	M4*6	1				
19	Screw	M4*6	2				
20	Position Indicator Plate		1				
21	Indicator		1				
22	Condenser	3MFD/U	1				
23	Screw	M4*6	1				
24	Travel Cam		2				
25	Screw	M5*5	2				
26	O-Ring	G140	1				
27	Screw	M6*50	4				
28	Fixed Plate		1				
29	Shaft		3				
30	1st Gear		1				
31	2nd Gear		1				
32	Thrust Key (Both Round)	M3*7	1				
33	Lock Ring (C Type)	S10	1				
34	2nd Gear		1				
35	3rd Gear	M3*7	1				
36	Thrust Key (Both Round)		1				
37	4th Gear	M3*7	1				
38	Thrust Key (Both Round)		1				
39	3rd Gear		1				
40	Gear Pad		1				
41	Fixed Plate		1				
42	Shaft		3				
43	Bearing	4020F	1				
44	Base		1				



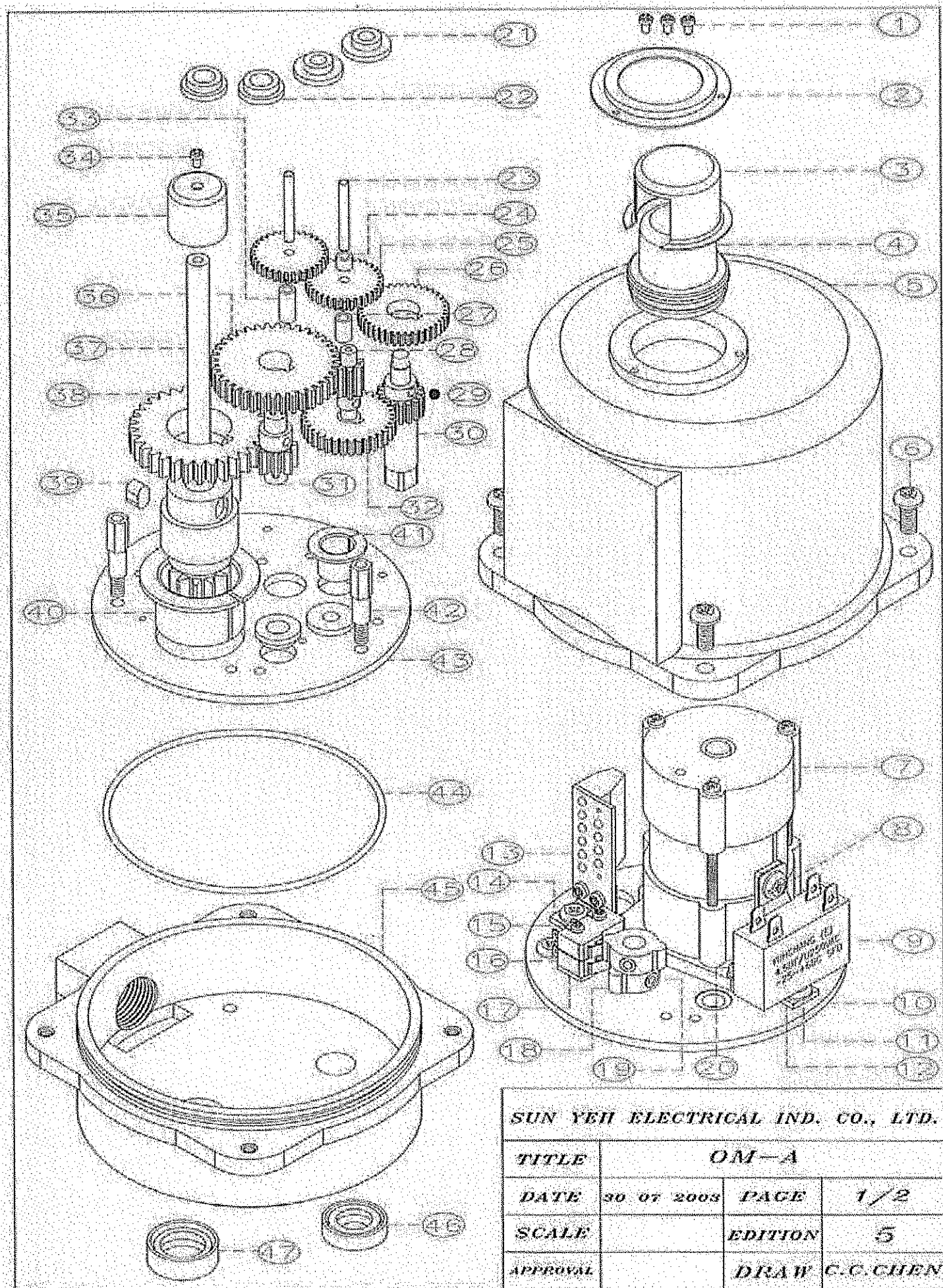
SUN YEH ELECTRICAL IND. CO., LTD.

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APPROVAL		DRAW	C.C.CHEN

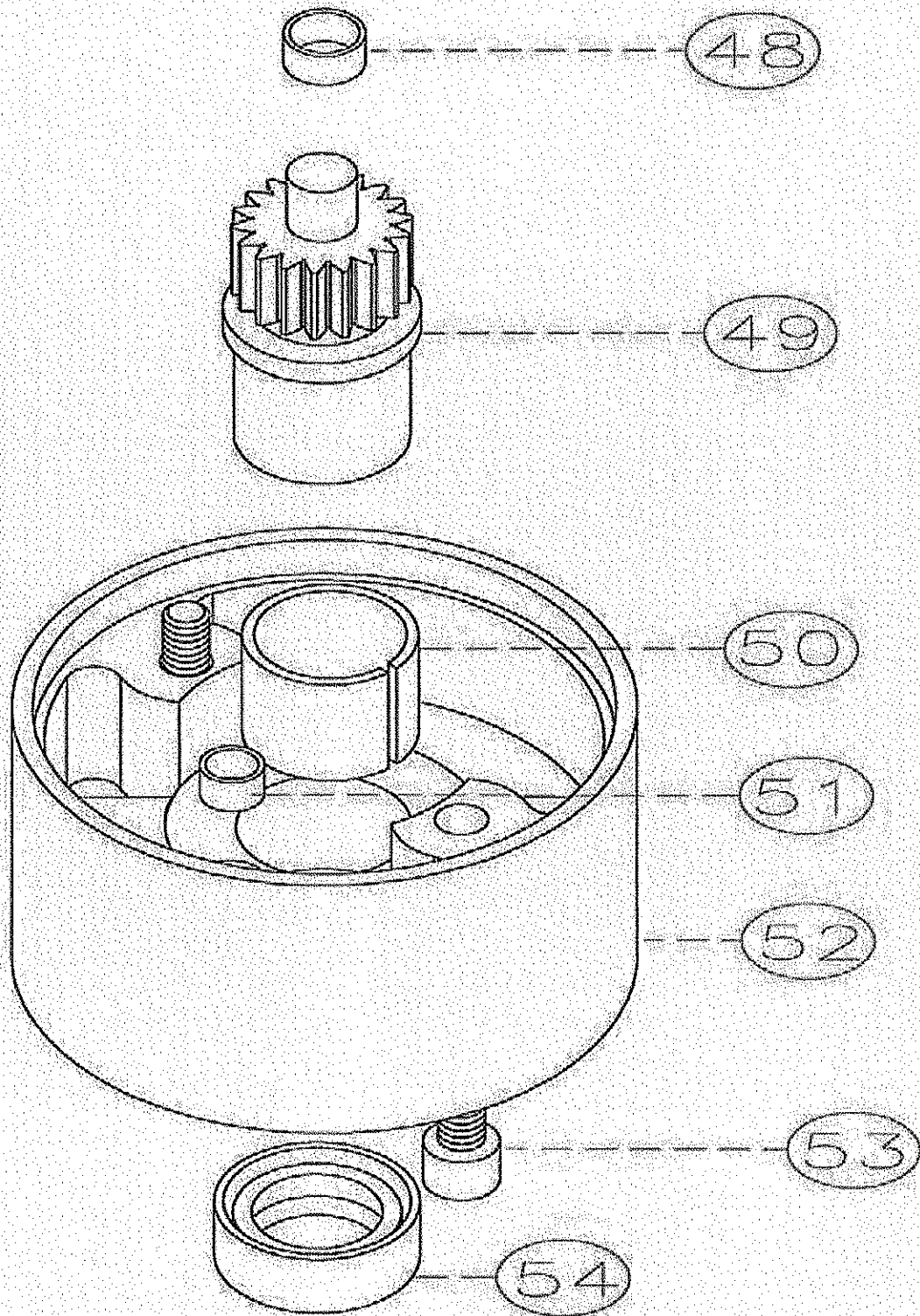
SUN YEH ELECTRICAL IND. CO., LTD.

OM-1 Parts List

Ref. No.	Part Name	Size	Q'ty	Ref. No.	Part Name	Size	Q'ty
1	Screw	M3*4	3	44	O-Ring	S85	1
2	Fixed Seat		1	45	Base		1
3	Window Protection Cover		1	46	O-Ring	10*20*5	1
4	Window		1	47	O-Ring	23*28*5	1
5	Top Cover		1				
6	Screw	M5*15	4				
7	Motor	110V	3				
8	Screw	M3*6	1				
9	Condenser	4.5MFD/U	1				
10	Fixed Seat		1				
11	Screw	M4*8	3				
12	Fixed Seat		1				
13	Terminal Block	6P	1				
14	Fixed Seat		1				
15	Screw	M2.3*18	2				
16	Limit Switch		2				
17	Limit Switch Mat		1				
18	Travel Cam		2				
19	Screw	M5*5	2				
20	Screw	M3*10	4				
21	Shaft	Small	3				
22	Shaft	Large	3				
23	Fixed Column	3*25.8	2				
24	Spacer	Short	1				
25	1st Gear		2				
26	3rd Gear		1				
27	Spacer	Medium	1				
28	5th Gear		1				
29	Thrust Key (Globule)		3				
30	4th Gear		1				
31	6th Gear		1				
32	4th Gear		1				
33	Spacer	Large	1				
34	Screw	M3*6	1				
35	Position Indicator		1				
36	5th Gear		1				
37	Transmission Shaft		1				
38	6th Gear		1				
39	Thrust Key (Both Round)	M5*8	1				
40	Bearing	2412 F	1				
41	Bearing	1008 F	1				
42	Screw		3				
43	Fixed Plate		1				



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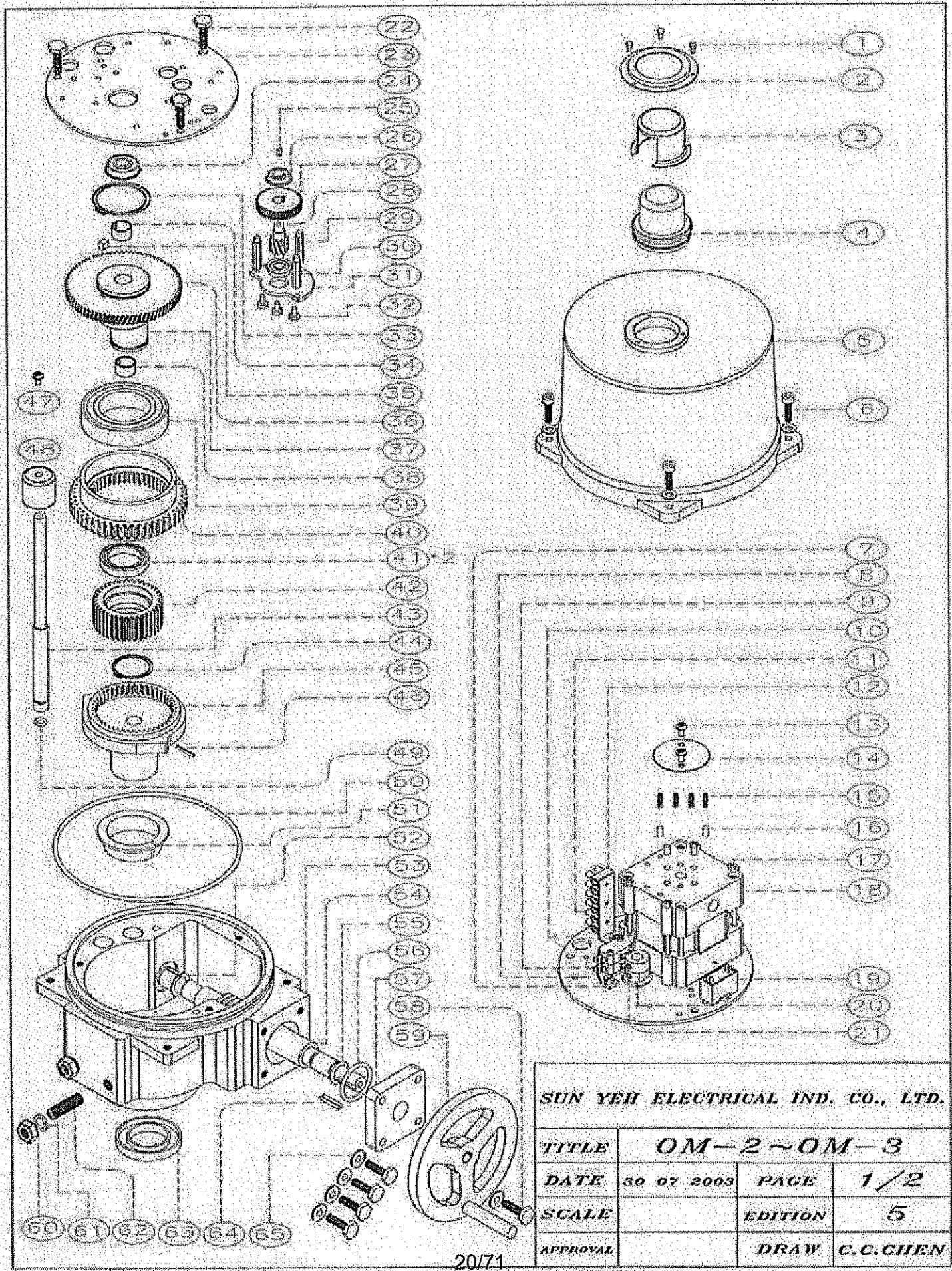
SUN YEH ELECTRICAL IND. CO., LTD.

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APPROVAL		DRAW	G.C.CHEN

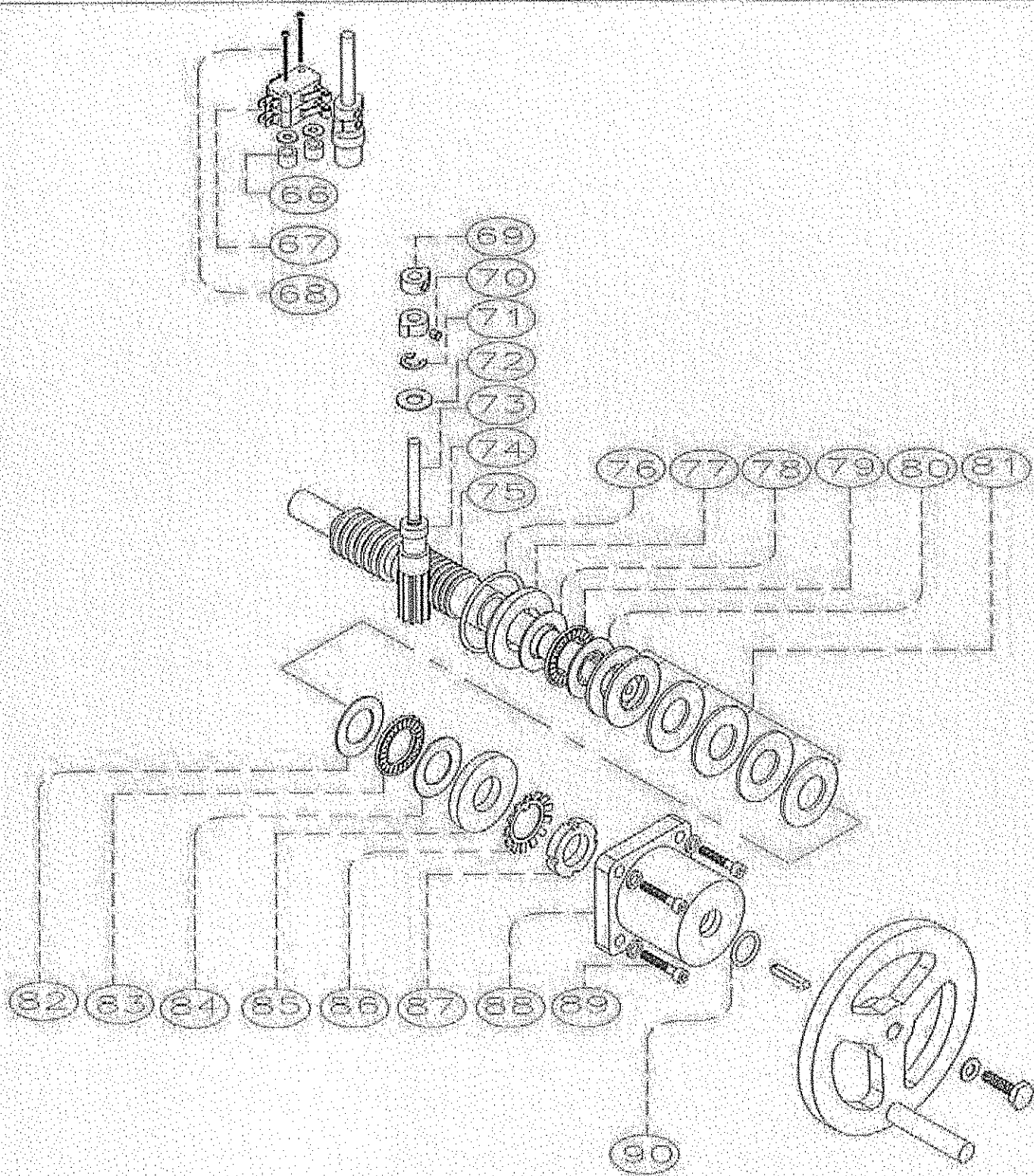
SUN YEH ELECTRICAL IND. CO., LTD.

OM-A Parts List

Ref. No.	Part Name	Size	Q'ty	Ref. No.	Part Name	Size	Q'ty
1	Screw	M3*4	3	44	O-Ring	S85	1
2	Fixed Seat		1	45	Base		1
3	Window Protection Cover		1	46	O-Ring	10*20*5	1
4	Window		1	47	O-Ring	23*28*5	1
5	Top Cover		1	48	Bearing	1206	1
6	Screw	M5*15	4	49	Gear		1
7	Motor	110V	3	50	Bearing	3015	1
8	Screw	M3*6	1	51	Bearing	606	1
9	Condenser	4.5MFD/U	1	52	Gear Box		1
10	Fixed Seat		1	53	Screw	M8*40	2
11	Screw	M4*8	3	54	O-Ring	30*40*5	1
12	Fixed Seat		1				
13	Terminal Block	6p	1				
14	Fixed Seat		1				
15	Screw	M2.3*18	2				
16	Limit Switch		2				
17	Limit Switch Mat		1				
18	Travel Cam		2				
19	Screw	M5*5	2				
20	Screw	M3*10	4				
21	Shaft	Small	3				
22	Shaft	Large	3				
23	Fixed Column	3*25.8	2				
24	Spacer	Short	1				
25	1st Gear		2				
26	3rd Gear		1				
27	Spacer	Medium	1				
28	5th Gear		1				
29	Thrust Key (Globule)		3				
30	4th Gear		1				
31	6th Gear		1				
32	4th Gear		1				
33	Spacer	Large	1				
34	Screw	M3*6	1				
35	Position Indicator		1				
36	5th Gear		1				
37	Transmission Shaft		1				
38	6th Gear		1				
39	Thrust Key (Both Round)	M5*8	1				
40	Bearing	2412 F	1				
41	Bearing	1008 F	1				
42	Screw		3				
43	Fixed Plate		1				



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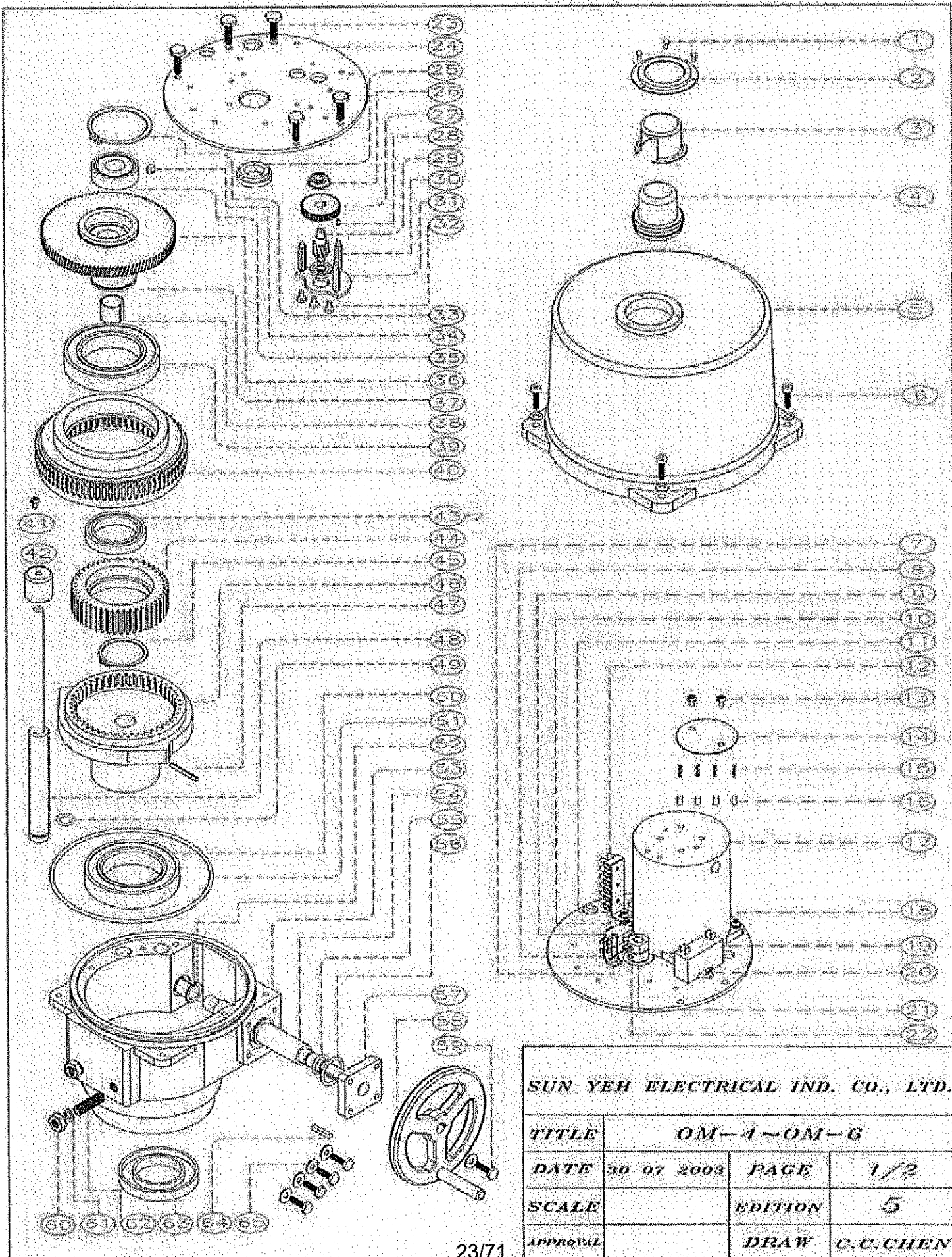
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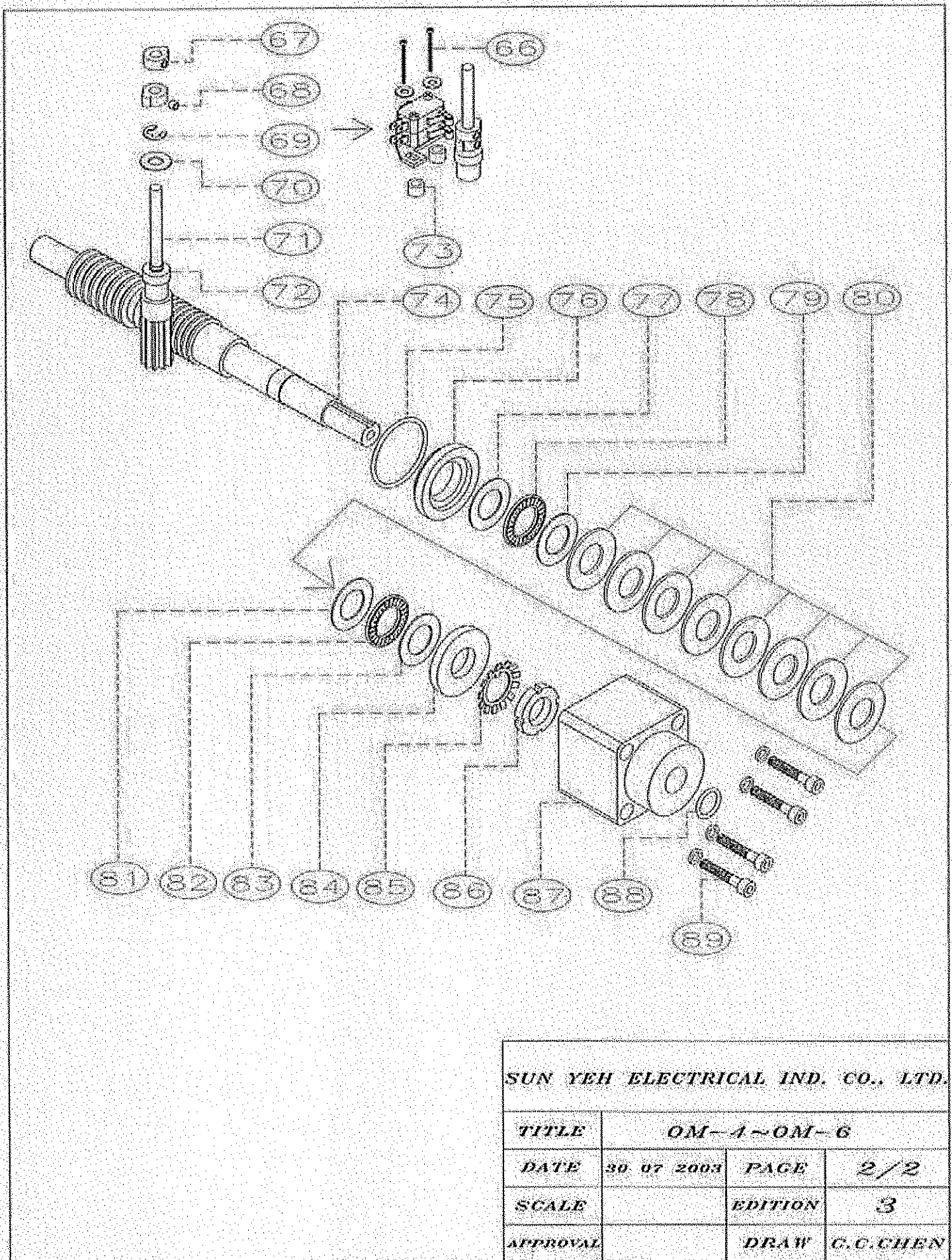
OM-2~OM-3 Parts List

Ref. No.	Part Name	Size	Q'ty	Ref. No.	Part Name	Size	Q'ty
1	Screw	M3*6	3	47	Screw	M4*6	1
2	Fixed Seat		1	48	Position Indicator		1
3	Window Protection Cover		1	49	O-Ring	P9	1
4	Window		1	50	O-Ring	AS 258	1
5	Top Cover		1	51	Bearing	4030F	1
6	Screw	M6*20	1	52	Bearing	1520 F	1
7	Screw	M4*6	2	53	Base		1
8	Fixed Seat		1	54	Worm Wheel		1
9	Limit Switch	V105-1A15	2	55	O-Ring	P14	1
10	Screw	1/8*1"	2	56	O-Ring	P34	1
11	Terminal Block		1	57	Fixed Saet		1
12	Terminal Block Bush	6P	1	58	Screw	M6*16	1
13	Screw	M4*6	2	59	Hand-Wheel	5"	1
14	Brake Spring Cover		1	60	Nut	M10	2
15	Brake Spring		4	61	Nut	15*10*2	2
16	Motor Brake (PTFE)		4	62	Screw	M10*35	2
17	Screw	M4*80	4	63	Oil Seal	40*50*8	1
18	Motor	220V	1	64	Thrust Key (Both Round)	M4*15	1
19	Condenser	3MFD/U	1	65	Screw	M6*25	4
20	Travel Cam		2	66	Spacer	M6*10	2
21	Screw	M5*5	2	67	Limit Switch		2
22	Screw	M6*10	3	68	Screw	1/8*2"	2
23	Fixed Plate		1	69	Travel Cam		2
24	Bearing	6001 NR	1	70	Screw	M5*5	2
25	Thrust Key (Both Round)	M3*7	1	71	Lock Ring (E Type)	E7	1
26	Bearing	698z	1	72	Washer	5 / 1 6	1
27	1st Gear		1	73	Transmission Shaft		1
28	2nd Gear		1	74	Bushing		1
29	Screw		3	75	Worm Wheel		1
30	Bearing	698z	1	76	O-Ring	AS 132	1
31	Fixed Plate		1	77	Bushing		1
32	Screw	M4*80	3	78	Bearing	AS 1831	1
33	Lock Ring (C Type)	S45	1	79	Bearing	AS 1831	1
34	Bearing	1310	1	80	Bearing	AS 1831	1
35	Thrust Key	M6*8	1	81	Spring	1025	6
36	2nd Gear		1	82	Bearing	AS 1831	1
37	Shaft		1	83	Bearing	AS 1831	1
38	Bearing	1310	1	84	Bearing	AS 1831	1
39	Bearing	6009	1	85	Bushing	4mm	1
40	Inner Gear		1	86	Washer		1
41	Bearing	6806zz	2	87	Nut	M17*1.0	1
42	Planet Gear		1	88	Fixed Seat		1
43	Drive Shaft		1	89	Screw	M6*25	4
44	Lock Ring (C Type)	S30	1	90	O-Ring	P18	1
45	Transmission Shaft		1				
46	Pin	M4*36	1				



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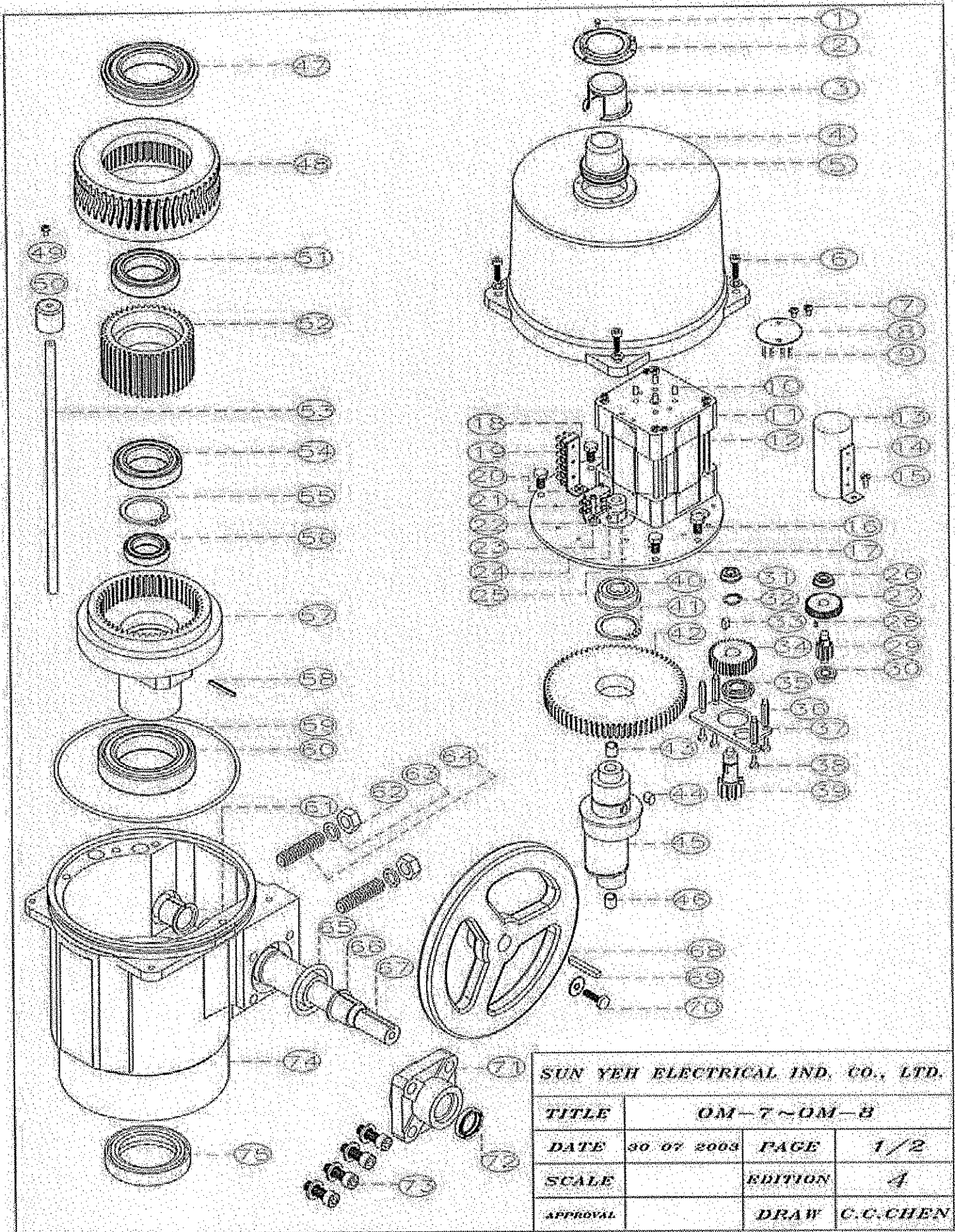
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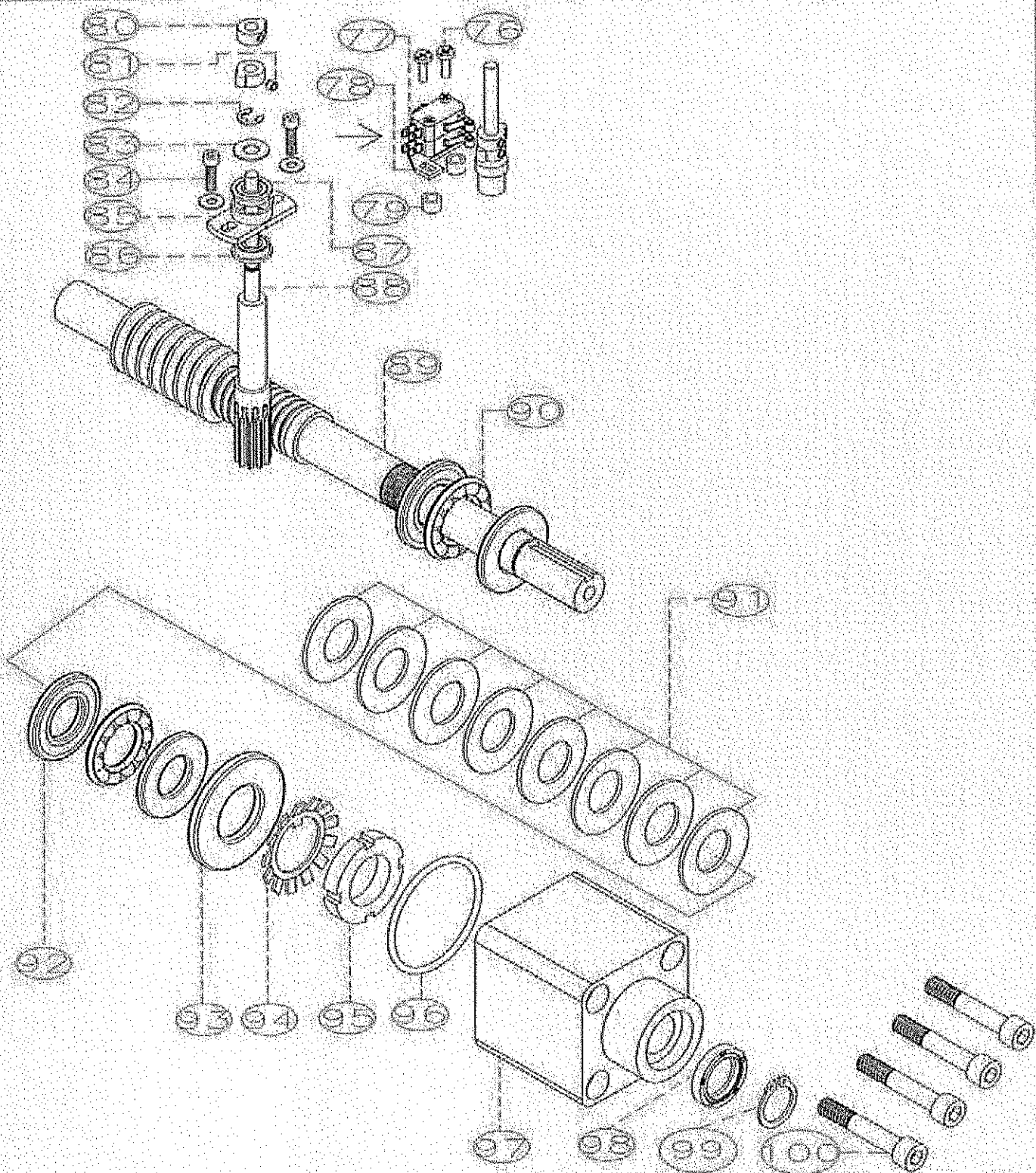


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OM-4~OM-6 Parts List

Ref. No.	Part Name	Size	Q'ty	Ref. No.	Part Name	Size	Q'ty
1	Screw	M3*6	3	46	Transmission Shaft		1
2	Fixed Seat		1	47	Pin	4*50	1
3	Window Protection Cover		1	48	Drive Shaft		1
4	Window		1	49	O-Ring	P16	1
5	Top Cover		1	50	Bearing	6014	1
6	Screw	M6*20	4	51	O-Ring	AS259	1
7	Screw	M4*6	2	52	Bearing	1820 F	1
8	Fixed Seat		1	53	Base		1
9	Limit Switch		2	54	Worm Wheel		1
10	Screw	M4*6	1	55	O-Ring	P14	1
11	Terminal Block		1	56	O-Ring	P34	1
12	Terminal Block Bush	6P	1	57	Fixed Seat		1
13	Screw	M4*6	2	58	Hand-Wheel	8"	1
14	Brake Spring Cover		1	59	Screw	M6*16	1
15	Brake Spring		4	60	Nut	M10	2
16	Motor Brake (PTFE)		4	61	Nut	15*10*2	2
17	Motor	220V	1	62	Screw	M10*45	2
18	Screw	M5*15	4	63	Oil Seal	68*82*7	1
19	Condenser	6MGD/U	1	64	Thrust Key (Both Round)	4*25	1
20	Screw	M4*8	1	65	Screw	M6*25	4
21	Travel Cam		2	66	Screw	M4*15	2
22	Screw	M5*5	2	67	Travel Cam		2
23	Screw	M6*16	5	68	Screw	M5*5	2
24	Fixed Plate		1	69	Lock Ring (E Type)	E7	1
25	Bearing	Copper	1	70	Washer	5 / 1 6	1
26	Bearing	698z	2	71	Bearing		1
27	1st Gear		1	72	Fixed Seat		1
28	Thrust Key (Both Round)	M3*7	1	73	Bearing	6*10	2
29	2nd Gear		1	74	Worm Wheel		1
30	Screw		3	75	O-Ring	AS 132	1
31	Fixed Plate		1	76	Bushing		1
32	Screw	M4*8	3	77	Bearing	AS2035	1
33	Lock Ring (C Type)	S60	1	78	Bearing	AS2035	1
34	Thrust Key		1	79	Bearing	AS2035	1
35	Bearing	6204	1	80	Spring		8
36	2nd Gear		1	81	Bearing	AS2035	1
37	Bearing		1	82	Bearing	AS2035	1
38	Bearing	2020	1	83	Bearing	AS2035	1
39	Bearing	6012 NK	1	84	Bushing	6mm	1
40	Inner Gear		1	85	Washer		1
41	Screw	M4*6	1	86	Nut		1
42	Position Indicator		1	87	Fixed Seat		1
43	Bearing	6909Z	2	88	O-Ring	P20	1
44	Planet Gear		1	89	Screw	M6*35	4
45	Lock Ring (C Type)	S45	1				





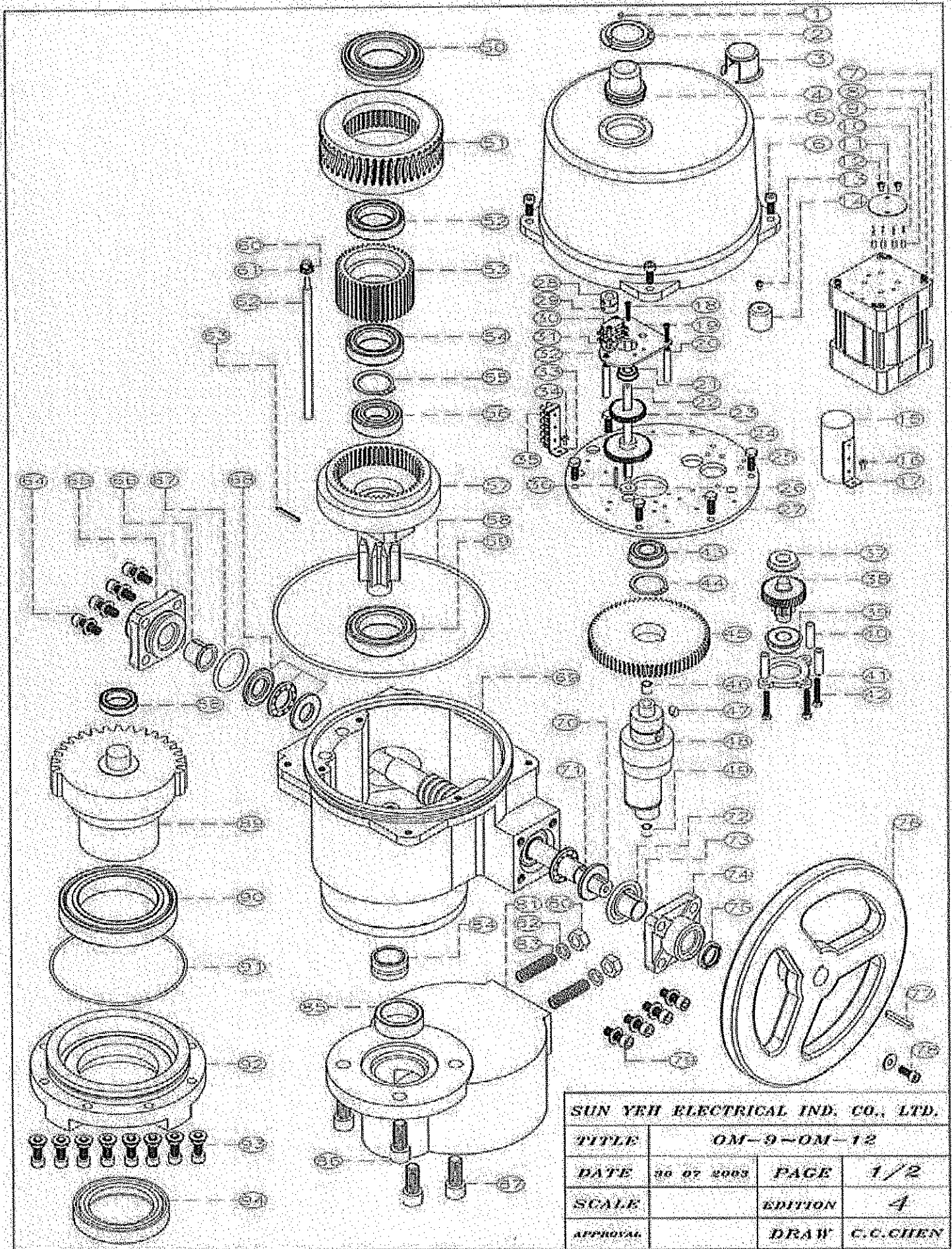
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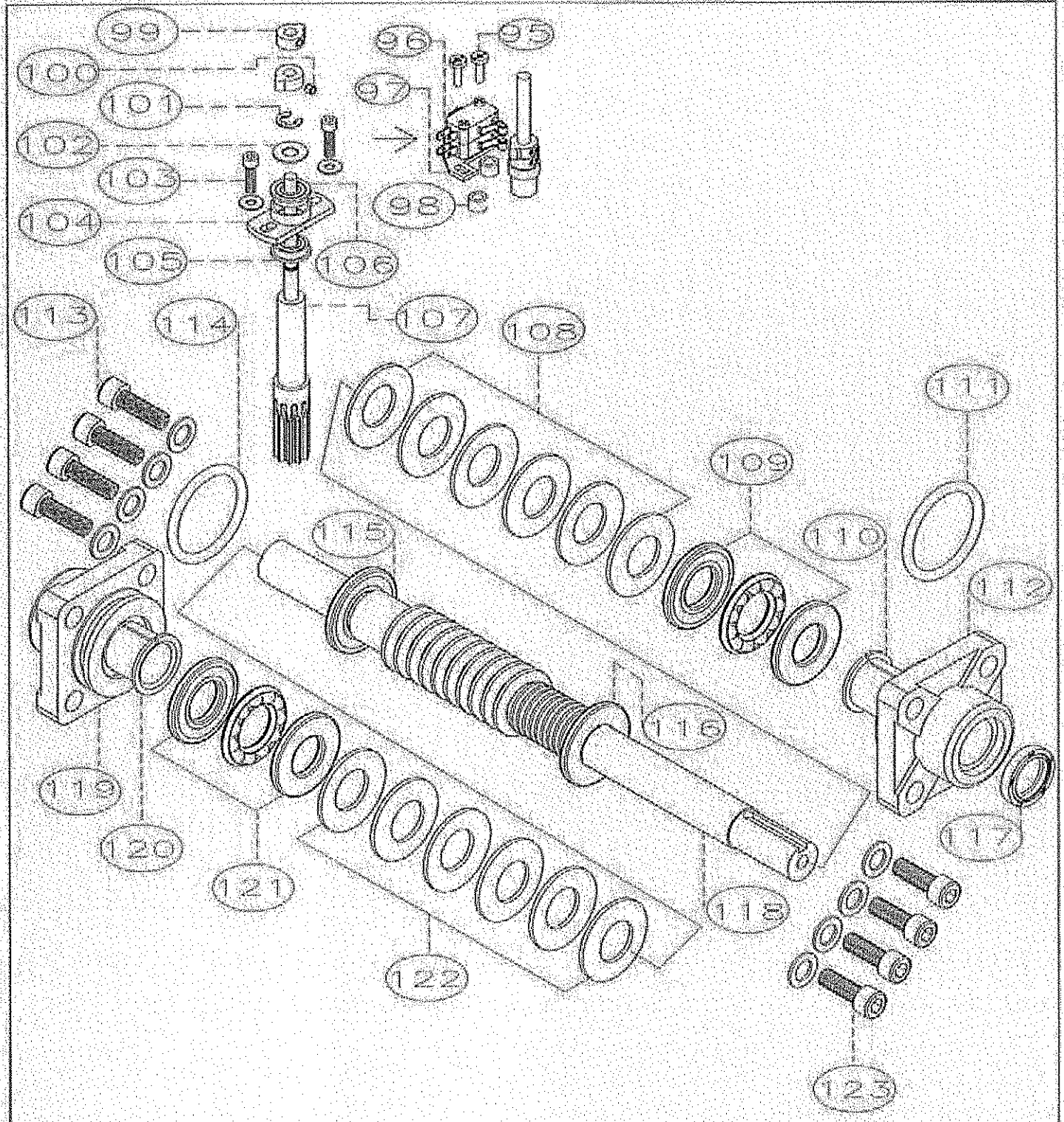
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OM-7~OM-8 Parts List

Ref. No.	Part Name	Size	Q'ty	Ref. No.	Part Name	Size	Q'ty
1	Screw	M3*6	3	45	Bearing		1
2	Fixed Seat		1	46	Bearing	1010	1
3	Window Protection Cover		1	47	Bearing	6012 NR	1
4	Position Indicator		1	48	Inner Gear		1
5	Window		1	49	Screw	M4*6	1
6	Screw	M6*20	4	50	Position Indicator		1
7	Screw	M4*6	2	51	Bearing	6009	1
8	Brake Spring Cover		1	52	Planet Gear		1
9	Brake Spring		4	53	Transmission Shaft		1
10	Motor Brake (PTFE)		4	54	Bearing	6009	1
11	Motor	220V	1	55	Lock Ring (C Type)	S45	1
12	Screw	M5*120	4	56	Bearing	6206	1
13	Condenser	350V, 12UF	1	57	Drive Shaft		1
14	Fixed Seat		1	58	Pin	M4*50	1
15	Screw	M4*8	1	59	O-Ring	AS 259	1
16	Screw	M8*20	5	60	Bearing	6013	1
17	Fixed Plate		1	61	Bearing	25*25	1
18	Fixed seat		1	62	Nut	M12	2
19	Terminal Block	6P	1	63	Screw		2
20	Screw	M4*8	1	64	Screw	M12*70	2
21	Limit Switch		2	65	O-Ring	P50A	1
22	Fixed Seat		1	66	Bearing	25*25	1
23	Screw	M4*8	2	67	Worm Wheel		1
24	Screw	M5*5	2	68	Hand Wheel		1
25	Travel Cam		2	69	Thrust Key (Both Round)	M6*35	1
26	Bearing	698	1	70	Screw	M8*20	1
27	1st Gear		1	71	Fixed Seat		1
28	Thrust Key (Both Round)	M3*7	1	72	Oil Seal	25*35*5	1
29	2nd Gear		1	73	Screw	M10*40	4
30	Bearing	698	1	74	Base		1
31	Bearing	698	1	75	Oil Seal	65*90*12	1
32	Lock Ring (C Type)	S15	1	76	Screw	M4*15	2
33	Thrust Key (Both Round)	M5*120	1	77	Limit Switch		2
34	2nd Gear		1	78	Fixed Seat		1
35	Bearing	6002 NR	1	79	Bearing	M6*10	2
36	Screw		4	80	Travel Cam		2
37	Fixed Seat		1	81	Screw	M5*5	2
38	Screw	M4*12	4	82	Lock Ring (E Type)	E7	1
39	3rd Gear		1	83	Washer		1
40	Bearing	6204 NR	1	84	Screw	M5*15	2
41	Lock Ring (C Type)	S40	1	85	Fixed Seat		1
42	3rd Gear		1	86	Bearing	698	1
43	Bearing	1010	1	87	Bearing	698	1
44	Thrust Key (Both Round)	M8*12	1	88	Drive Shaft		1



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<i>APPROVAL</i>		<i>DRAW</i>	<i>C.C.CHEN</i>

SUN YEH ELECTRICAL IND. CO., LTD.

OM-9-OM-12 Parts List

Ref. No.	Part Name	Size	Q'ty	Ref. No.	Part Name	Size	Q'ty
1	Screw	M3*6	3	45	2nd Gear		1
2	Fixed Seat		1	46	Bearing	1010	1
3	Window Protection Cover		1	47	Thrust Key (Both Round)	8*12	1
4	Window		1	48	Bearing		1
5	Top Cover		1	49	Bearing	1010	1
6	Screw	M8*25	4	50	Bearing	6012 NR	1
7	Motor	220V	1	51	Inner Gear		1
8	Screw	M5*120	4	52	Bearing	6009	1
9	Motor Brake (PTFE)		4	53	Planet Gear		1
10	Brake Spring		4	54	Bearing	6009	1
11	Brake Spring Cover		1	55	Lock Ring (C Type)	S 45	1
12	Screw	M4*6	2	56	Bearing	6206	1
13	Screw	M4*6	1	57	Gear		1
14	Position Indicator			58	O-Ring	G250	1
15	Condenser	350V,12UF	1	59	Bearing	6211	1
16	Screw	M4*8	1	60	Screw	M5*5	1
17	Fixed Seat		1	61	Gear		1
18	Screw	M4*55	3	62	Drive Shaft		1
19	Fixed Seat		1	63	Pin	4*50	1
20	Shaft	6*4.2*46	3	64	Screw	M12*45	4
21	Bearing	6000 NR	1	65	Cover		1
22	Bearing		1	66	Bearing	25*25	1
23	Gear		1	67	O-Ring	P50A	1
24	Gear		1	68	Bearing	51305	1
25	Screw	M8*25	5	69	Base Seat		1
26	Shaft		1	70	Bearing	51305	1
27	Fixed Plate		1	71	Worm Wheel		1
28	Travel Cam		2	72	O-Ring	P50A	1
29	Screw	M5*5	2	73	Bearing	25*25	1
30	Limit Switch		1	74	Fixed Seat		1
31	Screw	M4*8	2	75	Oil Seal	25*35*5	1
32	Fixed Seat		1	76	Hand Wheel		1
33	Fixed Seat		1	77	Thrust Key (Both Round)	6*35	1
34	Screw	M4*8	1	78	Screw	M8*20	1
35	Terminal Block	06:00 PM	1	79	Screw	M12*45	4
36	Thrust Key	3*30	1	80	Nut	M16	2
37	Bearing	6002 NR	1	81	Base		1
38	1st Gear		1	82	Screw		2
39	Bearing	6203	1	83	Screw	M16*85	2
40	Shaft	44.5mm	3	84	Bearing	NK130/20	1
41	Fixed Seat		1	85	Shaft		1
42	Screw	M6*50	3	86	Screw	M16*40	2
43	Bearing	6204 NR	1	87	Screw	M16*30	2
44	Lock Ring (C Type)	S 40	1	88	Bearing	6306	1



◆ ABBREVIATION ILLUSTRATION

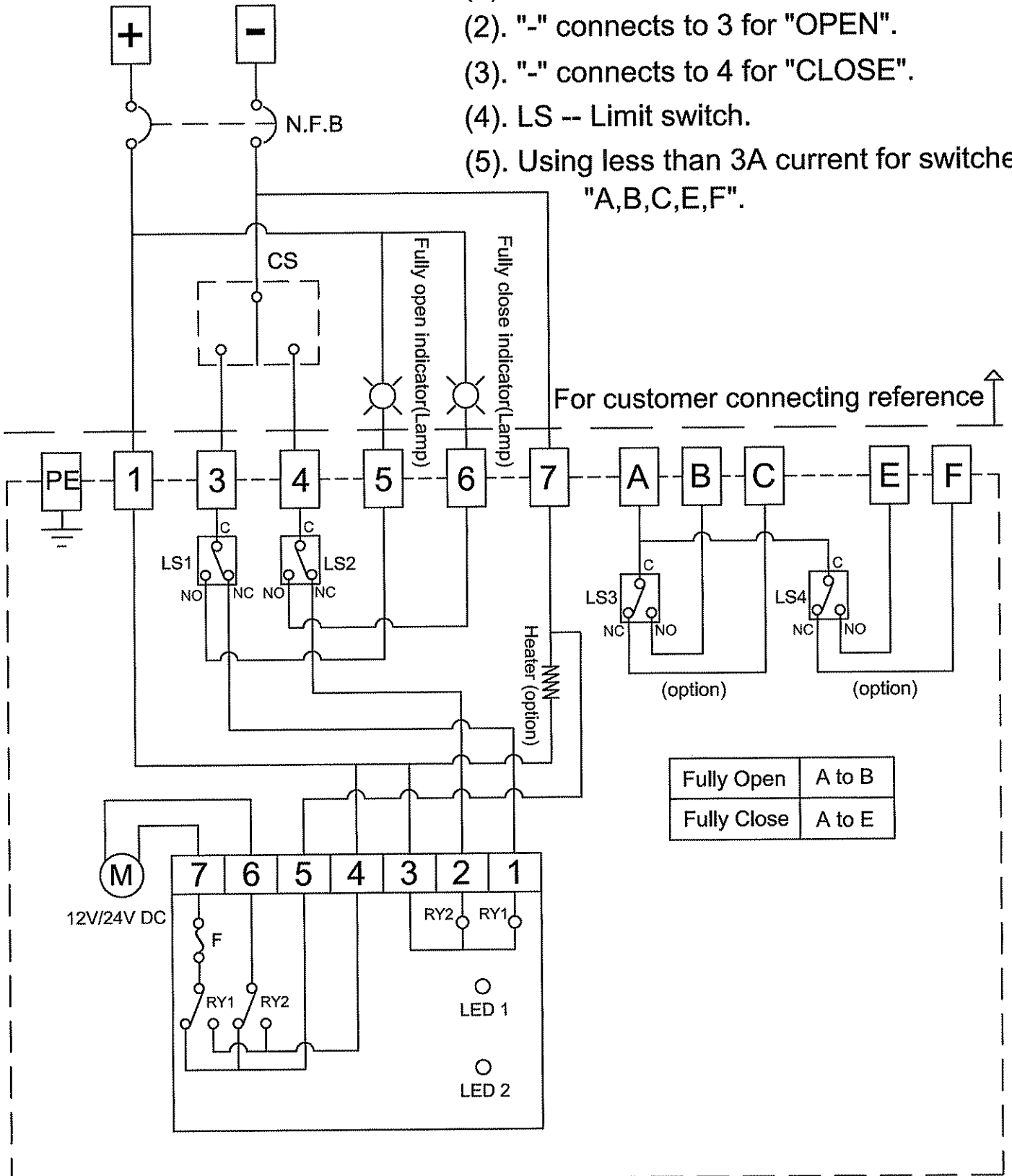
1. MC1 and MC2: Electromagnetic contactor.
2. NFB: No fuse breaker.
3. C.S.: Control switch.
4. O.L.: Over load relay.
5. Duty cycle: Our standard modulating type for OM-1~OM-8 is 30% duty cycle and for OM-9~OM-12 is 50% duty cycle.
6. The usage for 2 additional limit switches :
 - Fully-open:
 - BM-2, OM-2~OM-12 → Terminal "A" connects to terminal "C".
 - OM-1, OM-A → Terminal "A" connects to terminal "B".
 - Fully-closed:
 - BM-2, OM-2~OM-12 → Terminal "D" connects to terminal "F".
 - OM-1, OM-A → Terminal "D" connects to terminal "E".

[OM-1 & OM-A & OM-A-M 12V/24V DC]

Power supply
12V/24V DC

Note:

- (1). "+" connects to 1, "-" connects to 7.
- (2). "-" connects to 3 for "OPEN".
- (3). "-" connects to 4 for "CLOSE".
- (4). LS -- Limit switch.
- (5). Using less than 3A current for switches "A,B,C,E,F".

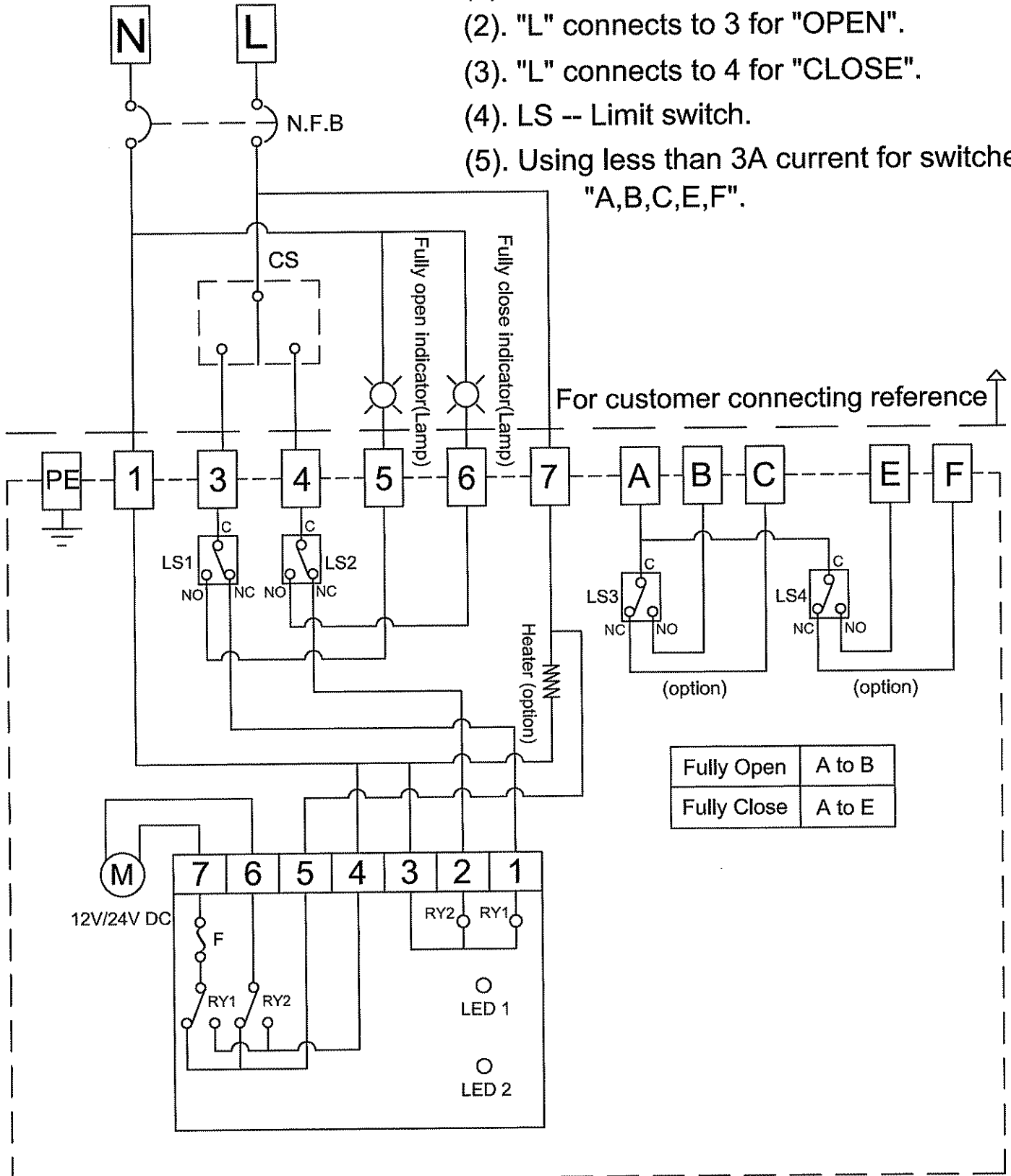


[OM-1 & OM-A & OM-A-M 12V/24V AC]

Power supply
12V/24V AC

Note:

- (1). "N" connects to 1, "L" connects to 7.
- (2). "L" connects to 3 for "OPEN".
- (3). "L" connects to 4 for "CLOSE".
- (4). LS -- Limit switch.
- (5). Using less than 3A current for switches "A,B,C,E,F".



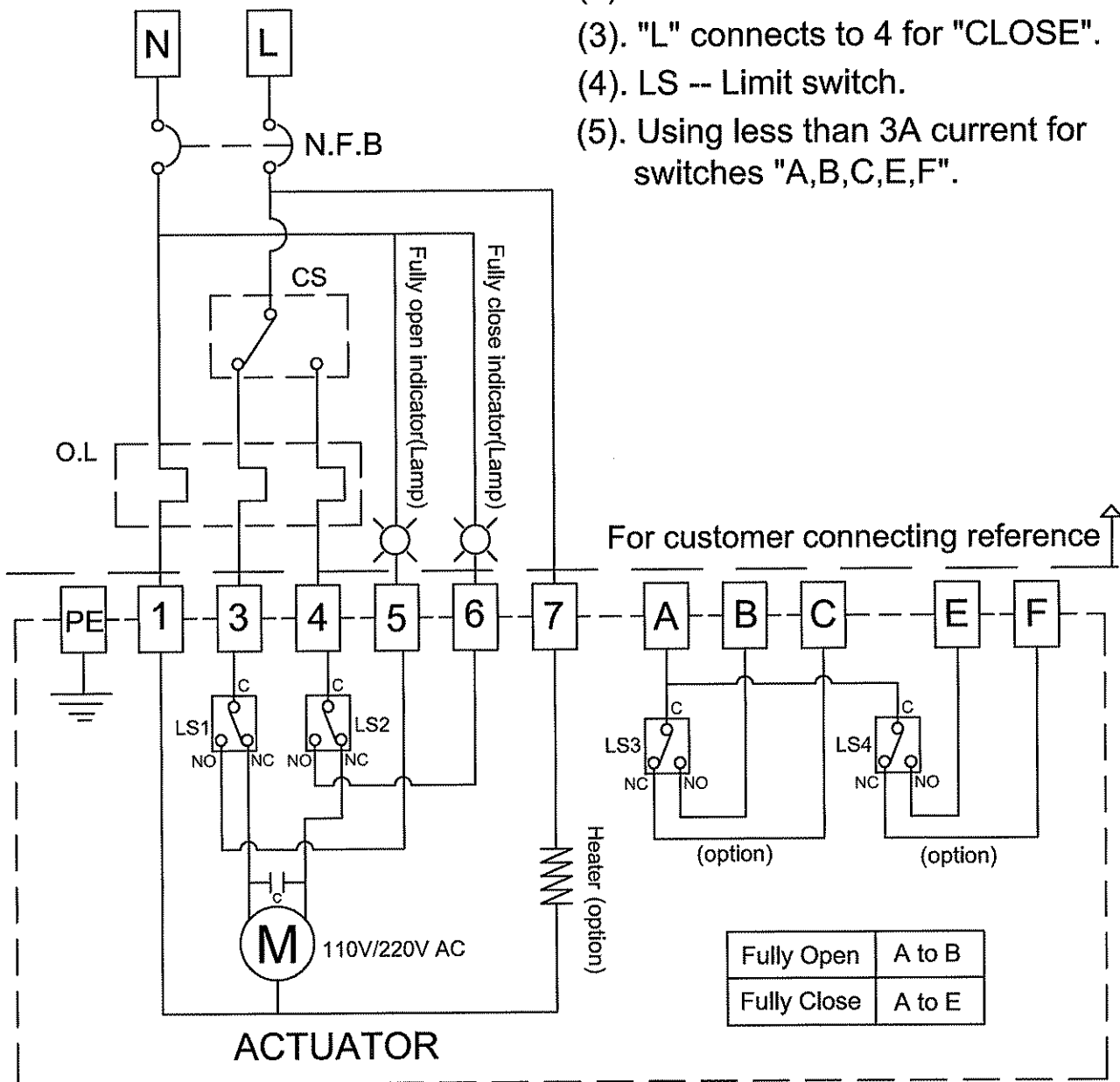
[OM-1 & OMA & OM-A-M 110V/220V AC 1-PH 30% duty cycle]

Note: When a set of control wire needs to control two or more actuators at the same time, please refer P.71.

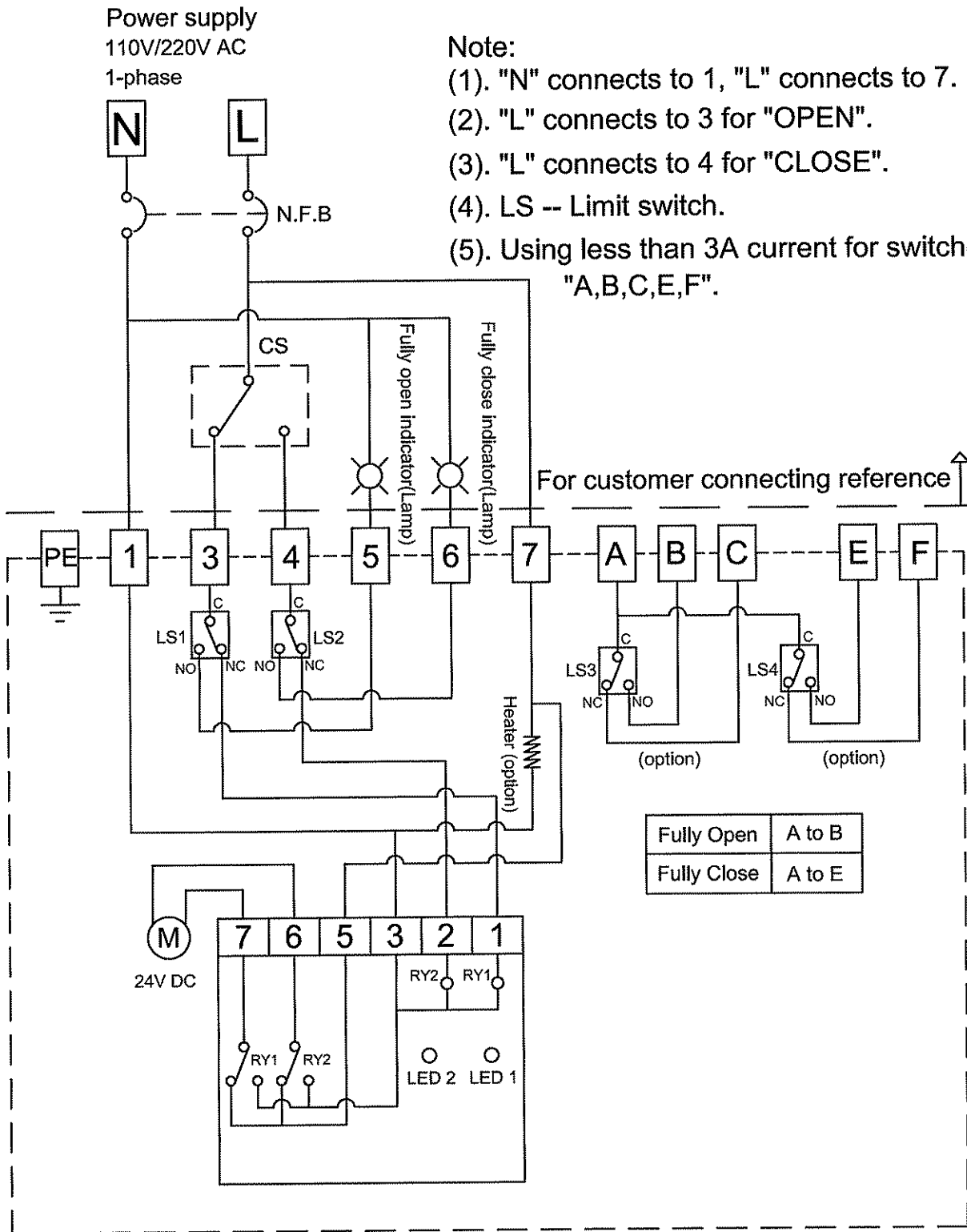
Power supply
110V/220V AC
1-phase

Note:

- (1). "N" connects to 1, "L" connects to 7.
- (2). "L" connects to 3 for "OPEN".
- (3). "L" connects to 4 for "CLOSE".
- (4). LS -- Limit switch.
- (5). Using less than 3A current for switches "A,B,C,E,F".



[OM-1 & OM-A & OM-A-M 110V/220V AC 1-PH 75% duty cycle]

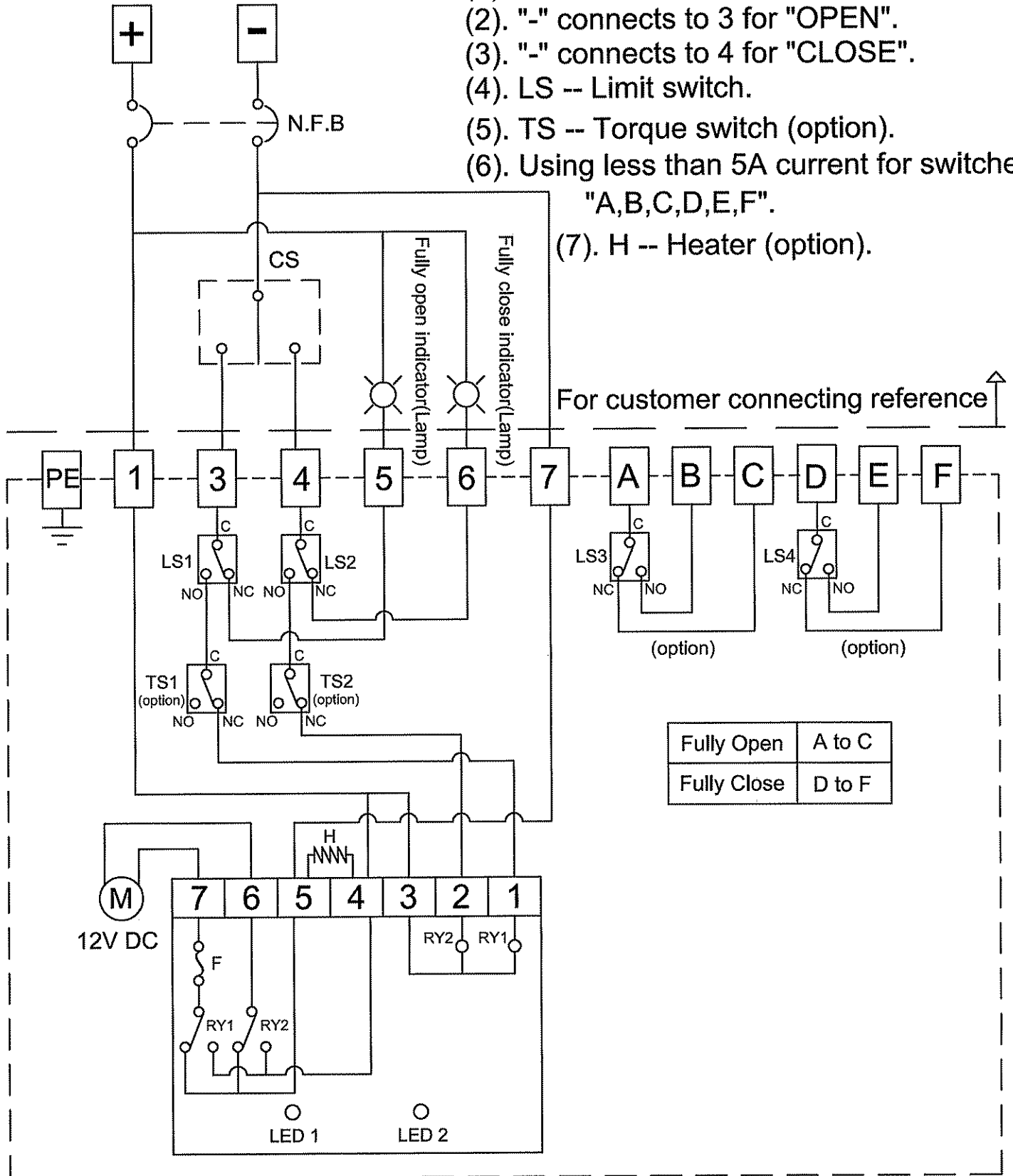


[OM-2 ~ OM-6 12V DC]

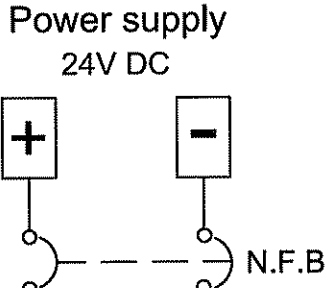
Power supply
12V DC

Note:

- (1). "+" connects to 1, "-" connects to 7.
- (2). "-" connects to 3 for "OPEN".
- (3). "-" connects to 4 for "CLOSE".
- (4). LS -- Limit switch.
- (5). TS -- Torque switch (option).
- (6). Using less than 5A current for switches "A,B,C,D,E,F".
- (7). H -- Heater (option).

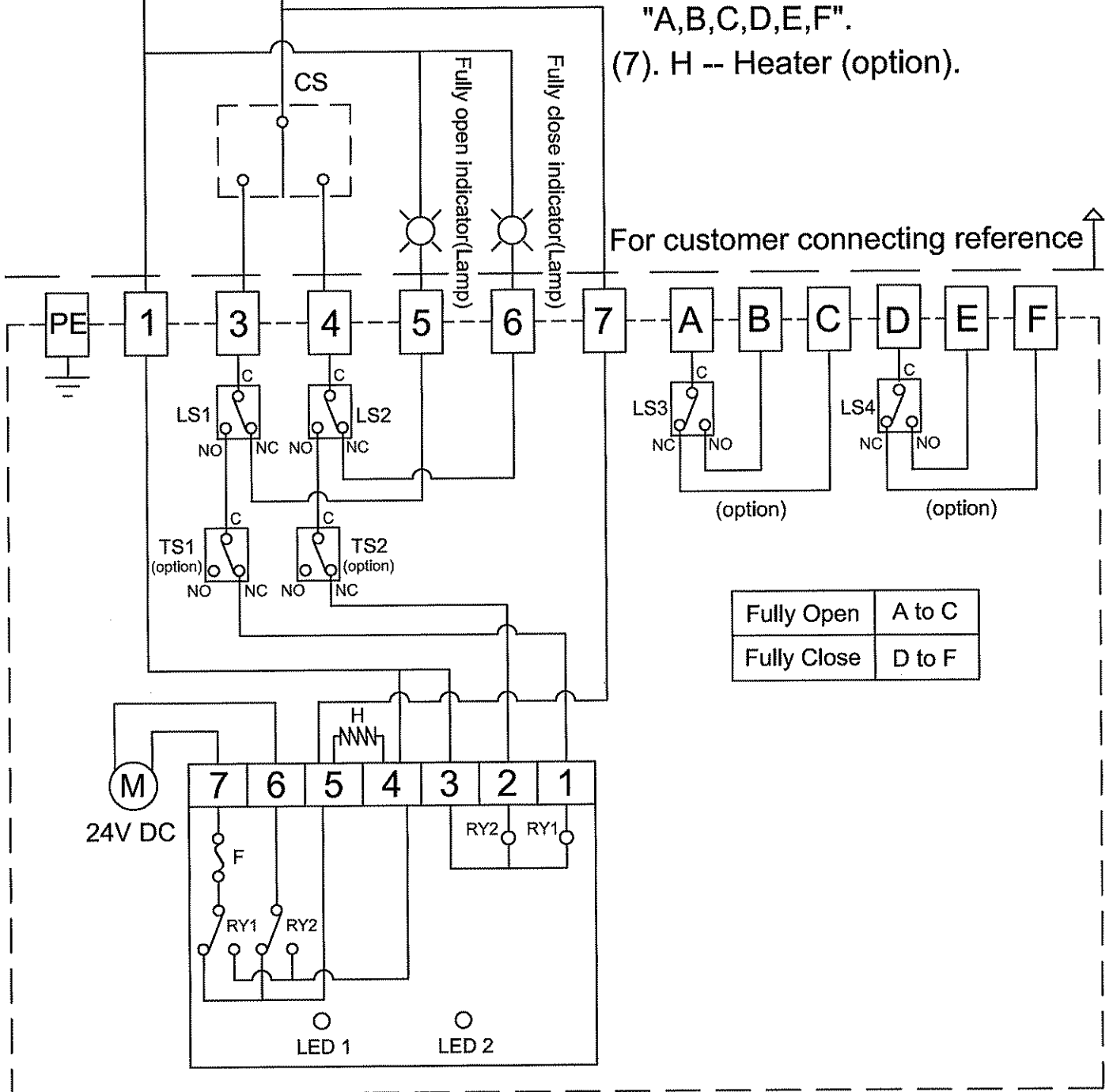


[OM-2 ~ OM-12 24V DC]



Note:

- (1). "+" connects to 1, "-" connects to 7.
- (2). "-" connects to 3 for "OPEN".
- (3). "-" connects to 4 for "CLOSE".
- (4). LS -- Limit switch.
- (5). TS -- Torque switch (option).
- (6). Using less than 5A current for switches "A,B,C,D,E,F".
- (7). H -- Heater (option).



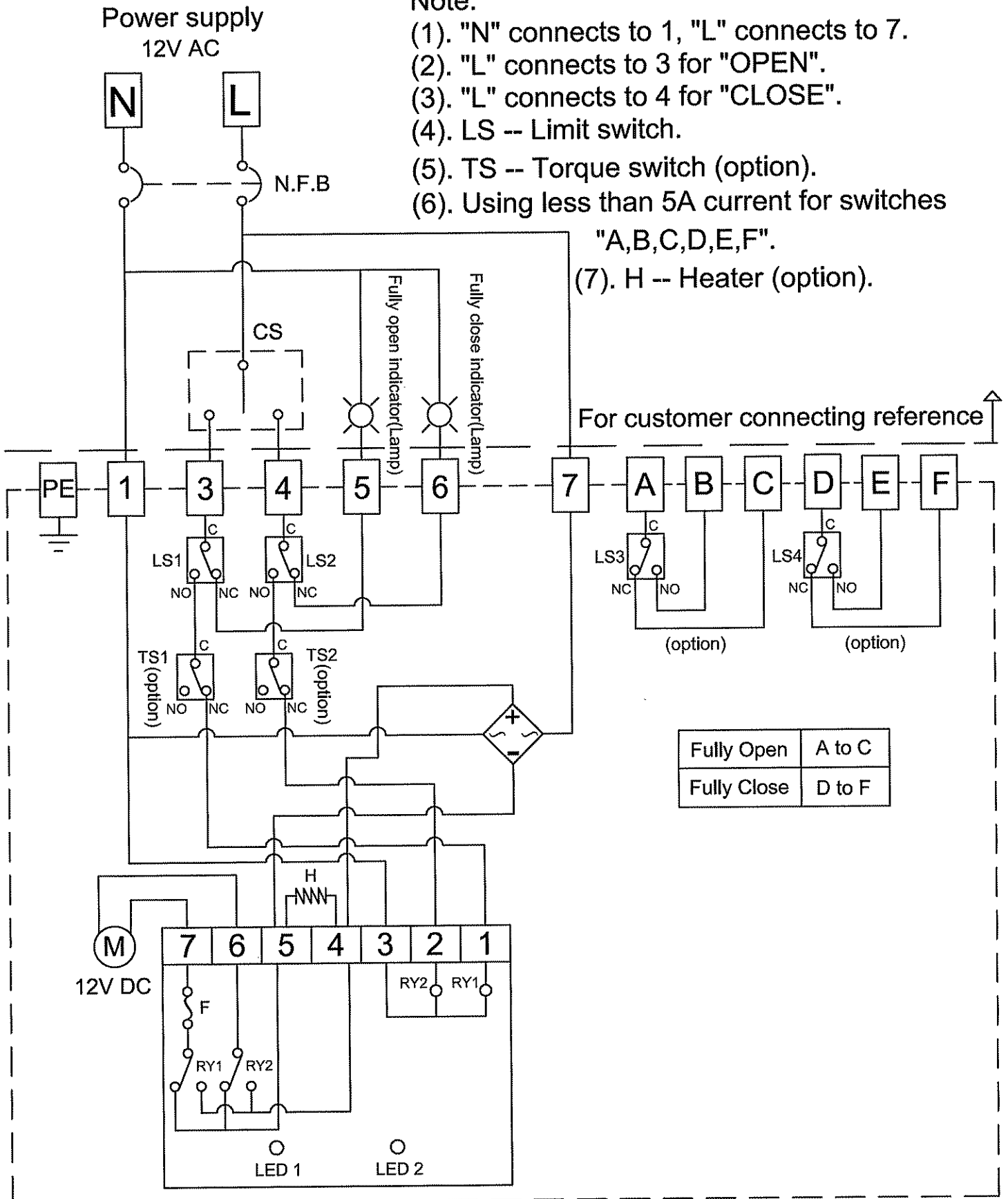
For customer connecting reference

Fully Open	A to C
Fully Close	D to F

[OM-2 ~ OM-6 12V AC]

Note:

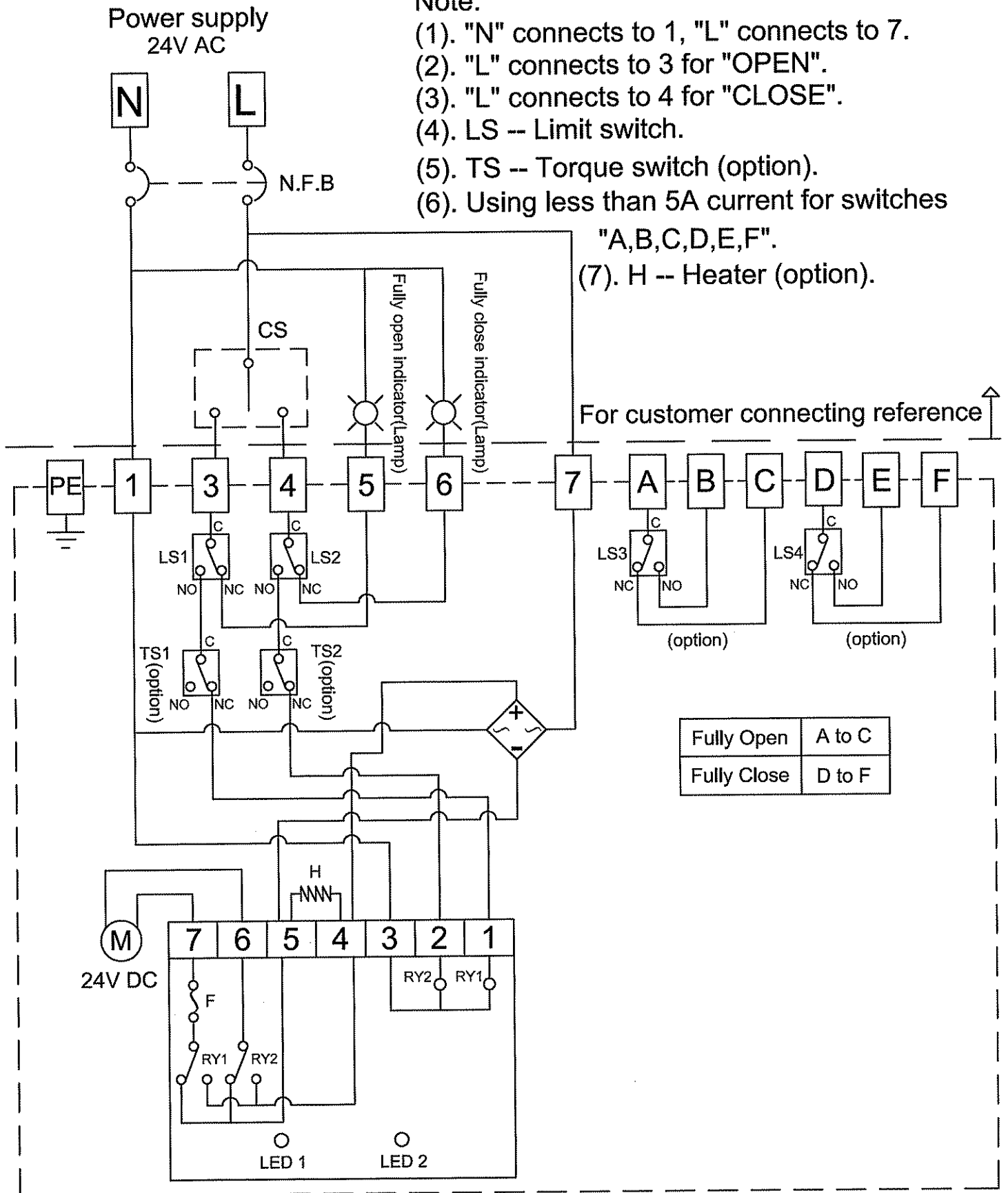
- (1). "N" connects to 1, "L" connects to 7.
- (2). "L" connects to 3 for "OPEN".
- (3). "L" connects to 4 for "CLOSE".
- (4). LS -- Limit switch.
- (5). TS -- Torque switch (option).
- (6). Using less than 5A current for switches "A,B,C,D,E,F".
- (7). H -- Heater (option).



[OM-2 ~ OM-12 24V AC]

Note:

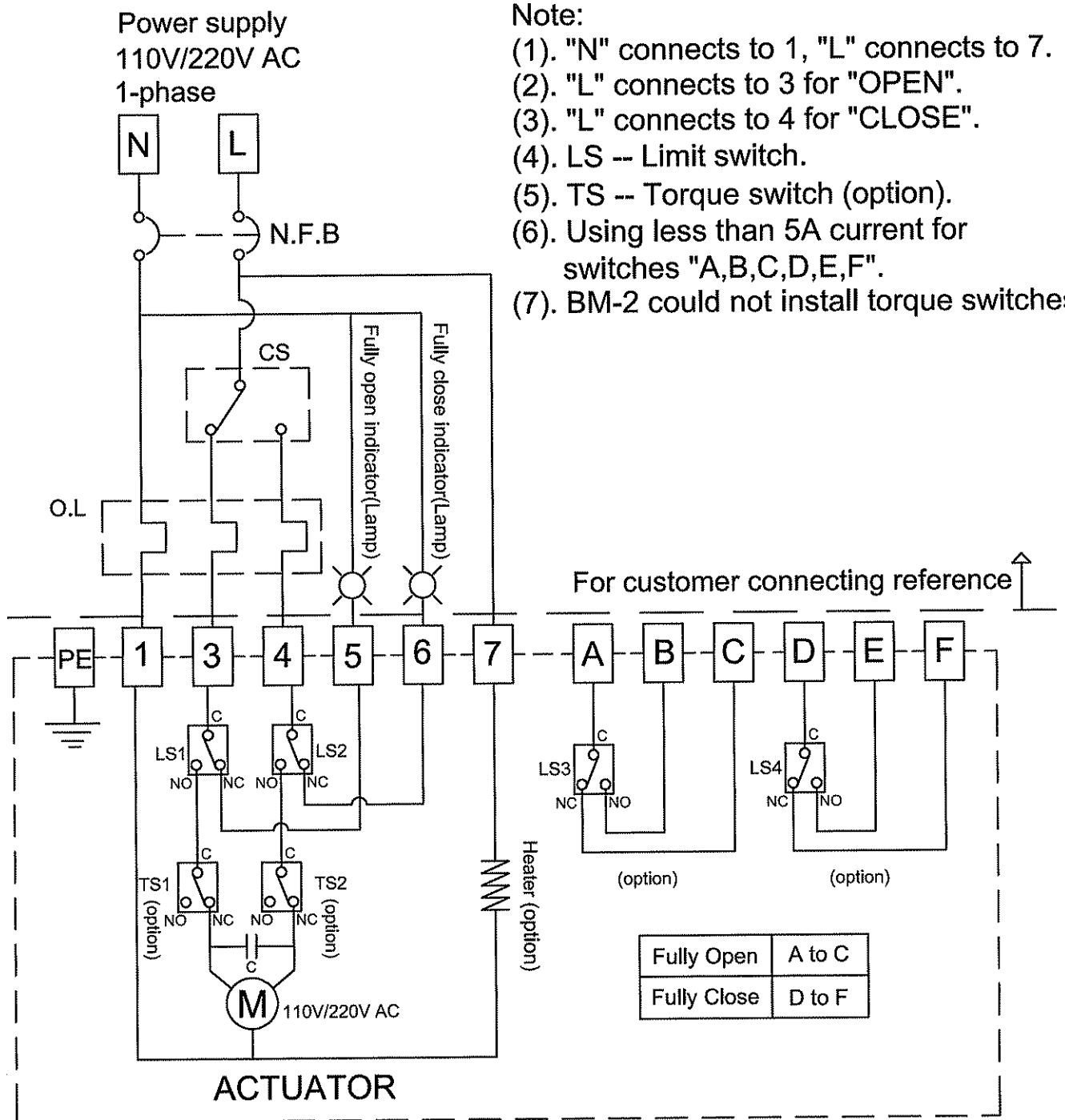
- (1). "N" connects to 1, "L" connects to 7.
- (2). "L" connects to 3 for "OPEN".
- (3). "L" connects to 4 for "CLOSE".
- (4). LS -- Limit switch.
- (5). TS -- Torque switch (option).
- (6). Using less than 5A current for switches "A,B,C,D,E,F".
- (7). H -- Heater (option).



Fully Open	A to C
Fully Close	D to F

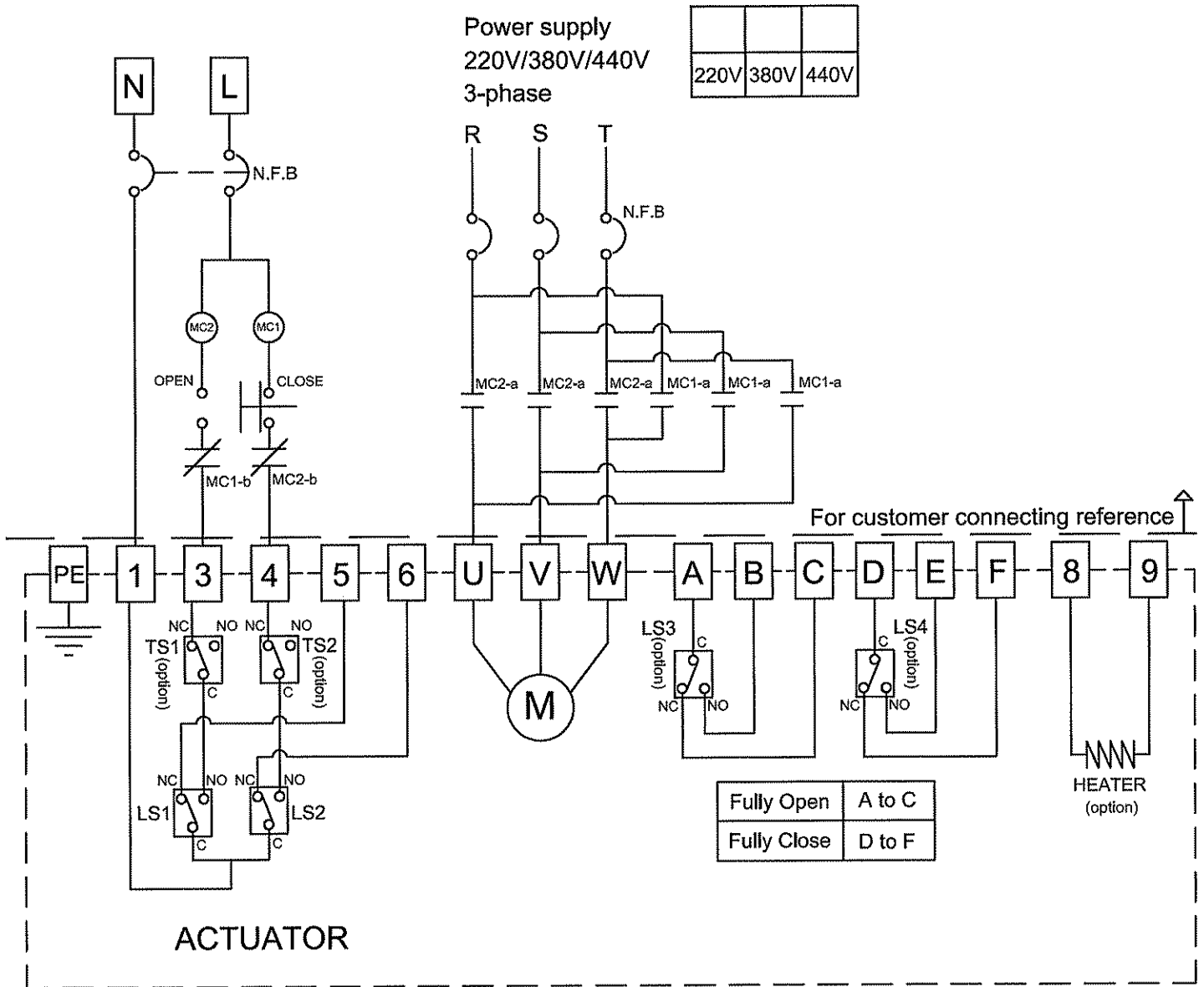
[BM-2, OM-2~OM~12 110V/220V AC 1-PH 30% duty cycle]

Note: When a set of control wire needs to control two or more actuators at the same time, please refer P.71.

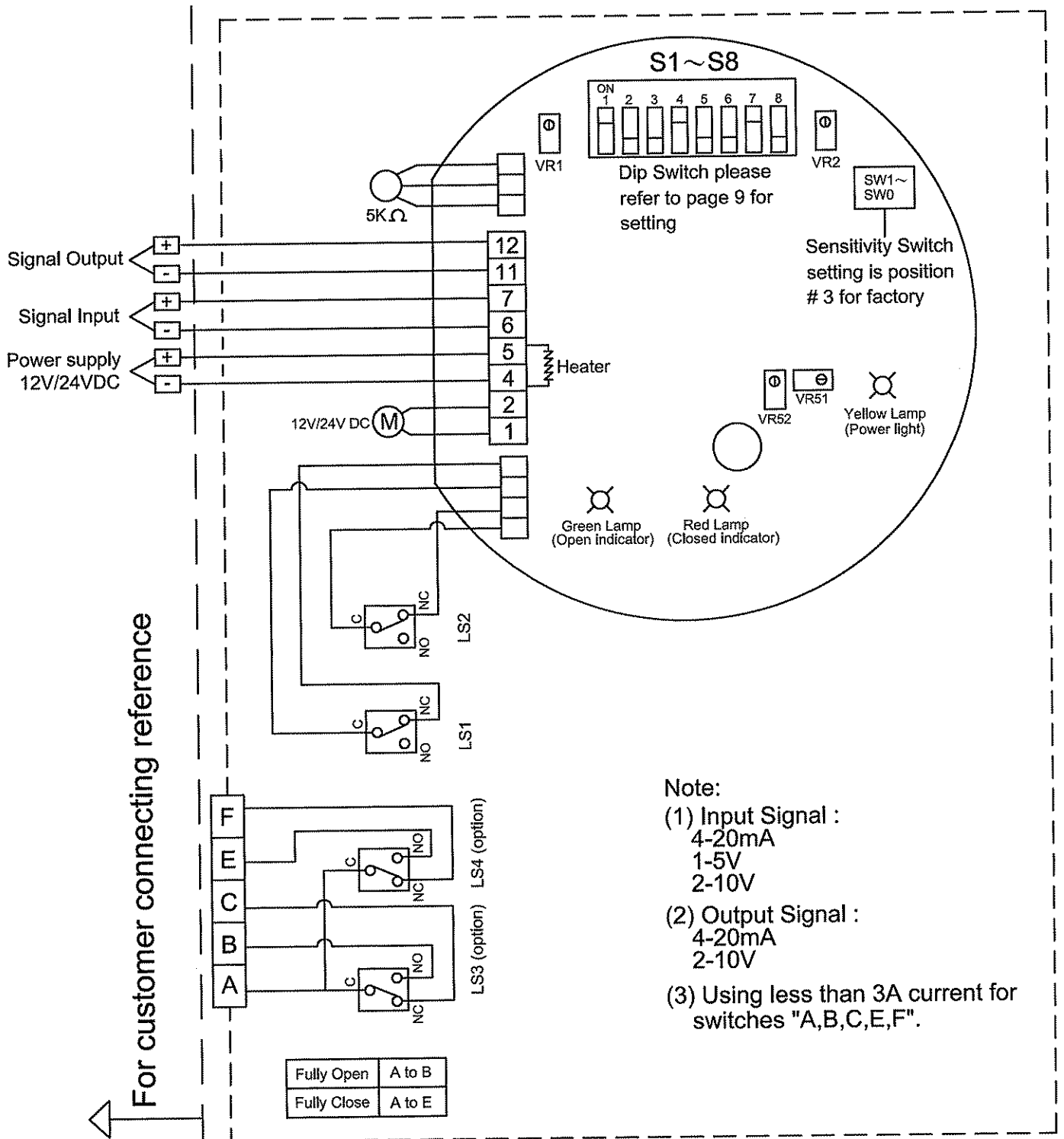


[BM-2, OM-2 ~ OM-12 220V/380V/440V 3-PH]

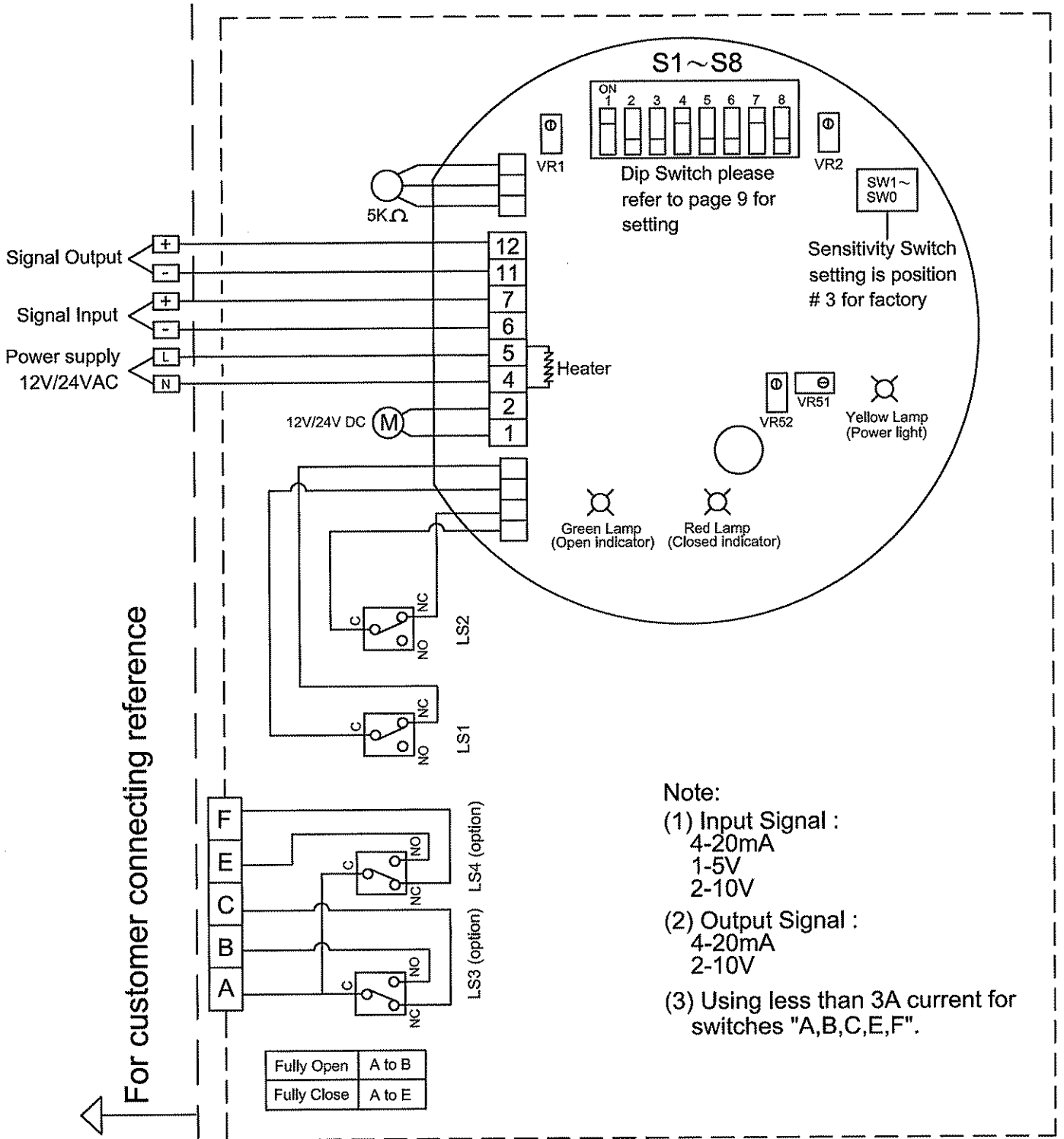
Note: BM-2 could not install torque switches.



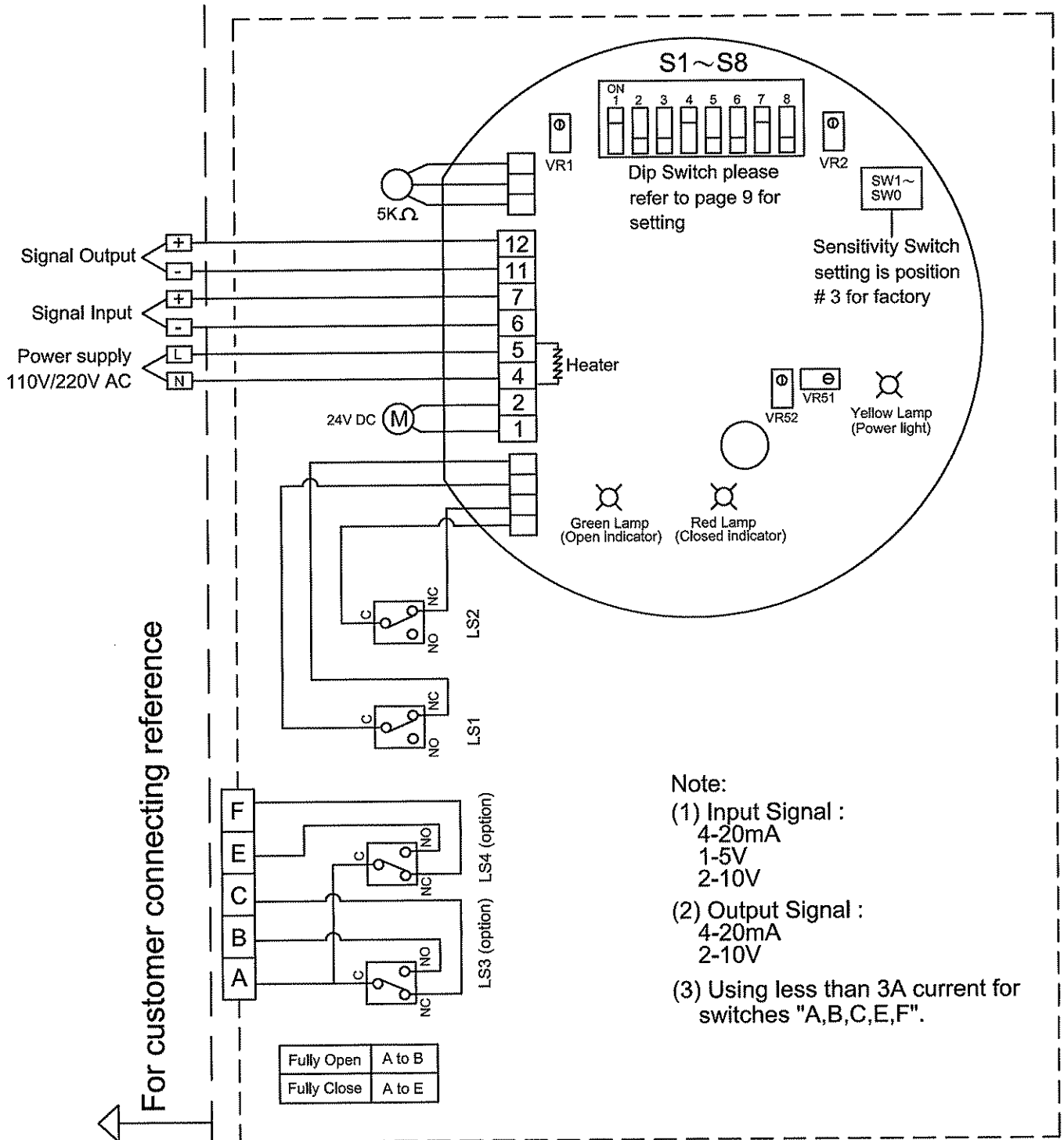
[OM-1 & OM-A & OM-A-M 12V/24V DC / Modulating Service]



[OM-1 & OM-A & OM-A-M 12V/24V AC / Modulating Service]

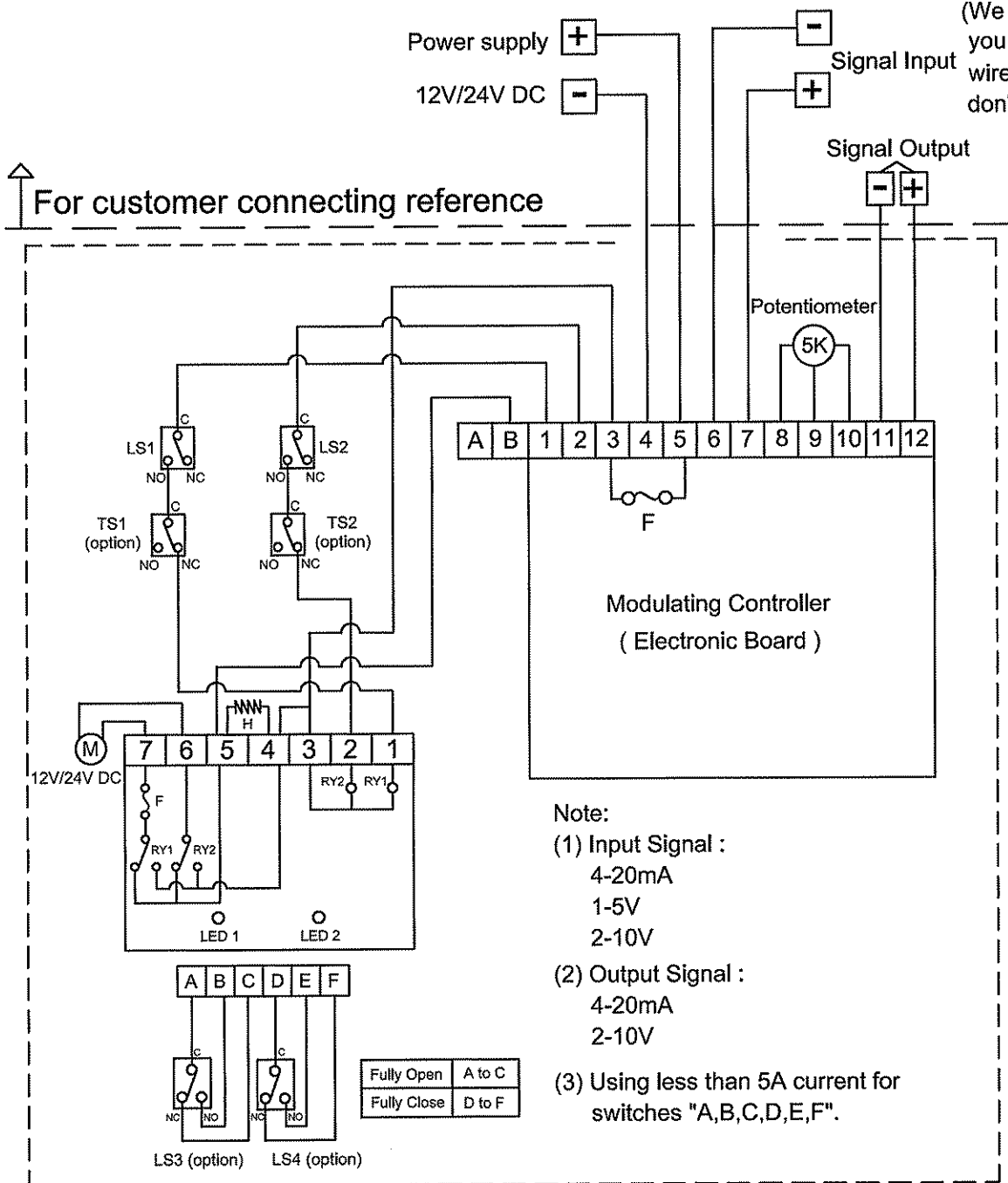


[OM-1 & OM-A & OM-A-M 110V/220V AC / Modulating Service]

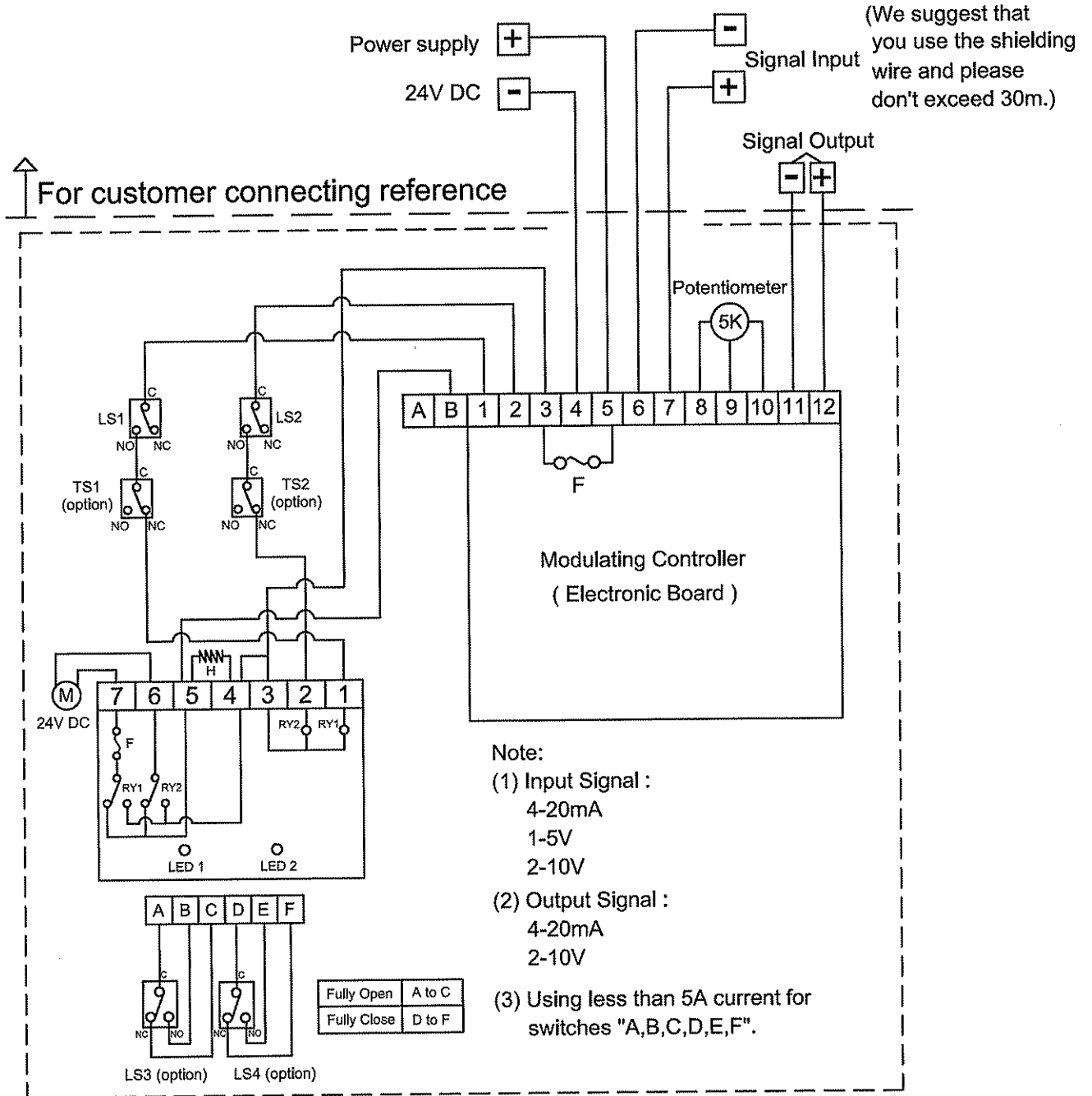


[OM-2 ~ OM-6 12V/24V DC / Modulating Service]

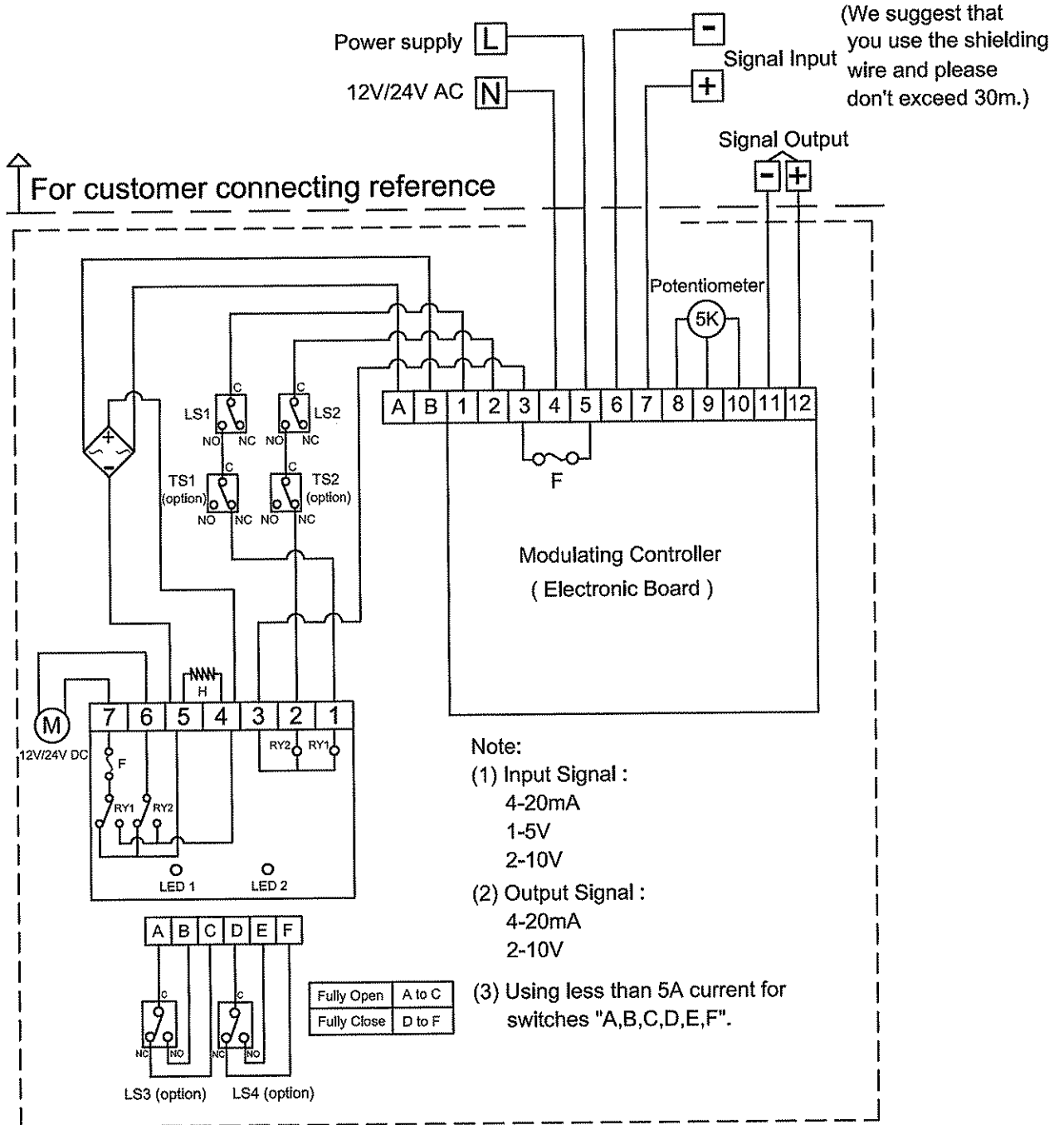
(We suggest that you use the shielding wire and please don't exceed 30m.)



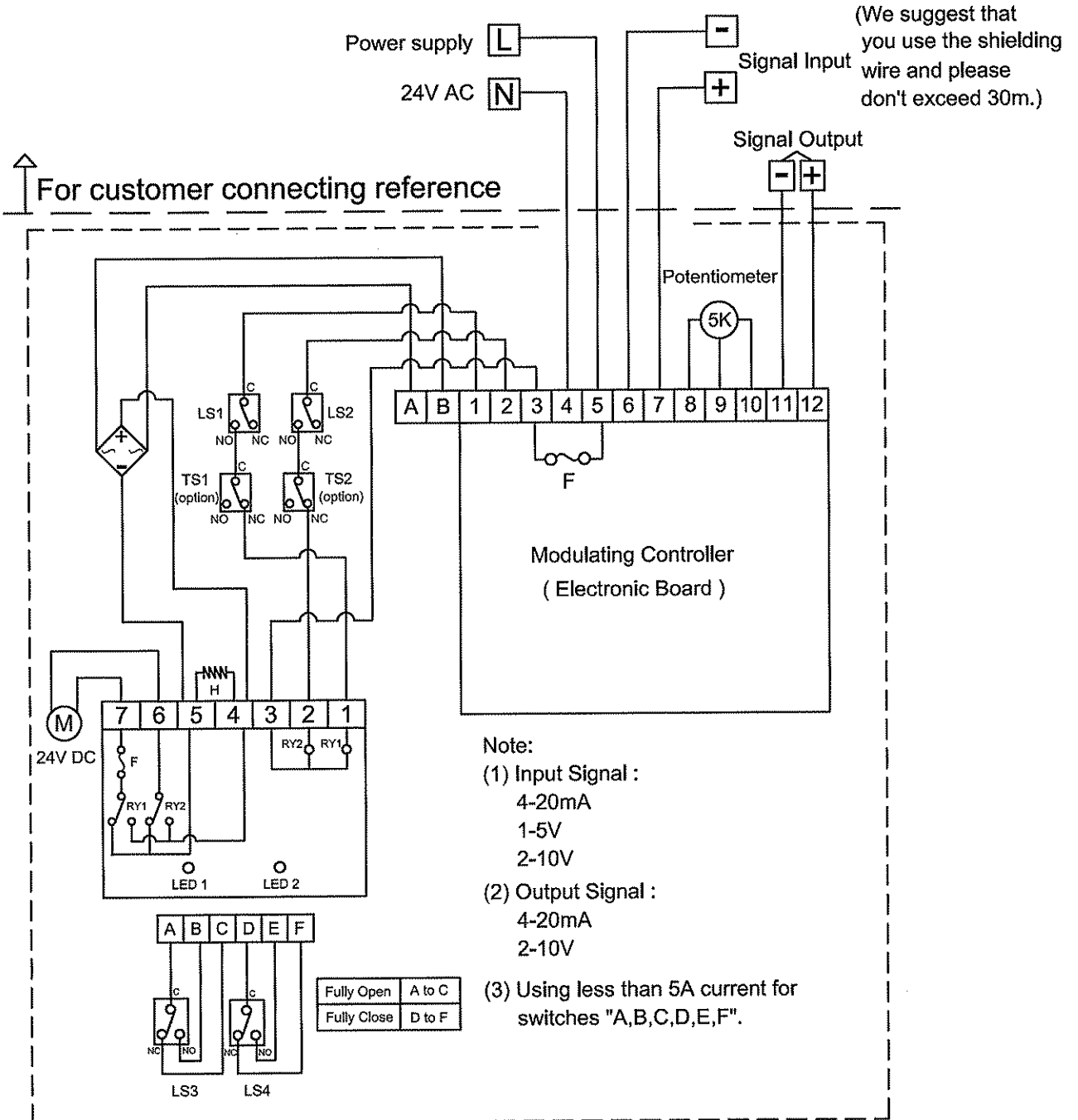
[OM-2 ~ OM-12 24V DC / Modulating Service]



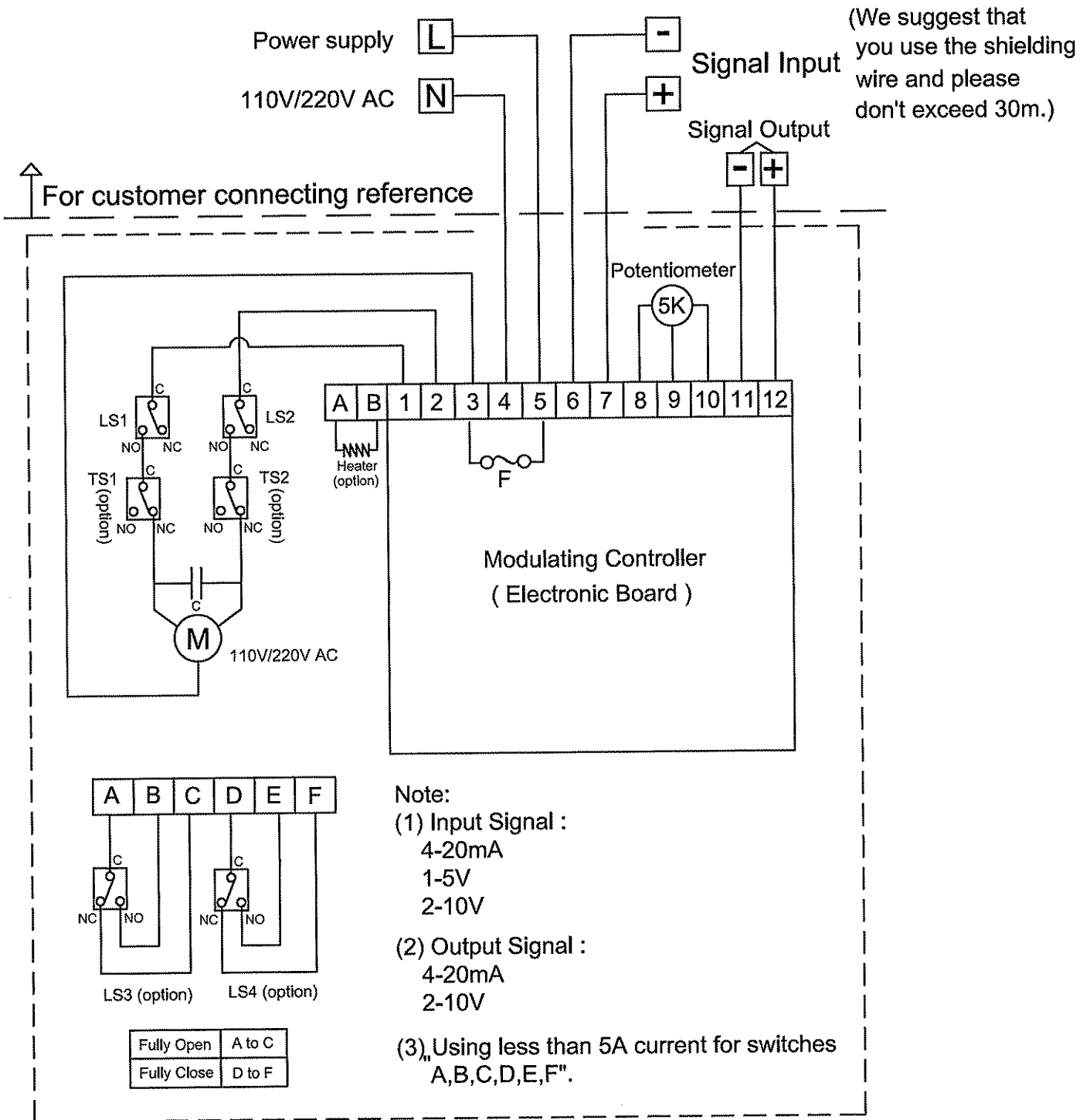
[OM-2 ~ OM-6 12V/24V AC / Modulating Service]



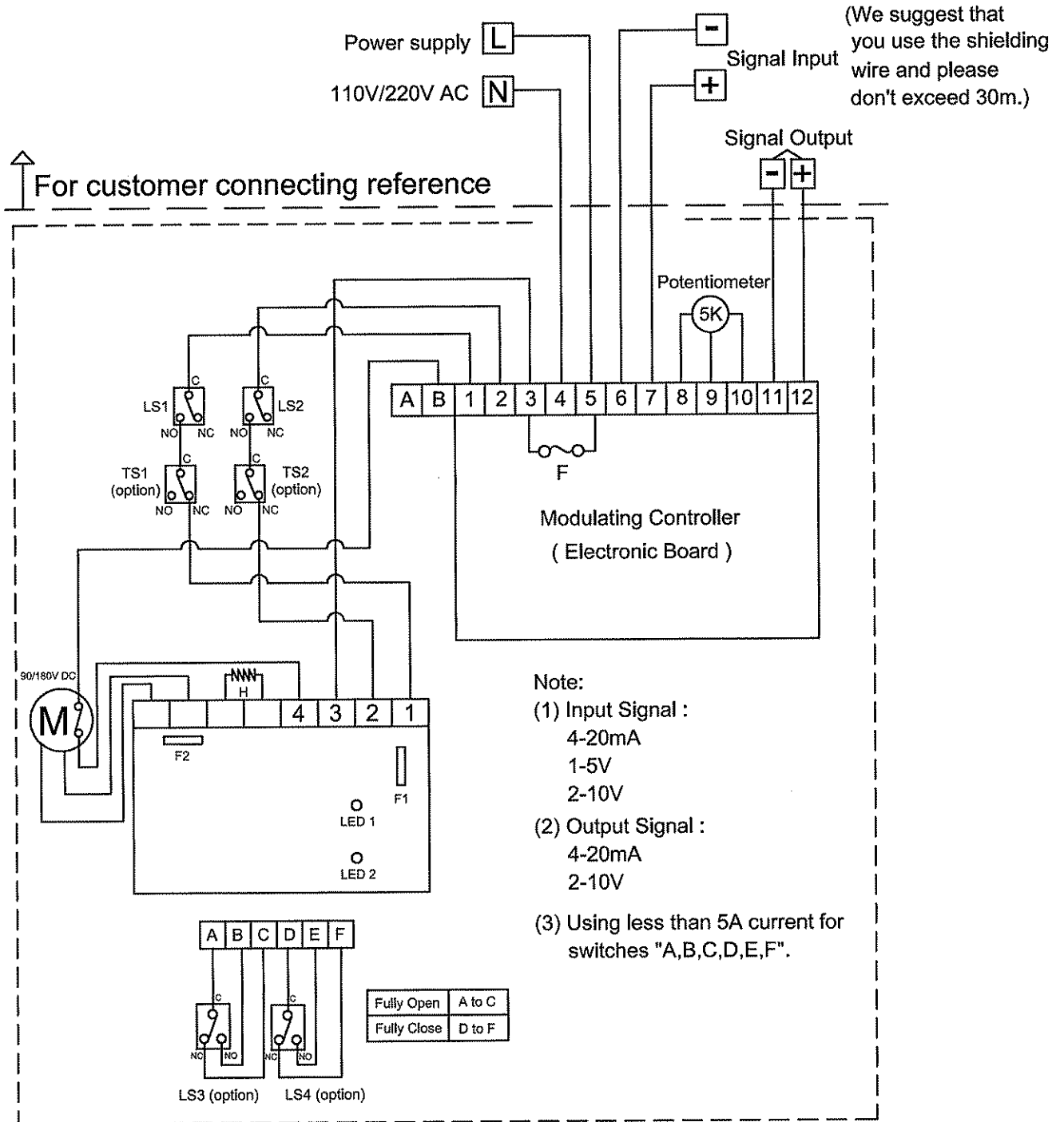
[OM-2 ~ OM-12 24V AC / Modulating Service]



[OM-2 ~ OM-8 110V/220V AC 1-PH / Modulating Service
30% Duty Cycle]



[OM-2 ~ OM-8 110V/220V AC 1-PH / Modulating
Service 75% Duty Cycle]

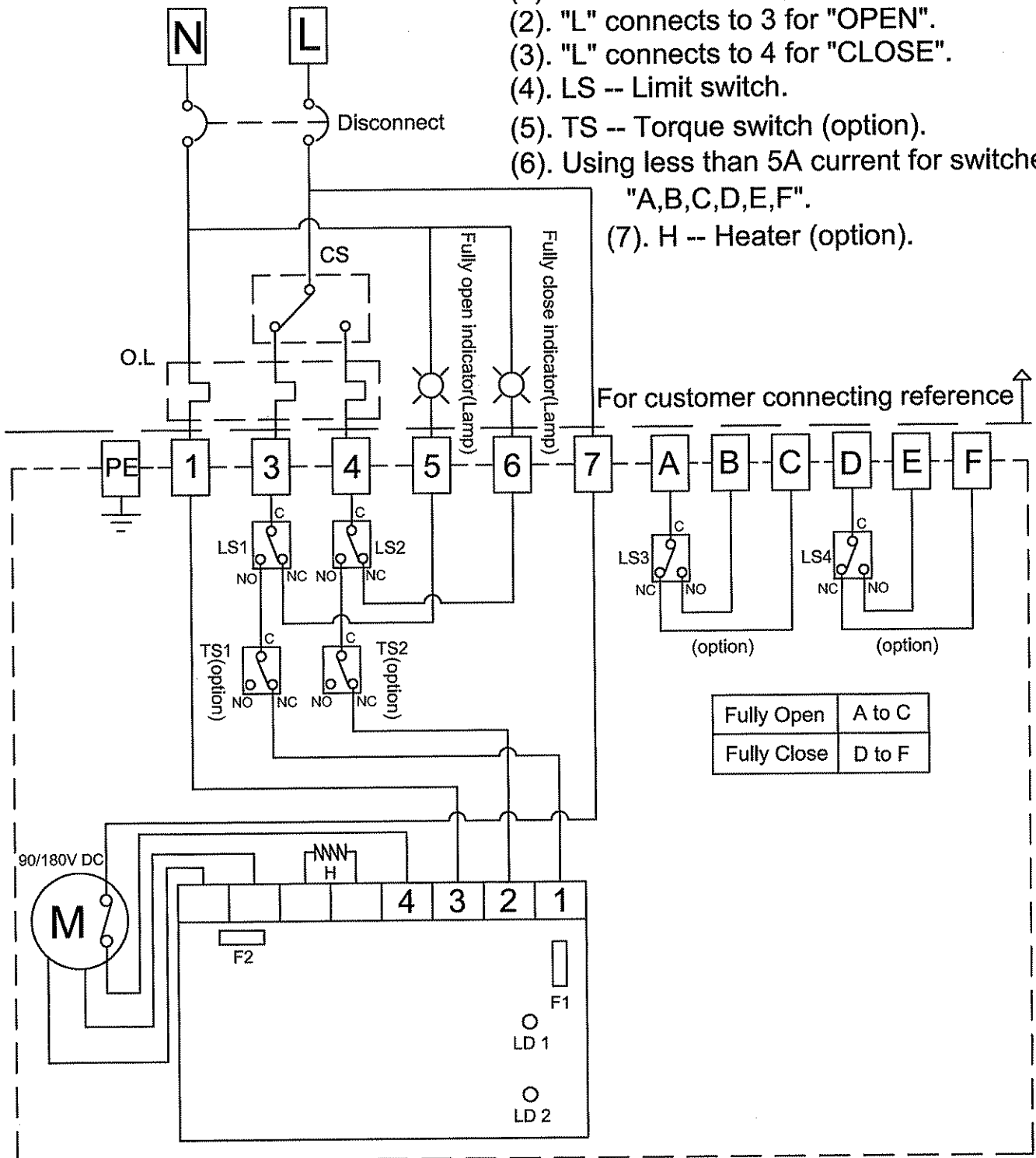


[OM-2~OM-8 110V/220V AC 1-PH / ON-OFF Service 75% duty cycle]

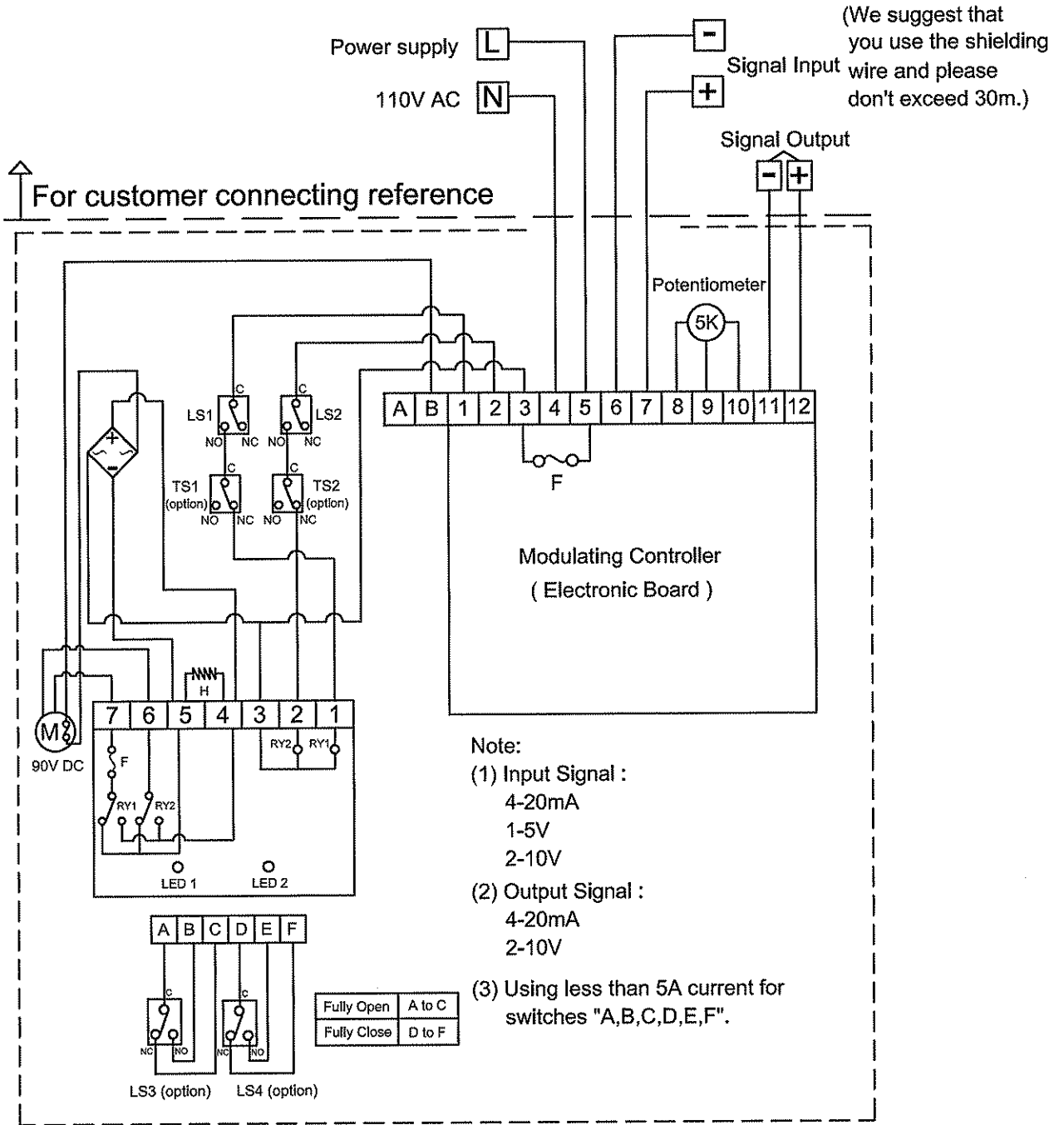
Power supply
110V/220V AC
1 - phase

Note:

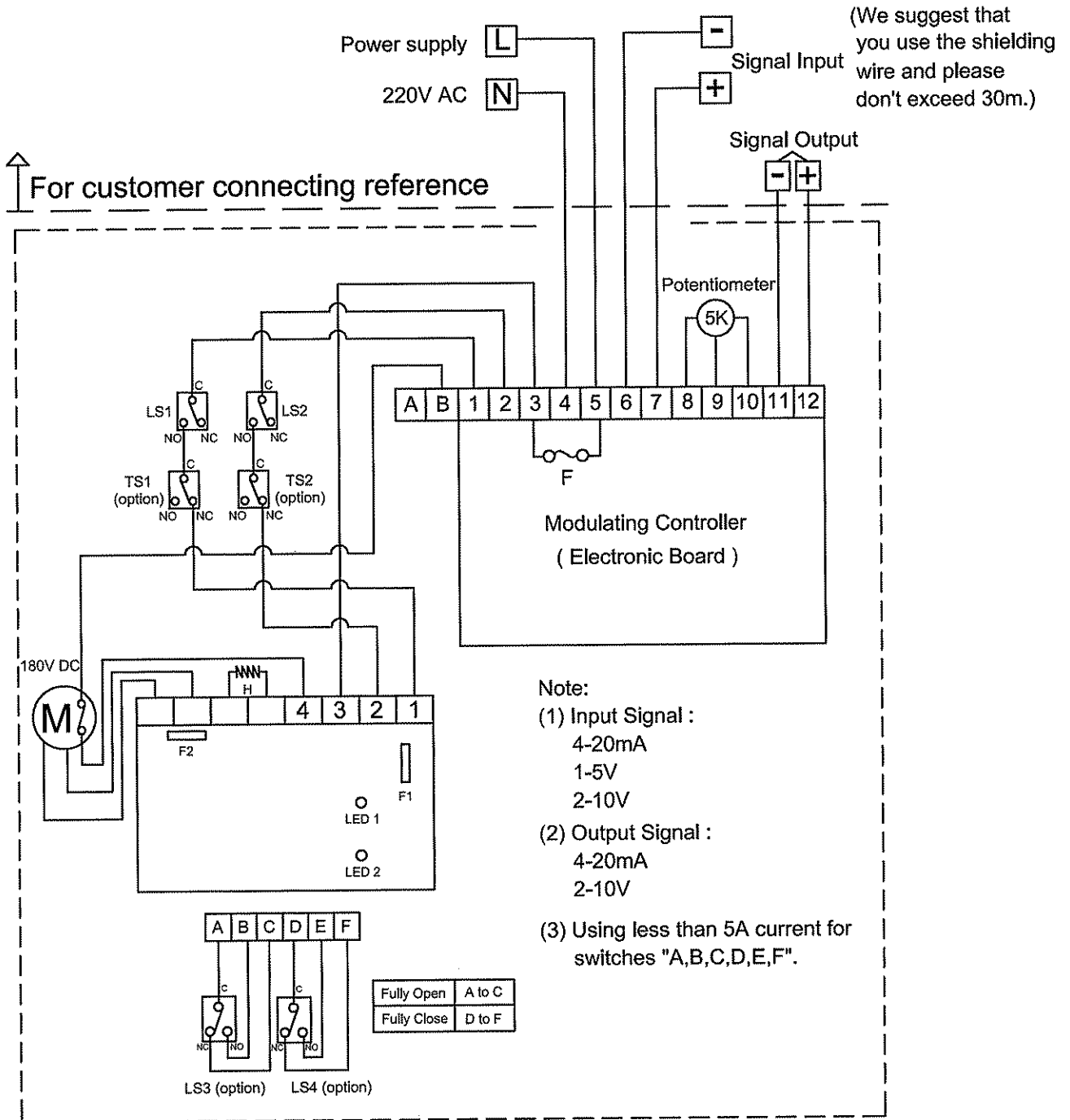
- (1). "N" connects to 1, "L" connects to 7.
- (2). "L" connects to 3 for "OPEN".
- (3). "L" connects to 4 for "CLOSE".
- (4). LS -- Limit switch.
- (5). TS -- Torque switch (option).
- (6). Using less than 5A current for switches "A,B,C,D,E,F".
- (7). H -- Heater (option).



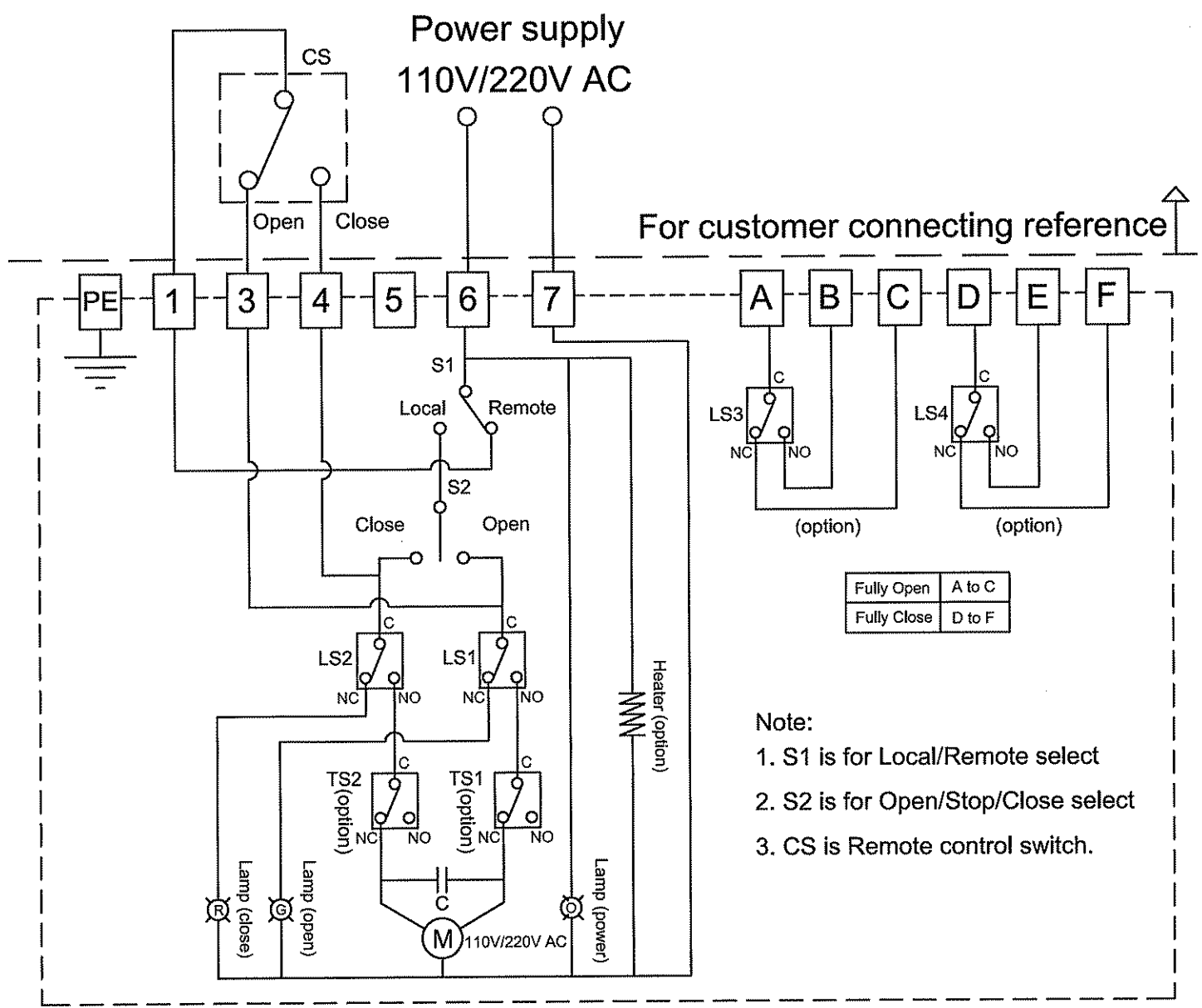
[OM-9 ~ OM-12 110V AC 1-PH / Modulating Service 50% Duty Cycle]



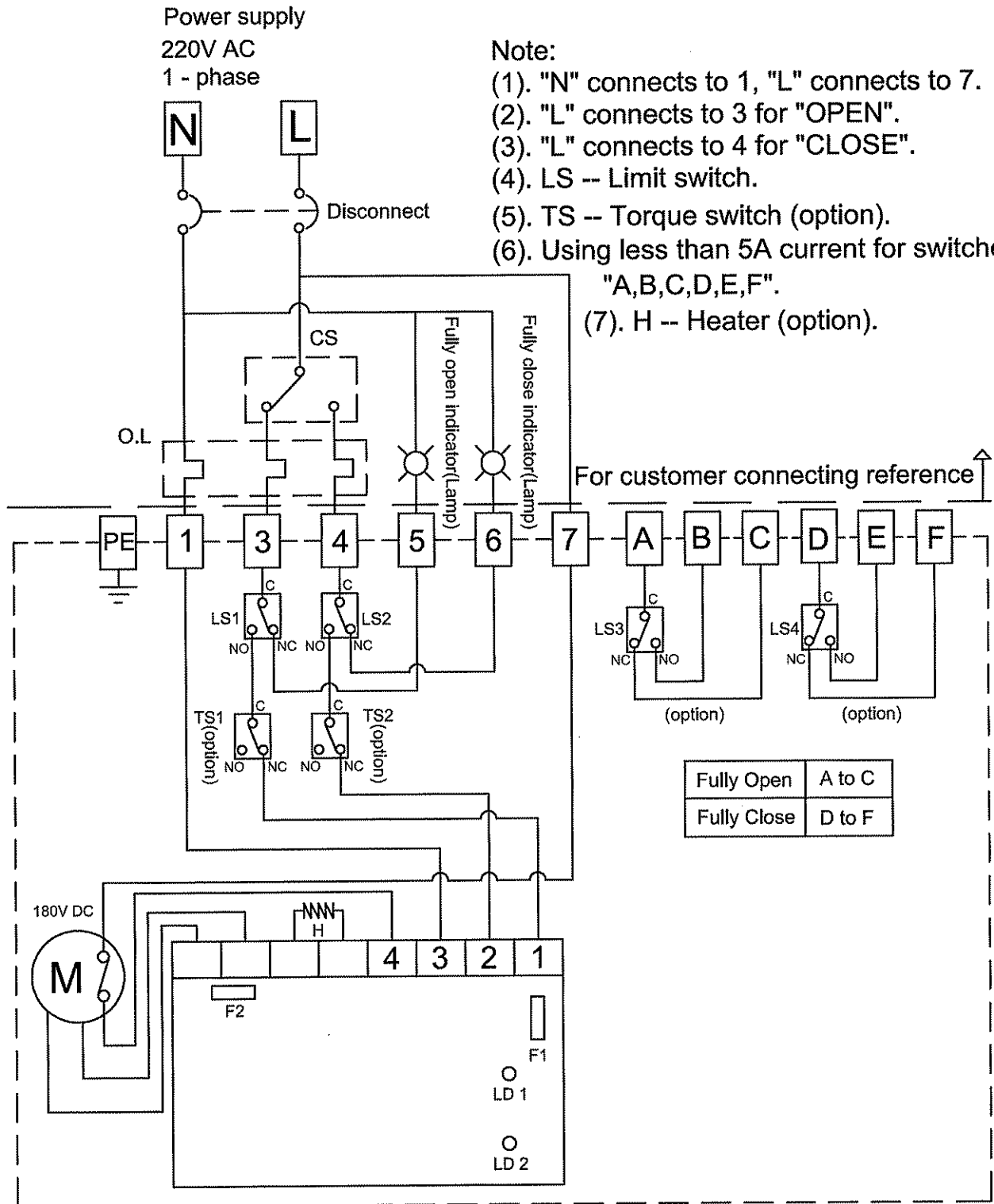
[OM-9 ~ OM-12 220V AC 1-PH / Modulating Service 50% Duty Cycle]



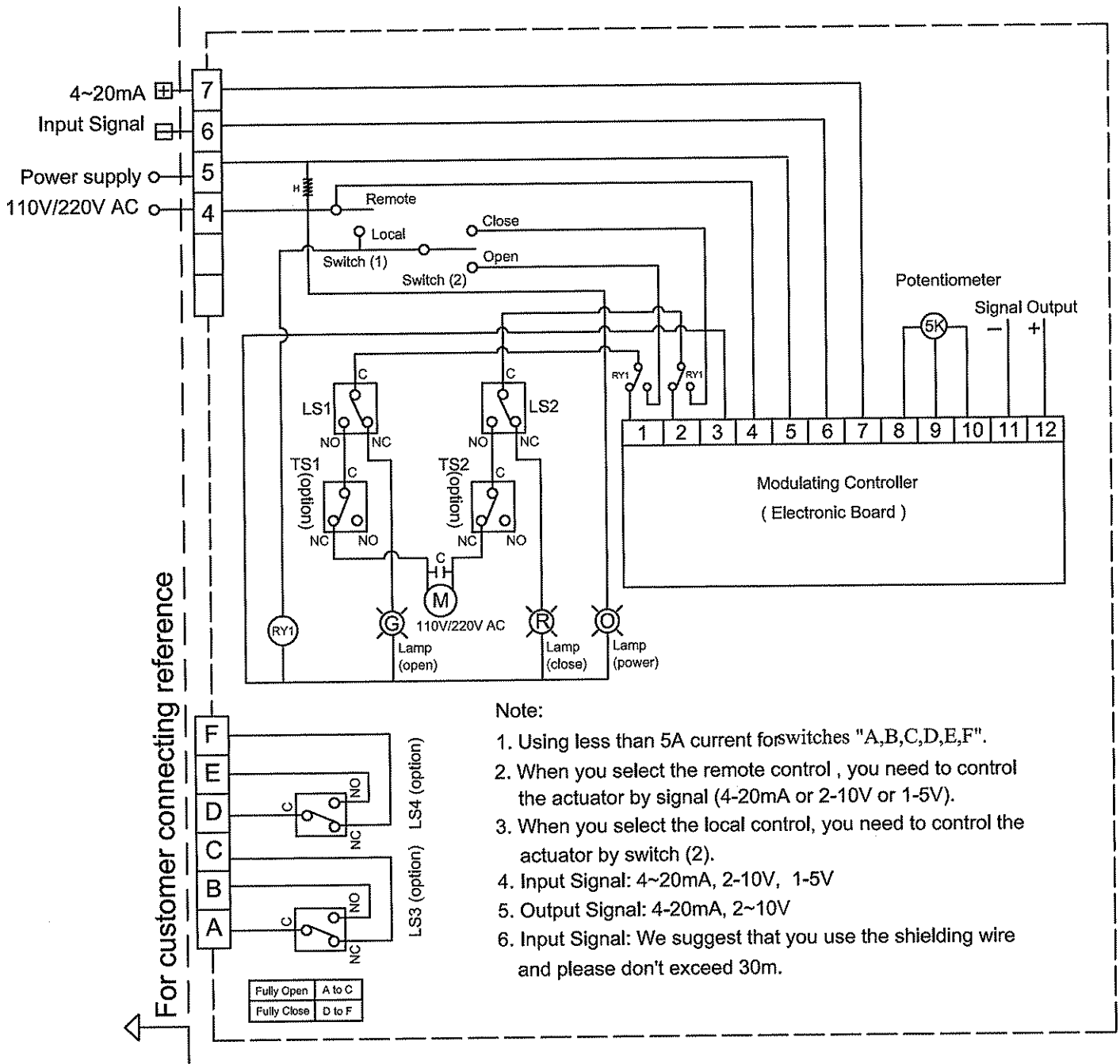
[OM-2~OM-12 110V/220V AC 1-PH / ON/OFF Service / Local/Remote Selection Switch]



[OM-9~OM-12 220V AC 1-PH / ON-OFF Service 50% duty cycle]



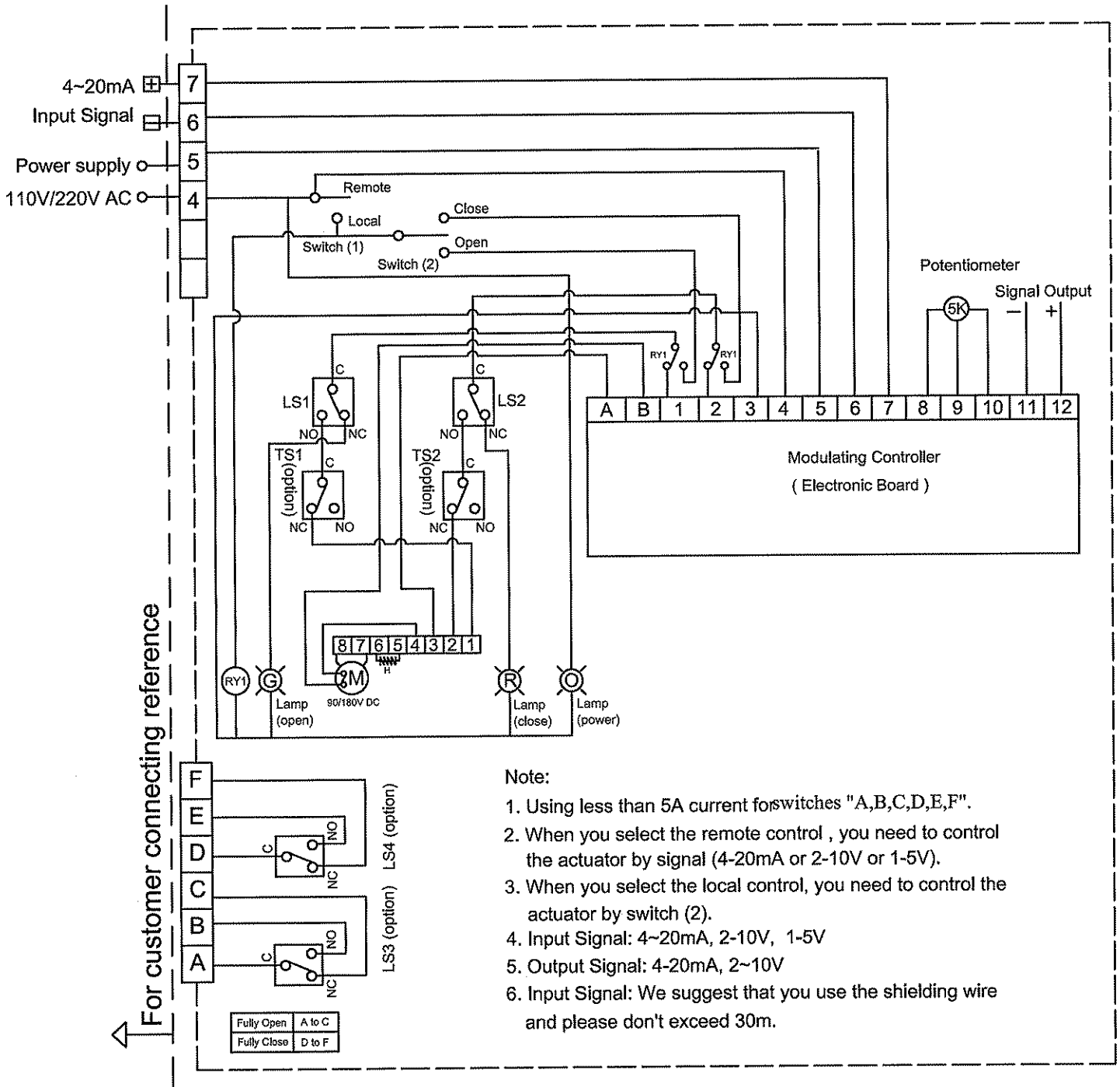
[OM-2~OM-8 110V/220V AC 1-PH / Modulating Service /
Local/Remote Selection Switch]



Note:

1. Using less than 5A current for switches "A,B,C,D,E,F".
2. When you select the remote control, you need to control the actuator by signal (4-20mA or 2-10V or 1-5V).
3. When you select the local control, you need to control the actuator by switch (2).
4. Input Signal: 4~20mA, 2~10V, 1~5V
5. Output Signal: 4~20mA, 2~10V
6. Input Signal: We suggest that you use the shielding wire and please don't exceed 30m.

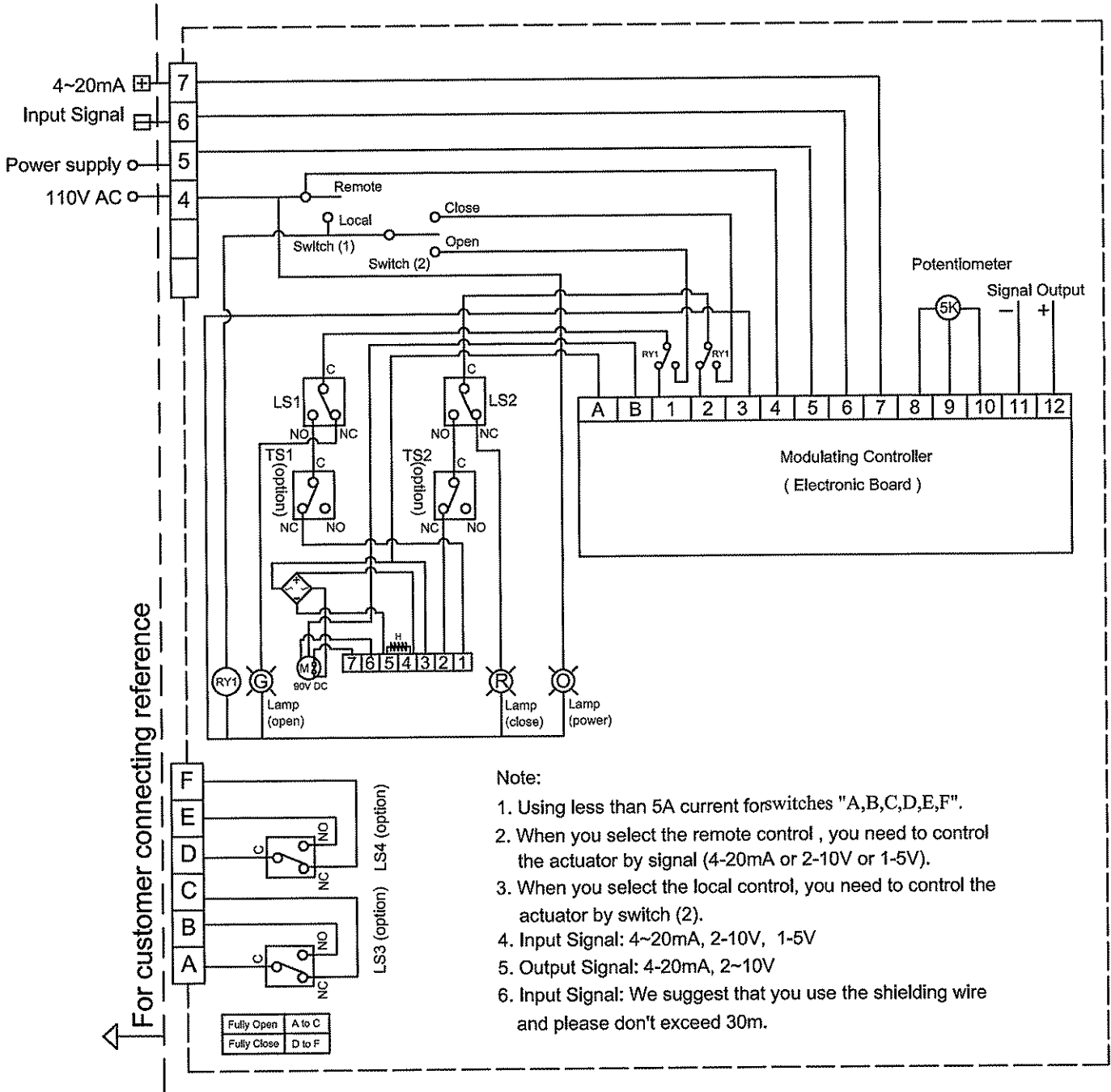
[OM-2~OM-8 110V/220V AC 1-PH / Modulating Service /
Local/Remote Selection Switch 75% duty cycle]



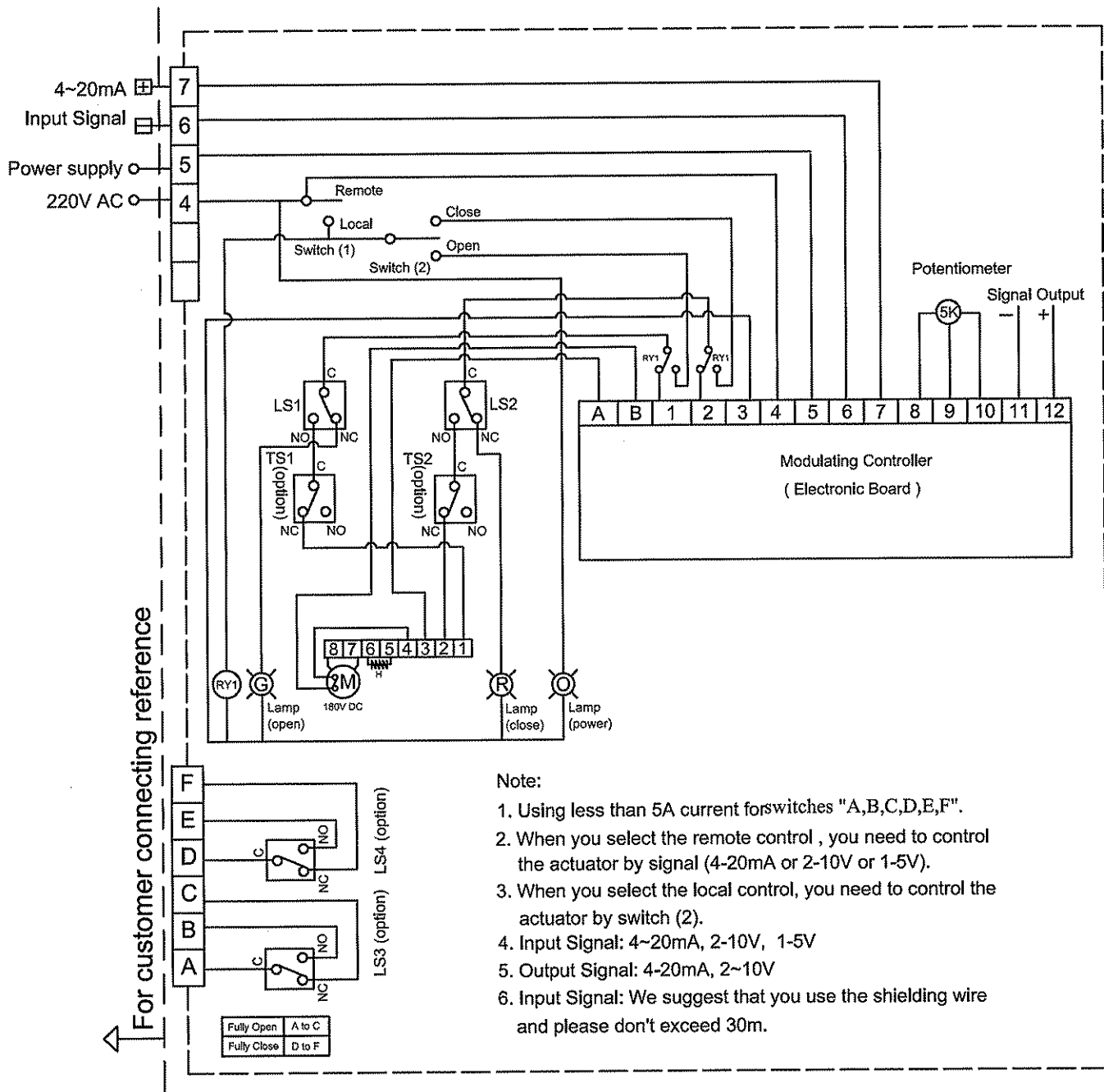
Note:

1. Using less than 5A current for switches "A,B,C,D,E,F".
2. When you select the remote control , you need to control the actuator by signal (4-20mA or 2-10V or 1-5V).
3. When you select the local control, you need to control the actuator by switch (2).
4. Input Signal: 4~20mA, 2-10V, 1-5V
5. Output Signal: 4-20mA, 2~10V
6. Input Signal: We suggest that you use the shielding wire and please don't exceed 30m.

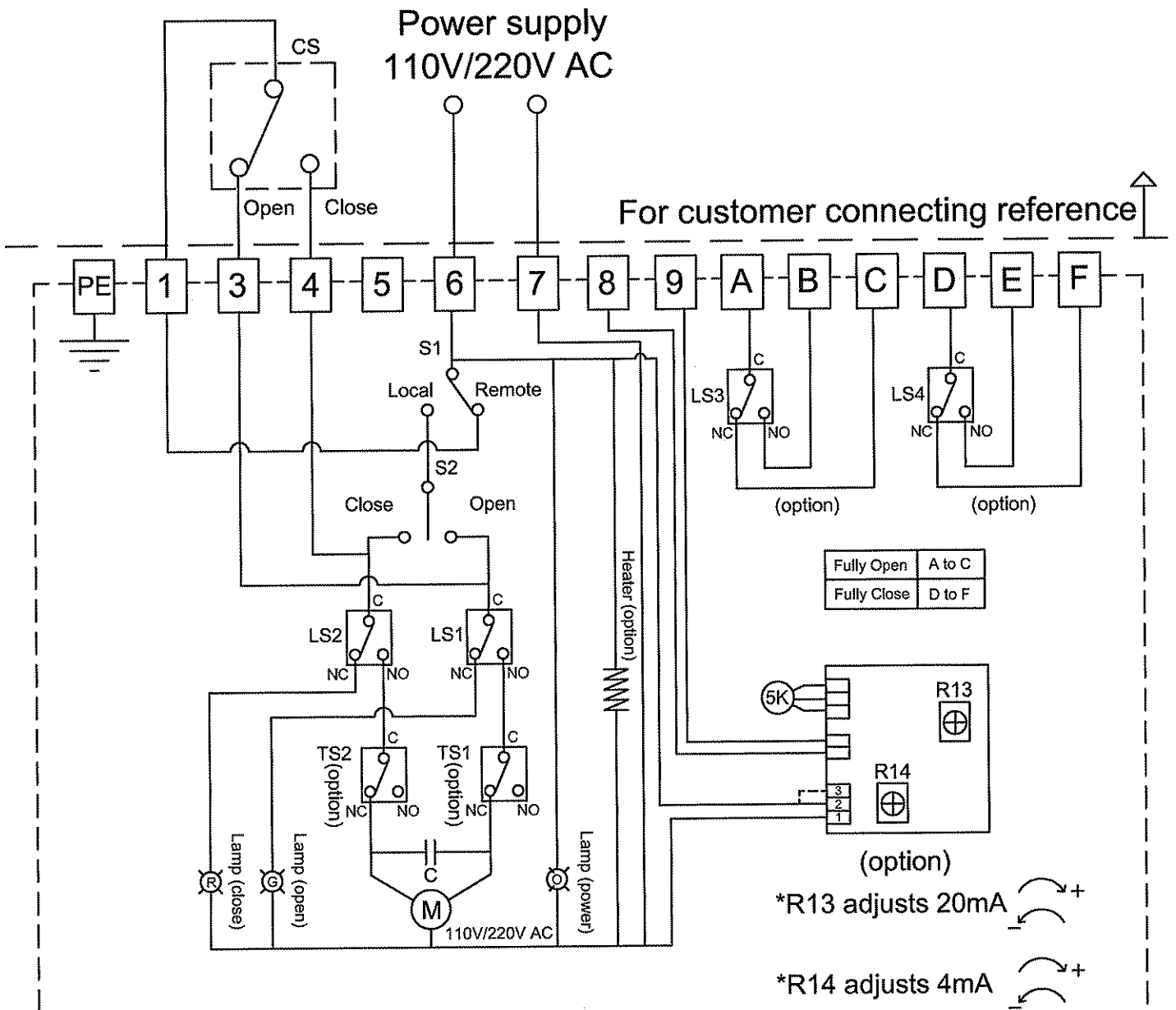
[OM-9~OM-12 110V AC 1-PH / Modulating Service / Local/Remote Selection Switch]



[OM-9~OM-12 220V AC 1-PH / Modulating Service / Local/Remote Selection Switch]



[OM-2~OM-12 110V/220V AC 1-PH / ON/OFF Service /
Local/Remote Selection Switch / 4-20mA Output Signal]

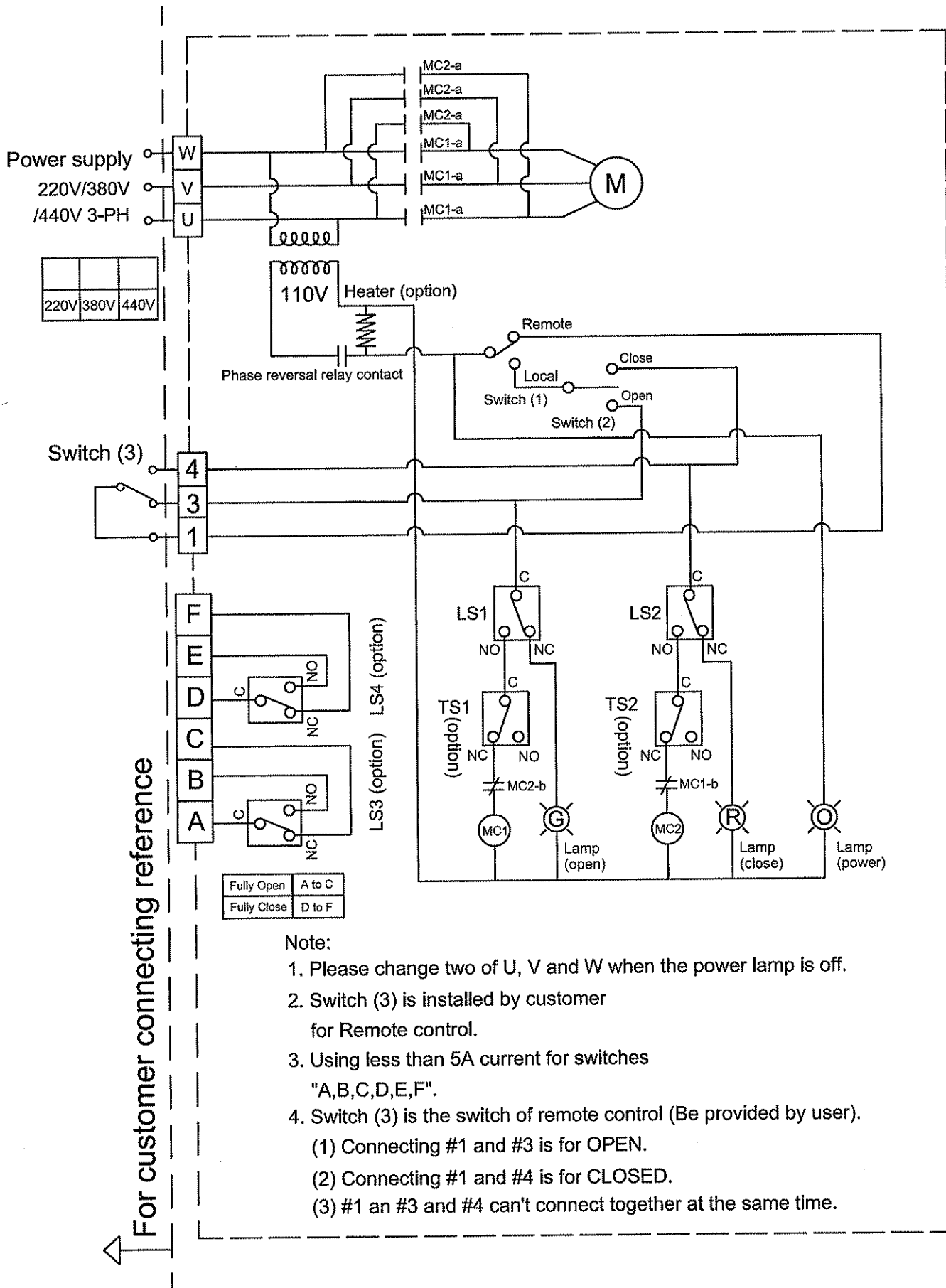


Note:

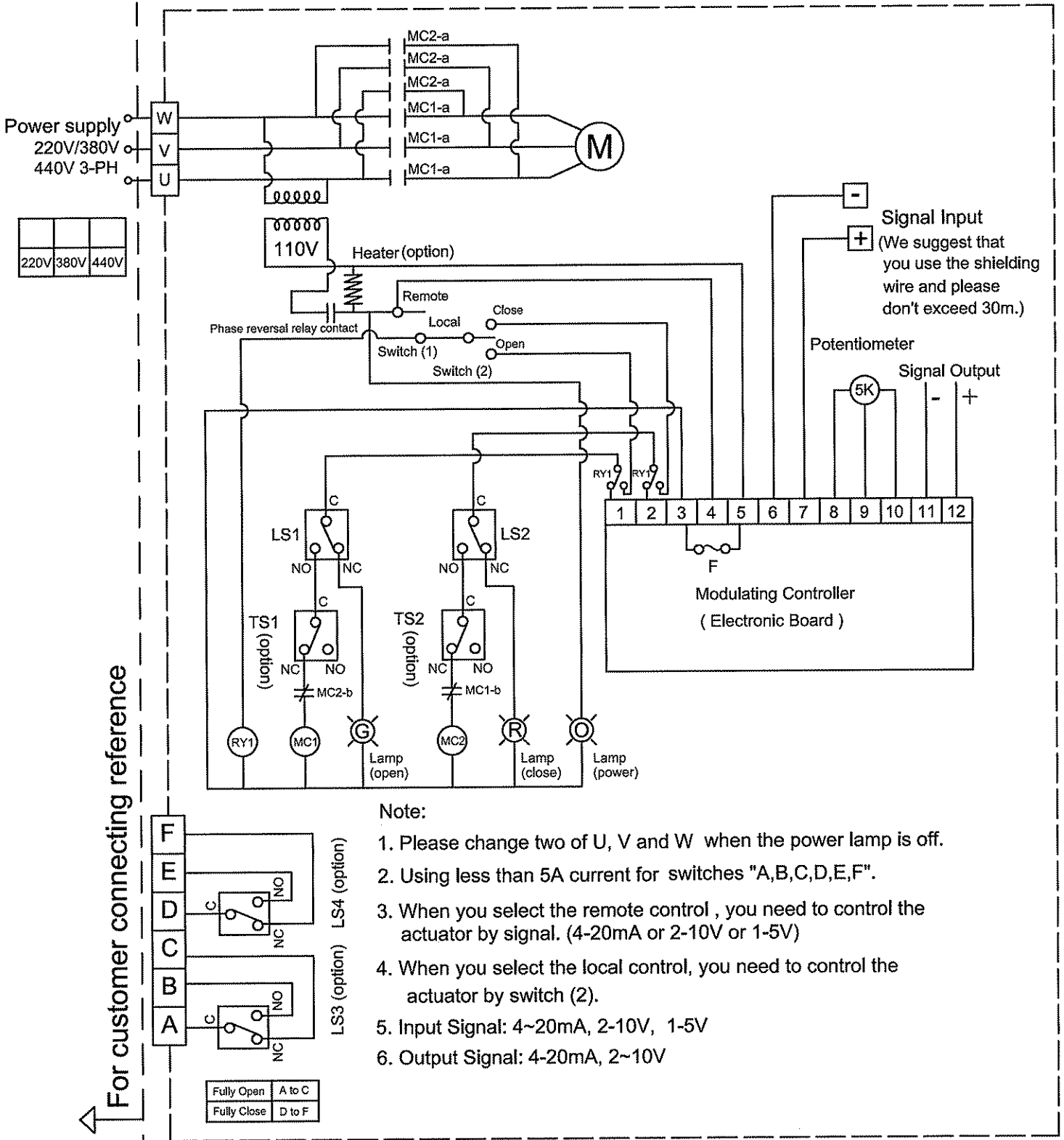
1. S1 is for Local/Remote select
2. S2 is for Open/Stop/Close select
3. CS is Remote control switch.

- *If the control power is 220VAC, N & L connect to #1 & #3 .
- *If the control power is 110VAC, N & L connect to #1 & #2 or #2 & #3.

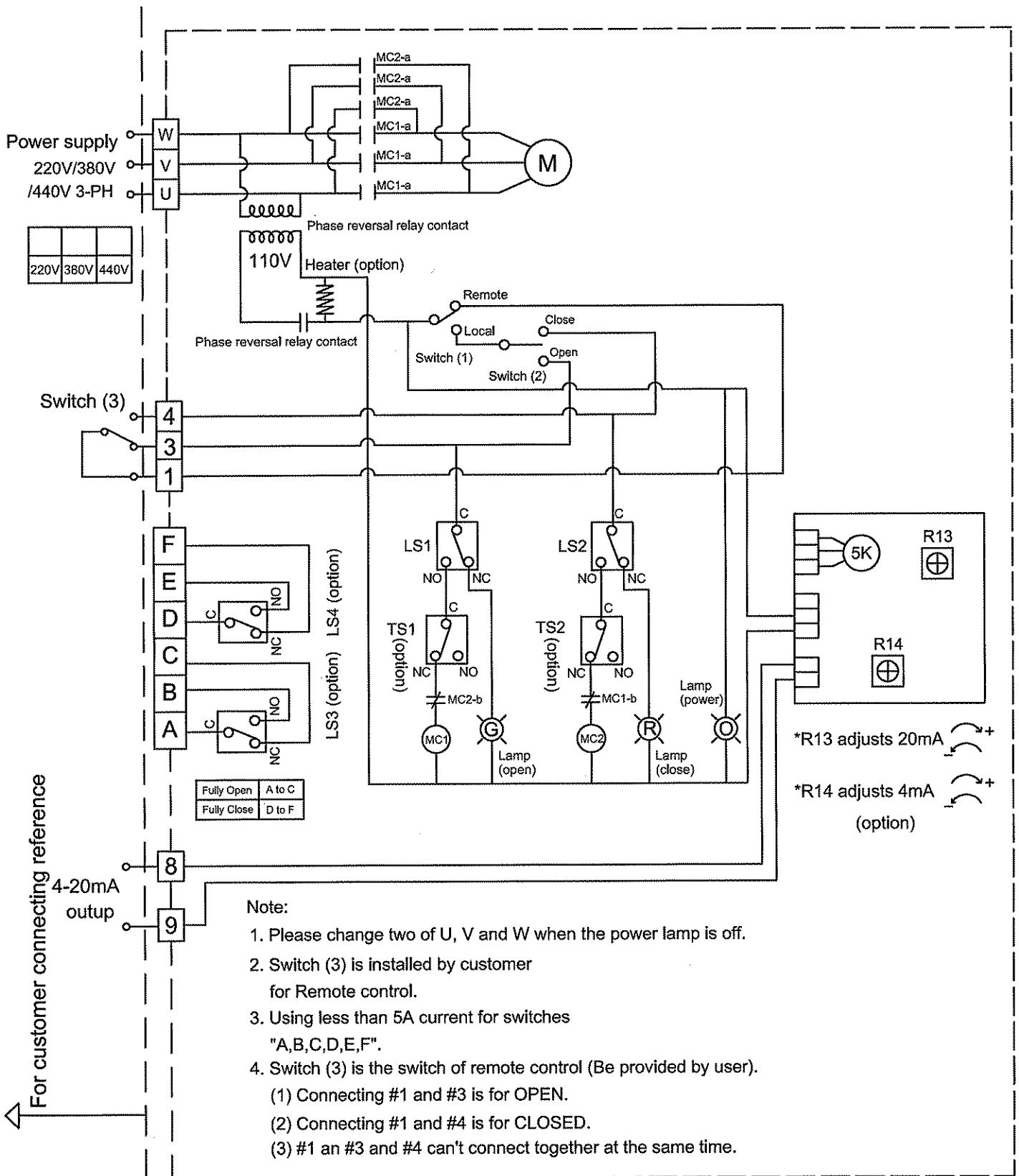
[OM-2~OM-12 220V/380V/440V 3-PH / ON/OFF Service / Local/Remote Selection Switch]



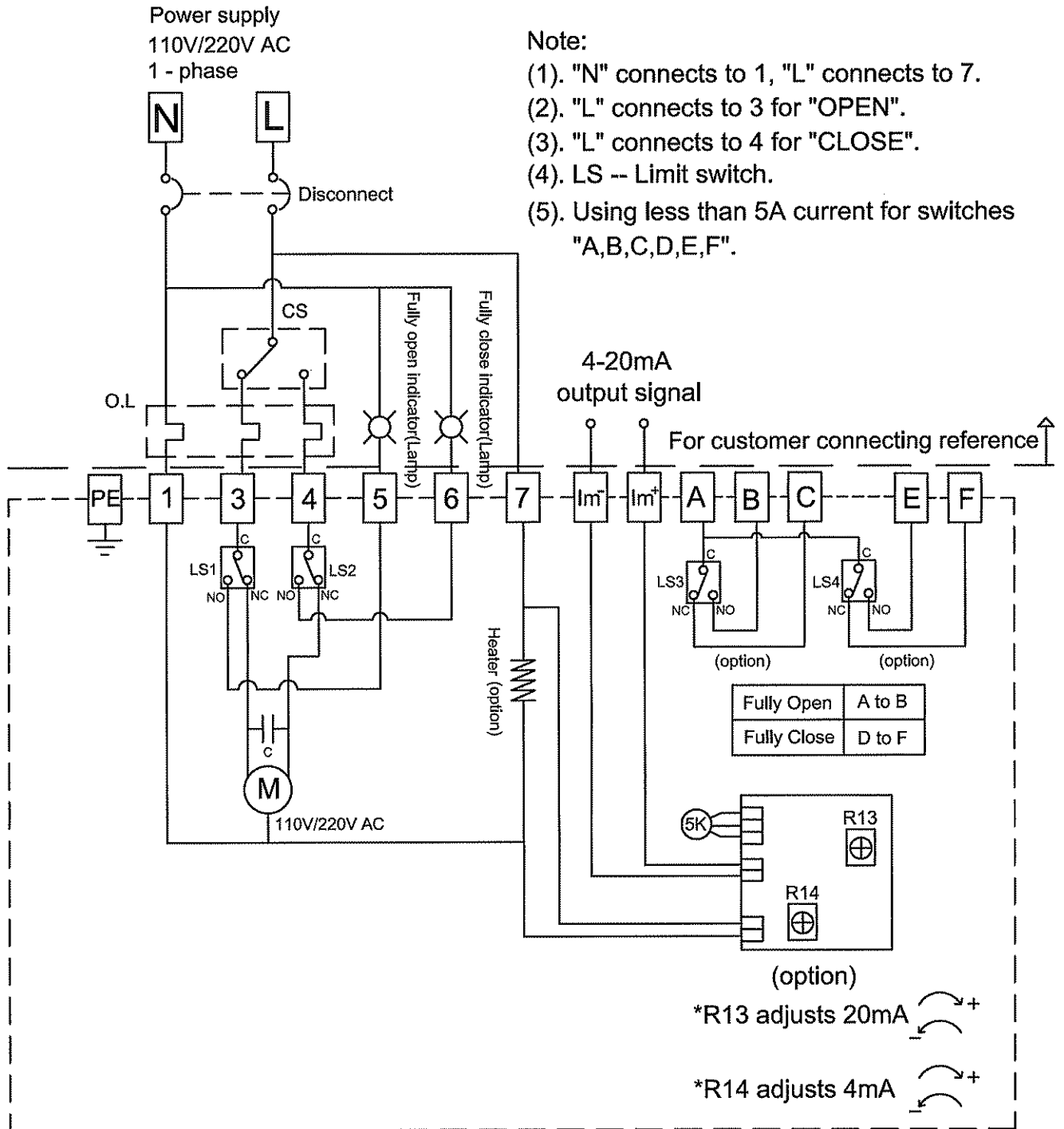
[OM-2 ~ OM-12 220V/380V/440V 3-PH / Modulating Service]



[OM-2~OM-12 220V/380V/440V 3-PH / ON/OFF Service /
Local/Remote Selection Switch / 4-20mA Output Signal 30% duty cycle]



[OM-1 & OM-A & OM-A-M 110V/220V AC 1-PH / 4-20mA Output Signal]

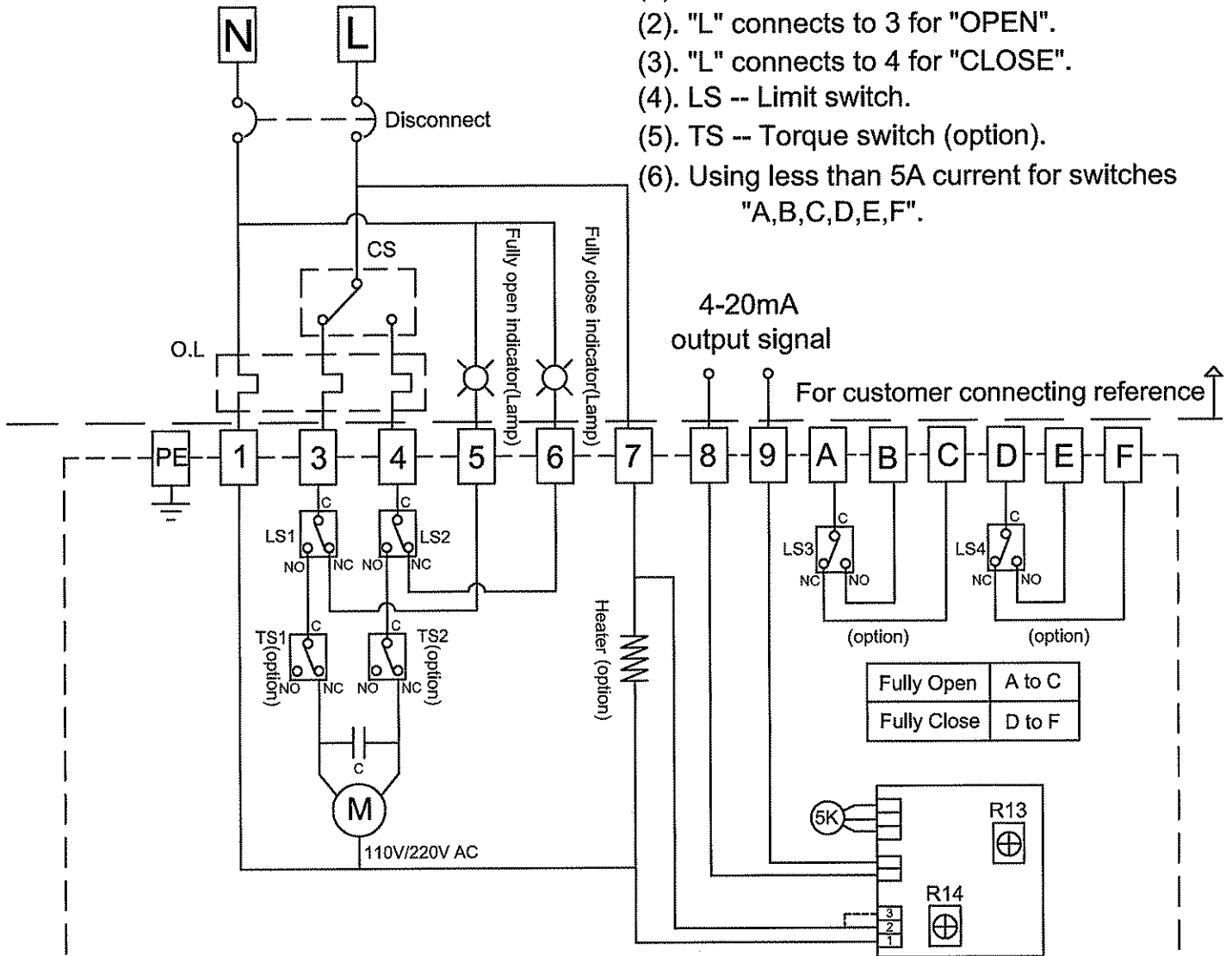


[OM-2~OM-12 110V/220V AC 1-PH / 4-20mA Output Signal]

Power supply
110V/220V AC
1 - phase

Note:

- (1). "N" connects to 1, "L" connects to 7.
- (2). "L" connects to 3 for "OPEN".
- (3). "L" connects to 4 for "CLOSE".
- (4). LS -- Limit switch.
- (5). TS -- Torque switch (option).
- (6). Using less than 5A current for switches "A,B,C,D,E,F".



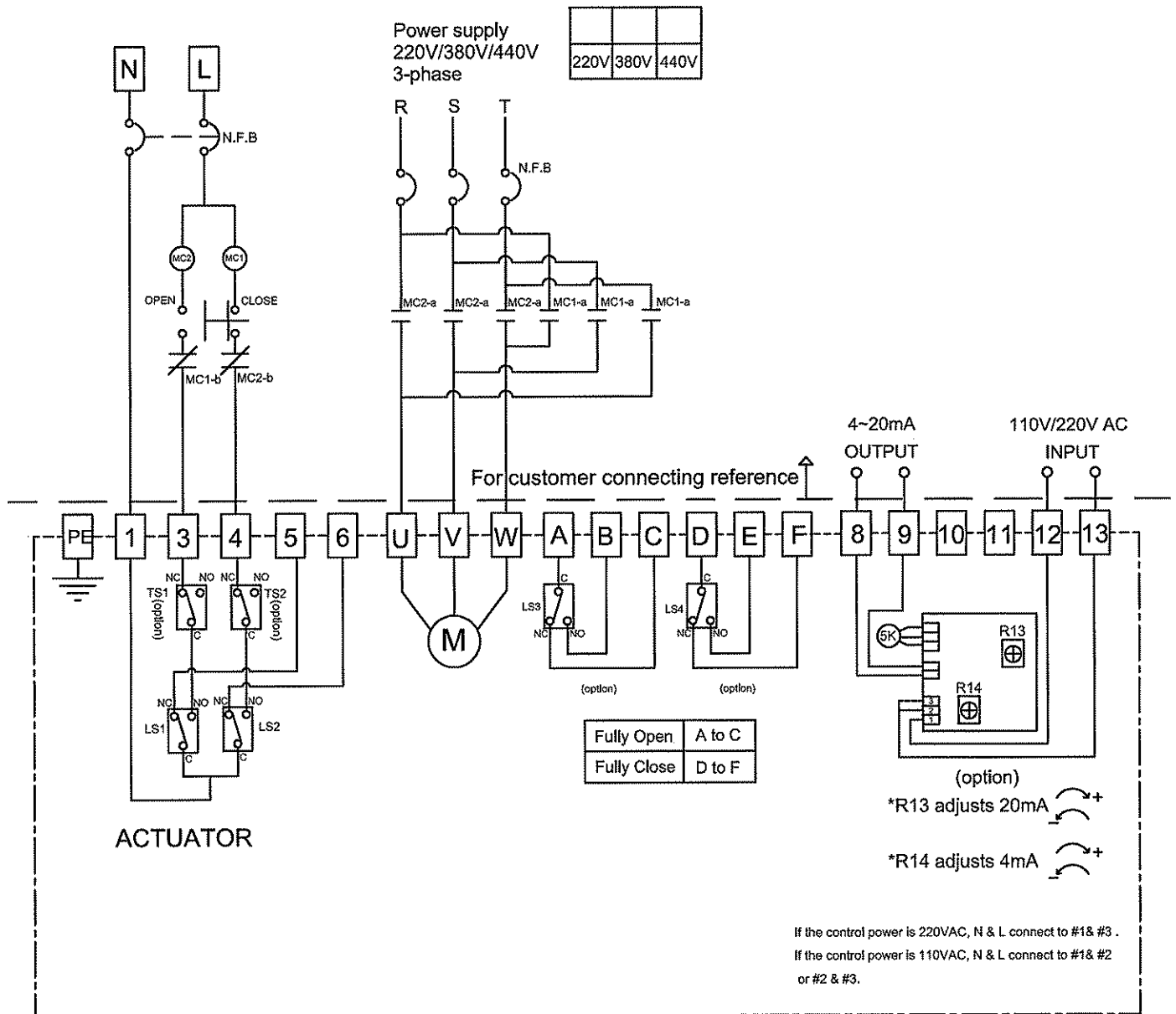
*If the control power is 220VAC, N & L connect to #1 & #3.

*If the control power is 110VAC, N & L connect to #1 & #2 or #2 & #3.

(option)
*R13 adjusts 20mA

*R14 adjusts 4mA

[BM-2, OM-2~12 220V/380V/440V 3-PH / 4-20 mA Output Signal]



If the control power is 220VAC, N & L connect to #1 & #3.
 If the control power is 110VAC, N & L connect to #1 & #2
 or #2 & #3.

[OM-1~OM-12, BM-2 & OM-A & OM-A-M 110V/220V AC Same Switch Coupling Wiring]

3 sets of motor vale for one switch-
2 sets is open and 1 set close wiring
(1f more sets, the rest can be done by this way.)

Add 1 pc contactor for separation
to prevent from interference of condensel
coupling.
C1=3a3b contactor

