KUHNWAY
ELECTRIC ACTUATOR

JS SERIES

KUHNWAY

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JS ELECTRIC ACTUATORS

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Performance

■ On / OFF Standard Type

12 V_{DC}								
Model	Torque(4)		Operation Time(1) (sec/90°)	Duty Cycle(2)	Rated Current	Overload Protection Device (Fuse)	Weight	
	N.m	Lbf.in					kg	lbs
JS-01	35	310	10~15	100%	1.5A	2A	1.9	4.2
JS-02	50	443	10~16	100%	1.5A	2A	1.9	4.2

24 V_{DC}								
Model	Torque(4)		Operation Time(1) (sec/90°)	Duty Cycle(2)	Rated Current	Overload Protection Device (Fuse)	Weight	
	N.m	Lbf.in					kg	lbs
JS-01	35	310	10~15	100%	0.9A	1.0A	1.9	4.2
JS-02	50	443	10~16	100%	0.8A	1.0A	1.9	4.2
JS-03	140	1238	7~13	100%	2.6A	3.0A	3.9	8.6
JS-03H(3)	160	1416	10~15	100%	2.6A	3.0A	6.9	15.2
JS-04H(3)	275	2434	27~47	100%	2.6A	3.0A	7.6	16.8
JS-06H-T08(3)	800	7080	88~120	100%	2.6A	3.0A	14	30.8

24 V_{AC}/V_{DC}								
Model	Torque(4)		Operation Time(1) (sec/90°)	Duty Cycle(2)	Rated Current	Overload Protection Device (Fuse)	Weight	
	N.m	Lbf.in					kg	lbs
JS-01	35	310	11~16	100%	0.9A	1.5A	1.9	4.2
JS-02	50	443	12~18	100%	0.8A	1.5A	1.9	4.2
JS-03	140	1238	7~13	100%	2.6A	3.0A	3.9	8.6
JS-03H(3)	160	1416	10~15	100%	2.6A	3.0A	6.9	15.2
JS-04H(3)	275	2434	27~47	100%	2.6A	3.0A	7.6	16.8
JS-06H-T08(3)	800	7080	88~120	100%	2.6A	3.0A	14	30.8

Note:

(1) Operation time depends on the actual load.

(2) Definition of Duty Cycle is in acrodance with IEC60034-S4 duty type, e.g., for an actuator with 25% Duty Cycle in 40 sec, after operating for 10 seconds, JS rests for 30 seconds at 25°C/77°F.

(3) H: Hand-wheel manual override

(4) Safety factor should be applied in anticipation of including but not limited to above.

Performance

■ On / OFF Standard Type

110 V_{AC} (1-Phase)									
Model	Torque		Operation Time (sec/90°)		Duty Cycle	Rated Current	Overload Protection Device (Fuse)	Weight	
	N.m	Lbf.in	50Hz	60Hz				kg	lbs
JS-01	35	310	12	10	25% in 40 sec.	0.7A	Thermal overload protector of Motor	1.7	3.7
JS-02	50	443	12	10	25% in 40 sec.	0.9A		1.8	3.9
JS-03	170	1505	10	8	25% in 40 sec.	1.2A		4.4	9.7
JS-03H	200	1770	12	10	25% in 40 sec.	1.2A		7.9	17.4
JS-04H	380	3363	36	30	50% in 60 sec.	1.2A		8.6	19.0
JS-05H	500	4425	36	30	50% in 60 sec.	2.0A		8.8	19.4
JS-06H	600	5310	36	30	25% in 40 sec.	2.4A		9.1	20.1
JS-06H-T08	1100	9735	106	88	30% in 100 sec.	2.0A		14.5	31.9
JS-06H-T09	1500	13275	106	88	30% in 100 sec.	2.0A		14.8	32.6
JS-06H-T10	1800	15930	106	88	30% in 100 sec.	2.8A		15.2	33.5

220 V_{AC} (1-Phase)									
Model	Torque		Operation Time (sec/90°)		Duty Cycle	Rated Current	Overload Protection Device (Fuse)	Weight	
	N.m	Lbf.in	50Hz	60Hz				kg	lbs
JS-01	35	310	12	10	20% in 50 sec.	0.4A	Thermal overload protector of Motor	1.7	3.7
JS-02	50	443	12	10	20% in 50 sec.	0.5A		1.8	3.9
JS-03	170	1505	10	8	33% in 30 sec.	0.8A		4.4	9.7
JS-03H	200	1770	12	10	33% in 30 sec.	0.8A		7.9	17.4
JS-04H	380	3363	36	30	50% in 60 sec.	0.8A		8.6	19.0
JS-05H	500	4425	36	30	27% in 110 sec.	0.8A		8.8	19.4
JS-06H	600	5310	36	30	38% in 80 sec.	0.8A		9.1	20.1
JS-06H-T08	1100	9735	106	88	38% in 80 sec.	1.0A		14.5	31.9
JS-06H-T09	1500	13275	106	88	38% in 80 sec.	1.0A		14.8	32.6
JS-06H-T10	1800	15930	106	88	38% in 80 sec.	1.1A		15.2	33.5

Performance

■ On / OFF Standard Type

380 / 440 / 460 V_{AC} (3-Phase)									
Model	Torque		Operation Time(1) (sec/90°)		Duty Cycle(2)	Rated Current	Overload Protection Device (Fuse)	Weight	
	N.m	Lbf.in	50Hz	60Hz				kg	lbs
JS-03	170	1505	10	8	50% in 60 min.	0.5A	Thermal overload protector of Motor	4.4	9.7
JS-03H(3)	200	1770	12	10				7.9	17.4
JS-04H(3)	380	3363	36	30				8.6	19.0
JS-05H(3)	500	4425	36	30				8.8	19.4
JS-06H(3)	600	5310	36	30				9.1	20.1
JS-06H(3)-T08	1100	9735	106	88				14.5	31.9
JS-06H(3)-T10	1800	15930	106	88				15.2	33.5

Note:

(1) Operation time depends on the actual load.

(2) Definition of Duty Cycle is in acrodance with IEC60034-S4 duty type, e.g., for an actuator with 25% Duty Cycle in 40 sec, after operating for 10 seconds, JS rests for 30 seconds at 25°C/77°F.

(3) H: Hand-wheel manual override

(4) Safety factor should be applied in anticipation of including but not limited to above.

Performance

■ On / OFF 100% Duty Cycle Type

Model	Torque		Operation Time (sec/90°)		Duty Cycle	Rated Current	Overload Protection Device (Fuse)	Weight	
	N.m	Lbf.in	50Hz	60Hz				kg	lbs
110 V_{AC} (1-Phase)									
JS-01A	32	283	19	16	100%	0.2A	N/A	1.7	3.7
JS-02A	50	443	43	36	100%	0.2A		1.8	4.0
JS-03A	100	885	65	54	100%	0.2A		3.5	7.7
220 V_{AC} (1-Phase)									
JS-01A	32	283	19	16	100%	0.1A	N/A	1.7	3.7
JS-02A	50	443	43	36	100%	0.1A		1.8	4.0
JS-03A	100	885	65	54	100%	0.1A		3.5	7.7

■ On / OFF Fast Acting Type

Model	Torque		Operation Time (sec/90°)	Duty Cycle	Rated Current	Overload Protection Device (Fuse)	Weight	
	N.m	Lbf.in					kg	lbs
12 V_{DC}								
JS-01FA	10	89	1~2	100%	3.3A	3.0A	1.9	4.2
JS-01FA	25	221	3~6	100%	2.5A	2.0A	1.9	4.2
24 V_{DC}								
JS-01FA	10	89	1~2	100%	1.9A	1.5A	1.9	4.2
JS-01FA	25	221	3~6	100%	1.3A	1.5A	1.9	4.2
JS-03FA	30	226	1~3	100%	4.0A	3.0A	3.9	8.6
JS-03FA	60	531	4~7	100%	1.9A	3.0A	3.9	8.6
24 V_{AC}/V_{DC}								
JS-01FA	10	89	1~2	100%	1.9A	1.5A	1.9	4.2
JS-01FA	25	221	3~8	100%	1.3A	1.5A	1.9	4.2
JS-01FA	30	226	1~3	100%	4.0A	3.0A	3.9	8.6
JS-01FA	60	531	4~7	100%	1.9A	3.0A	3.9	8.6

Performance

■ On / OFF Fast Acting Type

Model	Torque		Operation Time (sec/90°)		Duty Cycle	Rated Current	Overload Protection Device (Fuse)	Weight	
	N.m	Lbf.in	50Hz	60Hz				kg	lbs
110 V_{AC} (1-Phase)									
JS-01FA	9	80	1.2	1	14% in 7 sec.	1.2A	Thermal overload protector of Motor	1.9	4.2
JS-01FA	25	221	4	3	25% in 12 sec.	1.2A		1.9	4.2
JS-03FA	35	310	1.2	1	67% in 15 sec.	1.2A		3.9	8.6
JS-03FA	100	885	6	5	50% in 10 sec.	1.2A		3.9	8.6
220 V_{AC} (1-Phase)									
Model	Torque		Operation Time (sec/90°)		Duty Cycle	Rated Current	Overload Protection Device (Fuse)	Weight	
	N.m	Lbf.in	50Hz	60Hz				kg	lbs
JS-01FA	9	80	1.2	1	17% in 6 sec.	0.7A	Thermal overload protector of Motor	1.9	4.2
JS-01FA	25	221	4	3	17% in 18 sec.	0.7A		1.9	4.2
JS-03FA	35	310	1.2	1	67% in 15 sec.	0.72A		3.9	8.6
JS-03FA	100	885	6	5	50% in 10 sec.	0.72A		3.9	8.6

■ On / OFF Battery Backup Fail-Safe Type

Model	Torque		Operation Time (sec/90°)		Duty Cycle		Rated Current	Weight	
	N.M	Lbf.in	Normal	Pwr.-Off	Normal	Pwr.-Off		kg	lbs
12 V_{DC}									
JS-02-ECR	12	106	13~15	13~21	33% in 1 min	8% in 6 min	0.8A	1.6	3.5
24 V_{AC}/V_{DC}									
JS-02-ECR	12	106	13~15	13~21	33% in 1 min	8% in 6 min	0.7A	1.6	3.5
110 V_{AC} (1-Phase)									
JS-02-ECR	12	106	13~15	13~21	33% in 1 min	8% in 6 min	0.2A	1.6	3.5
220 V_{AC} (1-Phase)									
JS-02-ECR	12	106	13~15	13~21	33% in 1 min	8% in 6 min	0.1A	1.6	3.5

Performance

■ PERFORMANCE MODULATING TYPE

Proportional control is the most widely used communication signal in modern industrial automation. By utilizing a 4-20 mA current signal or voltage signals like 2-10V, 0-10V, 1-5V, and 0-5V, the MODULATING TYPE electric actuator adjusts the valve position proportionally for precise control.

In the design of modulating electric actuators, two types of motors with distinct features are applied: the AMD model, which uses a synchronous motor, and the BMD model, which employs an induction motor. When comparing these two, the AMD model is more energy-efficient, leading to lower power consumption, while the BMD model offers higher torque and faster operation.

110 V_{AC} (1-Phase)											
Model	Torque		Operation Time (sec/90°)		Duty Cycle	Rated Current	Overload Protection Device			Weight	
							Motor		PCB		
	N.m	Lbf.in	50Hz	60Hz			Fuse	TP		kg	lbs
JS-01-AMD	25	221	19	16	100%	0.2A	0.5A	TP(1)	0.15A	2.1	4.6
JS-02-AMD	36	319	19	16	48% in 33 sec.	0.3A	0.5A		0.15A	2.1	4.6
JS-02-AMD	50	443	43	36	47% in 76 sec.	0.2A	0.5A		0.15A	2.1	4.6
JS-03-AMD	100	885	42	35	47% in 76 sec.	0.3A	0.5A		0.15A	3.7	8.2
JS-03-BMD	170	1505	10	8	40% in 25 sec.	1.2A	1.5A		0.15A	4.8	10.6
JS-03H-BMD	200	1770	12	10	40% in 25 sec.	1.2A	1.5A		0.15A	8.3	18.3
JS-04H-BMD	300	2655	36	30	50% in 60 sec.	1.2A	1.5A		0.15A	9.0	19.8
JS-05H-BMD	500	4425	36	30	50% in 60 sec.	2.0A	3.0A		0.15A	9.2	20.3
JS-06H-BMD	600	5310	36	30	30% in 100 sec.	2.4A	3.0A		0.15A	9.5	20.9
JS-06H-BMD -T08	1100	9735	106	88	30% in 100 sec.	1.2A	1.5A		0.15A	14.5	31.9
JS-06H-BMD -T09	1500	13275	106	88	30% in 100 sec.	2.0A	3.0A		0.15A	14.8	32.6
JS-06H-BMD -T10	1800	15930	106	88	30% in 100 sec.	2.4A	3.0A		0.15A	15.2	33.5

Note:

(1) TP: Thermal overload protector of Motor.

Performance

■ PERFORMANCE MODULATING TYPE

220 V_{AC} (1-Phase)											
Model	Torque		Operation Time (sec/90°)		Duty Cycle	Rated Current	Overload Protection Device			Weight	
							Motor		PCB		
	N.m	Lbf.in	50Hz	60Hz			Fuse	TP		kg	lbs
JS-01-AMD	25	221	19	16	100%	0.1A	0.25A	TP(1)	0.15A	2.1	4.6
JS-02-AMD	36	319	19	16	76% in 21 sec.	0.15A	0.25A		0.15A	2.1	4.6
JS-02-AMD	50	443	43	36	78% in 46 sec.	0.1A	0.25A		0.15A	2.1	4.6
JS-03-AMD	100	885	42	35	78% in 46 sec.	0.15A	0.25A		0.15A	3.7	8.2
JS-03-BMD	170	1505	10	8	33% in 30 sec.	0.72A	1.0A		0.15A	4.8	10.6
JS-03H-BMD	200	1770	12	10	33% in 30 sec.	0.72A	1.0A		0.15A	8.3	18.3
JS-04H-BMD	300	2655	36	30	50% in 60 sec.	0.72A	1.0A		0.15A	9.0	19.8
JS-05H-BMD	500	4425	36	30	27% in 110 sec.	0.75A	1.5A		0.15A	9.2	20.3
JS-06H-BMD	600	5310	36	30	38% in 80 sec.	0.8A	1.5A		0.15A	9.5	20.9
JS-06H-BMD -T08	1100	9735	106	88	38% in 80 sec.	0.72A	1.0A		0.15A	14.5	31.9
JS-06H-BMD -T09	1500	13275	106	88	38% in 80 sec.	0.75A	1.5A		0.15A	14.8	32.6
JS-06H-BMD -T10	1800	15930	106	88	38% in 80 sec.	0.8A	1.5A		0.15A	15.2	33.5

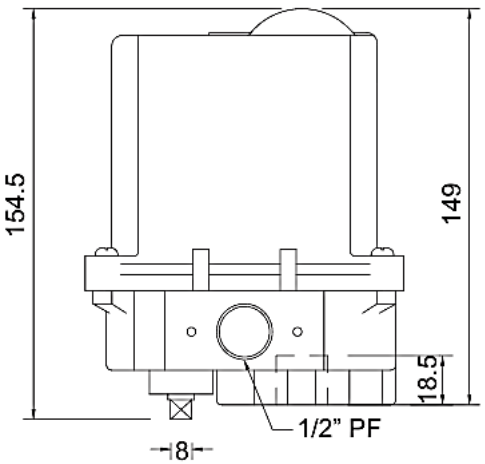
Note:

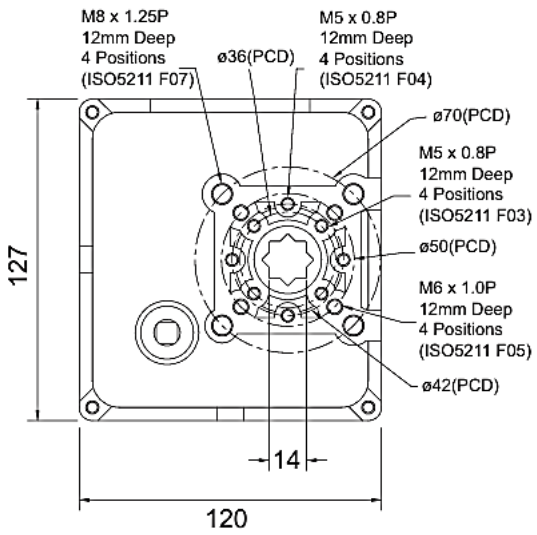
(1) TP: Thermal overload protector of Motor.

Outline Dimensions

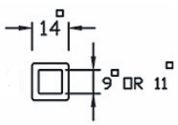
JS-01, JS-02

Mounting Flange (ISO5211): F03, F04, F05, F07 Unit: mm





Standard Component



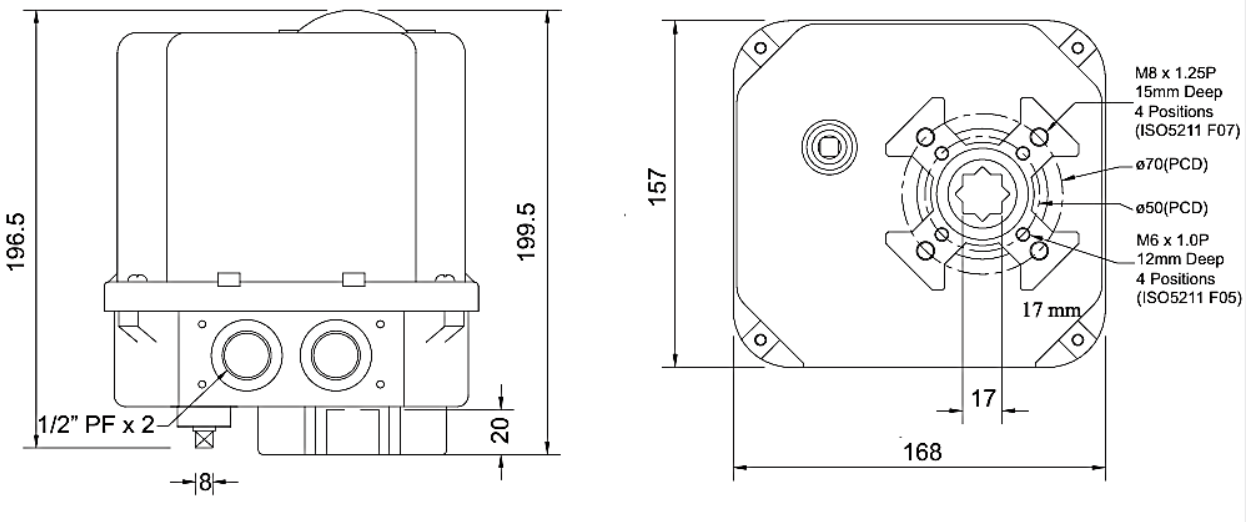
Option: Bracket, Connector

Outline Dimensions

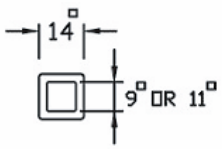
JS-03

Mounting Flange (ISO5211): F05, F07

Unit: mm



Standard Component □14 

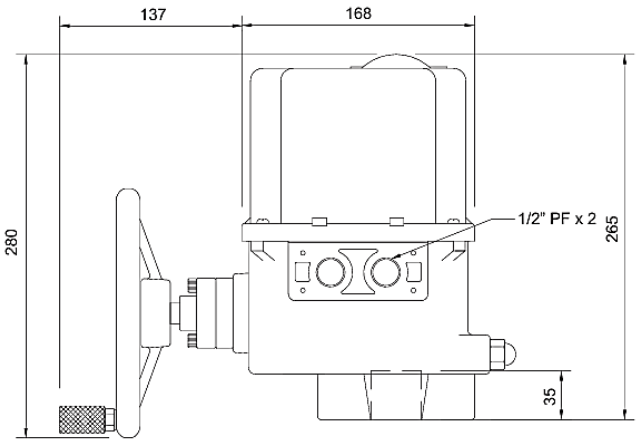
Option: 

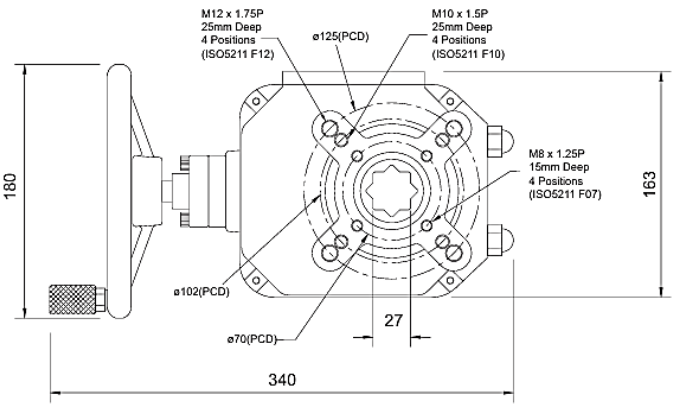
Option: Bracket, Connector

Outline Dimensions

JS-03H, JS-04H, JS-05H, JS-06H

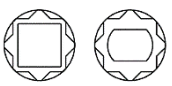
Mounting Flange (ISO5211): F07, F10, F12 Unit: mm





Standard Component □17, □22

Option: □14, □16, □19, □21
▢8, ▢11, ▢12



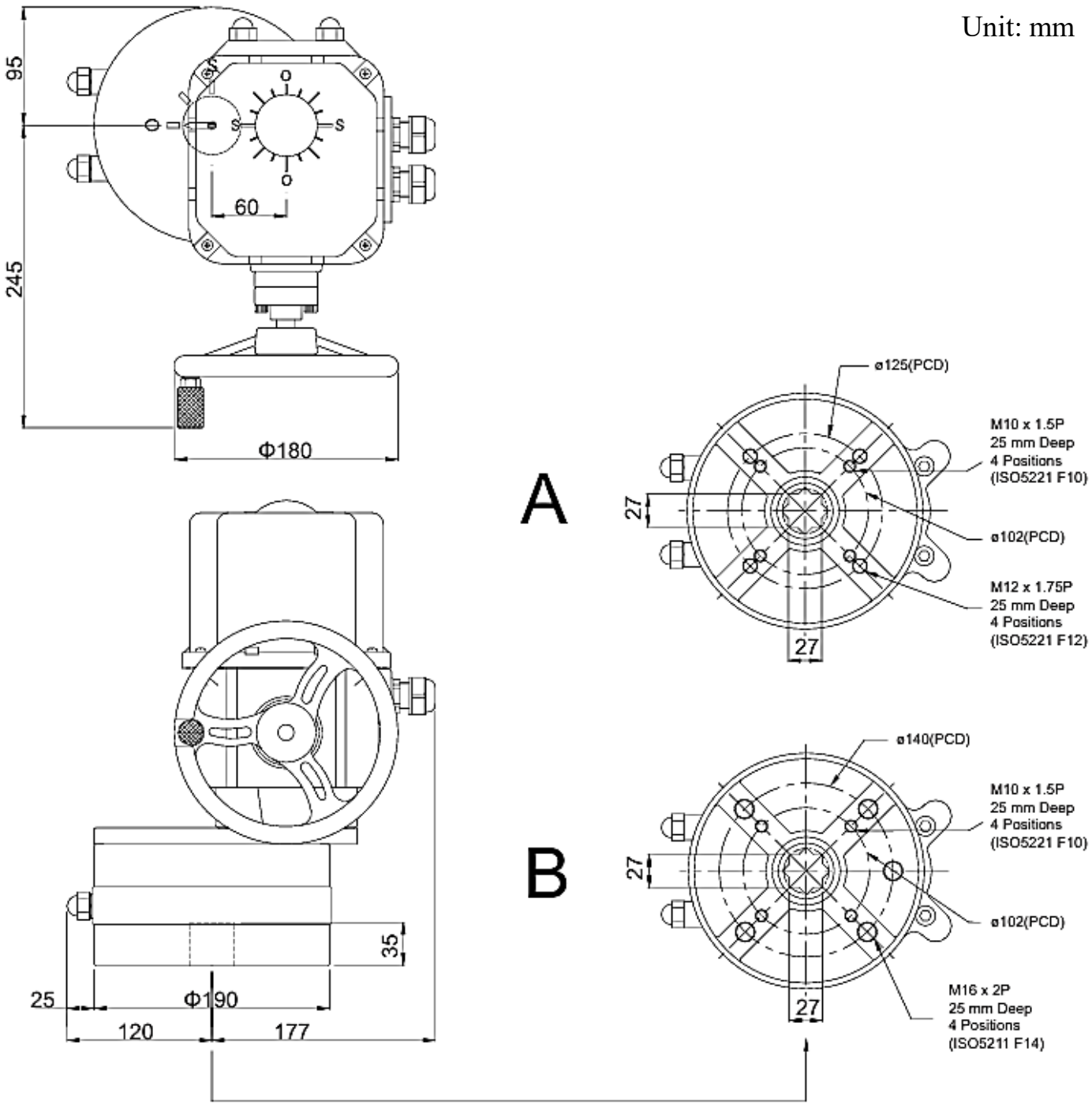
Option: Bracket, Connector

Outline Dimensions

JS-06H-T08~T10

Mounting Flange (ISO5211): F10/F12, F10/F14

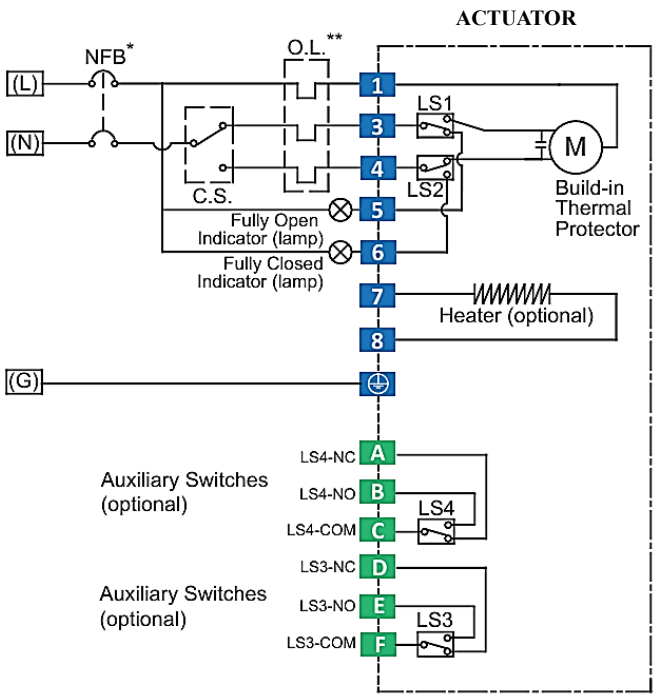
Unit: mm



JS Electric Actuator Wiring Diagram

■ On / OFF Standard Type

110/220 V_{AC} (1-Phase)

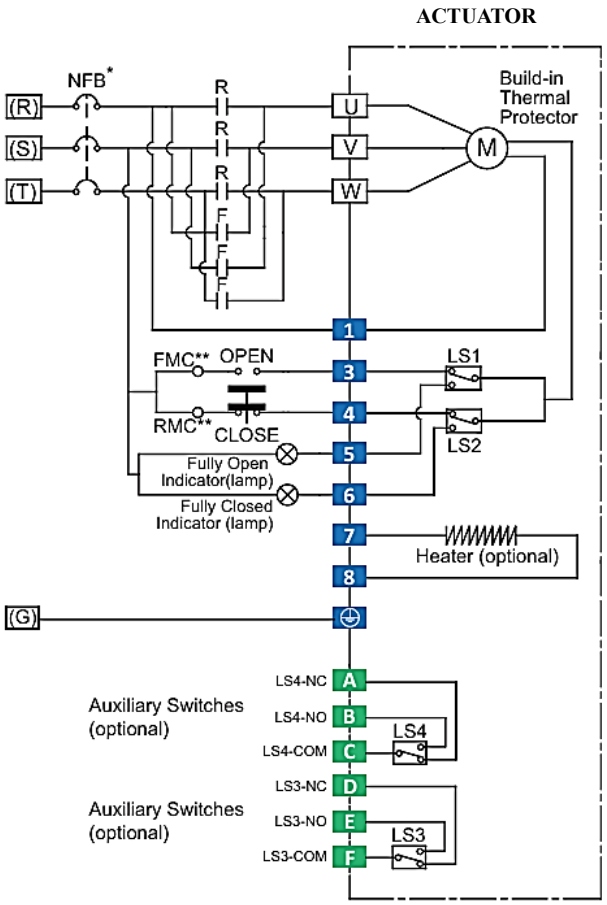


1 shall connect to Power Supply (L)
3 when connected to (N) = "OPEN"
4 when connected to (N) = "CLOSE"
5 Open Indicator Lamp
6 Closed Indicator Lamp
7 Heater Connection
8 Heater Connection

C.S. = Circuit Switch
NFB* = No Fuse Breaker
O.L.** = Overload Protection

Note: Use the voltage/current
less than AC220V/0.1A for A to F

220/380/440/460 V_{AC} (3-Phase)



1 shall connect to Power Supply (R)
3 when connected to FMC = "OPEN"
4 when connected to RMC = "CLOSE"
5 Open Indicator Lamp
6 Closed Indicator Lamp
7 Heater Connection
8 Heater Connection

NFB*=No Fuse Breaker
RMC**= Magnetic Contactor of R
FMC**= Magnetic Contactor of F

Note: Use the voltage/current
less than AC220V/0.1A for A to F

JS Electric Actuator Wiring Diagram

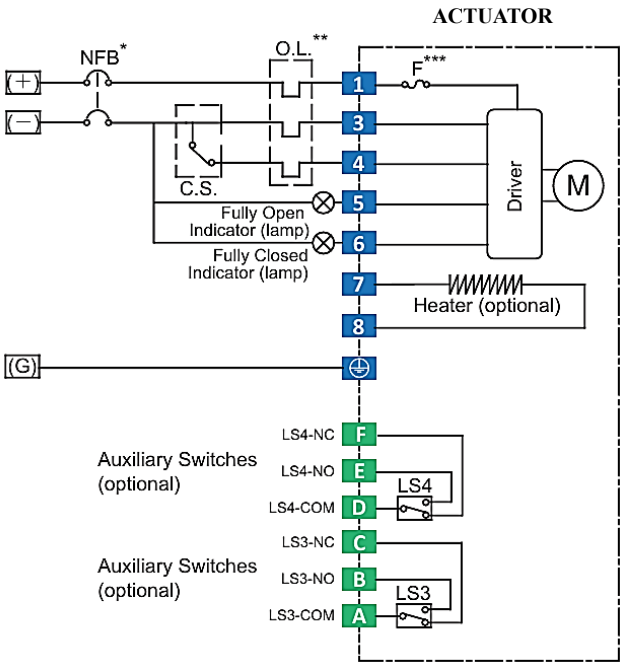
■ On / OFF Standard Type

12V_{DC} , 24 V_{DC}

1 shall connect to Power Supply (+)
3 shall connect to Power Supply (−)
4 when connected to 3 = "OPEN"
4 when disconnected to 3 = "CLOSE"
5 Open Indicator Lamp
6 Closed Indicator Lamp
7 Heater Connection
8 Heater Connection

C.S. = Circuit Switch
NFB*=No Fuse Breaker
O.L.**= Overload Protection
F***=Fuse

Note: Use the voltage/current
less than AC220V/0.1A for A to F

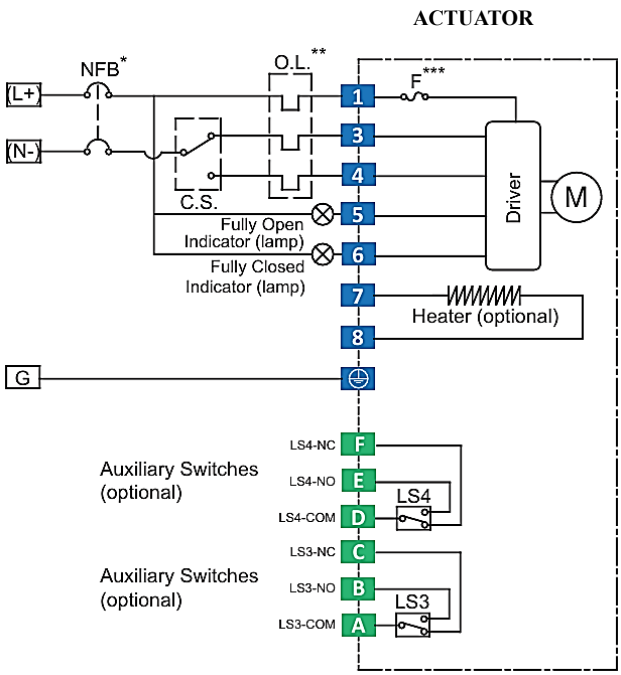


24 $V_{AC/DC}$

1 shall connect to Power Supply (L) or (+)
3 when connected to (N) or (−) = "OPEN"
4 when connected to (N) or (−) = "CLOSE"
5 Open Indicator Lamp
6 Closed Indicator Lamp
7 Heater Connection
8 Heater Connection

C.S. = Circuit Switch
NFB*=No Fuse Breaker
O.L.**= Overload Protection
F***=Fuse

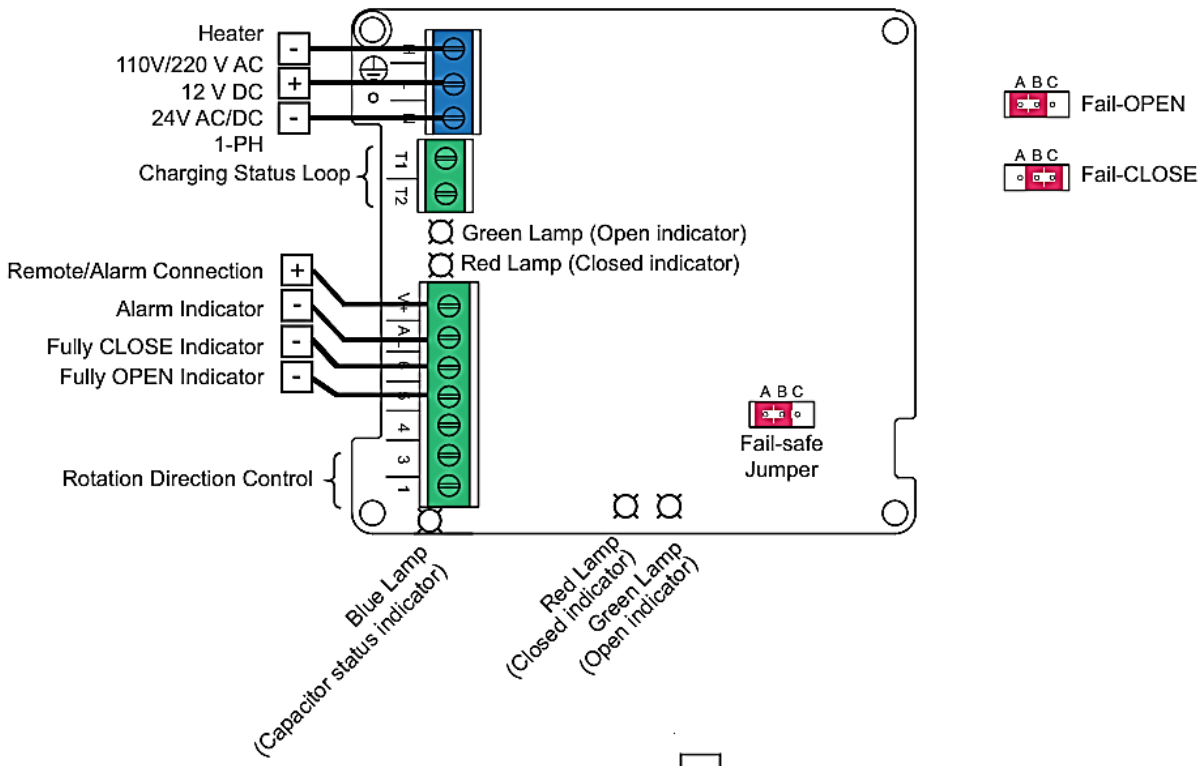
Note: Use the voltage/current
less than AC220V/0.1A for A to F



JS Electric Actuator Wiring Diagram

■ BATTERY BACKUP FAIL-SAFE TYPE

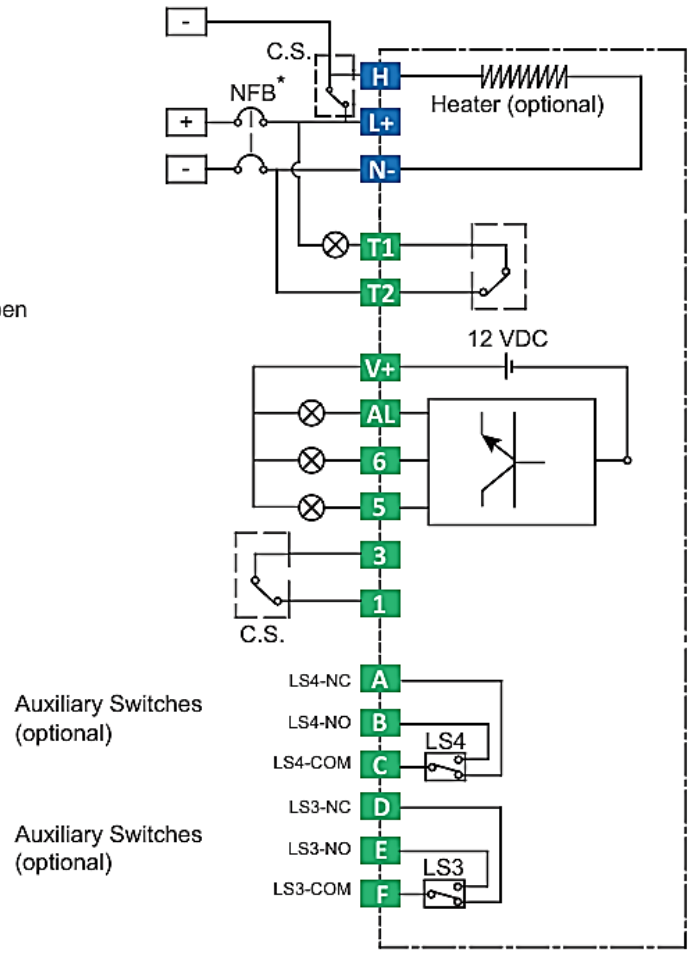
110/220V_{AC} , 12V_{DC} and 24 $V_{AC/DC}$



(L+) Power Supply +
(N-) Power Supply -
(H) Heater Connection
(T1) (T2) Charging Status Loop:
When the battery is charing => short
When the battery stops charging => open
(V+) Internal DC Supply
(AL) Alarm Connection
(6) Fully OPEN Indicator
(5) Fully CLOSE Indicator
(3)(1) Switch of Clockwise/Counterclockwise

C.S. = Circuit Switch
NFB*=No Fuse Breaker

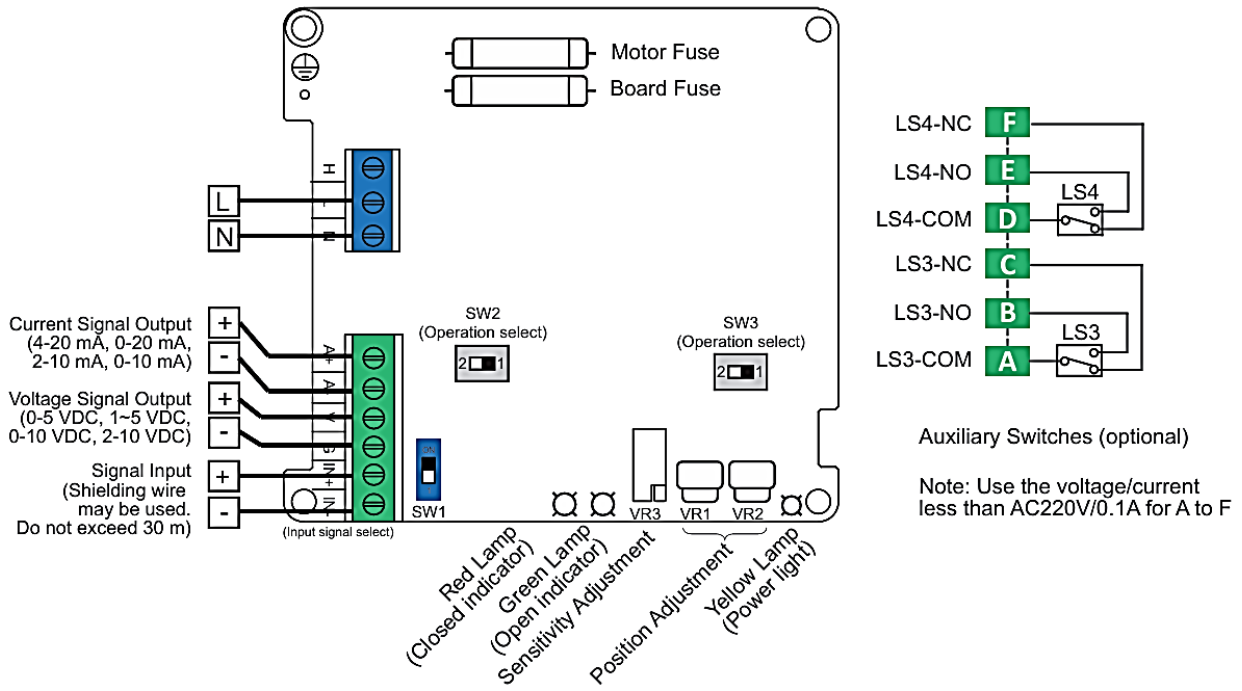
Note: Use the voltage/current
less than AC220V/0.1A for A to F



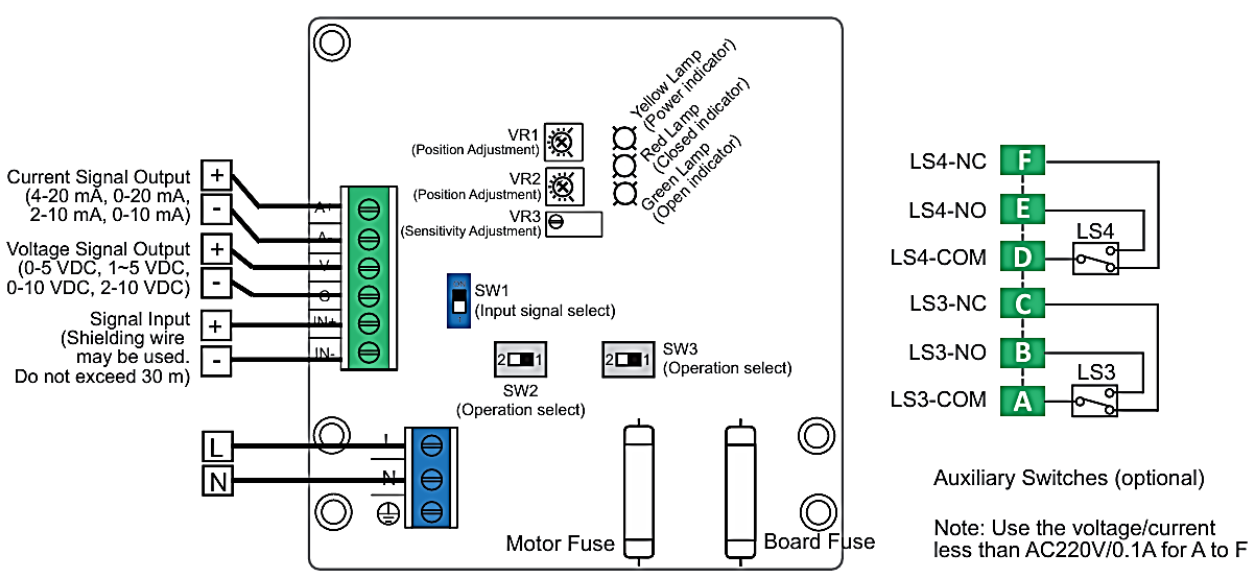
JS Electric Actuator Wiring Diagram

■ MODULATING TYPE

AMD Board, 24/110/220 V_{AC} (1-phase)



BMD Board, 110/220 V_{AC} (1-phase)



JS Electric Actuator Wiring Diagram

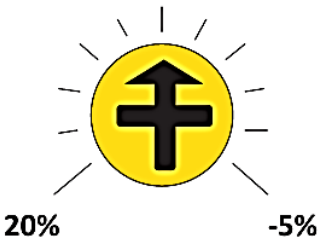
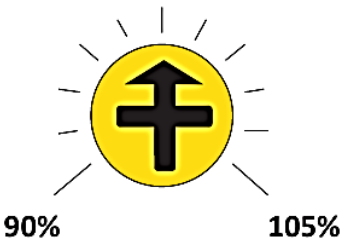
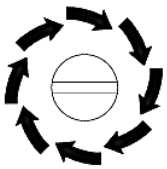
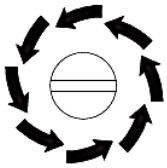
■ QUICK START MODULATING TYPE

Switch Setting

Actuation		Setup of Switches		
Input Signal	OperationMode	SW1	SW2	SW3
Voltage 2~10V, 0~10V, 1~5V, 0~5V	MODE A[1] (Hi to OPEN)			
Voltage 2~10V, 0~10V, 1~5V, 0~5V	MODE B[2] (Lo to OPEN)			
Current 4~20 mA	MODE A[1] (Hi to OPEN)			
Current 4~20 mA	MODE B[2] (Lo to OPEN)			

NOTE: (1) MODE A: The valve is going to OPEN when input signal is HIGH (10V, 5V or 20mA) and vise versa.
(2) MODE B: The valve is going to OPEN when input signal is LOW (2V, 0V, 1V or 4mA) and vise versa.

Adjustment of VR

VR1: CLOSE angle adjuster	VR2: OPEN angle adjuster	VR3: Sensitivity adjuster	
		 Increase Sensitivity	 Decrease Sensitivity

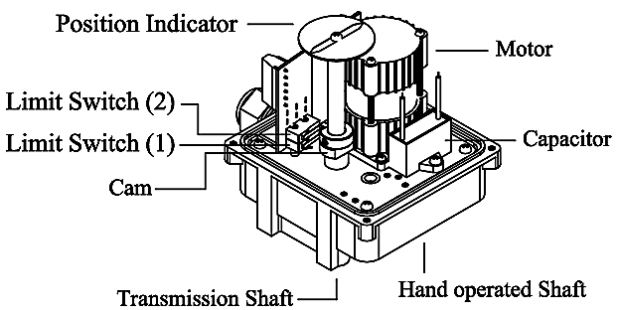
JS Actuator Operation Instruction

■ Installation

1. Please confirm the input voltage before power up.
2. Please follow the instruction manual to connect the wire. Do not alter the circuit to avoid electric shock.
3. This product should be operated as a single unit. Do not connect multiple units in parallel or serial.
4. If two sets or more are used at the same time, please install relay for each unit to ensure the safety of the operation.
5. Do not use this product in presence of explosive gas or any other chemical active substance.
6. Before installing, make sure nothing is clogging the pipeline.
7. While in manual operation or maintenance, be sure to shut down power before. Opening the soft cover. Aftermath, the soft cover should be placed securely before power up.
8. JS-03H, JS-06H series need to shut down power to operate in manual mode. Push down the handwheel to engage the shaft. It will be dis-engage automatically when released.
9. In manual mode, if abnormal friction is felt in turning the valve, please do not exert excess force to avoid damaging the parts.
10. The indicator window shows the status of the valve (O=OPEN, S=Close).
11. After connecting the wires, make sure O-ring is in the groove before fastening the housing screws to insulate dust or rain.
12. Three minutes rest is need before restart. (The special type does not receive this restriction)
13. In case of malfunction, please contact local dealer.
14. The AC110V/220V motor has overheat protection. When customers use the PCB series, all the PCB board have a fuse.
15. DC12V, DC24V and AC/DC-24V motors do not have overheat protection. For PCB series, there is a fuse on the board. (It is not a standard product, it may have the different device of protection, depend on situation at that time)
16. Use only fuse specification listed in the manual. Do not use the other spec for replacement.
17. JS-01, JS-02, JS-03, JS-03H~JS-06H series can be used with proportion controller.(If detailed information, please to contact seller)

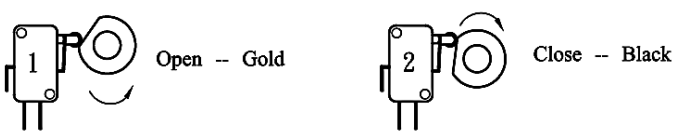
If unnecessary please do not dismount electric actuator & valve to avoid the position disorder.
If the position has moved, please adjust refer to the instruction of the drawing as follows:

JS-01, JS-02 Series



Cam Acting Drawing

Adjustable Tools: Hexangular Wrench(2.5Hx1)

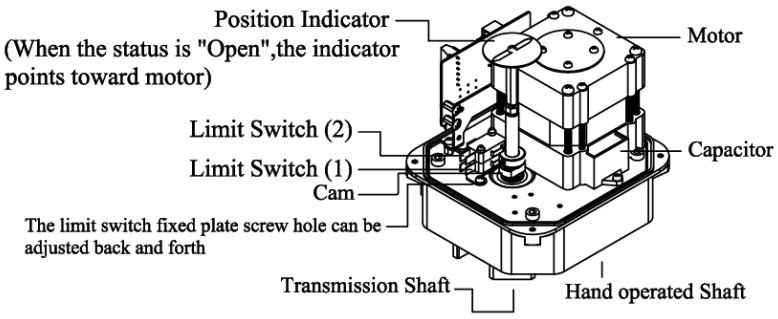


Cam Acting Instruction

1. The cam has fixed on main transmission shaft.
2. The transmission shaft counterclockwise turns make valve open, the limit switch (1) rebound, open valve acting stop.
3. The transmission shaft clockwise turns makes valve close, the limit switch (2) rebound, close valve acting stop.

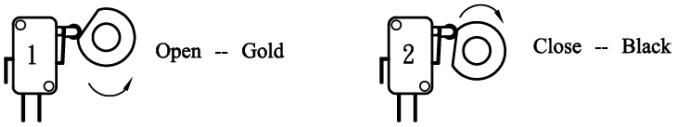
JS Actuator Operation Instruction

JS-03 Series

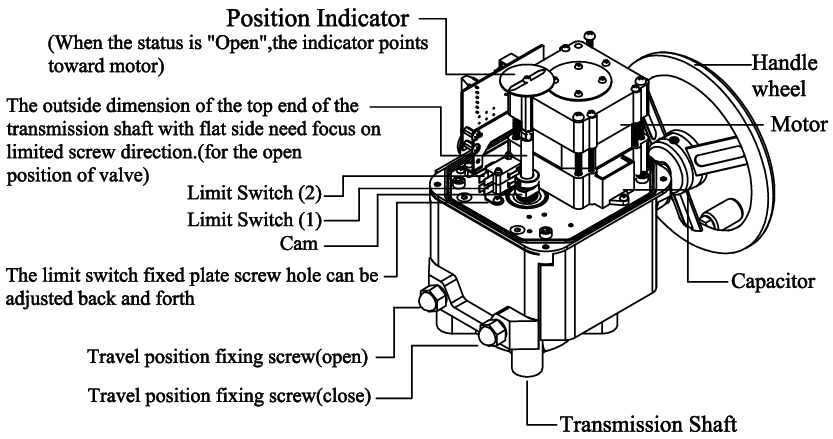


Cam Acting Drawing

Adjustable Tools: Hexangular Wrench(2.5Hx1)



JS-03H, JS-04H, JS-05H, JS-06H Series

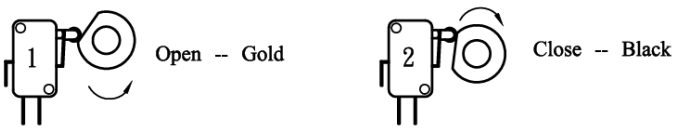


Caution

1. Before adjusting the valve open degree, please make limited screw counterclockwise withdraw about 3 cm.
2. After position fixing finish adjust and confirm energize one more time. If no problem, go on adjusting action for 3 or 4.
3. When valve full open: is limited screw (open). clockwise look in touching top end limited plate and make screw cap lockly and tightly.
4. When valve full close : is limited screw (close) .clockwise lock in touching top end limited plate and make screw cap lockly and tightly.

Cam Acting Drawing

Adjustable Tools: Hexangular Wrench(2.5Hx1)



Cam Acting Instruction

1. The cam has fixed on main transmission shaft.
2. The transmission shaft counterclockwise turns make valve open, the limit switch (1) rebound, open valve acting stop.
3. The transmission shaft clockwise turns makes valve close, the limit switch (2) rebound, close valve acting stop.