



## **STANDARDS**

- NEMA 4, 4X
- Rated voltage: AC/DC95-265V, AC/DC24V, DC24-12V, 110VAC, 230VAC, 12VDC/VAC
- Rate torque: 110N.m
- Running time: about 10 seconds
- Charging time: 5 minutes

# **J Flow Controls JFE-N110 Series On/Off High Performance Brushless Motor**

## **FEATURES & BENEFITS**

- 1.3" OLED screen, no visual dead angle, bright, energy saving and eco-friendly
- Ideal for 2-way, 3-way ball valves and butterfly valves
- Adopted high-performance synchronous motor
- Hex wrench manual override
- Open and close indicator

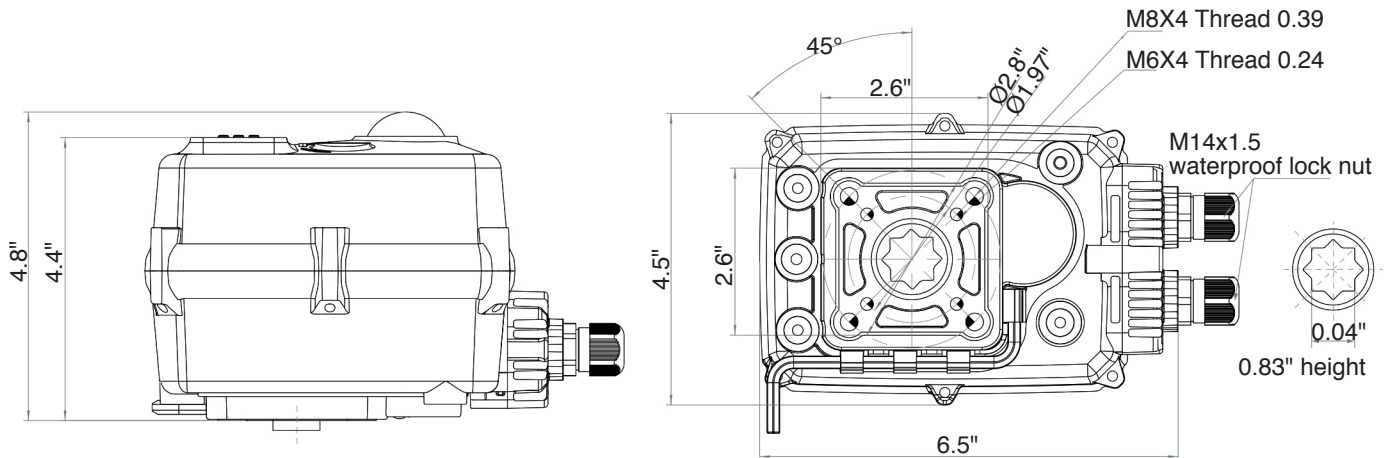
# JFE-N110 Series On/Off High Performance Brushless Motor

## TECHNICAL DATA

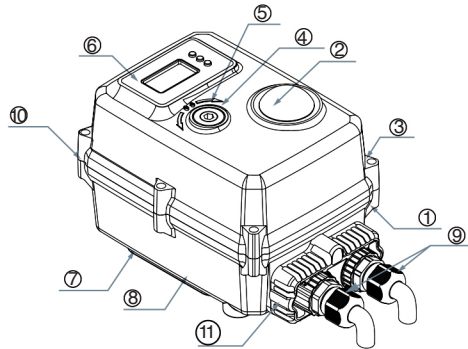
Electrical data	Rated voltage	AC/DC95-265	AC/DC24V	B2-DC24v	B2-DC12V
	Rated voltage range	AC95-265V/DC100-300V	AC20-28/DC22-32V	DC22-32v	DC11-15V
	Power consumption	30W@running 1.60W@keep	15W@running 1.50W @ keep	15W@running 1.50W @ keep	15W running 1.50W @ keep
	Peak current	0.26A @ 5ms @ AC230V	2.5A@5ms@DC24V	2.5A@5ms@DC24V	4.5A @ 5ms @ DC24v
	Fuse	2A	5A/10A @ KT	5A	10A
	Connecting cable	Cable: 9P-5.08-500V x (0.5-1.5)mm <sup>2</sup> / 10P-(0.3-0.5) mm <sup>2</sup>			
Functional data	Rated torque	110Nm@rated voltage, 80Nm @ KT			
	Angle of rotation	90±2°			
	Max angle of rotation	360°			
	Manual operation	Matching hexagon wrench, using at no power			
	Running time	About 10s (per 90°)			
	Operating frequency	Not continuous operation; operating cycle ≥ 1 min			
	Sound power level	Max 50dB(A)			
	Position indicator	Mechanical			
Working conditions	Electricity safety level	I Type (ground protection)		III Type (low voltage)	
	Inflaming retarding level	1.6mmHB / UL94 test method			
	Enclosure	IP67 As per EN60529/GB4208-2008 (all directions)			
		F type can add bracket or dehumidifying heater			
	Insulation resistance	100M Ω / 1000VDC			100M Ω / 500VDC
	Withstand voltage	1500VAC@1Min			500VAC@1Min
	Medium temperature	≤80° can install with actuator directly			
		>80° need to install heat radiation stand			
	Working environment	Indoor or outdoor; if exposed to the rain or sunshine			
		Need to install protective device for the actuator			
	Explosion-proof level	! Not explosion proof products. Do not use in flammable & explosive environments			
	Ambient temperature	-4°F to 140°F			
	Non-operation temp	≤-40°F or ≥176°F			
	Ambient humidity	5-95% RH non-condensing			
	Shock resistance	≤300m/s <sup>2</sup>			
	Vibration	10 to 55 Hz, 1.5 mm double amplitude			
	Installation notes	360° any angle. The need for manual operation or the wiring space			
	Maintenance	Free maintenance			
	Certification	CE			
Dimensions/weight	Dimensions	See dimensions			
	Connection standard	ISO5211 F05, F07			
	Output axis specification	Female octagonal			
	Hole deepness	≤0.79" (Female octagonal)			
	Weight	ABS material 4.9 lbs			

## JFE-N110 Series On/Off High Performance Brushless Motor

### DIMENSIONS

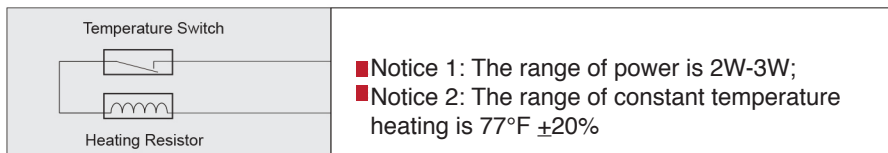


### PARTS



No	Parts Name	Materials	No	Parts Name	Materials
1	Actuator	ABS	7	Wrench fixed	ABS
2	Indicator	TransparentAS	8	Hexagon wrench	Tool steel
3	Screwx4	304	9	Waterproof cable connector	NiLon
4	Manual shaft	304	10	Seal part between up and down cover	NBR
5	Oil seal	NBR	11	Terminal cover	ABS
6	Label	PVC			

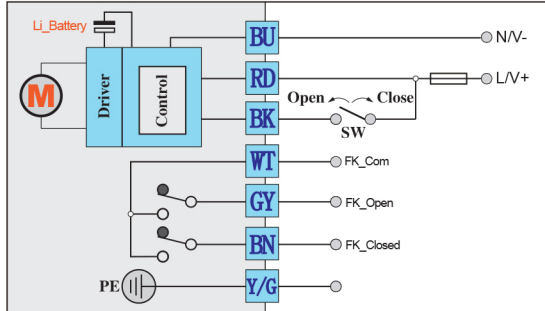
### ANTI-CONDENSATION HEATER (ACCESSORY)



# JFE-N110 Series On/Off High Performance Brushless Motor

## WIRING DIAGRAMS

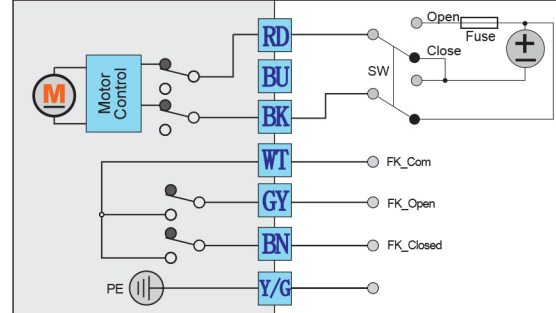
### KT32S/BD3S (General Voltage)



#### Control instructions:

- If SW is disconnected, the actuator will drive valve close clockwise. When the valve is closed completely, WT is connected with BN, giving signal of closing.
- If SW is connected, the actuator will drive valve open anticlockwise. When the valve is open completely, WT is connected with GY, giving signal of opening.
- Notice 1: WT is not connected with BN, GY, when the actuator is running.
- Notice 2: The feedback signal is a little earlier than the actual position, so please do not cut power immediately, when you get the feedback signal.
- Notice 3: When power cut, actuator will drive valve to close.

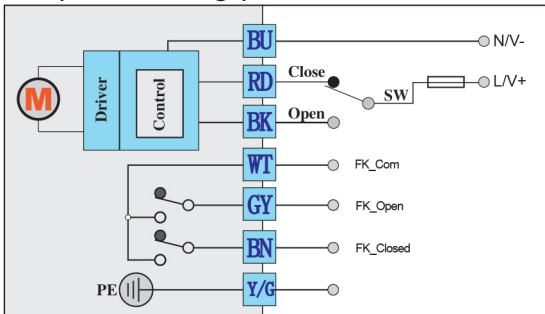
### B2S (DC24V/DC12V)



#### Control instructions:

- If SW is connected with OFF, the actuator will drive valve close clockwise. When the valve is closed completely, WT is connected with BN, giving signal of closing.
- If SW is connected with ON, the actuator will drive valve open anticlockwise. When the valve is open completely, WT is connected with GY, giving signal of opening.
- Notice 1: WT is not connected with BN, GY, when the actuator is running.
- Notice 2: The feedback signal is a little earlier than the actual position, so please do not cut power immediately, when you get the feedback signal.

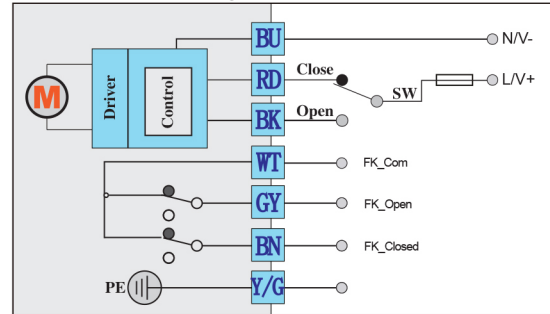
### B3S (General Voltage)



#### Control instructions:

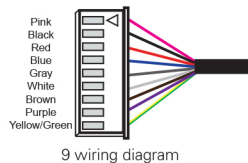
- SW is connected with RD, the actuator will rotate clockwise. When the valve is closed, WT is connect with BN, giving signal of closing.
- SW is connected with BK, the actuator will rotate anticlockwise. When the valve is open, WT is connect with GY, giving signal of opening.
- Notice 1: WT is not connected with GY and BN, when the actuator is rotating.
- Notice 2: The feedback signal is a little earlier than the actual position, so please do not cut power immediately, when you get the feedback signal.

### B3C (General Voltage)



#### Control instructions:

- SW is connected with RD, the actuator will rotate clockwise. When the valve is closed, WT is non-connect with BN, giving signal of closing.
- SW is connected with BK, the actuator will rotate anticlockwise. When the valve is open, WT is non-connect with GY, giving signal of opening.
- Notice 1: WT is connected with GY and BN when the actuator is rotating.
- Notice 2: The feedback signal is a little earlier than the actual position, so please do not cut power immediately, when you get the feedback signal.



#### Wiring Instructions:

1. Fuse: refer to manual for more parameters
2. SW switching capability: refer to manual for more parameters
3. Feedback signal contact load capacity: 0.1A/250VAC 0.5A/30VDC
4. Make sure actuator connect to ground

## MOUNTING INSTRUCTIONS

### Notice

1. When assembling with valve, it's suggested to use spring washer with flat washer in order to fasten the screw and nut.
2. It's recommended to use 704 silica gel or instant cement instead of anaerobic adhesive and UV glue.
3. Keep the actuator housing away from organic solvents, such as: kerosene, butane, trichloroethane, etc or the housing may crack.

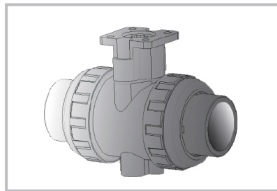
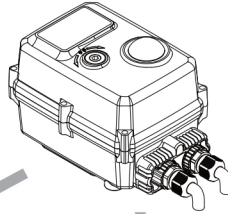


Diagram 1 (with bracket)

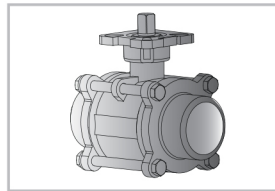


Diagram 2 (direct mount)

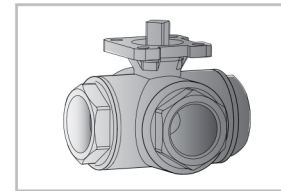


Diagram 3 (direct mount)

Diagram 1: UPVC plastic ball valve and bracket assembly

Diagram 2: 3 piece stainless steel ball valve assembly

Diagram 3: 3 piece stainless steel 3 way ball valve assembly

## INSTALLED VALVE TECHNICAL REQUIREMENTS

Valve type	Recommend install condition
Wafer butterfly valve	Actuator rate torque $\geq 2$ times valve max torque
Flange butterfly valve	Actuator rate torque $\geq 1.7$ times valve max torque
Metal ball valve	Actuator rate torque $\geq 1.7$ times valve max torque
Plastic ball valve	Actuator rate torque $\geq 1.5$ times valve max torque

1. If the ball valve is out of operation for a long time, and the torque value of first on or off is the max torque
2. When installing a direct mount model valve, the hole deep is  $\leq 0.79$ in. It requires cutting if the output shaft is longer than 0.79in.
3. Pay attention to the following items if you install the bracket and coupling by yourself:
  - The intensity of the bracket should meet the using requirements: the bracket twisting extent  $< 0.0079$  in the process of on or off
  - The parallelism of the bracket  $< 0.020$
  - When processing the shaft hole at both ends of the coupling, it is necessary to ensure the accuracy and concentricity. The purpose is to make sure the mechanical hysteresis  $< 10^\circ$ , otherwise it will cause the actuator to work incorrectly.
4. The screw should be installed with a spring washer and flat washer and we suggest you daub some glue cement around the screw in case of the screw loosening.
5. After installation, the user should switch the valve on and off one time with handle device first. Modifying the valve after makes sure it works well.

## MOUNTING INSTRUCTIONS

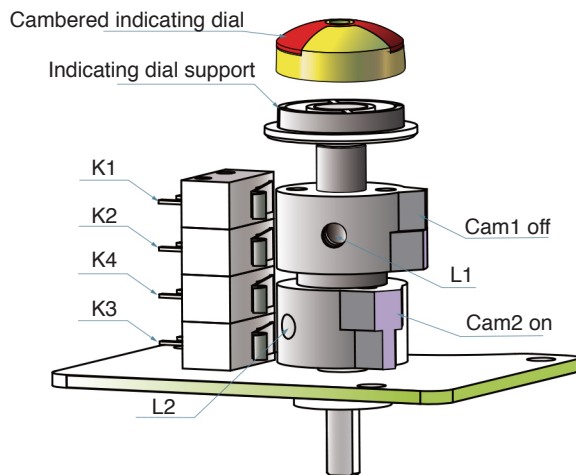


Diagram 1

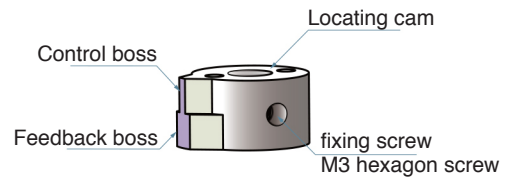


Diagram 2

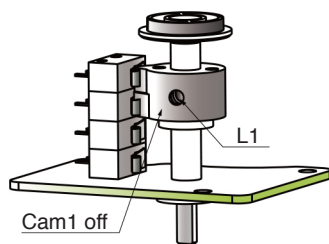


Diagram 3

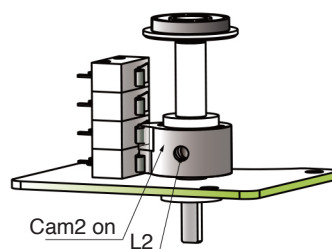


Diagram 5

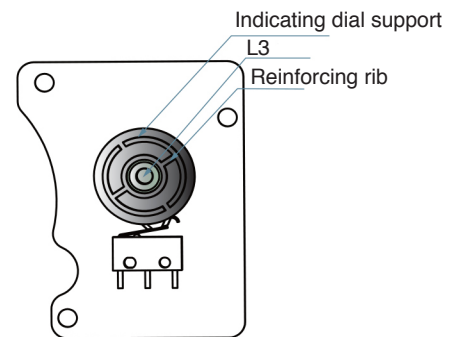


Diagram 5

Diagram 1 locating mechanism structural schematic diagram

Diagram 3 close adjustment schematic diagram

Diagram 5 indicating dial adjustment schematic diagram

Diagram 2 locating cams structural schematic diagram

Diagram 4 open adjustment schematic diagram

### VALVE POSITION ADJUSTMENT

Notice 1: The default is that rotating in clockwise direction means closing and rotating in anti-clockwise direction means opening.

Notice 2: B3P does not have K2, K4 micro-switch.

#### Micro-adjustment of electric limit:

##### 1. Adjusting full close:

- Rotate the valve to full close position with handle

Since the valve has gone through "factory default setting" this step can be omitted if the adjustment is slight.

- Detach cambered indicating dial, loosen fixing screw L3 of indicating dial support, turn reinforcing rib as shown in diagram 5, perpendicular to the flow direction of valve, then screw up L3 and buckle up cambered indicating dial. Caution: when screwing up L3, the torque  $\leq 0.5$  NM, otherwise it will damage locating driving gear.
- Loosen fixing screw L1 of cam 1, drive cam 1 to rotate clockwise and trigger micro switches K2, K1 to move in turn and make sound. When K1 moves and make sound, stop adjustment. Then screw up fixing screw L1.

##### 2. Adjust full open:

- Rotate the valve to full open position with handle;
- Loosen fixing screw L2 of cam 2, drive cam 2 to rotate counter-clockwise and trigger micro switches K4, K3 to move in turn and make sound. When K3 moves and makes sound, stop adjustment. Then screw up fixing screw L2.

##### 3. Wiring:

- After modifying, connect the circuit according to the wiring label on the box cover. After confirmation, you can do power test.

##### 5. Power test:

- Mainly check the consistence of on and off between the actuator and the valve body. At the same time, please check whether the valve is full close or not. Special testing device is recommended.

In the process of adjustment, do not over tighten screws, otherwise it will damage screw threads or other parts.



## JFE-N110 Series On/Off High Performance Brushless Motor

### COMMON FAILURES & PROCESSING METHODS

	Fault Phenomenon	Fault Cause	Processing Methods
1	Actuator not working	Power not connected	Connect power
		Voltage below level or incorrect	Check whether voltage is within the normal range
		Overload protection of motor after 3S	Check whether valve is stuck or torque value is too large
		Terminal loose or poor contact	Check and correctly connect terminal
		Starting capacities poor run	Contact the manufacturer for repair
2	No feedback signal	Line barrier of user acquisition signal	Connect user acquisition signal
		4-20mA deviation is too big	Adjust the reference value
		4-20mA transducing circuit damage	Contact manufacturer for repair
3	Actuator not fully closed	Use feedback signal to control actuator	Receive feedback signal doesn't mean actuator is fully closed, so do not cut power off
		Return difference increased due to abrasion between actuator and valve rod	Adjust valve - off position to realize deviation by the menu or contact manufacturer for repair
4	Actuator interior water ingress	OD of incoming line cable is non-standard	Adjust valve-off position to realize deviation by the menu or contact the manufacturer for repair
		Waterproof treatment of incoming line incomplete	Contact manufacturer for repair
		Actuator lens worn out	
		Screws on connection cover/head cover/side cover loose	

### WORKING ENVIRONMENT

- Indoor and outdoor are both options
- Not explosion-proof products. Do not use in flammable and explosive environments
- You need to install protective devices for the actuator if it is exposed to rain or sunshine
- Pay attention to the ambient temp
- When installing, consider the reserved space for wiring and repairing
- When power is on, do not dismantle actuator and valve or connect wiring

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