

JBK5 Series
Control Transformer of Machine

User Instruction

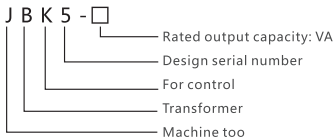
Safety Warning

- ① Only professional technicians are allowed for installation and maintenance;
- ② Installation in any damp, condensed environment with inflammable and explosive gas is forbidden;
- ③ When the product is being installed or maintained, the power must be switched off;
- ④ You are prohibited from touching the conductive part when the product is in operation.

1 Use Purpose

JBK5 series control transformer (hereinafter referred to as the transformer) is applicable to the AC circuit of 50Hz/60Hz with rated power supply voltage of 690V and below. It is used as the control supply of

2 Type Designation



3 Normal Operation, Installation and Transportation and Storage Conditions

3.1 Operation conditions

The upper limit of ambient air temperature is 40 °C, and the lower limit of ambient air temperature is - 5 °C. When the maximum temperature is 40 °C, the relative humidity of air must not exceed 50%, and a higher relative humidity is allowed at a lower temperature, e.g. 90% at 20 °C. Special measures should be taken for condensation occasionally caused by temperature change. The altitude of the installation site must not exceed 2,000m.

3.2 Installation conditions

The transformer with rated capacity $\leq 1000\text{VA}$ should be mounted horizontally or vertically; the transformer with rated capacity $> 1000\text{VA}$ can be mounted horizontally only. The installation site should be free from shaking and shock.

3.3 Transportation and storage conditions

The transformer must be placed upright during transportation, protected from rain, water and snow and free from severe vibration and impact. The transformer must be stored in an environment where there is no rain or snow, the air circulation is good, there is no exposure to sunlight or corrosive gases, the relative humidity (at 25 ° C) is not greater than 95%, and the temperature is between -25 ° C and 55 ° C.

4 Main Technical Parameters

4.1 See Table 1 for the main technical parameters of the transformer

Table 1 Key Technical Parameters

No.	Key Technical Parameters	
1	Rated capacity	40VA~2500VA
2	Rated frequency	50Hz, 60Hz
3	Rated input voltage V	220, 380
4	Rated output voltage V	6,12, 24, 36, 110, 127, 220, 380

Notes:

1. The rated input voltage and rated output voltage listed shall be properly as required. The rated output voltage can also be a lower rated output voltage obtained from the higher rated output voltage windings by means of shunting tapping.
2. If any special voltage not mentioned in the table shall be negotiated between the user and the manufacturer.
3. At each rated output voltage, the distribution of rated output capacity shall be determined according to user requirements.

4.2 Principle of coil winding

4.2.1 Multi winding and multi tap: Draw the required voltage on the input and output windings by means of tap. This kind of transformer shall be used in accordance with the rules of No.1 in Table 2 of the user instructions to avoid accidents caused by misoperation.

4.2.2 When the input and output of the transformer each have only one winding, the output end can reach the rated output capacity.

See No.2 in Table 2 for the use example. If the output has multiple windings, each winding shall bear the corresponding load according to the allocated capacity. See No.3 in Table 2 for the use example.

Table 2 Product Application Examples

No.	Example	
1	<p>Model JBK5-100, rated capacity 100VA, input (380 ± 5%) V, output 110V 24v6v:</p> <p>1) Rated input current = $100VA / 380V = 0.26A$.</p> <p>2) Rated output current = $100VA / 110V = 0.9A$.</p> <p>Since 24V and 6V are the tap voltages in the output winding, the maximum current is also 0.9A when 24V or 6V is used alone. If 6V, 24V and 110V are used together, the total output current cannot exceed 0.9A either. (i.e.: The total load current shall not exceed the rated output current of the transformer regardless of whether the output voltage is used alone or in combination of two or more.)</p>	
2	<p>Model JBK5-100, rated capacity 100VA, input (380 ± 5%) V, output 24V:</p> <p>1) Rated input current = $100VA / 380V = 0.26A$.</p> <p>2) Rated output current = $100VA / 24V = 4.1A$.</p> <p>Since the input and output each have only one winding and there is no tap voltage in between, the output voltage of 24V can bear the rated capacity of 100 VA (i.e. When the input and output of the transformer each have only one winding, it can bear all the rated capacities of the transformer.)</p>	
3	<p>Model JBK5-100, rated capacity 100VA, input 380V, output 110V (55va) 24V (40VA) 6V (5VA):</p> <p>1) Rated input current = $100VA / 380V = 0.26A$.</p> <p>2) Rated output current at 110V output = $55va / 110V = 0.5A$.</p> <p>The rated output current at 24V output = $40VA / 24V = 1.6A$.</p> <p>The rated output current at 6V output = $5VA / 6V = 0.83A$.</p>	

Table 2 continued

No.	Example
3	Since the input has only one winding and the output has three separate independent windings, and the capacity of each output winding has been assigned, then each output winding can bear the corresponding rated assigned capacity, i.e. 110V can bear 55VA; 24V can bear 40VA; 6V can bear 5VA (i.e. Since the output winding of the transformer is allocated with capacity, its input winding is not allowed to have a midpoint tap).

5 Overall and Mounting Dimensions

See Figures 1, 2 and Table 3 for the overall and installation sizes of the transformers.

Table 4 Overall and Installation Size

Model	Outline Size mm			Installation Size mm		Mounting hole mm	
	Bmax	Dmax	Emax	A	C	K	J
JBK5-40	79	78	95	66	46	4.8	-
JBK5-63	79	78	95	66	46	4.8	-
JBK5-100	85	95	97	72	62	4.8	-
JBK5-160	97	96	110	84	73.5	5.8	-
JBK5-250	97	110	110	84	85	5.8	-
JBK5-300	121	106	130	93	76	7	-
JBK5-400	121	110	130	100	85	7	-
JBK5-500	121	125	130	90	98	6	-
JBK5-630	151	116	150	130	90	7	-
JBK5-800	151	132	150	126	104	7	-
JBK5-1000	230	170	156	160	142	7	14
JBK5-1600	258	185	168	180	155	7	14

Table 3 continued

Model	Outline Size mm			Installation Size mm		Mounting hole mm	
	Bmax	Dmax	Emax	A	C	K	J
JBK5-2500	285	210	175	210	175	7	14

Note: The overall and installation sizes are subject to the change without further notice. The data in the table are for reference only.

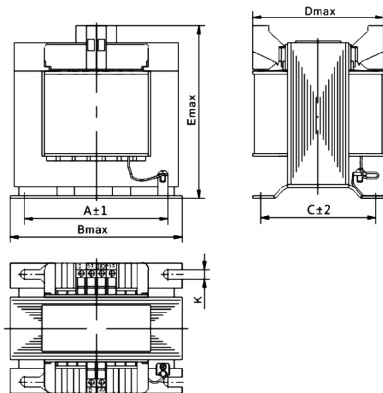


Figure 1 Overall Size of JBK5-40~800 Product

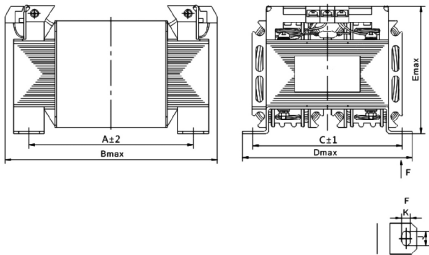


Figure 2 Overall Size of JBK5-1000~2500 Product

6 Installation, Commissioning and Operation

6.1 Carefully check whether the parameters on the transformer nameplate are consistent with the parameters of the load before installation.

6.2 Before use, it is necessary to test whether the grid voltage is the same as the rated input voltage of the transformer, with the allowable deviation of 5%; if it exceeds this range, the front end should be added with a regulated power supply.

6.3 The installation site shall meet the requirements of normal working and installation conditions specified in Article 3 to ensure that the product is free from vibration and erosion.

6.4 Connect wires according to the identification. Check and make sure the wiring is correct before power connection and use.

7 Maintenance, Lifting and Storage

7.1 Avoid collision and extrusion during the transportation and keep it dry; please pay attention to maintenance when using.

7.2 Cut off the power when the product needs to be maintained. The operation can only be carried out by professionals.

7.3 The transformer must be protected from moisture and mildew when stored.

8 Troubleshooting

Table 4

Fault	Cause analysis	Troubleshooting method
The transformer smokes or the temperature rise is too high.	<ol style="list-style-type: none">1. The capacity of the load electrical equipment exceeds the rated capacity of the transformer (overload).2. The input voltage is too high.	<ol style="list-style-type: none">1. Cut off the power supply, stop using the transformer, or reduce the load.2. Adjust the input voltage to the rated value.
The deviation between the actual output voltage and the nominal output voltage is large.	<ol style="list-style-type: none">1. The input power supply voltage of the transformer is not stable.2. The power supply voltage is inconsistent with the rated input voltage of the transformer, with a large deviation.	<ol style="list-style-type: none">1. Add a regulated power supply device at the power input end of the transformer to stabilize the power supply voltage.2. Replace with the transformer with a rated input voltage that is consistent with the supply voltage.
There is no output voltage after the transformer is powered on.	<ol style="list-style-type: none">1. Power supply voltage failure.2. The wire connecting the power supply at the input end of the transformer has loosened and is not firmly connected.3. The winding or tap of transformer coil is broken.	<ol style="list-style-type: none">1. Check if the power supply voltage is normal.2. Check if the wires connecting the power supply and the input terminals of the transformer are securely connected.3. Check if the transformer coil is intact and if the tap wire of the winding connecting terminal is broken or has unsoldering.

Table 4 continued

Symptoms	Cause analysis	Troubleshooting method
Obvious noise.	<ol style="list-style-type: none"> 1. It is a normal phenomenon that the transformer has electromagnetic sound when it works with load. 2. In case of obvious vibration or abnormal noise, the core clamp of the product may have loosened due to the transportation vibration, and the noise may be caused by the mutual vibration between the core plates during operation. 3. The power supply voltage is too high, causing the magnetic saturation of the core to generate noise. 4. The electrical resonance around the transformer causes noise on the cabinet housing. 	<ol style="list-style-type: none"> 1. Check and retighten the core to make the core plates fit closely. 2. Adjust the power supply voltage to be consistent with the input voltage of the transformer.

9 Analysis and Troubleshooting of Common Faults

Please specify the following items when placing an order:

- 1) The model, specification, capacity and quantity of the transformer.
- 2) The rated input voltage and rated output voltage of the transformer and the capacity distribution of each group of output voltage.

10 Environmental Protection

In order to protect the environment, the product or product parts should be disposed of according to the industrial waste treatment process, or be sent to the recycling station for assortment, dismantling and recycling.

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QC PASS

JBK5 Series
Control Transformer of Machine
IEC61558-2-2: 2007

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Test date: Please see the packing

ZHEJIANG CHINT ELECTRICS CO., LTD.

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Control Transformer of Machine
User Instruction**

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