TND6 Automatic AC Voltage Regulator

1. General

TND6 automatic AC voltage regulator is a contact voltage stabilizer with wide input voltage range. It is an upgrade product designed according to the principle of TND1 series voltage stabilizer. It is the closed-loop control system that consists of voltage stabilizer specially designed or transformer and controller or control circuit to complete the voltage stabilization function through driving the brush by the servo motor. The main characteristic of the TND6 series voltage stabilizer is wide input voltage range which is 130V(110V)~250V (input voltage range of TND1 series voltage stabilizer is 160V~250V); it can ensure the output voltage is stabilized at about 220V. TND6 series voltage stabilizer can be used in industrial production, scientific research, public facilities, medical science, household appliances and other fields, provide stable power supply for the load and ensure normal operation of the electrical equipment. And it is suitable for areas with large voltage fluctuation of power network or large seasonal variation of the voltage of the power network.

Standard compliant: Q/ZT 78.

2. Type designation

TN D 6- □ / □

- Cooling mode: AN means that air is a cooling way of natural convection; default to this type if the product is not indicated. AF means the cooling way of extracting internal air with an electric fan or directly blowing the product cold
- Rated capacity, kVA
- Design serial number
- Phase number: D-single phase; S-three phase
- Automatic AC voltage regulator

3. Operating conditions

3.1 Altitude of the installation site is no more than 2000m.

3.2 Environmental temperature: -5℃~+40℃. Upper limit of the ambient air temperature of the installation is +40℃, and its average temperature value in 24 hours shall not exceed +35℃. Lower limit of the ambient air temperature of the installation is -5℃.

Note: When the user needs to use the voltage stabilizer in the environment above +40℃ or below-5℃, he shall declare to the manufacturer.

3.3 Relative humidity: The relative humidity of the air is no more than +50% when the maximum temperature is + 40 ℃; higher relative humidity may be allowed at lower temperatures, for example: 90% at 20℃.
Special measures shall be taken for the condensation occasionally produced due to temperature changes.

3.4 Installation environment shall be well ventilated and free from apparent impurity, corrosive gas, dust, combustible material and gas. In the air of the installation environment, there shall be no corrosive and harmful gas or dust damaging to insulation; in the use, the voltage stabilizer shall not be eroded by water, rain and snow.

3.5 Ventilation shall be maintained around the installation site, and enough heat dissipation space shall be reserved around the installation site (generally, the reserved space shall be greater than or equal to 0.5m). Plastic cover, cloth and other inflammable materials are forbidden to cover the regulated power supply or debris is not allowed to put on it to prevent overheating of the regulated power supply and damaging.

3.6 The voltage stabilizer shall be horizontally installed; and there shall be no significant shake and shock vibration at the installation site.

3.7 For indoor use, output terminal of the voltage stabilizer shall not be used in parallel.

3.8 Power voltage waveform is similar to sine wave.

4. Main parameters and technical performance

4.1 Main parameters and technical performance

Table 1

Type specification	Rated capacity (kVA)	Rated output current (A)	Frequency (Hz)	Rated input voltage (V)	Input voltage range (V)	Rated output voltage and accuracy (V)	Output over- voltage protection value (V)	Output capacity curve
TND6-0.5	0.5	2.3	50/60	220	110~250	220(±4%)	246±4	Figure 1
TND6-1	1	4.5						
TND6-1.5	1.5	6.8						
TND6-2	2	9.1						
TND6-3	3	13.6						
TND6-5	5	22.7						
TND6-10/AF	10	45.5	50/60	220	130~250	220(±4%)	246±4	Figure 2
TND6-15/AF	15	68.2						

4.2 Output capacity curve

When the input voltage of the single-phase regulated power supply is lower than 198V, output capacity of the product is reduced and the product must be used after reducing the capacity.

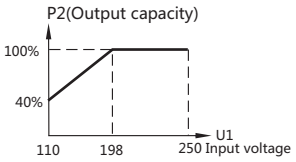

Figure 1 Output capacity curve

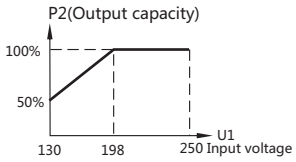

Figure 2 Output capacity curve

5. Product features

5.1 Wide input voltage range: the input voltage range is 130V(110V) ~ 250V, and the output voltage is 220V× (1±4%)

5.2 Strong load-carrying capacity; it can carry 50% of the rated load during the input at a low voltage of 130V

5.3 Low voltage stabilization function: it can still output 220V at the lowest input voltage of 130V(110V).

5.4 Voltage and current parameters are displayed on the digital instrumentation, clear and intuitive.

5.5 It has the overheat protection function. Patent designed circuit-breaker device is used as the input breaking switch which can automatically cut off the power at the input terminal of the voltage stabilizer.

5.6 It adopts the patent design of "dual protection system for output and input", overheat protection breaking input, overvoltage and under voltage protection breaking output; complete protection functions make the protection more thoroughly.

5.7 Wide applicable load types; suitable for areas with large voltage fluctuation of power network or low voltage of power network.

6. Installation dimensions

Table 2

Type specification	Physical dimension (mm) Width (max) x Depth (max) x Height (max)	Package size (mm) Width (max) x Depth (max) x Height (max)	Pcs/package	Net weight (kg)	Gross weight (kg)
TND6-0.5	195×200×140	223×205×165	1	4.2	4.4
		425×235×187	2		9
TND6-1	213×225×160	260×250×200	1	5.7	5.9
		505×280×205	2		12
TND6-1.5	213×225×160	260×250×200	1	6.5	6.8
		505×280×205	2		14
TND6-2	225×285×215	330×260×260	1	8.5	9
TND6-3	245×310×230	360×300×270	1	12.5	13
TND6-5	260×345×245	300×380×280	1	18.5	19
TND6-10/AF	305×345×520	395×460×660	1	46	56.5
TND6-15/AF	325×435×605	415×540×735	1	71	85
Note: Above parameters are for reference; for the concrete parameters, take in kind as the standard. No prior notice will be given for any change.					

7. Ordering information

For your safety, please read the following selection requirements and notes carefully when ordering:

a. This product is not suitable for overload conditions. In the region where the grid voltage is generally low, attention shall be paid to the use of effective capacity which shall be reduced proportionally: i.e., the lower the input voltage, the smaller the electrical load. When the input voltage is lower than 198V, output capacity of the regulated power supply will be reduced, so the load shall be reduced to avoid overload. For its relationship, refer to "Figure 1, Output capacity curve".

b. Generally, regulated power supply shall be reasonably selected according to the rated frequency, startup surge current, inductive or capacitive load of the electrical equipment. Its output capacity shall be left with sufficient margin; especially in the impact load selection, the margin shall be greater. For the specific selection safety factor, see Table 3.

Table 3

Load property	Equipment type	Safety factor	Select regulated power supply capacity
Pure resistive load	Incandescent lamp, resistance wire, electric furnace and other equipment	1.1~1.3	≥1.1~1.3 times total load power
Inductive and capacitive loads	Fluorescent lamp, fan, pump, air conditioning, refrigerator etc.	2.5~3	≥2.5~3times total load power

c. There is a high voltage in the voltage stabilizer. Non-professionals do not open the case to avoid getting an electric shock.

d. The voltage stabilizer must be reliably grounded to ensure the use safety.

e. The voltage stabilizer shall be placed in a ventilated, dry room. The using environment shall be free of corrosive gases, vapors, conductive dust and explosive substances, as well as violent vibration.

g. The voltage stabilizer is forbidden to be used in parallel. Output terminals of two or more voltage stabilizers shall not be used in parallel or series.

h. When the product is working, carbon brush in the machine for pressure regulating produces arc spark. It is forbidden to place this machine in a flammable and explosive place (such as: oil depot, fireworks factory etc.).