TB766A Sychronizer

YUN SI DA TECHNILOGY
DA TONG SHI YUN SI DA TECHNOLOGY CO.,LTD
Tel: (86)0352-5099489 Fax: (86)0352-5099521
ADD: No.7 DAQING EASTROAD DATONG SHANXI
E-mail: sxdtysd@yahoo.com.cn
Web site: www.ysd2000.com

Operation Instruction

1.Overview

TB766A synchronizer is designed specially for paralleling between generators or between generator and utility. It offers functions as phase following and adjusting、synchronization closing. Compare with other similar device, it features of characteristics as wide capture range, fast synchronizing time(<3s)、simple adjusting. The synchronizer as a auxiliary device is used together with YSD FZF796 distributor and FSK6 servies governor for paralleling between different diesel oil generators or gas generators.

The working principle of TB766A synchronizer is: after receiving synchronization allowance order from the operator, detect two AC voltage signal from generators waiting to paralleling and utility. Then carry through the comparison of phases and generate revise analog DC signal. After PI operation, this signal will be sent to the speed controller. And the phase error between two generators will vanish at a moment. At this time closure signal output and synchronization finish.

2.Technology Parameter

1) AC Voltage Inputs:
single-phase or double-phase
110/190、230/400V
50Hz(60Hz、400Hz)
2) Power Supply: DC24V/12V
3) Phase Error Adjustment Range: ±10°
4) Breaker Closure Window Size: 0~20°
5) Capture Range: ±4% based on 3250Hz
6)Environmental Temperature:
－40℃~＋85℃
7) Relative Humidity: maximal 95% and RH can not coagulate dew

3.Installation and Adjustments

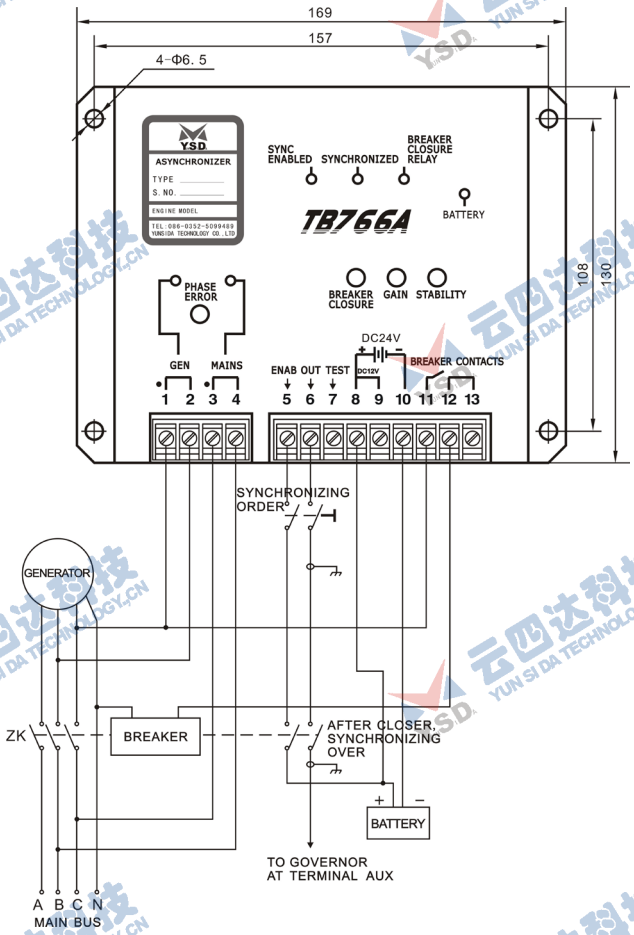

Fig1、The electr wiring and mounting size is shown

The Synchronizer is mounted in control cabinet together with other electronic equipments. Care should be taken to limit exposure of the unit to extreme temperatures. The unit should be mounted vertically to prevent accumulation of water inside the unit.

The electric wiring and mounting size is shown in fig1.

Caution: High voltage AC would be exist at terminals 1～4 while generator is working, so the synchronizer must be installed tired and people can not touch it. Terminials 3 and 4 are sample signal of mail generator which is basic signal,terminials 1 and 2 are sample signal of

auxiliary generator,which is compare signal. These two signals must be connected correctly.

In order to enhance the anti-jamming ability, wiring between synchroni-zer and controller must be shielded.

After affirming installation and wiring is correct, start to adjust. Method of adjustment is as follows.

1)First connect a jumper wire between terminals 7 and 8 or disconnect output circuit of relay between terminals 11 and 12 to make generator set can not paralleling.

2)Observe the state of LED lights on panel of the synchronizer: LED lights of generator、main net、DC power supply are bright.

3)Close synchronization-switch between speed governor and synchronizer, red LED synchronization allowance light bright and the process of synchronization start.

4)Before instability present, adjust the gain value as large as possible. (CW turn gain potentiometer). After gain value is ensured, regulate stability potentiometer. Make the process of synchronization faster and much smoothly. The function and method of gain、stability potentiometer of synchronizer is the same as speed governor. Detailed adjusting method refers to operation instruction of FSK speed governor.

5)While system approaching synchronization , regulate phase error setting potentiometer properly to make the phase error zero. Then regulate breaker closure window potentiometer, make green synchronization LED indicator and red closure relay indicator light bright. Breaker closure window angle is 0°～20°. Full CCW turn in correspondence with 20°, full CW in correspondence with 0°. Generally, 0°rarely achieve. While adjusting, first full CW turn, then slowly CCW turn till the indicator light bright.

6)Make generator unsynchronized, repeat the upward process. Affirm synchronized process fast and smoothly .

7)Disconnect jumper between terminals 7 and 8 or connect circuit of closure relay. At this time synchronization and paralleling can be accomplished.

8)After the before adjusting, some specification still can not be satisfied, please look up the troubleshooting.

4.Troubleshooting

If system cannot normal working or there is some problem with the synchronization, please inspect the synchronizer as the following methods.

1) Measure voltage of power supply at terminal 8 and 10, normal value is 24V or 12V. Polar at terminal 8 is plus. Observe DC LED indicator light on the penal, the LED indicator bright normal. Otherwise synchronizer have problem.

2) If generator sample voltage LED indicator light not bright, inspect input voltage of generator. Right value is 50～500VAC.

3) If main net power LED indicator light not bright, inspect input voltage of utility at terminals 3 and 4, 50～500V is right .

4) If synchronization allowance LED indicator light not bright, inspect order switch and measure voltage at terminal 5, right value is greater than 8VDC.

5) Measure synchronizers output control voltage at terminal 6. When frequency of generator is lower than frequency of utility, the voltage is lower than 5.1V, otherwise greater than 5.1V.

6) If system had achieved synchronization checked by other methods, but synchronize LED indicator light not bright, may be for the Breaker closure window angle is too small. CCW regulate closure angle potentiometer till the light bright.

7) If synchronizer can operate synchronization, but breaker can not be connected, checked contact of closure relay and peripheral wiring.

8) Synchronizing can not operate or the process is slowly, generally is as a result of bad control character. Solvent is checking and optimizing speed control character again and again before synchronizer is used. Next, checked wave distortion of sampling signal, if the distortion is greater than 10%, should added a AC filter .