

POWER ES SERIES INDUCTIVE LOAD DRIVERS;

Because of factors such as the steadily tightening limit values for the active-to-reactive percentage ratio applied to consumers and the spread of capacitive loads, compensation systems built with older-technology products have begun to struggle to compensate reactive loads. The switch of lighting to LED, and customers' growing use of uninterruptible power supplies to be less affected by power outages, have increased the capacitive reactive power in the system. Compensation with classic reactive power control relays can no longer compensate these loads. The unbalanced supply of loads has also created different conditions on each phase. These reasons have made it necessary for reactive power relay manufacturers to introduce some innovations. Relays that respond to the system not only with capacitive loads but also with inductive loads (shunt reactors) have been produced. In order to compensate loads that switch in and out quickly accurately and fast, the development of the SVC (Static Var Compensator) system, called new-generation compensation, followed.

The ever-growing demand for energy has created a need for higher-quality and safer energy. For this reason, power quality has also become important. Reactive power compensation has become the preferred solution, and its importance keeps growing day by day, so that the energy produced is used with better quality and efficiency, transmission losses are reduced, voltage drops are prevented, and consumers do not have to pay the reactive energy charge, which is a financial burden. Powerful loads that switch in and out quickly cannot be compensated with classic compensation systems, because classic systems, which work by supplying capacitive reactive energy to the system with the help of a reactive power relay and contactors, cannot respond to suddenly changing loads. The SVC was developed starting from these problems. Unlike classic compensation systems, the Static Var Compensator (SVC) compensates loads that switch in and out within milliseconds, such as elevators, spot welders and press machines, quickly and completely. The speed of classic reactive power control relays is inadequate to respond to such loads, and since they have a limited number of capacitor steps they cannot provide fast and complete compensation. In addition, because contactors switch on and off so many times, their service life is very short. The internal structure of the inductive driver developed for this purpose is equipped with thyristors so that it can respond at system speed. The thyristor is a very fast component; thyristors trigger at speeds of around 20 ms. By triggering the reactors at different phase angles, they help adjust the reactor power to the desired value.

Disadvantages of the Classic Compensation System

- Reactive power control relays cannot respond to loads that change in less than one second.
- The negative effect on capacitors and contactors of switching in and out many times in a short period.
- A large number of single-phase steps must be used to achieve full compensation.

Advantages of the SVC

- Fast response to fast-changing loads (20 ms).
- Full compensation of unbalanced loads.

Standard values produced;

Power 5 ES 5 kVar inductive load driver (rail mount) (Width:120 x Length:90 x Height:120) mm.

Power 10 ES 10 kVar inductive load driver (rail mount) (Width:75 x Length:125 x Height:125) mm.

Power 20 ES 20 kVar inductive load driver (chassis mount) (Width:130 x Length:190 x Height:135) mm.

Power 50 ES 50 kVar inductive load driver (chassis mount, with fan) (Width:130 x Length:190 x Height:200) mm.

Technical Specifications

Rated voltage:	3x230 VAC
Rated power:	5-10-20-50 kVar
Rated frequency:	50 Hz
Response time:	20 ms
Trigger voltage:	5 VDC
Thyristor count:	3
Indicator LED count:	3
Humidity:	95%
Ambient temperature:	-10°C / +55°C
Overheat protection:	75 °C (in models 20ES-50ES)



***** Caution: Make sure that the relay and the driver have the same phase sequence.**

Application example:

