

# THE SYSTEM OF AUTOMATIC CONTROL OF REACTIVE POWER SOURCES OF THE TELECOMMUNICATIONS

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The most common sources of voltage unbalance in power supply systems of communication and telecommunication devices are those electricity consumers, symmetric multi-phase or the execution of which is impossible or impractical to techno - economic reasons. Such communication devices include special telecommunications and single-phase loads, lighting installations and others. [1,2].

Supply voltage unbalance of communication and telecommunication devices is as follows:

- Coefficient of voltage unbalance on the reverse sequence;
- Coefficient of voltage unbalance on the zero-sequence.

Existing methods aimed at balancing the phase currents in the electrical distribution network of 0.38 kV communication and telecommunication devices, leading to lower losses and further improve the quality of electric power can be divided into the following groups:

1) Periodic alignment phase three-phase network single-phase loads (redistribution of single-phase loads - communication devices and telecommunications).

2) Reduction of the residual resistance of individual elements charging mains (transformers and power lines).

3) Use of enclosed and semi-circuits.

4) Cross-reactive power compensation.

Consider these methods in more detail.

In the same place, the redistribution of loads communication devices and telecommunications make necessary because as research found that the loss of electricity caused by NNT can be reduced by 15 ... 20%. In addition, significantly improves the quality of the electrical energy and, above all, the main quality parameters such as the deviation of the voltage feedback coefficients and zero sequence voltage. [2]

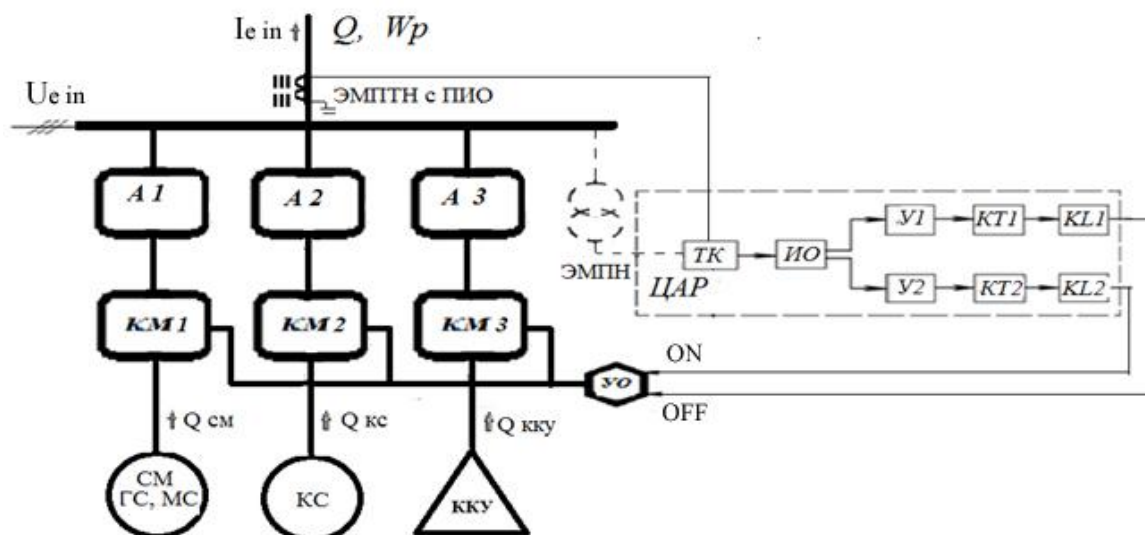


Fig 1. Functional diagram of a system of automatic control of reactive power source of the Telecommunications

Minimization of additional power losses, due to the asymmetry of the currents in the network is possible at 0.38 kV zero sequence impedance decreasing its individual elements. However, this method must use extreme caution, since studies have established that a decrease in the resistance  $R_0$  causes a net increase in its reverse currents and zero sequence, i.e. to an increase in coefficients  $K_{0i}$  and  $K_{2i}$ .

As a tool to reduce the residual resistance line lighting wires used as a way to increase the cross section of the neutral conductor. However, this method is not suitable for reducing the current unbalance for the same reason that an increase in the direct cross-section and the neutral wire.

## REFERENCES

1. Allaev KR, Siddikov IH et al. Elektrstansiyalarivapodstansiyalariningelektrqismi. (Electrical power stations and substations). - Tashkent, Chulpon, 2014.- 302 c.