# METHODS AND MEASURES FOR ENERGY SUPPLY IN THE SYSTEM OF URBAN EXTERNAL LIGHTING

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**Annotation.** In article it is considered ways and actions for power supply in system of city external lighting

**Keywords:** Accordingly, limitation, lighting systems, LED lamps, energy, lighting equipment.

Modern large outdoor lighting networks are energy-intensive automated objects, the correct construction of which largely determines the efficiency of labor and the comfort of modern life. It is important to take into account the limitations associated with the rational use of energy resources to ensure the operation of lighting systems, the costs of the current operation of lighting equipment. The emergence of new technologies in outdoor (street) lighting systems allows you to get a great economic effect. Practice shows that when they are implemented, the potential for energy savings in most public street lighting systems can be more than 50%. Consider the main existing ways to improve energy efficiency in outdoor lighting.

Real energy savings are provided by replacing DRL lamps with modern high-energy-saving LED lamps. Thus, replacing a DRL lamp with a 400 W lamp (22 klm luminous flux) with analog lamps with a 150 W lamp with modern LED lamps A lamp (27 klm luminous flux) consumes electricity per year. 580 kW • Allows you to decrease and increase y per hour. Accordingly, replacing the lamp with modern LED lamps with a power of 250 W DRL (luminous flux 12.5 km) with a power of 100 W per lamp (14.5 km) - reduce energy consumption by 400 kW per year • hours and so

on d. Therefore, the replacement of modern LED lamps as light sources is increasingly being used to economically operate outdoor lighting networks.

Significant energy savings are provided by the introduction of the so-called "night phase" mode. When operating such a control system, two modes of operation of the lighting lines are provided - evening and night. In the evening mode, all lights are turned on, and at night, when the traffic intensity is significantly reduced, some (1/3 or 2/3) of the lights are turned off by turning off one or two phases in each of the lighting lines extending from the control cabinet. But this method of saving has a significant drawback - it leads to an increase in the contrast of lighting and, as a result, to visual fatigue and a decrease in traffic safety.

One of the directions in the field of energy saving is the use of special regulators-stabilizers for powering outdoor lighting. In addition to regulation, this device allows you to equalize the supply voltage, create the optimal mode for the operation of the lamps and extend their life. Regulation occurs from the outside: by command from the control room, by radiotelephone communication or by a light sensor signal. You can program the device according to the astronomical schedule or according to a special mode. But these regulators have not found wide application due to the fact that most of the existing lines are in a deplorable state and of considerable length, which leads to the fact that at the end of the line the supply voltage decreases to the level when the lamps go out. The complex task of energy saving in outdoor lighting with energy savings up to 40-50% can be solved by the automated control system ASDUNO "Tashkent". Today, ASDUNO "Tashkent" is a well-established 3-level self-sustaining system, with fully certified hardware and software. Reliability, high performance, reasonable price/quality ratio, personnel training system, after-sales service and manufacturer’s warranties are the hallmarks of ASDUNO "Tashkent".

When using electronic control gear in the outdoor lighting system, in addition to a significant increase in the life of lighting lamps, it becomes possible to

automatically control the power consumption (dimming), the brightness of the lamps, address control of lamps, and diagnose the state of each lamp with reference to its location.

To the distinctive technical characteristics of ASDUNO "Tashkent". can be attributed:

• Increasing the reliability of equipment operation through the use of non-contact switching units (triac) of power lines.

• Efficiency of centralized or group control of outdoor lighting objects.

• Efficiency of control and detection of breaks, short circuits in lines, remote reset of the accident, sound and light alarm in case of emergencies.

• Possibility of archiving the received information and actions of the dispatcher, formation of accounting journals.

• Possibility of "binding" controlled points to the map of the city.

• Modular structure of contactless switch (up to 8 modules).

• Various modifications of switching points with a range of switched currents from 15A to 200A.

• Possibility of redundant communication channel with the control room.

• Availability of technical solutions for connecting cabinets of ASDU NO from other manufacturers[1].

Currently, LED lamps are being introduced in outdoor lighting. But for the sake of energy saving, one should not forget about their significant shortcomings, which do not allow their wide application:

• Low total luminous efficiency (LEDs - taking into account losses up to 64 Lm/W, HPS - 140 Lm/W).

• Exaggerated passport service life of 50,000 - 100,000 hours (use of switching power supplies in the luminaire,

• Capacitors with significantly shorter life, only tested for 10,000 hours).

• Decreased luminous flux by 30% over time.

• Uneven distribution of brightness over the road surface.

• Low reliability of luminaire drivers (power supplies for LED modules), their instability to voltage drops.

• Significant cost

• Lack of knowledge of human visual perception of light emitted by LEDs (psycho-physiological studies have not been completed).

The task of energy saving is the replacement of DNAT-140 Lm / W luminaires and the creation of a modern LED luminaire and the subsequent replacement of luminaires with DNaT lamps already installed in huge quantities in the previous five years.

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