Світловий потік передається по трубі із дзеркальними стінками або скловолокну. Дані світлові канали виготовляються із спеціального оптичного скла з ізолюючою оболонкою. Робота передавального пристрою оптико-електронного трансформатора заснована на різних принципах. Деякі трансформатори струму використовують ефект Фарадея, а трансформатори напруги ефект Покелса [5]. Також існують конструкції трансформаторів струму, у яких передавальний пристрій складається з модулятора та світлодіода. Світловий потік напівпровідникового світлодіода залежить від вимірюваного струму I та його фази.

Оптико-електронні вимірювальні трансформатори дозволяють контролювати не тільки струм, а й потужність (повну, активну, реактивну) установки, опір на її затискачі, а також моменти переходу миттєвих значень струму та напруги через нульове значення, також вони мають набагато меншу похибку у порівнянні зі звичайними вимірювальними трансформаторами. Їх доцільно використовувати на класах напруги 750 кВ і більше.

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MOBILE ENVIRONMENTAL MONITORING TOOLS

The rapid development of technology has outlined the trend towards automation of many areas of human life. Recently, there is a steady trend towards the introduction of automated stations of hydrological, meteorological, radiological, environmental monitoring around the world. [1-11]. The development of automated monitoring stations takes place in two directions: stationary remote monitoring systems [1, 3, 5] (Fig. 1.1) and mobile (mobile) [2, 4, 6] (Fig. 1.2).

Fig. 1.1 - Stationary hydrometeorological monitoring stations

Mobile monitoring systems typically use drones that are operated by an operator or move along a pre-programmed route. The disadvantages of the first systems include their high cost and low energy efficiency, the second - have a shorter measurement period, and therefore may miss the initial phase of a dangerous situation.

Fig. 1.2 – Mobile monitoring systems

The advantages of automated monitoring systems are:

- ✓ Modernity and manufacturability, which is manifested in particular in the possibility of implementing comple□sensors that can control several parameters in one case, as a result - small size and low power consumption.
- ✓ Autonomy, which is due to the rapid development of non-traditional energy sources, a significant increase in the efficiency of photovoltaic converters with energy storage and reduce their cost.

- ✓ Efficiency of information collection, processing and transmission. The use of modern digital electronics allows you to make several readings of controlled parameters every second; digital interfaces of modern sensors allow you to quickly transmit measurement results within the complex, store them on your hard drive, group and transmit the necessary data via GSM / GPRS modem to a central server, where further processing and database formation will take place. In the future, it is advisable to create a WEB-application, which will display both the results of current measurements and will keep an archive from which you can select the necessary data to study the dynamics of changes in certain parameters.

Existing, both in Ukraine and around the world, such automated systems have proven their work very well. But in order to be able to talk about the long life of such systems, it is necessary to reasonably approach the choice of location of such monitoring systems, to provide quality maintenance.

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