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MANAGEMENT OF FORMING SECURITY OF OBJECTS AND PREVENTION OF EMERGENCY SITUATIONS
МЕНЕДЖМЕНТ ФОРМИРОВАНИЯ БЕЗОПАСНОСТИ ОБЪЕКТОВ И ПРЕДОТВРАЩЕНИИ ЧРЕЗВЫЧАЙНЫХ СИТУАЦИЙ

Аннотация. В статье проанализирована методика определения параметров применения автоматической установки системы безопасности (АУСБ), реализованной в рамках программы безопасности «Щит» на территории торгового центра «Барабашово» в Украине. При практической разработке данной системы учитывался передовой опыт всех мировых лидеров в производстве не только охранных систем, но и в построении сетей. В представленной работе обосновано применение данных систем и их усовершенствование для решения практических задач по безопасности объектов и предотвращению чрезвычайных ситуаций.

Ключевые слова: чрезвычайные ситуации, автоматическая установка системы безопасности, промышленный комплекс.

Annotation. The article analyzes the method of determining the parameters of the automatic installation of the security system (AISS) implemented within the security program “Shield” in the territory of the “Barabashovo” shopping center in Ukraine. Practical development of this system took into account the best practices of all world leaders in the production of security systems and in building networks. In the present study substantiates the use of these systems and their improvement to solve practical problems for the safety of objects and prevention of emergency situations.

Keywords: Emergency situations, automatic installation of security systems, industrial complex.

Introduction. The current period is characterized by growing contradictions between the high industrial potential and the possibilities for its safe and efficient use.

In this connection, the practical solution of tasks to reduce the risks of accidents, including at shopping sites. [5, s.114]

The organization and support of human security at the level of European standards has now become more relevant in Ukrainian society than ever before. Especially in the current situation in the east of Ukraine, factors such as the conduct of ATO, the influx of refugees, the proximity of the border directly affect the security of business activities of businessmen in the conditions of large shopping center. Recently, businessmen who trade in shopping centers and large markets are concerned about the increasing number of attempts to steal goods during the absence of employees in the trading places.Whether it is the time after the closure of a store or warehouse, night time - the physical security of the shopping center cannot respond quickly to an attempt to penetrate the store or warehouse without knowing exactly where it is going. Moreover, the growth of the crime situation has led to the risk of fire due to arson, which provided a major object of trade may lead to a large-scale disaster.

The aim of the article is to provide a comprehensive analysis of security systems.

Analysis of recent research and publications. The problem of research of security systems is given a great deal of attention among practitioners connected with scientific research institutions. However, this problem has been little covered in scientific publications from the point of view of the use of automatic security system installations in open areas and in the trading places. [6, s. 421]

Paper main body. Modern security management is dominated by the concept of acceptable (permissible) risk, based on the axiom of inability to achieve absolute safety and the need for a compromise between the risk of application and utility for society regarding safe products.In this regard, in the event of an emergency situation, helps for thesecurity guard – electronic "eyes and ears" of the security company– the fire and security alarm system.

Particular attention should be paid in this case Automatic installation of security systems (AISS) implemented within the security program “Shield” in the territory of the “Barabashovo” shopping center in the Kharkiv,Ukraine. “Barabashovo” shopping center is the largest shopping center in Eastern Europe.The shopping center consists of 8 trading platforms, its area exceeds 75 hectares, there are more than 18 000 trade and warehouse

places.“Barabashovo” shopping center has become a point of intersection of direct commodity flows from different countries of the world and a springboard for the promotion of locally produced goods.

Representatives of more than 20 different countries of the world carry out trade activities at the shopping center. Each of them expects that there will be no trouble with his goods.Therefore, the design of this security system took into account the best practices of all world leaders in the production of not only security systems, but also in building networks.To implement the system on the territory of the whole shopping center, it was decided to organize a local fiber-optic network that could fully cover the territory of the shopping center and could transmit signals with a given maximum speed.This decision is also due to the fact that this local network can be used not only for security purposes, but also for commercial and information purposes.

As a result of studying the literature on the subject of the study, professionally important qualities of automatic installation of the security system were identified and ranked, effective methods for studying these qualities.[7, s. 446]

The kernel of the system is installed on a special security server and managed by an administrator with the ability of secret remote access from anywhere in the world where there is Internet.With the help of a special program installed on a workstation with the ability to connect to the Internet, the operator of the central monitoring station (CMS) monitors the situation at all objects under the control of the security system.Operators enter the program each under their own unique password, and all their activities are displayed in the form of messages during working hours, and also stored in the archive. Also, all messages arriving to the monitoring station are archived.The size of the archive depends only on the size of the hard drive, because they are written as log files.[3, s. 118]

The construction of a security system has the structure of a hierarchical star.In the protected areas of the object are set fire and security detectors and / or magnetic contact detectors (depending on the configuration of the protected place their types and quantities may vary), touch memory key reader, siren with strob, the energy accounting board and alarm control unit «АЦТЭК-1м».[2, s. 12]

The detectors of each individual group are connected to the corresponding alarm loops. Transmission of signals to the device is carried out by cables Alarm cable 4×0,22 and Alarm cable 6×0,22.

Also, atouch memory key reader, a siren with strob and energy accounting board are connected to the alarm control unit.

Units "АЦТЭК-1м", set in the protected areas of the object are connected to the concentrators using the twisted pair cable 4×0,22 cat.5e. To one concentrator is possible to connect up to 51 devices "АЦТЭК-1м".

The protected object is conditionally divided into modules. For each module, a concentrator's cabinet is installed, in which there are: one concentrator, one RS-232 to Ethernet converter and one switch. Switches in the cabinets using fiber-optic cables are connected to the central switch.

The listed equipment is necessary for communication of the alarm control unit with the security server on which the system software is installed.

The controller of the unit periodically checks all parameters of the device status and alarm loops and, depending on the result, on request, issues notifications to the centralmonitoringstation (CMS).

The server software sends to the controller requests for device status and alarm loops with a frequency of 100 ms between the two neighboring controllers.

The polling time of the module is up to 7 seconds.

Arming and disarming the unit is produced using the swipe touch memory key to the reader installed on the protected object.

In the arming room, the unit measures the amount of current directlyin the alarm loops, and, depending on the result of the measurement, issues notifications to the CMS, light and sound annunciators or remains in standby mode.

In a room disarmed, the device measures the amount of direct current only in the alarm loops: with fire detectors; control of the opening of the energy accounting board; control of the opening of the controller; with an alarm button, and, depending on the measurement result, issues notifications to the CMS, lights and sounders or remains in standby mode. [4, s. 88]. The power supply of the security server and the central switch is carried out from an alternating current network with a voltage of 220 V (+22 V, -33

V), frequency (50±1) Hz through uninterruptible power supplies with batteries. The operating time of the server equipment without the main power supply is 2 hours.

The power supply to the equipment of the concentrator's cabinet is carried out from the complete transformer substation with AC voltage 220 V (+22 V, -33 V). In case of main power failure, the switching panel of the backup power supply automatically switches to a backup power supply from another substation.

To ensure the uninterrupted power supply of the concentrator's cabinet at the moment of switching to the backup line, the energy accounting board is equipped with uninterruptible power supplies.[1, s. 112]

One energy accounting board provides uninterrupted power supply to 16 concentrator'scabinets. One UPS is installed per four concentrator's cabinets.

The power supply of the device "АЦТЭК-1м " is carried out by supplying a DC voltage of 15 V from the concentrator via cable, twisted pair 4×0,22 cat.5e.

Advantages of the system. Thus, the built-in security system has a number of advantages over systems of a similar type:

- The presence of fiber optic links allows security Agency to establish security controls over sales places and warehouses anywhere in the shopping center;
- Signal transmission is carried out by wires, which distinguishes the system fromother systems with signal transmission by means of GSM.In the conditions of a large shopping center in the event that a situation arises when all the controlled objects run alarm massively, the equipment for transmission and subsequent signal processing does not cope with the information flow;
- Control the power supply of the detectors inside the controlled object, which makes it possible to remotely overload one or another group of detectors in the case of a "freeze";
- Power supply with automatic switching to another power supply enables 24/7 uptime of security system;
- n addition to performing safety functions, the system controller is able to read and transmit telemetry signals from electricity counters to the Automatic System for Accounting and Distribution of Electricity;

- The possibility of using a built-in local network for the transmission of information messages, alerts, the use of the Internet network for work and commercial purposes.

Conclusions.

Thanks to the security system installed in the “Barabashovo” shopping center, it was possible to prevent more than 10 attempts of penetration to the premises of the shopping center for the purpose of theft only this year. This allowed businessmen to avoid losing their goods in total for more than 100000 euros. Timely alarms of fire detectors of the security system over the past 5 years helped prevent the possibility of spreading fires in large-scale fires, which helped to avoid huge damage to both businessmen and the infrastructure of the shopping center.

At the present time, the technical specialists of the security agency "Кобальт" do not stop there, and now new equipment is being developed to expand the operational capabilities of automatic installation of the security system.

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