



Checkpoint - Part of the Facility's Security System

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Abstract:

The article considers the possibility of creating access control and control systems, shows the scheme of work, methods and means of implementing an access control and control system for an object, describes the functional features of the ACS software product. An important issue raised is the possibility of integrating ACS with any security system based on the use of an open protocol. For the correct use of technical means at the checkpoint, it is first necessary to thoroughly study the principles of their use, understand all the nuances, pros and cons of their use. Modern technical means are certainly a necessary element of the checkpoint, and the checkpoint as part of the security system will clearly perform many functions.

Keywords: technological leadership, checkpoint, ACS, rational, automatic pass, photoplethysmograph, technical means, working time accounting, sliding, swing, lifting, roll.

INTRODUCTION

The checkpoint can be defined as a system of providing regulatory, organizational and material guarantees for identifying, preventing and suppressing encroachments on the legal rights of an enterprise, its property, intellectual property, industrial discipline, technological leadership, scientific achievements, protected information, and as a set of organizational and legal restrictions and rules that establish the procedure for passing employees, visitors, transport, import/export of material values through the checkpoint to the object.

The protection of any object includes several boundaries, the number of which depends on the level of security of the object. At the same time, in all cases, an important boundary will be the access control management system (ACS) for the object. In general terms, ACS is usually understood as a set of software, technical, organizational and methodological tools that solve the problem of monitoring and managing the premises of the enterprise and individual premises, as well as





operational control over the movement of personnel and the time of their stay on the territory of the enterprise. The ACS is designed to automatically allow those to whom this entry is allowed, and not to allow those to whom entry is prohibited. All its other functions (safety of material values, control and accounting of working hours, etc.) follow from its main purpose.

Usually, the ACS is installed at the checkpoint and performs a number of tasks:

protecting the legitimate interests of the object, maintaining the order of internal management;

protection of the property of the object, its rational and effective use;

accounting for the time of employees and visitors;

internal and external stability of the object. [1]

In addition, the ACS is a barrier for the "curious". When implementing specific tasks, the ACS uses various methods and devices that implement them for identification and authentication of an individual. It should be noted that the ACS is one of the most developed segments of the security market of any state. According to a number of experts, the annual growth of the ACS market is from 25 to 35%. The number of specialists working in the field of technical security systems has exceeded one million people.

Well-organized, with the use of modern technical means, the ACS will allow you to solve a number of tasks. Among the most important of them are:

countering theft;

countering sabotage;

countering intentional damage to material assets;

accounting of working hours;

monitoring the timely arrival and departure of employees;

protecting the confidentiality of information;

regulating the flow of visitors;

control of entry and exit of vehicles. [2]

The question of the possibility of integrating ACS with any security system using an open protocol is very important. An important feature of the ACS market is that consumers have begun to buy more expensive actuators, and foreign-made ones at that.

Another feature of modern ACS is the introduction of smart card technologies, instead of classic proximity cards, long-distance identification technologies.





MODERN TECHNICAL MEANS ARE A NECESSARY ELEMENT OF THE CHECKPOINT

The problem at the moment is that technical means are practically not used at the checkpoint, and those that are available are not used correctly. The metal detector, which is currently used for inspection at the checkpoint, must detect all items prohibited from being brought into the protected area from a distance of 10 meters. The metal detector-the frame at the entrance to the checkpoint should track what the manual metal detector could not detect, and not vice versa. We have to state that the checkpoint is not provided with a full set of modern technical means. There is no infrared detector that allows you to record thermal radiation from the hands (or fingers) and a photoplethysmograph that detects the presence of changes in the light reflected from the blood flow.[3]

The personnel are not trained in the use of modern technical means at the checkpoint. Now, unfortunately, the old generation is being studied and, accordingly, the personnel of the checkpoint is not ready for the use of new means, since they do not have the necessary information and skills. The question arises: where and how to get the necessary information and what will help you get acquainted with all the new products in this area in a timely manner. But not only to get acquainted, but also to learn how to use them, acquiring much-needed skills and abilities. For the correct use of technical means at the checkpoint, it is first necessary to thoroughly study the principles of their use, understand all the nuances, pros and cons of their use. Today, there are no specialists in this structure who have the necessary qualifications for servicing modern technical means at the checkpoint. Modern technical means are certainly a necessary element of the checkpoint, and the checkpoint as part of the security system will clearly perform such functions as -

ensuring the authorized passage of employees and visitors, import/export of products and material values, rhythmic operation of the facility;

prevention of uncontrolled penetration of unauthorized persons and vehicles into protected areas and into individual buildings (premises);

timely identification of threats to the interests of the object, as well as potentially dangerous conditions that contribute to causing material and moral damage to objects;

creation of reliable guarantees for maintaining the organizational stability of external and internal relations of the enterprise, development of a mechanism for rapid response to threats and negative trends;

suppression of encroachments on the legitimate interests of the enterprise, the use of legal, economic, organizational, socio-psychological, technical and other means to identify and weaken the sources of threats to the security of the object.[4]



It should also be noted that at present the regulatory framework in the field of ACS is not fully developed.

Regulatory guarantees consist in the interpretation and implementation of legal norms, understanding the limits of their action, in the formation of necessary legal relations, determining and ensuring the legitimate activities of divisions and employees of the enterprise regarding its safety, the use of restrictive measures, the application of sanctions to individuals and legal entities that have encroached on the legitimate interests of the object.

Organizational guarantees are formed by developing, building and maintaining a high efficiency of the overall organizational structure of process management, identifying and suppressing threats to the activity of the object, using an effective mechanism to stimulate its optimal functioning, as well as appropriate training of personnel.

Material guarantees are formed through the allocation and use of financial, technical, personnel, intellectual, information and other resources of the enterprise, ensuring timely identification, weakening and suppression of threat sources, prevention and localization of possible damage, creation of favorable conditions for the enterprise's activities. [5]

The main measures of the checkpoint are developed by the security service of the facility, approved by its head and issued by the instructions on the checkpoint.

The responsibility for the organization of the checkpoint is assigned to the head of the security service. The practical implementation of the functions of the checkpoint is assigned to the security (checkpoint duty officers, controllers, guards), whose employees must know the rules of the checkpoint established at the facility, the current documents on the procedure for passing employees and visitors to the facility(from the facility), import/export of inventory items.

The checkpoint can be installed both in the whole object, and in separate buildings, buildings, departments and other special rooms.

Modern transport ACS are also equipped with remote attribute identifiers (such as proximity), means of inspection of transport (special mirrors and technical endoscopes), as well as at particularly important objects - an anti-terrorist means for emergency stopping of a car trying to ram the gate. The latter means is a metal column (blocker) with a diameter of up to 50 cm, which is installed in front of the gate from the outside in a concrete or metal well. At the bottom of the well, a cylinder with compressed air and a pyropatron is placed, which explodes at an electrical signal from the checkpoint, and the compressed air lifts the column in a fraction of a second in front of a moving car. Such a blocker can stop a 20-ton car moving at a speed of 60 km / h.



Fig. 1 ACS of the checkpoint building

Checkpoints for the passage of automobile and railway transport are equipped with: sliding or swing gates and barriers with mechanical, electromechanical and hydraulic drives, as well as devices for emergency stopping of the gates and opening them manually;

control platforms with platforms for car inspection;

traffic lights, warning signs and light displays;

telephone and alarm communication and lighting for vehicle inspection. The traditional (non-automatic or with automated door drive) ACS of transport includes gates or barriers for admission, access control and detention systems for transport, a platform with a platform for inspection of transport, which often represents a section of the carriageway, traffic lights, warning signs, light displays notifying others about the departure and entry of transport, as well as means of signaling, lighting and alarm communication of the controller inspecting the vehicle. [6]

The gates can be swing (with low resistance against ramming and requiring cleaning of the roadway in front of the gate from snow and ice), sliding, lifting and rolling. As attribute identifiers for a vehicle, a waybill is used, which indicates the state number of the car, the surname of the driver and the person responsible for cargo transportation (often these functions are performed by the driver), the type and quantity of cargo. The IDs of the driver and passengers are their passes.



Fig. 2 Automatic gates of the checkpoint of objects

Automation for gates is designed to provide comfortable and safe control of gates for both domestic and industrial purposes. Both existing gates at the facility and newly installed ones can be automated. The drives are divided according to the type of gate: swing (Fig. 2), sliding, lifting and turning, sectional.

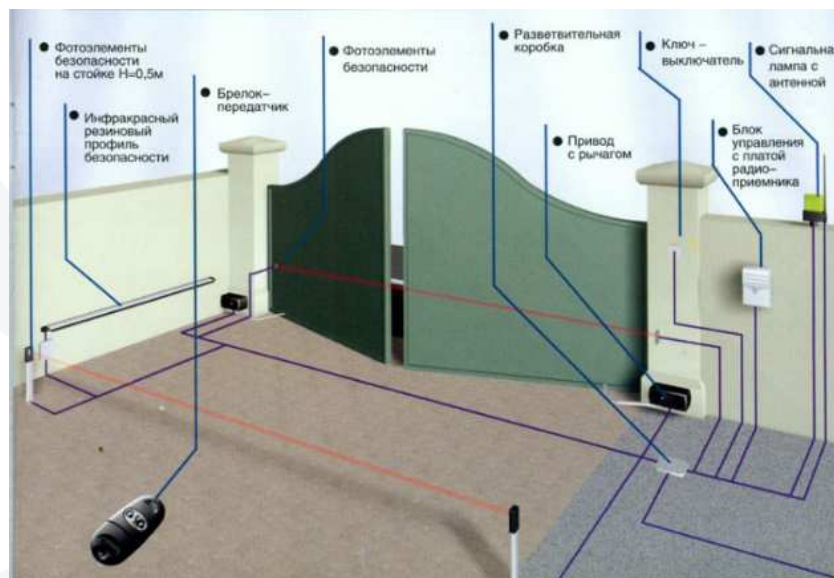


Fig. 3 Automation for gates

In addition, when choosing a drive, it is necessary to take into account the size and weight of the gate, as well as the intensity of the load. All gate drives are equipped with safety elements (photocells, sensors, etc.), which exclude the possibility of damage to the machine located in the gate leaf. In addition, all gate automation kits are equipped with convenient remote control devices for gates based on infrared or radio transmitting key chains.

Automatic barriers are very often used for operational management of vehicle traffic flows, regulation of entry/exit to parking lots, territories of enterprises and organizations, shopping centers, etc. The automatic barrier consists of a rack with a power mechanism, an arrow and an electronic control unit (Fig. 5.18). [7]

According to the principle of operation, the barriers can be electromechanical and hydraulic. The length of the boom of the barrier can reach several meters, two barriers can be used to block wide passages, installed towards each other and



working synchronously. An important parameter of the barrier is the opening/closing time. Some models provide for the installation of light alarm elements on the boom and a safety curb - a rubber profile in the lower part of the boom that is sensitive to contact with an obstacle. The barrier can be controlled remotely from a button, a connected card reader, a code keyboard, using a miniature radio advertisement. Various elements of road safety can be connected to the control unit: photocells, induction metal detectors for detecting a car in a given zone of the roadway.

CONCLUSION:

Based on the study of modern proposals for the protection of objects existing on the market and the analysis of problems arising during their implementation, it is concluded that this ACS can be implemented in commercial and municipal institutions, as it will allow restricting access to the protected object, as well as keeping records of employees' working hours, since the experimental operation of the prototype system showed a high degree of reliability, convenience and ease of use, low hardware requirements and economic efficiency of this solution.

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