



Radio monitoring of alarm signals

Cavere Sp. z o. o. (ul. Słowackiego 37, 27-600 Sandomierz, tel. 015 644-52-60), a security agency operating on the market of security and protection of property, developed a system of round-the-clock electronic monitoring of protected facilities. The above service was part of the overall program of development and improvement of protecting techniques. As a result of the growth of the company, the sites protected are often dispersed over wide areas, far from the company headquarters. The necessity to collect alarm signals and manage intervention teams caused the company to seek a system which would

ensure the ability to collect data within the radius of up to 50 km from the base station. From the multitude of products available on the market, Cavere selected a solution based on SATEL products.

SATELCODE transmitters installed at the sites collect data generated by alarm exchanges, and transmit them via radio to the dispatch station. Depending on the type of alarm exchange and the requirements of the customer, the transmitting equipment installed includes four or eight two-stage inputs. Thanks to that particular structure, the transmitter can collect data not only from the alarm

The screenshot displays a security monitoring software interface. At the top left, there are logos for 'obis' (Automatyka Przemysłowa) and 'CAVERE'. A digital clock shows '01:08:01' and '13:04:18'. A central table lists alarm events:

Czas	Opis	Nazwa	Obiekt	Status
08:01 7:00:35	Rozbrojenie stacji		Obiekt 20	OFF
08:01 9:35:36	Alarm wejścia A		Obiekt 41	ON
08:01 11:34:35	Rozbrojenie stacji		Obiekt 4	OFF

Below the table is a navigation bar with buttons for 'Operator', 'Raporty', 'Alarmy', 'Mapa całości', 'Legenda', and 'Stan obiektów'. The 'Stan obiektów' dropdown is set to '20 Pawilon Handlowy ul. Topolowa 12'. The main area is split into a floor plan on the left and a details panel on the right. The floor plan shows a building layout with rooms numbered 1-8 and entrances labeled 'Wejście B' and 'Wejście A'. The details panel shows information for 'Obiekt 20: Pawilon Handlowy' at 'ul. Topolowa 12', owned by 'Jan Kowalski', with phone numbers '4285507' and '0601883366'. It includes a list of alarm types with checkboxes:

- 1 Stacja rozbrojona
- 2 Alarm w strefie okien pokój nr 1
- 3 Alarm w strefie okien pokój nr 2
- 4 Alarm w strefie okien pokój nr 3
- 5 Alarm w strefie okien biuro
- 6 Alarm wejścia A
- 7 Alarm wejścia B
- 8 Alarm w biurze

At the bottom right, a smaller table shows the current status of the selected object:

Czas	Opis	Nazwa	Status
08:01 7:00:35	Rozbrojenie stacji	Obiekt 20	OFF
08:01 7:00:35	Rozbrojenie stacji	Obiekt 20	Przyjęty

exchanges, but also from any device equipped with a two-stage output. The signals received at the base station via the SATELNODE receiver are transferred through a series interface to the PAG 1.0 computer system, decoded and displayed. The radio system comprises a function for checking the connection between the transmitter and the dispatch station. It is based on transmitting a diagnostic signal, in predetermined intervals, between the transmitter and the receiver. In case no diagnostic signal is detected, the computer system warns the operator about the fadeout of the connection with a given site. The diagnostics interval is programmable and can be set within the range of 1 - 64 000 minutes. The SATELCODE device has an additional function of alarm signals repetition, ensuring that each alarm signal is correctly transmitted to the base station. The transmitter is also secured against attempts to cut out the alarm signals and / or power supply.

Effective processing of alarm data

The PAG 1.0 system is compatible with the Wonderware FactoryFocus platform, and allows to present alarm signals as plain text, graphics or sound. In the event of an alarm, the signal is visible on the main screen showing the layout of all the sites. By selecting the site in question, the operator is transferred to a detailed information window containing all the data necessary to perform the alarm procedure and showing the history of alarms pertaining to that particular site. The alarm response consists in the confirmation of the reception by the operator, and then completing the alarm procedure.

The software includes a database where all the

information about alarm events is stored, inclusive of data and exact time of occurrence. That solution enables the operator to generate reports (on the basis of information stored in the database) for specific sites or reporting periods. The system can also generate separate statements for various types of alarms. The operator can monitor the information about the sites: toggling from the layout of the premises including exact location of the alarm devices, to the directives concerning specific response procedure in the event an alarm arises.

Wide range of applications

Digitally encoded radio signals can carry various kinds of information about the event, depending on the functionality of the system. The widest range of possible applications exists in areas like **anti-burglary, fire prevention and environment protection monitoring**, as well as in follow-up and control of the operation of equipment in dispersed industrial systems, such as **road lighting systems, waterworks and transformer stations**. In practice, wireless alarm transfer can be used for the development of small to complex systems functioning within a factory or administrative unit. The devices included in the SATELCODE and SATELNODE product group can therefore be applied to monitor facilities and technological parameters like temperature, pressure, level or gas concentration, as well as information about unauthorised access.

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