ATUT

CONTROL & AUTOMATION FOR MINING INDUSTRY


ATUT

Ladies and Gentlemen,

ATUT Ltd. was founded in 1989. The main goal is to develop and manufacture innovative automation, monitoring and control systems to improve safety and efficiency of resource extraction in mining. Continuous development and investment in new technologies has resulted with many implementations in the mines in the country and abroad. We invite you to meet and get acquainted with our current offer and future plans.

Krystian Szebesta
Chairman of the Board

Devices

Main controllers series CUKS-5 and CUKS-6

Automation systems to control and cooperate with loudspeaking devices connected in a bus, and network infrastructure devices. Devices are made as an intrinsically safe equipment. They are equipped with graphic LCD display, LED display, keyboard and push buttons. They provide the function of remote diagnostics and maintenance of equipment and state of the bus cable. Each unit is equipped with its own rechargeable battery to allow continuous operation after power failure.

Loudspeaking devices series CUKS-3 and CUKS-4

CUKS-3 and CUKS-4 loudspeaking devices are universal devices designed to conduct loudspeaking communications and alarm signal. The device can be integrated with the emergency switch.

CUKS-3 and CUKS-4 provides the following functions: emergency dispatcher calling, microphone sensitivity control, volume control, the addition of an emergency stop, control of additional external devices such as light boards, ability to connect two optional external sensors, eg. temperature, pressure, etc. as four-state standard, voltage 0 - 10V, 5-15Hz frequency, 4-20mA. Loudspeaking devices are cooperating with drivers series CUKS-5 and CUKS-6. Each unit is equipped with its own rechargeable battery to allow continuous operation after power failure.

Devices

Light and light-acoustic boards series TS and TSA

Enables light and light-acoustic signalization. TS and TSA devices includes single-pole and multi-pole boards in unilateral and bilateral version.

Emergency switches series WZA and limit switches series WKA

Emergency palmar-wire stop switches are activated by pressing a button on the device or from anywhere on the longwall, using the stretched links between switches. They are used for securing the extensive transport systems, such as belt conveyors or production lines that require stopping from every place of work.

Intrinsically safe power supplies series ZIM

ZIM-type power supplies are used to supply electrical circuits with intrinsically safe DC voltage. They can be equipped with an LCD display, which allows monitoring of output voltage, load current, emergency events and a communication interface RS-485 for remote monitoring of operating parameters. They are available in versions with one or two power supply drains, and in a version with buffer battery which ensures continuous operation when power outages occur.

Devices

Intrinsically safe electromagnetic flowmeter IPE

Intrinsically safe electromagnetic flowmeter IPE is designed for installation in piping systems and measuring the amount of liquid that flows through. Available measuring diameters are in the range from DN25 to DN150. In addition to flow measurement it is also possible to measure the temperature of the liquid and its pressure. Electrical equipment of the flowmeter is made as intrinsically safe so you can use it in the mines in areas with “a”, “b” and “c” degree of methane explosion hazard, and “A” and “B” degree of coal dust explosion in accordance with applicable regulations.

Underground visualization unit DZW-1

Underground visualization unit DZW-1 is designed for visualization and monitoring both in rooms and mine excavation. The design of the monitor allows to connect up to 8 CCTV cameras with video transmission using coaxial cable, twisted pair or fiberglass cable. Device is equipped with two fiber optic Ethernet ports, 10BaseFL, 100Base-FX, to transfer images over long distances. DZW-1 is equipped with intrinsically safe RS485/RS422 serial interfaces, a large (19 “) and clear color screen, input video signals from intrinsically safe cameras, intrinsically safe keyboard with trackball, and a fiber optic Ethernet port.

Devices

Network infrastructure

The network infrastructure consists of IMC-type modems, IKC-type hub, intrinsically safe barriers type ABI, separators and special cables with ZAT connectors. Those devices provides connectivity between systems throughout the mine. Each device is equipped with a battery which provides access to the monitored devices and diagnostics, even when power supply shortages.

Installation and Safety Elements

Equipment provided by ATUT may optionally be fitted with special steel construction, that gives the protection against environmental conditions that may appear at the place of installation and makes the installation easier.

Systems

ATVisio/ATService system

Informations from the control-measurement systems and communication-security systems are sent via modem to a surface visualization unit PZW-1, where they are collected and archived, as they can be stored in database of current and archived data which can be used as a source of information for surface workstations running with ATVisio (or ATService) software.

Surface visualization unit series PZW

Surface visualization unit consists of the central device – server, visualization stations and software which allows the remote diagnostic of the devices and systems and also provides the function of the database. In server unit all the communication lines are crossed to transmit all the data from underground devices - thats where the data is being saved and then archived. Applications on the workstations provides a graphical representation of data stored on the server and also - through the server - the configuration and maintenance of underground devices.

Communication and safety system series SSG-2

SSG-2 system is used to conduct loudspeaking communication, including radio-generation of start-up warning signals and voice messages informing about the status of the equipment installed on the longwalls, ensure cooperation with the control systems and performs the function of the security circuit along the route of scraper conveyors and equipment operating within the walls. It allows also local and remote monitoring of device parameters of longwall complex and remote control from the surface by selecting the appropriate mode.

Systems

Conveyor control system series SSP-1

SSP-1 system provides control functions of conveyor belts used in mining and other industries associated with potentially explosive atmospheres of methane and coal dust.
Loudspeaking devices allows voice communication, generation of start-up warning signals and voice messages informing about the status of the equipment installed on the conveyor route. Conveyor belts equipped with a SSP-1 system can work individually and be combined into sequences of any configuration. There is a possibility of local and remote monitoring of parameters of conveyor belt and remote control from the surface by selecting the appropriate mode. In addition, the system allows the driver to take over the function of another driver which works in network alike from surface and underground workstation.

Control system of ventilation dams series SST-1

SST-1 system allows automatization of passage throught the ventilation dams built-in the drift with electric traction, suspended monorail or/and cogwheel railway. Passage through the system is accordant to applicable regulations and safety requirements, also ensuring proper signaling along the route. System provides generation of warning signals, voice messages, local and remote monitoring of parameters.

Systems

System of control and signalization of cogwheel railway and suspended monorail series SSLKSP-2

SSKSP-2 system provides functions of control and steerage of the cogwheel railways and suspended monorails used in mines. System ensures loudspeaking communication, generation of start-up warning signals and voice messages informing about the status of the equipment installed on the railway route. Informations displayed on the operators desktop enables staff to get to know the location of the railway, its speed and the state of cooperating devices like harp switch stand, ventilation dams or limit switches.

Windlass control system series SSK-1

System SSK-1 was made as the variety of SSLKSP-2 system in variant to steer and control short railways made on windlasses. Simplified equipment allows a significant reduction in prices but also provides the necessary functionality for such systems.

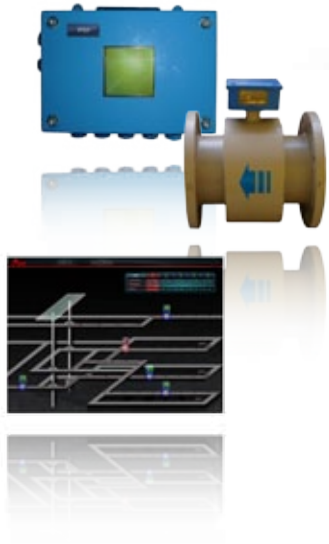
Coal shearer monitoring system MKS-1

System allows to read current parameters of coal shearer and its transmition to surface visualization units. System is based on the network of wireless device which uses the radio transmission to transfer all the informations.

Systems

Intrinsically safe digital phone system series ITC-1

ITC-1 system provides loudspeaking communication between two selected devices. Each of the devices has its own, unique address (equivalent of the telephone number) which allows to choose the subscriber. ATVoice software is included to the equipment of ITC-1 system what expands the voice communication also to the computer workstations located on the surface of mine. ITC-1 devices and computer workstations are interconnected, underground and on the surface, via a computer network.



Liquid media monitoring system SMC-1

Measuring system of the liquid flow provides remote and local measurement of the parameters of the water piping, fire network or cooling media. It is based on intrinsically safe electromagnetic flowmeters series IPE, which in conjunction with the actuators can be used to control pumps, valves, fluid metering doses etc. There is a possibility for local and remote monitoring of the data obtained from IPE using surface visualization unit.

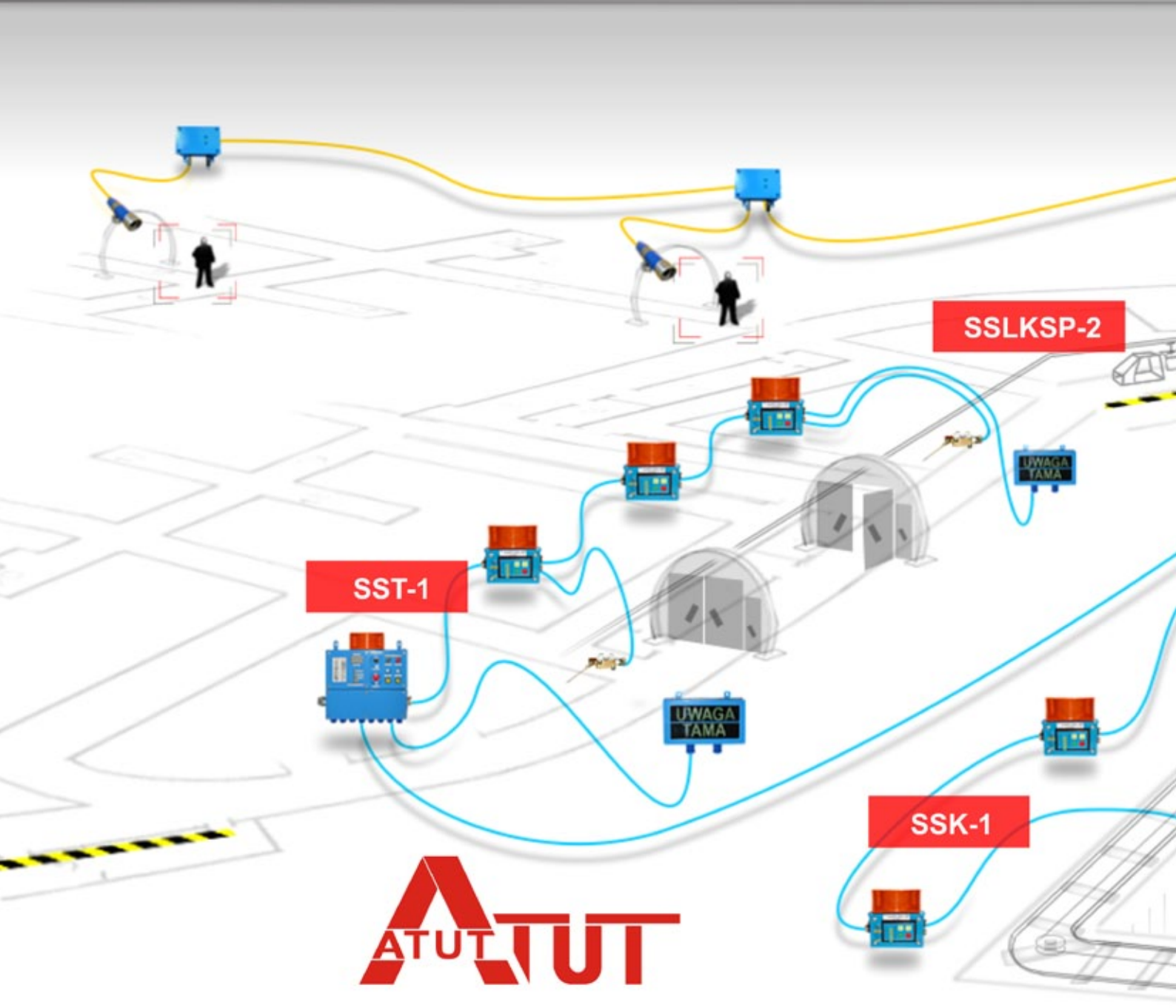
Intrinsically safe system of the transmition and visualization of the data in fiberglass Ethernet network – ATUT – MFE

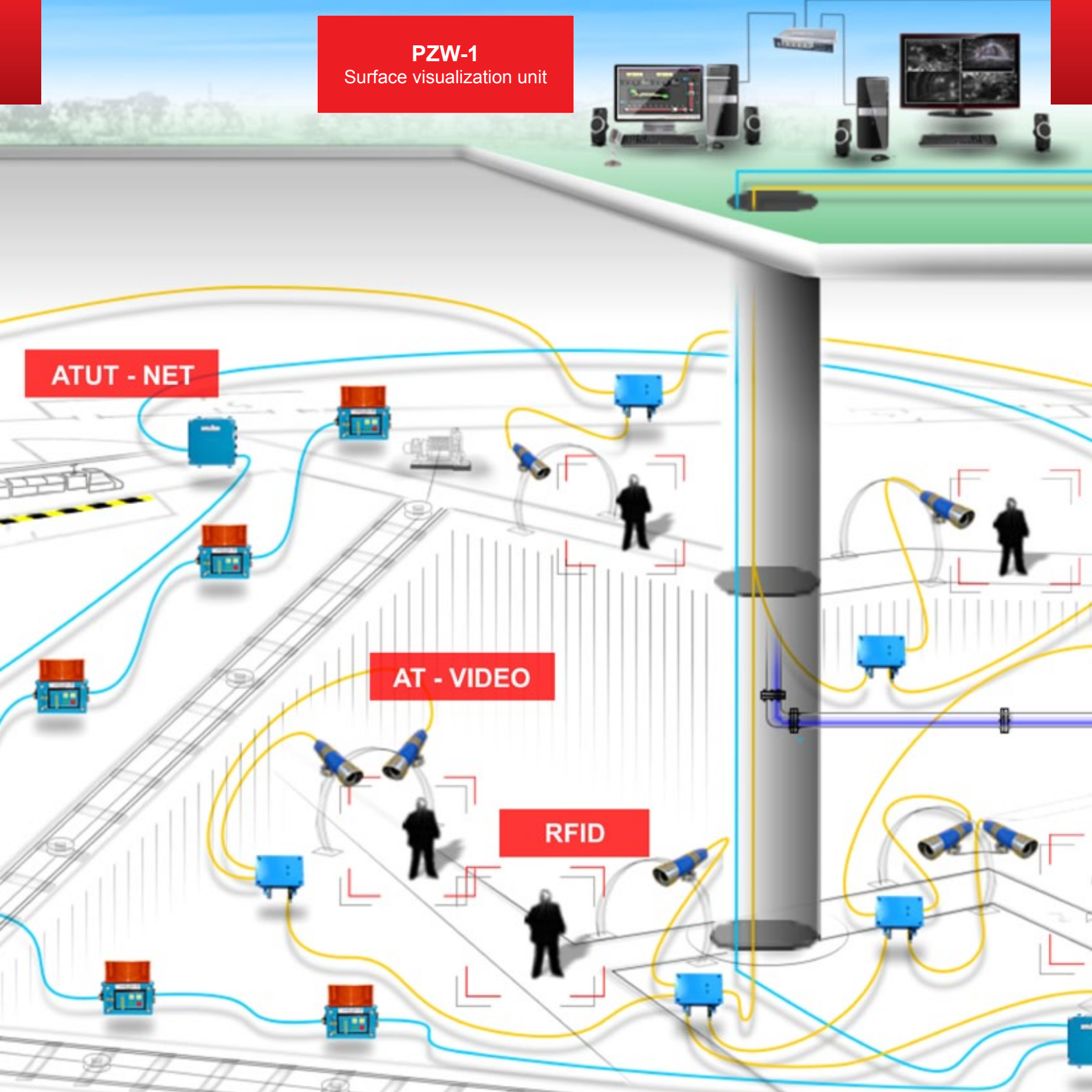
ATUT – MFE system allows the development of the modern network infrastructure at mine, based on fiberglass data transmission using Ethernet network. This solution allows a flexible development of the network (port server, concentrators, media converters, switches, fiberglass cross-boxes, video servers, radio access points, underground servers and dispatcher workstations, cameras) and simultaneous transmission of the large amounts of data.

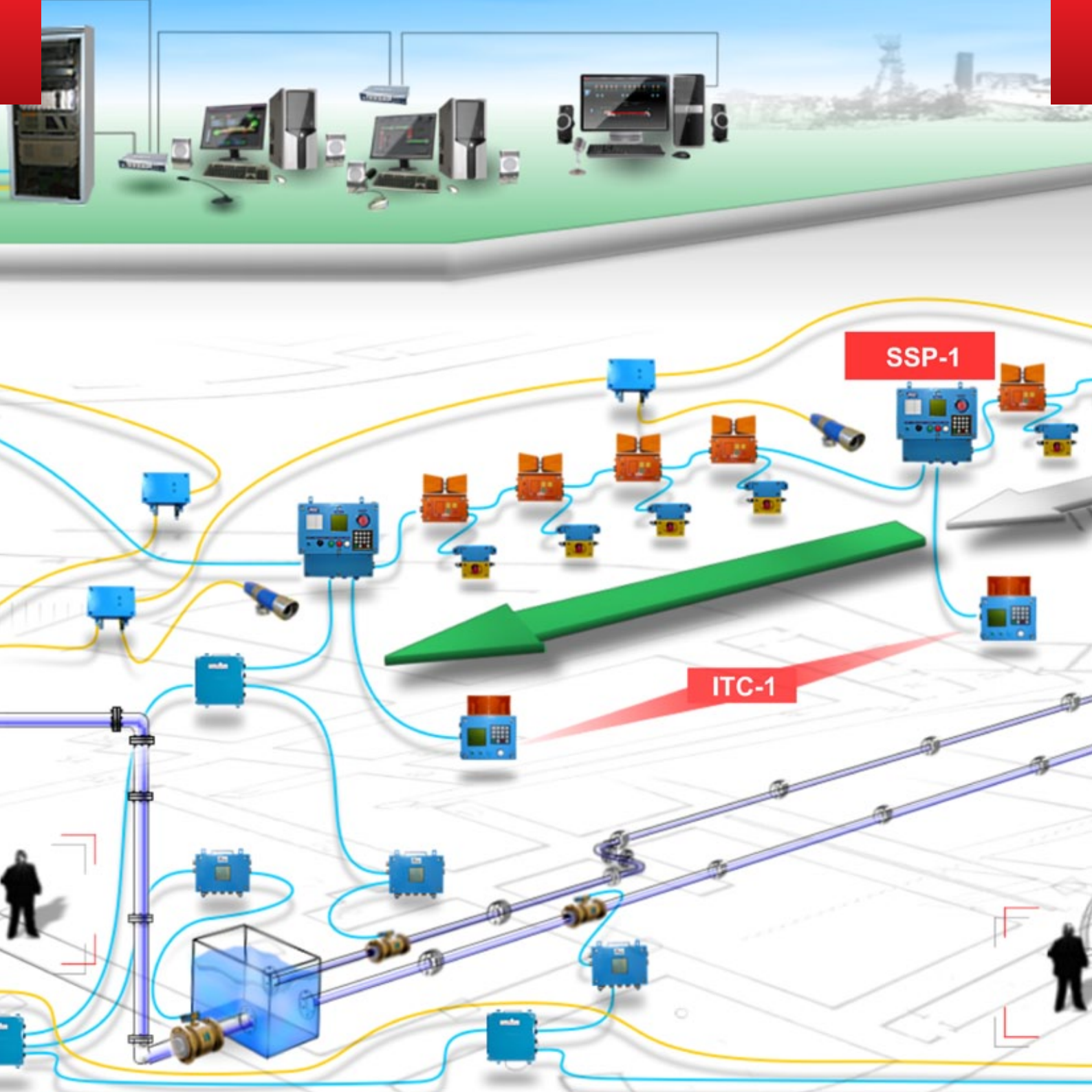
Intrinsically safe system for video surveillance AT-VIDEO

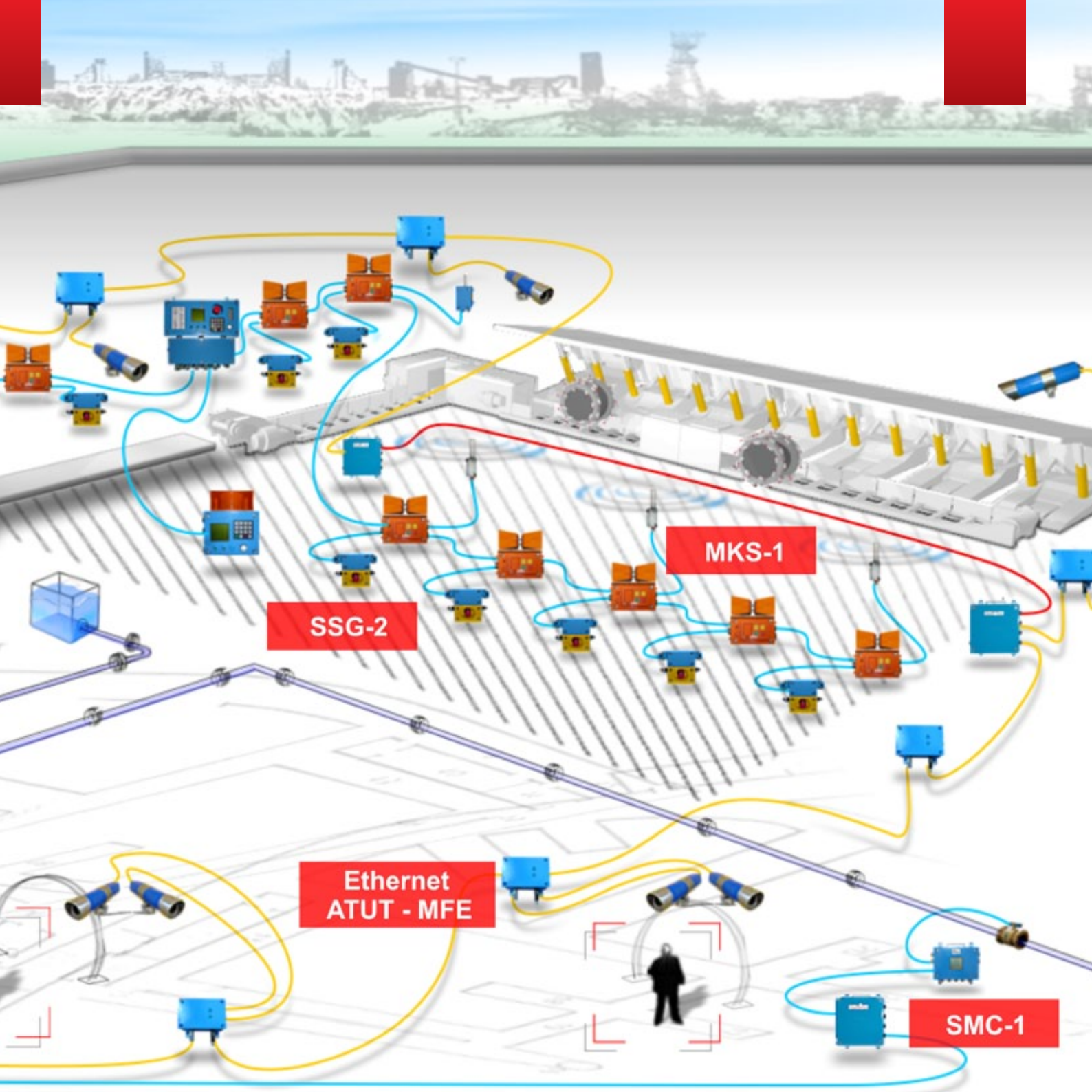
Intrinsically safe video-monitoring system allows to obtain images in the spaces, where number of human beings should be limited or even they apperance should be permited. Installation of visual system in selected areas of longwall complex, simplifies the supervision of extraction and aims to improve the safety of persons and property. The characteristic factor of the system is usage of the video servers allowing the concentration of video signals from number of cameras at the same time, compression and transmission of digital video by the fiberglass Ethernet network to the surface and underground monitoring units, what gives the ability to limit the number of used fibers.

Integrated Control System ZSS-ATUT




PZW-1
Surface visualization unit
ATUT - NET
AT - VIDEO
RFID

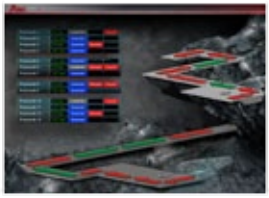

SSP-1
ITC-1


MKS-1
SSG-2
Ethernet
ATUT - MFE
SMC-1

Integrated Control System ZSS-ATUT

Integrated Control System ZSS-ATUT is designed for:

- monitoring and management from a single point of mine-wide network operation systems and drivers
- visualization of production processes, parameters of monitored systems, machines and devices
- voice communication between workstations located underground and on the surface of mine
- remote diagnostic and service of systems, software and devices working in the network
- “virtual desktop” able to take over the functions of keyboard and display of the main driver by another main driver which works in the main network located underground in mine or by operation of surface-level computer software
- modular construction of the system
- usage of screw-up connectors while connecting devices to the main cable to ensure simplicity, reliability and quality of the connection also reduces time of installation
- each device is equipped with its own rechargeable battery to allow continuous operation of the system after power failure.



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