

#### Main system features:

- Interconnectivity of combined longwall conveyors (BSL and AFC) with an option to separate voice communication between them,
- Independent warning signals announcements maintaining appropriate priorities for machinery and equipment,
- Start-up audio signal announcement can be coupled with a light signalisation in case of high level of background noise,
- Remote measurement of the intensity of the emitted signal in each loudspeaker - to supervise the efficiency and condition of each individual acoustic transducers,
- Optical and acoustic information about emergency stop which was blocked which can be also duplicated and provided by the number of other different devices running in the system,
- System internal voice communication which can be interconnected both with devices running on surface or underground at mine (AT-Voice system),
- System can be easily expanded with wireless hands-free communication system.



Awards winner:



MTK Trade Fair medal in 2011, 2013



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LONGWALL VOICE COMMUNICATION, CONTROL AND SAFETY SYSTEM


# SSG-ATUT

SSG system provides loudspeaking communication, generates warning signals at the machine start-up and verbal messages informing about the status of individual devices installed in the longwall system (such as machinery sensors, transformer stations, compact stations, engines and other equipment). SSG system ensures cooperation with control systems and performs the functions of a safety circuit along the routes of chain conveyors and equipment operating within the longwall. Additionally, it provides local and remote monitoring of all the devices used at longwall. SSG system can be connected via cable modems for fiber network to the surface. It transmits than collected data to the surface visualization unit such as PZW-1.


This allows to supervise operations run by the integrated mining longwall system (systems), which in case of emergency rapidly shortness time needed for system voice and data communication network diagnosis, as well as archiving all system parameters in SCADA database. System has two complementary safety circuits. Built-in rechargeable battery sources in all system devices, keeps all the its functions alive during the voltage dropdown or power cutoff. SSG system enables cable network diagnostics to quickly locate system failure by its user. All the system network lines such as safety circuit line, audio and digital transmission lines are monitored.




**PZW-1 / ATVisio-2**  
**Surface visualization unit with ATVisio2 software platform**  
 Manufacturing Execution System developed to support dispatcher operations providing control and safety monitoring, visualization, database (SCADA), voice communication, data network diagnosis




**AT-NODE, IMC-2X, IKC-2X, ISE-1, ISPS-2, KMi-1, GKM-1, AUDIO IIA, SSA-1X**  
**Wired, wireless and fiber optic network**  
 Hubs, modems, digital mining data concentrators, Serial Port Servers, Ethernet switches, media converters with 1000BaseFX 100BaseFX interfaces to provide the data to a dispatchers system. To increase the number of devices on the system bus (for eg. for long conveyors) separators can be used.



**ZAT**  
**Cable connectors**  
 All the cables used within the system are interconnected with the use of IP 67 connectors.




**DZW-1**  
**Underground flameproof computer**  
 Local visualization and CCTV preview




**CUKS-4**  
**Cyfrowe urządzenie głośnomówiące**  
 Digital Control Device Type CUKS-4 is designed to control industrial processes under the atmosphere of steam, gases and dusts posing a risk of explosion, providing voice connectivity, signaling and connected sensors measurements



**TS-AX**  
**LED displays**  
 Light and light-acoustic signalisation



**IRC-1/P oraz IRC-1/M**  
**Intrinsically safe digital radiotelephone**  
 Wireless voice communication in the 433MHz band, located in the area of longwall, coupled with hands-free system, providing voice communication between IRC-1/M radiotelephones with any surface or underground workstation equipped with the AT-Voice software.



**ITC-1**  
**Intrinsically Safe Digital Phone**  
 Intrinsically Safe Digital Phone allows loudspeaking connectivity between two selected devices. Each device has a unique address (equivalent to a phone number), allowing the choice of the subscriber. Within the sue of AT-Voice software any workstation interconnection with ITC device can be established



**CUKS-MPS3**  
**Intrinsically safe PLC driver**  
 PLC modular main driver complaint with the IEC 61131 norm