



Control System INCOM

The control system for local, remote and automatic steering controlling and visualisation of equipment technological processes and facilities operations



**EMC COMPATIBILITY
CERTIFICATE:
No OBAC/398/EMC/06**

**COMPATIBILITY CERTIFICATE:
No OBAC/115/CZ/11**

A typical application of the INCOM system is the control of belt conveyors. The INCOM control sets are designed for use in the underground mining pits with no methane explosion hazard and in class "a" of methane explosion hazard and/or in category "A" coal explosion hazard conditions and on the ground.

The INCOM control system includes:

- The set is equipped with a linking switch.
- The sets are equipped with linking switch with optionally equipped with a signal for simplex intercom (loud speaking) communication and/or a driver.
- The sets are equipped with lockable STOP button optionally equipped with a signal for simplex intercom (loud speaking) communication and/or a driver, switches, signal lights, text LCD screen (graphic one as an option), power supply unit 500V(230)/24V DC, modem, UPS.
- The sets are equipped with the power supply unit or with power supply unit and UPS.
- Sets coupling simples communication intercom (load speaking) signalling units of different systems (e.g. Incom with Carboutomyka)
- Communication set of the dispatcher with the object.
- Assembled bus cable.

The INCOM control system provides:

- Stopping and locking the device with a cable (also in case of the line breakage) and locking with the STOP button,
- Lighting signalisation of the blocked mode of the linking switch,
- Optical signalisation – lighting and text (graphic) of the operation mode of an object, existing technological blockages, breakdowns and their places of occurrence.
- Warning – communication - information signalisation (alarm) (preceded with an acoustic – communication – information - warning signal heard in any place along the route) of the object operation,

- Voice communication along the route and with the mine dispatcher with loud-speaking equipment,
- The shutting down of the object power supply because of short circuit or an interruption in the transmission line as well as localisation of the breakdown,
- Working with sensors (e.g. temperature, level, pile-up, etc.) and control while stationary.
- Possibility of configuration changes and installation of additional sensors and locks,
- Possibility for working with other devices, systems, safety and alarm (e.g. STAR), control, communication, and signalling (e.g. loud-speaking Carboautomatyka devices and automatic fire extinguishing devices),
- Implementation of programmed control algorithm,
- Choice of the control mode: remote (automatic), local and emergency,
- Display of messages and visualisation of the state of the object,
- Remote control by the mine dispatcher,
- Archive events in the computer memory,
- System remote diagnostics,
- Data transmission amongst controllers and to the selected position, making possible to “peep” at the state of operation of other objects, present technological blockages and breakdowns,
- Optical indication of the most important stages of a process by means of indicator lights,
- Messages for the workflow.

A very important issue in mines is technological transport using conveyor belts. Proper control and safety of the belts is essential for staff's safety and for smooth functioning of a technological train. Comprehensive solution of these issues is provided by INCOM system, which consists of the devices performing the following tasks:

- Cutting-off power supply and stopping the conveying system in the event of hazards and localisation of the cause of such an action.
- Optical and acoustic warning signalisation as well as voice communication along the route of the conveyor and with the mine dispatcher,
- Constant monitoring of object parameters and flexible control according to a selected algorithm,
- Message display and visualisation of the state of the facility.

Thanks to application of a modular programmable WAGO controller, the system achieves new quality in controlling conveyor belts, unavailable in older generation devices. Thanks to newest technology, the INCOM system:

- Automates control, taking into account complex algorithms based on full information about the facility, coming from sensors (temperature, level and pile-up, etc.),
- Communicates with external systems, such as safety systems (e.g. STAR), control, communication and signalling systems (e.g. loud-speaking Carboautomatyka system, automatic fire extinguishing systems),
- Is equipped with text displays, allowing the operators to obtain clear information regarding the state of the installation,
- Can be reconfigured at any time and expanded with additional sensors and blocking devices,
- Facilitates an automatic and remote diagnostics and event data archive for later analysis.

One of the most practical features of the system is its flexibility. It consists of both the ability to change its software as well as the technical ease for its physical expansion. This application uses a unique feature of WAGO controller, which is the incorporation a single device of:

- the possibility to easily add another significant computing capabilities,
- the standard programming techniques (IEC 61131-3/ CoDeSys),
- the possibility for expansion of communication functions (Ethernet, RS 232/485 in any protocol),
- modular design of system sections.

Orders should be submitted in writing or by fax to the address:

 **Instal-Service PL**

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