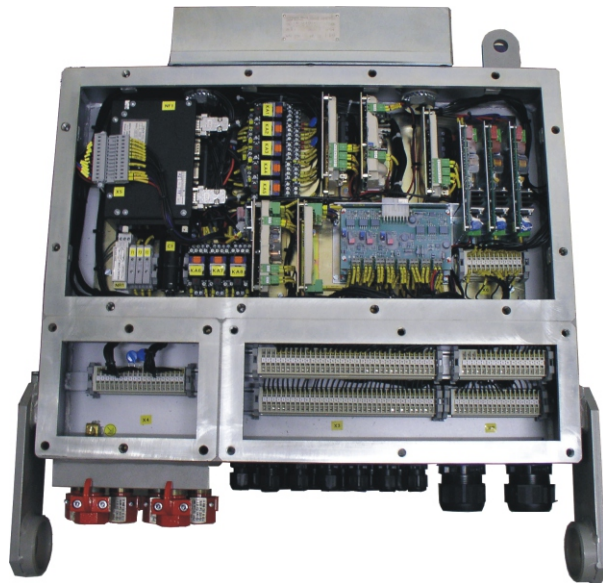




OSK-03- Control Case of Mine Machinery Automation

 Certificate: ATEX



Use:

OSK-03 is a device for simple automation and substitution of complicated relay connections. It is also for controlling electric drives of power devices. It is intended for an environment with an explosion hazard in gassy mines. OSK-03 is intended for various mine devices e.g. suspension diesel-powered locomotives.

Description:

Electrical and electronic devices are situated in a firm enclosure, where converters to intrinsically safe levels are also present. The terminal block space is made as an Ex d, Ex ib firm enclosure. The Ex ib terminal block space contains WAGO screw-less terminals for connecting conductors up to the cross-section of 2.5 mm². On the Ex ib terminal block part there are 22 plastic bushings.

The Ex d terminal block space contains 17 WAGO screw-less terminals for connecting conductors up to the cross-section of 2.5mm². 6 NV32 bushings are situated on the terminal block part.

The instrument space formed by a firm enclosure is equipped with a recording unit, intrinsically safe converters, intrinsically safe sources, relay converters, alternator controller and overvoltage protections. Bushings from X4 terminal block (power terminal block) are not monitored by an insulation status monitor.

Component marking:

NR1 – an alternator controller maintains the voltage at the level of 24 V DC.

NF1 – a recording unit evaluates signals from sensors, controls the operation of the mine locomotive, shows results on the display unit and archives data on the mine locomotive operation.

G1 – an intrinsically safe source supplies an intrinsically safe NL1 barrier.

Technical Parameters:

Model	I M2 Ex d [ib] I
Supply voltage	24 V DC from an alternator
Connecting conductor cross-section	Maximum of 2.5 mm ²
Ambient temperature	-20°C - +40°C
Relative humidity	95% without condensation
Protection	IP 54
Socket dimensions	652 x 667 x 136 mm

G2, G3 – an intrinsically safe source supplies AB1 and AB2 display units.

AB1, AB2 - display unit showing the mine locomotive speed, error messages from sensors, etc.

FV1 – an overvoltage protection ensuring the maximum voltage of 38 V DC in OSK-03. **GU1** – a source supplies AP1, GU2 and GU3 through FV2 device.

FV2 – an overvoltage protection ensuring the maximum voltage of 32 V DC at AP1, GU2, GU3.

AP1 – a source and emergency stop ensuring that the mine locomotive stops when the emergency stop pushbutton is pushed. **GU2** – a power source supplies the intrinsically safe light SV-01.

GU3 – a power source supplies the intrinsically safe horn and intrinsically safe beacon.

The supply voltage is led to the alternator controller (terminals X04-1 (+), X04-2 (excitation), X04-3 (-)). Then it is led through relay contacts to direction valves (two valves determining the travel direction), lights and horn. The voltage is led to the fuel valve and brake through the relay contacts and emergency stop relay contacts. The supply voltage is further led through a FT1 filter to the NF1 recording unit, G1, G2 and G3 intrinsically safe sources which supply an intrinsically safe NL1 converter and AB1 and AB2 display units. GU1 source is supplied through the FV1 overvoltage protection, which consequently supplies the AP1 source of emergency stop, the source of GU2 light and the source of horn and beacon (flash) GU3 through another FV2 overvoltage unit.

Various sensors, direction options, horn pushbutton and AB1 and AB2 display units are connected to the NL1 intrinsically safe converter. The SV-01 light has a separate user manual.

The catalogue has only those selected important parameters for your final decision. For project designs always ask for the user's guide for this product and any engineering consultation about possible uses.



OSK-04-X-X- Control Case of Mine Machinery

 Certificate: ATEX



Technical Parameters:

Model	I M2 (M1) Ex d [ia] I
Supply voltage of the control	18, 24, 36, 42, 48V AC
Supply voltage of the power part	500; 600; 1000; 1140V AC
Current to the power part through the circuit breaker	Up to 100 A, see the User Manual
Ambient temperature	0°C - +40°C
Relative humidity	95% without condensation
Protection	IP 54
Socket dimensions	780 x 596 x 388 mm
Weight of electrical equipment	Approx. 25 kg (according to the equipment)
Total weight	Approx. 137 kg (according to the equipment)

Use:

OSK-04-X-X is a device for controlling power devices. It is intended for an environment with an explosion hazard in gassy mines. OSK-04-X-X can be used for various devices e.g. a HAUSER loader.

Description:

The OSK-04-X-X control cabinet is equipped with devices according to version 1 or version 2. These version are further divided according to the voltage of the power part to 500 V AC, 660 V AC, 1000 V AC (only version 1) and 1140 V AC (only version 1). The internal connection and equipment of the device is made based on the specification supplied by the customer. Electrical and electronic devices are situated in a firm enclosure, where converters to intrinsically safe levels are also present. The terminal block spaces are made as an Ex d firm enclosure and Ex ia intrinsically safe enclosure.

The Ex ia terminal block space contains 25 intrinsically safe WAGO screw-less terminals for connecting conductors up to the cross-section of 4 mm². The maximum current passing through individual conductors can be 6 A per each conductor. On the Ex ia terminal block case there are 12 M20x1.5 plastic bushings.

The Ex d terminal block space contains 21 intrinsically safe WAGO screw-less terminals for connecting conductors up to the cross-section of 4 mm² and 13 intrinsically safe WAGO screw-less terminals for connecting conductors up to the cross-section of 10 mm². The maximum current passing through individual conductors leading from the terminal block space to the firm enclosure must not exceed 6 A per each conductor. The Ex d terminal block space also contains 6 screw terminals for connecting conductors up to the cross-section of 90 mm². There are 6 NV32 bushings and 2 NV32 52 bushings on the terminal block cabinet.

The instrument space formed by a firm enclosure is equipped with a cover with sight glasses. Under the sight glasses LEDs of intrinsically safe converters can be seen. It is possible to connect various sensors or external controls for the horn on the converters. The supply and control voltage is led to the cabinet through a circuit breaker to two transformers. To monitor the leak conductance on the 24 V AC network output there is only an insulation status monitor. There are also 10 fuses in the firm enclosure (see the Technical Parameters).

The voltage on the bushing is led through the circuit breaker from the drift contactor (cabinet). The drift contactor is controlled from OSK-04-X-X. The voltage for control is also led from the drift contactor (cabinet), but from an intrinsically safe output. It is possible to connect lights, horn and horn control on the power terminal block.

The catalogue has only those selected important parameters for your final decision. For project designs always ask for the user's guide for this product and any engineering consultation about possible uses.