Frequency converter VSD-630-1140/**
for mining applications

Features
- optimized customized layout of internal hardware with use of innovative 3D design software,
- defines Safety Integrity Level (SIL) for control and safety circuits,
- local or remote control (binary or digital),
- clear visualization of operation status - PSO panel

Description
Frequency converters are meant to control rotations speed of asynchronous AC motors in the infinitely variable way. The driving system (the asynchronous motor) operates in co called two quadrants of the coordinate system, with clockwise (CW) and counterclockwise (CCW) rotations. The frequency converter is intended for operation in potentially explosive atmospheres endangered by methane and/or coal dust explosion.

The frequency converter can be provided with one or two outputs to drive AC motors. In multi-motor systems where motors are supplied from different frequency converters the common control system enables equalization of torques between individual motors according to the hierarchical scheme. In such system one frequency converter acts as a so called Master device whilst all other ones are Slaves. The Master frequency converter is a source of control signals for all Slave converters and these converters, in turn, maintain torques of controlled drives to keep them equal to the torque of the motor that is controlled by the Master frequency converter. Design properties of the applied internal controllers and their software enable reversing of the Master - Slave arrangement.

The possible configurations and applied hardware solutions meet requirements of the Machinery Directive 2006/42/EC. In particular, separation of control circuits from safety circuits is in line with requirements of the EN ISO 13849-1 and EN 62061 standards. The achieved Safety Integration Level is SIL2.

Internal communication within the frequency converter is carried out via intrinsically safe paths of serial or frequency modulated transmission with use of copper or fiber optic links. Binary signals enable local activation or deactivation of the converter, whilst a separate signal enforces emergency stop of the Master converter along with Slave ones. The emergency stop line has a defined Safety Integrity Level.

Parameterization and monitoring of the frequency converter operation is enabled by means of the operator’s control panel (PSO).

Explosion protection
Ex protection type

Ex) I M2 Ex d e [ia/ib] op is I Mb

Ambient temperature
-20°C do +40°C

CE Type Examination Certificate
OBAC 10 ATEX 106X

Technical parameters
- Supply voltage circuit
  Rated voltage
  3 phases up to 1140V AV
  Rated current
  up to 470A
  Rated frequency of supply voltage
  50 Hz
- Output circuits
  Rated voltage
  3 phases up to 1140V AV
  Rated current
  up to 470A
  Output rated frequency of the frequency converter
  0 to 60 (100) Hz
- Auxiliary voltage
  Rated voltage
  230 V AC delivered to +CA
  42 V AC delivered to +CA
  24 V DC
- Supplied motors
  Number of motors
  1 or 2
  Total power of motors
  up to 630 kW at 1000 (1140) V
  Total input current of motors
  up to 470 A
  Number of poles
  4 or 6
  Maximum length of power cable
  up to 100 m

Selection chart

<table>
<thead>
<tr>
<th>Design option</th>
<th>code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single output with the output power up to 630 kW</td>
<td>01</td>
</tr>
<tr>
<td>Two outputs with the output power 2 x up to 315 kW</td>
<td>02</td>
</tr>
<tr>
<td>Two outputs with the aggregate output power up to 630 kW</td>
<td>12</td>
</tr>
</tbody>
</table>

Order code: VSD – 630-1140/