MineSCADA

Mine Supervisory Control and Data Acquisition

MineSCADA is Davis Derby's own SCADA system, optimised for mining applications. Mining is unusual from a SCADA point of view because the layout of the mine is constantly changing.

MineSCADA accommodates this by making it easy to change the configuration on a live system. Changes take effect immediately without the need for separate 'configure' and 'run' modes. There is also no artificial limit on the number of tags in a MineSCADA system. Our standard system has redundancy built in with two   hot-standby servers. In the event of hardware or software failure the servers will automatically change over. All critical components are powered by UPS for reliable data acquisition and control. The server applications run continuously, logging data and events. MineSCADA supports up to 50 client   workstations over local and wide area networks. Each workstation supports up to 6 monitors.

The access level of each MineSCADA user can be configured to limit what they can see and do.

There is now an option available to send alarm messages by either email or text message. This can be very useful when there are high priority problems at the mine which need to be monitored constantly. These areas can be setup to send the messages to the management when ever there is a problem so they are constantly kept up to date with the situation.

The MineSCADA software application is based upon the accumulated experience of 30 years of software developed for the Mine Monitoring and Control system market both in the UK and around the world, and yet uses all the latest features of current PC software technology. Its advanced Graphic User Interface is based entirely on the standard Windows look and feel, and hence is very easy for Operators and other Users to understand and use.

MineSCADA has been developed to be fully compatible with open standards in the computing industry and to be compatible with most makes of PCs. It runs under any version of Windows from NT onwards. This allows MineSCADA end users to benefit from the on-going market and technological advances within the PC and Windows environments, particularly the improvements in performance and software   availability, and reduction in costs.

The MineSCADA system can be installed on a simple 'Stand Alone' computer network or it can be used with a larger and more complicated network. These typically include PC based server(s), workstation(s) and communications server(s) which can communicate with a large mixture of underground data transmission rings, PLC highways, plant wide busses and MIS links.

Standard or large systems can be grouped or networked together to provide manual or automatic changeover main standby systems, or completely hierarchical networked systems. Additional computers can be networked to these systems as management terminals or as separate management information systems.
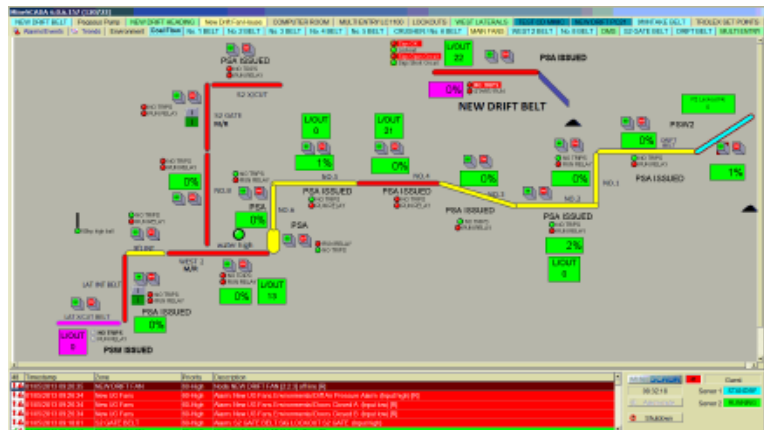
When used in a dual hot standby server configuration, automatic system backup is provided should a server fail. Either server can be designated as being on-line or standby. Both servers are connected to a common set of data transmission circuits or buses. Any system can be extended by the end user, hence it is relatively easy to start with a small system and migrate to a standard or even a large system.

The MineSCADA system can be connected to existing control systems in the mine. It is compatible with various communication systems such as:-

1. BS6556 Part1 and 3 FSK SAP. (Underground Exi Data Transmission)
2. CAN bus
3. Ethernet/IP (Industrial Protocol)
4. OPC
5. Transmitton TM204
6. Profibus DP
7. Arcnet

The MineSCADA software provides the following facilities:
1. Monitoring and Control of Remote Plant and the Mine Environment
2. Alarm Generation and Logging
3. Mimic Displays
4. Standard status, trend and system diagnostic displays
5. Report generation facilities
6. Text message and e-mail alarm generation capabilities.

The MineSCADA mimics can be designed to show the mine as a whole and use links to go to other parts of the mine where the detailed systems are shown. There are lots of different images that can be used to show what is actually happening underground. The systems can be as simple or complicated as the administrator wants them to be. Trends can easily be configured to the user requirements to look at historic data from individual and multiple transducers.

This illustration shows a very basic layout for a MineSCADA system utilising Ethernet over Fibre Communication. These can be operated as a ring system or serial connection. Up to 253 individual outstations can be connected to one Ethernet line.
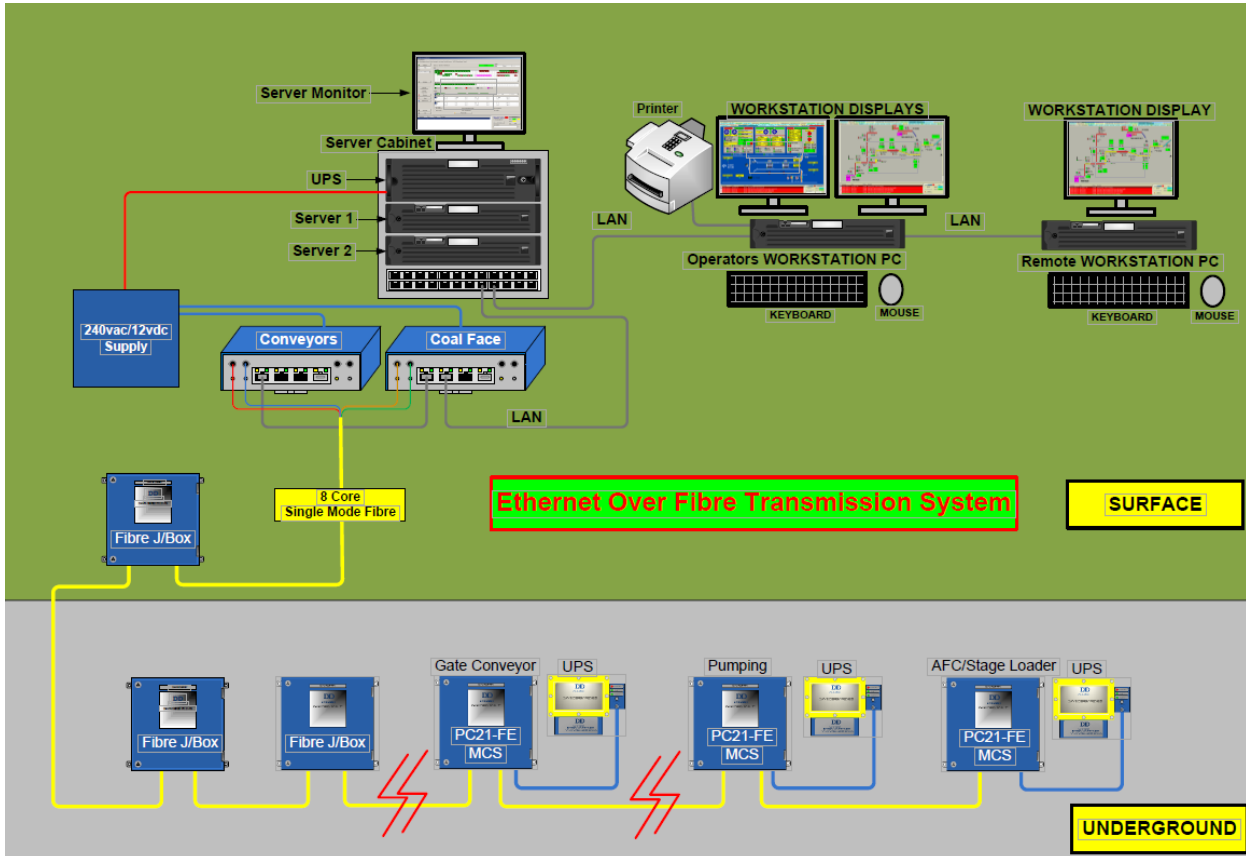
Davis Derby can supply SAP transmission system monitored and controlled by MineSCADA via a FED rack with 2 interfaces. Each interface is capable of having 60 transmission units connected underground. The MineSCADA system can handle 256 digital channels, 64 analogue channels, 16 digital outputs and 16 analogue outputs per outstation.