CONSPEC Controls, Inc. Introduces New Levels of Control Through Fiber System

CONSPEC Controls, Inc. is a customer-driven research, development, and manufacturing company that provides toxic and combustible gas monitoring and control solutions for various industrial and underground coal mining applications. Since 1968 Conspec has been supplying underground coal mining operations with gas detection equipment that ensures miner's safety and peace of mind. Recently Conspec was challenged to develop a system that employed industry-standard open protocols to interface with new or existing automation systems.

Responding to customer requests, Conspec Controls developed a Fiber Optic Network System that interfaces with new or existing equipment and has the capability to communicate through an Open Connectivity Standard (OPC). By using Conspec's Modbus Ethernet OPC server, the software communicates with a variety of system devices, while allowing data logging, alarm triggering, support of a graphical user interface and events execution.

The OPC server communicates through an industry standard Modbus 485 protocol, which is a commonly used with PLC and automation devices. It is connected through a fiber optic/Ethernet switch on the surface, which then extends below ground using Fiber Optic cabling to transmit and receive data from Conspec's Red Fiber Outstations. The use of Ethernet technology facilitates connections through a user's computer network to the server. This, in turn, allows the system to access the data from devices above or below ground. In the event of a power failure, battery power is supplied via an Uninterruptible Power Supply (UPS), allowing users to take appropriate action before the system shuts down. Optional features include the re-routing capabilities that allow the system to maintain communication in the event that there is break in the network.

Each Conspec Red Fiber Outstation includes a field fiber optic/Ethernet switch and connections for PLC devices, panelview systems, and a variety of Conspec Controls devices. Each fiber outstation has an Ethernet IP address that allows other computers to identify it, as well as 240 Modbus addresses available for devices to use. The fiber outstation is also equipped with a battery backup system that keeps the outstation running during power loss for 4 hours.

Any Modbus capable device can be connected at any point in the system using shielded RS485 cable. This cable consists of 2 pairs of wires for power and RS485 communications. At any point on the cable, a PLC can be connected using an Ethernet PLC Interface.

The network is scalable through the addition of a RS485 Extender, which refreshes the voltage and boosts the signal strength. In hazardous areas, Conspec's Modbus Blue Barrier allows network connection to devices by lowering system voltage to levels that accommodate MSHA guidelines for Intrinsic Safety.

CONSPEC Controls, Inc. has developed, manufactured, and marketed a wide range of gas detection, monitoring, and control products. Its product line includes a wide selection of proven sensors for both combustible and toxic gases. Conspec is an internationally known company whose origins are rooted in the mining industry, designing products to protect people, facilities, and the environment. Conspec Controls works closely with a variety of industries including mining, power utilities, water/waste water treatment, semiconductor, chemical, pulp, and paper. For more information about Conspec Controls or the Fiber System, please visit www.conspec-controls.com.

An overview diagram of CONSPEC's fiber optic network.