

# LONGWALL SAFETY SYSTEMS

**Amcontrol's Longwall Safety System provides emergency stop, remote isolation and broadcast messaging to maintain safety whilst maximising production on longwalls.**

With Ex ia approval and over 10 years of operational history, the system is easily deployable in Group I hazardous areas.

Based on Amcontrol's integrated monitoring and control system, iMAC, the core functions of the system include:

- Emergency stop (E-Stop)
- Remote Isolation
- Intercom communications
- Pre-start warning control
- Broadcast messaging
- Trip location information and self-monitoring for fault diagnostics

A typical system architecture consists of:

- Controller devices located in the longwall CME,
- Lockout stations distributed along the longwall plant (used for E-Stop, remote isolation and message broadcast), and
- End-of-line units to terminate the safety circuits.

A single VoiceCom controller handles all communications and messaging, as well as pre-start warning control of both the AFC and BSL portions of the longwall equipment. From this controller it is

possible to connect the intercom circuit into site-wide communications systems. Integration with the longwall PLC via MODBUS RTU allows SCADA control of message initiation and pre-start sequencing.

Two iMAC controllers and their associated control modules (R04, ARM, CRM and DI8) independently handle the safety functions required on the AFC and BSL. They provide the core E-Stop, remote isolation and self-monitoring features of the system. MODBUS RTU integration with the longwall PLC provides extra functionality, including redundant safety paths (in addition to the hard-wired iMAC interlocks), trip and fault reporting, and highly configurable HMI presentation of system information.

The lockout stations are the point at which an operator will most commonly interact with the system. From the lockout station, he may initiate an E-Stop or perform a remote isolation. On those lockouts which include a VoiceCom amplifier, messages may be broadcast such as "Longwall stopped at support 10". Intercom communications and prestart warning tone generation capability are also present on lockouts with amplifiers.

With simplified user workflows, the system architecture achieves a densely-featured but easy to use and maintain system for longwall safety.



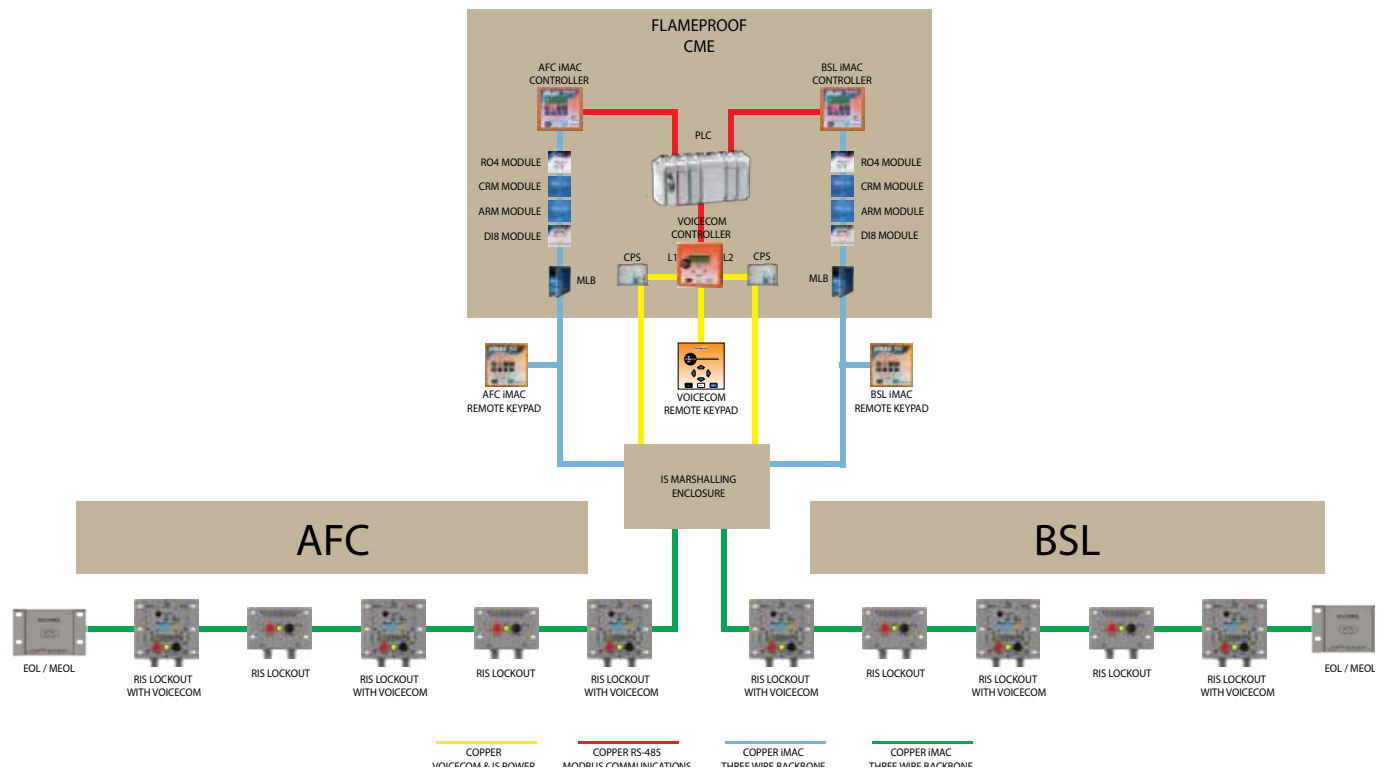
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Typical longwall remote isolation, emergency stop and communication system



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