IMAC CONVEYOR SAFETY & REMOTE ISOLATION

PRODUCT BROCHURE

Meet the challenges of maintaining safety while maximising productivity on underground and overland conveyors with Ampcontrol's iMAC conveyor safety and remote isolation systems.

With Ex ia certification for Group 1 explosive atmospheres and the ability to monitor distributed I/O over distances of up to 10km on a single cable run, the iMAC Conveyor safety and remote isolation systems are suitable for use on both underground and overland conveyors.

Each iMAC conveyor installation is customised to the unique requirements of a site but includes features such as emergency stop, remote isolation, prestart warning, intercom and broadcast messaging functionality.

Complex conveyor systems are easily controlled using the iMAC's remote I/O modules, so that high integrity E-stop and remote isolation may be undertaken even with multiple drive locations. The system is designed to minimise downtime and streamline work processes, even when the interlocking is complicated. Advanced self-diagnostics assist in maximising equipment availability.

REMOTE ISOLATION

Remote Isolation using Ampcontrol's iMAC system provides a safe and efficient means to isolate power from the conveyor drive system.

By fully automating the isolation procedure the iMAC system minimises operator error, provides inbuilt checks and balances, redundancy and 'fail to safe' controls and reduces the time and number of trained personnel required to achieve full isolation.

The system is capable of independent control without PLC intervention.

SYSTEM COMPONENTS

VOICECOM

Ampcontrol VoiceCom provides pre-start warning control, broadcast of pre-recorded messages for system status and diagnostics as well as push to talk intercoms. VoiceCom messaging improves operational workflow with users able to be made aware of system status without having to traverse the length of a conveyor to see a diagnostic display.

Typical messages can include 'conveyor stopped at pullkey 1' or 'remote isolation successful at pullkey 3'

PULLKEYS

Ampcontrol's pullkeys allow for operators to initiate emergency stopping from anywhere on the conveyor belt via a lanyard. Remote isolation is achieved at the pullkey itself by employing a very simple work procedure, ensuring positive isolation before locking out and conducting maintenance.

IMAC SYSTEM ARCHITECTURE

The key elements of the system architecture are:

- VoiceCom and iMAC controllers located at the drive head and interfaced to the conveyor PLC

- For hazardous area installations an iMAC Master Line Barrier provides IS Ex ia protection

- Trip and isolation interlocking I/O (iMAC: RO4, CRM, ARM and DI8 modules) located at each drive location for tripping and feedback confirmation

- Remote isolation pullkeys distributed along the length of the conveyor at 100m intervals on the 'walk side'

- Simple tripping pullkeys on the 'non walk side', opposite the 'walk side' pullkeys

- VoiceCom amplifiers distributed as required along the length of the conveyor belt

- iMAC End of Line (EOL) Modules to terminate the safety system

- PLC Integration

PLC integration via MODBUS RTU provides extra functions including:

- Redundant safety paths for tripping and isolation (in addition to the hard-wired iMAC interlocks)

- Trip and fault reporting via a highly configurable HMI presentation of system information

- Pre-recorded message initiation

- Pre-start sequencing

IMAC CONTROL INPUTS

Due to the flexibility of the iMAC product line, integrating additional control inputs into the safety system is trivial. Belt wander, belt tear, blocked chute, hard-wired sequencing and other general purpose control signals may be included in the system design using line-powered input modules such as DI4 and AIM.

2000 METRE IMAC CONVEYOR REMOTE ISOLATION, EMERGENCY STOP, PRESTART WARNING AND COMMUNICATION SYSTEM