CONVEYOR REMOTE ISOLATION SYSTEM





Ampcontrol's Conveyor Remote Isolation System is a monitoring and control solution designed to increase personnel safety and productivity on above and below ground conveyors.

Traditional conveyor isolation techniques are time consuming, often relying on complex procedures that require highly skilled people. Conveyor downtime can be aggravated by travel times associated with performing manual isolations and with industry moving toward larger scale operations, the costs associated with manual isolation are escalating.

Ampcontrol's remote isolation solutions address these key inefficiencies.

Improved safety

Ampcontrol's Conveyor Remote Isolation System is one of the safest isolating methods available. The system is IECEx certified for use in Zone 0, Group I installations and qualifies for usage in applications up to SIL2.

By fully automating all functions of the isolation procedure, the system allows operators to positively remove all energy sources associated with a conveyor in minimal steps. Operators are not required to be highly skilled as the system replaces complex manual procedures with a simple action, which in turn minimises human error.

Increased productivity

With conveyor downtime an important business consideration, efficient isolation procedures are essential. By removing the need for certified operators supervising isolations as well as removing travel time between the head isolation unit and point of maintenance, the isolation and de-isolation procedure timeframe is dramatically reduced.

Isolation stations distributed along the conveyor length enable the operator to request isolation at the nearest station without travelling to and from the drive head isolation points, saving valuable time.

Custom solutions

Each installation is tailored to suit individual applications and there may be unique features to suit the plant being protected. A typical system incorporates iMAC controllers, remote isolation stations, EOL/MEOL end-ofline devices and Master Line Barrier for IECEx Group I, Zone 0 compliance where required.



For more information visit ampcontrolgroup.com



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Features	Benefits
Simplified automated isolation procedures with clear feedback for operators	Increased safety through automation and may be carried out by less skilled staff, minimising human error
Multiple isolation stations	Reduces need to travel
Tight integration with iMAC emergency stop safety system	High reliability
Self-monitoring system	Ease of maintenance, reporting and system integrity
IECEx Certified for use in Zone O, Group I installations	Safe for use in hazardous areas
Audible feedback of isolation state when integrated with VoiceCom	Increased safety via secondary means of announcing isolation status
	Clear notification for operators

Specifications

Ampcontrol's Integrated Monitoring and Control system (iMAC) is used to facilitate remote isolation, in conjunction with core emergency stop functions. The system may either operate 'stand-alone' or in conjunction with a DCS. In the stand-alone configuration, the iMAC system operates directly on the isolating components. Where a DCS is employed, some of the isolating elements may be driven by the DCS and some by the iMAC system.

System supply voltage	24VDC, 110VAC or 240VAC
System key components	 iMAC Controller Multiple remote isolation stations EOL/MEOL end-of-line devices Master Line Barrier for IECEx Group I, Zone 0 compliance where required DI8 8-channel input device for isolation confirmation ARM/CRM redundant control output devices
Maximum conveyor length supported	10km as a single system, larger systems can be accommodated by integrating multiple systems

Communication interfaces	 iMAC control line L1 for communication with Isolation Stations Voicecom lines for audible messages and prestart warning RS232 or RS485 MODBUS RTU for interfacing to DCS
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Operation

Typical steps for remote isolation are:

- 1. Isolation is requested by an operator at a remote location. This request is transmitted to the iMAC Controller
- iMAC Controller initiates a controlled stop of the conveyor and forwards the isolation request to the DCS (distributed control system typically a PLC)
- 3. DCS and iMAC Controller initiates isolation of all of the required subsystems. This may include drives, motors and brakes
- 4. As each subsystem is positively isolated, feedback is provided to the DCS and iMAC Controller
- 5. Once all of the isolation preconditions are satisfied, the DCS provides confirmation to the iMAC Controller of isolation
- 6. iMAC Controller provides feedback to the operator that isolation has been successful and work may proceed.

Remote Isolation Pullkey – Successfully Isolated







Typical conveyor configuration



Typical longwall configuration

