



The Ampcontrol iMAC Conveyor Pull Cord system has been specifically designed to meet the challenge of maximizing production whilst maintaining safety in harsh, hazardous industrial environments. The system has MSHA approval and can be easily deployed into hazardous areas with complete piece of mind.

The system has been successfully deployed on a number of conveyor systems throughout the USA where the unique system diagnostic functions are saving valuable downtime and maximizing production. When a trip occurs, the system instantaneously pinpoints the location and type of trip, empowering corrective measures to be made without delay.

You can install an iMAC Conveyor Pull Cord system knowing your personnel will be protected by a system that has been proven in use for over 15 years and has been assessed and qualifies for SIL2 and/or SIL3 emergency stop functions based on the proven in use route of IEC 61508.



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I MAC CONVEYOR PULL CORD SYSTEM

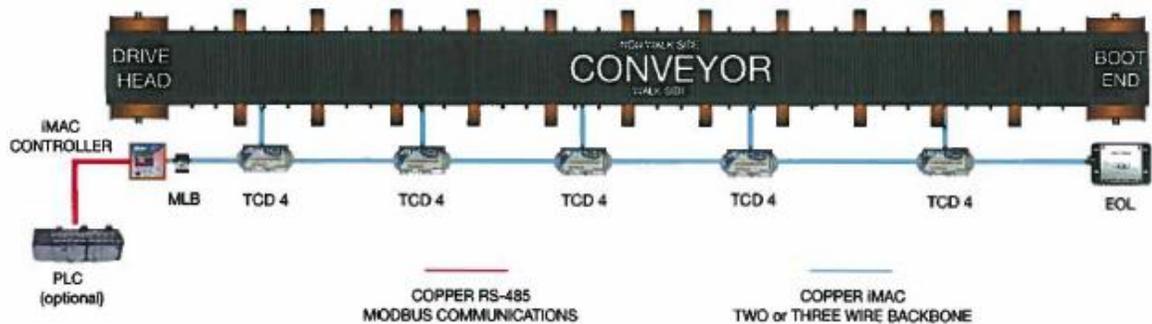
The iMAC system comprises of a controller which communicates over a 2-wire or 3-wire intrinsically safe bus that can extend to 6.2 miles to which I/O modules are connected. Input modules are small, allowing easy integration into new or existing conveyor control equipment such as lanyards, pullkeys, e/stops, tracking switches, rip switches etc.

Because digital input modules (TCD4) are powered from the communications bus there is no need for local power supplies to be located along the conveyor. This simplifies deployment of the iMAC system, reducing infrastructure and installation costs. A master line barrier (MLB) ensures intrinsic safety while an end of line module (EOL) maintains system security and facilitates the emergency stop safety function.

Key system features:

- ▼ MSHA certified Intrinsically Safe
- ▼ Secure patented digital communications bus
- ▼ Fail safe operation
- ▼ SIL2 or SIL3 emergency stop functions (proven in use route IEC 61508)
- ▼ Monitoring and control of conveyors up to 6.2 miles in length
- ▼ Down line powered input modules
- ▼ Small modules easily integrated into new or existing plant
- ▼ Practically instantaneously pinpoints location and type of trip
- ▼ Advanced diagnostics and preventative maintenance metrics
- ▼ Communications port for PLC/SCADA remote monitoring
- ▼ Customized alarm messages
- ▼ Customized control

A typical conveyor system utilising iMAC controller, MLB, TCD4 and EOL



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IMAC AND VOICECOM CONVEYOR PULL CORD SYSTEM

The Ampcontrol Voicecom system has been specifically designed to provide voice communications and audible pre-start warning functions in harsh hazardous industrial environments. The Voicecom system combines the capabilities of a push to talk intercom system, pre-recorded voice message broadcast system and audible conveyor pre-start warning system into a single integrated system.

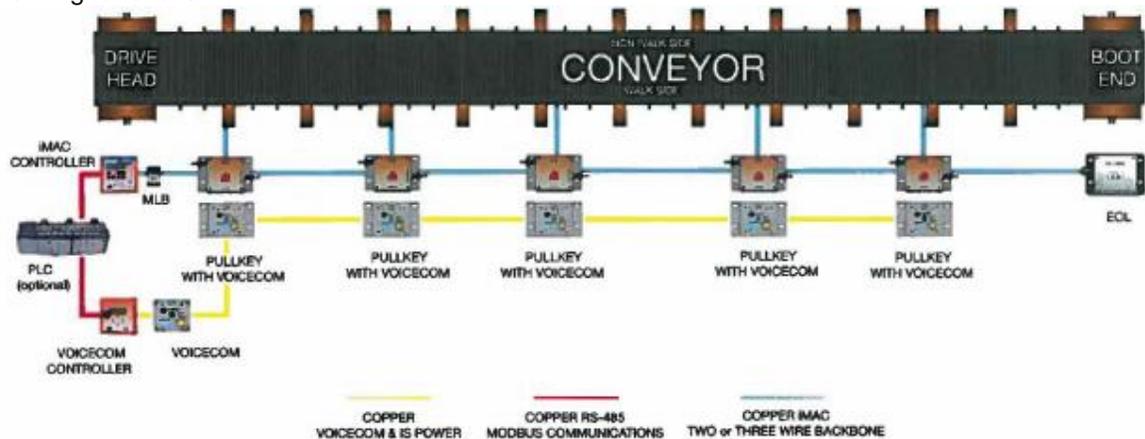
The Voicecom system comprises of voice controller (VCA) which communicates over a 4-wire bus to field voice amplifiers (VAA). The bus can be up to 3.1 miles in length and accommodate up to 31 VAA voice amplifier units. The VCA controller can support up to two communications buses. Each voice amplifier is battery backed to allow safe and reliable voice communications even in the event of a mine power outage. Pre-recorded messages can be easily configured using a PC utility and may be used for indicating conveyor status for example "Conveyor stopped at pull key 1".

The iMAC and Voicecom systems can be combined as shown below to provide a conveyor monitoring and control system complete with voice communications and prestart warning functions. This system combination has been MSHA approved for easy deployment into hazardous areas.

In addition to all the features of the iMAC system this system also includes:

- ▼ Push to talk voice intercom
 - ▼ Up to 255 user customizable voice message broadcasts
 - ▼ Pre-start warning alarm annunciation complete with confirmation
 - ▼ User selectable pre-start warning tones
 - ▼ User selectable pre-start confirmation levels
 - ▼ User selectable VAA amplifier volumes
 - ▼ Battery backed VAA amplifiers
 - ▼ User selectable charge currents for easy power management
 - ▼ Local VAA line voltage, battery current and battery volts indication
 - ▼ Advanced system diagnostics
 - ▼ Communications port for PLC/SCADA remote monitoring and triggering playback of custom voice messages
 - ▼ Auxiliary audio connection for integration into other audio/telephone systems
- Conveyor

Conveyor monitoring and control system complete with voice communications and prestart warning functions



I MAC MODULES

iMAC Controller

The iMAC Controller is the primary component in any iMAC system. It is responsible for generating the iMAC communications bus and transferring data between system components. It provides the system human machine interface via its LCD display and push button keypad. It also provides a communications link to other devices such as PLC/SCADA systems.

The iMAC Controller can be thought of as a basic PLC, it collects data from field I/O modules which it can process via its application software to activate alarms and trip relays.

TCD4 Module

The TCD4 module is a Digital Input Module that provides four general purpose voltage free switch contact sensing inputs. These modules are normally configured to monitor lanyard, pullkey, wander or rip switch contacts.

EOLModule

The EOL module as the name suggest must be terminated at the end of the iMAC Communications bus. The EOL module maintains system security and facilitates the emergency stop safety function.

VOICECOM MODULES

VCA Controller

The VCA Controller is the primary component in any Voicecom system. It is responsible for generating the Voicecom communications bus and transferring data between system components, playing pre-recorded voice messages and issuing and confirming prestart warning alarms. It provides the system human machine interface via its LCD display and push button keypad. It also provides a communications link to other devices such as PLC/SCADA systems.

VAA Amplifier

The VAA amplifier provides the intercom function, providing dual loud speaker outputs, microphone input, four operator buttons for functions such as push to talk and a local LCD for indicating system information such as line voltage, battery volts, battery current and communications status. These units are IP rated for deployment directly into harsh industrial environments.

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