



LONGWALL

Austdac Pty. Ltd presentation

**SERVING THE MINING INDUSTRY
SINCE 1983.**

Certified in Russia, Australia (IEC), USA (MSHA).

Introduction

- **Austdac Pty Ltd has been in the business of manufacturing hazardous area communications, monitoring, and control equipment since 1983.**
- **Austdac is Australia's largest supplier of mine wide monitoring systems, conveyor monitoring and control systems.**
- **With over 20 fully installed mine wide gas monitoring systems.**
- **Over 800 conveyor monitoring and control systems both in Australia and worldwide.**
- **30 longwall monitoring and control systems both in Australia, Russia and the USA.**
- **Certified in Russia, Australia (IEC) and the USA (MSHA).**
- **Our equipment can help the mining industry not only operate in a safer mode by integrating a total communication and monitoring system, but also to help increase productivity and reliability within the mining industry as a whole.**



Integrated Communication System Conveyor



Underground Conveyor

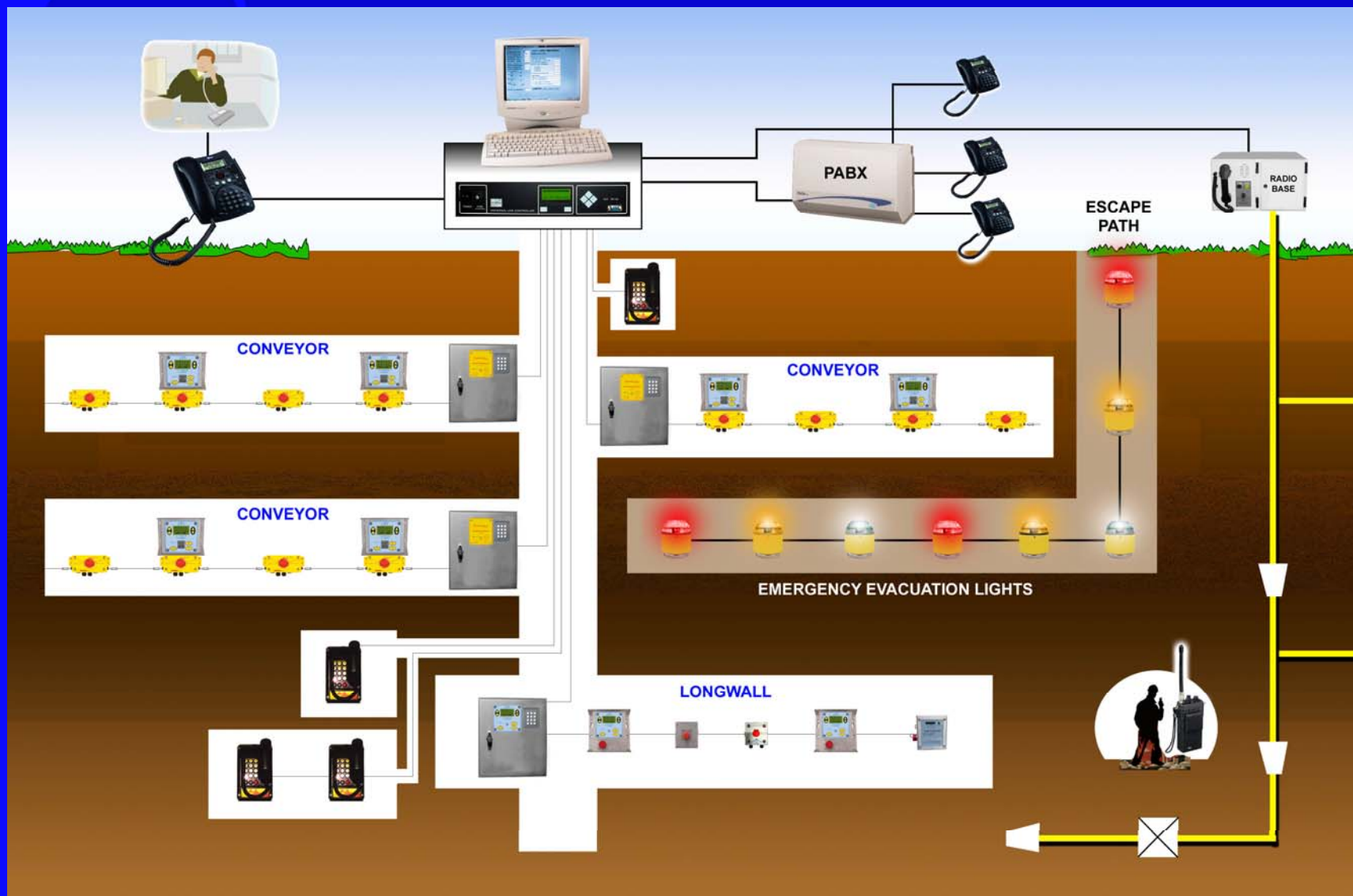


Above Ground Conveyor



Longwall

The Longwall Communication System forms part of the Total Integrated Voice Communications System



Longwall Signalling and Communication System Design

- The system was designed by Austdac specifically for longwall applications using a combination of audio and visual pre-start alarm systems, incorporating emergency stop, remote isolation, fault indication, and lockout position along the longwall.
- The system can be fully utilized to monitor and control up to 128 discrete points either digital and or analogues. This allows inputs from field devices such as bearing temperatures and vibration monitoring.
- The pre-start alarm is fully monitored and can be combined with a visual indicator, or can be designed such that the audible monitored pre-start alarm can be totally independent of a second visual monitored pre-start alarm system, using a separate voltage dependent termination unit.
- An independent risk assessment to AS1755:2000 and AS4024.1 has been carried out on the Austdac Conveyor System, and has recently been assessed to AS61508, SIL3.

Standard Equipment used on both Longwalls and Conveyors

Longwall Equipment

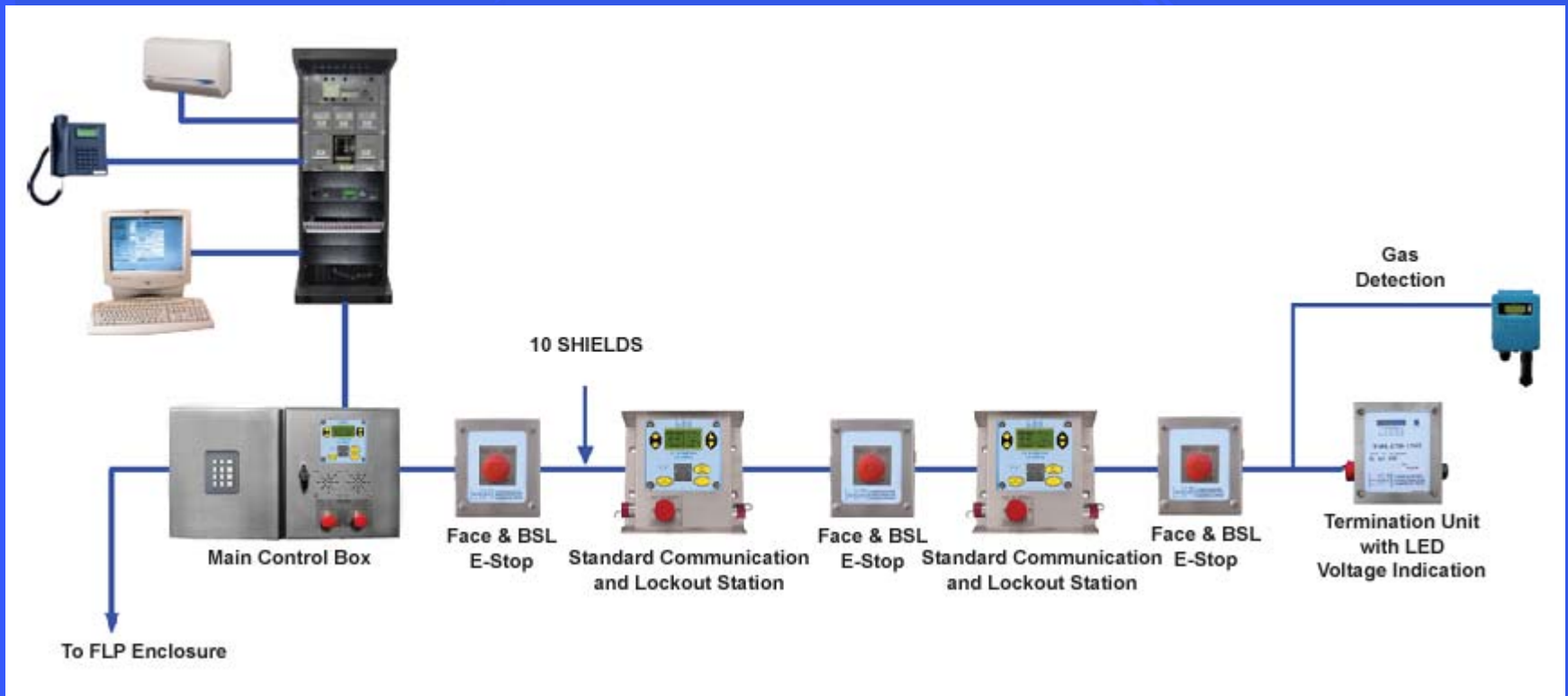


Conveyor Equipment



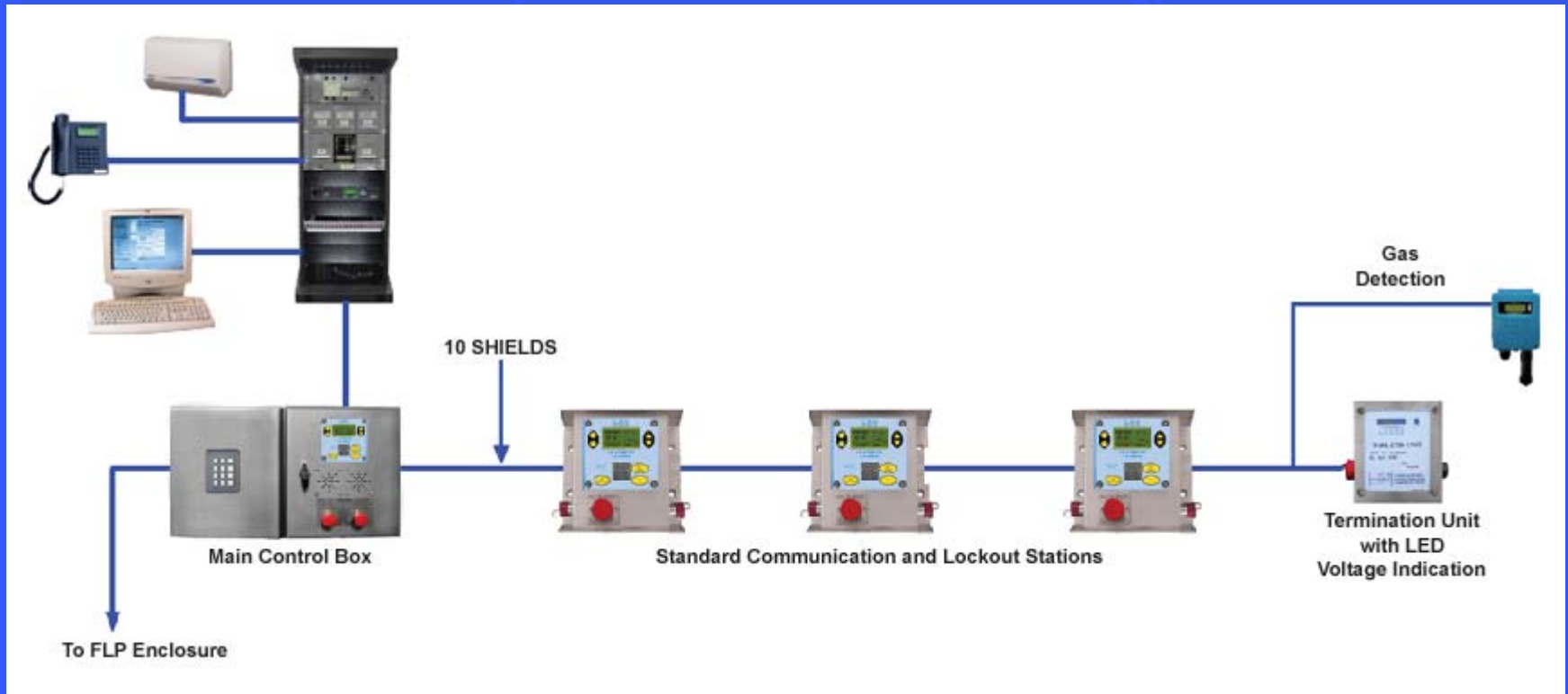
Typical Longwall System Configuration

Option A - Individual Communication & Lockout Units



Typical Longwall System Configuration

Option B – Combined Communication & Lockout Configuration



Equipment Configuration



Longwall Equipment

Main Features of The System

Main control panel comprising:

- More powerful output for extended distance;
- Modbus, RS232, serial port, interfaces to all PLC's available;
- Fault and line indication;
- Channel generator built in;
- Control relays;
- Noise immunity;
- Onboard transmitters and receivers;
- 24 volt (touch potential) or 110/240 volt supply;
- Fully monitored pre-start alarm with confirm contacts;
- Voice communication along conveyor;
- Surface pair connection into your surface/underground telephone system;
- LCD display for fault diagnostics and indication;
- Speech messaging;
- Keypad version for direct dial capabilities.



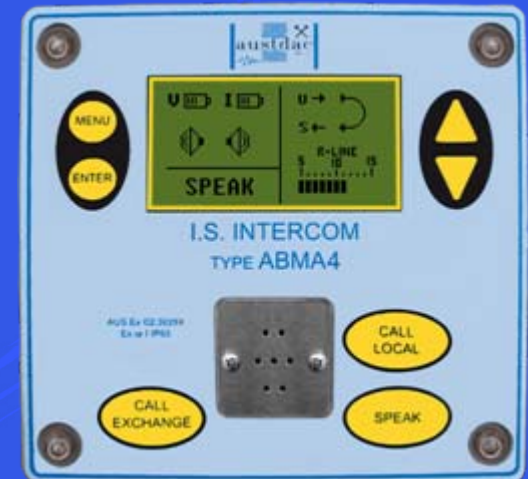
Voice Communication Module

Austdac has designed a new intelligent communication module, which is totally compatible and interchangeable with the existing communication module presently used in conveyors and longwalls throughout N.S.W. and Queensland.

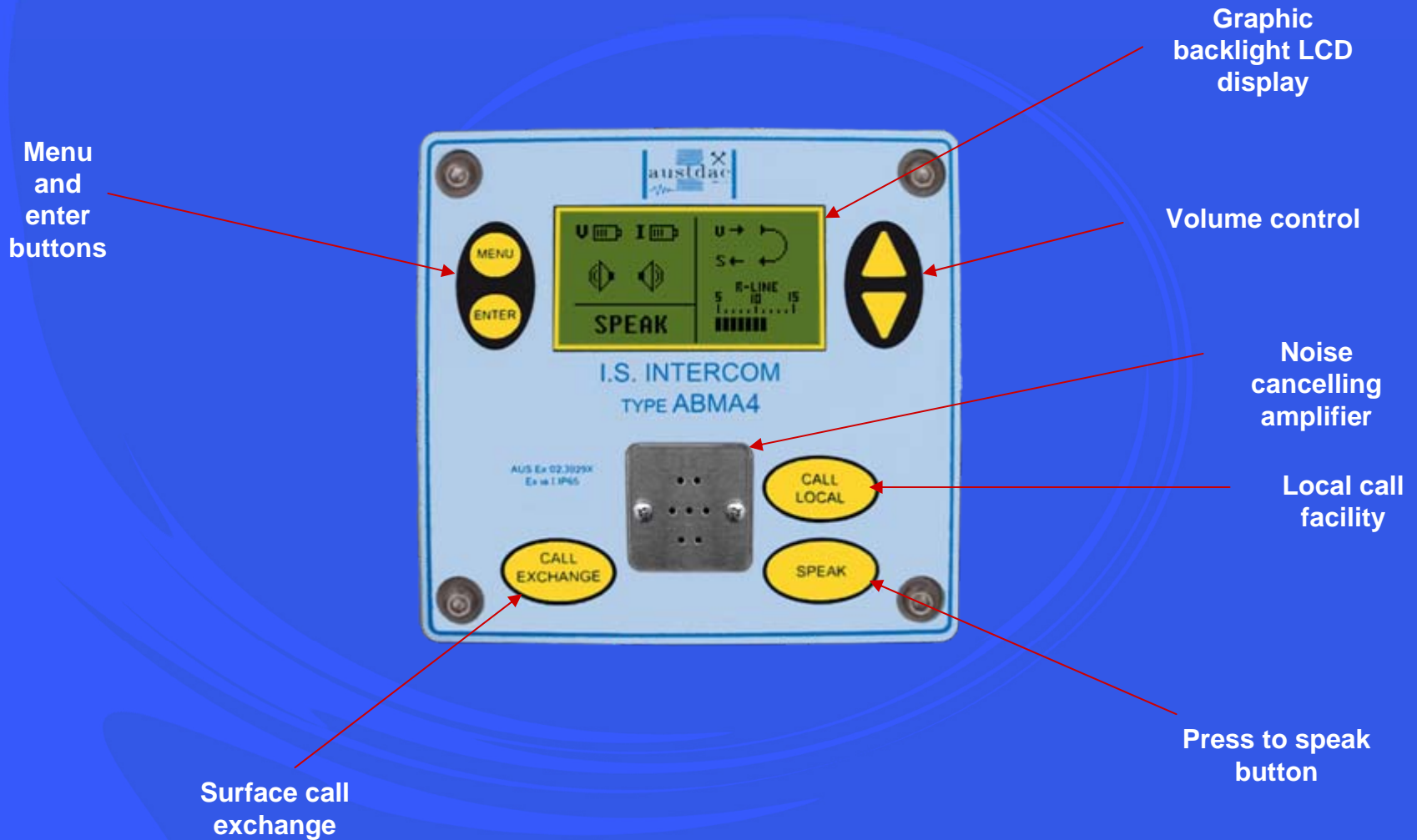
The new communication module has been changed to include full fault diagnostics and to improve the general operation of the overall system.

The system design improvements that can be displayed on the new LCD screen are as follows:

- Local internal battery voltages level;
- Local battery charge current;
- Inbound and outbound PSA tones to dictate cable line faults and location;
- Durable membrane face cover;
- Volume level setting (PSA and local override);
- Optional remote headset facility;
- Individual speaker fault indication "Left speaker faulty.", "Right speaker faulty."
- Noise cancelling microphone;
- Backlit LCD display;
- Better battery life (six months battery life left when battery is disconnected from the line);
- Lower charge current;
- Ingress protection to IP66;
- Easy menu driven displays.



New Voice Communication Unit



New Voice Communication System Interior

- New membrane front fascia;
- Tactile buttons;
- New backlight LCD display;
- Surface exchange call facility (optional telephone keypad and telephone link);
- Local call tone;
- Volume control;
- Noise cancelling microphone;
- Battery management software to optimise the battery power consumption and efficiency;
- Backward compatibility with existing systems;
- The systems operate at a lower voltage allowing more communications units allowing more units over longer distances.



Main System Components

Communication Station with telephone keypad.

This Communication Station can be used in conjunction with a keypad to allow direct dial facility from underground directly into any telephone system.

The Communication Station can have a 'remote isolation' facility (when used with a signal line system) and an interrogate button to allow the operator to access pre-recorded belt stop messages.



Main System Components

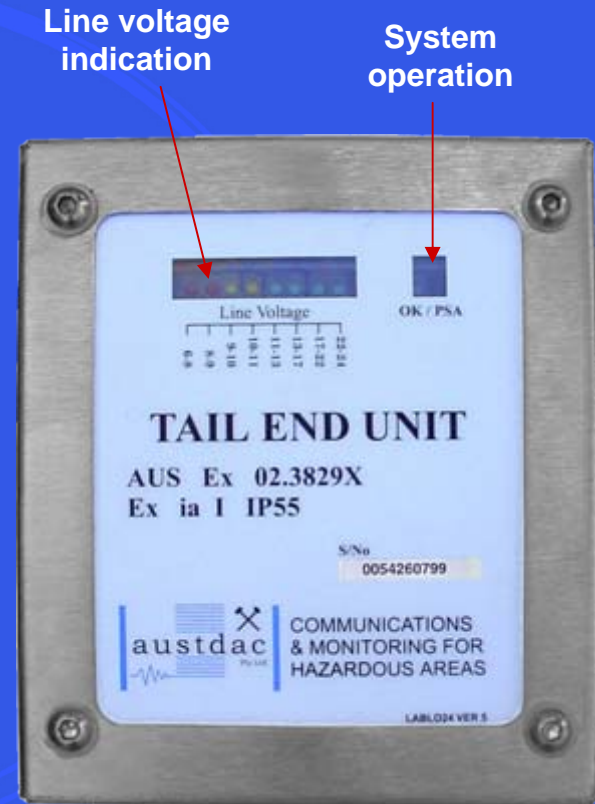
Features of the Face and BSL E-stop unit:

- Designed and approved to the latest IEC standards.
- Robust IP65 stainless steel enclosure.
- Large, easy to operate stop button.
- Optional bottom or side entry.



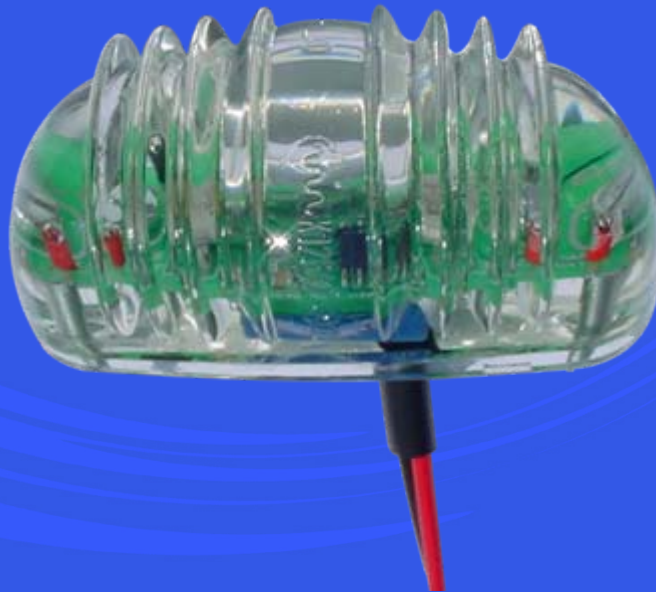
New Voice Communication Features

- New termination unit with the diagnostics including:
 - End of line voltage level;
 - P.S.A. request signal – indicating P.S.A. has reached end of line;
 - Termination unit will operate at lower termination voltages, giving reliable system operation over wide range of cable conditions.



I.S. Strobe

- This has been designed to fit onto the Austdac communication station to allow a **visual** prestart alarm
- The unit is totally encapsulated, providing a high ingress protection and impact resistance.
- It is available in red, green, yellow, blue, and white to suit most applications.
- It is a very high intensity output strobe.



Pre-start Alarms

- Selectable pre-start alarm tones.
- Fully monitored pre-start alarm along the full length of the conveyor system.
- Every BMA monitors the pre-start tone in both directions enabling cable fault location and identification.
- Confirmation of pre-start alarm is hardwired via relays into the control circuit.

Voice Messaging

- Individual messages can be created on a 12 way or single way switch
- Recording ensures high clarity of voice messages.
- Voice messages are activated via PLC or by direct digital inputs.

Noise Immunity

- The system has the highest noise immunity to comparative systems.
- 32 sampling points using majority logic on every pulse ensures reliable data transfer.
- Channel generator has low output impedance so more noise energy required to create problems.
- Channel generator has high CMRR capability. This allows the system to travel through high noise environments – noise is self cancelling.
- Pulse width modulation used because it provides highest noise immunity amongst all transmission methods in data transmission.
- Constant monitoring of pulse train ensures system integrity.
- Low carrier frequency of 1kHz ensures long distance transmission and high quality filtering of high frequency noise.

System Fault Diagnostics

Management and diagnostic features of each are displayed on the LCD readout and include:

- Battery voltage level and predictive battery failure.
- Line voltage.
- Battery charging current.
- Pre-start tone indicators of inbound and outbound signal enabling exact cable fault location.
- Individual speaker fault monitoring: left speaker faulty/right speaker faulty.
- Side tone circuit control for noisy environments.
- All of the system parameters are shown in graphic format on the LCD display.
- Optional interrogation and fault diagnostic indications.

These features help to reduce downtime and fault location and restoration.



Austdac Pty Ltd's philosophy on all new design is:
Keep it simple.
Less complication, more production.

Thank you for your interest in our products

