



Title

# I.S. INTERCOM TYPE ABMA3-1 USER MANUAL

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Issue

## 03





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## 1. GENERAL DESCRIPTION

This document should be read in conjunction with 20-079-12 user's manual. The intercom type ABMA3-1 provides the audio communications and pre-start alarm sounding facilities of the PSACS1 system. Intercoms are distributed along the conveyor at fixed distances apart to provide complete sound coverage along the conveyor. During a pre-start sequence the intercom sounds the pre-start alarm through its two sideways facing speakers. These same speakers and the front panel mounted microphone are used to carry out a half duplex voice conversation with other intercoms on the conveyor or a surface located BMA exchange operator. Photograph 1 below shows the front panel of a type ABMA3-1 intercom.

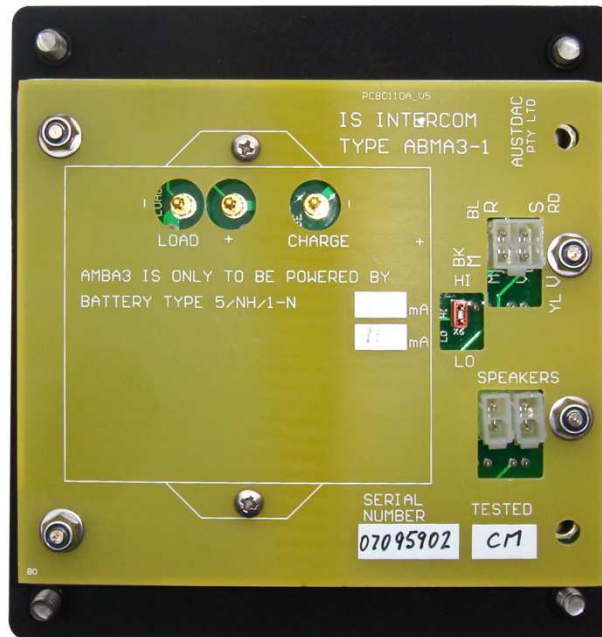


**Photograph 1: Intercom type ABMA3-1 front view.**

The intercom type ABMA3-1 has three front panel mounted push buttons, a front panel microphone and two side-mounted speakers to provide the voice communications interface for staff working along the conveyor belt.

A conversation with another worker along the conveyor belt can be initiated by pressing the call local button once or several times. The call local button is used to signal or attract the attention of workers along the conveyor. The call local button can be pressed and released to sound a series of beeps along the conveyor. The patterns and meaning of these beeps can be used to transmit messages to others along the belt. The call exchange button is pressed to attract the attention of the BMA exchange operator at the surface. Once the operator has acknowledged the call further instructions, such as patching requests, can be given from the intercom.

The voice communications of the PSACS1 system is a half duplex i.e. only one party can speak at a time. The speak button of the intercom must be pressed whenever the user wishes to speak. It is important to get used to pressing the speak button just before speaking and releasing it just after finishing speaking. Failure to control the speak button correctly will result in the beginning or end of a statement being cut off.



**Photograph 2: Intercom type ABMA3-1 rear view**

The above photograph shows the rear of the ABMA3-1 intercom with its battery removed to expose the battery charge current select jumper. In the LO position the battery charge current is 11mA and 22mA in the HI position. Refer to the system drawing for the correct charge rate for your intercoms. Generally, the HI position is used in systems with short powered segments and fewer intercoms, the LO position is used in long powered segments with more intercoms.



**Photograph 3: Battery type 5/NH/1-N**

## **2. OPERATIONAL DESCRIPTION**

### **Pre-start Alarm (PSA)**

The unit continuously detects for a PSA paired tone signal on the V-line and broadcasts it through the speaker.

### **Detection of Speech for Speaker Mute Control**

On detection of speech from another unit, due to someone having pressed the SPEAK key and is speaking above the mute level or squelch levels, the speakers are turned on.

### **SPEAK key**

Pressing of the SPEAK key (a press to talk, 'PTT' action) the ABMA3-1 will turn off speakers and turn on the microphone. The unit will return to normal mode as soon as Speak key is release.

### **CALL LOCAL key**

Pressing the CALL LOCAL key will cause the S Line to be pulled down signalling the PSA Controller to send out a tone indicating attention. The S line normally sits at a DC voltage level between the system supply voltage and the supply voltage less one volt. If the DC voltage level on the S line with respect to the R line is changed to a value greater than six volts, the pre-start alarm controller will issue a local call tone (1200Hz) for as long as the local call button is pressed. A CALL LOCAL tone can be requested from any intercom or BMA along the length of the conveyor. The CALL LOCAL tone is used to attract attention of personnel along the conveyor.

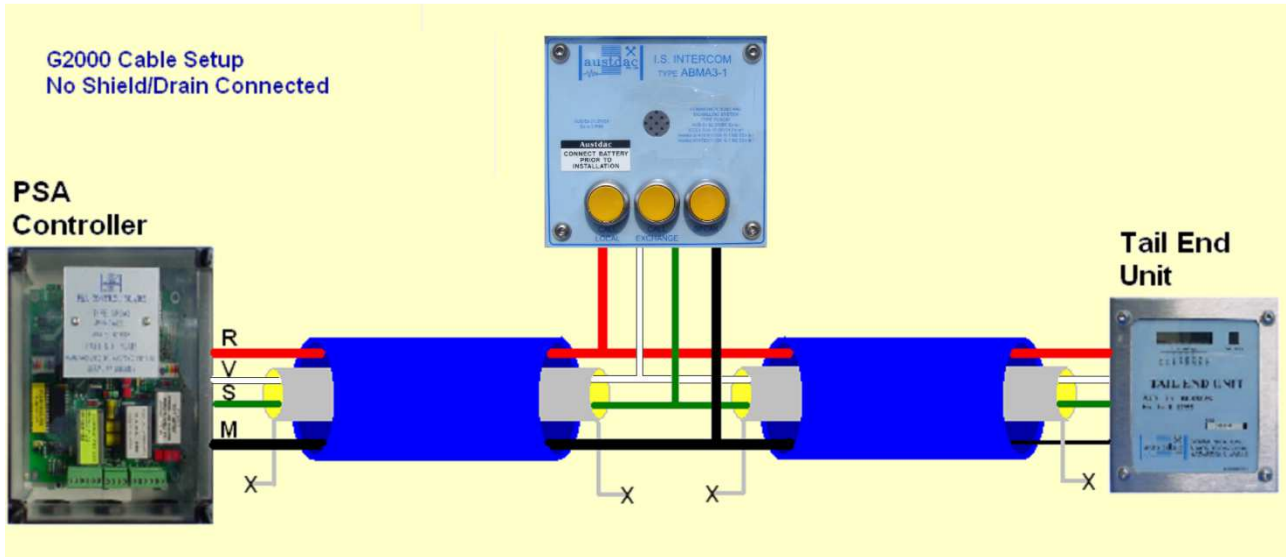
### **CALL EXCHANGE key**

Pressing the CALL EXCHANGE key will request a CALL EXCHANGE tone from the controller, by changing the DC level of the V line. The V line normally sits at a DC voltage level between the system supply voltage and the supply voltage minus one volt. If the DC voltage level on the V line with respect to the R line is changed to a value greater than six volts, the pre-start alarm controller will issue a CALL EXCHANGE tone (194Hz) for about 4 seconds. This CALL EXCHANGE tone is transmitted to all intercoms and the surface exchange pair. This tone triggers a tone detector in the surface exchange that in turn rings an alarm to attract the exchange operator's attention.

## **3. INSTALLATION AND CONNECTIONS**

### **Cable Shielding**

From "PRE-START ALARM AND COMMUNICATIONS SYSTEM TYPE PSACS1" user manual (20-079-12) the following system cables are used: G2000 and G2000B both have a foil and drain wire and cable CABL25 has no shielding at all. The cable is a very important part in the system as it carries all the signals and distributes power to all the system components. Of the conductors, two are larger in cross sectional area than the other two. The two larger cross sectional area conductors are used to distribute power to the system components while the smaller conductors are used to convey signals between the various system components. The smaller conductors are the ones that have a foil sheath in the G2000 and G2000B cables. The connection of foil sheath and drain wire is critical for correct installation. You must either use the shield cable correctly with the ABMA3-1 R-Line (Common line) terminated with a shield drain wire at each ABMA3-1 or not use a shield foil/drain wire at all, which is the Austdac default method. The shield is not passed through and is left floating as depicted in the electrically simplified figure 1 over:



**Figure 1: Simplified Un-Shielded Circuit**

If the shield is passed through from one cable to another between ABMA3-1 terminations and is not terminated at the R-Line then this is electrically noisier than having no shield at all. The coupling between shield and the V and S cores has the effect of giving alternative PSA signal paths that can cause the PSA Controller and ABMA3s to receive false confirmations on tail end units.

#### **4. CERTIFICATION**

The intercom type ABMA3-1 has been certified for use as part of the Pre-Start Alarm and Communication System type PSACS1. The ABMA3-1 may be used within any PSACS1 system in accordance with the rules set forth in certificate AUS Ex 02.3829X and Austdac system certification drawing 20-035-19.