

GAI-TRONICS

A division of Hubbell Ltd.

Dual Channel Intercom Controller with Audio Messenger Interface for 'Good Channel Engineering'



OPERATION & TECHNICAL MANUAL

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**Dual Channel Intercom Controller with
Audio Messenger Interface
for
Good Channel Engineering**

OPERATION & TECHNICAL MANUAL

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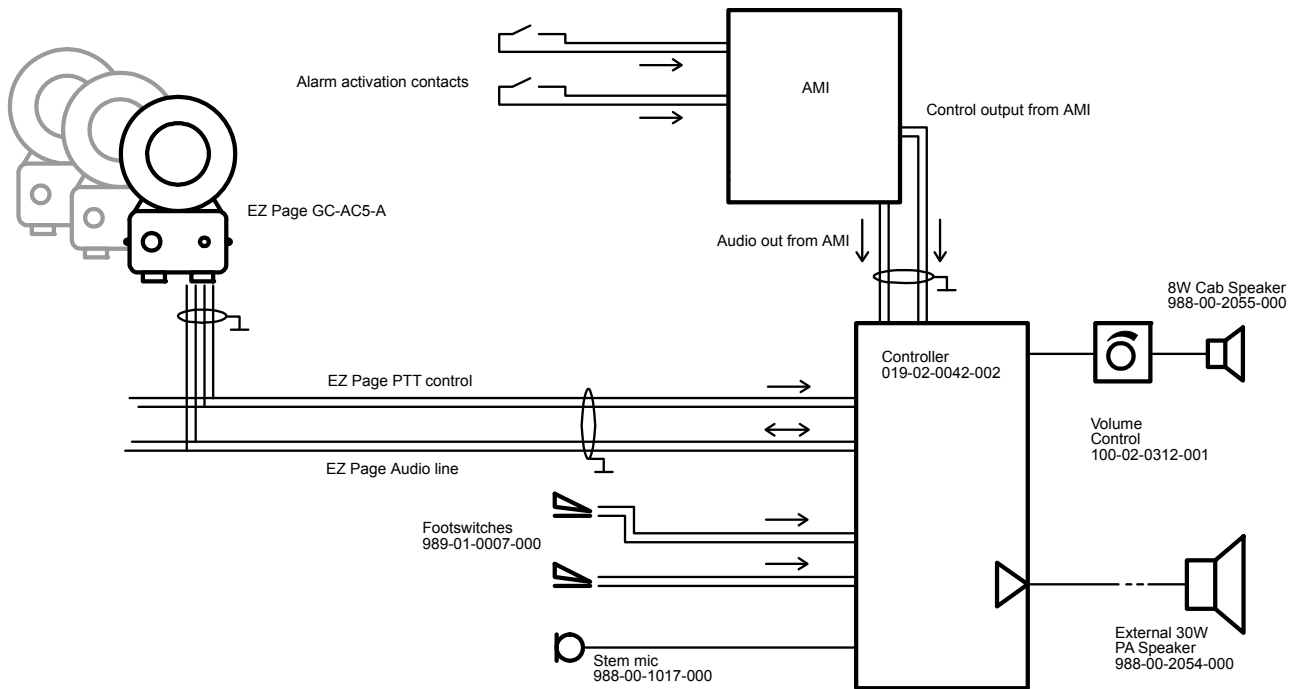
1. Essential Safety Information

IMPORTANT

- ♦ This equipment contains hazardous voltages.
- ♦ Mains supply must be isolated elsewhere before opening the case.
- ♦ Installation and maintenance must only be carried out by qualified personnel.
- ♦ The equipment must be earthed.
- ♦ Cabling and connections must be in accordance with BS7671 (16th edition IEE regulations) and comply with BSEN60950.
- ♦ Mains connection must be made via a double-pole, max. 6A fused, isolating switch.
- ♦ Only replace the internal mains fuse with the correct type: ceramic 20x5mm HRC 1A Anti-Surge.
- ♦ It is essential that the integrity of the earth bonding connection between the rear enclosure and the front panel is maintained.
- ♦ Do not subject the front panel to direct water spray. Do not clean using high pressure hoses.
- ♦ The unit is heavy (~9kg). Adequate precautions must be taken when lifting and installing to prevent injury. Fixings must be selected to ensure that the unit remains firmly in place.
- ♦ For correct operation of the system, use only the following part number modules, connected as shown in this manual:

Intercom controller	019-02-0042-002
EZ Page station	GC-AC5-A
Audio Messenger Interface	10959-005

2. Product Description



This Dual Channel Intercom controller is a custom version based on GAI-Tronics' 1058 series of intercoms. The unit is configured for use on RTG and QC cranes and is intended to be the central part of a system connected to a number of EZ Page intercom stations, providing voice communication across the crane. This manual describes controller part number 019-0042-002, which features external audio and control inputs intended for connection to an Audio Messenger Interface unit, to provide alarms or other automated announcements. The controller features:

- All inputs, outputs and controls are remote
- Single microphone input
- Auxilliary audio input (0dBm, 600Ω) intended for connection to an Audio Messenger Interface (AMI) unit.
- 2 output channels –
 - Channel 1 is a balanced audio line intended to be connected to a string of EZ Page intercom stations. This line carries both send and receive signals to and from the EZ Page stations.
 - Channel 2 is connected to an integral 30W power amplifier for connection to an external loudspeaker.
- 2 footswitch inputs – push-to-talk on channel 1 and channel 2
- 2 external control inputs –
 - Alarm activation
 - EZ Page push-to-talk (PTT)
- Integral 6W receive amplifier for connection to cab speaker.
- Rugged IP54 enclosure intended for mounting remotely from the driver.

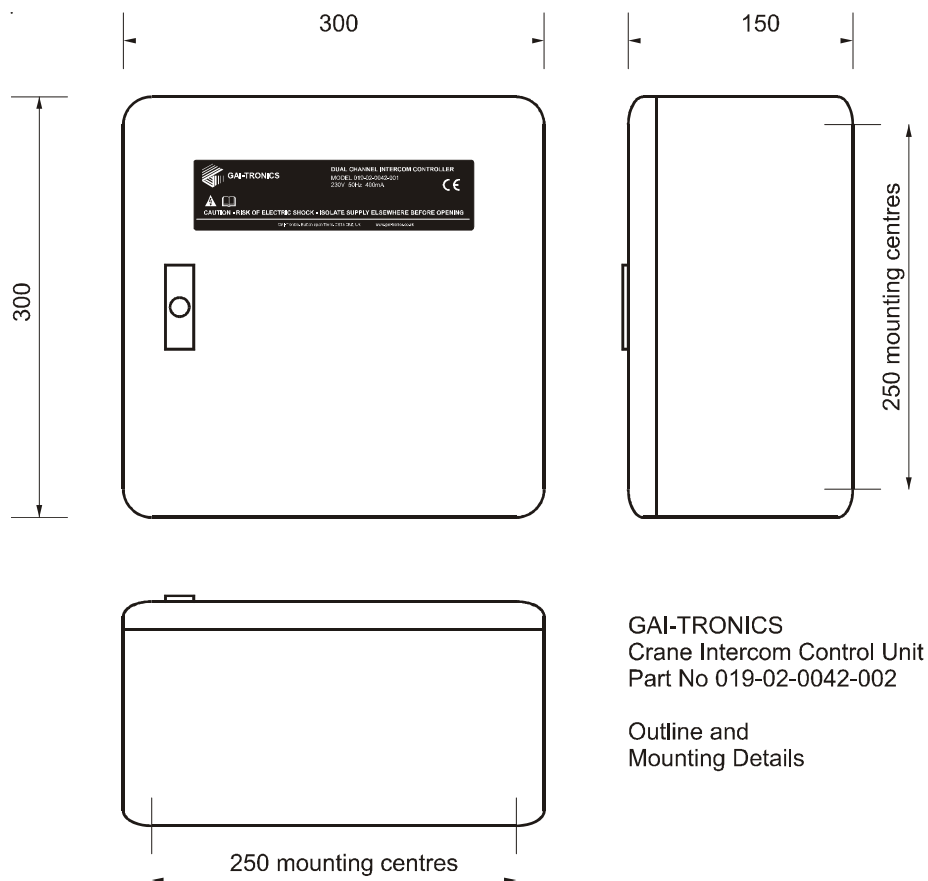
- 230Vac operation

In addition, the controller is optionally supplied with:

- 2 rugged footswitches
- Gooseneck microphone
- Surface mounted cab speaker
- In line volume control for cab speaker
- External horn speaker

Note that the EZ Page stations must be type GC-AC5-A, which have a PTT control line in addition to the audio line. This is to ensure that speech takes priority over external audio or alarms.

3. Installation



3.1. Controller

All possible measures must be taken to ensure water, fluid or dust does not contaminate the internal components of the controller whilst unpacking, preparing and installing the unit in inclement weather conditions or by negligence.

Failure to do so may invalidate your warranty.

The controller unit should be secured to a vertical flat surface using the 4 x 6mm mounting holes provided. Mounting holes are accessible from inside the controller case.

Mark the wall with hole centres, if necessary offer the rear enclosure up to the wall to check alignment. Do not use the enclosure as a template for drilling.

Drill holes in the wall on the marked positions. Select appropriate screws, wall plugs etc., for the type of wall, bearing in mind that the weight of the complete unit is around 9kg.

WARNING: Your warranty will be invalidated if :-

1. Any fixing hole made in the rear enclosure is left unused.
2. Any additional holes are drilled into the enclosure.

Take care to maintain the integrity of the glands when fitting cables, to preserve the IP66 seal.

3.2. Microphone

The cab microphone should be fixed to a suitable flat surface using the 3 mounting holes in the base provided. Cabling should be via twin core screened cable to the terminals shown on the wiring diagram, maximum distance 3m.

3.3. Footswitch

Two footswitches are provided. The normally open contacts should be connected to the terminals shown on the wiring diagram, maximum distance 3m.

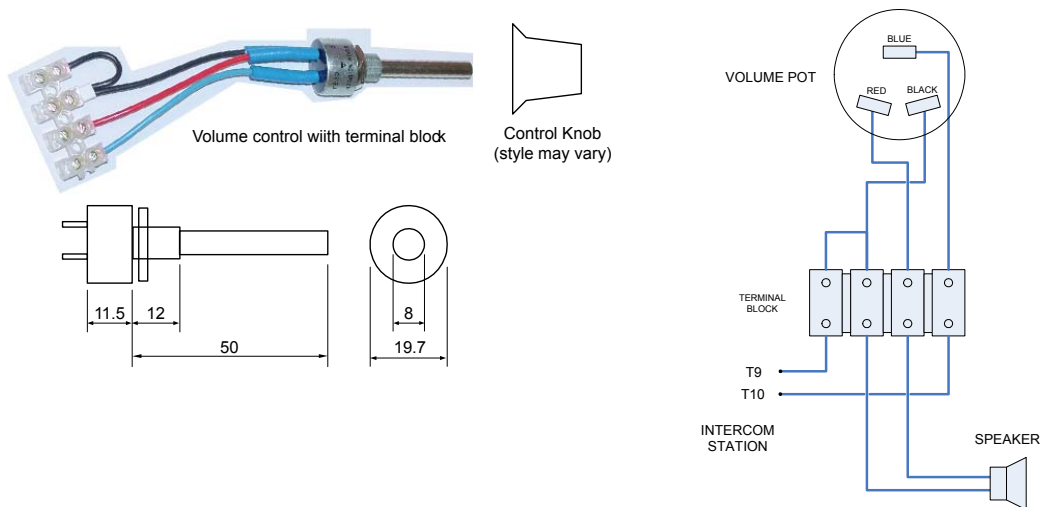
3.4. Cab speaker

The cab speaker should be mounted in a convenient position in the cab and connected through the in-line volume control as shown on the wiring diagram.

Note that only low impedance speakers (8Ω) are suitable for connection to the inline volume control and controller.

Cabling to the cab speaker and in line volume control should be a twisted pair of min 0.5mm² cable, maximum distance 5m.

3.5. In-line volume control 100-02-0312-001



The in-line volume control should be mounted through a panel and connected between the cabin intercom station and the cab speaker as shown above and on the wiring diagram. A control knob is provided.

Note that only low impedance speakers (8Ω) are suitable for connection to the in-line volume control and intercom station.

Cabling to the cab speaker and in-line volume control should be a twisted pair of min 0.5mm^2 cable, the total distance between speaker, volume control and intercom station should be no longer than the stated 5m.

Note: adjusting this control to its minimum will mute the audio from the cabin speaker. Take care not to adjust this control to zero.

3.6. External loudspeaker

The external loudspeaker should be fixed securely in place at the required location and connected to the terminals as indicated on the wiring diagram.

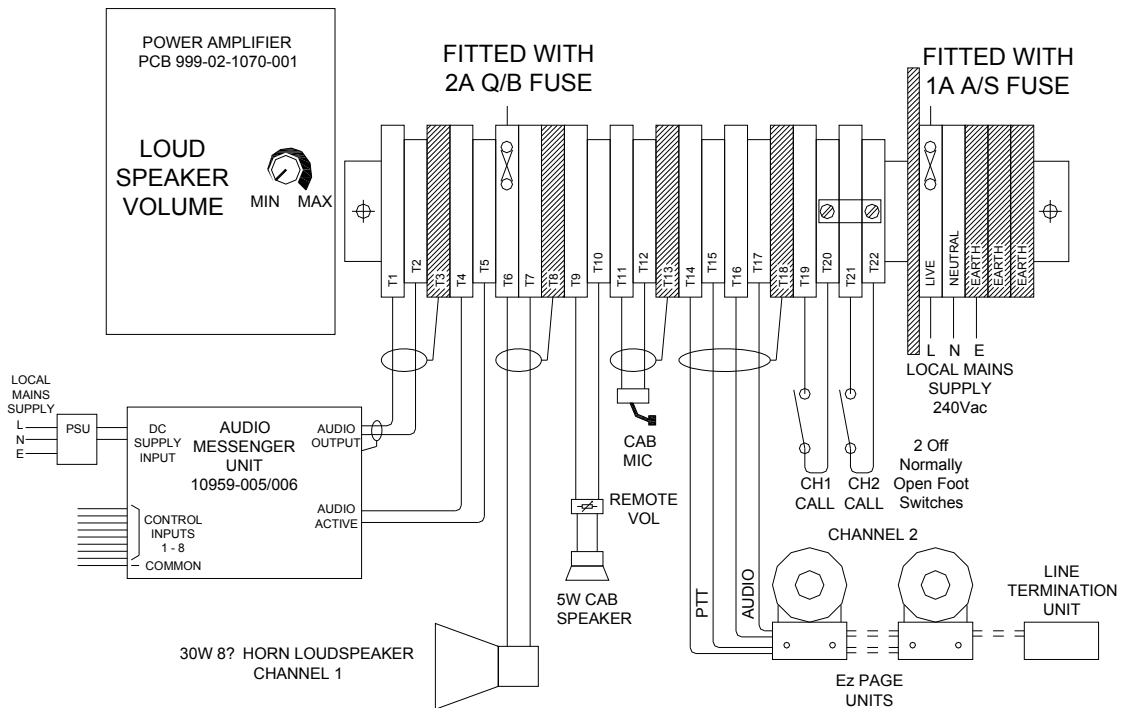
Note that only low impedance speakers (8Ω) are suitable for connection to the controller.

Speaker volume is adjusted by a potentiometer mounted inside the controller shown on the wiring diagram.

Cabling to the external loudspeaker should be a twisted pair of min 1.5mm^2 cable.

3.7. Wiring

The connections to the audio controller are shown below:



The controller unit must be earthed to a mains safety earth.

Mains wiring should be rated 3A min. Mains must be connected via a dual pole, fused, isolating switch or device, with a maximum rating of 6A.

Eight (8) IP66 glands are provided in the removable gland plate on the bottom of the controller – one for each cable shown.

Signal cabling to the EZ Page units should be 4 core (2 x twisted pair) and screen. Refer to separate manual (part number 502-20-0097-001) for installation and operating instructions for EZ Page.

Signal cabling to the AMI units should be 4 core (2 x twisted pair) and screen. Refer to separate manual (part number 42004-345G) for installation and operating instructions for AMI.

Mains and signal wiring should be kept segregated observing the requirements of EN60950.

4. Operation

The controller unit is normally in listen mode, ie with no footswitches pressed any speech from any connected EZ Page stations will be broadcast over the cab speaker.

The volume of the cab speaker is adjusted by the inline volume control.

Alarms are activated by triggering the Audio Messenger Interface (AMI) unit. The operation and programming of this unit is described in separate literature provided with it. When any alarm or audio signal is triggered from the AMI, its AUDIO ACTIVE signal is activated.

When the AUDIO ACTIVE input is activated (by closing a volt-free contact across terminals 4 and 5), any audio signal on the auxiliary audio input (terminals 1 and 2) will be played over both the EZ Page line and the external high power loudspeaker, unless either a footswitch or the EZ Page PTT input is active. Manually activated speech therefore takes priority over alarms.

To broadcast a message to the external high power loudspeaker, press the channel 1 footswitch and speak into the microphone. The volume can be adjusted by the volume control inside the controller unit, as shown on the diagram above.

To broadcast a message to the EZ Page string, press the channel 2 footswitch and speak into the microphone. The volume can be adjusted at each station by the EZ Page volume control.

Pressing both footswitches allows broadcast to both channels simultaneously.

To listen to a reply from an EZ Page, release both footswitches.

The EZ Page stations required for this system (model GC-AC5-A) have a PTT control line. This consists of a volt-free, normally open contact within each station, which closes when the EZ Page PTT button is pressed. All of these contacts are wired in parallel, so that the EZ Page PTT input to the controller is active when any EZ Page PTT button is pressed.

5. Specifications

Weight (excluding cables)	8.6kg
Dimensions	300W x 300H x 150D mm
Case Material	Mild steel
Supply voltage	230Vac (±5%)
Power Input	80W
Audio line impedance	600Ω, balanced
Input sensitivity for rated output	7V p-p
Audio output power	30W peak
Internal mains fuse	20x5mm ceramic HRC type, 1A Anti Surge
Speaker output fuse	20x5mm glass quick blow, 2A

6. Spare parts

Item	GAI-Tronics part number
Main controller	019-02-0042-002
Audio Messenger Interface	10959-005
EZ Page intercom station	GC-AC5-A
In line volume control	100-02-0312-001
Cab speaker	988-00-2055-000
Stem mic (450mm)	988-00-1017-000
Stem mic (150mm)	988-00-1017-001
Footswitch	989-01-0007-000
External loudspeaker	988-00-2054-000