PA0688
Microphone Pre-Amplifier Module

Installation and Operating Instructions

Description

The PA0688 Microphone Pre-amplifier board is intended to provide emergency and non-emergency microphone pre-amplification to “line” level with or without PTT function.

Overview

The PA0688 Microphone Pre-amplifier Module is designed for use with Tyco EWIS systems; QE90 and Microvac. With a simple modification it is also suitable for use with T-GEN 50 (see below). It contains a microphone pre-amplifier with automatic level control, and two relays which are operated by the PTT switch on the microphone. Refer to Figure 1.

The first relay switches the line level output between (a) line level input terminals (SPEECH IN) and (b) the output of the pre-amplifier, and can be used to allow several PA0688 pre-amps to be connected in series to the same panel input. The second relay is a two-pole changeover relay which can, for example, be used to disconnect speakers in close proximity to the microphone when the microphone is in use to prevent audio feedback. It can also be used for various other functions, e.g. to provide a switch input to a QE90 to indicate that Paging is required.

Audio transformers should be used in conjunction with the PA0688:

- for isolation, e.g. where the module is to feed multiple T-GEN units
- for balancing, in order to reduce noise pickup in situations where long lines are to be used to feed unbalanced inputs.

Refer to Figure 2, 5 and 6 for details.

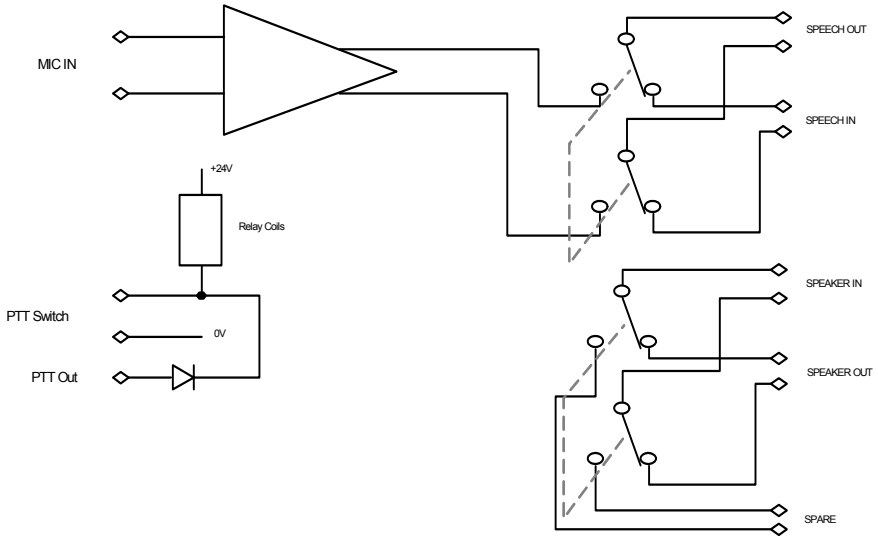

Figure 1 - PA0688 Pre-amp Block Diagram

Connection and Operation

QE90

The PA0688 microphone pre-amplifier can be connected to the QE90 in many ways. One example is to provide local paging to several QE90 amplifiers, using the QE90 amplifier local inputs. Refer to Fig 2.

In Fig 2 there are two pre-amps connected in a daisy chain so that either may be used. In the event of PTT being pressed on both at the same time, the one closest to the QE90 will have priority. The connection to the QE90 amplifier local inputs has been isolated by a transformer as these inputs are unbalanced and the use of the transformer will provide a reduction in hum and noise. The SPKR IN+ and SPARE+ terminals on the PA0688 have been used to obtain clean contacts which close when PTT is operated, and these have been wired to a GP or FIP input on the QE90 that has been programmed by the manufacturer to disable background music to the relevant amplifiers when the local paging is in use.

All audio cables should be shielded and the shields connected to ground at the QE90.

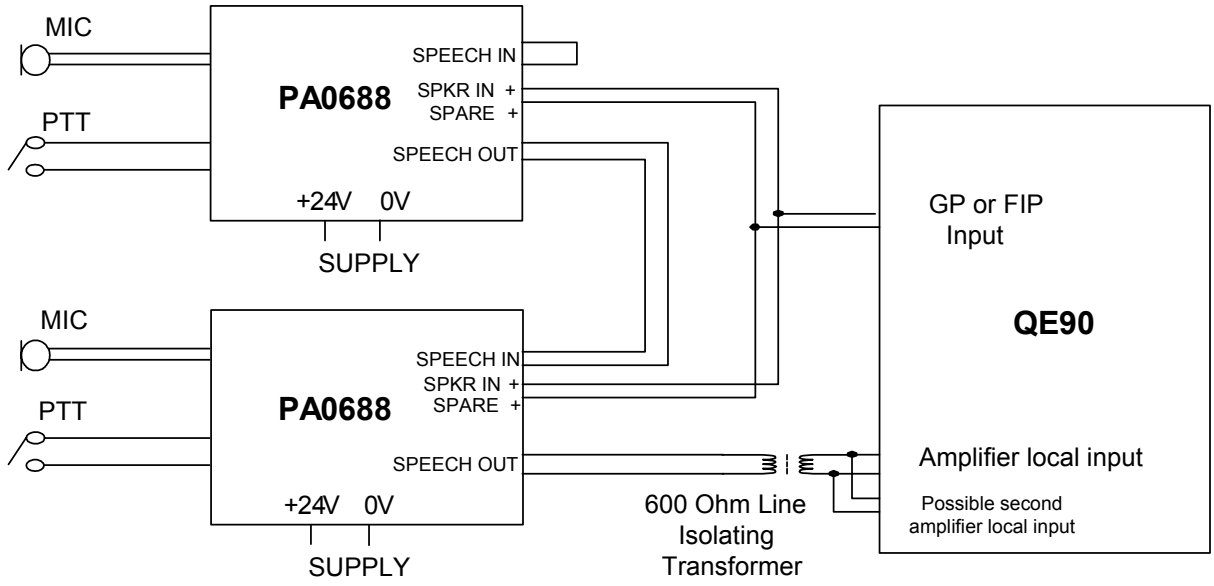

Figure 2 - Using PA0688 Pre-amp with QE90 Local Inputs

Note - An ALIM9706 could be used for the 600 Ohm Isolating Transformer. Refer to Fig 5.

Another example is shown in Figure 3. In this case the output of the pre-amp is connected to the QE90 MUSIC input, with the zones requiring paging field-programmed into the QE90. This example also shows how the PA0688 can be used to disconnect speakers near the microphone to prevent feedback.

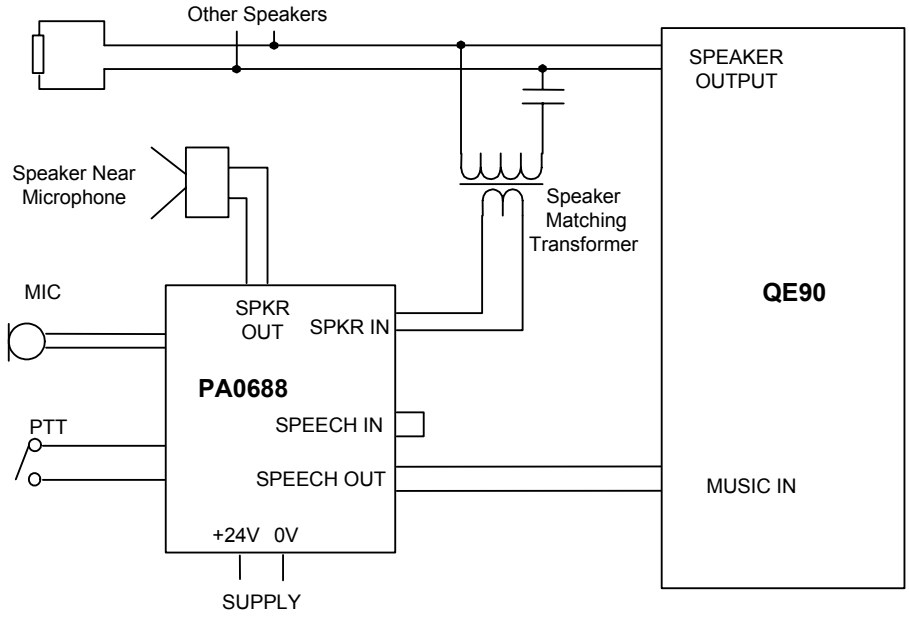

Figure 3 - Using PA0688 Pre-amp with QE90 Music Input

T-GEN 50

Output Level
The PA0688 can be used for paging facilities to boost the voltage from a microphone to the T-GEN's music input.

In standard form, the PA0688's output does not provide the 2.5-3V RMS signal level required by the Music Input of T-GEN 50. To solve this, resistor R28 on the PA0688 Microphone Pre-amp should be changed to 10k.

Wiring - Non-Emergency Microphone
One or more PA0688 Microphone Pre-amps can be wired to the T-GEN as in Fig 4.

Screened cable should be used for the audio connections between pre-amp modules and the T-GEN, with the screen connected to the 0V input (Pin 2) of J9 at the T-GEN. The paging microphone closest to the T-GEN will have priority if both PTT buttons are pressed at the same time.

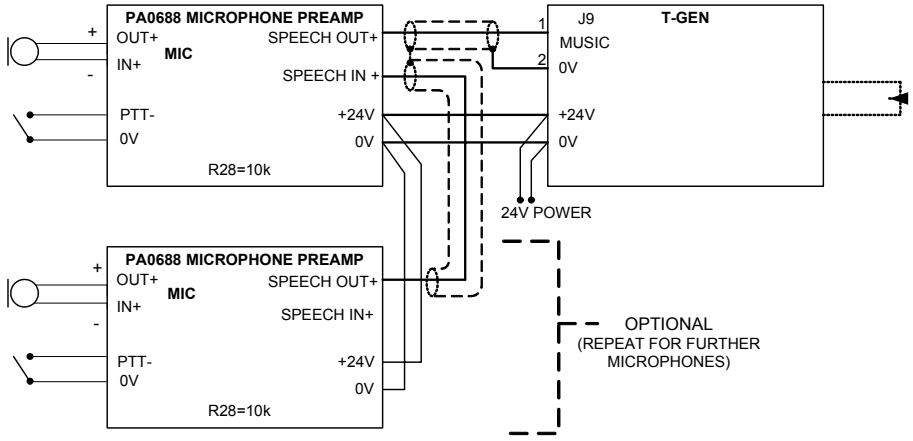

Figure 4 - Unbalanced Configuration, PA0688 to T-GEN 50, Non-emergency Microphone

If the T-GEN and pre-amp(s) are not mounted close together then to increase immunity to any ambient electrical noise, it is recommended that screened cable should be used and an ALIM9706 should be located at the T-GEN input. This is shown in Fig 5.

Note that the segments of screened cable connecting the pre-amp modules to the T-GEN must have their shields wired together and connected to the 0V input of J9 (Pin 2) or J1 at the T-GEN. Again the paging microphone closest to the T-GEN will have priority if both PTT buttons are pressed at the same time.

Note that there are volume controls on both the ALIM and pre-amps(s), we recommend setting the ALIM volume to maximum and adjusting each microphone separately at its pre-amp.

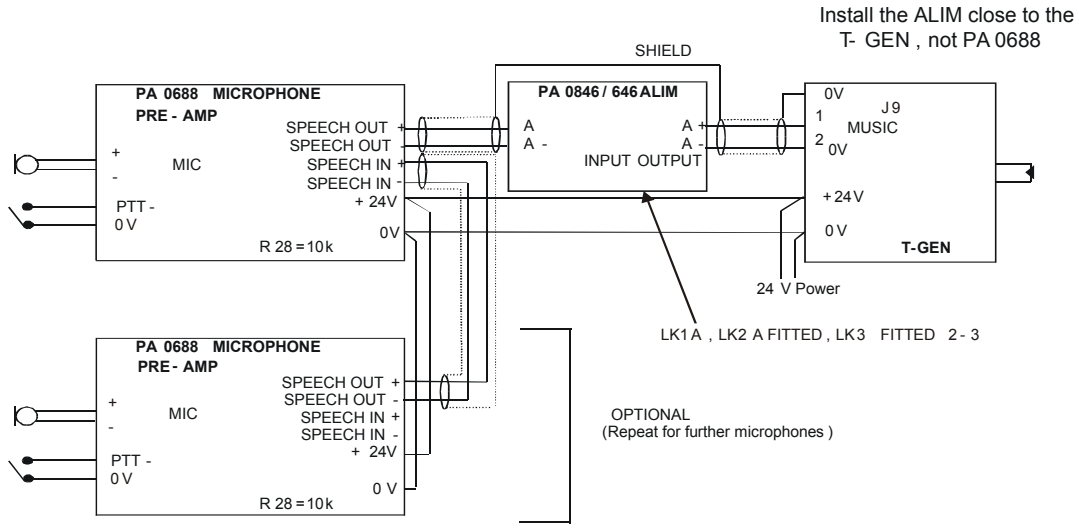

Figure 5 - Balanced Configuration, PA0688 to T-GEN 50, Non-emergency Microphone

Emergency Microphone For T-GEN
In the above arrangements, the remote microphone will not override tones, digitised speech, or PA messages generated by the emergency microphone plugged into connector J1.

For **an emergency microphone located at the T-GEN** a suitable pre-wired handheld microphone with PTT switch and plug is available (ME0290).

For **remotely located emergency microphone(s)** we suggest the arrangement shown in Fig 6.
Note that the segments of screened cable connecting the pre-amp modules to the T-GEN must have their shields wired together and must be connected to the 0V input of J9 (Pin 2) or J1 at the T-GEN. Again, the microphone closest to the T-GEN will have priority if both PTT buttons are pressed at the same time.

Note that there are volume controls on both the ALIM and pre-amps(s). We recommend setting the ALIM volume to maximum and adjusting each microphone separately at its pre-amp.

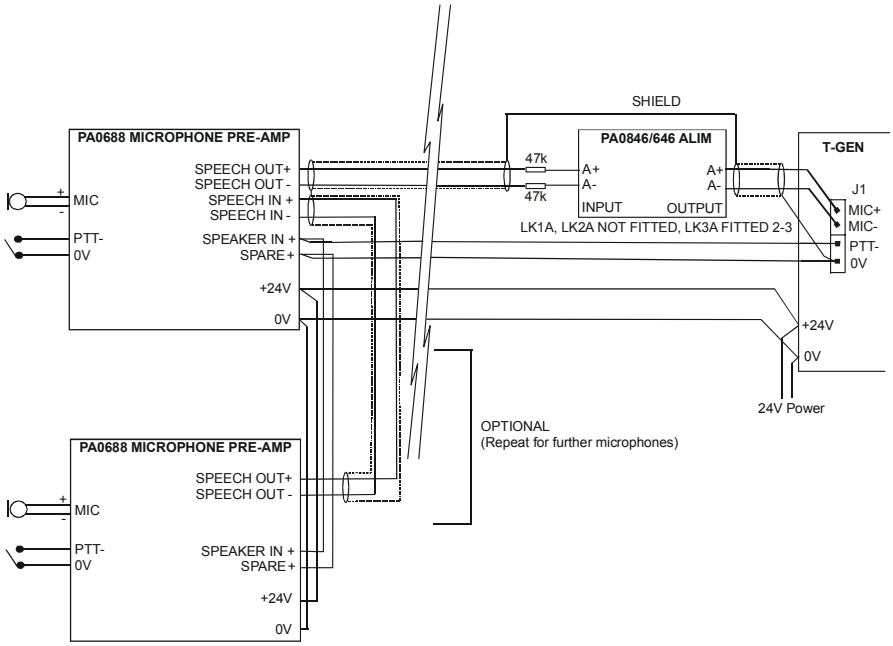

Figure 6 - Remote Emergency Microphone(s) for T-GEN 50

PA0688 Specifications

Board Dimensions:	157 x 93 x 25mm (lwh)
Shipping Weight:	0.25kg
Temperature:	Operating 0°C – 45°C
	Storage 0°C – 70°C.
Humidity:	<95% relative humidity (non-condensing)
Operating Voltage:	24V (17-28V) from panel.
Operating Current:	35mA (55mA PTT operated)
Output: (1 khz test tone)	500-700 mV RMS for 1mV in @<10% distortion
	600-800 mV RMS for 10mV in @<1% distortion
	600-1000 mV RMS for 40mV in @<1% distortion
Nominal Output Impedance:	600 Ohm
Inputs:	MIC+, MIC-, PTT-, +24V (supply)

Accessories included with PA0688

None.

ME0290 is a suitable PTT microphone (ordered separately).

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