

## Isolation Amplifier

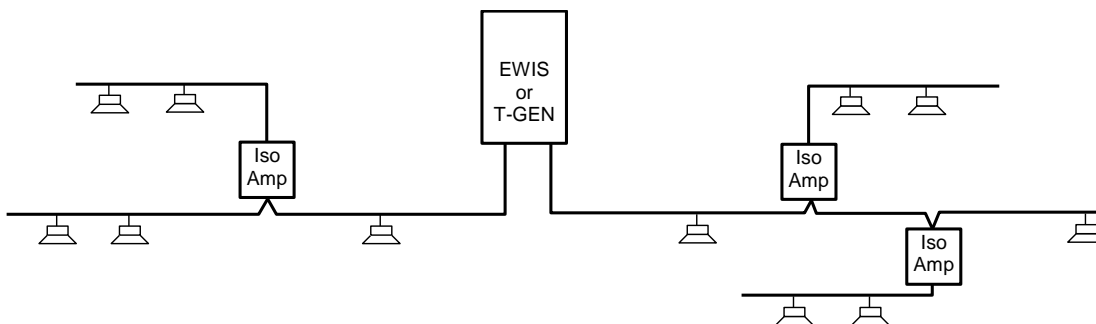
### Installation & Operating Instructions

FP1135 FP,T-GEN2 ISOLATION AMPLIFIER,100V 60W

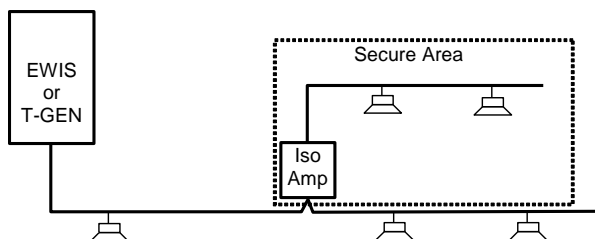
The FP1135 Isolation Amplifier connects to an existing 100V speaker line and reproduces this signal at up to 60W load on a separate 100V line. It is suitable for use with speech and music as well as with warning tones. The 100V output line from the amplifier is electrically isolated from the input 100V line, so noise or other signals on the output line are kept separate and do not affect the input line. The Isolation Amplifier requires a nominal supply of 27VDC.

### Typical Applications

- System expansion – the Isolation Amplifier presents a 1W load on the input 100V line (in the fault state) and produces 60W output, effectively increasing the overall system capacity by 60W. This also avoids the need to cable from an expansion area all the way back to the main amplifier or tone generator, if the Isolation Amplifier is locally powered.



- Additional branching – an existing system can be expanded or divided with one or two additional supervised branches of 100V wiring without affecting the existing supervision arrangements.
- Security isolation – the Isolation Amplifier can be used to drive speakers in a secure military or commercial area so that eavesdropping from outside via the speaker line is much more difficult. The Isolating Amplifier should be installed just inside the secure area.



The Isolation Amplifier supervises its output 100V line for faults. It signals a fault to the main amplifier or tone generator by switching a 10kΩ resistance across the input 100V line to produce a “soft” supervision fault which does not degrade the operation of this line, but does add 1W of extra load.

## Power Supply

Each Isolation Amplifier requires a supply of 27Vdc at 3.0A for full 60W power output. It consumes 170mA in the idle state.

### Existing Supply

If there is a nearby FIP or EWIS with sufficient spare power supply capacity, this can be used to power the Isolation Amplifier. The power cabling must be sufficiently heavy to avoid excessive voltage drop under load.

Cable cross-section area	1mm <sup>2</sup>	2.5mm <sup>2</sup>	4mm <sup>2</sup>
Maximum recommended cable length	30m	75m	120m

### Dedicated Supply

If there is no existing supply, a dedicated mains-powered supply unit must be used. This power supply must include sufficient backup battery capacity to comply with the requirements of the Australian or New Zealand standards for fire alarm and evacuation systems. The power supply must also perform battery voltage monitoring and regular battery tests, and generate an output signal if any fault is detected.

Some possible power supplies are the FP0766 1948 Series PSU 24V 2A or FP0852 24V 2A VESDA supply, which can also house a 7Ah 24V (or 12Ah) battery in a cabinet. These provide sufficient current for a load of up to 40W on the Isolation Amplifier. For the full 60W load, a FP0804 24V 5A Power Supply is recommended.

## Installation

The Isolation Amplifier cabinet is suitable for surface mounting in any orientation, but for convenience of servicing and testing, a vertical position is recommended. The internal electronics will become hot during operation, so the cabinet should not be installed in an excessively hot location.

The protection rating of the cabinet is IP30, so it is not suitable for mounting in an outdoor or damp location.

## Wiring

Refer to the diagram on the next page.

### Input Wiring

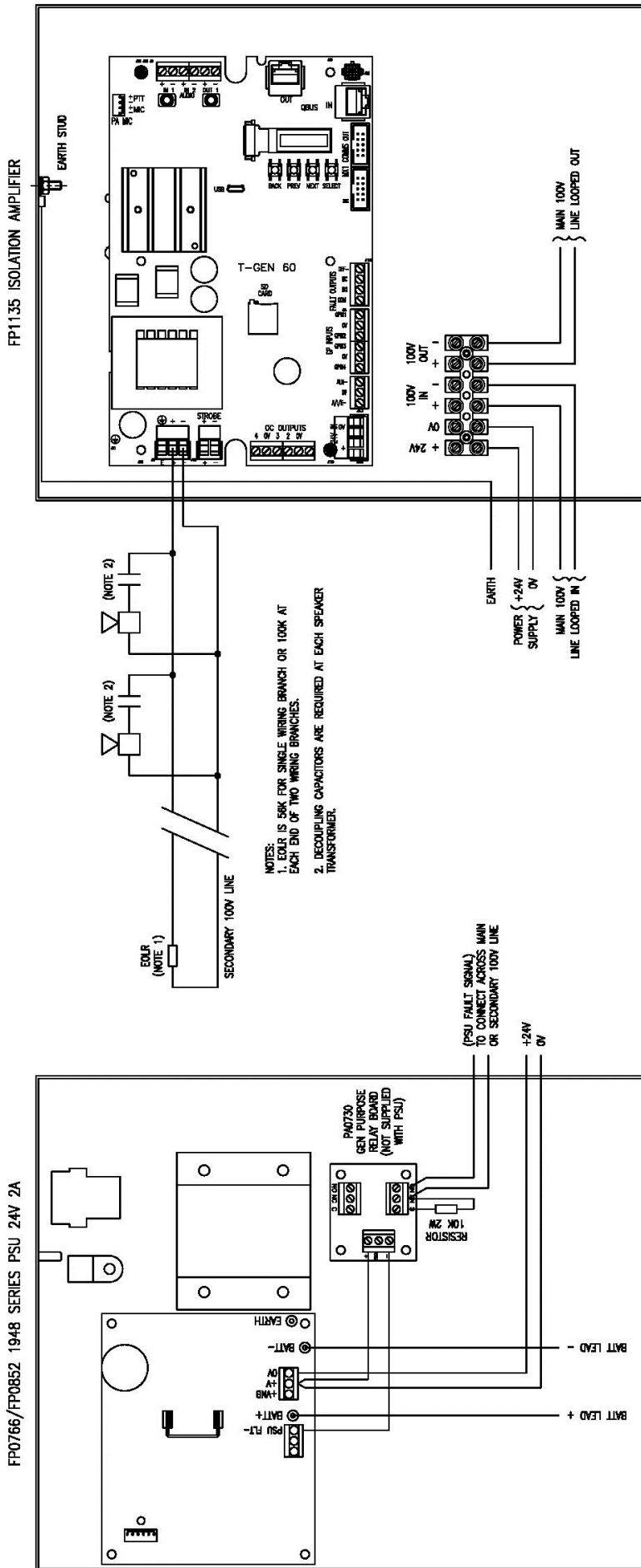
All input wiring is terminated to the 6 way terminal block in the lower part of the Isolation Amplifier cabinet.

Terminal	Connected to
+24V, 0V	24V power supply to Isolation Amplifier
100V IN +/-	Main 100V line, loop in
100V OUT +/-	Main 100V line, loop out

### Output Wiring

The 100V output line is connected to the 100V OUT +/- terminals on the J5 connector on the TGen 60 inside the Isolation Amplifier cabinet. The output line must be supervised or normalised with an end-of-line device as follows:

Number of Wiring Branches	End-of-line Resistor – each branch
1 branch	56kΩ
2 branches	100kΩ



A bipolar decoupling capacitor with a rating of at least 10V is required at each speaker transformer. The capacitor value should be 1 - 5 $\mu$ F per watt of speaker load.

Speaker Load	0.33W - 0.5W	1W - 5W	10W - 20W	40W
Capacitor	1 $\mu$ F	10 $\mu$ F	47 $\mu$ F	100 $\mu$ F

The factory-fitted internal wiring should not require modification for normal installations.

## Earthing

For electrical safety, and to allow internal protection devices to work correctly, the Isolation Amplifier cabinet should be connected to a local earth, e.g., in a nearby switchboard, or associated power supply. The earth wire should be at least 0.75mm<sup>2</sup>.

## Configuration & Operation

**ALIM Link Settings:** The link settings on the ALIM are:

Remove Links – Lk1A Lk2A Lk1B Lk2B

Fit Links – Lk3A and Lk3B between pins 2 and 3

**T-Gen 60 Configuration:** Set to Isol Amp mode through the OLED display and pushbuttons. Refer to the T-Gen2 Installation Instructions LT0667 for instructions on changing the operating mode if fitting a replacement T-Gen 60 module.

**Indicators:** The OLED display on the T-Gen 60 shows the presence of any faults in the output 100V line or internal fault in the T-Gen 60 itself. The Isolation Amplifier will also generate a fault on the main 100V line if its power fails, but the OLED cannot show this. Refer to the T-Gen2 Installation/ Operating Instructions LT0667 for detail on reviewing fault indications on the T-Gen 60.

**Level Adjustment** – input sensitivity is controlled by trimpots VRB (coarse) and VRA (fine) on the ALIM9706 isolation board, plus INPUT 1 LEVEL (VR2) on the T-Gen 60. These are factory-set, and should not normally require adjustment. However, if adjustment is necessary, here is the procedure:

1. Tone only system – set the EWIS to produce Evacuation tone. With an AC voltmeter, measure the voltage on the input 100V line. Adjust the trimpots until the same or nearly the same voltage is measured on the output 100V line.
2. Tone and Speech system – set the EWIS to produce Evacuation tone and message. During the speech message, adjust the trimpots until the speech starts to sound excessively distorted, and then decrease the sensitivity slightly so that the distortion is removed.

Note the Tone and Signal Play commands in the T-Gen 60 cannot be used.

**Maintenance and Testing:** There is no routine maintenance/service required except checking the batteries used.

## Specifications

Supply Voltage	19.6V - 28.8V; reduced performance below 27V
Supply Currents	170mA (no speech or background music) standby, 3.0A for 60W output at 27VDC when active
Input	100V rms at 1W max
Output	100V rms, 60W rms
Fault Signalling	10k $\Omega$ load placed across input 100V line
Cabinet Size	240W x 295H x 80D mm

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