



# PERMA Series

## Voice Alarm Amplifiers



- ✓ Class D Amplification
- ✓ Dual Independent Amplifiers
- ✓ Monitored 3A Charger
- ✓ Load Monitoring
- ✓ High Efficiency
- ✓ 100W & 200W Versions
- ✓ 2u Rack Chassis
- ✓ Convection Cooled
- ✓ Soft Start
- ✓ Silent Battery Change-over
- ✓ Hot Swap Output
- ✓ Complies to BS5839pt8
- ✓ Front Panel Fault Indicators
- ✓ Priority Input
- ✓ Local Page input
- ✓ Fault Relay Output
- ✓ Aux DC Supplies
- ✓ Stainless Steel Construction

The @udio Logistics PERMA range of amplifiers from Current Thinking are designed to provide all the power amplification needed by Voice Alarm systems of all sizes, by using the latest techniques the amplifiers are both smaller and run cooler than their conventional equivalents.

By using class D techniques amplifier powers of two by 200W and two by 100W at 100V line are achieved at an efficiency of 86% or better. This increased efficiency reduces battery requirements and the heat generated within the rack, additionally the amplifiers will produce full rated power with batteries down to 22V.

Each dual amplifier is provided with a high capacity mains supply and monitored battery charger which can also supply up to 1A of auxiliary DC to power Matrices and routers. The built in 3A SLA battery charger is fully monitored for AC, DC, fuse faults and deep discharge. When the batteries are discharged to 20V the amplifier will shut down to prevent battery damage.

Each amplifier channel has two separate inputs, Page and Priority with independent level controls. The priority input is always mixed to the output, and will mute the page input when a priority access signal is asserted. The page input can be set to mute until a page access signal is asserted, or to be permanently live until over-riden by the Priority input.

Load monitoring is provided for each channel, and detects tone fail, open circuit, short circuit and earth leakage. Our monitoring uses a 22KHz pilot tone at 1Vrms on the 100V line which is detected by our 2 wire end of line device. This system can accurately detect faults on both the line and the speakers giving the most accurate system status.

Hot swapping of the power amplifier is easily achieved, using the slave output connector, which has a dedicated signal for this purpose, the swap is only activated if the amplifier has failed and a priority has been asserted, giving more redundancy in the system.

The stylish case is manufactured from brushed stainless steel with black aluminium rack wings and extruded aluminium guide rails, the case has been designed to mount directly housed in a rack occupying 2u, however support rails are recommended.



## Architects & Engineers.

The amplification shall be provided in dual blocks of 100W or 200W as applicable, each amplifier unit shall house two identical amplifiers, load monitoring for each amplifier and a monitored power supply and battery charger.

The amplification will be provided by a phase shifting class D output stage, driven using two phase-shifted carriers to achieve an efficiency of 85% or better. The amplifier shall contain output filtering to remove the carrier signal, which shall be over-sampled and operate at a frequency of 768KHz.

The amplifier will provide two inputs per channel; one priority input and one local paging input each with independent level controls. The priority input will always mix to the amplifier output, and shall mute the page input when a priority access is asserted. The page input shall be configurable to be either permanently mixed to the output while no priority access is asserted, or gated until the page access is asserted.

Load monitoring shall consist of a dedicated 2 wire monitoring system using a supersonic 22KHz pilot tone on the audio output. The level of this tone shall be set between 1 and 2 volts RMS to preserve standby supplies. The monitoring will give indication of the following faults: load open, load short, load earth fault, amplifier pilot tone fail. The monitoring window shall be able to be set from 5% to 20% or disabled.

The amplifier shall provide a SWAP signal to the slave output port on the detection of a fault within the amplifier, facilitating the operation of a reserve amplifier when required.

The fault monitoring shall incorporate a digital filter to prevent false indication, a load fault must be present for 2.5 seconds before the front panel indication is given, rear panel indication shall be instantaneous for setup purposes.

The end of line device shall be an AC type, and not require the use of the protective earth conductor to return faults to the rack equipment. The EOL device shall be absorptive, and draw the equivalent of 10W of power at 22KHz, and only 100mW of power at 1KHz.

The power supply shall be capable of providing power to both amplifier channels at full load, and additionally supply up to 3A of current to charge vented sealed lead acid batteries and an auxiliary DC supply of 1A to power routers and matrices. The power supply shall be fully monitored and give indication of the following conditions: AC present, batteries present, fuse failed and PSU fault.

An Isolated fault relay output will be provided; this shall be closed when the amplifier is healthy, and open on any amplifier fault.

The system amplification shall be housed in a case manufactured from brushed stainless steel and black anodised aluminium. The case shall be rack mounted and occupy 2u of rack space.

## Technical

### Output

Type	100V line
Power	Dual 100W or 200W
Impedance	100R or 50R
Gain	50dB
Noise	<-80dB
THD+Noise	<0.1%
Switch Frequency	768KHz
Connector	ST18

### Inputs

Quantity	2, Page & Priority
Connection	Cat 5 (RJ45)
Sensitivity	0dB

### Display

Per Channel	
Level	2, Signal & Peak
Access	2, Page & Priority
Power	1, On
Fault	3, Load, Protect, Swap
PSU	
Power	2, AC & DC
Fault	2, PSU, Fuse
General	
OK	Blue

### Power Supply

Mains	230VAC ±10%
Battery	24V nominal
Charger Type	Constant Voltage
Charge Voltage	27.6V
Charge Current	3A
Aux Supply	1A
Quiescent Current	440mA (both Channels active)

### Dimensions

Height	89mm
Width	480mm
Depth	330mm
Rack Space	2u

