

# PRODUCT DATA

## Power Amplifier — Type 2718

### USES

- Drives Vibration Exciter Type 4809
- Drives Mini-Shaker Type 4810 safely to full rating
- General purpose power amplifier specifically designed for small vibration exciters, supplying for example 75W into a  $3\Omega$  loudspeaker for reverberation measurements

### FEATURES

- 75VA power output capability
- Continuously variable current limit from 1A to 5A (RMS)
- 40dB voltage gain
- Built-in attenuator and continuously variable gain control
- Low distortion over wide frequency range
- Built-in protection against short-circuit and excessive heat sink temperature

### Introduction

Power Amplifier Type 2718 has been designed to drive small vibration exciters, particularly Brüel & Kjær Vibration Exciter Type 4809. It can also be used to drive the Mini-Shaker Type 4810 to full rating. For this application, the maximum output current should be limited to 1.8 A.

The power amplifier has a flat frequency response from 10 Hz to 20 kHz ( $\pm 0.5$  dB). The power output capability is 75 VA into a 3 W exciter or resistive load and the maximum voltage gain is 40 dB. This enables the power amplifier to be used in acoustical measurement setups, even when third-octave, narrow-band noise is employed. The use of a transformerless power output stage and high negative feedback results in very low harmonic distortion. A balanced preamplifier and rugged solid-state design results in a stable instrument which can tolerate temperature fluctuations and supply line variations.

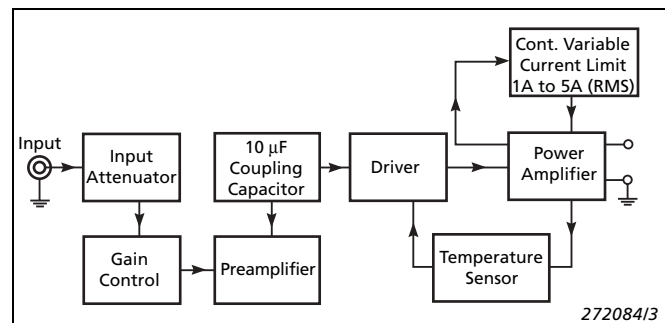
Extensive monitoring capabilities include a front panel multifunction display (LCD type) showing output current and output voltage. Also, the front panel encompasses a number of LEDs that light up when the instrument is in



- Front panel indicator lights (LEDs) showing clipped output signal, temperature overload, current overload, phase ( $0^\circ$  or  $180^\circ$ ), ready mode and power on
- Display (LCD) showing output current and output voltage

the following states: distortion, temperature overload, current overload, stand-by status and power on. Monitoring the output current and voltage can also take place using two BNC connectors on the rear of Type 2718.

**Fig. 1** Simplified block diagram of Power Amplifier Type 2718



### Description

The input circuitry of Type 2718 includes a continuously variable attenuator for attenuation of the input signal. This is followed by a gain control, in 10 dB steps from 0 to 40 dB, and a pre-amplifier. The preamplifier is capacitive-

ly-coupled to the driver stage, which is equipped with a clipping detector. Excessive signal levels at the input will saturate the amplifier and cause clipping of the output waveform. This will trigger the clipping detector, which then lights the yellow distortion warning LED on the front panel. The instrument remains in operation during clipping. The power stage employs an output current limiter, which limits the instantaneous positive and negative peaks of the output current. The power output stage is protected by a temperature sensing device. Abnormal load conditions, high ambient temperatures or an output short-circuit

could result in output transistor temperatures well in excess of design limits. To prevent any subsequent damage, the temperature protective circuitry blocks the amplifier input signal. When the heat-sink temperature reverts to the normal level, the power amplifier will automatically regain operation.

The output signal can be phase inverted (0° or 180°) by use of the phase inversion switch at the front panel. Two LEDs – one for each of the two possible positions – indicates the chosen output phase.

## Specifications – Power Amplifier Type 2718

### COMPLIANCE WITH STANDARDS



compliance with EMC Directive



compliance with EMC Requirements of Australia and New Zealand

### Safety, EMC Emission and Immunity:

According to relevant standards:

EN/IEC 61010-1, UL 61010-1, EN/IEC 61000-6-2, EN/IEC 61000-6-4, CISPR22 Class A limit, FCC Rules Part 15

**Temperature:** According to IEC 60068-2-1 and IEC 60068-2-2

Operating temperature:

+5 to +40°C (41 to 104°F)

Storage temperature:

-25 to +70°C (-13 to 158°F)

**Humidity:** According to IEC 60068-2-78,

Damp Heat: 90% RH (non-condensing at 40°C (104°F))

**Mechanical:** Non-operating according to

IEC 60068-2-6, IEC 60068-2-27,

IEC 60068-2-29

**Enclosure:** According to IEC 60529

### POWER OUTPUT CAPABILITY

75 VA into 3 Ω exciter or resistive load

### CURRENT LIMITING

Continuous adjustment potentiometer

Max. 5 A for Vibration Exciter Type 4809

Max. 1.8 A for Mini-Shaker Type 4810

### FREQUENCY RESPONSE (20 dB GAIN)

10 Hz to 20 kHz (± 0.5 dB)

4 Hz to 40 kHz (± 3 dB)

### HARMONIC DISTORTION

> 0.1 % (20 Hz to 10 kHz)

< 0.2 % (20 Hz to 20 kHz)

at full output capacity

### INPUT IMPEDANCE

15 kΩ

### OUTPUT IMPEDANCE

< 0.04 Ω (10 Hz to 5 kHz)

< 0.08 Ω (5 kHz to 20 kHz)

### PROTECTION

Current overload

Excessive heat sink temperature

### DC STABILITY

< 25 mV drift for ± 10 % supply line variation

< 25 mV drift for ambient temperature

variations between 10 and 40 °C

(50 and 104 °F)

### HUM AND NOISE FLOOR, UNWEIGHTED

100 dB below full output (20 Hz to 20 kHz)

### MAX. VOLTAGE GAIN AT 1 kHz

40 dB (± 1 dB)

### AC OUTPUT

4-pin Neutrik® Speakon® plug, UNF 10-32

Microdot plug, current limited to 3 A

### CONTROLS

Power on/off

Gain control, 0 to -∞ with integral reset

Amplifier gain, 0, 10, 20, 30 and 40 dB steps

Current limit, adjustable 1 A to 5 A (RMS)

### INDICATOR LAMPS (LED)

Power on

Distortion

Temperature overload

Current overload

Stand-by

### MULTIFUNCTION DISPLAY (LCD)

Voltage, RMS, read-out

accuracy ± 3 %, Adjustable ± 1 digit, 50 Hz to 20 kHz

Current, RMS, read-out

accuracy ± 3 %, Adjustable ± 1 digit, 50 Hz to 20 kHz

### POWER REQUIREMENTS

Single phase 100, 120 or 230 VAC

(± 10 %, 50 to 60 Hz), Approx. 140 VA at full load

### FUSES

**100 V or 120 V:** T 2.5 A

**230 V:** T 1.25 A

### DIMENSIONS

**Height:** 2 HE equivalent of 88 mm

**Width:** 482.6 mm (19 in)

**Depth:** 350 mm (13.8 in)

### WEIGHT

11 kg (24.3 lb.)

### MONITOR OUTPUT

**Voltage:** 0.1 V/V ± 3 %, 2 Hz to 35 kHz

**Current:** 0.1 V/A ± 3 %, 2 Hz to 35 kHz

## Ordering Information

### Type 2718 Power Amplifier

Includes the following accessories:

Mains Cable

### OPTIONAL ACCESSORIES:

WL 1325 Cable with 4-pin Neutrik®  
Speakon® plug to two banana  
plugs, 5 m (16.4 ft)

### TRADEMARKS

Neutrik and Speakon are registered trademarks of Neutrik AG

Brüel & Kjær reserves the right to change specifications and accessories without notice

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