

BRÜEL & KJÆR® Power Amplifiers

Power Amplifier Type 2719

Power Amplifier Type 2719 has been designed to drive small vibration exciters, particularly Vibration Exciter Type 4808, which has a force rating of 112 N (25 lbf) sine peak, and Vibration Exciter Type 4809, which has a force rating of 45 N (10 lbf) sine peak.

Type 2719 provides a flat frequency response and low harmonic distortion over a wide frequency range and has extensive control and monitoring capabilities.

The power amplifier can operate in voltage or current mode with low and high output impedance, respectively.



Uses

- Drives Vibration Exciter Type 4808
- Drives Vibration Exciter Type 4809 safely to full rating
- General purpose power amplifier for small vibration exciters requiring up to 180 VA in 0.8 Ω

Features

- 180 VA power output capacity in 0.8 Ω
- Adjustable RMS output-current limit

- Low or high output impedance (voltage/current mode)
- Low distortion over wide frequency range
- Extensive built-in protection, including interlock
- LEDs on front panel showing distortion (clipped output signal), temperature overload, current overload, output signal phase (0° or 180°), operating mode (current or voltage), interlock and power status
- Liquid crystal display (LCD) showing output current and voltage
- Monitor output connectors (voltage and current) on back panel

Description

Power Amplifier Type 2719 has a usable frequency range from DC to 100 kHz. The power output capacity is 180 VA into a 0.8 Ω exciter or resistive load, in the frequency range DC to 15 kHz (± 0.5 dB). The maximum voltage gain is 14 dB. The harmonic content of the output is very small as heavy negative feedback is used. The instrument can tolerate temperature and supply-line variations while maintaining excellent stability. Two output modes are selectable via the front panel. The power output stage is directly coupled to the output, and hence to the connected vibration exciter. A current-limiting circuit prevents excessive instantaneous output current peaks. During operation, the voltage, current levels and waveforms can be inspected at the monitor outputs on the back panel or RMS readings can be obtained from the LCD.

Type 2719 consists of an input stage (both AC-coupled and direct), a preamplifier, a power amplifier and various warning and safety circuits with indication lights (LEDs). The LCD shows output current and output voltage. The amplifier can be used as a voltage generator with low output impedance and a flat voltage frequency response, or as a current generator with high output impedance and a flat current frequency response.

Protection

Power Amplifier Type 2719 features extensive protection circuits for itself and the connected vibration exciter. When triggered, the protection circuits disconnect the input signal and light an LED, indicating the reason for instrument shutdown.

Overload protection against excessive coil current is provided by setting the RMS output current between 1 A and 15 A. This feature enables Type 2719 to safely drive vibration exciters with different maximum current ratings. The signal to the exciter is switched off if the preset current limit is exceeded.

The power output stage is protected by a temperature sensing safety device to prevent output transistor temperatures that exceed design limits and lead to transistor failure. When triggered, the temperature protection circuit blocks the amplifier input signal.

Further protection is provided by an interlock relay that disconnects the input if the operator switches between voltage mode and current mode during operation of Type 2719. Resetting is performed by simply turning the amplifier gain control fully anticlockwise. Dedicated LED indicators advise you of the current operating mode and any distortion when excessive signal levels saturate the preamplifier and cause distortion of the output waveform. The instrument remains operative in this condition.

COMPLIANCE WITH STANDARDS



The CE marking is the manufacturer's declaration that the product meets the requirements of the applicable EU directives



RCM mark indicates compliance with applicable ACMA technical standards – that is, for telecommunications, radio communications, EMC and EME



China RoHS mark indicates compliance with administrative measures on the control of pollution caused by electronic information products according to the Ministry of Information Industries of the People's Republic of China



WEEE mark indicates compliance with the EU WEEE Directive

Safety, EMC Emission and Immunity: According to relevant standards:

- EN/IEC 61010–1, ANSI/UL 61010–1
- EN/IEC 61000–6–2
- EN/IEC 61000–6–4
- CISPR32 Class A limit
- FCC Rules Part 15
- EN/IEC 61326

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: 93% 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

Reliability: According to MIL–HDBK 217 F, GB (Part-stress)

Enclosure: According to IEC 60529

POWER OUTPUT CAPACITY

- 180 VA into a 0.8 Ω exciter or resistive load, at 25 °C and nominal mains voltage
- 144 VA into a 1 Ω exciter or resistive load, at 40 °C or at 10% above nominal mains voltage

Connector: 4-pin Neutrik® speakON® (back panel)

OUTPUT VOLTAGE CAPACITY

12 V RMS, DC to 15 kHz

OUTPUT CURRENT CAPACITY

7.5 A RMS at or below 5 Hz

15 A RMS, 40 Hz to 10 kHz

12 A RMS at 15 kHz

FREQUENCY RANGE

Full Capacity: 40 Hz to 10 kHz

Reduced Capacity: DC to 100 kHz

FREQUENCY RESPONSE

Typical small signal response in low impedance mode:

- DC Input: DC to 15 kHz ±0.5 dB; DC to 100 kHz ±3 dB
- AC Input: 15 Hz to 15 kHz ±0.5 dB

INPUT IMPEDANCE

>10 kΩ

DC STABILITY

Less than 50 mV drift from 0 V for ±10% variation of mains supply from nominal, and for 10 to 40 °C (50 to 104 °F) variation in ambient temperature

CONTROLS

Power on/off

Continuously variable gain control, 0 to Cal. (14 dB) with integral reset

Continuously variable current limit control 1 to 15 A (RMS)

Switch for voltage mode or current mode operation

Switch for phase inversion (0° or 180°) between input and output

INDICATOR LAMPS (LEDs)

Power on

Distortion

Temperature overload

Current overload

Phase shift (0° or 180°)

Mode (Voltage or Current)

Interlock

MULTIFUNCTION DISPLAY (LCD)

Voltage (RMS) read-out accuracy ±2%

Current (RMS) read-out accuracy ±2%

PROTECTION

Input signal is removed and an indicator lamp is lit when the following parameters exceed preset limits:

- Driver Coil Current – true RMS adjustable limit 1 to 15 A (RMS)
- Power Transistor Temperature
- Heat Sink Temperature
- Output Signal Distortion – no shutdown

OTHER FEATURES

Electronic peak current limiting

MONITOR OUTPUT

Voltage: 0.1 V/V ±2%

Current: 0.1 V/A ±2%

Connectors: 2 separate BNC sockets (back panel)

POWER REQUIREMENTS

Single phase 100, 120, 230 V RMS, ±10%. Approx. 400 VA at full load

Appliance inlet with fuse holder and voltage selector (back panel)

FUSES

100 V or 120 V: T 8 A slow blow

230 V: T 4 A slow blow

DIMENSIONS

Height: 88 mm (3.5 in), equivalent to 2 RU (rack unit)

Width: 482.6 mm (19 in) with flanges for standard 19 inch rack mounting

Depth: 450 mm (17.7 in)

WEIGHT

15.9 kg (35.0 lb)

Ordering Information

Type 2719 Power Amplifier

Includes the following:

- Mains cable

OPTIONAL ACCESSORIES

AQ-0649-D-050 Cable, two 4-pin Neutrik speakON connectors, length 5 m (16.4 ft), for driving Vibration Exciter Type 4808 (included with Type 4808)

WL-1325-D-050 Cable, 4-pin Neutrik SpeakON connector to two banana plugs, length 5 m (16.4 ft), for driving Vibration Exciter Type 4809 (included with Type 4809)

Note: Cables are available in different lengths.