

BRÜEL & KJÆR® Power Amplifiers

Power Amplifier Type 2720

Power Amplifier Type 2720 has been designed to drive Modal Exciter Type 4825, which has a force rating of 200 N (45 lbf) sine peak.

Type 2720 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 Modal Exciter Type 4825
- Drives other modal and vibration exciters requiring up to 500 VA in 4 Ω

Features

- 500 VA power output capacity in 4 Ω
- Adjustable RMS output-current limit
- Low or high output impedance (voltage/current mode)



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- 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 2720 has a usable frequency range from 40 Hz to 15 kHz (full capacity) or DC to 150 kHz (reduced capacity). The power output capacity is 500 VA into a 4 Ω exciter or resistive load, in the frequency range DC to 15 kHz (± 0.5 dB). The maximum voltage gain is 25 dB. 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.

Type 2720 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. The RMS output-current limit is adjustable.

The instrument consists of an input stage, a preamplifier, a power amplifier and various warning and safety circuits with indication lamps (LEDs). The LCD shows output current and output voltage.

Protection

Type 2720 features extensive protection circuits for itself and the connected vibration exciter. When triggered, the protection circuits disconnect the input signal and an LED lights up, indicating the reason for the instrument shutdown.

Overload protection against excessive coil current is provided by setting the RMS output current to between 1 A and 11 A. This enables Type 2720 to safely drive modal and vibration exciters with different maximum current ratings. The signal to the exciter is switched off if the preset current limit is exceeded, and the red current LED lights up.

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. The temperature protection circuit blocks the amplifier input signal, lighting the red temperature LED.

Further protection is provided by an interlock relay that disconnects the input if the operator switches between voltage mode and current mode during operation. Resetting after current, temperature and interlock shutdown is done by simply turning the amplifier gain control fully anticlockwise.

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, 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

POWER OUTPUT CAPACITY

500 VA into a 4 Ω exciter or resistive load, at 25 °C and nominal mains voltage

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

OUTPUT VOLTAGE CAPACITY

45 V RMS, DC to 15 kHz

OUTPUT CURRENT CAPACITY

5 A RMS at or below 5 Hz

11 A RMS, 40 Hz to 15 kHz

MAX. VOLTAGE GAIN

25 dB (±2 dB) @ 1 kHz

FREQUENCY RANGE

Full Capacity: 40 Hz to 15 kHz

Reduced Capacity: DC to 150 kHz (–20 dB)

FREQUENCY RESPONSE

Typical small signal response (–20 dB) in low-impedance mode:

- DC Input: DC to 15 kHz ±0.5 dB; DC to 150 kHz ±3 dB
- AC Input: 15 Hz to 15 kHz ±0.5 dB

THD AT FULL OUTPUT CAPACITY

Low-impedance Mode:

- <0.1% (40 Hz to 5 kHz)
- <0.2% (5 kHz to 15 kHz)

High-impedance Mode:

- <0.2% (40 Hz to 2 kHz)
- <0.8% (2 kHz to 15 kHz)

Ordering Information

Type 2720 Power Amplifier

includes the following accessories:

- Mains cable

OPTIONAL ACCESSORIES

AQ-0649-D-050 Cable, two 4-pin Neutrik speakON connectors, length 5 m (16.4 ft), for driving Modal Exciter Type 4825 (included with Type 4825)

AQ-0648 Cable, two 4-pin Neutrik speakON connectors, length 10 m (32.8 ft), for driving Modal Exciter Type 4825

Note: Cables are available in different lengths.

INPUT IMPEDANCE

>10 kΩ

DC STABILITY

Less than ±100 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. (25 dB) with integral reset

Continuously variable current limit control, 1 to 11 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/off

Distortion

Temperature overload

Current overload

Phase shift (0° or 180°)

Mode (Voltage or Current)

Interlock

MULTIFUNCTION DISPLAY (LCD)

• Voltage (RMS) read-out accuracy ±5%, 40 Hz to 15 kHz

• Current (RMS) read-out accuracy ±5%, 40 Hz to 15 kHz

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 11 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 ±3%, 5 Hz to 15 kHz

Current: 0.1 V/A ±3%, 5 Hz to 15 kHz

Connectors: 2 separate BNC sockets (back panel)

POWER REQUIREMENTS

Single phase 230 V RMS, ±10%, 50 – 60 Hz. Approx. 1000 VA at full load

Type 2720 is not intended for use with 100 or 120 V mains

Appliance inlet with fuse cartridge

FUSES

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 (13.8 in)

WEIGHT

19.8 kg (43.7 lb)



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