

150 W four-quadrant amplifier from TOELLNER®

TOE 7610



- ❖ 150 W source and sink power
- ❖ Frequency range DC to 100 kHz
Output: ± 20 V, ± 7.5 A
- ❖ No-load and short-circuit proof

Power supplies for laboratory use are mostly only power sources. They are only able to deliver power with one single polarity, but cannot work as a power sink. These instruments only work in one quadrant of the output voltage/current diagram.

Common amplifiers deliver voltages with both polarities, but are generally unable to absorb power values in a range comparable to that which they are able to deliver. They therefore mainly work in two quadrants of the output voltage/current diagram.

The TOE 7610 four-quadrant amplifier is able to work as a power sink as well as a power source with equal values of delivered or absorbed power. **It combines amplifier, bipolar voltage and current source, and sink in one instrument.**

As an amplifier for combination with other drivers, it can work together with many different types of voltage source. Versatile access to the preset amplifier values permits optimum adaptation of the TOE 7610 four-quadrant amplifier to the respective conditions of its wide range of applicability.

The TOE 7610 four-quadrant amplifier delivers a current of up to ± 7.5 A as a power source and sink with a maximum output voltage of ± 20 V. A selectable power manager ensures that the maximum power of 150 W can also be processed as a permanent sink value. Numerous possible settings for the four-quadrant amplifier allow it to be optimally connected to the series-connected driver, whether this is a laboratory power supply, a calibrator, or a signal source such as a function generator.

The most important settings of the TOE 7610 four-quadrant amplifier are the DC or AC voltage input coupling, the selectable gain with a variation range of ± 10 % and the addition of a DC offset voltage at the output.

Selection between FAST mode and SLOW mode permits adaptation of the instrument response to signal processing or power supply applications. Separate settings for the output current limits with both polarities permit use of the TOE 7610 four-quadrant amplifier e.g. for charging and discharging cycles of accumulators. Four-wire mode can be selected in addition. Finally, the amplifier can be switched in different manners to a high-impedance standby state.

Specifications

TOE 7610

Frequency range

(power bandwidth - 3 dB)

DC input coupling:

SPEED SLOW: 0 Hz to 30 kHz

SPEED FAST: 0 Hz to 100 kHz

AC input coupling:

SPEED SLOW: 2 Hz to 30 kHz

SPEED FAST: 2 Hz to 100 kHz

Gain:

INPUT V RANGE ± 5 V;

VAR GAIN OFF: 12 dB

VAR GAIN ON: 12 dB \pm 1 dB

INPUT V RANGE ± 10 V;

VAR GAIN OFF: 6 dB

VAR GAIN ON: 6 dB \pm 1 dB

DC input impedance:

DC input coupling;

INPUT IMPEDANCE

50 Ohm: 50 Ohm

100 kOhm: 100 kOhm

AC input coupling;

INPUT IMPEDANCE 50 Ohm: 50 Ohm

INPUT IMPEDANCE 100 kOhm: ∞

Permissible input voltage :

max. 12 V_{rms} continuous

Output voltage:

Max. ± 20 V with max. ± 7.5 A

Slew rate (FAST mode only) approx.
10 V/ μ s

Current limit (SLOW mode only)

0 to + 7.5 A and 0 to - 7.5 A, separately
adjustable

Sink power

POWER MANAGER OFF: 150 W

with ± 7.5 A;

POWER MANAGER ON: permanently

Noise

Up to 1 kHz < 0.1 mV_{rms}

Up to 10 MHz < 1 mV_{rms}

Total harmonic distortion:

SPEED SLOW: up to 1 kHz < 0.1 %;

up to 7 kHz < 0.3 %,

up to 10 kHz < 0.5 %

SPEED FAST: up to 20 kHz < 0.1 %,

up to 40 kHz < 0.3 %;

up to 50 kHz < 0.5 %

General data

Mains voltage:

230 V/115 V \pm 10 %, 48 Hz to 60 Hz

Mains fuse:

230 V: T2L; 115 V: T4L

according to DIN 41662, IEC 127-2/III

Power consumption: max. 400 VA

Protective measures:

Protection class I to VDE 0411, Part 1

Operating temperature: 0 to 40 °C

Storage temperature: - 20 to 70 °C

Reference temperature: 23 °C \pm 1 °C

Cooling:

with thermostatically-controlled fan

Dimensions:

(WxHxD) 216 x 132 x 429 mm

including feet 216 x 147 x 429 mm

19" system:

Compatible with ½ 19" standard, 3HU

Weight: Approx. 9 kg

Housing: Aluminium

Supplied accessories

1 mains cord

1 Instruction Manual