



HIGH VOLTAGE AMPLIFIER MODEL T-100

1 to 6 CHANNELS HIGH VOLTAGE AMPLIFIER SERIES

Description

The T-100 series is a low-cost solution implementing modules with ± 150 V (-D grade) or 0-300 V (-M grade) max output. This series is assembled in a 19" x 3U rackmount chassis with integrated power supply. This equipment is especially suited to precisely drive piezoelectric transducers, as well as resistive loads.

Key features	Applications
Low cost	High voltage instrumentation
High stability	Piezo transducer excitation
High flexibility	Programmable power supplies
Integrated power supply	Electrostatic transducers and deflection
Customizable design	

Specifications	Physical dimensions
<ul style="list-style-type: none"> Max input voltage: ± 10 V (20 Vpp) Max output voltage: ± 150 V (300 Vpp) (-D grade) Max output voltage: 0-300 V (300 Vpp) (-M grade) Bandwidth (without load): DC to 15 KHz Channels: up to 6, independent Power supply 115-230 Vac 50-60 Hz Load: capacitive, resistive Output current: 60 mA peak-to-peak max Ripple Voltage: 2 mV max full bandwidth RMS noise absolute 1.2 mV (typical) 	<p>Specifications:</p> <ul style="list-style-type: none"> Width: 84 TE (19" Rack) Height: 3 U Depth: 410 mm Weight: 9.5 Kg <p>Environment:</p> <ul style="list-style-type: none"> Operating Temperature: -10°C to 50°C Humidity: 0 to 95%

Configuration

T-100 amplifiers are enclosed into a 19" rack mount chassis, 3U x 84TE and include a precision, very low noise, high voltage power supply.



Front view of a 6 channels T-100 High Voltage Amplifier. Input and output connectors are available at the front panel.



Module	Description	Order code
HV Amplifier module (±150 V version)	HV Amplifier, ±10 V input, ±150 V output (gain=15), standard 3Ux84TE chassis with front panel connectors	T-100-D
HV Amplifier module (0-300 V version)	HV Amplifier, ±10 V input, 0-300 V output (gain=15), standard 3Ux84TE chassis with front panel connectors	T-100-M

Technical notes

INPUT AMPLITUDE

The input amplitude should normally be kept within ±10 V and not exceed ±12 V. This is most important since the input protection network will limit the signal amplitude and cause distortion. The input protection network effectively cuts accidental spikes and overshoots.

LOAD

The amplifier is intended to drive resistive and capacitive loads. The maximum load capacitance depends on the slew rate of the amplifier and on the working frequency.

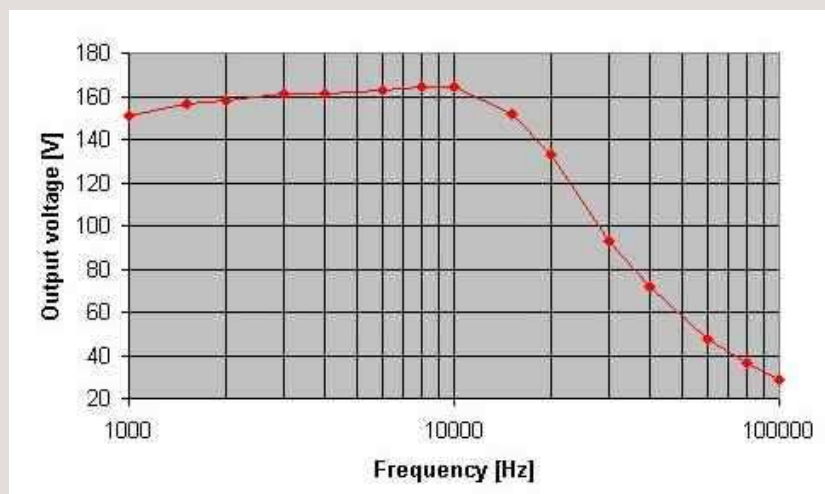
The maximum capacitance limit includes the capacitance of the connection cable (ca 100 pF/m for a standard coaxial cable). Increasing the capacitive load causes overshoot to appear. If a larger capacitive load is required then the slew rate should be reduced accordingly. Such an adjustment can be made before shipment. It may also be performed at a later date by qualified personnel and the factory should be contacted for advice. Inside the cabinet exist hazardous voltage levels and the amplifier circuit is sensitive to static discharge.

Overloading the output may cause an overshoot which might be dangerous for the connected devices.

The continuous output current limit is 50 mA and the output power limit is 9 W, which corresponds to Safe Operating Area (SOA). The temporary peak current may be up to 60 mA. The output is equipped with a current limiting circuit which withstands accidental short-circuits.

The amplifier may be overheated when the output is short-circuited for a long time and/or if the peak current appears to be frequent.

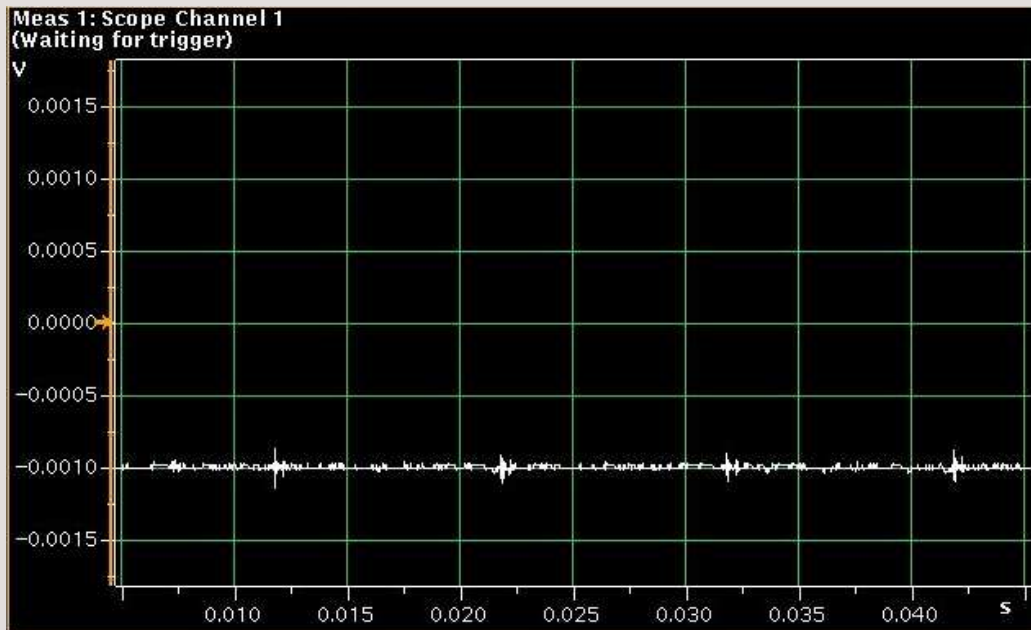
Typical Bode plot (no load):



Bode plot of the output signal of a T-100 HV amplifier with 10Vpp sinusoidal AC input signal.

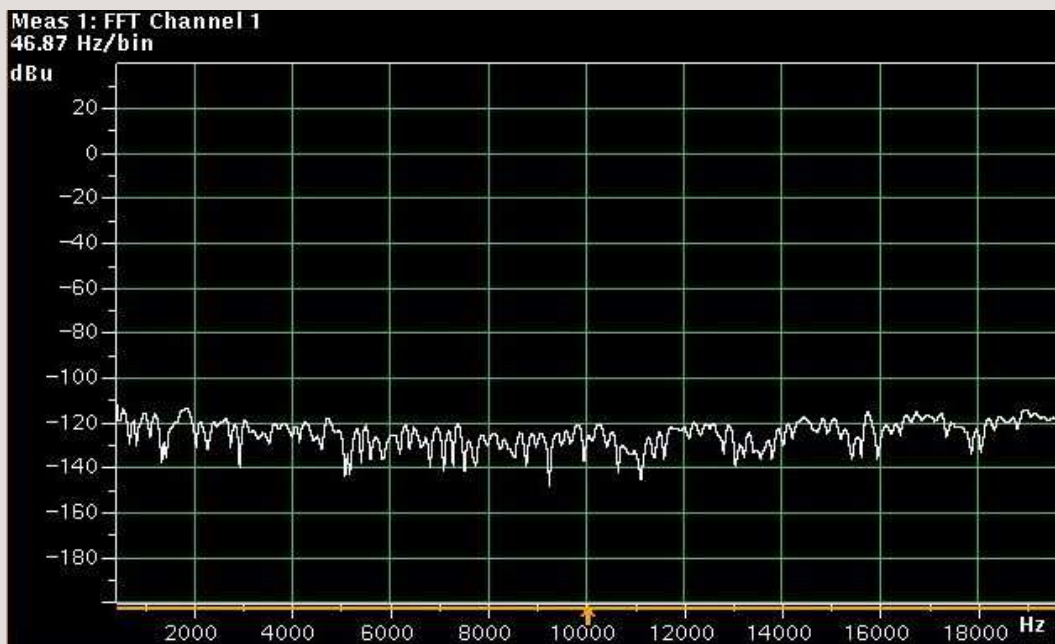


Noise response



Signal vs. time acquired at 0 VDC input, showing the overall amplifier noise

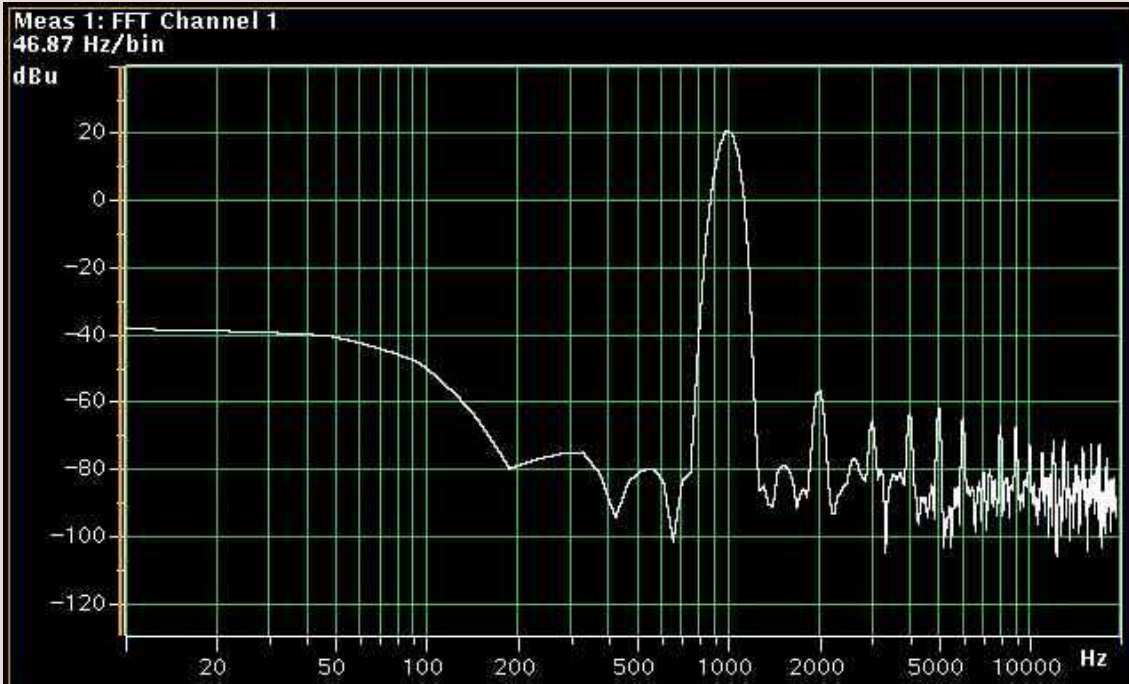
Spectral response



Spectral response at 0 VDC input

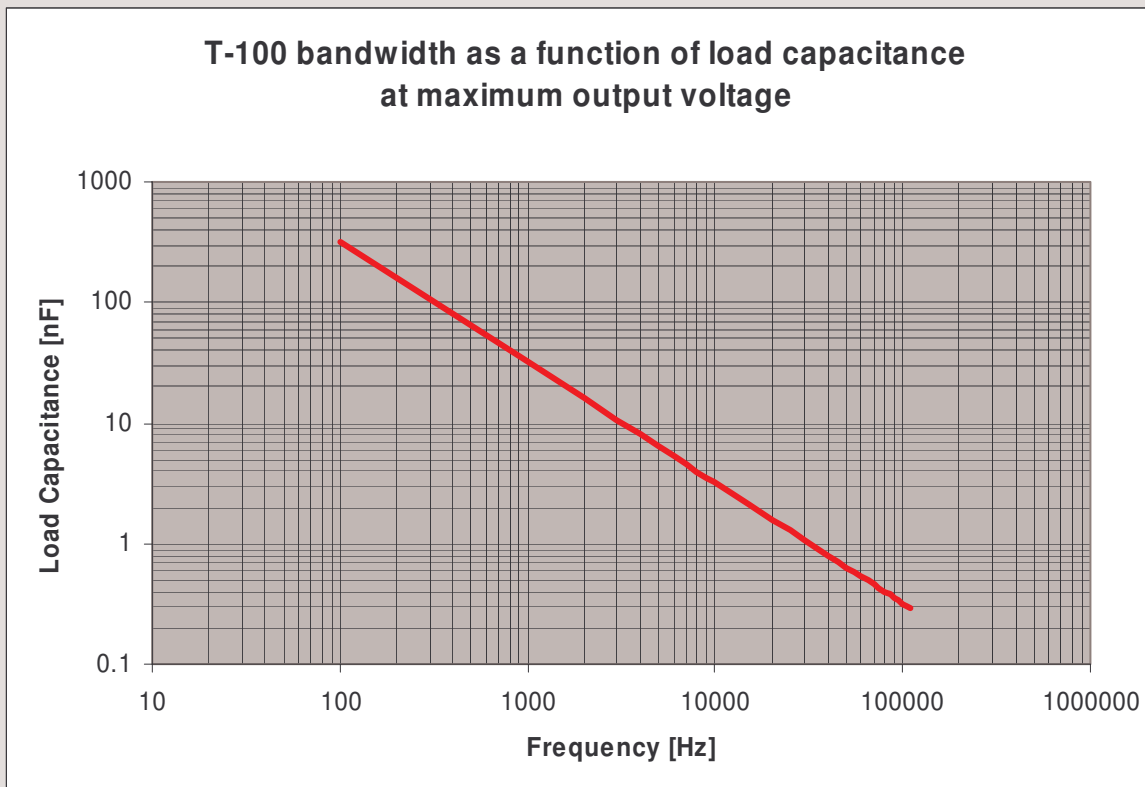


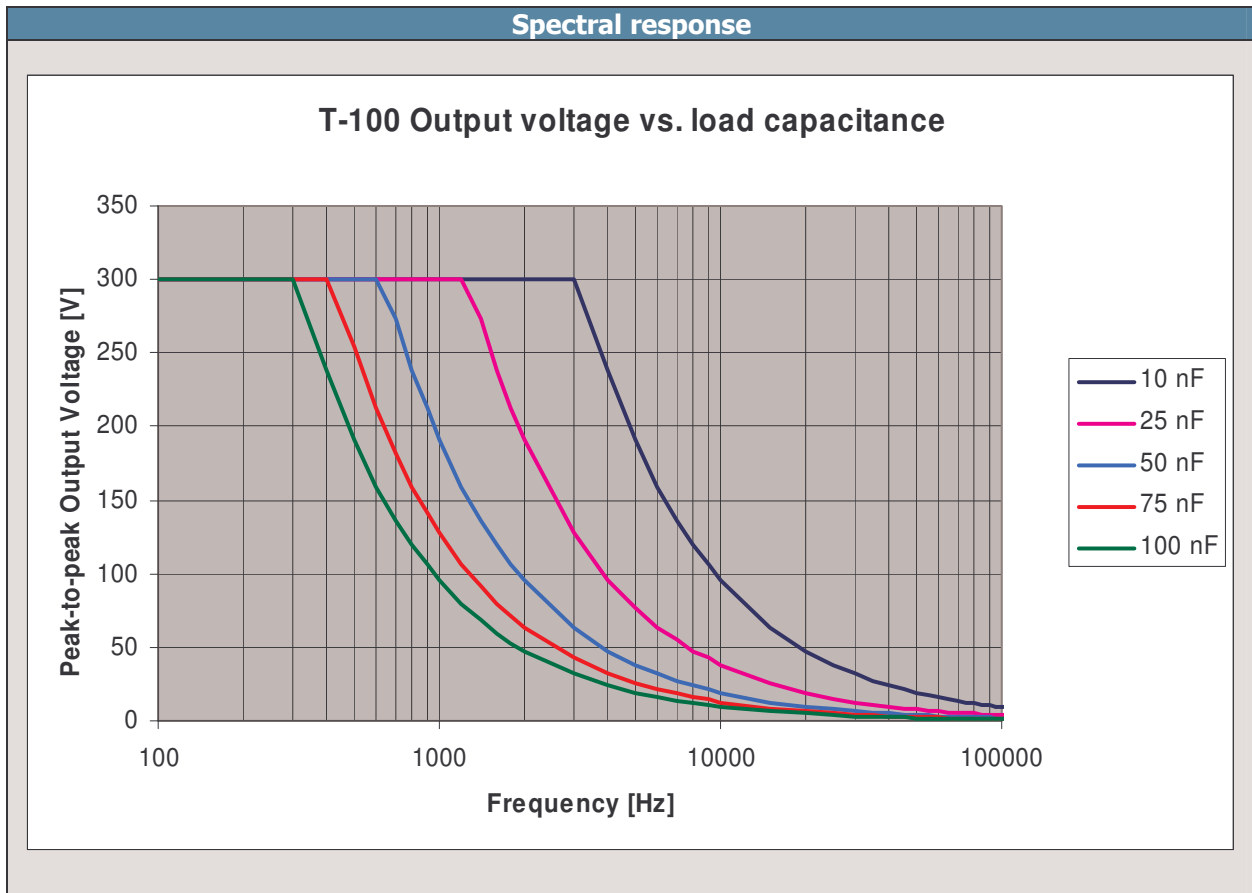
Spectral response



Spectral response applying a 1KHz sinusoidal signal at the input

Frequency performance





Specifications of this datasheet are subject to change without notice