

Keithley Instruments, Inc.28775 Aurora Road
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<http://www.keithley.com>**10 kV Voltage Power Supply Characteristics****CONDITIONS**

This document contains specifications and supplemental information for the Model 2290-10 High Voltage Power Supply. Specifications are the standards against which the Model 2290-10 is tested. Upon leaving the factory, the Model 2290-10 meets these specifications. Characteristics, supplemental characteristics, and typical values are not warranted, apply at 23 °C ± 5 °C, < 70% relative humidity, and are provided solely as useful information.

CHARACTERISTICS

Voltage range:	
Output voltage ¹	Maximum output current
+100 to +10,000 V DC	1.000 mA DC
Voltage set accuracy: ±0.06% of full scale	
Voltage display accuracy: voltage set accuracy ±1 V, typical (±2 V, maximum)	
Voltage resolution: 1 V (set and display)	
Voltage limit range: 0 to 100% full scale	
Voltage regulation ² :	
Line: 0.001% for ±10% line voltage change	
Load: 0.04% for 100% load change, typical	
Output ripple (300Hz – 300 kHz):	
0.01% of full scale, V RMS	
Rise time (from high voltage turn on to final value under full load) ^{3, 4} :	
<6 seconds to within 1 V of the final value	
Discharge time (to 0 V under full load) ^{3, 4} :	
<1 second to under 10 V	
Discharge time (no load) ³ :	
<6 seconds (to <1% of full scale voltage with no load, typical)	
Output Stored Charge: <20 µC maximum	

¹ The output voltage can be programmed to voltages below 100 V, but accuracy below 100 V is not specified.

² Regulation specifications apply for greater than 100 V

³ Current limit set to 105% of full scale.

⁴ Under resistive load.

Specifications are subject to change without notice.

CHARACTERISTICS

Voltage range:
Settling time ^{3,4} : <4 seconds to within 1 V of the final value
Recovery time ^{3,4} : 120 ms for 40% step change in load current (typical)

Current limit range: 0 to 105% of full scale
Current set accuracy: 0.5% of full scale
Current resolution: 1 μ A
Current display accuracy: ± 1 μ A, typical (± 2 μ A, maximum)
Trip current range: 10 μ A to 105% of full scale (excluding stored output charge)
Trip response time: <10 ms

Stability:
Temperature drift: 50 ppm/ $^{\circ}$ C, 0 $^{\circ}$ to 40 $^{\circ}$ C, typical
Protection: Arc and short circuit protected; programmable voltage and current limits and current trip

Monitor outputs
Output scale: 0 to +10 V for 0 V to full scale
Current rating: 10 mA maximum
Output impedance: <100 Ω
Accuracy: $\pm 0.2\%$ of full scale with a 1 M Ω load, minimum
Update rate: 87.5 Hz

External voltage set
Input scale: 0 to +10 V for 0 V to full scale
Input impedance: 1 M Ω
Accuracy: $\pm 0.2\%$ of full scale
Update rate: 87.5 Hz
Output slew rate (5% to 95% under full load) ^{3,4} : <4 seconds

GENERAL:

Input power: 75 watts
2290-10 Input voltage: 90 V – 246 V AC, 47 to 63 Hz
Rear panel connectors: Output high-voltage connector: SHV-style male (Kings type 1764-1 or equivalent) BNC Connector (Three): Input, Voltage monitor; Current monitor GPIB connector, 23-pin RS-232, 9-pin D-sub
High-voltage safety interlock: Connector: 3-pin press-in connector, 3M part number: 37103-A165-00E-MB Pin 1: 5 V nominal out, 70 mA maximum out Pin 2: Input: High-voltage output enabled: >2.8 V to 5 V DC High-voltage output disabled: <1 V DC or open connection Pin 3: Chassis ground
Interface protocol: IEEE-488.1
Operating environment: 0° C to 40° C; non-condensing
Dimensions: 89 mm high x 206 mm wide x 356 mm deep (3.5 in x 8.1 in x 14 in)
Weight: 3.7 kg (8 pounds)
Safety: Conformance to European Union low voltage directive
Warranty: One year
Warm-up time: One hour