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Calibration Instruments

5220A Transconductance Amplifier

- 20 amps output dc or rms ac
- 0.025% basic dc accuracy
- Over-voltage and over-current protection
- Over-temperature protection
- May be programmed through a 5700A or 5100B

5220A

The 5220A Transconductance Amplifier lets you calibrate alternating or direct current meters and shunts and the current functions of digital multimeters that measure up to 20A. A known input voltage of 1 to 20 volts produces a known output current of 1 to 20A.

The 5220A is designed to be controlled by a 5700A or 5100B Series calibrator but may be driven by another voltage source such as the 5200A or 5500A. When used with a 5100B Series or 5700A, the current range of those instruments is extended by a factor of 10 to 1. Options are available for the 5100B Series that make the system GPIB/IEEE-488* and RS-232C compatible.

Built-in Protection

Protection is designed in to eliminate problems caused by excessive inputs, open inputs, and overcompliance. Indicators on the front panel tell the user about any of these conditions. Automatic shut down occurs should the internal temperature rise excessively.

Remote Operation

Drive voltage to the 5220A may be introduced through the front panel or the rear panel. The connector on the rear, however, allows the 5220A to become an extension to the current range of a 5700A or 5100B Series Calibrator.

The two instruments operate as one integrated calibration system with all the advantages of single control-point calibration; automatic error calculation, entry limit protection, etc.

A 5100B Series Calibrator requires a Y5000 Interface/Buffer to control a 5220A. A single Y5000 Interface Buffer may also be used to control a 5205A Power Amplifier.

* The terms GPIB and IEEE-488 may be used interchangeably throughout this catalog.

Specifications

The specifications below apply for 180 days for instruments operated between 20°C and 30°C in a relative humidity of 70% or less.

Transconductance: 1 siemens (1A per volt)
Output Range: 0 to 20A dc or rms ac (28.3A peak)
Maximum Compliance Voltage: ≥ ±4V dc, or 3V rms ac (4.25V peak)
DC Accuracy: ±(0.025% of output +1 mA)
AC Accuracy: ±(0.05% of output +1 mA) from 30 Hz to 1 kHz, and ±(0.05% of output +1 mA) × f from 1 kHz to 5 kHz, where f = frequency in kHz
Short Term DC Stability: Output changes less than ±(0.005% + 200 μA) in 10 minutes, with constant line, load, and temperature
Short Term AC Stability: Output changes less than ±(0.01% + 500 μA) in 10 minutes, with constant line, load, and temperature
Harmonic Distortion and Noise: ±(0.05% of output ±1 mA) over frequency range of 30 Hz to 1 kHz and measured with a noise bandwidth of 300 kHz, ±0.05% of output +1 mA) × f from 1 kHz to 5 kHz, where f = frequency in kHz
Temperature Coefficient: ±(0.0025% of output +100 μA) per degree C, above 30°C or below 20°C
Transient Recovery: Output will settle to within 0.01% of final value within 2 seconds following a programmed change in output current or frequency (10 ms for 5220A alone)
Load Capability: Drives all resistive and capacitive loads consistent with current and compliance voltage capability. Drives inductive loads (with reduced accuracy) up to 200 microhenries, consistent with current and compliance voltage capability
Maximum Isolation Voltage: ±20V dc or 20V ac rms
Temperature Range: 0°C to 50°C (operating) and −20°C to 65°C non-operating
Relative Humidity: ≤50% to 50°C, ≤75% to 40°C, ≤95% to 25°C
Altitude: 0 to 10,000 feet (operating) and 0 to 40,000 feet (non-operating)
Vibration: 2G maximum, 5 Hz to 55 Hz for 15 minutes
Shock: 15G maximum, half sine waves
Power: 100, 110, 115, 120, 200, 220, 230, or 240V ac +10%, switch-selectable, 50 Hz to 60 Hz, 300W
Size: 17.8 cm H × 43.2 cm W × 55.9 cm D (7 in H × 17 in W × 22 in D), case only
Weight: 227 kg (50 lb)

Ordering Information

Model

5220A Transconductance Amplifier ***$7500***

Included with Instrument

One-year product warranty, line cord, Instruction manual, Certificate of Calibration Practices.

Accessories

Y5020 Current Shunt ***$1055***
Y5000* Interface Buffer ***$945***
Y5002* Cable (Y5000 to 5220A) ***$370***
Y5702 Cable (5700A to 5220A) ***$365***
M07-205-600 7" Rack Mount Kit ***$175***
M00-270-610 20" Slides for Rack Mount Kit ***$195***
M00-280-610 24" Slides for Rack Mount Kit ***$195***
*Required when controlled from 5100B or 5101B

Manuals

5220A Instruction** ***$50***
**No charge with purchase of unit

Customer Support Services

Factory Warranty

One-year product warranty.