VALHALLA SCIENTIFIC – MODEL **2701C**

Programmable Precision DC Voltage Calibrator

Features:

- "Cover-on" Automatic Calibration
- 100% Overrange
- Automatic Bi-polar Output
- 200mV Full Scale Divided Output Range
- All Outputs available through 2 Terminals
- 25mA Current Sourcing All Active Range
- Micro-processor Enhanced Reliability
- 5 Voltage Ranges (200mV through 1200V)
- Front and Rear Terminals
- Illuminated High Voltage Warning
- 0.5 PPM Resolution

Performances That Leads the Way

Valhalla Scientific's 2701C Programmable Precision DC voltage Calibrator utilizes innovative technology to deliver ultra-precision, ultra-stable DC Voltage from 100 nanovolts to 1200 Volts. Designed to meet the most critical calibration laboratory requirements, the 2701C is at home on the production line or in the field. This lightweight, rugged, line powered instrument requires only 15 seconds warm-up.

Innovation in Attenuation

The digital attenuator is the design key to long term stability, reliability and interfaceability. Because the crystal controlled attenuator is digital, it can't drift like the conventional Kelvin Varley divider approach. Also, the switch contact resistance no longer becomes a maintenance headache as it is removed from the accuracy determining circuit.

Ultra-Low Noise 2701LC Version Available

For applications such as analog to digital converter testing, where low noise output is extremely desirable, option "LNF" provides this enhancement to the Valhalla 2701C. Deleting the kilovolt amplifier provides a major improvement in low noise performance. Additionally, by substituting a toroidal transformer stage with 40VDC maximum output, a significant noise reduction is attained while maintaining a low level safe output.

.1 Micro Volt to 1.2KV Direct Output-Standard

The 2701C have a built-in kilovolt amplifier that delivers up to 1200.000 volts with a full 25mA drive current capability. The 2701C is also short-circuit damage proof on all ranges, and features a 200mV divided output range with 100 nanovolts resolution.

System Capability

Designed from the ground up for systems interfaceability, the 2701C offers unmatched user convenience for system installation. To start with, all output stimuli are available from two terminals on the front and rear panels, so once you've plugged in there's no fumbling around to get to separate divider or high voltage connector. Also, if remote sensing is required a touch of a button engages the 4-wire output mode. The optional microprocessor controlled IEE-488 talk/listen interface, "TL-3", is extremely user-friendly, and provides a six-channel relay driver port for remote range selection on the 2500EP AC-DC Current Calibrator.

VALHALLA SCIENTIFIC

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MODEL 2701C
PRECISION VOLTAGE STANDARD

Specifications

Accuracy

PPM OF SETTING ± RANGE NOISE		
Range	From Factory	1 Year
200mV	± 20 ppm ± 1µV	± 30 ppm ± 2µV
2V	± 15 ppm ± 4µV	± 25 ppm ± 6µV
20V	± 13 ppm ± 13µV	± 22 ppm ± 50µV
120V	± 14 ppm ± 250µV	± 23 ppm ± 400µV
1200V	± 15 ppm ± 2.5µV	± 24 ppm ± 4mV

Noise & Stability

Range	NOISE (0.1 TO 10HZ)	24HR STABILITY (DC TO 0.2HZ)
200mV	1µV	1µV
2V	2µV	± 0.5 ppm ± 2µV
20V	15µV	± 0.5 ppm ± 10µV
120V	150µV	± 0.5 ppm ± 100µV
1200V	1.5mV	± 0.5 ppm ± 1mV

General Performance Characteristics

2701C PERFORMANCE CHARACTERISTICS					
Range	Resolution	Max Current	Wideband Noise	Linearity	Output Impedance
200mV	100nV	---	25µVRMS	± 0.5µV	450Ω
2V	1µV	25mA	80µVRMS	± 1µV	< 1mΩ
20V	10µV	25mA	130µVRMS	± 10µV	< 5mΩ
120V	100µV	25mA	500µVRMS	± 100µV	< 50mΩ
1200V	1mV	25mA	800µVRMS	± 1mV	< 500mΩ

Temperature Coefficient

Range	PPM OF SETTING + µV/1°C
200mV	2.5 ppm + 0.1
2V	1.5ppm + 0.6
20V	1.5ppm + 6
120V	1.5ppm + 30
1200V	1.5ppm + 300

Output Settling Time

Range	0.5 Sec	1 Sec	10 Sec
20V and below	20 ppm	5 ppm	1 ppm
120V	30 ppm	7 ppm	2 ppm
1200V	50 ppm	10 ppm	5 ppm

Other Specifications

Warm-up Time: 15 seconds to within 15 ppm of final value 30 minutes to rated specifications
Power: 115/230V ± 10% at 45 to 65Hz at 80VA
Size: 89mm (3.5") high x 432mm (17") wide x 432mm (17") deep
Weight: 11Kg (24lbs) net, 13Kg (29lbs) shipping
Operating Temperature Range: 0 to 50°C
Storage: -30°C to 70°C
Humidity: 70% RH max at 40°C (non-condensing)

Option LNF Specifications

The Model 2701C is available with a modification that reduces the Wideband noise. This modification is designed as Option "LNF". A 2701C equipped with Option LNF has a maximum output voltage of ± 40 volts. The following Wideband Noise specifications apply to instruments equipped with Option LNF only.

Option LNF Specifications Table

Range	10Hz to 1kHz	1kHz to 10kHz
200mV	10µVRMS	5µVRMS
2V	10µVRMS	10µVRMS
20V	15µVRMS	10µVRMS
120V	100µVRMS	25µVRMS

Ordering Information

Model "2701C"	*DC Voltage Calibrator*
Option "TL-3"	*GPIB Interface w/IRP*
Option "LNF"	*Low Noise Filter*
Option "SL-48"	*Low Thermal EMF Lead Set*
Option "GP-1"	*1 meter GPIB Cable*
Option "GP-2"	*2 meter GPIB Cable*
Option "BBL"	*Banana-to-Banana Cable set*
Option "RX-3"	*19" Rack Mount Adaptor*
Option "M2701"	*Additional User/Maintenance Manual*