



**clarke-hess**  
COMMUNICATION RESEARCH CORP.

manufacturer of precision test and measurement equipment

## Voltage-Current Calibrator Model 828

### FEATURES

- AC/DC Output
- Wide Range - 1 Millivolt to 1100 Volts,  
1 Microampere to 5 Amperes
- High Accuracy
- Ease of Operation
- High Stability
- Direct Reading Percent Deviation of  
Output Control
- High Burden and Compliance Ratings
- Short Circuit and Overburden Protection
- Continuous Resolution Run-up for Analog Meter Friction Testing
- Compact Size for Ease of Portability and Minimum Bench Space  
Requirements
- Rapid Warm-up



### APPLICATIONS

#### Calibration of:

- Analog Panel Meters
- Portable Volt-Amp Multimeters
- 3 1/2 Digit Panel Meters
- Transducers
- Recorders

#### Designed for use in:

- Production Line Testing
- Laboratory Calibration
- Field Calibration Service
- Plant Calibration

### DESCRIPTION

The Model 828 AC/DC Source is a compact, self-regulating instrument capable of meeting a high percentage of calibration requirements for laboratory, production line and field use. A minimum number of controls assure ease of operation for all grades of personnel. Output voltage and current are set by fingertip operation of a centrally located digital readout /selector control. Setting time is less than 1.5 second. Voltage output is covered in four ranges: 1V, 10V, 100V and 1000V with 100% over-range on the three

lower ranges and 10% over-range on the 1000V range. Current is supplied in five full-scale ranges of 1, 10, 100mA and 1 and 10A. Over-range is 100% on all ranges except the 10A range where maximum output is 5A.

High burden capability is achieved by a rating of 10VA on the higher voltage ranges and a rating of 5VA on the one volt range. Compliance of the current ranges is 5V except for the 10A range where it is 1V.

The percent error of a meter under test may be quickly determined and directly read by use of the Model 828's Percent Error control. Analog meters may be tested for "sticky" movements by use of the run-up mode which allows voltage or current to be smoothly and continuously applied to the meter under test.

The calibrator supplies voltage and current at dc and at internally generated frequencies of 50, 60 and 400 Hz. Low ripple on dc functions and low distortion in ac modes minimizes random error when calibrating digital and rectifier type instruments. It is protected against accidental short circuit or overburdening of the output by internal sense circuitry which removes the output voltage or current if the load ratings are exceeded.

High output stability makes this instrument suitable for use as a constant current or constant voltage source.

## SPECIFICATIONS

### OUTPUT SPECIFICATIONS

#### Voltage Source

Full Scale Ranges:	Four: 1, 10, 100, and 1000 V.
Overrange Limits:	1100 volts on 1000 V range; 200% of full-scale value on all other ranges.
Stability:	$\pm 0.05\%$ /8 hours; within rated accuracy for 6 months.
Voltage Burden:	5 VA on 1 V range; 10 VA on all other ranges.

#### Current Source

Full Scale Ranges:	Five: 1, 10, and 100 mA; 1 and 10A
Overrange Limits:	5 amps on 10A range; 200% of full-scale value on all other ranges.
Compliance:	1 volt on 10 A range; 5 volts on all other ranges.

### ACCURACY

#### Output Mode Accuracy

Dc Voltage	$\pm(0.05\%$ of setting + 0.05% of range)
Ac Voltage	$\pm(0.05\%$ of setting + 0.1 % of range)
Current	$\pm(0.1\%$ of setting + 0.1 % of range)

### GENERAL

<b>Total Harmonic Distortion</b>	Less than 0.3% at full-scale.
<b>Ripple (Dc Operation Only)</b>	Less than 1 % rms at full-scale with 1 M $\Omega$ load.

#### Internal Frequency Source

Frequencies:	50, 60, and 400 Hz.
Accuracy:	50 and 400 Hz: $\pm 1\%$ 60 Hz: $\pm 0.5\%$

#### External Frequency Input

Frequency Limits: 50 to 440 Hz.  
Input Voltage 3 volts maximum

#### **% Deviation Control**

Range:  $\pm 2\%$  of setting, adjustable via front panel control.  
Accuracy:  $\pm 1/2$  division (0.05%).

**Warm-Up Time** Less than 3 minutes at room temperature.

**Operating Temperature**  $+18^{\circ}\text{C}$  to  $+28^{\circ}\text{C}$  ( $+65^{\circ}\text{F}$  to  $+82^{\circ}\text{F}$ ) for rated accuracy; the Model 828 may be operated from  $^{\circ}\text{C}$  to  $+18^{\circ}\text{C}$  ( $+32^{\circ}\text{F}$  to  $+65^{\circ}\text{F}$ ) and  $+28^{\circ}\text{C}$  and  $+50^{\circ}\text{C}$  ( $+82^{\circ}\text{F}$  to  $+122^{\circ}\text{F}$ ) at derated specifications.

#### **Input Power Requirements**

Standard: 115 V Operation: 104 to 127 volts, 47 to 63 Hz, 45 watts  
230 V Operation: 207 to 253 volts, 47 to 63 Hz, 45 watts  
Optional: 100 V Operation: 90 to 110 volts, 47 to 63 Hz, 45 watts  
200 V Operation: 180 to 220 volts, 47 to 63 Hz, 45 watts

#### **Dimensions**

Height: 19 cm (7 1/2 inches)  
Width: 21.6 cm (8 1/2 inches)  
Depth: 33 cm (13 inches)

**Weight:** 25 lbs (11.3 kg)

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