

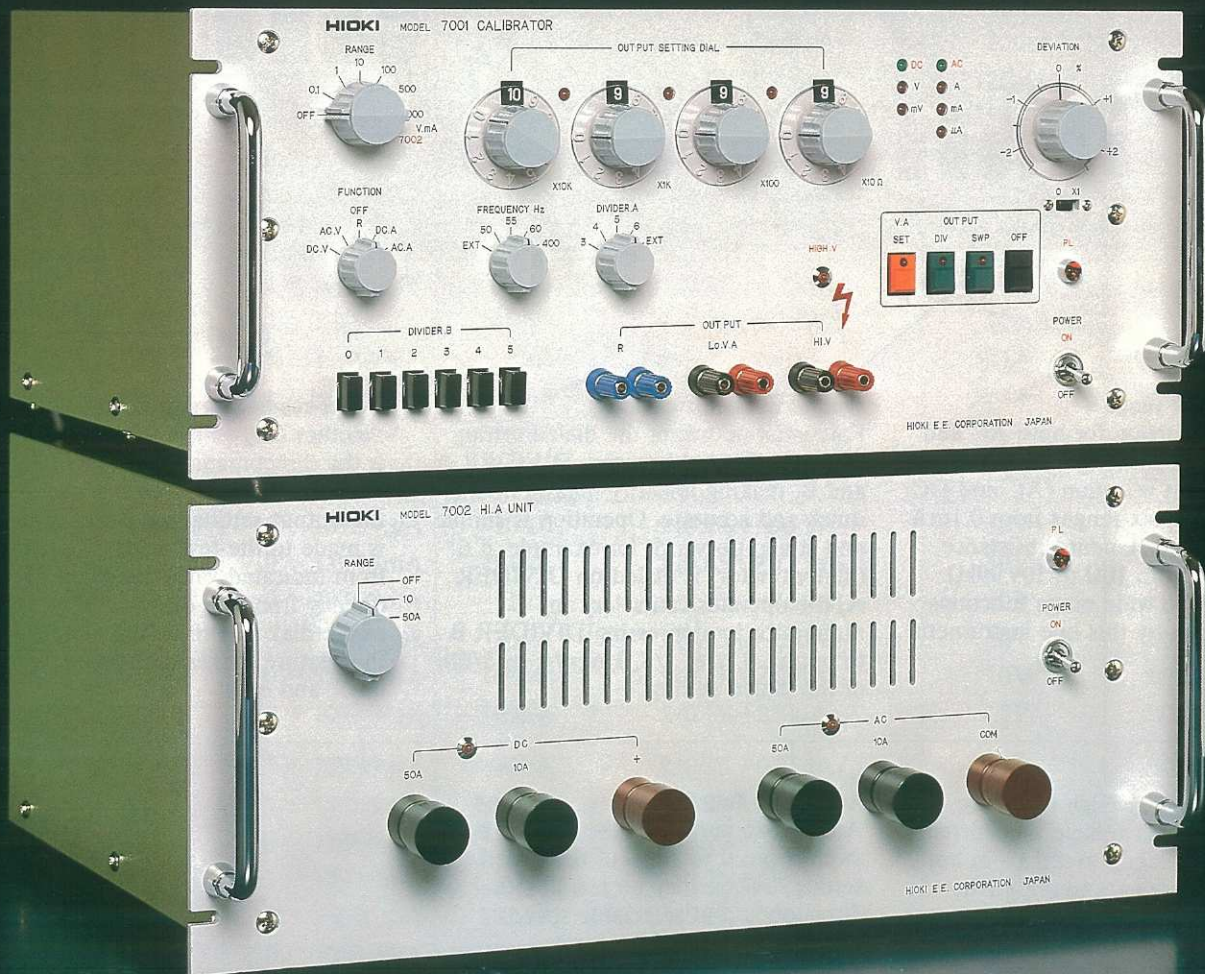
HIOKI

7001 CALIBRATOR & 7002 Hi A UNIT

7001 7002

DC — AC
Voltage and Current
plus Resistance

Wide Band Calibrator



Output division, Autosweep and Direct-reading deviation function

The HIOKI 7001 Calibrator is a general-purpose instrument designed for production-line calibration of digital and analog multimeters, or for general repair and laboratory applications where a highly precise standard is required. A standard DC voltage and current generator, standard AC voltage and current generator, together with a

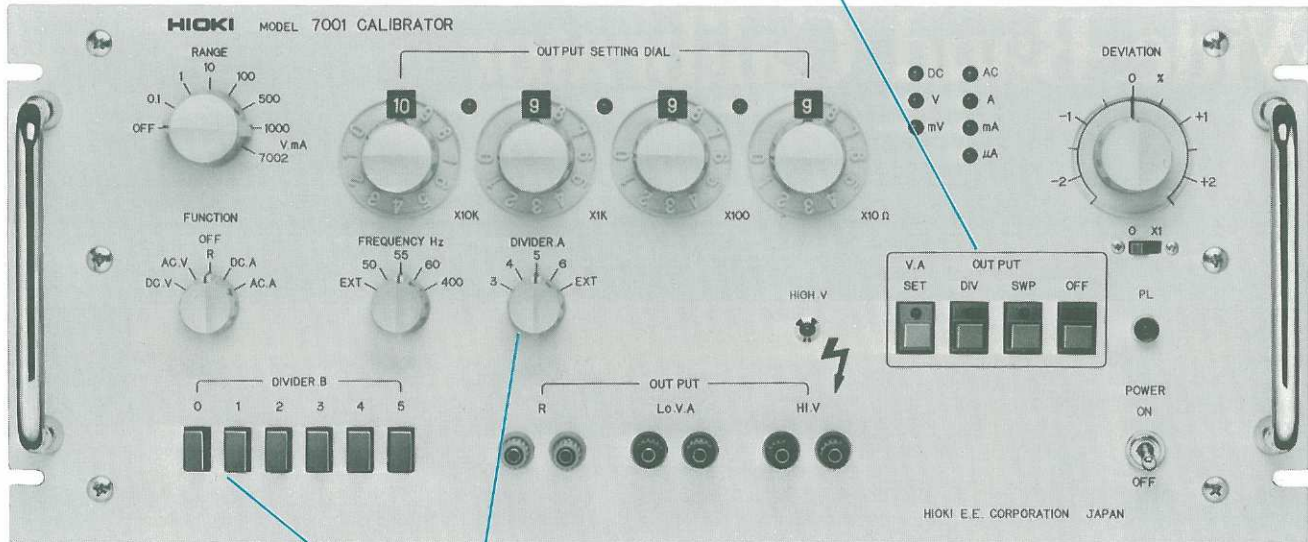
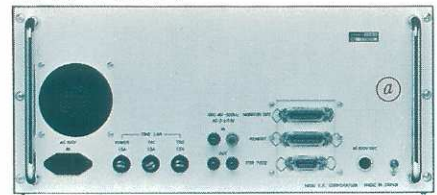
resistance standard provides a one station standard and calibration function available at much less cost than that of the two to four instruments normally required.

Output operation switch

(remotely controllable)

An independent switch is used to manually enable setting (SET), divider (DIV), and sweep (SWP) output.

Pushbutton ease speeds production calibration procedures considerably. In addition to manual control of these output functions, an external control panel is also available for remote switch control. (Input connector show by @ in photo)



Extremely wide range

Amplitude selection for both AC and DC is made in six ranges from 0.1V to 1000V. Current selection (AC and DC) is also made in six ranges from 0.1mA to 1000mA, and standard resistance values range from 10Ω to 109.99kΩ. Altogether, five wide range functions may be output by this one instrument.

Greater precision — High reliability

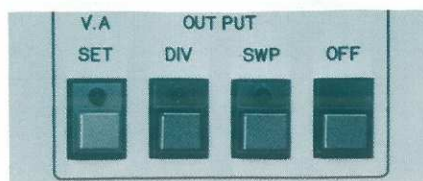
The 7001 features voltage and current accuracy from ± 0.05 to $\pm 0.3\%$ in both AC and DC modes, and a ± 0.1 to $\pm 0.5\%$ accuracy in the standard resistance function enables meter calibration to be performed to an extremely high degree of precision. Output of the 7001 is fully protected against overloads by voltage and current limiters, and additional safety mechanisms are provided to assure that the internal circuitry cannot be damaged inadvertently. The operator can thus use the 7001 without fear of damaging it or the meter under test.

Output division function

Fractional output of the dialed setting may be obtained by using DIVIDER A and B, making linearity measurements quick and accurate. Operation is simple and straightforward; for example, if 6 (denominator) is dialed on DIVIDER A, the operator can select any numerator by depressing DIVIDER B to output 0, 1/6, 2/6, 3/6, 4/6, or 5/6th of the dialed setting.

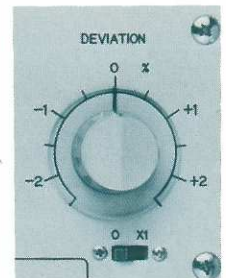
Autosweep function

Autosweep permits all settings to be swept from 0 to 100% of the dialed setting. Sweep may be run in either direction and at selectable speeds ranging from 5 to 25 seconds. This feature enable quick detection of points where friction or meter sticking is occurring when testing analog meters.



Direct-reading deviation function

Another easy-to-use feature of the 7001 is the direct-reading DEVIATION dial. The indicated value is dialed into the output setting and connection is made to the test point. Deviation from indicated value can be read directly from the dial as a percentage of the dialed setting. The simplicity of this feature makes calibration testing quick and easy.



High current applications

The HIOKI 7002 Hi A unit (optional) is an amplifier designed especially for use with the 7001. Together they form a system for use in applications demanding high current capability. Use of the 7001/7002 system provides AC or DC current ranging from 0 to 55A.

Extremely wide range, High accuracy

7001 Specifications

Output setting:

by four dials

Setting display:

4-digit in-line display

Functions:

mV, V, μ A, mA (lamp display)

Divided output:

Output equal to the quotient of the fraction set on B/A divider \times dialed output setting.

Divided output accuracy: $\pm 0.05\%$ of max. value.

Divider settings

A

B

3, 4, 5, 6

1 thru 5

Dividers may be set by remote control.

Sweep time: (from 0 to dialed setting)

Increment: 5 to 25 sec. (variable)

Decrement: 5 to 25 sec. (variable)

Operating temperature:

0 to 40°C

Relative humidity:

less than 75%

Calibration interval:

6 mos.

Warm-up time:

over 30 min.

Power supply:

100V AC $\pm 10\%$; 50/60Hz (120, 200, 220, and 240V also selectable)

Distortion and line related noise:

(at 100V AC $\pm 10\%$)

less than $\pm 0.05\%$ of range

Current limiter:

Provided in each AC and DC voltage range.

Voltage limiter:

Provided in each AC and DC current range.

Power consumption:

150 VA

Dielectric strength:

1500V AC between power supply and case for 1 minute

Insulation resistance:

over 100M Ω with 500V DC applied between power supply and case

Dimensions/Weight:

199H \times 480W \times 353D mm/approx. 21kg

Accessories:

line cord, 1 ea.; fuse (1.5A time-lag type), 3 ea.; output cable, 1 set; instruction manual, 1 vol.; test data log, 1 vol.

Accessories available:

7102 Remote controller

Function	Range	Output range	Resolution	Accuracy (Setting + range) (23 $\pm 3^\circ\text{C}$)	Max. Output (approx.)	Temp. Coefficient (0 ~ 40°C)
DC. V	0.1V	0 ~ 109.99mV	10 μV	$\pm(0.15\% + 100\mu\text{V})$	20mA	$\pm 0.01\% / ^\circ\text{C}$
	1	0 ~ 1.0999V	0.1mV	$\pm(0.05\% + 250\mu\text{V})$	120mA	$\pm 0.005\% / ^\circ\text{C}$
	10	0 ~ 10.999V	1mV	$\pm(0.05\% + 2.5\text{mV})$	120mA	$\pm 0.005\% / ^\circ\text{C}$
	100	5 ~ 109.99V	10mV	$\pm(0.15\% + 25\text{mV})$	20mA	$\pm 0.01\% / ^\circ\text{C}$
	500	50 ~ 550.0 V	100mV	$\pm(0.15\% + 250\text{mV})$	10mA	$\pm 0.015\% / ^\circ\text{C}$
	1000	50 ~ 1099.9V	100mV	$\pm(0.15\% + 250\text{mV})$	5mA	$\pm 0.015\% / ^\circ\text{C}$
AC. V	0.1V	1 ~ 109.99mV	10 μV	$\pm(0.3\% + 0.25\text{mV})$	3mA	$\pm 0.01\% / ^\circ\text{C}$
	1	0.01 ~ 1.0999V	0.1mV	$\pm(0.2\% + 0.5\text{mV})$	20mA	$\pm 0.008\% / ^\circ\text{C}$
	10	0.1 ~ 10.999V	1mV	$\pm(0.2\% + 5\text{mV})$	0.2A	$\pm 0.008\% / ^\circ\text{C}$
	100	1 ~ 109.99V	10mV	$\pm(0.2\% + 50\text{mV})$	0.2A	$\pm 0.008\% / ^\circ\text{C}$
	500	5 ~ 550.0 V	100mV	$\pm(0.2\% + 500\text{mV})$	50mA	$\pm 0.008\% / ^\circ\text{C}$
	1000	10 ~ 1099.9 V	100mV	$\pm(0.2\% + 500\text{mV})$	25mA	$\pm 0.008\% / ^\circ\text{C}$
DC. A	0.1mA	0 ~ 109.99 μA	10nA	$\pm(0.1\% + 50\text{nA})$	10V	$\pm 0.01\% / ^\circ\text{C}$
	1	0 ~ 1.0999mA	0.1 μA	$\pm(0.05\% + 0.25\mu\text{A})$	10V	$\pm 0.005\% / ^\circ\text{C}$
	10	0 ~ 10.999mA	1 μA	$\pm(0.05\% + 2.5\mu\text{A})$	10V	$\pm 0.005\% / ^\circ\text{C}$
	100	0 ~ 109.99mA	10 μA	$\pm(0.05\% + 25\mu\text{A})$	10V	$\pm 0.005\% / ^\circ\text{C}$
	500	0 ~ 550.0 mA	100 μA	$\pm(0.1\% + 250\mu\text{A})$	10V	$\pm 0.005\% / ^\circ\text{C}$
	1000	0 ~ 1099.9mA	100 μA	$\pm(0.1\% + 250\mu\text{A})$	7V	$\pm 0.005\% / ^\circ\text{C}$
AC. A	0.1mA	5 ~ 109.99 μA	10nA	$\pm(0.3\% + 0.25\mu\text{A})$	5V	$\pm 0.01\% / ^\circ\text{C}$
	1	0.01 ~ 1.0999mA	0.1 μA	$\pm(0.2\% + 0.5\mu\text{A})$	5V	$\pm 0.008\% / ^\circ\text{C}$
	10	0.1 ~ 10.999mA	1 μA	$\pm(0.2\% + 5\mu\text{A})$	5V	$\pm 0.008\% / ^\circ\text{C}$
	100	1 ~ 109.99mA	10 μA	$\pm(0.2\% + 50\mu\text{A})$	5V	$\pm 0.008\% / ^\circ\text{C}$
	500	5 ~ 550.0 mA	100 μA	$\pm(0.2\% + 500\mu\text{A})$	5V	$\pm 0.008\% / ^\circ\text{C}$
	1000	10 ~ 1099.9mA	100 μA	$\pm(0.2\% + 500\mu\text{A})$	3V	$\pm 0.008\% / ^\circ\text{C}$
Ω		10 Ω ~ 109.99k Ω	10 Ω	$\pm 0.1\% \sim \pm 0.5\%$		$\pm 0.005\% / ^\circ\text{C}$

AC mode output frequency (sine wave)

Internal oscillator: 50, 55, 60, 400Hz (accuracy: $\pm 1\%$)

External oscillator: 40 to 500Hz (3 $\pm 0.1\text{V}$)

Input impedance: approx. 30k Ω

High current applications

Applications calling for high current capability may be fulfilled using the Model 7001 in conjunction with HIOKI Model 7002 Hi A Unit. Currents of up to 55A in both AC and DC mode are provided by this combination.

Fractional output capability

The output division function basic to the 7001 is fully maintained with the 7001/7002 system, and both divider setting and output enable can be remotely controlled.

Output sweep capability

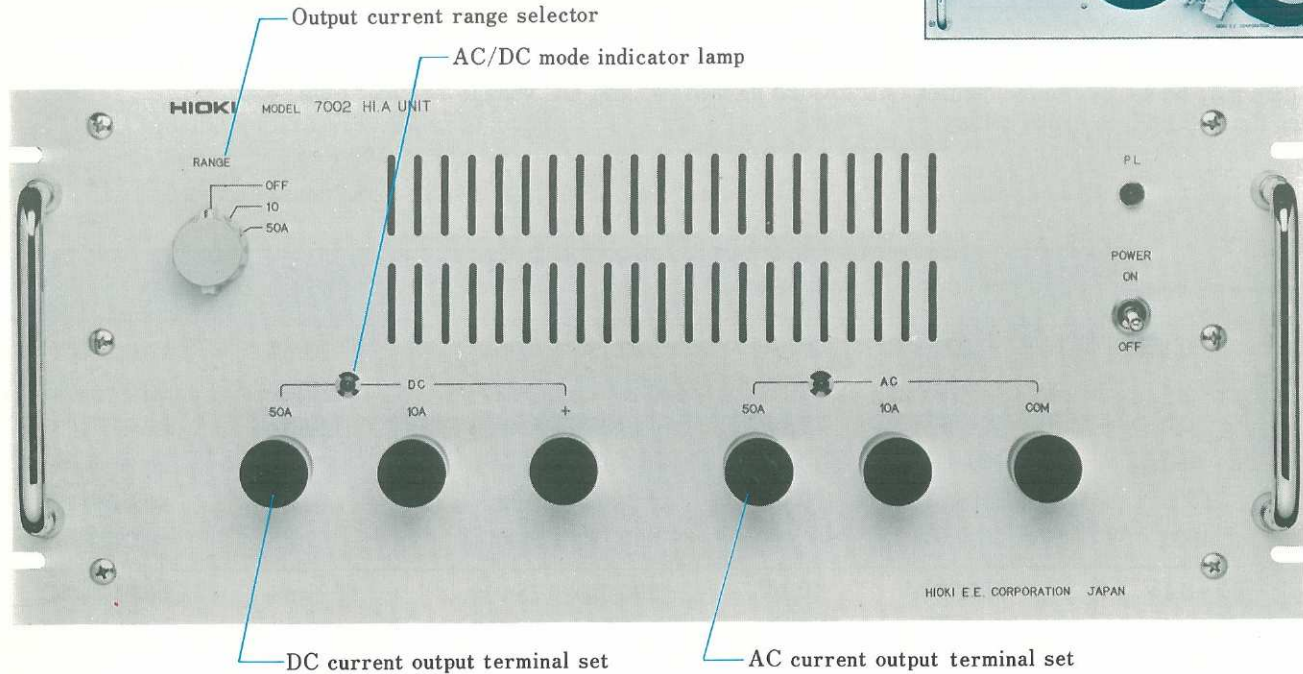
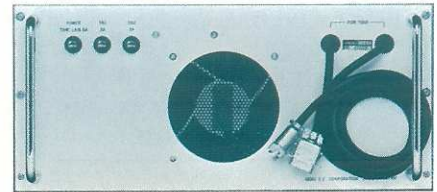
The same sweep capability present in the basic 7001 is also available when using the two models combined. Sweep is extended to include the higher current range provided by the 7002.

Direct-reading deviation dial

Meter under calibration error can be read directly off the dial on the front panel of the 7001 as a percentage of the system output value.

Continuously variable frequency capability

The external oscillator input capability of the 7001 permits continuously variable frequencies across a 40 to 500Hz range, and covering all amplitudes of AC current within the capability of the 7001/7002 system (0 ~ 55A).



7002 Specifications

Function	Range	Output range	Resolution	Accuracy (Setting + range) (23 ±3°C)	Max. Output	Temp. Coefficient (0 ~ 40°C)
DC. A	10A	0.5 ~ 11A	1mA	±(0.2%+0.03%)	3V	0.01%/°C
	50A	1 ~ 55A	10mA	±(0.2%+0.03%)	0.6V	0.01%/°C
AC.A	10A	0.5 ~ 11A	1mA	±(0.3%+0.03%)	2.4V	0.01%/°C
	50A	1 ~ 55A	10mA	±(0.3%+0.03%)	0.6V	0.01%/°C

Output setting: by four dials (on 7001)

Setting display: 4-digit in-line display (on 7001)

Function: A (current-lamp display)

Divided output: (See 7001 specifications.)

Sweep time: (See 7001 specifications.)

Ambient temperature/humidity range:

0 to 40°C/less than 85% RH

Calibration interval: 6 mos.

Warm-up time: over 30 min.

Power supply: 100V AC ±10%; 50/60Hz (120, 200, 220, and 240V also selectable)

Voltage limiter: Provided in each AC and DC current range.

Power consumption: 500 VA max.

Dielectric strength: 1500V AC between power supply and case for 1 min.

Insulation resistance: over 100MΩ with 500V DC applied between power supply and case

Dimensions: 199H×480W×353Dmm

Weight: approx. 25 kg

Accessories: Fuse (5A time-lag type),

1 ea. Fuse (3A time-lag type), 2 ea.

Instruction manual, 1 vol. Test data log, 1 vol.

HIOKI

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