

AC/DC POWER HiTESTER 3334-20, 3334-21

The **AC/DC POWER HiTESTER 3334-20** and **3334-21** are special-purpose models whose current measurement sensitivities are enhanced **10 times** higher than those of the standard products, the 3334 and 3334-01. The each specification differs in the following points.



DANGER

The maximum rated voltage between input terminals and ground is 300 V.

Attempting to measure voltage exceeding 300 V with respect to ground could damage the instrument and result in personal injury.

1. Range configuration and effective measurement range

Voltage, Current (other than 3-A range)	: 1% to 100% of range	(): Display range
Current (3-A range)	: 0.0300 A to 4.0000 A	(0.5% to 152% of range)
Active power (other than 3-A range)	: 0% to 225% of range	(0.0150 A to 4.5600 A)
Active power (3-A range)	: 0% to 200% of range	(0% to 231.04% of range)

Voltage	15-V range	30-V range	150-V range	300-V range
Current	0.150 to 22.500 V (0.075 to 22.800 V)	0.300 to 45.000 V (0.150 to 45.600 V)	1.50 to 225.00 V (0.75 to 228.00 V)	3.00 to 450.00 V (1.50 to 456.00 V)
10-mA range	150-mW range	300-mW range	1.5-W range	3-W range
0.100 to 15.000 mA (0.050 to 15.200 mA)	0.00 to 337.50 mW (0.00 to 346.56 mW)	0.00 to 675.00 mW (0.00 to 693.12 mW)	0.0000 to 3.3750 W (0.0000 to 3.4656 W)	0.0000 to 6.7500 W (0.0000 to 6.9312 W)
30-mA range	450-mW range	900-mW range	4.5-W range	9-W range
0.300 to 45.000 mA (0.150 to 45.600 mA)	0.00 mW to 1.0125 W (0.00 mW to 1.0397 W)	0.00 mW to 2.0250 W (0.00 mW to 2.0794 W)	0.0000 to 10.125 W (0.0000 to 10.397 W)	0.0000 to 20.250 W (0.0000 to 20.794 W)
100-mA range	1.5-W range	3-W range	15-W range	30-W range
1.00 to 150.00 mA (0.50 to 152.00 mA)	0.0000 to 3.3750 W (0.0000 to 3.4656 W)	0.0000 to 6.7500 W (0.0000 to 6.9312 W)	0.000 to 33.750 W (0.000 to 34.656 W)	0.000 to 67.500 W (0.000 to 69.312 W)
300-mA range	4.5-W range	9-W range	45-W range	90-W range
3.00 to 450.00 mA (1.50 to 456.00 mA)	0.0000 to 10.125 W (0.0000 to 10.397 W)	0.0000 to 20.250 W (0.0000 to 20.794 W)	0.000 to 101.25 W (0.000 to 103.97 W)	0.000 to 202.50 W (0.000 to 207.94 W)
1-A range	15-W range	30-W range	150-W range	300-W range
0.0100 to 1.5000 A (0.0050 to 1.5200 A)	0.000 to 33.750 W (0.000 to 34.656 W)	0.000 to 67.500 W (0.000 to 69.312 W)	0.00 to 337.50 W (0.00 to 346.56 W)	0.00 to 675.00 W (0.00 to 693.12 W)
3-A range	45-W range	90-W range	450-W range	900-W range
0.0300 to 4.0000 A (0.0150 to 4.5600 A)	0.000 to 90.000 W (0.000 to 103.97 W)	0.000 to 180.00 W (0.000 to 207.94 W)	0.00 to 900.00 W (0.00W to 1.0397 kW)	0.00 W to 1.8000 kW (0.00 W to 2.0794 kW)

Note 1: The effective measurement range of active power is valid when voltage and current are within their effective measurement ranges

Note 2: Other measurement items depend on the effective measurement ranges of voltage, current and active power

Note 3: Values of voltage and current less than 0.5% of their ranges are suppressed (forced to display as zero)

Note 4: Numerical values in the displayed range are subject to a ± 1 dgt. error due to calculation accuracy.

2. Measurement accuracy (1 year only)

Frequency (f)	Voltage, Current, Active power		
	Input < 50%f.s.	50%f.s. ≤ Input ≤ 100%f.s.	100%f.s. < Input Note 3,4
DC Note 1,2	$\pm 0.1\% \text{rdg.} \pm 0.2\% \text{f.s.}$	$\pm 0.1\% \text{rdg.} \pm 0.2\% \text{f.s.}$	$\pm 0.3\% \text{rdg.}$
45Hz ≤ f ≤ 66Hz	$\pm 0.1\% \text{rdg.} \pm 0.1\% \text{f.s.}$	$\pm 0.2\% \text{rdg.}$	$\pm 0.2\% \text{rdg.}$
66Hz < f ≤ 1kHz	$\pm 0.1\% \text{rdg.} \pm 0.2\% \text{f.s.}$	$\pm 0.3\% \text{rdg.}$	$\pm 0.3\% \text{rdg.}$
1kHz < f ≤ 5kHz	$\pm 3.0\% \text{f.s.}$	$\pm 3.0\% \text{rdg.}$	$\pm 3.0\% \text{rdg.}$

Note 1: Add $\pm 5 \mu\text{A}$ for DC current measurement accuracy

Note 2: Add $(\pm 5 \mu\text{A}) \times (\text{voltage reading})$ for DC active power measurement accuracy

Note 3: The effective measurement range of 3-A range is up to 4 A (133.33% of the range).

Note 4: When the 3-A range is set, the effective measurement range of active power is up to 200% of the range.

3. Display format of integration value

Format of current integration

Current range	10 mA, 30 mA	100 mA, 300 mA	1 A, 3 A
Reset value	00.0000 mAh	000.000 mAh	0.00000 Ah

Format of active power integration

Current range	10 mA, 30 mA	100 mA, 300 mA	1 A, 3 A
Voltage range			
15 V, 30 V	000.000 mWh	0.00000 Wh	00.0000 Wh
150 V, 300 V	0.00000 Wh	00.0000 Wh	000.000 Wh

4. Input resistance (50/60 Hz)

Current: 80 mΩ or less

5. Maximum input voltage

450 V, ± 640 V_{peak}, within the maximum rated voltage between input terminals and ground (**300 V**)

6. Maximum input current

4 A, ± 5.70 A_{peak}

7. Maximum effective peak voltage

$\pm 300\%$ of each voltage range, but the 300-V range has a peak of ± 640 V

8. Maximum effective peak current

$\pm 300\%$ of each current range, but the 3-A range has a peak of ± 5.70 A

9. Voltage measurement (Displays : V)

Display range	$\pm 0.5\%$ to $\pm 152\%$ of range (0.5% or less is processed as 0) VT ratio enables indication of up to ± 45.600 kV
Over-range indication	"o.r" (over-range) is indicated for inputs that exceed $\pm 152\%$ of the input range
Over-range warning	The PEAK OVER U LED lights when the input peak voltage value exceeds ± 640 V or exceeds $\pm 300\%$ of the input range.
Threshold voltage for lamp lighting	300-V range : ± 640 V to ± 653 V Other ranges : $\pm 300\%$ to $\pm 302\%$ of range

10. Current measurement (Displays : A)

Display range	$\pm 0.5\%$ to $\pm 152\%$ of range (0.5% or less is processed as 0) CT ratio enables indication of up to ± 45.600 kA
Over-range indication	"o.r" is indicated for input that exceed $\pm 152\%$ of the input range
Over-range warning	The PEAK OVER I LED lights when the input peak voltage value exceeds ± 7.50 A or exceeds $\pm 300\%$ of the input range.
Threshold voltage for lamp lighting	3-A range : ± 7.50 A to ± 7.55 A Other ranges : $\pm 300\%$ to $\pm 302\%$ of range

11. Active power measurement (Displays : W)

Display range	$\pm 0\%$ to $\pm 231.04\%$ of range The VT and CT ratios permit indication of up to ± 2079.4 MW
Over-range indication	"o.r" is indicated for inputs that exceed $\pm 231.04\%$ of the input range

12. Apparent power measurement (Display : VA)

Display range	$\pm 0\%$ to $\pm 231.04\%$ of range The VT and CT ratios permit indication of up to ± 2079.4 MVA
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13. Peak voltage value measurement (Display : Vpk)

Range configuration

Voltage range	15 V	30 V	150 V	300 V
Voltage peak range	45.0 V	90.0 V	450 V	900 V

Effective measurement range $\pm 5\%$ to $\pm 100\%$ of the voltage peak range (up to ± 640 Vpk)

14. Peak current value measurement (Display : Apk)

Range configuration

Current range	10 mA	30 mA	100 mA	300 mA	1 A	3 A
Current peak range	30.0 mA	90.0 mA	300 mA	900 mA	3.00 A	9.00 A

Effective measurement range $\pm 5\%$ to $\pm 100\%$ of current peak range (up to ± 5.70 Apk)

Display range The CT ratio permits indication of up to ± 91.8 kApk.

15. Analog Output (ANALOG OUTPUT)

Maximum output voltage Voltage, Current, Current integration: ± 3.04 V DC
Active power, Apparent power, Active power integration: ± 4.6208 V DC

16. Communication commands

For the communication commands for RS-232C or GP-IB interface, please refer to the followings.

-1. Current range

Send the command with the numerical value 10 times higher than the desired current range as shown below in the example.

(Example) Set the Current range to "3 A"
":CURR:RANG 30"

-2. * IDN?

Model identifications are as follows. (See "3334 instruction manual" "Queries device ID"($\Rightarrow$ p.82))

20...3334-20 (3334 Current 1/10 range type)

21...3334-21 (3334-01 Current 1/10 range type)