



Field Measuring Instrument

HIOKI

1993

High $10\mu\text{V}$ resolution, high DCV 0.1% precision

3.5-digit DMM with maximum 5610 count

3250 series

DIGITAL HITESTER



A sense of safety-user-oriented design

Compatible with IEC348, equipped with misoperation prevention function.
Safety-oriented DMM design that gives users what they want.

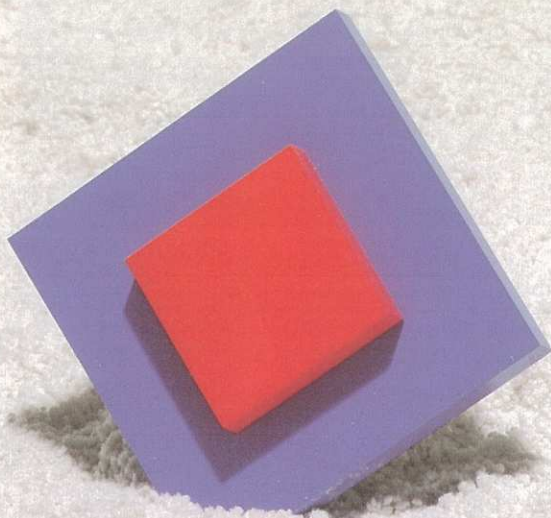
The HIOKI 3250 series puts safety first. Safety has been pursued from every aspect-technically and ergonomically. This DMM is designed from the user's point of view, and aims at making your job easier. But that isn't all, of course. In addition to superior 3.5-digit DMM performance like DCV precision of

$\pm 0.1\%$ and a minimum resolution of $10\mu\text{V}$, a comparator function, and maximum, minimum and average recorder functions.

Trustworthy performance, and reliable safety. And it's easy to use, too. Performance and thoughtfulness. Key concepts in the 3250 series.



gn given form



IEC348

The IEC (International Electrotechnical Commission) Publication 348 sets forth safety requirements for electronic measuring apparatus. The objectives of this standard are:

*To specify requirements for electronic measuring apparatus so as to ensure reasonable personal protection and protection of the surrounding area against damage;

*To specify the test methods for showing compliance with these requirements.

Hioki places highest priority on protecting the safety of users, and as such 3250 series are designed for conformance to this standard.

Thoughtfulness-safety

Common to all models

- **Compatible with IEC348**
- **Misoperation prevention function**

In the following situations the DMM will enter the warning state to prevent misoperation. The warning consists of display and buzzer operation.

*If the function is set to anything other than current, and a test lead is inserted into the current terminal.

*If the function is set to current, and test leads are inserted into both the $\mu\text{A}/\text{mA}$ terminal and the A terminal.

*If the function is set to μA , and a test lead is inserted into the A terminal.

- **Dust-proof, drip-proof construction**
- **Common V and Ω terminals**

Thoughtfulness-Function and features

Common to all models

- **Analog bar graph:** 49-dot, 56-dot (3252, 3253). Sampling rate 20 times/s. \pm display in DC mode.
- **High $10\mu\text{V}$ resolution:** Resolution equivalent to 4.5-digit designs.
- **High-speed 4 times/s sampling**
- **Wide frequency measurement range (4Hz to 400kHz)**
- **Relative function**
Allows any value to be specified as reference, and other values compared to that.
- **Recorder function**
Pressing the MIN MAX key starts storage of maximum, minimum and average values, while the display is the same as for standard measurement. Each time the switch is pressed, the display will cycle between maximum, minimum and average values.
- **Auto power save function**
The system will automatically enter power-save mode 30 minutes after the last operation. The function can be disabled, of course.

- **Low-power design for a battery life of about 2000h**

- **Protection up to AC/DC 660V in resistance measurement**

Common to 3252 and 3253

- **Comparator function**

Upper limit (Hi) can be set, with comparator results output to display or buzzer.

3251

- Maximum 4999 count
- DC accuracy $\pm 0.3\%$

3252

- Maximum 5610 count
- DC accuracy $\pm 0.15\%$

3253

- Maximum 5610 count
- DC accuracy $\pm 0.1\%$
- True rms



3251



3252



3253



9367 soft case

The optional carrying case (sold separately) fully protects the equipment, and can be hung from your belt for easy carrying.

Measurement Range (After 0 ADJ, 23°C±5°C max. 80%RH)

			3251 (Max. 4999 display)	3252 (Max. 5610 display)	3253 (Max. 5610 display) True RMS	
Item	Range	Resolution	Accuracy ±(% of reading + digit)			Note
DCV (mV)	50mV	10μV	0.7%rdg. + 10dgt.	0.5%rdg. + 10dgt.	0.5%rdg. + 10dgt.	input impedance 10MΩ or >1000MΩ selectable
	500mV	100μV	0.5%rdg. + 2dgt.	0.15%rdg. + 2dgt.	0.1%rdg. + 2dgt.	
DCV (V)	500mV	100μV	0.3%rdg. + 2dgt.	0.15%rdg. + 2dgt.	0.1%rdg. + 2dgt.	input impedance >1000MΩ Approx. 11MΩ 10MΩ 10MΩ 10MΩ
	5V	1mV	0.3%rdg. + 2dgt.	0.15%rdg. + 2dgt.	0.1%rdg. + 2dgt.	
	50V	10mV	0.3%rdg. + 2dgt.	0.15%rdg. + 2dgt.	0.1%rdg. + 2dgt.	
	500V	100mV	0.3%rdg. + 2dgt.	0.15%rdg. + 2dgt.	0.1%rdg. + 2dgt.	
	1000V	1V	0.5%rdg. + 2dgt.	0.3%rdg. + 2dgt.	0.3%rdg. + 2dgt.	
ACV	500mV	100μV	40-500Hz 1.5%rdg. + 10dgt.	1.5%rdg. + 10dgt.	40-500Hz 1.0%rdg. + 4dgt.	input impedance Approx. 11MΩ 11MΩ 11MΩ 10MΩ 10MΩ 10MΩ
	5V	1mV	500-2kHz 2.0%rdg. + 10dgt.	2.0%rdg. + 10dgt.	500-2kHz 1.0%rdg. + 4dgt.	
			40-500Hz 1.0%rdg. + 2dgt.	0.5%rdg. + 2dgt.	40-2kHz 1.0%rdg. + 4dgt.	
	50V	10mV	500-2kHz 1.5%rdg. + 2dgt.	1.0%rdg. + 2dgt.	2k-20kHz 2.0%rdg. + 4dgt.	
			40-500Hz 1.0%rdg. + 2dgt.	0.5%rdg. + 2dgt.	40-2kHz 1.0%rdg. + 4dgt.	
	500V	100mV	500-2kHz 1.5%rdg. + 2dgt.	1.0%rdg. + 2dgt.	2k-20kHz 2.0%rdg. + 4dgt.	
40-500Hz 1.0%rdg. + 2dgt.			0.5%rdg. + 2dgt.	40-500Hz 1.0%rdg. + 4dgt.		
750V	1V	40-500Hz 1.5%rdg. + 2dgt.	1.5%rdg. + 2dgt.	500-2kHz 1.0%rdg. + 4dgt.		
Ω	500Ω	100mΩ	1.0%rdg. + 4dgt.	0.5%rdg. + 4dgt.	0.5%rdg. + 4dgt.	Open terminal voltage < 0.3V
	5kΩ	1Ω	0.5%rdg. + 2dgt.	0.2%rdg. + 2dgt.	0.2%rdg. + 2dgt.	
	50kΩ	10Ω	0.5%rdg. + 2dgt.	0.2%rdg. + 2dgt.	0.2%rdg. + 2dgt.	
	500kΩ	100Ω	0.5%rdg. + 2dgt.	0.2%rdg. + 2dgt.	0.2%rdg. + 2dgt.	
	5MΩ	1kΩ	0.5%rdg. + 2dgt.	0.2%rdg. + 2dgt.	0.2%rdg. + 2dgt.	
	50MΩ	10kΩ	1.5%rdg. + 2dgt.	1.0%rdg. + 2dgt.	1.0%rdg. + 2dgt.	
DCA	500μA	100nA	0.5%rdg. + 4dgt.	0.5%rdg. + 4dgt.	0.5%rdg. + 4dgt.	<100Ω Internal resistance
	5000μA	1μA	0.5%rdg. + 2dgt.	0.5%rdg. + 2dgt.	0.5%rdg. + 2dgt.	
	50mA	10μA	0.5%rdg. + 4dgt.	0.5%rdg. + 4dgt.	0.5%rdg. + 4dgt.	
	500mA	100μA	0.5%rdg. + 2dgt.	0.5%rdg. + 2dgt.	0.5%rdg. + 2dgt.	
	5A	1mA	1.0%rdg. + 4dgt.	1.0%rdg. + 4dgt.	1.0%rdg. + 4dgt.	
	10A*	10mA	1.5%rdg. + 2dgt.	1.5%rdg. + 2dgt.	1.5%rdg. + 2dgt.	
ACA	500μA	100nA	40-2kHz 2.0%rdg. + 4dgt.	2.0%rdg. + 4dgt.	40-2kHz 2.0%rdg. + 4dgt.	<100Ω Internal resistance
	5000μA	1μA	40-2kHz 1.5%rdg. + 2dgt.	1.5%rdg. + 2dgt.	40-2kHz 1.5%rdg. + 2dgt.	
	50mA	10μA	40-2kHz 1.5%rdg. + 4dgt.	1.5%rdg. + 4dgt.	40-2kHz 1.5%rdg. + 4dgt.	
	500mA	100μA	40-2kHz 1.5%rdg. + 2dgt.	1.5%rdg. + 2dgt.	40-2kHz 1.5%rdg. + 2dgt.	
	5A	1mA	40-2kHz 1.5%rdg. + 4dgt.	1.5%rdg. + 4dgt.	40-2kHz 1.5%rdg. + 4dgt.	
	10A*	10mA	40-2kHz 2.0%rdg. + 2dgt.	2.0%rdg. + 2dgt.	40-2kHz 2.0%rdg. + 2dgt.	
Hz	150Hz	0.01Hz	0.02%rdg. + 1dgt.	0.02%rdg. + 1dgt.	0.02%rdg. + 1dgt.	
	1500Hz	0.1Hz	0.02%rdg. + 1dgt.	0.02%rdg. + 1dgt.	0.02%rdg. + 1dgt.	
	15kHz	1Hz	0.02%rdg. + 1dgt.	0.02%rdg. + 1dgt.	0.02%rdg. + 1dgt.	
	150kHz	10Hz	0.02%rdg. + 1dgt.	0.02%rdg. + 1dgt.	0.02%rdg. + 1dgt.	
	400kHz	100Hz	0.02%rdg. + 1dgt.	0.02%rdg. + 1dgt.	0.02%rdg. + 1dgt.	
Continuity		Approx. 150Ω or less, response time approx. 10ms or less				
Diode check		300μA constant current measurement				

Note: The 3253 AC measurement crest factor is 3:1, and measurement precision is defined for an input signal at least 10% of the full scale value.

*Max. measurement time is 1 m

General specifications

Method of operation: Triple integration
Display: Max. 4999 (3251), 5610 (3252, 5253), polarity display (-only), input over display (OF or -OF)

Bar graph display: 49-dot (3251), 56-dot (3252, 3253), polarity display positive + or negative-

Battery low indication: **BATT** mark appears at 2.2V ±0.1V or less.

Range selection: Automatic or manual

Frequency measurement;

Range up >14999 counts

Range down <1300 counts

Other than frequency measurement;

On the 3251 range up >4999 counts

Range down <429 counts

On the 3252, 3253 range up >5610 counts

Range down <479 counts.

Sampling rate:

4 times/s (DC, Ω, (u), (h), (A))

2.5 times/s (AC)

2 times/s (frequency)

20 times/s (bar graph)

Operation environment:

0°C to 40°C, 80%RH max.

Storage environment:

-20°C to 60°C, 70%RH max.

Temperature coefficient:

0.07×measurement accuracy/°C

Noise suppression ratio:

NMRR DCV 60dB or better

CMRR DCV 120dB or better

ACV 60dB or better

Power supply: SUM-3 (AA, 2) (about 2000h continuous operation).

Power consumption: 1.8mW typical (in DCV)

Dielectric strength: 6kVAC (for one minute)

Fuse protection: mA and μA: 1A/600V fast-blow type.

A: 10A/600V fast-blow type

Dimensions and weight:

176H×84W×30D mm. approx. 330g

Accessories: 9170 test leads (1)

Optional accessories

9367 soft case

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