

HIOKI

DMM

3223 DIGITAL Hi TESTER

3223

GP-IB Compatible (3223-01)

4½-Digit Benchtop Type DMM

- High accuracy
- High resolution
- High speed sampling
- True-RMS responding



GP-IB
3223-01

The 3223 Digital Hi Tester is a laboratory-grade multimeter designed to provide the engineer, scientist, or technician an instrument that will give him the measurement accuracy and versatility needed in today's electric and electronics technology fields. The instrument features a 4-1/2-digit display, with **10 μ V resolution** in both DC and AC voltage ranges. Measurement functions include AC and DC voltage, ohms, and AC/DC current. It also features a **data hold function, fast and slow sampling, and true RMS**

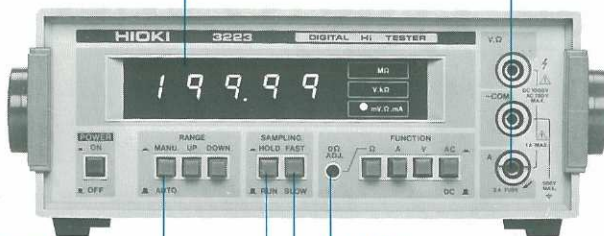
Display

- 4½-digit LED (19999 max.)
- Decimal point automatically positioned according to range setting.
- Negative polarity inputs indicated by minus sign (-).
- All digits blink to indicate overrange input.

measurement capability. Operator and instrument safety has been provided for by using collars and hoods on the terminals and test leads. The current terminal is protected by a non-arcing fuse, and diodes are used for complete circuit protection. Additional flexibility is provided through use of the optional GP-IB interface adapter. Connecting the 3223 to this instrument allows it to be interfaced with other instruments in an automated data acquisition system.

Measurement Terminals

- Safety collars used on measurement terminals for operator protection.
- Current terminal (A) has built-in non-arcing fuse.



AUTO/MANU Switch

- Manual or autorangeing selectable.

HOLD/RUN Switch

- HOLD/RUN switch initiates the measurement (RUN), or holds the measurement value in the display (HOLD).

0 Ω ADJ

- Potentiometer functions to cancel test lead resistance for ohms measurements. (200, 2000 Ω range only.)

FAST/SLOW Switch

- FAST/SLOW switch used to set sampling rate. (Fast rate effective for DC and Ohms functions only.)

Specifications

Measurement Range Conditions: 23°C ± 5°C, < 80% RH. Sample rate: Slow (specified for sine wave)
DC voltage meter

Range	200mV	2000mV	20V	200V	1000V
Resolution	10 μ V	100 μ V	1mV	10mV	100mV
Accuracy	±0.04%rdg. ±2dgt.		±0.05%rdg. ±2dgt.		
Input Impedance	>100M Ω		10M Ω (approx)		
Temperature Coefficient	(±0.005%rdg. ±0.2dgt.)/°C				
Noise Rejection Ratio	CMRR: >110dB; NMRR: 60dB				
Digit Uncertainty	±2dgt.				
Response Time	Approx. 1 sec.				

* At fast sampling rates, accuracy decreases by 2 digits.

AC voltage meter (True RMS; AC only)

Range	200mV	2000mV	20V	200V	750V
Resolution	10 μ V	100 μ V	1mV	10mV	100mV
Accuracy	40Hz~10kHz ±0.3%rdg. ±30dgt.	±0.4%rdg. ±30dgt.		±1%rdg. ±30dgt.	±1%rdg. ±30dgt.
Input Impedance	2M Ω (approx.) <100pF				
Temperature Coefficient	(measurement accuracy × 0.1)/°C				
Digit Uncertainty	2dgt.				
Response Time	Approx. 5sec.				
Crest Factor	4:1 at full-scale				

* Measurement accuracy specified for values above 5% of full-scale value.

** In 750V range, frequency measurements limited to 1kHz.

Optional Accessories

9084 Carrying Case
9151 GP-IB Connector Cable
9151-01 (1m), 9151-02(2m), 9151-04(4m)

Ohmmeter (following zero adjust in 200 Ω and 2000 Ω range.)

Range	200 Ω	2000 Ω	20k Ω	200k Ω	2000k Ω	20M Ω
Resolution	10m Ω	100m Ω	1 Ω	10 Ω	100 Ω	1k Ω
Measurement Current	1mA	10 μ A	10 μ A	1 μ A	0.1 μ A	0.1 μ A
Accuracy	±0.07%rdg. ±2dgt.		±0.1%rdg. ±5dgt.		±0.5%rdg. ±10dgt.	
Temperature Coefficient	±(0.02%rdg. ±0.5dgt.)/°C		±(0.05%rdg. ±0.8dgt.)/°C		±(0.2%rdg. ±0.8dgt.)/°C	
Response Time	Approx. 2sec. (Fast: 1sec.)		Approx. 3sec. (Fast: 2sec.)			
Open-Terminal voltage	5V (approx)					

* At fast sampling rates, accuracy decreases by 2 digits.

DC current meter

Range	200mA	1000mA
Resolution	10 μ A	100 μ A
Accuracy	±0.15%rdg. ±2dgt.	±0.6%rdg. ±5dgt.
Internal Resistance	Approx. 1 Ω	
Temperature Coefficient	±(0.02%rdg. ±1dgt.)/°C	
Response Time	Approx. 1 sec.	

* At fast sampling rates, accuracy decreases by 2 digits.

AC current meter (True RMS; AC only)

Range	200mA	1000mA
Resolution	10 μ A	100 μ A
Accuracy	±0.4%rdg. ±40dgt.	±0.9%rdg. ±40dgt.
Internal Resistance	Approx. 1 Ω	
Temperature Coefficient	(measurement accuracy × 0.1)/°C	
Response Time	Approx. 5sec.	
Crest Factor	4:1 at full-scale	

* Measurement accuracy specified for values above 5% of full scale value.

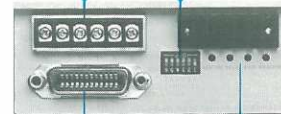
Ordering Information

3223 Standard
3223-01 With GP-IB

GP-IB Compatible (3223-01)

The 3223-01 modification features an internal GP-IB interface adapter, making the instrument ideal for use in an automated measurement system. When connected in a GP-IB system, measurement range can be set by an external controller, and measurement data can be acquisitioned by the system automatically.

Output Terminal Address switch



GP-IB Connector GP-IB Status lamp

GP-IB Specifications

Applicable standard: IEEE Std 488-1978
Interface function capability: SH1, AH1, T5, L4, SR1, RL2, PP0, DC1, DT1, C0

Address setting: GP-IB address (0 thru 30) set using rear panel DIP switch.

Output data format:

AAA ± DDDDDDE ± D CR LF

(1) (2) (3)

(1) Measurement functions: DC V, DC A, AC V, AC A, Ohms, OVR

(2) Measurement value format:

± DDDDDD E ± D

Polarity Mantissa (includes decimal point) Exponent

(3) Delimiter

Remoto function programming: Range setting only

Service request function: SRQ

Output terminal: 4-bit hexadecimal signal

Power source: Supplied from 3223

General Specifications

Operating Method: Digital circuit, integrating type

Display: 4½-digit LED, maximum reading of "19999" (except for DC 1000V, AC 750V, AC/DC 1A.)

Ranging: Automatic and manual

Overrange Indicator: All digits blink
Polarity Indicator: Only the neg (-) sign displayed.

Sampling Rate: Slow: 2.5 per second
Fast (DC, Ω only): 6.25 per sec. (50Hz)
: 7.5 per sec. (60Hz)

Environmental Conditions:

(Operating): 5~40°C, < 80% RH

(Storage): -10~50°C, < 80% RH

Dielectric Strength: 500V (DC or AC peak) between -COM terminal, case, and AC power line

Power Source: AC 100, 120, 200, 220, 240V (specify at order) ±10%, 50/60Hz (switchable)

Power Consumption: Approx. 4.5W (standard), 11W (with GP-IB)

Dimensions/Weight: 80H × 250W × 220D (mm)/Approx. 2kg (standard), 2.4kg (with GP-IB)

Accessories: 9170 Test leads, 1 set.

Power cord, 1 ea.

Spare fuse 2A (non-arcing) for A terminal, 1 ea; 3A for power, 1 ea.

Standard Packing (double carton box)

	Sets	N.W.kg	G.W.kg	M ³
3223	3	7	9	0.10m ³
3223-01	3	8	10	0.10m ³

HIOKI E.E. CORPORATION

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All specifications are subject to change without notice.

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