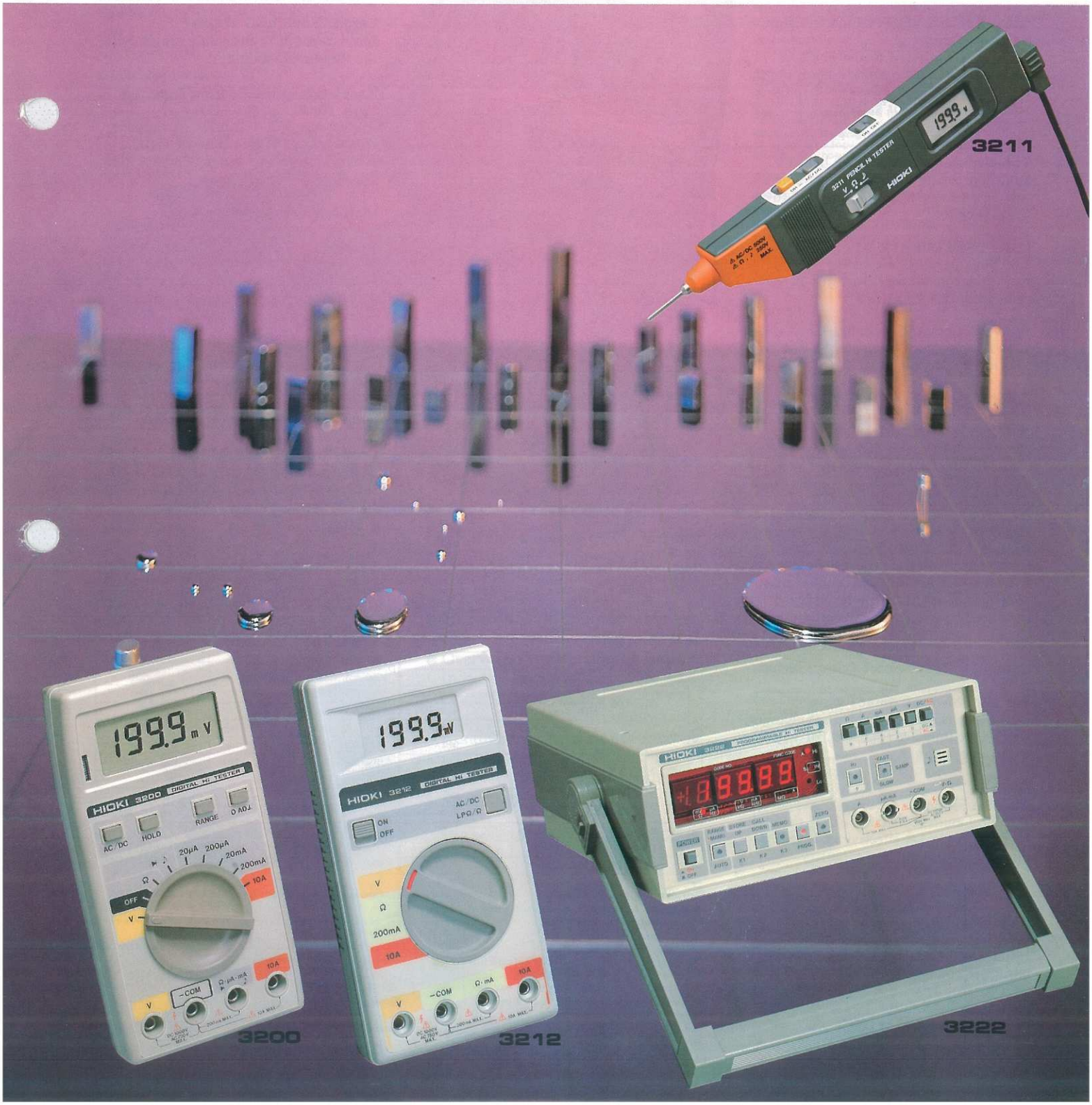
3200 DIGITAL Hi TESTER
3211 PENCIL Hi TESTER
3212 DIGITAL Hi TESTER
3222 PROGRAMMABLE Hi TESTER

HIOKI
DMM

3200·3211
3212·3222

One Step Closer to Perfection-HIOKI DMM's



Six Safety Features Make This DMM Easy-to-Use

3200 DIGITAL Hi TESTER

1. Shock-tested to withstand drops of up to 1 meter.
2. Internal circuitry sealed against dust entry.
3. Full overvoltage protection up to AC 250V (Ω/μA·mA ranges). 3200-50 fully protected up to AC 600V.
4. Neon lamp indicator reports overvoltage (Ω/→|←ranges).
5. Safety-collar terminals, safety test leads provide maximum protection against electrical shock.
6. All controls and terminals arranged based on research in human engineering, minimizing any chance for operator error.

Lamp Reports Overvoltage in Ohms and →|← Range
Overvoltage applied to the ohms or →|← range is reported by a neon lamp lighting, and current flow to the circuit is limited for safety.

Display Hold
The display reading may be held by simply pressing a button. Convenient for measurements taken in a hard-to-reach location.

Low-Power Ohms
Lo Ohms permits in-circuit measurements without turning on semiconductor junctions.

Convenient Stand Built-in.
Lets you position the meter to best viewing angle.

Autoranging
A full autorange function (except current ranges) keeps the instrument in the correct range for applied input. Manual ranging also possible.

Large 13 mm LCD Display
Meter readout is clear and simple with the large LCD display.

Resolution in the Current Range a High 10nA
The lowest AC A and DC A range is 20μA- a first in this class of meter. Resolution in this range is also a high 10nA.

High-Current Capability
Current measurement up to 10A is possible.

Overvoltage Protection Up to AC 250V in Ohms and Current Ranges
A non -arcing fuse provides complete protection in the event of accidental voltage input to the Ohms and Current ranges. (except 10A) The 3200-50 offers even greater protection, employing a Bussman fuse that guards against accidental inputs up to AC 600V.

Drop-Proof Construction
The meter is tested to withstand drops on a concrete floor from heights of up to 1 meter.

Battery-Life of 500 Hours
Two size AA (SUM-3) penlight batteries last for up to 500 hours of continuous use. Low batteries are indicated by the BATT mark lighting.

Continuity Test Report-Out Audible tone
The Audible tone sounds when continuity is made, when range changes, when functions are switched, or when input is overrange.

Dust-Protection
The mechanical construction of the 3200 is simple, yet effective in keeping dust out of the internal circuitry—a major cause of digital meter failures.

Safety Features Throughout
Input terminals are fitted with safety collars, and test leads are designed to minimize chance of contact, either with the operator or with a device that could cause a short-circuit.

Measurement Range and Accuracy (Specified for 23°C ±5°C, <80% RH, after zero adjustment.)

	Range	Resolution	Accuracy	Notes
DCV	200 mV	100μV	±0.35%rdg.±1dgt.	Input resistance: >1000MΩ
	2 V	1 mV	±0.5 %rdg.±1dgt.	〃 approx. 12MΩ
	20 V	10 mV	〃	〃 approx. 11MΩ
	200 V	0.1 V	〃	〃 〃
	1000 V	1 V	±1.0 %rdg.±1dgt.	〃 〃
ACV	2 V	1mV	±1.0 %rdg.±4dgt.	〃 approx. Ω40Hz~500Hz
			±2.0 %rdg.±4dgt.	〃 〃 500Hz~1kHz
	20 V	10mV	±1.0 %rdg.±4dgt.	〃 approx. 11MΩ 40Hz~1kHz
			±2.0 %rdg.±4dgt.	〃 〃 1kHz~5kHz
	200 V	0.1 V	±1.0 %rdg.±4dgt.	〃 〃 40Hz~1kHz
			±2.0 %rdg.±4dgt.	〃 〃 1kHz~5kHz
	750 V	1 V	±1.0 %rdg.±4dgt.	〃 〃 40Hz~500Hz
			±2.0 %rdg.±4dgt.	〃 〃 500Hz~1kHz
OHMS	200 Ω	0.1 Ω	±0.7 %rdg.±2dgt.	Open-terminal voltage: 0.45V >
	2 kΩ	1 Ω	〃	〃 〃
	20 kΩ	10 Ω	〃	〃 〃

	Range	Resolution	Accuracy	Notes
OHMS	200 kΩ	100 Ω	±0.7%rdg.±2dgt.	Open-terminal voltage: 0.45V >
	2000 kΩ	1kΩ	±1.0%rdg.±2dgt.	〃
	20 MΩ	10kΩ	±2.0%rdg.±2dgt.	〃
DCA	20 μA	10nA	±1.0%rdg.±1dgt.	Int. resistance: approx. 10kΩ
	200 μA	100nA	〃	〃 1kΩ
	20 mA	10μA	〃	〃 10Ω
	200 mA	100μA	〃	〃 1Ω
	10 A	10mA	±1.2%rdg.±1dgt.	〃 <15mΩ
ACA	20 μA	10 nA	±1.5%rdg.±4dgt.	〃 approx. 10kΩ 40~500Hz
	200 μA	100 nA	±1.2%rdg.±4dgt.	〃 1kΩ 40~1kHz
	20 mA	10μA	〃	〃 10Ω 〃
	200 mA	100μA	〃	〃 1Ω 〃
	10 A	10mA	±1.5%rdg.±4dgt.	〃 <15mΩ 40~500Hz

Models:
Protected up to AC 250V; 3200, 3200-01 (With carrying case)
Protected up to AC 600V; 3200-50, 3200-51 (With carrying case)

General Specifications

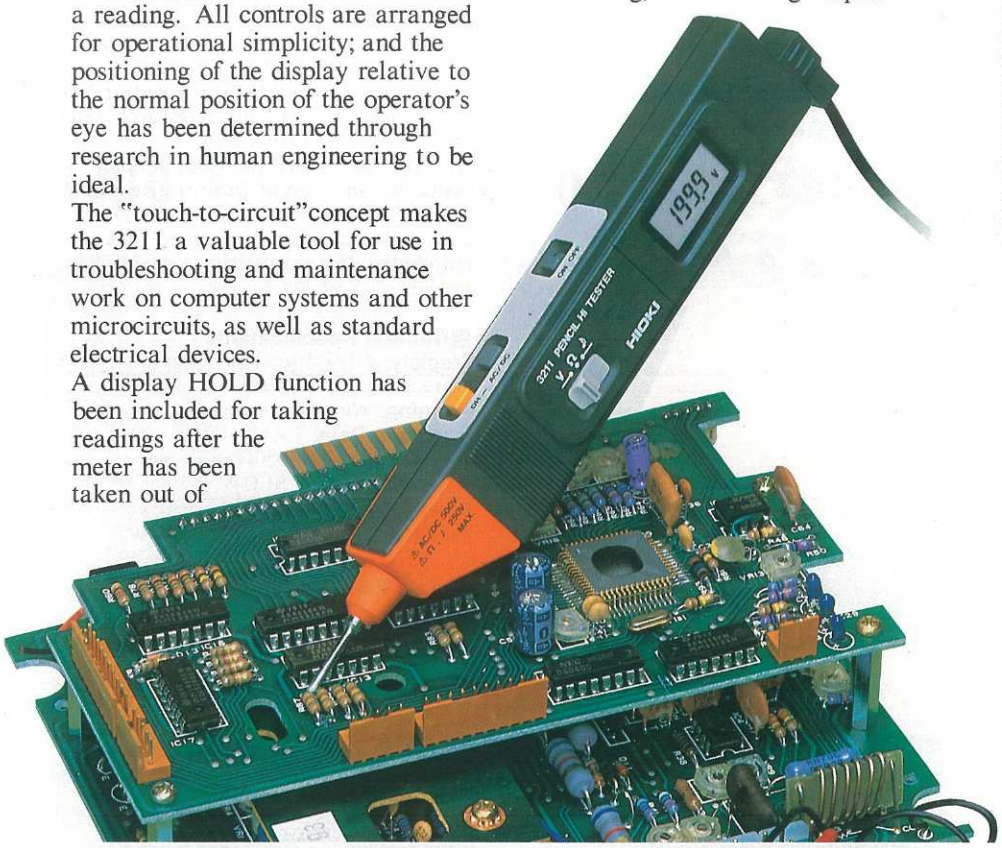
Display: 3 1/2-digit LCD, maximum reading of "1999", autopolarity, unit and other annunciators.
Ranging: Auto and manual.
Overrange Indicator: "1" in MSD column blinks, audible tone (No tone for Ohms; no indicator or audible tone for DC 1000V, AC 750V, 10A.)
Battery Low Indicator: BATT mark lights.
Sampling Rate: 2 per second.
Continuity Test & Diode Test
Environmental Conditions (Operating): 0~40°C, <80% RH. (No condensation)
Maximum Allowable Input: Volts; DC 1100V or DC + AC peak.
3200: Ω/μA·mA/Cnty./→|←; AC 250V max. (0.5A non-arcing fuse)
3200-50: Ω/μA·mA/Cnty./→|←; AC 600V max. (1A fuse)
10A range; No protection.
Power Source: Two size AA (SUM-3) batteries; Life: 500 hours (continuous use)
Dimensions: 160H×85W×32.5D(mm), 310g
Accessories: Test Leads, Fuse; 3200: 0.5, 3200-50: 0.5A, 1A
Option: 9145 Carrying Case
9038 HV probe

Research in Advanced Electronics Brings You the "Pen-DMM"

Completely breaking with convention, the 3211 is a digital multimeter that is held in one hand like a large pen and touched to the circuit to obtain a reading. All controls are arranged for operational simplicity; and the positioning of the display relative to the normal position of the operator's eye has been determined through research in human engineering to be ideal.

The "touch-to-circuit"concept makes the 3211 a valuable tool for use in troubleshooting and maintenance work on computer systems and other microcircuits, as well as standard electrical devices.

A display HOLD function has been included for taking readings after the meter has been taken out of a hard-to-reach location. And the audible tone of sounds to report the results of continuity tests, function switching, and overrange input.



3211 PENCIL Hi TESTER

Specifications

Display: 3 1/2-digit, maximum reading of "1999", autopolarity, unit and other annunciators.
Ranging: Auto
Overrange Indicator: "1" in MSD column blinks.
Battery Low Indicator: BATT mark lights.
Sampling Rate: 2 per second.
Environmental Conditions (Operating): 0~40°C, <80% RH.
Maximum Allowable Input: Volts; 700VDC or DC + AC peak. Ω/Cnty.; 250VAC max.
Dielectric Strength: AC 2000V/1 min (between input terminals and case).
Power Source: Two SR-44 or LR-44 batteries; Battery current approx. 3mW.
Dimensions: 163L×19W×28H(mm)

Measurement Range and Accuracy

(Specified for 23°C ±5°C, <80% RH, no condensation.)

	Range	Resolution	Accuracy	Notes
DC V	2V	1mV	±0.5%rdg. ±4dgt.	Input resistance:approx.12MΩ
	20V	10mV	±0.7%rdg. ±4dgt.	〃 approx 11MΩ
	200V	0.1V	〃	〃 〃
	500V	1V	±1.0%rdg. ±4dgt.	〃 〃
AC V	2V	1mV	±1.0%rdg. ±8dgt.	Input resistance:approx 12MΩ (40Hz to 500Hz)
	20V	10mV	〃	〃 approx 11MΩ 〃
	200V	0.1V	〃	〃 〃 〃
	500V	1V	〃	〃 〃 〃
OHMS	2kΩ	1Ω	±0.7%rdg. ±4dgt.	Open-terminal voltage: <0.45V
	20kΩ	10Ω	〃	〃
	200kΩ	100Ω	〃	〃
	2000kΩ	1kΩ	±1.2%rdg. ±4dgt.	〃
Continuity Test				Open-terminal voltage: 1.5V(approx)

3½-Digit Low-Cost DMM

The 3212 is a "No-Frills"instrument with all the standard DMM features. This easy-to-use, simply designed meter gives maximum performance at a price you can afford.

- High-current measurement capability (AC·DC10A).
- Overvoltage protection to AC250V in both Current (except 10A) and Ohms ranges.
- Autoranging. (except current)
- Continuity test results reported by audible tone.
- Lo Ohms for in-circuit resistance measurements.

3212 DIGITAL Hi TESTER

Specifications

Display: 3 1/2-digit LCD, maximum reading of "1999", autopolarity, unit and other annunciators.
Ranging: Auto (manual ranging in current ranges).
Overrange Indicator: "1"in MSD column blinks, audible tone(No audibl tone for Ohms; no indicator or buzzer for DC 1000V, AC 600V.)
Battery Low Indicator: BATT mark lights.
Sampling Rate: 2 per second.
Environmental Conditions (Operating): 0~40°C, <80% RH. (No condensation)
Maximum Allowable Input: Volts; DC 1000V max. AC 750V max. Ω/A: AC 250V max.
Dielectric Strength: AC 3000V/1 min.
Power Source: Two size AA (SUM-3) batteries; Battery current, 5mW.
Dimensions: 160H×85W×30D(mm)
Option: 9145 carrying case, 9014 HV Probe 3212-01 (With carrying case)

Measurement Range and Accuracy

(Specified for 23°C~5°C, <80% RH)

	Range	Resolution	Accuracy	Notes
DC V	200mV	100μV	±0.5%rdg. ±4dgt.	Input resistance: >100MΩ
	2V	1mV	±0.7%rdg. ±4dgt.	〃 10MΩ (approx)
	20V	10mV	〃	〃 〃
	200V	0.1V	〃	〃 〃
	1000V	1V	±1.0%rdg. ±4dgt.	〃 〃
AC V	2V	1mV	±1.0%rdg. ±8dgt.	Input resistance: 10MΩ (approx) (40~500Hz)
	20V	10mV	〃	〃 〃
	200V	0.1V	〃	〃 〃
	600V	1V	±1.2%rdg. ±8dgt.	〃 〃
DC A	200mA	100μA	±1.5%rdg. ±4dgt.	approx. 1Ω (not including fuse resistance.)
	10A	10mA	±1.7%rdg. ±4dgt.	approx. 15mΩ>
AC A	200mA	100μA	±2.0%rdg. ±8dgt.	1Ω 40Hz~500Hz
	10A	10mA	±2.2%rdg. ±8dgt.	approx. 15mΩ>
OHMS	200Ω	0.1Ω	±0.8%rdg. ±5dgt.	Open-terminal voltage: 1.5V ±0.2V
	2kΩ	1Ω	〃	0.65V ±0.065V 〃
	20kΩ	10Ω	〃	〃 〃
	200kΩ	100Ω	〃	〃 〃
	2000kΩ	1kΩ	±1.8%rdg. ±10dgt.	〃 〃
LPΩ	2kΩ	1Ω	±1.0%rdg. ±10dgt.	Open-terminal voltage: <0.4V
	20kΩ	10Ω	〃	〃 〃
	200kΩ	100Ω	〃	〃 〃
	2000kΩ	1kΩ	±2.0%rdg. ±10dgt.	〃 〃

TRMS-Responding 4½-Digit DMM

3222 PROGRAMMABLE Hi TESTER

The multi-function 3222 is a digital multimeter designed for use in the most critical applications. Its meter circuits include log/antilog computing semiconductor circuits for TRMS responding to sinusoidal inputs; and the overall accuracy specifications make it a laboratory-grade instrument.
The 3222 is thus suited for a wide range of applications, including research work and component production.
An optional GP-IB interface adapter (available in the near-future) gives the 3222 the capability to output BCD and analog data; or to be used in an automated data acquisition system.

■Features

Zero Reference Adjustment: Allows any on-scale input to used as the zero reference, displaying the difference between reference and all subsequent measurements.
Memory: Holds up to 10 measurements, denoted by units and function.
High-Speed Sampling: FAST: 6.25/sec (50Hz), 7.5/sec (60Hz); SLOW: 2.5/ sec
Frequency Meter: Displays 4Hz to 200kHz.
TRMS Responding: For measuring distorted waveforms such as produced by SCR-controlled equipment.
High Resistance Measurements: Ohms range of 200MΩ. (3½ digit)

■Operational Functions

Comparator: GOOD/NO GOOD parts qualifying check.
Scaling: $Y=(X-A)\times B$
% Deviation: $(X-A)/A\times 100$
Pulse Generator: Generates pulses ranging from 0.5 to 8192Hz in frequency.
Total Counter: 99999 max.
Settable Gate-Time Counter: Maximum setting time, 99999 sec.
dB Display: Input signal referenced to decibels.

■General Specifications

Displaly: 4 1/2-digit LED, maximum reading of "19999".
Ranging: Auto and manual.
Sampling Rate: FAST(DC,Ω only), 6.25 per second(50Hz). 7.5 per second (60Hz). SLOW, 2.5 per second
Power Source: AC 100V ±10%(50/60Hz)
Dimensions/Weight: 85H×250W×220D(mm)/ 2.1kg
Option: 9084 Carrying case

■Measurement Range

DC V
Range: 200mV, 2V, 20V, 200V, 1000V (5 ranges)
Resolution: 10μV
Accuracy (typical): ±0.04% rdg. ±2 dgt.
AC V (TRMS, AC coupled)
Range: 200mV, 2V, 20V, 200V, 750V (5 ranges) f: 200kHz(Up to 20V)
Resolution: 10μV
Accuracy (typical): ±0.3% rdg. ±30dgt.
Ohms
Range: 200Ω, 2k, 20k, 200k, 2M, 20M, 200MΩ
Resolution: 10mΩ
Accuracy (typical): ±0.07% rdg. ±2dgt.
DC A
Range: 200μA, 2mA, 20m, 200mA, 2A, 2A, 10A
Resolution: 10nA
Accuracy (typical): ±0.15% rdg. ±2dgt.
AC A (TRMS, AC coupled)
Range: 200μA, 2mA, 20mA, 200mA, 2A, 10A
Resolution: 10nA
Accuracy(typical): ±0.6% rdg. ±40 dgt.

Ordering Information Digital Multimeters

3200 3½ -digit (protected up to 250V)
3200-01 〃 (protected up to 250V): (with carrying case)
3200-50 〃 (protected up to 600V)
3200-51 〃 (protected up to 600V): (with carrying case)
3211 3½ -digit Pen type
3212 3½ -digit
3212-01 3½ -digit (with carrying case)
3222 4½ -digit True RMS type
3222-02 〃 (with analogue output)
3222-03 〃 (〃 BCD output)
3222-04 〃 (〃 GP-IB)

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