

*Simpson*

# Test Instruments Catalog



NEW



Durability  
Quality  
Precision  
Reliability



*Simpson*

260

SERIES 8

# Simpson

## No One Beats Simpson on Quality



When asked why they buy Simpson Products, Simpson customers consistently use the word quality. Customers trust Simpson products to give accurate and constant readings, durable and reliable performance, and easy operation.

One Simpson customer describes Simpson products as "...the best value...because they're constant." Customers also appreciate Simpson's "rugged" and "easy to use" meters. Simpson's durable cases withstand chemical vapors and other harsh environments and no other testers on the market are easier to use than Simpson testers.

Another Simpson product user remarks "No one beats Simpson on Quality."

What establishes Simpson Electric Company as an icon of excellence in the test equipment market? Ultimately, the answer lies in Simpson Electric's reputation for quality and value and customer trust in the superiority of Simpson products.

Call **1-847-697-2260** or write to:

Simpson Electric Company  
853 Dundee Avenue, Elgin, Illinois 60120  
or request detailed information online @  
[www.simpsonelectric.com](http://www.simpsonelectric.com)



*Simpson Electric Company is 100% owned by the Lac du Flambeau Band of Lake Superior Chippewa Indians. The Chippewa Band dedicates itself to expanding Simpson's success in the Test Equipment Industry and to furthering economic growth in the Native American community.*



***Simpson Electric is certified as an MBE (Minority Business Enterprise) by the Wisconsin Supplier Development Council, which is a member of the National Supplier Development Council.***



# Table of Contents

260-8 & 260-8P Analog VOM	.3
260-8Xi & 260-8XPi Analog VOM	.4
260-6XLM & 260-6XLPM	.5
160 Handi - VOM	.6
270-5 VOM	.7
501 Insulation Tester	.8
505 High Voltage Insulation Tester	.9
228 Leakage Current Tester	.10
229 - 2 Leakage Current Tester	.11
8455 Line Loop Tester	.12-13
444 Low Voltage Micro-Ohmmeter	.14
TS113 Railroad Tester	.15
372-2 Compact Meter	.16
897 Sound Dosimeter System	.17-18
SMS-2 Universal Sound Dosimeter Kit	.18
887-2 Calibrator	.18
Sound/Noise Measuring Systems	.19-20
884-2 Sound Level Meter	.19
886-2 Multi Weight Sound Level Meter	.19
890-2 Calibrator	.19
Microphone	.19
Microphone Holder	.19
Microphone Cable	.19
Sound Level Meter Specifications	.20
Test Equipment Accessories	.21-23
Test Probes/Cables/Clips	.21
Screw-On Adapters	.21
444 Accessories	.21
Standard Test Lead Set	.21
Kelvin Test Probe Set	.21
Test Leads for 8455	.21
Carrying Cases	.22
Amp-Clamp Adapters	.23
Battery Adapter Kit	.23
Analog VOM Ranges and Specifications Table	.24



## Serving the Test Equipment Market for more than 65 years

### About Simpson Electric Company

Established in 1934, Simpson Electric Company today enjoys a worldwide reputation as a leading manufacturer of test/measurement instruments, panel meters and controllers serving a wide variety of industries and service markets.

Simpson products are available from over 1,500 electronics and electrical distributors nationwide.

### Simpson Test Instruments...

Are more than just good specifications! Comparing function, range, and accuracy is important when selecting an electronic or electrical test instrument. But there is more to consider than manufacturers' specifications...

### Reliability...

Should be the first consideration when looking for a test instrument. Simpson test instruments are designed to be used by professionals. They deliver more hours of dependable use, with less time spent for calibration or repair.

Simpson test instruments are built to last. With high quality components, built-in electrical overload protection systems, and rugged construction, Simpson products withstand tough day-to-day usage.

Many Simpson multimeters are safety tested by Underwriters Laboratories and UL Listed under UL-1244, Standard for Safety Electrical and Electronic Measuring and Testing Instruments. Simpson also offers a wide variety of UL Recognized accessory test leads, probes, and clamp-on AC Ammeters to assure the integrity of each Simpson (or other) test instrument.

### Availability

Simpson instruments are easily available with immediate off-the-shelf delivery, from leading electrical/electronics distributors nationwide. Service is within reach, from an Authorized Service Center or at the factory in Lac du Flambeau, Wisconsin. Depend on Simpson for quality products and services to meet all customer needs.

### Multiple Inspection

Simpson takes pride in delivering a quality product. Every Simpson test instrument undergoes multiple inspections during assembly to make certain that each instrument performs to specifications. Incoming parts are carefully examined and compared with specifications. Assembled circuit boards are "exercised" by automated test equipment. Each instrument is calibrated by experienced technicians. All instruments receive a final check of ranges and functions before shipment.

### Simpson Warranty

Each Simpson tester is backed by a one-year warranty against defects in materials or workmanship.

#### Warranty

SIMPSON ELECTRIC COMPANY warrants each instrument and other articles of equipment manufactured by it to be free from defects in material and workmanship under normal use and service, its obligation under this warranty being limited to making good at its factory any instrument or other article of equipment which shall within one year after delivery of such instrument or other article of equipment to the original purchaser be returned intact to it, or to one of its authorized service stations, with transportation charges prepaid, and which examination shall disclose to its satisfaction to have been thus defective; this warranty being expressly in lieu of all other warranties expressed or implied and of all other obligations or liabilities on its part, and SIMPSON ELECTRIC COMPANY neither assumes nor authorizes any other persons to assume for it any other liability in connection with the sale of its product. This warranty shall not apply to any instrument or other article of equipment which shall have been repaired or altered outside the SIMPSON ELECTRIC COMPANY factory or authorized service stations, nor which has been subject to misuse, negligence or accident, incorrect wiring by other, or installation or use not in accord with instructions furnished by the manufacturer.

### *Quality Assurance*

### *Precision Instruments*

### *Efficient Customer Service*

Simpson Electric Company exceeds all customer expectations.

Depend on Simpson to satisfy your test equipment needs.

Call Customer Service at  
**(847) 697-2260**  
or visit our website  
[www.simpsonelectric.com](http://www.simpsonelectric.com)



# 260-8<sup>®</sup> & 260-8P<sup>®</sup> Analog VOM

## When a Digital Multimeter won't do the Job

Professionals have long recognized that a Simpson 260 analog meter is superior to the best DMM when monitoring fluctuating trends and rates.

The 260-8 features more attributes than its predecessors. Standard and high-energy fusing in conjunction with diode network meter movement protection makes the 260-8 the best combination of quality and affordability.

The 260-8P has an additional relay overload protection circuit that is resettable and also provides audible continuity checking.

- **36 Measurement Ranges** - Covers both AC and DC Voltage and Current measurements, as well as resistance testing
- **Connections Safeguarded** - Standard size reverse/recessed safety jacks prevent operator and/or tool contact with electrical connections of the instrument
- **Overload Protection** - Diode network protects instrument from overload damage during use (260-8P and 260-8PRT only)
- **Rugged Construction** - The Phenolic case is designed with heavy reinforced walls for maximum durability; self-shielding taut-band provides added shock resistance for the meter movement
- **Portable, for the Workshop, Lab, or in the Field** - Portable enough to carry, with benchtop accuracy
- **Versatile**- Full-size test leads with threaded probe tips for screw-on alligator clips. Eliminates the need to change test leads while working
- **Simple Operation**- Two knobs control the selection of ranges and functions



### Specifications (Continued)

#### AC CURRENT

Ranges: Up to 250 amperes with AC Amp-Clamp Adapter Accessory #00545

#### DECIBEL

5 Ranges: -20 to +50dB

Reference: 0dB= 1mW into 600Ω

#### DC CURRENT

Ranges	Accuracy	Voltage Drop: (Nominal)
50μA, 1mA, 10mA, 100mA, 500mA, 10A	1.5% full scale 50 μA 2.0% of full scale, all others	250mV on 50 μA/1mA; 255mV on 10mA/10A; 300mV on 100mA; 500mV on 500mA

#### RESISTANCE

Ranges	Accuracy	Max. Indication
Rx 1		0-2KΩ
Rx 100	2.5° of arc Rx 1	0-200KΩ
Rx 10K	2.0° of arc on all others	0-20MΩ

**RATED CIRCUIT-TO-GROUND VOLTAGE:** 1000V (AC or DC) max.

**FUSE:** F1 1A, 250V, type 3AG, quick acting Littelfuse® Type 312001; F2 2A, 600V Littelfuse® Type BLS or 2A 600V, Bussman® Type BBS.

**BATTERIES:** 1.5V AA, 9V (Neda No. 13F, 1604A)

**PHYSICAL:** Dimensions 7"(H)x5.5"(W) x 3.1"(D), (18x14x8cm)

Weight 3 lbs. (1.4Kg)

Specifications subject to change without notice.

## Specifications

### DC VOLTAGE

Ranges	Accuracy	Sensitivity
250mV, 1V, 2.5V, 10V, 25V, 50V, 250V, 500V, 1000V	2% of full scale	20KΩ per volt

### AC VOLTAGE

Ranges	Accuracy	Sensitivity
2.5V, 10V, 25V, 50V, 250V, 500V, 1000V	3% of full scale	5KΩ per volt

## Ordering Information

ANALOG MULTIMETERS	Catalog No.	ACCESSORIES	Catalog No.	ACCESSORIES	Catalog No.
260-8, General Purpose	12388	Model 150-2 Amp-Clamp Adapter	00545	Roll-Top Case	00248
260-8P, Relay Protected	12391	Probe Set, threaded w/clips	00043	Case, Hard Leatherette Front Load	00805
260-8RT, Roll Top Case	12389	Case, Yellow Padded Polyester	00832	Case, Molded Plastic	45028
260-8PRT, Protected, Roll Top Case	12392	Case, Black Padded Polyester	00834		

Additional accessories on pages 21-23.



# 260-8Xi<sup>®</sup> & 260-8XPi<sup>®</sup> Analog VOM

## 260-8Xi has all of the circuit protection features and advantages for which the 260 Series is famous...

And even more features than its predecessors. The yellow case color for enhanced visibility and user safety awareness is the trademark of the 260-8Xi. The durable ABS plastic case also provides high-impact resistance and increased drop protection in the toughest environments.

- Instant Trend Information for Quick Positive "Yes/No" Checks
- Zero RFI Emission
- UL Listed
- Audible Continuity Check
- Resettable Overload Circuit Protection Relay
- 1.5 V and 9 V Batteries and Probe Test Leads With Alligator Clips
- Mirrored Scale for Parallax Reduction



## Specifications

### DC VOLTAGE

Ranges	Accuracy	Sensitivity
250mV, 1V, 2.5V, 10V, 25V, 50V, 250V, 500V, 1000V	2% of full scale	20K $\Omega$ per volt

### AC VOLTAGE

Ranges	Accuracy	Sensitivity
2.5V, 10V, 25V, 50V, 250V, 500V, 1000V	3% of full scale	5K $\Omega$ per volt

### DECIBEL

5 Ranges: -20 to +50dB  
Reference: 0dB= 1mW into 600 $\Omega$

### AC CURRENT

Up to 250 AC amperes with AC Amp-Clamp Adapter Accessory 00541.

### DC CURRENT

Ranges	Accuracy	Voltage Drop: (Nominal)
50 $\mu$ A, 1mA, 10mA, 100mA, 500mA, 10A	1.5% full scale 50 $\mu$ A 2.0% of full scale, all others	250mV on 50 $\mu$ A/1mA; 255mV on 10mA/10A; 300mV on 100mA; 500mV on 500mA

## Ordering Information

VOM	Catalog No.	ACCESSORIES	Catalog No.	ACCESSORIES	Catalog No.
260-8Xi, Yellow	12395	Probe Leads w/Screw-on Alligator Clip	00125	Case, Yellow Padded Polyester	00832
260-8XPi, Protected, Yellow	12396	Probe Set, Replaceable Tip, Banana Lead Set, Alligator, Banana Clip Set, Alligator, Screw-On	07538	Case, Black Padded Polyester	00834
		150-2 Amp Clamp Adapter, AC	00425	Case, Hard Leatherette Front Load	00805
			00541	Case, Molded Plastic	45028

Additional accessories are on pages 21-23.

## Specifications (Continued)

### RESISTANCE

Ranges	Accuracy	Maximum Indication
Rx1 Rx100 Rx10K	2.5° of arc on Rx1 2.0° of arc on all others	0-2K $\Omega$ 0-200K $\Omega$ 0-20M $\Omega$

**BATTERIES:** 1.5 V AA, 9V (NEDA No. 13F, 1604A)

**FUSE:** F1 1A, 250V, type 3AG, quick acting Littelfuse<sup>®</sup> Type 312001; F2 2A, 600V

Littelfuse<sup>®</sup> Type BLS or 2A 600V, Bussman<sup>®</sup> Type BBS.

**SIZE:** 5 1/4" x 7" x 3 1/8" (13.34 x 17.78 x 7.94 cm)

**WEIGHT:** 2 1/4 lbs. (1.02 Kg)

**RATED CIRCUIT-TO-GROUND VOLTAGE:** 1000V AC/DC Max

Specifications subject to change without notice.



# 260-6XLM & 260-6XLPM<sup>®</sup> Low Power VOM<sup>®</sup>

## Low Power Ohms Range

Based on the famous 260, the 260-6XLPM has extra features and extra ranges. The large viewing area with color-coded scales minimizes measurement mistakes and visual confusion. The 260-6XLPM allows accurate in-circuit tests without risk to components or without causing digital circuits to switch states. The durable ABS plastic case provides high-impact resistance and increased drop protection in the toughest environments.

- Instant Trend Information for Quick Positive "Yes/No" Checks
- 2 Extra "Low Power" Ohms Ranges (Rx1 and Rx10)
- UL Listed
- Mirrored Scale for Parallax Reduction
- Resettable Overload Circuit Protection Relay
- Includes 9 V and 1.5 V Batteries and Probe Test Leads With Alligator Clips



## Specifications

### DC VOLTAGE

Ranges	Accuracy	Sensitivity
250mV, 1V, 2.5V, 10V, 25V, 100V, 250V, 500V, 1000V	2% of full scale	20K $\Omega$ per volt

### AC VOLTAGE

Ranges	Accuracy	Sensitivity
2.5V, 10V, 25V, 100V, 250V, 500V, 1000V	3% of full scale	5K $\Omega$ per volt

### DECIBEL

5 Ranges: -20 to +49dB

Reference: 0dB= 1mW into 600 $\Omega$

### AC CURRENT

Up to 250 AC amperes with AC Amp-Clamp Adapter Accessory 00541.

### DC CURRENT

Ranges	Accuracy	Voltage Drop: (Nominal)
50 $\mu$ A, 0.5mA, 5mA, 50mA, 500mA, 5A,	1% of Full Scale 50 $\mu$ A 2.0% full scale, all other	250mV on 50 $\mu$ A/0.5mA/5A; 252mV on 5mA/50mA; 400mV on 500mA

### STANDARD POWER RESISTANCE

Ranges	Accuracy	Maximum Indication	Open Circuit Voltage	Short Circuit Current
Rx1	2.5° of arc on Rx1	0-2K $\Omega$	1.5V	250mA
Rx100		0-200K $\Omega$	1.5V	2.5mA
Rx1K	2.0° of arc on all others	0-2M $\Omega$	1.5V	250 $\mu$ A
Rx10K		0-20M $\Omega$	9.0V	125 $\mu$ A

### LOW POWER RESISTANCE

Ranges	Accuracy	Maximum Indication	Open Circuit Voltage	Short Circuit Current
Rx1	2.5° of arc on Rx1	0-1K $\Omega$	100mV	4.9mA
Rx10	2.0° of arc on Rx10	0-10K $\Omega$	100mV	490 $\mu$ A

**BATTERIES:** 1.5V AA, 9V (NEDA No. 13F, 1604A)

**FUSE:** F1 1A, 250V, type 3AG, quick acting Littelfuse<sup>®</sup> Type 312001, F2 2A, 600V

Littelfuse<sup>®</sup> Type BLS or 2A 600V, Bussman<sup>®</sup> Type BBS.

**SIZE:** 5 1/4" x 7" x 3 1/8" (13.34 x 17.78 x 7.94 cm)

**WEIGHT:** 2 1/4 lbs. (1.02 Kg)

**RATED CIRCUIT-TO-GROUND VOLTAGE:** 1000V AC/DC Max

Specifications subject to change without notice.

## Ordering Information

VOM	Catalog No.	ACCESSORIES	Catalog No.	ACCESSORIES	Catalog No.
260-6XLM	12206	Probe Leads w/Screw-on Alligator Clip	00125	Padded Polyester Case (Yellow)	00832
260-6XLPM	12211	Probe Set, Replaceable Tip, Banana	07538	Padded Polyester Case (Black)	00834
		Lead Set, Alligator, Banana	07500	Case, Hard Leatherette Front Load	00805
		Clip Set, Alligator, Screw-On	00425	Case, Molded Plastic	45028
		150-2 Amp Clamp Adapter, AC	00541		

Additional accessories are on pages 21-23.



## Smallest and Handiest of Simpson's Shock Resistant Analog VOMs

The 160 combines the performance and reliability of the famous Simpson 260 in a convenient hand-held package. The self-shielding taut-band movement features outstanding repeatability and resistance to stray magnetic fields. Internal circuits protect the meter from accidental overload.

- Ideal for Nulling, Peaking and Trend Information
- Quick, Positive "Yes/No" Checks for Voltage, Current and Continuity
- Does Not Generate RF Radiation Which can cause Interference or Trigger External Sensitive Circuits
- High Immunity to Voltage Transients and RF Interference—No Expensive Chips to Wipe Out
- Includes 22.5V and 1.5V Batteries and Test Leads With Probe Tip



## Specifications

### DC VOLTAGE

Ranges	Accuracy	Sensitivity
250mV, 1V, 2.5V, 10V, 50V, 250V, 500V, 1000V	2% of full scale	20K $\Omega$ per volt

### AC VOLTAGE

Ranges	Accuracy	Sensitivity
2.5V, 10V, 50V, 250V, 500V, 1000V	3% of full scale	5K $\Omega$ per volt

### DECIBEL

5 Ranges: -20 to +50dB  
Reference: 0dB= 1mW into 600 $\Omega$

### DC CURRENT

Ranges	Accuracy	Voltage Drop: (Nominal)
50 $\mu$ A, 1mA, 10mA, 100mA, 250mA, 500mA	2% of full scale	250mV or 50mV on 50 $\mu$ A (2 ranges) 50mV, all others

### RESISTANCE

Ranges	Accuracy	Maximum Indication
Rx1 Rx10 Rx100 Rx1K Rx10K	3° of arc	0-3K $\Omega$ 0-30K $\Omega$ 0-300K $\Omega$ 0-3M $\Omega$ 0-30M $\Omega$

## Ordering Information

VOM	Catalog No.	ACCESSORIES	Catalog No.	ACCESSORIES	Catalog No.
160, Compact	12271	Test Leads w/Probe Tip	02055	Padded Nylon Case, Brown	00836
		Test Leads w/Alligator Tips	01927		

## Specifications (Continued)

**BATTERIES:** 1.5V AA, 22.5V (Neda No.13F, Eveready 505)  
**OPERATING TEMPERATURE RANGE:** 75°F for rated accuracy; less than 4% additional error over the range of +25°F to +130°F.  
**SIZE:** 4-9/16" x 3-5/16" x 1-3/4" (11.59 x 8.41 x 4.45 cm)  
**WEIGHT:** Approximately 12 ounces (.34 Kg)  
**CONSTRUCTION:** Combination high impact plastic and phenolic case  
**CIRCUIT TO GROUND VOLTAGE:** 1000V AC/DC Max.

Specifications subject to change without notice.

*Quality Assurance defines Simpson Electric products in today's market. The word "quality" became Simpson's byword in the instrument industry when, in 1927, Simpson's founder, Ray Simpson, built the mechanism for the earth inductor compass; the same compass used by Charles Lindbergh when he flew the "Spirit of St. Louis" on the first non-stop solo flight across the Atlantic Ocean. For thirty-three hours, Lindbergh's life and his success depended largely on Ray Simpson's navigational instrument.*

*For high standard test equipment call: Simpson Electric at (847) 697-2260*

Additional accessories are on pages 21-23.



## Extra-High Accuracy VOM

Higher accuracy specifications for those more critical measurements are found in the Model 270-5. It has a better than 30% improvement in voltage and resistance accuracy as a full-function/range member of the Simpson 260 type VOM group.

- DCV Accuracy 1.25% of Full Scale
- ACV Accuracy 2% of Full Scale
- Resistance Accuracy 1.0° of Arc
- Diode Protected Self-Shielded Movement
- Includes Batteries and Probe Leads With Alligator Clips



## Specifications

### DC VOLTAGE

Ranges	Accuracy*	Voltage Drop (Nominal)
250mV, 1V, 2.5V, 10V, 50V, 250V, 500V, 1000V	1.25% of full scale @ 77 °F 1.75% of full scale @ 67 °F - 87°F	20KΩ per volt

### AC VOLTAGE

Ranges	Accuracy*	Voltage Drop (Nominal)
2.5V, 10V, 50V, 250V, 500V, 1000V	2% of full scale @ 77 °F 3% of full scale @ 67 °F - 87°F	5KΩ per volt

### DECIBEL:

4 Ranges- -20 To +50dB Reference- 0dB=1mW Into 600Ω

### DC CURRENT

Ranges	Accuracy*	Voltage Drop (Nominal)
50μA, 1mA, 10mA, 100mA, 500mA, 10A	0.75% full scale on 50 μA @ 77°F 1.25% full scale of all others @ 77 °F 1.25% full scale on 50 μA @ 67°F - 87°F 1.75% full scale of all others @ 67 °F - 87°F	250mV on 50 μA and 1mA 255mV on 10mA and 10A 300mV on 100mA 500mV on 500mA

### RESISTANCE

Ranges	Accuracy*	Max. Indication
Rx 1 Rx 100 Rx 10K	1.5° of arc on Rx1 1° of arc on all others	0-2KΩ 0-200KΩ 0-20MΩ

\*Accuracies specified are for the 270-5 in a horizontal position.

## Specifications (Continued)

**BATTERIES:** 1.5V AA, 9V (NEDA No. 13F,1604A)

**SIZE:** 7"(H) x 5.5"(W) 3.1"(D) (18x14x8cm)

**WEIGHT:** Approximately 3LBS. (1.4Kg)

**FUSE:** F1 1A, 250V, type 3AG, quick acting Littelfuse® Type 312001; F2 2A, 600 Littelfuse® Type BLS or 2A 600V, Bussman® Type BBS.

**CIRCUIT TO GROUND VOLTAGE:** 1000V AC/DC Max

Specifications subject to change without notice.

### "GRAB N GO" PADDED NYLON CASES

Padded Nylon "Grab N Go" made of tough durable nylon enables VOM to be stored for quick field use... test leads remain in panel jacks. Thick padding protects your meter. Available in Yellow (00832) and Black (00834).



### ROLL TOP CASES

Roll-top case made of a durable composite material protects meter during transit/storage. Cover rolls back into case for use. Special storage compartment for test leads under meter.



## Ordering Information

VOMS	Catalog No.	ACCESSORIES	Catalog No.	ACCESSORIES	Catalog No.
270-5, High Accuracy	12226	Probe Set, Threaded w/Clips	00043	Case, Molded Plastic	45028
270-5RT, High Accuracy, w/ Roll-Top Case	12227	Alligator Clips, Screw On	00425	Case, Yellow Padded Nylon	00832
		150-2 Amp Clamp Adapter, AC	00545	Case, Black Padded Nylon	00834
				Case, Hard Leatherette Front Load	00805
				Case, Roll-top	00248

Additional accessories on pages 21-23.



# 501 Insulation Tester

The model 501 can be used for general purpose insulation tests that require voltages from 50V to 1000V only.

The Instrument is equipped with AC and DC measuring ranges up to 1000V. This is advantageous for testing for the absence of voltage and the discharge of capacitive devices under test.

The 501 features a quick testing signal lamp within the test probe that illuminates the work area. The signal lamp can also be used for quick Pass/Fail evaluations of insulation resistances. Minimum values for insulation resistances are present if the lamp lights up.

Comes equipped with built-in test probes, an alligator clip, a leatherette carrying case and batteries.

- Five Test Voltages: 50, 100, 250, 500, and 1000 VDC
- Voltage Measurement to 1000 V AC/DC
- Test Probe Signal Lamp Illuminates Work Area and Indicates Pass/Fail of Insulation Resistance
- Battery Powered with Battery Test and Battery Charge Indicator
- Rugged Tester Design for Industrial Applications with Leatherette Carrying Case

## Measuring Ranges

### INSULATION RESISTANCE

Measuring Range	Open-Circuit Voltage $U_0$	Internal Resistance $R_i$	Lamp in Test Prod. <sup>(1)</sup> Lights for Resistance
0...50K $\Omega$ 20K $\Omega$ ...1M $\Omega$ 200K $\Omega$ ...20M $\Omega$	60V	30K $\Omega$ 10K $\Omega$ 40K $\Omega$	> 100K $\Omega$
0...100K $\Omega$ 40K $\Omega$ ...2M $\Omega$ 400K $\Omega$ ...40M $\Omega$	120V	60K $\Omega$ 20K $\Omega$ 80K $\Omega$	> 200K $\Omega$
0...250K $\Omega$ 100K $\Omega$ ...5M $\Omega$ 1M $\Omega$ ...100M $\Omega$	300V	150K $\Omega$ 50K $\Omega$ 200K $\Omega$	> 500K $\Omega$
0...500K $\Omega$ 200K $\Omega$ ...10M $\Omega$ 2M $\Omega$ ...200M $\Omega$	600V	300K $\Omega$ 100K $\Omega$ 400K $\Omega$	> 1M $\Omega$
0...1M $\Omega$ 400K $\Omega$ ...20M $\Omega$ 4M $\Omega$ ...400M $\Omega$	1200V	600K $\Omega$ 200K $\Omega$ 800K $\Omega$	> 2M $\Omega$
0...4 $\Omega$	9V	—	—

(1) Switching Accuracy

### DIRECT AND ALTERNATING CURRENT

Measuring Range	Frequency	Internal Resistance	Maximam Overload	Intrinsic Error (1)
0 to 1000V AC/DC	0 or 40 to 200Hz	900K $\Omega$	1200V AC/DC Continuous	$\pm 2.5\%$

(1) Referring to scale length

## Ordering Information

ACCESSORIES	Catalog No.
501 Insulation Tester, 1000 V	12501



## Specifications

### REFERENCE CONDITIONS

Ambient Temperature: 73°F (23°C)  $\pm$  4°F (2°C)

Relative Humidity: 45 to 55%

Measurement Magnitude Frequency: 45-65 Hz (voltage measurements)

Line Voltage Waveform: Sine, deviation between effective and rectified value < .5%

Battery Voltage: 9V  $\pm$  .5V

Operating Position: Horizontal

### ELECTROMAGNETIC COMPATIBILITY EMC

Interference Emission:

EN 50081-1: 1992

Interference Immunity:

EN 50082-1: 1992

### ELECTRICAL SAFETY

Designed to IEC 1010-1

Protection Class: II

Test Voltage:  $\approx$  5.55Kv

Overvoltage Classification: II

Pollution Degree: 2

Protection: Housing IP52

### AMBIENT CONDITIONS

Operating Temp. Range: 32°F (0°C) to 104°F (40°C)

Storage Temp. Range: -4°F (-20°C) to 140°F (60°C) (without batteries)

Relative Humidity: Max. 45-55%, condensation must be avoided

### MECHANICAL DESIGN

Dimensions:  $W$  6.50" (165mm) x

$D$  4.33" (110mm) x  $H$  4.92" (125mm)

Weight: 3.5 lbs. (1.6kg) (with batteries)

### POWER SUPPLY

Standard or Storage Battery: 6 ea. 1.5V "D" size batteries

Working Range: 7V to 10V

Battery Service Life: Number of possible measurements with 1 set of "D" size batteries (with lamp in test prod switched off): at least 3,000 measurements of an insulation resistance of 1M $\Omega$  (Nominal Voltage of 1000 V, 5 sec. Measurement duration, switched off for 25 sec. etc.)



# 505 High Voltage Insulation Tester

## Measures Insulation Resistances Up To 1 T Ohm

Simpson's Model 505 High Voltage Insulation Tester is capable of measuring insulation resistances from 10 kilohms to 1 teraohm with eight selectable test voltages up to 5000 V. As a safety feature, the insulation tester acts as an AC/DC voltmeter to measure the absence of voltage in networks up to 2000V. For added safety, the cables are permanently attached, preventing possible injury that could occur by the accidental removal of the cables. The Model 505 features automatic discharging capability of capacitive units under test and a lock in test switch, for hands-free operation. An optional guard terminal is available to minimize surface leakage errors. Two LEDs indicate the selected measuring range, and one LED signifies valid measurements and battery charge status. Each tester comes in a padded carrying case with permanently connected cables and test probes, 2 alligator clips and a plug-in battery module with batteries.

- *Eight Test Voltages: 100, 250, 500, 1000, 1500, 2000, 2500, and 5000 VDC*
- *High Sensitivity, Direct Resistance Reading to 1T Ω (1,000,000 M Ω), no Multipliers*
- *Voltage Measurement to 2000 V AC/DC*
- *Battery Powered*
- *Built in Battery Test and Battery Charge Indicator*

## Measuring Ranges

### INSULATION RESISTANCE

Nominal/Open-Circuit Voltage	Measuring Range	Nominal Current	Short Circuit Current	Intrinsic Error (1)
100V 250V 500V 1000V	100KΩ to 100MΩ	1 mA	1.3 mA	±2.5%
100V/1500V 250V/2000V 500V/2500V 1000V/5000V	10KΩ to 1 TΩ	0.7 mA 0.5 mA 0.4 mA 0.1 mA	1.3 mA	±5%

### DIRECT AND ALTERNATING VOLTAGE

Measuring Range	Frequency	Internal Resistance	Maximum Overload	Intrinsic Error (1)
0-2000V AC/DC	15Hz to 500Hz	5MΩ	2200V AC/DC max. 10s	±5%

(1) Referring to scale length



## Specifications

### REFERENCE CONDITIONS

**Ambient Temperature:** 73°F (23°C) ± 4°F (2°C)

**Relative Humidity:** 45 to 55%

**Measurement Magnitude Frequency:** 60Hz  
(voltage measurements)

**Line Voltage Waveform:** Sine, deviation between effective and rectified value ≈ 1%

**Battery Voltage:** 9V ± 1%

**Operating Position:** Horizontal

### ELECTROMAGNETIC COMPATIBILITY EMC

**Interference Emission:** EN 50081-1: 1992

**Interference Immunity:** EN 50082-1: 1992

### ELECTRICAL SAFETY

**Designed to IEC 1010-1**

**Protection Class:** II

**Test Voltage:** ≈8.5 Kv

**Overvoltage Classification:** II

**Pollution Degree:** 2

**Protection:** IP 52

### AMBIENT CONDITIONS

**Operating Temp. Range:** 32°F (0°C) to 104°F (40°C)

**Storage Temp. Range:** -4°F (-20°C) to 140°F (60°C)

(without batteries)

**Relative Humidity:** max. 75%, condensation must be avoided

**Batteries:** 6 ea. 1.5V "D" size batteries

**Working Range:** 6 to 10V

**Battery Service Life:** 100 hours for no-load and intermittent operation, 7500 measurements for test voltage of 1000V with measure resistance of 1 MΩ, 15,000 measurements for test voltage of 500V with measure resistance of 500KΩ, measurement of 5sec. - pause 25sec.

### MECHANICAL DESIGN

**Dimensions:** W 11.41" (290mm) x D 9.8" (250mm) x H 5.5" (140mm)

**Weight:** Approx.. 7.5 lbs. (with batteries)

Specifications Subject To Change Without Notice.

## Ordering Information

ACCESSORIES	Catalog No.	ACCESSORIES	Catalog No.	ACCESSORIES	Catalog No.
505 High-Voltage Insulation Tester	12505	Guard Cable with Alligator Clip	45065	Replacement Alligator Clips (pair)	45066



# 228 Leakage Current Tester

## Model 228 Special Purpose AC/DC Milliammeter

Designed specifically to measure hazardous "Leakage Currents" or "Touch Currents" which may appear when a person touches the conductive surface of electrical or electronic equipment. The 228 is designed in accordance with IEC, ANSI and UL guidelines.

- True RMS Readings
- Reads in Measurement Indication Units (MIU) up to .005 MIU
- Output Allows Measurement of Peak Current in Non-Sinusoidal Wave Forms
- Let-Go, Reaction, and Burn Hazard Response Networks
- Detects dangerous AC & DC Leakage currents
- Includes Test Leads, Alligator Clips, Batteries and Manual



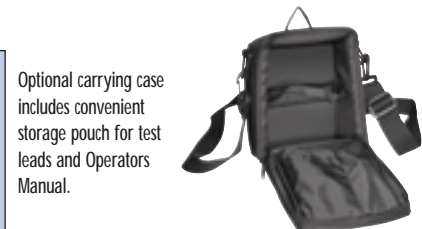
## Specifications

GENERAL	Reaction Response Network	Let-Go Response Network	Unweighted Burn Hazard Response Network
Equivalent network component values:	Complies with values specified in IEC 990 (excluding fuse)		
Equivalent measuring instrument load:	1 MΩ - 10pF	1 MΩ - 62 pF	1 MΩ - 1 pF
Ranges:	0.3, 1, 3, 10 M.I.U.	0.3, 1, 3, 10 M.I.U.	0-100 mA RMS
Current accuracy:	±2% F.S. @ 60 Hz		
Meter measurement method:	True RMS		
Meter frequency response:	(Relative to ANSI C101-1992 or UL-1459 2nd edition)		
DC to 1 Hz	Pointer shall track within 5% of peak		
2Hz to 19Hz (Accuracy not supported)			
20 Hz to 200 KHz	±2% F.S.	±2.5% of F.S.	±2% F.S.
200 KHz to 1 MHz	±2% F.S.	±2.5% F.S.	±5% F.S.
Output sensitivity:	Full scale meter indication equals 1V RMS (Measured with a 1 MΩ, 12 pF load)		
Output accuracy:	±2% of reading @ 60 Hz		
Output frequency response:	(Relative to ANSI C101-1992 or UL-1459 2nd edition)		
DC to 50Hz	±2% of reading		
50 Hz to 100 KHz	±2.5% of reading	+2% /-3% of reading	±2% of reading
100 kHz to 1 MHz	±5% of reading		
Voltmeter range:	0-300 V (AC or DC)		
Voltmeter accuracy: DC to 1 Hz	Pointer shall track within 5% of peak		
2Hz to 19Hz (Accuracy not supported)			
20 Hz to 1KHz	±3% F.S. @ 60 Hz (Add ±1% for every additional 100Hz)		
Voltmeter frequency response:	DC to 1 KHz		
Power requirements:	(2) 9V (NEDA 1604A) batteries		
Physical:	7" x 5.25" x 3.125", 2-1/2 lbs (1.4kg), ABS plastic, fused input		
Environmental:	27°C ±2° C, 70% non condensing relative humidity. Outside this range derate by 10% per °C		
Maximum operating range:	0° to 40° C		

## Ordering Information

Specifications subject to change without notice.

Leakage Tester	Catalog No.	ACCESSORIES	Catalog No.
228 Leakage Current Tester	40027	Test Leads w/Screw-On Alligator Clips	00125
		Case, Black Padded Nylon Carrying	00834
Additional accessories are on pages 21-23.			





# 229 - 2 Leakage Current Tester

## AC Current Leakage Tester

Small leakage currents can be dangerous! The current above the "threshold of perception" in appliances, motors and other equipment can cause a violent reaction which may result in serious physical injury. For service, lab, production or industry, the Model 229-2 helps determine product conformance to standards.

**CAUTION!** Leakage current in appliances may increase with use and aging. Check appliances periodically for safety.

- Conforms to ANSI C101.1-1986 "Leakage Current for Appliances"
- Conforms to UL Safety Standards
- Compensated to Approximate Dalziel's Perception Curve
- Overload protected Up to 500 V Peak Momentarily on all ranges
- Checks both 120 VAC and 240 VAC appliances
- Includes Test Leads, Battery and Manual



## Specifications

**Ranges:** AC current: 0-0.3-1-3-10 mA  
 AC voltage: 0-150 and 0-300 volts  
 Battery Test: Replace-Good

**Short Test:** Red Arc: 30 mA FS, Green arc: 10 mA or less

**Resolution:** 5 $\mu$ A on 0-0.3 mA range

**Accuracy:**  $\pm$ 3% at 60 Hz

**Input Impedance:** For current tests, 1.5K $\Omega$  in parallel with 0.15  $\mu$ F

**Input Resistance:** 0.5 for 150V Range, 1.0 M $\Omega$  for the 300V range

**Accuracy Vs. Frequency:** Approximates Dalziel's "Percentile 50 Threshold of Perception Curve" within  $\pm$ 1.0 dB

**Overload Protection:** Up to 500V peak momentarily on all ranges

**Size:** 7" x 5-1/4" x 3-1/8"

**Weight:** 3 lbs. (1.4 Kg)

**Battery:** 1 9V (NEDA No. 13F, 1604A)

Specifications subject to change without notice.



Carrying Case accommodates the Tester, Test Leads and operators Manual.

## Ordering Information

LEAKAGE TESTER	Catalog No.	ACCESSORIES	Catalog No.	ACCESSORIES	Catalog No.
229-2 Current Leakage tester	12267	Probe leads w/ screw-on alligator clips	00125	Case, Yellow Padded Nylon	00832
		Probe set, replaceable tip, banana plug	07538	Case, Black Padded Nylon	00834
		Clip set, alligator, screw on	00425	Case, Hard Leatherette Front Load	00805
		Lead set, alligator, banana plug	07500	Case, Molded Plastic	45028

Additional accessories on pages 21-23.



# Line Loop Tester

## Available with Field Replaceable Switches

Simpson's Model 8455 Line Loop tester detects line shorts, opens and multiple ringers, DC voltages and loop resistance. It can measure DC voltage up to 100 volts and loop resistance to 2 megohms. A front panel "reverse polarity" switch allows changing polarity positions quicker and easier than manually switching test leads when making line checks. This switch is field-replaceable, enabling your loop tester to be operational at all times without costly shop repairs. The compact durable construction of this tester ensures continued accuracy even under the most rugged field conditions.

- **Field Replaceable Switches** - Allows operator to get back to the job quickly with less downtime. The replacement toggles or push buttons can be kept in the truck and replaced on site, keeping the unit in service, at all times.
- **Designed for Telecom Applications** - Accurately checks line shorts, opens and multiple ringers.
- **Wide Measuring Range** - Measures DC voltage 0-100V and resistance  $R \times 1$ ,  $R \div 10$ .
- **Shorter Testing Time** - Polarity toggle switch eliminates manually switching test leads when conducting line checks.
- **Rugged for Field Use** - Durable, compact (5-1/2" x 2-3/8") construction makes it portable, easy to store and rugged.
- **Accurate, Finer Readings** - 0-100 points scale calibration yields accurate readings.



Model No. 8455

## Specifications

**DC Voltage:**

Range: 100V

Sensitivity: Model 8455, 1K  $\Omega$  per volt

Model 8455 A, 3333  $\Omega$  per volt

**Isolation:** 100V DC max. circuit to earth ground

**Overload Protection:** 10mA/250V fuse on all ranges

**Temperature Coefficient:** (57°F to 97°F):  $\pm 2\%$  F.S. (VDC)

**Battery Type:** (1) Eveready #455 (45V); Catalog Number 06-113313

**Physical:** Dimensions: 5.5" (H) x 3.6" (W) x 2.4" (D), (14 x 9 x 6 cm.)  
Weight: 1 lb. (0.5 Kg.)

Specifications subject to change without notice.

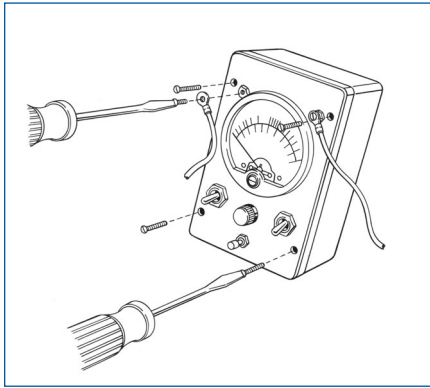
## RESISTANCE

Model	Standard		Low Ohms	
	R x 1	R $\div$ 10	Points	Low ohms
Center Value	100K $\Omega$	10K $\Omega$	50 points	500 $\Omega$
Accuracy	2° of arc		2° of full scale	2° of arc
Open Circuit Voltage (nom)	45V	45V	N/A	1.2V
Short Circuit Current (nom)	450 $\mu$ A	4.5mA	N/A	2.4mA

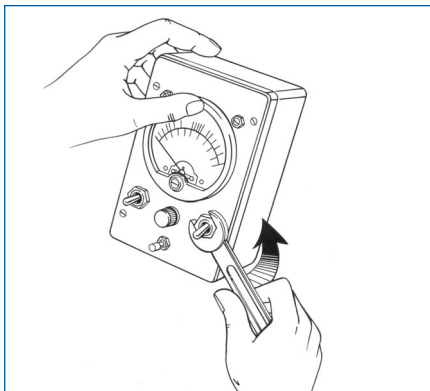
## Ordering Information

MODEL 8455 LINE LOOP TESTER				MODEL 8455A LINE LOOP TESTER (Low Ohms Version)			
	Catalog No.	Catalog No.	Catalog No.		Catalog No.	Catalog No.	Catalog No.
Field Rep. Switch	40000	40001	40010	Field Rep. Switch	40002	40009	40011
Low Ohms	Yes	Yes	Yes	Low Ohms	Yes	Yes	Yes
	No	No	No		Yes	Yes	Yes
ACCESSORIES INCLUDED							
Case	No	Yes	Yes	Case	Yes	No	Yes
Leads	No	Yes	Yes	Leads	Yes	No	Yes
Battery	No	No	Yes	Battery	No	No	Yes
Manual	No	No	Yes	Manual	No	No	Yes
OPTIONAL ACCESSORIES (RECOMMENDED)							
Case	00836	00836	00836	Case	00836	00836	00836
Leads	45001	45001	45001	Leads	45001	45001	45001
10 Pk. Replaceable Switches-toggle	45025	45025	45025	10 Pk. Replaceable Switches-toggle	45025	45025	45025
10 Pk. Replaceable Switches-Push Button	45026	45026	45026	10 Pk. Replaceable Switches-Push Button	45026	45026	45026

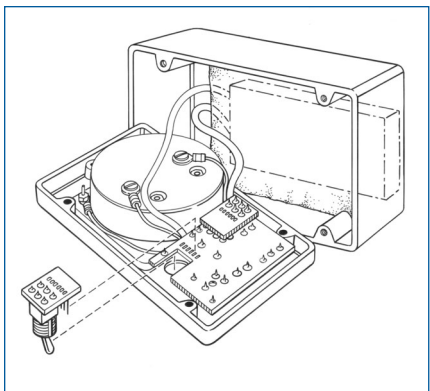
## Field Replaceable Switches Save Time - Save Money



Remove the test leads and 4 screws located near the meter face from the 8455A's front cover.



Detach the mounting nut from the defective toggle switch.



Unplug the worn cut or broken switches and plug in a new one! Total time under 5 minutes. Push-button style switches also available.

Simpson's FIELD REPLACEABLE SWITCHES - replace broken switches in less time than it takes to complete a field report or repair paper work. Simpson uses the best toggle switches, with pinned toggles for longer life.

The pictorial steps to the left illustrate the simplicity of replacing a toggle switch. (Complete detailed replacement instructions are provided in both the 8455 and 8455A operator's manuals.)



### Model 8455A Low Ohms Version . . .

includes all the features of the 8455. Select the low ohms model if measuring electrical resistance over short lines (for example, in city and suburban locations).

### Test Leads for 8455 and 8455A

#### Model No. 45001

Consists of one each, red and black, flexible test leads, 6 ft. long with Telco clips at one end and ring-tongue connectors at the other end for connection to the Instrument's screw terminals



45001

### Protection for 8455 & 8455A

Simpson's foam padded, nylon water repellent case, (Model No. 00836) protects the 8455 or 8455A both in storage and during transport. Use either the case handle or adjustable nylon strap for easy carrying. The neck strap frees both hands for making measurements. The case, made of nylon mesh with an extremely dense weave and water repellent backing, safely protects unit from inclement conditions. Foam padding on sides, top and bottom safeguards unit from damage. A convenient pocket stores leads while they are attached to the instrument.



00836



# 444 Low Voltage Micro-Ohmmeter

## Measures from 1 Micro-Ohm to 20 Ohms

Simpson's high precision Model 444 Micro-Ohmmeter measures resistance from 1 micro-ohm to 20 ohms. It measures using an extremely small test voltage (100 microvolt maximum) and a four wire measurement technique. The resistance reading is indicated on a 4- 1/2 digit LCD display using one of two measuring modes: An automatic AC measurement mode or a manual DC measurement mode. By limiting the test voltage of the Model 444 to only 100 micro volts the instrument will not "punch through" contamination or corrosion. An audible tone can be used to indicate resistance values below any selected reading. The Model 444 is powered by either a 120 or 240 AC source or, from self-contained rechargeable Ni-Cad batteries for field use.

- 20,000 Count 4 1/2-Digit LCD
- 2 Measurement Methods: AC Pulse and DC Polarity Switching
- 8"Punch-Through" Prevention by 100  $\mu$ V Max. Test Voltage
- User-Adjustable, Low-Resistance Alarm
- AC Test Mode Cancels Offset Voltages and Thermocouple Effects
- Includes Ni-Cad Battery for Field Use and Test Leads



## Specifications

Range	Resolution	Maximum Test Current
20m $\Omega$	1 $\mu\Omega$	5mA
200m $\Omega$	10 $\mu\Omega$	500 $\mu$ A
2 $\Omega$	100 $\mu\Omega$	50 $\mu$ A
20 $\Omega$	1m $\Omega$	5 $\mu$ A

**Accuracy:**  $\pm$ (0.05% of input  $\pm$  600 counts) DC mode

$\pm$ (0.05% of input  $\pm$  15 counts) AC mode

**Alarm:** Resistance below set point activates audible beeper and display annunciator.

Resistance above set point activates display annunciator.

**Set point Adjustment:** Front Panel Knob

**Accuracy:**  $\pm$  (2% of input +150 counts)

**Maximum Test Voltage:** 100 $\mu$ V peak

**Measurement Techniques:** (AC) Pulse of 40 Hertz Square Wave and DC Switchable Polarity

**Display:** 19,999 count LCD with 0.5" digits and "AC," "DC" and "  $\blacklozenge$  " annunciators

**Conversion rate:** reading 2 per second

**Test Leads:** BNC to dual Kelvin clip (2 leads) RG-58

**Operating Voltage:** 120VAC  $\pm$  10%, 240VAC optional, 3VA typical

**Operating Temperature Range:** 0° to 50°C

**Storage Temperature Range:** -40° to +60°C

## Ordering Information

MICRO-OHMMETER	Catalog No.	ACCESSORIES	Catalog No.	ACCESSORIES	Catalog No.
444 Micro-Ohmmeter, 120V	12681	Standard Test Lead Set	00827	Case, Molded Plastic	45029
444 Micro-Ohmmeter, 240V	12682	Kelvin Test Probe Set	02151		

## Specifications (Continued)

**Relative Humidity:** 90% maximum up to 35°C,

70% maximum up to +50°C (non-condensing)

**Temperature Coefficient:** 0.1 times the applicable accuracy specification per °C (0° to 18°C and 28° to 50°C)

**Battery Voltage Effect:** Plus or Minus (0.15% of input); Fully charged to "B" annunciator displayed

**Battery Life:** 8 hours typical

**Rated Circuit-To-Ground Voltage:** 30V (RMS)

**Dimensions:** 2.7" x 8.4" x 9.0" (68 x 213 x 228 mm) nominal

**Weight:** Approximately 3 lbs.





# TS113 Railroad Tester



## Multimeter for Railroad Servicing

The Simpson TS-113 Volt-Ohm-Milliammeter Railroad Test Set is a rugged, reliable instrument that has been designed for use by trained and qualified technicians associated with the Railroad Signaling and Communications Field. In construction and general principle, it follows closely the proven Simpson pattern based on experience of many years of successful multimeter manufacture.

The following standard features are exclusive only to the TS113 Railroad Tester:

- AC current transformer facilitates minimal voltage drop
- On time measurement at any rate in excess of 30 pulses per minute
- An adjustable Pointer Stop for observation of peak reading stabilization
- A current-limiting diode prevents overload damage
- Includes black padded nylon Carrying Case and Test Lead Set



## Specifications

### DC VOLTAGE

Ranges	Accuracy	Specifications
0.25V, 0.6V, 3V, 15V, 60V, 150V, 300V, 600V	±2% of Full Scale	1,000 Ohms per volt

### DC CURRENT

Ranges	Accuracy	Specifications
15mA, 60mA, 300mA, 1.5A, 6A, 30A	±2% of Full Scale	250 mV

### AC VOLTAGE

Ranges	Accuracy	Specifications
3V, 15V, 60V, 150V, 300V, 600V	±3% of Full Scale	300 Ohms per volt

### AC CURRENT

Ranges	Accuracy	Specifications
6A, 30A	±3% of Full Scale	250 mV

### OHMMETER

Ranges	Center Scale	Accuracy
Rx1	6Ω	± 5.0 of arc
Rx100	600Ω	± 2.5 of arc
Rx1000	6000Ω	± 2.5 of arc

### CODE MEASUREMENT SPECIFICATIONS

	Ranges	Accuracy
<b>On Time:</b>	0-100%	± 2% of Full Scale from 10% to 100%
<b>Rate:</b>	30 to 500cpm	

### PHYSICAL

Dimensions: 7-1/8" (H) x 5-1/4" (W) x 3" (D), (133.4 x 181 x 76.2 mm)  
 Weight: 2.5 lbs. (1.14 kg)  
 Moisture Resistance: 85%  
 Temperature: 0° - 50°C

### POWER REQUIREMENTS

One 9-volt alkaline battery  
 One 1.5 volt alkaline D-cell  
 2A Fuse, Littelfuse #AG 2A or equal  
 2A cartridge fuse (Littelfuse BLS 2 600V or Bussman BBS 2A)

Specifications subject to change without notice.

## Ordering Information

	Catalog No.	ACCESSORIES	Catalog No.
TS113 Railroad Tester	12113	Replacement Test Leads	07545
		Replacement Carrying Case	00834



# 372-2 Compact Meter

## MODEL 372-2—Ohmmeter, 0.2 to 50 MΩ

Provides a wide range of resistance measurements in a small package. .2 ohm to 50 megohms. Especially useful for checking submersible pumps. Ideal for use in schools, on test benches or at incoming inspection facilities.

- **Ranges**, 0-500/ 0-5000/0-50,000/ 0-500,000 Ohms; 0-5 and 0-50 Megohms
- **Center Scale**, 5/50/500/5,000/ 50,000/500,000 Ohms
- **Accuracy**, ±3° of Linear Arc Length
- **Includes Battery and Alligator Clip Leads**



Ohms Range	Ohms Center	Maximum DC Test Current at Zero Ohms	Maximum DC Test Voltage (Open Circuit)
RX1 (0-500Ω)	50Ω	300mA	1.5V
RX10 (0-5MΩ)	50Ω	30mA	1.5V
RX100 (0-50KΩ)	500Ω	3mA	1.5V
RX1K (0-500KΩ)	5KΩ	0.3mA	1.5V
RX10K (0-5MΩ)	50KΩ	0.63mA	30V
RX100K (0-50MΩ)	500Ω	0.063mA	30V

### BATTERY TYPES

- (1) 1.5 "C", NEDA 14A
- (1) 30V 'B', NEDA 210

*Efficient Customer Service has been a valuable tool for generations of Simpson customers. Customer Service offers ongoing support for our products and calibration and repair service for all current test equipment. To obtain service for a discontinued Simpson product contact Customer Service for assistance. We offer information regarding our capabilities and referrals to other service centers.*

**Call (847) 697-2260**

### Ordering Information

<b>COMPACT METER</b>	<b>Catalog No.</b>	<b>ACCESSORIES</b>	<b>Catalog No.</b>
372-2 Ohm meter	12311	Case, Brown Padded Polyester	00836
		Leads	00125
Additional accessories are on pages 21-23.			



# 897 Sound Dosimeter System

## The 897 Dosimeter Sound Measuring System...

conducts personal noise surveys to meet IEC and OSHA requirements. Used as a sound level meter, the 897 provides a quick survey of targeted areas and identifies suspect locations. The 897 is also ideal for industrial and environmental sound level measurements and checking noise areas for excessive dB exposure.

Use the 897 to take measurements, or to view and print reports using a PC computer or printer. Reports are automatically printed on a compatible PC printer for later use during OSHA or other official inspections. Recorded data can also be viewed on a personal computer monitor by using an accessory cable and other manufacturer's software.

The 897 computes dosage and records up to 31 hours, at one minute intervals, of Lavg and Lmax readings and the number of detected 140 dB peak occurrences per minute.

- *Conforms to ANSI S1.4-1983, ANSI S1.25-1978, and IEC 651-1979 Specifications*
- *Choice of exchange rates (3, 4, or 5 dB) and criterion levels (70, 80, 84, 85, or 90 dB)*
- *Selectable threshold Level from 50-99 dB in 1 dB Increments*
- *Dual range (50-100 dB and 80-130 dB)*
- *Real Time Clock With rechargeable battery*
- *Security Lockout feature with Internal Data Storage*
- *Self-Test Modes test operational readiness*



## Specifications

### GENERAL

**Power Requirements:** Ni-Cad Rechargeable battery pack

**Warm-Up Time:** 1 minute

**Dimensions:** 6.8" (H) x 3.1" (W) x 1.1" (D), (172x80x28mm)

**Weight:** 18 oz. (500g) including battery pack

**Case Construction:** Anodized aluminum extrusion

**Security Feature:** Locks-in operating function

**Real Time Clock:** Clock continues running in all functions

**Performance Capability:** Conforms to ANSI S1.4-1983 and IEC 651-1971 for sound level function and ANSI S1.25-1978 for dosimeter function and ANSI S1.25-1978 for dosimeter function

### SOUND LEVEL MODE

**Ranges:** 50 to 100dB, 80 to 130dB

**Accuracy:** True RMS, Type S2

**Dynamic Range:** Selectable from 50 to 100dB and 80 to 130dB

**Frequency Response Weighting:** "A" Weighting

**Response Time:** Slow (1 second)

**Crest Factor:** 10:1 at maximum indication

**Frequency Range:** 20Hz to 8KHz

### DOSIMETER MODE

**Threshold Level:** Selectable from 50-99dB in 1dB increments

**Criterion Level:** Selectable, 70, 80, 84, 85 or 90dB

**Criterion Duration (TC):** Eight (8) Hours

**Exchange Rate:** Selectable 3, 4 or 5dB

**Maximum Indication:** 999.9% DOSE

**Resolution:** 0.1% DOSE to 999.9%

## Specifications (Continued)

**Elapsed Time:** Displays either Hours: Minutes or Minutes: Seconds, up to 99 Hours 59 Minutes, 59 Seconds. Timing Accuracy: 0.05%

**140dB Peak:** Displays number of 140dB peaks that have been detected

### MICROPHONE

**Type:** 0.52" (13.2mm) Diameter Electret Condenser, Omnidirectional 70° angle of incidence. Maximum sound pressure level 148dB.

### DISPLAY

**Numerical:** 4 Digit LCD

**Annunciators:** Lo Batt, Spl Max, Int 60, % Dose, dBA, plus a colon and decimal point.

### ENVIRONMENTAL

**Operating Temperature:** -10° to 50°C

**Temperature Coefficient:** ±0.05dB per °C (25° to 50°C) for reference measurement of 105dB at 1000Hz

**Relative Humidity:** <0.5dB (0-95% RH)

**Storage Range:** -30° to 45°C (without batteries)

**Magnetic Field Influence:** No effect in field of 1 oersted (80A/m)



# 897 Sound Dosimeter System

## SMS-2 Universal Sound Dosimeter Kit

The SMS-2 contains everything necessary to perform accurate surveys for OSHA and IEC requirements, along with the performance and reliability Simpson's test instruments have to offer.

Kit includes:

- A. Rugged Carrying Case
- B. AC Adapter (110, 120, 220, 240)
- C. RS-232 Serial Cable and Parallel Printer Cable
- D. Multi-Spline Wrench
- E. Calibration Screwdriver
- F. Microphone Clip
- G. Wind Screen
- H. 897 Dosimeter
- I. 9V Battery
- J. 887-2 Calibrator
- K. Nose Cone



## 887-2 Calibrator

The model 887-2 calibrator is selectable for either 94 dB or 114 dB sound pressure level at 1 KHz. The calibrator, immune to a wide range of temperature and humidity conditions, is compatible with 1/2" microphone. Operational readiness is indicated by the low battery red LED.



## STANDARD REPORT OUTPUT

```

SIMPSON 897 DOSIMETER
SOUND ANALYSIS REPORT
TYPE 2A

CRITERION = 90 DB
THERSHOLD = 80 DB
EXCHANGE RATE = 3 DB
UNIT IDENTIFICATION # 25

JOB
NAME
LOCATION

START DATE: 21/FEB/95
START TIME: 14:24
CALIBRATION: 94.8 DBA 14:24 21/FEB/95 RANGE: 50/100 DB
CALIBRATION: 113.9 DBA 14:24 21/FEB/95 RANGE: 80/100 DB

MEASUREMENT SUMMARY:
RUN TIME      = 00:15
HOLD TIME     = 00:02
L EQ          = 87.2 DBA
SPL MAX       = 87.2 DBA
DOSE          = 1.5%
140 DB PEAKS = 0

HISOTGRAM
HRS:MIN      50  60  70  80  90  100  110  120  130
14:25        + . . + . . + . . + . . + . . + . . + . . +
14:230      ===== 88
14:35        === 86
14:35        ===== 76 HOLD
HRS:MIN      + . . + . . + . . + . . + . . + . . +

HRS:MIN      LAVG      LMAX      PEAKS      RANGE
14:25        86.9      95.6      0          CHANGED
14:26        93.2      106.9     0          80/130
14:27        87.9      92.5      0          80/130
14:28        87.3      97.3      0          80/130
14:29        86.4      86.6      0          80/130
14:30        86.5      93.0      0          80/130
14:31        87.2      90.0      0          80/130
14:32        87.2      91.2      0          80/130
14:33        84.9      92.1      0          80/130
14:34        85.4      85.6      0          80/130
14:35        86.2      86.6      0          CHANGED
14:36        86.5      86.6      0          50/100    HOLD
14:37        60.9      71.5      0          50/100    HOLD
14:38        85.1      101.6     0          50/100
14:39        64.6      78.4      0          50/100

END OF REPORT
  
```

## Ordering Information

SOUND DOSIMETRY SYSTEM	Catalog No.	SOUND DOSIMETRY SYSTEM	Catalog No.	ACCESSORIES	Catalog No.
897 Universal Noise Dosimeter	12645	887-2 Calibrator	12648	RS-232 Serial Cable for 897	02233
SMS-2 Universal Noise Dosimeter Kit	12646			Parallel Printer Cable for 897	02234
				Case, Molded Plastic	45021

## Specifications

### GENERAL

**Battery:** One 9-volt battery, NEDA 1604A

**Battery Life:** Approximately 35 hours for 2 hours per day operation, with 9V alkaline battery

**Mechanical Construction:** Aluminum case includes acoustic cavity and provides shielding

**Weight:** 13.5oz (.35kg) - 897, 5.9 lbs. (2.68 Kg) SMS-2 Kit

**Dimensions:** 5 1/4" long, 2" diameter (131 mm long, 50mm diameter)

### ACOUSTIC OUTPUT

**Microphone:** 0.52" inch diameter

**Frequency:** 1000Hz  $\pm$  2%

**Sound Pressure:** Selectable at 94 or 114 dB

**Reference Level:** 0dB = 20 $\mu$  Pascal's

**Accuracy:**  $\pm$  0.5dB at reference conditions

**Distortion:** Less than 1%

### ENVIRONMENTAL

**Operating Temperature:** 0° to 50°C

**Storage Temperature:** -40 to +60°C, battery removed

**Temperature Coefficient:** Less than  $\pm$  0.05 dB/°C

**Operating Relative Humidity:** 0 to 90%, non-condensing

**Reference Conditions:** 23°C, 760mm Hg

**Relative Humidity:** 30 to 60%

Specifications subject to change without notice.



# Sound/Noise Measuring Systems

## Sound Level Systems

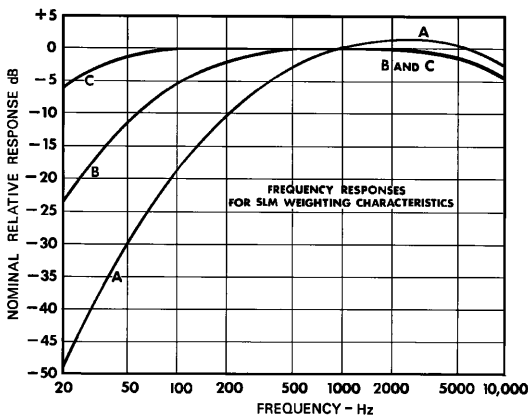
Simpson Type 2 sound level systems come in a variety of configurations to meet any noise measurement requirements. Each system is composed of several components designed to work together as one integrated test instrument and output jacks that will supply an AC RMS or DC Volt signal.

- Meets IEC 651 and ANSI S1.4-1983 Meters
- Meets OSHA and Walsh-Healy Noise Control Specifications
- Quickly and Accurately Measures Sound Levels in Factories, Offices, Etc.
- Full coverage 40-140 dB with special 85-115 dB OSHA range
- Impact-resistant case contoured to minimize sound energy field reflections
- Operates 40 hours on a 9V battery
- AC and DC voltage jacks for recorder, analyzer and tester Interface
- Built-in tripod mount

The American National Standards Institute (ANSI) provides for three weighting curves: "A", "B", and "C".

The "A" weighted curve more closely corresponds to the response of the ear and is specified by OSHA. The "C" curve is essentially a "flat" frequency response and can be used in conjunction with a "fast response" for an approximate indication of impulse noise levels. Low Frequency noises are better monitored by the "C" curve than the "A" curve. Low frequency sounds need to be louder to be heard.

The chart below shows the relationship between frequency and relative response.



## 884-2 Sound Level Meter

- Rugged solid-state reliability,
- "A" weighting
- Battery Operated



## 886-2 Multi Weight Sound Level Meter

- Rugged solid-state reliability,
- "A", "B" and "C" weighting
- Detachable microphone
- Fast and slow response



## 890-2 Calibrator



Sound pressure level calibrators are used before or after taking measurements with sound level meters and noise dosimeters. The 890-2 can adjust Simpson models 886-2 and 884-2 or other sound level meters with a 1" diameter Microphone. The 890-2 provides a constant 94 dB or 114 dB sound pressure level at 1 KHz (0 dB = 0.0002 Mbar). Calibrator is immune to a wide range of temperature and humidity conditions while maintaining tight output level tolerances.



Extra Microphone For 886-2  
Model No. 00183

Microphone Cable For 886-2  
Model No. 00198

Tripod Mount  
Microphone Holder  
Model No. 00184



# Sound/Noise Measuring Systems

## 884-2 TYPE S2A/886-2 TYPE 2

### Specifications

<b>GENERAL</b>	
Physical:	3.0" x 8.2" x 1.9" (77 x 208 x 47mm)
Weight:	1.25 lbs (.57kg)
Construction:	Molded ABS Plastic Housing
<b>POWER REQUIREMENTS</b>	
Battery type:	(1) 9V NEDA 1604A
Battery life:	40 hrs. (approx.)
<b>TEMPERATURE RANGE</b>	
Operating:	-10° to 50°C
Storage:	-40° to 60°C
Temp. influence:	+/-0.015 dB/°C @ 1KHz
Operating humidity:	+/-0.5dB 0 to 90%
<b>SOUND LEVEL</b>	
Ranges:	40 to 140 dB
Reference:	0dB = 20m Pascal's
Accuracy:	meets ANSI S1.4-1983
Weighting:	884-2 type S2A (only): "A" (external filter for flat response) 886-2 type 2 (only):A,B,C, (external filter for flat response)
<b>MICROPHONE</b>	
Type:	condenser type L size per ANSI S1.12-1967
Impedance:	350Ω +/-20% @ 23°C
Characteristics:	omnidirectional, angle of incidence approximates random response equal to 70°
<b>SIGNAL OUTPUT</b>	
External filter:	120mV RMS at meter reading of +10dB
RMS Output:	1.00V RMS at meter reading of + 10dB
dB Output:	1.5 VDC at meter reading of + 10dB
Calibration:	frequency=1000Hz @ 94dB on the 90 dB range, 114 dB on the 110 dB range. Screwdriver adjustable (from side of case)
<b>METER MOVEMENT</b>	
Type:	Pivot and Jewel, 2 1/2" dial;
Scale:	-10 to +10 dB w/(15) 1dB markings
Accuracy:	2%
Response time:	Slow = 2.5 dB to a 500ms tone burst of 1000Hz Fast = 2.0 dB to a 200ms tone burst of 1000Hz
<b>OUTPUT JACK</b>	
Type:	Switchcraft # 750(0.141"dia.) f/external filter, # 850(0.097" dia.) f/dB and RMS output

## MODEL 890-2 CALIBRATOR

### Specifications

<b>ACOUSTIC OUTPUT</b>	
Frequency:	1000Hz 61%
Sound Pressure Level:	94dB, 114dB
<b>ACCURACY</b>	
Frequency:	61%
Sound Level:	60.5dB at reference condition
Distortion:	<2%
Reference:	0dB = 0.0002m bar
<b>POWER REQUIREMENTS</b>	
Battery Type:	(1) 9V NEDA 1604
Battery Life:	35 hrs approx..
<b>ENVIRONMENTAL</b>	
Operating Temperature:	0° to 50°C
Output Temperature Coefficient:	<-0.05dB/°C
Relative Humidity:	0-90%
Relative Conditions:	23°C, 760mmHg, 30-50% relative humidity
<b>PHYSICAL</b>	
Construction:	aluminum housing
Dimensions:	5.25" long x 2" diameter, (13 x 5cm)
Weight:	14oz (400g)

*Breaking ground determines the high technology that Simpson offers its customers. Simpson innovated the use of Lucite-illuminated meters in order to provide better visibility. The first compact, all purpose volt-ohm milliammeter, the 260, became a standard for military use in World War II. In fact, a veteran recently called and requested service on a 260 unit that was purchased in 1947.*

*Now into the 21st century, Simpson Electric still upholds its reputation as a groundbreaker, introducing products that continue to enhance the Test Equipment market.*



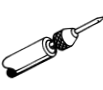






## Ordering Information

SOUND LEVEL METERS	Catalog No.	Catalog No.	ACCESSORIES	Catalog No.
	w/case	w/890-2 calibrator	25' microphone cable for 886-2	00198
Model 884-2	40003	40006	Microphone for 886-2	00183
Model 886-2	40004	40007	Tripod mount microphone	
			holder for 00183 microphone	00184
<b>SOUND LEVEL CALIBRATORS</b>		<b>Catalog No.</b>	Case, Molded Plastic	45022
Model 890-2		12890		

## Test Probes/Cables/Clips

The quality of Simpson test probes and clips are proven worldwide. See individual models for full listings.

TEST PROBES AND CLIPS

FOR MODEL		 Threaded	 Plain	 Replaceable	 Alligator	 Crocodile
 Reverse Insulated	260-8, 270-5, 14510, 260-7, 360-3, 460-5, 6, 461, 462, 463, 464, 465, 467, 470, 474, 16979	00043 (Includes alligator clips)	*			
 Standard Banana	260-8XI, 260-6XLPM, 229-2, 260-AFP-1, TS111-3, 250, 255, 260-3, 4, 5, 6, 270-1, 2, 3, 4, 262-3, 265, 269-3, 303XL, 360-2, 362-2, 370 to 377, 605-2	00125 (Includes alligator clips)	*	07538	07500	00236
 Mini Banana	160 165		02055		01927	
 Standard Banana	TS113					07545

 No longer available

## Screw-On Adapters

### Alligator Clips (1 pr.)

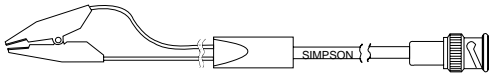
Model No. 00425

Retractable Grip-Tip Lead Probe Adapter 6-13/16" long, for use with 00043 probes.

## 444 Accessories

### Standard Test Lead Set

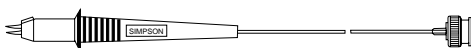
Model No. 00827



This test lead set, 1 meter long, consists of RG-58 cable with a BNC connector on one end and a small Kelvin clip on the other end. The Kelvin clip will accept a conductor up to 0.3" diameter.

### Kelvin Test Probe Set

Model No. 02151



The Kelvin probe set consists of RG-174 cable with a BNC connector on one end and a Kelvin probe on the other end. Spring contacts of the Kelvin probe are sharply pointed to penetrate corrosion and are close together, for usage in tight areas.

## Test Leads for 8455

Model No. 45001

Consists of one each, red and black, flexible test leads, 6 ft. long with Telco clips at one end and ring-tongue connectors at the other end for connection to the Instrument's screw terminals



## Test Leads for TS113

Model No. 07545

Consists of one pair of 4' flexible color-coded ends with Banana Plugs & Insulated Crocodile Clips





# Test Equipment Accessories

## Carrying Cases

**Padded Nylon** "Grab N Go" cases, made of tough durable nylon, enables VOM to be stored for quick field use ...test leads remain in panel jacks. Thick padding protects meter. Available in yellow (00832) and black (00834) for 260 series or similar size meters; brown (00836) for smaller models.

**Molded Plastic** cases have die cut foam inserts to protect meters and accessories. Ideal for lab's or tool cribs. High density plastic case resists scratches and scars.

Model No.00832



Model No. 00836



Model No. 45028

### Molded Plastic Case

Foam insert protects meter, plastic case resists scratching and scarring. (Equipment not included)



Model No. 00805

### Leatherette Case

Solid case with leather appearance

Below is a cross-reference guide for carrying cases, by model number.

Model No.	Grab-N-Go	Molded Plastic	Leather Like	Roll-Top
160	00836			
228	00832/00834	45028	00805	
229-2	00832/00834	45028	00805	
250	00832/00834			
255	00832/00834			
260-6XLP	00832/00834	45028	00805	
260-8, 8P	00832/00834	45028	00805	00248
260-8Xi, 8XPi	00832/00834	45028	00805	
265	00832/00834			
270-5	00832/00834	45028	00805	00248
372-2	00836			
362 to 379	00836			
385-3L	00836			
390-2	00836			
400-2		45031		
401, 405-2		45030		
444		45029		
IR-10	00836			
TS112/TS113	00834/00832			
897		45021		
884-2, 886-2, 889		45022		
8455, 8455A	00836			
14510	00832,00834	45028	00805	

For test probes and cables, refer to chart on page 24.





# Test Equipment Accessories

## Amp-Clamp Adapters

Amp-Clamp current probes, used with analog VOMs provide accurate measurements of high AC and DC currents found in power systems and related control circuitry. The Amp-Clamp jaws are closed over a conductor in the circuit and the current load is indicated on the connected meter. The 150-2 has six ranges (up to 300 A, AC) and is available with banana and reverse banana plugs.



Model No. 150-2

## Specifications

### AC AMP-CLAMP ADAPTER

Models	150-2 (for VOMs)	153-2 (for DMMs)
Ranges	5A, 10A, 50A, 100A, 250A (on 2.5 VAC Meter Range) 6A, 12A, 30A, 60A, 120A, 300A (on 3 VAC Meter Range)	2A, 20A, 200A (on 0.2 VAC, 2 VAC or 20 VAC Meter Range)
Accuracy	±3% full scale	±3% full scale (20A & 200A Ranges) ±4% full scale (20 & 200A Ranges)

### PHYSICAL

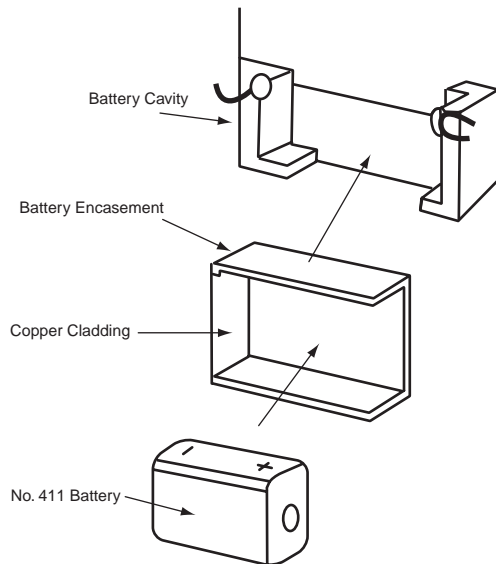
Dimensions: 7.8" x 3" x 1.1" (196.85 x 76.2 x 27.9 mm)

Weight: 12 oz (340.2 g)

Max. Cable Dimension: 1.125" diameter (28.6 mm)

Max. Bus Bar Dimensions: 2.38" x 0.38" (60.3 x 9.5 mm)

## Battery Adapter Kit



Model No. 45002

AMP-CLAMP	Catalog No.	BATTERY ADAPTER KIT	Catalog No.
150-2 AC Clamp, VOM Banana Plug	00541	250-5 Battery Upgrade	45002
150-2 AC Clamp, VOM Reverse Plug	00545		



Photocopy this page and send to the **attention** of **Customer Service**

Order  
Quantity

**Panel Meter Catalog**

\_\_\_\_\_ A 64-Page color catalog of Panel Meters and Accessories. Includes specifications & dimensional drawings.

**Test Equipment Catalog**

\_\_\_\_\_ The 23 page color catalog describes each model, explaining features, ordering information, complete specification/operating data and available accessories.

**Product Information Bulletins (PIBs)**

- \_\_\_\_\_ Hawk 3 Advanced Digital Panel Meter
- \_\_\_\_\_ 501 Insulation Tester
- \_\_\_\_\_ 505 Insulation Tester
- \_\_\_\_\_ GIMA Power Management Meters
- \_\_\_\_\_ TS113 RailRoad Test Set

(Please Print Clearly)

<p><b>Send to:</b></p> <p>Company Name: _____</p> <p>Attention: _____</p> <p>Address: _____</p> <p>_____</p> <p>_____</p>
---

# Need A Meter?



## DC Voltage

## AC Current

## Process

## Watt

## Temperature

Mini Indicator  
3/64 DIN

Rugged Seal Controller  
4-1/2"

Falcon Indicator  
1/8 DIN

GIMA Series  
1/4 DIN

Mini-Max Indicator  
3/64 DIN



## DC Voltage

## AC Current

## Process

## Watt

## Temperature

Century Style Indicator  
3-1/2"

Falcon Indicator  
1/8 DIN

Wide-Vue Indicator  
3-1/2"

Rectangular Indicator  
3-1/2"

Hawk 3 Temperature  
1/8 DIN



## AC Voltage

## DC Current

## Process

## Preset Batch/Dual

## Frequency

Hawk 3 Controller  
3-1/2"

Round Style Indicator  
3-1/2"

Mini-Max Indicator  
3/64 DIN

S662 Preset Counter  
1/8 DIN

Mini-Max Indicator  
3/64 DIN



## AC Voltage

## Power

## Count

## Elapsed Time

## Frequency

True-Vue Indicator  
2-1/2"

GIMA Series  
1/4 DIN

S660 Preset Counter  
1/8 DIN

112ET  
Elapsed Time Meter

Century Indicator  
2-1/2"

Need a meter? Write to:

**techniCAL Systems 2002 Inc.,**  
436 Jacqueline Blvd. Hamilton, Ontario L9B 2R3  
or call: (905) 575-1941 / Fax (905) 575-0386

Visit the techniCAL Website @  
[www.technical-sys.com](http://www.technical-sys.com)

*Simpson*<sup>®</sup>