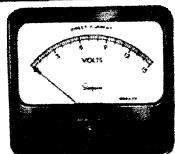


Simpson panel instruments...



4 1/2" RECTANGULAR

1375 STOCK TYPES
*... plus HUNDREDS MORE, custom-built
 from standing tools **
INSTRUMENTS THAT STAY ACCURATE

* Send us your special meter requirements today. Let our top-flight engineers work out solutions or make recommendations that are subject to your needs.

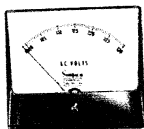
SIMPSON ELECTRIC COMPANY
 5200 West Kinzie St., Chicago 14, Ill. Phone BR 6-6600, 6-1121
 In Canada, Bach-Simpson, Ltd., London, Ontario



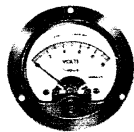
2 1/2" RECTANGULAR
 ACCURACY: $\pm 2\%$



6" RECTANGULAR
 ACCURACY: $\pm 2\%$



1/2", 2 1/2", 3 1/2", 4 1/2"
WIDE VUE
 ACCURACY: $\pm 2\%$



2 1/2" or 3 1/2" ROUND
 ACCURACY: $\pm 2\%$



EDGEWISE
 ACCURACY: DC $\pm 2\%$
 SCALE LENGTH: 1 1/4"



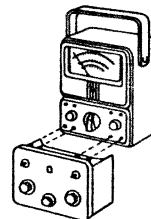
ELAPSED TIME INDICATOR
 110/220 VOLTS

See the Simpson
ADD-A-TESTER ADAPTERS
 they will increase the
 versatility of your
 260 or 270 VOM'S.

- TRANSISTOR TESTER**
 Model 650 \$38.00
DC VTVM
 Model 651 \$45.00
TEMPERATURE TESTER
 Model 652 \$43.00
AC AMMETER
 Model 653 \$26.00
AUDIO WATTMETER
 Model 654 \$28.00
MICROVOLT ATTENUATOR
 Model 655 \$26.00
BATTERY TESTER
 Model 656 \$26.00
MILLIOHMETER
 Model 657 \$48.00
DC AMMETER
 Model 661 \$28.00

OPERATOR'S MANUAL

AC AMMETER MODEL 653



Just plug it in

SIMPSON ELECTRIC COMPANY

5200 W. Kinzie St., Chicago, Illinois 60644
 Area Code 312, Telephone 379-1121
 In Canada, Bach-Simpson, Ltd., London, Ontario

Copyright 1967, Simpson Electric Co.
 7-67 JMO B & L

Printed in U.S.A.
 1-118068

Courtesy of :
Simpson260.com

OPERATOR'S MANUAL
SIMPSON AC AMMETER MODEL 653

SECTION I
GENERAL DESCRIPTION

INTRODUCTION

The Simpson AC Ammeter Adapter Model 653 is a compact, accurate, wide-range instrument. When it is used in conjunction with a Simpson 260* or 270 Multimeter, AC currents can be measured over a frequency range of 50 to 3000 cycles per second. This wide frequency range in general exceeds commercial and military power frequency requirements.

The Simpson VOM-plus-adapter concept is completely unique in approach and versatility. Each of the adapter models, of which the AC Ammeter is but one example, provides specific measurement and testing capabilities at a fraction of the cost normally required for separate testers.

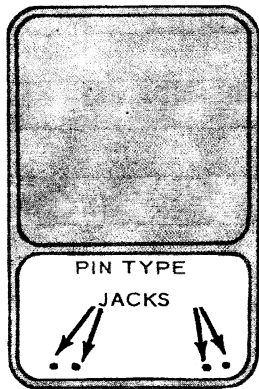
* Trade Mark Registered U. S. Patent Office



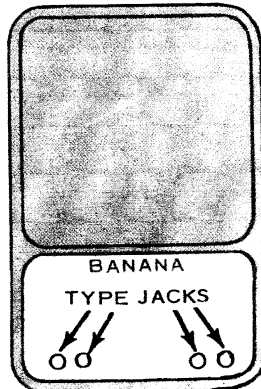
FIGURE 1 – SIMPSON AC AMMETER MODEL 653

GENERAL DESCRIPTION

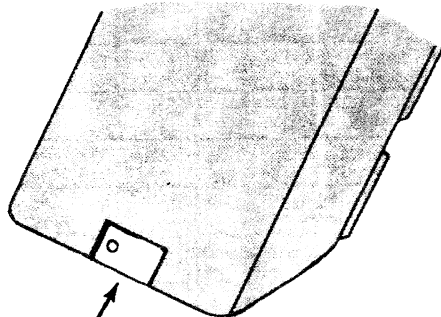
GENERAL DESCRIPTION



(a) 260, Series II



(b) 260, Series III



ADAPTER LOCK PROVISION
(ONLY ON MODELS PRODUCED AFTER
JUNE 1ST, 1959)

FIGURE 2 - 260 SERIES IDENTIFICATION

ACCESSORIES FURNISHED

Each instrument is furnished with an Operator's Manual and four extra pin-type plugs. The four pin-type plugs are used only when the Model 653 is to be used with a 260 Series II (see figure 2 for 260 Series II and Series III identification).

SPECIFICATIONS

AC Current:

Ranges: 0-.25/1/2.5/12.5/25 amperes

Accuracy:

Adapter only $\pm 2\%$

Adapter with **260** $\pm 3\%$ (F.S.) nominal

Adapter with **270** $\pm 3\%$ (F.S.)

Frequency Response:

$\pm 1\%$ From 50 - 60 Hertz

± 2 db From 50 - 2.5 Hz

Insulation Level: 600 v RMS (max.)

Power Input: None required.

Size: 5-5/16 x 4-3/8 x 3-7/16 inches.

Weight: 2 lbs.

GENERAL DESCRIPTION

MODIFICATION KITS

Adapter Case Kit 401 for 260 Series III and 270.

Use of this kit is optional. The kit converts the 260 Series III or the 270 VOM produced prior to June 1, 1959. It consists of a modified case which permits latching the Model 653 securely to the underside of the VOM.

Adapter Case Kit 402 for 260 Series II.

Use of this kit is optional for this adapter. It includes a modified case which permits latching the Model 653 securely to the underside of the multimeter, and also provides a 50 μ A D.C. current range for the 260. The 50 microampere range is required for other Adapter Models.

CONTROLS AND CONNECTORS

BINDING POSTS

AC currents to be measured are applied to the Model 653 through two of the six binding posts located along the bottom of the front panel. One of the binding posts (marked \pm) is common for all ranges. Each of the remaining five binding posts represents a current range for the instrument.

GENERAL DESCRIPTION

260 - 653 SWITCH

This is a convenience switch located at the right center of the front panel. It allows the use of the VOM without detaching the Model 653.

260 DIRECT JACKS

The 260 DIRECT jacks are located at the left center of the front panel. When the 260 DIRECT - 653 ADAPTER switch is in the 260 DIRECT position, these jacks are connected directly to the 260/270 input jacks marked + and COMMON -.

SECTION II

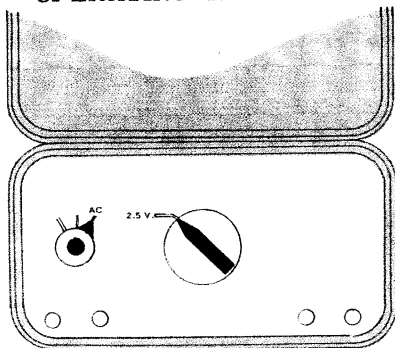
OPERATING INSTRUCTIONS

1. Initial Adjustments

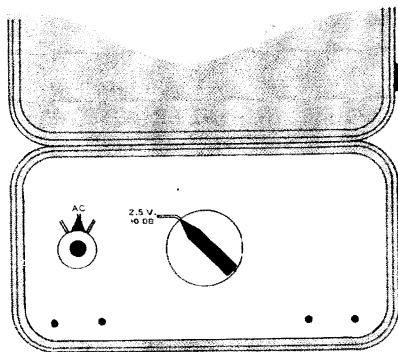
a. 260/270 control settings.

1. With the Model 653 disconnected, check the meter pointer position for zero indication with the VOM in its operating position. If the pointer is off zero, adjust the bakelite screw just under the meter. Refer to the VOM Operator's Manual for this adjustment.

OPERATING INSTRUCTIONS



(a) 260 Series III Control Positions



(b) 260 Series II Control Positions

FIGURE 3 - 260 CONTROL POSITIONS
FOR USE WITH MODEL 653

OPERATING INSTRUCTIONS

2. Set the **260/270** for AC operation.
 3. Set the **260/270** range switch to the 2.5 volts position.
- b. Connecting the Model 653 to the 260/270.
1. Insert the top four plugs of the Model 653 into the lower four jacks on the front panel of the **260/270**.
 2. Position the locking latch underneath the instrument to secure the two units together.

CAUTION

If your **260/270** case does not have the locking provision, avoid applying excessive pressure to the top of the Adapter when it is connected to the VOM and used in the Adjust-A-Vue position. A modification kit which includes a new case with an adapter lock provision is recommended for optimum rigidity (see page 4).

c. Model 653 Control Settings.

1. Set the 260 Direct - 653 Adapter switch of the Model 653 to the 653 ADAPTER position.

OPERATING INSTRUCTIONS

2. Measuring A.C. Current

WARNING

Always remove all power from the circuit to be tested before connecting or disconnecting the test leads, and before changing the range connections of the leads.

a. De-energize the circuit under test.

b. Connect a suitable lead from the \pm binding post on the Model 653 to one side of the circuit under test.

c. Select a second binding post which will provide a suitable current indication. When in doubt as to the amount of current to be measured, use the 25A binding post first, and then change to a lower range if the current is within the lower range. Connect a suitable lead from this selected binding post to the other side of the circuit under test.

NOTE

The test leads and connections for steps b and c must be adequate for the circuit under test. The test leads must have ample current carrying capacity and each connection must be tight and offer low resistance.

OPERATING INSTRUCTIONS

d. Record the 260/270 meter reading indicated on the 2.5 V.A.C. scale.

e. Multiply the reading by the factor indicated above the range binding post used.

3. Using the VOM circuit while the Model 653 is attached.

a. Set the 260 Direct - 653 Adapter switch of the Model 653 at its 260 DIRECT position.

b. Connect the regular VOM test leads to the 260 DIRECT jacks at the left side of the Model 653. Proceed with the standard operating instructions for the VOM, according to its Operator's Manual.

SECTION III

THEORY OF OPERATION

GENERAL

The Model 653 AC Ammeter consists of a current transformer, an accurate load on the secondary and provisions for a voltmeter measurement across the load. Any AC current through the primary is transformer-coupled to produce a proportional AC current in the secondary. The secondary

THEORY OF OPERATION

current passes through the load resistor, producing a voltage across the load resistor which is again proportional to the primary current. The 260/270 VOM reads the amount of voltage across the load resistor which is indicative of the amount of current passing through the primary.

With the highly accurate components which are used in the construction of the Model 653 AC Ammeter, the accuracy of measurements obtained is excellent for most applications.

Circuit connections for the Model 653 are the same as for any other type of ammeter. The primary circuit of the transformer is connected in series with the circuit under test, and offers very little impedance in the circuit. The inductive effect of the transformer is negligible for frequencies up through 3000 cycles per second.

SECTION IV

MAINTENANCE

CASE REMOVAL

To remove the instrument from the case, remove the four screws located in the four corners on the back of the instrument case. All of the components are attached to the front panel.

PARTS REPLACEMENT

All of the components of the Model 653 have been engineered for many years of useful life. However, there are conditions under which parts may become damaged or faulty, and require replacement. Refer to the circuit diagram in figure 4 to help identify and locate any suspected part.

In the event of any component failure, order replacement parts from Simpson Electric Company or from any Authorized Warranty Repair Station. A list of these repair stations is included, beginning on page 14.

MAINTENANCE

PARTS LIST

Reference
Symbol

Description

Simpson
Part No.

T1 Current Transformer
S1 Switch, DPDT, slide
R1 Resistor, 4.0 ohms
 $\pm 0.5\%$, 3 W.
Case, Adapter

1-118211
1-118192
10-805086
10-860379

260/270 TESTER
SET TO 2.5 V.A.C. RANGE
CONNECTS TO CORRESPONDING
INPUT JACKS ON 260/270 VOM

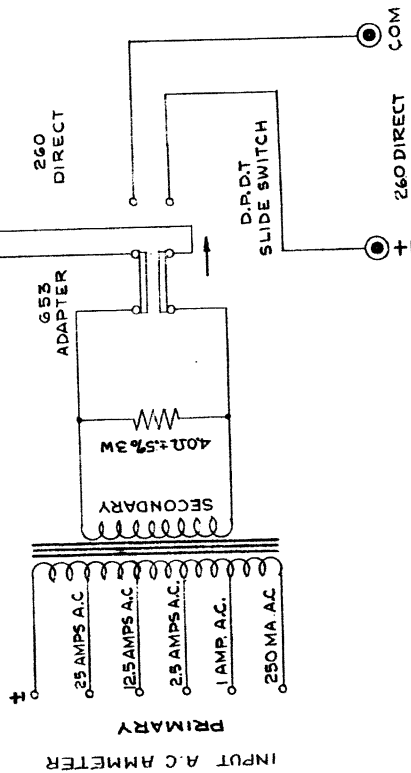


FIGURE 4 - SCHEMATIC DIAGRAM, SIMPSON AC AMMETER MODEL 653

SIMPSON WARRANTY REPAIR STATIONS AND PARTS DEPOTS

Arizona, Phoenix 85034 Metermaster/Phoenix 2633 E. Buckeye Road	Area Code 602 273-7331	Connecticut, New Haven 06511 Kaufman Instrument Labs Inc. 810 Dixwell Avenue	Area Code 203 776-7201
California, Glendale 91201 JSD Engineering Company 6915 San Fernando Road	Area Code 213 849-6187	Florida, Miami 33136 Florida Precision Instrument Corp. 800 N.W. 7th Avenue	Area Code 305 374-1731
California, Los Angeles 90022 Metermaster/Los Angeles Division of Kierulff Elec., Inc. 5645 E. Washington Blvd.	Area Code 213 685-4340	Florida, Orlando 32806 Electro Tech Inc. 307 - 27th Street	Area Code 305 423-5589
California, Los Angeles 90007 Quality Electric Division of Kierulff Elec., Inc. 3700 South Broadway	Area Code 213 232-3501	Georgia, Hapeville 30054 Electro-Tech, Inc. 3020 Commerce Way	Area Code 404 758-7205
California, Mountain View 94041 Kierulff/Metermaster 2484 Middlefield Road	Area Code 415 968-6292	Hawaii, Honolulu 96817 Electronic Systems Inc. 1622-26 Silva Street	851-457 811-132
California, San Diego 92111 Metermaster/San Diego 8137 Engineer Road	Area Code 714 276-5202	Illinois, Chicago 60625 (Niles) A & M Instrument, Incorporated 7800 N. Merrimac	Area Code 312 966-8100
California, San Francisco 94105 Pacific Electrical Instrument Lab. 111 Main Street	Area Code 415 421-7185	Illinois, Chicago 60644 Pacific Indicator Company 5924 W. Madison Street	Area Code 312 261-1330
Canada, London, Ontario Bach-Simpson Ltd. 1255 Brydges Street P.O. Box 484	Area Code 519 451-9490	Illinois, Chicago 60644 Simpson Electric Company 5200 W. Kinzie Street	Area Code 312 379-1121
Colorado, Denver 80209 Metermaster Instrument Corporation 748 So. Broadway	Area Code 303 722-8462	Kansas, Shawnee Mission 66205 Sturtz Instrument Co. 4705 Mission	Area Code 913 236-4705
Connecticut, Middletown Mancib Company Randolph Road—PO Box 467	Area Code 203 Diamond 7-5629	Louisiana, New Orleans 70115 Industrial Instrument Works 3305 Tchoupitoulas Street	Area Code 504 895-5621
		Maryland, Timonium 21093 Egerly Instrument Labs., Inc. 110 West Timonium Road	Area Code 301 252-1260

Massachusetts, Cambridge 02138 A. S. Mancib 363 Walden Street	Area Code 617 864-2494	New York, Syracuse 13215 Syracuse Instrument Lab. 4895 South Avenue Box 96	Area Code 315 492-1651
Massachusetts, Needham Heights 02194 Instruments, Incorporated 570 Hillside Avenue	Area Code 617 444-9410	New York, Vestal 13850 Compton Industries Inc. 333 Vestal Parkway East P.O. Box 351	Area Code 607 748-3349
Michigan, Detroit 48220 Ram Meter, Inc. 1100 Hilton Road Ferndale	Area Code 313 547-1000	North Carolina, Charlotte 28206 Electro-Tech Inc. 3107 Gullman Avenue	Area Code 704 333-0326
Minnesota, Minneapolis 55411 Instrumentation Services Inc. 917 Plymouth Avenue	Area Code 612 521-8803	Ohio, Cleveland 44135 Weschler Electric Company 4250 W. 130th Street	Area Code 216 251-4609
Missouri, St. Louis 63112 Scherrer Instruments 5449 Delmar Blvd.	Area Code 314 367-9800	Ohio, Cleveland 44103 Pioneer-Standard Electronics, Inc. 5403 Prospect Avenue	Area Code 216 432-0010
New Jersey, Belleville 07109 Marshall Instruments, Inc. 236 Washington Avenue	Area Code 201 751-1190	Ohio, Dayton 45404 SREPCO Electronics Div. of Pioneer Standard Electronic, Inc. 314 Leo Street	Area Code 513 224-0871
New York, Buffalo 14216 Electrical Instrument Labs. 932 Hertel Avenue	Area Code 716 876-0880	Oregon, Portland 97217 Industrial Instrument Repair Lab. 1910 N. Killingsworth St.	Area Code 503 285-6629
N. Y., Great Neck, Long Island 11022 Simpson Instrument Sales & Service, Inc. 130 Cutter Mill Road	Area Code 212 683-0674 Area Code 516 482-3103	Pennsylvania, Philadelphia 19115 Sunshine Scientific Instrument 1810 Grant Avenue	Area Code 215 673-5600
New York, Great Neck, L.I. 11022 A & M Instrument, Inc. Community Drive	Area Code 516 487-0500	Texas, Dallas 75204 Ultra Instrument Lab., Inc. 3515 Swiss Avenue, Suite 117	Area Code 214 826-6395 826-6396
New York, New York 10011 Electro-Tech Equipment Company 85 Tenth Avenue	Area Code 212 675-2400		

D.C., Washington 20001
Electronic Wholesalers, Inc.
2345 Sherman Avenue N.W.

Area Code 202
483-5200

Washington, Seattle 98119
The Instrument Lab. Inc.
934 Elliott Avenue West

Area Code 206
283-5850

Wisconsin, Milwaukee 53202
The Electro-Mechano Company
261 East Erie Street

Area Code 414
272-4050

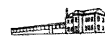
WARRANTY

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 90 days 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 its 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 products.

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 others, or installation or use not in accord with instructions furnished by the manufacturer.

Simpson ELECTRIC COMPANY

5200 Kinzie St., Chicago 44, Illinois • Phone: EStebrook 9-1121 • Long Distance Dial 312
In Canada: Bach-Simpson, Ltd., London, Ontario



LAC DU FLAMBEAU PLANT
WISCONSIN



ELGIN PLANT
ELGIN, ILL.



KINZIE STREET PLANT
CHICAGO, ILL.



AURORA PLANT
AURORA, ILL.