

User's Manual



Digital AC Watt Meter

Model 380660



Introduction

Congratulations on your purchase of the Extech 380660 Digital Watt Meter. This 9V battery-operated meter measures true power up to 6,000 watts on single-phase loads. AC/DC Current/Voltage measurements can also be made. The color-coded front panel offers safe and convenient operation. Proper use of this meter will provide years of reliable service.

Specifications

General Specifications

Display	0.5" (12.7mm), ± 1999 count bi-polar LCD Display
Measurements	AC/DC Current/Voltage and AC Watts (true power) Note: For single phase loads only
Polarity	Positive implied; Negative (reverse) polarity displayed as "-"
Zero Adjust	Manual zero adjust ± 30 digits for power measurements; Current and Voltage functions are automatically zeroed
Overload Indication	Indication of "1 " or "-1 "
Operating Temperature	32 to 122°F (0 to 50°C)
Operating Humidity	Less than 80% RH
Environmental conditions	Installation: Category II; Pollution: Degree II; Altitude: 2000 meters; for indoor use only
Power Supply	9V battery; Battery consumption: approx. 6mA
Dimensions / Weight	7.0 x 3.5 x 1.4" (180 x 80 x 35mm) / 1.3 lbs. (538g)
Standard Accessories	Test leads and 9V battery
Optional Accessories	Carrying Case, NIST Certificate

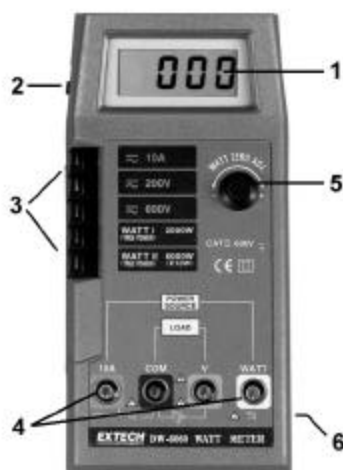
Range Specifications

AC Watt (true power)				
Range	Accuracy (FS)		Resolution	
2000W	± (1.0% + 1d)		1 Watt	
6000W			10 Watts	
NOTE: Accuracy for AC Watts applies to signals > 60 VAC (60Hz)				
AC/DC Voltage				
Range	Accuracy (FS)	Resolution	Input Impedance	Overload protect
200V	± (0.8% + 1d)	0.1V	1MΩ	600V AC/DC
600V		1V		
AC/DC Current				
Range	Accuracy (FS)	Resolution	Voltage drop (FS current)	
10A	± (1% + 1d)	10mA	200mV AC or DC	
Notes:				
1. Max. Input voltage: 600V AC/DC				
2. Max. Input current: 10A AC/DC				
3. Frequency range for AC measurements: 45 to 65Hz				
4.Accuracy tested with RF field strength <3V/M and <30MHz				
5. Converter: Average responding (calibrated to display RMS value of sine wave)				

Meter Description

1. LCD display
2. Power ON/OFF switch
3. Function switches
4. Input terminals
5. Zero adjust knob
6. Battery compartment on rear

Note that the symbol  refers to AC and DC units.



Safety Information

Precautions

1. Ensure that the 9V battery is properly inserted and that it is fresh.
2. If the LO BAT (low battery) icon appears on the LCD, replace the 9V battery.
3. Press the appropriate Function buttons for the application at hand and insert the test leads into the proper terminals before connecting the test leads to the circuit under test.
4. Select the proper measurement range by starting at the highest anticipated value.
5. Remove one test lead from the circuit under test when changing the meter's range.
6. If an overload condition occurs (1 or -1 appears on the display), select another measurement range. If the overload persists, check the meter's function selection and the connection to the circuit under test before proceeding.
7. Operate the instrument only in the temperature range of 32 to 122°F (0 to 50°C).
8. Do not exceed the maximum rated voltage/current of each range and input terminal.
9. Always switch the power to the "OFF" position when the instrument is not in use.
10. Remove the battery if the instrument is not to be used for a long period of time.

International Safety Symbols



Refer to the manual
for safety details.



Hazardous voltages
may be present.



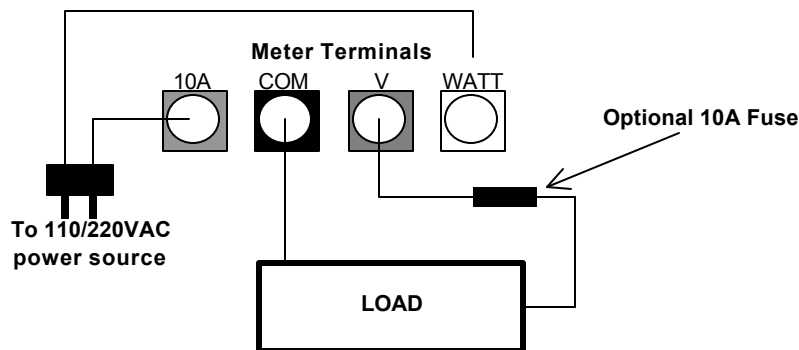
Double insulation

Operation

Test Leads

One set of test leads is provided for AC/DC Current/Voltage measurements. However, when measuring power (watts), two sets of test leads are required as shown below. Additional leads must be supplied by the user to accommodate the connections required.

Power (Watts) Measurement Connection Diagram



AC Watt (True Power) Measurements

NOTE: Read the safety precautions in the previous section before operating the meter.

1. Ensure that the power to the load is OFF.
2. Slide the meter's power switch to the ON position.
3. Adjust the WATT Zero Adjust Knob until the display indicates "000".
4. Determine the highest anticipated load and select the range that exceeds this value.
5. Connect 110/220VAC power to the "10A" and "WATT" terminals as shown above.
6. Connect the LOAD to the "COM" and "V" terminal as shown above.
7. Apply power to the load.
8. Read the power value in watts on the LCD. In the 6000W range the user must multiply the displayed reading by 10.
9. Note that during AC Watt measurements, AC voltage or AC current can be measured by pressing the meter's "ACA" or "ACV" function button.

NOTE: It is recommended that a 10A fuse be placed in series with the LOAD to prevent damage to the meter in the event of surges or excessive current during Watt (Power) or Current measurements. Refer to the connection diagram on the previous page.

AC/DC Voltage Measurements

NOTE: Read the safety precautions in the previous section before operating the meter.

1. Connect the BLACK test lead to the "COM" terminal and the RED test lead to the "V" terminal.
2. Determine highest anticipated DC or AC voltage (200V/600V) and select it on the corresponding function range button.
3. Slide the power switch to "ON" position.
4. Connect the test leads to the circuit under test.
5. Read the Voltage on the meter's LCD.

AC/DC Current Measurements

NOTE: Read the safety precautions in the previous section before operating the meter.

1. Connect the BLACK test lead to the "COM" terminal and the RED test lead to the "10A" terminal.
2. Press the ACA/DCA function switch.
3. Slide the power switch to "ON" position.
4. Connect the test leads in series with the circuit under test.
5. Read the current measurement on the LCD display.

Battery Replacement

When the 'LO BAT' (low battery) icon appears in the left corner of the LCD display, the 9V battery should be replaced. Accurate measurements may still be made for several hours after the first appearance of the 'LO BAT' indicator however.

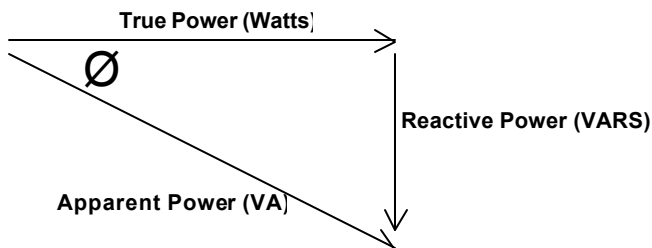
1. Remove the screw that secures the battery compartment cover (rear of meter on bottom).
2. Slide the battery compartment cover down to access the battery.
3. Replace the 9V battery and reinstall the compartment cover.

Appendix

Power Terms

Term	Unit	Formula
True (actual) Power	Watts	Voltage x Current x Power Factor
Apparent Power	VA	Voltage x Current
Power Factor (PF)	(ratio)	Watts / (Volt x Amps)

Vector Relationship of True/Reactive/Apparent Power and Phase Angle



Calibration and Repair Services

Extech offers complete repair and calibration services for all of the products we sell. For periodic calibration, NIST certification or repair of any Extech product, call customer service for details on services available. Extech recommends that calibration be performed on an annual basis to insure calibration integrity.

Warranty

EXTECH INSTRUMENTS CORPORATION warrants this instrument to be free of defects in parts and workmanship for one year from date of shipment (a six month limited warranty applies on sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department at (781) 890-7440 for authorization. A Return Authorization (RA) number must be issued before any product is returned to Extech. The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. Extech specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. Extech's total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.



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