



Test & Measurement

Innovation with a Purpose.



PRODUCT CATALOG

## IDEAL Test & Measurement: Innovation with a Purpose.

In the 60 years since we built our very first voltage tester, we've learned something about the power of brand loyalty. Electricians choose IDEAL because they trust that we're giving them exactly what they need.

IDEAL features over 120 different test and measurement instruments, and the design of every single one comes directly from the needs of professionals. From the shape of the frame to the size of the display to the tests it performs, every aspect of an IDEAL tester was considered and designed to make your job easier and safer.

Electricians who buy IDEAL also know they're getting the finest level of customer service, technical support and training in the industry. As you'll notice by our outstanding service, we stand behind the performance of our products.

[www.testersandmeters.com](http://www.testersandmeters.com)



*Test & Measurement*

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# Clamp Meters

## Clamp meters do a lot more than just measure amperage




The most common and simplest method professionals use to measure current is with a clamp meter. The advantage of measuring current with a clamp meter is that readings can be taken without opening a circuit.

But IDEAL clamp meters do much more. They contain all the functions of a multimeter plus include groundbreaking innovations such as our patented TightSight™ clamp meter, which allows you to see measurements in tight, hard-to-reach spaces via an innovative display on the bottom.

Next time you're choosing a clamp meter, choose one that incorporates innovation with a purpose.

# Clamp Meters

CLAMP METER SELECTION GUIDE	61-452	700 Series			61-710	740		760 Series			770	
		61-701	61-702	61-704		61-744	61-746	61-764	61-766	61-768	61-772	61-774
<b>MEASUREMENT FUNCTIONS</b>												
AC Voltage	•	•	•	•	•	•	•	•	•	•	•	•
DC Voltage		•	•	•		•	•	•	•	•	•	•
AC Current	•	•	•	•	•	•	•	•	•	•	•	•
DC Current											•	•
Resistance	•	•	•	•	•	•	•	•	•	•	•	•
Audible Continuity	•	•	•	•		•	•	•	•	•	•	•
Diode Test		•	•	•								
Capacitance		•	•	•					•			•
Frequency		•						•				
Leakage Current	•											
<b>FEATURES</b>												
Display Type (Analog or Digital)	D	D	D	D	A	D	D	D	D	D	D	D
AC Current Capacity	60	200	200	200	600	600	600	660	660	660	1000	1000
DC Current Capacity										660		1000
True RMS				•			•		•	•	•	•
Auto/Manual Ranging						•	•	•	•	•	•	•
Data Hold	•	•	•	•		•	•	•	•	•	•	•
Max Hold		•	•	•								
Inrush Current								•	•	•	•	•
Min/Max	•							•	•	•	•	•
DCA Zero										•		•
Pointer Lock					•							
Auto Power Off	•	•	•	•		•	•	•	•	•	•	•
Non-Contact Voltage Indication		•	•	•		•	•					
Harmonics Indicator			•	•								
Vibration Mode			•	•								
Backlight				•				•	•	•	•	•
Low Battery Indication	•	•	•	•		•	•	•	•	•	•	•
High Voltage Warning		•	•	•				•	•	•	•	•
Overload Protection	•	•	•	•		•	•	•	•	•	•	•
Conductor Size - Inches (mm)	1.2" (30)	1.3" (33)	1.3" (33)	1.3" (33)	1.2" (30)	1.5" (38)	1.5" (38)	1.4" (36)	1.4" (36)	1.4" (36)	2.0" (51)	2.0" (51)
Warranty (years)	2	2	2	2	2	2	2	2	2	2	2	2
<b>CERTIFICATIONS</b>												
UL 61010 Listed 		•	•	•		•	•	•	•	•	•	•
CAT Rating		III	III	III		III	III	IV	IV	IV	IV	IV
CE	•	•	•	•	•	•	•	•	•	•	•	•

Clamp Meters

# 4-in-1 Test Tools (700 Series)

### COMMON FEATURES

- 200AAC current capability
- Non-contact voltage (40-600VAC)
- Capacitance
- Low battery indication
- Overload protection on all ranges
- Integral lead storage
- Audible dangerous voltage warning on all ranges
- Auto power off
- Ergonomic hourglass shape
- Compact clamp head
- 2-year warranty

### ACCESSORIES

<b>Includes</b>	
Carrying Case	C-700
Silicone Test Leads	TL-102



▶ 61-704

True RMS, backlight, vibration mode to verify AC voltage, harmonics indicator, max hold, CAT III-1000V



**1: 200 Amp Clamp/Multimeter**  
Use it for testing a variety of electrical parameters on branch circuits or at receptacles.



**2: Non-Contact Voltage Tester**  
Use it for one-touch indication of power without test leads.



**3: Voltage Tester with Shaker**  
Use it for tactile feel of AC voltage



**4: Harmonics Tester**  
Use it to ensure that a circuit contains clean power, free of harmonic distortion.



▶ 61-702

Vibration mode to verify AC voltage, harmonics indicator, data hold, max hold, CAT III - 1000V



▶ 61-701

Frequency, data hold, max hold, CAT III - 600V

700 Series Specifications	61-701		61-702 & 61-704	
	RANGE & RESOLUTION	BASIC ACCURACY	RANGE & RESOLUTION	BASIC ACCURACY
AC VOLTAGE	200.0/600 V	1.2%	2000m/200.0/750 V	1.2%
DC VOLTAGE	20.00/200.0/600 V	0.5%	2000m/200.0/1000 V	0.5%
AC CURRENT	200.0 A	3.0%	200.0 A	3.0%
RESISTANCE	200.0/200.0k $\Omega$ Scale	1.0%	200.0/200.0k $\Omega$	1.0%
CAPACITANCE	200.0 $\mu$ F	3.0%	200.0 $\mu$ F	3.0%
FREQUENCY	2.000k/20.00k/40.00k Hz (Auto)	0.1%	—	—

Jaw opening is 1.3" (33mm).



# Clamp-Pro™ Clamp Meters 600 Amp (740 Series)



▶ 61-746  
True RMS



▶ 61-744

### COMMON FEATURES

- Measures up to 600AAC
- Non-contact voltage indicator (70V–600VAC)
- Tapered jaws with hook tip
- Auto/manual ranging
- Data hold
- Auto power off
- Low battery indicator
- 2-year warranty

### ACCESSORIES

#### Includes

Carrying Case	C-90
Test Leads	TL-103



Compact jaw for use in tight locations

740 Series Specifications		61-744	61-746
	RANGE & RESOLUTION	BASIC ACCURACY	
AC CURRENT	40.00/400.0/600A	1.7%	1.7%
AC VOLTAGE	400.0/600 V	1.2%	1.2%
DC VOLTAGE	400.0/600 V	0.5%	0.5%
RESISTANCE	400.0/4.000k/ 40.00k 400.0k/4.000M/40.00M Ω	1.0%	1.0%

Jaw opening is 1.25" (32mm).



## Clamp Meters

# TightSight™ Clamp Meters 660 Amp (760 Series)

### COMMON FEATURES

- Measures up to 660AAC
- Voltage-presence warning on all lead functions (selectable audible)
- Bright, bold backlit display
- Tapered jaws with hook tip
- Max/min
- Inrush current
- Audible continuity
- Selectable auto power off
- Data hold
- Low battery indicator
- 2-year warranty

### ACCESSORIES

#### Includes

Carrying Case	C-760
Test Leads w/Alligator Clip	TL-104



▶ 61-768

AC/DC current measurements, true RMS

▶ 61-766

True RMS, capacitance, frequency measurement via clamp head, 66AAC low range

▶ 61-764

### Safety First!

The complete line of industrial clamps from IDEAL was designed to set a new standard for safety technology. It starts with the revolutionary TightSight™ display. It allows an electrician to keep his head and face out of potentially dangerous panels while viewing the measurement. The high voltage indicator is another feature not to be taken for granted. It indicates the presence of voltage even with the dial set to the wrong function. The CAT III and IV ratings, rugged construction and UL listing should give every electrician the confidence to go about the job without worrying about equipment safety.





# TightSight™ Clamp Meters 1000 Amp (770 Series)



▶ 61-774  
AC/DC current measurements, capacitance



▶ 61-772

### COMMON FEATURES

- Measures up to 1000AAC
- Voltage-presence warning on all lead functions (selectable audible)
- Bright, bold backlit display
- Tapered jaws with hook tip
- True RMS
- Max/min
- Inrush current
- Audible continuity
- Selectable auto power off
- Data hold
- Low battery indicator
- 2-year warranty

### ACCESSORIES

#### Includes

Carrying Case	C-770
Test Leads w/ Alligator Clip	TL-104



Large jaws for clamping around multiple conductors

760 Series	61-764	61-766	61-768	
	RANGE & RESOLUTION			ACCURACY
AC CURRENT	66.00/660.0 A			1.7%
DC CURRENT	—	—	660.0 A	1.5%
AC VOLTAGE	660m/6.600/66.00/660.0/750 V			1.2%
DC VOLTAGE	660m/6.600/66.00/660.0/1000 V			0.5%
RESISTANCE	660.0/6.600k/66.00k/660.0k/4.000M/10.00M Ω			1.0%
CAPACITANCE	—	6.600μ/66.00μ/660.0μ F	—	3.0%
FREQUENCY	—	20 - 400 Hz Sensitivity: ≥5A for 20-100 Hz ≥10A for 100-400 Hz	—	0.1%

Jaw Size 1.4" (36 mm)

770 Series	61-772	61-774	
	RANGE & RESOLUTION		ACCURACY
AC CURRENT	66.0/660.0/1000 A		1.7%
DC CURRENT	—	660.0/1000 A	1.5%
AC VOLTAGE	660m/6.600/66.00/660.0/750 V		1.2%
DC VOLTAGE	660m/6.600/66.00/660.0/1000 V		0.5%
RESISTANCE	660.0/6.600k/66.00k/660.0k/ 4.000M/10.00M Ω		1.0%
CAPACITANCE	—	6.600μ/66.00μ/ 660.0μ F	3.0%

Jaw Size 2.0" (51 mm)



Clamp Meters

# Analog Clamp Meter

**FEATURES**

- Analog display
  - Pointer lock
  - 2-year warranty
- Includes carrying case



▶ 61-710

600AAC current, ohms scale on dial drum, broad frequency response (50 to 400 Hz)

Meter Specifications		61-710
	RANGE & RESOLUTION	ACCURACY
AC VOLTAGE	150/300/600 V	3.0% F.S.
AC CURRENT	6/20/60/200/600 A	3.0% F.S.
RESISTANCE	2k $\Omega$	3.0% F.S.



# Leakage Current Clamp Meter

**FEATURES**

- 40mA to 60AAC current capability
  - Data hold
  - Analog bar graph
  - Min/max
  - 2-year warranty
- Includes carrying case



▶ 61-452

Meter Specifications		61-452
	RANGE & RESOLUTION	ACCURACY
AC VOLTAGE	400.0 V	1.5%
AC CURRENT	40.00/400.0m/4.000/40.00/60.0 A	2.0%
RESISTANCE	400.0 $\Omega$	1.0%



# Combo Cases™

## COMMON FEATURES

- Top selling tools in rugged cases
- Unmatched value
- Large storage compartments
- 2-year warranty

### ▶ 61-2002

**Clamp Combo Case™ includes:**  
#61-766 TightSight™ Clamp Meter  
#61-521 Phase Rotation Tester



### ▶ 61-2001

**Meter Combo Case™ includes:**  
#61-350 Multimeter  
#61-732 400 Amp Clamp



### ▶ 61-2000

**Tester Combo Case™ includes:**  
#61-086 Vol-Con® XL Voltage Tester  
#61-534 Circuit Breaker Finder  
#61-063 Non-Contact Voltage Tester



# Multimeters


Just what a meter should be –  
reliable, safe and easy to use.



Digital multimeters let you do more than take AC/DC voltage readings – they allow you to measure resistance, continuity, capacitance and frequency. Our digital multimeters are packed with features such as auto/manual ranging, capacitance and True RMS measurements.

There's an IDEAL digital multimeter for every environment – commercial, industrial and residential.

# Multimeters

MULTIMETER SELECTION GUIDE	310		320 Series			340		360		490		600	610	
	61-310	61-312	61-320	61-322	61-324	61-340	61-342	61-360	61-361	61-494	61-495	61-605	61-610	61-614
<b>MEASUREMENT FUNCTIONS</b>														
AC & DC Voltage	•	•	•	•	•	•	•	•	•	•	•	•	•	•
AC Current		•	•	•	•	•	•	•	•	•	•			
DC Current	•	•	•	•	•	•	•	•	•	•	•		•	•
Resistance	•	•	•	•	•	•	•	•	•	•	•	•	•	•
LV Resistance										•	•			
Audible Continuity	•	•	•	•	•	•	•	•	•	•	•	•		•
Diode Test	•	•	•	•	•	•	•	•	•	•	•	•		
Capacitance			•	•	•	•	•			•	•			
Frequency		•	•	•	•	•	•		•	•	•			
Temperature	•	•				•	•			•	•			
Duty Factor						•	•			•	•			
Battery Test	•												•	•
Decibels										•	•			
Phase Rotation									•					
<b>FEATURES</b>														
Display Type (Digital or Analog)	D	D	D	D	D	D	D	D	D	D	D	D	A	A
True RMS			•	•		•	•		•	•	•			
Auto/Manual Ranging		•	•	•	•	•	•			•	•	•		
Data Hold/Auto Hold	D	D	D	D	D	D	D	D		A	A	D		
Max Hold								•						
Peak Hold			•	•						•				
Min/Max				•	•	•	•							
Min/Max/Avg										•	•			
Peak Min/Max			•	•	•					•	•			
Relative Mode			•	•	•	•	•			•	•			
High Speed Analog Bar Graph			•	•	•					•	•			
Auto Power Off		•	•	•	•	•	•	•	•	•	•	•		
Backlight					•	•	•			•	•			
Low Battery Indication		•	•	•	•	•	•	•	•	•	•	•		
Dual Display										•	•			
Overload Protection on All Ranges	•	•	•	•	•	•	•	•	•	•	•	•		
Data Logging										•	•			
Data Acquisition					•					•	•			
Memory Storage & Recall										•	•			
Optical USB Interface					•					•	•			
Optional ProVision™ Software					•					•	•			
Warranty (years)	2	2	2	2	2	2	2	2	2	2	2	2	2	2
<b>CERTIFICATIONS</b>														
UL 61010 Listed 	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CAT Rating	II	II	IV	IV	IV	III	III	III	III	III	III	II	II	II
CE	•	•	•	•	•	•	•	•	•	•	•	•	•	•

Multimeters

# PlatinumPro® Industrial-Grade Multimeters (490 Series)

## COMMON FEATURES

- True RMS
- Data acquisition
- Data logging
- Data storage
- Frequency
- Capacitance
- Temperature
- Low voltage
- Duty factor
- dBm/dB
- Auto/manual ranging
- Dual display
- Analog bar graph
- Auto power off
- Peak hold
- Min/max/avg
- Relative mode
- 20,000 count high resolution mode
- Backlight
- Low battery indication
- 2-year warranty

## ACCESSORIES

Includes	
Carrying Case	C-290
Test Leads w/Alligator Clips	TL-100
Optional	
Current Clamp Adapters (page 39)	
Magnetic Strap	61-565
ProVision™ Software*	61-900
Optical USB Cable*	61-902

\* Included with 61-495



▶ 61-495  
Data logging (40,000 records), thermocouple, software and cable interface included



Data acquisition and analysis with 490 ProVision™ software for 61-495.



▶ 61-494  
Data logging (6000 records)



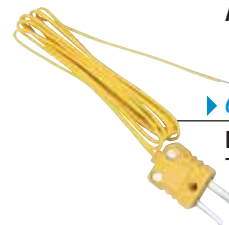
▶ 61-900  
490 Series ProVision™ Software



▶ 61-902  
Optical USB Cable



▶ 61-465  
Thermocouple Adapter



▶ 61-461  
Beaded K-type Thermocouple

490 Series Specifications		61-494	61-495
	<b>RANGE &amp; RESOLUTION</b>	<b>BASIC ACCURACY</b>	
AC VOLTAGE	20.000m/200.00m/2.0000/20.000/200.00/750.0 V	0.7%	0.7%
DC VOLTAGE	20.000m/200.00m/2.0000/20.000/200.00/1000.0 V	0.06%	0.06%
AC CURRENT	20.000m/200.00m/2.0000/10.000 A	0.1%	0.1%
DC CURRENT	20.000m/200.00m/2.0000/10.000 A	0.3%	0.2%
RESISTANCE	200.00/2.0000k/20.000k/200.00k/ 2.0000M/20.000M/200.00M/2.0000G Ω	0.6%	0.6%
LV RESISTANCE	2.0000k/20.000k/200.00k/ 2.0000M/20.000M/200.00M Ω	0.3%	0.3%
CAPACITANCE	4.000n/40.00n/400.0n/4.000µ/40.00µ/ 400.0µ/4.000m/40.00mF	0.9%	0.9%
FREQUENCY	20.000/200.00/2.0000k/20.000k/200.00k/1.0000M Hz	0.01%	0.01%
DUTY FACTOR	20% - 80%	1.0%	1.0%
TEMPERATURE	-150° F to 2200° F (-100° C TO 1200° C)	0.1%	0.1%



# PlatinumPro® Contractor-Grade Multimeters (320 Series)



Data acquisition and analysis with 320 ProVision™ software for 61-324.



▶ 61-324

True RMS, AC/DC current, backlight data acquisition and USB interface



▶ 61-322

True RMS, AC/DC current



▶ 61-320



▶ 61-565

Magnetic Hand Strap Fits Platinum Pro® Multimeters



▶ 61-905

Optical USB Cable



▶ 61-904

320 Series ProVision™ Software

## COMMON FEATURES

- AC/DC voltage
- Capacitance
- Frequency
- Auto/manual ranging
- Peak min/max
- Min/max
- Relative mode
- Data hold
- Low battery indicator
- Auto power off
- 2-year warranty

## ACCESSORIES

Includes	
Test Leads w/Alligator Clips	TL-100
Optional	
Carrying Case	C-290
Current Clamp Adapters (page 39)	
Magnetic Strap	61-565
ProVision™ Software	61-904
Optical USB Cable	61-905

320 Series Specifications		61-320	61-322	61-324
	<b>RANGE &amp; RESOLUTION</b>	<b>BASIC ACCURACY</b>		
AC VOLTAGE	400.0m/4.000/40.00/400.0/750 V	1.3%	1.3%	1.3%
DC VOLTAGE	400.0m/4.000/40.00/400.0/1000 V	0.5%	0.5%	0.5%
AC CURRENT	400.0µ/4000µ/40.00m/400.0m A	—	1.5%	1.5%
DC CURRENT	400.0µ/4000µ/40.00m/400.0m A	1.5% (µA range only)	1.5%	1.5%
RESISTANCE	400.0/4.000k/40.00k/400.0k/4.000M/40.00M Ω	0.7%	0.7%	0.7%
CAPACITANCE	4.000n/40.00n/400.0n/4.000µ/40.00µ/ 400.0µ/4.000m/40.00m F	1.9%	2.0%	2.0%
FREQUENCY	4.000k/40.00k/400.0k/4.000M/40.00M Hz	0.01%	0.1%	0.1%



Multimeters

# Test-Pro® Multimeters (340 Series)

### COMMON FEATURES

- AC/DC voltage
- AC/DC current
- Resistance
- Audible continuity
- Capacitance
- Frequency
- Temperature
- Relative mode
- Backlight
- Min/max
- Data hold
- Low battery indication
- Auto power off
- 2-year warranty

### ACCESSORIES

#### Includes

Test Leads TL-103

#### Optional

Carrying Case C-290

600A AC/DC Clamp Adapter 61-334

Current Clamp Adapter 61-451



▶ 61-342  
True RMS



▶ 61-340



340 Series Specifications		61-340	61-342
	RANGE & RESOLUTION	ACCURACY	
AC VOLTAGE	4.000/40.00/400.0/1000 V	1.5%	1.5%
DC VOLTAGE	400.0m/4.000/40.00/400.0/1000 V	0.5%	0.5%
CURRENT	400.0µ/4000µ/40.00m/400.0m/4.000/10.00 A AC/DC	1.5%	1.5%
RESISTANCE	400.0/4.000k/40.00k/400.0k/4.000M/40.00M Ω	1.0%	1.0%
CAPACITANCE	40.00n/400.0n/4.000µ/40.00µ/400.0µ F	3.0%	3.0%
FREQUENCY	10.00/100.0/1.000k/10.00k/100.0k/1.000M/4.000M Hz	0.3%	0.3%
TEMPERATURE	-4-1382°F (-20-750°C)	3.0%	3.0%

# Resi-Pro™ Multimeters (310 Series)

### COMMON FEATURES

- AC/DC voltage
- Current
- Resistance
- Audible continuity
- Temperature
- Data hold
- 2-year warranty

### ACCESSORIES

#### Includes

Test Leads TL-310



▶ 61-312  
Auto ranging, AC/DC current, capacitance, frequency, auto power off, low battery indication



▶ 61-310  
Manual ranging, tests batteries, DC current

310 Series Specifications		61-310	61-312	
	RANGE & RESOLUTION	ACCURACY	RANGE & RESOLUTION	ACCURACY
AC VOLTAGE	200.0/600 V	1.2%	4.000/40.00/400.0/600 V	1.2%
DC VOLTAGE	200.0m/2.000/20.00/200.0/600 V	0.5%	400.0m/4.000/40.00/400.0/600 V	0.5%
CURRENT	200.0m/10.00 ADC	1.5%	400.0µ/4000µ/40.00m/400.0m/10.00 A AC/DC	1.5%
RESISTANCE	200.0/2.000k/20.00k/200.0k/20.00M Ω	1.0%	400.0/4.000k/40.00k/400.0k/4.000M/40.00M Ω	1.0%
CAPACITANCE	—	—	40.00n/400.0n/4.000µ/40.00µ/400.0µ F	3.0%
FREQUENCY	—	—	10.00/100.0/1.000k/10.00k/100.0k/1.000M/10.00M Hz	0.3%
TEMPERATURE	-4-1382°F (-20-750°C)	2.5%	-4-1382°F (-20-750°C)	2.5%





# Contractor-Grade Multimeters (360 Series)



▶ **61-361**  
True RMS,  
phase rotation,  
capacitance,  
frequency



▶ **61-360**  
Max hold,  
data hold



### COMMON FEATURES

- AC/DC voltage
- AC/DC current
- Resistance
- Audible continuity
- Manual ranging
- Rugged construction
- Auto power off
- Low battery indication
- 2-year warranty

360 Series Specifications		61-360	61-361
	RANGE & RESOLUTION	ACCURACY	ACCURACY
AC VOLTAGE	200.0m/2000m/20.00/200.0/600 V	1.0%	200.0m/2000m/20.00/200.0/600 V 2.0%
DC VOLTAGE	200.0m/2000m/20.00/200.0/600 V	0.5%	200.0m/2000m/20.00/200.0/600 V 1.2%
AC CURRENT	200.0μ/20.00m/200.0m/10.00 A	1.5%	2.000 A 3.0%
DC CURRENT	200.0μ/20.00m/200.0m/10.00 A	1.0%	2.000 A 2.5%
RESISTANCE	200.0/2.000k/20.00k/200.0k/2.000M/20.00M Ω	1.0%	200.0/2.000k/20.00k/200.0k/20.00M/200.0M Ω 1.0%
CAPACITANCE	—	—	20.00μ/200.0μ/2.000m/20.00m F 4.0%
FREQUENCY	—	—	10.0-100.0k Hz 0.50%
PHASE ROTATION	—	—	80-500V (50-500Hz) —

### ACCESSORIES

Includes	
Standard Test Leads	TL-103
Alligator Clip Lead (61-361)	K-7515
Optional	
Carrying Case	C-290
Current Clamp Adapters (page 39)	
Magnetic Strap	61-566



▶ **61-614**  
Audible  
continuity,  
built-in stand



▶ **61-610**  
Pocket size,  
diode protected



# Analog Multimeters (610 Series)

### COMMON FEATURES

- Multi-color analog display with mirrored scale
- High-impact thermoplastic case
- Battery test
- 2-year warranty

610 Series Specifications		61-610	61-614
	RANGE & RESOLUTION	ACCURACY	ACCURACY
AC VOLTAGE	10/50/250/500 V	+/- 4.0% Full Scale	10/50/250/1000 V +/- 4.0% Full Scale
DC VOLTAGE	10/50/250/500 V	+/- 3.0% Full Scale	2.5/10/50/250/1000 V +/- 3.0% Full Scale
DC CURRENT	500μ/50m/250m A	+/- 3.0% Full Scale	5m/50m/500m/20 A +/- 3.0% Full Scale
RESISTANCE	1 M Ω Full Scale 5 k Ω Mid Scale	+/- 3.0% Arc Length	10k/100k/10M Ω Full Scale 50/500/50k Ω Mid Scale +/- 3.0% Arc Length
DECIBELS	-20 to +56 dB	—	-8 to +62 dB —
BATTERY TEST	—	—	1.5, 9.0 VDC —



▶ **61-605**  
Audible continuity, auto  
power off, test lead storage



Specifications		61-605
	RANGE & RESOLUTION	ACCURACY
AC VOLTAGE	200.0m/2.000/20.00/200.0/600 V	4.0%
DC VOLTAGE	200.0m/2.000/20.00/200.0/600 V	2.0%
RESISTANCE	200.0/2.000k/20.00k/200.0k/2.000M/20.00M Ω	3.0%

# Pocket Meter (600 Series)

### FEATURES

- Low cost, multi-function
- Built-in test stand
- Overload protection on all ranges
- 2-year warranty

# Circuit Tracers

## Take the time-consuming guesswork out of tracing circuits



The right technology and the right design put the open/closed circuit tracers in a class by themselves.

The latest from IDEAL brings a new level of performance, ease-of-use and safety to a previously frustrating, time-consuming task.

Open/closed circuit tracers are another example of how IDEAL takes innovation and applies it to make your job easier.



# Open/Closed Circuit Tracers

## Three things to look for in an IDEAL Circuit Tracer: performance, ease-of-use and safety

**Performance:** Circuit tracing has often been called an inexact science. But, the four clearly defined modes of operation of the new SureTest Circuit Tracers bring you a revolutionary level of precision, confidence and minimal set up time. Search High, Search Low, Trace and Breaker Modes let you quickly select the proper sensitivity for your specific job. And, with easy-to-replace AA batteries, the tracer provides four times the tracing power of conventional 9-volt circuit tracers on the market.



**Ease-of-Use:** No circuit tracer has ever been so user friendly. Rather than blinking LED lights and difficult-to-decipher beeps, the super-bright SureTest models provide a numeric value between 0 and 99 and a variable pitch/tone audible indication. In addition, the peak detector provides instantaneous signal strength feedback. The RC-958 Receiver also features the only rotating display in the industry.



Regardless of what position you put the receiver in, the display will orient itself so that the reading stays upright.

**Safety:** With a new level of circuit tracing comes a new level of safety. It starts with rugged construction. Every safeguard has been taken to make the SureTest Circuit Tracers durable and safe for the long term. Additionally, a high-energy fuse and CAT III 600V design give you the confidence to go about the job without worrying about equipment safety.



Transmitter will work on a de-energized circuit and won't affect GFCIs and sensitive equipment on an energized circuit.

AA batteries provide the transmitter and receiver 4x the power.



Circuit Tracers

# Open/Closed Circuit Tracers

## COMMON FEATURES

- Identifies breakers and fuses
- Pinpoints opens and shorts
- Traces wires
- "0-99" display of signal strength
- Audible intensifies in tone/pitch
- Can be used on circuits 0-600V AC/DC
- Works on energized or de-energized circuits
- Four modes of sensitivity – search high, search low, trace and breaker
- Peak bar graph
- 2-year warranty

## ACCESSORIES

### Includes

Fuse – High-energy, Fast-acting, 1A/1000V	F-958
Tracer Test Lead Set (includes 1-6 below)	TL-956
1. Outlet Plug Adapter for Transmitter	TLOP-956
2. Blade Prongs for Lead Adapters (2/set)	TLBP-956
3. Ground Prong for Lead Adapter	TLGP-956
4. Alligator Clips for Lead Adapters (2/set)	TLAC-956
5. 3 ft. Lead Adapters for Transmitter (2/set)	TLA1-956
6. 25 ft. Lead Adapter for Transmitter	TLA2-956

### Optional

Cradle for Receiver	CR-958
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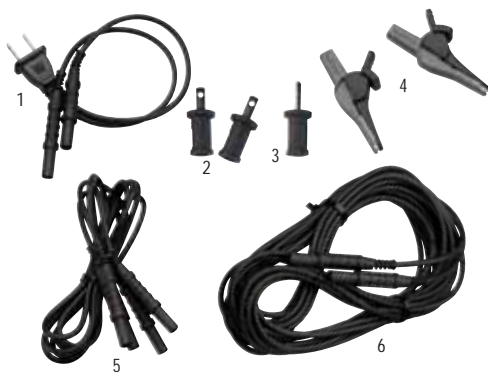
### ▶ 61-958

Super bright rotating OLED display receiver, transmitter, test lead set, inductive clamp, battery pack



### ▶ CR-958

**Cradle for Receiver**  
For use with extension pole for ceilings and flooring



Circuit Tracer Specifications	
<b>Transmitter:</b>	
Operating Voltage	0 - 600V AC/DC
Battery Power	1.5V x (4) AA batteries (NEDA 15A, IEC LR6)
Battery Life	40 hours open circuit testing/25 hours short circuit tracing
Indicators	On/Off, Line energized, low battery
<b>Receiver:</b>	
Sensing	Magnetic
Battery Power	1.5V x (3) AA batteries (NEDA 15A, IEC LR6)
Battery Life	20 hours





▶ 61-956  
Super bright rotating OLED display receiver, transmitter, test lead set



▶ 61-954  
Standard LED receiver, transmitter, test lead set

Kit Contents	61-954	61-956	61-958
Transmitter	TR-958	TR-958	TR-958
Receiver	RC-954	RC-958	RC-958
Tracer Test Lead Set	TL-956	TL-956	TL-956
Inductive Clamp			IC-958
Battery Pack			BP-958
Magnetic Hanging Strap			61-565
Hard Carrying Case	C-954	C-954	C-958
Batteries	•	•	•
Instruction Manual	•	•	•



In Breaker Mode, receiver identifies the correct circuit to which the transmitter is connected.



Inductive clamp allows you to induce a tracer signal on to the cable without affecting the low voltage signals on the circuit.



Individual wires can be sorted, opens can be located and shorts can be isolated.



Display rotates in 90° increments so that you always receive an upright reading.

# Ground Resistance Meters

## Troubleshooting and accurate measurements made easy



IDEAL ground resistance meters provide the most accurate and valuable measurements and troubleshooting information.

We enable electricians to test a grounding system quickly and efficiently – without disconnecting the ground. No need for leads, auxiliary rods or spacing requirements.

Every IDEAL Ground Resistance Meter is designed for maximum performance, safety and accuracy – innovations we take great pride in. So whatever your needs may be, IDEAL has the right meter for you to test your grounding systems with confidence.

# Ground Resistance Meters

## COMMON FEATURES

- Auto ranging
- Auto power off
- 2-year warranty



### ▶ 61-920

**Ground Resistance Clamp Meter**  
Large clamp size\*, backlight, saves up to 99 measurements



### ▶ 61-796

**Earth Ground Resistance Tester**  
2- & 3-point fall of potential methods, lead set (TL-796) included



### ▶ TL-796

**Earth Resistance Lead Set Kit**  
Kit includes three test leads with alligator clips (5, 33, 33m) on reels, (2) auxiliary grounding spikes

Specifications	61-920		61-796	
	RANGE & RESOLUTION	ACCURACY	RANGE & RESOLUTION	ACCURACY
GROUND RESISTANCE	0/120/1200 Ω	1.5%	20.00/200.0/2000 Ω	2.0%
GROUND LEAKAGE CURRENT	100m/1000m/15/30 A	2.0%	—	—

\*Clamp accommodates conductor size up to 1.25 in. (32mm).



# Insulation Testers

## Why you need an insulation tester from IDEAL



Maintaining the integrity of insulation in cables, motors and other devices is crucial because it keeps current flowing safely through the copper conductor.

The IDEAL insulation tester performs four key tests that are essential to modern industrial environments. The first, Proof Test, is performed upon installation of new machinery or circuitry. The three other tests are used for general maintenance testing.

With the IDEAL insulation tester, insulation testing has never been so easy and hassle-free.





Tests insulation on motor windings

# Insulation Tester

## FEATURES

- Checks new installations for proper insulation
- Checks existing installations and motor windings for breakdowns in insulation
- 2-year warranty



### ▶ 61-795

#### Hand-held Insulation Tester

Test voltage: 250/500/1000V, test inhibition >25V, default voltmeter to 600V AC/DC, digital display with analog arc, auto discharge, auto power off, auto ranging, protective rubber boot, continuity, low battery indication, Cat IV – 600V, includes carrying case

Specifications	61-795	
	RANGE & RESOLUTION	ACCURACY
TEST VOLTAGE	250/500/1000 V	
INSULATION RESISTANCE	0-4.000/40.00/400.0/4000 MΩ	2.0%
CONTINUITY	0.01-20.00 Ω	2.0%
RESISTANCE	0-200.0 Ω	2.0%
AC VOLTAGE	0-600.0 V	0.8%
DC VOLTAGE	0-600.0 V	0.5%



# Power Quality Meters

## The best way to troubleshoot for power quality issues



Power quality problems are frequently undetected until after an incident occurs – interrupting processes and possibly damaging equipment. Unless the source of the problem is identified and its cause diagnosed, repair costs can quickly add up.

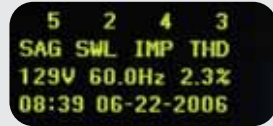
IDEAL has made a number of technological advancements in the realm of power quality. Take our new Voltage Performance Monitor (VPM). It puts a power quality “expert in a box” so you don’t need to be one to identify voltage events. It simplifies power quality issues by monitoring, logging and identifying voltage events at the source of power disruption.

So why choose an IDEAL power quality meter? Because we’re always thinking of innovative ways to make your job safer, easier and more efficient.

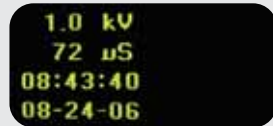


# Voltage Performance Monitor (VPM)

## Voltage Performance Monitor Display Screens



**Monitor Screen:** Real-time information on voltage, voltage events and harmonics.



**Impulse Detail:** Fast response catches positive and negative impulses up to 4kV.



**Set Standard:** Select from more than a dozen threshold options based on existing standards or customize your own (defaults to ITIC).



▶ 61-830

## FEATURES

- Real-time TRMS voltage, frequency and harmonics monitoring
- Logs voltage, sags, swells and impulses
- Measures %THD and logs periods over 3% (line to neutral)
- Selectable thresholds based on the most accepted international standards, defaults to ITIC\*
- Custom programmable event thresholds
- Invertible display, when it is necessary to plug in upside down
- 2-year warranty

\* Captures events that would affect equipment on branch circuit

## ACCESSORIES

### Includes

Adapters (set of 4)	PA-830
Carrying Case	61-179

### Optional

Alligator Clip Adapters (2-wire)	TL-532A
1 ft. US Extension Cord	61-177
Kit w/(1) SureTest® 164, (2) VPM 61-830, Soft Case C-2004	61-2003
Kit w/(1) SureTest® 164, (4) VPM 61-830, Soft Case C-2004	61-2004

## Applications

### Monitor voltage near sensitive equipment

- Installation and Service Technicians
  - Monitor voltage at point of equipment connection
- Electricians
  - Eliminate guesswork on service calls
- Building Maintenance Technicians
  - Identify voltage caused equipment failures
- Equipment Manufacturers
  - Eliminate unnecessary warranty costs
- Hospital/IT Maintenance Engineers
  - Monitor voltage quality to critical equipment

▶ 61-179

Replacement Carrying Case



▶ PA-830

Replacement Adapters (set of 4)



Kit 61-2004



## See voltage through the eyes of your equipment

Poor voltage quality increases facility expenses, warranty costs and downtime plus shortens the life of equipment. The IDEAL VPM identifies only those voltage conditions that can damage equipment or cause equipment failure.

Specifications	61-830
Operating Range	15-265V
Memory	512 events
Sampling Method	Continuous (128 samples per cycle)
Voltage Accuracy	1%
Impulse Detection	6μs, 4kV
THD	FFT calculation



# 3-Phase Power Analyzer (800 Series)

## FEATURES

- True RMS
- Single- or three-phase measurements
- Data logging (1MB memory)
- Up to one month of recording time
- 4-channels for voltage measurements
- 4-channels for current measurements\*
- Auto ranging
- Min/max/avg
- Energy and Harmonics Program
- PowerVision™ Software
- Lightweight, portable design
- Easy-to-use push-button operation
- Backlit display\*
- Customized data collection
- Optional FIFO memory
- Real-time clock
- Programmable trigger-points and start/stop time
- Intelligent battery charging system
- Easy set-up
- Interactive demo CD
- 2-year warranty

## POWER & ENERGY MEASUREMENTS

- Kilowatts (kW)
- Volt-amperes (VA)
- Inductive reactive power (kvarL)
- Capacitive reactive power (kvarC)
- Power factor (PF)
- Frequency
- Kilowatt hours (kWh)
- Reactive power per hour (kvarhL, kvarhC)

## HARMONICS MEASUREMENT

- Total harmonic distortion (% THD)
- Harmonic factorization (FFT) to 51st harmonic

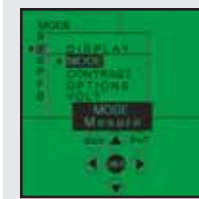
\* Models 806/807



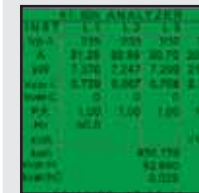
The IDEAL Power Quality Analyzer is a versatile and easy-to-use tool that will give you the information you need to get the job done. The unit measures and analyzes power quality on both single- and three-phase electrical systems. Instantaneous readouts of current, voltage, power and harmonics including tables, bar graphs and even individual waveforms, make job site data interpretation easy. With a real-time clock and 1MB of memory, the Power Analyzer stores data that can be downloaded to a personal computer for in-depth analysis using PowerVision™ software.

It's everything a professional needs for monitoring and analysis in a single unit: rugged, versatile and easy to use. Models available with 3 or 4 current channels to meet your needs and budget.

Power Analyzer Specifications 61-805, 61-806, 61-807		
	RANGE & RESOLUTION	ACCURACY
AC VOLTAGE	20 to 600 V (phase-neutral)	0.5%
	20 to 866 V (phase-phase)	0.5%
AC CURRENT	10 to 1000 A (with supplied clamp adapters)	1.0%
ACTIVE POWER	866 kW (with supplied clamp adapters)	1.0%
REACTIVE POWER	866 kW (with supplied clamp adapters)	1.0%
POWER FACTOR	0.5 to 1.0	1.0%



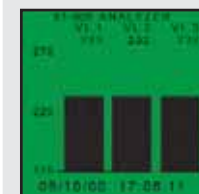
Program Setup



Table



Exploded View



Bar Graph



Scope View



Waveform Zoom

Standard Equipment



ACCESSORIES	
1000AAC Clamps (set of 3)	61-811
100AAC Neutral Clamp (1)	61-813
5AAC Compact Neutral Clamp (blue)	61-814
2000AAC Clamps (set of 3)	61-810
500AAC Clamps (set of 3)	61-812
5AAC Compact Clamps (set of 3)	61-819
100AAC Compact Clamps (set of 3)	61-820
100AAC Compact Neutral Clamp (blue)	61-821
200/2000/20000AAC Flexible Clamp adapters (set of 3)	61-457

Standard Equipment	61-805	61-806	61-807
1000AAC Clamps (61-811)	•	•	•
100AAC Neutral Clamp (61-813)	—	optional	•
Voltage leads with Alligator Clips (TL-806)	•	•	•
Power supply with RS-232 Interface and cables	•	•	•
PowerVision™ Analysis Software	•	•	•
Demonstration CD and Instructions	•	•	•
Protective Carrying Case	•	•	•

Note:  
 Model 805 has 3 current channels  
 Models 806/807 have 4 current channels  
 Model 807 includes neutral clamp



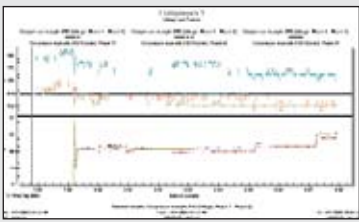
200/2000/20000AAC Flexible Clamp Adapters



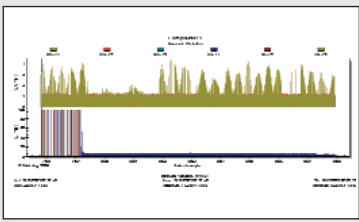
PowerVision™ Software

PowerVision™ software provides intuitive analysis of data and automatic generation of useful tables and graphs. Files are easily downloaded from any 800 series unit.

PowerVision™ provides multiple ways to view basic and detailed information, allowing you to customize readouts according to your troubleshooting needs. Compare up to 12 variables simultaneously. Easily scroll through, expand and collapse data over time. Compare data from multiple files to show before and after studies. Data can be exported to text files, databases; graphs and tables can be pasted into Excel or Word reports. Highly-trained technical support people are always a phone call away.



Current and Voltage



Harmonic Distortion

# Branch Circuit Testers

## Proper wiring ensures branch circuit safety and performance



IDEAL offers a number test instruments electricians depend on to test the integrity of a branch circuit. Like the SureTest® Circuit Analyzer which performs a variety of tests and troubleshoots any branch circuit problem.

Only IDEAL brings electricians the latest breakthroughs in troubleshooting technology, providing a whole new level of accuracy, safety and confidence.



# SureTest® Circuit Analyzers



Troubleshoots branch circuit problems with a variety of tests at the receptacle.



AFCI testing with alligator clips on an installed device.



▶ 61-165

Tests AFCI branch circuits, test for shared neutral



▶ 61-164

## COMMON FEATURES

- Super-bright display
- Measures voltage drop under full load\*
- Estimates load on circuit
- True RMS
- Line voltage
- Peak voltage
- Frequency
- Ground to neutral voltage
- Ground impedance
- Hot and neutral conductor impedances
- Identifies proper wiring in 3-wire receptacles
- Identifies false (bootleg) grounds
- Tests GFCIs and EPDs for proper operation
- Conducts testing without disturbing sensitive loads
- Verifies isolated grounds (with 61-176 adapter)
- 2-year warranty

\* 12A, 15A, 20A load tests

## ACCESSORIES

### Includes

Carrying Case	61-179
1 ft. Extension Cord	61-182

### Optional

Ground Continuity Adapter	61-175
Isolated Ground Adapter	61-176
Alligator Clip Adapter	61-183



▶ 61-183  
Alligator Clip Adapter



▶ 61-182  
1 ft. Extension Cord



▶ 61-175 and 61-176  
Ground Continuity and Isolated Ground Adapters, respectively

## SureTest® 160 Series Specifications

	RANGE & RESOLUTION	BASIC ACCURACY
AC VOLTAGE	85.0 - 265.0 VAC	1.0%
FREQUENCY	45.0 - 65.0 Hz	1.0%
IMPEDANCE	0.00 - 1.99 Ω	5.0%
GROUND-NEUTRAL VOLTAGE	0.0 - 24.0 VAC	2.0%
% VOLTAGE DROP 12A, 15A, 20A load tests	0.1% - 50.0%	5.0%
GFCI TEST CURRENT	6.0 - 9.0 mA 0.0 - 6500 mS	2.0%



Branch Circuit Testers

# Circuit Breaker Finders

### COMMON FEATURES

- Fully automatic operation
- Positively identifies circuit breakers and fuses without service interruption
- Self calibrating
- Visual and audible indicators
- 2-year warranty

### ACCESSORIES

Carrying Case	C-290
Alligator Clip and Light Adapters	TL-532A



▶ 61-534

Microprocessor controlled sensitivity level, verifies proper wiring, checks GFCI operation, non-contact voltage, works on 120 and 240V circuits



Alligator clip adapter allows connections to exposed wiring



Lighting adapter allows connection to light fixtures



▶ 61-532



▶ TL-532A

Alligator Plug/Lighting Adapters

Specifications	61-532	61-534
OPERATING VOLTAGE	100 - 140 VAC	100 - 250 VAC
OPERATING FREQUENCY	47 - 63 Hz	47 - 63 Hz





# Mini Arc Fault Tester



### FEATURES

- Tests AFCI circuits for proper operation
- Tests GFCIs for proper operation
- Tests for shared neutrals
- Verifies wiring configuration
- Compact size fits comfortably in pocket
- 1-year warranty

### ACCESSORIES

Optional	
1' Cord Adapter	61-177
Alligator Clip Adapter (3-wire)	61-184
Alligator Clip Adapter (2-wire)	TL-532
Carrying Case w/ Belt Clip	C-50



# E-Z Check® Circuit Testers



### COMMON FEATURES

- Tests for correct wiring, open ground, reverse polarity, open hot, open neutral, hot on neutral, hot and ground reversed with open hot, and ground fault interruption in 3-wire, 120VAC circuits
- No-slip ergonomic design maximizes comfort
- Premium neon lamps prevent false readings
- Tough, impact-resistant case
- Tests GFCI devices for proper operation
- 2-year warranty



# Receptacle Testers

### COMMON FEATURES

- Warns against faulty wiring in 3-wire receptacles
- For use on 120VAC circuits
- 1-year warranty



# Electrical Testers

## Choose the one-and-only pioneer in voltage testing

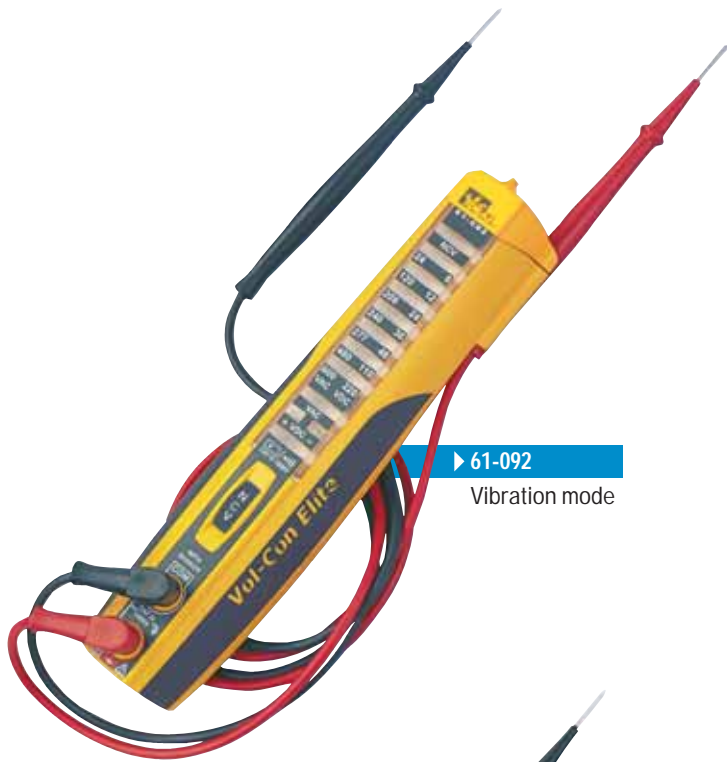


IDEAL understands the professional electrician's job. That's why we created a number of products that identify the presence of voltage at the receptacle or breaker panel.

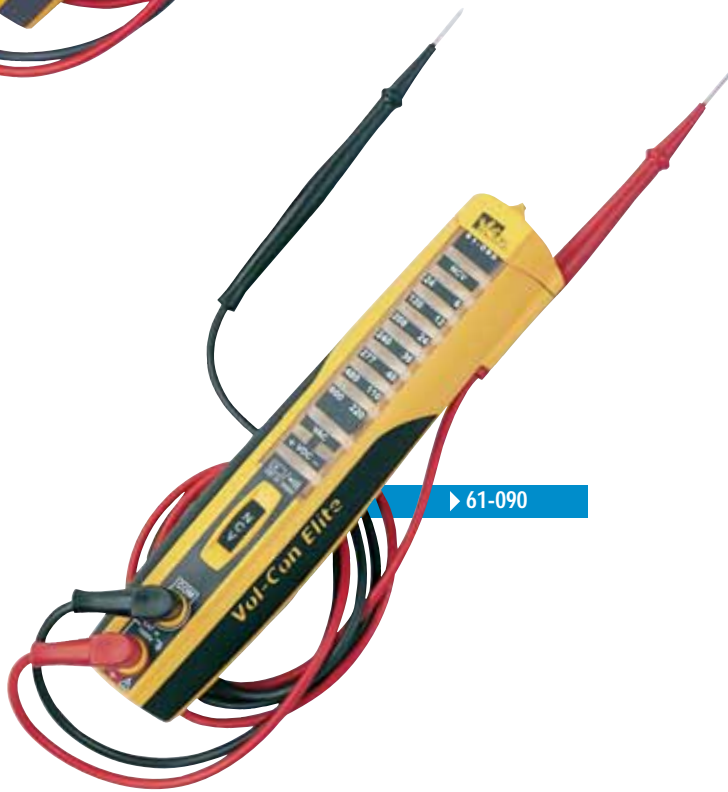
The Vol-Con<sup>®</sup> Elite, a voltage/continuity tester, combines the best attributes of a solenoid tester to offer more accurate voltage levels and a higher safety rating. Also, the newly designed VoltAware<sup>™</sup> non-contact voltage tester quickly identifies hot conductors, breaks in wires and the presence of AC voltage.

Whether checking for energized circuits, measuring current or determining continuity, all of our specialty and electrical testers incorporate high levels of safety and performance.

# Vol-Con® Elite Digital Voltage Testers



▶ 61-092  
Vibration mode



▶ 61-090

## COMMON FEATURES

- Digital circuitry for better resolution
- Tests for AC Voltage from 24-600VAC
- Tests for DC Voltage from 6-220VDC
- Audible continuity
- Non-contact voltage (40-600VAC)
- Low impedance to eliminate ghost voltages
- Low battery indicator
- Replaceable silicone test leads
- Integral lead storage
- 2-year warranty

## ACCESSORIES

Includes	
Silicone Test Leads	TL-102
Optional	
Carrying Case	C-90



Vibration mode gives a tactile indication of the voltage level.



Non-contact voltage sensor easily locates breaks in power cords.



Electrical Testers

# Solenoid Voltage Testers

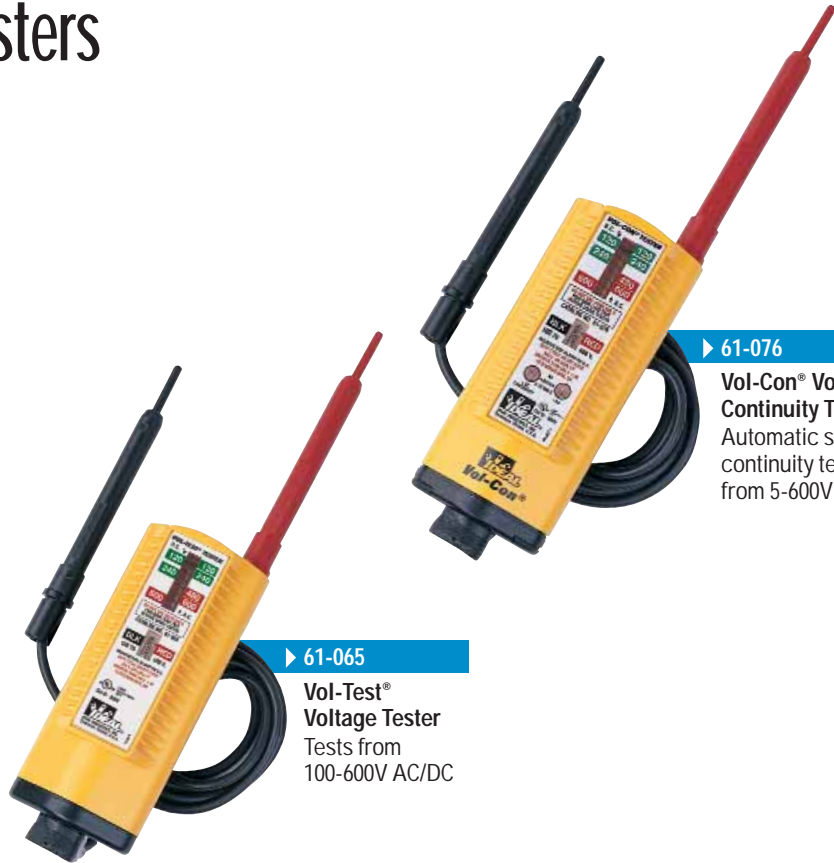
### COMMON FEATURES

- Extremely rugged and reliable
- Vibrates when voltage is present
- Tests for AC Voltage
- Tests for DC Voltage
- Replaceable leads with shielded probe tips
- Bright, long-life neon lamp
- Dual voltage indication for backup safety
- 2-year warranty

### ACCESSORIES

<b>Includes</b>	
Standard Test Leads	61-070
<b>Optional</b>	
Resistor-fused Leads*	61-072
Padded Nylon Case	C-90
Leather Case	61-010

\* Special, current-limiting resistor in each lead acts as a fuse to open in a short-circuit situation.



▶ 61-065  
**Vol-Test® Voltage Tester**  
Tests from 100-600V AC/DC

▶ 61-076  
**Vol-Con® Voltage/Continuity Tester**  
Automatic switching continuity tester, tests from 5-600V AC/DC

# XL-Series Solenoid Voltage Testers

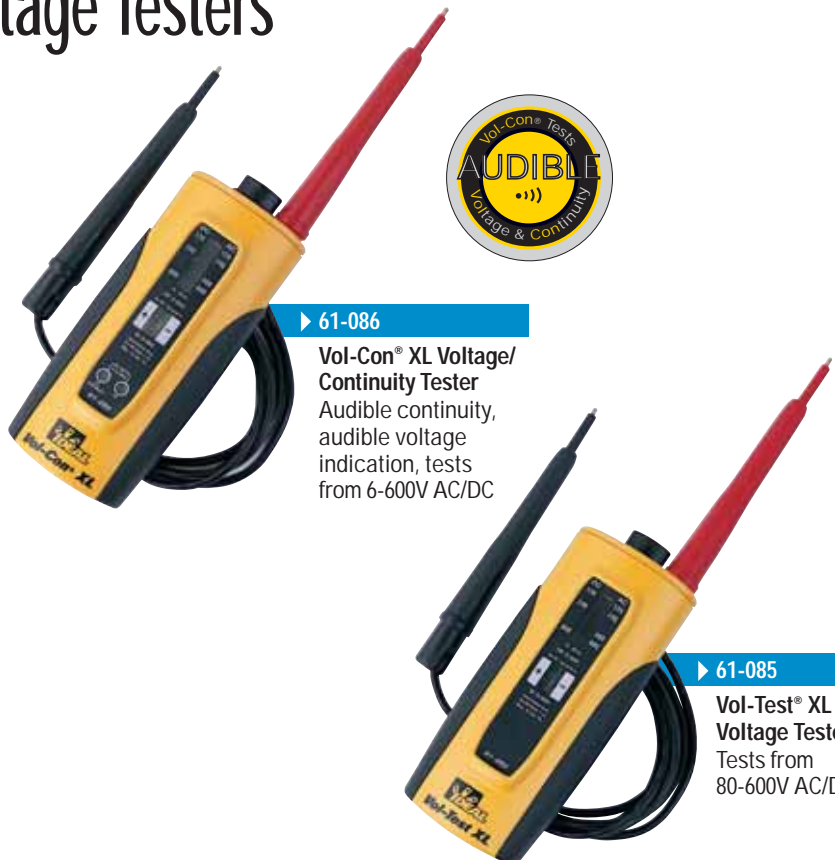
### COMMON FEATURES

- Extremely rugged and reliable
- Vibrates when voltage is present
- Tests for AC/DC Voltage
- Replaceable leads with shielded probe tips
- Bright, long-life neon lamp
- Dual voltage indication for backup safety
- Compact size
- 2-year warranty

### ACCESSORIES

<b>Includes</b>	
Standard Test Leads	TL-80
<b>Optional</b>	
Resistor-fused Leads*	TL-82
Padded Nylon Case	C-90
Leather Case	61-010

\* Special, current-limiting resistor in each lead acts as a fuse to open in a short-circuit situation.



▶ 61-086  
**Vol-Con® XL Voltage/Continuity Tester**  
Audible continuity, audible voltage indication, tests from 6-600V AC/DC

▶ 61-085  
**Vol-Test® XL Voltage Tester**  
Tests from 80-600V AC/DC

# Split-Jaw™ Smart Meter



▶ 61-096

**EASY  
NO DIAL  
TO USE**

## FEATURES

- Measures 0.1-200AAC\*
- Measures 1.3-750VAC
- Measures 0.1-1000VDC
- Measures 0.1-2000 Ω
- Audible continuity
- Data hold
- Integral lead storage
- Auto power off
- Low battery indication
- 2-year warranty

\*Jaw opening is 0.6 in. (16mm) - up to 1/0 copper cable

## ACCESSORIES

### Includes

Test Leads TL-95

### Optional

Carrying Case C-90



AC/DC Volts



AC Amps



Ohms/  
Continuity

AUTOMATICALLY SENSES & DISPLAYS

Specifications	61-096	
	RANGE & RESOLUTION	ACCURACY
AC VOLTAGE	1.3 - 750 V	1.5%
DC VOLTAGE	1.8 - 1000 V -0.6 - 1000 V	1.0%
AC CURRENT	0.6 - 200.0 A	3.0%
RESISTANCE	0 - 2000 Ω	1.0%



Electrical Testers

# VoltAware™ Non-Contact Voltage Tester

## FEATURES

- Indicates presence of voltage from 40-1000VAC
- Visual indication of voltage
- Selectable audible indication of voltage
- Sleek, compact design
- Green LED indicates power on
- Low battery indicator
- Battery replacement (AAA size)
- 2-year warranty



▶ 61-025

Overmolded cushion grip



Convenient button turns audible voltage indication on or off



# Volt Sensor™ Non-Contact Voltage Tester

## FEATURES

- Tests for voltage from 40V to 600VAC
- Audible and visual indication
- Locates breaks along live insulated wires
- Tests for energized circuits
- Battery replacement (button cell)
- 1-year warranty



▶ 61-063

Overmolded cushion grip



# Continuity Tester

## FEATURES

- Checks continuity of dead circuits and ground on conduit systems and identifies wires in multi-wire cables
- Light signal indicates completed circuit
- Bulb-in end can serve as flashlight
- Pocket clip functions as probe
- Removable 4-ft. test lead with alligator clip
- 1-year warranty



▶ 61-030

# Test-Glo™ Circuit Tester

## FEATURES

- Industrial-quality tester checks voltage from 80V to 600V AC/DC
- Neon test lamp at front of probe
- Resistors reduce voltage reaching leads
- 24-in. lead – rated 1,000V
- 1-year warranty



▶ 61-040



# Twin Lead Voltage Tester

## FEATURES

- Check voltage from 80V to 500V AC/DC
- Heavy-duty test probes
- 1-year warranty



▶ 61-503

# 3-Phase/Motor Rotation Testers



▶ 61-521  
3-Phase  
sequence and  
motor rotation



▶ 61-520  
3-Phase  
sequence

### 61-521 FEATURES

- Identifies three-phase sequence
  - Indicates motor rotation
  - Checks for open phases
  - For use up to 600V
  - 2-year warranty
- Includes carrying case

### 61-520 FEATURES

- For use up to 600V
  - Color-coded insulators over alligator clips
  - Shock resistant housing
  - Easy to read
  - 2-year warranty
- Includes carrying case



Specifications	61-681	
	RANGE & RESOLUTION	ACCURACY
FOOT CANDLES	20.00/200.00/2000.0/200000	2%
LUX	20.00/200.00/2000.0/200000	2%



▶ 61-681

# Digital Light Meter

### FEATURES

- Wide lighting range
  - Foot candle and lux measurement
  - Remote light sensor
  - Cosine and color corrected
  - Peak hold
  - Low battery indication
  - 2-year warranty
- Includes carrying case

Specifications	61-682	
	RANGE & RESOLUTION	ACCURACY
	0° F to 500° F (-18° C to 260° C)	3.0%



▶ 61-682

# Infrared Thermometer

### FEATURES

- 15:1 angle of viewability
  - Built-in laser pointer
  - Backlit display
  - Auto power off
  - Measures temperature from 0° F to 500° F (-18° C to 260° C)
  - 2-year warranty
- Includes carrying case

# Accessories

## The right accessory can make the job a whole lot easier



Efficiency on the job is important and the proper accessory can make a difference. IDEAL has the equipment designed to meet the needs of every electrician. Whether it's expanding the capabilities of your test instruments with clamp adapters and test leads – or the convenience of a carrying case to keep your equipment organized and protected.



# Current Clamp Adapters



### COMMON FEATURES

- Provide safe, easy measurement of AC current
- Extend the current measurement capabilities of digital multimeters
- AC milli-volt output (1mVAC = 1mA)



# Flexible Clamp Adapters



### COMMON FEATURES

- Provide safe, easy measurement of high AC current
- Large opening and flexible materials to wrap around conductors and bus bars
- Shape Memory allows pre-forming before installation
- Extend the current measurement capabilities of digital multimeters

Specifications	61-330	61-331	61-332	61-333	61-334	61-436	61-451
AC CURRENT	1000 A	300/3000 A	200 A	500 A	600 A	1000 A	300 A
DC CURRENT	—	—	—	—	600 A	—	—
OUTPUT SIGNAL	1mV/A	1mV/A/10mV/A	1mV/A	1mV/A	1mV/A	1mV/A	1mV/A
MAX CONDUCTOR SIZE	8" (19cm)	8" (19cm)	0.78" (19.8mm)	1.18" (30mm)	1.125" (28.5mm)	2.25" (57.1mm)	0.91" (23mm)
SENSOR LENGTH	24" (61cm)	36" (91cm)	—	—	—	—	—



# Line Splitter

Accessories

# Carrying Cases



▶ 61-010  
Leather case for use with voltage testers



▶ 61-020  
Premium leather case for use with voltage testers



▶ C-90  
Nylon carrying case for use with all Vol-Con® and Vol-Test® Testers



▶ C-290  
Nylon carrying case for use with DMMs



▶ 61-445  
Small nylon carrying case with four convenient pockets



▶ C-2004  
Nylon carrying case with inside pockets and outer zippered pockets

CLAMP METER CARRYING CASE SELECTION GUIDE	700 Series		740		760 Series			770		
	61-701	61-702	61-704	61-744	61-746	61-764	61-766	61-768	61-772	61-774
C-90 Nylon Carrying Case				•	•					
C-700 Nylon Carrying Case	•	•	•							
C-760 Carrying Case						•	•	•		
C-770 Nylon Carrying Case									•	•

MULTIMETER CARRYING CASE SELECTION GUIDE	310		320 Series			340		360		490		610	
	61-310	61-312	61-320	61-322	61-324	61-340	61-342	61-360	61-361	61-494	61-495	61-610	61-614
C-290 Nylon Carrying Case	•	•	•	•	•	•	•	•	•	•	•	•	•

TESTER CARRYING CASE SELECTION GUIDE	Voltage Testers								160	
	61-059	61-065	61-076	61-085	61-086	61-090	61-092	61-096	61-164	61-165
61-010 Leather Tester Case		•	•	•	•					
61-020 Premium Leather Tester Case		•	•							
61-179 Nylon Carrying Case									•	•
C-50 Nylon Carrying Case	•									
C-90 Nylon Carrying Case		•	•	•	•	•	•	•		

## Test Lead Kits



▶ TL-435

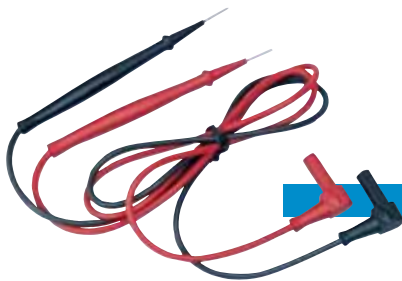
**Industrial Test Lead Kit**  
 Kit contains: 1.5m silicone lead set, probes w/SS tips, rigid alligator clips, flex pincer clips, insulated alligator clips, insulated spade lugs and padded zipper pouch, 1000V, 10A rating



▶ TL-436

**Electrical Test Lead Kit**  
 Kit contains: 1.5m silicone lead set, probes w/SS tips, insulated alligator clips and tri-fold pouch, 1000V, 10A rating

## Test Leads



▶ TL-102

**Silicone Test Leads**



▶ TL-100

**Test Leads w/Alligator Clips**



▶ TLF-252

**Fused Test Leads w/Alligator Clips**  
 10A/600V, CAT III - 1000V



▶ TL-104

**Test Leads w/Large Alligator Clip**

## Thermocouples



▶ 61-465  
**Thermocouple Adapter**



▶ 61-461  
**Beaded K-type Thermocouple**

### COMMON FEATURES

- Measures up to 1500° F (816° C)
- K-type thermocouple plugs into digital multimeter with 61-465 adapter

# Replacement Parts Selection Guide

METER REPLACEMENT PARTS SELECTION GUIDE	090	310	320 Series	340	360	450	490	600	610	700 Series	710	740	760 Series	770
	61-096	61-310 61-312	61-320 61-322 61-324	61-340 61-342	61-360 61-361	61-452	61-494 61-495	61-605	61-610 61-614	61-701 61-702 61-704	61-710	61-744 61-746	61-764 61-766 61-768	61-772 61-774
<b>FUSES</b>														
F-1	0.5A (250V)	6.35 x 32mm		•					•		•			
F-2	10A (250V)	6.35 x 32mm		•					•		•			
F-102	1A (600V)	6.35 x 38mm	• •				• •							
F-103	15A (600V)	6.35 x 38mm				•	•							
F-310	250mA (250V)	5 x 20mm	•											
F-312	500mA (250V)	5 x 20mm	•											
F-314	10A (250V)	5 x 20mm	•											
LA-3893	2A (600V)	6.35 x 25.4mm			•									
LA-3895	0.5A (250V)	5 x 20mm							•					
LA-3896	0.5A (500V)	6.35 x 32mm		•	•									
LA-3897	10A (600V)	6.35 x 25.4mm		•	•									
LA-3898	0.1A (250V)	5 x 20mm			•									
<b>BATTERIES</b>														
61-201	1.5V (LR44)							•						
—	1.5V (AA)		•				•		• •		•			
—	1.5V (AAA)		•									• •		
—	9V	• •	• •		• •		• •			• • •			• • •	• •
<b>TEST LEADS</b>														
TL-34	Leads w/pin connectors								•					
TL-54	Test leads								•					
TL-95	Test leads	•												
TL-100	Test leads w/alligator clips		• • •		• •	•	• •				•	• •		
TL-102	Silicone test leads									• • •				
TL-104	Test leads w/ large alligator clip												• • •	• •
TL-310	Test leads	• •												

## Warranty Policy

IDEAL offers a warranty on all of its digital metering equipment. This policy warrants equipment from defects in workmanship and material, except normal wear and tear. Refer to the equipment's operating instructions or call IDEAL for the terms and conditions of this warranty policy.

## Repair Policy

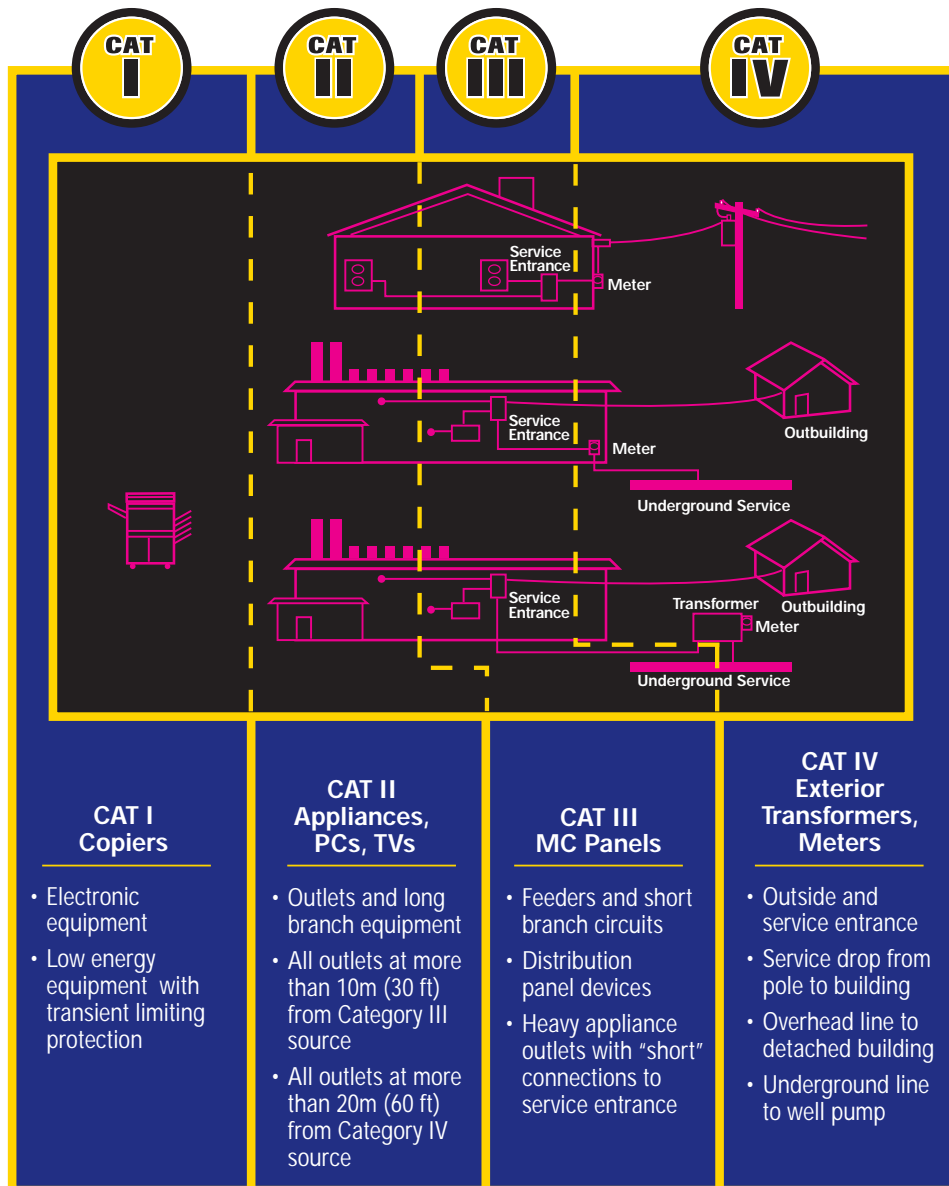
For test equipment repairs, call the 877-201-9005 Technical Hotline for shipping instructions. An estimate will be supplied for repair approval before work is performed. Identify repair packages with - Attention: Test Equipment Repair.

## Calibration Services

IDEAL maintains an ISO9001 certified lab. To obtain a NIST traceable calibration, call the 877-201-9005 Technical Hotline for shipping instructions. Identify shipped packages with - Attention: Test Equipment Calibration.



# Safety in the Field



The power demands of today's high-tech world have caused a marked increase in occurrences and levels of transient overvoltages. The International Electrotechnical Commission (IEC) has developed a safety standards model for measurement, control and laboratory use.

**Category I** – The signal level for telecommunications, electronic and other low-energy equipment with transient-limiting protection. Peak impulse transient range is 600–4,000 volts with a 30 ohm source.

**Category II** – The local level for fixed and non-fixed powered devices including appliances, lighting and portable equipment. Outlets located more than 30 feet from CAT III sources and 60 feet from CAT IV sources. Peak impulse transient range is from 600–6,000 volts with a 12 ohm source.

**Category III** – The distribution level for fixed primary feeders or branch circuits. Circuits that are separated from CAT IV sources by at least one level of transformer isolation. Peak impulse transient range is 600–8,000 volts with a 2 ohm source.

**Category IV** – The primary supply level for the highest levels of transient overvoltage. Includes the utility service both outside and at the service entrance, service drop from the pole to the building, overhead line to remote buildings, and underground line to a well pump. Peak impulse transient range is 600–12,000 volts with less than a 1 ohm source.

## Technical Definitions

**AC, Alternating Current** – An electric signal in which the current and voltage vary in a repeating pattern over time; the most common type of voltage.

**A, Ampere or Amp** – A basic unit of measure for the rate of current flow. Measured in Amps.

**Analog Meter** – A mechanical measuring device using a needle moving across a graduated scale or dial.

**Apparent Power** – Applied voltage multiplied by current. This is the power utilized by a load or electrical system. Measured in Voltamperes (VA).

**Auto Ranging** – DMM that automatically selects the range with the best resolution and accuracy in response to the application.

**Calibration** – Zeroing of an instrument to a known standard.

**Capacitance** – Ability of a component to hold an electrical charge, usually stated in microfarads.

**Capacitor** – Electronic component which stores energy and then discharges it; blocks DC and allows AC to pass through.

**Clamp-on** – DMM with jaws that allow it to fit around a conductor to measure AC or DC current without breaking the circuit.

**Coaxial Cable** – A cable consisting of a central copper core surrounded by a layer of insulating material, in turn surrounded by a metallic mesh or solid metallic sleeve. This is then protected by an outer layer of nonconducting material. Both the core and the metallic layers are capable of conducting electrical signals.

**Contact** – A connection between two conductors that allows a flow of current.

**Continuity** – The continuous path for current flow in a closed circuit.

**Current** – The flow of an electrical charge through a conductor. Measured in Amperes or Amps.

**Data Hold** – Feature of DMM that allows continued display of last reading taken after probes have been removed.

**Dielectric** – A material that is non-metallic and non-conductive. May be used to describe insulating materials.

**DMM, Digital Multimeter** – An instrument that uses an LCD typically capable of measuring voltage, current and resistance.

**Diode** – Electronic device in circuits that allows current to flow easily in only one direction and blocks flow in the opposite direction.

**DC, Direct Current** – An indirectional, steady voltage; typically produced through electromagnetism, chemicals (batteries), light, heat or pressure.

**F, Farad** – The basic unit of capacitance.

**Frequency** – The number of cycles per second that a wave form repeats. Measured in Hertz (Line voltage in U.S. is 60 Hz.)

**Ground** – A large conducting body (earth) used as a common return for current in a circuit.

**Harmonics** – A frequency that is an integer (multiple) of the fundamental frequency caused by electronic equipment. Harmonics cause distortion to the voltage and current wave forms.

**Harmonic Factorization** – Analysis where the total harmonic distortion is broken down into the individual harmonics.

**Hertz** – A measure of frequency. It is equal to one cycle per second.

**Impedance** – Total opposition to current flow; includes resistance, capacitance and reactance.

**Layer** – In networking, layers refer to software protocols. Each layer performs services for the layer above it.

**Linear Loads** – A load where the load impedance is constant. The relationship between the voltage and current drawn from the circuit are proportional. Examples of linear loads are motors and incandescent lighting.

**Load** – Any device which consumes power in a circuit.

**Manual Ranging** – DMM that requires the user to manually select the range using the meter's dial.

**Min/Max** – A feature that allows a meter to capture and store the highest and lowest readings during a specific measurement.

**Negative Sequence Harmonics** – Odd-numbered harmonics with a phase sequence opposite to the fundamental frequency (5th, 11th, 17th, etc.). They have a reversal effect on motors within an industrial facility.

**Noise** – Unwanted signals originating in a channel.

**Non-Linear Loads** – A load where the load impedance is not constant. The relationship between the voltage and current is unique to the type of load, resulting in harmonics on the circuit. Examples of non-linear loads are computers and variable speed machines.

**Odd-Numbered Harmonics** – Odd-numbered integer of the fundamental frequency (60 Hz). The 3rd harmonic of the fundamental frequency is 180 Hz, the 5th is 300 Hz, etc. Odd-numbered harmonics are typically created by non-linear loads.

**Ohm** – The basic unit of resistance, specified as equal to that of a conductor in which one amp of current is produced by one volt of potential across its terminals.

**Open Circuit** – A break in a cable circuit.

**OL, Overload** – Signal amplitudes or frequencies above the specified limits of the instrument; typically displayed as “OL” on the display of a DMM.

**Outage** – The total loss of AC power for greater than one minute. Outages typically last from 15 minutes to a few hours.

**Peak Hold** – Feature of DMM that allows retention of highest reading in a series of measurements.

**Polarity** – The positive or negative direction of DC voltage or current.

**Power Factor** – The ratio of true power (watts) to the apparent power (voltamperes). It is an indication of the efficiency of an electrical system.

**Power Quality** – A broad term used to describe the measurement of electrical power performance.

**Resistance** – Opposition to current. Measured in Ohms.

**Resolution** – Increments in value that can be displayed by a DMM; the greater the resolution the more precise the readout.

**Sag** – A reduction in AC voltage up to 20% below nominal level lasting for a duration from one-half cycle up to a few seconds.

**Short** – Any connection that has relatively low resistance or any resistance between two points below a preselected threshold.

**Sleep Mode** – Automatically shuts down unit that is not in use to preserve battery life.

**Swell** – An increase in AC voltage up to 20% above nominal level lasting for a duration from one-half cycle up to a few seconds.

**Total Harmonic Distortion (THD)** – The percentage of distortion to the fundamental frequency caused by harmonics within the electrical system.

**Transient** – A release of positive or negative energy creating a disturbance within a single cycle of the AC wave form.

**Triplen Harmonics** – See zero sequence harmonics.

**True Power** – The power extended when one ampere of current flows through a resistance of one Ohm. Measured in Watts.

**True RMS** – Allows accurate measurement of AC voltage in environments with harmonics (see harmonics).

**V, Volt** – The unit of electrical pressure; one volt is the potential difference needed to cause one amp of current to pass through one amp of resistance.

**Voltage** – A unit of measure of the electrical pressure in an electrical system. Measured in Volts.

**VA, Voltamperes** – Applied voltage multiplied by current. This is the power utilized by a load or electrical system.

**Watt** – Often referred to as true power. It is the power expended when one ampere of current flows through a resistance of one Ohm.

**Zero Sequence Harmonics** – Also called triplen harmonics, these are concurrent in direction with the fundamental frequency (3rd, 9th, 15th, etc.). They produce an amplitude that is triple any one phase when they combine on the neutral of a 3-phase, 4-wire electrical system.

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The IDEAL Advantage

# Complete Product Offering

Whether it's installing or troubleshooting electrical systems or data networks, IDEAL has the products that professionals need to get the job done.

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- Tools & Totes
- Test & Measurement
- Lockout/Tagout
- Commutator Maintenance
- Wire Management
- DataComm



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- New Product Information
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- Technical Support

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On-site training seminars. Educational videos. Instructional literature. These and other helpful training materials are tailored to help contractors and distributors stay current on proper procedure, safety, efficiency and industry innovations.

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You'll find the latest information at [www.testersandmeters.com](http://www.testersandmeters.com) as IDEAL continues to strengthen its training leadership in the test & measurement industry.

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- Instructional Literature
- PowerPoint Presentations
- Online Product Demos & Training Courses



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*Test & Measurement*

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Test & Measurement

Innovation with a Purpose.



PRODUCT CATALOG

## IDEAL Test & Measurement: Innovation with a Purpose.

In the 60 years since we built our very first voltage tester, we've learned something about the power of brand loyalty. Electricians choose IDEAL because they trust that we're giving them exactly what they need.

IDEAL features over 120 different test and measurement instruments, and the design of every single one comes directly from the needs of professionals. From the shape of the frame to the size of the display to the tests it performs, every aspect of an IDEAL tester was considered and designed to make your job easier and safer.

Electricians who buy IDEAL also know they're getting the finest level of customer service, technical support and training in the industry. As you'll notice by our outstanding service, we stand behind the performance of our products.

[www.testersandmeters.com](http://www.testersandmeters.com)



*Test & Measurement*

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# Clamp Meters

## Clamp meters do a lot more than just measure amperage




The most common and simplest method professionals use to measure current is with a clamp meter. The advantage of measuring current with a clamp meter is that readings can be taken without opening a circuit.

But IDEAL clamp meters do much more. They contain all the functions of a multimeter plus include groundbreaking innovations such as our patented TightSight™ clamp meter, which allows you to see measurements in tight, hard-to-reach spaces via an innovative display on the bottom.

Next time you're choosing a clamp meter, choose one that incorporates innovation with a purpose.



# Clamp Meters

CLAMP METER SELECTION GUIDE	61-452	700 Series			61-710	740		760 Series			770	
		61-701	61-702	61-704		61-744	61-746	61-764	61-766	61-768	61-772	61-774
<b>MEASUREMENT FUNCTIONS</b>												
AC Voltage	•	•	•	•	•	•	•	•	•	•	•	•
DC Voltage		•	•	•		•	•	•	•	•	•	•
AC Current	•	•	•	•	•	•	•	•	•	•	•	•
DC Current											•	•
Resistance	•	•	•	•	•	•	•	•	•	•	•	•
Audible Continuity	•	•	•	•		•	•	•	•	•	•	•
Diode Test		•	•	•								
Capacitance		•	•	•					•			•
Frequency		•						•				
Leakage Current	•											
<b>FEATURES</b>												
Display Type (Analog or Digital)	D	D	D	D	A	D	D	D	D	D	D	D
AC Current Capacity	60	200	200	200	600	600	600	660	660	660	1000	1000
DC Current Capacity										660		1000
True RMS				•			•		•	•	•	•
Auto/Manual Ranging						•	•	•	•	•	•	•
Data Hold	•	•	•	•		•	•	•	•	•	•	•
Max Hold		•	•	•								
Inrush Current								•	•	•	•	•
Min/Max	•							•	•	•	•	•
DCA Zero										•		•
Pointer Lock					•							
Auto Power Off	•	•	•	•		•	•	•	•	•	•	•
Non-Contact Voltage Indication		•	•	•		•	•					
Harmonics Indicator			•	•								
Vibration Mode			•	•								
Backlight				•				•	•	•	•	•
Low Battery Indication	•	•	•	•		•	•	•	•	•	•	•
High Voltage Warning		•	•	•				•	•	•	•	•
Overload Protection	•	•	•	•		•	•	•	•	•	•	•
Conductor Size - Inches (mm)	1.2" (30)	1.3" (33)	1.3" (33)	1.3" (33)	1.2" (30)	1.5" (38)	1.5" (38)	1.4" (36)	1.4" (36)	1.4" (36)	2.0" (51)	2.0" (51)
Warranty (years)	2	2	2	2	2	2	2	2	2	2	2	2
<b>CERTIFICATIONS</b>												
UL 61010 Listed 		•	•	•		•	•	•	•	•	•	•
CAT Rating		III	III	III		III	III	IV	IV	IV	IV	IV
CE	•	•	•	•	•	•	•	•	•	•	•	•

## Clamp Meters

# 4-in-1 Test Tools (700 Series)

### COMMON FEATURES

- 200AAC current capability
- Non-contact voltage (40-600VAC)
- Capacitance
- Low battery indication
- Overload protection on all ranges
- Integral lead storage
- Audible dangerous voltage warning on all ranges
- Auto power off
- Ergonomic hourglass shape
- Compact clamp head
- 2-year warranty

### ACCESSORIES

#### Includes

Carrying Case	C-700
Silicone Test Leads	TL-102



▶ 61-704

True RMS, backlight, vibration mode to verify AC voltage, harmonics indicator, max hold, CAT III-1000V



**1: 200 Amp Clamp/Multimeter**  
Use it for testing a variety of electrical parameters on branch circuits or at receptacles.



**2: Non-Contact Voltage Tester**  
Use it for one-touch indication of power without test leads.



**3: Voltage Tester with Shaker**  
Use it for tactile feel of AC voltage



**4: Harmonics Tester**  
Use it to ensure that a circuit contains clean power, free of harmonic distortion.



▶ 61-702

Vibration mode to verify AC voltage, harmonics indicator, data hold, max hold, CAT III - 1000V



▶ 61-701

Frequency, data hold, max hold, CAT III - 600V

700 Series Specifications	61-701		61-702 & 61-704	
	RANGE & RESOLUTION	BASIC ACCURACY	RANGE & RESOLUTION	BASIC ACCURACY
AC VOLTAGE	200.0/600 V	1.2%	2000m/200.0/750 V	1.2%
DC VOLTAGE	20.00/200.0/600 V	0.5%	2000m/200.0/1000 V	0.5%
AC CURRENT	200.0 A	3.0%	200.0 A	3.0%
RESISTANCE	200.0/200.0k $\Omega$ Scale	1.0%	200.0/200.0k $\Omega$	1.0%
CAPACITANCE	200.0 $\mu$ F	3.0%	200.0 $\mu$ F	3.0%
FREQUENCY	2.000k/20.00k/40.00k Hz (Auto)	0.1%	—	—

Jaw opening is 1.3" (33mm).



# Clamp-Pro™ Clamp Meters 600 Amp (740 Series)



▶ 61-746  
True RMS



▶ 61-744

### COMMON FEATURES

- Measures up to 600AAC
- Non-contact voltage indicator (70V–600VAC)
- Tapered jaws with hook tip
- Auto/manual ranging
- Data hold
- Auto power off
- Low battery indicator
- 2-year warranty

### ACCESSORIES

Includes	
Carrying Case	C-90
Test Leads	TL-103



Compact jaw for use in tight locations

740 Series Specifications		61-744	61-746
	RANGE & RESOLUTION	BASIC ACCURACY	
AC CURRENT	40.00/400.0/600A	1.7%	1.7%
AC VOLTAGE	400.0/600 V	1.2%	1.2%
DC VOLTAGE	400.0/600 V	0.5%	0.5%
RESISTANCE	400.0/4.000k/ 40.00k 400.0k/4.000M/40.00M Ω	1.0%	1.0%

Jaw opening is 1.25" (32mm).



Clamp Meters

# TightSight™ Clamp Meters 660 Amp (760 Series)

## COMMON FEATURES

- Measures up to 660AAC
- Voltage-presence warning on all lead functions (selectable audible)
- Bright, bold backlit display
- Tapered jaws with hook tip
- Max/min
- Inrush current
- Audible continuity
- Selectable auto power off
- Data hold
- Low battery indicator
- 2-year warranty

## ACCESSORIES

### Includes

Carrying Case	C-760
Test Leads w/Alligator Clip	TL-104



▶ 61-768

AC/DC current measurements, true RMS

▶ 61-766

True RMS, capacitance, frequency measurement via clamp head, 66AAC low range

▶ 61-764

## Safety First!

The complete line of industrial clamps from IDEAL was designed to set a new standard for safety technology. It starts with the revolutionary TightSight™ display. It allows an electrician to keep his head and face out of potentially dangerous panels while viewing the measurement. The high voltage indicator is another feature not to be taken for granted. It indicates the presence of voltage even with the dial set to the wrong function. The CAT III and IV ratings, rugged construction and UL listing should give every electrician the confidence to go about the job without worrying about equipment safety.



# TightSight™ Clamp Meters 1000 Amp (770 Series)



▶ **61-774**  
AC/DC current measurements, capacitance



▶ **61-772**

### COMMON FEATURES

- Measures up to 1000AAC
- Voltage-presence warning on all lead functions (selectable audible)
- Bright, bold backlit display
- Tapered jaws with hook tip
- True RMS
- Max/min
- Inrush current
- Audible continuity
- Selectable auto power off
- Data hold
- Low battery indicator
- 2-year warranty

### ACCESSORIES

#### Includes

Carrying Case	C-770
Test Leads w/ Alligator Clip	TL-104



Large jaws for clamping around multiple conductors

760 Series	61-764	61-766	61-768	
	RANGE & RESOLUTION			ACCURACY
AC CURRENT	66.00/660.0 A			1.7%
DC CURRENT	—	—	660.0 A	1.5%
AC VOLTAGE	660m/6.600/66.00/660.0/750 V			1.2%
DC VOLTAGE	660m/6.600/66.00/660.0/1000 V			0.5%
RESISTANCE	660.0/6.600k/66.00k/660.0k/4.000M/10.00M Ω			1.0%
CAPACITANCE	—	6.600μ/66.00μ/660.0μ F	—	3.0%
FREQUENCY	—	20 - 400 Hz Sensitivity: ≥5A for 20-100 Hz ≥10A for 100-400 Hz	—	0.1%

Jaw Size 1.4" (36 mm)

770 Series	61-772	61-774	
	RANGE & RESOLUTION		ACCURACY
AC CURRENT	66.0/660.0/1000 A		1.7%
DC CURRENT	—	660.0/1000 A	1.5%
AC VOLTAGE	660m/6.600/66.00/660.0/750 V		1.2%
DC VOLTAGE	660m/6.600/66.00/660.0/1000 V		0.5%
RESISTANCE	660.0/6.600k/66.00k/660.0k/4.000M/10.00M Ω		1.0%
CAPACITANCE	—	6.600μ/66.00μ/660.0μ F	3.0%

Jaw Size 2.0" (51 mm)



Clamp Meters

# Analog Clamp Meter

**FEATURES**

- Analog display
  - Pointer lock
  - 2-year warranty
- Includes carrying case



▶ 61-710

600AAC current, ohms scale on dial drum, broad frequency response (50 to 400 Hz)

Meter Specifications		61-710
	RANGE & RESOLUTION	ACCURACY
AC VOLTAGE	150/300/600 V	3.0% F.S.
AC CURRENT	6/20/60/200/600 A	3.0% F.S.
RESISTANCE	2k $\Omega$	3.0% F.S.



# Leakage Current Clamp Meter

**FEATURES**

- 40mA to 60AAC current capability
  - Data hold
  - Analog bar graph
  - Min/max
  - 2-year warranty
- Includes carrying case



▶ 61-452

Meter Specifications		61-452
	RANGE & RESOLUTION	ACCURACY
AC VOLTAGE	400.0 V	1.5%
AC CURRENT	40.00/400.0m/4.000/40.00/60.0 A	2.0%
RESISTANCE	400.0 $\Omega$	1.0%



# Combo Cases™

## COMMON FEATURES

- Top selling tools in rugged cases
- Unmatched value
- Large storage compartments
- 2-year warranty

### ▶ 61-2002

**Clamp Combo Case™ includes:**  
#61-766 TightSight™ Clamp Meter  
#61-521 Phase Rotation Tester



### ▶ 61-2001

**Meter Combo Case™ includes:**  
#61-350 Multimeter  
#61-732 400 Amp Clamp



### ▶ 61-2000

**Tester Combo Case™ includes:**  
#61-086 Vol-Con® XL Voltage Tester  
#61-534 Circuit Breaker Finder  
#61-063 Non-Contact Voltage Tester



# Multimeters

Just what a meter should be –  
reliable, safe and easy to use.




Digital multimeters let you do more than take AC/DC voltage readings – they allow you to measure resistance, continuity, capacitance and frequency. Our digital multimeters are packed with features such as auto/manual ranging, capacitance and True RMS measurements.

There's an IDEAL digital multimeter for every environment – commercial, industrial and residential.



# Multimeters

MULTIMETER SELECTION GUIDE	310		320 Series			340		360		490		600	610	
	61-310	61-312	61-320	61-322	61-324	61-340	61-342	61-360	61-361	61-494	61-495	61-605	61-610	61-614
<b>MEASUREMENT FUNCTIONS</b>														
AC & DC Voltage	•	•	•	•	•	•	•	•	•	•	•	•	•	•
AC Current		•	•	•	•	•	•	•	•	•	•			
DC Current	•	•	•	•	•	•	•	•	•	•	•		•	•
Resistance	•	•	•	•	•	•	•	•	•	•	•	•	•	•
LV Resistance										•	•			
Audible Continuity	•	•	•	•	•	•	•	•	•	•	•	•		•
Diode Test	•	•	•	•	•	•	•	•	•	•	•	•		
Capacitance			•	•	•	•	•			•	•			
Frequency		•	•	•	•	•	•		•	•	•			
Temperature	•	•				•	•			•	•			
Duty Factor						•	•			•	•			
Battery Test	•												•	•
Decibels										•	•			
Phase Rotation									•					
<b>FEATURES</b>														
Display Type (Digital or Analog)	D	D	D	D	D	D	D	D	D	D	D	D	A	A
True RMS			•	•		•	•		•	•	•			
Auto/Manual Ranging		•	•	•	•	•	•			•	•	•		
Data Hold/Auto Hold	D	D	D	D	D	D	D	D		A	A	D		
Max Hold								•						
Peak Hold			•	•						•				
Min/Max				•	•	•	•							
Min/Max/Avg										•	•			
Peak Min/Max			•	•	•					•	•			
Relative Mode			•	•	•	•	•			•	•			
High Speed Analog Bar Graph			•	•	•					•	•			
Auto Power Off		•	•	•	•	•	•	•	•	•	•	•		
Backlight					•	•	•			•	•			
Low Battery Indication		•	•	•	•	•	•	•	•	•	•	•		
Dual Display										•	•			
Overload Protection on All Ranges	•	•	•	•	•	•	•	•	•	•	•	•		
Data Logging										•	•			
Data Acquisition					•					•	•			
Memory Storage & Recall										•	•			
Optical USB Interface					•					•	•			
Optional ProVision™ Software					•					•	•			
Warranty (years)	2	2	2	2	2	2	2	2	2	2	2	2	2	2
<b>CERTIFICATIONS</b>														
UL 61010 Listed 	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CAT Rating	II	II	IV	IV	IV	III	III	III	III	III	III	II	II	II
CE	•	•	•	•	•	•	•	•	•	•	•	•	•	•

Multimeters

# PlatinumPro® Industrial-Grade Multimeters (490 Series)

## COMMON FEATURES

- True RMS
- Data acquisition
- Data logging
- Data storage
- Frequency
- Capacitance
- Temperature
- Low voltage
- Duty factor
- dBm/dB
- Auto/manual ranging
- Dual display
- Analog bar graph
- Auto power off
- Peak hold
- Min/max/avg
- Relative mode
- 20,000 count high resolution mode
- Backlight
- Low battery indication
- 2-year warranty

## ACCESSORIES

### Includes

Carrying Case	C-290
Test Leads w/Alligator Clips	TL-100

### Optional

Current Clamp Adapters (page 39)	
Magnetic Strap	61-565
ProVision™ Software*	61-900
Optical USB Cable*	61-902

\* Included with 61-495



▶ 61-495  
Data logging (40,000 records), thermocouple, software and cable interface included



Data acquisition and analysis with 490 ProVision™ software for 61-495.



▶ 61-494  
Data logging (6000 records)



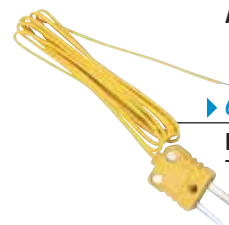
▶ 61-900  
490 Series ProVision™ Software



▶ 61-902  
Optical USB Cable



▶ 61-465  
Thermocouple Adapter



▶ 61-461  
Beaded K-type Thermocouple

490 Series Specifications		61-494	61-495
	RANGE & RESOLUTION	BASIC ACCURACY	
AC VOLTAGE	20.000m/200.00m/2.0000/20.000/200.00/750.0 V	0.7%	0.7%
DC VOLTAGE	20.000m/200.00m/2.0000/20.000/200.00/1000.0 V	0.06%	0.06%
AC CURRENT	20.000m/200.00m/2.0000/10.000 A	0.1%	0.1%
DC CURRENT	20.000m/200.00m/2.0000/10.000 A	0.3%	0.2%
RESISTANCE	200.00/2.0000k/20.000k/200.00k/ 2.0000M/20.000M/200.00M/2.0000G Ω	0.6%	0.6%
LV RESISTANCE	2.0000k/20.000k/200.00k/ 2.0000M/20.000M/200.00M Ω	0.3%	0.3%
CAPACITANCE	4.000n/40.00n/400.0n/4.000µ/40.00µ/ 400.0µ/4.000m/40.00mF	0.9%	0.9%
FREQUENCY	20.000/200.00/2.0000k/20.000k/200.00k/1.0000M Hz	0.01%	0.01%
DUTY FACTOR	20% - 80%	1.0%	1.0%
TEMPERATURE	-150° F to 2200° F (-100° C TO 1200° C)	0.1%	0.1%



# PlatinumPro® Contractor-Grade Multimeters (320 Series)



Data acquisition and analysis with 320 ProVision™ software for 61-324.



▶ 61-324

True RMS, AC/DC current, backlight data acquisition and USB interface



▶ 61-322

True RMS, AC/DC current



▶ 61-320



▶ 61-565

Magnetic Hand Strap Fits Platinum Pro® Multimeters



▶ 61-905

Optical USB Cable



▶ 61-904

320 Series ProVision™ Software

## COMMON FEATURES

- AC/DC voltage
- Capacitance
- Frequency
- Auto/manual ranging
- Peak min/max
- Min/max
- Relative mode
- Data hold
- Low battery indicator
- Auto power off
- 2-year warranty

## ACCESSORIES

### Includes

Test Leads w/Alligator Clips	TL-100
------------------------------	--------

### Optional

Carrying Case	C-290
Current Clamp Adapters (page 39)	
Magnetic Strap	61-565
ProVision™ Software	61-904
Optical USB Cable	61-905

## 320 Series Specifications

	RANGE & RESOLUTION	61-320	61-322	61-324
AC VOLTAGE	400.0m/4.000/40.00/400.0/750 V	1.3%	1.3%	1.3%
DC VOLTAGE	400.0m/4.000/40.00/400.0/1000 V	0.5%	0.5%	0.5%
AC CURRENT	400.0µ/4000µ/40.00m/400.0m A	—	1.5%	1.5%
DC CURRENT	400.0µ/4000µ/40.00m/400.0m A	1.5% (µA range only)	1.5%	1.5%
RESISTANCE	400.0/4.000k/40.00k/400.0k/4.000M/40.00M Ω	0.7%	0.7%	0.7%
CAPACITANCE	4.000n/40.00n/400.0n/4.000µ/40.00µ/ 400.0µ/4.000m/40.00m F	1.9%	2.0%	2.0%
FREQUENCY	4.000k/40.00k/400.0k/4.000M/40.00M Hz	0.01%	0.1%	0.1%



Multimeters

# Test-Pro® Multimeters (340 Series)

### COMMON FEATURES

- AC/DC voltage
- AC/DC current
- Resistance
- Audible continuity
- Capacitance
- Frequency
- Temperature
- Relative mode
- Backlight
- Min/max
- Data hold
- Low battery indication
- Auto power off
- 2-year warranty

### ACCESSORIES

#### Includes

Test Leads TL-103

#### Optional

Carrying Case C-290

600A AC/DC Clamp Adapter 61-334

Current Clamp Adapter 61-451



▶ 61-342  
True RMS



▶ 61-340



340 Series Specifications		61-340	61-342
	RANGE & RESOLUTION	ACCURACY	
AC VOLTAGE	4.000/40.00/400.0/1000 V	1.5%	1.5%
DC VOLTAGE	400.0m/4.000/40.00/400.0/1000 V	0.5%	0.5%
CURRENT	400.0µ/4000µ/40.00m/400.0m/4.000/10.00 A AC/DC	1.5%	1.5%
RESISTANCE	400.0/4.000k/40.00k/400.0k/4.000M/40.00M Ω	1.0%	1.0%
CAPACITANCE	40.00n/400.0n/4.000µ/40.00µ/400.0µ F	3.0%	3.0%
FREQUENCY	10.00/100.0/1.000k/10.00k/100.0k/1.000M/4.000M Hz	0.3%	0.3%
TEMPERATURE	-4-1382°F (-20-750°C)	3.0%	3.0%

# Resi-Pro™ Multimeters (310 Series)

### COMMON FEATURES

- AC/DC voltage
- Current
- Resistance
- Audible continuity
- Temperature
- Data hold
- 2-year warranty

### ACCESSORIES

#### Includes

Test Leads TL-310



▶ 61-312  
Auto ranging, AC/DC current, capacitance, frequency, auto power off, low battery indication



▶ 61-310  
Manual ranging, tests batteries, DC current

310 Series Specifications		61-310	61-312	
	RANGE & RESOLUTION	ACCURACY	RANGE & RESOLUTION	ACCURACY
AC VOLTAGE	200.0/600 V	1.2%	4.000/40.00/400.0/600 V	1.2%
DC VOLTAGE	200.0m/2.000/20.00/200.0/600 V	0.5%	400.0m/4.000/40.00/400.0/600 V	0.5%
CURRENT	200.0m/10.00 ADC	1.5%	400.0µ/4000µ/40.00m/400.0m/10.00 A AC/DC	1.5%
RESISTANCE	200.0/2.000k/20.00k/200.0k/20.00M Ω	1.0%	400.0/4.000k/40.00k/400.0k/4.000M/40.00M Ω	1.0%
CAPACITANCE	—	—	40.00n/400.0n/4.000µ/40.00µ/400.0µ F	3.0%
FREQUENCY	—	—	10.00/100.0/1.000k/10.00k/100.0k/1.000M/10.00M Hz	0.3%
TEMPERATURE	-4-1382°F (-20-750°C)	2.5%	-4-1382°F (-20-750°C)	2.5%



# Contractor-Grade Multimeters (360 Series)



▶ 61-361  
True RMS, phase rotation, capacitance, frequency



▶ 61-360  
Max hold, data hold



### COMMON FEATURES

- AC/DC voltage
- AC/DC current
- Resistance
- Audible continuity
- Manual ranging
- Rugged construction
- Auto power off
- Low battery indication
- 2-year warranty

360 Series Specifications		61-360	61-361
	RANGE & RESOLUTION	ACCURACY	ACCURACY
AC VOLTAGE	200.0m/2000m/20.00/200.0/600 V	1.0%	200.0m/2000m/20.00/200.0/600 V 2.0%
DC VOLTAGE	200.0m/2000m/20.00/200.0/600 V	0.5%	200.0m/2000m/20.00/200.0/600 V 1.2%
AC CURRENT	200.0μ/20.00m/200.0m/10.00 A	1.5%	2.000 A 3.0%
DC CURRENT	200.0μ/20.00m/200.0m/10.00 A	1.0%	2.000 A 2.5%
RESISTANCE	200.0/2.000k/20.00k/200.0k/2.000M/20.00M Ω	1.0%	200.0/2.000k/20.00k/200.0k/20.00M/200.0M Ω 1.0%
CAPACITANCE	—	—	20.00μ/200.0μ/2.000m/20.00m F 4.0%
FREQUENCY	—	—	10.0-100.0k Hz 0.50%
PHASE ROTATION	—	—	80-500V (50-500Hz) —

### ACCESSORIES

Includes	
Standard Test Leads	TL-103
Alligator Clip Lead (61-361)	K-7515
Optional	
Carrying Case	C-290
Current Clamp Adapters (page 39)	
Magnetic Strap	61-566



▶ 61-614  
Audible continuity, built-in stand



▶ 61-610  
Pocket size, diode protected



# Analog Multimeters (610 Series)

### COMMON FEATURES

- Multi-color analog display with mirrored scale
- High-impact thermoplastic case
- Battery test
- 2-year warranty

610 Series Specifications		61-610	61-614
	RANGE & RESOLUTION	ACCURACY	ACCURACY
AC VOLTAGE	10/50/250/500 V	+/- 4.0% Full Scale	10/50/250/1000 V +/- 4.0% Full Scale
DC VOLTAGE	10/50/250/500 V	+/- 3.0% Full Scale	2.5/10/50/250/1000 V +/- 3.0% Full Scale
DC CURRENT	500μ/50m/250m A	+/- 3.0% Full Scale	5m/50m/500m/20 A +/- 3.0% Full Scale
RESISTANCE	1 M Ω Full Scale 5 k Ω Mid Scale	+/- 3.0% Arc Length	10k/100k/10M Ω Full Scale 50/500/50k Ω Mid Scale +/- 3.0% Arc Length
DECIBELS	-20 to +56 dB	—	-8 to +62 dB —
BATTERY TEST	—	—	1.5, 9.0 VDC —



▶ 61-605  
Audible continuity, auto power off, test lead storage



Specifications		61-605
	RANGE & RESOLUTION	ACCURACY
AC VOLTAGE	200.0m/2.000/20.00/200.0/600 V	4.0%
DC VOLTAGE	200.0m/2.000/20.00/200.0/600 V	2.0%
RESISTANCE	200.0/2.000k/20.00k/200.0k/2.000M/20.00M Ω	3.0%

# Pocket Meter (600 Series)

### FEATURES

- Low cost, multi-function
- Built-in test stand
- Overload protection on all ranges
- 2-year warranty

# Circuit Tracers

## Take the time-consuming guesswork out of tracing circuits



The right technology and the right design put the open/closed circuit tracers in a class by themselves.

The latest from IDEAL brings a new level of performance, ease-of-use and safety to a previously frustrating, time-consuming task.

Open/closed circuit tracers are another example of how IDEAL takes innovation and applies it to make your job easier.



# Open/Closed Circuit Tracers

## Three things to look for in an IDEAL Circuit Tracer: performance, ease-of-use and safety

**Performance:** Circuit tracing has often been called an inexact science. But, the four clearly defined modes of operation of the new SureTest Circuit Tracers bring you a revolutionary level of precision, confidence and minimal set up time. Search High, Search Low, Trace and Breaker Modes let you quickly select the proper sensitivity for your specific job. And, with easy-to-replace AA batteries, the tracer provides four times the tracing power of conventional 9-volt circuit tracers on the market.



**Ease-of-Use:** No circuit tracer has ever been so user friendly. Rather than blinking LED lights and difficult-to-decipher beeps, the super-bright SureTest models provide a numeric value between 0 and 99 and a variable pitch/tone audible indication. In addition, the peak detector provides instantaneous signal strength feedback. The RC-958 Receiver also features the only rotating display in the industry.



Regardless of what position you put the receiver in, the display will orient itself so that the reading stays upright.

**Safety:** With a new level of circuit tracing comes a new level of safety. It starts with rugged construction. Every safeguard has been taken to make the SureTest Circuit Tracers durable and safe for the long term. Additionally, a high-energy fuse and CAT III 600V design give you the confidence to go about the job without worrying about equipment safety.



Transmitter will work on a de-energized circuit and won't affect GFCIs and sensitive equipment on an energized circuit.



AA batteries provide the transmitter and receiver 4x the power.

Circuit Tracers

# Open/Closed Circuit Tracers

## COMMON FEATURES

- Identifies breakers and fuses
- Pinpoints opens and shorts
- Traces wires
- "0-99" display of signal strength
- Audible intensifies in tone/pitch
- Can be used on circuits 0-600V AC/DC
- Works on energized or de-energized circuits
- Four modes of sensitivity – search high, search low, trace and breaker
- Peak bar graph
- 2-year warranty

## ACCESSORIES

### Includes

Fuse – High-energy, Fast-acting, 1A/1000V	F-958
Tracer Test Lead Set (includes 1-6 below)	TL-956
1. Outlet Plug Adapter for Transmitter	TLOP-956
2. Blade Prongs for Lead Adapters (2/set)	TLBP-956
3. Ground Prong for Lead Adapter	TLGP-956
4. Alligator Clips for Lead Adapters (2/set)	TLAC-956
5. 3 ft. Lead Adapters for Transmitter (2/set)	TLA1-956
6. 25 ft. Lead Adapter for Transmitter	TLA2-956

### Optional

Cradle for Receiver	CR-958
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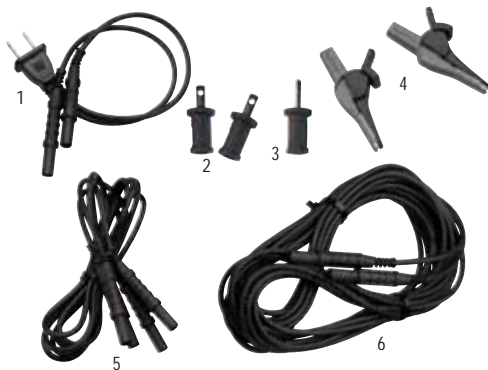
▶ 61-958

Super bright rotating OLED display receiver, transmitter, test lead set, inductive clamp, battery pack



▶ CR-958

**Cradle for Receiver**  
For use with extension pole for ceilings and flooring



Circuit Tracer Specifications	
<b>Transmitter:</b>	
Operating Voltage	0 - 600V AC/DC
Battery Power	1.5V x (4) AA batteries (NEDA 15A, IEC LR6)
Battery Life	40 hours open circuit testing/25 hours short circuit tracing
Indicators	On/Off, Line energized, low battery
<b>Receiver:</b>	
Sensing	Magnetic
Battery Power	1.5V x (3) AA batteries (NEDA 15A, IEC LR6)
Battery Life	20 hours







▶ 61-956  
Super bright rotating OLED display receiver, transmitter, test lead set



▶ 61-954  
Standard LED receiver, transmitter, test lead set

Kit Contents	61-954	61-956	61-958
Transmitter	TR-958	TR-958	TR-958
Receiver	RC-954	RC-958	RC-958
Tracer Test Lead Set	TL-956	TL-956	TL-956
Inductive Clamp			IC-958
Battery Pack			BP-958
Magnetic Hanging Strap			61-565
Hard Carrying Case	C-954	C-954	C-958
Batteries	•	•	•
Instruction Manual	•	•	•



In Breaker Mode, receiver identifies the correct circuit to which the transmitter is connected.



Inductive clamp allows you to induce a tracer signal on to the cable without affecting the low voltage signals on the circuit.



Individual wires can be sorted, opens can be located and shorts can be isolated.



Display rotates in 90° increments so that you always receive an upright reading.

# Ground Resistance Meters

## Troubleshooting and accurate measurements made easy



IDEAL ground resistance meters provide the most accurate and valuable measurements and troubleshooting information.

We enable electricians to test a grounding system quickly and efficiently – without disconnecting the ground. No need for leads, auxiliary rods or spacing requirements.

Every IDEAL Ground Resistance Meter is designed for maximum performance, safety and accuracy – innovations we take great pride in. So whatever your needs may be, IDEAL has the right meter for you to test your grounding systems with confidence.

# Ground Resistance Meters

## COMMON FEATURES

- Auto ranging
- Auto power off
- 2-year warranty



### ▶ 61-920

**Ground Resistance Clamp Meter**  
Large clamp size\*, backlight, saves up to 99 measurements



### ▶ 61-796

**Earth Ground Resistance Tester**  
2- & 3-point fall of potential methods, lead set (TL-796) included



### ▶ TL-796

**Earth Resistance Lead Set Kit**  
Kit includes three test leads with alligator clips (5, 33, 33m) on reels, (2) auxiliary grounding spikes

Specifications	61-920		61-796	
	RANGE & RESOLUTION	ACCURACY	RANGE & RESOLUTION	ACCURACY
GROUND RESISTANCE	0/120/1200 Ω	1.5%	20.00/200.0/2000 Ω	2.0%
GROUND LEAKAGE CURRENT	100m/1000m/15/30 A	2.0%	—	—

\*Clamp accommodates conductor size up to 1.25 in. (32mm).



# Insulation Testers

## Why you need an insulation tester from IDEAL



Maintaining the integrity of insulation in cables, motors and other devices is crucial because it keeps current flowing safely through the copper conductor.

The IDEAL insulation tester performs four key tests that are essential to modern industrial environments. The first, Proof Test, is performed upon installation of new machinery or circuitry. The three other tests are used for general maintenance testing.

With the IDEAL insulation tester, insulation testing has never been so easy and hassle-free.



Tests insulation on motor windings

# Insulation Tester

## FEATURES

- Checks new installations for proper insulation
- Checks existing installations and motor windings for breakdowns in insulation
- 2-year warranty



### ▶ 61-795

#### Hand-held Insulation Tester

Test voltage: 250/500/1000V, test inhibition >25V, default voltmeter to 600V AC/DC, digital display with analog arc, auto discharge, auto power off, auto ranging, protective rubber boot, continuity, low battery indication, Cat IV – 600V, includes carrying case

Specifications	61-795	
	RANGE & RESOLUTION	ACCURACY
TEST VOLTAGE	250/500/1000 V	
INSULATION RESISTANCE	0-4.000/40.00/400.0/4000 MΩ	2.0%
CONTINUITY	0.01-20.00 Ω	2.0%
RESISTANCE	0-200.0 Ω	2.0%
AC VOLTAGE	0-600.0 V	0.8%
DC VOLTAGE	0-600.0 V	0.5%



# Power Quality Meters

## The best way to troubleshoot for power quality issues



Power quality problems are frequently undetected until after an incident occurs – interrupting processes and possibly damaging equipment. Unless the source of the problem is identified and its cause diagnosed, repair costs can quickly add up.

IDEAL has made a number of technological advancements in the realm of power quality. Take our new Voltage Performance Monitor (VPM). It puts a power quality “expert in a box” so you don’t need to be one to identify voltage events. It simplifies power quality issues by monitoring, logging and identifying voltage events at the source of power disruption.

So why choose an IDEAL power quality meter? Because we’re always thinking of innovative ways to make your job safer, easier and more efficient.

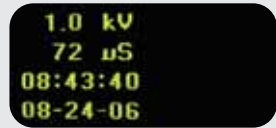


# Voltage Performance Monitor (VPM)

## Voltage Performance Monitor Display Screens



**Monitor Screen:** Real-time information on voltage, voltage events and harmonics.



**Impulse Detail:** Fast response catches positive and negative impulses up to 4kV.



**Set Standard:** Select from more than a dozen threshold options based on existing standards or customize your own (defaults to ITIC).



▶ 61-830

## FEATURES

- Real-time TRMS voltage, frequency and harmonics monitoring
- Logs voltage, sags, swells and impulses
- Measures %THD and logs periods over 3% (line to neutral)
- Selectable thresholds based on the most accepted international standards, defaults to ITIC\*
- Custom programmable event thresholds
- Invertible display, when it is necessary to plug in upside down
- 2-year warranty

\* Captures events that would affect equipment on branch circuit

## ACCESSORIES

### Includes

Adapters (set of 4)	PA-830
Carrying Case	61-179

### Optional

Alligator Clip Adapters (2-wire)	TL-532A
1 ft. US Extension Cord	61-177
Kit w/(1) SureTest® 164, (2) VPM 61-830, Soft Case C-2004	61-2003
Kit w/(1) SureTest® 164, (4) VPM 61-830, Soft Case C-2004	61-2004

## Applications

### Monitor voltage near sensitive equipment

- Installation and Service Technicians
  - Monitor voltage at point of equipment connection
- Electricians
  - Eliminate guesswork on service calls
- Building Maintenance Technicians
  - Identify voltage caused equipment failures
- Equipment Manufacturers
  - Eliminate unnecessary warranty costs
- Hospital/IT Maintenance Engineers
  - Monitor voltage quality to critical equipment

▶ 61-179

### Replacement Carrying Case



▶ PA-830

### Replacement Adapters (set of 4)



Kit 61-2004



## See voltage through the eyes of your equipment

Poor voltage quality increases facility expenses, warranty costs and downtime plus shortens the life of equipment. The IDEAL VPM identifies only those voltage conditions that can damage equipment or cause equipment failure.

Specifications	61-830
Operating Range	15-265V
Memory	512 events
Sampling Method	Continuous (128 samples per cycle)
Voltage Accuracy	1%
Impulse Detection	6μs, 4kV
THD	FFT calculation



# 3-Phase Power Analyzer (800 Series)

## FEATURES

- True RMS
- Single- or three-phase measurements
- Data logging (1MB memory)
- Up to one month of recording time
- 4-channels for voltage measurements
- 4-channels for current measurements\*
- Auto ranging
- Min/max/avg
- Energy and Harmonics Program
- PowerVision™ Software
- Lightweight, portable design
- Easy-to-use push-button operation
- Backlit display\*
- Customized data collection
- Optional FIFO memory
- Real-time clock
- Programmable trigger-points and start/stop time
- Intelligent battery charging system
- Easy set-up
- Interactive demo CD
- 2-year warranty

## POWER & ENERGY MEASUREMENTS

- Kilowatts (kW)
- Volt-amperes (VA)
- Inductive reactive power (kvarL)
- Capacitive reactive power (kvarC)
- Power factor (PF)
- Frequency
- Kilowatt hours (kWh)
- Reactive power per hour (kvarhL, kvarhC)

## HARMONICS MEASUREMENT

- Total harmonic distortion (% THD)
- Harmonic factorization (FFT) to 51st harmonic

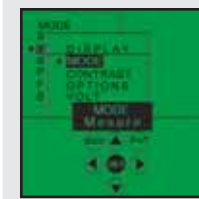
\* Models 806/807



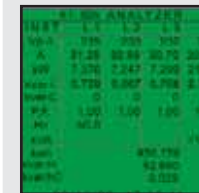
The IDEAL Power Quality Analyzer is a versatile and easy-to-use tool that will give you the information you need to get the job done. The unit measures and analyzes power quality on both single- and three-phase electrical systems. Instantaneous readouts of current, voltage, power and harmonics including tables, bar graphs and even individual waveforms, make job site data interpretation easy. With a real-time clock and 1MB of memory, the Power Analyzer stores data that can be downloaded to a personal computer for in-depth analysis using PowerVision™ software.

It's everything a professional needs for monitoring and analysis in a single unit: rugged, versatile and easy to use. Models available with 3 or 4 current channels to meet your needs and budget.

Power Analyzer Specifications 61-805, 61-806, 61-807		
	RANGE & RESOLUTION	ACCURACY
AC VOLTAGE	20 to 600 V (phase-neutral)	0.5%
	20 to 866 V (phase-phase)	0.5%
AC CURRENT	10 to 1000 A (with supplied clamp adapters)	1.0%
ACTIVE POWER	866 kW (with supplied clamp adapters)	1.0%
REACTIVE POWER	866 kW (with supplied clamp adapters)	1.0%
POWER FACTOR	0.5 to 1.0	1.0%



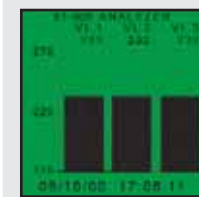
Program Setup



Table



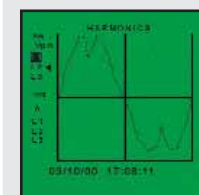
Exploded View



Bar Graph



Scope View



Waveform Zoom



Standard Equipment



ACCESSORIES

1000AAC Clamps (set of 3)	61-811
100AAC Neutral Clamp (1)	61-813
5AAC Compact Neutral Clamp (blue)	61-814
2000AAC Clamps (set of 3)	61-810
500AAC Clamps (set of 3)	61-812
5AAC Compact Clamps (set of 3)	61-819
100AAC Compact Clamps (set of 3)	61-820
100AAC Compact Neutral Clamp (blue)	61-821
200/2000/20000AAC Flexible Clamp adapters (set of 3)	61-457

Standard Equipment	61-805	61-806	61-807
1000AAC Clamps (61-811)	•	•	•
100AAC Neutral Clamp (61-813)	—	optional	•
Voltage leads with Alligator Clips (TL-806)	•	•	•
Power supply with RS-232 Interface and cables	•	•	•
PowerVision™ Analysis Software	•	•	•
Demonstration CD and Instructions	•	•	•
Protective Carrying Case	•	•	•

Note:  
 Model 805 has 3 current channels  
 Models 806/807 have 4 current channels  
 Model 807 includes neutral clamp



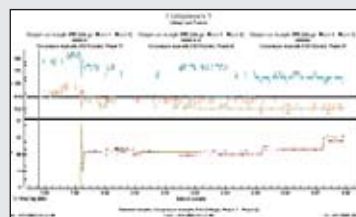
200/2000/20000AAC Flexible Clamp Adapters



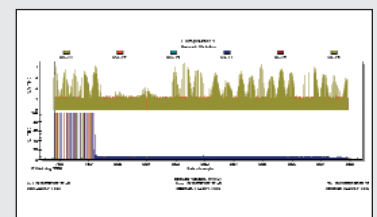
PowerVision™ Software

PowerVision™ software provides intuitive analysis of data and automatic generation of useful tables and graphs. Files are easily downloaded from any 800 series unit.

PowerVision™ provides multiple ways to view basic and detailed information, allowing you to customize readouts according to your troubleshooting needs. Compare up to 12 variables simultaneously. Easily scroll through, expand and collapse data over time. Compare data from multiple files to show before and after studies. Data can be exported to text files, databases; graphs and tables can be pasted into Excel or Word reports. Highly-trained technical support people are always a phone call away.



Current and Voltage



Harmonic Distortion

# Branch Circuit Testers

## Proper wiring ensures branch circuit safety and performance



IDEAL offers a number test instruments electricians depend on to test the integrity of a branch circuit. Like the SureTest® Circuit Analyzer which performs a variety of tests and troubleshoots any branch circuit problem.

Only IDEAL brings electricians the latest breakthroughs in troubleshooting technology, providing a whole new level of accuracy, safety and confidence.



# SureTest® Circuit Analyzers



Troubleshoots branch circuit problems with a variety of tests at the receptacle.



AFCI testing with alligator clips on an installed device.



▶ 61-165

Tests AFCI branch circuits, test for shared neutral



▶ 61-164

## COMMON FEATURES

- Super-bright display
- Measures voltage drop under full load\*
- Estimates load on circuit
- True RMS
- Line voltage
- Peak voltage
- Frequency
- Ground to neutral voltage
- Ground impedance
- Hot and neutral conductor impedances
- Identifies proper wiring in 3-wire receptacles
- Identifies false (bootleg) grounds
- Tests GFCIs and EPDs for proper operation
- Conducts testing without disturbing sensitive loads
- Verifies isolated grounds (with 61-176 adapter)
- 2-year warranty

\* 12A, 15A, 20A load tests

## ACCESSORIES

### Includes

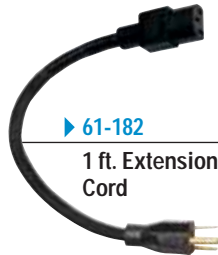
Carrying Case	61-179
1 ft. Extension Cord	61-182

### Optional

Ground Continuity Adapter	61-175
Isolated Ground Adapter	61-176
Alligator Clip Adapter	61-183



▶ 61-183  
Alligator Clip Adapter



▶ 61-182  
1 ft. Extension Cord



▶ 61-175 and 61-176  
Ground Continuity and Isolated Ground Adapters, respectively

## SureTest® 160 Series Specifications

	RANGE & RESOLUTION	BASIC ACCURACY
AC VOLTAGE	85.0 - 265.0 VAC	1.0%
FREQUENCY	45.0 - 65.0 Hz	1.0%
IMPEDANCE	0.00 - 1.99 Ω	5.0%
GROUND-NEUTRAL VOLTAGE	0.0 - 24.0 VAC	2.0%
% VOLTAGE DROP 12A, 15A, 20A load tests	0.1% - 50.0%	5.0%
GFCI TEST CURRENT	6.0 - 9.0 mA 0.0 - 6500 mS	2.0%



Branch Circuit Testers

# Circuit Breaker Finders

### COMMON FEATURES

- Fully automatic operation
- Positively identifies circuit breakers and fuses without service interruption
- Self calibrating
- Visual and audible indicators
- 2-year warranty

### ACCESSORIES

Carrying Case	C-290
Alligator Clip and Light Adapters	TL-532A



▶ 61-534

Microprocessor controlled sensitivity level, verifies proper wiring, checks GFCI operation, non-contact voltage, works on 120 and 240V circuits



Alligator clip adapter allows connections to exposed wiring



Lighting adapter allows connection to light fixtures



▶ 61-532



▶ TL-532A

Alligator Plug/Lighting Adapters

Specifications	61-532	61-534
OPERATING VOLTAGE	100 - 140 VAC	100 - 250 VAC
OPERATING FREQUENCY	47 - 63 Hz	47 - 63 Hz



# Mini Arc Fault Tester



### FEATURES

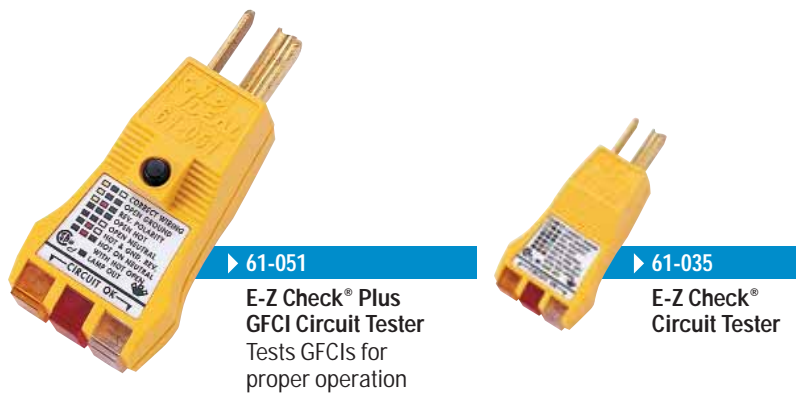
- Tests AFCI circuits for proper operation
- Tests GFCIs for proper operation
- Tests for shared neutrals
- Verifies wiring configuration
- Compact size fits comfortably in pocket
- 1-year warranty

### ACCESSORIES

Optional	
1' Cord Adapter	61-177
Alligator Clip Adapter (3-wire)	61-184
Alligator Clip Adapter (2-wire)	TL-532
Carrying Case w/ Belt Clip	C-50



# E-Z Check® Circuit Testers



### COMMON FEATURES

- Tests for correct wiring, open ground, reverse polarity, open hot, open neutral, hot on neutral, hot and ground reversed with open hot, and ground fault interruption in 3-wire, 120VAC circuits
- No-slip ergonomic design maximizes comfort
- Premium neon lamps prevent false readings
- Tough, impact-resistant case
- Tests GFCI devices for proper operation
- 2-year warranty



# Receptacle Testers



### COMMON FEATURES

- Warns against faulty wiring in 3-wire receptacles
- For use on 120VAC circuits
- 1-year warranty



# Electrical Testers

## Choose the one-and-only pioneer in voltage testing



IDEAL understands the professional electrician's job. That's why we created a number of products that identify the presence of voltage at the receptacle or breaker panel.

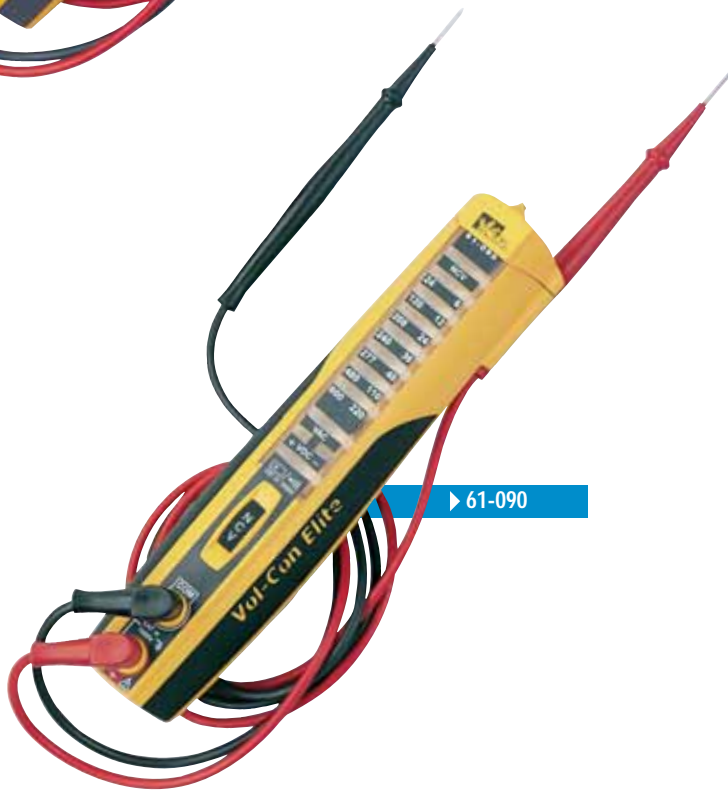
The Vol-Con<sup>®</sup> Elite, a voltage/continuity tester, combines the best attributes of a solenoid tester to offer more accurate voltage levels and a higher safety rating. Also, the newly designed VoltAware<sup>™</sup> non-contact voltage tester quickly identifies hot conductors, breaks in wires and the presence of AC voltage.

Whether checking for energized circuits, measuring current or determining continuity, all of our specialty and electrical testers incorporate high levels of safety and performance.

# Vol-Con® Elite Digital Voltage Testers



▶ 61-092  
Vibration mode



▶ 61-090

## COMMON FEATURES

- Digital circuitry for better resolution
- Tests for AC Voltage from 24-600VAC
- Tests for DC Voltage from 6-220VDC
- Audible continuity
- Non-contact voltage (40-600VAC)
- Low impedance to eliminate ghost voltages
- Low battery indicator
- Replaceable silicone test leads
- Integral lead storage
- 2-year warranty

## ACCESSORIES

### Includes

Silicone Test Leads TL-102

### Optional

Carrying Case C-90



Vibration mode gives a tactile indication of the voltage level.



Non-contact voltage sensor easily locates breaks in power cords.



Electrical Testers

# Solenoid Voltage Testers

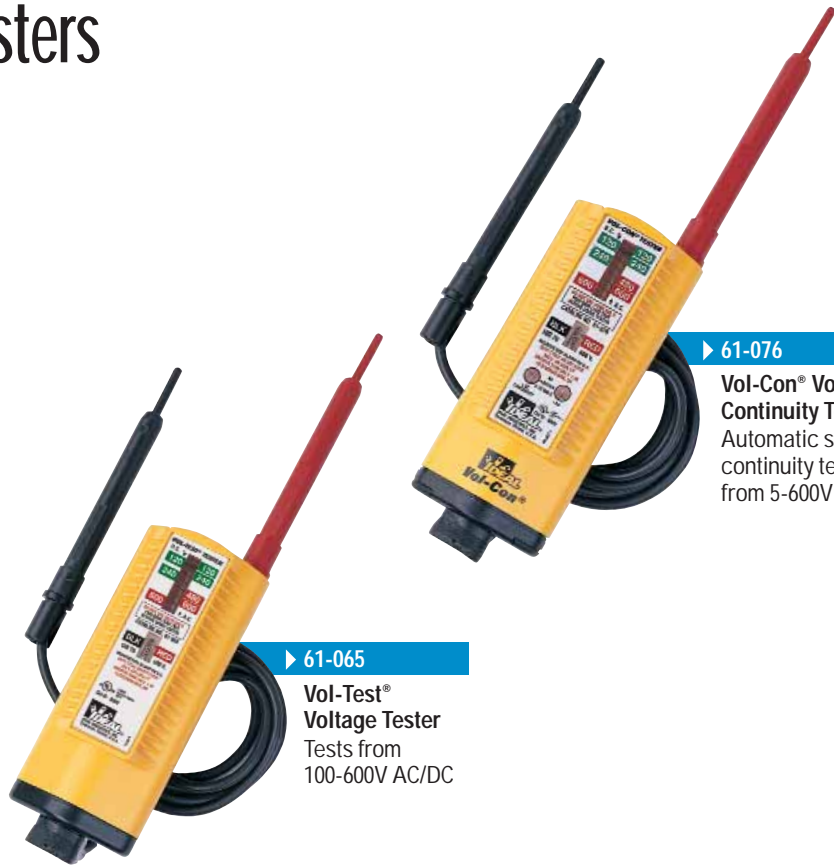
### COMMON FEATURES

- Extremely rugged and reliable
- Vibrates when voltage is present
- Tests for AC Voltage
- Tests for DC Voltage
- Replaceable leads with shielded probe tips
- Bright, long-life neon lamp
- Dual voltage indication for backup safety
- 2-year warranty

### ACCESSORIES

<b>Includes</b>	
Standard Test Leads	61-070
<b>Optional</b>	
Resistor-fused Leads*	61-072
Padded Nylon Case	C-90
Leather Case	61-010

\* Special, current-limiting resistor in each lead acts as a fuse to open in a short-circuit situation.



▶ 61-065  
**Vol-Test® Voltage Tester**  
Tests from 100-600V AC/DC

▶ 61-076  
**Vol-Con® Voltage/Continuity Tester**  
Automatic switching continuity tester, tests from 5-600V AC/DC

# XL-Series Solenoid Voltage Testers

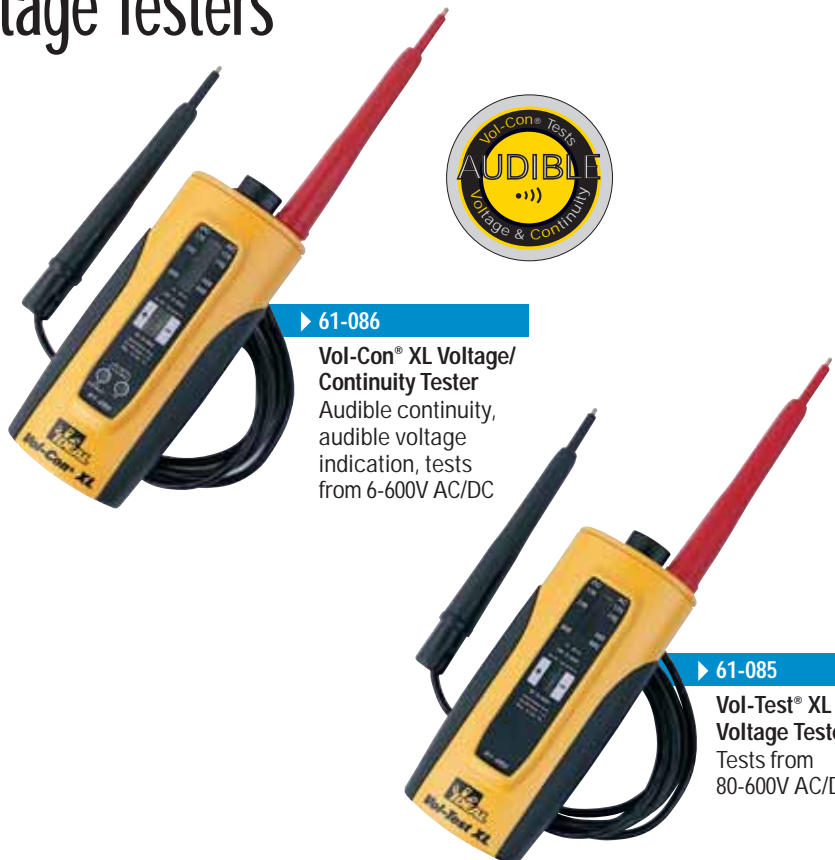
### COMMON FEATURES

- Extremely rugged and reliable
- Vibrates when voltage is present
- Tests for AC/DC Voltage
- Replaceable leads with shielded probe tips
- Bright, long-life neon lamp
- Dual voltage indication for backup safety
- Compact size
- 2-year warranty

### ACCESSORIES

<b>Includes</b>	
Standard Test Leads	TL-80
<b>Optional</b>	
Resistor-fused Leads*	TL-82
Padded Nylon Case	C-90
Leather Case	61-010

\* Special, current-limiting resistor in each lead acts as a fuse to open in a short-circuit situation.



▶ 61-086  
**Vol-Con® XL Voltage/Continuity Tester**  
Audible continuity, audible voltage indication, tests from 6-600V AC/DC

▶ 61-085  
**Vol-Test® XL Voltage Tester**  
Tests from 80-600V AC/DC



# Split-Jaw™ Smart Meter



**EASY  
NO DIAL  
TO USE**

## FEATURES

- Measures 0.1-200AAC\*
- Measures 1.3-750VAC
- Measures 0.1-1000VDC
- Measures 0.1-2000 Ω
- Audible continuity
- Data hold
- Integral lead storage
- Auto power off
- Low battery indication
- 2-year warranty

\*Jaw opening is 0.6 in. (16mm) - up to 1/0 copper cable

## ACCESSORIES

### Includes

Test Leads TL-95

### Optional

Carrying Case C-90



AC/DC Volts



AC Amps



Ohms/  
Continuity

AUTOMATICALLY SENSES & DISPLAYS

Specifications	61-096	
	RANGE & RESOLUTION	ACCURACY
AC VOLTAGE	1.3 - 750 V	1.5%
DC VOLTAGE	1.8 - 1000 V -0.6 - 1000 V	1.0%
AC CURRENT	0.6 - 200.0 A	3.0%
RESISTANCE	0 - 2000 Ω	1.0%



Electrical Testers

# VoltAware™ Non-Contact Voltage Tester

**FEATURES**

- Indicates presence of voltage from 40-1000VAC
- Visual indication of voltage
- Selectable audible indication of voltage
- Sleek, compact design
- Green LED indicates power on
- Low battery indicator
- Battery replacement (AAA size)
- 2-year warranty



▶ 61-025

Overmolded cushion grip



Convenient button turns audible voltage indication on or off



# Volt Sensor™ Non-Contact Voltage Tester

**FEATURES**

- Tests for voltage from 40V to 600VAC
- Audible and visual indication
- Locates breaks along live insulated wires
- Tests for energized circuits
- Battery replacement (button cell)
- 1-year warranty



▶ 61-063

Overmolded cushion grip



# Continuity Tester

**FEATURES**

- Checks continuity of dead circuits and ground on conduit systems and identifies wires in multi-wire cables
- Light signal indicates completed circuit
- Bulb-in end can serve as flashlight
- Pocket clip functions as probe
- Removable 4-ft. test lead with alligator clip
- 1-year warranty



▶ 61-030

# Test-Glo™ Circuit Tester

**FEATURES**

- Industrial-quality tester checks voltage from 80V to 600V AC/DC
- Neon test lamp at front of probe
- Resistors reduce voltage reaching leads
- 24-in. lead – rated 1,000V
- 1-year warranty



▶ 61-040



# Twin Lead Voltage Tester

**FEATURES**

- Check voltage from 80V to 500V AC/DC
- Heavy-duty test probes
- 1-year warranty



▶ 61-503

# 3-Phase/Motor Rotation Testers



▶ 61-521  
3-Phase  
sequence and  
motor rotation



▶ 61-520  
3-Phase  
sequence

## 61-521 FEATURES

- Identifies three-phase sequence
  - Indicates motor rotation
  - Checks for open phases
  - For use up to 600V
  - 2-year warranty
- Includes carrying case

## 61-520 FEATURES

- For use up to 600V
  - Color-coded insulators over alligator clips
  - Shock resistant housing
  - Easy to read
  - 2-year warranty
- Includes carrying case



Specifications	61-681	
	RANGE & RESOLUTION	ACCURACY
FOOT CANDLES	20.00/200.00/2000.0/200000	2%
LUX	20.00/200.00/2000.0/200000	2%



▶ 61-681

# Digital Light Meter

## FEATURES

- Wide lighting range
  - Foot candle and lux measurement
  - Remote light sensor
  - Cosine and color corrected
  - Peak hold
  - Low battery indication
  - 2-year warranty
- Includes carrying case

Specifications	61-682	
	RANGE & RESOLUTION	ACCURACY
	0° F to 500° F (-18° C to 260° C)	3.0%



▶ 61-682

# Infrared Thermometer

## FEATURES

- 15:1 angle of viewability
  - Built-in laser pointer
  - Backlit display
  - Auto power off
  - Measures temperature from 0° F to 500° F (-18° C to 260° C)
  - 2-year warranty
- Includes carrying case

# Accessories

## The right accessory can make the job a whole lot easier



Efficiency on the job is important and the proper accessory can make a difference. IDEAL has the equipment designed to meet the needs of every electrician. Whether it's expanding the capabilities of your test instruments with clamp adapters and test leads – or the convenience of a carrying case to keep your equipment organized and protected.

# Current Clamp Adapters



### COMMON FEATURES

- Provide safe, easy measurement of AC current
- Extend the current measurement capabilities of digital multimeters
- AC milli-volt output (1mVAC = 1mA)



# Flexible Clamp Adapters



### COMMON FEATURES

- Provide safe, easy measurement of high AC current
- Large opening and flexible materials to wrap around conductors and bus bars
- Shape Memory allows pre-forming before installation
- Extend the current measurement capabilities of digital multimeters

Specifications	61-330	61-331	61-332	61-333	61-334	61-436	61-451
AC CURRENT	1000 A	300/3000 A	200 A	500 A	600 A	1000 A	300 A
DC CURRENT	—	—	—	—	600 A	—	—
OUTPUT SIGNAL	1mV/A	1mV/A/10mV/A	1mV/A	1mV/A	1mV/A	1mV/A	1mV/A
MAX CONDUCTOR SIZE	8" (19cm)	8" (19cm)	0.78" (19.8mm)	1.18" (30mm)	1.125" (28.5mm)	2.25" (57.1mm)	0.91" (23mm)
SENSOR LENGTH	24" (61cm)	36" (91cm)	—	—	—	—	—



# Line Splitter

Accessories

# Carrying Cases



▶ 61-010  
Leather case for use with voltage testers



▶ 61-020  
Premium leather case for use with voltage testers



▶ C-90  
Nylon carrying case for use with all Vol-Con® and Vol-Test® Testers



▶ C-290  
Nylon carrying case for use with DMMs



▶ 61-445  
Small nylon carrying case with four convenient pockets



▶ C-2004  
Nylon carrying case with inside pockets and outer zippered pockets

CLAMP METER CARRYING CASE SELECTION GUIDE	700 Series		740		760 Series			770		
	61-701	61-702	61-704	61-744	61-746	61-764	61-766	61-768	61-772	61-774
C-90 Nylon Carrying Case				•	•					
C-700 Nylon Carrying Case	•	•	•							
C-760 Carrying Case						•	•	•		
C-770 Nylon Carrying Case									•	•

MULTIMETER CARRYING CASE SELECTION GUIDE	310		320 Series			340		360		490		610	
	61-310	61-312	61-320	61-322	61-324	61-340	61-342	61-360	61-361	61-494	61-495	61-610	61-614
C-290 Nylon Carrying Case	•	•	•	•	•	•	•	•	•	•	•	•	•

TESTER CARRYING CASE SELECTION GUIDE	Voltage Testers								160	
	61-059	61-065	61-076	61-085	61-086	61-090	61-092	61-096	61-164	61-165
61-010 Leather Tester Case		•	•	•	•					
61-020 Premium Leather Tester Case		•	•							
61-179 Nylon Carrying Case									•	•
C-50 Nylon Carrying Case	•									
C-90 Nylon Carrying Case		•	•	•	•	•	•	•		

## Test Lead Kits



▶ TL-435

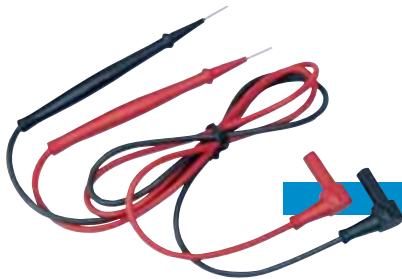
**Industrial Test Lead Kit**  
 Kit contains: 1.5m silicone lead set, probes w/SS tips, rigid alligator clips, flex pincer clips, insulated alligator clips, insulated spade lugs and padded zipper pouch, 1000V, 10A rating



▶ TL-436

**Electrical Test Lead Kit**  
 Kit contains: 1.5m silicone lead set, probes w/SS tips, insulated alligator clips and tri-fold pouch, 1000V, 10A rating

## Test Leads



▶ TL-102

**Silicone Test Leads**



▶ TL-100

**Test Leads w/Alligator Clips**



▶ TLF-252

**Fused Test Leads w/Alligator Clips**  
 10A/600V, CAT III - 1000V



▶ TL-104

**Test Leads w/Large Alligator Clip**

## Thermocouples



▶ 61-465  
**Thermocouple Adapter**



▶ 61-461  
**Beaded K-type Thermocouple**

### COMMON FEATURES

- Measures up to 1500° F (816° C)
- K-type thermocouple plugs into digital multimeter with 61-465 adapter

# Replacement Parts Selection Guide

METER REPLACEMENT PARTS SELECTION GUIDE	090	310	320 Series	340	360	450	490	600	610	700 Series	710	740	760 Series	770
	61-096	61-310 61-312	61-320 61-322 61-324	61-340 61-342	61-360 61-361	61-452	61-494 61-495	61-605	61-610 61-614	61-701 61-702 61-704	61-710	61-744 61-746	61-764 61-766 61-768	61-772 61-774
<b>FUSES</b>														
F-1	0.5A (250V)	6.35 x 32mm		•					•		•			
F-2	10A (250V)	6.35 x 32mm		•					•		•			
F-102	1A (600V)	6.35 x 38mm	• •				• •							
F-103	15A (600V)	6.35 x 38mm				•	•							
F-310	250mA (250V)	5 x 20mm	•											
F-312	500mA (250V)	5 x 20mm	•											
F-314	10A (250V)	5 x 20mm	•											
LA-3893	2A (600V)	6.35 x 25.4mm			•									
LA-3895	0.5A (250V)	5 x 20mm							•					
LA-3896	0.5A (500V)	6.35 x 32mm		•	•									
LA-3897	10A (600V)	6.35 x 25.4mm		•	•									
LA-3898	0.1A (250V)	5 x 20mm			•									
<b>BATTERIES</b>														
61-201	1.5V (LR44)							•						
—	1.5V (AA)		•				•		• •		•			
—	1.5V (AAA)		•									• •		
—	9V	•	•	• •	• •	• •	• •			• • •			• • •	• •
<b>TEST LEADS</b>														
TL-34	Leads w/pin connectors								•					
TL-54	Test leads								•					
TL-95	Test leads	•												
TL-100	Test leads w/alligator clips		• • •		• •	• •	• •				•	• •		
TL-102	Silicone test leads									• • •				
TL-104	Test leads w/ large alligator clip												• • •	• •
TL-310	Test leads	• •												

## Warranty Policy

IDEAL offers a warranty on all of its digital metering equipment. This policy warrants equipment from defects in workmanship and material, except normal wear and tear. Refer to the equipment's operating instructions or call IDEAL for the terms and conditions of this warranty policy.

## Repair Policy

For test equipment repairs, call the 877-201-9005 Technical Hotline for shipping instructions. An estimate will be supplied for repair approval before work is performed. Identify repair packages with - Attention: Test Equipment Repair.

## Calibration Services

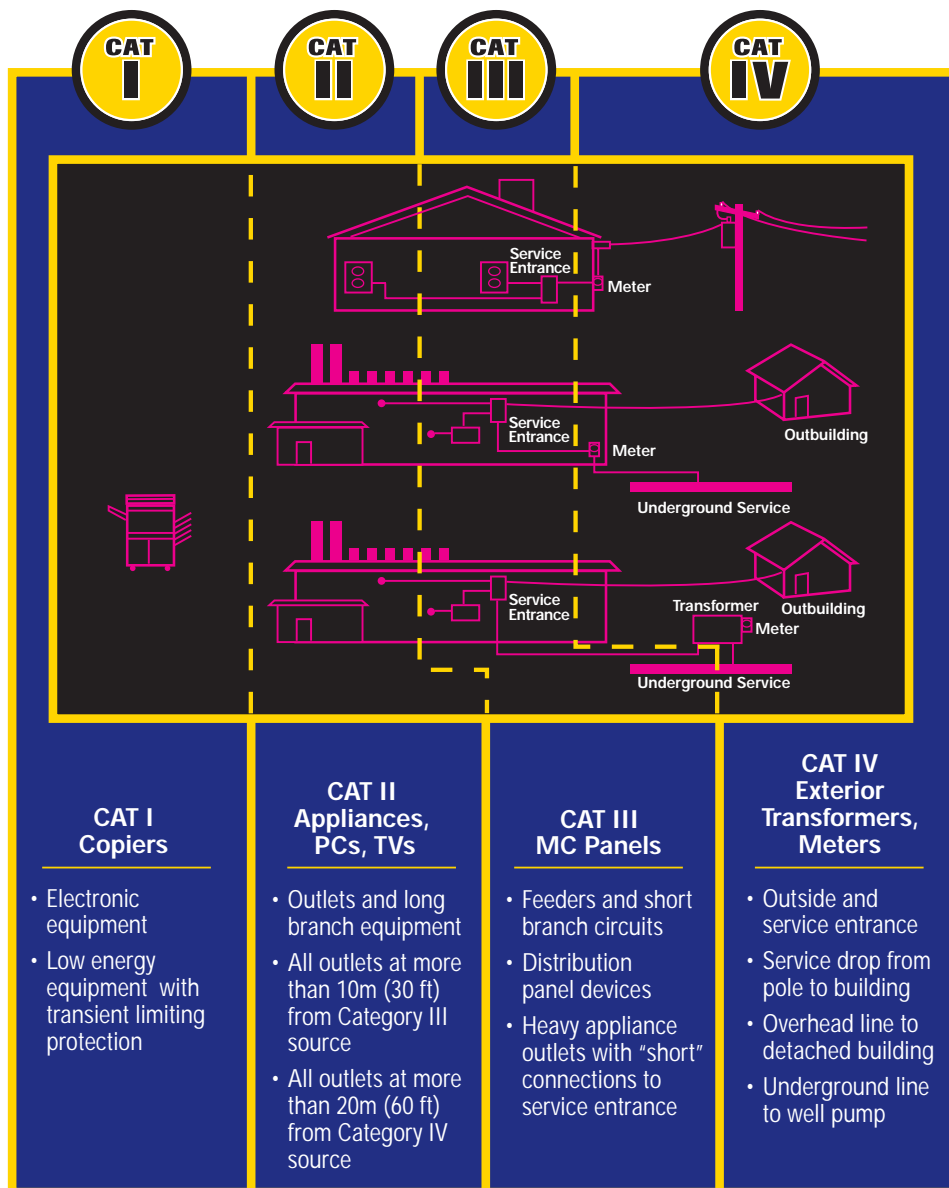
IDEAL maintains an ISO9001 certified lab. To obtain a NIST traceable calibration, call the 877-201-9005 Technical Hotline for shipping instructions. Identify shipped packages with - Attention: Test Equipment Calibration.



Test & Measurement



# Safety in the Field



The power demands of today's high-tech world have caused a marked increase in occurrences and levels of transient overvoltages. The International Electrotechnical Commission (IEC) has developed a safety standards model for measurement, control and laboratory use.

**Category I** – The signal level for telecommunications, electronic and other low-energy equipment with transient-limiting protection. Peak impulse transient range is 600–4,000 volts with a 30 ohm source.

**Category II** – The local level for fixed and non-fixed powered devices including appliances, lighting and portable equipment. Outlets located more than 30 feet from CAT III sources and 60 feet from CAT IV sources. Peak impulse transient range is from 600–6,000 volts with a 12 ohm source.

**Category III** – The distribution level for fixed primary feeders or branch circuits. Circuits that are separated from CAT IV sources by at least one level of transformer isolation. Peak impulse transient range is 600–8,000 volts with a 2 ohm source.

**Category IV** – The primary supply level for the highest levels of transient overvoltage. Includes the utility service both outside and at the service entrance, service drop from the pole to the building, overhead line to remote buildings, and underground line to a well pump. Peak impulse transient range is 600–12,000 volts with less than a 1 ohm source.

## Technical Definitions

**AC, Alternating Current** – An electric signal in which the current and voltage vary in a repeating pattern over time; the most common type of voltage.

**A, Ampere or Amp** – A basic unit of measure for the rate of current flow. Measured in Amps.

**Analog Meter** – A mechanical measuring device using a needle moving across a graduated scale or dial.

**Apparent Power** – Applied voltage multiplied by current. This is the power utilized by a load or electrical system. Measured in Voltamperes (VA).

**Auto Ranging** – DMM that automatically selects the range with the best resolution and accuracy in response to the application.

**Calibration** – Zeroing of an instrument to a known standard.

**Capacitance** – Ability of a component to hold an electrical charge, usually stated in microfarads.

**Capacitor** – Electronic component which stores energy and then discharges it; blocks DC and allows AC to pass through.

**Clamp-on** – DMM with jaws that allow it to fit around a conductor to measure AC or DC current without breaking the circuit.

**Coaxial Cable** – A cable consisting of a central copper core surrounded by a layer of insulating material, in turn surrounded by a metallic mesh or solid metallic sleeve. This is then protected by an outer layer of nonconducting material. Both the core and the metallic layers are capable of conducting electrical signals.

**Contact** – A connection between two conductors that allows a flow of current.

**Continuity** – The continuous path for current flow in a closed circuit.

**Current** – The flow of an electrical charge through a conductor. Measured in Amperes or Amps.

**Data Hold** – Feature of DMM that allows continued display of last reading taken after probes have been removed.

**Dielectric** – A material that is non-metallic and non-conductive. May be used to describe insulating materials.

**DMM, Digital Multimeter** – An instrument that uses an LCD typically capable of measuring voltage, current and resistance.

**Diode** – Electronic device in circuits that allows current to flow easily in only one direction and blocks flow in the opposite direction.

**DC, Direct Current** – An indirectional, steady voltage; typically produced through electromagnetism, chemicals (batteries), light, heat or pressure.

**F, Farad** – The basic unit of capacitance.

**Frequency** – The number of cycles per second that a wave form repeats. Measured in Hertz (Line voltage in U.S. is 60 Hz.)

**Ground** – A large conducting body (earth) used as a common return for current in a circuit.

**Harmonics** – A frequency that is an integer (multiple) of the fundamental frequency caused by electronic equipment. Harmonics cause distortion to the voltage and current wave forms.

**Harmonic Factorization** – Analysis where the total harmonic distortion is broken down into the individual harmonics.

**Hertz** – A measure of frequency. It is equal to one cycle per second.

**Impedance** – Total opposition to current flow; includes resistance, capacitance and reactance.

**Layer** – In networking, layers refer to software protocols. Each layer performs services for the layer above it.

**Linear Loads** – A load where the load impedance is constant. The relationship between the voltage and current drawn from the circuit are proportional. Examples of linear loads are motors and incandescent lighting.

**Load** – Any device which consumes power in a circuit.

**Manual Ranging** – DMM that requires the user to manually select the range using the meter's dial.

**Min/Max** – A feature that allows a meter to capture and store the highest and lowest readings during a specific measurement.

**Negative Sequence Harmonics** – Odd-numbered harmonics with a phase sequence opposite to the fundamental frequency (5th, 11th, 17th, etc.). They have a reversal effect on motors within an industrial facility.

**Noise** – Unwanted signals originating in a channel.

**Non-Linear Loads** – A load where the load impedance is not constant. The relationship between the voltage and current is unique to the type of load, resulting in harmonics on the circuit. Examples of non-linear loads are computers and variable speed machines.

**Odd-Numbered Harmonics** – Odd-numbered integer of the fundamental frequency (60 Hz). The 3rd harmonic of the fundamental frequency is 180 Hz, the 5th is 300 Hz, etc. Odd-numbered harmonics are typically created by non-linear loads.

**Ohm** – The basic unit of resistance, specified as equal to that of a conductor in which one amp of current is produced by one volt of potential across its terminals.

**Open Circuit** – A break in a cable circuit.

**OL, Overload** – Signal amplitudes or frequencies above the specified limits of the instrument; typically displayed as “OL” on the display of a DMM.

**Outage** – The total loss of AC power for greater than one minute. Outages typically last from 15 minutes to a few hours.

**Peak Hold** – Feature of DMM that allows retention of highest reading in a series of measurements.

**Polarity** – The positive or negative direction of DC voltage or current.

**Power Factor** – The ratio of true power (watts) to the apparent power (voltamperes). It is an indication of the efficiency of an electrical system.

**Power Quality** – A broad term used to describe the measurement of electrical power performance.

**Resistance** – Opposition to current. Measured in Ohms.

**Resolution** – Increments in value that can be displayed by a DMM; the greater the resolution the more precise the readout.

**Sag** – A reduction in AC voltage up to 20% below nominal level lasting for a duration from one-half cycle up to a few seconds.

**Short** – Any connection that has relatively low resistance or any resistance between two points below a preselected threshold.

**Sleep Mode** – Automatically shuts down unit that is not in use to preserve battery life.

**Swell** – An increase in AC voltage up to 20% above nominal level lasting for a duration from one-half cycle up to a few seconds.

**Total Harmonic Distortion (THD)** – The percentage of distortion to the fundamental frequency caused by harmonics within the electrical system.

**Transient** – A release of positive or negative energy creating a disturbance within a single cycle of the AC wave form.

**Triplen Harmonics** – See zero sequence harmonics.

**True Power** – The power extended when one ampere of current flows through a resistance of one Ohm. Measured in Watts.

**True RMS** – Allows accurate measurement of AC voltage in environments with harmonics (see harmonics).

**V, Volt** – The unit of electrical pressure; one volt is the potential difference needed to cause one amp of current to pass through one amp of resistance.

**Voltage** – A unit of measure of the electrical pressure in an electrical system. Measured in Volts.

**VA, Voltamperes** – Applied voltage multiplied by current. This is the power utilized by a load or electrical system.

**Watt** – Often referred to as true power. It is the power expended when one ampere of current flows through a resistance of one Ohm.

**Zero Sequence Harmonics** – Also called triplen harmonics, these are concurrent in direction with the fundamental frequency (3rd, 9th, 15th, etc.). They produce an amplitude that is triple any one phase when they combine on the neutral of a 3-phase, 4-wire electrical system.

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