

196 PROCESS CONTROL DIGITAL MULTIMETER

0-24mA Output
50,000 count

- **Large 50,000 count display** increases resolution and improves accuracy (1.7" x 2.75", 43mm x 70mm)
- **0-24mA output** for process controls
- **Triple Display** shows more than one reading simultaneously
- **51 Segment Analog Bar Graph** to catch fast AC fluctuations
- **Back Light** (LED Type) allows viewing in any light condition
- **Auto Range** automatically selects the best range for the measurement
- **Separate battery and fuse compartment** for easy replacement
- **Increased safety** with Silicone rubber 1,000V CAT III, 600V CAT IV, 10A test leads (CE & cUL listed)
- **Auto Power Off** DMM will automatically power down after approximately 15 minutes of inactivity to extend battery life. Disable Auto Power Off: Hold down the REC button and turn the meter on.
- **Diode Test** displays approximate forward bias voltage
- **Continuity and buzzer** to check for opens and shorts



The 196 DMM comes complete with a protective boot and silicone rubber (CAT IV 600V) test leads.

GENERAL SPECIFICATIONS

Weight:	530g
Operating Temp:	0°C to 45°C (-32°F to 113°F)
Storage Temp:	-20°C to 60°C (-40°F to 140°F)
Relative Humidity:	0% to 80%: (0°C to 35°C/32°F to 95°F) 0% to 70%: (45°C to 55°C/95°F to 131°F)
Temp Coefficient:	0.1x (Specified Accuracy) per °C for temperature <18°C to >28°C
Power Supply:	9 Volt Alkaline Battery

Catalogue Number	List Price
196	\$387.76

***DISCOUNT SYMBOL "T"**

Catalogue numbers in blue are NEW items

440KIT SCOPE PLUS SPECIAL KIT



Six Instruments in One

1. Autoranging 4,000 Count True RMS DMM

Full capabilities of a 4,000 Count True RMS DMM 0.3% basic DC accuracy and 9 measurement functions.

2. 1 MHz Oscilloscope

View industrial power signals such as motor controls, UPS, switching power supplies, and PLC controls with detail and clarity.

3. Trend Mode

Chart recorder-like display monitors slow changing events with ease.

4. Component Test

Check voltage-current signatures on capacitors, resistors, semiconductors and much more.

5. Logic Test

Indicates transitions up to 2 MHz.

6. Frequency Counter

Measure low frequency signals from 1 Hz to 2 MHz and display duty cycle, pulse width and period.

PC/Printer Compatibility to RS232C Port

Optional accessory A402 enables data or waveform to be downloaded to PC for archiving, processing and report generation. Perfect for extended monitoring. Eight waveform storage locations enables remote data acquisition for later viewing or downloading to a PC.

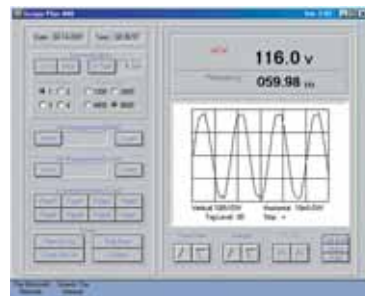
KIT INCLUDES:

- 440 Scope Plus
- AC Adapter
- Test Leads
- Rechargeable Battery
- Protective Rubber Boot
- Zippered Carrying Case
- RS232 Software and Cable

Cat. Number	List Price
440KIT	\$614.50

SPECIFICATIONS		DMM	
Bandwidth	1 Mhz	True RMS	Yes
Sample Rate	20 Megasamples per Sec.	Basic Accuracy	0.30%
	Single Shot	DCV / ACV	Up to 1,000 volts
Channels	Single	DCA/ACA	Up to 10 amps
Glitch Capture	Yes	Ohms	Up to 40 Meg Ohm
Trend Mode	Yes	Capacitance	Up to 40µF
Auto Set	Continuous	Frequency	Up to 2 Mhz
Memory	8 Waveform locations		
Memory	8 Setup locations		
Viewing Area	160 x 240 pixels		
Contrast	Adjustable		

RS232
Software and
Cable Included



***DISCOUNT SYMBOL T**

183 DIGITAL MULTIMETER • TRUE RMS



Cat. Number	List Price
183	\$319.71

- **Backlit Triple Display** shows more than one reading on the LCD at a time.
- **Hold two readings on the display** at one time with unique Two-Hold System.
- **Record, Compare and Relative Percentage modes** make it easy to perform advanced measurements.
- **TRUE RMS** allows accurate measurements of non-sinusoidal AC voltage and current Waveforms found on controls and circuits.
- **Transfer data directly to a PC** with RS232 output.
- **Sleep mode** helps save battery life.
- **Meets CE and IEC1010** safety standards.
- **3 Year Limited Warranty.**
- **CUL Approved** and CAT. II & III rated.

Comes complete with protective rubber boot, test leads, alligator clips, manual and battery.

SPECIFICATIONS

AC Volts	4V	40V	400V	750V		
DC Volts	4V	40V	400V	1000V		
DC Amps	400µA	4mA	40mA	400mA	4A	10A
AC Amps	40mA	400mA	4A	10A		
Resistance	400Ω	4KΩ	40KΩ	400KΩ	4MΩ	40MΩ
Capacitance	10µF	100µF	1000µF	10000µF		
Frequency	200Hz	2KHz	20KHz	200KHz		
Continuity Buzzer	Yes					
Diode Test	Yes					

296 DIGITAL CLAMP-ON METER



Cat. Number	List Price
296	\$301.57

The 296 is an advanced digital clamp-on meter with TRUE RMS and Harmonics features.

Measure AC and DC Volts, AC and DC Amps, Resistance with Continuity Buzzer, and Frequency. Features HDR mode, True RMS, Data Hold, Record with Min/Max/Avg.

Comes complete with test leads, soft pouch, manual, and battery.

SPECIFICATIONS

AC Volts	40V	400V	750V
DC Volts	40V	400V	750V
DC Amps	40A	400A	700A
AC Amps	40A	400A	700A
Resistance	400Ω	4KΩ	40KΩ
Continuity Buzzer	Yes		
Frequency	1KHz	10KHz	
Diode Test	Yes		

- Determine if a signal is clean or distorted. HDR mode displays the harmonic distortion ratio on ACV and ACA at line voltage and 60Hz.
- TRUE RMS provides accurate and dependable readings of non-linear loads.
- Use Trim Mode to average readings for more stable output to the LCD.
- Record the Minimum/Maximum and average value of any function.
- Sleep Mode helps conserve the battery life.
- 3 Year Limited Warranty.
- CUL Approved and CAT. II & III rated.

***DISCOUNT SYMBOL T**

Technicians, engineers, contractors, electricians and utility/repair technicians have found their professional choices among our TPI lineup. We have put together some of the most popular items and made them into these value packed kits.

133/255KIT



The 133/255KIT is an excellent general purpose kit which has everything for basic troubleshooting.

133 SPECIFICATIONS

AC Volts	200mV	2V	20V	200V	750V	
DC Volts	200mV	2V	20V	200V	1000V	
DC Amps	200 μ A	2mA	20mA	200mA	2A	10A
AC Amps	200 μ A	2mA	20mA	200mA	2A	10A
Resistance	200 Ω	2K Ω	20K Ω	200K Ω	2M Ω	20M Ω
Continuity Buzzer	Yes					
Diode Test	Yes					

255 SPECIFICATIONS

AC Volts	4V	40V	400V	750V		
DC Volts	4V	40V	400V	600V		
AC Amps	40A	400A				
Resistance	400 Ω	4K Ω	40K Ω	400K Ω	4M Ω	40M Ω
Continuity Buzzer	Yes					

Cat. Number	List Price
133/255KIT	\$228.13

153/A256KIT



The 153/A256KIT is the same as above but adds amperage for measuring inrush current on both AC and DC motors.

All TPI meters are backed by a three year limited warranty.

153 SPECIFICATIONS

AC Volts	4V	40V	400V	750V		
DC Volts	400mV	4V	40V	400V	1000V	
DC Amps	400 μ A	4mA	40mA	400mA	4A	10A
AC Amps	400 μ A	4000 μ A	40mA	400mA	4A	10A
Resistance	400 Ω	4K Ω	40K Ω	400K Ω	4M Ω	40M Ω
Continuity Buzzer	Yes					
Diode Test	Yes					

A256 SPECIFICATIONS

0 to 40 AC/DC Amp	0 to 400 AC/DC Amp	CAT.III.
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Cat. Number	List Price*
153/A256KIT	\$279.97

***DISCOUNT SYMBOL T**

SAIT300 • DIGITAL INSULATION TESTER



- Meets IEC standards
- Designed to comply with the latest IEE wiring regulations
- Battery operated
- Solid state circuitry
- Battery check feature
- Automatic circuit discharge
- Automatic zero adjust
- Low battery indicator
- Colour coded scale
- Three megohm voltages
- Fuse protected
- LCD Display
- Audible Warning Signal
- Live circuit neon indicator

MEASUREMENT DATA

TEST	
VOLTAGE	RANGE
250V	0-20MΩ
500V	0-200MΩ
1000V	200MΩ

Cat. Number	List Price*
SAIT300	\$388.75

SAIT20 • ANALOG INSULATION TESTER



- Meets IEC standards
- Battery operated
- Solid state circuitry
- Battery check feature
- Automatic circuit discharge
- Colour coded scale
- Three megohm voltages
- Fuse protected

MEASUREMENT DATA

TEST	
VOLTAGE	RANGE
600mV	0-50Ω
250V	0-50MΩ
500V	0-100MΩ
1000V	0-200MΩ

Cat. Number	List Price*
SAIT20	\$235.98

SAIT200 • ANALOG INSULATION TESTER



- Meets IEC standards
- Designed to comply with the latest IEE wiring regulations
- Battery operated
- Solid state circuitry
- Battery check feature
- Automatic circuit discharge
- Colour coded scale
- Three megohm voltages
- Fuse protected

MEASUREMENT DATA

TEST	
VOLTAGE	RANGE
4-9V	0-20Ω
250V	0-100MΩ
500V	0-200MΩ
1000V	0-400MΩ

Cat. Number	List Price*
SAIT200	\$348.16

***DISCOUNT SYMBOL T**

NON-CONTACT THERMOMETER
380 • 381 • 381F • 383



6.1" x 5" x 1.4"

- 380: without laser**
- 381: with laser**
- *381F: with laser for food service**
- 383: with laser**

- Easy-to-use one button operation
- 0.1 resolution for best reading
- Large, easy-to-read LCD
- 8:1 distance to spot ratio
- Last reading hold function
- °C and °F selectable
- Temp range:
380/381/381F: 0° to 500°F (-18° to 260°C)
383: -31° to 999°F (-35° to 560°C)

*The 381F has high accuracy ± 2°F (±1°C to 300°C)

Cat. Number	List Price*
380	\$97.96
381	118.37
381F	102.04
383	153.06

HIGH TEMPERATURE
NON-CONTACT THERMOMETER
384



6.1" x 5" x 1.4"

- Easy-to-use one button operation
- 0.1 resolution for best reading
- Large, easy-to-read LCD
- 8:1 distance to spot ratio
- Last reading hold function
- °C and °F selectable
- Temp range:
-31° to 1,832°F (-35° to 1,000°C)

Cat. Number	List Price*
384	\$193.88

POCKET NON-CONTACT THERMOMETER • 368-1

Ideal for checking motor, bearing and drive temperatures quickly and easily!

Fits in the palm of your hand.



Cat. Number	List Price*
368-1	\$42.50

- Min/Max Temperatures
- °F/°C Selectable
- One Touch Reading or Auto Scan, continuous scanning
- Range -7° to 248°F or -22° to 120°C
- Accuracy ±2% of reading

Range	-7° to 248°F or -22° to 120°C
Operating Temp.	-32° to 104°F or 0° to 40°C
Accuracy	2% of reading or ±2°C whichever is greater
Response Time	< 0.5 second
Resolution	0.1°F/°C
Emissivity	0.95 fixed
Distant to spot ratio	1:1.3
Battery	A003
Battery Life	50 hrs. continuous use, auto after 10 sec.

POCKET DIGITAL THERMOMETER • 315



- Rugged design withstands a 10' drop!
- Magnetic clip perfect for air duct applications
- Water resistant!
- Auto power off
- Low battery indicator
- 3.1 mm diameter stem for "Pete's" plug

Range	-58° to 300° F or -5° to 150° C
Resolution	0.1° For C
Accuracy	±2° F or ±1° C
Sampling Time	1.5 seconds
Battery	1.5V button

Cat. Number	List Price*
315	\$31.25

NON-CONTACT & CONTACT THERMOMETER • 377



Temperature Measurement versatility with non-contact and K-Thermocouple input*

*Temperature probes sold separately

Features

- Laser Pointer
- 8:1 Distance to Spot Ratio
- Record Function
- Display Data Hold Function
- °C and °F Selectable Temp
- Gun-Type Compact Design
- Back Light
- Operation Lock Function
- Trigger Switch
- Carrying Holster
- 9V battery and soft pouch included

SPECIFICATIONS

Temp Range	0° to 1832°F 18° to 1,000°C
Accuracy at +23° C CE = 0.95	30° to 950°F -18° to 1,000°C ± 2% of reading or ± 3.5°F (2°C) whichever is greater
Response Time	500 milliseconds
Spectral Response	7 -14um
Emissivity	0.3 to 0.99 adjustable
Display Resolution	0.1°F and 0.1°C or 1°F and 1°C
Amb. Operating Range	32° to 120°F and 0° to 50°C

PROBES

K-type Range	-40° to 2192°F and -40° to 1200°C
K-type Accuracy	±(0.5% of reading + 3°F)

Choose from a complete line of probes for your unique job assignment. Contact or surface gas, air, flame, high-temp immersion, semi-frozen product. Call for LEESON with your application.

Cat. Number	List Price*
377	\$365.16

Applications

Automotive

- AC systems
- Brakes
- Catalytic converters
- Diesel maintenance
- Electrical systems
- Engines
- Radiators

Electrical

- Cables
- Circuit Breakers
- Connections
- Machinery
- Motors
- Transformers

HVAC/R

- Compressor Heads
- Vents
- Hot and cold areas in insulation
- Leaks around cooler or freezer doors
- Leaks around windows
- Steam traps
- Registers

Food

- Grill and surface temperatures
- Holding cabinets
- Serving temperatures
- Storage temperatures

TACHOMETER • LASER NON-CONTACT/CONTACT • BT200

The BT200 can be used as either a contact or a non-contact tachometer for highly accurate readings.

The tachometer features:

- Laser light source for accurate measurements.
- Non-contact measurements from 10 to 99,999 rpm.
- Contact measurements from 0.5 to 19,999 rpm
- Built-in memory recalls Last/MaxiMin value stored.
- Use reflective marker on object to be measured and point the laser light beam for accurate readings updated every second.
- Up to 6.5 feet (2 meters) measurement
- Complete with 23" reflective tape, four AA batteries and case.



Cat. Number	List Price*
BT200	\$336.73

SPECIFICATIONS

BT200	Photo	Contact	Surface
Measuring Range	2.5~99,999 RPM	0.5~19,999 RPM	0.05~1,999 m/min
Resolution	0.1 RPM (2.5~999.9) 1.0 RPM (>1000)	0.1 RPM (0.5~999.9) 1.0 RPM (>1000)	0.01 m/min (0.5~99.99) 0.1 m/min (>100)
Detection Distance	2~7.8" (50~500mm) - Photo		
Accuracy	±(0.05% ±1 digit)		
Sampling Time	0.5 sec (over 120 RPM)		
Time Base	Quartz Crystal (4.194 MHz)		
Operating Temperature	32~122°F		
Memory	LAST / MIN / MAX		
Display	5 Digit display with .6" LCD		

TACHOMETER • LASER NON-CONTACT/CONTACT • 505



SPECIFICATIONS

Photo Tach:	6 to 30,000RPM
Contact Tach:	6 to 20,000RPM
Surface Speed:	0.9 to 3,046 m/min 2.0 to 9,990 ft/min
Accessories:	Reflective Tape Cone Wheel for RPM Concave Wheel for RPM Large Wheel for Surface Speed Carrying Case

Cat. Number	List Price*
505	\$234.69

The 505 is a combination photo and contact tachometer that also measures surface speeds of belts and wheels.

The kit comes complete with tachometer, carrying case/strap, three wheels for contact reading and reflective tape for non-contact reading.

AC SAFETY VOLT CHECK 50

The AC Safety Volt Check provides non-contact detection of 50-1000 VAC with both a sound and visual alert.

Features:

- Prevent electrical shocks
- Non-contact detection of 50 to 1,000 VAC
- Troubleshoot electrical circuits
- No switch required
- Always ready for use. Competing products require an ON/OFF switch.
- Sound & Visual Alert
- Sound and bright red glow indicates voltage. Buzzer will not react to static electricity, only AC voltage.
- Uses 2 AAA batteries
- Common and inexpensive
- Competing products require more expensive camera batteries
- Lifetime Warranty



Applications:

- Electricians
- Electronics
- Emergency
- Home Owners
- Maintenance
- Manufacturing
- Safety
- Vending Companies
- Signage
- HVAC

Cat. Number	List Price*
50	\$30.61



TEST LEADS • A075



Test lead package

- complete with alligator clips
- 1000V CAT.III

Cat. Number	List Price*
A075	\$15.00

TEST LEAD KIT • TLS2000RB



This kit comes complete with:

- alligator clips, prods, sprung hooks and spade connectors.
- 1000V CAT.III

Cat. Number	List Price*
TLS2000RB	\$65.96

THERMOCOUPLE PROBES

A wide selection of K-type and J-type thermocouple probes is available. Piercing solid materials or checking hard-to-reach temperature targets can be mastered with ease when you have the right probe.

PROBES

K-type Range	-40° to 2192°F and -40° to 1200°C
K-type Accuracy	±(0.5% of reading + 3°F)

Choose from a complete line of probes for your unique job assignment. Contact or surface, gas, air, flame, high-temp immersion, semi-frozen product. Call LEESON with your application.



***DISCOUNT SYMBOL T**