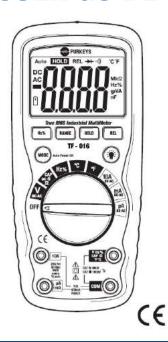


## AUTORANGING TRUE RMS MULTIMETER

## **USER GUIDE**





## **CONTENTS**

General Information	2
Safety	3
Controls and Jacks	
Symbols and Annunicators	8
Operating Instructions	
Maintenance	
Specifications	21
Limited Commercial Warranty Policy	



## **GENERAL INFORMATION**

This meter measures AC/DC Voltage, AC/DC Current, Resistance, Capacitance, Frequency, Diode Test, and Continuity plus Thermocouple Temperature. It features a waterproof, rugged design for heavy-duty use. This meter is shipped fully tested and calibrated and, with proper use, will provide years of reliable service.

## SAFETY



This symbol adjacent to another symbol, terminal, or operating device indicates that the operator must refer to an explanation in the Operating Instructions (page 9) to avoid personal injury or damage to the meter.

WARNING

This WARNING symbol indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

CAUTION

This CAUTION symbol indicates a potentially hazardous situation that, if not avoided, may result damage to the product.



This symbol advises the user that the terminal(s) so marked must not be connected to a circuit point at which the voltage with respect to earth ground exceeds (in this case) 1000 VAC or VDC.



This symbol adjacent to one or more terminals identifies them as being associated with ranges that may, in normal use, be subjected to particularly hazardous voltages. For maximum safety, the meter and its test leads should not be handled when these terminals are energized.



This symbol indicates that a device is protected throughout by double insulation or reinforced insulation.



## PER IEC 1010 OVERVOLTAGE INSTALLATION CATEGORY

## OVERVOLTAGE CATEGORY I

Equipment of OVERVOLTAGE CATEGORY I is equipment for connection to circuits in which measures are taken to limit the transient overvoltages to an appropriate low level.

Note: Examples include protected electronic circuits.

## OVERVOLTAGE CATEGORY II

Equipment of OVERVOLTAGE CATEGORY II is energy-consuming equipment to be supplied from the fixed installation.

Note: Examples include household, office, and laboratory appliances.

#### OVFRVOLTAGE CATEGORY III

Equipment of OVERVOLTAGE CATEGORY III is equipment in fixed installations.

Note: Examples include switches in the fixed installation and some equipment for industrial use with permanent connection to the fixed installation.

## OVERVOLTAGE CATEGORY IV

Equipment of OVERVOLTAGE CATEGORY IV is for use at the origin of the installation.

Note: Examples include electricity meters and primary over-current protection equipment.

### **CAUTIONS**

 Improper use of this meter can cause damage, shock, injury, or death. Read and understand this guide before operating the meter.

- Always remove the test leads before replacing the battery or fuses.
- Inspect the condition of the test leads and the meter itself for any damage before operating the meter. Repair or replace any damage before use.
- Use great care when making measurements if the voltages are greater than 25 VAC rms or 35 VDC. These voltages are considered a shock hazard.
- Warning! This is class A equipment. This equipment can cause interferences in the living quarters; in this case the operator can be required to carry out adequate measures.
- Always discharge capacitors and remove power from the device under test before performing Diode, Resistance, or Continuity tests.
- Voltage checks on electrical outlets can be difficult and misleading because of the uncertainty of connection to the recessed electrical contacts. Other means should be used to ensure that the terminals are not "live."
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- This device is not a toy and must not reach children's hands.
  It contains hazardous objects as well as small parts that
  children could swallow. In case a child swallows any parts,
  please contact a physician immediately
- Do not leave batteries and packing material lying around unattended; they can be dangerous for children if they use them as toys.
- In case the device is going to be unused for an extended period of time, remove the batteries to prevent them from draining.
- Expired or damaged batteries can cause cauterization on contact with the skin. Always, therefore, use suitable hand gloves in such cases
- See that the batteries are not short-circuited. Do not throw batteries into the fire.



#### SAFETY INSTRUCTIONS

This meter has been designed for safe use, but must be operated with caution. The rules listed below must be carefully followed for safe operation.

1. NEVER apply voltage or current to the meter that exceeds the specified maximum:

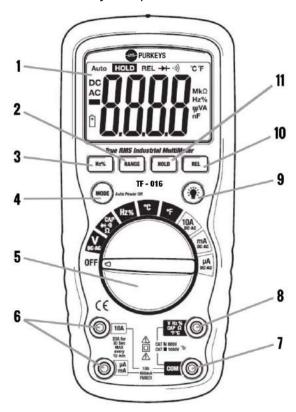
Input Protection Limits		
Function	Maximum Input	
VDC or VAC	1000 VDC/AC rms	
mA AC/DC	400 mA AC/DC	
A AC/DC	10 A AC/DC (20 A for 30 sec)	
Frequency, Resistance, Capacitance, Diode Test, Continuity, Temperature	600 VDC/AC rms	

- 2. USE EXTREME CAUTION when working with high voltages.
- 3. DO NOT measure voltage if the voltage on the "COM" input jack exceeds 600 V above earth ground.
- NEVER connect the meter leads across a voltage source while the function switch is in the current, resistance, or diode mode. Doing so can damage the meter.
- 5. ALWAYS discharge filter capacitors in power supplies and disconnect the power when making resistance or diode tests.
- 6. ALWAYS turn off the power and disconnect the test leads before opening the covers to replace the fuse or batteries.
- 7. NEVER operate the meter unless the back cover, battery, and fuse covers are in place and fastened securely.
- 8. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

## **CONTROLS AND JACKS**

- 1. 4,000 Count LCD Display
- 2. RANGE Button
- 3. Hz and % Button
- 4. Mode Button
- Function Switch
- 6. mA, µA and 10 A Input Jacks
- 7. COM Input Jack
- 8. Positive Input Jack
- 9. Backlight Button
- 10. REL Button
- 11. HOLD Button

Note: Tilt stand and battery compartment are on rear of unit.





## SYMBOLS AND ANNUNCIATORS

•))) Continuity

Diode test

† Battery status

n nano (10-9) (capacitance)

μ micro (10-6) (amps)

m milli (10-3) (volts, amps)

A Amps

k kilo (103) (ohms)

F Farads (capacitance)
M mega (106) (ohms)

 $\Omega$  Ohms

Hz Hertz (frequency)

V Volts

% Percent (duty ratio)

REL Relative

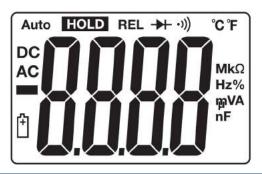
AC Alternating current

Auto Autoranging
DC Direct current
HOLD Display hold

HOLD Display hold

°F Degrees Fahrenh

°F Degrees Fahrenheit °C Degrees Centigrade



## **OPERATING INSTRUCTIONS**

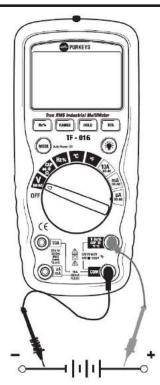
WARNING: Risk of electrocution. High-voltage circuits, both AC and DC, are very dangerous and should be measured with great care.

- 1. ALWAYS turn the function switch to the OFF position when the meter is not in use.
- If "OL" appears in the display during a measurement, the value exceeds the range you have selected. Change to a higher range.

## DC VOLTAGE MEASUREMENTS

CAUTION: Do not measure DC voltages if a motor on the circuit is being switched ON or OFF. Large voltage surges may occur that can damage the meter.

- Set the function switch to the V position.
- Press the MODE button to select DC (if necessary).
- Insert the black test lead banana plug into the negative COM jack. Insert the red test lead banana plug into the positive V jack.
- Touch the black test probe tip to the negative side of the circuit.
   Touch the red test probe tip to the positive side of the circuit.
- 5. Read the voltage on the display.



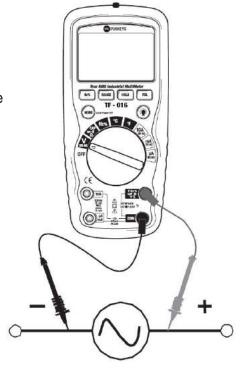


## AC VOLTAGE (FREQUENCY, DUTY CYCLE) MEASUREMENTS

WARNING: Risk of Electrocution. The probe tips may not be long enough to contact the live parts inside some 240 V outlets for appliances because the contacts are recessed deep in the outlets. As a result, the reading may show 0 volts when the outlet actually has voltage. Make sure the probe tips are touching the metal contacts inside the outlet before assuming that no voltage is present.

CAUTION: Do not measure AC voltages if a motor on the circuit is being switched ON or OFF. Large voltage surges may occur that can damage the meter.

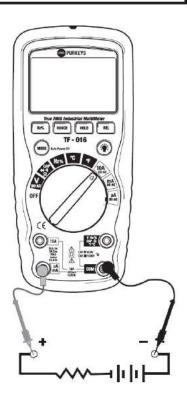
- Set the function switch to the V position.
- 2. Press the MODE button to select AC (if necessary).
- Insert the black test lead banana plug into the negative COM jack. Insert the red test lead banana plug into the positive V jack.
- Touch the black test probe tip to the neutral side of the circuit. Touch the red test probe tip to the "hot" side of the circuit.
- 5. Read the voltage on the display.
- 6. Press the HZ/% button to indicate "Hz".
- 7. Read the frequency on the display.
- 8. Press the Hz/% button again to indicate "%".
- 9. Read the % of duty cycle on the display.



#### DC CURRENT MEASUREMENTS

CAUTION: Do not make 20 A current measurements for longer than 30 seconds. Exceeding 30 seconds may cause damage to the meter and/or the test leads.

- Insert the black test lead banana plug into the negative COM jack.
- 2. For current measurements up to 4000  $\mu$ A DC, set the function switch to the  $\mu$ A position and insert the red test lead banana plug into the  $\mu$ A/ mA jack.
- For current measurements up to 400 mA DC, set the function switch to the mA position and insert the red test lead banana plug into the μA/mA jack.
- For current measurements up to 10 ADC, set the function switch to the 10 A position and insert the red test lead banana plug into the 10 A jack.
- 5. Press the MODE button to indicate "DC" on the display.
- 6. Remove power from the circuit under test, then open up the circuit at the point where you wish to measure current.
- 7. Touch the black test probe tip to the negative side of the circuit. Touch the red test probe tip to the positive side of the circuit.
- 8. Apply power to the circuit.
- 9. Read the current on the display.

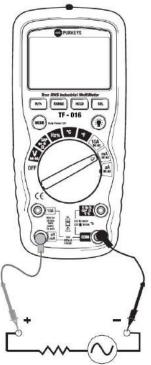




## AC CURRENT (FREQUENCY, DUTY CYCLE) MEASUREMENTS

CAUTION: Do not make 20 A current measurements for longer than 30 seconds. Exceeding 30 seconds may cause damage to the meter and/or the test leads.

- 1. Insert the black test lead banana plug into the negative COM jack.
- 2. For current measurements up to 4000 μA AC, set the function switch to the μA position and insert the red test lead banana plug into the μA/mA jack.
- 3. For current measurements up to 400 mA AC, set the function switch to the mA position and insert the red test lead banana plug into the µA/mA jack.
- 4. For current measurements up to 10 A AC, set the function switch to the 10 A position and insert the red test lead banana plug into the 10 A jack.
- 5. Press the MODE button to indicate "AC" on the display.
- 6. Remove power from the circuit under test, then open up the circuit at the point where you wish to measure current.
- 7. Touch the black test probe tip to the neutral side of the circuit. Touch the red test probe tip to the "hot" side of the circuit.
- 8. Apply power to the circuit.
- Read the current on the display.
- 10. Press the Hz/% button to indicate "Hz".
- 11. Read the frequency on the display.
- 12. Press the Hz/% button again to indicate "%".
- 13. Read the % duty cycle on the display.
- 14. Press the Hz/% button to return to current measurement.



#### RESISTANCE MEASUREMENTS

WARNING: To avoid electric shock, disconnect power to the unit under test and discharge all capacitors before taking any resistance measurements. Remove the batteries and unplug the line cords.

- Set the function switch to the CAP → •)) Ω position.
- 2. Insert the black test lead banana plug into the negative COM jack. Insert the red test lead banana plug into the positive  $\Omega$  jack.
- 3. Press the MODE button to indicate " $\Omega$ " on the display.
- Touch the test probe tips across the circuit or part under test. It is best to disconnect one side of the part under test so the rest of the circuit will not interfere with the resistance reading.
- 5. Read the resistance on the display.



## CONTINUITY CHECK

WARNING: To avoid electric shock, never measure continuity on circuits or wires that have voltage on them.

- Set the function switch to the CAP → → □ Ω position.
- 2. Insert the black lead banana plug into the negative COM jack. Insert the red test lead banana plug into the positive  $\Omega$  jack.
- 3. Press the MODE button to indicate "  $\bullet$ " and " $\Omega$ " on the display
- 4. Touch the test probe tips to the circuit or wire you wish to check.
- If the resistance is less than approximately 100, the audible signal will sound. If the circuit is open, the display will indicate "OL".





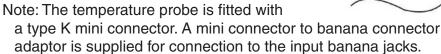
#### DIODE TEST

- 1. Set the function switch to the CAP  $\rightarrow$  •))  $\Omega$  position.
- Insert the black test lead banana plug into the negative COM jack and the red test lead banana plug into the positive V jack.
- Press the MODE button to indicate 
   and V
   on the display.
- 4. Touch the test probes to the diode under test. Forward voltage will typically indicate 0.400 to 0.700 V. Reverse voltage will indicate "OL". Shorted devices will indicate near 0 V and an open device will indicate "OL" in both polarities.



#### TEMPERATURE MEASUREMENTS

- Set the function switch to the °F or °C position.
- Insert the Temperature Probe into the input jacks, making sure to observe the correct polarity.
- Touch the Temperature Probe head to the part you wish to measure. Keep the probe touching the part under test until the reading stabilizes (about 30 seconds).
- 4. Read the temperature on the display.





#### CAPACITANCE MEASUREMENTS

WARNING: To avoid electric shock, disconnect power to the unit under test and discharge all capacitors before taking any capacitance measurements. Remove the batteries and unplug the line cords.

- Set the rotary function switch to the CAP
   → )) Ω position.
- 2. Insert the black test lead banana plug into the negative COM jack. Insert the red test lead banana plug into the positive V jack.
- 3. Press the MODE button to indicate "nF" on the display.
- Touch the test leads to the capacitor to be tested.
- 5. The test may take up to 3 minutes or more for large capacitors to charge. Wait until the readings settle before ending the test.
- 6. Read the capacitance value on the display.



# FREQUENCY/DUTY CYCLE MEASUREMENTS (ELECTRONIC)

- Set the rotary function switch to the "Hz/%" position.
- Press the Hz/% button to indicate "Hz" on the display.
- Insert the black lead banana plug into the negative COM jack and the red test lead banana plug into the positive Hz jack.
- 4. Touch the test probe tips to the circuit under test.
- 5. Read the frequency on the display.
- 6. Press the Hz/% button again to indicate "%" on the display.
- 7. Read the % of duty cycle on the display.





## FREQUENCY SENSITIVITY (ELECTRICAL)

The frequency sensitivity is range dependent when the function is selected while in the voltage or current measuring function. Below are typical sensitivities for the "electrical" measurement modes.

Range ( DC/AC )	Sensitivity	Frequency width
4 V	≥1.5 V rms	5 Hz~10 kHz
40V, 400 V	≥10 V rms	5 Hz~20 kHz
	≥20 V rms	5 Hz~200 kHz
1000 V/1000 V	≥420 V rms	50 Hz~ kHz
400 mA	≥45 mA rms	5 Hz∼5 kHz
10 A	≥4 A rms	5 Hz~1 kHz

### **AUTORANGING/MANUAL RANGE SELECTION**

When the meter is first turned on, it automatically goes into autoranging. This automatically selects the best range for the measurements being made and is generally the best mode for most measurements. For measurement situations requiring that a range be manually selected, perform the following:

- 1. Press the RANGE key. The "Auto" display indicator will turn off.
- 2. Press the RANGE key to step through the available ranges. Observe the decimal point and units displayed until the preferred range is located.
- 3. To exit the manual ranging mode and return to autoranging, press and hold the RANGE key for 2 seconds.

Note: Manual ranging does not apply for the Capacitance and Frequency functions.

#### **RELATIVE MODE**

The relative measurement feature allows you to make measurements relative to a stored zero reference value. A reference voltage, current, etc. can be stored and measurements made in comparison to that value. The displayed value is the difference between the reference value and the measured value.

- Perform the measurement as described in the operating instructions.
- 2. Press the REL button to store (zero) the reading in the display and the "REL" indicator will appear on the display.
- 3. The display will now indicate the difference between the stored value and the measured value.
- 4. Press the REL button to exit the relative mode.

Note: The Relative function does not operate in the Frequency function.

#### DISPLAY BACKLIGHT

Press the backlight \*\*button to switch the display backlight ON or OFF.

## **HOLD**

The hold function freezes the reading in the display. Press the HOLD key momentarily to activate or to exit the HOLD function.

### **AUTO POWER OFF**

The auto off feature will turn the meter off after 30 minutes. To disable the auto power off feature, hold down the MODE button and turn the meter on.

### LOW BATTERY INDICATION

The icon will appear in the display when the battery voltage becomes low. Replace the battery when this appears.



## **MAINTENANCE**

WARNING: To avoid electric shock, disconnect the test leads from any source of voltage before removing the back cover, battery, or fuse covers.

WARNING: To avoid electric shock, do not operate your meter until the battery and fuse covers are in place and fastened securely.

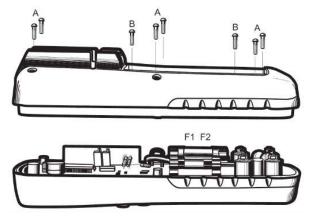
This MultiMeter is designed to provide years of dependable service if the following care instructions are followed:

- 1. KEEP THE METER DRY. If it gets wet, wipe it off.
- 2. USE AND STORE THE METER IN NORMAL TEMPERATURES. Temperature extremes can shorten the life of the electronic parts and distort or melt plastic parts.
- 3. HANDLE THE METER GENTLY AND CAREFULLY. Dropping it can damage the electronic parts or the case.
- KEEP THE METER CLEAN. Wipe the case occasionally with a damp cloth. DO NOT use chemicals, cleaning solvents, or detergents.
- 5. USE ONLY FRESH BATTERIES OF THE RECOMMENDED SIZE AND TYPE. Remove old or weak batteries so they do not leak and damage the unit.
- IF THE METER IS TO BE STORED FOR A LONG PERIOD OF TIME, the batteries should be removed to prevent damage to the unit.

#### **BATTERY INSTALLATION**

WARNING: To avoid electric shock, disconnect the test leads from any source of voltage before removing the battery cover.

- 1. Turn power off and disconnect the test leads from the meter.
- 2. Open the rear battery cover by removing two screws (labeled B in the image below) using a Phillips head screwdriver.
- 3. Insert the battery into battery holder, observing the correct polarity.
- 4. Put the battery cover back in place. Secure with the screws.
- 5. Users are legally bound (EU Battery ordinance) to return all used batteries; disposal in the household garbage is prohibited! Used batteries/accumulators can be turned in at community collection points or wherever batteries accumulators are sold.





Disposal: Follow the valid legal stipulations in respect of the disposal of the device at the end of its lifecycle

WARNING: To avoid electric shock, do not operate the meter until the battery cover is in place and fastened securely.

NOTE: If your meter does not work properly, check the fuses and batteries to make sure that they are still good and that they are properly inserted.

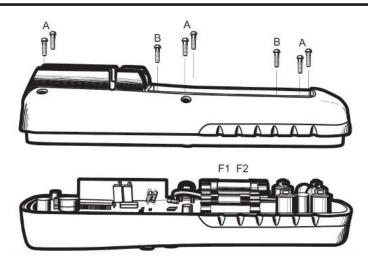


### REPLACING THE FUSES

WARNING: To avoid electric shock, disconnect the test leads from any source of voltage before removing the fuse cover.

- Disconnect the test leads from the meter.
- 2. Remove the battery cover (two "B" screws in the image below) and the battery.
- 3. Remove the six "A" screws securing the rear cover.
- 4. Gently remove the old fuse and install the new fuse.
- Always use a fuse of the proper size and value (0.5 A/1000 V fast blow for the 400 mA range [SIBA 70-172-40], 10 A/1000 V fast blow for the 20 A range [SIBA 50-199-06]).
- 6. Replace and secure the rear cover, battery, and battery cover.

WARNING: To avoid electric shock, do not operate your meter until the fuse cover is in place and fastened securely.



## **SPECIFICATIONS**

Function	Range	Resolution	Accuracy
	400 mV	0.1 mV	$\pm (0.5\% \text{ reading} + 2 \text{ digits})$
DC Voltage	4 V	0.001 V	
	40 V	0.01 V	±(1.2% reading + 2 digits)
	400 V	0.1 V	
	1000 V	1 V	$\pm (1.5\% \text{ reading} + 10 \text{ digits})$
	400 mV	0.1 mV	$\pm (2.0\% \text{ reading} + 10 \text{ digits})$
	4 V	0.001 V	
AC Voltage	40 V	0.01 V	$\pm$ (2.0% reading + 5 digits)
	400 V	0.1 V	
	1000 V	1 V	±(2.5% reading + 5 digits)
	400 µA	0.1 μΑ	±(1.0% reading + 3 digits)
DC Current	4000 μA	1 μΑ	
	40 mA	0.01 mA	$\pm (1.5\% \text{ reading} + 3 \text{ digits})$
	400 mA	0.1 mA	
	10 A	0.01 A	±(2.5% reading + 5 digits)
	400 µA	0.1µA	$\pm (2.5\% \text{ reading} + 10 \text{ digits})$
AC Current	4000 μA	1µA	
	40 mA	0.01 mA	±(2.5% reading + 5 digits)
	400 mA	0.1 mA	
	10 A	0.01 A	$\pm (3.0\% \text{ reading} + 7 \text{ digits})$

NOTE: Accuracy is stated at 65° F to 83° F (18° C to 28° C) and less than 75% RH.

21



Function	Range	Resolution	Accuracy	
	400 Ω	0.1 Ω	±(1.2% reading + 4 digits)	
	4 kΩ	0.001 kΩ	±(1.0% reading + 2 digits)	
Danistanas	40 kΩ	0.01 kΩ		
Resistance	400 kΩ	0.1 kΩ	±(1.2% reading + 2 digits)	
	4 MΩ	0.001 MΩ		
	40 MΩ	0.01 MΩ	±(2.0% reading + 3 digits)	
	4 nF	0.001 nF	±(5.0% reading + 0.5nF)	
	40 nF	0.01 nF	±(5.0% reading + 7 digits)	
Canacitanas	400 nF	0.1 nF		
Capacitance	4 μF	0.001 μF	$\pm (3.0\% \text{ reading } + 5 \text{ digits})$	
	40 μF	0.01 μF		
	100 μF	0.1 μF	±(5% reading + 5 digits)	
	5.999 Hz	0.001 Hz	(1 5% reading + 1 digita)	
	59.99 Hz	0.01 Hz	±(1.5% reading + 1 digits)	
	599.9 Hz	0.1 Hz		
	5.999 kHz	0.001 kHz	$\pm (1.2\% \text{ reading} + 3 \text{ digits})$	
Frequency	59.99 kHz	0.01 kHz	= ±(1.2 % reading + 3 digits)	
	599.9 kHz	0.1 kHz		
	5.999 MHz	0.001 MHz	$\pm (1.5\% \text{ reading} + 4 \text{ digits})$	
	9.999 mHz	0.001 MHz	±(1.5 % reading + 4 digits)	
	Sensitivity: 0.5 V rms <500 kHz; 3 V rms >500 kHz			
Duty Cycle	0.1 to 99.9%	0.1%	±(1.2% reading + 2 digits)	
Duty Cycle	Pulse width: 100 µs to 100 r 150 kH			
Temp (type-K)	-4 to 1382° F -20 to 750° C	0.1°< 400° 1° ≥ 400°	±(3.0% reading + 9° F/ 5° C) (probe accuracy not included)	

Note: Accuracy specifications consist of two elements:

- (% reading): This is the accuracy of the measurement circuit.
- (+ digits): This is the accuracy of the analog to digital converter.

## **GENERAL SPECIFICATIONS**

Enclosure	Double molded, waterproof (IP67)
Shock (Drop Test)	6.5 feet (2 meters)
Diode Test	Test current of 0.3 mA typical, open circuit voltage 1.5 V DC typical
Continuity Check	Audible signal will sound if the resistance is less than 100 (approx.), test current <0.3 mA
Temperature Sensor	Requires type K thermocouple
Input Impedance	10 MΩ VDC & 10 MΩ VAC
AC Response	True rms
ACV Bandwidth	40 Hz to 400 Hz
Crest Factor	≤3 at full scale up to 500 V, decreasing linearly to ≤1.5 at 1000 V
Display	4,000 count backlit liquid crystal
Overrange indication	"OL" is displayed
Auto Power Off	30 minutes (approximately)
Polarity	Automatic (no indication for positive); Minus (-) sign for negative
Measurement Rate	ျာ 2 times per second, nominal
Low Battery Indication	" "is displayed if battery voltage drops below operating voltage
Battery	One 9 volt (NEDA 1604) battery
Fuses	mA, μA ranges; 0.5 A/1000 V ceramic fast blow (SIBA 7017240.0,5) A range; 10 A/1000 V ceramic fast blow (SIBA 5019906.10)
Operating Temperature	41° F to 104° F (5° C to 40° C)
Storage Temperature	-4° F to 140° F (-20° C to 60° C)
Operating Humidity	Max 80% up to 87° F (31° C) decreasing linearly to 50% at 104° F (40° C)
Storage Humidity	<80%
Operating Altitude	7000 ft (2000 meters) maximum
Weight	0.753 lb (342 g) (includes holster)



Size	7.2" x 3.2" x 2.2" (182 x 82 x 55 mm)
Safety	This meter is intended for origin of installation use and is protected against users by double insulation per EN61010-1 and IEC61010-1 2nd Edition (2001) to Category IV 600 V and Category III 1000 V; Pollution Degree 2. The meter also meets UL 61010-1, 2nd Edition (2004), CAN/CSA C22.2 No. 61010-1 2nd Edition (2004), and UL 61010B-2-031, 1st Edition (2003).
Approvals	UL CE
UL Listed	The UL mark does not indicate that this product has been evaluated for the accuracy of its readings.

#### LIMITED COMMERCIAL WARRANTY POLICY

Purkeys Fleet Electric, Inc. (hereafter "Purkeys"), warrants each product to be free of defects in material or workmanship under normal use and service. This warranty is for the benefit of Original Equipment Manufacturers, Dealers, Warehouse Distributors, Fleets, or other End Users (hereafter "Customers") and covers products manufactured by Purkeys and sold new to Customers either directly by Purkeys or by its authorized dealers, distributors, or agents. The length of the Warranty Period is 24 months.

The warranty period commences on the in-service or install date and is not transferable. Failure to provide the in-service or install date on the warranty claim form will cause the warranty period to begin on the date the part was manufactured or date of sale recorded on the original sales invoice, whichever is earlier.

A completed warranty claim form should accompany all parts submitted to Purkeys for consideration for repair or replacement under warranty. The submitted claim form should contain all of the information required. Lack of a properly or fully completed claim form will result in delay or denial of warranty claim. Claims must be submitted no later than 30 days after part is removed.

This warranty does not apply if, in sole judgement of Purkeys, the product has been damaged or subjected to accident, faulty repair, improper adjustment, improper installation or wiring, neglect, misuse, or alteration or if the product failure is caused by defects in peripheral vehicle components or components attached to the Product or failure of a part not manufactured by Purkeys.

This warranty shall not apply if any Purkeys product is used for a purpose for which it is not designed or is in any way altered without the specific prior written consent of Purkeys. ANY Product alleged by a Customer to be defective must be inspected by Purkeys as a part of the warranty claims process in order to confirm that the part has failed as a result of a defect in material or workmanship.

Transportation for products and parts submitted to Purkeys for warranty consideration must be prepaid by Customer. Repaired or replaced products and or components will be returned to Customer pre-paid by Customer or "freight collect" to the address provided by Customer in the warranty claim form. No charge will be made for labor or material in effecting such repairs.

The Warranty provided by Purkeys hereunder is specifically limited to repair or replacement of the Product as Purkeys deems most appropriate in its sole discretion. Purkeys neither assumes nor authorizes any other person to assume on its behalf any other warranty or liabilities in connection with Purkeys products. The Warranty does not apply to fuses or other "consumable" or maintenance items which are or may be a part of any Purkeys product.

THIS WARRANTY DOES NOT APPLY TO LOSS OF VEHICLE OR EQUIPMENT, LOSS OF TIME, INCONVENIENCE, OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES. PURKEYS SPECIFICALLY DISCLAIMS AND SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES arising out of or from the use of Purkeys products by the Customer.

THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, INCLUDING COMMON LAW WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, AND ANY OTHER EXPRESS OR IMPLIED WARRANTIES. ALL OTHER SUCH WARRANTIES ARE SPECIFICALLY DISCLAIMED.

This Limited Commercial Warranty supersedes all previous Warranty Policies issued by Purkeys and any of its suppliers.

