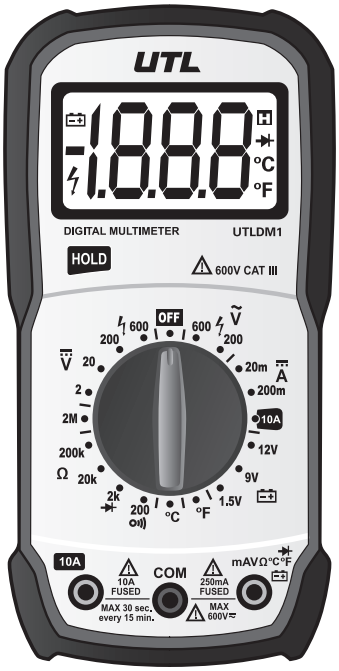
UNIVERSAL TRADE LINE
Distributed by UEi Test Instruments

Digital Multimeter
UTLDM1

Instruction Manual
English



1 yr. warranty

Intertek 3194551

600V CAT III IEC61010-1

PROFESSIONAL VALUE

WARRANTY
The UTL Digital Multimeter (UTLDM1) is warranted to be free from defects in materials and workmanship for a period of one year from the date of purchase. This warranty does not cover fuses, disposable batteries, or damage from drops, neglect, misuse, alteration, contamination, or abnormal conditions of operation or handling. Resellers are not authorized to extend any other warranty on behalf of UTL. To obtain service during the warranty period, contact your nearest UTL service center directly.

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GENERAL MAINTENANCE
Warning ⚠ If the current test leads are worn, replace test leads with identical or compatible leads: 1000V 10A.

Warning ⚠ To avoid personal injury or damage to the meter, DO NOT wet the inner parts of the meter. Regularly clean the meter case with damp cloth and a small amount of detergent. Do not use abrasives or chemical solvents.

REPLACE BATTERIES & FUSES
Warning ⚠ To avoid incorrect readings and possible electric shock or personal injury, when " ⊟ " appears on the display, replace the battery immediately. Turn off the meter and disconnect the test probe from the meter before opening the back cover to replace batteries or fuses. Gain access to batteries and fuse by using a screwdriver to loosen the battery cover screws on the back of the meter and removing the cover.

GENERAL SPECIFICATIONS
- Operating Category: 600V CAT III, pollution degree: 2.
- Operating Elevation (< 2000 m)
- Operating Conditions: 0~40°C, <80% RH (do not use meter when temperature <10°C).
- Storage Conditions: -10~60°C, <70% RH (remove the battery).
- Temperature Coefficient: 1 × Accuracy/°C (<18°C or >28°C).
- Maximum Voltage between measurement end and ground: 600V DC or 600V AC RMS.
- Fuse protection: mA Grade: fuse F400mA/600V and 10A Grade: fuse F10A/600V
- Sampling rate: about 3 times/second.
- Display: 3 1/2 digits 2,000 count LCD display.
- Power supply: 1 x 9V battery.

ELECTRICAL SPECIFICATIONS

DC VOLTAGE

Range	Resolution	Accuracy
2V	1mV	± (0.5% + 2 dgts)
20V	10mV	
200V	100mV	
600V	1V	± (0.8% + 5 dgts)

Overload protection: 600V RMS

AC VOLTAGE

Range	Resolution	Accuracy
200V	100mV	± (1.0% + 10 dgts)
600V	1V	

Overload protection: 600V RMS

DC CURRENT

Range	Resolution	Accuracy
20mA	0.01mA	± (1.0% + 5 dgts)
200mA	0.1mA	
10A	0.01A	± (2.0% + 8 dgts)

mA, µA Overload Protection: 250V RMS
10A Overload Protection: 600V RMS

TEMPERATURE

Range	Resolution	Accuracy
-20°C to 1000°C	1°C	± (2.0% + 2 dgts)
-4°F to 1832°F	1°F	± (2.0% + 4 dgts)

RESISTANCE

Range	Resolution	Accuracy
200Ω	0.1Ω	± (0.8% + 3 dgts)
2kΩ	1Ω	
20kΩ	10Ω	
200kΩ	100Ω	
2MΩ	1kΩ	

Overload protection: 250V RMS

DIODE

Range	Test Current	Open Test Circuit
0.5 to 0.7V	1.2mA	2.7V

BATTERY TEST

Range	Resolution	Test Current
1.5V	0.001V	40mA
9V	0.01V	10mA
12V	0.01V	10mA

CONTINUITY

Overload Protection	Open Test Circuit
250V RMS	2.7V

WARNING ⚠
To avoid electric shock or personal injury, please read SAFETY INSTRUCTIONS, WARNINGS and CAUTIONS carefully before use.

SAFETY INSTRUCTIONS: Read Before Use

The UTLDM1 digital multimeter has been designed according to International Electro Safety Standard IEC-1010 (61010-1@IEC: 2001) concerning safety requirements for electronic measuring instruments and hand-held digital multimeters. It meets the requirements for CAT III 600V of IEC1010 and pollution degree 2.

- ► Before using the meter, read all safety information carefully. Throughout the manual, the word "**WARNING**" is used to indicate conditions or actions that may pose physical hazards to the user. The word "**CAUTION**" is used to indicate conditions or actions that may damage this instrument.
- ► **WARNING ⚠** To reduce the risk of fire, electrical shock, product damage or personal injury, please follow the safety instructions described in the user's manual. Read the user's manual before using the meter.
- ► **CAUTION ⚠** To ensure safe operation and life of the meter, do not place the meter in any environment with high pressure, high temperature, dust, explosive gas or vapor.

IMPORTANT SAFETY INFORMATION

- ► Avoid shaking, dropping, or any direct impact when using or transporting the Meter.
- ► To avoid electric shock or personal injury, repairs or servicing not covered in this manual should be performed only by qualified personnel.
- ► Avoid direct exposure to sunlight to ensure extended life of the meter.
- ► Do not place the meter in a strong magnetic field; this may cause false readings.
- ► Only use batteries indicated in the technical specifications.
- ► Avoid exposing batteries to humidity. Replace batteries as soon as the low battery indicator appears.

PREPARATION

- Switch on power by turning the rotary switch. If the battery voltage is lower than 2.8V, the " ⊞ " symbol will appear and the battery should be replaced.
- The " ⚠ " symbol next to the input lead indicates that the input voltage or current should not exceed the specified value in order to protect the internal circuit from damage.
- Turn the rotary switch to the required function and range to be measured.
- Choose the highest range when the value to be measured is unknown.
- When making connection, connect the common test lead first and then the powered test lead.
- Removed the charged test lead first when disconnecting.

ELECTRIC SYMBOLS & METER ICONS

⚠	Important safety information	⏚	Ground wire
~	AC (Alternating Current)	⧈	Double insulation protection
⎓	DC (Direct Current)	⊟	Fuse
≂	AC or DC	CE	Complies with EU Regulations
−	Negative Polarity	⊞	Low Battery
Ω	Resistance	HOLD	Data Hold
⏩	Diode	μ	Micro 10-6
•))	Continuity	m	Milli 10-3
⊞	Battery Test	k	Kilo 103
O.L.	Overload: Range Exceeded	M	Mega 106

BUTTON OPERATION

HOLD **Function** selection key, switches measurement functions within each selector position by pressing "FUNC" key to toggle through each selection.

To Measure	Rotate Dial To	Select Range	Connect Input Jacks: 10A	Connect Input Jacks: COM	Connect Input Jacks: mAVΩ°C °F ⏩ ⊞	Safety Warnings, Cautions and Operational Notes
DC Voltage	V⎓	2 20 200 600	OPEN	BLACK LEAD	RED LEAD	**WARNING ⚠ :** Use caution when measuring high voltage circuits to avoid electrical shock and injury. Do not test voltages higher than DC/AC 600V. **WARNING ⚠ :** Never use the meter to measure voltages that might exceed 600V DC/AC above earth ground. **WARNING ⚠ :** Always be careful when working with voltages above 60V DC or 30V AC RMS. Keep fingers behind the probe barriers while measuring. • Display shows voltage polarity (connected with red test probe) when measuring DC voltage. • In low voltage ranges, unsteady readings will appear before the test leads makes contact with the circuit. This is normal as the meter is highly sensitive. When test leads are connected to the circuit, the true reading will be shown. • When '**1**' is shown on the LCD under any range mode, the measurement has exceeded the allowable range. A higher range should be selected. • When the value to be measured is unknown, select the highest range first and lower the range accordingly.
AC Voltage	V≂	200 600				
DC Current	A⎓	20m 200m	OPEN	BLACK LEAD	RED LEAD	**WARNING ⚠ :** Turn off the power to the circuit to be tested. Discharge all high voltage capacitors on the circuit to be tested. **WARNING ⚠ :** To prevent injury or damage to meter or equipment, do not make current measurements if voltage exceeds 600V. ⚠ Indicates the maximum current of the mA jack is 200mA and the maximum current of the 10A jack is 10A. Exceeding 200mA between COM and mA, or 10A between COM and 10A will blow the protection fuses. **WARNING ⚠ :** Set corresponding range. Example: When the measured current is under 200mA, plug the red test lead into "mA" jack and turn the dial to "200mA"; when the current to be measured is over 200mA but under 10A, plug the red test lead into the "10A" jack and turn the dial to "10A". • Before measuring current, first check the meter's fuse. When measuring, use correct input end and function. When the test probe is inserted to the current input end, don't connect the other end of the test probe with any circuit in parallel. • When '**1**' is shown on the LCD under any range mode, the measurement has exceeded the allowable range. A higher range should be selected.
		10A	RED LEAD		OPEN	
Resistance	Ω	200 2k 20k 200k 2M	OPEN	BLACK LEAD	RED LEAD	**WARNING ⚠ :** When measuring resistance or circuit continuity, to avoid injury or meter damage, turn off the power to circuit and discharge all capacitors. • Under any range mode, when only '**1**' is shown on the LCD, it means the measurement has exceeded the range and a higher range should be selected. • When the input is open, '**1**' is displayed on the LCD to indicate overload. For measuring resistance above 1MΩ, it may take a few seconds to get a steady reading. This is normal for high resistance measurements.
Diode	⏩	200 2k	OPEN	BLACK LEAD	RED LEAD	• The meter will show approximate forward voltage drop of the diode. • When the test leads are reversed or opened, '**1**.' will appear on the LCD. • Shorted diodes will display near 0.0 in both directions.
Continuity	•))		OPEN	BLACK LEAD	RED LEAD	**WARNING ⚠ :** When measuring resistance or circuit continuity, to avoid injury or meter damage, turn off the power to circuit and discharge all capacitors. • If the measured circuit resistance is less than about 20Ω, the buzzer will sound continuously.
Battery Test	⊞	1.5V 9V 12V	OPEN	BLACK LEAD	RED LEAD	• Connect the red lead to the (+) side of battery and black lead to the (-) side.
Temperature Fahrenheit	°F		OPEN	- Temp LEAD	+ Temp LEAD	**WARNING ⚠ :** Don't input voltage higher than 30V in temperature measurement position, to prevent electric shock or meter damage.
Temperature Celsius	°C		OPEN	- Temp LEAD	+ Temp LEAD	