

# UNDERGROUND CABLE TESTER

*and ACCESSORIES*

Operating Instruction Manual



**HDE** HD ELECTRIC COMPANY  
A Textron Company

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## *and ACCESSORIES*

### Operating Instruction Manual

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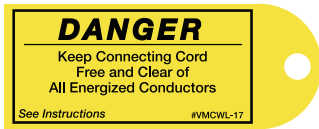
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## IMPORTANT SAFETY INFORMATION

**Read and understand these instructions prior to use. These operating instructions are not a substitute for proper training in the use of this equipment.** High voltage systems present serious hazards, including the risk of death or serious injury due to arcing, thermal burns and electrocution. HD Electric Company's products are intended solely for use by professionals with knowledge, training and experience in the use of the equipment and its accessories in and around high voltage systems.

All applicable federal, state, company and OSHA work practices must be followed. If you are unfamiliar with the work practices required, **DO NOT PROCEED**. Call HD Electric Company if you have any questions regarding this equipment.

## THESE IMPORTANT LABELS ARE AFFIXED TO THE PRODUCT. READ AND UNDERSTAND EACH OF THEM BEFORE PROCEEDING.



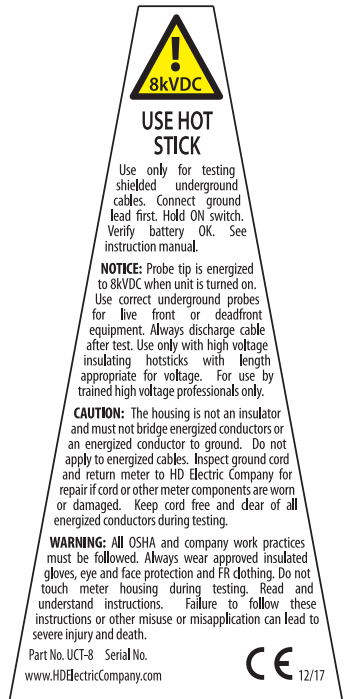
All meters require the use of accessory hotsticks, which may or may not be supplied with the meter. The minimum hotstick length required for safe use depends upon the particular operation; consult federal, state, company and OSHA specifications for the proper hotstick length for the intended operation.

The users of this meter should always be equipped with personal protective equipment including high voltage gloves, flame retardant clothing and eye protection. Face protection is recommended but not required. Some applications may require additional protective equipment.

Accessory probes are available for all meters. Always use the proper probe(s) for your application. Failure to follow these and other warnings and safety precautions may result in severe injury or death.

## OPERATIONAL IMPAIRMENT

If the UCT-8 is used in a manner not described in this instruction manual, the protection and effective operation of this equipment may be impaired.



## GENERAL DESCRIPTION

The HD Electric Underground Cable Tester is a self contained one piece solution for DC leakage current testing of deenergized shielded primary voltage underground cables. Test results are displayed on a large LED display.

The UCT-8 first alerts the user to the presence of AC voltage on the underground cable. After verifying the cable is completely deenergized, the UCT-8 charges the cable to a maximum voltage of 8kVDC. Cable leakage current is measured and shown on the front display as an analog bar graph. After several seconds, test results are shown as GOOD or FAULT. The UCT-8 then proceeds to discharge the connected cable and verifies when this discharge process is complete.

An internal high voltage resistor allows the UCT-8 to be used on grounded Y systems up to 25kV. The insulated ground cord connects to any system ground or neutral.



**Hotstick Connection:  
Shotgun or Universal Spline**

## TECHNICAL SPECIFICATIONS

MODEL NUMBER: UCT-8

### ENVIRONMENTAL CONDITIONS

CONDITIONS - Indoor and outdoor use

ALTITUDE - Up to 6,566 ft. (2000M)

OPERATING TEMPERATURE +20°F to +120°F (-7°C to +49°C)

HUMIDITY - 95% to 49°C (non-condensing)

POLLUTION DEGREE - PD4

MEASUREMENT CATEGORY IV - Classification Rating (CAT IV) – Product is intended for use with test and measuring circuits connected to the circuits/wiring outside of a building installation, including transmission lines.

OVERVOLTAGE CATEGORY IV

ENCLOSURE MATERIAL - Supertough Nylon UL 94-HB

PRINTED CIRCUIT BOARDS - FR-4 UL94V-0

IEC PROTECTION RATING - IP64

### DIMENSIONS:

LENGTH - 14 in. (36cm), Width 4.6 in. (12cm), Height 4.1 in. (10cm)

GROUND CORD LENGTH - 12'(3.6m) fully extended, 3.5'(1.7m) retracted

WEIGHT - (w/o probes): 3 lbs. (1.36kg)

BATTERY LIFE - Approximately 40 tests on 300' of 250 Kcmil (non-faulted) cable, fewer on faulted cable

BATTERY - 9V lithium, ANSI-1604LC, IEC-6LR61

DIGITAL DISPLAY - Reads AC kilovolts and displays DC leakage/  
discharge current as an analog bar graph

TEST VOLTAGE - 8kVDC

FAULT CURRENT MEASUREMENT - 10 - 250 uADC

VOLTAGE RANGE - 50V-25kVAC line to ground, 50/60Hz

AUTO-RANGING - No range selector switch

ACCURACY – AC voltage 5% of reading

ANALOG BAR GRAPH – Log display of DC current (see detail page 9)

FAULTED CABLE CURRENT THRESHOLD – 32 uA

# OPERATING INSTRUCTIONS

## Pre-Use Inspection

**WARNING:** Before using the instrument be sure to inspect the equipment to insure that it is functioning properly and is in safe, working condition. Failure to do so may cause serious injury or death and may result in erroneous test measurements.

Before making any high voltage measurements, test and inspect the tester as follows:

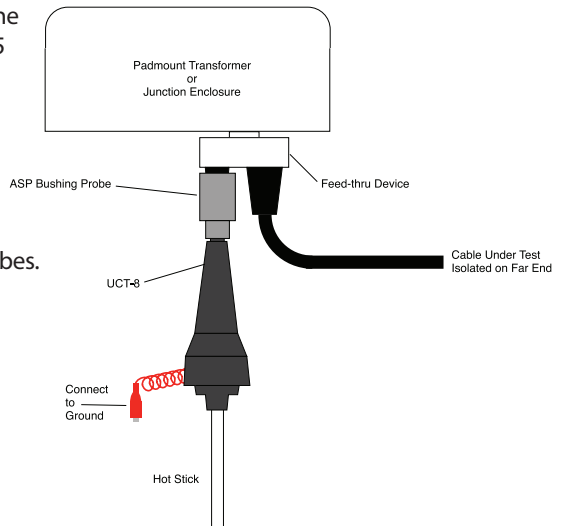
- 1) Make certain the instrument is clean and dry.
- 2) Inspect the cord for cracked insulation.
- 3) Be sure that you are using a hotstick of the appropriate length, and examine the hotstick to ensure that it is clean, dry and waxed to a clear shiny surface.
- 4) Confirm that the meter turns on and the battery is OK.
- 5) Attach the Brass Hook Accessory Probe (025-OLPS-5) to the tester and connect the ground cord clip to the brass hook probe.
- 6) Press and hold the ON button to turn on the high voltage. Verify a full scale deflection of the current measurement on the display (as shown).
- 7) Discontinue this test by pressing and holding the ON button again until the 8kV indication disappears.



The UCT-8 is designed for use on deenergized shielded primary voltage underground cables. Always verify the cable is both deenergized and discharged before proceeding with testing. Only cable with extruded dielectric such as rubber or polyethylene can be tested with the UCT-8. Using it on paper insulated cable may provide erroneous test results caused by higher leakage currents typical for this type of cable.

Connect the appropriate probe to the end of the UCT-8. Use the ASP-15/25 or ASP-35U for deadfront separable connector connections or the OLPS-5 for live front construction. An EA-15/25 elbow probe may also be used for deadfront applications. See page 10 for more details on these accessory probes.

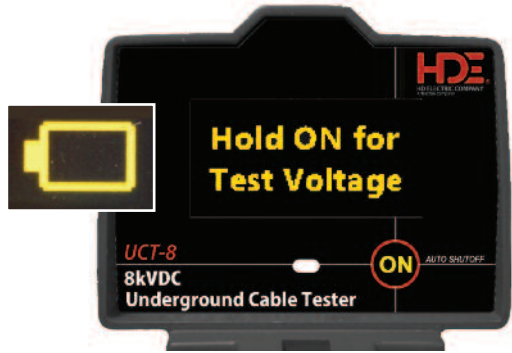
Always connect the ground cord alligator clip to a system ground or neutral before turning on or using the UCT-8. Cable under test should be isolated and disconnected from transformers and other equipment.



Press the ON button to turn the unit on and verify a good battery. A low battery is shown with an empty battery icon in the bottom right corner of the screen.

Press and hold the ON button for 3 seconds to turn on the 8kVDC high voltage.

Connect the tester to the cable to be tested.



In the event the UCT-8 is connected to a live cable energized with 50/60Hz AC voltage, that voltage will be displayed on the front panel and testing cannot proceed until the cable is verified deenergized. This cable should also be grounded to completely discharge it before beginning the test.



If no AC voltage above 100V is detected, the UCT-8 is ready to test the underground cable.



The presence of high voltage DC from the UCT-8 is indicated by the lightning bolt symbol at top right of the display.



When the high voltage is first applied to the cable, the displayed charging current will be high. If the cable is in good condition and does not have high leakage current, this charging current will slowly diminish over several seconds.

If the cable leakage current drops to near zero, the CABLE GOOD message will be displayed and the cable discharging current is now shown in the bar graph.



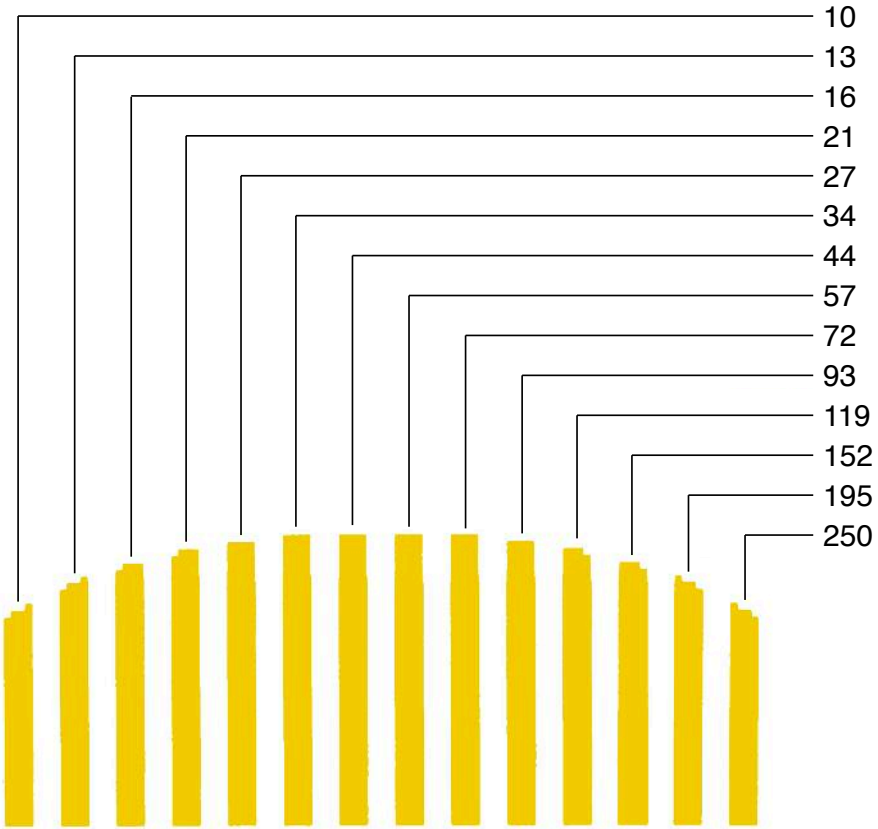
If the cable leakage current stays high, the CABLE FAULT message will be displayed and the cable discharging current is now shown in the bar graph.



The cable discharging display will remain on the screen until the DC voltage present on the cable has fallen below 50V. Once the cable under test is discharged, the device will return to the activation screen.



Cable Charging / Leakage Current (DC microamps)



## PROBES & ACCESSORIES

**WARNING:** ALWAYS use probes appropriate to your application. NEVER use overhead probes in underground applications. Failure to use the correct probe can result in arcing or electrical contact and may cause serious injury or death. If you are not trained in the particular operation or are not sure about the appropriate probe for your application **DO NOT PROCEED.**

### PROBES

A. OLPS-5 brass hook probe

### B. HOTSTICK

A range of hotsticks are available in lengths starting at 4'. Contact HD Electric for more details.

### UNDERGROUND DEAD FRONT BUSHING PROBES

C. ASP-15/25 for use in 15kV and 25kV loadbreak bushings

D. ASP-35U for use in 35kV loadbreak bushings

### E. UNDERGROUND ELBOW PROBE

EA-15/25 for insertion in loadbreak elbows.  
NOTE: The elbow must be firmly supported when using this probe.



**WARNING:** Do not use the UCT-8 if proper operation is not confirmed. Do not use it to test equipment other than underground shielded primary cable. Do not apply to energized circuits or equipment. Refer all servicing to the factory. Failure to follow these instructions may lead to electric shock, severe injury or death.

## CARE AND MAINTENANCE

Regular periodic maintenance is required to keep the cable tester in proper operating condition. Digital models will require periodic battery replacement. Keep the tool clean and dry and always store it in its case. The tester should be kept clean and free of dirt, contamination and marking. Examine the cord for cracking or other damage prior to each use. Although we do not specify a calibration cycle, we recommend you test, measure and calibrate your instrument annually. Contact HD Electric Company for details.

## CLEANING INSTRUCTIONS

To clean the UCT-8 wipe with a damp cloth with water.  
Do not use harsh chemicals or solvents.

## REPAIRS

All repairs and calibration are performed at HD Electric Company. If any damage is found please contact HD Electric Company at 847-473-4980 to arrange for service.

## MANUFACTURING LOCATION

HD Electric Company • Waukegan, IL. 60085, USA

## LIMITED WARRANTY AND LIMITATION OF LIABILITY

This warranty applies to all products sold by HD Electric Company (the "Products"); provided, however, that the term Products does not include any third party products purchased through HD Electric Company, for which no warranties are made (the "Third Party Products"). Third Party Products may be subject to a separate manufacturer's warranty; [should you have any question regarding whether a separate warranty applies, please contact HD Electric Company].

NOTICE: READ THIS LIMITATION OF WARRANTY AND LIABILITY BEFORE BUYING OR USING THE PRODUCTS CONTAINED HEREIN.

It is impossible to eliminate all risks associated with the use of the Products. Risks of serious injury or death, including risks associated with electrocution, arcing and thermal burns, are inherent in work in and around energized electrical systems. Such risks arise from the wide variety of electrical systems and equipment to which Products may be applied, the manner of use or application, weather and environmental conditions or other unknown factors, all of which are beyond the control of HD Electric Company.

HD Electric Company does not agree to be an insurer of these risks, and shall have no liability for any claims arising from such risks.

WHEN YOU BUY OR USE THESE PRODUCTS, YOU AGREE TO ACCEPT THESE RISKS.

HD Electric Company warrants to the original purchaser that the Products (excluding any third party products purchased through HD Electric Company, for which no warranties are made) will be free from defects in material and workmanship, under normal use and regular service, and preventative maintenance for a period of one (1) year (ten (10) years for HDE Capacitor Controls) from the date of shipment (the "Warranty Period"). Should any failure to conform with this warranty be found during the Warranty Period, you must notify HD Electric Company of your claim within thirty (30) days of discovery, and within the Warranty Period. Your failure to give notice of claims of breach of warranty within the Warranty Period shall be deemed an absolute and unconditional waiver of claims for such defects. HD Electric Company will have no responsibility to honor claims received after the date the applicable Warranty Period expires.

Upon notice of your claim, HD Electric Company will provide a return authorization number, and further instructions on how to return the product for service. You must follow HD Electric Company's instruction. You are responsible for all Product removal, handling, re-installation, and shipping (both to and from HD Electric Company). Products returned for repair, as well as repaired or replacement Products shall be sent postage / freight prepaid. After receipt of a product which HD Electric Company determines is defective, HD Electric will, at its option, either (1) repair (or authorize the repair of) the Product or (2) replace the Product, subject to the following: The Products are made using parts sourced from a variety of manufacturers. Due to the rapidly changing technology environment, parts may become obsolete / unavailable over time (end of life). In the event that a Product cannot be repaired or replaced due to unavailability of parts, HD Electric Company will use commercially reasonable efforts to obtain substitute parts or conduct work around design, but cannot guarantee its ability to do so.

Items not found defective will be returned at your expense, or failing receipt of instruction from you on return of such items within five (5) business days of our notice to you that the product is not defective, HD Electric may dispose of the product at its discretion and with no liability to you. HD Electric Company's determination of defects is final. Products repaired or replaced during the Warranty Period shall be covered by the foregoing warranties for the remainder of the original Warranty Period or ninety (90) days from the date of delivery of the repaired or replaced Products, whichever is longer.

### LIMITATIONS:

This warranty is void in the event of misuse, alteration, faulty installation, or misapplication of the product.

This warranty does not cover failure of product or components due to any ACT OF NATURE; lightning, floods, hurricanes, tornadoes or any other such catastrophic events.

HD Electric Company does not warrant any third party products or associated hardware or their performance or suitability for use and application. Such items are provided "as-is".

All repairs must be authorized by HD Electric Company. Unauthorized repairs will not be reimbursed under any circumstances.

HD Electric Company is not required to make replacement or loaner equipment available while Products are being repaired or replaced, or to compensate you for any in/out labor charges or expenses associated with removal, handling or re-installation of the Products.

TO THE MAXIMUM EXTENT PERMITTED BY LAW, THIS WARRANTY AND THE REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, REMEDIES AND CONDITIONS, WHETHER ORAL OR WRITTEN, EXPRESS OR IMPLIED. HD ELECTRIC EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY AND NON-INFRINGEMENT.

IN NO EVENT SHALL HD ELECTRIC COMPANY BE LIABLE FOR ANY INDIRECT, INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES RESULTING FROM THE USE OR HANDLING OF THESE PRODUCTS. THIS SHALL INCLUDE BUT, NOT LIMITED TO, LOST PROFITS OR REVENUE, LOSS OF USE OF THE PRODUCTS, COST OF SUBSTITUTE PRODUCTS, FACILITIES OR SERVICES, OR DOWNTIME.

IN NO EVENT SHALL HD ELECTRIC COMPANY HAVE ANY LIABILITY FOR ANY THIRD PARTY PRODUCTS OR ASSOCIATED HARDWARE, OR CUSTOMER-OWNED SYSTEMS, EQUIPMENT OR SOFTWARE.

HD Electric Company must have prompt notice of any claim so that an immediate product inspection and investigation can be made. Buyer and all users shall promptly notify HD Electric Company of any claims, whether based on contract, negligence, strict liability, or other tort or otherwise be barred from any remedy.

HD Electric Company is committed to ongoing review and improvement of its product lines, and thus reserves the right to modify product design and specifications without notice.

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