

APT-1

ACTIVE POWER TESTER

Operating & Instruction Manual



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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 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.

IMPORTANT LABELS ARE AFFIXED TO THE PRODUCT. READ AND UNDERSTAND BEFORE PROCEEDING.

SAFETY

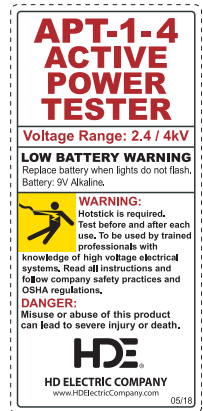
Rigorous hotstick work practices should be used at all times. All industry, OSHA and company work practices and safety procedures shall apply when working on or near high voltage systems. When used properly, the APT-1 Detector reliably provides an alarm warning of de-energized conductors.

- Only trained, professional operating personnel should use this equipment. The voltages the Detector operates at are to be considered live and dangerous and are lethal. Severe injury or death can occur if improperly used.
- Make certain all other safety considerations have been identified, implemented and are in place prior to using this equipment. Maintain proper work clearances at all times.
- Make certain the APT-1 Detector is properly rated for use on the system voltages you will test.
- Prior to using, make certain to inspect the Detector for any physical damage, cleanliness and check for proper working order using the On switch. Remove from service and do not use if you suspect a problem with any of the above.
- Test the Detector before and after each use by turning it on and verifying the lights and beeper are operating.
- Never allow another high voltage conductor, or grounded point, to come into contact with the Detector during use.
- Never touch the Detector or On/Off switch during contact with high voltage. The APT-1 Detector should be considered to be at the same voltage as the conductor under test.

The APT-1 requires the use of an accessory hotstick. 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 Detector should always be equipped with personal protective equipment including high voltage gloves, flame retardant clothing, eye and face protection. Some applications may require additional protective equipment.

Failure to follow these and other warnings and safety precautions may result in severe injury or death.



Example of
APT-1-4 label

OPERATIONAL IMPAIRMENT

If the APT-1 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 APT-1 is for use on insulated or uninsulated overhead conductors within the voltage range shown on the front label. The APT-1 is designed to indicate the absence of full line voltage with sound and lights. The APT-1 is not for use on shielded primary cable in either overhead or underground installations.

The APT-1 is intended to flash lights and sound an alarm to warn nearby workers that an energized overhead conductor is de-energized. The lights and alarm will sound for as long as the line voltage is substantially below the APT-1 rated voltage. When line voltage is restored, the APT-1 lights and alarm will stop.

The APT-1 is available in certain voltage ranges. It should be used only within its specified range shown on the front label.

TECHNICAL SPECIFICATIONS

MODEL NUMBER: APT-1 / APT-1-4 / APT-1-30

VOLTAGE RANGES, 60HZ AC:

APT-1: 7.6 to 13.2kV line-to-ground

APT-1-4: 2.4kV line-to-ground

VOLTAGE RANGES, 50HZ AC:

APT-1-30: 10kV to 30kV line-to-ground

ENVIRONMENTAL CONDITIONS

CONDITIONS: Indoor and outdoor use

ALTITUDE: Up to 6,566 ft. (2000m)

OPERATING TEMPERATURE: -20°F to +120°F (-29°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: Polycarbonate and PVC

PRINTED CIRCUIT BOARDS: FR-4 UL94V-0

IEC PROTECTION RATING: IP68

DIMENSIONS

LENGTH: 10.88" L x 3.5" W x 3.5" H (27.64cm x 8.89cm x 8.89cm)

WEIGHT: 1.2 lbs. (0.54kg)

BATTERY: 9V alkaline 1604A, IEC 6LR61 or 9V lithium, ANSI-1604LC

BATTERY LIFE: 30 hours standby under normal conditions using alkaline battery

OPERATING INSTRUCTIONS

Prior to using, make certain to inspect the Detector for any physical damage, cleanliness and check for proper working order using the On switch. Remove from service and do not use if you suspect a problem.

To set the APT-1 to indicate the absence of full line voltage, press the On/Off switch up to the On position. The alarm will sound and the light will flash. The alarm and lights will stop when full line voltage is detected.

To install the APT-1 on an overhead conductor, use a suitable high voltage insulated hotstick. Grasp the eyelet tab on the APT-1 with the hotstick hook and retract it fully into the hotstick head. This will open the APT-1 clamp head. Hook the APT-1 on the conductor and release the hotstick.

The APT-1 is powered by a 9V alkaline or lithium battery. Before installing the APT-1, test the battery by pressing the switch to the On position to verify that the alarm sounds and the lights flash. If there is no alarm or if the alarm is sounding but the lights are not flashing, change the battery by removing the four screws. For more details see the Battery Replacement section on page 9. Battery life is approximately 30 hours of continuous alarm using an alkaline battery. Remove the battery for long term storage.

The APT-1 is sealed to prevent water damage. The battery should be changed only in a clean and dry area.



OPERATING INSTRUCTIONS *continued*

Situations to Avoid

Within certain situations and because of various system configurations, electrical field interference capable of affecting the operation of the APT-1 Detector may occur. Within these areas it is imperative that you be aware of and identify all such conditions which may exist. Some examples of these situations are discussed here.

1. 90° CORNER CONFIGURATIONS: Reposition the APT-1 Detector to at least three feet (1 meter) on both sides of corner configurations and attempt to retest. Any 90° corner configuration may cause field cancellation, causing the APT-1 Detector to not operate correctly. Conductor configurations, busbar and other electrical apparatus all apply.

2. SAME PHASE INTERFERENCE: When two conductors of the same phase are in close proximity to one another, the field generated could shield the APT-1 Detector, causing it not to operate. Reposition the APT-1 Detector to areas which will remove it from these situations.

3. OPPOSITE PHASE INTERFERENCE: This condition may occur if a grounded and de-energized conductor is in close proximity to a live, ungrounded conductor. When applying the APT-1 Detector, attempt to approach the conductor you want to monitor outside this possible field. If you are within the field of the energized conductor, the APT-1 Detector may indicate that the de-energized line is energized.

NOTE: Only operate the APT-1 Detector within the voltage range specified on the product label. Do not use the APT-1 Detector above or below the product label voltage rating.

BATTERY REPLACEMENT

The APT-1 is sealed to prevent water damage. The battery should be changed only in a clean and dry area.

Use a screwdriver to remove the four screws on the front of the APT-1 Detector.



Open the cover to access the battery compartment. Remove and replace the 9V battery, then replace the cover and screws. Do not overtighten.



Battery life is approximately 30 hours of continuous using an alkaline battery. Remove the battery for long term storage.

CARE AND MAINTENANCE

STORAGE - If a prolonged period of storage is anticipated (six months or more), remove the battery. Remember to replace the battery prior to using the APT-1 Detector again.

CLEANLINESS - The polycarbonate housing is very rugged, but it should be kept clean and free of dirt, grease and any other foreign materials. Use a silicone impregnated cloth prior to use in order to maintain the surface. If the housing surface integrity has been compromised in any way, return to factory for repair or replacement. Do not use.

DAMAGE - If you suspect any mechanical or electrical damage, do not use the APT-1 Detector and arrange for repair by contacting the factory.

BATTERY REPLACEMENT - Battery life is determined by usage, storage and quality. Batteries should be changed on regular schedules not to exceed twelve months and is recommended every six months. See the Battery Replacement section on page 9 for additional information.

CALIBRATION & TESTING - Regular calibration of the APT-1 is not required. There is no accessible calibration adjustment.

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 or sales@hde.textron.com 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.

HD Electric Company® products are available through HDE® sales representatives worldwide.