

LV-5

Direct Contact Low Voltage Detector and
LV-5/K01 Kit including LV-PT Tester, Holster
and Available Accessories

Operating & Instruction Manual



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HDE HD ELECTRIC

LV-5

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DESCRIPTION

The LV-5 is a hand held low voltage detector for testing exposed metallic surfaces and conductors for the presence of low voltage 50/60Hz AC. This Detector is designed to be hand held as shown and to detect AC voltage on any metallic surface or conductor that is in direct contact with the metallic tip of the Detector. The presence of AC voltage greater than 5 volts is indicated by a flashing red light. The LV-5 is always on and ready to detect voltage.

IMPORTANT SAFETY INFORMATION

CAUTION: The Detector should be hand held as shown. Keep hands and fingers behind the hand guard at all times. This device can be used to detect voltages up to 600VAC.

Do not exceed 600VAC with direct contact. This Detector is designed for use by trained professionals. Use caution before contacting any equipment or conductor on which AC voltage is detected. The voltages detected by this Detector may be lethal.



WARNING: This Detector does not detect DC. Flashing light indicates AC voltage. Do not use the LV-5 Detector or LV-PT Tester except as directed. Do not use the Tester with equipment other than the LV-5. Contacting voltage above 600V with the Detector or applying the Tester to energized circuits or equipment may lead to electric shock, severe injury or death. Refer all servicing to the factory.

HOW TO USE IT

TEST THE LV-5 DETECTOR with the LV-PT Tester before and after each use. The Tester supplies a non-lethal low voltage AC signal to the metal button in the center of the clear plastic cone. To test the LV-5 Detector, hold the Detector as shown and press the tip of the LV-5 into the metal button of the LV-PT Tester. If the LV-5 will be used with a gloved hand, this testing shall be performed



while the hand holding the Detector is wearing the same glove that will be used while performing the actual stray voltage test. A red light on the Tester indicates the battery is OK. A flashing red light on the Detector indicates voltage is detected. Note that for best test results, the holster should be worn as shown. The hand on the Detector and the placement of the holster on the user are part of the test circuit and can affect test results. If the holster is not used as shown, similar body contact must be maintained between the Detector and the Tester. For example, the hand of the user can be placed behind or around the body of the Tester while the other hand holds the Detector, as shown on page 4.

TEST FOR VOLTAGE

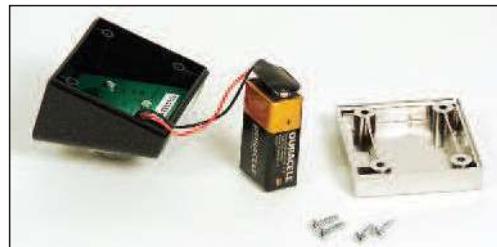
Test for voltage by touching the metal tip of the LV-5 Detector to an exposed metal surface of the equipment or conductor to be tested. Hold the Detector by hand as shown above. The hand of the user is part of the detection circuit. A flashing red light indicates voltage of 5 volts or more.

OPERATIONAL IMPAIRMENT

If the LV-5 is used in a manner not described in this instruction manual, the protection and effective operation of this equipment may be impaired.

BATTERY REPLACEMENT INSTRUCTIONS

To replace the LV-5 batteries, unscrew the tip, remove and dispose of the old batteries, replacing them with two fresh, new alkaline or lithium type AA batteries. For the LV-PT, remove the four screws and replace the 9V battery with a fresh, new 9V alkaline or lithium type.



TECHNICAL SPECIFICATIONS

MODEL LV-5 includes LV-5 Stray Voltage Detector.

MODEL LV-5/K01 KIT includes LV-5, LV-PT Tester & LV-HS Holster. Optional accessories include LV-EH Extension Handle and LV-GS Ground Shield. See page 7 for details.

DIMENSIONS: 10.5 in. L x 3.8 in. W x 2.3 in. H (26.7 cm x 9.7 cm x 5.8 cm)

WEIGHT: 1.25 lb (570 g)

BATTERY: LV-5 DETECTOR: 2 x AA alkaline ANSI-15A, IEC-LR6 or lithium ANSI 15-LF, IEC-FR6

LV-PT TESTER: 9V alkaline ANSI 1604A, IEC 6LR61 or 9V lithium ANSI-1604LC

THRESHOLD DETECTION VOLTAGE: 5VAC, 50/60Hz Nominal, capacitively coupled
Maximum applied voltage: 600VAC

ENVIRONMENTAL CONDITIONS:

Indoor and outdoor use

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

OPERATING TEMPERATURE:
-20°F to +140°F (-29°C to +60°C)

HUMIDITY: 95% to +60°C
(non condensing)

POLLUTION DEGREE: PD4

MEASUREMENT CATEGORY:

CLASSIFICATION RATING

(CAT IV) – Product is intended for use with test and measuring circuits up to 600 VAC connected to the circuits/wiring outside of a building installation, including transmission lines.

OVERVOLTAGE CATEGORY IV

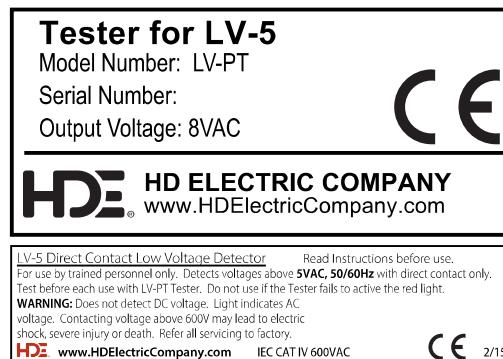
ENCLOSURE MATERIALS: LV-5: Outer grip ENSOFT SL 300-60A TPE, handle WONDERLITE PC-110 polycarbonate, tip Zytel ST801AHS nylon. LV-PT: ABS UL 94-HB

PRINTED CIRCUIT BOARDS: FR-4 UL 94-V0

CLEANING INSTRUCTIONS - To clean the LV-5, LV-PT, LV-EH and LV-GS wipe with a damp cloth with water. Do not use harsh chemicals or solvents.

DAMAGE - If you suspect any mechanical or electrical damage, do not use the LV-5 or LV-PT and arrange for repair by returning to the factory.

CALIBRATION & TESTING - Regular calibration is not required.
There is no calibration adjustment.



ACCESSORIES

LV-EH EXTENSION HANDLE

The LV-EH Extension Handle extends the reach of the LV-5 Detector.



Insert the LV-5 into the open end of the LV-EH. Test the assembled LV-5 Detector and LV-EH Extension Handle before use with the LV-PT Tester, as shown on the right.

If gloves will be worn while using the LV-EH, use those same gloves while performing this test.

LV-GS GROUND SHIELD

The LV-GS Ground Shield prevents nearby strong electric fields from affecting the LV-5 Detector. Use the LV-GS while using the LV-5 in or around high voltage substations, under overhead distribution or transmission lines or near other high voltage energized equipment.



The LV-5 Detector is inserted into the open end of the LV-GS. Test the assembly of the LV-GS and LV-5 using the LV-PT Tester before each use.

The alligator clip should be connected to a driven ground or other known good ground (not supplied).



TERMS AND CONDITIONS OF SALE

HD Electric Company is herein referred to as "HDE" or "Seller" and the customer or person entity purchasing goods or services (hereinafter collectively referred to as "Goods") is referred to as the "Buyer". These Terms and Conditions, any prior list or schedule, quotation, acknowledgement or invoice from HDE relate to the sale of the Goods and all documents incorporated by specific reference thereto, constitute the complete and exclusive statement of the terms of the agreement governing the sale of Goods by HDE to Buyer. Buyer's acceptance of the Goods will make Buyer's to these terms and conditions without variation or addition. Any different or additional terms in Buyer's purchase order or other Buyer documents are hereby objected to. HDE reserves the right in its sole discretion to refuse orders.

1. PRICES AND TAXES: Unless a fixed price is quoted, the price at which this order is accepted is subject to adjustment to HDE's price in effect at the time of order. Any current or future tax or governmental charge (or increase in same) affecting Seller's costs or production, sale or delivery or which Seller is otherwise required to pay or collect in connection with the sale, purchase, delivery, storage, processing, use or consumption of Goods (but excluding any tax on Seller's net income or profit) shall be for Buyer's account and shall be added to the price.

2. TERMS OF PAYMENT: States are listed on HDE's invoice in U.S. currency. HDE shall have the right, among other remedies, either to terminate this agreement or to suspend further performance under this and/or other agreements with the buyer if the buyer fails to make any payment when due, which other agreements buyer and seller hereby amend accordingly, or if HDE otherwise deems itself insecure. Buyer shall be liable to HDE for all expenses, including attorney's fees, relating to the collection of past due amounts. Should buyer's financial responsibility become unsatisfactory to HDE, cash payments or security satisfactory to HDE may be required by HDE for future deliveries and for the goods theretofore delivered. If such cash payment or security is not provided, in addition to HDE's other rights and remedies, HDE may discontinue deliveries. HDE may apply a finance charge for payments made by credit card.

3. SHIPMENT AND DELIVERY: Unless otherwise expressly provided, shipments are made F.O.B. HDE's shipping point. Risk of loss or damage and responsibility shall pass from HDE to Buyer upon delivery to and receipt by common carrier. Any claims for shortages or damages suffered in transit are the responsibility of Buyer and shall be submitted by the Buyer directly to the carrier. Shortages or damages must be acknowledged and signed for at the time of delivery. While HDE will use all reasonable commercial efforts to maintain the delivery date(s) acknowledged or quoted by HDE, all shipping dates are approximate and not guaranteed. HDE reserves the right to make partial shipments. HDE, at its option, shall not be bound to deliver any Goods for which Buyer has not provided shipping instructions. If the shipment of the Goods is postponed or delayed by Buyer for any reason, Buyer agrees to reimburse HDE for any and all handling and storage costs and other additional expenses resulting therefrom. All claims for shipping errors, lost shipments or any other discrepancies must be filed with the carrier.

4. HDE LIMITED WARRANTY: HDE covers its products with a manufacturer's warranty against defects in material or workmanship for a period of ten years in the case of Capacitor Controls and in all other circumstances for a period of one year, unless otherwise stated by HDE in writing. To take advantage of this warranty, the completed product must be delivered prepaid to HDE or any HDE Authorized Service Center. This warranty shall not apply to damage caused by abuse, misuse, or negligence.

not apply to any Goods including but not limited to products which: (a) Have been repaired or altered outside HDE's factory or (b) Authorized Service Center) or in any manner so as, in HDE's judgment, to affect its serviceability or proper operation; (b) Have been subjected by persons other than HDE (or Authorized Service Center) to improper handling, operation, maintenance, repair or alteration; and, (c) Have been subjected to normal wear and tear, misuse, negligence, improper installation or accident, HDE's obligation under this warranty, and the Buyer's exclusive remedy for the breach thereof, shall be limited to, at HDE's option, repair or replacement of any allegedly defective Goods or issuance of credit. HDE requires the return of any allegedly defective Goods, transportation prepaid, before honoring any claim. All returned Goods are subject to inspection, and if examination does not disclose any defect covered by this warranty, replacement of such Goods or issuance of credit for same will not be approved. THE FOREGOING CONSTITUTES HDE'S SOLE WARRANTY RESPONSIBILITY AND BUYER'S EXCLUSIVE REMEDY WHETHER IN TORT, CONTRACT, STRICT LIABILITY OR OTHERWISE, EXCEPT AS OTHERWISE EXPRESSLY SET FORTH IN THIS AGREEMENT. THERE ARE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, WHETHER OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OTHERWISE. No employee, agent, dealer, or other person is authorized to give any other warranty on behalf of HDE. This warranty extends only to persons or organizations who purchase the Goods from HDE for resale.

5. LIMITATION OF REMEDY AND LIABILITY: THE SOLE AND EXCLUSIVE REMEDY FOR BREACH OF ANY WARRANTY HEREUNDER SHALL BE LIMITED TO REPAIR, CORRECTION, REPLACEMENT OR CREDIT UNDER SECTION 4. HDE SHALL NOT BE LIABLE FOR DAMAGES CAUSED BY DELAY IN PERFORMANCE, AND IN NO EVENT, REGARDLESS OF THE FORM OF THE CLAIM OR CAUSE OF ACTION, WHETHER BASED IN CONTRACT, INFRINGEMENT, NEGLIGENCE, OTHER TORT OR OTHERWISE, SHALL HDE'S LIABILITY TO BUYER AND/OR OTHER CUSTOMERS EXCEED THE PURCHASE PRICE PAID BY BUYER FOR THE SPECIFIC GOODS GIVEN RISE TO THE CLAIM OR CAUSE OF ACTION. AND BUYER SHALL INDEMNIFY HDE FOR ANY DAMAGES IN EXCESS THEREOF. BUYER AGREES THAT IN NO EVENT SHALL HDE BE LIABLE FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR PUNITIVE DAMAGES OR FOR LOSS OF PROFITS, BUSINESS INTERRUPTION, LOSS OF USE OF EQUIPMENT, OR LOSS OF DATA OR ANY OTHER INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR PUNITIVE DAMAGES, OR FOR LOSS OF PROFITS, BUSINESS INTERRUPTION, LOSS OF USE OF EQUIPMENT, OR DATA, OR LOSS OF REPUTATION. FURTHER, BUYER shall indemnify and hold HDE harmless from and against all losses of anticipated profits, business interruption, loss of use of resources, cost of capital or loss of or damage to property, equipment, data, or loss of reputation. Further, Buyer shall indemnify and hold HDE harmless from any liability to Buyer, Buyer's employees, workers, contractors or any other persons arising out of the use of the Goods. All instructions and warnings supplied by HDE will be passed on to the persons who use the Goods. HDE's Goods are to be used in their recommended applications and all warning labels attached to the Goods by HDE shall be left intact. It is impossible to eliminate all risks associated with the use of the Goods. Risks of serious injury or death, including risks of explosion, fire, and the manner of electrocution, ageing and wear, are inherent in the use of electrical and electronic equipment and are not unique to the use of HDE's Goods. All risks arising from the use of the Goods are the responsibility of HDE. HDE does not accept responsibility for any damage or loss arising from the use of the Goods, including but not limited to, damage to property, equipment, data, or loss of reputation.

not agree to be an insurer of these risks, and shall have no liability for any claim arising from such risks. WHEN YOU BUY OR USE THESE PRODUCTS YOU AGREE TO ACCEPT THESE RISKS.

6. EXCUSE OF PERFORMANCE (FORCE MAJEURE): HDE shall not be liable for delays in performance or for non-performance due to acts of God, acts of buyer, war, fire, flood, weather, sabotage, strikes, labor disputes, strikes, civil disturbances, strikes, lockouts, restricted availability, laws, regulations, ordinances, injunctions, unionization or other acts. In its determination, delay, suspension or termination of contracts or delivery of goods or services, HDE's reasonable confidence, prejudices or other personal reasons may supersede the above. In the event of any such occurrence, HDE's reasonable confidence, prejudices or other personal reasons may supersede the above. In the event of any such occurrence, HDE determines that its ability to supply the goods for the contract, or its own material used directly or indirectly in the manufacture of the Goods, is hindered, limited or made impractical due to causes set forth herein, HDE may allocate its available supply of the Goods or such material (without obligation to acquire other supplies of any such Goods or materials) among itself and its purchasers on such basis as HDE determines to be equitable without liability for any failure of performance which may result therefrom.

7. CHANGES: HDE reserves the right to change designs and specifications for standard Goods without prior notice to Buyer, but not with respect to custom Goods being made for Buyer. HDE shall have no obligation to install or make such change in any Goods manufactured prior to the date of such change.

8. ASSIGNMENT: Buyer shall not assign its rights or delegate its duties hereunder or any interest herein without the prior written consent of HDE, and any such assignment, without such consent, shall be void.

9. INSTALLATION: Buyer shall be responsible for receiving, inspecting, testing, storing, installing, starting up and maintaining all Goods.

9. INSTALLATION/DELIVERY: Seller shall be responsible for receiving, inspecting, testing, storing, installing, shipping and maintaining all Goods.

10. INSPECTION/TESTING: Buyer, at its expense, agrees that it will promptly inspect the Goods upon receipt thereof, and in no event later than thirty (30) days from the date of receipt of the Goods, Buyer shall deliver to HDE within fifteen (15) days of inspection, but in no event later than forty-five (45) days from the date of receipt of the Goods, written notice of any and all deficiencies, defects, variations from specifications or complaints or claims of any kind with respect to the quantity, quality, condition, shipment, performance, price or appearance of the Goods so received by Buyer. In the event no such written notice is received by HDE, Buyer shall be deemed to have accepted and accepted all such Goods unconditionally and to have waived any and all rights and claims, including but not limited to any right to reject the Goods or to claim damages in respect thereto.

Buyer may not return Goods without first giving HDE notice of the reason(s) therefor, obtaining from HDE a material authorization number and obtaining such instructions as HDE may give in authorizing such return. In the event that

buyer may not return goods without first advising HDE of the reasons therefore, obtaining from HDE a material authorization number and observing such instructions as HDE may give in authorizing such return. In the event a return is authorized by HDE, a restocking for any Goods requiring repackaging or a twenty percent (20%) restocking fee shall be assessed to Buyer in the final credit amount.

12. U.S. EXPORT CONTROL LAWS: All Goods sold to Buyer by HDE hereunder are subject to U.S. Export Control Laws. Buyer hereby agrees not to re-sell or divert any goods contrary to such laws.

13. COMPLIANCE: Seller/Contractor shall comply with all applicable federal, state or local laws, rules, regulations, or orders. Seller/Contractor shall comply with Executive Order 11246, as amended by Executive Order 11375, and the applicable provisions of the Office of Federal Contract Compliance Programs (OFCCP), 41 CFR Part 60, which are incorporated herein by this reference. Buyer shall comply with all applicable federal, state, or local laws, rules, regulations or orders including but not limited to the Foreign Corrupt Practices Act of 1977, as amended. HDE reserves the right to delay or refuse delivery if requests for reasonable assurances of Buyer's

14. MISCELLANEOUS: These terms and conditions supersede all other communications, negotiations and prior oral or written statements regarding the subject matter hereof. No change, modification, rescission, discharge or cancellation of these terms and conditions shall be made except in writing and signed on behalf of the parties hereto.

abandonment, or waiver of these terms and conditions shall be binding upon HDE unless made in writing and signed on its behalf by its duly authorized representative. No conditions, usage or trade course of dealing or performance, understanding or agreement purporting to modify, vary, explain, or supplement these terms and conditions shall be binding unless hereafter made in writing and signed by HDE. No modification shall be effective by HDE's receipt or acceptance of Buyer's purchase orders, shipping instruction forms, or other documentation containing terms at variance with or in addition to those set forth herein, all of which are objected to by HDE. Any such modifications or additional terms are specifically rejected by HDE. No waiver by HDE with respect to any breach or default of any right or remedy and no course of dealing, shall be deemed to constitute a continuing waiver of any other breach or default of any other right or remedy, unless such waiver be expressed in writing and signed by HDE. All typographical or clerical errors made by HDE in any quotation, acknowledgment or publication are subject to correction. Validity and performance relating to the interpretation and effect of this agreement shall be governed by the laws of the state of Illinois without regard to its conflict of law principles.

15. DISPUTE RESOLUTION: In the event of any dispute, including, but not limited to, BREACH OF CONTRACT, BREACH OF WARRANTY, CLAIMS BASED IN TORT, NEGLIGENCE, PRODUCT LIABILITY, FRAUD, MARKETING, STATE OR FEDERAL, ANY CLAIMS REGARDING THE ENFORCEABILITY OF THIS LIMITED WARRANTY, AND THE WAIVER OF CLASS ACTION TRIALS between Buyer and Seller, either party choose to resolve the dispute by binding arbitration, as described below. Instead of in court, the parties agree that if either buyer or seller choose binding arbitration, NEITHER PARTY WILL HAVE THE RIGHT TO LITIGATE SUCH CLAIM IN COURT OR HAVE A JURY TRIAL. DISCOVERY AND APPEAL RIGHTS ARE LIMITED IN BINDING ARBITRATION. Both parties and the parties agree that the procedure for arbitration will be governed by the rules of the American Arbitration Association, and the award of arbitration will be final and binding. The arbitration will be conducted in the state of Illinois and the parties agree to submit to such jurisdiction. No action, regardless of form, shall be brought by either party more than two (2) years after the cause of action has accrued. The U.N. Convention on Contracts for the International Sale of Goods or Contracts for the International Sale of Goods of CIE shall apply to this agreement.

16. CLASS ACTION WAIVER: BINDING ARBITRATION MUST BE ON AN INDIVIDUAL BASIS. THIS MEANS NEITHER BUYER NOR SELLER MAY JOIN OR CONSOLIDATE CLAIMS IN ARBITRATION BY OR AGAINST OTHERS, OR LITIGATE IN COURT OR ARBITRATE ANY CLAIMS AS A REPRESENTATIVE OR MEMBER OF A CLASS OR IN A PRIVATE ATTORNEY GENERAL CAPACITY. ADMINISTRATION OF ARBITRATION. The binding arbitration must be administered by the American Arbitration Association ("AAA") in accordance with its Commercial Arbitration Rules and/or Supplementary Procedures for Consumer-Related Disputes (including proceedings to mitigate costs of travel). This binding arbitration is governed by the Federal Arbitration Act ("FAA") (9 U.S.C. §1, et seq.) and will govern the interpretation and enforcement. The binding arbitration shall be held at a location determined by AAA or at such other location as mutually agreed. In addition to the terms set forth above, the following will apply to the binding arbitration: (1) the arbitrator, and not any court, federal, state or local court or agency, will have exclusive authority to resolve any dispute relating to the interpretation, applicability, enforceability or formation of this Agreement including any claim that all or any part of this Agreement is void or voidable; (2) the arbitrator shall apply Illinois law consistent with the FAA.

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. HD Electric products receive final assembly and shipment from HDE's production facility at

HD Electric Company is ISO 9001:2015 certified

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