

# CDM-50 & CDM-75

CABLE DISTANCE METERS

Operating & Instruction Manual



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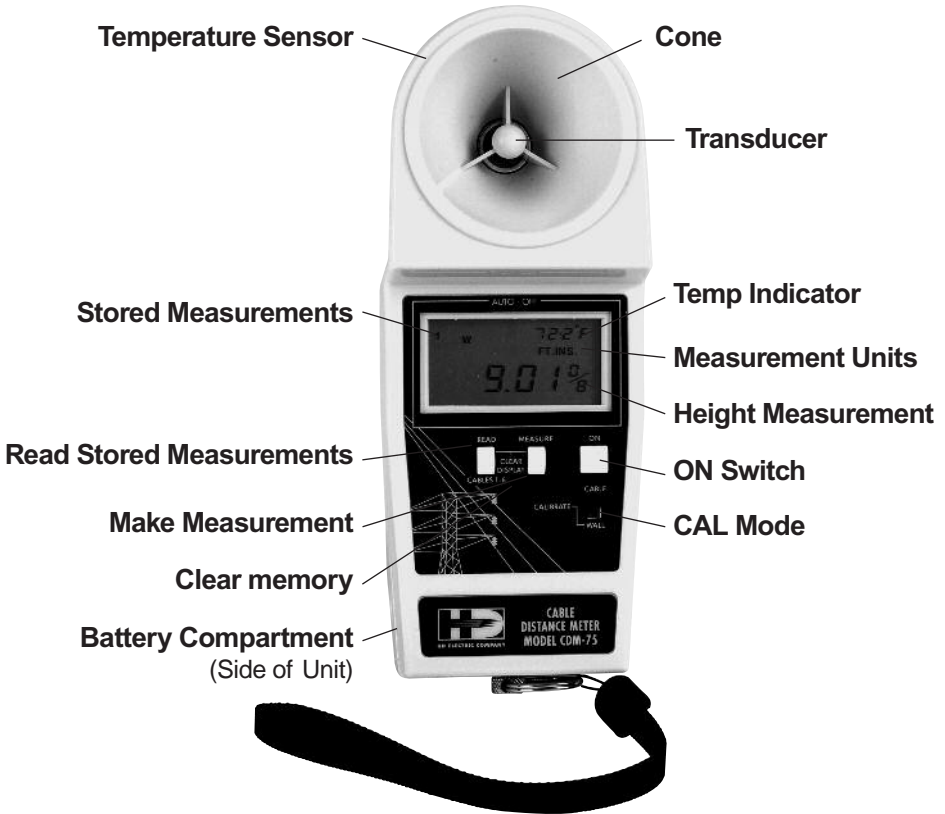
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# INTRODUCTION

The Cable Distance Meter is a unique, handheld instrument, primarily used for the measurement of the height of overhead cables. The Cable Distance Meters measure up to 6 cables.

The CDM-50 model measures to a height of up to 50 feet (15m). The CDM-75 model has an increased range of up to 75 feet (23m). The unit operates by transmitting an ultra-sonic signal towards the wires, and measuring the time it takes to pick up the echo from that signal. It automatically compensates for the fact that the speed of sound varies with temperature by monitoring the ambient temperature using the internal temperature sensor. The display continuously shows the ambient temperature reading. Because the temperature sensor reacts relatively slowly to large temperature changes, it is necessary to wait up to 10 minutes for the temperature reading to stabilize after taking the meter suddenly from a warm to a cold environment before taking a measurement, e.g. taking the unit from inside a warm vehicle to outside. Isolate the CDM from any hot surface such as sun warmed pavement using a notebook or several sheets of paper.



## TO MAKE A MEASUREMENT

1. Select the required measurement units by setting the switch at the back of the unit to display in feet and inches (I) or meters (M).
2. Set the Calibrate switch to the CABLE position.
3. Press the ON key to power on the unit.
4. Position unit directly under the cable(s) to be measured.
5. Press and hold the MEASURE key to take a measurement. The distance to the first cable is shown in the Height Measurement location in the display. If there is more than one cable present, the difference in height between each cable is stored in memory.
6. Press the READ CABLES 1-6 key to display each of the cable height differences stored in memory (Stored Measurements). The unit will automatically turn off 3 minutes after the last key has been pressed.

All measurements are displayed in the format feet.inches followed by fractions of an inch.



## Hints & Guidelines

Position the unit on the ground, directly underneath the cable to be measured. Align the unit in the direction of the cable, with the cone pointing towards the cable, as shown.

When taking cable measurements, ensure that there are no walls or buildings within a distance of 7 feet (2m) on either side of the meter, as reflections from these will distort the readings. Also ensure there are no trees or other overhanging objects in the vicinity.

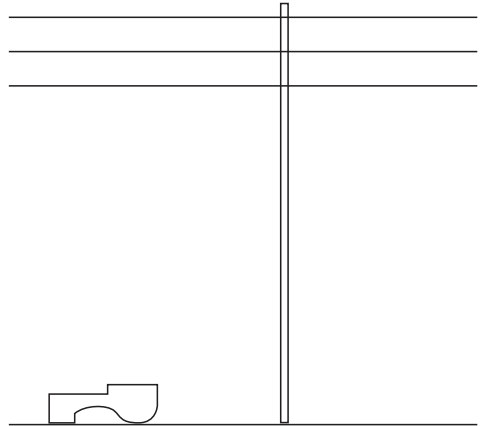
When measuring more than one cable, ensure that none of the cables are outside the sonic beam, as shown in the Performance section of this manual. If the cables are not vertically above one another, this could be the case. In this instance, it will be necessary to take a number of separate readings from different positions.

Water and moisture can cause the Cable Distance Meter to malfunction. Therefore, the meter should not be used in rain or snow. If water does get into the cone, leave it upside down in a dry, warm area.

If the display shows `----.---`, this indicates a "poor target" and normally happens when the cables are moving due to wind, etc. Wait until the wind dies down to get an accurate reading.



**Front View**



**Side View**

## CALIBRATE MODE

The Calibrate mode switch allows the user to periodically check the unit to ensure that it is still operating within specification. For cable distance measurement, this switch should be in the CABLE position. When the switch is put to the WALL position, horizontal measurements to large objects, e.g. walls, can be taken.

When the unit is first used, a horizontal reading to an object, e.g. wall, from a fixed position should be taken. The reading should be entered, together with the date, into the table below. Whenever the unit is to be checked for accuracy, a reading should be taken from the same point, noting the result and date in the table. If the reading is outside of specification, the unit should be returned to HD Electric for calibration.

Date					
Reading					

# TROUBLESHOOTING

The following is a list of actions to be taken if the unit is not working properly:

## SCREEN IS BLANK

Check to make sure the battery is inserted correctly. Open battery door on the bottom rear of the unit. The battery is inserted with the terminals on the inside. The + and - symbols on the battery should match the corresponding + and - symbols on the inside of the battery compartment.

## UNIT DOES NOT MEASURE ALL WIRES

Ensure that horizontal distances between wires are within the sonic beam, as shown in the Performance section of this manual.

## INCORRECT READINGS

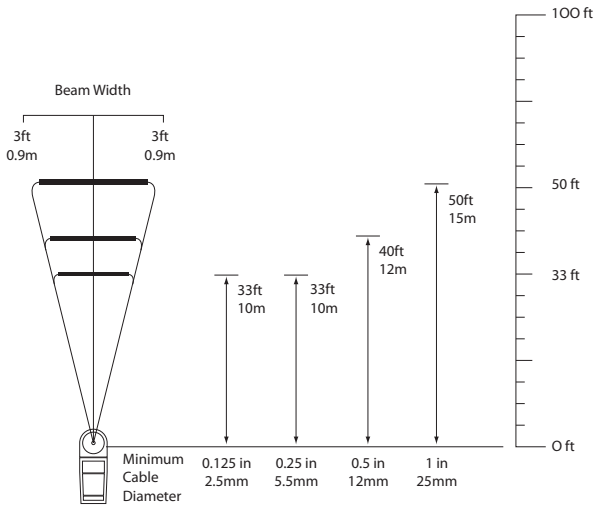
Ensure the Calibrate mode switch is in correct position, i.e. CABLE for cable height measurement, and WALL for horizontal distance to object measurement. Ensure no walls or similar obstructions are within 7 feet (2m) of either side of the unit, as reflections from these can interfere with correct operation.

# SPECIFICATIONS

	<b>Model CDM-50</b>	<b>Model CDM-75</b>
1 inch (25mm) Cable Diameter	10' - 50' (3m – 15m)	10' - 75' (3m – 23m)
0.5 inch (12mm) Cable Diameter	10' - 50' (3m – 15m)	10' - 50' (3m – 15m)
0.25 inch (5.5mm) Cable Diameter	10' - 40' (3m – 12m)	N/A
0.125 inch (2.5mm) Cable Diameter	10' - 33' (3m – 10m)	N/A
No. of wires measured	6	6
Accuracy	0.5% ± 2 digits	
Resolution (less than 33')	0.25" (5mm)	
Resolution (more than 33')	0.5" (10mm)	
Minimum gap between wires	6" (150mm)	
Operating Temp. Range	14° F to 104° F (-10° C to 40° C)	
Battery Life	50,000 measurements (Long Life Alkaline type)	
Measurement units	Imperial (feet/inches) or metric (meters)	
Auto power off delay	3 minutes	
Dimensions	8.5" x 4" x 3" (205mm x 100mm x 70mm)	
Weight	1.1 lb. (0.5kg)	

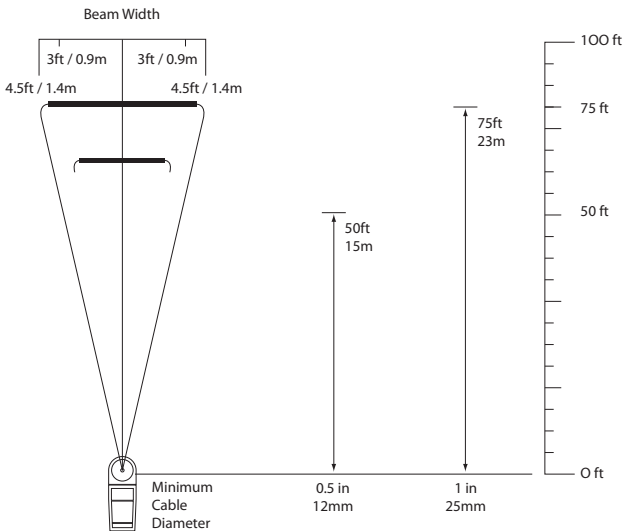
# PERFORMANCE

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**CDM-50 Measurement versus Cable Diameter**

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**CDM-75 Measurement versus Cable Diameter**

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# TERMS AND CONDITIONS OF SALE

HD Electric Company is herein referred to either as "HDE" or "Seller" and the customer or person or entity purchasing goods or services (hereinafter collectively referred to as "Goods") is referred to as the "Buyer". These Terms and Conditions, any price list or schedule, quotation, acknowledgment or invoice from HDE relevant to the sale of the Goods and all documents incorporated by specific reference therein, 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 manifest Buyer's assent to these terms and conditions with 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 the 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 at 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:** Terms are stated 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 in the event Buyer fails to make any payment when due, which other agreements Buyer and Seller hereby amend accordingly, or HDE otherwise deems itself insecure. Buyer shall be liable 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 thereafter delivered. If such cash payment or security is not provided, in addition to HDE's other rights and remedies, HDE may apply a finance charge for payments made by credit card.

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**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 complete product must be delivered prepaid to HDE or an HDE Authorized Service Center. This warranty shall not apply to any Goods including but not limited to products which: (a) Have been repaired or altered outside HDE's factory (or 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 and misuse, neglect, improper installation, or use. HDE's warranty does not include the cost of shipping, handling, or return. HDE's warranty shall be limited to the cost of 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 must be inspected, 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 SOUNDING 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 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, STRICT LIABILITY, OTHER TORT OR OTHERWISE), SHALL HDE'S LIABILITY TO BUYER AND/OR ITS CUSTOMERS EXCEED THE PRICE PAID BY BUYER FOR THE SPECIFIC GOODS GIVING 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'S LIABILITY TO BUYER AND/OR ITS CUSTOMERS INCLUDE SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES OF ANY CHARACTER IN CONNECTION WITH THE SALE, RESALE OR USE OF THE GOODS, WHICH ARE WAIVED BY BUYER AND AS TO WHICH BUYER SHALL INDEMNIFY HDE. The term "consequential damages" shall include, but not be limited to, loss of anticipated profits, business interruption, loss of use of revenue, cost of capital or loss of or damage to property, equipment, or 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 Buyer's, and any other persons', use of the Goods. All instructions and warnings supplied by HDE will be passed on to those persons who use the Goods. HDE's Goods are to be used in their recommended applications and all warning labels adhered 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 associated with electrocution, arc flash and normal energized electrical systems. Such risks arise from the wide variety of electrical systems and equipment to which Goods 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 HDE. HDE 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.**

**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; theft; sabotage; strikes, labor disputes, civil disturbances or riots; governmental restrictions, restrictions, allocations, laws, regulations, orders or actions; unavailability of or delays in transportation; default of suppliers; or unforeseen circumstances or events beyond HDE's reasonable control. Deliveries or other performance may be suspended for an appropriate period or cancelled by HDE upon notice to Buyer in the event of any of the foregoing, but in the absence of such agreement shall otherwise remain unaffected. If HDE determines that its ability to supply the total demand for the Goods, or to obtain material used directly or indirectly in the manufacture of the Goods, is hindered, limited or made impracticable 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.

**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 all defects, variations from specifications or complaints of any kind with respect to the quantity, quality, condition, shipment, performance, fit, or appearance of the Goods so received by Buyer. In the event no such written notice is received by HDE, Buyer shall be deemed conclusively to have inspected and accepted all such Goods unconditionally and to have waived any and all rights and claims, including without limitation any right to reject the Goods or to claim damages in respect thereof. Buyer may not return goods without first advising HDE of the reasons therefor, 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 maintenance a twenty percent (20%) restocking fee shall be assessed to Buyer in the final credit amount.

**11. SERVICES:** If this agreement requires HDE to perform or provide any services, HDE (including without limitation its successors, assigns, agents or any person or entity acting at HDE's direction) shall not be responsible for any damages, claims, liabilities or expenses of any nature arising out of such services.

**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 compliance are not tendered as requested.

**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, 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 Seller. No modification shall be effected by HDE's receipt or acceptance of Buyer's purchase orders, shipping instruction forms, or other documentation containing terms of sale 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 REGULATIONS, ANY CLAIMS REGARDING THE ENFORCEABILITY OF THIS LIMITED WARRANTY, AND THE WAIVER OF CLASS ACTION TRIALS between Buyer and Seller, either may choose to resolve the dispute by binding arbitration, as described below, instead of in court. THIS MEANS IF EITHER BUYER OR SELLER CHOOSE BINDING ARBITRATION, NEITHER PARTY SHALL HAVE THE RIGHT TO LITIGATE SUCH CLAIM IN COURT OR HAVE A JURY TRIAL. DISCOVERY AND APPEAL RIGHTS ARE LIMITED IN BINDING ARBITRATION. Buyer and Seller agree that the proper venue of arbitration is not chosen by Buyer or Seller of all actions arising in connection herewith shall be only in the state of Illinois and the parties agree to submit to such jurisdiction. No action, regardless of form, arising out of transactions relating to the agreement, may 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 Sales of Goods shall not 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 OR BY 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 will be administered by the American Arbitration Association ("AAA") in accordance with its Commercial Arbitration Rules and Supplementary Procedures for Consumer-Related Disputes (including proceedings to mitigate costs of AAA). This binding arbitration is governed by the Federal Arbitration Act ("FAA") (9 USC §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 stated above, the following will apply to the binding arbitration: (1) the arbitrator, and not any 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

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