TAG®

VOLTAGE DETECTORS

and ACCESSORIES

Operating Instruction Manual

TAG-200 and TAG-200MR (Distribution Voltages) and TAG-330 (Transmission Voltages) Voltage Detectors are shown with standard overhead contact probes.

HD ELECTRIC

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READ AND UNDERSTAND ALL ELEMENTS OF THIS MANUAL PRIOR TO USE.

WARNING: Use of the TAG Detectors in corner locations may supply faulty indications. Those conditions should be avoided or retested in a nearby location. Voltage cancellation effects within right angles (conductors approximately 90° apart) may cause false reads if the detector is used within 3 feet (1 meter) of the conductors joining. Other operating limitations may exist. These are found in the Instructions for Use section of this manual (page 6).

DANGER: Never insert TAG Voltage Detectors into metal enclosures, switchgear, through access holes or use in any situations other than overhead conductor testing, unless special adapter probes designed for your application are available and are being used. Incorrect use of TAG Voltage Detectors or contact probes can lead to severe injury or death.

SAFETY

Rigorous hot stick 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 TAG Detector reliably provides an alarm warning of energized conductors.

- Only trained, professional operating personnel should use this equipment. The voltages these instruments operate 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 TAG Detector is properly rated for use on the system voltages you will test.
- Assemble the TAG Voltage Detector with the proper contact probes for your application.
- Prior to using, make certain to inspect the instrument for any physical damage, cleanliness and check for proper working order using the All-Check® Self-Test button. Remove from service and do not use if you suspect a problem with any of the above.
- Test instrument before and after each use by testing on a known voltage source.
- Never allow another high voltage conductor, or grounded point, to come in contact with the instrument during use. Keep the TAG Detector housing free and clear of all structures at all times.
- Hot sticks must be used at all times per industry, OSHA and company work practices.
- Never touch the detector or control panel during contact with high voltage. The TAG Detector should be considered to be at the same voltage as the conductor under test.

GENERAL DESCRIPTION

The TAG-200 and TAG-200MR Voltage Detectors are designed to provide added safety to crew members that are required to work on distribution lines. The minimum voltage setting is 4kV (2.4kV line-to-ground). The TAG-200 and TAG-200MR Detectors maximum voltage setting is 69kV (40kV line-to-ground). Operating frequency is 60Hz (optional 50Hz available).

The **TAG-200 Voltage Detector** is a single range voltage detector. One range of operating voltages is set within the unit. A typical range is 4kV-15kV. If the unit contacts a conductor energized from 4kV (line-to-line) to 15kV (line-to-line), a red LED flashes and an audible alarm is activated.

The **TAG-200MR Voltage Detector** can be set for up to two operating voltage levels. There can be a low operating voltage level and a high operating voltage level. An example of voltage levels is 4kV - 15kV and 15kV - 35kV (phase-to-phase). If the instrument contacts an energized conductor at its low voltage level of 4kV, a single red LED flashes and an audible alarm is activated. If the instrument contacts an energized conductor at or above its high level of 15kV, two red LEDs flash and an audible alarm is activated.

The **TAG-330 Voltage Detector** is designed to provide added safety to crew members that are required to work on transmission lines. The minimum voltage setting of the TAG-330 is 69kV (40kV line-to-ground), up to the maximum voltage setting of 765kV (442.2kV line-to-ground). Operating frequency is 60Hz (optional 50Hz available).

The operating voltage range or level of any TAG Voltage Detector can be customized to the user but will always be less than the entire design rating of the product. Ranges of the TAG-200, TAG-200MR and TAG-330 Voltage Detectors can be roughly defined by the maximum voltage setting exceeding the minimum voltage setting by no more than three to four times, e.g. 4 to 15kV. Do not use the detector at voltages higher or lower than its rating. Consult the product label for the specific range or levels for the unit supplied.

When operating within the unit's voltage range (see product label), the TAG Detector will provide both an audible and visual alarm upon making contact with an energized conductor. The TAG Voltage Detector units will not give an alarm due to induced voltage on de-energized conductors, unless the induced voltage level exceeds the threshold voltage of the detector.

The All-Check self-test feature is required both prior to and after line testing to make certain the unit is working properly. The All-Check self-test is operated by pushing the test button, which will test the battery, the electronic circuitry and the audible and visual alarm.

If the TAG Detector does not pass the All-Check self-test, the battery should be replaced and retested. If the unit still does not pass the test, the detector should be sent in for repair. NEVER USE THE TAG VOLTAGE DETECTOR IF THE ALL-CHECK SELF-TEST IS NOT SUCCESSFULLY PASSED! See All-Check Self-Test Operation Section (page 5).
A standard 9-volt alkaline battery powers the TAG Detectors. Even though the circuitry is constantly "ON" and sensing voltage, the battery should last for approximately one year under normal use. We do recommend however, replacing the battery every six months. If the instrument is to be stored for a year or more, remove the battery during storage.

A universal spline adapter is built into the polycarbonate housing of the TAG Voltage Detector units. Extension hot sticks are required for use at all times. Hot sticks are available from HD Electric and must be used when placing the detector in contact with any conductor.

ALL-CHECK SELF-TEST OPERATION

The All-Check self-test feature provides a full test of the battery, the electronic circuitry and the audible and visual alarm.

NOTE: The All-Check self-test feature should be used both prior to and after testing the conductor to confirm proper operation. In the instructions below, the numbers appearing with the letter "A" refer to the TAG-200 Voltage Detector operating characteristics, the numbers with the letter "B" refer to the TAG-200MR Voltage Detector and the numbers with “C” refer to the TAG-330 Voltage Detector. The figures referenced are shown below.

1A) Push and hold the test button on the inside of the polycarbonate housing to operate the All-Check self-test procedure. The red (alarm) LED light will flash and the buzzer will beep. After release of the button, the green LED light will illuminate for approximately one to two (1-2) minutes. The unit is ready for operation. (Figure 1)

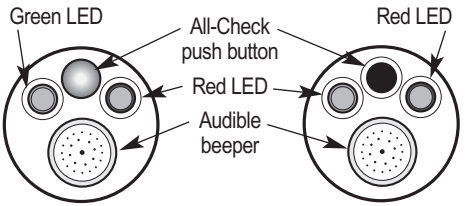


Figure 1
TAG-200
Control Panel

Figure 2
TAG-200MR
Control Panel

1B) Push and hold the test button on the inside of the polycarbonate housing to operate the All-Check self-test procedure. The two red (alarm) LED lights will flash and the buzzer will beep. After release of the button, no lights will remain on. (Figure 2)

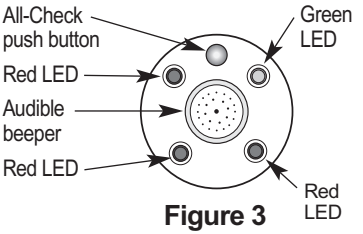


Figure 3
TAG-330
Control Panel

1C) Push and hold the test button on the inside of the polycarbonate housing to operate the All-Check self-test procedure. Three red (alarm) LED lights will flash and the buzzer will beep. After release of the button, the green LED light will illuminate for approximately two (2) minutes. The unit is ready for operation. (Figure 3)

2) If pressing the test button does not cause the events listed in Step 1, the unit should not be placed in operation. The battery may need replacement, see Battery Replacement section (page 8). If changing the battery does not produce the results shown in Step 1, remove the unit from service and send in for repair.

3) After completing the voltage detection on the conductor (see next section), always confirm proper function of the TAG Detector by completing Step 1 again. If the self-test does not function as above, DO NOT assume that the test results are correct. Retest the conductor, preferably with a different TAG Voltage Detector.

NOTE: When using the All-Check self-test feature, do not hold the housing of the TAG Voltage Detector in your hand. This causes the detector's sensing field to be modified and may distort the All-Check self-test ability to test. Hold the TAG Detector with a hot stick or hand hold at spline while pressing the All-Check self-test button. Never use the All-Check self-test if the TAG Detector is in contact with any voltage source.

INSTRUCTIONS FOR USE

Situations To Avoid

Within certain situations and because of various system configurations, electrical field interference capable of affecting the operation of TAG Voltage Detectors 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 TAG 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 TAG Detector not to 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 TAG Detector, causing it not to operate. Reposition the TAG Detector to areas which will remove it from these situations.

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

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

DANGER: Never allow the TAG Detector probes used for overhead (O/H) or underground (U/G) applications to bridge across, or come in contact with, another conductor or grounded point. The same applies to the TAG Detectors polycarbonate housing. Keep all parts free and clear at all times.

OPERATION

Once the All-Check self-test confirms proper operation, the TAG Detector is ready to test lines for voltage detection as follows:

NOTE: Direct, metal-to-metal contact with the conductor must be made for the detector to operate correctly.

1) Place the detector at the end of a hot stick adequate for protection for the voltage range being tested. Company, OSHA and industry safety procedures MUST BE FOLLOWED AT ALL TIMES. Connect the detector to the hot stick by way of the built-in universal spline, making certain it is securely attached.

2) Make certain that the correct probe is firmly screwed in place on the tip of the TAG Detector. For underground distribution (U/G) and metal-enclosed switch gear (MESG), optional underground probes are required, see pages 10-12. Use overhead probes for overhead applications only. Contact factory for further information.

3) Place the TAG Detector in direct contact with the conductor being tested for voltage. The TAG Voltage Detector should be positioned as close to a 90° orientation (perpendicular) to the conductor as possible. If the conductor is energized, the TAG Detector will give both an audible (beeping tone) and visual (red blinking LED(s) light) indication. If the conductor is not energized no signal is given, although on the TAG-200 and TAG-330 Voltage Detectors, the green LED light from the All-Check self-test may remain on for approximately two minutes (if still on from prior use). With the TAG-200MR Voltage Detector, if the conductor is energized within the specified low operating voltage range, the TAG Detector will give both a visual indication of one (1) blinking red LED and an audible alarm (beeping tone). If the conductor is energized within the specified high operating voltage range, the TAG Detector will give both a visual indication of two (2) blinking red LEDs and an audible alarm (beeping tone). If the conductor is not energized, no indications are given.

4) Test the TAG Detector for proper operation after performing the voltage test on the conductor by pushing the All-Check self-test button. See the All-Check Self-Test Operation section (page 5).

BATTERY REPLACEMENT

Under normal conditions, the 9V alkaline battery will last approximately one year. When replacement is required (as determined by the All-Check self-test), replace the battery with a 9V alkaline battery, Duracell® #MN1604 or equivalent.

TAG-200, TAG-200MR and TAG-330 Voltage Detectors

1. Remove (unscrew) the Contact Probe from the detector.
2. Remove (unscrew) the insulated Retaining Nut.
3. Use the Contact Probe to push out the Electronic Assembly with Metal Shield from the polycarbonate housing.
4. Remove the Metal Shield from the Electronic Assembly.
5. Carefully remove the existing battery and replace it with a fresh 9V alkaline battery, Duracell® #MN1604 or equivalent. **Make certain that the polarity is correct.**
6. Replace the Metal Shield on the Electronic Assembly.
7. Replace the Electronic Assembly with the Metal Shield installed in the polycarbonate housing and insert until the contact screw is visible at the top of the unit. Replace the insulated Retaining Nut and the Contact Probe.

MAINTENANCE AND CARE

STORAGE - It is recommended for protection of the TAG Detector that you always store it and its accessories in the carrying case provided. If a prolonged period of storage is anticipated (six or more months), remove the battery. Remember to replace the battery prior to using the TAG 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 TAG Detector and arrange for repair by returning it to the factory.

BATTERY REPLACEMENT - While the battery is expected to last several months, 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 Battery Replacement section (page 8) for additional information.

CALIBRATION & TESTING - It is recommended that every twelve months the TAG Voltage Detector is sent for testing and possible recalibration, cleaning and inspection. We recommend this to be done at a factory trained repair facility, the HDE factory, or other qualified location.

Minimal maintenance is required for the TAG Detector. The polycarbonate housing should be cleaned with a silicone impregnated cloth prior to each use to assure proper operation. The case that is supplied with the unit is recommended for storage of the TAG Voltage Detector unit when the unit is not in use.

REPAIRS

If any damage is found please contact us at 800-435-0786 to arrange for service.

OPTIONAL ACCESSORIES

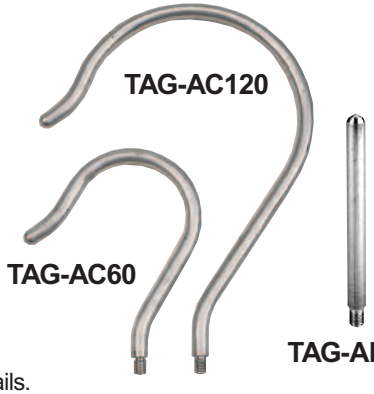
Overhead Probes

The TAG-200 and TAG-200MR Voltage Detectors come standard with two overhead contact probes, the TAG-41811/B overhead bullet-tip probe and the TAG-42029 overhead “Y” probe. The case supplied with the TAG-200 and TAG-200MR Voltage Detectors is the C-200 plastic storage case. This case also holds the IEP-UD/C and the PT-DET Tester. A steel storage case is also available, part number CM-200, as well as a carrying bag, part number B-2.

TAG-42029

TAG-41811/B

The TAG-330 Voltage Detector comes standard with three overhead contact probes, the TAG-AD100 overhead straight probe, the TAG-AC60 small overhead hook probe and the TAG-AC120 large overhead hook probe. The case supplied is the CM-300 steel storage case. This case also holds the PT-DET Tester.



TAG-AC120

TAG-AC60

TAG-AD100

Hot Sticks

A range of hot sticks are available in lengths starting at 4’. Contact HD Electric for more details.

Loadbreak Bushing Probes

IEP-UD/C UNDERGROUND BUSHING PROBE

The IEP-UD/C Underground Bushing Probe is designed for direct insertion into exposed 15, 25 or small interface 35kV loadbreak bushings (after connecting elbows have been removed and properly stored). It can be used with the TAG-200 and TAG-200MR Voltage Detectors. The probe must be inserted directly into the bushing and remain free and clear of all surrounding surfaces. It is rated for use up to 35kV phase-to-phase.

IEP-UD/C

Use with 15 and 25kV Loadbreak Bushings and Small Interface 35kV Bushings

To assemble the IEP-UD/C probe on the TAG Voltage Detector:

1. Inspect the IEP-UD/C probe for any mechanical defects and make certain it is clean and dry.
2. Remove the metal overhead probe on the TAG Detector by unscrewing it from the threaded terminal in the nose of the TAG Detector.
3. Screw the IEP-UD/C onto the nose of the TAG Detector. Make certain it is snug by hand tightening, but DO NOT OVERTIGHTEN.

IEP-UD/C UNDERGROUND BUSHING PROBE *continued*

4. After assembly, test the TAG Voltage Detector by using the All-Check self-test function. Do not hold onto the probe during the self-test. Hold the body of the TAG Detector and depress the self-test button, allowing the TAG Detector to test its internal functions.
5. After confirming completion of the self-test, test the fully assembled TAG Voltage Detector on a known voltage source, such as the PT-DET Proof Tester® Voltage Detector Tester, prior to using.

IEP-UDP + ASP-15/25 ASSEMBLED UNDERGROUND BUSHING PROBE

The IEP-UDP and ASP-15/25 Assembled Underground Bushing Probe is designed for direct insertion into exposed 15 or 25kV loadbreak bushings (after connecting elbows have been removed and properly stored). The assembled probe can be used with the TAG-200 and TAG-200MR Voltage Detectors. The assembled probe must be inserted directly into the bushing and remain free and clear of all surrounding surfaces. It is rated for use up to 25kV phase-to-phase.

IEP-UDP + ASP-15/25
Use with 15 and 25kV Loadbreak Bushings

To assemble the IEP-UDP and ASP-15/25 probes on the TAG Voltage Detector:

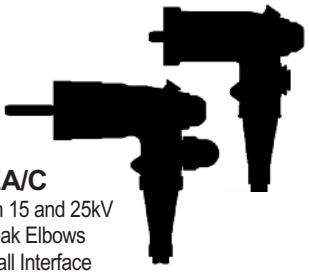
1. Inspect both the IEP-UDP and ASP-15/25 probes for any mechanical defects and make certain they are clean and dry.
2. Remove the metal overhead probe on the TAG Detector by unscrewing it from the threaded terminal in the nose of the TAG Detector.
3. Screw the IEP-UDP onto the nose of the TAG Detector. Make certain it is snug by hand tightening, but DO NOT OVERTIGHTEN.
4. Screw the ASP-15/25 onto the end of the IEP-UDP probe. Make certain it is snug by hand tightening, but DO NOT OVERTIGHTEN.
5. After assembly, test the TAG Voltage Detector by using the All-Check self-test function. Do not hold onto the assembled probe during the self-test. Hold the body of the TAG Detector and depress the self-test button, allowing the TAG Detector to test its internal functions.
6. After confirming completion of the self-test, test the fully assembled TAG Voltage Detector on a known voltage source, such as the PT-DET Proof Tester Voltage Detector Tester, prior to using.

Loadbreak Elbow Probes

IEP-EA/C AND IEP-EA/C-35 ELBOW ADAPTER PROBES

HDE Elbow Adapter Probes are designed for 21.1kV maximum line-to-ground voltage, used with the TAG-200 and TAG-200MR Voltage Detectors only.

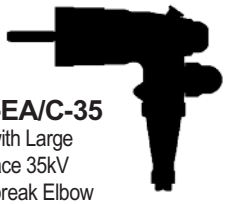
The probe is used in place of the metal probe on the TAG Detector for overhead applications. The elbow adapter probe must be tightly assembled to the TAG Detector.



IEP-EA/C
Use with 15 and 25kV Loadbreak Elbows and Small Interface 35kV Loadbreak Elbows

The TAG Voltage Detector with the **IEP-EA/C** probe is a direct contact voltage detector for use with loadbreak elbows. All 15kV and 25kV elbows and small interface 35kV loadbreak elbows may be tested with this probe.

The TAG Voltage Detector with the **IEP-EA/C-35** probe is a direct contact voltage detector for use with 35kV large interface loadbreak elbows.



IEP-EA/C-35
Use with Large Interface 35kV Loadbreak Elbow

The TAG Detector cannot be used on deadbreak elbows. Use of the TAG Voltage Detector with either of these probes for testing loadbreak elbows is a two-person operation. One person must firmly hold the elbow with a suitable live line tool attached to its pulling eye. The second person can insert the assembled TAG Detector with the Elbow Adapter Probe over the elbow probe. The TAG Detector with this elbow adapter probe MUST BE TESTED ON A KNOWN VOLTAGE SOURCE, such as the PT-DET Tester, before and after each use. The TAG Detector self-test does not test the elbow adapter probe. Keep the TAG Detector and the elbow adapter probe free and clear of all grounded surfaces during testing.

To assemble the IEP-EA/C or IEP-EA/C-35 probe on the TAG Voltage Detector:

1. Inspect the probe for any mechanical defects and make certain it is clean and dry.
2. Remove the metal overhead probe on the TAG Detector by unscrewing it from the threaded terminal in the nose of the TAG Detector.
3. Screw the probe onto the nose of the TAG Detector. Make certain it is snug by hand tightening, but DO NOT OVERTIGHTEN.
4. After assembly, test the TAG Voltage Detector by using the All-Check self-test function. Do not hold onto the probe during the self-test. Hold the body of the TAG Detector and depress the self-test button, allowing the TAG Detector to test its internal functions.
5. After confirming completion of the self-test, test the fully assembled TAG Voltage Detector on a known voltage source, such as the PT-DET Proof Tester Voltage Detector Tester, prior to using.

PT-DET PROOF TESTER VOLTAGE DETECTOR TESTER

The PT-DET Proof Tester Voltage Detector Tester is for use on TAG-200, TAG-200MR, TAG-330 Voltage Detectors up to and including 69kV. This tester generates high voltage AC for testing TAG Voltage Detectors.

To use, hold the Tester in one hand and the TAG Detector in the other hand. Apply the TAG Detector probe to the metal end plate on the Tester. Press and hold the TEST button on the Tester. A properly operating TAG Detector will signal the presence of voltage with both its beeper and flashing lights. If the TAG Detector does not operate, replace the battery in the Detector with a 9V alkaline type battery, per the instructions (page 8). If the Tester LED does not light, replace the Tester battery with a 9V lithium or alkaline type battery.

CAUTION: This device generates high voltage AC for testing TAG high voltage AC voltage detectors. There is no danger of electric shock when this tester is used as directed. Discontinue use and return to HD Electric for service if the housing is cracked or broken, or if the battery cover is lost.

WARNING: Do not use this tester except as directed. Do not use to test equipment other than specified TAG Voltage Detectors. Do not apply to energized circuits or equipment. Do not operate this Tester without the battery cover and do not open the housing. Refer all servicing to the factory. Failure to follow these instructions may lead to electric shock, severe injury or death.

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 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: 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 attorneys' 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 tender delivery of 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 made within ninety (90) days or they will be disallowed and deemed waived.

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 any 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, 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 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, 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 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; weather; sabotage; strikes, labor disputes, civil disturbances or riots; governmental requests, 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 the balance of this 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 any and all deficiencies, defects, variations from specifications or complaints 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 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 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 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, of 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 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 if Arbitration is not so 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 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 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
Suite 400 - 4320 Executive Drive, Southaven, MS 38672.

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