

WATCHMAN®

AREA VOLTAGE DETECTOR

Featuring WAVi® Voltage Indication Technology

WM-02 Operating & Instruction Manual



Making the Invisible Visible®

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WM-02 Operating & Instruction Manual

GENERAL DESCRIPTION	4
POINTS TO UNDERSTAND BEFORE PROCEEDING	4
SAFETY	5
HOW IT WORKS	5
HOW TO USE IT	6
WHEN TO USE IT	6
A WORD ABOUT ELECTRIC FIELDS	7-8
WARNING DISTANCE CHARTS	9-10
BATTERY REPLACEMENT	13
TECHNICAL SPECIFICATIONS	13
ACCESSORIES	14-15
TERMS AND CONDITIONS OF SALE	16

GENERAL DESCRIPTION

The Watchman Work Area Voltage Detector uses WAVi® voltage indication technology to detect strong electric fields surrounding high voltage conductors and power distribution equipment. It is typically placed in the vicinity of power lines or high voltage equipment. The Watchman Detector provides an extra level of safety for trained personnel working on or near high voltage systems.



POINTS TO UNDERSTAND BEFORE PROCEEDING

The Watchman Area Voltage Detector detects electric fields. Make sure you understand these points before proceeding:

- Electric fields surround every energized AC conductor.
- The closer you are to a conductor, the stronger the field will be.
- Higher voltage means a stronger electric field and a greater warning distance. Lower voltage means a reduced warning distance.
- Electric fields are NOT blocked by plastics, dry wood or clothing.
- Electric fields ARE blocked by ANY conductor such as a metal cabinet or door, wet wood, metal fences, green trees, a growing shrub or hedge and tall wet grass.
- The detector will not find cables buried under the ground. The ground is a conductor and will block electric fields.
- Insulation on a wire does not block the electric field and does not affect warning distances.
- Underground primary cables are both insulated AND shielded. The shield is a conductor, is grounded, and will block the electric field.
- Molded cable terminators such as elbows are, like the cables they are installed on, both insulated and shielded and will block electric fields.
- Your body will block electric fields. Placing yourself between a high voltage source and the Watchman Detector may prevent it from detecting the high voltage.
- Do not use the Watchman Detector while holding it in your hand. Wrapping your fingers around the Detector will block electric fields, preventing it from working properly.

SAFETY

- Always use proper high voltage procedures, including personal protective equipment, when working near or around high voltage equipment or conductors.
- Do not rely on the Detector as your sole source of high voltage detection. Risk of electrocution is inherent in or around high voltage.
- Always use proper high voltage procedures for testing and grounding.
- Grounded equipment can appear to be live in close proximity to energized conductors.

OPERATIONAL IMPAIRMENT

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

The Detector will not detect DC voltage or stored charge such as in charged capacitors or underground cable. Always use proper high voltage procedures, including personal protective equipment, when working near or around high voltage equipment or conductors. Always use proper high voltage procedures for testing and grounding. Do not rely on the Watchman Area Voltage Detector as your sole source of high voltage detection. Risk of electrocution is inherent in or around high voltage.

HOW IT WORKS

The Watchman Area Voltage Detector works by sensing the presence of the electric field surrounding anything that conducts high voltage electricity.

Spinning lights indicate an electric field and nearby energized conductor. The Watchman Detector has a power and self-test button on the top of the unit to verify battery power and proper functioning of the device. The short flashing lights “heartbeat” indicate that the Watchman Detector is on, checking for the presence of high voltage electric fields.

For more information, refer to the A Word About Electric Fields section on page 7.

HOW TO USE IT

The Watchman Area Voltage Detector should be placed in the vicinity of high voltage conductors that are either energized or could possibly become energized for the purpose of warning those in the vicinity of the presence of high voltage. Refer to the charts starting on page 9 for determining the appropriate placement distances.

The Watchman Area Voltage Detector can be placed as described in these examples:

1. The Watchman Detector can be placed on the ground. The Detector will detect energized high voltage conductors on all sides and above it. Refer to the charts starting on page 9 for determining the detection range and appropriate placement distances.
2. The Detector can be placed on top of a typical traffic cone using the available accessory cone bracket. When a Watchman Detector is placed on a branded green traffic cone, overall visibility is improved and the Detector is positioned for best visibility.
3. The Watchman Detector can be applied to a fence or other similar structure using the accessory hanger bracket. When applied to a metal fence the Detector will only detect conductors on the side of the fence it is hanging from.
4. The Detector can be applied directly to a bare or insulated overhead conductor up to 35kV using this same accessory hanger bracket. In this application the Detector will provide a direct indication of the presence of voltage on either the conductor to which it is applied or on other nearby conductors.

WHEN TO USE IT

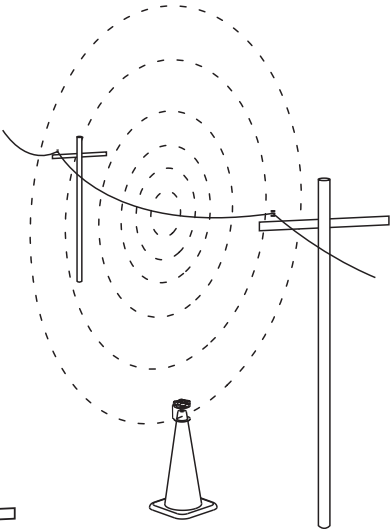
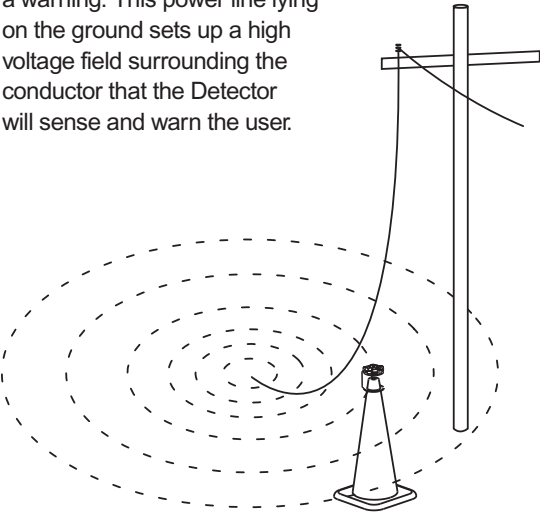
The Watchman Area Voltage Detector can be used anytime, anyplace and for any reason. The decision of when to use the Detector is made by the user and by your company's safety and work practices. When used properly, the Detector can provide an additional warning to users exposed or working around energized high voltage electricity and equipment. Awareness of the presence of a high voltage electric field allows the user to take additional precautions against accidental contact with energized equipment.

The Watchman Area Voltage Detector provides an early warning of the proximity of potentially hazardous high voltage electricity and equipment. The Detector lights will spin when an electric field is detected and will continue to spin for as long as the electric field is present.

A WORD ABOUT ELECTRIC FIELDS

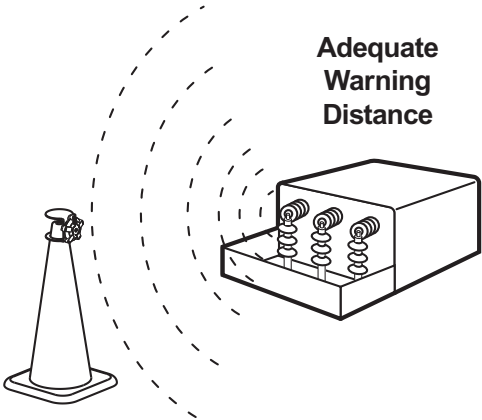
Electric fields surround every energized conductor. The Watchman Area Voltage Detector measures the strength of these electric fields to warn the user when fields are strong enough to indicate the presence of nearby high voltage conductors.

A downed power line is a typical hazardous situation where the Detector can provide a warning. This power line lying on the ground sets up a high voltage field surrounding the conductor that the Detector will sense and warn the user.



The Detector measures the electrical fields typically found in close proximity to energized distribution power lines. Positioning of the detector and its location relative to the voltage source can have a large effect on its sensitivity to electric fields.

The Watchman Detector detects voltages above it and on all sides. The cone mount conveniently places the Detector for best visibility. The Detector can be mounted on the top of this bracket for best sensitivity above and to the sides. It can also be mounted on the side of this bracket for best detecting conductors in one direction.



The Watchman Area Voltage Detector measures only the strength of the electric field. It cannot directly measure distance to the source of the electric field such as an energized conductor.

The higher the voltage, the stronger the field and the greater the alarm distance.

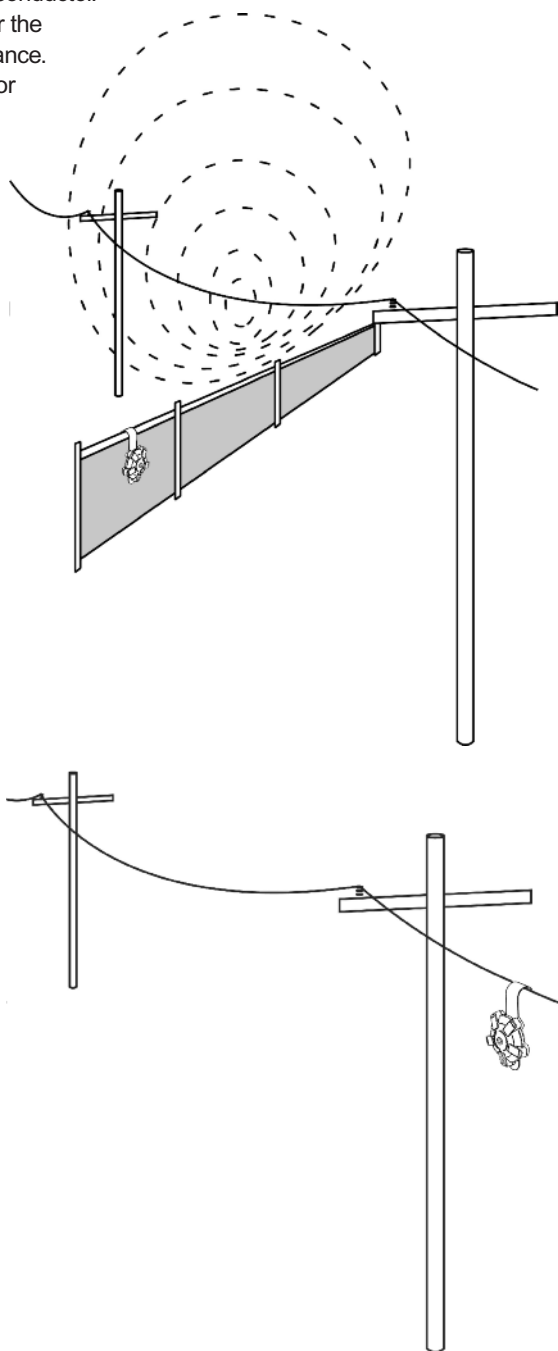
The reverse is also true; the detector may alarm due to the very close proximity of low voltage such as from a computer terminal or a desk lamp. It may even alarm if it is placed up against a typical 120 volt wall outlet.

Electrically conductive objects located underneath power lines can appear to be live.

A metal fence or a growing hedge can cause a distortion of the electric field under these lines and result in high electric field strength near the ground. The Watchman Area Voltage Detector will provide an early warning of high electric fields, but not all fields are directly caused by nearby energized objects. To prevent the Detector from issuing too many false alarms, it should not be used in typical office or factory environments where all the equipment is low voltage and there is no danger of contacting energized high voltage conductors.

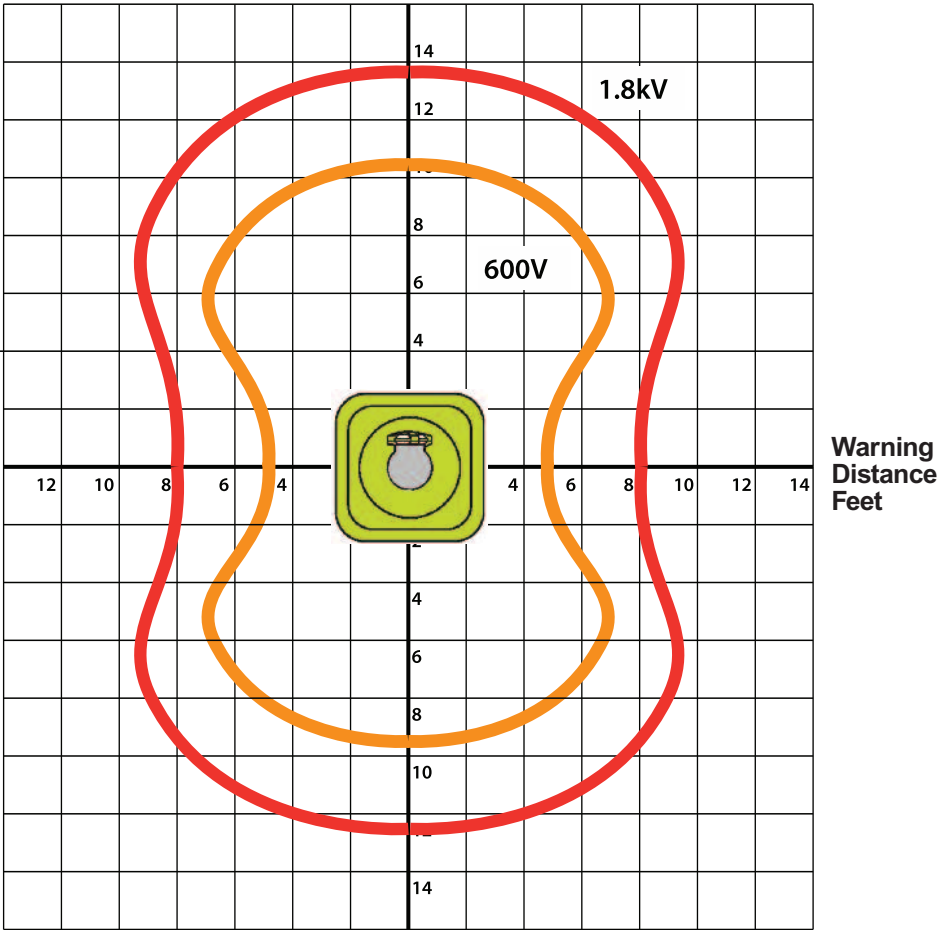
Conductors of different phases in close proximity will also reduce warning distances due to field cancellation effects.

Placing the Watchman Area Voltage Detector in environments such as substations or under transmission lines may result in continuous voltage indication.



WARNING DISTANCE CHARTS

Watchman Detector on Side of Cone Bracket



Each grid square is two feet.
Test conductor is 1 inch diameter bar, three ft. long, three ft. above the ground.
Lines show detection distance at line to ground voltages.



WARNING: Treat all conductors as live unless or until there is a visible break from a live source and a ground is in place.

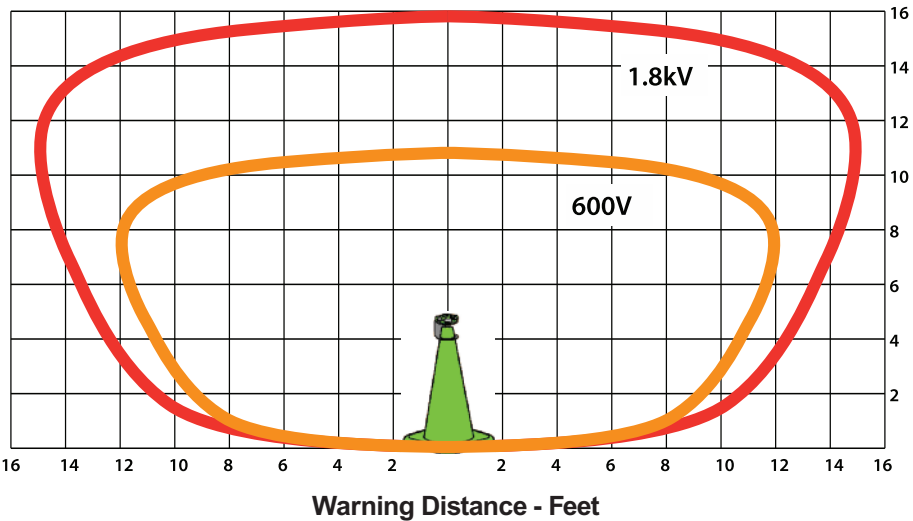


Be aware of unique conditions that may be present around three phase delta systems. Unlike grounded Y systems, a single phase of a delta system can become grounded without causing an outage and the delta system can continue to operate with this grounded phase. If this phase is grounded as a result of a downed conductor or other storm damage, it may be grounded only temporarily and could become reenergized if moved or disturbed. **The Watchman Area Voltage Detector will not detect any grounded conductor, whether it is a grounded delta phase conductor, a guy wire or a pole ground.**

WARNING DISTANCE CHARTS

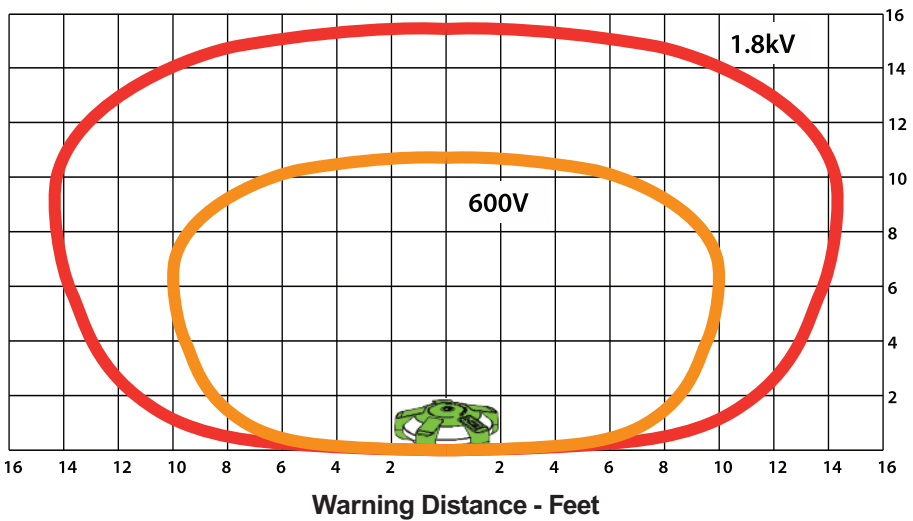
Watchman Detector on Top of Cone Bracket

Conductor Height



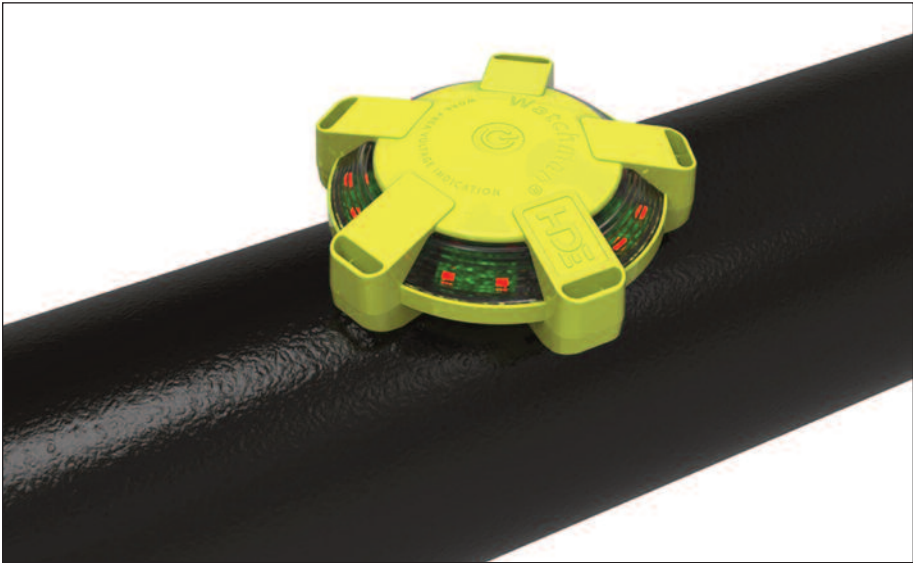
Watchman Detector on the Ground

Conductor Height



Each grid square is two feet.
Test conductor is 1 inch diameter bar.
Lines show detection distance at line to ground voltages.

Watchman Detector applied to metallic pipe
Threshold voltage = 2VAC



Watchman Detector suspended from energized metallic pipe with WM-FB1 bracket
Threshold voltage = 2VAC



Before using, read the instruction manual and review product labeling. Make certain that the Detector is equipped with 3 AAA batteries. Press the Power / Self Test button on the top of the Detector to turn it on and verify spinning lights before and after each use. The test circuitry generates an internal voltage which the Detector then detects by turning on the lights. DO NOT USE the Watchman Area Voltage Detector if the On/Test button fails to activate the lights. Remove from service and contact the factory to arrange for repair.



CAUTION – Press and hold the On/Test button before and after each use to ensure proper operation.

The detector will show spinning lights when it detects high voltage. For more details, refer to the Warning Distance Charts starting on page 9.

WATCHMAN™

Work Area Voltage Indicator

Read instructions before use. To power on and self-test this unit, hold button for a few seconds. If the chasing lights do not turn on, or do not remain on while button is held, the batteries are low and must be replaced. While on, an intermittent "heartbeat" flash will be visible. If the heartbeat stops, batteries must be replaced. Unit may be magnetically fixed to certain metal surfaces, or other objects using separate accessories. Do not hold this device while in use. Use extreme caution during use as high voltage may be nearby. Three (3) AAA batteries needed for operation.

CAUTION: Strong Magnets. Keep away from credit cards, hard drives, and magnetic strips.

WARNING: Do not rely on this device as your only indication of high voltage.

DANGER: Chasing lights indicate proximity to high voltage and associated risks of arcing and electrocution.

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BATTERY REPLACEMENT

The Watchman Area Voltage Detector will indicate if it has low batteries. When the batteries get low the Detector stops the heartbeat lights. The Detector will continue to detect voltage until the remaining battery life is exhausted, in about 4 hours.

To replace the batteries, access the batteries through the door on the bottom. A coin may be required to open the battery compartment door. Remove and dispose of the old batteries, replacing them with a fresh, new set of AAA alkaline or lithium batteries. Be sure to connect the proper battery polarity and replace the cover. Press and hold the On button to confirm proper operation. If after changing the batteries the On button fails to confirm proper operation, DO NOT USE the Watchman Area Voltage Detector. Remove it from service and contact the factory to arrange for repair.

CLEANING

To clean, wipe with a damp cloth with water. Do not use harsh chemicals or solvents.

TECHNICAL SPECIFICATIONS

MODEL NUMBER: WM-02

SENSITIVITY: Factory set at 50/60Hz sensing threshold. The Detector will only detect AC voltage.

TYPICAL WARNING DISTANCE: 10 feet (3m) from a 600VAC conductor. For more details, refer to the Warning Distance Charts starting on page 9.

OPERATING FREQUENCY: 50Hz/60Hz

BATTERIES: AAA ANSI 24A, IEC LR03 or AAA lithium ANSI 24-LF, IEC-FR03. Life 2 years in storage, 1,000 hours standby heartbeat mode, 10 hours continuous voltage indication.

WEIGHT WITH BATTERY: 8 oz. (227g.)

DIMENSIONS: 3.8 in. (9.7cm.) diameter x 1.4 in. (3.6cm.) high

VOLTAGE RANGE: Will detect voltages as low as 2VAC when applied directly to energized conductors

ENCLOSURE MATERIAL: ABS UL 94-HB

PRINTED CIRCUIT BOARDS: FR-4 UL94V-0

INGRESS PROTECTION: IP67

ENVIRONMENTAL CONDITIONS

CONDITIONS: Indoor and outdoor use, IP67

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)

OVERVOLTAGE CATEGORY: II Non-contact

POLLUTION DEGREE: PD4

REPAIRS

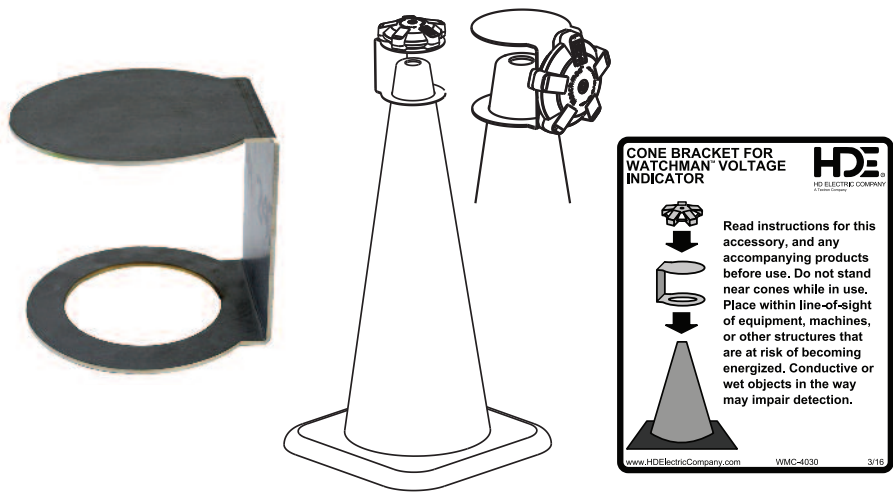
If any damage is found please contact us at 800-435-0786 to arrange for service.

MANUFACTURING LOCATION HD Electric • Southaven, MS, 38672 USA

ACCESSORIES

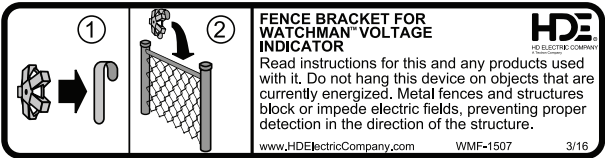
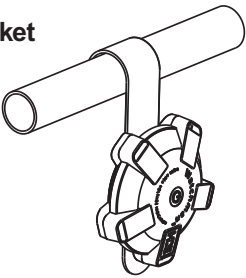
WM-CB1 Cone Mount Bracket

The WM-CB1 Cone Mount Bracket accessory allows the Watchman Detector to be placed on a safety cone above the ground for better visibility and sensitivity to overhead conductors. Use the Detector mounted on the top of this bracket for best sensitivity above and to the sides. The Detector can also be mounted on the side of this bracket for best detecting conductors in the direction facing the Watchman Area Voltage Detector.



WM-FB1 Fence Mount Bracket

Used on fences or any railing to provide a warning that the conductor may be energized. May also be attached to overhead conductors up to 35kV.





WM-BGL Storage Bag

Large storage bag; holds 12 Watchman Detectors and accessory brackets.



WM-BGS Storage Bag

Small storage bag; holds 6 Watchman Detectors and accessory brackets.

TERMS AND CONDITIONS OF SALE

HD Electric Company is herein referred to 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 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 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 attorney's fees, relating to the collection of past due amounts. Until Buyer's financial responsibility becomes unsatisfactory to HDE, cash payments or security satisfactory to HDE may be required by HDE for future deliveries and for the goods thereto 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 sole discretion, shall not be bound to tender delivery of Goods to Buyer without providing shipping instructions. If the shipment of 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, neglect or improper installation or use. Under this warranty, the Buyer's exclusive remedy 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 DAMAGES, PUNITIVE DAMAGES OR PUNITIVE DAMAGES OF ANY CHARACTER IN CONNECTION WITH THE SALE, RESALE OR IMPLIED, WHETHER OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OTHERWISE. HDE's 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 shall 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 burn, 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 all 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 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 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, content, performance, price or appearance of the Goods as received by Buyer. If the Buyer has no such written notice, HDE 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 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 statement 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 for 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 shall 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 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
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HD Electric Company is ISO 9001:2015 certified

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