



# HIT-NOT Proximity System

## Personal Alarm Device Model DDAC-PAD; DDAC-PAD-XL

User's Manual v1.0



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US6,810,353; AU2005289704; ZA2007/02919; ZA2008/02673;  
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# 1 Overview

The Personal Alarm Device is part of a complete HIT-NOT Proximity Detection system from Frederick Energy Products which provides warnings to both individuals and to vehicle operators to alert them that the individual has entered too close to an operating piece of equipment and is in a dangerous situation. The Personal Alarm Device is worn by the pedestrian to alert them of impending danger. There are two models of the DDAC-PAD that are functionally identical except for the location of an audible sounder. The sounder for the Model DDAC-PAD is located in the PAD housing; whereas the sounder for the Model DDAC-PAD-XL is at the end of a cable extending from the housing. The DDAC-PAD-XL model has a louder (103 dBA) sounder for use in areas with loud background noise that require extra hearing protection

## 1.1 Theory of Operation

The functions of the Personal Alarm Device are:

- To sense the 73 kHz field generated around a vehicle or piece of machinery equipped with a Magnetic Field Generator.
- To echo a signal back to the Magnetic Field Generator to confirm signal recognition.
- To transmit a 916.48 MHz RF signal to the Magnetic Field Generator.
- Turn on its own alarm when the 73 kHz signal from the Magnetic Field Generator is confirmed.

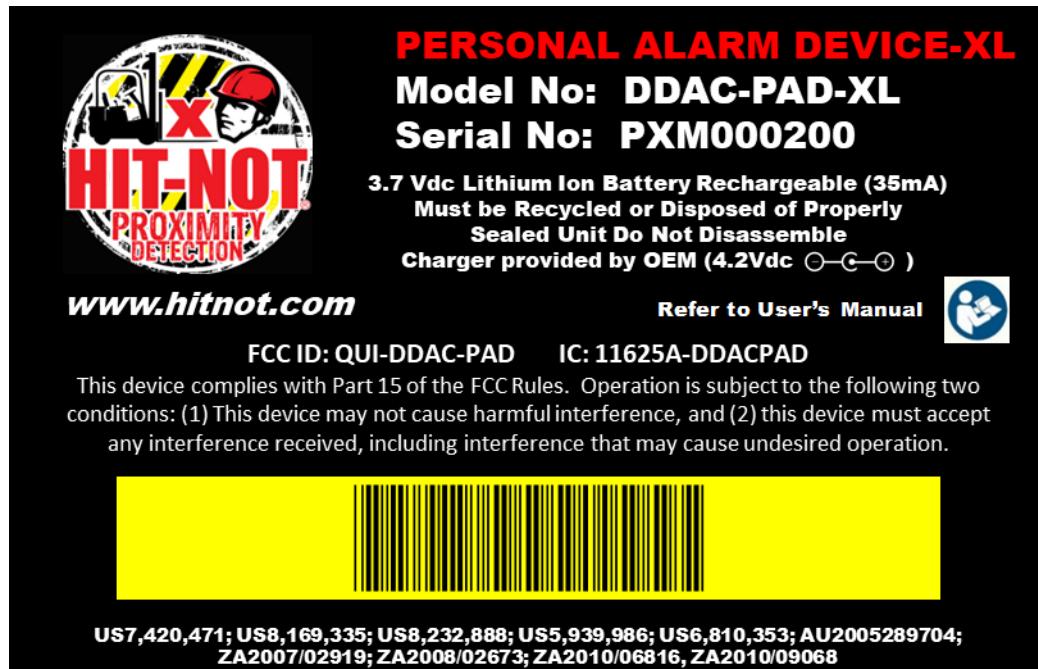
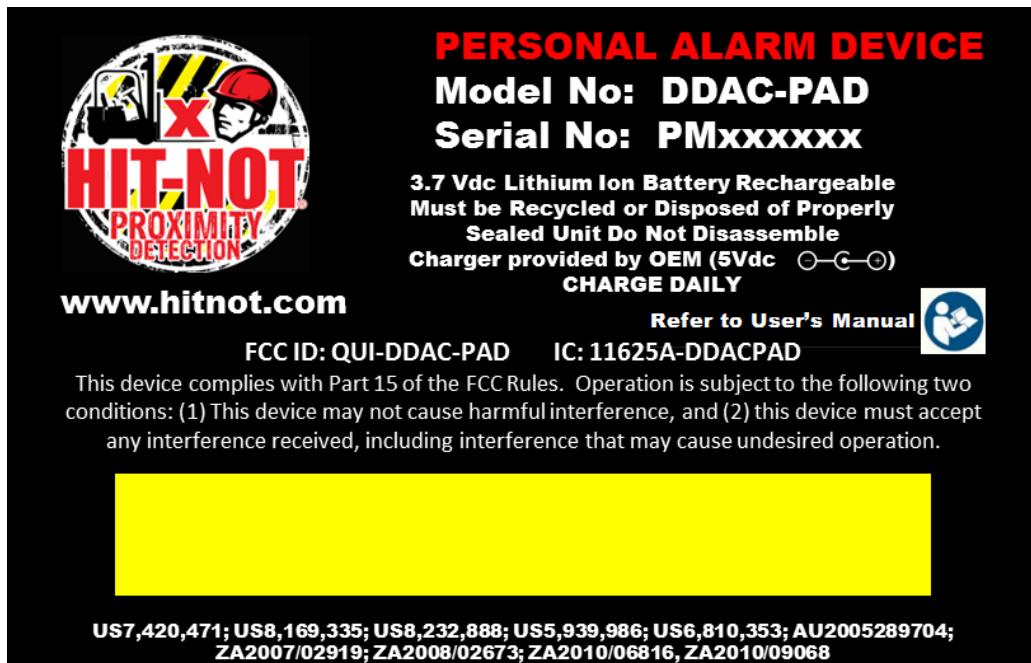
When a Personal Alarm Device (PAD) is in close proximity of the Magnetic Field Generator, the PAD will detect the 73 kHz magnetic field from the generator and analyze its field strength. When the 73 kHz field strength received by the PAD is above a certain threshold it will indicate that the distance of the Magnetic Field Generator is close enough to the PAD to signify a Warning or Danger condition. The PAD is calibrated to differentiate the magnetic field into two zones: Warning and Danger. The PAD will echo back to the Magnetic Field Generator with a 916.48 MHz transmission to confirm the signal recognition and then send the alert to the Magnetic Field Generator. The Magnetic Field Generator has its 916.48 MHz receiver ON when it is transmitting the 73 kHz field and is “listening” to receive any 916.48 MHz transmissions from a pedestrian with a PAD to indicate the individual is too close to the vehicle and warrants a warning or danger condition. When an alert condition has been confirmed between the PAD and Magnetic Field Generator, the PAD will activate its own alarm. The signal in the Warning Zone will activate an LED light and the sounder will give an alarm in a series of 3 beeps. If the pedestrian is in the Danger Zone, they will receive a continuous alarm from the sounder and the LED light.

## 1.2 Frequency of Operation

The Personal Alarm Device will receive on a frequency of 73 kHz and transmit on a frequency of 916.48 MHz.

### 1.3 Label Information

The Personal Alarm Device label is located on the top housing opposite of the battery-access side. The FCC label is incorporated into the Personal Alarm Device Label.



**Fully Charge Daily**

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**US6,810,353; AU2005289704; ZA2007/02919; ZA2008/02673;**  
**ZA2010/06816, ZA2010/09068 Patent Pending**

## 1.4 FCC/IC Information

The FCC ID for the Personal Alarm Device is QUI-DDAC-PAD and complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received including interference that may cause undesired operation.

Any intentional or unintentional changes or modifications to the configuration of the Personal Alarm Device, not expressly approved by Frederick Energy Products LLC, could void the user's authority to operate the equipment.

*Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:*

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

*Conformité aux normes FCC Cet équipement a été testé trouvé conforme aux limites pour un dispositif numérique de classe B, conformément à la Partie 15 des règlements de la FCC. Ces limites sont conçues pour fournir une protection raisonnable contre les interférences nuisibles dans une installation résidentielle.*

*Cet équipement génère, utilise et peut émettre des fréquences radio et, s'il n'est pas installé et utilisé conformément aux instructions du fabricant, peut causer des interférences nuisibles aux communications radio.*

*Rien ne garantit cependant que l'interférences ne se produira pas dans une installation particulière. Si cet équipement provoque des interférences nuisibles à la réception radio ou de télévision, qui peut être déterminé en comparant et en l'éteignant, l'utilisateur est encouragé à essayer de corriger les interférences par une ou plusieurs des mesures suivantes:*

- Réorienter ou déplacer l'antenne de réception.
- Augmenter la distance entre l'équipement et le récepteur.

--Branchez l'appareil dans une prise sur un circuit différent de celui auquel le récepteur est connecté.

--Consulter le vendeur ou un technicien radio / expérimenté.

*Les changements ou modifications à cet appareil sans expressément approuvée par la partie responsable de conformité pourraient annuler l'autorité de l'utilisateur de faire fonctionner cet équipement.*

The required notices are specified in the RSS documents (including RSS-Gen) applicable to the equipment model. **These notices are required to be shown in a conspicuous location in the user manual for the equipment, or to be displayed on the equipment model. If more than one notice is required, the equipment model(s) to which each notice pertains should be identified.** Suppliers of radio apparatus shall provide notices and user information in **both English and French.**

This device complies with Industry Canada license-exempt RSS-standards(s). Operation is subject to the following two conditions:

- (1) this device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

*Cet appareil est conforme avecx Industrie Canada exempt de licence Rss standard(s). Son fonctionnement est soumis aux deux conditions suivantes:*

- (1) *cet appareil ne peut causer d'interférence, et*
- (2) *cet appareil doit accepter toute interférence, y compris des interférences qui peuvent provoquer un fonctionnement indésirable du périphérique.*

## 2 Operation

### 2.1 Installation Information

The Personal Alarm Device is best worn in a pouch attached to a safety vest. A pouch is provided with a PAD and has two mounting options: Velcro tab or a clip. The Velcro is sewn onto the back of the PAD and the adhesive, hooked portion is to be placed on the vest on the right hand side of the chest. The PAD should be worn near the chest area so that the sounder and light are noticed by the wearer. The LED blinks every 15 seconds to indicate the PAD is powered and operating. **NOTE: THE PAD IS POWERED AT ALL TIMES EXCEPT WHEN ITS BATTERY IS BEING CHARGED.** The PAD should be worn at least 3 inches (75 mm) away from all other electronic devices.

### 2.1.1 Inoperability Warning

When a PAD battery voltage drops to approximately 3.5 Vdc or below while connected to a PAD, the PAD will signal a low battery condition. This alert is two rapid beeps of the sounder every 1.6 seconds. When the PAD determines the battery to have low voltage, the PAD will cease to give zone warnings and will give only a low battery alert. **CAUTION: WHEN A LOW BATTERY IS SIGNALLED, THAT PAD SHOULD NOT BE USED UNTIL ITS BATTERY IS RECHARGED.**

### 2.2 Charging

The 3.7V Li-ion/Polymer is charged from a Wall Charger Power Adapter. Chargers are designed to operate with input voltage from 100 to 240 Vac, 50/60 Hz. Charger connection to the PAD is via a magnetic connector. The charger provides an output current of 1 A at a voltage of 5 Vdc. Charging current control is performed by circuitry on the PAD board. An LED light on the PAD housing blinks “blue” when the battery is charging and changes to solid “blue” when full charge is achieved. When the charger is disconnected, the sounder on the PAD will activate for approx. 2 seconds to indicate it is in proper working order.

The PAD is to be charged daily and connected to the charger over weekends and holidays.

### 2.3 Alerts

The Personal Alarm Device is to be worn on the chest of the pedestrian. The PAD has an LED visual indicator and an 85 dBA minimum sounder designed to alert the user. The LED also blinks every 15 seconds to alert the user that the PAD is in working order. If the battery voltage in the PAD drops to approximately 3.5 Vdc the PAD will signal a low battery condition with two rapid beeps every 1.6 seconds. **NOTE: THE PAD WILL CEASE TO GIVE ZONE WARNINGS WHILE SENDING THE LOW BATTERY ALERT.**

### 2.4 Maintenance

The Lithium Ion Battery in the Personal Alarm Device has a finite life and eventually will need replacement. Battery life is based on the number of times recharged. There are no published data about the exact number of charges the battery can undergo before its life is over, but literature suggests it's at least 300 charges. Batteries in the HIT-NOT® PAD are designed to be replaced by the user. Only use an approved, protected Lithium Ion replacement battery. Contact HIT-NOT for the approved replacement battery list.

A daily check to verify the PAD is functioning visually and audibly is advised. Any PAD can be shown to be working properly by an approaching truck with a generator and verify that a warning is given at the expected distance.

### 2.5 Adjustments

Factory settings of the Personal Alarm Device are expected to be stable and change very little with time. Adjustment capability of the PAD by the user is not available for field use.

## 2.6 Interferences

There are instances when the magnetic field generated from other sources such as an electrical panel, motorized machinery, large conductor cables etc. can generate intermittent alarm signals that are picked up by the Personal Alarm Device. The PAD is designed to be fairly sensitive to pick up the energy from the Magnetic Field Generator though it is also fairly selective. This sensitivity can cause the PAD to be triggered by some sources that are producing a strong magnetic frequency (that happen to fall within our guidelines) if the PAD is very close to the sources usually within a few inches.

If a user should stand against the wall, near a vehicle path, it is advisable that they do so with the PAD sticking furthest away from the wall as the wall may have interference sources such as high current cables or power panels etc. that may silence the PAD.

## 2.7 PAD Specifications

Part Number: DDAC-PAD

Size: 3.81" x 2.92" / 97mm x 74.2mm

Weight: 4.7oz./ 133g

Input Voltage: 3.5 to 4.2 VDC

Magnetic Field Frequency: none

Receiver Frequency: 73 kHz signal

Transmitter Frequency: 916.48 MHz

Transmitter Power: 0.001W (typical)

PAD Battery: 3.7 VDC Lithium Ion

PAD Battery Capacity: 800 mAh

Charging Specifications: 0.75A at 4.25V max

Only use Lithium Ion Battery Charger

Operating Temperature Range: -30°C to + 70°C ; -22°F to 158°F

Environmental Considerations: 85 dBA minimum (DDAC-PAD); 103 dBA minimum (DDAC-PAD-XL)

Shipping Considerations: Contains a Lithium Ion Battery (packed in equipment)

## 3 Warranty

### **HIT-NOT® WARRANTY TERMS AND CONDITIONS**

**IMPORTANT-READ CAREFULLY: BY AND INSTALLING AND USING THE HIT-NOT® SYSTEM, YOU ACKNOWLEDGE AND AGREE TO BE CONTRACTUALLY BOUND BY THESE WARRANTY TERMS AND CONDITIONS. IF ANY OF THE TERMS OF USE ARE NOT ACCEPTABLE TO YOU, DO NOT INSTALL OR USE THE HIT-NOT® SYSTEM.**

**THE HIT-NOT® SYSTEM IS SIMPLY A TOOL TO BE USED TO ASSIST YOU IN SAFELY OPERATING HEAVY EQUIPMENT. THE HIT-NOT® SYSTEM IS NOT INTENDED AS A SUBSTITUTE FOR, NOR DOES IT REPLACE, SAFE PRACTICES IN OPERATING HEAVY EQUIPMENT. YOUR USE OF THE HIT-NOT® SYSTEM IS SOLELY AT YOUR OWN INDEPENDENT DISCRETION AND RISK. THE HIT-NOT® SYSTEM IS NOT GUARANTEED TO PREVENT ACCIDENTS.**

### **ACCEPTANCE AND DEFINITIONS.**

**(A) Acceptance of Terms.** These Warranty Terms and Conditions (these “Terms”) are a legal agreement between You, as a purchaser and end user of the System and Frederick Energy Products, LLC. By installing the System or using the System in any way, You are (1) agreeing to be bound by these Terms. If You do not agree with all these terms, do not use OR INSTALL the SYSTEM. YOU MUST RETURN THE SYSTEM TO THE DEALER FROM WHICH YOU PURCHASED THE SYSTEM, IN ACCORDANCE WITH THE DEALER’S POLICIES. This Agreement constitutes the entire and only agreement between FEP and You and supersedes all prior or contemporaneous agreements, representations, warranties and understandings with respect to the System, and the subject matter of this Agreement.

**(B) Definitions.** In this Agreement, “You” and “Your” refer to You as the user of the System. “FEP” “we,” “us” and “our” refer to Frederick Energy Products, LLC and our successors, partners, affiliates, subsidiaries and assigns. “System” refers to the Hit-Not® System purchased by You. “Terms” refers, collectively, to these Warranty Terms and Conditions.

### **LIMITED WARRANTIES; DISCLAIMER.**

**(A) Limited Warranty.** FEP hereby warrants against: (1) defects in the System, either in workmanship or material, and (2) the failure of the System to conform to FEP’s written specifications, for a period of one (1) year after date of delivery to You, in each case; provided that such System has been under proper and normal use at all times during such period. All warranty claims under these Terms must be submitted through the Dealer from which you purchased the System. FEP’s liability is restricted to the replacement or repair of the defective or nonconforming parts alone and does not include any installation, labor, or expense involved, or other contingent liability. Liability for any components manufactured by third parties but incorporated into FEP Products to be furnished by FEP, shall be limited to the guarantee or liability to FEP of the manufacturer or supplier of such components. FEP is not liable for damages resulting from the use or misuse of the FEP Products.

**(B) Disclaimers.** EXCEPT AS EXPRESSLY SET FORTH ABOVE: (1) NO ADVICE OR INFORMATION, WHETHER ORAL OR WRITTEN, PROVIDED BY OR THROUGH FEP, ANY DEALER OR DISTRIBUTOR, OR ANY THIRD PARTY SHALL IMPLY THE CREATION OF ANY REPRESENTATION OR WARRANTY OF ANY KIND WHATSOEVER BY FEP; (2) THE SYSTEM IS PROVIDED "AS IS" AND WITHOUT ANY WARRANTY OF ANY KIND, EITHER EXPRESS, STATUTORY OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE; (3) FEP DOES NOT REPRESENT OR WARRANT THAT THE SYSTEM WILL BE FUNCTIONAL OR DEFECT-FREE, OR THAT DEFECTS WILL BE CORRECTED; AND (4) FEP HEREBY DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY FOR THE IMPROPER USE OF THE SYSTEM OR FOR THE INCORRECT OR IMPROPER INSTALLATION OF THE SYSTEM. SOME STATES OR OTHER JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES, SO THE ABOVE EXCLUSIONS MAY NOT APPLY TO YOU. UNDER NO CIRCUMSTANCES WILL FEP BE LIABLE FOR ANY LOSS OR DAMAGE CAUSED BY YOUR USE OF THE SYSTEM. USE OF THE SYSTEM IS AT YOUR SOLE RISK.

#### **INDEMNIFICATION; RELEASE; LIMITATION OF LIABILITY.**

**(A) Indemnification.** You agree to indemnify and hold FEP, any and all parent, subsidiary, and affiliate organizations, and their respective officers, directors, agents, shareholders, members, managers, advisors, consultants, employees, successors and assigns (collectively, the "Protected Parties") harmless from and against all losses, costs, liabilities, expenses (including reasonable attorneys' fees and expenses), claims, demands, and damages, actual and consequential, of every kind and nature, known and unknown, suspected and unsuspected, disclosed and undisclosed (collectively, "Losses"), that are in any way due to or arising out of Your use of the System, unless caused by the gross negligence or willful misconduct of FEP. FEP reserves the right, at Your expense, to assume the exclusive defense and control of any matter for which You are required to indemnify any of the Protected Parties, and You agree to cooperate with FEP's defense of such claims. FEP will use reasonable efforts to notify You of any such claim, action, or proceeding which is subject to this indemnification upon FEP becoming aware of it.

**(B) Limitation of Liabilities.** IN NO EVENT SHALL FEP, ITS LICENSORS, SUPPLIERS, CONTENT PROVIDERS OR THEIR RESPECTIVE PARENTS, SUBSIDIARIES, AFFILIATES, OFFICERS, DIRECTORS, SHAREHOLDERS, ADVISORS, CONSULTANTS, EMPLOYEES, SUCCESSORS OR ASSIGNS, BE LIABLE TO YOU OR ANY THIRD PARTY FOR ANY INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR EXEMPLARY DAMAGES (INCLUDING BUT NOT LIMITED TO LOSS OF BUSINESS, PROFITS, USE, REVENUE OR OTHER ECONOMIC ADVANTAGE), ARISING OUT OF OR IN CONNECTION WITH THE SYSTEM OR THESE TERMS BASED ON ANY THEORY, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE LIMITATION OF DAMAGES SET FORTH ABOVE IS A FUNDAMENTAL ELEMENT OF THE BASIS OF THE BARGAIN BETWEEN US AND YOU. THE SYSTEM WOULD NOT BE PROVIDED FOR SALE TO YOU WITHOUT SUCH LIMITATIONS. IN NO EVENT WILL OUR LIABILITY, OR THE LIABILITY OF OUR LICENSORS, AND OUR RESPECTIVE PARENTS, AFFILIATES, SUBSIDIARIES, OFFICERS, DIRECTORS, SHAREHOLDERS, EMPLOYEES, ADVISORS, CONSULTANTS, SUCCESSORS OR ASSIGNS, TO YOU OR ANY THIRD PARTIES IN ANY CIRCUMSTANCE EXCEED ONE HUNDRED DOLLARS (US \$100.00). SOME STATES OR OTHER JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS AND EXCLUSIONS MAY NOT APPLY TO YOU.

**Choice of Law; Dispute Resolution.** The Agreement shall be governed by, and construed in accordance with the laws of the State of Alabama, without regard to its conflicts of law provisions. In the event of any dispute, claim, question or disagreement (“Claim”) between You and FEP arising from or relating to Your use of the System, You and FEP will attempt, in good faith, to resolve any Claim within thirty (30) days after written notice of the Claim. Any Claim not so resolved shall be finally settled by binding arbitration administered by the American Arbitration Association under its Commercial Arbitration Rules, using the Expedited Procedures. Judgment on the award rendered by the arbitrator(s) may be entered in any court of competent jurisdiction. The arbitrator shall be an individual generally skilled in the legal and business aspects of the subject matter of this Agreement. The arbitrator shall have no authority to impose penalties or award punitive damages. The arbitration shall take place in Madison County, Alabama, and the arbitrator shall apply the law of the State of Alabama and applicable rules of evidence. If all parties and the arbitrator agree, arbitration may take place by telephone or by written communication. Unless the arbitrator otherwise directs, the parties, their representatives, other participants, and the arbitrator shall hold the existence, content, and result of the arbitration in confidence. No action, regardless of form, related to the obligations of the parties under this Agreement may be brought by either party against the other more than one (1) year after the cause of action has accrued. In any proceeding to enforce this Agreement, the prevailing party will have the right, in addition to its other rights hereunder, to recover its reasonable litigation costs and reasonable attorneys’ fees.

Nothing in this Section shall preclude any party from seeking equitable relief from a court of competent jurisdiction or exercising any self-help remedies, whether before, during or after the pendency of any arbitration proceeding. The parties agree that taking any such action does not waive any right that either party has to demand arbitration at any time with respect to subsequent or amended disputes claimed or filed against a party after commencement of litigation. BY AGREEING TO THESE TERMS AND CONDITIONS, ALL PARTIES AGREE TO WAIVE ANY RIGHTS TO A JURY OR COURT TRIAL. If any provision of this dispute resolution procedure is held invalid or unenforceable, the remaining provisions shall remain in full force and shall not be affected by the invalidity of any other provision.

By tapping "Accept", you again agree and confirm that you have read and understood these Terms of Service and the [Disclaimer](#).

[Accept](#)

**V. Entire Agreement; Assignment; Miscellaneous.** These Terms constitute the complete and exclusive statement of the agreement between You and us. It supersedes any and all prior or contemporaneous agreement, oral or written, and any other communications, representations, warranties and understanding relating to the subject matter hereof. If there is a conflict between an oral or written representation of any FEP employee or agent, or any Dealer or Distributor employee or agent, and these Terms, these Terms will prevail. These Terms will prevail over other rules and policies on the System. Our failure to enforce any provision of these terms shall not be deemed either a waiver of such provision or a waiver of the right to enforce such provision. If any provision of these Terms is held by an arbitrator or court of competent jurisdiction to be contrary to law, then such provision shall be construed, as nearly as possible, to reflect the intentions of the parties and the other provisions shall remain in full force and effect. The provision of these Terms which, by their terms should survive termination or expiration of these Terms, shall survive the termination or expiration hereof. FEP may

assign this Agreement to any other entity of its choosing, with or without notice to You. You may not assign these Terms to any other party without the prior written consent of FEP. FEP shall not be deemed to have waived any of its rights or remedies unless such waiver is in writing and signed by FEP. No delay or omission on the part of FEP in exercising any rights or remedies shall operate as a waiver of such rights or remedies or any other rights or remedies on future occasions. The section titles in these Terms are solely used for the convenience of the parties and have no legal or contractual significance.

**END OF HIT-NOT® WARRANTY TERMS AND CONDITIONS**

## **4 Revision History**

### **4.1 Version 1.0 – April 25, 2019**

Original Release. No revision history.