



ARINAlert™

Collision Avoidance Alerting System for forklift operators

User Manual and Product Information



Congratulations on purchasing a ARINAlert™ system

Now that you have purchased a ARINAlert system, please review this document to make sure that the different parts of the system are installed properly and are functioning properly before use every time a forklift is started or a pedestrian enters a forklift area with a pedestrian tag.

This document explains how each part of the system works. You may have different components depending on what you have purchased.

Important: *The ARINAlert system is designed to provide a forklift operator with information to the presence of other ARINAlert tagged items such as other forklifts or pedestrians who have the ARINAlert units i.e. FMU or Ped Tags. The ARINAlert does not replace the need for the forklift operator and pedestrian to use their judgement and either stop a forklift or get out of the way fo a forklift if a collision is imminent. The ARINAlert system is simply an aid to the forklift operator and is not a safety system that can control the forklift's operation.*



Warranty, Limitation of Liability, Indemnification and Terms of Sale

IMPORTANT-READ CAREFULLY:BY AND INSTALLING AND USING THE ARINAlert™ 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 ARINAlert™ SYSTEM. THE ARINAlert™ SYSTEM IS SIMPLY A TOOL TO BE USED TO ASSIST YOU IN SAFELY OPERATING HEAVY EQUIPMENT. THE ARINAlert™ SYSTEM IS NOT INTENDED AS A SUBSTITUTE FOR, NOR DOES IT REPLACE, SAFE PRACTICES IN OPERATING HEAVY EQUIPMENT. YOUR USE OF THE ARINAlert™ SYSTEM IS SOLELY AT YOUR OWN INDEPENDENT DISCRETION AND RISK.

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 ARIN Technologies Inc. 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 ARIN Technologies 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. “ARIN” “we,” “us” and “our” refer to ARIN Technologies Inc. and our successors, partners, affiliates, subsidiaries and assigns. “System” refers to the ARINAlert System purchased by You. “Terms” refers, collectively, to these Warranty Terms and Conditions.

LIMITED WARRANTIES; DISCLAIMER.

(A)Limited Warranty. ARIN hereby warrants against defects in the System, either in workmanship or material, developing under proper and normal use of the System for a period of one (1) year after date of delivery to You. All warranty claims under these Terms must be submitted through the Dealer from which you purchased the System.

(B)Disclaimers. EXCEPT AS EXPRESSLY SET FORTH ABOVE: (1) NO ADVICE OR INFORMATION, WHETHER ORAL OR WRITTEN, PROVIDED BY OR THROUGH ARIN, ANY DEALER OR DISTRIBUTOR, OR ANY THIRD PARTY SHALL IMPLY THE CREATION OF ANY REPRESENTATION OR WARRANTY OF ANY KIND WHATSOEVER BY ARIN; (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) ARIN DOES NOT REPRESENT OR WARRANT THAT THE SYSTEM WILL BE FUNCTIONAL OR DEFECT-FREE, OR THAT DEFECTS WILL BE CORRECTED; AND (4) ARIN 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 ARIN 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 ARIN, 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 ARIN. ARIN 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 ARIN’s defense of such claims. ARIN will use reasonable efforts to notify You of any such claim, action, or proceeding which is subject to this indemnification upon ARIN becoming aware of it.

(B) Limitation of Liabilities. IN NO EVENT SHALL ARIN, 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.



Warranty, Limitation of Liability, Indemnification and Terms of Sale

Contd.

CHOICE OF LAW; DISPUTE RESOLUTION. The Agreement shall be governed by, and construed in accordance with the laws of the Commonwealth of Pennsylvania, without regard to its conflicts of law provisions. In the event of any dispute, claim, question or disagreement ("Claim") between You and ARIN arising from or relating to Your use of the System, You and ARIN 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 Allegheny County, Pennsylvania, and the arbitrator shall apply the law of the Commonwealth of Pennsylvania 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.

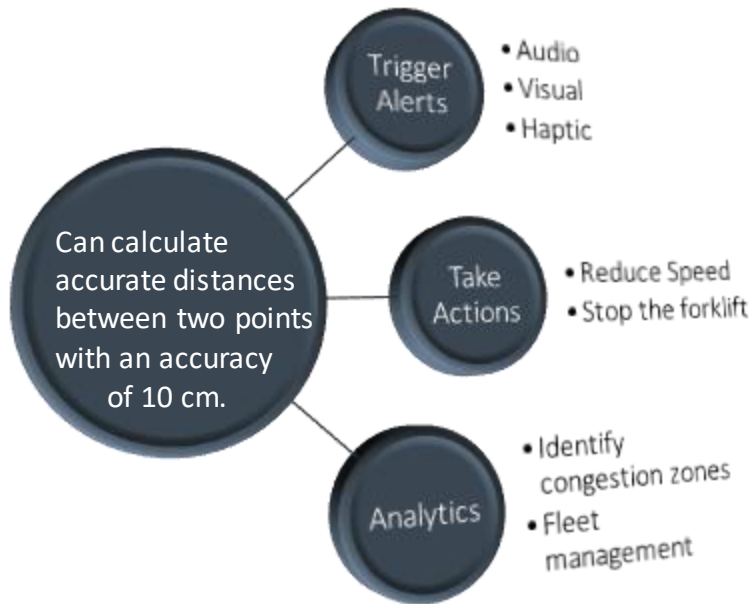
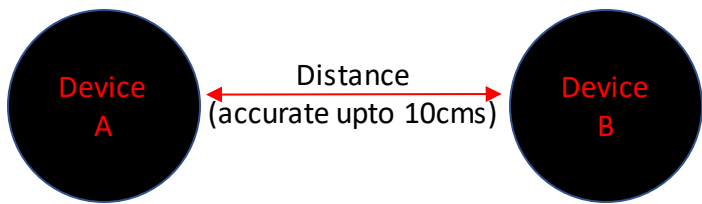
Nothing in this Section shall preclude any party from seeking equitable relief from a court of competent jurisdiction or exercising any self-help remedies, whether before, during or after the pendency of any arbitration proceeding. The parties agree that taking any such action does not waive any right 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.

This agreement may be provided in electronic format. **Your installation of the ARINAlert™ system implies the acceptance of this warranty, limitation of liability, indemnification and terms of sale.**

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 ARIN 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. ARIN 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 ARIN. ARIN shall not be deemed to have waived any of its rights or remedies unless such waiver is in writing and signed by ARIN. No delay or omission on the part of ARIN 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.



Our Core Technology





What is ARINAlert™?

- ARINAlert™ is a **Collision Alerting System** for Powered Industrial Trucks (PIT) **operators**. ex, *Forklifts, Scissor lifts, Reach trucks etc.*
- Alerts for
 - Other Trucks and lifts in its vicinity.
 - Pedestrians* and personnel* on the shop floor in proximity.
 - Valuable Assets* and High accident-prone Machinery*.
- Type of Alert
 - Intuitive Traffic-light type Signaling system for Visual Alerts.
 - Self-adjusting and configurable Alarms for Audible Alerts.



**devices have to be tagged with ARIN's PPE Tags.*



Forklift Monitoring Unit



- Forklift Monitoring Unit (FMU) – Physical device that gets attached to the Powered Industrial Trucks.
- FMU is attached to the Roll-cage of Trucks with simple Clamps and/or Zip-ties.
- Common Automotive connectors for Power-in, and Alerting devices like Light-bars & speakers. Meaning you can *never go wrong* with installing the Forklift Monitoring Units.
- **The FMU has to be checked to be operational each time a forklift operator starts the forklift. The best ways to test operation of FMU is**
 - **Using a pedestrian tag to ensure that the warning and danger alerts are provided**



Pedestrian Tag



- Pedestrian tags (PEDs) are wearable *active** Person Protection Equipment (PPE) provided by ARIN.
- All Personnel, Assets, machinery are to be "*tagged*" with PEDs to be alerted by the Forklift Monitoring Units (FMUs).
- **The pedestrian tag must be tested to ensure proper operation. The way to test a pedestrian tag is to bring it close to a FMU and ensure that the alerts are provided as explained in the FMU page**

**active – The PEDs require power to function and are designed to last for 16 hour double shifts on a full battery charge. The PEDs must be charged with ARIN's Charging stations or standard micro USB cables between shifts.*



Zone alert modifiers



- Certain Areas on the shop floor may require Reduced or no-alerts, for, eg, in case of highly congested areas like Loading areas or when the Lifts are parked at the end of operations.
- With ARINAlert, it is possible to modify Alerting behavior using Zone Alert Modifiers. Simply install Zone Modifier devices to the area where you want modified Alerts from defaults.

Without Zone Devices



With Zone Devices





Zone alert modifiers – *Available Now*

ARINAlert now provides with the following Zone Alert Modifiers

1. Silent Zone – It shuts off Alerting when FMU is within this zone. *Useful in Parking areas.*
2. Loading Zone – Reduces the audible alert frequency to 2 beeps per 5 seconds. *Useful in high congested areas like loading areas.*



Area Monitor - ARINAlertX



- ARINAlert-X is a forklift presence monitoring system for blind-corners and cross-aisles.
- Provides personnel and other PITs on the floor with visual alerts to presence of PIT around the corner.
- Influences behavior to reduce collisions by creating situational awareness.
- The Area Monitor unit is mounted at the accident-prone corners and cross-aisles. It requires to be wall-powered.
- The PITs are required to be “*tagged*” with ARIN’s FLT units.



Charging Station



- ARIN's Charging station can recharge up-to 5 PEDs at once. It is designed for seamless charging, just drop the tag into a slot and forget about it.
- The charging base is expandable by adding multiple charging stations per requirements of the customer and number of PEDs in use.



Driver Alerts

- Stack light
 - Intuitive traffic light convention
 - Green: no tagged item is in close proximity. System is functioning.
 - Yellow: a tagged item is within warning range. Typically, this distance is 2 meters beyond the tip of the forks and/or aligned with the blue light if one is installed. Red: a tagged item is within the danger range. Stop immediately!
- Beeper
 - 2 Hz: a tagged item is within warning range.
 - 4 Hz: a tagged item is within danger range.
- Any changes to the warning and danger distance have to be performed by an authorized and trained representative of ARIN Technologies.



Driver Alerts – *a visualization*



Alert when a tagged item is within the **Warning** range



Alert when a tagged item is within the **Danger** range



Driver Alerts – special behaviors

- ***All Three lights (Yellow, Green & Red) blink several times, but no Audible alert***
 - **When ?** This occurs when a PED device is within the Driver Zone.
 - **Why ?** This is how we identify the operator and pair them with PIT.

- ***All Three lights (Yellow, Green & Red) blink continuously, but no Audible alert***
 - **When ?** This occurs when a PED device is within the Driver Zone.
 - **Why ?** A conversation is allowed with the operator already paired with the PIT.



Installation

ARINAlert

- The ARINAlert Forklift Monitoring unit is mounted directly to the roll-cage of the Forklifts using Clamps and/or zip-ties.
- The Unit is powered by the PIT battery. It can take a wide range of voltages from 12v* up-to 60v*.
- The Alerting devices such as Light-bars and Buzzers can be attached to the insides of PIT providing an unobstructed view to the operator.

ARINAlert-X

- The ARINAlert-X Area Monitoring Unit is mounted at the highly accident-prone intersections or cross-aisles. These require to be wall-powered. The input power for the Area Monitoring unit is 110-120V AC

** Please make sure that your forklift unit is not designed to operate on a fixed voltage. Some units may be fixed voltage at 12V input only. This may cause damage to the light bar or to the buzzer.*



What can I configure ?

The following parameters can be configured on-the-fly, without having to take down the physical hardware.

- **Radii** – *Distance for different zones to trigger different Alert behaviors.* Self radius
 - Warning radius
 - Danger radius
 - Driver radius
- **Pairing time** – *In case of pairing driver with PIT, how long should you wait before making a decision on the driver.*
- **Beeper toggle** – *Turn the beeper on and off, if the beeper is present.*
- **Conversation toggle** – *In situations where people on the floor are close proximity to the driver, we can silence the beeper to allow talking. This depends on the Customer's process in place.*

These should be configured by an ARIN Technologies trained and authorized person only and be documented as authorized by the buyer of the system.



So, What does a Base System look like ?

ARINAlert - Collision Avoidance System



ARINAlertX – Corner Monitoring System

