



Actall Corporation

ISO 9001:2015 Certified

ATLAS

System Specification

2018

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ATLAS Personal Alarm Locating System System Specifications

PERSONAL DURESS SYSTEM

Purpose:

The Personal Alarm System shall provide a means for the wearer to summon help in a security or life-threatening situation

Summary:

Provide an Integrated Personal Alarm Locating System of the type, size, capacity, and characteristics as indicated herein. Program system and assign device/zone numbers as per bid documents and owner's directives. All systems, products, and equipment shall be rated for 24-hour per day continuous operation. Equipment shall be rated for operation at 110V, 60Hz AC power, unless otherwise noted. All devices exposed to traffic in secure areas shall be in high impact housings with tamper proof screws.

The Personal Alarm System shall be capable of functioning as either a stand-alone system or as an integrated sub system with an interface to the Electronics Control System (ECS) so that the other systems are prompted for support as necessary. The System shall be capable of interfacing to the ECS via Ethernet, Serial connections or dry contacts to allow display and acknowledgement of alarms on the main system.

General:

The system shall operate using Radio Frequency (RF) technologies only. Systems using an alternate technology (or hybrid technologies) shall not be acceptable. Alarms shall be received from all of the secure areas of the building, as defined by the owner. Due to the variations in system layouts, exact locations of devices may not be shown on the drawings. Locating devices should be able to locate Persons carrying Heavy Duty Tags in the following areas:

- 1) Dayrooms
- 2) Kitchen
- 3) Laundry
- 4) Program areas
- 5) (add as Required)

Acceptable Technologies: The Personal Alarm Locating System shall be the ATLAS System as manufactured by Actall Corporation or approved equal.

Operational Overview:

The system shall continuously supervise all devices specified herein. If a fault occurs, the CPU and alarm software will indicate an alarm function on screen. It shall be possible, via system software, to visually read out which component in the system is at fault, also indicating date and time of that fault. Systems without full supervision and reporting of faults via software will not be accepted.

System shall provide the capability (through software programming) to allow individual buildings to receive only alarms associated with that building at their respective Monitoring Stations so as not to disturb or disrupt other buildings during an alarm situation. System shall also provide the capability to transmit all alarms to the control center(s) for full site wide alarm status via wireless transmissions to the Managed Gateways and then by Ethernet to the Monitoring Center.

System devices and HDTs shall be field programmable through the use of hardware and/or software provided by the Manufacturer. No components of the system shall require disassembly in order to change features of software programming parameters. The system shall have remote programming capabilities via a commercially available remote access program preinstalled on an Administrative CPU and remote access provided by means of internet connectivity or dial up modem.

Basis of Design:

This system is designed using the ATLAS Duress System, as manufactured by Actall Corporation. The system includes personal mobile transmitters (HDTs) that are worn on by the staff and RFID locators (LDNs) positioned in the ceilings or walls on opposite sides of ingress and egress points between zones within the facility. Throughout daily activities, HDTs will transmit their ID number to the LDNs as the wearer passes underneath. LDNs will then wirelessly transmit the PMT ID to the appropriate Managed Gateway (MGEs), which then shall send that data to the Monitoring Center Location Server via Ethernet. The Location Server will translate the available LDN information to determine the location of the HDT and report that to the Monitoring Center Display CPU. Upon alarm activation, HDTs will transmit an ID number and status to the Monitoring Center servers. The Monitoring Center servers will interpret this data to correspond to a specific HDT and location.

Normal Operation:

HDTs will be permanently assigned to all staff and contractors where duress or emergency situations may occur in the facility. Staff shall be able to initiate an alarm when using the HDT by utilizing the push button, pull cord or man down options. Visitors to the facility shall be issued HDTs on a temporary basis while inside the institution or facility. HDTs can be worn using the attached belt clip, the belt or shoulder (epaulet) holster, neck straps or by placing the device in a shirt or pants pocket. If the HDT is placed in a pocket, care should be used to affix the clip to the pocket to prevent accidentally triggering the man down alarm (if applicable).

Once issued and activated, the HDT will detect that it does not have network configuration data. The HDT will then transmit a message to the network to determine which MGEs are in range. The HDT will listen to all of the MGE responses and choose a Gateway that represents the best quality signal as its contact point to the Monitoring Center CPUs. When searching for a network connection, the HDT

will give the wearer a visual indication of that condition. Once a network is located, the visual indication will distinctly change.

The HDTs are powered with a commercially available, disposable Lithium Ion battery. The normal life of the battery will be 6 to 9 months, dependent upon the features used by the HDT and the duty assignment of the person using the device. A low battery indication will also be transmitted to the Alert Monitoring Center for replacement, and a visual indicator will be present upon the HDT itself. Upon a low battery condition, the HDT will still operate for approximately 7 days. Spare batteries can be stocked and distributed at the issuance point for easy replacement by the user or control officer.

Locating Device Nodes (LDNs) are located throughout the facility. Each LDN will be installed (per manufacturer's instructions) both inside and outside of the ingress/egress points between the desired location zones. Multiple LDNs may be installed inside of single zones for additional granularity. HDTs will be programmed to emit a ping message every .5 to 1.0 seconds. As HDTs pass underneath LDNs, the ID number of the HDT is wirelessly transmitted to the LDN and then wirelessly to the nearest MGE. The ID numbers of the HDT and the LDN are then transmitted via Ethernet to the Monitoring CPU and logged in the system. Certain LDNs will be capable of operating as test points throughout the facility. Alarm messages received from HDT whose location resolves to a test point LDN will not display as an active alarm in the Crisis Controller software.

The Personal Alarm Locating System shall have the capability to download all system information and data via Ethernet to Main Alarm Monitoring Computer. This will allow selected personnel to monitor selected areas for alarm activity generated throughout the day. All individual systems must be compatible with the system and software at the main monitoring CPU.

Administrative Operations:

The HDT issuance point will be the location where spare transmitters and batteries are stocked. It may also be necessary to issue HDTs to visitors from this location (staff will need to have the ability to add/update personal information on any person utilizing the HDT). In addition, all persons assigned to a HDT should routinely test the unit at the issuance point. If their identity has been changed or the unit swapped, a name change will be required within the alarm database.

Issuing HDTs will normally be performed on a dedicated, administrative workstation at a predetermined point and not on the main alarm computer in the Control Center. This will prevent alarm reception from being interrupted or delayed by system administration activities.

The system will be designed to provide comprehensive and periodic reports. Monthly summary reports shall, at a minimum, provide alarm totals for a desired period and alarm distribution by category (incident type). Other periodic reports shall include device detail reports and a HDT assignment report.

Emergency Operation:

The Control Center will receive all alarms. Additional Remote Alert Monitoring Centers may provide alarm notification locally in multiple building applications or campus type environment. The system shall transmit all alarms back to the main control CPU via Ethernet from the MGEs. With no HDTs in

alarm, a site plan will be displayed on the CPU Monitor. The system will continuously supervise all HDTs, Fixed Point Transmitters, LDNs and MGEs.

Employees with HDTs will be able to activate alarms via Pushbutton (PANIC), Pull Cord or Tilt Switch (Man Down). Each alarm type shall be capable of operating independently, and each shall send a unique alarm code to the Monitoring Computer. When an alarm is activated, a tone will sound on the speakers attached to the Monitoring Center Server designed to display that alarm. The alarm icon will blink red when the appropriate alarm event is chosen via mouse. The alarm details will be displayed in text form (Date/Time, Name, Current and Previous Location, Alarm Type, Unit ID and Alarm Status) on the Monitoring Center Server and the software shall be capable of loading the appropriate graphic map displaying the alarm location. If the mapping option is chosen, a flashing icon will be displayed within the zone indicated by the alarm. The software shall log the alarm data into the database and shall have the capability of printing the data on a local printer.

The control officer shall click the “acknowledge” icon on the monitor to silence the tone if programmed to do so. A solid icon will now be displayed at the alarm location. The control officer may reset and clear the alarm event as soon as it is categorized. If the device condition has not cleared after the alarm has been reset, the alarm will clear in the Active Alarm window and appear in the Queue Alarm window, until the device condition has been cleared. After resetting the alarm, the alert monitoring screen shall automatically return to normal operational mode if no other alarms are pending and/or active.

Submittals: As per Engineer’s specifications and/or requirements.

Quality Assurance: As per Engineer’s specifications and/or requirements.

- Installer: Qualified with at least five (5) successful installations on projects with personal alarm system work similar to that required for this project. Contractor must be a fully authorized dealer of Actall Corporation products and trained by Manufacturer. Proof of authorization shall accompany all documents. Contractor must show proof of trained technical personnel as per Manufacturer’s requirements.
- Contractor: Approved Contractor shall contract with Manufacturer to perform a RF site survey in order to verify coverage from LDNs to Managed Gateways. Site test will determine proper system configuration and number of LDNs to cover all areas that are specified on the plans. A report of this test shall be provided to the Owner.

Project Conditions: As per Engineer’s specifications and/or requirements.

Sequencing and Scheduling: As per Engineer’s specifications and/or requirements.

Extra Materials: The following shall be a recommended spare parts list to be delivered upon installation of the system:

Manufacturers:

Subject to compliance with requirements, provide equipment and components including, but not limited to, the following items manufactured by Actall Corporation. The system supplied shall be the Personal Alarm Locating System ATLAS. Systems specified above shall have no substitutions unless otherwise directed by the engineer or owner.

- 1 60350 ATLAS Monitoring Center
- 2 60001 Heavy Duty Tag (HDT)
- 3 60003-C Ceiling LDN
- 4 60003-W Wall LDN
- 5 60004 Managed Gateway
- 6 70700 Rackmount Switch
- 7 70500 Alarm Printer, Laser Jet
- 8 91901 Page Alert 2 Watt Transmitter
- 9 90149 Motorola Advisor Gold Pager
- 10 47102 3V lithium battery, PMT, one per unit
- 11 40301 Nylon Holster
- 12 60850 Solar Panel with Battery Pack in Weather Resistant Enclosure w/mount
- 13 47206 Barcode Reader
- 14 91919 Dipole Antenna
- 15 70310 Alert Communicator Modem 56Kbps
- 16 35100 Alert Remote Diagnostics Communications Software Program

60001 Heavy Duty Tag (HDT): The HDT shall be capable of UHF radio transmissions upon alarm activation. Each HDT shall transmit alarms over a single channel at 900 MHz, in accordance with the device configuration received from the local MGE. HDTs shall be small, compact, and lightweight units. The HDT housing shall be constructed of durable, high impact plastic. HDTs shall also be capable of transmitting ID information over 2.4 GHz radio to provide location to determine the location of the unit.

HDTs shall use one (1) standard 3V lithium battery. Battery life shall be approximately 2,160 hours per unit or 6 to 9 months based on an 8 hour per day usage (also dependent upon features used). Systems requiring special order batteries or NiCad rechargeable batteries to achieve the above mentioned life will not be acceptable. HDT shall indicate low battery condition to the Crisis Controller software when batteries are to be replaced, and shall provide a visual notification to the HDT wearer.

The HDT shall regularly transmit a status message to the monitoring software to notify the system of a malfunction. If a status message is not received within a programmable time frame, an alarm will be displayed in the monitoring software. Systems not utilizing fully supervised HDTs will not be acceptable. The HDT shall be programmable without disassembling the unit.

Address Capacity:

The HDT shall be given an address between 1 and 65,535 inclusive. It shall also be capable of being

assigned a proprietary house code or "System ID", which will facilitate reusing the same radio frequency with overlapping coverage areas without losing any address capacity or interfering with other HDTs of multiple systems.

Actuation of Alarms: The HDT shall provide three ways to start an alarm transmission sequence.

Panic Button Operation: Pressing the recessed red button on the HDT shall activate a push button alarm and send an alarm notification to the Monitoring Center CPU.

Pull Cord Operation: Detaching the lanyard from the HDT body will activate a Pull Cord alarm and send an alarm notification to the Monitoring Center CPU.

Man Down Operation: If the HDT is tilted by more than 60 degrees from a vertical position (it is tilted by 90 degrees when lying on its side), the device will pause for a user programmed period of time, prior to sending out warning. Warning tones will then be sent out for a programmed period of time, tones to alert the user that their device is about to go into alarm. If the HDT is not returned to upright prior to the end of the warning tones, then an alarm will be sent. This preT tone shall assist in eliminating false alarms when the unit is tilted upright and no emergency situation has taken place.

It shall be possible to eliminate/deactivate the Man Down features, both in hardware and software.

Provide _____ PMTs and _____ extra batteries. Provide _____ Nylon Holsters for PMT.

60003 Locating Device Node (LDN): Location Device Nodes shall be powered by 12 -18VDC. Each LDN shall draw no more than 40mA. LDNs can be programmed to a maximum of 65,535 different ID codes via a hardware interface. Each code will be associated with a zone or distinct area that will relate to the software program to a specific data entry when an alarm transmission is received from a HDT. No data or home run wiring is required for these units to properly function. Each unit can be powered separately or in parallel on the same supply circuit. LDNs will receive ID information from the HDT sent at 2.4 GHz, and relay that information wirelessly to the appropriate Managed Gateway at 900MHz. LDNs are designed to mount onto standard, Two Gang (US) electrical boxes. Depth of electrical boxes shall be capable of housing a transformer to power a Locator when required.

60350 ATLAS Monitoring Center: The Alert Monitoring Center shall control the entire Personal Alarm Locating System and shall include a Data Server CPU(Location Engine), the Alarm Server CPU, Crisis Controller software package, 48 port switch (use additional switches if necessary) and optional software modules.

Both central computers (Location Engine and Alarm Server) shall be IBM compatible, Intel Core i7 2.8 GHz processors (minimum), 4GB DDR3 Ram, 250 GB hard drive, DVD-RW, integrated Video, Sound and P/S2 bus mouse, and Keyboard. The system shall have at least one gigabit Ethernet port, one serial port, one parallel port and two USB ports. The system shall also have VGA, DVI and/or HDMI video outputs. The operating system shall be Windows 2008 Server or Windows 7. All Alert Communicator Boards (for utilizing for up to 8 additional COM ports) may be installed and programmed into the system for expanding the number of available serial ports for external devices.

A minimum 56K modem may be installed into the system for off-site remote diagnostics, programming and system upgrades to the system. Monitor shall be upgradeable to a larger touch screen without further modifications to the software program.

System shall be equipped with an alarm printer that will print hard copies of all alarms, acknowledgments, system faults, dates and times of alarms, and shall be compatible with system software. It shall be possible through the alarm software to generate special reports relating to a particular alarm date, which shall include all data and mapping relating to that particular incident. Reports can be viewed through the report menu on the software or printed on the alarm printer.

The Alert Monitoring Center shall have the capability of utilizing a Barcode Reader to activate or deactivate HDTs. A bar code on the HDT will indicate ID code of the unit and a bar code on a nametag will indicate the person's name and other pertinent information that is needed to update the software.

Provide uninterrupted power supply (UPS) or battery backup on computer system and all modules within the ATLAS System for a minimum of 1 hour in the case of power failure.

The registry keys of the Alert Monitoring Center shall be modified to eliminate the capabilities of accessing non-related Windows screens, icons, games, exiting capabilities, or other software program within the operator or admin levels.

91901 Page Alert Transmitter: An Alpha Numeric Paging system shall be provided to alert administrative staff and response teams to all alarms generated by the ATLAS System. The paging system shall display information regarding the alarm on individual Alpha Numeric Pagers. This information shall include alarm ID code, the person's name, present and previous locations, and type of alarm (such as push button, pull cord, and/or manT down).

Paging system shall provide no less than 2 watts of output power for site coverage. Frequency shall be in the 450T 470MHz FCC band allocated as a "Shared Use Frequency Band" to provide immediate installation of equipment without the need of FCC licensing. Paging system shall provide the capability for 100 alphanumeric pagers.

90419 Alpha Numeric Pagers: System shall provide Alpha Numeric Pagers to notify alarm response personnel in the event of an alarm. Receivers shall be small, compact units that have the capability to be placed in a belt clip type holder. Unit shall provide a minimum of a 4 line, 120 character display that can be scrolled to view alarm information, date/time, 8 selectable audible alerts, silent vibration mode, built in audible alarm clock, and a programmable on/off feature. Units shall operate on a standard single AA battery.

60850 Solar Panel: System shall provide a Solar Panel module for the operation of RF Locator devices and Wireless RF Repeaters where power is not available. Solar panel shall provide sufficient voltage to power the attached unit(s) continuously. Solar Panels shall be housed in weather resistant housing and shall have provisions for different mounting hardware for poles, walls, and fences.

35100 Remote Diagnostics Software Program: Provide a remote diagnostics and maintenance

program that will directly interface with the Alert Monitoring Center for remote communications to factory or contractor for software modifications, updates, data storage, and backups. A 56K bps data modem shall be provided for the CPU for communications setup between onsite Alert Monitoring Center and offsite diagnostics CPU. The Facility shall provide a direct Telco line for connection to the modem.

Alarm Monitoring Software (AMS) Description:

General Operation:

The AMS must be compatible with all equipment or components specified herein. It shall be written for ease of operation by the user and for installation and initial programming by the contractor. The AMS shall include at least three different operating levels. The AMS shall be fully compatible with Windows® 2008 Server or Windows 7 and shall be preprogrammed to prevent unauthorized use of other software on the CPU. System software shall provide network capabilities between Alert Monitoring Centers. When an alarm is received, the date and time of the alarm, the person who sent the alarm and where the alarm came from shall be displayed in plain text. The display also includes the person's previous location to assist in determining the direction in which the person was moving. The type of alarm shall also display (push button and/or man-down) in text. All alarms will automatically be displayed in graphical form on the screen. Alarms shall be acknowledged and reset from the PC keyboard or mouse, or directly on a touch screen. Historical alarm data shall be stored on the CPU for retrieval at a later date or can be printed for hard copy storage. It shall be possible to print lists of all associated system equipment such as LDNs and MGEs on the alarm printer. Graphical drawings of the installation shall be stored on the CPU. These drawings shall be easily edited or new drawings produced with a compatible editing program that reads ". BMP and/or .JPG" formats. Maps shall be sized to a resolution suitable for viewing on a 24" monitor at a distance of Y feet. Icons indicating locations of all alarm points on maps shall be easily added, deleted, or moved by touch screen, keyboard, or mouse without any outside editing program. Icons indicating items such as transmitters and LDNs, shall also be programmable into the graphics screen. It shall be possible to indicate and verify all equipment locations on the maps for servicing and maintenance.

The AMS shall be capable of programming certain parameters of the PMTs and other devices at any time. The AMS shall also be capable of accepting a barcode reader device that will activate/deactivate PMTs using code 128 type barcodes.

The AMS shall provide real time Guard Tour capabilities. This shall be accomplished without the need of additional hardware to the system and shall utilize standard PMT, LDNs and Gateways.

AMS Pointing Device Modes: The AMS shall provide two pointing device modes: touch screen and standard mouse/keyboard.

Touch Screen Mode: Provide a 24" touch screen monitor. Use touch screen controller as the primary pointing device, but permit simultaneous use of a mouse, trackball, or other secondary pointing device. Size touch screen views to accommodate graphical mapping formats. Also include window title bars, menu bars, or task bars relating to the AMS only (refer to sample screen graphic accompanying these specifications for an illustration).

Mouse/Keyboard Mode: Provide a 24" SVGA monitor. Use mouse, trackball, or other pointing device as the primary pointing device. Software program should be consistent with the standard Windows® user interface taking full advantage of its multiple windows, control objects, toolbars, menus, and other features. The AMS shall restrict users in the operator and administrator modes to only the appropriate screen and shall not have access to the standard Windows® programs.

AMS User Levels: Provide a minimum of three user levels based on user name and password.

Administrative Level: Shall be able to log HDTs in/out of the system to update AMS program. This level will have access to associating personnel ID's and HDT numbers for HDT activation or deactivation. Do not permit access to functions relating to operating system, configuration menus, or other applications outside the AMS. Upon check in of HDT and check in screen, each unit logging into the system for operational assurance can perform a test function.

Operator Level: Shall be able to access to alarm monitoring screen for full monitoring privileges via touch screen shall be permitted. Do not permit access to functions relating to operating system, configuration menus, or other applications outside the AMS. If programmed by a supervisor, allow tab functions for viewing Tracking, System status, Pager status, and Day/Night operation. Allow access to print item or list tabs. Alarm status window shall have an acknowledgment and reset button for the operator to confirm all alarms.

Supervisor Level: Shall be able to access all AMS features and functionalities.

AMS Login/Logout:

- A. Display a dialog box to enter user name and password.
- B. Mask password field for privacy.
- C. Store preferences by user name and automatically restore user's individual preference upon login.
- D. Display current user's name in status bar.

AMS Main Menu: The AMS will provide an intuitive program menu to facilitate programming of all System devices and features. Menus shall have similar operation to those commonly found in most Windows based products.

AMS Alarm Monitoring Tabs: The AMS will group different alarm monitoring screens in a tabbed format for ease of access.

Network Support: The AMS shall have the capability of networking multiple monitoring/admin stations to utilize a networked database on the located on the Main Monitoring system. The AMS shall be capable of supporting up to 10 CPUs attached to a common set of data files located on a network server.

Screen Layout:

Screen Design: Design each view with consistent elements. In order from top to bottom include AMS

Main Menu, AMS Alarm Monitoring Tabs, Alarm Monitoring Information Window, map area, and status bars.

Building Plan Designs: Draw building plans showing walls with a 50% gray scale laid over a 10% gray scale background. Place both elements on top of a white background. Within floor plan delineated and label alarm zones using ideal zone boundaries. Use room labels and other label nomenclature most meaningful to the user.

3-D Icons and Buttons: Provide a three-dimensional affect for all buttons, icons, queues/lists, toolbars, status bars, and other objects by surrounding object with color-paired borders that create a raised or sunken appearance, consistent with a light source to the upper-left of the screen.

Button/icon designs: Use button/icon designs with clip art that shall be intuitive to the user. Provide both visual and color cues (for color-blind users) to represent state changes.

Installation: As per Engineer's specifications and/or requirements.

Field Quality Control: After installation of the Personal Alarm Locating System, and prior to point-by-point performance testing, perform the necessary adjustments and balancing of all signals and levels to ensure proper system operation and compliance with requirements. If proper system operation and compliance with requirements is not achieved, correct malfunctioning units at site by making necessary changes or remove and replace with new units. Then proceed with necessary re-adjustment and re-balancing of all signals and levels to ensure proper system operation and compliance with requirements. Functionally test all LDNs, Managed Gateways, RF coverage, other hardware interconnections, and all interfaces to the ATLAS System.

Point-by-Point Performance Testing: Perform a thorough, point-by-point operational test including system integration to other systems when applicable. Demonstrate software performance and system reporting in accordance with owner's requirements and all previous owners review comments. Demonstrate complete functionality of all integrated ATLAS System functions. Perform a site test to determine RF coverage from HDTs to receivers. Site test will determine proper system configuration to cover area that is specified on the plans for coverage and to determine the repeater network for proper and reliable operation. If test results are not in compliance with requirements, make necessary changes, corrections, repairs, or adjustments at no additional cost and arrange for another pointT byT point performance test. This process shall continue until the systems are acceptable to the owner.