



Actall Corporation

ISO 9001:2008 Certified

PALS[®]

**PERSONAL ALARM LOCATING SYSTEM
SYSTEM DESCRIPTION**

REAL TIME LOCATION
STAFF SAFETY SYSTEMS

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Actall Security Products
2360 Lawrence St.
Denver, CO 80205
Phone: 303-226-4799
Fax: 303-650-4523
Email: support@actallsp.com

For technical assistance, please call 303-226-4799 during regular business hours (Monday through Friday, 8:00 a.m. to 5:00 p.m. Mountain Standard Time)
or Email: support@actallsp.com

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PERSONAL ALARM LOCATING SYSTEM (PALS®) OVERVIEW

Actall Security Product's Personal Alarm Locating System is a mobile personal alarm system based upon a 900MHz spread spectrum radio frequency. The Crisis Controller Monitoring Software is a proprietary monitoring software system covered by U.S. Patent No.: 5,708,417. The software is Windows® XP Professional operating system compatible and is capable of handling over 65,000 transmitters. Alarm messages are transmitted from a Personal Mobile Transmitters (PMT) or fixed position alarm devices to a Central Monitoring CPU. Upon receipt, the alarm information is displayed showing Date/Time of Alarm, Person/Position sending the alarm, Current and Previous Location, Alarm Type and ID Number. Each PMT records location information by receiving digital IDs transmitted via infrared to a receiver in the top of each PMT. Each PMT stores the two most recently received location ID codes. That location information is transmitted via RF to the Monitoring Station, along with the individual Identification code that is unique to that unit. The Crisis Controller Software includes a User Interface that displays alarm data and a site map showing location of the alarm. Additional software features include staff tracking, Guard Tour, both Serial data and hard contact outputs, paging interface, two way radio interface, bar code functionality for activating/deactivating PMTs and networking capabilities for multiple monitoring/admin stations. The software fully supervises all RF hardware equipment for fault indication. The CPU comes with Windows® XP Professional and Crisis Controller®™ software installed.

WITH THE PALS® IT IS POSSIBLE TO:

- Receive, display, acknowledge, and reset alarms.
- Automatically notify supervisory personnel via Alpha Numeric pagers of alarm activation.
- Manually generate page messages to site personnel.
- Play an audio file over two way radio systems for alarm annunciation.
- Graphically display facility and alarm locations.
- Activate CCTV, intercoms, relays or other third party hardware/software via RS232.
- Generate printouts from a local or network printer.
- Program PMTs and other ASP products.
- Configure full network systems and multiple CPUs.
- Initiate Guard Tour and Staff Tracking features (optional).
- Integrate "Follow Me Audio" and "Follow Me Video" features (optional).

PALS® can be used as an independent system or can be interfaced into proprietary or open source touch screen systems. Additional workstations can be used independently or as a part of a fully networked system.

OPERATIONAL NARRATIVE

An alarm is transmitted from a PMT or a fixed alarm device. The alarm signal contains the identity of the alarm transmitter, type of alarm, device status and the last two location IDs stored by the transmitter.

A PMT alarm can be activated in multiple ways: (1) by pressing the alarm push button on the transmitter, (2) by detaching the break away pull cord from the bearer or (3) by an automatic man down alarm if the person is knocked down. Each type of alarm is sent as a separate transmission.

Once received, the data relating to the alarm is displayed on the Main Monitoring Computer, as well as any satellite Monitoring CPUs in monitoring mode. These alarms can also be printed. It is also possible to activate CCTV, voice audio systems, lamps, and relays from the alarm computer via ASCII data output and/or contact outputs.

The Crisis Controller software has several optional modules including Alpha Numeric Paging, two way radio system interface, activation of Form C contact outputs, receipt of hard wired inputs from Form C contacts and bar code functionality to activate/deactivate PMTs.

Received alarms can be manually acknowledged and reset by control room operators. Alarms can also be automatically acknowledged and reset within the Crisis Controller software or via any touch screen system interfaced to the Main Monitor.

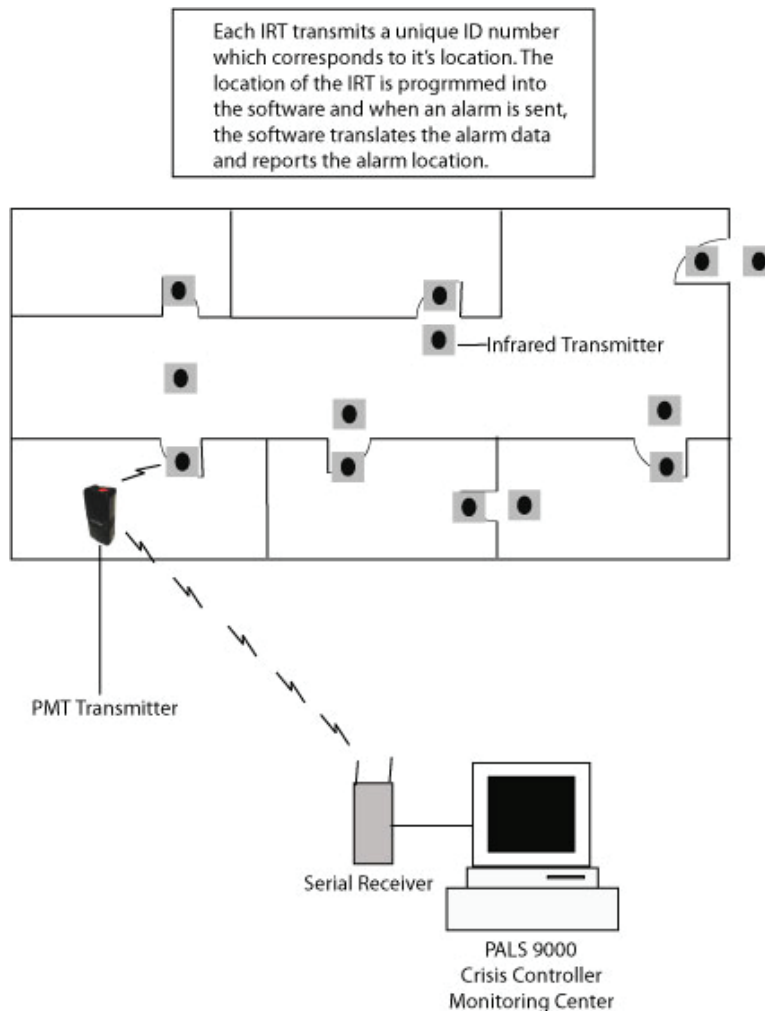
Full supervision of all RF devices is included in the system. A system fault alarm is generated if a malfunction occurs in a system module or transmitter. Alarm data regarding the problem is displayed on a computer monitor and can be printed.

LOCATOR FUNCTIONALITY

The PMT receives and stores locator code IDs from an infrared transmitter (IRT) as the PMT passes underneath the IRT. The locator code is transmitted using infrared light from LEDs affixed to the IRT. The locators are generally ceiling mounted on opposite sides of Ingress/Egress points between secure zones, or in places where more accurate location identification is required. The number of zones/locators should be determined by the accuracy required by your Response Team(s).

IRTs are powered via a local 12 – 18 VDC source and do not rely on data runs back to the Monitoring Center for proper operation. In most cases, it is possible to achieve a greater degree of accuracy at a cheaper Total Ownership Cost than systems using Ultrasonic or pure RF methodologies.

ASP manufactures an IR Lapel Reader (Part number 60110) that plugs directly into the PMT. The Lapel Reader is intended to be used in conjunction with the PMT in situations where the transmitter is covered by clothing. The Lapel Reader is easily attached to clothing to allow the PMT to more easily read the locator IDs.

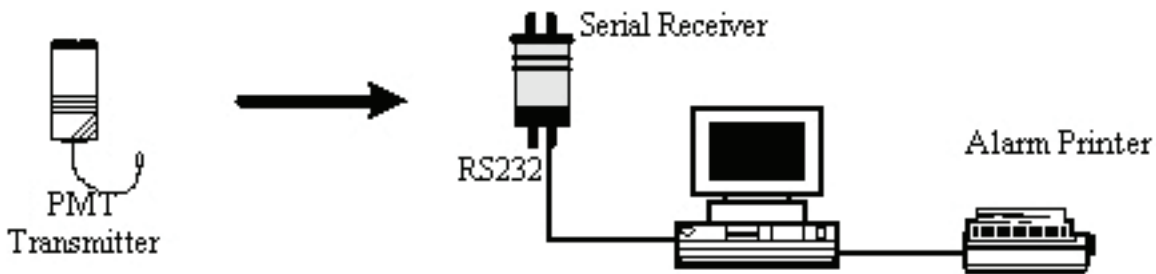


Although Infrared is a line of sight technology, the manner in which ASP utilizes this technology greatly mitigates the possibility that a Locator ID will not be read. Once the PMT sees an IRT Locator it stores the location code and does not require additional contact with the IR device. The stored location information is transmitted via RF to the Monitoring Station, ensuring accurate alarm receipt. This is fundamentally different than other IR systems that do require constant IRT contact.

The overall design concept of PALS® is to simplify the installation and labor costs of the entire system. The Crisis Controller™ software is capable of monitoring over 65,000 transmitters and is easily expanded to accommodate facility additions and remodels. Basic system components are Personal Mobile Transmitters, Infrared Transmitters, Wireless Repeaters, Serial Receiver(s), and a Main Monitoring Computer. Wireless RF Locators can be added for systems requiring indoor and outdoor location determination.

BASIC SYSTEMS

An alarm is transmitted from a PMT to a fixed serial receiver (generally via Repeaters) which is connected to the PALS® Alert Monitoring Center. The data signal received is converted by the Crisis Controller™ software and the alarm information is displayed both graphically and in text form.

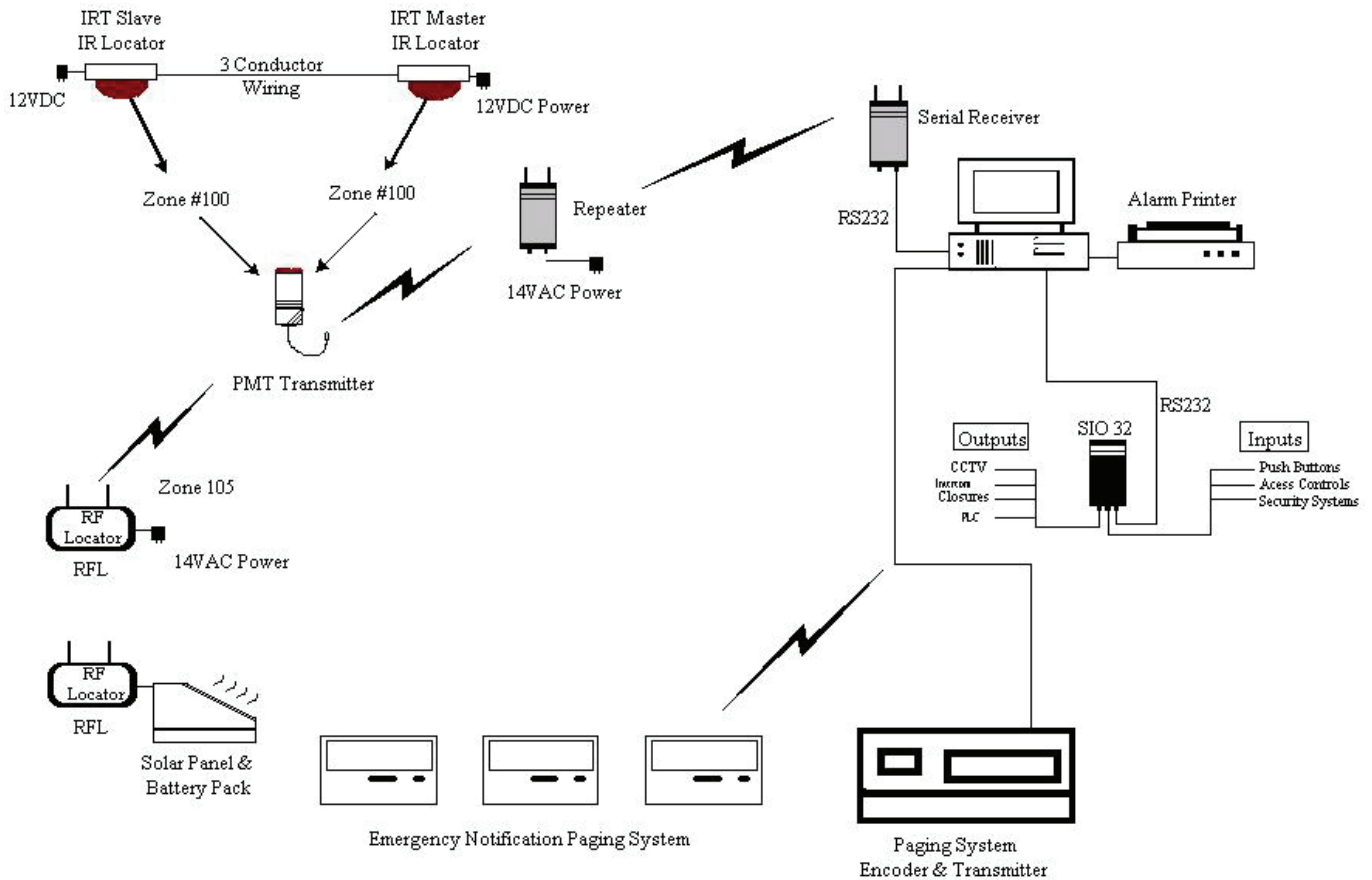


The Serial Receiver is connected to the Alert Monitoring Center via an RS232 interface. The Crisis Controller™ software displays the alarm data (including location, user identification and alarm type) and shows the location on graphical maps tailored for your facility. Received alarms can be manually or automatically acknowledged and reset. The software also includes functions for device supervision and system configuration.

In addition, the software is supervised by a Serial Watchdog. The Serial Watchdog bidirectionally monitors data passing from and to the Serial Receiver; if the Watchdog fails to detect any signal for a preprogrammed period, it will reboot the CPU, activate a tone, and close a contact relay to trigger an additional alarm. The Serial Watchdog will wait up to three minutes before rebooting the system again. This ensures the software is continuously monitoring for alarms.

EXPANDED SYSTEMS

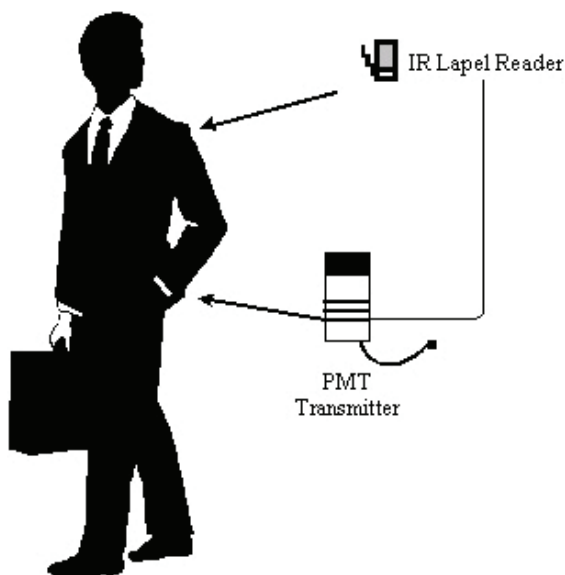
A system can be expanded to include alarm input/output modules, paging, intercom stations, multiple computers, multiple receivers, CCTV, and printers. When multiple alarm computers are connected in a system, each alarm computer can be individually programmed for the alarms it is to receive and how they are to be acted upon.



When programmed with a paging system, pagers can be worn by staff personnel or response teams for immediate alarm information. The alarm information includes ID of the person, current and previous location of the unit, type of alarm, and a date/time stamp. Pagers can be manually paged while in the Alarm Monitoring mode. A page can include a text message up to 120 characters on the text receiver.

60011 PERSONAL MOBILE TRANSMITTER (PMT)

The PMT utilizes multiple transmissions at the frequencies 902 – 928 MHz to send an alarm in the event of an emergency. Alarms on the PMT can be activated via a recessed push button, a detachable pull cord, and a man down switch that is activated when the device is tilted. The PMT transmits supervisory messages on a regular basis (programmable) that are received by the Monitoring Center. The PMTs use a standard 3V lithium ion battery.



Actall®'s 60110 IR Lapel Reader can also be worn with the PMT. The Lapel Reader is used in conjunction with the PMT in situations where it can be inadvertently covered by clothing. The Lapel Reader is easily attached to clothing for increased and efficient location designation.

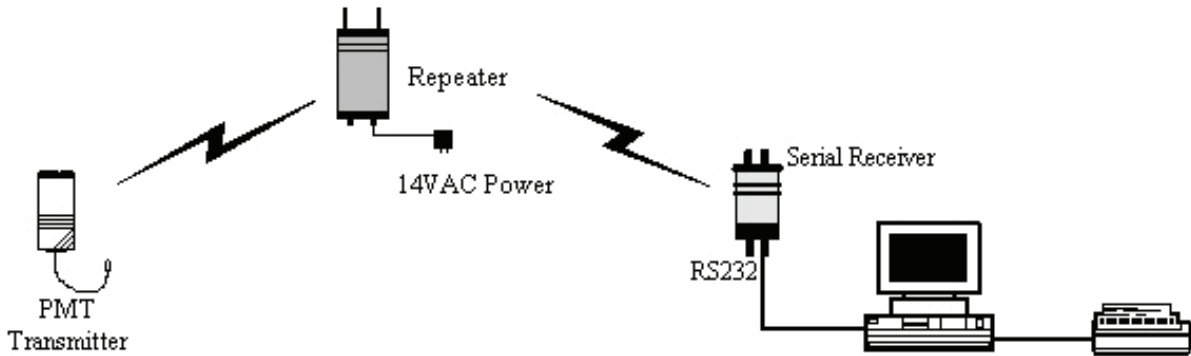
60201 SERIAL RECEIVER

The Serial Receiver connects to the Alert Monitoring Center via RS232 interface and is fully supervised by the Crisis Controller©™ software. ASP recommends that the Serial Receiver be installed not more than 100 feet from the monitoring computer. Receivers can be installed at greater distances utilizing a serial line driver.



60220 WIRELESS REPEATER

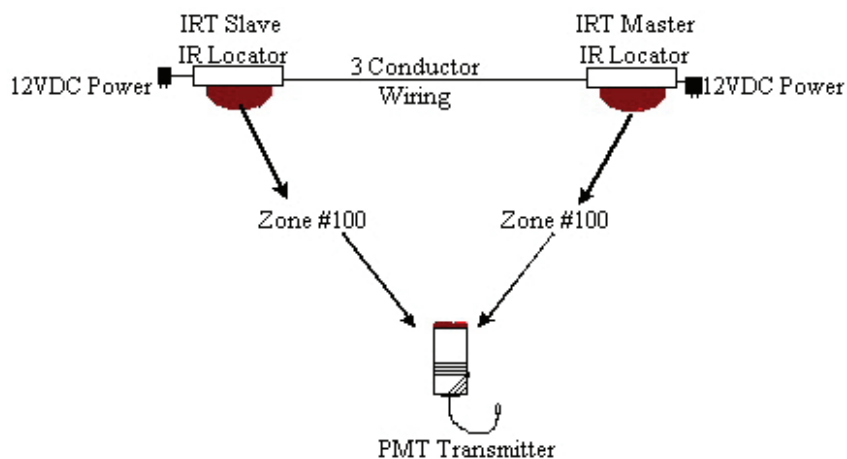
The Wireless Repeater increases the transmission range of PMTs and other fixed point transmitters. The Wireless Repeaters can cover very large areas for increased RF reception. It is also fully supervised for a low battery condition, tamper, and inactivity.



60401 MASTER IRT-M LOCATOR & 60402 SLAVE IRT-S LOCATOR

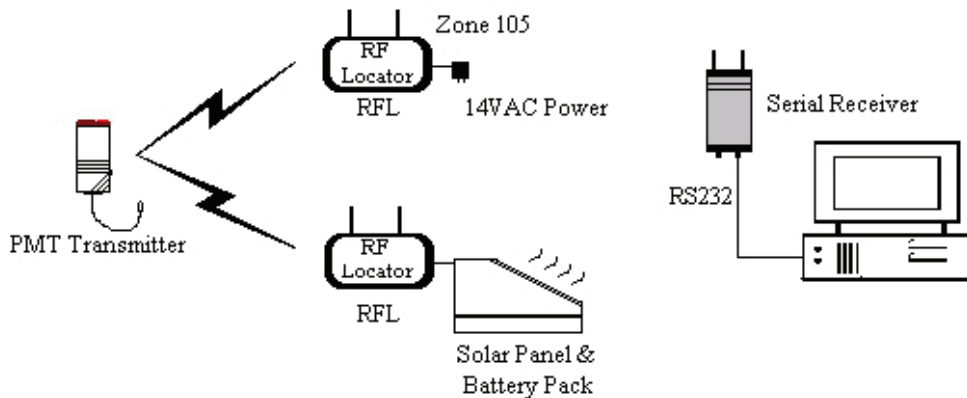
The Master and Slave Locators transmit a code with infrared light that is received by the PMT. The code is used to identify the location of the PMT and this code is transmitted when an alarm is activated. The Locators operate on localized power and do not require any data runs to the Central computer to properly operate. The IRT code is easily programmed with a hand-held programmer (ASP Part 60703). The Crisis Controller software is capable of monitoring over 65,000 distinct ID codes.

Slave Locators are connected to Master Locators by data wiring to provide a single ID code for larger areas not covered completely by a single IRT. The Slave Locators can be wired in series with each other from a single Master Locator. Wiring distances can be run approximately 400 feet between the farthest Slave and the Master Locator.



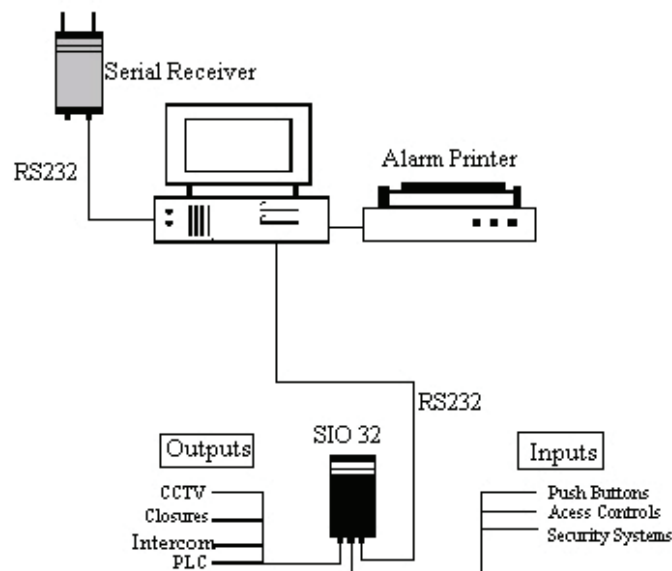
60221 WIRELESS RF LOCATOR

The RF Locator is used to indicate alarms outdoor zones or larger areas where IRT Locators cannot be used. When RF Locators receive an alarm signal from a transmitter, it retransmits the signal with the ID code of the RFL attached. Zones can be set for approximately 40 to 300 feet. The RF Locator is easy to install utilizing local power. RF Locators are also fully supervised for a low battery condition, tamper, and inactivity and can utilize battery backup.



60610 SIO32 ALARM MODULE

The Alarm Module allows 32 inputs or outputs per module or a combination of both. These input/output (I/O) contacts are programmable in blocks of 8 to allow hard wired inputs such as push buttons, alarm points, temperature sensitive equipment, windows, and door security to alarm the Crisis Controller[®]™ software. It can also generate output control to integrated security systems, intercom systems, alarms, CCTV, and much more. All I/O ports are programmed by the Crisis Controller[®]™ software. Up to 8 modules can be linked together allowing for 256 points per serial port. Multiple serial ports can be utilized for additional points up to 2,048. The Alarm Module and all points are fully supervised for any malfunction. Fixed alarm devices can connect to the inputs on the Alarm Module. Each input can be individually programmed. When an alarm occurs, the Alarm Module sends the information to the Crisis Controller[®]™ software and it is displayed.



60701 PALS©[®] PMT PROGRAMMER

The PMT Programmer is used to program options and features into the PMTs. It is connected to the PALS©[®] Alert Monitoring Center with an RS232 interface. The PMT Programmer is easily connected to the PMT with a simple plug-in connector. Easy to use parameters in the Crisis Controller©[™] software offers the installer or programmer fast and efficient on-site programming capabilities.

60703 IRT LOCATOR TEST UNIT

The Test Unit is used for programming IRT Locators and testing ID codes from installed IRT Locators. The Test Unit is portable and is battery powered with a standard 3V lithium ion battery (same battery as PMT).

STAFF TRACKING

The Crisis Controller software has an optional Staff Tracking feature which allows approved system operators to search for personnel utilizing the PMTs. With this functionality, a PMT or person can be selected and a map of the facility will display the current location of the individual and the last Locator that was passed. An icon of the transmitter will move on the map as the selected PMT reads a new IRT. This feature requires a specific setting within the PMT firmware to properly operate.

GUARD TOUR

The Crisis Controller software has optional Guard Tour functionality for monitoring specific Guard Routes in your facility. With this feature, the Crisis Controller[®]™ software is programmed to set time limits for specific PMTs to travel between IRTs. Personnel carrying specifically assigned PMTs are monitored by the system as they cover the route. The system tracks the order of the IRT Locators that are reported and monitors the time interval between stations; deviation from the allotted time between stations or from the route prescribed causes an alarm. All Guard Tour alarms will be displayed on the Crisis Controller[®]™ software with a graphical map to show locations.

TWO WAY INTERCOM INTERFACE

A Stentofon two-way audio system can be directly connected with a data protocol interface module to the PALS[®] Alert Monitoring Center. When using this feature, intercom stations can be automatically opened when an alarm situation occurs. This will allow the central control operator an immediate voice path so assessment of the alarm condition can be determined.

CCTV CAMERA SWITCHERS

CCTV cameras can also be initiated to review the situation and can be recorded with a DVR upon activation of an alarm transmitter.



This generalized system description of the PALS[®] is provided as a guideline to system design and configuration for all types of installations. In all instances where RF equipment is to be installed, Actall Security Products requires a site survey to determine proper RF coverage, placement, and quantities of equipment. An authorized and trained dealer, engineer, consultant, or ASP personnel should perform system design and proper configuration of all life safety systems.



MADE IN THE USA

Actall Corporation
2360 Lawrence Street
Denver, CO 80205
Phone: 303-226-4799 Fax: 303-650-4523