

Handheld LF Exciter

Configuration & User Guide - Part Number: 5-HLA00125

Elpas

Active RFID Visibility Solutions

Introduction

The Elpas Handheld LF Exciter (HHLF) from is an ultra-miniature, LF Exciter designed for acute care hospitals, geriatric/nursing care facilities or pediatric units. The device provides on-duty healthcare personnel with an effective, low-cost, easy-to-use tool for performing ad-hoc patient/asset match and association tests, canceling nurse/patient-calls or for triggering entrance or exit monitoring applications.

The Elpas Handheld LF Exciter emits a harmless, low power; sphere shaped magnetic (125 KHz) field whenever its large oversized button is pressed. Thus whenever a staff member pushes the exciter's button within a 0 - 30cm (0.0 to 11.8 inches)* radius of a patient/asset bearing an Elpas active RFID tag, the exciter will trigger the mobile tag to immediately transmit data messages. The data is instantly detected, interpreted and relayed by the legacy Elpas RF reader infrastructure as required in support of the configured medical application.



Worn as a neck lanyard, the Handheld LF Exciter is enclosed in a shower proof, IP-64 water-rated black ABS outer housing. Powered by a single commercially available lithium battery (CR-2430 or equivalent), the LF Exciter provides approximately three years of service before needing replacement. The device is shipped with a pre-attached neck lanyard and one lithium battery.

*NOTES:

- 1 The effective range of the LF field may vary due to the relative orientation of the exciter to the tag/badge.
- 2 The HHLF will generate the LF field only as long as the 'Operation' button remains constantly pressed.
- 3 Elpas tags and/or badges manufactured prior to January 2009 are not designed to properly operate with the Handheld LF Exciter.



CAUTION: It is important that you read, understand, and follow the instructions in this document. If you have questions, call your local VT support representative.

Technical Specifications

Electrical	
Field Technology	125KHz, Low frequency electromagnetic fields
Power Source	Lithium 3V / 900mA (CR 2430 or equivalent)
Battery Life	3 years (typical usage)
Red LED Indicator	Constant: Button press Flashing (once per sec.): Improper ID address Flashing (every 0.5 sec.): Low battery condition
Output Format	3 byte messages
LF Field Range	From 0 to 30cm (0.0 to 11.8 inches) radius Range may vary due to the relative orientation of the exciter to the tag/badge
LF Transmission Rate	Continuous bursts of LF emissions while button is pressed (each about 12ms in duration)
Exciter ID code	Set by on-board 8 position DIP-switch
General	
Construction	Black, ABS plastic
Housing	IP64 water rated enclosure
Dimensions (H x W x D)	34mm x 40mm x 15mm (1.3 inches x 1.6 inches x 0.6 inches)
Weight	40g (1.4 ounces.) including lanyard & battery
Operational Temp.	0°C to 50°C (32°F to 122°F)
Humidity	80% maximum, non-condensing
Remote Management	EIRIS 4.5 or higher enterprise software
Compliance Standards	EN 300 330-1, EN-301 489-1, EN-301 489-3, EN50130-4, IEC 60950-1, EN 60950-1
FCC Approvals	FCC approvals pending
Warranty	One year limited warranty

Ordering Information

Part #	Description
5-HLA00125	Handheld LF Exciter (North American Usage Only)
5-PBA90003	3V/600mAh Lithium Battery, CR2450 (25 pcs)

Battery Replacement

The HHLF normally provides about 3 years of continuous use. Should the device fail to generate a LF field or behaves unpredictably, replace the battery. This typically solves most problems.

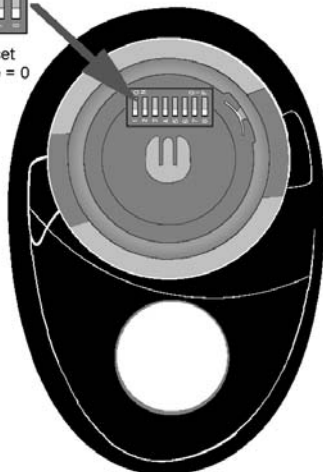
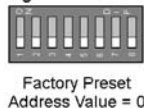
1. Purchase a new 3V lithium battery (CR2430). Then temporarily disable the HHLF in the EIRIS software.
2. Place a coin in the slot of the battery cover. Turn the coin anti-clockwise as far as you can; the cover will become slightly raised.
3. Remove the cover; take out the worn-out battery from the HHLF and dispose of it in line with local ordinances.
4. Position a new battery with the positive (+) side up and reposition the battery cover.
5. Place a coin in the slot of the battery cover and turn clockwise as far as you can until you hear a click confirming closure. Finally, using EIRIS, .re-enable the HHLF.



ID Address Setup

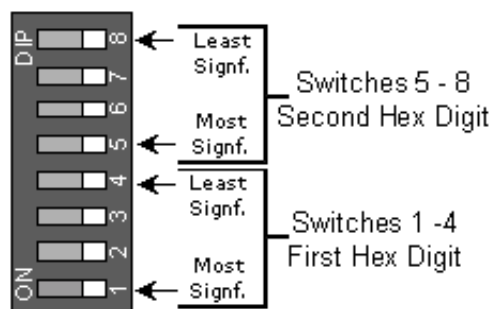
Each Handheld LF Exciter must be assigned a unique ID Address (Neuron ID Number) in order for EIRIS to identify the device. It is vital that the ID Address assigned to a HHLF does not conflict with the ID Address of any other fixed or handheld LF exciters already registered in the EIRIS database.

DIP Switches for Setting Exciter Address



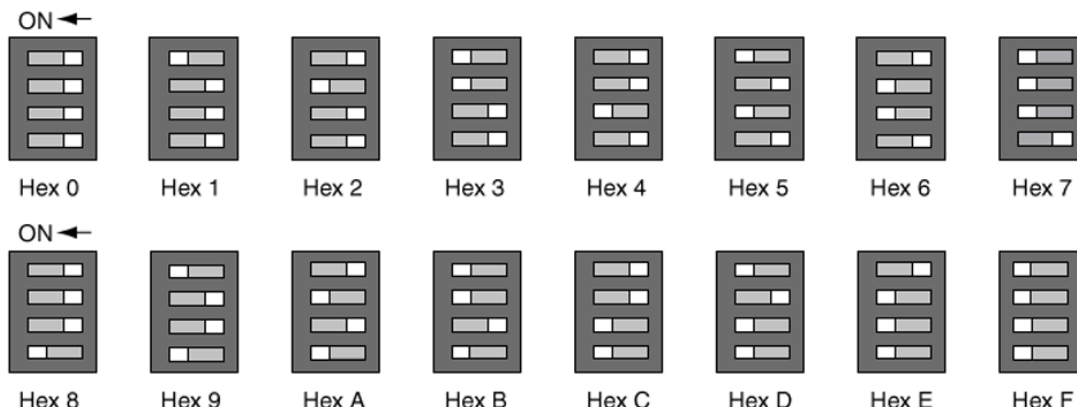
Each HHLF is shipped from the factory with all 8 DIP switches set to OFF. Remove the battery from the HHLF. Then use the DIP switches to set the device's ID address.

The ID address is configured using a binary coded hexadecimal number. Switches 1-4 (high nibble) are used to set the first hexadecimal digit while switches 5-8 (low nibble) are used to set the second hexadecimal digit.

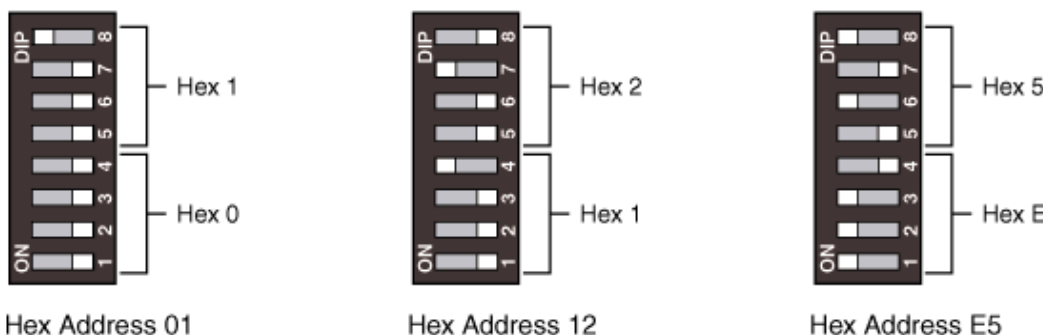


Together, the two hexadecimal digits provide a total of 256 possible ID addresses.

The figure below shows how to set the hex digitals '0' to 'F'




Below are three examples of addresses set in hexadecimal:

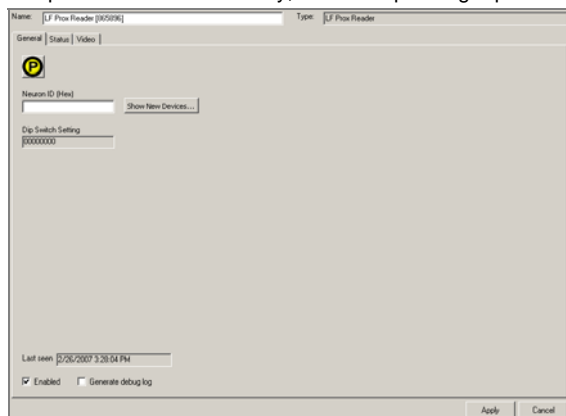


NOTE: Certain ID Addresses are not acceptable and should avoid being used on any HHLF. These addresses are: **13, 35, 4B, 4D, 5C, B8, D5** and **DC**. If any unacceptable addresses are used, the exciter's red LED indicator will continually flash plus its intended cancel functionality will not work.

HHLF Registration in EIRIS

Prior to configuration, each Handheld LF Exciter needs to be registered in the EIRIS database using the device's Neuron ID Number in order to make it possible for EIRIS to recognize the device. Ensure that the ID address assigned to each HHLF does not conflict with the ID address of any other fixed or handheld LF exciters in the system.

1. Start the **EIRS Server**; launch EV2 and access **Setup** mode.
2. Access the Components tab in the Object Tab pane. Right-click on the **All Readers** branch of the component tree; Select **Add By Type**; the Add Object box appears.
3. Select the **Elpas LF Prox Reader**  icon and press **Add**; a new Elpas LF prox reader sub-branch (with default name) appears in the components tree. Additionally, the corresponding Elpas LF Prox Reader configuration form appears.



4. On the General tab, update the **Name** of the HHLF so that it will stand for the device's intended usage as described below:
 - **For Nurse Call Cancellation:** The name of the HHLF matches the caregiver that is issued the device.
 - **For Baby Tag/HHLF Match Tests:** The name of the HHLF represents the mother that is issued the devices.
 - **For Baby Tag/Mother Tag Match Tests:** The name of the HHLF matches the caregiver that is issued the device.
5. Enter the **Neuron ID Number** (the hexadecimal digits) that corresponds to the ID address of the selected HHLF.
6. Press **Apply**; the registration details of the selected HHLF are saved to the EIRIS database.

Using the Handheld LF Exciter to Cancel a Nurse Call

Elpas healthcare tags are often used as wireless, portable patient call-buttons in healthcare and assisted living environments. When a patient/resident summons assistance using their assigned Elpas tag, EIRIS will immediately display and trigger the applicable visual and audible call indicators as well as the relevant messaging options. EIRIS continues generating these call-indicators and messaging options till the patient-call is closed by the responding caregiver using the HHLF remotely at the patient's actual location. This type of localized nurse call cancellation is accomplished by having the caregiver press the call-cancellation button on their assigned HHLF during the time actual assistance is being rendered. Upon receipt of the call cancellation event, EIRIS will close the call, record the identity of the responding caregiver and generate a time-stamp documenting the point-in-time assistance was provided.

Prerequisites

Before configuring EIRIS to support nurse call cancellation using the HHLF, verify that the following software prerequisites are satisfied:

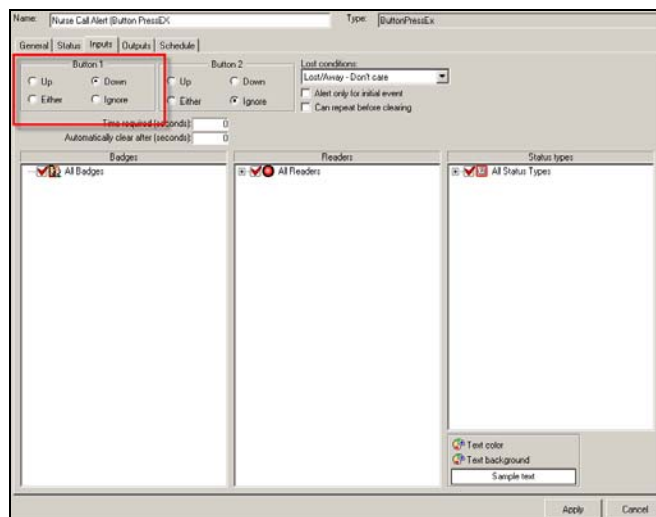
- Make sure that the **NurseCall.dll** (Nurse Call extension) is installed in the EIRIS Extensions folder (typically: C:\Eiris\41srv\Data\Extensions) and that a proper license for the extension has been acquired.
- Register the needed Handheld LF Exciters in the EIRIS database. Ensure that the chosen **Names** of the HHLFs match the caregivers that will use them.

Configuration Procedure

To configure EIRIS so that a Handheld LF Exciter can be used to cancel a nurse call, you will need to define a Nurse Call and HHLF Cancellation alert as well as the subsequent Cancel Auto-Action.

Step 1 - Define a Nurse Call Alert

1. Using the **ButtonPressEX Alert**, on the Inputs form select the **Button 1 Down** option.
2. Select the following **Input** components options:
 - All patient/resident tags
 - All Readers
 - All Status Types
3. Define the **Clients, Outputs & Alert Messages** as required.



Step 2- Define an HHLF Cancellation Alert

- Using the **Location Alert**, on the Inputs form select **All Patient Tags, All HHLFs & all Status Types**.

- Enter **10** in the 'Automatically Close After' value field.

Step 3 - Define a Call Cancel Auto-Action

- Configure an **HHLF Call Cancel** auto-action to close the Nurse Call alert when a HHLF Call Cancel Alert is triggered.
- Using the Calls form; select the **Nurse Call Alert** in the Call Alerts list pane.
- Using the **Cancellation** form select the **HHLF Call Cancellation Alert** in the Cancellation Alerts list pane.

- Enable the **Call & Cancellation IDs Must Match** option. This ensures that if multiple Nurse Call Alerts are open, the responding nurse will only close the related patient call.

Having Mothers Perform Match Tests using the Handheld LF Exciter

EIRIS has long supported Mother/Baby match tests. In this usage scenario, each new mother is given a HHLF that has been pre-matched to the specific Elpas Infant Protection Bracelet that was affixed to her baby at the time of birth. Random Match Tests can be performed whenever deemed necessary by simply having the mother press the match-test button on her assigned HHLF while she is with the baby in question. EIRIS will automatically validate whether or not the mother is in fact with the correct baby. If the match test is successful, (the mother is with the correct baby), the green lamp of a nearby visual indicator (such as the Elpas Signal Tower) immediately illuminates for approximately 10 seconds. Should the match test fail, (the mother is with a baby other than her own) the red lamp of the visual indicator will illuminate for approximately 10 seconds.

Configuration Prerequisites

Before configuring EIRIS to support mother initiated Mother/Baby Match Tests using the HHLF, verify that the following software prerequisites are satisfied:

- Make sure that the **BadgeMatch.dll** (Badge Match extension) is in the EIRIS Extensions folder (typically: C:\Eiris\41srv\Data\Extensions) and that a proper license for the extension has been acquired.
- Register the needed Handheld LF Exciters into the EIRIS database. Ensure that the chosen **Names** of the HHLFs can easily represent the particular mothers that will use them.

Configuration Procedure

To configure the Handheld LF Exciter so that it can be used to perform Mother/Baby Match, it will be essential that separate, Success and Failure alerts be defined for each of the corresponding Baby Tag/HHLF pairs. Consequently, if twenty (20) different Baby Tag/HHLF pairs are registered in EIRIS, then 20 of each alert type must also be defined.

Step 1- Define a Success Alert

- Using the **Location Alert**, on the Inputs form select the specific **Baby Tag** and the specific **HHLF** that the alert is for. Also choose **All Status Types**.

- Enter **10** in the 'Automatically Close After' time value field.

- On the **Outputs** form, select the **Success Outputs** that will trigger the green lamps on the related visual indicators.

- Double-click on the chosen **Success Outputs** and for each one, set the output duration to **10 seconds**.
- Repeat **Steps 1-4** for each additional Baby Tag/HHLF pair.

Step 2- Define a Failure Alert

The Failure alert is the same as the Success Alert except that you select all the other baby tags and not the associated baby tag.

1. Using the **Location Alert**, on the Inputs form select all the non-associated baby tags and the specific HHLF that this failure alert is for. Also choose **All Status Types**.

2. Enter **10** in the 'Automatically Close After' time value field.

3. On the **Outputs** form, select the **Failure Outputs** that will trigger the red lamps on the corresponding visual indicators.

4. Double-click on the chosen **Failure Outputs** and for each one, set the output duration to **10 Seconds**.
5. Repeat **Steps 1-4** for each additional Baby Tag/HHLF pair.

Directing Test Results to Specific Rooms

The above configuration procedure is designed to have EIRIS first validate whether or not the mother is in fact with the correct baby and second trigger the correct green or red lamps on the installed visual indicators. In other words, if a number of visual indicators are installed throughout the facility, they will all simultaneously indicate the results of the match tests regardless of where they are.

Should it prove necessary to segregate the outputs such that each room has its own visual indicator, then the following Elpas hardware, EIRIS software extension and EIRIS alerts are needed:

- Each room must be equipped with an Elpas IR reader with local processing, an Elpas External Box (EXB) and a visual indicator (such as an Elpas Signal Tower).
- Using the optional Elpas Extension (since it supports the ability to associate LF exciters with particular IR or RF readers) combined HHLF/IR locations need to be defined for each room in EIRIS.
- Additionally, subsequent Success and Failure alerts need to be defined for each room in EIRIS.

Having Caregivers Perform Match Tests using the Handheld LF Exciter

In this scenario, upon admission to the maternity unit, each mother-to-be is issued an Elpas tag (such as a Healthcare Positioning Tag) that a companion relationship has been pre-defined in EIRIS with the Elpas Infant Protection Bracelet that is-to-be affixed to her baby at birth. Random Match Tests can be performed by simply having a caregiver press the match-test button on his/her HHLF while physically within a 40cm/1.3ft radius of the baby in question; making sure that the baby's tag was excited by seeing that the green lamp of the nearby visual indicator (such as the Elpas Signal Tower) flashes for about two seconds. Within 5 seconds, the caregiver repeats this procedure near the mother, again making sure that the mother's tag was excited by seeing that the green lamp again flashes for about two seconds.

EIRIS will immediately validate whether or not the mother is in fact with the correct baby. If the match test proves successful, (the mother is with the correct baby), the green lamp of the visual indicator will illuminate for approximately 10 seconds. Should the match test fail, (the mother is with a baby other than her own) the red lamp will light for about 10 seconds.

Configuration Prerequisites

Before configuring EIRIS to support caregiver initiated Mother/Baby Match Tests using the HHLF, verify that the following software prerequisites are satisfied:

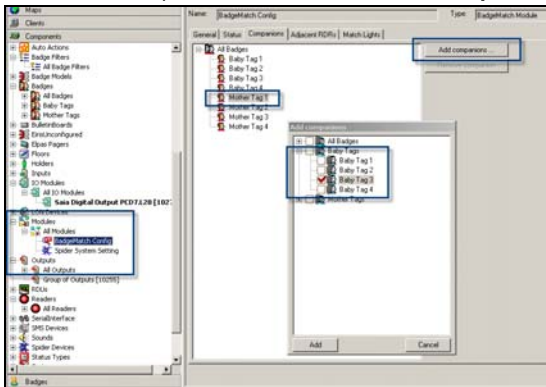
- Make sure that the **BadgeMatch.dll** (Badge Match extension) is installed in the EIRIS Extensions folder (typically: C:\Eiris\41srv\Data\Extensions) and that a proper license for the extension have been acquired.
- Register the needed Handheld LF Exciters (HHLFs) in the EIRIS database. Ensure that their chosen **Names** can easily symbolize the particular caregivers that will use them.

Configuration Procedure

To configure EIRIS so that a Handheld LF Exciter can be used by a caregiver to perform random match tests, you will first need to define companion relationships between the appropriate mother tags and the corresponding baby tags. Then you will need to define the subsequent Confirmation, Success and Failure alerts.

Step 1- Associate the Mother with the Baby

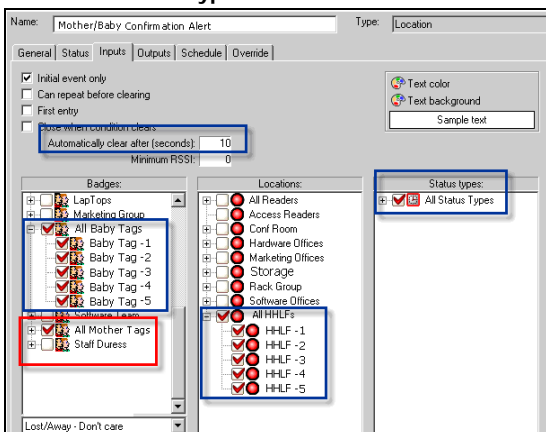
1. Access the **Companions** tab of the Badgematch Configuration form. Select the **Mother Tag** you want to associate a 'Companion' with; then click **Add Companions**.



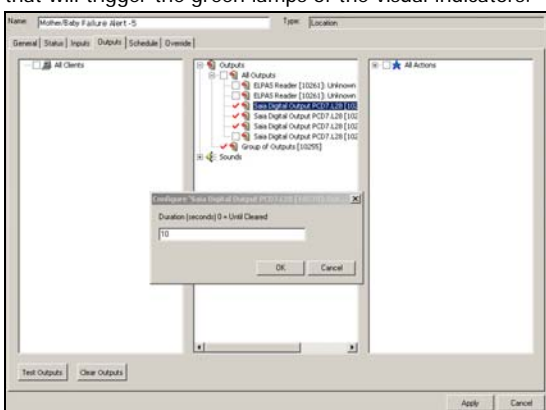
2. Select the **Baby Tag** that is to be the 'Companion' to the chosen mother tag.

Step 2- Define a Confirmation Alert

1. Using the **Location Alert**, on the Inputs form select **All Baby Tags, All Mother Tags** and all **HHLFs**. Also choose **All Status Types**.



2. Enter **10** in the 'Automatically Close After' time value field.
3. On the **Outputs** form, select the **Confirmation Outputs** that will trigger the green lamps of the visual indicators.

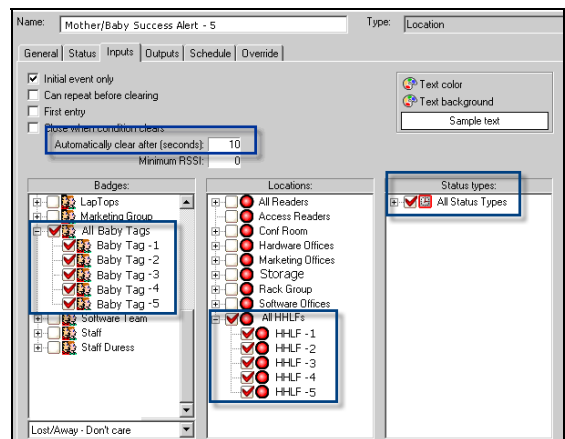


4. Double click on the selected **Outputs** and for each, set the output duration to **2 Seconds**.

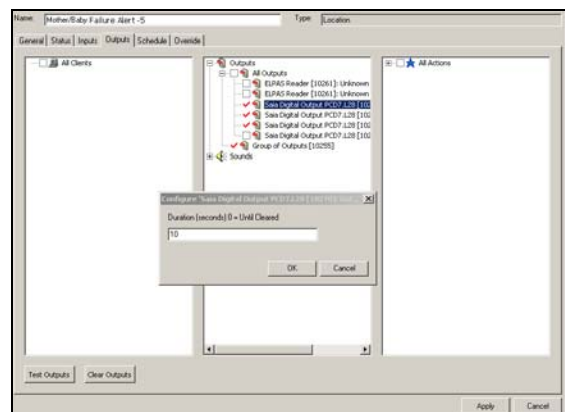
Step 3- Define a Success Alert

This alert is only enabled when the match test proves successful.

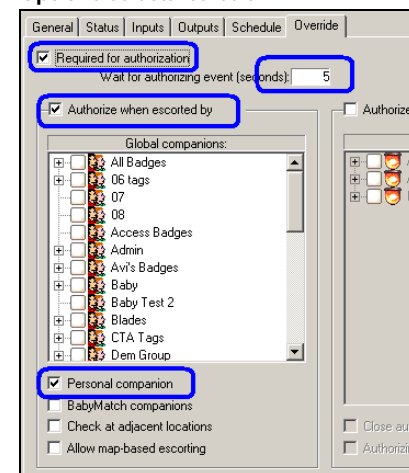
1. Using the **Location Alert**, on the Inputs form, select **All Baby Tags, All HHLFs**. Also choose **All Status Types**.



2. On the **Outputs** form, select the **Success Outputs** that will trigger the green lamps on the related visual indicators.



3. Double-click on the chosen **Success Outputs** and for each set the output duration to **10 Seconds**.
4. On the **Override** form, define/enable the **Parameters** or **Options** as detailed below.



Step 4- Define a Failure Alert

This alert is only enabled for all baby tags except the related companion baby tag.

- Using the **Location Alert**, on the **Inputs** form select the **Baby Tags** that have no associated Companions, and **All HHLFs**. Also choose **All Status Types**.

- On the **Outputs** form, select the **Failure Outputs** that will trigger the red lamps on the related visual indicators.

- Double-click on the chosen **Failure Outputs** and for each set the output duration to **10 Seconds**.

- On the **Override** form, define/enable the **Parameters** or **Options** as detailed below.

Directing Test Results to Specific Rooms

The above configuration procedure is designed to have EIRIS first validate whether or not the mother is in fact with the correct baby and second trigger the correct green or red lamps on the installed visual indicators. In other words, if a number of visual indicators are installed throughout the facility, they will all simultaneously indicate the results of the match tests regardless of where they are.

Should it prove necessary to segregate the outputs such that each room has its own visual indicator, then the following Elpas hardware, EIRIS software extension and EIRIS alerts are needed:

- Each room must be equipped with an Elpas IR reader with local processing, an Elpas External Box (EXB) and a visual indicator (such as an Elpas Signal Tower).
- Using the optional Elpas Extension (since it supports the ability to associate LF exciters with particular IR or RF readers) combined HHLF/IR locations need to be defined for each room in EIRIS.
- Additionally, subsequent Success and Failure alerts need to be defined for each room in EIRIS.

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The purchaser or user should follow the Product installation and operation instructions and test the Product and the entire system at least once each week. For various reasons, including but not limited to changes in environmental conditions, electric, electronic, or electromagnetic disruptions, and tampering, the Product may not perform as expected. The purchaser and user are advised to take all necessary precautions for the protection and safety of persons and property.

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