## 5.4 Configuration of the LSP3A–LR Clear

"Library Pedestal Configuration Tool" is the software tool used to monitor and configure the LSP3A pedestal.

The whole LSP3A configuration is carried on from a host computer connected to the local area network. Each LSP3A is addressed thanks to its own IP.

⚠ In a configuration with several pedestals, as all pedestals are set as master by default, they will mutually perturb when powered on. So the first step will be to set the appropriate pedestals as slaves.

🔔 Before you configure the whole LSP3A, you need to have a Clear vision of which pedestals will be masters or slaves. (Refer to section 5.2 "Understanding the LSP3A Synchronization Process")

## 5.5 Running Web UI for the first time

The web UI can be accessed via the web browser and is useful for quick setup or troubleshooting. Web browsers we support are Chrome 96.x, Firefox 95.x, and Safari 15.x.

1. Determine the reader hostname to connect to a network with DHCP server.

2. In a new browser tab, connect to the LSP3A using the URL http://<Hostname or Static IP>.

3. Sign into the reader using the default credentials:

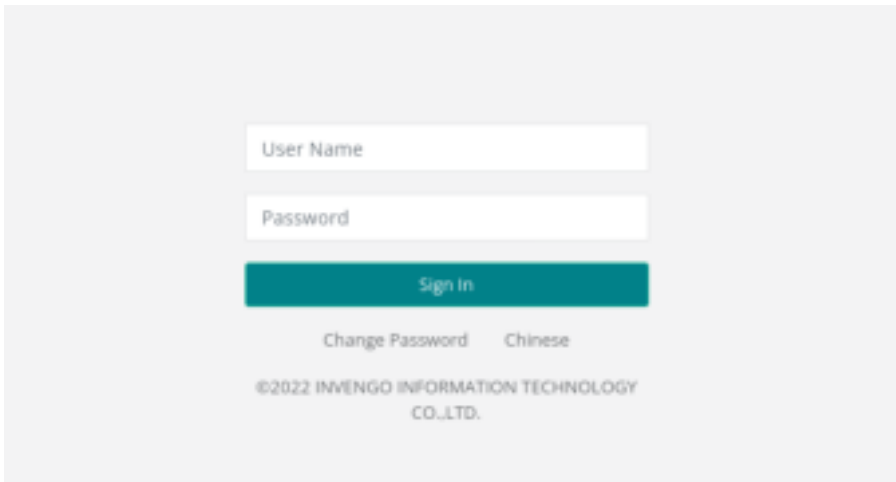- user name: admin
- password: admin



Figure 5.5: Sign In Web Page

4. The Web UI can configure Pedestal parameters, including Basic Configuration、 Event of Detection、Gate Options and System Configuration.

## 5.5.1 Navigation

After sign in to main page, the navigation is on the top of web page, including Restore、Start/Stop Reading、Save Configuration、Language(Choose) and Log Out buttons.



Figure 5.6: Navigation

This navigation is used either:

- Restore the device to factory setting.
- Controls whether the device is in tag reading mode.
- The configuration parameters are saved to the device and take effect.
- Log Out and return to the Sign in web page.

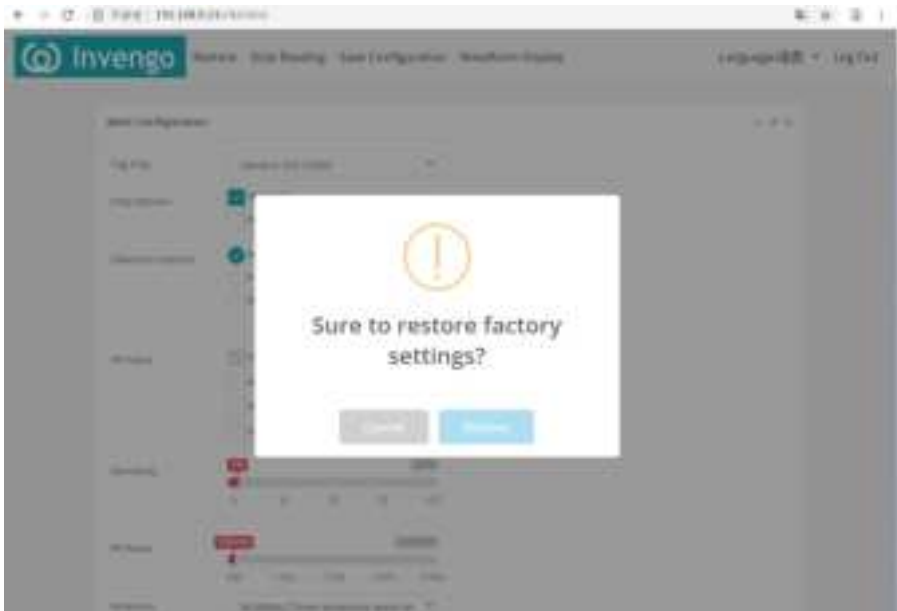The device will reboot after the factory settings are restored:



Figure 5.7: Restore the device

Click the Save Configuration button will save and take effect the configuration of modules(Basic Configuration、Gate Options and System Configuration),the saved configurations are saved even after the device is powered off.

## 5.5.2 Basic configuration



Figure 5.8: Basic Configuration

The Basic Configuration is used either:

- Select the type and content of the tag to be read.
- Select and setting the tag detection options.
- Setting antenna sensitivity.
- Setting RF Power and Working antennas.
- Setting regional standard.

Only the tag of ISO15693 protocol can be read and filtered, can choose whether to read UID and Memory.

AFI and EAS are used to filter labels and only choose one mode at a time, when select the AFI filtering mode, can select a value that triggers alarms. When the value is 0, all read tags will trigger alarms.

Drag the antenna sensitivity bar to select the antenna sensitivity. A lower value indicates a higher antenna sensitivity.

Drag the RF Power bar to select the RF Power, the minimum is 500mW and the maximum is 5000mW and each step is 500mW.

There are 6 antenna operating modes, which can be selected according to different application scenarios.

### 5.5.3 Gate options

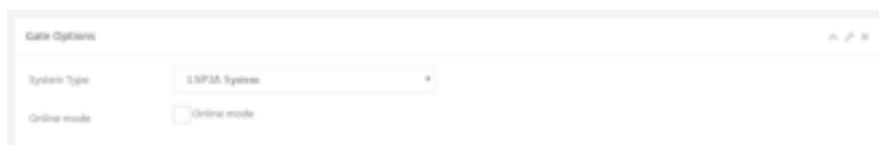#### 5.5.3.1 System type and online mode



Figure 5.9: System Type

There are 2 options:

- LSP3A System
- LSP3A-LR Clear- System

This setting does not need to be changed.



Figure 5.10: Online Mode

In this mode, the device will connect to the Server and when a tag is recorded, it will send the tag information to the server and will not actively alarm. Also read tag UID option will be forced to be selected and AFI1 Value will be forced to be 0x00(reading all tags).

Table 5.3:When the device reads the tag, the data format sent

| SOF | CMD_ID | DATA_LEN | DATA |
|------|--------|----------|----------------|
| 0x1e | 0x60 | n | Data len bytes |

Example: 0x1e 0x60 0x08 0x11 0x22 0x33 0x44 0x55 0x66 0x77 0x88

Table 5.4:When the server needs the device alarm, the data format sent

| SOF | CMD_ID | DATA_LEN |
|------|--------|----------|
| 0x1e | 0x51 | 0x00 |

Example: 0x1e 0x51 0x00

### 5.5.3.2 Alarm setting



Figure 5.11: Alarm setting

In the "Alarm Duration" section:

● Select the alarm duration in the drop-list.

● Click "Test" to trigger an alarm (this is useful either to test alarm duration, or to identify the pedestal you're connected to).

### 5.5.3.3 Sycn mode



Figure 5.12: Sync setting

In the "Synchro" section:

●　Select whether the pedestal is to be configured as the Master or as Slave(1…8).

●　Select the total number of pedestals(master and slaves) operating in close proximity and sharing the same ID.

●　Select ID(master and slaves of one system installation must share the same ID).

⚠️Only one Master can be selected with several slaves.

For example, in the library configuration shown below we have:

●　System A with ID = 1(M1 Master, S1 S2, S3 Slaves).

●　System B with ID = 2(M2 Master, S1 S2 Slaves).

The Masters are disposed as far as possible from each other not to perturb themselves. Two different IDs are used to be sure that each slave will be synchronized with the master from its own system.

⚠️At present, the synchronization module does not support wireless for the time being.

### 5.5.3.4 Asynchronous event notification



Figure 5.13: Async setting

In this section, one can activate the useful Event Notification, a standalone feature which duplicates the database entry by sending to any PC on the network a data frame. This allows sending alarm data whenever an event occurs in any pedestal without having to regularly pool the pedestal database over the network. It limits the traffic over the network.

To activate the Event Notification, just tick at least one Event out of the 3 available. All Events can be selected if needed.

If IP address is left to the default "FF.FF.FF.FF" data is broadcasted to all equipments on the network. Possible Events are:

• People Counter Change: Whenever one walks through the gate passageway, data is sent over the network once. The Data field includes the new In Out and In + Out value.

• Alarms: Upon Tag(s) detection their UID & Memory Contents is sent over the network according to the settings defined.

• GPIO State Changes: Whenever an Input or Output level changes it is notified over the network. The data field reports the GPIO new status.

In this mode, when an event in the selected option occurs, a specific UDP message is sent to the specified IP address and port.

Table 5.5:Head

| Version | Mac Addr | IP Addr | Date (M-D-Y) | Time (H-M-S) | Event ID |
|---------|----------|---------|--------------|--------------|----------|
| 2bytes (de-fault:0x0100) | 6 bytes | 4 bytes | 3 bytes | 3 bytes | 1 bytes (Alarm:0x00, Peo-pleCount:0x01, GPIO:0x02) |

Table 5.6: when people counter is changed, sent an UDP message

| Head | InCount | OutCount |
|------|---------|----------|
| Head frame | 4 bytes | 4 bytes |

Table 5.7: when device is alarming, sent an UDP message

| Head | Alarminfo | TagType | RFU | DataLen | Data |
|------|-----------|---------|-----|---------|------|
| Head frame | 1 byte | 1 byte | 4 bytes | 1 byte | Date_len's bytes |

Table 5.8:when GPIO status is changed, sent an UDP message

| Head | GPIO Status Mask |
|------|------------------|
| Head frame | GPIO1 high: 000000x1b(bit 0 is 1) |
|  | GPIO1 low: 000000x0b(bit 0 is 0) |
|  | GPIO2 high: 0000001xb(bit 1 is 1) |
|  | GPIO2 low: 0000000xb(bit 1 is 0) |

## 5.5.3.5 GPIO



Figure 5.14: GPIO

GPIO1 has 3 types:

- GPIO
- Input Trigger
- Output Trigger

GPIO2 has 2 types:

- GPIO
- Output Trigger

Checking GPIO level

The two GPIO available to user can be monitored:

- Display shows "High" when voltage level is above 2 Volt.
- Display shows "Low" when voltage level is below 1 Volt

Clicking with the mouse on GPIO text field, the Level value toggles between High & Low.

The effect will depend on the actual GPIO settings on GPIO module.

GPIO1 can be set as an Input Trigger for RF powering off/on as well as an Output for driving an External Alarm Device.

GPIO2 can only be used as an Output for driving an External Alarm Device.

Configuring General Purpose Input/Output When needed, port #1(GPIO1) can be used as an input to remotely switch the RF Field on and off. This is useful to limit the HF field generation to a strict minimum, i.e. whenever a person is about to enter the detection passageway crossing a light barrier placed ahead of the

pedestal and keep it on for a fixed duration or whenever the person is exiting the RFID detection area using a second light barrier beam crossing detector.

Refer to Figure 5.17 for the pin layout to wire the Input and output signals.

In section GPIO1, select one of the available options:

• GPIO: Port has no predefined function; it can be driven remotely by Host PC via API.

• Input Trigger: when wired signal matches the Active Level Setting("Low" or "High") the Radio Frequency Field will be turned On, Theft detection becoming active.

• Output Trigger: when Theft is detected(EAS or AFI signal setting the alarm), the Port Signal level matches the Active Level Setting("Low" or "High"). The output voltage level of the port should match the active voltage to set the external alarm device wired up.

In section GPIO2, select one of the available options:

• GPIO: Port has no predefined function; it can be driven remotely by Host PC via API.

• Output Trigger: when Theft is detected(EAS or AFI signal setting the alarm), the Port Signal level matches the Active Level Setting("Low" or "High"). The output voltage level of the port should match the active voltage to set the external alarm device wired up.

Whenever the GPIO is set as an Output Trigger, It is possible to set a pulse Width and a Pause in milliseconds: In Figure 5.15, the Pulse Width is set to 400ms. This means that whenever theft detection occurs, the signal on port#2 will go from low to high level for a minimum time of 400ms. If no further detection occurs before the 400ms timing laps, then signal will drop to low level.

Whenever after the Pause timing, if a new detection occurs, signal will rise again to high level.

In the particular case of the Pause Timing set to 0ms, whenever detection will occur timing equal to Pulse setting will be added up so that the active level will stay high as long as detection will occur (so called retrigger configuration).

Setting pause timing to a value different from zero will force the output signal to low level for Pause time after the Pulse time set, before being triggered again by a subsequent detection.



Figure 5.15: GPIO Output Trigger

| Pin # | Function |
|-------|----------|
| 1 | Ambient Light +24V |
| 2 | Ambient Light 0V Ground |
| 3 | Alarm +24V |
| 4 | Alarm 0V Ground |
| 5 | GPIO #1 Open Collector |
| 6 | GPIO #1 0V Ground |
| 7 | GPIO #2 Open Collector |
| 8 | GPIO #2 0V Ground |

Figure 5.16: Peripherals & GPIO Green Connector Pin Out & Location

Table 5.9: GPIO Pins - Electrical Characteristics Max Ratings

| Parameters | Min. | Typ. | Max. | Unit |
|------------|------|------|------|------|
| Input Voltage Range | 0 | -- | 28 | V |
| Input Voltage (Low Level) | 0 | -- | 0.9 | V |
| Input Voltage (High Level) | 1.5 | -- | 28 | V |
| Output Voltage Range | 0 | -- | 28 | V |
| Maximum Continuous Output Current | -- | -- | 1.4 | A |
| Output Over Current Protection | 1.9 | 2.8 | 3.8 | A |

⚠ In output mode the LSP3A GPIO can only sink current to ground. User needs to provide adequate DC Limited Current Supply to Port#1 and Port#2 (Open Drain).

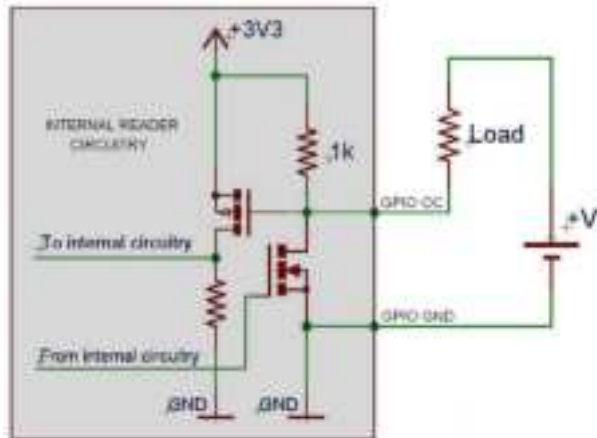See Figure 5.17 for detailed circuitry.



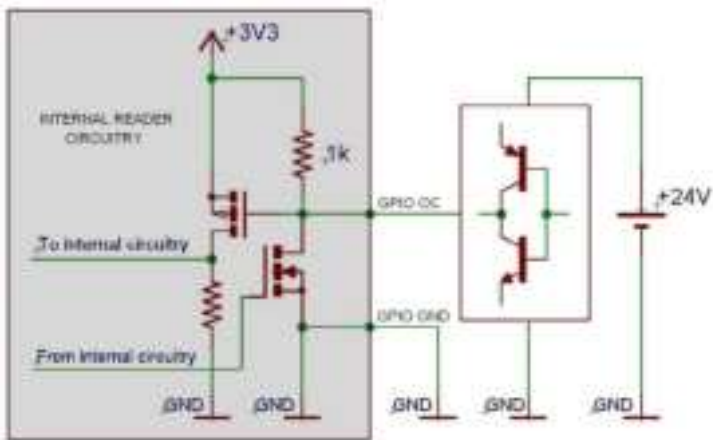Figure 5.17: Internal Circuit of GPIO and External Supply Wiring in Output Mode



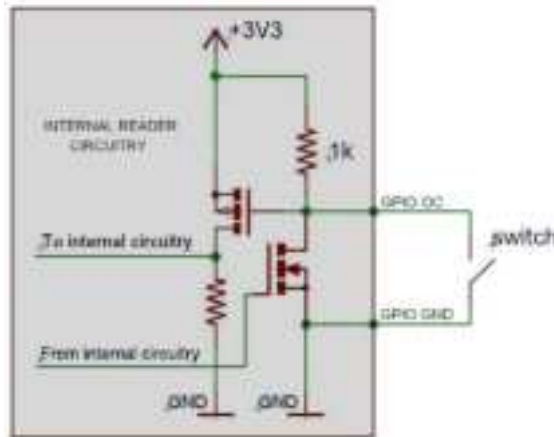Figure 5.18: Connection of a Switch as an Input Device

Figure 5.19: Connection of a Source and Sink Current Supply as an input Device

⚠ Applying negative voltage may destroy the GPIO!

Beware not to inadvertently toggle the GPIO from Input to Output Mode: you may create a short circuit when using a high current source to ground as an input device! Refer to Figure 5.19.

### 5.5.3.6 People counter



Figure 5.20: People Counter

The "People Counter" section displays the total number of people that crossed the IR sensor:

- Whatever the direction (In & Out) if no bidirectional IR sensor is installed.
- In each direction (In & Out) if bidirectional IR sensor is installed.

⚠️ People counter value is battery backed-up, and is consequently restored at power-up.

Click on "Clear Counter" button to reset people counter.

⚠️ To reset people counter, you can also use a pointed element (for example, a paper clip), insert it in the hole on the left of the display window and press (not too strong) until zero is displayed.

Use the drop-list in the "People Counter" section to select which count is to be displayed on pedestal LCD:
- "Display In" to display In counter only
- "Display Out" to display out counter only.
- "Display In + Display Out" to display the sum of In and Out counters.

⚠️ Pedestal must be rebooted for changes to take effect.
⚠️ The drop-list is not available if no bidirectional IR sensor is installed. In this case, pedestal LCD always displays the sum of In and Out counters.
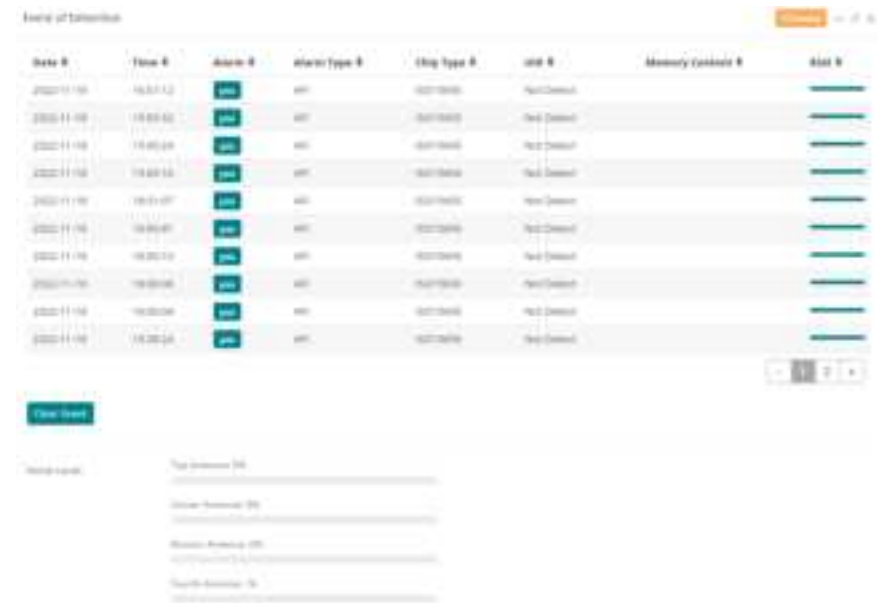
## 5.5.4 Event of detection



Figure 5.21: Event of Detection Panel

Each time an item(with EAS/AFI activated) passes through the gates an entry is added to a local database in pedestal memory. This entry holds the following information:

- The date and time to which the theft was committed.
- The chip type.
- If selected, the memory contents.
- If selected, the UID.
- The method used to detect the alarm(EAS or AFI).

The items shows the number of entries stored in pedestal memory in read-time.

Click "Clear Event" button to permanently erase pedestal database.

In "Antenna Noise Level" section, bar graphs provide a feedback regarding the ambient noise level measured by each antenna. It is only provided as debug purpose and should not be seen as a measure of performance. Green shows standard conditions as opposed to orange and red displays warning of possible/likely performance reduction due to ambient noise level.

## 5.5.5 System configuration



Figure 5.22: System Configuration

The main functions of this module are:

- Modify TCP/IP Configuration, including port.
- Synchronize the real time between the host computer and the device.
- Display device version.
- Upgrade firmware.

After modifying TCP/IP configuration, click "Save Configuration". You can then decide to apply the new TCP/IP configuration immediately by rebooting the pedestal, or to wait for next reboot to apply it.

When DHCP function is checked, the device will assign an IP address according to the DHCP server, and when there is no DHCP server, the device will use a static IP address.

When the Sync button is clicked, the host computer will send the local time to the device, and the device will modify its real time clock to synchronize with the host computer.

## 5.5.6 Update firmware

Ready the upgrade file as shown:

Figure 5.23: System Configuration

Click "Select file"，and then select the appropriate firmware file. A bar shows the progress of the upgrade process. The whole process will take 10 to 15 minutes and please do not power off. The device will reboot after the upgrade is complete.

Figure 5.24: Upgrading process1

**Decompressing and upgrading...**

Please do not turn off the power until the device reboot ...

Figure 5.25  Upgrading process2

When the file transfer is completed, the device is decompressing and updating the relevant files, please wait for a while. After the update is completed, the prompt box is as shown below:

**Upgrade succeed**

Device will reboot ...

Figure 5.26  Upgrading process3

And the device will reboot.

## 5.6 People counter & buzzer sound m anagement

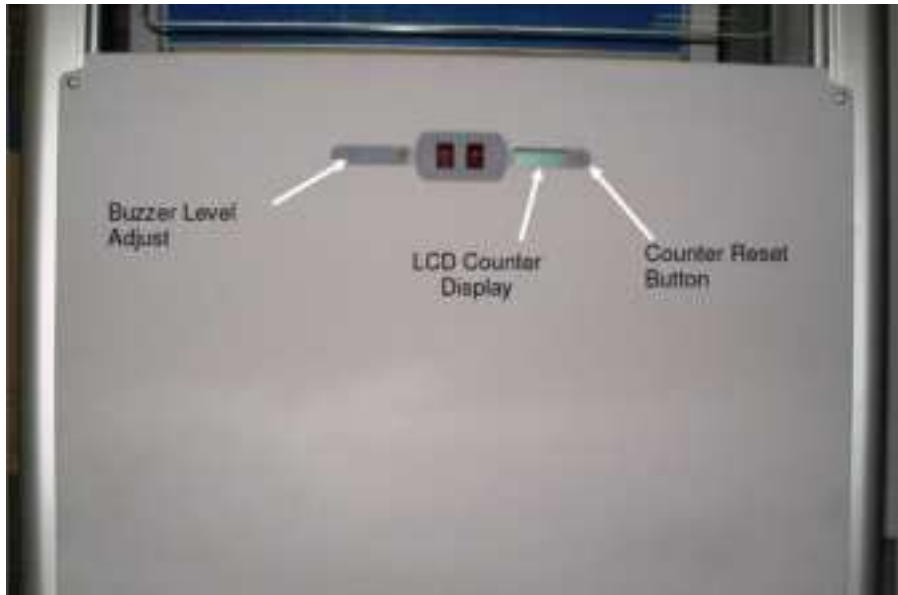### 5.6.1 Resetting the counter display



Figure 5.27: LSP3A People Counter & Detection Cells Location

To reset the LCD display use a pointed element (for example: a paper clip). Insert it in the hole on the right of the display window and press (not too hard) until you get zero displayed. This
will also reset the battery backed-up counter.

### 5.6.2 Resetting the remote people counter

See section 5.5.3.6 People Counter of Monitoring Pedestal Activity for moreinformation.

### 5.6.3 Adjusting the level of the buzzer sound

Using a flat headed 4mm screw driver (less than 4mm max diameter) through the outermost left hole, adjust the buzzer sound to the desired level turning clockwise or anticlockwise.

To trigger the alarm during the trimming operation, either use a book with an EAS set label or depress the Test Button on the Basic Configuration Tab of the LSP3A Configuration Tool.

# 06 **Operation**

## 6.1 Theory of operation

The RF motherboard in the electronics unit produces radio frequency (RF) electromagnetic signals that are transmitted via the antennas in each pedestal. Each antenna transmits for a short period, receives for a short period, and is inactive for the remainder of the time.

## 6.2 Starting the system

There is no ON/OFF switch. The system operates when mains power is applied plugging in the IEC plug into the Wall mounted plug.

## 6.3 Normal operation

No operating procedures are required. The system continues to operate as long as power is supplied.

## 6.4 Shutdown

Once the system is set up and running, we recommend that all pedestals remain turned on at all times.

# 07 Maintenance
Library Security Pedestal 3A-LR User's Guide

## 7.1 Servicing the pedestals

No regular servicing or maintenance is required, except for keeping the covers clean, and occasionally checking the integrity of the cover seals.

It is recommended that the pedestal unit be inspected at least once per year by an approved INVENGO technical representative.

Refer to section 1.2 "Care and Maintenance" for general maintenance information.If needed, individual spare parts are available upon demand. Refer to the Table 7.1 here below:

Table 7.1: Spare Parts

| Part to be replaced | Reference on Figure 7.1 |
|---|---|
| Power Supply Unit PSU | C |
| XC-RF300 Gate Reader PEM | B |
| People Counter complete Module | A |

## 7.2 Electronic and power supply location



Figure 7.1: Latest LSP3A–LR Clear PEM and Power Supply Unit Location Bottom right

On LSP3A–LR Clear Model PEM, Peripherals and Power Supply Units are located at the same place. Refer to Figure 7.1: Latest LSP3A–LR Clear PEM and Power Supply Unit Location Bottom right.

When removing the Plastic decorative parts, on can gain access to the PEM modules, People Counter, Buzzer Settings and Extra optional display Lights beneath the PEM.

## 7.3 Servicing the electronics unit

- Fuse characteristics:

- F1 on AC mains: SCHURTER FST, 5X20mm, Time-Lag T, H, 250VAC, 500mA

- F2 on DC supply: SCHURTER SPT, 5X20mm, Time-Lag T, H, 250VAC/300VDC, 2A

- How to change them:

Fuses are located behind the plastic cover at the bottom of the LSP3A pedestals.

1. Unscrew the 4 screws holding the plastic cover on sensors and counter display side.

2. Unscrew the fingertip head fuse and replace the tripped fuse with the specified replacement one. Only use the specified UR listed 5x20mm fuses from SCHURTER for replacement (please see figure below).



Figure 7.2: Mains Fuses Location and Ratings

⚠️ WARNING: Beware of Hazardous AC mains 110/230V Voltage!

Make sure there is no power supply before carrying on maintenance operation.To do so, the micro circuit-breaker must be opened and the Main Power SupplyCord Unplugged from the Wall Socket.

# 08 Troubleshooting

The following table lists the most common problems and describes their solutions.

Table 8.1: Troubleshooting Table

| Fault | Possible Causes | Solution |
|---|---|---|
| No power | Differential or micro circuit breakers | Check the differential and micro circuit breaker status |
| | System fuse | Replace fuse |
| | Cabling fault. Power cable fault | Check cabling and connections.Replace any suspected faulty cables. |
| Alarms missed (INVENGO RFID tags with theft bit ON not triggering alarms). | Tuning fault | Check antenna tuning |
| False alarms (INVENGO RFID tags with theft bit OFF trigger alarms). | Tuning fault | Check antenna tuning |
| | Nearby devices are interfering with the pedestals. (Refer also to section 0) | Switch off all or some of the suspicious nearby devices and check if the EAS detection performance changes. (If it does, check for a power problem with the pedestal) |
| Fail to connect to Pedestal via Ethernet Cable | Wrong Ethernet cable Check Gateway & network settings | Use a crossed Ethernet Cable to directly connect Pedestal to PC. Set to default Address. Refer to Chapter 5.5.6 |

## 8.1 Sources of interference

The following devices may cause interference with EAS systems if they are close to the pedestals:

- INVENGO RFID tag readers and programming devices
- computer monitors or screens (cathode ray tubes)
- radio transmitters
- short-wave radios
- high power music systems with D-class amplifiers
- some industrial vacuum cleaners
- high-frequency fluorescent lights (if very close to pedestals)
- neon or halogen lights such as advertising signs
- equipment using switch mode power supplies
- data or power cables within 400 mm
- illuminated exit signs generating noise between 80 and 100 kHz
- digital phone lines (wideband noise) within 200 mm

⚠ These distances are subject to site variables. Distance may be smaller under some conditions. Metal frames on furniture and fixture items may interfere with the EAS system if they are too close. This is because energy from the antenna can couple into the metallic frame and be transmitted to INVENGO RFID tags and antennas several meters away.

## 9.1 Mechanical data LSP3A-LR Clear

| Parameter | Value |
|---|---|
| Weight | Pedestal: 26.2 kg (57¾ lbs) |
| Pedestal Dimensions (HxWxD) | Approx. 1870 mm x 550 mm x 45 mm (73½ x 21¾ x 1¾ in) excluding base plate. |
| Connections to pedestal | IEC Supply Power Cord and Ethernet Cable |

## 9.2 Electrical data LSP3A-LR Clear model

| Parameter | Value |
|---|---|
| Power supply | 100/240 Volts AC, 0.5 A, 50/60 Hz |
| Power consumption | 25 W max |
| Conformity | CE, EN 60950-1, EN 50364 |
| Microchip compatibility | ICODE SLI, ISO 15693 supporting AFI and read multiple block command |
| Operating temperature | 0 to 40 °C (32 to 104 °F) |
| Storage temperature | -20 to 60 °C (-4 to 140 °F) |
| Fuse on AC mains | Schurter FST, 5X20mm, Time-Lag T, H, 250VAC, 500mA |
| Fuse on DC supply | Schurter SPT, 5X20mm, Time-Lag T, H, 300VDC, 2A |

# 9.3 LSP3A–LR Clear mechanical drawings
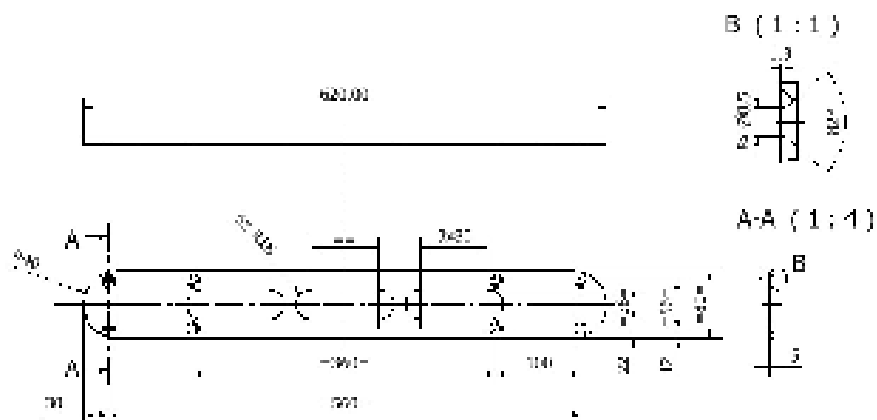
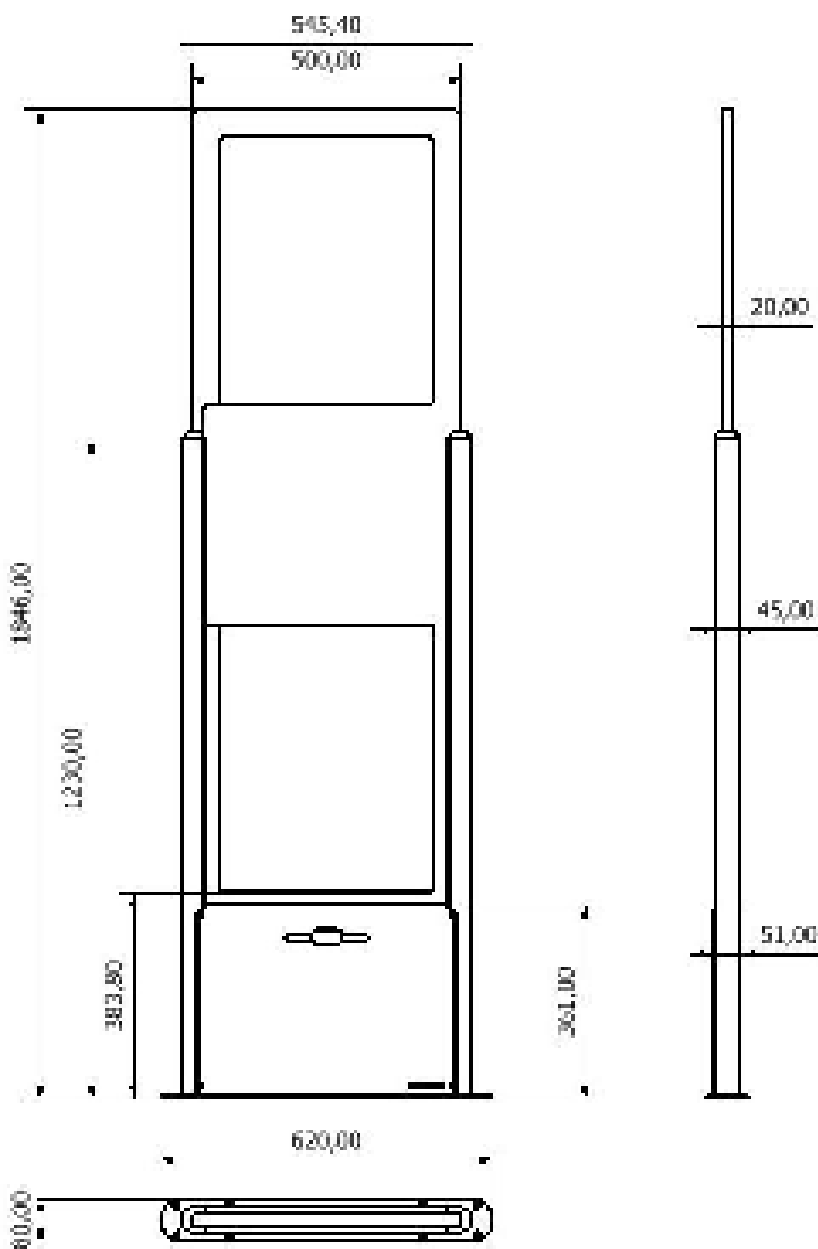Figure 9.1: LSP3A–LR Clear Pedestal Base Fixing Plate Dimensions

Figure 9.2: Outer Dimensions of LSP3A–LR Clear Panel

# 10 Performance Test

## 10.1 Test conditions

● Distance between each pedestal not greater than the maximum recommended distance of 915mm (3 ft.).

● All tags used must have the theft bit set. Use of reference tag (Antenna Tuning Kit Test Card) is strongly recommended for repeatable results.

● Testing to be carried out at walking pace (maximum of 1 meter/second).

● Metal, conductive materials, human hands or body must not shield tags.

● All books must have tags inserted according to the 4 positions; 20-mm offset grid recommendation.

● Minimum thickness of books should be 16 mm.

● Each EAS system shall be installed, commissioned, tuned and operated according to INVENGO instructions.

## 10.2 Test procedure

1. Divide the gate into 15 test zones as shown. Tip: Use masking tape to temporarily mark the floor and pedestals.

2. Using the locked reference tag(s), walk through the gate positioning the tag in the center of each zone. (Start at test zone 1 and sequentially test each zone in turn)

3. If either or both pedestals sound an alarm, indicate the zone box with a check mark. If neither sounds an alarm, indicate with a cross.

4. Repeat the test with the tag in three orientations for each zone. (Vertical, Horizontal & Facing positions)

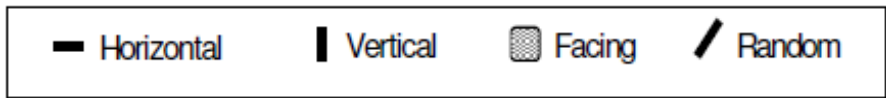5. Mark the random tests with a check mark or cross inside a triangle in the appropriate test zone.
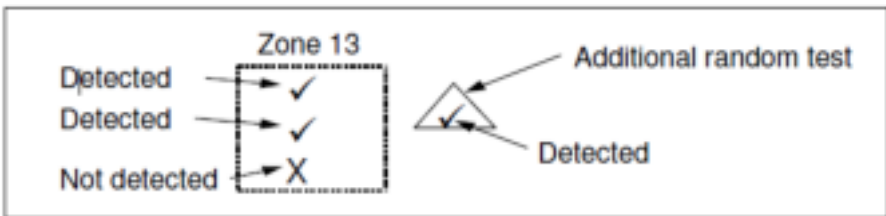


Figure 10.1: Tag Orientation



Figure 10.2: Example

# LSP3A EAS performance test

Library / Facility installed: _____
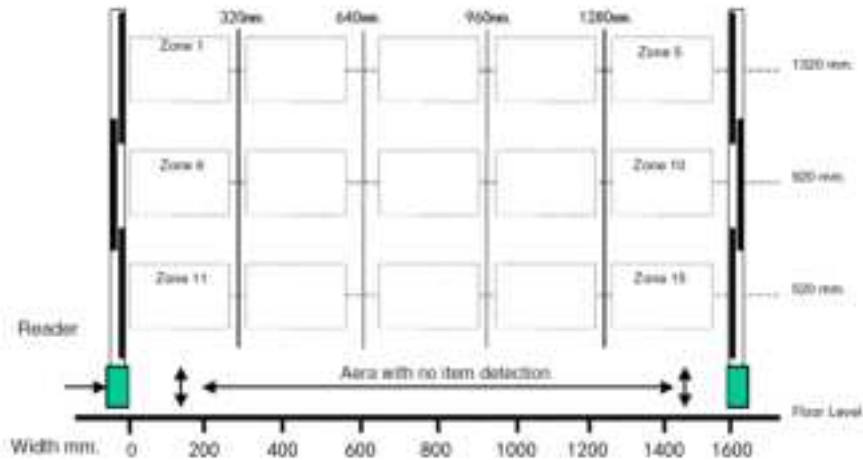
Location of Pedestals: _____

Specific installation notes: _____



Figure 10.3: Test Chart

Number of Tags used: _____

Alarm lights working OK (Y/N): _____

Serial number(s) of reference Tag(s): _____

Buzzers functioning OK (Y/N): _____

Test Result: _____ %

Test comments: _____

_____

Tested By: Name: _____ Company: _____

Signature: _____ Date: _____

# 11 Warranty Conditions

INVENGO warrants that its LSP3A shall comply with the functional specifications set forth herein for a period of one year from the date of delivery to the Buyer.

This warranty is valid for the original Buyer of the Product and is not assignable or transferable toany other party.

INVENGO cannot be responsible in any way for, and disclaims any liability in connection with the operation or performance of:

•      Any product in which the Product is incorporated;

•      Any equipment not supplied by INVENGO which is attached to or used in connection with the Product; or,

•      The Product with any equipment.

This warranty only applies to the Product and excludes all other equipment.

Optimal operation and performance of the Product are obtained by using INVENGO' readers, by applying INVENGO installation guidelines and by having your installation reviewed by a CII (Certified Integrator by INVENGO) technical consultant.

The INVENGO warranty does not cover the installation, maintenance or service of the Product and is strictly limited to the replacement of Products considered as defective by INVENGO and returned according to the return procedure defined below; in such case, INVENGO will, at INVENGO' option, either replace every defective Product by one new Product or refund the purchase price paid by Buyer to INVENGO for the defective Product.

## 11.1 Warranty exclusions

The following conditions are not covered under the warranty:

- Defects or damages resulting from storage of the Product under conditions that do not comply with INVENGO specifications or normal usage.

- Defects or damages resulting from use of the Product in abnormal conditions (abnormal conditions being defined as any conditions exceeding the ones stated in the product specifications).

- Defects or damages from misuse, accident or neglect.

- Defects from improper testing, operation, maintenance or installation.

- Defects from alteration, modification except modifications or adjustments specifically described in this Product reference guide, adjustment or repair, or any attempt to do any of the foregoing, by anyone other than INVENGO.

- Any action on the product that prevents INVENGO to perform an inspection and test of the Product in case of a warranty claim.

- Tampering with or abuse of the Product.

- Any use or incorporation by the Buyer or a third party of INVENGO' Product into life saving or life support devices or systems, or any related products; INVENGO expressly excludes any liability for such use.

## 11.2 General provisions

This warranty sets forth the full extent of INVENGO responsibility regarding the Product. In any event, INVENGO warranty is strictly limited to (at INVENGO' sole option) the replacement, the repair or refund of the Products purchase price to INVENGO, of Products considered as defective by INVENGO.

The remedy provided above is in lieu and to the exclusion of all other remedies, obligations or liabilities on the part of INVENGO for damages, whether in contract, tort or otherwise, and including but not limited to, damages for any defects in the Products or for any injury, damage, or loss resulting from such defects or from any work done in connection therewith or for consequential loss, whether based upon lost goodwill, lost resale profits, impairment of other goods or arising from claims by third parties or otherwise.

INVENGO disclaims any explicit warranty not provided herein and any implied warranty, guaranty or representation as to performance, quality and absence of hidden defects, and any remedy for breach of contract, which but for this provision, might arise by implication, operation of law, custom of trade or course of dealing, including implied warranties of merchantability and fitness for a particular purpose.

In all cases, specific warranty conditions as described in the sales contract will always prevail.

## 11.3 How to return defective products

The Buyer shall notify INVENGO of the defects within 15 working days after the defects are discovered.

Defective Products must be returned to INVENGO after assignment by a INVENGO Quality Department representative of an RMA (Return Material Authorization) number. No Products shall be returned without their proof of purchase and without the acceptance number relating to the return procedure.

All Products must be returned in their original packaging.
All Products shall be returned with a report from the Buyer stating the complete details of the alleged defect.

Call +86 400-888-0058 for return authorization and shipping address.
If returned Products prove to be non-defective, a charge will be applied to cover INVENGO' analysis cost and shipping costs.

If the warranty does not apply for returned Products (due to age, or application of a warranty exclusion clause), a quote for replacement will be issued, and no replacement will be granted until a valid purchase order is received. If no purchase order is received within 30 days after the date of INVENGO quote, INVENGO will return the products and charge the analysis cost and shipping costs.

All replaced Products shall become the property of INVENGO.
The Product Return Form is included on the following page. This form should accompany any product you need to return to INVENGO for analysis in the event of a problem.

# Product Return Form

| Customer Profile: | RMA Number: |
|---|---|
| Company: | Date: |
| Address: | City & State: |
| Contact Name: | Zip Code: |
| Contact e-mail: | Country: |
| Contact Phone: | Contact Fax: |

**Order identification:**

| Serial or Batch nr: | Product Name: |
|---|---|
| Return Quantity: | |

**Reason for return:**

To inform INVENGO of this return, please email it to
nbmarket@invengo.cn
Address to ship the product with this document attached:
28 Floor, High-Tech Zone Rong Chao UnionTown,No 63 XueFu road,Nanshan District, Shenzhen , P.R China
To inform INVENGO of this return, please also fax it to your Customer Service Representative : +86 574-87399744

**Return Procedure:**
In order to give you a RMA number, please fulfill this document and send it by return to the above email address or to your Customer Service Representative. Please write the RMA number on the outside of the box. The product returned will go through stringent quality controls. If the product is no longer under warranty, a final analysis report will be sent to you as soon as possible as well as a quotation for repair.

**Quotation:**
ase of no product repair coverage by INVENGO or product out of warranty period, any quotation will be charged to a fixed price of 100 € per product.
This amount will be deducted of the repair price in case of the quotation acceptance, or will be kept by INVENGO in case of quote refusal or no answer within 2 weeks. If quote is accepted the product will be return on an Exworks basis. After receiving quote, in case of no answer within 2 weeks, INVENGO will be entitled to destroy the product.

# Invengo Information Technology Co., Ltd.

V1.0

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