

inception

WEB POWERED SECURITY

Simple & Easy Installation
Integrated Security - Access Control



Aperio RF Doors Guide

Overview

This technical note details how to configure Aperio wireless door locks on the Inception system, using the Intelligent LAN Access Module (ILAM). This feature was included with the 6.0 release of Inception.

Introduction

The Intelligent LAN Access Module (ILAM) has an extended allowed door count of 8 doors per module, compared to the 2 doors allowed by the SLAM. The ILAM supports not only physically hardwired Doors, but also wireless locks. Wireless locks do not need to be wired directly to the door module, which saves on installation costs, appealing to end users and architects.

Care has been taken to ensure the setup process of the Aperio locks in Inception are as similar to hardwired doors setup process as possible. Once configured, users can badge their cards at the reader on the Aperio lock, and access will be granted based on the corresponding user's permissions. Additionally, if the lock has a built-in keypad, a user can also input their PIN at the Aperio reader to obtain access.

As wireless locks can fall offline or have their batteries run low, the Inception system can be configured to monitor and report these states.

Wiring

Hubs are wired in parallel as per the manufacturer's installation manual and connected to the *Reader* RS485 port of the host ILAM.

The following key points must be observed when connecting Aperio Hubs to the ILAM:

1. Hubs must be installed where they be in RF wireless range of the lock/s to which they are paired and within the maximum recommended cabling distance from the host ILAM.
Refer to the Aperio Technology Installation Manual for details.
2. The RS485 bus should be wired with a twisted-pair cable with characteristic impedance between 90 Ohm and 120 Ohm. The same cable types as recommended for the Inception RS485 LAN are suitable.
3. Do not exceed the manufacture recommended maximum bus length. Check that the DC supply voltage at the furthest hub is within specification.
4. Do not exceed the number of maximum number of Hubs and Locks allowed on the host ILAM. A maximum of 8 Hubs can be configured on an ILAM's *Reader* RS485, with a maximum of 8 locks overall

connected to these Hubs. If a Hub is paired with more than one Lock, then the number of Hubs that can be connected to the ILAM will be reduced accordingly.

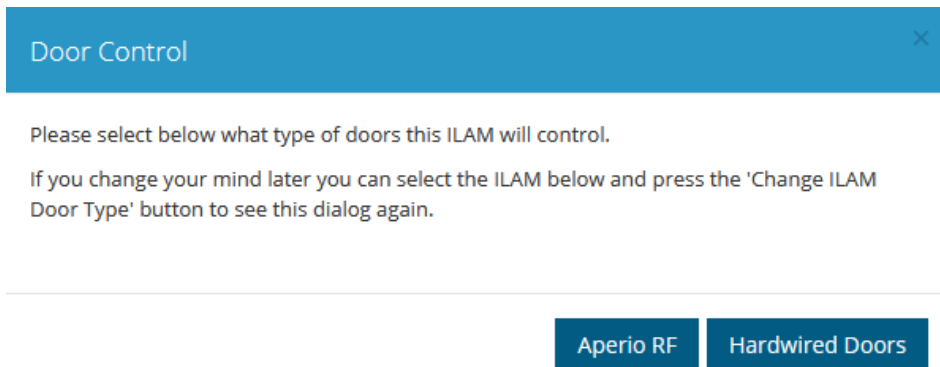
e.g. An ILAM might have 8 Hubs paired with 1 Lock each, 4 Hubs paired with 2 Locks each, etc.

5. If there is more than one communication hub connected to an ILAM, they should be connected in a daisy chain (not as a star) on the RS485 bus so that all RS485 'A' connectors are connected together and all RS485 'B' connectors are connected together.
6. Both ends of the RS485 must be terminated. The communication hub at each end of the bus must have switch 8 of the DIP switch in position ON. All other communication hubs must have switch 8 of the DIP switch in position OFF.
7. If the host ILAM is at one end of the bus, then it must be terminated instead of an Aperio hub. This is done by fitting the "Reader RS485" port termination link.
8. Pull-up and pull-down resistors should be enabled once per bus. This means that one communication hub on the bus should have switches 6 and 7 of the DIP switch in position on.

Configuration

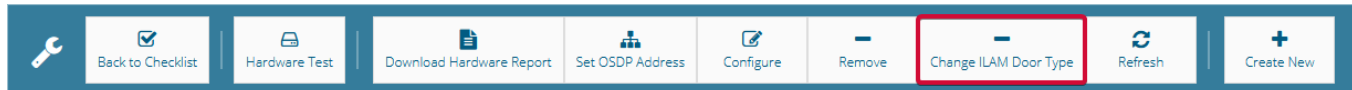
Enrolment

With an ILAM connected to the Inception's LAN, navigate to [Configuration > Hardware] and confirm that the module is present in the *Unconfigured Modules* list. When first configuring a previously unconfigured ILAM, a dialog will appear that allows the installer to select the type of doors being used on this module.



A different hardware enrolment wizard will be presented depending on the option selected, each including the configuration properties relevant to that specific door type.

Previously configured ILAMs can have their target door type changed without completely deleting and re-enrolling the module. This can be done by selecting the configured module, then clicking *Change ILAM Door Type*.



This will bring up the previously mentioned dialog, allowing the module's door type to be changed, restarting the hardware enrolment wizard with the new properties.

Once in the Hardware Wizard, the following steps will be available for traversal:

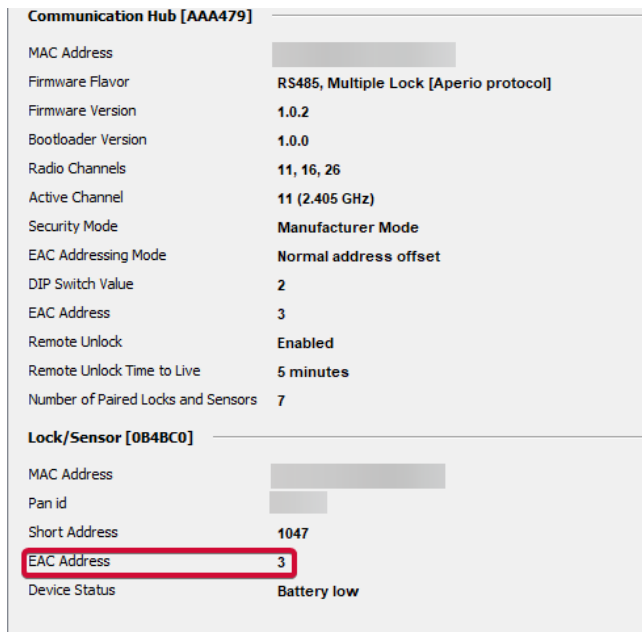
1. Module Settings	2. Lock 1	3. Lock 2	4. Lock 3
5. Lock 4	6. Lock 5	7. Lock 6	8. Lock 7
9. Lock 8	10. Additional Components		

Module Settings and *Additional Components* are consistent with existing Hardwired Door steps, however the *Lock X* steps contain some additional RF Reader specific settings, as well as different door side settings, compared to the standard hardwired *Door X* steps.

A subsection of the *Lock X* step, *RF Reader Settings* contains the settings specific to the Aperio RF integration and are contained within a teal container.



The *Aperio Lock EAC Number* is the calculated EAC number of the Aperio wireless lock. This EAC can be found within the Aperio Programming Application, assigned by the lock's parent hub to the lock based off the hub's own EAC and the lock number.



Reed Enabled determines whether the Inception system monitors the reed input on the Aperio lock. If this is ticked, a reed input will be created under [*Inputs > Hardware Inputs*], and the corresponding *Door Open Too Long* and *Door Forced* calculated inputs will be created under [*Inputs > Calculated Inputs*]. These inputs can then be monitored by Areas for the purposes of reporting and alarm handling.

Input Name	Status	Advanced	Additional Information	Hardware Point
Intelligent LAN Access Module (ILAM) 1 - Door 1 - REX	Inactive			Intelligent LAN Access Module (ILAM) (1)- Input 5
Intelligent LAN Access Module (ILAM) 1 - Door 1 - REN	Inactive			Intelligent LAN Access Module (ILAM) (1)- Input 7
Intelligent LAN Access Module (ILAM) 1 - Door 1 - Reed	Inactive			Intelligent LAN Access Module (ILAM) (1)- Input 1
Intelligent LAN Access Module (ILAM) 1 - Door 1 - Forced	Inactive			
Intelligent LAN Access Module (ILAM) 1 - Door 1 - Held Open	Inactive			

Similar to the traditional hardwired door's *Door Side Settings*, the only difference for Aperio locks is that the *Outside Reader* and *Inside Reader* cannot be set. This is due to the Inception system automatically assigning the Aperio lock's only reader as the *Outside Reader*.

Door Side Settings
Select which areas are located on the outside and inside of the door, as well as what credentials are required to enter or exit the door. [Read More...](#)

<p>Outside Settings</p> <p>Outside Area - None - i</p> <p>Outside Access Mode Single Credential Authentication i</p>	<p>Inside Settings</p> <p>Inside Area - None - i</p> <p>Inside Access Mode Single Credential Authentication i</p>
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User Credentials

SIFER-Aperio

By default, SIFER cards cannot be used with Aperio locks using site code and card number. In order to use SIFER credentials (site code + card number) with Aperio locks, special SIFER-Aperio (part number *IR-994614A*) cards must be used, which can be purchased from your local distributor.

HID SEOS

The Inception system can also be configured to accept HID SEOS card data from Aperio locks. This data will come through with a 26-bit payload, and the corresponding credential template can be created in Inception. First, badge the card at the Aperio reader, noting the following review message in Inception.

Credential Read Failed because Site Code was Unknown	Site Code 1	26Bit Standard
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This means that the Inception system has recognized that the data is standard 26-bit Wiegand, however a credential template needs to be created. This can be done by navigating to **[Configuration > Access Control > Credential Templates]** and using the *Add From Review* functionality or creating the below credential template:

General

Name	HID SEOS
Notes	
Type of Credential	Card i
Template Type	Site Code + Credential Number i
Card Format	26Bit Standard i
Site Code	YOUR SITE CODE HERE i

Direct Entry

Alternatively, provided a *Direct Entry* credential template is configured, the CSN can be read from the SIFER card and used as a credential.

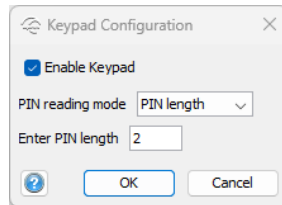
The screenshot shows a configuration window titled 'General'. It contains the following fields:

- Name:** Direct Entry
- Notes:** (Empty text area)
- Type of Credential:** Card (with an information icon)
- Template Type:** Raw (Direct Entry) (with an information icon)

Message	Who	What	Where
Credential Read Failed because Credential is Unassigned	Credential Number 38046527E27B4480	Direct Entry	Intelligent LAN Access Module (ILAM) 1 - Door 1 - Outside

User PINs

The Inception system accepts PINs sent through from Aperio locks that have built in keypads. Aperio locks can be configured to send through PINs of various lengths, as well as whether to send the PIN once the unlock button on the lock is pressed, or upon the entered PIN being equal to the specified *PIN length*. This configuration is performed in the Aperio Programming Application, and the Inception system will correctly handle either configuration.



Behaviour

Offline Behaviour

When an ILAM comes online to the Inception controller, all user credentials ILAM (up to 100,000 cards, not users) are pushed to the ILAM's offline access database along with the permissions they have on that ILAM. If both the Aperio Lock and Hub are online to the ILAM, but the ILAM is offline to the Inception Controller, access events will be processed using the ILAM's offline access database.

Lock Offline

If the Aperio lock is offline to the Hub or the Hub is offline to the ILAM, the lock's behaviour reverts to the Aperio system's published behaviour. This can allow access through doors correctly configured using Aperio programming tools with a backup / override card.

The Inception system will correctly show the door as offline once this has been reported by the Aperio hub.

Quick Control	Door Name	Status	Advanced	Last Access Event
	Intelligent LAN Access Module (ILAM) 1 - Door 1	Wireless Lock Offline		

An Aperio lock will be reported as offline if it fails to report to the hub within the *Status Report Interval* time configured within the hub, using the Aperio Programming Application.

IMPORTANT NOTE: Due to a limitation of the 3rd party integration, Aperio locks that have been configured on Inception but are physically absent (i.e., haven't 'checked in' with their hub) will not display in Inception as "Wireless Lock Offline", but instead as "Locked". This is due to the Aperio hubs not sending through information for locks that they don't know about.

When the door's corresponding *Wireless Door Health* calculated input is being monitored by an armed area, its *Lock Offline* state will be correctly reported when the Aperio lock goes offline.

Input Name	Status ^	Advanced	Additional Information	Hardware Point
Intelligent LAN Access Module (ILAM) 1 - Door 1 - Wireless Door Health	Lock Offline			

Battery Low

Aperio locks can transmit a "Battery Low" status to the Aperio hub, which the Inception will then process and reflect as either a "Door Locked (Battery Low)" or "Door Unlocked (Battery low)" status.

Quick Control	Door Name	Status	Advanced	Last Access Event
	Intelligent LAN Access Module (ILAM) 1 - Door 1	Locked (Battery Low)		

The interval between battery checks can be configured on a per lock basis, via the Aperio Programming Application. This means that a lock could potentially take hours or days to report their battery status, depending on how the lock has been configured in the Aperio Programming Application.

When the door's corresponding *Wireless Door Health* calculated input is being monitored by an armed area, its *Battery Low* state will be correctly reported when the Aperio lock goes offline.

Input Name	Status ^	Advanced	Additional Information	Hardware Point
Intelligent LAN Access Module (ILAM) 1 - Door 1 - Wireless Door Health	Battery Low			

Held Open (DOTL)

The Inception system will automatically create a *Held Open (DOTL)* calculated input on Aperio locks that have *Reed Enabled* ticked in the lock's corresponding Hardware Wizard step. This DOTL input can then be placed within an area, allowing for the monitoring and reporting of DOTL events for that lock. Additionally, in line with standard hardwired door behaviour, the door's status will reflect the *Held Open Too Long* state.

Quick Control	Door Name	Status	Advanced	Last Access Event
	Intelligent LAN Access Module (ILAM) 1 - Door 1	Held Open Too Long		Access Button used to unlock the Door at 2023-06-16 09:22:57 AM

Note that the Aperio lock has no mechanism to signal a DOTL warning on behalf of the Inception system, so a separate warning device will need to be utilized and programmed to be controlled by an Inception automated action, triggering off the doors *Held Open Too Long* state.

General ▼

Name: Aperio Foyer - DOTL

Notes: Controls the Foyer door's DOTL output, based on whether the corresponding DOTL input is active.

Trigger Condition ▼

Enable Action:

Trigger Condition: True when ALL of the following are true + Trigger + Group

- ✖ Intelligent LAN Access Module (ILAM) 1 - Door 1 Is Held Open Too Long

Actions When True ▼

Action Type	Item	Action
Control Output	Aperio Foyer - DOTL Output	Turn On Output

Add Items Remove Selected Items

Actions When False ▼

Action Type	Item	Action
Control Output	Aperio Foyer - DOTL Output	Turn Off Output

Add Items Remove Selected Items

Door Forced

Inception does not process a mechanical *Door Forced* from Aperio, but instead calculates the state of the *Forced* calculated input (automatically created when *Reed Enabled* is ticked in the lock's corresponding Hardware Wizard step) based off the state of both the door and its reed input. When this *Forced* input transitions to the active state, the door will transition to the *Forced* state, in line with standard hardwired door behaviour.

Quick Control	Door Name	Status	Advanced	Last Access Event
	Intelligent LAN Access Module (ILAM) 1 - Door 1	Forced		

Doors in Free Access

Aperio doors can be placed into free access in the Inception system either manually, via a Time Period, or by some other action. However, the Aperio lock will only be updated to match the state in the Inception system once a poll has occurred and this is dependent on the poll time set in the Aperio configuration.

NOTE: Aperio V3 Series Locks have a more frequent heartbeat poll (approx. 10 seconds) and will therefore respond faster to door "Free Access" and "Secure commands" from the Inception system. If these operations are implemented, always test that they operate as expected when commissioning the system.

The current state of the Aperio lock cannot be monitored, so the Integriti system does not know if the Inception door state and the state of the associated Aperio lock actually match. This means that an Inception door that appears to be in free access in the Inception system, might in fact be locked, and vice-versa.

If *Door Forced* process is enabled, this could result in false *Door Forced* alarms. Increasing the poll rate will reduce the impact of this time of uncertainty, but may have an adverse impact on the battery life of the lock.

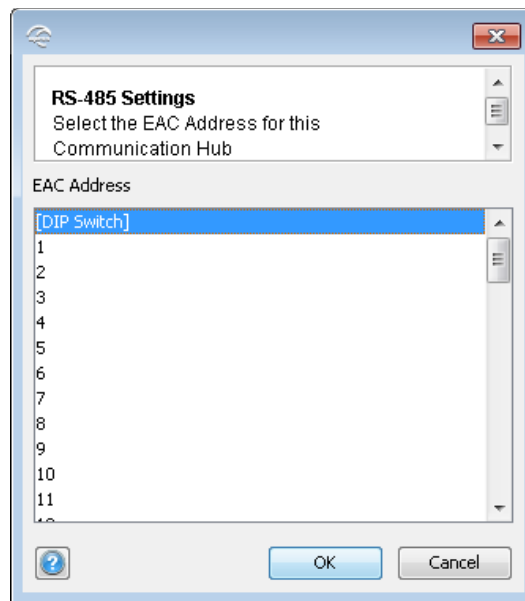
Door Auxiliaries

Although the physical lock auxiliary on the ILAM is not required for an Aperio door, it is still reserved by the Inception system and cannot be used for other purposes. As per normal Inception operation, controlling the door auxiliary by other means is disallowed.

Troubleshooting

Door events are not coming through when interacting with the RF Lock

Confirm that the *Aperio Lock EAC Number* correctly lines up with the corresponding EAC address assigned to the lock in the Aperio Programming Application. Ensure that the lock is assigned an EAC address of 120 or less.



Acknowledgement:

'Aperio' is a trademark of Assa Abloy AB. Stockholm, Sweden.

Disclaimer:

While every effort has been made to ensure the accuracy of this manual, the manufacturer assumes no responsibility or liability for any errors or omissions.

Due to ongoing development, this manual is subject to change without notice.