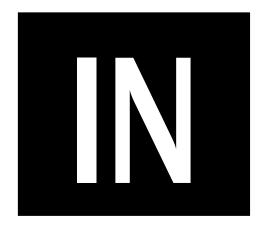
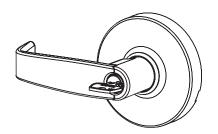
Installation Instructions









IN100 Series Bored Lock

(with Aperio™ Technology)

Attention Installer:

Please read these instructions carefully to prevent missing important steps.

Improper installations may result in damage to the lock and void the factory warranty.

The accuracy of the door preparation is critical for proper functioning and security of this lock.

Misalignment can cause premature wear and a lessening of security.

For specific security information, please contact your local ASSA ABLOY Door Security Solutions sales consultant or call 800-810-9473.



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5	Operational Check16
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IN100 Series

Bored Lock

Installation Instructions



1

Warning



WARNING

This product can expose you to lead which is known to the state of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65warnings.ca.gov.

Ce produit peut vous exposer au plomb qui, dans l'état de la Californie, est reconnu pour causer le cancer, des anomalies congénitales ou d'autres problèmes de reproduction. Pour plus d'informations, visitez: www.P65warnings.ca.gov.

Changes or modifications to this device not expressly approved by ASSA ABLOY could void the user's authority to operate the equipment.

FCC:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Industry Canada:

This Class B digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Cet appareillage numérique de la classe B répond à toutes les exigences de l'interférence canadienne causant des règlements d'équipement. L'opération est sujette aux deux conditions suivantes: (1) ce dispositif peut ne pas causer l'interférence nocive, et (2) ce dispositif doit accepter n'importe quelle interférence reçue, y compris l'interférence qui peut causer l'opération peu désirée.

"This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter."

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.



Any retrofit or other field modification to a fire rated opening can potentially impact the fire rating of the opening, and SARGENT Manufacturing makes no representations or warranties concerning what such impact may be in any specific situation. When retrofitting any portion of an existing fire rated opening, or specifying and installing a new fire-rated opening, please consult with a code specialist or local code official (Authority Having Jurisdiction) to ensure compliance with all applicable codes and ratings.



To avoid possible damage from electrostatic discharge (ESD), some basic precautions should be used when handling electronic components:

- Minimize build-up of static by touching and/or maintaining contact with unpainted metal surfaces such as door hinges, latches, and mounting plates especially when mounting electronic components such as readers and controllers onto the door.
- Leave components (reader and controller) protected in their respective anti-static bags until ready for installation.
- Do not touch pins, leads or solder connections on the circuit boards.



2

Product & Technical Specifications

Operating temperature: -13°F (-25°C) to 151°F (66°C) Humidity: < 85% non-condensing

Input Power: DC 9V, 1.5A (6 AA alkaline batteries)
Optional hard-power 12-24VDC, 1.0A

Reader with multiCLASS SE® technology offers support for the following credentials:

High Frequency (13.56 MHz)

HID iCLASS®

HID iCLASS SE® (SIO-enabled)

HID iCLASS® Seos™

HID MIFARE® SE

HID DESFire® EV1 SE

MIFARE Classic

DESFire EV1

DESFire EV2/EV3 (EV1 Compatibility)

Low Frequency (125 kHz)

AWID

EM4102

PIV/PIV-I

40-bit BCD, 64-bit BCD, 75 bit, 128-bit or 200-bit outputs

NFC & BLE-enabled Mobile Phones:

HID Mobile Access® (BLE and NFC)

Apple Wallet Seos (NFC)

Apple Wallet DESFire® (NFC)

Google Wallet DESFire® (NFC)

NOTE: reference IN100 catalog for complete list of certifications

UL NOTES:

UL Listed to UL294 Indoor Dry Use, 32°F (0°C) to 120°F (49°C), 93% Relative Humidity at 90°F (32°C) installed in accordance with NFPA70, National Electrical Code.

ULC-60839-11-1 Listed Security Grade 2 Indoor Dry Use, $32^{\circ}F$ ($0^{\circ}C$) to $120^{\circ}F$ ($49^{\circ}C$), 93% Relative Humidity at $90^{\circ}F$ ($32^{\circ}C$), IP4X installed in accordance with CSA C22.1, Canadian Electrical Code.

UL 294 Access Control Ratings:

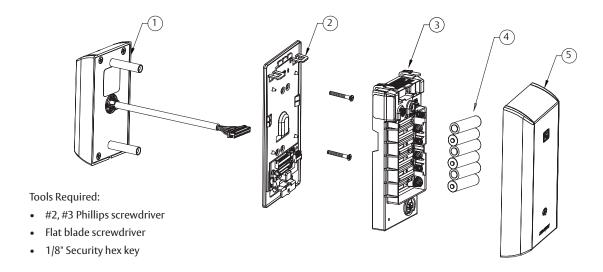
Destructive Attack Level 1, Line Security Level 1, Endurance Level 4, Standby Power Level 1

Reader controller firmware version 3.14.x or greater

The electronic access control system shall not prohibit the free exit granted by other emergency systems (e.g. fire, environmental)

For Use with the separately Listed Model AH20, AH30 and AH40 HUBs

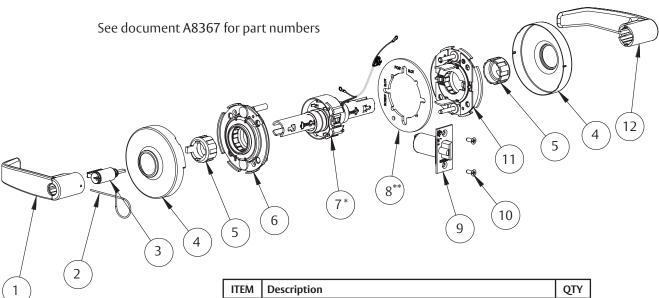
Product Illustrations



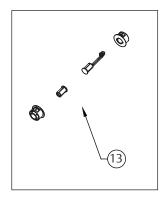
ITEM No.	DESCRIPTION
1	Aperio Reader Assembly
2	Mounting Plate Assembly (includes gasket)
3	Aperio Controller
4	AA alkaline batteries (6)
5	Branded Battery Cover Assembly with Privacy Button

Consult document A8367 for specific part numbers

Parts Breakdown continued



*Adapter Plate/Spacer (10-0847) is only shipped with orders that specify 1-3/8" doors.



ITEM	Description	QTY
1	Outside Lever (Reference Catalog for Available Styles)	1
2	Lever Retainer Key (In Screw Pack 10-2052)	1
3	Cylinder Assembly (Reference Catalog for Available Cylinders)	1
4	Rose (Reference Catalog for Available Styles)	2
5	Spacer Bushing	2
6	Outside Rose Spring Assembly	1
7*	Lockbody Assembly 10G77 (Standard Cylinder)	1
	Lockbody - LFIC (Removable Core)	
	Lockbody - SFIC	
	Lockbody - Keso	
	Lockbody - Schlage Full Size Interchangeable Core	
8**	Adapter Plate/Spacer (Only Included With 1-3/8" Thick Doors)	2
9	Latch Assembly	1
10	Screw Pack (10-2070) for 28-option	2
11	Inside Rose Spring Assembly	1
12	Inside Lever (Reference Catalog for Available Styles)	1
13	Door Position Switch Kit (SPDT)	1
14	Field prep template (not shown)	1
15	Door manufacturer's template (not shown)	1
16	Installation Instructions (this manual)	1

^{**}The IN100 10G77 cylindrical lock supports Escape Return functionality.

6

Lock Installation

Prepare door.
 a. Verify hand and bevel of door. (Fig. 1)

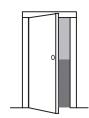
NOTE: Stand on outside of locked door when determining door hand.

- b. Prepare door according to appropriate template. (Fig. 2) See website www.intelligentopenings.com.
 - Field Template: A8149 (ships with product)
 - Door Manufacturer's Template: **4712**

NOTE: Prior to installation, all holes must be free of burrs, debris and sharp edges.



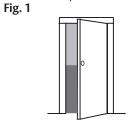
LHLeft Hand
Hinges Left
Open Inward



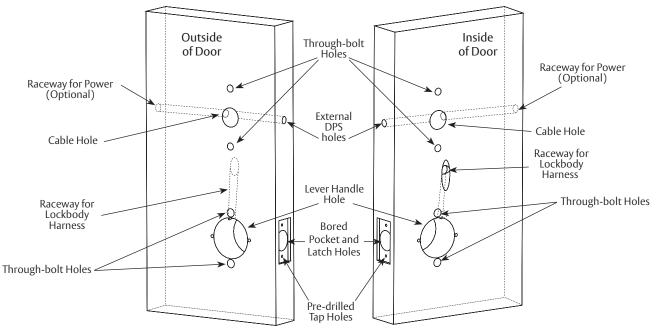
LHRB Left Hand Reverse Bevel Hinges Left Open Outward



RH Right Hand Hinges Right Open Inward



RHRB Right Hand Reverse Bevel Hinges Right Open Outward



4

Lock Installation continued

(Fig. 5)

- 2. Install strike in door frame. (Fig. 3)
- 3. Install latchbolt. (Fig. 4)
 a. Install latch with beveled bolt facing strike.
 - b. Attach with two (2) screws but DO NOT tighten completely at this time.

(See 8. Secure lock to door)

- 4. Install door position switch (Fig. 6).
 - a. Push wires through raceway toward lock prep.
 - b. Push DPS firmly into place by hand.

CAUTION: DO NOT TAP SWITCH WITH ANY TOOL

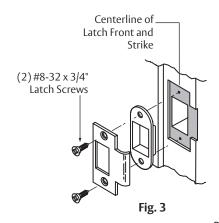
- c. Install magnet into door frame. Push firmly into place by hand. See instruction **A7983**.
- d. To connect DPS to lock controller per diagram, refer to the wiring in10. Install outside reader.

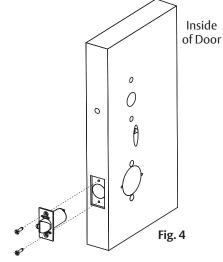
CAUTION: If DPS is not installed or is installed improperly, door status monitoring features will not function.

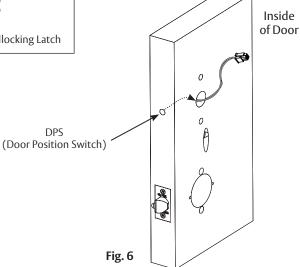
5. Adjust lock.



Fig. 5





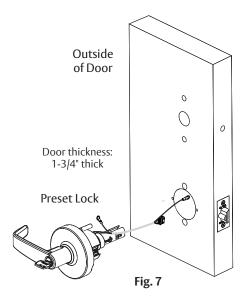


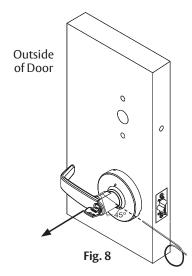
Lock Installation continued

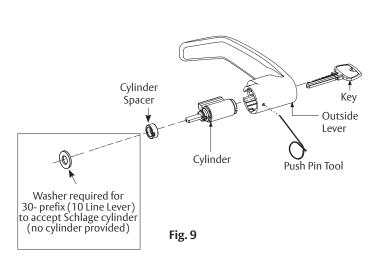
a. Lockbody holes are at 12 and 6 o'clock. (Fig. 7)

NOTE:

- Lock is shipped "preset" and does not require adjustment for 1-3/4" thick doors
- Adjusting for a thicker door requires removal of the outside lever, scalp and spacer bushing; see following sections
- If preset lock does not require adjustment, proceed to 7. Install lock.
- 6. Adjust through-Bolt and door thickness if required.
 - a. Remove outside lever. (Fig. 8)
 - Insert key, rotate 45° clockwise and hold
 - Depress lever retainer with push pin tool (provided)
 - Pull lever outward
 - b. Change cylinder if necessary. (Fig. 9)
 - With outside lever in hand, use standard pliers to pull out cylinder retainer
 - Remove key and cylinder from lever
 - Insert new cylinder
 - Secure by pressing cylinder retainer flush with the lever
 - c. Adjust through-bolt and door thickness if necessary.







4

Lock Installation continued

- Remove outside lever, scalp and spacer bushing (Fig. 10)
- Rotate mounting plate to either align with through-bolt holes in door, or adjust for proper door thickness. (Fig. 11)
 Refer to markings on through-bolt post. (Fig. 12)
- Re-install spacer bushing to align with back of lever, scalp, and lever (Fig. 11)

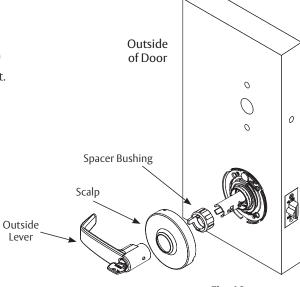
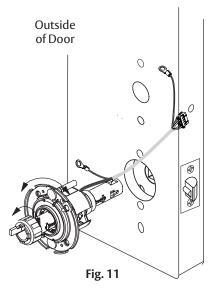


Fig. 10



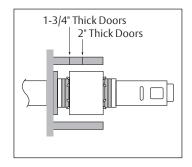


Fig. 12

4 Lock Installation continued

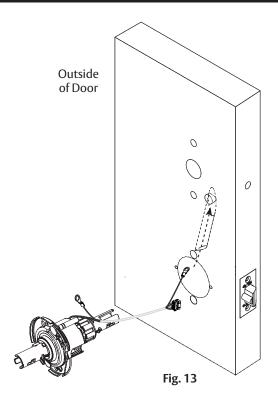
- 7. Install lock.
 - a. From outside of door feed lockbody harness into lockbody hole. (Fig. 13)

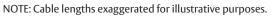
For metal door: Feed harness through inside of door (not shown).

- b. Continue to feed harness into raceway (towards top of door), exiting raceway hole on inside of door. (Fig. 14)
- c. Slide lockbody into cross-bore hole from outside of door.
- d. Lockbody must engage both the latch unit prongs and tail piece. (Fig. 15)

IMPORTANT:

- Door must remain open during installation (use door stop)
- Lockbody must be centered in door
- Tuck excess wires into raceway to avoid pinching or damaging wires





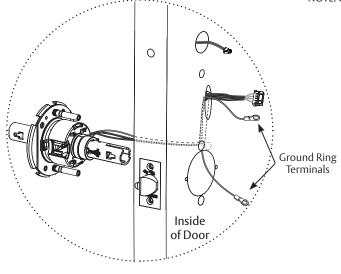


Fig. 14

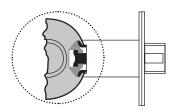


Fig. 15

Lock Installation continued

8. Secure lock to door.

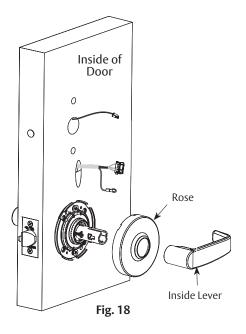
- a. Slide inside rose assembly and spacer bushing over lockbody.
- b. Position ground lug between (top) #10-32 x 1-1/4" through-bolt and rose assembly. (Fig. 16)
 - NOTE: Proper placement of ground wire will prevent pinching/damage to ground wire. (Fig. 17)
- c. Secure rose assembly with two (2) $\#10-32 \times 1-1/4$ " through-bolts.
- d. Secure latch by <u>fully</u> tightening two (2) #6 x 3/4" self-tapping screws (refer to previous 3. Install latchbolt).

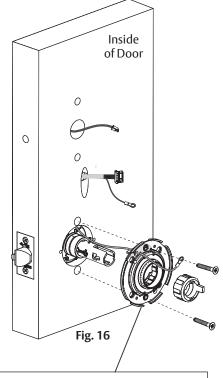
9. Assemble inside trim.

- a. Verify spacer bushing is inserted horizontally and aligned with lever. (Fig. 18)
- b. Place rose over shaft of lockbody against surface of door; hand-tighten, turning clockwise.
- c. Attach lever. Push until engaged.

10. Install outside reader.

a. Orient reader so LED lens is at top. (Fig. 19)





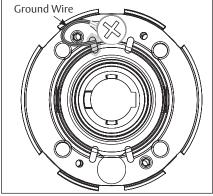


Fig. 17

NOTE: Cable lengths exaggerated for illustrative purposes.

IN100 Series

Bored Lock

Installation Instructions



4

Lock Installation continued

- b. Feed cable/connector through door from outside to inside.
- c. Install reader to outside of door by aligning mounting posts with door preparation holes. Hold reader flush against door while ensuring proper alignment.
- d. Feed reader harness and DPS connectors through inside mounting assembly and gasket if required*. (Fig. 20)

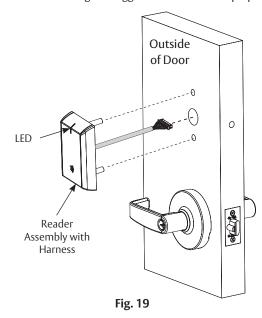
IMPORTANT: Do not run wires through bottom flange hole in plate - it will damage wires and controller connector. Route wires around flange. (Fig. 20)

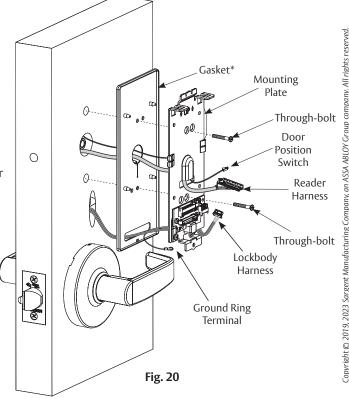
- e. Tuck excess cable into wire hole on inside of door.
- f. Begin to secure mounting assembly by partially tightening two (2) through-bolts on inside of door while ensuring proper alignment as reader is secured. (Fig. 20)
- g. Secure ground lug with #6-32 machine screw. *NOTE:
- Gasket is required for outdoor installations.
- Do not use gasket for fire-rated openings.
- If installing with gasket, separate gasket from mounting plate to feed cables/connectors through holes as indicated. (Fig. 20)
- Once cables/connectors are fed through, reattach gasket to mounting plate.
- h. Secure the following connectors to their respective terminals (Fig. 22):

CAUTION: Do not touch or allow debris to enter connector contacts.

- Secure 4-pin DPS connector
- Secure 10-pin lock body assembly connector
 *NOTE: Optional 2-pin external 12-24VDC power connector.
- i. When all connections have been made, tuck excess cable into wire hole on inside of door.
- j. Secure mounting assembly while ensuring proper alignment of outside reader and tighten two (2) through-bolts on inside of door to secure reader. (Fig. 23)
- k. Secure 24-pin card reader connector. (Fig. 24)

NOTE: Cable lengths exaggerated for illustrative purposes.





4

Lock Installation continued

CAUTION: Do not touch or allow debris to enter connector contacts.

- i. Secure the following connectors to their respective terminals (Figure 21):
- Secure 4-pin DPS connector
- Secure 10-pin lock body assembly connector
- *Secure (optional) 2-pin external 12-24VDC power connector.
- *Secure (optional) external 12-24VDC power supply ground ring terminal to Ground Lug

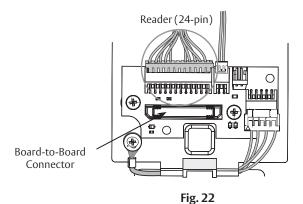
NOTE: For UL294 applications, the power supply shall be UL294 Listed, Class 2 Power Limited

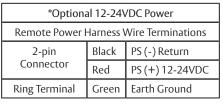
NOTE: For ULC-60839-11-1 applications, the power supply shall be ULC-60839-11-1 (Security Grade Level 2 or better) Listed Class 2, or ULC-S319 (Security Grade Level 2 or better) Listed Class 2, or ULC-S318 Listed, Class 2

NOTE: For ULC-60839-11-1 applications the power supply wiring shall be a maximum length of 3 meters (9.8 feet)

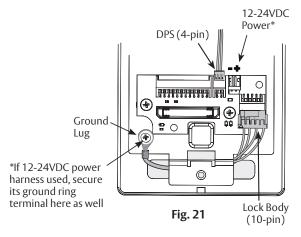
IMPORTANT: Do not run wires through bottom flange hole in plate - it will damage wires and controller connector. Route wires around flange. (See Figures 21-23)

- j. When all connections have been made, tuck excess cable into wire hole on inside of door.
- k. Secure mounting assembly while ensuring proper alignment of outside reader and tighten two (2) through-bolts on inside of door to secure reader. (Figure 24)
- I. Secure 24-pin card reader connector. (Figure 22)





Power Supply (PS) Required - UL Class 2 Filtered & Regulated, 12-24VDC, 1.0A



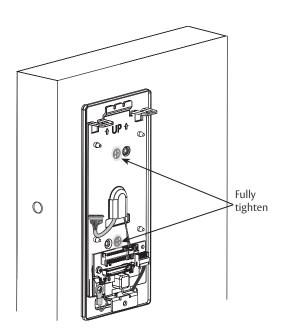


Fig. 23

Lock Installation continued

- Install inside component assembly (controller).
 a. Insert bottom tab of controller (make sure path is clear) into slot on mounting plate. (Fig. 24)
 - b. Ensure proper alignment of board-to-board connectors while pivoting controller toward door until two tabs on top click securely into place on mounting plate. (Fig. 25)

CAUTION: To avoid possible damage to board-to-board connectors, care should be taken when securing controller to mounting plate. If there is resistance when securing, detach controller to determine cause before re-attaching controller.

12. Install batteries.

- a. Place six (6) "AA" alkaline batteries in compartment, being careful to align polarity properly. (Fig. 26)
- b. After batteries are installed, there is a slight delay; then red and green flash*, audible "beep" and lock motor will cycle.

*See Section 8 - LED Indications for more information.

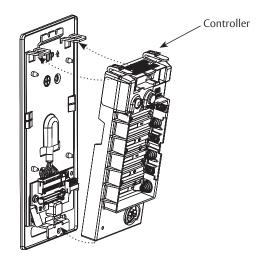


Fig. 24

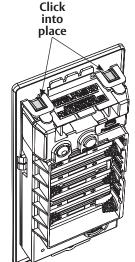
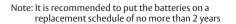
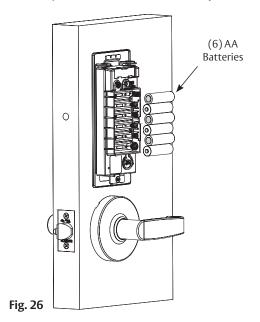


Fig. 25





4

Lock Installation continued

13. Install inside cover. (Fig. 27)

- a. Assemble cover by hooking top edge on inside mounting plate.
- b. Carefully press bottom of cover toward door without pinching or damaging wires.
- c. Secure cover utilizing 1/8" security hex key.

NOTE: Use of power tools on this step is strongly discouraged. Over-torquing security pin hex screw will result in battery cover damage.

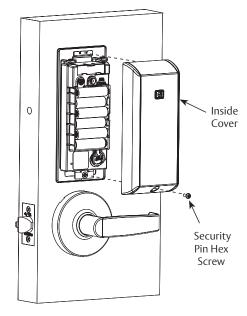


Fig. 27

Operational Check

1. Insert key into cylinder and rotate. (Fig. 28)

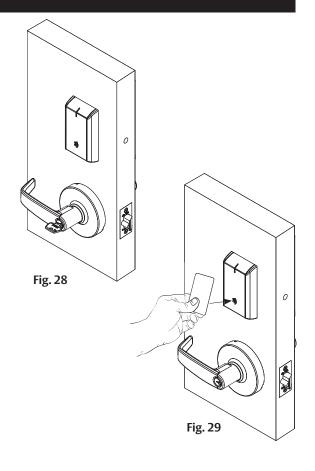
NOTE: There should be no friction against lock case, wire harness or any other obstructions.

- 2. Check that key retracts latch.
 - NOTE: Key should rotate freely.
- 3. Try inside lever; ensure it retracts latch.
- 4. NOTE: Consult premises access control system for use of RX function and verification of signal.
- 5. Present a valid credential* to unlock outside lever; turn lever handle to ensure latch retracts. (Fig. 29)

NOTE: Credential should approach inscription on reader as indicated to ensure credential is read properly.

Do not wave credential.

*Depending upon availability of access control system either a (denied) red flash or a green and lock motor cycle (access granted).

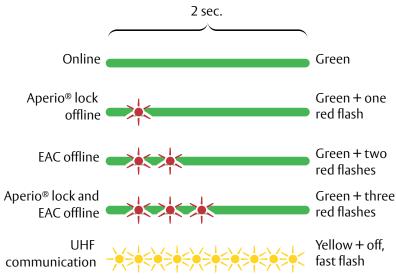


Communication Hub LED Indications

Communication hub has a single LED. It supports an optical scheme of red, green and yellow.

Indication scheme is described by figures below:

Communication Hub NORMAL OPERATION LED indication



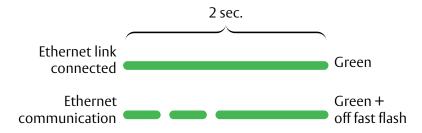
Some special LED indication schemes are used during lock maintenance actions:

Communication Hub MAINTENANCE LED indication



LED on AH40 communication hub indicates both status of Ethernet link level and ethernet communication:

AH40 Communication Hub ETHERNET LED indication



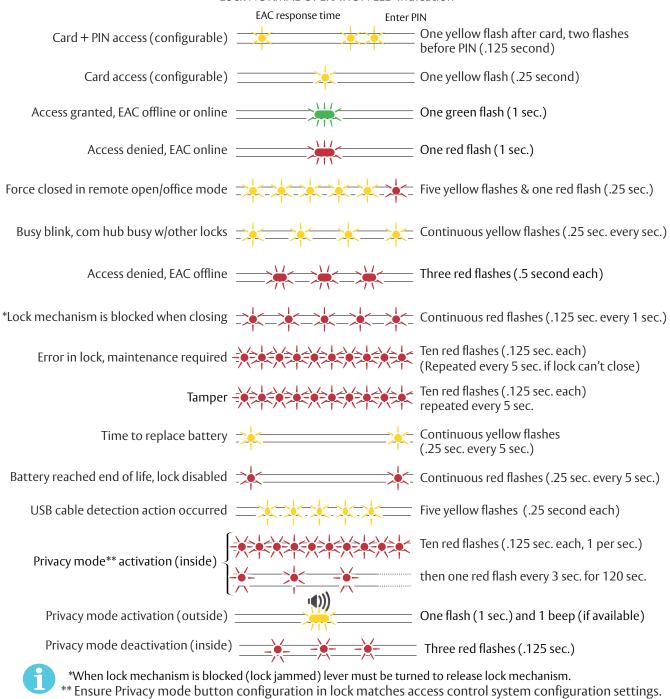
*For more information, refer to Aperio Online Quick Installation Guide Document No: ST-001322-PF Date: 2015-12-23

7

Lock LED Indications

Lock has three (3) LEDs. They support an optical scheme with red, yellow and green. Indication scheme described by figures below:

Lock NORMAL OPERATION LED indication



Some special LED indication schemes are used during lock maintenance actions:

Lock MAINTENANCE OPERATION LED indication

Enter configuration mode ______ Five yellow flashes (.125 sec. each)

Installation Instructions



8

Lock Self-Test LED Indications

After replacing batteries, a Power on Self Test (POST) is performed. The result is indicated using a series of red and green LED flashes as described by figures below:

Battery Not Fully Charged

Error in lock is an indication -10 quick (125ms) red blinks, that either new batteries are not at right voltage or a backward battery has been installed; battery not fully charged; energy counter not reset or no Power on self-test performed.



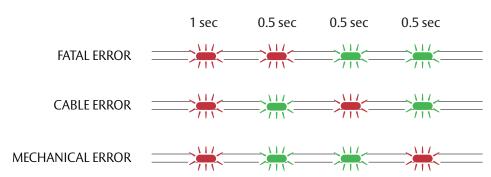
Test Pass

1 red (1s) + 1 green (1s), Power on self-test passed. See table below.

Test Fail

1 red (1s) + 3 blinks (500ms, green or red), at least one test failed (red). See table below.

If a fatal error is detected, lock will enter an Error state and continuously indicate fatal error. Lock will not read cards or unlock.



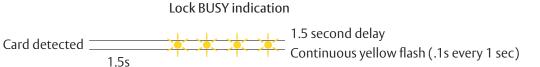
FATAL ERROR	Tests core functionality. MCUs, memory and internal communication, etc.
CABLE ERROR	Tests communication between different parts in system, i.e. different boards connected with a wire.
MECHANICAL ERROR	Test related to moving parts of lock.

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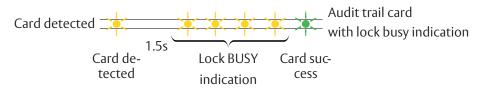
Lock Busy LED Indications

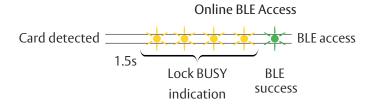
Lock BUSY indicates lock is processing a card (such as a key configuration card for online SE processor or offline void list card with many entries). Card should be kept in close proximity to reader until end of process. Lock BUSY indication does not cancel or overwrite any other indications. Indications related to access permissions or setup card processing are still present.

Indication scheme is described by figures below:

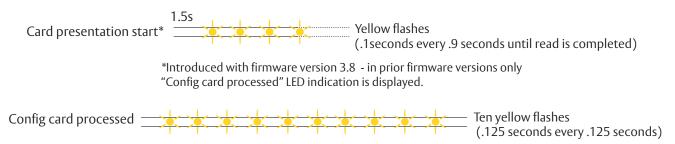


Lock BUSY indication Mixed with Scenario for Offline Audit Trail Card





Online SE Keys Setup Card









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