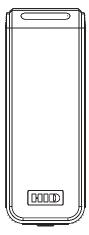
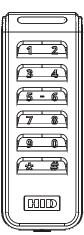
# **Installation Instructions**









Series SN200 Wiegand SN210 OSDP ML2000 Series Mortise Locks

#### **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 Technical Assistance call Corbin Russwin at 1-800-810-WIRE (9473)





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## 1) Regulatory Compliance

Changes or modifications to this unit not expressly approved by the party responsible for compliance 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.

Cet équipement est conforme aux limites d'exposition aux radiations de la FCC définies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé à une distance minimale de 20 cm entre le radiateur et votre corps. Cet émetteur ne doit pas être co-localisé ou fonctionner en conjonction avec une autre antenne ou un autre émetteur.

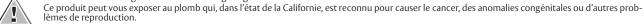
Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent 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.

## 2) 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.



Pour plus d'informations, visitez: www.P65warnings.ca.gov.



Any retrofit or other field modification to a fire rated opening can potentially impact the fire rating of the opening, and Corbin Russwin 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

WARNING: The system shall not be installed in the fail-secure mode unless permitted by the local authority having jurisdiction and shall not interfere with the operation of Listed panic hardware.



## 3) Specifications

- UL Listed\* UL 294 Indoor Use
- CUL Listed S319: Class 1
- ANSI/BHMA A156.25 Listed Grade 1 Compliant

\*UL294, S319, & BHMA A156.25 not applicable to SN200 with Non-UL294 Configuration option

UL 294 Access Control Ratings:

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

UL testing was conducted on product powered by UL Listed model 9001GR/AC injector; manufactured by Microsemi Corp.

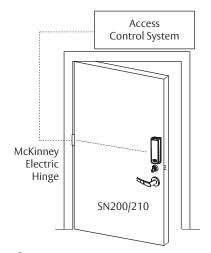
# Electrical Specifications 12/24VDC System

	12\	/	24V		
	Average	Peak	Average	Peak	
Reader**	75mA	250mA	n/a	n/a	
Actuator	15mA	500mA	15mA	500mA	

<sup>\*\*</sup>Maximum AVG - RMS current draw during continuous card reads Not evaluated by UL.

Peak - highest instantaneous current draw during RF communication

The reader requires 12VDC for power, while the lock accepts either 12 or 24VDC.



## OSDP\*\* and Wiegand Wire Specifications

Total One-Way	Wire Gauge Chart 12VDC Load Current @ 12VDC							
Length of Wire Run (ft)	1/4A	1/2A	3/4A	1A	1-1/4A	1-1/2A	2A	3A
100	20	18	16	14	14	12	12	10
150	18	16	14	12	12	12	10	_
200	16	14	12	12	10	10	_	_
250	16	14	12	10	10	10	_	_
300	16	12	12	10	10	_	ı	_
400	14	12	10	_	_	_	_	_
500	14	10	10	_	-	_	_	_
750	12	10	_	_	_	_	_	_
1,000	10	_	_	_	_	_	_	_
1,500	10	_	_	_	_	_	_	_

Total One-Way	Wire	Wire Gauge Chart 24VDC Load Current @ 24VDC								
Length of Wire Run (ft)	1/4A	1/2A	3/4A	1A	1-1/4A	1-1/2A	2A	3A		
100	24	20	18	18	16	16	14	12		
150	22	18	16	16	14	14	12	10		
200	20	18	16	14	14	12	12	10		
250	18	16	14	14	12	12	12	10		
300	18	16	14	12	12	12	10	_		
400	18	14	12	12	10	10	_	_ ]		
500	16	14	12	10	10	-	-	_		
750	14	12	10	10	-	-	_	_		
1,000	14	10	10	_	_	_	_	_		
1,500	12	10	_	_	_	_	_	_		

<sup>†</sup>Recommended wire specifications for OSDP: Four (4) conductor twisted pair overall shield such as UL approved, Belden 3107A or equivalent is recommended to remain fully TIA-485 compliant at maximum supported baud rates and cable distances. Belden 82842, Liberty Wire & Cable 24-29\_P485-WHT, West Penn Wire D254852, and CAT6 cable have been found to be suitable in typical applications and installations, including lower baud rates and cabling distances.

This product is not intended for outside wiring as covered by Article 800 in the National Electrical Code, NFPA 70.

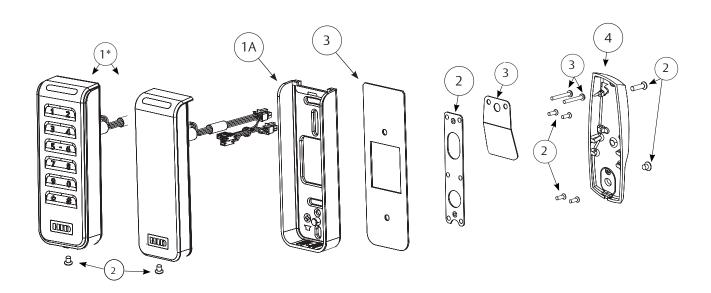
Wiring methods shall be in accordance with the National Electrical Code (ANSI/NFPA70), CSA 22.1, Canadian Electrical Code (CEC), Part I, Safety Standard for Electrical Installations, local codes and the authorities having jurisdiction.

Both reader and actuator current must be taken into account when determining wire length and gauge. OSDP installations may be more limited due to fewer cable options.

For OSDP cable lengths greater than 200 ft (61 m) or EMF interference, install  $120\Omega + \frac{1}{2}\Omega$  resistor across RS-485 termination ends.



## 4) Product Illustrations

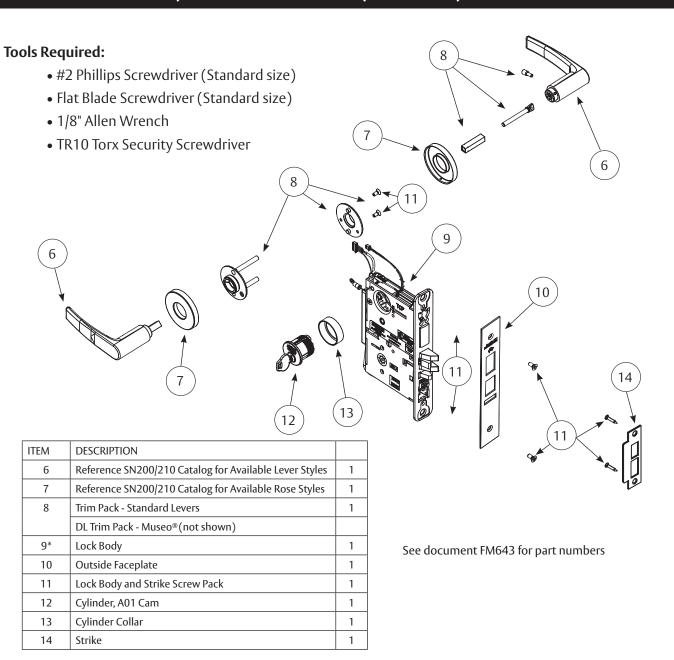


ITEM	Description	Req.				
1	1 Reader & Harness Assembly					
1A	Signo Reader Back Plate	1				
2	2 Mounting Packet					
3	Fire Plate Packet	1				
4	Inside Escutcheon	1				

See document FM643 for part numbers



## 4) Product Illustrations (Continued)



<sup>\*</sup>For EOL (End-of-Line Resistor) and PHR locks, please consult factory



## 5) Wiring Diagrams

Product		8 PIN CONNECTOR								4 PIN CONI	NECTOR	
	1-Black	2-Red	3-White	4-Green	5-Orange	6-Blue	7-Brown	8-Yellow	1-Violet	2-Gray	3-Pink	4-Tan
	ACCESS CONTROL DEVICES: SN200/210 Lockset, ElectroLynx wire Color / Function assignments											
		12VDC Communication (Reader) Type		RX	RX	EGND	Function*	12/24 VDC (LOCK RELAY) DPS		DPS	DPS	
SN200 (UL294)			WIEGAND	WIEGAND				TAMPER				
SN200	NEG	POS	DATA_1	DATA_0	NO	СОМ	EGND	GREEN LED	NEG	POS	NC	СОМ
SN210	1		OSDP RS-485B	OSDP RS-485A				n/a				

<sup>\*</sup>Diagrams on following pages

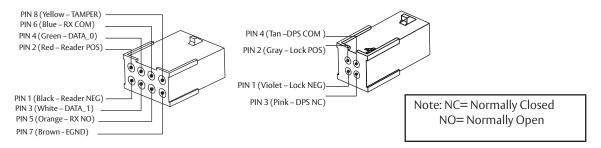
If your lock is configured with End of Line Resistors, reference instruction sheet FM406 for the wiring of RX & DPS outputs.

### **Wiegand Operation Mode:**

- Red LED 'ON' when powered.
- Presenting a compatible credential causes LED to briefly turn green and then return to red state.

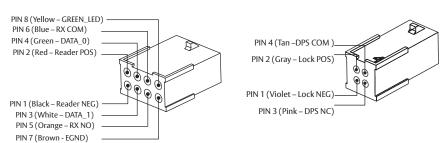
#### UL294 / TAMPER Configuration:

- Connect Yellow TAMPER wire from ElectroLynx cable to desired EAC panel control line. Reference Diagram #1.
- As appropriate, use the configuration card to activate desired mode on reader.



## Non-UL294 Configuration:

Connect GREEN\_LED input to switch controlled by panel. Shorting GREEN\_LED to READER\_NEG (Black)
with panel switch will override reader LED to keep it green.





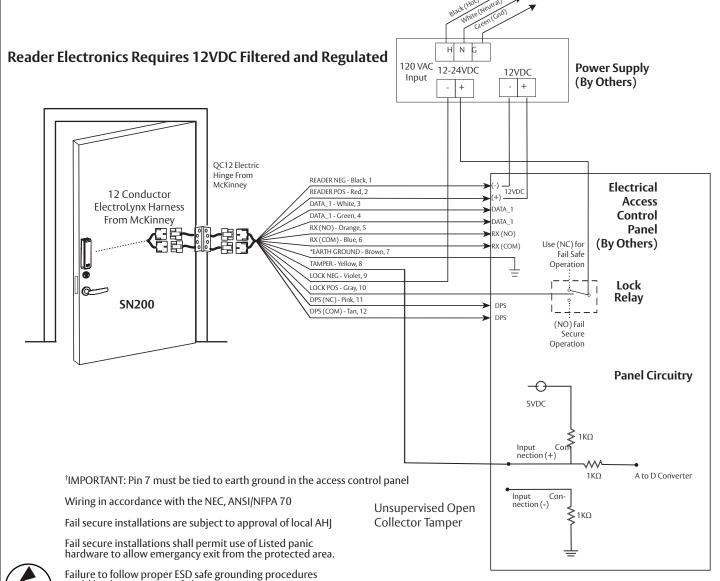
## 5) Wiring Diagrams (Continued)

SN200 Wiegand UL294/TAMPER Configuration Application Diagram #1

Tamper will trigger when reader is removed from door and tamper wiring is connected at the panel. 12/24VDC System

#### 12V **24V** Average Peak Average Peak Reader\* 75mA 250mA n/a n/a 15mA 500mA **Actuator** 15mA 500mA

Peak - highest instantaneous current draw during RF communication





could lead to equipment failure.

UL294 is a United States based standard.

<sup>\*</sup>Maximum AVG - RMS current draw during continuous card reads Not evaluated by UL.



## 5) Wiring Diagrams (Continued)

## SN200 Wiegand Non-UL294 Configuration Application Diagram #2

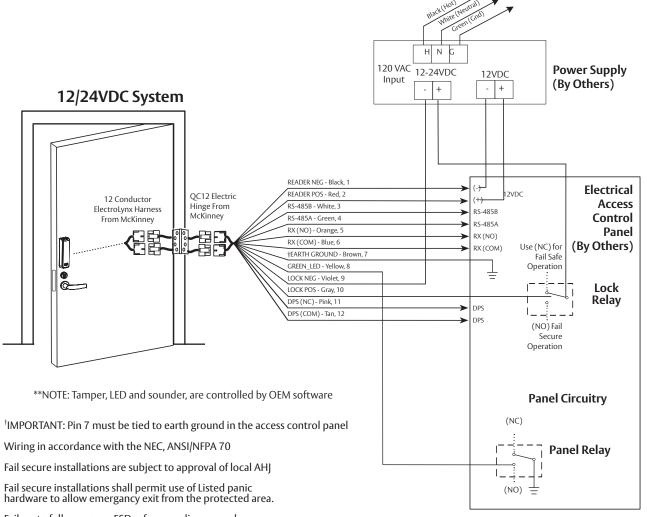
Connect GREEN\_LED input to switch controlled by panel. Shorting GREEN\_LED to READER\_NEG (Black) with panel switch will override reader LED to keep it green

#### 12/24VDC System

	12\	/	24V		
	Average	Peak	Average	Peak	
Reader*	75mA	250mA	n/a	n/a	
Actuator	15mA	500mA	15mA	500mA	

<sup>\*</sup>Maximum AVG - RMS current draw during continuous card reads Not evaluated by UL.

Peak - highest instantaneous current draw during RF communication





Failure to follow proper ESD safe grounding procedures could lead to equipment failure.

UL294 is a United States based standard.



## 5) Wiring Diagrams (Continued)

## SN210 OSDP Application Diagram #3 (12/24VDC System)

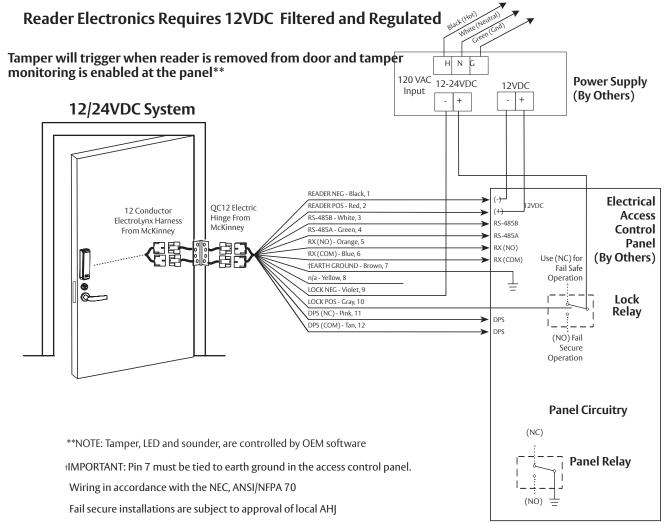
#### **OSDP Operation Mode\*:**

\*LED/Sounder control and Tamper status communicated over OSDP serial protocol

	12\	/	24\	/
	Average	Peak	Average	Peak
Reader*	75mA	250mA	n/a	n/a
Actuator	15mA	500mA	15mA	500mA

<sup>\*\*</sup>Maximum AVG - RMS current draw during continuous card reads

Peak - highest instantaneous current draw during RF communication





Fail secure installations shall permit use of Listed panic hardware to allow emergancy exit from the protected area.

Failure to follow proper ESD safe grounding procedures could lead to equipment failure.

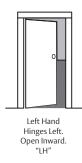
PIN 6 (Blue - RX COM) PIN 4 (Green – RS-485A) PIN 4 (Tan -DPS COM ) PIN 2 (Red - Reader POS) PIN 2 (Gray – Lock POS) PIN 1 (Violet – Lock NEG) PIN 1 (Black - Reader NEG) PIN 3 (Pink - DPS NC) PIN 3 (White – RS-485B) PIN 5 (Orange – RX NO) PIN 7 (Brown - EGND)

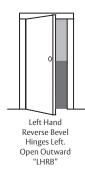
Not evaluated by UL

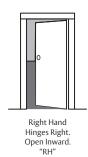


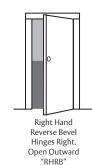
## 6) Installation Instructions

1. Verify Hand and Bevel of door. Illustrations shown are as viewed from the outside or secure side of opening.



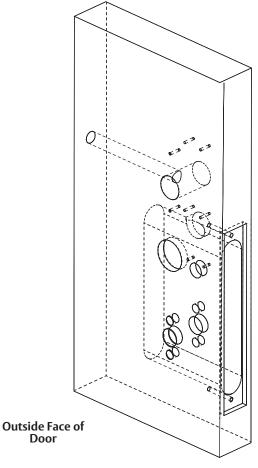






2. Prep door according to supplied door markers (FM380 & FM388). For door manufacture templates visit www.corbinrusswin.com and reference template # T31213.

Fig. 1



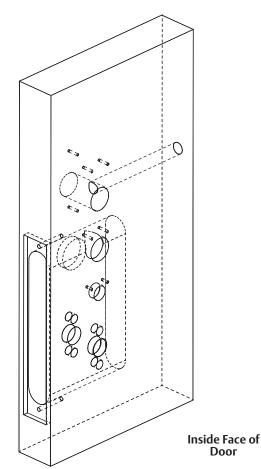


Fig. 2

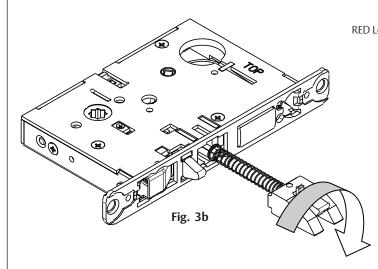


### 3. Handing of Lock Body

Step 1) Move the red locking screw to side of lock body being locked (Fig. 3a)

Step 2) Push in latch then depress catch plate with screwdriver (Fig. 3a)

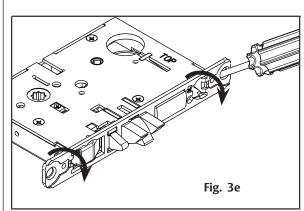
Step 3) Pull latch out of lock body and turn latch over (Fig. 3b)

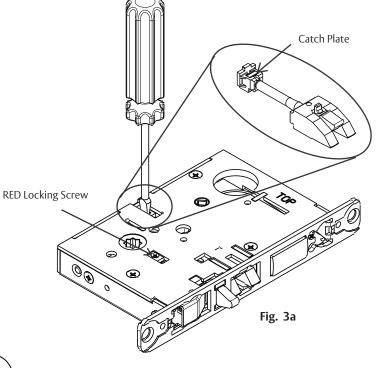


Step 4) Push in latch while holding screwdriver behind latch tail (Fig. 3c)

Note: Push in latch until catch plate is no longer depressed (Fig. 3d)

Step 5) Rotate lock front to match bevel of door as shown (Fig. 3e)





MAKE SURE CATCH PLATE IS EVEN W/TOP SURFACE

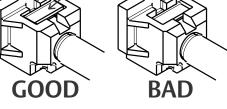


Fig. 3d

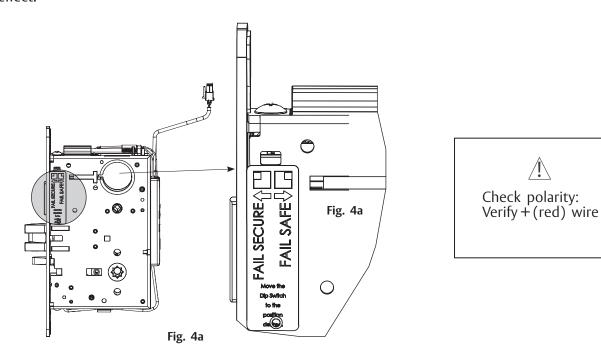
WARNING: LOCK-IN CAN OCCUR IF LATCH IS NOT PROPERLY INSTALLED

Fig. 3c

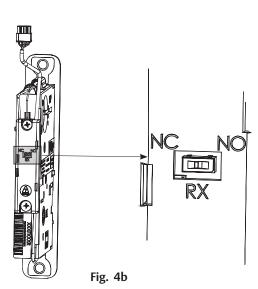


## 4. Configuring the Fail Safe/Fail Secure and RX\* DIP switch settings:

Please note that the lock must be electrically cycled once in order for setting changes to take effect.



\*RX output only configurable for locks with end-of-line resistance monitoring. Default is normally open (NO).

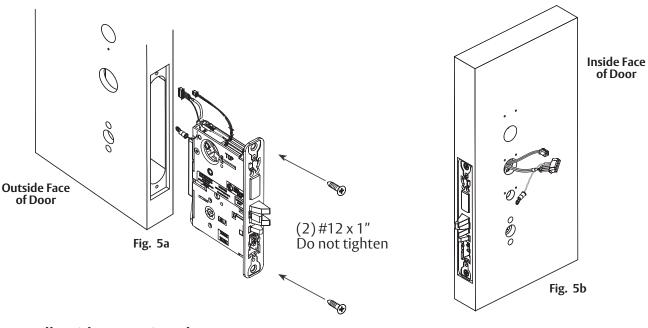




#### 5. Install Lock Body in Door:

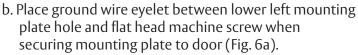
Important: Door must remain open during installation. Use door stop.

- a. Feed wires through 1-5/16" diameter hole on INSIDE of door while installing lock body (Fig. 5a).
- b. Pull wires through hole while inserting lockbody. DO NOT push wires back into cylinder hole (Fig. 5b).
- c. Install, but do not tighten two #12 x 1" combination screws through lock body (Fig. 5a).

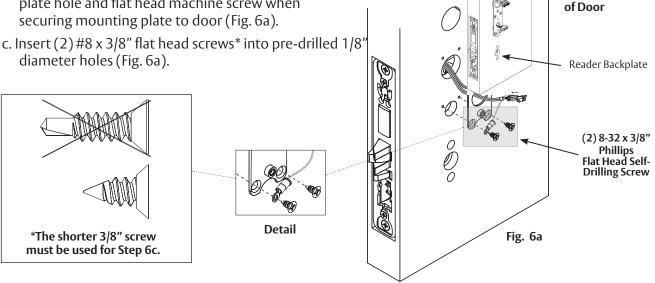


## 6. Install Inside Mounting Plate

a. Feed lockbody wires through mounting plate (Fig. 6a).



diameter holes (Fig. 6a).

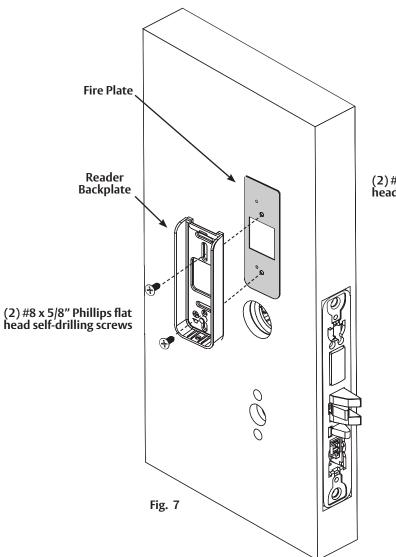


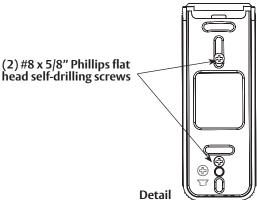
**Inside Face** 



### 7. Install Reader Backplate and (Optional\*) Fire Shield or Gasket

For fire-rated doors only, install reader backplate and fire shield to door using two (2)  $\#8-18 \times 5/8$ " Phillips flat head self-drilling screws (Fig. 7).

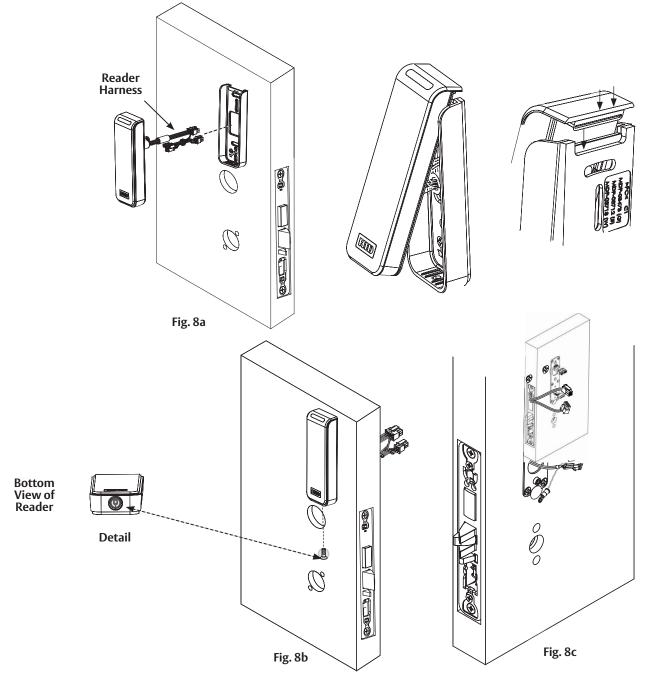






### 8. Install SN200/210 Reader

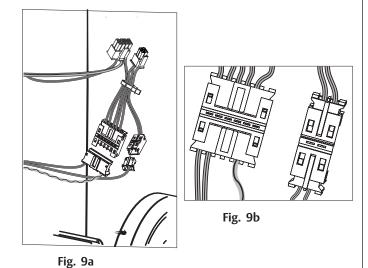
- 1. Feed reader harness through door (Fig. 8a, c)
- 2. Hook the top of the reader on the top of the mounting plate.
- 3. Align the bottom of the reader with the bottom of the mounting plate.
- 4. Secure the reader to the mounting plate using the supplied 6-32 x 3/8" T10 security Torx machine screw (Fig. 8b).





#### 9. Connector Attachments:

- a. Connect 6-pin connector from lock body to 6-pin connector on reader harness (Fig. 9a, b).
- b. Connect 2-pin connector from lock body to 2-pin connector on reader harness (Fig. 9a, b).

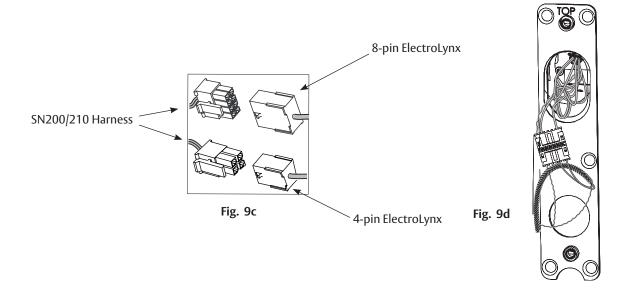


c. Connect ElectroLynx 4- and 8-pin connectors from the door harness to (black) 4- and 8-pin connectors of the SN200/210 harness (Fig. 9c).

Carefully tuck connected harnesses into one-inch hole in door.

NOTE: Neatly fold the wires into the remaining space to prevent pinching wires when mounting inside escutcheon (Fig. 9d).

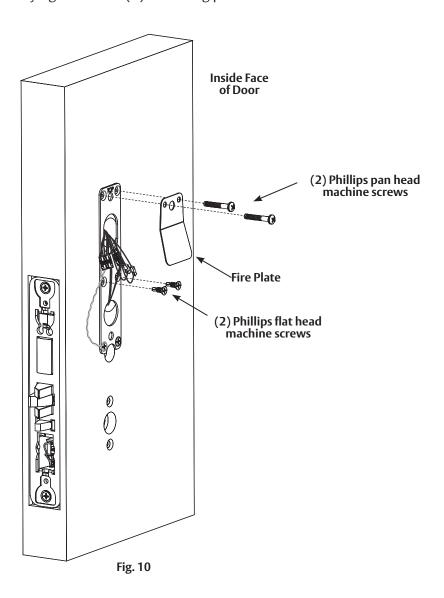
Do not offset connectors and ensure that they are completely seated.





#### 10. Install Mounting Plate and Fire Plate:

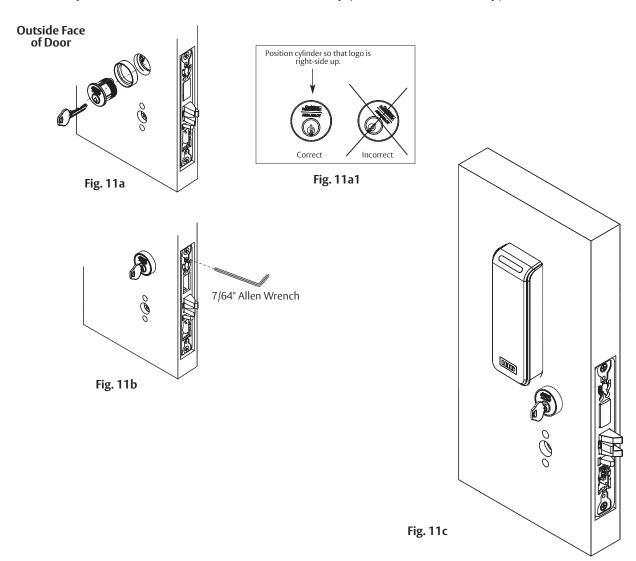
- a. NOTE: Fire plate must be installed for fire-rated doors. The fire plate is not required for non-fire rated doors.
- b. Complete securing mounting plate (and fire plate if necessary) to the door using the (2) remaining Phillips flat head machine screws provided (Fig 10). Ensure wires from reader are properly routed under flap of fire plate. Fully tighten all six (6) mounting plate screws.





#### 11. Install Cylinder:

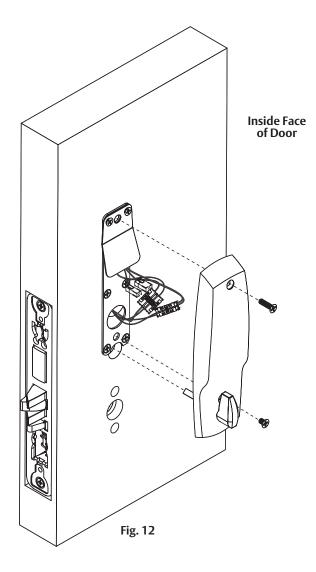
- a. Slide cylinder through collar. Thread cylinder into lock body (Fig. 11a).
- b. Insert key 75% of the way and utilize the key to rotate the cylinder into the rest of the cylinder hole. Note: Make sure cylinder is oriented correctly (Fig. 11a1).
- c. Tighten cylinder clamp using 7/64" allen wrench (provided) (Fig. 11b).
- d. Turn the key to make sure that lock functions correctly (latch, deadbolt and key).





#### 12. Install Inside Escutcheon:

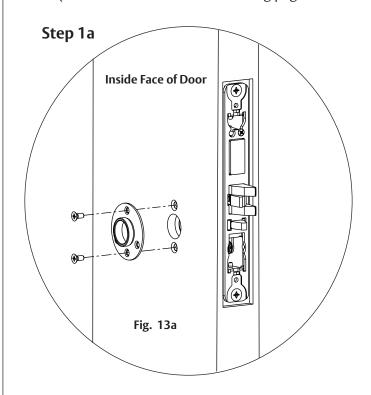
- a. Feed excess ElectroLynx and reader wires into door prep. Tuck excess body wire harness under escutcheon.
- b. Tighten the inside escutcheon securely to the mounting plate using the  $8-32 \times 5/8$ " screw for the top of the escutcheon and the  $8-32 \times 1/4$ " screw for the bottom of the escutcheon located under the turn lever (Fig, 12). Be careful not to pinch wires under escutcheon when tightening screws.
- c. Be sure the turn assembly is functional and, if equipped with a deadbolt, that the deadbolt functions properly.

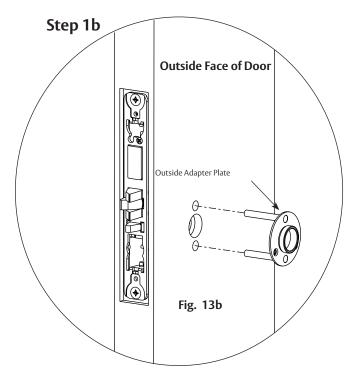


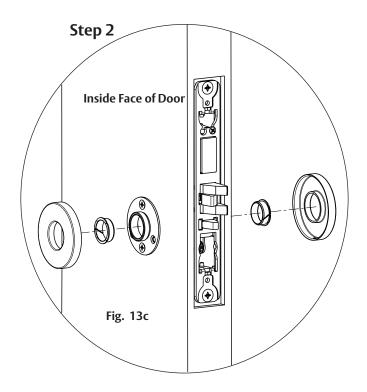


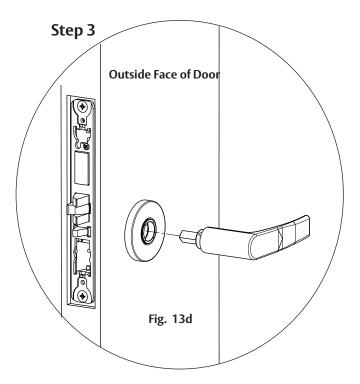
#### 13a. Install Standard Lever Trim:

(Refer to section **13b.** of following pages for Museo® Trim):







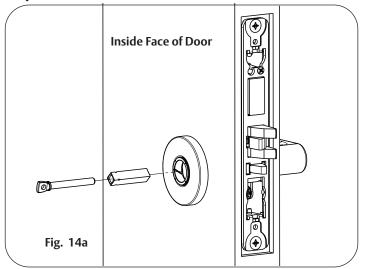


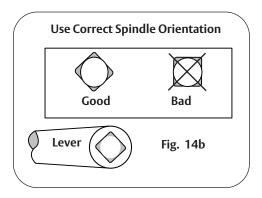


## **ASSA ABLOY**

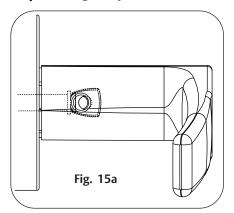
## 6) Installation Instructions (Continued)

#### Step 4

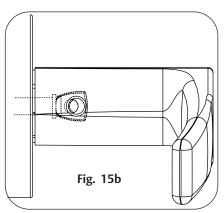




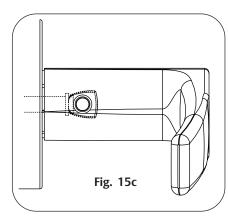
**Step 5** Align adjustment bolt with threaded hole in lever



Adjustment bolt needs to be threaded in farther.



Adjustment bolt needs to be unthreaded.

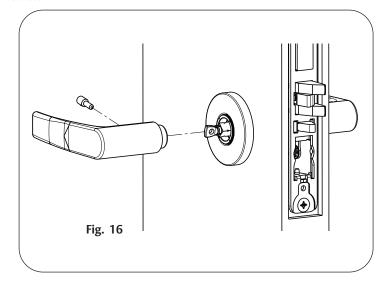


Adjustment bolt fully aligned.

## **Step 6** Install I/S lever with set screw:

#### Notes:

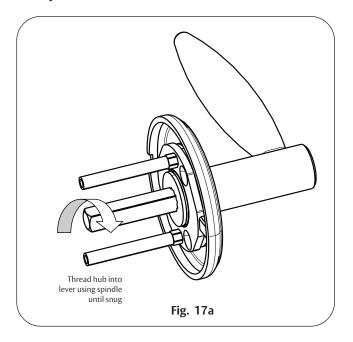
- Unthread Adjustment Bolt approximately four turns for a good starting point (After being fully tightened)
- Make sure O/S lever is fully inserted into adapter plate before aligning adjustment bolt.

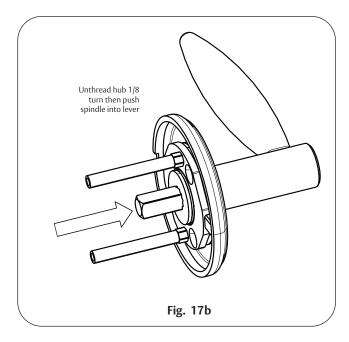




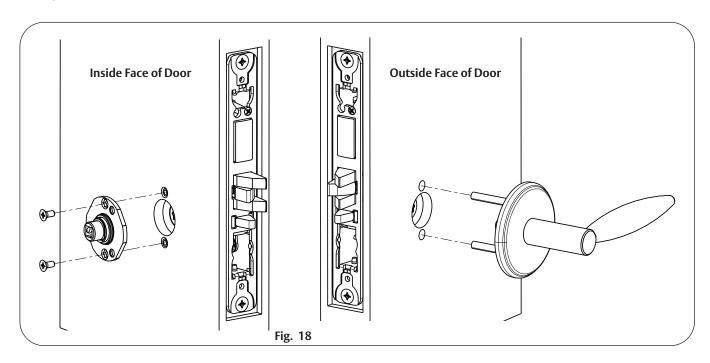
#### 13b. Install Museo® Trim:

### Step 1





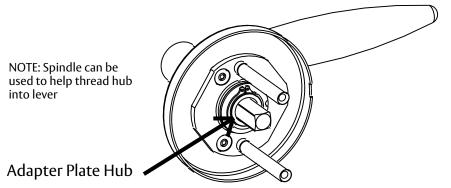
### Step 2





# **Step 3** Thread adapter plate hub into lever and fully tighten

**Step 4** Align adapter plate hub with square hole in lever; keeping hub as tight as possible



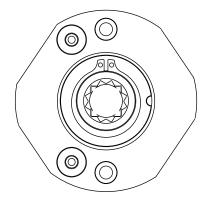
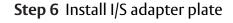


Fig. 19

Fig. 20

#### **Step 5** Install O/S trim assembly



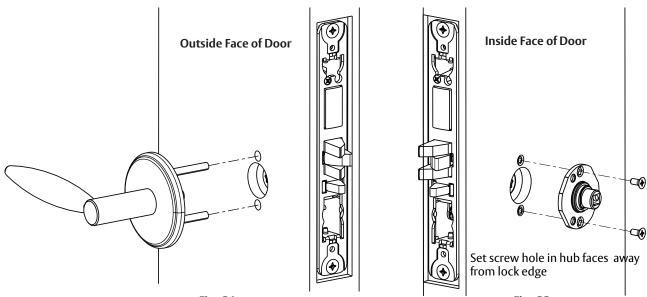


Fig. 21

Fig. 22

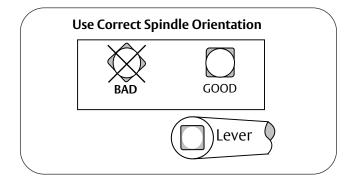


Fig. 23



### Step 7 Install I/S spindle and rose

Align studs on rose with bushings in adapter plate

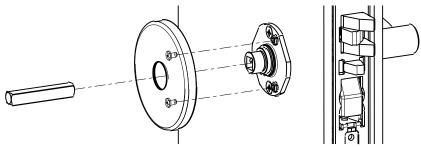
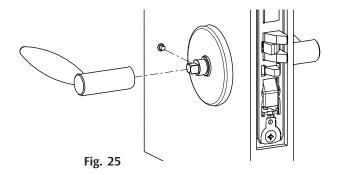


Fig. 24

### **Step 8** Install I/S lever with set screw



### Step 9 Install Armored FrontPlate

- a. Securely tighten (2) lock body screws.
- b. Attach armored front with two #8 x ¼" screws.

Outside of Door

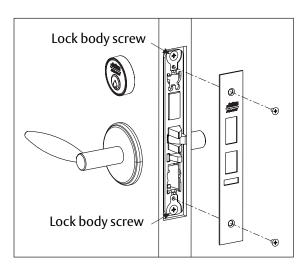


Fig. 26



## 7) Operational Check

The ASSA ABLOY Wiegand Test Unit verifies your installation in the field\*. The test unit checks for:

- proper wiring
- card reader data integrity
- lock functionality including lock/unlock, door position status, and request-to-exit (REX) status

In addition, this tool provides demonstration abilities to highlight the product's features and capabilities\*\*.



Wiegand Test Unit - WT1

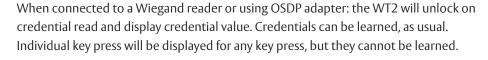


Wiegand Test Unit - WT2

Feature WT1 WT2 12 or 24VDC solenoid lock Χ Χ voltage adjustable Operates as Fail Safe or Fail Χ Χ Secure "Learn" mode allows testing of specific cards without program-Χ Χ ming at panel level Card reader data integrity is Χ validated at test unit Displays detailed Wiegand data, including hexadecimal string Χ and total bits received Displays measured end-of-line Χ resistor values (if applicable) Displays key-press data from Χ keypad readers†

The SNT1 is an adapter harness assembly that connects and converts OSDP lock signaling to work with a Wiegand Test Box (WTB).

If using the OSDP adapter, the WT1 will unlock on credential read or any key press, regardless of what credential is learned (OSDP reader only).





(SNT1) WTB OSDP adapter wiring harness

<sup>\*</sup>For directions on use, see operating instructions provided with unit.

<sup>\*\*</sup>SN200/210 keypad version works only with WT2

<sup>†</sup> WT2 unit with 1.03 firmware or later is required



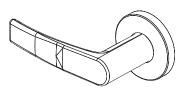
## 7) Operational Check (Continued)

For mortise locks with cylinders:

- a. Insert key into cylinder and rotate: There should be no friction against lock case, wire harness or any other obstructions.
- b. The key will retract the latch: Key should rotate freely.
- c. When the deadbolt is thrown: Ensure that the key retracts both the deadbolt and the latch.
- d. Inside lever: When used, ensure it retracts both the latch and deadbolt (if provided).
- e. Close door: Ensure latch and deadbolt fully extend and do not bind.

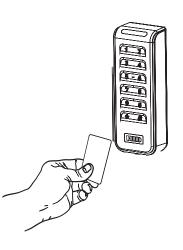






Note: Once electrical wiring has been successfully completed according to proper application, perform the following:

- a. Turn power ON.
- b. Verify LED located on reader is ON (Red or Green) depending on reader configuration
- c. Present valid credential and verify LED and sounder activity.
- d. Verify valid card read at EAC Panel.
- e. Verify system operation functions; i.e., when valid credential is presented to reader the door unlocks.



The ASSA ABLOY Group is the global leader in access solutions. Every day, we help billions of people experience a more open world.

ASSA ABLOY Opening Solutions leads the development within door openings and products for access solutions in homes, businesses and institutions. Our offering includes doors, frames, door and window hardware, mechanical and smart locks, access control and service.



Corbin Russwin 225 Episcopal Road Berlin, CT 06037 Phone: 800-543-3658 Fax: 800-447-6714 corbinrusswin.com

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