STANLEY

phi

Wiring Instructions for Electric 2300 Mortise Exit Devices

Introduction

These instructions, along with the standard Series 2300 and FL2300 installation instructions describe how to install and wire your PHI 2300 electric mortise device.

The electric mortise device controls entry by remotely locking and unlocking the outside trim.

The electric mortise includes four functions:

Lock Nomenclature	24 VDC	Lock/ unlock monitoring	Fire-rated	Latchbolt monitoring
EM303	■	■		
EM303F	■	■	■	
LSEM303	■	■		■
LSEM303F	■	■	■	■

Components

- ❑ Temperature Control Module (TCM), pn 3183406.
- ❑ Exit hardware with wires

1 Prepare door and frame for electric power and monitoring

1 Follow the standard instructions, step 1, to prepare the door and device for a 2300 Series mortise exit device.

2 Drill a minimum 3/8″ diameter wire raceway through the door, from the center hinge to the center back of the mortise cavity, ±1″ vertically (a 2″ range) as shown in Figure 1.

Caution: **Consult the door manufacturer for clearance dimensions for the electric wires. Make sure to dress and protect all wires from abrasion.**

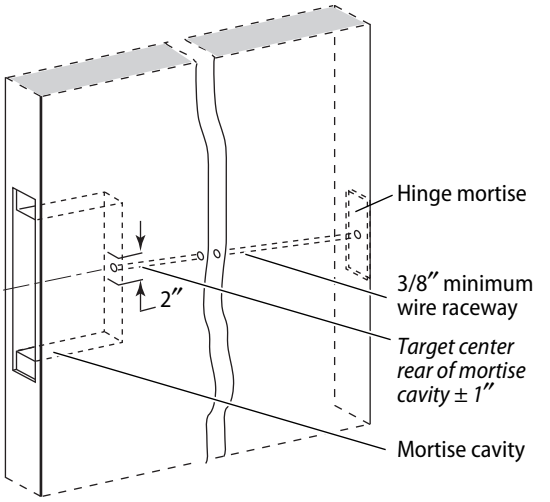


Figure 1 Preparing the wire chase through the door

2 Pull wire

Caution: **Make sure to understand and follow all national, state and local electric and fire building codes.**

Caution: **Turn off all power before making any wire runs or connections.**

1 Using 18 AWG, 2-conductor wire, pull wire from the 24 VDC power source to the electric hinge. Use a Stanley Model CECB -18 electric hinge or equivalent.

2 Using 28 AWG, 2-conductor wire, pull wire from the electric hinge to the mortise cavity, leaving enough excess to make connections.

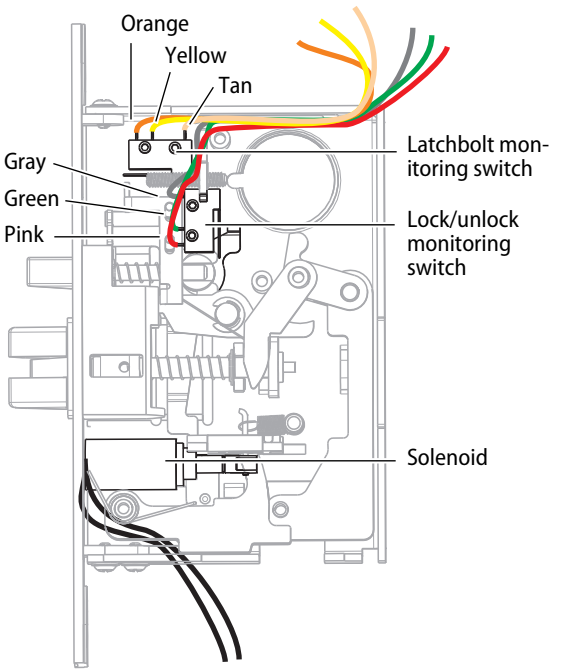


Figure 3 Locating the switches and solenoid, LSEM303 shown

3 Make Connections

Caution: **When routing wires, make sure the wires are not routed across any sharp edges or over any surface that could damage their sleeving or wire insulation.**

One solenoid and two switches (one switch for EM303 and EM303F) are located inside the mortise case. See Figure 3 for locations of the switche(s) and solenoid. This instruction does not require you to access the switches directly. This is for your information only.

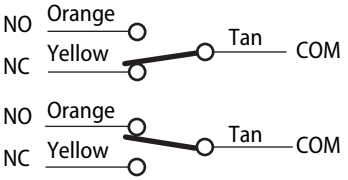
1 Make the power to hinge wire connections according to the hinge manufacturer's specifications.

2 Make the mortise lock connections according to the specifications in Figure 3 through Figure 5.

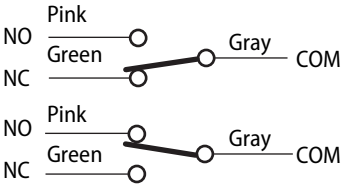
Wire connection	Color	No. of wires	Wire type
24 VDC Power	Black	2	Non-polarized
Latch status sensor	Orange	1	NO
	Yellow	1	NC
	Tan	1	COM
Lock/unlock status sensor	Pink	1	NO
	Green	1	NC
	Gray	1	COM

Figure 4 Power and switch colors and definitions

Use the following tables to determine how the switches will function when the lock is used.



Latchbolt monitoring states



Lock and unlock states

		Contact State	
Touchbar	**Switch**	**Yellow & tan wires**	**Orange & tan wires**
At rest	Depressed	Closed	Open
Pushed	Released	Open	Closed

		Contact State	
Solenoid	**Switch**	**Green & gray wires**	**Pink & gray wires**
At rest	Released	Closed	Open
Energized	Depressed	Open	Closed

Figure 5 Understanding switch contact states

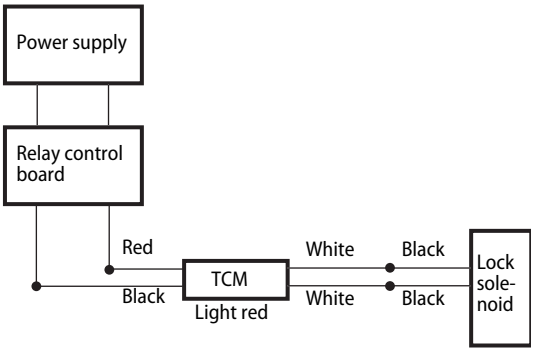


Figure 6 Wiring the TCM

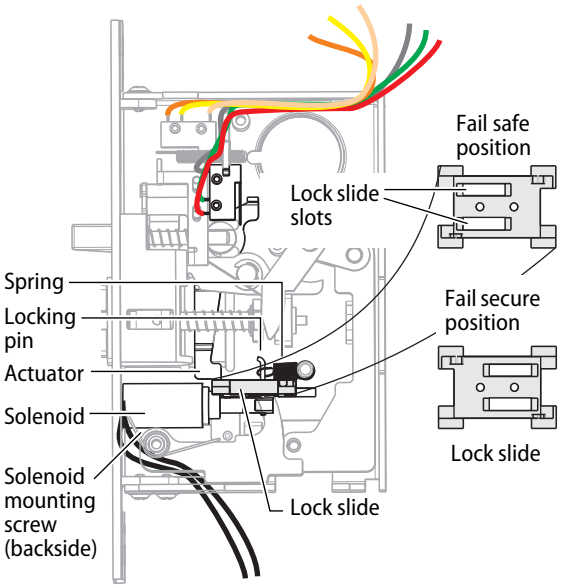


Figure 7 Converting fail safe/fail secure, LSEM303 shown

4 Connect Temperature Control Module (TCM)

The Temperature Control Module (TCM), included with the electric exit device, reduces the amount of current that flows through the lock and is required for proper operation.

To connect the TCM

Note: *The TCM must be installed at no more than 20 feet from the door, using 18 AWG wire.*

1 Make sure all power is shut off to the circuit.

2 Connect the red (+) and black (–) wires of the TCM to the relay control board or other power source using the appropriate connector. See Figure 6.

5 Optional: Convert lock from fail-safe to fail-secure or fail-secure to fail-safe

The electric mortise device comes from the factory as fail-secure (FSE). When power is off, the trim is locked. Power is applied to unlock the trim. The mortise device may be converted to fail safe (FS) mode, as needed.

To convert a lock to fail safe or fail secure:

1 Remove the solenoid mounting screw (located on the back side of the view Figure 7).

Note: *Lay the case flat while removing the case cover to prevent parts from falling out.*

2 Remove the three screws holding the lock cover in place, then carefully remove the lock cover (not shown).

3 Disconnect the spring and remove the lock slide and solenoid. See Figure 7.

4 Remove the lock slide from the locking pin.

Note: *Take extra care not to break the locking pin. It may be removed from the solenoid with a punch, if necessary.*

5 Turn the lock slide in the desired mode and reinsert the locking pin. Use the table below to determine how to orient the lock slide.

Operation	When power is removed . . .	Lock slide slots orientation
Fail-safe	Unlocked	Toward solenoid
Fail-secure	Locked	Away from solenoid

6 Replace the solenoid and lock slide, and reconnect the spring.

Note: *Ensure that the actuator is engaged in the lock slide notch. See Figure 7.*

7 Reinstall the solenoid mounting screws carefully, so as not to displace any parts.

8 Check the operation according to Figure 7.

9 Reinstall the case cover with the three case cover screws.

6 Complete exit device installation

1 Using the Series 2300 Installation Instructions and templates, complete the rest of the installation.

2 Turn on power to the device.

7 Test device

Once the exit device is completely installed, perform the following tests:

1 Turn on power and operate the remote unlock switch or function.

2 Remove power and make sure that the lock fails safe or secure appropriately according to building specifications and codes.

3 For LSEM303 and LSEM303F devices, turn on power and operate the touchbar. Check if the building alarm system recognizes the latchbolt monitor.

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