



Haven Motion Sensor

One Motion / Operation Compliance for Free Egress

Last Revised: June 15, 2023



Installation Instructions and Technical Specs

Model: HL1-MS-001

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Haven Lockdown Motion Sensor

Pairing & Installation Instructions

How the Motion Sensor Works

- The motion sensor is applied right above the level knob on a commercial door that looks for hand motion heat with the use of a PIR sensor. It has an onboard fail safe power system that automatically switches to the lock power when low and draws power from the main locking system. When the entire system power gets low it notifies the user with an audible alert like a smoke detector. It also sends a notification to the user in the application to charge the device.
- When the system gets low on power it will only allow you to unlock the device. It will not allow you to lock the device electronically which is fail safe.
- To see a demonstration of the device go to this [link](#).

Tools Needed

- VHB tape (included in box)
- Pen or paperclip

Description

- 1) The Haven motion sensor for Lockdown applications is a hardwired component that deactivates or unlocks the lock when passive infrared is detected below the sensor.
- 2) The motion sensor should be placed within the vicinity and above the door knob by 5 inches to deactivate the lock when an occupant intends to egress the room, satisfying a one motion or operation unlock capability.
- 3) The lock is powered from an onboard battery (CR123A) and a backup power source from main lock battery through a hardwired barrel connector to the Lockdown which runs off of a microprocessor that interacts with the lock and the motion sensor.

Installation

- 4) The preferred method of install is using the provided VHB tape to affix the motion sensor to the door approximately 5 inches above the doorknob/lever.
- 5) The alternate method is to remove the cover of the sensor housing and locate a drill point on the bottom of the Motion Sensor housing. Place the Motion Sensor housing on the door so that the bottom of the Motion Sensor is 5 inches above the door handle, and mark your pilot holes.

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- 6) Using a 3/32" drill bit, drill your pilot holes for your screws. Ensure you select the proper screws for installing the motion sensor based on the door type. They are not included in the box. Make sure you don't drill through the entire door.
- 7) Using a Phillips head screwdriver (or a drill driver with a Phillips head bit) screw Motion Sensor housing onto the door above the door handle.
- 8) Replace the cover and secure the 4 front cover screws using a Phillips head screwdriver.
- 9) Once complete with either install method connect the barrel connector located inside the lockdown unit to the motion sensor. The cable can be routed through the bottom of the lock housing or on the side of the lock arm opening.
- 10) Your Motion Sensor should now be ready to use.
- 11) Test unlocking with Motion Sensor installed. Lock the unit, manually or with the app/panel, place your hand on the door handle. Lockdown should unlock <1 second.

Wiring Instructions

Your motion sensor comes pre-wired. However, in the event you need to shorten the cable, you will need to strip the wires and rewire the sensor system. It is a good idea to take a photo of the wiring before removing them, to ensure you have the right colors. (Refer to the instruction Manual for more detail about the wires and colors).

- 12) Unplug the barrel connector floating inside the lockdown unit.
- 13) Cut your wiring harness to length.
- 14) On the cut side, strip 1.5 inches of the outer black wiring harness sheath to expose 5 color-coded conductors.
- 15) Strip Each Conductor (22AWG) about 3.8 inches.
- 16) Twist Blue and Black together. They are both circuit ground. (if you need to wire additional accessories, you can use the second ground wire for that).
- 17) Twist Brown and Grey together. Grey is the + 3.3.V Power line. Brown is the Lock channel. In the case of the egress motion sensor you tie the Lock Channel to 3.3V, but it can be used in other Haven Accessories (like the panic button if needed).
- 18) To wire leads to the spring loaded terminal, use a small screwdriver to push the tabs into the terminal, push the wire into the hole, and let go of the tab to clamp.

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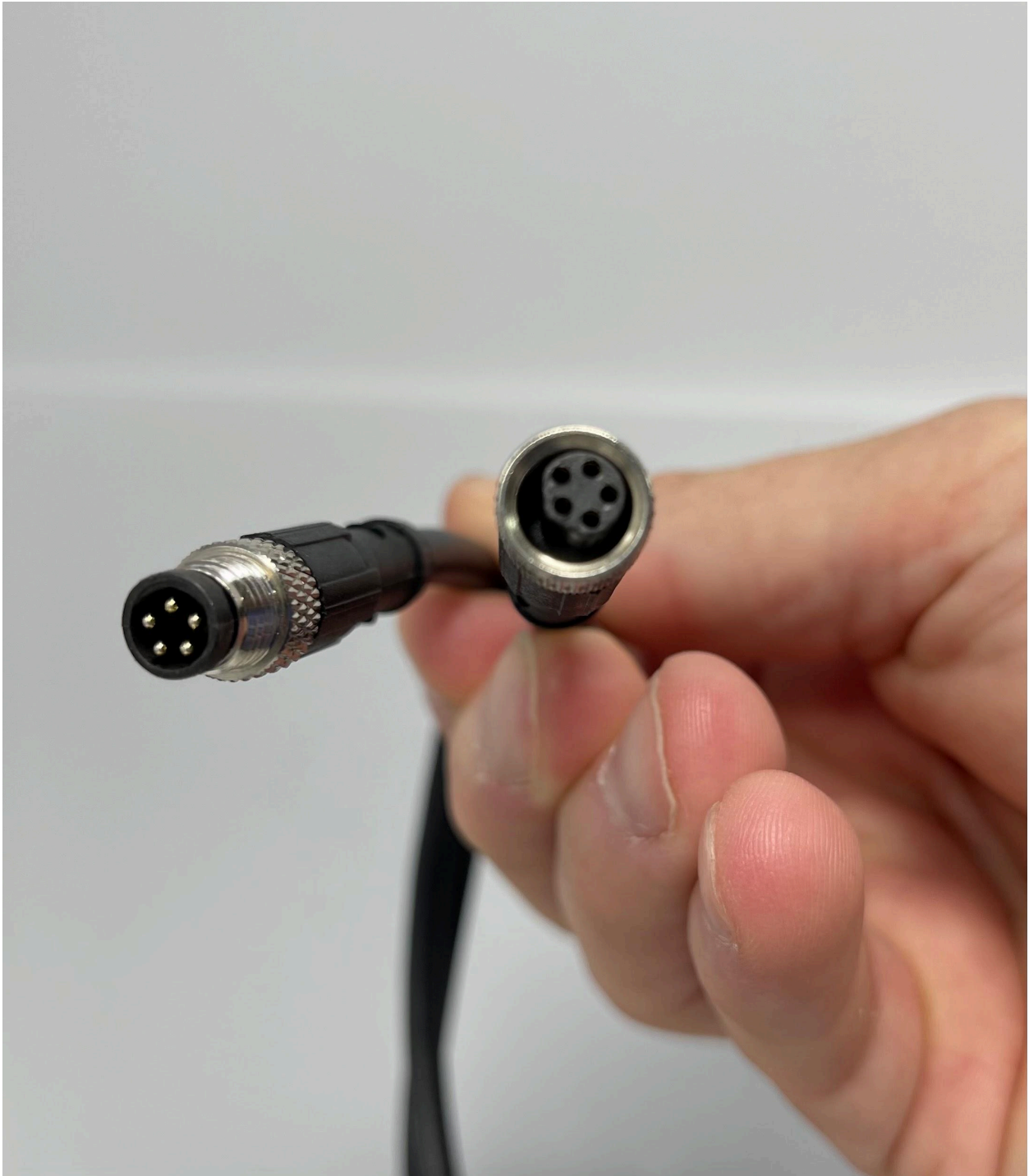
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- 19)** Place the black/blue wires into spot 1 ground terminal on the sensor board.
- 20)** Place the white (unlock channel) into the spot 2 middle connector on the board.
- 21)** Place the brown/gray wires into the +3.3V spot 3 right terminal on the board.



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Technical Specs

- 22)** Prior to connecting the electrical wires to the sensor, locate the mounting holes on the back of the Motion Sensor housing, place the Motion Sensor housing on the door so that the bottom of the Motion Sensor is 5 inches above the door handle, and mark your pilot holes.

Safety Features

- 23)** The motion sensor operates by looking through a pinhole viewfinder on the bottom of the device. It only deactivates the lock when someone tries to turn the lever/knob. This prevents inadvertent deactivation of the lock when people are near it (within 5 meters of a door) during a threat situation. This feature does however satisfy the one motion operation when someone intends to egress the room and turn the lever.
- 24)** When the motion sensor gets low on battery it will pull power from the main lock. In no situation will the motion sensor run out of power before the lock gets to a low threshold of 20% which is indicated in the app or by a low power chirp. In this case the lock cannot be locked electronically, but it can be unlocked by either the motion sensor, key switch, or an egress button (any momentary hardwired device).
- 25)** The lock can be connected to a fire system through the hardwire momentary closure wires if desired.

Theory of Operation

Standard Operation:

The Haven Motion Sensor is in low power mode most of the time (i.e. sleep). The sensor wakes up when the PIR-based sensor detects motion.

Specs

External Power:

2.7VDC to 3.3VDC @ 0.007mA typical

Internal Power:

CR123A backup battery (3VDC, 1500mAh typical)

Output:

Open-Drain digital output

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Cable:

5 wires, 22AWG

- 1) Ground (2 wires, blue and black)
- 2) Motion Output (door unlock signal, white)
- 3) External Power (power and door lock signal, gray and brown)

Motion Sensing: PIR(Passive Infrared)

Basic Operation:

When the device's passive IR sensor detects motion the device's output is pulled low for 48ms. This low 48ms pulse repeats, 3 times, every 5 seconds and then repeats, indefinitely, every 20 seconds until motion is no longer detected.

Low Battery Warning:

A brief chirp every 2.5 minutes when internal battery voltage drops below 2.5VDC.

Haven Lockdown Z Motion Sensor

HavenLock, Inc

Model: HL1-MS-001-LDZ

UL294

UL10C