# HOMEWORKS

## Installation Instructions
*Please Read Before Installing*

**HWI-MI-120**
**HomeWorks® Module Interface Assembly**
Input: 120 V∼ 50/60 Hz
Typical Power Consumption: 2 W

**1. Mount HWI-MI-120 in panel.**
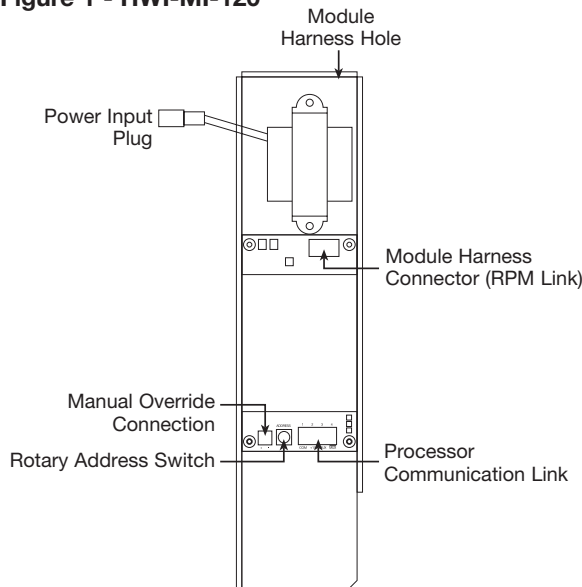See Figure 2 for locations.

**a. For Surface Mounted Enclosures -** Use No. 8 nuts and bolts with washers (provided).

**b. For Recess Mounted Enclosures -** Use No. 12 self-tapping screws (provided).

⚠ **WARNING: Shock Hazard.** To avoid the risk of electric shock, locate and remove fuse or lock circuit breaker in the OFF position before proceeding. Wiring with power ON could result in serious injury or death.

**2. Connect Module Wire Harness.** Connect the 4 conductor wire harness that is shipped inside the Module Interface assembly to the module harness connector on top of the circuit board (see Figure 1). **Note:** The end of the harness that has two purple and two white wires is the correct end to attach to the Module Interface. Feed the end of the harness through the module harness hole on the top end of the assembly and connect to module harness connector (see Figure 1).

### Figure 1 - HWI-MI-120



Module Harness Hole
Power Input Plug
Module Harness Connector (RPM Link)
Manual Override Connection
Rotary Address Switch
Processor Communication Link

**3. Connect Harness to Modules.** Starting with module #1, connect the module harness to each module that is installed. Any harness connections that remain after all installed modules are connected should be coiled and secured above the last module.

⚠ **WARNING: Shock Hazard.** Harness must be secured such that it cannot come into contact with primary (line voltage) AC wiring. Failure to do so could cause death or serious personal injury.

**4. Set Module Interface Address.** Set the rotary address switch on the Module Interface to the address assigned in the *HomeWorks* software (see Figure 1).

**5. Connect Communication Wiring.** Connect the control wiring to the processor communication link terminal block on the lower end of the Module Interface board (see Figure 3). The processor communication link must be connected in a daisy chain configuration with a maximum total cable length of 1000 ft (300 m). Connect terminals 1, 3 and 4 (Common, MUX, $\overline{MUX}$) to the 4-position terminal block (see Figure 3). DO NOT connect terminal 2 because the Module Interface is powered from the transformer inside its enclosure.

**6. Terminate the processor communication link on the last Module Interface.** If any of the Module Interfaces are located more than 50 ft (15.25 m) from the processor, the last Module Interface on the chain must utilize a terminator across terminals 3 and 4. LT-1 terminators that are included with the processor may be used for this application (see Figure 3). If LT-1 terminators are unavailable, a 0.25 W resistor between 100 and 150 ohms may be placed from terminal 3 to terminal 4 to provide termination. Termination at the processor end of the chain is included on *HomeWorks* 8 Series processor boards so an LT-1 is not required. On *HomeWorks* QS processors, link termination is required at the processor.

**Technical Assistance:**
U.S.A./Canada: 1.800.523.9466
México: +1.888.235.2910
Other Countries: +1.610.282.3800
24 hours a day, 7 days a week.

**7. Connect Input Power.** Connect the power input plug (black and white wires) into the control feed harness that comes pre-installed in the enclosure (see Figures 1 and 2).

**8. (Recommended) Connect manual override cable to the terminal blocks as shown in Figure 3.** The manual override scene (as programmed in the *HomeWorks* software) is activated for all modules connected to the Module Interface by closing the manual override switch wired between the two terminals (see Figure 3). For maximum reliability, group Module Interfaces on a single switch. This arrangement should have the switch and all of the Module Interfaces wired in parallel (see Figure 3).

**Note:** Proper polarity must be maintained across all units. For manual override cable runs less than 1000 ft (300 m) connected to a single Module Interface, 16 to 24 AWG (0.5 to 1.5 mm$^2$) wiring can be used. For manual override cable runs exceeding 1000 feet (300 m) or those connected to multiple Module Interfaces, 16 to 18 AWG (1.0 to 1.5 mm$^2$) wiring must be used. If the installer chooses to use their own switch, the switch must be rated for switching at least 50 mA at 28 V===. For switching multiple Module Interfaces the switch must be rated for switching the sum of the current for all of the Module Interfaces connected (e.g., 6 Module Interfaces wired to a single override switch would require a switch rated for 300 mA at 28 V===).

**9. Program Override Scene.** The manual override levels can be programmed using the *HomeWorks* software.

**10. Turn Power ON.** Restore the supply circuit breaker to the ON position.

**11. Verify that the power LED is ON (see Figure 3).** If the "Power Indicator" LED is ON, proceed to step 12. If it is not ON, and other LEDs on the Module Interface are ON, terminal 2 in the processor communication link terminal block is connected when it should not be. Remove the connection to terminal 2 before proceeding. If all LEDs on the Module Interface are OFF, verify that the 24 V∼ terminals from the transformer are connected to the board, the power plug for the Module Interface is plugged in and wired to the enclosure terminal blocks, and that the circuit breaker is turned ON.

**12. Verify that the Module Interface is functional.** The "Heartbeat" LED should flash whenever the unit is powered (see Figure 3). If the "heartbeat" LED is not flashing on a unit that has the "power" LED turned ON, contact Lutron® Technical Support.

**13. Verify processor and module communications.** If the "Processor Communications" LED (see Figure 3) is flashing, proceed to Step 14. If it is not flashing, verify the connections at the Processor Communication Link terminal block. Verify that the processor is powered and has a valid database. The green "TX" LED on the processor's Link (refer to processor label) should be flashing. If it is not, refer to processor troubleshooting information in the instructions for the processor and in the online help in the *HomeWorks* software.

If the "TX" LED on the processor Link is flashing, verify the connections on the processor Link and at all of the Module Interfaces connected to that link. Verify that only one LT-1 Link Terminator is installed on the link and that it is installed at the last Module Interface in the daisy chain.

**14. Verify module communications.** If the "Module Communications" LED is flashing (see Figure 3), proceed to Step 15. If it is not flashing, verify that the MUX and $\overline{MUX}$ connections (terminals 3 & 4) are not reversed. If the LED remains OFF, review troubleshooting instructions in Step 13.

**15. Verify that the Module Harness is connected.** On all RPM modules that are connected and powered, the LED should blink once per second. If the RPM's LED blinks fast 4 times, followed by a 5 second pause, blinks fast 4 times, etc., that is an indication that the Module Interface is in manual override. Refer to Step 8 for more information on manual override. If the RPM LED blinks only once every 7 seconds, the RPM is not communicating with the Module Interface.

**16. If operation of modules seem inconsistent with keypad button programming,** verify that the Module Interface is connected to the correct processor Link. Verify that the processor and module is properly addressed. Verify that the keypad is properly addressed, and connected to the correct processor and correct link. Verify the RPMs are addressed properly.

**Warranty:** For warranty information, please see the Warranty enclosed with the product, or visit www.lutron.com/resiinfo

### Figure 2 - Module Location



**8 Module Panel**
Preferred Power Wiring Entry
Module Location (8 total)
HWI-MI-120 Module Interface
Alternate Power Wiring Entry
Control Wiring (NEC® Class 2)

**5 Module Panel**
Preferred Power Wiring Entry
Module Location (5 total)
HWI-MI-120 Module Interface
Alternate Power Wiring Entry
Control Wiring (Class 2)

**2 Module Panel**
Preferred Power Wiring Entry
Module Location (2 total)
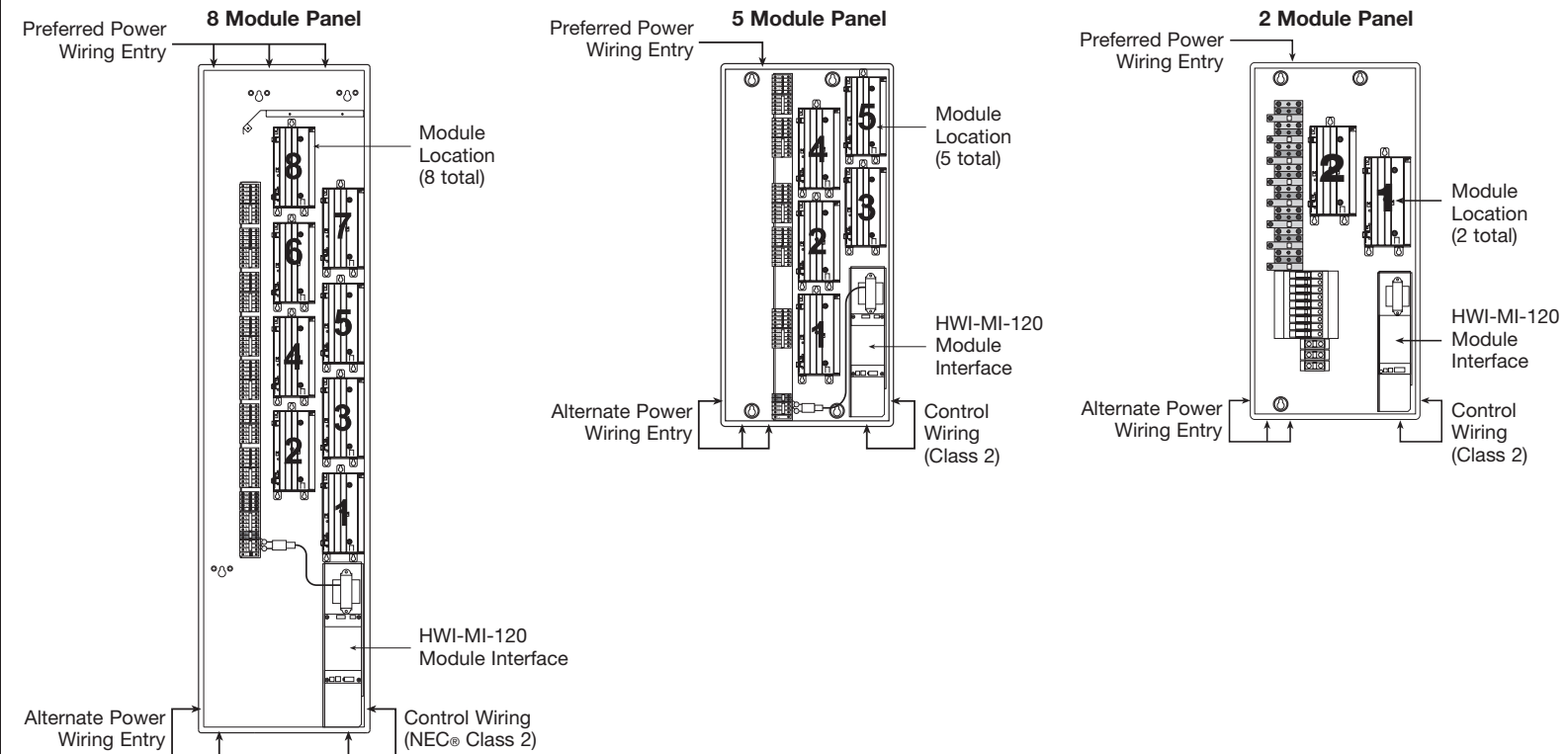HWI-MI-120 Module Interface
Alternate Power Wiring Entry
Control Wiring (Class 2)

### Figure 3 - HWI-MI-120 Detail



24 V∼ Input
Module Harness Connector
Power Indicator LED
Processor Communication Link
Module Interface Communication LED
MI Heartbeat LED
Processor Communication LED
16 to 24 AWG (0.5 to 1.5 mm$^2$) Wiring
Manual Override Switch
4 - $\overline{MUX}$
3 - MUX
1 - COM
To *HomeWorks* Processor or other HWI-MI-120 Module Interfaces
ADDRESS
LT-1 Terminator (if needed) NOTE: The LT-1 should be installed on the LAST Module Interface (furthest from the processor).

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