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IEI eMerge™ MicroNode Install and Setup Guide

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Overview

The IEI eMerge MicroNode unit supports 2 readers, 4 supervised inputs, 4 outputs, one temperature input, and a 12VDC power out connector. Two of the outputs can be configured as “wet” or powered outputs to power 24VDC strikes. In addition, 12VDC strikes and maglocks can be powered using the 12VDC out connectors and an output relay.

24VDC maglocks cannot be powered by the MicroNode, however, if they are powered by an external 24VDC source the MicroNode output relays can control them. Door strikes and maglocks that are tested with the MicroNode are listed in the appendix.

The MicroNode can also power two readers, and other 12V devices such as a PIR Request to Exit input or an alarm sounder.

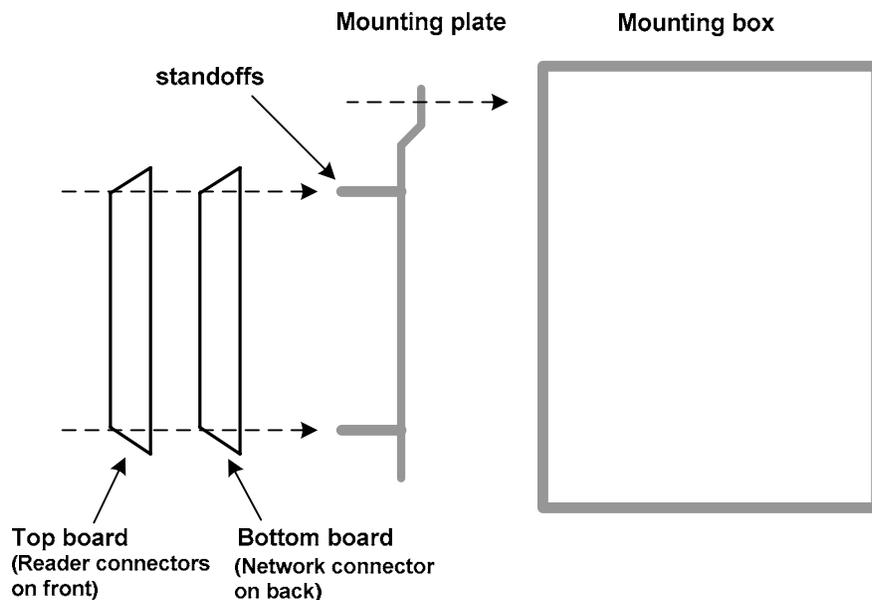
The MicroNode is PoE (Power over Ethernet) capable or can be powered by 12VDC $\pm 5\%$ at 2 Amps. The on-board relays are rated at 3 Amps maximum and can control up to 24V AC or DC.

To install the IEI eMerge MicroNode follow the procedures below.

Connecting power and the network to the MicroNode

CAUTION: Do not supply power to the boards until all connections are made and the mounting plate is remounted in the wall mounted box. If you are using PoE make sure that the far end of the network cable is not connected when you plug in to the network connector.

1. You can remove the mounting plate assembly with the boards attached from the mounting box to make wiring connections easier. See the image below.



MicroNode boards, mounting plate, and mounting box assembly.

Using Power over Ethernet (PoE)

2. Connect the CAT 5 network cable to the RJ-45 network connector on the underside of the Bottom Board. See the image below. When using Power over Ethernet no further connections on the Bottom Board will be necessary.

NOTE: The MicroNode requires PoE to conform to the IEEE 802.3af standard. This provides nominal 48 VDC at a maximum of 400mA.

With PoE as the power source the total power available for all external 12V output is 500 mA (6 watts).

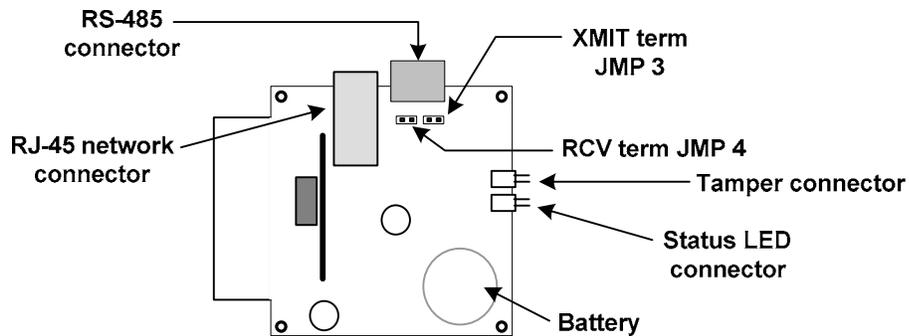
or

Using a 12 VDC power supply

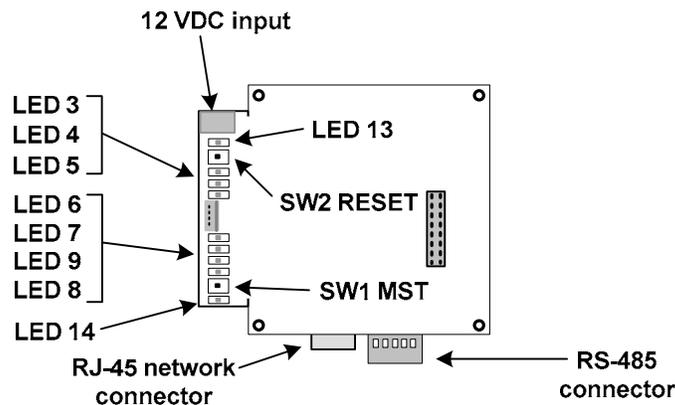
1. Wire the power in connector on the topside of the Bottom Board with a 12VDC power source at no less than 2 Amps. See the image below.

NOTE: With an external 12VDC power supply as the power source the total power available for all external 12V output is 1100 mA (13.2 watts).

2. Connect the CAT 5 network cable to the RJ-45 network connector on the bottom of the Bottom Board. See the image below.



The Bottom Board underside connectors.



The Bottom Board topside.

Connecting and powering door hardware with the MicroNode

The MicroNode can supply power to up to two strikes or maglocks, two readers, and two other door input devices such as a PIR Request to Exit.

Wiring and powering 24VDC door strikes:

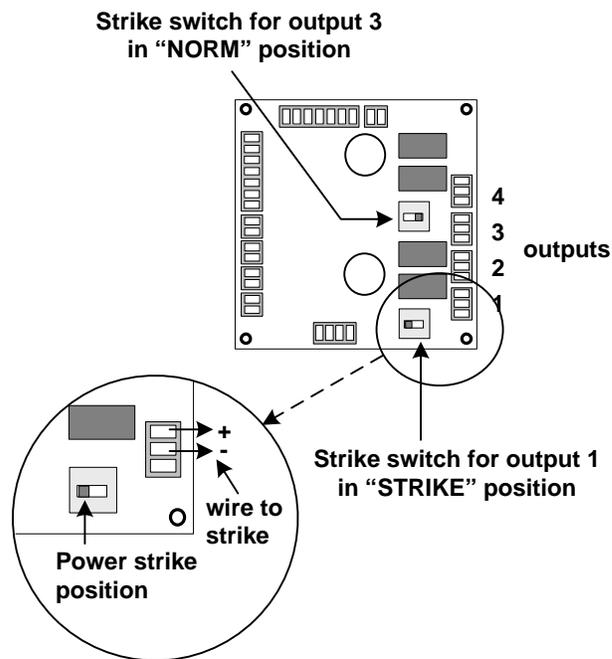
NOTE: 24VDC maglocks cannot be directly powered by the MicroNode.

1. Wire the door strikes to output connectors 1 or 3.

NOTE: Only outputs 1 and 3 can be used for powering 24V strikes. The example in the image below uses output 1 and the strike switch for output 1.

2. Set the Strike switch for that output to the “STRIKE” position as shown for output 1 in the Top Board image below. This allows the capacitor near the switch to provide power to flip the strike.

CAUTION: Polarity shown must be observed if using a diode to clamp the kickback voltage from the strikes. IEI recommends the use of a diode, varistor, or transient voltage suppressor (TVS).



Power Strike switch and output on the Top Board.

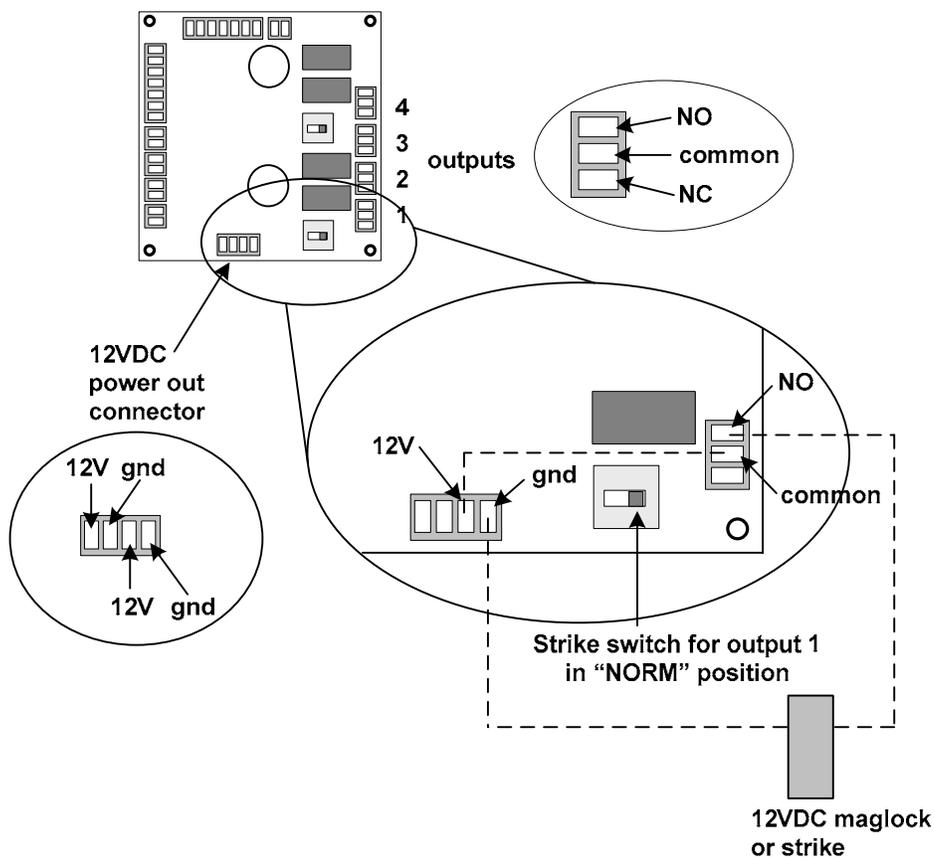
NOTE: With PoE as the power source the total power available for all external devices is 500 mA (6 watts).

With an external 12VDC 2amp power supply as the power source the total steady-state power available for all external output is 12VDC at 1100 mA (13.2 watts).

Wiring and powering 12VDC door strikes and maglocks:

NOTE: Any output can be used for powering 12V strikes or maglocks. If output 1 or 3 is selected you must set the strike switch in the NORM position. The example in the image below uses output 1 and the strike switch for output 1.

1. If using outputs 1 or 3 set the strike switch for that output to the “NORM” position as shown for output 1 in the top board image below.
2. Connect a wire (minimum 20 AWG) from the positive (+) side of the 12VDC power out connector to the common pin of the chosen output connector.
3. Connect a wire from the normally open (NO) pin of the output to one side of the strike or maglock.
4. Connect a wire from the other side of the strike or maglock to the ground (gnd) pin of the 12VDC power out connector.



Wiring power to a 12VDC strike or maglock.

NOTE: With PoE as the power source the total power available for all external 12V output is 500 mA (6 watts).

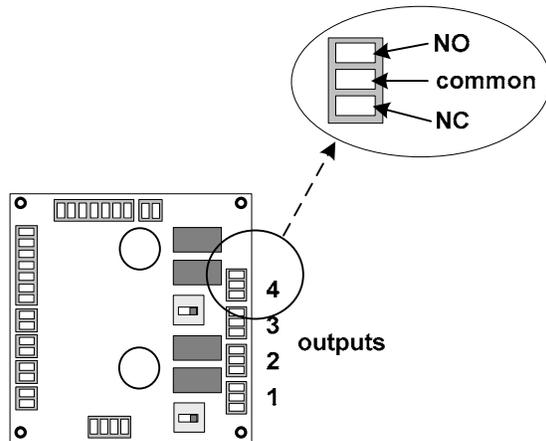
With an external 12VDC 2amp power supply as the power source the total power available for all external 12V output is 1100 mA (13.2 watts).

Wiring other outputs not requiring power from the MicroNode:

NOTE: Any output can be used. If output 2 or 4 is selected simply wire the output state wires to the output connector. The example in the image below uses output 4.

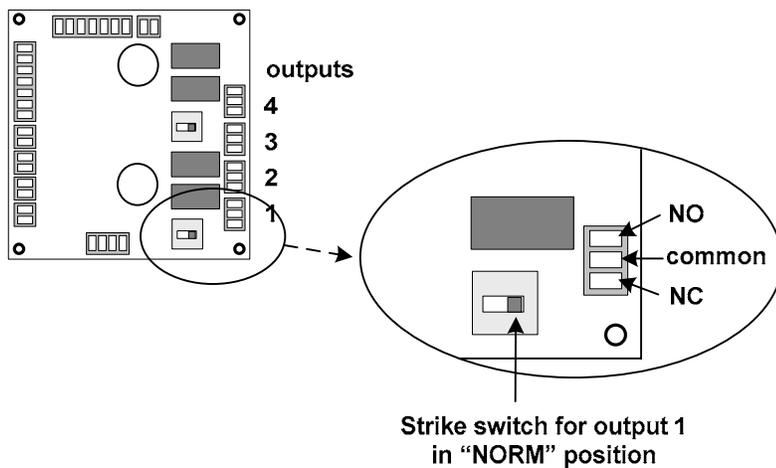
See the CAUTION further below regarding outputs 1 and 3.

1. Connect one wire from the output to the common pin of the output connector.
2. Connect the other wire from the output to either the normally open (NO) or normally closed (NC) pin of the output connector.



CAUTION: If output 1 or 3 is selected you must set the strike switch in the **NORM** position. Otherwise power will be delivered to this output device. See the image below.

3. Ensure that the strike switch is in the NORM position. See the drawing below showing output 1 and its strike switch.
4. Connect one wire from the output to the common pin of the output connector.
5. Connect the other wire from the output to either the normally open (NO) or normally closed (NC) pin of the output connector.



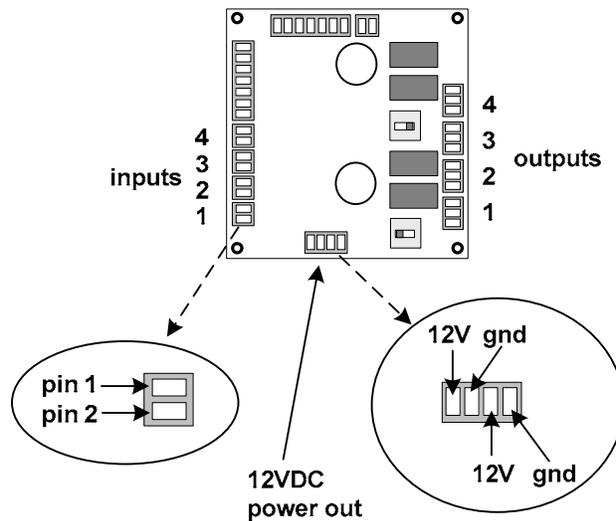
Wiring and powering inputs:

1. If you are powering other door devices such as a PIR Request to Exit, wire that device to one pair of 12V and ground connectors on the power out connector as shown in the image below.

NOTE: There are connectors for two devices but more may be supported as long as the total current consumption for readers and devices does not exceed:

1100 mA when power is supplied by a 12VDC 2A external supply (13.2 watts);

500 mA when power is supplied by PoE (6 watts).



Power out and Input connectors on the Top board.

2. Connect the input state wires to a two-pin input connector.

NOTE: These inputs can support a wide variety of input supervision types. To configure inputs and input supervision types select **Setup : Alarms : Inputs** from the security application menu.

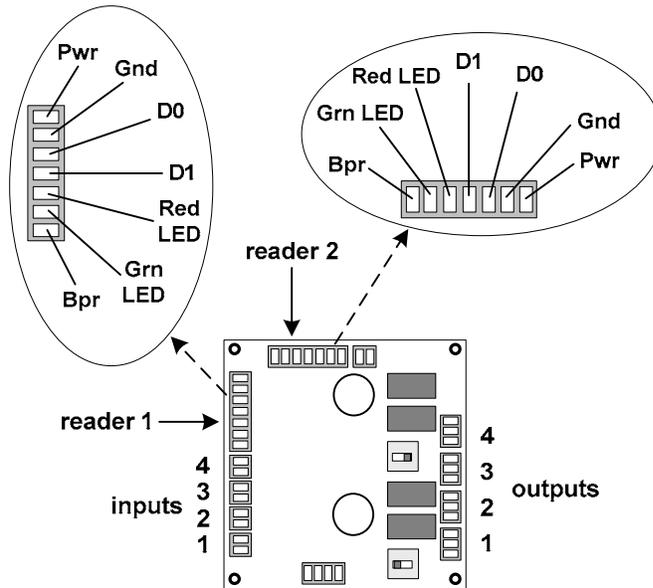
Wiring inputs not requiring power from the MicroNode

1. Connect the input state wires to a two-pin input connector. See the drawing above.

NOTE: These inputs can support a wide variety of input supervision types. To configure inputs and input supervision types select **Setup : Alarms : Inputs** from the security application menu.

Wiring and powering readers:

2. Connect the reader wires to the 7-pin reader connectors as shown below.



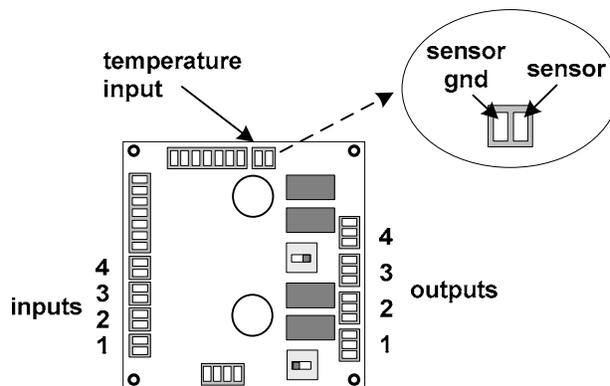
Reader connectors on the Top board.

NOTE: With PoE as the power source the total power available for all external 12V output is 500 mA (6 watts).

With an external 12VDC 2amp power supply as the power source the total power available for all external 12V output is 1100 mA (13.2 watts).

Wiring IEI temperature sensors:

1. Wire the IEI temperature sensor as shown in the diagram below. The black wire from the IEI sensor is the ground.



The S2 temperature sensor connector on the Top board.

NOTE: IEI temperature sensors can be located up to 500 feet from the MicroNode using CAT5 twisted pair cable.

Re-assemble and apply power:

1. Replace the mounting plate assembly with the boards attached into the mounting box.
2. Supply power to the MicroNode unit by powering the external 12VDC power supply or connecting the far end of the network cable to a PoE switch or mid-span power injector.

Total Power Available to External Devices

When power is supplied by PoE (Power over Ethernet): 500mA

When power is supplied by an external 12VDC 2A supply: 1100mA

Tested Strikes and Maglocks

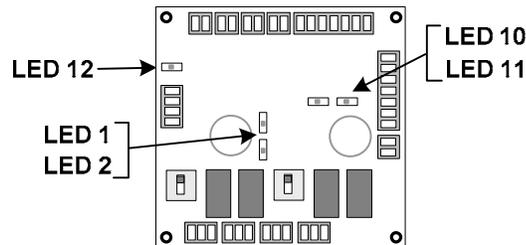
Many other door strikes should work as well, but the door strikes we have tested include:

- HES MODEL 7000-24D
- HES MODEL 1006-12/24D-630
- HES MODEL 1500-12-24D
- Von Duprin MODEL 6211 DS

Many other maglocks should work as well, but the maglocks we have tested include:

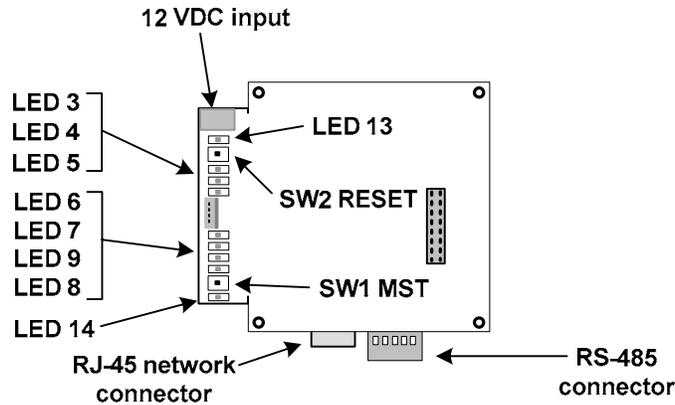
- Securiton M38

MicroNode LEDs



The topside of the top board. (Access blade)

LED 1	ON BLUE means the access blade is initialized and running.
LED 2	ON RED means communication is active with the Network Controller.
LED 10	Not used.
LED 11	Not used.
LED 12 12VDC OUT	ON RED means there is power available for external devices.



The topside of the bottom board. (Node blade)

LED 3 ALARM	ON RED means there is an error condition.
LED 4 S2NC	ON RED means communication is active with the Network Controller.
LED 5 RUN	ON GREEN means the MicroNode is initialized and running.
LED 6 SPEED	ON RED means 100 megabits per second. OFF means 10 megabits per second.
LED 7 LINK	ON RED means there is a physical ethernet link.
LED 8 ACT	BLINKING RED means the MicroNode is communicating to the NC.
LED 9 FULL	ON RED means full duplex communication.
LED 13 12VDC	ON GREEN indicates 12V DC power.
LED 14 POE	ON GREEN indicates power over ethernet (POE).
SW1 MST	Revert switch. See procedure below for reverting the MicroNode.
SW2 RESET	Reset switch-- reboots the MicroNode.
Network port Amber LED	ON means the network is connected.
Network port Green LED	BLINKING means data activity on the port.