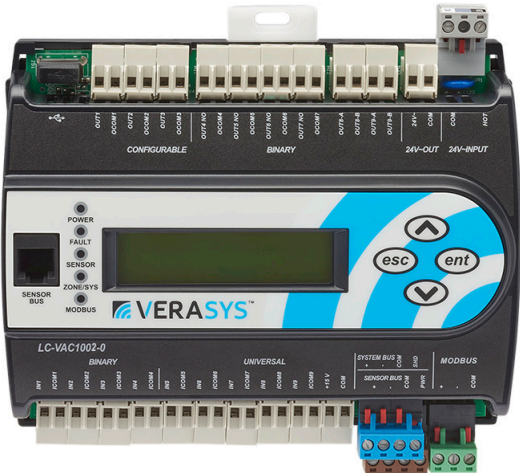


Input Output Module Quick Start Guide
LC-VAC1002-0



About this guide

This quick start provides the basic information needed to configure and install the Input Output Module (IOM).

For further information, see the Verasys 18 point 24V Application Controller Installation Instructions (LC-VAC100x-0), Part no 24-10143-01477, and the Verasys Input Output Application Note (LIT-12012992) available on Knowledge Exchange.

1. Mounting the Input Output Module on a DIN rail

- a. Horizontally mount a 20 cm (8 in.) section of 35 mm (1.3 in.) DIN rail. The controller mounts in the horizontal position.
- b. On the back of the controller, extend the two mounting clips as shown in Figure.1.
- c. Place the controller on the DIN rail.
- d. Push the bottom mounting clips inward (up) to secure the controller on the DIN rail as shown in Figure. 2.
- e. To remove the controller from the DIN rail, pull the bottom mounting clips out to the extended position and carefully lift the controller off the DIN rail.

Figure 1: Pull lower mounting clips down

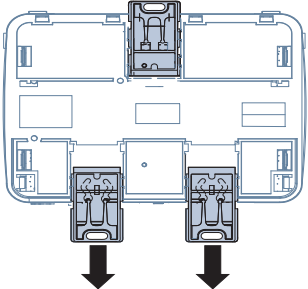
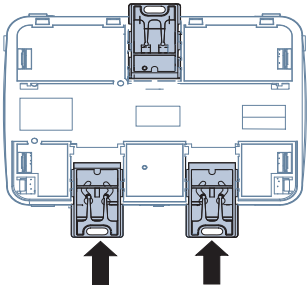


Figure 2: Push lower mounting clips up



2. Wiring the controller

Wire the removable System bus terminal block in a daisy-chain configuration using 3-wire twisted, shielded cable as shown in Figure 4.
The System bus terminal block is a blue, removable, 4-terminal plug that fits into a board-mounted jack. See Figure 3.

Figure 3: System Bus Terminal Block

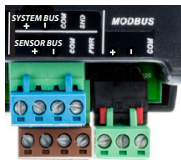
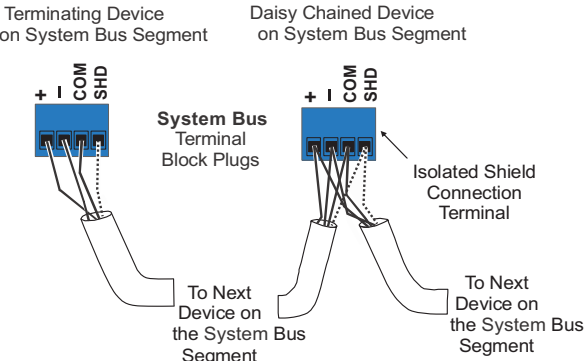


Figure 4: System Bus Terminal Block Wiring



3. Wiring the Supply Power Terminal Block

Wire the 24 VAC supply power wires from the transformer to the HOT and COM terminals on the terminal plug, as shown in Figure 6.
Note: The 24 VAC supply power terminal block is a gray, removable, 3-terminal plug that fits into a board-mounted jack on the top right of the controller. See Figure 5.
Note: The middle terminal on the supply power terminal block is not used.
Note: The supply power wire colors may be different on transformers from other manufacturers. Refer to the transformer manufacturer's instructions and the project installation drawings for wiring details.

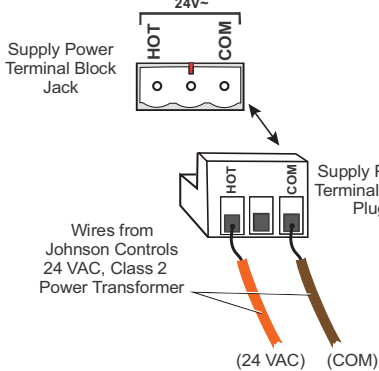
Figure 5: Supply Power Terminal Block



4. Wiring options

The Configurable Outputs (Outputs 1, 2, and 3) and the Triac Binary Outputs (Outputs 8 and 9) are rated for a maximum current draw of 0.5 Amps. For this reason, best practice is to use Pilot Relays in conjunction with these outputs to drive lighting contactors. Using a Pilot Relay allows the option to have a manual override, if you select a Pilot Relay with that functionality. Using software, you can reverse the polarity of the output. This means that you can drive contactors with contacts that are normally open (fail off) or normally closed (fail on).

Figure 6: Supply Power Terminal Block Wiring



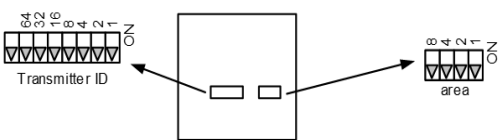
Wireless One to one/many installation

Note: Wireless one to one/many sensors use a WRZ-7860 receiver that connects to the sensor bus port on the LC-VAC1002-0. For the location of this port, see Figure 11.

The following procedure describes how to connect to the WRZ-7860 wireless receiver. See Figure 7.

- a. Set the **Area** switch to a unique address. If you have multiple WRZ-7860 devices, assign a unique address to each device.
- b. Set the **Transmitter ID** switch to a unique address. If you have multiple WRZ-7860 devices, assign a unique address to each device.
- c. Connect the WRZ-7860 to the sensor bus port with a standard phone cable.

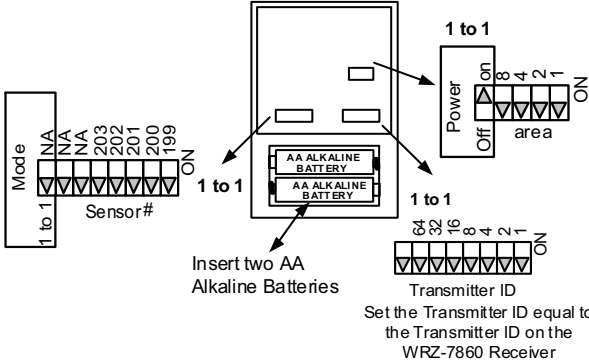
Figure 7: WRZ-7860 Wireless Receiver



The following procedure describes how to connect the WRZ-TTx0000 Wireless Zone Sensors. See Figure 8.

- a. Position the **DIP** switch overlay over the **DIP** switches.
- b. Set the **Power** switch to **Off**.
- c. Set the **Area** switch to match the **Area** setting of the WRZ-7860 receiver.
- d. Set the **Mode** switch to **1 to 1**.
- e. Set the sensor to **#199** or to the address of the sensor.
Note: Each sensor must be unique, with a maximum of five sensors.
- f. Set the **Transmitter ID** switch to match the transmitter ID setting of the WRZ-7860 receiver.
- g. Install two AA Alkaline batteries.
- h. Set the **Power** switch to on.
- i. Mount the sensor in accordance with the sensor's installation guidelines.

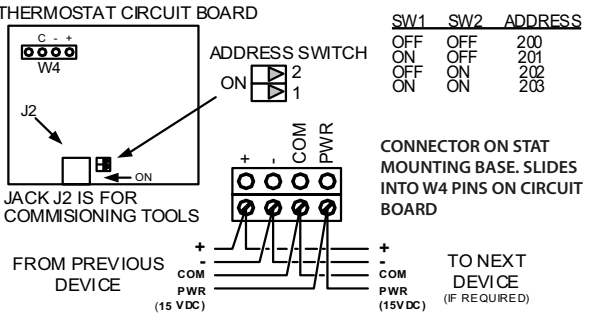
Figure 8: WRZ-TTx0000 Wireless Zone Sensor(s)



Wired network sensor installation

The following section describes how to connect a wired sensor to the IOM.
Wired sensors are connected to the IOM via the Sensor bus. For the location of the Sensor bus connection, see Figure 11.
The following illustration, Figure 9, describes how to connect to the a wired sensor to the IOM.

Figure 9: Net Stat with Terminals Addressable

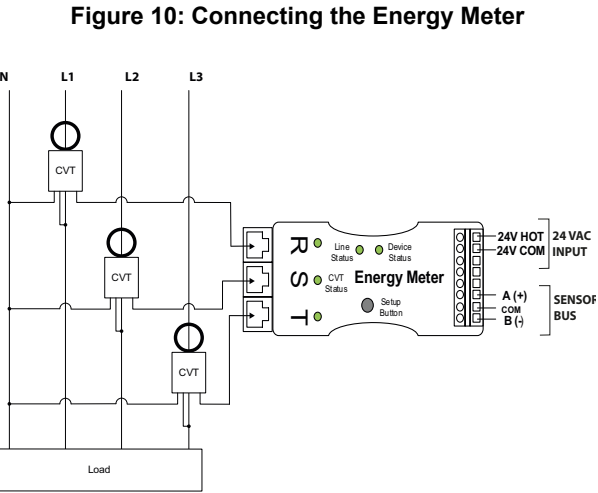


Connecting an energy meter to the IOM

The following diagram, Figure 10, describes how to connect an energy meter to the IOM.
The energy sensor is connected to the Sensor bus and the 24 VAC output port, for the location of these ports, see Figure 11.

Note: Write down the last 3 digits serial number on the energy meter barcode, this is the address that Verasys uses for the device.
Note: Power to the CVT must be from the same line as the current measured.
Note: Line and load measurement is direction sensitive. To ensure you receive an accurate reading, make sure the line sticker on the side of the CVT faces the incoming load.





- 5. Setting the VAC Controller Address using its local display**
- Press the **ENT** (Enter) button to access the menu.
 - Use the up and down arrows to navigate to the **Controller Menu** and press **ENT**.
 - Navigate to the **Network** section and press **ENT**.
 - Navigate to the **Address** section and press **ENT**.
 - The address defaults to 4. Press **ENT** again. The Address blinks.
 - Use the up or down arrow to increase or decrease the address to the desired value. Press the **ENT** button to confirm. The address stops blinking and the display shows the old address.
 - To refresh the screen, press the up or down arrow. The screen displays the new address.
 - Press **ESC** (escape) until you return to the main screen that shows the system is operational.

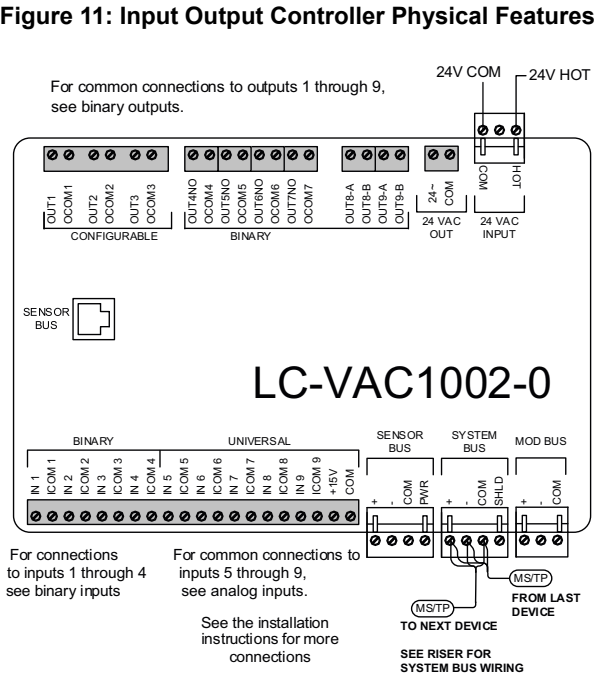


Table. 1 : Inputs and Outputs

Binary Inputs	Dry Contacts
Analog Inputs	Temperature Sensor Input
	Voltage Input - Internal Source Humidity/Building Pressure/Steam Pressure
	Voltage Input (Self powered)
	Voltage Input - External Source CO2 Sensor
	Lighting Level Sensor - MK7-B
Binary Ouputs	24 VAC Triac Output (Switch High, EXT Sourced) 24 VAC Relay
	Starter without Safeties Wiring
	Single Phase Motor Wiring
	Lighting Controller Wiring

Technical Specifications

Table. 1 Input Output Module Technical Specifications

Product Code Numbers	LC-VAC1002-0 Verasys Input Output Module
Supply Voltage	24 VAC, 20 VAC minimum/30 VAC maximum, 50/60 Hz, power supply Class 2 (North America), Safety Extra-Low Voltage (SELV) (Europe).
Power Consumption	20 VA maximum for LC-VAC1002-0 Note: VA rating does not include any power supplied to the peripheral devices connected to Binary Outputs (BOs) or Configurable Outputs (COs). This can consume up to 12 VA for each BO or CO; for a possible total consumption of an additional 60 VA maximum.
Ambient Conditions	Operating: -20 to 70°C (-4 to 158°F); 10 to 95% RH noncondensing; Pollution Degree 2 Storage: -40 to 85°C (-40 to 185°F); 5 to 95% RH noncondensing.
Addressing	BACnet® MS/TP: valid field controller device addresses 4–127 Device addresses 0–3 and 128–255 are reserved and not valid field controller addresses. N2: Valid field controller device addresses 1 to 255.
Communicati ons Bus	BACnet® MS/TP, ModBus (M/S): 3-wire System Bus between the supervisory controller and field controller. 3-wire Sensor Bus between controller, network sensors and other sensor/actuator devices, includes a lead to source 15 VDC supply power from controller to bus devices. 3-wire one Modbus communication half-duplex (Master RTU port).
Processor	RX631 Renesas® 32-bit microcontroller.
Memory	16 MB flash memory and 8 MB RAM.
Input and Output Capabilities	Five Universal Inputs: User-Configurable, 3 available modes: <ul style="list-style-type: none">Voltage Input: 0 to 10 VDC.Current Sense Input: 4 to 20 mA.Resistive Inputs/Dry Contact Inputs. Four Binary Inputs: Defined as Dry Contact maintained or Pulse Counter/ Accumulator Mode. Three Configurable Outputs: User-Configurable, 2 available modes: <ul style="list-style-type: none">Analog Output: 0 to 10 VDC, 10 mA.Triac Output: 24 VAC, 0.5 A (Externally sourced powered). One Utility Output Power Port (24~OUT): Ability to deliver 24 VAC. Four Binary Outputs (Relays): Single-Pole, Single-Throw. Dry Contacts rated 240 VAC. <ul style="list-style-type: none">UL: 240 VAC 5 A Resistive, 1.9 LA/ 11.1LRA, D300 Pilot Duty, 70°C/158°F (30,000 cycles)IEC: 240 VAC 3 A Resistive, 3A Inductive, Cos=0.6, -20 to 70°C (-4 to 158°F) (100,000 cycles). Note: Reference all relay commons to the same pole of the supply circuit. Two Binary Outputs (Triacs): Output: 24 VAC or 240 VAC, 0.5 A (Externally Powered). Note: Reference all triac commons to the same pole of the supply circuit.
Analog Input/ Analog Output Resolution and Accuracy	Analog Input: 12-bit resolution; Analog Output: 15-bit resolution; +/- 200 mV accuracy in 0 to 10 VDC applications.

Terminations	Input/Output: Fixed Spade terminals. Sensor/System/Modbus: 4-Wire and 3-Wire Pluggable Screw Terminal Blocks. Sensor Bus Tool Port: RJ-12 6-Pin Modular Jack. Field Install Option: Input/Output: Fixed Solder terminals. Sensor/System/Modbus: 4-Wire and 3-Wire Pluggable Screw Terminal Blocks. Sensor Bus Tool Port: RJ-12 6-Pin Modular Jack. See Table 5 for Number of Cycles and Electrical Ratings.
Mounting	Horizontal on single 35 mm DIN rail mount is preferred, or screw mount on flat surface with three integral mounting clips on controller. Mount the PEAK controllers on a wall or DIN rail inside an enclosure rated at least IP20.
Housing	Enclosure material: Polycarbonate Lexan SABIC EXL9330.
Dimensions (H x W x D)	164 x 125 x 53 mm (6.45 x 4.92 x 2.08 in.) excluding terminals and mounting clips
Weight	0.5 kg (1.1 lb)
Compliance	United States: cULus Listed, File E107041, CCN PAZX, UL 916, Energy Management Equipment FCC Compliant to CRF47, Part 15, Subpart B, Class A Canada: cULus Listed, File E107041, CNN PAZX7 CAN/CSA C22.2 No.205, Signal Equipment Industry Canada Compliant, ICES-003 Europe: Johnson Controls declares that this product is also in compliance with the essential requirements and other relevant provisions of the EMC Directive Declared as Electronic Independently mounted control, suitable for DIN rail mounting. Intended to mount in remote panel. Type 1.C (Micro-interruption), 330 V rated impulse voltage. 125°C ball pressure test. Australia and New Zealand: RCM Mark, Australia/NZ Emissions Compliant

North American Emissions Compliance

United States

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when this equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference, in which case users will be required to correct the interference at their own expense.

Canada

This Class (A) digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations.
Cet appareil numérique de la Classe (A) respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

LC-VAC 1002-0 QR Code



European Single Point of Contact:
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WESTENDHOF 3
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GERMANY

NA/SA Single Point of Contact:
JOHNSON CONTROLS
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MILWAUKEE WI 53202
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APAC Single Point of Contact:
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CHINA