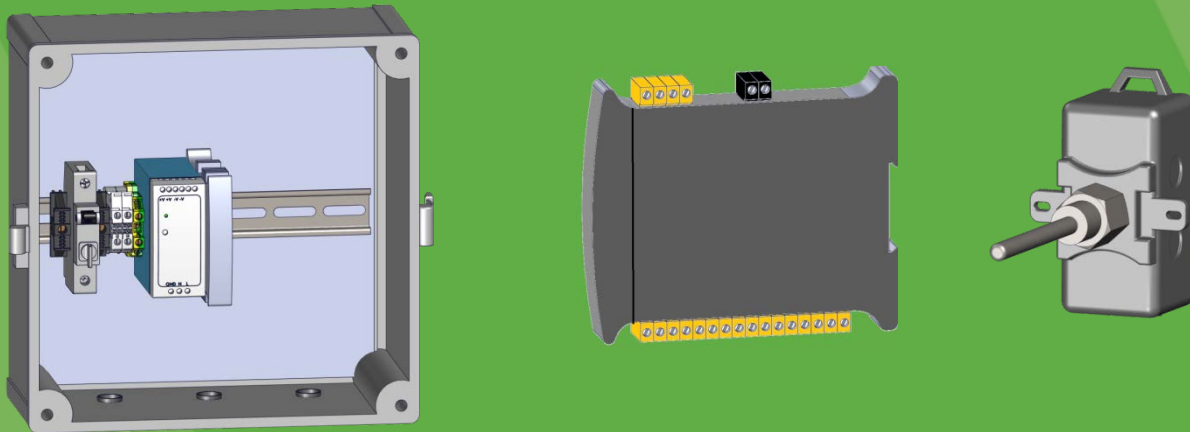


Technical Instruction Document

Modbus Header Temperature Sensor Kits:

- 24444-1 – Standard Voltage
- 24444-3 – Low Voltage



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Heating and Hot Water Solutions

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AERCO International, Inc. • 100 Oritani Drive • Blauvelt, NY 10913
USA: T: (845) 580-8000 • Toll Free: (800) 526-0288 • AERCO.com
Technical Support • (800) 526-0288 • Mon-Fri, 8 am - 5 pm EST

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1. Required Tools & Materials

Installation of this kit requires the following tools and materials:

1. Mounting hardware appropriate for the surface on which the unit will be mounted, such as screws, Molly bolts, concrete anchors, etc.
2. Electric Drill with appropriate drill bit
3. Flathead & Phillips head precision screwdrivers
4. 120V 60Hz single phase electrical power cable, with ground
5. 2-conductor Shielded twisted-pair cable for Modbus communication

2. Kit Contents

Modbus Header Temp Sensor Kit # 24444-1 and 24444-3 Contents			
Part #	Description	Quantity per Kit	
		24444-1	24444-3
64109-1	Modbus Transmitter Box – Standard Voltage, 120 VAC	1	
65169	4 Channel Modbus Transmitter – Low Voltage, 12 VDC		1
61058	Dual Bead Header Sensor Kit PT 1000	1	1

3. Kit 24444-1 – Standard Voltage – Installation

Be sure electrical power to the Shielded Modbus Cable is disabled before starting these instructions.

Header Temp Sensor Kit # 24444-1 Instructions

1. Prior to installation, ensure all wire connections are fastened securely, as these may come loose during shipment.
2. Determine where you will install the Modbus Transmitter Box. It is recommended that it be installed in the mechanical room in close proximity to the boiler plant, with an unobstructed view of the clear front panel.
3. On the rear surface of the Modbus Transmitter Box there are four (4) pre-marked drill holes (see Figure 1). If these holes have not yet been drilled out, drill them with holes of appropriate size for the fasteners you will use.

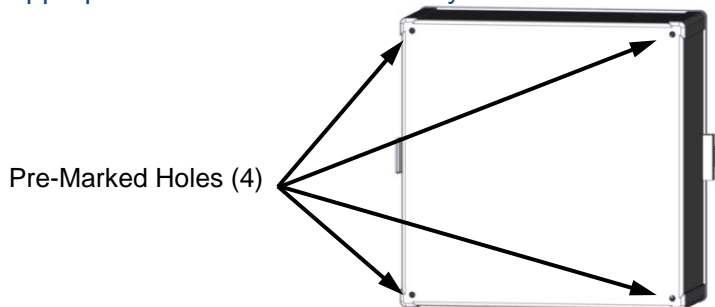


Figure 1: Wall Mounting Hole Locations

4. Securely fasten the unit in the chosen location through the four drilled holes.

Header Temp Sensor Kit # 24444-1 Instructions – Continued

- Run the 120V power cable (item 4 in Section 1) through one of the predrilled openings in the bottom of the enclosure (see Figure 2). If there are no predrilled holes, drill a hole of the appropriate size bushing or conduit to run the power cable through.

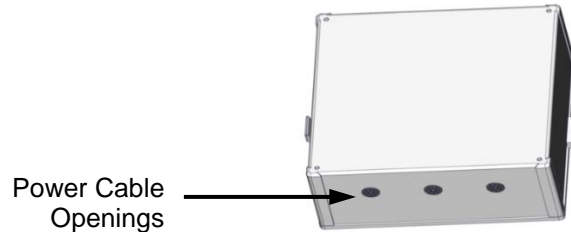


Figure 2: Power Cable Opening

- Connect the 120 VAC power cable leads to the terminals in the Modbus Transmitter Box as shown in Figure 3.

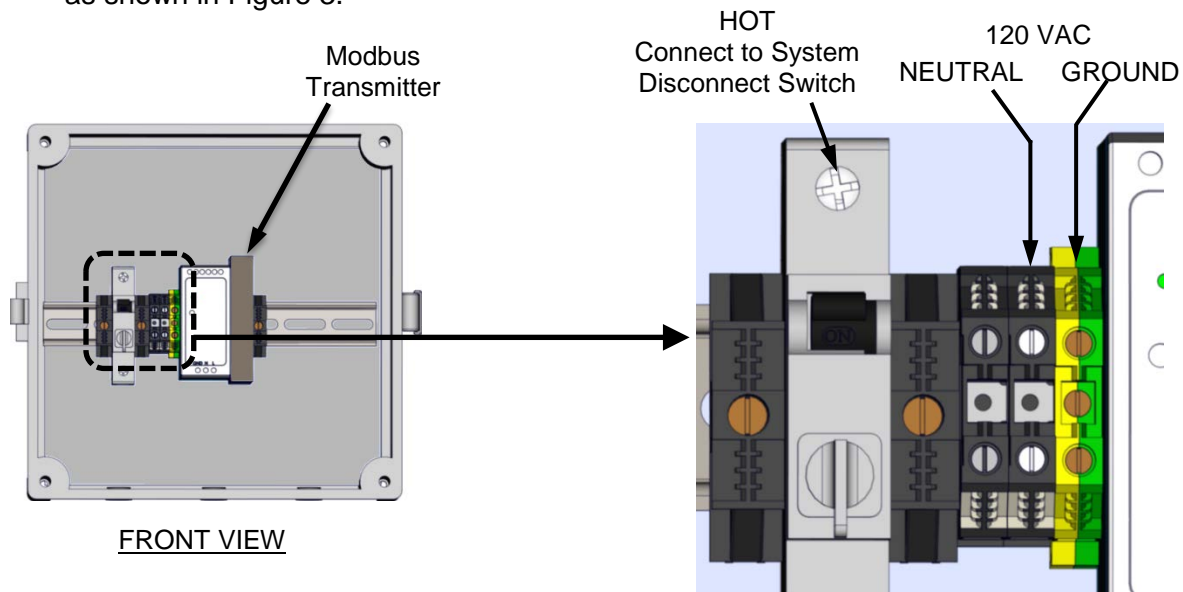


Figure 3: Modbus Transmitter Box Terminals

- Connect the other end of the power cable to a power outlet, with the hot lead connected to a service disconnect switch.
- Complete the instructions in Section 5 to wire the sensor(s) to the Modbus Transmitter and connect the Modbus Transmitter to the unit's I/O board.

4. Kit 24444-3 – Low Voltage – Installation

Header Temp Sensor Kit # 24444-3 Instructions

- Mount the Modbus Transmitter to a DIN rail mounted in a location convenient to the unit.
- Complete the instructions in Section 5 to wire the sensor(s) to the Modbus Transmitter and connect the Modbus Transmitter to the unit's I/O board.
- Connect a **10 to 30 VDC** power source to the power terminals on the Modbus Transmitter (see Figure 4).

5. Wiring the Modbus Transmitter

Complete the instructions below to connect the Modbus Transmitter to the sensor(s) and the unit's I/O board. It is shown shown with default address and points.

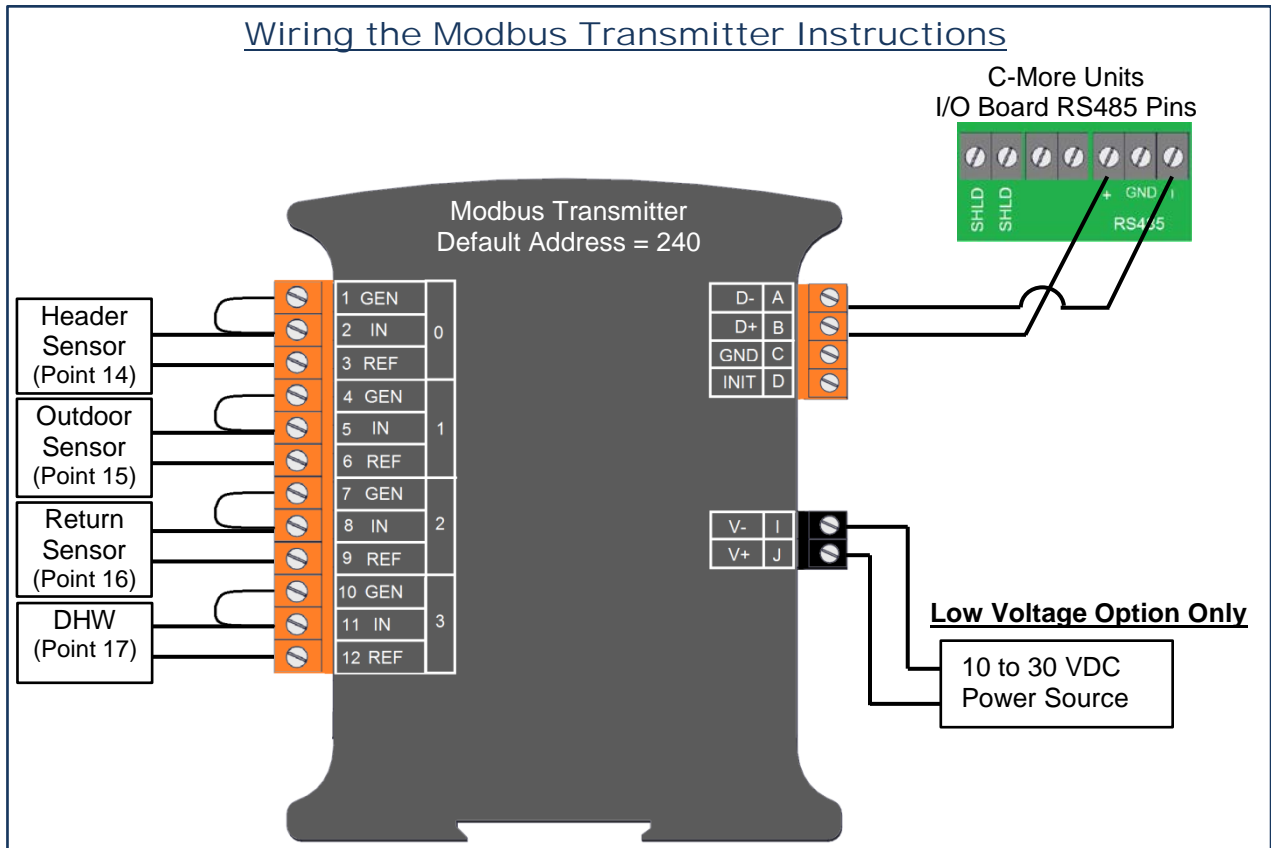


Figure 4: Modbus Transmitter Terminals

1. Connect the Header Sensor to the Modbus Transmitter's pins 2 and 3, and the Outdoor Sensor to pins 5 and 6, as shown above. Polarity is not observed. Retain all jumper wires.
2. Connect the D+ and D- pins to the following RS485 pins on the unit's I/O board:
 - a. On units with a C-More Controller, connect to the RS485 + and – pins, observing polarity, as shown above.
 - b. On units with an Edge Controller, connect to terminal strip J3, terminals **13** and **15**, labeled **Net +** and **Net 1**, observing polarity.

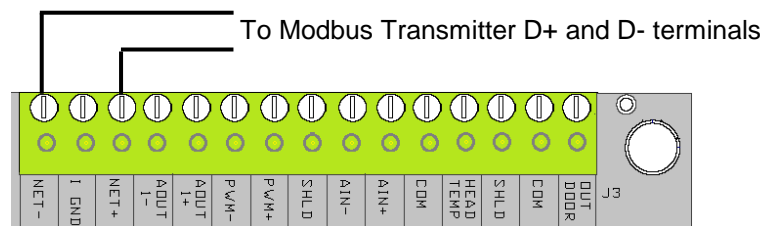


Figure 5: Edge Controller Unit I/O Board RS485 Terminals

3. Connect the RS485 shield to either SHLD pin on the unit's I/O board.

--- END ---

Change Log

Date	Description	Changed By
03/16/2015	Rev A: Initial release (reference PIR 934-125)	
3/29/2019	Rev B: DIR 18-17: Added Low-Voltage option instructions, added instructions for wiring the Modbus Transmitter (reference PIR 1434-20)	Chris Blair