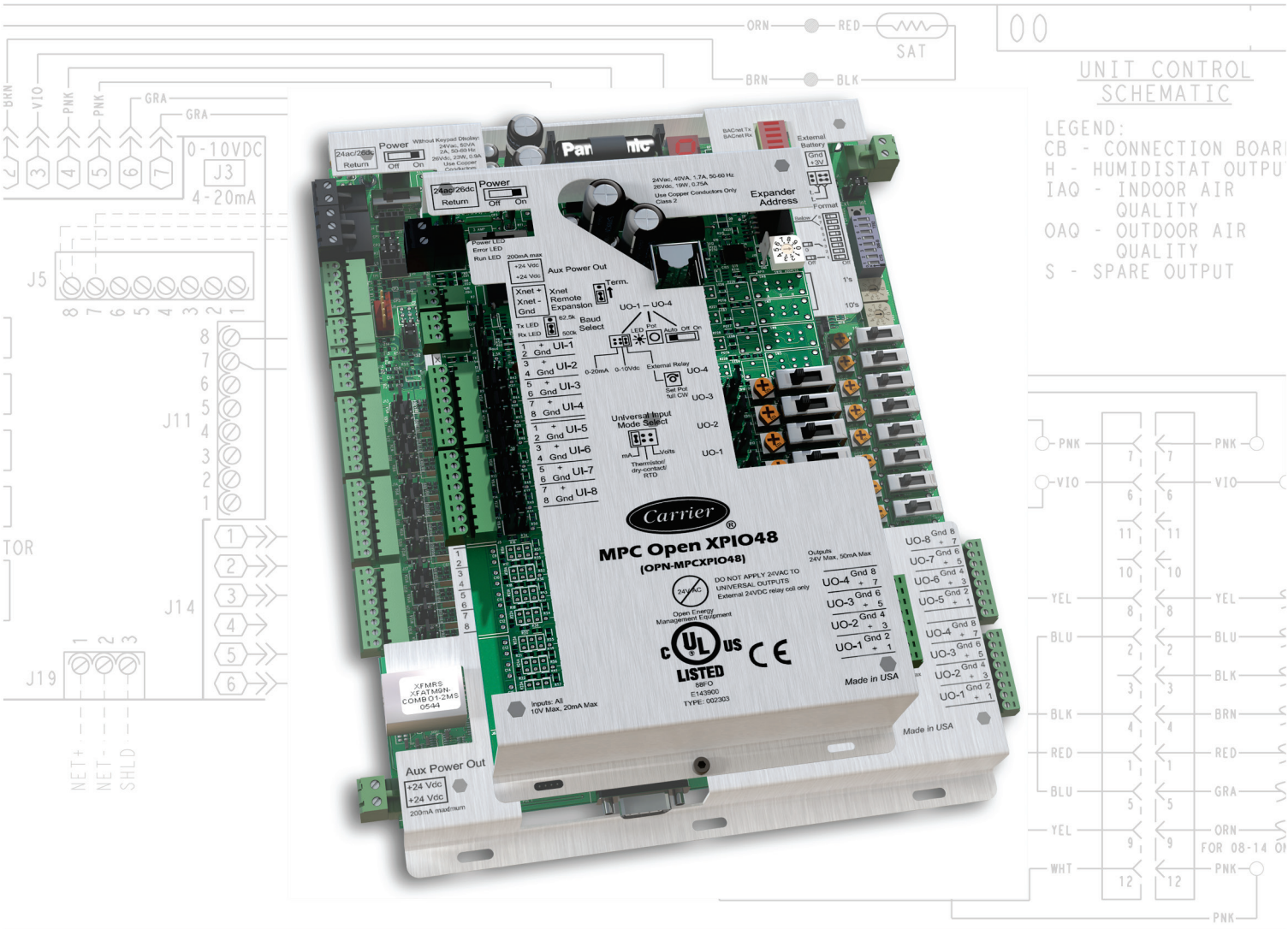
MPC Open XP

MPC Open XP IO48/816 Installation and Start-up Guide



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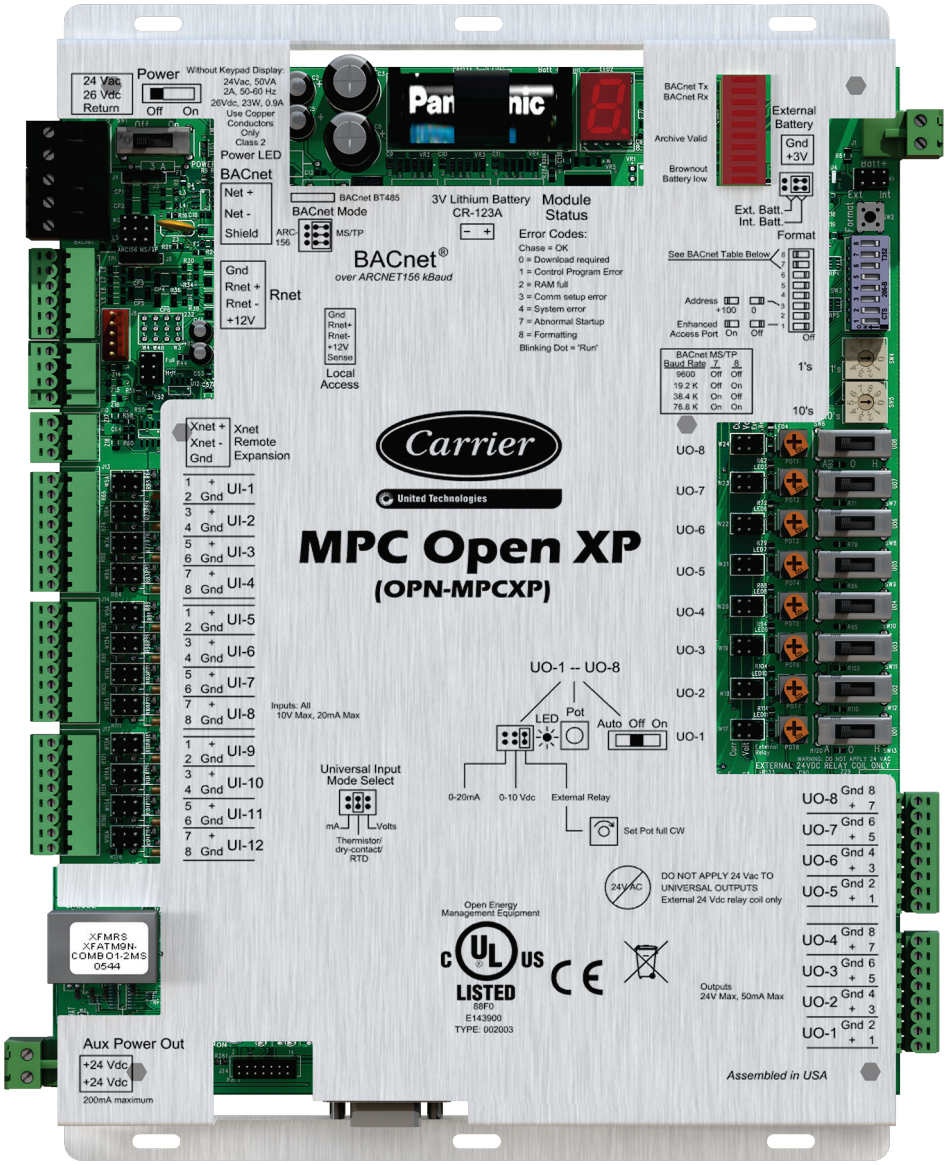
Introduction

What are the MPC Open XP and MPC Open XPIO expanders?

The Multipurpose Controller Open XP (MPC Open XP - #OPN-MPCXP) provides monitoring and control for a variety of HVAC system applications. The MPC Open XP supports multiple I/O configurations for both common and custom HVAC control and connects to up to 20 field points directly (8 outputs and 12 inputs).



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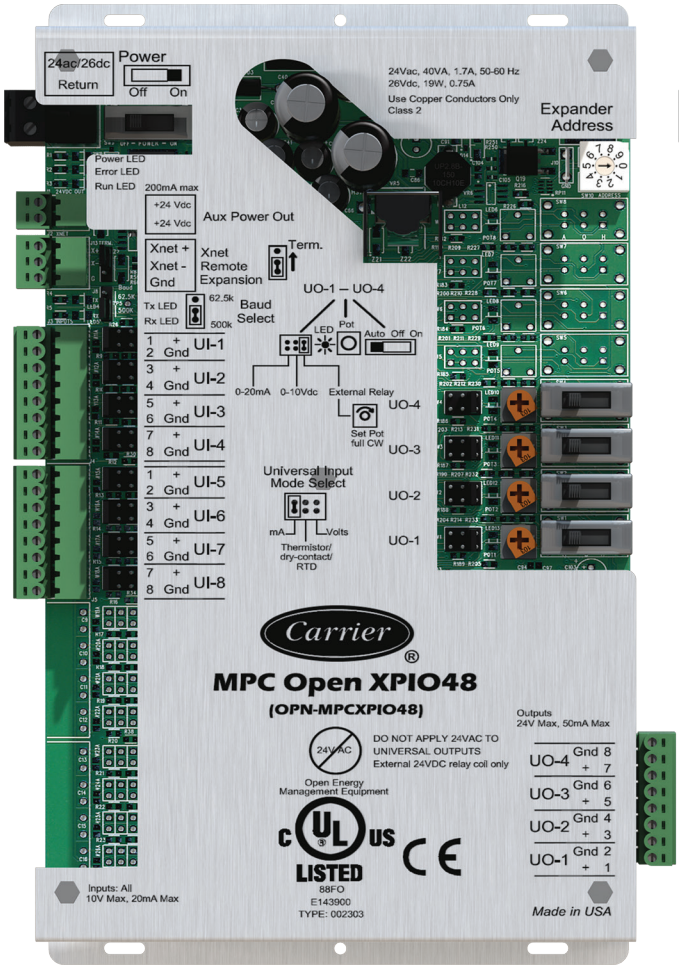
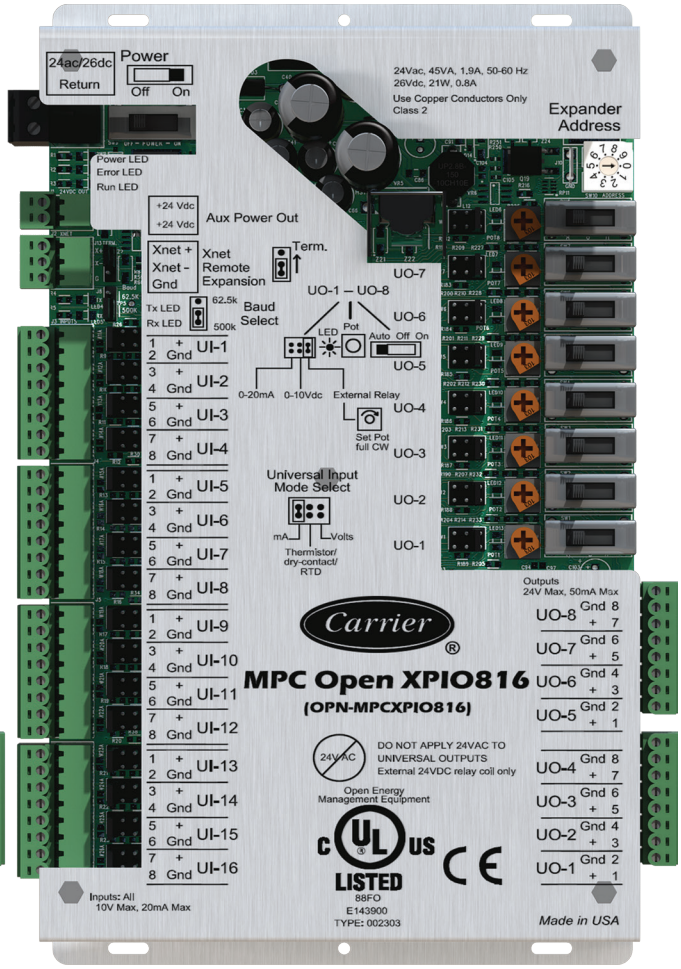
The MPC Open XPIO48 (#OPN-MPCXPIO48) and MPC Open XPIO816 (#OPN-MPCXPIO816) are expanders that connect to the expandable MPC Open XP to increase the number of inputs and outputs. To add inputs or outputs to the MPC Open XP, you can attach up to 3 expanders, using any combination of MPC Open XPIO48 and/or MPC Open XPIO816 expanders connected to the Xnet.





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MPC Open XP specifications

Driver	drv_mpcxpopen_vanilla_x-xxx-xxx
Maximum number of control programs*	999
Maximum number of BACnet objects*	12000
Maximum number of third-party integration points using Snap*†	200
* Depends on available memory † BACnet third-party integration points are not counted.	
* Depends on available memory †BACnet third-party integration points are unlimited	
Power	24 Vac ±10%, 50–60 Hz 50 VA power consumption 26 Vdc (25 V min, 30 V max), 23 W Single Class 2 source only, 100 VA or less
BACnet port	For communication with the controller network using BACnet ARC156 (156 kbps) or BACnet MS/TP (9600 bps – 76.8 kbps)
Rnet port	Supports: • Up to 15 ZS sensors (5 per control program) • One Wireless Adapter that communicates with up to 15 Wireless sensors • One Equipment Touch • Up to 4 SPT Standard sensors and one SPT Plus, SPT Pro, or SPT Pro-F sensor **NOTE** ZS sensors, a Wireless Adapter, and an Equipment Touch can share the Rnet, but not SPT sensors.
Local Access port	For system start-up and troubleshooting using Field Assistant or an Equipment Touch device
Xnet Remote Expansion port	For communication with expanders MPC Open XPIO48 and/or MPC Open XPIO816. Up to 3 expanders with a maximum of 92 points between the MPC Open XP and the expanders.
Inputs	12 inputs, configurable for 0–5 Vdc, 0–10 Vdc, 0–20 mA, RTD, thermistor, or dry contact
Input resolution	14 bit A/D
Input pulse frequency	40 pulses per second. Minimum pulse width (on or off time) required for each pulse is 12.5 msec.
Outputs	8 outputs for 24 Vdc relay driver, 0–10 Vdc, or 0-20 mA. Does not support dry contact output channels.
Output resolution	12 bit D/A

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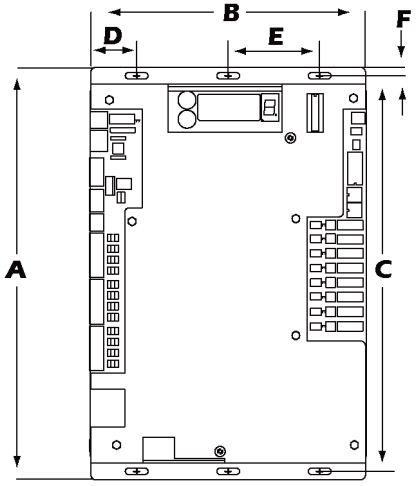
Memory	16 MB non-volatile battery-backed RAM (with 12 MB available for use), 8 MB Flash memory, 32-bit memory bus
Real-time clock	Battery-backed real-time clock keeps track of time in event of power failure
Battery	10-year Lithium CR123A battery ensures the following data is retained for a maximum of 720 hours during power outages: • Time • Graphics • Control programs • Editable properties • Schedules • Trends To conserve battery life, you can set the driver to turn off battery backup after a specified number of days and depend on the archive function to restore data when the power returns. A low battery is indicated by the **Battery Low** LED or a low battery alarm in the i-Vu® application, a touchscreen device, and Field Assistant.
Protection	Incoming power - replaceable 3 Amp Pico® fuse Network connections - non-replaceable internal solid-state polyswitches reset themselves when fault clears Power, network, I/O connections - protected against voltage transient and surge events
BT485 connector	You can install a BT485 (#BT485 - sold separately) to an MPC Open XP at the beginning and end of a network segment to add bias and to terminate a network segment.
Status indicators	LED's indicate status of communications and low battery status. Seven segment display indicates running, error, and power status.
Environmental operating range	0 to 140° F (-18 to 60°C), 0 to 90% relative humidity, non-condensing
Storage temperature range	-24 to 140°F (-30 to 60°C), 0 to 90% relative humidity, non-condensing
Physical	Rugged aluminum cover, removable screw-type terminal blocks
	
Overall dimensions	A: 11-5/16 in. (28.7 cm) B: 7-1/2 in. (19 cm)

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Mounting dimensions	C: D: E: F:	10-7/8 in. (27.6 cm) 1-1/4 in. (3.2 cm) 2-1/2 in. (6.4 cm) 1/4 in. (.6 cm)
Depth	1-7/16 in. (3.7 cm)	
Weight	1.7 lbs (0.8 kg)	
BACnet support	Conforms to the BACnet Building Controller (B-BC) Standard Device Profile as defined in ANSI/ASHRAE Standard 135-2012 (BACnet) Annex L, Protocol Revision 9	
Listed by	UL-916 (PAZX), cUL-916 (PAZX7), FCC Part 15-Subpart B-Class A	

MPC Open XPIO48 and MPC Open XPIO816 specifications

Power	**MPC Open XPIO48** 24 Vac ±10%, 50–60 Hz 40 VA power consumption 26 Vdc (25 V min, 30 V max), 21 W Single Class 2 source only, 100 VA or less **MPC Open XPIO816** 24 Vac ±10%, 50–60 Hz 45 VA power consumption 26 Vdc (25 V min, 30 V max), 21 W Single Class 2 source only, 100 VA or less
Inputs	**MPC Open XPIO48** 8 inputs, configurable for 0–5 Vdc, 0–10 Vdc, 0–20 mA, RTD, thermistor, or dry contact **MPC Open XPIO816** 16 inputs, configurable for 0–5 Vdc, 0–10 Vdc, 0–20 mA, RTD, thermistor, or dry contact
Input resolution	14 bit A/D
Input pulse frequency	40 pulses per second. Minimum pulse width (on or off time) required for each pulse is 12.5 msec.
Outputs	**MPC Open XPIO48** 4 outputs for 24 Vdc relay driver, 0–10 Vdc, or 0-20 mA **MPC Open XPIO816** 8 outputs for 24 Vdc relay driver, 0–10 Vdc, or 0-20 mA
Output resolution	12 bit D/A
Microprocessor	8-bit microprocessor with 60 kB Flash memory, 2 kB SRAM, and CAN controller

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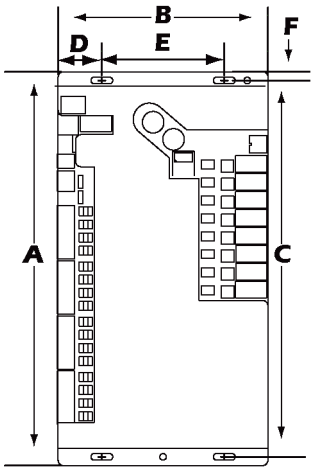
Protection	Incoming power - 2 replaceable 3 Amp Pico® fuses Power, network, I/O connections - protected against voltage transient and surge events
Status indicators	LED's indicate status of communications, running, errors, and outputs
Environmental operating range	-20 to 140°F (-29 to 60°C), 10–90% relative humidity, non-condensing **NOTE** Install in a UL Listed enclosure only.
Storage temperature range	-24 to 140°F (-30 to 60°C), 0 to 90% relative humidity, non-condensing
Physical	Rugged aluminum cover, removable screw-type terminal blocks
	
Overall dimensions	A: 9 in. (22.9 cm) B: 4-13/16 in. (12.2 cm)
Mounting dimensions (in a panel)	C: 8-5/8 in. (21.8 cm) D: 1 in. (2.5 cm) E: 2-13/16 in (7.1 cm) F: 1/4 in. (.6 cm)
Depth	1-7/16 in. (3.7 cm)
Weight	13.3 oz. (.377 kg)
Listed by	UL-916 (PAZX), cUL-916 (PAZX7), FCC Part 15-Subpart B-Class A, CE

Safety considerations

WARNING Disconnect electrical power to the MPC Open XP before wiring it. Failure to follow this warning could cause electrical shock, personal injury, or damage to the controller.

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Installing the MPC Open XP

To install the MPC Open XP:

1 *Mount the controller* (page 7).

2 *Wire the controller for power* (page 7).

3 *Set the controller's address* (page 8).

4 *Wire the controller to the BACnet MS/TP or BACnet ARC156 network* (page 9).

5 *Wire expanders to the controller* (page 10).

6 *Wire inputs and outputs* (page 13).

7 *Wire devices to the Rnet port* (page 19).

Mounting the MPC Open XP

WARNING

When you handle the MPC Open XP:
- Do not contaminate the printed circuit board with fingerprints, moisture, or any foreign material.
- Do not touch components or leads.
- Handle the board by its edges.
- Isolate from high voltage or electrostatic discharge.
- Ensure that you are properly grounded.

Screw the MPC Open XP into an enclosed panel using the mounting slots on the cover plate. Leave about 2 in. (5 cm) on each side of the controller for wiring. See mounting dimensions in Specifications.

If using expanders, see *Installing an expander* (page 10) before mounting the controller.

Wiring the MPC Open XP for power

WARNING Do not apply line voltage (mains voltage) to the controller's ports and terminals.

CAUTIONS

- The MPC Open XP is powered by a Class 2 power source. Take appropriate isolation measures when mounting it in a control panel where non-Class 2 circuits are present.
- Carrier controllers can share a power supply as long as you:
  - Maintain the same polarity.
  - Use the power supply only for Carrier controllers.

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To wire for power

1. Turn off the MPC Open XP's power switch to prevent it from powering up before you can verify the correct voltage.
2. Remove primary power from the 24 Vac transformer.
3. Pull the screw terminal connector from the controller's power terminals labeled **Return** and **24 Vac/26 Vdc**.
4. Connect the transformer wires to the screw terminal connector.
5. Apply primary power to the transformer.
6. Measure the voltage at the controller's power screw terminal connector to verify that the voltage is within the operating range of 21.6 - 26.4 Vac.
7. Insert the screw terminal connector into the controller's power terminals.
8. Turn on the MPC Open XP's power switch.
9. Verify that the Power LED is on and the Run LED is blinking.

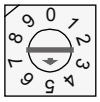
Addressing the MPC Open XP

The MPC Open XP's two rotary switches determine its MAC address when it is placed on a BACnet MS/TP network. The rotary switches define the MAC address portion of the device's BACnet address, which is composed of the network address and the MAC address.

1. Turn on the controller's power.
2. Using the rotary switches, set the controller's address. Set the **Tens** (**10's**) switch to the tens digit of the address, and set the **Ones** (**1's**) switch to the ones digit.

   EXAMPLE If the controller's address is 25, point the arrow on the **Tens** (**10's**) switch to 2 and the arrow on the **Ones** (**1's**) switch to 5.

   10's

   1's
3. Turn on the controller's power.

   NOTE The controller reads the address each time you apply power to it.

CAUTION The factory default setting is **00** and must be changed to successfully install your MPC Open XP.

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Wiring for communications

The MPC Open XP communicates using BACnet on the following types of network segments:

- MS/TP communicating at 9600 bps, 19.2 kbps, 38.4 kbps, or 76.8 kbps
- ARC156 communicating at 156 kbps

NOTE For more networking details, see the *Open Controller Network Wiring Installation Guide*.

Wiring specifications for BACnet MS/TP and ARC156

Cable:	22 AWG or 24 AWG, low-capacitance, twisted, stranded, shielded copper wire
Maximum length:	2000 feet (610 meters)

WARNING Do not apply line voltage (mains voltage) to the controller's ports and terminals.

To wire the controller to the network

1. Pull the screw terminal connector from the controller's power terminals labeled **24 Vac/26 Vdc** and **Return** (Ground).
2. Check the communications wiring for shorts and grounds.
3. Connect the communications wiring to the controller's screw terminals labeled **Net +**, **Net -**, and **Shield**.

   NOTE Use the same polarity throughout the network segment.
4. Set the communication type and baud rate.

For...	Set BACnet Mode jumper to...	Set DIP switches 7 and 8 to...
MS/TP	**BACnet MS/TP**	The appropriate baud rate. See the BACnet **MS/TP Baud** diagram on the controller.
ARC156	**BACnet ARC156**	N/A. Baud rate will be 156 kbps regardless of the DIP switch settings.

   NOTE Use the same baud rate for all controllers on the network segment.
5. Wire the controllers on a BACnet MS/TP or BACnet ARC156 network segment in a daisy-chain configuration.
6. Install a BT485 on the first and last controller on a network segment to add bias and prevent signal distortions due to echoing.

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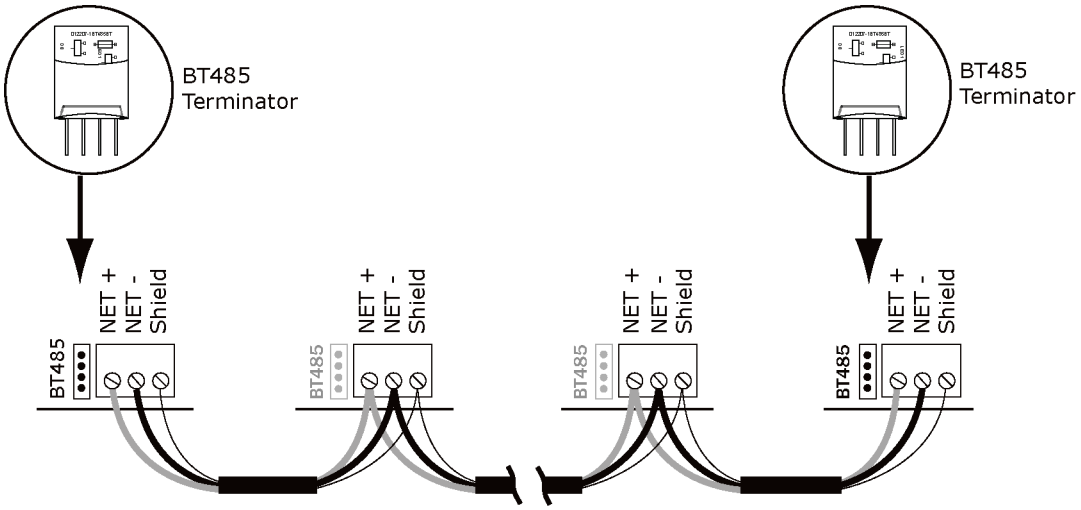

7 Insert the power screw terminal connector into the MPC Open XP's power terminals.

8 Turn **on** the MPC Open XP's power.

9 Verify communication with the network by viewing a Module Status report in the i-Vu® interface.

See the *Open Controller Network Wiring Guide* for more details.

Installing an MPC Open XPIO expander

To install the MPC Open XPIO48 and/or the MPC Open XPIO816:

1 *Mount the expander* (page 11).

2 *Wire the expander for power* (page 12).

3 *Attach the expander* (page 12).

4 *Address the expander* (page 13).

5 *Wire inputs and outputs* (page 13).

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To mount an expander

WARNING

When you handle the expander:

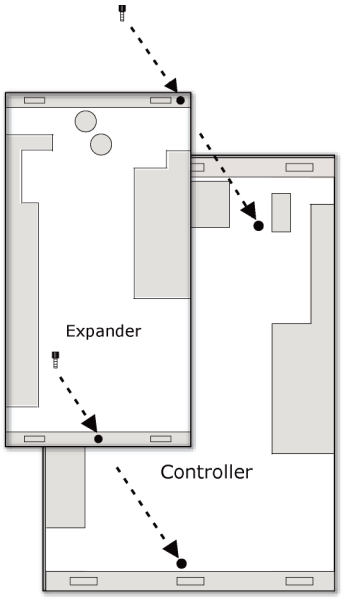
- Do not contaminate the printed circuit board with fingerprints, moisture, or any foreign material.
- Do not touch components or leads.
- Handle the board by its edges.
- Isolate from high voltage or electrostatic discharge.
- Ensure that you are properly grounded.

Wiring restrictions for connecting the expander to the MPC Open XP

- Maximum length: 100 feet (30 meters)
- 22 or 24 AWG, low-capacitance, twisted, stranded, shielded copper wire

You can mount the expander in one of the following locations:

- On top of a MPC Open XP, using the two allen cap screws provided. Connect **Gnd** to **Gnd**, **Xnet-** to **Xnet-**, **Xnet+** to **Xnet+**.



- Beside the MPC Open XP, by screwing the expander into an enclosed panel using the mounting slots on the coverplate. Leave about 2 in. (5 cm) on each side of the expander for wiring. Mounting hole dimensions 1.5" from the left (width) by 10.2" (height). Connect **Gnd** to **Gnd**, **Xnet-** to **Xnet-**, **Xnet+** to **Xnet+**. You can mount the expander up to 100 ft away from the controller.

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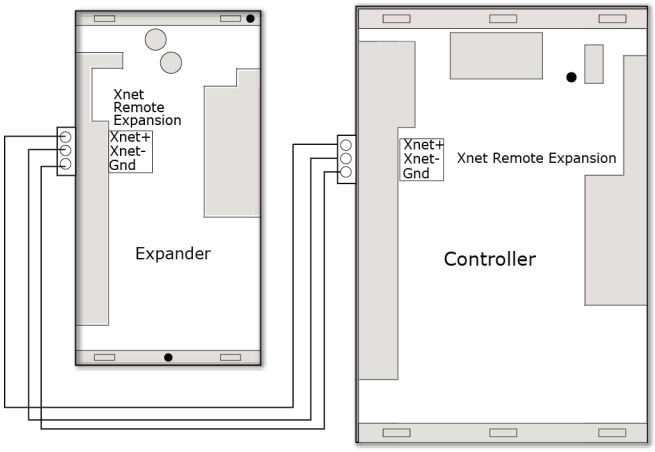

To wire the expander for power

CAUTIONS

- The expanders are powered by a Class 2 power source. Take appropriate isolation measures when mounting it in a control panel where non-Class 2 circuits are present.
- For the MPC Open XP to recognize an attached expander, you must turn on the expander before you turn on the controller.

1. Verify that the expander's power switch is in the **Off** position.
2. Connect the 24 Vac power source to the **24 Vac/26 Vdc** and **Return** terminals, being sure to maintain proper polarity if power is being shared.
3. Turn on the expander's power switch.
4. Verify that the expander's **Power** LED is on and the **Run** LED is blinking.

To attach MPC Open XPIO expanders

1. Wire the MPC Open XP's **Xnet Remote Expansion** port to the same port on the expander.

   Connect:

   - Gnd to Gnd
   - Xnet- to Xnet-
   - Xnet+ to Xnet+

   NOTE To use more than one expander, wire their **Xnet Remote Expansion** ports together in a daisy-chain configuration. The MPC Open XP must be the first device on the expander network.
2. Set the Xnet baud rate to 500 kbps in the i-Vu® interface on the driver's **Xnet** page.
3. If the expander network has more than one expander, place the **Term** jumper in the down position or remove it from all expanders except the one at the end of the expander network. The **Term** jumper must be in the up position on the expander at the end of the network.

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To set expander's address

You must give the expanders an address that is unique on the expander network.

1 If wired for power, turn off the expander's power and the attached MPC Open XP's power.

2 Set the expander's address on the rotary switch.

EXAMPLE If the controller's address is 2, point the arrow on the switch to 2.

NOTE The MPC Open XP can have a maximum of 3 expanders. You MUST address the expanders as 1, 2, and 3. Higher addresses will not work.

3 Turn on the expander's power, then turn on the attached MPC Open XP's power. The MPC Open XP reads the powered expander's address each time you turn on the MPC Open XP.

CAUTION The first time the controller communicates with an expander, it triggers a software download. This may occur if the expander(s) are blank (not a normal condition) and in cases where the controller's driver has been updated. During that time, the red **Error** LED and the green **Run** LED on the expander(s) flash in sequence. This process may take several minutes to complete. Do not disconnect power or communications wiring during this download.

Wiring inputs and outputs

WARNING Do not apply line voltage (mains voltage) to the controller's ports and terminals.

See *Appendix A* (page 35) to print a blank wire list.

Inputs

The MPC Open XP and expanders have universal inputs that accept the signal types described below.

Signal Type	Description
Thermistor [1]	Precon type 2 (10 kOhm at 77 °F). Input voltages should be from 0.489 Vdc to 3.825 Vdc for thermistors.
Dry contact	A 5 Vdc wetting voltage detects contact position, resulting in a 1 mA maximum sense current when the contacts are closed.
0–5 Vdc 0–10 Vdc	The output impedance of a 0–5 Vdc or a 0–10 Vdc source must not exceed 200 Ohms. The input impedance of the MPC Open XP is approximately 20 kOhm.

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Signal Type	Description
0–20 mA	The input resistance on the positive (+) terminal is 250 Ohms. The **Aux Power Out** connector is capable of supplying 24 Vdc to multiple 4–20 mA transducers, but the total current demanded must not exceed 200 mA. If the voltage measured from the **Aux Power Out** connector to **Gnd** is less than 18 Vdc, you need to use an external power supply.
RTD [1]	Platinum - 1 kOhm at 32°F (0°C) Nickel/Iron - 1 kOhm at 70°F (21°C) Balco TS8000 - 1 kOhm at 70°F (21°C) Input voltages should be from 0.6–1.2 V **NOTE** For improved accuracy, Carrier recommends using an external current transducer-type RTD, when RTD's are required with the MPC Open XP. Be aware that milliamp-type sensors require different jumper settings and different wiring arrangements.
Pulse counter [2]	Pulse counting up to 40 pulses per second. Minimum pulse width (on or off time) required for each pulse is 12.5 msec.

[1] To use a thermistor or RTD not listed above, you can set up a custom translation table for your sensor.

[2] The MPC Open XP can perform pulse counting for dry contact or voltage inputs if you assign the input to a Pulse to Analog Input microblock.

NOTE If you have one or more RTD's connected to the inputs, the total current draw of all Thermistor, RTD, and Dry contact devices wired to the inputs should not exceed 10 mA. Exceeding this limit affects the accuracy of the RTD's. Use the following approximations as a reference:

- 10 kOhm Thermistor draws approximately 0.334 mA.
- 1 kOhm RTD draws approximately 0.834 mA.
- Dry contact draws approximately 1 mA.

For example, if using an expander with 12 RTD's connected to the inputs, the remaining 4 inputs cannot be used. This assumes negligible wiring impedance (<10 Ohms) for each RTD input, with up to 100 feet of 22 AWG cable.

Input wiring specifications

Input	Maximum length	Minimum gauge	Shielding
0–5 Vdc 0–10 Vdc	500 feet (152 meters)	22 AWG	100 feet Unshielded 100 - 500 feet Shielded
0–20 mA	1000 feet (305 meters)	22 AWG	100 feet Unshielded 100 - 1000 feet Shielded
Thermistor Dry contact Pulse counter TLO	500 feet (152 meters)	22 AWG	100 feet Unshielded 100 - 500 feet Shielded
RTD	100 feet (30 meters)	22 AWG	Shielded
ZS or SPT sensors	500 feet (152 meters)	18 AWG 22 AWG	Shielded or unshielded

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Input	Maximum length	Minimum gauge	Shielding
Wireless Adapter for Wireless sensors	500 feet (152 meters)	22 AWG	Shielded or unshielded
Equipment Touch device	500 feet (152 meters)	22 AWG (7x0096) bare copper	If shielded, Aluminum/Mylar shield (100% coverage) with TC drain wire

Outputs

The MPC Open XP and expanders have universal outputs that you can use as binary outputs or analog outputs. The outputs support:

- driving external 24 Vdc relays
- 0-10 Vdc devices
- 0-20 mA devices

WARNING Binary outputs are powered, 24 Vdc channels. Dry contact binary outputs are not supported in this product line. Do NOT apply 24 Vac to these universal outputs.

If output controls a...	Resistance to ground must be...
0–10 Vdc device	500 Ohms minimum
0–20 mA device	800 Ohms maximum

NOTES

- The device must share the same ground as the controller.
- The total output current from all outputs and the **Aux Power Out** connection must not exceed:

  500 mA at 115°F
  300 mA at 140°F

  For temperatures above 115°F, use the following equation to calculate the total current at 8 mA per degree:

  500mA - ((max. expected temp. - 115°F) * 8mA)

Output wiring specifications

To size output wiring, consider the following:

- Total loop distance from the power supply to the controller, and then to the controlled device

  NOTE Include the total distance of actual wire. For 2-conductor wires, this is twice the cable length.
- Acceptable voltage drop in the wire from the controller to the controlled device
- Resistance (Ohms) of the chosen wire gauge
- Maximum current (Amps) the controlled device requires to operate

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To wire inputs and outputs

WARNING Do not apply line voltage (mains voltage) to the controller's ports and terminals.

The following applies to the inputs and outputs on the MPC Open XP and expanders.

1. Verify that the MPC Open XP's power and communications connections work properly.
2. Turn **off** the MPC Open XP's power.
3. Connect the input wiring to the screw terminals on the controller or expander. See figure below.

   NOTES

   - Connect the shield wire to the **GND** terminal with the ground wire.
   - For a loop-powered 4-20 mA sensor, wire the sensor's positive terminal to the **+** terminal on the MPC Open XP's **Aux Power Out** connector. Wire the sensor's negative terminal to an input's **+** terminal.

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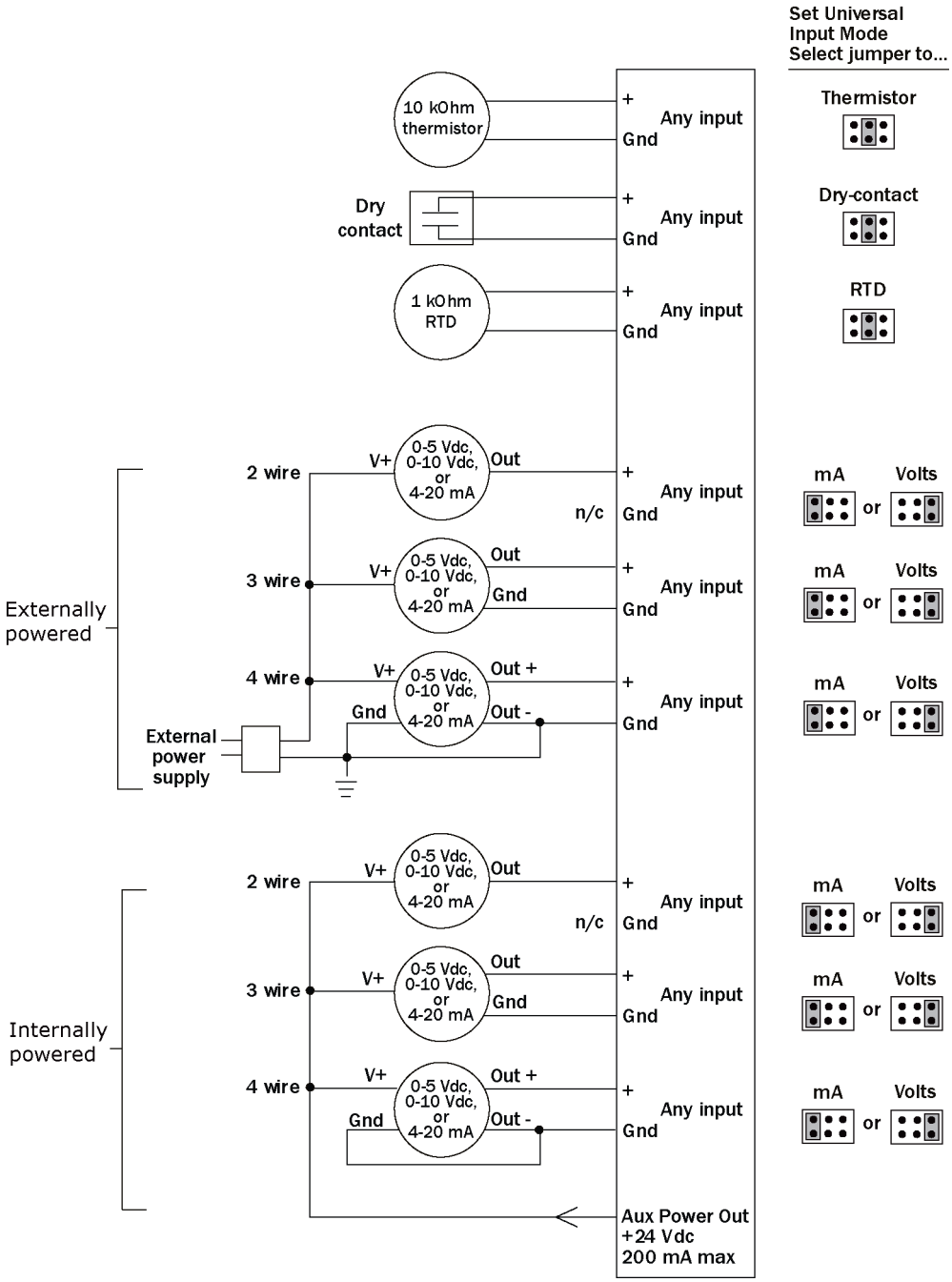

4 Set each input's **Universal Input Mode Select** jumper to indicate the type of input.

5 Connect digital and analog output wiring to the **UO** screw terminals on the MPC Open XP and to the controlled device. Connect the ground wire to the UO's **Gnd** terminal.

WARNING! Binary outputs are powered, 24 Vdc channels. Dry contact binary outputs are not supported in the MPC Open XP product line. Do NOT apply 24 Vac to these universal outputs.

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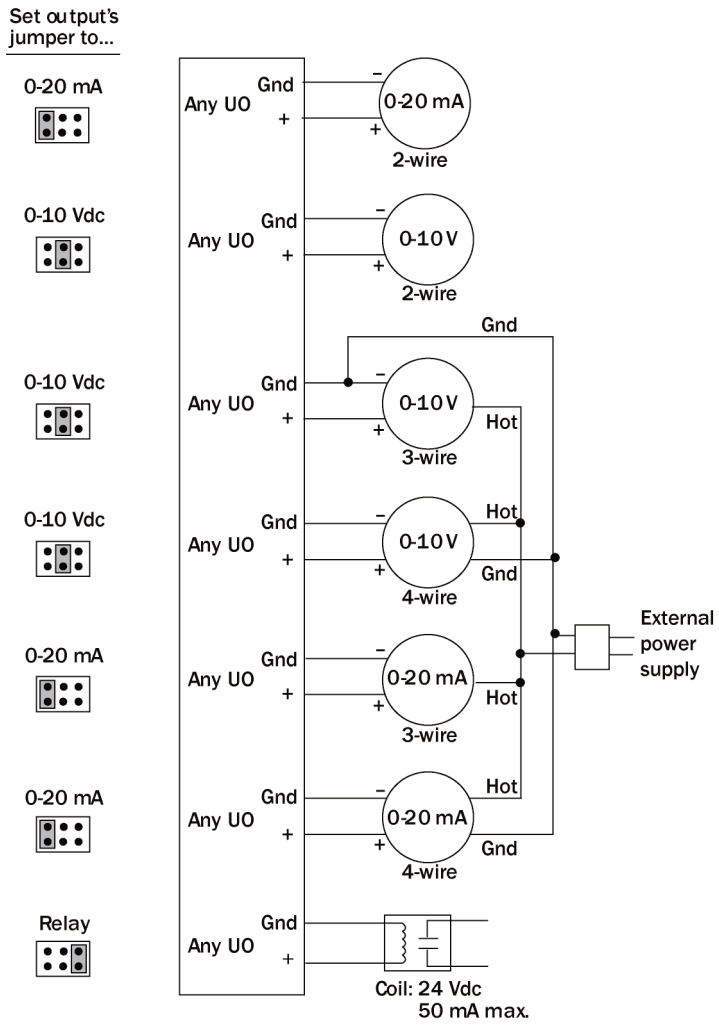

6 Set each output's jumper to the type of device wired to the output.

7 For each digital output, turn the output's potentiometer clockwise until it stops (maximum output).

8 Turn **on** the MPC Open XP's power.

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To use the Auto-Off-On switches

You can control an output using the **Auto-Off-On** switch.

Set the switch to...	To...
On	Turn on the output.
Off	Turn off the output.
Auto	Let the control program control the output.

The potentiometer, located between the **Auto-Off-On** switch and the jumper, allows you to manually control the output level of an analog output. Place the **Auto-Off-On** switch in the **On** position, then turn the potentiometer counterclockwise to reduce the output, or clockwise to increase the output.

WARNING! The output potentiometer is NOT used for binary output channels. For a binary output, turn the potentiometer clockwise until it stops (maximum output) and leave it in this position. Failure to do so may result in relay-chattering or failure of the relay to energize when the **Auto-Off-On** switch is in the **On** position.

Wiring devices to the MPC Open XP's Rnet port

The Rnet communicates at a rate of 115 kbps.

Carrier wireless sensors

You can wire a Wireless Adapter to MPC Open XP's **Rnet** port. The Wireless Adapter communicates with up to 15 wireless sensors. When using wireless sensors, the Rnet can have:

- Up to 15 wireless and ZS sensors (any combination)
- One Wireless Adapter
- One Equipment Touch

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ZS sensors

You can wire up to 15 ZS sensors to the MPC Open XP's **Rnet** port. ZS sensors can share the Rnet with the devices listed above.

NOTES

- A control program can use no more than 5 ZS sensors, so you must use multiple control programs if your Rnet network has more than 5 sensors.
- The ZS CO2 model uses 190 mA during sample period. Use auxiliary 12 Vdc, unless it is the only device on the Rnet port.

SPT sensors

You can wire SPT sensors to the MPC Open XP's **Rnet** port. An Rnet can consist of any of the following combinations of devices wired in a daisy-chain or star configuration:

- 1 SPT Plus, SPT Pro, or SPT Pro-F
- 1–4 SPT Standards
- 1–4 SPT Standards, and 1 SPT Plus, SPT Pro, or SPT Pro-F

NOTE SPT sensors cannot share the Rnet with other devices.

Equipment Touch

You can wire an Equipment Touch to the MPC Open XP's Rnet port to view or change the controller's property values, schedule equipment, view trends and alarms, and more, without having to access the system's server. The Rnet can have one Equipment Touch, one Wireless Adapter, and up to 15 ZS sensors. SPT sensors cannot share the Rnet with an Equipment Touch.

CAUTIONS

- Equipment Touch requires 24 Vac and cannot be powered by Rnet's 12 Vdc. For more details, see the *Equipment Touch Installation and Setup Guide*.

If you exceed 200 mA, then one or more devices need an auxiliary 12 Vdc power supply.

- Verify that the **Enhanced Access** DIP switch is set to **Off**.

Rnet wiring specifications

NOTE Use the specified type of wire and cable for maximum signal integrity.

Description	4 conductor, shielded or unshielded, CMP, plenum rated cable
Conductor	22 AWG (7x0096) bare copper if Rnet has only sensors
Maximum length	500 feet (152 meters)
Insulation	Low-smoke PVC (or equivalent)
Color Code	Black, white, green, red

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Shielding	If shielded, Aluminum/Mylar shield (100% coverage) with TC drain wire, terminated at controller
UL temperature rating	32–167°F (0–75°C)
Voltage	300 Vac, power limited
Listing	UL: NEC CL2P, or better

ZS sensor overview

ZS Sensors are thermistor-based temperature sensors that may optionally sense humidity, CO_2, or VOC. ZS Sensors are wired to the Rnet port on most Carrier controllers.

REQUIREMENTS

- A v6.0 or later i-Vu® system
- v6-xx-xxx or later controller drivers

You can use the following ZS sensors:

- ZS Standard
- ZS Plus
- ZS Pro
- ZS Pro-F

An Rnet can consist of the following devices wired in a daisy-chain or star configuration:

- Up to 15 ZS sensors if the controller contains multiple control programs for the sensors
- One Equipment Touch
- You cannot have SPT sensors and ZS sensors on the same Rnet.

For basic user instructions, see the *ZS Sensor User Guide*. For detailed installation instructions, see the *ZS Sensors Installation Guide*.

SPT sensor overview

The SPT sensor is a wall-mounted space temperature sensor that monitors room temperature.

The MPC Open XP supports the following:

- SPT Standard
- SPT Plus
- SPT Pro
- SPT Pro Plus

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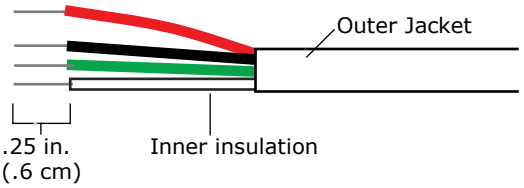
Wire the sensors to the controller's **Rnet** port.

NOTE If the Rnet has multiple SPT Standard sensors, you must give each a unique address on the Rnet.

For basic user instructions, see the *SPT Sensors Owner Guide*. For more detailed instructions, see the *Carrier Sensors Installation Guide*.

To wire the ZS or SPT sensor to the MPC Open XP

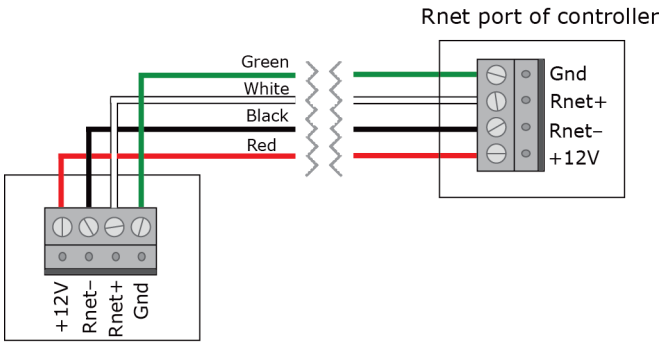
1 Partially cut, then bend and pull off the outer jacket of the Rnet cable(s). Do not nick the inner insulation. Strip about .25 inch (.6 cm) of the inner insulation from each wire.



2 Wire each terminal on the sensor to the same terminal on the controller. See diagram below.

NOTE Carrier recommends that you use the following Rnet wiring scheme:

Connect this wire...	To this terminal...
Red	+12V
Black	Rnet-
White	Rnet+
Green	Gnd



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Wireless sensor overview

The Carrier wireless sensors, designed for zone control, are low-power wireless devices that use light-harvesting through solar panels as their primary power source. The wireless line of sensors includes the models shown in the list below. All are available in 868, 902, and 928 MHz radio frequency. The sensors are thermistor-based temperature sensors that may optionally sense humidity.

Wireless sensors communicate through a Wireless Adapter, which is wired to the Rnet port of the controller.

REQUIREMENTS

- A v6.5 or later i-Vu® system
- v6-xx-xxx or later controller drivers

The following is a list of all available wireless devices:

- Standard
- Plus
- Pro-F
- Motion/Lux Sensor
- Window/Door Sensor
- Adapter

To configure the control program for the desired user interaction with the sensor, see the *Wireless Sensors Application Guide*. For detailed instructions, see the *Wireless Sensors Installation Guide*.

To install the Wireless Adapter for wireless sensors

WARNING Do not apply line voltage (mains voltage) to the Wireless Adapter.

To wire, power, and mount the Wireless Adapter

NOTES

- The Wireless Adapter requires a 24 Vac or 24 Vdc power supply. It is not powered by the Rnet.
- If the Wireless Adapter will be:
  - Daisy-chained on the Rnet with ZS sensors or an Equipment Touch, use the standard 4-conductor Rnet wiring.
  - The only device on the Rnet, you can use a 3-conductor cable instead of the standard 4-conductor Rnet cable.

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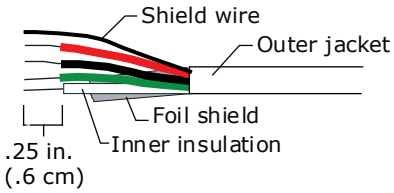
1 Turn off the power to the controller that the Wireless Adapter will be wired to.

2 Partially cut, then bend and pull off the outer jacket of the Rnet cable(s). Do not nick the inner insulation.

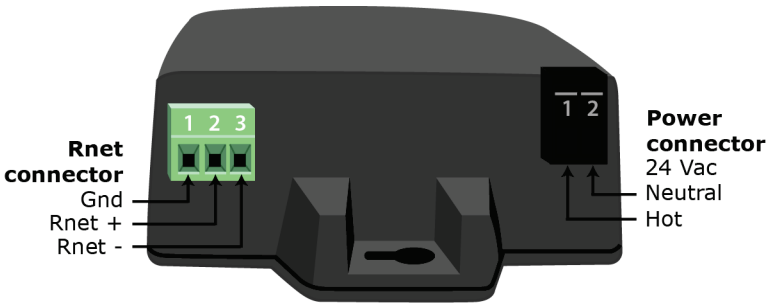


3 Strip about .25 inch (.6 cm) of the inner insulation from each wire.

4 Wire the **Rnet +**, **Rnet -**, and **Gnd** terminals on the controller's **Rnet** port to the terminals of the same name on the Wireless Adapter's Rnet connector.

NOTES

- If using shielded wire, connect the shield wire and the ground wire to the **Gnd** terminal.
- MPC Open XP and Carrier® ChillerVu™ (OPN-PSM-MPCXPE and the OPN-PSM-SIM) - Verify that the **Enhanced Access** DIP switch is set to **Off**.



5 Wire the 24 Vac external power supply to the Wireless Adapter's power connector.

6 Mount the Wireless Adapter by inserting 2 screws through the mounting tabs on each end of the Wireless Adapter.

7 Apply power to the external power supply.

8 Verify that the LED on top of the Wireless Adapter is blinking. See "LED" below.

9 Turn on the controller's power.

LED

The blue LED on the top of the Wireless Adapter indicates the following:

If the LED is...	Then the device...
Off	Is not powered or there is a problem.
Blinking	Is working properly.

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If the LED is...	Then the device...
Steadily on	Has a problem. Do one of the following: • Cycle power to the device. • Insert a small screwdriver or paper clip into the hole next to the LED to reboot the device.

To wire an Equipment Touch to the MPC Open XP

NOTE The Equipment Touch requires a 24 Vac power supply. It is not powered by the Rnet.

CAUTION Carrier controllers can share a power supply as long as you:

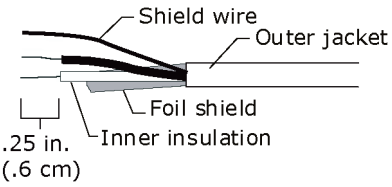
- Maintain the same polarity.
- Use the power supply only for Carrier controllers.

If the Equipment Touch will be:

- Daisy-chained on the Rnet with ZS sensors or a Wireless Adapter, use the standard 4-conductor Rnet wiring and follow the wiring instructions *To wire a ZS or SPT sensor to the MPC Open XP* (page 22).
- The only device on the Rnet, you can use a 2-conductor cable instead of the standard 4-conductor Rnet cable and follow the instructions below.

For complete Equipment Touch installation instructions including wiring diagrams, see the *Equipment Touch Installation and Setup Guide.*

1. Turn **off** the MPC Open XP's power.
2. Partially cut, then bend and pull off the outer jacket of the cable. Do not nick the inner insulation.



3. Strip about .25 inch (.6 cm) of the inner insulation from each wire.
4. Wire the MPC Open XP's **Rnet+** and **Rnet-** terminals to the terminals of the same name on the Equipment Touch's connector.

   NOTE If using shielded wire, connect the shield wire and the ground wire to the **Gnd** terminal.
5. Turn **on** the MPC Open XP's power.
6. Turn on the Equipment Touch.

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Installing the MPC Open XP into an i-Vu® Control System

You must complete the following procedures to successfully install your MPC Open XP into an i-Vu® Control System. Use the Help in the referenced software for detailed descriptions of these procedures.

EquipmentBuilder or Snap

1 Use EquipmentBuilder or Snap to create control program(s) for your MPC Open XP.

2 If applicable, print the Sequence of Operation, which includes the points list.

NOTE You can create a points list under **Reports** in the i-Vu® application or Field Assistant after installing your control program.

This Installation Guide

1 Prepare a wire list using the points list. Refer to *Appendix A* (page 35).

2 Use the wire list and the following installation procedures to install and wire I/O points to your MPC Open XP and expanders, if applicable.

The i-Vu® or Field Assistant application

1 Upload the controller to the database by selecting the router in the navigation tree.

2 Select **Devices** > **Manage** tab.

3 Select the controller in the list on the page.

4 If you are adding a new control program, click Add Control Program. A dialog window appears.

5 Enter a name for your control program in **Display Name** and select your controller in the **Controller** drop-down list.

NOTES

- If you already have the maximum number of control programs for a controller, it will not appear in the list.
- Optional: You can change the control program's **Reference Name** if needed.

6 Do one of the following:

If the control program is...	
In the **Control Program** drop-down list	Select the control program.
Not in the **Control Program** drop-down list	a. Click **Add New**. b. Browse to select the control program. c. Click **Open**. d. Click **Continue**. e. Click Close.

7 To upload a graphic, click **Add New** under **Views** and browse to your .view file.

8 Click **Continue**. When message appears **File added successfully**, click **Close**.

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9 Click **Close** again.

10 Right-click on the programmable controller in the controller list and select **Check Status** from the list. The status of the controller should say **File Mismatch**.

11 Click the **Download All Content** button.

12 Assign channel numbers to the physical points by selecting the controller in the navigation tree and going to **Properties** page > **I/O Points** tab.

13 Configure the controller on the **Properties** page > **Control Program** tab.

14 Check out and commission the equipment.

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Local access to the MPC Open XP

You can use the following items as a local user interface to an Open controller. These items let you access the controller information, read sensor values, and test the controller.

Connect...	To the controller's...	For...
Field Assistant[1] application	Local Access port	Temporary user interface for start-up
Equipment Touch[2] touchscreen device	Rnet port	Temporary or permanent user interface for start-up

[1] Requires a USB Link (Part #USB-L)

[2] See the *Equipment Touch Installation and Setup Guide* for detailed instructions.

CAUTION If multiple controllers share power but polarity was not maintained when they were wired, the difference between the controller's ground and the computer's AC power ground could damage the USB Link and the controller. If you are not sure of the wiring polarity, use a USB isolator between the computer and the USB Link. Purchase a USB isolator online from a third-party manufacturer.

These are accessory items that do not come with the controller.

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Troubleshooting

If you have problems mounting, wiring, or addressing the MPC Open XP or the expander, contact Carrier Control Systems Support.

NOTE To help you troubleshoot, obtain a Module Status (Modstat) from the controller and review the System Error and Warning details.

MPC Open XP LED's

The **Module Status** LED can display the following error codes. Verify the LED patterns by cycling power to the controller and noting the lights and flashes.

Error Code...	Indicates...	Possible solutions
0	The control program or module driver has not been downloaded.	Download memory to the MPC Open XP.
1	A control program error	Obtain a Module Status Report (Modstat) and look for error messages. See the i-Vu® application or Field Assistant Help for instructions on obtaining a Modstat. If you cannot determine the error from the Modstat, contact Carrier Control Systems Support.
2	The controller's memory is full	In the i-Vu® application, reduce the amount of trend data being stored in the controller.
3	A setup error	Verify: • The address has been set on the rotary switches. See *Addressing the MPC Open XP* (page 8). • The address is unique on the network • DIP switches are set correctly
4	A system error	Obtain a Module Status Report (Modstat) and look for error messages. See the i-Vu® application or Field Assistant Help for instructions on obtaining a Modstat. If you cannot determine the error from the Modstat, contact Carrier Control Systems Support.
7	Abnormal startup	Obtain a Module Status Report (Modstat) and look for error messages. See the i-Vu® application or Field Assistant Help for instructions on obtaining a Modstat. If you cannot determine the error from the Modstat, contact Carrier Control Systems Support.

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Error Code...	Indicates...	Possible solutions
8	The controller is formatting	The number 8 should display only during the short formatting period. If this number displays continuously or flashes intermittently with another number, try each of the following: • Turn the MPC Open XP's power off, then on. • Restore factory defaults. See *Restore factory defaults* (page 31). • Replace the MPC Open XP.

Other LED's show the status of certain functions.

If this LED is on...	Status is...
Power	The MPC Open XP has power
BACnet Tx	The MPC Open XP is transmitting data from **BACnet Port**
BACnet Rx	The MPC Open XP is receiving data from **BACnet Port**
Archive Valid	The controller's memory backup is valid
Brownout	Incoming power is low
Battery low	The battery is low

Expander LED's

The LED's show the status of certain functions.

If this LED is on...	Status is...
Power	The MPC Open XP has power
Rx	The MPC Open XP is receiving data from the network segment
Tx	The MPC Open XP is transmitting data over the network segment
UO#	The binary output is active
Run	Lights based on expander health. See table below
Error	Lights based on expander health. See table below

The **Run** and **Error** LED's indicate expander and network status.

If Run LED shows...	And Error LED shows...	Status is..
2 flashes per second	Off	Normal
5 flashes per second	2 flashes per second	Boot is running or driver is updating
5 flashes per second	On	Fatal error. Replace expander or return for repair.

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To restore factory defaults

CAUTION This erases all archived information and user-configuration settings. You will have to reconfigure all custom settings. It is recommended to restore the factory defaults only under the guidance of Carrier Control Systems Support.

To erase volatile memory data and restore factory default configuration settings:

1 Turn off the MPC Open XP's power switch.

Make sure the address switches are not set to 0, 0.

2 Hold down the controller's **Format** button while you turn its power on.

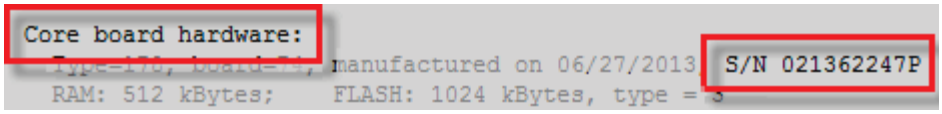
3 Continue to hold down the **Format** button until the controller displays **8** and then the chase pattern, then release the button.

4 Turn on the MPC Open XP's power switch.

To get the serial number

If you need the MPC Open XP's serial number when troubleshooting, the number is on:

- a sticker on the back of the main controller board
- a Module Status report (Modstat) under **Core** (or **Main**) **board hardware**



To obtain a modstat in the i-Vu® interface:

1 Select the MPC Open XP in the navigation tree.

2 Right-click and select **Module Status**.

To replace the MPC Open XP's battery

The MPC Open XP's 10-year Lithium CR123A battery retains the following data for a maximum of 720 hours during power outages: time, control programs, editable properties, schedules, and trends.
To conserve battery life, you can set the driver to turn off battery backup after a specified number of days and depend on the archive function to restore data when the power returns.
A low battery is indicated by the **Battery low** LED or a low battery alarm in the i-Vu® application. You can purchase replacement batteries from any retailer that sells a CR-123A battery.

1 Verify that the MPC Open XP's power is on.

2 Using a small flathead screwdriver, pry up each side of the black battery clip until it is free and you can remove it.

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3 Remove the battery from the expander, making note of the battery's polarity.

4 Insert the new battery into the expander, matching the polarity of the battery you removed.

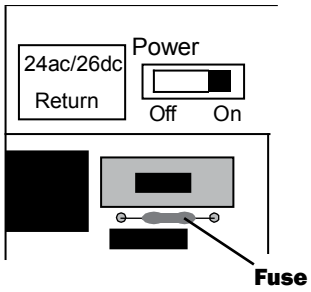
5 Push the black clip back onto the battery until you hear both sides click in place.

6 Download the MPC Open XP.

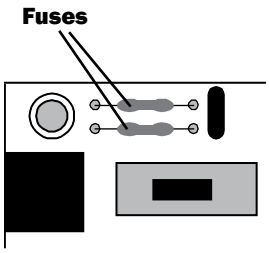
To replace the fuse

If you turn on the MPC Open XP's power switch and the Power LED is not lit, use a multimeter to see if one of the 3 Amp Pico fuses that protects the incoming power is blown.

Controller



Expander



You can order replacement 3 Amp Pico fuses from a local or online retailer.

Before replacing the fuse, try to determine why the fuse blew.

- Check the Power wiring polarity of the MPC Open XP, any attached expanders, and any other controllers that share the power supply. Use the same polarity for all of them.
- Verify that outputs are wired to the appropriate types of devices. See *Outputs* (page 15). For example, you cannot wire a 24 Vac device to an output.
- **MPC Open XP** - If the **Aux Power Out** port is used, verify that it is wired correctly. See *To wire inputs and outputs* (page 16).

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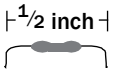
To replace the fuse:

1. Turn **off** the MPC Open XP's power.
2. If the fuse is on an expander, remove the coverplate.
3. Using needle-nose pliers, pull the bad fuse from the MPC Open XP.
4. Cut the wires on the new fuse so that the total length is approximately 1 inch and the fuse is centered.

5. Bend the wire ends so that the length is approximately 1/2 inch.



6. Use the pliers to grip one wire end of the fuse and push into a fuse socket on the MPC Open XP.
7. Grip the other wire end of the fuse and push into the other fuse socket.
8. If working on an expander, replace the coverplate.
9. Turn on the power and verify that the Power LED is lit.

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Compliance

FCC Compliance

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 the 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 is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CAUTION Changes or modifications not expressly approved by the responsible party for compliance could void the user's authority to operate the equipment.

CE Compliance

WARNING This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

BACnet Compliance

Compliance of listed products to requirements of ASHRAE Standard 135 is the responsibility of BACnet International. BTL® is a registered trademark of BACnet International.

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Appendix A: MPC Open XP wire lists

Important notes about AHU application I/O points

The MPC Open XP accepts any of the following:

- UC applications in the UC equipment sal library
- Any application from the CV AHU or VAV AHU library
- User-created Snap programs

CAUTION We do NOT recommend using the 39m library applications in the MPC Open XP controller. If any of the 39m AHU applications in the 39m sal library are used, the I/O channels are pre-assigned for the UC Open XP, UC Open, or AppController. These channel assignments are NOT correct in the MPC Open XP.

When using 39m AHU applications in the MPC Open XP or expanders, you must reassign the correct hardware channel numbers in the i-Vu® application or Field Assistant. See *To install the <ALCProduct01 into an i-Vu® Control System* (page 26). When installing the MPC Open XP with any of the 39m AHU applications, do not connect any I/O channel wiring until you have set the I/O channel numbers specifically for the application.

These cautions pertain ONLY to using 39m AHU applications in the MPC Open XP. UC library applications and Snap applications come with the channel numbers set to 0:0 and you set them to match the application. No special steps are required.

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MPC Open XP wire list

Open System Network

MPC Open XP Multi-purpose Controller

Project Name: **Location:**	**Controller:** **Network Number:** **MAC Address:**

Aux Power Out	1		24 Vdc					
	2		24 Vdc					

Universal Input Mode Select (Jumper Position of Pins)

Point/ Cable#	Universal Inputs (+)	(G)	Input Type	Jumper Position of Pins	I/O	Sensor code	Equipment Name	Point Name
1	1	2	0-20 mA	Left	UI-1			
	1	2	Thermistor Dry contact RTD	Middle				
	1	2	0-10 V	Right				
2	3	4	0-20 mA	Left	UI-2			
	3	4	Thermistor Dry contact RTD	Middle				
	3	4	0-10 V	Right				
3	5	6	0-20 mA	Left	UI-3			
	5	6	Thermistor Dry contact RTD	Middle				
	5	6	0-10 V	Right				
4	7	8	0-20 mA	Left	UI-4			
	7	8	Thermistor Dry contact RTD	Middle				
	7	8	0-10 V	Right				
5	9	11	0-20 mA	Left	UI-5			
	9	11	Thermistor Dry contact RTD	Middle				
	9	11	0-10 V	Right				
6	10	11	0-20 mA	Left	UI-6			
	10	11	Thermistor Dry contact RTD	Middle				
	10	11	0-10 V	Right				
7	12	14	0-20 mA	Left	UI-7			
	12	14	Thermistor Dry contact RTD	Middle				
	12	14	0-10 V	Right				
8	13	14	0-20 mA	Left	UI-8			

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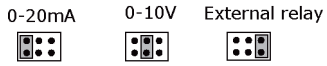
	13	14	Thermistor Dry contact RTD	Middle				
	13	14	0-10 V	Right				
9	15	17	0-20 mA	Left	UI-9			
	15	17	Thermistor Dry contact RTD	Middle				
	15	17	0-10 V	Right				
10	16	17	0-20 mA	Left	UI-10			
	16	17	Thermistor Dry contact RTD	Middle				
	16	17	0-10 V	Right				
11	18	20	0-20 mA	Left	UI-11			
	18	20	Thermistor Dry contact RTD	Middle				
	18	20	0-10 V	Right				
12	19	20	0-20 mA	Left	UI-12			
	19	20	Thermistor Dry contact RTD	Middle				
	19	20	0-10 V	Right				



Universal Output Mode Select (Jumper Position of Pins)

Point/ Cable#	Universal Outs (+)	(G)	Output Type	Jumper Position of Pins	I/O	Sensor code	Equipment Name	Point Name
1	1	2	0-20 mA	Left	UO-1			
			0-10 Vdc	Middle				
			Relay	Right				
2	3	4	0-20 mA	Left	UO-2			
			0-10 Vdc	Middle				
			Relay	Right				
3	5	6	0-20 mA	Left	UO-3			
			0-10 Vdc	Middle				
			Relay	Right				
4	7	8	0-20 mA	Left	UO-4			
			0-10 Vdc	Middle				
			Relay	Right				
5	1	2	0-20 mA	Left	UO-5			
			0-10 Vdc	Middle				
			Relay	Right				
6	3	4	0-20 mA	Left	UO-6			
			0-10 Vdc	Middle				
			Relay	Right				
7	5	6	0-20 mA	Left	UO-7			
			0-10 Vdc	Middle				
			Relay	Right				

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8	7	8	0-20 mA	Left	UO-8			
			0-10 Vdc	Middle				
			Relay	Right				

MPC Open XPIO48 wire list

System network

MPC Open XPIO48 expander

Project Name: **Location:**	**Controller:** **Network Number:** **MAC Address:**

Aux Power Out	1		24 Vdc					
	2		24 Vdc					

Universal Input Mode Select (Jumper Position of Pins)

Point/ Cable#	Universal Inputs (+)	(G)	Input Type	Jumper Position of Pins	I/O	Sensor code	Equipment Name	Point Name
1	1	2	0-20 mA	Left	UI-1			
	1	2	Thermistor Dry contact RTD	Middle				
	1	2	0-10 V	Right				
2	3	4	0-20 mA	Left	UI-2			
	3	4	Thermistor Dry contact RTD	Middle				
	3	4	0-10 V	Right				
3	5	6	0-20 mA	Left	UI-3			
	5	6	Thermistor Dry contact RTD	Middle				
	5	6	0-10 V	Right				
+4	7	8	0-20 mA	Left	UI-4			
	7	8	Thermistor Dry contact RTD	Middle				
	7	8	0-10 V	Right				
5	1	2	0-20 mA	Left	UI-5			
	1	2	Thermistor Dry contact RTD	Middle				
	1	2	0-10 V	Right				

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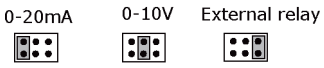
6	3	4	0-20 mA	Left	UI-6			
	3	4	Thermistor Dry contact RTD	Middle				
	3	4	0-10 V	Right				
7	5	6	0-20 mA	Left	UI-7			
	5	6	Thermistor Dry contact RTD	Middle				
	5	6	0-10 V	Right				
8	7	8	0-20 mA	Left	UI-8			
	7	8	Thermistor Dry contact RTD	Middle				
	7	8	0-10 V	Right				



Universal Output Mode Select (Jumper Position of Pins)

Point/ Cable#	Universal Outs (+)	(G)	Output Type	Jumper Position of Pins	I/O	Sensor code	Equipment Name	Point Name
1	1	2	0-20 mA	Left	UO-1			
			0-10 Vdc	Middle				
			Relay	Right				
2	3	4	0-20 mA	Left	UO-2			
			0-10 Vdc	Middle				
			Relay	Right				
3	5	6	0-20 mA	Left	UO-3			
			0-10 Vdc	Middle				
			Relay	Right				
4	7	8	0-20 mA	Left	UO-4			
			0-10 Vdc	Middle				
			Relay	Right				

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MPC Open XPIO816 wire list

System network
MPC Open XPIO816 expander

Project Name: **Location:**	**Controller:** **Network Number:** **MAC Address:**

Aux Power Out	1		24 Vdc					
	2		24 Vdc					

Universal Input Mode Select (Jumper Position of Pins)

Point/ Cable#	Universal Inputs (+)	(G)	Input Type	Jumper Position of Pins	I/O	Sensor code	Equipment Name	Point Name
1	1	2	0-20 mA	Left	UI-1			
	1	2	Thermistor Dry contact RTD	Middle				
	1	2	0-10 V	Right				
2	3	4	0-20 mA	Left	UI-2			
	3	4	Thermistor Dry contact RTD	Middle				
	3	4	0-10 V	Right				
3	5	6	0-20 mA	Left	UI-3			
	5	6	Thermistor Dry contact RTD	Middle				
	5	6	0-10 V	Right				
4	7	8	0-20 mA	Left	UI-4			
	7	8	Thermistor Dry contact RTD	Middle				
	7	8	0-10 V	Right				
5	1	2	0-20 mA	Left	UI-5			
	1	2	Thermistor Dry contact RTD	Middle				
	1	2	0-10 V	Right				
6	3	4	0-20 mA	Left	UI-6			
	3	4	Thermistor Dry contact RTD	Middle				
	3	4	0-10 V	Right				
7	5	6	0-20 mA	Left	UI-7			
	5	6	Thermistor Dry contact RTD	Middle				
	5	6	0-10 V	Right				

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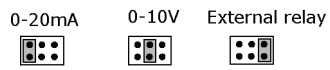
8	7	8	0-20 mA	Left	UI-8			
	7	8	Thermistor Dry contact RTD	Middle				
	7	8	0-10 V	Right				
9	1	2	0-20 mA	Left	UI-9			
	1	2	Thermistor Dry contact RTD	Middle				
	1	2	0-10 V	Right				
10	3	4	0-20 mA	Left	UI-10			
	3	4	Thermistor Dry contact RTD	Middle				
	3	4	0-10 V	Right				
11	5	6	0-20 mA	Left	UI-11			
	5	6	Thermistor Dry contact RTD	Middle				
	5	6	0-10 V	Right				
12	7	8	0-20 mA	Left	UI-12			
	7	8	Thermistor Dry contact RTD	Middle				
	7	8	0-10 V	Right				
13	1	2	0-20 mA	Left	UI-13			
	1	2	Thermistor Dry contact RTD	Middle				
	1	2	0-10 V	Right				
14	3	4	0-20 mA	Left	UI-14			
	3	4	Thermistor Dry contact RTD	Middle				
	3	4	0-10 V	Right				
15	5	6	0-20 mA	Left	UI-15			
	5	6	Thermistor Dry contact RTD	Middle				
	5	6	0-10 V	Right				
16	7	8	0-20 mA	Left	UI-16			
	7	8	Thermistor Dry contact RTD	Middle				
	7	8	0-10 V	Right				



Universal Output Mode Select (Jumper Position of Pins)

Point/ Cable#	Universal Outs (+)	(G)	Output Type	Jumper Position of Pins	I/O	Sensor code	Equipment Name	Point Name
1	1	2	0-20 mA	Left	UO-1			
			0-10 Vdc	Middle				
			Relay	Right				

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2	3	4	0-20 mA	Left	UO-2			
			0-10 Vdc	Middle				
			Relay	Right				
3	5	6	0-20 mA	Left	UO-3			
			0-10 Vdc	Middle				
			Relay	Right				
4	7	8	0-20 mA	Left	UO-4			
			0-10 Vdc	Middle				
			Relay	Right				
5	1	2	0-20 mA	Left	UO-5			
			0-10 Vdc	Middle				
			Relay	Right				
6	3	4	0-20 mA	Left	UO-6			
			0-10 Vdc	Middle				
			Relay	Right				
7	5	6	0-20 mA	Left	UO-7			
			0-10 Vdc	Middle				
			Relay	Right				
8	7	8	0-20 mA	Left	UO-8			
			0-10 Vdc	Middle				
			Relay	Right				

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Document revision history

Important changes to this document are listed below. Minor changes such as typographical or formatting errors are not listed.

Date	Topic	Change description	Code*
6/20/17	Appendix A: MPC Open XP wire lists	Caution added to not use 39m library applications with the MPC Open XP.	C-TS-CP-E-WB
2/23/17		Changed sensor and adapter name from WS to wireless.	C-D
1/18/17	Wireless sensor overview To install the Wireless Adapter for Wireless sensors	New topics	C-D
	Wiring devices to the MPC Open XP's Rnet port	Updated format and added Wireless Adapter for Wireless sensors	C-D
	Input wiring specifications	Added Wireless Adapter for Wireless sensors	C-D
	To wire the controller to the network	Added BACnet ARC156 connection information.	C-D
	Wiring for communications	Changed from Wiring the MPC Open XP to the MS/TP network	C-D
	Specifications	Added BACnet ARC156 and updated Rnet port information to include Wireless Adapter.	C-D
	Cover What are the MPC Open XP and MPC Open XP expanders?	Changed MPC Open XP to new silkscreen	C-D
2/19/16	Local access to the MPC Open XP	Added USB Link wiring caution.	C-TS-RD-E-JH
2/9/16	To attach the MPC Open XPIO expander	Added step explaining jumper settings for connecting more than one expander.	X-TS-RD-E-BR
12/3/15	Replacing the battery	Corrected instructions from the wrong battery to the correct one.	X-D
11/18/14	MPC Open XPIO48 and MPC Open XPIO816	Power rating corrected from 45VA to 40VA, as listed on the silkscreen	C-D-LJ-O-BR
8/14/14	MPC Open XP specifications	Maximum number of BACnet third-party integration points using Snap - changed to unlimited, depending on memory Power - removed references to BACview Rnet port - added Equipment Touch and removed BACview Rnet port - added note that number of possible ZS sensors you can have with an Equipment Touch is 15 Local Access port - removed BACview, added Equipment Touch Battery - added Equipment Touch and removed BACview	C-D-LJ-O
	Wiring devices to the Rnet port	Changed from "Wiring a communicating zone sensor to the MPC Open XP" Removed references to BACview	
	Connecting an SPT sensor	Removed BACview and added Equipment Touch	
	To wire an Equipment Touch to the MPC Open XP	New topic	
	BACview devices	Removed references and topics	
	Local Access to the MPC Open XP	Removed BACview and added Equipment Touch	
	To wire the Equipment Touch to the MPC Open XP	Added Caution to maintain polarity and use the power supply only for Carrier controllers	C-TS-RD-E
	Restore factory defaults	Corrected from using a jumper to holding the Format button	C-D-LJ

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