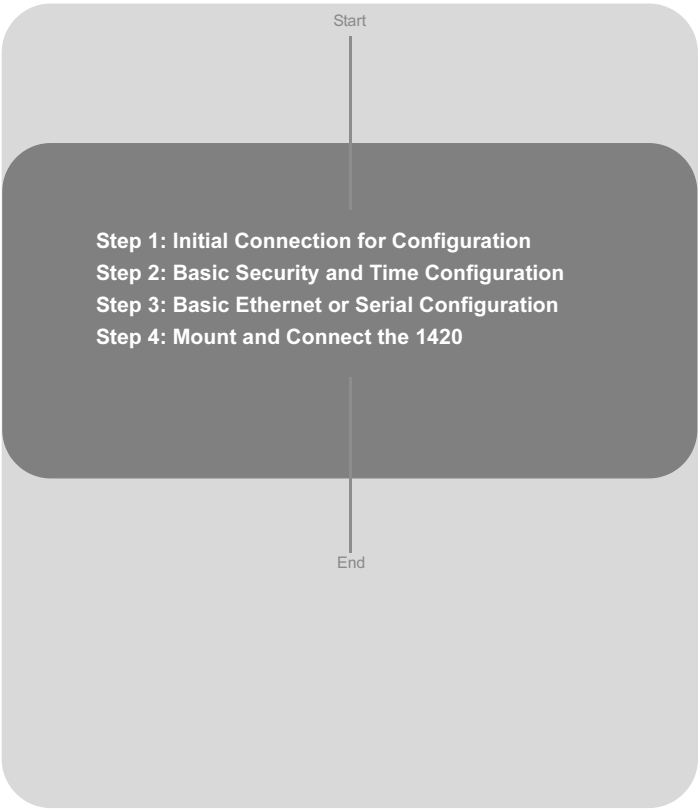
1420 Wireless Gateway



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1420 Wireless Gateway

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⚠ IMPORTANT NOTICE

This installation guide provides basic guidelines for the 1420 Wireless Gateway. It does not provide instructions for detailed configuration, diagnostics, maintenance, service, troubleshooting, or installations. Refer to the 1420 Wireless Gateway reference manual (document number 00809-0100-4420) for more instruction. The manual and this QIG are also available electronically on www.rosemount.com.

⚠ WARNING

Explosions could result in death or serious injury:

Installation of this device in an explosive environment must be in accordance with the appropriate local, national, and international standards, codes, and practices. Please review the Hazardous Locations Certifications for any restrictions associated with a safe installation.

Electrical shock can result in death or serious injury

- Avoid contact with the leads and terminals. High voltage that may be present on leads can cause electrical shock.

⚠ WARNING

Explosion Hazard

Do not disconnect equipment when a flammable or combustible atmosphere is present.

⚠ IMPORTANT NOTICE

The 1420 Wireless Gateway should be installed before installing any other wireless devices. This will result in a simpler and faster network installation.

Physical Device Revision 1.0

Web Server Revision 3.0.8

Network Revision 1.0

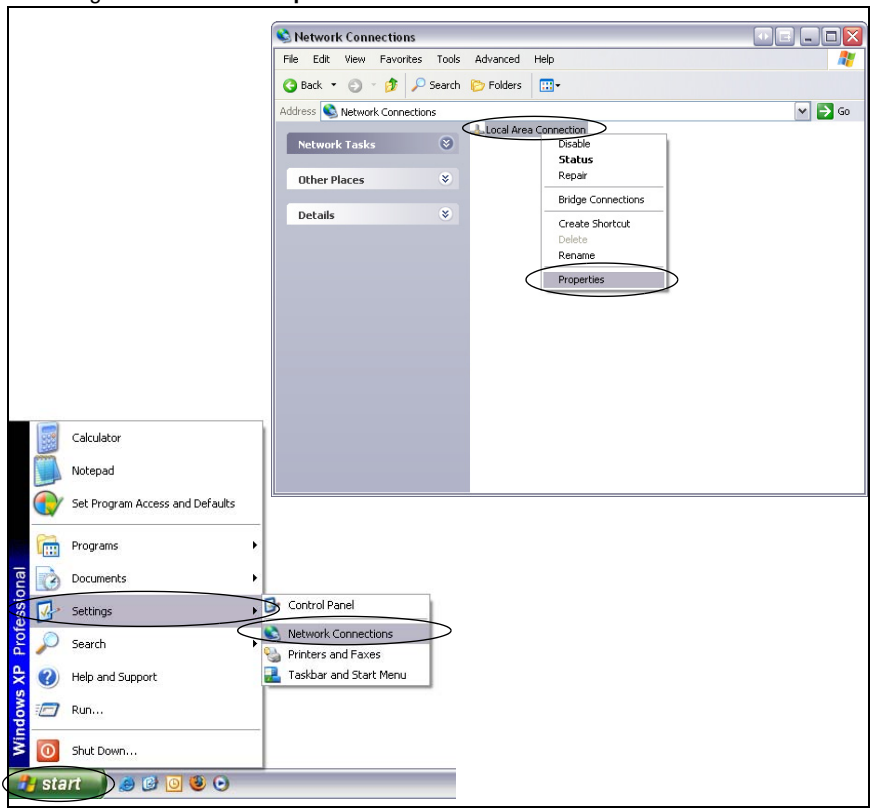
STEP 1: INITIAL CONNECTION FOR CONFIGURATION

To configure the 1420 Wireless Gateway, a local connection between a PC/laptop and the 1420 Wireless Gateway must be established.

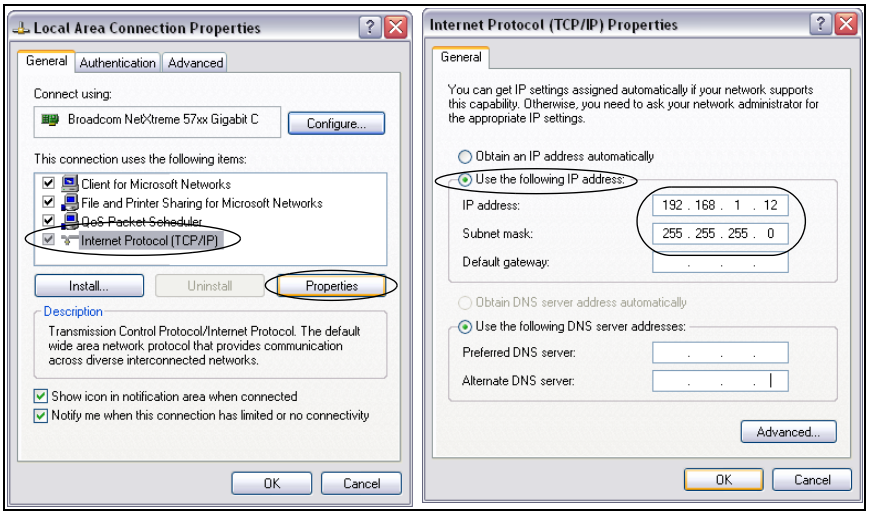
NOTE:
If a PC/laptop from another network is used, carefully record the current IP address and other settings so the PC/laptop can be returned to its original network when configuration of the 1420 is finished.

Perform the following steps to establish a local connection with the 1420 Wireless Gateway:

1. On the PC/laptop, install the Java Plug-in found on the CD provided with the 1420. The Plug-in can also be found at http://java.com/
2. Under Network Connections:
   a. Select **Local Area Connection**
   b. Right click to select **Properties**.

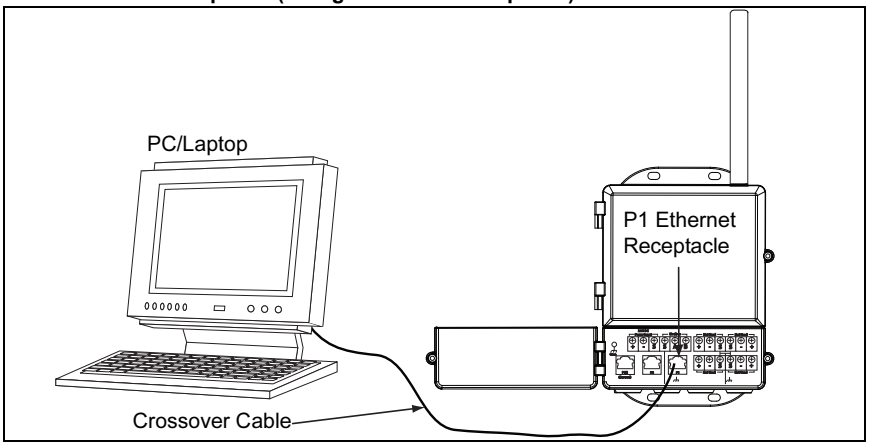


c. Select **Internet Protocol (TCP/IP)**, then click the **Properties** button
d. Select the **Use the following IP address** button and set the IP address to **192.168.1.12**
e. Set the **Subnet Mask** to **255.255.255.0**



f. Select **OK** for each of the settings windows that have opened.

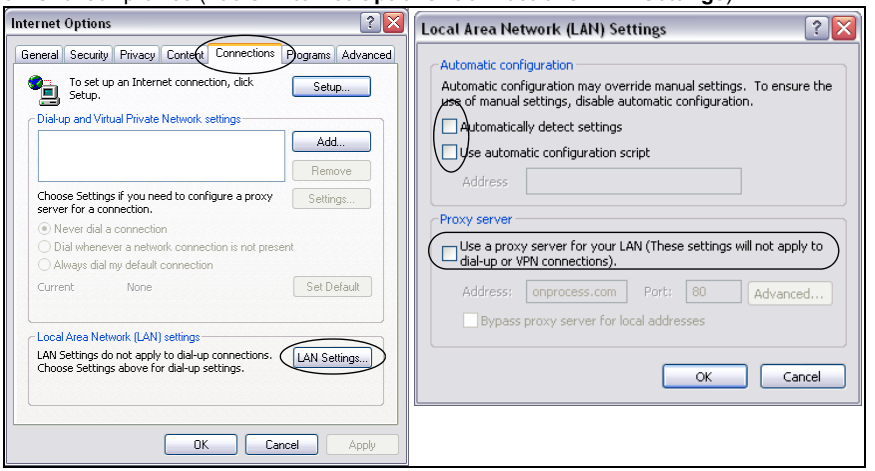
3. Using the supplied crossover Ethernet cable, attach your PC/laptop to the 1420's **P1 Ethernet Receptacle (far right Ethernet receptacle)**.



WARNING

Do not connect to the P3 Power Over Ethernet (POE) port. This port supplies power and could potentially damage the PC/laptop.

4. Open a standard web browser (Internet Explorer, Mozilla Firefox or similar).
5. Uncheck proxies (**Tools>Internet Options>Connections>LAN Settings**)

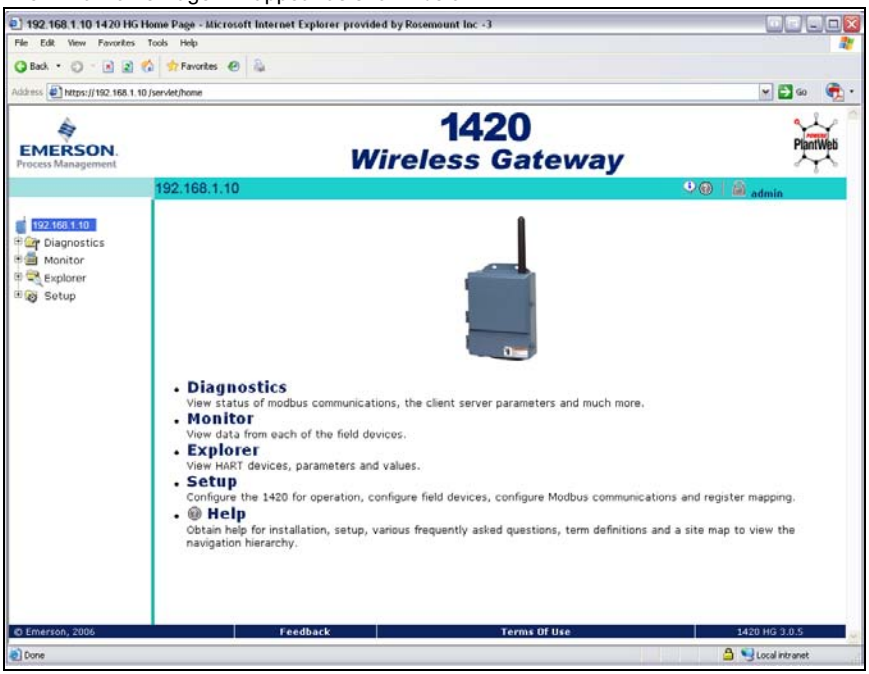


6. Access the 1420's default web page at **https://192.168.1.10**

a. Log on as User: **admin**
b. Password: **default**

c. Click **Yes** to proceed through the Security Alert

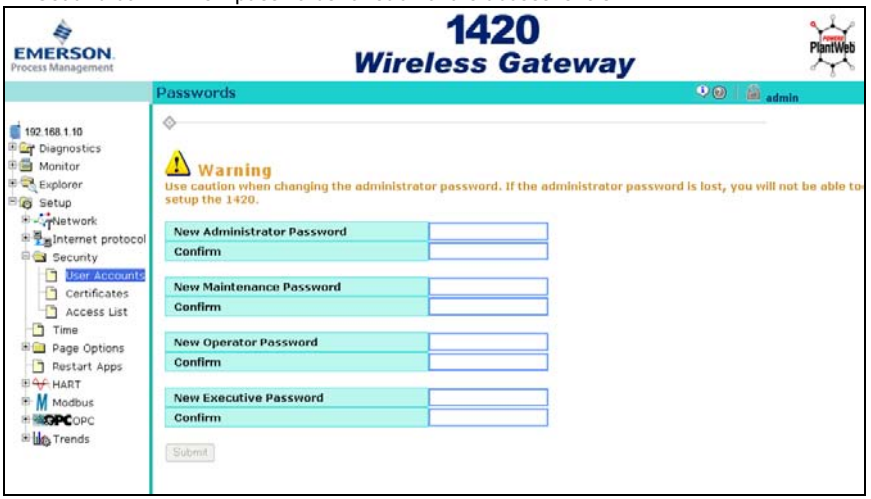
The 1420 Home Page will appear as shown below



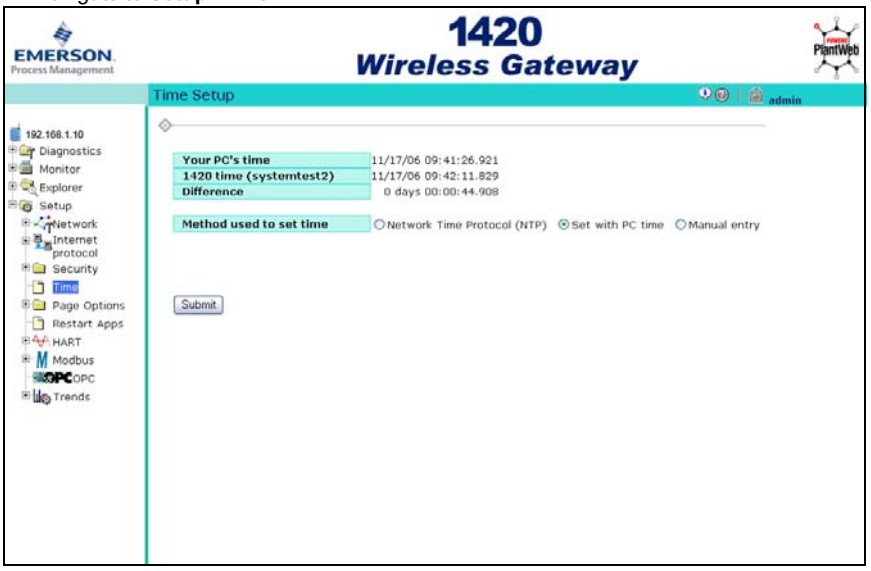
STEP 2: BASIC SECURITY AND TIME CONFIGURATION

To configure the basic security of the 1420 Wireless Gateway, perform the following steps.

1. Navigate to **Setup>Security>User Accounts**
2. Set and confirm new passwords for each of the access levels



3. Click **Submit**
4. Navigate to **Setup>Time**



5. Select method and click **Submit**

STEP 3: BASIC ETHERNET OR SERIAL CONFIGURATION

To configure the 1420 for an Ethernet Network:

Table 2: Ethernet Communication Settings on page 15 is available to assist in recording the necessary information.

1. Determine 1420 Ethernet Port for connecting to Ethernet Network

   If using a wired connection, use Port 1 (P1)

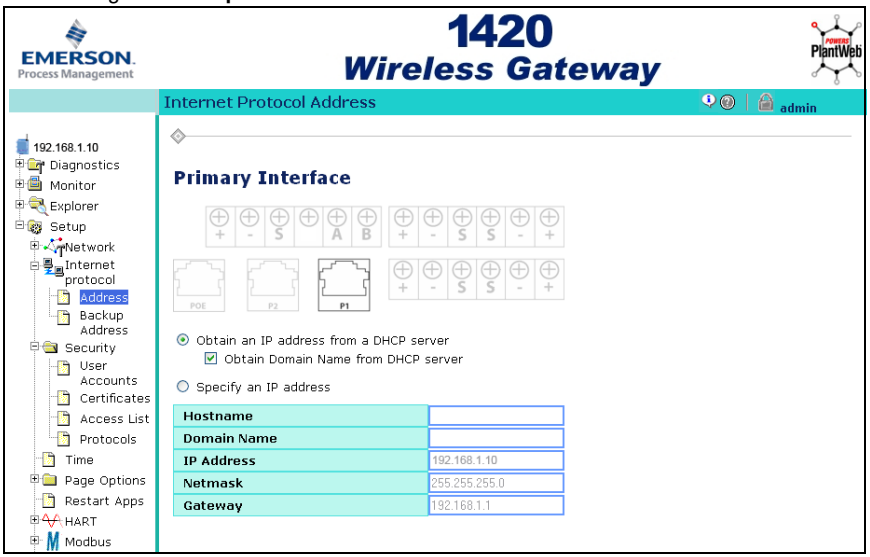
IT/Process Control Network Administrator or Technician can provide the following:

   a. 1420 fixed IP Address or DHCP Host Name
   b. Netmask (Subnet Mask)
   c. Gateway

BEST PRACTICE:

Keep these values in a secure location not accessible by unauthorized personnel.

2. Configure 1420 Ethernet IP settings
   a. Access the 1420 with **Administrator** access
   b. Navigate to **Setup>Internet Protocol>Address**



   c. Enter configuration information determined above

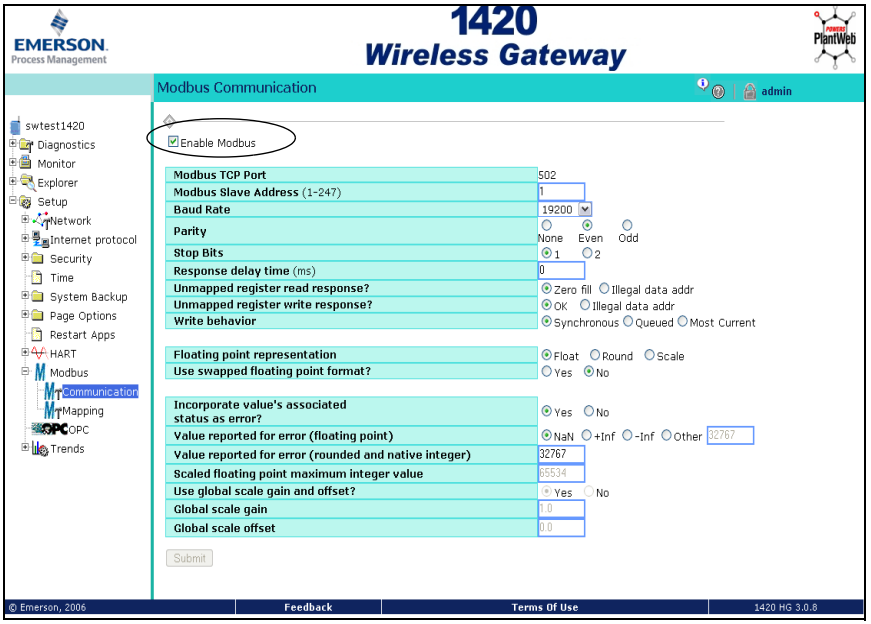
3. To complete configuration without a firewall, click **Submit** and proceed with 1420 Restart when prompted.

STEP 3 CONTINUED...

To configure the 1420 for a Serial connection:

Table 4: Serial Communication Settings on page 15 is available to assist in recording the necessary information.

1. Configure 1420 Serial Communication Settings
   a. Access the 1420 Web Interface with **Administrator** access
   b. Navigate to **Setup>Modbus>Communication**
   c. Click **Enable Modbus**



   d. Configure the 1420 Modbus Communication settings to match the Host Modbus settings

NOTE:
Modbus communications will fail if they are not configured identically on the Host and the 1420.

   e. Click **Submit** and proceed with restart

2. When configuration is completed, disconnect the PC/laptop from the 1420 and return the PC/laptop to its previous network settings.

STEP 4: MOUNT AND CONNECT THE 1420

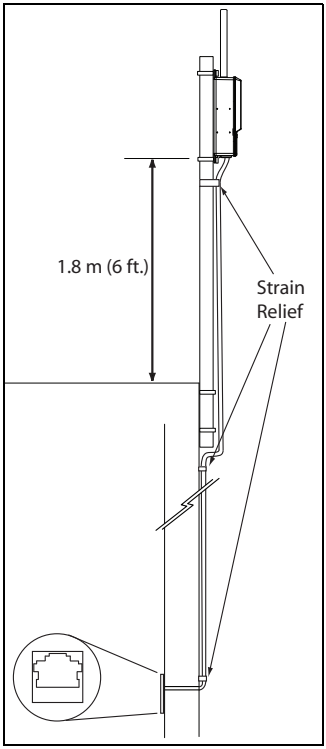
Integral Antenna with the 1420 on a Mast

The optimal installation of the 1420 Wireless Gateway is on a pole approximately 1.8 meters above the top of the exterior wall of a building. The following hardware and tools are needed:

- Pipe mount with holes spaced 3.06 inches (78 mm) apart horizontally and 11.15 inches (283 mm) apart vertically.
- Two 3.06 inch (78 mm) by $^{5}/_{16}$ inch U-bolts
- $^{1}/_{2}$ inch wrench

Mount the gateway by doing the following:

1. Insert one U-bolt around the pipe and through the top mounting holes of the pipe mount and the 1420, and another U-bolt through the bottom mounting holes of the pipe mount and the 1420.
2. Using a $^{1}/_{2}$ inch socket-head wrench, fasten the nuts to the U-bolts and tighten.



BEST PRACTICE

When mounting outside, best practice is to run the Serial or primary Ethernet cable (P1) directly to the Information System. Use conduit and/or strain relief as necessary.

BEST PRACTICE

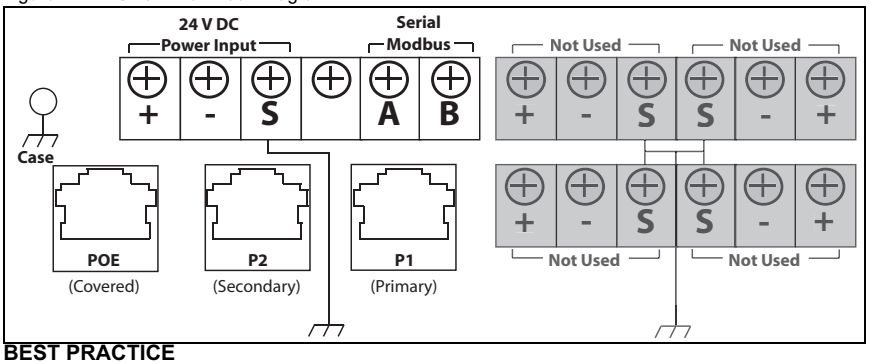
When installing cable/conduit, run an ethernet connection from 1420 port P2 to a convenient location indoors (if the 1420 was ordered with Output Code 2). This will simplify future configuration changes.

STEP 4 CONTINUED...

Connect to Information System

1. Wire the 1420 **Primary Ethernet** output or **Serial Output** connection to the Host System **Ethernet** or **Serial** input connections.
2. For Serial connections, connect A to A, B to B and make sure all terminations are clean and secured to avoid wiring connection problems.

Figure 1. 1420 Terminal Block Diagram



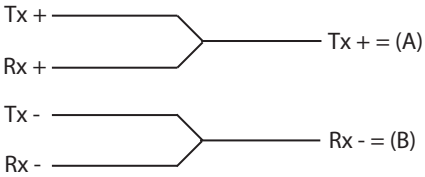
BEST PRACTICE

Typically, twisted shielded pair cable is used to wire the Serial connection. Standard practice is to ground the shield on the Serial Host side and leave the shield floating on the 1420 side. Be sure to insulate the 1420 shield to avoid grounding issues.

NOTE:

In most systems, A = Tx + and B = Rx -. In some systems, this is reversed. For 4-wire systems, see Figure 2.

Figure 2. Typical Full Duplex (4-wire) to Half Duplex (2-wire) Conversion Diagram



Confirm wiring configuration with host system documentation.

Supply Power

After mounting is complete supply power to the 1420 according to the following steps:

1. Ground the 1420 using suitable grounding methods. There is a case ground lug located near the terminal block, and an external ground lug located near the conduit entries on the bottom of the housing.
2. Connect the 24 V DC power wiring to the Power Input terminals in the 1420. The 1420 requires 500 mA of current. (see Terminal and Integration Diagram on page 14)
3. Close the terminal cover and tighten securely.

BEST PRACTICE

Use an uninterruptible power supply (UPS) to ensure that the network is still functional should there be a loss of power.

PRODUCT CERTIFICATIONS

Approved Manufacturing Locations

Rosemount Inc. – Chanhassen, Minnesota, USA

Telecommunication Compliance

All wireless devices require certification to ensure that they adhere to regulations regarding the use of the RF spectrum. Nearly every country requires this type of product certification. Emerson is working with governmental agencies around the world to supply fully compliant products and remove the risk of violating country directives or laws governing wireless device usage. To see which countries our devices have received certification for use in, see www.rosemount.com/smartwireless.

European Union Directive Information

The EC declaration of conformity for all applicable European directives for this product can be found on the Rosemount website at www.rosemount.com. A hard copy may be obtained by contacting your local sales representative.

ATEX Directive (94/9/EC)

Emerson Process Management complies with the ATEX Directive.

Electro Magnetic Compatibility (EMC) (2004/108/EC)

EN 61326-1: 1997 with amendments A1, A2, and A3– Industrial

Radio and Telecommunications Terminal Equipment Directive (R&TTE)(1999/S/EC)

Emerson Process Management complies with the R&TTE Directive

FM Ordinary Locations Approval

The 1420 Wireless Gateway has been evaluated and approved by FM for ordinary locations.

CE EMC Marking

Compliance with European Union EMC

Hazardous Location Certifications

North American Certifications

N5 FM Division 2

Certificate Number: See Certificate
Nonincendive for Class I, Division 2, Groups A,B,C, and D;
Dust Ignitionproof for Class II,III, Division 1,
Groups E,F, and G; Indoor/outdoor locations;
NEMA Type 4X
Temperature Code: T4 (-40°C < T_a < 60°C)

Canadian Standards Association (CSA)

N6 CSA Division 2 & Dust Ignitionproof
Certificate Number: See Certificate
Suitable for Class I, Division 2, Groups A,B,C,D;
Dust Ignitionproof for Class II, Groups E,F, and G;
Suitable for Class III Hazardous Locations.
Install per Rosemount drawing 01420-1011.
Temperature Code: T4 (-40°C < T_a < 60°C)
CSA Enclosure Type 4XEuropean Certification

European Certification

N1 CENELEC Type n (ATEX)
See note below
Certificate Number: See Certificate
ATEX Marking: Ex II 3 G
EEx nA nL IIC T4 (-40°C < T_a < 60°C)

ND ATEX Dust Ignition-proof Approval
Certificate Number: See Certificate
Ex tD A22 IP66 T135 (-40 °C< Ta < +60
EEx nA nL IIC T4 (-40°C < T_a < 60°C)  II 3D
Vmax = 28V

IECEx Certification

N7 IECEx Type n
See note below
Certificate Number: See Certificate
Ex nC IIC T4 (-40°C =< T_a <= +60°C)
Rated Voltage: 28V

NF IECEx Dust Ignition-proof Approval
Certificate Number: See Certificate
Ex tD A22 IP66 T135 (-40°C < T_a < 60°C)
Vmax = 28V

CONDITIONS OF INSTALLING N1 AND N7:
The Apparatus is not capable of withstanding the 500V insulation test required by Clause 9.4 of EN 60079-15: 2005. This must be taken into account when installing the apparatus.

Figure 3. Terminal and Integration Diagram

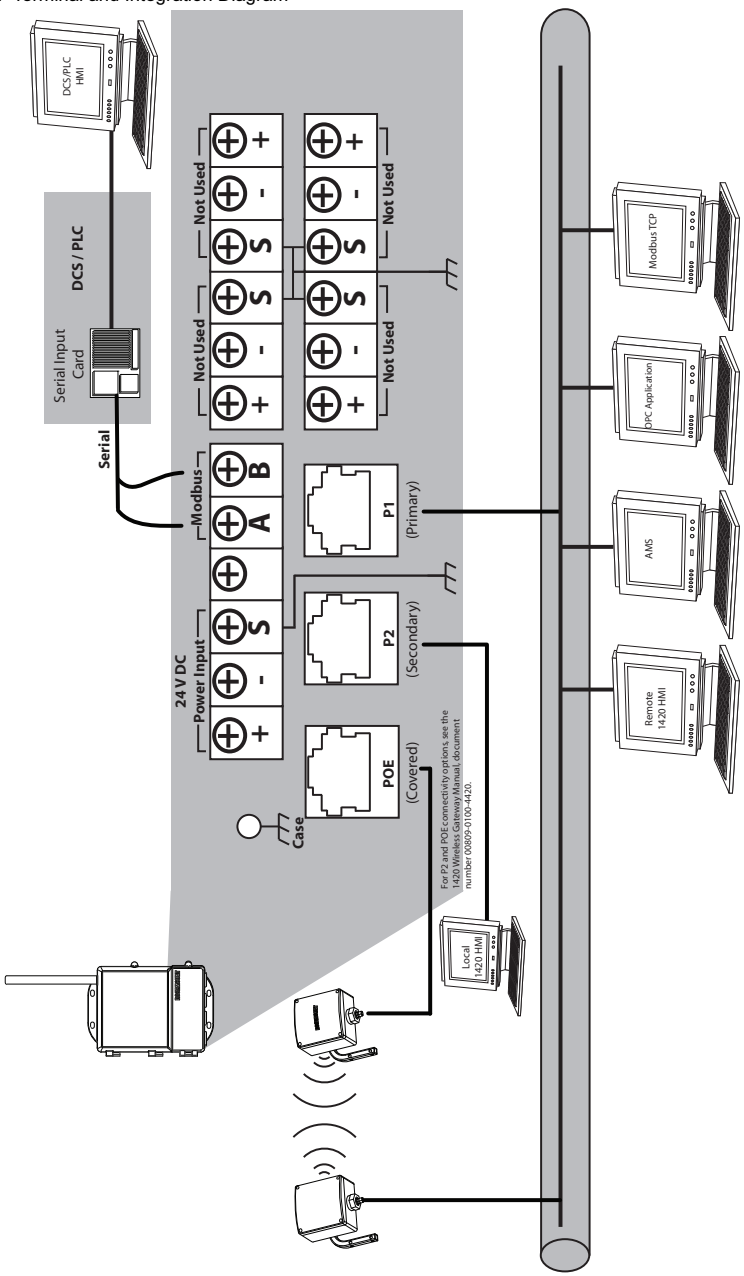


Table 1. Ethernet Port Locations

Settings	Location
1420 Ethernet Port	P1
Information System Switch or Access Point	
Switch or Access Point Ethernet Port	

Table 2. Ethernet Communication Settings

Setting	Value	Options
Use Fixed IP or DHCP?		Fixed or DHCP
Fixed IP Address or DHCP Host Name		XXX.XXX.XXX.XXX or XXXXXXX
Netmask (Subnet Mask)		YYY.YYY.YYY.YYY
Gateway		ZZZ.ZZZ.ZZZ.ZZZ

Table 3. Serial Connectivity Locations

Locations	
Serial Card Location	
Serial Card ID	
Serial Card Termination A (Tx +)	
Serial Card Termination B (Rx -)	

Table 4. Serial Communication Settings

Setting	Value	Options on 1420 (Default in Bold)
Modbus Slave Address		**1** - 247
Baud Rate		9600, **19200**, 38400, 57600
Parity		None, **Even**, Odd
Stop Bits		**1**, 2
Response Delay Time		**0 ms**, Configurable in ms
Unmapped Register Read Response		**Zero**, Illegal Data
Unmapped Register Write Response		***OK**, Illegal Data Address*
Write Behavior		*Synchronous, Queued, **Most Current***
Floating Point Representation		**Float**, Round (Integer), Scale
Use Swapped Floating Point Format		Yes, **No**
Incorporate Value's Associated Status as Error?		**Yes**, No
Value Reported for Error		**NaN**, +Inf, -Inf, *Other*
Other Value Reported for Error		**32767**, (Any Integer)