Quick Installation Guide
00825-0100-4420, Rev DA
July 2009

1420 Wireless Gateway

Step 1: Initial Connection for Configuration
Step 2: Basic Security and Time Configuration
Step 3: Basic Ethernet or Serial Configuration
Step 4: Mount and Connect the Gateway
EC Declaration of Conformity

Discontinued Product

EMERSON
Process Management
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.
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.
1420 Wireless Gateway

**Quick Installation Guide**

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

   - Log on as User: admin
   - 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 3: Ethernet Communication Settings on page 17 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:

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 GATEWAY**

**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...

Remote Antenna (Optional)

The remote antenna options provide flexibility for mounting the Gateway based on wireless connectivity, lightning protection, and current work practices.

<table>
<thead>
<tr>
<th>Kit Option</th>
<th>Antenna</th>
<th>Cable 1</th>
<th>Cable 2</th>
<th>Lightning Arrestor</th>
</tr>
</thead>
<tbody>
<tr>
<td>WL2</td>
<td>1/2 Wavelength Dipole Omni-Directional +6 dB Gain</td>
<td>50 ft. (15.2 m) LMR-400</td>
<td>N/A</td>
<td>Head mount, jack to plug Gas discharge tube 0.5 dB insertion loss</td>
</tr>
<tr>
<td>WL3</td>
<td>1/2 Wavelength Dipole Omni-Directional +6 dB Gain</td>
<td>30 ft. (9.1 m) LMR-400</td>
<td>20 ft. (6.1 m) LMR-400</td>
<td>In-line, jack to jack Gas discharge tube 0.1 dB insertion loss</td>
</tr>
<tr>
<td>WL4</td>
<td>1/2 Wavelength Dipole Omni-Directional +6 dB Gain</td>
<td>40 ft. (12.2 m) LMR-400</td>
<td>10 ft. (3.0 m) LMR-400</td>
<td>In-line, jack to jack Gas discharge tube 0.1 dB insertion loss</td>
</tr>
</tbody>
</table>

Remote mount antenna kits include weather proof tape for use on the cable connections, and a mounting kit for the lightning arrestor and antenna. The following diagram and table describe each remote antenna kit option.

**WARNING**

When installing a remote mount antenna for the Smart Wireless Gateway, use established safety procedures to avoid falling or to avoid contacting high-power electrical lines.

Install remote antenna components for the Smart Wireless gateway in compliance with local and national electrical codes and use best practices for lightning protection.

Before installation, consult with the local area electrical inspector, electrical officer, and work area supervisor.

The Smart Wireless Gateway remote antenna options are specifically engineered to provide installation flexibility while optimizing wireless performance and maintaining local spectrum approvals. Each remote antenna kit contains 50 ft. (15.2 m) of LMR-400 coaxial cable, and a high-gain antenna. To maintain wireless performance and avoid non-compliance with local spectrum regulations, do not change the length or type of coaxial cable, or the antenna type.

If the remote antenna kit as specified is not used in this document, Emerson Process Management is not responsible for wireless performance, or non-compliance with local spectrum regulations.
NOTE

The coaxial cables on the remote antenna options WL3 and WL4 are interchangeable for installation convenience.

The remote antenna should be located for optimal wireless performance. Ideally, 15 - 25 ft. (4.6 - 7.6 m) above the ground or 6 ft. (2 m) above obstructions or major infrastructure.

Installation of the WL2 Option:
1. Mount the antenna on a 2-in. (0.05 m) pipe mast using the supplied equipment.
2. Attach the lightning arrester to the top of the Gateway.
3. Use the LMR-400 coaxial cable to connect the antenna to the lightning arrester.
4. Seal each connection between the Gateway, lightning arrester, cable, and antenna with the weather proof tape.
**STEP 4 CONTINUED...**

**Installation of the WL3/WL4 Option:**

1. Mount the antenna on a 2-in. (0.05 m) pipe mast using the supplied equipment.
2. Mount the lightning arrestor using the supplied equipment, minimizing the distance between it and the building egress for optimal lightning protection.
3. Use the LMR-400 coaxial cables to connect the Gateway, lightning arrestor, and antenna.
4. Seal each connection between the Gateway, lightning arrestor, cables, and antenna with the weather proof tape.

Any spare lengths of coaxial cable should be placed in 12-in. (0.3 m) coils.

Ensure that the mounting mast and lightning arrestor are grounded in accordance with local/national electrical codes.

**Example of Mounting a Remote Antenna**

![Diagram of remote antenna mounting](image)
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

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.
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.

**FCC and IC**
This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: This device may not cause harmful interference. This device must accept any interference received, including interference that may cause undesired operation. This device must be installed to ensure a minimum antenna separation distance of 20 cm from all persons.

**Ordinary Location Certification for FM**
As standard, the Gateway has been examined and tested to determine that the design meets basic electrical, mechanical, and fire protection requirements by FM, a nationally recognized testing laboratory (NRTL) as accredited by the Federal Occupational Safety and Health Administration (OSHA).

**North American Certifications**
N5 FM Division 2, Non-Incendive
Certificate Number: 3028321
- Nonincendive for Class I, Division 2, Groups A, B, C, and D.
- Dust Ignition-proof for Class II, III, Division 1,
- Groups E, F, and G; indoors/outdoor locations;
- NEMA Type 4X
- Temperature Code: T4 (-40 °C < T_a < 60 °C)

Canadian Standards Association (CSA)
N6 CSA Division 2, Non-Incendive
Certificate Number: 1849337
- Suitable for Class I, Division 2, Groups A, B, C, and D.
- Dust Ignition-proof for Class II, Groups E, F, and G;
- Temperature Code: T4 (-40 °C < T_a < 60 °C)

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.
(continued on page 16)
ATEX Directive (94/9/EC)
Emerson Process Management complies with the ATEX Directive.

Electro Magnetic Compatibility (EMC) (2004/108/EC)
Emerson Process Management complies with the EMC Directive.

Emerson Process Management complies with the R&TTE Directive

European Certification

N1 ATEX Type n
Certificate Number: Baseefa 07ATEX0056X
ATEX Marking: Ex II 3 G
Ex nA NI IIC T4 (-40 °C < T_a < 60 °C)

Special Conditions for Safe Use (X)
The surface resistivity of the antenna is greater than one gigaohm. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.

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.

ND ATEX Dust
Certificate Number: Baseefa 07ATEX0057
EX-ID A22 IP66 T135 (-40 °C < T_a < 60 °C)
Ex nA nL IIC T4 (-40 °C < T_a < 60 °C) II 3D
V_{max} = 28V

N7 IECEx Type n
Certificate Number: IECEx BAS 07.0012X
Ex nC IIC T4 (-40 °C ≤ T_a ≤ 60 °C)
Rated Voltage: 28V

Special conditions for safe use (X)
The surface resistivity of the antenna is greater than one gigaohm. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.

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.

NF IECEx Dust
Certificate Number: IECEx BAS 07.0013
Ex tD A22 IP66 T135 (-40 °C < T_a < 60 °C)
V_{max} = 28V

Combinations of Certifications

KD Combination of N5, N6, and N1.
### Table 2. Ethernet Port Locations

<table>
<thead>
<tr>
<th>Setting</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1420 Ethernet Port</td>
<td>P1</td>
</tr>
<tr>
<td>Information System Switch or Access Point</td>
<td></td>
</tr>
<tr>
<td>Switch or Access Point Ethernet Port</td>
<td></td>
</tr>
</tbody>
</table>

### Table 3. Ethernet Communication Settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use Fixed IP or DHCP?</td>
<td>Fixed or DHCP</td>
<td></td>
</tr>
<tr>
<td>Fixed IP Address or DHCP</td>
<td>XXX.XXX.XXX.XXX or XXXXXXX</td>
<td></td>
</tr>
<tr>
<td>Host Name</td>
<td>XXX.XXX.XXX.XXX</td>
<td></td>
</tr>
<tr>
<td>Netmask (Subnet Mask)</td>
<td>YYY.YYY.YYY.YYY</td>
<td></td>
</tr>
<tr>
<td>Gateway</td>
<td>177.177.177.177</td>
<td></td>
</tr>
</tbody>
</table>

### Table 4. Serial Connectivity Locations

<table>
<thead>
<tr>
<th>Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial Card Location</td>
</tr>
<tr>
<td>Serial Card ID</td>
</tr>
<tr>
<td>Serial Card Termination A  (Tx +)</td>
</tr>
<tr>
<td>Serial Card Termination B  (Rx -)</td>
</tr>
</tbody>
</table>

### Table 5. Serial Communication Settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
<th>Options on 1420 (Default in Bold)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modbus Slave Address</td>
<td>1-247</td>
<td></td>
</tr>
<tr>
<td>Baud Rate</td>
<td>9600, 19200, 38400, 57600</td>
<td></td>
</tr>
<tr>
<td>Parity</td>
<td>None, Even, Odd</td>
<td></td>
</tr>
<tr>
<td>Stop Bits</td>
<td>1, 2</td>
<td></td>
</tr>
<tr>
<td>Response Delay Time</td>
<td>0 ms, Configurable in ms</td>
<td></td>
</tr>
<tr>
<td>Unmapped Register Read Response</td>
<td>Zero, Illegal Data</td>
<td></td>
</tr>
<tr>
<td>Unmapped Register Write Response</td>
<td>OK, Illegal Data Address</td>
<td></td>
</tr>
<tr>
<td>Write Behavior</td>
<td>Synchronous, Queued, Most Current</td>
<td></td>
</tr>
<tr>
<td>Floating Point Representation</td>
<td>Float, Round (Integer), Scale</td>
<td></td>
</tr>
<tr>
<td>Use Swapped Floating Point Format</td>
<td>Yes, No</td>
<td></td>
</tr>
<tr>
<td>Incorporate Value’s Associated Status as Error?</td>
<td>Yes, No</td>
<td></td>
</tr>
<tr>
<td>Value Reported for Error</td>
<td>NaN, +Inf, -Inf, <em>Other</em></td>
<td></td>
</tr>
<tr>
<td><em>Other</em> Value Reported for Error</td>
<td>32767, (Any Integer)</td>
<td></td>
</tr>
</tbody>
</table>
Figure 3. EC Declaration of Conformity for 1420 Wireless Gateway

EC Declaration of Conformity

No: RMD 1067 Rev. C

We,

Rosemount Inc.
8200 Market Boulevard
Chanhassen, MN 55337-9685
USA

declare under our sole responsibility that the product,

Model 1420 Wireless Gateway

manufactured by:

Rosemount Inc.
8200 Market Boulevard
Chanhassen, MN 55337-9685
USA

to which this declaration relates, is in conformity with the provisions of the European Community Directives, including the latest amendments, as shown in the attached schedule.

Assumption of conformity is based on the application of the harmonized standards and, when applicable or required, a European Community notified body certification, as shown in the attached schedule.

Timothy J. Lewis
Vice President of Global Quality
(signature)

March 12, 2009
(date of issue)

<table>
<thead>
<tr>
<th>Standard</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 61326-1</td>
<td>2006</td>
</tr>
<tr>
<td>EN 61326-2-1</td>
<td>2006</td>
</tr>
</tbody>
</table>


All Models with "Operating Frequency and Protocol Code A1"
EN 301 489-1: V 1.2.1 2002, EN 301 489-17: V1.4.1 2002
EN 300 328 V 1.6.1 (2004-11)

<table>
<thead>
<tr>
<th>Country</th>
<th>Restriction</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>General authorization required for outdoor use and public service</td>
</tr>
<tr>
<td>France</td>
<td>Obeying use based to 2.0WRF LCP c.1</td>
</tr>
<tr>
<td>Italy</td>
<td>Any model of equipment, group authorization terminated</td>
</tr>
</tbody>
</table>

ATEX Directive (94/9/EC)

Model 1420 Wireless Gateway

nA m. IIIC: Baseef07ATEX0056X – Type n Certificate
EN 60079-15, 2005

Ex d IIA T6 X: Baseef07ATEX00037 – Dust Certificate
EN 61241-1, 2004
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Schedule
No: RMD 1067 Rev. C

ATEX Notified Bodies for EC Type Examination Certificates
Baseefa (2003) Ltd. [Notified Body Number: 1803]
Health and Safety Laboratory Site
Harpur Hill
Buxton, Derbyshire SK17 9JN
United Kingdom

ATEX Notified Body for Quality Assurance
Baseefa (2003) Ltd. [Notified Body Number: 1803]
Health and Safety Laboratory Site
Harpur Hill
Buxton, Derbyshire SK17 9JN
United Kingdom