Smart Wireless Gateway
Quick Start Guide

**NOTICE**
This installation guide provides basic guidelines for the Smart Wireless Gateway. It does not provide instructions for diagnostics, maintenance, service, or troubleshooting. Refer to the Smart Wireless Gateway Reference Manual (Document Number 00809-0200-4420) for more information and instructions. The manual and this QIG are available electronically on www.emersonprocess.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 Product Certifications section for any restrictions associated with a safe installation.

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

Power up sequence

The Smart Wireless Gateway (Gateway) should be installed and functioning properly before Power Modules are installed in any wireless field devices. Wireless field devices should also be powered up in order of proximity from the Smart Wireless Gateway beginning with the closest. This will result in a simpler and faster network installation.

Antenna position

The antenna should be positioned vertically, and be approximately 3 ft. (1 m) from large structures or buildings to allow for clear communication to other devices.

Mounting height

For optimal wireless coverage, the Gateway or remote antenna is ideally mounted 15-25 ft. (4.6 - 7.6 m) above ground or 6 ft. (2 m) above obstructions or major infrastructure.

Gateway redundancy

If the wireless Gateway was ordered with redundancy (Gateway Redundancy code RD), please see appendix D in the reference manual (doc. # 00809-0200-4420) for additional installation instructions.

General considerations

PC requirements

Operating System (optional software only)
- Windows XP Professional, Service Pack 3
- Windows Server 2003 Service Pack 2
- Windows Server 2003 R2 Service Pack 2
- Windows Server 2008 (Standard Edition), Service Pack 2
- Windows 7 Professional, Service Pack 1
- Windows 7 Enterprise, Service Pack 1

Applications
- Internet Explorer 6.0 or higher
- Mozilla Firefox 1.5 or higher
- .Net Framework 2.0 (for OPC proxy only)

Hard Disk Space
- AMS™ Wireless Configurator: 1.5 GB
- Gateway Setup CD: 250 MB
Quick Start Guide

Step 1: Initial connection and configuration

DeltaV™ ready

If the Gateway was ordered DeltaV Ready (Data Protocols Code 5), then Step 1: Initial Connection and Configuration is not required. Proceed to Step 2: Physical Installation, and connect the Gateway to a DeltaV 10.3 or newer control network.

Initial connection and configuration

To configure the Smart Wireless Gateway, a local connection between a PC/Laptop and the Gateway needs to be established.

Powering the gateway

Bench top power will be needed to power the Gateway by wiring a 24 VDC (nominal) power source, with at least 250 mA, to the power terminals.

Figure 1. Gateway Terminal Block Diagram

Establishing a connection

Note
For information on how to connect with a Windows® 7 PC, please see the technical note (document number: 00840-0900-4420).

1. Connect the PC/Laptop to the Ethernet 1 (Primary) receptacle on the Gateway.
Step 1 continued...

**Figure 2. Gateway PC/Laptop Connection Illustration**

**WARNING**
Do not connect to the Ethernet 2 with Power (Covered) port. This port supplies power and could damage the PC/Laptop.

2. To establish the PC/Laptop settings begin with Start>Settings>Network Connections.
   a. Select Local Area Connection.
   b. Right click to select Properties.
   c. Select Internet Protocol (TCP/IP), then click the Properties button.
Step 1 continued...

**Note**
If the PC/Laptop is from another network, record the current IP address and other settings so the PC/Laptop can be returned to the original network after the Gateway has been configured.

d. Select the Use the following IP address button
e. Input 192.168.1.12 in the IP address block.
f. Input 255.255.255.0 in the Subnet Mask.
g. Select OK for both the Internet Protocol (TCP/IP) Properties window and the Local Area Connection Properties window.

**Note**
Connecting to the Gateway’s secondary Ethernet port will require different network settings. Please see Table 1 for additional network settings.

<table>
<thead>
<tr>
<th>Table 1. Default IP Addresses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gateway</strong></td>
</tr>
<tr>
<td>Ethernet 1</td>
</tr>
<tr>
<td>Ethernet 2</td>
</tr>
<tr>
<td>Ethernet 1 (DeltaV Ready)</td>
</tr>
<tr>
<td>Ethernet 2 (DeltaV Ready)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2. Subnet Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subnet Mask</strong></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

3. Disable Proxies.
   a. Open a standard web browser (Internet Explorer, Mozilla Firefox, or other).
   b. Navigate Tools>Internet Options>Connections>LAN Settings
   c. Uncheck the box under Proxy Server.
Configure the Smart Wireless Gateway

To complete initial configuration for the gateway:

   a. Log on as User: admin.
   b. Type in password: default.

2. Navigate to Setup>Ethernet Protocol>Address to enter the Network Settings.
   a. Configure a static IP Address or set for DHCP and enter a Hostname
   b. Restart Application at Setup>Restart Apps.

3. Disconnect the power and Ethernet from the Gateway.
Step 1 continued...
Step 2: Physical installation

Pipe mount

Tools Needed:
- 2-in. (51 mm) mounting pipe or mast
- Two 5/16-in. (7.9 mm) u-bolts supplied with Gateway
- 1/2-in. socket-head wrench

For installing the Gateway in a pipe mount:
1. Insert one u-bolt around the pipe, through the top mounting holes of the Gateway enclosure, and through the washer plate.
2. Use a 1/2-in. socket-head wrench to fasten the nuts to the u-bolt.
3. Repeat for the second u-bolt and the lower mounting holes.

Best practice
If the Gateway was ordered with Output Code 2, run a secondary Ethernet Cable when installing cable conduit from the Gateway to a convenient indoor location to simplify future configuration changes.
Remote antenna (optional)

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

⚠️ WARNING

When installing remote mount antennas for the Smart Wireless Gateway, always use established safety procedures to avoid falling or contact with 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 installing, consult with the local area electrical inspector, electrical officer, and work area supervisor.

The Smart Wireless Gateway remote antenna option is specifically engineered to provide installation flexibility while optimizing wireless performance and local spectrum approvals. To maintain wireless performance and avoid non-compliance with spectrum regulations, do not change the length of cable or the antenna type.

If the supplied remote mount antenna kit is not installed per these instructions, Emerson Process Management is not responsible for wireless performance or non-compliance with spectrum regulations.
Step 2 continued...

The remote mount antenna kit includes coaxial sealant for the cable connections for the lightning arrester and antenna.

Find a location where the remote antenna has optimal wireless performance. Ideally this will be 15-25 ft (4.6 - 7.6 m) above the ground or 6 ft (2 m) above obstructions or major infrastructure. To install the remote antenna use one of the following procedures:

Installation of WL2/WN2 option (outdoor applications):
1. Mount the antenna on a 1.5-2 inch pipe mast using the supplied mounting equipment.
2. Connect the lightning arrester directly to the top of the Gateway.
3. Install the grounding lug, lock washer, and nut on top of the lightning arrester.
4. Connect the antenna to the lightning arrester using the supplied coaxial cable ensuring the drip loop is not closer than 1 foot (0.3m) from the lightning arrester.
5. Use the coaxial sealant to seal each connection between the wireless field device, lightning arrester, cable, and antenna.
6. Ensure that the mounting mast, lightning arrester, and Gateway are grounded according to local/national electrical code.

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

Figure 3. Installation of WL2/WN2 Option
Step 2 continued...

Installation of WL3/WL4 option (indoor to outdoor applications):

1. Mount the antenna on a 1.5-2 inch pipe mast using the supplied mounting equipment.
2. Mount the lightning arrester near the building egress.
3. Install the grounding lug, lock washer, and nut on top of the lightning arrester.
4. Connect the antenna to the lightning arrester using the supplied coaxial cable ensuring the drip loop is not closer than 1 foot (0.3m) from the lightning arrester.
5. Connect the lightning arrester to the Gateway using the supplied coaxial cable.
6. Use the coaxial sealant to seal each connection between the Gateway, lightning arrester, cable, and antenna.
7. Ensure that the mounting mast, lightning arrester, and Gateway are grounded according to local/national electrical codes.

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

Figure 4. Installation of WL3/WL4 Option

Note: Weather proofing is required!
The remote mount antenna kit includes coaxial sealant for the cable connections for the lightning arrester, antenna, and Gateway. The coaxial sealant must be applied to guarantee performance of the wireless field network. Please see Figure 5 for details on how to apply weather proofing.
Step 2 continued...

**Figure 5. Applying coaxial sealant to cable connections**

![Applying coaxial sealant to cable connections](image)

**Table 3. Remote Antenna Kit Options**

<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>$\frac{1}{2}$ 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>$\frac{1}{2}$ 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 0.5 dB insertion loss</td>
</tr>
<tr>
<td>WL4</td>
<td>$\frac{1}{2}$ 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 0.5 dB insertion loss</td>
</tr>
<tr>
<td>WN2</td>
<td>$\frac{1}{2}$ Wavelength Dipole Omni-Directional +8 dB Gain</td>
<td>25 ft. (7,6 m) LMR-400</td>
<td>N/A</td>
<td>Head mount, jack to plug Gas discharge tube 0.5 dB insertion loss</td>
</tr>
</tbody>
</table>
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Step 2 continued...

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

Connect to the host system

1. Wire the Gateway’s Ethernet 1 (Primary) or Serial Output connection to the Host System Network or Serial I/O.
2. For Serial connections, connect A to A, B to B, making sure all terminations are clean and secured to avoid wiring connection problems.
Step 2 continued...

**Figure 6. Smart Wireless Gateway Terminal Block Diagram**

![Smart Wireless Gateway Terminal Block Diagram](image)

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**WARNING**

Do not connect the Host System to the Ethernet 2 with Power (Covered) port on the Smart Wireless Gateway to avoid damaging the system.

**Best practice**

In accordance with Emerson WirelessHART security guidelines, the Gateway should be connected to the Host System via a LAN (Local Area Network) and not a WAN (Wide Area Network).

*Twisted shielded pair cable is generally used to wire the Serial connection, and it is standard practice to ground the shield on the Serial Host side leaving the shield floating on the Gateway side. To avoid grounding issues be sure to insulate the shield.*

**Power**

Wire a 24 VDC (nominal) power source, with at least 250 mA of current, to the power terminals using the Smart Wireless Gateway Terminal Block Diagram shown in Figure 6.
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Step 3: Software installation (optional)

The 2 disk software pack contains the Security Setup Utility (only required for secure host connections or OPC communications) and AMS Wireless Configurator. The Security Setup Utility is located on Disk 1. To install the software:
1. Exit/close all Windows programs, including any running in the background, such as virus scan software.
2. Insert Disk 1 into the CD/DVD drive of the PC.
3. Follow the prompts.

AMS Wireless Configurator is located on Disk 2. To install the software:
1. Exit/close all Windows programs, including any running in the background, such as virus scan software.
2. Insert Disk 2 into the CD/DVD drive of the PC.
3. Click Install from the menu when the AMS Wireless Configurator setup begins.
4. Follow the prompts.
5. Allow AMS Wireless Configurator to reboot PC.
6. Do not remove the disk from the CD/DVD drive.
7. Installation will resume automatically after login.
8. Follow the prompts.

Note
If the autorun function is disabled on the PC, or installation does not begin automatically, double click D:\SETUP.EXE (where D is the CD/DVD drive on the PC) and click OK.

Step 4: Verify operations

Operation is verified through the web interface by opening a web browser from any PC on the host system network and entering the Gateway IP address or DHCP host name in the address bar. If the Gateway has been connected and configured properly, the Security Alert will be displayed followed by the log in screen.

Figure 7. Gateway Log In Screen

The Gateway is now ready to be integrated into the host system. If wireless field devices were ordered with the Gateway, they were preconfigured with the same Network ID and Join Key information. Once the field devices are powered, they will appear on the wireless network and communications can be verified under the Explore tab using the web interface. The time needed for the network to form will depend on the number of devices.

For more detailed installation instructions, see the Smart Wireless Gateway Reference Manual (doc. # 00809-0200-4420). For software and integration support, call the Emerson Global Service Center.

Emerson Global Service Center
Software and integration support:

United States: 1 800 833 8314
International: 63 2 702 1111
Product certification

Approved manufacturing locations

- Rosemount Inc. - Chanhassen, Minnesota, USA
- Emerson Process Management GmbH & Co. - Karlstein, Germany
- Emerson Process Management Asia Pacific Private Limited - Singapore
- Beijing Rosemount Far East Instrument Co., Limited - Beijing, China

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).

European Union Directive information

See Figure 8 on page 20 for the EC declaration of conformity for this product. The latest version of this declaration can be found on the Rosemount website at www.rosemount.com.

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.
    Enclosure Type 4X
    Temperature Code: T4 (-40 °C < T_a < 70 °C)

Canadian Standards Association (CSA)

N6  CSA Division 2
    Certificate Number: 1849337
    Suitable for Class I, Division 2, Groups A, B, C, and D.
    Install per Rosemount drawing 01420-1011.
    Temperature Code: T4 (-40 °C ≤ T_a ≤ 60 °C)
    CSA Enclosure Type 4X
**European certification**

**N1** ATEX Type n
Certificate Number: Baseefa 07ATEX0056X
ATEX Marking: Ex II 3 G
Ex nA Nl IIC T4 (-40 °C < T_a < 70 °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.

**ND** ATEX Dust
Certificate Number: Baseefa 07ATEX0057X
Ex tD A 22 IP66 T135 (-40 °C < T_a < 70 °C)
Ex nA nL IIC T4 (-40 °C < T_a < 70 °C) II 3D
V_{max} = 28V

**Special Conditions for Safe Use (X)**
The surface resistivity of the antenna is greater than 1 GΩ. To avoid electrostatic charge build-up, it must not be rubbed with a dry cloth or cleaned with solvents.

**N7** IECEx Type n
Certificate Number: IECEx BAS 07.0012X
Ex nC IIC T4 (-40 °C ≤ T_a ≤ 70 °C)
Rated Voltage: 28V

**Special conditions for safe use (X)**
1. The apparatus is not capable of withstanding the 500V electrical strength test as defined in Clause 6.8.1 of IEC 60079-15: 2005. This must be taken into account during installation.
2. 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.

**NF** IECEx Dust
Certification Number: IECEx BAS 07.0013
Ex tD A22 IP66 T135 (-40 °C < T_a < 70 °C)
V_{max} = 28V

**Brazil certifications**

**I2** INMETRO Intrinsic Safety
Consult Factory for availability.

**Combination certifications**

**KD** Combination of N5, N6, and N1.
Figure 8. EC Declaration of Conformity for Smart Wireless Gateway

EC Declaration of Conformity
No: RMD 1067 Rev. H

We,

Rosemount Inc.
8200 Market Boulevard
Chanhassen, MN 55317-9685
USA

declare under our sole responsibility that the product,

Model 1420 Wireless Gateway

manufactured by,

Rosemount Inc.
8200 Market Boulevard
Chanhassen, MN 55317-9685
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.

Vice President of Global Quality
Timothy J. Layer
February 20, 2012

(signature)

(date of issue)

(process name - printed)
### EMC Directive (2004/108/EC)

EN 61326-1: 2006

### R&TTE Directive (1999/5/EC)

All Models with "Operating Frequency and Protocol Code A1"

EN 301 489-17: V1.4.1 2002
EN 60950-1: 2001
EN 300 328 V 1.6.1 (2004-11)

#### Country Restriction

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<th>Country</th>
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<tr>
<td>Bulgaria</td>
<td>General authorization required for outdoor use and public service</td>
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<tr>
<td>France</td>
<td>Outdoor use limited to 10mW e.i.r.p.</td>
</tr>
<tr>
<td>Italy</td>
<td>If used outside of own premises, general authorization is required</td>
</tr>
<tr>
<td>Norway</td>
<td>May be restricted in the geographical area within a radius of 20km from the center of Ny-Alesund</td>
</tr>
<tr>
<td>Romania</td>
<td>Use on a secondary basis. Individual license required</td>
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</tbody>
</table>

All Models with "Operating Frequency and Protocol Code A3" and "Remote Mount Antenna Option WL"

EN 301 489-17: V2.1.1
EN 61010-1: 2001 Second Edition
EN 300 328 V 1.7.1 (2006-10)

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All Models with "Output Code X" and "Operating Frequency and Protocol Code A3"

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ATEX Directive (94/9/EC)

Model 1420 Wireless Gateway

Baseefa07ATEX0056X – Type n Certificate
Equipment Group II, Category 3 G (Ex nA nL IIC T4)
Harmonized Standards: EN60079-0:2006; EN60079-15:2005

Baseefa07ATEX0057 – Dust Certificate
Equipment Group II, Category 1 D (Ex tD A22 IP6X T135°C)
Harmonized Standards: EN61241-0:2006; EN61241-1:2004

ATEX Notified Bodies for EC Type Examination Certificates
Baseefa (2001) Ltd. [Notified Body Number: 1180]
Health and Safety Laboratory Site
Harpur Hill
Buxton, Derbyshire SK17 9JN
United Kingdom

ATEX Notified Body for Quality Assurance
Baseefa (2001) Ltd. [Notified Body Number: 1180]
Health and Safety Laboratory Site
Harpur Hill
Buxton, Derbyshire SK17 9JN
United Kingdom