

# Emerson Smart Wireless Gateway 1410



**WirelessHART**

- Gateway connects the *WirelessHART*<sup>®</sup> self-organizing networks with any host system
- Easy configuration and management of self-organizing networks
- Easy integration into control systems and data applications through serial and Ethernet connections
- Seamless integration into AMS<sup>®</sup> Device Manager
- Greater than 99% data reliability with industry proven security
- Smart Wireless capabilities extends the full benefits of PlantWeb<sup>®</sup> architecture to previously inaccessible locations

# Emerson Smart Wireless Gateway 1410

## Gain real-time process information with greater than 99% wireless data reliability

- The Emerson Smart Wireless Gateway 1410 automatically manages wireless communications in constantly changing environments
- Native integration with Ovation automation system provides simple and fast commissioning for wireless field networks
- Connect to data historians, legacy host systems, and other applications through Ethernet, Modbus<sup>®</sup>, Serial, OPC, EtherNet/IP, and HART<sup>®</sup> outputs

## Complete wireless network configuration tools provided with each Emerson Smart Wireless Gateway 1410

- The integrated web interface allows easy configuration of the wireless network and data integration without the need to install additional software
- Complimentary AMS Wireless Configurator software provides Emerson Device Dashboards to configure devices and view diagnostic data
- Drag and drop device provisioning enables a secure method to add new wireless devices to the wireless field network



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# Emerson's Smart Wireless Solution

## IEC 62591 (*WirelessHART*)... the industry standard

### Self-organizing, adaptive mesh routing

- No wireless expertise required, network automatically finds the best communication paths.
- The self-organizing, self-healing network manages multiple communication paths for any given device. If an obstruction is introduced into the network, data will continue to flow because the device already has other established paths. The network will then lay in more communication paths as needed for that device.

### Reliable wireless architecture

- Standard IEEE 802.15.4 radios.
- 2.4 GHz ISM band sliced into 15 radio-channels.
- Time Synchronized Channel Hopping to avoid interference from other radios, Wi-Fi, and EMC sources and increase reliability.
- Direct sequence spread spectrum (DSSS) technology delivers high reliability in challenging radio environment.

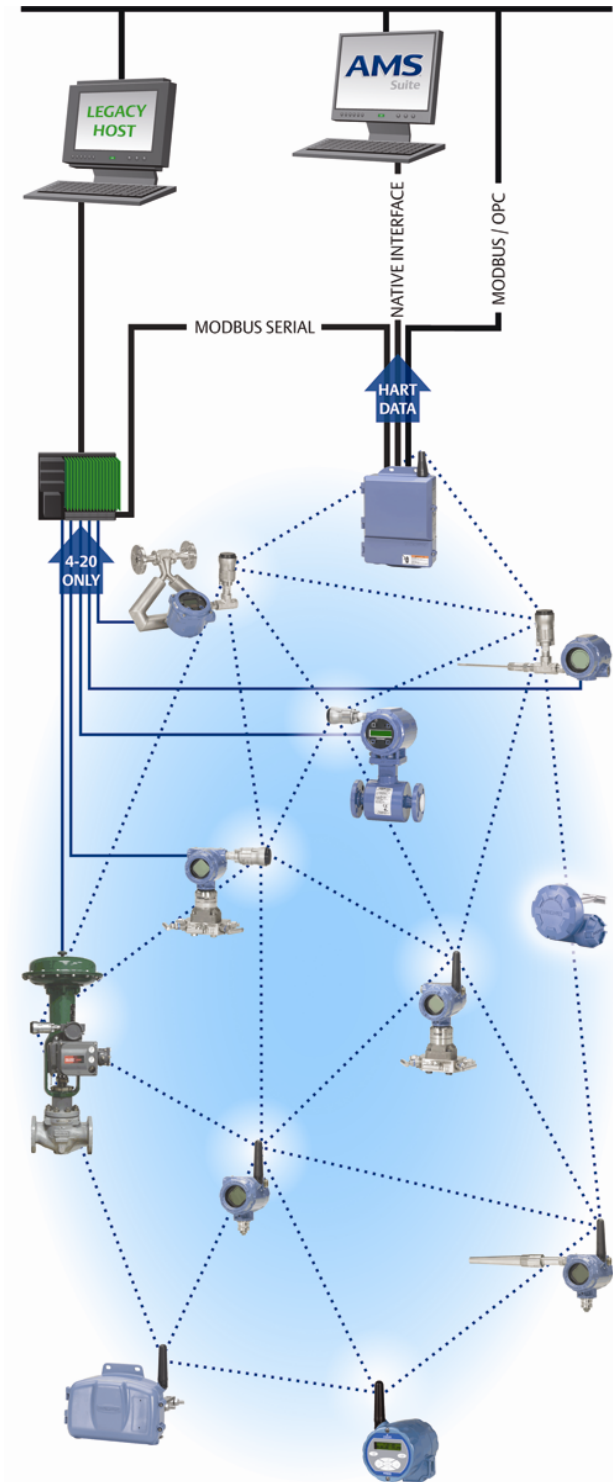
### Emerson's Smart Wireless

#### Seamless integration to all existing host systems

- Native integration into Ovation is transparent and seamless.
- Gateways interface with existing host systems using industry standard protocols including OPC, Modbus TCP/IP, and Modbus RTU.

#### Layered security keeps your network safe

- Ensures that data transmissions are received only by the Smart Wireless Gateway.
- Network devices implement industry standard encryption, authentication, verification, anti-jamming, and key management.
- Third party security verification including Achilles and FIPS197.



## Ordering Information

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See [page 6](#) for more information on Material Selection.

**Table 1. Smart Wireless Gateway Ordering Information**

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.  
The Expanded offering is subject to additional delivery lead time.

Model	Product description	
1410	Smart Wireless Gateway, 2.4 GHz DSSS, <i>Wireless</i> HART, Webserver, AMS Ready, HART IP	★
<b>Wireless configuration</b>		
A	25 Device Network (10.5-30 VDC)	★
<b>Ethernet communications - physical connection</b>		
1 <sup>(1)(2)</sup>	Single Ethernet Connection	★
2 <sup>(3)(4)</sup>	Dual Ethernet Connection	★
<b>Serial communication</b>		
N	None	★
A <sup>(5)</sup>	Modbus RTU via RS-485	★
<b>Ethernet communication - data protocols<sup>(6)</sup></b>		
D1	Modbus TCP/IP	★
D2	OPC	★
D3	EtherNet/IP	★
D4 <sup>(6)</sup>	Modbus TCP/IP, OPC	★
D5 <sup>(6)</sup>	EtherNet/IP, Modbus TCP/IP	★
D6 <sup>(6)</sup>	EtherNet/IP, OPC	★
E2	Ovation Ready	★
E3 <sup>(7)</sup>	Webserver Only	★
<b>Antenna options<sup>(8)</sup></b>		
WX2	Basic Antenna	★
WL2	SMA-to-N-Type Adapter Cable, and Remote Antenna Kit	★
WN2 <sup>(9)</sup>	SMA-to-N-Type Adapter Cable, and High-Gain Remote Antenna Kit	★
<b>Product certifications</b>		
NA	No Approvals	★
N5	FM Division 2, Non-incendive	★
N6	CSA Division 2 (Suitable for Canada and the United States)	★
NM	Technical Regulation Customs Union (EAC) Type N	★

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**Options (Include with selected model number)**

Host integration <sup>(10)</sup>		
H6	Allen Bradley Documentation	★
H9	Other	★
Oil and gas options		
G	Oil and Gas Monitor Page	★
<b>Typical model number: 1410 A 2 A D4 WX2 N6</b>		

- (1) Single active 10/100 baseT Ethernet port with RJ45 connector.
- (2) Additional ports disabled.
- (3) Dual active 10/100 baseT Ethernet ports with RJ45 connectors.
- (4) Multiple active ports have separate IP addresses, firewall isolation, and no packet forwarding.
- (5) Convertible to RS232 via adapter, not included with Gateway.
- (6) Selection of Dual Ethernet option code 2 is recommended.
- (7) Requires (A) Modbus RTU via RS-485 Communication protocol.
- (8) The WL2 and WN2 options require minor assembly.
- (9) Not available in all countries.
- (10) Support documentation included in the package.

## Accessories and Spare Parts

**Table 2. Spare Parts**

Item description	Part number
Spare Kit, WL2 Replacement <sup>(1)</sup> , Remote Antenna, 50 ft. (15,2 m) Cable, and Lightning Arrester	01420-1615-0302
Spare Kit, WN2 Replacement <sup>(2)</sup> , High Gain, Remote Antenna, 25 ft. (7.6 m) Cable, and Lightning Arrester	01420-1615-0402

- (1) Can not upgrade from integral to remote antenna.
- (2) Not available in all countries.

# Product Specifications

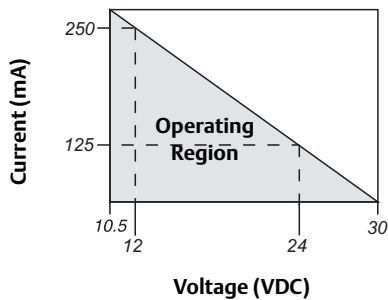
## Functional specifications

### Input voltage

10.5-30 VDC

### Current draw

Operating Current Draw is based on 3 Watt power consumption.



### Radio frequency power output from antenna

Maximum of 10 mW (10 dBm) EIRP

Maximum of 40 mW (16 dBm) EIRP for WN2 High Gain option<sup>(1)</sup>

### Environmental

Operating Temperature Range:  
-40 to 167 °F (-40 to 75 °C)

Operating Humidity Range:  
0-100% relative humidity

### EMC performance

Complies with EN61326-1:2006.

### Antenna options

Optional remote mount Omni-directional Antenna

### Antenna

2 dBi rubber dipole with SMA male connector  
SMA connection is female

## Physical specifications

### Material selection

Emerson provides a variety of Rosemount product with various product options and configurations including materials of construction that can be expected to perform well in a wide range of applications. The Rosemount product information presented is intended as a guide for the purchaser to make an appropriate selection for the application. It is the purchaser's sole responsibility to make a careful analysis of all process parameters (such as all chemical components, temperature, pressure, flow rate, abrasives, contaminants, etc.), when specifying product, materials, options and components for the particular application. Emerson Process Management is not in a position to evaluate or guarantee the compatibility of the process fluid or other process parameters with the product, options, configuration or materials of construction selected.

### Weight

0.70 lb. (0,318 kg)

### Material of construction

#### Housing

Polycarbonate

#### Rail mount

Top hat rail EN 50022 35 mm X 7.5 mm and 35 mm x 15 mm

## Communication specifications

### Isolated RS-485

2-wire communication link for Modbus RTU multi-drop connections

Baud rate: 57600, 38400, 19200, or 9600

Protocol: Modbus RTU

Wiring: Single twisted shielded pair, 18 AWG. Wiring distance is approximately 4000 ft. (1,524 m)

### Ethernet

10/100base-TX Ethernet communication port

Protocols: Modbus TCP, OPC, EtherNet/IP, HART-IP, https (for Web Interface)

Wiring: Cat5E shielded cable. Wiring distance 328 ft. (100 m).

(1) Not available in all countries.

## Modbus

Supports Modbus RTU and Modbus TCP with 32-bit floating point values, integers, and scaled integers. Modbus Registers are user-specified.

## OPC

OPC server supports OPC DA v2, v3

## EtherNet/IP

Supports EtherNet/IP protocol with 32 bit Floating Point values and Integers. EtherNet/IP Assembly Input-Output instances are user configurable. EtherNet/IP specifications are managed and distributed by ODVA. For details on capabilities please see the Smart Wireless Gateway to Allen Bradley Integration Manual (Document No. 00809-0500-4420) on Rosemount.com.

## Self-organizing network specifications

### Protocol

IEC 62591 (*WirelessHART*), 2.4 - 2.5 GHz DSSS.

### Maximum network size

25 wireless devices @ 2 sec. or greater

12 wireless devices @ 1 sec.

### Supported device update rates

1, 2, 4, 8, 16, 32 seconds or 1 - 60 minutes

For information on network size and update rate, please see the capacity estimator tool on the Smart Wireless homepage by following the link: <http://www.emersonprocess.com/Wireless>.

### Network size/latency

25 Devices: less than 5 seconds

### Data reliability

Greater than 99%

## System security specifications

### Ethernet

Secure Sockets Layer (SSL) enabled (default) TCP/IP communications

### Emerson Smart Wireless Gateway access

Role-based Access Control (RBAC) including Administrator, Maintenance, Operator, and Executive. Administrator has complete control of the Gateway and connections to host systems and the self-organizing network.

## Self-organizing network

AES-128 Encrypted *WirelessHART*, including individual session keys. Drag and Drop device provisioning, including unique join keys and white listing.

## Internal firewall

User Configurable TCP ports for communications protocols, including Enable/Disable and user specified port numbers. Inspects both incoming and outgoing packets.

## Third party certification

Worldtech: Achilles Level 1 certified for network resiliency

National Institute of Standards and Technology (NIST): Advanced Encryption Standard (AES) Algorithm conforming to Federal Information Processing Standard Publication 197 (FIPS-197).

## Product Certifications

### Approved Manufacturing Locations

Rosemount Inc. – Chanhassen, Minnesota, USA  
Emerson Process Management Asia Pacific Private Limited - Singapore

### Telecommunication Compliance

All wireless devices require certification to ensure 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.

### European Directive Information

The EC declaration of conformity can be found in the Quick Start Guide (00825-0200-4410). The most recent revision can be found at [www.emersonprocess.com](http://www.emersonprocess.com).

### Ordinary Location Certification from FM Approvals

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

### Hazardous Locations Certifications

#### North American Certifications

**N5** FM Approvals, Nonincendive for Class I Division 2  
Certificate No.: 3049590

Standards Used: Class 3600:2011, Class 3611:2004, Class 3810:2005

Markings: NI CL I, DIV. 2, GP A, B, C, D

Temperature code: T4 (-40 °C ≤ Ta ≤ 60 °C)

#### Special Condition of Use:

1. When installed as Division 2 equipment, the 1410 shall be mounted within a tool-secured enclosure which meets the requirements of ANSI/ISA 61010-1 and be capable of accepting the applicable wiring methods per the NEC.
- N6** CSA Class I Division 2  
Certificate No.: 2646342  
Standards Used: CSA Std. C22.2 No. 0-10, CSA Std. C22.2 No. 213 - M1987, CSA Std. C22.2 No. 61010-1-12, ANSI/ISA 12.12.01-2012, ANSI/ISA 61010-1-2012  
Markings: SUITABLE FOR CL I, DIV. 2, GP A, B, C, D  
Temperature code: T4 (-40 °C ≤ Ta ≤ 70 °C)
- NM** Technical Regulation Customs Union (EAC)  
Contact an Emerson process management representative for additional information.

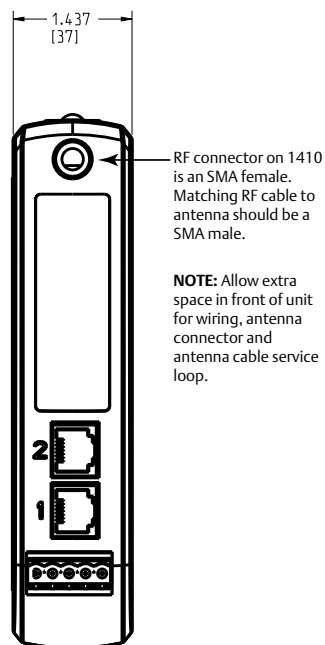
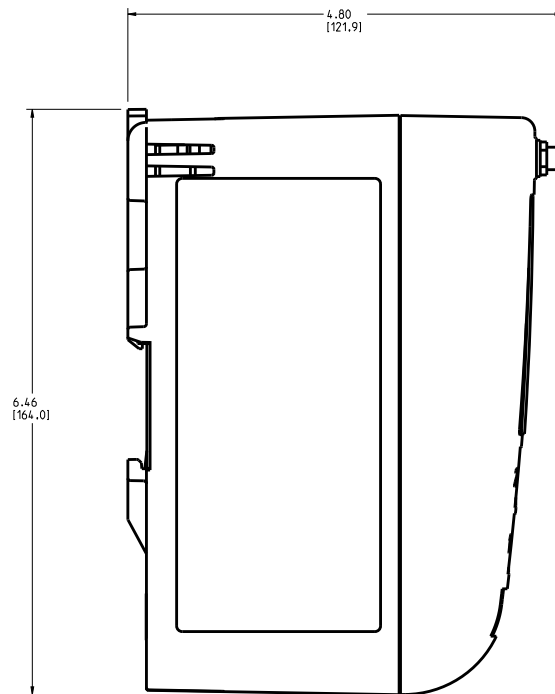
#### Notes

- Shall be powered by a class 2 power supply.
- Suitable for dry indoor locations only.
- Equipment must be installed in a suitable tool accessible enclosure subject to the end use application.



# Dimensional Drawings

Figure 1. Smart Wireless Gateway



\* Dimensions are in inches (millimeters)

Figure 2. WX2 Basic Antenna Dimensions

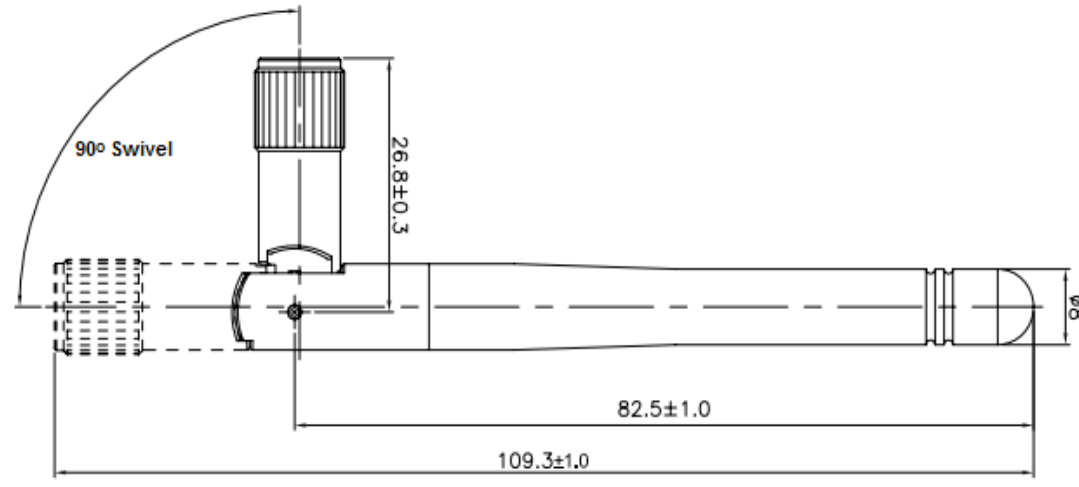
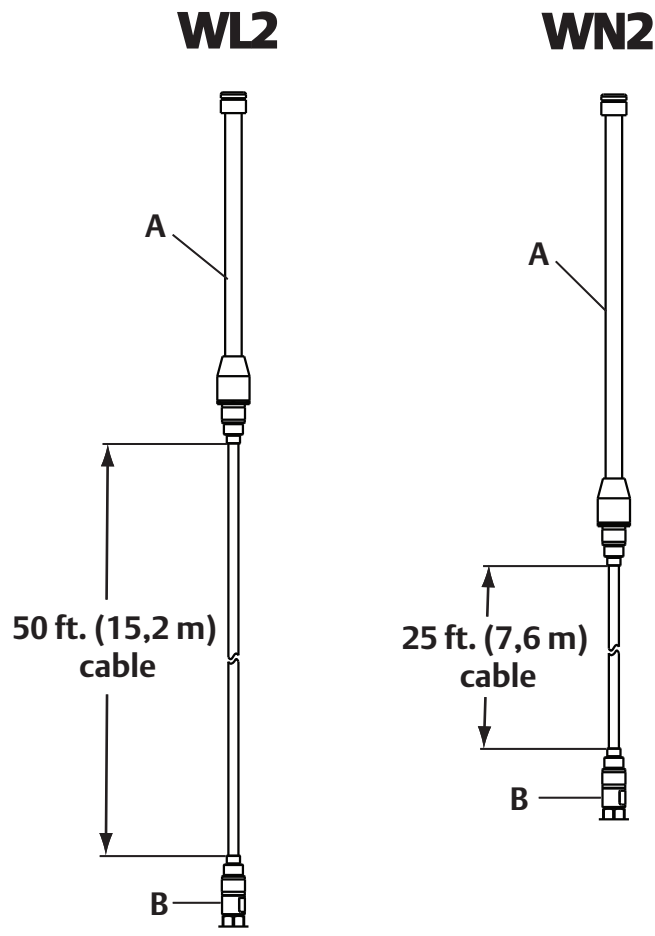


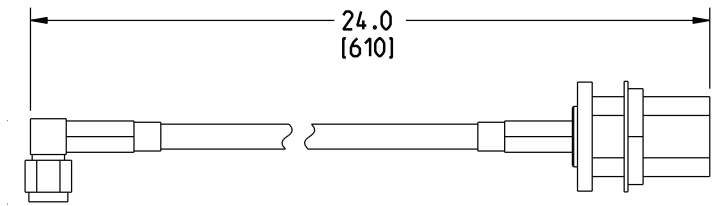
Figure 3. Remote Omni-Antenna Kit

The Remote Omni-Antenna kit includes sealant tape for remote antenna connection, SMA to N-type adapter cable, mounting brackets for the antenna, and lightning arrester.



A. Antenna  
B. Lightning Arrester

Figure 4. SMA to N-Type Adapter Cable Dimensions



\* Dimensions are in inches (millimeters)

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