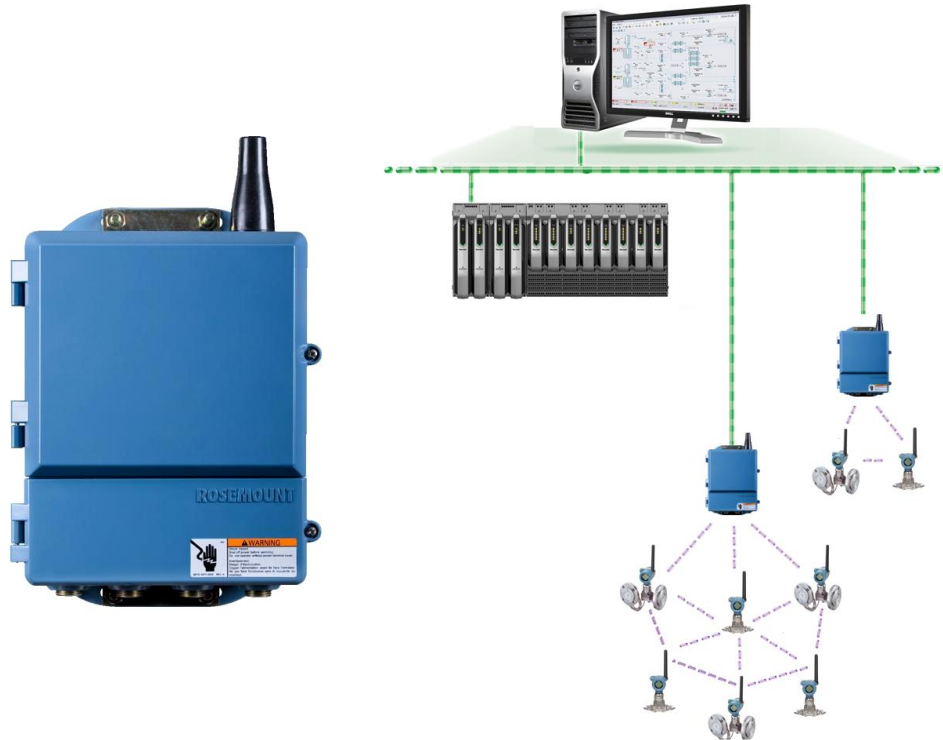


# Smart Wireless Gateway



Smart Wireless Gateway

- Seamless integration with DeltaV™ and AMS® Suite™.
- Industry proven security.
- WirelessHART®™ delivers PlantWeb®.

## Introduction

A robust wireless solution is much more than the sum of its parts; it is the result of innovative integration with consideration given to every aspect of the overall system. A Smart Wireless solution consists of the measurement devices, the self-organizing network, and easy integration with the DeltaV system. Emerson Process Management offers a full portfolio of wireless solutions enabled by self-organizing WirelessHART networks. The DeltaV system and AMS Suite version 10 provide seamless integration with the gateway. WirelessHART devices are the *easiest* devices to add to your existing control system! All the benefits of HART including HART device alerts for wireless devices are native with the latest DeltaV and AMS Suite releases..

### Benefits

**Seamless integration with the DeltaV system and AMS Suite.** The Smart Wireless Gateway is auto-detected on the DeltaV network and WirelessHART devices are auto-sensed as they are added to the network. There is *no site survey required*, making it easy and fast to set up your wireless field instrumentation, saving you time and money. With their reliability and ease of use, self-organizing WirelessHART mesh networks are perfect in any environment.

**Industry-proven security.** The Emerson Process Management layered approach to wireless network security ensures that your network stays protected. The network devices implement Encryption, Authentication, Verification, Anti-Jamming and Key Management methods to ensure that data transmissions are secure.

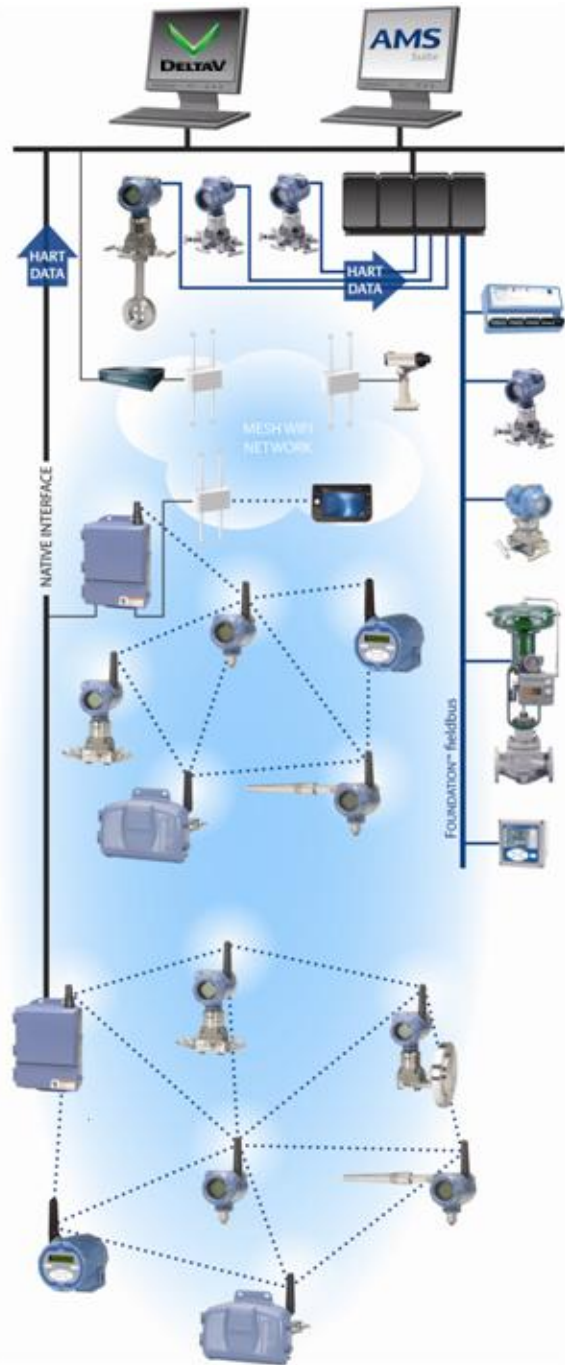
**WirelessHART delivers PlantWeb.** The Smart Wireless Gateway powers PlantWeb by giving you access to intelligent devices using WirelessHART technology. WirelessHART devices have the same PlantWeb alerts as their wired counterparts, providing a consistent user experience.

### Product Description

#### Self-Organizing Network

- No wireless expertise is required; devices automatically find the best communication paths with Adaptive Mesh Routing.
- Network continuously monitors paths for degradation and repairs itself.
- Adaptive behavior provides reliable, hands-off operation and simplifies network deployments, expansion and reconfiguration.

If an obstruction is introduced into the network, data will continue to flow because each device already has other established paths. The network will lay in more communication paths as needed for affected devices.



Self-Organizing WirelessHART Network Diagram

**Integration with the DeltaV System and AMS Suite**

Native integration with the DeltaV system enables the user to autosense the gateway and easily commission it for seamless integration with all DeltaV applications: Explorer, Diagnostics, and Control Studio. WirelessHART devices can be easily added to the network with AMS Device Manager and then reconciled through DeltaV Explorer and assigned to Analog DSTs through drag-and-drop assignment.

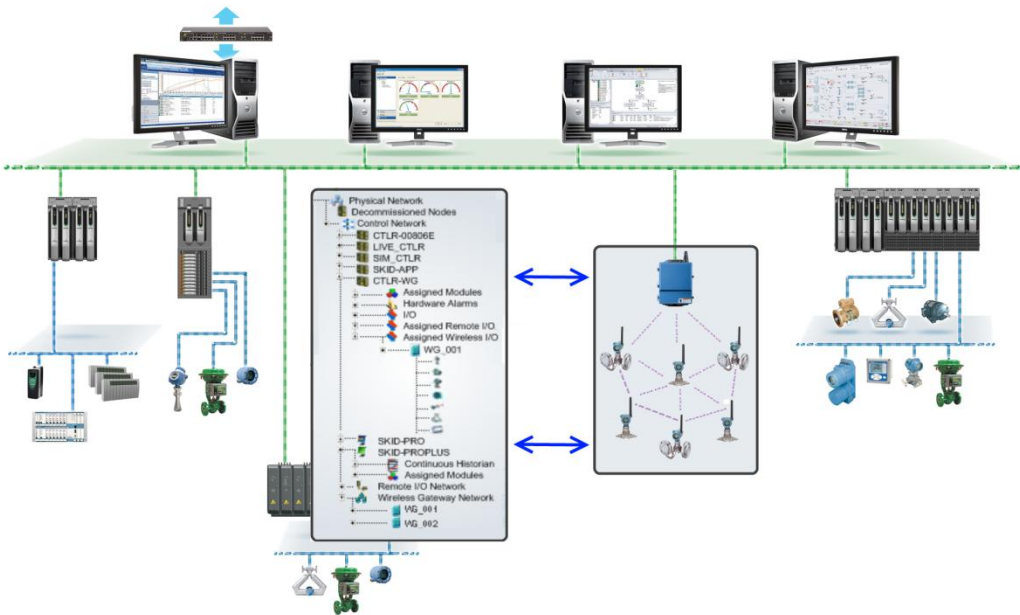
The Network ID and Join Key are easily assigned to the devices using AMS Device Manager. When the device is installed, it automatically and securely joins the network. DeltaV autosenses the new device through DeltaV Explorer.

**Scalable Smart Wireless Gateway**

The Smart Wireless Gateway is capable of supporting up to 99 wireless field devices. Once your initial network has been installed, it is quick and easy to add additional devices, allowing you to plan a large installation and add devices over time.

**Powers PlantWeb**

The Smart Wireless Gateway powers PlantWeb® by working together with the DeltaV system and AMS Suite software to deliver the power of wireless connectivity with Emerson field devices.



*Integration of hardware and software within DeltaV*

## Specifications

| <b>Functional Specifications for the Smart Wireless Gateway</b> |  |
|---|--|
| Input Power   | 20-28 VDC, 500 milliamps peak start up required to power the Smart Wireless Gateway module.  |
| EMC Performance   | Complies with EN 613261:2006   |
| Antenna Options   | Integrated Omni-directional Antenna. Optional remote mount omni-directional antenna  |
| <b>Environmental</b>  |  |
| Operating temperature   | -40° to 60° C (-40° to 140° F)   |
| Relative humidity   | 10 to 90%, non-condensing  |
| <b>Physical</b>   |  |
| Weight  | 10 lb (4.54 kg)  |
| Material of Construction  | Housing - Low-copper aluminum, NEMA 4X<br>Paint - Polyurethane<br>Cover Gasket - Silicone Rubber<br>Antenna - PBT/PC integrated omni-directional antenna   |
| Certifications  | Class 1 Division 2 (U.S.), Equivalent Worldwide  |
| <b>Communication</b>  |  |
| Isolated RS-485   | 2-wire communication link for Modbus RTU multi-drop connections<br>Baud rate: 57600, 38400, 19200, or 9600<br>Protocol: Modbus RTU<br>Wiring: Single twisted shielded pair, 18 AWG. Wiring distance is approximately 4,000 ft. (1,524 m) |
| Ethernet  | 10/100base-TX Ethernet communication port<br>Protocols: Modbus TCP, OPC, https (for Web Interface)<br>Wiring: Cat5E shielded cable. Wiring distance 328 ft. (100 m)  |
| Modbus  | Supports Modbus RTU and Modbus TCP with 32-bit floating point values, integers, and scaled integers.<br>Modbus Registers are user-specified  |
| OPC   | OPC server supports OPC DA v2, v3  |

| Self-Organizing Network       |  |
|-------------------------------|--|
| Protocol                      | WirelessHART, 2.4-2.5 GHz DSSS   |
| Maximum Network Size          | 100 Devices (Including Gateway)  |
| Supported Device Update Rates | WirelessHART, 4 sec. to 60 min.  |
| Network Size/Latency          | 100 devices: up to 10 s.<br>50 devices: up to 5 s.   |
| System Security               |  |
| Ethernet                      | Secure Sockets Layer (SSL)-enabled (default) TCP/IP communications.  |
| 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.<br>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.<br>Inspects both incoming and outgoing packets.  |

## System Compatibility

All models of the Smart Wireless Gateway listed in the Ordering Information table come with Modbus Serial, Modbus TCP and OPC communication protocols enabled to allow you to connect the gateway to DeltaV.

## Certifications

### 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).

### North American Certifications

- (N5) FM Division 2, Non-incendive
- Certificate Number: 3028321
- Non-incendive for Class I, Division 2, Groups A, B, C, and D.
- Dust Ignition-proof for Class II, III, Division 2, Groups E, F, and G; Indoors/outdoor locations;
- Type 4X
- Temperature Code: T4 (-40 °C < Ta < 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, D.
- Dust Ignition-proof for Class II, Groups E, F, G;
- Suitable for Class III Hazardous Locations;
- Install per Rosemount drawing 01420-1011.
- Temperature Code: T4 (-40 °C < Ta < 60 °C)
- CSA Enclosure Type 4X

### 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](http://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: 2006

#### Radio and Telecommunications Terminal Equipment Directive (R&TTE)(1999/5/EC)

Emerson Process Management complies with the R&TTE Directive

**European Certification**

- (N1) ATEX Type n
  - Special condition for safe use (x)
  - Certificate Number: Baseefa 07ATEX0056X
  - ATEX Marking:  II 3 G
  - Ex nA nL IIC T4 (-40 °C < Ta < 60 °C)
- (N7) IECEx Type n
  - Special condition for safe use (x)
  - Certificate Number: IECEx BAS 07.0012X
  - Ex nA nL IIC T4 (-40 °C =< Ta <=60 °C)
  - Maximum working voltage = 28 V

**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. 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.

Ordering Information

| Description  | Model Number |
|--|--------------|
| Smart Wireless Gateway - Copper Ethernet Connection, Locally mounted antenna   | VE4041E1A1   |
| Smart Wireless Gateway - Copper Ethernet Connection, Remote-mounted antenna with 50-foot (15.2-meter) cable and Lightning Arrestor | VE4041E1A2   |

All models of the Smart Wireless Gateway listed in the above table have all the certifications listed in this product data sheet. No other special options are necessary or available.

To locate a sales office near you, visit our website at:  
[www.EmersonProcess.com/DeltaV](http://www.EmersonProcess.com/DeltaV)  
 Or call us at:  
 Asia Pacific: 65.777.8211  
 Europe, Middle East: 41.41.768.6111  
 North America, Latin America: +1 800.833.8314 or +1 512.832.3774

For large power, water, and wastewater applications contact Power and Water Solutions at:  
[www.EmersonProcess-powerwater.com](http://www.EmersonProcess-powerwater.com)  
 Or call us at:  
 Asia Pacific: 65.777.8211  
 Europe, Middle East, Africa: 48.22.630.2443  
 North America, Latin America: +1 412.963.4000

© Emerson Process Management 2011. All rights reserved. For Emerson Process Management trademarks and service marks, go to: <http://www.emersonprocess.com/home/news/resources/marks.pdf>.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available on request. We reserve the right to modify or improve the design or specification of such products at any time without notice.