Technical Note
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Commonly Mapped HART® Parameters for Device and Network Monitoring

1.1 Overview

Wireless networks provide a wealth of information, from simple process variables to detailed diagnostic information, in the form of bits of data called parameters. It is important to determine which parameters are most important to your process, and to ensure this information is visible through your management system by mapping the parameters.

This document provides instructions on how to map the most common parameters for variable, power, and communication status.

1.2 System administrator

Consider the system which this information will be recorded to or accessed by (e.g. DCS, PLC, Data Historian, Dedicated Database, etc.) The following procedure should be performed by or overseen by the administrator of that system (in systems or application management.) This administrator will be an invaluable team member for quickly commissioning and integrating your wireless networks.

1.3 Designing for system integration

Install the Gateway in a place where it is able to make a physical connection to the host system via the Ethernet or serial Modbus® connection (e.g. control rooms, instrument sheds, etc.)

Using the Ethernet or serial Modbus connection, the Gateway can be integrated into the system or access location by using the most appropriate standard data protocol (EtherNet/IP™, OPC™, Modbus TCP, or Modbus RTU.) Additional Smart Wireless Gateway capabilities allow for easy integration directly into DeltaV™, Ovation™, and AMS® Device Manager.

1.4 Mapping basics

When mapping a parameter into a system, the device must be identified, then followed by the parameter. The device is identified by its HART tag, and the parameter is mapped in the following format [HART Tag].[parameter]. This is known as the OPC point name, Modbus register, or EtherNet/IP instance. The mapping process is repeatable once locally established.

Easily locate the HART tag of a wireless device through the Gateway web interface, shown in Figure 1-1. In this example, the tag is “708-002.”

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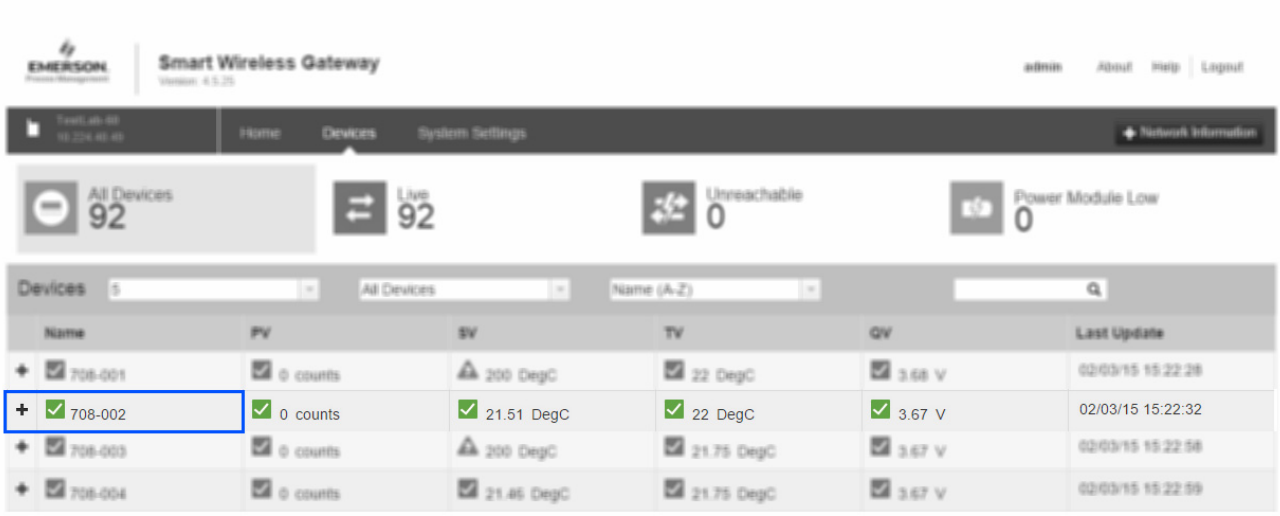
Figure 1-1. Finding the HART Tag on a Rosemount® 708 Wireless Acoustic Transmitter



Parameters are mapped through the designated location on the Gateway interface. Figure 1-2 shows the example of the Gateway OPC mapping page.

Figure 1-2. Example of the Gateway OPC Mapping Page

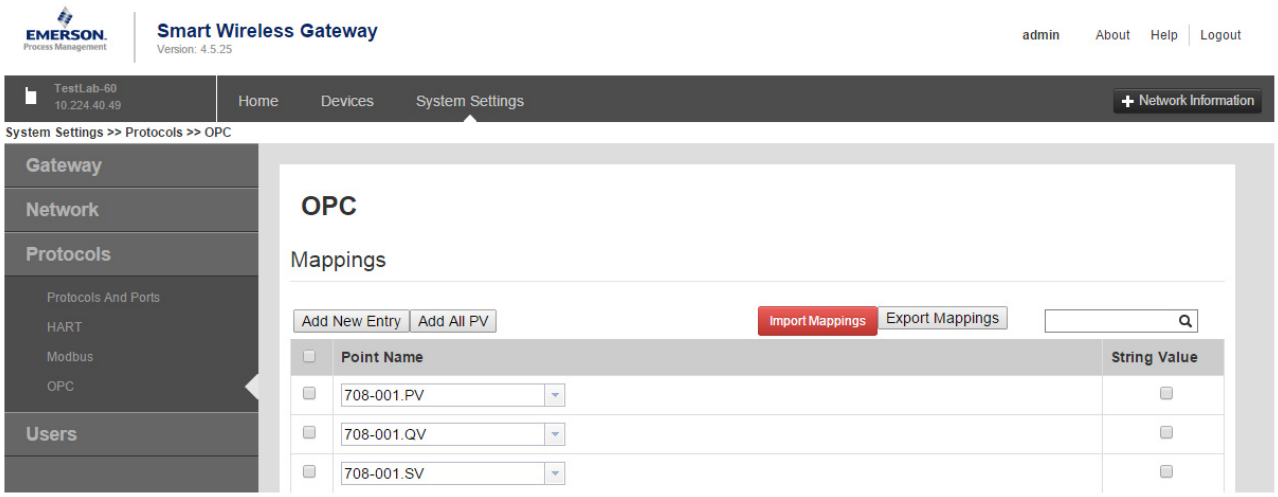


Table 1-1 identifies the most commonly mapped parameters for field devices.

Table 1-1. Commonly Mapped Variables for Device and Network Monitoring

Parameter	Value type	Description
Variable status		
PV	32 bit float	Primary Variable. This is the variable reported associated with the main function of the device.
SV; TV; QV	32 bit float	Secondary, Tertiary, and Quaternary Variables. These are additional variables available for the device. These are different per each device, and can be reconfigured in the device software.
PV_HEALTHY SV_HEALTHY TV_HEALTHY QV_HEALTHY	Boolean	Overall health of the associated variable. This parameter also communicates Online status and critical device diagnostics.
Power status		
POWER_SUPPLY_CONDITIONS_OUT_OF_RANGE	Boolean	Primary module indicator. This status is triggered when power supply is getting low to alert to plan for maintenance.
CRITICAL_POWER_FAILURE	Boolean	Primary module backup indicator. This status is triggered when power supply is very low to alert that maintenance should be performed immediately.
* * Note that in some devices, Battery Voltage is mapped as QV. In these instances, QV_HEALTHY can also be used to alert the user when the battery supply is low.		
Communication status		
ONLINE	Boolean	Indicates whether a device is Online and communicating with the network. This status is triggered when a device becomes stale or unreachable. (A device is stale after 8 missed updates and unreachable after 10 minutes.)
RELIABILITY	32 bit float	Measure of connectivity between the Gateway and a wireless field device. This status is a calculation of the ratio of the number of received messages over the number of expected messages.

Rosemount World Headquarters
Emerson Process Management
6021 Innovation Blvd
Shakopee, MN 55379, USA
+1 800 999 9307 or +1 952 906 8888
+1 952 949 7001
RFQ.RMD-RCC@EmersonProcess.com

North America Regional Office
Emerson Process Management
8200 Market Blvd.
Chanhassen, MN 55317, USA
+1 800 999 9307 or +1 952 906 8888
+1 952 949 7001
RMT-NA.RCCRFQ@Emerson.com

Latin America Regional Office
Emerson Process Management
1300 Concord Terrace, Suite 400
Sunrise, Florida, 33323, USA
+1 954 846 5030
+1 954 846 5121
RFQ.RMD-RCC@EmersonProcess.com

Europe Regional Office
Emerson Process Management Europe GmbH
Neuhofstrasse 19a P.O. Box 1046
CH 6340 Baar
Switzerland
+41 (0) 41 768 6111
+41 (0) 41 768 6300
RFQ.RMD-RCC@EmersonProcess.com

Asia Pacific Regional Office
Emerson Process Management Asia Pacific Pte Ltd
1 Pandan Crescent
Singapore 128461
+65 6777 8211
+65 6777 0947
Enquiries@AP.EmersonProcess.com

Middle East and Africa Regional Office
Emerson Process Management
Emerson FZE P.O. Box 17033,
Jebel Ali Free Zone - South 2
Dubai, United Arab Emirates
+971 4 8118100
+971 4 8865465
RFQ.RMTMEA@Emerson.com

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