

Fisher™ 4320 Wireless Position Monitor Burst Configuration and Diagnostics

This document applies to:

Device Type 1308 (hex) 4872 (decimal)

Device Revision 4

Firmware Revision 5

DD Revision 1

This document will guide you through burst configuration and diagnostics using AMS Device Manager.

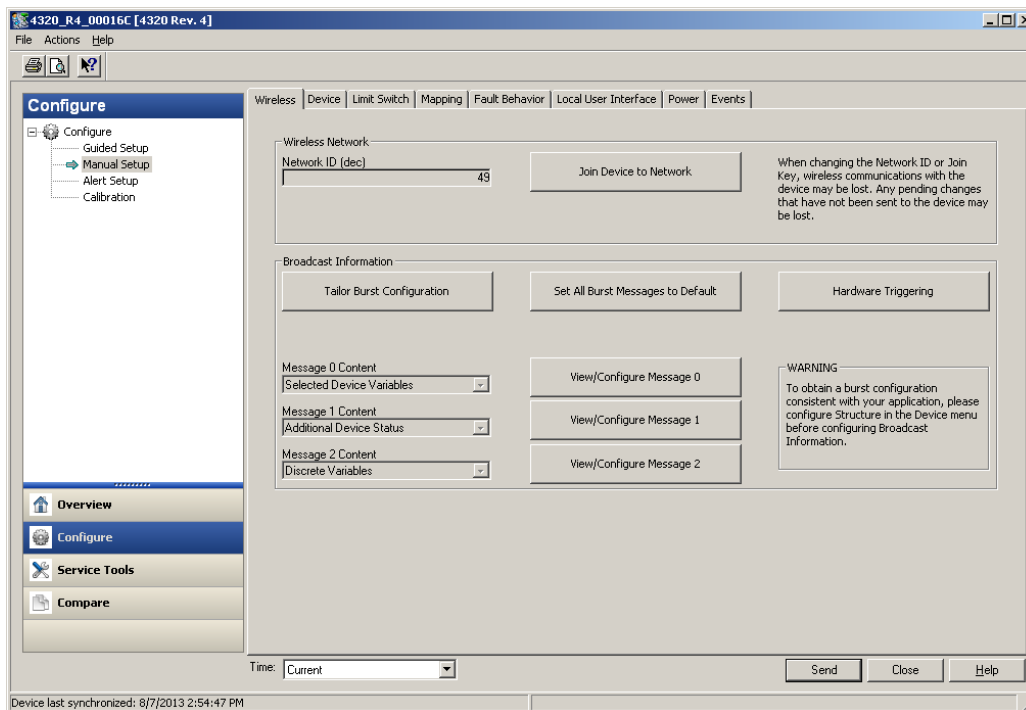
Note

Burst can be configured similarly using the 475 Field Communicator. Refer to the 4320 instruction manual ([D103621X012](#)), available from your [Emerson Automation Solutions sales office](#) or at [www.Fisher.com](#) for the Field Communicator menu trees, as well as 4320 wireless position monitor installation, setup and maintenance information.



This supplement also pertains to TopWorx™ 4310 Wireless Position Monitors with On/Off Control Option (Supported Status), Device Type E0CE (hex) 57550 (decimal). See instruction manual [D103622X012](#), available at [www.Fisher.com](#), for information regarding the 4310 wireless position monitor.

Access burst configuration in the *Broadcast Information* group from the *Wireless* tab in *Configure, Manual Setup*.

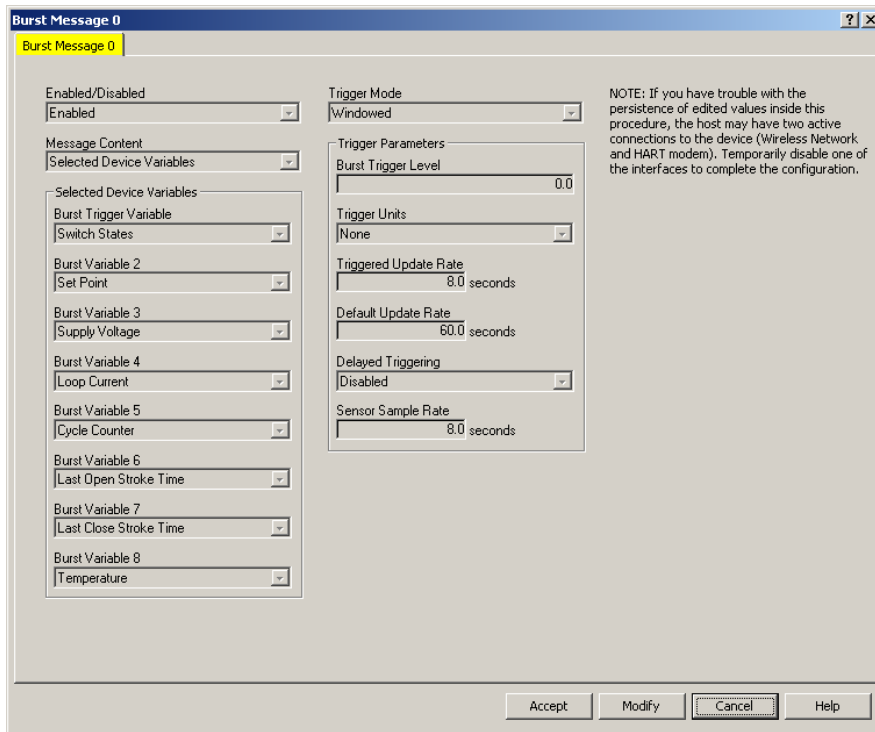


When connected at the maintenance port, this screen shows the Network ID and the Basic content assignment for each burst message. When AMS is communicating with the device over the wireless network, these variables are not displayed to help the screen load a little faster. Select the *View/Configure Message 0, 1, or 2* buttons to see the complete burst configuration for that message.

For each *Burst Message* the following menu items are displayed: *Enabled/Disabled*, *Message Content*, *Content Details* (this group bears the label of the selection in *Message Content*), *Trigger Mode*, and *Trigger Parameters*. For an explanation of any of the parameters, position the cursor in the value box for the parameter and press the F1 (HELP) key.

View/Configure Burst Message

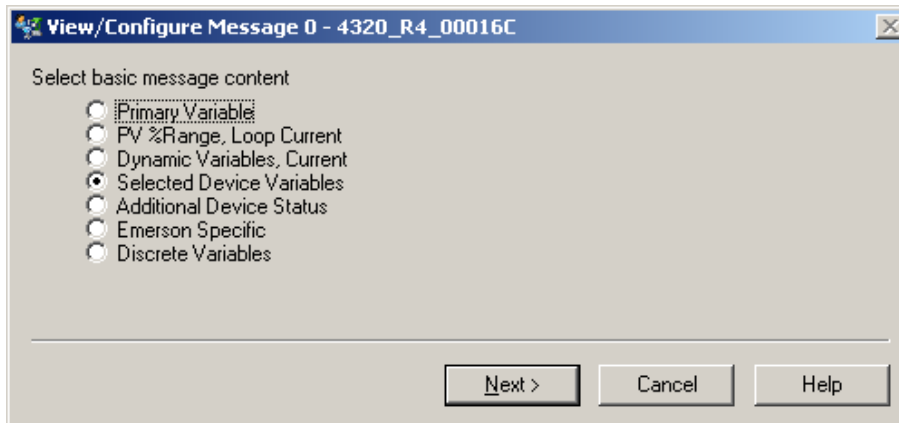
This menu is read-only. Use the *Modify* button to make changes to these settings. Select *Accept* or *Cancel* to exit the procedure.



After clicking *Modify*, you are guided through the burst configuration process. If you only want to adjust one or two parameters, accept the existing settings for the parameters you don't need to change as you page through the procedure.

Message Content

The first choice presented is the basic *Message Content*.



Choose between:

- Primary Variable (command 1)
- PV %Range, Loop Current (command 2)
- Dynamic Variables, Current (command 3)
- Selected Device Variables (command 9)
- Additional Device Status (command 48)
- Emerson Specific (command 178 - Dynamic Variables and Additional Status)
- Discrete Variables (command 64386)

The normal or typical setting is “Selected Device Variables”.

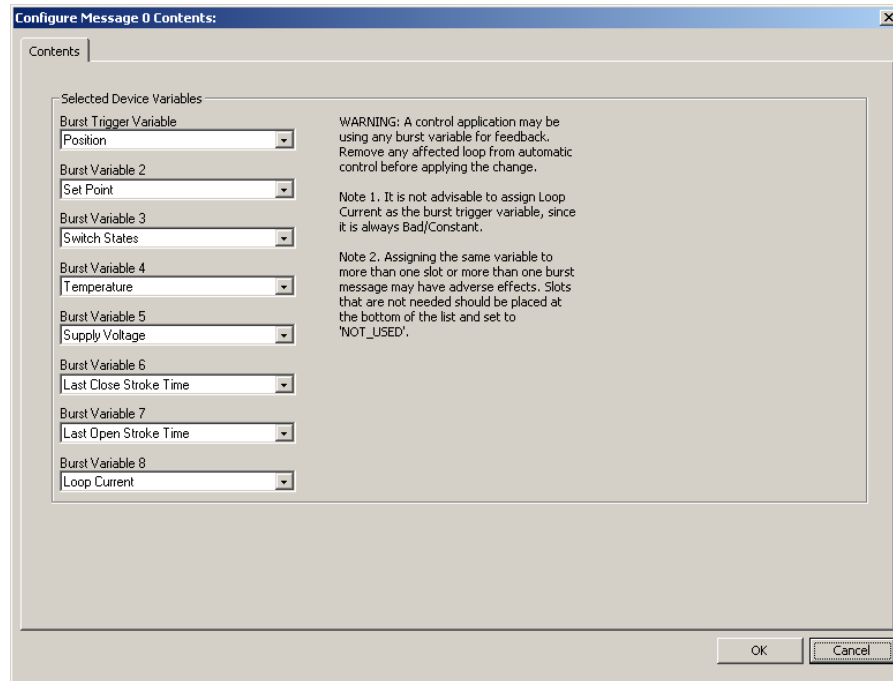
Contents

Three of the Message Content choices allow you to adjust the fine detail of the burst message contents. Assign basic content to the messages based on your application requirements:

- If the device is a monitor and you only need to track one parameter, you may be able to use only one message bursting the *Primary Variable*.
- If you need to track only 2 or 3 variables and the alerts, you could enable 2 messages and assign *Dynamic Variables and Current* to one and *Additional Device Status* to the other.
- If you are using an Emerson Gateway that configuration can be reduced to a single active message bursting the *Emerson Specific* content.
- If you have a lot of parameters to track, *Selected Device Variables* will probably be used for at least one message.
- If you are using many parameters but need some at a faster rate than others, you could assign *Selected Device Variables* as the basic content of two different messages, assign the fast update variables to one of them and the slow variables to the other, and schedule their publication accordingly.
- For On/Off control devices, you must publish *Discrete Variables* in one of the messages.

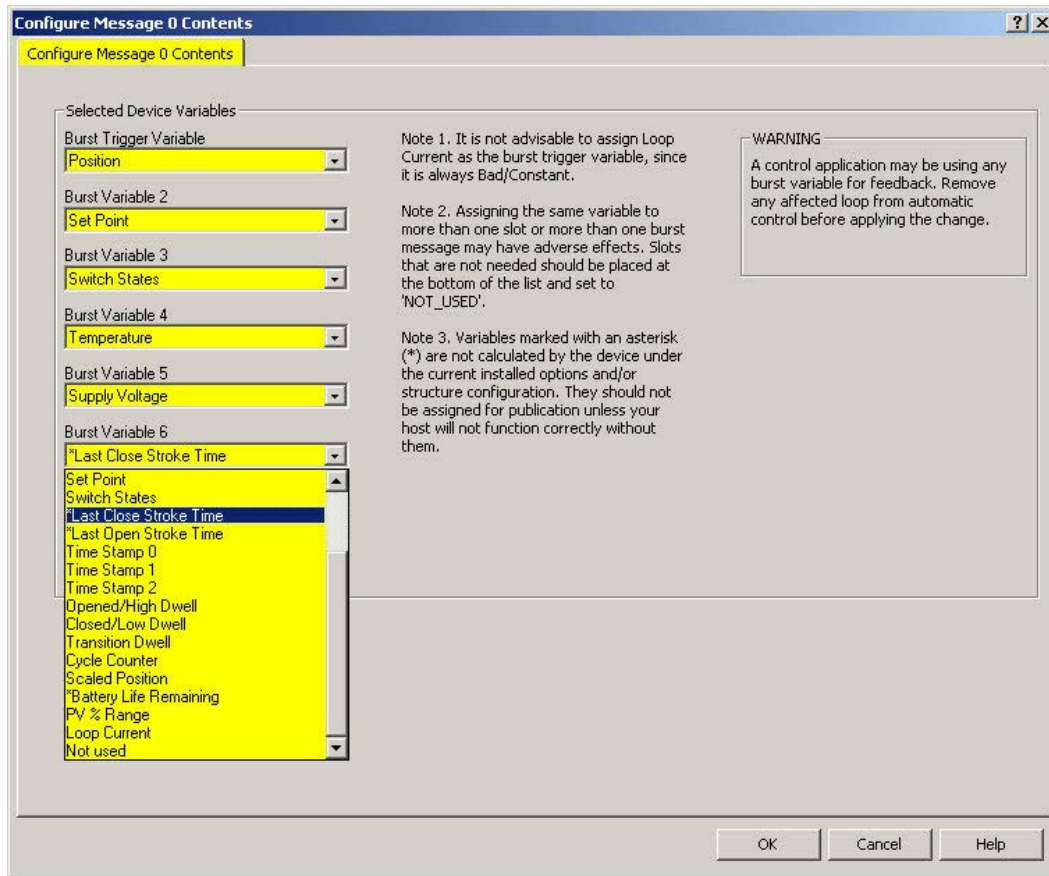
Selected Device Variables (Command 9) is one of the choices that allow detailed content adjustment:

SELECTED DEVICE VARIABLES IS THE NORMAL OR TYPICAL SETTING FOR AN ON/OFF CONTROL APPLICATION

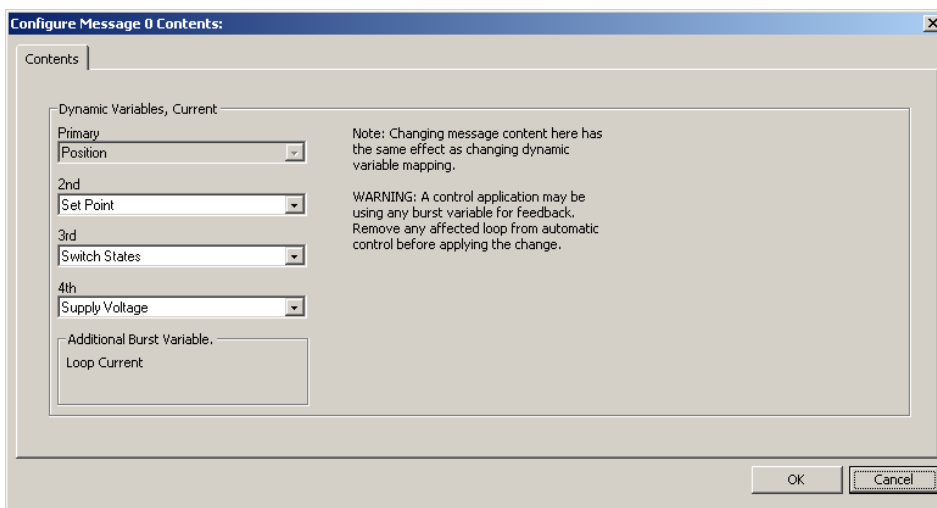


You may assign the desired device variables to individual slots in the message. The variable placed in the first slot becomes the *Trigger Variable* when burst trigger modes other than *Continuous* or *On-Change* are selected, so it is advisable that the variable in that slot be chosen carefully. Using a variable that never changes, like Loop Current, or one that dithers, such as Temperature, might be a poor choice for certain trigger modes. Usually the *Trigger Variable* should be the parameter whose change is most representative of the process state you are monitoring.

Some of the available device variables are not computed in the device in a given structure or operating mode. These are marked with an asterisk in the drop-down list that appears when you edit a slot.



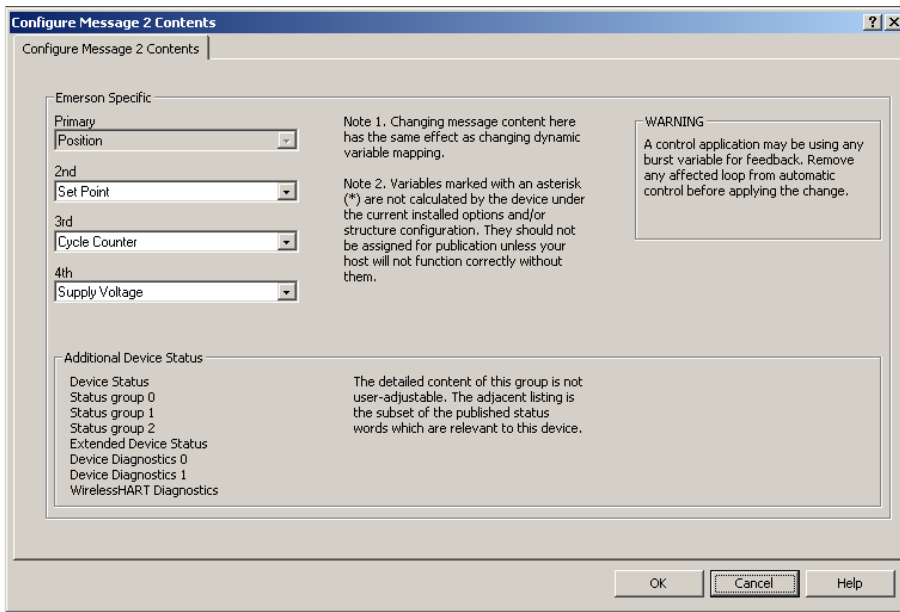
Dynamic Variables and Current (Command 3) is the second choice that allows detailed adjustment:



Here you can edit the 2nd, 3rd, and 4th *Dynamic Variable* slots. The *Primary Variable* is fixed. *Loop Current* is also published in this command, although it is always Not a Number, Bad, and Constant in the wireless device. The *Loop Current* value is sometimes needed by control system hosts, such as a DeltaV™ system.

Make certain that any information that the host needs from the device is being published by the device in a timely manner. If data is not being published, it is not available in the Gateway cache and the network manager application will have to send a special request to the device to obtain that data every time a host requests it. This behavior uses up a lot of the available bandwidth, and the network can become clogged if too many devices have data that is not being published.

Emerson Specific (Command 178) is the third:



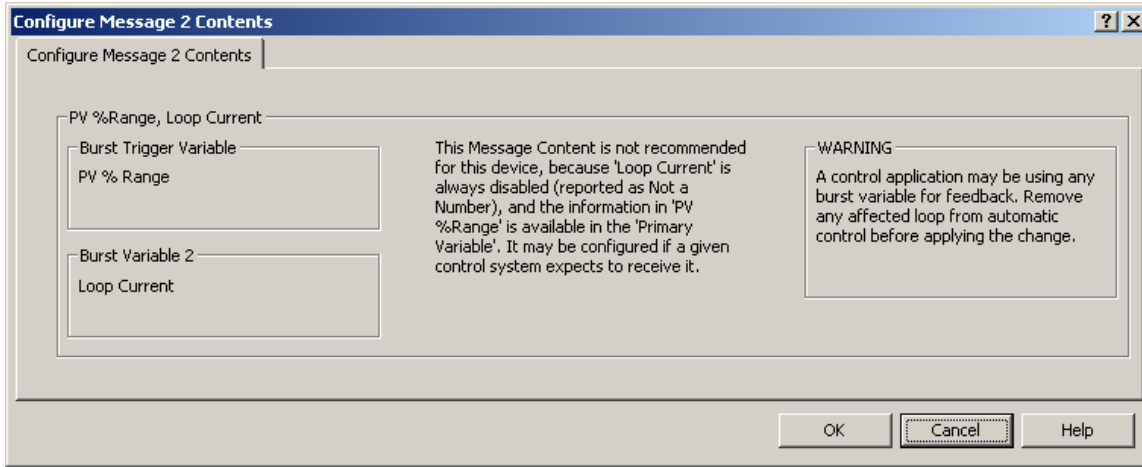
Here you can also edit the 2nd, 3rd, and 4th *Dynamic Variable* slots. The *Trigger Variable* is the Primary Variable in the above two cases.

If there are no slots to configure in the detailed content, the content is simply displayed.

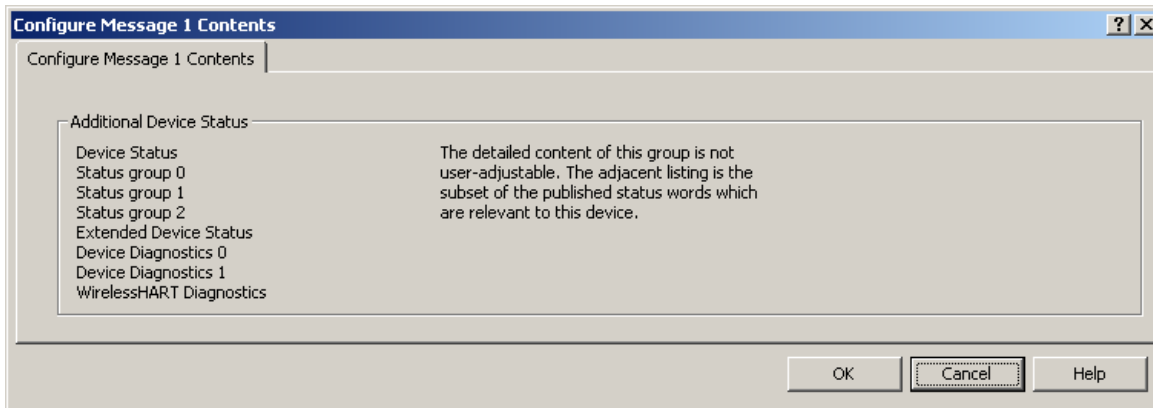
Primary Variable (Command 1):



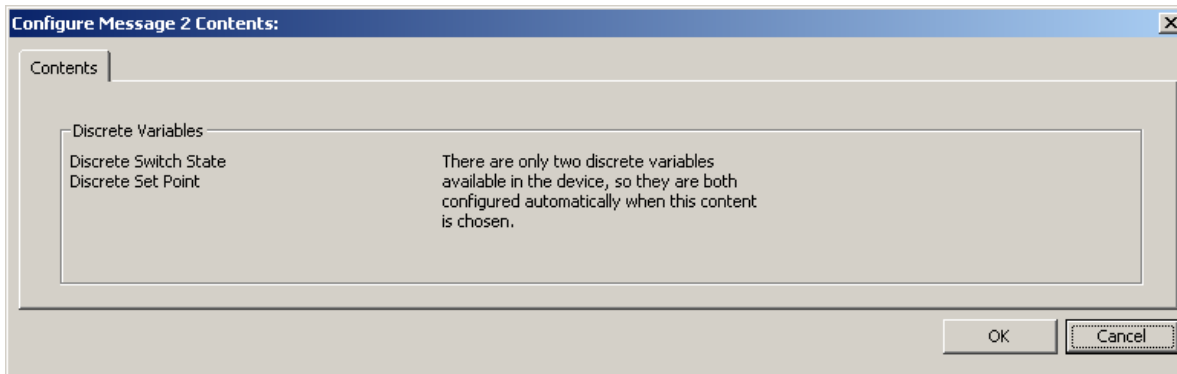
PV % Range, Loop Current (Command 2):



Additional Device Status (Command 48):

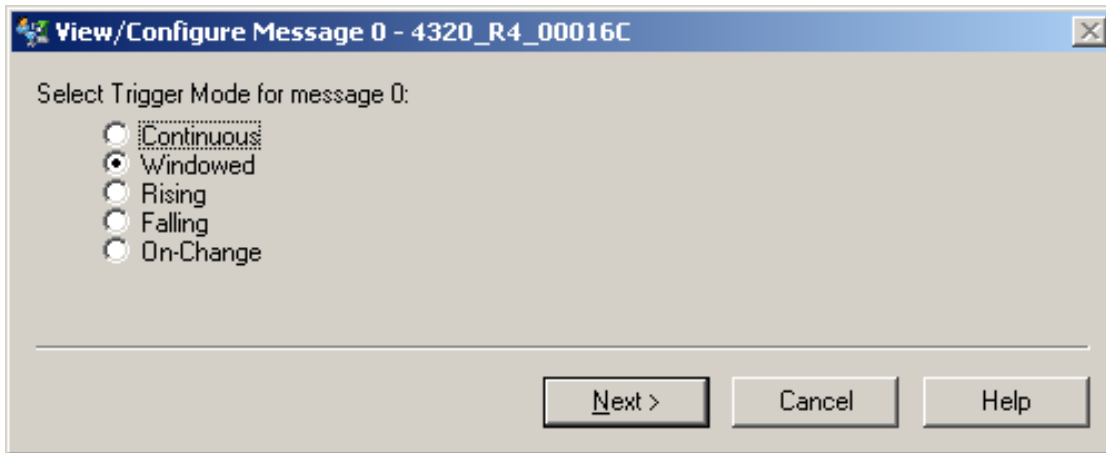


Discrete Variables (Command 64386):

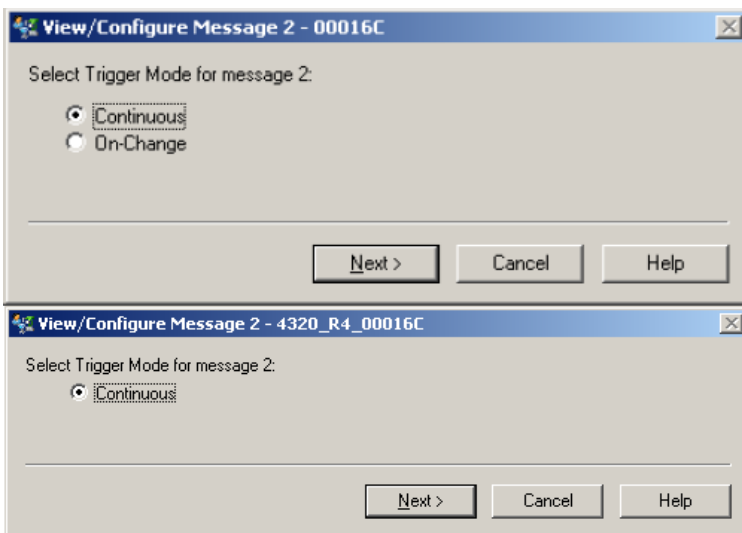


Burst Trigger Mode

You are then asked to select the *Trigger Mode* (*Continuous*, *Windowed*, *Rising*, *Falling*, or *On-Change*). *Continuous* and *Windowed* are used in the majority of applications. The function of each of these modes is discussed below.



Some basic content choices, such as *PV%Range +Loop Current*, *Additional Device Status*, *Emerson Specific*, and *Discrete Variables*, have limited triggering capability. In those cases only the available trigger modes are displayed, e.g.:



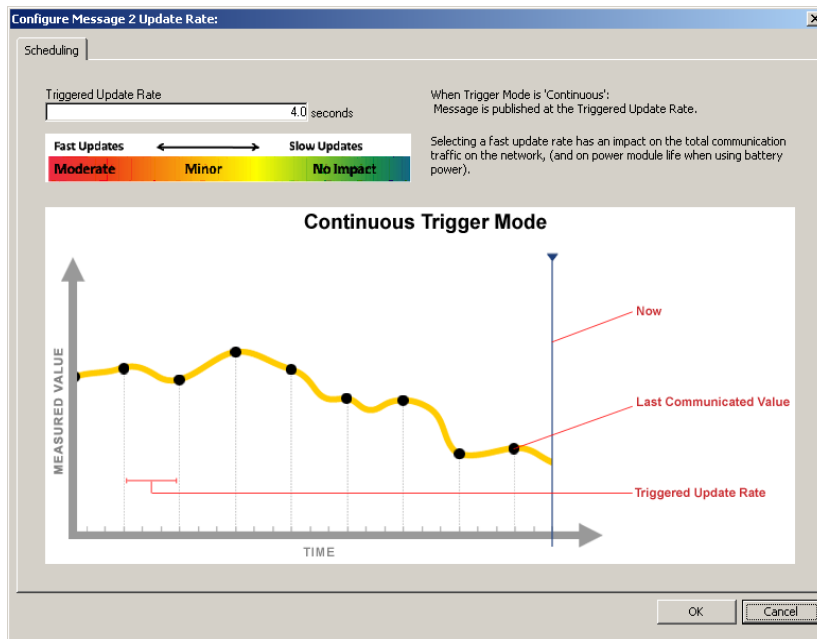
The burst message can be published continuously at a constant rate, or it can be configured for fast publishing when trigger conditions are met, with slower publishing as the default. This is often termed “Report by Exception”. Instead of *Continuous*, choose one of the “triggered” modes: *Windowed*, *Rising*, *Falling*, or *On-Change*.

Trigger Parameters / Scheduling

This menu structure varies based on the *Message Content* and *Trigger Mode* selections.

Update Rates

If you select *Continuous* trigger mode, the only parameter that is adjustable is the *Triggered Update Rate*.



When the selected trigger mode is other than *Continuous*, a *Default Update Rate* is added to the parameters to be configured. The message will be published at the *Default Update Rate* until the trigger condition is met. When the trigger condition has been met, the message will be published at the *Triggered Update Rate* for at least 3 transmissions. Then, if the trigger condition is no longer met, the message will revert to publication at the slower *Default Update Rate*. Note that the legal values of the update rate parameters are somewhat restricted. The longest permitted value is 1 hour (3600 seconds), the shortest usable value may be limited by the Gateway capability and network loading. Values below 60 seconds must be factors of 2: (e.g., 32, 16, 8, 4, 2, or 1).

Sensor Sample Rate and Delayed Triggering

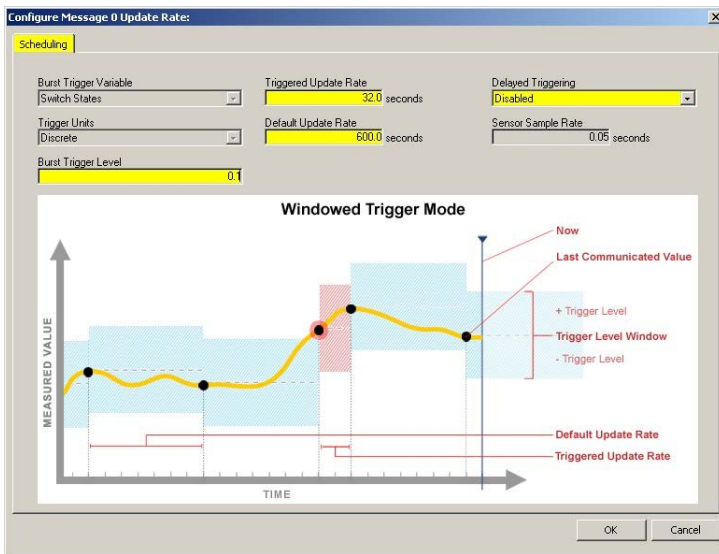
When the trigger mode of any message is other than *Continuous*, the device employs a user-configured *Sensor Sample Rate* for acquiring all of the process-related variables. The value of this variable may be adjusted between 0.5 second and the *Triggered Update Rate* in increments of 0.5 second. (Exception: for External Power devices, the *Sensor Sample Rate* is fixed at the fastest rate possible in the device, since battery life is not a concern.) The edit procedure compares this value against the configured *Triggered Update Rate* of any other enabled burst message whose trigger mode is not *Continuous*, to help prevent setting it slower than the fastest existing rate.

If the *Sensor Sample Rate* is faster than the *Triggered Update Rate*, enabling *Delayed Triggering* allows the device to latch and time-stamp a message as soon as the trigger condition is met, then schedule publishing at the next available *Triggered Update Rate* time slot. This mode is called “Delayed” because the message is published a short time *after* the data was captured. However, it allows capture of a transient event that might have been missed by only checking for changes at the *Triggered Update Rate*.

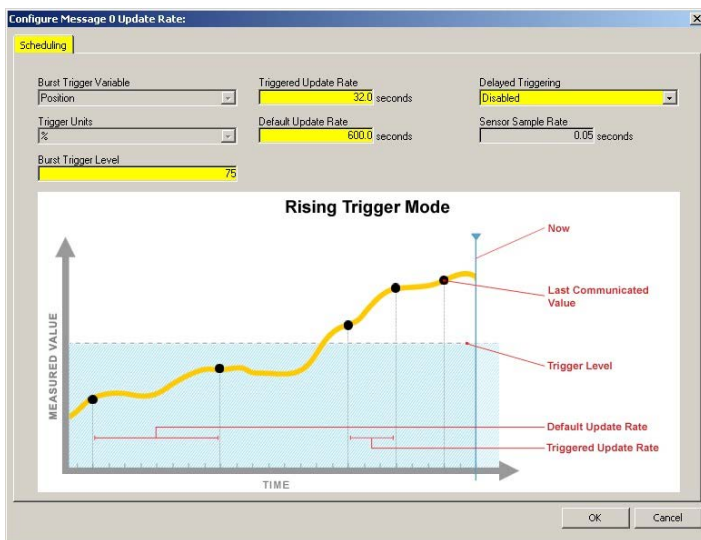
Trigger Level

For *Windowed*, *Rising*, and *Falling* trigger modes, there is also a *Burst Trigger Level* to configure. The procedure now automatically sets *Trigger Class* and *Trigger Units* to the values of the *Burst Trigger Variable's* Class/Units. Accordingly, the class is no longer displayed. The *Burst Trigger Variable* and *Trigger Units* are presented for reference in setting the *Burst Trigger Level*.

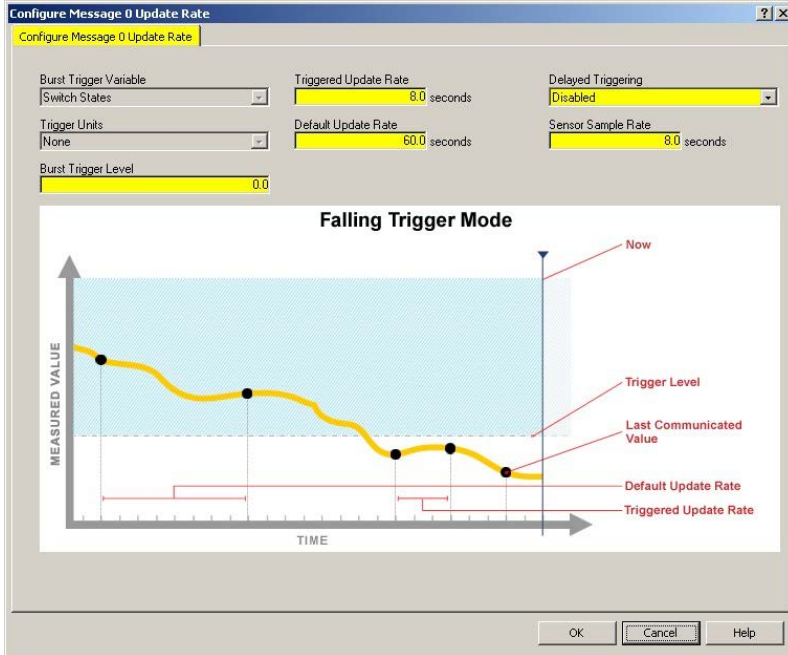
If you select *Windowed* trigger mode, the *Burst Trigger Level* defines a +/- zone around the previous published value of the *Burst Trigger Variable*. This mode is used when steady state operation is expected and increased time-domain resolution is desired only when the process is changing rapidly. Adjust the *Burst Trigger Level* to set how much the *Burst Trigger Variable* must deviate from its previous value to trigger fast publishing.



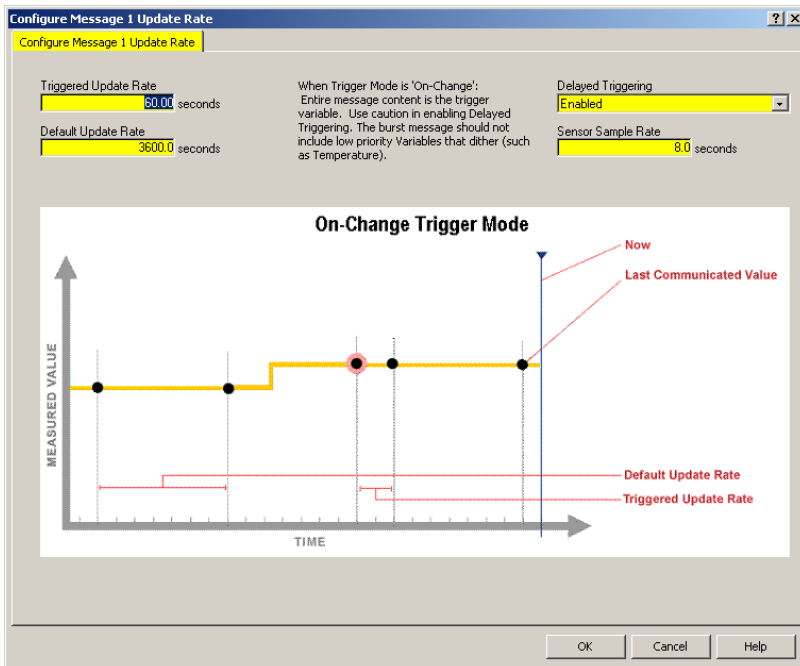
In *Rising* trigger mode, the trigger level defines an upper threshold. This mode is used when process operation below a specified level is of little consequence, but operation above that level needs to be tracked in greater detail. Adjust the *Burst Trigger Level* to define the desired upper threshold that must be exceeded to meet the trigger condition.



In *Falling* trigger mode, the trigger level defines a lower threshold. This mode is used when process operation above a specified level is of little consequence, but operation below that level needs to be tracked in greater detail. Adjust the *Burst Trigger Level* to define the desired lower threshold that must be exceeded to meet the trigger condition.

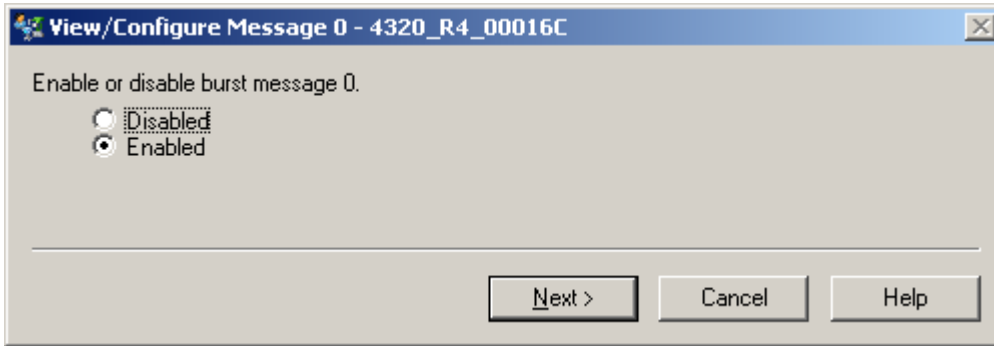


In *On-Change* trigger mode, the entire message is the trigger source, and any deviation from the previous value satisfies the trigger condition. Therefore, the *Burst Trigger Variable*, *Trigger Units* and *Burst Trigger Level* do not appear. This mode is most useful for discrete value message content such as *Additional Device Status* and *Discrete Variables*. It should not be used on messages that contain data that may dither.



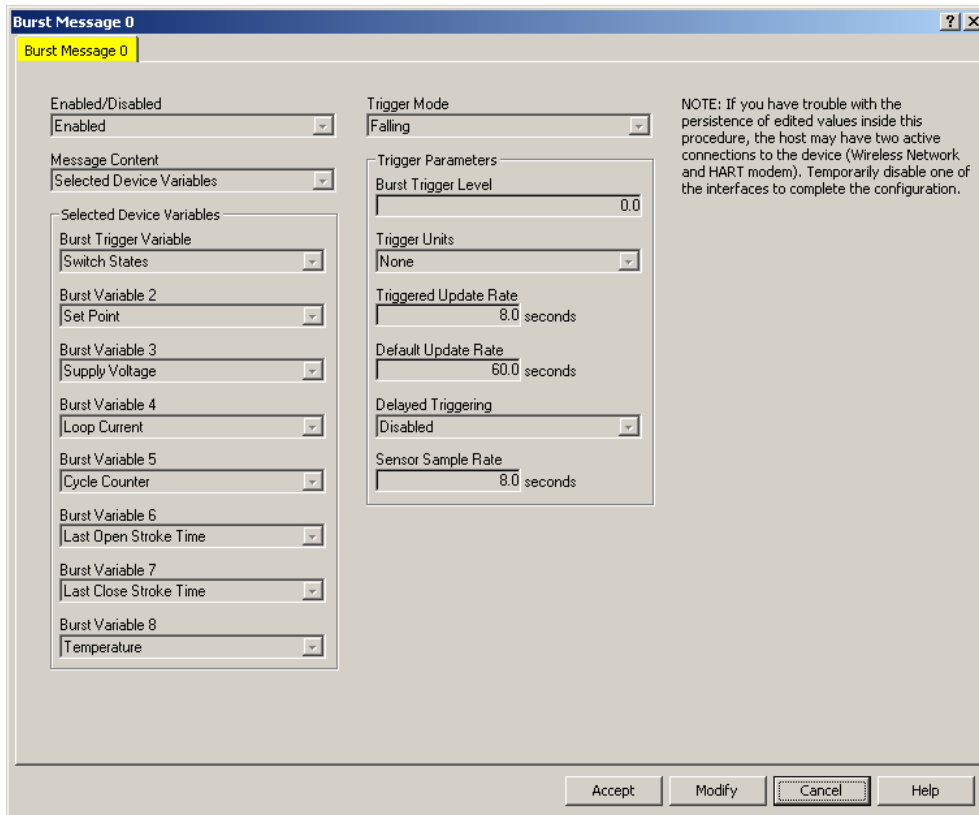
Enabled/Disabled

Select *Enabled* to request network bandwidth allocation for this burst message. Select *Disabled* to terminate publication of this burst message and release bandwidth allocation back to the network.



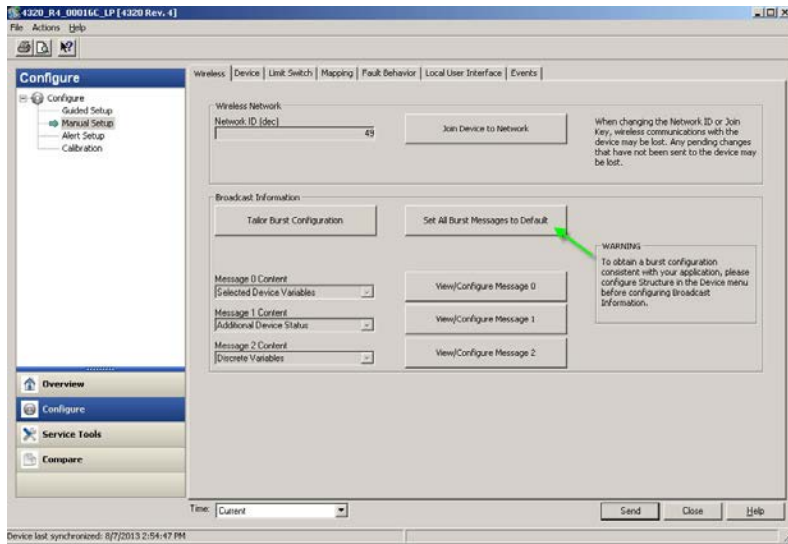
Summary — Accept/Modify

After the editing process is complete, the summary screen of the entire burst configuration with your changes is shown for review. If the configuration meets your approval, click the *Accept* button to send the changes to the device. If you want to make additional changes, click the *Modify* button to loop through the procedure again. If after any pass through the edit loop, you decide that you don't want to make the changes after all, click the *Cancel* button and all pending changes will be discarded.



Set All Burst Messages to Default

For initial configuration, after modifying the device structure, this procedure will establish a reasonable set of burst parameters that will allow normal operation. It can also be useful to recover from any burst configuration experiments that lead to communication problems.



The following tables describe the default settings that result for each structure and the device.

Burst Configuration Details

Message	Basic Content	Trigger Mode	Device Structure	Message Enabled/Disabled	Triggered Update Rate	Default Update Rate	Delayed Triggering
0	Selected Device Variables	Windowed	Controller w/ Snap Disabled	Enabled	8 sec	1 min	Disabled
			Controller w/ Snap Enabled	Enabled	16 sec	1 min	
			Monitor	Enabled	4 sec	1 min	
1	Additional Status	On Change	X ⁽¹⁾	Enabled	1 min	1 hr	Enabled
2	Discrete Variables	On Change	Controller w/ Snap Disabled	Enabled	8 sec	1 min	Disabled
			Controller w/ Snap Enabled	Enabled	1 min	10 min	
			Monitor	Disabled	1 min	10 min	

1. X indicates that the Device Structure does not matter.

Device Structure	Sensor Sample Rate	
	Battery Power	External Power
Controller w/Snap Disabled	8 sec	50 msec
Controller w/ Snap Enabled	1 sec	
Monitor	1 sec	

Note

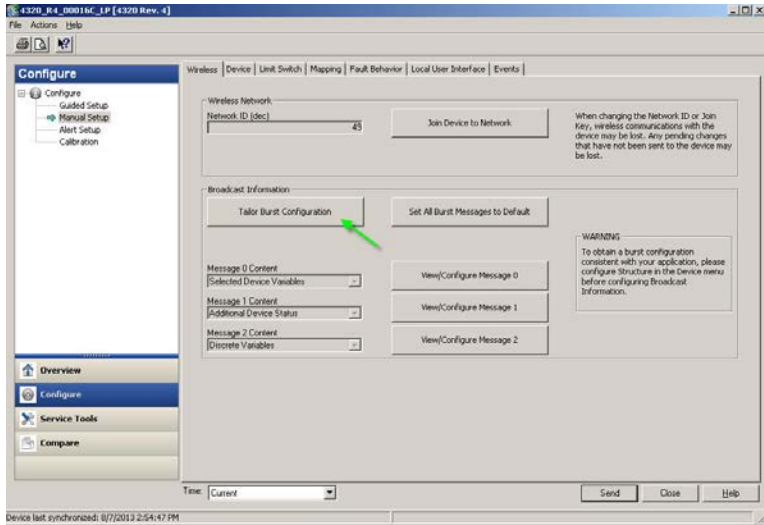
The following table is specific to the 4320. Detailed Default Burst Contents for Selected Device Variables and corresponding Dynamic Variable Assignments for the 4310 are included at the end of this document for reference. See page 27.

**Detailed Default Burst Contents for Selected Device Variables
and corresponding Dynamic Variable Assignments**

Device Structure		Controller w/Snap Disabled	Controller w/Snap Enabled	Monitor
Selected Device Variable Assignments	Trigger	Switch States	Position	Position
	Trigger Level	0.0	5.0%	5.0%
	2	Set Point	Set Point	Switch States
	3	Position	Switch States	Supply Voltage
	4	Supply voltage	Supply voltage	Loop current
	5	Loop current	Loop current	Cycle Counter
	6	Cycle Counter	Cycle Counter	Opened/High Dwell
	7	Last Open Stroke	Temperature	Closed/Low Dwell
8	Last Close Stroke	Time Stamp 0	Time Stamp 0	
Dynamic Variables	PV	Position	Position	Position
	2nd	Set Point	Set Point	Switch States
	3rd	Switch States	Switch States	Cycle Counter
	4th	Supply Voltage	Supply Voltage	Supply Voltage

Tailor Burst Configuration

This procedure will tailor the content and triggering of the 3 burst messages to your device structure and application without requiring you to edit any actual settings. Your responses to a series of questions are used to select one of 14 pre-defined configurations. The cycling and reporting times have the most influence on update and sample rates, and the structure and application have the most influence on the detailed message content.



Tailored Burst Configuration

Message	Basic Content	Trigger Mode	Device Structure/Application		Message Enabled /Disabled	Triggered Update Rate	Default Update Rate	Delayed Triggering
0	Selected Device Variables	Windowed	Controller w/ Snap Disabled	Slow Cycle	Enabled	1 min	10 min	Disabled
				Fast Cycle		8 sec	1 min	
			Controller w/ Snap Enabled	Slow Cycle		1 min	10 min	
				Fast Cycle		16 sec	1 min	
			Monitor	Slow/Slow ⁽¹⁾		1 min	10 min	Enabled
				Slow/Fast ⁽¹⁾		16 sec	10 min	Disabled
				Fast/Fast ⁽¹⁾		4 sec	1 min	Disabled
1	Additional Status	On Change	X ⁽²⁾	X ⁽²⁾	Enabled	1 min	1 hr	Enabled
2	Discrete Variables	On Change	Controller w/ Snap Disabled	Slow Cycle	Enabled	1 min	10 min	Disabled
				Fast Cycle		8 sec	1 min	
			Controller w/ Snap Enabled	X ⁽²⁾		1 min	10 min	
				Monitor		X ⁽²⁾	Disabled	

1. "Slow/Slow" etc. means "Slow Cycle, Slow Report", respectively.
 2. X indicates that the Device Structure/Application does not matter.

Device Structure / Application		Sensor Sample Rate	
		Battery Power	External Power
Controller w/Snap Disabled	Slow Cycle	8 sec	50 msec
	Fast Cycle	1 sec	
Controller w/ Snap Enabled	Slow Cycle	16 sec	
	Fast Cycle	1 sec	
Monitor	Slow Cycle/Slow Report	16 sec	
	Slow Cycle/Fast Report	4 sec	
	Fast Cycle/Fast Report	1 sec	
	Relief Valve	1 sec	

Note

The following table is specific to the 4320. Detailed Tailored Burst Contents for Selected Device Variables and corresponding Dynamic Variable Assignments for the 4310 are included at the end of this document for reference. See page 27.

Detailed Tailored Burst Contents for Selected Device Variables and corresponding Dynamic Variable Assignments

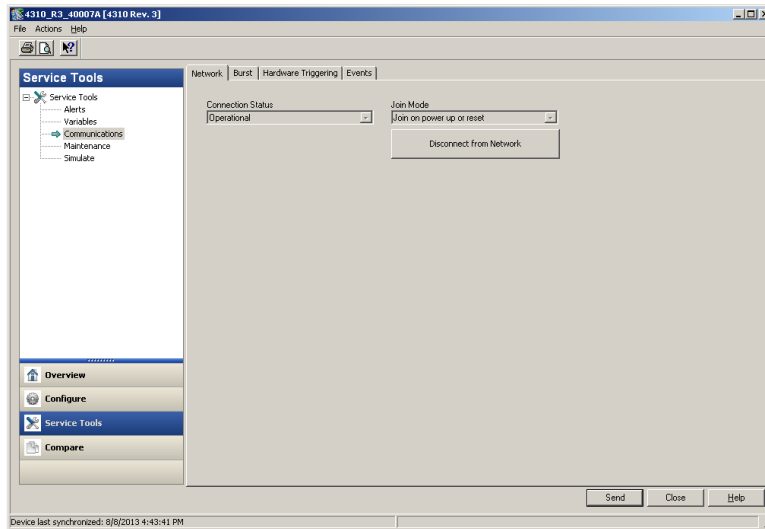
Device Structure		Controller		Monitor			
		Snap Disabled	Snap Enabled	Normally Closed	Relief Valve	General	Normally Opened
Selected Device Variable Assignments	Trigger	Switch States	Position	Closed/Low Limit Tripped	Closed/Low Limit Tripped	Position	Opened/High Limit Tripped
	Trigger Level	0.0	5.0%	0.0	0.0	5.0%	0.0
	2	Set Point	Set Point	Switch States	Switch States	Switch States	Switch States
	3	Position	Switch States	Position	Position	Supply Voltage	Position
	4	Supply voltage	Supply voltage	Supply Voltage	Supply Voltage	Loop current	Supply Voltage
	5	Loop current	Loop current	Loop Current	Loop Current	Cycle Counter	Loop Current
	6	Cycle Counter	Cycle Counter	Cycle Counter	Cycle Counter	Opened/High Dwell	Cycle Counter
	7	Last Open Stroke	Temperature	Opened/High Dwell	Opened/High Dwell	Closed/Low Dwell	Closed/Low Dwell
8	Last Close Stroke	Time Stamp 0	Time Stamp 0	Time Stamp 0	Time Stamp 0	Time Stamp 0	
Dynamic Variables	PV	Position	Position	Position	Position	Position	Position
	2nd	Set Point	Set Point	Switch States	Closed/Low Limit Tripped	Switch States	Switch States
	3rd	Switch States	Switch States	Cycle Counter	Opened/High Dwell	Cycle Counter	Cycle Counter
	4th	Supply Voltage	Supply Voltage	Supply Voltage	Supply Voltage	Supply Voltage	Supply Voltage

Communication Diagnostics

The *Communications* diagnostics menu item in the *Service Tools* menu contains *Network*, *Burst*, *Hardware Triggering*, and *Events* diagnostics.

Network

The Network tab shows the current Connection Status and Join Mode.

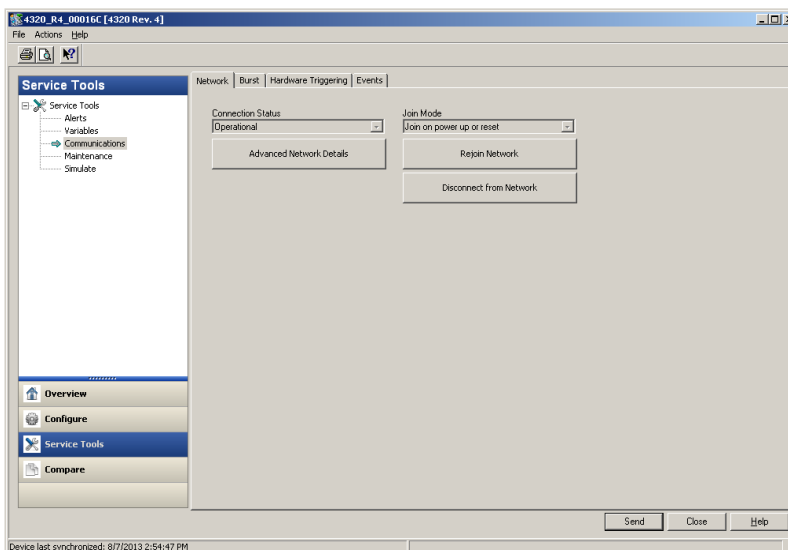


Connection Status echoes the simplified ‘CONN’ status variable that appears in the device Local User Interface. It can take on the following states: Init, Idle, Disconnected, Searching, Connected, and Operational.

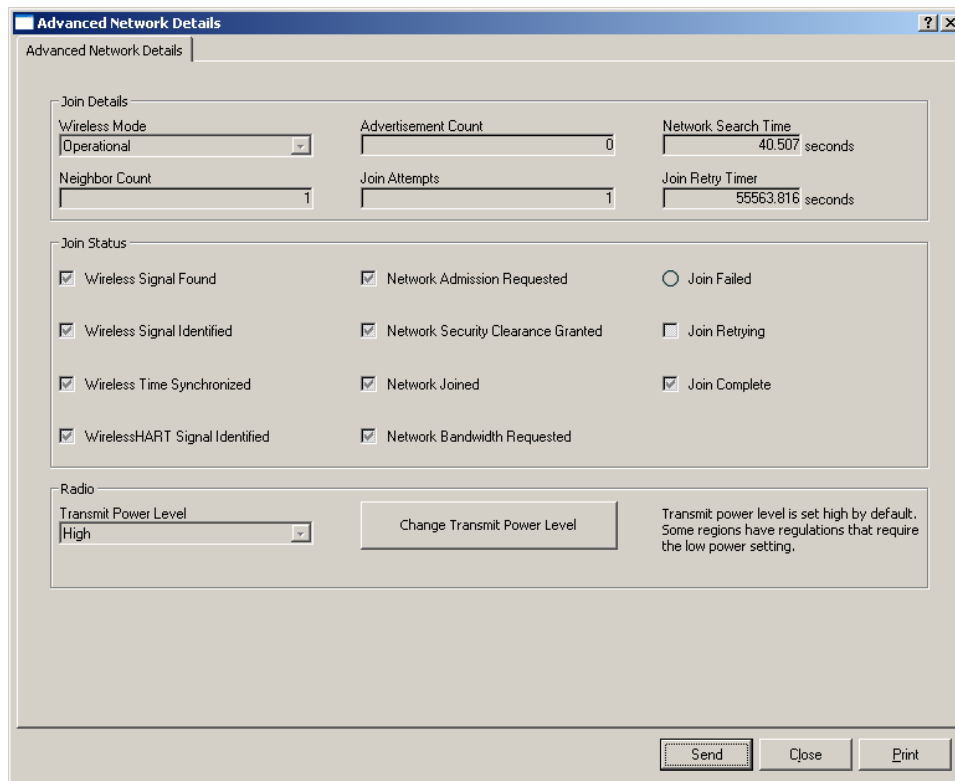
The *Join Mode* reports the condition under which the device will automatically try to join the network whose credentials are stored in its configuration. This parameter is not user-adjustable,

The *Disconnect* procedure allows you to remove the device from the network if you are doing maintenance that would interfere with network operation, or are retiring or re-commissioning the device for some other application.

If you are connected to the device at the Maintenance Port, additional menu items are available. The information in *Advanced Network Details* might be difficult to obtain from the Gateway if you were actually having communications problems, and would add additional network traffic as well. The *Rejoin Network* procedure will only work when you are connected to the device at the Maintenance Port.



Advance Network Details displays technical information useful in troubleshooting communications problems.



The *Join Details* group shows:

Wireless Mode - This is the full state of the wireless connection as defined in the HCF (HART® Communication Foundation) specifications.

- Idle - The device is inactive and has no knowledge of the wireless network. Its wireless transceiver is not active.
- Active Search - The device is listening for network traffic, synchronizing to the network clock, and identifying neighbors.
- Negotiating - The device is presenting its credentials to the network manager and requesting a session key and network key.
- Quarantined - The device has been integrated into the network and has been assigned normal super-frames and links, but does not yet have a Gateway session. It may not forward data packets, only originate or receive them.
- Operational - The device has obtained a Gateway session and is being assigned bandwidth and communication resources.
- Suspended - The device is inactive. All of its network tables are intact.
- Deep Sleep - The device is in an ultra-low power state, scheduled to wake up and re-enter Active Search after a long interval.

Neighbor Count - This indicates the number of neighbors recognized by the instrument on the wireless network.

Advertisement Count - This indicates the number of Advertisement packets received.

Join Attempts - This indicates the number of Join Attempts. (Too many join attempts will result in the device considering the join failed.)

Network Search Time - This indicates the amount of time spent listening for the first advertisement.

Join Retry Timer - This indicates the amount of time since the last join request was sent. It does not freeze after the join is completed, but keeps incrementing.

Note

Some versions of AMS will display this as a negative number if the most significant bit is set, even though it is an unsigned integer. For display, the value has to be rescaled to seconds from its native scaling of 1/32 of a millisecond per bit, and the misinterpretation probably occurs during the scaling process.

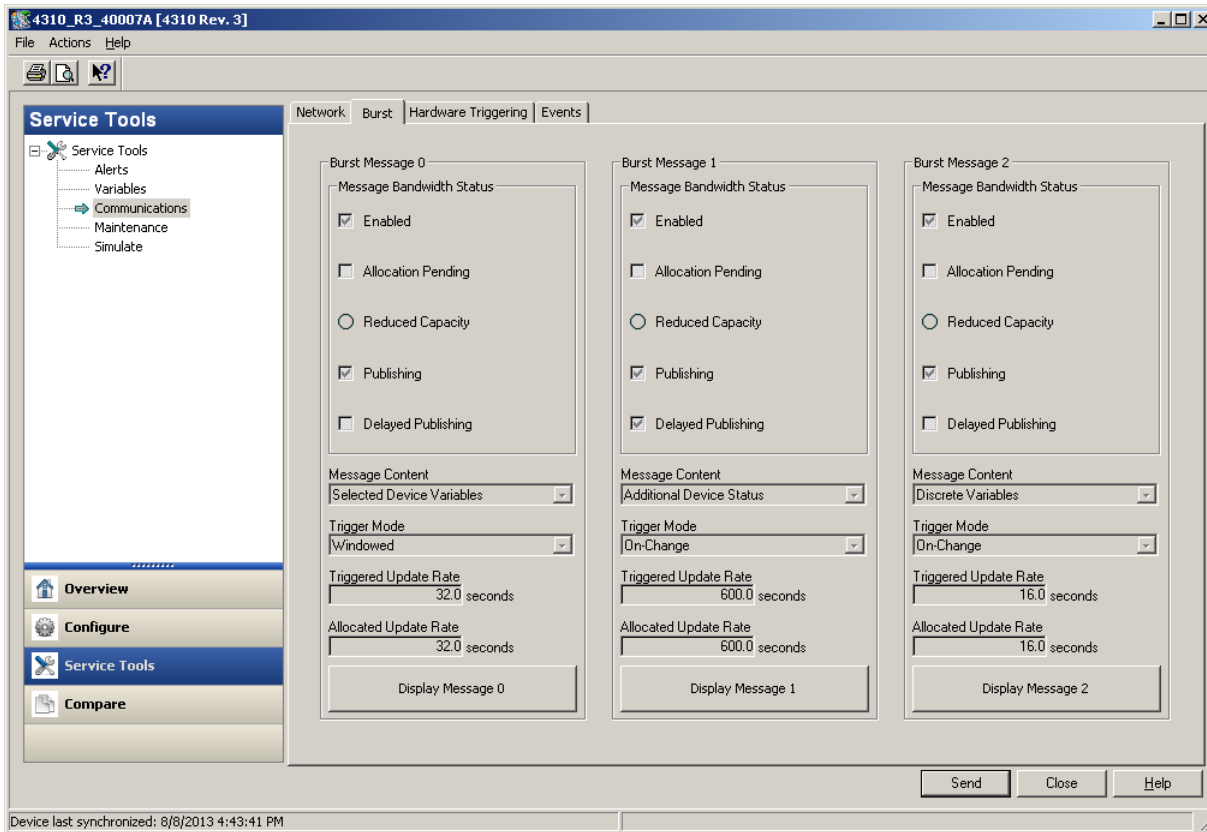
Join Status — This indicates device progress in joining the network.

- Wireless Signal Found - Network packets have been recognized.
- Wireless Signal Identified
- *WirelessHART*® Signal Identified
- Wireless Time Synchronized - Device clock has been aligned with host or gateway.
- Network Admission Requested - A join request has been transmitted.
- Join Retrying - The number of join requests issued is greater than 2. This state will be cleared when the device is authenticated or when 'Active Search' mode restarts on wake up from 'Deep Sleep'.
- Join Failed - The join mode has switched from 'Active Search' to 'Deep Sleep'. The device will wake up later and try again. (Join Failed is a degraded condition and all the other bits in Join Status are positive in nature. The Join Failed bit was accordingly given a 'red-bulb' treatment.)
- *Network Security Clearance Granted* - A Network Manager session has been established.
- *Network Joined* - Negotiating Network Properties. Gateway session obtained.
- *Join Complete* - Device is enrolled in the network and in normal operating mode.

The *Radio* group displays the configured *Transmit Power Level* and provides a procedure for changing it if required.

BURST

The *Burst* tab shows diagnostics for each burst message:

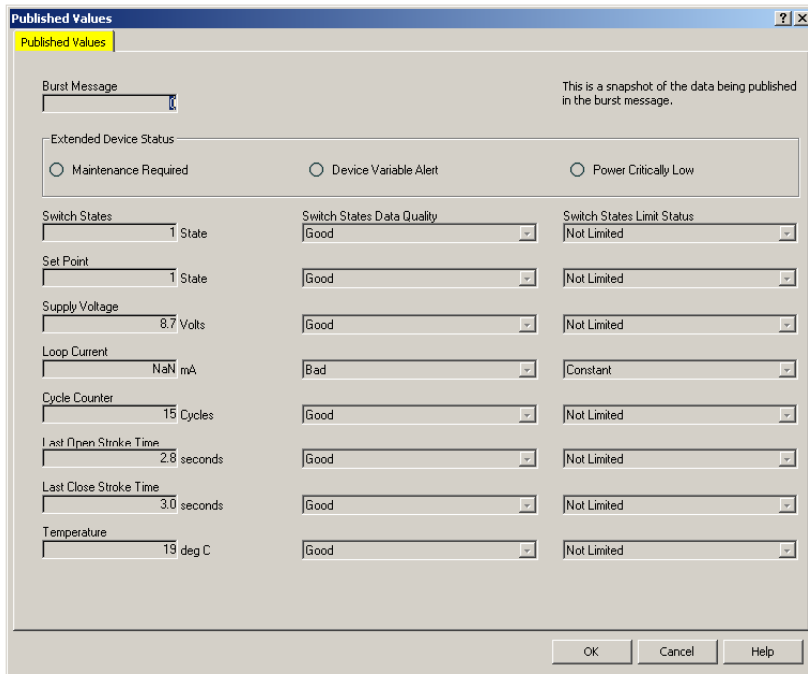


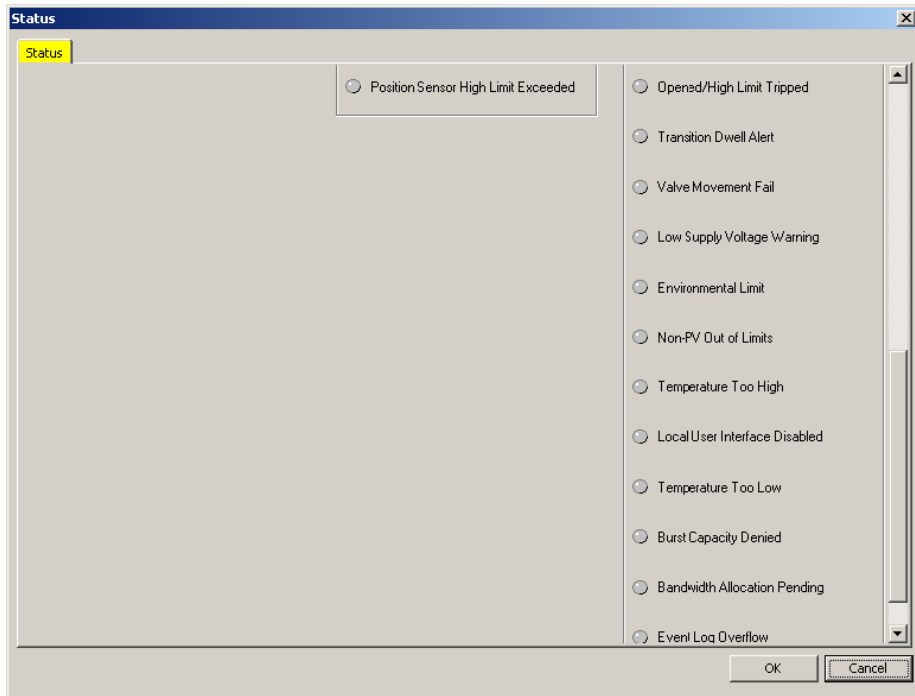
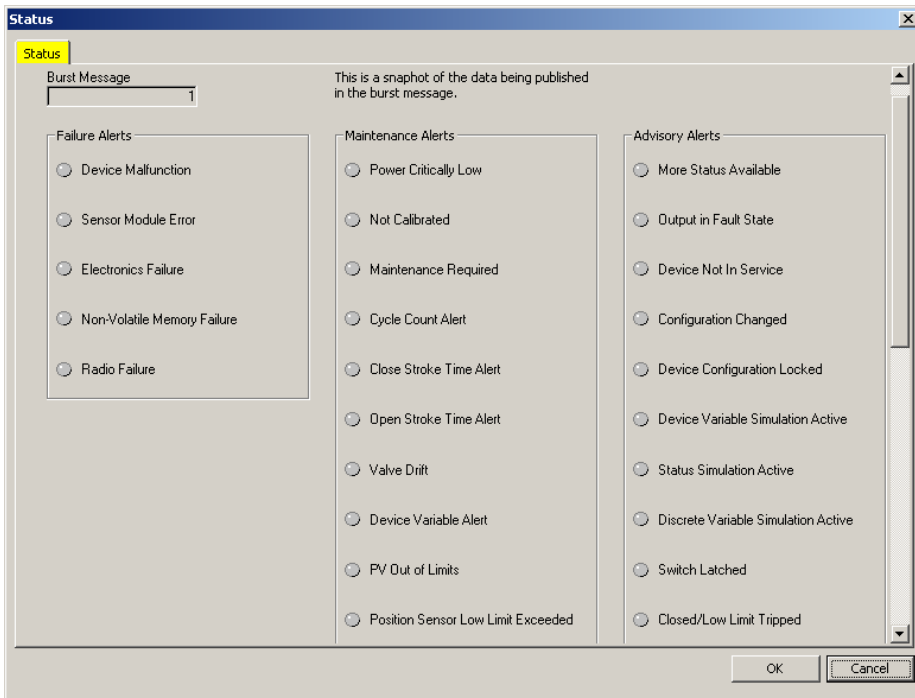
The message Bandwidth Status shows:

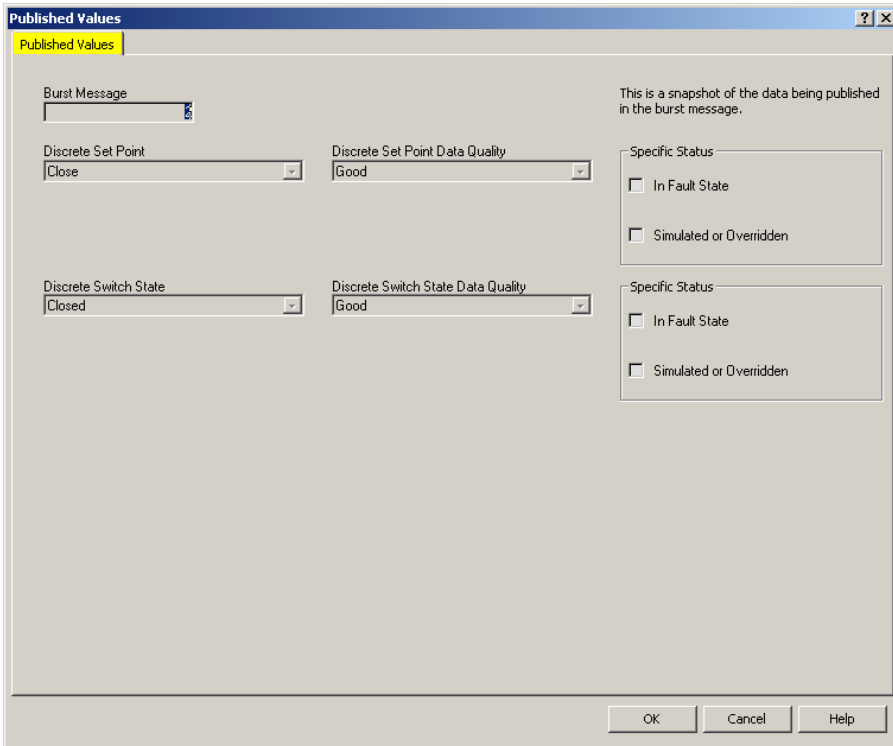
- whether a given message is enabled in the device
- whether it is still waiting for bandwidth allocation from the network for its requested update rate
- whether it has been assigned bandwidth but at a lower rate than requested
- whether it is actively publishing
- whether it is in Delayed Publishing mode (Using Delayed Trigger mechanism)

The configured *Message Content*, *Trigger Mode*, (requested) *Triggered Update Rate* and the *Triggered Update Rate* that has been *allocated* for the device by the network are displayed below the *Bandwidth Status*.

When the message is enabled, a button allows you to view a snapshot of the values that would be published in the message, based on the current device states. This feature was originally developed for checking the behavior of the burst configuration while connected at the maintenance port, since the actual publication of the messages is not supported over that interface. Example snapshots of 3 common burst messages are shown below. Help strings are available for each of the menu items.

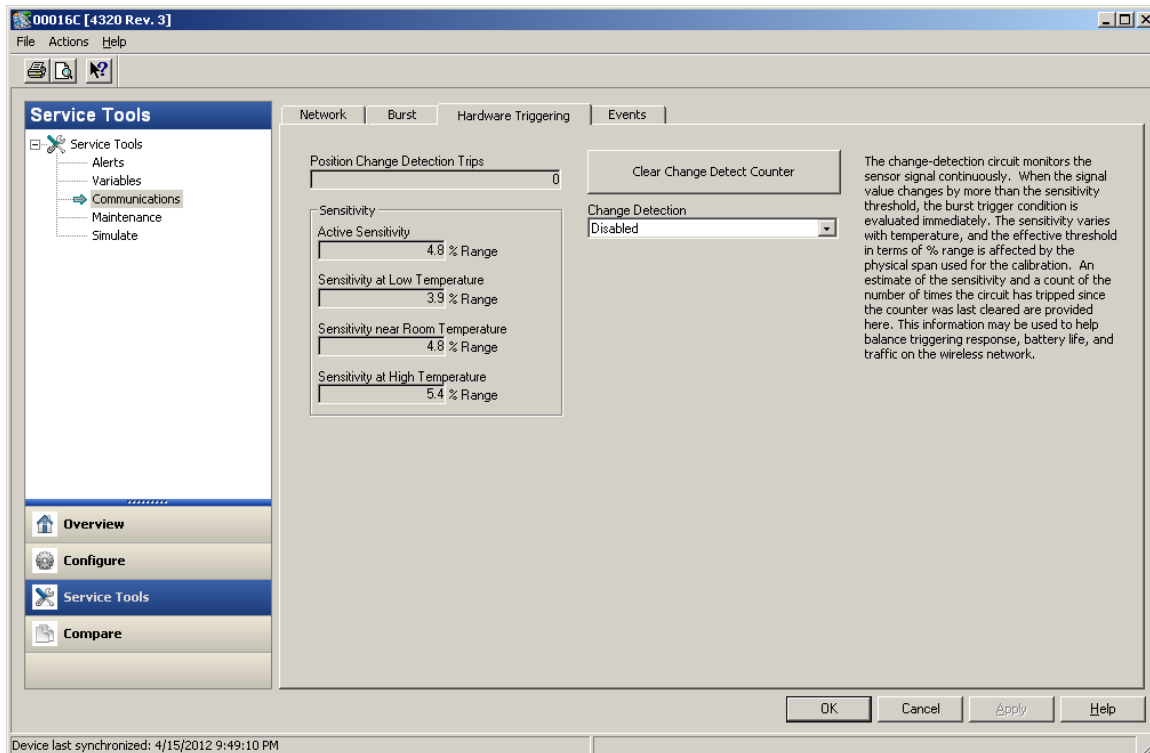






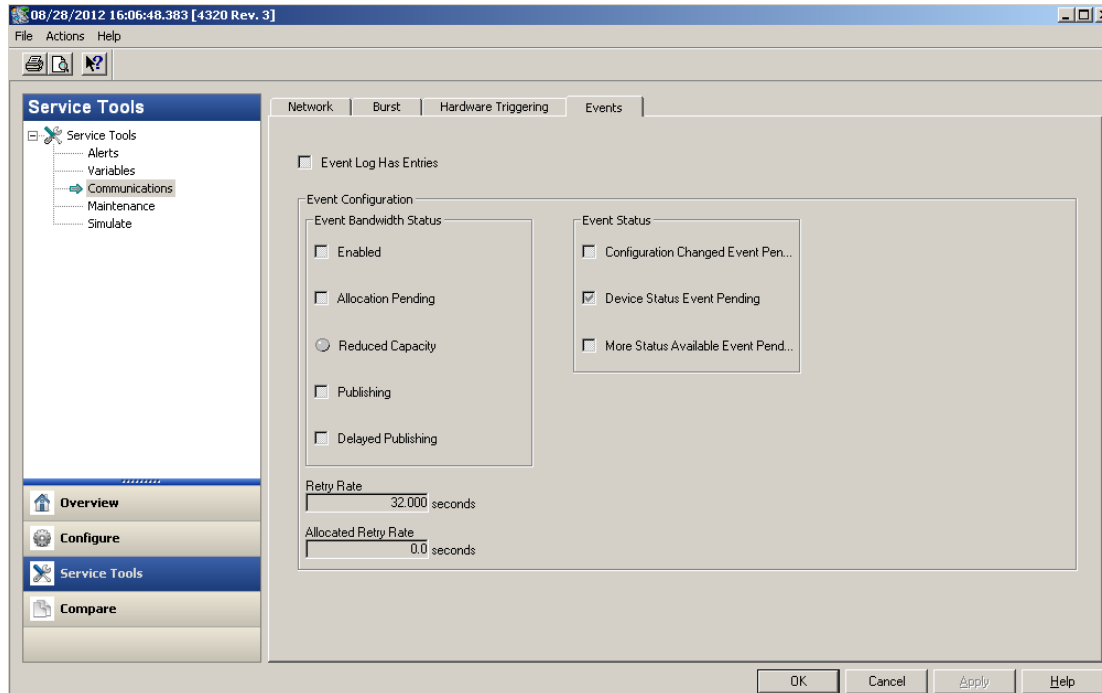
Hardware Triggering

The device has a hardware mechanism that can wake up the processor to evaluate triggering thresholds early if a comparator detects a change in the input sensor signal. This menu displays the Change-Detection thresholds versus temperature, provides a reset procedure for the Change Detect counter, and allows the Change Detection circuit to be enabled or disabled. It is available only in battery-powered devices, since devices with the external power option always sample on a 50 millisecond period, and thus don't need this feature.



Events

Although the Event Notification mechanism may not be enabled from the DD interface a menu has been provided to review the states of the Event Notification system.



This menu displays the state of the event notification system for troubleshooting purposes. A button that lets you read and/or clear the event log appears when the event log has entries.

4310 Specific Settings

Detailed Default Burst Contents for Selected Device Variables and corresponding Dynamic Variable Assignments

Device Structure		Controller w/Snap Disabled	Controller w/Snap Enabled	Monitor
Selected Device Variable Assignments	Trigger	Switch States	Switch States	Switch States
	Trigger Level	0.0	0.0	0.0
	2	Set Point	Set Point	Transition Dwell
	3	Supply voltage	Supply voltage	Supply Voltage
	4	Loop current	Loop current	Loop current
	5	Cycle Counter	Cycle Counter	Cycle Counter
	6	Last Open Stroke	Temperature	Opened/High Dwell
	7	Last Close Stroke	Time Stamp 0	Closed/Low Dwell
Dynamic Variables	8	Temperature	(Not Used)	Time Stamp 0
	PV	Switch States	Switch States	Switch States
	2nd	Set Point	Set Point	Switch States
	3rd	Cycle Counter	Cycle Counter	Cycle Counter
	4th	Supply Voltage	Supply Voltage	Supply Voltage

Detailed Tailored Burst Contents for Selected Device Variables and corresponding Dynamic Variable Assignments

Device Structure		Controller		Monitor			
		Snap Disabled	Snap Enabled	Normally Closed	Relief Valve	General	Normally Opened
Selected Device Variable Assignments	Trigger	Switch States	Switch States	Closed/Low Limit Tripped	Closed/Low Limit Tripped	Switch States	Opened/High Limit Tripped
	Trigger Level	0.0	0.0	0.0	0.0	0.0	0.0
	2	Set Point	Set Point	Switch States	Switch States	Transition Dwell	Switch States
	3	Supply voltage	Supply voltage	Supply voltage	Supply Voltage	Supply Voltage	Supply Voltage
	4	Loop current	Loop current	Loop current	Loop current	Loop current	Loop Current
	5	Cycle Counter	Cycle Counter	Cycle Counter	Cycle Counter	Cycle Counter	Cycle Counter
	6	Last Open Stroke	Temperature	Opened/High Dwell	Opened/High Dwell	Opened/High Dwell	Opened/High Dwell
	7	Last Close Stroke	Time Stamp 0	Closed/Low Dwell	Closed/Low Dwell	Closed/Low Dwell	Closed/Low Dwell
Dynamic Variables	8	Temperature	(Not Used)	Time Stamp 0	Time Stamp 0	Time Stamp 0	Time Stamp 0
	PV	Switch States	Switch States	Switch States	Switch States	Switch States	Switch States
	2nd	Set Point	Set Point	Closed/Low Limit Tripped	Closed/Low Limit Tripped	Switch States	Opened/High Limit Tripped
	3rd	Cycle Counter	Cycle Counter	Cycle Counter	Opened/High Dwell	Cycle Counter	Cycle Counter
	4th	Supply Voltage	Supply Voltage	Supply Voltage	Supply Voltage	Supply Voltage	Supply Voltage

Neither Emerson, Emerson Automation Solutions, nor any of their affiliated entities assumes responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use, and maintenance of any product remains solely with the purchaser and end user.

Fisher, TopWorx, and DeltaV are marks owned by one of the companies in the Emerson Automation Solutions business unit of Emerson Electric Co. Emerson Automation Solutions, Emerson, and the Emerson logo are trademarks and service marks of Emerson Electric Co. HART and *WirelessHART* are registered trademarks of FieldComm Group. All other marks are the property of their respective owners.

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 upon request. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

Emerson Automation Solutions
Marshalltown, Iowa 50158 USA
Sorocaba, 18087 Brazil
Cernay, 68700 France
Dubai, United Arab Emirates
Singapore 128461 Singapore

www.Fisher.com

