

Q330 Application Note

Automatic Mass Recentering

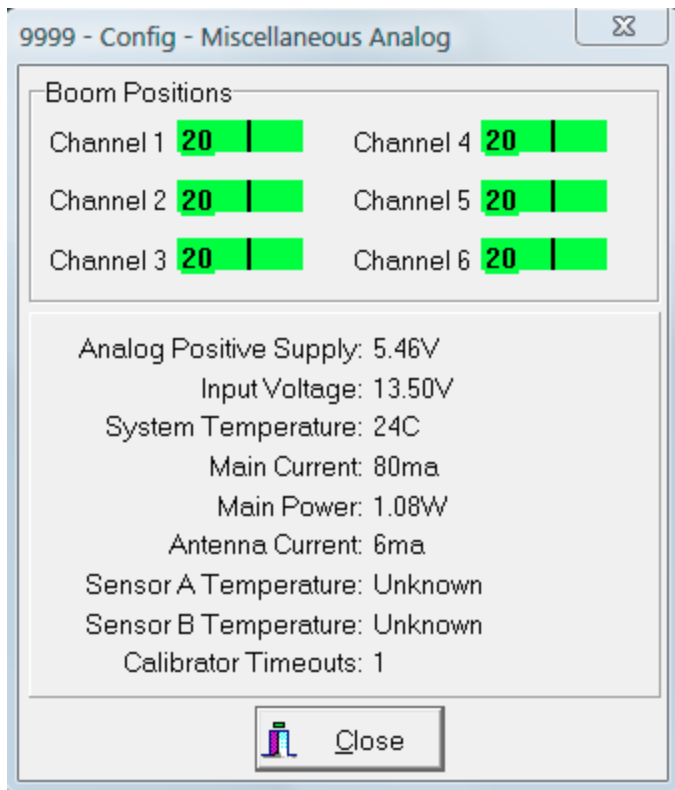
Automatic recentering features are intended for extended autonomous deployments where no operator or telemetry is present for long periods. Attended operations are better suited for human logic. Tolerances are specified in volts for each mass position, a length of time at which a retry of centering will be attempted, but not more often than the maximum. Mass position values are ignored for a squelch interval after each centering attempt.

For mass recentering to work correctly, the sensor control lines need to be programmed (Willard: Configuration | Sensor Control) to generate the centering pulse on the appropriate line for your sensor.

9999 Automatic Mass Recenter

Sensor 1			Sensor 2		
Tolerances			Tolerances		
Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
Off	Off	Off	Off	Off	Off
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Intervals (Minutes)			Intervals (Minutes)		
In Range Reset	Integration Squelch		In Range Reset	Integration Squelch	
1	1		1	1	
<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>	
Maximum Tries	Duration (seconds)		Maximum Tries	Duration (seconds)	
1	0.01		1	0.01	
<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>	
<input type="button" value="Apply"/>			<input type="button" value="Cancel"/>		

Current mass positions can be viewed in Willard's 'Status | Misc. Analog' screen (with open inputs, the positions will float to about 20 counts, as shown in the screen shot below):



The mass center position can also be recorded and warnings can be set, see the VMU, VMV, & VMW streams in Willard's 'Configuration | DP Token Editor'.

The boom position units in the miscellaneous analog screen are in the same counts as the tolerances in the automatic mass recenter screen.

Automatic Mass Recenter Field Definitions:

- Tolerances
 - range: off, 1 to 127 counts, default is off
 - each count is ~100 mV; if the tolerance is set to 5, mass recentering will start when the reported voltage is more than 500 mV off from the center
 - if the mass position does not stay within the set tolerance, mass recentering will start
 - if the mass position stays within the set tolerance, the channel will not be recentered
 - if off, the channel will not be recentered
- Duration (seconds)
 - range: 0.01 to 10.0 seconds, default is 0.01 seconds
 - the length of pulse necessary to initiate a mass recenter for the model of sensor connected (remember to correctly program the sensor control lines)
- Integration Squelch
 - range: 1 to 60 minutes, default is 1 minute
 - the time to allow a sensor channel to stabilize after a mass recenter
- In Range Reset
 - range: 1 to 240 minutes, default is 1 minute
 - after the mass recentering completes and the squelch time expires: if the mass position stays within its tolerances for the set number of 'In Range Reset' minutes, the auto-recenter is considered successful - it then begins looking for an off-center condition again
- Maximum Tries
 - range: 1 to 100 tries, default is 1 try
 - the maximum number of times to try to correct an out of tolerance condition