Signal Animator
DEBOUNCE CONFIGURATION

What Is Debounce?

When inputs are driven by a switch contact or an occupancy detector, the transition from one state to the other is not a simple off-to-on change even though it may look like it is. Due to electrical noise, it can be dozens or hundreds of off-on-off transitions called "bounce" and must be cleaned up through a process called debouncing. An effective method of debouncing is to not immediately react to a change of input until it can be determined that the change is stable.

Each of the inputs of the SGA inputs are read every 32 ms. When an input changes state, the SGA does not consider the new state to be stable until the new state is read for a number of consecutive reads. The number of reads required to determine stability is user configurable in steps of four scans from a minimum of four reads, to a maximum of 32.

When more reads are required, stability increases, but this introduces a greater delay for a state change to take effect. With the minimum of four reads, the best-case delay for a state change is 128 ms, or about an eighth of a second. If configured for the maximum of 32 reads, the best-case delay is 1024 ms, or just over a second. Best case times only apply when there is no bounce to the input. When an input bounces back to the original state and returns to the new state, the count must start over again. This extends the delay time.

When the SGA has its inputs driven by logic circuits, the minimum debounce timing is usually sufficient, as the driving logic usually incorporates its own debouncing. When driven directly by an occupancy detector, as is done in ABS mode, a longer debounce timing may be needed. One benefit of the debounce delay is that it does a reasonable job of replicating the delay that occurs with prototype signalling systems.

Configuring Debounce Timing

To adjust the SGA's debounce time, follow this procedure:

1. Shut off or disconnect power to the SGA.
2. Remove the jumper from JP1, noting which end it was installed and place it on JP2.
3. Disconnect inputs from the SGA, and place a jumper on the Y2 input along with jumpers on the EM, ES, and ER inputs to select the timing value to configure. See the table to the right, placing a jumper where the table shows "J".
4. Power up or reconnect power to the SGA.
5. With the power on, remove the jumper from JP2.
6. You may now return the jumper on JP2 to its previous location on JP1, remove the jumper on Y2, EM, ES and ER and reconnect the normal inputs, and the SGA will operate with the debounce timing chosen. It will continue to operate with this timing each time it is powered up.

Reads	EM	ES	ER
4			
8	J		
12		J	
16	J	J	
20			J
24	J		J
28		J	J
32	J	J	J

This document is available in PDF format on our website.