	System 1	System 2	System 3	System 4
Advantages	• Simplicity • Analytical solutions	• Intermediate simplicity • Rapid feedback for reduced oscillations and improved homeostasis	• Oscillator generates population heterogeneity. • Oscillator behavior and its ability to maintain homeostasis is well insulated from parameter values of other modules. • Improves homeostasis when intercellular signaling is slow.	• Throttle generates population heterogeneity. • Improves homeostasis when toggle switching times are slow. • Works well for various intercellular signaling rates. • Better overall performance relative to System 3 with intermediate molecular noise levels.
Disadvantages	• Poor population heterogeneity • Undesired oscillations in β-cell population levels due to delayed feedback	• Poor population heterogeneity • Highly dependent on reaction rates: requires rapid toggle switching and intercellular signaling.	• Reduced performance relative to System 4 with slow toggle switching and intercellular signaling. • Requires significant molecular noise to operate well relative to System 4.	• Requires a third intercellular signal. • Optimal performance requires parameter fine-tuning to match other modules.