

**Figure S1. Timing diagram of 8-bit counter circuit.** The device was filmed during operation, and the recording was analyzed afterwards by image processing. Light reflection off of each valve changes as the valve opens and closes, allowing valve state to be extracted. Different time scales are plotted in order to show the activity of the fast low-order bits as well as the slow high-order bits.

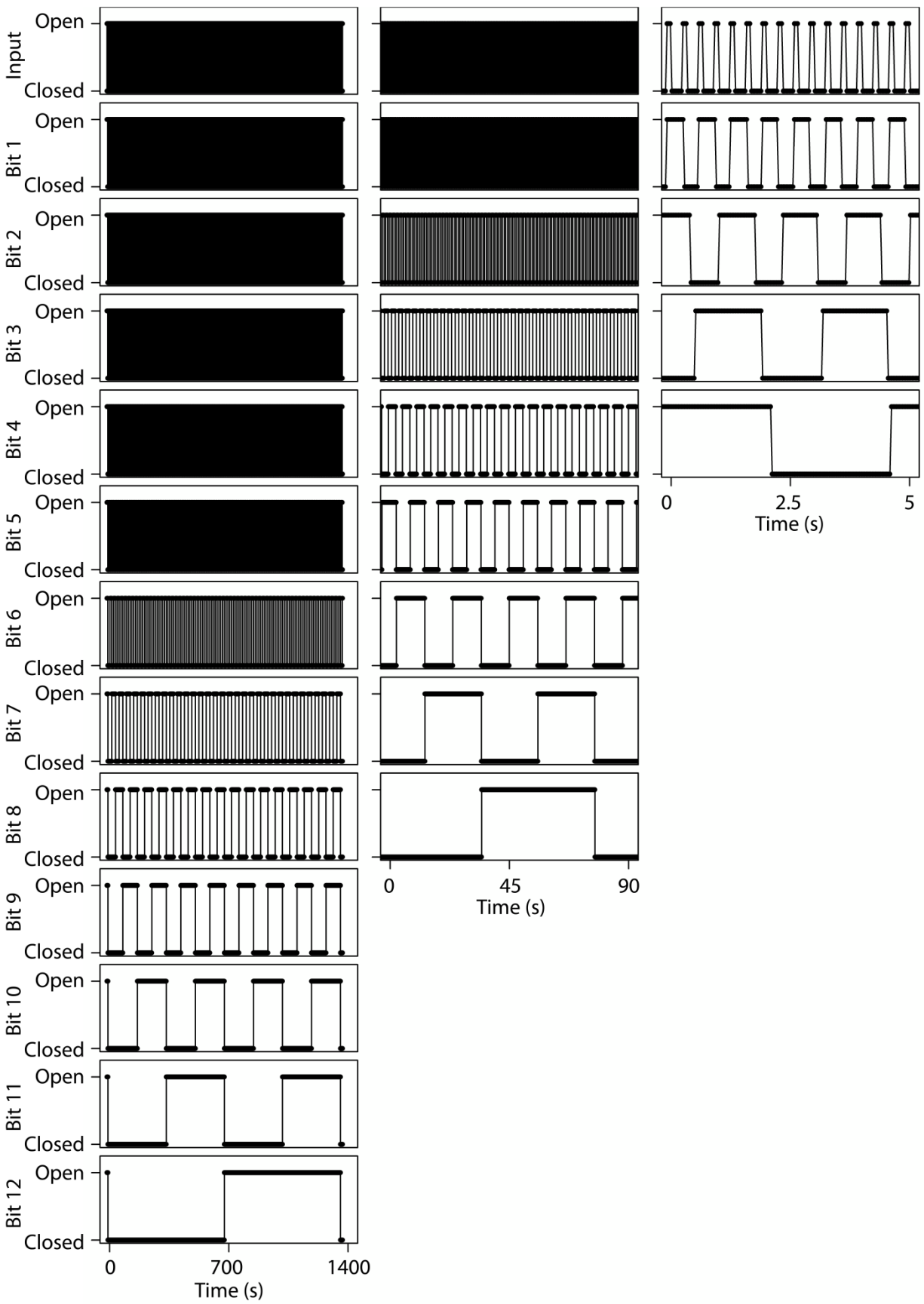


Figure S2. Timing diagram of 12-bit counter circuit.