

# Frequency addressable microactuators

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## ABSTRACT

Frequency addressable micro-actuators having one or more movable resonating elements actuators, such as cantilevers, can be forced into oscillation by, e.g., electromagnetic actuation. The movable structure is designed to latch at a certain amplitude using one of several latching techniques, such as a near-field magnetic field. In operation, the movable element is driven into resonance, producing a large amplitude, which results in the structure latching. Through resonance, a small force applied in a repeating manner can result in the latching of the actuator, an operation which would normally require a large force. If two or more units, each with different harmonic frequencies, are placed under the same influence, only the one with a harmonic response to the driving force will latch. A single influencing signal may be used to latch more than one device on demand by tuning the frequency to match the natural frequency of the device of interest.