

ACT

Adaptive Control Technology

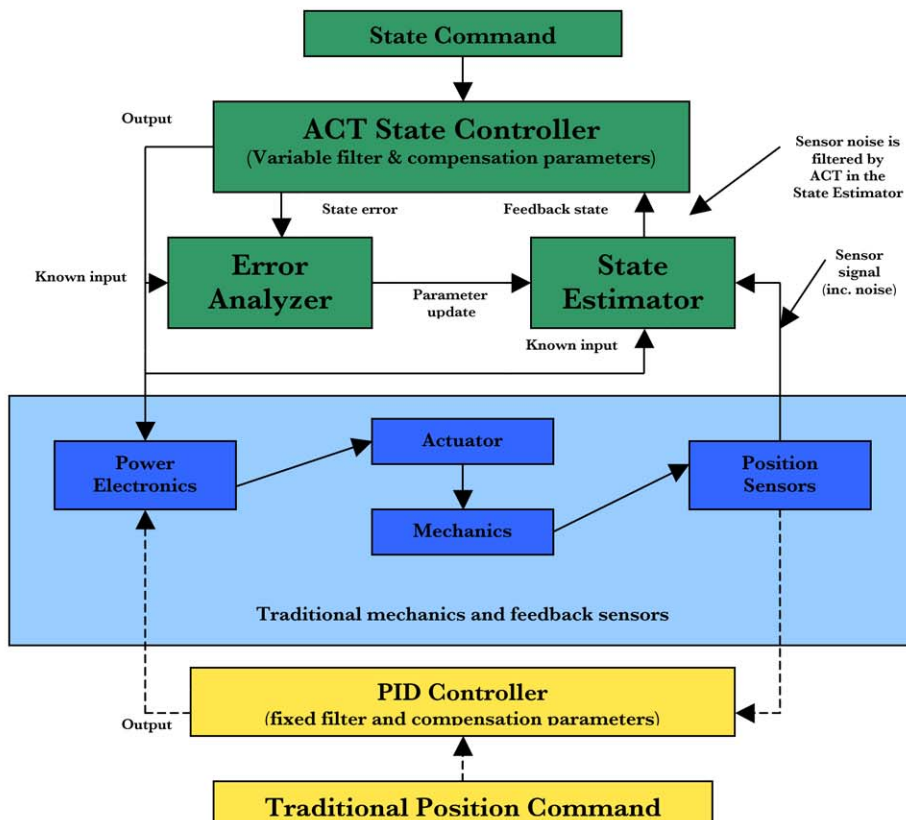


ADAPTIVE CONTROL TECHNOLOGY

What is ACT and How Does It Work?

ACT is based on the latest developments in control system theory, generally referred to as "State Control". ACT is an adaptive controller that uses feedback of various states to continually fine tune system modules and adjust various control parameters. ACT also utilizes active cancellation technology, similar in concept to noise canceling headsets, to counteract repetitive disturbing energies and resulting errors.

The concept of "state" is central to understanding ACT. In machine controls, the state of the system consists of a vector, or interrelated group of signals. The most obvious states include position and velocity. There are additional states that influence control performance such as acceleration, a disturbance state (to capture the effect of disturbing forces acting on the system) and system state models that relate to motor dynamics and structural modes within an axis.



Benefits of ACT:

Reductions in form error and improved surface finishes (even at higher processing speeds) over traditional PID controls.

ACT automatically optimizes the control system for changes in inertia and geometry of fixtures and work pieces.

Repetitive errors are actively cancelled and reduced to levels below the noise floor of the system.

ACT is inherently insensitive to system noise and able to maintain the same level of control accuracy over widely varying processing conditions (ex. ramping spindle RPM).

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