

ABSTRACT OF THE DISCLOSURE

Briefly, a preferred embodiment of the present invention includes an apparatus for tuning a regulator in a process controller. The digitized output from a standard relay and a parasitic relay are fed through digital to analog converter providing signals at $.5\omega_c$, ω_c and $1.5\omega_c$ to the process, where ω_c is the process critical frequency. The apparatus records the digitized relay output u' and the digitized process output y' until stationary oscillations are reached. The outputs u' and y' are then used to calculate the process frequency response at $.5\omega_c$, ω_c and $1.5\omega_c$. This data is then used to design the regulator, the output of which is converted to analog form and inputted to control the process.

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