

The Three PID Terms

Mechanical Engineering

What each term does for you, and what each one costs you.

Most industrial loops need P and I only.

What each term does

P acts on present error and sets speed

I acts on past error and removes offset

D acts on the trend and adds damping

PI is the commonest industrial choice

What each term costs

P alone leaves a steady-state offset

I adds phase lag and can wind up

D amplifies measurement noise

Take D on measurement to avoid kick

Add derivative action only when the process is slow and the measurement is genuinely clean.