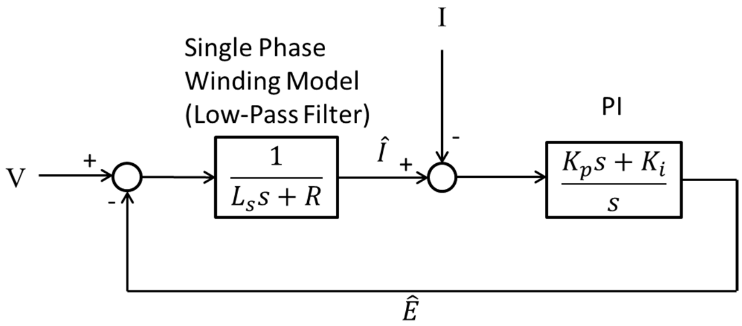

Using $(Closed\ Loop) = \frac{(Direct)}{1 - (Loop)}$ and superposition:

$$\hat{E} = \frac{V\left(\frac{1}{L_s s + R}\right)\left(\frac{K_p s + K_i}{s}\right) - I\left(\frac{K_p s + K_i}{s}\right)}{1 + \left(\frac{1}{L_s s + R}\right)\left(\frac{K_p s + K_i}{s}\right)}$$

Multiplying top and bottom by $L_s s + R$:

$$\hat{E} = \frac{V\left(\frac{K_p s + K_i}{s}\right) - I(L_s s + R)\left(\frac{K_p s + K_i}{s}\right)}{L_s s + R + \left(\frac{K_p s + K_i}{s}\right)}$$

Factoring out $\frac{K_p s + K_i}{s}$:

$$\hat{E} = [V - I(L_s s + R)]\frac{\left(\frac{K_p s + K_i}{s}\right)}{L_s s + R + \left(\frac{K_p s + K_i}{s}\right)}$$

Clean up:

$$\hat{E} = [V - IR - IL_s s]\frac{K_p s + K_i}{L_s s^2 + (R + K_p)s + K_i}$$

Integrate both sides:

$$\frac{1}{s}\hat{E} = \frac{1}{s}[V - IR - IL_s s]\frac{K_p s + K_i}{L_s s^2 + (R + K_p)s + K_i}$$

$$\hat{\lambda} = \underbrace{\left(\frac{1}{s}[V - IR] - IL_s\right)}_{\text{What I currently use on my controller.}}\underbrace{\left(\frac{K_p s + K_i}{L_s s^2 + (R + K_p)s + K_i}\right)}_{\text{Additional 2DLPF.}}$$

What I currently use on my controller.

Additional 2DLPF.