

Modulus optimum method

Controlled system $F_O(s)$	Controller $G_K(s)$	Settings
$\frac{K_S}{\prod_{v=1}^n (1+T_v s)}$ <p>1 big (dominant) time constant</p> $T_1 \gg T_\Sigma = \sum_{v=2}^n T_v$	<p>PI</p> $K_R \frac{1+T_R s}{s}$	$K_R = \frac{1}{2K_S T_\Sigma}$ $T_R = T_1 \text{ (compensation of dominant time constant)}$
$\frac{K_S}{\prod_{v=1}^n (1+T_v s)}$ <p>2 big (dominant) time constants</p> $T_1, T_2 \gg T_\Sigma = \sum_{v=3}^n T_v$	<p>PI</p> $K_R \frac{1+T_R s}{s}$	$K_R = \frac{1}{2K_S} \cdot \frac{T_1^2 + T_1 T_2 + T_2^2}{(T_1 + T_2) T_1 T_2}$ $T_R = \frac{(T_1^2 + T_2^2)(T_1 + T_2)}{T_1^2 + T_1 T_2 + T_2^2}$
$\frac{K_S}{\prod_{v=1}^n (1+T_v s)}$ <p>2 big (dominant) time constants</p> $T_1, T_2 \gg T_\Sigma = \sum_{v=3}^n T_v$	<p>PID</p> $K_R \frac{(1+T_{R1} s)(1+T_{R2} s)}{s}$	$K_R = \frac{1}{2K_S T_\Sigma}$ $T_{R1} = T_1$ $T_{R2} = T_2 \text{ (compensation of dominant time constants)}$

More info can be found e.g. here:

http://www.eal.ei.tum.de/lehre/bdgea/Regelungsskript_eng.pdf