

Typ	Differential- gleichung	Frequenzgang $G(j\omega)$	Schrittantwort $u(t) = \varepsilon(t)$	Nyquistdiagramm (Ortskurve)	Bodediagramm (dB $\hat{=}$ $20 \cdot \log_{10}$)
PID	$y(t) = K_R [u(t) + \frac{1}{T_N} \int_0^t u(\tau) d\tau + T_V \dot{u}(t)]$	<div>Additive Form:</div> $K_R \left(1 + \frac{1}{j\omega T_N} + j\omega T_V \right)$ <div>Multiplikative Form:</div> $\tilde{K}_R \frac{(1 + j\omega \tilde{T}_N)(1 + j\omega \tilde{T}_V)}{j\omega \tilde{T}_N}$	<div>Parameter zu additiver Form</div>	<div>Parameter zu additiver Form</div>	<div>Parameter zu multiplikativer Form</div>
PIDT ₁	<p>Kann aus dem Frequenzgang bestimmt werden:</p> <p>mit</p> $K_R = \tilde{K}_R \left(1 + \frac{\tilde{T}_V}{\tilde{T}_N} \right)$ $T_N = \tilde{T}_N + \tilde{T}_V$ $T_V = \frac{\tilde{T}_N \tilde{T}_V}{\tilde{T}_N + \tilde{T}_V}$	<div>Additive Form:</div> $K_R \left(1 + \frac{1}{j\omega T_N} + \frac{j\omega T_V}{1 + j\omega T_C} \right)$ <div>Multiplikative Form:</div> $\tilde{K}_R \frac{(1 + j\omega \tilde{T}_N)(1 + j\omega [T_C + \tilde{T}_V])}{j\omega \tilde{T}_N (1 + j\omega T_C)}$	<div>Parameter zu additiver Form</div>	<div>Parameter zu additiver Form</div>	<div>Parameter zu multiplikativer Form</div>