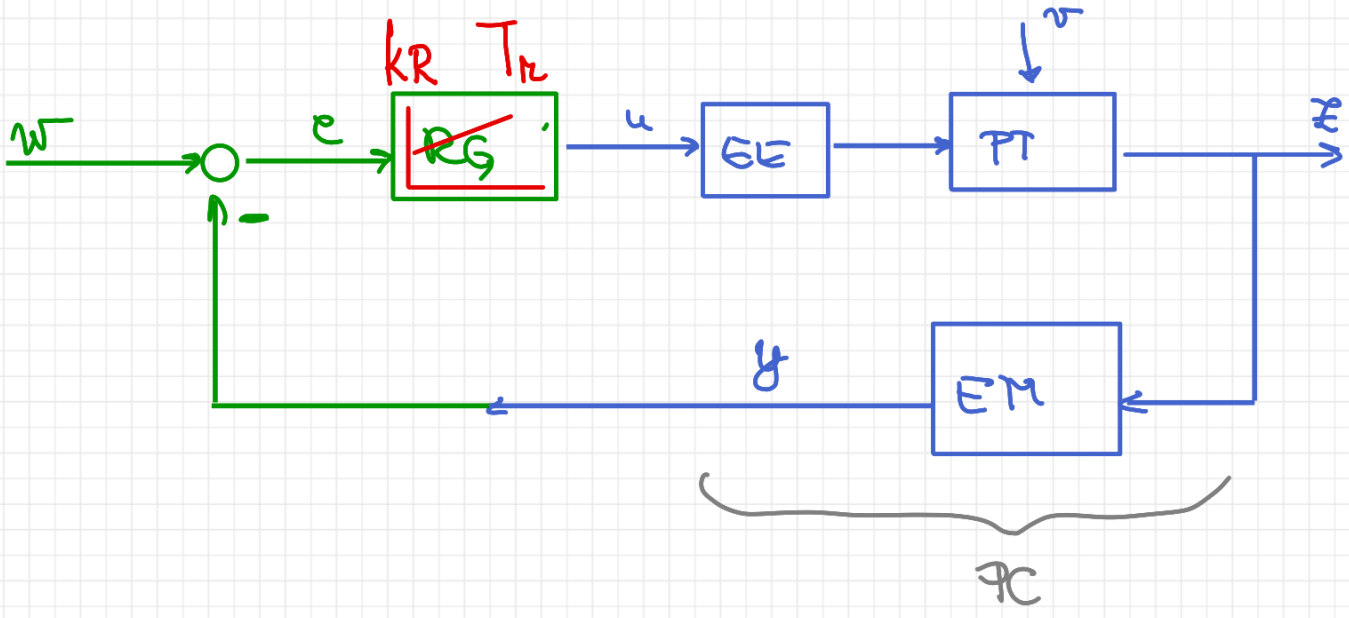
$$H_{PC}(S) = \frac{0.5}{0.7S^2 + 0.3S + 1} = \frac{k_{PC}}{(1+ST_1)(1+ST_2)} \quad (PT2)$$

$$T_1 > T_2$$

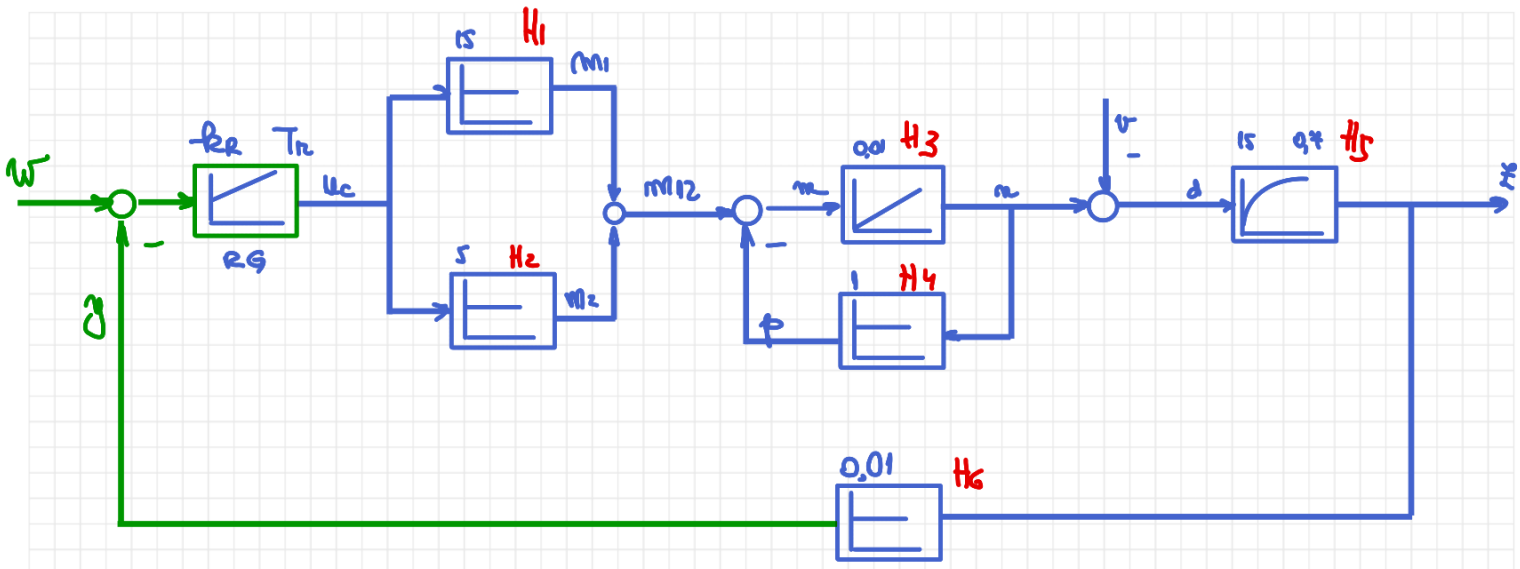
Criteriul modulului

$$RG\text{-}PI : H_{RG}(S) = \frac{k_R}{S}(1+ST_R)$$

$$k_R = \frac{1}{2k_{PC} \cdot T_2} \quad ; T_R = T_1$$



$$k_R = k_R \cdot T_R \Rightarrow \boxed{H_{RG}(S) = \frac{k_R}{S \cdot T_R}(1+ST_R)}$$



$H_1 = 15$ | $H_3 = \frac{1}{100S}$ | $H_5 = \frac{15}{1+S\cdot 0{,}7}$

$H_2 = 5$ | $H_4 = 1$ | $H_6 = 0{,}01$

$H_1, H_2 \rightarrow$ paralel $\Rightarrow H_{12} = H_1 + H_2 = 20.$

$H_3, H_4 \rightarrow$ reacție $\rightarrow H_{34} = \frac{H_3}{1+H_3H_4} = \frac{\frac{1}{100S}}{1+\frac{1}{100S}\cdot 1} = \frac{1}{100S+1}$

$H_{12}, H_{34}, H_5, H_6 \rightarrow$ serie $\Rightarrow H_{y4} = H_{12}\cdot H_{34}\cdot H_5\cdot H_6 =$

$$= 20\cdot\frac{1}{100S+1}\cdot\frac{15}{0{,}7S+1}\cdot 0{,}01 =$$

$$= \frac{3}{(100S+1)(0{,}7\cdot S+1)} \Rightarrow \begin{matrix} k_{pc} = 3 \\ T_1 = 100 \\ T_2 = 0{,}7 \end{matrix}$$

$$\Rightarrow H_{RG}(S) = \frac{k_R}{S\cdot T_r}(1+S\cdot T_r) =$$

$$\Rightarrow k_R = k_r\cdot T_r = \frac{1}{2\,k_{pc}\cdot T_2}\cdot T_r = \frac{1}{2\cdot 3\cdot 0{,}7}\cdot 100 = \frac{100}{4{,}2} = \frac{1000}{21}$$

$$\Rightarrow H_{RG}(S) = \frac{\frac{100}{4{,}2}}{S\cdot 100}(1+S\cdot 100) = \frac{1+100S}{4{,}2\,S}$$

V.R.S.C. → valori de regim staționar constant

- P, PT1, PDT1

$y_\infty = K \cdot u_\infty$ (K de pe bloc)

u_∞ = const

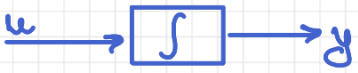
y_∞ = const

- D, PD, DT1

u_∞ = const.

$y_\infty = (u_\infty)' = 0.$

- I, PI, PID



y_∞ = const.

$u_\infty = (y_\infty)' = 0.$

⇒ avem $i_\infty = 0$, out = ct.

STATISMUL NATURAL:

$$\gamma_n = \frac{y_\infty}{v_\infty}\Big|_{w_\infty = 0} = \frac{k_N}{1+k_0}$$, sau $$\gamma_n = \frac{u_\infty}{v_\infty}\Big|_{w_\infty = 0} = \frac{k_N}{1+k_0}$$

- la regulatoare de tip I, PI, PID : $e_\infty = 0$ și $\gamma_n = 0$. (fără statism, ASTATIC)
- la regulatoare de tip P, PT1, PDT1 : $e_\infty \neq 0$ și $\gamma_n \neq 0$ (cu statism)