

:

1) - ;

2) ;

3) ;

4) -

,

,

-

.

,

-

-

.

,

-

,

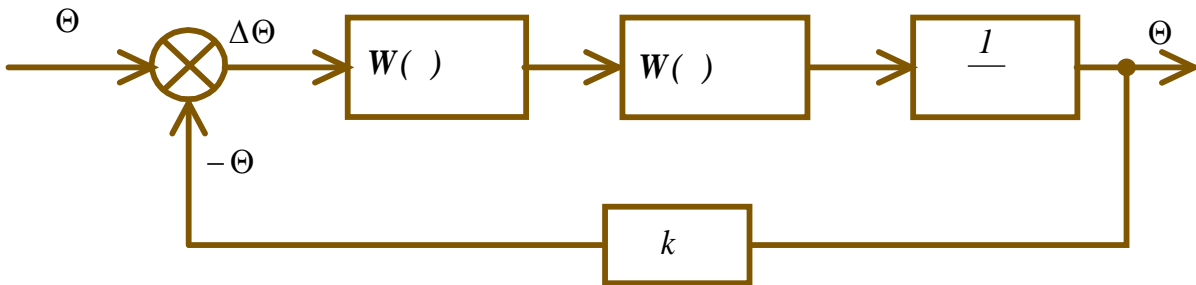
.

-

-

,

.



$$\therefore k_{\omega} = \frac{\omega_{\max}}{\Delta\Theta_{\max}}, 1/$$

$$\therefore k_{\varepsilon} = \frac{\varepsilon_{\max}}{\Delta\Theta_{\max}}, 1/{}^2,$$

$\Delta\Theta_{\max}$  -

$\Delta\Theta.$

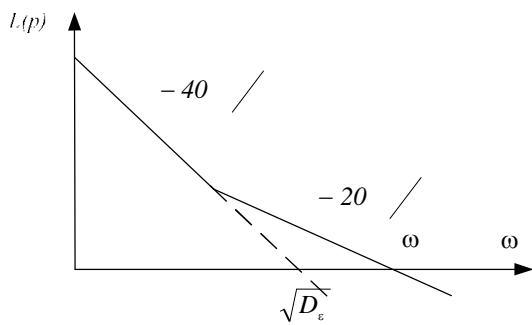
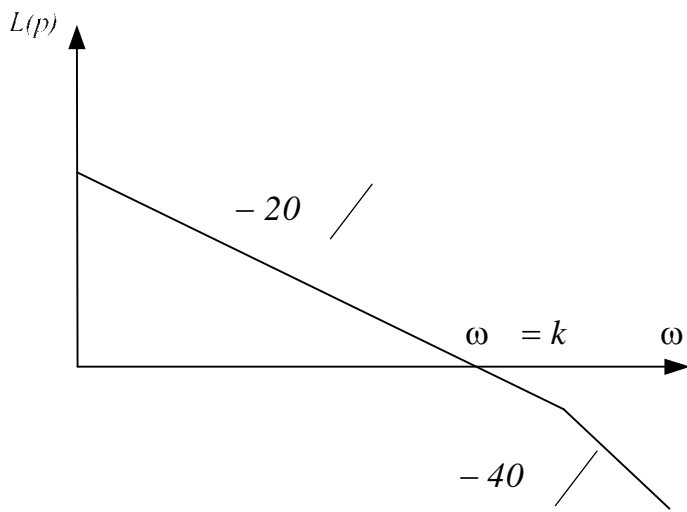
$\Delta\Theta=1.$

:

$$k_{\omega} \leq \frac{1}{a \cdot \mu} = \frac{1}{a \cdot \dots \cdot \mu}$$

$$\mu = 0,0064$$

$$k_{\omega} = 19,53$$



$$: \Delta\Theta = \frac{\omega}{k} = \frac{\omega}{k \cdot \beta},$$

$$k = \frac{1}{\mu} -$$

$$k, \beta.$$

$$: \Delta\Theta = \frac{\omega}{k} = \frac{\omega}{\frac{1}{\cdot a_{\omega} \cdot a_i \cdot T_{\mu}}} = \frac{\omega}{\frac{1}{2 \cdot 2 \cdot 2 \cdot 0,01}} = \frac{\omega}{12,5},$$

$$: \Delta\Theta = \frac{\omega}{k \cdot \beta} = \frac{\omega}{12,5 \cdot \frac{\beta}{4 \cdot \mu}}.$$

$$\Delta\Theta_{\omega} = 0.$$

$$k = \frac{1}{\mu} = \frac{1}{16 \cdot T_{\mu} \cdot 8 \cdot T_{\mu}} = \frac{1}{128 \cdot 0,01^2} = 78,125.$$

$$: \Delta\Theta = \frac{\varepsilon}{k} = \frac{\varepsilon}{78,125},$$

$$: \Delta\Theta = \frac{\varepsilon}{k \cdot \beta} = \frac{\varepsilon}{78,125 \cdot \frac{\beta}{4 \cdot \mu}}.$$

$$k = \frac{1}{32 \cdot T_{\mu} \cdot 2 \cdot T_{\mu}} = \frac{1}{64 \cdot 0,01^2} = 156.$$

$$: \delta = \Delta \Theta = \Theta - \Theta ,$$

$$\Theta - , ; \Theta -$$

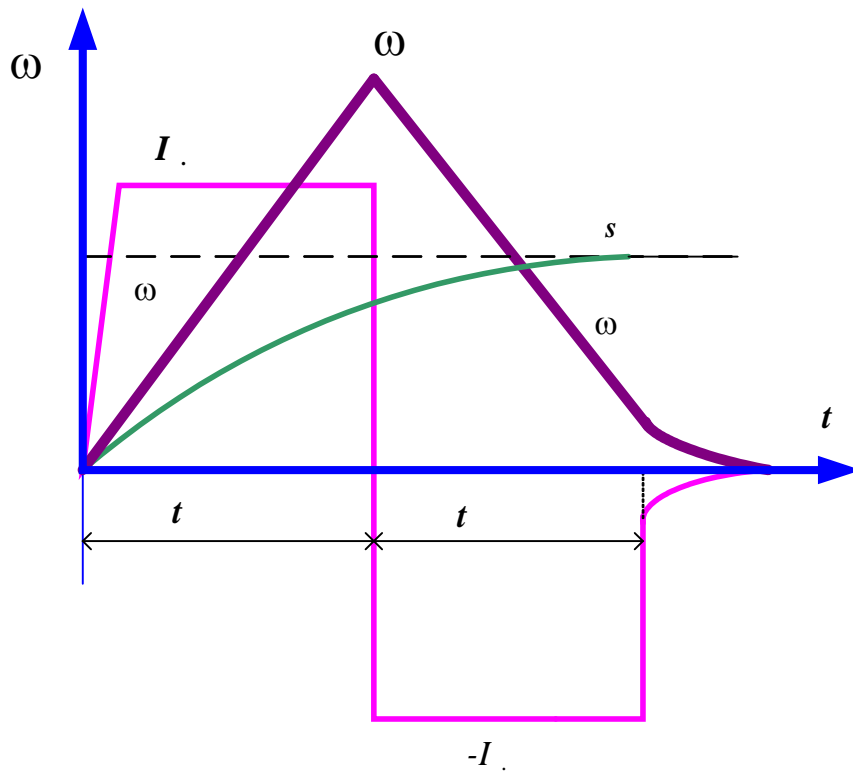
$$: \Delta \Theta = \Delta \Theta + \Delta \Theta + \Delta \Theta ,$$

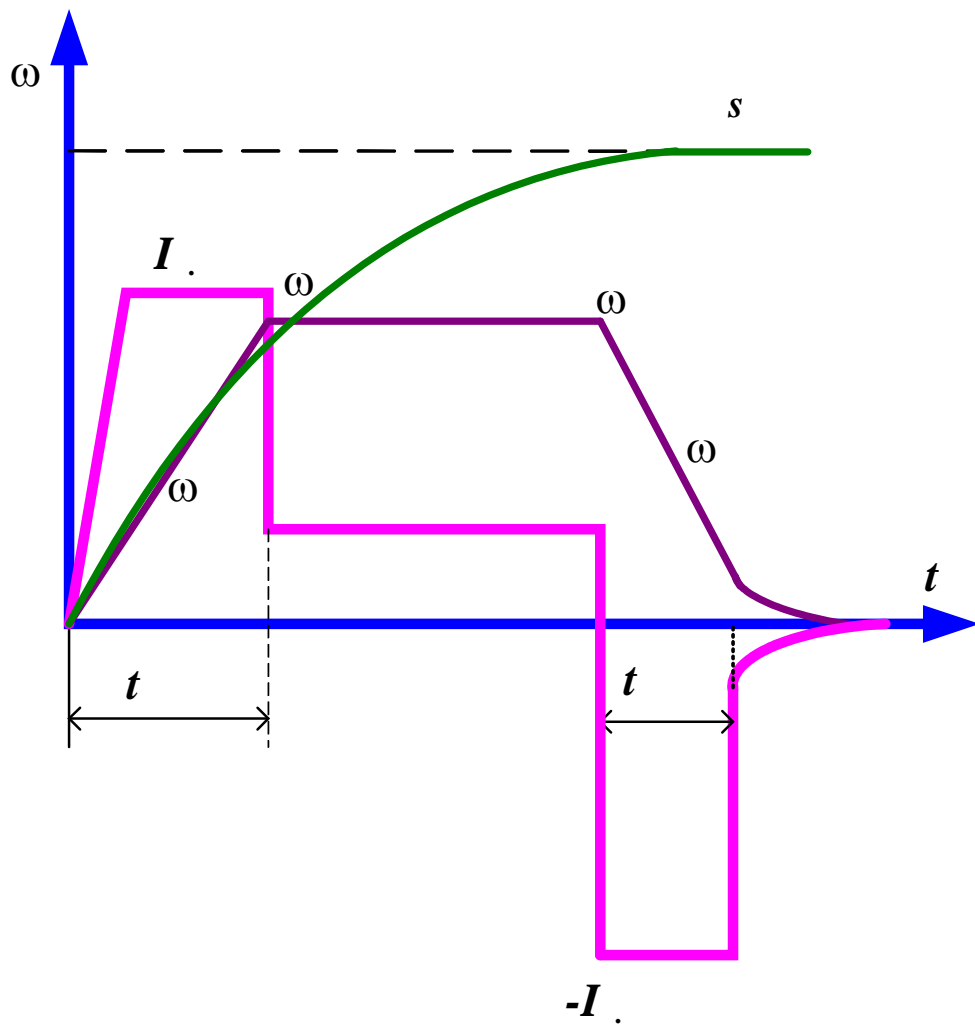
$$\Delta \Theta - ;$$

( ,  $U_c$ ,  $f_c$ ).

$$\Delta \Theta - \Delta \Theta \Delta \Theta .$$

$$=4 \div 6.$$





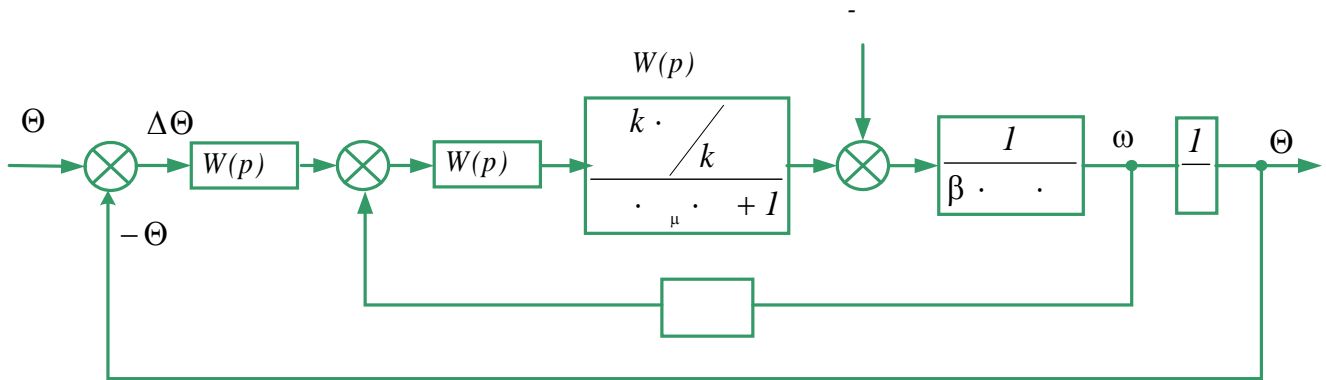
$\omega$  ,

$s$

$\omega$

$\omega$

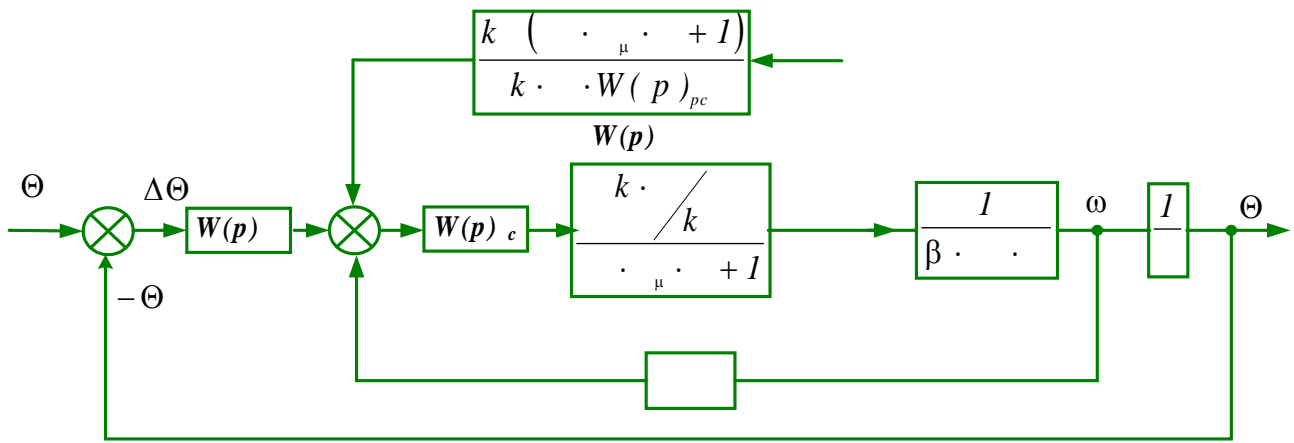




$$\therefore \frac{1}{J} \cdot \frac{\beta}{\beta} = \frac{1}{\beta}$$

$$W_{\Theta \rightarrow \Theta}(p) = W(p) \cdot \frac{1/k}{(s^\mu + 1) + 1} \cdot \frac{1}{s}$$

$$W_{\Theta \rightarrow \Theta}(p) = \frac{1/k}{(s^\mu + 1) + 1} \tag{1}$$



$k = 1:$

$$W_{-M_c \rightarrow \Theta}(p) = \frac{\Theta(p)}{-M_c(p)} = \frac{k \cdot (s^\mu + 1)}{k \cdot W(p)_{pc}} \cdot W_{U \rightarrow \omega}(p) \cdot \frac{1}{\beta \cdot s},$$

$$W_{-M_c \rightarrow \Theta}(p) = \frac{k \cdot (s^\mu + 1)}{k \cdot W(p)_{pc}} \cdot \frac{1/k}{s^\mu \cdot (s^\mu + 1) + 1} \cdot \frac{1}{\beta \cdot s} \quad (2)$$

$$\Delta\Theta(p) = \frac{\Theta(p) + M_c(p) \cdot W_{-M_c \rightarrow \Theta}(p)}{1 + W_{\Theta \rightarrow \Theta}(p)} \quad (3)$$

(1) (2) (3):

$$\Delta\Theta(p) = \frac{\Theta(p) + M_c(p) \cdot \frac{k \cdot (s^\mu + 1)}{k \cdot W(p)_{pc}} \cdot \frac{1/k}{s^\mu \cdot (s^\mu + 1) + 1} \cdot \frac{1}{\beta \cdot s}}{1 + \frac{1/k}{s^\mu \cdot (s^\mu + 1) + 1}}$$

$$W(p)_{pc} = \frac{s^\mu \cdot k}{s^\mu \cdot k_{oc} \cdot R} = k_{pc}^{-1}$$

$$=0: \Delta\Theta = \frac{M_c \cdot k}{k \cdot k_{pc}}$$

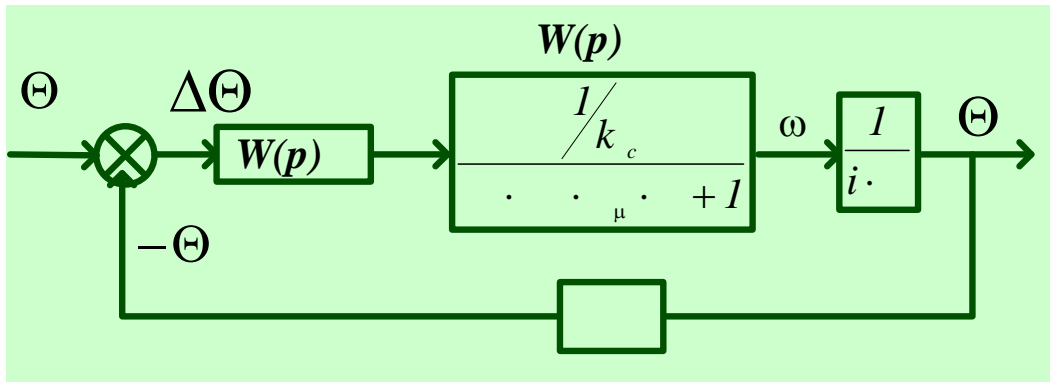
$k \neq 1$

$$\Delta\Theta = \frac{M_c \cdot k}{k \cdot k_{pc} \cdot k_p}$$

$$: \Delta\Theta = \frac{\omega}{k} = \frac{\omega}{1/a_\omega \cdot a_i \cdot T_\mu},$$

$$: \Delta\Theta = \frac{1}{k \cdot \beta}$$

$, a_\omega, a_i$



$$W(p)_{op} = \frac{1/k_c}{\dots \mu \dots + 1} \cdot \frac{1}{i \cdot p} = \frac{1/k_c}{4 \cdot \mu \dots + 1} \cdot \frac{1}{i \cdot p}$$

$$: W(p)_{co} = \frac{1/k_o \cdot (4 \cdot T_\mu \cdot p + 1)}{T_\mu^2 \cdot p^2 (T_\mu \cdot p + 1)}$$

:

$$\mu = \dots \mu = 2 \cdot 2 \cdot \mu = 4 \cdot \mu$$

$$: W(p)_{co} = \frac{1/k_o \cdot (4 \cdot 4 \cdot T_\mu \cdot p + 1)}{8 \cdot 16 \cdot T_\mu^2 \cdot p^2 (4 \cdot T_\mu \cdot p + 1)} = \frac{1/k_o \cdot (16 \cdot T_\mu \cdot p + 1)}{128 \cdot T_\mu^2 \cdot p^2 (4 \cdot T_\mu \cdot p + 1)}$$

:

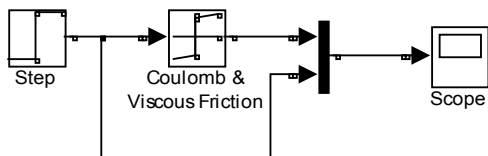
$$W(p)_p = \frac{W(p)}{W(p)} = \frac{1/k_o \cdot (16 \cdot T_\mu \cdot p + 1)}{128 \cdot T_\mu^2 \cdot p^2 (4 \cdot T_\mu \cdot p + 1)} \cdot \frac{(4 \cdot \mu \cdot + 1) \cdot i \cdot}{1/k_c}$$

$$W(p)_p = \frac{k_c \cdot i \cdot (16 \cdot T_\mu \cdot p + 1)}{128 \cdot T_\mu^2 \cdot p \cdot k_o} = k_p + \frac{1}{\dots}$$

-

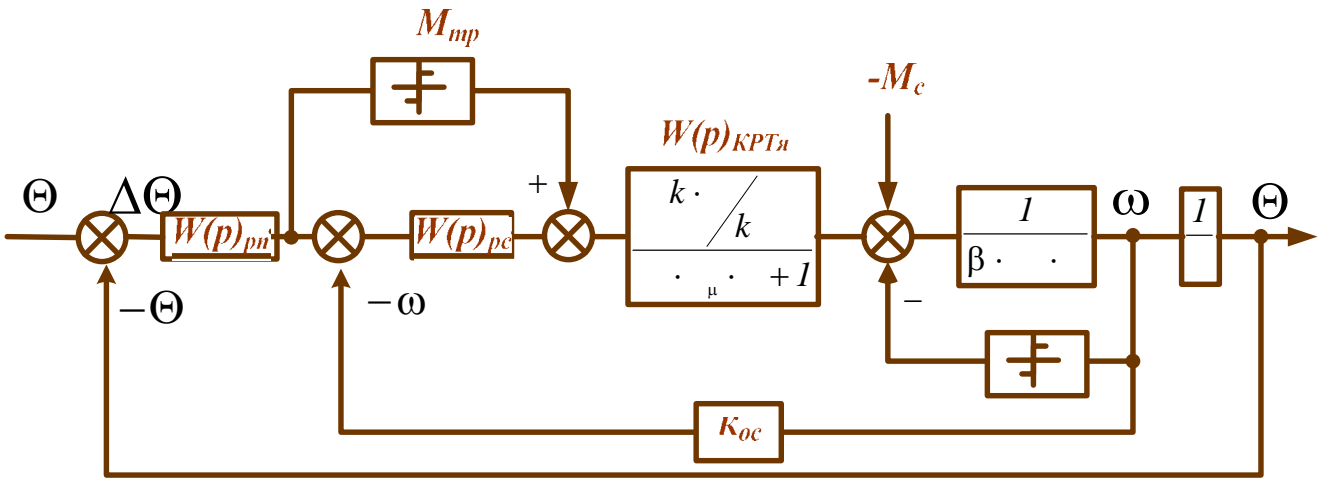
$$: = \frac{128 \cdot T_\mu^2 \cdot k_o}{k_c \cdot i},$$

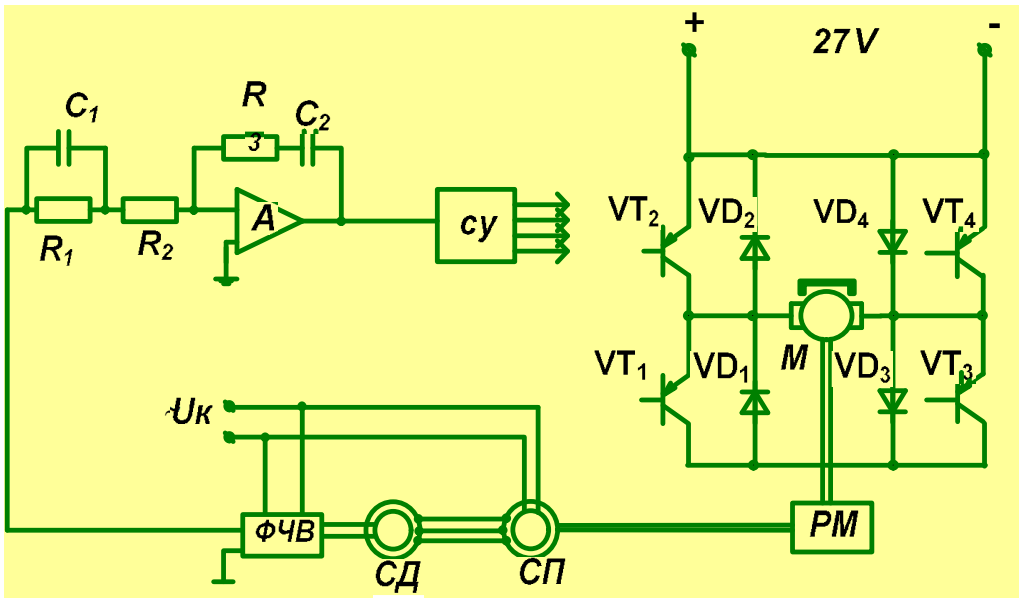
$$k_p = \frac{16 \cdot T_\mu}{128 \cdot T_\mu^2 \cdot k_o} = \frac{16 \cdot T_\mu \cdot k_c \cdot i}{128 \cdot T_\mu^2 \cdot k_o} = \frac{k_c \cdot i}{8 \cdot T_\mu \cdot k_o}$$



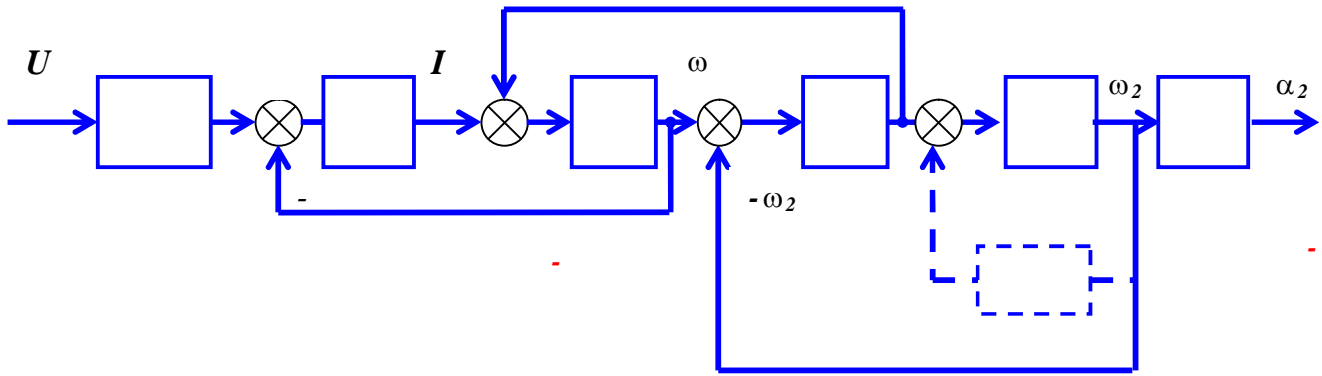
$$: = \omega \cdot \text{sign} \omega$$

$\Delta\Theta < U$ ,  $U$ ,  $U$   $\Delta\Theta \neq 0$ .  
 $\Delta\Theta < U$ ,  $U$ ,  $U$   $I$ .  
 $\Delta\Theta = 0$ ,  $\omega = I$   $\Delta\Theta$ .  
 $I < I$   $\omega = 0$ .  
 $I < I$   $\omega = 0$ .





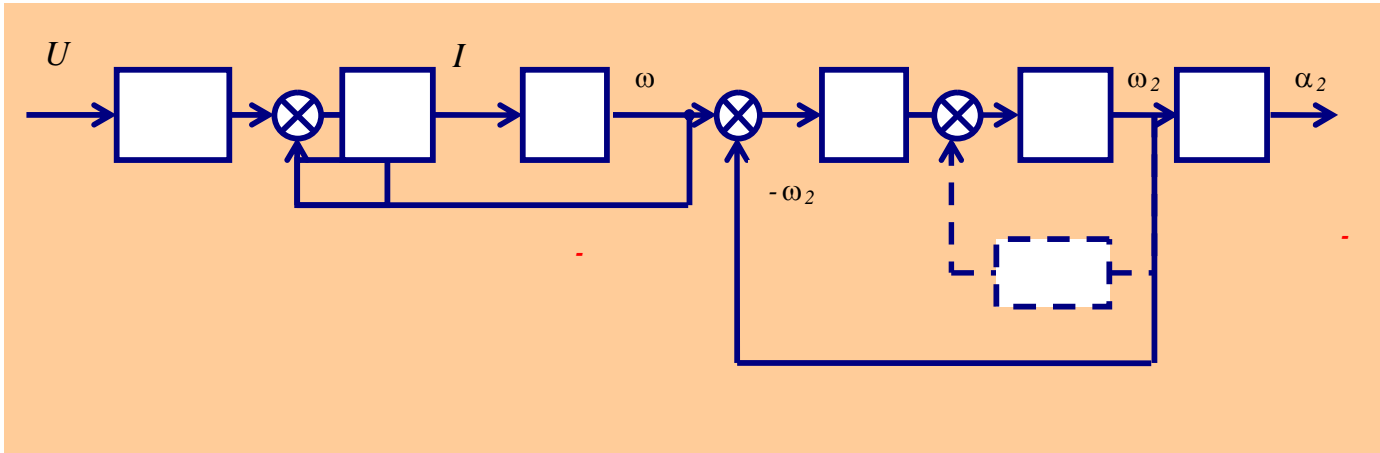
- ; -  
 ;  
 , - - , -  
 -  
 .  
 .  
 ( U ) 500  
 ( - -  
 ).  
 , -  
 , -  
 .



1)

2)

3)



:

$$W(p) = \frac{W(p) \cdot W(p)}{1 + W(p) \cdot W(p)} = \frac{1}{1 + \dots^2 + \dots}$$

,

:

$$\Omega = \sqrt{\frac{1}{\dots}}$$

,

$$: W(p) = \frac{1}{1 + \dots^2 + \dots}$$

$$: \xi = \frac{1}{2} \cdot \sqrt{\dots}$$

$$\xi = 0,05 \dots 0,2.$$

,

-

.

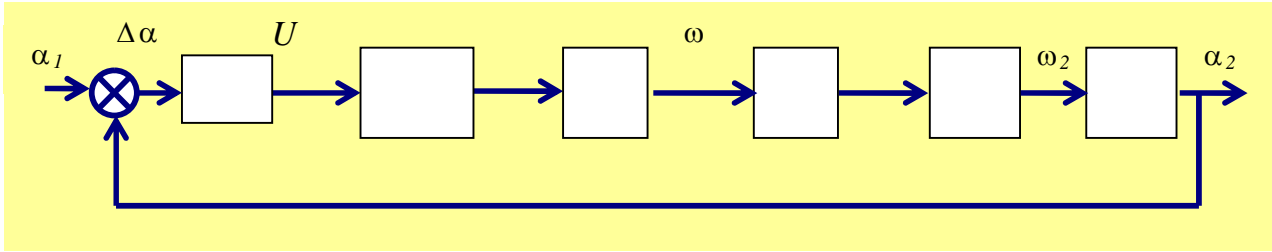
,

.

,

,





$$W(p) = \frac{1}{\dots}$$

$$W(p) = W(p) \cdot W(p) \cdot W(p) \cdot W(p) \cdot W(p)$$

$$W(p) = 1/$$

$$W(p) = \frac{1/T}{W(p) \cdot W(p) \cdot W(p) \cdot W(p)}$$