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$$T = -n_q \psi i_q + \omega_{ol} - L_q \alpha_d i_q \dot{\theta} \quad \%0$$

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$$T = -n_q \psi i_q \quad \%0$$

* * C F • Ô " * b g ± ± Dý Ô æ / 8 = • g g

$$T - T_{\hat{A}} = J \frac{\omega_c}{\gamma} + B \omega_c \quad \%0$$

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 Ç * b " n " £ A * * B L D ^ D T M " F % 0 < C 0- g

$$\omega_c = b i_q^M - \frac{B}{J} \omega_c \quad \%0$$

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 * b g D T L C g D Ä ' ± ± 2(4 M E ? * • = • g g

$$G_n \%0 = \frac{\omega_c}{i_q^M} = \frac{b}{s + B/J} \quad \%0$$

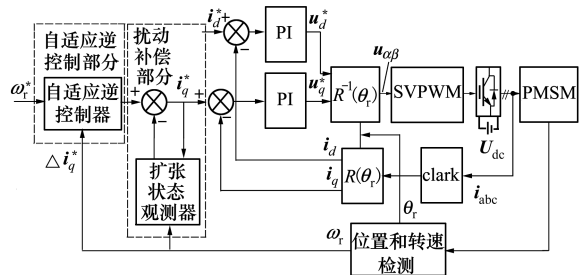
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$$G_n^{-\beta} \%0 = \frac{s + \hat{B}/\hat{J}}{\hat{b}} \quad \%0$$

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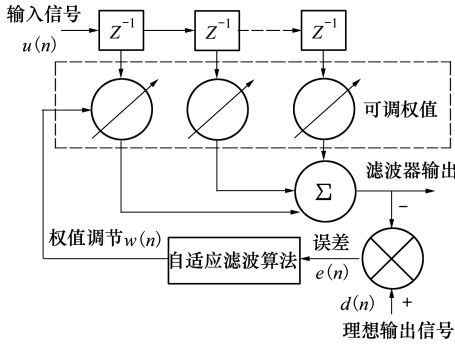
± 7 E/ ÁE3Ô c 2(4

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$$\partial J_{\omega_0} = \frac{N^0 \omega_0}{N \omega_0} = - \frac{Q \omega_0 \alpha \omega_0}{N \omega_0} \quad (80)$$

< Z " e_{\omega_0} = d_{\omega_0} - w_{\omega_0} \alpha_{\omega_0} d_{\omega_0} \text{ } \hat{O} c \cdot) 3
 + \pm D \hat{A}' 4 \zeta^* b^n > F \ddot{u}^n g \\$ " \cdot + \pm J \rightarrow \hat{O} \% E ? \hat{O}

$$w_{\omega_0} + \beta_0 = w_{\omega_0} - \mu \partial J_{\omega_0} = w_{\omega_0} + \mu Q e_{\omega_0} \alpha_{\omega_0}$$

\mu g \hat{a} \zeta c \hat{\cdot} \cdot 1 / \zeta T + \pm 2 (\cdot \% \hat{A} X i 0 \hat{A} " ! i A
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 \ddot{U} \hat{O} - : G D \hat{A}' > F \ddot{u} + \pm C 5 9 k T \% 9 \# " E \zeta
 x - < C \ddot{Y} \cdot \hat{I}) 3 " 7 E / \hat{A} \\$ " \cdot p > F \ddot{u} E D \hat{6}

$$\delta w_{\omega_0} + \beta_0 = w_{\omega_0} + \beta_0 - w_{\omega_0} + \pm T F \ddot{u} \hat{A} 8 0 \cdot -$$

$$< " \hat{E} \$ B \hat{a} d_{\omega_0} = w_{\omega_0} + \beta_0 u_{\omega_0} \% 0 \hat{A} " + \pm T 6^* *$$

$$\cdot = \cdot g g$$

$$J_{\omega_0} = \hat{A} \delta w_{\omega_0} + \beta_0 \hat{A}^0 +$$

$$\text{æ} \lambda d_{\omega_0} - w_{\omega_0} + \beta_0 u_{\omega_0} \hat{O} \quad \%_0 \hat{O}$$

$$< Z " \lambda g \ddot{o} i D 0 \hat{A} \} \% g \hat{A} \} J_{\omega_0} + \pm - < p >$$

$$F \ddot{u} " 6$$

$$\frac{N \omega_0}{N \omega_0 + \beta_0} = 0 w_{\omega_0} + \beta_0 - w_{\omega_0} \hat{O} - \lambda u_{\omega_0} \hat{O} = !$$

F \hat{A} - E ! \ddot{Y} p > F \ddot{u} g
 w_{\omega_0} + \beta_0 = w_{\omega_0} + ! " \lambda u_{\omega_0} \quad \% \beta_0
 S ' 3 \hat{O} \hat{E} \hat{Z} \# 6

d_{\omega_0} = w_{\omega_0} u_{\omega_0} + ! " \lambda \hat{A} u_{\omega_0} \hat{O} \quad \% \beta_0 \hat{O}

$$\lambda = \frac{Q \omega_0}{\hat{A} u_{\omega_0} \hat{O}^0} \quad \% \beta_0 \hat{O}$$

$$3 \lambda S' - E ! \ddot{Y} p > F \ddot{u} \hat{A}$$

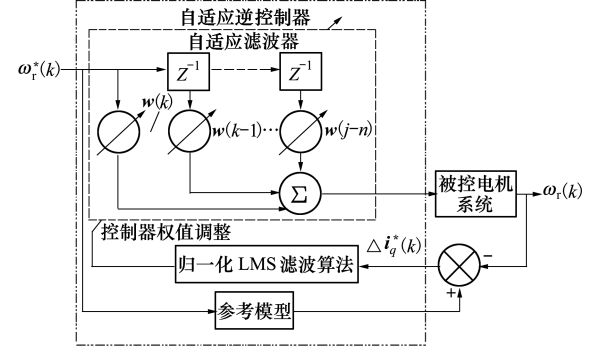
$$w_{\omega_0} + \beta_0 = w_{\omega_0} + \frac{u_{\omega_0} Q \omega_0}{\hat{A} u_{\omega_0} \hat{O}^0} \quad \% \beta_0 \times \hat{O}$$

\text{æ} \text{æ} g^3 ! a] \hat{O} c \cdot M i \pm C " B ' e F \ddot{u} \mu + 9
 \# " g^3 K_{\cdot} \hat{A} u_{\omega_0} \hat{O} \hat{D} \hat{6} < \hat{z} \hat{u} \hat{O} c " B ' e F \ddot{u}
 \gamma + g^3 \hat{y} P \hat{O} \cdot T 6^* " U : f c \hat{\cdot} \hat{a} \hat{e} + \pm \hat{6} \hat{a}
 8 " B ' E, \} \eta " \hat{\cdot} C 7 - \# h \pm p i \& \in L \hat{a}'
 \cdot \hat{O}^* L + \pm \hat{z} \hat{u} / 8 \hat{O} " F p i E \quad \text{TM} < = \cdot g g

$$w_{\omega_0} + \beta_0 = \eta w_{\omega_0} + \frac{\mu u_{\omega_0} Q \omega_0}{\gamma + \hat{A} u_{\omega_0} \hat{O}^0} \quad \% \beta_0 \hat{O}$$

\text{æ} \text{æ}^* \hat{\cdot} \gg p i E \quad \text{TM} < + \pm \cdot M i g \hat{I} \cdot M i " ' \cdot - C \hat{A} X i 0 \hat{A} " \setminus - \hat{u} ' J - 0 \hat{A} " " \hat{I} \hat{u} \hat{A}

Y ' 3 \cdot - C \hat{A} X i 0 \hat{A} " \hat{A}^* U] D \text{TEL} (\ddot{U} + \pm 7 E / \hat{A} E 3 \hat{O} c \cdot Z " \hat{E} \hat{I}) 3 s + \hat{I} + \%



$$+ \text{æ} 7 E / \hat{A} E 3 \hat{O} c \hat{I}) 3 s +$$

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 D \hat{A}' D \text{TEL} + \pm i \% ' " U k \# h + \pm D \hat{A}' > F \ddot{u} = \cdot
 \cdot g g \omega_{\zeta} \omega_0 = x \omega_{\zeta}^M \omega_0^M - \beta_0 - \omega_{\zeta}^M \omega_0 - n o V \hat{A}
 p i > F \ddot{u} = \cdot g g w_{\omega_0} = x w_{\omega_0} w_{\omega_0} - \beta_0 - "
 w_{\omega_0} - n o V \% g^3 \hat{y} P 2 (4 + \pm \hat{O} \cdot T " * U \in L k \# h

±DTELA %og 37 E/ Á\$ " 0Ä" ±±A \$ "

$e = \omega_c^M \omega_o - \omega_c \omega_o$ # " - C ÁXi ±p i E

$T_M < = \bullet \cdot g g$

$$\omega_o + \beta_o = \eta \omega_o + \frac{\mu \omega_c \omega_o}{\gamma + \dot{\omega}_c \omega_o} \quad \% \text{B o}$$

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CF • Ö ±±ò â 8 Ä] ±± ∈ 50;~ ĚKr CF • Ö &

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$$T_e - T_L = J \frac{\dot{\omega}_c}{\omega_c} + B \omega_c + d \quad \% \text{B o}$$

< Z "T_Ä g BLD^D^TM "J g D^T^Ö FÜ" B g 1Ä\$ -

• "d g CF • Ö "ω_c g g Ý > yELÓ "C0- Ä

$$\dot{\omega}_c = b i_q^M - \frac{B}{J} \omega_r + d_B \quad \% \text{B o}$$

< Z "2(• b = β "n μ_f / J "d_B = -b %q^M - i_q o - n_q %d_Ä +

d σ / J %

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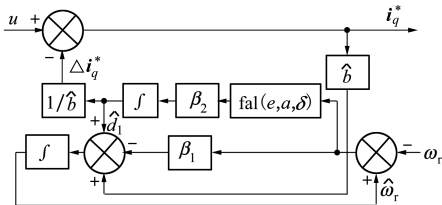
$$\begin{cases} e = \dot{\omega}_c - \omega_c \\ \dot{\omega}_c = \hat{b}u - \beta_e + \hat{d}_B \\ \dot{d}_B = -\beta_o i_u \omega_o \end{cases} \quad \% \text{B o}$$

$$i_u \omega_o = \begin{cases} |e|^a k_i \omega_o & |e| > \delta \\ \frac{e}{\delta^{b-a}} & |e| \leq \delta \end{cases} \quad \% \text{! o}$$

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Y7 EÖδĚÖ1Ö1@îmý Ôc0Ä" 6 u T %Ôc

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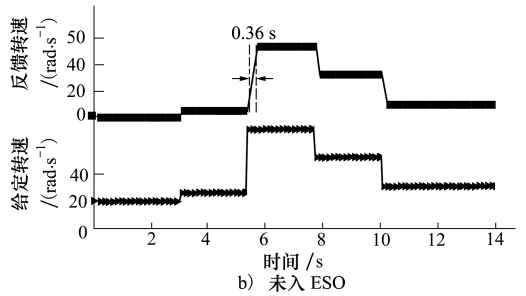
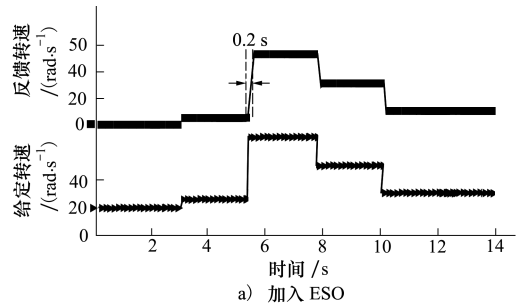
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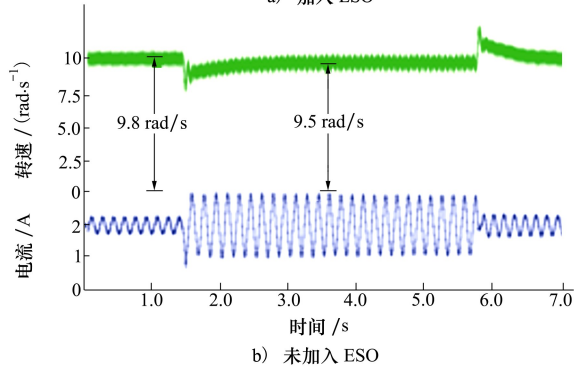
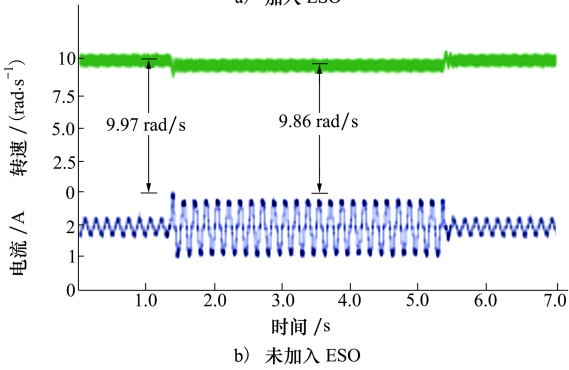
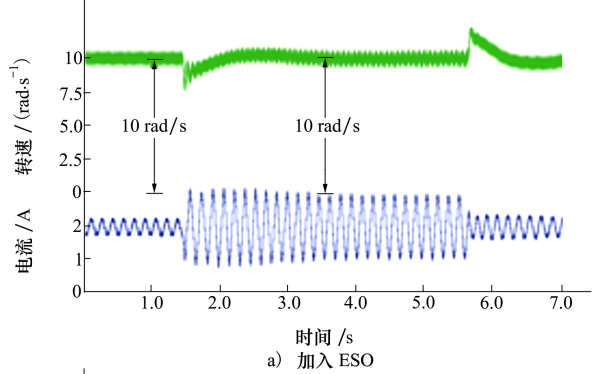
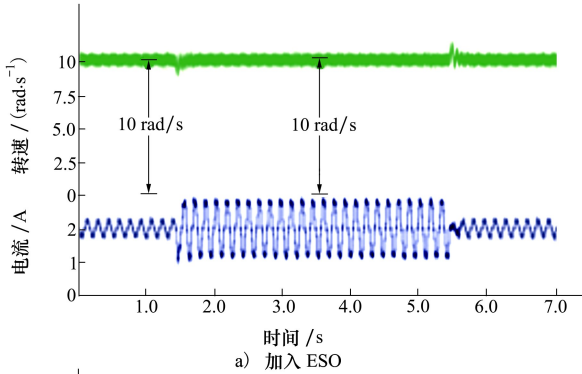
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