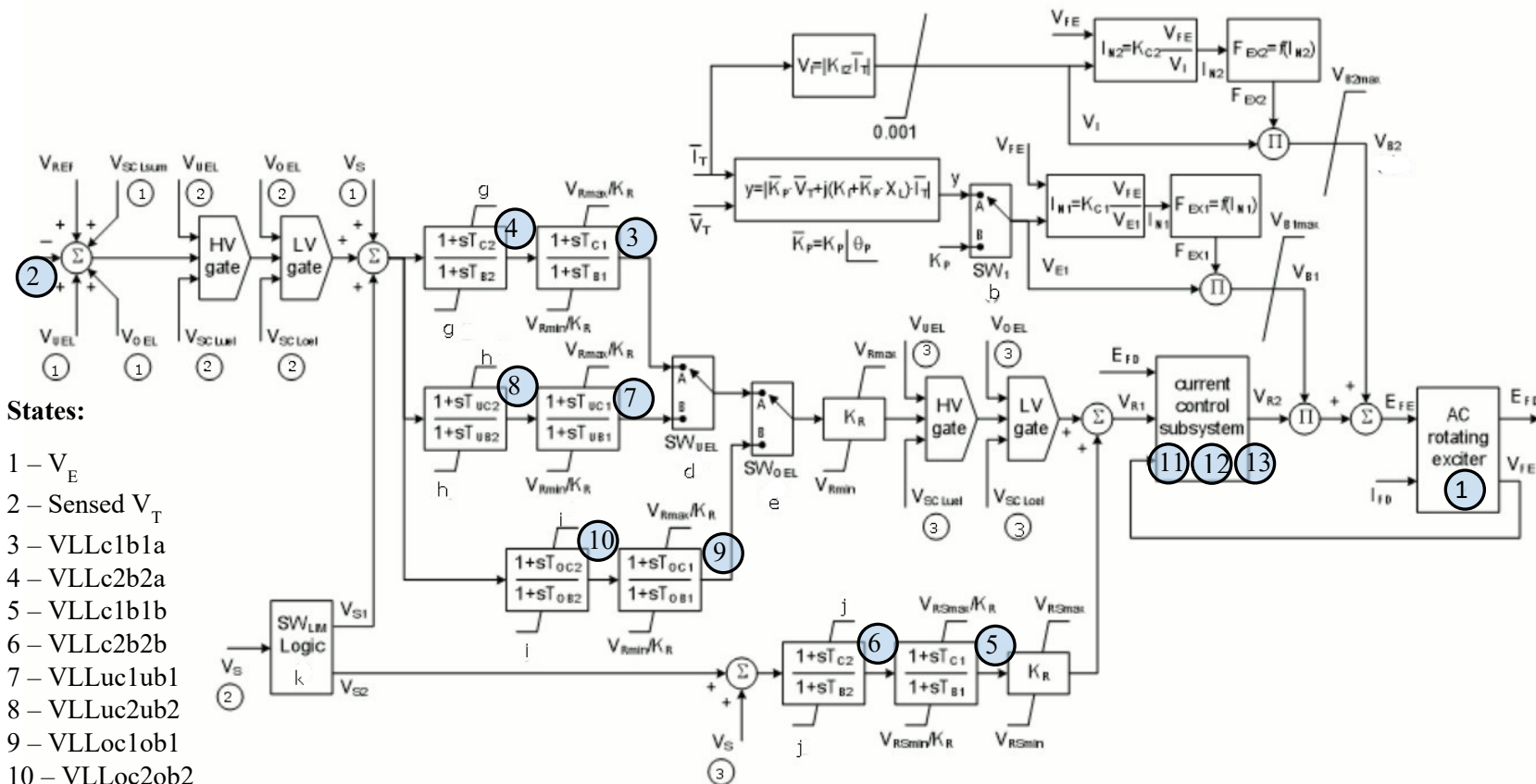


Exciter AC10C

Exciter AC10C IEEE Std 421.5-2016 Exciter type AC10C

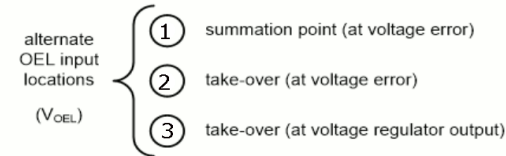
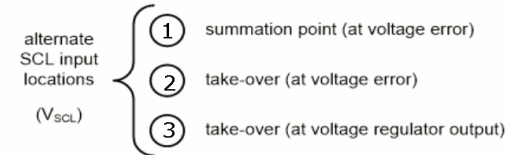
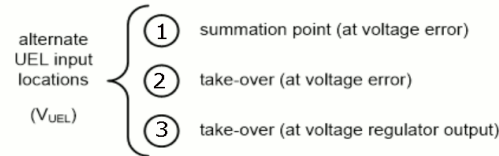
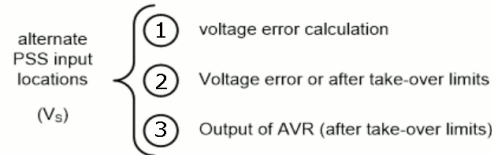


States:

- 1 – V_E
- 2 – Sensed V_T
- 3 – VLLc1b1a
- 4 – VLLc2b2a
- 5 – VLLc1b1b
- 6 – VLLc2b2b
- 7 – VLLuc1ub1
- 8 – VLLuc2ub2
- 9 – VLLoc1ob1
- 10 – VLLoc2ob2
- 11 – Texca
- 12 – Texcb
- 13 – VLLTf1Tf2

Exciter AC10C

Exciter AC10C Footnotes:



footnotes:

- (b) SW_1 is a user-selection option. Position A corresponds to a power source derived from generator terminal voltage, such as an excitation transformer. Position B corresponds to a power source independent of generator terminal conditions, such as a pilot exciter.

- (d) Position B is active when the UEL input location "B" is selected and the UEL is active. Position A is used, otherwise.

- (e) Position B is active when the OEL input location "B" is selected and the OEL is active. Position A is used, otherwise.

- (g) The upper and lower limits for the block are calculated based on other model parameters: the gain K_R , the time constants T_{B1} and T_{C1} , and the limits V_{Rmax} and V_{Rmin} .

$$V_{max} = \frac{(V_{Rmax} - V_{Rmin}) T_{B1}}{K_R T_{C1}} = -V_{min}$$

- (h) The upper and lower limits for the block are calculated based on other model parameters: the gain K_R , the time constants T_{UB1} and T_{UC1} , and the limits V_{Rmax} and V_{Rmin} .

$$V_{max} = \frac{(V_{Rmax} - V_{Rmin}) T_{UB1}}{K_R T_{UC1}} = -V_{min}$$

- (i) The upper and lower limits for the block are calculated based on other model parameters: the gain K_R , the time constants T_{OB1} and T_{OC1} , and the limits V_{Rmax} and V_{Rmin} .

$$V_{max} = \frac{(V_{Rmax} - V_{Rmin}) T_{OB1}}{K_R T_{OC1}} = -V_{min}$$

- (j) The upper and lower limits for the block are calculated based on other model parameters: the gain K_R , the time constants T_{B1} and T_{C1} , and the limits V_{RSmax} and V_{RSmin} .

$$V_{max} = \frac{(V_{RSmax} - V_{RSmin}) T_{B1}}{K_R T_{C1}} = -V_{min}$$

- (k) The SW_{LIM} logic described below is only applicable if the alternate PSS input location "B" has been selected, otherwise $V_{S1} = V_{S2} = 0$.

IF OEL or UEL are active

$$V_{S1} = 0$$

$$V_{S2} = V_S$$

ELSE

$$V_{S1} = V_S$$

$$V_{S2} = 0$$

ENDIF

AC Rotating Exciter

AC rotating exciter with non-controlled rectifier model

States:

- 11 – Texca
- 12 – Texcb
- 13 – VLLTf1Tf2

footnotes:

- (a) User-selection option. Position A corresponds to feedback from generator field voltage (E_{FD}) and position B corresponds to feedback from exciter field current (V_{FE}).
- (b) Position B of the SW_{LIM} logic switch is selected if the parameter K_{LIM} is non-zero. If $K_{LIM}=0$, position A is selected.
- (c) Position B of the SW_{KCR} logic switch is selected if the parameter K_{CR} is non-zero. If $K_{CR}=0$, position A is selected.
- (d) Position B of the SW_{SS} logic switch is selected if $(K_{CR}+K_{LIM}) > 0$. Otherwise, position A is selected.

- User-selection option. Position A corresponds to feedback from generator field voltage (E_{FD}) and position B corresponds to feedback from exciter field current (V_{FE}).
- Position B of the SW_{LIM} logic switch is selected if the parameter K_{LIM} is non-zero. If $K_{LIM}=0$, position A is selected.
- Position B of the SW_{KCR} logic switch is selected if the parameter K_{CR} is non-zero. If $K_{CR}=0$, position A is selected.
- Position B of the SW_{SS} logic switch is selected if $(K_{CR}+K_{LIM}) > 0$. Otherwise, position A is selected.

Current Control Subsystem

Current Control Subsystem for Exciter AC10C

States:

$1 - V_E$

