

Classification of Dependent Sources

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Voltage-Controlled Voltage
Source (VCVS)

Current-Controlled
Voltage Source (CCVS)

Voltage-Controlled
Current Source (VCCS)

Current-Controlled
Current Source (CCCS)

$$v_s = \mu v_x$$

$$v_s = \rho i_x$$

$$i_s = \alpha v_x$$

$$i_s = \beta i_x$$

$\mu = \text{Voltage Gain}$
(Unitless)

$\rho = \text{Transresistance}$
(Ohms)

$\alpha = \text{Transconductance}$
(Siemens)

$\beta = \text{Current Gain}$
(Unitless)