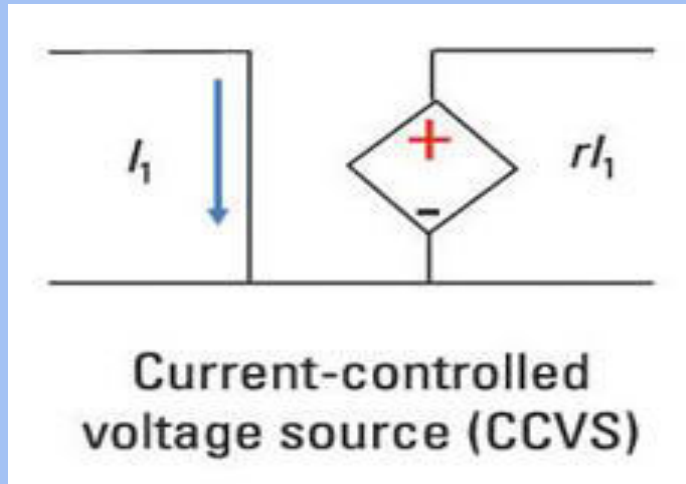# Current-Controlled Voltage Source

Elementrix Classes

Current-Controlled Voltage Source

A current flowing through the input terminals controls a dependent voltage source.

Current-controlled voltage source (CCVS)

In the CCVS dependent source, the proportionality constant **r** is called the **transresistance (ratio of the change in the output voltage to the change in the input current)**

Example:

Let's assume some values for the components:

Input Current (I_{in}): 5 milliamperes (5 mA)

Transresistance (r): 0.01 volts per ampere (0.01 V/A)

Calculations:

Using the formula for the CCVS:

$V_{out} = r \cdot I_c$

Substitute the given values:

V_{out} = (0.01V/A)·(5mA)

V_{out} = 0.00005V

V_{out} = 0.05mV

Therefore, with an input current of 5 mA and a CCVS transresistance (r) of 0.01 V/A, the output voltage (V_{out}) would be 0.05 millivolts in this example.

This example illustrates how a Current-Controlled Voltage Source can generate an output voltage that is proportional to a controlling current. The transresistance (r) represents the proportionality constant in this context.

पढ़िए और पढ़ाइये

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