

Lec34

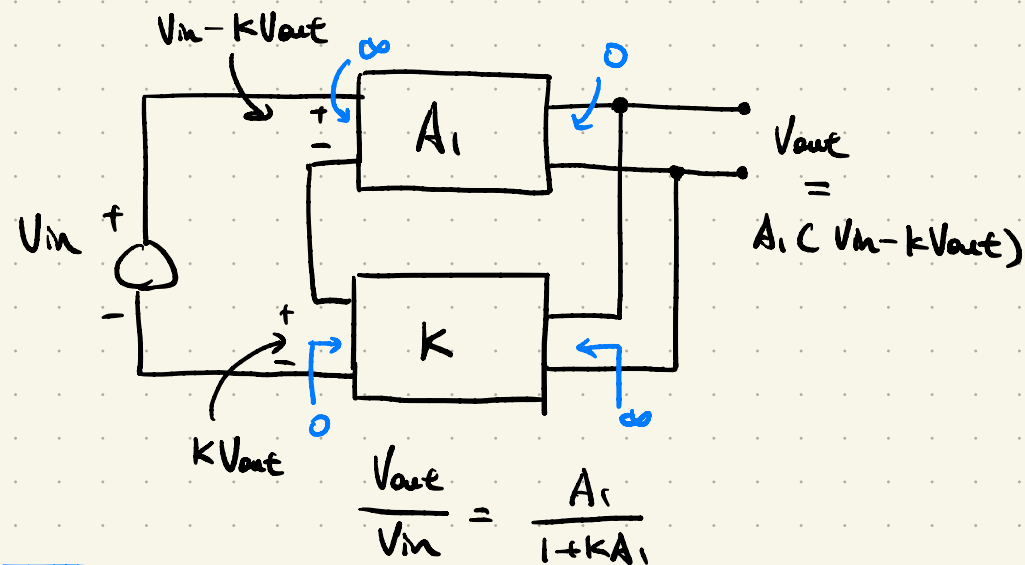
- Four Feedback Topologies
- Voltage-Voltage Feedback

Four Feedback Topologies

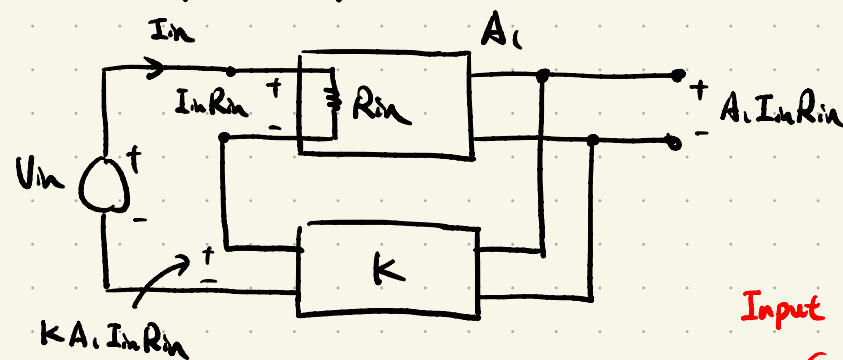
X	Y	U	Feedback Topology
V	V	V	Voltage-Voltage Feedback (shunt-series Feedback)
I	V	I	Voltage-Current Feedback (shunt-shunt Feedback)
V	I	V	Current-Voltage Feedback
I	I	I	Current-Current Feedback

Objective: To find the closed-loop gain and the closed-loop input and output impedances

Analysis of Voltage-Voltage Feedback



Closed-Looped Input Impedance

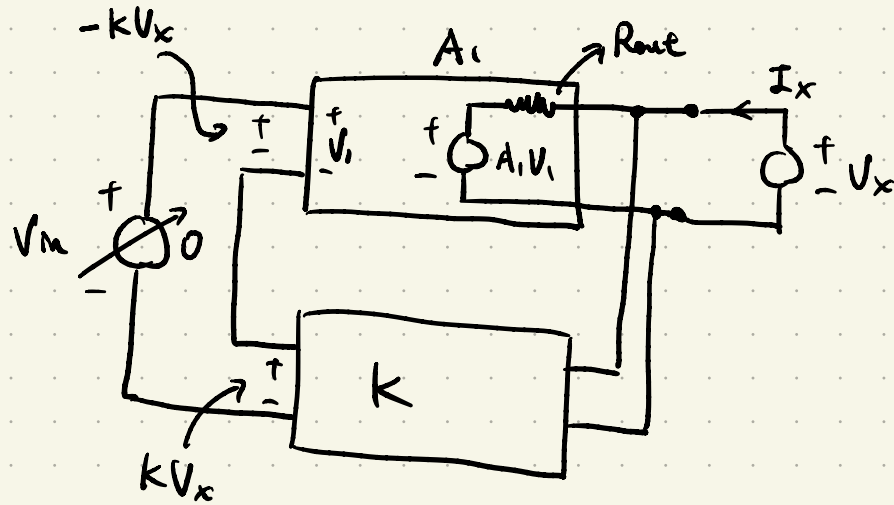


$$\Rightarrow V_{in} = I_{in} R_{in} (1 + KA_1)$$

$$\frac{V_{in}}{I_{in}} = R_{in} (1 + KA_1)$$

Input Imp. ↑
Good thing!
Because we can sense the voltage better (since it is V-V amp.)

Closed-Loop Output Impedance



$$V_x = I_x R_{out} - A_1 k V_x$$

closed-loop Output Imp.

$$\frac{V_x}{I_x} = \frac{R_{out}}{1 + KA_1}$$

Still a good thing!

Example

