

Operasjons forsterker (opamp)

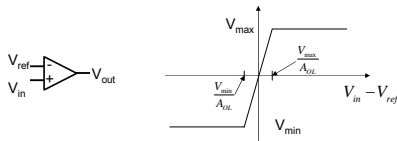


$$I_{in} = \frac{(V^+ - V^-)}{Z_{in}}$$

$$V_{out} = (V^+ - V^-)A_{OL} + \frac{1}{2}(V^+ + V^-)A_{CM} - I_{out}Z_{out}$$

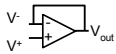
		Typisk	Ideelt
Open loop gain:	A_{OL}	100 000	∞
Common mode gain:	A_{CM}	0.001	0
Utgangsimpedans:	Z_{out}	100 Ω	0
Inngangsimpedans:	Z_{in}	1M Ω	∞

Komparator



For en ideell opamp er $V_{out} = V_{max}$ for $V_{in} > V_{ref}$
 $V_{out} = V_{min}$ for $V_{in} < V_{ref}$

Negativ tilbakekopling



$$V_{out} = A_{OL}(V^+ - V^-) = V^- \Rightarrow$$

$$V^+ = V^- \left(1 + \frac{1}{A_{OL}}\right) \Rightarrow$$

$$V^- = V^+ \left(1 + \frac{1}{A_{OL}}\right)^{-1} \Rightarrow$$

$$V^+ \approx V^-$$

En negativ tilbakekopling tvinger negativ inngang til samme verdi som den positive inngangen
