Non-inverting Operational Amplifier

Student Group

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Op-Amp as current source

An Op-Amp can not only amplify currents and voltages, it can also act itself as current source. Here is an scematic of an typical current source using an Op-Amp:

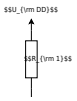

Fig. 1: Non-inverting Op-Amp: current source

$U_{\rm DD}{\rm~=10~V},~U_{\rm SS}{\rm~=-10~V},~R_{\rm 1}{\rm~=100~k\Omega},~R_{\rm 2}{\rm~=10~k\Omega},~R_{\rm 3}{\rm~=100~\Omega}$

Measure the values given in the table below.

Potentiometer	\(U_{\rm R2}\)	\(U_{\rm R3}\)	\(I_{\rm OUT}\)...	\(U_{\rm OUT}\)w...	\(I_{\rm OUT}\)...	\(U_{\rm OUT}\)...	\(I_{\rm OUT}\)...	\(U_{\rm OUT}\)...
0%								
50%		...						

Tab. 1: Op-Amp as current source: measured and calculated values

Why does the current remain constant at the output of the Op-Amp?
Give a brief explanation of the circuit's operating principle.

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