

Electronics Optoisolator Calculations

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- typical *current transfer ratio* for the photodiode or phototransistor

Calculations for the use of optoisolators

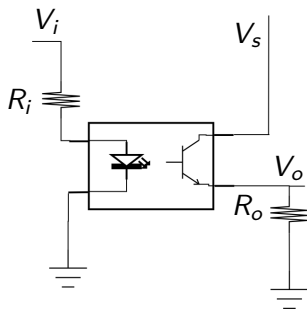
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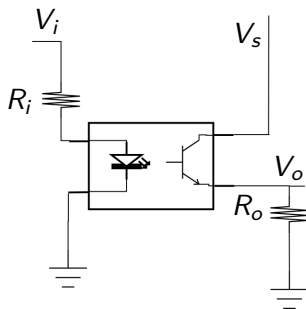
Together these will make it possible to calculate resistance values.

Using Optoisolators in a Circuit

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Note that the grounds on the two sides need not be the same.

Input side

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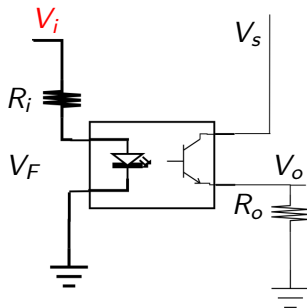
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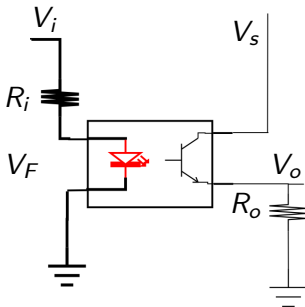
it should be possible to determine the *resistance* which will give this current.

Input side



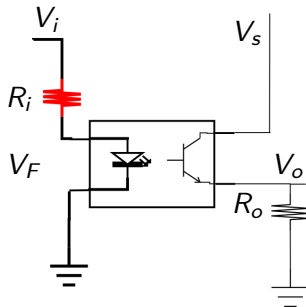
input HIGH logic level

Input side



suggested current and forward voltage of the LED

Input side



$$\text{desired resistance} = \frac{V_i - V_F}{I_{in}}$$

Output side

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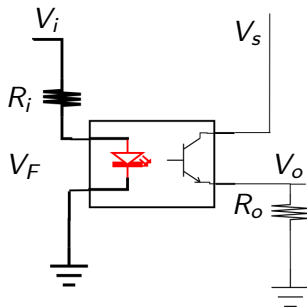
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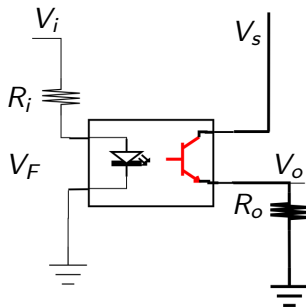
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Output side



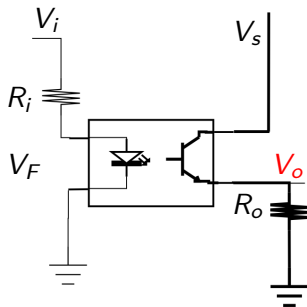
current of the LED

Output side



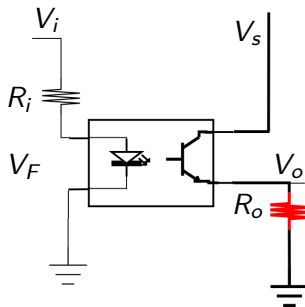
current transfer ratio

Output side



output HIGH logic level

Output side



resistance which will give this current = $\frac{V_o}{I_{out}}$

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In particular, the output resistor for the optoisolator may need to be adjusted due to the large possible range of the current transfer ratio.