

Block 03 — Electric Resistance and Power

Student Group

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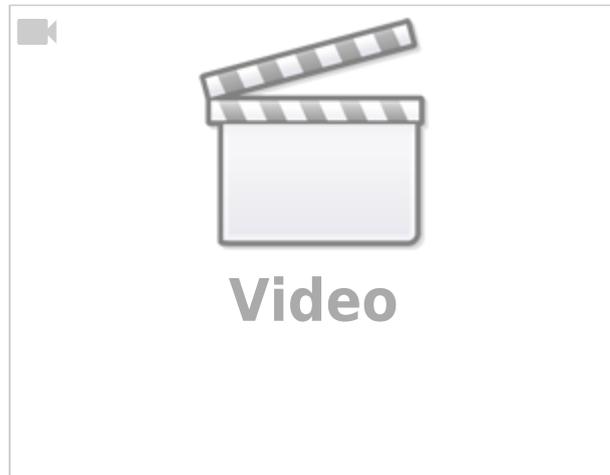
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Ideal current source

From circuit theory, we abstract the **ideal current source**:

- Delivers a fixed current I_s , independent of load voltage.
- Symbol: circle with arrow.
- U-I characteristic: vertical line at $I = I_s$.

Fig. ##: ideal current source



Conductivity of Matter

<p>Conductor</p> <p>Charge carriers are freely movable in the conductor.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Metals • Plasma 	<p>Semiconductor</p> <p>In semiconductors, charge carriers can be generated by heat and light irradiation. Often a small movement of electrons is already possible at room temperature.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Silicon • Diamond 	<p>Isolator</p> <p>In the insulator, charge carriers are firmly bound to the atomic shells.</p> <p>Examples:</p> <ul style="list-style-type: none"> • many plastics and salts
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