

Block 03 — Electric Resistance and Power

Student Group

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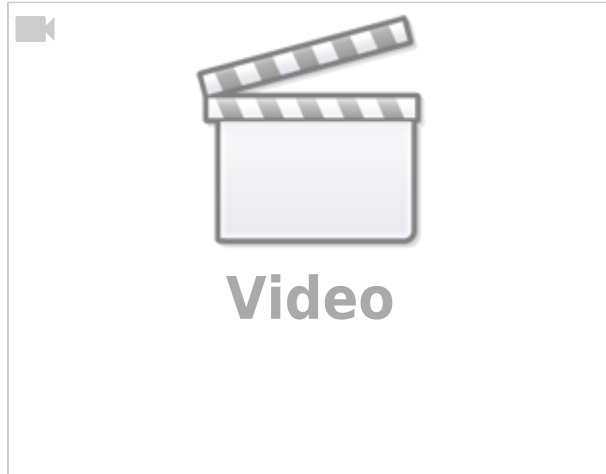
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Ideal current source

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

Conductor	Semiconductor	Isolator
Charge carriers are freely movable in the conductor. Examples: • Metals • Plasma	In semiconductors, charge carriers can be generated by heat and light irradiation. Often a small movement of electrons is already possible at room temperature. Examples: • Silicon • Diamond	In the insulator, charge carriers are firmly bound to the atomic shells. Examples: • many plastics and salts

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