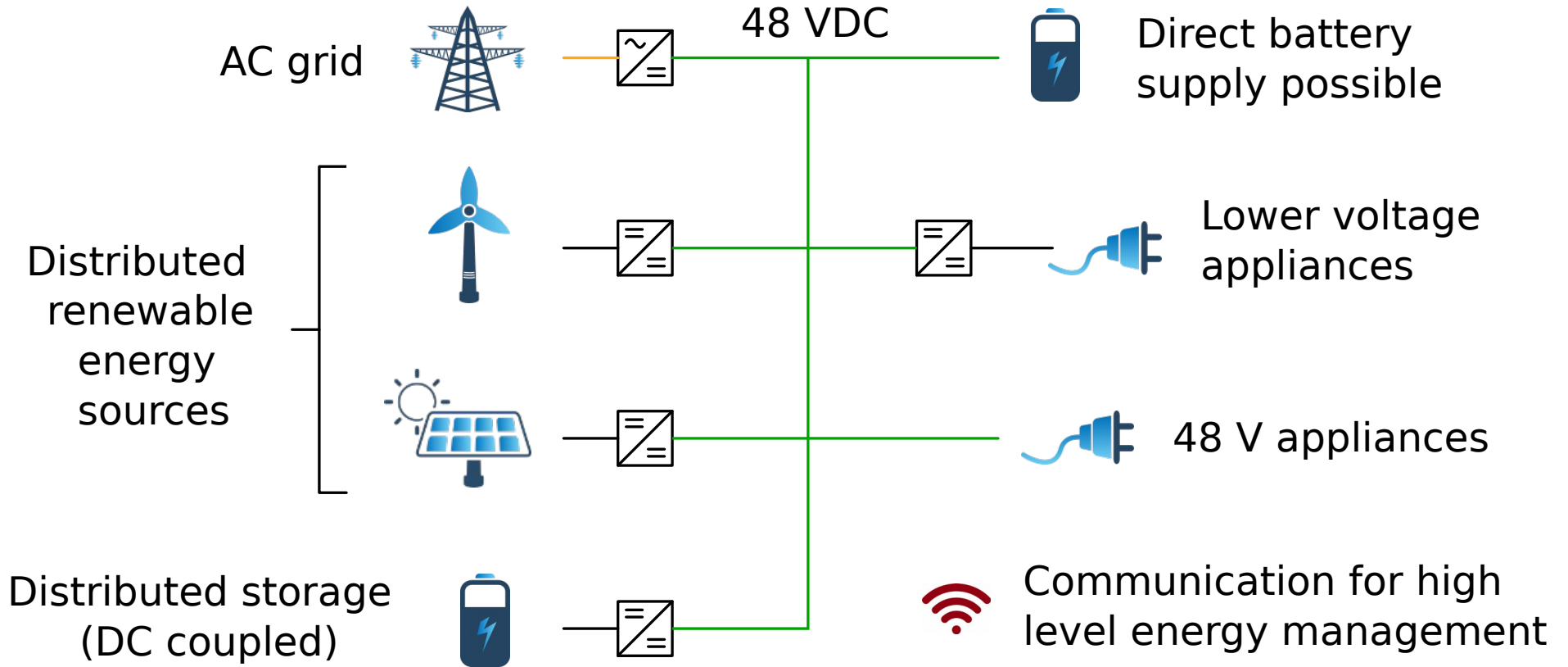




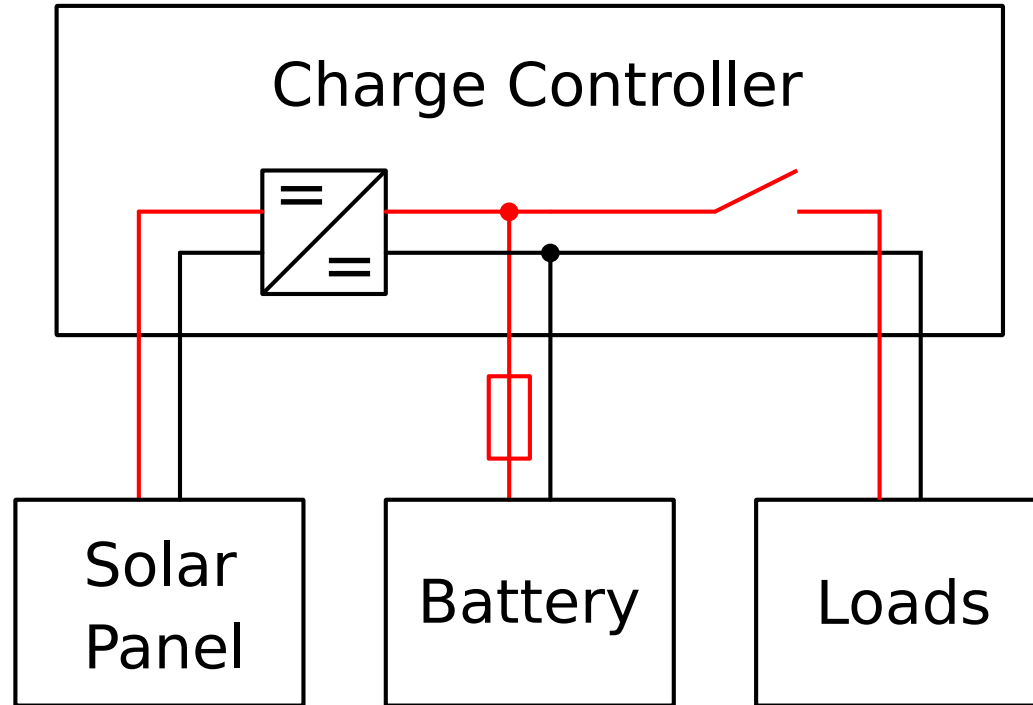
LIBRESOLAR

DC grid converter fundamentals

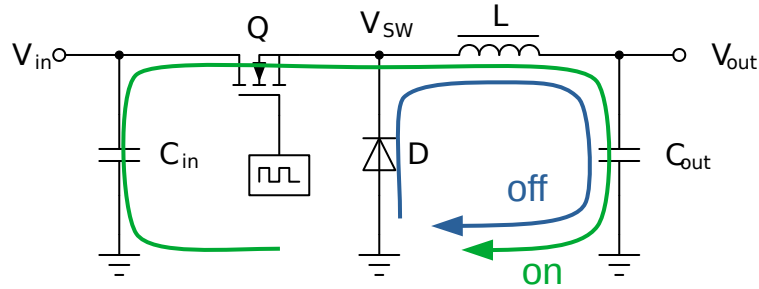
Open DC grid overview



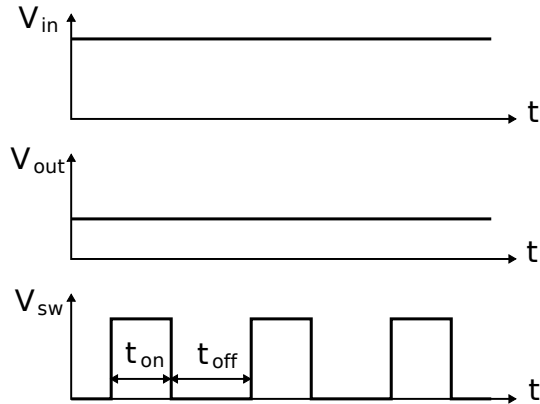
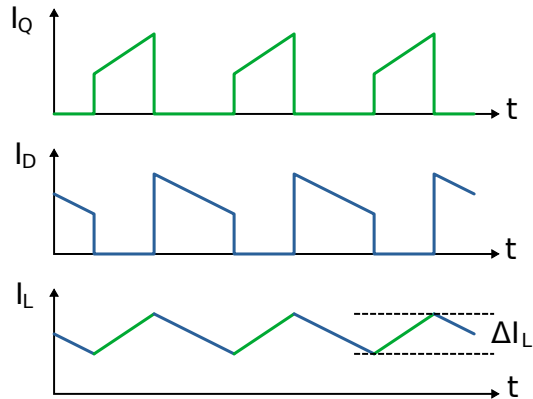
Typical MPPT charge controller layout



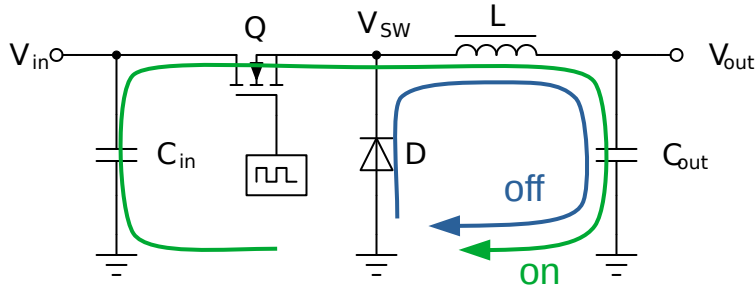
DC/DC buck converter basics



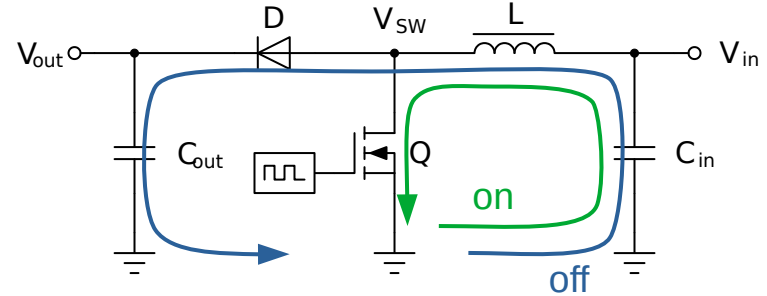
$$D = \frac{t_{on}}{t_{on} + t_{off}} = \frac{V_{out}}{V_{in}}$$



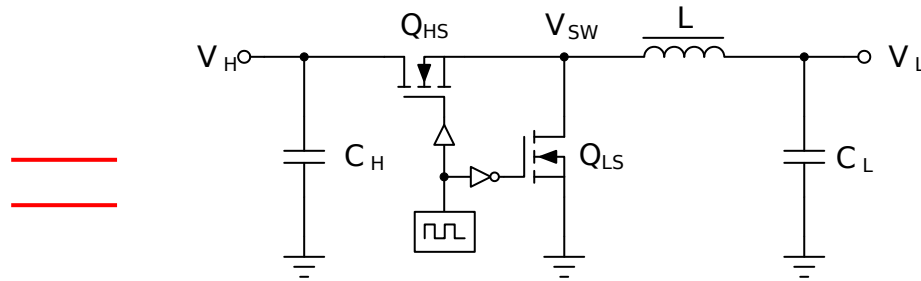
Bi-directional DC/DC converter



Buck converter

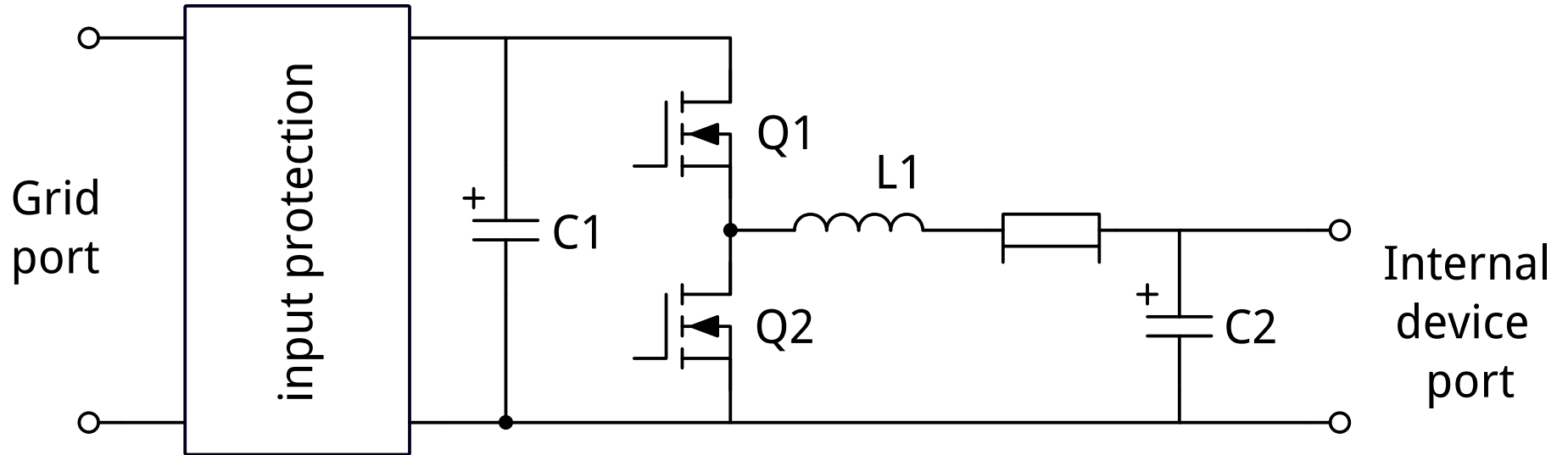


Boost converter

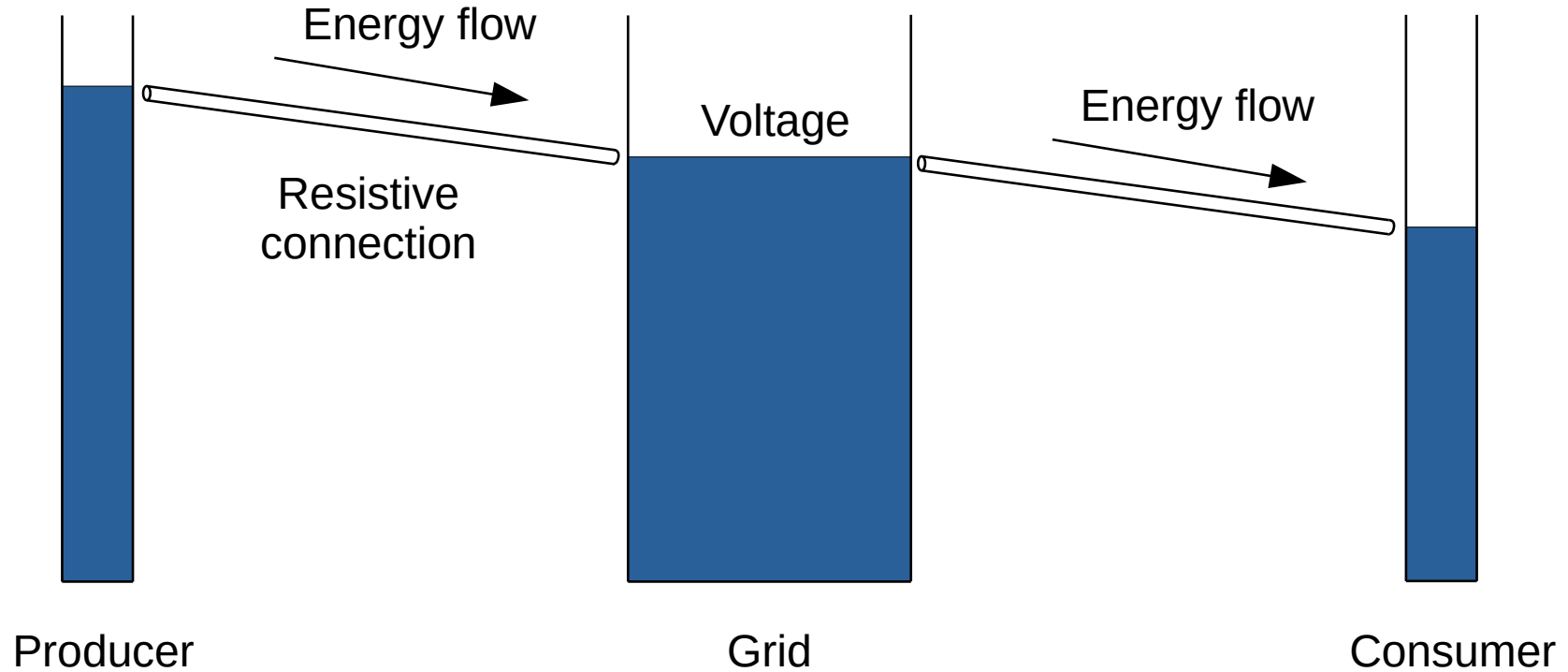


Synchronous converter

Grid controller power stage



Grid control basics: Water analogy



Used tools at Libre Solar

- PCB design



- Open Source
- Schematics editor incl. SPICE simulation support
- Board layout with Gerber export and Eagle import functions

- Firmware development



- RTOS with focus on IoT
- Linux Foundation member
- Great community support