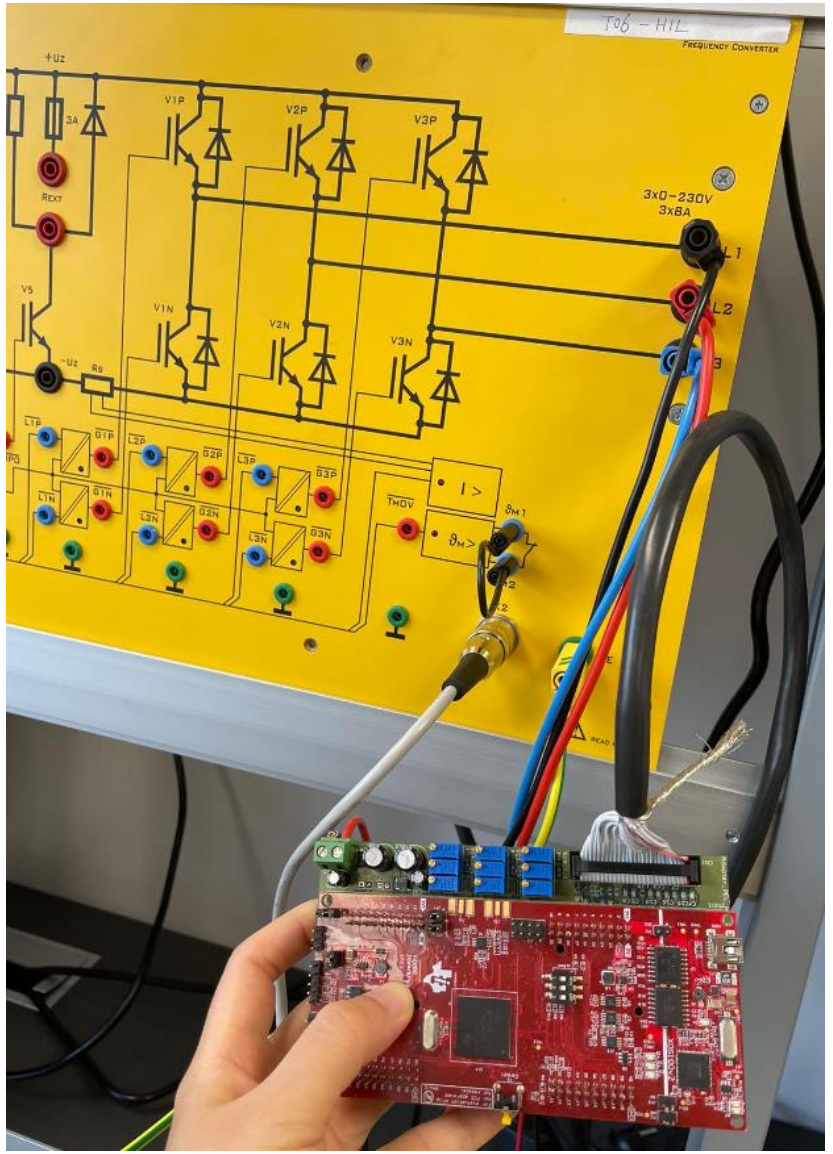
DL 2106T06-HIL

DL R&D

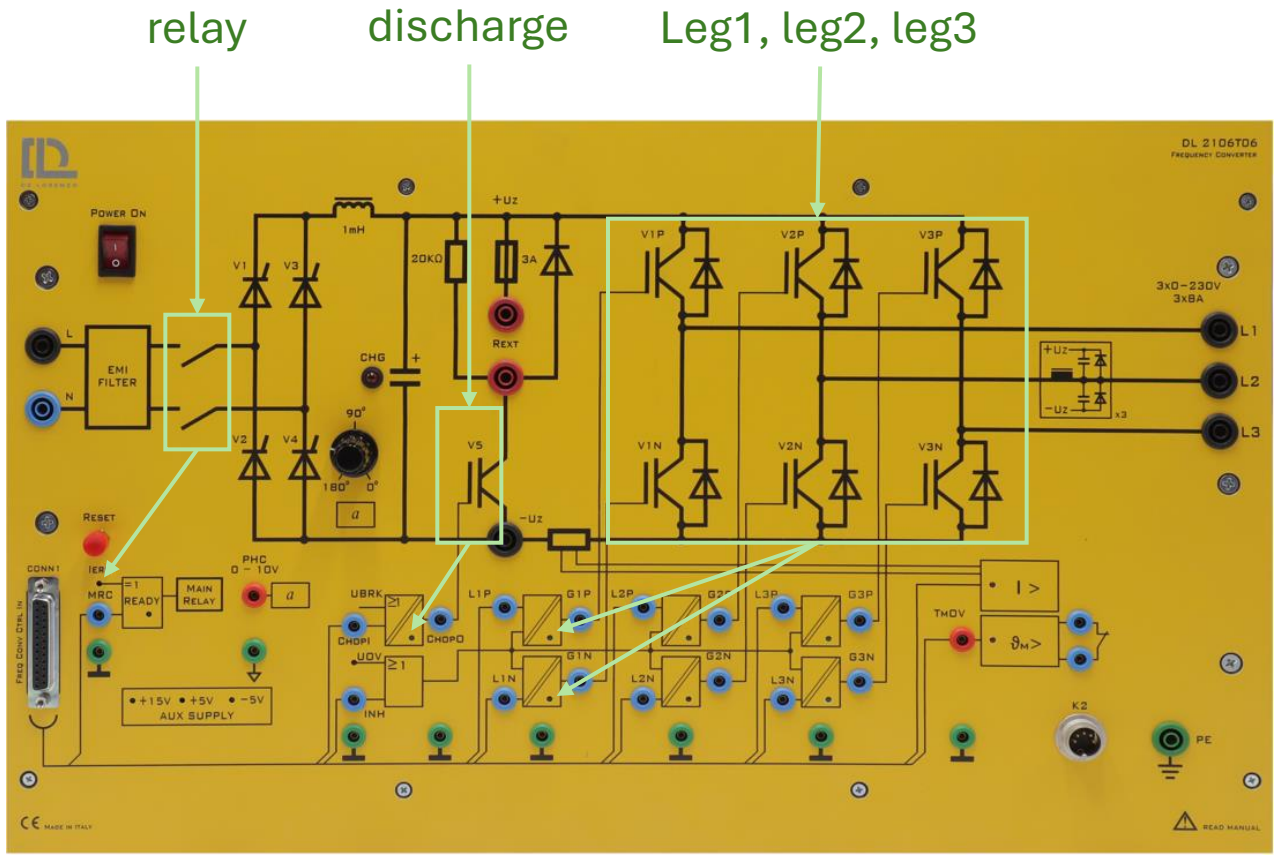
07/07/2025

DL 2106T06-HIL

- Based on DL 2106T06. Check DL 2106T06's manual to learn the functionality and use.
- Temporary solution for a quick prototype demonstration to clients with features:
  - Integrated into T06 (±15V, 2*13 IDC)
  - Using board 'Adapter_PEL_HIL_R00'
  - Without predefined connection with DL 2106T01 for extra measurement



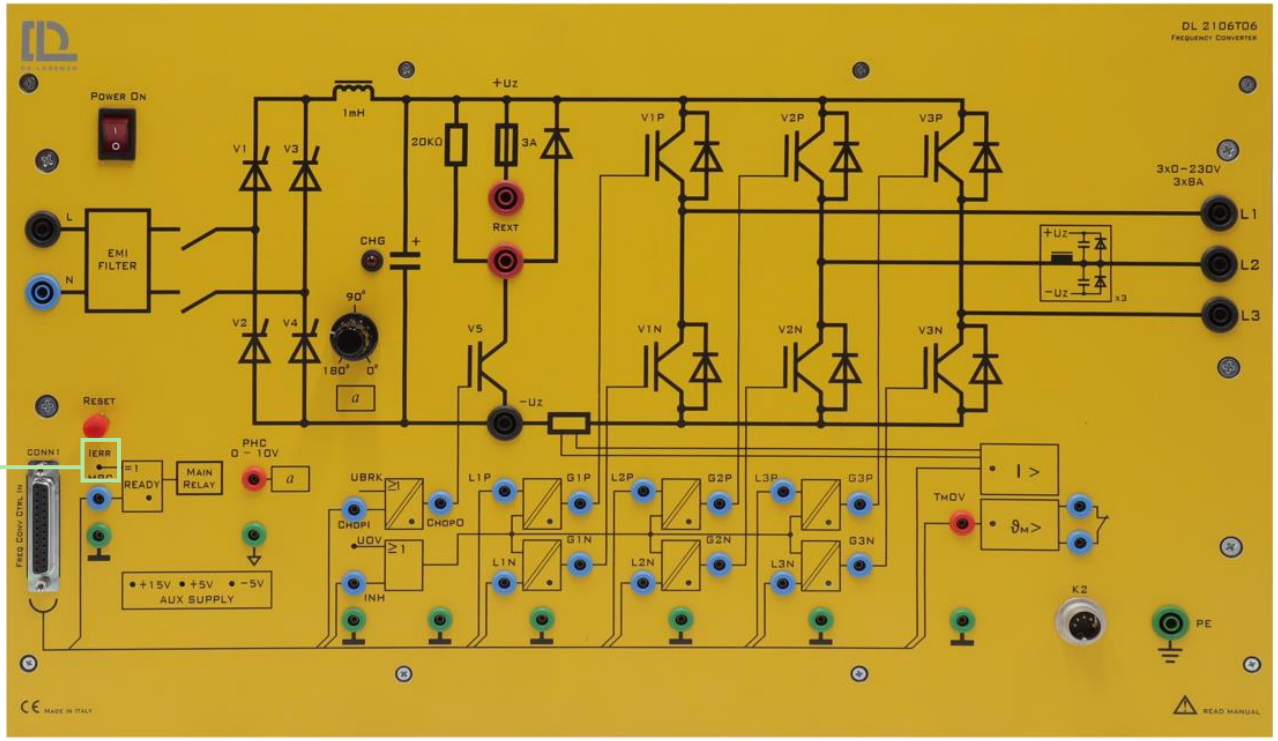
Use of DL 2106T06-HIL – digital control



In the hardware design, ‘discharge’ is already locked: when AC is connected, discharge is forcibly set to 0.

Use of DL 2106T06-HIL – digital output

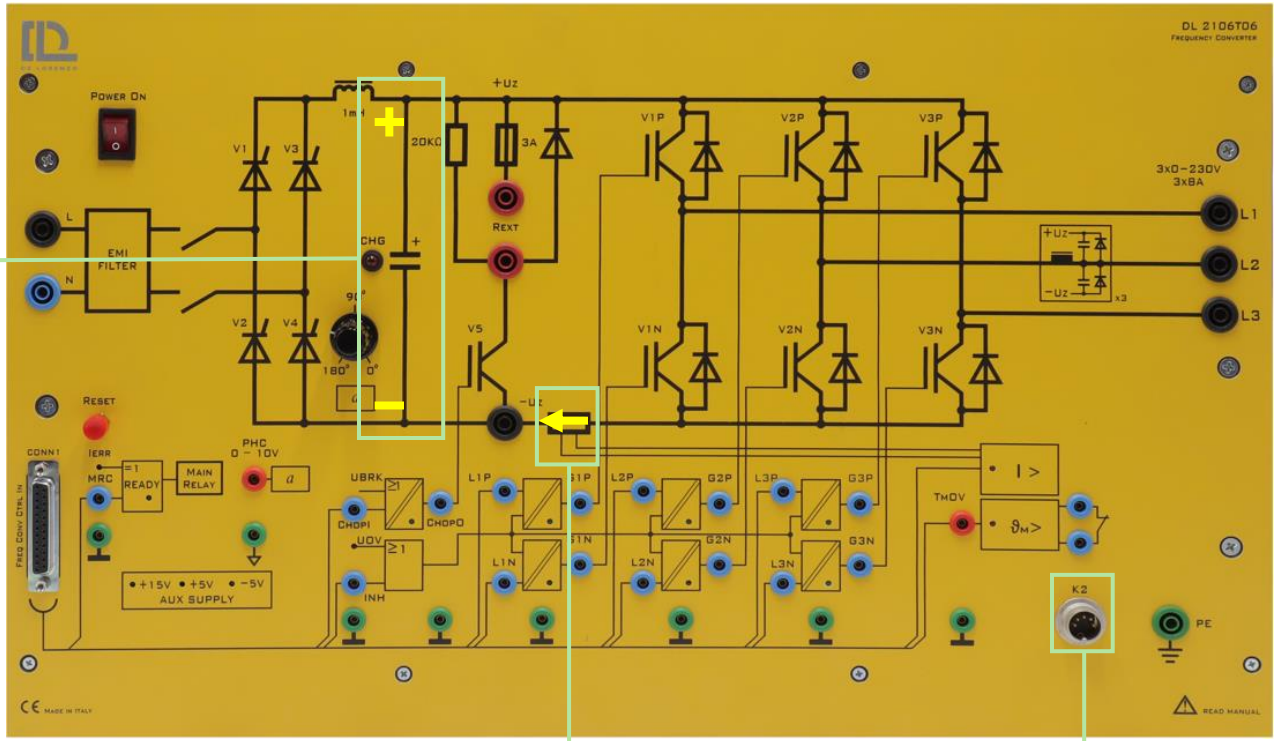
\fault



\fault is low-effective, i.e. ‘0’ means faulty. It’s a result of overcurrent (rather high) or overtemperature.

Use of DL 2106T06-HIL – analog outputs

Vdc: [0, 456]V → [0, 4095]



Iinv: [-5.85, 5.85]A → [0, 4095]

n: [0, 4000]rpm → [0, 4095]

Pay attention, Iinv is bipolar.

Target software architecture

- master-slave communication
- scheduling
- ADC calibration
- ADC sampling
- variable transmission
- software protection
- control algorithm
- peripheral output control
- etc

Target software architecture – Software protection

- Overload, overcurrent protection but in SW with lower threshold
- Overvoltage
  - Hardware overvoltage (>390V) will trigger automatic discharging, but shouldn’t last long
  - Software overvoltage protection with higher threshold must intervene in case of more severe regeneration
- Proper software intervention upon fault occurrence

Target software architecture – control

Beyond the control algorithm itself, practical application aspects should also be taken into consideration.

For example, in motor drive systems, soft start and smooth transitions can significantly reduce inrush current, while soft shutdown can mitigate the impact of regeneration on the DC link.

Host software architecture

- master-slave communication
- dashboard
- initialization management
- Shutdown management