

M-UPQC specification
$L_{sd} = 1.95 \text{ mH}$, $R_{L_{csc}} = 0.35 \text{ } \Omega$, $L_{pd} = 1.25 \text{ mH}$, $R_{L_{psc}} = 0.3 \text{ } \Omega$, $C_{dc} = 1860 \text{ } \mu\text{F}$
ACMG specification
The loads of the ACMG system are including linear load (1.3 MVA with 0.85 PF), and nonlinear load (0.95 MVA with 0.8 PF). The nominal power for each equipment such as MTGs, DFIG, respectively: 15×5.5 kW, 14×180 kW
Laboratory platform specification
DSP model: dSPACE 1104, Sampling time: 30 μs , Switching frequency: 35 kHz, Fundamental frequency: 50Hz, Grid voltage: 110V, Source inductance: 33mH, Nonlinear load:100 Ω /45mH

Table S1: Grid, module and laboratory platform specifications