

Power Electronics Matlab Simulation Projects

DC-DC Converter MATLAB Simulation Projects

1. On the Control of DC-DC Converters in the SS-Compensated Wireless Power Transfer System.
2. High Step-Up PWM Non-Isolated Converter with Soft Switching.
3. Multifunctional Isolated DC-DC Converter for Electric Vehicles.
4. Input Current Ripple Reduction in a Step-Up DC-DC Switched-Capacitor Switched-Inductor Converter.
5. Cascade PI Controller-Based Model Reference Adaptive Control for DC-DC Boost Converter.
6. Extended Design of Two Inductor Based High Gain DC-DC Converters.
7. SEPIC PFC Fed LLC Resonant Converter for EV Chargers.
8. Transformerless Quadruple High Step-Up DC/DC Converter Using Coupled Inductors.
9. Interlinking Unipolar and Bipolar DC Microgrids Using a Bidirectional DC-DC Converter With Voltage Balancer Support.
10. MMC Based Hybrid Switched Capacitor.
11. High Voltage Gain Switched-Z-Source Bidirectional DC-DC Converter.
12. High Gain Z-Quasi Resonant DC/DC Converter for Off-Board EV Charging.
13. Single-Phase Integrated Battery Charger Simulation Comparing On-board PFC and PSFB Converters.
14. High Gain DC-DC Converters for Microgrid Applications.
15. Multi-Output DC-DC Converter for Electric Vehicles.
16. Dimmable PFC LED Driver with Digital Controller for Isolated SEPIC Converter.
17. Resonant Soft-Switching Ultra-High Gain DC-DC Converter with Continuous Input Current.
18. Interleaved High Step-Up Converter with Coupled Inductor and Built-in-Transformer.
19. Multifunctional Isolated DC-DC Converter for Electric Vehicles.
20. A Low-stress High-gain Interleaved DC-DC Converter with Self-balancing Capacitor Voltage.
21. A Cuk-Based Modular DC-DC Converter for Medium Voltage Direct Current (MVDC) Applications.
22. Flicker-Free LED Driver Using Tapped Inductor Boost-Flyback PFC Converter.
23. A Non-Isolated High Step-Up DC-DC Converter Using Voltage Lift Technique: Analysis, Design, and Implementation.
24. Step-Up Switching Converter with Single Switch and Multiple Outputs Based on Luo Topology.
25. Bidirectional DC-DC Converter for Hybrid Energy Integration.
26. Multiphase Interleaved Cascaded Non-Inverting Buck-Boost Converter.
27. Ring-Connected Dual Active Bridge Multiport Converter for Fast EV Charging.
28. AC/DC Converter fed Parallel Interleaved DC-DC Converters for Fast Charging.
29. A Novel Non-Isolated DC-DC Converter for Marine Water Pumping Applications using Solar PV System.
30. Single-Switch High-Step-Up Converter Employing Coupled Inductor and Voltage Multiplier.

Inverter MATLAB Simulation Projects

1. Direct Torque Control Based Three-phase S3 Inverter.
2. Three-phase Three Level NPC Inverter.
3. Hybrid Multilevel Inverter for Harmonic Mitigation.
4. Deadbeat Control Method for T-type Three-Phase Four-leg Three-level Inverters.
5. Common Grounded Five-Level Boost PV Inverter.
6. Novel Multilevel Inverter with Minimum Switching Components.
7. MPC-Based Harmonic Injection Techniques for Reconfigurable Single/Three-Phase Inverters with Grid Neutral Point Connection.
8. Switching Loss Reduction in Dual Inverter Topology Using Optimized Modulation Strategy.
9. Improved H6-Type Single-Phase PV Inverter with Reduced Leakage.
10. A Full-ANN Control Scheme of Single-Phase Grid-Connected Inverter.
11. A Supercapacitor Assisted Technique for Reducing Losses in the Input Loop of an Inverter System for Solar PV Applications.
12. Reduced Switching Frequency Operation of Parallel Connected Two-level Inverters with Isolated DC-links for STATCOM Application.
13. Interleaved Flyback Micro Inverter with H5 Topology for PV.
14. Intelligent Controller Design for Fault Current Mitigation in Dstatcom Applications Using Three Phase NPC Inverter.
15. Implementation of Seven-Level Asymmetrical Multilevel Inverter for Solar PV Application.
16. Advanced Multilevel Inverter for Industrial Applications.
17. Comparison of 2-Level and 3-Level Si IGBT Inverters.
18. 9-Level Inverter for Standalone Applications with Reduced Devices.

Electric Vehicle MATLAB Simulation Projects

1. PV fed Off-board E-bike Battery Charger using LLC Resonant Converter.
2. IoT Incorporated Prepaid Charging System for Electric Vehicles: A Design with RESs.
3. Bridge-less PFC Converter for EV Charger Development.
4. High Gain Dual Input Single Output Z-Quasi Resonant Converter for EV Charging.
5. EV's Battery Charger Integrated with High Power Density and Efficiency.
6. Performance of Single-Stage and Dual-Stage EV Battery Chargers for G2V and V2G Operation.
7. Interleaved Boost PFC with Half Bridge LLC Resonant Converter based EV Battery Charger.
8. Modeling and Analysis of Hybrid Photovoltaic based DC Bus System for EV Applications.
9. PFC Based EV Battery Charger Using Cuk-SEPIC Converter.
10. A Single-Phase Integrated Onboard Charger with a Wide Voltage Range for Plug-In Electric Vehicles.
11. Converter Circuit for Multiple Output EV Battery Charger.
12. Single Phase Bi-directional EV Battery Charger with G2V, V2G & V2L.
13. Intelligent Charging system for Electric Vehicle Batteries.

14. A Proposed Cuk Converter based Dual Input Hybrid Converter Topology as EV Charging Station.
15. Ring-Connected Dual Active Bridge Converter for EV Fast-Charging.
16. Multi-Output DC-DC Converter for Electric Vehicles.
17. Three Phase Bi-directional EV Battery Charger with G2V & V2G.

Renewable Energy Systems MATLAB Simulation Projects

1. Multiport Converter Based Solar PV System.
2. PEM Fuel Cell based PV/Wind Hybrid Energy System.
3. Isolated Switched-Boost Converter for PV Application.
4. Comparison of Fly-back and Reverse Fly-back Converters for PV.
5. Double Loops Control of Fuel Cell Inverter with MDSC-Based PLL.
6. PV Based EV Charging Using Zeta Converter.
7. Variable Phase-Shift Switching Strategy For Multi-Input Interleaved Boost Converters in Solar Energy Systems.
8. Coupled Inductors-Based Interleaved Boost Converters for Fuel Cells.
9. Interleaved High Step-Up Converter with Coupled Inductor and Transformer.
10. DC-Link Voltage Control and Power Management of BESS Integrated Wind Power System Using MATLAB.
11. Hybrid Energy System Simulation and Modelling Incorporating Wind and Solar Power.
12. Enhancing Energy Management System for a Hybrid Wind Solar Battery Based Standalone Microgrid.
13. Single Switch Hybrid Network-Based Large Step-Up DC-DC Converter for Solar PV Applications.
14. Multi-Port DC-DC Converter for Offshore Wind-Hydrogen Systems.
15. Grid-Connected Solar-PV System with Simplified Power Regulation.
16. DC-Link Current Reduction for Current Source Converter-Based Wind Systems.
17. MPPT Scheme for Wind Driven DFIG System.
18. Output Current Control for Two-Switch Boost Buck Converters in DC Microgrids.
19. Expandable Bidirectional Three-Port Converter for PV-Battery Systems.
20. An Innovative Converterless Solar PV Control Strategy for a Grid Connected Hybrid PV/Wind/Fuel-Cell System Coupled With Battery Energy Storage.
21. Grid-Connected Hybrid Renewable Energy System Under Various Operating Conditions.
22. Isolated Multi-Modular Converter in Renewable Energy Distribution.
23. Single Inductor-Multi Input Single Output Buck-Boost Converter for PV system.
24. Two-Stage Converter Standalone PV-Battery System with VSG Control.
25. Improving Solar Power Efficiency: A Comparison of MPPT Methods with a Focus on Hybrid ANNP&O Controller.
26. Six-Level Transformer-Less PV Inverter with Reduced Leakage.
27. Multiphase Unidirectional Active Bridge High-Step-Up DC-DC Converter with Multiphase Serial-Output.

Power System Matlab Simulation Projects

Power Quality MATLAB Simulation Projects

1. PV Operated DSTATCOM for Power Quality Enhancement for the Three Phase Four Wire Distribution System.
2. ANN Controller for Mitigation of Power Quality Issues Using Single Phase Unified Power Flow Controller.
3. V2G Integration Based on a UPQC With SMES.
4. A Fuzzy Control Strategy for Improve the Performance of CHB-STATCOM Under Grid Faults.
5. Harmonic Current Compensation for CL Filtered Shunt Active Power Filter.
6. Unified Approach for PV Integrated UPFC for Distributed Power System.
7. Power Quality Enhancement in Grid-Connected Renewable Energy Sources Using MC-UPQC.
8. Reduction of THD and Power Quality Improvement by using 48-pulse GTO-based UPFC in the Transmission Systems.
9. The Impact of Using STATCOM for PV Farms Connected with Grid.
10. The Harmonic Mitigation for Heavy Rail Systems Using Shunt Active Power Filter.
11. Harmonic Elimination of AC Electric Railway Systems Using Shunt Active Power Filters.
12. Dual Function Photovoltaic System for Power Quality Enhancement and Power Generation.
13. Design of Hybrid Systems with Transzsi-DVR for Mitigation of Power Quality Issues.
14. Power Quality Enhancement of Stand-Alone Hydro Power Generation System Using UPQC.
15. Dynamic Improvement of a UPQC System Operating Under Grid Voltage Sag/Swell Disturbances.
16. Development of Internal Inverter Controller System with PWM VSC based STATCOM.
17. Solar PV Integrated UPQC to Enhance Power Quality Problems of Distribution Power System Using Fuzzy Logic Controller.
18. A Dynamic Reactive Power Control Strategy of LC-Type Energy Storage Converter for Achieving Zero Reactive Power and Improving Power Quality