

# Custom Power Electronics Converters & Inverters



**Ademtek** provides custom power electronics hardware solutions to universities and research institutions, reducing their development time and R&D Cost. Our hardware is customized to interface directly with the controller of your choice giving you a ready to use solution directly out of the box. With professional wiring and build quality to reduce failure and safety hazards. If you are working on a research project or setting up a power electronics lab, our solutions will suit your needs perfectly.

# List of Products

## Power Stacks and Converter

1. 3Phase Rectifier+4LEG IGBT Inverter , 3Phase Rectifier+ 3LEG IGBT Inverter
2. IGBT/MOSFET/SiC MOSFET based 1& 3 phase motor drivers and Inverter kit
3. IGBT/MOSFET/SiC MOSFET based Buck and Boost Bi-Directional, SEPIC, ZETA Converter kits
4. IGBT/MOSFET/SiC MOSFET based Discrete switches stack for customization of topologies
5. Dual Active Bridge Converter
6. Wind Turbine Grid/Load side Converters
7. Wind Turbine Generator side Converters
8. IGBT/MOSFET/SiC MOSFET based discrete switches kit
9. 1Ph/3Phase Bridge rectifier and DC source

## Test and Measuring Equipments

1. Isolated and Non-Isolated Digital Storage Oscilloscopes, voltage and Current probes
2. Programmable Power Supplies
3. Electronics Loads
4. Power quality analyzers
5. PV and Wind Emulators
6. Torque and Speed Monitors and data loggers
7. Electrical Energy, Power and Power quality monitors and data loggers

# Clients



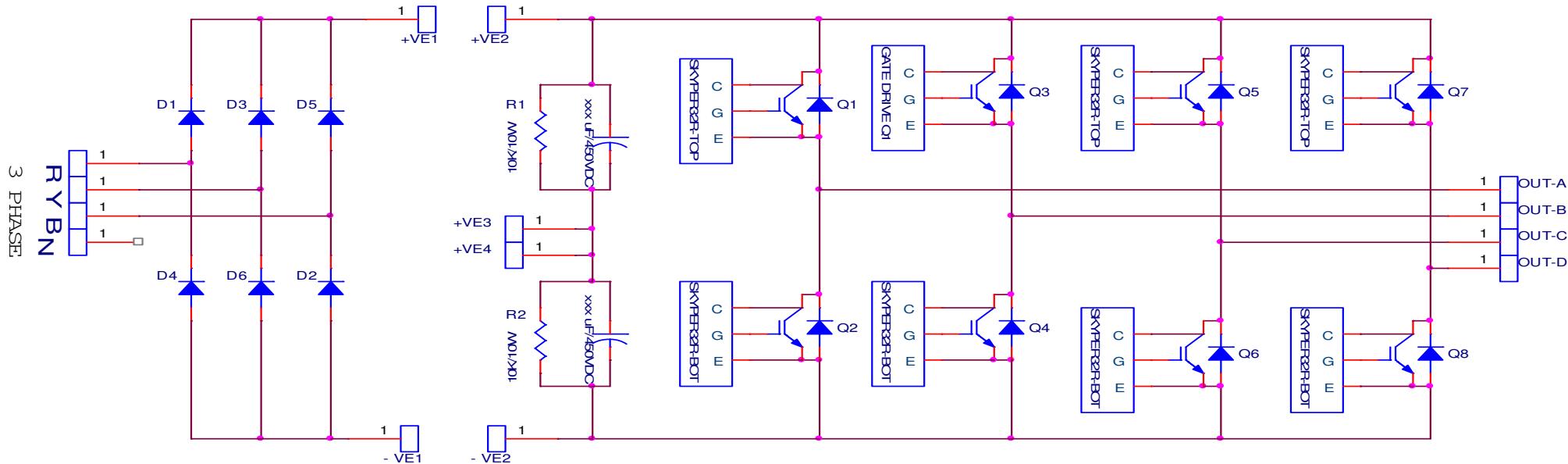
1. Indian Institute of Technology (IIT), Roorkee
2. Indian Institute of Technology (IIT), Goa
3. Indian Institute of Information Technology, Design and Manufacturing (IIITDM) Kancheepuram, Chennai
4. National Institute of Technology(NITW), Warangal, Telangana
5. National Institute of Technology(NITA), Arunachal Pradesh
6. Assam Engineering College---Guwahati, Assam
7. Central University of Karnataka, Kadaganchi,Kalaburagi
8. SRM University-AP, Amaravathi
9. Mahindra University, Hyderabad
10. Aligarh Muslim University, Aligarh, Uttar Pradesh
11. Manipal Institute of Technology, Manipal, karnataka
12. Tezpur University (Central University), Tezpur, Assam
13. Vardhaman College of Engineering, Hyderabad, Telangana
14. SRKR Engineering College, Bhimavaram, Andhra Pradesh
15. Military College of Electronics and Mechanical Engineering (MCEME-FEL), Secunderabad

Contact us:

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Please go through next pages for products details

# 3Phase Rectifier+4LEG IGBT Inverter

Model: 3PINV8S-R



## Features

- 100A, 1600V 3phase Rectifier Modules
- It includes 4Leg IGBT modules , 1200V, 100A,with FWD modules
- Isolated IGBT gate drives modules dual output supply with short circuit protection
- 3.3V/5V PWM input signal
- Internal +15V DC Power supply for Gate drivers
- 2300uF/900VDC DC Link Capacitors
- DC link voltage and Current monitoring with Hall effect sensors (optional)
- P3/290mm Heat Sink for IGBT Power Module and ,
- Forced air Cooling with Exhaust FAN

Note1: Inrush current limit circuit is optional

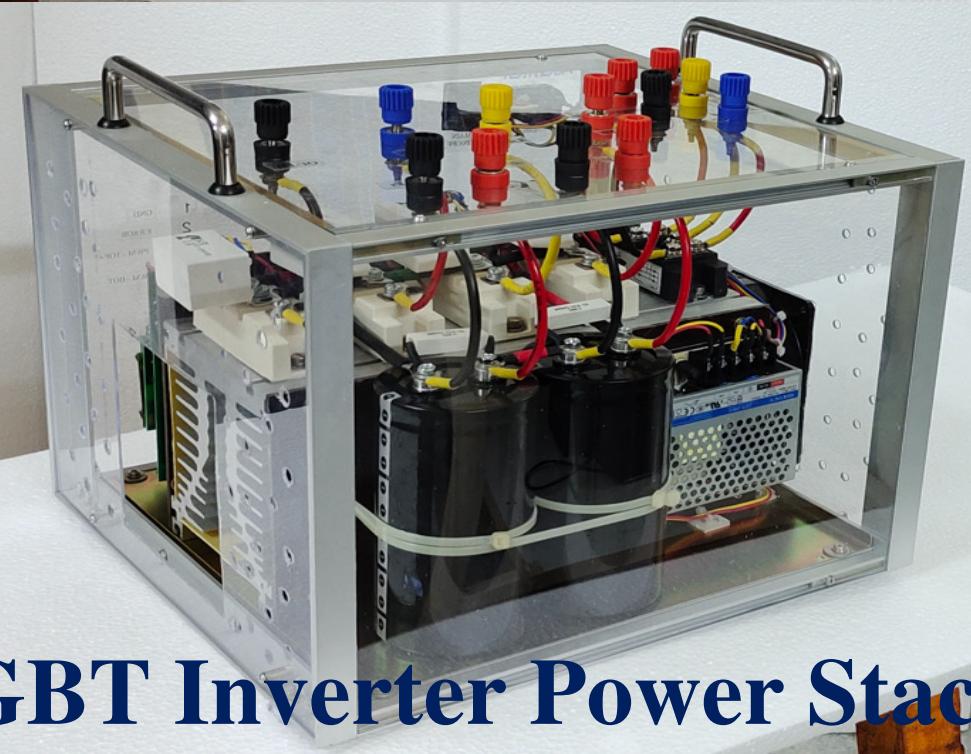
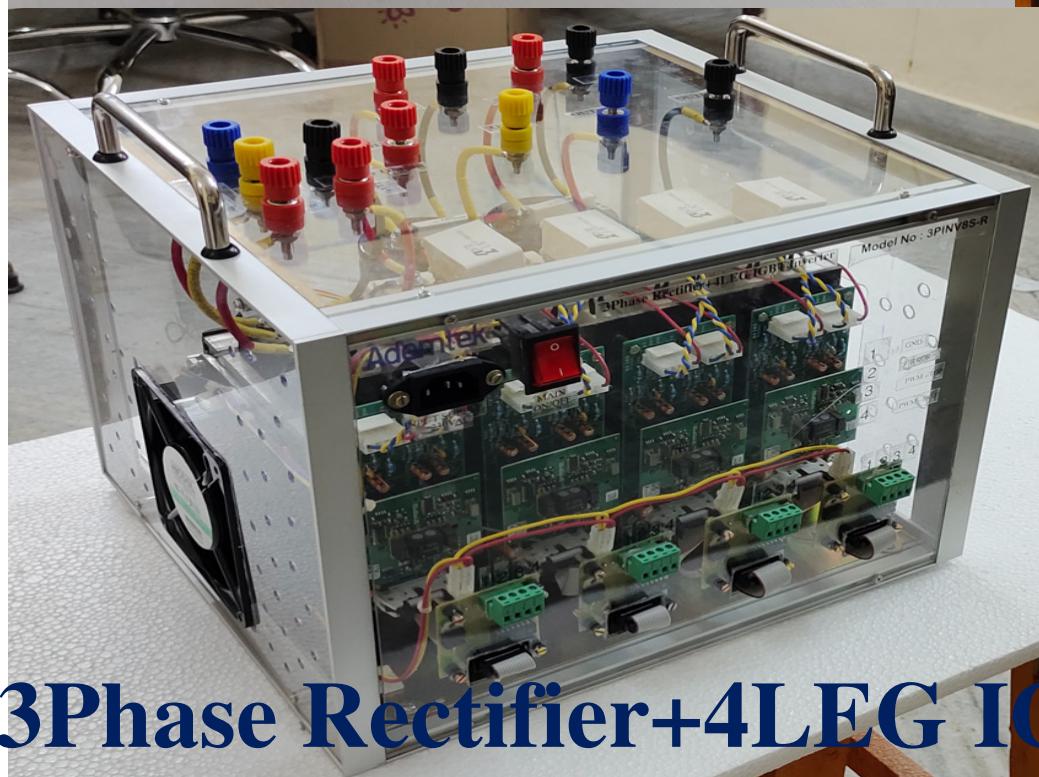
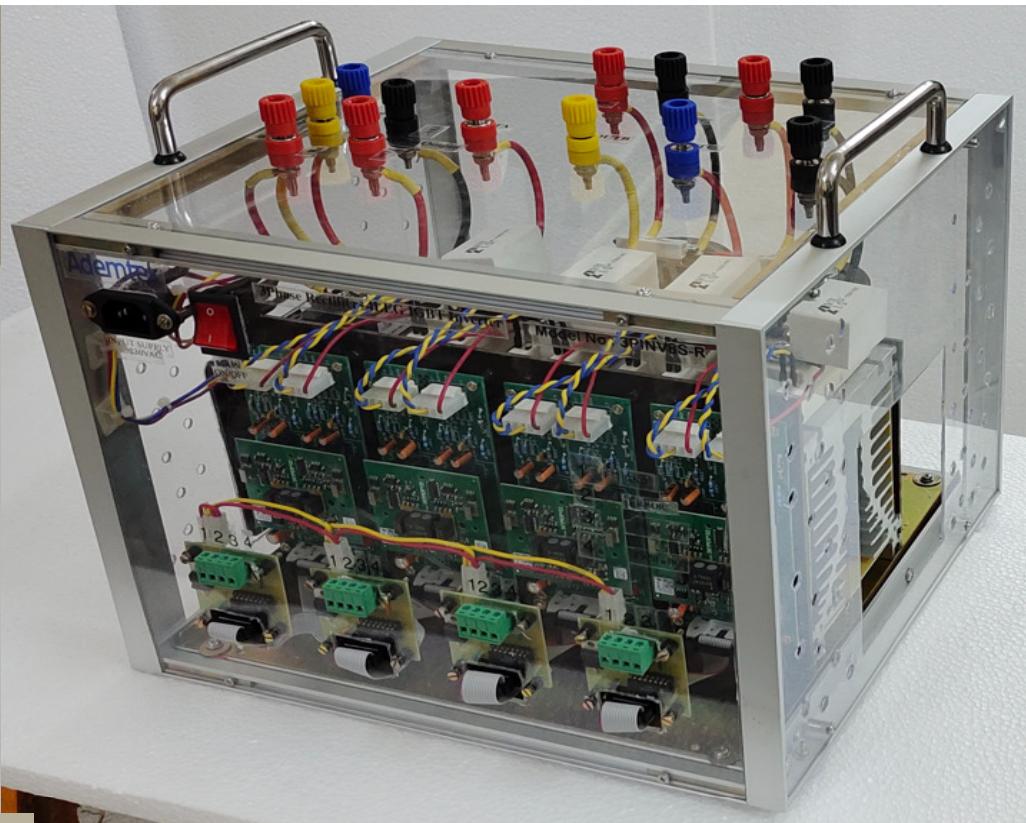
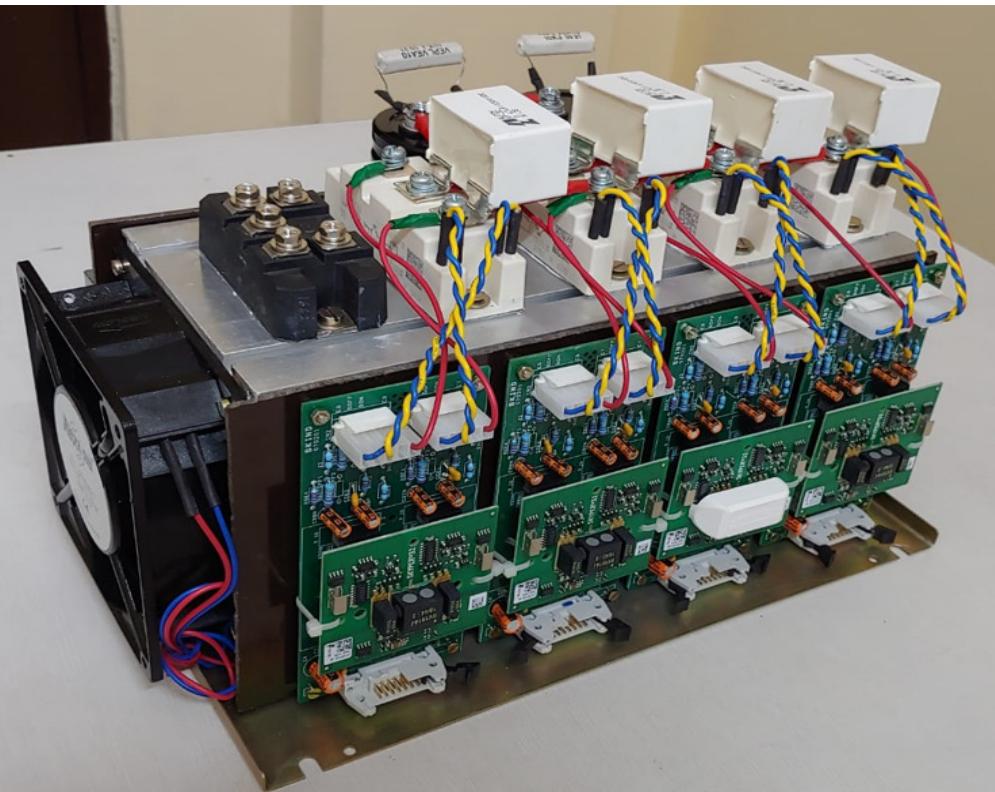
Note2 :DC link voltage and Current measurement meters optional)

## Applications

**IGBT Converters can be configured as**

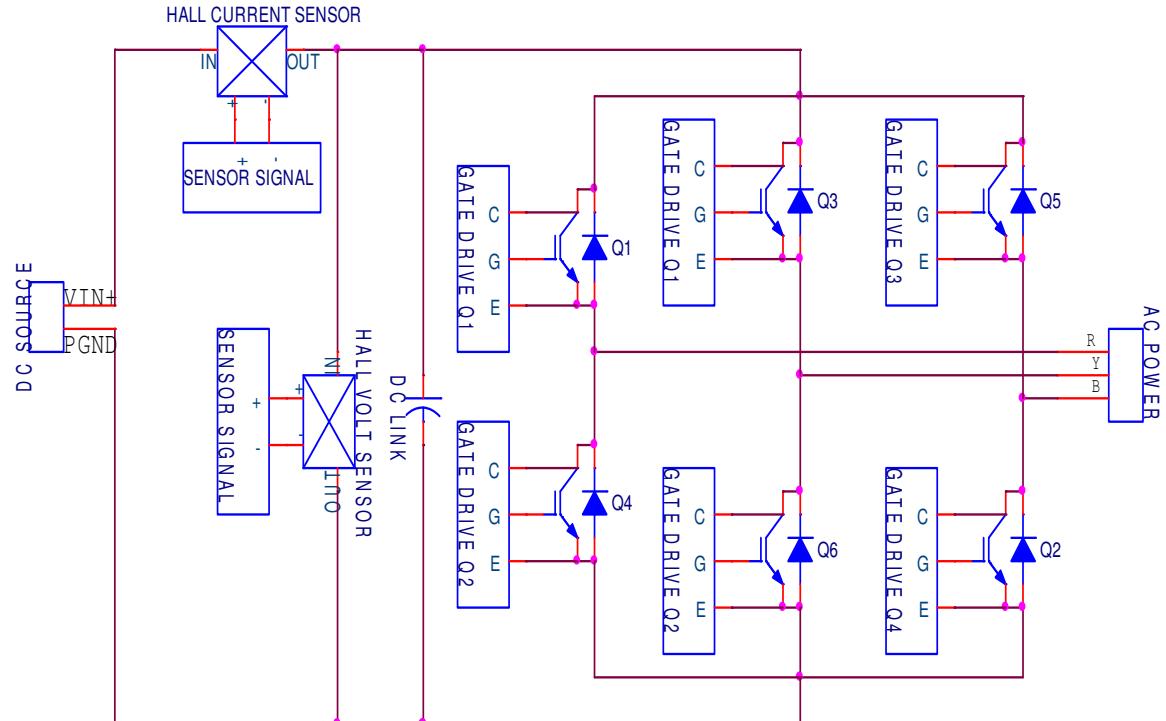
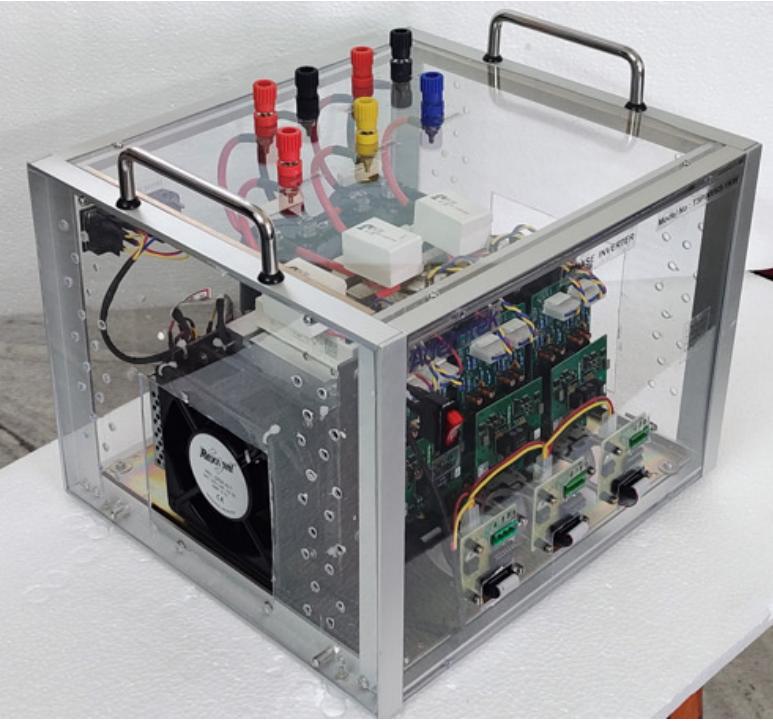
- 1 & 3 Phase Inverters
- Bi- Directional Converter
- Buck Boost Converters
- DC Motor Drives

**Cost: ₹ 70,000/-**



**3Phase Rectifier+4LEG IGBT Inverter Power Stack**

# 3Phase IGBT Inverter Stack Model: 3PINV6S-S



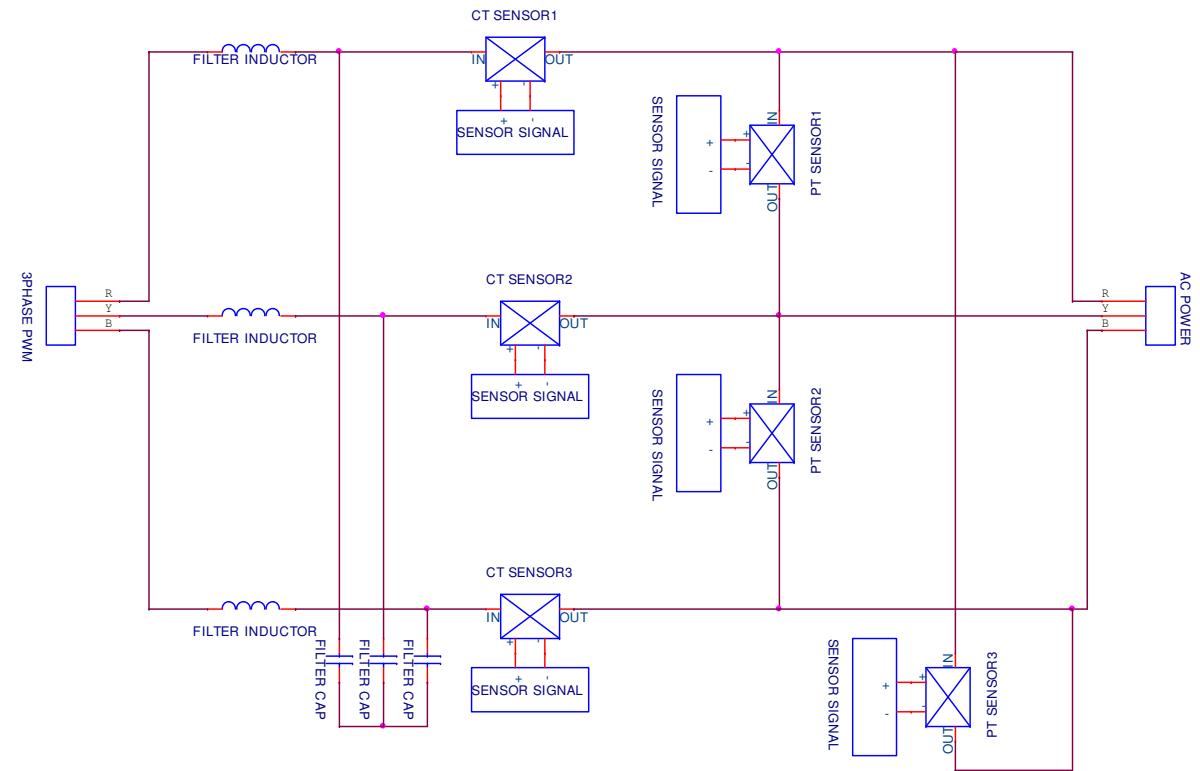
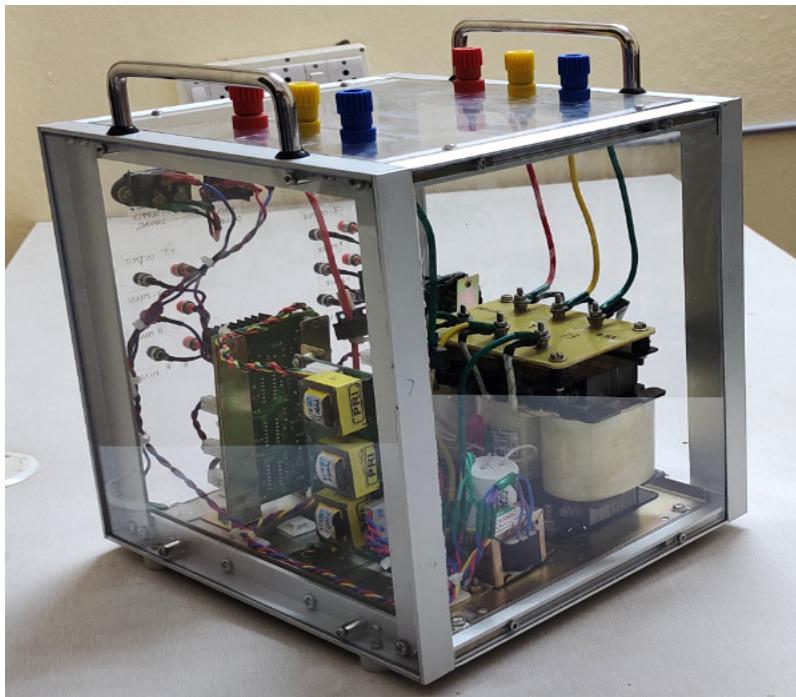
## Features

- It includes 3Leg IGBT modules , 600/1200V, 100A,with FWD modules
- isolated IGBT gate drives modules dual output supply with short circuit protection
- 3.3V/5V PWM input signal
- Internal +15V DC Power supply for Gate drivers
- DC Link Capacitors
- DC link voltage and Current monitoring with Hall effect sensors

## IGBT/MOSFET Based Converters can be configured as

- 1 & 3 Phase Inverters
- Bi- Directional Converter
- Buck Boost Converters
- DC Motor Drives
- Wind turbine Converters

# 3Ph INVERTER LC FILTER MODULE (Model: 3PINV6S-LCF)



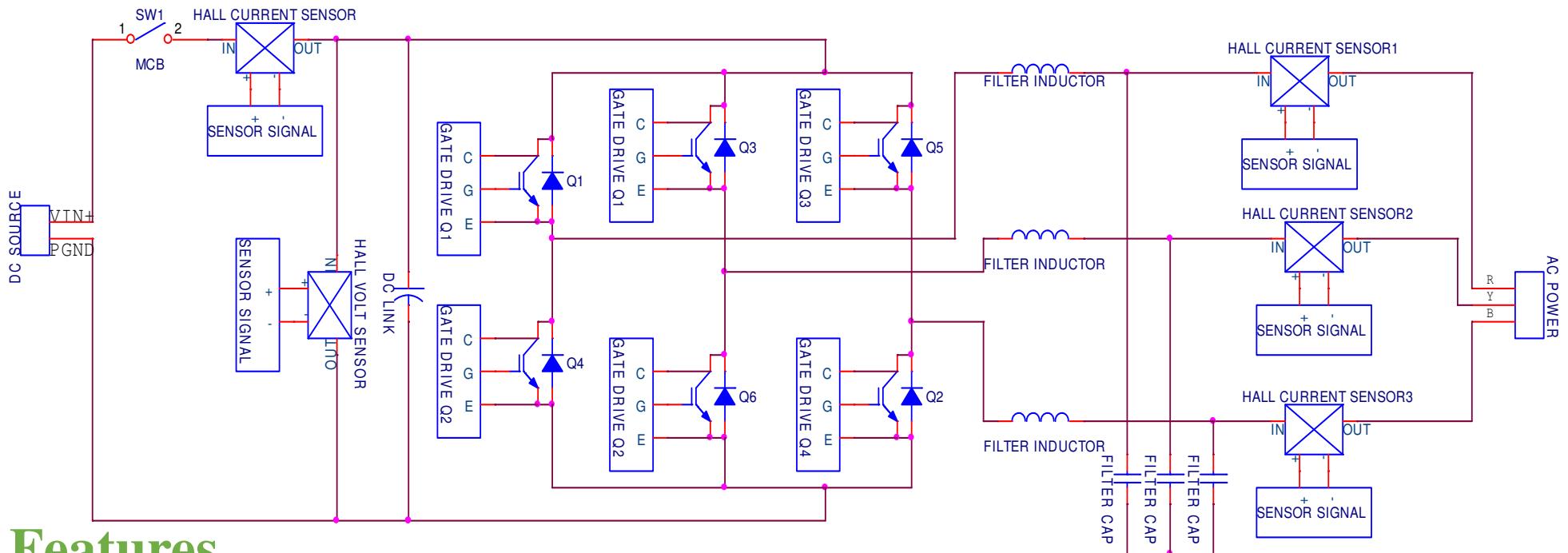
## Features:

- Sine wave PWM LC Filter
- Potential transformer based Voltage sensor Module
- current transformer based Current sensor Module

## Applications:

- Grid connection inverters
- Solar Inverters
- DC motor drives ,
- Uninterruptible Power Supply (UPS)

# 3Phase Inverter (Model: 3PINV6SLC)



## Features

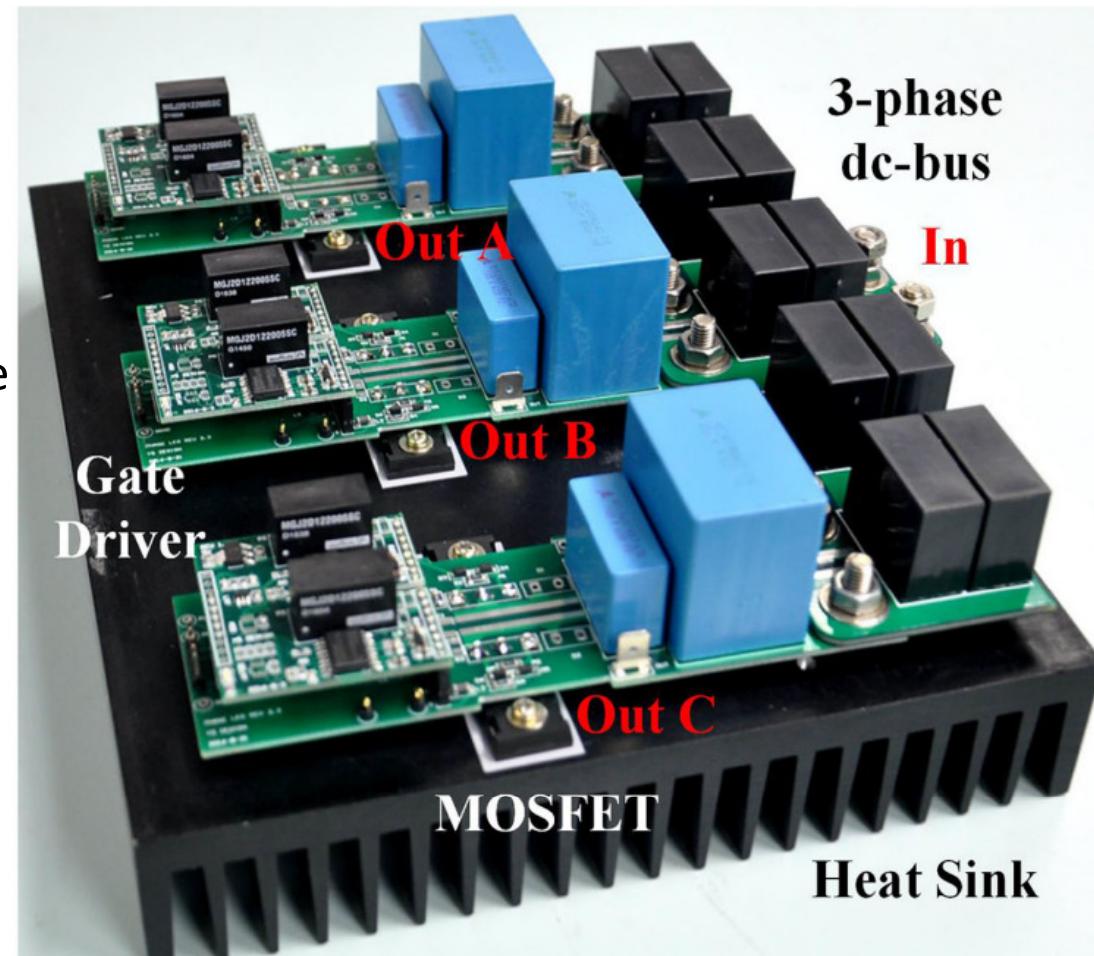
- It includes 3Leg IGBT modules 1200V, 50A/100A,with FWD modules
- isolated IGBT gate drives modules dual output supply with short circuit protection
- 3.3V/5V PWM input signal
- Internal +15V DC Power supply for Gate drivers
- DC Link Capacitors
- 3Phase LC filter to convert SPWM to Sine wave

## Applications:

- Grid connection inverters
- Maximum Power Point Tracking MMPT
- Solar Inverters , - AC motor drives (Induction machines, BLDC motors, PM)
- DC motor drives , - Uninterruptible Power Supply (UPS)

# SIC VOLTAGE SOURCE INVERTERS (Model: SPM-IN3L)

SIC VOLTAGE SOURCE INVERTERS is high power 3 phase inverter stack that comes with optional SiC or IGBT switches suitable for wide variety of applications. It is specially designed with flexibility and reliability in mind for applications such as motor drive inverters, 3 phase active rectifiers and PV-inverters.

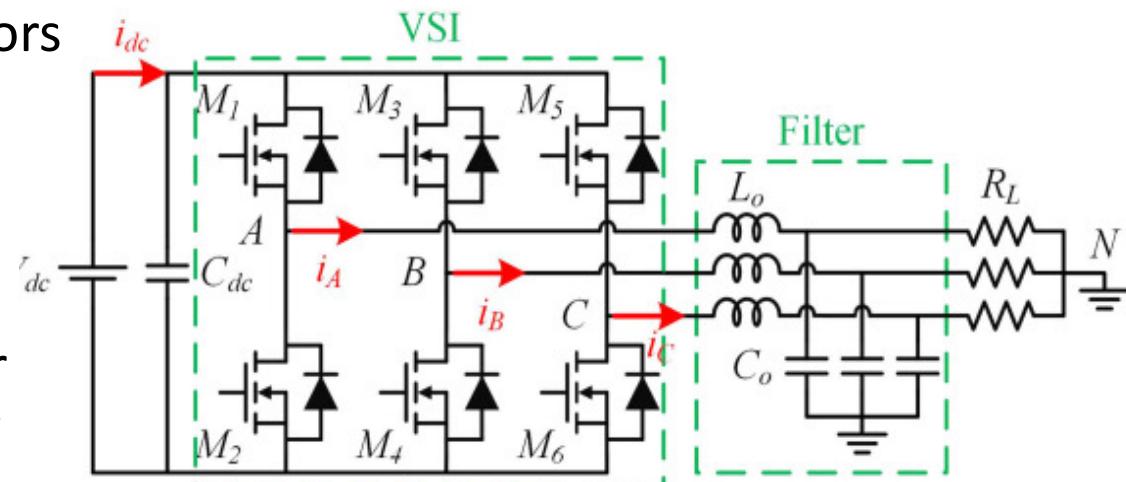


## Features

- Up to 40kW | 50A | 750V DC-Link
- Optional IGBT and SiC Power Switches
- High MTBF 900V DC-Link Film Capacitors
- Isolated Control Inputs & Outputs

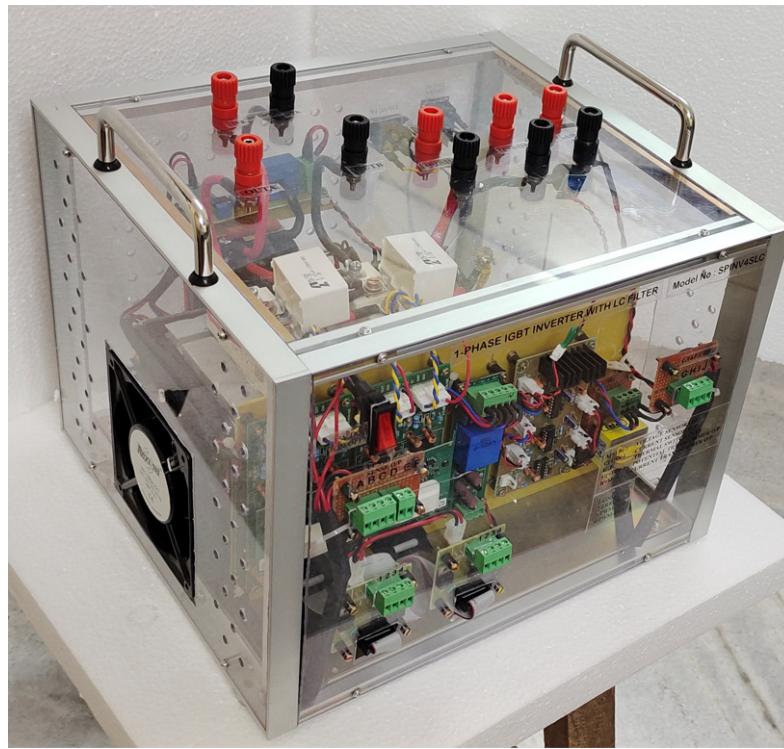
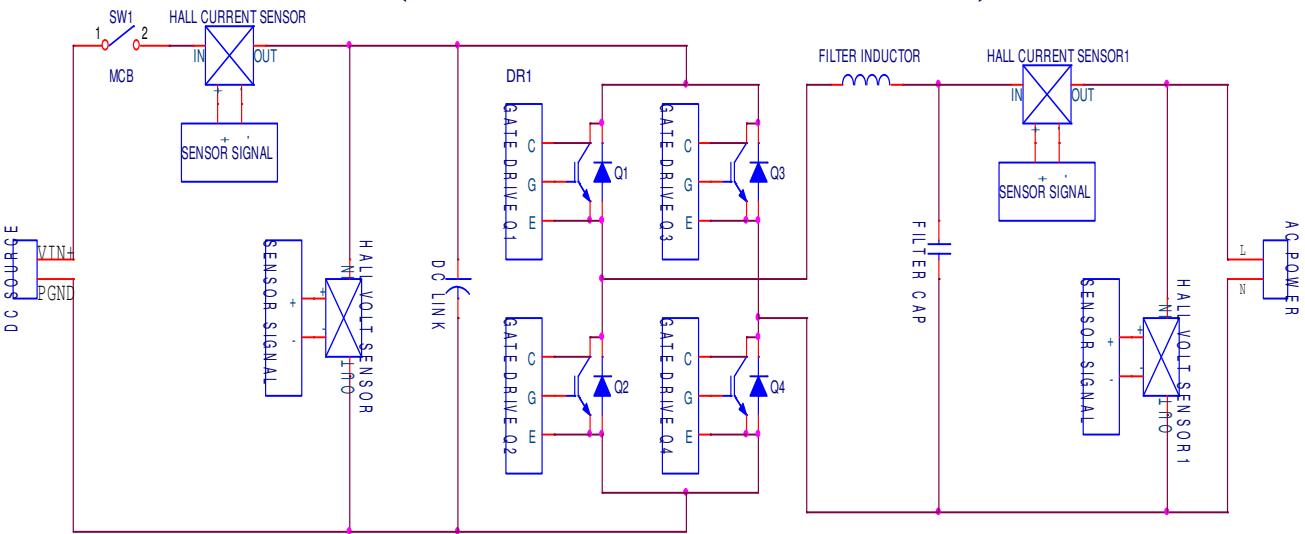
## Applications

- Three Phase AC Motor Drive
- Three Phase Inverter/Grid-Tie Inverter
- Single Phase Solar Inverter with MPPT
- Active PFC Rectifier



6. Testing circuit diagram of SiC VSI.

# 1Phase IGBT Inverter with LC Filter (Model: SPINV4SLC)



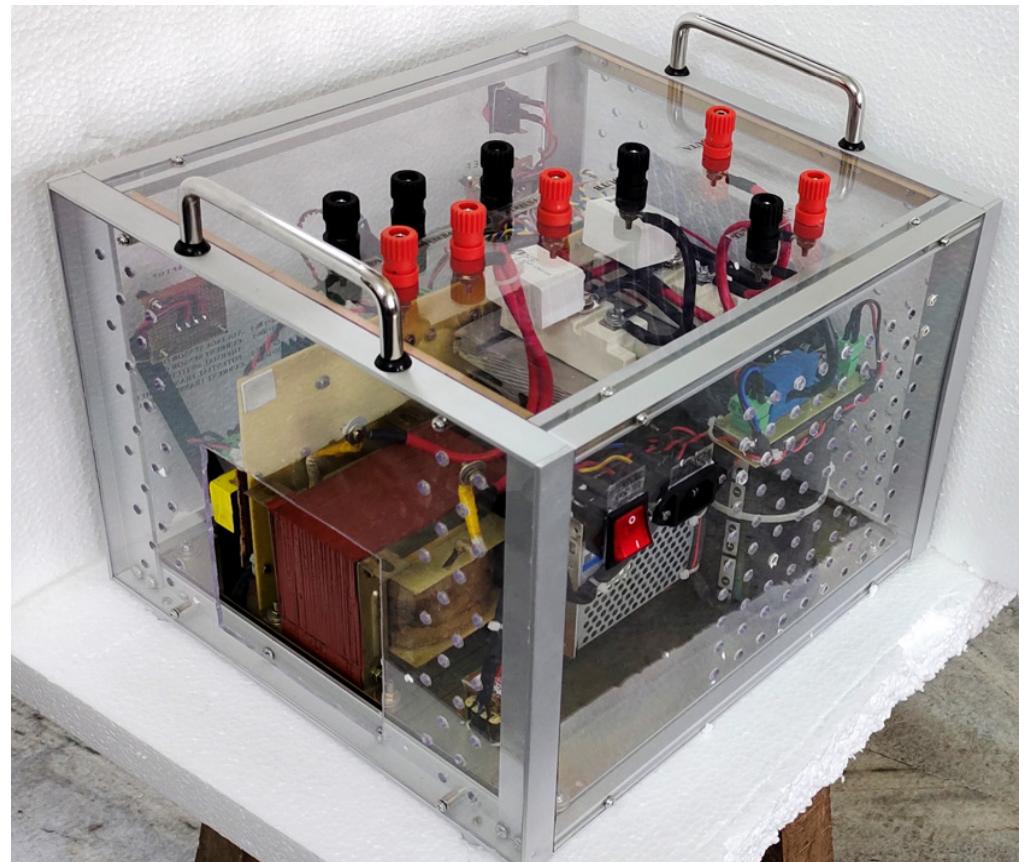
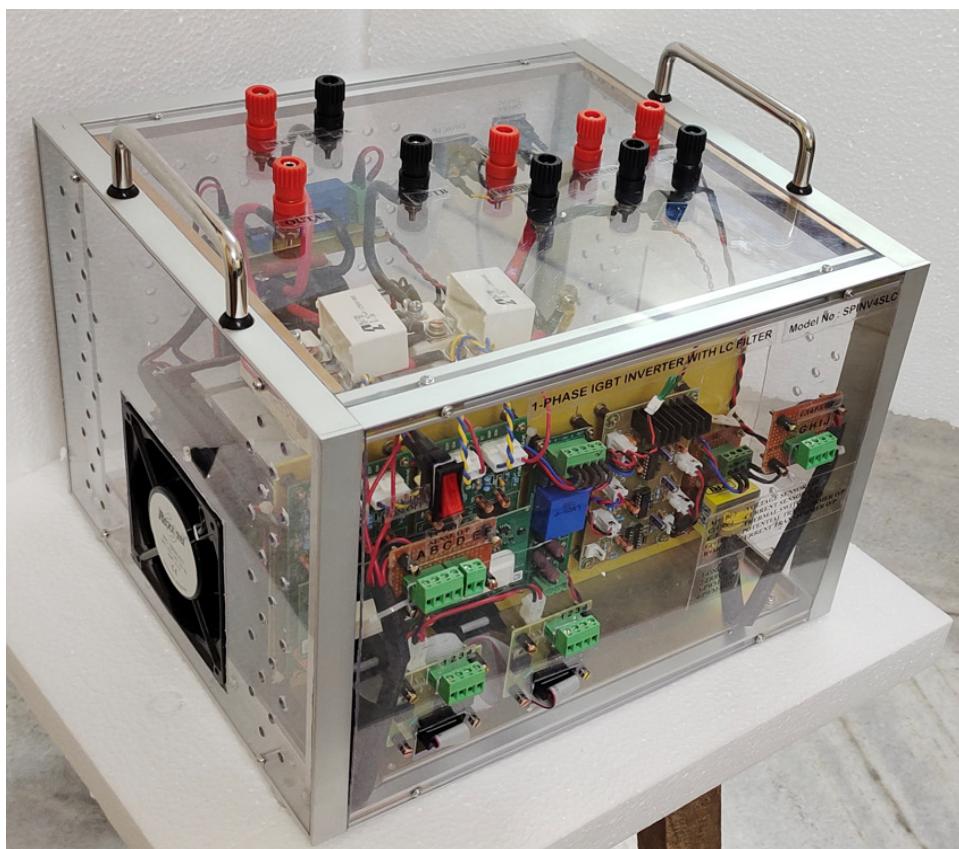
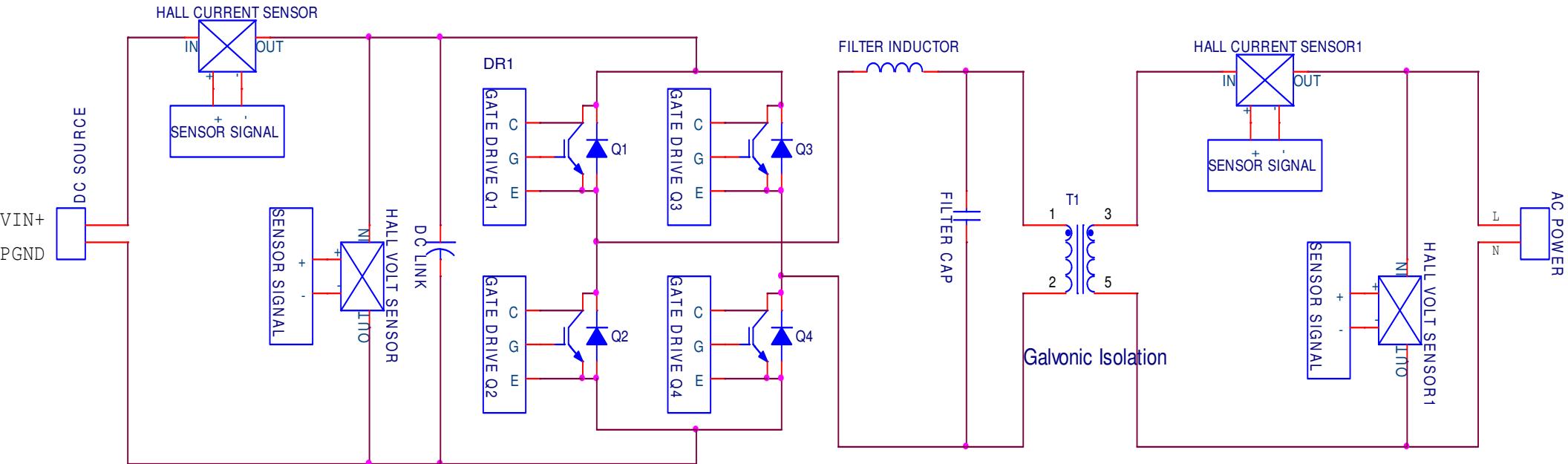
## Features

- It includes 2leg IGBT modules , 600V,50A with FWD modules
- isolated IGBT gate drives modules dual output supply with short circuit protection
- 3.3V/5V PWM input signal
- Internal +15V DC Power supply for Gate drivers
- DC Link Capacitors
- Hall effect voltage and current sensors for DC voltage(Input side, optional)
- Sine wave PWM LC Filter
- Potential transformer based Voltage sensor Module
- current transformer based Current sensor Module

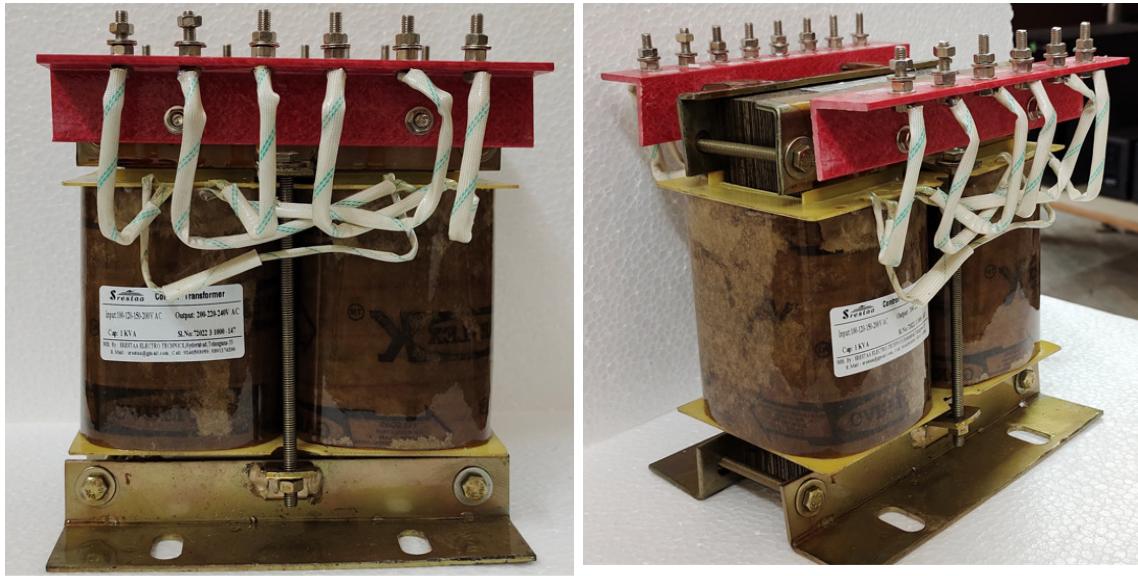
## Applications:

- Grid connection inverters
- Solar Inverters, - DC motor drives
- Uninterruptible Power Supply (UPS)

# 1Phase Transformer based Inverter (SPINV4STX)



# 1Phase Transformer based Inverter (SPINV4STX) Continued...



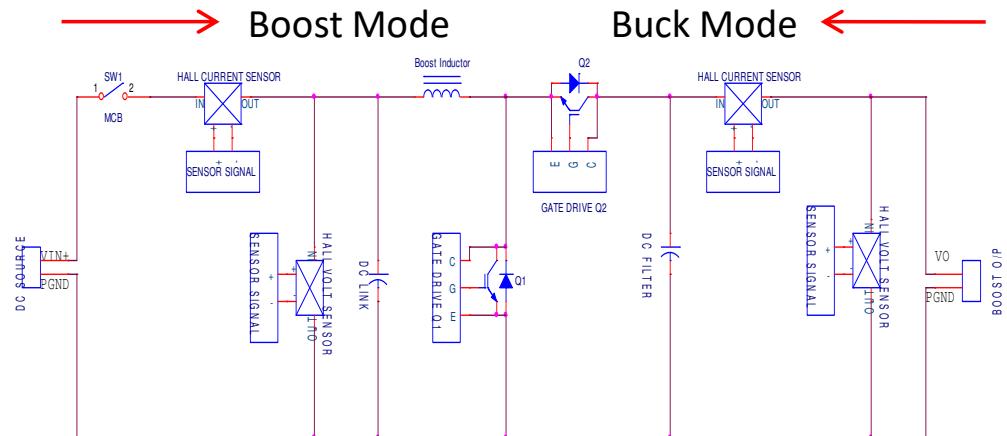
## Features

- It includes 2leg IGBT modules , 600V,50A with FWD modules
- isolated IGBT gate drives modules dual output supply with short circuit protection
- 3.3V/5V PWM input signal
- Internal +15V DC Power supply for Gate drivers
- DC Link Capacitors
- Hall effect voltage and current sensors for DC voltage(Input side, optional)
- Sine wave PWM LC Filter
- Potential transformer based Voltage sensor Module
- current transformer based Current sensor Module

## Applications:

- Grid connection inverters
- Solar Inverters, – DC motor drives
- Uninterruptible Power Supply (UPS)

# Bi-Directional Converter(Model:BB1SW)

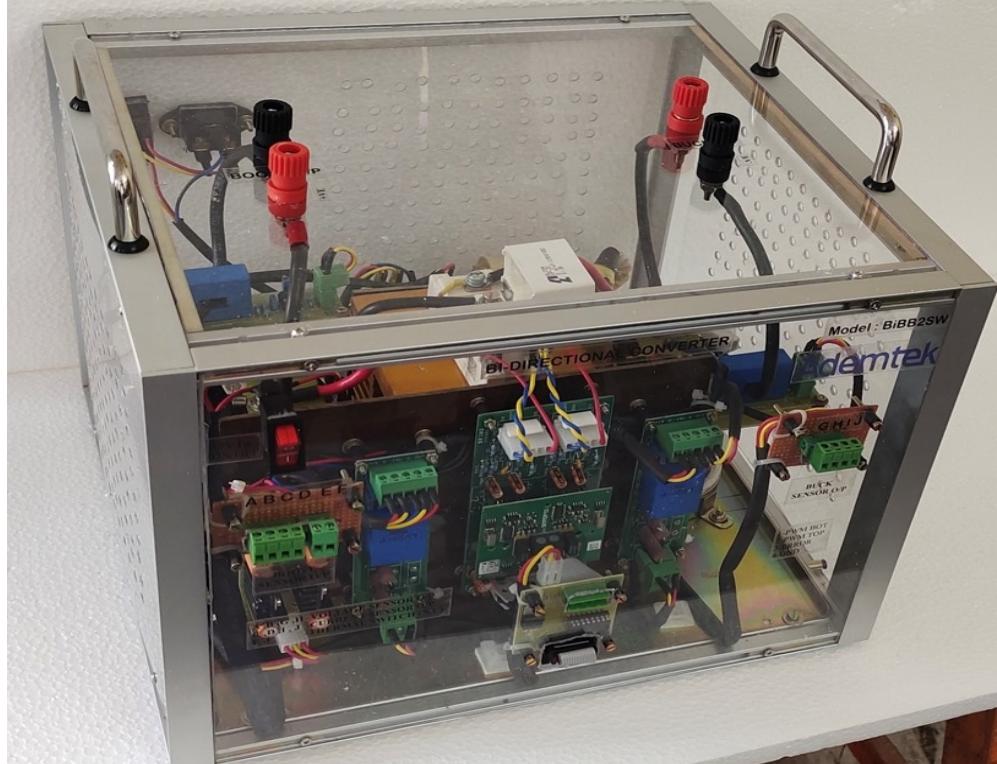
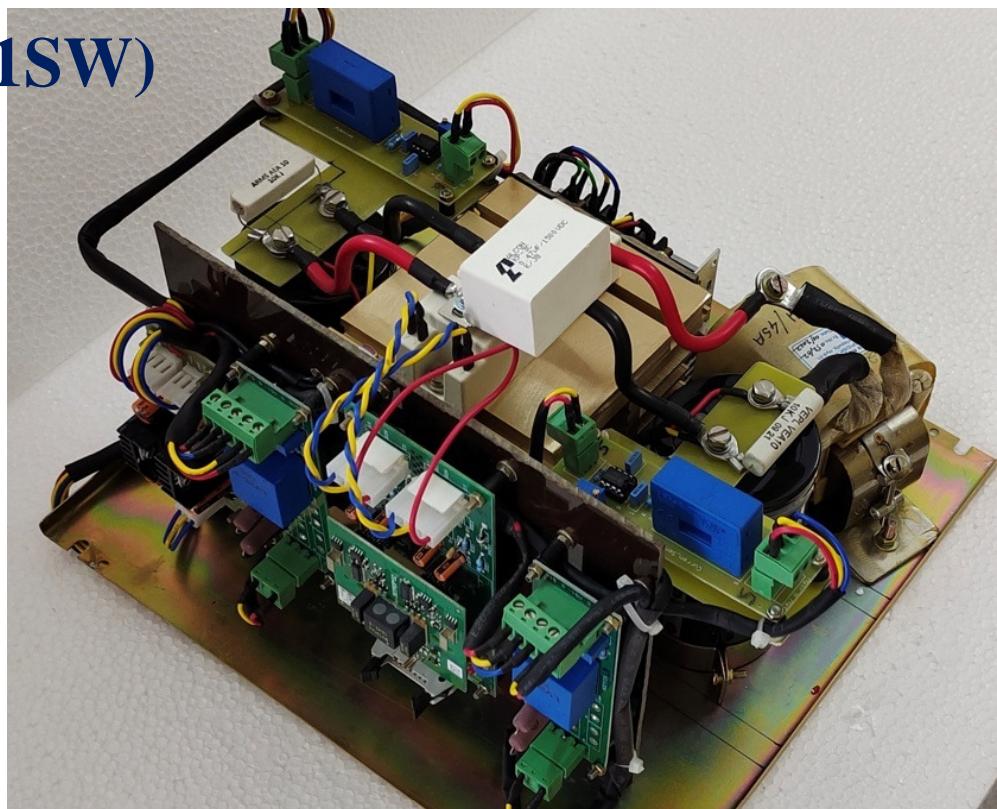


## Features:

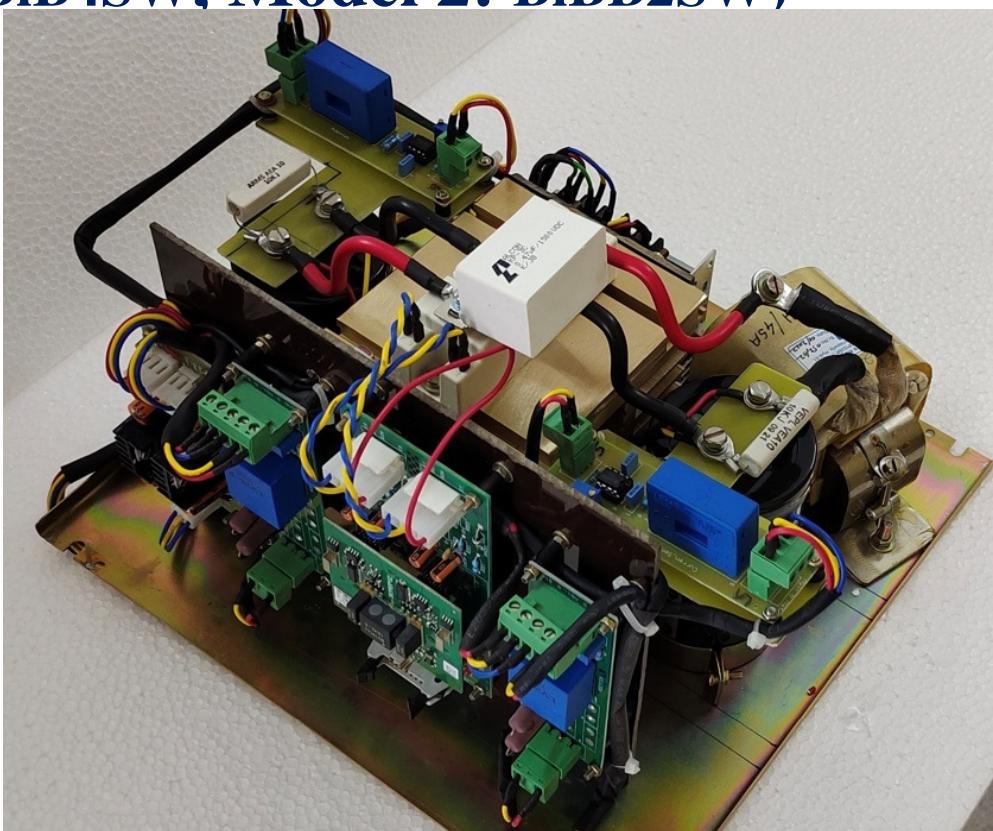
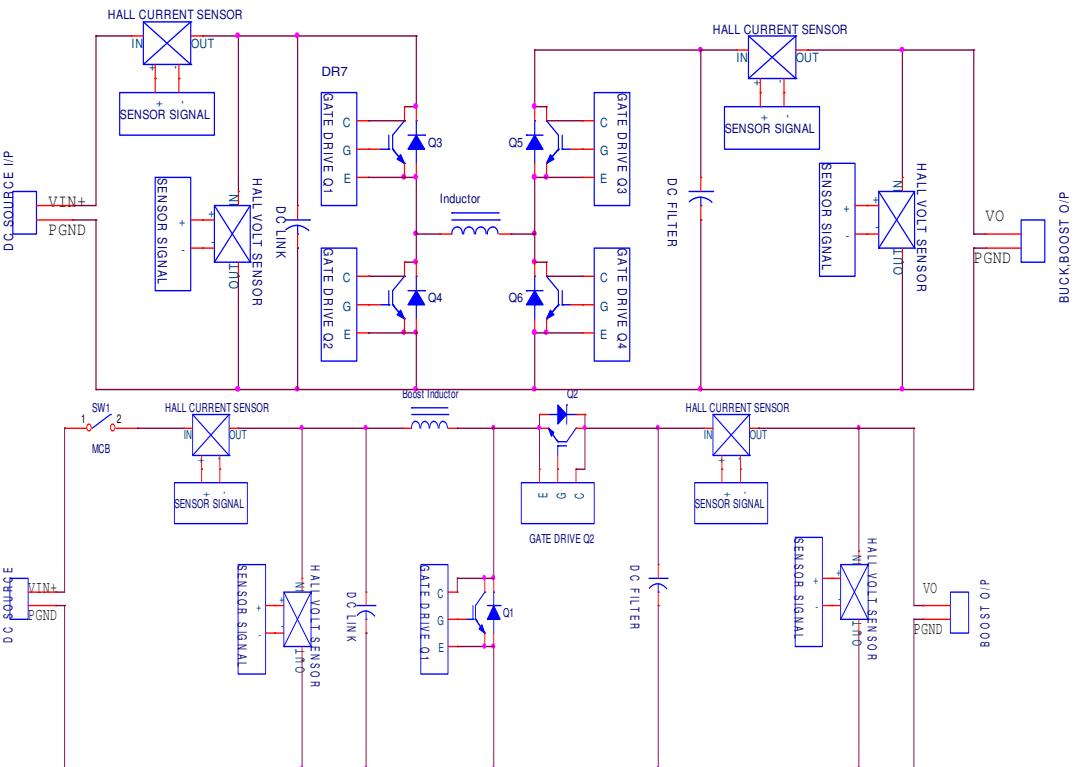
- 600V/1200V/50A/75A/100A IGBT module based with Snubber Capacitor
- IGBT gate drive with 3.3V/5V logic level compatibility
- DC link Capacitors
- Customized Inductor design
- Hall Effect isolated voltage and Current sensor Buck side and Boost side
- Built in IGBT Gate driver and Sensors boards power supplies

## Applications:

- Automotive (HEV – Hybrid Electric Vehicles and EV – Electric Vehicles)
- General Digital Power (Industrial Power and Battery Back-Up Systems)



# Bi-Directional Converter (Model 1: BiB4SW, Model 2: BiBB2SW)



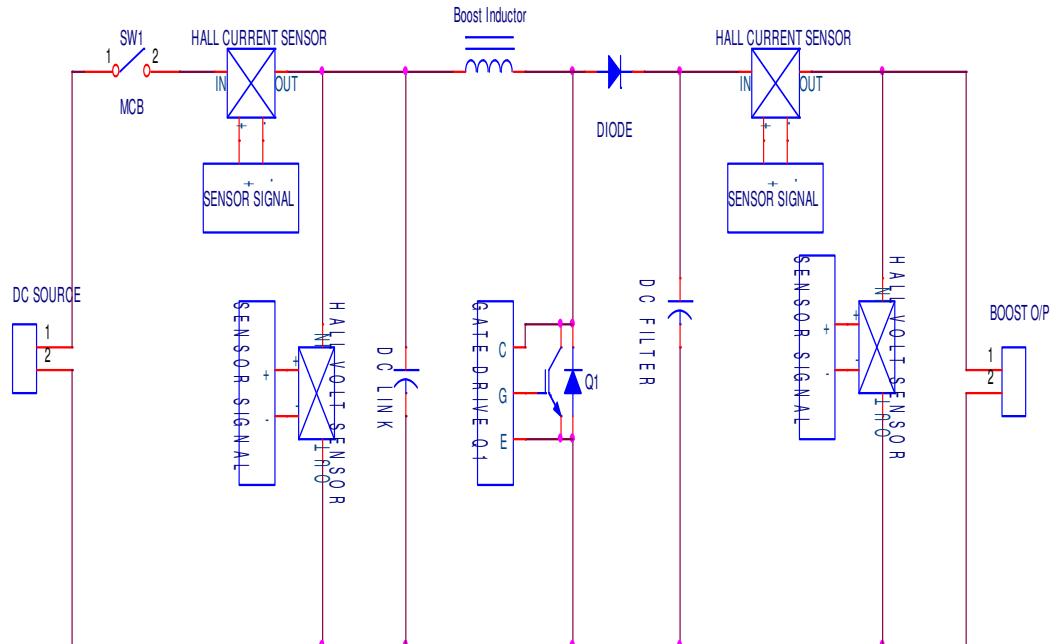
## Features:

- 600V/1200V/50A/75A/100A IGBT module based with Snubber Capacitor
- IGBT gate drive with 3.3V/5V logic level compatibility
- DC link Capacitors
- Customized Inductor design
- Hall Effect isolated voltage and Current sensor Buck side and Boost side
- Built in IGBT Gate driver and Sensors boards power supplies

## Applications:

- Grid connection inverters
- Maximum Power Point Tracking MMPT, - Voltage Regulators,
- Solar Converters

# Boost Converter (BO1SW1D-xkW)



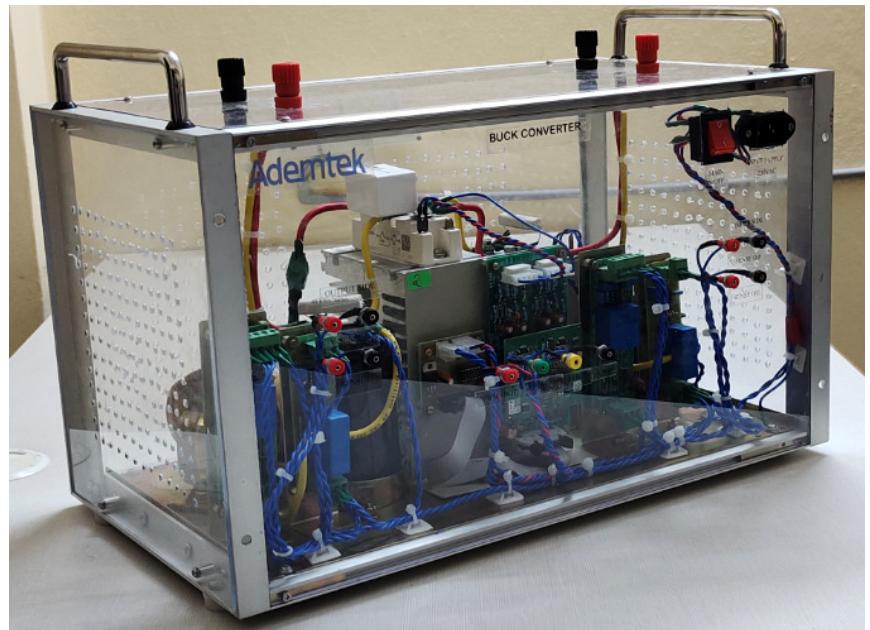
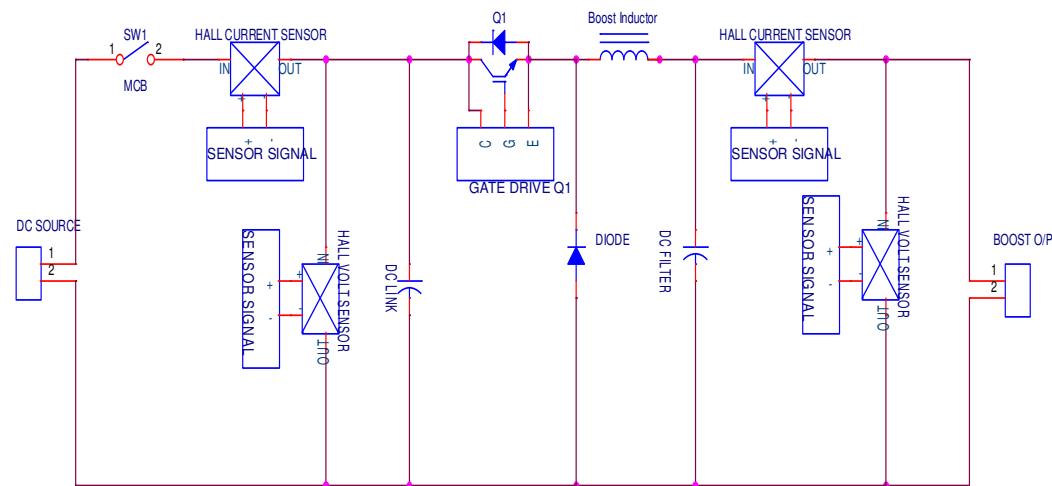
## Features:

- 600V/1200V/50A/75A/100A IGBT module based with Snubber Capacitor
- IGBT gate drive with 3.3V/5V logic level compatibility
- DC link Capacitor
- Customized Inductor design
- Hall Effect isolated voltage and Current sensor
- Built in IGBT Gate driver and Sensors boards power supplies

## Applications:

- Grid connection inverters
- Maximum Power Point Tracking MMPT
- Voltage Regulators
- Solar Converters

# Buck Converter (BU1SW1D-xkW)



## Features:

- 600V/1200V/50A/75A/100A IGBT module based with Snubber Capacitor
- IGBT gate drive with 3.3V/5V logic level compatibility
- DC link Capacitor
- Customized Inductor design
- Hall Effect isolated voltage and Current sensor
- Built in IGBT Gate driver and Sensors boards power supplies

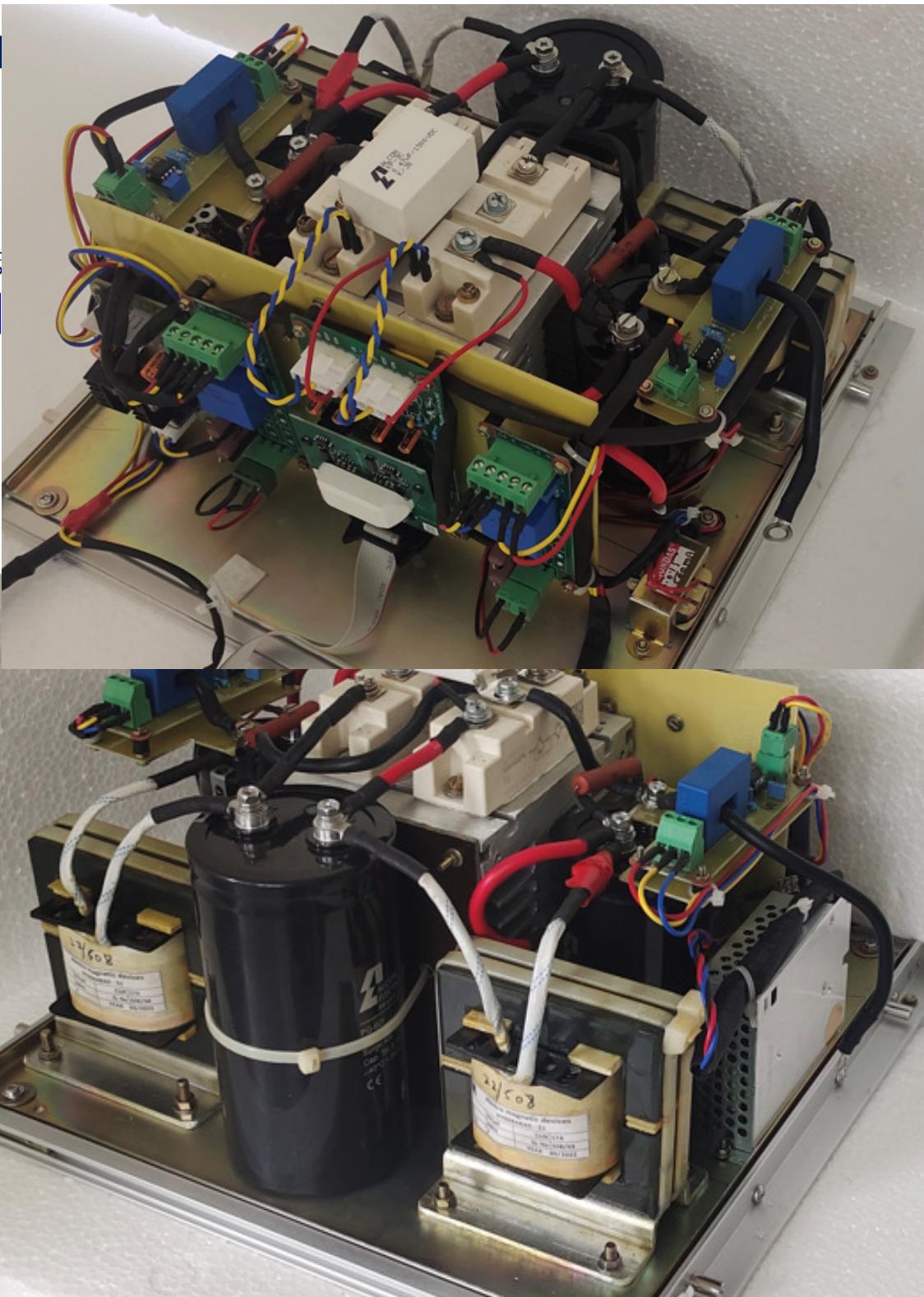
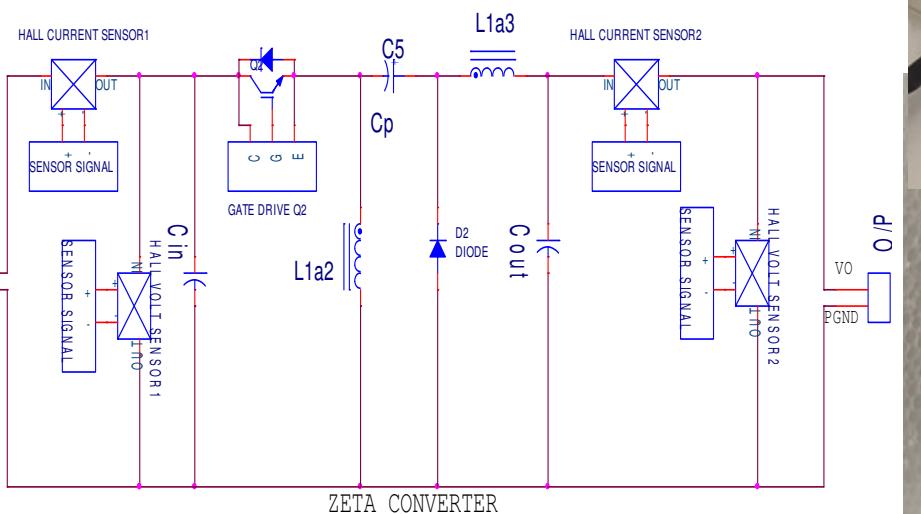
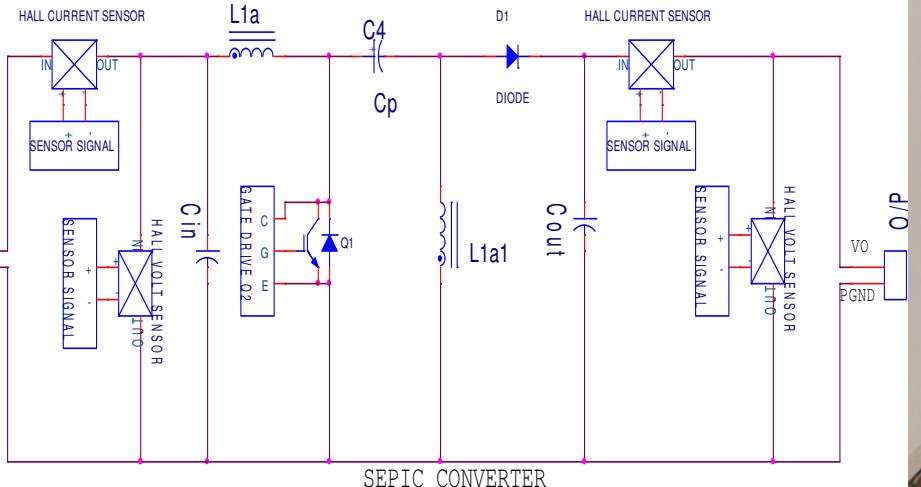
## Applications:

- Grid connection inverters
- Maximum Power Point Tracking MMPT
- Voltage Regulators

## Configurations:

- Half Bridge Rectifier
- Buck Converter

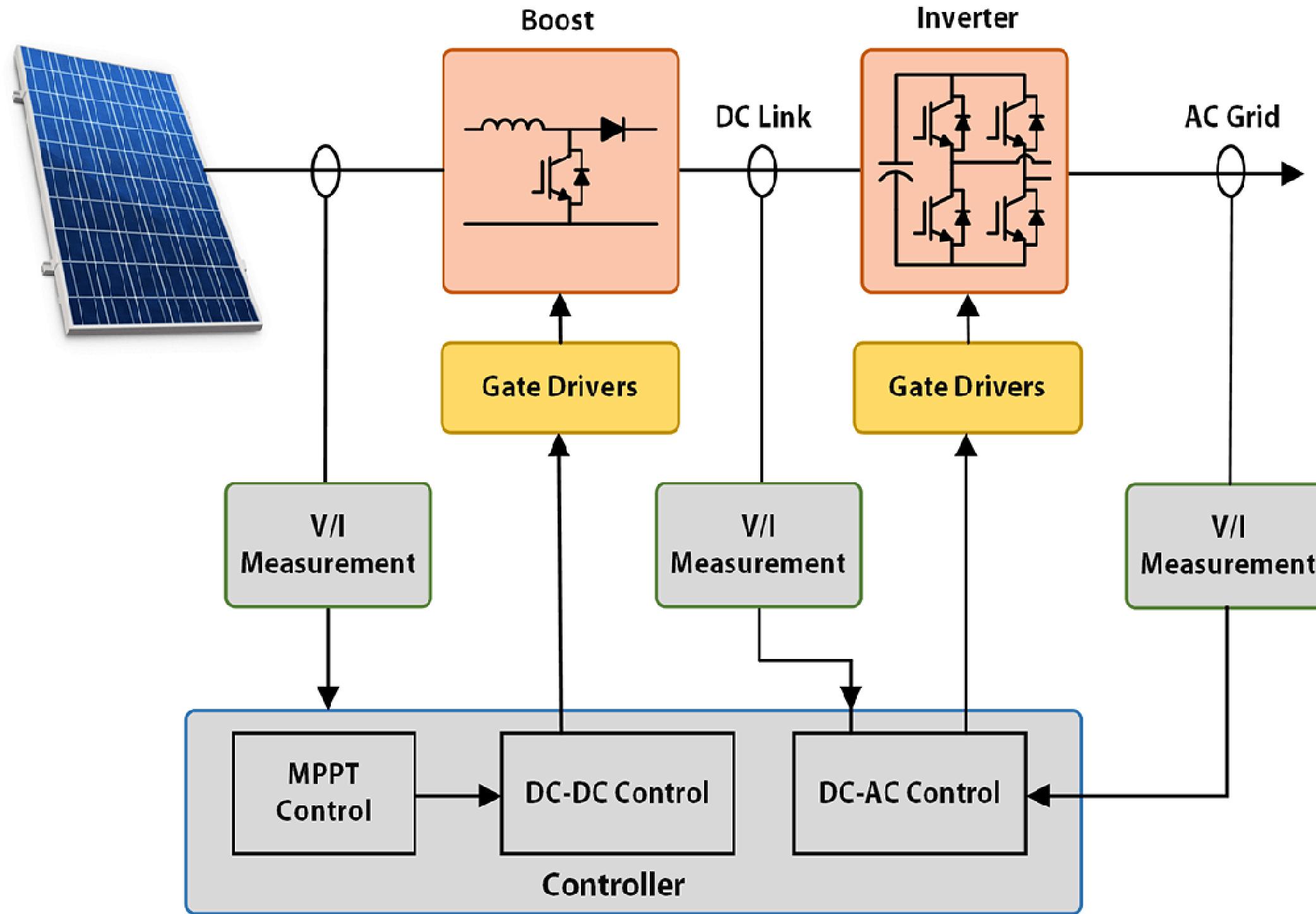
# SEPIC & ZETA Converter (SEPIZ)



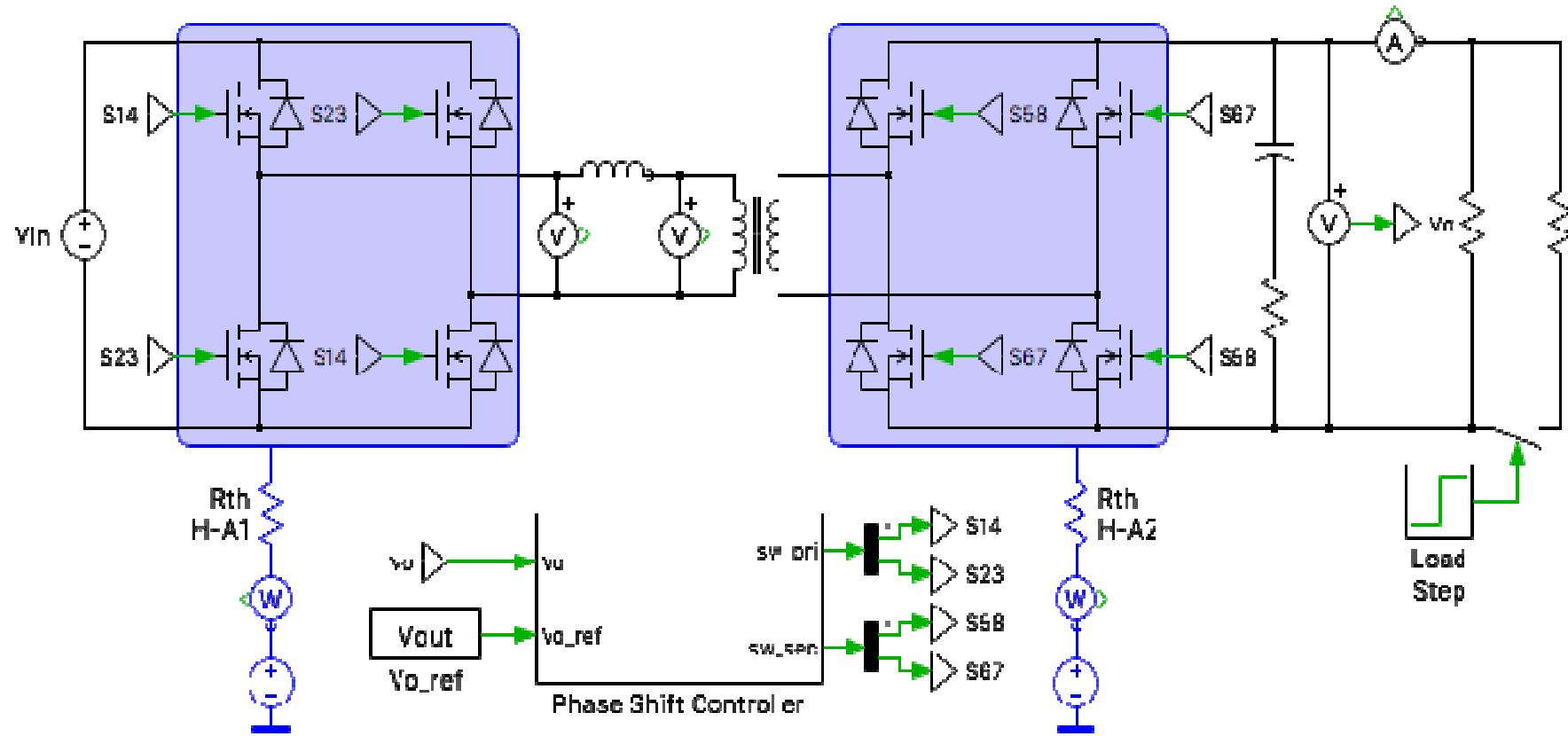
## Applications:

- Hybrid PV and Wind Energy for Grid Connected System
- Solar Powered Induction Motor Driving
- Automotive Battery Chargers

# Solar Grid-Tie Inverter | System Block Diagram

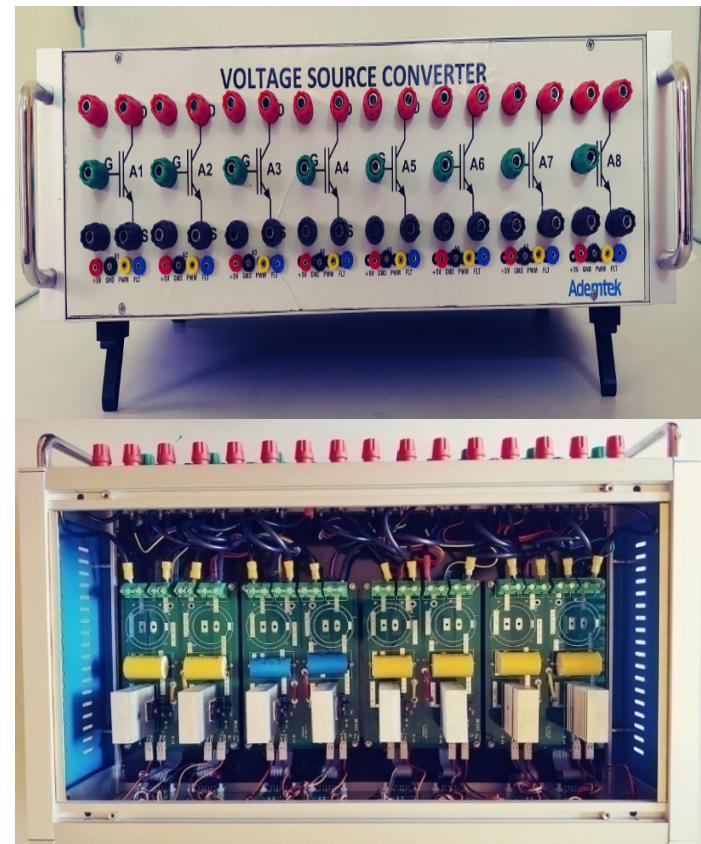
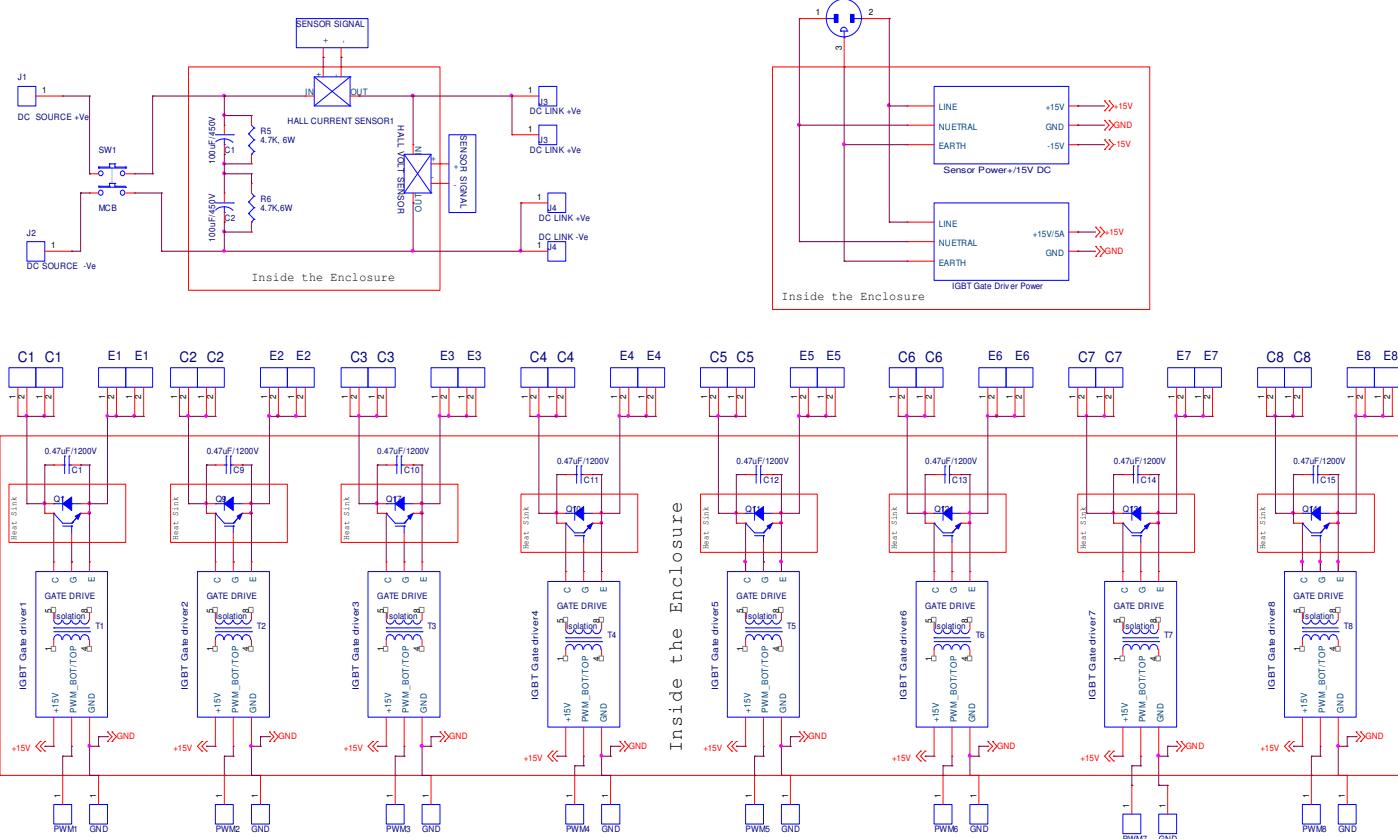


# Dual Active Bridge Converter (Model: DABC)



## Features

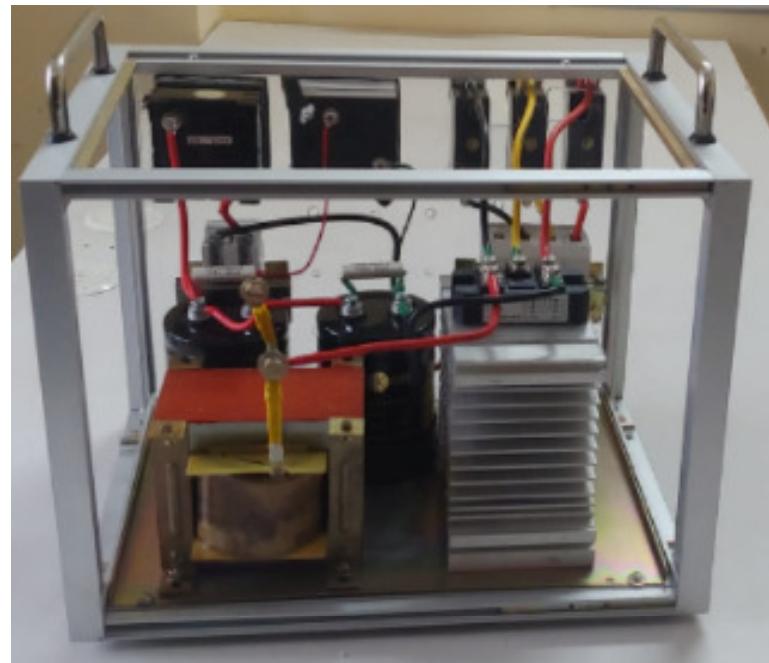
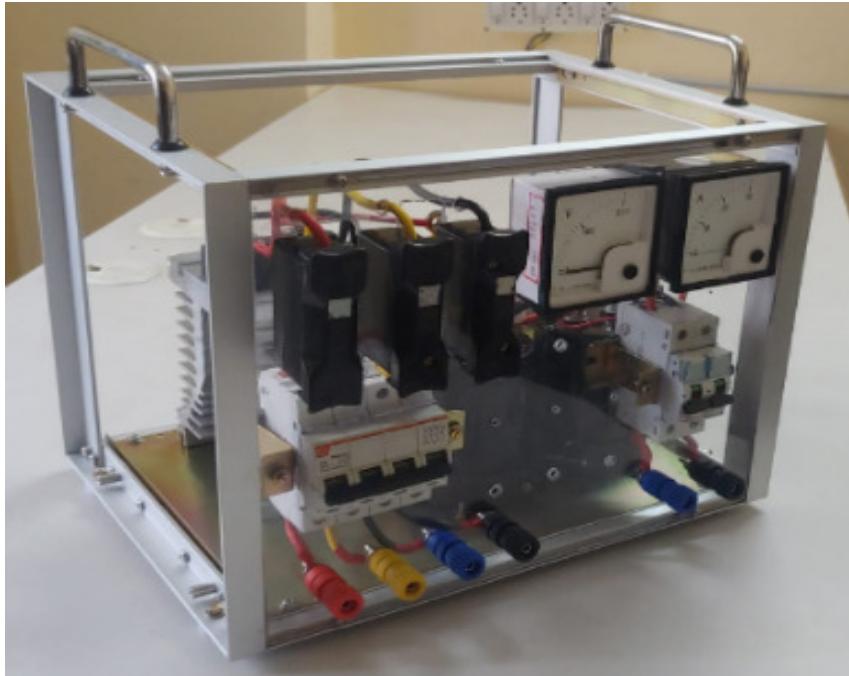
# Discrete General Purpose IGBT Switch Stack (Model: DSW8IGMO)



## Features

- 8 Nos IGBT/MOSFET with FWD module based on 600V/1200V/45/75A/100A,
- 8 Snubber capacitor - 0.22 uF/1200V - Alcon make.
- 8 Nos IGBT gate drivers with isolation & short circuit protection
- DC link Electrolytic capacitor modules
- 8 Nos IGBT/MOSFET Heatsink

# Unregulated DC Power Supply 0-350VDC/550VDC, 0-25A



## Features

- DC Voltage range: 0-550VDC
- DC Current range: 0-25A
- LC filter to reduce the current ripple and improve the power factor
- 0-600/1000VDC Analog volt meter, - 0-30ADC Analog Ammeter
- Input: 3phase/1phase

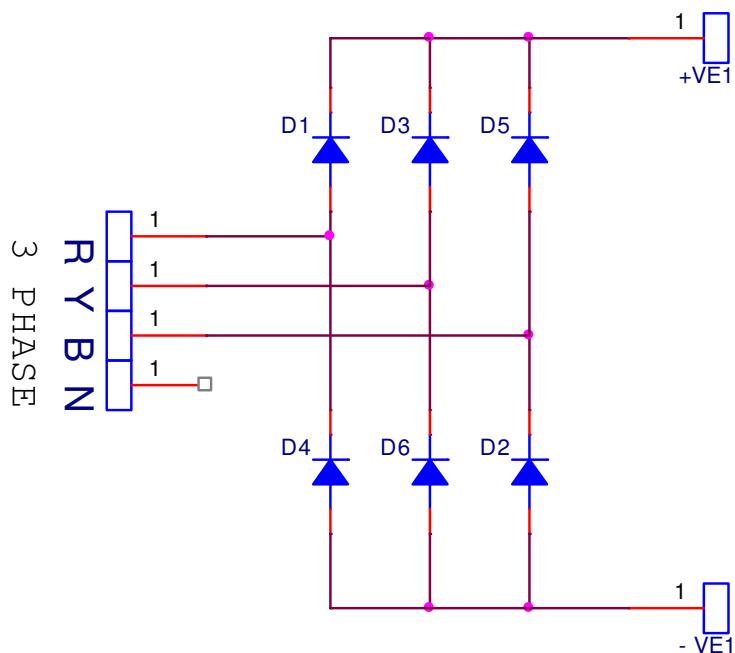
## Protections:

- 4pole 25A MCB input side
- 30A, 3HRC fuses input side (redundancy protection)
- 2 pole, 25A MCB output side

## Applications

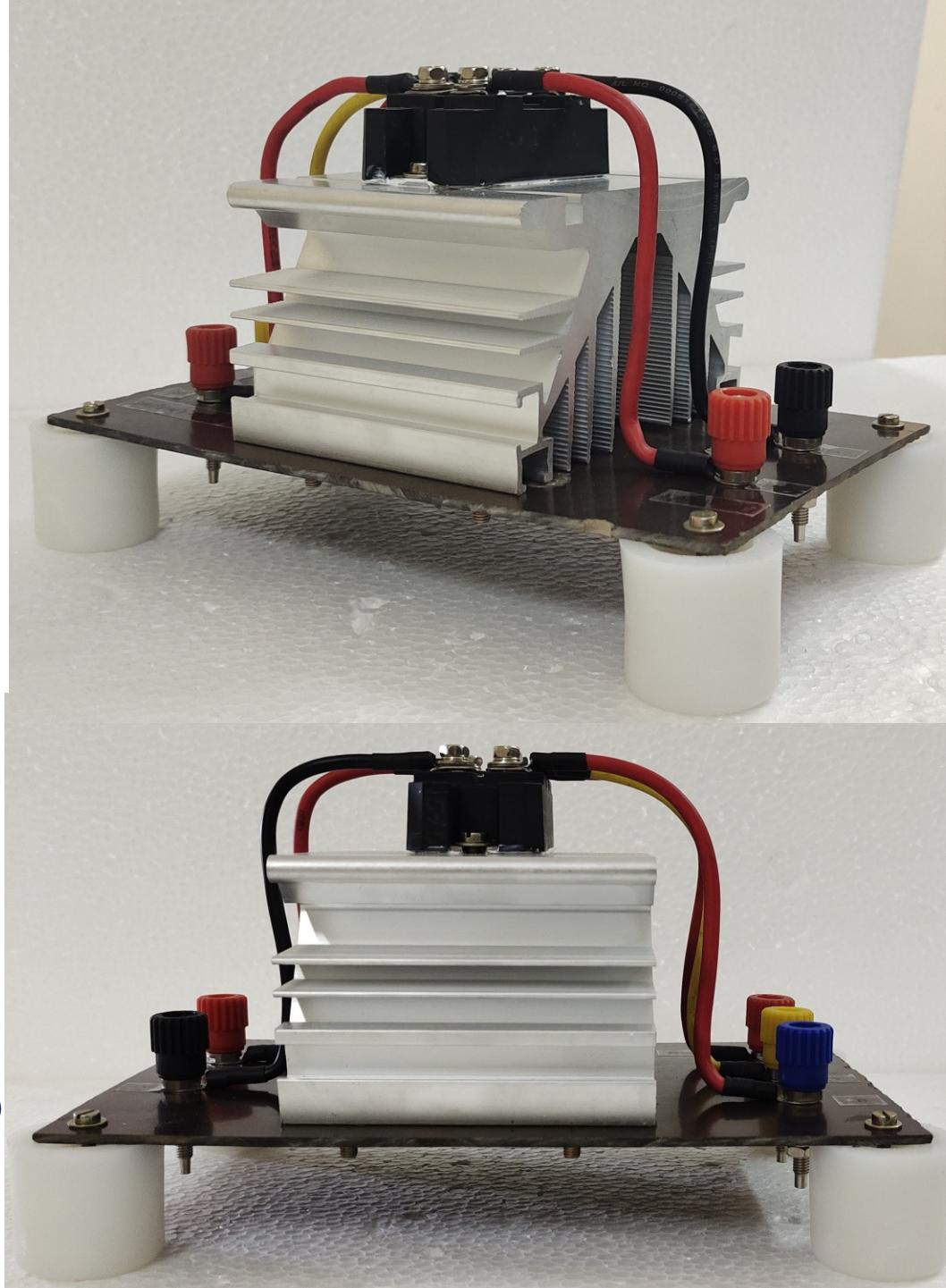
- DC Power Supply for Converters and Inverters

# 3Phase Rectifier (Model:AD3PHREC)



## Features:

- 100A, 1600V 3phase Rectifier Modules
- Heat Sink for Thermal Management
- BT 30 terminal for easy connections
- Option1: Volt and Current meter
- Option2: 4 Pole 4phase MCB for Power O  
Over load and short Circuit Protection
- Optional3: Inrush Current limit switch with  
Programmable timer



# Computer based DC Motor Controller



Controller/Driver takes the commands from PC GUI through LAN and drives the Motor as per the command information at desired speed and angle. The resolution of the angle is 0.1deg and accuracy of the angle rotation is 1deg.

## IGBT based Motor Generator set drive with Control loop, DC power source and load setup supplied to NITW



# DC Grid project setup with Ademtek Power Converters in Assam Engineering College, Guwahati



REDMI NOTE 7 PRO  
VENKY

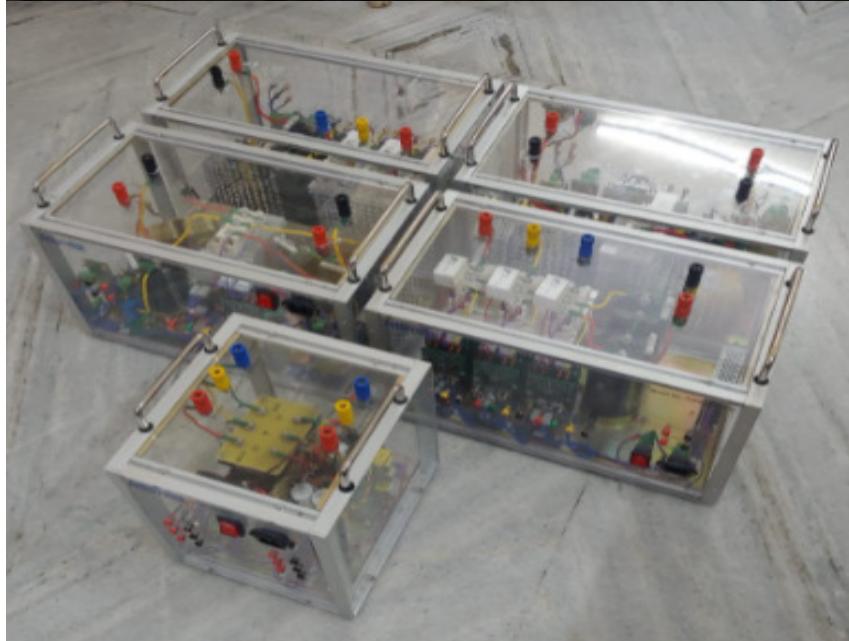
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Solar based Grid connected 3phase Inverter setup with Ademtek Power Converters in IIITDM, Kancheepuram



# Ademtek Converters in Vardhaman College of engineering



## List Converters Supplied

- Buck Converter
- Boost Converter
- Bi-Directional Converter
- 3Phase Inverter with LC filter
- 3Phase Rectifiers