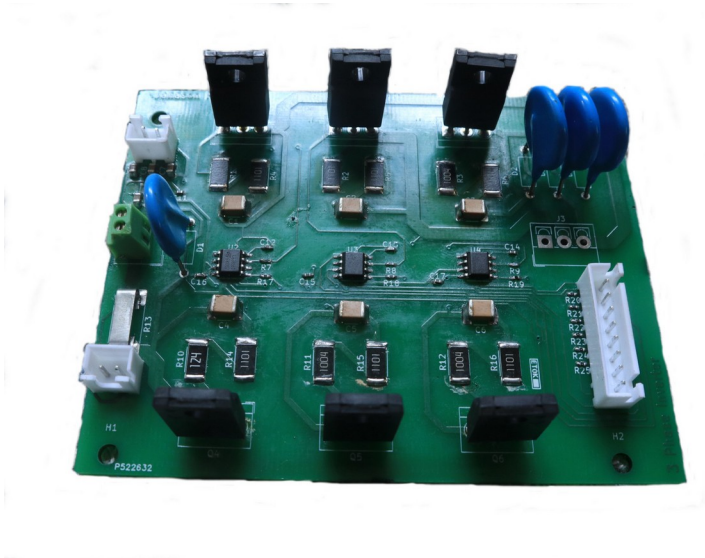


3-Phase MOSFET Inverter User Manual

Version 1.0

1. Introduction

The Janason Powelec 3-Phase MOSFET Inverter is an industrial-grade inverter power stage intended for BLDC/PMSM motor drives, induction heating, UPS systems and other three-phase power conversion applications.



2. Product Features

- Three-phase bridge topology
- Six power MOSFETs
- Three independent gate drivers
- 600 V gate-driver capability
- Onboard 12 V regulator
- Current shunt feedback
- Industrial-grade PCB
- Compact design

3. Applications

- BLDC Motor Drives
- PMSM Controllers
- Industrial Motor Drives
- Variable Frequency Drives
- Induction Heating
- Solar Inverters

- Laboratory Development

4. Safety Instructions

WARNING: Operates from hazardous DC voltages. Disconnect power before wiring. Use insulated tools, adequate heatsinking and a protective enclosure.

5. Functional Description

The inverter consists of six MOSFETs arranged as a three-phase bridge. Three gate-driver ICs independently drive the three half-bridges. An onboard regulator generates the 12 V driver supply from a 14–20 V auxiliary input.

6. Connector Details

3P-Inverter Motor Controller Pin Details			
S. No	Connctor No	Pin No	Description
1	J5	1	GND
2		2	15-20V DC input 100mA
3			
4	J2	1	Shunt Feedback +ve
5		2	Shunt Feedback -ve
6			
7	J1	1	DC Bus Negative
8		2	DC Bus positive
9			
10	J3	1	Phase U output
11		2	Phase V Output
12		3	Phase W Output
	J4		
		1	Phase W Hign Input
		2	Phase W Low Input
		3	Phase U High Input
		4	Phase U Low input
		5	Phase V Low Input
		6	Phase V Hign Input
		7	NC
		8	GND

7. Power Supply Requirements

Auxiliary input: 14–20 V DC

Onboard driver supply: 12 V

Power stage: External DC bus connected to J5.

8. PWM Input Signals

Provide six PWM signals with adequate dead-time.

9. Typical Connections

PWM Controller -> PWM Connector

DC Bus -> J1

3-Phase Motor -> J3

10. Current Feedback

Use J2 shunt output for current monitoring and protection.

11. Protection Features

Snubber networks, bootstrap supply, gate resistors and current shunt.

12. Operating Procedure

Verify wiring, connect auxiliary supply, connect DC bus, apply PWM, verify output.

13. Technical Specifications

The MOSFETs are 800V 10A rated. So this board can be used safely up to 250V DC. Add required heat sink depending upon your load and operating frequency

14. Contact Information

Janason Powelec

Website: www.janason-powelec.in

Email: vk@janason-powelec.in

16. Troubleshooting

Problem	Possible Cause
No output	PWM missing or no DC bus
Driver not switching	Auxiliary supply absent
MOSFET heating	Dead-time too small
Fuse blows	Shoot-through or wiring fault