

# **Inverter function 5kw electric complementary three-phase**





## Overview

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What is the efficiency of a 5 kW inverter?

Using the loss at 130 ARMS, for 5-kW motor output power and 0.8 power factor the efficiency of the inverter can be estimated to be around  $\approx 98\%$  for a 8-kHz switching frequency. Note that during the test, 130 A RMS is pumped into the motor by overloading the reactance part of the motor load and not the real part because of test setup limitations.

What is a 3 phase MOSFET based inverter?

This TI Design provides a reference solution for a three-phase MOSFET-based inverter to drive an AC induction motor for traction in forklifts. The inverter is powered from a 48-VDC lead acid battery.

How does a three-phase AC inverter drive work?

In the three-phase AC inverter drive, the output phase current flows complementarily between the high-side switch and the low-side switch. During the positive half cycle of the motor phase current, the high-side switch conducts and the low-side switch freewheels and vice versa during the negative half cycle.

How much power does an inverter have?

The inverter is powered from a 48-VDC lead acid battery. It is designed to deliver 5 kW of output power from the motor and can handle continuous motor currents of up to 130 ARMS with a suitable cooling setup. Its high current rating is achieved by using multiple MOSFETs (CSD19536) in parallel, mounted onto a thermal clad PCB.



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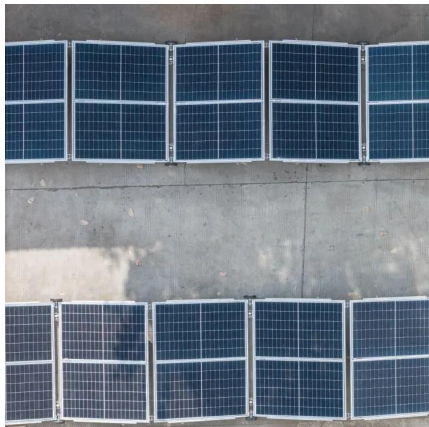




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Meta Description: Discover how a 5kW three-phase electric complementary inverter optimizes energy efficiency in industrial and renewable systems. Learn key features, use cases, and ...

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