



Quick Start Guide EV Power Inverter Control Reference Platform

100 kW Class power inverter design kit for ASIL-D
functional safety compliance



Quick Start Guide

Getting to know the Development boards

The NXP EV Power Inverter Control Reference Platform provides a hardware reference design, system enablement software, and functional safety enablement to develop a complete ASIL-D compliant high voltage, high power traction motor inverter for electric vehicles.

The Reference Platform has been designed into an evaluation prototype demonstrating 196 kW peak output power and > 96 % electrical efficiency operating from 320 V supply voltage. It is designed to interface to a Fuji M653 IGBT module rated for 800 A / 750 V operation (purchased separately from Fuji Electronics).



Kit contents



Sensor board
(EV-SENSOREVB)



Interface Board
(EV-INTERFACEVB)



MCU control board
(EV-CONTROLEVM)



Driver control board
(EV-POWЕРЕVB)

PCB Interconnect
cables
(EV-HW-INVERTER)



Vehicle
interface cable



Driver
signals cable



3-phase
currents cable

Cautions

Be aware that HV can be dangerous and should not be applied until proper shielding is installed. Make sure all high voltage connections are secured and the operator is properly protected from any shock hazard. A failsafe inverter kill switch should always be programmed.

1. Unpack the inverter reference design kit

The NXP EV-Inverter kit contains:

- Microcontroller control board
- IGBT driver board for Fuji M653
- Sensor board
- Interface board
- Cables

2. Reference design kit

Locate the inverter overview page at:

www.nxp.com/evinverterplatform.

Watch the video and review the reference design page.

3. Download the documentation and software

For detailed instructions, inverter assembly, software and driver installation, refer to the UM11298 user manual. For comprehensive operation of the software, refer to the UM11317 software user manual

4. Assemble the inverter

Inverter assembly instructions are available in the UM11298 user manual.

To use this kit, additional components are required and purchased separately. These include a Fuji IGBT module, link capacitor, bus bar, and thermal fixture. As a service to our customer, a pre-assembled proofed-concept prototype can be purchased from our development partner Vepco Technologies:
www.vepcotech.com

5. Functional safety support

NXP components are ASIL-D certified and are supported with safety documents. jOptional safety support, including inverter safety concept manual and inverter safety software library, can be acquired via:
www.nxp.com/evinverterplatform.

Note:

This hardware is certified for measurements as conducted, to avoid ambiguity with “conducted RF emissions” only. The user accepts responsibility for standard compliance for radiated measurements with an antenna.

Support

Visit www.nxp.com/support for a list of phone numbers within your region.

Warranty

Visit www.nxp.com/warranty for complete warranty information.

www.nxp.com/EVinverterPlatform

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