PED-Board
just add power

PED-Board V3

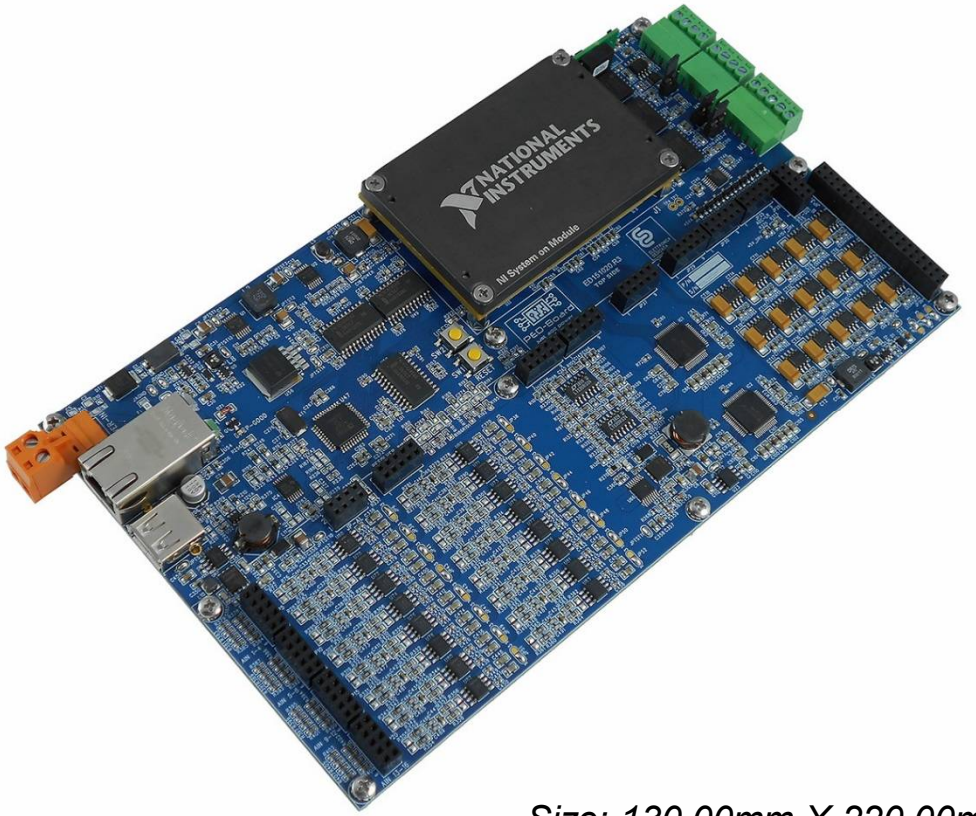
NEW!

- Increased accuracy of the analog-to-digital interface
- More digital I/Os
- Specifically designed for **Power Electronics and Drives** and **Industrial** applications
- Graphical programming

Fully programmable by LabVIEW

Peripherals supported by dedicated LabVIEW drivers

Editable demo programs



Size: 130,00mm X 220,00mm

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MAIN FEATURES

- **30 x PWM channels**
  - 0÷15 V or 0÷5V selectable voltage swing
  - Direct LED driving capability for optocoupled gate driver
  - Additional PWM channels available through the Digital I/O interface
- **14-bit ADC, 8 Channels**
  - Simultaneous sampling
  - 1.45 μs conversion time, 8 channels
  - Differential or single-ended input (each channel)
  - Configurable scaling circuit (each channel)
  - Second order low-pass Butterworth active filter with configurable cut-off frequency (each channel)
- **14-bit ADC, 8 Channels**
  - Simultaneous sampling
  - 1.45 μs conversion time, 8 channels
  - Differential or single-ended input (each channel)
  - Configurable scaling circuit (each channel)
  - First order low-pass Butterworth active filter with configurable cut-off frequency and impedance matching circuit (each channel)
- **Lithium battery for the Real-Time clock (RTC Battery)**
- **10-bit ADC, 8 Channels**
  - Up to 200 kS/s
- **12-bit DAC, 4 Channels**
  - Digital-to-analog converter with 10 μs settling-time
  - Isolated, no ground loops
- **Resolver interface**
  - Fully configurable electrical interface
  - Speed and position measurement
  - Resolver fault detection
- **46 x Digital I/O for**
  - Hall-effect position sensors interface
  - Encoder interface
  - Relay control
  - Additional PWM
  - General purpose I/O
- **Ethernet** (programming, debugging and operation)
- **1 x RS-485**
  - Isolated transceiver
  - half-duplex or full-duplex communication
- **1 x CAN-bus**
  - 2.0A and 2.0B support
  - Isolated transceiver
  - Up to 1 Mbit/s
- **USB port**

Custom configuration available at no charge for filters cut-off frequency, measures scaling, etc. (orders ≥ 5 units)

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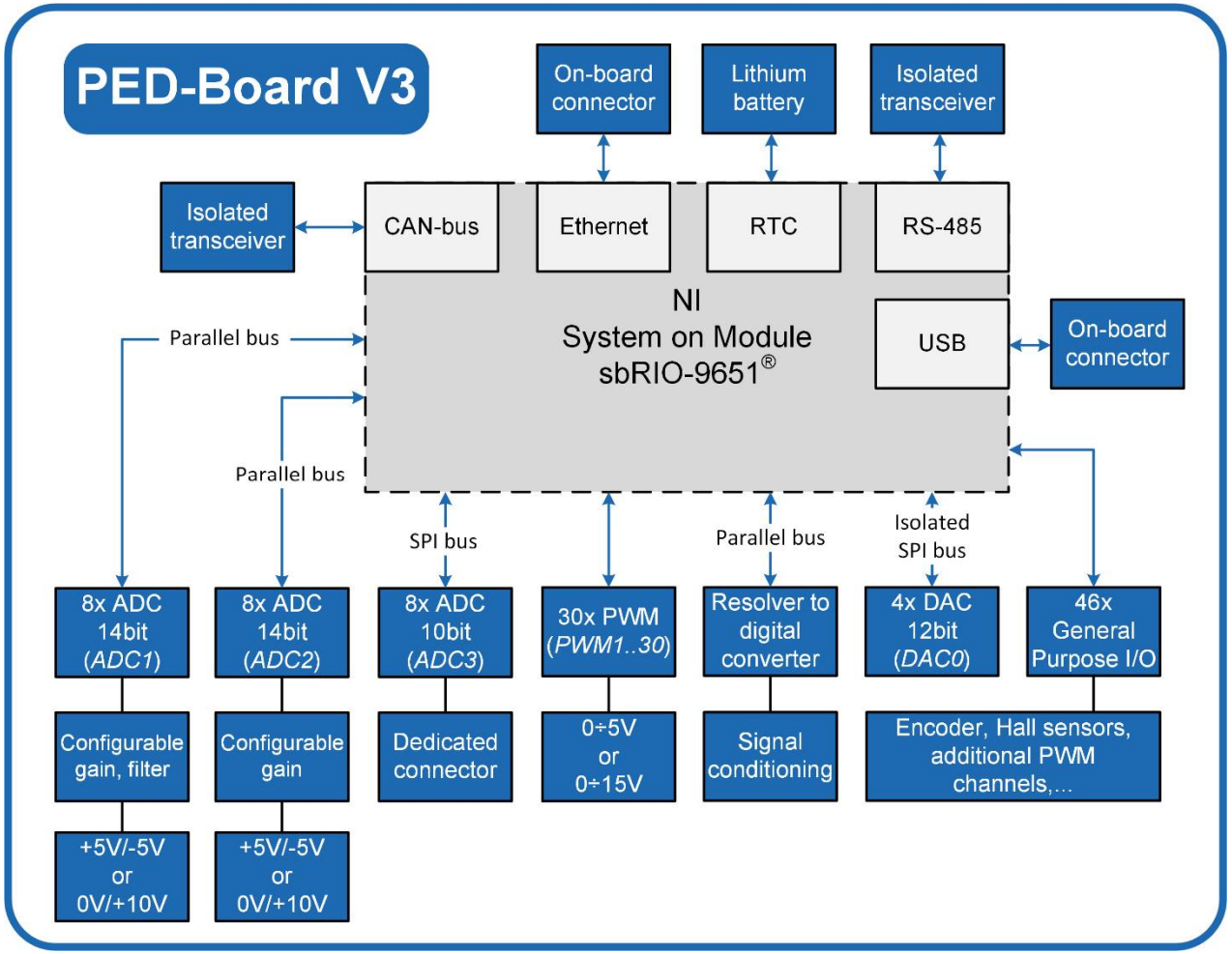
FUNCTIONAL BLOCK DIAGRAM



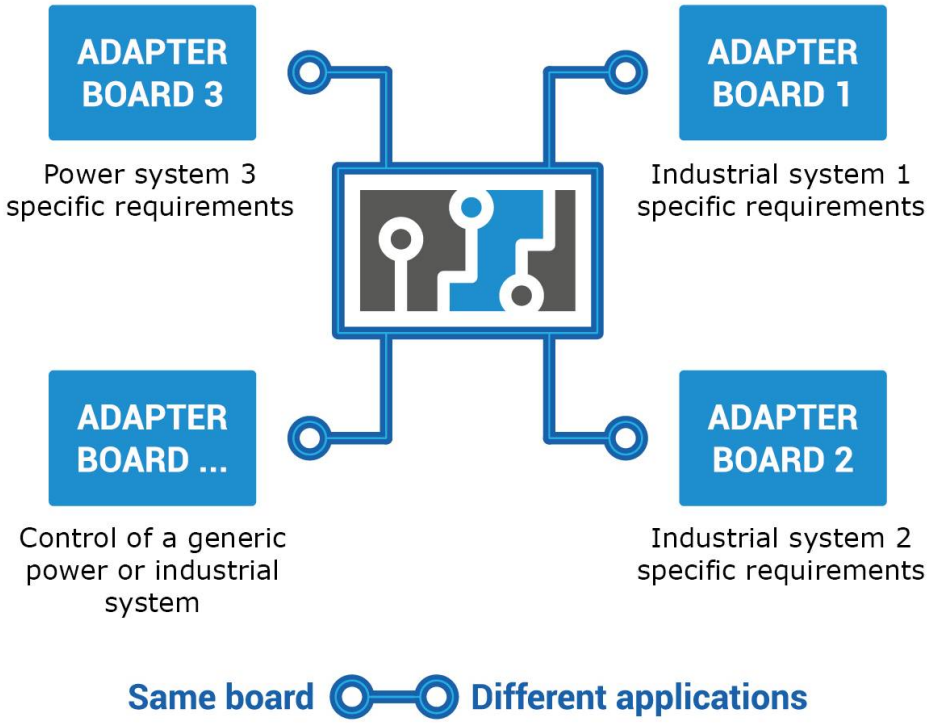
PED-Board CONCEPT

PED-Board is the right companion for the so called *software-defined* application

One board, specific software…a world of possibilities

PED-Board can be connected to almost every power or industrial system, thanks to the application specific Adapter Board.

The Adapter Board is placed on top the PED-Board providing mainly the required connections to the outer world and specific signal conditioning.



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- Dedicated **LabVIEW drivers** and **demo programs** have been developed to completely support the user in the application software design stage.

- Each peripheral is fully supported by the LabVIEW CLIP and/or a specific VI.

- Kernel programs are available for users with properly designed FPGA main scheduler, Real-Time target task, synchronization etc…

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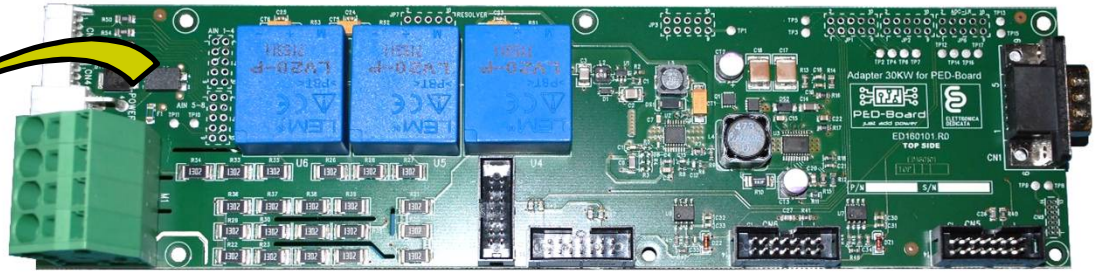
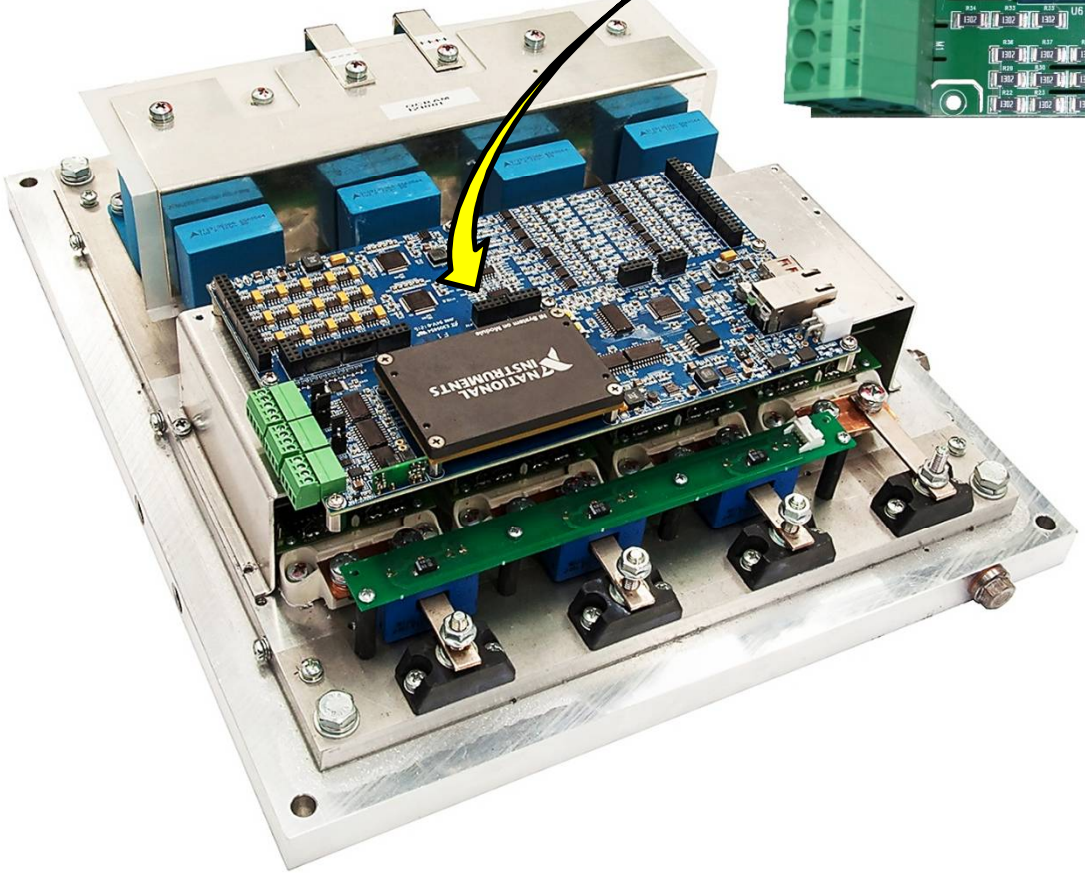
PED-Board CONCEPT APPLICATION EXAMPLE

Applications specific Adapter Board



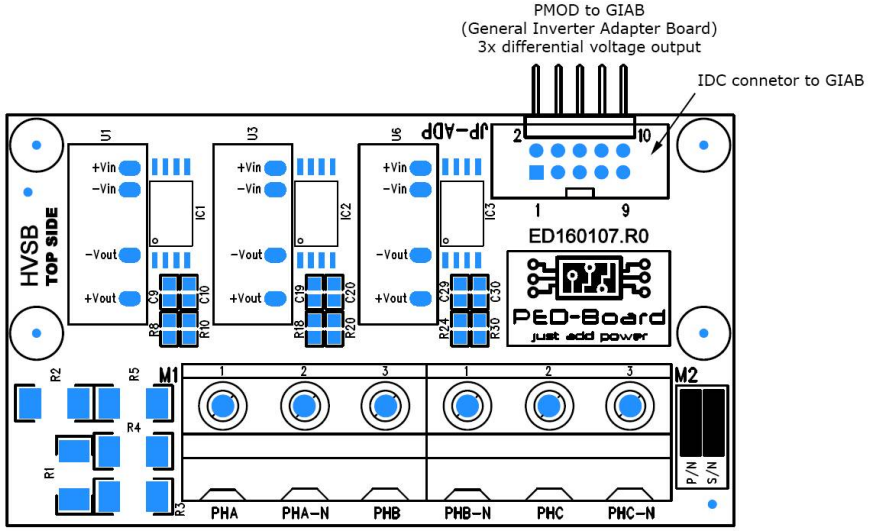


PED-Board on a 3-phase 4-leg VSI

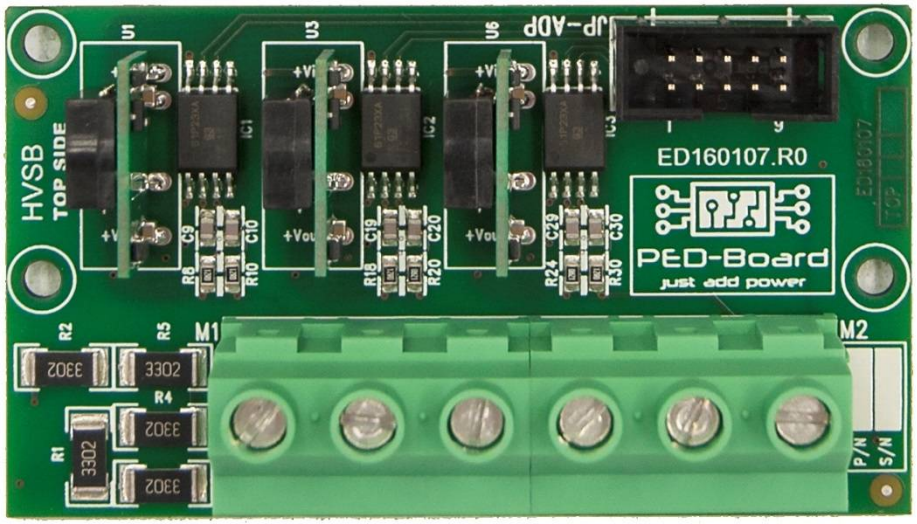
Adapter Boards

High Voltage Sensing Board (HVSB)

- Up to 1 kV
- 3 independent measures
- Board2Board and IDC flexible connection



3 x high-voltage and independent input channels (up to 1 kV)
DC and AC operation



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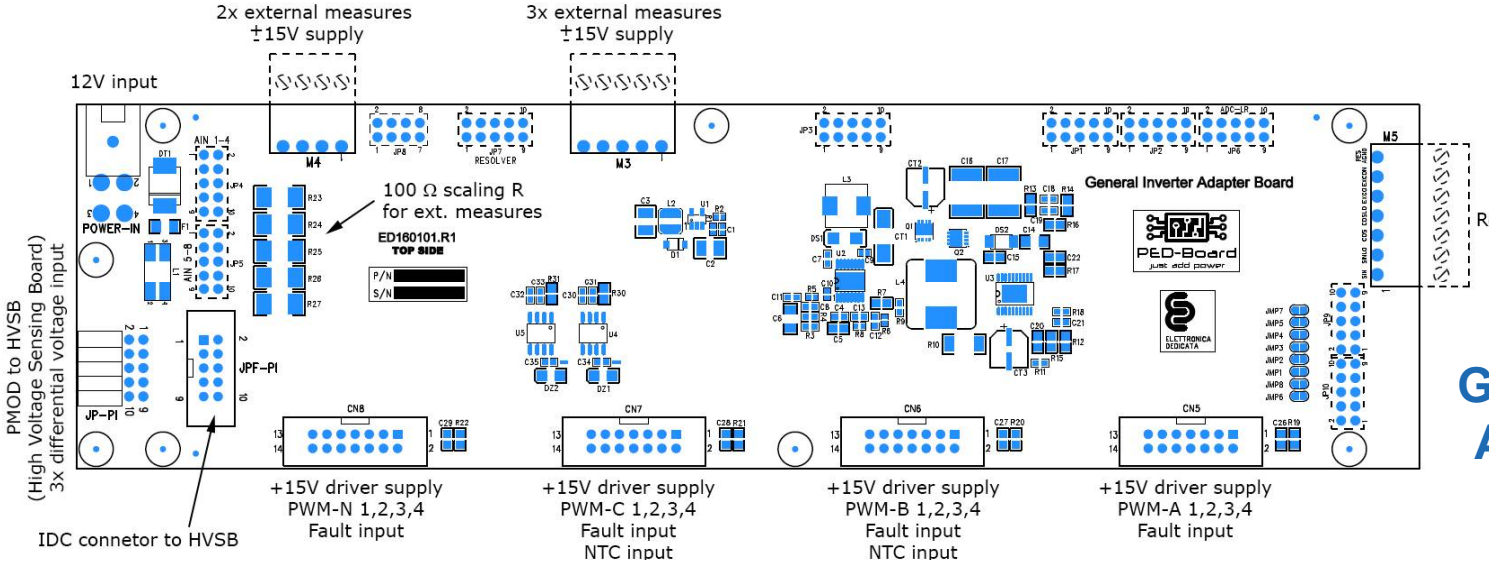
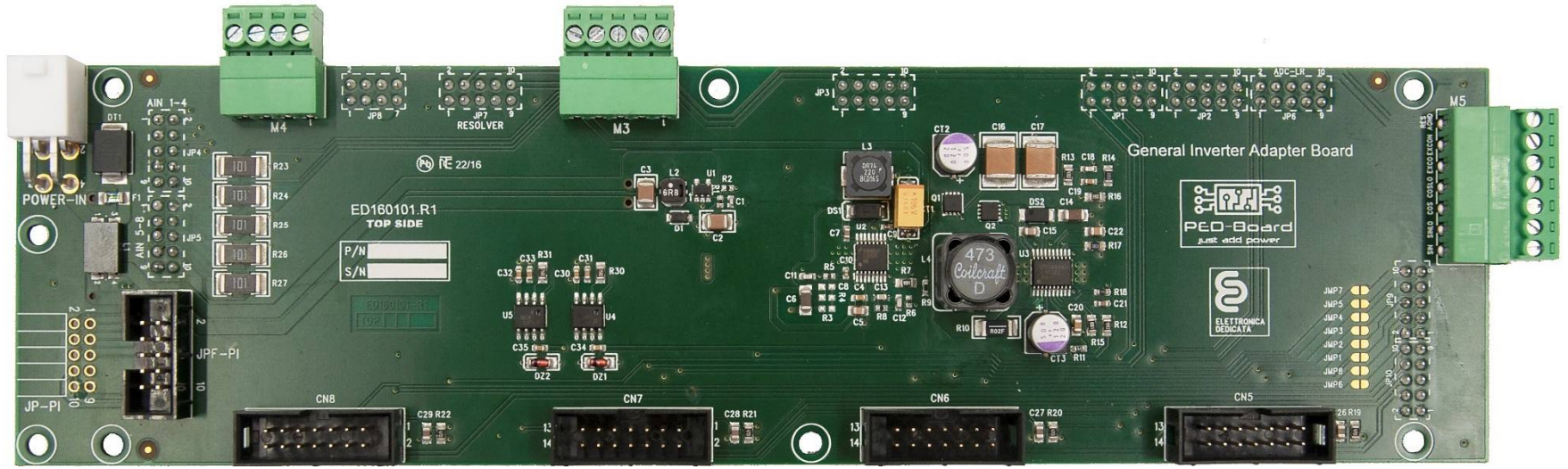
Adapter Boards



General Inverter Adapter Board (GIAP-V1)



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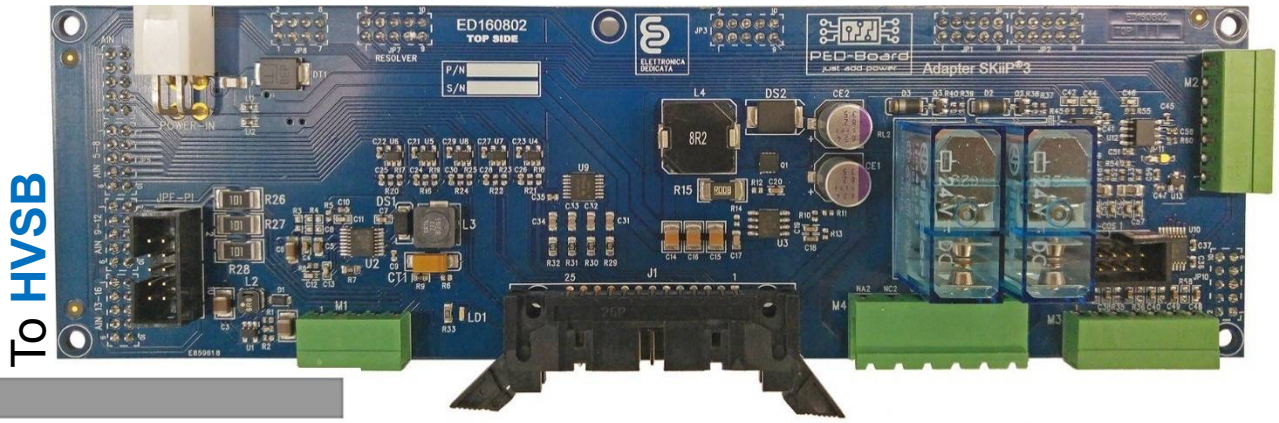
Adapter Boards

Adapter Board for Semikron Skiip 3 six-pack systems



SKiiP 613 GD123-3DUW V3

SKiiP 613 GD123-3DUW V3

Features
- SKiiP technology inside
- Trench IGBTs
- CAL HD diode technology
- DC-Link voltage monitoring
- Integrated current sensor
- Integrated temperature sensor
- Integrated heat sink
- UL recognized File no. E63532

Typical Applications*
- Renewable energies
- Traction
- Elevators
- Industrial drives

Absolute Maximum Ratings			T_s = 25°C unless otherwise specified	
Symbol	Conditions		Values	Unit
System				
V_{CC} 1)	Operating DC link voltage		900	V
V_{isol}	DC, t = 1 s, main terminals to heat sink		4300	V
$I_{t(RMS)}$	per AC terminal, $T_{terminal}$ <115°C		400	A
I_{FSM}	T_j = 150 °C, t_p = 10 ms, sin 180°		3500	A
I^2t	T_j = 150 °C, t_p = 10 ms, diode		61	kA^2s
f_{out}	fundamental output frequency		1	kHz
T_{stg}	storage temperature		-40 ... 85	°C
IGBT				
V_{CES}	T_j = 25 °C		1200	V
I_C	T_j = 150 °C	T_s = 25 °C	577	A
		T_s = 70 °C	444	A
I_{Cnom}			600	A
T_j 2)	junction temperature		-40 ... 150	°C
Diode				
V_{RRM}	T_j = 25 °C		1200	V
I_F	T_j = 150 °C	T_s = 25 °C	466	A
		T_s = 70 °C	353	A
I_{Fnom}			470	A
T_j	junction temperature		-40 ... 150	°C
Driver				
V_s	power supply		13 ... 30	V
V_{iH}	input signal voltage (high)		15 + 0.3	V
V_{isolPD}	QPD <= 10pC, PRIM to POWER		1170	V
dv/dt	secondary to primary side		75	kV/µs
f_{sw}	switching frequency		15	kHz

Characteristics	T_s = 25°C unless otherwise specified

- Directly supply the Skiip module
- Resolver port
- Additional external measure
- On-board power supply for external sensors

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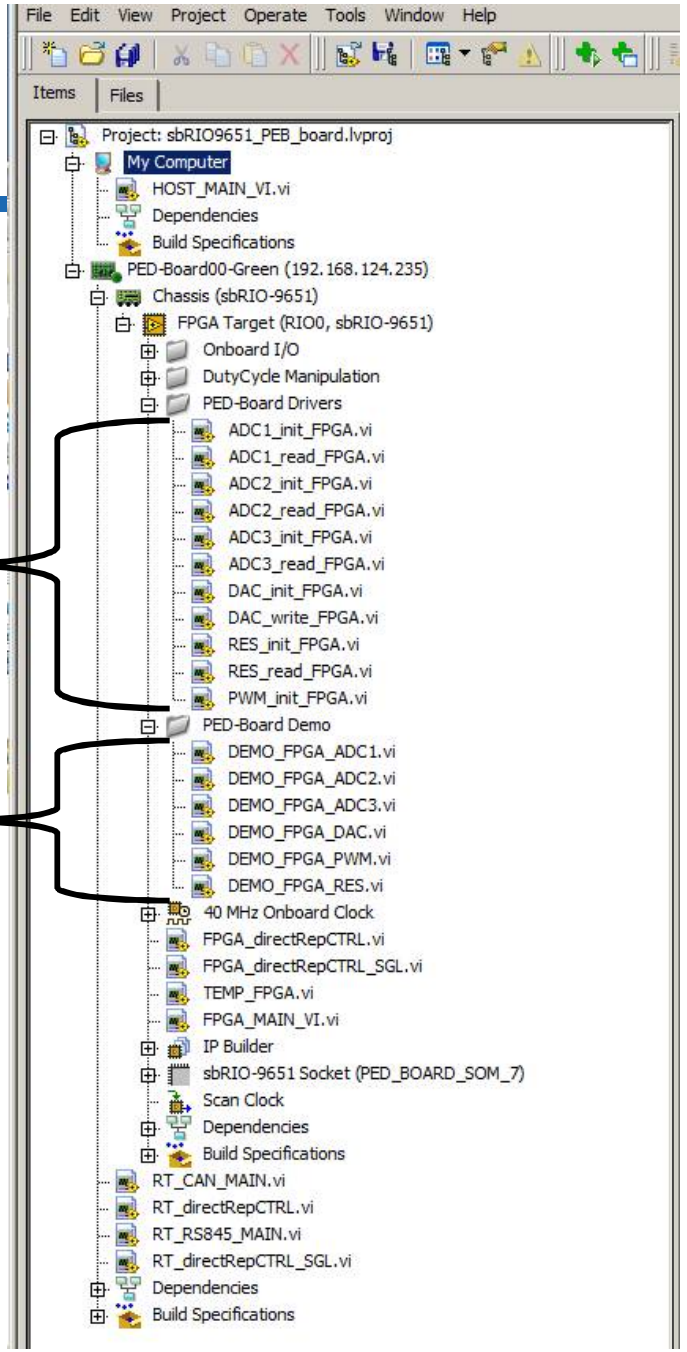
LabVIEW PROJECT EXAMPLE

PED-Board PERIPHERALS DRIVERS

PED-Board PERIPHERALS DEMO PROGRAMS



Examples and demo programs can be downloaded from

www.ped-board.com/projects

Contacts

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