



FNS60C

EV Inverter

45 kW / 75 kW / 100 kW



FNS60C electric vehicle inverter (EV Inverter) is a motor controller for electric vehicles. This electrical device converts electricity between a DC (Direct Current) circuit on battery side and AC (Alternating Current) on electric motor side. EV inverter controls the operation of the electric motor (an example: start/stop, forward/reverse rotation, selecting and controlling the speed, modifying or limiting the torque) and protecting against faults and overloads.



FNS60C is designed to work with Surface Permanent Magnet Synchronous Motors (SPMSM) and Interior Permanent Magnet Synchronous Motor (IPMSM).

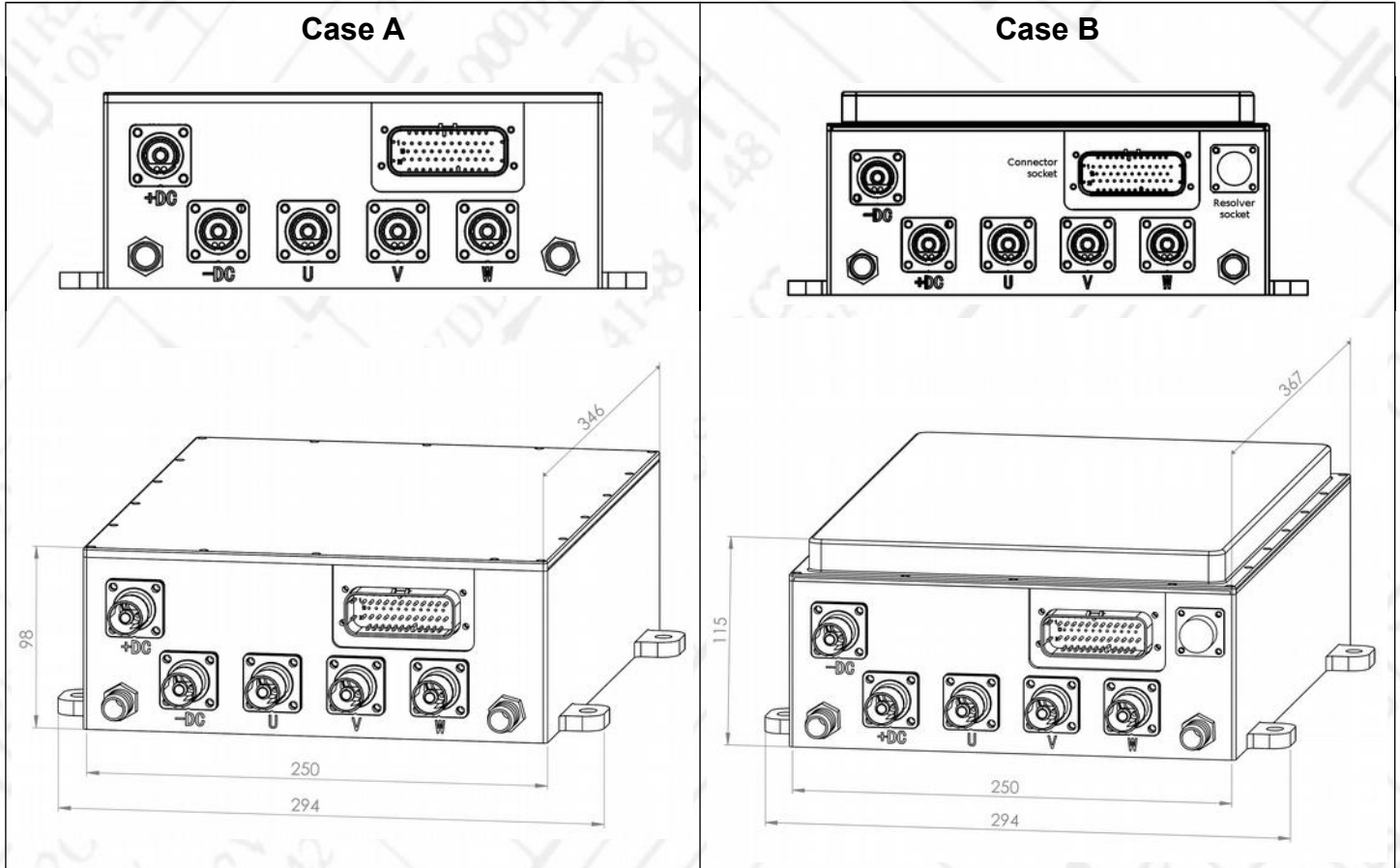
MAIN FEATURES

- Nominal output power: 43 kW / 75 kW / 100 kW
- Battery voltage:
 - 300÷400 V_{DC} for 43 kW inverter
 - 500÷650 V_{DC} for 75 kW and 100 kW inverters
- Up to 250 A continuous current
- Field-oriented control (FOC) with with MTPA (maximum torque per ampere) and U/f linear control
- Switching frequency: 5 kHz and 10 kHz
- Control circuit nominal supply: 12 V_{DC}
- Position sensor: resolver or absolute encoder SSI 5V RS422
- Digital inputs: 4 general purpose digital inputs and 1 fast digital input
- Digital outputs: 2 general purpose digital outputs and 1 special purpose digital output
- Analog inputs: 1
- Communication interfaces/protocols:
 - CANOpen: CAN 2.0b 125 kbit/s
 - Modbus RS-485
- Easy to use HVBI connector system (Amphenol Pcd)
- Protections: over-current, under/over-voltage, temperature of EV inverter and electric motor
- Cooling system: mixture of 50% water and 50% glycol
- IP 67

Technical data

Inverter type	Nominal output power	Supply voltage U_{DC}	Output voltage and frequency	Output nominal current	Overload current (60 sec.)	Weight	Case
FNS60C_P043U350W	43 kW	300 ÷ 400 V _{DC}	0 ÷ 0,68 U _{DC} V _{RMS}	100 A _{RMS}	150 A _{RMS}	12 kg	A
FNS60C_P075U600W	75 kW	500 ÷ 650 V _{DC}		100 A _{RMS}	200 A _{RMS}	13 kg	B
FNS60C_P100U600W	100 kW	500 ÷ 650 V _{DC}	0 ÷ 500 Hz	150 A _{RMS}	250 A _{RMS}	13 kg	B

Mechanical drawings



Connectors

Name	Type
DC+, DC-, U, V, W	HVBI Amphenol
Connector socket	1-776163-1 Ampseal
Resolver socket	RT00128PN03 Amphenol

About TWERD Power Electronics

TWERD Power Electronics is a Polish manufacturer of advanced power electronic systems: frequency converters and complete cabinet-built drives, inverters for renewable energy sources (photovoltaic, wind and hydroelectric), electric vehicle's inverters and battery chargers, power supplies for electrophoretic coating lines.

We have experience of over 25 years with power electronics!



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