

PDU-70 POWER DISTRIBUTION UNIT



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The PDU-70 is a power distribution unit developed by NERO Industries engineers in the scope of electrical vehicle application. The PDU-70 is a safe, intelligent and versatile power distribution unit in a compact form with configurable multiple power inputs and outputs. The smart control unit provides easy integration for high voltage/high current system applications. As typical application fields; the PDU-70 is suitable for medium and heavy duty electric/hybrid vehicle power distribution and energy control. Some important features are as follows:

- High voltage power inputs for standard charging
- Isolated voltage reading at the high voltage inputs and outputs (up to 1000 VDC)
- High voltage safety interlock line (HVIL)
- Interlock line controlled high voltage battery relay control outputs
- Earth insulation level measurement
- Secondary passive high voltage DC bus energy sinking
- Active high voltage DC bus energy sinking (Through PTC Thermistors)
- Pre-charge circuit at all high-voltage power outputs
- Fuse protection at high voltage outputs
- Overvoltage, undervoltage, overcurrent and over-temperature protection
- Low power mode



CAN COMMUNICATION

PDU-70 uses SAE J-1939 standard CAN protocol in order to communicate with the electrical control unit (ECU). 250kbit/s bit rate is chosen in order to provide reliable operation.

The cyclic status messages are transmitted by the PDU-70 in every 100 ms and the cyclic command message is expected from the ECU in every 100 ms. If the command message is not received by the PDU-70 for 400 ms, the emergency output is asserted (logic high) in order to indicate fault but the operational state of the PDU-70 stays the same in order to give the ECU to control the whole system. For the sake of the operation, the PDU-70 should be taken into low power mode as soon as possible. The details of the CAN messages can be found in log file.

RS422 COMMUNICATION

PDU-70 uses RS422 communication in order to send status messages to the diagnostic/ record device in the system. The PDU-70 does not receive any message through RS422, hence no operational change can be performed. By using RS422 communication, a secondary check to CAN communication can be provided.

TRACTION VOLTAGE POWER DISTRIBUTION UNIT FOR ELECTRIC VEHICLES TRACTION AND AUXILIARY HIGH VOLTAGE SYSTEMS INCLUDING:

- Active unit include traction voltage contactors and contactor controls with Voltage and current measurement units.
- Pre-charging circuit to balance voltage levels before and after contactors
- Service charging circuit with contactor switching
- High voltage circuit insulation resistance measurement & monitoring
- Fuse protection for high and low current component output
- Hazardous voltage interlock loop (HVIL)

SPECIFICATIONS

Operating Temperature Range	-40°C / +70°C
Storage Temperature Range	-40°C / +85°C
Protection Class	IP65
Dimensions	714 x 505 x 165,2
Weight	43 ± kg
Cooling	Natural Airflow

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Operating Voltage Range	10 - 800 VDC
Power Input	Battery Input 1 / 300 A
	Battery Input 2 / 300 A
	Battery Input 3 / 300 A
	Battery Input 4 / 300 A
	DC Charge Input / 400 A
Power Output	Traction Inverter / 600 A
	PTO Inverter / 125 A
	On Board Changer / 50 A
	Air Compressor / 30 A
	Heater / 25 A
	DC-DC Converter / 25 A
	A/C Compressor / 30 A
Current Peak	600 A
Interlock Line ("HVIL") Current	Adjustable (Default: 35 mA)
Interlock Line ("HVIL") Voltage	36 VDC
Max Voltage Drop over HVIL Loop	Adjustable (Default: 12 VDC)
Interfaces	CAN Bus SAE J-1939
	RS422/485



