



**ARES FIRE AND
SAFETY SYSTEMS LLC**

POWER SYSTEMS

POWER DISTRIBUTION UNITS

Power distribution units can automatically distribute AC and DC power provided from 2-10 different sources to 50 different units.

On PDU system with 2 digital screens, it provides the information such as operation hour, battery charge status, power selection to the user.

Power Distribution Units can be specially designed, produced, tested according to requested needs, dimensions and capacities by ARESFSS.

It can automatically distribute AC and DC power to 50 different units.

On the unit where there are separate fuses for each unit whose power requirement is supplied, it is ensured that power of other units is not cut even if a unit blows the fuse.

Power Distribution Units are military products which have successfully passed high temperature, low temperature, high humidity, shock-vibration and EMI/EMC tests as per MIL STD 810H, MIL STD 461F and MIL STD 1275E standards.



POWER DISTRIBUTION UNIT FOR ELECTRIC VEHICLE PDU-70

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)



TECHNICAL 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
»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