

Composition of New Energy High Voltage Distribution Box



Summary of Content

A high-voltage distribution box in new energy vehicles integrates relays, fuses, busbars, DC/DC converters, OBCs, and high-voltage wiring to safely manage and distribute power from the battery to vehicle subsystems.

Core Components

1. Copper Busbars Copper busbars serve as the main conductive pathways, connecting relays, resistors, and shunts to route high-voltage electricity efficiently during charging and discharging processes . 2. High-Voltage Relays and Fuses Relays control the connection and disconnection of high-voltage circuits, while fuses provide overcurrent protection to prevent damage to the battery and vehicle electronics . 3. DC/DC Converter The DC/DC converter steps down high-voltage DC from the battery to low-voltage DC required by vehicle electronics, ensuring stable operation of lights, infotainment, and control systems . 4. Onboard Charger (OBC) The OBC converts AC from the public grid into high-voltage DC to charge the battery. In many modern vehicles, OBC and DC/DC functions are combined into a two-in-one controller for compactness and efficiency . 5. High-Voltage Wiring Harness Specialized high-voltage wiring connects all components within the distribution box and to external high-voltage devices like motors, compressors, and PTC heaters. Safety and insulation are critical due to the high voltage involved . 6. Additional Components Some distribution boxes integrate cement resistors, shunts, and electric compressors. Shunts measure current flow, resistors manage transient loads, and compressors or PTC heaters support thermal management of the battery .

Functional Overview

Article Content

Internal structure, function and fault diagnosis of high

The functions of the high voltage distribution box are shown in the following table:

High Voltage Electrical Cabinet | Custom High Voltage

Explore Gaobo's custom high voltage cabinets, including switchgear, electrical boxes, and switch

Composition and structure analysis of low voltage distribution box

Explore the main components and internal structure of a low voltage distribution box, including circuit breakers,

Strategic Vision for High Voltage Distribution Box for New Energy ...

The High Voltage Distribution Box for New Energy Vehicles sector currently commands a valuation of USD 45.7 billion

High voltage power box: distribution unit, OBC & DCDC | Valeo

The High Voltage Power Box combines the functionality of an Onboard Charger (OBC), a DC/DC converter and a PDU

High-voltage Distribution Box Technology for New Energy Vehicles

This article, in combination with the latest industry patents and technical standards in 2025, systematically analyzes the technological

CN220662268U

The utility model aims to overcome the defects of the prior art and provide the modularized high-voltage distribution box for the new

The role of the high-voltage distribution box in new energy vehicles

The high-voltage distribution box also features protective functions, such as automatically cutting off power in case of abnormalities

High-Voltage Components and Functions of Electric Vehicles

In electric vehicles, the components with high-voltage electricity in the whole vehicle include power batteries, drive motors, high

High voltage power distribution units

The mHVDU 800 is a configurable solution designed by HUBER+SUHNER to distribute high voltage power efficiently within electric

High Power Distribution | TE Connectivity

Trend to Electrified Transportation Companies all over the world are embarking on new ways of electrical transportation. They all

Global and China High-Voltage Power Supply in New Energy Vehicle

XPeng's high-voltage power distribution box X-BMU integrates BDU + BMS. It includes a housing, a flexible circuit

High Voltage Distribution Box: The Ultimate Guide to Selection ...

Discover the essential guide to high voltage distribution boxes: their function, selection, applications, and safety. Learn how these

What is an energy storage high voltage box? | NenPower

High voltage energy storage boxes thus present a compelling case for the future of energy management, enabling

Battery Junction Box | HV Battery Management System for EVs

Discover our advanced High Voltage Battery Junction Box and Battery Management System for optimized safety, efficiency, and

Vitesco Technologies prepares series application of its High Voltage Box

Representative image. New Delhi: Vitesco Technologies, a leading international supplier of modern drive

High-Voltage Power Supply in New Energy Vehicle (BMS, BDU, Relay ...

The high-voltage power supply system of new energy vehicles studied in this report mainly includes modules such as Battery

The 8 Main High-voltage Components in Electric Cars

Both hybrid cars and pure electric cars have high voltage components. In pure electric vehicles, the components

High Voltage Distribution Box – Rawsuns

High voltage distribution box is the control part of EV power supply, which has the functions of power

High Voltage Power Distribution Unit

Below you will find our selection of High Voltage Power Distribution Units, each designed to meet the demands of modern

High Voltage Box for Electrified Vehicles

Through a higher mechatronic integration of energy conversion and distribution in the vehicle one can reduce weight and cost, while

High voltage power distribution units

Power distribution in electric vehicles presents significant challenges in design, particularly concerning safety and reliability, due to

High-voltage power distribution box design resources | TI

View the TI High-voltage power distribution box block diagram, product recommendations, reference designs and start designing.

The composition and role of high-voltage systems in

The high-voltage fuse box PDU (Power Distribution Unit) is composed of many high-voltage relays and

Exploring Growth Patterns in High Voltage Distribution Box for New ...

The High Voltage Distribution Box (HVDB) market for New Energy Vehicles (NEVs) is booming, projected to reach \$25

Vitesco Unveils High-Voltage Box to Efficiently Manage Electricity in ...

The high-voltage box integrates multiple functions, including an AC charger for mains charging up to 22 kW, a DC

CN220273086U

Generally, the high-power vehicle operates under high-power electric power, the voltage is higher than 700VDC, the current is up to

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://benniedesignstudio.co.za>

Email: sales@benniedesignstudio.co.za

Phone: +27 82 391 4765

Address: The Towers, 1 St Georges Mall, Cape Town, 8001, South Africa

This document is for informational purposes only. Specifications subject to change without notice.

