"Reliable High-Voltage Switching for Next-Generation Battery Systems"

The AREVH50 Series — Compact, Hermetically Sealed DC Contactor (50A / 1500 VDC)

1. The Challenge

As energy storage and e-mobility technologies advance, system voltages continue to rise — from 400 V to 1500 VDC and beyond.
These higher voltages demand safe, compact, and durable contactors capable of handling extreme load conditions without arcing, gas release, or reliability loss.
In many lithium-based battery, inverter, and DC-bus systems, switching safety is the weakest link — yet it determines overall system uptime, safety certification, and warranty cost.

2. The AREVH50 Solution

The AREVH50 Series from Altran is a hermetically sealed, gas-filled High-Voltage DC Contactor rated at 50 A + / 1500 VDC, designed for high-reliability operation in battery-powered and DC-conversion environments.

Its inert-gas arc chamber and compact sealed design eliminate the risks associated with traditional open-frame contactors — offering silent operation, zero arc leakage, and long life under demanding conditions.

Key design highlights:

- *Hermetically sealed chamber – no external arc release*
- *Inert gas environment for stable, oxidation-free switching*
- *Compact, lightweight (≈ 230 g) and mountable in any orientation*
- *Optional auxiliary contact for status monitoring*
- *CE and RoHS compliant*

3. Technical Summary

Parameter	Specification
Rated voltage	1500 VDC
Continuous current	50 A @ 85 °C
Peak breaking current	1250 A @ 320 VDC (1 cycle)
Coil voltage options	12 VDC (B), 24 VDC (C), 48 VDC (E)
Operating temperature	−40 °C to +85 °C
Mechanical life	200,000 cycles
Load life	10,000 cycles @ 450 VDC / 50 A
Mounting torque	M6 bolts @ 5.2–6 N·m
Weight	230 g

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4. Applications

The AREVH50 is engineered for modern DC energy systems where clean, consistent switching is critical:

- *Battery disconnects for lithium-ion and LFP systems (12 V – 1500 V)*
- *DC bus and inverter switching in hybrid and full-electric vehicles*
- *Energy storage systems (ESS) and micro-grid battery management*
- *Photovoltaic and renewable power conversion units*
- *Test benches and DC power control in industrial environments*

Its ability to maintain performance in any mounting orientation makes it ideal for compact battery modules, rack systems, or wall-mounted inverter housings.

5. Reliability & Safety Design

- *Hermetically sealed enclosure — protects contacts from dust, humidity, and explosive gases.*
- *Inert gas chamber — suppresses arc formation and oxidation, ensuring long contact life.*
- *Integrated coil economizer — reduces coil power without additional surge protection components.*
- *Wide thermal range (–40 °C to +85 °C) — ensures reliable switching in field-deployed ESS units, EV packs, and outdoor installations.*
- *No orientation limits — suitable for horizontal, vertical, or inverted mounting in compact enclosures.*

6. Why It Matters for Battery & Inverter Manufacturers

As systems scale to 800–1500 V, switching reliability and safety certification become key differentiators. Integrating a proven high-voltage contactor like the AREVH50 helps manufacturers:

- *Meet IEC/UL EV and ESS safety compliance faster.*
- *Reduce field failures due to contact erosion or coil overheating.*
- *Design smaller, quieter, and maintenance-free power modules.*
- *Simplify BOMs with one component for multiple voltage platforms.*

7. Compliance & Quality

- *CE Certified*
- *RoHS (2011/65/EU) compliant materials*
- *Manufactured under ISO 9001 quality control*
- *100% functional test and leak check before shipment*

8. Summary

The AREVH50 delivers the reliability, compactness, and safety demanded by next-generation DC systems. Whether for battery packs, inverters, ESS racks, or PV controllers, it ensures clean, silent, and safe switching up to 1500 VDC - with no compromise on performance or footprint.
To learn more or request samples:

· *sales@altranmagnetics.com*
· *www.altranmagnetics.com*