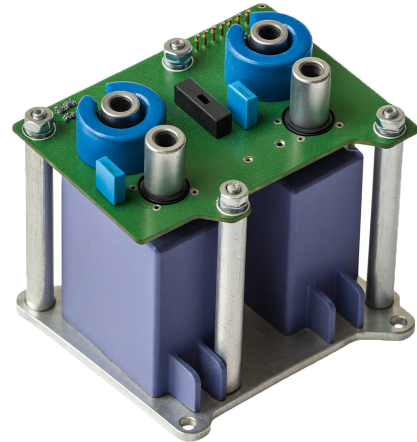
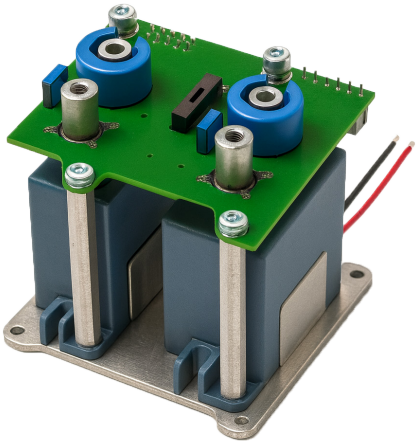


PRECHARGE RELAY ELECTRONIC BOARD



CONTROL THE SURGE. PROTECT THE SYSTEM

At XAP Technology, we don't just pursue innovation — we build modular intelligence, layer by layer, through precision, discipline, and intent. Energy is our language: one that requires control, balance, and respect for every connection.

The Precharge Relay Board is an intelligent and modular subsystem designed to protect your high-voltage architecture during power-up. By controlling inrush current when energizing inverters or DC-link capacitors, it ensures a smooth and safe precharge phase, preventing arcing and damage to critical components.

Compact, efficient, and easy to integrate, the Precharge Relay Board extends the lifetime of relays, contactors, capacitors, and power electronics. A smart and essential safeguard for every high-voltage application — from automotive retrofit to industrial and motorsport environments.

XAP TECHNOLOGY — SHAPING THE FUTURE OF INTELLIGENT POWER

MASTER THE INRUSH — SECURE YOUR POWERTRAIN

PRECISION POWER-UP:

Manages inrush current during HV system activation, ensuring smooth capacitor charging and preventing destructive current peaks.

SYSTEM PROTECTION FIRST:

Safeguards relays, contactors, capacitors, and inverters against electrical stress, extending component lifetime and system reliability.

SMART SEQUENCING:

Automatic five-step precharge logic ensures a safe and deterministic transition to full power operation.

THERMAL RESILIENCE:

Continuous monitoring of current, voltage, and temperature guarantees safe operation from $-40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$.

MODULAR INTEGRATION:

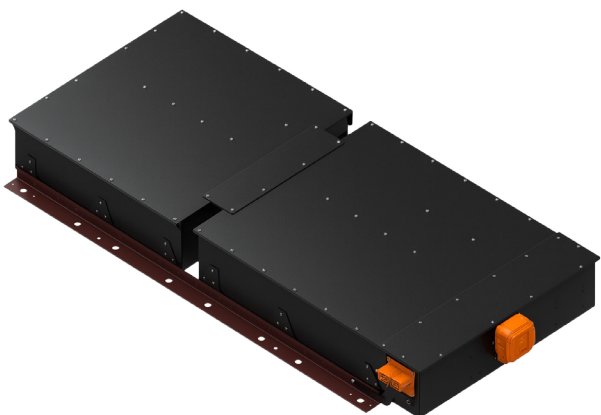
Operates stand-alone or as part of the SR-500 Smart Relay architecture — fully interoperable within the XAP high-voltage ecosystem.

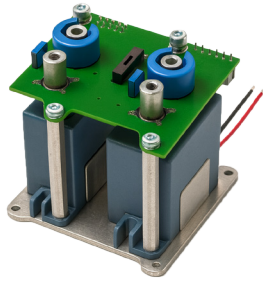
CERTIFIED SAFETY:

Designed to meet ISO 26262 ASIL-B requirements, with galvanic isolation and cross-checked current-voltage correlation for fault detection.

RELIABLE INTELLIGENCE :

Analog precision combined with digital supervision via the Relay 500 controller for full traceability, diagnostics, and CAN data reporting.





► RELAYS & SENSORS: PRECHARGE RELAY ELECTRONIC BOARD

TECHNICAL SPECIFICATIONS

Nominal voltage	Up to 900V DC
Inrush current (typ.)	50 A (charging phase)
Control voltage	5V / 3.3V logic (from Relay 500)
Precharge relay	Yes
Driver transistor	Yes
Precharge resistor	External 150 Ω / 50W ± 5 % wire-wound (chassis-mounted)
Current sensor	Yes Hall-effect
Voltage sensors	Yes Hall-effect
Isolation voltage	≥ 3 000V DC (measurement / HV)
Connectors	Molex 39-28-1143 / 8100
Mounting	Chassis or casing integration

REFERENCE

PS0506	PRECHARGE RELAY ELECTRONIC BOARD
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MECHANICS

PCB dimensions	90 × 70 mm
Temperature	-40 °C to +85 °C
Cooling	Natural or conduction via resistor heat sink
Weight	≈ 50 g

INTEGRATION

Stand-alone board	Used independently inside an Electro-Box or test bench, connected to Relay 500 for control and measurement feedback.
SR-500 integrated module	Assembled within the Smart Relay 500 casing, working in conjunction with the main relay board and current sensor.
Compatibility	Fully interoperable with XAP BMU, BMS, Relay 500 Board, and NT-Logger systems.

SAFETY

Functional safety	ISO 26262 ASIL-B (sub-system)
Protection	Diodes + RC filters + decoupling capacitors