



H4 Plus™ P2KV Connectors

BACKGROUND

The global solar industry is accelerating toward higher voltage, increased current capacity, lower levelized cost of energy (LCOE), and greater system reliability. Driven by the continued growth of large-scale ground-mounted solar plants, utility-scale energy storage, and high-power PV modules, system architectures are evolving from 1500V toward 2000V DC for next-generation PV applications. Increasing system voltage allows developers to connect more modules within each string, transmit greater amounts of power, and reduce the number of parallel circuits required throughout the installation. These improvements can simplify system design, reduce material usage, and improve the overall economics of large solar and energy storage projects.

PROBLEM

Higher string power, greater operating current, and longer cable runs require larger cross-section conductors to limit voltage drop, reduce resistive line losses, and control balance-of-system (BOS) costs. Conventional PV connectors may not satisfy the combined requirements of 2000V insulation performance, high-current operation with 6 AWG (16 mm²) conductors, and long-term durability in demanding outdoor environments. Connector performance is especially critical because poor contact integrity, inadequate sealing, or improper installation can create excessive resistance, localized heating, reduced efficiency, and potential safety concerns. Project developers therefore need a dependable connection system that supports higher system ratings while maintaining safe, consistent, and repeatable field installation.

AIO SOLUTION

Amphenol Industrial Operations (AIO) provides a fully specified, certified, and field-proven connection solution designed for 2000V DC systems and 6 AWG PV cables. AIO's solution supports module strings, combiner boxes, inverters, and energy storage systems.

The H4 Plus P2KV Connector is an ideal choice for next-generation, high-voltage, high-power solar systems. Its advanced design, stringent quality standards, and comprehensive certifications help customers build safer, more efficient, and more cost-effective PV projects. Compared with 1500V systems, it can reduce line losses by 15%–30%, lower cable and balance-of-system costs, improve system stability and energy yield, accelerate installation, reduce operating expenses, and support compliance with global safety standards.

Our worldwide sales and customer service network is supported by localized manufacturing, a strong global market presence, and technical support throughout Asia, North America, and Europe. This international reach enables us to respond quickly and effectively to customers' needs.