

Important Note on Product Liability | Standards and Regulatory Compliance**Safety Risk of mating PV Connectors from different Manufacturers within a PV system**

To whom it may concern

The worldwide acceptance of Photovoltaics (PV) is based on the industry's cost-efficient, reliable and proven safe method for generating clean energy. Within a PV system, PV electrical connectors are key components for ensuring a long-term stable, predictable and dependable electrical and mechanical operation. The transmission of electrical power through the PV connector must happen in a manner which protects the PV system against hazards (i.e. prevention of electrical shock, fire hazards, and personal injury due to mechanical and environmental stresses) and ensures the expected return on investment from the PV system.

The serial connection of power generating PV modules is the most common end-use of a PV connector. In general PV modules, are certified by a third-party test laboratory according to the currently valid product safety standards (for example UL and TÜV). This PV module certification can include PV connectors from various manufacturers within one and the same module type reference. This might imply that PV connectors from different manufacturers can be safely mated. But this is not the case. As addressed in several international publications, connections made with PV connectors from different manufacturers has been proven to create situations that can compromise the safety of a PV system and result in fire or electric shock.

Clarification on misleading information

However, some module manufacturers indicate that mating PV connectors from different manufacturers will result in a well-performing and predictable electrical connection. This is not true. A PV connector not mated with a counterpart that is specifically designed for and validated to work with it cannot be relied upon to perform to its required electrical, mechanical and environmental specifications. This experience is widely recognized by independent, accredited third-party laboratories and corresponds to our 25+ years of in-house testing and experience in the PV industry. PV connectors are not assessed to operate with PV connectors from other manufacturers, and are not certified for such kind of end use as shown by the standards appended to this document.

Responsibility to be compliant

As installer, operator, or owner of a PV system the responsibility to be compliant to standards and regulations might lie with you. This responsibility includes compliance to local regulations (e.g. national electric codes) as well as national and international standards. These regulations and standards linked to PV installations uniformly exclude electrical connections made by PV connectors from different manufacturers.

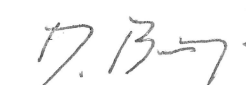
PV connector product liability excluded

As market leader, and with over 330 GW connected electrical power within the PV industry, Stäubli hereby draws your attention to these existing regulations and standards and emphasizes the fact that our PV connector portfolio (i.e. Original MC4 and MC4-Evo 2) may not be mated with products from other PV connector manufacturers. The responsibility for any damage and liability for any claims resulting from negative effects of the described interconnection lies exclusively with the person or entity that has recommended or performed such misuse of our products. Stäubli may not be held liable for any damage resulting from such actions.

Sincerely,
Stäubli Electrical Connectors AG
Allschwil, November 12, 2020



George Freudiger
CTO, Member of the Management Board



Dominic Buergi
Product Manager Alternative Energies

Appendix | International Standards addressing described topic
International Installation Standards for PV Systems

Reference	IEC 62548:2016
Title	Photovoltaic (PV) arrays - Design requirements
Clause	7.3.9 Plugs, sockets and connectors "Plugs and socket connectors mated together in a PV system shall be of the same type from the same manufacturer, i.e. a plug from one manufacturer and a socket from another manufacturer or vice versa shall not be used to make a connection."
Reference:	IEC 60364-7-712:2017
Title	Low voltage electrical installations - Part 7-712: Requirements for special installations or locations - Solar photovoltaic (PV) power supply systems
Clause	712.526 Electrical connections "Male and female connectors mated together shall be of the same type from the same manufacturer i.e. a male connector from one manufacturer and a female connector from another manufacturer or vice versa shall not be used to make a connection."

International Product Safety Standards for PV Connectors

Reference	UL6703
Title	Connectors for Use in Photovoltaic Systems
Certification No	UL File E343181 (Original MC4, Original MC4-Evo 2)
URL	https://iq.ulprospector.com

Conditions of Acceptability:

"These devices have only been assessed for UL Recognition with specific types of mated connectors within their product family. They have not been assessed to operate with any other similar devices from any other manufacturer. "

Reference	IEC 62852:2014+A1:2020
Title	Connectors for DC-application in photovoltaic systems – Safety requirements and tests
Certification No	R 60127190 (Original MC4), R 60127169 (Original MC4-Evo 2)
URL	https://www.certipedia.com