

# PV Connectors – UL Compliance and Inter-Mating

## How to use SunWize Adapter Kits

The market for PV connectors is becoming increasingly crowded. There are well over 30 different manufacturers of PV connectors on the market today. This article will outline the different connectors used by manufacturers that SunWize represents, provide details on which connectors are compatible, and discuss the requirements to maintain PV module and inverter listings when mating pairs of connectors.

As of July 2011 SunWize carries product with connectors from the following manufacturers:

**Tyco                      Multi-Contact                      Amphenol                      Bizlink                      SMK**

Many of these connectors state that they are compatible with Multi-Contact. This may be the case physically, but mating two different connector brands was not covered under the conditions of acceptability for recognition of the Multi-Contact MC4 connector. The MC4 certification document can be found here: <http://tinyurl.com/Multi-ContactMC4>.

To our knowledge, at the present time, no connector has been listed or recognized by any listing agency for interconnection to any other manufacturer’s connectors. Some manufacturers have used independent third party tests and field verification to demonstrate compatibility with Multi-Contact. For example, Amphenol produced three separate TUV test reports confirming intermatability with Multi-Contact connectors, and point out that 10 million connectors in Europe, field mated with MC4 product, have to date had no incident of failure. Note, however, that module and inverter listings are not a requirement for PV system installation in Europe.

In addition, six major projects in Canada with Amphenol-Multi-Contact connections were completed and inspected with no inspector rejections. In-field use and inspector approval of cross-mated product does provide a level of verification of compatible performance. However, we are all aware that field approval is dependent upon local inspectors, and the ultimate compatibility question will only be answered in the long run as to how well the lab tests represent long-term performance of the connectors in widely varying climatic conditions.

In addition, several of these connectors, even though claimed to be compatible with Multi-Contact, have had issues with compatibility with each other. For example, field experience has shown that both Amphenol and SMK have had mating issues with Bizlink connectors. Furthermore, Tyco, another commonly used connector, is not designed to mate with MC connectors.

To alleviate this situation and to allow our customers the option to continue to make recognized connections, SunWize has developed several adapter cable sets. The table below illustrates our part number, the connectors they utilize and a typical application.

SunWize PN	Description	Connector Transition	Typical Use
796006	Two Cables, 6” long, Tyco– MC4	Tyco SolarLok to Multi-Contact MC4	Enphase Tyco inverter used with MC4 module
797012	Two Cables, 6” long, Bizlink– MC4	Bizlink to Multi-Contact MC4	Samsung module connected to MC4 interconnect cable for home run
797013	Two Cables, 6” long, Bizlink– AMP	Bizlink to AmphenolH4	Samsung module connected to Enphase inverter
797014	Two Cables, 6” long, SMK to MC4	SMK to Multi-Contact MC4	Sharp module connected to MC4 interconnect cable for home run
797015	Two Cables, 6” long, SMK– AMP	SMK to Amphenol H4	Sharp module to Enphase inverter
795063	Two Cables, 6” long, MC4 – AMP	Multi-Contact MC4 to Amphenol H4	Sanyo module connected to Enphase inverter

Our customers may choose to mate connector pairs from different manufacturers based on price, availability or for convenience. However, it is important to understand that at the present time, mating connector pairs from the same manufacturer can provide assurance that connector recognition and module and inverter listings are fully maintained.

SunWize wants our customers to make an informed decision about what connectors to use. If you have further questions regarding PV connectors, please contact your SunWize sales manager.