
SOLARLOK PV4 Panel Mounted Connector

CONTENT

1	Introduction	2
2	Supporting Document	2
2.1	Drawings.....	2
2.2	Product Specification	2
3	Requirements	2
3.1	General Instructions	3
3.2	Termination of the cable wires / crimping of the contacts	3
3.2.1	<i>Handling Of Connectors and Cables</i>	3
3.2.2	<i>Assembly and Connection of Wire Leads</i>	4
3.2.3	<i>Crimping Tooling</i>	5
3.3	Assembly of Connectors	6
3.3.1	<i>Selection of cable for Connectors</i>	6
3.3.2	<i>Assembly of the connectors</i>	6
3.4	Connectors Mating.....	8
3.5	Disconnecting	8
3.6	Protective Cover for connectors.....	10
4	Applications Examples.....	10
5	Storage.....	11
6	Tools	11

1 Introduction

This specification covers the requirements for application of the SOLARLOK PV4 Panel Mounted (PM) Connector as well as guideline for the assembly.

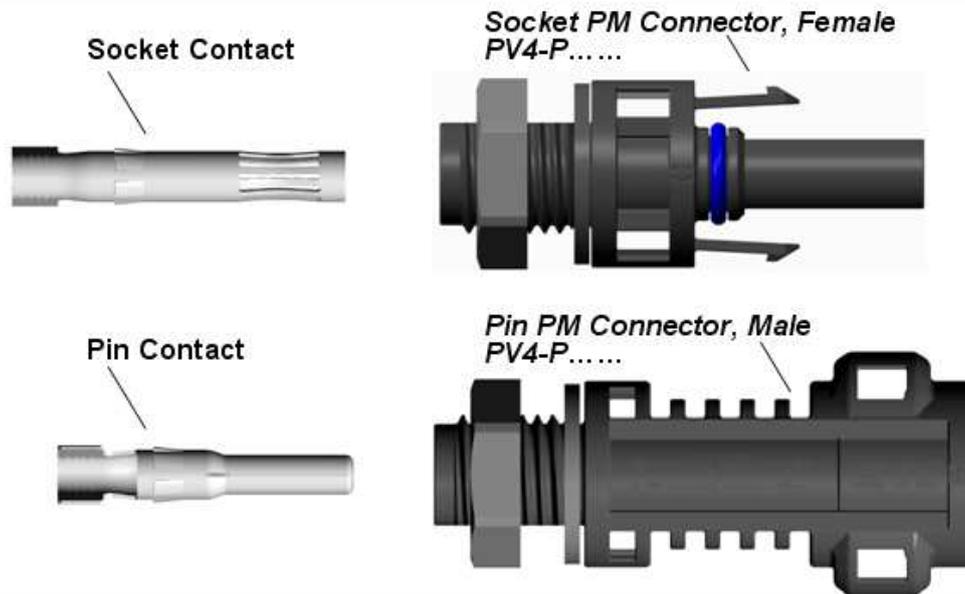


Figure 1

2 Supporting Document

2.1 Drawings

Customer Drawings for product part numbers are available from the service network. If there is a conflict between the information contained in the Customer Drawings and this specification or any other technical documentation supplied, Contact TE Connectivity Engineering.

PV4-P-A (PN 1971919)	Pin PM Connector (Male)
PV4-P-B (PN 1971920)	Socket PM Connector (Female)

2.2 Product Specification

Performance specification for the SOLARLOK PV4 PM Connector can be found in TE Connectivity product specification: 108-106122

3 Requirements



Do NOT disconnect under load!

Current path should only be disconnected using approved disconnect devices.
Symbol "Do not disconnect under load" is marked on the connectors



Connectors should always be protected from silicon sealant (Oxime) during mounting onto inverter / converter which has no silicon sealant (Oxime) contamination that could adversely degrade connection.



Mounting and installation must be done by qualified and trained staff considering all applying safety regulations. Failure to follow all instructions in Application Specification (available at www.te.com/documents), including using only approved TE tooling (if applicable), can result in improper installation and/or crimping which is dangerous and may cause or contribute to electrical fires.



Do NOT use any oil or lubricants during mounting.

3.1 General Instructions

Any kind of pollution (dust, humidity, foreign particles etc.) during the assembly process can degrade contact and connectors performance. This applies in particular to the seals and the crimping of the contacts. A clean assembly environment is therefore essential.



Unconnected connectors must always be protected from pollution (e.g.dust humidity, foreign particles, etc), prior to installation. Do NOT leave unconnected (unprotected) connectors exposed to the environment..

3.2 Termination of the cable wires / crimping of the contacts

Connectors use different crimp contacts for various wire gauges. It is necessary to use the proper tool for wire gauge size. Possible connectable wire gauges sizes are 4.0 mm²/AWG12, 6.0 mm² /AWG10. The tools to be used are selected based upon the wire gauge.



Shelf life: The contacts should remain in the shipping containers until ready for use to prevent from storage contamination that could adversely affect connection.

3.2.1 Handling Of Connectors and Cables



The cable must not be bent or crushed on the direct exit of the connector minimum bending radius $R \geq 5 \times \text{Cable diameter}$ must be maintained.

The cable must be routed in a way that the tensile stress on the conductor or connections is prevented (see **Figure 2**).

The PV4 connectors is to be used only to interconnect firmly fixed cables

Radius (R) > 5 x Cable Ø

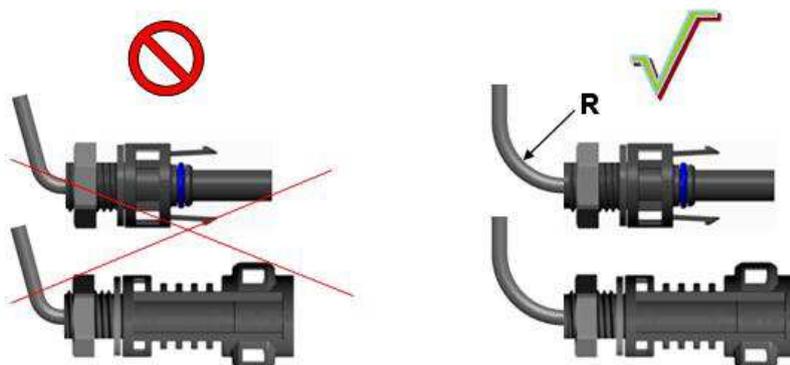


Figure 2

3.2.2 Assembly and Connection of Wire Leads

The crimping contact must be performed in the following procedure:

1) Stripping insulation of the wire lead

Using the appropriate wire stripping tool, strip the wire as indicated in **Figure 3** and **Table 1** without damaging the strands.

Note: Not to Scale

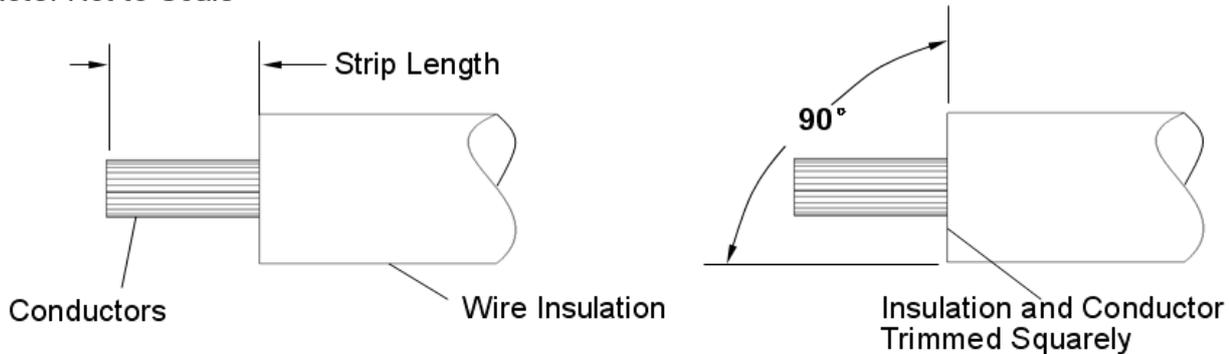


Figure 3

Nominal Wire Size (mm ² / AWG)	Wire Strip Length (mm)
2.5 / 14, 4.0 / 12 & 6.0 / 10	6.5 ^{+1.0} / _{-0.5}

Table 1

2) Crimping Contacts

Making the crimping contacts connection with suitable cross-section tooling and crimped according to the instructions packaged with the tooling. See section 3.2.3, Crimping Tooling, of this document for detail on tooling options.

NOTE  The applied crimping dimension (within the functional range of the product) is depended on the crimping tooling being used. Refer to the documentation supplied with the crimping tooling for the applied crimping height.

A. Wire barrel Crimp

The crimp applied to the wire barrel of the contacts is the most of compressed area and is most critical in ensuring optimum electrical and mechanical performance of the crimped contacts. **The wire barrel crimp height** must be within the dimension in **Table 2**.

Nominal Wire Size (mm ² / AWG)	Terminal PN	Wire-End Protrusion Length (mm)	Wire Barrel Crimp Width (mm)	Wire Barrel Crimp Height (mm)
2.5 / 14	2270099 / 2270100	1.0±1.0	3.01±0.05	1.88±0.05
4.0 / 12	1971857 / 1971858	1.0±1.0	3.94±0.05	2.14±0.05
6.0 / 10	1971857 / 1971858	1.0±1.0	3.94±0.05	2.49±0.05

Table 2

Note: The crimp width is tooling depend. Checking the crimp width is checking for the proper tool and not a process control

Note: All of Contact Have Same Dimensions

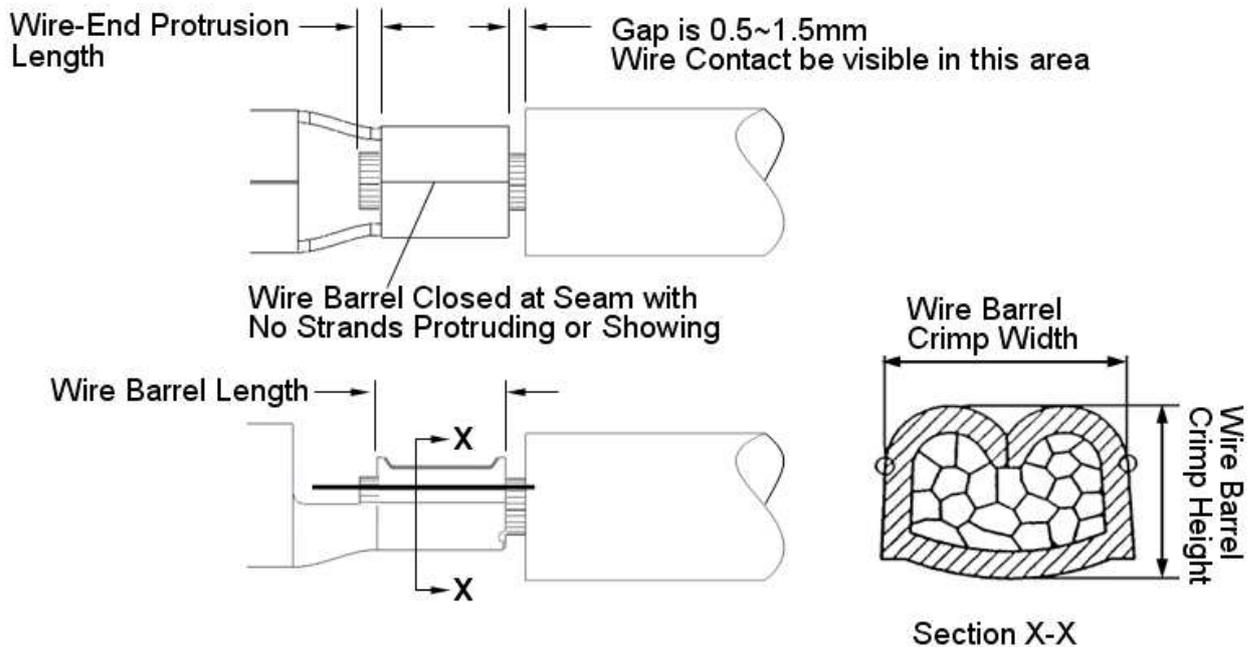


Figure 4

B. Effective Crimp Length

For optimum crimp effectiveness, the crimp must be within the area shown in **Figure 4** and must meet the crimp dimensions provided in **Table 2**.

C. Wire-End Protrusion Length

The wire barrel shall not exceed the dimension shown in **Figure 4** and **Table 2**.

D. Wire Location

The wire conductor must be visible in the transition area between the wire barrel and insulation as shown in **Figure 4**.

E. Wire Barrel Seam

The wire barrel seam must be closed with no evidence of loose wire strands visible in the seam. See **Figure 4**.

3.2.3 Crimping Tooling

Because of the large amount of product variations and application tooling available, it is not feasible to list all the tooling on this document. The operation instructions packaged with that tooling. The following tools are available for the contact crimping

3.2.3.1 Hand Crimping Tool

Hand crimping tools are designed for low-volume application and repair.

No.	TE connectivity Part Number	Terminal PN	Wire size	Approval	Order Text	Picture
1	4-1579002-2	--	2.5 +4.0+6.0mm ²	N/A	SOLARLOK insulation stripper	
2	6-1579014-9	2270099 / 2270100 1971857 / 1971858	2.5+4.0mm ²	N/A	Hand-crimp tool (complete) for crimping contact	
3	7-1579016-5	2270099 / 2270100 1971857 / 1971858	2.5+4.0mm ²	N/A	Crimp head for crimping contact	
4	6-1579014-8	1971857 / 1971858	4.0+6.0mm ²	N/A	Hand-crimp tool (complete) for crimping contact	
5	4-1579016-7	1971857 / 1971858	4.0+6.0mm ²	N/A	Crimp head for crimping contact	

Table 3

3.2.3.2 Applicators

Applicators are designed for the full wire size range of terminals, and provide for high volume or mass production requirements. The applicators can be used in bench or floor model power units.



Each applicator is shipped with a metal identification tag attached. Do not remove this tag or disregard the information on it. Also, a packet of associated paperwork is included in each applicator shipment. This information should be read before using the applicator; then it should be store in a clean, dry area near the applicators for future reference. Some changes may have to be made to the applicators to run in all related power units. Contact TE connectivity corporate engineering.

3.3 Assembly of Connectors

3.3.1 Selection of cable for Connectors

The connector should select a suitable cable from the cable wire size (4~6mm²/12~10AWG) and outside diameter of the cable from 4.5mm to 8.0mm.

3.3.2 Assembly of the connectors

The assembly of the connectors must be performed in the following sequence:

- 1) Assemble the Seal into the connector housing until it stop (see Figure 5)

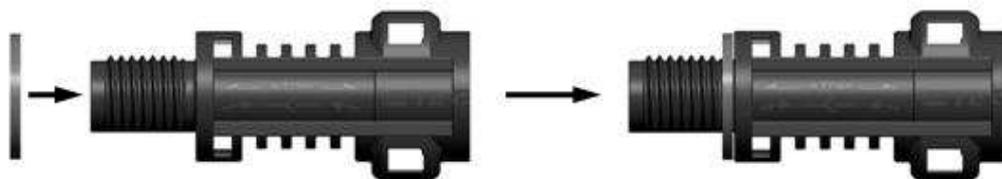


Figure 5



If just Pin connector shown, the Socket connector have same the assembly process

2) Mounting the connector to the panel of invertors or converters (system) (see Figure 6).

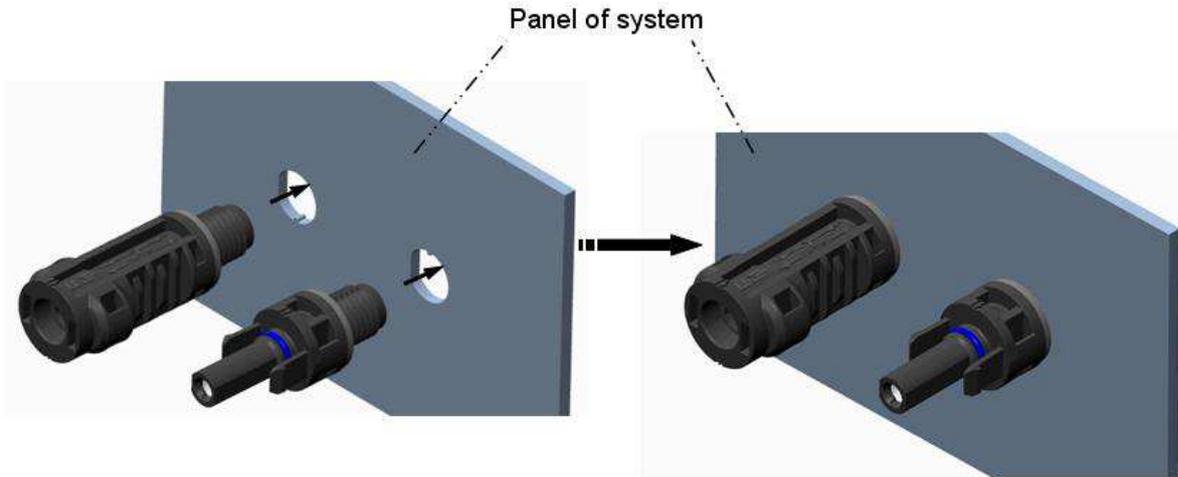


Figure 6

3) Use torque wrench head (PN 2232097-1) to tighten the nut (see Figure 7).

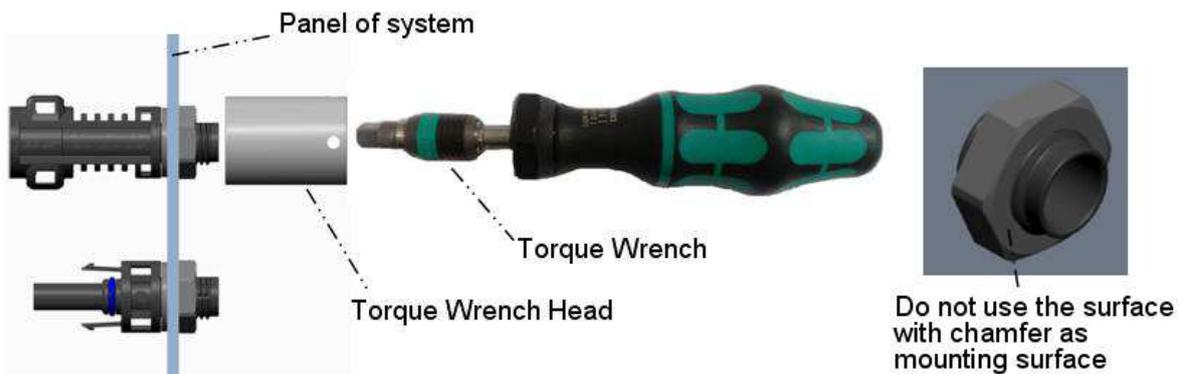


Figure 7

Tightening of the nut (initial tightening torque is $1.1 \pm 0.1\text{Nm}$)

4) Insert the contact crimped wire lead of cable until an audible click sound is heard and then give a slight pull back (a maximum of 5~10N force) to check whether the contact is locked.

a) The contact engagement force is max.35N

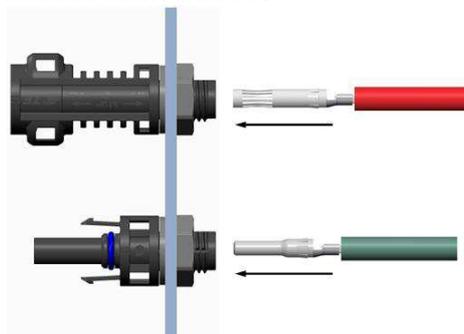


Figure 8

assembly: Insertion of contact with crimped wire lead of cable

3.4 Connectors Mating

When mating the connectors, ensure the following;

- ♦ It is only allowed to connect a PV4 PM connector **Male** to a PV4 connector **Female**, or a PV4 PM connector **Female** to a PV4 connector **Male**.
- ♦ Mating of the connectors is done by pushing the connectors together until a clear audible click is heard. This clear audible clicking sound must be heard to ensure the connectors have been mated correctly. When the connectors are correctly connected the locking latches should be flush against the edge of the connector (see **Figure 9**).

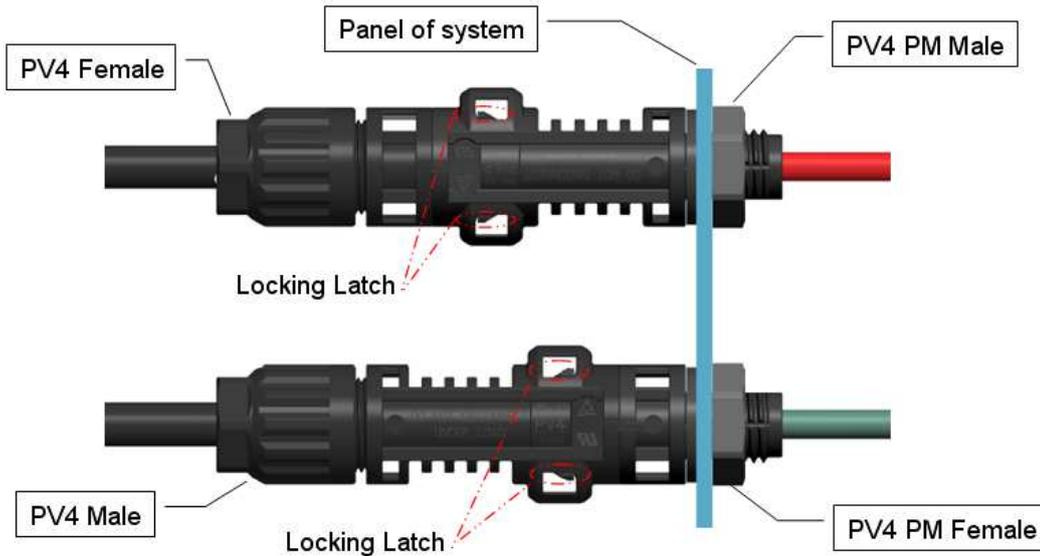


Figure 9

3.5 Disconnecting



Do NOT disconnect under load!

Current path should only be disconnected using approved disconnect devices.

The following hand application tool (**PN 2232232-1**) is available for assembling and disconnecting the connector in **Figure 10**, and tightening the nut for low-volume application and repair.



Figure 10
Hand Application Tool

- ①. The locking mechanism is opened by depressing the latches with hand application tool (PN 2232232-1) as shown in **Figure 11**.
- ②. Disconnect the connector connections while the special tool insertion into the locking mechanism to depress the latches, and pull the connectors apart.

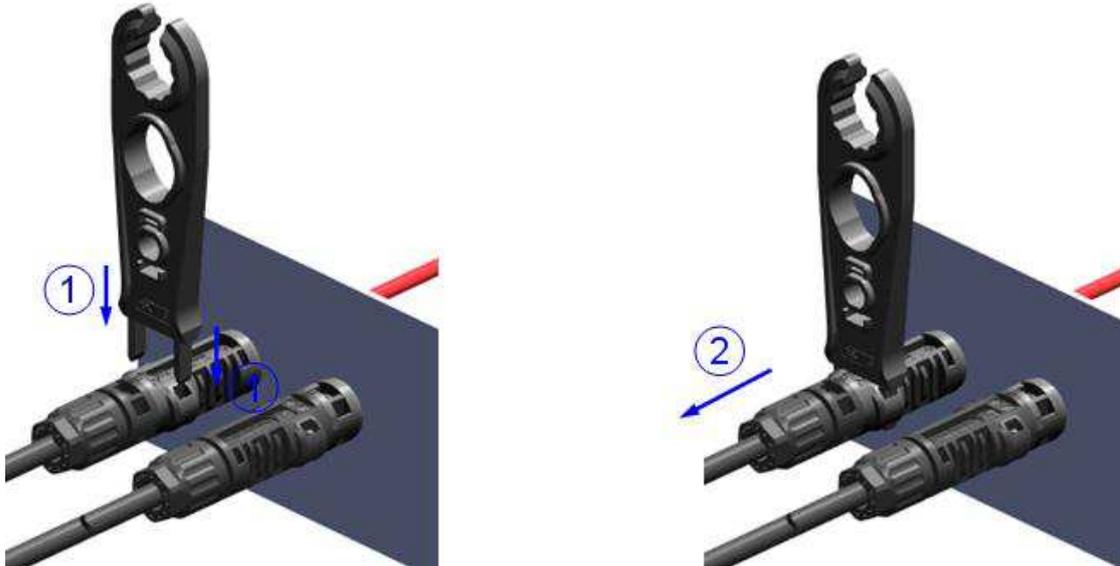


Figure 11
Disconnect the connectors

3.5.1 For installation application, it can use opening tooling to tighten or un-tighten operation in **Figure 12**

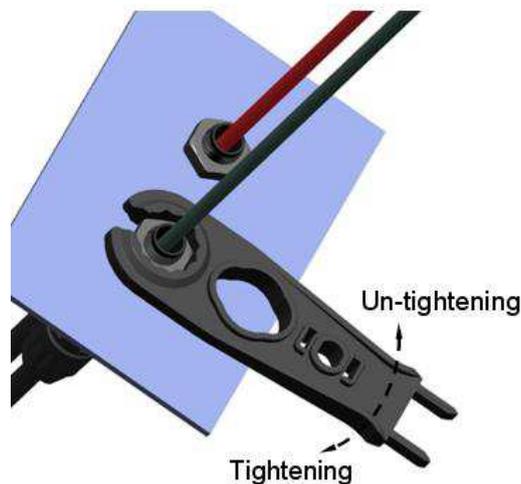


Figure 12
Tightening the connectors with Opening tool

3.6 Protective Cover for connectors

These protective dust caps serve for the protection against environmental contaminants.

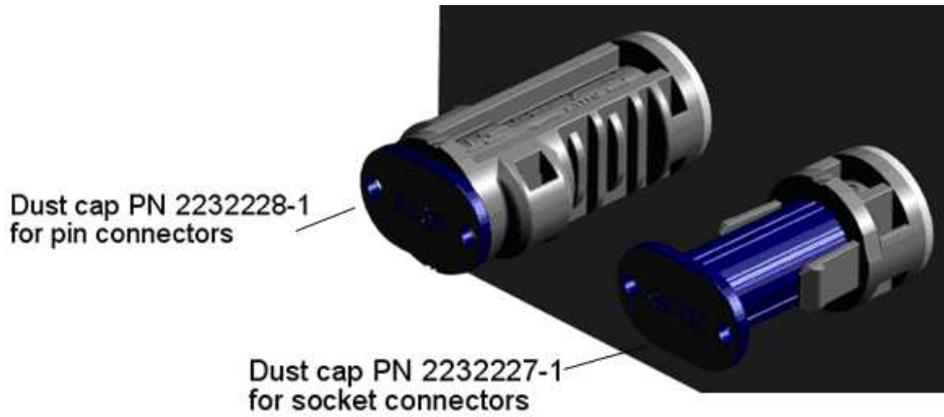


Figure 13

4 Applications Examples

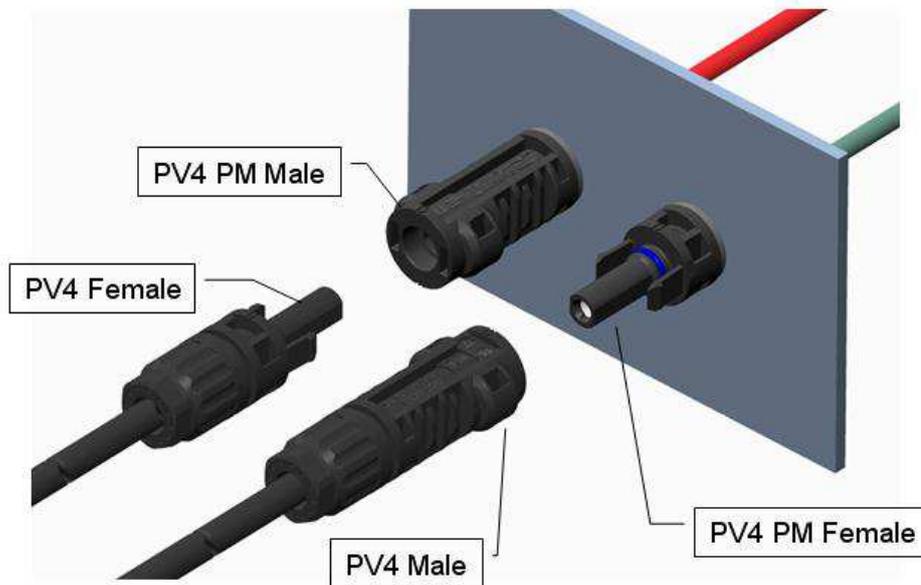


Figure 14

5 Storage

See Product specification 108-106122.

6 Tools

1. The following tools are available for crimping the contacts having wire sizes 4.0+6.0mm² including hand crimping tool (PN 6-1579014-8) and crimp head (PN 4-1579016-7).
2. The following tools are available for crimping the contacts having wire sizes 2.5+4.0mm² including hand crimping tool (PN 6-1579014-9) and crimp head (PN 7-1579016-5).
3. Insulation stripper (PN 4-1579002-2) is recommended for stripping the wire.
4. Hand application tool (PN 2232232-1) is available for assembling and disconnecting the connectors.
5. A torque wrench head (PN 2232097-1) is recommended for tightening the nut.