



SOLARLOK Interconnection System Installation Manual

Installation Manual

1. Safety Note



- The SOLARLOK connector is to be used only to interconnect firmly fixed cables.
- **Do not disconnect under electrical load!**
- Electrical current path should only be disconnected using approved devices.
- Only cables released from TE Connectivity are permitted to be used with SOLARLOK component cable assemblies.
- SOLARLOK component cable shall be labeled with label PN 1718077-1 “Do not disconnect under load”.
- To protect against shock, ensure that conductors and their associated connectors are separated from opposite polarity components.
- 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. The usage of TE connector dust caps is strongly recommended.
- Connectors that are unmated in the field should also be protected from pollutants.
- Do **NOT** use any **oil or lubricants** during mounting.



2. Tools

| | | |
|-----------------------|---|----------------|
| (1) Stripping Tool | 1.5 mm ² – 6.0 mm ² , 10 AWG | PN 4-1579002-2 |
| (2) Crimping Tool | 4.0 mm ² and 6.0 mm ² , 10-12 AWG | PN 1-1579004-2 |
| (3) Extraction Tool | all terminals | PN 1102855-3 |
| (4) Field Service Kit | all in one | PN 1534858-1 |



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3. Assembly Steps

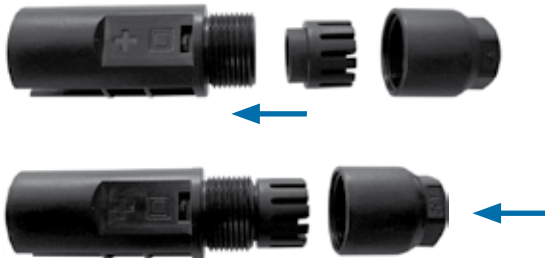
- 3.1** Using the appropriate wire stripping tool, strip the wire **9 mm ± 1 mm** without damaging the strands.



- 3.2** Insert the stripped wire into the terminal wire crimp barrel until it stops. While holding the wire in place, squeeze the crimp tool handles together until the ratchet releases.



- 3.3** Press the seal and cable pinch ring assembly into the connector housing until it stops. **If you use the pre-assembled connector kit, please go to 3.5!**



- 3.4** Screw back shell nut onto connector housing.



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Pre-Assembled (Connector Kit)

- 3.5** Push contact with cable into the connector housing until you hear the contact give an audible click and you feel the contact reach the end position. To verify contact engagement, give a slight gentle pull back on the cable, to be sure that the contact is locked.

“CLICK”



- 3.6** Tighten the cable screw lock. The initial assembly tightening torque is **1.3 + 0.2 Nm**. For this, a slotted socket wrench with wrench size 13 mm, is recommended.

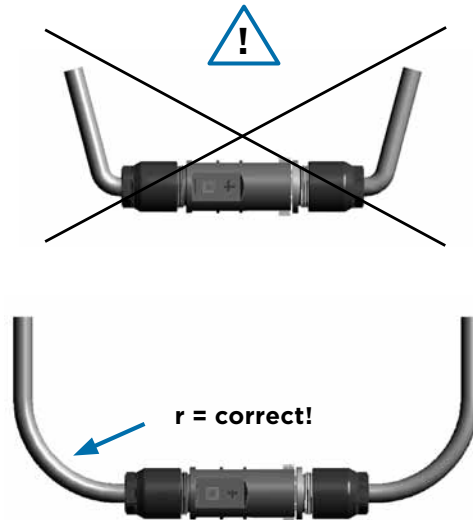
**4. Connector Mating**

- When mating the SOLARLOK connectors, connectors labelled with a “+” or “-” are keyed and can only be mated with equally (same polarity) marked and keyed connectors.
- The connector system is fully latched only when the latches have clicked onto the mating connector.
- The “neutral” designated male connector incorporates no keying features and may be freely mated to either “+” or “-” keyed plug connectors. The neutral product should not be used when maintaining polarity is critical. It is only permitted for serial connections.

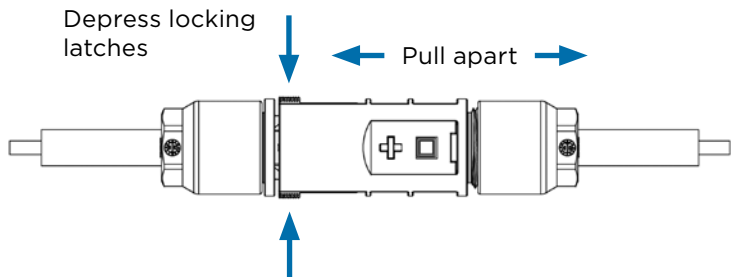
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5. Wiring

Radius (r) min. 5x cable \varnothing



6. Connector Unmating



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Table 1

| Available Connector Kits for SOLARLOK Interconnection System | | | |
|--|--------------|----------------------------|--------------------------------|
| Female Cable Connectors | | | |
| Part Number | Description | Wire Size | Insulation O.D. Range |
| 4-1394462-6 | Plus Female | 2.5mm ² / 14AWG | 4.5 to 6.0 mm / 0.177-0.236 in |
| 4-1394462-8 | Plus Female | 4.0mm ² / 12AWG | 4.5 to 6.0 mm / 0.177-0.236 in |
| 6-1394462-3 | Plus Female | 6.0mm ² / 10AWG | 4.5 to 6.0 mm / 0.177-0.236 in |
| 4-1394462-7 | Minus Female | 2.5mm ² / 14AWG | 4.5 to 6.0 mm / 0.177-0.236 in |
| 4-1394462-9 | Minus Female | 4.0mm ² / 12AWG | 4.5 to 6.0 mm / 0.177-0.236 in |
| 6-1394462-4 | Minus Female | 6.0mm ² / 10AWG | 4.5 to 6.0 mm / 0.177-0.236 in |
| Male Cable Connectors | | | |
| 1394461-7 | Plus Male | 2.5mm ² / 14AWG | 4.5 to 6.0 mm / 0.177-0.236 in |
| 7-1394461-0 | Plus Male | 4.0mm ² / 12AWG | 4.5 to 6.0 mm / 0.177-0.236 in |
| 7-1394461-3 | Plus Male | 6.0mm ² / 10AWG | 4.5 to 6.0 mm / 0.177-0.236 in |
| 1394461-8 | Minus Male | 2.5mm ² / 14AWG | 4.5 to 6.0 mm / 0.177-0.236 in |
| 7-1394461-1 | Minus Male | 4.0mm ² / 12AWG | 4.5 to 6.0 mm / 0.177-0.236 in |
| 7-1394461-4 | Minus Male | 6.0mm ² / 10AWG | 4.5 to 6.0 mm / 0.177-0.236 in |
| 6-1394461-3 | Neutral Male | 2.5mm ² / 14AWG | 4.5 to 6.0 mm / 0.177-0.236 in |
| 7-1394461-2 | Neutral Male | 4.0mm ² / 12AWG | 4.5 to 6.0 mm / 0.177-0.236 in |
| 7-1394461-5 | Neutral Male | 6.0mm ² / 10AWG | 4.5 to 6.0 mm / 0.177-0.236 in |



Male housing



Female housing

Table 2

| Replacement Contacts (screw-machined) for SOLARLOK System | | |
|---|-----------------|-------------------|
| Wire Gauge Wire Size | Male Contact PN | Female Contact PN |
| 2.5 mm ² 14 AWG | 0-1987280-1 | 0-1987281-1 |
| 4.0 mm ² 12 AWG | 0-1987280-2 | 0-1987281-2 |
| 6.0 mm ² 10 AWG | 0-1987280-4 | 0-1987281-3 |

*HVT contact system

Maximum Operating Conditions

Max. system voltage:

1000V (for UL 600V), max. current 25A@85°C

Ambient temperature:

-40°C up to 85°C, (for UL 75°C) at full load

Please also refer to the following specifications:

Application specification 114-18488-1 as well as instruction sheets 411-18305-1 and 114-94061-1 to ensure correct connector assembly and crimp quality. For additional details, please refer to product specification 108-18701.

For additional info, please visit our website at:

te.com/solar

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Accessories: Dust Covers

| Female Housing - Dust Cap | |
|---------------------------|------------------|
| PN | Package Quantity |
| 1987424-1 | 100 |



| Male Housing - Dust Plug | |
|--------------------------|------------------|
| PN | Package Quantity |
| 1987419-1 | 100 |



The usage of connector re-usable dust covers until final assembly is strongly recommended. When the dust cover is mounted, the connector fulfils IP44 (dust and splash proof) according to IEC 60529.

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Connector Safety Devices

| Locking Collar | | | | |
|----------------|------------------------|---------------------------------------|-------------------|------------------|
| PN | Unlock through | Required | Instruction Sheet | Package Quantity |
| 2106207-1 | Flat-blade-screwdriver | NEC* / USA UTE C15-712 / France | 408-10296 | 100 |

*for detailed informations see NEC 2008: 690.33



| Safety Clip Pivoted | | | |
|---------------------|----------------|----------|------------------|
| PN | Unlock through | Required | Package Quantity |
| 1534226-1 | Tool less | - | 100 |



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Solar Cable


| USE-2 Solar AWG Cable | | | |
|-----------------------|-------|-------------|----------|
| Wire Size | Color | Part Number | Quantity |
| 14 AWG | Black | 1986166-2 | 500 |
| | Black | 1986166-3 | 2500 |
| 12 AWG | Black | 1986165-2 | 500 |
| | Black | 1986165-3 | 1600 |
| 10 AWG | Black | 1986164-2 | 500 |
| | Black | 1986164-3 | 1000 |



This UV resistant cable can be used in the following photovoltaic applications:

- Between solar panels
- Between solar roof tiles
- Between panels and the AC/DC inverters

Approval:

- UL 854 approved 
- Approved for outdoor use

Material:

- Cable conductor is pre-tinned, stranded copper wire.
- Outside wire jacket provides a robust layer of protection and is UV resistant

Voltage:

600V

Temperature Range:

-40 °C - +90 °C

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Grounding Solutions

| Grounding Clip and Grounding Bolt Only for solid un-insulated copper wire | | | |
|--|---|-------------------|------------------|
| PN | Description | Instruction Sheet | Package Quantity |
| 1954381-1 | 12-10AWG Grounding Clip with Self-Tapping Screw | 408-10160 | 100 |
| 1954381-2 | 12-10 AWG Grounding Clip with Screw and Nut | 408-10160 | 100 |
| 1954381-3 | 12-10 AWG Grounding Clip with Screw, Nut and Locking Ring | 408-10160 | 100 |
| 2106831-1 | 6-12 AWG Grounding Bolt, # 10-32 UNC Long Tail | 408-10262 | 100 |
| 2058729-1 | 6-12 AWG Grounding Bolt, # 8-32 UNC Std Tail | 408-10262 | 100 |

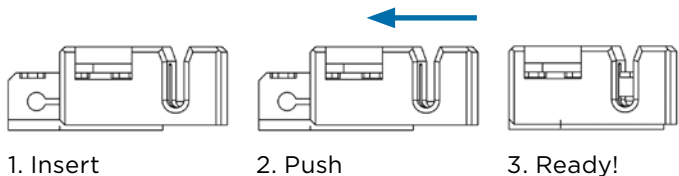
Grounding Clip



Grounding Bolt



3 easy steps to ground your PV system:



FOR MORE INFORMATION

te.com/solar

TE Technical Support Center

| | |
|-------------------|-----------------------|
| Internet: | te.com/help |
| USA: | +1 (800) 522-6752 |
| Canada: | +1 (905) 475-6222 |
| Mexico | +52 (0) 55-1106-0800 |
| Latin/S. America: | +54 (0) 11-4733-2200 |
| Germany: | +49 (0) 6251-133-1999 |
| UK: | +44 (0) 800-267666 |
| France: | +33 (0) 1-3420-8686 |
| Netherlands: | +31 (0) 73-6246-999 |
| China: | +86 (0) 400-820-6015 |

Part numbers in this brochure are RoHS Compliant*, unless marked otherwise.

*as defined www.te.com/leadfree

te.com/solar

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Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.