



AMPHENOL INDUSTRIAL H4™ **SOLAR CONNECTORS** PRESENTAION

www.amphenol-industrial.com

Amphenol in the Solar Market

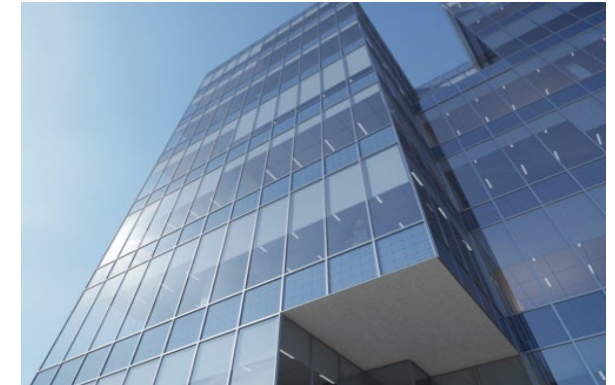
Amphenol Industrial has become the “One Stop Shop” for the Photovoltaic market, with a complete line of products to cover the entire PV system.

We devote ourselves to designing, developing, selling and manufacturing the inter-connect systems for the renewable energy industry.

Our product line offers a complete package, centered around the H4 connector. Built on our foundation of efficient contact technology, the product is a reliable, cost effective solution. Amphenol’s vast global manufacturing capability has addressed the needs of the solar industry with short lead times and tremendous capacity

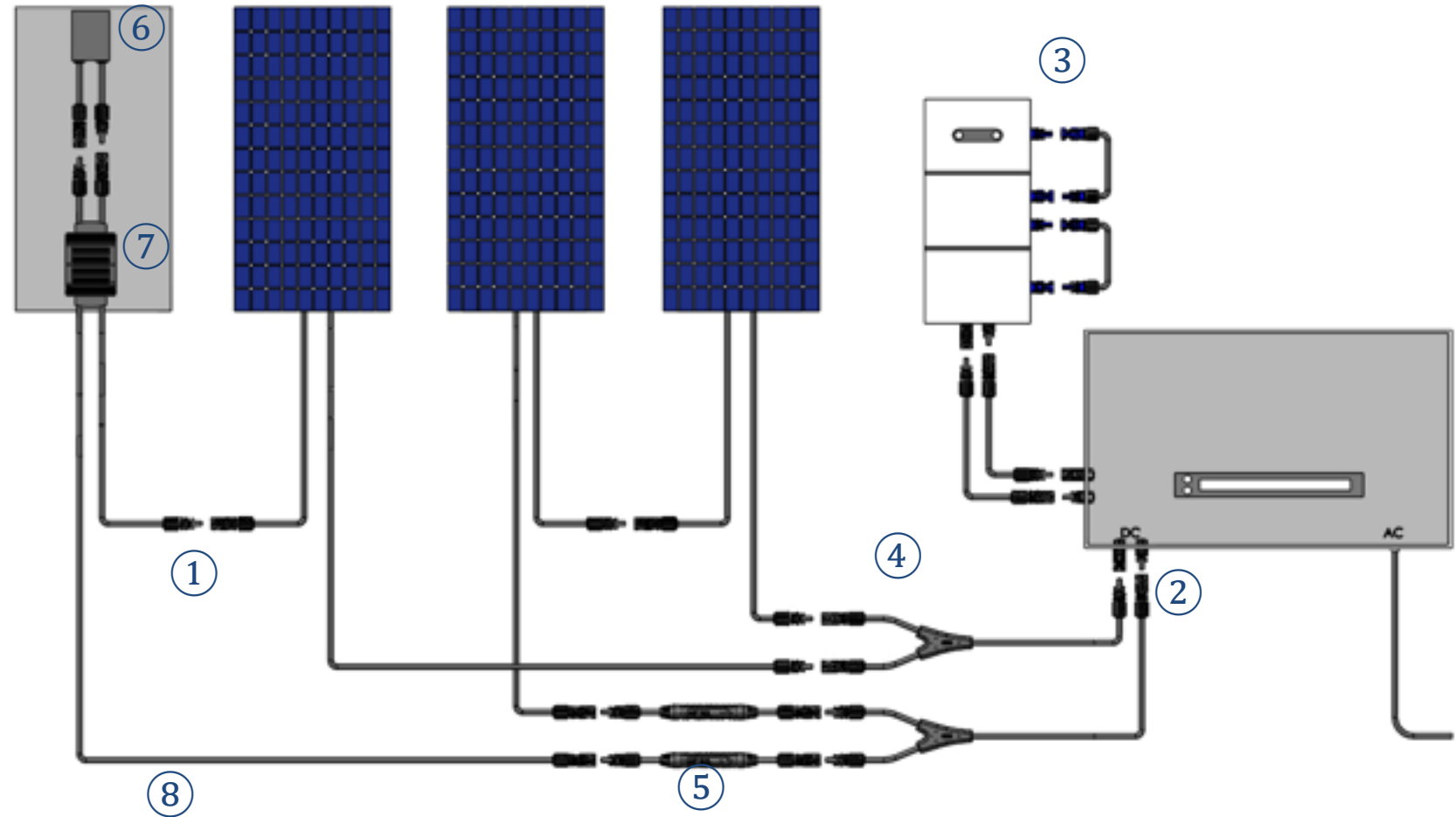
Our sales and customer service network are positioned all over the world. With localized factories, global market presence and technical support in Asia, North America and Europe, we respond quickly to customers’ demands.

Amphenol industrial is committed to lead through innovation in the renewable inter-connecting marketplace. Amphenol industrial also closely cooperates with global best in class PV companies, with advanced technology and designs, which lead the industry.

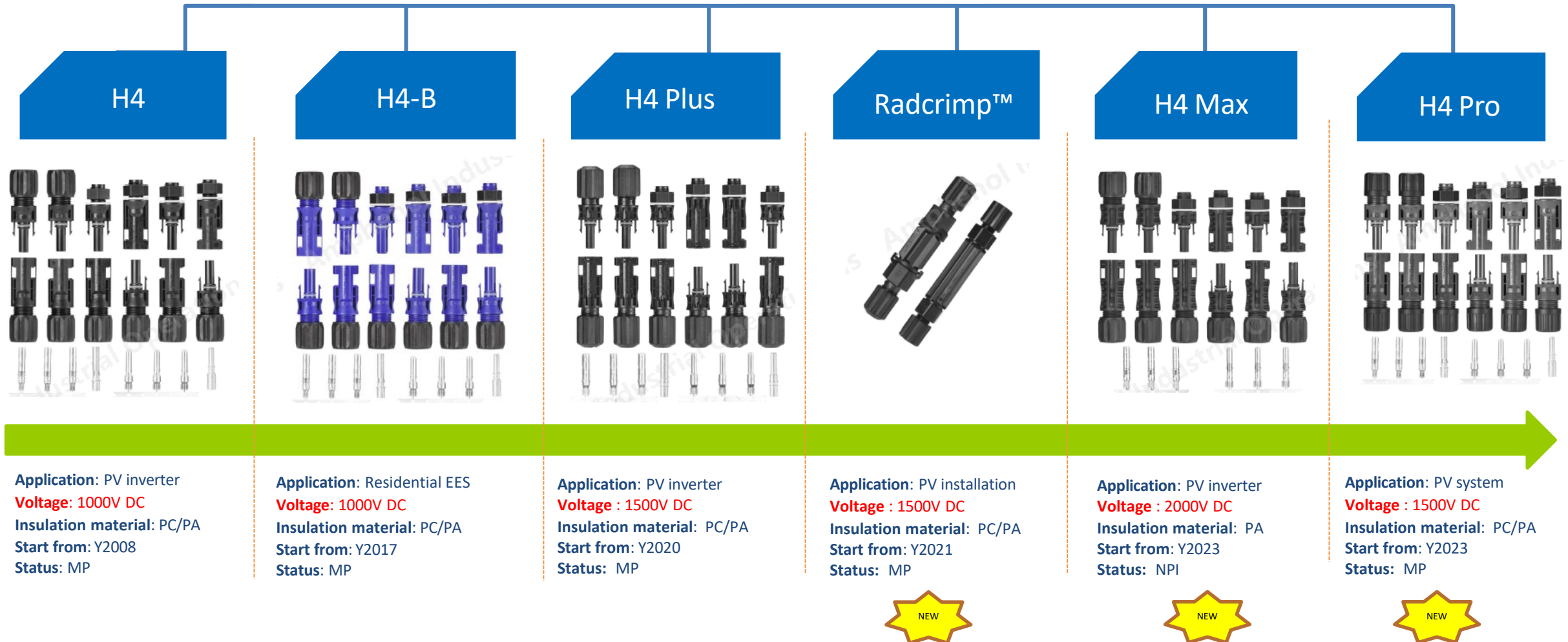


Amphenol Solar Product offering

- ① PV cable connector
- ② PV panel mounted connector
- ③ DC connector for battery module s internal connection
- ④ Y branch junction harness
- ⑤ Inline fuse junction harness
- ⑥ PV Junction box
- ⑦ RSD junction box
- ⑧ PV cable



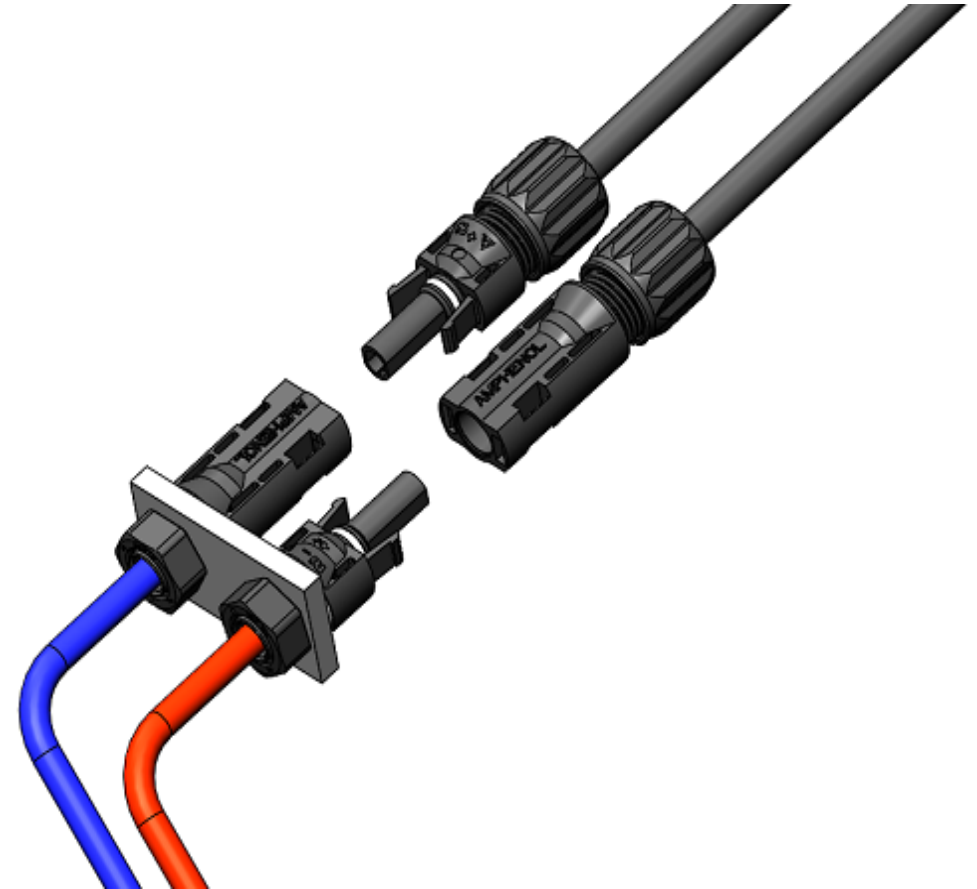
Amphenol H4 Connectors Product offering



H4[®] Connectors

Key Features

- Over 10 years of experience in the field
- $\leq 0.30\text{m}\Omega$ low and stable resistance with RADSOK[®] contact technology which ensures consistently low performance loss throughout the entire service life of the cable connector
- Snap-in lock
- In accordance with NEC 2014, requires a tool to open
- Both stamped and formed (S&F) and machined/cold-formed (CF) contact types available, for ease of field installation
- Guaranteed to reliably mate with Amphenol's entire PV product line
- High IP class : IP68 (1m/1H when mated only)
- UV Resistance
- RoHS, REACH compliant



H4[®] Cable Connectors Solid Contacts



Technical Data:

- ✓ Rated voltage : UL6703 1500VDC& TUV IEC 62852 2014+A1, **1000VDC**
- ✓ Rated current: 25A(2.5mm²/14AWG), 41A(4.0mm²/12AWG), 45A (6.0mm²/10AWG), 65A (10.0mm²/8AWG),
- ✓ Contact resistance : ≤0.25 mΩ
- ✓ Cable cross section range : 2.5mm²/14AWG to 6.0mm²/10AWG
- ✓ Cable OD range: Ø4.5mm~Ø7.8mm
- ✓ Protection of degree :IP68 mated (1m,1H) & IP2X touch-proof, unmated
- ✓ Ambient Temperature range: -40°C ~ +85°C
- ✓ Upper limiting temperature : +115°C
- ✓ Flame class : UL94-V0
- ✓ Overvoltage category/Pollution degree :CAT III/2
- ✓ Insulation material : PC/PA
- ✓ Contact material: Copper, tin-Plated
- ✓ Material safety: RoHS, REACH compliant

Ordering code example:

H4CFC4DM, female, for 4.0mm²/12AWG PV wire

H4CMC4DM,male, for 4.0mm²/12AWG PV wire



R50388083



E339277

H4[®] Cable Connectors S&F contacts

Technical Data:

- ✓ Rated voltage : UL6703 1500VDC & TUV IEC 62852 2014+A1, **1000VDC**
- ✓ Rated current: 25A(2.5mm²/14AWG), 35A(4.0mm²/12AWG), 45A (6.0mm²/10AWG)
- ✓ Contact resistance : ≤0.30 mΩ
- ✓ Cable cross section range : 2.5mm²/14AWG to 6.0mm²/10AWG
- ✓ Cable OD range: Ø4.5mm~Ø7.8mm
- ✓ Protection of degree : IP68 mated (1m, 1H) & IP2X touch-proof, unmated
- ✓ Ambient Temperature range: -40°C ~ +85°C
- ✓ Upper limiting temperature : +115°C
- ✓ Flame class : UL94-V0
- ✓ Overvoltage category/Pollution degree : CAT III/2
- ✓ Insulation material : PC/PA
- ✓ Contact material: Copper, tin-Plated
- ✓ Material safety: RoHS, REACH compliant



YouTube

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Ordering code example:

H4CFC4DMS, female, for 4.0-6.0mm²/10-12AWG PV wire

H4CMC4DMS, male, for 4.0-6.0mm²/10-12AWG PV wire



R50388083



E339277

H4[®] Panel Connectors Solid contacts



Technical Data:

- ✓ Rated voltage : UL6703 1500VDC & TUV IEC 62852 2014+A1, **1000VDC**
- ✓ Rated current: 25A(2.5mm²/14AWG), 35A(4.0mm²/12AWG), 45A (6.0mm²/10AWG), 65A (10.0mm²/8AWG)
- ✓ Contact resistance : ≤0.25 mΩ
- ✓ Cable cross section range : 2.5mm²/14AWG to 6.0mm²/10AWG
- ✓ Protection of degree : IP68 mated (1m, 1H) & IP2X touch-proof, unmated
- ✓ Ambient Temperature range: -40°C ~ +85°C
- ✓ Upper limiting temperature : +115°C
- ✓ Flame class : UL94-V0
- ✓ Overvoltage category/Pollution degree : CAT III/2
- ✓ Insulation material : PC/PA
- ✓ Contact material: Copper, tin-Plated
- ✓ Material safety: RoHS, REACH compliant

Ordering code example:

H4CFM4DM, female, for 4.0mm²/12AWG PV wire

H4CMM4DM, male, for 4.0mm²/12AWG PV wire



R50388083



E339277

H4[®] Panel Connectors S&F contacts

Technical Data:

- ✓ Rated voltage : UL6703 1500VDC & TUV IEC 62852 2014+A1, **1000VDC**
- ✓ Rated current: 25A(2.5mm²/14AWG), 35A(4.0mm²/12AWG), 45A (6.0mm²/10AWG)
- ✓ Contact resistance : ≤0.30 mΩ
- ✓ Cable cross section range : 2.5mm²/14AWG to 6.0mm²/10AWG
- ✓ Protection of degree : IP68 mated (1m, 1H) & IP2X touch-proof, unmated
- ✓ Ambient Temperature range: -40°C ~ +85°C
- ✓ Upper limiting temperature : +115°C
- ✓ Flame class : UL94-V0
- ✓ Overvoltage category/Pollution degree : CAT III/2
- ✓ Insulation material : PC/PA
- ✓ Contact material: Copper, tin-Plated
- ✓ Material safety: RoHS, REACH compliant



Ordering code example:

H4CFM4DMS, female, for 4.0-6.0mm²/10-12AWG PV wire

H4CMM4DMS, male, for 4.0-6.0mm²/10-12AWG PV wire



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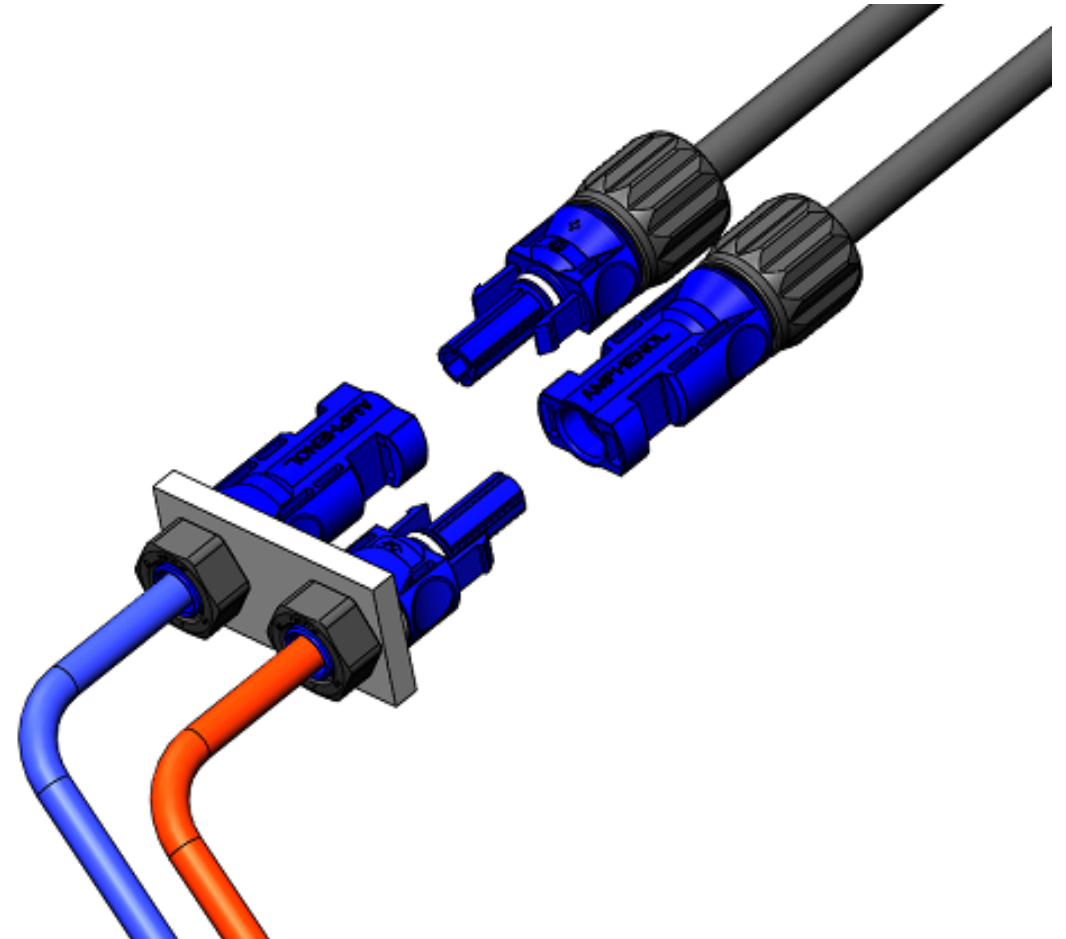


E339277

H4[®]- B Connectors

Key Features

- Cost effective solution for solar battery storage application
- Fool-proof design by blue color and insertion interference
- $\leq 0.3\text{m}\Omega$ low resistance RADSOK[®] contact typically
- Both stamped and formed (S&F) and machined/cold-formed (CF) contact types available, for ease of field installation
- UV Resistance
- UL94 V-0 (self-extinguishing)
- RoHS, REACH compliant



H4[®]- B Cable Connectors Solid Contacts



Technical Data:

- ✓ Rated voltage : TUV IEC 62852:2014+A1, 1000VDC
- ✓ Rated current: 25A(2.5mm²/14AWG), 35A(4.0mm²/12AWG), 45A (6.0mm²/10AWG), 55A(10.0mm²/8AWG)
- ✓ Contact resistance: ≤0.25 mΩ
- ✓ Cable cross section range : 2.5mm²/14AWG to 6.0mm²/10AWG
- ✓ Cable OD range: Ø4.5mm~Ø7.8mm
- ✓ Protection of degree :IP68 mated (1m,1H) & IP2X touch-proof, unmated
- ✓ Ambient Temperature range: -40°C ~ +85°C
- ✓ Upper limiting temperature : +115°C
- ✓ Flame class : UL94-V0
- ✓ Overvoltage category/Pollution degree :CAT III/2
- ✓ Insulation material : PC/PA
- ✓ Contact material: Copper, tin-Plated
- ✓ Material safety: RoHS, REACH compliant

Ordering code example:

H4PFC4TM, female, for 4.0mm²/12AWG PV wire

H4PMC4TM, male, for 4.0mm²/12AWG PV wire



R50388083



H4[®]- B Cable Connectors S&F contacts

Technical Data:

- ✓ Rated voltage : TUV IEC 62852:2014+A1, 1000VDC
- ✓ Rated current: 25A(2.5mm²/14AWG),35A(4.0mm²/12AWG),
45A (6.0mm²/10AWG),55A(10.0mm²/8AWG)
- ✓ Contact resistance :≤0.3mΩ
- ✓ Cable cross section range : 2.5mm²/14AWG to 6.0mm²/10AWG
- ✓ Cable OD range: Ø4.5mm~Ø7.8mm
- ✓ Protection of degree :IP68 mated (1m,1H) & IP2X touch-proof, unmated
- ✓ Ambient Temperature range: -40°C ~ +85°C
- ✓ Upper limiting temperature : +115°C
- ✓ Flame class : UL94-V0
- ✓ Overvoltage category/Pollution degree :CAT III/2
- ✓ Insulation material : PC/PA
- ✓ Contact material: Copper, tin-Plated
- ✓ Material safety: RoHS, REACH compliant

Ordering code example:

H4PFC4TMS, female, for 4.0-6.0mm²/10-12AWG PV wire

H4PMC4TMS,male, for 4.0-6.0mm²/10-12AWG PV wire



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H4[®]- B Panel Connectors Solid contacts



Technical Data:

- ✓ Rated voltage : TUV IEC 62852:2014+A1, 1000VDC
- ✓ Rated current: 25A(2.5mm²/14AWG), 35A(4.0mm²/12AWG), 45A (6.0mm²/10AWG), 55A(10.0mm²/8AWG)
- ✓ Contact resistance: ≤0.25 mΩ
- ✓ Cable cross section range : 2.5mm²/14AWG to 6.0mm²/10AWG
- ✓ Protection of degree : IP68 mated (1m, 1H) & IP2X touch-proof, unmated
- ✓ Ambient Temperature range: -40°C ~ +85°C
- ✓ Upper limiting temperature : +115°C
- ✓ Flame class : UL94-V0
- ✓ Overvoltage category/Pollution degree : CAT III/2
- ✓ Insulation material : PC/PA
- ✓ Contact material: Copper, tin-Plated
- ✓ Material safety: RoHS, REACH compliant

Ordering code example:

H4PFM4TM, female, for 4.0mm²/12AWG PV wire

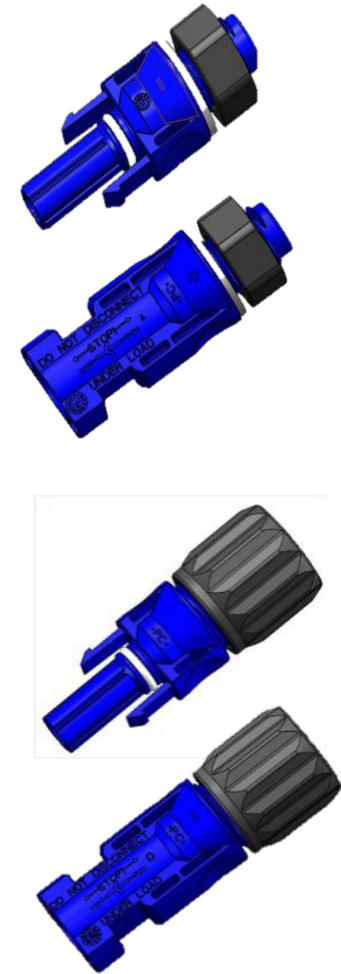
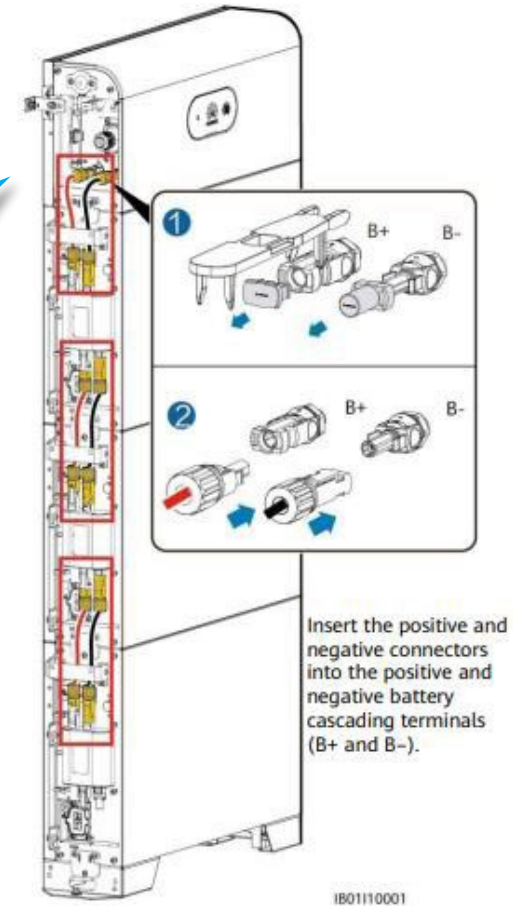
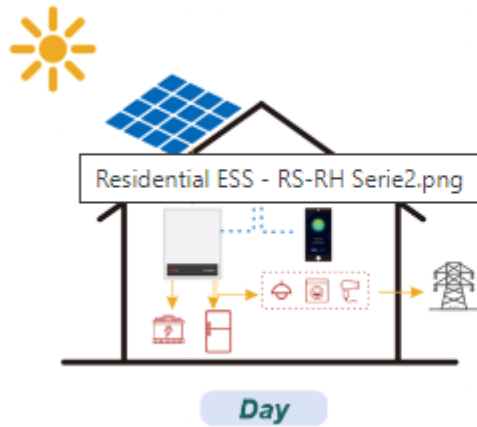
H4PMM4TM, male, for 4.0mm²/12AWG PV wire



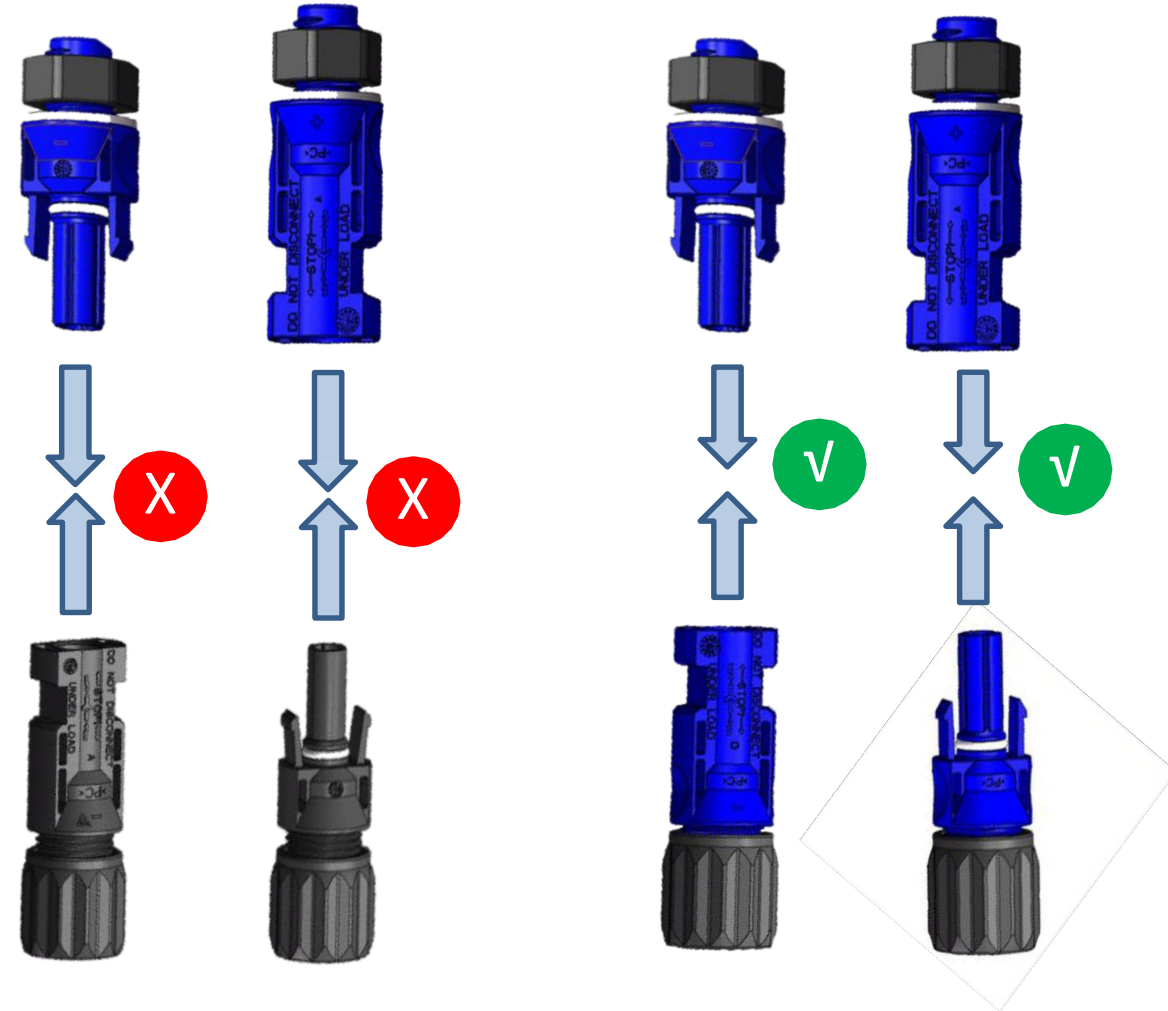
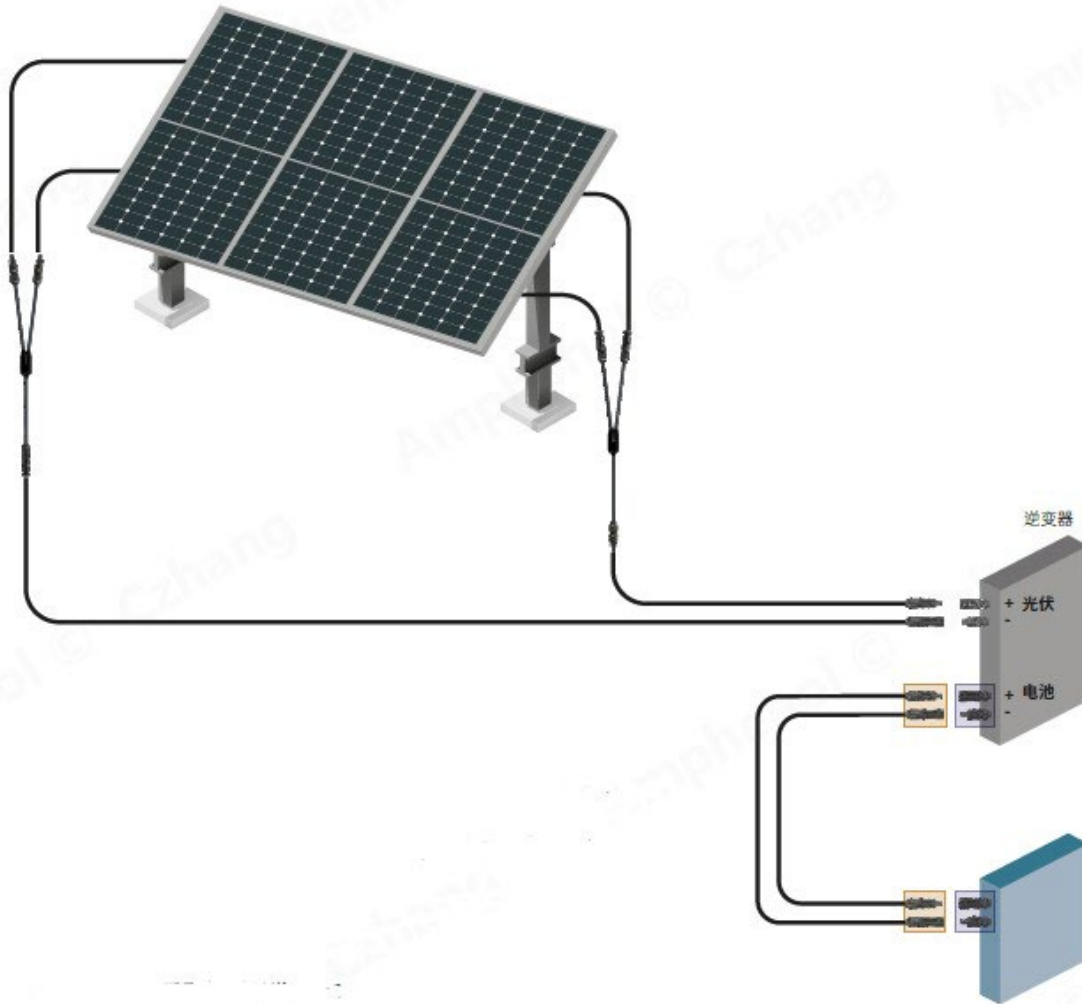
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H4[®]- B Residential ESS



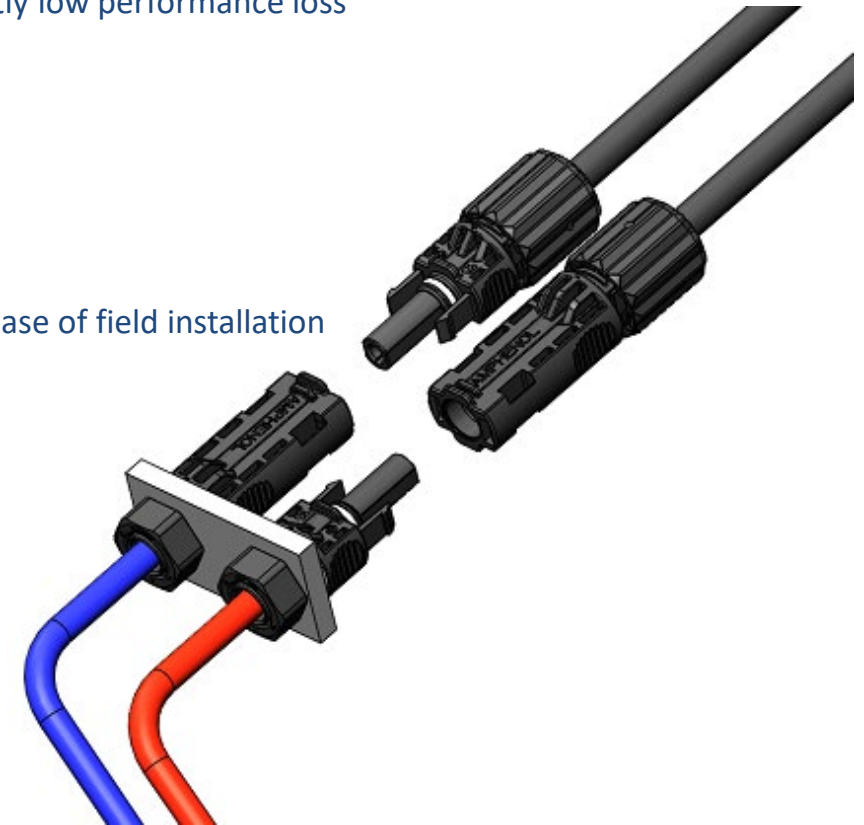
H4[®]- B Residential ESS



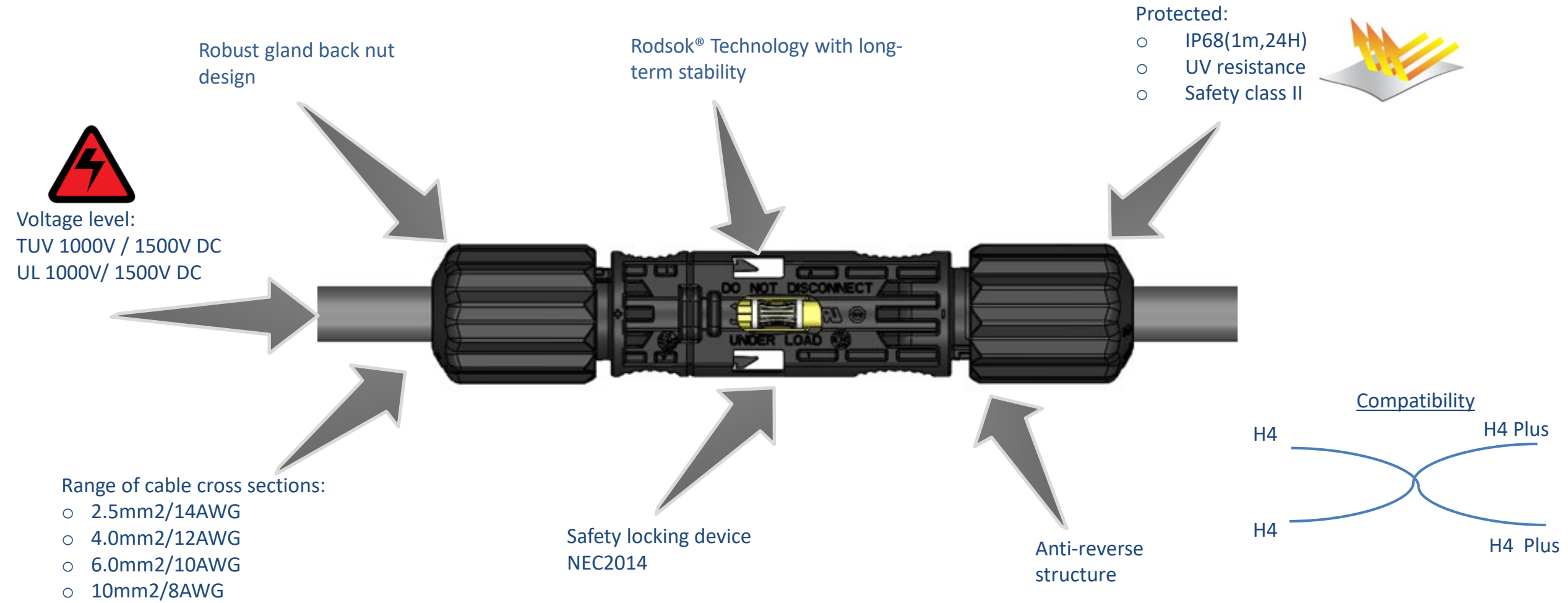
H4 Plus™ Connectors

Key Features

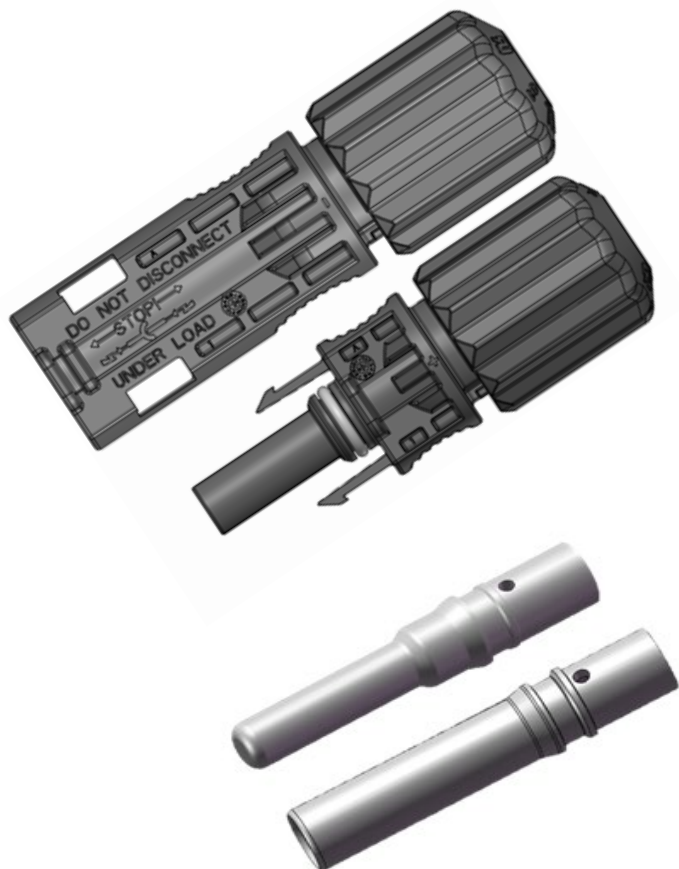
- 0.25mΩ low and stable resistance with RADSOK® contact technology which ensures consistently low performance loss throughout the entire service life of the cable connector
- Snap-in lock
- In accordance with NEC 2014, requires a tool to open
- A ratcheting gland back nut, which prevents backspin once the nut is tightened
- Both stamped and formed (S&F) and machined/cold-formed (CF) contact types available, for ease of field installation
- Guaranteed to reliably mate with Amphenol entire PV product line
- Available for assembly with cross sections 10mm²/8AWG.
- High IP class : IP68 (1m/24hours, when mated only)
- UV Resistance
- RoHS, REACH compliant



Advantages H4 Plus™ Connectors



H4 Plus™ cable Connectors Solid contacts



Technical Data:

- ✓ Rated voltage : UL6703 1500V DC & TUV IEC 62852:2014+A1, **1500V DC**
- ✓ Rated current: 25A(2.5mm²/14AWG), 41A(4.0mm²/12AWG), 45A (6.0mm²/10AWG), 50A UL/65A IEC (10.0mm²/8AWG)
- ✓ Contact resistance : ≤0.20 mΩ
- ✓ Cable cross section range : 2.5mm²/14AWG to 10.0mm²/8AWG
- ✓ Cable OD range: Ø5.0mm~Ø8.8mm
- ✓ Protection of degree :IP68 mated (1m,24H) & IP2X touch-proof, unmated
- ✓ Ambient Temperature range: -40°C ~ +85°C
- ✓ Upper limiting temperature : +115°C
- ✓ Flame class : UL94-V0
- ✓ Overvoltage category/Pollution degree : CAT III/2
- ✓ Insulation material : PC/PA
- ✓ Contact material: Copper, tin-Plated

Ordering code example:

H4SFC4DM, female, for 4.0mm²/12AWG PV wire

H4SCMC4DM,male, for 4.0mm²/12AWG PV wire



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H4 Plus™ cable Connectors S&F contacts

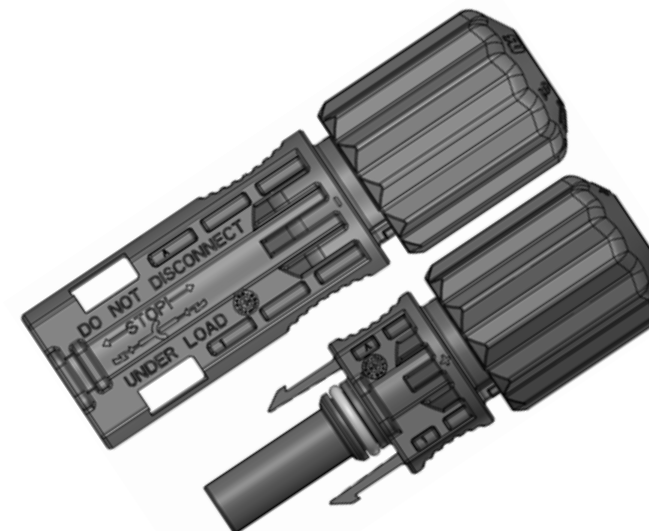
Technical Data:

- ✓ Rated voltage : UL6703 1500V DC & TUV IEC 62852:2014+A1, **1500V DC**
- ✓ Rated current: 25A(2.5mm²/14AWG), 41A(4.0mm²/12AWG),
45A (6.0mm²/10AWG), 50A UL/65A IEC (10.0mm²/8AWG)
- ✓ Contact resistance : ≤0.20 mΩ
- ✓ Cable cross section range : 2.5mm²/14AWG to 10.0mm²/8AWG
- ✓ Cable OD range: Ø5.0mm~Ø8.8mm
- ✓ Protection of degree : IP68 mated (1m,24H) & IP2X touch-proof, unmated
- ✓ Ambient Temperature range: -40°C ~ +85°C
- ✓ Upper limiting temperature : +115°C
- ✓ Flame class : UL94-V0
- ✓ Overvoltage category/Pollution degree : CAT III/2
- ✓ Insulation material : PC/PA
- ✓ Contact material: Copper, tin-Plated

Ordering code example:

H4SFC4DMS, female, for 4.0-6.0mm²/10-12AWG PV wire

H4SCMC4DMS, male, for 4.0-6.0mm²/10-12AWG PV wire

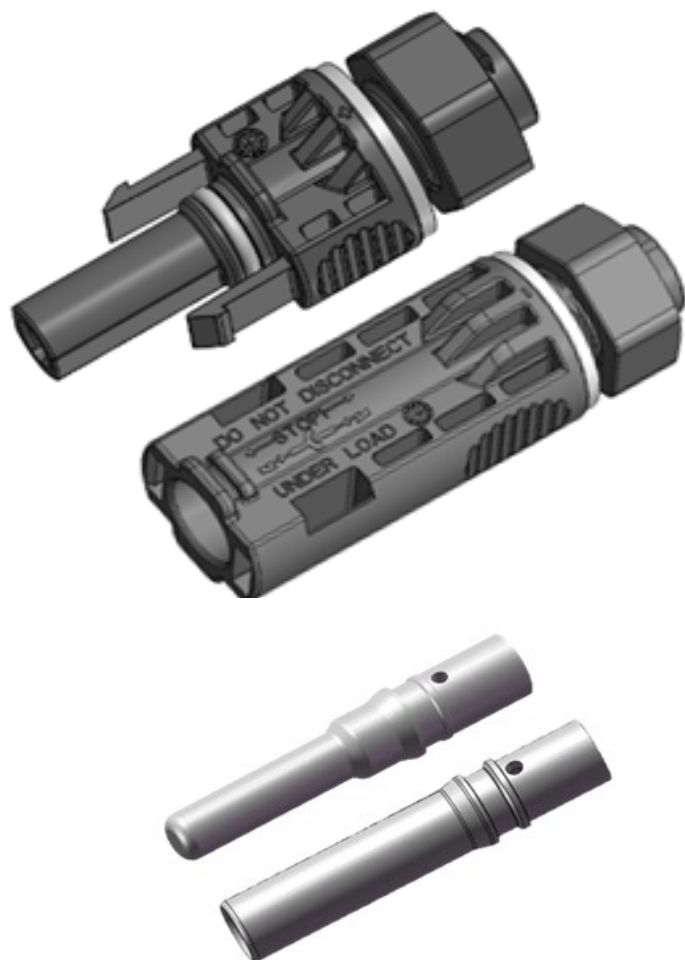


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H4 Plus™ Panel Connectors solid contacts



Technical Data:

- ✓ Rated voltage : UL6703 1500V DC & TUV IEC 62852:2014+A1, **1500V DC**
- ✓ Rated current: 25A(2.5mm²/14AWG), 41A(4.0mm²/12AWG), 45A (6.0mm²/10AWG), 50A UL/65A IEC (10.0mm²/8AWG)
- ✓ Contact resistance : ≤0.20 mΩ
- ✓ Cable cross section range : 2.5mm²/14AWG to 10.0mm²/8AWG
- ✓ Protection of degree : IP68 mated (1m,24H) & IP2X touch-proof, unmated
- ✓ Ambient Temperature range: -40°C ~ +85°C
- ✓ Upper limiting temperature : +115°C
- ✓ Flame class : UL94-V0
- ✓ Overvoltage category/Pollution degree : CAT III/2
- ✓ Insulation material : PC/PA
- ✓ Contact material: Copper, tin-Plated

Ordering code example:

H4SFM4DM, female, for 4.0mm²/12AWG PV wire

H4SMM4DM, male, for 4.0mm²/12AWG PV wire



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H4 Plus™ Panel Connectors S&F contacts

Technical Data:

- ✓ Rated voltage : UL6703 1500V DC & TUV IEC 62852:2014+A1, **1500V DC**
- ✓ Rated current: 25A(2.5mm²/14AWG), 41A(4.0mm²/12AWG),
45A (6.0mm²/10AWG), 50A UL/65A IEC (10.0mm²/8AWG)
- ✓ Contact resistance : ≤0.20 mΩ
- ✓ Cable cross section range : 2.5mm²/14AWG to 10.0mm²/8AWG
- ✓ Protection of degree : IP68 mated (1m,24H) & IP2X touch-proof, unmated
- ✓ Ambient Temperature range: -40°C ~ +85°C
- ✓ Upper limiting temperature : +115°C
- ✓ Flame class : UL94-V0
- ✓ Overvoltage category/Pollution degree : CAT III/2
- ✓ Insulation material : PC/PA
- ✓ Contact material: Copper, tin-Plated

Ordering code example:

H4SFM4DMS, female, for 4.0-6.0mm²/10-12AWG PV wire

H4SMM4DMS, male, for 4.0-6.0mm²/10-12AWG PV wire

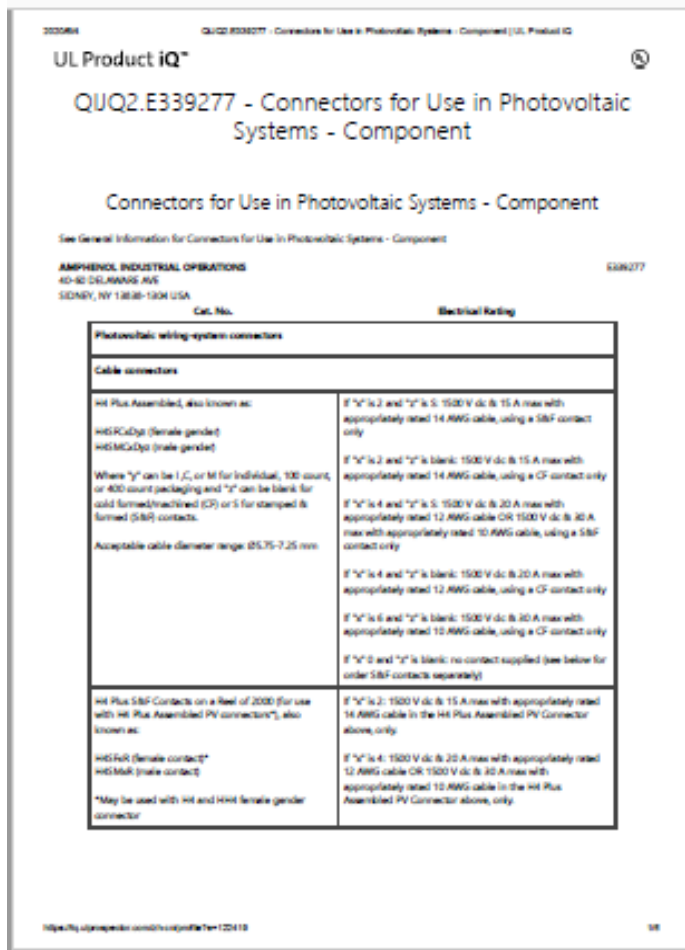


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H4™ H4 Plus™ certification



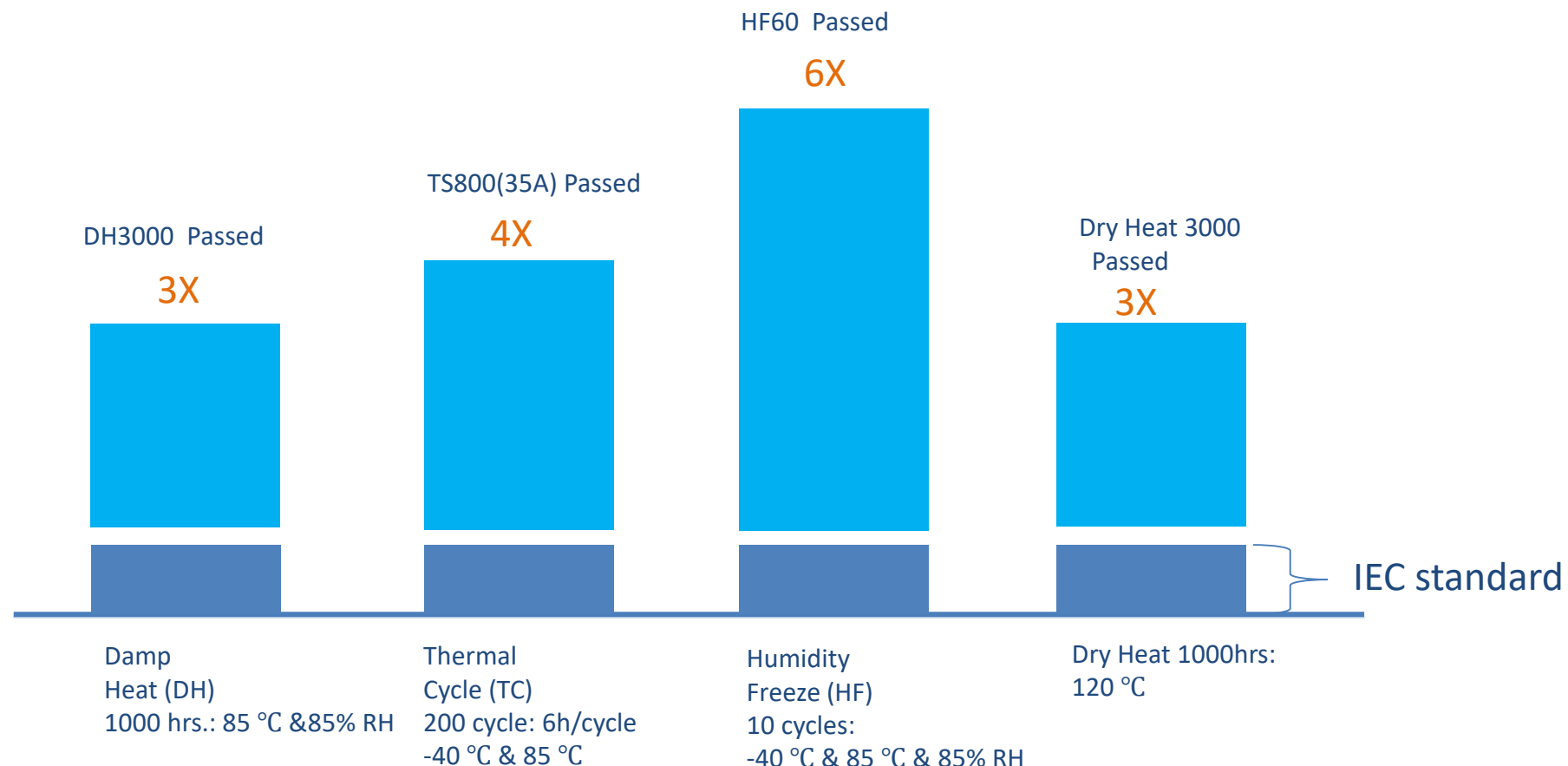
UL 6703 and TUV IEC62852; A1, 1500V CLASS A APPROVALS

H4 Plus™ validation

✓PC material has better chemical resistance and low moisture absorption, Strong insulation property, RTI 120°C.

✓ Excellent design of sealing structure to realize stable protection, IP 68 (1m/24H).

✓ High-quality materials ensure a high degree of reliability and long-term stability.



H4 Plus™ contact resistance

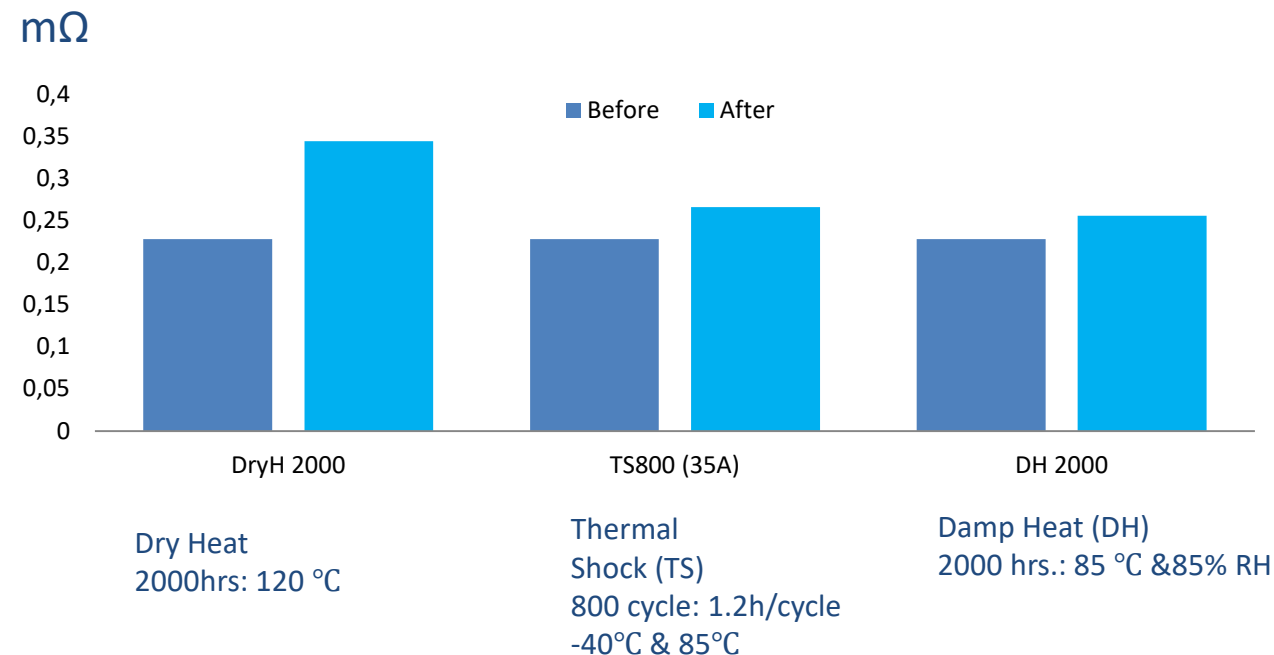
✓ Highly electrical conductivity material to reduce electrical losses.

✓ A stable hot dip plating (pre-plating) method is selected to ensure good contact performance.

✓ Optimized structure design of contact design for easier production to ensure stable long-term stability.

Stable contact resistance offer more power harvest over long term service in the field.

H4 Plus contact resistance changes after tests



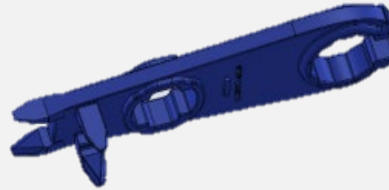
*****IEC 62852 request :**

Deviation of the contact resistance shall be no more than 50 % of the reference value or $\leq 5 \text{ m}\Omega$.
The higher value is permissible.

H4™ Accessories and Tools



Protect cap



Unlock and Wrench tool



Inspection tool



Crimping tool



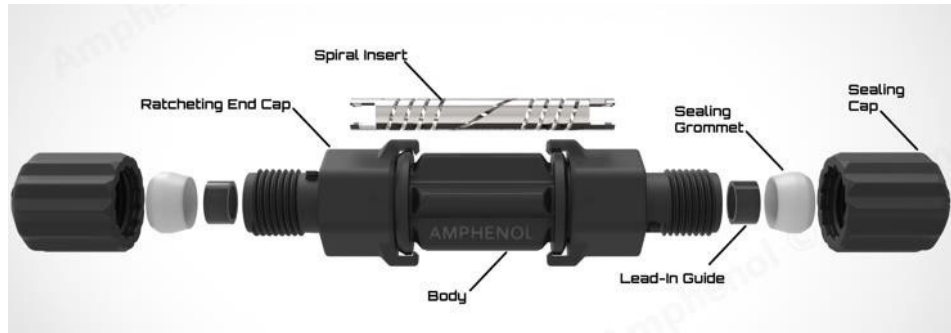
Strip tool



Unlock ring tool



RadCrimp® Solar Splice**



A crimpless, solderless and screwless installation joint !

Just strip the wire and joint two cables in the field twisting the two nuts integrated into the splice !



- Designed for photovoltaic installations
- Low resistance wire termination and sealing in one action
- Field termination and sealing without special tools
- Certified to UL6703 and IEC62852 for 1500V DC
- Current rating of 20A(4.0mm²/12AWG), 30A(6.0mm²/10AWG), 50A(10.0mm²/8AWG), 65A(16.0mm²/6AWG)
- IP68 (1 meter, 24 hour) mated means perfectly suited for outdoor applications

**Melni Spiral Termination Technology

H4 Max™ 2000V DC Solar Connector

Key Features

- 2000V DC TUV SUD: PPP58211A:2022; 1500V DC , UL 6703 ; 1500V DC TUV IEC 62852:2014+A1;
- Available for wire gauges from 14AWG/2.5mm² to 8AWG/10.0mm².
- Cable OD range from Ø5.0mm to Ø8.8mm.
- ≤0.25mΩ low resistance high quality contact ensures consistently low performance loss
- Suited for all climatic environment, resistance to UV, Ammonia, etc
- Insulation material PA has better chemical resistance performance.
- Guaranteed to reliably mate with Amphenol's entire PV productline.
- IP68 Rating (when mated)
- UL94-V0 (self-extinguishing)
- RoHS, REACH compliant



H4 Pro™ 1500V DC Solar Connector

Key Features

- 1500V DC , UL 6703 ; 1500V DC TÜV IEC62852:2014+A1
- Designed for more competitive cost connector.
- Available for wire gauges from 14AWG/2.5mm² to 10AWG/6.0mm².
- Cable OD range from Ø5.0mm to Ø7.8mm.
- ≤0.30mΩ low resistance high quality contact ensures consistently low performance
- Guaranteed to reliably mate with Amphenol's entire PV product line.
- IP68 Rating (when mated)
- UL94-V0 (self-extinguishing)
- RoHS, REACH compliant

