

AMPHENOL HELIOS H4 ASSEMBLY INSTRUCTIONS



If, during self assembly, parts and tools other than those stated by Amphenol are used or if the preparation and assembly instructions described here are disregarded then neither safety nor compliance with the technical data can be guaranteed.

For protection against electric shock, PV-connectors must be isolated from the power supply while being assembled or disassembled. The end product must provide protection from electric shock.

Unplugging under load: PV plug connections must not be unplugged while under load. They can be placed in a no load state by switching off the DC/AC converter or breaking the DC circuit interrupter. Plugging and unplugging while under voltage is permitted.

It is inadvisable to use non-tinned cables type H07RN-F, since with oxidized copper wires the contact resistances of the crimp connection may exceed the permitted limits.

Disconnected connectors should be protected from dirt and water with sealing caps.

Touch protection, mated/unmated	IP68/IP2X
Rated current	40A (2,5mm ² /14AWG)/48A (4mm ² /10AWG)/56A (6mm ² /10AWG)/60A (10mm ²)
Ambient temperature range	-40° ...+90°C
Rated voltage	1500V (IEC/CEI) and 1000V (UL)
Upper limiting temperature	120°C (IEC/CEI)
Safety class	II
NEC 2008/690.33	YES
Certification UL	E339277
Certification TUV	R50157783/R72131001

Tools required

Crimping tool with built-in positioner and crimping insert for stamped and formed contacts	H4TC0002
or in alternative	
Crimping tool with built-in positioner crimping insert for solid contacts	H4TC0001
Stripping pliers	H4TS0000
Open end spanner – plastic wrench tool	H4TW0001

Tools optional

Crimp-Interchangeable dies for stamped and formed contacts	H4TD0002
Crimp-Interchangeable dies for solid contacts	H4TD0001
Metal wrench insert for wrench tool	H4TE0000
Metal secure tool	H4TF0000
Metal M12 nut secure tool	H4TG0000
Complete toolbox	H4TK0000



Crimp tool



Strip tool

Connector for cable mounting



(1,5-2,5mm²/AWG14)
(4,0-6,0mm²/AWG10-12)

Female stamped and formed contacts

H4CFC2D..S
H4CFC4D..S

Male stamped and formed contacts

H4CMC2D..S
H4CMC4D..S

(2,5mm²/AWG14)
(4,0mm²/AWG12)
(6,0mm²/AWG10)
(10,0mm²/AWG8)

Female solid contacts

H4CFC2D..
H4CFC4D..
H4CFC6D..
H4CFC8D..

Male solid contacts

H4CMC2D..
H4CMC4D..
H4CMC6D..
H4CMC8D..

.. = packaging (I= individual packaging/C=100 PCS packaging / M=500 PCS packaging)

Connector for panel mounting



(1,5-2,5mm²/AWG14)
(4,0-6,0mm²/AWG10-12)

Female stamped and formed contacts

H4CFC2D..S
H4CFC4D..S

Male stamped and formed contacts

H4CMC2D..S
H4CMC4D..S

(2,5mm²/AWG14)
(4,0mm²/AWG12)
(6,0mm²/AWG10)
(10,0mm²/AWG8)

Female solid contacts

H4CFM2D..
H4CFM4D..
H4CFM6D..
H4CFM8D..

Male solid contacts

H4CMM2D..
H4CMM4D..
H4CMM6D..
H4CMM8D..

.. = packaging (I= individual packaging/C=100 PCS packaging / M=500 PCS packaging)

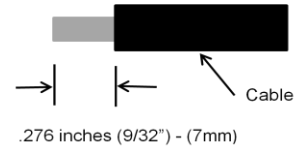
Cable preparation and stripping process

Strip cable 0.276 inches (7.0 mm) and be careful NOT to nick conductors.

Amphenol specified strip tool (H4TS0000) can be used in this step.

Adjust the stripper stopper and put the cable in corresponding notch to strip the length of 7mm.

See below pictures.



Cable against stopper



Stripped cable

Crimp process solid contacts

When you insert striped cable into contact barrel, always insure all conductor strands are captured in the contact barrel and the conductors are visible in the inspection hole. See below pictures.



Pin solid contact



Socket solid contact

Inspection hole

Insert the contact into the corresponding crimping notch or locator (male or female) taking into account the cable size used.

Press the pliers gently together until the crimp lugs are properly located within the crimping die. Insert the stripped cable end until the insulation comes up against the crimp insert. Completely close the crimping pliers.

See below pictures.

Amphenol specified crimp tool (H4TC0001) should be used in this step.



Positioner



Crimper with die

See below pictures for crimp result solid contacts.



Crimped solid pin



Crimped Solid socket

Crimp process stamped and formed contacts:

Insert the contact into the corresponding crimping notch or locator (male or female) taking into account the cable size used.



Open barrel socket S&F contact



Open barrel pin S&F contact

Press the pliers gently together until the crimp lugs are properly located within the crimping die. Insert the stripped cable end until the insulation comes up against the crimp insert. Completely close the crimping pliers.

See below pictures of crimp result

Amphenol specified crimp tool (H4TC0002) should be used in this step



Closed barrel socket S&F contact



Closed barrel pin S&F contact

The cable pull-out forces requirement will have to be the following:

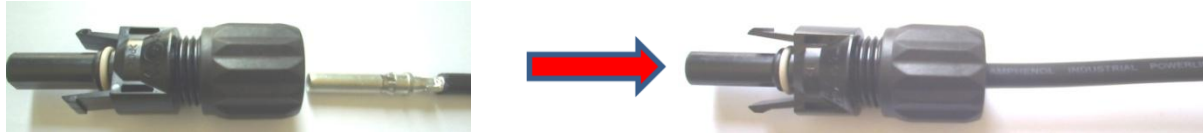
Cable size	Cable pull –out force requirement
2.5 mm ²	Min. 230 N (~50 Lbs)
4.0 mm ²	Min.310 N (~70 Lbs)
6.0 mm ²	Min. 360.0 N (~80 Lbs)

Assembly process connector:

Insert contact cable assembly into back of male and female connector. A “click” should be heard or felt when the contact cable assembly is seated in correct position. Contacts cannot be removed once seated.

See below pictures.

Connector cable female



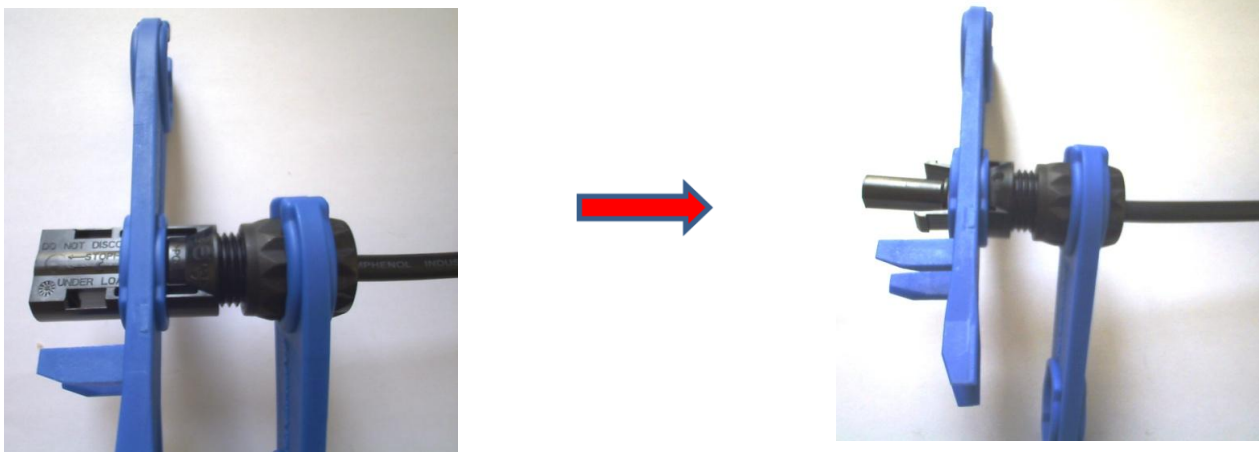
Connector cable male



Back cap must be closed using a torque between 2.6 and 2,9NM.

Amphenol specified hand wrench tool (H4TW0001) can be used in this step or electric torque controlled wrench tool with as well the Amphenol open-end back cap spanner (H4TE0000) or socket wrench (H4TF000). See below picture for hand wrench.

Note: Pneumatic wrench tools are NOT recommended since torque control is very difficult.



Double spanner cap closing operation

Connector mating and un-mating:

For mating align the 2 half connectors and mate them together by hand until a “click” is heard and/or felt.

For un-mating, since the Amphenol H4 connector complies with the NEC 2008 690.33, a tool is required to disconnect the connector once mated.

Amphenol specified wrench tool (H4TW0001) or Universal tool (H4TU0000) should be used in this step.

See below pictures.

WRENCH TOOL DISCONNECT



UNIVERSAL TOOL DISCONNECT

