

H4 PV Cable Connector Series Dual Approval (UL+IEC/TUV)



REVISION RECORD

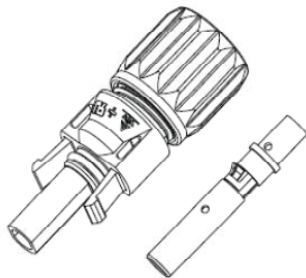
<u>REV</u>	<u>DESCRIPTION</u>	<u>DATE</u>
A	FIRST RELEASE	July/28/2011
B	IMPROVED LAYOUT	Sep/6/2011
C	UPDATE TORQUE	Nov/3/2011
D	UPDATE THE S&F REQUIREMENT	Dec/8/2011
E	ADD ENLARGE H4 REQUIREMENT	July/24/2012
F	UPDATE ELECTRIACL RATING	Aug/22/2013

Electrical rating:	1500V DC (IEC/TUV) 1000V DC (UL)
Current rating:	32A (2.5mm ² /14 AWG) 40A (4.0mm ² /12 AWG) 44A (6.0mm ² /10 AWG) 65A (10mm ² /8 AWG)
Protection degree:	IP68 mated and IP2X unmated
Safety class:	II
Operation Temperature Range:	-40°C to +90°C

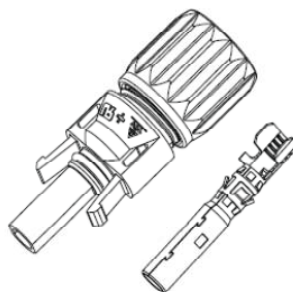
CAUTION:

- 1) The connector must be isolated and disconnected from the power supply during the assembling or disassembling process.
- 2) Do not disconnect under load.
- 3) The use of PV cable is recommended.
- 4) The use of tin plated cable is recommended.
- 5) The connectors are IP68 rated, and can be positioned for short time under 1MT of water.

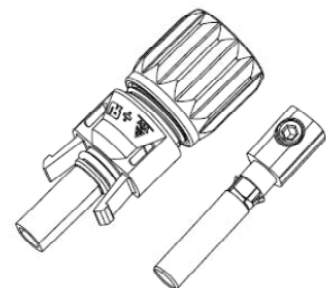
1) Product picture:



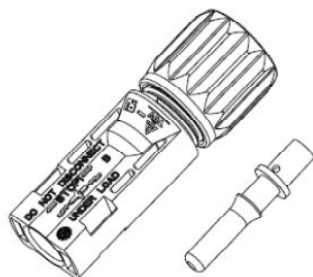
**H4 FEMALE CONNECTOR
MACHINED CONTACT TYPE**



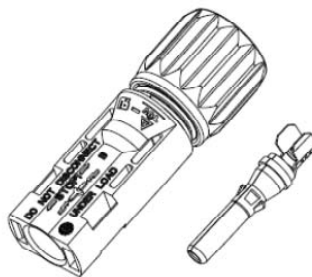
**H4 FEMALE CONNECTOR
STAMPING FORM CONTACT TYPE**



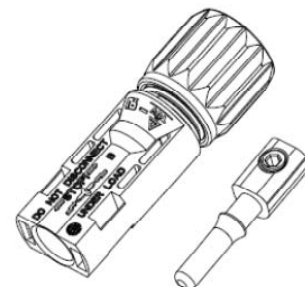
**H4 FEMALE CONNECTOR
SCREW CONTACT TYPE**



**H4 MALE CONNECTOR
MACHINED CONTACT TYPE**



**H4 MALE CONNECTOR
STAMPING FORM CONTACT TYPE**



**H4 MALE CONNECTOR
SCREW CONTACT TYPE**

2) Connector part numbering:

Product line		Product type		Gender		Connector type		Cable size		Approvals		Packaging		Variations	
H4	Helios H4	C	Connector	F	Female+	C	Cable gland	2	2.5mm ² /14AWG	T	TÜV	I	Individual packaging	S	S&F contact (single contact)
				M	Male-			4	4.0mm ² /12AWG	U	UL	M	Bulk packaging	T	Screwed contact (field installation)
				P	Mated pair			6	6.0mm ² /10AWG	D	Dual				Machined contact (single contact)
								8	10.0mm ² /8AWG						
								0	Less contact						

H4 Female PV cable connector



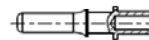
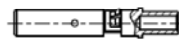
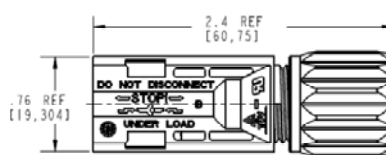
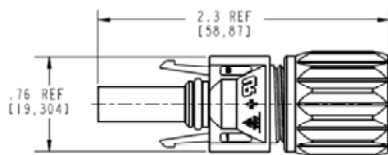
H4 Male PV cable connector



H4 Female socket contact



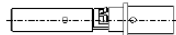
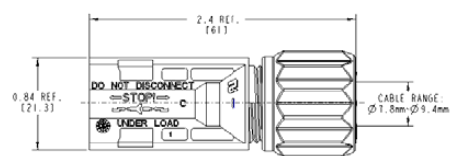
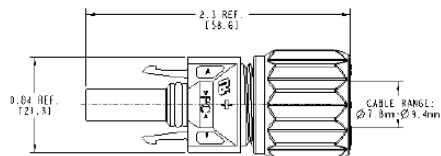
H4 Male pin contact



Enlarge H4 Female PV cable connector



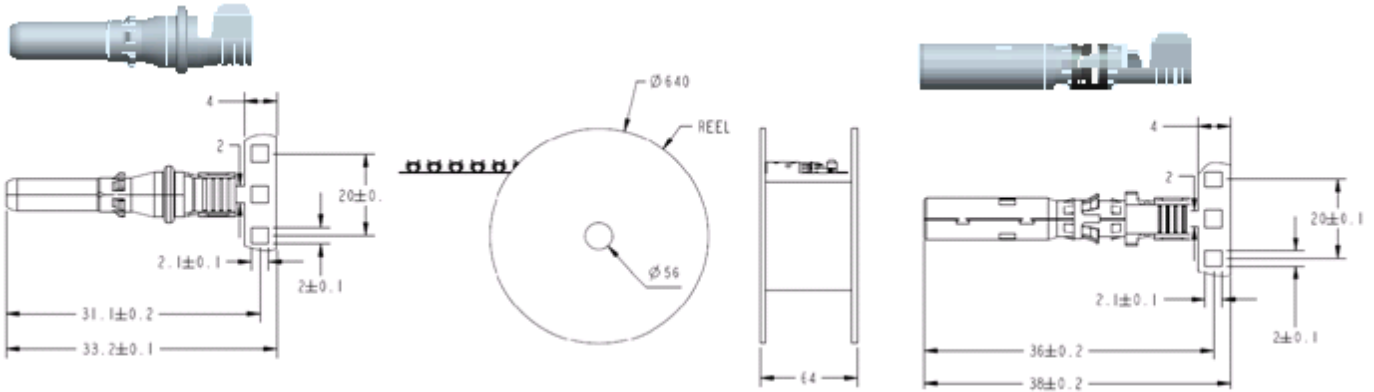
Enlarge H4 Male PV cable connector



3) Stamped and formed contact part numbering:

Product line		Product type		Gender		Cable size		Packaging		Variations	
H4	Helios H4	F	S&F contact	F	Female+	2	1.5mm ² /16AWG, 2.5mm ² /14AWG	R	2000pcs reel		
				M	Male-	4	4.0mm ² /12AWG, 6.0mm ² /10AWG				

Note: Machined and screw contact are supplied standard with the connectors.



4) Required tools:

Crimp tool for machined contacts:

H4TC0001



Crimp die for machined contacts:

H4TD0001



Crimp tool stamped and formed contacts:

H4TC0002

TBD

Crimp die for stamped and formed contacts:

H4TD0002

TBD

Strip tool for 2.5/4.0/6.0mm² PV cable:

H4TS0000



Wrench tool:

H4TW0001



Open-end back cap spanner:

H4TE0000



Socket wrench:

H4TF0000



Complete tool kit for installers:

H4TK0000



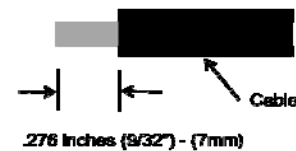
5) Cable preparation and stripping process:

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

See below pictures 1 and 2.



Picture 1



Picture 2

6) Crimp process machined contacts:

Insert striped cable into contact barrel and insure all conductor strands are captured in the contact barrel and the conductors are visible in the inspection hole. See below pictures 3 and 4



Picture 3

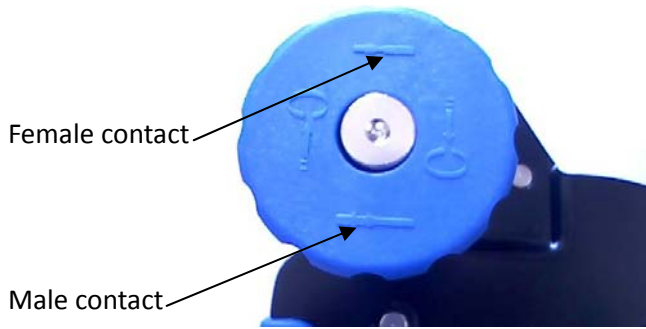


Picture 4

Inspection hole

Crimp contact barrel by using the hex or 4-ident crimping die, by putting the contact barrel with striped cable in the corresponding crimping notch or locator. See below picture 5 and 6.

Amphenol specified strip tool (H4TC0001) can be used in this step.



Picture 5



Picture 6

See below pictures 7 and 8 for crimp result for hex crimp and pictures 9 and 10 for the 4-ident crimp result



Picture 7



Picture 8



Picture 9



Picture 10

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

Cable size	Cable pull –out force requirement
2.5 mm ²	Min. 230 N
4.0 mm ²	Min. 310 N
6.0 mm ²	Min. 360 N
10.0 mm ²	Min. 380 N

7) Crimp process stamped and formed contacts:

Insert striped cable into contact barrel and insure all conductor strands are captured in the contact barrel. See below pictures 11 and 12.



Picture 11



Picture 12

Crimp contact barrel by using the crimping die, and be careful NOT to hurt the second row wings
See below pictures 13 and 14 for crimping result.



Picture 13

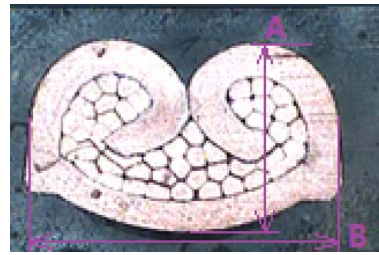


Picture 14

Amphenol specified crimp tool (PV-692209-000) can be used in this step.

If the customer wants to use the automatic crimping machine, we suggest that the die of the machine should be like the following:

Cable Size	Crimping Height(A)	Crimping Width(B)
2.5mm ²	2.45 ± 0.05mm	2.80 ± 0.10mm
4.0mm ²	2.30 ± 0.05mm	4.50 ± 0.10mm
6.0mm ²	2.42 ± 0.05mm	4.50 ± 0.10mm



Cable size	Cable pull –out force requirement
2.5 mm ²	Min. 230N
4.0 mm ²	Min. 310N
6.0 mm ²	Min. 360N

8) Termination process screw contacts:

See below pictures 15 and 16 for screw result for Allen driver (2mm).



Picture 15



Picture 16

9) 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 17-20.

Female coupler



Picture 17



Picture 18

Male Coupler



Picture 19



Picture 20

H4 PV cable connector back cap must be closed using a torque between 2.6 and 2.9 N • M and Enlarge H4 PV cable connector back cup must be tightening between 3.2 to 3.5 N • M.

Note: These torque force apply to Amphenol PV cable only. And H4 PV connector should have different torque force for different customer PV cable.

Amphenol specified 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). See below picture 21 and 22.

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



Picture 21



Picture 22

10) 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 can be used in this step. See below picture 23 and 24.

WRENCH TOOL DISCONNECT



Picture 23

UNIVERSAL TOOL DISCONNECT



Picture 24