# ASIA

#### Amphenol Industrial Solar Technologies

Block 5, FuAn 2nd Industrial Park Dayang Road, Fuyong, Shen Zhen, China 518103 Telephone: 0755-2991-8389-299 · Fax: 0755-2991-8310

#### **NORTH AMERICA**

#### **Amphenol Industrial Operations**

40-60 Delaware Street Sidney,New York 13838-1395-USA Telephone:1-760-670-8454 · Fax:1-607-563-5157

#### **EUROPE & MIDDLE EAST**

#### **Amphenol Industrial Operations Europe**

Via Barbaiana n.5-20020 Lainate-milano-Italy Telephone:+39-348-3145390 · Fax:39-02-9325-4444

#### **Amphenol Industrial Operations Middle East**

Office No C-37, Ajman Free Zone-UAE Telephone:+39-348-3145390 · Fax:-9716-7422941

**AMPHENOL INDUSTRIAL SOLAR TECHNOLOGIES** 



## xpanding Global Presence

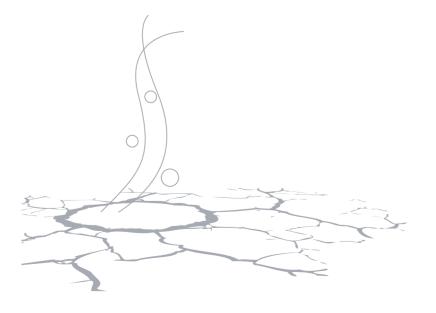
Amphenol Corporation is one of the world's largest interconnect manufacturers. Founded in 1932, Amphenol designs, manufactures, and markets electrical, electronic, and fiber optic connectors, interconnect systems, and coaxial and specialty cables.

Amphenol products are engineered and manufactured in the Americas, Europe, Asia, and Africa and sold by a worldwide sales and marketing organization. Amphenol has a diversified presence as a leader in high growth areas of the interconnect industry and provides solutions for customers in the automotive, broadband, industrial, information technology and data communications, military and aerospace, mobile devices, and mobile networks markets.





Table Of Contents	Page No
Helios H4 connector	Page01-0
Cable and cable assembly	·····Page10-1
Junction boxes	·····Page17-30
Tool and accessary	······Page31-34





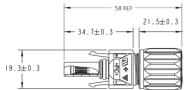
# **Amphenol**<sup>®</sup>



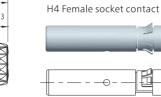
#### **H4 PV Cable Connector**







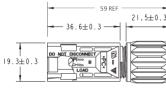




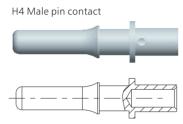


















How to order						
Product Family	Product	Gender	Connector type	Cable size	Approvals	Connector packaging
H4 Helios H4	C Connector	F Female +	C Cable gland	2 2.5 mm <sup>2</sup> /14AWG	D Dual	I 1pcs/bag, 800pcs/box
		M Male -		4 4.0 mm <sup>2</sup> /12AWG	(UL 1000V	C 100pcs/bag, 10bags/box
				6 6.0 mm <sup>2</sup> /10AWG	TUV 1500V)	M 500 pcs/ bag, 2bags/box
				8 10.0 mm <sup>2</sup>		

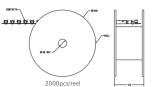
Ambient temperature range

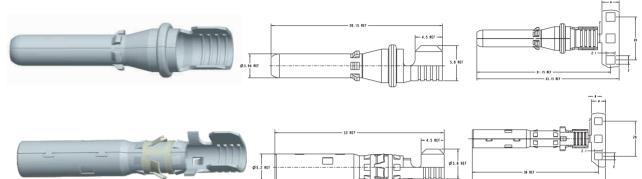
**Technical Data** 40A(2.5mm<sup>2</sup>,14AWG),45A(4.0mm<sup>2</sup>,12AWG), 56A(6.0mm<sup>2</sup>,10AWG), 65A(10.0mm<sup>2</sup>, 8AWG) Rated current 1500V DC (TUV) 1000VDC (UL) Rated voltage 6KV for 1 minute, 8KV impulse (1.2/50 µs)(IEC) Test voltage  $0.30m\,\Omega$  for S&F contact,  $0.25m\,\Omega$  for machined contact Typical contact resistance Contact material Copper, tin plated Contact system Cold formed / stamp formed contact with RADSOK® insert Insulation material Locking mechanism Snap-lock, special unlocking tool required to un-mate as required by NEC2011 Cable strain relief Compression gland with ratcheting gland nut Degree of protection IP68 Safety class Pollution degree Overvoltage category III Flame class UL94 V-0

-40°C~+85°C

#### **H4 Stamped and Formde Contact**

Packaged on a reel for automatic assembly











#### H4 Connector with S&F contact ordering code Product Family Product Connector type Cable size Approvals Connector packaging Gender H4 Helios H4 C Connector F Female + C Cable gland 2 2.5mm²/14AWG I 1pcs/bag, 800pcs/box S S&F contact 4 4.0mm²/12AWG&6.0mm²/10AWG (UL 1000V C 100pcs/bag, 10bags/box 0 Less contacts TUV 1500V) M 500 pcs/ bag, 2bags/box

#### H4 Stamp and formed contact ordering code

in stampana formed contact or acting code				
Product line	Contact type	Gender	Cable size	Packing
H4 Helios H4	F S&F contact	<b>F</b> Female	2 1.5mm²/16AWG &2.5mm²/14AWG	R 2000/reel
		M Male	4 4.0mm²/12AWG & 6.0mm²/10AWG	

Note: If ordering contacts in 2000pcs/reel version, need to order contacts and plastic housing seperately. Contacts is as this table, plastic housing should be chosen as H4CFC0DM for female housing and H4CMC0DM for male housing. If choose contact picked separated from reel, just choose H4CFC4DMS for female connector with S&F contacts, 1000pcs/box pack.

#### **Assembly Tool**











Unlock tool H4TU0000 Wrench tool H4TW0001 Strip tool H4TS0000

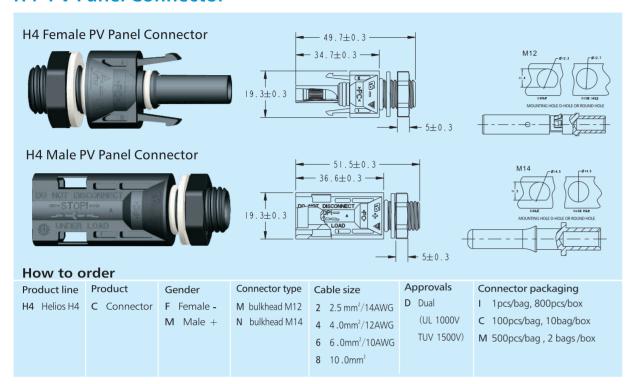
Crimp tool H4TC0000



# **Amphenol**<sup>®</sup>



#### **H4 PV Panel Connector**



#### **Technical Data**

40A(2.5mm<sup>2</sup>,14AWG),45A(4.0mm<sup>2</sup>,12AWG), 56A(6.0mm<sup>2</sup>,10AWG), 65A(10.0mm<sup>2</sup>, 8AWG) Rated current 1500V DC (TUV) 1000VDC (UL) Rated voltage 6KV for 1 minute, 8KV impulse (1.2/50 μ S)(IEC) Test voltage Typical contact resistance  $0.30 \text{m}\,\Omega$  for S&F contact,  $0.25 \text{m}\,\Omega$  for machined contact Contact material Copper, tin plated Contact system Machined/cold formed or S&F contact with RADSOK® insert Insulation material Locking mechanism Snap-lock, special unlocking tool required to un-mate as required by NEC2008 Compression gland with ratcheting gland nut Cable strain relief Degree of protection IP68 (1 meter, 1 hour) mated Safety class Pollution degree Overvoltage category Flame class UL94 V-0 Ambient temperature range -40°C~+85°C

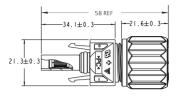
#### **Ordering example:**

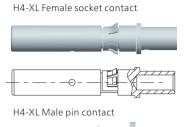
■ H4 PV connector H4 C ■ 6.0mm²/10AWG cable size 6
■ Female part F ■ Dual approvals D
■ M12 panel connector M ■ 1000pcs per box M

#### **H4-XL PV Cable Connector**

H4-XL Female Cable Connector



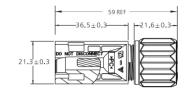




H4-XL Male Cable Connector



C Connector

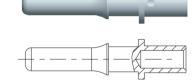


Connector type Cable size

8 10.0mm<sup>2</sup>/8AWG

E H4-XL

connector





Connector packaging
I 1pcs/bag, 800pcs/box
C 100pcs/bag, 8bag/box
M 400pcs/bag , 2 bags /box

Approvals

D Dual

#### **Technical Data**

**Ordering example:** 

How to order

H4 Helios H4

Product Family Product

Rated current 35A(UL) 65A (TUV) Rated voltage 1000V DC (TUV/UL) Test voltage 6KV for 1 minute, 8KV impulse Contact resistance  $0.25m\Omega$ Contact material Copper, tin plated Contact size and system 10.0mm<sup>2</sup>/8AWG, Cold formed Insulation material PC Degree of protection IP68 Safety class Ш Pollution degree 2 Flame class UL94, V-0 Jacket of cable range Ø7.6mm~Ø9.3mm Ambient temperature range -40°C~+85°C

Gender

M Male

F Female +

■ H4 PV connector	H4 C	■ 10.0mm²/8AWG cable size	8
■ Female part	F	■ Dual approvals	D
■ Enlarge connector	Е	■ 800pcs per box	Ν





# **Amphenol**®

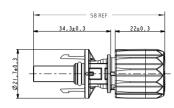
**Technical Data** 

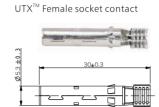


#### H4 UTX<sup>™</sup> PV Cable Connector

H4 UTX<sup>™</sup> Female Cable Connector

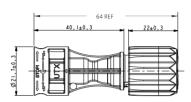


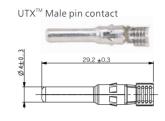




H4 UTX<sup>™</sup> Male Cable Connector







UTX<sup>™</sup> Connector Wrench Tool P/N: UTXTWA001



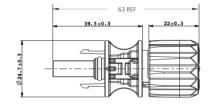




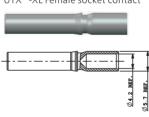
#### UTX<sup>™</sup>-XL PV Cable Connector

UTX<sup>™</sup>-XL Female Cable Connector



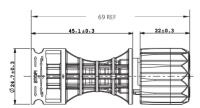


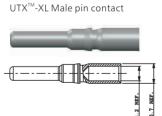




UTX<sup>™</sup>-XL Male Cable Connector



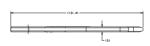




UTX<sup>™</sup>-XL Connector Wrench Tool P/N: UTXTWL001







#### **H4 UTX<sup>™</sup> Family of Products**

Data di avenant	30A(2.5mm²/14AWG), 40A(4.0mm²/12AWG)
Rated current	50A(6.0mm²/10AWG), 75A(10.0mm²/8AWG)

Rated voltage UL 1000V, TUV/JET 1500V

Contact resistance  $0.3m\Omega$ 

Contact material Copper ,tin plated

Contact system Stamped and Formed Contact

Insulation material Thermoplastic

Degree of protection IP68

UL PV Cable (14/12/10/8AWG)

Cable applicability TUV PV1-F cable(2.5/4.0/6.0/10.0mm²) S-JET PV-CC cable(2.5~10.0mm²)

Flame class UL94, V-0
Ambient temperature range  $-40^{\circ}\text{C} \sim +90^{\circ}\text{C}$ 

Certificate Number TUV R50283691 ETL 4010084 UL&JET in process

UTX Connector	r Part Number Orde	ring Code	
Product Line UTX H4 UTX	Product Type C Connector	Gender F Female+ M Male-	Connector Body Type  A 2.5mm²/14 AWG, 4mm²/12 AWG, 6mm²/10 AWG (Stamped & Formed Contacts)  L 10.0mm²/8 AWG (UTX-XL) (Cold Formed Contacts)
Contact Size*  0 No Contacts 2 2.5mm²/14AWG 4 4.0mm²/12AWG 6.0mm²/10AWG 8 10.0mm²/8AWG (UTX-XL)	Approvals  A UL/TÜV/JET Certified	Packaging I 1pcs/bag, 800pcs/box C 100pcs/bag, 10bags/box M 400pcs/bag , 2 bags /box	Variations

<sup>\*</sup> Note: 10.0mm<sup>2</sup>/8 AWG (UTX-XL) contacts cannot be ordered separately and must be specified

#### Example:

- Female UTX connector with 4.0mm²/12 AWG contact, shipped 500 pcs/bag (2 bags/box): UTXCFA4AM
- Male UTX-XL connector with 10.0mm²/8 AWG contact, shipped 100 pcs/bag (10 bags/box): UTXCML8AC

UTX Contact Part Number Ordering Code (For Ordering Contacts on Reels)				
Product Line UTX H4 UTX	Product Type  F Contact	Gender F Female+	Contact Size* 2 2.5mm²/14AWG	Packaging R 2000 pcs/reel
		M Male-	4 4.0mm²/12AWG, 6.0mm²/10AWG	

<sup>\*</sup> Note: 10.0mm<sup>2</sup>/8 AWG (UTX-XL) contacts are not available on reels

#### **Example:**

<sup>■</sup> Female UTX contact size 4.0mm²/12 AWG and 6.0mm²/10 AWG reel: UTXFF4R
■ Male UTX contact size 2.5mm²/14 AWG reel: UTXFM2R

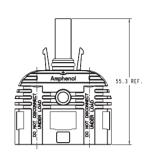


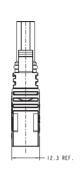




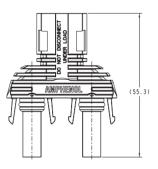
#### **H4 Branch Connector**

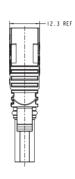












#### How to order

Product line H4 Helios H4 Product type

Y Branch connector

#### Gender

- X FFM (branch 2 female/1 male)
- MMF (branch 2 male/1 female)

#### **Cable Assy and Overmolded Junctions**









Y Junction

R Junction

X Junction

#### **Technical Information**

T Junction

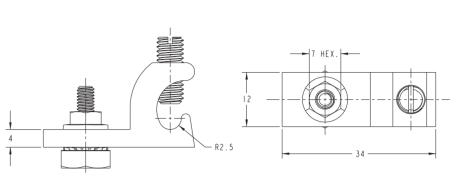
Ambient Temperature Rating: -40°C---+70°C

Cable Range (Cable Version): 14AWG (2.5mm²) To 8AWG (10mm²)

Degree of protection: IP68

#### HelioLug





#### **INSTALLATION INSTRUCTIONS:**

- Place the lug to the designated module grounding hole with the star washer between the grounding lug and the module frame in order to break through the anodizing and establish electrical contact with the aluminum. Torque the bolt and nut to 30 in-lbs. NOTE: These instructions provide guidelines for general use. If available, the specific module manufacturer's instructions for the location of the star washer are to be followed.
- For the attachment to the racking, slide the bolt into the mounting channel of the extrusion or into a "Hole drilled through the extrusion. Place the star washer between the racking and lug and secure the nut and bolt to 30 in-lbs. NOTE:
- Insert a 4 to 12 AWG copper wire into the lug and tighten the lug set screw to the copper wire to the torque based on the wire size. (4-6 AWG at 35 in-lbs and 8-12 AWG at 30 in-lbs). Do not exceed the maximum rated overcurrent protection, 20 A (12 AWG), 40 A (10 AWG), 90 A (8 AWG), 150 A (6 AWG), and 200 A (4 AWG).

#### Certified to UL2703 and cUL QIMS7 for Photovoltaic Bonding



	•	3	E338690
How to order			
Product Family	Туре	Approvals	Packaging
HG Helios Grounding	L HelioLug (4~12AWG copper wire)	U UL&cUL	I Single B 600pcs/box



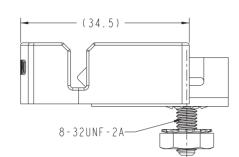


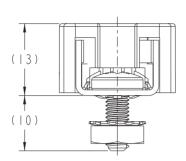




#### Helio Clip™







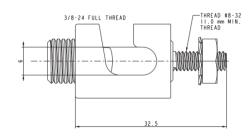
#### Desingned for UL2703-PV Racking and Grounding

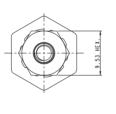
How to order			
Product Family HG Helios Grounding	Type  C HelioClip Selftapping (10~12AWG copper wire)  D HelioClip Mounting (10~12AWG copper wire)	Approvals U UL 2703 (Pending)	Packaging I Single B 600pcs/box

#### Helio Bolt<sup>™</sup>









#### Desingned for UL2703-PV Racking and Grounding

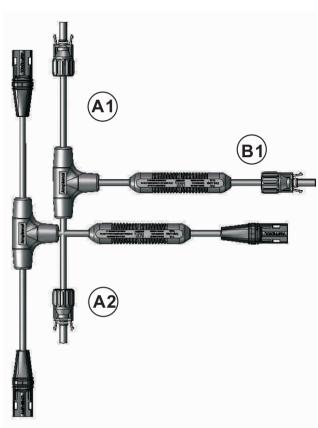
How to order			
Product Family HG Helios Grounding	Type  M HelioBolt Mounting (6~12AWG copper wire)	Approvals U UL 2703 (Pending)	Packaging I Single B 600pcs/box

<sup>-100%</sup> Passivated Stainless Steel

#### T/X/R-Junction cable assembly ordering configurations

Cable properties:
Voltage:
□600V □ DC1000V □DC2000V DC
Main cable size:
$\square$ 8AWG(10.0mm <sup>2</sup> )
$\square$ 10AWG(6.0mm <sup>2</sup> )
$\square$ 12AWG(4.0mm <sup>2</sup> )
□14AWG(2.5mm²)
Main cable approval:
□UL □TÜV □Dual
Branch cable size:
□8AWG(10.0mm²)
□10AWG(6.0mm²)
□12AWG(4.0mm²)
□14AWG(2.5mm²)
Branch cable approval:
□UL □TUV □Dual
Length of main cable (cm):
A1
A2
AN
Length of branch cable:
B1(Beginning of main cable)
BN(End of branch cable)
Terminations:
A1(Beginning of main cable)
AN (End of main cable)
B1 (Beginning of branch cable)
BN (End of branch cable)
H4F, H4M, H4OF, H4OM,
H4F: H4 standard cable connector female part
H4M: H4 standard cable connector male part
H4OF: H4 overmolded connector female part
H4OM: H4 overmolded connector male par
1140W. 114 Overmoraca connector male par
Fuses:
Location of fuse
Rating of fuse AV

Labels:
Label location
Label Text











#### PowerLink solar cable

Halogen free photovoltaic cables are used as the interconnection wiring for photovoltaic power systems.

#### **Features:**

Flexibility at low temperature Thermoset-insulated conductor Thermoplastic jacket Long-term insulation resistance to moisture Range from 1.5mm<sup>2</sup> to 16.0mm<sup>2</sup>





Jacket Armor layer

Insulation

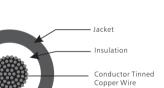
Conductor Tinned Copper Wire

#### **Certificate:**

TÜV and UL certified according to the latest regulations, up 2000V

#### **Structure:**

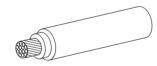
Conductor: Stranded bare or tinned copper Insulation: XLPE material (white and black) XLPE material (Black, Red and Blue)



Temperature range:

-40 °C to +90 °C

Environmental influence resistance: Acid, alkalinity, UV, ozone and hydrolysis-resistant.



#### **ArmorLink Solar Cable**



#### Advantages:

- Rodent resistant
- Extra protection layer



in process Made using UL4703 and

2Pfg 1169 as guidelines.

ΤÜV

#### PowerLink solar cable application:

Used in heavy-duty and harsh environment interconnection wiring, can be easily combined with our Helios H4 PV connectorand junction box series for photovoltaic system applications.







Low temperature

Sun Drought High tmeperature

Moisture

How to order			
Product Family HC Helico cable	P Powerlink -standard A Armorlink-Rodent Proof U Powerlink- USE-2	Cable color  B Black R Red L Blue G Grey O Brown	Cable type L VDE 0295-CLASS 2 7 Strands(USE-2) M Mult wire 19 strands (UL only) H H VDE 0295-CLASS 5(UL,TUV and Dual)
Cable size  1 1.5mm²/16AWG  2 2.5mm²/14AWG  4 4.0mm²/12AWG  5 25.0mm²/3AWG  6 6.0mm²/10AWG  8 10.0mm²/8AWG  9 16.0mm²/4AWG	Approvals  T0 TUV 1000V  T5 TUV1500V  D0 Dual UL600V TUV 1000V  D1 Dual UL 1000V TUV 1000V  D2 Dual UL 2000V TUV1500V  U0 UL 600V  U1 UL 1000V  U2 UL 2000V	Spec 0 Normal spec 1 New extra thin	Jacket type  O normal type

#### Notes:

UL cable comes in AWG only TUV cable comes in mm<sup>2</sup> only Dual cable comes marked with AWG and mm<sup>2</sup>

VDE 2095-CLASS 2 is 7 strands cable Multi wire stranding is 19 strands cable VDE 2095-CLASS 5 is high stranded cable with extra flexibility









#### Inline and Over-molded Diode and Fuse





Inline diode

Over-molded inline diode cable assembly

■ Protection degree:IP68
Cable range:2.5mm²/14AWG -10.0mm²/8AWG
Temperature range: -40 °C ~+90 °C
Withstand rating:10kA
Voltage rating:1500V max
Amperage rating:30A max
Connector options: M-M,M-F,F-F



Inline fuse connector

Over-molded inline fuse cable assembly

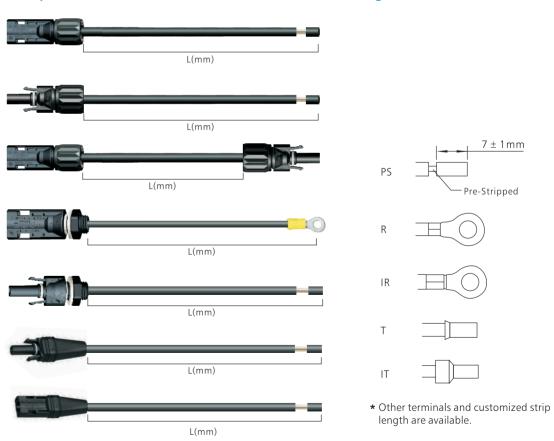
■ Protection degree:IP68
Cable range:2.5mm²/14AWG -10.0mm²/8AWG
Temperature range: -40 °C ~+90 °C
Surge rating:600V max
Blocking voltage: customer specified

How to order				
Product line	Product type	Connector type	Volatage	Current rating
H4 Helios H4	F Molded fuse D Molded diode	FM Female.male MM Male/male FF Female/female	1 600V 2 1000V	01 1A 02 2A 03 3A * up to 10A

#### **PV Cable Assemblies**

How to order	How to order						
Product family	Product	Gender	Connector type	Cable size	Approvals		
<b>HC</b> Helico cable	C Connector	F Female+ M Male- P Mated pair	C Cable gland M Panel M12 N Panel M14 O Over-mold	<ul> <li>2 2.5mm²/14AWG</li> <li>4 4.0mm²/12AWG</li> <li>6 6.0mm²/10AWG</li> <li>8 10.0mm²/8AWG</li> </ul>	T0 TUV 1000V T5 TUV1500V D0 Dual UL600V TUV 1000V D1 Dual UL 1000V TUV 1000V D2 Dual UL 2000V TUV1500V U0 UL 600V U1 UL 1000V U2 UL 2000V		
Cable length(mm)  Cable color  B Black-standard  R Red  L Blue  G Grey  O Brown  OG Orange  Y Yellow		R Ring ter IR Isolated T Tube te	l ring terminal	Variations			

#### **Examples of cable assemblies and definition of cable length:**



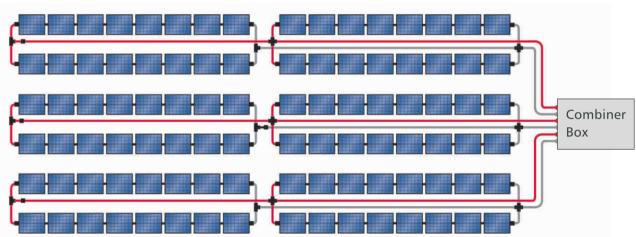


Amphenol cable assemblies save time and money by providing various configuration that allow quick connections for a wide variety of solar applications. All cable assemblies are manufactured under controlled conditions utilizing the highest quality materials. They are designed to work with thin-film, monocrystalline and multicrystalline PV modules. Products are ideal for OEM application including combiner boxes, micro-inverters, module and adapters, they are also ideal for solar powered safety, signaling device assemblies. In residential and commercial rooftop installations, the use of our H4 cable assembly and testing. H4 cable assemblies are also ideal for off-grid solar power systems frequently found in rural or highly inaccessible locations. All our cable assemblies are 100% continuity tested to ensure dependable service, Amphenol's full line of H4 cable assemblies are the preferred choice for smart installers and contractors.















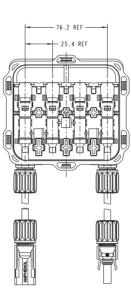


#### Hercules<sup>™</sup> PV Junction Box



#### **Features:**

Same dimensions, multi variations IP67 rated Breathing film for air exchange











#### Technical data

Flame class Connector type

Temperature range

Rated voltage
Rated current
Terminal quantity
Diode quantity option
Ribbon connection
Breathing film
Degree of protection
Cable size
Size

UL 600V /1000V DC IEC/TÜV: 1000V DC

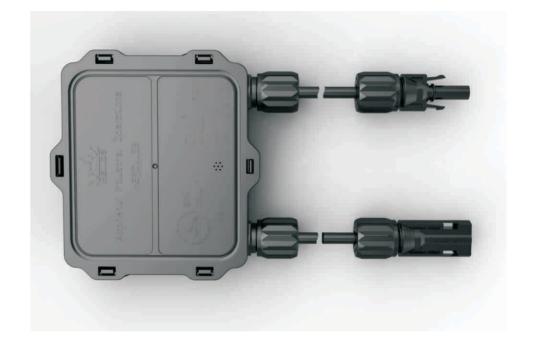
Up to 30A 3 rails or 4rails 2, 3, 4,6

Clamping, Soldering or Spot welding With or Without

IP67

12AWG/4.0mm<sup>2</sup> or 10AWG/6.0mm<sup>2</sup>

117x107x22mm UL94 V-0; 5VA Helios H4 -40°C to +90°C



How to order							
Product Family	y Product type	Terminals and did	odes	Termi	nal style		Diode rating
HB Helios JB	H Hercules I Junction box	C 3 contacts(1 le D 4 contacts/6 d E 3 contacts(2 le	eft/1 right)/2 diodes eft/2 right)/2 diodes	A Clamping contacts B Soldering contacts C Soldering contacts left&right opening D Soldering contacts left opening E Soldering contacts right opening F Spot welding contacts		cts cts left&right opening cts left opening cts right opening	A 12A200V B 12A40V C 15A40V D 30A40V E 20A40V F 15A45V
A Potting	Y Yes	Cable size A 6.0mm²/10AWG B 4.0mm²/12AWG	Rated voltage/base H 1kV/PPE Base J 1kV/PPO Base K 600V/PPE Base L 600V/PPO Base	e type	Adhesive Y Yes N No	Cable length (Ln)* A 1000MM B 900MM	Cable length (Lp)* A 1000MM B 900MM

<sup>\*</sup> Ln:cable length on negative end; Lp:cable length on positive end

#### Ordering example:

■ HelioLink PV junction box	НВ Н	■ With breathing hole	Υ
■ 4 contacts/3 diodes	Α	■ 6.0mm²/10AWG cable size	Α
■ Soldering connection	В	■ Rated 1000V with PPO base	J
■ Diode rated 15A/40V	C	■ Without adhesive tape	Ν
■ Potting seal	Α	■ 1000mm cable length from both negative and positive end	AA

<sup>-</sup> Please contact us for additional variations



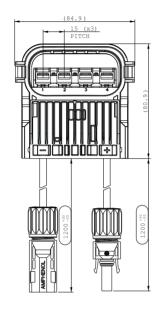




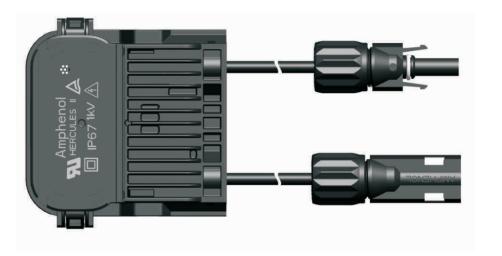


#### **Hercules II PV Junction Box**





#### **Hercules II PV Junction Box**



#### Feature:

Compact size , Pre-potting

Good heat dissipation

Breathing hole for pressure balance

For automatic assembly at PV module side



#### Technical Data

Rated Voltage

Rated current

Terminal quantity Number of diodes

Ribbon connection

Sealing type

Breathing hole

Protection degree

Safety class

Flame class

Cable size

Connector type Temperature range TUV 1000V UL 1000V

10A,13A

4 rails

3 Clamping

O-ring

With

lp67

UL94 V-0, 5VB

12AWG/4.0mm<sup>2</sup>

Helios H4

-40°C~85°C

How to order				
Product Family HB Helios JB	Product type C Hercules II Junction box	Terminals and diodes  A 4 contacts/3 diodes	Terminal style  A Clamping contacts  B Soldering contacts  C Snake wiring contacts  D Spot welding contacts	Diode rating A 25A45V
Sealing type A O-ring	Breathing hole Y Yes	Cable size  A 4.0mm²/12AWG  B 4mm TUV only	Cable length (Ln)* A 1000MM	Cable length (Lp)* A 1000MM

\*Ln: Cable length on negative end;

\*Lp: Cable length on positive end

#### Ordering example:

■ Hercules II PV junction box	НВ С	■ Sealing type	Α
■ 4 contacts/3 diodes	Α	■ With breathing hole	Υ
■ Clamping contacts	Α	■ 4.0mm²/12AWG cable size	Α
■ Diode 25A45V	Α	$\blacksquare$ 1000mm cable length from both negative and positive end end	AA

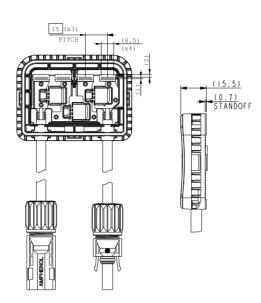


# **Amphenol**®



#### Hercules<sup>™</sup> P PV Junction Box



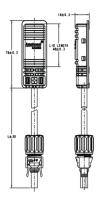


How to order							
Product Family HB Helios JB	Product type  A POS Junction box		and diodes cts/3 diodes	В	rminal style Soldering contacts	Diode rating C HB SB154	Sealing type A Potting
Breathing hole N No	Cable size B 4 mm²/12A	WG	Adhesive Y Yes N No		Cable length A 1000MM	(Ln)*	le length (Lp)* 1000MM
Technical Data							

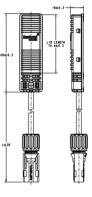
	DOX			
Breathing hole N No	Cable size B 4 mm²/12AWG	Adhesive Y Yes N No	Cable length (Ln)* A 1000MM	Cable length (Lp)* A 1000MM
Technical Data				
Rated Voltage Rated current Terminal quantity Number of diodes Ribbon connection Sealing type Protection degree Safety class Flame classs Cable size Connector type Dimension Temperature range TUV certificate No. UL certificate No.	TUV 150 13A 4 rails 3 Solderin Potting IP68 II UL94 V-( 12AWG/ Helios H 78x58x1 -40°C~8 In proc	0, 5VA 4.0mm² 4 5.5mm 5°C ess		

#### **Hercules Twin PV Junction box**









#### Single Pole Double Pole PV Junction Box



Technical Data	
Rated Voltage	TUV 1000V/UL 1000V
Rated current	12A
Diode quantity	1
Protection degree	IP68 (Potted)
Flame classs	UL94 V-0,5VB
Safety class	II
Sealing type	Potting
Ribbon connection	Spot welding /Soldering
Connector type	Helios H4
Cable size	12AWG/4.0mm²
Temperature range	-40°C~+85°C

#### Ordering example:

■ Purchaing a pair of single pole/double pole J-box, cable 4.0mm²/12AWG, VSB1545 diode on double pole side. Female single pole P/N: HBINF

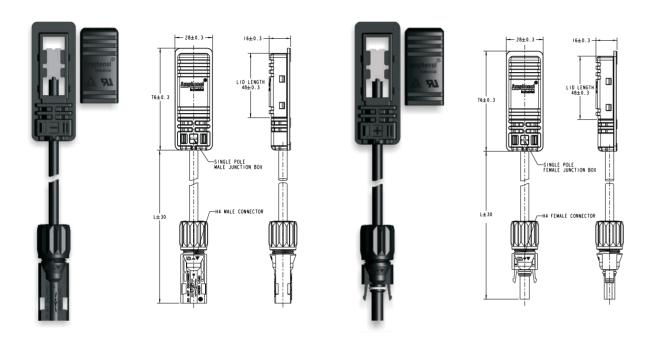
Male double pole P/N: HBLAM Ordering code see page.24







#### **Hercules Twin PV Junction box**



#### Two single pole PV Junction box

#### Feature:

IP 68 degree of protection

Technical Data

Potting sealing

Solution for integrated IC/diodes in PV module



#### Rated Voltage TUV 1000V/UL 1000V Rated current 20A IP68 (Potted) Protection degree UL94 V-0, 5VB Flame classs Safety class Ш Sealing type Potting Spot welding /Soldering Ribbon connection Helios H4 Connector type Cable size 12AWG/4.0mm<sup>2</sup> -40°C~+85°C Temperature range

#### **Hercules Twin PV Junction box**



#### Two single pole PV Junction box

How to order				
Product Family HB Helios JB	Product type  I Single pole Junction box L Double pole Junction box	Diode rating  A VSB 1545  B YJ15SQ045  C Diotec 1540  N without diode	Gender F Female M Male	Cable length A 1000MM B 1100MM C 138MM D 147MM E 300MM

#### **Ordering example:**

Purchasing a pair of two single pole, cable 4.0mm<sup>2</sup>/ 12AWG 1meter length.
 Female single pole P/N: HBINFA
 Male single pole P/N: HBINMA

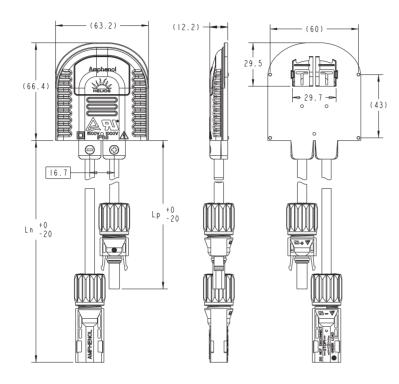


# **Amphenol**®



#### **Thin-Film PV Junction box**





#### Features:

Low profile

Diode quantity option

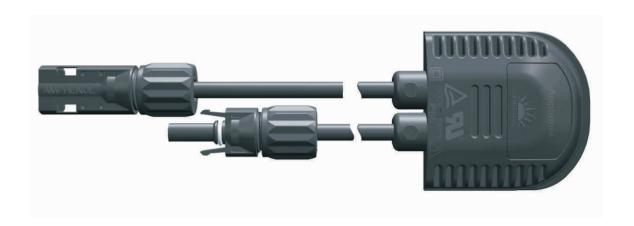
Over-molded design for better sealing SMD for efficient heat dissipation



# Rated voltage Rated current Up to 20A (without diode), 4A (with diode) Termination type Protection degree Operation temperature Sealing type Flame class UD to 20A (without diode), 4A (with diode) Up to 20A (without diode), 4A (with diode) Color of the post o

None/ 1

#### **Thin-film PV Junction box**



How to order							
Product Family HB Helios JB	Product type  T Thin flim junction box	Terminals and diodes G 2 contacts/1 diode		Terminal style B Soldering contacts	Diode rating G 5A1000V H 10A1000V J 8A1000V K 20A1200V N Without diode		
Sealing type A Potting	Breathing hole N No	Cable size C 2.5 mm²/14AWG	Adhesive Y Yes N No	Cable length (Ln)* A 1000MM B 900MM	Cable length (Lp)* A 1000MM B 900MM		

<sup>\*</sup> Ln:cable length on negative end; Lp:cable length on positive end

#### Ordering example:

■ Thin-film PV junction box	HB T	■ No breathing hole	N
■ 2 contacts/1 diode	G	■ 2.5mm²/14AWG cable size	C
<ul><li>Soldering connection</li></ul>	В	■ Without a dhesive tape	N
■ Diode rated 5A/1000V	G	■ 1000mm cable length from both negative and positive end	AA
■Potting seal	Α		

<sup>-</sup> Please contact us for additional variations



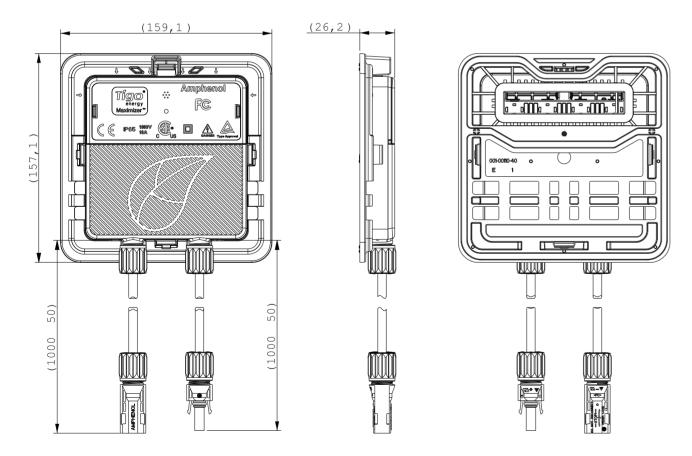






#### **Tigo-Amphenol Optimizer**





Technical data						
Input data		MMJ-ES50	MMJ-ES50		MMJ-ES75	
Maximum power Maximum input DC voltage (Voc) Vmp range * Maximum continuous current (Imp) Maximum input current (Isc) Output Data (DC) Maximum output power Maximum continuous current Nominal Voltage/range		300W 52V 16-48V 9.5A 10A 300W 9.5A variable	52V 16-48V 9.5A 10A 300W		350W 75V 30-65V 6.5A 7.5A 350W	
_' 3		-30° C70° C Natural Convection				
Sealing type HB Helios JB	Product F Tigo Removable junction box	Technical specification 5 MMJ-ES50 7 MMJ-ES75	Cable length"+ A 1000mm B 900mm	п	Cable length"- " A 1000mm B 900mm	

For residential, commercial and utility scale photovoltaic solar arrays, the Optimizer<sup>™</sup> system optimizes the power output of each module (solar panel); delivers module level data for operational management and performance monitoring; and provides the ability to deactivate the high voltage DC bus for safer installation, maintenance or fire fighting. Optimizers are key components of the system as an integrated part of modules provided by leading solar module OEMs. The Module Optimizer provides data acquisition, communication to the Optimizer<sup>™</sup> Management Unit, and energy harvesting control. The very small electronics footprint has been designed to minimize cost and maximize reliability. Solar modules with an integrated Energy Optimizer MMJ-ES are ideal for new installations worldwide.

The Optimizer output optimization starts with dynamic module balancing – a Module Optimizer (patented) integrated within each module manages the energy harvest and send information to the Optimizer Management Unit for reporting and control. Modules with the integrated Optimizer are connected in a normal series topology.

MMJ-ES maintains best-in-class system conversion efficiencies at statistically 99.5%. The Optimizer includes a unique technology which greatly enhances the safety of a PV solar installation. As part of the Optimizer system, this function can be activated with a safety button or via a remote management console. The system can be installed, maintained or approached by fire personnel without the exposure to voltage levels typically in excess of 400 volts.









#### **ModLink Junction Box**







#### Features:

- Modular concept; only add what you need, when you need it
- "Future proof": Ready to accept future smart modules
- Base unit is a complete junction box
- Base unit thermally separated from panel
- Uses industry standard connections
- Plug-and-play; no additional components needed
- No wasted materials when upgrading
- Smart module snaps into base; no drilling, no additional cabling.
- Cost effective on every level: For panel OEM, distributor, installer, Owner/operator
- Can be upgraded at any time



The ModLink Modular Junction Box provides PV panel manufacturers an advanced junction box that enables cutting edge smart technology at no additional cost. Built-in industry standard connectors mate directly to Amphenol Industrial Helios H4 connectors or to a wide range of "Smart" modules. These include DC/DC converters/optimizers, performance monitoring and DC/AC microinverters.

The ModLink Junction Box consists of a base unit that is firmly attached to the back sheet of the panel. The base unit already contains protective diodes and built-in connectors; ready to be used as a basic junction box from the start. When it's time to upgrade just disconnect the connectors, snap-in the smart module, reconnect the connectors and you're done.

This modular technology provides instant plug-and-play versatility. Smart modules can be added (or removed) at any time without any additional materials needed or wasted.

The base module retains the basic junction box functionality and protection, no matter if there are smart modules attached or not. This allows for exchange or removal of smart modules if repairs or upgrades are needed, without losing the basic function of the PV module.

There is no longer a need for "pigtails" attached to the photovoltaic module, making manufacturing and handling easier.

The ModLink Modular Junction Box is just one of the many solar solutions Amphenol Industrial has to offer.

#### Technical data

Terminals Spot Weld Termination

Potting or Lipseal(optional) Termination seal 3 low Vf Schottky Bypass diodes

Rated current

UL:600V IEC:1000V Rated voltage

Built-in Helios H4 Solar Connectors DC output connection

15A

-40℃-90℃ Operating temperature IP67 Protection degree

PSA foam tape or RTV silicon adhesive Attachment to backsheet

Enclosure material

#### Ordering logic code:

Modlink	Product family	Product		
	HB Helios JB	ModLink Junction box		

#### Diode rated current

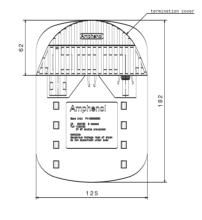
A FFM (branch 2 female/1 male) A V40-X B MMF (branch 2 male/1 female) B V50-X

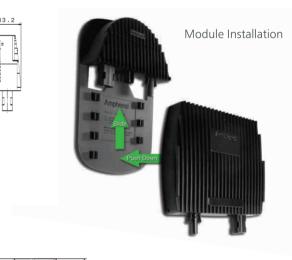
#### C V100-X

PCB

#### For Optimizer Smart Module (DC/DC Converter) please refer to IDS-5

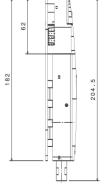
#### Base Unit Dimensions





#### Installed Module Dimensions















#### Tool Kit. P/N: H4TK0000

Water proof with foam insert and assembly tool. The listed parts are included.



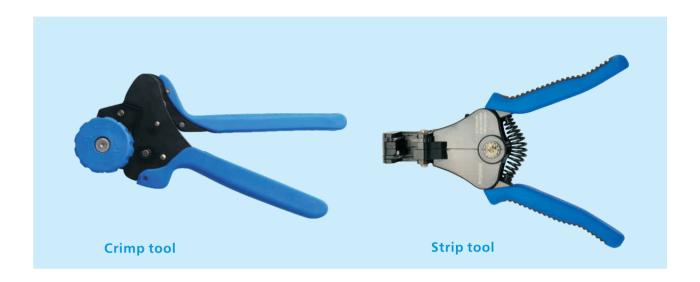








		250535 R 50157783 E 339277
Parts list		
P/N	Description	Quantity
H4TTW100	Socket for cable gland	1
H4TM1200	Socket for bulkhead m12	1
H4TC0001	Crimper tool for machined contact	1
H4TU0000	Universal Unlock tool	1
H4TS0000	Cable strip tool	1
H4TCT000	Cable cutter	1
H4TW0001	Wrench tool	2
PV-692208-000	S&F crimp tool die-set	1
PV-692209-001	S&F crimp tool locator	1
PV-090508-M25	2.5mm2 male contact	5
PV-090508-M04	4.0mm2 male contact	5
PV-090508-M06	6.0mm2 male contact	5
PV-090507-F03	2.5mm2 female contact	5
PV-090508-F03	4.0mm2 female contact	5
PV-090506-F03	6.0mm2 female contact	5



Crimp tool, P/N: H4TC0001 for machined contact, H4TC0002 for stamp & formed contact. Amphenol crimp tool has the capability to crimp both machined contact and stamp&formed contact, the only difference is the insert die. If you need to crimp 2 kinds of contact when you install connector, you can change the insert die and locator. The machined insert die could crimp 14-8awg contact, 10awg and 8awg share the same die position. The stamp&formed insert die can crimp 14awg-10awg contact.

Amphenol cable strip tool, P/N:H4TS0000.

Strip tool has a locator to set striped cable length, strip capacity from 14awg to 10awg.

Amphenol strip tool advantage: Save strip force; Will not cut sopper core; Consistent strip length.





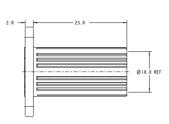








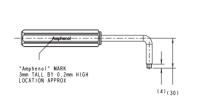


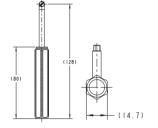




Hercules junction box open tool: HBHTS000

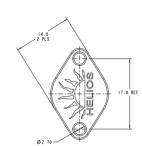


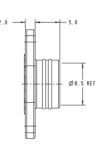




Sealing cap for female connector. P/N: H4PM



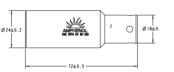


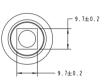


Torch wrench:P/N: H4TTW100



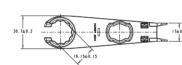






Cable connector wrench tool P/N: H4TW0001





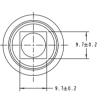


Connector hold tool:P/N: H4TH0000



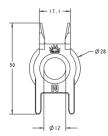






Universal Unlock tool P/N: H4TU0000



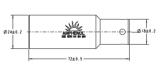


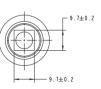


Bulkhead wrech tool: P/N for M12:H4TM1200; P/N for M14:H4TM1400



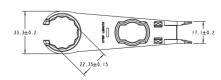


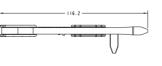




H4-XL connector wrench tool P/N: H4TW0004







Enlarge cable connector torch wrench P/N: H4TTW400









### mphenol product quality commitment

Amphenol Industrial Solar Technologies company emphasize innovation in product design and business relationships. By improving customer relationships, product innovation, and manufacturing technology, we strengthen our overall quality and maintain the highest standard of excellence in all aspects of products and service to our customers.

# Customer Satisfaction Team Work Innovation & Improvement





#### **Mouser Electronics**

**Authorized Distributor** 

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

#### Amphenol:

<u>H4CFC8D-I</u> <u>H4CMC8D-I</u> <u>PV-692209-001</u> <u>PV-670508-002</u> <u>PV-090508-F03</u> <u>PV-090510-F03</u> <u>PV-090506-F03</u> <u>PV-090508-M06</u> <u>PV-090508-M06</u> <u>PV-090508-M04</u> <u>PV-090508-M10</u> <u>PV-090507-F03</u>