



The following presentation slides are for reference purposes only, product drawings shall prevail.

EV SPECIFIC Products

The rated current of the following products are on the basis of @Ambient70°C (158° F)



AMPHENOL PCD SHENZHEN

Providing a total HEV Solution



HVCO IEC AC & COMBO



HVCO IEC, SAE



GB/T DC



BSM



NACS MCS



Power MCU Battery Interface HVSL1000



HVSL800, HVSLP1000/800 HVSLF



HVSL1200, HVSL1400



HVPT/HVPTB/HVPTM

Charger

MCU

Motor



EX, HVG



HVBI CHD

Battery Pack

PDU

PTC

AC



Jumper for transmission system HVSL1000/800

DC/DC



HVSLs600/800

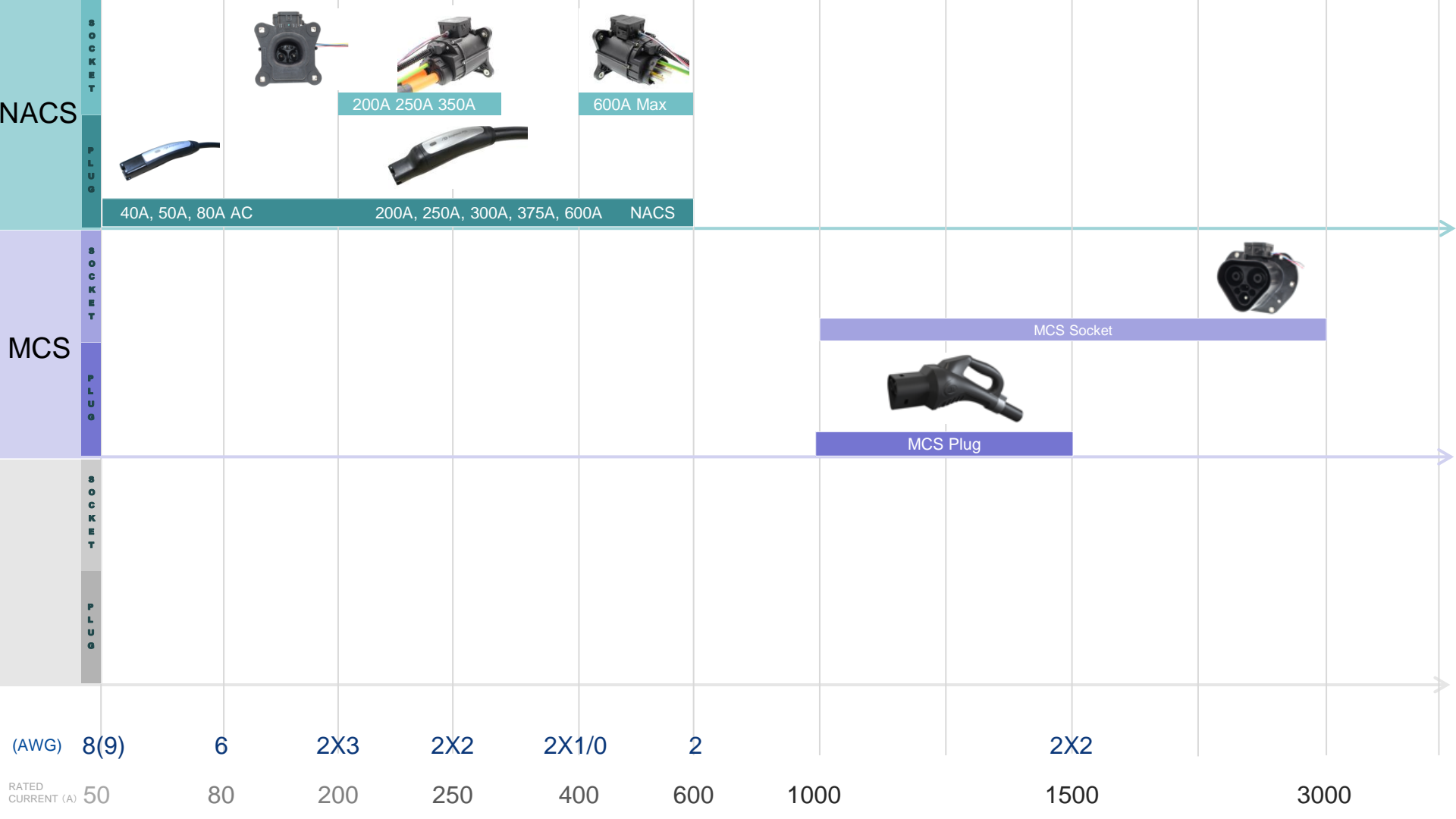


MSDXL, MSD, MSDV, MINIMSD, MINIMSDV, PDC, MCMSD



HVSL28x/36x/63x/635B





	GB/T20234-2015+ DC SOCKET	GB/T COMBO	GB/T DC SOCKET	GB/T DC SOCKET RA	GB/T AC PLUG	GB/T DC PLUG
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Rated voltage (Max)	1500V DC	AC + DC 500V 1000V	1000V DC	500V AC	1000V DC
Rated current	500A to 800A	32A 180A	125A, 200A, 250A	16A 32A	80A, 125A, 250A Tempo. up to 500A!
Cable range for power	95 to 150mm ²	6 + 50mm ²	50, 70mm ²	2.5 to 6mm ²	80mm ²
Protection degree	IP55 (mated)				
Certification	GB/T20234				
Ambient temperature	-30°C to 50°C				

	IEC Type 2 Basic Socket-outlet	IEC Type 2 Shutter socket-outlet	IEC Type 2 Socket-inlet	IEC Type 2 Vehicle connector	IEC Type 2 Plug	IEC Type 2 Mode 3 Connector	IEC Type 1 SAE Plug
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Rated voltage (Max)	500V AC						240V AC
Rated current	16A, 32A 1 & 3 Phase		16A, 32A 1 & 3 Phase	16A, 32A 1 & 3 Phase			16/20A, 32A 48A, 80A
Protection degree	IP44 (mated)	IP54 (with cap)	IP55 (mated)	IP55 (mated)			Type 3S
Touch-proof	IP2XB						
Certification	CE, EV Ready		CE	CE, EN17186, EV Ready, UKCA	CE, EN17186	CE	UL
Cable range for power	1.5 to 6mm ²		1.5 to 6mm ²				14 to 5AWG
Ambient temperature	-30°C to 50°C						

	IEC Combo 2 CCS2 Vehicle inlet	IEC Combo 2 CCS2 Vehicle connector	SAE Combo 1 CCS1 Vehicle connector	SAE Socket	IEC Combo Vehicle connector Plus
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Rated voltage (Max)	480V AC 1000V DC	1000V DC	1000V DC	240V AC 1000V DC	1000V DC
Rated current	32A / 63A AC 500A DC w/ plug cooling system	65A, 125A, 200A	65A, 125A, 150A, 200A, 250A, 300A, 350A, 400A	80A AC 500A DC	200A, 250A, 350A 380A Temporarily up to 500A!
Cable range for power	35 to 150mm ²	16 to 70mm ²	16 to 110mm ²	16 to 150mm ²	50 to 100mm ²
Touch-proof	IP2XB				
Certification		CE, EN17186	UL		CE
Protection degree	IP44 (mated) / Type 3R				
Ambient temperature	-30°C to 50°C				

All signal contacts, including the sensor, are fully integrated to the PCB board.



RATED CURRENT	PEAK CURRENT	RATED VOLTAGE	GB STANDARD
300A to 500A	800A	1500V	GB 20234-2015



Cost-effective version

1-phase and 3-phase:
 • 6mm² cable range (32A)
 • 2.5mm² cable range (20A)
 with APCD's custom-made E-lock.

IEC SOCKET-OUTLET TYPE 2

Mounting dimensions unchanged

IEC SOCKET

Rated current:
 • 32A / 63A AC
 • 200A to 500A DC
 Rated voltage:
 • 480V AC Max
 • 1000V DC Max
 Cable range: 70mm² to 150mm²
 IEC 62196-1,-2, -3

All signal contacts, including the sensor, are fully integrated to the PCB board.

▶ LED: optional
 ▶ Cap: rubber or plastic



SAE SOCKET

Rated current:
 - 80A AC
 - 300A to 500A DC
 Rated voltage:
 - 240V AC Max
 - 1000V DC Max
 Cable range: 95 to 150mm²
 UL2251, J1772

All signal contacts, including the sensor, are fully integrated to the PCB board.

▶ LED: optional
 ▶ Cap: rubber or plastic



GBT VEHICLE CONNECTOR

POTTING
increases resistance in harsh-environments

MAIN FEATURES

MATING CYCLES	RATED CURRENT	RATED VOLTAGE	PROTECTION	ROHS
10,000 cycles	32A AC	440V Max	IP67	YES

HIGHPOWER @ AMPHENOL TRUSTED GLOBALLY

SAE J1772 POTTED VERSION

POTTING
increases resistance in harsh-environments

Sensor: NTC or PT1000

32A → Optional
48A → Required
80A → Required

MAIN FEATURES

MATING CYCLES	RATED CURRENT	RATED VOLTAGE	PROTECTION	ROHS
10,000 cycles	80A Max	240V Max	Type 3S	Yes

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Lightweight Design

IP67
4mm²: 32A

Optional
Mode 2

Mode 3

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Lightweight Design

IP67
2.5mm²: 20A ; 4 & 6 mm²: 32A

Optional
Mode 2

Mode 3

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INDUSTRIAL@AMPHENOL
TRUSTED GLOBALLY

SAE COMBO

Mating cycles: 10,000 cycles
Rated current: 65A, 125A, 150A, 200A, 250A, 300A, 350A
Rated voltage : 1000V DC
Type 3R
UL2251
SAE J1772
IEC 62196-3
Temperature sensor

Temperature up to 350A!



UP TO 350A!

POTTED VERSION



HIGHPOWER@AMPHENOL
TRUSTED GLOBALLY

ULTRA-THIN HANDLE

CCS1

For Wall-Mounting Charging Station



MAIN FEATURES

MATING CYCLES	RATED CURRENT	RATED VOLTAGE	PROTECTION	ROHS
10,000 cycles	40A, 65A, 80A	1000V Max	IP67	Yes

Ambient temperature: -30°C to 50°C
Temperature Sensor: PT1000
Type 3R, UL2251, SAE J1772, IEC 62196-3

IEC COMBO PLUS

Rated current:
380A, 350A, 300A, 250A, 200A
Rated voltage: 1000V DC Max
Mating cycles: 20,000 cycles
PE cable size: 4mm² to 6mm²
IEC 62196-3
EN17186

UK
CA
CE
CB



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POTTED VERSION

IP67, IP69



NOTE:
Insulation isolation is necessary,
and the ground wire is solely
designated for signal purposes.

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HIGHPOWER@AMPHENOL
TRUSTED GLOBALLY

ULTRA-THIN HANDLE

CCS2

For Wall-Mounting Charging Station



MAIN FEATURES

MATING CYCLES	RATED CURRENT	RATED VOLTAGE	PROTECTION	ROHS
10,000 cycles	40A, 65A, 80A	1000V Max	IP67	Yes



Ambient temperature: -30°C to 50°C
Temperature Sensor: PT1000
IEC62196.1, IEC62196.3

HIGHPOWER@AMPHENOL
TRUSTED GLOBALLY



EXCELLENT LOW-TEMPERATURE DROP PERFORMANCE
WITH STRONG INTERNAL WATER PIPE CONNECTION

CCS1

- Liquid-cooled charging gun
- Partial Potting Filling
- Metal Latch Hook

Special alloy
with high
impact resistance
& Grip Anti-Slip

IP67
Handle
included

MAIN FEATURES

MATING CYCLES	RATED CURRENT	RATED VOLTAGE	PROTECTION	CABLE RANGE
20,000 cycles	500 - 600A Peak current: 850A	1000V Max	IP67 IP69	35mm ²

If there is a conflict between Drawings and Newsletters, then the Drawings will prevail.
To ensure long-term insulation performances, customers must configure the charging gun's properties according to their own system.

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TRUSTED GLOBALLY

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EXCELLENT LOW-TEMPERATURE DROP PERFORMANCE
WITH STRONG INTERNAL WATER PIPE CONNECTION

CCS2

- Liquid-cooled charging gun
- Partial Potting Filling



IP67
Handle
included

MAIN FEATURES

MATING CYCLES	RATED CURRENT	RATED VOLTAGE	PROTECTION	CABLE RANGE
20,000 cycles	500 - 600A Peak current: 850A	1000V Max	IP67 IP69	35mm ²

If there is a conflict between Drawings and Newsletters, then the Drawings will prevail.
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CCS1 HPC

EXCELLENT LOW-TEMPERATURE DROP PERFORMANCE
WITH STRONG INTERNAL WATER PIPE CONNECTION

- Liquid-cooled charging gun
- Partial Potting Filling
- Metal Latch Hook

Special alloy
with high
impact resistance
& Grip Anti-Slip

IP67
Handle
included

MAIN FEATURES

MATING CYCLES	RATED CURRENT	RATED VOLTAGE	PROTECTION	CABLE RANGE
20,000 cycles	500 - 600A Peak current: 850A	1000V Max	IP67 IP69	35mm ²

If there is a conflict between Drawings and Newsletters, then the Drawings will prevail.
To ensure long-term insulation performances, customers must configure the charging gun's properties according to their own system.

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HPC Oil-cooled charging gun

The liquid cooling
system is optional.
The power of the
liquid cooling
system is 4KW,
and it can match
TWO CHARGING GUNS
at the same time.

MAIN FEATURES

MATING CYCLES	RATED CURRENT	RATED VOLTAGE	PROTECTION	ROHS
10,000 cycles	500A to 600A	1000V Max	IP67	Yes

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AMPHENOL PCD SHENZHEN



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HIGHPOWER @ AMPHENOL
TRUSTED GLOBALLY

NACS
SAE J3400 WIP

MAIN FEATURES

MATING CYCLES	RATED CURRENT	RATED VOLTAGE	IP-RATE	ROHS
10,000 cycles	40A, 50A, 80A	600V AC 1000V DC	IP67 IP69	YES

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NACS
SAE J3400 WIP

MAIN FEATURES

MATING CYCLES	RATED CURRENT	RATED VOLTAGE	IP-RATE	ROHS
20,000 cycles	200A, 250A, 375A, 400A, 600A	1000V DC	IP67 IP69	YES

Additional info:
200A, 250A, 375A, 400A (air cooled)
600A (with liquid cooling)

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HVCONF0100S1

All signal contacts, including the sensor, are fully integrated to the PCB board.

NACS
BUSBAR VERSION

MATING CYCLES	RATED CURRENT	RATED VOLTAGE	ROHS
10,000 cycles	600A Max	DC+ & DC: 1000V DC CP & PP: 30V	Yes

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All signal contacts, including the sensor, are fully integrated to the PCB board.

NACS
WIRING BOARD

MATING CYCLES	RATED CURRENT	RATED VOLTAGE	ROHS
10,000 cycles	50mm ² 200A 70mm ² 250A 95mm ² 350A	DC+ & DC: 1000V DC CP & PP: 30V	Yes

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MECHANICAL	
Durability	100 mating cycles
Insertion force	< 55N
Pullout force	> 15N
Matching male contact	46 x 3.0mm
Connection type	Screw

ELECTRICAL	
Rated current	500A Max.
Contact resistance	≤ 0.5mΩ
Temperature rise	≤ 55K

ENVIRONMENTAL	
Operating temperature	-40°C to 125°C
Ambient temperature	-40°C to 70°C
RoHS	Yes

MATERIAL	
Contact	Copper alloy
Plating	Silver

SFBC 01500
Mainly for DC
Charging Station Power Module

Charging Connectors + SPC Connector

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RATED CURRENT
50A
80A

RATED VOLTAGE
300V

Charging stake

SPC

Vehicle connectors (SAE / IEC / GB / NACS)

UL US
UL1977
APPROVED

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UL1977, CE 61984 APPROVED

MAIN FEATURES

MATING CYCLES	RATED CURRENT	RATED VOLTAGE	PROTECTION	RoHS
50 cycles	350A	1500V DC	IP67 IPX9K	Yes

MCMSDFRS01, MCMSDMX

Receptacle's cap

MCMSD
MAINLY FOR ENERGY STORAGE & ELECTRIC VEHICLE-FRIENDLY

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UL4128, IEC 61984 APPROVED

MAIN FEATURES

RATED CURRENT	RATED VOLTAGE	PROTECTION	RoHS
400A with fuse	500A, 630A (ongoing)	1000V DC	IP67 IP69K

Yes

MSDXL
MAINLY FOR BATTERY PACKS

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Current rating:
 · 350A@ 95mm² shield cable
 · 430A@ 120mm² shield cable
 · 500A@ 150mm² shield cable
 Rating voltage: 1500V Max
 Operating temperature: -40 to 125 °C
 Salt spray: 500h Min
 Mating cycles: >50 cycles
 Shielding: Yes
 Unmated sockets: IP67
 Mated connectors: IP67, IP6K9K
 Touch-proof: IP2XB

CHD-14 has been designed for high-power charging in harsh environments.

New: Straight receptacle now available!

MAIN FEATURES

MATING CYCLES	RATED CURRENT	RATED VOLTAGE	SALT SPRAY	SHIELDING
>50 cycles	500A Max	1500V Max	500h Min	Yes

HD|MATE
Unmated socket: IP67!

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CHD has been designed for high-power charging in harsh environments.

Current rating:
 · 350A@ 95mm² shield cable
 · 430A@ 120mm² shield cable
 · 500A@ 150mm² shield cable
 Rating voltage: 1500V Max
 Operating temperature: -40 to 125 °C
 Salt spray: 500h Min
 Mating cycles: >50 cycles
 Shielding: Yes
 Unmated sockets: IP67
 Mated connectors: IP67, IP6K9K
 Touch-proof: IP2XB



MAIN FEATURES

MATING CYCLES	RATED CURRENT	RATED VOLTAGE	SALT SPRAY	SHIELDING
>50 cycles	500A Max	1500V Max	500h Min	Yes

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Current rating:
 · 150A@ 35mm² shield cable
 · 200A@ 50mm² shield cable
 · 250A@ 70mm² shield cable
 Rating voltage: 1500V Max
 Operating temperature: -40 to 125 °C
 Salt spray: 500h Min
 Shielding: Yes
 Mated connectors: IP67, IP6K9K
 Touch-proof: IP2XB

360°
PLUG
FEATURE
UNMATED
SOCKET
IP67



OPTIONAL: Can be immersed in cooling oil for an extended period of time.

MAIN FEATURES

KEY POSITIONS	RATED CURRENT	RATED VOLTAGE	SALT SPRAY	SHIELDING
5	300A Max	1500V Max	500H Min	Yes

HD|MATE CHD10

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EXP405

SOLAR PANELS → ENERGY STORAGE → HOME EV CHARGERS

TIGHTENING MECHANISM FOR WIRES

MAIN FEATURES

MATING CYCLES	RATED CURRENT	RATED VOLTAGE	IP RATE	ROHS
50 Min.	32A Max.	400V AC 560V DC	IP65 (mated)	Yes

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MCS

Mating cycles..... **Up to 20,000**

Configuration

Rated current..... **Inlet 1000A** (natural cooling copper bar)

Rated current..... **Inlet 3000A** (liquid cooling copper bar)

Plug 1500A liquid cooling

Rated voltage..... **1500V DC**

Degree of protection..... **IP67**

Ambient temperature..... **-30°C to 50°C**

ROHS **Yes**



HPC CCS1

Mating cycles..... **Up to 20,000**

Plug Configuration

Rated current..... **600A**

Rated voltage..... **1000V DC**

Degree of protection..... **IP67 (housing)**

Ambient temperature..... **-30°C to 50°C**

Cable size..... **35mm²**

ROHS **Yes**

*Temperature sensor (PT1000)
IEC62196.1, IEC62196.3*



HPC CCS2

Mating cycles..... Up to 20,000

Plug Configuration

Rated current..... 500A to 550A

Rated voltage..... 1000V DC

Degree of protection..... IP67 (housing)

Ambient temperature..... -30°C to 50°C

Cable size..... 35mm² (handle)
25mm² (handleless)

ROHS Yes

Temperature sensor (PT1000)
IEC62196.1, IEC62196.3



4-pipe system
(2 intake pipes, 2
return pipes)

3-pipe system
(1 intake pipe, 2
return pipes)

NACS AC DC

Mating cycles..... **Up to 20,000**

Plug Configuration

Rated current..... **200A to 600A DC**

40A, 50A, 80A AC

Rated voltage..... **1000V DC**

Degree of protection..... **IP67 (enclosure)**
Type 3S (Plug-in)

Ambient temperature..... **-40°C to 50°C**

ROHS **Yes**

Temperature sensor (PT1000)

IEC62196.1, IEC62196.3



SPC Connector

Rated current.....	50A
	80A
Rated voltage.....	300V
Certificate.....	UL 9177



AC PLUG - MODE 3 (Combinations between standards)

Amperage	Epoxy filling	Contact	Cable (brand)	Thermistor	Qualification	Plan
16A	✓	6mm	2.5mm ² (Leoni, OMG)	✗		
32A	✓	6mm	6mm ² (Leoni, OMG)	✗		

Vehicle connectors to IEC Plug (stake side)



Vehicle connectors to Vehicle connectors



Standard	Current type	Product type
GB/T, IEC, SAE	AC	PLUG & HARNESS

GB/T AC PLUG - MODE 2

Amperage	Epoxy filling	Contact	Cable	Thermistor	Qualification	Plan
16A	x	6mm	2.5mm ²	x	GB/T20234	



IEC AC PLUG - MODE 2

Amperage	Epoxy filling	Contact	Cable	Thermistor	Qualification	Plan
16A	✓	6mm	2.5mm ²	x		Q4 2021



SAE AC PLUG - MODE 2

Amperage	Epoxy filling	Contact	Cable	Thermistor	Qualification	Plan
16A	✓	3.6mm	14AWG	x		Q4 2021
40A	✓	3.6mm	10AWG	x		Q1 2022



Types of Protection Cap

Combo 1/Combo2 Vehicle- inlet



Combo2/CCS2 holder



Combo1/CCS1 holder



IEC Type 2 Socket-inlet



IEC Type 2 Vehicle-connector



SAE J1772 AC Plug



SAE Socket



IEC Type 2 Socket-outlet 1



▲ Press

IEC Type 2 Socket-outlet 2



▲ Pull

EXCEL|MATE CC IEC62196-3 E-lock

Contact switch is normally closed

Unlock: 1K Ω

Lock: 11K Ω

1.Voltage supply at motor : 12V

2.Possible Voltage supply at motor : 9V~12V

3.Typical motor current for locking : 200mA

4.Maximal motor current for locking : 1000mA

5.Maximal voltage for locking detection: 20V

6.Maximal dwell period with blocking current : 1000ms

7.Suggested adjustment time : 600ms

⊙ 8.Durability (In load cycles) : >10000

9.Ambient temperature (in operation) : -30 $^{\circ}$ C~+50 $^{\circ}$ C

10.Ambient temperature (storage) : -40 $^{\circ}$ C~+85 $^{\circ}$ C

11.Length of the actuator cables : 500mm

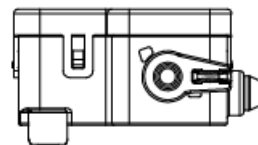
12.Minimum bending radius : 30mm

13.Specification of the actuator cables : 4 X 0.5mm 2

✦ 14.IP-Class : IP65

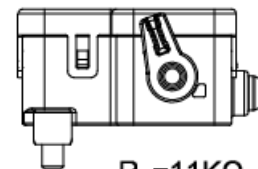


UNLOCK



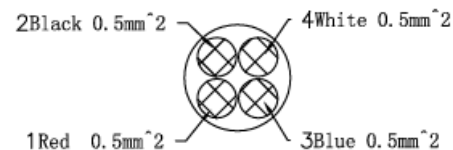
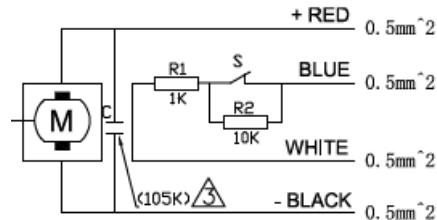
$R_U=1K\Omega$

LOCK



$R_L=11K\Omega$

Emergency unlocking of the 12V locking actuator
Schematic diagram



EXCEL|MATE CC IEC62196-3 E-lock



Contact switch is normally open

Unlock: $+\infty K\Omega$

Lock: $0 K\Omega$

1.Voltage supply at motor: 24V

2.Possible Voltage supply at motor: 20V~24V

3.Typical motor current for locking: 50mA

4.Maximal motor current for locking: 1000mA

5.Maximal voltage for locking detection: 20V

6.Maximal dwell period with blocking current: 800ms \triangle

7.Suggested adjustment time: 600ms \triangle

◎8.Durability (In load cycles) : >10000

9.Ambient temperature (In operation) : $-30^{\circ}C \sim +50^{\circ}C$

10.Ambient temperature (storage) : $-40^{\circ}C \sim +85^{\circ}C$

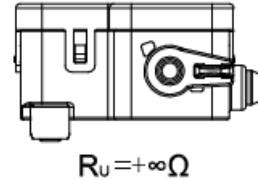
11.Length of the actuator cables: Optional

12.Minimum bending radius: 30mm

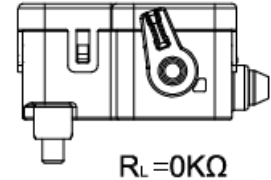
13.Specification of the actuator cables : 4 X 0.5mm²

✦14.IP-Class : IP65

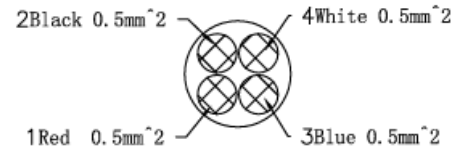
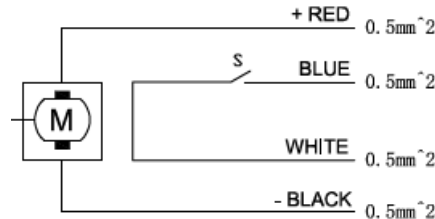
UNLOCK


































LOCK



Emergency unlocking of the 24V locking actuator
Schematic diagram



 <p>BSM 5A</p>	 <p>6 PINS HVG 406</p>  <p>2 PINS HVG 492</p> <p>40 to 50A</p>  <p>2, 3, 4 PINS EX 402, EX 403, HVG 404</p>  <p>2, 3, 4 PINS EX B</p>	 <p>2, 3 PINS HVSL 600</p>  <p>1 PIN HVBI R6</p>  <p>BSM 100A</p>	 <p>2 PINS HVSL 800</p>  <p>HVBI R8</p>  <p>1 PIN HVBI R10</p>  <p>HVPC 18</p>	 <p>BSM 250A</p>  <p>CHD 10</p>  <p>CHD 14</p>	<p>METAL CONNECTORS</p>
 <p>26 PINS LVRC</p>	 <p>5, 6 PINS HVSL 365, 366</p> <p>40A Max for HVSL 365&366</p>	 <p>HEV 060</p>  <p>4 PINS HVSL 364</p> <p>80A Max for HVSL 364</p>	 <p>1 PIN HVSL 600</p>	 <p>HVSLF</p> <p>2, 3 PINS</p> <p>1, 2, 3 PINS</p>	
<p>5 to 13A</p>  <p>35 PINS LVRC</p>	 <p>2 PINS HVSL(W)282</p>  <p>3 PINS HVSL(W)633</p>	 <p>2 PINS HVSL 362</p> <p>95A Max for HVSL 362</p>		 <p>HVSL 800</p>  <p>HVSL 1000</p>	 <p>2 PINS HVSL 1200</p>  <p>2 PINS HVSL 1400</p>
<p>10A</p>	 <p>3 PINS HVSL280</p>  <p>2 PINS HVSL 630</p>				
<p>(mm²)</p> <p>RATED CURRENT</p>	<p>2.5</p> <p>4</p> <p>6</p> <p>16</p>	<p>10</p> <p>16</p> <p>25-35</p> <p>50</p> <p>70</p> <p>95</p> <p>120</p> <p>150</p>			<p>PLASTIC CONNECTORS</p>

CHD 14

Performance

Rated voltage:

Current rate (95mm² shield cable)... **350A@ ambient temp. 70° C**

Current rate (120mm² shield cable).. **430A@ ambient temp. 70° C**

Current rate (150mm² shield cable).. **500A@ ambient temp. 70° C**

Rating voltage..... **1500V DC**

Operating temperature..... **-40 to 125° C**

Ambient temperature..... **-40 to 70° C**

Salt spray..... **500h Min**

Durability..... **50 cycles Min**

Shielding..... **Yes**

Waterproof (mated)..... **IP67, IP6K9K**

(unmated sockets)..... **IP67**

Touch-proof..... **IP2XB**



CHD 10

Performance

Rated voltage:

Current rate (35mm² shield cable)... **150A@ ambient temp. 70° C**

Current rate (50mm² shield cable).. **200A@ ambient temp. 70° C**

Current rate (70mm² shield cable).. **250A@ ambient temp. 70° C**

Rating voltage..... **1500V DC**

Operating temperature..... **-40 to 125° C**

Ambient temperature..... **-40 to 70° C**

Salt spray..... **500h Min**

Durability..... **50 cycles Min**

Shielding..... **Yes**

Waterproof (mated)..... **IP67, IP6K9K**

(unmated sockets)..... **IP67**

Touch-proof..... **IP2XB**



EXCEL|MATE METAL HVSLs Metallic Connector

Performance





Rated voltage.....	1000V DC
Rated current.....	100A to 250A
Operating temperature.....	-40°C to 125°C
Degree of protection.....	IP68, IP6K9K (mated)
Touch-proof.....	IP2XB
Shielding.....	360° shielding
Other.....	Small in size

Applications

- Battery connections
- Power distribution
- MCU and drive motor



EXCEL|MATE METAL / Metallic Connector

	HVSLs 600 (2 PIN)	HVSLs 600 (3 PIN)	HVSLs 800 (2 PIN)	HVSLs 8003 (2 PIN)
				
Rated voltage	1000V DC	1000V DC	1000V DC	1000V DC
Rated current	120A Max	120A Max	180A Max	200A Max
Operating temperature	-40°C to 125°C	-40°C to 125°C	-40°C to 125°C	-40°C to 125°C
IP67, IP6K9K (mated)	✓	✓	✓	✓
Touch-proof IP2XB	✓	✓	✓	✓
360° shielding	✓	✓	✓	✓
Cable type	Single core	Single core	Single core	Single core
Wire range	16 to 25 mm ²	16 to 25 mm ²	25 to 50 mm ²	25 to 50 mm ²
Applications	Battery connections Power distribution	MCU and drive motor	Battery connections Power distribution	Battery connections Power distribution

EXCEL|MATE MONO HVBI

HVBI Family	HVBI R6	HVBI R8	HVBI R10
Position	1	1	1
Rated Voltage	1000V	1000V	1000V
Current	120A	180A	250A
Male Contact Diameter	6mm	8mm	10mm
Metal or Plastic Shell	Metal	Metal	Metal
Interlock	Y	Y	Y
2 nd Lever Lock	N	N	N
EMI	Y	Y	Y
Seal	Y	Y	Y
Touch-Proof	Y	Y	Y
Cable Type	Single core	Single core	Single core
Wire range	25 mm ²	35 to 50 mm ²	50 to 70 mm ²
Applications	Battery / PDU / MCU / Drive Motor	Battery / PDU / MCU / Drive Motor	Battery / PDU / MCU / Drive Motor

EXCEL|MATE MONO EX SERIES

Push-pull locking system with audible “click”

Wire range..... **2.5 to 6mm² / RA: 2.5 to 4mm²**

Rated current..... **23A to 40A / RA: 23 to 32A**

Rated voltage..... **800V DC**

Operating temperature..... **-40°C to 125°C**

Shielding..... **EMI shielding**

Degree of protection..... **IP68, IP6K9K (mated)**

Touch-proof..... **IP2XB**

Other..... **Low cost, small in size**

Applications

- EV / HEV / PHEV air conditioner
- DCDC
- PTC
- Power distribution boxes
- Other auxiliaries equipment

Insert arrangement:

402

2 X (23A to 40A) + 2 X 7.5A



403

3 X (23A to 40A) + 2 X 7.5A



RA

2 X (23A to 32A) + 2 X 7.5A



EXCEL|MATE MONO EX (B) SERIES

Push-pull locking system with audible “click”

Wire range.....	2.5 to 4mm²
Rated current.....	23A to 32A
Rated voltage.....	1000V DC
Operating temperature.....	-40°C to 125°C
Shielding.....	EMI shielding
Degree of protection.....	IP68, IP6K9K (mated)
Touch-proof.....	IP2XB
Other.....	Low cost, small in size

Applications

- EV / HEV / PHEV air conditioner
- DCDC
- PTC
- Power distribution boxes
- Other auxiliaries equipment

Insert arrangement:

402B

2 X (23A to 32A)



403B

3 X (23A to 32A)



404B

4 X (23A to 32A)



405B

5 X (23A to 32A)



EXCEL|MATE Series Overview

Family	HVSL 1400	HVSL 1200	HVSL 1000	HVSLP 1000	HVSL 800	HVSLP 800	HVSL 600
Position	2	2	1, 2, 3	2	2, 3	2	1
Rated Voltage	1000V	1000V	1000V	1000V	1000V	1000V	1000V
Current (Max)	430A	350A	250A	250A	200A	200A	120A
Male Contact Diameter	14mm	12mm	10mm	10mm	8mm	8mm	6mm
Metal or Plastic Shell	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic
Interlock	Y	Y	Y	Y	Y	Y	Y
2 nd Lever Lock	Y	Y	Y	Y	Y	Y	Y
EMI	Y	Y	Y	Y	Y	Y	Y
Seal	Y	Y	Y	Y	Y	Y	Y
Touch-Proof	Y	Y	Y	Y	Y	Y	Y
Cable Type	Single core	Single core	Single core	Single core	Single core	Single core	Single core
Wire range	70 to 120 mm ²	70 to 95 mm ²	25 to 70 mm ²	50 to 70 mm ²	25 to 50 mm ²	25 to 50 mm ²	25 mm ²
Applications	Battery / PDU / MCU / Drive Motor	Battery / PDU / MCU / Drive Motor	Battery / PDU / MCU / Drive Motor	Battery / PDU / MCU / Drive Motor	Battery / PDU / MCU	Battery / PDU / MCU	Battery / PDU

EXCEL|MATE MAX, PLUS & S / HVSL 1400, 1200, 1000, 800

HVSL 1400

70 to 120mm² | 1000V DC |
430A Max



HVSL 1200

70 to 95mm² | 1000V DC |
350A Max



Design based on: LV215-1,
USCAR-2, USCAR-37, RoHS
USCAR-2, USCAR-37 test report
available.

HVSL 1000

25 to 70mm² | 1000V DC |
250A Max



Design based on: LV215-1, RoHS



In-Line Type with
External HVIL



Box Mounting
Type with
External HVIL



HVSL 800

25 to 50mm² | 1000V DC |
180A Max



USCAR-2, USCAR-37 test report
available.

HVLS8003, HVSLP800, 10mm for HVSLP1000 with stamped contacts

HVLS8003

25 to 50mm² | 1000V DC | 200A Max



HVSLP800

25 to 50mm² | 1000V DC | 200A Max



HVSLP1000

50 to 70mm² | 1000V DC | 250A Max



HVSLP 1000

Description

Cable Range..... **50 to 70mm²**
Other..... **Cost effective**

Performance

Rated voltage..... **1000V DC**
Rated current..... **250A Max**
Coding positions..... **Multiple**
Shielding..... **360° shielding**
Degree of protection..... **IP68, IP6K9K (mated)**
Touch-proof..... **IP2XB**
Operating temperature... **-40°C to 125°C**

USCAR-2, USCAR-37 test report in progress (2 PIN).



New contacts currently available
for the right-angle

EXCEL|MATE ECO / HVSL 282, 362, 633

General description

Performance

Operating temperature...	-40°C to 125°C
HVIL.....	Integrated internal HVIL
Coding positions.....	Multiple
Shielding.....	360° shielding
Degree of protection.....	IP68, IP6K9K (mated)
Touch-proof.....	IP2XB
CPA.....	Yes
Others.....	Light in weight, No tool required

HVSL 282 (2 PIN)

2.5 to 4mm² | 800V DC | 32A Max



HVSL 362 (2 PIN)

16mm² | 1000V DC | 95A Max Machined



HVSL 633 (3 PIN)

2.5 to 6mm² | 800V DC | 40A Max



USCAR-2, USCAR-37 test report available.

EXCEL|MATE ECO / HVSL 364

Tooling sample: July, 2021

General description

Performance

Operating temperature...	-40°C to 125°C
HVIL.....	Integrated internal HVIL
Coding positions.....	Multiple
Shielding.....	360° shielding
Degree of protection.....	IP67, IP6K9K (mated)
Touch- proof.....	IP2XB
CPA.....	Yes
Others.....	Light in weight, No tool required

HVSL 364 (4 PIN)

**2.5mm² to 6AWG | 1000V DC | 80A
Max**



HVSL 364 (4 PIN)

2.5 to 16mm² | 1000V DC | 80A Max



USCAR-2, USCAR-37

EXCEL|MATE ECO / HVSL 362, 364

General description

Performance

Operating temperature...	-40°C to 125°C
HVIL.....	Integrated internal HVIL
Coding positions.....	Multiple
Shielding.....	360° shielding
Degree of protection.....	IP68, IP6K9K (mated)
Touch-proof.....	IP2XB
CPA.....	Yes
Others.....	Light in weight

HVSL 362 (bus-bar version)

16mm² | 1000V DC | 80A Max



HVSL 362 (2 PIN)

16mm² | 1000V DC | 80A Max Stamping



Stopper for HVSL 362



Stopper for HVSL 364



EXCEL|MATE ECO / HVSLW 282, 633

General description

Performance

Operating temperature...	-40°C to 125°C
HVIL.....	Integrated internal HVIL
Coding positions.....	Multiple
Shielding.....	360° shielding
Degree of protection.....	IP67, IP6K9K (mated)
Touch-proof.....	IP2XB
CPA.....	Yes
Others.....	Light in weight, No tool required

HVSLW 282 (2 PIN)

2.5 to 4mm² | 1000V DC | 32A Max



IP67 unmated

HVSLW 633 (3 PIN)

2.5 to 6mm² | 1000V DC | 40A Max



IP67 unmated

USCAR-2, USCAR-37

W stands for Waterproof.

The HVSLW series (with soldered pin for PCB board) has been designed for automation production.

EXCEL|MATE ECO / HVSL 365, 366

General description

Performance

Operating temperature...	-40°C to 125°C
HVIL.....	Integrated internal HVIL
Coding positions.....	Multiple
Shielding.....	360° shielding
Degree of protection.....	IP67, IP6K9K (mated)
Touch-proof.....	IP2XB
CPA.....	Yes
Others.....	Light in weight, No tool required

HVSL 365 (5 PIN)

2.5 to 6 mm² | 1000V DC | 40A Max



HVSL 366 (6 PIN)

2.5 to 6mm² | 1000V DC | 40A Max



USCAR-2, USCAR-37

EXCEL|MATE ECO / HVSL 635 B

General description

Applicable to High Power Auxiliaries

Performance

Ambient temperature.....	-40°C to 70°C
HVIL.....	Integrated internal HVIL
Shielding.....	360° shielding
Degree of protection.....	IP67, IP6K9K (mated)
Touch-proof.....	IP2XB
Wire range.....	2.5, 4, 6mm²



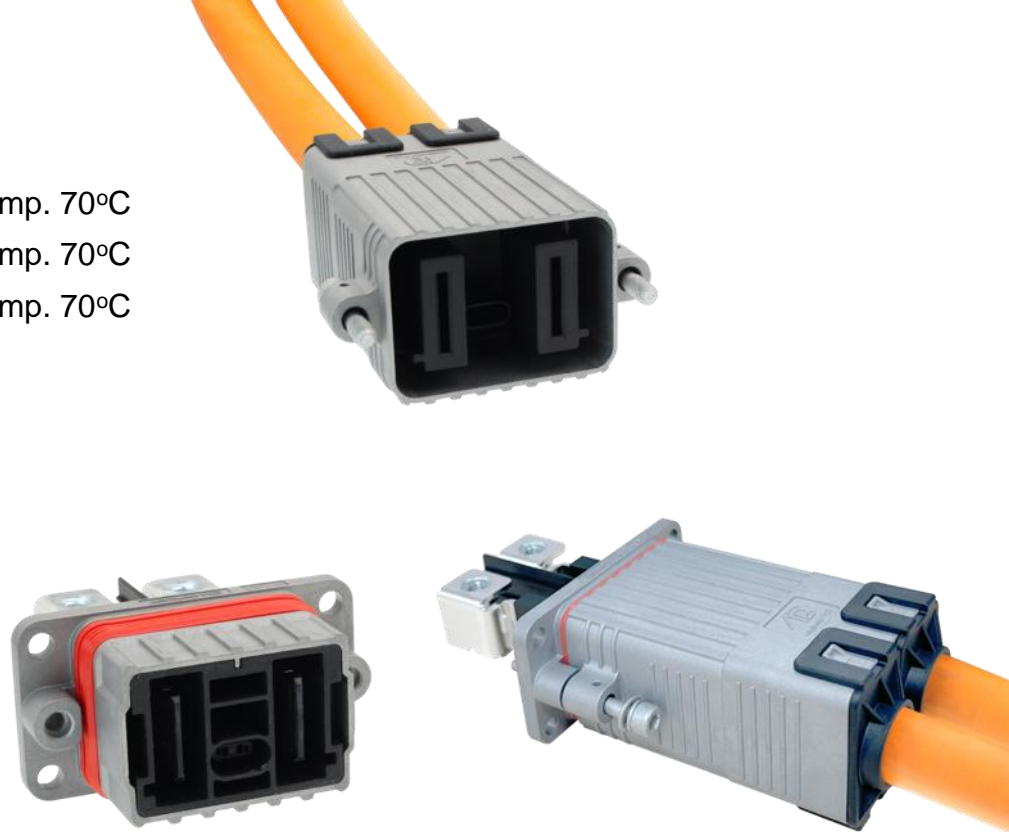
HVSLF

- Current rate (70mm² shield cable): 270A @ ambient temp. 70°C
- Current rate (50mm² shield cable): 220A @ ambient temp. 70°C
- Current rate (35mm² shield cable): 180A @ ambient temp. 70°C
- Rating voltage: 1000V DC
- Operating temperature: -40 to 140°C
- Dielectric withstanding voltage: 3000V AC (RMS)
- Insulation resistance: 100MΩ Min.
- Durability: 50 cycles
- Shielding: Yes
- Waterproof (mated): IP67, IP6K9K
- Salt spray test: 96h
- Ambient temperature: -40 to 70°C
- ROHS: Yes
- 70mm² cable (jacket diameter): Ø17.8 +/- 0.4
- 50mm² cable (jacket diameter): Ø15.5 +/- 0.3
- 35mm² cable (jacket diameter): Ø14.1 +/- 0.3



HVPC 18

- Current rate (70mm² shield cable): 270A @ ambient temp. 70°C
- Current rate (50mm² shield cable): 220A @ ambient temp. 70°C
- Current rate (35mm² shield cable): 180A @ ambient temp. 70°C
- Rating voltage: 1000V DC
- Operating temperature: -40 to 140°C
- Dielectric withstanding voltage: 3000V AC (RMS)
- Insulation resistance: 100MΩ Min.
- Durability: 50 cycles
- Shielding: Yes
- Waterproof (mated): IP67, IP6K9K
- Salt spray test: 500h
- Ambient temperature: -40 to 70°C
- ROHS: Yes
- 70mm² cable (jacket diameter): Ø17.8 +/- 0.4
- 50mm² cable (jacket diameter): Ø15.5 +/- 0.3
- 35mm² cable (jacket diameter): Ø14.1 +/- 0.3



HVPC

Description

Cable Range..... **35 to 50mm²**
Other..... **Compact and small in size**

Performance

Rated voltage..... **1000V DC**
Rated current..... **180A Max**
Coding positions..... **Multiple**
Shielding..... **360° shielding**
Degree of protection..... **IP68, IP6K9K (mated)**
Touch-proof..... **IP2XB**
Operating temperature... **-40°C to 125°C**



USCAR-2, USCAR-37 test report available (2 PIN).

LVRC 35PIN

Wire range.....	22 to 14 AWG
Operating temperature...	-40°C to 125°C
Rated voltage.....	250V DC
Rated current.....	13A Max
Degree of protection.....	IP67
Coding positions.....	Multiple
Others.....	Front and rear installation both available



LVRC 26PIN

Wire range.....	22 to 14 AWG
Operating temperature...	-40°C to 125°C
Rated voltage.....	250V AC / 300V DC
Rated current.....	6 power pins: 13A (18 to 14 AWG) 20 signal pins: 5A (22 to 18 AWG)
Degree of protection.....	IP69K
Coding positions.....	Multiple
Others.....	Rear installation available



USCAR-2, USCAR-37

BSM Series – Battery Swapping Module

Features & Key Benefits

- RADSOK® Technology
- Excellent physical shock and vibration
- Distinct function for deviation-auto correction, can adjust deviation of X, Y, Z
- X and Y direction $\pm 2\text{mm}$ and Z direction $\pm 5\text{mm}$

Mating cycles..... **5K times**

Operating temperature..... **-40°C to 125°C**

Plastic inserts with flammability rating..... **UL94-V0**

5A



100A



Applications

EV Batteries Swapping

For custom order, please contact us. Amphenol PCD Shenzhen is able to provide customized solutions to meet our customers' needs.

HEV080

Operating temperature.....	-40°C to 125°C
Rated current.....	<ul style="list-style-type: none">• signal pin: 5A Max• power pin: 80A Max
Rated voltage.....	<ul style="list-style-type: none">• signal pin: 30V DC• power pins: 250V DC
Degree of protection.....	IP67 (Socket unmated)
RoHS.....	RoHS Compliant



HEV070

Mating cycles.....	3000 mating cycles
Operating temperature.....	-40°C to 125°C
Insert arrangement.....	2 power pins + 4 signal pins
Rated current.....	<ul style="list-style-type: none">• signal pin: 13A Max• power pin: 70A Max
Rated voltage.....	<ul style="list-style-type: none">• signal pin: 30V DC• power pins: 65V DC
Distinct function for deviation-auto correction, can adjust deviation of X, Y, Z	



HEV060

Mating cycles..... **3000 mating cycles**
Operating temperature..... **-40°C to 105°C**
Insert arrangement..... **2 power pins +
10 signal pins**

- Rated current.....
- **signal pin: 1A**
 - **power pin:**
 - **HEV060: 60A with 10mm²**
 - **40A with 6mm²**
 - **signal pin: 24V DC**
 - **power pins: 800V DC**
- Rated voltage.....



EXCEL|MATE PT

High Voltage Pass Through (HVPT)

Description

- 1, 2, 3 positions
- Plastic body, light in weight
- 360° shielding
- Extended series range
- Compact design
- Reliable sealing
- Easy installation with bolts
- Up to 70 mm² shielded cable

Performance

Operating temperature..... **-40°C to 125°C**

Degree of protection..... **IP68, IP6K9K**

Applications

Accessory / main interconnect / Drive motor



HVPT B

USCAR-2, USCAR-37 test report available.

Description

- 1, 2, 3 positions
- Plastic body, light in weight
- 360° shielding
- Extended series range
- Compact design
- Reliable sealing
- Easy installation with bolts
- Up to 70 mm² shielded cable
- Can replace the IPT connector of TE

Performance

Operating temperature..... **-40°C to 125°C**

Degree of protection..... **IP68, IP6K9K**

Applications

Accessory / main interconnect / Drive motor



HVPTB2AXX

USCAR-2, USCAR-37 test report available.

Description

- Cable Range: 2.5 to 3 mm²
- Can replace the APT connector of TE

Performance

Operating temperature.....	-40°C to 125°C
Shielding.....	360° shielding
Degree of protection.....	IP68, IP6K9K (mated)
Other.....	Light in weight



HVPT M

Description

- 2 positions
- Aluminum alloy body
- 360° shielding
- Extended series range
- Compact design
- Reliable sealing
- Easy installation with bolts
- 95 to 120mm² shielded cable
- Custom OT terminals

Performance

Operating temperature..... **-40°C to 125°C**

Degree of protection..... **IP68, IP6K9K**

Applications

Accessory / main interconnect / Drive motor



HVPT M

Description

- 3 positions
- Aluminum alloy body
- 360° shielding
- Extended series range
- Compact design
- Reliable sealing
- Easy installation with bolts
- 95 to 120mm² shielded cable
- Custom OT terminals

Performance

Operating temperature..... **-40°C to 125°C**

Degree of protection..... **IP68, IP6K9K**

Applications

Accessory / main interconnect / Drive motor



HVPT BM

Description

- 2 positions
- Aluminum alloy body
- 360° shielding
- Extended series range
- Compact design
- Reliable sealing
- Easy installation with bolts
- 16 to 70mm² shielded cable
- Custom OT terminals



Performance

Operating temperature..... **-40°C to 125°C**

Degree of protection..... **IP68, IP6K9K**

Applications

Accessory / main interconnect / Drive motor

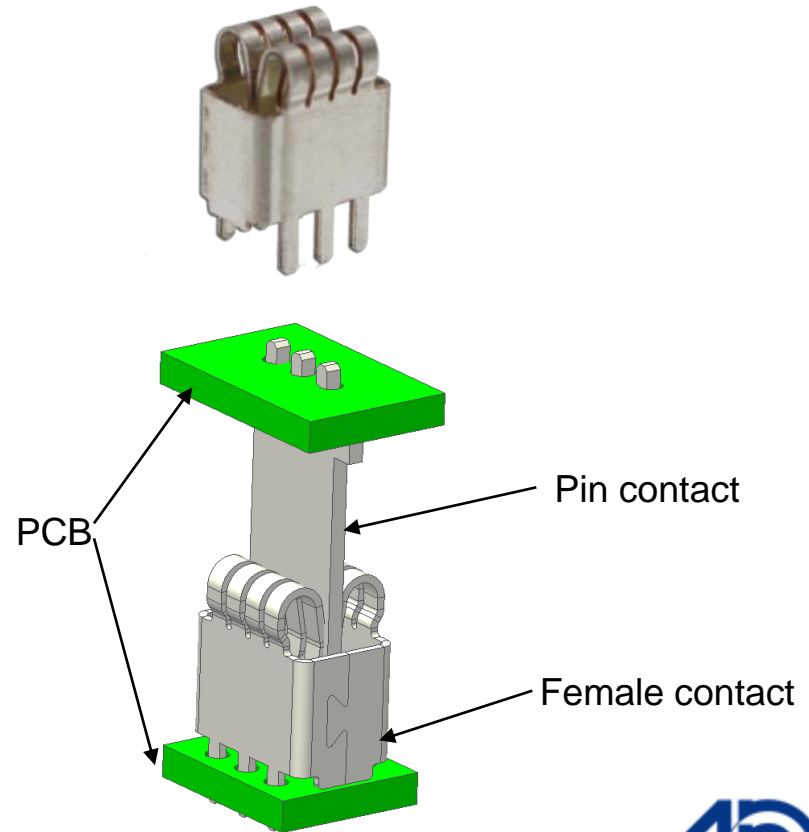
SFBC B2B Power Contact

Description

- For PCB to PCB connection
- High current carrying capacity
- Low cost
- Small in size, light weight

Performance

Mating cycles.....	Over 50 mating cycles
Rated Current.....	80A
Pin contact size.....	8.0 x 1.0 mm (length x width)
Single terminal weight....	14.7g
Packing.....	500pcs/Bag



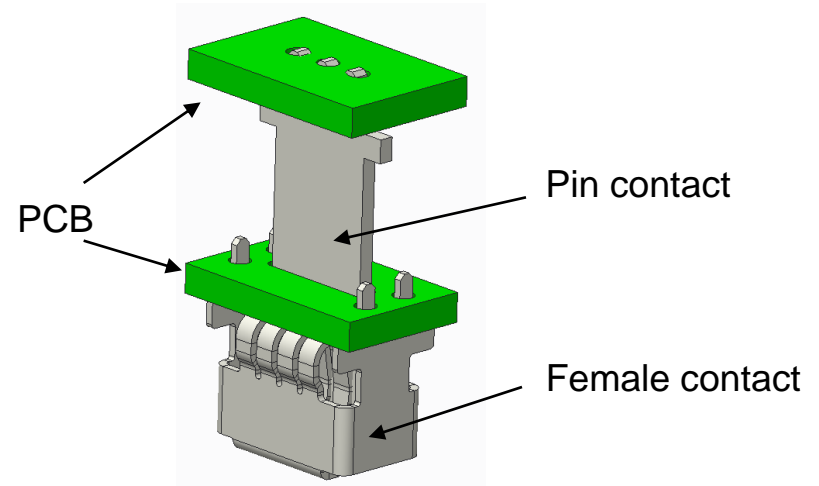
SFBC B2B Power Contact

Description

- For PCB to PCB connection
- High current carrying capacity
- Low cost
- Small in size, light weight

Performance

Mating cycles.....	Over 50 mating cycles
Rated Current.....	70A
Pin contact size.....	8.0 x 1.0 mm (length x width)
Packing.....	300pcs/Bag



SFBC B2B Power Contact

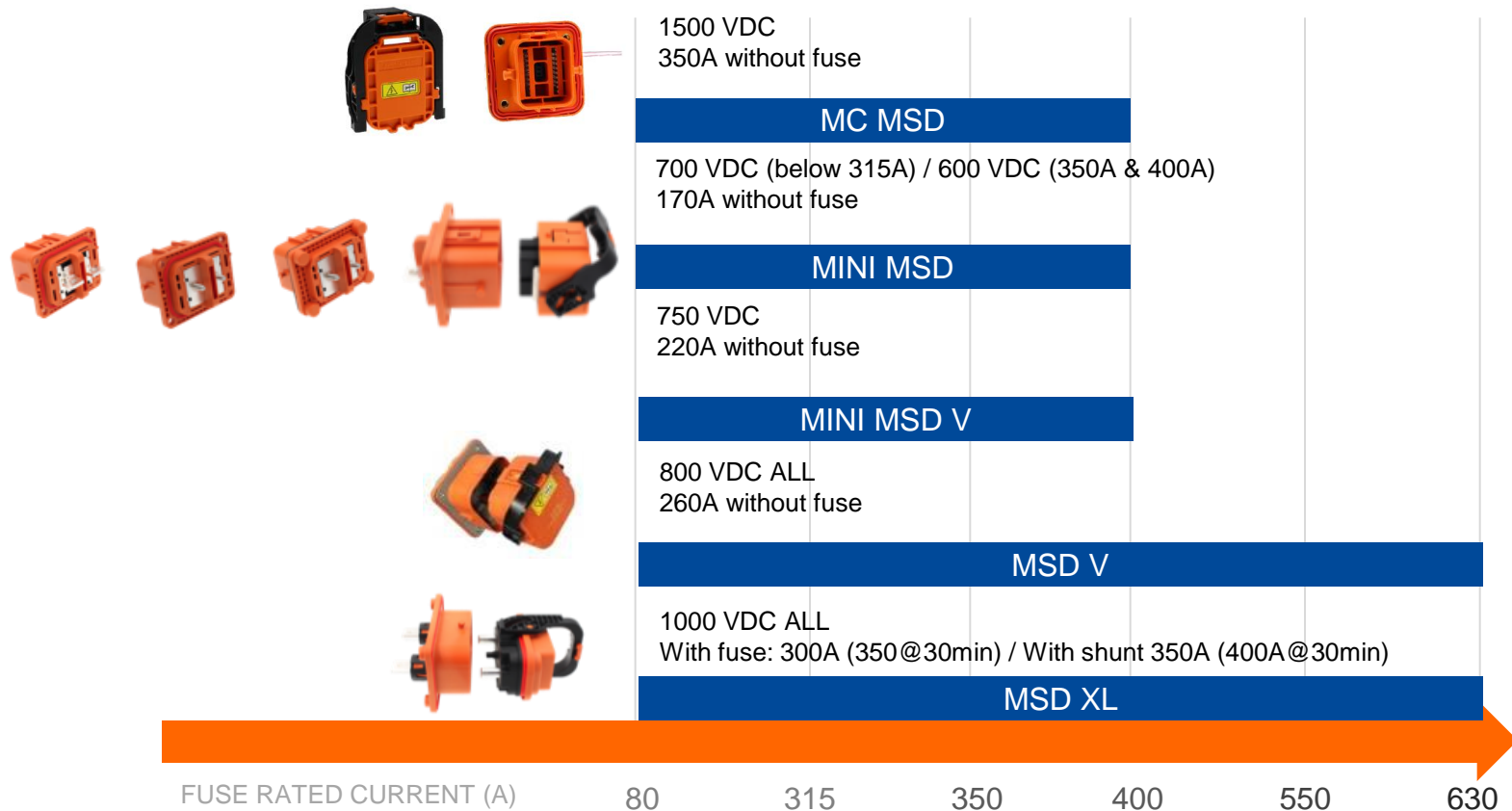
Description

- For PCB to PCB connection
- High current carrying capacity
- Low cost
- Small in size, light weight

Performance

Operating temp. **-40°C to 125°C**
Mating cycles..... **100 mating cycles**
Rated Current..... **200A to 600A**





Mini MSD – Newest Version

Performance

Fuse: 80A to 315A

Fuse: 350A and 400A

Degree of protection.....

Other.....

.

700V DC

600V DC

IP67

Small in size

Removable housing



MCM5D

- Rated current: 350A
- Rated voltage: 1500V
- Wire range: 2.5, 4, and 6mm²
- Operating temperature: -40 to 125°C
- Insulation resistance (pre-environment test): 500 MΩ Min @ 25°C
- Dielectric withstanding voltage (pre-environment test): 4000V AC, 60s, leak current 1mA Max
- Neutral salt spray test: 144H
- Installation area roughness: Ra=1.6-6.3
- Mating cycles: 50 cycles
- Waterproof: IP67 & IPX9K
- IP2XB (Socket): Yes
- Ambient temperature: -40 to 70°C
- RoHS: Yes
- Panel thickness: 2-4mm
- Flatness of panel: 0.1mm

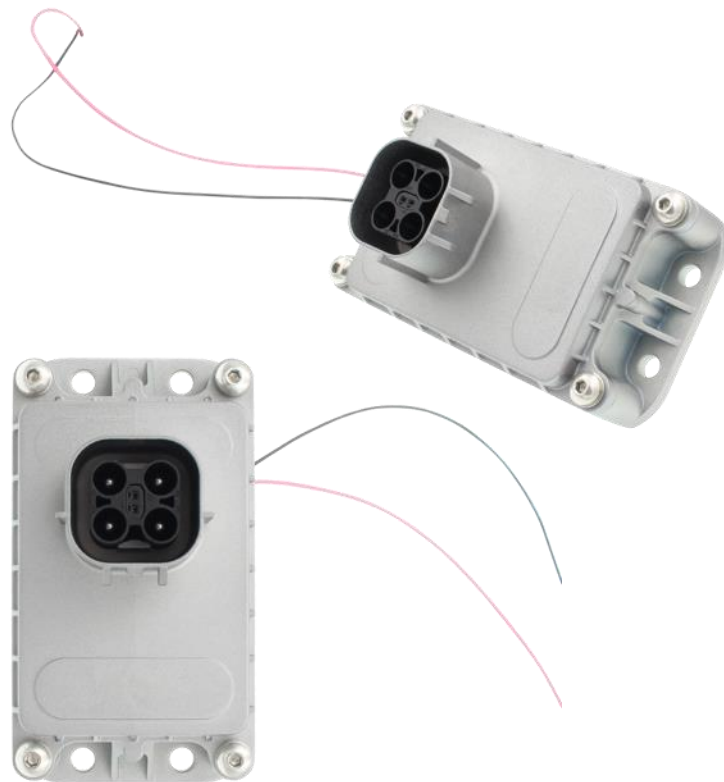


PDC

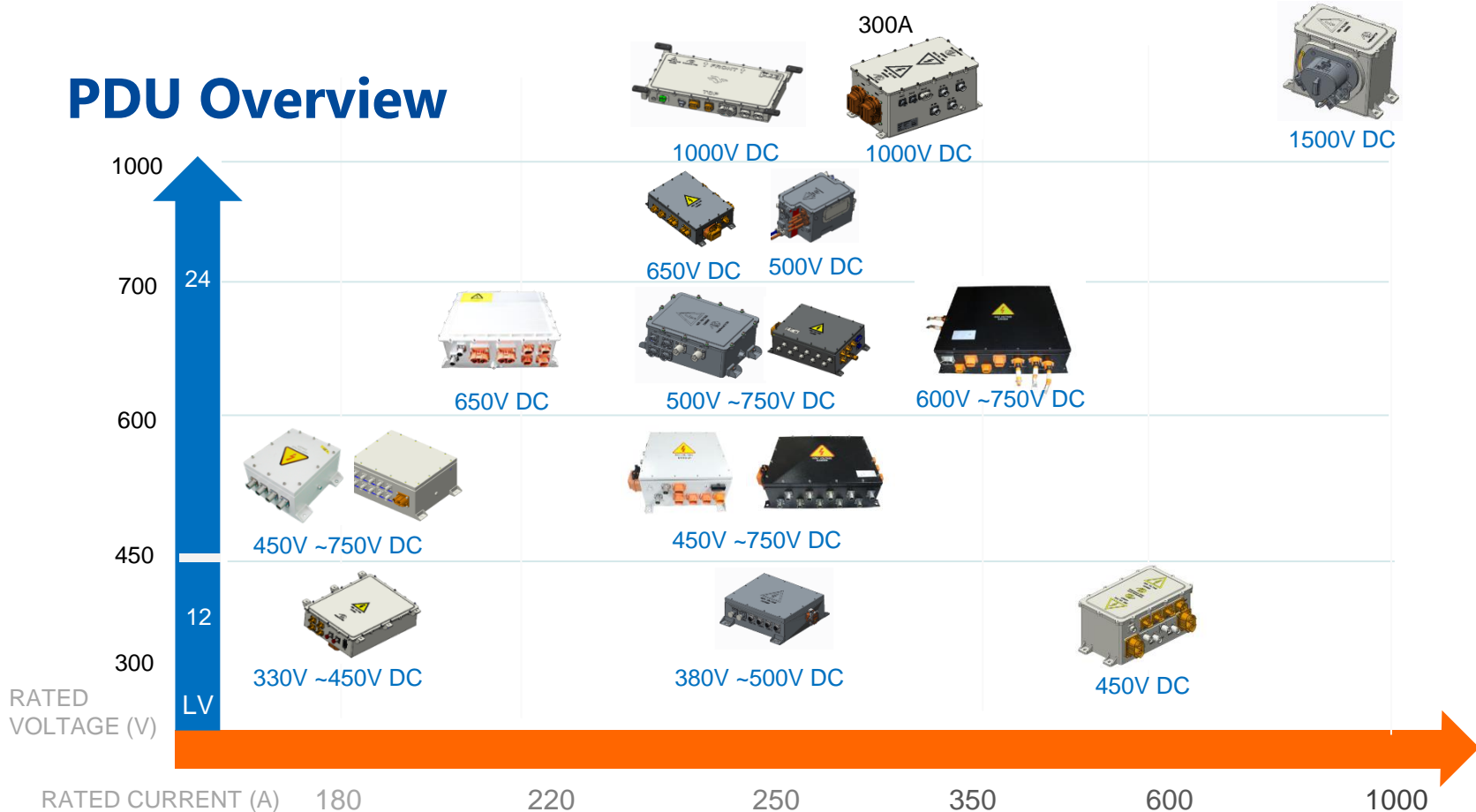
Applications:

Battery Pack to Main Power Distribution Unit
High Power Auxiliaries.

- Rated current: 32A
- Rated voltage: 1000V
- Wire range: 2.5, 4, and 6mm²
- Ambient temperature: -40 to 70°C
- Shielding: Metallic housing
- Waterproof (mated): IP67, IP6K9K
- Waterproof (unmated socket): IP67
- Fuse: 35A, 40A, 50A
- Associated plug: HVSL364
- Touch-proof: IP2XB



PDU Overview



For custom order, please contact us. Amphenol PCD Shenzhen is able to provide customized solutions to meet our customers' needs.

ENERGY STORAGE Products

HVSP Series

Applications

For standing still energy storage batteries

Mechanical

Terminal..... **6.0, 8.0, 10mm**
Wire range..... **16 to 70mm² cable**
CPA..... **Yes**

Electrical

Rated voltage..... **1000V DC**
Rated current..... **Up to 250A**
Operating temperature..... **-40°C to 125°C**
Degree of protection..... **IP67, IP6K9K (mated)**

Key Features

- With key coding and free rotation to relief tension on cable
- Small in size
- Low cost highly reliable performance
- No need for cable assembly overmolding



HVSP Series Specifications

Series	HVSP R6	HVSP R8	HVSP R10
Position	1	1	1
Rated Voltage	1000V	1000V	1000V
Rated Current	100A	180A	250A
Interlock	N	N	N
EMI	N	N	N
Seal	IP67	IP67	IP67
Touch-Proof	IP2XB	IP2XB	N
Cable Type	Single core	Single core	Single core
Applications	Energy Storage Batteries	Energy Storage Batteries	Energy Storage Batteries



Specifications and information in this document are subject to change without notice and were accurate at the time of publication. Amphenol PCD Shenzhen reserves the right to clarify this presentation.