



AMPHENOL PCD



# EXCEL | MATE MSD

Manual Service Disconnect

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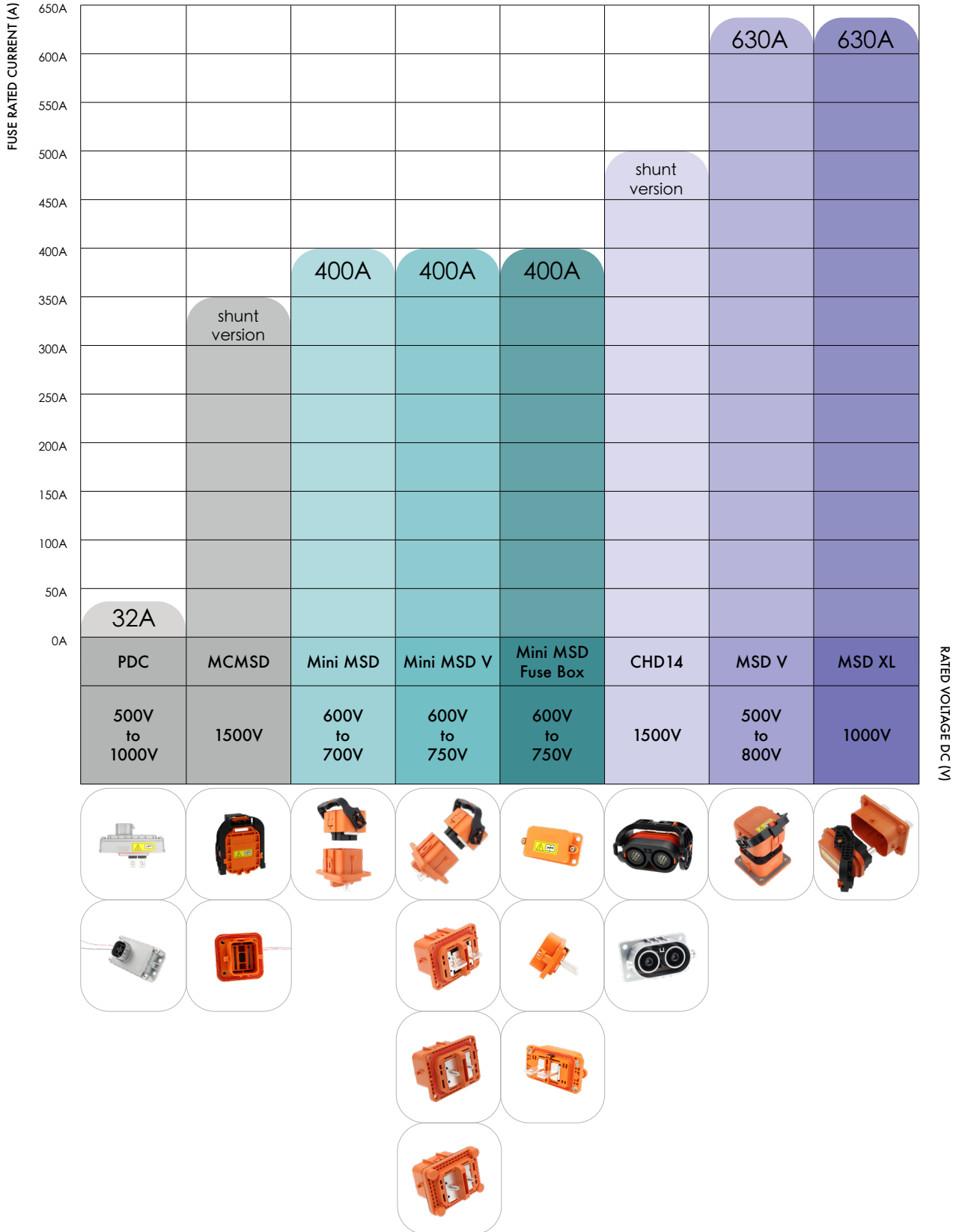
HIGHPOWER @ AMPHENOL  
TRUSTED GLOBALLY

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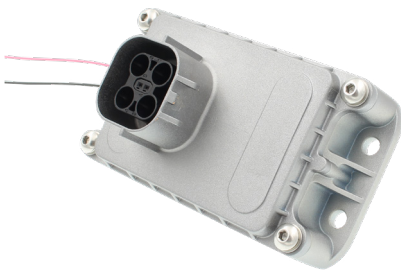
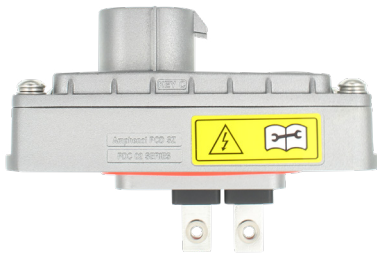
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# EXCEL|MATE MSD



## EXCEL|MATE PDC - TECHNICAL CHARACTERISTICS



### KEY FEATURE

Waterproof (unmated socket): IP67

### DESCRIPTION

This Power Distribution Connector (PDC) finds its best use in the case where the PDU is already fully integrated into the Battery Pack. Without a PDC, we would need to entirely disassemble the Battery Pack to replace a blown fuse. However, using a PDC with removable fuses makes the replacement of blown fuses much more accessible and effortless.

### ELECTRICAL

Fuse:	15A, 20A, 25A, 30A, 35A, 40A, 50A, 60A
Rated current:	8A to 32A
Rated voltage:	500V, 750V, 1000V
Wire range:	2.5, 4, and 6 mm <sup>2</sup>

### ENVIRONMENTAL

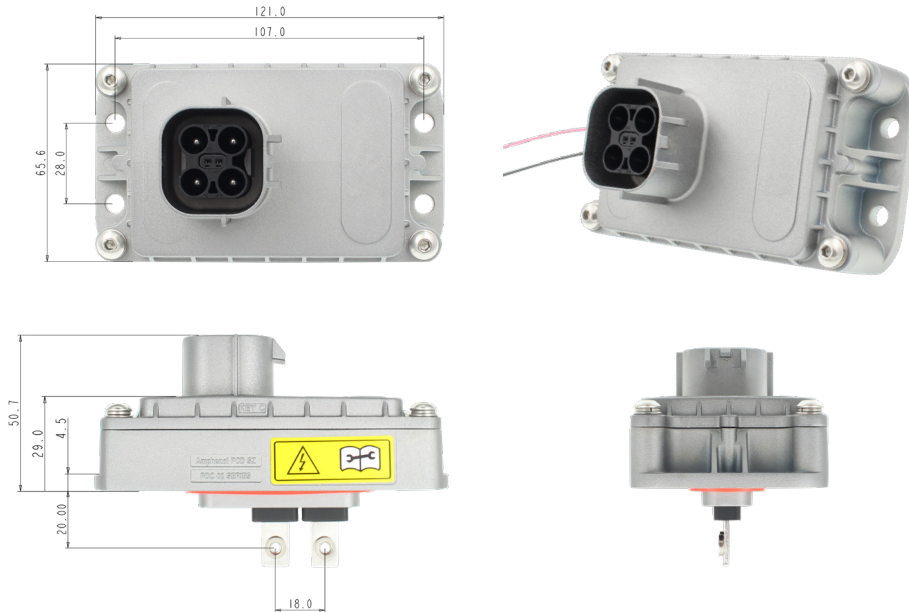
Ambient temperature:	40 to 70°C
Waterproof (mated):	IP67, IP6K9K
Waterproof (unmated socket):	IP67

### MATERIAL

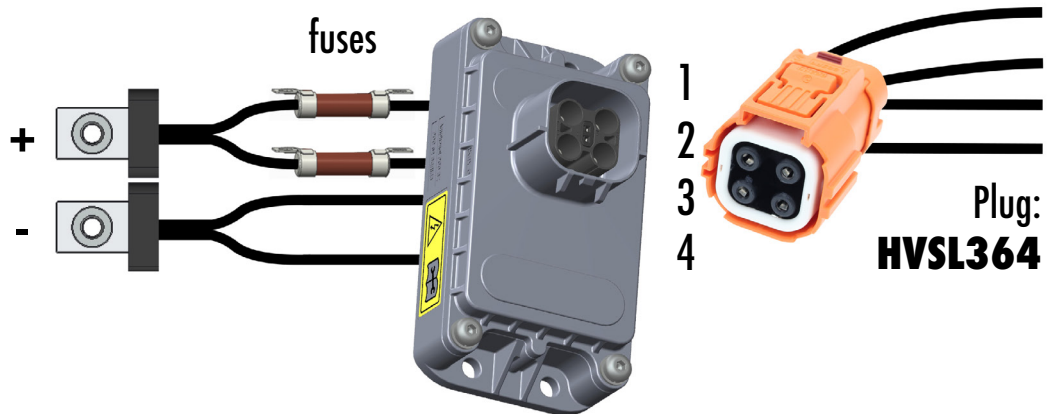
Housing:	Metallic
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## BATTERY PACK TO MAIN POWER DISTRIBUTION UNIT – HIGH POWER AUXILIARIES

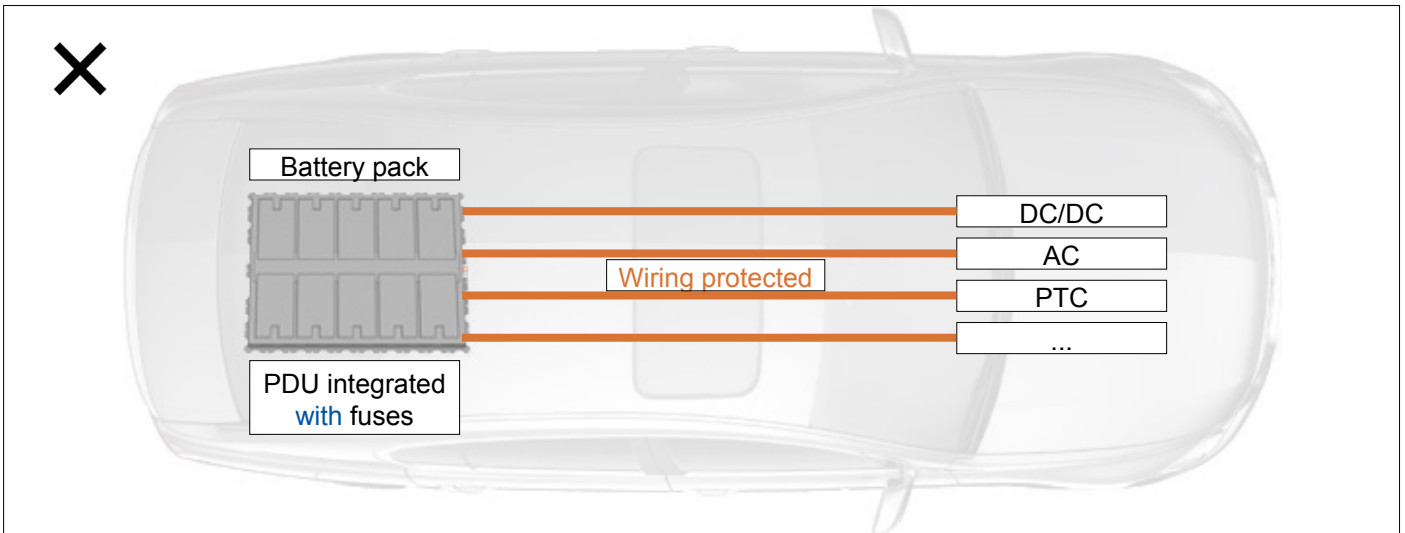


The PDC connector converts a **2-pin input** into a **4-pin output**.



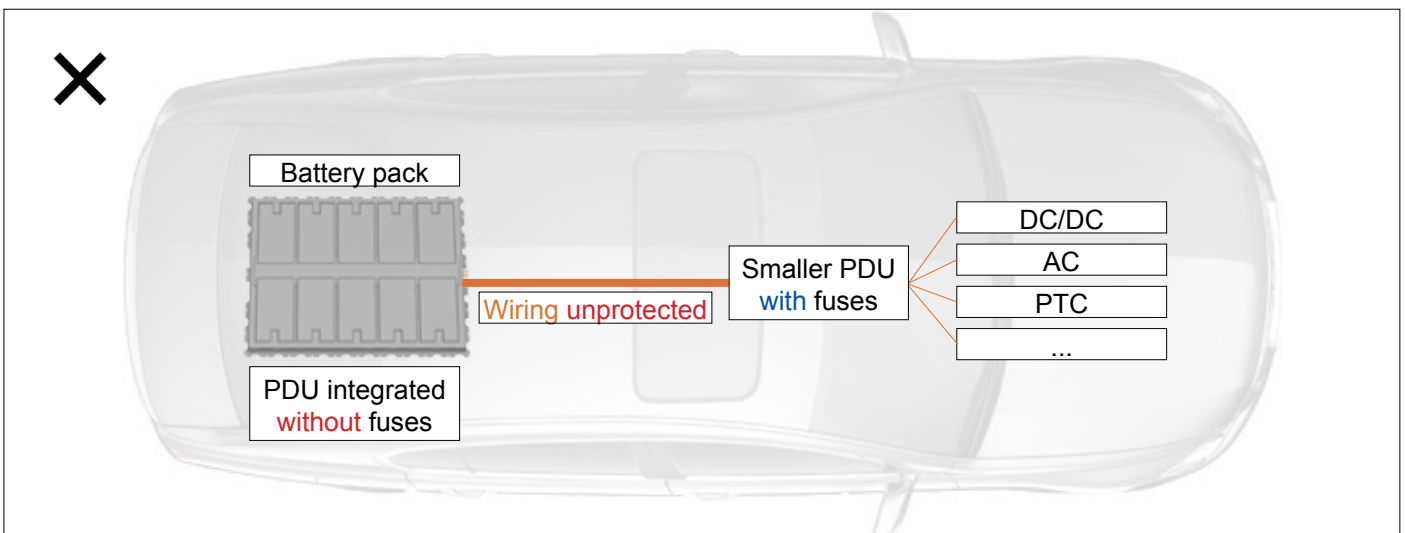
Basically, the PDC is a mini PDU-like type of connector!

## Basic structure



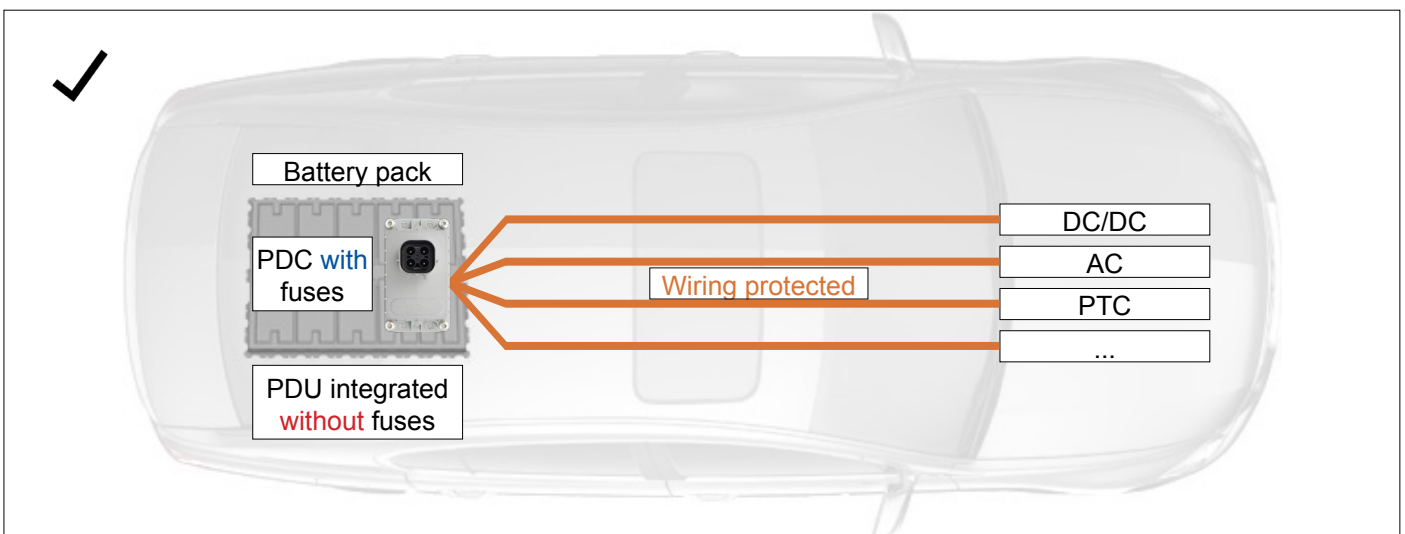
This structure **safely** secures the wiring, but once a fuse blows, its replacement requires a **complex** disassembly of the whole battery pack.

## Workaround structure



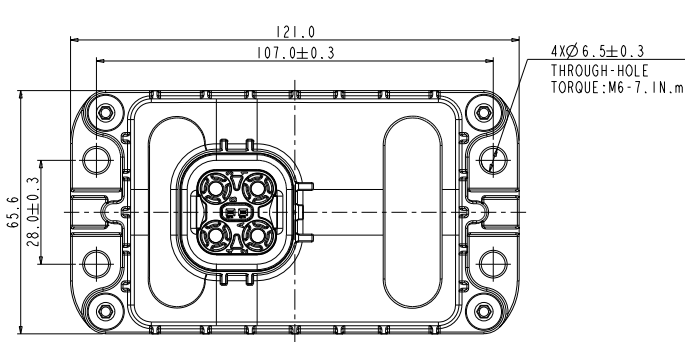
This workaround structure allows for an **easier** replacement of the fuses, which are placed in an external additional PDU. However, the wiring between the battery pack and this added PDU is **unprotected**.

## Optimized structure

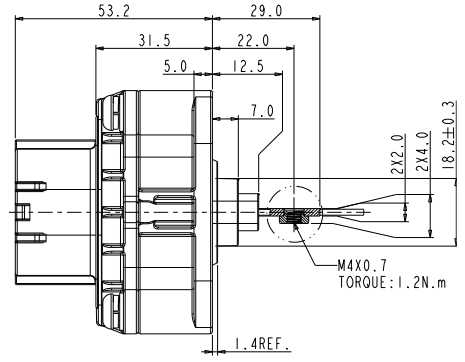


By adding a PDC connector to the battery pack, this optimized structure benefits from both a successfully protected wiring as well as an easy and effortless replacement of its fuses.

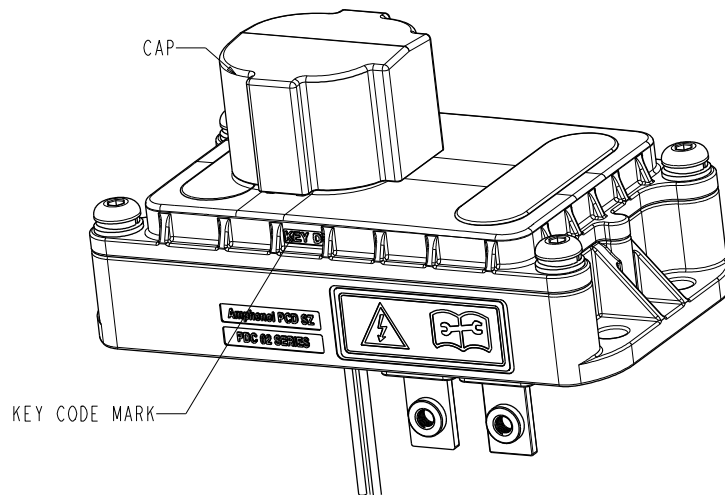
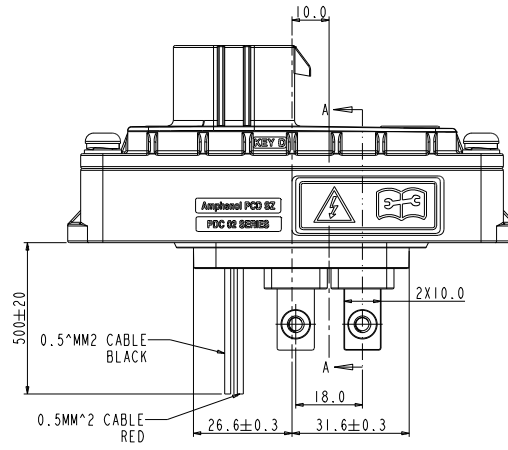
# PRODUCT DIMENSIONS



A, B FOR HVIL PIN  
1, 2 FOR POWER PIN, CONNECTED WITH COPPER BAR 8  
3, 4 FOR POWER PIN, CONNECTED WITH COPPER BAR 7, CONTAINED FUSE



SECTION A-A



HOW TO ORDER - EXCEL|MATE PDC

PDC 02    1    0    1    S    0    0    01

**Key:**  
 1: Matched HVSL 364 Key C  
 2: Matched HVSL 364 Key D

**HVIL:**  
 0: Without HVIL  
 1: With HVIL

**Voltage:**  
 1: 1000V DC  
 2: 750V DC  
 3: 500V DC

**Fuse brand:**  
 S: Sinofuse  
 B: Busmann

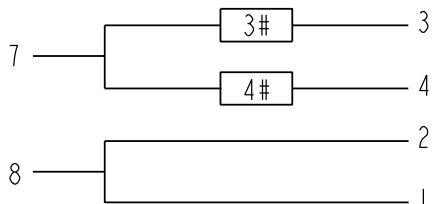
**Fuse at position #3:**  
 0: Busbar    6: 15A  
 1: 30A        7: 20A  
 2: 35A        8: 25A  
 3: 40A  
 4: 50A  
 5: 60A

**Fuse at position #4:**  
 0: Busbar    6: 15A  
 1: 30A        7: 20A  
 2: 35A        8: 25A  
 3: 40A  
 4: 50A  
 5: 60A

**Nut direction:**  
 01: M4 nut, located below copper bar  
 02: M4 nut, located above copper bar

Remarks:

1. When a single fuse is loaded, the other hole can be loaded with copper bars.
2. When two fuses are loaded, the same brand of fuses shall be selected.



BRAND OPTIONAL FUSE SPECIFICATION SHEET:

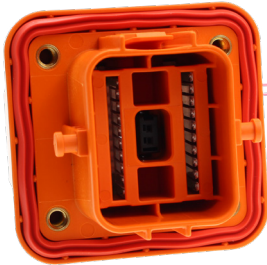
RATING VOLTAGE	SINOFUSE	BUSSMANN
1000V	30A	35A
	40A	40A
	50A	50A
750V	15A	15A
	20A	20A
	25A	25A
	30A	30A
	40A	40A
	50A	50A
	N/A	60A
500V	N/A	15A
	N/A	20A
	N/A	25A
	N/A	30A
	N/A	40A
	N/A	50A
N/A	60A	

POSITIONS 3# AND 4# CAN CARRY BUS BAR OR FUSES

PDC CIRCUIT DIAGRAM



## EXCEL|MATE MCMSD - TECHNICAL CHARACTERISTICS



### KEY FEATURE

IP2XB (Socket): Yes

DESCRIPTION	
<p><b>MCMSD</b> is an Electric Vehicle-friendly connector that has been mainly designed for Energy Storage.</p>	
MECHANICAL	
Mating cycles	≥ 50 cycles
ELECTRICAL	
Rated current:	350A@ ambient temperature 70°C
Rated voltage:	1500V (DC)
Insulation resistance:	200 MΩ Min
Dielectric withstanding voltage:	4000V AC
ENVIRONMENTAL	
Ambient temperature:	-40 to 70°C
Operating temperature:	-40 to 125°C
Waterproof (mated):	IP67, IP6K9K
Touch-proof:	IP2XB
STANDARDS	
RoHS	



Receptacle's **cap**

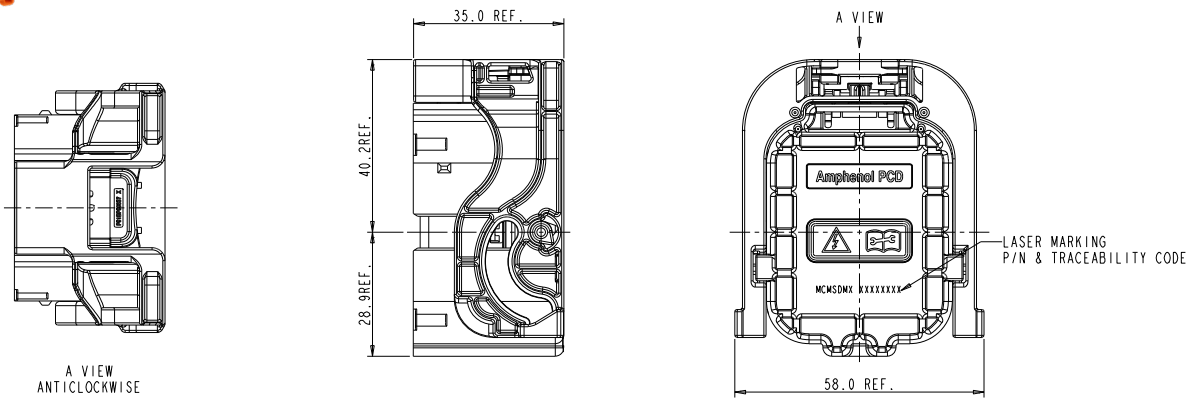
## PRODUCT DIMENSIONS

### PLUG



MCMSD	M	X
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HVIL code  
 0: without HVIL  
 1: with HVIL



### RECEPTACLE

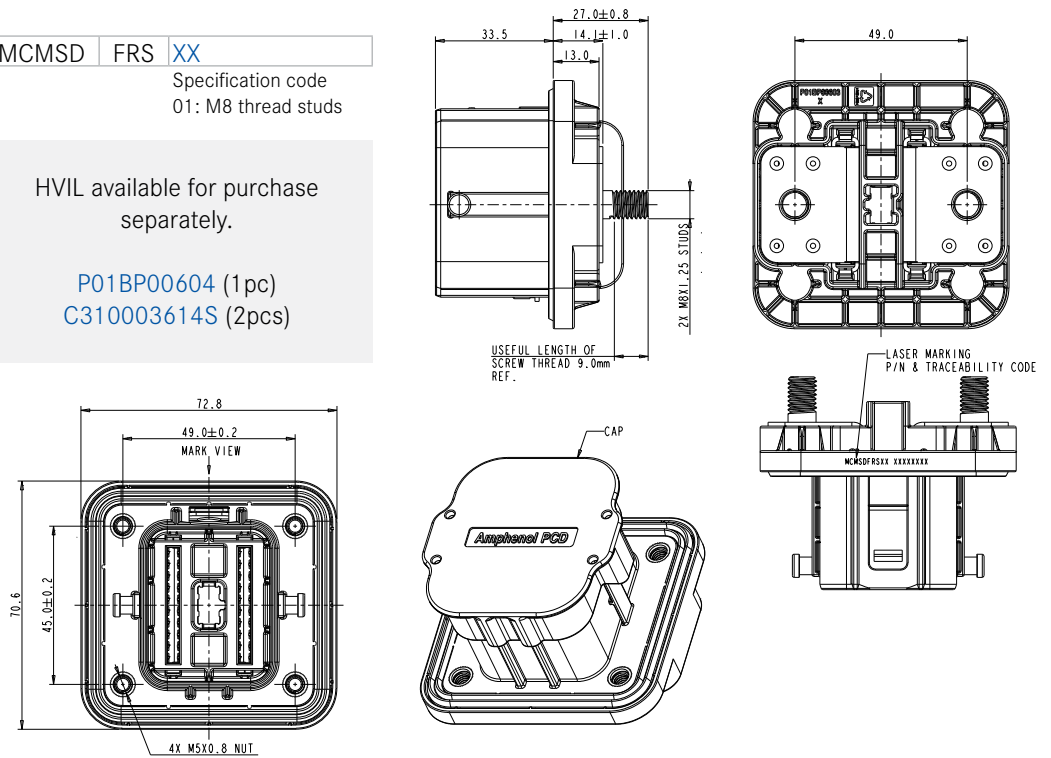


MCMSD	FRS	XX
-------	-----	----

Specification code  
 01: M8 thread studs

HVIL available for purchase separately.

P01BP00604 (1pc)  
 C310003614S (2pcs)



## EXCEL|MATE MINI MSD - TECHNICAL CHARACTERISTICS



### KEY FEATURES

A two-stage lever provides an HVIL time delay

1 x integrated internal HVIL

Unique cooling structure

Dual-channel design lowers temperature rise

No tools required to unmate

Various fuse ratings

Receptacle can be front or rear mounted

### APPLICATION

It is a tool-free solution for disconnecting the internal high voltage battery pack and protecting it from short circuit.

### MECHANICAL

Mating cycles	≥ 50 cycles
---------------	-------------

### ELECTRICAL

Fuse specification	up to 400A
--------------------	------------

With fuse:

Rated current	Current is approximately 1/3 the fuse rating (170A Max)
---------------	---

Rated voltage	600V to 700V DC
---------------	-----------------

With shunt:

Rated current	170A Max
---------------	----------

Rated voltage	1500V DC Max
---------------	--------------

### ENVIRONMENTAL

Protection degree	IP67, IP6K9K (mated)
-------------------	----------------------

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

Storage temperature	-40°C to 85°C
---------------------	---------------

Operating temperature	-40°C to 125°C
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Flammability	UL94V0
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### STANDARDS

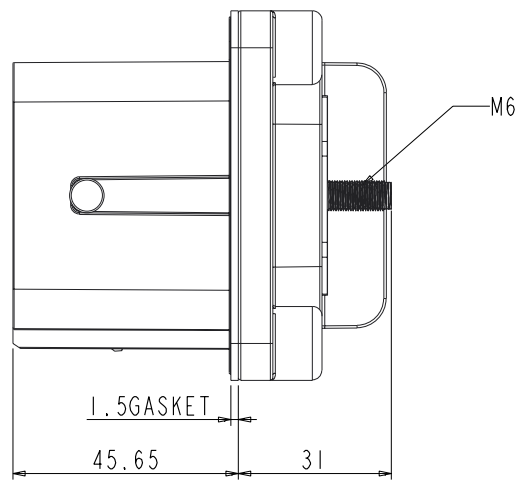
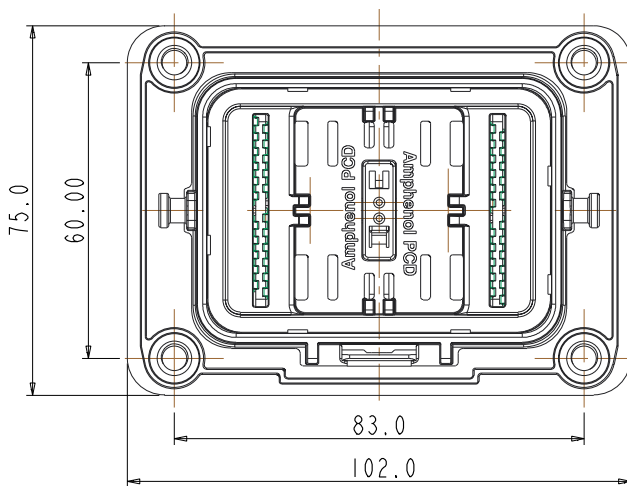
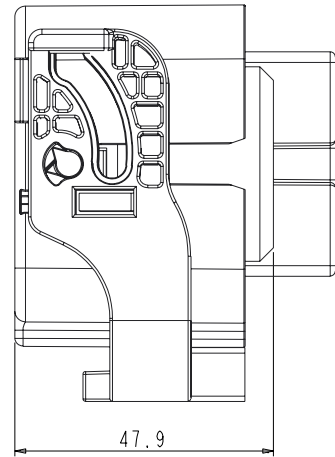
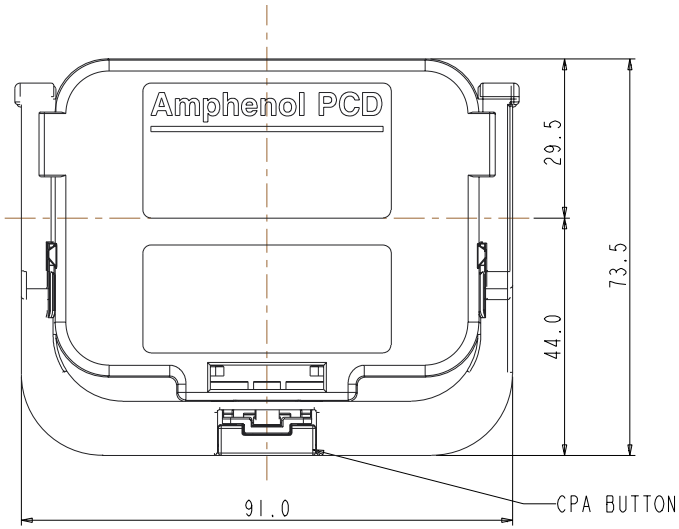
USCAR-2

USCAR-37

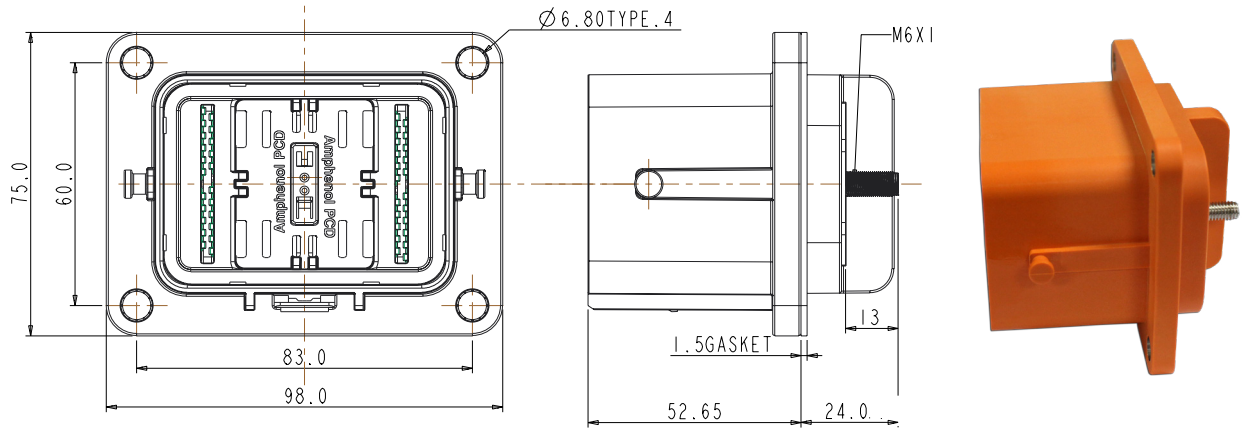
LV-215

RoHS

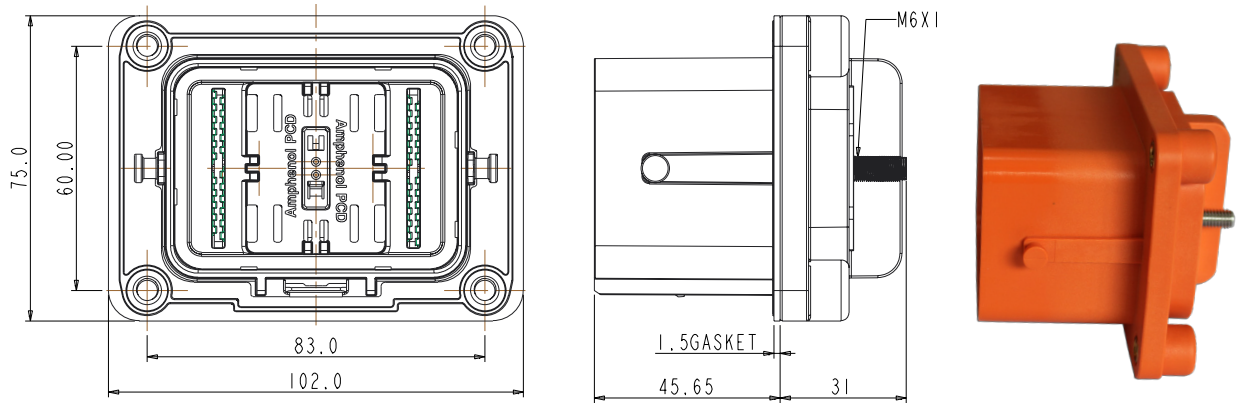
# PRODUCT DIMENSIONS



## FRONT MOUNTED



## REAR MOUNTED



DUST CAP AVAILABLE:  
P/N: C270006809



## HOW TO ORDER - EXCEL|MATE MINI MSD

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### Plug

	MINI MSD	M	200
Shell type:			
<b>M:</b> Plug			
<b>Fuse rating current:</b>			
<b>080:</b> 80A			
<b>100:</b> 100A			
<b>125:</b> 125A			
<b>160:</b> 160A			
<b>200:</b> 200A			
<b>250:</b> 250A			
<b>315:</b> 315A			
<b>350:</b> 350A			
<b>400:</b> 400A			
<b>000:</b> No fuse needed, can directly use the terminal			
Fuse brand :			
<b>Bussmann</b> (by default), other brands, please contact us.			

### Receptacle

	MINI MSD	F	000	F
Shell type:				
<b>F:</b> Receptacle				
Fuse rating current:				
<b>000:</b> No fuse needed, can directly use the terminal				
Flange mounted type :				
<b>F:</b> Front mounted				
<b>R:</b> Rear mounted				

## EXCEL|MATE MINI MSD V - TECHNICAL CHARACTERISTICS



### KEY FEATURES

A two-stage lever provides an HVIL time delay

1 x integrated internal HVIL

Unique cooling structure

Dual-channel design lowers temperature rise

No tools required to unmate

Various fuse ratings

Receptacle can be front or rear mounted

### APPLICATION

It is a tool-free solution for disconnecting the internal high voltage battery pack and protecting it from short circuit.

### MECHANICAL

Mating cycles	≥ 50 cycles
---------------	-------------

### ELECTRICAL

Fuse specification	up to 400A
--------------------	------------

With fuse:

Rated current	Current is approximately 1/3 the fuse rating (220A Max)
---------------	---

Rated voltage	750V DC
---------------	---------

With shunt:

Rated current	220A Max
---------------	----------

Rated voltage	1500V DC Max
---------------	--------------

### ENVIRONMENTAL

Protection degree	IP67, IP6K9K (mated)
-------------------	----------------------

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

Storage temperature	-40°C to 85°C
---------------------	---------------

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

Flammability	UL94V0
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### STANDARDS

USCAR-2

USCAR-37

LV-215

RoHS

## HOW TO ORDER - EXCEL|MATE MINI MSD V

Plug: With fuse

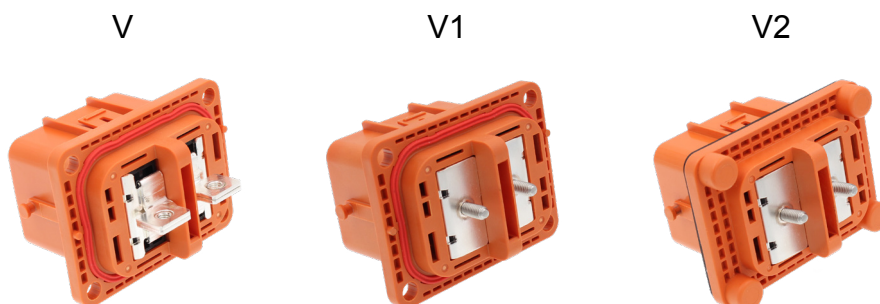
	MINI MSD	M	2002
Shell type:			
<b>M:</b>	Plug		
<b>Fuse rating current:</b>			
<b>0802:</b>	80A		
<b>1002:</b>	100A		
<b>1252:</b>	125A		
<b>1602:</b>	160A		
<b>2002:</b>	200A		
<b>2502:</b>	250A		
<b>3152:</b>	315A		
<b>3502:</b>	350A		
<b>4002:</b>	400A		
Fuse brand:	<b>Bussmann</b> (by default), other brands, please contact us.		

Plug: With shunt

	MINI MSD	VM	000
Shell type:			
<b>VM:</b>	Plug, shunt		
<b>000:</b>	No fuse needed, can directly use the terminal		

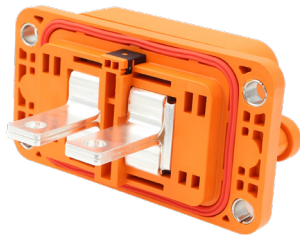
Receptacle

	MINI MSD	V	F	000	F
<b>V:</b>	Built-in gasket seal, row connection				
<b>V1:</b>	Built-in gasket seal, stud connection				
<b>V2:</b>	Flat gasket seal, stud connection				
Shell type:					
<b>F:</b>	Receptacle				
Fuse rating current:	<b>000:</b> No fuse needed, can directly use the terminal				
Flange mounted type:					
<b>F:</b>	Front mounted				
<b>R:</b>	Rear mounted (only available for V2)				







## EXCEL|MATE MINI MSD FUSE BOX - TECHNICAL CHARACTERISTICS

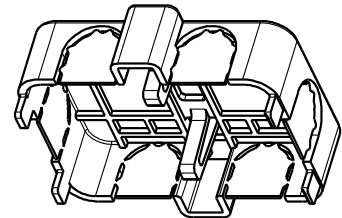
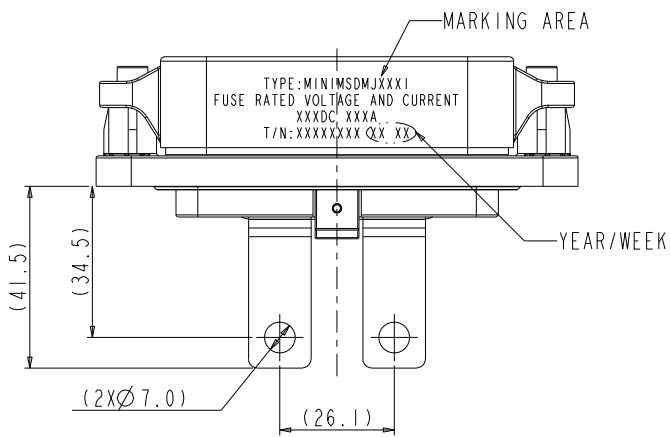
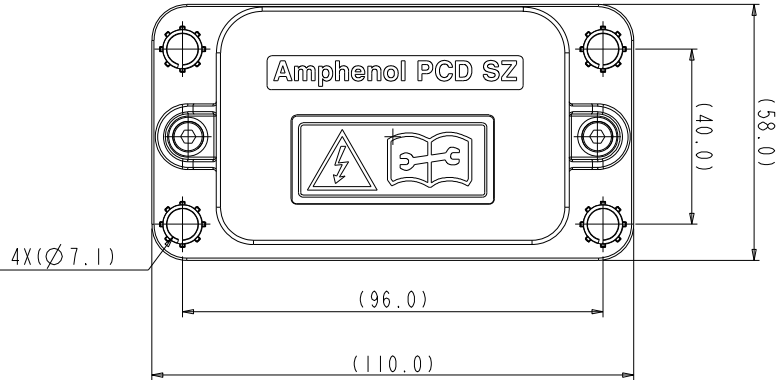


### KEY FEATURES

Small in size  
Removable housing

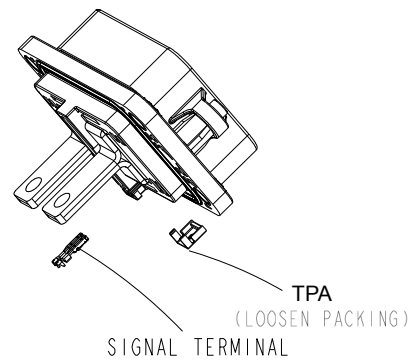
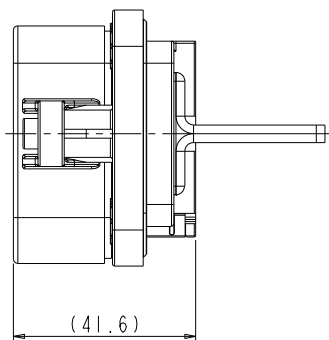
DESCRIPTION	
<ul style="list-style-type: none"> <li>• Small in size</li> <li>• Removable housing</li> </ul>	
ELECTRICAL	
With fuse	
 <b>Version T</b> (plugged version):	
80A to 315A	700V DC
350A & 400A	600V DC
 <b>Version J</b> (screwed version):	
80A to 350A	750V DC
400A	700V DC
ENVIRONMENTAL	
Protection degree	IP67
MATERIAL	
Plastic shell material	PA66+GF
Terminal Material	Copper Alloy
Seal ring material	Silicone rubber

## PRODUCT DIMENSIONS



P/N: C220006538

Protective cover for  
MINI MSD T available  
to purchase separately.



Signal Terminal (C310003614S) is available for purchase separately.

## HOW TO ORDER - EXCEL|MATE MINI MSD



### **Version T** (plugged version):

	MINI MSD T	080	X
<b>Fuse rating current:</b>			
080: 80A			
100: 100A			
125: 125A			
160: 160A			
200: 200A			
250: 250A			
315: 315A			
350: 350A			
400: 400A			
X: Fuse Brand			



### **Version J** (screwed version):

	MINI MSD J	080	X
<b>Fuse rating current:</b>			
080: 80A			
100: 100A			
125: 125A			
160: 160A			
200: 200A			
250: 250A			
315: 315A			
350: 350A			
400: 400A			
X: Fuse Brand			



### KEY FEATURES

A two-stage lever provides an HVIL time delay

2 x integrated internal HVIL

Unique cooling structure

Dual-channel design lowers temperature rise

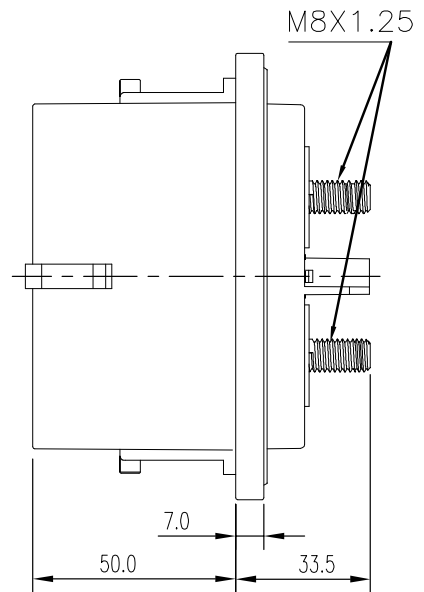
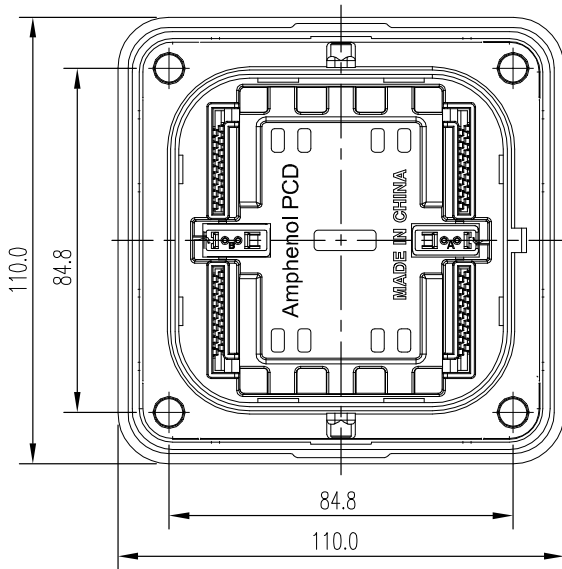
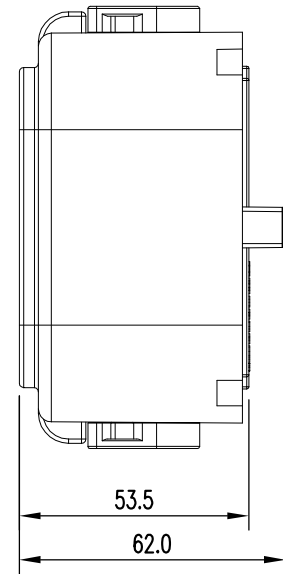
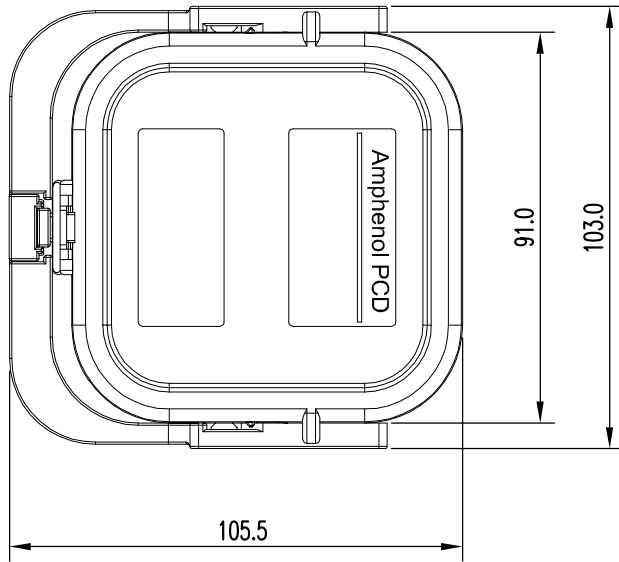
No tools required to unmate

Various fuse ratings

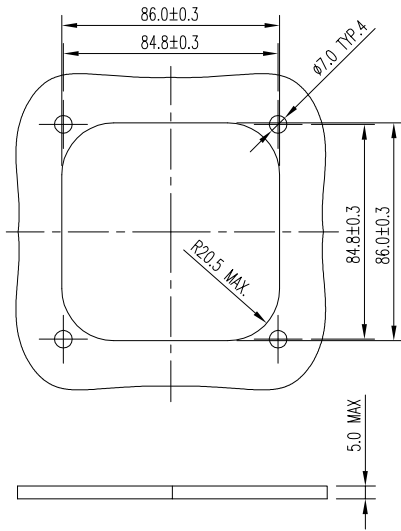
Receptacle can be front or rear mounted

APPLICATION	
It is a tool-free solution for disconnecting the internal high voltage battery pack and protecting it from short circuit.	
MECHANICAL	
Mating cycles	≥ 50 cycles
ELECTRICAL	
Fuse specification	up to 630A
With fuse:	
Rated current	Current is approximately 1/3 the fuse rating
Rated voltage	500V DC to 600V DC
With shunt:	
Rated current	260A Max @ Ambient 70°C
Rated voltage	1000V DC Max
ENVIRONMENTAL	
Protection degree	IP67, IP6K9K (mated)
Ambient temperature	-40°C to 70°C
Storage temperature	-40°C to 85°C
Operating temperature	-40°C to 125°C
Flammability	UL94V0
STANDARDS	
USCAR-2	
USCAR-37	
LV-215	
RoHS	

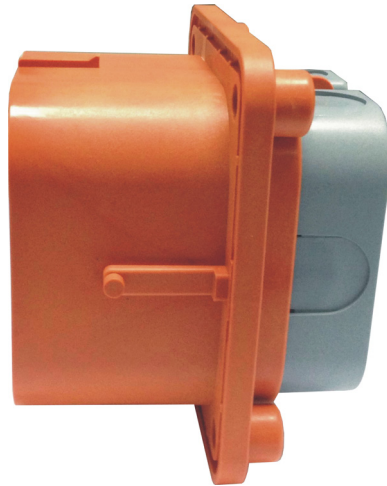
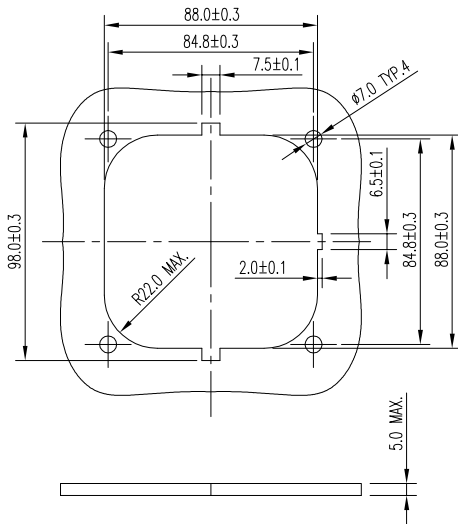
# PRODUCT DIMENSIONS



## FRONT MOUNTED



## REAR MOUNTED



DUST CAP AVAILABLE  
P/N: C270006810



Plug

	<b>MSD</b>	<b>M</b>	<b>200</b>	<b>1</b>
Shell type:				
<b>M:</b> Plug				
<b>Fuse rating current:</b>				
<b>200:</b> 200A				
<b>250:</b> 250A				
<b>315:</b> 315A				
<b>350:</b> 350A				
<b>400:</b> 400A				
<b>450:</b> 450A				
<b>500:</b> 500A				
<b>550:</b> 550A				
<b>630:</b> 630A				
<b>000:</b> No fuse needed, can directly use the terminal				
Fuse brand:				
<b>1:</b> Ferraz				
<b>2:</b> Bussmann				

Receptacle

	<b>MSD</b>	<b>F</b>	<b>000</b>	<b>F</b>
Shell type:				
<b>F:</b> Receptacle				
<b>Fuse rating current:</b>				
<b>000:</b> No fuse needed, can directly use the terminal				
Flange mounted type:				
<b>F:</b> Front mounted				
<b>R:</b> Rear mounted				

## EXCEL|MATE MSD V - TECHNICAL CHARACTERISTICS



MSD V is an upgraded version of the standard MSD.

It provides a rated voltage of 800V and a plug with integrated fuse. The other parameters remain unchanged.

### KEY FEATURES

A two-stage lever provides an HVIL time delay

2 x integrated internal HVIL

Unique cooling structure

Dual-channel design lowers temperature rise

No tools required to unmate

Various fuse ratings

Receptacle can be front or rear mounted

APPLICATION	
It is a tool-free solution for disconnecting the internal high voltage battery pack and protecting it from short circuit.	
MECHANICAL	
Mating cycles	≥ 50 cycles
ELECTRICAL	
Fuse specification	up to 630A
With fuse:	
Rated current	Current is approximately 1/3 the fuse rating
Rated voltage	800V DC
With shunt:	
Rated current	260A Max @ Ambient 70°C
Rated voltage	1000V DC Max
ENVIRONMENTAL	
Protection degree	IP67, IP6K9K (mated)
Ambient temperature	-40°C to 70°C
Storage temperature	-40°C to 85°C
Operating temperature	-40°C to 125°C
Flammability	UL94V0
STANDARDS	
USCAR-2	
USCAR-37	
LV-215	
RoHS	



Plug

	<b>MSD V</b>	<b>M</b>	<b>200</b>
Shell type:			
<b>M:</b>	Plug		
<b>Fuse rating current:</b>			
<b>200:</b>	200A		
<b>250:</b>	250A		
<b>315:</b>	315A		
<b>350:</b>	350A		
<b>400:</b>	400A		
<b>450:</b>	450A		
<b>500:</b>	500A		
<b>550:</b>	550A		
<b>630:</b>	630A		
<b>000:</b>	No fuse needed, can directly use the terminal		
Fuse brand:			
<b>Bussmann</b>	(by default), other brands, please contact us.		

Receptacle

	<b>MSD V</b>	<b>1</b>	<b>F</b>	<b>000</b>	<b>F</b>
Contact:					
<b>1:</b>	Improved contact conductivity				
Shell type:					
<b>F:</b>	Receptacle				
Fuse rating current:					
<b>000:</b>	No fuse needed, can directly use the terminal				
Flange mounted type:					
<b>F:</b>	Front mounted				
<b>R:</b>	Rear mounted				

## EXCEL|MATE MSD XL - TECHNICAL CHARACTERISTICS

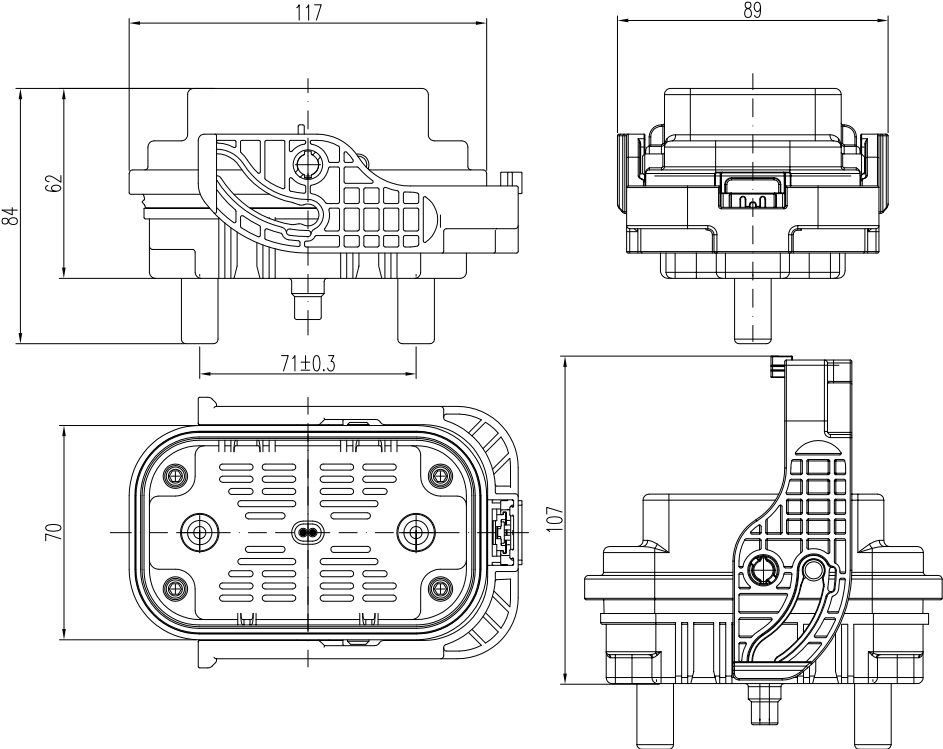


### KEY FEATURES

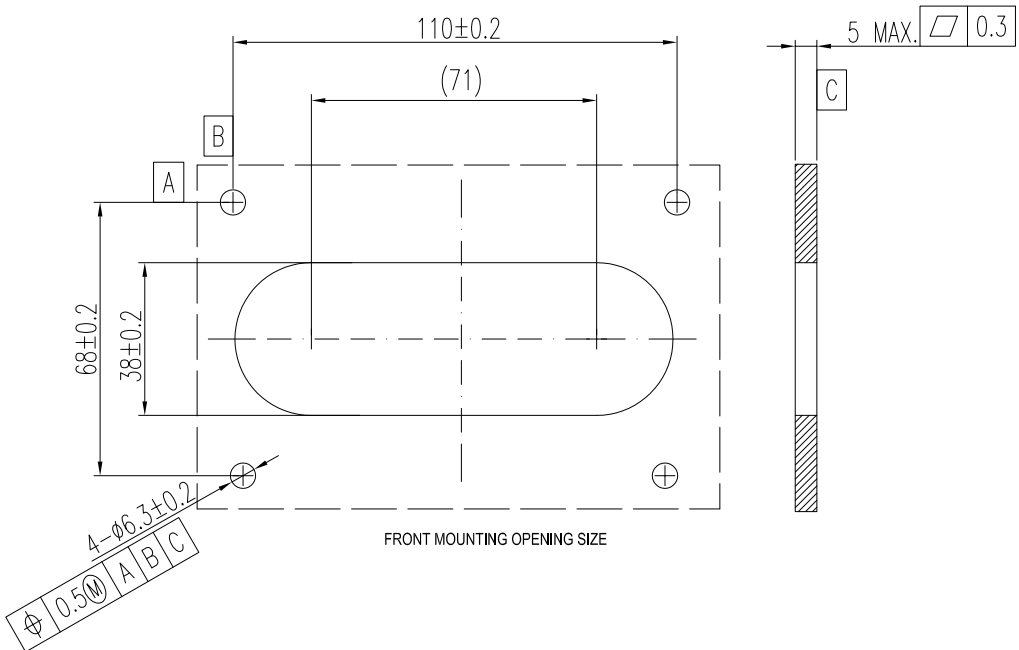
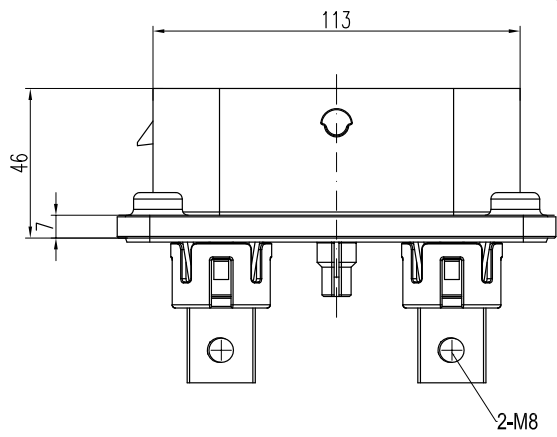
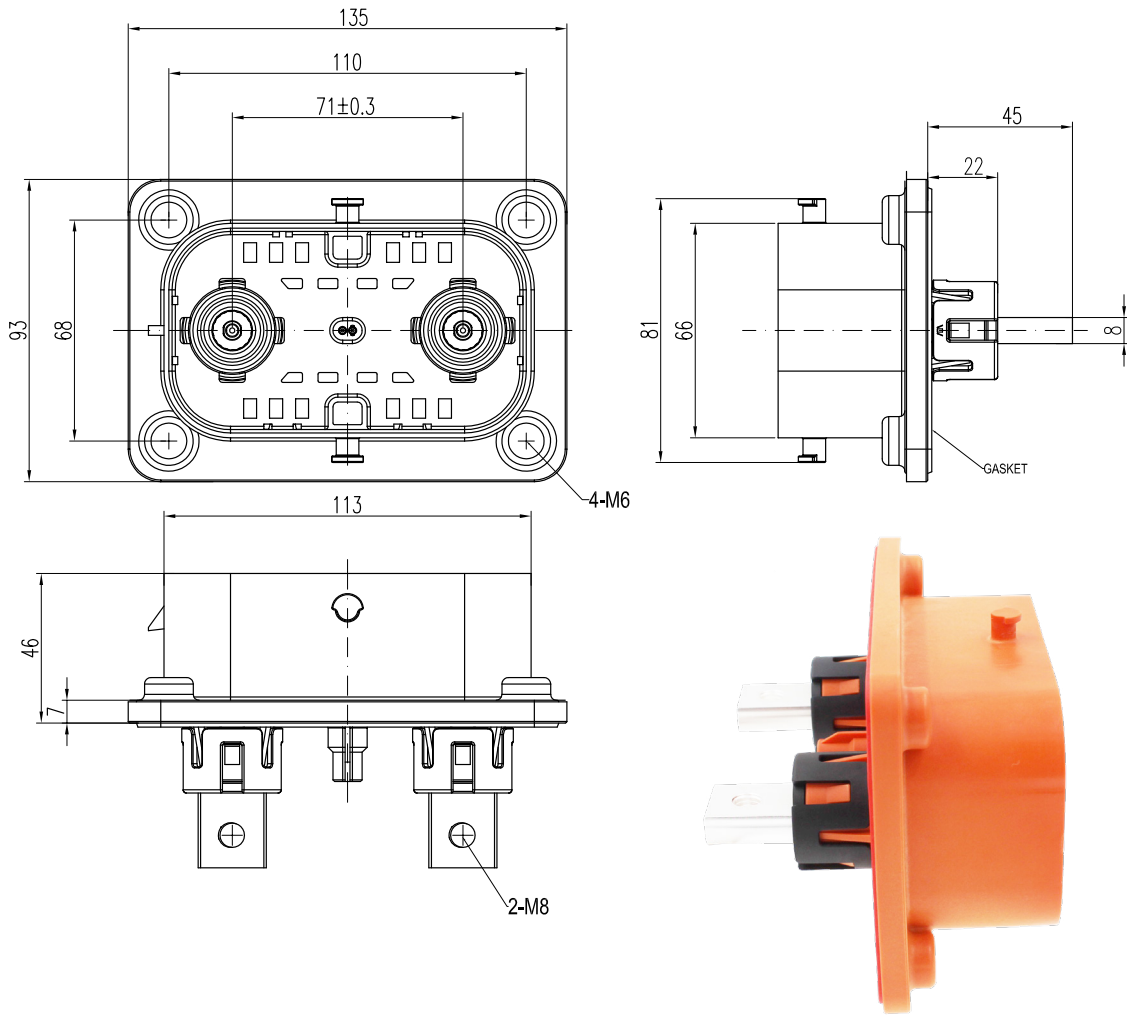
- 1 x integrated internal HVIL
- Unique cooling structure
- High current contacts with Amphenol Radsok technology
- No tools required to unmate
- Various fuse ratings
- Receptacle can be front or rear mounted

APPLICATION	
It is a tool-free solution for disconnecting the internal high voltage battery pack and protecting it from short circuit.	
MECHANICAL	
Mating cycles	≥ 500 cycles
ELECTRICAL	
Fuse specification	up to 630A
With fuse:	
Rated current	300A
Rated voltage	1000V DC
With shunt:	
Rated current	350A
Rated voltage	1500V DC Max
ENVIRONMENTAL	
Protection degree	IP67, IP6K9K (mated)
Ambient temperature	-40°C to 70°C
Storage temperature	-40°C to 85°C
Operating temperature	-40°C to 125°C
Flammability	UL94V0
STANDARDS	
USCAR-2	
USCAR-37	
LV-215	
RoHS	

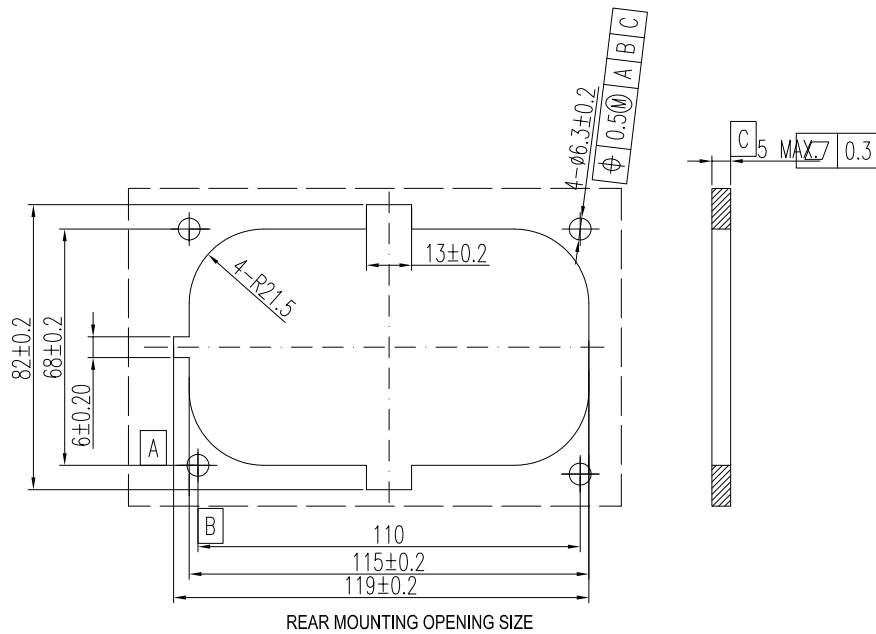
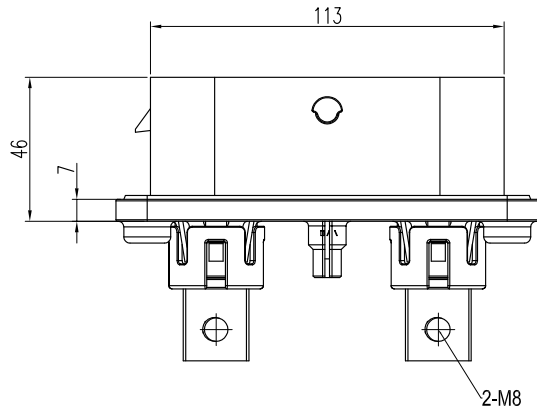
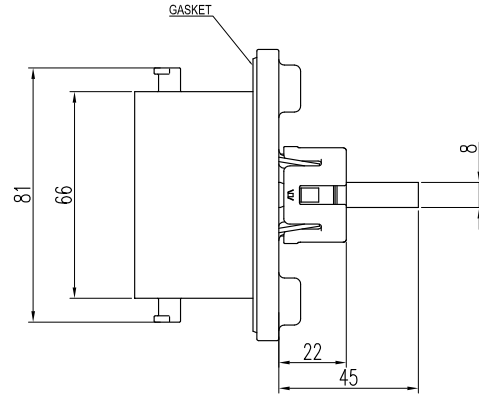
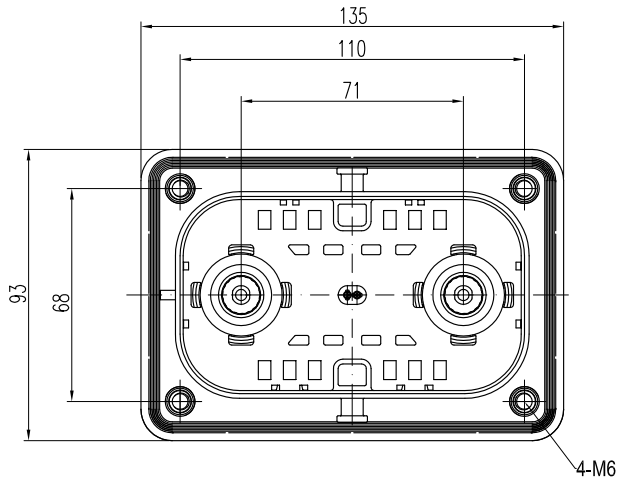
PRODUCT DIMENSIONS



FRONT MOUNTED



REAR MOUNTED



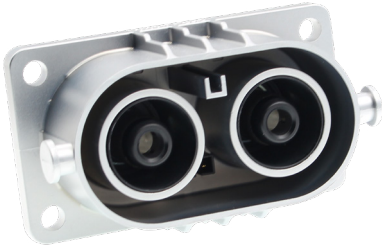
Plug

	<b>MSD XL</b>	<b>M</b>	<b>200</b>
Shell type:			
<b>M:</b> Plug			
<b>Fuse rating current:</b>			
<b>160:</b> 160A			
<b>200:</b> 200A			
<b>250:</b> 250A			
<b>315:</b> 315A			
<b>350:</b> 350A			
<b>400:</b> 400A			
<b>450:</b> 450A			
<b>500:</b> 500A			
<b>550:</b> 550A			
<b>630:</b> 630A			
<b>000:</b> No fuse needed, can directly use the terminal			
Fuse brand :			
<b>Bussmann</b> (by default), other brands, please contact us.			

Receptacle

	<b>MSD XL</b>	<b>F</b>	<b>000</b>	<b>F</b>
Shell type:				
<b>F:</b> Receptacle				
Fuse rating current:				
<b>000:</b> No fuse needed, can directly use the terminal				
Flange mounted type:				
<b>F:</b> Front mounted				
<b>R:</b> Rear mounted				

## EXCEL|MATE CHD 2-PIN - TECHNICAL CHARACTERISTICS



### KEY FEATURE

IP67 (unmated sockets): Yes

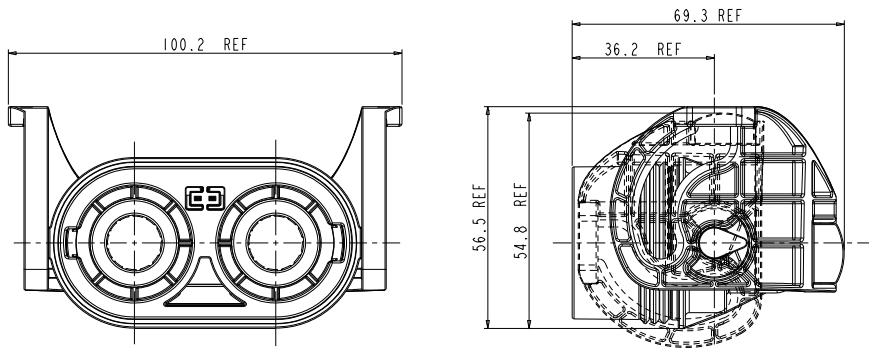
DESCRIPTION	
<b>CHD</b> has been designed for high-power charging in harsh environments.	
MECHANICAL	
Mating cycles	≥ 50 cycles
ELECTRICAL	
Rated Current:	500A
Rated voltage:	1500V (DC)
Shielding:	Yes
ENVIRONMENTAL	
Operating temperature:	-40 to 125°C
Ambient temperature:	-40 to 70°C
Waterproof (mated):	IP67, IP6K9K
IP67 (unmated sockets):	Yes
Touch-proof:	IP2XB
Salt spray:	500h Min
MATERIAL	
Housing:	Alluminium alloy
Contacts:	copper alloy, silver plating

## PRODUCT DIMENSIONS

### PLUG



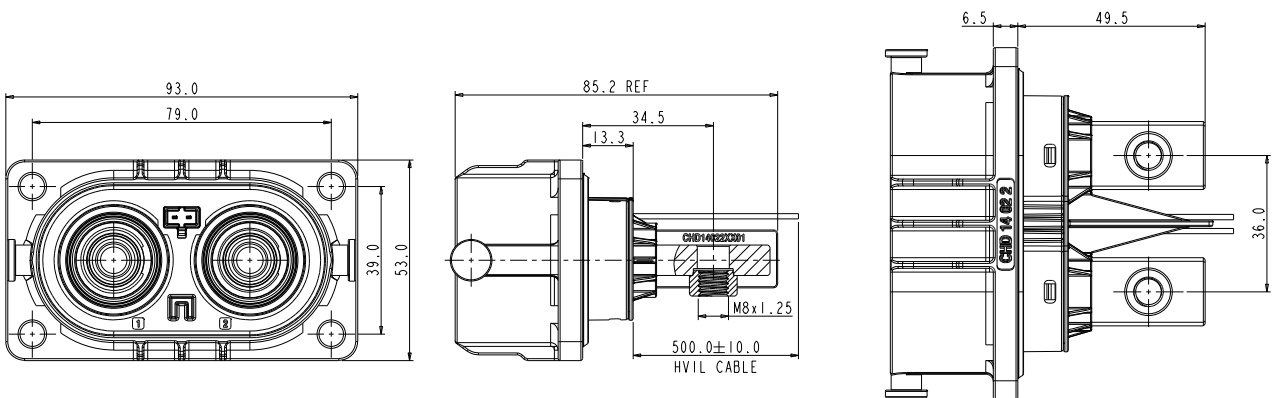
CHD 14 06 2 N 1 1 SC	▶ with power terminal & with HVIL
CHD 14 06 2 N 0 0 SC	▶ without power terminal & without HVIL



### RECEPTACLE



CHD	14	02	2	X	X	01
				A: coding A	0: without HVIL	
				B: coding B	1: with HVIL	
				C: coding C		





## Amphenol PCD Shenzhen

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Amphenol PCD Shenzhen reserves the right to clarify this catalog.