



# EXCEL|MATE MSD

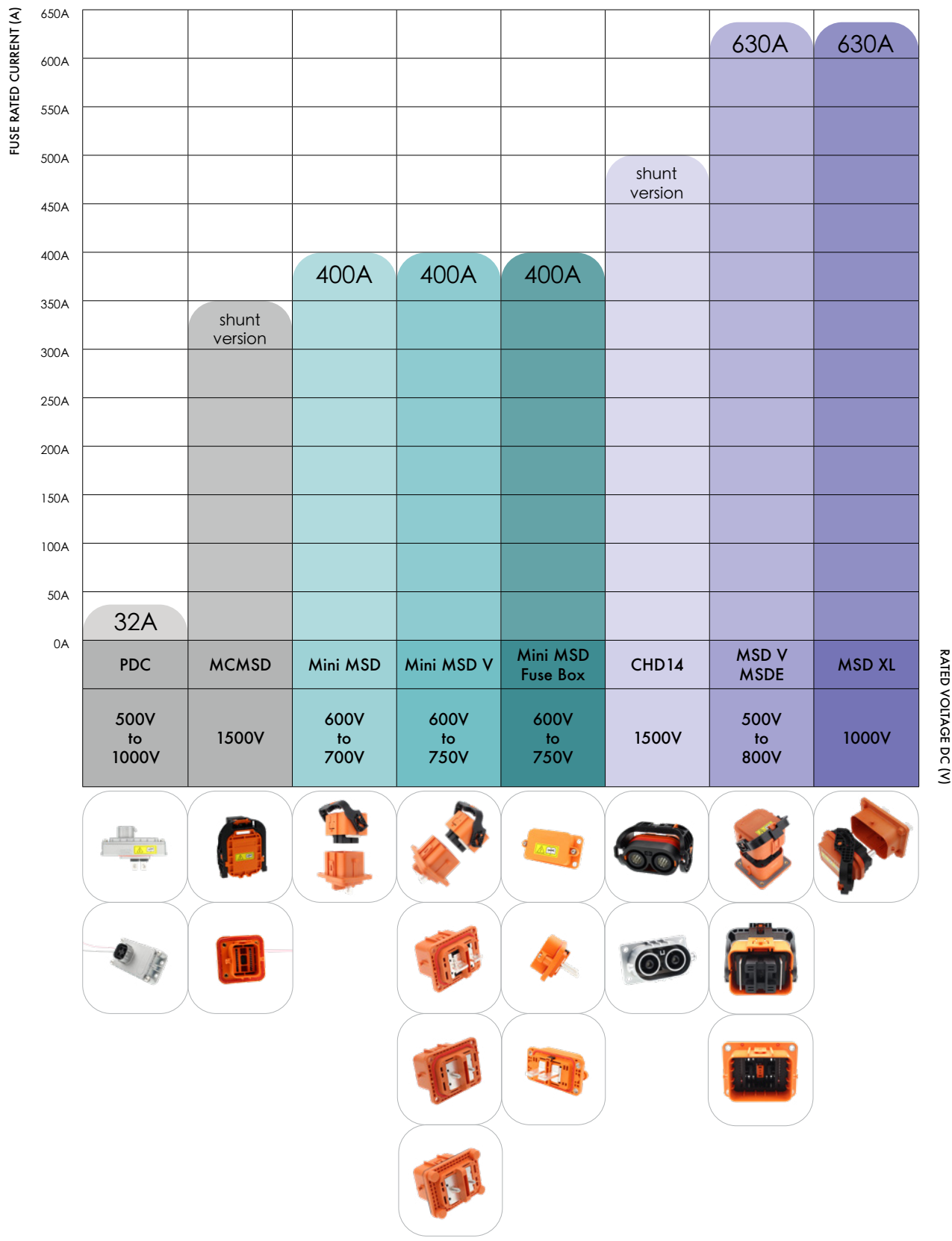
Manual Service Disconnect

## CONTENTS

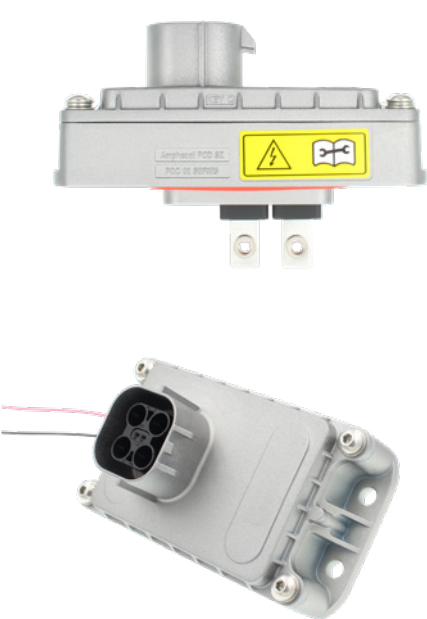
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PDC .....	3
PRODUCT DIMENSIONS .....	4
HOW TO ORDER   PDC .....	7
MCMSD .....	8
PRODUCT DIMENSIONS .....	9
MINI MSD .....	10
PRODUCT DIMENSIONS .....	11
HOW TO ORDER   MINI MSD .....	13
MSDE .....	14
PRODUCT DIMENSIONS & HOW TO ORDER   MSDE .....	15
MINI MSD V .....	16
HOW TO ORDER   MINI MSD V .....	17
MINI MSD FUSE BOX .....	18
PRODUCT DIMENSIONS .....	19
HOW TO ORDER   MINI MSD FUSE BOX .....	20
MSD .....	21
PRODUCT DIMENSIONS .....	22
HOW TO ORDER   MSD .....	24
MSD V .....	25
HOW TO ORDER   MSD V .....	26
MSD XL .....	27
PRODUCT DIMENSIONS .....	28
HOW TO ORDER   MSD XL .....	31
CHD SERIES - CHD14 2-PIN SHUNT .....	32

EXCEL|MATE MSD



EXCEL|MATE PDC - TECHNICAL CHARACTERISTICS



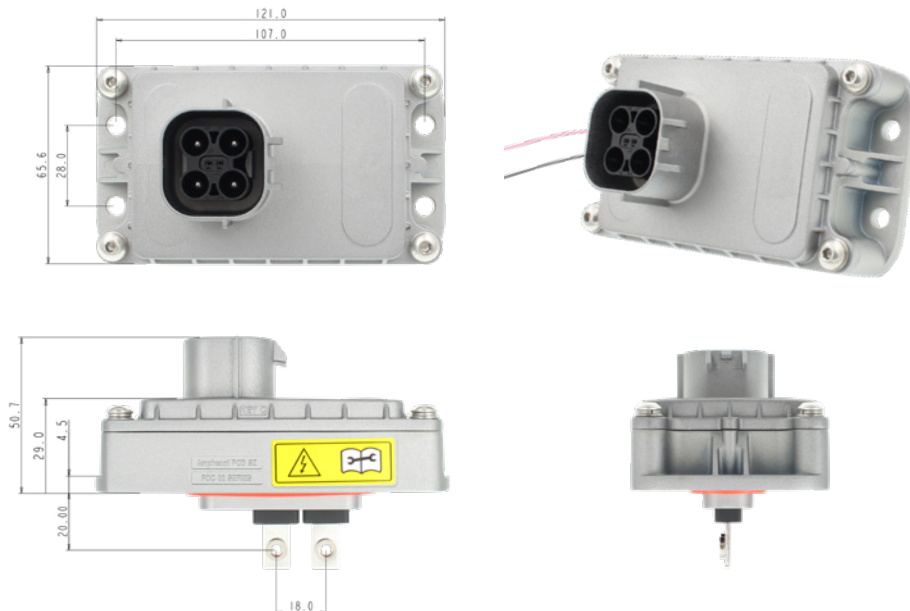
KEY FEATURE

Waterproof (unmated socket): IP67

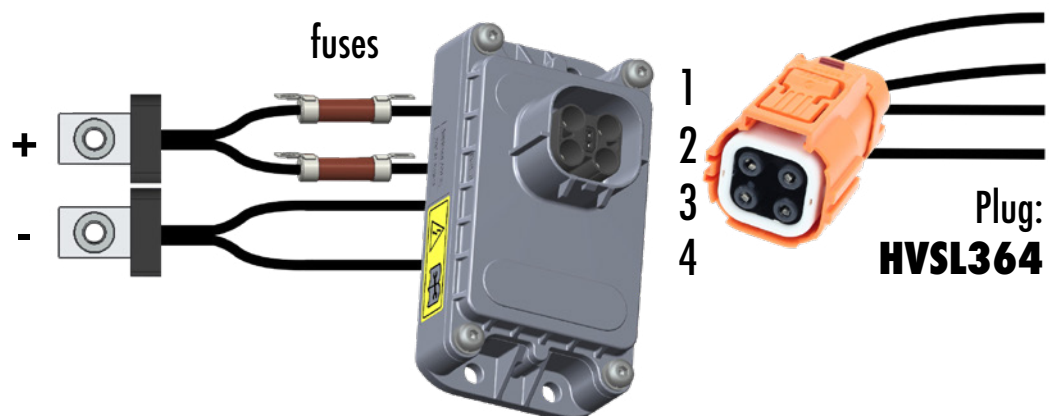
DESCRIPTION	
This Power Distribution Connector (PDC) finds its best use in the case where the PDU is already fully integrated into the Battery Pack. Without a PDC, we would need to entirely disassemble the Battery Pack to replace a blown fuse. However, using a PDC with removable fuses makes the replacement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



## 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!

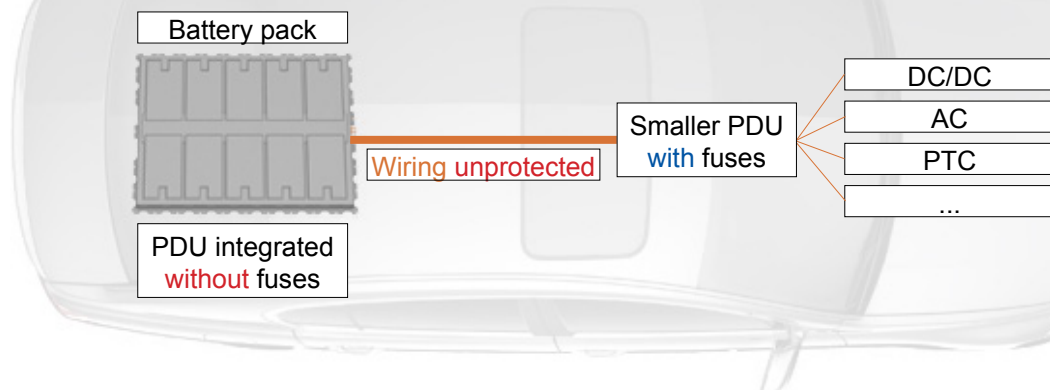


## Basic structure



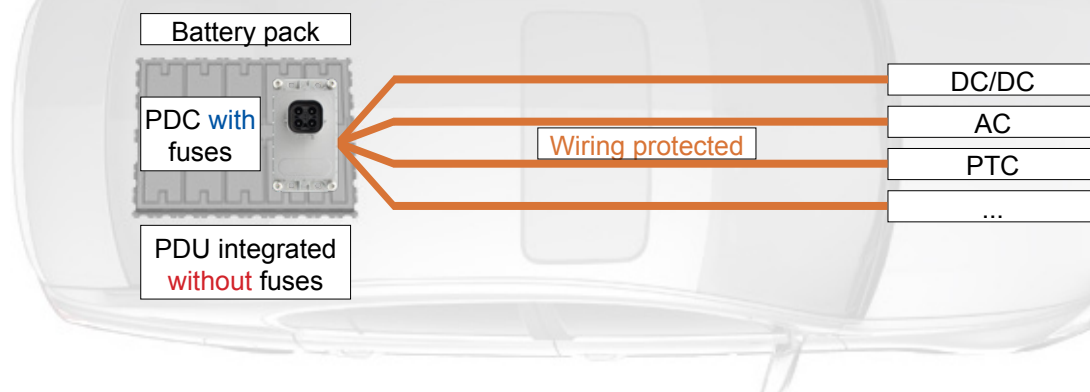
This structure **safely** secures the wiring, but once a fuse blows, its replacement requires a **complex** disassembly of the whole battery pack.

## Workaround structure



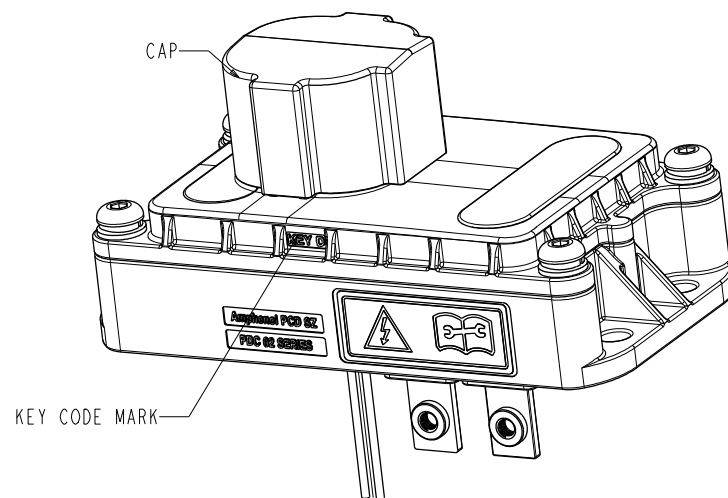
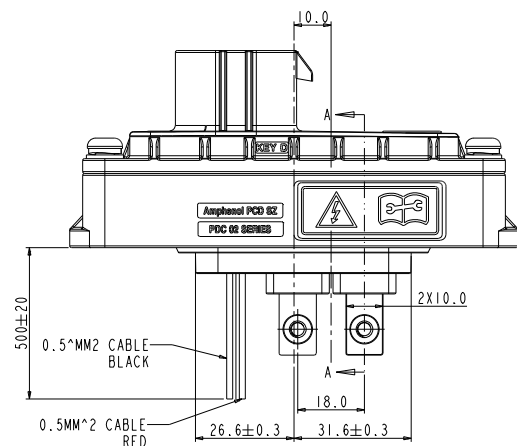
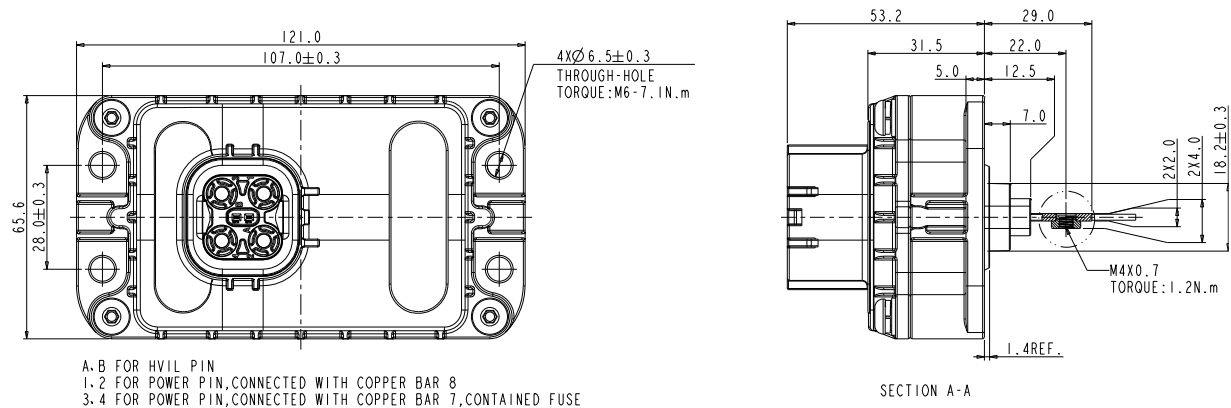
This workaround structure allows for an **easier** replacement of the fuses, which are placed in an external additional PDU. However, the wiring between the battery pack and this added PDU is **unprotected**.

## 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



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

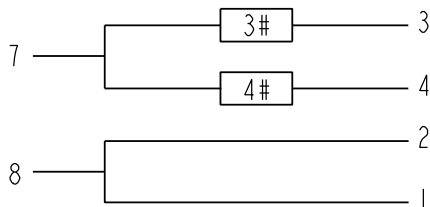
**Fuse brand:**  
S: Sinofuse  
B: Bussmann

**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
		20A
		25A
		30A
		40A
		50A
		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	
MCMSD is an Electric Vehicle-friendly connector that has been mainly designed for Energy Storage.	
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**

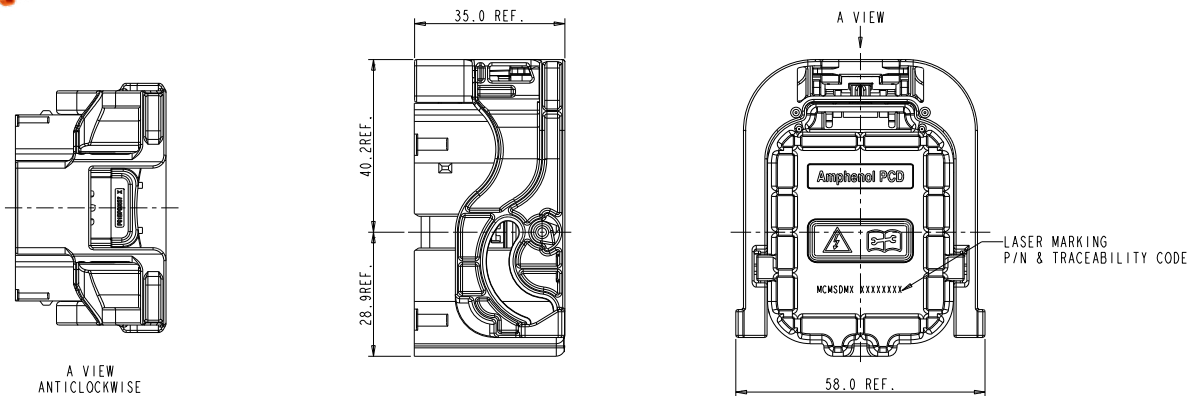
PRODUCT DIMENSIONS

PLUG



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



RECEPTACLE

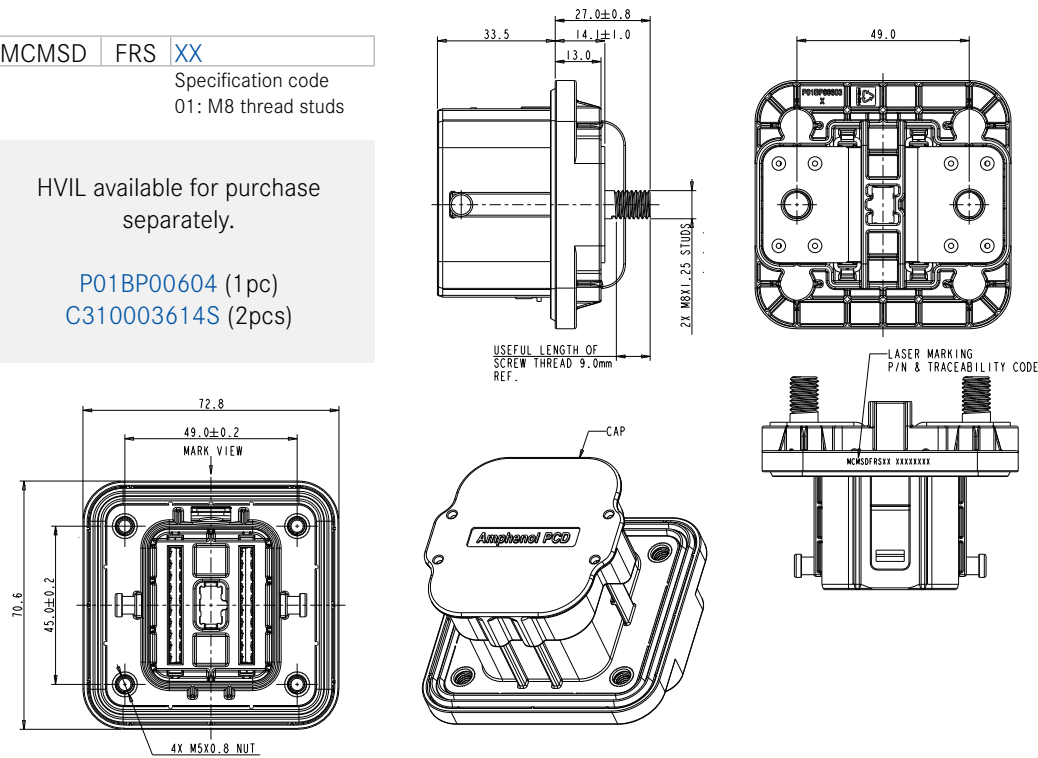


MCMSD	FRS	XX
-------	-----	----

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
-----------------------	----------------

Flammability	UL94V0
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### STANDARDS

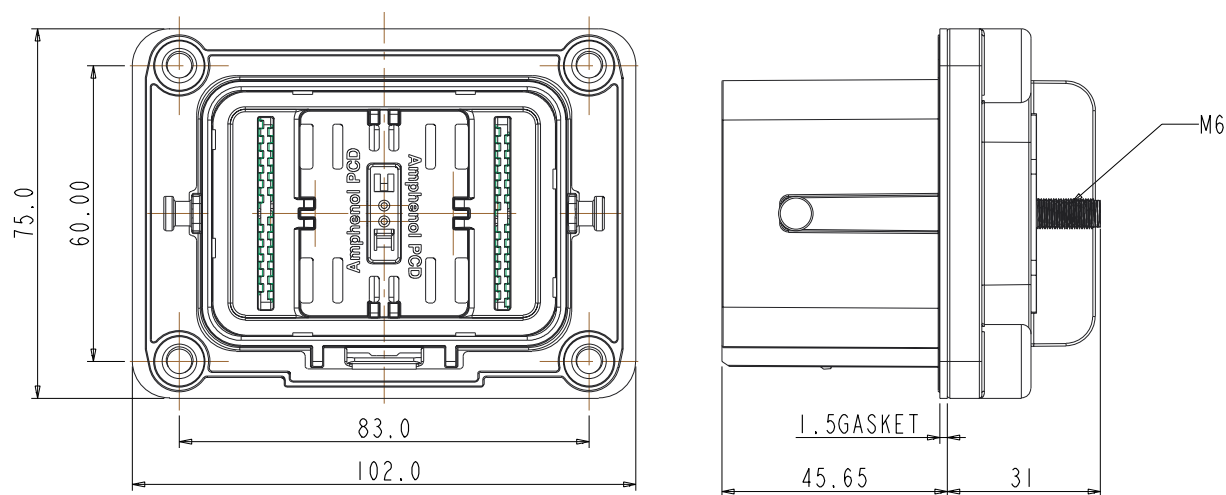
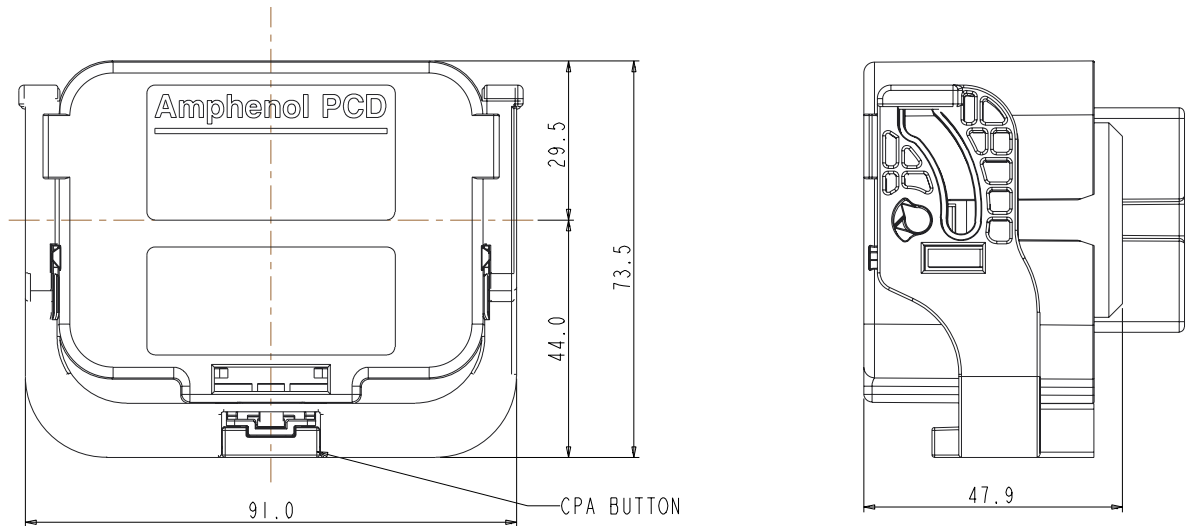
USCAR-2
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USCAR-37
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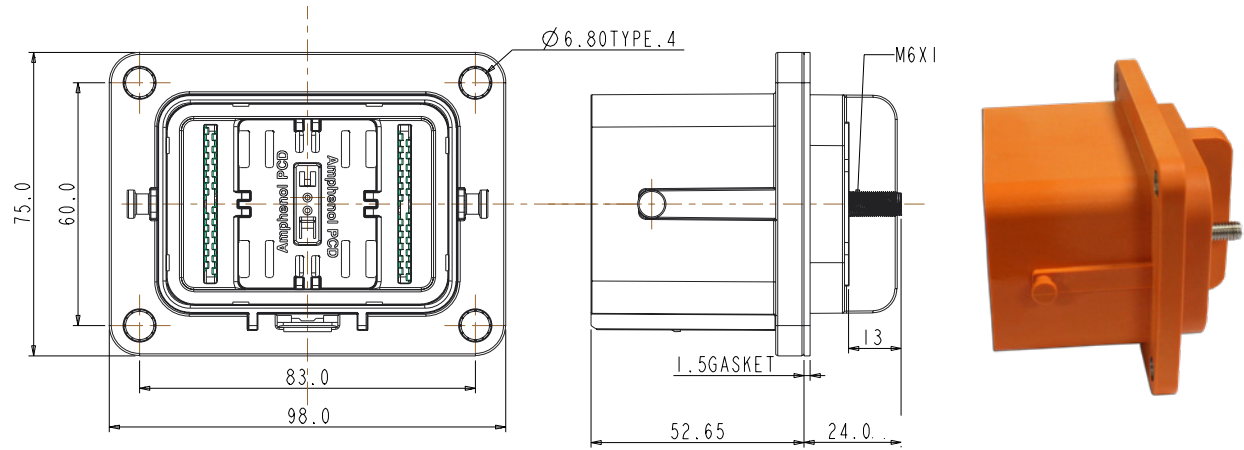
LV-215
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RoHS
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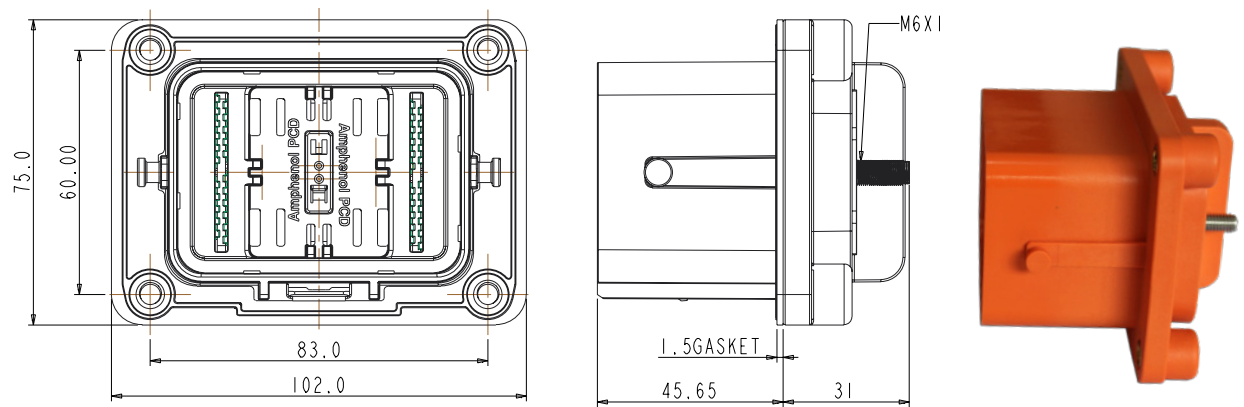
PRODUCT DIMENSIONS



FRONT MOUNTED



REAR MOUNTED



DUST CAP AVAILABLE:  
P/N: C270006809



Plug

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

Receptacle

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



## EXCEL|MATE MSDE - 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 630A
--------------------	------------

With fuse:

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

Rated voltage	500V DC
---------------	---------

With shunt:

Rated current	350A Max
---------------	----------

Rated voltage	500V 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

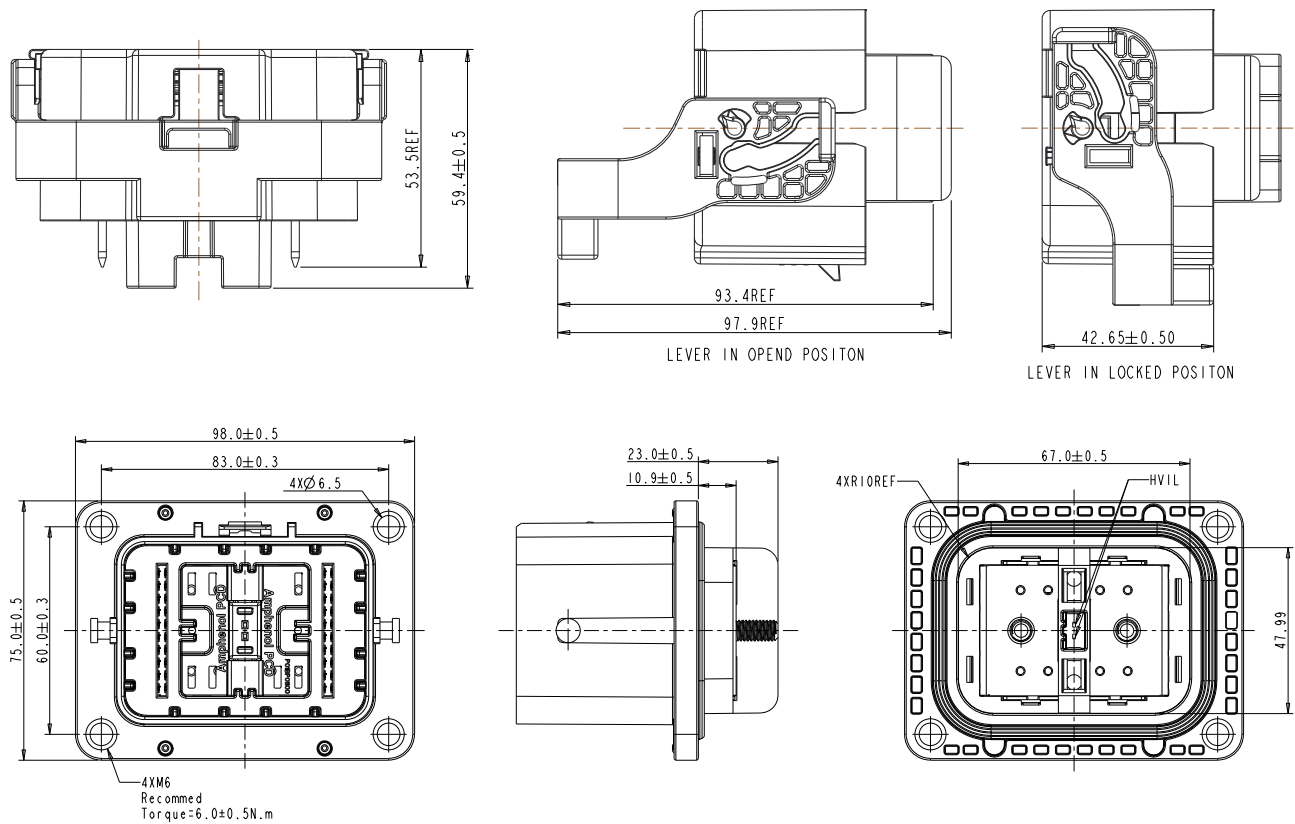
USCAR-2
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USCAR-37
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LV-215
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RoHS
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PRODUCT DIMENSIONS



HOW TO ORDER - EXCEL|MATE MSDE

Plug

	MSDE	XXX	X
<b>Fuse rating current:</b>			
500: Fused 500A			
630: Fused 630A			
000: Shunt (unfused)			
<b>Fuse manufacturer:</b>			
0: Shunt (unfused)			
1: Fuse from a different manufacturer			
2: Fuse from a different manufacturer			

Receptacle: Front Mounted Socket

	MSDEF00	F
<b>Flange mounted type:</b>		
F: Front Mounting		

## 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
--------------	--------

### STANDARDS

USCAR-2
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USCAR-37
----------

LV-215
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RoHS
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HOW TO ORDER - EXCELMATE MINI MSD V

Plug: With fuse

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

Plug: With shunt

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

Receptacle

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

V



V1



V2





EXCEL|MATE MINI MSD FUSE BOX - TECHNICAL CHARACTERISTICS

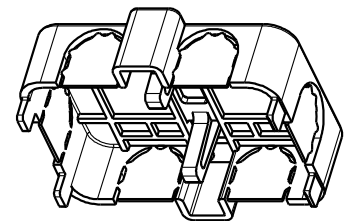
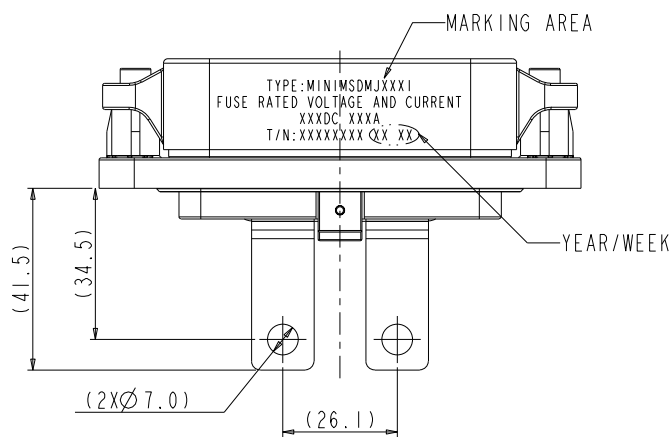
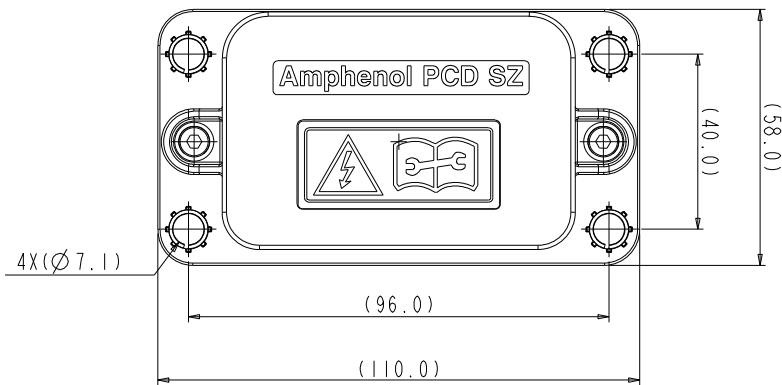


KEY FEATURES

Small in size  
Removable housing

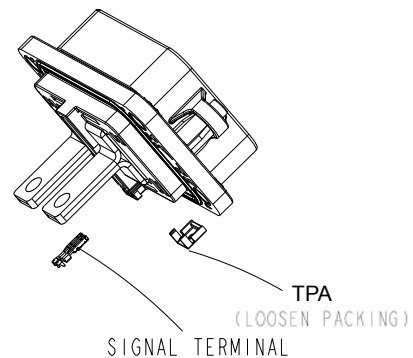
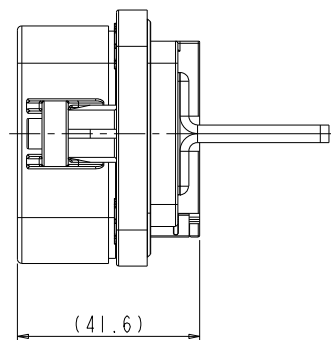
DESCRIPTION	
<ul style="list-style-type: none"><li>• Small in size</li><li>• Removable housing</li></ul>	
ELECTRICAL	
With fuse	
 <b>Version T</b> (plugged version):	
80A to 315A	700V DC
350A & 400A	600V DC
 <b>Version J</b> (screwed version):	
80A to 350A	750V DC
400A	700V DC
ENVIRONMENTAL	
Protection degree	IP67, IP6K9K (mated)
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 - EXCELMATE MINI MSD



**Version T** (plugged version):

MINI MSD T	080	1
<b>Fuse rating current:</b>		
080: 80A		
100: 100A		
125: 125A		
160: 160A		
200: 200A		
250: 250A		
315: 315A		
350: 350A		
400: 400A		
1: Bussmann		
2: Sinofuse		



**Version J** (screwed version):

MINI MSD J	080	4
<b>Fuse rating current:</b>		
080: 80A		
100: 100A		
125: 125A		
160: 160A		
200: 200A		
250: 250A		
315: 315A		
350: 350A		
400: 400A		
4: Sinofuse		

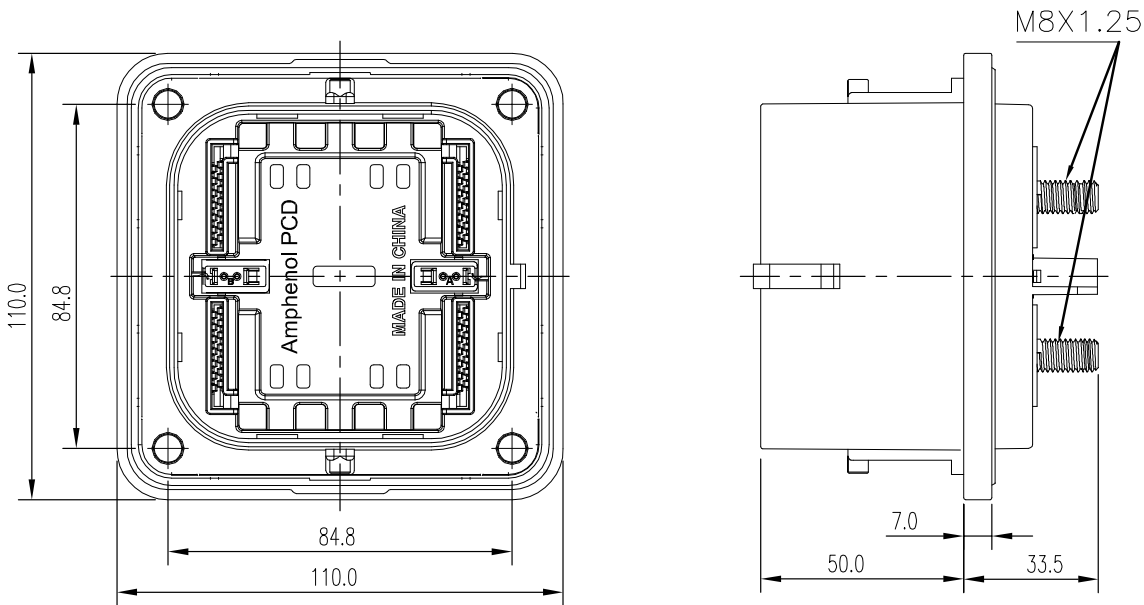
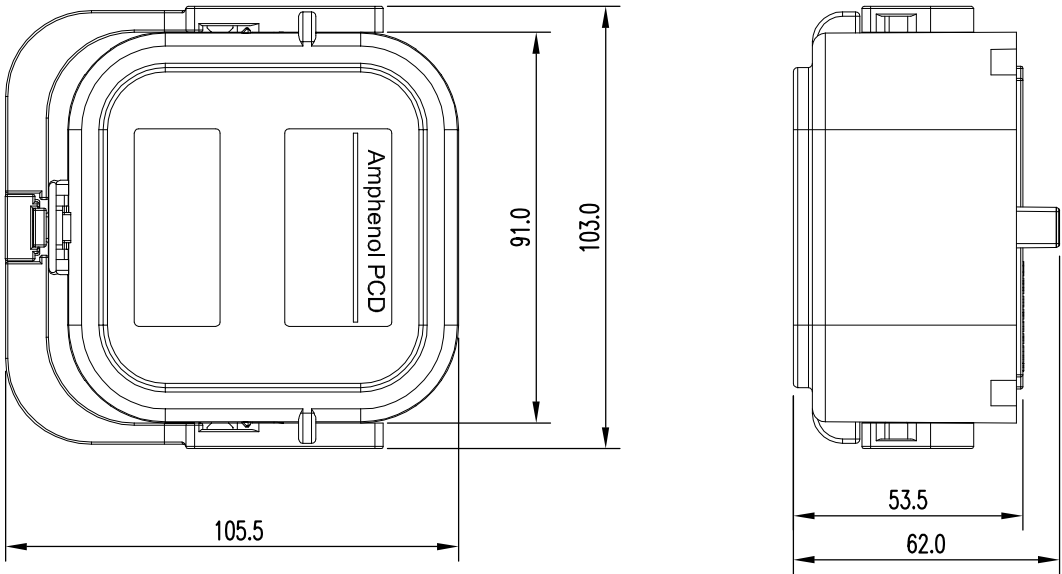


### KEY FEATURES

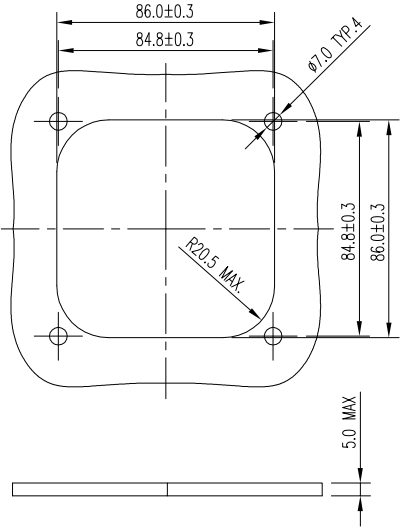
- A two-stage lever provides an HVIL time delay
- 2 x integrated internal HVIL
- Unique cooling structure
- Dual-channel design lowers temperature rise
- No tools required to unmate
- Various fuse ratings
- Receptacle can be front or rear mounted

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	

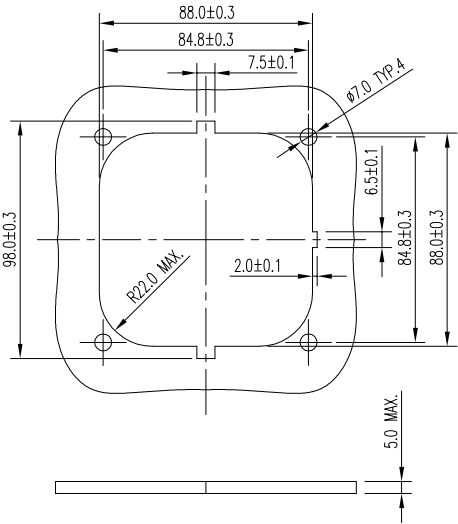
PRODUCT DIMENSIONS



FRONT MOUNTED



REAR MOUNTED



DUST CAP AVAILABLE  
P/N: C270006810



Plug

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

Receptacle

	MSD	F	000	F
Shell type: F: Receptacle				
Fuse rating current: 000: No fuse needed, can directly use the terminal				
Flange mounted type: F: Front mounted R: 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
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### STANDARDS

USCAR-2

USCAR-37

LV-215

RoHS



Plug

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

Receptacle

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

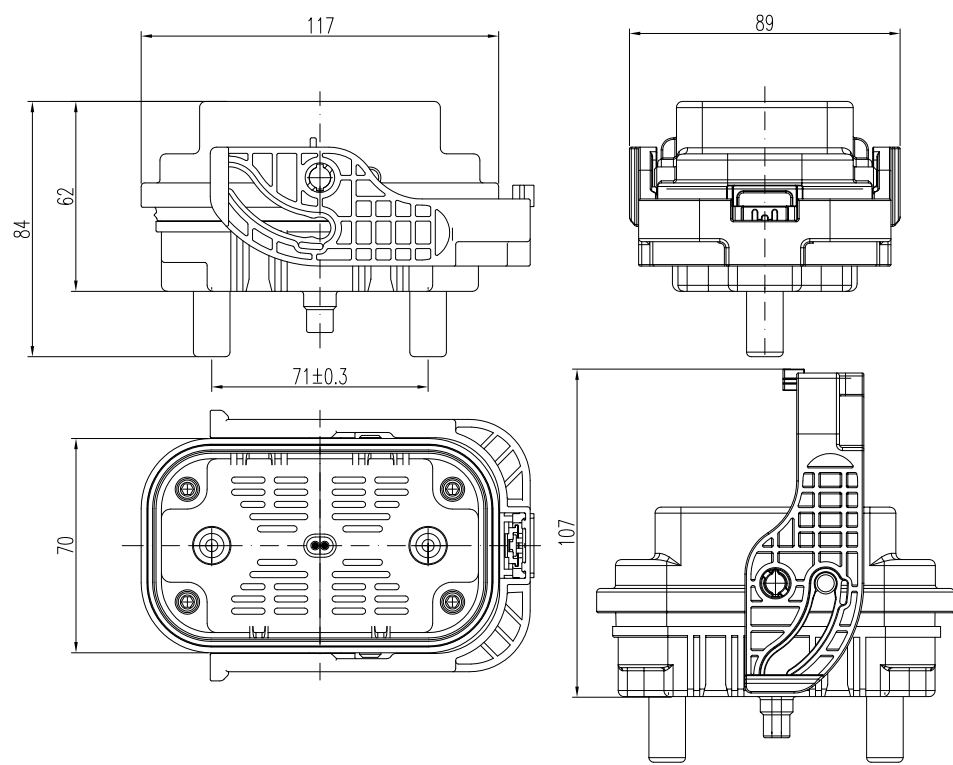


KEY FEATURES

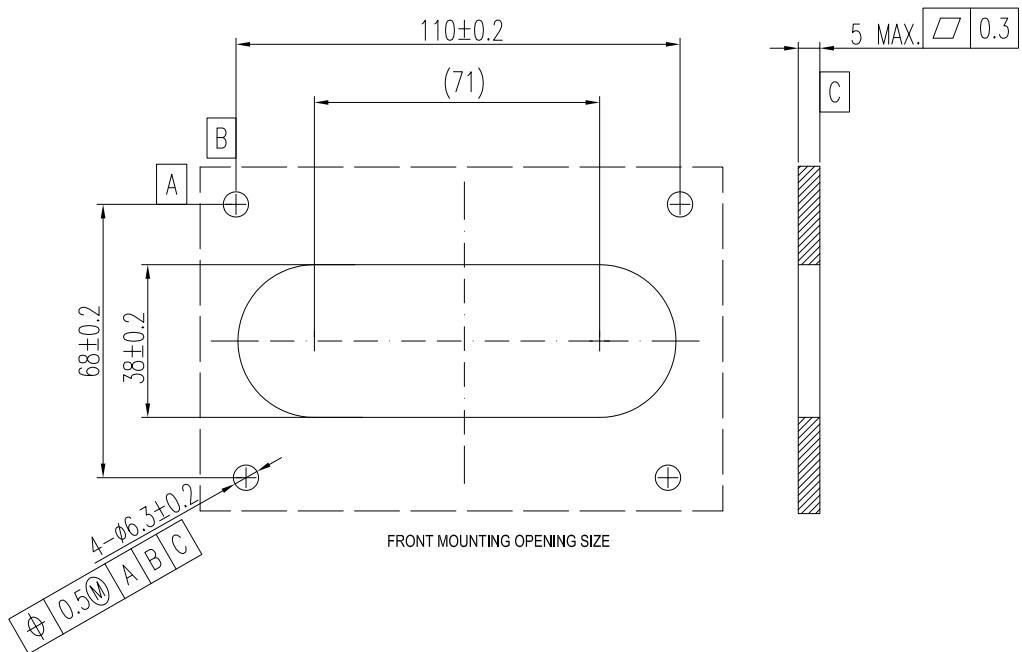
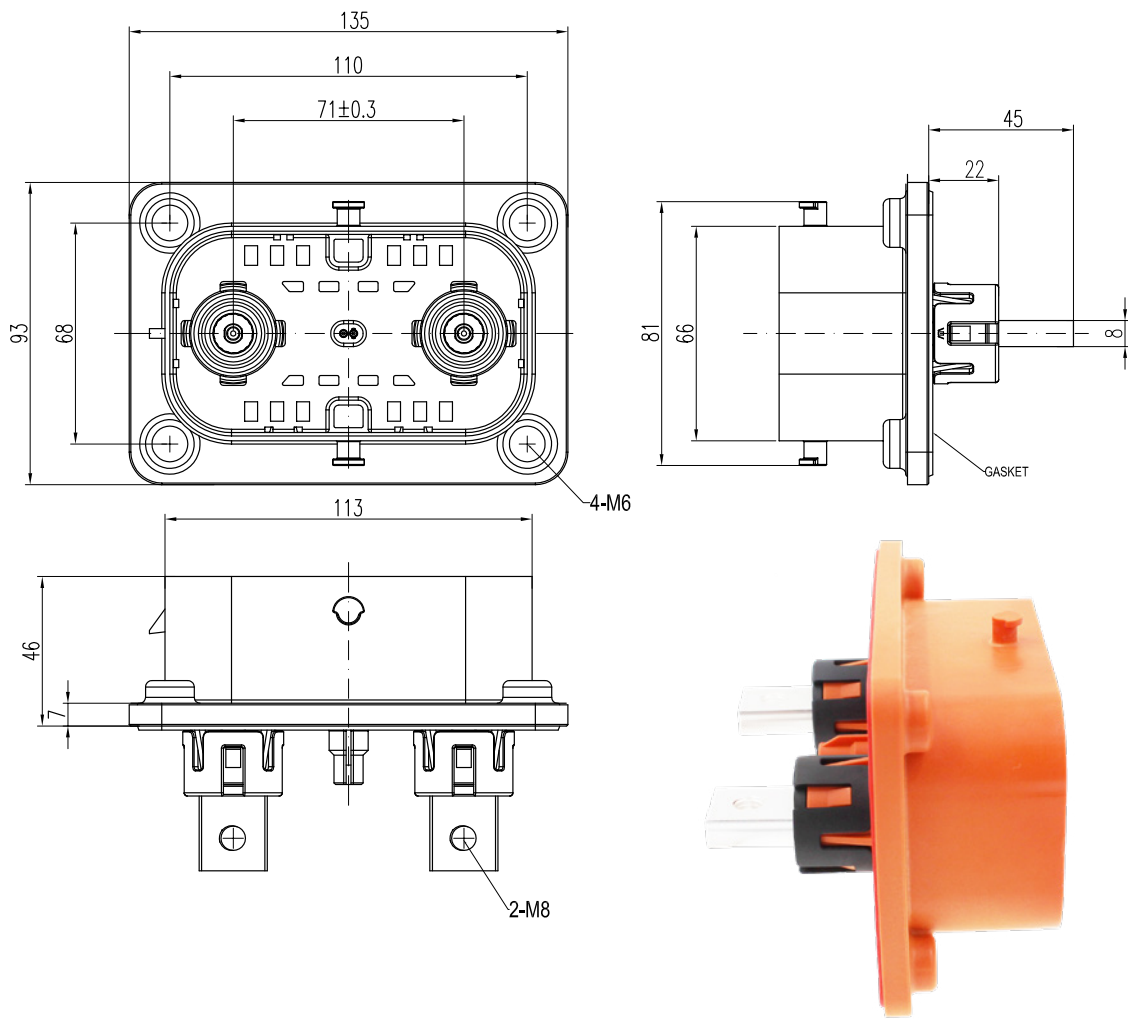
- 1 x integrated internal HVIL
- Unique cooling structure
- High current contacts with Amphenol Radsok technology
- No tools required to unmate
- Various fuse ratings
- Receptacle can be front or rear mounted

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	Current is approximately 1 /3 the fuse rating
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	

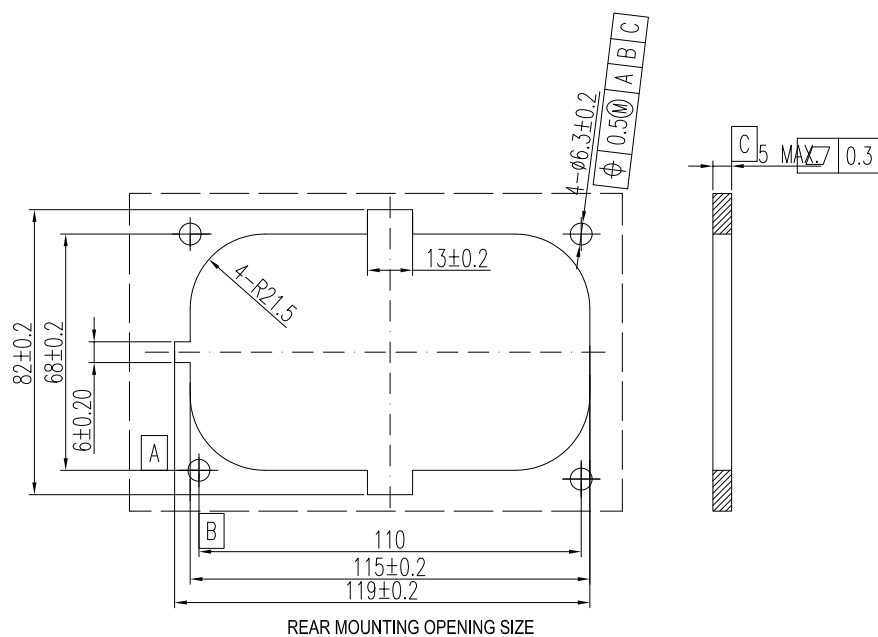
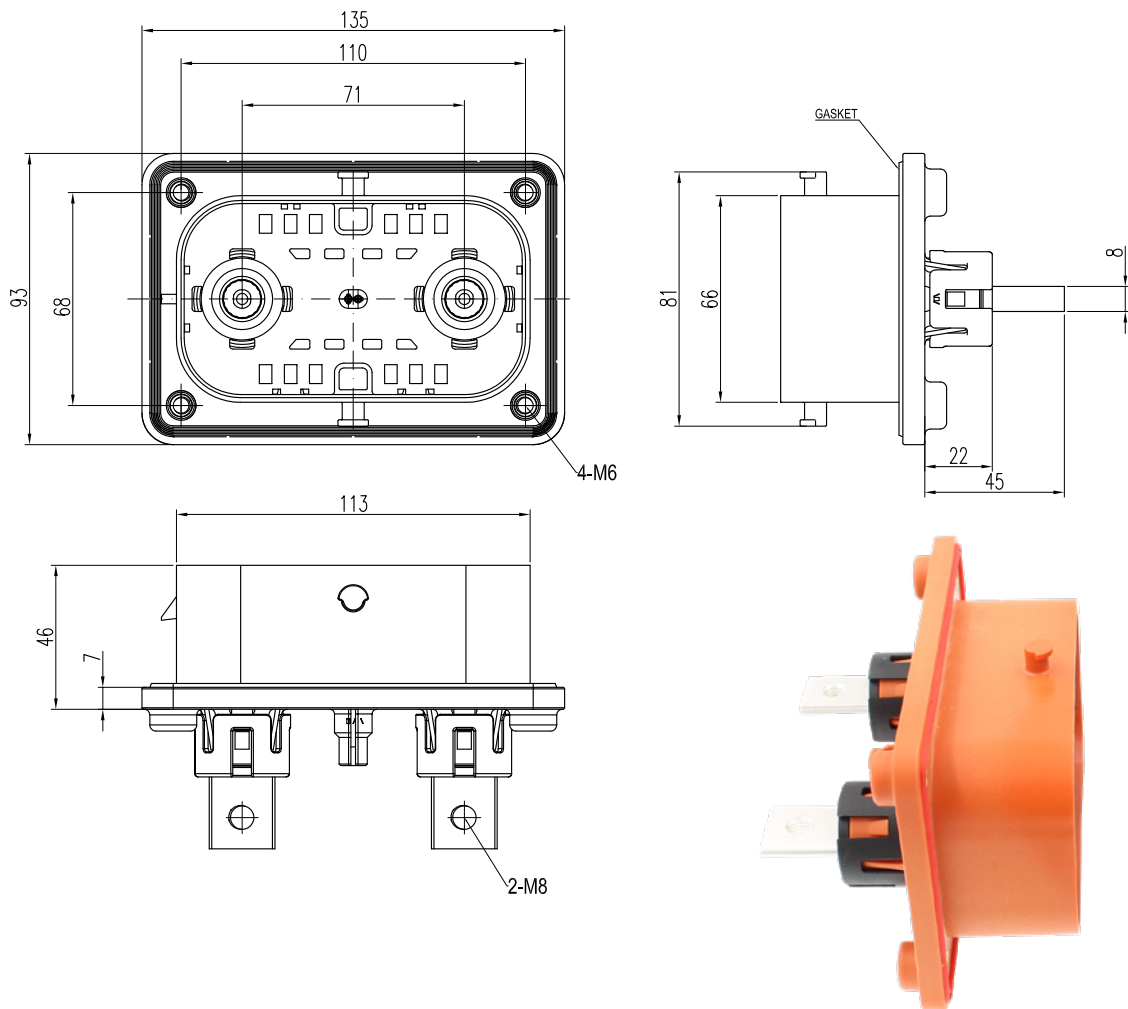
PRODUCT DIMENSIONS



FRONT MOUNTED



REAR MOUNTED



### Plug

MSD XL	M	200
Shell type:		
<b>M:</b> Plug		
Fuse rating current:		
<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

MSD XL	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			

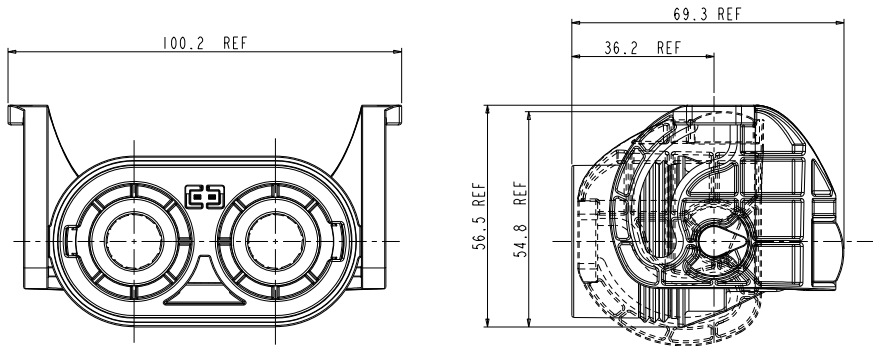


CHD SERIES - CHD14 2-PIN SHUNT

PLUG



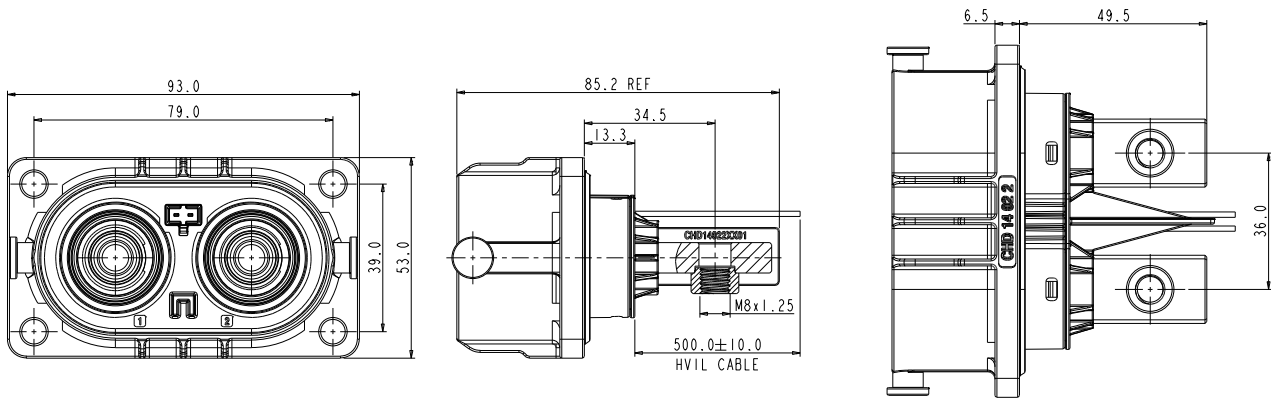
CHD 14 06 2 N 1 1 SC	▶ with power terminal & with HVIL
CHD 14 06 2 N 0 0 SC	▶ without power terminal & without HVIL



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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Building C  
Dagang Industrial Zone  
Guangming District  
Shenzhen 518132  
China

Tel.: +86 755-8173-8000

Email: [inquiry@amphenolpcd.com.cn](mailto:inquiry@amphenolpcd.com.cn)

[www.amphenolpcd.com.cn](http://www.amphenolpcd.com.cn)



### Notes:

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