

Bi-directional On-board Charger + DC-DC Converter



Features

- Bi-directional, 200-450VDC to 220VAC 16A
- Universal AC input range 304-456VAC
- Input/output protections
- Intelligent charging modes
- Customized CAN communication optional
- 250/500kbs communication rate optional
- UDS bootloader and diagnostic optional
- IP67 enclosure, liquid cooled
- Weight: 12kg

Main Specifications

Part Number		Input Voltage	Output Voltage	Output Current
CAD112DF400-14302B	OBC	304-456Vac 3 phase 176-264Vac 1 phase	200-450Vdc	0-32A
	DC-DC Converter	200-450Vdc	14Vdc	0-215A

Electrical Specifications

These specifications are valid over the converter's full ranges of input voltage output voltage and current, and operating temperature unless noted otherwise.

Input Specifications

Parameter	Notes & Conditions	Min	Typical	Max	Unit
OBC					
Input Voltage 3 phase		304	380	456	Vac
Input Voltage 1 phase		176	220	264	Vac
Input Frequency		45	50	65	Hz
Input Current		-	-	32	A
Inrush Current		-	-	50	A
Power Factor		0.92-	0.95-	0.98	%
DC-DC Converter					
Input Voltage		200	360-	450	Vdc
Input Current		-	-	12	A
Quiescent Current		-	-	20	mA

DC-AC Inverter					
Input Voltage	DC input	200	360	450	Vdc
Rated Power			3.3		KW

Output Specifications

Parameter	Notes & Conditions	Min	Typical	Max	Unit
OBC					
Output Voltage		200	360-	450	Vdc
Output Current			-	32	A
Output Power		-	-	11	KW
Output Wakeup Voltage		-	12	-	Vdc
Efficiency	Typical Vin, full load, Ta = 25°C	90	95	98	%
DC-DC Converter					
Output Voltage		9	14	16	Vdc
Output Current				215	A
Output Power			3	-	KW
Maximum Output Power	Less than 6 min.	-	-	3.5	KW
Efficiency	Typical Vin, full load, Ta = 25°C	93	96-	99	%
Quiescent Current		-	-	0.3	mA
Dynamic Response	Typical Vin, full load, Ta = 25°C	-	-	200	ms
DC-AC Inverter					
Output Voltage			220		Vac
Output Current			16		A
Efficiency			93		%

Protection Specifications

Parameter	Notes & Conditions	Min	Typical	Max	Unit
OBC					
Input Under-voltage Protection		170		350	Vac
Input Under-voltage Recovery	Auto-recovery	200		360	Vac
Input Over-voltage Protection		270		470	Vac
Input Over-voltage Recovery	Auto-recovery	260		440	Vac
Output Under-voltage Protection		200			Vdc
Output Under-voltage Recovery	Auto-recovery	210			Vdc
Output Over-voltage Protection		460			Vdc
Output Over-voltage Recovery	Auto-recovery	450			Vdc
Over Temperature Protection	Shut down		-	80	°C
	Recovery	75	-	-	°C
Output Short Circuit Protection	Shut down, auto-recovery				
DC-DC					
Input Under-voltage Protection		195		205	Vdc
Input Under-voltage Recovery	Auto-recovery	205		215	Vdc

Input Over-voltage Protection		455		565	Vdc
Input Over-voltage Recovery	Auto-recovery	450		455	Vdc
Output Under-voltage Protection		8.5		9.5	Vdc
Output Under-voltage Recovery	Auto-recovery	9		10	Vdc
Output Over-voltage Protection		16		18	Vdc
Output Over-voltage Recovery	Auto-recovery	12.75		15.25	Vdc
Over Temperature Protection	Shut down		-	80	°C
(coolant temperature)	Recovery	75	-	-	°C
Output Short Circuit Protection	Shut down auto-recovery				

Environmental Specifications

Parameter	Notes & Conditions	Min	Typical	Max	Unit
Operating Temperature	Automatically reduces the output power when the coolant temperature goes over 65°C.	-40	-	+70	°C
Storage Temperature		-40	-	+85	°C
Relative Humidity	No condensation	5	-	95	%
Altitude		-	-	5000	m
Cooling	Liquid cooled, flow rate >=10L/min				
Ingress Protection	IP67				
Weight			12		kg
Acoustic Noise	QC/T 895-2011	-	-	60	dB

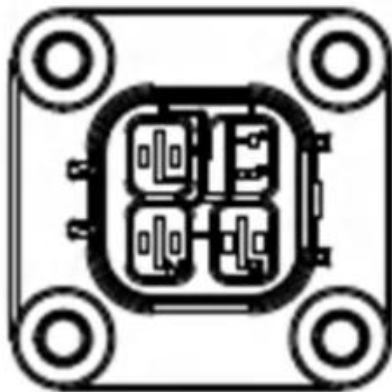
Safety Specifications

Parameter	Notes & Conditions	Min	Typical	Max	Unit
Isolation Voltage	Input-Output, 1 min.	2000	-	-	Vac
		2800	-	-	Vdc
Insulation Resistance		20	-	-	MΩ
Grounding Resistance	Case-Ground	-	-	0.1	Ω
Input Discharge	The input terminal voltage will drop below 60V within 1s after the input power is cut off				
Electric Clearance	GB/T 18488.1-2001				

Reliability Specifications

Parameter	Standard
Durability	QC/T 895-2011
	QC/T 24347-2009
EMC	GB/T 18487.1-2001
Harmonic Current	GB17625.0-2003, CLASS A
Vibration	QC/T 413 – 2002 3.12 (ISO 16750-3 4.2.2.2)
Shock	ISO 16750-3 4.2.2.2
Salt Fog	QC/T 413 – 2002 3.13

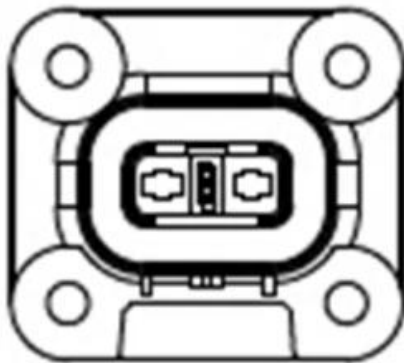
Input Connector Description



Amphenol
HVSL364024A

Pin	Function	Mating connector
1	L1 (1 phase)	Amphenol HVSL364064A106I
2	L2	
3	L3	
4	N	
A	HVIL in	
B	HVIL out	

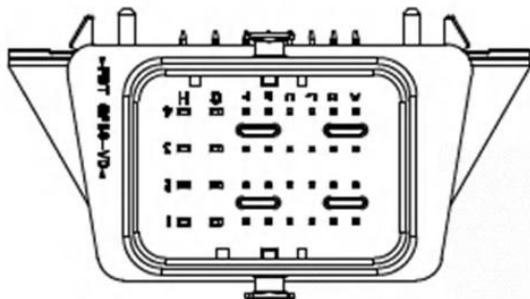
High Voltage Output Connector Description



Amphenol
HVC2P63MV406

Pin	Function	Mating connector
1	Out +	Amphenol HVC2P63FS406
2	Out -	
A	HVIL in	
B	HVIL out	

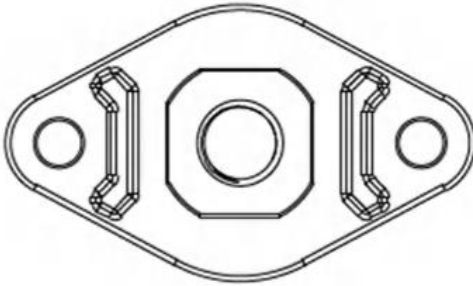
Signal Connector Description



TE
2334366-2

Pin	Function	Pin	Function	Mating connector
1A	CAN 1-H	3A	NTC 1+	TE 2137299-8
1B	CAN 1-L	3B	NTC 2+	
1C	EN_OBC	3C	NTC 3+	
1D	EN_DC DC	3D	NTC -	
1E	CC	3E	Lock feedback 1	
1F	CP	3F	Lock feedback 2	
1G	VCC+	3G	Lock +	
1H	GND	3H	Lock -	
2A	wake up	4A	HVIL In	
2B	CC_Out	4B	HVIL out	
2C	EN_inverter	4C	CAN2 H reserve	
Others	NC	4D	CAN2 L reserve	

DC-DC LV Output + Connector Description



M8 screw

Mechanical Parameters (unit: mm)

Dimension: LxWxH=417x270x98mm (include connector and mounting kit)

