

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



Features

- Bi-directional, 260-480VDC to 220VAC 16A
- Universal AC input range 85-265VAC
- Input/output protections
- Intelligent charging modes
- Customized CAN communication optional
- 250/500kbs communication rate optional
- UDS bootloader and diagnostic optional
- IP67 enclosure, liquid cooled

Main Specifications

Part Number		Input Voltage	Output Voltage	Output Current	Ripple & Noise (mVp-p)
CAD662DF400-14202B	OBC	85-265Vac	260-480Vdc	0-22A	$\leq \pm 2\%$
	DC-DC	260-480Vdc	13.5Vdc	0-140A	300

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	AC input	85	220	265	Vac
Wakeup Voltage		9	12	16	Vdc
Bias Voltage		9	12	16	Vdc
Input Frequency		45	50	65	Hz
Input Current		-	-	32	A
Inrush Current		-	-	50	A
Current Draw of Wakeup		-	-	0.3	mA
Leakage Current		-	-	3	mA
Power Factor	$\geq 50\%$ load	0.99			

DC-DC Converter					
Input Voltage		260	-	480	Vdc
Input Current		-	-	12	A
Quiescent Current		-	-	20	mA
DC-AC Inverter					
Input Voltage	DC input	260	330	480	Vdc
Rated Power			3.6		KW

Output Specifications

Parameter	Notes & Conditions	Min	Typical	Max	Unit
OBC					
Output Voltage		260	-	480	Vdc
Output Current		0	-	22	A
Output Power		-	-	6.6	KW
Output Current Accuracy	Typical Vin, full load, Ta = 25°C	-	-	±0.4	A
Output Ripple & Noise	20MHz bandwidth, with 0.1uF and 47uF capacitor, typical Vin	-	-	±2%	mVp-p
Output Wakeup Voltage		-	12	-	Vdc
Output Wakeup Current		-	-	200	mA
Efficiency	Typical Vin, full load, Ta = 25°C	94	-	-	%
DC-DC Converter					
Output Voltage		9	-	16	Vdc
Rated Output Voltage		13.8	14	14.2	Vdc
Output Current		0	140	155	A
Output Power			2000	-	W
Maximum Output Power	Less than 6 min.	-	-	2500	W
Output Voltage Accuracy	Typical Vin, full load, Ta = 25°C	-	-	±1	%Vo
Output Ripple & Noise	20MHz bandwidth, with 0.1uF and 47uF capacitor, typical Vin	-	-	300	mVp-p
Efficiency	Typical Vin, full load, Ta = 25°C	93	-	-	%
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		80		90	Vac

Input Under-voltage Recovery	Auto-recovery	85		90	Vac
Input Over-voltage Protection		270		290	Vac
Input Over-voltage Recovery	Auto-recovery	265		275	Vac
Output Under-voltage Protection		220		230	Vdc
Output Under-voltage Recovery	Auto-recovery				Vdc
Output Over-voltage Protection		495		505	Vdc
Output Over-voltage Recovery	Auto-recovery				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		495		505	Vdc
Input Over-voltage Recovery	Auto-recovery	490		500	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	-	+85	°C
Storage Temperature		-40	-	+105	°C
Relative Humidity	No condensation	5	-	95	%
Altitude		-	-	5000	m
Cooling	Liquid cooled				
Ingress Protection	IP67				
Weight			8.4		kg
Acoustic Noise	QC/T 895-2011	-	-	60	dB

Safety Specifications

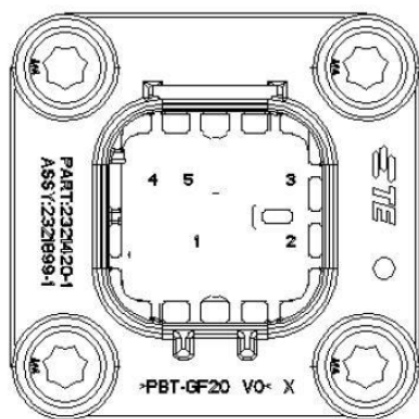
Parameter	Notes & Conditions	Min	Typical	Max	Unit
Isolation Voltage	Input-Output, 1 min.	2000	-	-	Vac
		2800	-	-	Vdc
Insulation Resistance		20	-	-	MΩ

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

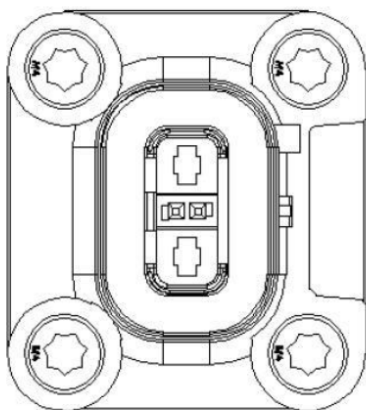
Parameter	Standard
Durability	QC/T 895-2011 QC/T 24347-2009
EMC	GB/T 18487.1-2001
Harmonic Current	GB17625.0-2003, CLASS A
Vibration	QC/T 413 – 2002 3.12 (ISO 16750-3 4.2.2.2)
Shock	ISO 16750-3 4.2.2.2
Salt Fog	QC/T 413 – 2002 3.13

Input Connector Description



NO	Pinout
1	L
2	N
3	PE
4	Interlock
5	Interlock

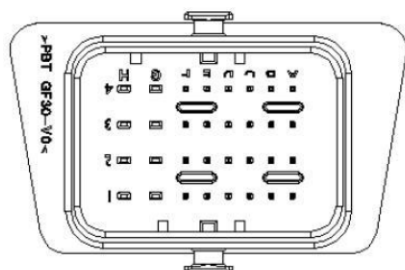
High Voltage Output Connector Description



NO	Pinout
1	charger output + , DC DC input +
2	charger output - , DC DC input -
3	Interlock
4	Interlock

Signal Connector Description

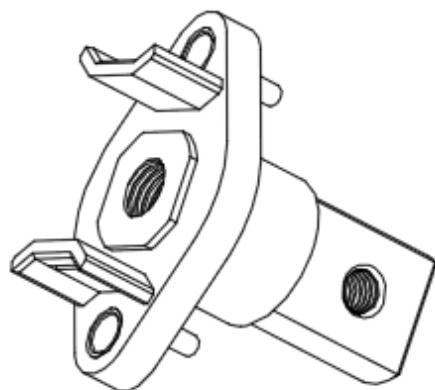
C - SIGNAL



Pinout Description

N0	Pin	Function	N0	Pin	Function
1	1A	N/A	17	1E	N/A
2	2A	OBC wake up out	18	2E	N/A
3	3A	CP	19	3E	N/A
4	4A	CAN H	20	4E	N/A
5	1B	N/A	21	1F	N/A
6	2B	NTC 1 +	22	2F	N/A
7	3B	CC	23	3F	N/A
8	4B	CAN L	24	4F	N/A
9	1C	N/A	25	1G	N/A
10	2C	N/A	26	2G	N/A
11	3C	OBC wake up in	27	3G	N/A
12	4C	N/A	28	4G	KL 31
13	1D	N/A	29	1H	KL 30
14	2D	NTC GND	30	2H	N/A
15	3D	DC DC Enable in	31	3H	N/A
16	4D	N/A	32	4H	N/A

DC-DC LV Output + Connector Description



Mechanical Parameters (unit: mm)

Dimension: LxWxH=280x202x70mm (exclude connector and mounting kit)

