

Preliminary data

**Controller interface**

Driver and interface board	ref. to separate Application Note	DR112				
		min.	typ.	max.		
Auxiliary voltage		$V_{aux}$	18	24	30	V
Auxiliary power requirement	$V_{aux} = 24\text{ V}$	$P_{aux}$		40		W
Digital input level	resistor to GND 1.8 k $\Omega$ , capacitor to GND 4 nF, logic high = on, min. 15 mA	$V_{in\ low}$	0		4	V
		$V_{in\ high}$	11		15	V
Digital output level	open collector, logic low = no fault, max. 15 mA	$V_{out\ low}$	0		1.5	V
		$V_{out\ high}$		15		V
Analog current sensor output inverter section	load max 1 mA, @ 1175 $A_{RMS}$	$V_{IU\ ana2}$ $V_{IV\ ana2}$ $V_{IW\ ana2}$		3.6		V
Analog DC link voltage sensor output	load max 1 mA, @ 1100 V	$V_{DC\ ana}$		7.6		V
Analog temperature sensor output inverter section (NTC)	@ $T_{NTC} = 72\text{ }^{\circ}\text{C}$ , corresponds to $T_j = 138\text{ }^{\circ}\text{C}$ at rated conditions	$V_{Theta\ NTC2}$		8.6		V
Analog temperature sensor output inverter section (Simulated)	@ $T_{NTC} = 72\text{ }^{\circ}\text{C}$ , corresponds to $T_j = 138\text{ }^{\circ}\text{C}$ at rated conditions	$V_{Theta\ sim2}$		8.7		V
Over temperature shutdown inverter section	load max 1 mA	$V_{Error\ OT2}$		10		V
Minimum on time (IGBT)		$t_{on\ min}$	5			$\mu\text{s}$
Minimum off time (IGBT)		$t_{off\ min}$	5			$\mu\text{s}$

**System data**

		min.	typ.	max.		
EMC robustness	according to IEC 61800-3 at named interfaces	power	$V_{Burst}$	2		kV
		control	$V_{Burst}$	1		kV
		aux (24V)	$V_{surge}$	1		kV
Storage temperature		$T_{stor}$	-40		65	$^{\circ}\text{C}$
Operational ambient temperature	PCB, DC link capacitor, bus bar, excluding cooling medium	$T_{op\ amb}$	-25		55	$^{\circ}\text{C}$
Cooling air velocity	PCB, DC link capacitor, bus bar, standard atmosphere	$V_{air}$	2			m/s
Humidity	no condensation	Rel. F	0		85	%
Vibration	according to IEC 60721				10	$\text{m/s}^2$
Shock	according to IEC 60721				100	$\text{m/s}^2$
Protection degree			IP00			
Pollution degree			2			
Dimensions	width x depth x height		1090	625	250	mm
Weight				90		kg

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**Preliminary data**

**Heatsink water cooled**

			min.	typ.	max.	
Water flow	according to coolant specification from Infineon	$\Delta V/\Delta t$	35			dm <sup>3</sup> /min
Water pressure					8	bar
Coolant inlet temperature		T <sub>inlet</sub>	-40		45	°C
Thermal resistance heatsink to ambient	per switch	R <sub>th,ha</sub>		0.024		K/W
Cooling channel material			Aluminum			

**Notes**

Composition of coolant: Water and 52 vol. % Antifrogen N

**Overview of optional components**

	Unit 1 (not installed)	Inverter Section	Unit 3 (not installed)
Voltage sensor		x	
Current sensor		x	
Temperature sensor		x	
Temperature simulation		x	
DC link capacitors		x	
Collector-emitter Active Clamping		x	

**Notes**

Setting of Active Clamping TVS-Diodes: V<sub>Z</sub> = 1200V/1600V MA111. Reduce short circuit protection above 1200V DC.

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