

emDrive500

Table 1: emDrive500 technical specifications

emDrive500	min.	typ.	max.	unit
Electrical data				
Input DC link voltage range	30		125	V
Input DC link current range	0		800	A
Output phase to phase voltage range	0		84	V _{RMS}
Output current range	0		800	A _{RMS}
Output continuous current			500	A _{RMS}
Output maximum one minute peak current			800	A _{RMS}
Output continuous power			62	kVA
Output maximum one minute peak power			110	kVA
Input DC link capacitance		14500		μF
Number of output phases		3		
Switching frequency		16		kHz
Output frequency range	0		1,2	kHz
EMI Y capacitor, DC + and DC – to heat sink		3		μF
Discharge resistor: DC + to DC -		none		
Pre-charge resistor requirements: charge time to 3τ	0,5		1	
Control unit electrical data				
Supply voltage range	9		30	V
Supply current range at typ. supply voltage (idle state, PWM disabled)				A
Supply current range at typ. supply voltage (operating, PWM enabled)		750		A
Protection functions				
DC link voltage measurement range			135	V
DC link over voltage protection			125	V
DC link under voltage protection	0			V
DC link voltage measurement resolution		0,1		V
Over current protection: primary protection (adjustable)			800	A _{RMS}
Over current protection: secondary protection (adjustable)			900	A _{RMS}
Output current measurement range	0		1000	A _{RMS}
Output current measurement resolution		0,25		A _{RMS}
DC link capacitors temperature protection - power derating point		75		°C
MOS-FET temperature protection - power derating point		100		°C
Motor over temperature protection (only if sensor connected)			140	°C
Motor temperature sensor input type	KTY 84-130	0,6		kΩ
	KTY 84-210	2		kΩ
	NTC	10		kΩ
Insulation				
DC + to heat sink, DC – to heat sink		250		V
DC + to logic level, DC – to logic level		250		V
Logic level to heat sink		250		V
Isolation resistance: DC + to heat sink, DC – to heat sink	100			MΩ
Protective class		I		
Mechanical data				
Weight		4,9		kg
Height		65		mm
Width		280		mm
Length		205		mm
Power contacts tightening torque (M8)	18	20	22	Nm
Chassis mounting screws tightening torque (M6 x 40 or longer)	8		12	Nm

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Cooling data				
Required coolant flow		5		l/min
Coolant temperature - power derating point		60		°C
Pressure drop @ 5 l/min @ 25 °C		0,3		bar
Operating pressure			2	bar
Coolant quantity of integrated cooling		60		cm ³
Power dissipation to coolant			TBD	kW
Coolant mixture	distilled water	50		%
	glycol		50	%
Environmental data				
Operating ambient temperature, derating for T _{coolant} > 60 °C		-20	65	°C
Storage ambient temperature		-40	85	°C
Enclosure protection level			IP54	
Operating altitude			2000	m