

Key data

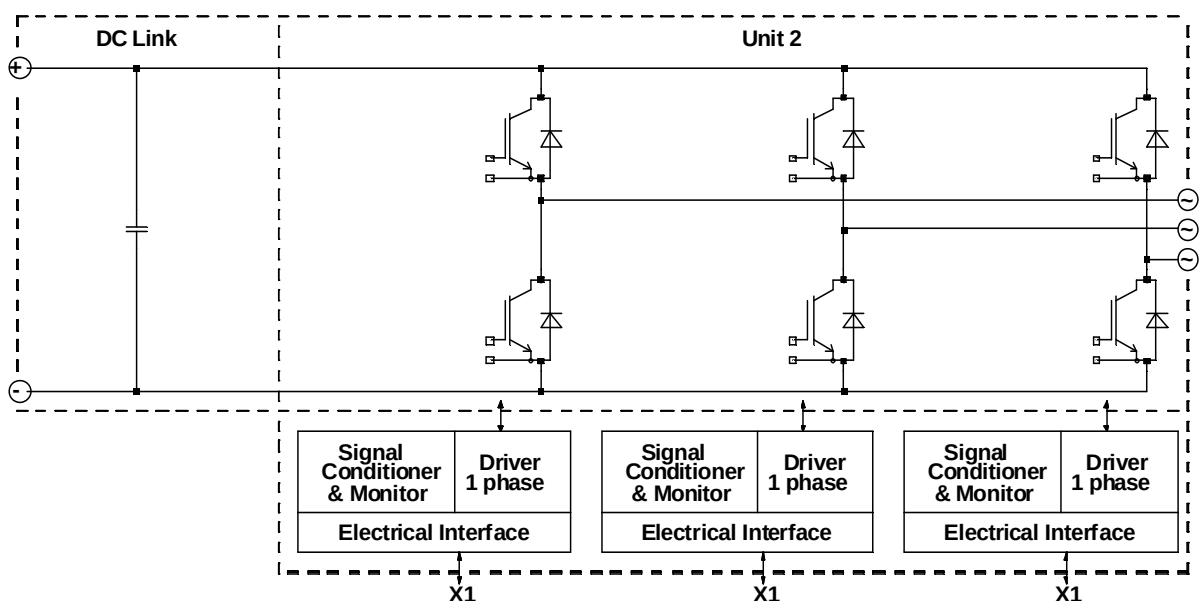
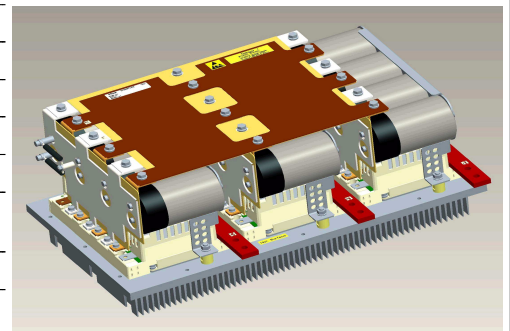
3x 591A rms at 690V rms, forced air (fan not implemented)

General information

Stack for various inverter applications. IGBTs, heat sink, capacitors, drivers and sensors included. These are only technical data!

Please read carefully the complete document and maintain the proper design environment! Especially note the EMC environment and the controllers functionality.

Topology	B6I
Application / Modulation	Inverter / Sine
Load type	resistive, inductive
Cooling	forced air (fan not implemented)
Implemented sensors	current, temperature
Semicond. (Unit 1)	none
DC Link	4.8mF
Semicond. (Unit 2)	IGBT 12x FF300R17KE4
Driver signals IGBT	electrical CMOS 0 .. 15V
Standards	EN50178, UL94, prepared for UL508C
Sales - name	6PS12017E4FG35151
Internal ID	35151
Mechanical drawing number	35151_MB
Electrical drawing number	2PS-CF-V



prepared by: Otmar Wette	date of publication: 2011-12-05
approved by: Sören Dreifke	revision: 2.2

Vorläufige Daten preliminary data

Notes

-Rated DC voltage =1100 V

-for higher voltages refer to capacitor specification EN 61701

Electrical data

DC Link			min	typ	max	units
Voltage		V_{DC}		1100	1250	V

Unit 2 AC			min	typ	max	units
Voltage	depending on controller	V_{Unit2}		690		V_{RMS}
Continuous current	$V_{Unit2} = 690V_{RMS}$, $V_{DC} = 1100V$, $T_{inlet} = 40^{\circ}C$, $T_J \leq 125^{\circ}C$, $f_{Unit2} = 50Hz$, $f_{sw2} = 2000Hz$, $\cos(\phi) = 0,85$	I_{Unit2}			591	A_{RMS}
Continuous current overload cap.	$T_{inlet} = 40^{\circ}C$, for overload capability 150% for 60s			432		A_{RMS}
DC current	no rotating field, $T_{inlet} = 40^{\circ}C$	$I_{Unit2 DC}$			300,0	A_{av}
Overcurrent shutdown	within 15 μ s			2250		A_{peak}
Switching frequency		f_{sw2}			7000	Hz
Power losses	$V_{Unit2} = 690V$, $V_{DC} = 1100V$, $T_{inlet} = 40^{\circ}C$, $T_J \leq 125^{\circ}C$, $f_{Unit2} = 50Hz$, $f_{sw2} = 2000Hz$, $\cos(\phi) = 0,85$, $I_{Unit2} = 591A_{RMS}$	P_{loss2}		6240		W
Power factor		$\cos(\phi)_{Unit2}$	-1,00		1,00	

General data			min	typ	max	units
Power losses (PCB)		$P_{loss aux}$			120	W
EMC test	according to IEC61800-3 at named interfaces	power	V_{Burst}	2		kV
		control	V_{Burst}	1		kV
		aux (24V)	V_{Surge}	1		kV
Insulation management is designed for		V_{Line}		690		V_{RMS}
Insulation test voltage	according to EN50178, $f = 50Hz$, $t = 60s$	V_{isol}		2,5		kV_{RMS}

Important component data			min	typ	max	units
DC Link capacitor		C_{DC}		4,80		mF
		type		Foil		
Rated voltage	per device	U_R		1100		V_{DC}
Rated capacitance	per device	C_R		400		μF
Capacitance tolerance	per device	Tol	-10		+10	%
Maximum ripple current	per device, $T_{amb} = 55^{\circ}C$	I_{Rmax}			45	A_{RMS}
wiring system	series, parallel			1s, 12p		

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Technical Information

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6PS12017E4FG35151



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Controller interface data

			min	typ	max	units
Auxiliary voltage		V_{aux}	18	24	30	V_{av}
Auxiliary power requirement	$V_{aux} = 24V_{av}$	P_{aux}	120			W
Driver and interface board	see separate technical information		3 x DR240			
Driver core			EiceDRIVER 2ED300C17-ST			
Digital input level	resistor to GND 10,0k Ω , capacitor to GND 1nF, high = on, min 15mA	V_{in}	0,0		15,0	V
Digital output level	open collector, low = ok, max 15mA	V_{out}	0,0		30,0	V
Analog current outputs Unit 2	load max 5mA; at 591A	$V_{ana out}$	2,64	2,69	2,74	V
Analog temperature output	load max 5mA; at $T_{NTC} = 78^{\circ}C$ correspond to $T_j = 125^{\circ}C$	$V_{T out}$	9,13	9,32	9,51	V
Overttemperature shutdown	at $T_{NTC} = 82^{\circ}C$ correspond to $T_j = 135^{\circ}C$	$V_{T out OT}$		10,23		V

Heat sink air cooled / Thermal data

			min	typ	max	units
Airflow	$T_{Air} = 20^{\circ}C$, $P_{air} = 1013hPa$, dry- and dust free, measured on side of heat sink. according to DIN 41882	$\Delta V / \Delta t_{Air}$	1500			m ³ /h
Air pressure drop		Δp_{Air}		190		Pa
Cooling air inlet temperature	heat sink temperature $> -25^{\circ}C$	T_{inlet}	-25		55	$^{\circ}C$

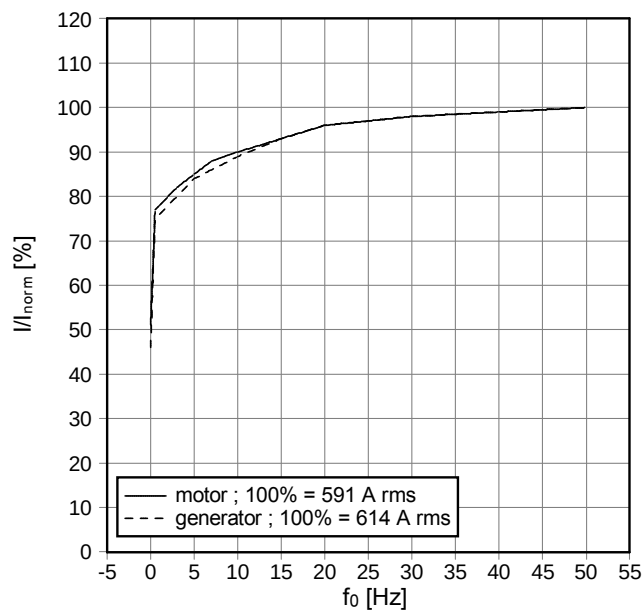
Environmental conditions

			min	typ	max	units
Storage temperature		T_{stor}	-40		80	$^{\circ}C$
Ambient temperature		T_{amb}	-25		55	$^{\circ}C$
Operating temperature	see chapter Heat sink air cooled / Thermal data					
Cooling air velocity (PCB)		$V_{Air PCB}$	2,0			m/s
Air pressure	standard atmosphere	p_{Air}	900		1100	hPa
Humidity	no condensation	Rel. F	5		85	%
Installation height			0		1000	m
Vibration	according to IEC60721				5	m/s ²
Shock	according to IEC60721				40	m/s ²
Protection degree			IP00			
Pollution degree			2			
Torque at DC Terminals		M_{DC}	15,0		17,0	Nm
Torque at AC Terminals		M_{AC}	16,0		20,0	Nm
Dimensions	width $\times$ depth $\times$ height		645	438	299	mm
Weight with heat sink	approximation			52,0		kg

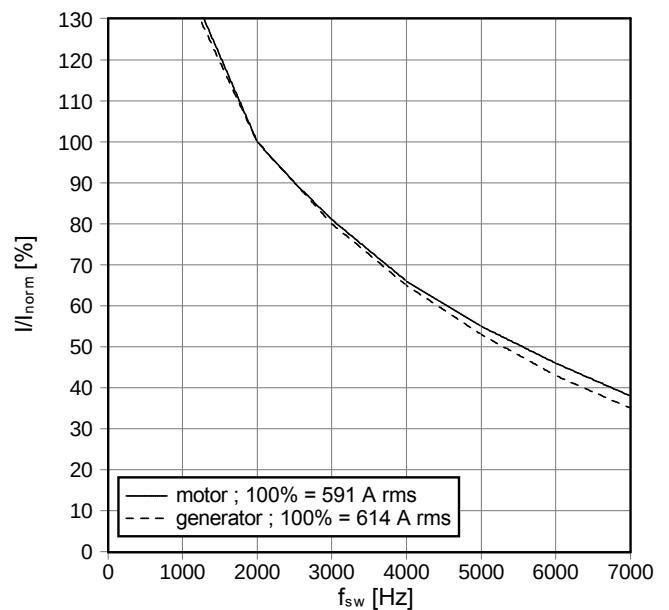
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approved by: Sören Dreifke	revision: 2.2

Vorläufige Daten
preliminary data

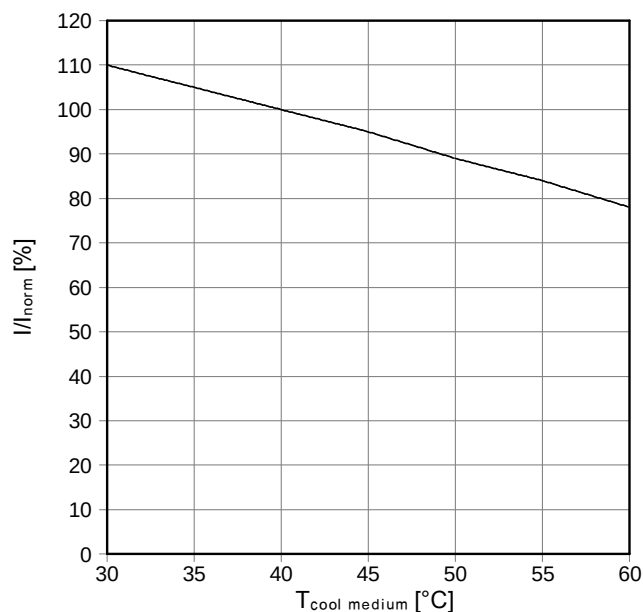
fo - derating curve IGBT (motor), Diode (generator)
 $\cos(\phi) = \pm 0,85$
 $T_{cool\ medium} = 40^{\circ}C$



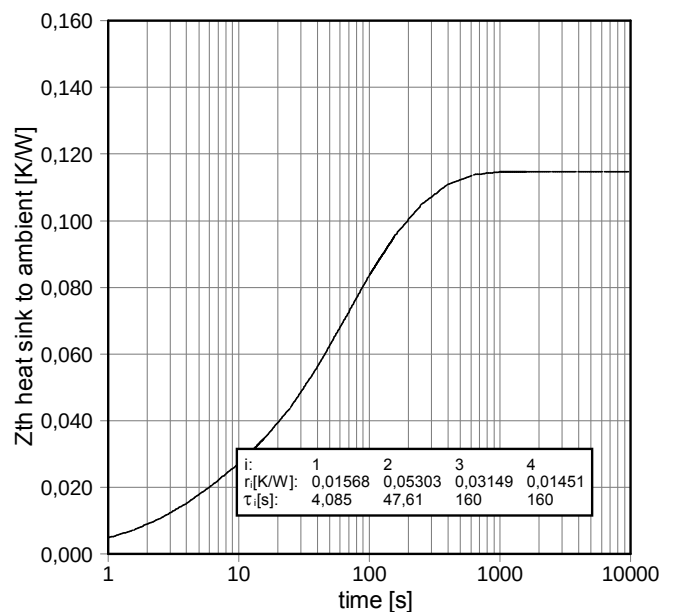
fsw - derating curve IGBT (motor), Diode (generator)
 $\cos(\phi) = \pm 0,85$
 $T_{cool\ medium} = 40^{\circ}C$



Continuous current derating curves vs $T_{cool\ medium}$
 IGBT, $\cos(\phi) = 0,85$



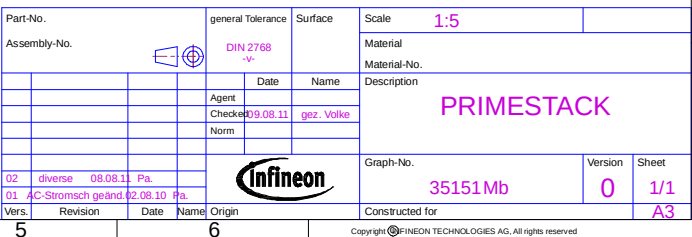
Transient thermal impedance per module
 $T_{cool\ medium} = 40^{\circ}C$



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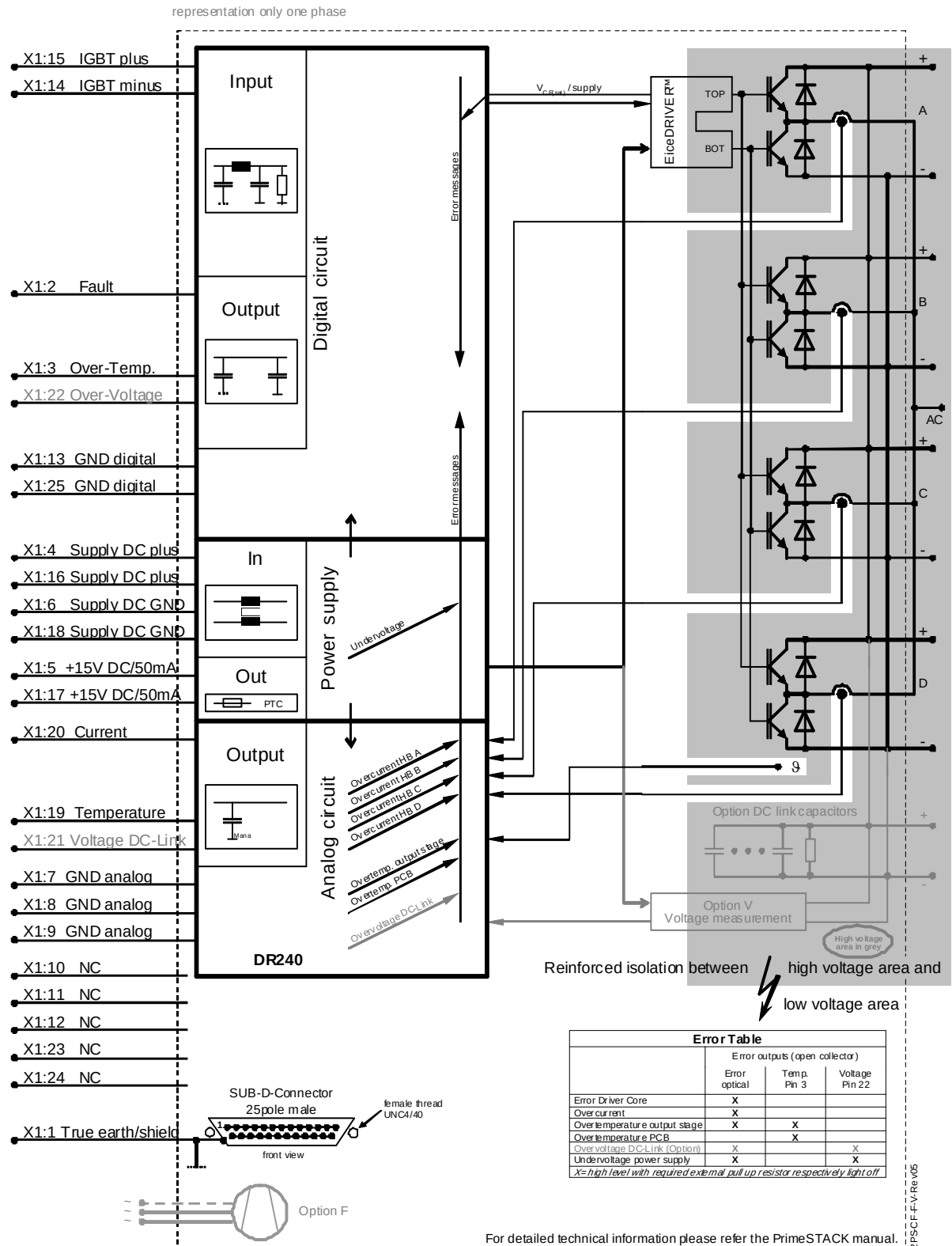


Mechanical drawing



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Circuit diagram



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Sicherheitshinweise

Bevor Sie mit der Installation und dem Betrieb der Baugruppe beginnen, lesen Sie bitte sorgfältig alle Sicherheitshinweise, Warnungen und beachten Sie die angebrachten Warnschilder. Vergewissern Sie sich, dass alle Warnschilder in leserlichem Zustand verbleiben und fehlende oder beschädigte Schilder ersetzt werden.

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Prior to installation and operation, all safety notices and warnings and all warning signs attached to the equipment have to be carefully read. Make sure that all warning signs remain in a legible condition and that missing or damaged signs are replaced. To installation and operation, all safety notices and warnings and all warning signs attached to the equipment have to be carefully read. Make sure that all warning signs remain in a legible condition and that missing or damaged signs are replaced.

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