

Key data

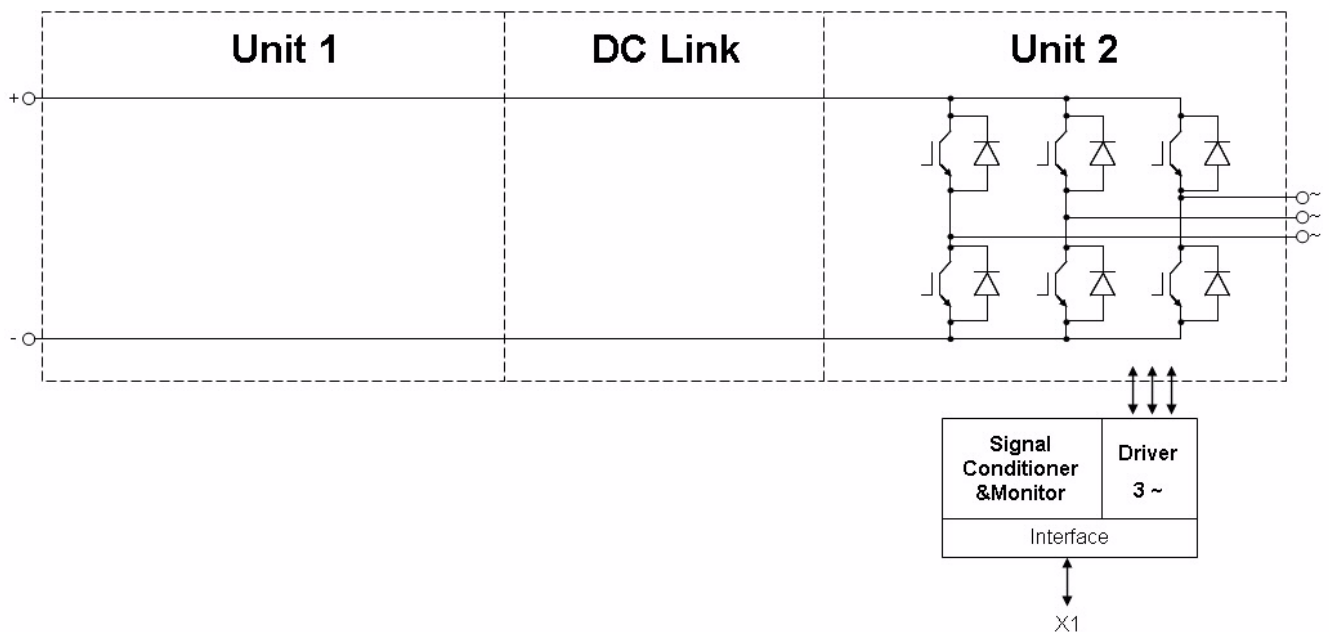
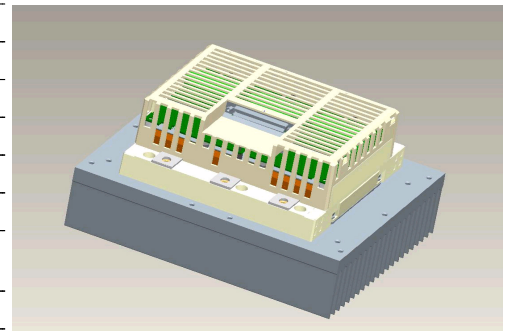
3x 237A AC at 400V AC, forced air (fan not implemented)

General information for:

Stacks for various inverter application. Semiconductors, heat sinks, drivers and sensors included. These are only technical data!

Please read carefully the complete documentation and maintain the proper design environment! Especially note the EMC environment and the controller's functionality.

Topology	B6I	
Application / Modulation	Inverter / Sine	
Load type	resistive, inductive	
Cooling	forced air (fan not implemented)	
Market	common industrial, drives, power supply	
Monitors	current, temperature	
Semicond. (Unit 1)	none	
DC Link	none	
Semicond. (Unit 2)	IGBT	3x FF400R12KE3
Interface IGBT	electrical CMOS	
Standards	EN50178, UL94, prepared for UL508C	
Product ID (eupec)	30188	
Mechanical drawing number	38000030	
Electrical drawing number	6PS-C3-V-Rev03	



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**Zieldaten
target data**

Notes

Overvoltage shutdown:
 - It must be realized by the customer.
Overvoltage and Overcurrent shutdown reaction time:
 - This parameter refers to the customers controller.

Electrical data

DC Link			min	typ	max	units
Voltage		V _{DC}		650	850	V

Unit 2 AC			min	typ	max	units
Voltage	depending on controller	V _{Unit2}		400		V _{RMS}
Continuous current	V _{Unit2} = 400V _{RMS} , V _{DC} = 650V, T _{inlet} = 40°C, T _J ≤ 125°C, f _{Unit2} = 50Hz, f _{sw2} = 5000Hz, cos(phi) = 0,85	I _{Unit2}			237	A _{RMS}
Continuous current overload cap.	T _{inlet} = 40°C, for overload capability 150% for 60s			168		A _{RMS}
Short time current	T _{inlet} = 40°C, 10s, every 180s, initial load = 208A _{RMS}	I _{Unit2}			260	A _{RMS}
DC current	no rotating field, T _{inlet} = 40°C	I _{Unit2 DC}			116,0	A _{av}
Overcurrent shutdown	within 15µs			625		A _{peak}
Switching frequency		f _{sw2}			20000	Hz
Power losses	V _{Unit2} = 400V, V _{DC} = 650V, T _{inlet} = 40°C, T _J ≤ 125°C, f _{Unit2} = 50Hz, f _{sw2} = 5000Hz, cos(phi) = 0,85, I _{Unit2} = 237A _{RMS}	P _{loss2}		2300		W
Power factor		cos(phi) _{Unit2}	-1,00		1,00	

General data			min	typ	max	units
Power losses (PCB)		P _{loss aux}			t.b.d.	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}		500		V _{RMS}
Insulation test voltage	according to EN50178, f = 50Hz, t = 60s	V _{isol}		1,8		kV _{RMS}

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Technical Information

PrimeSTACK

6PS0400R12KE3-3GH



Zieldaten target data

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}	40			W
Driver and interface board	see separate technical information		DR210			
Driver core			EiceDRIVER 2ED300C17-S			
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 1mA; at 237A	$V_{ana out}$	3,78	3,86	3,94	V
Analog temperature output	load max 1mA; at $T_{NTC} = 85^{\circ}C$ correspond to $T_j = 125^{\circ}C$	$V_{T out}$	10,69	10,91	11,13	V
Overvoltage shutdown reaction time	after overvoltage message by PrimeSTACK interface				50	μs
Overcurrent shutdown reaction time	after overvoltage message by PrimeSTACK interface				10	μs

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	$\Delta V/\Delta t_{Air}$	500			m ³ /h
Air pressure drop		Δp_{Air}		400		Pa
Cooling air inlet temperature	heat sink temperature > -25 $^{\circ}C$	T_{inlet}	-25		40	$^{\circ}C$

Environmental conditions

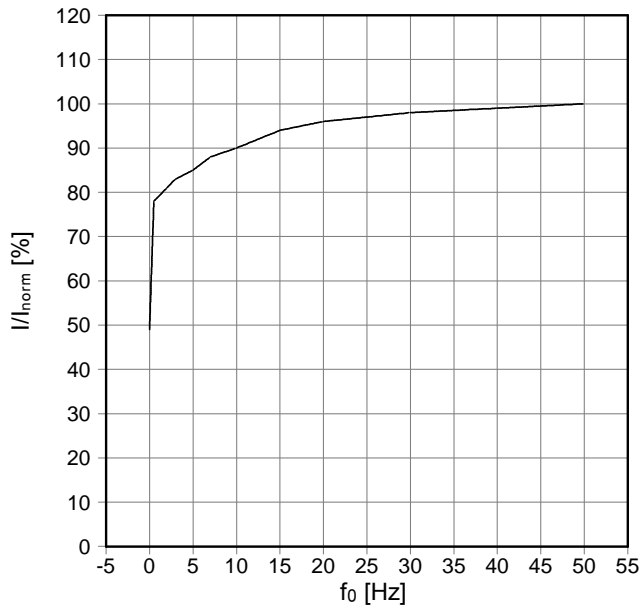
			min	typ	max	units
Storage temperature		T_{stor}	-40		85	$^{\circ}C$
Ambient temperature (PCB)		T_{amp}	-25		55	$^{\circ}C$
Operating temperature	see chapter Heat sink air cooled / Thermal data					
Cooling air velocity (PCB)		$V_{Air PCB}$	0,3			m/s
Air pressure	standard atmosphere	p_{Air}	900		1100	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}	6,0		10,0	Nm
Torque at AC Terminals		M_{AC}	16,0		20,0	Nm
Dimensions	width \times depth \times height		216	280	165	mm
Weight with heat sink	approximation			8,9		kg
Weight without heat sink	approximation			2,9		kg

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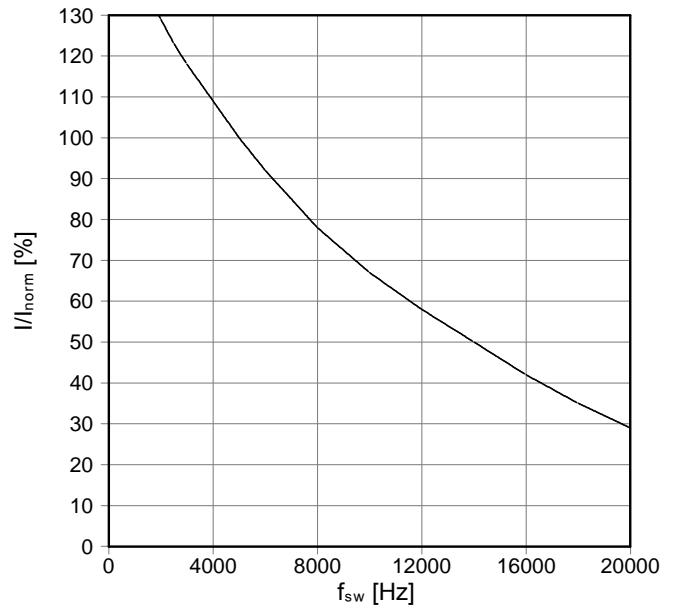


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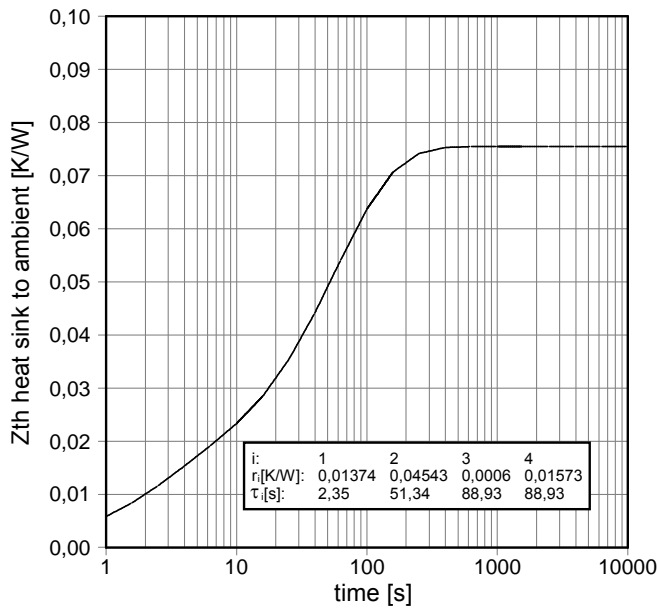
fo - derating curve IGBT (motor)
cos(phi) = 0,85
T_{cool medium} = 40



fsw - derating curve IGBT (motor)
cos(phi) = 0,85
T_{cool medium} = 40°C



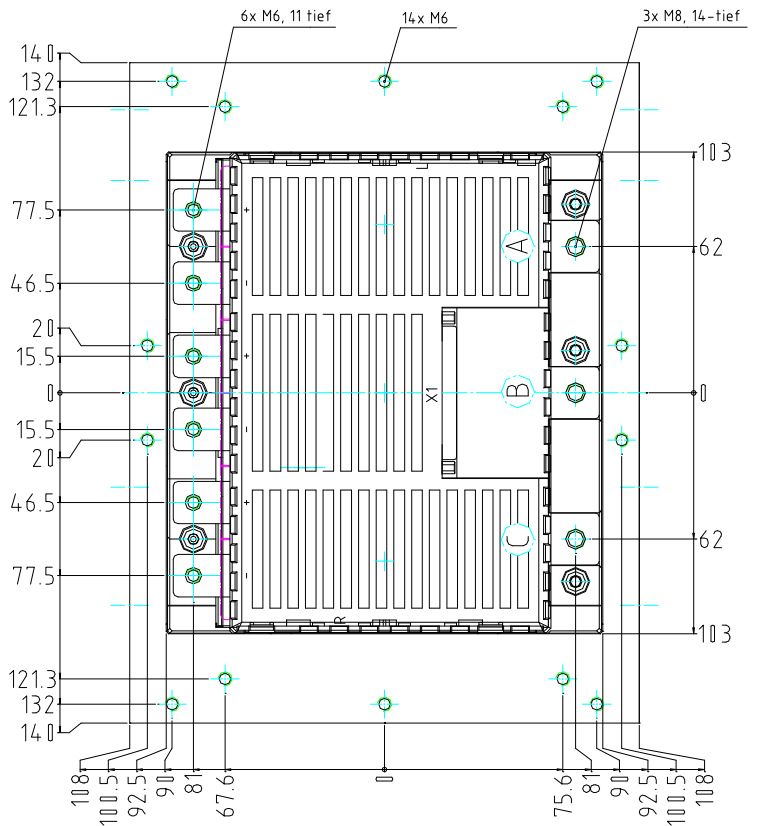
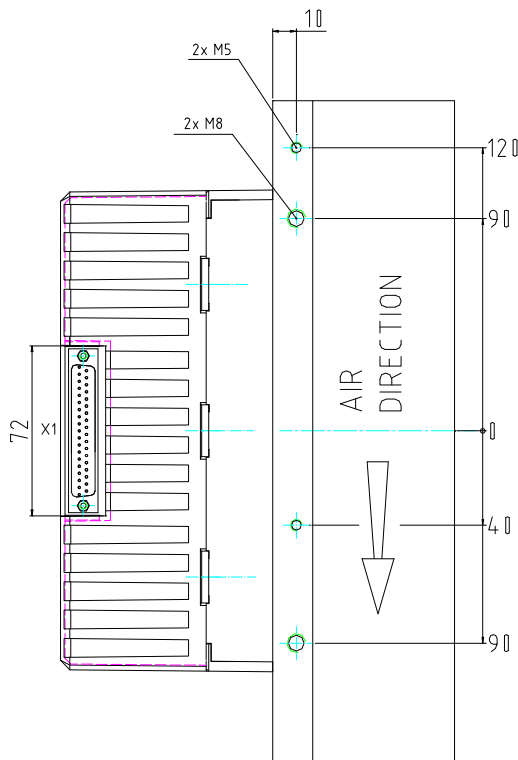
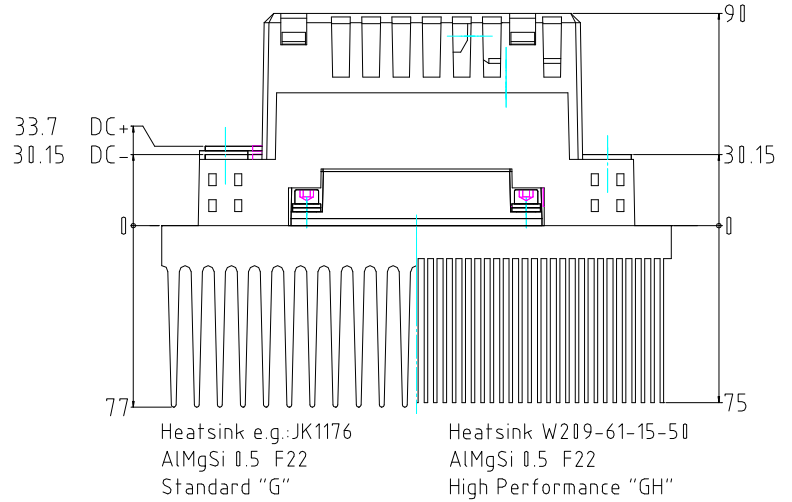
Transient thermal impedance per module
T_{cool medium} = 40°C



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Mechanical drawing

2PS...-3...
4PS...-3...
6PS...-3...
PrimeSTACK C3
38000030



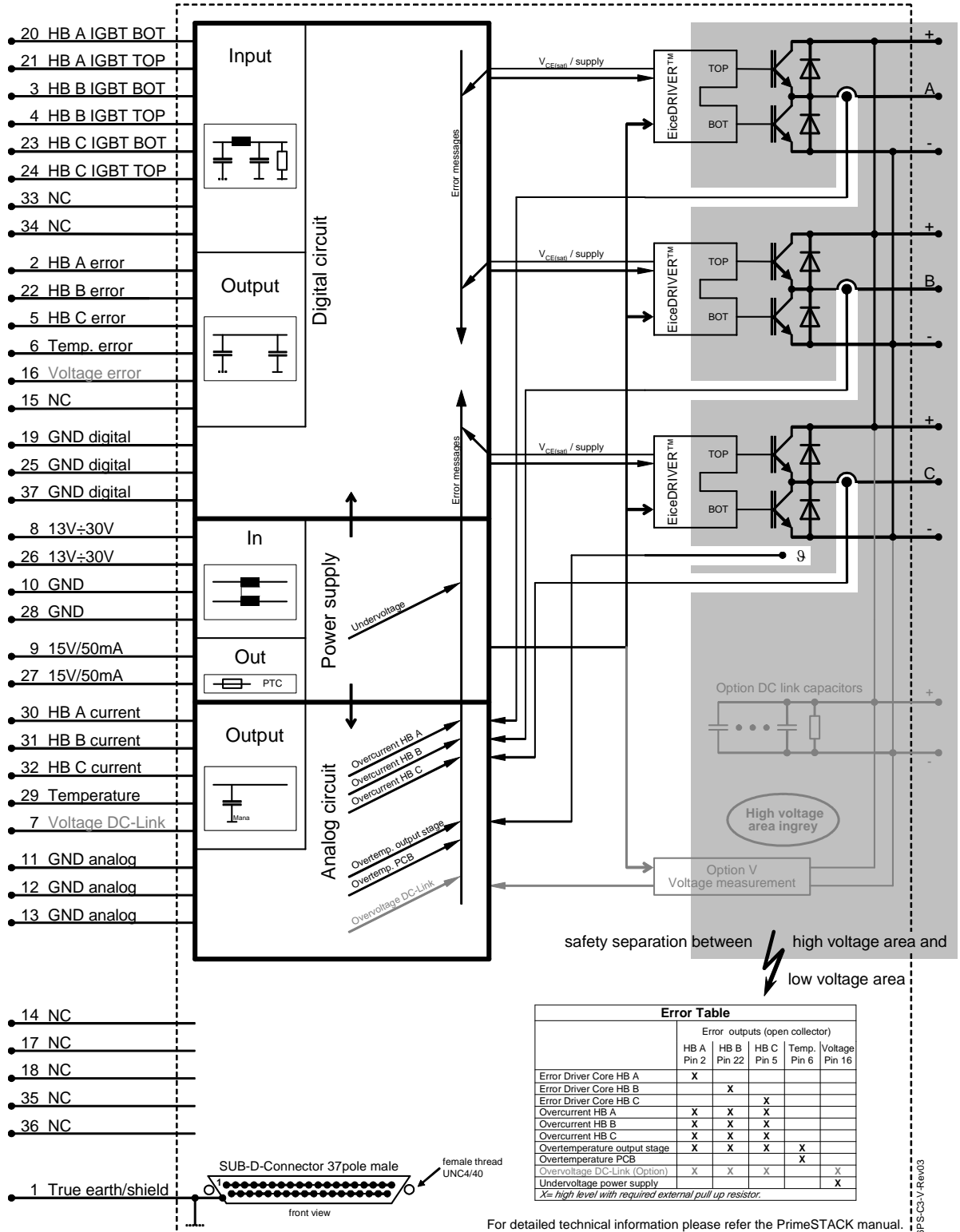
X1:

- 2PS : SUB-D-Connector 25 pole, male
- 6PS : SUB-D-Connector 37 pole, male

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Circuit diagram



	Error outputs (open collector)				
	HB A Pin 2	HB B Pin 22	HB C Pin 5	Temp. Pin 6	Voltage Pin 16
Error Driver Core HB A	X				
Error Driver Core HB B		X			
Error Driver Core HB C			X		
Overcurrent HB A	X	X	X		
Overcurrent HB B	X	X	X		
Overcurrent HB C	X	X	X		
Overtemperature output stage	X	X	X	X	
Overtemperature PCB				X	
Overvoltage DC-Link (Option)	X	X	X		X
Undervoltage power supply					X

X = high level with required external pull up resistor.

For detailed technical information please refer the PrimeSTACK manual.

6PS0400R12KE3-3GH Rev03



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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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