



Hybrid Power

AEP 100

DC/DC converter



- Innovative in energy storage & Power Electronics
- Custom-made solutions
- Complete solution: storage & Power Electronics
- Design and system integration

Features

- Flexible mounting system
- Several devices mountable alongside each other, cable connection only on two sides
- Load-dependent PWM fan control
- Low output current ripple for DC/DC application
- Optional: customer specific signal analysis and processing
- Optional: implementation and analysis of customer specific data interfaces and protocols

Applications

- DC/DC converter (e.g.) charging and discharging of energy storage

Mechanical Data

Width x Depth x Height
178 x 359 x 238 mm
Approx. 9,8 kg

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Technical Characteristics

Example of use as DC/DC converter at 4 kHz

Symbol	Parameter	Description	Value	Unit
General				
V_{in}	Input voltage		540 till 800	V
f_{sw}	Switching frequency		4	kHz
V_{out}	Output voltage	$V_{out} \leq V_{in} - 50$	0 till 750	V
I_{max}	Output current		180	A _{rms}
L	Inductance of the chokes	The chokes will be adopted for the particular application	3 x 2 3 x 60	mH A
I_{ripple}	Ripple current	The ripple current can be adjusted by adjusting the chokes	5	A
	Control modes	Voltage control Current control Power control		
	Connection cross-section		16	mm ²
Environmental				
	Operating temperature range		0 till +40	°C
	Storage temperature range		-20 till +60	°C
	Max. operational altitude		2000	m above sea level
	Degree of protection		IP20	
Mechanical data				
	Weight		9,8	kg
	Width		178	mm
	Height		238	mm
	Depth		359	mm
Cooling				
	Coolant	Forced air cooling		
	Airflow		300	m ³ /h

Mechanical Data

Width x Depth x Height: 178 x 359 x 238 mm
 Weight: Approx. 9,8 kg

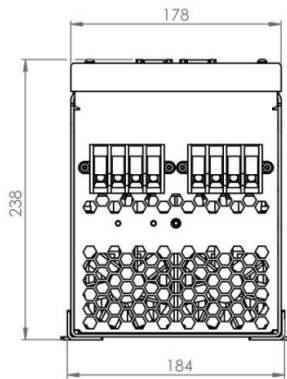


Figure 1: front view

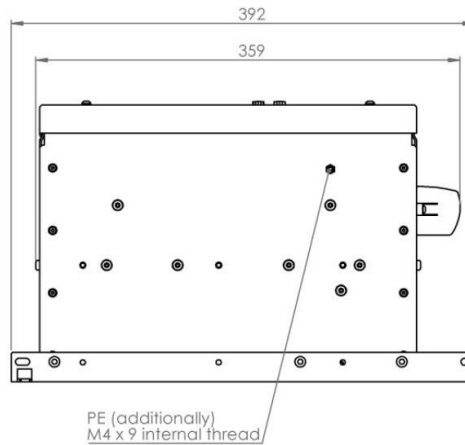


Figure 2: side view

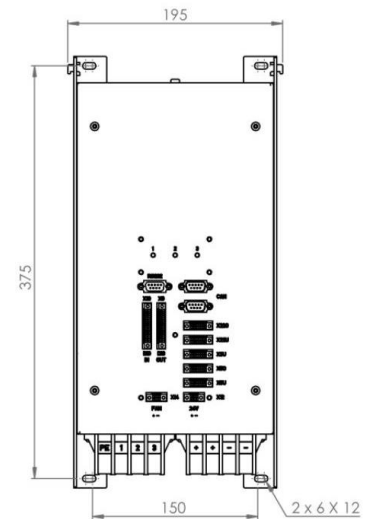


Figure 3: top view

Accessories



Figure 4: Pre-charge



Figure 5: Choke Assembly



Figure 6: EMC filter



Figure 7: Voltage measurement

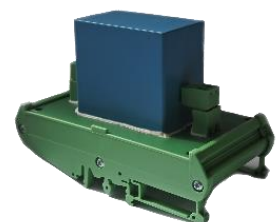


Figure 8: Output cap

Connections

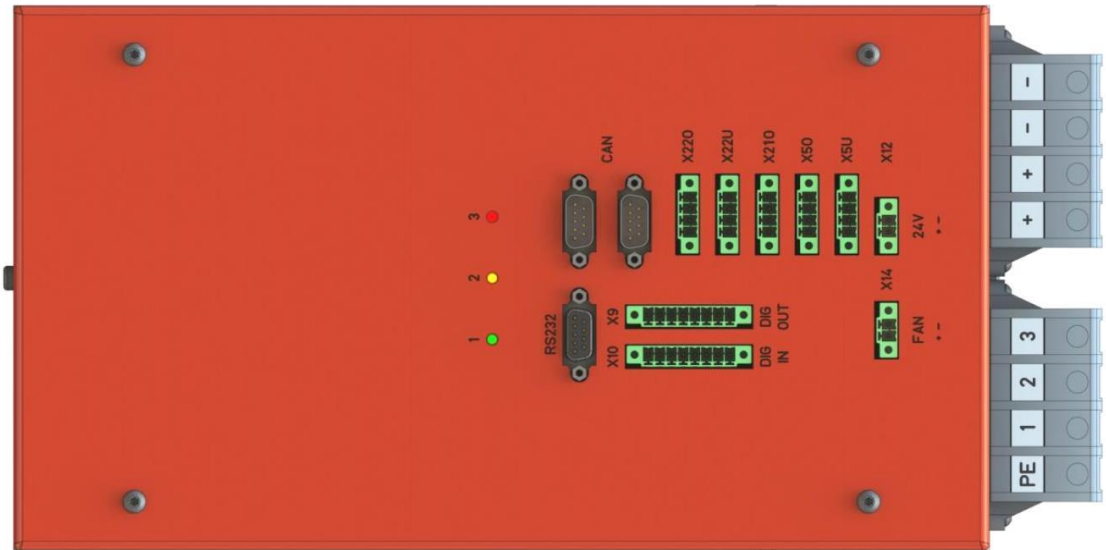


Figure 9: Connections

Power Terminal

Pin	Signal	Connection	Description
1	AC phase L1	Terminal with screwed connection	Fastening torque: 2-2,3 Nm
2	AC phase L2	Terminal with screwed connection	Fastening torque: 2-2,3 Nm
3	AC phase L3	Terminal with screwed connection	Fastening torque: 2-2,3 Nm
+	DC-link +	Terminal with screwed connection	Fastening torque: 2-2,3 Nm
+	DC-link +	Terminal with screwed connection	Fastening torque: 2-2,3 Nm
-	DC-link -	Terminal with screwed connection	Fastening torque: 2-2,3 Nm
-	DC-link -	Terminal with screwed connection	Fastening torque: 2-2,3 Nm

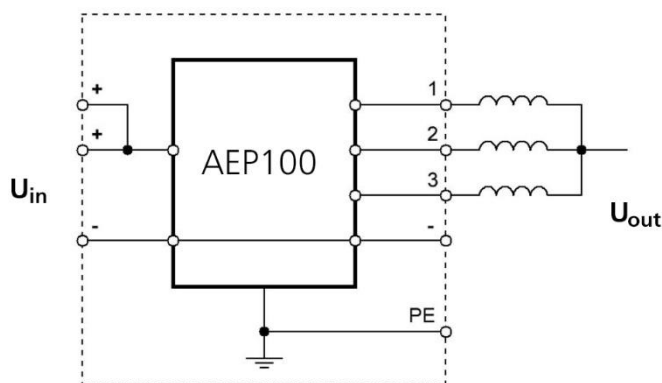


Figure 10: Switching example for application as DC/DC converter



Communication

Connector	Pin	Signal	Description
X50, analog input			
	1	-15V feed-in	
	2	Feed-in GND	
	3	Measuring signal +/- 21,3 mA	
	4	+15V feed-in	
X5U, analog input			
	1	-15V feed-in	
	2	Feed-in GND	
	3	Measuring signal KTY81-110	
	4	+15V feed-in	
X210, analog input			
	1	-15V feed-in	
	2	Feed-in GND	
	3	Measuring signal +/- 21,3 mA	
	4	+15V feed-in	
X9, digital output			
	1	Error	For LED-connection 24V, max. 10mA
	2	Ready	For LED-connection 24V, max. 10mA
	3	Active	For LED-connection 24V, max. 10mA
	4	Converter faultless	24V, max. 10mA
	5	Reserve output 1 ¹	24V, max. 10mA
	6	Reserve output 2 ¹	24V, max. 10mA
	7	Reserve output 3 ¹	24V, max. 10mA
	8	GND IO	



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Connector	Pin	Signal	Description
X10, digital input			
	1	Power on	24V, approx. 10mA @ 24V
	2	Activate	24V, approx. 10mA @ 24V
	3	Error reset	24V, approx. 10mA @ 24V
	4	Emergency out	24V, approx. 10mA @ 24V
	5	EDM signal main switch (input)	24V, approx. 10mA @ 24V
	6	EDM signal main switch (output)	24V, approx. 10mA @ 24V
	7	Reserve input ¹	24V, approx. 10mA @ 24V
	8	GND IO	
X12, voltage supply			
	1	+24 VDC	+/- 20%, control current approx. 1A
	2	GND	
X14, FAN			
		+24 VDC	+/- 20%, control current approx. 1A
		GND	
X22O, digital output voltage supply IO			
	1	+24V	IO voltage supply
	2	Active main switch (output)	Open collector, 24V, max. 200mA
	3	Fan relay	Open collector, 24V, max. 200mA
	4	Fan speed	Open collector, 24V, max. 200mA
X22U, digital output, voltage supply IO			
	1	GND IO	Ground IO
	2	Activating pre-charge (input)	24V, max. 200mA
	3	Activating main switch (input)	24V, max. 200mA
	4	Activating pre-charge (input)	Open collector, 24V, max. 200mA



Connector	Pin	Signal	Description
CAN, DSUB9			
	1	NC	
	2	CAN low	
	3	CAN GND	
	4	NC	
	5	NC	
	6	NC	
	7	CAN high	
	8	NC	
	9	NC	
RS232, DSUB9			
	1	NC	
	2	TXD	
	3	RXD	
	4	NC	
	5	GND	
	6	NC	
	7	NC	
	8	NC	
	9	NC	