DATASHEET

PowerBriX® Medium Power 750V Underframe

Auxiliary Power Converter System

PowerBriX® Medium Power is a 100kVA light and compact auxiliary power converter system intended for any underframe installation of any railway vehicle. It is realized with most modern SiC technology to achieve one of the most compact and efficient solution of the market.

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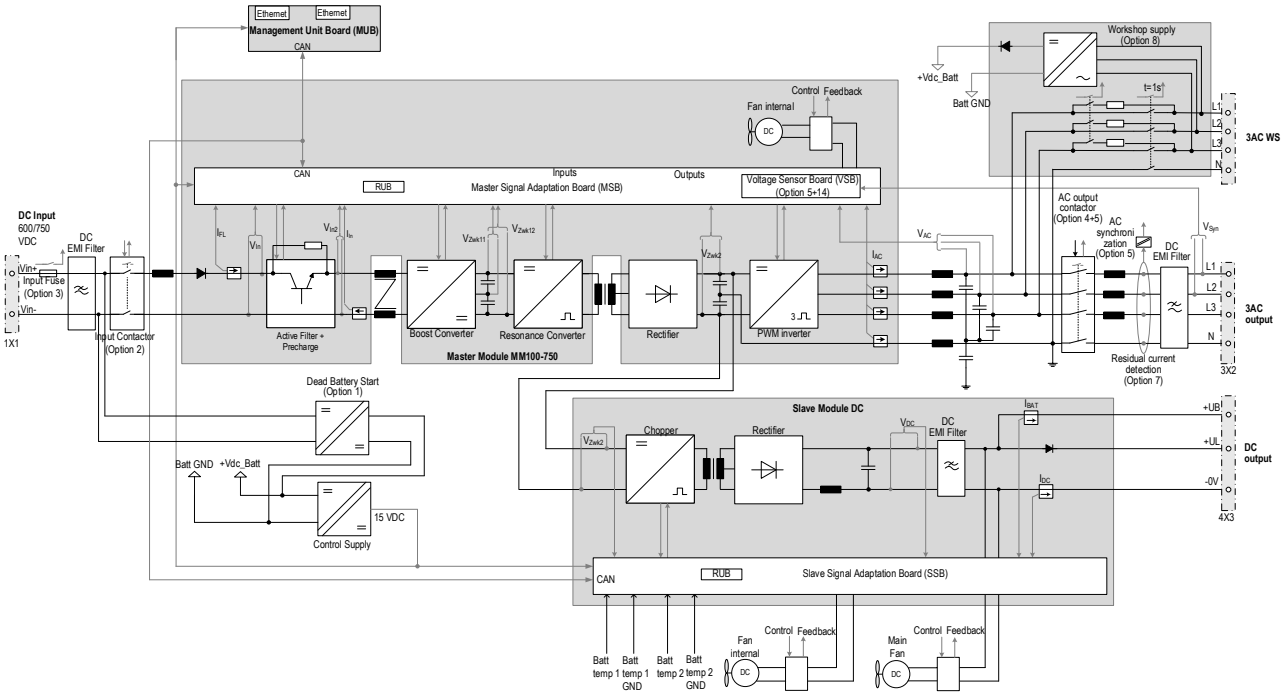
PowerBrix® Medium Power

Key Characteristics	**Compact** — **1600 mm x 750 mm x 500 mm** Excluding Fixing Points	**Lightweight** — **335 kg** With Standard Scope of supply	**Efficiency** — **95,2 %** @Nominal voltage/50 % of load
	Flexible — **Configure Scope of Supply** Within given options	**Reliable** — **46'000 h** Material Failure MBTF	**Easy to Maintain** — **Modular design**

Block Diagram



Main Power Input

Parameter	Value
Nominal Input Voltage	600 V_{DC}/750 V_{DC}
Input Voltage Range	350 to 1270 V_{DC}
Total Output Power	105 kW
Efficiency @750 V_{DC} & 50 % load	95.2 %

3AC Output Parameters

Parameter	Value
Output Type	3AC or 3AC+N
Frequency Control	Fixed or Variable
Output Waveform	SIN
Rated Voltage	400 V_{AC}/50 Hz 460 V_{AC}/60 Hz
Rated Power	100 kVA
Rated Power Factor	0,85
Rail gap withstanding capability	10 ms
THD of the Voltage	<5 %

LVDC/Battery Charger Power Configurations

Output Voltage	Power	Current
24 V_{DC}	8 kW	333 A
24 V_{DC}	12 kW	500 A
110 V_{DC}	20 kW	182 A

Parameter	Value
Charging Characteristic	IUoU Configurable
Battery Current	Configurable
Output Voltage Tolerance	±1 %
Output Voltage Ripple	<2 %

Environmental Parameter

Parameter	Value	Remarks
Ambient Temperature Range	-25 to 45 °C	
Storage Temperature	-40 to 85 °C	
Humidity	0 to 95 %	
Maximum Operation Altitude	1400 m (a.s.l.)	
Pollution Degree	PD4	
Sound Power Level	63.2 dB	@50 % load, 21 °C
Chemical Classification	5C1	EN 60721-3-5

Mechanical Parameters

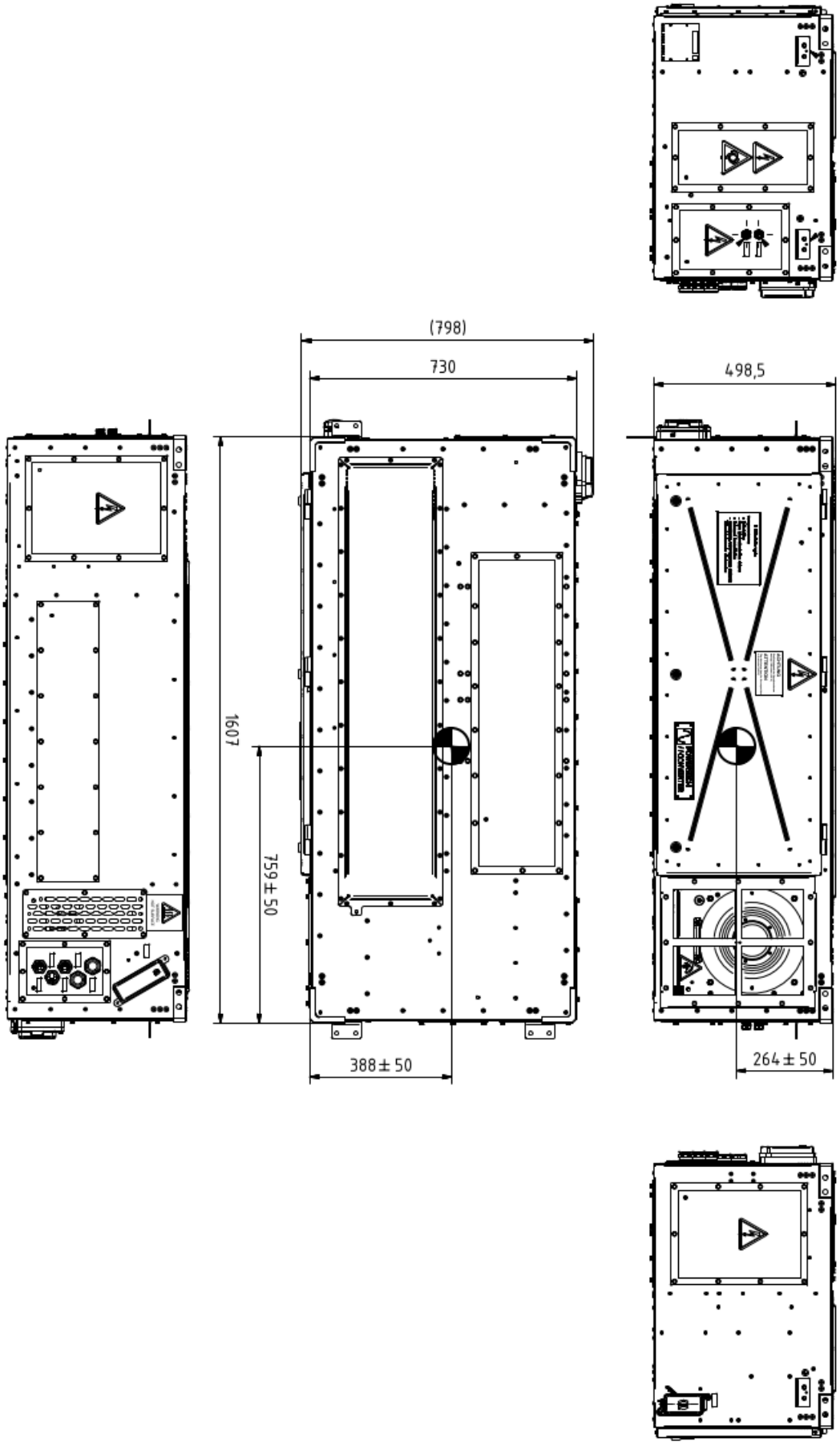
Parameter	Value
Dimensions (LxWxH)	1600 mm x 750 mm x 500 mm
Weight	≤335 kg (without any options)
Degree of Protection	IP55 + IP21
Cooling Type	Forced Air
Cabinet Material	Stainless Steel 304
Shock and Vibration	EN 61373, Cat 1, Class A
Fire Protection	EN 45545-1, HL2

Communication Interface

Parameter	Value
Input Voltage Range	16,8 to 137,5 V_{DC}
Service Port	Ethernet
Vehicle Interface	Ethernet, MVB or CANopen
Digital Input	5 (without any options)
Digital Output	6 (without any options)
Battery Temperature Sensor Input	NTC (10 kOhm)

Drawings

Overall
Dimensions



Configuration Options

Option [1] - HV Dead Battery Start An additional control power supply taking energy from HV input can be installed inside APCS, so that the APCS is able to start-up also in case of dead battery and HV only is available.
Option [2] - Input Contactor An input contactor can be added in the APCS input to isolate the APCS from the line voltage.
Option [3] - Input Fuse Input fuse can be added in the APCS input in the rare case where the APCS input line is not protected by a dedicated fuse.
Option [4] - AC Output Contactor Main 3AC contactor can be installed to isolate the APCS from train distribution line. It is a mandatory option in case of AC synchronization option is included.
Option [5] - AC Synchronization APCS inverter output can be connected in parallel with other PowerBriX® APCS without any communication bus.
Option [6] - Fire Safety Detection LHD cable can be added in order to be integrated with vehicle fire extinguisher system.
Option [7] - Ground Fault Detection An Earth Fault detector based on a current measurement to ground, can be installed in the AC output. The purpose is not intended as an electrical safety or fire protection.
Option [8] - Workshop Supply A dedicated input for the Workshop operation can be added to provide energy to the 3AC output and the battery charger. To be noted that due to EMC capacitor, current to ground can be >30mA at a frequency >1kHz.
Option [10] - Pre- and Post-trigger for Event-Log A Pre- and Post-trigger functionality can be added to facilitate debugging attempts.
Option [11] - PT100 Interface for Battery Temperature This option enables the use of PT100 temperature sensors for battery temperature detection.
Option [12] - Enclosure with different colors This option provides surface protection in form of a wet paint or powder coating.
Option [13] - Enclosure for IP65 This option provides an increased intrusion protection to the APCS up to IP65.
Option [14] - 3AC Output Phase Monitoring This option enables the APCS to supervise all three AC output phases. It is a mandatory option in case of AC synchronization option is included.
Option [15] - Interfaces with Connectors All interfaces equipped with connectors instead screwed connections.
Option [16] - Predictive Maintenance and IoT This option adds several predictive maintenance and remote supervision functionalities to the APCS.

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