DATASHEET

PowerBriX® Low Power 35 kVA

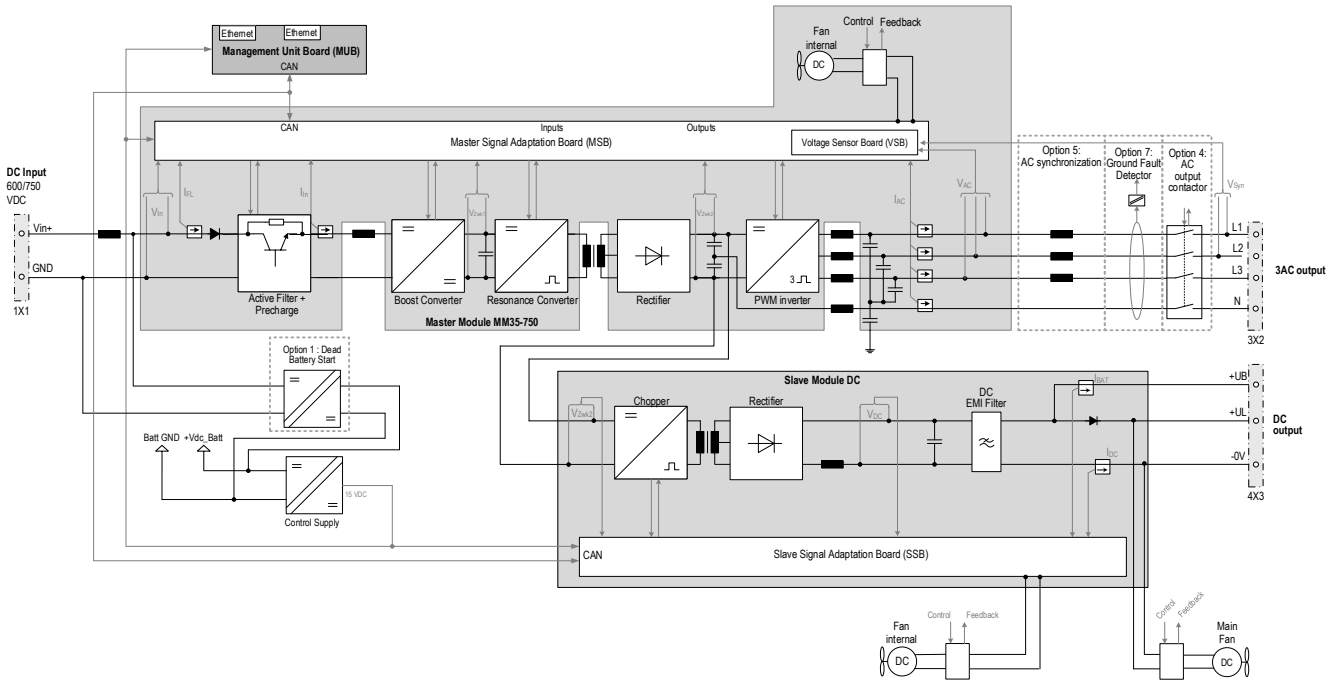
Auxiliary Power Converter System

PowerBriX® Low Power 35 kVA is a light and compact auxiliary power converter system intended for any roof 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.

PowerBrix® Low Power

Key Characteristics	**Compact** **1400 mm x 550 mm x 400 mm** Excluding Fixing Points	**Lightweight** **155 kg** With Standard Scope of supply	**Efficiency** **93 %** @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	37.75 kW
Efficiency @750 V_{DC} & 50 % load	93 %

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	35 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

* LVPS power over 8kW must be subtracted from 3AC active power

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	62 dB	@50 % load, 21 °C
Chemical Classification	5C1	EN 60721-3-5

Mechanical Parameters

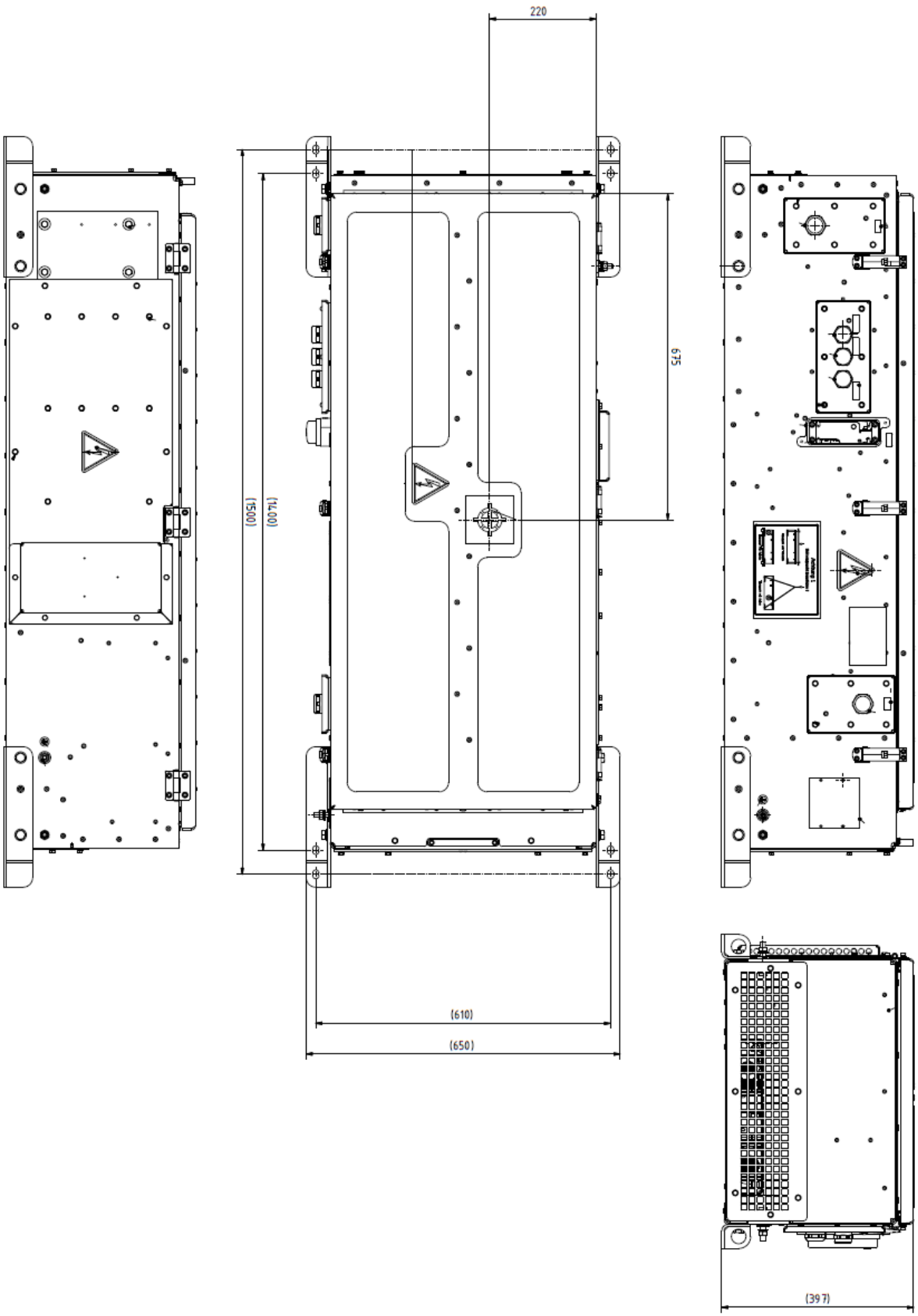
Parameter	Value
Dimensions (LxWxH)	1400 mm x 550 mm x 400 mm
Weight	≤155 kg (without any options)
Degree of Protection	IP55 + IP21
Cooling Type	Forced Air
Cabinet Material	Aluminum 5754
Shock and Vibration	EN 61373, Cat 1, Class A
Fire Protection	EN 45545-1, HL2

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 [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
Not foreseen for standard product, available for special project only as customized solution. To be evaluated.

Option [9] - Storage Time 50 ms
The standard storage time (rail-gap bridging) of 10 ms can be increased to 50 ms with this option.

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 of screwed connections.

Option [16] - Predictive Maintenance and IoT
This option adds several predictive maintenance and remote supervision functionalities to the APCS.

ABB S.p.A.
Traction
Via Albareto 35
16153, Genova Italy
traction.converters@it.abb.com

ABB S.p.A.
Traction Converter GmbH
Am Borsigturm 100
13507, Berlin Deutschland
traction.converters@it.abb.com

abb.com/railway
abb.com/auxiliaryconverters

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