

BMS9000 BATTERY MANAGEMENT SYSTEM



Features

- » IP20 modular rack system
- » 3-phase 400 VAC input models
- » Output models 24, 36, 110 VDC
- » Efficiency up to 95 %
- » Forced cooling with fan
- » MTBF 1 800 000 h
- » Coated PCB for rail and metro applications
- » Large operation temperature ranges from -40 °C to +55 °C and up to +70 °C with derating

Product Description

The BMS9000 Battery Management Systems and Power Modules represent the flagship solution for the rail industry.

The BCS9000 Battery Management Systems and Power Systems are modular, IP20 enclosed solutions delivering up to 12.8 kW of power with the 3.2kW Power Modules from a 3 -phase 400 VAC input. They provide regulated 24 VDC, 36 VDC or 110 VDC outputs while maintaining the battery in a fully charged state. In the event of AC input failure, the connected battery seamlessly supplies power to the DC bus.

The battery is electrically decoupled from the DC bus via a decoupling diode, preventing excessive charging currents should the bus voltage exceed the battery voltage.

This rugged and versatile product family is rail approved in accordance with the highest industry standards and has a proven field track record with major rail manufacturers worldwide.

The modules employ forced-air cooling to achieve the smallest possible footprint and overall system volume, helping to conserve valuable installation space.

Communication interfaces include Ethernet (TRDP) and/or CAN bus, available for 3 kW product variants.

Standards

- » EN50155:2007 Railway applications – Electronic equipment used on rolling stock
- » EN50124-1:2001 Railway applications – insulation coordination
- » EN50153:2014 Railway applications – Rolling stock – Protective provisions relating to electrical hazards
- » EN45545-2:2013: Railway applications – Fire protection on rail vehicles
- » EN61373:2010: Railway applications – Shock and vibration

Technical Specifications – Power Modules

AC Input	ADC9942 ADC9944	ADC9982	ADC9953
Input voltage	3-phase 400 VAC rms (+15% / -20%)	3-phase 400 VAC rms (+15% / -20%)	3-phase 400 VAC rms (+15% / -20%)
Input current	5.5 Arms	5.5 Arms	5.5 Arms
Inrush current	12A peak/phase	12A peak/phase	12A peak/phase
Input frequency	47...63Hz	47...63Hz	47...63Hz
External circuit breaker	16A	16A	16A
Nominal output voltage	24 VDC	36 VDC	110 VDC
Output voltage adjustment range	21...32VDC	25.2...45 VDC	100...137 VDC
Overvoltage protection	35 V	50 V	145 V
Maximum output current	100...133 A	71.9...88.9 A	23...29 A
Maximum output power	3200 W	3200 W	3200 W
Efficiency	90...93%	90...93%	90...93 %
Regulation	Voltage ± 1 %	Voltage ± 1 %	Voltage ± 1 %
Output voltage adjustment	ADC9942 via CAN bus ADC9944 also via Ethernet	Via CAN bus	Via CAN bus
Output ripple voltage	ADC9942 <150mVRMS ADC9944 <75 mVRMS	<150mVRMS	<150mVRMS
Rev. polarity protection	Mechanical	Mechanical	Mechanical
Ethernet (TRDP)	ADC9944	No	No
CAN	Yes	Yes	Yes
Ambient temperature	-40 °C to +55 °C +70°C with derating	-40 °C to +55 °C +70°C with derating	-40 °C to +55 °C +70°C with derating
Dimensions Width x height x depth	220 (290) x 88 (105) x 400mm	220 (290) x 88 (105) x 400mm	220 (290) x 88 (105) x 400mm