EV100H3N1K DC Fast Charger Rectifier for Electric Vehicle Applications

Features

- Size: 336 by 84 by 438 millimeters (13.23 by 3.3 by 17.25 inches)
- Three-phase AC input range of 400 to 480 volts AC
- Output voltage of 50 to 1,000-volts DC (settable)
- Operating temperature range of -20 to 65C
- Maximum output power of 30 kilowatts (kW) at 50 C
- Derated power to 65 C
- >96% efficiency at full load
- CAN bus communications
- Output over current protection (non-latching)
- Under-/over-voltage protection
- Over-temperature protection
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Tentative Timing

Pre-production sample: Spring 2020
Production grade sample: Summer 2020
Release to Market: Fall 2020

Description

The EV100H3N1K is a direct current fast-charger rectifier specifically designed to meet the unique needs in electric vehicle (EV) charger applications. The rectifier's power conversion capabilities meet both the traditional 400-volt charging standard and newly introduced 1,000-volt DC fast-charging standards. This broad output charging range combined with the rectifier's high operating efficiency – greater than 96% efficiency in optimum conditions – make it an ideal solution for current and future EV charging infrastructure. In addition, the rectifier's modular, self-contained, air-cooled chassis helps enable rapid serviceability and parallelable installations.

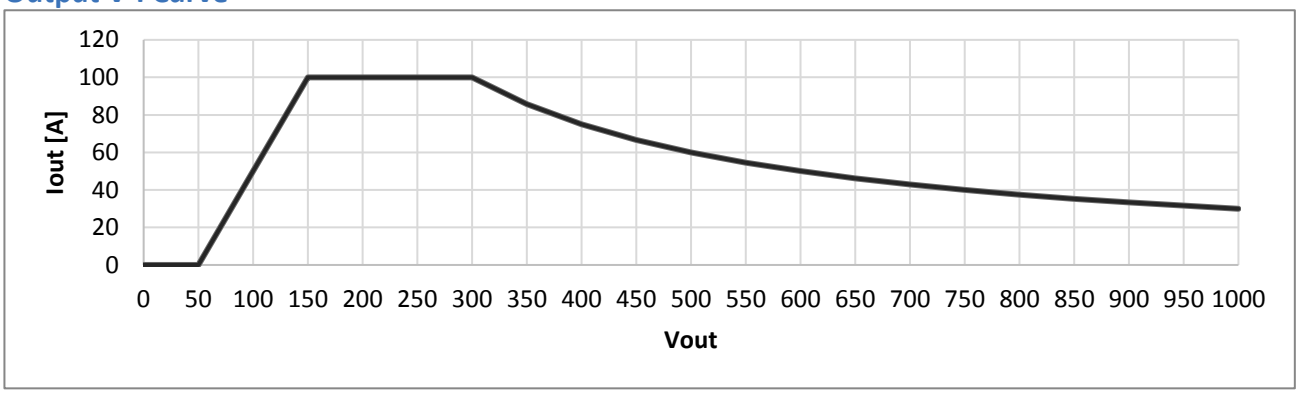
AC Specifications

Item	Requirement	Notes
Input connection	3P+PE	
AC rated input voltage	Three-phase line-to-line 400 Vac/ 480 Vac	
AC input voltage range	260Vac ~ 530Vac; derating from 323Vac	
AC input frequency	45-65Hz	
Power factor	>0.99 at full load	rated input
Total harmonic current	< 5% at 50-100% input current	rated input
Max Nr power modules in parallel	12	

DC Specifications

Item	Requirement	Notes
Output voltage range	50~1,000 volts	According to the capability in Fig.3 (150-1,000 voltds is settable)
Rated DC power	30kW	
Maximum current @ 1,000 volts	30 A	Fig.1
Maximum current	100 A	Fig.1
Efficiency	≥96% peak	Peak efficiency at achieved in optimal working conditions
Voltage error	≤±0.5%	
Current error	≤±0.3A , Load current < 30A ≤±1% , Load current ≥ 30A	NBT330081-2013
Voltage drop time after receiving stop command from CAN	≤ 1s to less than 60 volts	from current value to 60 volts

Output V-I Curve



Input Protection

Item	Protection point	Notes
Under-voltage protection	255±5Vac	Recover automatically.
Over-voltage protection	535±5Vac	Recover automatically.

Output protection

Item	Protection point	Notes
Over voltage protection	1010 ± 10V	Latch after trying to restart two times.

Electro-Magnetic Compatibility

Item	Test item	Standards	Levels
EMI	Conducted Emission	EN55022 FCC part 15 class A	CLASS A
	Radiated Emission	EN55022 FCC part 15 class A	CLASS A

Additional Information

Please contact your ABB Integrated DC Power sales representative for pricing, availability, and optional features.

Table 1. Device Codes

Commcode	Description	Input Voltage Range	Output Voltage	Output Current	Temperature Range
1600293422A	EV100H3N1K 30kVa DC Fast Charger Rectifier	400/480Vac, 3ph, Delta	1000Vdc	30A	-20C to 65C