



RT15-based OEM EV Charger Specification

The RT15-based OEM EV Charger kit is built from one up to 15 high efficiency switched mode RT15-450V modules (each converts 3-phase 400VAC to up to 450VDC at 30kW output) combined with a CCS Charger Controller/Interface Module. It is suitable for high power vehicle chargers delivering a power saving peak efficiency of > 96%.

The compact size of the RT15 building block allows a power density of up to 450kW in a 600mm x 600mm footprint, or more slimline designs with the RT15 mounted in a vertical orientation.

The CCS Charger Controller/Interface Module allows sophisticated vehicle charging management with network connectivity and advanced rectifier sleep mode functionality for additional power savings.



RT15-based OEM EV Charger Kit

Specifications at 400VAC in, 450VDC out, 25°C, with single RT15 unit unless otherwise stated

Input 400VAC

Voltage requirement:

Three-phases, 4 wire, nominal supply range: 380 – 480VAC
Voltage tolerance: 285 – 530VAC
Full output power available above 323VAC
Frequency: 50/60Hz ± 10%
Voltage distortion: ≤ 5%
Phase imbalance: <10%

Current drawn at full load:

39A RMS max at 480VAC
46A RMS max at 400VAC
57A RMS max below 323VAC

Power factor:

Greater than 0.99 at full load
0.98 at half load
0.95 at 30% load

Harmonic distortion of input current:

Less than 5% at full load; 10% at half load

Voltage withstand test:

2800VDC input to chassis for 1 minute

Protection:

Overvoltage: operates to 530VAC typically and will sustain 720VAC without damage
Undervoltage: operates at reduced power to 155VAC typically
Surge protection to 6kV/3kA

Startup and hot plug:

RT15 units can be hot-swapped
Inrush less than 100% input current
Soft start approx 5 seconds

Output 450VDC (maximum)

Voltage control range:

Charging range: 200 – 450V
Control range: 0 – 450V
Precision: <±0.5%

Current control range:

Range 1 - 73A
Precision: <±1% of full scale

Power limit (with single RT15 unit): 30kW

Available current: 73A at < 410V
67A at 450V

Battery parameter regulation:

< ±1% of full scale in constant current mode
< ±0.5% of target in constant voltage mode

Noise:

< 0.5% peak to peak (0 - 20MHz)

Protection:

Overcurrent: can sustain short circuit at output terminals indefinitely
Output discharge: <60V in 1s on end of charge
Overshoot: less than 0.1% at start-up





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General

Isolation:

Input and output galvanically isolated
DC Output floating according to IEC 61851-23
Control circuits earthed

Efficiency:

>96% peak efficiency
>95% typical from 20 – 73A

Standards

Product:	IEC 61851-1:2017; IEC 61851-23:2014;
Vehicle couplers:	IEC 62196
Vehicle-to-Grid Communication Interface:	ISO/IEC 15118 DC, DIN70121 DC
Grid Power Utility Automation:	IEC 61850
Safety:	Designed to IEC60950-1:2005
EMC Emissions and Immunity:	Designed to IEC 61851-22:2014

Mechanical

RT15 Module:

Mounting method:	plug-in magazine
Width:	19"
Height:	3U
Depth:	550mm
Mass (module only):	< 31kg

CCS Charger, Controller/Interface Module, Rackmount Chassis:

Width:	19" (600mm)
Height:	370mm
Depth:	600mm
Mass (without RT15):	38kg

Acoustic Noise:

≤ 58dB (A Weighted)

Environment

Operating range:	-5°C to +40°C, ≤90% RH
Storage and transport:	-40°C to +70°C, ≤95% RH
Vibration:	10-55Hz, 0.35mm sine
Altitude:	1000m without de-rating
Cooling:	Internal fans, forced air cooling

Connections

Input:	Direct connection to input terminals
Output:	CCS1 or CCS2
Communications:	Wi-Fi interface to local network
Interface:	OCPP 1.6 (JSON based)
	IoTecha Intelligent Power Platform (I2P2)
	Smartphone app (Android, iOS)
	STOP button

