APS ChargePower

Rail2Road Charger

400 kW charging power using DC railway current.

- Use of existing DC railway power supply
- Charging of electric buses via CCS or pantograph-up
- High serviceability: remote maintenance and easy module replacement

Rail2Road Charger

The APS Rail2Road Charger is a high-performance DC charger with a satellite distribution system, designed to operate using DC voltage from an overhead line or rectifier station at 600 VDC or 750 VDC. The charging system is intended for use in public environments.

The 400 kW power unit controls one to four charging points via CCS or panto-up. The satellite units are installed separately from the main power unit, depending on site conditions and the positioning of the vehicles to be charged. The system also provides an interface for integration into external charging management systems. All modules of the power unit are designed as 19-inch rack inserts, making maintenance and replacement particularly simple. An optional remote terminal ensures easy operation for staff or customers.

Benefits

- One to multiple charging points via CCS or panto-up
- Flexible configuration options: 4 x 100 kW, 2 x 200 kW, or 1 x 400 kW
- Distance between charging point and power unit of up to 100 m
- Forced-air cooling – no coolant required, resulting in lower maintenance effort
- High serviceability: standardized 19" modules, remote maintenance, and easy replacement of plug-in CCS cables
- Robust cabinet, suitable for indoor and outdoor use (IP54)

General technical data

The charging system complies with all relevant standards and is compatible with common interface standards.

A Rail2Road Charging system consists of:

- Power Unit (PU)
  Generates the DC charging voltage and provides the required charging power of up to 400 kW.
- Charging Unit (Satellite) (CU)
  Controls the charging process and handles communication with the vehicle.
- User Interface Unit (UI)
  Enables on-site operation, including display, emergency stop, and RFID reader.
- The distance between the Power Unit (PU) and the Charging Unit (CU) can be up to 100 m.

Power Unit (PU)
The power unit is available in a 400 kW version.
It connects directly to the overhead line or rectifier station.

Standards	
Charging station	IEC 61851-23
Vehicle communication	ISO 15118, VDV 261
Backend communication	OCPP V2.0.1 / V1.6 JSON
Product compliance:	CE (Low Voltage Directive, Machinery Directive, EMC Directive)

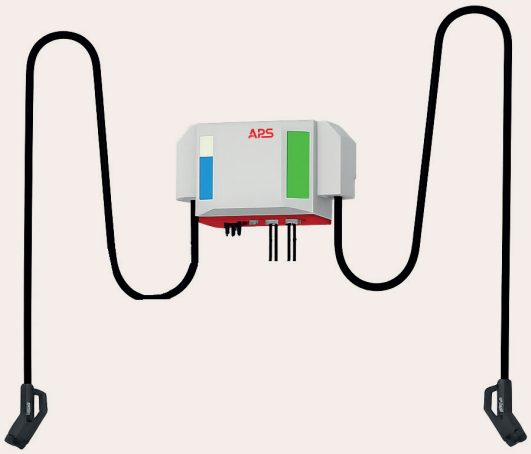
Technical changes reserved.

DC Input	**PU-DC400**
Rated power	400 kW
Nominal input voltage	600 VDC / 750 VDC
Input voltage range	400...950 VDC
Connections	DC1+/DC1-/-/PE/Ethernet
DC Output	
DC outputs	1x400 kW, 2x200 kW, 4x100 kW
Maximum current per output	CCS: 500 A, Pantograph-up: 800 A
Voltage range	150...850 VDC
Cooling	Air-cooled
Output terminals / connectors	DC1+/DC1-/.../DCX+/DCX-/PE/Ethernet
Mechanical Specifications	
Dimensions (W x H x D)	approx. 2010 x 2300 x 920 mm
Weight	approx. 1100 kg
Protection rating	IP 54 (suitable for outdoor use)
Environmental Conditions	
Operating temperature	–20°C ... +55°C
Efficiency	≥ 95 %
Noise level	approx. 66 dB at 1 m distance

Technical changes reserved.

CCS Charging Unit (Satellite, CU)

The charging unit is available in versions with one or two charging points. Depending on the installation location, it can additionally be equipped with an integrated touchscreen, RFID reader, and emergency stop function.



Input DC	CU-500-1	CU-500-2
Number of DC inputs	2	
Input voltage	150...850 VDC	
Connections	DC1+/DC1-/(DC2+/DC2-)/PE	
Supply	230VAC 50Hz: L1/N/PE	
Output (Charging Interface)	**CU-500-1**	**CU-500-2**
Number of charging points	1x200 kW	2x100 kW
Maximum charging current per charging point	375A (continuous)[1]	
Fast charging function	yes, 1x200 kW (switching within satellite)	
Voltage range	150...850 VDC	
Vehicle connection	Up to 10 m cable with CCS Combo-2 connector	
Operation / Diagnostics	**CU-500-1**	**CU-500-2**
Display	LED status and SOC indicator	
External inputs	Emergency stop / charge stop	
Integrated user interface	Optional (touchscreen, emergency stop, RFID reader)	
Mechanical specifications	**CU-500-1**	**CU-500-2**
Dimensions (W x H x D)	746 x 450 x 365 mm	873 x 450 x 365 mm
Weight (without user unit)	approx. 40 kg	approx. 45 kg
Protection rating	IP 54 (suitable for outdoor use)	
Environmental conditions	**CU-500-1**	**CU-500-2**
Operating temperature	–20°C ... +55°C	

[1]Note: Depending on the CCS cable and charging interface, the current may be additionally limited.
Technical changes reserved.

User Interface Unit (UI)

The user interface unit enables decentralized operation and diagnostics of the charging points. It provides a clear overview of the charging process and allows simple on-site checks without additional tools.

It can be installed at almost any suitable location. Communication with the charging and power units is handled via a local Ethernet network.

Input	UI-10
Input voltage	230 VAC, 50 Hz
Input current	approx. 1 A
Connections	Power supply 230 VAC 50 Hz: L1/N/PE; Data: Ethernet
Functions / Features	
Touchscreen	Yes, 10" color display
RFID reader	Charging authorization
Payment terminal	Currently not available
Emergency stop	Standard equipment
Mechanical specifications	
Dimensions (W x H x D)	350 x 600 x 350 mm
Weight	approx. 15 kg
Protection rating	IP 54 (suitable for outdoor use)
Environmental conditions	
Operating temperature	–20°C ... +55°C

Technical changes reserved.

Opportunity Charging with pantograph-up
400 kW fast-charging system connected to DC railway power supply (600 / 750 VDC)

DC Input	**PU-DC400**
Number of inputs (DC input)	1
Input voltage	400...950 VDC
Charging power	400 kW
Connections	DC1+/DC1-/(DC2+/DC2-)/PE
Output (Charging Interface)	**CU-1000-1**
Number of charging points	1
Maximum charging current per charging point	800 A (continuous)
Voltage range	150...850 VDC
Vehicle connection	pantograph-up charging hood
Operation / Diagnostics	**UI-10**
Display / operation	optional, with remote user interface unit
Mechanical Specifications	**PU-DC400**
Dimensions (W x H x D)	2010 x 2300 x 920 mm
Weight (without user interface unit)	1100 kg
Protection rating	IP 54 (suitable for outdoor use)
Environmental Conditions	**PU-DC400**
Operating temperature	–20°C ... +55°C
Efficiency	≥ 95 %
Noise level	66 dB at 1 m distance

Technical changes reserved.

Contact us for advice on your charging infrastructure and project-specific configuration.

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