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Smarter Mobility

Global product portfolio

ABB is championing e-mobility for a sustainable future, in which smart, reliable, and emission-free mobility will be accessible by everyone, everywhere.

ABB recently received the Global E-mobility Leader 2019 award for its role in supporting the international adoption of sustainable transport solutions.

As title partner of Formula E, the fully electric international FIA motorsport class, ABB is pushing the boundaries of e-mobility to contribute to a sustainable future. ABB operates in more than 100 countries with about 144,000 employees. abb.com

Global leader in EV charging infrastructure

Writing the future together

ABB has years of experience in designing, manufacturing, installing and maintaining electric vehicle charging infrastructure, including several nationwide charger networks

ABB EV infrastructure
ABB has been serving customers for over a century with reliable energy efficient solutions for utilities, industry, infrastructure and transport. Since 2010, ABB is leading the e-mobility revolution with charging infrastructure for any location combined with connected services.

Main features of all ABB chargers
ABB chargers are designed to be durable, reliable and easy to service. Main advantages include:

- Modular and redundant construction to ensure continuous operation
- Industry-grade components to ensure long lifetime and robust operation
- Future-proof, easily upgradable technology
- Remote maintenance and support for an effective, timely response to any irregularity
- Supports the open communication protocol OCPP
- Stainless steel powder coated cabinets for durability, even in cold or humid climates
- User centered design validated by user tests
- Remote charger's power management

ABB Ability™ Connected Services
ABB's Connected Services offering is based on a 24/7/365 monitored platform, which ensures the highest availability. A network operator can select from a modular offering supporting a smooth and seamless integration to back office processes via APIs, and giving access to value adding Web tools for configuration, advanced monitoring and notification.

Key advantages of connected chargers
ABB Ability Connected Services offer four key advantages:

- **Flexibility:** connect to any charging network, back office, payment platform or energy management solution
- **Upgradability:** benefit from the latest industry standards
- **High availability of the service:** based on Microsoft Azure's robust platform
- **Cost efficiency:** avoid development and maintenance costs of proprietary software solutions

Manufacturing and quality system
Key components in ABB DC fast chargers are designed and manufactured by ABB. This ensures full control over hardware and firmware. ABB chargers are manufactured in factories with strict quality systems in place. These factories undergo rigorous quality audits by independent external parties, as well as by automotive OEM clients.

Partnerships with automotive OEMs
ABB EVI has R&D partnerships with many automotive OEMs to support joint development and testing as well as to ensure optimal compatibility between DC fast charger and electric vehicle.

Supporting all EV charging standards
ABB supports all currently available open charging standards, which enables providing charging services to widely available electric vehicles. All chargers can be combined with comprehensive solutions for user authorization, payment and network connectivity.

The key elements to run an EV charging operation

ABB provides all elements to run a successful charging operation.
One stop for hardware, software, connectivity and services.

AC chargers
High quality, cost-effective, easy installation

Products	
AC chargers for cars	• 4.6 kW and 11 kW AC charging • 22 kW AC fast charging

DC fast chargers
Reliable, robust, modular hardware:

Products	
DC fast chargers	• 350 kW High Power charging • Up to 180 kW Fast charging • 24 kW DC wallbox
Heavy vehicle chargers for trucks and buses	• Pantograph Down charging from 150 kW to 600 kW • Pantograph Up charging from 150 kW to 600 kW • Connector based charging from 50 kW to 150 kW

Payment and Authentication
Global platform to support local payment and authentication solutions:
- RFID
- Smart phone
- PIN code
- Credit card payment module

Service Level Agreements
Configure a service agreement to match the needs of your organization:
- Proactive monitoring and remote diagnosis
- Certified service teams
- Preventive and corrective maintenance
- Over-the-air software updates and upgrades
- Training programs
- Clear communication and overview via ABB Web tools

ABB Ability™ Connected Services
Integrate with back offices and added value systems:

Charger Connect	
Charger Connect	Giving access to the ABB Ability Connected Services platform.
APIs for back office integration	
OCPP 1.6 API	Connect to back office systems via the ABB Cloud
Service API	Support your call center to help EV drivers
Basic Demand Response API	Manage input power of a charger
Dual Uplink – Direct OCPP for back office integration	
OCPP 1.6	Connect to back office systems directly from the charger

Web tools
Browser based tools for real-time charger access

Driver Care	Status, statistics, access management, etc.
Charger Care	Advanced trouble shooting and service tool
Payment	Configure and support payment terminals

Car charging infrastructure

Terra fast chargers - from 20 kW to 180 kW

The Terra fast chargers are designed for convenient charging of all types of electric vehicles, including the upcoming ones equipped with high voltage systems. The compact size makes it perfect for urban use, while its modularity allows to increase the charging power up to 180 kW and serve up to 3 electric vehicles at the same time.

Main features and key benefits

- DC fast charger supporting CCS (type 1 and 2), CHAdeMO 1.2 and GB/T.
- Serving up to 3 vehicles at the same time, 2 fast-charging and one AC charging.
- Modular design allows to increase the power level depending on the specific needs of the site, from 20 to 50 kW (Terra 24-54) and from 90 to 120 to 180 kW (Terra 94-124-184)
- The 300 A CCS cables allow high power charging speed in a compact form factor, ideal for urban environments.
- Capable of charging high voltage batteries (up to 920 Vdc)
- Simultaneous AC charging via optional 22/43 kW cable (Terra 24/54) or 22 kW socket AC Type-2 (all models).
- MID and Eichrecht (PTB) compliant metering system for DC and AC outlets available as option.
- Upgradable with cable management system to handle long cables and enhance the user experience.
- IEC 61000 EMC Class B certified for industrial and residential areas (including petrol stations, retail outlets, offices, etc.)
- Future-proof connection via open industry standards:
- Easy integration in OCPP backends and local control systems via OPC-UA (optional)
- Remote uptime monitoring and assistance
- Remote updates and upgrades
- Easy to use:
  - Daylight readable touchscreen display
  - Graphic visualization of the charging progress
  - RFID/PIN/Remote authorization
- Upgradable with credit card payment terminals

Configurations

- Low power models: Terra 24 (20 kW), Terra 54 (50 kW)
- High power models: Terra 94 (90 kW), Terra 124 (120 kW), Terra 184 (180 kW)
- European, US, Japan and China versions available, for 400 V, 480 V and 380 V AC grid inputs
- Many combinations of the open protocols CCS, CHAdeMO, GB/T and AC charging
- Continuous current output up to 125 A (Terra 24/54) and 300 A (Terra 94/124/184)
- Different cable lengths available and optional cable management system

01 Terra 54CT
02 Terra 54 CJG
03 Terra 184 CC
04 Terra 184 CJ (USA)
05 Terra 184 CJ with cable management system

01 02 03 04 05

Terra HP – 175 kW to 350 kW

Fast charging just got faster. High power for next gen EVs

Several EV models with larger batteries and longer range are coming. Infrastructure needs are growing. More fast charging points with higher power demands will be needed for drivers to adopt the next generation of electric transportation. ABB has solutions today that will enable this future.

Main features and key benefits

- Ultra-high current of 375 A per individual power cabinet
- Dynamic DC functionality: 500 A per charge post
- Wide voltage range: 150-920 V
- Modular system: 175-350 kW
- Suited for current and next generation EVs
- CHAdeMO and liquid cooled CCS up to 350 kW and 500 A
- 375 A output current per power cabinet to charge fast at 400 V_{DC}
- Dynamic DC to save costs
- Flexible charge
- Scalable installation with integrated galvanic isolation
- Flexible charge cables, advanced liquid-cooling system
- Robust, all-weather enclosure for indoor and outdoor use
- EU and US models available

Dynamic DC
2x 350 kW
2x 500 A
150-920 V_{DC}

Terra DC Wallbox – 24 kW

The smart e-mobility investment for today, and tomorrow.

Developed with leading electric vehicle manufacturers, trusted by energy suppliers and governments, the Terra DC wallbox makes fast charging safe, smart and future-compatible. Backed by 130 years of innovation and a decade in e-mobility, the DC wallbox supports the continuous advance of electric vehicles.

Terra DC wallbox is a futureproof investment supporting current and future EVs with high voltage charging, applicable to a wide variety of use cases, in an ultra-compact footprint, that is safe and reliable, for residential use too.

Main features and key benefits

- CE variants:
  - 0–22.5 kW, 24 kW (peak) / 60 A
- UL variants:
  - Single phase: 19.5 kW @ 208 V/60 A
    22.5 kW @ 240 V/60 A
  - Three phase: 0–22.5 kW, 24 kW (peak) / 60 A
- Charging voltage: CCS 150 – 920 V DC, CHAdeMO 150 – 500 V DC
- Protection NEMA 3 & IP54
- Overcurrent, overvoltage, undervoltage, ground-fault, surge protection, PE continuity monitoring and leakage current monitor protection integrated
- Futureproof investment supporting current and future EVs with high voltage charging
- Space-savings with easy-to-install design
- Broad range of connectivity options
- Remote software updates
- Certified with EMC Class B protection for safe use in residential areas

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24 kW
Terra DC wallbox

Terra AC Wallbox – 4.6 kW-22 kW

The best value charger on the market.

Brought to you by the global experts in smart mobility, smart buildings and smart homes, the Terra AC wallbox is built on ABB's 130-year heritage of accessible technology leadership for safe, smart and sustainable electrification and informed by our comprehensive expertise in e-mobility.

The Terra AC wallbox is the superior EV home charger, delivering high-value quality, futureproof flexibility, and advanced safety and protection.

With connectivity and smart functionality, the Terra AC wallbox is built to adapt to deliver the most optimized charge today and into the future. Convenient home charging that integrates seamlessly into everyday life.
Safety is a core principal of both ABB's business and the Terra AC wallbox. The wall charger, as with ABB's entire EV charging product portfolio, has been evaluated and tested to the highest safety standards by independent, third-party safety certification organizations.

Key benefits

- Space-saving and easy-to-install design
- Smart functionality for optimized charging
- Remote software updates
- Broad range of connectivity options
- Built-in energy meter for load management

Main features

- Complying with IEC standards
- Single phase up to 7.4 kW / 32 A
- Three phase up to 22 kW / 32 A
- Protection IP54, IK10
- Connectors type 2, socket with or without shutter
- Overcurrent, overvoltage, undervoltage, ground fault and surge protections integrated

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4.6 kW-22 kW
Terra AC wallbox

Heavy vehicle charging infrastructure

Connector based

Charge electric buses and trucks with a connector

ABB offers a complete portfolio for charging heavy electric vehicles such as buses and trucks with a CCS connector. Due their large voltage range the DC wall box (24 kW) and Terra 54HV (50 kW) are perfectly suited to charge electric buses and trucks. For higher power the products with 100 kW and 150 kW including sequential charging, are specially designed to charge larger fleets of electric vehicles in it its most optimized way.

Main features and key benefits:

- Power range of 24 kW, 50 kW with Voltage range from 150-920 V_{DC}
- Power range of 100 kW, 150 kW with Voltage range from 150-850 V_{DC}
- Sequential charging with up to 3 outlets with 100 and 150 kW
- Compliant with ISO 15118 / DIN 70121 / IEC 61851-23 & -24
- OCPP compliant
- Remote diagnostics and management tools
- EU and US models available

Sequential charging

Instead of having one charger per vehicle, ABB offers sequential charging for the 100 kW and 150 kW chargers. A single power cabinet is paired with up to three depot charge boxes. After the first vehicle has finished charging, the next vehicle will start charging automatically. The advantages are:

- Vehicles are charged with high power, maximizing vehicle availability
- The required grid connection is smaller, reducing initial investments and operational costs
- Optimal utilization of installed infrastructure, meaning lower investments in charging equipment

HVC-150C with 150 kW power cabinet and three depot charge boxes with sequential charging

Pantograph Up

Charge electric buses with a roof mounted pantograph

ABB offers an ideal solution to charge electric buses that are equipped with a roof mounted pantograph. This allows to charge larger fleets of electric buses overnight in a range of 50-150 kW per vehicle and during the day with 150-600 kW for opportunity charging.

Main features and key benefits:

- Voltage range from 150-850 V
- Power range of 50-100-150 kW per outlet for overnight charging
- Power range of 150-300-450-600 kW per outlet for opportunity charging
- Safe and reliable fully automated connection
- Compliant with ISO 15118 / DIN 70121 / IEC 61851-23 & -24
- OCPP compliant
- Remote diagnostics and management tools

HVC-300PU with 300 kW power cabinet and slim design charge pole

Pantograph Down

Charge electric buses following the OppCharge protocol

ABB offers an ideal solution to charge electric buses fully automated following the OppCharge protocol. With typical charge times of 3 to 6 minutes the system can easily be integrated in existing operations.

Main features and key benefits:

- Voltage range from 150-850 V
- Power range of 150-300-450-600 kW
- Charge in 3 to 6 minutes
- One charger can serve multiple vehicle types and brands
- Safe and reliable fully automated connection
- Compliant with OppCharge / IEC 61851-23
- OCPP compliant
- Remote diagnostics and management tools

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HVC-450PD with 450 kW power cabinet and standard charge pole

ABB Charger Care SLA

Secure the availability, performance and safety of your EV chargers

Benefit from ABB's experience and expertise servicing thousands of DC chargers and high power chargers up to 600 kW worldwide.

ABB Charger Care SLA
With an ABB Charger Care service agreement, the uptime of charger networks can be optimized and a fast remote and on-site response time can be guaranteed.

ABB Charger Care is available for all ABB EV charging products: Terra fast chargers, Terra HP high-power chargers, heavy vehicle chargers for trucks and buses chargers, DC wallboxes, and AC chargers.

The ABB EVI Service team can tailor a Service Level Agreement (SLA) matching the wishes of the customer's organization. Several modules are available, including proactive monitoring, preventive and corrective maintenance, training programs, spare parts, and software updates and upgrades.

By connecting chargers, service solutions and people, ABB has been able to diagnose more than 75 % of the service cases remotely, solving over 60 % of these cases without any site intervention in the past two years. This results in significant savings on down-time, travelling, transportation, man-hours and resources.

Main features and key benefits

- Highest uptime and reliability by adequate preventive maintenance.
- Operational savings by remote monitoring, trouble shooting and repairs without site visit.
- Quick on-site repairs by remote diagnosis, modular design, and local spare parts availability.
- Repairs are exclusively performed by ABB certified personnel. This could be ABB's service organization, or the service organization selected by the customer after training and certification by ABB.
- Training modules are available for end-users, customer care personnel and service engineers. Trainings can be hosted at customer location on request.
- Clear communication and case tracking via ABB Web tools.
- Over-the-air software updates and upgrades will be installed on all chargers covered by a SLA.

ABB Ability™ Connected Services
Enabling your charging operation

To successfully run a commercial charging network in a dynamic environment it is crucial to connect EV chargers to the Internet.

The ABB Ability Connected Services platform incorporates many years of experience in connecting thousands of chargers to the Internet.

Connectivity helps EV charging network operators to:
- Remotely monitor and configure charge points
- Service the equipment efficiently and with minimal operational effort
- Increase charger uptime and the reliability of their charging network
- Build a scalable and flexible charging infrastructure
- Minimize investments in IT Infrastructure & Back-end Software
- Up-to-date charging infrastructure with software updates
- Support EV drivers in case they have issues
- Adapt business and pricing models over time

ABB's offering facilitates all above mentioned aspects and is your best choice to run a profitable EV business.

Charger Connect
Charger Connect is the basis for all connected services. It gives access to the ABB Ability Connected Services Platform. Connected chargers receive over-the-air software updates, and are activated in ABB Service Tools. The connection to the chargers and the platform is monitored 24/7/365 by the Network Operation Center (NOC). And ABB service personnel can provide support if issues might arise.

APIs for back office integration
ABB offers standards based APIs supporting smooth integration with back office systems, energy management solutions, and payment services.

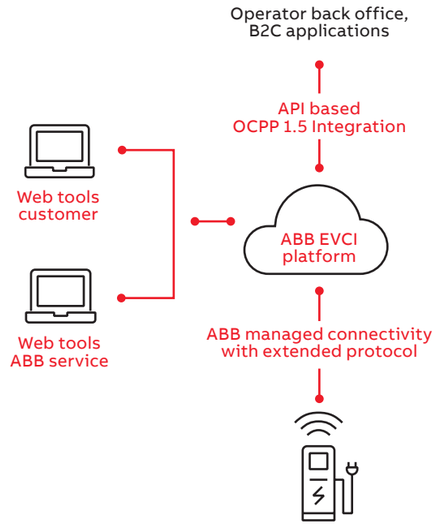
Available APIs:
- Open Charge Point Protocol (OCPP) 1.5 API to integrate with back office systems
- Service API with technical status data from the charger for simpler remote diagnostics, helping to improve availability of a charger and to better support EV drivers
- Basic Demand/Response API to dynamically manage the input power of a charger

ABB APIs are based on OCPP – the industry-wide accepted communication protocol – and therefore ensure seamless integration to customers' back office systems. All ABB APIs have openly available specifications.

Manage the charger connectivity yourself
The dual uplink connectivity concept provides a solution to directly integrate chargers with OCPP 1.6 based back office systems. The charger remains connected to the ABB cloud to make sure that ABB Service personal can provide fast remote support. This leads to higher uptime of the charger network, minimizes the number of unplanned on-site delegations, and thus reduces costs.

Web tools
ABB offers advanced Web tools to operate and monitor chargers. Web tools allow to see the real-time status of a charger, to configure settings related to authentication, notification and case management and to obtain valuable insights into usage statistics. For chargers equipped with a credit card payment terminal, a Web tool is available to configure the payment device including pricing per session, currency and language. All data is available directly via an Internet browser and can be exported for further processing.

Digital integration - OCPP API Concept



Digital integration - Dual Uplink Concept