ABB is the global leader in EV charging | ABB product brochure
ABB is the global leader in EV charging
Supporting all EV charging standards

ABB is leading with Internet connected charging infrastructure, supporting all EV charging standards. ABB offers a total solution: specific charging solutions for any location type and connected services to enhance your business. The chargers easily work together with any service or payment application.

Main features of all ABB chargers
All ABB chargers are created with durability, reliability and maintainability in mind. This results in high-quality products that are future-proof. Main advantages of ABB chargers are:

- Modular construction to ensure continued operation.
- Industry-grade components to ensure long lifetime and robust operation.
- Upgradable and future-proof.
- Remote maintenance and support for an effective and timely response to any irregularity in the network.
- Supporting all open charging standards globally.
- Stainless steel powder coated cabinets for durability, even in salty climates.
- User centered design validated by user tests.

Key advantages of Internet connected chargers
ABB’s Internet connected chargers enable fast global service and pro-active maintenance. ABB Connected Services offer four key advantages:

- Flexibility to connect to any charging network, back-office, payment platform or energy management solution.
- Upgradability to benefit from the latest industry standards.
- High availability of the service.
- Cost efficiency by avoiding development and maintenance costs of proprietary software solutions.

The advantage of an experienced global player
ABB is a global leader in power and automation technologies. Based in Zurich, Switzerland, the company employs 145,000 people and operates in approximately 100 countries.

ABB has years of experience in creating, installing and maintaining charging infrastructure, including several nationwide charger networks. Since 2015 ABB combines this know-how with the globally redundant network and expertise of Microsoft Azure. Customers profit from ABB's global service organizations, ready to respond timely and efficiently with locally available certified service engineers.

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.

Chargers are manufactured in factories with strict quality systems in place. The factories are audited by independent external parties, as well as by car OEM clients.
Partnerships with car OEMs
ABB EVCI has R&D partnerships with many vehicle OEMs to support joint development and testing. This ensures optimal compatibility between charger and vehicle.

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

Connected Services
ABB’s Connected Services offering is based on a 24/7 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.

Charger Care
Charger Care service agreements are available for all ABB EV chargers, and can be tailored to match the needs of your organization to ensure optimal availability of your charging equipment. Several modules are available, including proactive monitoring, preventive and corrective maintenance, training programs, spare parts, and software updates and upgrades.

Benefit from ABB’s experience and expertise installing and servicing 5000+ DC fast chargers world wide.
All you need to run a charging operation
The four key elements

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

DC fast chargers
Reliable, robust, modular hardware.

<table>
<thead>
<tr>
<th>Products</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terra 53 series</td>
<td>Highway rest stops, petrol stations, car dealerships, commercial areas.</td>
</tr>
<tr>
<td>Bus charger</td>
<td>Charging electric city buses via an automatic connection system.</td>
</tr>
<tr>
<td>DC wallbox</td>
<td>Car dealerships, offices, home.</td>
</tr>
</tbody>
</table>

Web tools and APIs
Integrate with back-Offices and added value systems.

<table>
<thead>
<tr>
<th>Web tools</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver Care</td>
<td>Status, statistics, access management, etc.</td>
</tr>
<tr>
<td>Payment management</td>
<td>Configure and support payment terminals</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>APIs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>OCPP API</td>
<td>Connect to back-office systems</td>
</tr>
<tr>
<td>Service API</td>
<td>Support your call center to help EV drivers</td>
</tr>
<tr>
<td>Demand/Response API</td>
<td>Manage input power of a charger dynamically</td>
</tr>
</tbody>
</table>

Payment and Authentication
Global platform to support local payment and authentication solutions:

- RFID
- Smart phone
- PIN code
- Credit card payment module

ABB Charger Care
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
The Terra 53 DC charging station is a configurable single, dual or triple outlet 50 kW fast charging station, supporting the charging needs of each customer. The Terra 53 is ideal for use at highway rest stops, petrol stations, car dealerships and busy urban areas.

**Main features**
- Designed to deliver full output power continuously
- IEC 61000 EMC certified for industrial and residential areas (including petrol stations, retail outlets, offices, etc.)
- Future proof connection via open industry standards
- Flexible interfacing with added value systems
- Remote uptime monitoring and assistance
- Remote updates and upgrades
- Easy to use:
  - Daylight readable touch screen display
  - Graphic visualization of charging progress
  - RFID authorization
- Robust all weather stainless steel enclosure
- Quick and easy installation
- Low operational noise

**Key specifications**
- 50 kW DC fast charger supporting CCS, CHAdeMO, GB/T
- 43 kW AC cable output or 22 kW AC socket output
- European, US and China versions available

**Possible configurations**
The Terra 53 is available in several configurations. Optional input power limiting software is available to avoid expensive grid upgrades.

<table>
<thead>
<tr>
<th>Name</th>
<th>Outputs</th>
<th>Availability</th>
<th>Grid connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>CCS</td>
<td>EU, Asia, Aus</td>
<td>80 A, 55 kVA</td>
</tr>
<tr>
<td>CJ</td>
<td>CCS, CHAdeMO</td>
<td>EU, Asia, Aus</td>
<td>80 A, 55 kVA</td>
</tr>
<tr>
<td>CJ</td>
<td>CCS, CHAdeMO</td>
<td>USA</td>
<td>75 A, 60 kVA</td>
</tr>
<tr>
<td>CT</td>
<td>CCS, AC socket</td>
<td>EU, Asia, Aus</td>
<td>112 A, 77 kVA</td>
</tr>
<tr>
<td>CG</td>
<td>CCS, AC cable</td>
<td>EU, Asia, Aus</td>
<td>143 A, 98 kVA</td>
</tr>
<tr>
<td>CJT</td>
<td>CCS, CHAdeMO, AC socket</td>
<td>EU, Asia, Aus</td>
<td>112 A, 77 kVA</td>
</tr>
<tr>
<td>CJG</td>
<td>CCS, CHAdeMO, AC cable</td>
<td>EU, Asia, Aus</td>
<td>143 A, 98 kVA</td>
</tr>
<tr>
<td>Z</td>
<td>GB/T</td>
<td>China</td>
<td>80 A, 54 kVA</td>
</tr>
</tbody>
</table>

For a complete list of specifications, features and options, please refer to the Terra 53 product leaflet.

**Outlet specifications**

<table>
<thead>
<tr>
<th>Charging standard</th>
<th>C</th>
<th>J</th>
<th>G</th>
<th>T</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCS</td>
<td>50 kW</td>
<td>50 kW</td>
<td>43 kW</td>
<td>22 kW</td>
<td>50 kW</td>
</tr>
<tr>
<td>CHAdeMO</td>
<td>50 kW</td>
<td>50 kW</td>
<td>400 V +/- 10%</td>
<td>400 V +/- 10%</td>
<td>220 - 570 Vdc</td>
</tr>
<tr>
<td>Type 2 cable</td>
<td>Type 2 socket</td>
<td>GB/T</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output voltage range</td>
<td>50 - 500 Vdc</td>
<td>50 - 500 Vdc</td>
<td>400 V +/- 10%</td>
<td>400 V +/- 10%</td>
<td>220 - 570 Vdc</td>
</tr>
<tr>
<td>Maximum output current</td>
<td>125 Aac</td>
<td>125 Aac</td>
<td>63 A</td>
<td>32 A</td>
<td>125 Aac</td>
</tr>
</tbody>
</table>
ABB Heavy Vehicle Charger (HVC) is an automated fast charging system which allows electric city buses to drive 24/7, thus enabling true zero emission public transport in cities. With its automated rooftop connection and typical charge time of 4–6 minutes the system can easily be integrated in existing bus lines by installing chargers at endpoints, terminals, and/or intermediate stops.

Enable zero emission bus transport in your city
With increasing air pollution levels in cities and stronger public commitment to clean transportation, electric city buses offer a large opportunity to improve life in cities, while also reducing operational costs. ABB’s automated fast charging system solves the key problems for large scale adoption of zero emission electric buses: long charging times and short driving range belong to the past.

ABB’s automated fast chargers are designed to the highest international electrical, quality and safety standards, including IEC 61851-23, guaranteeing safe and reliable operation in public areas.

Key benefits
– Charge electric buses in 4–6 minutes
– Easy integration into existing bus lines
– Automated 4-pole rooftop connection
– Based on international IEC 61851-23 standard
– Safe and reliable connection
– Remote diagnostics and management tools

Technical Specifications

<table>
<thead>
<tr>
<th>Power</th>
<th>Modular: 150 kW, 300 kW, 450 kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input AC connection</td>
<td>3P + N + PE</td>
</tr>
<tr>
<td>Max. rated input current &amp; power (per 150 kW module)</td>
<td>3 x 250 A, 173 kVA</td>
</tr>
<tr>
<td>Input voltage range</td>
<td>400 V ±10% (50 Hz or 60 Hz)</td>
</tr>
<tr>
<td>Maximum output current (per 150 kW module)</td>
<td>225 A</td>
</tr>
<tr>
<td>Output voltage range</td>
<td>400 – 850 Vdc (CCS 2)</td>
</tr>
<tr>
<td>DC connection standard</td>
<td>IEC 61851-23 / DIN 70121</td>
</tr>
<tr>
<td>Connection method between charger and bus</td>
<td>4-pole automatic connection system or Combo 2 connector</td>
</tr>
<tr>
<td>Environment</td>
<td>Indoor / Outdoor</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>Standard: -10 ºC to +45 ºC</td>
</tr>
<tr>
<td></td>
<td>Optional: -30 ºC to +45 ºC</td>
</tr>
<tr>
<td>Network connection</td>
<td>GSM modem</td>
</tr>
<tr>
<td></td>
<td>10/100 base-T Ethernet</td>
</tr>
<tr>
<td>Protection</td>
<td>IP54 – IK10</td>
</tr>
</tbody>
</table>
ABB Connected Services
APIs and Web tools

Internet connectivity of a charger enables services that are fundamental to operate a network of EV chargers in a flexible, reliable and cost effective way. Choosing ABB as supplier for charging infrastructure means having access to best in class connected services to successfully operate in a dynamic EV charging environment. Now and in the future.

Connected Services Platform
ABB chargers are connected via a mobile network to the Connected Services Platform which is the basis for all APIs and Web tools. The connection to the chargers and the platform is monitored 24/7 by the Network Operation Center (NOC).

Thanks to this platform approach, ABB EV chargers are accessible in real time allowing for remote software updates i.e. when new communication standards are introduced, making your network fit for the future.

The connection to the platform is not a standalone service but an integrated part of the offering. Building on that, two models are available to interact with the charger: either via APIs or via Web tools. Both approaches can be combined in a modular way depending on customer needs.

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 are:

- Open Charge Point Protocol (OCPP) 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 to 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.

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. All data is available directly via an Internet browser and can be exported for further processing.

For chargers equipped with a credit card payment terminal, a web module is available to configure the payment device including pricing per session, currency and language.
Secure the availability, performance and safety of your EV chargers with an ABB Charger Care service agreement, according to the needs of your organization. Avoid leaving drivers stranded.

ABB Charger Care
With an ABB Charger Care service agreement matching the customer's needs, ABB can reduce the risk of unplanned downtime and rapidly respond if problems do occur.

ABB Charger Care is available for all ABB EV charging products: Terra 23 and 53 series, DC Wallbox, and HVC bus charger.

Together with your local ABB service organization you can tailor a Service Level Agreement (SLA) matching your organizations wishes. Several modules are available, including proactive monitoring, preventive and corrective maintenance, training programs, spare parts, and software updates and upgrades.

Proactive monitoring and remote diagnosis
Remote condition monitoring and remote troubleshooting are important advantages of ABB chargers. ABB is constantly monitoring over 100 parameters of every charger. We have a geographically separated, redundant server setup with a team of experts in our Network Operations Center (NOC) watching over availability of the server network.

If a charger or the server network signals a problem, depending on the SLA, ABB's service team or your own service team automatically receives a trigger. Some problems can be resolved by the charger automatically without any service engineer intervening. Other problems require a remote or on-site repair. If a repair is required, remote diagnosis enables doing it first-time-right.

Certified service teams
Repairs are exclusively performed by ABB certified personnel. This may be ABB’s service organization, or your own service organization after training and certification by ABB. ABB service teams are prepared to offer support 24/7 according your needs and SLA definitions.

Preventive maintenance
ABB provides a complete maintenance schedule to keep your chargers in good health.

Corrective maintenance
Remote diagnosis, modular design and clear procedures ensure quick repairs, reducing inconvenience on your location. Spare parts are available from a central warehouse, minimizing lead time.

Software updates and upgrades
Software updates and upgrades will be installed on all chargers covered by an SLA.

Training programs
Training modules are available for end-users, customer care personnel and service engineers. Trainings can be hosted at your location on request.

Clear communication
Via ABB Web tools you can quickly track service interventions, spare parts orders, and create cases to be handled by ABB.
The DC wallbox is a compact charger for car dealerships, offices, shopping areas and home.

With EV battery capacity increasing, DC charging will emerge in more and more locations. ABB introduces a DC wallbox supporting public and private use.

**Key specifications**
- 22.5 kW DC fast charger (NAM version: 20 kW)
- Single or dual outlet
- CCS1, CCS2, CHAdeMO, GB/T
- Output current: 60 A
- Europe/China: 3 phase input. NAM: single phase input.
- Touch screen user interface
- RFID reader
- Connectivity
- Indoor and outdoor use
- OEM customization possible

**Availability**
The DC wallbox will be available in 2017.
Global trends and future developments
High power charging for cars

In the next 5 years, 50 kW chargers will support mainstream EVs. Additionally, high power chargers will be introduced to charge premium EVs that will come to the market from 2018 onwards.

Luxury EVs with long distance traveling capability will be introduced by several car OEMs from 2018 onwards. These cars will be supported by 150 – 300 kW DC high power chargers on long distance corridors. ABB is in close cooperation with the OEMs to ensure full compatibility between cars and chargers.

High power chargers and long range EVs, as well as the required standardization are currently under development. Additionally, suppliers are developing the required components to build high power chargers, such as advanced liquid cooled cables to conduct high current in ergonomic form factor.

High power chargers will be available when high power vehicles are introduced. ABB has the right partnerships to be prepared.

Mainstream EVs will keep charging at 50 kW DC chargers, making these a safe investment now and in the future.