Terra 94/124/184 UL Product guide

Terra fast chargers: The most deployed DC fast chargers in the world.

- Power sharing for high utilization
- Future proof, high-voltage technology
- Reliable, compact and flexible design
- Always connected, always smart
With more than 135 years of heritage in electrification technology, ABB offers a world-class EV charging solutions for safe, smart and reliable e-mobility – from the vehicle to the grid.

30,000+ fast chargers sold worldwide

In operation across 85+ countries

Interoperability tested with 50+ OEMs

24/7/365 connectivity for remote services

12+ years of EV charging field experience
# Terra 94/124/184 DC Fast Charger

## At a glance

**CONNECTED** for 24/7 remote services and updates to support every new EV on the road - plus easy remote OCPP integration

**REDUNDANT** power modules for high reliability; delivers up to 920 VDC in all power configurations for current and future electric cars, trucks, vans and buses

**ROBUST** all-weather powder-coated stainless steel enclosure

**SAFETY:** Emergency stop push button to immediately stop charging operation

**LCD** touchscreen with high brightness and graphical visualization of the charging process

**CONVENIENT** and hassle-free reach with retractable cable management option

**EASY** installation and serviceability for fast commissioning, maintenance and field services

**HIGH UTILIZATION** with simultaneous charging for 2 EVs – with flexible connector combinations including a high current cable option up to 400 A

**CONNECTED** for 24/7 remote services and updates to support every new EV on the road - plus easy remote OCPP integration

**AUTOMATIC** authentication via CCS connector via OCPP and Autocharge functionality as well as ISO 15118 implementations

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## MAX CHARGING POWER
- Terra 94: 90 kW
- Terra 124: 120 kW (and 2 x 60 kW)
- Terra 184: 180 kW (and 2 x 90 kW)

## MAX CHARGING VOLTAGE
- CCS 920 VDC
- CHAdeMO 500 VDC

## DIMENSIONS
- Height 1900 mm / 74.8 in
- Width 5655 mm / 222.6 in
- Depth 880 mm / 34.6 in
- Weight 395 kg / 871 lbs
Why Terra DC Fast Chargers?
Advanced, flexible, compact and smart

Power sharing for high utilization
- Terra 124 and Terra 184 can charge two vehicles simultaneously
- High utilization of charging assets benefit both public and fleet business models
- Supports all open charging standards in flexible configurations
- Safety certified to the highest standards

Future-proof, flexible high-voltage technology
- Flexible, redundant power architecture supports high uptime
- High-voltage charging range up to 920 V
- Fully compatible with current and future EVs
- Choices for power delivery up to 180 kW, following EV market growth

Reliable, compact and flexible design
- Based on the Terra platform, the most widely deployed DCFC family in the world
- Space-saving, all-in-one footprint with very easy installation and servicing
- Robust construction for all operational environments
- Cable management options enhance longevity

Always connected, always smart
- 24/7 connectivity, 99.5% ABB network uptime
- Remote services with remote firmware updates and upgrades
- OCPP integration-ready as well as ABB Web Tools functionality
- Autocharge and ISO 15118-ready for plug and charge operation
Fast charging beyond 50 kW
Power sharing delivers high utilization

90kW Charging Points
Terra chargers can provide a quick refill adding 100 miles of range in as little as 15 minutes (Terra 94).*

Retail/Shopping Sites
The Terra 124 charger can provide a full battery charge to two vehicles simultaneously while drivers are shopping, dining or at the movies.

Highway corridors and Fleets
The Terra 184 chargers can add 100 miles of range in as little as 10 minutes as well as fast-charge two vehicles at the same time in less than 20 minutes.*

<table>
<thead>
<tr>
<th>Power Sharing</th>
<th>EVs</th>
<th>kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>one EV</td>
<td>up to</td>
<td>90</td>
</tr>
<tr>
<td>two EVs</td>
<td>each up to</td>
<td>120</td>
</tr>
<tr>
<td>one EV</td>
<td>up to</td>
<td>180</td>
</tr>
<tr>
<td>two EVs</td>
<td>each up to</td>
<td>90</td>
</tr>
</tbody>
</table>

Simultaneous charging with high power fast chargers can deliver maximum charging asset utilization while serving an ever-growing population of large battery electric vehicles.

* Actual charging speed depends on the electric vehicle model(s) and charging conditions.
High voltage charging explained
A future-proof strategy

High voltage charging capabilities
As electric vehicles and their use cases diversify, high voltage DC charging has become more important to increase charging power while ensuring as much efficiency, safety and usability in DC charging systems.

Traditional passenger vehicle battery packs are usually designed for 400 VDC charging, so many standard charging systems do not exceed 500 VDC capability. However, some newer vehicles may have battery packs that exceed 400 VDC, often in the 600 to 800 VDC range.

Some EV battery packs, such as with vehicles designed for fleet usage, may only charge at high voltage ratings, demanding charging infrastructure that can deliver power tailored to HV battery packs.

ABB’s Terra 94, Terra 124 and Terra 184 chargers are designed to meet EV battery voltage capabilities up to 920V to deliver charging services across a wider range of today’s and tomorrow’s EVs.

A high range of DC voltage capability is demanded to deliver efficient charging service to every EV and use case.
Terra charging times
All-in-one charging for every EV

<table>
<thead>
<tr>
<th>Charging time (minutes)</th>
<th>50 kW Terra 54 Terra 54HV</th>
<th>90 kW Terra 94</th>
<th>120 kW Terra 124</th>
<th>180 kW Terra 184</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Car</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60 kWh BEV 400 VDC</td>
<td>50</td>
<td>25</td>
<td>40</td>
<td>25</td>
</tr>
<tr>
<td>90 kWh BEV 400 VDC</td>
<td>70</td>
<td>40</td>
<td>60</td>
<td>40</td>
</tr>
<tr>
<td>100 kWh BEV 800 VDC</td>
<td>80</td>
<td>45</td>
<td>65</td>
<td>45</td>
</tr>
<tr>
<td>120 kWh BEV School Bus 400 VDC</td>
<td>95</td>
<td>53</td>
<td>80</td>
<td>55</td>
</tr>
<tr>
<td>150 kWh BEV Delivery Van 800 VDC</td>
<td>120</td>
<td>65</td>
<td>100</td>
<td>65</td>
</tr>
<tr>
<td>200 kWh BEV Work Truck 800 VDC</td>
<td>160</td>
<td>88</td>
<td>133</td>
<td>88</td>
</tr>
<tr>
<td>300 kWh BEV 60’ Transit Bus 800 VDC</td>
<td>240</td>
<td>130</td>
<td>200</td>
<td>130</td>
</tr>
</tbody>
</table>

Charge times shown based on average vehicle battery management system (BMS) requesting charging power from 20% to 80% under mild environmental conditions. Data assumes vehicles capable of charging at cited power levels.
**Designed for flexibility**
A configuration for every use case

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**Terra 94/124/184 C**
Single outlet CCS shown with cable management system

**Terra 94/124/184 CC**
Dual outlet CCS shown with cable management system

**Terra 94/124/184 CJ**
Dual outlet CCS and CHAdeMO shown with cable management system and credit card reader

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**Power levels**
- 90 kW
- 120 kW / 60 kW shared
- 180 kW / 90 kW shared

**Charging standards**
- CCS+CHAdeMO
- CCS-only single outlet
- CCS-only dual outlet

**Cable management**
- Reliable, field-tested system
- Designed to meet all cable sizes

**CCS cable connectors**
- Standard: 200 A
- High current: 300-400 A

**User access / payment**
- OCPP Integration
- Credit card reader
- PIN via Web Tools
- ISO 15118
# Terra DC Fast Chargers
## Technical specification UL

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Terra 94</th>
<th>Terra 124</th>
<th>Terra 184</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Electrical</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum output power</td>
<td>90 kW</td>
<td>120 kW or 60 kW x 2</td>
<td>180 kW or 90 kW x 2</td>
</tr>
<tr>
<td>AC Input voltage</td>
<td>480Y / 277 VAC +/- 10% (60 Hz)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC input connection</td>
<td>3-phase: L1, L2, L3, GND (no neutral)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal input current and input power rating</td>
<td>115 A, 96 kVA</td>
<td>153 A, 128 kVA</td>
<td>230 A, 192 kVA</td>
</tr>
<tr>
<td>Recommended upstream circuit breaker(s)</td>
<td>150 A</td>
<td>200 A</td>
<td>300 A</td>
</tr>
<tr>
<td>Power Factor*</td>
<td>&gt; 0.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current THD*</td>
<td>&lt; 5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short circuit current rating</td>
<td>65 kA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC output voltage</td>
<td>CCS-1: 150 - 920 VDC; CHAdeMO: 150 - 500 VDC</td>
<td>CCS1 200 A; CHAdeMO: 200 A</td>
<td>Optional CCS1 300 A (nominal) and 400 A (peak) high current cable(s)</td>
</tr>
<tr>
<td>DC output current</td>
<td>CCS-1: 200 A; CHAdeMO: 200 A</td>
<td>CCS1 200 A; CHAdeMO: 200 A</td>
<td></td>
</tr>
<tr>
<td>Efficiency*</td>
<td>95%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Interface and Control |         |           |           |
| Charging protocols | CCS1 and CHAdeMO 1.2 |           |           |
| User interface | 7” high brightness full color touchscreen display |           |           |
| RFID system | ISO/IEC 14443A/B, ISO/IEC 15393, FeliCa™ 1, NFC reader mode, Mifare, Calypso, (option: Legic) |           |           |
| Network connection | GSM/3G/4G modem; 10/100 Base-T Ethernet |           |           |
| Communication | OCPP 1.6 Core and Smart Charging Profiles; Autocharge via OCPP |           |           |
| Supported languages | English (others available on request) |           |           |

| Environment |         |           |           |
| Operating temperature | -35 °C to +55 °C / -31 °F to +131 °F | (de-rating characteristics apply at extreme temperatures) |           |
| Recommended storage conditions | -10 °C to +70 °C / 14 °F to +158 °C (dry environment) |           |           |
| Protection | IP54, NEMA 3R; indoor and outdoor rated |           |           |
| Humidity | 5% to 95%, non-condensing |           |           |
| Altitude | up to 2000 m (6560 ft) |           |           |

| General |         |           |           |
| Charge cable | 6 m (19.6 ft) |           |           |
| Dimensions (H x W x D) | 1900 x 565 x 880 mm / 74.8 x 22.2 x 34.6 in |           |           |
| Weight | 350 kg / 775 lbs | 365 kg / 800 lbs | 395 kg / 870 lbs |
| Compliance and safety | UL 2202, CSA No. 107.1-16; UL 2231-1, UL 2231-2, CSA STD C22.2 No. 107.1; NEC Article 625, EN 61851, EN 62196; CHAdeMO 1.2; DIN 70121, ISO 15118; IEC 61000-6-3; EMC Class B, FCC Part 15 |           |           |

*Data shown at nominal output power
Flexible OCPP enablement
Back-office integrations backed by ABB connectivity

**Network communications**
ABB has integrated with nearly every major charging network around the world for OCPP support across public and fleet charging operations. ABB chargers can be operated using a direct OCPP connection while linking to ABB’s advanced diagnostics and firmware update services for additional intelligence, technical support as well as reduced maintenance.

Leading the industry in implementing authentication technologies, ABB enables Autocharge coupled with an OCPP server. This functionality offers access control at the vehicle level, ideal for fleet asset telematics. ABB’s software engineers work with the latest standardized protocols in the EV charging industry including roaming platforms, energy management software and next generation authentication solutions.

**Web tools**
- Customer
- ABB NOC services
- ABB EVCI connectivity

**Network/Operator**
- Direct OCPP 1.6
- Connected Services

**OCPP Integrations**
The Open Charge Point Protocol (OCPP) includes a broad set of messages with a wide range of functionality for enterprise telematics and usage data. The transaction-based set-up of the messages makes it easy to connect to a back-end system to process charging sessions, define usage models and handle data. Other capabilities include integration with apps and energy management, such as with OCPP Smart Charging Profiles.

**Plug and charge**
Eliminating manual authentication methods for drivers while delivering granular data sets to network operators and fleets has never been easier with ‘plug and play’ charging solutions.

ABB supports Autocharge, in conjunction with an OCPP network integration, to meet vehicle-based authentication demands seamlessly with any CCS vehicle.

Additionally, ABB has proactively enabled ISO 15118 (Plug & Charge) for its charging systems to deliver more advanced plug and play charging experience for the next generation of electric vehicles.

**Better and faster support:** Chargers connected to ABB’s network operations center can achieve the fastest remote support from ABB network engineers. This leads to higher uptime of a charger network, minimizes the number of unplanned on-site visits, and significantly reduces overall operational costs.

**Scalability and security:** IT resources can scale in the ABB Ability cloud while connectivity monitoring is supported by ABB around the clock. ABB leverages Microsoft Azure based security with fewer backend connections to monitor.
ABB EV Infrastructure services
For highest utilization and lowest downtime

**Operational excellence**
Charging infrastructure must be optimized for the highest utilization and lowest downtime. ABB’s remote and real-time services meet that demand, incorporating a decade of experience with thousands of intelligent fast chargers deployed across the globe.

ABB’s Terra family of all-in-one chargers are the easiest chargers in the market to service, with high uptime due to its innovative modularity, round the clock connectivity and experience-led design.

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**Remote services**
- 24/7 connectivity
- Remote services
- Remote diagnostics
- Firmware upgrades
- Driver care web tools
- Charger Care web tools

**Parts and warranty services**
- Full service warranty process
- Extended warranties
- Preventive service and maintenance
- Network spare parts programs
- Fleet spare parts programs

**Custom software services**
- OCPP integration
- Autocharge integration testing
- Interoperability testing and validation
- Customized enterprise software support

**Training**
- Standardized online training
- Customized service training
- Third-party service training programs