

# Express Solo

One Platform, Infinite Possibilities

Site Design Guide for Europe



# IMPORTANT SAFETY INSTRUCTIONS

## SAVE THESE INSTRUCTIONS

This manual contains important instructions for ChargePoint® products that shall be followed during installation, operation and maintenance of each product.

### WARNING:

1. **Read and follow all warnings and instructions before servicing, installing, or operating the ChargePoint® product.** Install and operate only as instructed. Failure to do so may lead to death, injury, or property damage, and will void the Limited Warranty.
2. **ChargePoint recommends that installation, commissioning, and break-fix services be performed by a licensed electrician who is also a ChargePoint-certified technician.** These systems operate at high voltage, and without strict adherence to safety protocols, proper protective equipment, and ChargePoint technical guides, there is significant risk to people, equipment, and the environment. Please ensure full compliance with all applicable local and national buildings, electrical, and safety codes.
3. **Always ground the ChargePoint product.** A touch current of >3.5 mA AC RMS is possible in case of a fault condition of loss of electrical continuity of the earthing conductor. Failure to ground the product can lead to risk of electric shock. The product must be connected to a grounded, metal, permanent wiring system, or an equipment grounding conductor shall be run with circuit conductors and connected to the equipment grounding terminal or lead on the Electric Vehicle Supply Equipment (EVSE). Connections to the EVSE shall comply with all applicable codes and ordinances.
4. **Install the ChargePoint product using a ChargePoint-approved method.** Failure to install on a surface that can support the full weight of the product can result in death, personal injury, or property damage. Inspect the product for proper installation before use.
5. **The product is not suitable for use in Class 1 hazardous locations, such as near flammable, explosive, or combustible vapors or gases.**
6. **Supervise children near this device.**
7. **For charging stations equipped with EV connectors or charging rails, do not put fingers into the electric vehicle connector or connector adapter. Do not touch fingers to charging rails.**
8. **Do not use this product if any cable is frayed, has broken insulation, or shows any other signs of damage.**
9. **Do not use this product if the enclosure is damaged or if any internal parts (including wiring) are accessible. For products equipped with an EV connector, flexible output cable, vehicle inlet, or connector adapter, do not use the product if any of these components are broken, cracked, open, or shows any other signs of damage.**
10. **Wire and wire terminal information are provided in the ChargePoint product Site Design Guide and Installation Guide.**





11. **Torques for installation of wire terminals are provided in the ChargePoint product Installation Guide.**
12. **The ChargePoint product maximum operating temperature is 50 °C (122 °F).**
13. **For products equipped with an EV connector or connector adapter, do not use an adapter with any charger or EV that exceeds the adapter's rated voltage or current capacity. Some EV/EVSE combinations can operate at multiple voltages or allow short-duration current overloads during normal charging. Using an adapter in these situations could result in unsafe conditions such as fire, burns, or exposure of high voltage.**



**IMPORTANT:** Under no circumstances will compliance with the information in a ChargePoint guide such as this one relieve the user of the responsibility to comply with all applicable codes and safety standards. This document describes approved procedures. If it is not possible to perform the procedures as indicated, contact ChargePoint. ChargePoint is not responsible for any damages that may result from custom installations or procedures not described in this document or that fail to adhere to ChargePoint recommendations.

## Warranty Implication



**IMPORTANT:** Please be advised that all installation, commissioning, and break-fix services must be performed by a ChargePoint-certified technician. Engaging non-certified personnel for these services will result in warranty implications, as doing so constitutes a breach of policy.

## Support Services

<https://www.chargepoint.com/legal/support-services>

For more information about ChargePoint's training and certification program, visit <https://www.chargepoint.com/partners/training-certification>

## Product Disposal

To comply with Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE), devices marked with this symbol may not be disposed of as part of unsorted domestic waste inside the European Union. Enquire with local authorities regarding proper disposal. Product materials are recyclable as marked.



## Document Accuracy

The specifications and other information in this document were verified to be accurate and complete at the time of its publication. However, due to ongoing product improvement, this information is subject to change at any time without prior notice. For the latest information, see our documentation online at [ChargePoint Product Reference Documentation](#).

## Copyright and Trademarks

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express written consent of ChargePoint, Inc. ChargePoint and the ChargePoint logo are trademarks of ChargePoint, Inc., registered in the United States and other countries, and cannot be used without the prior written consent of ChargePoint.

**Symbols**

This guide and product use the following symbols:



**DANGER:** Risk of electric shock



**WARNING:** Risk of personal harm or death



**CAUTION:** Risk of equipment or property damage



**IMPORTANT:** Critical detail that must be followed to achieve intended results



**NOTE:** Important contextual details or procedural clarifications



**REINSTALL NOTE:** Essential instructions to follow when reinstalling a part or component



Read the manual for instructions



Ground/protective earth

**Illustrations Used in This Document**

The illustrations used in this document are for demonstration purposes only and may not be an exact representation of the product. However, unless otherwise specified, the underlying instructions are accurate for the product.



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# Revision History

This page provides a summary of revisions made, listing the month and year of each update along with a brief description of the changes made.

| Month & Year | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| July 2026    | <p>The following updates were made:</p> <ul style="list-style-type: none"><li>• Revised <a href="#">Electrical Design</a> chapter; added <a href="#">circuit current and wire specification</a> details.</li><li>• Revised the <a href="#">Electrical Design</a> chapter to change the AC Continuous Input Current Rating from 809 A to 800 A for the Max. output power 525 kW entry in the Recommended breaker size table.</li></ul>                                                                                                                                                                                                                                                 |
| June 2026    | <p>The following updates were made:</p> <ul style="list-style-type: none"><li>• Replaced "high power ground" with "DC grounding"</li><li>• Updated <a href="#">Initial Site Guidelines</a> section with instructions for completing the <i>Express Solo Construction Signoff Form</i>.</li><li>• Updated the <a href="#">Conduit Requirements</a> table:<ul style="list-style-type: none"><li>• Corrected table header to reflect O.D. sizing.</li><li>• Added new AC input conduit specification.</li></ul></li><li>• Updated <a href="#">Wire Specifications</a> section with new wire termination specifications.</li><li>• Updated Warranty and Compliance Information.</li></ul> |
| Apr 2026     | Early access draft - initial release.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

# Introduction 1

This section defines the purpose of this guide and provides an introduction to the ChargePoint® Express Solo.

## About This Guide

This guide outlines the requirements and best practices for designing project sites that will host the ChargePoint Express Solo. It covers electrical infrastructure requirements, capacity planning, conduit and concrete work, site layout considerations, and cellular signal requirements needed to prepare a site for installation.

This guide is intended for site designers, electrical engineers, project planners, architects, and construction professionals responsible for preparing a site for Express Solo deployment.



**IMPORTANT:** You must be a licensed electrician and complete online training to become a ChargePoint certified installer. If you do not complete training, you cannot access the ChargePoint network to complete installation. Find online training at: <https://www.chargepoint.com/partners/training-certification>. If the charging station is not installed by a ChargePoint certified installer, using a ChargePoint approved method, it is not covered under warranty and ChargePoint is not responsible for any malfunctions.

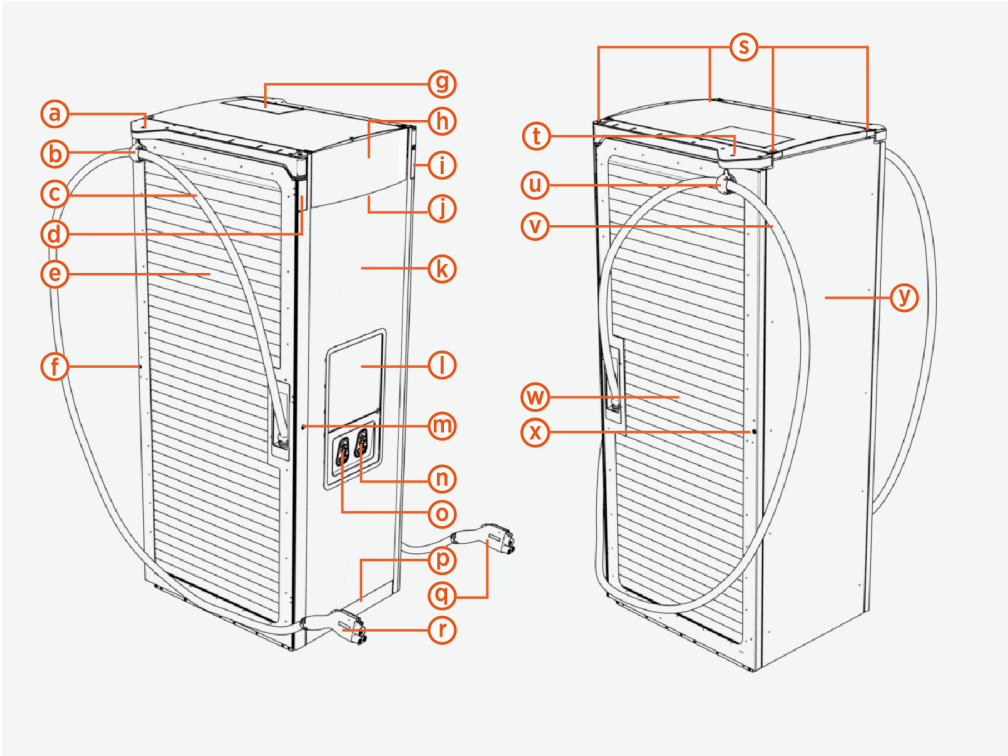
## Express Solo Overview

Express Solo is a product within the Express DC fast charging platform. Express Solo operates as both a standalone charging station and a power cabinet. It accepts AC input power, converts it to DC, and delivers power to two integrated charging cables. It can also simultaneously supply power to downstream EVSEs such as external Power Link charging dispensers.

For information on Power Link charging dispensers and other modular EVSEs in the ChargePoint Express platform, refer to the Express platform documents at [ChargePoint Product Reference Documentation](#).

# Exterior Parts

The following shows an exterior view of the Express Solo.



| Ref | Part                                       | Ref | Part                                   |
|-----|--------------------------------------------|-----|----------------------------------------|
| (a) | Cable management system, left              | (n) | Holster, right                         |
| (b) | Tetherball, left                           | (o) | Holster, left                          |
| (c) | Charging cable, left                       | (p) | Bottom plate                           |
| (d) | Status LED, left                           | (q) | Charging connector, right              |
| (e) | Exhaust (left) door with airflow vents     | (r) | Charging connector, left               |
| (f) | Exhaust door lock                          | (s) | Lifting points                         |
| (g) | Smart Antenna                              | (t) | Cable management system, right side    |
| (h) | Logo plate (customizable)                  | (u) | Tetherball, right                      |
| (i) | Status LED, right                          | (v) | Charging cable, right                  |
| (j) | Area downlight (front – illumination side) | (w) | Intake (right) door with airflow vents |
| (k) | Display door (with customizable vinyl)     | (x) | Intake door lock                       |
| (l) | Display/CCOM assembly (display side) (*)   | (y) | Rear panel                             |
| (m) | Display door lock                          |     |                                        |



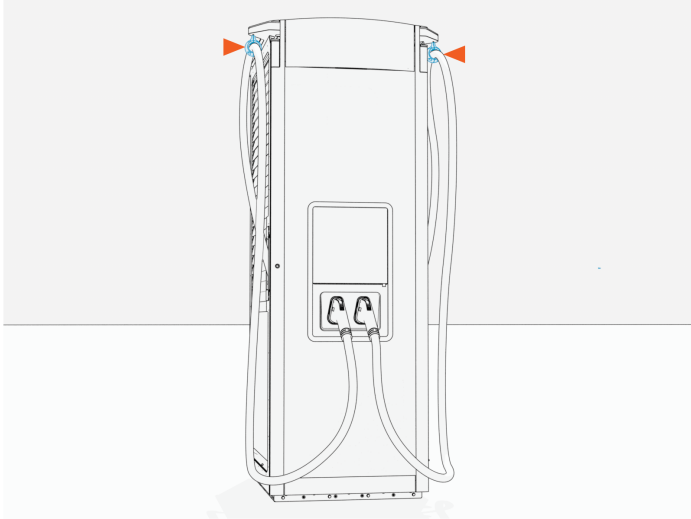
**NOTE:** (\*) CCOM = Control and Communication Module

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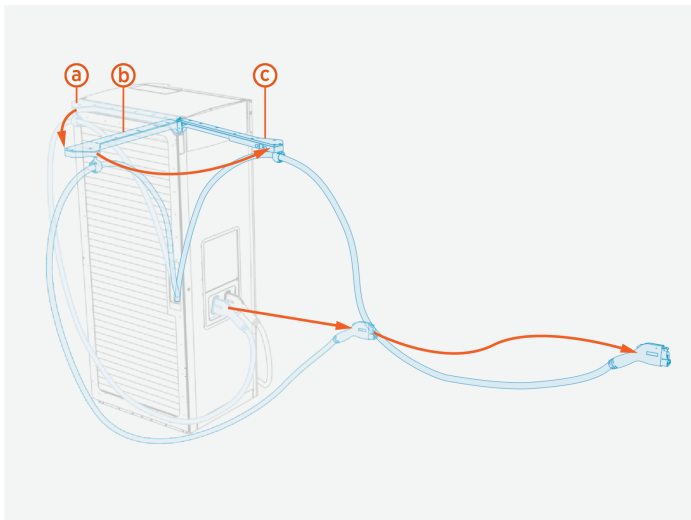
## Cable Management System

Express Solo is available with several cable management options:

- **Fixed Tether Point** – Charging cables are suspended from fixed points on left and right sides of the charging station.

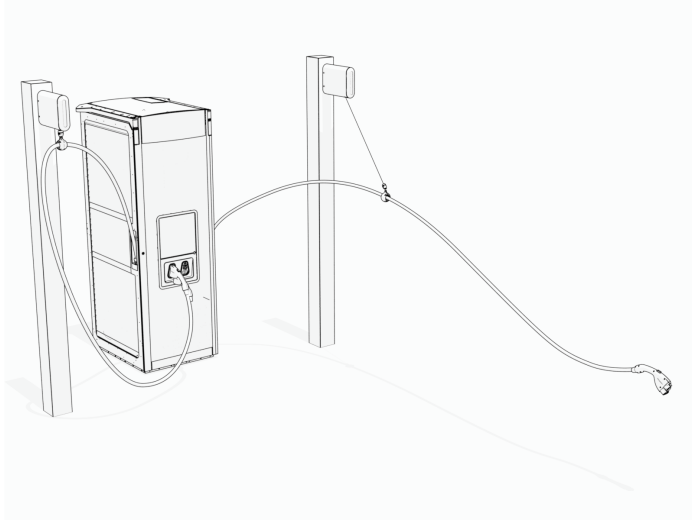


- **Swingarm Cable Management Kit (CMK)** – Moveable arms on left and right sides of the cabinet swing suspended charging cables out and forward for charging and retract cables to rest position between charges.



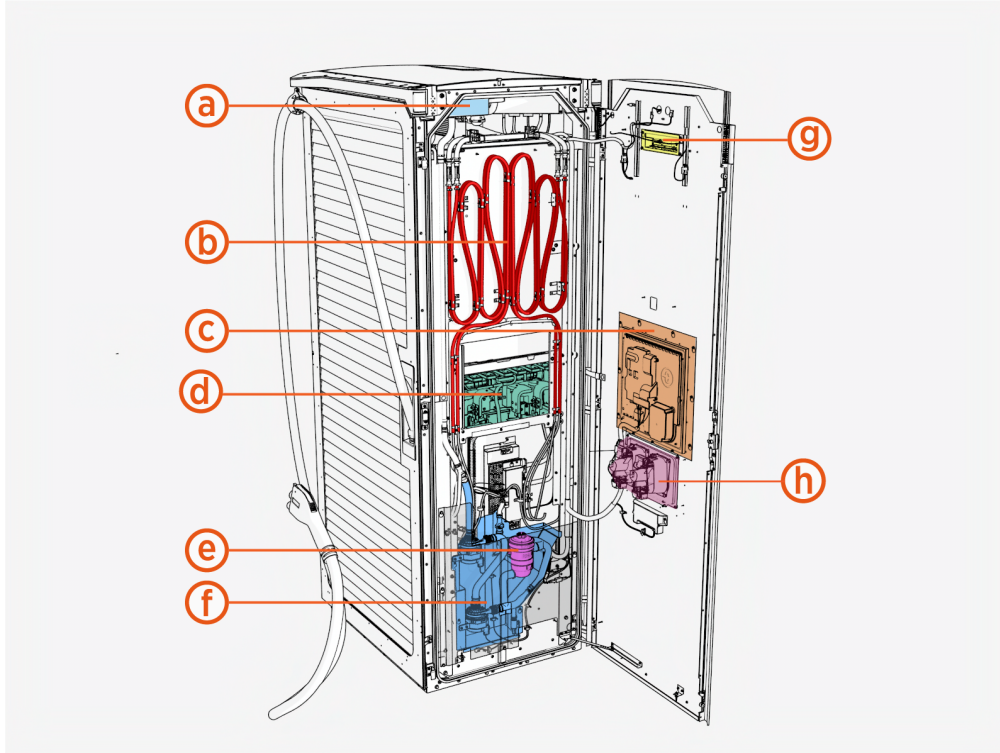
- (a) CMK retracted position
- (b) CMK half open (maximum side extended) position
- (c) CMK fully open (maximum front extended) position

- **Overhead CMK** – An extendable/retractable tetherball suspends charging cables on poles (or other vertical structure) positioned to the left and right of the station.



## Interior Parts

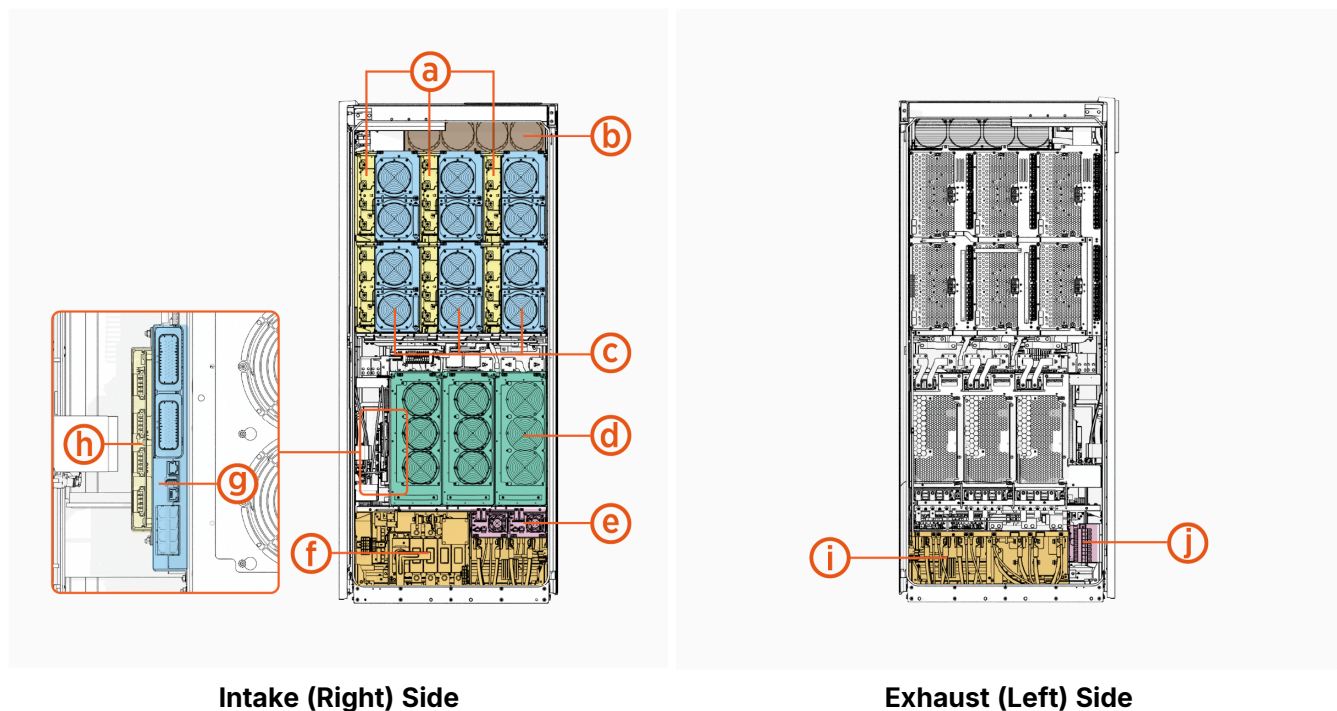
The following shows a front interior view of the Express Solo.



| Ref | Part                                                         |
|-----|--------------------------------------------------------------|
| (a) | Coolant reservoir                                            |
| (b) | Liquid cooling system                                        |
| (c) | Display/CCOM Assembly (CCOM side)                            |
| (d) | Neutron modules                                              |
| (e) | Ion filter                                                   |
| (f) | Coolant circulation pump for liquid cool charging (LCC) loop |
| (g) | Area downlight (rear housing)                                |
| (h) | Holsters                                                     |



The following shows side interior views of the Express Solo:



| Ref | Part                                    | Ref | Part                                      |
|-----|-----------------------------------------|-----|-------------------------------------------|
| (a) | Contactor matrix                        | (f) | Wire terminals and bus bars, intake side  |
| (b) | Liquid cooled charging (LCC) cable fans | (g) | Power Management Controller (PMC)         |
| (c) | DC power modules                        | (h) | Safety Hub Board (SHB)                    |
| (d) | AC power modules                        | (i) | Wire terminals and bus bars, exhaust side |
| (e) | Aux power supply (AUX PS) modules       | (j) | 48 V DC fuse block                        |

## System Description

The Express Solo intakes 3-phase AC grid power and performs power conversion with two types of modules:

- **AC Power Module** – The AC power module converts AC input power to DC output power. Up to three modules can be installed into each Express Solo to scale total power capacity.
- **DC Power Module** – The DC power module is an isolated, bidirectional DC/DC converter that conditions power for delivery to downstream EVs.

The Express Solo has two separate DC power distribution buses, each with its own set of interfaces:

- **DC Grid Bus and DC BUS** – 480 V AC and 400 V AC Express Solo models feature a non-isolated bus called DC Grid that operates at up to 950 V (depending on region and application). These Express Solos are equipped with an interface to its DC Grid Bus, called DC BUS. Two Express Solos may be paired (configured for power sharing) by interconnecting their DC BUSES. 600 V AC Express Solo models do not support DC Grid.

- 
- **DC Output Bus and External DC Outputs** – The DC Output Bus is an isolated DC bus (100–1000 V) that delivers regulated output power to connected EVs. Power flow from the DC Output Bus is routed through the Contactor Matrix, which outputs power across the two integrated charging cables (charging points (CPs)) and to two discrete external DC outputs designated EXT B and EXT D. Each external DC output can supply power to a single input power path of a Power Link charging dispenser.

The Express Solo is equipped with an Auxiliary Power Supply (APS) system:

- **Auxiliary Power Supply (AUX PS) Modules** – Each cabinet includes AUX PS modules that generate 48 V DC power for internal electronics and sub-assemblies within the unit.
- **48 V DC Output** – Express Solo provides two 48 V DC outputs for supplying power to connected Power Link charging dispensers.

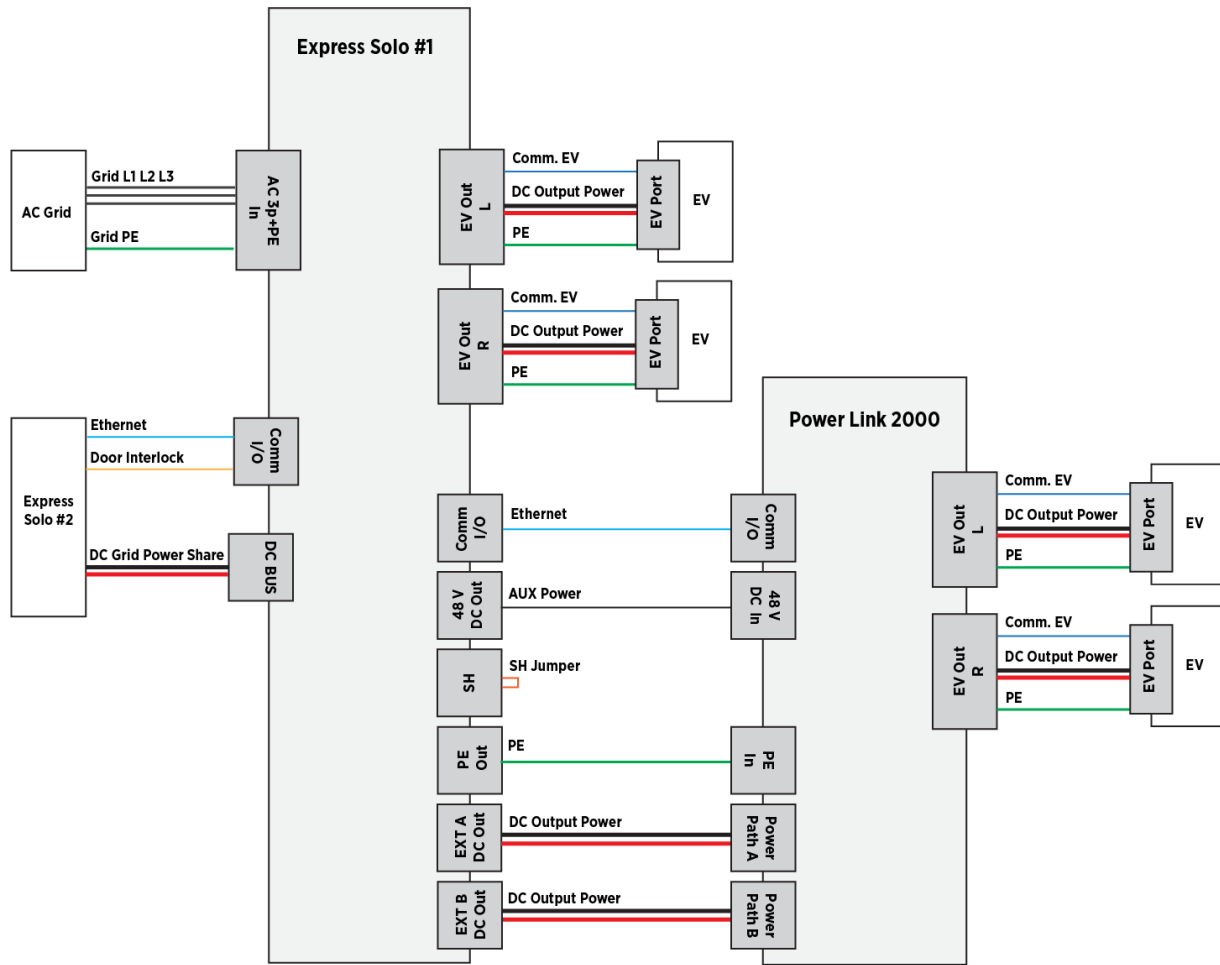
The Express Solo features an integrated system that facilitates safe and reliable communication and control:

- **Control and Communications Module (CCOM)** – This module manages various system assemblies such as the UX hardware, display, and communication hardware (cellular). It communicates over Ethernet with external system components and manages charge sessions, user authentication, access control, and communication with ChargePoint Cloud Services.
- **Power Management Controller (PMC)** – The PMC controls power flow within the system. It communicates with the power converters and the contactor matrix to manage the delivery of power to the EV. The PMC supports Ethernet ports for communication with various components like the CCOM, external charging dispensers, and paired Express Solo cabinets to ensure seamless operation. In the event of a fault, the PMC can instruct the power converters to stop power delivery and open the contactors to isolate the power source.
- **Neutrons** – The Neutron module serves as the insulation monitoring device and meter for the charging cables. It detects isolation faults and uses a switch to signal the Safety Hub Board (SHB).
- **Contactor Matrix** – The contactor matrix receives commands from the PMC to open or close the contactors as needed.
- **Safety Hub Board (SHB)** – In addition to processing fault reports from the Neutron, the SHB supports four dispenser ports for performing continuous electrical isolation monitoring of connected Power Link charging dispensers. Any faults detected are reported to the PMC.
- **Door Interlock Sensor** – Express Solo is equipped with a shunt trip relay that de-energizes the cabinet when doors are open. The PMC reads the door sensor status and shuts down power conversion if one of the doors is open. A safety panel sensor triggers the shunt trip if AC input voltage is present. This ensures the station powers down when the cabinet door is open.

## System Interfaces and Sample Architecture

The following provides a high-level overview of the electrical interfaces of an Express Solo. The diagram also illustrates the interconnections required for an example architecture featuring:

- Two paired Express Solos
- An Express Solo that provides DC output power to the input power paths (A and B) of a Power Link 2000. The Power Link 2000 is equipped with two charging cables (L and R). Note that Power Link 2000 does not require Safety Hub (SH) monitoring.



**IMPORTANT:** Express Solo can be configured in many different system architectures, only one of which is shown above. The actual architecture for each site will vary depending on the number of stations, the charging capacity required at each charging station, charging requirements, and other criteria. If you are a site designer, contact a ChargePoint representative for the ChargePoint-approved wiring architecture for your specific project. Systems configured with non-approved wiring between Express Solo and connected EVSEs may not function as expected. If you are an installer, see the site plan for the architecture specific to the site installation project.

## Product Guides

A full suite of guides is available for Express Solo, as summarized below.

| Document          | Content                                                             | Primary Audiences                                            |
|-------------------|---------------------------------------------------------------------|--------------------------------------------------------------|
| Datasheet         | Full station specifications                                         | Site designer, installer, and station owner                  |
| Site Design Guide | Civil, mechanical, and electrical guidelines to scope and construct | Site designer, responsible engineer, contractors, installers |

| Document                        | Content                                                                                                     | Primary Audiences                               |
|---------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
|                                 | the site                                                                                                    |                                                 |
| Construction Signoff Form       | Checklists used by contractors to ensure the site is correctly completed and ready for product installation | Site construction contractor                    |
| Installation Guide              | Anchoring, wiring, and powering on                                                                          | Installer                                       |
| Operation and Maintenance Guide | Operation and preventive maintenance information                                                            | Station owner, facility manager, and technician |
| Service Guide                   | Component replacement procedures, including optional components                                             | Service technician                              |
| Declaration of Conformity       | Statement of conformity with directives                                                                     | Purchasers and public                           |

Access ChargePoint documents at [ChargePoint Product Reference Documentation](#).

## Questions

For assistance, go to [chargepoint.com/support](https://chargepoint.com/support) and contact technical support using the appropriate region-specific number.

# Site Planning and Placement 2

This section outlines general planning and placement requirements for Express Solo sites.

## Initial Site Guidelines

The site designer must perform an onsite evaluation to determine conduit and wiring requirements from the panel to the proposed charging locations, and to measure cellular signal levels and identify suitable locations for any required cellular signal-booster equipment.

If you have pre-existing infrastructure or are using your own preferred electrical contractor for site preparation, the make-ready contractor must complete the *Express Solo Construction Signoff Form* and submit it to ChargePoint for review. The *Express Solo Construction Signoff Form* is available at [ChargePoint Product Reference Documentation](#) and should be provided to the contractor by the site designer.

## Plan for Future Charging Capacity

Designing electrical infrastructure to support current and future needs for EV charging helps avoid costly upgrades later as demand for EV charging grows.

Consider these methods to prepare a site for future charging stations in a later phase of work:

- Add extra capacity if electrical panels are being upgraded now.
- Use sub-panels as a way to shorten electrical paths.
- Maximize the conduit and conductor sizes (to product specifications) between the main electrical panel and future stations, to prevent needing to re-pull wire later.
- Below-ground wiring can be pre-staged if the correct site construction is performed in advance. Allowed terminations include a distribution unit, junction box, or plugged conduit. This eases cable pulls for future stations.
- Consider locations and spaces where it will be easy to add future stations.

# System Placement

The placement of the Express Solo solution must meet the following requirements:

- Express Solo is not ATEX rated and shall not be installed in an explosive area.
- Site conditions must be compatible with the following specifications listed in the *Express Solo Datasheet*:
  - Operational altitude
  - Operating temperature
  - Operating humidity
  - Enclosure rating
- Express Solo must be installed on a level concrete surface rated for the weight of the station.



**WARNING:** The charging station must be installed on a level concrete base rated for the weight of the station. Asphalt cannot support the full weight of the station. Failure to install the station on a suitable surface may cause the station to tip over, resulting in death, personal injury, or property damage.

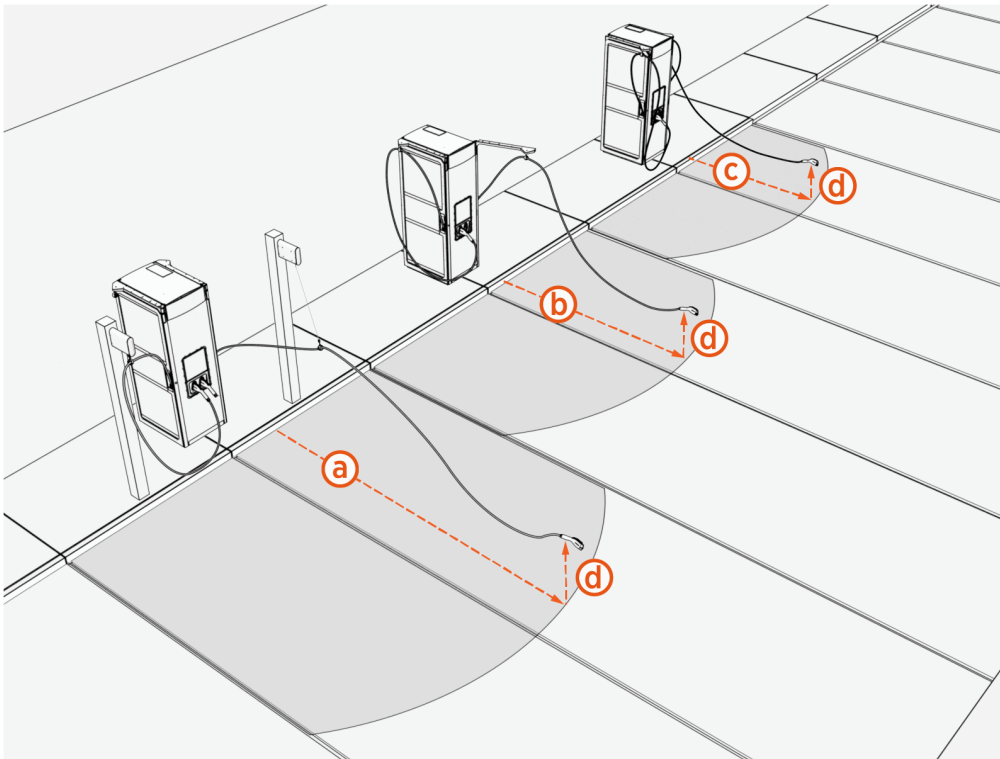
Layout considerations:

- Determine appropriate ground anchoring locations where concrete exists or can be installed.
- Consider locations where it will be easy to add future stations.
- If using conduits to pull wires, determine the best conduit layout to minimize linear conduit costs to multiple parking spaces. If possible, avoid or minimize trenching requirements, especially more costly trenching to run conduit under asphalt surfaces.
- Determine if the existing utility service and electrical panel capacity is sufficient. Identify costs for any necessary upgrades and/or a new dedicated electrical panel. ChargePoint recommends using a licensed electrician to evaluate available capacity and identify any upgrades that may be required.
- If a dedicated EV electrical panel is required, choose a panel located close to the existing electrical supply.
- Measure cellular signal levels to ensure adequate cellular coverage at the station locations. To ensure adequate signal strength in underground or enclosed parking structures, cellular repeaters may be required. For more information, see [Connectivity](#).
- ChargePoint recommends avoiding locations under trees where sap, pollen, or leaves would fall on the charging station and increase the station owner's site maintenance workload.

## Guidelines for Different Parking Arrangements

- Choose adjacent parking spaces in an area with adequate lighting.
- Consider how easily drivers can find the stations they need to access.
- Check local requirements for accessibility and pathway width, sometimes called “path of travel”, to ensure that station placement does not restrict sidewalk use.
- A pad built into the head of a parking space (instead of on the sidewalk) is allowed if local code allows it compared to the minimum parking space length, and the pad meets all pad requirements listed in this document.

### Cable reach



The following table provides the maximum cable reach from the station to charge port on a vehicle:



**NOTE:** The cable reach specifications for both the tall CMK and overhead CMK include the full extension of a tether cord from the CMKs, as depicted in the illustration above.

|              |                              | Overhead CMK     | Swingarm CMK                           | Fixed Tether Point                   |
|--------------|------------------------------|------------------|----------------------------------------|--------------------------------------|
| Cable length |                              | 7.6 m (25 ft)    | 5.2 m (17 ft 0.8 in)                   | 5 m (16 ft 4.9 in)                   |
| Cable reach  | Horizontal or vertical reach | Horizontal (a)   | 4.2 m (13 ft 9.4 in)<br>Horizontal (b) | 3 m (9 ft 10.1 in)<br>Horizontal (c) |
|              | Height above ground          | 0.6 m (2 ft) (d) |                                        |                                      |

### IMPORTANT:



- Diagonal stall parking is not recommended.
- Place each Express Solo to maximize cable reach for the varied charge port locations on different EVs.

## Commercial or public station placement, single or dual cable

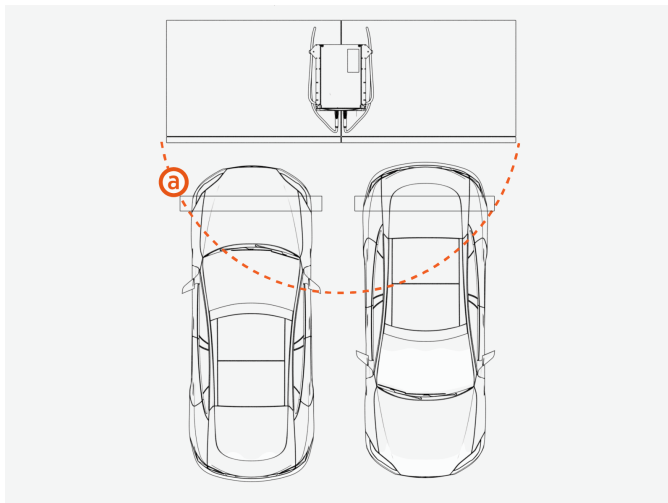
For stall parking, ChargePoint recommends using perpendicular parking stalls that allow a vehicle to enter either front-first or rear-first, to better accommodate the varied locations of EV charge ports.



**NOTE:** While ChargePoint tests charging stations with a majority of upcoming vehicles, ChargePoint cannot guarantee the port locations of future vehicles and cannot warrant the configurations proposed will work for all vehicles.

The wheel stops are 900 mm (35.4 in) wide and are placed at a distance of 914.4 mm (3 ft) from the front of each stall.

This illustration depicts a charging station with a dual cable.

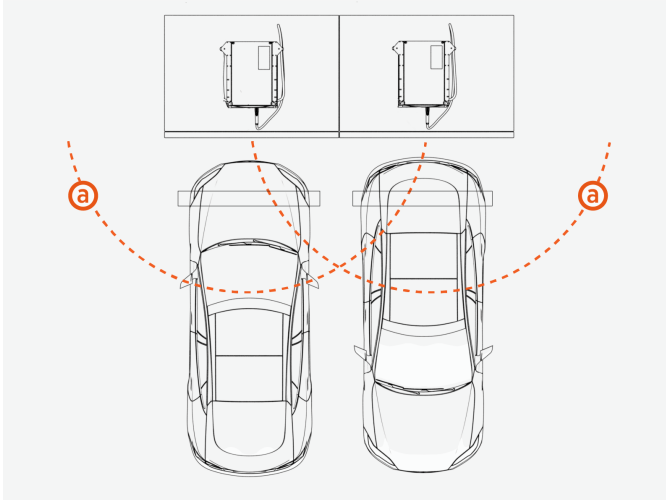


**(a)** Cable reach radius:

- Fixed tether point: 3 m (9 ft 10.1 in)
- Swingarm CMK: 4.2 m (13 ft 9.4 in)

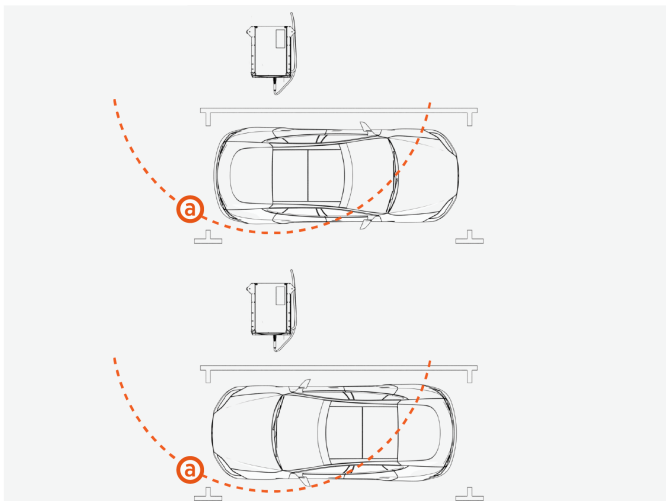


The following three illustrations depict charging stations with single cables.



**(a)** Cable reach radius:

- Fixed tether point: 3 m (9 ft 10.1 in)
- Swingarm CMK: 4.2 m (13 ft 9.4 in)

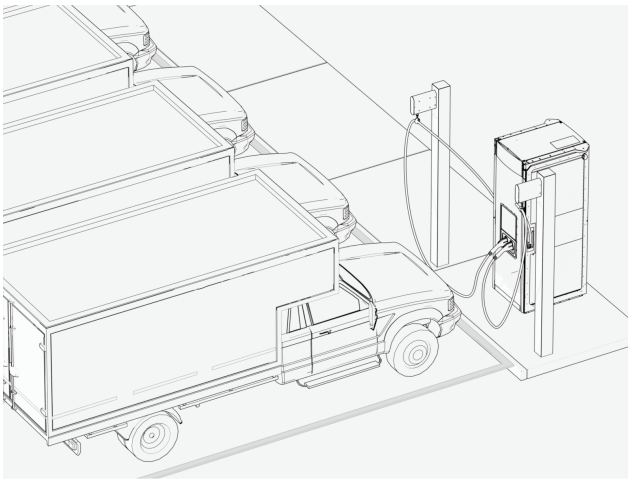
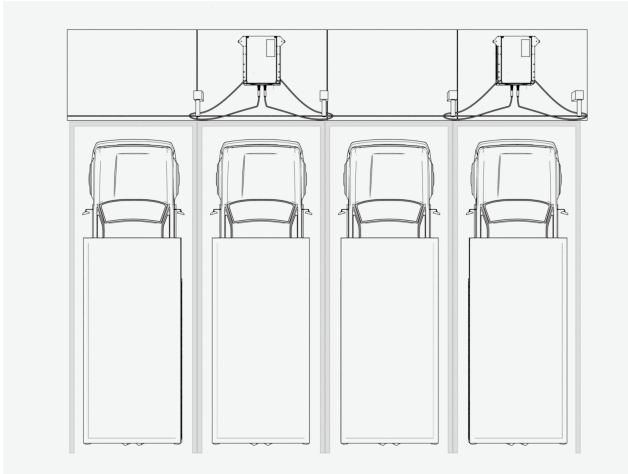


**(a)** Cable reach radius:

- Fixed tether point: 3 m (9 ft 10.1 in)
- Swingarm CMK: 4.2 m (13 ft 9.4 in)

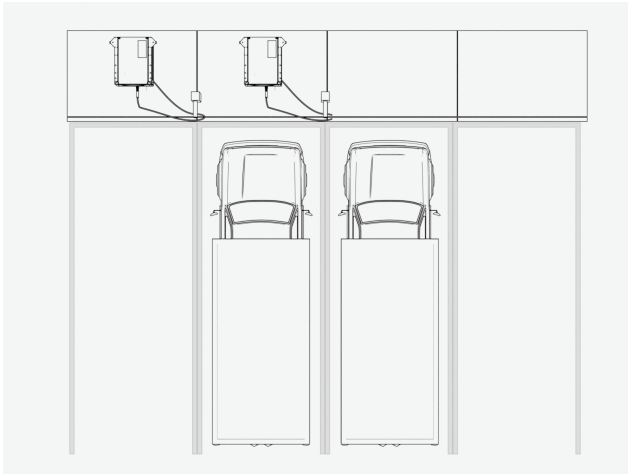
## Fleet Parking Arrangement

- **Stall parking (dual charge cable):** For installing dual charge cable Express Solo stations, consider placing the station in front of every other parking space. Additionally, align the overhead CMK tether with the parking stripes on either side of the charging station.

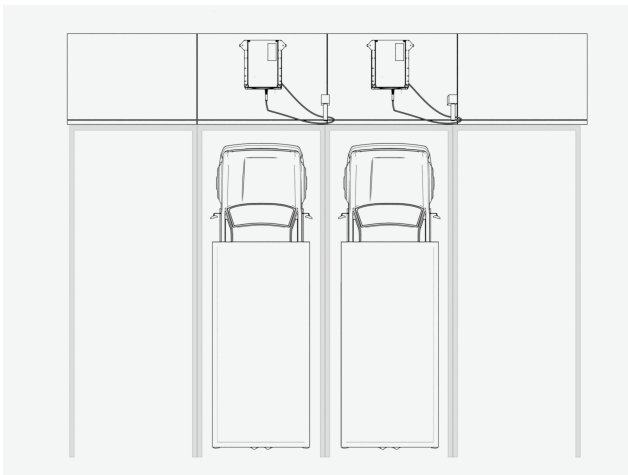


- **Stall parking (single charge cable):** Express Solos with single charging cables are always configured with the charging cable on the right side of the enclosure. Align the overhead CMK tether with the parking stall stripe adjacent to the vehicle's charging port. The illustrations below depict parking of the vehicles in relation to the charging stations, based on the side where the vehicle's charging port is located.

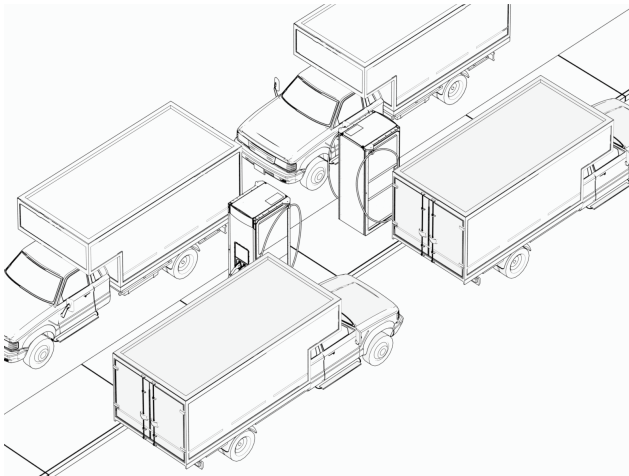
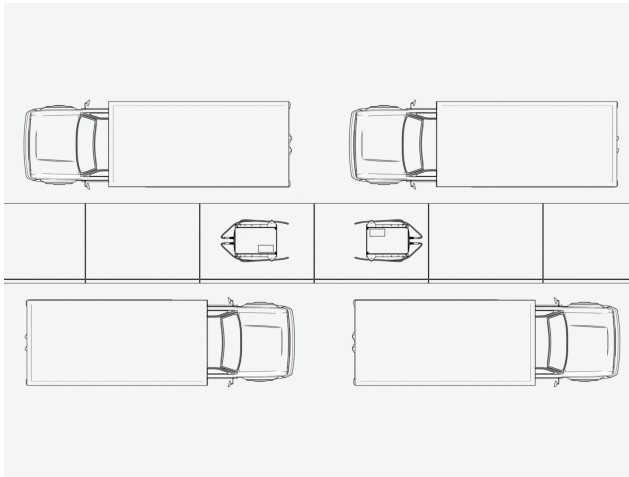
Vehicles with left-side charging ports :



Vehicles with right-side charging ports:



- **Island parking:** ChargePoint recommends placing a station in the center of the island facing away (station front is perpendicular to vehicles) in the same orientation. This allows the station to be accessible from both sides of the island. Swing arm CMK is not recommended for island use if vehicles are taller than the station.



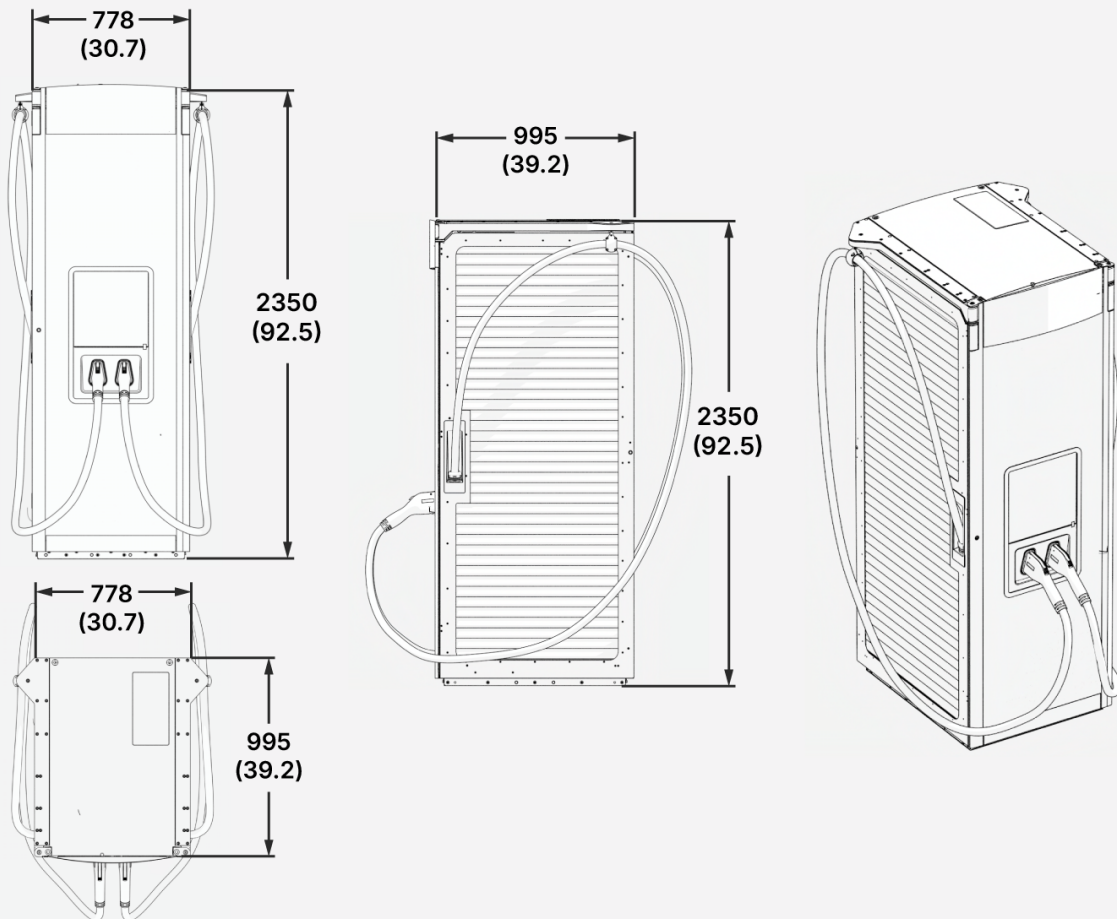
# Civil and Mechanical Design 3

This section describes civil and mechanical site design guidelines for Express Solo.

## Dimensions



**NOTE:** Images given in this section are not to scale. Measurements appear in metric units (mm), followed by imperial equivalents (inches).



# Weights

The following enables calculation of the Express Solo weight, depending on its configuration:

| Component                                      | Weight            |
|------------------------------------------------|-------------------|
| Express Solo (fully loaded with power modules) | 1300 kg (2866 lb) |
| AC power module                                | 93 kg (205 lb)    |
| DC power module                                | 68.5 kg (151 lb)  |

## Mount Specifications



**WARNING:** If not installed correctly, ChargePoint charging components may pose a crushing hazard, leading to death, personal injury, or property damage. Always use a ChargePoint-approved mounting method to install the ChargePoint charging components, as described in this section. Always install in accordance with applicable codes and standards using licensed professionals. Non-approved installation methods are performed at the risk of the contractor and void the Limited One-Year Parts Exchange Warranty.

## Concrete Pad Specifications

The Express Solo must be installed on a concrete pad or engineered foundation. The concrete pad may be either newly poured or it may be an existing concrete surface.



**IMPORTANT:** The concrete surface must be smooth and level. If an existing concrete surface does not meet the level requirement, a localized leveling pad must be poured.

To design a site-specific new pad, submit the following parameters for a structural engineering analysis. The table consolidates all required inputs—whether provided directly here or defined elsewhere in the guide—so the structural engineer receives a complete and consistent set of values.

| Parameter                      | Value                                                 |
|--------------------------------|-------------------------------------------------------|
| Weight                         | See <a href="#">Weights</a>                           |
| Height x width                 | See <a href="#">Dimensions</a>                        |
| Frontal area                   | Height * Width as given in <a href="#">Dimensions</a> |
| Center of gravity height       | 1349 mm (53.1 in)                                     |
| Anchor bolts size and quantity | M20 (x4)                                              |
| Anchor bolts placement         | See <a href="#">Anchor Bolts Placement</a>            |

Alternatively, if installing on an existing pad, a structural engineer must:

- Inspect and approve the existing pad for use, based on the parameters listed above
- Verify the anchor bolt embedment for structural strength

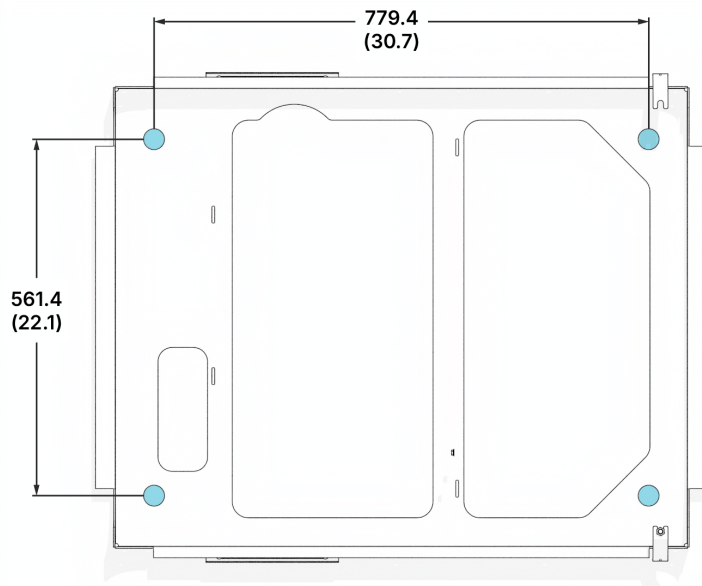
For additional information on using an existing pad, see [Surface Mount](#).

## Anchor Bolts Placement

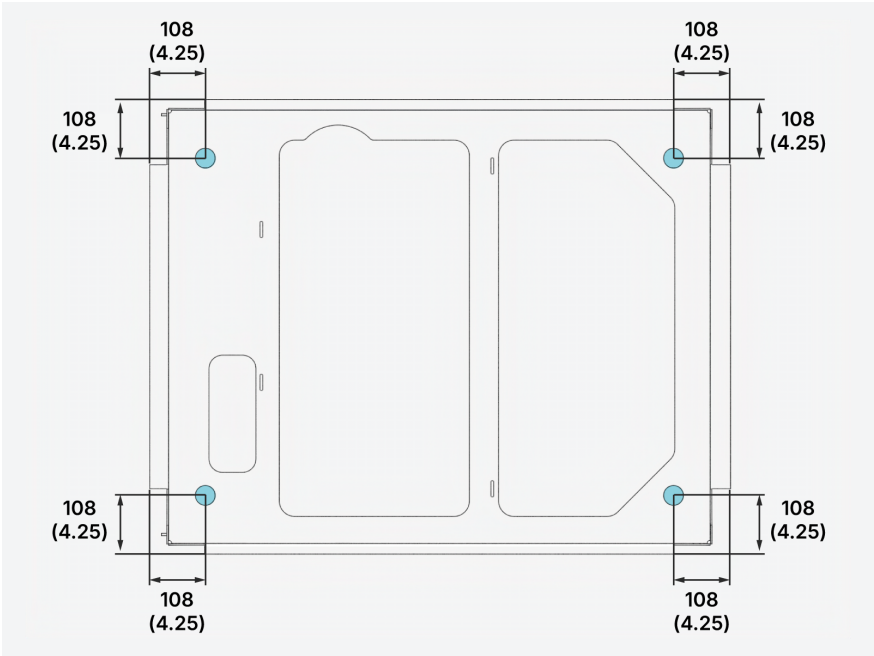


**NOTE:** Images given in this section are not to scale. Measurements appear in metric units (mm), followed by imperial equivalents (inches).

Express Solo mounts over four anchor bolts embedded in a concrete pad with the anchor bolt pattern shown below. The image perspective is looking from the ground up at the bottom plate of the cabinet.



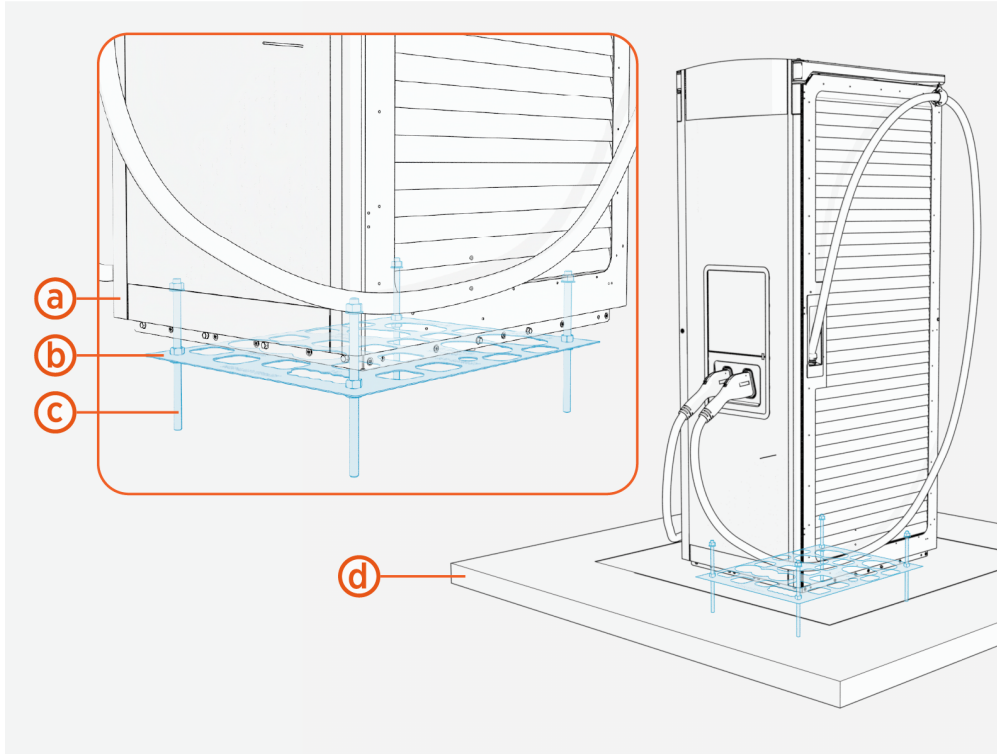
The distance from the center of each anchor bolt to its adjacent enclosure walls is 108 mm (4.25 in).





## Standard Mount

The most common mounting method for the Express Solo is a new pad installation using a Concrete Mounting Template (CMT) and conduit stub-up wire entry.



- The Express Solo pedestal (a) mounts onto four M20 anchor bolts (c) exposed 127 mm (5 in) above the concrete pad.
- The CMT (b) is embedded into a newly poured concrete pad (d) to align anchor bolts and underground stub-up wiring conduits. (Conduits are not shown in illustration.)

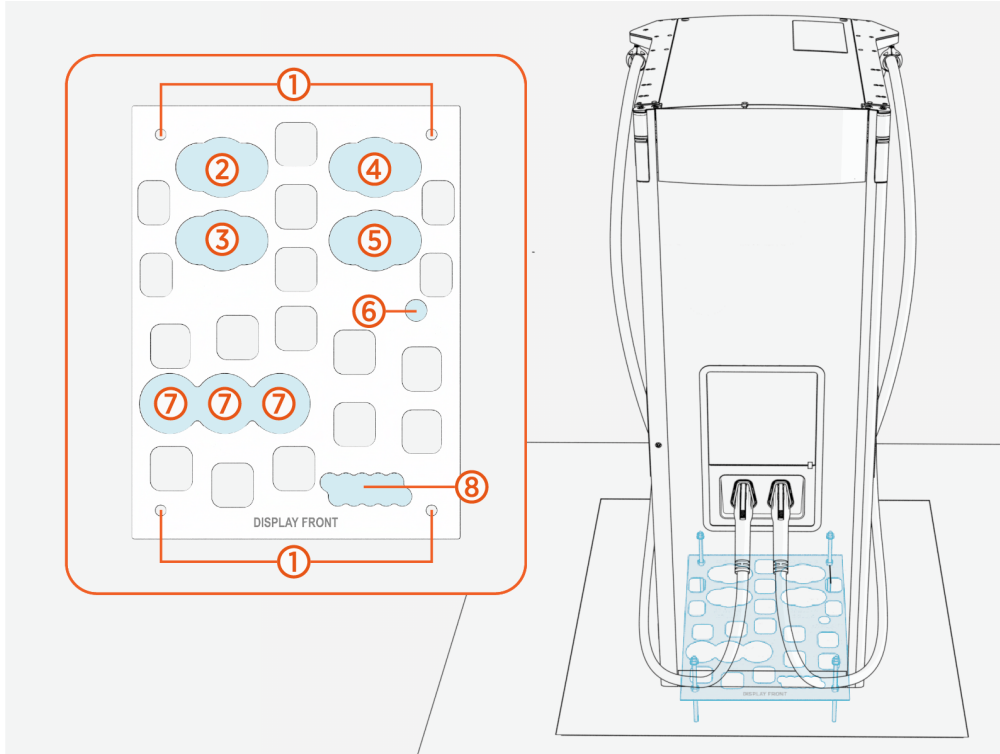
### IMPORTANT:



- The CMT is shipped separately and must be assembled onsite before pouring the concrete pad.
- The CMT must be embedded with its top panel positioned 51 mm (2 in) below the concrete surface.

# Concrete Mount Template

The concrete mount template (CMT) positions the anchor bolts and wire entry as shown below.



- (1) M20 anchor bolts (x4)
- (2) EXT D wires
- (3) DC BUS (exhaust side) wires
- (4) EXT B wires
- (5) DC BUS (intake side) wires
- (6) Shunt trip wires
- (7) AC input wires
- (8) 48 V DC output, Ethernet, Safety Hub, and door interlock wires

For conduit quantity and size requirements, refer to [Conduit Requirements](#).

## Surface Mount

Express Solo may be installed on an existing concrete surface in accordance with the following guidelines:

- The concrete surface must be inspected and approved by a structural engineer, as described in [Existing Pad Structural Analysis Parameters](#).



**IMPORTANT:** Verify the anchor bolt embedment for structural strength.

- The anchor bolts must be installed in the concrete surface as follows:
  - Anchor holes are drilled into the concrete using the anchor bolt pattern given in [Anchor Bolts Placement](#). The holes are drilled to a depth so that 127 mm (5 in) of each anchor bolt is exposed above the concrete pad.
  - Anchor bolts are epoxied into the holes. Use an epoxy with a minimum bonding strength of 11.7 MPa, compressive strength of 82.7 MPa minimum, and tensile strength of 49.3 MPa minimum. Examples include Hilti HIT-RE 500 V3 (normal cure) or Hilti HIT-HY 200-A (fast cure).

**NOTE:**

- Epoxy is required only if embedding anchor bolts into an existing concrete pad. It is not applicable for a new concrete pour with CMT.
- Different epoxy types have different cure times at various temperatures. Check local temperatures for the site in advance to help choose an appropriate epoxy.

- The anchor bolts must be hot dip galvanized. In coastal or other high-corrosion environments, consult a corrosion specialist to determine an appropriate bolt material and coating system.
- Surface mounted Express Solo must utilize [surface conduit entry](#).

## Surface Conduit Entry

Express Solo can be installed on a platform for surface conduit entry. [Contact ChargePoint](#) for more information.

## Drainage

Ensure any site slopes, walls, or fencing do not trap water around the installation site.

## Flood Plane

Express Solo is designed for a 61 mm (2.4 in) flood plane. If the site has a flood plane greater than 61 mm (2.4 in) for a 100-year flood event, consider installing the Express Solo on a raised concrete pad.



**WARNING:** Exposing the Express Solo to over 61 mm (2.4 in) of standing water could create an electrocution, shock, or fire hazard.

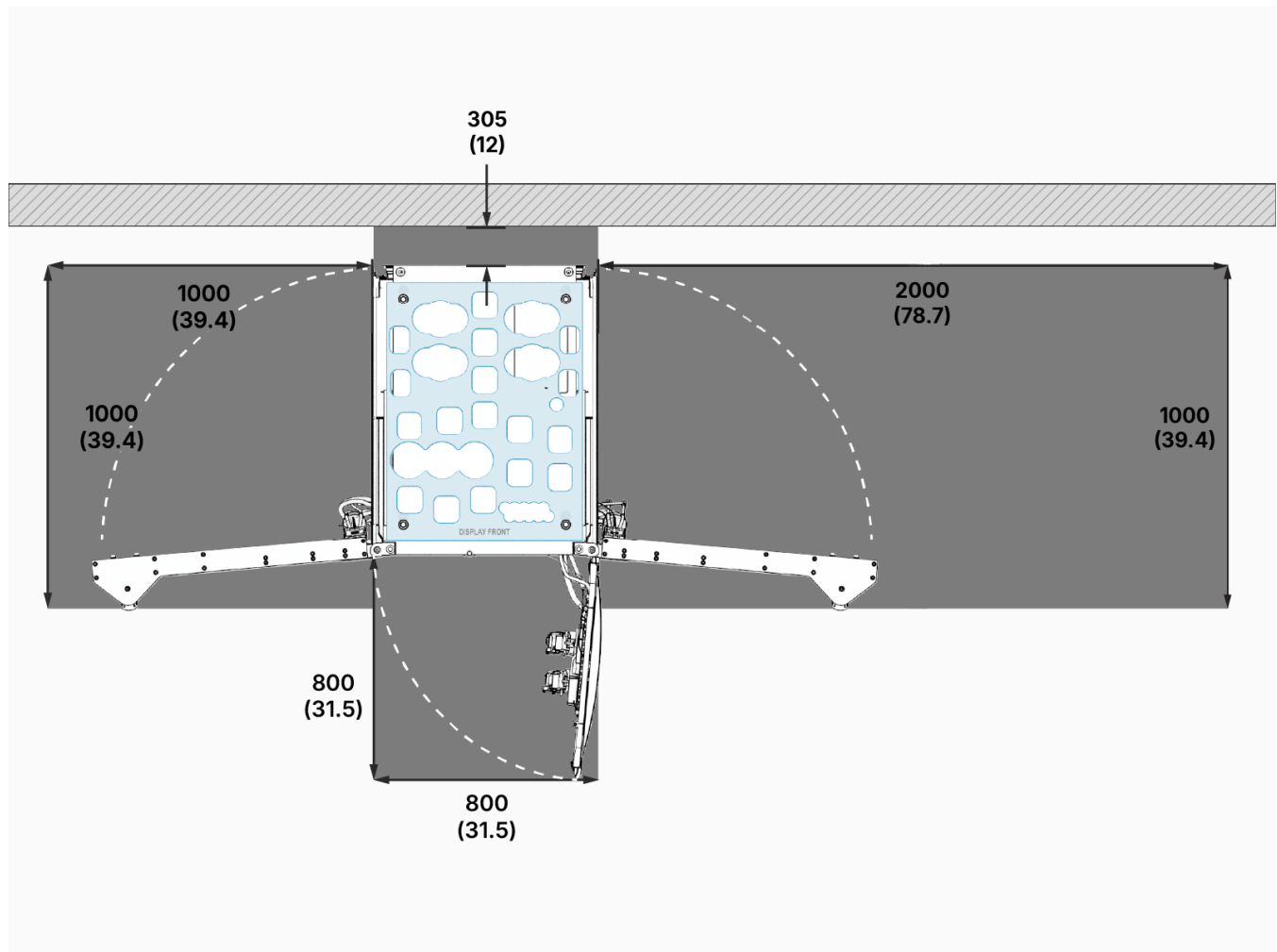
If a Express Solo has been exposed to standing water, cut power to the component and [contact ChargePoint](#) before the component is powered on.

# Clearances

Clearance requirements for the Express Solo are given below. The figure shows a top-down view of the Express Solo cabinet overlaid on the CMT.



**NOTE:** Images given in this section are not to scale. Measurements appear in metric units (mm), followed by imperial equivalents (inches).

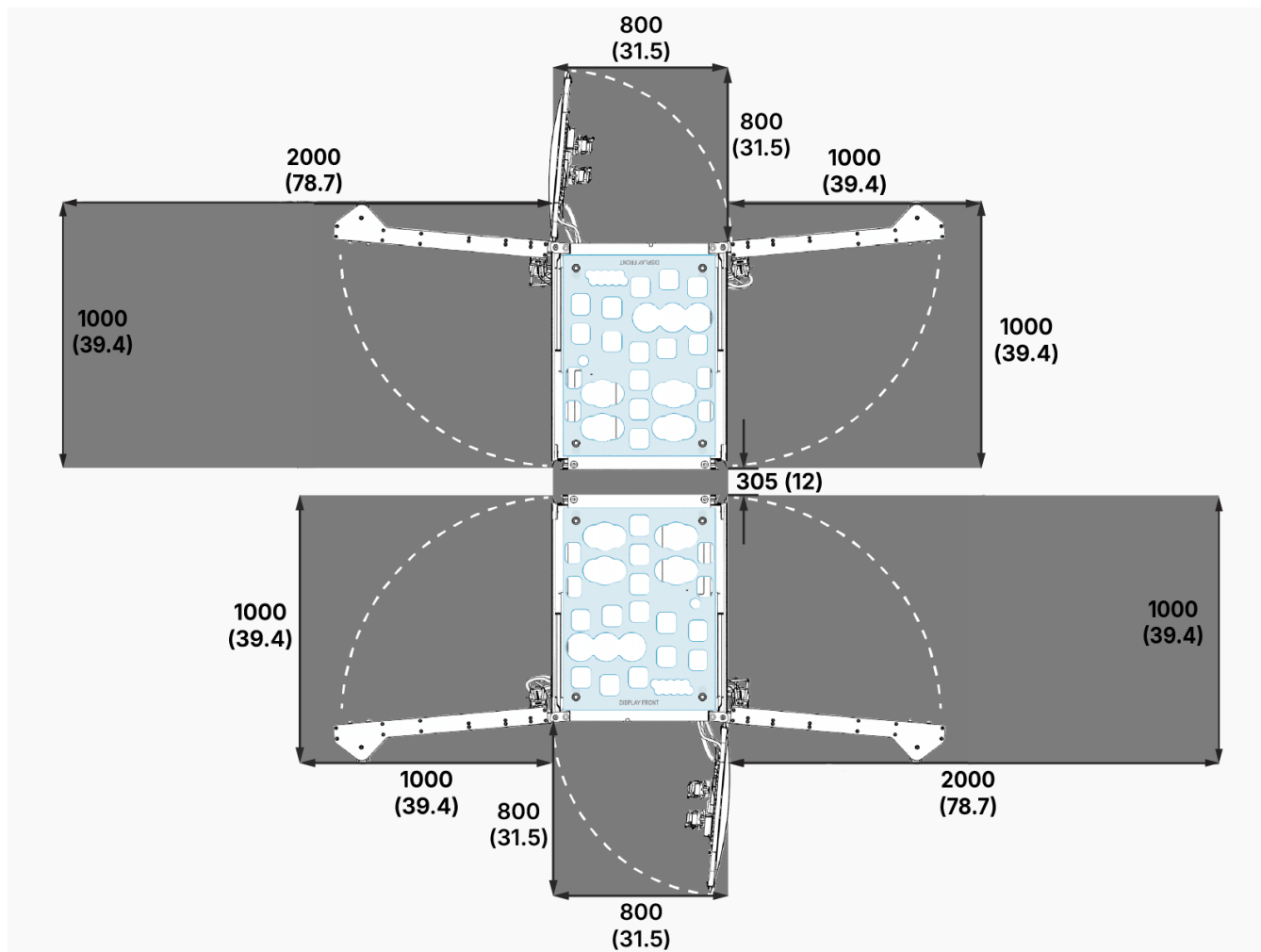


-  Mandatory clearance area
-  Wall, fence, or other obstruction



**IMPORTANT:** The ground within the defined mandatory clearance areas must be firm, stable, at grade (+/- 13 mm or 0.5 in), and free of any elevation changes. This ensures safe access when working with tools such as a module lifter, ladders, or similar equipment. Failure to maintain the required clearances or to ensure proper ground conditions may obstruct or prevent essential service operations or result in damage to the product.

Clearance requirements for two Express Solos installed back-to-back are given below.



 Mandatory clearance area

Additionally, follow the clearance guidelines below:

- The status LEDs must not be obstructed from view. See [Exterior Parts](#) for the location of the status LEDs.
- After site make-ready, the only method to confirm that clearance requirements have been met is to inspect the position of the anchor bolts. See [Anchor Bolts Placement](#) for the specific measurements between the anchor bolts and the cabinet walls.
- Check local and regional codes for any additional clearance requirements regarding safety, high voltage equipment, and accessibility requirements.
- For any questions about allowable layouts, [contact ChargePoint](#).

## Bollards

Bollards are not explicitly required by ChargePoint. If applicable, ChargePoint recommends these best practices and considerations when designing bollards for the site:

- Permanent bollards must not encroach upon the clearance areas described in [Clearances](#).
- Removable bollards are allowed if service personnel have the ability to move them as needed.

Bollards and wheel stops each has advantages and disadvantages. Factors to consider include: cosmetics, usability, accessibility and vehicle types.

Wheel stops offer the following advantages:

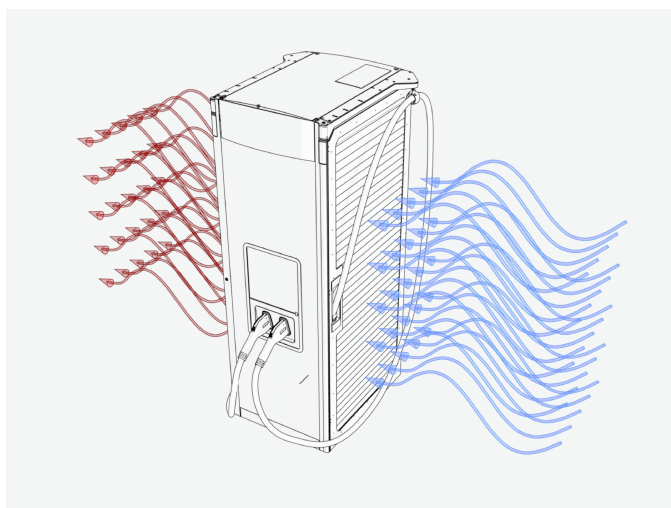
- Clean look
- Less chance of cables getting tangled with bollards

Bollards offer the following advantages:

- Better for ADA (see [Accessibility](#))
- Larger vehicles and sites with mixed vehicle sizes that have different overhangs (trucks vs. light duty vehicles)
- More visibility while backing up

## Ventilation

Intake vents are located on the right side of the Express Solo, and exhaust vents are on the left side when facing the display door. When positioning multiple Express Solos, orient intake and exhaust to avoid recirculation.



**NOTE:** Express Solo requires 33 kW (112,600 BTU/hr) of heat rejection.

## Accessibility

Comply with regional accessibility laws, regulations, and ordinances. The Express Solo charging station must not block ramps or pathways and the height of the interactive display cannot exceed the maximum height dictated by local laws. Do not install Express Solo on a raised concrete pad for parking spaces reserved for people with limited mobility. Express Solo meets accessibility height requirements when measured from a finished floor or ground plane.

## Signage

Refer to local and regional code to design the following elements for the site:

- Any required re-striping of parking spaces
- EV or Accessible EV signs

- EV or Accessible EV paint markings on and around the parking spaces

ChargePoint recommends posting signage indicating the maximum drive-through height for vehicles passing beneath the chargers.

# Electrical Design 4

This section provides electrical design guidelines for Express Solo.

## Electrical Supply Requirements

EV charging equipment operates as a continuous load, drawing high current for extended periods. Branch-circuit conductors and protective devices must therefore be sized in accordance with applicable local electrical regulations for continuous-load operation.

When planning multiple EV charging stations, it is best practice to segment non-continuous and continuous loads, with all branch circuits for EV charging on a dedicated electrical panel assembly with adequate circuit breakers. When sizing new electrical panels dedicated for EV charging, all branch circuits must support continuous load.

Express Solo is available in multiple power ratings: 350 kW, 500 kW, 525 kW

Each Express Solo requires its own circuit breaker. Recommended breaker sizing is given below. Check with local code for breaker size requirements.

Recommended breaker size for the Europe region (400 V AC):

| Max. Output Power        | AC Continuous Input Current Rating | Recommended breaker size |
|--------------------------|------------------------------------|--------------------------|
| Max. output power 350 kW | 542 A                              | 600 A                    |
| Max. output power 500 kW | 789 A                              | 800 A                    |
| Max. output power 525 kW | 800 A                              | 900 A                    |



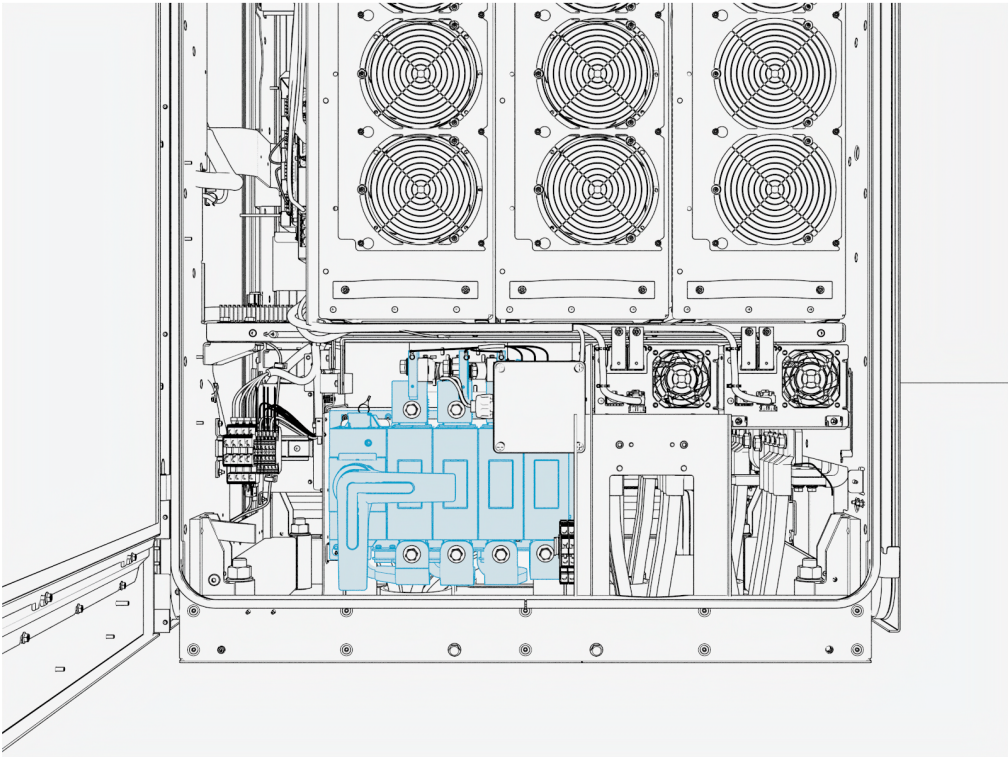
**IMPORTANT:** Express Solo has a short circuit current rating of 100 kA.

Express Solo is tested to IEC 61000-4-5, Level 5 (6 kV @ 3000 A) standards.



# Disconnect and Emergency Shutoff

Express Solo ships with an AC disconnect switch for emergency shutoff. The switch is located on the intake side of the Express Solo cabinet.



## Transformer Configuration

Refer to the following table for the transformer configuration.

| Parameter                        | Transformer Configuration                                                                                                                             |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input rating                     | 400 V AC, 3-phase,<br>850 A, 50 Hz                                                                                                                    |
| Electrical service configuration | 400 V AC 3-phase grounded WYE (Y) configuration<br><br>400 V AC 3-phase Delta (D) configuration (corner-grounded Delta transformer) is not acceptable |
| Product connection               | Express Solo must be connected to L1, L2, and L3 (neutral not required)                                                                               |

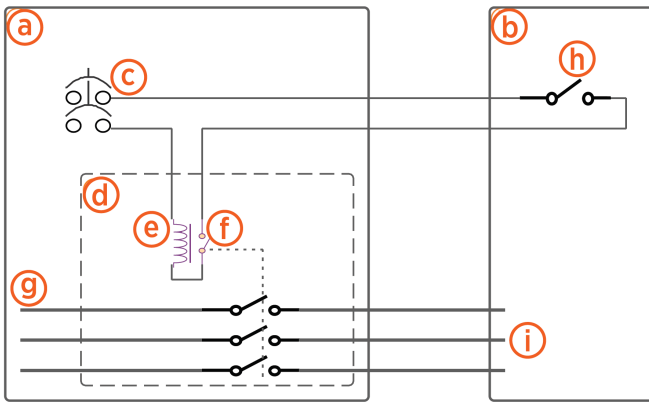
## Shunt Trip Wiring (optional)

Express Solo provides a set of unpowered (dry) contacts to connect to an optional shunt trip device. These contacts are rated to 240 VAC and 6 amps.

Wiring sections to and from Express Solo are deactivated when unsafe conditions are detected, such as unintended cover panel removal. A breaker reset is required any time the shunt trip is activated.

If installed, each Express Solo must be wired to the shunt trip unit of its own upstream circuit breaker. Upstream AC power must be shut off at the panel to remove shock risk inside the Express Solo. All shunt trip behavior is already hard-coded into the Express Solo and has no programmable variables.

Emergency stop devices are governed by local and regional codes and may be required in some sites. If one is required by code or by the site, confirm specifications with your ChargePoint representative.



- (a) Electrical panel
- (b) Express Solo
- (c) Control voltage supply, maximum 240 VAC
- (d) Shunt trip circuit breaker
- (e) Shunt trip coil
- (f) Auxiliary contacts (closed when main contacts are closed)
- (g) 3-phase AC main
- (h) Express Solo shunt trip contacts, Normally Open (inside the auxiliary power supply, accessible on field wiring terminal block)
- (i) 3-phase Express Solo AC input

## Grounding Requirements

- Express Solo is categorized as class 1 equipment and therefore its chassis must be connected to a grounded, conductive, and permanent wiring system in accordance with IEC 60364 and/or applicable national standards.
- Provide a protective earth (PE) conductor sized according to local regulations.
- Express Solo provides an isolated DC output. The DC positive and negative conductors must not be bonded to ground or protective earth. Grounding requirements apply to the equipment chassis only.
- Express Solo is compatible with standard European earthing arrangements, including TN-S, TN-C-S, and TT systems. Installers must follow local code requirements for earthing and bonding.



**NOTE:** The leakage current from Express Solo to protective earth conductor can reach up to 200 mA.

## Soft Shutdown

The soft shutdown function is an optional feature that can be installed as a way to stop a charge session on an Express Solo. It is not meant to safely service the Express Solo or take the place of an AC disconnect switch.

To use this feature, the installer must select and mount a physical soft shutdown switch (one per Express Solo) with the following specifications:

- Building wire rated to 600 V and suitable for the installation environment (e.g., dry, damp, or wet locations)
- Normally Open (NO) configuration
- Switch current of 2 mA
- Switch voltage of 48 V
- Gold contacts suggested

When creating the site drawings, consider where any soft shutdown switches should be positioned. If applicable, consider disability and accessibility regulations for your region when choosing switch locations.



**NOTE:** Soft shutdown switch requires a dedicated wire conduit. For more information, refer to [Standard Wire Entry Wiring Requirements](#).

When the switch is closed, the Express Solo software ends the current charging session with a normal stop, then opens DC contactors in the Express Solo. The station stays in this state regardless of station power, not allowing operation. Only a service technician can place the Express Solo back into service after the switch is reset to Open.



**WARNING:** The external DC output wires from the Express Solo could still be energized with the switch closed.

## Hardwire Ethernet

As an option, Express Solo supports hardwire Ethernet connection to an external network server. The connection requires a conduit for the Ethernet cable, which must be run from the customer server or network equipment directly to Express Solo. The connection is installed in only one Express Solo within an Express cluster, providing network connection for every node in the cluster

## Safety Hub

Safety Hub is an Express Solo feature that provides continuous electrical-isolation monitoring to enhance system safety. When required, Safety Hub uses a dedicated twisted-pair connection routed from the Express Solo Safety Hub Board to each associated Power Link. These conductors may share the same conduit as the 48 V DC and Ethernet wires serving the Power Links.

Safety Hub wiring requirements vary by Power Link model. Depending on the specific Power Link used in the installation, one of the following configurations will apply:

- Some Power Link models require a direct Safety Hub twisted-pair connection between the Express Solo Safety Hub Board and the Power Link.
- Other Power Link models do not require a Safety Hub wire connection. For these models, a jumper wire must be installed on the Express Solo Safety Hub Board instead of running twisted-pair wiring to the Power Link. This jumper is supplied with the Power Link and does not need to be sourced separately. Installation details are provided in the *Express Solo Installation Guide*.

Refer to the site design guide and installation guide of the Power Link model specific to your project to determine whether Safety Hub twisted wire connection is required.

## Wiring and Conduit Requirements

Refer to the *Express Solo Datasheet* at [ChargePoint Product Reference Documentation](#) for full product specifications.

Ensure that the installation location is equipped with service wiring that support the station's power requirements.

Conduit and wire size are determined based on current. Service wiring in conduit or armored cable must be run as required to comply with local electrical codes. Consult national and local codes or a project engineer to determine the grade, quality, and size of the conduit or cable.

### NOTE:



- All wiring and conduit is supplied by the contractor unless otherwise indicated.
- For V2G and energy storage applications, [contact ChargePoint](#) for wire and conduit requirements.

## Wire Run Lengths

Wire run length guidelines are given below:

- The maximum total external DC output wire run length from an Express Solo to a paired EVSE (such as a Power Link 2000 or another Express Solo) must not exceed 200 m (656 ft). Refer to the cluster configuration provided by ChargePoint for interconnect details.
- 48 V DC wire and Ethernet run length between Express Solo and any Power Link must not exceed 200 m (656 ft). At minimum, there must be one 48 V DC wire pair connecting from the Express Solo to each Power Link. If the distance between the Express Solo and a Power Link exceeds 100 m (328 ft), [contact ChargePoint](#) to determine if an additional 48 V DC wire pair must be run to compensate for voltage drop.
- The maximum wire run length between an Express Solo and an external network connection is 200 m (656 ft).

## Ethernet Cable Type and Configuration

Specifications for Ethernet cable type and configuration are given below:

- For Ethernet communications between any two nodes (for example, between an Express Solo and a Power Link) or to an external network connection:
  - For distances up to 100 m (328 ft): use outdoor-rated Cat6 Shielded Twisted Pair (STP) cable. Lesser grades of cable do not provide the required noise immunity.
  - For distances between 100 m (328 ft) and 200 m (656 ft): use extended-reach cable rated for 200 m (656 ft).
- An Ethernet cable connecting between an Express Solo and a Power Link must have the shield terminated at the Express Solo end of the cable, not at the Power Link end.

- For an Ethernet cable connecting between two Express Solos, terminate the shield at only one end of the cable. The Express Solo with the terminated cable end is designated as the main unit within the cluster.

## Conduit Requirements

In regions that use conduits, wire conduits may enter Express Solo through a [Concrete Mount Template](#) or through a skid via conduit stub-ups. In regions that do not use conduits and/or use armored cables, the cables may be laid per the conduit layout defined by the CMT.

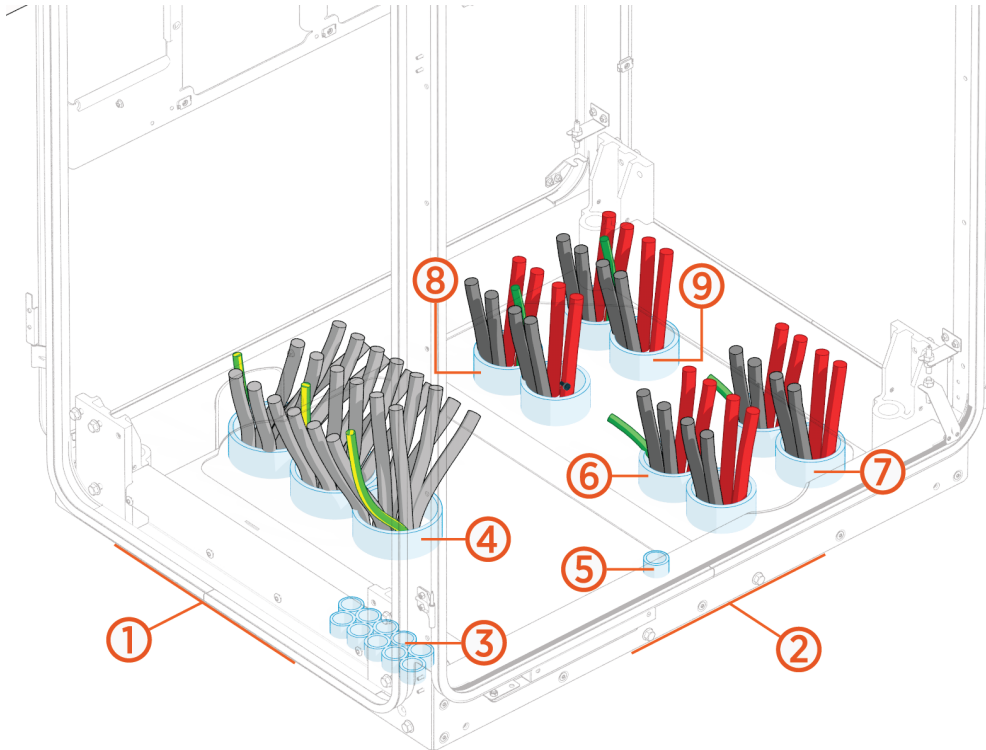
If using conduits:

- Conduits must be sealed to maintain a Pollution Degree 2 environment.
- Conduits must not have bell ends. Conduits with bell ends may interfere with tolerances inside the Express Solo.
- If using conduit stub-ups (ie., not using surface conduit entry), conduits must stub-up 13–25 mm (0.5–1 in) above the mounting surface.

Below is a sample depiction of wire entry via conduit stub-ups.



**IMPORTANT:** Conduit and wire size/quantity are shown for illustrative purposes only. The actual quantity and size of conduits and wires for your specific site may vary and shall depend on site specific requirements.



- (1) Cabinet front side
- (2) Cabinet intake (right) side
- (3) 48 V DC, Ethernet, Safety Hub, and door interlock
- (4) AC input
- (5) Shunt trip
- (6) DC BUS (intake side)
- (7) EXT B
- (8) DC BUS (exhaust side)
- (9) EXT D



**IMPORTANT:** The following table provides the maximum size and quantity of conduits that can be installed on Express Solo configured for standard wire entry. The actual conduit size and quantity must be chosen based on site specific wiring requirements.

| Conduits For                                                                                                   | Conduit Quantity x Size (O.D.)                                                                                              |
|----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| AC input                                                                                                       | 3 x 103 mm max.<br>or<br>4 x 78 mm max.                                                                                     |
| DC BUS: <ul style="list-style-type: none"><li>• DC BUS (intake side)</li><li>• DC BUS (exhaust side)</li></ul> | 1 x 103 mm max. per side<br>or<br>2 x 78 mm max. per side                                                                   |
| External DC output: <ul style="list-style-type: none"><li>• EXT B</li><li>• EXT D</li></ul>                    | 1 x 103 mm max. per output<br>or<br>2 x 78 mm max. per output                                                               |
| 48 V DC, Ethernet, and Safety Hub (*)                                                                          | 1 x 27 mm to each Power Link<br>1 inch size conduit is required. The quantity of conduits will depend on the configuration. |
| Ethernet and door interlock (**)                                                                               | 1 x 27 mm                                                                                                                   |
| Optional Features<br>(Soft shutdown switch, shunt trip, hardwire Ethernet)                                     | 1 x 21 mm max. per feature                                                                                                  |

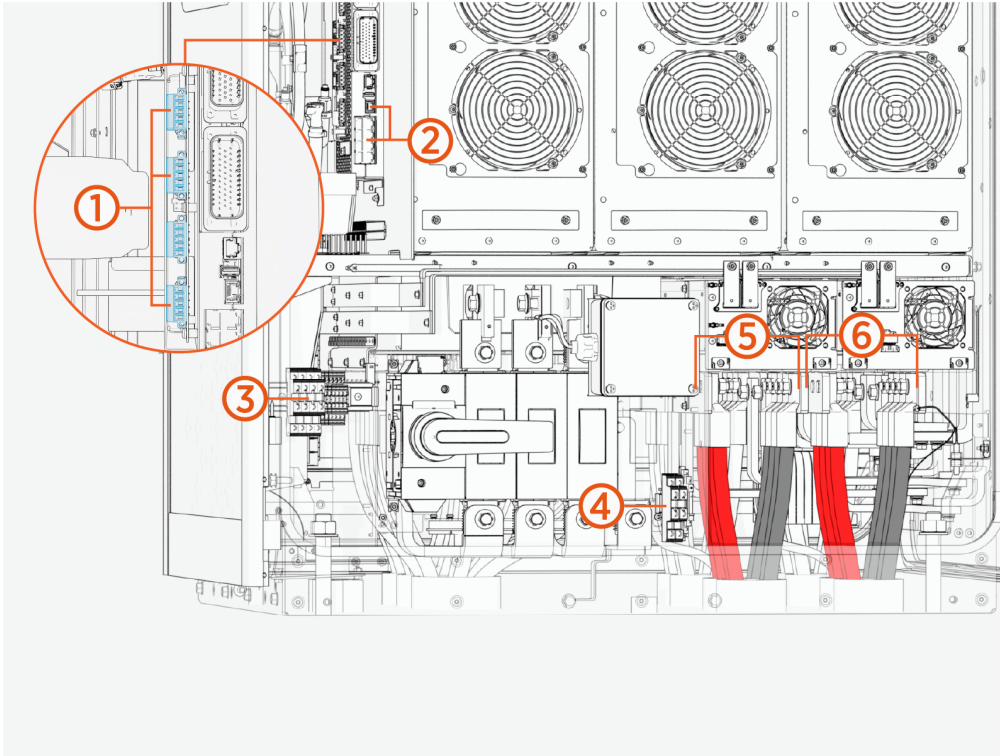


**NOTE:** (\*) 48 V DC, Ethernet, and Safety Hub wires travel in the same conduit when connecting Express Solo to a Power Link. Safety Hub wires are required only for certain models of Power Link. Refer to the installation guide of the Power Link model specific to your project to determine if Safety Hub twisted wire connection is required. (\*\*) Ethernet and door interlock sensor wires travel in the same conduit when pairing an Express Solo to another Express Solo.



## Wire Terminal and Bus Bar Locations

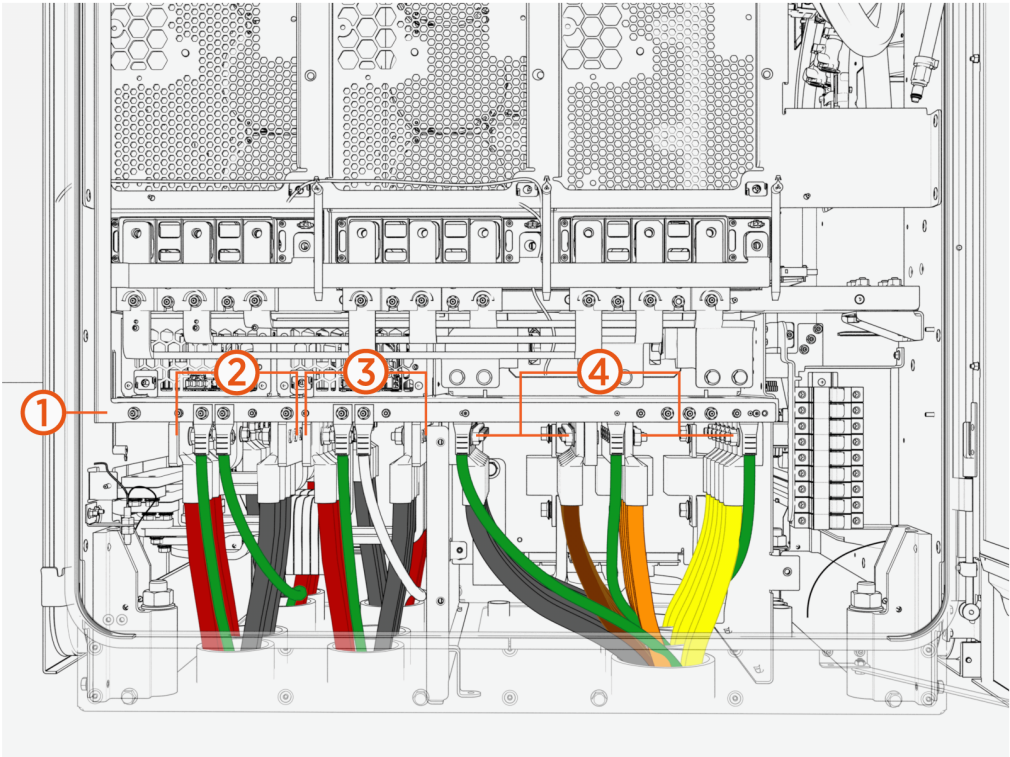
The following identifies the wire terminals and bus bars accessible from the intake side (right side) of Express Solo. (Safety shields are hidden from view.)



| Ref | Part                                                                             |
|-----|----------------------------------------------------------------------------------|
| (1) | Safety Hub ports                                                                 |
| (2) | Ethernet ports                                                                   |
| (3) | DC terminal block for 48 V DC, soft shutdown switch, door interlock sensor wires |
| (4) | Shunt trip terminals                                                             |
| (5) | DC BUS (intake side) bus bars                                                    |
| (6) | EXT B bus bars                                                                   |



The following identifies the wire terminals and bus bars accessible from the exhaust side (left side) of Express Solo. (Safety shields are hidden from view.)



| Ref | Part                                       |
|-----|--------------------------------------------|
| (1) | Ground/PE bar (with wire landing studs)    |
| (2) | EXT D bus bars                             |
| (3) | DC BUS (exhaust side) bus bars             |
| (4) | AC input (L1, L2, L3) and neutral bus bars |

## Wire Specifications



**IMPORTANT:** All requirements and specifications given below are critical for proper conductor selection and must be followed for all installations. Conductors must be installed following international and/or national wiring codes such as IEC 60364.



**IMPORTANT:** The requirements and specifications in this section reflect what is supported by Express Solo. When Express Solo is connected to another ChargePoint product, such as a Power Link charging dispenser, conductor material, insulation rating, wire gauge, quantity, lugs, and other wiring characteristics may be further constrained by the connected product. Refer to the site design guide for each connected product and follow the most restrictive requirements.

## Electrical Characteristics

The following table summarizes circuit current, voltage, conductor rating, and configuration for each circuit to support proper conductor selection.

| Circuit                                    | Maximum Current                                            | Circuit Voltage / Conductor Rating                                                | Number of Poles  |
|--------------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------|
| AC input                                   | Refer to <a href="#">AC Continuous Input Current table</a> | 400 V AC; conductor rating in accordance with applicable local and national codes | 3 + PE           |
| DC BUS (power sharing)                     | 750 A                                                      | 1000 V DC minimum conductor insulation rating                                     | 2 + PE           |
| External DC output                         | Depends on Power Link model and configuration              | 1000 V DC minimum conductor insulation rating                                     | 2 + PE           |
| 48 V DC output                             | 32 A                                                       | 48 V DC; 300 V minimum conductor insulation rating                                | 2                |
| Shunt trip, Safety Hub, and door interlock | -                                                          | Same conductor insulation rating as AC input                                      | 2 (twisted pair) |

## Conductor Material and Temperature Rating

The following requirements apply to conductor material and temperature ratings:

- For AC input and external DC output (EXT B, EXT D) and DC BUS conductors, use copper or aluminum conductors rated for 90 °C (194 °F).
- For 48 V DC, shunt trip, Safety Hub, and door interlock conductors, use copper conductors only.

## Insulation Requirements

Select conductor insulation types based on these requirements:

- Conductor insulation type must be suitable for the installation environment (e.g., dry, damp, or wet locations).
- For shunt trip, Safety Hub, and door interlock conductors, due to routing proximity to power conductors, use insulation with the same voltage rating as the AC input conductors.

## Neutral Configuration

Express Solo is available in two factory configurations: with a Neutral landing or without one. A Neutral connection is not required for standard charging applications. However, some Vehicle-to-Grid (V2G) systems rely on phase-to-neutral voltage measurements for control functions. When planning a V2G deployment, [contact ChargePoint](#) to ensure the correct Express Solo configuration is selected.

## Lugs and Terminations

Plan for lugs and terminations using the following requirements:

- Use lugs that are compatible with the selected conductor material and with the nickel-plated landing bus bars provided in Express Solo.
- When using aluminum lugs, ChargePoint recommends applying an appropriate antioxidant compound to aluminum conductors when terminating into tin-, nickel-, or silver-plated lugs, where required by code or specified by the lug manufacturer.

## Field Verification

After pulling conductors through conduit, all AC input, external DC output, and DC BUS conductors must undergo insulation resistance testing to verify that insulation has not been damaged during the pull.



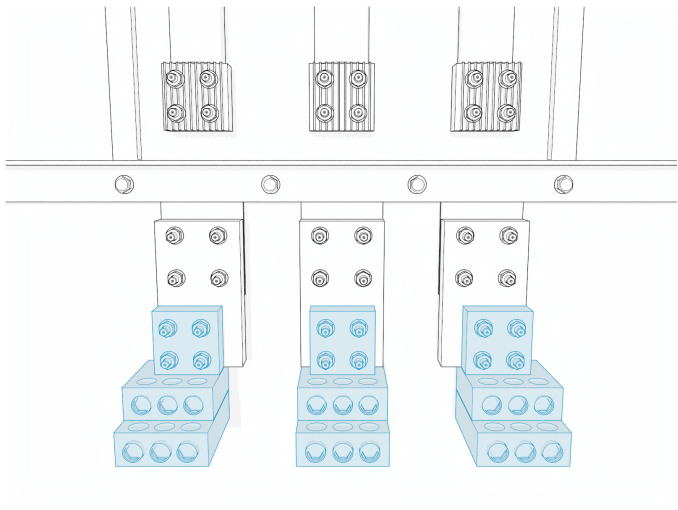
**IMPORTANT:** Following are wire specifications for Express Solo, including the maximum quantity and size that the wire terminals can accommodate. All sizing assumes a maximum ambient temperature of 50 °C (122 °F). Where the maximum wire size is listed, the actual wire quantity and size must be chosen based on site-specific wiring requirements and in accordance with the maximum allowed conduit filling rate per local code.

| Wire                                                     | Quantity                                                                      | Size                                                                                | Termination                                                                                                              |
|----------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| AC input                                                 | Max. 18 wires<br>(six per phase)                                              | Size based on <u>max. current, max conduit size</u> , and 200 mm wire bending space | Lug: Compression lug; short barrel and tongue with single hole sized for M12 stud<br>Max. tongue width: 36 mm (1.3 in).  |
| AC protective earth (PE)                                 | Max. 3 wires<br>(1 per AC conduit)                                            | Refer to local code for size                                                        | Lug: Short barrel and tongue with single hole sized for M6 stud                                                          |
| DC BUS:<br>DC BUS (intake side)<br>DC BUS (exhaust side) | Max. 8 wires per side<br>(four per pole)                                      | Size based on <u>max. current, max conduit size</u> , and 200 mm wire bending space | Lug: Compression lug; short barrel and tongue with single hole sized for M12 stud.<br>Max. tongue width: 36 mm (1.3 in). |
| External DC outputs:<br>EXT B<br>EXT D                   | Max. 8 wires per output<br>(four per pole)                                    | Size based on <u>max. current, max conduit size</u> , and 200 mm wire bending space | Lug: Compression lug; short barrel and tongue with single hole sized for M12 stud.<br>Max. tongue width: 36 mm (1.3 in). |
| DC grounding                                             | Max. 2 wires per interface<br>(1 per interface conduit)                       | Refer to local code for size                                                        | Lug: Short barrel and tongue with single hole sized for M6 stud.                                                         |
| 48 V DC output                                           | Max 4 wires per Power Link<br>(2 wire pairs; each pair has one wire per pole) | 16 mm <sup>2</sup>                                                                  | Stripped wire end or ferrule                                                                                             |
| Ethernet                                                 | Max. 3 cables<br>1 per Power Link<br>1 for hardwire Ethernet (if needed)      | Outdoor-rated Cat6 STP (*)                                                          | RJ45 connector, shielded                                                                                                 |
| Door interlock sensor                                    | 2 wires                                                                       | 1.5 mm <sup>2</sup>                                                                 | Stripped wire end or ferrule                                                                                             |
| Safety Hub                                               | 2 wires per Power Link (**)                                                   | 2.5 mm <sup>2</sup>                                                                 | Stripped wire end                                                                                                        |
| Soft shutdown switch                                     | 2 wires                                                                       | 2.5 mm <sup>2</sup>                                                                 | Stripped wire end or ferrule                                                                                             |
| Shunt trip                                               | 2 wires                                                                       | 2.5 mm <sup>2</sup>                                                                 | Stripped wire end or ferrule                                                                                             |



**NOTE:** (\*) The required Ethernet cable type depends upon the cable run length. See [Ethernet Requirements](#). (\*\*) Safety Hub is not required for all models of Power Link. Refer to the installation guide of the Power Link model specific to your project to determine if Safety Hub twisted wire connection is required.

For AC input, Express Solo allows a maximum of 18 total current carrying conductors. If utilizing this wiring configuration, install spreader bars at the breaker or transformer to split the outputs across the high number of conductors.



# Connectivity 5

A consistently strong cellular signal is needed before installers can activate the vehicle charging station. Weak or sporadic signal can affect crucial aspects of the charging station, including:

- Accuracy in reporting
- Ability for drivers to use the mobile app
- Ability for customer support to troubleshoot problems
- Support for advanced features such as Power Management or Waitlist

A strong signal is also required for the ChargePoint Assure maintenance and management programs.

ChargePoint stations use cellular data connections to reach ChargePoint Cloud Services. This allows secure, PCI-compliant data connections without requiring any other form of internet connectivity at an install site or imposing additional network management responsibilities on a site host.

Each station has its own cellular connection.

## Signal Strength and Quality

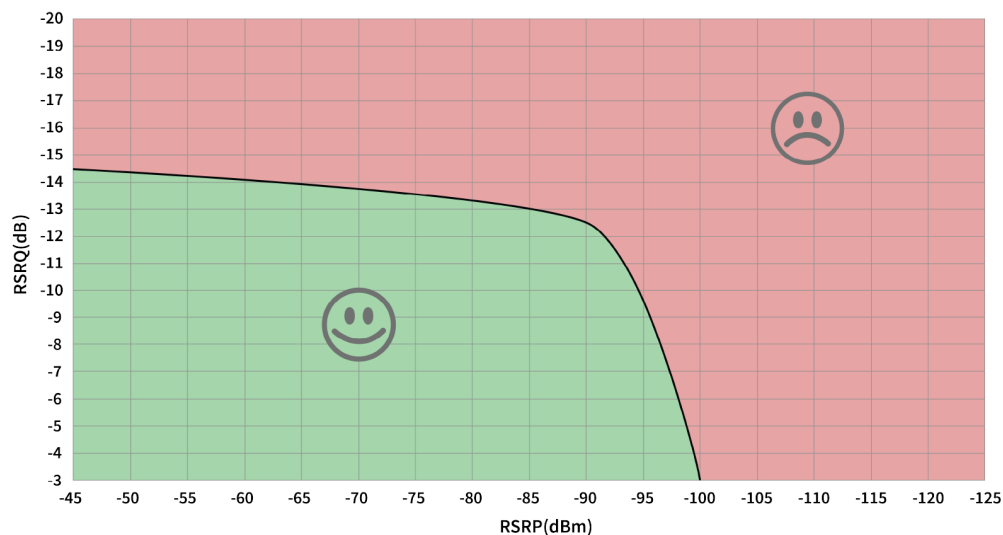
You must use a cellular signal detection device (such as a Siretta Snyster LTE or equivalent) to take signal strength readings at the exact proposed mounting location of the charging station. If the charging station does not have its own cellular connection, take the signal strength reading at the proposed mounting location of the gateway station.

In Europe, ChargePoint products all support LTE bands 1, 3, 7, 8, and 20. 900 and 1800 MHz are also supported for 2G fallback. Partners vary by country.

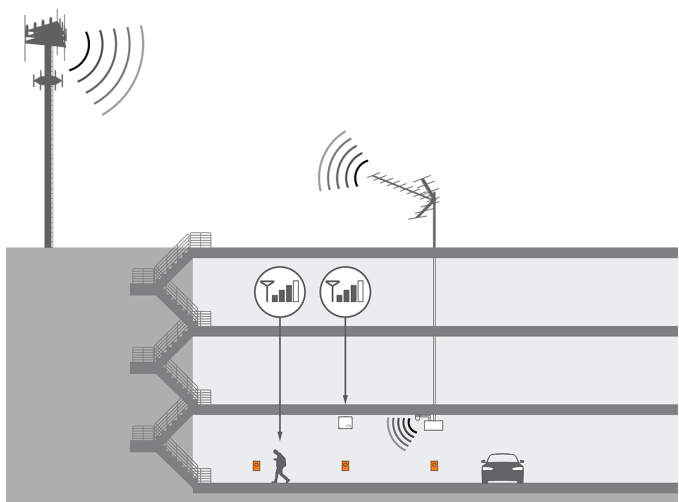
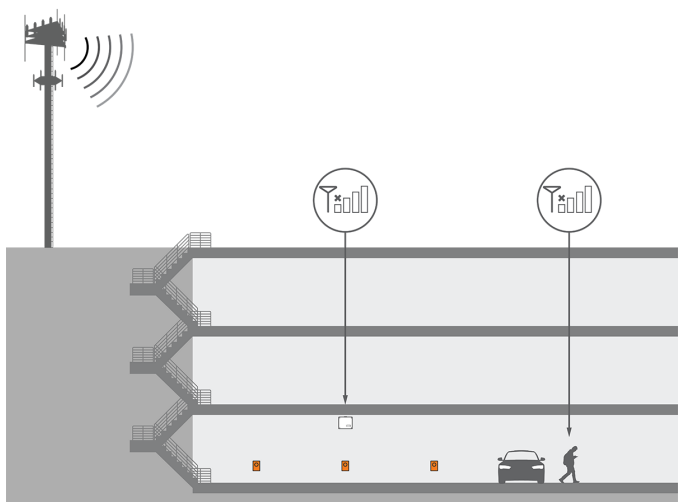
You must test the LTE signal strength at the proposed mounting location of every station and ensure the location meets the minimum RSRQ at -12.5 dB or better, for RSRP measured at -90 dBm or better. Refer to the graph for acceptable combinations.



**NOTE:** Cellular signal strength is measured in dBm, a logarithmic unit expressed as a negative number. Because dBm values are negative, a value closer to zero indicates a stronger signal. For example, -70 dBm represents a stronger signal than -85 dBm, while -90 dBm indicates a weaker signal than both.



If the signal strength is weaker than this, take cellular readings at the location where any cellular signal booster antennas will be installed. Ensure enough signal exists for that repeater model. Install repeaters to boost the strength of the cellular signals. Repeaters are often required when installing charging stations in an underground garage or enclosed parking structure.



For other regions, or if the site does not have strong signal on these bands, contact your ChargePoint representative for additional solutions.

ChargePoint strongly recommends a consultation with a cellular connectivity specialist before all installations. A consultation can verify:

- Service with a supported carrier on a supported LTE band
- Available signal and local noise levels on applicable bands
- Site changes to correctly meet your needs, both for station bandwidth and other phone coverage for customer or tenant satisfaction

## Repeaters

Some sites require repeaters to ensure strong signal to all stations. If a repeater is required, look for a model with these features:

- Specifically LTE-compatible on the listed bands
- Multi-carrier
- Multi-band
- Not already dedicated to FirstNet or other first responder-specific networks
- Auto-gain recommended



**NOTE:** Do not rely on readings taken with a cell phone when conducting site surveys. Many signal boosters and network extenders may not be compatible with ChargePoint hardware, including certain types of Distributed Antenna Systems (DAS), micro/nano/pico/femto-cells, and carrier- or band-specific signal boosters.

Repeaters are not allowed in France. Contact the French service provider for more information.