SIEMENS

Siemens L2 VersiCharge
EV charger make-ready solutions

siemens.ca/versicharge

Contents

Overview	3
Packages	4
Workplace/Office Application: 4×L2 Chargers	4
Drawing Walkthrough	5
Point of charge	5
Panelboard	5
Transformer	5
Safety Switch	5
Workplace/office: future-proof design	6
Cloud services	6
Other applications	7
Potential additional equipment	9

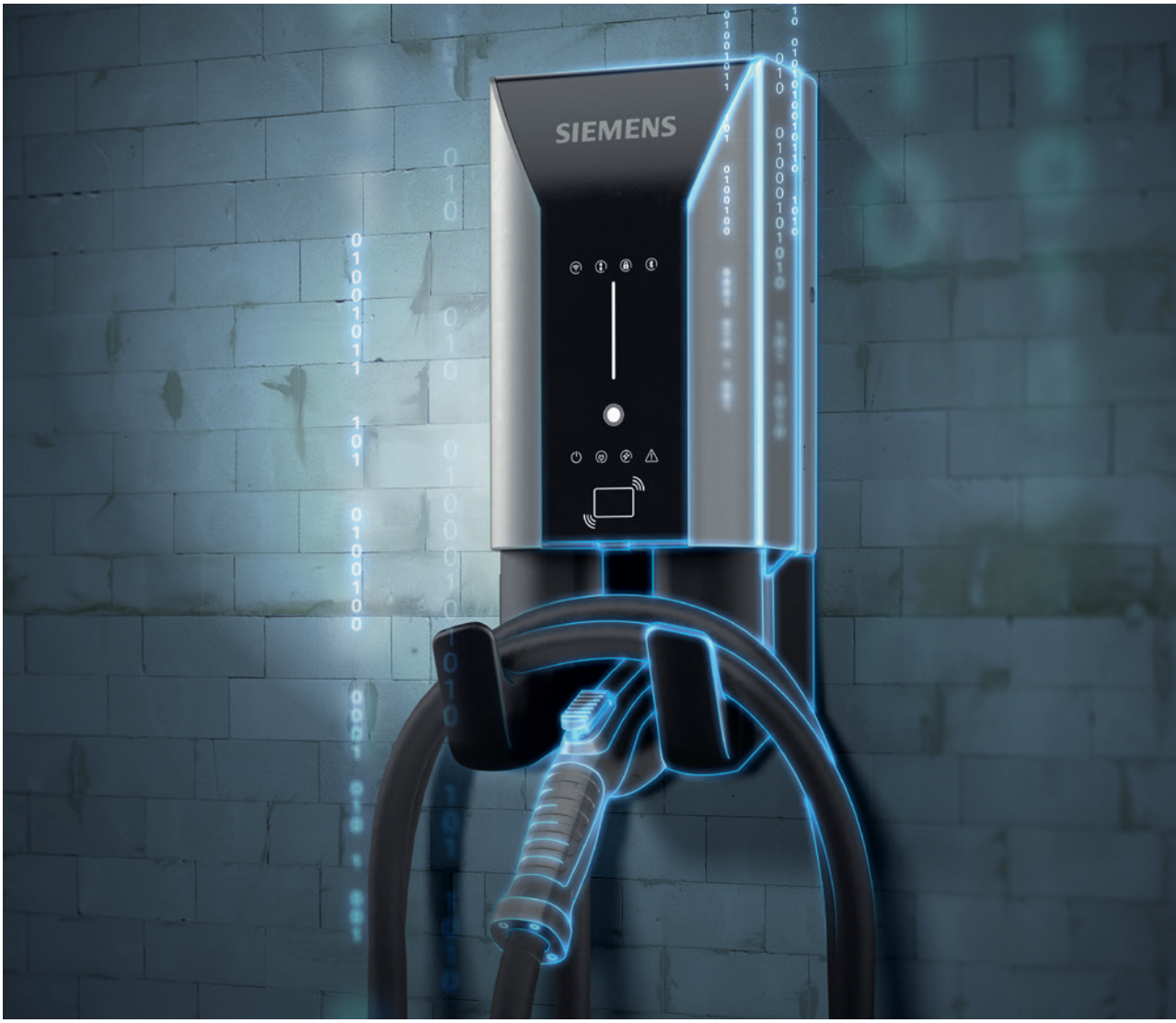
Overview

Siemens offers a wide spectrum of solutions for your electrical vehicle supply equipment needs. Our extensive lineup of electrical vehicle charging solutions can be easily coupled with our make-ready electrical equipment for an Integrated solution that is ready to be installed wherever you need charging solutions. Siemens offers a standard or customized solution that meets the requirements for your business, while making the process quick and efficient.

Our Gen 3 VersiCharge EV Chargers provide a versatile package for your electric vehicle charging needs. They provide the following:

- RFID/NFC Whitelist
- Wi-Fi / Ethernet / 4G
- OCPP 1.6 ready
- ANSI 12.20 certified integrated meter
- SAE J1772 compliant
- Nema 4 enclosure
- CSA listed
- Custom branding available

For applications requiring 50 kW+ of charging power in Level 3 chargers, please contact the Siemens Customer Interaction Centre at 1-888-303-3353



Packages

Workplace/Office Application: 4×L2 Chargers

Achieves:
- Install of four 40 A chargers

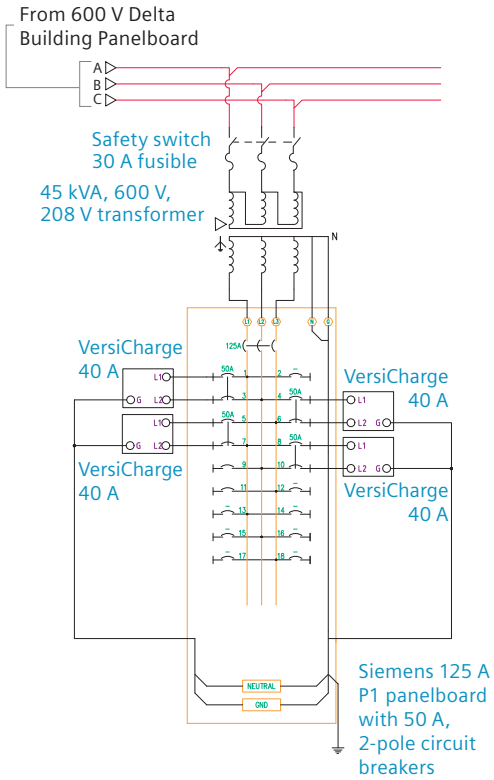
Requirements:
- 600 V delta connection

Siemens provides:
- High voltage cabling from the existing panelboard to the location of chargers
- Install of 45 kVA Transformer to downstep the voltage from 600 V delta to 208 V Wye Line to line
- Panelboard to distribute power to the chargers
- Chargers (Wall or Pedestal-Mounted)
- Construction involving laying cables from PCC to charging station

Bill of materials

Item tag	Item	Quantity	Specs/Description
A	600 V, 30 A cabling	per foot	From switchboard to transformer Spec: 12 AWG
B	Safety switch	1	Siemens HFC361R 3-pole, 30 A
C	Transformer	1	Siemens T3G30045A8RXXM 600V/208V 3 phase, 4 wire 45 kVA
D	Panelboard w/main breaker	1	Siemens P1 P1C18E4125ATS 125 A max current Main breaker ED4, max IR @ 10 kA
E	Circuit breakers	4	50 A, 2-pole BLH
F	208 V, 50 A cabling	per foot × types of chargers	From panelboard to chargers Spec: 8 AWG
G	VersiCharge chargers	4	9.6 kW, 40 A, Level 2

Drawing of required components



Drawing walkthrough

Point of charge

Four VersiCharge chargers rated to provide a power level of 9.6 kW at 40 A simultaneously. These chargers require a 2-pole circuit breaker each rated at 1.25 times the nominal current, resulting in 50 A. The chargers can accept a voltage input in the range of 208 V to 240 V. The chargers are standardized to fit all commercial electrical vehicles that conform to CSA standards.

Panelboard

The panelboard will be installed in an enclosure at the point of charge. The appropriate panelboard for this application is the Siemens P1 panelboard, model number P1C18QJ125ATS. The panelboard is fitted with a main breaker rated for 125 A (three-phase) and 2-pole branch circuit breakers rated for 50 A (line to line). The calculation for the main breaker is shown at right.

$$I_{panel} = 1.25 \times 4 \times \frac{I_{charger}}{\sqrt{3}}$$

Where $I_{charger}$ = 40 A, resulting in I_{panel} = 115 A, which is then rounded up to 125 A. The main breaker model number is ED4 and the branch breakers model numbers are BLH.

Transformer

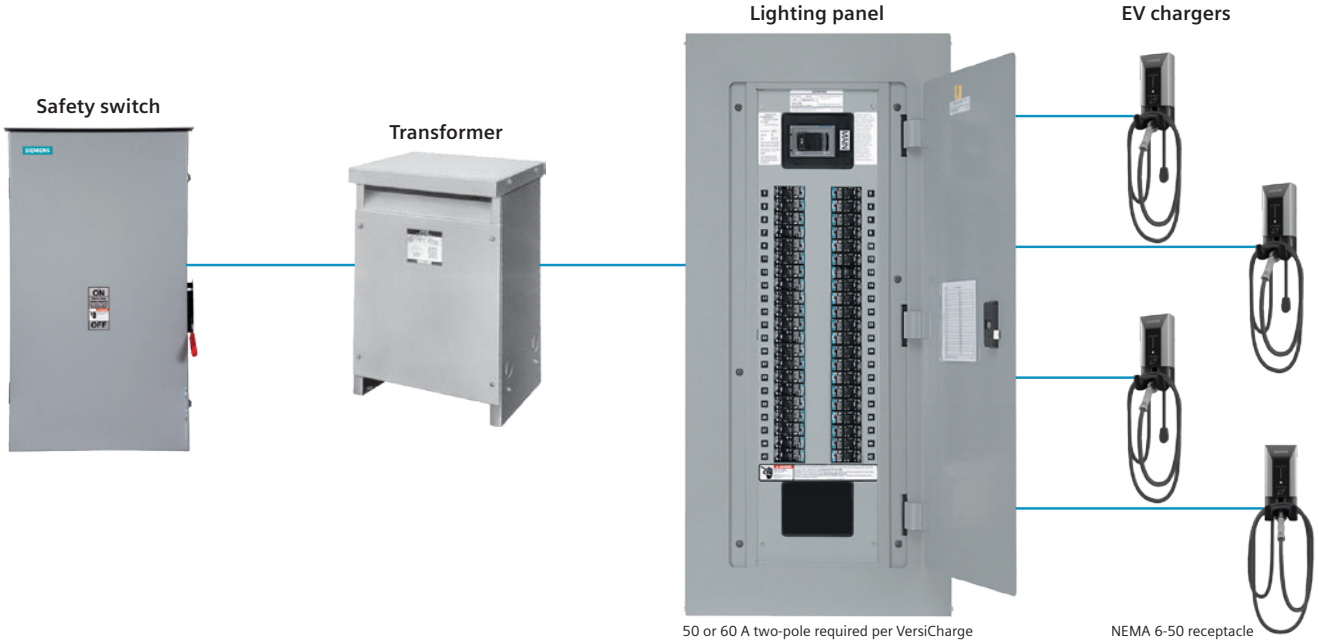
The aluminum wound transformer is located at the point of charge to reduce the current being carried from the building to the charging station. The transformer is rated for 45 kVA, that can safely power up to four chargers. The model number is Siemens T3G30045A8RXXM. It steps down the voltage from 600 V delta to 208 V(LL) Wye and converts a three-phase system to a three-phase, four-wire system.

Safety switch

The safety switch is located at the charging station to allow for a shut off of all the chargers. A Siemens fusible type switch is used. The switch is CSA certified under file 13076, manufactured and designed in Canada and rated for a 200 kA surge current. The continuous current is rated for 100 A which is calculated via the formula at right:

$$I_{switch} = \frac{I_{panel} \times V_{secondary}}{V_{primary}}$$

With I_{panel} = 125 A, $V_{secondary}$ = 120 V, $V_{primary}$ = 600 V, resulting in 25 A. (the safety factor of 1.25 is factored in with the panel current). So, a 30 A switch will suffice.



Workplace/office: future-proof design

The above design for four chargers allows for four cars to be charged simultaneously at full power. However, upgrades can be made in the future to the number of chargers. These additions may require upgrades to infrastructure, but can also be made to the existing system by applying sequential charging.

With sequential charging, more chargers can be plugged in while back end systems put the chargers in a queue. The charging schemes can be configured to a first come first serve basis, to charge until a certain percent, to prioritize low battery levels, or other configurations.

By adding two to four more chargers, you can have more chargers plugged in at once, even though they may not all charge at once. Vehicles will charge in a queue, but it allows the user to plug in and forget it. Since cars charge roughly at 30 km/hour, sequential charging can allow for all cars to get topped up while sitting in the lot.

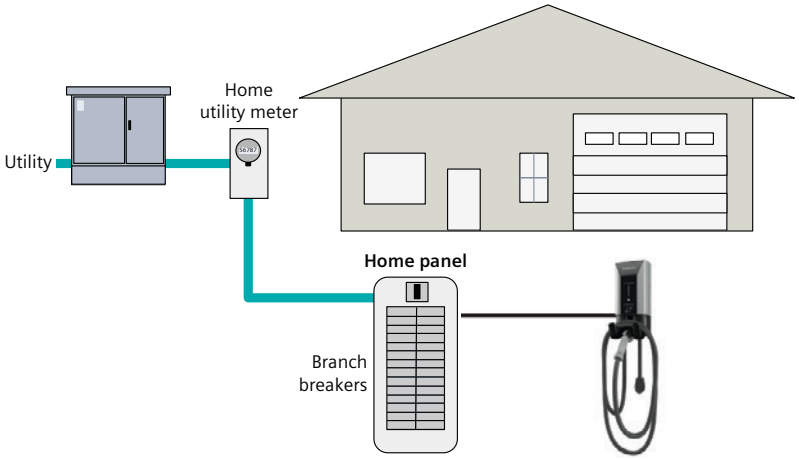
Cloud services

Siemens provides a charger management services that will help you control your fleet by allowing for actions such as checking the charge level of each car, shutting off and turning on chargers, limiting the amount of charge to each vehicle, and much more. Cloud Services are required to enable all features of charger management and is available at an additional cost.

Other applications

Residential single family homes

Chargers are installed via a dedicated two-pole 50 A circuit breaker to the existing home panelboard.

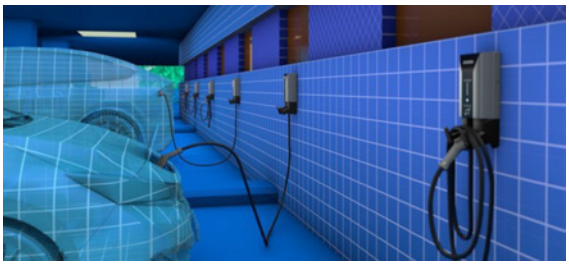


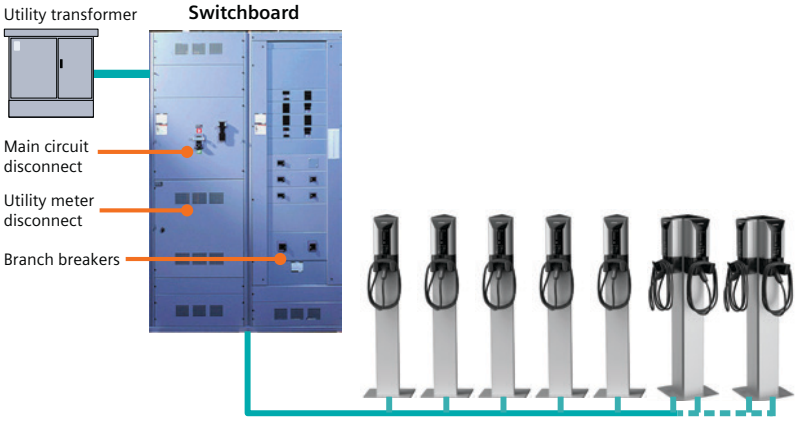
Power cable feeding 240 V with dedicated 50 A, 2-pole breaker per charger. NEMA 6-50 receptacle used.

Multi-vehicle locations, such as hotels, stores, schools, multi-tenant residences, and more

A larger install of a switchboard with main and utility disconnects is required. Siemens provides all equipment required in the make-ready install.

For charger-only metering, a dedicated meter can be installed between the panelboard and the charger.





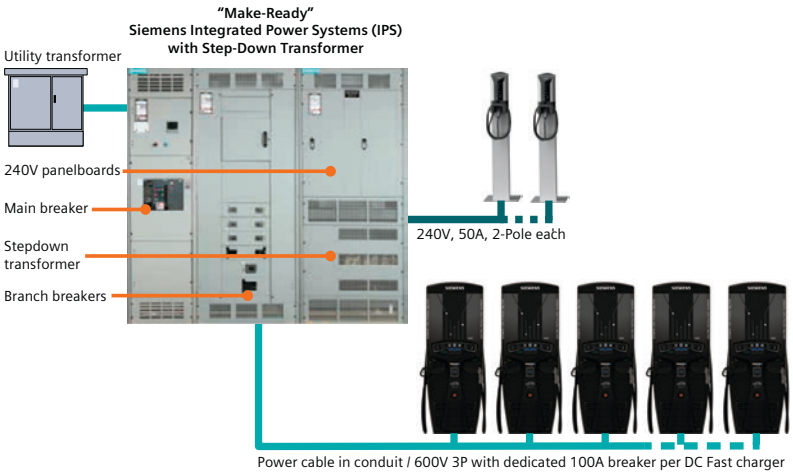
Power cable in conduit / 240V with dedicated 50A breaker per VersiCharge

Other applications (continued)

Multi-vehicle locations such as, parking lots, gas stations, en route stations, fleet depots, and more

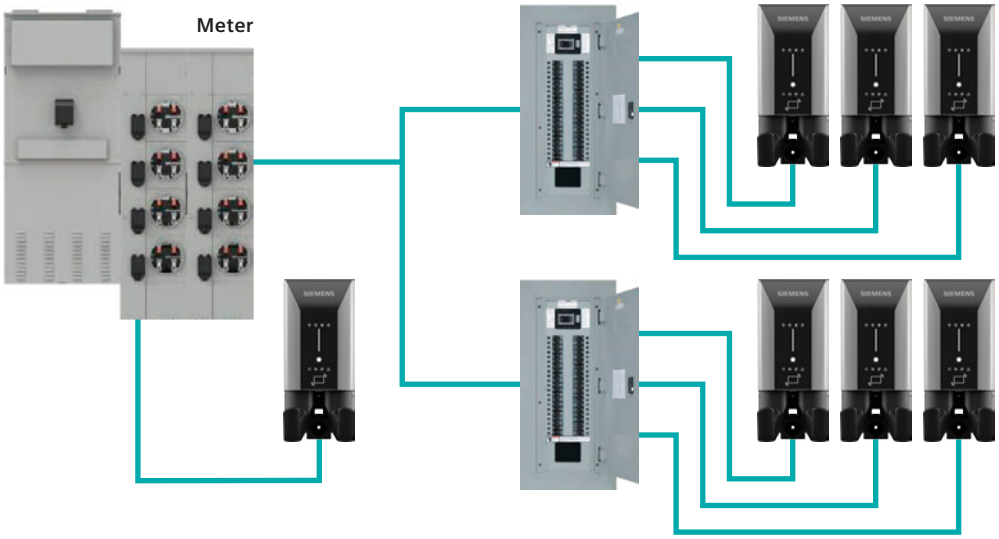
Solutions to power both L2 and L3 chargers at different voltage levels in a compact integrated power system, complete with transformers and panelboards.

Adds flexibility for adding additional chargers in the future.

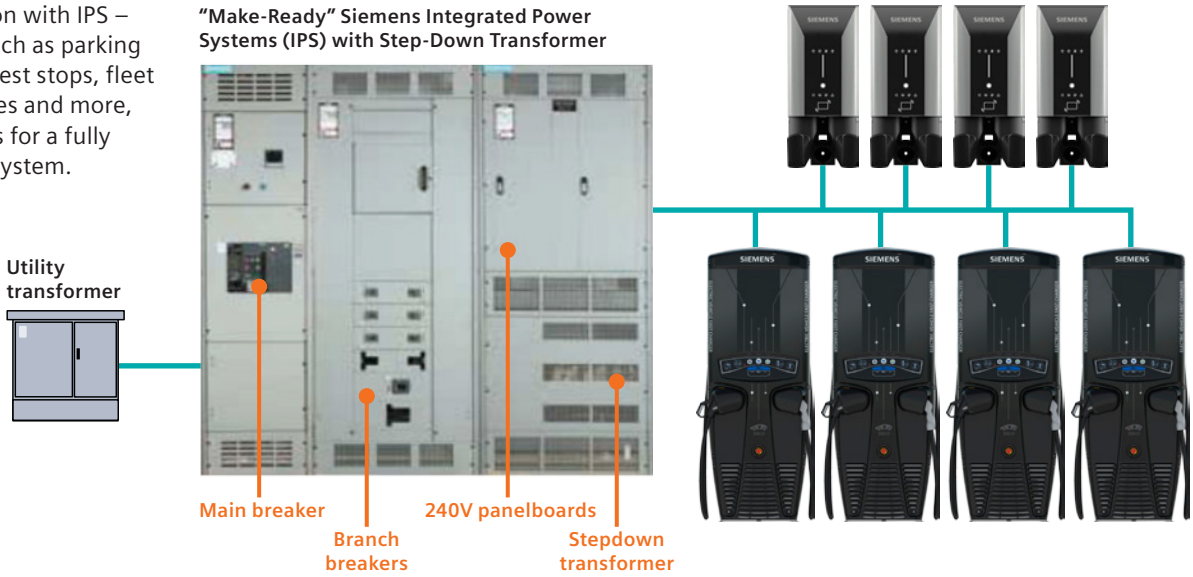


Potential additional equipment

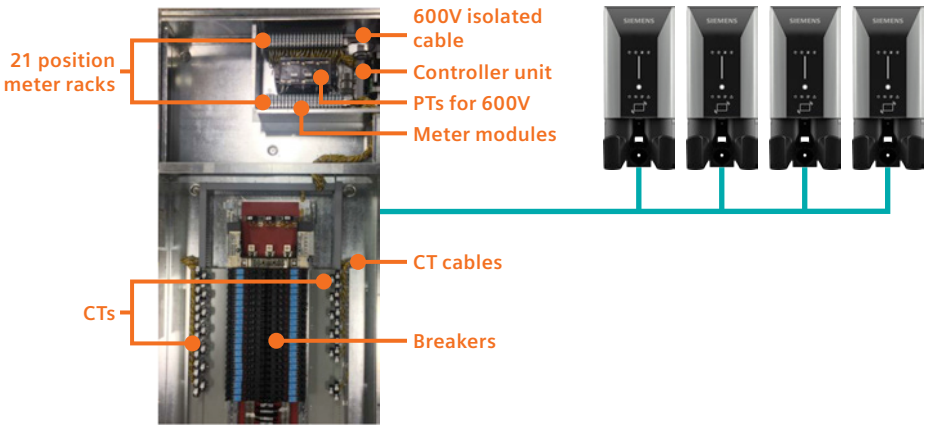
Revenue Meter – in the case that electricity is feeding off a power supply but billed separately, additional revenue meters may need to be installed to allow the utility to differentiate between the two.



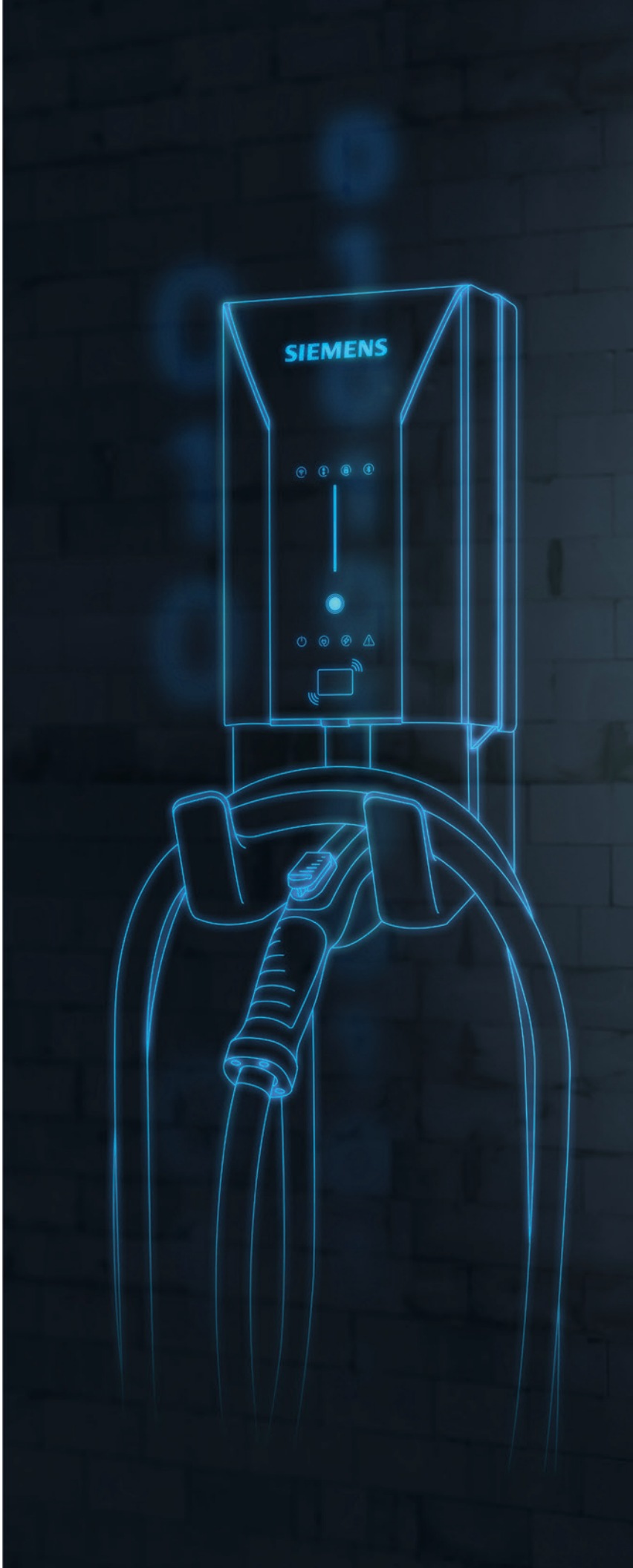
Make-ready solution with IPS – for applications, such as parking lots, gas stations, rest stops, fleet depot's, chain stores and more, this solution allows for a fully integrated power system.



EV Charger Smart Metering for applications such as third party billing, energy management and BAS integration



The technical data presented in this document is based on an actual case or on as-designed parameters and, therefore, should not be relied upon for any specific application and does not constitute a performance guarantee for any projects. Actual results are dependent on variable conditions. Accordingly, Siemens does not make representations, warranties, or assurances as to the accuracy, currency or completeness of the content contained herein. If requested, we will provide specific technical data or specifications with respect to any customer's particular applications. Our company is constantly involved in engineering and development. For that reason, we reserve the right to modify, at any time, the technology and product specifications contained herein.



Published by
Siemens Canada Limited

Siemens Canada Limited
1577 North Service Road East
Oakville, ON L6H 0H6

Customer Interaction Centre:
cic.ca@siemens.com
1-888-303-3353

Order No.: SI-EP-1707
Printed in Canada
All Rights Reserved
© 2022, Siemens Canada Limited

siemens.ca/versicharge