

RFSO TRA 23-02 Level 3 Charging Stations - Specifications

Line Item	Guillevin International		The Lion Electric Co		Hypercharge Networks CORP		ChargeFWD Ltd.	
	<u>Submission 1</u>		<u>Submission 1</u>		<u>Submission 1</u>		<u>Submission 1</u>	
	<u>Yes/No</u>	<u>Additional Information</u>	<u>Yes/No</u>	<u>Additional Information</u>	<u>Yes/No</u>	<u>Additional Information</u>	<u>Yes/No</u>	<u>Additional Information</u>
1 The charging station is compatible with at least one of the electric buses outlined in the TRA 23-02 document - please specify which model/s	Yes	ChargePoint Express (CPE250/CPE280) utilize a CCS Type 1 connector. It is compatible with all vehicles that use the same. From the provided models it appears that would include the Micro Bird G5 Bluebird Vision LionC IC Bus and Thomas/Jouley. ChargePoint has successfully conducted testing at ChargePoint’s interoperability lab in Campbell CA with Blue Bird IC Bus and Lion. ChargePoint’s hardware and software tested successfully with the Thomas Built Jouley at the Daimler HQ electric island.	Yes	The ABB chargers are compatible with all the electric vehicles outlined.	Yes	Charging Hardware compatible with all vehicles presented in the TRA 23-02 document.	Yes	
2 Input Power Supply – 480VAC 60Hz single or three phase - please indicate	Yes	ChargePoint Express support a 400 to 480 VAC/60 Hz 3-phase input.	Yes	The ABB DC Wallbox has an input power supply of 480VAC 3-phase and 60 Hz. The ABB Terra 54HV has an input power supply of 480Y 277 VAC 3-phase and 60 Hz.	Yes	480 VAC 60Hz Single or Three Phase - minimum	Yes	Three phase single phase units are subject to availability.
3 Minimum charging power of 24kW - please specify charging output capability	Yes	ChargePoint Express 250 (CPE250) can provide up to 62.5 kW to a single port. ChargePoint Express 280 (CPE280) can provide up to 80 kW to a single port. Both units can be electrically paired between two deployed chargers to provide twice the power (125kW or 160kW for CPE250/280) to a single connected vehicle or shared between two vehicles.	Yes	The ABB DC Wallbox has an 24 kW output capability. The ABB Terra 54HV has an 50 kW output capability.	Yes	24kW to 180kW	Yes	24kW
4 Wall-mounted with mounting hardware provided	No	ChargePoint Express models cannot be wall-mounted. These are pedestal-only surface-mounted. Wall mounted capabilities are available with the Express Plus charging solution or through other integrated 3rd party DCFC manufactures such as ABB’s DC Wallbox if required.	Yes		Yes	Yes	Yes	
5 Capable of use 24 hours a day every day of the year in an Operating Temperature of 22F to 122F (-30C to +50C) and Operating Humidity of up to 95% @ 50C (122F) non-condensing	Yes	Express stations can be used 24 hours a day and is rated with an operating temperature of -40 to 122 F and operating humidity up to 95% at 122 F.	Yes		Yes	Yes	Yes	
6 Weatherproof to minimum of NEMA 3	Yes	ChargePoint Express models are weatherproof rated to NEMA Type 3R.	Yes		Yes	Yes	Yes	
7 Connector compliance with Society of Automotive Engineers (SAE) Combined Charging System 1 (CCS1)	Yes	ChargePoint Express models comply; utilize CCS Type 1 charging connector	Yes	The ABB chargers have a CCS1 charging connector.	Yes	Yes	Yes	CCS1
8 CSA cUL or other recognized certification approved for use in Canada	Yes	ChargePoint Express adheres to the following UL and cUL standards: UL 2202 UL 2231-1 UL 2231-2 CSA 107.1. ChargePoint AC and DC products are currently in use in Canada.	Yes		Yes	Yes	Yes	
9 Charging station cord is a minimum of 5m in length. Please indicate other options available.	Yes	Express 280 (CPE280) can be configured with either a 5.5 m (18 ft) or 7.5 m (24 ft) reach. Please note the exception with the ChargePoint Express 250 (CPE250) which has a 4.27 m (14 ft) reach with swing arm.	Yes	The ABB DC Wallbox and the Terra 54HV have charging station cords of 7m. The ABB Terra 54HV also has an option of 3.5m.	Yes	Yes	Yes	7 m (23 ft)
10 Over-current protection that prevents circuit breaker trips	Yes	Both CPE250 and CPE280 are tested to IEC 6100-4-5 Level 5 (6 kV @ 3000A). Both products are installed downstream from a dedicated panel with appropriately sized circuit breakers for overcurrent protection. CPE250 utilizes a 100 A breaker; CPE280 utilizes a 125 A breaker.	Yes		Yes	Yes	Yes	
11 Display must be liquid crystal display (LCD) light-emitting diode (LED) or equivalent and shall be readable in direct sunlight and at night.	Yes	Both CPE250 and CPE280 feature LCDs designed for use in a variety of environmental conditions and use cases.	Yes		Yes	Yes	Yes	
12 Must automatically continue to provide a charge to the electric school bus if station loses network connectivity or if remote station management system is offline	Yes	Both CPE250 and CPE280 ensure charging can be continued if network connectivity is disrupted.	Yes		Yes	Yes	Yes	
13 Charging station must provide local data storage in the event of a network communication failure. All data automatically uploaded when connectivity is restored. Must have sufficient storage to hold at least 30 days of offline data.	Yes	Both CPE250 and CPE280 store charge session data for up to 90 days and will upload to the cloud when network connectivity is restored.	No	The ABB chargers are using cloud technology to store data. If there is a network communication failure the chargers can be connected with an Ethernet RJ45 cable to reach the cloud.	Yes	Yes	Yes	

		Siemens Canada Limited		Foreseeson Technology Inc.		FLO Services Inc		InCharge Energy		Electrum Charging Solutions Inc	
		<u>Submission 1</u>		<u>Submission 1</u>		<u>Submission 1</u>		<u>Submission 1</u>		<u>Submission 1</u>	
<u>Line Item</u>	<u>Specifications</u>	<u>Yes/No</u>	<u>Additional Information</u>	<u>Yes/No</u>	<u>Additional Information</u>	<u>Yes/No</u>	<u>Additional Information</u>	<u>Yes/No</u>	<u>Additional Information</u>	<u>Yes/No</u>	<u>Additional Information</u>
1	The charging station is compatible with at least one of the electric buses outlined in the TRA 23-02 document - please specify which model/s	Yes	Interop tested with: BlueBird Thomas Lion Proterra BYD	Yes	ChargePoint Express (CPE250/CPE280) utilize a CCS Type 1 connector. It is compatible with all vehicles that use the same. From the provided models it appears that would include the Micro Bird G5 Bluebird Vision LionC IC Bus and Thomas/Jouley. ChargePoint has successfully conducted testing at ChargePoint's interoperability lab in Campbell CA with Blue Bird IC Bus and Lion. ChargePoint's hardware and software tested successfully with the Thomas Built Jouley at the Daimler HQ electric island.	Yes	The SmartDC 50 kW level 3 charging station is compatible with all electric buses outlined in the TRA 23-02.	Yes		Yes	Seems like the chargers are compatible with most chargers based on specs but would need to try. We do know it is compatible with: Micro Bird G5 Bluebird Vision Electric LionC Bluebird All American Electric
2	Input Power Supply – 480VAC 60Hz single or three phase - please indicate	Yes	N/A	Yes	ChargePoint Express support a 400 to 480 VAC/60 Hz 3-phase input.	Yes		Yes	The 480V is 3 phase.	Yes	Three phase
3	Minimum charging power of 24kW - please specify charging output capability	Yes	30 kW	Yes	ChargePoint Express 250 (CPE250) can provide up to 62.5 kW to a single port. ChargePoint Express 280 (CPE280) can provide up to 80 kW to a single port. Both units can be electrically paired between two deployed chargers to provide twice the power (125kW or 160kW for CPE250/280) to a single connected vehicle or shared between two vehicles.	Yes	0 - 50 kW	Yes	We have a 30kW offering.	Yes	Minimum charging power of 30kW
4	Wall-mounted with mounting hardware provided	Yes	Optional pedestal quoted	No	ChargePoint Express models cannot be wall-mounted. These are pedestal-only surface-mounted. Wall mounted capabilities are available with the Express Plus charging solution or through other integrated 3rd party DCFC manufactures such as ABB's DC Wallbox if required.	Yes	This charger must be mounted on a concrete slab. The complete enclosure as well as integrated cable management hooks and connector covers are included while a retractable cable management system is offered as an optional accessory.	Yes		Yes	
5	Capable of use 24 hours a day every day of the year in an Operating Temperature of 22F to 122F (-30C to +50C) and Operating Humidity of up to 95% @ 50C (122F) non-condensing	Yes	N/A	Yes	Express stations can be used 24 hours a day and is rated with an operating temperature of -40 to 122 F and operating humidity up to 95% at 122 F.	Yes		Yes		Yes	
6	Weatherproof to minimum of NEMA 3	Yes	N/A	Yes	ChargePoint Express models are weatherproof rated to NEMA Type 3R.	Yes		Yes		Yes	
7	Connector compliance with Society of Automotive Engineers (SAE) Combined Charging System 1 (CCS1)	Yes	N/A	Yes	ChargePoint Express models comply; utilize CCS Type 1 charging connector.	Yes	Confirmed. The SmartDC features two charging ports and connector types (SAE CCS and CHAdeMO).	Yes	We provide CCS CCS Combo and CHAdeMO options.	Yes	CCS1
8	CSA cUL or other recognized certification approved for use in Canada	Yes	N/A	Yes	ChargePoint Express adheres to the following UL and cUL standards: UL 2202 UL 2231-1 UL 2231-2 CSA 107.1. ChargePoint AC and DC products are currently in use in Canada.	Yes		Yes		Yes	
9	Charging station cord is a minimum of 5m in length. Please indicate other options available.	Yes	N/A	Yes	Express 280 (CPE280) can be configured with either a 5.5 m (18 ft) or 7.5 m (24 ft) reach. Please note the exception with the ChargePoint Express 250 (CPE250) which has a 4.27 m (14 ft) reach with swing arm.	Yes	FLO's SmartDC 50kW charger offers a 6.1m (20ft) charging cable (with optional Cable Management System).	Yes	Yes 25ft	Yes	
10	Over-current protection that prevents circuit breaker trips	Yes	N/A	Yes	Both CPE250 and CPE280 are tested to IEC 6100-4-5 Level 5 (6 kV @ 3000A). Both products are installed downstream from a dedicated panel with appropriately sized circuit breakers for overcurrent protection. CPE250 utilizes a 100 A breaker; CPE280 utilizes a 125 A breaker.	Yes		No	Our DCFC have a built in breaker but it is oversized.	Yes	
11	Display must be liquid crystal display (LCD) light-emitting diode (LED) or equivalent and shall be readable in direct sunlight and at night.	Yes	N/A	Yes	Both CPE250 and CPE280 feature LCDs designed for use in a variety of environmental conditions and use cases.	Yes	All FLO commercial charging stations feature a small display screen that publishes relevant information relating to the status of the charging station instructional prompts to inform users on how to access and activate the charging station and details relating to any applicable costs involved. Real-time data is also displayed on the charger screen during a charging session including the connection time energy transfer and cost.	Yes		Yes	
12	Must automatically continue to provide a charge to the electric school bus if station loses network connectivity or if remote station management system is offline	Yes	If restricted access is enabled charge session will continue. A new charge session will not start however.	Yes	Both CPE250 and CPE280 ensure charging can be continued if network connectivity is disrupted.	Yes		Yes		Yes	
13	Charging station must provide local data storage in the event of a network communication failure. All data automatically uploaded when connectivity is restored. Must have sufficient storage to hold at least 30 days of offline data.	Yes	N/A	Yes	Both CPE250 and CPE280 store charge session data for up to 90 days and will upload to the cloud when network connectivity is restored.	Yes		Yes		Yes	

RFSO TRA 23-02 Level 3 Charging Stations - Network Services and Installation

	Guillevin International		The Lion Electric Co		Hypercharge Networks CORP		ChargeFWD Ltd.	
	Submission 1		Submission 1		Submission 1		Submission 1	
Network Services								
1 Station is capable of OCPP 1.6J or later governing communication between the station and the proposed network.	Yes	ChargePoint Express stations are OCPP 1.6J complaint.	Yes		Yes	OCPP 1.6J and soon to be OCPP 2.0.	Yes	
2 The following information and controls (at a minimum) are available from the charging station to be integrated with the Purchaser’s charging management software: - Station identifier + location - Charging station status - Charging session start/stop times - Active charging time - kWh delivered - Charging station utilization/output (kW) - Error messages - Control functions Please indicate additional functionalities.	Yes	ChargePoint charge management software can provide the listed functions and/or information. Control functions include the following allowing a user complete control to optimize fleet charging and electrical costs: •Access control •Dynamic power module allocation •Cable Sharing •Charge scheduling •Power Sharing Management: circuit panel and site levels •Plug and Charge •API •Fleet Integration (for telematics) Please refer to Section 2 of the attached ChargePoint Solutions Overview for additional details.	Yes		Yes	Yes and described in supplemental supporting document.	Yes	Access control load management and billing/ metering. Data visualization Monitoring & maintenance Pricing & schedule rules Power management White labeling Custom reporting Technical support and Public APIs
3 Supports remote firmware upgrades	Yes	All ChargePoint products are networked via cellular connection and can be updated remotely.	Yes		Yes	Hypercharge's Cloud Platform supports remote firmware updates across all hardware on the platform.	Yes	
4 Supplier is responsible for enabling cellular connectivity to a data network prior to shipping the unit(s). Please indicate proposed network.	Yes	All ChargePoint products utilize a private cellular network for security purposes; network activation is completed by ChargePoint during the install process.	Yes	The charger manufacturers are providing the connection to the network once the charger is ready for delivery. The ABB DC Wallbox uses GSM 4G modem and 10/100 and Base-T Ethernet networks. The ABB Terra 54HV uses GSM 3G and 4G modem and 10/100 base-T Ethernet networks.	Yes	Hypercharge pre-configure the charging station prior to shipping the unit and currently SIMs are with TELUS. Can offer customer's preferred carrier if adverse to TELUS.	Yes	We support the major Canadian networks Telus Bell and Rogers and others Our SuperSim card finds and uses the strongest signal to provide coverage.
Installation (Optional)								
1 If providing installation services (optional) all work must be completed under appropriate permit and installation to meet Canadian electrical code requirements.	Yes	all ChargePoint partner program - certified installers available are licensed electricians					Yes	Quote subject to load calculation
2 Supplier must perform the testing and commissioning of the charging station including the successful charge of an electric school bus using each port so that they are functional and ready for use.	Yes	ChargePoint will commission equipment to ensure operability with customer vehicles. Please see additional information of testing and commissioning of the charging station in document ChargePoint Commissioning Overview. ChargePoint has successfully conducted testing at ChargePoint’s interoperability lab in Campbell CA with Blue Bird IC Bus and Lion. ChargePoint’s hardware and software tested successfully with the Thomas Built Jouley at the Daimler HQ electric island. Many successful LTD deployments with all the above school bus OEMs.	OPTED OUT		OPTED OUT		Yes	Subject to availability of an electric school bus

	Siemens Canada Limited		Foreseeson Technology Inc.		FLO Services Inc		InCharge Energy		Electrum Charging Solutions Inc	
	Submission 1		Submission 1		Submission 1		Submission 1		Submission 1	
Network Services										
1 Station is capable of OCPP 1.6J or later governing communication between the station and the proposed network.	Yes	Yes	Yes	ChargePoint Express stations are OCPP 1.6J complaint.	Yes		Yes	All industry standard OCPP 1.6-J chargers can communicate with our software. Depending on the age of the equipment InCharge may still be able to connect to the charger network and capture charger session data that we can incorporate into dashboards and reports that are visible in the InControl software platform.	Yes	
2 The following information and controls (at a minimum) are available from the charging station to be integrated with the Purchaser’s charging management software: - Station identifier + location - Charging station status - Charging session start/stop times - Active charging time - kWh delivered - Charging station utilization/output (kW) - Error messages - Control functions Please indicate additional functionalities.	Yes	Please see specification sheet	Yes	ChargePoint charge management software can provide the listed functions and/or information. Control functions include the following allowing a user complete control to optimize fleet charging and electrical costs: •Access control •Dynamic power module allocation •Cable Sharing •Charge scheduling •Power Sharing Management: circuit panel and site levels •Plug and Charge •API •Fleet Integration (for telematics) Please refer to Section 2 of the attached ChargePoint Solutions Overview for additional details.	Yes	This data and much more can be provided. Please see uploaded documents for a sample of ou charging station data report. FLO's network architecture features a flexible API platform which can be leveraged to unlock EV charging features and share data seamlessly with third parties. The API platform enables bi-directional access to FLO's network architecture and various components including flexible billing module customer support OCPI roaming energy management services PCI-DSS payment services cybersecurity OCPP hardware interoperability testing and more.	Yes	InCharge has built its own dealership management platform (InControl) designed to increase uptime and lower the cost to operate a fleet. The software is built with industry-leading security and reliability. It features multi-factor authentication and end-to-end encryption. The platform is designed for scalability of fleets facilities and vehicles with a GraphQL API that increases performance reliability and customization. InControl manages charging stations’ access control usage data remote management network operations and advanced load management capabilities. The software reduces operating costs with remote service offerings over-the-air updates and energy management functions. Users can track service warranty and preventative maintenance. Additionally the software provides load management to reduce fleet total cost of operations (TCO) peak energy demand and can generate revenue from incentives and LCFS credits. It is OCPP compatible and interoperability tested with 10 different EV charging OEMs. InControl ensures a comprehensive delivery of services for users with features including but not limited to live session and charger data site yard layout energy and uptime reports real-time updates on charging activity state of charge & charging speed tracking access controls PIN/RFID load management policies automatic alerts of service events and support ticket creation and tracking. Importantly InControl also provides full ownership and control to our customers of their own data generated with an open API to allow integrations into other software platforms such as fleet or building management software accounting platforms or other. No other company in the industry provides this open API tool to our knowledge and certain companies in the industry are notorious for not providing customers access to their own data without paying fees.	Yes	Station identifier + location will show on Electrum platform or will show on screen if activating by QR code. The charger itself does not show the start/stop time but will show duration. Additional functionalities: QR code activation Security token activation Text message alerts (QR code only) Localized dynamic load balancing
3 Supports remote firmware upgrades	Yes	Yes	Yes	All ChargePoint products are networked via cellular connection and can be updated remotely.	Yes		Yes		Yes	
4 Supplier is responsible for enabling cellular connectivity to a data network prior to shipping the unit(s). Please indicate proposed network.	Yes	Yes	Yes	All ChargePoint products utilize a private cellular network for security purposes; network activation is completed by ChargePoint during the install process.	Yes	Telus or Bell within BC	Yes		Yes	
Installation (Optional)										
1 If providing installation services (optional) all work must be completed under appropriate permit and installation to meet Canadian electrical code requirements.	Yes	N/A	Yes	Foreseeson has agreements in place for the installation of EVSE equipment by certified electrical contractors in all parts of Canada.			Yes	To ensure complete execution of hardware and software offerings InCharge offers complete installation and commissioning assistance for all products. This includes site development engineering permitting and self-performance capabilities. Alternatively for our customers who are conducting their own make-ready infrastructure InCharge offers an installation service that completes the installation with a final installation / bolt down service that includes field commissioning to ensure the equipment is installed correctly and operational.	Yes	Yes we have a certified crew and will pull necessary permits.
2 Supplier must perform the testing and commissioning of the charging station including the successful charge of an electric school bus using each port so that they are functional and ready for use.	Yes	N/A	Yes	ChargePoint will commission equipment to ensure operability with customer vehicles. Please see additional information of testing and commissioning of the charging station in document ChargePoint Commissioning Overview. ChargePoint has successfully conducted testing at ChargePoint’s interoperability lab in Campbell CA with Blue Bird IC Bus and Lion. ChargePoint’s hardware and software tested successfully with the Thomas Built Jouley at the Daimler HQ electric island. Many successful LTD deployments with all the above school bus OEMs.		OPTED OUT	Yes	InCharge requires a commissioning appointment once stations are installed. During the appointment the stations are tested to ensure they are installed to specifications before the stations can be fully energized. If an issue is found during the commissioning appointment that will be provided to the customer so their installer can rectify the issue.	Yes	