

RFSO TRA 23-02 Level 2 Charging Stations - Specifications

		Guillevin International		The Lion Electric Co		Hypercharge Networks CORP		ChargeFWD Ltd.		Siemens Canada Limited	
		Submission 1		Submission 1		Submission 1		Submission 1		Submission 1	
Line Item	Specifications	Yes/No	Additional Information	Yes/No	Additional Information	Yes/No	Additional Information	Yes/No	Additional Information	Yes/No	Additional Information
Technical Specifications											
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	CP6000 uses a SAE J1772 connector and therefore is compatible with the following vehicles according to their spec sheets: Micro Bird G5 LionC. The Bluebird Type C/D Jouley and IC Bus mention J1772 charging but we will need more information from the manufacturer to determine full compatibility.  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 Flo Core+ Max and Blink IQ-200 are compatible with all the electric buses with AC/DC charging.  DC charging electric buses only won't be compatible with Level 2 chargers.	Yes	Charging Hardware offered is compatible with all models in the TRA 23-02 document.	Yes	Type A2 <ul style="list-style-type: none"><li>• Micro Bird G5 Electric</li><li>Type C<ul style="list-style-type: none"><li>• Bluebird Vision Electric</li><li>• IC Bus Electric CE Series</li><li>• Lion C Electric</li></ul></li><li>Type D<ul style="list-style-type: none"><li>• Bluebird All American Electric</li></ul></li></ul>	Yes	Interoperability tested with the following buses: BlueBird Thomas Lion Proterra BYD
2	Input Power Supply – 208V/240V 60Hz single phase	Yes	CP6000 supports 208/240V 60 Hz 1-phase AC input.	Yes		Yes	208V/240V 60Hz Single Phase	Yes		Yes	N/A
3	Minimum charging power of 19.2kW - please specify charging output capability	Yes	CP6000 can provide 19.2 kW – 80 A @ 240 V – using a 100 A circuit breaker.	Yes	Flo Core+ Max has an output capability of 1.2 kW to 19.2 kW  Blink IQ 200 has an output capability of 2.9 kW to 19. KW	Yes	19.2kW 80A	Yes	19.2kW when connected to 240V	Yes	N/A
4	Wall-mounted with mounting hardware provided	Yes	CP6000 has a wall mount option and includes all necessary mounting hardware.	Yes		Yes	Yes	Yes		Yes	N/A
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	CP6000 can be used 24 hours a day and is rated with an operating temperature of -40 to 122 F. Please note an exception specific to operating humidity as the CP6000 is rated up to 85% at 122 F. Non-operating humidity tolerance up to 95% at 122 F.	Yes		Yes	Yes	Yes		Yes	N/A
6	Weatherproof to minimum of NEMA 3	Yes	CP6000 is weatherproof rated to NEMA Type 3R.	Yes		Yes	Yes	Yes		Yes	NEMA 4 Rated
7	Connector compliance with Society of Automotive Engineers (SAE) Combined Charging System 1 (CCS1)	No	No. This is no possible for any AC Level 2 charger. The CP6000 is an AC charging station and as such utilizes SAE J1772 connector type. CCS Type 1 is used for DC fast charging.	Yes	Flo+ Core Max and Blink IQ 200 have a SAE J1772 charging connector.	Yes	Yes	Yes	SAE J1772 connector which is standard for level-2	Yes	N/A
8	CSA cUL or other recognized certification approved for use in Canada	Yes	CP6000 is UL and cUL listed; complies with UL 2594 UL 2231-1 UL 2231-2and NEC Article 625	Yes		Yes	Yes	Yes		Yes	N/A
9	Charging station cord is a minimum of 5m in length. Please indicate other options available.	Yes	CP6000 is available in both 5.5 and 7 m cable lengths.	Yes	Flo Core+ Max's cord is 5.5m and has a 7.62m option.  Blink IQ 200's cord is 7m.	Yes	Yes	Yes	18ft or 25 ft options	Yes	N/A
10	Over-current protection that prevents circuit breaker trips	Yes	CP6000 is installed with a 100 A circuit breaker on the electrical panel for overcurrent protection. CP6000 is equipped with surge protection of 6 kV @ 3000A. In geographic areas subject to frequent thunderstorms supplemental surge protection at the service panel is recommended.	Yes		Yes	Yes	Yes		Yes	N/A
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	CP6000 includes an 8” touchscreen display although can be special ordered without a display is desired.	Yes		Yes	Yes	Yes		Yes	N/A
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	CP6000 ensures charging can be continued at a safe default rate if network connectivity is disrupted.	Yes		Yes	Yes	Yes		Yes	If restricted access is enabled any current session already started will continue but it will not be possible to start a new session.
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	CP6000 stores charge session data for up to 90 days and will upload to the cloud when network connectivity is restored	Yes		Yes	Yes	Yes		Yes	N/A

		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>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>
<b>Technical Specifications</b>									
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	CP6000 uses a SAE J1772 connector and therefore is compatible with the following vehicles according to their spec sheets: Micro Bird G5 LionC. The Bluebird Type C/D Jouley and IC Bus mention J1772 charging but we will need more information from the manufacturer to determine full compatibility.  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 CoRe+MAX level 2 charging station is compatible with all electric buses outlined in the TRA 23-02.	Yes	Yes all but the Jouley.	Yes	Seems like the chargers are compatible with most chargers based on specs but would need to try. Not compatible with Thomas Built Liner C2 as it is DCFC only (so it seems based on the specs)  We do know it is compatible with: Micro Bird G5 Bluebird Vision Electric LionC Bluebird All American Electric
2	Input Power Supply – 208V/240V 60Hz single phase	Yes	CP6000 supports 208/240V 60 Hz 1-phase AC input.	Yes		Yes		Yes	Yes however if it is 208V the output will only be 16.6kW
3	Minimum charging power of 19.2kW - please specify charging output capability	Yes	CP6000 can provide 19.2 kW – 80 A @ 240 V – using a 100 A circuit breaker.	Yes	1.2 kW to 19.2 kW	Yes		Yes	Minimum is 16.6kW with 208V and maximum 19.2kW on 240V
4	Wall-mounted with mounting hardware provided	Yes	CP6000 has a wall mount option and includes all necessary mounting hardware.	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	CP6000 can be used 24 hours a day and is rated with an operating temperature of -40 to 122 F. Please note an exception specific to operating humidity as the CP6000 is rated up to 85% at 122 F. Non-operating humidity tolerance up to 95% at 122 F.	Yes		Yes		Yes	
6	Weatherproof to minimum of NEMA 3	Yes	CP6000 is weatherproof rated to NEMA Type 3R.	Yes		Yes		Yes	
7	Connector compliance with Society of Automotive Engineers (SAE) Combined Charging System 1 (CCS1)	No	No. This is no possible for any AC Level 2 charger. The CP6000 is an AC charging station and as such utilizes SAE J1772 connector type. CCS Type 1 is used for DC fast charging.	Yes	Confirmed. The SAE J1772 charging connector is the default industry accepted level 2 charging connector in North America.	No	No charging standard is J-1772.	Yes	CCS1
8	CSA cUL or other recognized certification approved for use in Canada	Yes	CP6000 is UL and cUL listed; complies with UL 2594 UL 2231-1 UL 2231-2and NEC Article 625	Yes		Yes	All of our chargers are UL certified.	Yes	
9	Charging station cord is a minimum of 5m in length. Please indicate other options available.	Yes	CP6000 is available in both 5.5 and 7 m cable lengths.	Yes	The maximum cable length available for FLO’s CoRe+ line of products is 7.62m (25 feet).	Yes	25ft cable available	Yes	
10	Over-current protection that prevents circuit breaker trips	Yes	CP6000 is installed with a 100 A circuit breaker on the electrical panel for overcurrent protection. CP6000 is equipped with surge protection of 6 kV @ 3000A. In geographic areas subject to frequent thunderstorms supplemental surge protection at the service panel is recommended.	Yes		No		Yes	The over-current protection is a relay contactor that will fault if it goes over the rating of the charger. It will trip before the breaker.
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	CP6000 includes an 8” touchscreen display although can be special ordered without a display is desired.	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	CP6000 ensures charging can be continued at a safe default rate 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	CP6000 stores charge session data for up to 90 days and will upload to the cloud when network connectivity is restored.	Yes		Yes	Our proprietary InControl software	Yes	

RFSO TRA 23-02 Level 2 Charging Stations - Network Services & Installation

		Guillevin International		The Lion Electric Co		Hypercharge Networks CORP		ChargeFWD Ltd.		Siemens Canada Limited	
		Submission 1		Submission 1		Submission 1		Submission 1		Submission 1	
<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>
NETWORK SERVICES											
1	Station is capable of OCPP 1.6J or later governing communication between the station and the proposed network	Yes	ChargePoint CP6000 utilizes OCPP 2.0.1.	Yes		Yes	OCPP 1.6J and soon to be OCPP 2.0	Yes		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) For additional details please refer to Section 2.1 of the attached ChargePoint Solutions Overview.	Yes		Yes	Yes and described in additional supplemental documentation.	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	Yes	
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 over the air updates to all charging hardware offered on the platform.	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	All ChargePoint products utilize a private cellular network for security purposes; network activation is completed by ChargePoint or installer after commissioning. All ChargePoint stations are designed tested and confirmed to be seamlessly integrated with the ChargePoint charger management software.	Yes	The charger manufacturers are providing the connection to the network once the charger is ready for delivery.  Flo Core+ Max is using Cellular 4G/LTE networks.  Blink IQ 200 is using Cellular 2G 3G and 4G/LTE 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.	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	ChargePoint partner program - certified installers available all across British Columbia					Yes	Quote subject to load calculation	Yes	N/A
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	CPSupport-activation covers the testing and activation of the software to ensure it works with the charger/buses. Doesn’t require a site visit because we offer smart chargers and all handled remotely  ChargePoint charges an activation fee for the startup and initial programming of the charging stations. AC Station Activation & Configuration Service includes activation of cloud services and configuration of radio groups custom groups connections access control visibility control pricing reports and alerts. Site Validation is an on-site service which assesses and verifies that the stations and make-ready have been installed to ChargePoint specifications. ChargePoint will deploy an O&M partner to validate electrical capacity transformers panels breakers wiring cellular coverage against ChargePoint and local code requirements. Site-validation is required for the optional Assure warranty to take effect.		OPTED OUT		OPTED OUT	Yes	Subject to availability of an electric school bus	Yes	N/A

		Foreseeson Technology Inc.		FLO Services Inc		InCharge Energy		Electrum Charging Solutions Inc	
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NETWORK SERVICES									
1	Station is capable of OCPP 1.6J or later governing communication between the station and the proposed network	Yes	ChargePoint CP6000 utilizes OCPP 2.0.1.	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	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) For additional details please refer to Section 2.1 of the attached ChargePoint Solutions Overview.	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 times but Electrum's platform will have that information. Control functions are controlled on the software.  Additional functionalities: QR code activation Security token activation Text message alerts (QR code only) Energy Management (through Electrum platform)
3	Supports remote firmware upgrades	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	All ChargePoint products utilize a private cellular network for security purposes; network activation is completed by ChargePoint or installer after commissioning. All ChargePoint stations are designed tested and confirmed to be seamlessly integrated with the ChargePoint charger management software.	Yes	Telus or Bell within BC	Yes	We are working with roaming SIM Cards which choose the strongest network.	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	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	Foreseeson provides activation for the startup and initial programming of the charging stations. AC Station Activation & Configuration Service includes activation of cloud services and configuration of radio groups custom groups connections access control visibility control pricing reports and alerts.  Foreseeson also provides Site Validation which is an on-site service to assess and verify that the stations and make-ready have been installed to ChargePoint specifications. Foreseeson will deploy a certified electrician to validate electrical capacity transformers panels breakers wiring cellular coverage against ChargePoint and local code requirements. Site-validation is required for the optional Assure warranty to take effect.		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. Hardware is tested to be interoperable with OEM brands and models  Design and engineering is targeted toward low-cost serviceability and future planning  Software is integrated to service dispatch – allowing the technician to arrive with the right tools and parts to complete the job the first time  On-staff service technicians assure that when your chargers are down InCharge is not calling on another company with other customers in-line ahead of you  Software and hardware integration allows for optimizing performance and eliminating bugs.  Parts inventory and commissioning services in regional facilities allow fastest resolution of service problems	Yes	