



*Robotic Parking Systems, Inc*



# **Sustainable Parking System**

with EV Charging Capability

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# 01 Levels of EV Charging

Robotic Parking Systems Inc. optionally provides fully software-controlled Level 2 charging stations for electric vehicles inside our garages. Our intelligent software automatically controls the routing of charging vehicles inside the facility to optimize demand in the event there are more charging vehicles than charging stations available.

To activate charging, patrons must select “Charging Required” and “Hours” at the entry kiosk while parking the vehicle.

## LEVEL 1 VS LEVEL 2 VS LEVEL 3 EV CHARGING STATIONS:

There are three types of chargers.

### Level 1

These charging stations use a normal 120-volt connection which uses any standard household outlet. The downside is that charging times can be slow, 1 to 3 miles/hour. Many electric vehicle owners will find that they typically don't deplete more of the battery than can be replenished overnight using a basic 120V connection. A Mercedes B Class 250e, for example, can take 20 hours to fully charge (87 miles of range) with a standard 120-volt charging station (Level 1).

### Level 2

These EV chargers use a higher output 240-volt power source like the ones used for your oven or clothes dryer. Charging times are much faster, 10 to 25 miles/hour. A 240-volt Level 2 charger can fully charge a Mercedes B Class 250e in 3 hours.

### Level 3 / DC Fast Charging

Level 3 charging, also called DC Fast Charging, is the quickest system of charging. Level 3 can bring a given EV's battery back up to 80 percent of its capacity in around 30-60 minutes, depending on the vehicle and the ambient temperature (a cold battery charges slower than a warm one.) However, routinely using a Level 3 charger can ultimately hurt your car's battery. Additionally, these chargers are extremely expensive.

## 02 Electric Vehicle Charging Stations – Specifications

### Electrical Specifications

Parameter	30 Amp Charging Station	40 Amp Charging Station
Output Rating	7.2 kW (30 A @ 240 V) / 6.2 kW (30 A @ 208 V)	9.6 kW (40 A @ 240 V) / 8.3 kW (40 A @ 208 V)
Amperage	30 A, 50/60 Hz	40 A, 50/60 Hz
Voltage	240 VAC Single Phase and 208 VAC 3-Phase Y	240 VAC Single Phase and 208 VAC 3-Phase Y
Breaker	2 Pole, 40 A Breaker on Dedicated Circuit, Non-GFCI Type	2 Pole, 50 A Breaker on Dedicated Circuit, Non-GFCI Type
Charge Connector Cord	Type 1 (SAE J1772) lockable. Fits all cars including Tesla with Tesla supplied adapter	Type 1 (SAE J1772) lockable. Fits all cars including Tesla with Tesla supplied adapter
Number of Phase/Wire	L1, L2/N and Ground, Bottom Feed	L1, L2/N and Ground, Bottom Feed
Station Operating Temp.	-22°F to +122°F (-30°C to +50°C)	-22°F to +122°F (-30°C to +50°C)

### Environmental Specifications

Parameter	Specification
Charging Cable Operating Temperature	SAE J1772 Connector Cord: -40°F to +122°F (-40°C to +50°C)
Operating Humidity	< 95% Relative Humidity, Non-Condensing
Cooling	Natural Cooling

### Material Specifications

Parameter	Specification
Enclosure Rating	IP67 (international standard EN 60529)
Enclosure Cover Material	Premium TPU with thin and lightweight cable
Status Indicators	Power Present, Charging, Fault
Charging Cable Length	18 ft (5.5 m) / 25 ft (7.62 m)
Charge Connector Cord	UL/CE Type EV

## 03 Electric Vehicle Charge Time Comparison

30 Amp / 40-Amp Level-2 EV Charger ( $\approx 7.2$  kW /  $\approx 9.6$  kW)

Vehicle	Type	Battery (kWh)	Max AC Charging	Approx Charging Time (30A)	Approx Charging Time (40A)
Tesla Model 3	EV	60-82	11.5 kW	9-12 hr	7-8 hr
Tesla Model Y	EV	75-82	11.5 kW	10-12 hr	7-8 hr
Tesla Model S	EV	~100	17 kW	13-15 hr	10-11 hr
Tesla Model X	EV	~100	17 kW	13-15 hr	10-11 hr
Chevrolet Bolt EV	EV	65	7.2 kW	10-11 hr	8-9 hr
Chevrolet Bolt EUV	EV	65	11 kW	~10 hr	~7 hr
Ford Mustang Mach-E	EV	70-91	10.5-11 kW	11-14 hr	8-10 hr
Ford F150 Lightning	EV	98-131	19.2 kW	14-20 hr	10-13 hr
Hyundai Ioniq 5	EV	77	11 kW	11-13 hr	7-8 hr
Hyundai Ioniq 6	EV	77	11 kW	11-13 hr	7-8 hr
Kia EV6	EV	77	11 kW	11-13 hr	7-8 hr
Volkswagen ID.4	EV	62-82	7.4-11 kW	10-13 hr	7-9 hr
Nissan Leaf	EV	40-60	6.6 kW	8-10 hr	7-9 hr
Nissan Ariya	EV	63-87	7.4 kW	12-15 hr	9-10 hr
Cadillac Lyriq	EV	100	19.2 kW	~15 hr	~10 hr
Rivian R1T	EV	128-135	11.5 kW	18-20 hr	12-14 hr
Rivian R1S	EV	128-135	11.5 kW	18-20 hr	12-14 hr
Polestar 2	EV	78	11 kW	11-13 hr	7-8 hr
BMW i4	EV	81	11 kW	12-14 hr	8-9 hr
BMW iX	EV	105	11 kW	15-17 hr	11-12 hr

**Plug-in Hybrid (PHEV) Charging Times with 30 Amp / 40-Amp  
Level-2 EV Charger (≈7.2 kW / ≈9.6 kW)**

Vehicle	Type	Battery (kWh)	Max AC Charging	Approx Charging Time (30A)	Approx Charging Time (40A)
Toyota RAV4 Prime	PHEV	18.1	6.6 kW	~3 hr	~2.5 hr
Toyota Prius Prime	PHEV	13.6	3.3 kW	~4 hr	~4 hr
Jeep Wrangler 4xe	PHEV	17	7.2 kW	~3 hr	~2.5 hr
Jeep Grand Cherokee 4xe	PHEV	17.3	7.2 kW	~3 hr	~3 hr
Chrysler Pacifica Hybrid	PHEV	16	6.6 kW	~2.5 hr	~2 hr
Ford Escape Plugin Hybrid	PHEV	14.4	3.3 kW	~4 hr	~4 hr
Mitsubishi Outlander	PHEV	20	3.7 kW	~5 hr	~5 hr
Volvo XC60 Recharge	PHEV	18.8	6.4 kW	~3 hr	~3 hr
BMW X5 xDrive45e	PHEV	24	7.4 kW	~4 hr	~3-4 hr
Kia Sorento Plugin Hybrid	PHEV	13.8	3.3 kW	~4 hr	~4 hr

# 04 Charging Unit

Charging unit fully assembled



Direct charging for vehicles with SEA J1772 adapter





## 05 Frequently Asked Questions

1. **What level of EV charging is provided?**

Level 2 charging with a 7.2–9.6 kW charger (depending on the country's voltage supply). Please see the attached spreadsheet for EV charging times for various vehicles.

2. **Can all terminals/pallets accept EV charging cars, or should we park in specific terminals?**

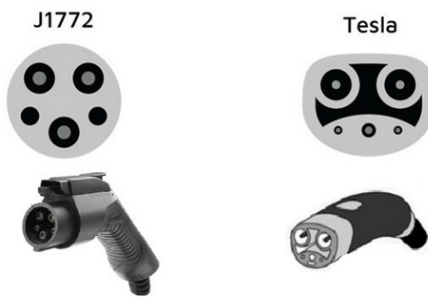
Yes, every terminal/pallet is compatible with EV charging vehicles.

3. **Does RPS provide the charging cable?**

Yes, RPS provides a charging cable with a compatible connector that supports EVs available in the market.

4. **Which makes and models of cars can be charged in the garage?**

We support all vehicle makes and models equipped with a J1772 charging plug, as well as all Tesla models.



5. **How can a patron request the charging cable?**

The patron must park the vehicle in the terminal, proceed to the kiosk, and select the EV charging option. The operator will be alerted and will bring the charging cable to the terminal for connection.

6. **Does Robotic Parking provide assistance to connect and disconnect the charging cable before driving off?**

Yes, an operator at the terminal will assist with connecting the charging cable at entry and disconnecting it upon exit. The operator is also alerted through the control room software screens when such assistance is required.

7. **Some cars have the charging port in the front, while others have it on the side or rear.**

RPS provides charging cables long enough to reach around the entire perimeter of the vehicle, regardless of the charging port location.

8. **Will there be specific spaces equipped for EV charging?**

Yes, there will be designated EV charging slots in the garage. When not in use for charging, these spaces may also be used for vehicle storage depending on traffic demand.

9. **What if I only want 1 or 2 hours of charging?**

The parker must declare the desired charging time or required state of charge at the entry kiosk while storing the vehicle. The software will ensure the vehicle is charged accordingly. Once charging is completed, the vehicle will be transferred to a non-charging slot to make room for the next EV waiting to charge.

10. **Do I need to retrieve my car once charging is completed?**

No manual intervention is required. As part of the fully automated EV charging system, once the vehicle is charged, the software will move it to a non-EV charging/storage slot.

11. **What if I request 1 hour of charging but retrieve my car after 40 minutes?**

No problem. The vehicle will be retrieved with 40 minutes of charging, and you will only be charged for the actual charging time used.

12. **How much does it cost to charge an electric vehicle?**

The charging cost depends on the garage management or owner's decision. Please check the rates before parking your vehicle.

13. **What if I have an electric vehicle but do not want to charge it?**

Simply park the vehicle and initiate the transaction as you would for a non-EV vehicle.

14. **Can the number of pallets and charging stations be increased in the future?**

Yes, provided that the necessary infrastructure (electrical power supply) is available in the garage. Please contact our sales team for more information.



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