



'Helping people get rid of Gas since 1995'

EV Calculator

Welcome to the beginnings of our EV Calculator. First off I want to thank [Uve](#) and [Hemp](#) for their respective calculators, which I've been using for years and have based this tool off of.

The goal with this project is to create a calculator that provides a high level overview for what-if analysis, but still make it easy to see all of the detailed information. Clicking any of the [▶ details...](#) icons will open a section to show more detail.

This tool is still under development and there will certainly be bugs. For example it may not work with Internet Explorer, I'd recommend getting the latest copy of [Firefox](#).

p.s. [Click](#) to remove this welcome message.

Range 1st gear

	10mph	20mph	30mph	40mph	50mph	60mph	70mph	80mph	90mph
Range (miles)	86.0	70.8	57.9	46.7	37.4	29.8	23.9	19.3	15.7

Range 2nd gear

	10mph	20mph	30mph	40mph	50mph	60mph	70mph	80mph	90mph
Range (miles)	84.1	69.3	56.8	45.9	36.8	29.4	23.6	19.1	15.6
Torque(ft-lb)	7.75	8.38	9.42	10.89	12.78	15.08	17.80	20.94	24.51
Motor Rpm	1214	2428	3642	4856	6069	7283	8497	9711	10925
Motor amps	84	88	95	104	115	128	142	158	174
Motor volts	18	37	58	82	109	139	173	211	251
Battery volts	143.9	143.8	143.6	143.4	143.1	142.8	142.3	141.7	141.0
Battery amps	10.66	23.12	39.20	60.73	89.55	127.58	176.76	239.06	316.62
Watt-hours/mile	153.3	166.2	187.6	217.7	256.4	303.6	359.3	423.5	495.9
Cost/mile	0.014	0.015	0.017	0.020	0.023	0.027	0.032	0.038	0.045
Commute Cost	0.34	0.37	0.42	0.49	0.58	0.68	0.81	0.95	1.12

Range 3rd gear

	10mph	20mph	30mph	40mph	50mph	60mph	70mph	80mph	90mph
Range (miles)	83.0	68.4	56.1	45.4	36.5	29.2	23.5	19.1	15.6
Torque(ft-lb)	11.75	12.71	14.30	16.52	19.38	22.88	27.01	31.78	37.18
Motor Rpm	800	1600	2400	3201	4001	4801	5601	6401	7201
Motor amps	109	115	124	136	150	167	185	205	226
Motor volts	14	29	45	63	84	108	134	162	193
Battery volts	143.9	143.8	143.6	143.4	143.1	142.8	142.3	141.7	141.0
Battery amps	10.78	23.38	39.59	61.25	90.16	128.20	177.24	239.21	316.12
Watt-hours/mile	155.2	168.1	189.5	219.6	258.1	305.0	360.3	423.7	495.1
Cost/mile	0.014	0.015	0.017	0.020	0.023	0.027	0.032	0.038	0.045
Commute Cost	0.35	0.38	0.43	0.49	0.58	0.69	0.81	0.95	1.11

Range 4th gear

	10mph	20mph	30mph	40mph	50mph	60mph	70mph	80mph	90mph
Range (miles)	82.4	68.0	55.9	45.3	36.4	29.2	23.6	19.2	15.7

Range 5th gear

	10mph	20mph	30mph	40mph	50mph	60mph	70mph	80mph	90mph
Range (miles)	82.1	67.8	55.8	45.2	36.5	29.3	23.7	19.3	15.9

Weight & Misc.

Batteries	Charger	Controller	Motor	SubTotal	Total
828	40	15.5	135	1318.5	3268.5
# Batteries	Battery Ohms	Rolling force	Incline Force	Tire Torque	Tire Rev/Mile
12	0.0096	58.833	0	0.971	865

Drag Calculations

Calculate

Vehicle

1986 Porsche 924S

Drag Coeff	0.33
Frontal Area	19.37
Initial Curb Wt	2550
Drive effcncy	0.9
1st Gear Ratio	13.925
2nd Gear Ratio	8.42
3rd Gear Ratio	5.55
4th Gear Ratio	4.03
5th Gear Ratio	3.00
Wind Factor	

Motor

Warp 9

Battery

Deka 9A31

Controller

Zilla 1k

Adjustments

Voltage	144
# Batt Strings	1
% DOD	100
Charger Weight	40
lbs Removed	600
Misc Added lbs	300
Incline	0
Wind	0
Tire Section	185
Tire Aspect	70
Tire Rim	14
Rolling Resistance	0.015
Brake/Steer Resistance	0.003
Kwh Rate	0.09
Commute Miles	25

Calculate

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Links

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- [EV Batteries](#)
- [Battery Layout](#)
- [EV Resources](#)
- [Contact](#)

	10mph	20mph	30mph	40mph	50mph	60mph	70mph	80mph
Still Air Drag (lbs)	1.634808184143223	6.539232736572892	14.713273657289006	26.156930946291567	40.87020460358057	58.853094629156025	80.10560102301791	104.627723785166
Relative Wind Factor	0	0	0	0	0	0	0	0
Relative Wind Drag (lbs)	0	0	0	0	0	0	0	0
Total Drag Force (lbs)	60.47	65.37	73.55	84.99	99.70	117.69	138.94	163.
Drag torque (ft-lbs)	58.71	63.48	71.41	82.53	96.81	114.27	134.91	158.
Required HP	1.791	3.872	6.534	10.069	14.763	20.911	28.803	38.7.

Top Speed

	1st	2nd	3rd	4th	5th
Top Speed	25	42	63	85	97
Limitation	motor RPM	motor RPM	motor RPM	Battery voltage	Battery voltage