

**Comparison of Lithium Batteries for Polaris Ranger EV 2010 to 2022**

RP Dec 6 2024

Make	Atlas ESS	Big Battery	Eco	Summitt	Voltronix	EPOCH	Bolt	Rhino	Varta	US Battery
Model	15kWh	48v Huskyx2	160AH	210AH	11.8kWh	48v100ah	48v 105ah	48v 120ah	48v 150ah	Polaris Kit Pb
Capacity	15.6kWh	10.2kWh	8.2kWh	10.8kWh	11.8kWh	5.1kWh	5.38kWh	6.144kWh	7.68	7.5kWh
Cost	\$4,500	\$4,000	\$3,747	\$4,971	\$6,750	\$1,999	\$2,515	\$2,699	\$2,600	\$1,945
Cost per kWh	\$288	\$392.00	\$457	\$460	\$572	\$392	\$467.00	\$439.00	\$339.00	\$259.34
Range per charge, miles	62	41	33	43	47	20	21	24	30	13
Designed for	Ranger EV	Golf Cart	Golf Cart	Golf Cart	Ranger EV	Golf Cart	Golf Cart	Golf Cart	Golf Cart	Ranger EV
Battery ah rating	304	200	160	210	230	100	105	120	150	155
Cell ah rating	304	100	160	105	230	100	105	?	?	155
Cell Make Model	EVE304 1C	? 1/2C	? 1/2C	? 1/2C	? 1C	? 1C	? 1C	?	?	Lead Acid
Configuration	1P16S	2P16S	2P16S	2P(1P16S)	1P16S	1P16S	1P16S	?	?	2P(1P4S)
Continuous Discharge Current spec of battery	608A	300A	160A	210A	230A	200A	250A	200A	200A	75A
Max Discharge Current spec of battery	900A 60sec	450A 5sec	?	200A	?	300A 15sec	520A 30sec	500A 30sec	400A 30sec	NA
Continuous Discharge Current spec of BMS Switch	500A	?	175A	200A	400A	200A	250A	?	200A	NA
Max Current spec of BMS Switch	800A	?	300A 30sec	600A 7.5sec	?	300A 15sec	260A 50sec	?	?	NA
BMS Switch Type	Contactar	MOSFET	MOSFET	MOSFET	Contactar	MOSFET	MOSFET	MOSFET	Relay	NA
Voltage on terminals when battery switched off?	No	?	?	Yes	No	?	?	?	?	NA
Continuous Charge Current	300A	?	<80A	10A to 100A	?	100A	52A	25A	22A	18A
Max Charge Current	600A	200A	160A	100A	?	150A	350A	?	100A	?
Fast Charge Capable?	Yes	No	No	No	?	No	No	No	No	NA
Battery Safety Certifications?	No	No	No	No	No	No	No	No	No	NA
Charger Safety Cert?	Yes	?	No	No	Yes	No	No	No	No	NA
Cell Safety Certs?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	?	Yes	NA
Components Safety Certs?	Yes	?	?	?	?	?	?	?	?	
Bluetooth fuel gauge?	Yes	No	Yes	Yes	No	Yes	SOC meter	Yes	Yes	NA
Waterproof?	Yes*	No	No	No	No	Yes	No	No	Yes	No
Splashproof?	Yes	Yes	?	?	?	Yes	Yes	Yes	Yes	Yes
Heater available?	Yes	Yes	No	No	No	No	No	No	No	Yes
Repair on site?	Yes	?	No	No	No	No	No	No	No	No
Where is Battery Assembled?	USA	China	China	China	USA	China	China	China	China	USA
Warranty Length Years	10	12	8	8	5	11	10	8	10	?
Warranty value?	Excellent	Good	Poor	Poor	?	Poor	Poor	Good	Good	Good
Transferrable Warranty?	Yes	No	No	No	No	No	No	Yes	Yes	No
Delta Q Charger Replaced?	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
Emergency Power Feature?	Yes	No	No	No	No	No	No	No	No	No
Finger Safe Connectors?	Yes	No	No	No	No	No	No	No	No	No
Battery isolated when off?	Yes	No	No	No	No	No	No	No	No	No
Monitor temp of each cell?	Yes	No	No	No	No	No	No	No	No	No
Is Ranger safer after install?*	More safe	Less safe	Less safe	Less safe	Same	Less safe	Less safe	Less safe	Less safe	Same

**Notes**

Range based on 250watt/hr per mile w small tires

? means data not published

\* available as option

\*\*Less safe because: Non UL certified charger. Ignition not disabled during charging. Battery ground not isolated. MOSFETS fail shorted. Only one or two temp sensors.

Links to websites:

<https://atlas-ess.com/product/15-kwh-ranger-ev/>

<https://bigbattery.com/products/48v-2x-husky-2-kit/>

<https://ecobattery.com/s/product/detail/0118c0000Rh4pLAAR>

<https://www.summit-battery.com/products/48v-210ah-lithium-battery-golf-cart-kit>

<https://www.epochbatteries.com/products/48v-100ah-lithium-lifepo4-golf-cart-battery-complete-kit>

<https://boltenergyusa.com/wp-content/uploads/2023/07/BE10551T-DATA-SHEET.pdf>

<https://lithiumrhino.com/products/48v-120ah-conversion-kit>

<https://www.vatrerpower.com/products/vatrer-48v-150ah-high-capacity-lithium-golf-cart-battery-200a-bms-7580wh-max-10-24kw-power-output>