



# BATTERY & WIRING INSTALLATION

## › BOAT RIGGING & PRODUCT INSTALLATION

For safety and compliance reasons, we recommend that you follow American Boat and Yacht Council (ABYC) standards when rigging your boat. Altering boat wiring should be completed by a qualified marine technician. The following specifications are for general guidelines only:

### › CAUTION:

These guidelines apply to general rigging to support your Minn Kota motor. Powering multiple motors or additional electrical devices from the same power circuit may impact the recommended conductor gauge and circuit breaker size. If you are using wire longer than that provided with your unit, follow the conductor gauge and circuit breaker sizing table below. If your wire extension length is more than 25 feet, we recommend that you contact a qualified marine technician.

### › CAUTION:

An over-current protection device (circuit breaker or fuse) must be used. Coast Guard requirements dictate that each ungrounded current-carrying conductor must be protected by a manually reset, trip-free circuit breaker or fuse. The type (voltage and current rating) of the fuse or circuit breaker must be sized accordingly to the trolling motor used. The table below gives recommended guidelines for circuit breaker sizing.

## › CONDUCTOR GAUGE AND CIRCUIT BREAKER SIZING TABLE

This conductor and circuit breaker sizing table is only valid for the following assumptions:

1. No more than 2 conductors are bundled together inside of a sheath or conduit outside of engine spaces.
2. Each conductor has 105° C temp rated insulation.
3. No more than 5% voltage drop allowed at full motor power based on published product power requirements.

MOTOR THRUST / MODEL	MAX AMP DRAW	CIRCUIT BREAKER	WIRE EXTENSION LENGTH				
			5 feet	10 feet	15 feet	20 feet	25 feet
30 lb	30	50 Amp @ 12 VDC	10 AWG	10 AWG	8 AWG	6 AWG	4 AWG
40 lb., 45 lb.	42	50 Amp @ 12 VDC	10 AWG	8 AWG	6 AWG	4 AWG	4 AWG
50 lb., 55 lb	50	60 Amp @ 12 VDC	8 AWG	6 AWG	4 AWG	4 AWG	2 AWG
70 lb.	42	50 Amp @ 24 VDC	10 AWG	10 AWG	8 AWG	8 AWG	6 AWG
80 lb	56	60 Amp @ 24 VDC	8 AWG	8 AWG	8 AWG	6 AWG	6 AWG
101 lb.	46	50 Amp @ 36 VDC	8 AWG	8 AWG	8 AWG	8 AWG	8 AWG
Engine Mount 101	50	60 Amp @ 36 VDC	8 AWG	8 AWG	8 AWG	8 AWG	8 AWG
112 lb.	52	60 Amp @ 36 VDC	8 AWG	8 AWG	8 AWG	8 AWG	8 AWG
Engine Mount 160	116	(2) x 60 Amp @ 24 VDC	6 AWG	6 AWG	4 AWG	2 AWG	2 AWG
E-Drive	40	50 Amp @ 48 VDC	10 AWG	10 AWG	10 AWG	10 AWG	10 AWG

### NOTICE:

Wire Extension Length refers to the distance from the batteries to the trolling motor leads. Consult website for available thrust options. Maximum Amp Draw values only occur intermittently during select conditions and should not be used as continuous amp load ratings.

Reference

United States Code of Federal Regulations: 33 CFR 183 – Boats and Associated Equipment ABYC E-11: AC and DC Electrical Systems on Boats

FOR MORE INFORMATION ON BATTERIES AND BATTERY CHARGERS VISIT [MINNKOTAMOTORS.COM](http://MINNKOTAMOTORS.COM)



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## › CONDUCTOR GAUGE AND CIRCUIT BREAKER SIZING TABLE - SHALLOW WATER ANCHORS

MODEL	MAX AMP DRAW	CIRCUIT BREAKER	WIRE EXTENSION LENGTH				
			5 feet	10 feet	15 feet	20 feet	25 feet
TALON	30	50 Amp @ 12 VDC	10 AWG	10 AWG	8 AWG	6 AWG	4 AWG
RAPTOR	70	50 Amp @ 12 VDC	10 AWG	8 AWG	6 AWG	4 AWG	4 AWG

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# SELECTING THE CORRECT BATTERY

## › What type of battery do I need to run my Minn Kota Trolling Motor:

A Minn Kota trolling motor will operate with any lead acid, deep cycle marine 12-volt battery/batteries.

For best results, use a deep cycle, marine battery with at least a 110-ampere hour rating.

RUN-TIME	VOLTAGE	GROUP SIZE	AMP-HOUR
Good	12	24	70-85
Better	12	27	85-110
Best	12	31	95-125

## › Advice Regarding Batteries:

1. Never connect the (+) and the (-) terminals of the same battery together. Take care that no metal object can fall onto the battery and short the terminals. This would immediately lead to a short and extreme fire danger.
2. It is highly recommended that a circuit breaker or fuse be used when installing a trolling motor. Refer to the Minn Kota “Conductor Gauge and Circuit Breaker Sizing Table”. For motors requiring a 60-amp breaker, the [Minn Kota MKR-19](#) 60-amp circuit breaker is recommended.
3. Batteries should be stored and maintained at full charge. Failure to recharge lead-acid batteries (within 12-24 hours) is the leading cause of premature battery failure. Minn Kota offers a wide selection of [chargers](#) to fit your needs and application.
4. If using a crank battery to start a gasoline outboard, we recommend that you use separate deep cycle marine battery/batteries for your Minn Kota trolling motor.

## › Caution

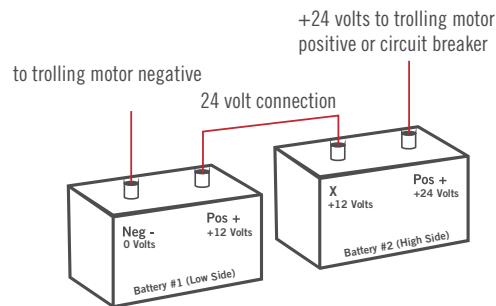
1. For safety reasons do not switch the motor on until the propeller is in the water. If installing a lead wire plug, observe proper polarity and follow instructions in your boat owner’s manual.
2. For safety reasons, disconnect the motor from the battery or batteries when the motor is not in use or while the battery/batteries are being charged.
3. Improper wiring of 24/36/48-volt systems could cause battery explosion!
4. Keep wire wing nut connections tight and solid to battery terminals.
5. Install battery in a ventilated compartment.

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# HOW TO CONNECT BATTERIES IN A SERIES

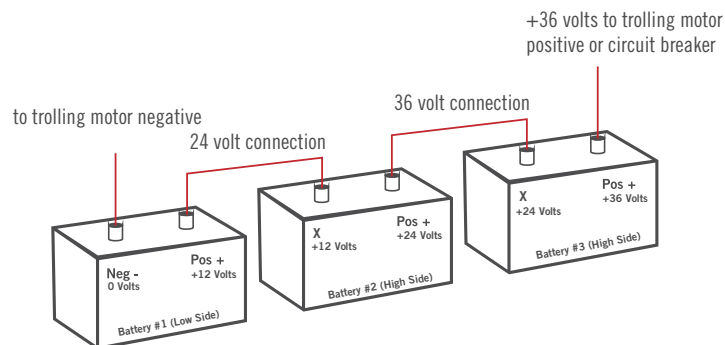
## › 24 Volt Systems (2 Batteries)

1. Two 12-volt deep cycle batteries are required.
2. Make sure that the trolling motor is switched to the off position or speed selector set to “0”.
3. Wire in series only as directed in wiring diagram, to provide 24 volts.
  - a. Connect a connector cable to the positive (+) terminal of battery 1 and to the negative (-) terminal of battery 2.
  - b. Connect positive (+) red lead (from motor) to positive (+) terminal on battery 2.
  - c. Connect negative (-) black lead (from motor) to negative (-) terminal of battery 1.



## › 36 Volt Systems (3 Batteries)

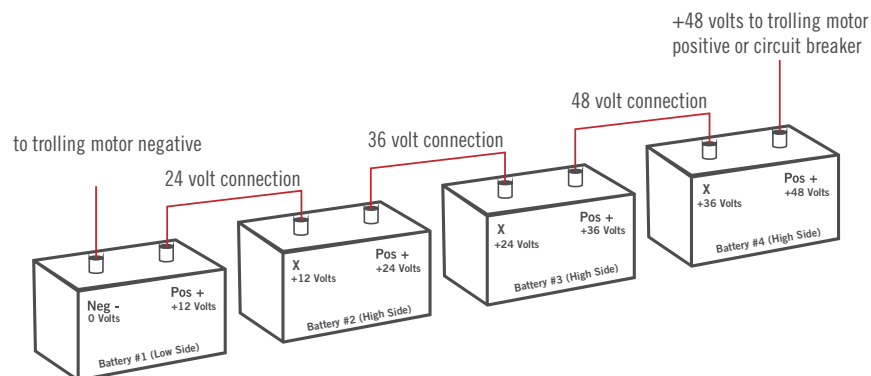
1. Three 12-volt deep cycle batteries are required.
2. Make sure that the trolling motor is switched to the off position or speed selector set to “0”.
3. Wire in series only as directed in wiring diagram, to provide 36 volts.
  - a. Connect a connector cable to the positive (+) terminal of battery 1 and to the negative (-) terminal of battery 2.
  - b. Connect a connector cable to the positive (+) terminal of battery 2 and to the negative (-) terminal of battery 3.
  - c. Connect positive (+) red lead (from motor) to positive (+) terminal on battery 3.
  - d. Connect negative (-) black lead (from motor) to negative (-) terminal of battery 1.



# HOW TO CONNECT BATTERIES IN A SERIES

## › 48 Volt Systems (4 Batteries)

1. Four 12-volt deep cycle batteries are required.
2. Make sure that the trolling motor is switched to the off position or speed selector set to “0”.
3. Wire in series only as directed in wiring diagram, to provide 48 volts.
  - a. Connect a connector cable to the positive (+) terminal of battery 1 and to the negative (-) terminal of battery 2.
  - b. Connect a connector cable to the positive (+) terminal of battery 2 and to the negative (-) terminal of battery 3.
  - c. Connect a connector cable to the positive (+) terminal of battery 3 and to the negative (-) terminal of battery 4.
  - d. Connect positive (+) red lead (from motor) to positive (+) terminal on battery 4.
  - e. Connect negative (-) black lead (from motor) to negative (-) terminal of battery 1.



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