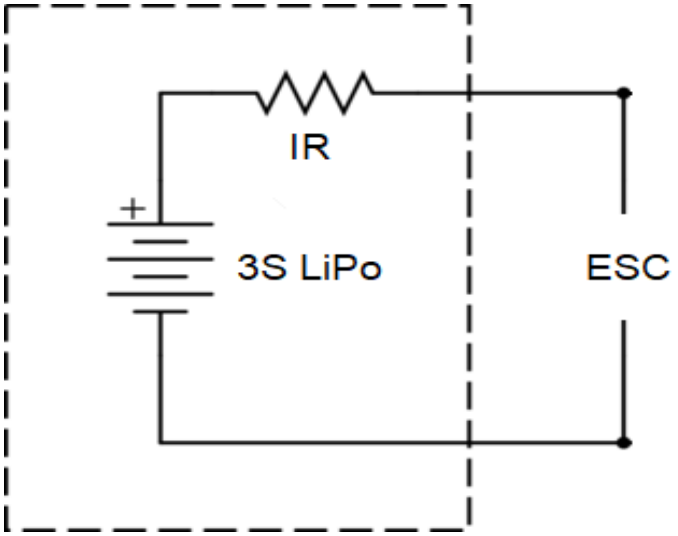
Power Loss Due to Battery Internal Resistance (IR)		
Circuit Characteristic	**Low IR Battery**	**High IR Battery**
Voltage/Cell, 3S LiPo, 20 Amp Rating	4.0 Volts/Cell	4.0 Volts/Cell
Battery Voltage	12 Volts	12 Volts
Battery Internal Resistance (IR)	0.016 Ohms	0.146 Ohms
ESC Amps (Current)	20 Amps	20 Amps
Battery IR Voltage Drop = Battery Amps x Battery IR	20 x 0.016 = 0.32 Volts	20 x 0.146 = 2.92 Volts
ESC Volts = Battery Volts - IR Volts	12 - 0.32 = 11.68 Volts	12 - 2.92 = 9.08 Volts
ESC Watts = ESC Volts x ESC Amps	11.68 x 20 = 234 Watts	9.08 x 20 = 181 Watts
Power Loss Due to Battery Internal Resistance (IR)		234 - 181 = 53 Watts

These calculations are only to illustrate how IR may reduce battery power output.
Calculations assume ideal conditions at room temperature and short duration operation.
Ohms Law is assumed to remain linear.
ESC voltage must meet manufacturers minimum requirements.
0.016 Ohms = 16 milliohms
0.146 Ohms = 146 milliohms
Ohms Law: Volts = Amps x Ohms (V= IxR)
Watts = Volts x Amps



Example Calculations for 30 Amp 3S LiPo

New Battery
Battery IR Voltage Drop = 30 x 0.015 = 0.45 Volts
ESC Volts = 12 - 0.45 = 11.55 Volts
ESC Watts = 11.55 x 30 = 347 Watts

1 Year Later, Same Battery
Battery IR Voltage Drop = 30 x 0.027 = 0.81 Volts
ESC Volts = 12 - 0.81 = 11.2 Volts
ESC Watts = 11.2 x 30 = 336 Watts

Power Loss Due to Increase in Battery Internal Resistance = 347 - 336 = 11 Watts