

Battery Power for G Scale

By Dan Stenger

dmstenger@twc.com

Why battery power?

1. You don't have to clean track!
2. Don't have to maintain connectivity or conductivity on track.
3. No wiring to track except to control switches.
4. Reverse loops, wyes and turntables...no problem.
5. Can run with live steam locos.
6. Airwire Cruise Control feature.

Why not battery power?

1. Added cost (\$250 per loco or battery car)
2. Some locos have limited space for batteries.
3. Limited automation

Components

a. Battery Pack 14.8v

a. Types

| Type | Pro | Con |
|-----------------------------|---------------|--|
| Gel | Inexpensive | Large, heavy, has memory |
| Nickel Cadmium | Better option | Have memory – discharging completely can shorten life |
| Nickel Metal Hydride (NiMH) | Better option | Faster discharge rate, cannot handle high discharge rate, high self-discharge rate |
| Lithium Ion (LiOn) | Best option | Best cost/weight/size ratio, no memory, complete discharge will ruin battery |
| Lithium Polymer (LiPo) | Smaller | Must be balanced, lower cost/weight/size ratio compared to LiOn |

b. Runtime

| maH | Runtime per motor |
|------|-------------------|
| 2600 | 1.5-2 hrs |
| 4400 | 2.5-3 hrs |
| 5200 | 4.5-5.5 hrs |

c. 18.5 volts = faster run speed

b. Controller - Transmitter and Receiver

a. Airwire http://www.cvpusa.com/airwire_system.php

Battery Power for G Scale

By Dan Stenger

dmstenger@twc.com

- i. G3 with terminal blocks and external antenna

http://www.cvpusa.com/airwire_g3.php

G3 Internal Antenna



G3X External Antenna



Both models available without terminal strips

- ii. T5000 controller http://www.cvpusa.com/airwire_t5000.php



- b. Crest Electronics Revolution <http://crest-electronics.net/>
- c. Miscellaneous
- d. 10 amp fuses and holder

<http://www.radioshack.com/product/index.jsp?productId=13212835>

Battery Power for G Scale

By Dan Stenger

dmstenger@twc.com

<http://www.radioshack.com/product/index.jsp?productId=2062257>

e. Connectors

<http://www.allelectronics.com/make-a-store/item/CON-440/4-CONDUCTOR-LOCKIN>

a. G-CONNECTORS-W/LEADS/1.html

<http://www.allelectronics.com/make-a-store/item/CON-240/2-CONDUCTOR-LOCKIN>

b. G-CONNECTORS-W/LEADS/1.html

f. 2.1 mm coaxial power jack

<http://www.radioshack.com/product/index.jsp?productId=2102491&filterName=Cable+type&filterValue=Jacks>

g. 2.1 mm coaxial power plug

<http://www.radioshack.com/product/index.jsp?productId=2103614>

h. Miscellaneous Wire

i. SPDT switch

Sound System

1. Phoenix P8, P11 <http://www.phoenixsound.com/>

2. QSI Sound Solutions <http://qsisolutions.com/>

Battery Charger

1. Tenenergy B6S smart charger, w/ included power supply.

a. Will charge Lithium- ion, Lithium - Poly, NIMH and NICAD.

b. Adjustable charge rate, full digital display, 3 mode safety shutdown, will auto detect voltage of pack up to 22.2 v.

c. 5 pack memory function , will also discharge and auto cycle pack for conditioning.

d. \$74.95

e. <http://www.rctrains.com/BatteriesandChargers.htm>

2. Triton <http://www.ebay.com/itm/like/190788875083?lpid=82> \$99.95

a. Charges 1-24 cell NiCd, NiMH (1.2-28.0V), 1-6 cell LiPo, Li-Ion, LiFe (3.3, 3.6 or 3.7V cells)

b. Adjustable charge current from 0.1-8 amps makes this charger ideal for many applications including tiny to large electric planes and helis, TX and RX batteries, field batteries and more

c. 0.1-3.0A adjustable discharge current

d. Built-in balancing for up to 6S LiPo, Li-Ion or LiFe (A123) cells with FlightPower and ElectriFly adapters (GPMM3200 and GPMM3201)

e. Precision peak detection with adjustable sensitivity for NiCd and NiMH batteries

f. Constant current/constant voltage charge method for Pb and lithiums

Battery Power for G Scale

By Dan Stenger

dmstenger@twc.com

- g. Performs 1 to 10 cycles on NiCd and NiMH batteries, and recalls all data
- h. Configures up to 10 batteries in memory for instant, easy recall and charger setup
- i. Adjustable discharge cutoff voltages for NiCd/MH, pre-set voltages for Pb and lithiums
- j. Temperature sensing capabilities (GPMM3151 Thermal Probe available separately)
- k. Top-off charge feature fully charges NiMHs without overheating
- l. Reversed LCD with backlight plus a 0-45° adjustable view angle clearly displays input and output volts, peak volts, average discharge volts, charge and discharge capacity, currents and time data for 10 cycles, errors and individual lithium cell voltages
- m. Banana plugs on DC input with mating gator clips
- n. Safety features include cool-off time delay, maximum NiMH charge input, fast charge safety timer, current overload and reverse polarity protection
- o. Warning messages for improper input voltage, poor connections, unsuitable battery condition, reverse polarity on output
- p. Built-in cooling fan, for better charge efficiency and extended charger life
- q. One year limited warranty



