



Catalog & Selection Guide



Standard Series

mAh
High Capacity

All Round Performance

High Drain Series

High Discharge Rate

Long Cycle Life Series

1000 times

Endurance and Longer Life Series

10 years

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GP · Battery Experts for over 50 years

GP Batteries International Limited is a wholly-owned subsidiary of Gold Peak Group in Hong Kong. It is one of the world's major suppliers of primary and rechargeable batteries and Asia's No. 1 consumer battery manufacturer (excluding Japan). Apart from retailing under the "GP" brand, it also supplies electronic manufacturers and major battery companies with an extensive range of battery products. The volume sales of GP alkaline battery, rechargeable battery and charger have been ranked No.1 in Hong Kong for 13 consecutive years.



R&D

GP has dedicated significant amount of resources and efforts each year to the R&D center for its construction, development of new products and introduction of advanced equipment. Our R&D center prides itself on various facilities, namely the professional trial-production workshops, performance test rooms, chemical labs and material analysis rooms.



Automation

In order to meet the increasing market demand, we have equipped ourselves with the cost-effective automated systems that enhance productivity and quality control. Factors such as distribution, parts procurement, labor and risks are thoroughly assessed in areas of our in-house production of tools, materials and technologies.



Quality

As an established brand, we speak with strong data and make continuous improvement practicing the Six Sigma philosophy. Factors/parameters that could affect product quality are hence prevented by data automation. Not to mention we also possess world-class inspection equipment exclusive to the battery industry such as AAS (Atomic Absorption Spectroscopy), UV-VIS (UV-Visible Spectrometry) and EDXRF (Energy Dispersive X-Ray Fluorescence).



Battery Experts



Product Compliance

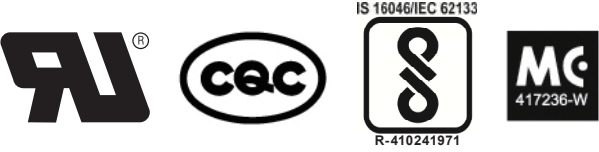
As a major brand in consumer batteries, GP Batteries adheres to strict safety and complies with the highest international safety standards.

GP Batteries's IEC62133-certified **NiMH** batteries and Lithium-ion offer quick market penetration into **53** Certification Body scheme participating countries*.

GP Batteries manufactured **4** out of **8** brands worldwide of certified primary 9V brands against UL217 specifically for Smoke Alarm application.

GP Batteries is amongst the **First batch of Lithium-ion battery brands** that obtained voluntary CQC mark in China, as well as UR, BIS, and MC marks in the USA, India and Malaysia to respectively cater business needs more efficiently.

With **UN38.3** certification, all GP Lithium-ion batteries are easily transported by air and sea to **5** continents*.



* Subject to national deviation, additional tests may be needed.



Battery Experts

Laboratory Services

China and Singapore

GP Batteries' quality assurance centers, located strategically in China, Singapore and Hong Kong, provide full range R&D facilities for quality and safety assurance.

Both China and Singapore laboratories are well-recognized by more than **90** international regions under International Laboratory Accreditation Cooperation-Mutual Recognition Agreement (ILAC-MRA).

Hong Kong Science Park

The Hong Kong laboratory, the **first** in Hong Kong, is the only **1** out of **6** certified to UL WTDP (Witnessed Test Data Program); it is also the only **1** out of **5** CTF (Customers' Testing Facilities - Stage 1) approved facilities in the China and Hong Kong region*.

China (Dongguan) - Chemical & Calibration Laboratory

- CNAS (China National Accreditation Service for Conformity Assessment) Accreditation



- Testing scope
 - 2011/65/EC (RoHS Directive)
 - 2006/66/EC (Battery & Accumulator Directive)

Battery Performance Test in Singapore

- SAC-SINGLAS (Singapore Laboratory Accreditation Scheme) Accreditation

- Testing scope
 - IEC 60086-1
 - IEC 60086-2
 - IEC 60086-5



UL Data Acceptance Program

- WTDP (Witnessed Testing Data Program)
 - UL1642
 - UL2054
 - UL62133
 - UN38.3



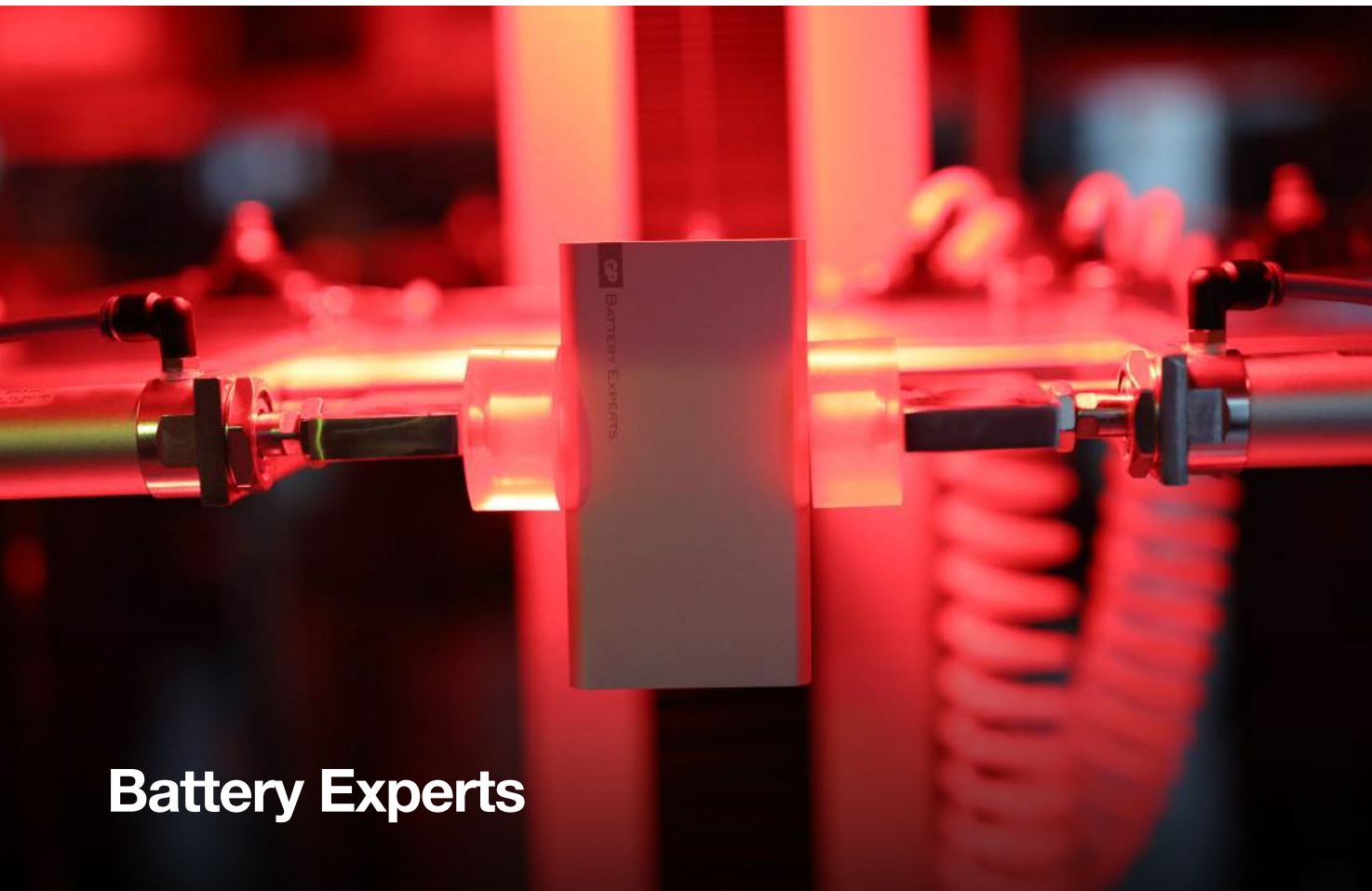
IEC Manufacturer's Testing Laboratory

- CTF (Customer's Testing Facilities (CTF) - Stage 1)
 - IEC62133

Reliability Test for Benchmarking

- Test conditions to be agreed with clients

* Record as at end 2016.



Battery Experts

System Certification

In order to meet the increasing market demand, we make continuous improvement to ensure our Management System excellence for our stakeholders and clients. GP Batteries is certified against ISO9001, ISO14001, OHSAS18001, SA8000, as well as the highlighted below:

Global Security Verification (GSV)

Safety matters. Our GSV certified supply chain security excellence ensuring our trade with our clients are secure, protect against terrorist acts, and to combat illegal trafficking.



ISO26000 Social Responsibility

We speak as a global excellence brands, we value the relationship with our society and environment. Our social responsibility performance is certified against ISO 26000 which proved our promises to the welfare of society and environment.



ISO17025

Our China and Singapore laboratories are certified against ISO17025 – the general requirement for the competence of testing and calibration laboratories to offer the most reliable service to our clients.

Awards

GP stands for excellence, and its track record is impressive. GP's unwavering adherence to high standards has brought recognition from various entities.

Most Valuable Supplier:

This award was presented by Panasonic Corporation to recognize GP's contributions as a supplier.

Asia Quality Best Practice Award:

Handed out by the International Six Sigma Council, the gold award celebrates GP being top in quality improvement.

MAKE (Most Admired Knowledge Enterprise) Award:

The award recognizes organisations which out-perform their peers in creating shareholder's wealth by transforming tacit and explicit enterprise knowledge and intellectual capital into superior products/services/solutions.



Ni-MH Batteries



The rechargeable Ni-MH batteries possess outstanding benefits in many regards of safety, portability and specifications.



**Home safe -
Non-flammable**



The thoroughly tested NiMH batteries are one of GP's fire-free safety offers to you. The notable non-flammable material inside and the cells with proven safety track record in the field for no risk to fire.



**Full range of cylindrical for easy adaption
into electronic devices**

The handy Ni-MH comes in full-range standard cylindrical battery sizes for a wide range of applications, they facilitate easy adaptation to different electronic devices.

Ni-MH Series



GP Batteries offers four NiMH rechargeable batteries solutions, which can be:

Standard Series

This series has high capacity and balanced performances.

High Capacity

All Round Performance

Long Cycle Life Series

The series can be recharged and discharged for up to 1000 times.

1000 times

High Drain Series

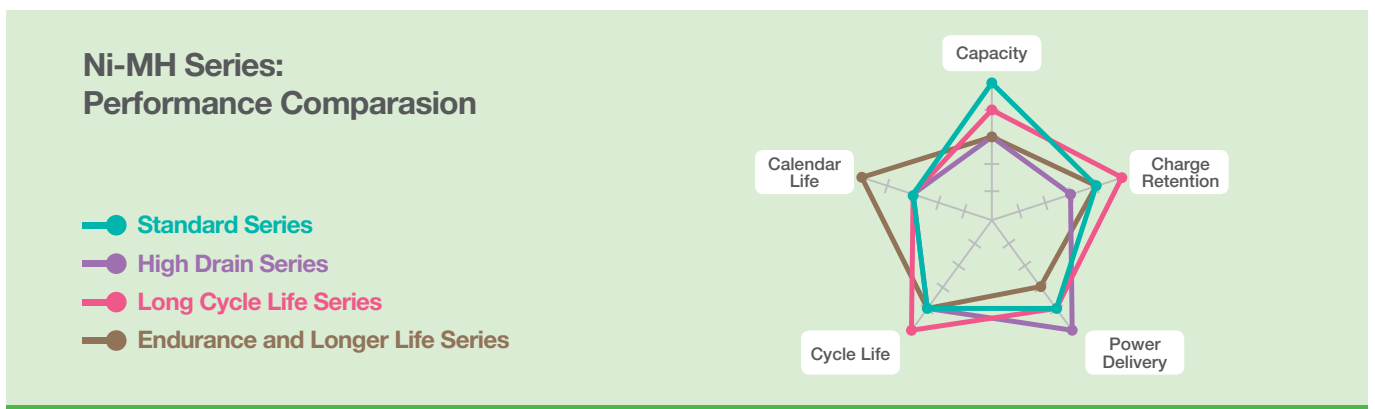
This series offers high discharge rate.

High Discharge Rate

Endurance and Longer Life Series

The expected cycle life of this series is up to 10 years with superb performance under high temperature.

10 years



Batteries Selection Guide



| Application | | Ni-MH Series | | | |
|-----------------------|-------------------------------------|--------------|------------|-----------------|---------------------------|
| | | Standard | High Drain | Long Cycle Life | Endurance and Longer Life |
| | | | | | |
| Communication | Cordless Phone | ★★ | | | |
| | Walkie Talkie | ★★ | | | |
| Energy Storage System | Solar | | ★★ | | ★★ |
| | Standby | | ★★ | | ★★ |
| Lighting Device | Emergency Light | | | | ★★ |
| | LED Light | ★★ | | ★ | |
| Motor Driven Devices | Flashlight / Lanterns | ★★ | | ★★ | |
| | Motor Toys | ★★ | | | |
| | Lawnmower | ★ | ★★ | | |
| | E-Shutter | | | | ★★ |
| Personal Care | Electric Bottle Opener | ★★ | | | |
| | Shaver | ★★ | | | |
| | Toothbrush | ★★ | | | |
| | Trimmer | ★★ | | | |
| | Facial Cleansing Device | ★★ | | | |
| Rideable | Dental Water Jet | ★★ | | | |
| | eBike | | ★★ | | |
| | Electric Wheelchair | | ★★ | | |
| | eShooter | | ★★ | | |
| Smart Home | Golf Cart | | ★★ | | |
| | Door Cam | ★★ | | | |
| Telematics | Baby Monitor | ★★ | | | |
| | eCall | | | | ★★ |
| | Tracking | ★★ | | | ★★ |
| Toys | Alarm | ★★ | | | |
| | Electronic Gaming Device | ★★ | | ★ | |
| | Game Controller | ★★ | | ★ | |
| Vacuum Cleaner | Toys | ★★ | | | |
| | Stick Type Vacuum Cleaner | | ★★ | | |
| Misc | Robotic Vacuum Cleaner | ★★ | | | |
| | Nail Gun | ★★ | | | |
| | Home Entertainment Remote Controls | ★★ | | | |
| | Portable Radios / Speaker | ★★ | | ★ | |
| | Portable Tape Recorders and Players | ★★ | | ★ | |
| | Portable TV's | ★★ | | ★ | |
| | Solar Application | ★ | | ★ | ★★ |
| | Test Equipment | ★★ | | | |
| | Medical Equipment | ★★ | | | |
| Digital Camera | ★★ | | | | |

Best Suitable ★★ Suitable ★



Cordless Phone

| Cell Size | Model | Dimension (mm) | | Nominal Voltage (V) | Rated Capacity (mAh) | Typical Capacity (mAh) | Approx. Weight (g) | LSD Type | |
|-----------|---------|------------------|----------------------------|-----------------------|------------------------|--------------------------|----------------------|----------|-------|
| | | Diameter | Height | | | | | | |
| AAAA | 5/4AAAA | GP50AAAAALH **# | 8.6 | 52.6 | 1.2 | 500 | 520 | 9.5 | L80-1 |
| | AAA | GP50AAA AH **# | 10.5 | 43.7 | 1.2 | 500 | 520 | 10.5 | L80-1 |
| | AAA | GP50AAAHC **# | 10.5 | 44.5 | 1.2 | 500 | 520 | 12.0 | L80-1 |
| | AAA | GP60AAA H ** | 10.5 | 43.7 | 1.2 | 600 | 630 | 13.0 | L80-1 |
| | AAA | GP75AAA H **# | 10.5 | 43.7 | 1.2 | 750 | 780 | 13.0 | L80-1 |
| | AAA | GP85AAAHC **# | 10.5 | 44.5 | 1.2 | 850 | 860 | 14.5 | L80-1 |
| AA | AA | GP130AAHC **# | 14.5 | 50.5 | 1.2 | 1300 | 1350 | 25.0 | L80-1 |
| | AA | GP150AAM **# | 14.4 | 48.2 | 1.2 | 1500 | 1550 | 26.0 | L80-1 |
| | AA | GP180AAHC **# | 14.5 | 50.5 | 1.2 | 1800 | 1850 | 28.0 | L80-1 |
| Prismatic | | GP5M70 | 6.1(T) X 17.0(W) X 35.3(H) | | 1.2 | 600 | 630 | 13.0 | L80-1 |

With IEC62133

** With UL2054 approval.




GP Advantages

1. Low self discharge – excellent charge retention
2. Fully automated production line with excellent cell consistency that offers the best pack level performance
3. Safety – NiMH is an intrinsically safe chemistry and free from UN38.3 testing, not restricted in air transport
4. Value for money
5. Recyclable and environmentally friendly





Personal Care Ocean Series

| Cell Size | Model | Dimension (mm) | | Nominal Voltage (V) | Rated Capacity (mAh) | Typical Capacity (mAh) | Approx. Weight (g) | LSD Type |
|-----------|---|------------------|--------|-----------------------|------------------------|--------------------------|----------------------|----------|
| | | Diameter | Height | | | | | |
| AAA | AAA GP42AAAHS **  | 10.5 | 44.2 | 1.2 | 440 | 460 | 10.5 | L80-1 |
| | AAA GP60AAAH ** | 10.5 | 43.7 | 1.2 | 600 | 630 | 13.0 | L80-1 |
| | AAA GP80AAAH **  | 10.5 | 43.7 | 1.2 | 800 | 830 | 13.0 | L80-1 |
| AA | AA GP60AAM **  | 14.4 | 48.2 | 1.2 | 600 | 820 | 15.5 | L80-1 |
| | AA GP130AAM **# | 14.4 | 48.2 | 1.2 | 1300 | 1350 | 25.0 | L80-1 |

With IEC62133

** With UL2054 approval.

Models in **BLUE** are NiMH Ocean Series.

GP Advantages

1. NiMH Ocean Series is perfect for sustained overcharge required water-proof devices
2. Safety – NiMH is an intrinsically safe chemistry and free from UN38.3 testing, not restricted in air transport
3. Value for money
4. Recyclable and environmentally friendly





Rideable

| Cell Size | Model | Dimension (mm) | | Nominal Voltage (V) | Rated Capacity (mAh) | Typical Capacity (mAh) | Approx. Weight (g) | LSD Type | Max. Discharge Current (A) |
|-----------|-------------|------------------|--------|-----------------------|------------------------|--------------------------|----------------------|----------|------------------------------|
| | | Diameter | Height | | | | | | |
| D | GP700DH **# | 33.0 | 60.0 | 1.2 | 7000 | 7000 | 155.0 | L50-1 | 35 |
| | GP900DH ** | 33.0 | 60.0 | 1.2 | 9000 | 9225 | 170.0 | L50-1 | 45 |
| | GP1100DH | 33.0 | 60.0 | 1.2 | 11000 | 11550 | 179.0 | L50-1 | 55 |

With IEC62133

** With UL2054 approval.

GP Advantages

1. Fast Charge, deep discharge, long cycle life and maintenance free
2. Higher volumetric & gravimetric energy density compared with Lead Acid – NiMH is light in weight and small in size
3. Safety – NiMH is an intrinsically safe chemistry and free from UN38.3 testing, not restricted in air transport
4. Recyclable and environmentally friendly





Vacuum Cleaner

| Cell Size | | Model | Dimension (mm) | | Nominal Voltage (V) | Rated Capacity (mAh) | Typical Capacity (mAh) | Approx. Weight (g) | LSD Type | Max. Discharge Current (A) |
|-----------|----|----------------|------------------|--------|-----------------------|------------------------|--------------------------|----------------------|----------|------------------------------|
| | | | Diameter | Height | | | | | | |
| AA | AA | GP130AAHV # | 14.5 | 49.2 | 1.2 | 1300 | 1350 | 26.0 | L80-1 | 13 |
| SC | SC | GP130SCHSV **# | 23.0 | 43.0 | 1.2 | 1300 | 1350 | 31.0 | L50-1 | 13 |
| | SC | GP150SCHSV # | 23.0 | 43.0 | 1.2 | 1500 | 1580 | 36.5 | L50-1 | 15 |
| | SC | GP180SCHSV **# | 23.0 | 43.0 | 1.2 | 1800 | 1850 | 43.0 | L50-1 | 18 |
| | SC | GP220SCHSV **# | 23.0 | 43.0 | 1.2 | 2200 | 2300 | 48.0 | L50-1 | 22 |
| | SC | GP260SCHV | 23.0 | 43.0 | 1.2 | 2600 | 2650 | 52.0 | L50-1 | 26 |
| | SC | GP300SCHSV **# | 23.0 | 43.0 | 1.2 | 3000 | 3100 | 56.0 | L50-1 | 30 |

With IEC62133

** With UL2054 approval.

GP Advantages

1. Fully automated production line with excellent cell consistency that offers the best pack level performance
2. Safety – NiMH is an intrinsically safe chemistry and free from UN38.3 testing, not restricted in air transport
3. Value for money
4. Recyclable and environmentally friendly





E-Shutter

| Cell Size | | Model | Dimension (mm) | | Nominal Voltage (V) | Rated Capacity (mAh) | Typical Capacity (mAh) | Approx. Weight (g) | LSD Type | IEC Designation |
|-----------|-------|---------------|------------------|--------|-----------------------|------------------------|--------------------------|----------------------|----------|-----------------|
| | | | Diameter | Height | | | | | | |
| AF | AF | GP210AFHT # | 17.0 | 50.0 | 1.2 | 2100 | 2200 | 38.0 | L80-1 | T |
| SC | SC | GP220SCHT **# | 23.0 | 43.0 | 1.2 | 2200 | 2310 | 53.0 | L80-1 | U |
| | SC | GP220SCHTD # | 23.0 | 43.0 | 1.2 | 2200 | 2310 | 53.5 | L80-1 | U |
| 18900 | 18900 | GP400LALHT # | 18.3 | 90.0 | 1.2 | 4000 | 4120 | 76.0 | L80-1 | U |

With IEC62133

** With UL2054 approval.

GP Advantages

1. Excellent performance at extreme temperature
2. Cater for extended service life requirement in this application (5-8 years)
3. Safety – NiMH is an intrinsically safe chemistry and free from UN38.3 testing, not restricted in air transport
4. Value for money
5. Recyclable and environmentally friendly
6. Fully automated production line with excellent cell consistency that offers the best pack level performance





| Cell Size | | Model | Dimension (mm) | | Nominal Voltage (V) | Rated Capacity (mAh) | Typical Capacity (mAh) | Approx. Weight (g) | LSD Type |
|-----------|--------|-------------|------------------|--------|-----------------------|------------------------|--------------------------|----------------------|----------|
| | | | Diameter | Height | | | | | |
| AAA | 2/3AAA | GP30AAAM # | 10.4 | 29.3 | 1.2 | 300 | 300 | 7.5 | L80-1 |
| | AAA | GP50AAAH ** | 10.5 | 43.7 | 1.2 | 500 | 520 | 10.5 | L80-1 |

| Cell Size | | Model | Dimension (mm) | | Nominal Voltage (V) | Rated Capacity (mAh) | Typical Capacity (mAh) | Approx. Weight (g) | LSD Type | IEC Designation |
|-----------|-----|--------------|------------------|--------|-----------------------|------------------------|--------------------------|----------------------|----------|-----------------|
| | | | Diameter | Height | | | | | | |
| AAA | AAA | GP60AAAHT2 # | 10.5 | 43.7 | 1.2 | 600 | 630 | 14.0 | L80-1 | T |

With IEC62133

** With UL2054 approval.

GP Advantages

1. Cater for extended service life requirement in this application (5-8 years)
2. Excellent performance at extreme temperature including low temperature
3. Safety – NiMH is an intrinsically safe chemistry and free from UN38.3 testing, not restricted in air transport
4. Value for money
5. Recyclable and environmentally friendly
6. Fully automated production line with excellent cell consistency that offers the best pack level performance





Emergency Light

| Cell Size | Model | Dimension (mm) | | Nominal Voltage (V) | Rated Capacity (mAh) | Typical Capacity (mAh) | Approx. Weight (g) | LSD Type | IEC Designation | |
|-----------|-------|------------------|--------|-----------------------|------------------------|--------------------------|----------------------|----------|-----------------|---|
| | | Diameter | Height | | | | | | | |
| AAA | AAA | GP60AAAHT # | 10.5 | 43.7 | 1.2 | 600 | 630 | 14.0 | L80-1 | T |
| AA | AA | GP110AALHT # | 14.5 | 50.5 | 1.2 | 1100 | 1155 | 23.5 | L80-1 | U |
| | AA | GP125AAMT **# | 14.4 | 48.2 | 1.2 | 1250 | 1280 | 24.0 | L80-1 | T |
| AF | 4/5AF | GP160AFHT # | 17.0 | 43.0 | 1.2 | 1600 | 1680 | 33.0 | L80-1 | T |
| | AF | GP210AFHT # | 17.0 | 50.0 | 1.2 | 2100 | 2200 | 38.0 | L80-1 | T |
| | 7/5AF | GP370AFLHT | 17.5 | 69.0 | 1.2 | 3700 | 3800 | 60.0 | L80-1 | T |
| 18700 | 18700 | GP400LAHT # | 18.3 | 70.0 | 1.2 | 4000 | 4120 | 67.0 | L80-1 | T |
| 18900 | 18900 | GP400LALHT # | 18.3 | 90.0 | 1.2 | 4000 | 4120 | 76.0 | L80-1 | U |
| SC | SC | GP220SCHT **# | 23.0 | 43.0 | 1.2 | 2200 | 2310 | 53.0 | L80-1 | U |
| | SC | GP220SCHTD # | 23.0 | 43.0 | 1.2 | 2200 | 2310 | 53.5 | L80-1 | U |
| C | C | GP300CHT | 25.0 | 50.0 | 1.2 | 3000 | 3100 | 75.0 | L80-1 | T |
| D | D | GP700DHT** | 33.0 | 60.5 | 1.2 | 7000 | 7350 | 146.0 | L80-1 | U |

With IEC62133

** With UL2054 approval.

GP Advantages

1. Comply with E-light compliance IEC60598-2-22 and ICEL1010
2. Specific model can meet up to 10 years' service life
3. Safety – NiMH is an intrinsically safe chemistry and free from UN38.3 testing, not restricted in air transport
4. Value for money
5. Recyclable and environmentally friendly
6. Higher volumetric & gravimetric energy density compared with NiCd – NiMH is light in weight and small in size





Energy Storage System

| Cell Size | | Model | Dimension (mm) | | Nominal Voltage (V) | Rated Capacity (mAh) | Typical Capacity (mAh) | Approx. Weight (g) | LSD Type | Max. Discharge Current (A) |
|-----------|---|-------------|------------------|--------|-----------------------|------------------------|--------------------------|----------------------|----------|------------------------------|
| | | | Diameter | Height | | | | | | |
| D | D | GP700DH **# | 33.0 | 60.0 | 1.2 | 7000 | 7000 | 155.0 | L50-1 | 35 |
| | D | GP900DH ** | 33.0 | 60.0 | 1.2 | 9000 | 9225 | 170.0 | L50-1 | 45 |
| | D | GP1100DH | 33.0 | 60.0 | 1.2 | 11000 | 11550 | 179.0 | L50-1 | 55 |

| Cell Size | | Model | Dimension (mm) | | Nominal Voltage (V) | Rated Capacity (mAh) | Typical Capacity (mAh) | Approx. Weight (g) | LSD Type | IEC Designation |
|-----------|---|------------|------------------|--------|-----------------------|------------------------|--------------------------|----------------------|----------|-----------------|
| | | | Diameter | Height | | | | | | |
| D | D | GP700DHT** | 33.0 | 60.5 | 1.2 | 7000 | 7350 | 146.0 | L80-1 | U |

With IEC62133

** With UL2054 approval.

GP Advantages

1. Higher volumetric & gravimetric energy density compared with NiCd & Lead Acid – NiMH is light in weight and small in size
2. Long calendar life, maintenance free and low cost of ownership
3. Safety – NiMH is an intrinsically safe chemistry and free from UN38.3 testing, not restricted in air transport
4. Recyclable and environmentally friendly



Specifications

Industrial Series - Cylindrical Type



Models in **BLUE** are NiMH Ocean Series.

Standard Series

| Cell Size | | Model | Dimension (mm) | | Nominal Voltage (V) | Rated Capacity (mAh) | Typical Capacity (mAh) | Approx. Weight (g) | LSD Type |
|-----------|-------------|----------------------|------------------|--------|-----------------------|------------------------|--------------------------|----------------------|----------|
| | | | Diameter | Height | | | | | |
| AAAA | 5/4AAAA | GP50AAAAALH **# | 8.6 | 52.6 | 1.2 | 500 | 520 | 9.5 | L80-1 |
| AAA | 1/3AAA | GP17AAAH # | 10.4 | 14.1 | 1.2 | 170 | 180 | 4.2 | L80-1 |
| | 2/3AAA | GP30AAAM # | 10.4 | 29.3 | 1.2 | 300 | 300 | 7.5 | L80-1 |
| | AAA | GP42AAAHS **# | 10.5 | 44.2 | 1.2 | 440 | 460 | 10.5 | L80-1 |
| | AAA | GP50AAAH **# | 10.5 | 43.7 | 1.2 | 500 | 520 | 10.5 | L80-1 |
| | AAA | GP50AAAHC **# | 10.5 | 44.5 | 1.2 | 500 | 520 | 12.0 | L80-1 |
| | AAA | GP60AAAH ** | 10.5 | 43.7 | 1.2 | 600 | 630 | 13.0 | L80-1 |
| | AAA | GP65AAAH **# | 10.5 | 43.7 | 1.2 | 650 | 680 | 13.0 | L80-1 |
| | AAA | GP65AAAHC **# | 10.5 | 44.5 | 1.2 | 650 | 680 | 13.0 | L80-1 |
| | AAA | GP70AAAH **# | 10.5 | 43.7 | 1.2 | 700 | 730 | 13.0 | L80-1 |
| | AAA | GP75AAAH **# | 10.5 | 43.7 | 1.2 | 750 | 780 | 13.0 | L80-1 |
| | AAA | GP80AAAH ** | 10.5 | 43.7 | 1.2 | 800 | 830 | 13.0 | L80-1 |
| | AAA | GP85AAAHC **# | 10.5 | 44.5 | 1.2 | 850 | 860 | 14.5 | L80-1 |
| | AAA | GP95AAAH **# | 10.5 | 43.7 | 1.2 | 900 | 930 | 15.2 | L50-1 |
| | AAA | GP91AAALH ** | 10.5 | 50.0 | 1.2 | 910 | 930 | 15.1 | L80-1 |
| AA | 2/3AA | GP60AAH # | 14.5 | 28.7 | 1.2 | 600 | 620 | 14.0 | L80-1 |
| | 2/3AA | GP75AAH | 14.5 | 28.7 | 1.2 | 750 | 770 | 15.0 | L80-1 |
| | AA | GP60AAM ** | 14.4 | 48.2 | 1.2 | 600 | 820 | 15.5 | L80-1 |
| | AA | GP70AAMD | 14.4 | 48.2 | 1.2 | 700 | 730 | 17.0 | L80-1 |
| | AA | GP90AAMD # | 14.4 | 48.2 | 1.2 | 900 | 930 | 20.0 | L80-1 |
| | AA | GP130AAM **# | 14.4 | 48.2 | 1.2 | 1300 | 1350 | 25.0 | L80-1 |
| | AA | GP130AAHC **# | 14.5 | 50.5 | 1.2 | 1300 | 1350 | 25.0 | L80-1 |
| | AA | GP150AAM **# | 14.4 | 48.2 | 1.2 | 1500 | 1550 | 26.0 | L80-1 |
| | AA | GP160AAH **# | 14.5 | 49.2 | 1.2 | 1600 | 1650 | 26.0 | L80-1 |
| | AA | GP160AAHC # | 14.5 | 50.5 | 1.2 | 1600 | 1650 | 26.0 | L80-1 |
| | AA | GP180AAH **# | 14.5 | 49.2 | 1.2 | 1800 | 1850 | 28.0 | L80-1 |
| | AA | GP180AAHC **# | 14.5 | 50.5 | 1.2 | 1800 | 1850 | 28.0 | L80-1 |
| | AA | GP200AAH **# | 14.5 | 49.2 | 1.2 | 2000 | 2050 | 29.5 | L80-1 |
| | AA | GP210AAH | 14.5 | 49.2 | 1.2 | 2100 | 2150 | 29.5 | L80-1 |
| | AA | GP210AAHC **# | 14.5 | 50.2 | 1.2 | 2000 | 2050 | 28.0 | L80-1 |
| | AA | GP220AAH **# | 14.5 | 49.2 | 1.2 | 2200 | 2250 | 29.5 | L80-1 |
| AA | GP230AAHC # | 14.5 | 50.5 | 1.2 | 2200 | 2250 | 29.5 | L80-1 | |

Ambient temperature range: Standard charge: 0 to 45°C, Fast Charge: 10 to 45°C, Discharge: -20 to 50°C, Storage: -20 to 35°C.
 # With IEC62133 ** With UL2054 approval.

Definition of LSD type:

L80-1: Fully charged, then store at 20°C for 1 year, 80% of minimum capacity can be retained.
 L50-1: Fully charged, then store at 20°C for 1 year, 50% of minimum capacity can be retained.
 L30-1: Fully charged, then store at 20°C for 1 year, 30% of minimum capacity can be retained.

Major Applications

Cordless Phones, Baby Monitors, Transceivers, Portable facimile machines, Portable Scanners, Portable Printers, Portable Video / Audio devices, Photographic devices, Personal Care devices, Torches, Remote Controllers etc.

Specifications

Industrial Series - Cylindrical Type

Standard Series

| Cell Size | Model | Dimension (mm) | | Nominal Voltage (V) | Rated Capacity (mAh) | Typical Capacity (mAh) | Approx. Weight (g) | LSD Type | |
|-----------|-------|------------------|-----------------------------|-----------------------|------------------------|--------------------------|----------------------|----------|-------|
| | | Diameter | Height | | | | | | |
| AF | 4/5AF | GP211AFH ** | 17 | 43.0 | 1.2 | 2100 | 2160 | 33.0 | L50-1 |
| | AF | GP270AFH ** | 17 | 50.0 | 1.2 | 2600 | 2700 | 39.5 | L50-1 |
| | 7/5AF | GP380AFH **# | 17 | 67.0 | 1.2 | 3800 | 3820 | 53.5 | L50-1 |
| LA | 18670 | GP380LAHV ** | 18.3 | 67.0 | 1.2 | 3800 | 3990 | 60.0 | L50-1 |
| | 18670 | GP450LAH ** | 18.3 | 67.0 | 1.2 | 4300 | 4500 | 63.0 | L50-1 |
| Button | | GP40BVH ** | 11.7 | 5.5 | 1.2 | 40 | 40 | 2.0 | L30-1 |
| | | GP80BVH ** | 15.5 | 6.4 | 1.2 | 80 | 80 | 4.0 | L30-1 |
| | | GP250BVH | 25.2 | 6.4 | 1.2 | 250 | 250 | 12.0 | L30-1 |
| | | GP320BVH | 25.2 | 8.7 | 1.2 | 320 | 320 | 14.1 | L30-1 |
| Prismatic | | GP5M70 | 6.1(T) X 17.0(W) X 35.3(H) | | 1.2 | 600 | 630 | 13.0 | L30-1 |
| 9V | 9V | GP17R8H ** | 15.7(T) X 26.5(W) X 48.5(H) | | 8.4 | 170 | 175 | 32.0 | L80-1 |
| | 9V | GP17R9H ** | 15.7(T) X 26.5(W) X 48.5(H) | | 9.6 | 170 | 175 | 36.0 | L80-1 |
| | 9V | GP20R7H | 15.7(T) X 26.5(W) X 48.5(H) | | 7.2 | 200 | 210 | 36.5 | L80-1 |
| | 9V | GP20R8H | 15.7(T) X 26.5(W) X 48.5(H) | | 8.4 | 200 | 210 | 42.5 | L80-1 |

Ambient temperature range: Standard charge: 0 to 45°C, Fast Charge: 10 to 45°C, Discharge: -20 to 50°C, Storage: -20 to 35°C.

With IEC62133

** With UL2054 approval.

Long Cycle Life Series

| Cell Size | Model | Dimension (mm) | | Nominal Voltage (V) | Rated Capacity (mAh) | Typical Capacity (mAh) | Approx. Weight (g) | LSD Type | Cycle Life |
|-----------|-----------------|------------------|--------|-----------------------|------------------------|--------------------------|----------------------|----------|------------|
| | | Diameter | Height | | | | | | |
| AAA | GP85AAAHC B **# | 10.5 | 44.5 | 1.2 | 800 | 820 | 14.0 | L80-2 | 1000 |
| AA | GP210AAHC B **# | 14.5 | 50.5 | 1.2 | 2000 | 2050 | 30.0 | L80-2 | 1000 |

Ambient temperature range: Standard charge: 0 to 45°C, Fast Charge: 10 to 45°C, Discharge: -20 to 50°C, Storage: -20 to 35°C.

With IEC62133

** With UL2054 approval.

Major Applications

Cordless Phones, Baby Monitors, Transceivers, Portable facimile machines, Portable Scanners, Portable Printers, Portable Video / Audio devices, Photographic devices, Personal Care devices, Torches, Remote Controllers etc.

High Drain Series

| Cell Size | Model | Dimension (mm) | | Nominal Voltage (V) | Rated Capacity (mAh) | Typical Capacity (mAh) | Approx. Weight (g) | LSD Type | Max. Discharge Current (A) | |
|-----------|-------|------------------|--------|-----------------------|------------------------|--------------------------|----------------------|----------|------------------------------|----|
| | | Diameter | Height | | | | | | | |
| AA | AA | GP130AAHV # | 14.5 | 49.2 | 1.2 | 1300 | 1350 | 26.0 | L80-1 | 13 |
| | AA | GP150AAHV # | 14.5 | 49.2 | 1.2 | 1500 | 1550 | 27.0 | L50-1 | 15 |
| | AA | GP170AAHV # | 14.5 | 49.2 | 1.2 | 1700 | 1750 | 28.0 | L50-1 | 15 |

Ambient temperature range: Standard charge: 0 to 45°C, Fast Charge: 10 to 45°C, Discharge: -20 to 50°C, Storage: -20 to 35°C.

With IEC62133

** With UL2054 approval.

Major Applications

Vacuum Cleaners, Home Appliances, Gardening Tools, eBikes etc.

Definition of LSD type:

L80-1: Fully charged, then store at 20°C for 1 year, 80% of minimum capacity can be retained.

L50-1: Fully charged, then store at 20°C for 1 year, 50% of minimum capacity can be retained.

L30-1: Fully charged, then store at 20°C for 1 year, 30% of minimum capacity can be retained.

Specifications

Industrial Series - Cylindrical Type

High Drain Series

| Cell Size | Model | Dimension (mm) | | Nominal Voltage (V) | Rated Capacity (mAh) | Typical Capacity (mAh) | Approx. Weight (g) | LSD Type | Max. Discharge Current (A) | |
|-----------|-------|------------------|--------|-----------------------|------------------------|--------------------------|----------------------|----------|------------------------------|------|
| | | Diameter | Height | | | | | | | |
| SC | SC | GP130SCHSV ** | 23.0 | 43.0 | 1.2 | 1300 | 1350 | 31.0 | L50-1 | 13 |
| | SC | GP150SCHSV # | 23.0 | 43.0 | 1.2 | 1500 | 1580 | 36.5 | L50-1 | 15 |
| | SC | GP180SCHSV ** | 23.0 | 43.0 | 1.2 | 1800 | 1850 | 43.0 | L50-1 | 18 |
| | SC | GP220SCHSV ** | 23.0 | 43.0 | 1.2 | 2200 | 2300 | 48.0 | L50-1 | 22 |
| | SC | GP220SCH ** | 23.0 | 43.0 | 1.2 | 2200 | 2310 | 55.0 | L50-1 | 22 |
| | SC | GP260SCHV | 23.0 | 43.0 | 1.2 | 2600 | 2650 | 52.0 | L50-1 | 26 |
| | SC | GP300SCHSV ** | 23.0 | 43.0 | 1.2 | 3000 | 3100 | 56.0 | L50-1 | 30 |
| | SC | GP300SCH | 23.0 | 43.0 | 1.2 | 3000 | 3100 | 56.0 | L50-1 | 33 |
| | SC | GP330SCH | 23.0 | 43.0 | 1.2 | 3300 | 3430 | 62.0 | L50-1 | 33 |
| C | C | GP350CH | 25.8 | 50.0 | 1.2 | 3500 | 3850 | 78.5 | L50-1 | 16.5 |
| | C | GP1000CH | 25.8 | 86.0 | 1.2 | 10000 | 10250 | 169.0 | L50-1 | 50 |
| D | D | GP700DH ** | 33.0 | 60.0 | 1.2 | 7000 | 7000 | 155.0 | L50-1 | 35 |
| | D | GP900DH ** | 33.0 | 60.0 | 1.2 | 9000 | 9225 | 170.0 | L50-1 | 45 |
| | D | GP1100DH | 33.0 | 60.0 | 1.2 | 11000 | 11550 | 179.0 | L50-1 | 55 |

Ambient temperature range: Standard charge: 0 to 45°C, Fast Charge: 10 to 45°C, Discharge: -20 to 50°C, Storage: -20 to 35°C.

With IEC62133

** With UL2054 approval.

Major Applications

Vacuum Cleaners, Home Appliances, Gardening Tools, eBikes etc.

Endurance and Longer Life Series

| Cell Size | Model | Dimnotes:// | | Nominal Voltage (V) | Rated Capacity (mAh) | Typical Capacity (mAh) | Approx. Weight (g) | LSD Type | IEC Designation | |
|-----------|-------|--------------|--------|-----------------------|------------------------|--------------------------|----------------------|----------|-----------------|---|
| | | Diameter | Height | | | | | | | |
| AAA | AAA | GP60AAAHT # | 10.5 | 43.7 | 1.2 | 600 | 630 | 14.0 | L80-1 | T |
| | AAA | GP60AAAHT2 # | 10.5 | 43.7 | 1.2 | 600 | 630 | 14.0 | L80-1 | T |
| AA | AA | GP110AALHT # | 14.5 | 50.5 | 1.2 | 1100 | 1155 | 23.5 | L80-1 | U |
| | AA | GP125AAMT ** | 14.4 | 48.2 | 1.2 | 1250 | 1280 | 24.0 | L80-1 | T |
| AF | 4/5AF | GP160AFHT # | 17.0 | 43.0 | 1.2 | 1600 | 1680 | 33.0 | L80-1 | T |
| | AF | GP210AFHT # | 17.0 | 50.0 | 1.2 | 2100 | 2200 | 38.0 | L80-1 | T |
| | 7/5AF | GP370AFLHT | 17.5 | 69.0 | 1.2 | 3700 | 3800 | 60.0 | L80-1 | T |
| 18700 | 18700 | GP400LAHT # | 18.3 | 70.0 | 1.2 | 4000 | 4120 | 67.0 | L80-1 | T |
| 18900 | 18900 | GP400LALHT # | 18.3 | 90.0 | 1.2 | 4000 | 4120 | 76.0 | L80-1 | U |
| SC | SC | GP220SCHT ** | 23.0 | 43.0 | 1.2 | 2200 | 2310 | 53.0 | L80-1 | U |
| | SC | GP220SCHTD # | 23.0 | 43.0 | 1.2 | 2200 | 2310 | 53.5 | L80-1 | U |
| C | C | GP300CHT | 25.0 | 50.0 | 1.2 | 3000 | 3100 | 75.0 | L80-1 | T |
| D | D | GP700DHT** | 33.0 | 60.5 | 1.2 | 7000 | 7350 | 146.0 | L80-1 | U |

Ambient temperature range: Standard charge: 0 to 70°C, Discharge: -20 to 70°C, Storage: -20 to 35°C.

With IEC62133

** With UL2054 approval.

Major Applications

Emergency Lightings, Energy Storage Devices/UPS, Solar Curtains, Solar Device Storages etc.

Definition of LSD type:

L80-1: Fully charged, then store at 20°C for 1 year, 80% of minimum capacity can be retained.

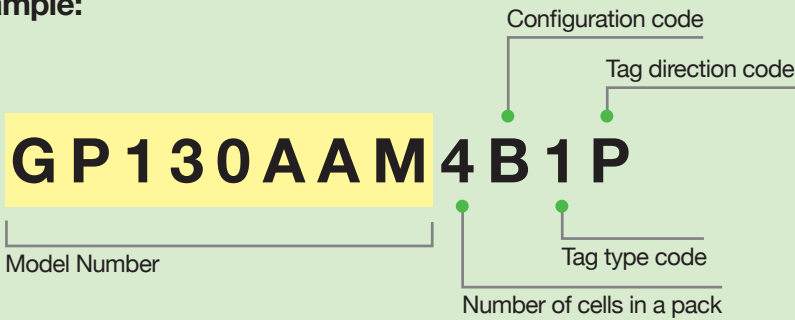
L50-1: Fully charged, then store at 20°C for 1 year, 50% of minimum capacity can be retained.

L30-1: Fully charged, then store at 20°C for 1 year, 30% of minimum capacity can be retained.

Pack Configuration and Code

Designation System for Battery Packs

Example:



For battery packs with connectors, the last two digits will be used to specify connector type.

eg: GP130AAM4BMU



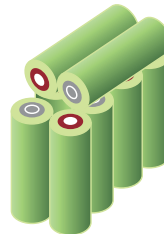
CODE: A

Cells stacked in a vertical column



CODE: B

Cells arranged in a row



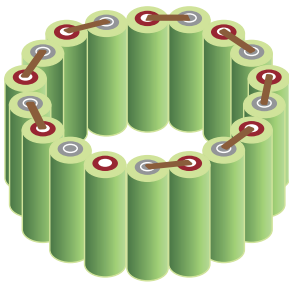
CODE: F

Cells arranged in a horizontal rectangle, above cells arranged in a row



CODE: G

Cells stacked in 2 vertical columns of unequal number of cells



CODE: O

Cells stacked in a circle



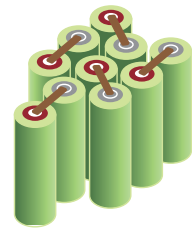
CODE: S

Cells stacked in multiple columns and layers



CODE: T

Cells arranged in a horizontal triangle



CODE: U

Cells arranged in horizontal zig-zag rows



CODE: V

Cells are arranged in a horizontal irregular triangle



CODE: W

Cells arranged in horizontal zig-zag rows (in one or more layers)



CODE: Y

Cells arranged in a horizontal rectangle

Pack Configuration and Code

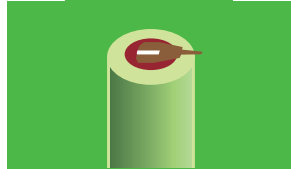
Standard Configurations for Battery Packs

Tag Type Specifications



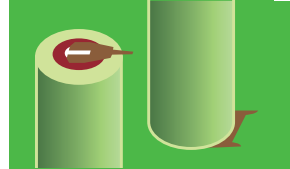
CODE: 1

Strip solder tag



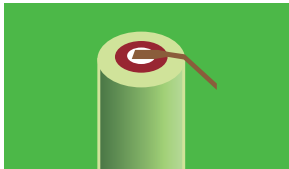
CODE: 2

PCB solder tag



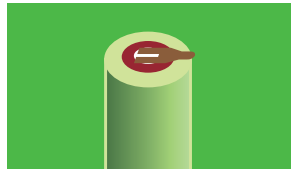
CODE: 3

Double PCB pin at positive terminal and single PCB pin at negative terminal



CODE: 4

Solder wire tag



CODE: 5

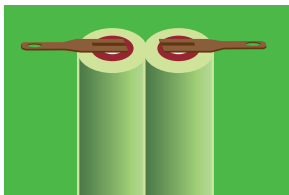
Short strip tag



CODE: 6

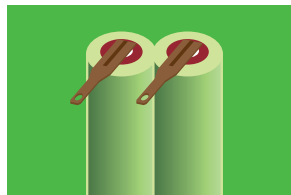
Lead wire

Tag Direction Code



CODE: P

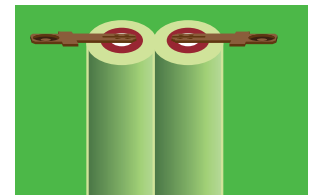
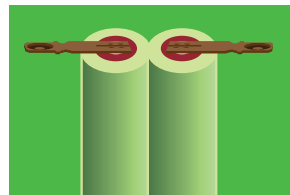
Pointing at 180°



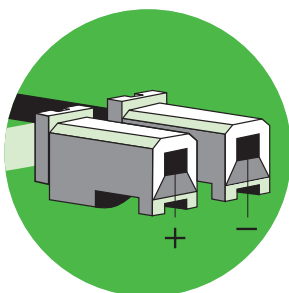
CODE: H

Pointing at the same direction

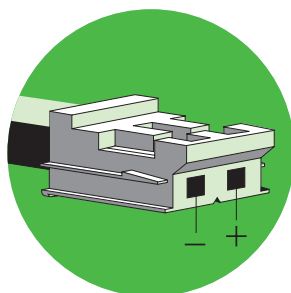
Tailor Tag



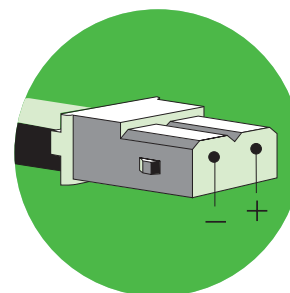
Connector Type Specifications



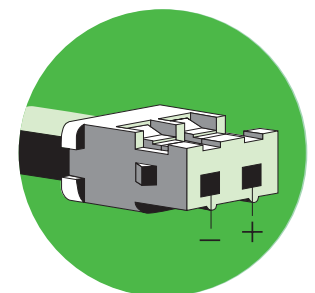
MU
Universal Plug



MJ
JST EHR-2



ML
Molex 5264-02



MS
Mitsumi M63M83-02

Pack Configuration and Code

What Do We Provide?

One Stop Solution

Testing Service

UN / UL / IEC



Total Solution



Battery Pack

Hard Pack Level



Battery Pack

Soft Pack Level



Cell

Bare Cells

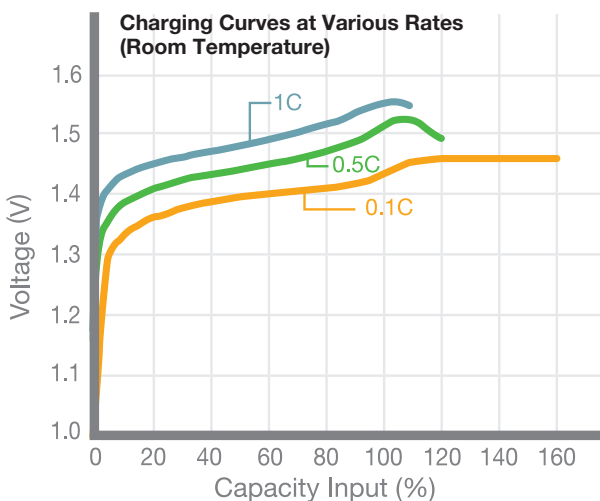


Performance Characteristics



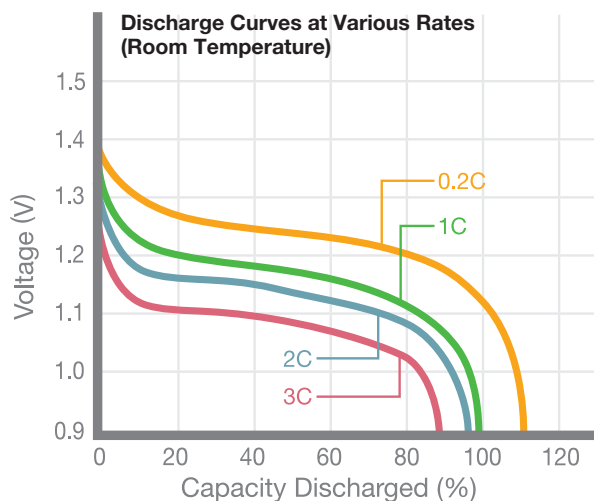
Charge Characteristics:

Battery is restored for use by external recharging process. The charge voltage changes due to current, ambient temperature and time.



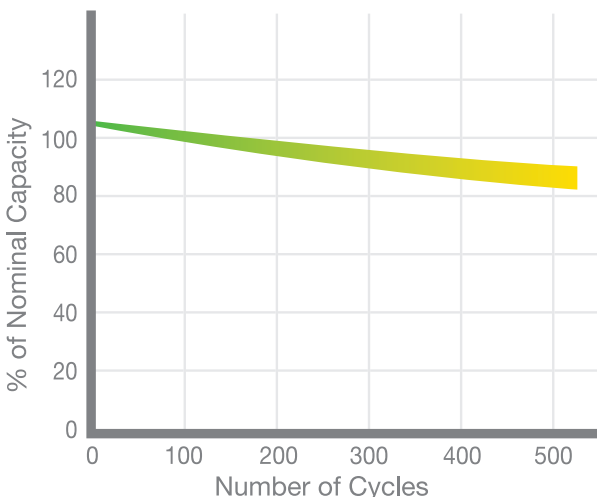
Discharge Characteristics:

A NiMH battery has a nominal discharge voltage of 1.2V. The discharge voltage is subject to change due to current, ambient temperature and time.



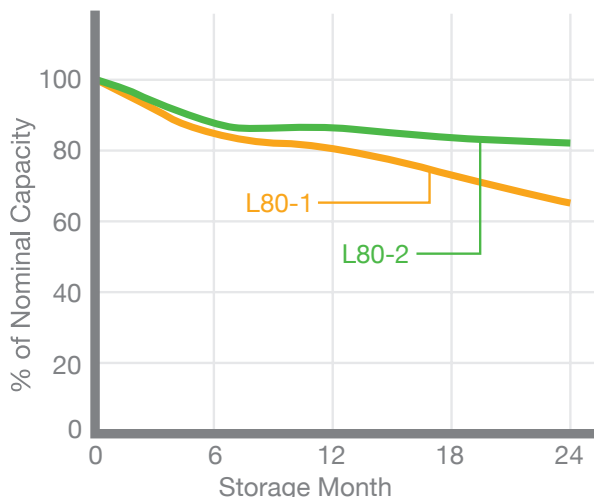
Cycle Life Characteristics:

Cycle life refers to the number of charge-discharge cycles a battery can perform before its discharge capacity (0.2C) drops to 60% of the nominal capacity per IEC 61951-2 or other guaranteed value per GP specifications. A battery's cycle life changes due to ambient temperature and the depth of charge and discharge.



Charge Retention:

A fully charged L80-1 battery can retain 80% of its minimum capacity if stored at 20°C for one year, while an L80-2 battery can retain the same level after two years.



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IRH17/C02_1 2017/10



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