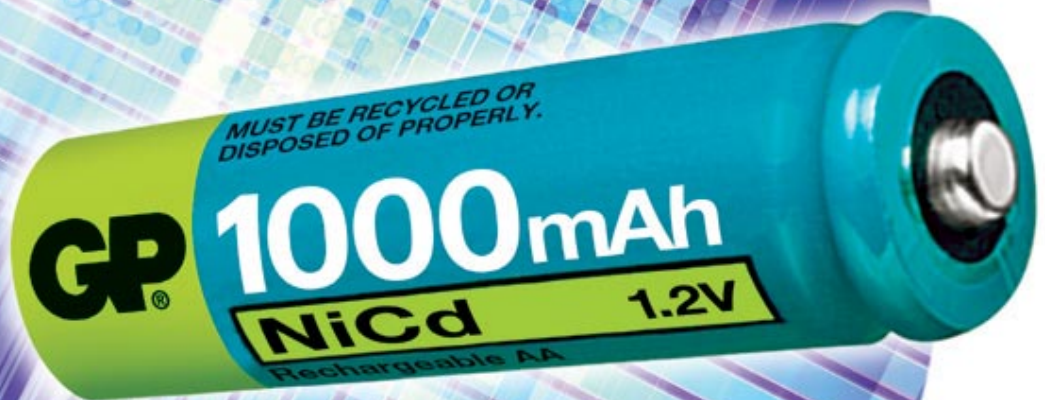




# NiCd

## Rechargeable Batteries



# NiCd

## Rechargeable Batteries



Committed to continued efforts in R&D and product innovation, supplemented by employment of the latest technology, GP Batteries is one of the most progressive manufacturers to produce various types of batteries to meet different needs.

Nickel Cadmium (NiCd) is the ideal rechargeable battery system to suit applications where battery performance and cost effectiveness are the major concerns. GP Batteries offers a wide range of NiCd batteries which are very durable, reliable, easy-to-use and economical, yet offering good performance. The three main categories in active demand are: Standard, High Temperature, and High Drain.

### Major Features

#### Long service life

Depending on usage conditions, GP NiCd batteries can deliver 300 - 1000 charge / discharge cycles.

#### Superior high rate discharge characteristics

Up to 2C high rate discharge is possible.

#### Quick charging capability

Rapid charge in about one hour with GP specified charging conditions.

#### Excellent overcharge performance

GP NiCd batteries can be continuously overcharged at 0.1C rate for 28 days without leakage or deformation.

#### Built-in safety features against misuse

Built-in chemical protection against polarity reversal or overdischarge. A resealable safety vent is incorporated to relieve internal pressure in case of misuse.

#### No memory effect

Unlike sintered type rechargeable cells, GP NiCd batteries produced with modern foam electrode technology do not exhibit memory effect.

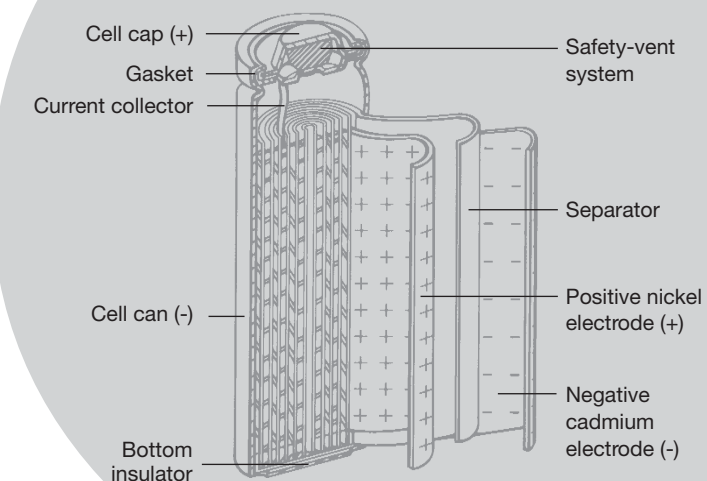
#### High reliability

GP NiCd batteries are manufactured with the best available material using state of the art technology, allowing them to perform with outstanding reliability.

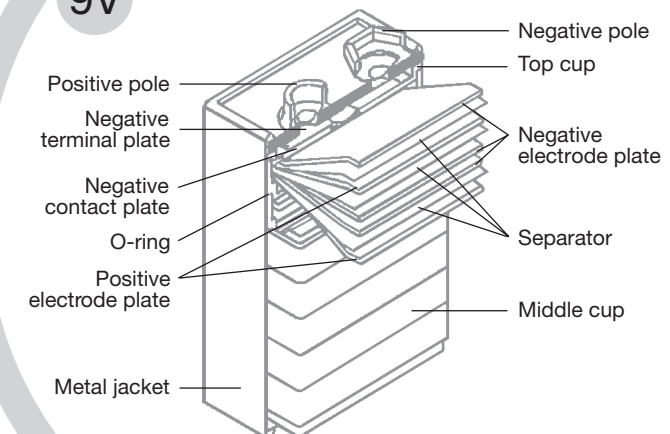


### Cell Construction

#### Cylindrical



#### 9V



### Major Applications

#### Communications

Cellular phones, cordless phones, pager and transceivers.

#### Information devices

Notebook computers, personal digital assistants (PDAs), portable facsimile machines.

#### Audio and video devices

Digital video cameras, LCD TVs, portable DVD, VCD, MD and CD players.

#### Emergency lighting

#### Remote controls & security systems

#### Other applications

Remote control toys, shavers, massagers, electric tooth brushes, handheld vacuum cleaners, power tools, handheld terminals, electric bicycles, memory back-up etc.



# Specifications

## High Temperature Series

Cell Size	Model No.	Nominal Voltage (V)	Capacity (0.2C discharge)* (mAh)		Nominal Dimension (mm)		Weight (g)	Standard Charge		1 Hr Charge Current (mA)#
			Minimum	Typical	Diameter	Height		Current (mA)	Time (hour)	
AA	GP70AAST	1.2	700	770	14.4	48.2	21	70	16	Not Applicable
Sub-C	GP160SCKT**	1.2	1600	1760	23	43	44	160	16	Not Applicable
C	GP250CKT**	1.2	2500	2750	25.8	50	70	250	16	Not Applicable
1/2 D	GP250DKT	1.2	2500	2750	33	37	82	250	16	Not Applicable
D	GP450DKT**	1.2	4500	4950	33	61.5	120	450	16	Not Applicable

Typical Ambient Temperature : Charge: 0°C to 70°C / Discharge: -20°C to 70°C / Storage: -20°C to 35°C

## High Drain Series

Sub-C	4/5 Sub-C	GP120SCK	1.2	1200	1320	23	34	42	120	16	1200
	Sub-C	GP130SCK	1.2	1300	1430	23	43	41	130	16	1300
	Sub-C	GP160SCK**	1.2	1600	1760	23	43	46	160	16	1600
	Sub-C	GP180SCK	1.2	1800	1980	23	43	51	180	16	1800
	Sub-C	GP200SCK**	1.2	2000	2200	23	43	53	200	16	2000
D	D	GP450DK	1.2	4500	4950	33	60	130	450	16	4500
	D	GP500DK	1.2	5000	5500	33	60	140	500	16	5000

Typical Ambient Temperature : Standard Charge: 0°C to 45°C / Fast charge: 10°C to 45°C / Discharge: -20°C to 50°C / Storage: -20°C to 35°C

## Standard Series

AAA	AAA	GP30AAAK	1.2	300	320	10.5	43.7	10.5	30	16	300
	AAA	GP35AAAK	1.2	350	370	10.5	43.7	12	35	16	350
AA	1/3 AA	GP18AAK	1.2	180	200	14.5	16.6	8	18	16	180
	2/3 AA	GP30AAK	1.2	300	320	14.5	28.7	11	30	16	300
	2/3 AA	GP40AAK	1.2	400	450	14.5	28.7	12	40	16	400
	2/3 AA	GP50AAK	1.2	500	520	14.5	28.7	13	50	16	500
	4/5 AA	GP72AAS	1.2	720	760	14.4	42.5	19	72	16	720
	AA	GP60AAS**	1.2	600	660	14.4	48.2	19	60	16	600
	AA	GP70AAS**	1.2	700	770	14.4	48.2	21	70	16	700
	AA	GP80AAS**	1.2	800	850	14.4	48.2	21	80	16	800
	AA	GP100AAS**	1.2	1000	1060	14.4	48.2	26.5	100	16	1000
	7/5 AA	GP120AAK	1.2	1200	1300	14.5	65	31	120	16	1200
AF	1/3 AF	GP25AFK	1.2	250	270	17	16.3	10	25	16	250
	2/3 AF	GP55AFK	1.2	550	600	17	28.5	13.9	55	16	550
	2/3 AF	GP70AFK	1.2	700	740	17	28.5	16	70	16	700
	4/5 AF	GP120AFK	1.2	1200	1320	17	43	26.5	120	16	1200
	AF	GP140AFK**	1.2	1400	1500	17	50	32.5	140	16	1400
	7/5 AF	GP200AFK	1.2	2000	2200	17.5	67.5	46.3	200	16	2000
N	N	GP23NK	1.2	230	250	12	30	8.5	23	16	230
C	1/2 C	GP65CK	1.2	650	715	25.8	23.6	29	65	16	Not Applicable
D	1/2 D	GP250DK	1.2	2500	2750	33	37	82	250	16	Not Applicable

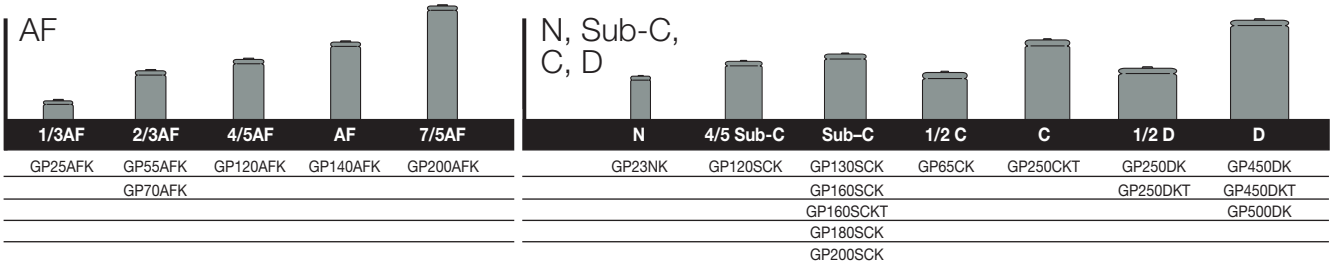
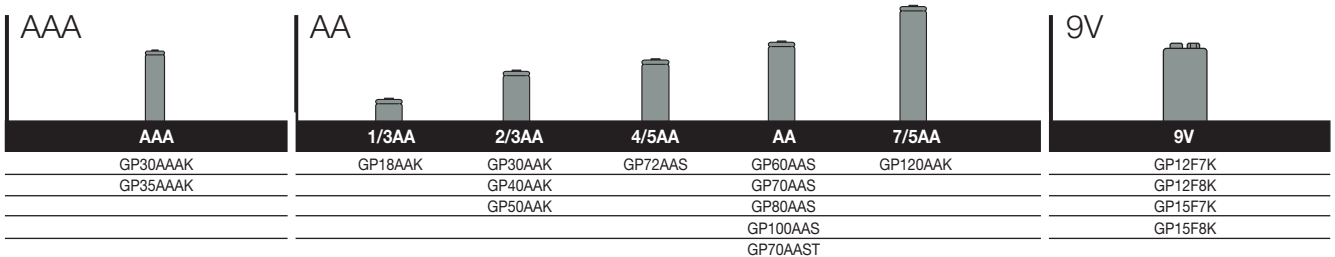
Typical Ambient Temperature : Standard Charge : 0°C to 45°C / Fast charge: 10°C to 45°C / Discharge : -20°C to 50°C / Storage : -20°C to 35°C

## 9V Series

9V	9V	GP12F7K**	7.2	120	132	17.5(T) x 26.5(W) x 48.5(H)	36	12	16	Not Applicable
	9V	GP12F8K**	8.4	120	132	17.5(T) x 26.5(W) x 48.5(H)	42	12	16	Not Applicable
	9V	GP15F7K**	7.2	150	165	17.5(T) x 26.5(W) x 48.5(H)	36	15	16	Not Applicable
	9V	GP15F8K**	8.4	150	165	17.5(T) x 26.5(W) x 48.5(H)	42	15	16	Not Applicable

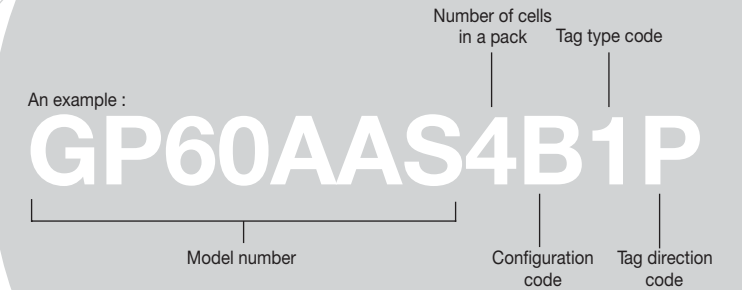
Typical Ambient Temperature : Charge : -10°C to 30°C / Discharge : -20°C to 40°C / Storage : 0°C to 35°C

#One hour rate with charge termination control. \*After charging at 0.1 C for 16 hours. \*\* With UL approval.



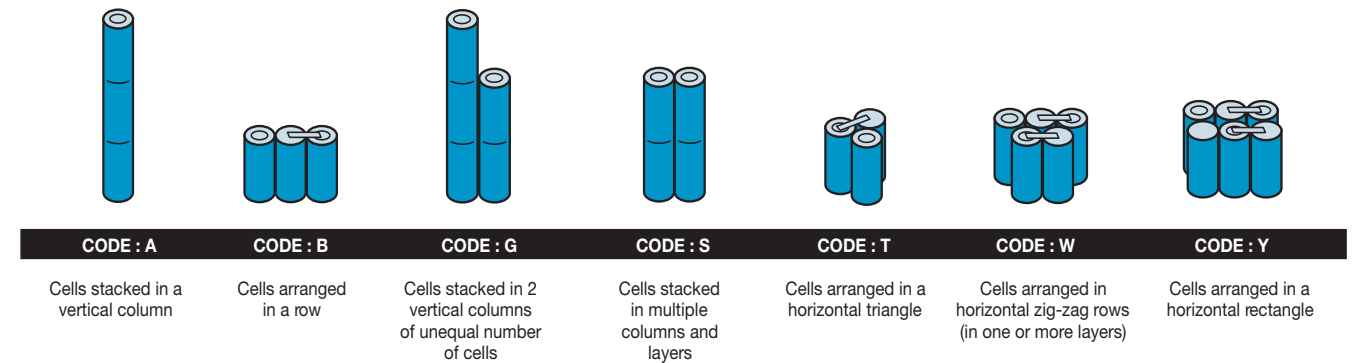
# Configurations

## Designation System for Battery Packs

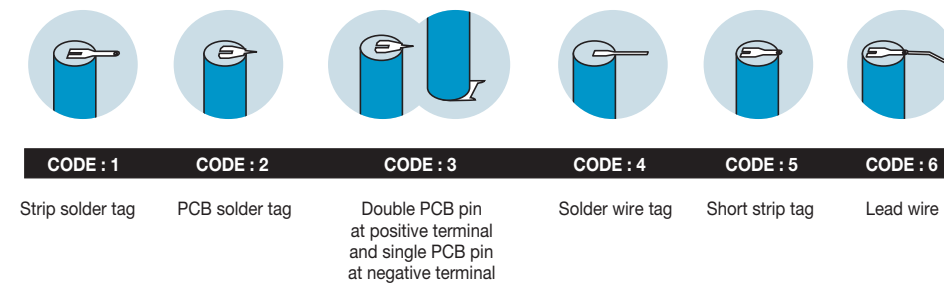


For battery packs with connectors, the **last two characters** will be used to specify connector type eg. GP60AAS4BMU.

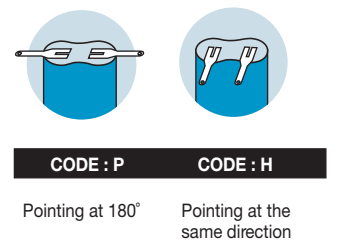
## Standard Configurations for Battery Packs



## Tag Type Specifications



## Tag Direction Codes

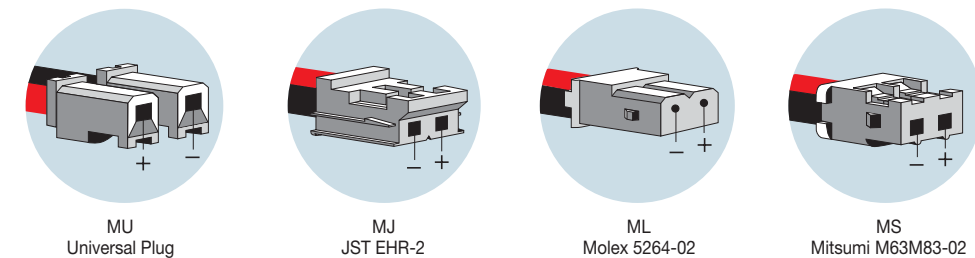


## Connector Type Specifications

**GP Universal Plug** - exclusively from GP, offers distinctive features unparalleled in the market. - U.S. patent no. 5,161,990.

### Major Benefits

- Compatible with most cordless phone models (interchangeable with Mitsumi, JST, Molex plugs etc.)
- Minimise inventory items
- User friendly



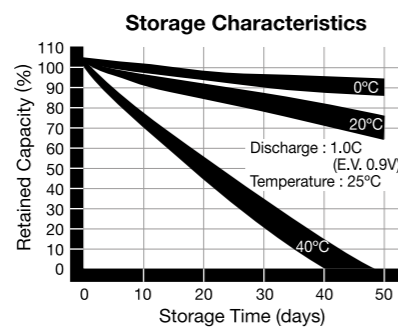
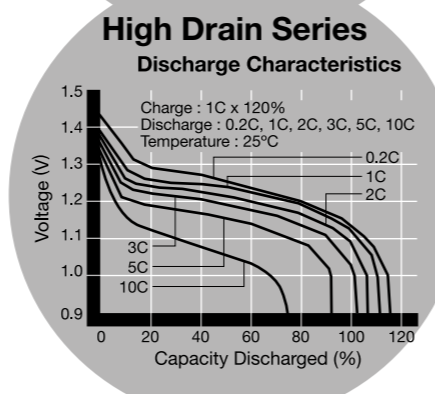
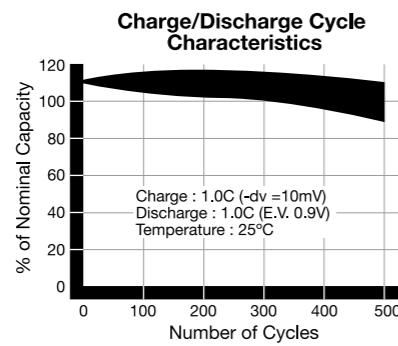
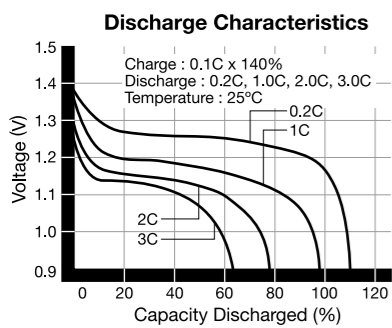
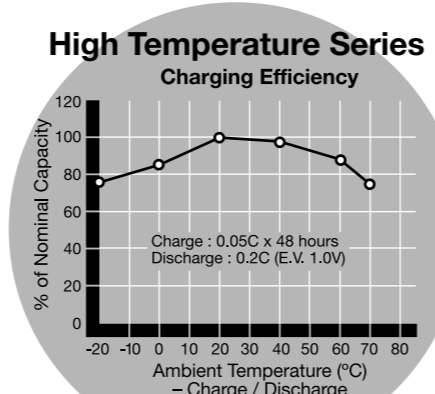
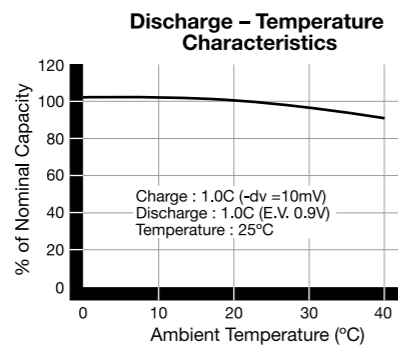
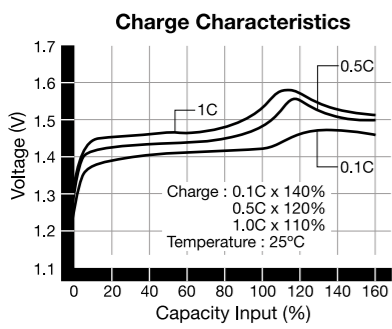
# NiCd

## Rechargeable Batteries

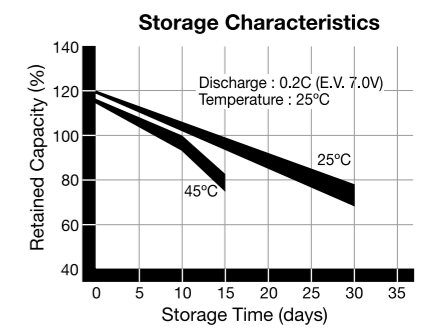
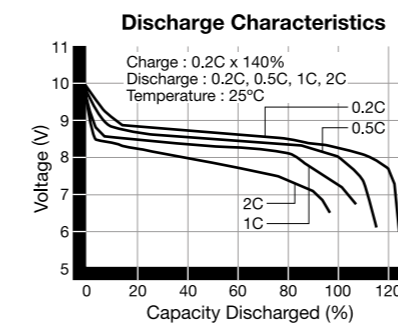
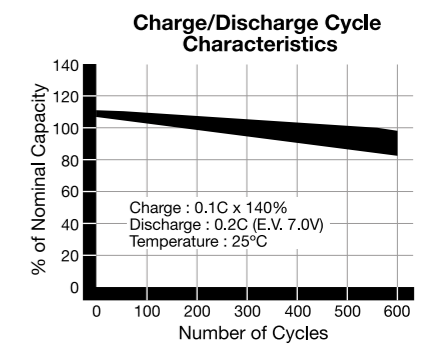
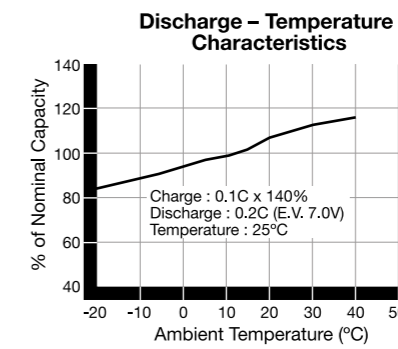
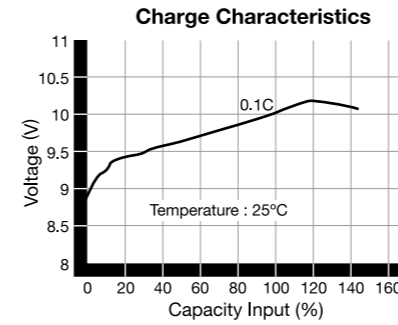


### Performance Characteristics

#### Cylindrical Cells



#### 9V Batteries





# Battery Handling and Precautions



## Soldering

- Do not solder directly onto batteries. Always solder onto solder tag for connection.

## Charging and Discharging

- Always charge batteries before first time application.
- Parallel charging or connection is not recommended. Parallel charging will produce irregular charging currents. Please consult GP Batteries for more details.
- Never short-circuit or reverse polarity in application.
- Do not use different types of batteries in the same battery assembly.
- If the battery has been deep-discharged, a prolonged charging time is required to bring the battery back to full capacity.

## Storage

- Always store batteries in a cool, dry place.
- After long storage, e.g. over a year, it is desirable to cycle (charge/discharge) the battery 3 times to restore full capacity.
- Do not mix batteries with metal objects during storage or transportation to avoid accidental short-circuit.
- Do not store large quantities of batteries in a densely packed condition when they are in a charged or partially charged state.

## Battery Handling

- Do not incinerate or dismantle batteries. Cell components are corrosive and may be harmful to skin and eyes.
- Do not pull on battery lead wires or connector. Excessive force on the leads or connectors can damage the welding joints or other connections.

## Easy Battery Removal

- Some countries have legislation requiring easy removal of batteries from the devices. When designing a product, consideration should be given to the use of a socket connector and an easy-to-open battery compartment.

# GP Batteries

**WORLDWIDE HEADQUARTERS**  
**Hong Kong**  
**GPI International Limited**

8/F., Gold Peak Building, 30 Kwai Wing Road, Kwai Chung, N.T., Hong Kong  
Tel : (852) 2484 3333 Fax : (852) 2480 5912  
E-mail address : gpii@goldpeak.com Website : www.gpbatteries.com.hk

## SALES AND MARKETING BRANCH OFFICES

### ASEAN

GP BATTERY MARKETING (SINGAPORE) PTE. LIMITED  
97 Pioneer Road, Singapore 639579  
Tel: (65) 6863 1534 Fax: (65) 6863 8669

### MALAYSIA

GP BATTERY MARKETING (MALAYSIA) SDN. BHD.  
Lot 26, Jalan Pengapit 15/19, Shah Alam Industrial Estate,  
40000 Shah Alam, Selangor Darul Ehsan, Malaysia  
Tel: (60) 3 5512 5675 Fax: (60) 3 5510 4543

### THAILAND

GP BATTERY MARKETING (THAILAND) CO., LIMITED  
3/F., VH Commercial Building, 23/1 Soi 9, Ngamwongwan Road,  
Nonthaburi 11000, Bangkok, Thailand.  
Tel: (66) 2 952 5323/5324 Fax: (66) 2 952 5322

### TAIWAN

GP BATTERY MARKETING (TAIWAN) LIMITED  
Room 1200, International Trade Building, No.205 Sec.1,  
Tun Hua South Road, Taipei 10647, Taiwan R.O.C.  
Tel: (886) 2 2741 4919 Fax: (886) 2 2731 4868

### CHINA

HUIZHOU CHAO BA BATTERY TECHNOLOGY CO., LTD  
2/F., South of Hongye Industrial Building,  
Tianluo Mountain, 14th Industrial District, Huizhou City,  
Guangdong, China (Postal Code: 516003)  
Tel: (86) 752 282 8428 Fax: (86) 752 280 2872

### HONG KONG

GP BATTERIES MARKETING (H.K.) LIMITED  
8/F., Gold Peak Building, 30 Kwai Wing Road,  
Kwai Chung, N.T., Hong Kong  
Tel: (852) 2420 0281 Fax: (852) 2494 9349

### KOREA

ASIA PACIFIC HITEC COMPANY LIMITED  
4/F., Kunsul Hoekwan Building, 71-2 Non Hyun-Dong,  
Kang Nam-Gu, Seoul, South Korea  
Tel: (82) 2 549 7188/9 Fax: (82) 2 514 0623

### U.S.A

GOLD PEAK INDUSTRIES (NORTH AMERICA) INC.  
11235 West Bernardo Court, San Diego,  
CA 92127-1638, U.S.A.  
Tel: (1) 858 674 6099 Fax: (1) 858 674 6496

### CANADA

GP BATTERY MARKETING INC.  
Unit 7, 7780 Woodbine Avenue, Markham,  
Ontario, Canada L3R 2N7  
Tel: (1) 905 474 9507 Fax: (1) 905 474 9452

### LATIN AMERICA

GP BATTERY MARKETING (LATIN AMERICA) INC.  
8370 NW, 66TH Street, Miami, Florida 33166, U.S.A.  
Tel: (1) 305 471 7717 Fax: (1) 305 471 7718

### EUROPE

GP BATTERY MARKETING (EUROPE) S.A.  
75 Zae Du Trou Grillon,  
91280 St Pierre Du Perray, Paris, France  
Tel: (33) 1 6989 6200 Fax: (33) 1 6989 6221

### GERMANY

GP BATTERY MARKETING (GERMANY) GMBH  
Niederflörricker Str. 62, D-40667 Meerbusch, Germany  
Tel: (49) 2132 971504/5/6 Fax: (49) 2132 80145

### POLAND

GP BATTERY (POLAND) SPÓŁKA Z O.O.  
uL. Słowicza 19, 02-170 Warszawa, Poland  
Tel: (48) 22 846 7525 Fax: (48) 22 846 7535

### U.K.

GP BATTERIES (U.K.) LIMITED  
Summerfield Avenue, Chelston Business Park,  
Wellington, Somerset, TA21 9JF, U.K.  
Tel: (44) 1 823 660 044 Fax: (44) 1 823 665 595

### ITALY

GP BATTERY MARKETING ITALY S.R.L.  
Via Enrico Fermi 8, 20090 Assago, Milano, Italy  
Tel: (39) 02 488 2512 Fax: (39) 02 488 0275/2865

### SCANDINAVIA

CEBON AB  
Grimboåsen 5, 417 49 Gothenburg, Sweden  
Tel: (46) 31 558 600 Fax: (46) 31 556 813

Distributed by: