



# Battery

## 1- Introduction of Product

Batteries that are used in UPS systems are Secondary Batteries. One well known type of these batteries is Sealed Lead-Acid (SLA) battery. This type of battery has advantages such as no need for maintenance and service, no electrolyte leakage from terminals and body and also long life.

Faratel guarantees the quality of its products with using batteries of well-known companies such as CSB. These batteries are specially designed for high efficient discharge application and using in UPS systems. They can be used for more than 260 cycles at 100% discharge in cycle service.

## 2- HR1234W (12V/8.5Ah/69Wh)

### 2-1- Technical Specification Table

Cells per unit	6
Voltage per unit	12
Capacity	34W @ 15min-rate to 1.67V per cell @ 25°C (77°F)
Maximum discharge current	100/130A (5sec)
Internal resistance	Approx. 19 mΩ
Operating temperature range	Discharge: -15°C ~ 50°C (5°F ~ 122°F) Charge: -15°C ~ 40°C (5°F ~ 104°F) Storage: -15°C ~ 40°C (5°F ~ 104°F)
Nominal operating temperature range	25°C ± 3°C (77°F ± 5°F)
Float charging voltage	13.5 to 13.8 VDC/unit Average at 25°C (77°F)
Recommended maximum charging current limit	3.4A
Equalization and cycle service	14.4 to 15.0 VDC/unit Average at 25°C (77°F)
Self discharge	CSB Batteries can be stored for more than 6 months at 25°C(77°F). Please charge batteries before using. For higher temperatures the time interval will be shorter.
Terminal	F1/F2-Faston Tab 187/250
Container material	ABS (UL 94-HB/File E50263) * Flammability resistance of (UL 94-V0/File E88637) can be available upon request.

### 2-2- Constant Current Discharge Characteristics (Unit:A/25°C)

F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	73.8	49.2	36.8	29.7	25.4	18.5	14.6	10.5	5.99	4.25
1.67V	65.8	44.8	34.4	28.2	24.2	17.8	14.1	10.3	5.86	4.15
1.70V	62.2	42.9	33.3	27.5	23.6	17.4	13.8	10.1	5.80	4.11
1.75V	56.3	39.8	31.6	26.2	22.7	16.8	13.5	9.90	5.69	4.05
1.80V	50.3	36.4	29.7	24.9	21.7	16.2	13.1	9.66	5.60	3.99
1.85V	43.3	32.9	27.6	23.5	20.7	15.6	12.7	9.39	5.50	3.92

### 2-3- Constant Power Discharge Characteristics (Unit:W/25°C)

F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	706	506	395	328	286	211	169	124	71.7	50.8
1.67V	645	470	376	315	276	205	165	121	70.5	50.1
1.70V	618	454	366	308	270	202	163	120	70.0	49.6
1.75V	571	426	350	296	260	196	160	118	69.0	49.0
1.80V	524	400	333	285	250	191	156	116	68.1	48.3
1.85V	478	376	316	273	241	186	152	114	67.0	47.7

### 3- GP12260 (12V/26Ah/232Wh)

#### 3-1- Technical Specification Table

Cells per unit	6
Voltage per unit	12
Capacity	26Ah @ 20hr-ratio 1.75V per cell @ 25°C (77°F)
Maximum discharge current	350A (5sec)
Internal resistance	Approx. 11 mΩ
Operating temperature range	Discharge: -15°C ~ 50°C (5°F ~ 122°F) Charge: -15°C ~ 40°C (5°F ~ 104°F) Storage: -15°C ~ 40°C (5°F ~ 104°F)
Nominal operating temperature range	25°C ± 3°C (77°F ± 5°F)
Float charging voltage	13.5 to 13.8 VDC/unit Average at 25°C (77°F)
Recommended maximum charging current limit	7.8A
Equalization and cycle service	14.4 to 15.0 VDC/unit Average at 25°C (77°F)
Self discharge	CSB Batteries can be stored for more than 6 months at 25°C(77°F). Please charge batteries before using. For higher temperatures the time interval will be shorter.
Terminal	B1/B3/B3B-L terminal or recessed type to accept M5 bolt
Container material	ABS (UL94-HB/File E50263) * Flammability resistance of (UL 94-V0/File E88637) can be available upon request

#### 3-2- Constant Current Discharge Characteristics (Unit:A/25°C)

F.V/ime	5MIN	10MIN	15MIN	30MIN	60MIN	90MIN	2HR	3HR	5HR	8HR	10HR	20HR
1.60V	106	69.0	52.8	32.7	19.6	14.3	11.5	8.14	5.24	3.46	2.82	1.47
1.67V	99.0	65.9	51.1	32.3	19.5	14.2	11.4	8.13	5.23	3.43	2.79	1.42
1.70V	95.7	64.6	50.4	32.2	19.4	14.1	11.3	8.12	5.22	3.42	2.78	1.41
1.75V	89.7	62.0	49.0	31.6	19.3	14.0	11.2	8.11	5.21	3.38	2.74	1.37
1.80V	83.3	59.4	47.5	31.1	19.2	13.9	11.1	8.10	5.19	3.35	2.70	1.33
1.85V	76.7	56.5	45.8	30.5	19.1	13.8	11.0	8.09	5.17	3.31	2.66	1.29

#### 3-3- Constant Power Discharge Characteristics (Unit:W/25°C)

F.V/Time	5MIN	10MIN	15MIN	30MIN	60MIN	90MIN	2HR	3HR	5HR	8HR	10HR	20HR
1.60V	1270	828	634	392	235	172	138	97.7	62.9	41.5	33.8	17.6
1.67V	1181	790	610	385	234	171	137	97.6	62.8	41.2	33.5	17.1
1.70V	1139	772	602	382	233	170	136	97.5	62.7	41.0	33.3	16.9
1.75V	1071	744	586	378	232	169	135	97.4	62.6	40.6	32.9	16.5
1.80V	999	713	570	373	231	168	134	97.3	62.3	40.2	32.4	16.0
1.85V	920	678	550	367	230	167	133	97.2	62.1	39.8	32.0	15.6

## 4- GP12400(12V/40Ah/360Wh)

### 4-1- Technical Specification Table

Cells per unit	6
Voltage per unit	12
Capacity	40Ah @ 20hr-ratio 1.75V per cell @ 25°C (77°F)
Maximum discharge current	400A (5sec)
Internal resistance	Approx. 8.1 mΩ
Operating temperature range	Discharge: -15°C ~ 50°C (5°F ~ 122°F) Charge: -15°C ~ 40°C (5°F ~ 104°F) Storage: -15°C ~ 40°C (5°F ~ 104°F)
Nominal operating temperature range	25°C ± 3°C (77°F ± 5°F)
Float charging voltage	13.5 to 13.8 VDC/unit Average at 25°C (77°F)
Recommended maximum charging current limit	12A
Equalization and cycle service	14.4 to 15.0 VDC/unit Average at 25°C (77°F)
Self discharge	CSB Batteries can be stored for more than 6 months at 25°C(77°F). Please charge batteries before using. For higher temperatures the time interval will be shorter.
Terminal	B2/L terminal or recessed type to accept M6 bolt
Container material	ABS (UL94-HB/File E50263) * Flammability resistance of (UL 94-V0/File E88637) can be available upon request

### 4-2- Constant Current Discharge Characteristics (Unit:A/25°C)

F.V/Time	5MIN	10MIN	15MIN	30MIN	60MIN	90MIN	2HR	3HR	5HR	8HR	10HR	20HR
1.60V	176	113	85.0	51.8	30.6	22.2	17.7	12.6	8.01	5.25	4.28	2.21
1.67V	157	105	81.0	50.8	30.3	22.1	17.6	12.5	7.98	5.19	4.19	2.11
1.70V	149	101	78.7	50.1	30.2	21.9	17.5	12.4	7.96	5.17	4.16	2.08
1.75V	135	95.0	75.5	49.0	30.0	21.8	17.4	12.3	7.93	5.10	4.09	2.00
1.80V	121	88.3	71.7	47.6	29.8	21.7	17.3	12.2	7.88	5.03	4.03	1.93
1.85V	107	81.7	67.8	46.2	29.4	21.5	17.2	12.1	7.85	4.96	3.96	1.85

### 4-3- Constant Power Discharge Characteristics (Unit:W/25°C)

F.V/Time	5MIN	10MIN	15MIN	30MIN	60MIN	90MIN	2HR	3HR	5HR	8HR	10HR	20HR
1.60V	2110	1350	1020	622	367	266	212	151	96.1	63.0	51.3	26.5
1.67V	1886	1259	972	606	364	264	211	150	95.7	62.3	50.4	25.4
1.70V	1790	1214	945	600	363	263	210	149	95.5	62.0	50.0	24.9
1.75V	1620	1140	902	585	360	262	209	148	95.2	61.2	49.2	24.1
1.80V	1450	1060	860	571	357	260	208	147	94.8	60.4	48.3	23.2
1.85V	1280	980	814	555	353	258	207	146	94.2	59.6	47.5	22.4

## 5- GP12650 (12V/65Ah/555Wh)

### 5-1- Technical Specification Table

Nominal voltage		12V	
Rate capacity (10 hour rate)		65Ah	
Capacity 25°C (77°F)		10 hour rate (6.5A) 5 hour rate (10.4A) 1 hour rate (39.0A)	65AH 52AH 39AH
Internal resistance		Full charged Battery at 25°C (77°F)	Approx 5.5 mΩ
Capacity affected by temperature (10 hour rate)		40°C (104°F) 25°C (77°F) 0°C (32°F) -15°C (5°F)	102% 100% 85% 65%
Self-discharge at 25°C (77°F)		Capacity after 3 month storage Capacity after 6 month storage Capacity after 12 month storage	91% 82% 64%
Terminal		T10L	
Charge (constant voltage)	Cycle	Initial charging current less than 26A Voltage 14.10-14.40V	
	Float	Voltage 13.50-13.80V	

### 5-2- Constant Current Discharge Characteristics (Unit:A/25°C)

Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
9.60V	208	137	111	74.1	39.0	22.8	16.7	13.0	10.7	7.61	6.83	3.69
10.20V	202	124	104	70.9	36.7	21.7	16.3	12.7	10.5	7.41	6.70	3.58
10.50V	195	111	91	66.3	35.5	21.2	15.9	12.5	10.4	7.35	6.57	3.58
10.80V	188	104	85	61.1	34.3	20.7	15.5	12.3	10.1	7.15	6.50	3.51
11.10V	182	98	78	54.6	33.2	20.0	15.0	12.0	9.9	6.96	6.18	3.32

### 5-3- Constant Power Discharge Characteristics (Unit:W/25°C)

Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
9.60V	2149	1465	1185	797	421	250	186	146	122	87	79	42.9
10.20V	2153	1382	1165	795	415	250	188	147	123	87	79	41.9
10.50V	2130	1259	1039	763	411	246	185	146	122	86	78	42.3
10.80V	2109	1203	975	708	399	242	182	145	120	85	77	41.8
11.10V	2060	1132	909	639	390	238	178	142	118	83	74.5	40.2



## 6- GPL121000 (12V/100Ah/830Wh)

### 6-1- Technical Specification Table

Nominal voltage		12V	
Rate capacity (10 hour rate)		100Ah	
Capacity 25°C (77°F)		10 hour rate (10A) 5 hour rate (16A) 1 hour rate (60A)	100AH 80AH 60AH
Internal resistance		Full charged Battery at 25°C (77°F)	Approx 4.2 mΩ
Capacity affected by temperature (10hour rate)		40°C (104°F) 25°C (77°F) 0°C (32°F) -15°C (5°F)	102% 100% 85% 65%
Self-discharge at 25°C (77°F)		Capacity after 3 month storage Capacity after 6 month storage Capacity after 12 month storage	91% 82% 64%
Terminal		T10	
Charge (constant voltage)	Cycle	Initial charging current less than 40A Voltage 14.10-14.40V	
	Float	Voltage 13.50-13.80V	

### 6-2- Constant Current Discharge Characteristics (Unit:A/25°C)

Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
<b>9.60V</b>	320.3	211.0	170.1	114.0	60.0	35.0	25.7	20.0	16.5	11.7	10.5	5.7
<b>10.20V</b>	310.2	190.4	160.2	109.0	56.4	33.4	25.0	19.5	16.2	11.4	10.3	5.5
<b>10.50V</b>	300.1	170.3	140.1	102.0	54.6	32.6	24.4	19.2	16.0	11.3	10.1	5.5
<b>10.80V</b>	289.2	160.5	130.2	94.0	52.8	31.8	23.8	18.9	15.6	11.0	10.0	5.4
<b>11.10V</b>	279.5	150.4	120.2	84.0	51.0	31.0	23.0	18.4	15.2	10.7	9.5	5.1

### 6-3- Constant Power Discharge Characteristics (Unit:W/25°C)

Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
<b>9.60V</b>	3305.5	2253.5	1823.8	1225.7	648.0	384.3	286.0	225.0	187.6	134.1	121.3	65.9
<b>10.20V</b>	3312.9	2126.0	1792.6	1223.6	637.9	385.0	289.5	226.7	188.9	133.4	121.0	64.5
<b>10.50V</b>	3277.1	1937.3	1598.8	1173.8	632.3	378.1	284.3	224.6	187.6	132.9	119.5	65.0
<b>10.80V</b>	3244.8	1850.9	1499.9	1089.1	614.6	372.4	280.6	223.2	184.4	130.4	118.9	64.3
<b>11.10V</b>	3169.5	1741.6	1399.1	982.8	599.8	366.4	273.2	219.1	181.4	128.1	114.7	61.8

## 7- Physical Specification Table

Model	Dimension [W*D*H] (mm)	Weight (Kg)
HR1234W	65*151*100.5	2.5
GP12260	175*166*125	8.45
GP12400	165*197*170	12.63
GP12650	167*350*179	21.5
GPL121000	172*329*237	32

## 8- How to Contact Faratel

### 8-1- Central Sales Department

Address: Faratel Bldg., No. 21, Kandovan Alley (Opposite of Nejatolahi St.), Enqelab St., Tehran, Iran

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### 8-2- Central Customer Service

Address: Faratel, Shahid Abdolrahimi St., 17 Shahrivar St., Sanay-e Felezi St., Fifth Kilometer of Old Karaj Rd., Tehran, Iran

Postal Code: 1378763511

Telephone: (+98 21) 6680 9495 up to 7

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URL: <http://www.faratel.com/support/>

In order to find the nearest authorized representatives of Customer Service in Iran please refer to the above URL.