



S230-12

(12V 230Ah)

Helios (Deep Cycle GEL, 12 Volts) series is pure GEL battery with 12 years floating design life, it is ideal for standby or frequent cyclic discharge applications under extreme environments. By using strong grids, high purity lead and patented Gel electrolyte, the Helios series offers excellent recovery after deep discharge under frequent cyclic discharge use, and can deliver 400 cycles at 100% DOD. Suitable for solar, CATV, marine, RV and deep discharge UPS, communication, and telecommunication, etc.

Specification

Cells Per Unit	6
Voltage Per Unit	12
Capacity	230Ah@20hr-rate to 1.75V per cell @25°C
Weight	Approx. 65.0 Kg (Tolerance ± 1.5%)
Max. Discharge Current	2300 A (5 sec)
Internal Resistance	Approx. 4.8 mΩ
Operating Temperature Range	Discharge: -40°C~60°C Charge: -20°C~50°C Storage: -40°C~60°C
Normal Operating Temperature Range	25°C ± 5°C
Float charging Voltage	13.6 to 13.8 VDC/unit Average at 25°C
Recommended Maximum Charging Current	45A
Equalization and Cycle Service	14.2 to 14.4 VDC/unit Average at 25°C
Self Discharge	SIGA Valve Regulated Lead Acid (VRLA) batteries can be stored for more than 6 months at 25°C. Self-discharge ratio less than 3% per month at 25°C. Please charge batteries before using.
Terminal	Terminal F10
Container Material	A.B.S. UL94-HB, UL94-V0 Optional.



THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

is in conformity with
ISO 14001:2004 Standard



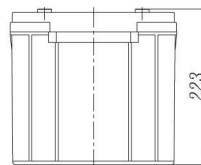
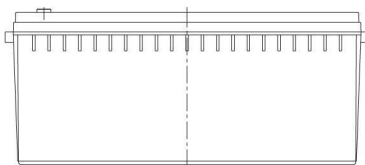
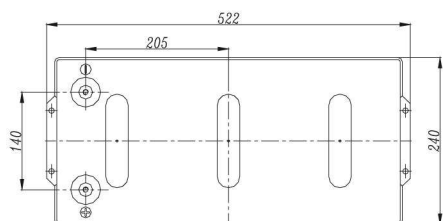
THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

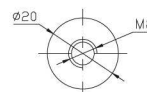
is in conformity with
OHSAS 18001:1999 Standard

Dimensions

Unit: mm Dimension: 522(L)×240(W)×223(H)



Terminal F10



Constant Current Discharge Characteristics: A (25°C)(The capacity reaches the peak value after 5-20 cycles.)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
9.60V	535.9	383.5	307.9	206.3	131.2	78.98	57.13	45.61	38.72	26.23	21.78	11.94
10.0V	520.4	364.9	301.5	204.5	130.6	78.38	56.92	45.40	38.50	26.02	21.57	11.72
10.2V	505.0	352.0	296.8	203.2	129.4	77.79	56.48	45.18	38.27	25.80	21.36	11.50
10.5V	458.8	328.7	285.9	200.1	128.2	77.20	56.26	44.76	37.81	25.59	21.15	11.25
10.8V	418.9	303.3	266.6	193.2	123.8	75.81	54.73	43.71	36.89	24.57	20.48	10.68
11.1V	361.8	274.2	241.9	182.7	117.6	72.44	52.32	41.60	35.30	23.53	19.87	10.05

Constant Power Discharge Characteristics: W (25°C)(The capacity reaches the peak value after 5-20 cycles.)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
9.60V	5543	4084	3386	2352	1516	930.9	681.6	543.6	462.0	313.2	260.2	143.1
10.0V	5434	3959	3332	2325	1512	925.9	680.1	542.9	460.8	311.7	258.6	140.6
10.2V	5372	3855	3295	2331	1501	920.4	677.2	541.8	459.2	309.6	256.3	138.0
10.5V	4948	3632	3179	2299	1487	913.7	674.5	536.7	453.7	307.1	253.8	135.0
10.8V	4559	3387	2973	2225	1444	902.0	656.2	524.5	442.6	294.8	245.7	128.2
11.1V	4050	3098	2707	2110	1382	868.5	627.8	499.1	423.6	282.3	238.4	120.6

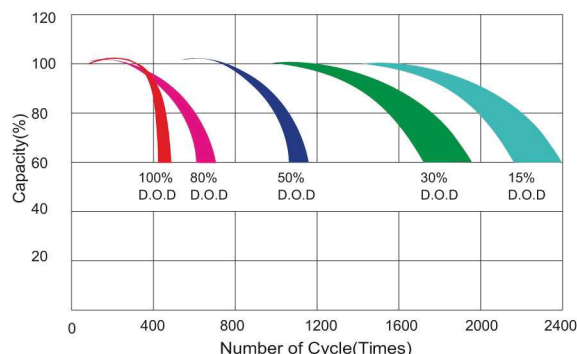
All mentioned values are average values (Tolerance ±2%).

S230-12

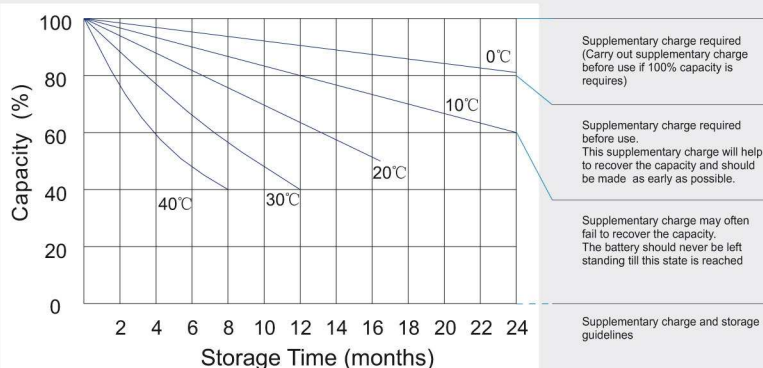
12V 230Ah



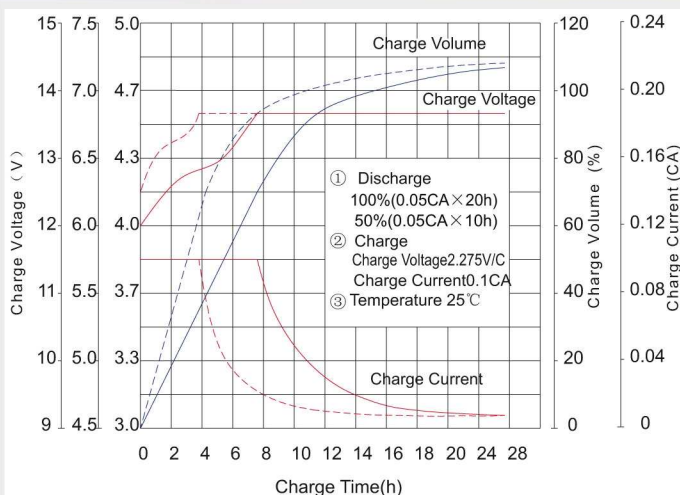
Life characteristics of cyclic use



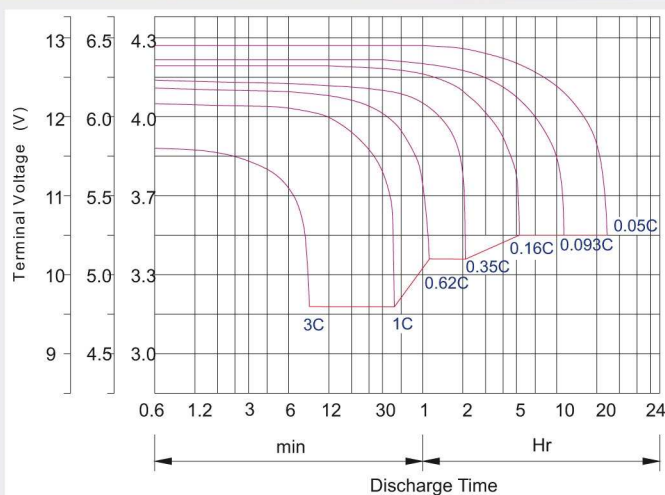
Storage characteristic



Charge characteristic curve for cyclic use



Discharge characteristic curve



Capacity Factors With Different Temperature

Battery Type		-20°C	-10°C	0°C	5°C	10°C	20°C	25°C	30°C	40°C	45°C
GEL Battery	6V&12V	50%	70%	83%	85%	90%	98%	100%	102%	104%	105%
	2V	60%	75%	85%	88%	92%	99%	100%	103%	105%	106%
AGM Battery	6V&12V	46%	66%	76%	83%	90%	98%	100%	103%	107%	109%
	2V	55%	70%	80%	85%	92%	99%	100%	104%	108%	110%

Discharge Current VS. Discharge Voltage

Final Discharge Voltage V /cell	1.75V	1.70V	1.60V
Discharge Current (A)	(A) ≤ 0.2C	0.2C < (A) < 1.0C	(A) ≥ 1.0C

Charge the batteries at least once every six months, if they are stored at 25°C.

Charging Method:

Constant Voltage	-0.2Cx2h+2.4-2.45V/cellx24h, Max. Current 0.2C
Constant Current	-0.2Cx2h+0.1Cx12h
Fast	-0.2Cx2h+0.2Cx6h

Bolt	M5	M6	M8
Terminal	F3 F4 F13 F18 T25 T26	F8 F11 F12-1 F15	F5 F9 F10 F12 F14 F16
Torque	6~7N·m	8~10N·m	10~12N·m

Maintenance & Cautions

Cycle service

- ※ Avoid battery over discharge, especially battery series connection use.
- ※ Charged with recommend voltage, ensure battery can be full recharged.
- In general, recharge capacity should be 1.1-1.15 times discharge capacity.
- ※ Effect of temperature on cycle charge voltage: -4mV/°C/Cell.
- ※ There are a number of factors that will affect the length of cyclic service.
- The most significant are depth of discharge, ambient temperature, discharge rate, and the manner in which the battery is recharged.
- Generally speaking, the most important factors is depth of discharge.

Test Report - CERTIFICATE

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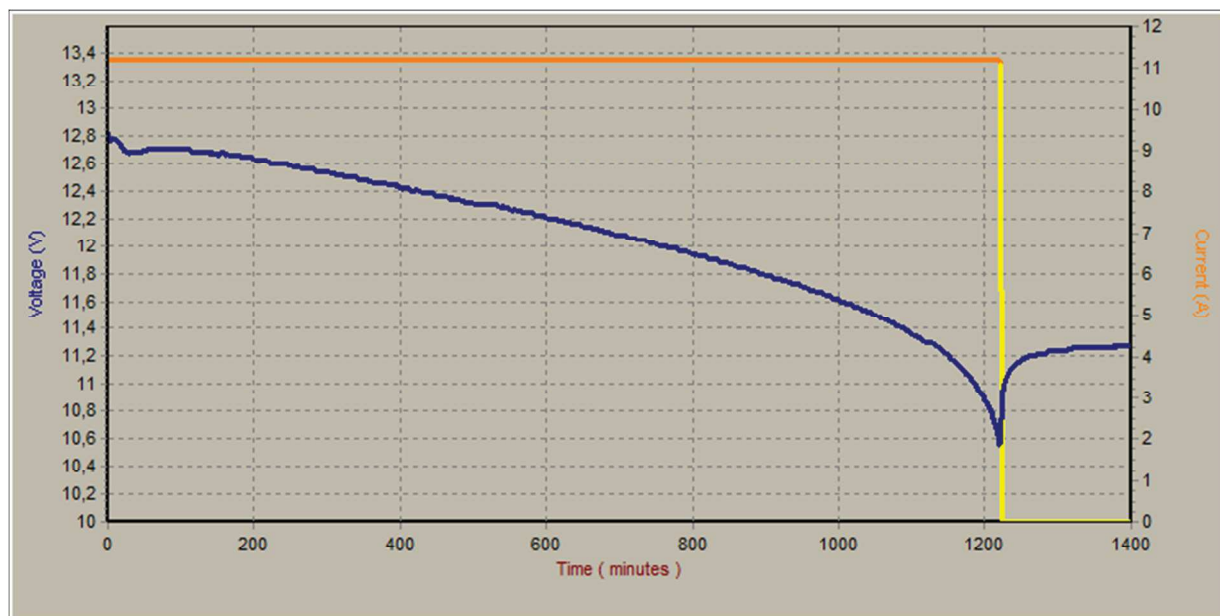


Name: SIGA Helios Gel 230AH on 20HR with 11,25A as datasheet

Place of measurement: 21°Celsius

Instruments: Fortex Capacity Tester Professional

Date: 30.12.2014



Measurement parameters

Discharge voltage: 10,50 V

Discharge current 11,25 A

- - -

Voltage correction: 1

Voltage offset: 0

Current correction: 1

Current offset: 0

Results

Discharge 1232 minutes @ 11,25A = 230,9 Ah

Quality control

PASSED