CERTIFICATIONS

NBS SOLAR

NBS SOLAR

PURE SINEWAVE UPS
SERIES

BEST QUALITY 100% ORIGINAL PRODUCT

MADE IN INDIA

1500/12V I 2300/24V I 3500/24V I 3500/48V I 5000/48V

TECHNICAL SPECIFICATIONS

MODEL	1500	2300	3500	3500	5000
Volt	12V	24V		48V	

VOLTAGE LIMITS NARROW WINDOW (UPS MODE)

Mains A.C. Low Cut	185 ± 10V	190 ± 10V
Mains A.C. Low Cut Recovery	190 ± 10V	200 ± 10V
Mains A.C. High Cut	265 ± 10V	265 ± 10V
Mains A.C. High Cut Recovery	260 ± 10V	255 ± 10V

VOLTAGE LIMITS WIDE WINDOW (W-UPS MODE)

Mains A.C. Low Cut	85 ± 10V	140 ± 10V
Mains A.C. Low Cut Recovery	90 ± 10V	150 ± 10V
Mains A.C. High Cut	290 ± 10V	290 ± 10V
Mains A.C. High Cut Recovery	275 ± 10V	275 ± 10V

OUTPUT PARAMETER

Mains Output	Same as Input (45Hz-55Hz)
Output Frequency	50.0 Hz. ± 0.1 Hz
Output Voltage with Full Load	200V/220V ± 15V
Waveform	Sine Wave
Overload	Above 100%
Short Circuit Protection	>200% Load (Few msec)

BATTERY CHARGING

SMPS charging with soft start over full range of mains	85V to 290V±10V				140V to 290V ± 10V
Battery type	SMF/LA/TUBULAR/LA/LI				
MaxCharging Current	15A-20A±2A				
Recommended Battery Capacity	100AH-225AH				
Number of Batteries	1	2		4	

TECHNOLOGY

Micro-Processor Based Bidirectional Technology.

PROTECTION

Bi- Directional Technology	Extra Protection MCB (Miniature Circuit Breaker)

ENVIRONMENT

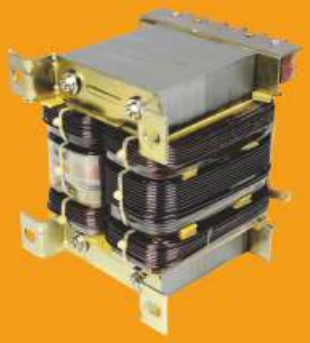
Storage Temp.	0-55°C				
Operating Temp.	0-50°C				
Humidity	90% Non-condensing				
Dimension (W X D X H) ±5mm	300x300x285		300 x 520 x 465		
Weight Net ±0.5Kg	15.2Kg	18.0Kg	33.2Kg	33.5Kg	46Kg

Note : Specifications are subject to change without any prior notice.

MADE IN INDIA

NBS SOLAR

Single Phase Heavy Duty Inverter
IGBT Based Bi- Directional Technology



BUILT-IN TRUE GALVANIC ISOLATION

Features:

Snap Switch | Automatic Bypass | Extra Protection MCB | Rotary Switch

TECHNICAL SPECIFICATIONS

Type	1 phase input - 1 phase output			
Series	Pure Sine Wave Inverter			
Technology	DSP based PWM technology using IGBT			
Ratings	6.5kVA	10kVA	10kVA	15kVA
Model No.	6.5kVA/48V	10kVA/96V	10kVA/120V	15kVA/180V
INPUT PARAMETERS				
Input Supply	1 Phase, 3 Wire			
Voltage Range	140-280V AC			
Frequency Range	47-53 Hz			
Power Factor (charging)	0.85 to 0.95			
OUTPUT PARAMETERS				
Power	5200	8000		12000
Power Factor	0.8 Lagging			
Voltage Regulation	220V ± 5%			
Frequency Regulation	50Hz ± 0.05Hz			
Peak Efficiency	>88%			
Output Waveform	Pure Sine Wave			
Total Harmonic Distortion	< 3%			
Crest Factor	> 3:1			
Overload Handling Capacity	105% for 6 mins, 160% for 5 secs			
BY-PASS				
Maintenance By-Pass	Available			
BATTERY PARAMETERS				
Battery Type	65-200Ah/12V			
Battery Voltage(Nominal)	48V	96V	120V	180V
Battery Charging Current	7A / 10A / 15A / 20A			
ENVIRONMENTAL PARAMETERS				
Operating Temperature	0-45°C			
Acoustic Noise (at 1mts)	< 50dB			
Relative Humidity	Max 95% non-condensing			
OTHERS				
Indications & Alarms	Backlit 16 x 2 Lines LCD Screen with Indications & Alarms			
Protection Class	Ip20			
Dimensions-WxDxH (in mm)	350x550x625			
Weight (in kgs)	67	56	87	99

Specifications are subject to change without prior notice.

NBS SOLAR

SOLAR
HYBRID PCU
MPPT BASED

- Great Power Saving Up To 30%
- Battery Charge At Very Low Voltage Till 90v
- User friendly Interface
- Backup Time More Than 12%

IN-BUILT BATTERY CHARGER TO PREVENT DEEP DISCHARGE

TECHNICAL SPECIFICATIONS

PARAMETERS	700VA-1100VA(12V) 1700VA-2000VA (24V) / 2.5KVA (24V) / 3.5KVA-4000KVA(48V) / 5KVA-5.5KVA (48V) / 6KVA(72V) / 7.5KVA(96V) / 10KVA(120V)							
UPS MODE								
Low Cut	175 ± 10V							
Low Cut Recovery	185 ± 10V							
High Cut	265 ± 10V							
High Cut Recovery	255 ± 10V							
Change Over Time	< 10 ms							
WUPS MODE								
Low Cut	90 ± 10V							
Low Cut Recovery	110 ± 10V							
High Cut	295 ± 10V							
High Cut Recovery	285 ± 10V							
Change Over Time	< 30 ms							
Output Voltage Range	230 V Nominal							
Output Waveform	Pure Sine Wave							
Output Frequency	50 Hz ±1%							
Overload	> 110%							
Charging Current (100AH-200AH)	15A ±1 AMP (Factory Setting)							
Charging Boost Voltage (LA/Floded)	14.0 V ± 0.2 V each battery							
Charging Boost Voltage (Tubular)	14.5 V ± 0.2 V each battery							
Low Battery Warning	10.7 V ± 0.2 V each battery							
Low Battery Cut	10.5 V ± 0.2 V each battery							
DC Load Low battery cut	10.3 V ± 0.2 V each battery							
Operating Temperature	0 to 50 °C							
Storage Temperature	0 to 50 °C							
Humidity	0 to 95% RH non-conditioning							
Solar Charger								
Solar Charger	MPPT							
Max. Solar Input Voltage (Voc)	25V each battery							
Nominal Voltage	12V	24V	36V	48V	48V	72V	96V	120V
Solar Input Max VMP/Min VMP	21V	36V	63V	72V	72V	108V	144V	180V
Max PV Input Power	450W	2000W	2500W	3000W	3500W	4500W	7000W	8750W
Charging Current (Max)	30A	50A			60A			
PRIORITY								
Charging Priority	Battery is always charged through Solar Priority							
Battery Priority	Firstly use solar power & check battery charged status after that use battery 20% if solar power is available							
Grid Priority	Charged Battery always from Solar as well as Grid if solar is not sufficient.							
LCD Display	Solar Power/ Mains Status / Battery Charging / Backup Mode Status / Protections etc.							
Dimensions (LxWxH) mm	270x190x125	340x230x260	350x230x310		425x300x500		482x320x615	
Net Weight (Kg)	8.5 Kg/ 8.75 Kg/ 9.35 Kg/ 9.5 Kg	15.9 18.5	20.5 23.5	21.5 24.5	43.0	47.0	55.0	65.0
Gross Weight (Kg)	9.3 Kg/ 10.1 Kg/ 10.25 Kg	16.9 19.3	21.0 24.0	22.0 25.0	43.5	47.5	55.5	65.5

MADE IN INDIA

NBS SOLAR

SOLAR HYBRID PCU
10kVA/96V MPPT

Model:-10KVA_96VDC SOLAR PCU WITH MPPT

Ratings	10KVA
Model No.	PCU10KVA/96
Type	Single Phase Solar Power Conditioning Unit
Technology	DSP Based MPPT Technology
Power device	IGBT'S Based
INVERTER	
INPUT PARAMETERS	
Nominal I/P DC Voltage	96V
Low battery Pre-warning	90V±2%
Low Battery cut off	88V±2%
Inverter restart time after low battery when mains is not available	Battery voltage should be≥103V±2%
OUTPUT PARAMETERS	
Waveform & Regulation throughout battery voltage range at no load	Pure Sine Wave, 220V±5%
Frequency Regulation	50Hz ± 0.5Hz
Efficiency (typical)	≥85%
Total Load	10KVA@0.8PF Load
Overload	Up-to 200% for approx. 8seconds
THD V (Linear Load)	≤3%
Crest Factor	≥3:1
Power usage Priority	From PV Panel Array
Grid power usage	Automatic, if batteries voltage ≤ 96 V, get fully charged. After attaining float charge stage mains power usage will discontinue.
Transfer Time	PC should not Reboot (Typical 15msec.)
GRID CHARGER	
Grid I/P Voltage Range	NW = 185V to 265V±10V / WW = 100VAC-280VAC±10V; Recovery V = 10V
Charging Current	7A/10A/15A/20A(Selectable) By default-7A
MPPT	
Nominal battery voltage	96V
Maximum Battery charging current	55A
Battery voltage range	64V-116.8V
Max. PV panel rating	5KW
Input PV Voltage Range ,Voc	220V
Maximum Input PV Current	45A
Power Conversion Efficiency	**>=94%**

Model:- 10KVA_96VDC SOLAR PCU WITH MPPT	
Battery	
Charging regulation	Four stage charging algorithm: Bulk, Absorption, Float and Equalization
Bulk Charge	Adjustable(117.2V)
Absorption period	Held battery voltage at bulk setting for a cumulative period of 2 hour
Float voltage	109.6V
Supported Battery types	Flooded,GEL,AGM ,Custom
Equalization Voltage	Equalization is with three mode option-Auto, Manual and OFF mode. In Auto Mode equalization takes place once in every 30 Days. In manual Mode equalization would take place when enabled by user, in off mode equalization is disabled Equalization Voltage will be :Bulk Voltage +8V
Automatic Temperature compensation	Yes-18mV/ºC/Battery (25ºC Ref) for Battery bulk/boost, Equalisation & absorption. - 9mV/ºC/Battery (25ºC Ref) for Battery Float. Maximum limit for temp. Compensation is (0 to +50) ºC
PV Array Connect/Reconnect Points	PV Connects when PV V>Battery V and Disconnects when PV V< Battery V
Protection	
PV High Voltage Charging Disconnect and Its Recovery	Protection at PV Voltage 220V and Its Recovery at 200V
PV High Current Protection and Its Recovery	Charger Will be OFF when PV Current>=45A and it will restart after 3.5 minutes if the fault is Cleared
PV High Current Regulation	If Battery Current >=55A,it should regulate at 55A
Battery High Voltage Charging Disconnect and its Recovery	Charger Will be OFF at Battery Voltage 128V and It Will Reconnect at Battery Voltage 115.2V
Reverse Polarity PV Voltage Protection	Yes,LCD will Display Reverse Voltage Protection
Reverse Current flow protection from Battery to PV	Yes
Battery Open Protection	Yes; System is not ON if battery is not connected
Reverse Polarity Battery Protection	Yes: Through Fuse
Thermal Protection	If Heat sink temperature is equal to 90 ^{o}C±5 ^{o}C charging PWM OFF; when Heat Sink temperature is equal to 70±5 ^{o}C ^{charging} current flows.
Standby Power Consumption	28 mA @ 96V
Dielectric strength	2KV input/output with ground and 1.5KV between input & output.
Operating Temp.	0°C to + 45°C
Storage Temp.	0°C to + 55°C
Product Weight in Kg.	130kg ± 100g
Dimensions in mm (WxDxH)	595(L)X350(W)X326(H)
Acoustic Noise	< 60dB
Relative Humidity	0-95% Non-Condensing

NBS SOLAR

5-15KVA/48V | 10-15KVA/120V | 15-100KVA/240V | 30-200KVA/360V | 125-250KVA/480V | 250KVA/576V

THREE PHASE HYBRID MPPT PCU (5-250kVA)*

Genuine "Hybrid" - Not Just "OFF-GRID"

Our HBD series offers hybrid solar inverters of 1-250KVA to residential/commercial/industrial customers. This series is built to resolve the two challenges posed by unreliable grids and power cuts – intermittent electricity and high electricity costs. NBS's HBD series inverters are essentially grid-tie inverters with storage. They also work as standalone systems in case of no grid. They not only store electricity in the attached batteries but also export unconsumed solar power to the grid, or store and mix with the grid as programmed in its 'behind-the-meter' use.

*Other customised ratings available on request

NBS SOLAR

HBD SERIES

KEY FEATURES

Bi-directional	Seamless switching to and from grid (both import and export) and battery supply, high-efficiency MPPT technology
Grid-interactive	Blends solar and grid-power for optimisation
Energiaa's Benchmark Solar Te	We use the latest DSP-based 'Active Front End' technology with IoT to achieve 'flexible' or 'smart' energy
IEC certified	IEC certifications available
Behind-the-Meter	Latest global tech enabled where in the absence of Net-Meter policy, we can store solar energy into battery and then blend it with Grid during high-tariff times or with DG-set for DG-set optimisation
Easy-to-monitor	Optional GPRS-based remote monitoring and controlling
3-Priority working modes	HBD with export/ HBD without export/ Off-Grid
Pure sine wave technology	Recommended for longer life of Industrial/ Commercial equipment
Intelligent battery charging	3-Stage charging (Float, Bulk & Absorption) for more battery life (for Lead Acid batteries). Communication-based charging for Lithium chemistries available
Compatible charger	Supports wide range of batteries – Flooded Lead Acid Tubular/GEL/VRLA. On request product for Li+ chemistries available

KEY BENEFITS

Customisable Energy Shift	Store power and use later
Runs AC at home	Can sustain jerk loads like Air Conditioner
Protection	Protects against grid fluctuations, overload, short circuit, array reverse, battery reverse and thermal fluctuations
Galvanic Isolation	Uses galvanic isolation at output – Ideal for Rural/Microgrid applications
Long life	Lifespan of 15+ years
Almost zero-servicing	Our robust HBD series inverters are IoT-based and require zero to negligible servicing and maintenance
Largest-in-class display	Beautiful display units showing all inverter+solar+battery data

3-P LOW VOLTAGE (48V) 5-15KVA HYBRID MPPT PCU

Bungalow

Hospitals

Office Buildings

Poultry Farm

Micro Grids

Gyms

RATINGS	5KVA/48V	8KVA/48V	10KVA/48V	15KVA/48V
Model No.	HBD-048-05K-3P	HBD-048-008K-3P	HBD-048-010K-3P	HBD-048-015K-3P
A. SOLAR CHARGE CONTROLLER (SCC)				
PV Nominal Capacity (Total KWp)	5	8	10	15
Max No. of Strings	5	8	10	15
Charge Controller Type (Buck)	MPPT			
No of MPPT Channels	3		1	
Max. Open Circuit PV Volts (Voc)	190			
MPPT Voltage Range(Vmp)	75-160			
Max SCC O/P Amps	100	160	200	300
Peak Charging Efficiency	94%			
B. SOLAR INVERTER				
Nominal Capacity (Total)	5KVA	8KVA	10KVA	15KVA
Output Amps per Phase	6	9	12	17
Nominal Battery Voltage	48			
Output Voltage/ Frequency/Phase	400V(±2%) / 50Hz/ 3P+N			
Load Power Factor	0.8- unity			
Peak Efficiency	>86 %		>88 %	
Over Loads: 60 sec/ 30 sec/ 5 sec	101-110%/111- 125%/126-150%			
Auto Bypass Feature	Provided			
	Provided (As per IEC 62116 & IEC 61727)			
C. GRID CHARGER				
Grid Voltage Operating Range	400V (+10% & -20%)			
Grid freq Operating Range	50Hz (+5% & -5%)			
Max Import Power	7.5KVA	12KVA	15KVA	22.5KVA

D. PROTECTIONS & DISPLAY PARAMETERS	PROTECTIONS	DISPLAY PARAMETERS
PV Side Battery Side Grid Side Load Side System Protection	• Reverse Polarity, PV Power Limit, Surge Protection (MOV) • Reverse Polarity, O/U Voltage, Current Limit • O/U Voltage, O/U Frequency, Surge Protection (MOV) • Overloads, Short circuit, Surge Protection (MOV) • Over Temperature	• Voltage, Charger O/P Amps, Power, Cumulative Energy • Voltage, Current, Battery State • Phase Voltage, Frequency, Power, Power Factor • Voltage & Current, Frequency, Power, Export kWh. • Mode of Operation, Active Faults, Status Mimic

E. MISCELLANEOUS	
Switchgear Protection	MCB/MCCB provided on PV, Battery, Load & Grid path.
LED Indications	Mains On, Alarm, Buzzer Mute.
Data Port (RS485/ RS 232)	Optional (Available on Request)
Remote monitoring	Optional through GPRS based Modem
Ingress Protection	IP-21 (Indoor Type)
Cooling Method	Force Cooling(Temp Controlled)
Operating Temperature	0-50 degrees (without Derating)
Humidity	Max. 95% Non-Condensing
Altitude	1000m above sea level
Color Shade	RAL7035/ DA GREY HE1S005
Dimensions(H X W X D)	750X530X897.45MM

3-P HIGH VOLTAGE (120/240/360V) 10-50KVA HYBRID MPPT PCU

Petrol Pumps

Commercial

Bank ATM

Schools

Mills

Government Buildings

RATINGS	10KW/120V	15KW/120V	15KW/240V	20KW/240V	25KW/240V	30KW/240V/360V	40KW/240V/360V	50KW/240V/360V
Model No.	HBD-120-010K-3P	HBD-120-015K-3P	HBD-240-15K-3P	HBD-240-20K-3P	HBD-240-25K-3P	HBD-240-30K-3P HBD-360-30K-3P	HBD-240-40K-3P HBD-360-40K-3P	HBD-240-50K-3P HBD-360-50K-3P
A. SOLAR CHARGE CONTROLLER (SCC)								
PV Nominal Capacity (Total KWp)	10	15	15	20	25	30	40	50
Max No. of Strings	6	9	5	6	8	9/6	12/8	15/10
Charge Controller Type (Buck)	MPPT							
No of MPPT Channels	1							
Max. Open Circuit PV Volts (Voc)	360		720			720 /820		
MPPT Voltage Range(Vmp)	165-299		330-598			330-598 / 495-681		
Max SCC O/P Amps	80	120	60	80	100	120/80	160/108	200/135
Peak Charging Efficiency	94%							
B. SOLAR INVERTER								
Nominal Capacity (Total)	10KW	15KW	15KW	20KW	25KW	30KW	40KW	50KW
Output Amps per Phase	14	22	22	29	36	43	58	72
Nominal Battery Voltage	120		240			240/ 360		
Output Voltage/ Frequency/Phase	400V (±2%) / 50Hz/ 3P+N							
Load Power Factor	0.8-Unity							
Peak Efficiency	>89 %		>90 %			>92 %		
Over Loads: 60 sec/ 30 sec/ 5 sec	101-110%/111-125%/126- 150%							
Auto Bypass Feature	Provided							
	Provided (As per IEC 62116 & 61727)							
C. GRID CHARGER								
Grid Voltage Operating Range	400V (+10% & -20%)							
Grid freq Operating Range	50Hz (+5% & -5%)							
Max Import Power	15KW	22.5KW	22.5KW	30KW	37.5KW	45KW	60KW	75KW
D. PROTECTIONS & DISPLAY PARAMETERS								

	PROTECTIONS	DISPLAY PARAMETERS
PV Side	• Reverse Polarity, PV Power Limit, Surge Protection (MOV)	• Voltage, Charger O/P Amps, Power, Cumulative Energy
Battery Side	• Reverse Polarity, O/U Voltage, Current Limit	• Voltage, Current, Battery State
Grid Side	• O/U Voltage, O/U Frequency, Surge Protection (MOV)	• Phase Voltage, Frequency, Power, Power Factor
Load Side	• Overloads, Short circuit, Surge Protection (MOV)	• Voltage & Current, Frequency, Power, Export kWh.
System Protection	• Over Temperature	• Mode of Operation, Active Faults, Status Mimic

F. MISCELLANEOUS								
Switchgear Protection	MCB/MCCB provided on PV, Battery, Load & Grid path.							
LED Indications	Mains On, Alarm, Buzzer Mute.							
Data Port (RS485/ RS 232)	Optional (Available on Request)							
Remote monitoring	Optional through GPRS based Modem							
Ingress Protection	IP-21 (Indoor Type)							
Cooling Method	Force Cooling (Temp Controlled)							
Operating Temperature	0-50 degrees (without Derating)							
Humidity	Max. 95% Non-Condensing							
Altitude	1000m above sea level							
Color Shade	RAL7035/ DA GREY HE1S005							
Dimensions (H X W X D)	825X845X550				925X845X550	1040X650X965		1040X650X965

3-P HIGH VOLTAGE (240/360/480/576V) 60-250KVA

Cold Storage

Process Industries

Malls

RATINGS	60KW/240V/360V	80 KW/240V/360V	100KW/240V/360V	125KW/360V/480V	150KW/360V/480V	200KW/360V/480V	250KW/480V/576V
Model No.	HBD-240-60K-3P	HBD-240-80K-3P	HBD-240-100K-3P	HBD-360-125K-3P	HBD-360-150K-3P	HBD-360-200K-3P	HBD-480-250K-3P
	HBD-360-60K-3P	HBD-360-80K-3P	HBD-360-100K-3P	HBD-480-125K-3P	HBD-480-150K-3P	HBD-480-200K-3P	HBD-576-250K-3P
A. SOLAR CHARGE CONTROLLER (SCC)							
PV Nominal Capacity (Total KWp)	60	80	100	125	150	200	250
Max No. of Strings (per channel)	6/4	8/5	10/6	8/7	10/10	14/13	12/9
Charge Controller Type (Buck)	MPPT						
No of MPPT Channels	3						4
Max. Open Circuit PV Volts (Voc)	720/820			820/ 950			950/1050
MPPT Voltage Range(Vmp)	(330-598)/ (495-681)			(495-681)/ (560-850)			(560-850)/(750-900)
Max SCC O/P Amps	240/160	320/216	400/270	338/253	400/300	400/300	375/330
Peak Charging Efficiency	94%						
B. SOLAR INVERTER							
Nominal Capacity (Total)	60 KW	80 KW	100 KW	125KW	150KW	200KW	250KW
Output Amps per Phase	87	115	144	180	217	289	361
Nominal Battery Voltage	240/360			360/480			480/576
Output Voltage/ Frequency/Phase	400V (±2%) / 50Hz/ 3P+N						
Load Power Factor	0.8-Unity						
Peak Efficiency	>92 %			>94 %			
Over Loads: 60 sec/ 30 sec/ 5 sec	101-110%/111- 125%/126- 150%					101-110%/111- 120%/121-130%	
Auto Bypass Feature	Provided						
	Provided (As per IEC 62116 & 61727)						
C. GRID CHARGER							
Grid Voltage Operating Range	400V (+10% & -20%)						
Grid freq Operating Range	50Hz (+5% & -5%)						
Max Import Power	90KW	120KW	150KW	188KW	225KW	250KW	300KW
D. PROTECTIONS & DISPLAY PARAMETERS							
	PROTECTIONS				**DISPLAY PARAMETERS**		
PV Side	• Reverse Polarity, PV Power Limit, Surge Protection (MOV)				• Voltage, Charger O/P Amps, Power, Cumulative Energy		
Battery Side	• Reverse Polarity, O/U Voltage, Current Limit				• Voltage, Current, Battery State		
Grid Side	• O/U Voltage, O/U Frequency, Surge Protection (MOV)				• Phase Voltage, Frequency, Power, Power Factor		
Load Side	• Overloads, Short circuit, Surge Protection (MOV)				• Voltage & Current, Frequency, Power, Export kWh.		
System Protection	• Over Temperature				• Mode of Operation, Active Faults, Status Mimic		
E. MISCELLANEOUS							
Switchgear Protection	MCB/MCCB provided on PV, Battery, Load & Grid path.						
LED Indications	Mains On, Alarm, Buzzer Mute.						
Data Port (RS485/ RS 232)	Optional (Available on Request)						
Remote monitoring	Optional through GPRS based Modem						
Ingress Protection	IP-21 (Indoor Type)						
Cooling Method	Force Cooling (Temp Controlled)						
Operating Temperature	0-50 degrees (without Derating)						
Humidity	Max. 95% Non-Condensing						
Altitude	1000m above sea level						
Color Shade	RAL7035/ DA GREY HE15005						
Dimensions (H X W X D)	1040X650X965	1900X1050X800			2125 X 1200 X 1200		

Pure Sine wave High Frequency solar Inverter(450V)

PV1800 PRO Series (3KW-5.2KW)

Features

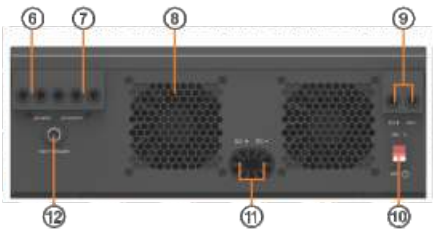
- Pure sine wave output
- Smart LCD setting (Working modes, Charge Current, Charge Voltage, etc).
- Built-in MPPT solar charge controller
- MAX PV Array Open Circuit Voltage: 450V
- Can provide the power to the load without battery
- Combining solar system, AC utility, and battery power source to supply continuous power
- Overload, short circuit and Deep discharge protection
- Cold start function
- Support USB, RS485 monitoring function
- WIFI remote monitoring (optional)

Introduction

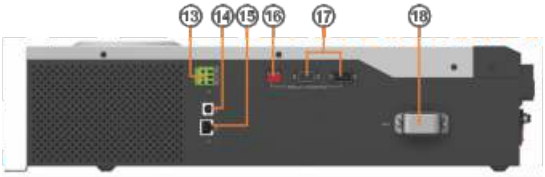
PV1800PRO is a multi-function inverter/charger, combining functions of inverter, MPPT solar charger and battery charger to offer uninterruptible power support in portable size. PV1800 PRO Series can run without battery. The Maximum PV array open circuit voltage can reach 450V and MPPT voltage is 150~430Vdc, which Can help customers make full use of solar energy.

Back panel printing description

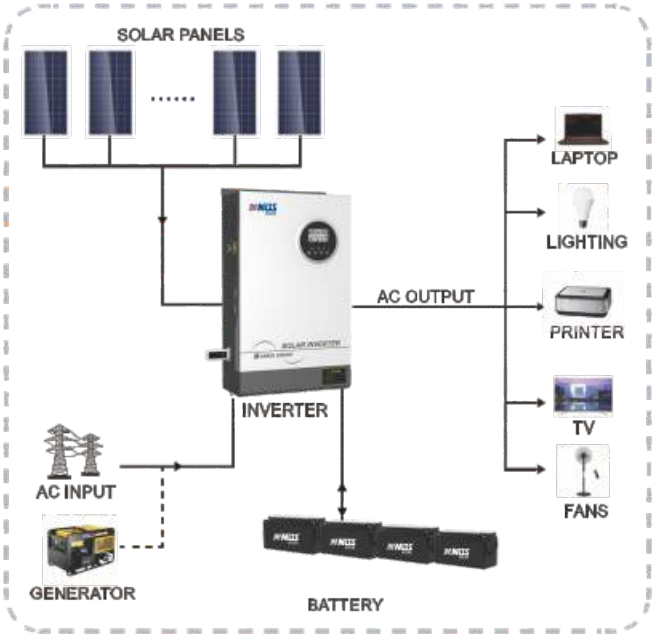
1. LCD Display
2. Status Indicator
3. Charging Indicator
4. Fault Indicator
5. Function Buttons



6. AC Input
7. AC Output
8. FAN
9. PV Input
10. Power On/Off Switch
11. Battery Input
12. Circuit breaker
13. Dry Contact
14. USB
15. RS-485 Communication port
16. Parallel switch
17. Parallel communication port
18. USB WiFi



Solar system connection



Specification

MODEL		PV18-3024 PRO	PV18-5248 PRO
Nominal Battery System Voltage		24VDC	48VDC
INVERTER OUTPUT	Rated Power	3000VA \ 3000W	5200VA \ 5200W
	Surge Power	6000W	10400W
	Waveform	Pure sine wave	
	AC Voltage Regulation (Batt.Mode)	230VAC±5%(Setting)	
	Inverter Efficiency (Peak)	93%	
	Transfer Time	10ms (UPS \ VDE4105) \ 20ms (APL)	
AC INPUT	Voltage	230VAC±5%	
	Selectable Voltage Range	170~280VAC(UPS) \ 90~280VAC(APL) \ 184~253VAC(VED4105)	
	Frequency Range	50Hz \ 60Hz(Auto sensing)	
BATTERY	Normal voltage	24VDC	48VDC
	Floating Charge Voltage	27.4VDC	54.8VDC
	Overcharge Protection	30VDC	60VDC
SOLAR CHARGER & AC CHARGER	Maximum PV Array Open Circuit Voltage	450VDC	
	Maximum PV current	18A	
	PV Array MPPT Voltage Range	150~430 VDC	
	Maximum Solar Charge Current	80Amp	
	Maximum AC Charge Current	60Amp	
	Maximum Charge Current	80Amp	
MECHANICAL SPECIFICATIONS	Machine Dimensions (W*H*D)(mm)	272*355*100	295*528*121
	Package Dimensions (W*H*D)(mm)	540*395*241	628*425*251
	Net Weight(kg)	11	14
	Gross Weight(kg)	12	15
OTHER	Humidity	5% to 95% Relative humidity (Non-condensing)	
	Operating Temperature	0°C~50°C	
	Storage Temperature	-15°C ~60°C	

Low Frequency Pure Sine Wave Inverter

EP3000 PRO Series (8KW/10KW/12KW)

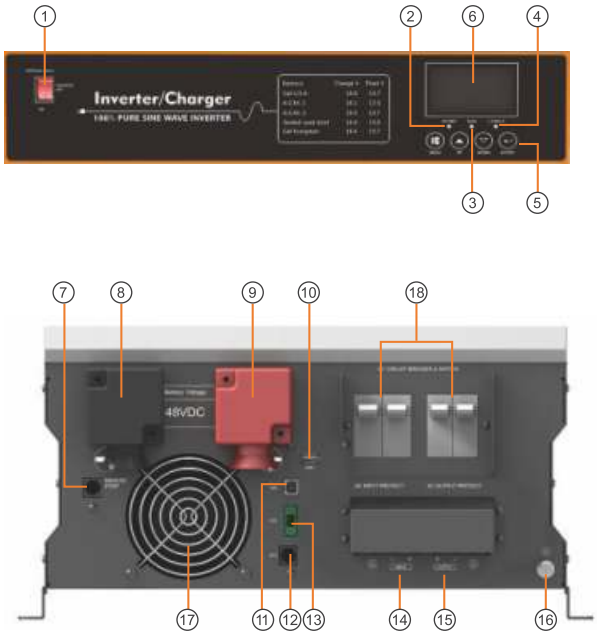
Features

- Rated power 8KW to 12KW
- Pure sine wave output
- Max 140A automatic 3-stage battery charger
- Charger current is Adjustable (0-100%)
- Automatically send signal to start generator
- Supporting USB communication and BTS & AGS port
- Battery/AC priority

Introduction

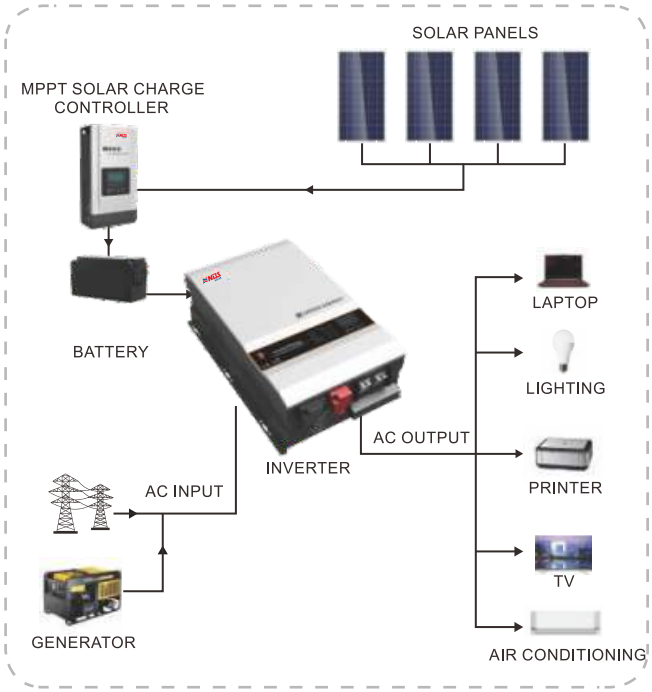
Low frequency pure sine wave combined inverter&A/C charger EP3000 PRO Series 8 -12kw; Quiet,high Efficiency operation front panel LED+LCD indicators and adjustable switch selectors selectable settings for flooded lead acid,Gel,or absorbed glass mat(AGM) batteries. Mainly for home and office appliances such as TV, refrigerator, fans lights and computers etc.

Back panel printing description



1. Power saver on/off switch
2. Inverter indicator
3. Grid indicator
4. Fault indicator
5. Function
6. LCD display
7. Remote panel
8. BAT-
9. BAT+
10. WIFI Communication port
11. USB Communication port
12. BTS Communication port
13. AGS Communication port
14. AC input
15. AC output
16. Ground
17. FAN
18. AC input\output breaker

Solar system connection



Specification

MODEL		EP30-8KW PRO	EP30-10KW PRO	EP30-12KW PRO
Nominal Battery System Voltage		48VDC	48VDC	48VDC
INVERTER OUTPUT	Continuous output power	8.0KW	10.0KW	12.0KW
	Surge rating	24000VA	30000VA	36000VA
	Capable Of Starting Electric Motor	4HP	5HP	6HP
	Output waveform	Pure sine wave \ same as input (bypass mode)		
	Inverter Efficiency(Peak)	>88%		
	Line mode Efficiency	>95%		
	Power factor	1.0		
	Nominal output voltage RMS	220V \ 230V \ 240VAC(±10% RMS)		
	Output frequency	50Hz		
	Short circuit protection	Yes (1sec after fault)		
	Typical transfer time	10ms(max)		
AC INPUT	Voltage	90-280VAC		
	Selectable Voltage Range	170-280VAC(For Personal Computers)		
	Frequency Range	50Hz/60Hz		
BATTERY	Minimum start voltage	40.0V±0.6 \ 42.0V±0.6		
	Low battery alarm	42-50VDC		
	Low battery Cutoff	40.0V±0.6 \ 42.0V±0.6		
	High voltage alarm	60VDC		
	High battery voltage recover	57VDC		
	Idle consumption-search mode	<60W when power saver on		
CHARGER	Output voltage	Depends on battery type		
	Charger AC input breaker rating	80A		
	Max charge power rate	1/3 Rating power		
	Overcharge protection S.D.	62.8VDC		
	Maximum Charge Current	100A	120A	140A
BTS	Temperature rate @25°C	4mv charging voltage descent, per 1°C rise		
BYPASS & PROTECTION	Input voltage waveform	Sine wave (grid or generator)		
	Nominal voltage	220V \ 230V \ 240VAC		
	Max input AC voltage	300VAC for 230VAC HV mode		
	Nominal input frequency	50Hz or 60Hz		
	Overload protection (SMPS load)	Circuit breaker		
	Output short circuit protection	Circuit breaker		
	Bypass breaker rating	63A		
	Max bypass current	63Amp		
MECHANICAL SPECIFICATIONS	Mounting	Wall mount		
	Inverter dimensions (W*H*D)	670*410*215mm		
	Inverter weight (solar chg) KG	67.5	74	74
	Shipping dimensions(W*H*D)	802*533*429.5mm		
	Shipping weight (solar chg) KG	87	93.5	93.5
OTHER	Operation Temperature Range	0°C to 40°C		
	Storage Temperature	-15°C to 60°C		
	Audible Noise	60bB MAX		
	Display	LED+LCD		
	Loading(20GP/40GP/40HQ)	200pcs \ 400pcs \ 500pcs		

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TECHNOLOGY IMPORTED FROM GERMANY

NBS® SOLAR

GEL BATTERY

SEALED MAINTENANCE FREE BATTERY

100Ah - 250Ah

BENEFITS

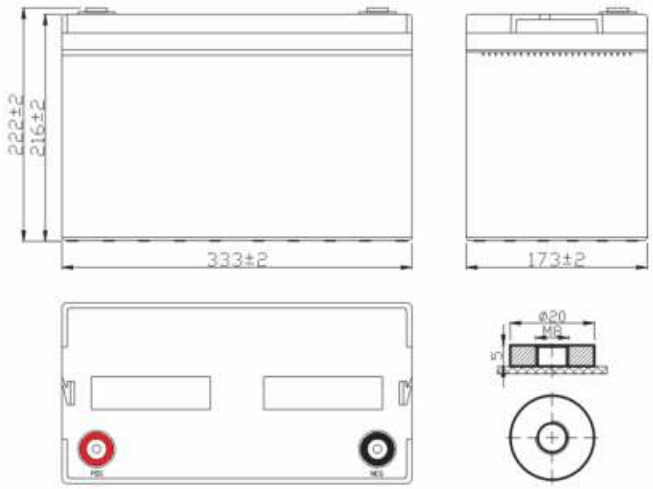
- Pollution-free
- Safe handling
- Fast recharge
- No water topping

DEEP DISCHARGE TECHNOLOGY

100AH

Plane Chart:

Unit:(mm) Terminal type:(T3)

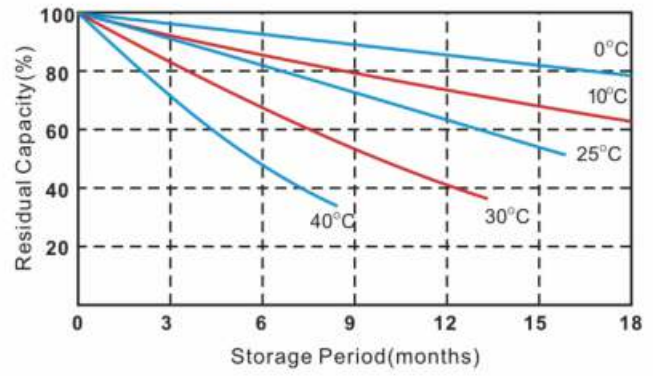


Parameter Chart:

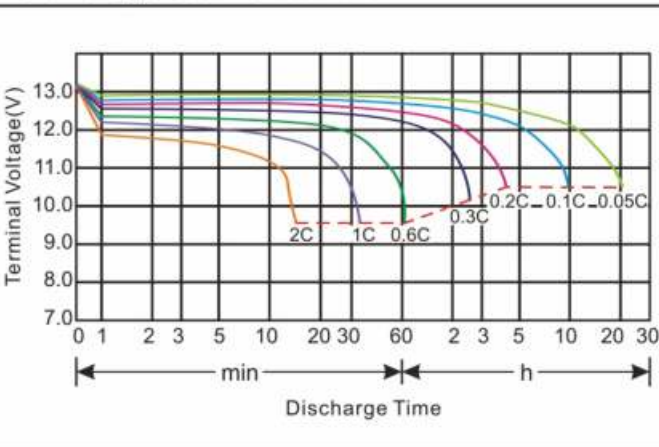
Volts	12V	
Capacity(25°C)	10 hours rate (10A)	100Ah
Discharge Current Testing (25°C)	1 hours rate (55A)	57Ah
	3 hours rate (25A)	77Ah
Internal Resistance	Full Charged Battery 25°C	4.2mΩ
Capacity Affected By Temperature	40°C	104%
	25°C	100%
	0°C	83%
	-15°C	65%
Residual Capacity (25°C)	Capacity After 3 Months Storage	91%
	Capacity After 6 Months Storage	82%
	Capacity After 12 Months Storage	65%
Charge (Constant Voltage)	Cycle (25°C)	Initial Charging Current Less Than 30A Voltage 14.5~14.9V
	Float (25°C)	Charge Voltage 13.6~13.8V
Weight (Approx)		30.5Kg

★The above are average and data obtained from the firsr 3 charge/discharge cycles. These are not minimum values.

Residual Capacity

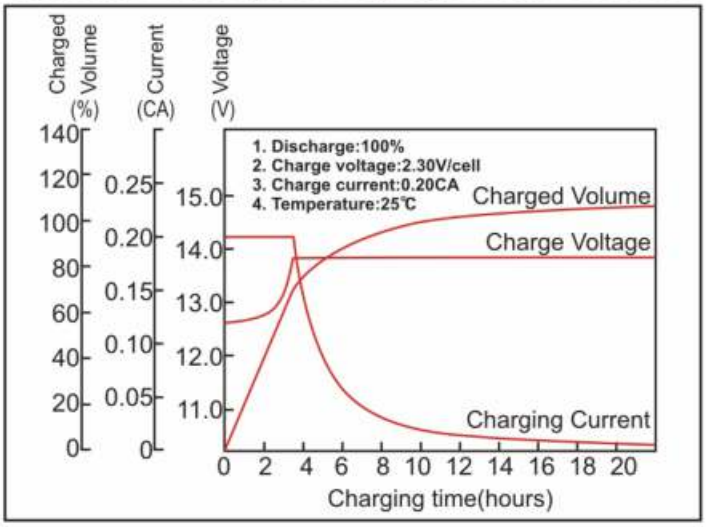


Discharge Current 25℃

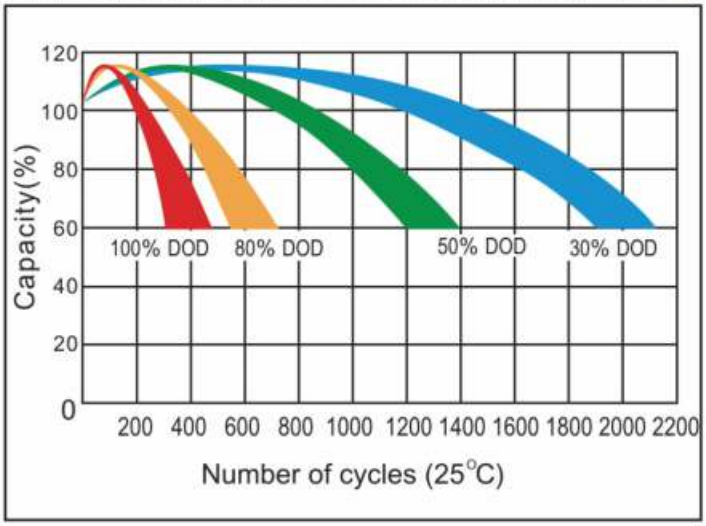


100AH

Constant voltage charging characteristics



Cycle service life in relation to the depth of discharge



Constant Current Discharge Characteristics (A, 25°C)

F.V/Time	10min	15min	30min	60min	2h	3h	5h	8h	10h	20h
9.60V	217.8	173.3	106.9	64.4	36.1	26.1	18.3	12.1	10.1	5.4
10.2V	206.9	166.3	103.0	61.8	35.6	25.7	18.0	12.0	10.0	5.3
10.5V	201.0	162.4	100.0	60.5	35.3	25.5	17.8	12.0	10.0	5.3
10.8V	194.0	158.4	97.8	58.7	34.9	25.2	17.6	11.9	10.0	5.2

Constant Power Discharge Characteristics (Watt, 25°C)

F.V/Time	10min	15min	30min	60min	2h	3h	5h	8h	10h	20h
9.60V	2352.2	1902.8	1199.9	733.6	418.8	306.9	216.8	144.5	121.8	64.3
10.2V	2234.4	1826.6	1155.3	703.9	412.8	302.9	212.9	143.9	120.8	63.6
10.5V	2170.1	1782.0	1145.4	699.9	408.9	300.0	209.9	143.6	119.8	63.4
10.8V	2095.8	1739.4	1097.9	669.2	404.9	297.0	207.9	142.6	118.2	63.0

Capacity Factors With Different Temperature

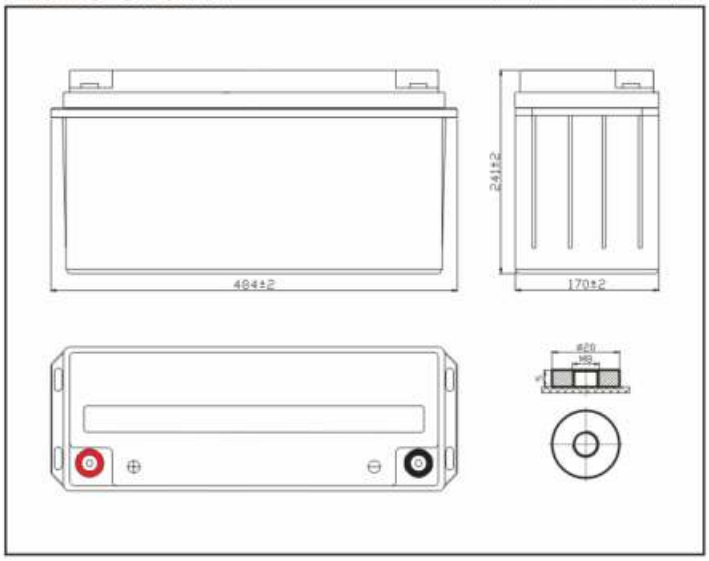
Battery Type		−20°C	−10°C	0°C	5°C	10°C	20°C	25°C	30°C	40°C	45°C
GEL Battery	12V	50%	70%	83%	85%	90%	98%	100%	102%	104%	105%

★The above are average and data obtained from the firsr 3 charge/discharge cycles. These are not minimum values.

150AH

Plane Chart:

Unit:(mm) Terminal type:(T3)

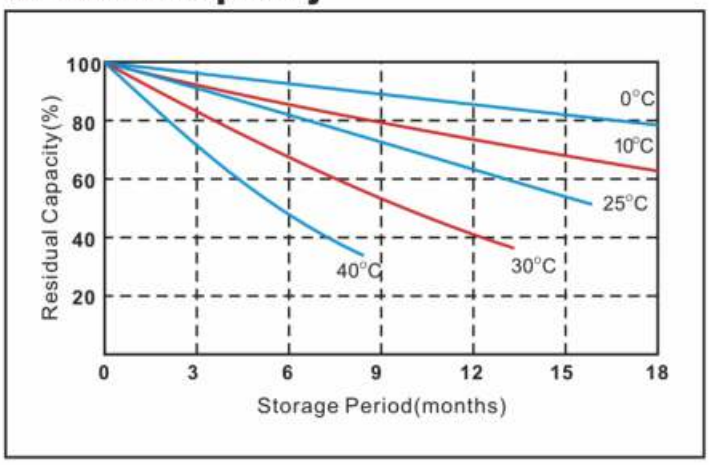


Parameter Chart:

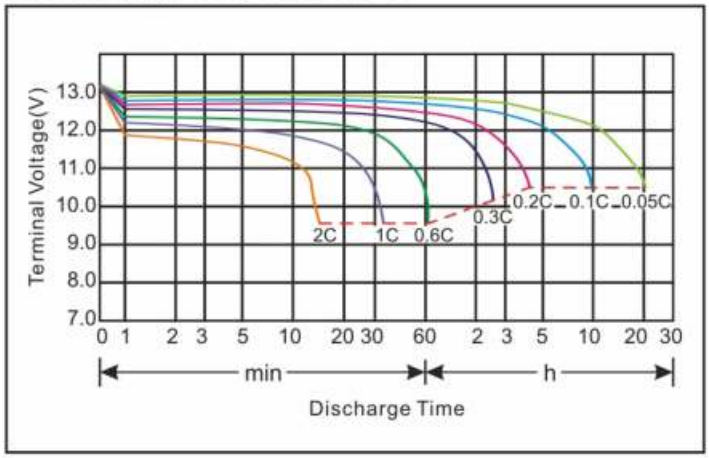
Volts	12V	
Capacity(25°C)	10 hours rate (15A)	150Ah
Discharge Current Testing (25°C)	1 hours rate (82.5A)	83Ah
	3 hours rate (37.5A)	113Ah
Internal Resistance	Full Charged Battery 25°C	3.4mΩ
Capacity Affected By Temperature	40°C	104%
	25°C	100%
	0°C	83%
	-15°C	65%
Residual Capacity (25°C)	Capacity After 3 Months Storage	91%
	Capacity After 6 Months Storage	82%
	Capacity After 12 Months Storage	65%
Charge (Constant Voltage)	Cycle (25°C)	Initial Charging Current Less Than 45A Voltage 14.5~14.9V
	Float (25°C)	Charge Voltage 13.6~13.8V
Weight (Approx)		42.5Kg

★The above are average and data obtained from the firsr 3 charge/discharge cycles. These are not minimum values.

Residual Capacity

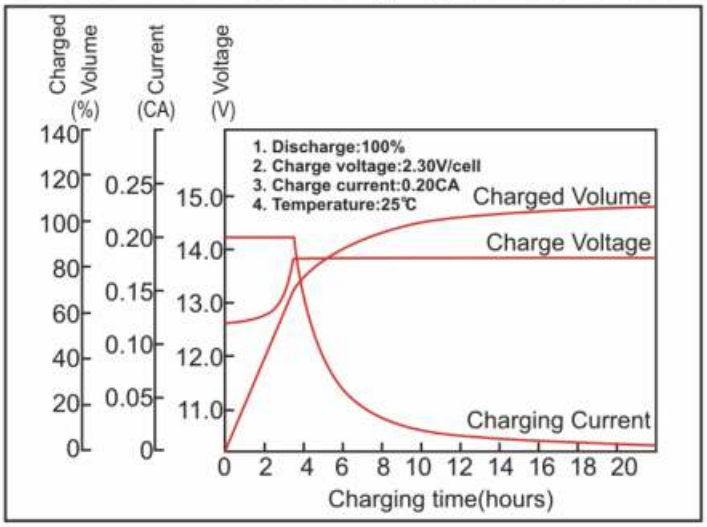


Discharge Current 25℃

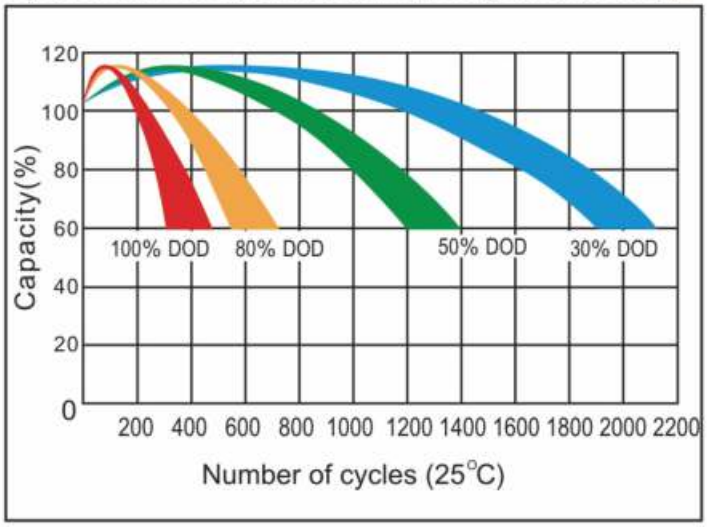


150AH

Constant voltage charging characteristics



Cycle service life in relation to the depth of discharge



Constant Current Discharge Characteristics (A, 25°C)

F.V/Time	15min	30min	60min	2h	3h	4h	5h	8h	10h	20h
9.60V	267.3	158.4	96.5	54.3	39.2	31.1	27.3	18.1	15.1	7.9
10.2V	256.4	152.5	92.7	53.5	38.6	30.7	26.9	17.9	15.1	7.8
10.5V	251.5	148.5	90.8	53.0	38.2	30.5	26.6	17.8	15.0	7.7
10.8V	243.5	144.5	88.0	52.4	37.8	29.5	26.4	17.8	15.0	7.7

Constant Power Discharge Characteristics (Watt, 25°C)

F.V/Time	15min	30min	60min	2h	3h	4h	5h	8h	10h	20h
9.60V	2935.4	1777.1	1100.9	628.7	461.3	365.3	322.7	214.8	181.2	94.5
10.2V	2815.6	1710.7	1056.3	618.8	454.4	360.4	318.8	212.9	179.2	93.9
10.5V	2760.1	1666.2	1034.6	612.8	449.5	358.4	314.8	211.9	178.2	93.2
10.8V	2674.0	1621.6	1002.9	606.9	445.5	347.5	312.8	210.9	177.2	92.7

Capacity Factors With Different Temperature

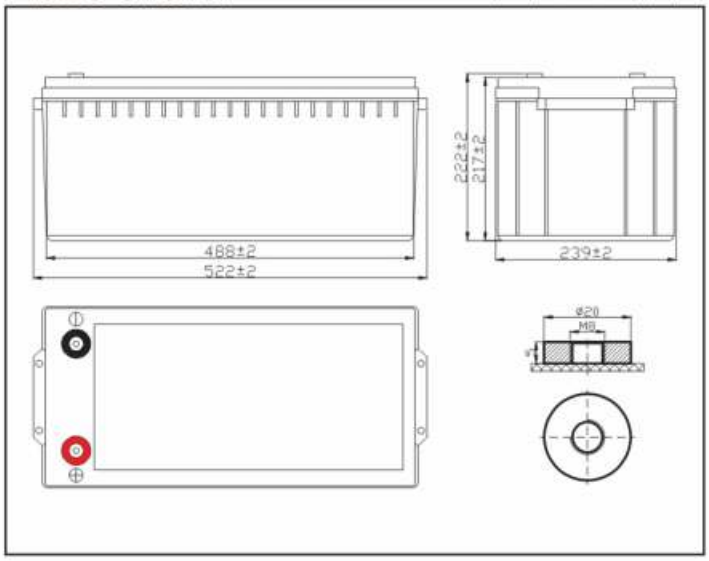
Battery Type		−20°C	−10°C	0°C	5°C	10°C	20°C	25°C	30°C	40°C	45°C
GEL Battery	12V	50%	70%	83%	85%	90%	98%	100%	102%	104%	105%

★The above are average and data obtained from the firsr 3 charge/discharge cycles. These are not minimum values.

200AH

Plane Chart:

Unit:(mm) Terminal type:(T3)

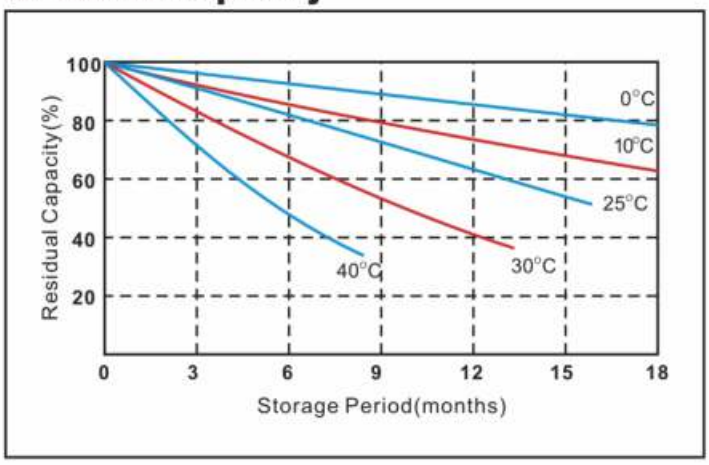


Parameter Chart:

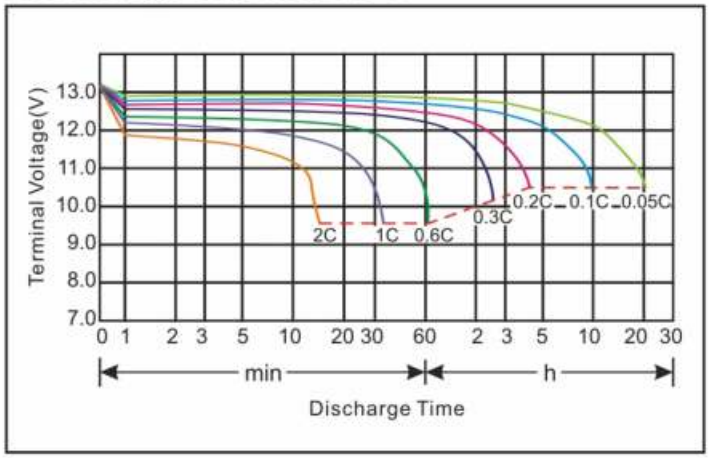
Volts	12V	
Capacity(25°C)	10 hours rate (20A)	200Ah
Discharge Current Testing (25°C)	1 hours rate (110A)	110Ah
	3 hours rate (50A)	150Ah
Internal Resistance	Full Charged Battery 25°C	3.2mΩ
Capacity Affected By Temperature	40°C	104%
	25°C	100%
	0°C	83%
	-15°C	65%
Residual Capacity (25°C)	Capacity After 3 Months Storage	91%
	Capacity After 6 Months Storage	82%
	Capacity After 12 Months Storage	65%
Charge (Constant Voltage)	Cycle (25°C)	Initial Charging Current Less Than 60A Voltage 14.5~14.9V
	Float (25°C)	Charge Voltage 13.6~13.8V
Weight (Approx)		60.2Kg

★The above are average and data obtained from the firsr 3 charge/discharge cycles. These are not minimum values.

Residual Capacity

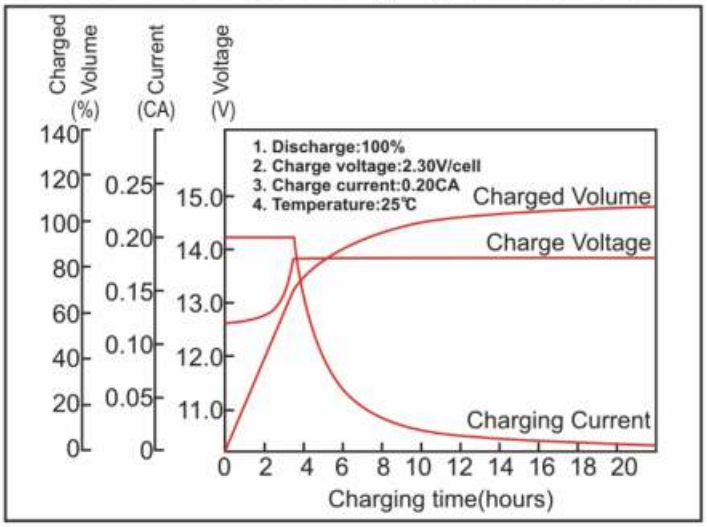


Discharge Current 25℃

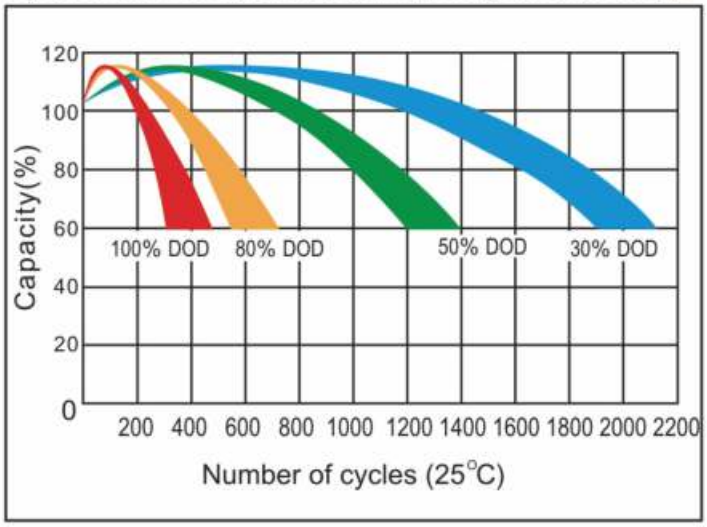


200AH

Constant voltage charging characteristics



Cycle service life in relation to the depth of discharge



Constant Current Discharge Characteristics (A, 25°C)

F.V/Time	15min	30min	60min	2h	3h	4h	5h	8h	10h	20h
9.60V	366.3	207.9	128.7	72.4	54.5	41.4	37.8	24.1	20.1	10.2
10.2V	351.5	200.0	123.8	71.3	53.0	40.9	36.6	23.9	20.1	10.2
10.5V	344.5	195.0	120.8	70.7	52.6	40.6	36.3	23.8	20.0	10.1
10.8V	333.6	190.1	117.8	69.8	51.9	39.4	35.9	23.5	20.0	10.1

Constant Power Discharge Characteristics (Watt, 25°C)

F.V/Time	15min	30min	60min	2h	3h	4h	5h	8h	10h	20h
9.60V	4022.4	2332.4	1467.2	837.5	632.6	487.1	439.6	285.1	239.6	122.8
10.2V	3861.0	2239.4	1410.8	824.7	622.7	481.1	432.6	283.1	238.5	121.8
10.5V	3782.8	2187.9	1376.1	817.7	617.8	477.2	428.7	282.2	237.6	120.8
10.8V	3686.0	2127.5	1338.5	807.8	610.8	463.3	424.7	278.2	236.8	120.8

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	12V	50%	70%	83%	85%	90%	98%	100%	102%	104%	105%

★The above are average and data obtained from the firsr 3 charge/discharge cycles. These are not minimum values.

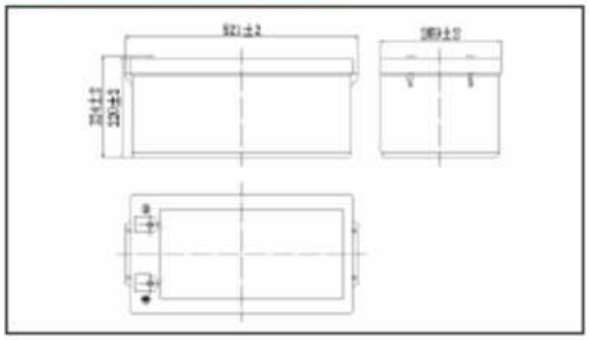
250AH

NBS SOLAR

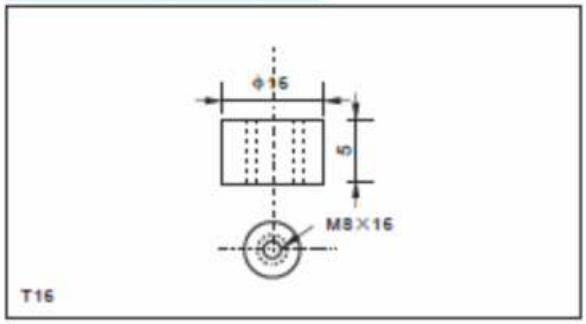
Specifications

Nominal Voltage		12V
Rated capacity (10 hour rate)		250Ah
Dimensions	Length	521±2mm(20.51inch)
	Width	269±2mm(10.59inch)
	Height	220±2mm(8.66inch)
	Total Height	224±2mm(8.82inch)
Approx. Weight		70kg±3%

Outer dimensions (mm)



Terminal Type (mm)



Characteristics

Capacity (25℃)	10HR(10.8V)	250Ah
	3HR(10.8V)	187.5Ah
	1HR(10.5V)	140Ah
Terminal type		T16
Internal resistance (Fully charged,25℃)		Approx.2.8m Ω
Capacity affected by temperature (10HR)	40℃	102%
	25℃	100%
	0℃	85%
	-15℃	65%
Self-discharge (25℃)	3 months	Remaining Capacity:91%
	6 months	Remaining Capacity:82%
	12 months	Remaining Capacity:65%
Nominal operating temperature		25℃ ±3℃(77℉ ±5℉)
Operating temperature range	Discharge	-15℃~50℃(5℉~122℉)
	Charge	-10℃~50℃(14℉~122℉)
	Storage	-20℃~50℃(-4℉~122℉)
Float charging voltage(25℃)		13.50 to 13.80V Temperature compensation: -18mV/℃
Cyclic charging voltage(25℃)		14.40 to 14.70V Temperature compensation: -30mV/℃
Maximum charging current		50A
Maximum discharge current		1500A(5 sec.)
Designed floating life(20℃)		12years

Construction

Component	Positive plate	Negative plate	Container	Cover	Separator	Electrolyte	Safety valve	Terminal
Raw material	Lead dioxide	Lead	ABS	ABS	AGM	Gel	Rubber	Copper

Constant Current Discharge Characteristics Unit:A(25℃,77℉)

F.V/Time	15min	30min	60min	2h	3h	4h	5h	6h	8h	10h	20h
9.60V	400	243	150	91.4	65.0	51.0	43.4	38.3	30.6	25.5	13.5
9.90V	390	238	148	90.8	64.6	50.7	43.1	38.0	30.4	25.4	13.5
10.2V	376	230	144	90.0	64.2	50.4	42.8	37.8	30.2	25.3	13.4
10.5V	363	225	140	88.7	63.8	50.0	42.5	37.5	30.0	25.2	13.3
10.8V	344	217	135	86.4	62.5	48.5	41.2	36.4	29.1	25.0	13.3

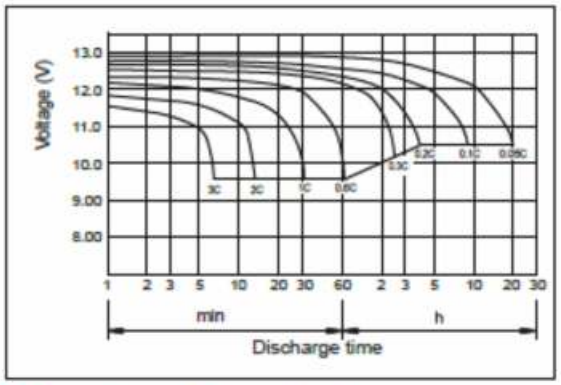
Constant Power Discharge Characteristics Unit:W(25℃,77℉)

F.V/Time	15min	30min	60min	2h	3h	4h	5h	6h	8h	10h	20h
9.60V	4392	2721	1710	1058	765	600	512	452	364	304	162
9.90V	4287	2666	1684	1052	760	596	509	449	361	303	162
10.2V	4128	2585	1642	1042	755	592	506	446	359	302	161
10.5V	3988	2522	1590	1027	750	588	502	443	356	301	160
10.8V	3777	2430	1539	1001	735	570	487	430	346	299	159

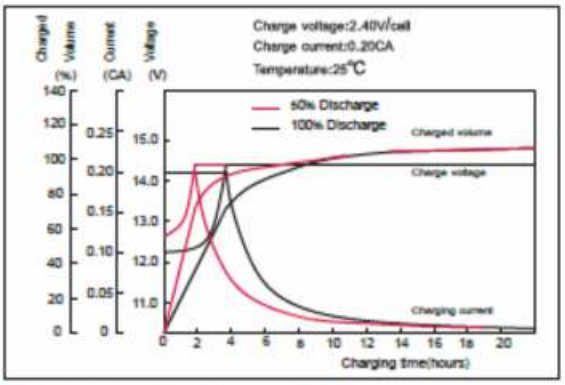
Note: The above characteristics data can be obtained within three charge or discharge cycles.

250AH

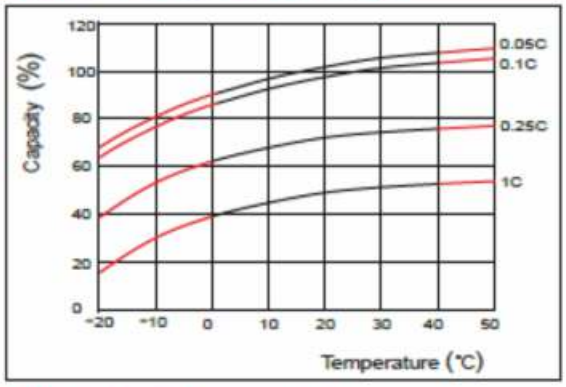
Discharge characteristics(25°C)



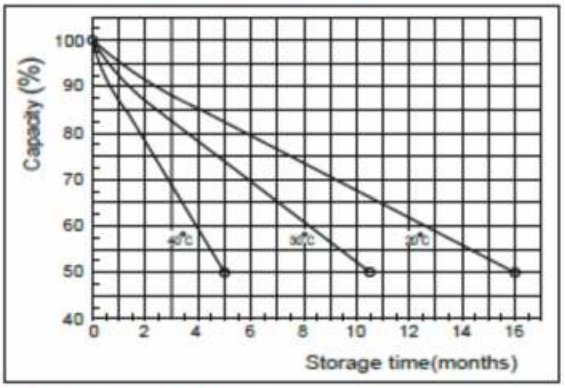
Charging characteristics (25°C)



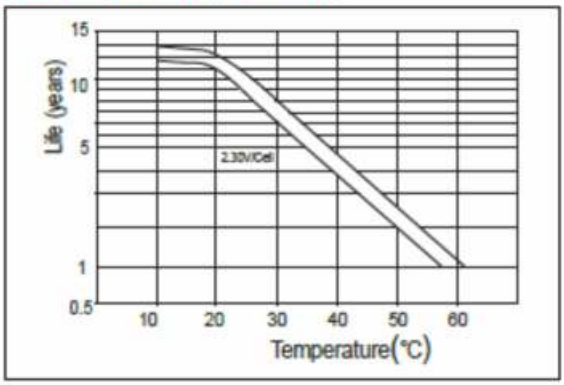
Temperature effects on Capacity



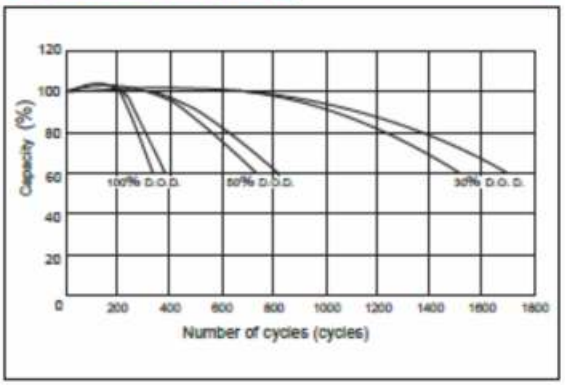
Self-discharge characteristics



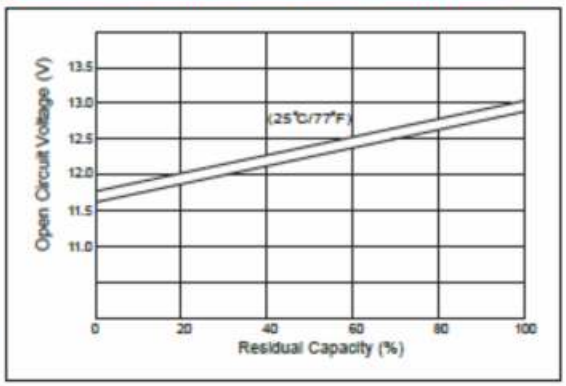
Floating life on Temperature



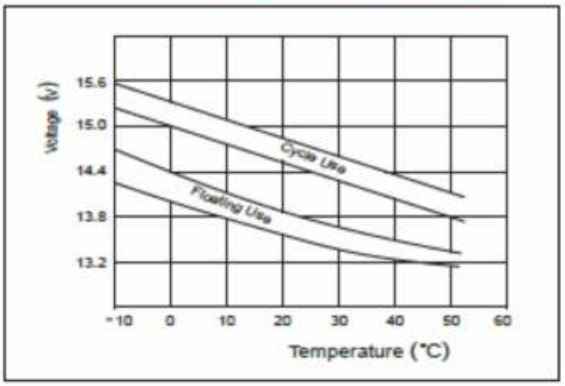
Cycle life on D.O.D (25℃)



The relationship for OCV and Capacity (25℃)



The relationship for Charging voltage and Temperature



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ISO
9001:2015

BATTERY CATALOGUE

Professional Power Bank

MADE IN INDIA

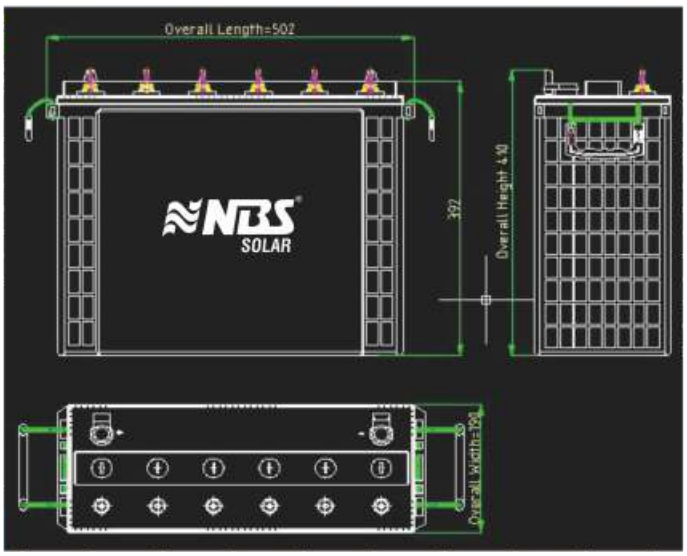
50Ah to 300Ah

SPECIFICATION

12V 200Ah@C20

NOMINAL VOLTAGE		12V
Rated Capacity (20 hour rate)		200 Ah
Dimensions in mm	Length	502 mm
	Width	190 mm
	Height upto Terminal	410 mm
Filled Weight		64.5 Kgs.

DIMENSIONS



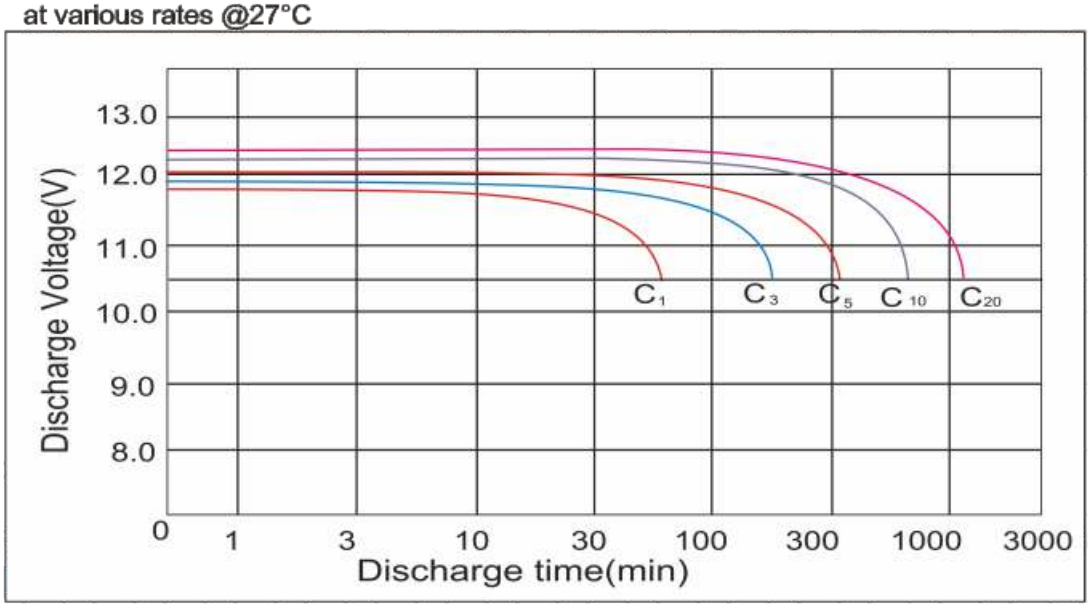
ELECTRICAL PARAMETERS

Capacity (27°C)	20 hour rate to 10.5 ECV		200 Ah
	10 hour rate to 10.8 ECV		165 Ah
	7 hour rate to 10.8 ECV		151 Ah
	5 hour rate to 10.8 ECV		137 Ah
	3 hour rate to 10.8 ECV		118 Ah
	1 hour rate to 10.5 ECV		83 Ah
Ah/ Wh Efficiency	Amp. hour Efficiency		95%
	Watt. hour Efficiency		86%
Capacity Loss on Storage			3% Per Month
Charge method (Constat voltage)	Max. Current		20 A
	Cyclic Use	Control Voltage	14.4 V
	Float Use	Control Voltage	13.8 V

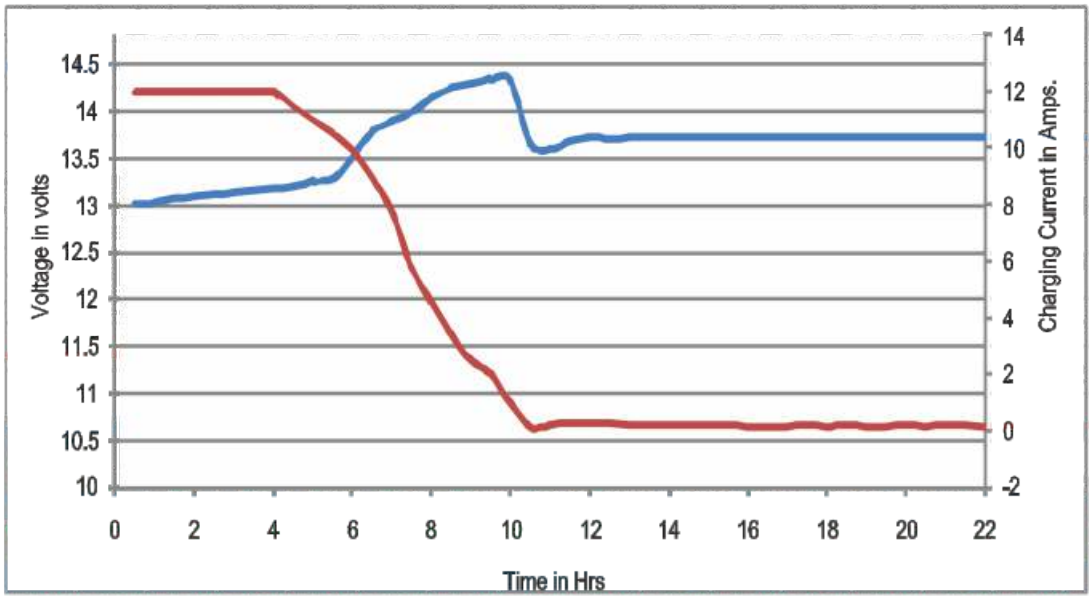
SPECIFICATION

DISCHARGING CHARACTERISTICS

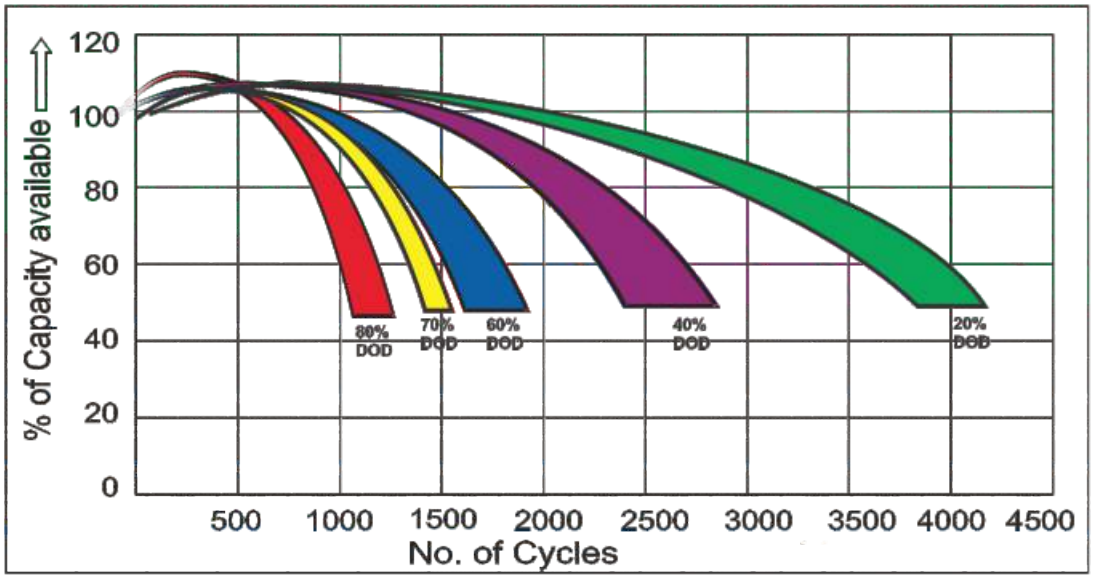
at various rates @27°C



CHARGING CHARACTERISTICS



CYCLE LIFE@ 27°C



TECHNICAL SPECIFICATION - SHORT TUBULAR

BATTERY TYPE	"VERY LOW MAINTENANCE LEAD ACID TUBULAR BATTERY"	"VERY LOW MAINTENANCE LEAD ACID SOLAR BATTERY"	"VERY LOW MAINTENANCE LEAD ACID TUBULAR BATTERY"
AH CAPACITY AT C20 (Short Tubular)	50 AH	80 AH	100 AH
APPLICATIONS	"SOLAR APPLICATIONS"	"SOLAR APPLICATIONS"	"SOLAR APPLICATIONS"
MAX LENGTH (IN MM)	412	412	412
MAX WIDTH (IN MM)	175	175	175
"MAX HEIGHT UPTO TERMINAL (IN MM)"	232	286	286
DRY WEIGHT (IN KG)	11.50	14.70	17.70
FILLED WEIGHT (IN KG)	21.75	28.60	32.45
ELECTROLYTE GRAVITY	1240±10 AT 27°C	1240±10 AT 27°C	1240±10 AT 27°C
CHARGING CURRENT	8- 12% OF RATED CAPACITY	8-12% OF RATED CAPACITY	8-12% OF RATED CAPACITY
CUTT OFF VOLTAGE	13.8V- 14.8V	13.8V-14.8V	13.8V-14.8V
CYCLIC LIFE @ 80% DOD	MORE THAN 900 CYCLES	MORE THAN 900 CYCLES	MORE THAN 900 CYCLES
CYCLIC LIFE @50% DOD	MORE THAN 2000 CYCLES	MORE THAN 2000 CYCLES	MORE THAN 2000 CYCLES
AMPERE HOUR EFFICIENCY	MORE THAN 95%	MORE THAN 95%	MORE THAN 95%
WATT HOUR EFFICIENCY	MORE THAN 80%	MORE THAN 80%	MORE THAN 80%
RETENTION CAPACITY	LESS THAN 3% SELF DISCHARGE ON 28 DAYS PERIOD	LESS THAN 3% SELF DISCHARGE ON 28DAYS PERIOD	LESS THAN 3% SELF DISCHARGE ON 28DAYS PERIOD
ENDURANCE RESULTS	A S PER BIS 13369: 1992	AS PER BIS 13369: 1992	AS PER BIS 13369: 1992
NO.OF POSITIVE PLATE/CELL	2	2	3
POSITIVE PLATE TYPE	TUBULAR CASTED BY HIGH PRESSURE DYE CASTING MACHINE"	TUBULAR CASTED BY HIGH PRESSURE DYE CASTING MACHINE"	TUBULAR CASTED BY HIGH PRESSURE DYE CASTING MACHINE"
INNER DIA (MM) OF TUBULAR BAGS USED FOR +VE PLATES	6.2MM	6.2MM	6.2MM
POSITIVE PLATE ALLOY TYPE	3.1% HIGH ANTIMONY SELENIUM ALLOY	3.1% HIGH ANTIMONY SELENIUM ALLOY	3.1% HIGH ANTIMONY SELENIUM ALLOY
NO.OF NEGATIVE PLATE/CELL	3	3	4
NEGATIVE PLATE TYPE	PASTED	PASTED	PASTED
NEGATIVE PLATE ALLOY	2.5% ANTIMONY SELENIUM ALLOY	2.5% ANTIMONY SELENIUM ALLOY	2.5% ANTIMONY SELENIUM ALLOY
IMPORTANT NOTES: TESTING AS PER BIS STANDARD 13369: 1992 TOLERANCE: WEIGHT ± 3%, DIMENSION ±5MM			

Technical Specification

Model	Tall Tubular Battery Series					
Battery rating	100Ah	150Ah	200Ah	225Ah	250Ah	300Ah
Type of Battery	Tubular					
Model Offered	1000	1500	2000	2250	2500	3000
Nominal Voltage	12V					
Number of cell	6					
Shelf life	6 years					
Nominal Capacity(27°C)						
Cell Capacity @ C20	102 Ah	153 Ah	200 Ah	225 Ah	250 Ah	300 Ah
Cell Capacity @ C10	81 Ah	120 Ah	176 Ah	200 Ah	220 Ah	250 Ah
Cell Capacity @ C3	57.5 Ah	86 Ah	126 Ah	150 Ah	175 Ah	200 Ah
AH Efficiency	> 90%					
WH Efficiency	> 80%					
Recommended max. period of storage	3 months at 27°C					
Grid Alloy	Lead Antimony alloy					
Container & Lid Material	PPCP					
Sealing Method	Heat Sealing					
Plate type	Tubular Pos. & Flat Neg.					
Separator	Polyethylene					
Terminals & ICC	Bolted type terminals with lead coated fastners					
Mounting	Vertical					
Acid Level Indicators	Provided					
Supply condition	Factory charged					
Self Discharge at 27°C (average)	2.5%	3%	3%	3%	3%	3%
Operating Temp. range						
Discharge	-20~ 50°C					
Charge	-10~ 50°C					
Storage	-20~ 50°C					
Max. Discharge Current 77°F (25°C)	100 A(3 sec)	450A(3 sec)	600A(3 sec)	675A(3 sec)	675A(3 sec)	675A(3 sec)
Short Circuit Current	100 A	150 A	200 A	225 A	225 A	225 A
Cycle Use	14.2 - 14.5 V	14.4 - 14.7	14.4 - 14.7	14.4 - 14.7	14.4 - 14.7	14.4 - 14.7
Maximum charging Current 10% of Capacity	10 Amp	15 Amp	20 Amp	25 Amp	25 Amp	25 Amp
Temperature compensation	75mV/300moh					
Weight (Kg) Gross +/- 3%	52-53	56-57	64-65	67	69	74
Dimensions (L x W x H)in mm	505 x 187 x 394					

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CERTIFICATIONS

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