BAE *Nova Solar BLOCK*

1. APPLICATIONS

Photovoltaic power supply of
- isolated weekend houses, camping cars, boots, huts in high mountains etc.
- grid-independent traffic signals like buoys, traffic lights and signals for road and rail services
- radio relay stations of telecommunication services,
- Data measuring stations, water pump stations, street and park illumination.

Small sun- and wind power stations: In these cases the battery serves to buffer load peaks, to smooth the current and to reduce the operation time of diesel engines at low power demand.

2. PRODUCT CHARACTERISTICS

- maintenance-free, no topping-up water during battery life
- long storage time, self discharge 2% per month, no need for special putting into operation
- high discharge/charge cycleability, no acid stratification due to proven GEL technique
- safe against deep discharge, fully rechargeable after a deep discharge
- installation in office and living rooms, because no pollution with aerosols and very low gassing occurs
- basic charging technique with WU - or IU - characteristics
- reduced ventilation requirement according to VDE 0510
- leak-proof, no dangerous goods during road-, sea- and air transport
- economic by block battery design in PP - technique
- vibration-proof by DIN EN 60 068 - 2 - 6, shock-proof by DIN EN 60 068 - 2 - 29
- Certificate for use on ships: Germanischer Lloyd GL No. 99 326 – 97 HH

3. TECHNICAL DATA

	C 100	C 20	C 10	C 5	C 1	Ri	Ik	mass	dimensions
Ue 80%	1,95V	1,94V	1,93V	1,93V	1,90V				
Ue 100%	1,80V	1,80V	1,80V	1,78V	1,75V	mΩ	kA	kg	L x B x H
12V solar block 72	72Ah	64Ah	56Ah	51Ah	39Ah	9,5	1,28	21	275 x 175 x 190
12V solar block 102	102Ah	86Ah	84Ah	79Ah	60Ah	6,5	1,79	31	340 x 172 x 235
12V solar block 132	132Ah	113Ah	109Ah	103Ah	73Ah	6,1	2,07	41	340 x 172 x 286
12V solar block 160	160Ah	133Ah	127Ah	120Ah	91Ah	5,2	2,44	50	513 x 223 x 220
6V solar block 225	225Ah	195Ah	182Ah	170Ah	122Ah	2,1	2,76	31	244 x 190 x 274

4. BATTERY DESIGN

positive plates	round-grid plate out of a corrosion-resistant PbCaSn-alloy, cycle-proof active material
negative plates	flat plate out of a PbCaSn-alloy, active material with long life expander
separation	microporous plastic separator with glassmat
electrolyte	sulphuric acid fixed in SiO2-GEL, with cycle-proof additives
valve	one valve per cell with flash arrestor, p_{open} = 100mbar, p_{close} = 50mbar
jar / lid	impact-resistant polypropylene, dark-grey coloured
terminals	conic terminals according to DIN 72311 part 4 (JEC 95-3.SAE) or threaded terminal M10
connector	isolated, flexible cable connectors

5. NUMBER OF CYCLES AS FUNCTION OF DOD (DEPTH OF DISCHARGE)

DOD	80%	70%	60%	50%	40%	30%	20%	10%
cycles	550	650	770	1000	1300	2000	3000	6000

6. CAPACITY AS FUNTION OF TEMPERATURE

temperature	20°C	15°C	10°C	5°C	0°C	-5°C	-10°C	-20°C
C100	100%	98%	96,5%	95%	92%	88%	82%	72%

7. CHARGING TECHNIQUE

Chargers or voltage controller with WU- or IU-characteristic may be used. The charging current may vary from 5 x I10 to 0,01 x I10. The charging voltage has to be restricted to 2,30V to 2,40V.

Above 10°C up to 45°C and daily discharge below 0,2C100 2,30V - 2,35V

Above 10°C up to 45°C and daily discharge above 0,2C100 2,35V - 2,40V

Are the monthly averaged temperatures below 10°C , the charging voltage has to be increased by 0,03V pro 10K.

8. EXAMPLE: PHOTOVOLTAIC POWER SUPPLY OF A DATA COLLECTING STATION

power demand 130W / 48V, average discharge voltage 1,95V, discharge current ca. 2,8 A
monthly averaged temperatures in winter -10°C
operation time over day 8h
operation time over night 6h
autonomy during 5 cloudy days, when the batteries have to count for 50% of the power demand during day time.

ageing factor 1,20
capacity at -10°C (see table above) 0,82

calculation of the capacity
5 days x [2,8A x 6h(night) + 1,4A(50%) x 8h(day)] = 140Ah
140Ah x 1,2(ageing) / 0,82(temperature) = 205 Ah 8 blocks BAE solar block 225

calculation of the solar panel
2,8A + 2,8A x 1,05(charging factor) x 6/8 = 5A at 48V
A discharged battery should be recharged within 10 days, additionally to the normal power demand:
225 x 0,8 Ah / 10(days) / 8h = 2,3A .
The solar panel should give 7,3A above 48V at normal sun light. The geographic location and the orientation to the sun is important.

It is recommended to disconnect the battery at lower voltages as U80%.

Tell us your application. We support you in the selection of your battery.

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