

Industrial Batteries / Network Power

Classic Solar

»Powerful energy storage for
renewable energy systems«



Industrial Batteries

The powerful range of Network Power

Energy storage solutions for critical systems that require uninterrupted power supply. GNB® Industrial Power offers powerful batteries for your individual needs. The below table is only indicative and depends on customers' specific applications. For more information please ask a GNB sales representative.

Applica-tions	Battery ranges																			
	Sonnenschein						Marathon		Sprinter			Absolyte	Powerfit	Classic						
	A400/A600	A400 FT	A500	A700	SOLAR	RAIL	Power Cycle	M - FT	M/L/ XL	S	P/XP	XP - FT	GP/GX	S300	GRoE	OCSM	OPzS	Energy Bloc/OGi	Solar	rail
Telecom	●	●	●	●			●	●	●	●	●	●	●			●	●	●		
UPS		●	●	●			●	●	●	●	●	●	●			●		●		
Emergency lighting	●		●					●		●	●		●	●			●	●		
Security	●		●	●						●	●			●		●	●			
Utility	●	●		●			●	●	●			●			●	●	●	●		
Railways	●	●	●	●		●	●	●	●			●				●		●		●
Photovoltaic					●		●					●							●	
Universal	●	●	●	●			●	●	●	●	●	●	●	●		●	●	●		

The GNB Network Power brand overview

ABSOLYTE

MARATHON

> VRLA batteries (Valve Regulated Lead Acid) in which the electrolyte is fixed in an absorbent glass mat (AGM)

Sprinter

Powerfit

- > Excellent high current capability
- > Very economical
- > Maintenance-free (no topping up)



> VRLA batteries (Valve Regulated Lead Acid) in which the electrolyte is fixed in a gel (dryfit technology)

- > Inventor of Gel technology
- > Highest reliability, even in non-optimal conditions
- > Particularly suitable for cyclic applications
- > Maintenance-free (no topping up)

Classic

- > Conventional lead-acid batteries with liquid electrolyte
- > Extreme reliability, proven over decades
- > Low maintenance



> Further information about service is available on page 10

Classic OPzS Solar

Energy storage for outstanding power applications

The Classic OPzS Solar range has been well proven for decades in medium and large power applications. Due to their robustness, long design life and high operational safety they are ideally suitable for use in solar and wind power stations, telecommunications, power distribution companies, railways and many other safety equipment power supplies. The wide range of available capacities and sizes provides a solution for every power need, even in harsh environments.

Your benefits:

- > **Optimised design for renewable energy applications** – highest cycling ability and long life
- > **Special alloy and large electrolyte reserve** – very long topping up intervals
- > **Low maintenance** – saving costs
- > **Completely recyclable** – low CO₂ footprint



Specifications:

- > Nominal capacity (C₁₂₀ at 25 °C): 82.7 - 4600 Ah
- > Very thick tubular positive plates for the most demanding applications
- > Up to 2800 cycles at 60 % depth of discharge (C₁₀) with IU charging profile at 20 °C.
For enhanced performance and for systems ≥ 48 V we recommend IU charging to reach 3000 cycles and more.
- > Designed in accordance with IEC 61427 and IEC 60896-11
- > Screw connectors for a better contact and reliability
- > Also available in dry-charged version with separate electrolyte
- > High quality transparent or translucent containers for easy maintenance



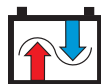
Nominal capacity
82.7 – 4600 Ah



Block battery/
Single cell



Tubular plate



up to 3000*+
cycles at
60% depth
of discharge



Recyclable



Low
maintenance

*Using IU charging at 20 °C

Classic OPzS Solar

Technical data

Technical characteristics and data

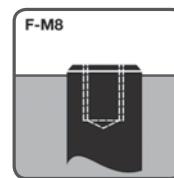
Type	Part number	Nom. voltage	Nominal capacity C ₁₂₀ 1.85 Vpc 25 °C Ah	Length (l)	Width (b/w)	Height* (h)	Installed length (L)	Weight incl. acid approx. kg	Weight acid** approx. kg	Internal resistance mOhm	Short circuit current A	Terminal	Pole pairs
		V		max. mm	max. mm	max. mm							
OPzS Solar 190	NVSL020190WCOFB	2	190	105	208	395	115	13.7	5.20	1.45	1400	F-M8	1
OPzS Solar 245	NVSL020245WCOFB	2	245	105	208	395	115	15.2	5.00	1.05	1950	F-M8	1
OPzS Solar 305	NVSL020305WCOFB	2	305	105	208	395	115	16.6	4.60	0.83	2450	F-M8	1
OPzS Solar 380	NVSL020380WCOFB	2	380	126	208	395	136	20.0	5.80	0.72	2850	F-M8	1
OPzS Solar 450	NVSL020450WCOFB	2	450	147	208	395	157	23.3	6.90	0.63	3250	F-M8	1
OPzS Solar 550	NVSL020550WCOFB	2	550	126	208	511	136	26.7	8.10	0.63	3250	F-M8	1
OPzS Solar 660	NVSL020660WCOFB	2	660	147	208	511	157	31.0	9.30	0.56	3650	F-M8	1
OPzS Solar 765	NVSL020765WCOFB	2	765	168	208	511	178	35.4	10.8	0.50	4100	F-M8	1
OPzS Solar 985	NVSL020985WCOFB	2	985	147	208	686	157	43.9	13.0	0.47	4350	F-M8	1
OPzS Solar 1080	NVSL021080WCOFB	2	1080	147	208	686	157	47.2	12.8	0.43	4800	F-M8	1
OPzS Solar 1320	NVSL021320WCOFB	2	1320	212	193	686	222	59.9	17.1	0.30	6800	F-M8	2
OPzS Solar 1410	NVSL021410WCOFB	2	1410	212	193	686	222	63.4	16.8	0.27	7500	F-M8	2
OPzS Solar 1650	NVSL021650WCOFB	2	1650	212	235	686	222	73.2	21.7	0.26	7900	F-M8	2
OPzS Solar 1990	NVSL021990WCOFA	2	1990	212	277	686	222	86.4	26.1	0.23	8900	F-M8	2
OPzS Solar 2350	NVSL022350WCOFA	2	2350	212	277	836	222	108	33.7	0.24	8500	F-M8	2
OPzS Solar 2500	NVSL022500WCOFA	2	2500	212	277	836	222	114	32.7	0.22	9300	F-M8	2
OPzS Solar 3100	NVSL023100WCOFA	2	3100	215	400	812	225	151	50.0	0.16	12800	F-M8	3
OPzS Solar 3350	NVSL023350WCOFA	2	3350	215	400	812	225	158	48.0	0.14	14600	F-M8	3
OPzS Solar 3850	NVSL023850WCOFA	2	3850	215	490	812	225	184	60.0	0.12	17000	F-M8	4
OPzS Solar 4100	NVSL024100WCOFA	2	4100	215	490	812	225	191	58.0	0.11	17800	F-M8	4
OPzS Solar 4600	NVSL024600WCOFA	2	4600	215	580	812	225	217	71.0	0.11	18600	F-M8	4
6V 4 OPzS 200 LA	NVZS060200WCOFB	6	294	272	206	347	282	41.0	13.0	2.68	2283	F-M8	1
6V 5 OPzS 250 LA	NVZS060250WCOFB	6	364	380	206	347	392	56.0	20.0	2.39	2800	F-M8	1
6V 6 OPzS 300 LA	NVZS060300WCOFB	6	417	380	206	347	392	63.0	20.0	1.96	3106	F-M8	1
12V 1 OPzS 50 LA	NVZS120050WCOFB	12	82.7	272	206	347	282	35.0	15.0	18.1	688	F-M8	1
12V 2 OPzS 100 LA	NVZS120100WCOFB	12	139	272	206	347	282	45.0	14.0	9.26	1314	F-M8	1
12V 3 OPzS 150 LA	NVZS120150WCOFB	12	210	380	206	347	392	64.0	19.0	6.46	1884	F-M8	1

Type	C ₃ 1.75 Vpc	C ₁₀ 1.80 Vpc	C ₁₂ 1.80 Vpc	C ₂₄ 1.80 Vpc	C ₄₈ 1.80 Vpc	C ₇₂ 1.80 Vpc	C ₁₀₀ 1.85 Vpc	C ₁₂₀ 1.85 Vpc	C ₂₄₀ 1.85 Vpc
OPzS Solar 190	122	132	134	145	165	175	185	190	200
OPzS Solar 245	159	173	176	190	215	230	240	245	260
OPzS Solar 305	203	220	224	240	270	285	300	305	320
OPzS Solar 380	250	273	277	300	330	350	370	380	400
OPzS Solar 450	296	325	330	355	395	420	440	450	470
OPzS Solar 550	353	391	398	430	480	515	540	550	580
OPzS Solar 660	422	469	477	515	575	615	645	660	695
OPzS Solar 765	492	546	555	600	670	710	750	765	805
OPzS Solar 985	606	700	710	770	860	920	970	985	1035
OPzS Solar 1080	669	773	784	845	940	1000	1055	1080	1100
OPzS Solar 1320	820	937	950	1030	1150	1230	1295	1320	1385
OPzS Solar 1410	888	1009	1024	1105	1225	1305	1380	1410	1440
OPzS Solar 1650	1024	1174	1190	1290	1440	1540	1620	1650	1730
OPzS Solar 1990	1218	1411	1430	1550	1730	1850	1950	1990	2090
OPzS Solar 2350	1573	1751	1770	1910	2090	2200	2300	2350	2470
OPzS Solar 2500	1667	1854	1875	2015	2215	2335	2445	2500	2600
OPzS Solar 3100	2080	2318	2343	2520	2755	2910	3040	3100	3250
OPzS Solar 3350	2268	2524	2550	2740	2985	3135	3280	3350	3520
OPzS Solar 3850	2592	2884	2915	3135	3430	3615	3765	3850	4040
OPzS Solar 4100	2775	3090	3125	3355	3650	3840	4000	4100	4300
OPzS Solar 4600	3099	3451	3490	3765	4100	4300	4500	4600	4850
6V 4 OPzS 200 LA	203	206	229	250	296	304	287	294	338
6V 5 OPzS 250 LA	245	257	284	311	374	383	355	364	424
6V 6 OPzS 300 LA	284	309	322	354	420	432	408	417	482
12V 1 OPzS 50 LA	55.0	51.5	63.7	69.4	78.4	79.8	81.0	82.7	92.9
12V 2 OPzS 100 LA	95.4	103	108	118	141	145	136	139	162
12V 3 OPzS 150 LA	131	154	162	177	206	217	203	210	234

Capacities in Ah (C₆ - C₂₄₀ at 25 °C)

* Includes installed connector, the above mentioned height can differ depending on the used vent(s).
 ** Acid density d₄ = 1.24 kg/l

Terminal and torque



12 Nm for blocks;
20 Nm for cells

Data is also valid for dry charged version.
Change »W« (Wet) to »D« (Dry) in the part number.
E.g.:

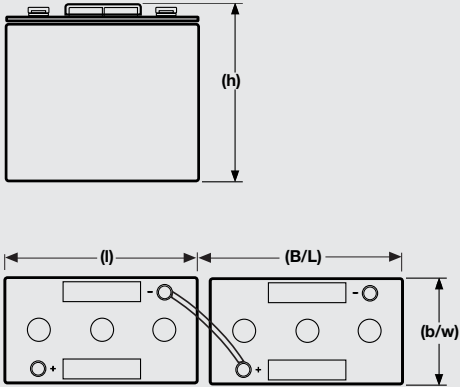
- > filled and charged: NVSL023100 **W** COFA
- > dry charged: NVSL023100 **D** COFA

Classic OPzS Solar

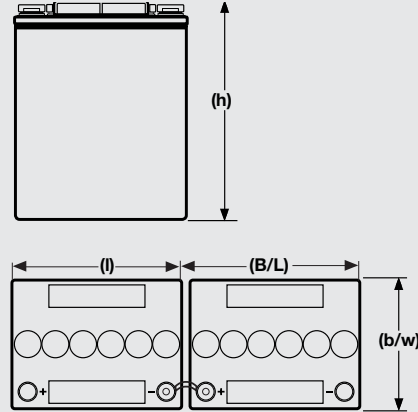
Drawings

Drawings with terminal position

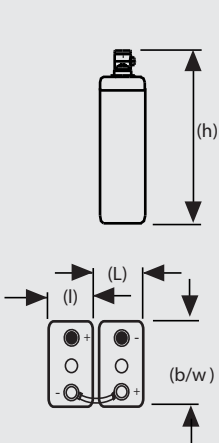
6V 4 OPzS 200 LA –
6V 6 OPzS 300 LA



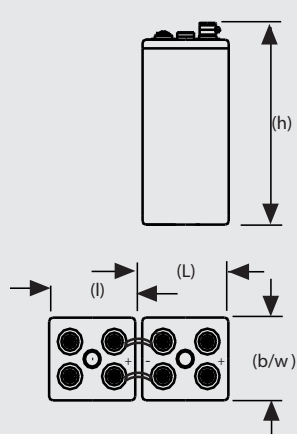
12V 1 OPzS 50 LA –
12V 3 OPzS 150 LA



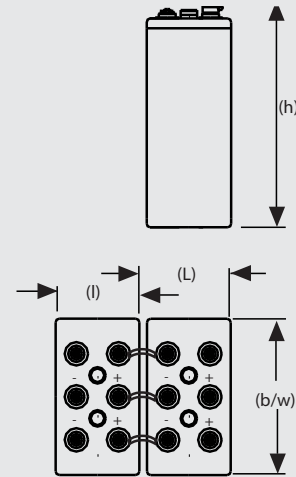
OPzS Solar 190 –
OPzS Solar 1080



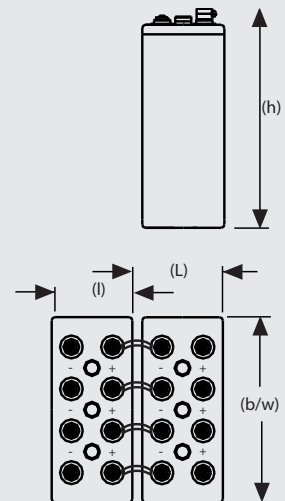
OPzS Solar 1320 –
OPzS Solar 2500



OPzS Solar 3100 –
OPzS Solar 3350



OPzS Solar 3850 –
OPzS Solar 4600



Not to scale!

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www.norwatt.es

Classic EnerSol T

Powerful and universal, suitable for every application

Classic EnerSol T batteries are universal, low maintenance energy supplies for medium industrial solar systems. These lead acid batteries with liquid electrolyte are renowned for being safe and reliable due to their high performance. Typical applications are small solar and wind power systems, holiday and weekend houses.

Your benefits:

- > **Positive tubular plates** – extremely robust design and enhanced cycling performance
- > **Low maintenance** – saving costs
- > **Completely recyclable** – low CO₂ footprint



Specifications:

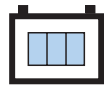
- > Nominal capacity (C₁₂₀ at 25 °C): 376 - 1282 Ah
- > Containers made from translucent plastics for easy topping up
- > Screw connectors for a better contact and reliability



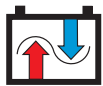
Nominal capacity
376 – 1282 Ah



Single cell



Tubular plate



up to 2000 cycles
acc. to IEC 60896-11
(60 % DoD)



Recyclable



Low maintenance

Classic EnerSol T

Technical data, Drawings

Technical characteristics and data

Type	Part number	Nom. voltage V	Nominal capacity C_{120} 1.85 Vpc 25 °C Ah	Length (l) max. mm	Width (b/w) max. mm	Height* (h) max. mm	Installed length (L) max. mm	Weight incl. acid approx. kg	Weight acid** approx. kg	Internal resistance mOhm	Short circuit current A	Terminal	Pole pairs
EnerSol T 370	NVTS020370WC0FA	2	376	83.0	199	445	93.0	17.3	5.10	0.70	2900	F-M10	1
EnerSol T 460	NVTS020460WC0FA	2	452	101	199	445	111	21.0	6.30	0.56	3625	F-M10	1
EnerSol T 550	NVTS020550WC0FA	2	542	119	199	445	129	24.7	7.50	0.46	4350	F-M10	1
EnerSol T 650	NVTS020650WC0FA	2	668	119	199	508	129	29.5	8.60	0.45	4500	F-M10	1
EnerSol T 760	NVTS020760WC0FA	2	779	137	199	508	147	31.0	10.0	0.38	5250	F-M10	1
EnerSol T 880	NVTS020880WC0FA	2	897	137	199	556	147	38.0	11.0	0.43	4660	F-M10	1
EnerSol T 1000	NVTS021000WC0FA	2	1025	155	199	556	165	43.1	12.6	0.38	5325	F-M10	1
EnerSol T 1130	NVTS021130WC0FA	2	1154	173	199	556	183	47.7	14.1	0.34	5991	F-M10	1
EnerSol T 1250	NVTS021250WC0FA	2	1282	191	199	556	201	52.8	15.6	0.30	6657	F-M10	1

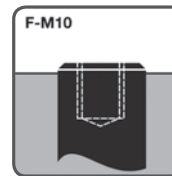
* The above mentioned height can differ depending on the used vent(s).

**Acid density d_{40} = 1.26 kg/l

Type	C_6 1.75 V/C	C_{10} 1.80 V/C	C_{12} 1.80 V/C	C_{24} 1.80 V/C	C_{48} 1.80 V/C	C_{72} 1.80 V/C	C_{100} 1.85 V/C	C_{120} 1.85 V/C	C_{240} 1.85 V/C
EnerSol T 370	260	280	294	333	361	368	369	376	383
EnerSol T 460	327	350	367	416	437	460	444	452	478
EnerSol T 550	393	425	441	499	524	553	533	542	574
EnerSol T 650	492	527	552	625	656	668	647	668	719
EnerSol T 760	574	615	645	729	766	780	755	779	839
EnerSol T 880	654	714	742	840	854	953	869	897	966
EnerSol T 1000	755	809	848	960	1008	1089	993	1025	1104
EnerSol T 1130	850	910	954	1080	1134	1225	1117	1154	1242
EnerSol T 1250	944	1011	1060	1200	1260	1361	1241	1282	1380

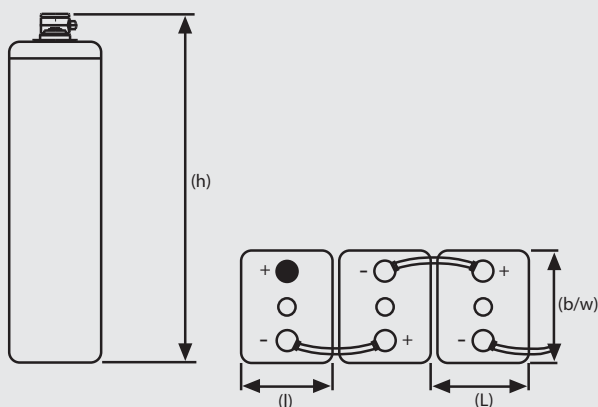
The capacities are given in Ah at 25 °C after 5 cycles.

Terminal and torque



25 Nm

Drawings with terminal position



Not to scale!

Battery Service – Energy Solutions

Keeping your business on the move

GNB® is the Expert

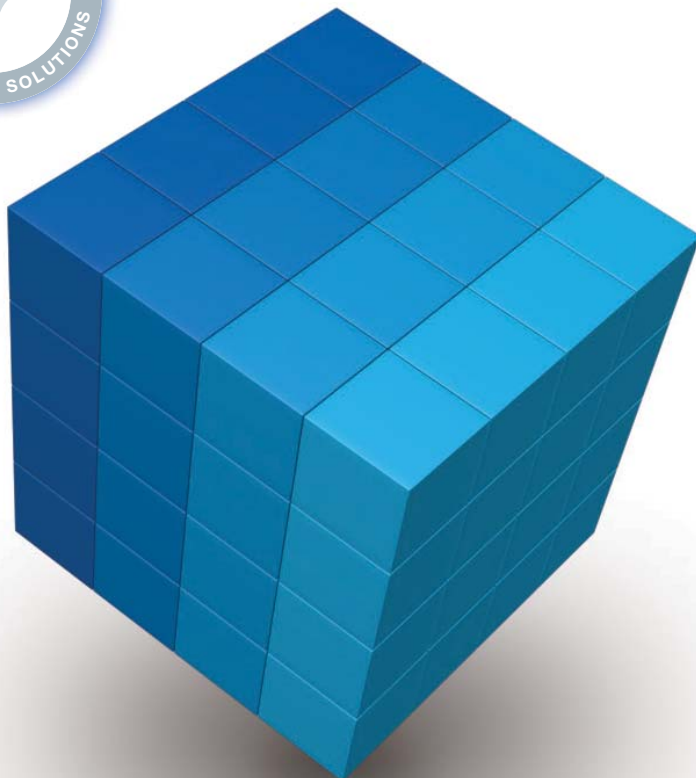
Who could do this job better than the professionals of a company with more than 100 years of experience in battery development, production and application?

Leave the responsibility for the maintenance of your batteries and chargers to the professionals: a GNB service contract provides you with exceptional economic advantages through time savings, cost savings and safety!



Installation of Batteries and Systems for Network Power

- > Development of complete turnkey solutions from the design concept to installation and commissioning.
- > Installation according to legal and safety regulations including CE certification by approved installation technicians.
- > Training and certification of external installation technicians according to CE regulations.



- ✦ Inspection Contract
- ✦ Maintenance Contract
- ✦ Lifetime Warranty Contract
- ✦ Full Service Contract



»GNB Service – individualized, professional and all over Europe!«

