INDUSTRIAL™ POWER

AlphaCell™ Stationary Lead-Acid Batteries

OPzS • OGi • UPS • TOPzS • OPzV




member of The alpha Group™

Power

Table of Contents

For Quotes:

In order to provide an accurate battery quote, please provide the following data with your quote request (provide a specification if available):

- the battery system voltage required
- the load profile
- the load current required
- the amount of back-up time required
- the atmospheric conditions of the battery room/location (temperature, humidity, etc.)
- the space requirements for the battery system
- the requirement for a battery rack or cabinet (standard or seismic-rated)
- the requirement for spill containment
- the requirement for dry-charge or wet batteries

alpha INDUSTRIAL™ POWER

Contact:

Alpha Industrial Power
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Suwanee, GA 30024
Phone: 678.475.3995
Fax: 678.584.9259
www.alpha.com

AlphaCell™ OPzS
Low Maintenance Vented Stationary Batteries

AlphaCell OPzS Batteries
and Transport Plugs

Characteristics include:

- High capacity
- Long life
- Reduced maintenance
- Low self-discharge rate

The individual cells (2V) and blocks (6V and 12V) are in translucent plastic containers made of styrenacrylnitril (SAN), a material which is extraordinarily resistant to chemical influences and mechanical damage. OPzS stationary batteries are manufactured according to DIN 40736, EN 60896 and IEC 896-1 regulations.

Applications

OPzS stationary batteries are designed to provide backup power for deep cycling applications such as telecommunication facilities, computer facilities, emergency lighting, alarm, control, and monitoring systems in power plants and distribution stations, etc. Due to their extremely low self-discharge rate, OPzS batteries are also ideal for solar applications.

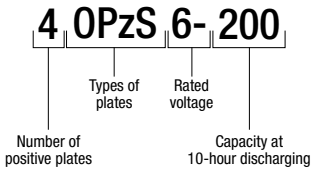
Construction

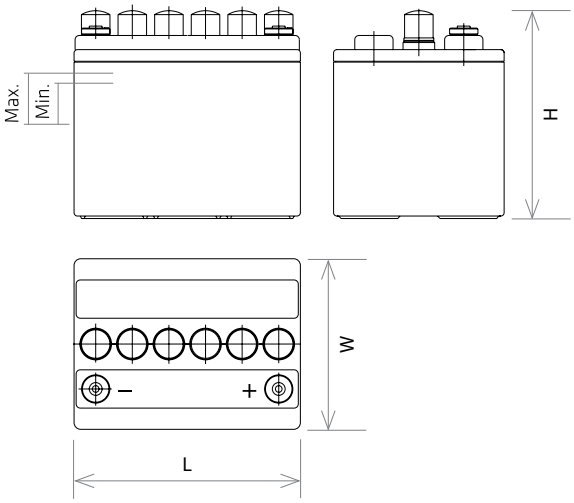
The positive armored plate is of a tubular type, with the active substance (PbO_2) contained in a special gauntlet made of polyester fibers and hardened by an impregnation compound. This construction prevents the active substance from escaping during the battery operation and ensures a long life time. The grids of both the positive and negative plates are made of a special low percentage (less than 2%) antimony alloy with additional agents used for improvement of the crystalline structure of the casting. Negative plates are pasted-type with special alloys maintaining porosity of the active substance during battery operation.

The electrolyte is a diluted sulfuric acid (H_2SO_4) with a density of 1.24 ± 0.01 kg/l at 20 degrees C , and is used at the maximum permitted level. Separators between the positive and negative plates are made of a microporous plastic material with a low electrical resistance. The cell containers are transparent, with the lids made of non-transparent SAN material (styrenacrylnitril). In a special process, the lids are tightly sealed to the container. The terminal plugs are also sealed with rubber seals, preventing any escape of electrolyte from the cells.

Due to the transparency of the container, the electrolyte level is clearly visible, with the maximum and minimum levels marked on a self-adhesive acid-proof label on the side of the container.

A cell plug with a ceramic filter provides a tight seal and prevents leakage of any sulfuric acid vapors, while letting through hydrogen and oxygen.





Technical **Data**

Dimensions

AlphaCell™ OPzS
Low Maintenance Vented Stationary Batteries

AlphaCell OPzS Batteries
and Transport Plugs

Characteristics include:

- Appropriate dimensions and weight
- Low and constant maintenance current
- Quick and simple acid level control
- Economical water consumption

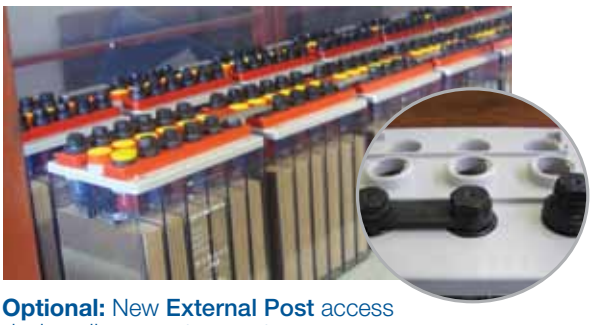
Two versions of batteries are available:

- DRY-CHARGE:

  The battery has to be filled with an electrolyte and supplementary charged before use. The plates are already formed and protected against oxidation, and can be stored without problems.

- ELECTROLYTE-CHARGE:

  The battery can be installed immediately, because it is already filled with electrolyte and electrically charged as well.



Optional: New **External Post** access design allows customers to measure individual intercell resistance and voltage.

Operation/Maintenance

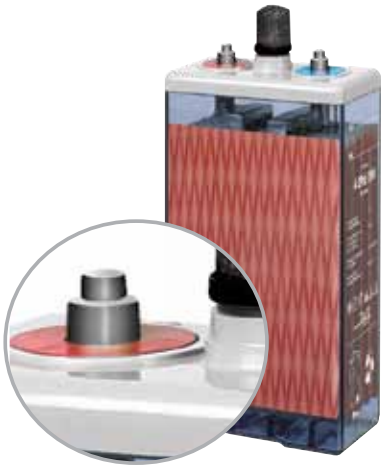
IT IS RECOMMENDED THAT OPzS BATTERIES BE INSTALLED INTO SYSTEMS IN WHICH THE BATTERIES ARE CONSTANTLY CONNECTED TO THE RECTIFIER.

The battery can be float-charged with a voltage of 2.23 to 2.25 V/cell, or in case of rapid charging after discharge, with a voltage of 2.35 to 2.40 V/cell.

Rapid charging normally lasts another 3-5 hours after the voltage has reached 2.35 to 2.40 V/cell. After that, an automatic switch over to the constant maintaining voltage of 2.23 to 2.25 V/cell takes place. Battery maintenance is reduced to a minimum and is required only occasionally. At normal operation, only some distilled water has to be added once in a 2-3 year period and, if necessary, the surface of the cells needs to be cleaned. All stated voltage values are valid for a temperature range from 15 to 25 degrees C. For temperatures out of this range, the corrections given by the battery producer are necessary.

For more detailed information please check the operation manual.

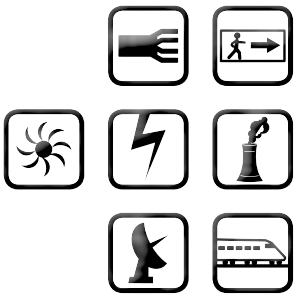
Terminal Post **Bolted Version**



Terminal Post **Welded Version**

AlphaCell™ OPzS
Stationary Lead-Acid Block Batteries

OPzS stationary batteries are intended for applications including utilities, telecommunications, computer facilities, emergency lighting, photovoltaic, and alarms, controls, and monitoring systems in power plants, distribution stations, airports, rail stations, etc.



AlphaCell OPzS Block Batteries and Transport Plugs

Design Features for OPzS cells (block)*

Positive Electrode
- Tubular plate with low antimony alloy (<2%)

Negative Electrode
- Flat plate with long life active material

Separation
- Microporous separator

Electrolyte
- At 20°C

Container
- High impact, transparent SAN

Lid
- ABS (SAN)* in gray color

Blocks with Blind Cells
- 4V, 6V, 8V, 10V

Plugs
- To DIN 40740

Pole Sealing
- 100% gas and electrolyte-tight, sliding-pole

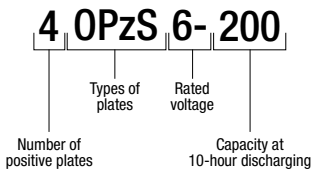
Connector
- Flexible insulated copper cable with cross-section of 35, 50, 70, 95 or 120 mm² (35, 50 or 70 mm²)*

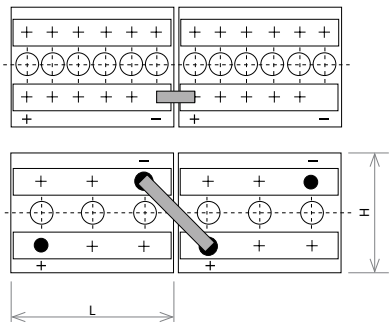
Protection Standards
- IP 25 regarding DIN 40050, touch protected according to VBG 4

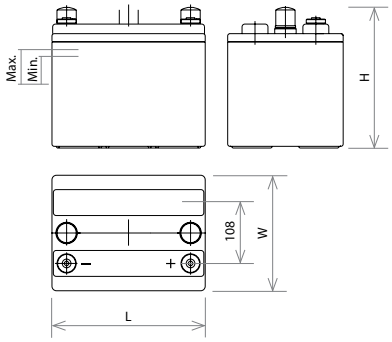
UfV/cell	1.8	1.77	1.75	1.67		IEC 896-1	Dimensions			Weight	
Discharging Time (h)	10	5	3	1	RI	Isc	L	W	H	Dry	Wet
Cell Type	Ah				mΩ	A	mm/in			kg/lb	
1 OPzS 12-50	51	40.9	38.0	28.4	20	613	272/10.1	205/8.1	392/15.4	26/57	39/86
2 Opzs 12-100	103	81.8	75.7	56.7	9.3	1290	272/10.1	205/8.1	392/15.4	38/84	50/110
3 Opzs 12-150	154	122.6	113.7	85.1	6.9	1739	380/15.0	205/8.1	392/15.4	53/117	69/152
4 Opzs 6-200	204	167.0	149.3	115.2	2.2	2703	272/10.1	205/8.1	392/15.4	36/79	47/104
5 OPzS 6-250	255	208.6	186.6	143.6	1.9	3175	380/15.0	205/8.1	392/15.4	44/97	61/135
6 OPzS 6-300	307	250.5	223.7	172.0	1.6	3846	380/15.0	205/8.1	392/15.4	52/115	68/150

Electrolyte density: 1.24 ± 0.01kg/l at 20°C

All measures and weights are within standard production tolerances. Electrical values are approximate. Technical modifications are subject to change without prior notice.







Technical **Data** | **Connections** | **Dimensions**

AlphaCell™ OPzS
Cell Batteries

AlphaCell OPzS Cell Batteries and Transport Plugs

Charging OPzS cells (block)*

IU - Characteristic

- Imax without limitation

Float Charge

- U = 2.23 V/cell +/- 1%, between 10°C and 30°C ΔU/ΔT = -0.004 V/K below 10°C in the monthly average

Boost Charge

- U = 2.35 to 2.40V/cell, time limited

Charging Time up to 92 %

- 6h with 1.5*I10 initial current, 2.23 V/cell, 50% C10 discharged

Discharge Characteristics OPzS cells (block)*

Reference Temperature

- 20°C

Initial Capacity

- 100%

Depth of Discharge

- Normally up to 80%
- More than 80% DOD or discharges beyond final discharge voltages (dependent on discharge current) have to be avoided

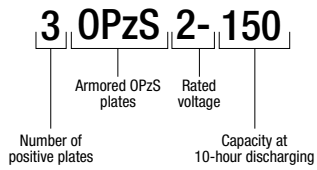
Maintenance OPzS cells (block)*

Every 6 Months

- Check battery voltage, pilot block voltage, temperature

Every 12 Months

- Record battery voltage, block voltage, temperature



Operational Data OPzS cells (block)*

Design Life

- Up to 20 years (18 years)* at 20°C

Water Refilling Interval

- More than 2 years at 20°C

IEC 896-1 Cycles

- 1500 (1200)*

Self-discharge

- Approx. 2 % per month at 20°C

Operational Temperature

- -20 to 55°C, recommended 10 to 30°C

Ventilation Requirement

- f1=0.5 (low-antimony alloy) according to EN 50272-2

Measurement

- DIN 40 737 part 1

Testing Standards

- IEC 896-1

Safety Standards

- VDE 0510 part 2 and EN 50272-2

Technical **Data**

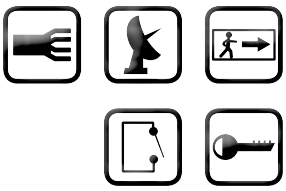
UfV/cell	1.8	1.77	1.75	1.67		IEC 896-1	Dimensions			Weight		
Discharging Time (h)	10	5	3	1	RI	Isc	L	W	H	Dry	Wet	Nr. Of
Cell Type	Ah				mΩ	A	mm/in			kg/lb		Poles
2 OPzS 2-100	107	94	82	60	1.48	1350	103/4.1	206/8.1	420/16.5	9/20	14/30	2
3 OPzS 2-150	155	136	117	86	1.08	1845	103/4.1	206/8.1	420/16.5	11/24	16/35	2
4 OPzS 2-200	208	180	158	115	0.84	2376	103/4.1	206/8.1	420/16.5	13/29	18/40	2
5 OPzS 2-250	259	224	197	144	0.69	3887	124/4.9	206/8.1	420/16.5	16/35	22/49	2
6 OPzS 2-300	310	268	234	171	0.58	3438	145/5.7	206/8.1	420/16.5	18/40	26/57	2
5 OPzS 2-350	380	325	280	205	0.64	3137	124/4.9	206/8.1	536/21.1	20/44	29/64	2
6 OPzS 2-420	454	389	336	245	0.55	3641	145/5.7	206/8.1	536/21.1	24/53	34/75	2
7 OPzS 2-490	532	454	392	286	0.48	4169	166/6.5	206/8.1	536/21.1	28/62	39/86	2
6 OPzS 2-600	640	544	477	348	0.45	4466	145/5.7	206/8.1	711/28.0	35/77	50/110	2
8 OPzS 2-800	853	727	638	466	0.33	6035	210/8.3	191/7.5	711/28.0	46/101	65/143	4
10 OPzS 2-1000	1065	909	796	581	0.26	7720	210/8.3	233/9.2	711/28.0	57/126	80/176	4
12 OPzS 2-1200	1278	1088	954	696	0.23	8814	210/8.3	275/10.8	711/28.0	66/146	93/205	4
12 OPzS 2-1500	1613	1381	1196	873	0.23	8605	210/8.3	275/10.8	861/33.9	88/194	119/262	4
16 OPzS 2-2000	2143	1838	1591	1162	0.17	12042	212/8.3	397/15.6	837/33.0	115/254	160/353	6
20 OPzS 2-2500	2675	2295	1988	1452	0.13	15007	212/8.3	487/19.2	837/33.0	145/320	200/441	8
24 OPzS 2-3000	3208	2752	2382	1739	0.12	17390	212/8.3	576/22.7	837/33.0	170/375	240/529	8

Electrolyte density: 1.24 ± 0.01kg/l at 20°C

All measures and weights are within standard production tolerances. Electrical values are approximate. Technical modifications are subject to change without prior notice.

AlphaCell™ OGi Batteries

OGi block batteries are robust vented lead-acid batteries designed for industrial applications for power supply systems with high safety requirements.



AlphaCell OGi Block Batteries and Transport Plugs

Design

Positive Electrode
- Robust-grid plate with circular bars in a corrosion-resistant PbSe alloy < 2% Sb

Negative Electrode
- Flat plate with long life expander and low antimony alloy

Separation
- Microporous separator

Electrolyte
- Sulfuric acid of 1.24 kg/l

Container
- High impact, transparent SAN

Lid
- SAN in dark gray color

Blocks with Blind Cells
- 4V, 6V, 8V, 10V

Plugs
- Ceramic plugs or optional ceramic funnel plugs according to DIN 40740

Pole Sealing
- 100% gas-and electrolyte-tight, sliding-pole

Pole
- M10, brass insert

Connector
- Flexible insulated copper cable, with cross-section of 35, 50, 70, 95 or 120 mm^2

Protection Standards
- IP 25 regarding DIN 40050, touch protected according to VBG 4

Charging

IU - Characteristic
- Imax without limitation

Float Charge
- U = 2.23 V/cell ± 1 %, between 10 and 55°C
  dU/dT = -0.004 mV/°K below 10°C in the monthly average

Boost Charge
- U = 2.35 to 2.40V/cell, time limited

Charging Time up to 92%
- 6h with 1.5*I10 initial current, 2.23 V/cell, 50% C10 discharged

Discharge Characteristics

Reference Temperature
- 20°C

Initial Capacity
- 100%

Depth of Discharge
- Normally up to 80%
- More than 80% DOD or discharges beyond final discharge voltages (dependent on discharge current) have to be avoided

Maintenance

Every 6 Months
- Check battery voltage, pilot block voltage, temperature

Every 12 Months
- Record battery voltage, block voltage, temperature

Operational Data

Operational Life
- Up to 15 years at 20°C
- Up to 7.5 years at 30°C
- Up to 4 years at 40°C

Water Refilling Interval
- More than 3 years at 20°C

IEC 896-1 Cycles
- 1000

Self-discharge
- Approx. 3% per month at 20°C

Operational Temperature
- -20 to 55°C, recommended 10 to 30 °C

Ventilation Requirement
- f1=0.5 (low-antimony alloy) according to VDE 0510 part 2

Measurements
- DIN 40 737 part 3

Testing Standards
- IEC 896-1

Applicable Standards
- VDE 0510 part 2

AlphaCell™ OGi Batteries

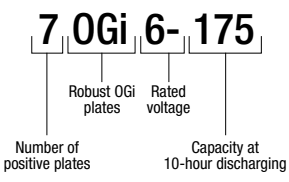
OGi block batteries can be used for both long duration discharge (10 hours) and short duration discharge (few minutes). The main areas of application are DC power supply systems in power stations, UPS systems, industrial systems and emergency power supply systems. They can also be used for engine starting and PV power systems.

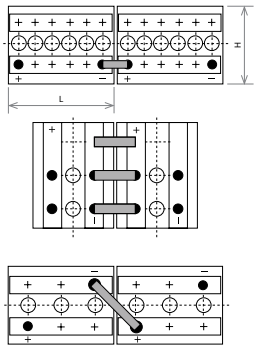
Optional: New **External Post** access design allows customers to measure individual intercell resistance and voltage.

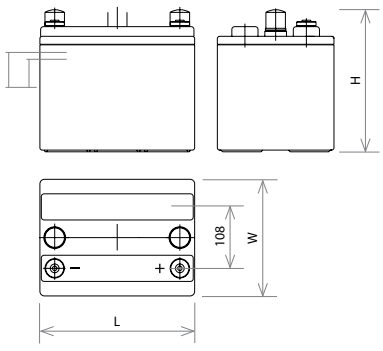
UfV/cell	1.8	1.75	1.75	1.7	1.65	1.65	1.6		IEC 896-1	Dimensions			Weight	
Discharging Time (h)	10	5	3	1	1/2	1/6	1/12	RI	Isc	L	W	H	Dry	Wet
Cell Type	**Ah**							**mΩ**	**kA**	**mm/in**			**kg/lb**	
1 OGi 12-25	29.0	25.5	22.5	16.8	14.3	9.2	6.7	16.79	0.72	272/10.1	205/8.1	392/15.4	22/49	33/73
2 OGi 12-50	55.0	49.5	44.7	32.8	28.0	18.0	13.1	8.81	1.41	272/10.1	205/8.1	392/15.4	30/66	41/90
3 OGi 12-75	80.0	74.5	67.5	49.6	42.2	27.3	19.8	5.94	2.11	272/10.1	205/8.1	392/15.4	38/84	49/108
4 OGi 12-100	105.0	98.5	89.4	65.7	56.1	36.1	26.1	4.46	2.81	272/10.1	205/8.1	392/15.4	47/104	58/128
5 OGi 12-125	135.0	123.0	111.3	81.6	69.0	44.3	31.7	3.57	3.52	380/15.0	205/8.1	392/15.4	62/137	78/172
6 OGi 12-150	165.0	148.5	133.8	98.2	82.5	52.7	37.1	2.97	4.22	380/15.0	205/8.1	392/15.4	71/156	86/190
7 OGi 6-175	187.2	167.3	151.3	110.7	91.2	56.9	39.6	1.27	4.93	272/10.1	205/8.1	392/15.4	38/83	49/108
8 OGi 6-200	228.0	197.5	178.8	130.0	108.0	67.3	46.8	1.11	5.63	272/10.1	205/8.1	392/15.4	42/92	53/117
9 OGi 6-225	254.0	221.5	200.7	145.8	121.5	75.5	52.6	0.99	6.36	380/15.0	205/8.1	392/15.4	52/114	68/150
10 OGi 6-250	270.0	247.0	223.5	161.7	133.0	80.5	55.3	0.89	7.04	380/15.0	205/8.1	392/15.4	56/123	72/159
11 OGi 6-275	304.0	271.5	245.1	177.6	146.0	88.5	60.7	0.81	7.78	380/15.0	205/8.1	392/15.4	59/130	75/165
12 OGi 6-300	320.0	296.0	268.2	194.4	159.5	96.5	66.3	0.74	8.44	380/15.0	205/8.1	392/15.4	63/139	79/174
3 OGi 2-75	80.0	74.5	67.5	49.6	42.2	27.3	19.8	0.99	2.11	103/4.1	206/8.1	420/16.5	9/20	14/30
4 OGi 2-100	105.0	98.5	89.4	65.7	56.1	63.1	26.1	0.74	2.81	103/4.1	206/8.1	420/16.5	10/22	15/32
5 OGi 2-125	135.0	123.0	111.3	81.6	69.0	44.3	31.7	0.60	3.52	103/4.1	206/8.1	420/16.5	11/24	15/34
6 OGi 2-150	165.0	148.5	133.8	98.2	82.5	52.7	37.1	0.50	4.22	103/4.1	206/8.1	420/16.5	12/26	16/35
7 OGi 2-175	187.2	167.3	151.3	110.7	91.2	56.9	39.6	0.42	4.93	103/4.1	206/8.1	420/16.5	13/28	17/36
8 OGi 2-200	228.0	197.5	178.8	130.0	108.0	67.3	46.8	0.37	5.63	103/4.1	206/8.1	420/16.5	13/30	17/38
9 OGi 2-225	254.0	221.5	200.7	145.8	121.5	75.5	52.6	0.33	6.36	103/4.1	206/8.1	420/16.5	14/31	18/39
10 OGi 2-250	270.0	247.0	223.5	161.7	133.0	80.5	55.3	0.30	7.04	126/5.0	206/8.1	420/16.5	14/32	21/45
11 OGi 2-275	304.0	271.5	245.1	177.6	146.0	88.5	60.7	0.27	7.78	145/5.7	206/8.1	420/16.5	16/35	23/51
12 OGi 2-300	320.0	296.0	268.2	194.4	159.5	96.5	66.3	0.25	8.44	145/5.7	206/8.1	420/16.5	18/39	25/54
24 OGi 2-600	684.0	592.5	536.4	390.0	324.0	201.9	140.4	0.13	16.42	205/8.1	272/10.1	392/15.4	42/92	53/117
30 OGi 2-750	810.0	741.0	670.5	485.1	399.0	241.5	165.9	0.10	21.89	205/8.1	380/15.0	392/15.4	56/123	72/159
36 OGi 2-900	960.0	888.0	804.6	583.2	178.5	289.5	198.9	0.08	24.63	205/8.1	380/15.0	392/15.4	63/139	79/174

Electrolyte density: 1.24 ± 0.01kg/l at 20°C

All measures and weights are within standard production tolerances. Electrical values are approximate. Technical modifications are subject to change without prior notice.







Technical **Data** | **Connections** | **Dimensions**

AlphaCell™ UPS Batteries

AlphaCell lead-acid UPS batteries are robust and optimized for high-discharge performance.

AlphaCell UPS Batteries and Transport Plugs

Design

Positive Electrode

- Robust-plate with circular bars in a corrosion-resistant PbSe Alloy <2% Sb

Negative Electrode

- Flat plate with long life expander and low antimony Alloy

Separation

- Microporous separator

Electrolyte

- Sulfuric acid of 1.28 kg/l

Container

- High impact, transparent SAN

Lid

- SAN in dark gray color

Blocks with Blind Cells

- 4V, 6V, 8V, 10V

Plugs

- Ceramic plugs or optional ceramic funnel plugs according to DIN 40740

Pole Sealing

- 100% gas-and electrolyte-tight, sliding-pole

Pole

- M10, brass insert

Connector

- Flexible insulated copper cable, with cross-section of 35, 50, 70, 95 or 120 mm^2

Protection Standards

- IP 25 regarding DIN 40050, touch protected according to VBG 4

Charging

IU - Characteristic

- Imax without limitation

Float Charge

- U = 2.25 to 2.27 V/cell ± 1 %, between 10°C and 55°C dU/dT = -0.004 mV/°K below 10°C in the monthly average

Boost Charge

- U = 2.35 to 2.40 V/cell, time limited

Charging Time up to 92 %

- 6h with 1.5*I10 initial current, 2.23 V/cell, 50% C10 discharged

Discharge Characteristics

Reference Temperature

- 20°C

Initial Capacity

- 100%

Depth of Discharge

- Normally up to 80%
- More than 80% DOD or discharges beyond final discharge voltages (dependent on discharge current) have to be avoided

Maintenance

Every 6 Months

- Check battery voltage, pilot block voltage, temperature

Every 12 Months

- Record battery voltage, block voltage, temperature

Operational Data

Operational Life

- Up to 12 years at 20°C
- Up to 6 years at 30°C
- Up to 3 years at 40°C

Water Refilling Interval

- More than 3 years at 20°C

IEC 896-1 Cycles

- 800

Self-discharge

- Approx. 3% per month at 20°C

Operational Temperature

- -20 to 55°C, recommended 10 to 30°C

Ventilation Requirement

- f1=0.5 (low-antimony alloy) according to VDE 0510 part 2

Measurement Standards

- DIN 40 737 part 3

Testing Standards

- IEC 896-1

Applicable Standards

- VDE 0510 part 2

AlphaCell™ UPS Batteries

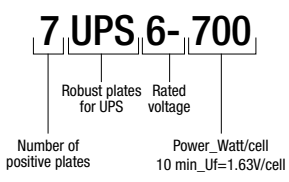
The main application for UPS batteries is Uninterruptible Power Supplies (UPS) in the range of 50 to 250kvA. The battery is also perfectly suited for starting diesel engines for the auxiliary power supply.

UfV/cell	1.8	1.75	1.75	1.7	1.63	1.6		IEC 896-1	Dimensions			Weight	
Discharging Time (h)	C10	60	30	15	10	5	RI	Isc	L	W	H	Dry	Wet
Cell Type	**Ah**	**W/cell**					**mΩ**	**kA**	**mm/in**			**kg/lb**	
1 UPS 12-100	41	42	64	92	120	181	16.80	0.73	272/10.1	205/8.1	392/15.4	22/49	33/73
2 UPS 12-200	59	73	112	169	218	323	8.40	1.46	272/10.1	205/8.1	392/15.4	30/66	41/90
3 UPS 12-300	89	103	162	246	313	165	5.60	2.20	272/10.1	205/8.1	392/15.4	38/84	49/108
4 UPS 12-1400	114	135	210	322	410	606	4.20	2.93	272/10.1	205/8.1	392/15.4	47/104	58/128
5 UPS 12-500	147	169	264	412	520	755	3.36	3.66	380/15.0	205/8.1	392/15.4	62/137	78/172
6 UPS 12-600	179	204	327	500	629	895	2.80	4.39	380/15.0	205/8.1	392/15.4	71/156	86/190
7 UPS 6-700	206	237	384	588	737	1040	1.20	5.13	272/10.1	205/8.1	392/15.4	37/82	49/108
8 UPS 6-800	247	272	440	676	848	1187	1.05	5.86	272/10.1	205/8.1	392/15.4	42/92	53/117
9 UPS 6-900	271	306	492	742	913	1294	0.93	6.59	380/15.0	205/8.1	392/15.4	52/115	68/150
10 UPS 6-1000	293	342	558	812	1014	1403	0.84	7.32	380/15.0	205/8.1	392/15.4	57/126	72/159
11 UPS 6-1100	325	381	592	879	1098	1509	0.76	8.05	380/15.0	205/8.1	392/15.4	59/130	75/165
12 UPS 6-1200	347	418	640	946	1178	1613	0.70	8.79	380/15.0	205/8.1	392/15.4	63/139	86/190
24 UPS 2-2400	742	816	1321	2027	2544	3562	0.13	17.58	205/8.1	272/10.1	392/15.4	42/92	53/117
30 UPS 2-3000	879	1027	1674	2437	3042	4209	0.10	21.90	205/8.1	380/15.0	392/15.4	57/126	72/159
36 UPS 2-3600	1041	1253	1920	2837	3535	4838	0.08	26.30	205/8.1	380/15.0	392/15.4	63/139	86/190

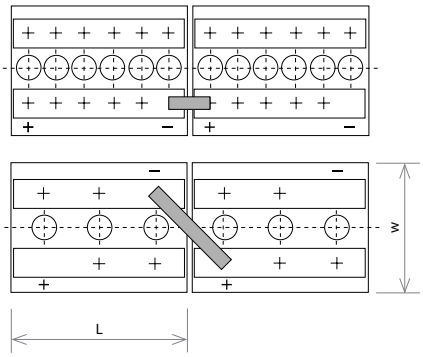
100W is the average power per plate at the 10 min rate Uf=1.63

Electrolyte density: 1.28 ± 0.01kg/l at 20°C

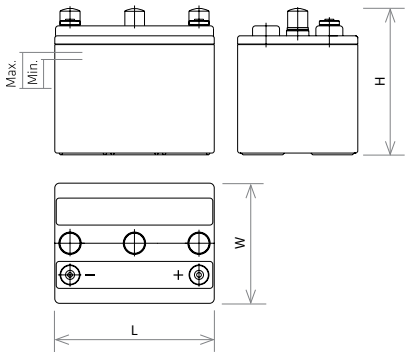
All measures and weights are within standard production tolerances. Electrical values are approximate. Technical modifications are subject to change without prior notice.



Technical **Data**



Connections



Dimensions

AlphaCell™ TOPzS

Low Maintenance Vented Stationary Batteries

AlphaCell TOPzS Batteries

Characteristics include:

- High capacity
- Long life
- Reduced maintenance
- Low self-discharge rate

TOPzS stationary batteries are manufactured according to the DIN 40736, EN 60896, and IEC 896-1 regulations. Individual cells (2V) are made from translucent PP containers.

Application

Stationary batteries of the TOPzS type are especially designed for photovoltaic systems. Due to their extremely low self-discharging rate and tubular positive plates, they are very suitable for off-grid solar power systems.

Construction

The positive armored plate is of a tubular type, with the active substance (PbO_2) contained in a special gauntlet made of polyester fibers and hardened by an impregnation compound. This construction prevents the active substance from escaping during the battery operation and ensures a long life time.

The grids of both the positive and negative plates are made of a special low percentage (less than 2%) antimony alloy with additional agents used for improvement of the crystalline structure of the casting. Negative plates are pasted-type with special alloys maintaining porosity of the active substance during battery operation.

The electrolyte is a diluted sulfuric acid (H_2SO_4) with a density of 1.24 ± 0.01 kg/l at 20 degrees C, and is used at the maximum permitted level. Separators between the positive and negative plates are made of a microporous plastic material with a low electric resistance. The cell containers are transparent, with the lids made of non-transparent SAN material (styrenacrylnitril). In a special process, the lids are tightly sealed with thermo welding to the container. The terminal plugs are also sealed with rubber seals, preventing any escape of electrolyte from the cells. Due to the transparency of the containers, the electrolyte level is clearly visible, with the maximum and minimum levels marked on a self-adhesive acid-proof label on the side of the container.

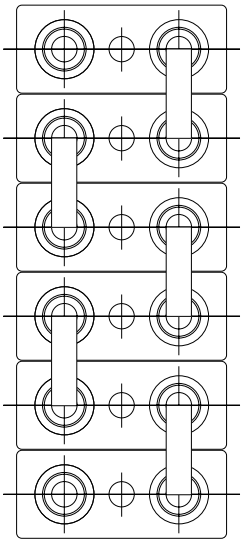
Two versions of batteries are available:

- DRY-CHARGE:

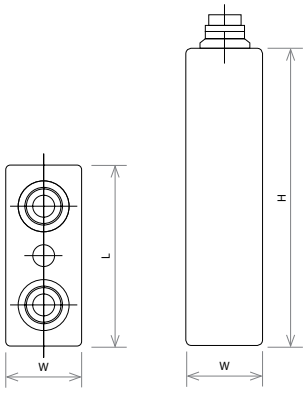
  The battery has to be filled with an electrolyte and supplementary charged before use. The plates are already formed and protected against oxidation, and can be stored without problems.

- ELECTROLYTE-CHARGE:

  The battery can be installed immediately, because it is already filled with electrolyte and electrically charged as well.



Connections



Dimensions

AlphaCell™ TOPzS
Low Maintenance Vented Stationary Batteries

Characteristics include:

- Quick and simple acid level control
- Economical water consumption
- Appropriate dimensions and weight
- Low and constant maintenance current

Design

Positive Electrode
- Tubular positive plate plate with low antimony alloy (<2%)

Negative Electrode
- Flat plate with long life expander

Separation
- Microporous separator

Electrolyte
- Sulfuric acid of 1.24kg/l

Container
- Transparent PP

Lid
- PP in green color

Pole Sealing
- 100% gas-and electrolyte-tight, rubber seal

Pole
- M10, brass insert

Connector
- Flexible insulated copper cable, with cross-section of 35, 50, or 70 mm^2

Pole Screw
- M10, steel, insulated

Charging

IU - Characteristic
- Imax without limitation

Float Voltage
- U = 2.23 V/cell ± 1%

Boost Charge
- U = 2.35 to 2.40 V/cell

Discharge Characteristics

Reference Temperature
- 20°C at C10 (1.80V/cell) and 25°C at C100 (1.85V/cell)

Initial Capacity
- 100%

Depth of Discharge
- Normally up to 80%
- More than 80% DOD or discharges beyond final discharge voltages (dependent on discharge current) have to be avoided

Maintenance

Every 6 Months
- Check battery voltage, pilot block voltage, temperature

Every 12 Months
- Record battery voltage, block voltage, temperature

Operational Data

Operational Life
- Up to 15 years

IEC 896-1 Cycles
- 1200

Self-discharge
- Approx. 3% per month at 20°C

Operational Temperature
- -20 to 55°C, recommended 10 to 30°C

Testing Standards
- IEC 896-1, EN 60896-1, EN 61427

Safety Standard, Ventilation
- EN 50272-2

Cell Type	Dimensions (mm/in)			Weight (kg/lb)		C10	C100
	L	W	H	Dry	Wet		
3 TOPzS 265	198/7.8	83/3.3	472/18.6	12/27	18/41	265	345
4 TOPzS 353	198/7.8	101/4.0	472/18.6	16/35	23/51	353	458
5 TOPzS 442	198/7.8	119/4.7	472/18.6	20/45	29/64	442	575
4 TOPzS 500	198/7.8	101/4.0	720/28.4	24/54	35/78	500	650
5 TOPzS 625	198/7.8	119/4.7	720/28.4	30/67	43/95	625	812
6 TOPzS 750	198/7.8	137/5.4	720/28.4	38/84	54/118	750	975
7 TOPzS 875	198/7.8	173/6.8	720/28.4	44/97	64/142	875	1137
8 TOPzS 1000	198/7.8	191/7.5	720/28.4	50/111	73/160	1000	1300

Electrolyte density: 1.24 ± 0.01kg/l at 20°C

All measures and weights are within standard production tolerances. Electrical values are approximate. Technical modifications are subject to change without prior notice.

AlphaCell™ OPzV Batteries

Characteristics include:

- Long life (+15 years design life)
- Versatile
- Reliable and safe
- Minimal gassing
- Deep discharge resistance

AlphaCell OPzV Battery

Float Voltage

- Standby use 2.25 V/cell

Boost Charge

- Maximum voltage of 2.35 - 2.40 V/cell with a maximum current of 0.25 C10 (A)

Self-discharge

- Approx. 2% per month at 20°C

Tubular Positive Plates

- Special grid construction, pressure cast from antimony free alloy, with highly porous gauntlets that retain the active material

Pasted Negative Plates

- Service life consistent with the positive plates

Electrolyte

- Gel structure

Separators

- Extremely high porosity and low internal resistance

Containers and Lids

- Made of plastic (ABS) material. Also available in ABS flame retardant material as an option (according to IEC 707 FV 0)

Installation

- Cells are normally installed in an upright position on steel stands

One Way Relief Valve

- Opens at low pressure and is fitted with a flame arrestor device

Terminals

- Female treated terminals (M10) ensure perfect contact and a low resistance with the flexible cable

Post Seals

- Prevents electrolyte leakage and terminal corrosion

Connectors

- Flexible, fully insulated cable connectors attached (with 20 ±1 nm) to the terminal with an insulated screw containing a probe hole on the top for electrical measurement

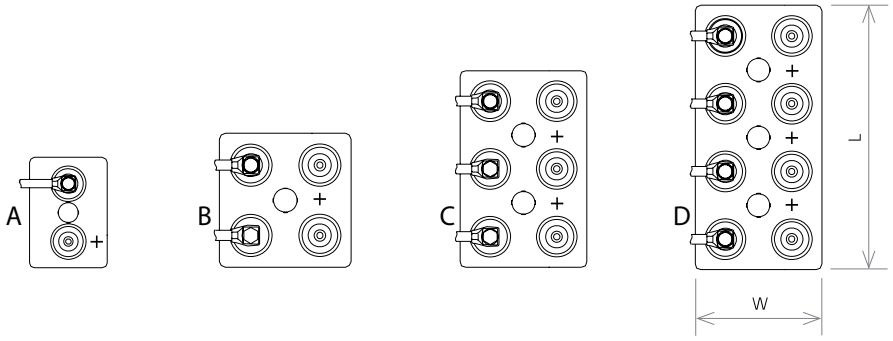
AlphaCell™ OPzV Batteries

The OPzV range of valve regulated lead acid stationary batteries combines the benefits of recombination technology (i.e. virtually no maintenance due to very low gas emissions) plus the advantages of conventional vented batteries with positive tubular plates (i.e. long life and excellent cycling capability).

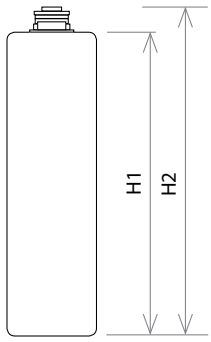
AlphaCell™ OPzV valve regulated lead acid batteries are the ideal energy source for many different standby applications.

DIN 40742	Capacity (Ah at 20°C)					RI	Isc	Fig	Dimensions				Weight
	Nomin. Cap.	10 hrs to	5 hrs to	3 hrs to	1 hr to				L	W	H1	H2	
	10 hrs / 1.8VPC	1.8VPC	1.77VPC	1.75VPC	1.67VPC	mΩ	A		mm/in				kg/lb
4 OPzV 2-200	200	204	172	150	106	1.22	1660	A	103/4.1	206/8.1	354/13.9	380/15.0	19/42
5 OPzV 2-250	250	255	215	188	133	0.98	2080	A	124/4.9	206/8.1	354/13.9	380/15.0	23/51
6 OPzV 2-300	300	306	258	225	159	0.85	2490	A	145/5.7	206/8.1	354/13.9	380/15.0	28/62
5 OPzV 2-350	350	357	300	263	185	0.75	2770	A	124/4.9	206/8.1	471/18.5	496/19.5	31/68
6 OPzV 2-420	420	429	360	315	222	0.61	3350	A	145/5.7	206/8.1	471/18.5	496/19.5	36/79
7 OPzV 2-490	490	500	420	368	259	0.52	3900	A	166/6.5	206/8.1	471/18.5	496/19.5	41/90
6 OPzV 2-600	600	612	516	450	312	0.51	4060	A	145/5.7	206/8.1	643/25.3	668/26.3	49/108
8 OPzV 2-800	800	816	688	600	416	0.38	5390	B	210/8.3	191/7.5	664/26.1	669/26.3	65/143
10 OPzV 2-1000	1000	1020	860	750	520	0.30	6760	B	210/8.3	233/9.2	646/25.4	671/26.4	80/176
12 OPzV 2-1200	1200	1251	1032	900	624	0.26	8120	B	210/8.3	275/10.8	665/26.2	670/26.4	93/205
12OPzV 2-1500	1500	1530	1260	1116	744	0.23	8810	B	210/8.3	275/10.8	796/31.3	821/32.3	115/254
16 OPzV 2-2200	2000	2040	1680	1488	992	0.17	11510	C	214/8.4	399/15.7	771/30.4	796/31.3	155/342
20 OPzV 2-2500	2500	2550	2100	1860	1240	0.14	14400	D	214/8.4	487/19.2	769/30.3	794/31.3	200/441
24 OPzV 2-3000	3000	3060	2520	2232	1488	0.12	17260	D	214/8.4	576/22.7	771/30.3	796/31.3	235/518

All measures and weights are within standard production tolerances. Electrical values are approximate. Technical modifications are subject to change without prior notice.



Connections



Dimensions

Power

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