

**ULTIMA Ni-Cd BATTERY: PEAK PERFORMANCE
WITH ULTRA LOW MAINTENANCE**



S A F T

ULTRA LOW MAINTENANCE Ni-Cd FOR WHEN SAFETY CANNOT BE COMPROMISED

Developed in line with long proven nickel-cadmium technology, the Ultima battery is an exceptionally reliable recombination pocket plate battery incorporating special technical features within its construction.

Delivering long life and requiring minimal maintenance, there is no better solution for installations where the risk of failure is unacceptable, as in UPS systems, emergency lighting, process control and telecommunications. The Ultima nickel-cadmium battery is

eminently suitable for "remote" application such as in offshore and switching substation operations, where the system must be totally reliable and require the minimum of maintenance visits. It is also ideal for use in railroad signaling.



No water filling

No water filling is necessary during the Ultima 20-year service life because of the controlled recombination and the valve regulated venting system (topping up is possible if required).

Valve regulated

Controlled recombination is made possible through a specific cell design and low pressure flame arresting vent. The risk of thermal runaway is eliminated by the use of free electrolyte and a recombination level of 85% to 95%, depending on floating voltage – a major advantage over VRLA batteries where starved electrolyte is often the cause of failure.

Office compatibility

Due to very low gas evolution, special ventilation of the battery room is not needed.

The benefit of Ni-Cd pocket plate technology

Ni-Cd technology eliminates all risk of sudden death during the battery's exceptionally long service life. Operating in a wide temperature range, it is resistant to electrical and physical abuse. With fast recharging and extended storage, the unit is simple to install and is environmentally safe.

Designed to be durable

Ultima's tough cell container cradles the battery's positive nickel hydroxide and negative cadmium hydroxide plates, and alkaline electrolyte. Optimum performance is delivered without comprising structural integrity. These active materials are contained in pockets formed from double perforated steel strips. After being mechanically linked, cut to size, compressed to final plate dimensions and welded to a current carrying bus bar assembly, the heart of the nickel-cadmium cell is formed.



Guarding the environment

Saft takes seriously its responsibility to ensure manufacture, installation and operation do not harm the environment.

99.9% of the Ni-Cd battery is recyclable. At Saft's dedicated recycling centre, nickel, cadmium, steel and plastic are recovered from end-of-life batteries, ensuring maximum utilisation.

Quality built, quality tested

Ultima is manufactured in Sweden at Oskarshamn, one of Saft's many internationally accredited ISO9001 sites. Highest quality materials and rigorous quality checking procedures ensure all relevant international standards are met including IEC 60623.



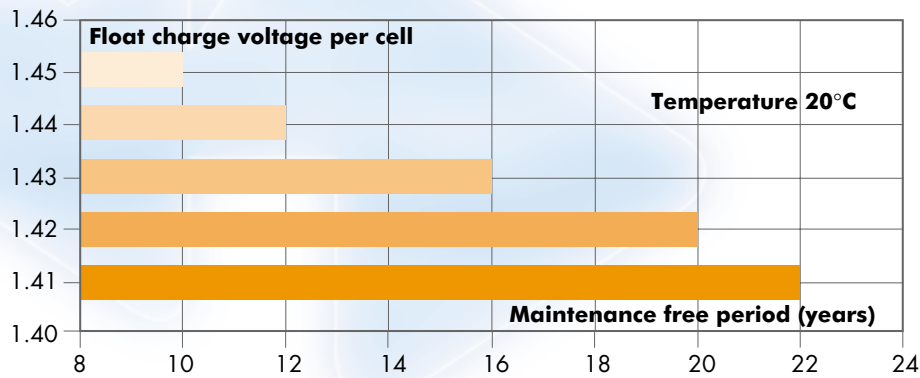
CELL CAPACITY AND DIMENSIONS

Flexibility of charging

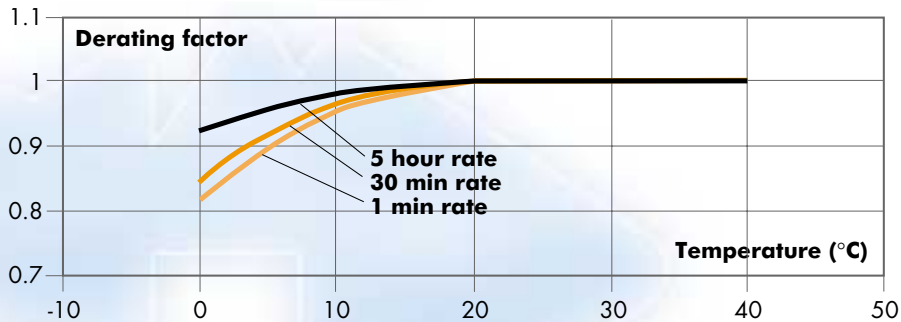
Charging may be quickly and simply carried out by either double or single level methods. Dependent upon prevailing conditions, Ultima can be charged to an average maximum voltage of 1.45 V/cell or to 1.55 V/cell for an even faster recharge.

A second stage float voltage of between 1.41 – 1.43 V/cell ensures the battery is ready for service.

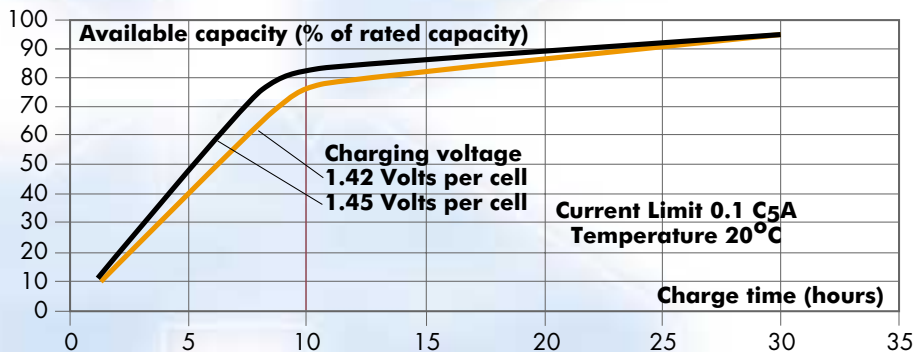
Alternatively, a float charge of between 1.41 – 1.43 V/cell brings Ultima to up to 80% capacity after only 16 hours from a fully discharged state.



Effect of charging voltage on maintenance free period.



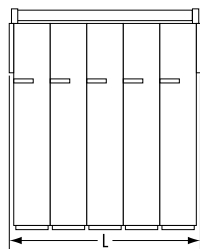
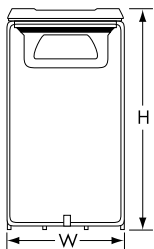
Typical cell performance variation with temperature.



Available capacity on float charge from a fully discharged cell.

CELL CAPACITY AND DIMENSIONS

Cell type	Voltage (V)	Rated capacity C ₅ Ah	Dimensions (mm)			Weight (kg)	Cell connection bolt per pole	Electrolyte reserve cm ³ /cell
			L	W	H			
SLM 8-4	4.8	8	133	123	270	5.5	M6	48
SLM 8-5	6	8	162	123	270	6.8	M6	48
SLM 8-6	7.2	8	191	123	270	8.1	M6	48
SLM 16-4	4.8	16	133	123	270	6.1	M6	95
SLM 16-5	6	16	162	123	270	7.6	M6	95
SLM 16-6	7.2	16	191	123	270	9.1	M6	95
SLM 24-4	4.8	24	153	123	270	7.3	M6	145
SLM 24-5	6	24	187	123	270	9.0	M6	145
SLM 24-6	7.2	24	221	123	270	10.7	M6	145
SLM 32-4	4.8	32	201	123	270	10.0	M6	190
SLM 32-5	6	32	247	123	270	12.4	M6	190
SLM 32-6	7.2	32	293	123	270	14.8	M6	190
SLM 40-4	4.8	40	249	123	270	12.3	M6	240
SLM 40-5	6	40	307	123	270	15.3	M6	240
SLM 40-6	7.2	40	365	123	270	18.3	M6	240
SLM 48-4	4.8	48	249	123	270	13.7	M6	290
SLM 48-5	6	48	307	123	270	17.0	M6	290
SLM 48-6	7.2	48	365	123	270	20.3	M6	290
SLM 71-2	2.4	71	97	195	406	10.2	M8	425
SLM 71-3	3.6	71	133	195	406	14.6	M8	425
SLM 95-2	2.4	95	112	195	406	13.3	M8	570
SLM 95-3	3.6	95	155	195	406	19.4	M8	570
SLM 119-2	2.4	119	133	195	406	15.8	M10	715
SLM 119-3	3.6	119	187	195	406	23.2	M10	715
SLM 142-2	2.4	142	145	195	406	18.5	M10	850
SLM 142-3	3.6	142	205	195	406	27.0	M10	850
SLM 166-2	2.4	166	184	195	406	22.8	2 x M8	995
SLM 166-3	3.6	166	263	195	406	33.6	2 x M8	995
SLM 190-2	2.4	190	198	195	406	25.5	2 x M8	1140
SLM 190-3	3.6	190	284	195	406	37.7	2 x M8	1140
SLM 238-2	2.4	238	241	195	406	30.5	2 x M10	1430
SLM 238-3	3.6	238	349	195	406	45.3	2 x M10	1430
SLM 285-2	2.4	285	265	195	406	33.6	2 x M10	1710
SLM 285-3	3.6	285	385	195	406	49.9	2 x M10	1710
SLM 357-1	1.2	357	187	195	406	23.2	3 x M10	2140
SLM 357-2	2.4	357	349	195	406	45.0	3 x M10	2140
SLM 426-1	1.2	426	205	195	406	27.0	3 x M10	2555
SLM 476-1	1.2	476	241	195	406	30.2	4 x M10	2855



CELL PERFORMANCE DATA

Available amperes at 20 ± 5°C

Tabular Discharge Data

Discharge data is for cells after floating at 1.42 Volts and allowing for voltage losses associated with connectors.

Available amperes at 20°C (68°F) fully charged

End voltage - **1.00 V/cell**

Cell type	C _s Ah	Hours					Minutes					Seconds				
		10	8	5	3	2	90	60	45	30	10	5	60	30	10	1
SLM 8	8	0.8	1.0	1.6	2.6	3.8	4.7	6.1	6.9	8.0	10.9	12.2	16.2	17.9	21.1	25.5
SLM 16	16	1.6	2.0	3.2	5.1	7.6	9.4	12.2	13.8	16.0	21.8	24.5	32.3	35.7	42.2	51.0
SLM 24	24	2.4	3.0	4.8	7.7	11.3	14.1	18.4	20.7	24.0	32.6	36.7	48.5	53.6	63.2	76.5
SLM 32	32	3.2	4.0	6.4	10.3	15.1	18.8	24.5	27.5	32.0	43.5	49.0	64.6	71.4	84.3	102
SLM 40	40	4.0	5.1	8.0	12.8	18.9	23.5	30.6	34.4	40.0	54.4	61.2	80.8	89.3	105	128
SLM 48	48	4.9	6.1	9.6	15.4	22.7	28.2	36.7	41.3	47.9	65.3	73.4	96.9	107	126	153
SLM 71	71	7.2	9.0	14.2	22.8	33.9	41.8	54.3	61.4	70.8	94.0	100.3	123	134	153	179
SLM 95	95	9.7	12.0	19.0	30.5	45.3	55.9	72.6	82.2	94.7	126	134	165	180	205	239
SLM 119	119	12.1	15.0	23.8	38.2	56.8	70.0	91.0	103	119	157	168	207	225	256	299
SLM 142	142	14.5	17.9	28.4	45.6	67.8	83.5	109	123	142	188	201	247	269	306	357
SLM 166	166	16.9	21.0	33.2	53.3	79.2	97.6	127	144	165	220	235	288	314	358	417
SLM 190	190	19.4	24.0	37.9	61.0	90.7	112	145	164	189	251	268	330	359	409	478
SLM 238	238	24.3	30.0	47.5	76.4	114	140	182	206	237	315	336	413	450	513	598
SLM 285	285	29.1	36.0	56.9	91.5	136	168	218	247	284	377	403	495	539	614	717
SLM 357	357	36.3	45.0	71.4	115	170	210	273	309	357	471	504	621	675	768	897
SLM 426	426	43.5	53.7	85.2	137	203	251	327	369	426	564	603	741	807	918	1071
SLM 476	476	48.6	60.0	95.0	153	228	280	364	412	474	630	672	826	900	1026	1196

Available amperes at 20°C (68°F) fully charged

End voltage - **1.05 V/cell**

Cell type	C _s Ah	Hours					Minutes					Seconds				
		10	8	5	3	2	90	60	45	30	10	5	60	30	10	1
SLM 8	8	0.8	1.0	1.6	2.5	3.5	4.3	5.4	5.9	6.5	8.5	9.9	13.3	15.0	17.5	22.1
SLM 16	16	1.6	2.0	3.2	5.1	7.1	8.7	10.9	11.8	12.9	17.0	19.7	26.5	29.9	35.0	44.2
SLM 24	24	2.4	3.0	4.7	7.6	10.6	13.0	16.3	17.7	19.4	25.5	29.6	39.8	44.9	52.5	66.3
SLM 32	32	3.2	4.0	6.3	10.1	14.2	17.3	21.8	23.7	25.8	34.0	39.4	53.0	59.8	70.0	88.4
SLM 40	40	4.1	5.0	7.9	12.7	17.7	21.7	27.2	29.6	32.3	42.5	49.3	66.3	74.8	87.6	111
SLM 48	48	4.9	6.0	9.5	15.2	21.2	26.0	32.6	35.5	38.8	51.0	59.2	79.6	89.8	105	133
SLM 71	71	7.2	8.9	14.1	22.8	32.6	38.3	46.3	51.6	59.6	74.8	83.3	106	114	128	149
SLM 95	95	9.6	11.9	18.9	30.5	43.6	51.2	61.9	69.1	79.8	100	111	142	152	171	199
SLM 119	119	12.0	14.9	23.6	38.2	54.6	64.2	77.6	86.5	100	125	140	178	191	214	249
SLM 142	142	14.3	17.7	28.2	45.6	65.1	76.6	92.6	103	119	150	167	213	228	255	298
SLM 166	166	16.7	20.7	33.0	53.3	76.1	89.5	108	121	139	175	195	248	266	298	348
SLM 190	190	19.2	23.7	37.7	61.0	87.1	102	124	138	160	200	223	284	305	341	398
SLM 238	238	24.0	29.7	47.2	76.4	109	128	155	173	200	251	279	356	382	427	499
SLM 285	285	28.7	35.6	56.6	91.5	131	154	186	207	239	300	334	426	457	512	597
SLM 357	357	36.0	44.7	70.8	115	164	193	233	260	300	375	420	534	573	642	747
SLM 426	426	42.9	53.1	84.6	137	195	230	278	309	357	450	501	639	684	765	894
SLM 476	476	48.0	59.4	94.4	153	218	256	310	346	400	502	558	712	764	854	998

CELL PERFORMANCE DATA

Available amperes at 20 ± 5°C

Available amperes at 20°C (68°F) fully charged

End voltage - **1.10 V/cell**

Cell type	C ₅ Ah	Hours					Minutes					Seconds				
		10	8	5	3	2	90	60	45	30	10	5	60	30	10	1
SLM 8	8	0.8	1.0	1.6	2.3	3.0	3.5	4.4	4.8	5.3	6.5	7.6	10.5	11.9	14.1	17.9
SLM 16	16	1.6	2.0	3.1	4.6	5.9	7.0	8.8	9.5	10.5	13.0	15.1	21.1	23.8	28.2	35.7
SLM 24	24	2.4	3.0	4.7	6.8	8.9	10.5	13.3	14.3	15.8	19.4	22.7	31.6	35.7	42.3	53.6
SLM 32	32	3.2	4.0	6.2	9.1	11.9	14.0	17.7	19.0	21.1	25.9	30.3	42.2	47.6	56.4	71.4
SLM 40	40	4.0	5.0	7.8	11.4	14.9	17.6	22.1	23.8	26.4	32.4	37.8	52.7	59.5	70.6	89.3
SLM 48	48	4.8	6.0	9.3	13.7	17.8	21.1	26.5	28.6	31.6	38.9	45.4	63.2	71.4	84.7	107
SLM 71	71	7.1	8.8	13.8	22.8	29.0	33.5	39.2	42.7	47.2	58.3	64.6	83.3	92.7	102	111
SLM 95	95	9.5	11.8	18.4	30.5	38.9	44.8	52.4	57.2	63.1	78.0	86.4	111	124	136	149
SLM 119	119	11.9	14.7	23.1	38.2	48.7	56.1	65.6	71.6	79.1	97.7	108	140	155	171	187
SLM 142	142	14.2	17.6	27.5	45.6	58.1	67.0	78.3	85.4	94.3	117	129	167	185	204	223
SLM 166	166	16.6	20.5	32.2	53.3	67.9	78.3	91.6	100	110	136	151	195	217	238	260
SLM 190	190	19.0	23.5	36.9	61.0	77.7	89.6	105	114	126	156	173	223	248	273	298
SLM 238	238	23.8	29.5	46.2	76.4	97.3	112	131	143	158	195	217	279	311	342	373
SLM 285	285	28.5	35.3	55.3	91.5	117	134	157	171	189	234	259	334	372	409	447
SLM 357	357	35.7	44.1	69.3	115	146	168	197	215	237	293	324	420	465	513	561
SLM 426	426	42.6	52.8	82.5	137	174	201	235	256	283	351	387	501	555	612	669
SLM 476	476	47.6	59.0	92.4	153	195	224	262	286	316	390	434	558	622	684	746

Available amperes at 20°C (68°F) fully charged

End voltage - **1.14 V/cell**

Cell type	C ₅ Ah	Hours					Minutes					Seconds				
		10	8	5	3	2	90	60	45	30	10	5	60	30	10	1
SLM 8	8	0.8	1.0	1.5	2.0	2.4	2.7	3.4	3.7	4.1	5.3	6.2	8.3	9.7	11.6	15.1
SLM 16	16	1.6	1.9	3.0	3.9	4.8	5.5	6.7	7.3	8.2	10.5	12.3	16.7	19.4	23.1	30.3
SLM 24	24	2.3	2.9	4.6	5.9	7.2	8.2	10.1	11.0	12.2	15.8	18.5	25.0	29.1	34.7	45.4
SLM 32	32	3.1	3.8	6.1	7.9	9.6	11.0	13.5	14.6	16.3	21.1	24.6	33.3	38.8	46.2	60.5
SLM 40	40	3.9	4.8	7.6	9.9	12.0	13.7	16.8	18.3	20.4	26.4	30.8	41.7	48.5	57.8	75.7
SLM 48	48	4.7	5.7	9.1	11.8	14.4	16.5	20.2	21.9	24.5	31.6	36.9	50.0	58.1	69.4	90.8
SLM 71	71	6.9	8.5	13.5	18.5	22.0	23.7	27.1	28.5	32.9	41.8	48.5	62.9	68.0	76.5	86.7
SLM 95	95	9.2	11.4	18.0	24.7	29.4	31.7	36.3	38.1	44.1	55.9	64.8	84.2	91.0	102	116
SLM 119	119	11.6	14.3	22.6	31.0	36.9	39.7	45.5	47.7	55.2	70.0	81.2	105	114	128	145
SLM 142	142	13.8	17.1	27.0	37.0	44.0	47.3	54.3	57.0	65.9	83.5	96.9	126	136	153	173
SLM 166	166	16.1	19.9	31.5	43.2	51.4	55.3	63.5	66.6	77.0	97.6	113	147	159	179	203
SLM 190	190	18.5	22.8	36.1	49.5	58.9	63.3	72.6	76.2	88.1	112	130	168	182	205	232
SLM 238	238	23.1	28.6	45.2	62.0	73.7	79.3	91.0	95.5	110	140	162	211	228	256	291
SLM 285	285	27.7	34.2	54.1	74.2	88.3	95.0	109	114	132	168	194	252	273	307	348
SLM 357	357	34.8	42.9	67.8	93.0	111	119	137	143	166	210	244	315	342	384	435
SLM 426	426	41.4	51.3	81.0	111	132	142	163	171	198	251	291	378	408	459	519
SLM 476	476	46.2	57.2	90.4	124	147	159	182	191	220	280	324	422	456	512	582

Argentina

Saft Argentina SA, Buenos Aires
Tel: +54 11 4 686 1994
Fax: +54 11 684 1925

Australia

Saft Pty Ltd, Seven Hills
Tel: +61 2 9674 0700
Fax: +61 2 9620 9990

Brazil

Saft Ltda., São Paulo
Tel: +55 11 6100 6300
Fax: +55 11 6100 6338

Canada

Please contact USA office

France

Division France, Bagnolet
Tel: +33 (0)1 49 93 19 18
Fax: +33 (0)1 49 93 19 50

Germany

Saft GmbH, Nürnberg
Tel: +49 911 94 174-0
Fax: +49 911 426 144

Hong-Kong

Saft Nife Ltd, Kowloon
Tel: +852 2795 27 19
Fax: +852 2798 05 77

Italy

Saft SpA, Vimercate (Milano)
Tel: +39 039 68 69 275
Fax: +39 039 68 63 847

Japan

Sumitomo Corp., Tokyo
Tel: +81 3 3230 7010
Fax: +81 3 3237 5370

Middle East

Saft ME Ltd, Limassol, Cyprus
Tel: +357 53 40 637
Fax: +357 57 48 492

Netherlands

Saft BV, Haarlem
Tel: +31 23 750 5720
Fax: +31 23 750 5725

Norway

Saft AS, Osteraas
Tel: +47 6716 4160
Fax: +47 6716 4170

Singapore

Saft Pte Ltd
Singapore
Tel: +65 84 65 700
Fax: +65 74 16 396

Spain

Saft Iberica SL, Minano
Tel: +34 94 521 4110
Fax: +34 94 521 4111

Sweden

Saft AB, Oskarshamn
Tel: +46 491 68000
Fax: +46 491 68180

United Kingdom

Saft Ltd, Harlow
Tel: +44 (0) 1279 772550
Fax: +44 (0) 1279 420909

USA

Saft America Inc
Stationary batteries
North Haven, Connecticut
Tel: +1 203 239 4718
Fax: +1 203 234 7598

Railway batteries
Cockeysville, MD
Tel: +1 410 771 3200
Fax: +1 410 771 1144

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Saft**Industrial Battery Group**

12, rue Sadi Carnot
93170 Bagnolet - France
Tel: +33 (0)1 49 93 19 18
Fax: +33 (0)1 49 93 19 50

www.saftbatteries.com

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