



ES 1,2-12

12V - 1,2 Ah



Electrical specifications

Nominal Voltage		12 V
Capacity 25°C to 1,8V/c	20 hour rate	1,2 Ah
	10 hour rate	1,1 Ah
	8 hour rate	1,0 Ah
	3 hour rate	0,9 Ah
	1 hour rate	0,6 Ah
Self discharge @ 25°C	per month	2,5 - 3 %
Internal Resistance	fully charged	approx 110 mΩ
Maximum current @ 25°C	charging	0,36 A
	discharging (5sec)	18 A
Charge Voltage @25°C	Float (-18mV/°C)	2,27 - 2,29 V/Cell
Charge Voltage @25°C	Cyclic (-30mV/°C)	2,41 - 2,48 V/Cell

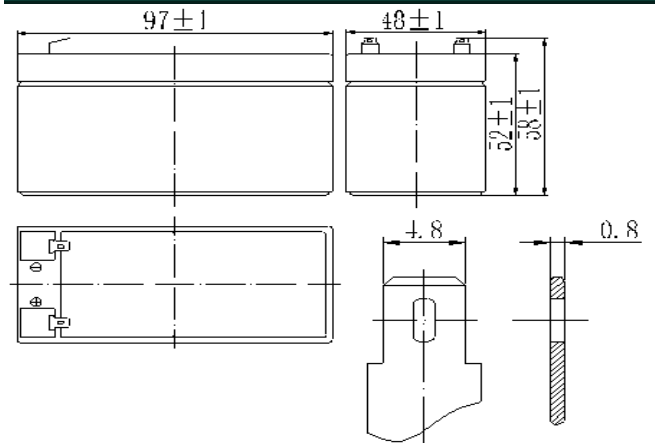
Other specifications

Design Floating Life @ 20°C		3-5 Years
Dimensions LxWxH (± 1mm)		97x48x52 mm
	Total height	58 mm
Operating Temperature (storage)		-20 to +50 °C
Separator		Absorbent Glass Mat
Grid alloy		Calcium / Tin lead alloy
Case and cover		ABS / VDS
Electrolyte		Sulphuric Acid
Terminal / Length		.187 (F1) faston
Optional terminal types		none
Torque setting		none Nm
Weight		0,52 (±5%) kg

Innovative Features

- Completely maintenance free, sealed construction eliminates the need for adding water
- Fully tank formed plates
- Analytical grade electrolyte
- Spill proof / leak proof
- Valve regulated Max internal pressure 2,5 psi
- Multi-position usage
- ABS Case and cover (V0 optional)
- Low self discharge
- FAA and IATA approved as non-hazardous
- Built to comply with IEC 8962, DIN 43534, BS 6290 Pt4, Eurobat

Dimensions



Constant Amps Discharge - Amps at 25°C

V/Cell	5m	10m	15m	20m	25m	30m	35m	40m	45m	50m	55m	60m	90m	2h	3h	4h	5h	6h	7h	8h	9h	10h	12h	20h
1,80	3,99	2,38	1,91	1,53	1,21	1,11	0,99	0,89	0,80	0,75	0,70	0,65	0,48	0,42	0,30	0,24	0,21	0,17	0,15	0,13	0,12	0,11	0,10	0,06
1,75	4,28	2,51	2,04	1,61	1,29	1,16	1,03	0,93	0,83	0,78	0,72	0,67	0,50	0,43	0,31	0,25	0,21	0,18	0,15	0,14	0,13	0,12	0,10	0,06
1,70	4,46	2,63	2,10	1,68	1,34	1,19	1,08	0,95	0,85	0,80	0,74	0,68	0,51	0,44	0,32	0,25	0,21	0,18	0,16	0,14	0,13	0,12	0,10	0,06
1,65	4,68	2,74	2,18	1,73	1,40	1,23	1,10	0,99	0,88	0,82	0,76	0,70	0,53	0,44	0,32	0,25	0,22	0,18	0,16	0,14	0,13	0,12	0,10	0,06
1,60	4,78	2,83	2,24	1,78	1,43	1,25	1,11	1,00	0,89	0,83	0,77	0,71	0,53	0,44	0,32	0,26	0,22	0,18	0,16	0,14	0,13	0,12	0,10	0,06

Constant Power Discharge - Watts per Block at 25°C

V/Cell	5m	10m	15m	20m	25m	30m	35m	40m	45m	50m	55m	60m	90m	2h	3h	4h	5h	6h	7h	8h	9h	10h	12h	20h
1,80	41,9	25,1	20,5	16,4	13,0	12,1	10,7	9,70	8,68	8,25	7,71	7,15	5,38	4,70	3,46	2,79	2,39	2,03	1,78	1,58	1,44	1,35	1,17	0,74
1,75	44,8	26,5	21,8	17,4	13,8	12,5	11,1	10,0	8,99	8,54	7,88	7,34	5,55	4,81	3,55	2,86	2,46	2,06	1,80	1,61	1,48	1,36	1,20	0,74
1,70	46,5	27,6	22,4	18,0	14,4	12,8	11,6	10,3	9,23	8,69	8,06	7,48	5,65	4,86	3,58	2,88	2,46	2,08	1,81	1,63	1,49	1,38	1,20	0,75
1,65	48,6	28,8	23,1	18,5	14,9	13,1	11,8	10,6	9,45	8,84	8,29	7,68	5,85	4,89	3,59	2,90	2,48	2,08	1,81	1,64	1,50	1,39	1,20	0,75
1,60	49,5	29,5	23,8	18,9	15,3	13,4	11,9	10,7	9,61	8,93	8,33	7,73	5,85	4,91	3,60	2,90	2,49	2,09	1,84	1,64	1,50	1,39	1,20	0,76

Revision: 201509-1



ES 2,3-12

12V - 2,3Ah



Electrical specifications

Nominal Voltage	12 V	
Capacity 25°C to 1,8V/c	20 hour rate	2,3 Ah
	10 hour rate	2,1 Ah
	8 hour rate	2,0 Ah
	3 hour rate	1,7 Ah
	1 hour rate	1,2 Ah
Self discharge @ 25°C	per month	2,5 - 3 %
Internal Resistance	fully charged	approx 60 mΩ
Maximum current @ 25°C	charging	0,69 A
	discharging (5sec)	34 A
Charge Voltage @25°C	Float (-18mV/°C)	2,27 - 2,29 V/Cell
Charge Voltage @25°C	Cyclic (-30mV/°C)	2,41 - 2,48 V/Cell

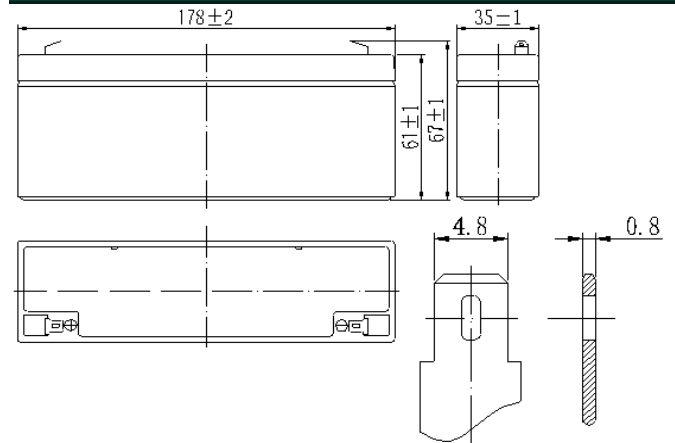
Other specifications

Design Floating Life @ 20°C	3-5 Years	
Dimensions LxWxH (± 1mm)	178x35x61 mm	
Total height	67 mm	
Operating Temperature (storage)	-20 to +50 °C	
Separator	Absorbent Glass Mat	
Grid alloy	Calcium / Tin lead alloy	
Case and cover	ABS / VDS	
Electrolyte	Sulphuric Acid	
Terminal / Length	.187 (F1) faston	
Optional terminal types	none	
Torque setting	none Nm	
Weight	0,88 (±5%) kg	

Innovative Features

- Completely maintenance free, sealed construction eliminates the need for adding water
- Fully tank formed plates
- Analytical grade electrolyte
- Spill proof / leak proof
- Valve regulated Max internal pressure 2,5 psi
- Multi-position usage
- ABS Case and cover (V0 optional)
- Low self discharge
- FAA and IATA approved as non-hazardous
- Built to comply with IEC 8962, DIN 43534, BS 6290 Pt4, Eurobat

Dimensions



Constant Amps Discharge - Amps at 25°C

V/Cell	5m	10m	15m	20m	25m	30m	35m	40m	45m	50m	55m	60m	90m	2h	3h	4h	5h	6h	7h	8h	9h	10h	12h	20h
1,80	7,34	4,37	3,52	2,81	2,23	2,05	1,82	1,64	1,47	1,39	1,29	1,19	0,89	0,77	0,56	0,45	0,38	0,32	0,28	0,25	0,22	0,21	0,18	0,11
1,75	7,87	4,62	3,75	2,97	2,37	2,13	1,89	1,71	1,52	1,44	1,32	1,22	0,92	0,79	0,58	0,46	0,39	0,33	0,28	0,25	0,23	0,21	0,18	0,12
1,70	8,21	4,83	3,86	3,08	2,46	2,19	1,98	1,75	1,57	1,47	1,36	1,25	0,94	0,81	0,58	0,46	0,39	0,33	0,29	0,26	0,23	0,22	0,19	0,12
1,65	8,60	5,04	4,00	3,17	2,58	2,25	2,03	1,83	1,61	1,50	1,40	1,29	0,98	0,81	0,58	0,47	0,40	0,33	0,29	0,26	0,23	0,22	0,19	0,12
1,60	8,79	5,20	4,12	3,27	2,62	2,30	2,04	1,84	1,64	1,52	1,41	1,30	0,98	0,82	0,59	0,47	0,40	0,33	0,29	0,26	0,23	0,22	0,19	0,12

Constant Power Discharge - Watts per Block at 25°C

V/Cell	5m	10m	15m	20m	25m	30m	35m	40m	45m	50m	55m	60m	90m	2h	3h	4h	5h	6h	7h	8h	9h	10h	12h	20h
1,80	77,1	46,2	37,7	30,1	23,9	22,2	19,7	17,8	16,0	15,2	14,2	13,2	9,89	8,65	6,37	5,13	4,39	3,73	3,27	2,90	2,65	2,48	2,16	1,36
1,75	82,3	48,8	40,0	32,0	25,3	23,0	20,4	18,5	16,5	15,7	14,5	13,5	10,2	8,86	6,53	5,27	4,53	3,80	3,31	2,97	2,71	2,51	2,20	1,37
1,70	85,6	50,8	41,2	33,1	26,5	23,5	21,3	18,9	17,0	16,0	14,8	13,8	10,4	8,95	6,58	5,29	4,53	3,82	3,34	2,99	2,74	2,53	2,21	1,37
1,65	89,5	52,9	42,6	34,0	27,4	24,2	21,7	19,7	17,4	16,3	15,2	14,1	10,8	8,99	6,60	5,34	4,55	3,82	3,34	3,01	2,76	2,55	2,21	1,38
1,60	91,1	54,3	43,7	34,7	28,1	24,6	21,8	19,8	17,7	16,4	15,3	14,2	10,8	9,04	6,62	5,34	4,58	3,84	3,38	3,01	2,76	2,55	2,21	1,40

Revision: 201509-1



ES 3,2-12

12V - 3,2Ah



Electrical specifications

Nominal Voltage	12 V	
Capacity 25°C to 1,8V/c	20 hour rate	3,2 Ah
	10 hour rate	2,9 Ah
	8 hour rate	2,7 Ah
	3 hour rate	2,3 Ah
	1 hour rate	1,6 Ah
Self discharge @ 25°C	per month	2,5 - 3 %
Internal Resistance	fully charged	approx 52 mΩ
Maximum current @ 25°C	charging	0,96 A
	discharging (5sec)	48 A
Charge Voltage @25°C	Float (-18mV/°C)	2,27 - 2,29 V/Cell
Charge Voltage @25°C	Cyclic (-30mV/°C)	2,41 - 2,48 V/Cell

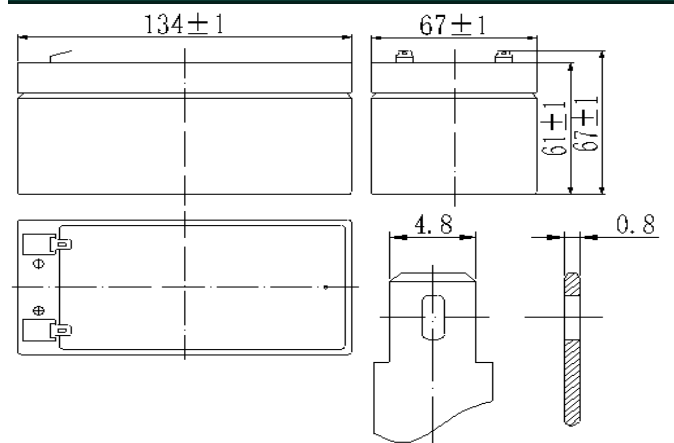
Other specifications

Design Floating Life @ 20°C	3-5 Years	
Dimensions LxWxH (± 1mm)	134x67x61 mm	
	Total height	
Operating Temperature (storage)	-20 to +50 °C	
Separator	Absorbent Glass Mat	
Grid alloy	Calcium / Tin lead alloy	
Case and cover	ABS / VDS	
Electrolyte	Sulphuric Acid	
Terminal / Length	.187 (F1) faston	
Optional terminal types	none	
Torque setting	none Nm	
Weight	1,22 (±5%) kg	

Innovative Features

- Completely maintenance free, sealed construction eliminates the need for adding water
- Fully tank formed plates
- Analytical grade electrolyte
- Spill proof / leak proof
- Valve regulated Max internal pressure 2,5 psi
- Multi-position usage
- ABS Case and cover (V0 optional)
- Low self discharge
- FAA and IATA approved as non-hazardous
- Built to comply with IEC 8962, DIN 43534, BS 6290 Pt4, Eurobat

Dimensions



Constant Amps Discharge - Amps at 25°C

V/Cell	5m	10m	15m	20m	25m	30m	35m	40m	45m	50m	55m	60m	90m	2h	3h	4h	5h	6h	7h	8h	9h	10h	12h	20h
1,80	10,2	6,08	4,90	3,90	3,10	2,85	2,53	2,29	2,04	1,93	1,80	1,65	1,24	1,08	0,78	0,62	0,53	0,44	0,39	0,34	0,31	0,29	0,25	0,16
1,75	10,9	6,43	5,22	4,13	3,30	2,96	2,63	2,37	2,12	2,00	1,84	1,70	1,28	1,10	0,80	0,64	0,54	0,45	0,39	0,35	0,32	0,30	0,26	0,16
1,70	11,4	6,72	5,38	4,29	3,42	3,04	2,76	2,44	2,18	2,04	1,89	1,74	1,31	1,12	0,81	0,64	0,55	0,46	0,40	0,36	0,32	0,30	0,26	0,16
1,65	12,0	7,01	5,57	4,42	3,58	3,14	2,82	2,54	2,24	2,09	1,95	1,79	1,36	1,13	0,81	0,65	0,55	0,46	0,40	0,36	0,33	0,30	0,26	0,16
1,60	12,2	7,23	5,73	4,54	3,65	3,20	2,84	2,56	2,29	2,11	1,96	1,81	1,36	1,14	0,82	0,65	0,55	0,46	0,41	0,36	0,33	0,30	0,26	0,16

Constant Power Discharge - Watts per Block at 25°C

V/Cell	5m	10m	15m	20m	25m	30m	35m	40m	45m	50m	55m	60m	90m	2h	3h	4h	5h	6h	7h	8h	9h	10h	12h	20h
1,80	107	64,3	52,5	41,9	33,3	30,8	27,4	24,8	22,2	21,1	19,7	18,3	13,8	12,0	8,86	7,14	6,11	5,18	4,54	4,03	3,68	3,46	3,00	1,89
1,75	115	67,8	55,7	44,5	35,2	31,9	28,4	25,7	23,0	21,9	20,2	18,8	14,2	12,3	9,09	7,33	6,30	5,28	4,61	4,13	3,78	3,49	3,07	1,90
1,70	119	70,7	57,3	46,1	36,8	32,6	29,6	26,3	23,6	22,2	20,6	19,1	14,5	12,4	9,15	7,36	6,30	5,31	4,64	4,16	3,81	3,52	3,07	1,91
1,65	124	73,6	59,2	47,4	38,1	33,6	30,2	27,4	24,2	22,6	21,2	19,6	15,0	12,5	9,18	7,42	6,34	5,31	4,64	4,19	3,84	3,55	3,07	1,92
1,60	127	75,5	60,8	48,3	39,0	34,2	30,4	27,5	24,6	22,8	21,3	19,8	15,0	12,6	9,22	7,42	6,37	5,34	4,70	4,19	3,84	3,55	3,08	1,95

Revision: 201509-1



ESL 12-12

12V - 12h



Electrical specifications

Nominal		12V - 12	Ah
Capacity 25°C @ 1,8V/c	20h	11,8	Ah
	10h	10,9	Ah
	8h	10,24	Ah
	3h	8,73	Ah
	1h	7,11	Ah
Self discharge @ 25°C	per month	3	%
Resistance _(Ohm)	fully charged	Approx. 19	mΩ
I _{max} Charge		4,8	A
I _{max} Discharge		180 (5 sec)	A
Charge Voltage @25°C	Standby	2,26 - 2,30	V/Cell
Charge Voltage @25°C	Cyclic	2,41 - 2,48	V/Cell

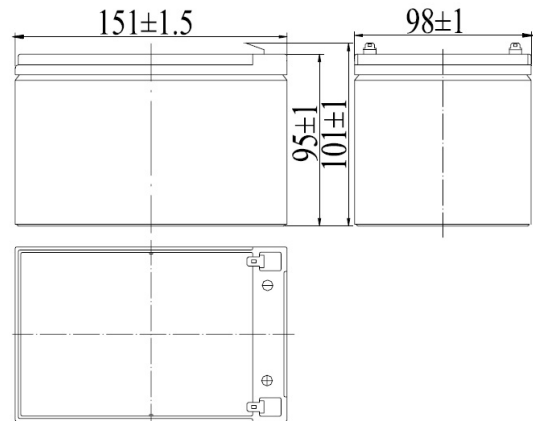
Other specifications

Design Life	12	Years
Dimensions L x W x H	151 x 98 x 95	mm
Total height	101	mm
Operating Temperature	-20 to +50	°C
Separator	Absorbant Glass Mat	
Grid alloy	Calcium / Tin lead alloy	
Case and cover	ABS	
Electrolyte	Sulphuric Acid	
Terminal / Length	T1/T2	faston
Optional terminal types	-	
Torque setting	-	Nm
Weight	3,4 (±5%)	Kg

Innovative Features

- Completely maintenance free, sealed construction eliminates the need for adding water
- Fully tank formed plates
- Analytical grade electrolyte
- Spill proof / leak proof
- Valve regulated Max internal pressure 2,5 psi
- Multi-position usage
- ABS Container
- Low self discharge
- FAA and IATA approved as non-hazardous
- Built to comply with IEC 8962, DIN 43534, BS 6290 Pt4, Eurobat

Dimensions



Constant Amps discharge - Amps at 25°C

V/Cell	10min	15min	30min	60min	2h	3h	4h	5h	8h	10h	20h
1,80	24.2	19.6	11.4	7.11	4.03	2.91	2.33	1.98	1.28	1.09	0.59
1,75	25.6	20.7	11.8	7.34	4.14	3.00	2.40	2.04	1.32	1.12	0.60
1,70	26.8	21.4	12.1	7.49	4.20	3.02	2.42	2.05	1.33	1.12	0.60
1,65	27.9	22.3	12.5	7.68	4.24	3.04	2.43	2.07	1.34	1.13	0.61
1,60	28.8	22.8	12.7	7.80	4.26	3.06	2.45	2.08	1.35	1.13	0.61

Constant Power Discharge - Watts at 25°C

V/Cell	10min	15min	30min	60min	2h	3h	4h	5h	8h	10h	20h
1,80	273	224	130	82.4	47.2	34.6	27.7	23.6	15.4	13.1	7.06
1,75	289	236	135	85.0	48.4	35.6	28.6	24.4	15.8	13.4	7.20
1,70	302	244	138	86.7	49.1	35.9	28.8	24.5	16.0	13.5	7.24
1,65	315	254	143	89.0	49.6	36.1	29.0	24.7	16.1	13.5	7.28
1,60	325	260	146	90.3	49.9	36.4	29.2	24.8	16.2	13.6	7.31

Version : 2014/12-3