

# The CELLYTE FTG Series

6/12 Volt front terminal flat plate Gel battery

**Premium Gel  
monoblocs for  
rack-mounted  
applications**

(OPTIONAL)  
FITTED  
WITH





## Specification

<b>Positive electrode:</b>	Lead Calcium high Tin grid alloy
<b>Negative electrode:</b>	Lead Calcium grid alloy
<b>Float voltage:</b>	2.25 vpc ± 1% at 25°C
<b>Max. charge voltage:</b>	2.35 vpc ± 1% at 25°C
<b>Electrolyte:</b>	Thixotropic high purity silica Gel electrolyte
<b>Safety valve:</b>	1-3 PSI self-resealing
<b>Separators:</b>	Microporous gel separators
<b>Terminals:</b>	Integral brass insert for stainless steel bolt
<b>Electrical:</b>	12V 40Ah to 175Ah at C/10 to 1.80vpc @ 25°C

## Design life

<b>Years:</b>	12-years in float service @ 30°C with an approved catalyst
<b>Cycles:</b>	300 cycles @ 80% DOD at 25°C

## Product compliance

IEC	60896-21/22-2004
BS	6290 part 4
UL component approval	
Eurobat	

## Company accreditation

ISO	9001:2015
ISO	14001:2004

## Product information

### The CELLYTE FTG series

#### Specialist innovation for rack-mounted application

The CELLYTE FTG is a market-leading, front terminal Gel monobloc that was designed specifically for use in telecom, UPS or other string-based applications. The inclusion of the CatVent™ catalyst is key as it causes a drop in float current of almost 50%.

This provides a variety of benefits. The first being a reduction in heat, meaning increased safety, and savings on cooling costs for multiple applications mounted close to equipment in enclosed rack areas.

As a gas recombinant, the catalyst also minimises water loss, which could cause premature dry out and early cell failure. At the same time it reduces positive plate corrosion, thermal runaway and capacity loss due to depolarisation of the negative plate. For those in the Telecom and UPS industries this means longer service life, increased safety and reduced costs.

#### High-quality construction and components

By marrying cutting-edge technology and the world's best components, SEC makes energy storage products that dominate the global market. This is due to a unique manufacturing process where components are crafted in Germany, the U.S or Japan, then assembled in China. It allows us to supply our distribution partners with world-class products quickly, and for less than other tier one brands.

As well as the Catvent™ Catalyst, the CELLYTE FTG includes patented German valves to ensure safety, outstanding battery life and value. Then there's the Japanese made, triple-post sealing method, the high quality Lead Calcium grids, and our proprietary grid paste blend.

When making the FTG, our engineers used advanced Thixotropic Gelled electrolyte to ensure reliable performance, safety, outstanding battery life and value. Virgin Lead was applied for plate construction and the best possible raw materials were sourced to build a heavy duty, high energy density battery that's ideal for rack mounted applications.

#### ISO:9001 standards

SEC Industrial Battery Company are large scale producers of industrial batteries and energy generation systems. The design team draw on a wealth of international experience and knowledge to produce high quality, reliable products.

Installation of the most modern production and design equipment makes continuous product improvement a given. SEC has recently had our efforts recognised with the coveted 2UVE SUD ISO:9001:2015 accreditation and are proud to remain the first in the industry to hold this mark of quality.

## Product Features

- 🔗 Premium VRLA Gel monobloc
- 🔗 Suitable for deep-cycle service
- 🔗 Easy access front terminal construction
- 🔗 Latest plate formation technology
- 🔗 Highly pure Lead Tin Alloy
- 🔗 Low-maintenance sealed construction
- 🔗 Catalyst reduces float current
- 🔗 Optional gas venting feature
- 🔗 Spill-proof and leak-proof
- 🔗 Increased safety features
- 🔗 Low self-discharge for long life
- 🔗 Tough multicell container

*“The CELLYTE FTG series is the embodiment of design without compromise. It combines the best of established technologies to provide the ultimate lead acid Gel solution for multi string UPS applications.”*

## Dr. Mike McDonagh SEC Group

### Product benefits

#### Advanced Gel design

The FTG is a premium Gel battery using highly pure Thixotropic Gel to immobilise the electrolyte in the cells. It's a hardworking, safe workhorse for both cyclic and float applications.

#### Added gas venting feature

The FTG battery series has an optional add on feature, which allows gas to be vented outside the cabinet with additional tubing vents from the battery manifolds. The SEC battery ventilation kit is offered as an extra cost option.

#### Ideal for rack-mounted applications

The CELLYTE FTG can be used on shelves with four connected batteries per shelf. The catalyst ensures the voltage of each battery remains uniform. This ensures consistency for string applications at temperatures of up to 30°C without a reduction in battery life.

#### Maximum operating life

SEC has optimised the plate and paste formulation to maximise the operating life of the FTG. The high Tin Virgin pure Lead 1.6% Tin plate alloy is used to extend the battery life and cycling capability.

#### One-way safety valve

When pressure builds up in the cell, the one-way safety valve opens at 1-3 psi and releases pressure before closing again. This patented Swedish valve system is sturdy but flexible, preventing the ingress of oxygen, which reduces battery life.

#### Rugged construction

The FTG's rugged construction ensures that the batteries can be used in UBC seismic zone 4 rated racks. They can withstand vibrational conditions and continue to deliver standby DC power.

#### Extra wide temp range

The CELLYTE FTG employs CatVent™ catalysts in the cell headspace and virgin Lead Tin in the positive plate alloy. This means it can be used in environments with temperatures up to 30°C.

#### Low-maintenance

The FTG is a front terminal Gel battery constructed with VRLA principles. It was designed and built specifically for high integrity applications and requires no addition of fluid during service.

#### Low self-discharge

The paste formation provides the unit with excellent resilience to, and recovery from, deep-discharge. This low self-discharge rate means the FTG can be stored for long periods of time unused.

#### Suitable for deep-cycle service

The premium Thixotropic Gel construction makes the FTG monobloc suitable for deep-cycle service. Battery life will depend on depth and frequency of cycling but the CatVent™ catalyst improves life in temperatures of up to 30°C.

### Applications



UPS system



Telecommunication



Emergency lighting



Power stations



Wind & alternative energy



Standby power system



Alternative energy system



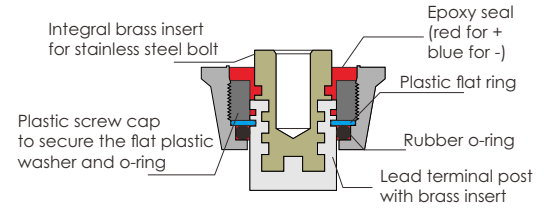
Switchgear



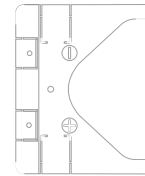
Power control system

## Cell outline

## Triple-seal detail



SEC TRIPLE-SEAL DESIGN



Material:  
 ABS case & cover  
 (V-0 optional)  
 Colour:  
 Case: Pantone yellow C  
 Cover: grey (427U)

## Cell Dimensions

### Dimensions/ Weights/ Data

SEC bloc type	Nominal capacity (Ah) C/10 1.80 vpc	Battery weight		Overall battery dimension						Short circuit current (A)	Maximum charge current (A)	Internal resistance (mΩ)	Female terminal type
		kg	lbs	Length		Width		Height					
				mm	Inch	mm	Inch	mm	Inch				
<b>12-FTG-40</b>	42.8	14.6	32.2	275	10.8	105	4.13	225	8.86	1350	8.56	9.5	FT4
<b>12-FTG-55</b>	52.3	18.0	39.7	275	10.8	105	4.13	225	8.86	1650	10.5	6.5	FT4
<b>12-FTG-80</b>	76.0	27.3	60.2	395	15.6	110	4.33	268	10.6	2400	15.2	6.0	FT5
<b>12-FTG-100</b>	95.0	34.0	75.0	395	15.6	110	4.33	288	11.3	3000	19.0	5.7	FT5
<b>12-FTG-105</b>	100	35.0	77.2	550	21.7	110	4.33	238	9.37	3200	20.0	5.6	FT5
<b>12-FTG-120</b>	109	38.0	83.8	550	21.7	110	4.33	238	9.37	3550	21.8	5.4	FT5
<b>12-FTG-125</b>	119	42.0	92.6	550	21.7	110	4.33	288	11.3	4200	23.8	5.3	FT5
<b>12-FTG-155</b>	147	49.2	108	550	21.7	110	4.33	288	11.3	4800	29.4	5.0	FT5
<b>12-FTG-175</b>	166	56.0	123	550	21.7	110	4.33	320	12.6	5300	33.2	4.8	FT5

# Current

## Ampere at 25°C

SEC bloc type	Discharge amps at 25°C															
	End volts /Cell	Discharge time in minutes			End Volts /Cell	Discharge time in hours										
		15min	30min	45min		1hr	1.5hr	2hr	3hr	4hr	5hr	6hr	8hr	10hr	12hr	24hr
<b>12-FTG-40</b>	1.80	55.4	35.9	27.1	1.85	23.4	17.3	14.1	10.3	8.34	7.06	6.25	5.03	4.11	3.53	1.94
	1.75	60.2	37.1	27.9	1.80	24.3	18.0	14.7	10.8	8.68	7.35	6.50	5.24	4.28	3.67	2.02
	1.67	63.2	38.0	28.2	1.75	24.8	18.4	15.0	11.0	8.85	7.50	6.63	5.34	4.36	3.74	2.06
<b>12-FTG-55</b>	1.80	67.8	43.9	33.2	1.85	28.5	21.1	17.3	12.6	10.2	8.64	7.64	6.15	5.02	4.31	2.37
	1.75	73.5	45.4	34.2	1.80	29.7	22.0	18.0	13.2	10.6	8.98	7.95	6.40	5.23	4.49	2.47
	1.67	77.3	46.5	34.4	1.75	30.3	22.5	18.3	13.4	10.8	9.16	8.10	6.53	5.33	4.58	2.52
<b>12-FTG-80</b>	1.80	98.3	64.0	48.2	1.85	41.5	30.8	25.1	18.4	14.8	12.6	11.1	8.95	7.30	6.27	3.45
	1.75	107	66.1	49.8	1.80	43.2	32.0	26.1	19.1	15.4	13.1	11.6	9.31	7.60	6.53	3.59
	1.67	112	67.4	52.0	1.75	44.0	32.7	26.6	19.5	15.7	13.3	11.8	9.49	7.75	6.66	3.66
<b>12-FTG-100</b>	1.80	124	79.8	60.3	1.85	51.9	38.5	31.4	23.0	18.5	15.7	13.9	11.2	9.13	7.84	4.32
	1.75	134	82.6	62.1	1.80	54.0	40.0	32.7	23.9	19.3	16.3	14.5	11.6	9.50	8.16	4.49
	1.67	140	84.4	62.7	1.75	55.1	40.8	33.3	24.4	19.7	16.7	14.7	11.9	9.69	8.32	4.58
<b>12-FTG-105</b>	1.80	130	83.8	63.3	1.85	54.5	40.4	33.0	24.1	19.5	16.5	14.6	11.7	6.59	8.23	4.53
	1.75	140	86.8	65.2	1.80	56.7	42.0	34.3	25.1	20.2	17.2	15.2	12.2	10.0	8.57	4.71
	1.67	148	88.9	65.9	1.75	57.8	42.9	35.0	25.6	20.6	17.5	15.5	12.5	10.2	8.74	4.79
<b>12-FTG-120</b>	1.80	141	91.5	68.9	1.85	59.7	44.3	36.1	26.4	21.3	18.1	16.0	12.9	10.5	9.00	4.96
	1.75	152	94.2	70.9	1.80	62.1	46.0	37.6	27.5	22.2	18.8	16.6	13.4	10.9	9.38	5.17
	1.67	160	96.8	71.6	1.75	63.3	46.9	38.3	28.0	22.6	19.2	17.0	13.6	11.1	9.57	5.25
<b>12-FTG-125</b>	1.80	157	102	77.2	1.85	64.9	48.1	39.2	28.7	23.2	19.6	17.3	14.0	11.4	9.80	5.38
	1.75	171	106	80.0	1.80	67.5	50.1	40.8	29.9	24.1	20.4	18.0	14.5	11.9	10.2	5.61
	1.67	180	108	80.0	1.75	68.8	51.0	41.6	30.5	24.6	20.8	18.4	14.8	12.1	10.4	5.71
<b>12-FTG-155</b>	1.80	191	124	93.5	1.85	80.4	59.6	48.6	35.6	28.7	24.3	21.5	17.3	14.5	12.2	6.69
	1.75	207	128	96.0	1.80	83.7	62.1	50.5	37.0	29.9	25.3	22.3	18.0	15.0	12.6	6.96
	1.67	218	131	97.0	1.75	85.3	63.3	51.5	37.7	30.5	25.8	22.8	18.4	15.3	12.9	7.08
<b>12-FTG-175</b>	1.80	216	140	106	1.85	92.4	68.5	55.9	40.9	33.0	27.9	24.7	19.9	16.3	13.9	7.67
	1.75	234	144	109	1.80	94.5	70.0	57.0	41.9	33.7	28.6	25.3	20.4	16.6	14.3	7.86
	1.67	246	148	109	1.75	98.0	72.7	59.3	43.3	35.0	29.6	26.2	21.1	17.2	14.8	8.15

12-FTG-40/12-FTG-55 are not fitted with catalyst.

## Operating temperature

<b>Design operating temperature</b>	30°C with an approved catalyst
<b>Limit for charging</b>	-10 to +50°C
<b>Limit for discharging</b>	-15 to +50°C
<b>Limit for storage</b>	-20 to +50°C

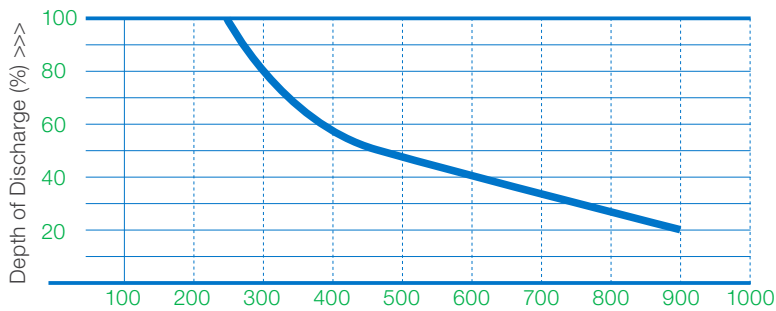
## Charging method

<b>Float charging voltage at 25°C</b>	2.25 - 2.30vpc with temperature compensation
<b>Maximum charging voltage at 25°C</b>	2.35vpc with temperature compensation
<b>Float charge temperature compensation factor</b>	-3 mV/cell/°C above 25°C +3 mV/cell/°C below 25°C
<b>Cyclic charge temperature compensation factor</b>	-5 mV/cell/°C above 25°C +5 mV/cell/°C below 25°C

## Cycle life

### Relationship between depth of discharge and life

Ambient temperature 25°C



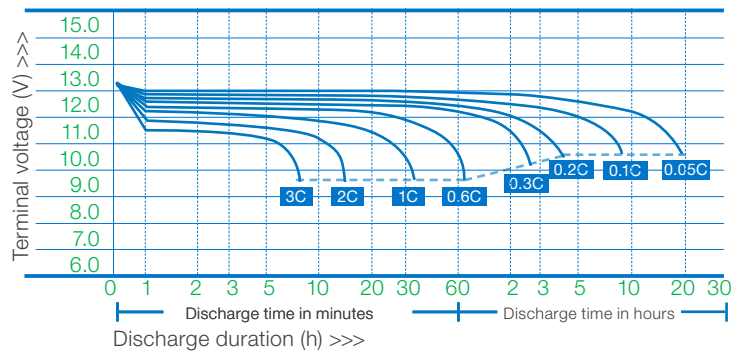
Cycle life >>>

The depth of discharge critically affects the number of cycles which a battery will complete during its life time.

## Discharge characteristic

### Discharge current VS discharge time curve

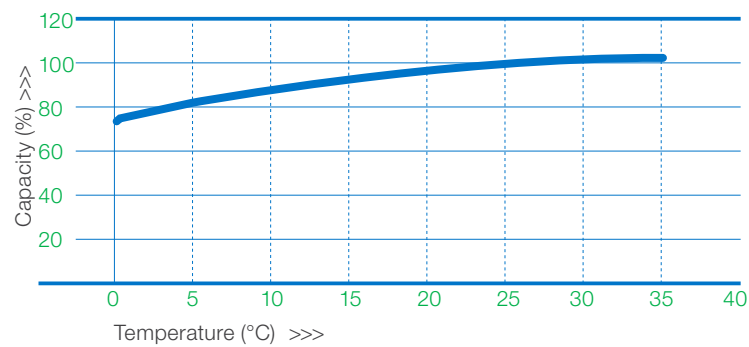
Ambient temperature 25°C



Effect of discharge rate on battery capacity.

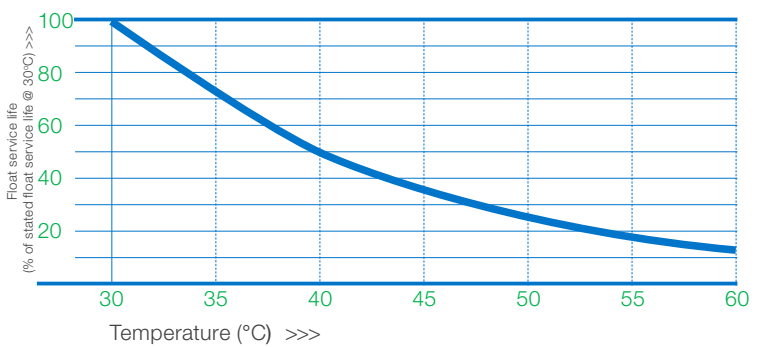
## Effect of inclined temperature

### Effect of temperature on capacity at C/10 discharge rate



A high ambient temperature will increase the cell capacity but will significantly shorten its calendar and cycle life.

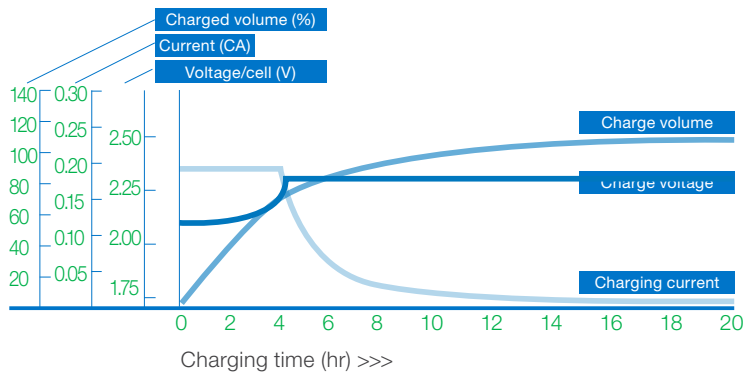
### Float service life VS temperature



Effect of temperature on float service life.

## Charge method

### Constant current/voltage charge characteristic



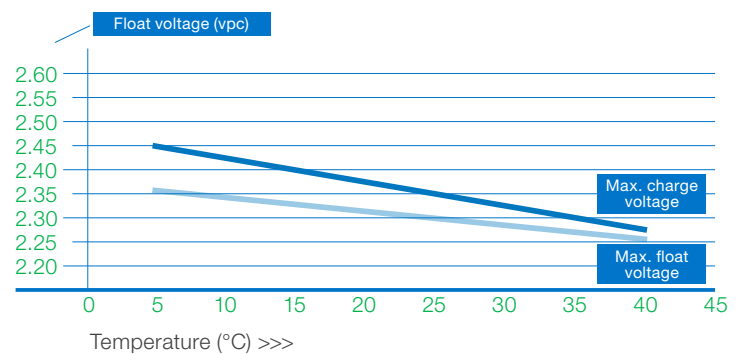
The preferred charging procedure should be in accordance with DIN 41773, constant current/constant voltage (IU characteristic). Constant float charging utilising a constant voltage charger is also acceptable.

Charging voltage measured at the battery terminals:  $2.30 \pm 1\% \times \text{number of cells}$ .

Equalising or fast charging can occasionally be permitted in which the charging voltage is  $2.35V \times \text{number of cells}$  for a maximum fixed period of 8 hours (depends on state of charge). This will apply in deep discharge and limited recharge operations such as stand-by with parallel connections. Automatic changeover to the charging voltage of  $2.25V \pm 1\% \times \text{number of cells}$  should follow after this period.

## Charge compensation

### Temperature compensation for float voltage



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The energy storage market is booming. From 2012 to 2016, the market has tripled from 6 billion to 18 billion US dollars, driven in large part by renewable energy needs. With more than half of the world's energy supply destined to come from renewable energy sources in the near future, continued rapid growth is a certainty. The opportunities are immense.

Let us help you grow your share of this expanding market and maximise your profits with the SEC Partner Grid Programme. We provide our partners with quality leads generated by our global marketing efforts.

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## Benefits

**Lead generation**

**Technical training**

**Product discounts**

**Market growth incentives**

**Sales and marketing training**

**Partner performance awards**

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**On demand technical and sales support**

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# The SEC global network



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