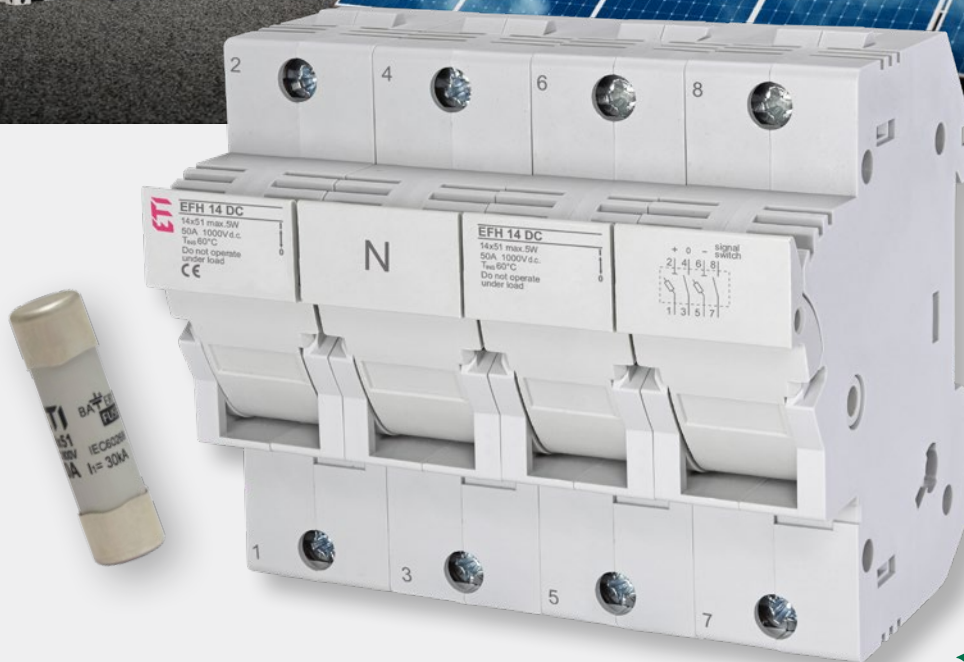


# BATTERY FUSE



$\begin{array}{c} \text{+} \\ | \\ \text{---} \\ \text{BATTERY} \\ \text{---} \\ \text{FUSE} \end{array}$

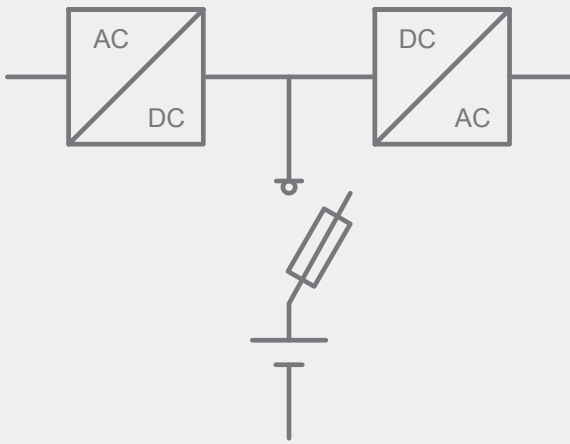
**BECAUSE EVERY SECOND COUNTS**

#### Application

- in battery storage systems
- in UPS systems
- in e-mobility

# Battery Protection Fuses

## Battery storage fuse selection

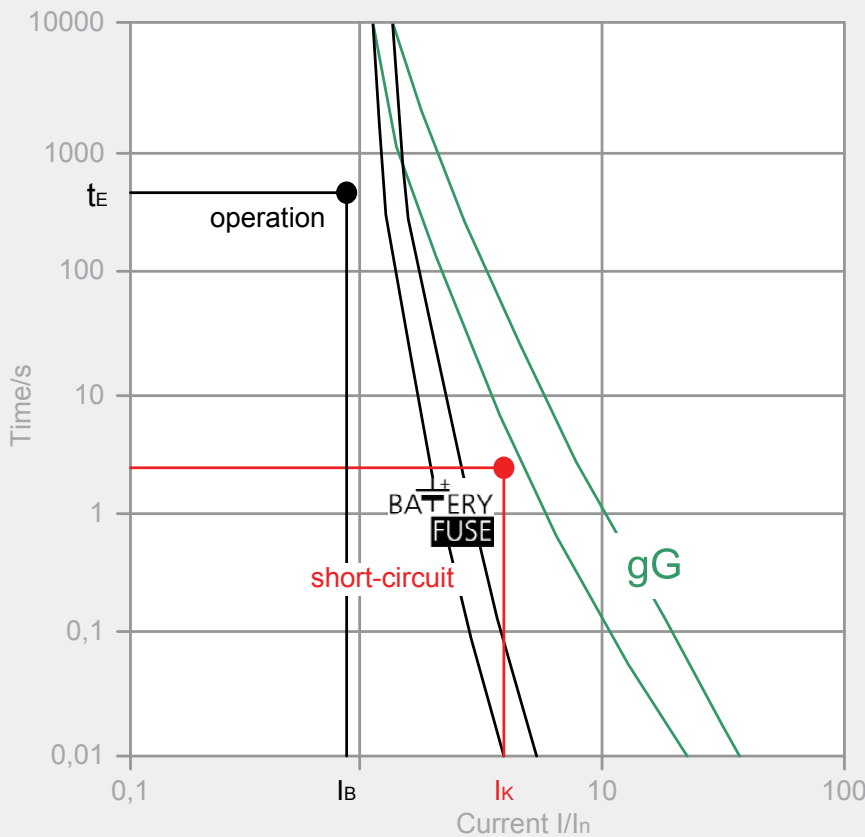


### Short circuit current

- Short circuit current depending on battery model, type and capacity, low compared to operating current
- Short circuit current has to be interrupted in <5 seconds
- Required steep characteristics: protection with Battery fuse-link required!

### Operating current

- Operating current depends on battery storage specification
- Battery operation: voltage of DC link circuit decreases to the final discharge voltage
- Consider maximum current at final discharge voltage for fuse-link selection



*In accordance with IEC 60269-7*

### Short circuit point ( $I_K$ )

- Short circuit current depending on battery model and type
- Manufacturer datasheets to include short circuit current according to IEC896
- Operating point has to be in adequate distance below the curve
- Short-circuit point has to be above the range of tolerance of the curve

When choosing fuse switch disconnector consider fuse-link power dissipation!

$$P_d(I_B) < P_y$$

Power dissipation of fuse-link at maximal operating current ( $I_B$ ):

$$P_d(I_B) = (I_B/I_n)^2 \times P_d(I_n)$$

- $I_B$ - maximal operating current
- $P_d(I_B)$ -power dissipation of fuse-link at maximal operating current
- $P_d(I_n)$ -power dissipation of fuse-link at nominal current
- $P_y$ - maximal permissible fuse-link power dissipation mounted in fuse switch disconnector

### Operating point ( $t_E/I_B$ )

- maximum operating current  $I_B$  has to be calculated from battery storage true power and final discharge voltage  $U_E: I_B = P_w/U_E$
- $t_E$  is the back-up time of battery storage system

# CH 14x51 gBat Fuse-link 800V d.c.

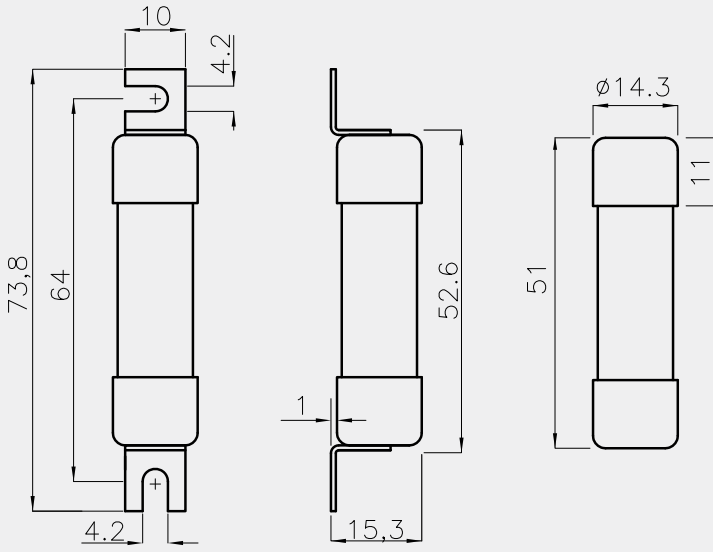
General characteristics	
Rated voltage	800V d.c. (L/R=10ms)
Breaking capacity	30kA d.c.
Standard	IEC 60269-7
Application	Battery protection
Fuse base	EFH 14 DC

CH gBat fuse-link									
Size	$I_n$	Code No. "standard contacts" 800V DC	Code No. "type SU contacts" 800V DC	Pre-arcing Joule inte- gral L/R=10ms	Operating Joule integral L/R=10ms	Power dissipation [0,7 x $I_n$ ] $P_d$	Power dissipation [1x $I_n$ ] $P_d$	Weight	Pack.
	[A]	30kA	30kA	[A <sup>2</sup> s]	[A <sup>2</sup> s]	[W]	[W]	[g]	[pcs]
14x51	16	002637405	002637505	37	136	1,4	3,1	19/21	10/200 SU: 10/260
	20	002637407	002637507	80	284	1,5	3,2		
	25	002637409	002637509	128	438	2	4		
	32	002637411	002637511	296	1050	2,1	5,1		
	36	002637412	002637512	370	1160	2,3	5,6		



Note:  
CH Battery fuse-links are used in combination  
with fuse disconnecter EFH 14 DC

### Dimensions for CH 14x51 Battery fuses



### I/t characteristics for CH 14x51 Battery fuses

