

# 您看到的同樣 1000VDC 50A 是 $I_e$ ? 還是 $I_{th}$ ? 差異在哪?



非其他同業以50A  $I_{th}$ 的規格標示以假亂真，建議您在選用產品時多加的詢問與確認，避免挑到不符規定的產品。

	JDA santon	他 牌
	標示 $I_e$ = 額定電流	僅只標示 $I_{th}$ = 峰值電流
	可長期連續工作時 確保可達 50A	僅只標示瞬間通過的 最大電流值 50A
通過認證	多項認證: PV1 認證 UL 認證 / KEMA 認證	?未知?
$I_{cw}$ = 耐受電流	600A / 1S	?未知?

## 50A $I_e$ = 額定電流

額定電流: 是指在額定環境條件 ( 環境溫度、日照、海拔、安裝條件等 ) 下，電氣設備的長期連續工作時允許電流。用電器工作時電流不應超過它的額定電流。

## 50A $I_{th}$ = 峰值電流

峰值電流、約定發熱電流: 是指在規定的試驗條件下試驗時，開關電器在8小時工作制下，各部件的溫度升高不超過規定極限值所能承載的最大電流。簡單說直流開關在兩秒鐘內可以通過的最大電流值為50A，並非額定工作電流，僅只是瞬間通過的最大電流。



Santon X-Type switch XC150.20DL2E-A 是業界少數真的可以做到2P 50A  $I_e$  1000Vdc的產品，SANTON直流開關通過PV1認證，標稱額定電流 $I_e$  50A

測試DC50A是1000V 5次1.5倍電流75A，外加全載每1分鐘6次ON-OFF有載啟閉6000次，另外4000次無載啟閉，共10005次測試。



UL 508 I 詳細測試說明如下：於標稱額定電壓1000V 額定電流，在 + 70°C 條件下全載驗證測試：

6000次 x 有載  
4000次x 無載  
50次 x 二倍有載  
比如選36A, UL 6000次 x 有載 1000 V 36 A at + 70°C, 4000 次x 無載without load 及50次 x 二倍額定double load 1000 V 72 A at + 70°C.

## 以下為相關安規測試規範供大家參考



santon 通過IEC認證 - 認證規範如下:

Our switches are made and certified according IEC 60947-3 DC 21 B see enclosed certificate for this switch Part of IEC 60947-3 is below:

Conditions for making and breaking corresponding to the various utilization categories

Utilization categories	Rated operational current	Making <sup>a</sup>			Breaking			Number of operating cycles <sup>c</sup>
		$I/I_e$	$U/U_e$	$\cos \phi$	$I_c/I_e$	$U_f/U_e$	$\cos \phi$	
AC-20A <sup>b</sup> – AC-20B <sup>b</sup>	All values	–	–	–	–	–	–	5
AC-21A – AC-21B	All values	1,5	1,05	0,95	1,5	1,05	0,95	
AC-22A – AC-22B	All values	3	1,05	0,65	3	1,05	0,65	
AC-23A – AC-23B	$0 < I_e \leq 100 \text{ A}$ $100 \text{ A} < I_e$	10	1,05	0,45	8	1,05	0,45	
								3 <sup>d</sup>
Utilization categories	Rated operational categories	$I/I_e$	$U/U_e$	L/R ms	$I_c/I_e$	$U_f/U_e$	L/R ms	Number of operating cycles
DC-20A <sup>b</sup> – DC-20B <sup>b</sup>	All values	–	–	–	–	–	–	5
DC-21A – DC-21B	All values	1,5	1,05	1	1,5	1,05	1	
DC-22A – DC-22B	All values	4	1,05	2,5	4	1,05	2,5	
DC-23A – DC-23B	All values	4	1,05	15	4	1,05	15	

$I$  = making current  
 $I_c$  = breaking current  
 $I_e$  = rated operational current  
 $U$  = applied voltage  
 $U_e$  = rated operational voltage  
 $U_f$  = operational frequency or d.c. recovery voltage



santon 通過UL認證 - 認證規範如下:

UL certified switches have a different testing system ( much more stronger testing )

### 6 Overload

6.1 A manual PV disconnect switch shall comply with the Overload Test, Section 45 of the Standard for Industrial Control Equipment, UL 508, for DC General Purpose, except the test is conducted at 200% of rated current.

### 7 Endurance Test

7.1 A manual PV disconnect switch shall comply with the Endurance Test, Section 46 of the Standard for Industrial Control Equipment, UL 508, for across-the-line motor starting, except the endurance test cycles, cycle rate, and test parameters shall be as specified in Table 7.1.

**Table 7.1**  
Endurance test cycles for manual PV controllers used as a disconnecting means

Controller Rating in amperes <sup>a</sup>	Number of cycles of operation per minute <sup>b</sup>	Number of cycles of operation		
		With current <sup>c</sup>	Without Current	Total
100 or less	6	6,000	4,000	10,000
101 – 200	5	6,000	2,000	8,000
201 – 400	4	1,000	5,000	6,000
401 – 600	3	1,000	4,000	5,000

<sup>a</sup> The controller rating is the ampere rating marked on the product.

<sup>b</sup> The indicated number of cycles of operation per minute applies only to that part of the test performed with current. When no current is used, the manual PV disconnect switch is to be operated at any convenient speed.

<sup>c</sup> Tested at cycle rate indicated in Table 46.1 of the Standard for Industrial Control Equipment, UL 508 at rated current, power factor 1.

## 以下為相關安規測試規範供大家參考



santon 通過KEMA認證 - 認證規範如下:



# CERTIFICATE

Issued to:  
Applicant:  
**Santon International B.V.**  
**Hekendorpstraat 69**  
**3079 DX Rotterdam, The Netherlands**

Manufacturer/Licensee:  
**Santon International B.V.**  
**Hekendorpstraat 69**  
**3079 DX Rotterdam, The Netherlands**

Product(s) : rotary switch-disconnector  
Trade name(s) : SANTON  
Type(s)/model(s) : XC150.20

The product and any acceptable variation thereto is specified in the Annex to this certificate and the documents therein referred to.

DEKRA hereby declares that the above-mentioned product has been certified on the basis of:

- a type test according to the standard EN 60947-3:2009;
- an inspection of the production location according to CENELEC Operational Document CIG 021
- a certification agreement with the number 901095

DEKRA hereby grants the right to use the KEMA-KEUR certification mark.



### ANNEX TO KEMA-KEUR CERTIFICATE 2184962.01

#### SPECIFICATION OF THE CERTIFIED PRODUCT

##### Product data

product	:	rotary switch-disconnector
trade name(s)	:	SANTON
type(s)	:	XC150.20
Rating	:	150.20; Un 1500 Vdc, In 20 A 100.50; Un 1000 Vdc, In 50 A
rated insulation voltage (Ui)	:	1500 V ac
conventional free air thermal current (Ith)	:	20 A and 50 A
ratings/utilization category (Ue-Ie)	:	<u>DC-21B</u>
		1500 V 20 A
		1000 V 50 A
rated short-time withstand current (Icw)	:	rating 150.20 ; 240 A - 1 s 100.50; 600 A - 1 s
rated short-circuit making capacity (Icm)	:	rating 150.20; 240 A 100.50; 600 A