Intertek

Listing Constructional Data Report (CDR)

1.0 Reference a	nd Address						
Report Number	160114055GZU-001	Original Issued:	16-Jul-2016	Revised: 10-Apr-2017			
Standard(s)	UL SUBJECT 9540 Issued: 2014/06/30 Ed: 1 Outline Of Investigation Energy Storage Systems And Equipment UL 1741:2010 Ed.2 +R:07 Sep 2016 Inverters, Converters, Controllers And Interconnection System Equipment For Use With Distributed Energy Resources CSA C22.2#107.1:2016 Ed.4 Power Conversion Equipment						
Applicant	Shenzhen Sinexcel E	Electric Co., Ltd	Manufacturer	Shenzhen Sinexcel Electric Co., Ltd			
Address	Building 6,BaiWang> Industrial Park, Nans District,Shenzhen Ci	Kin High-tech shan ty,China	Address	Building 6,BaiWangXin High-tech Industrial Park, Nanshan District,Shenzhen City,China			
Country	China		Country	China			
Contact	Ms.Tang Yulian Mr.Gou Xinpu		Contact	Ms.Tang Yulian Mr.Gou Xinpu			
Phone	(86)-0755-86511588 (86)-0755-86511588	-8310	Phone	(86)-0755-86511588-8310 (86)-0755-86511588			
FAX			FAX				
Email	yulian_tang@sinexce	<u>el.cn</u> I.cn	Email	<u>yulian_tang@sinexcel.cn</u> xinpu_gou@sinexcel.cn			

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

2.0 Product Des	cription
Product	Single-stage Storing Device (Grid supprot utility interactive inverter)
Brand name	Sinexcel
Description	The unit under test are an Single-stage Storing Device. It can invert the power from energy storing device such as batteries to grid, also can changering energy storing device from grid. The Single-stage Storing Device in this report are composed of 1 or multiple set(s) of PCS-AC modules. The modules identify master-slave systems through the dial-up codes on the panel. #1 is a master system, while other modules track the master system. The energy storing device cabinet is equipped with lightning protector, AC/DC breaker and distribution units. If on/off-grid switching is to be achieved, extra power distribution unit needs to be added. The topological graph for its composition and structure refer to Section 7 Illustration 2. The installation should be in pollution II environment and accordance with the National Electrical Code, NFPA 70 and and the Canadian Electrical Code (CEC).
Models	PWS1-150K-NA, PWS1-100K-NA, PWS1-50K-NA, PWS1-250K-NA
Model Similarity	All models have identical mechanical and electrical construction except composed of different sets of PCS-AC modules : For PWS1-150K-NA is composed of 3 sets of PCS-AC modules For PWS1-100K-NA is composed of 2 sets of PCS-AC modules For PWS1-50K-NA is composed of 1 set of PCS-AC modules For PWS1-250K-NA is composed of 5 set of PCS-AC modules PWS1-250K-NA is equipped with two cooling fans.

2.0 Product D	Description								
	Model	PWS1-150K-NA	PWS1-50K-NA						
	Operating temp.	-20℃ to+50℃ (>45℃ power derating)							
	Protective Class	Class I							
	Type of enclosure	Туре 1							
		Charger Mode							
	AC input voltage		480Vac(423Vac- 528Vac))					
	AC input current	180A(198A max)	120A(132A max)	60A(66A max)					
	AC input power	150kW(165kW max)	100kW(110kW max)	50kW(55kW max)					
	AC frequency	60Hz(59.5Hz-60.5Hz)							
	Battery charge voltage	650Vdc(500Vdc-850Vdc)							
	Battery charge current	231A(300A max) 154A(200A max)		77A(100A max)					
		Utility Interactive Mode							
	Battery discharge voltage	650Vdc(500Vdc-850Vdc)							
Ratings	Battery discharge current	231A(300A max)	154A(200A max)	77A(100A max)					
5	AC output voltage	480Vac(423Vac- 528Vac)							
	AC output current	180A(198A max) 120A(132A max)		60A(66A max)					
	AC output power	150kW(165kW max)	150kW(165kW max) 100kW(110kW max)						
	AC frequency	60Hz(59.5Hz-60.5Hz)							
	AC output PF	0.8leading to 0.8lagging							
		Stand-alone Mode							
	Battery discharge voltage	650Vdc(500Vdc-850Vdc)							
	Battery discharge current	231A(300A max)	154A(200A max)	77A(100A max)					
	AC output voltage	480Vac							
	AC output current	180A(198A max)	120A(132A max)	60A(66A max)					
	AC output power	150kW(165kW max)	100kW(110kW max)	50kW(55kW max)					
	AC frequency								
	AC output PF	0.8leading to 0.8lagging							
	Model	PWS1-250K-NA							
	Operating temp.	-20 ℃ t	o+50°C(>45°C power de	erating)					
	Protective Class	Class I							
	Type of enclosure	Type 1							

2.0 Product Description						
	Charger Mode					
AC input voltage	480Vac(423Vac- 528Vac)					
AC input current	300A(330A max)					
AC input power	250kW(275kW max)					
AC frequency	60Hz(59.5Hz-60.5Hz)					
Battery charge voltage	650Vdc(500Vdc-850Vdc)					
Battery charge current	385A(500Amax)					
	Utility Interactive Mode					
Battery discharge voltage	650Vdc(500Vdc-850Vdc)					
Battery discharge current	385A(500Amax)					
AC output voltage	480Vac(423Vac- 528Vac)					
AC output current	300A(330A max)					
AC output power	250KW(275KW max)					
AC frequency	60Hz(59.5Hz-60.5Hz)					
AC output PF	0.8leading to 0.8lagging					
	Stand-alone Mode					
Battery discharge voltage	650Vdc(500Vdc-850Vdc)					
Battery discharge current	385A(500Amax)					
AC output voltage	480Vac					
AC output current	300A(330A max)					
AC output power	250KW(275KW max)					
AC frequency	60Hz					
AC output PF	0.8leading to 0.8lagging					
Software Version	AC module DSP:1320, CPLD:130, U2 DSP:1420					

ELECTRIC RULE standard UL 1741 activation and dea Remote Configura Low and High Vol	Many NO. 2 Supp activati ability, tage R	built-in grid 21 and HEC lement A; th ion of variou the setting Ride-Throug	Support fu O Rule 14 nese functi ns Advance and accura h (L/HVRT	ictic :20 ions ed I	ons and comp 16, and that h s can be settin	lied c lave l lg or	orrespon been veri paramete	fied through th	; e
standard UL 1741 activation and dea Remote Configura Low and High Vol	Supp Supp activati ability, tage F	lement A; th ion of variou the setting Ride-Throug	o Rule 14 lese functi ls Advance and accura h (L/HVRT	ions ed I	s can be settin	ig or	paramete	nea inrougn in	e
activation and dea Remote Configura Low and High Vol	supp activat ability, tage F	ion of variou the setting Ride-Throug	iese functi is Advance and accura h (L/HVRT	ed I	s can be settin	ig or	paramete	n madification	
Remote Configura Low and High Vol	ability, tage F	the setting Ride-Throug	and accura h (L/HVRT	eu i acv	10 0 m to r ti 10 o ti			er modilication	5, r
Compensating Operating Region	tage F	Ride-Throug	h (L/HVRT				i units ui	splay screen o	I
Operating Region	Volta		`		as following .				
Region	Operating Voltage at		Ride-Thr	0	Maximum	Return To		Time Delay	11
	Point	tof	ugh Until	I	Trip Time	Ser	vice	(Seconds)	
	Inter	connectio	(Seconds	s)	(Seconds)	after trip (% Nominal Voltage)			
	n (%	Nominal							
Over-Voltage		20 (CPUC)	Trip		0.16	110	≥∨≥ 88	300~600	$\left\ \right\ $
2	V>12	0 (HECO)						adjustable	
Over-Voltage	120>	V>110	0.92~12		1~13	110	≊V≊88	300~600	11
1	(CP	UC)	adjustable	•	adjustable			adjustable	
	120 ≗	∓V>110							
blaws al	(HE	CO)	C +:		C a a ti a u a u a	0.00	4 :	Castinuaria	$\left\ \right\ $
Operation	110 -	sv ≘100	Operation	us V	Operation		ration	Operation	
High			Operation	'	Operation		auon	Operation	
Normal	100>	V ≊88	Continuo	JS .	Continuous	Con	tinuous	Continuous	11
Operation Low			Operation	1	Operation	Оре	ration	Operation	
Under-Voltage	88>∨	' ≌70	20		21	110	≌V≌88	300~600	
1	70-14	~ ~ ~ ~	40-00		44-04	44.0	~~~~~~	adjustable	$\left\ \right\ $
2	/U> V	£50	10∼20 adiustable		11∼21 adiustable	110	ev e88	300∼600 adiustable	
- Under-Voltage	50>V	,	0~1		0.5~1.5	110	≥V≥88	300~600	11
3			adjustable	e	adjustable			adjustable	
Operating Regi	on	Minimum R Adjustabili	Range of ity (Hz)Ri (Squency 1Tri20		Ride-Through Until I (Seconds) I Trip I 20~299 adjustable I		Maximum Trip Time (Seconds) 0.16 21~300 adjustable		
Over-Frequency	2	> Over-Fred							
Over-Frequency	1	60.1~65							
Normal Operation	n	60~ Over-F	requency	Co	Continuous		Continuous		
High		1		l Op	Operation		Operation		
High				- 1-			Operation	n	
High Normal Operatio	n	Under-Freq	uency	Co	ntinuous		Operation Continuo	n us	
High Normal Operatio	n	Under-Freq 1~60	uency	Со Ор	ontinuous peration		Operation Continuo Operation	n us n	
High Normal Operatio Low Under-Frequence	on :y 1	Under-Freq 1~60 50~59.9	uency	Co Op 20	ntinuous ∋eration ∼299 adjustable	e	Operation Continuo Operation 21~300 a	n us n adjustable	
Linda				i O D	ration		IOn ereti∹	-	

2.0 Product Description Frequency-Watt (FW): Parameter Default Minimum Range Setting of Adjustability Start Frequency 60.5 60.1 to 65.0 (Hz) **Reduction Gradient** 0 to -100 0 (%P_M/%Hz) Volt-Watt (VW: Minimum Range of Adjustability 105 to 120 Default Setting Parameter Start Voltage (% of 106 nominal) Reduction Gradient 0 0 to -100 (%Pnom/%V) Accuracy: Voltage:+-1%, Frequency:+-0.2Hz, Time: +-100ms Ramp rate:10% PF:+-2% Attive power:5% inaattive power:8%