



Product Certificate Number	20055-CER
Applicant	Huawei Technologies España Parque Empresarial Las Tablas, Federico Mompou 5, Ed. 1 planta 2 28050 Las Tablas. Madrid, Spain.
Series	String Inverters SUN 2000-KTL, IA240 Series, EM24 DIN, CTD-1X,
Model/	SUN2000-17KTL, Moxa / IA240, Carlo Gavazzi / EM24-DIN.AV5.3.D.IS.X, Carlo Gavazzi / CTD-1X.200.5A.XXX
Variant models	Inverters: SUN 2000-8KTL, SUN 2000-12KTL, SUN 2000-17KTL, SUN 2000-20KTL, SUN 2000-23KTL
Type of generating unit	Three Phase Inverter / Control Manager / Power Analyzer / Current sensor
Technical Data	See page 2-7
Standard	UNE 217001 IN: 2015: Requisitos y ensayos para sistemas que eviten el vertido de energía a la red de distribución.

Having assessed the test report number: 20055-TR performed by Certification Entity for Renewable Energies based on the requirements of the EN ISO/IEC 17025:2005

The above-mentioned generating unit complies with the requirements of the: UNE 217001 IN: 2015: Requisitos y ensayos para sistemas que eviten el vertido de energía a la red de distribución.

This certification is according the CERE internal process PET-CERE-09 Rev 12 based on the requirements of the EN ISO/IEC 17065:2012. For this certification process the conformity assessment activities were based on:

- Testing of production samples selected by CERE.
- Audit of quality system according ISO 9001 with certificate number: ES13/14411 issued by a certification body accredited according EN ISO/IEC 17021.
- Inspection of the software implementation process.

Madrid, June 20, 2018. This certificate is valid until June 20, 2021

Miguel Martínez Lavín
Certification Manager

Inverters: HUAWEI

Technical Specifications	SUN2000-8KTL	SUN2000-12KTL
Input		
Max. DC Usable Power	9000 W	13500 W
Max. Input Voltage	1000 V	1000 V
Max. Current per MPPT	18 A	18 A
Max. Short Circuit Current per MPPT	25 A	25 A
Min. Operating Voltage / Start Input Voltage	200 V / 250 V	200 V / 250 V
Full Power MPPT Voltage Range	320 V ~ 800 V	380 V ~ 800 V
MPPT Operating Voltage Range	200 V ~ 950 V	200 V ~ 950 V
Rated Input Voltage	620 V	620 V
Max. Number of Inputs	4	4
Number of MPP Trackers	2	2
Output		
Rated AC Active Power	8000 W	12000 W
Max. AC Apparent Power	8800 VA	13200 VA
Max. AC Active Power (cos Φ = 1)	8800 W	13200 W
Rated Output Voltage	220 V / 380 V, 230 V / 400 V, 3W+N+PE	220 V / 380 V, 230 V / 400 V, 3W+N+PE
Rated AC Grid Frequency	50 Hz / 60 Hz	50 Hz / 60 Hz
Max. Output Current	13,4 A	20 A
Adjustable Power Factor	0,8 LG ... 0,8 LD	0,8 LG ... 0,8 LD
Protection		
Input-side Disconnection Device	Yes	Yes
Anti-islanding Protection	Yes	Yes
AC Overcurrent Protection	Yes	Yes
DC Reverse-Polarity Protection	Yes	Yes
PV-array String Fault Monitoring	Yes	Yes
DC Surge Arrester	Type II	Type II
AC Surge Arrester	Type II	Type II
Insulation Detection	Yes	Yes
Residual Current Monitoring Unit	Yes	Yes

Technical Specifications	SUN2000-17KTL	SUN2000-20KTL
Input		
Max. DC Usable Power	19100 W	22500 W
Max. Input Voltage	1000 V	1000 V
Max. Current per MPPT	18 A	18 A
Max. Short Circuit Current per MPPT	25 A	25 A
Min. Operating Voltage / Start Input Voltage	200 V / 250 V	200 V / 250 V
Full Power MPPT Voltage Range	400 V ~ 800 V	480 V ~ 800 V
MPPT Operating Voltage Range	200 V ~ 950 V	200 V ~ 950 V
Rated Input Voltage	620 V	620 V
Max. Number of Inputs	6	6
Number of MPP Trackers	3	3
Output		
Rated AC Active Power	17000 W	20000 W
Max. AC Apparent Power	18700 VA	22000 VA
Max. AC Active Power (cos Φ = 1)	18700 W	22000 W
Rated Output Voltage	220 V / 380 V, 230 V / 400 V, 3W+N+PE	220 V / 380 V, 230 V / 400 V, 3W+N+PE
Rated AC Grid Frequency	50 Hz / 60 Hz	50 Hz / 60 Hz
Max. Output Current	28,4 A	33,4 A
Adjustable Power Factor	0,8 LG ... 0,8 LD	0,8 LG ... 0,8 LD
Protection		
Input-side Disconnection Device	Yes	Yes
Anti-islanding Protection	Yes	Yes
AC Overcurrent Protection	Yes	Yes
DC Reverse-Polarity Protection	Yes	Yes
PV-array String Fault Monitoring	Yes	Yes
DC Surge Arrester	Type II	Type II
AC Surge Arrester	Type II	Type II
Insulation Detection	Yes	Yes
Residual Current Monitoring Unit	Yes	Yes

Technical Specifications	SUN2000-23KTL
Input	
Max. DC Usable Power	23600 W
Max. Input Voltage	1000 V
Max. Current per MPPT	18 A
Max. Short Circuit Current per MPPT	25 A
Max. input current (3 MPPTs)	54 A
Min. Operating Voltage	200 V
MPPT Voltage Range	480 V ~ 800 V
Rated Input Voltage	620 V
Max. Number of Inputs	6
Number of MPP Trackers	3
Output	
Rated AC Active Power	23000 W
Max. AC Active Power (cos $\Phi = 1$)	--
Rated Output Voltage	220 V - 230 V / 380 V - 400 V, 3W+N+PE
Rated AC Grid Frequency	50 Hz / 60 Hz
Max. Output Current	33,5 A
Adjustable Power Factor	0,8 LG ... 0,8 LD
Protection	
Input-side Disconnection Device	Yes
Anti-islanding Protection	Yes
AC Overcurrent Protection	Yes
DC Reverse-Polarity Protection	Yes
PV-array String Fault Monitoring	Yes
DC Surge Arrester	Type II
AC Surge Arrester	Type III
Insulation Detection	Yes
Residual Current Monitoring Unit	Yes

Control manager:

Trademark/Model:	Moxa/IA240
CPU	Moxa "ART" ARM9 32-bit CPU 192 MHz
RAM	64MB
Flash	16 MB
OS	Linux
LAN	Auto-sensing 10/100 Mbps x 2 with built-in 1.5 KV magnetic isolation protection; RJ45 Connector
Serial Ports	RS-232/422/485 x 4, RJ45 Connector
Serial Protection	15 KV ESD for all signals
Power input	12 to 48 VDC
Power consumption	7W
Operating temperature	-10 to 60°C, (14 to 140°F), 5 to 95% RH
Storage temperature	-20 to 80°C, (-4 to 176°F), 5 to 95% RH
Baudrate	50 bps to 921.6 kbps

Relay:

Trademark/Model:	Moxa/loLogik E1214
Inputs and Outputs	
Digital inputs	6 channels
Relay Outputs	6 channels
Isolation	3 k VDC or 2k Vrms
Digital Input	
Sensor Type	Wet Contact (NPN or PNP), Dry Contact
I/O Mode	DI OR Event Counter
Counter frequency	250 Hz
Digital Filtering Time Interval	Software Configurable
Relay Output	
Contact current rating	Resistive Load: 5 A @ 30 VDC, 250 VAC, 110 VAC
Breakdown voltage	500 VAC
Relay On/Off time	1500 ms (max.)

Power Analyzer:

Trademark/Model:	Carlo Gavazzi/EM24-DIN.AV5.3.D.IS.X
Range codes	
Rated Voltage	3x230 V (400) V
Current range	0,05 – 5 (10) A
Sampling rate	1600 samples/s @ 50 Hz
Operating temperature	-25°C to 55°C
Accuracy	0,5%

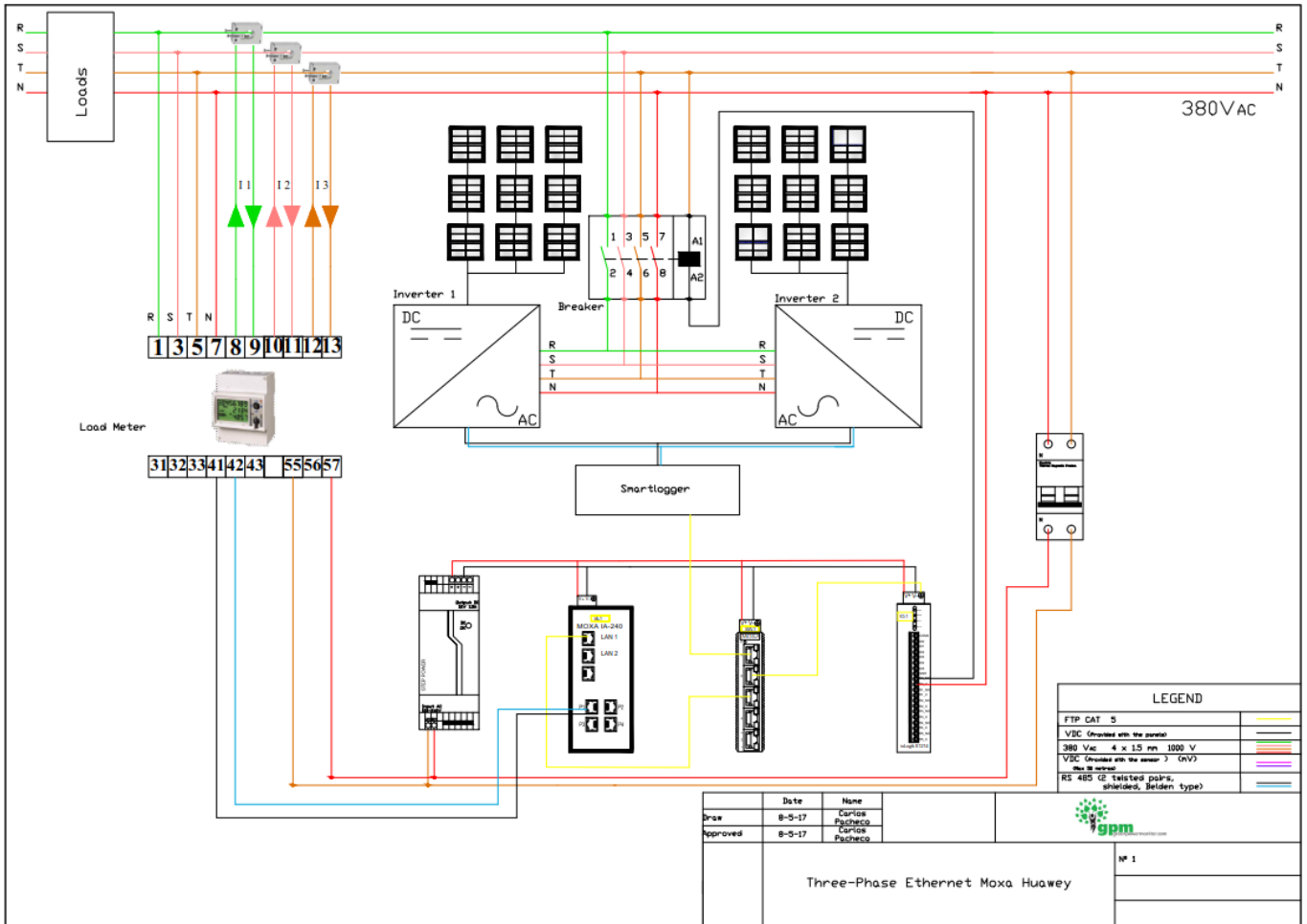
Current sensor:

Trademark/Model:	Carlo Gavazzi/CTD-1X.200.5A.XXX
Input Specifications	
Operating frequency	48 to 62 Hz
Rated primary current	200A
Max. System voltage	0.72 kV
Rated insulation level	3 kV/1min. @50 Hz
Insulation class	E (max 75 °C)
Short-time current rating	
I _{th}	Typical 100I _n /1s
I _{dyn}	2.5 I _{th}
Output Specifications	
Rated secondary current	5 A
Accuracy	0,5%

Switch of grid (Contactor):

Trademark/Model:	Schneider/LC1DT80AF7
Contactor application	Resistive load
Utilisation category	AC-1
System Voltage	690 V AC 25...400 Hz power circuit
I _e rated operational current	80 A
U _c control circuit voltage	110 V
Overvoltage category	III
I _{th}	80 A
U _i rated insulation voltage	690 V

Electrical Diagram:



The sample selected to test was representative of the production.
The sample was selected in:

(1) Huawei Technologies España
Parque empresarial Las Tablas, Federico Mampou 5, edificio 1 28050 Madrid

(2) Green Power Monitor
Av. de Josep Tarradellas, 123-127
08029 Barcelona, Spain

Sample Report Number:

(1) 20055-1-TM
(2) 11630-2-TM

The inspection of manufacturing process was performed in:
On October 5, 2017

Tempel Group
Carrer del Cobalt, 4
08907 L'Hospitalet de Llobregat
Barcelona, Spain

Inspection Report Number:

11630-IF