

• 15F00EGA100 •

SUNWAY TG TE

INVERTER FOTOVOLTAICO TRIFASE CON TRASFORMATORE ESTERNO

FASCICOLO CERTIFICAZIONI E INTERFACCIA RETE

Agg. 22/03/2011

Rev. 00

Italia

- Il presente manuale costituisce parte integrante ed essenziale del prodotto. Leggere attentamente le avvertenze contenute in esso in quanto forniscono importanti indicazioni riguardanti la sicurezza d'uso e di manutenzione.
- Questo prodotto dovrà essere destinato al solo uso per il quale è stato espressamente concepito. Ogni altro uso è da considerarsi improprio e quindi pericoloso. Il Costruttore non può essere considerato responsabile per eventuali danni causati da usi impropri, erronei ed irragionevoli.
- Elettronica Santerno si ritiene responsabile del prodotto nella sua configurazione originale.
- Qualsiasi intervento che alteri la struttura o il ciclo di funzionamento del prodotto deve essere eseguito o autorizzato dall'Ufficio Tecnico di Elettronica Santerno.
- Elettronica Santerno non si ritiene responsabile delle conseguenze derivate dall'utilizzo di ricambi non originali.
- Elettronica Santerno si riserva di apportare eventuali modifiche tecniche sul presente manuale e sul prodotto senza obbligo di preavviso. Qualora vengano rilevati errori tipografici o di altro genere, le correzioni saranno incluse nelle nuove versioni del manuale.
- Elettronica Santerno si ritiene responsabile delle informazioni riportate nella versione originale del manuale in lingua Italiana.
- Proprietà riservata – Riproduzione vietata. Elettronica Santerno tutela i propri diritti sui disegni e sui cataloghi a termine di legge.



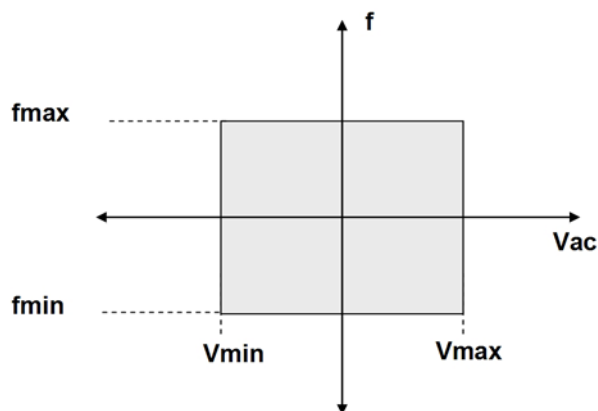
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Strada Statale Selice, 47 - 40026 Imola (BO)
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1. GENERALITÀ

L'interfaccia di rete rappresenta una delle principali funzionalità di sicurezza di cui è provvisto l'inverter.

Tutti i valori della rete elettrica sono misurati e confrontati con una maschera di accettazione. Se i valori misurati eccedono le soglie previste l'inverter si arresta aprendo il contattore di parallelo.

Le funzioni di protezione base dell'interfaccia di rete comprendono soglie di sovra/sotto frequenza e sovra/sotto tensione.



S000083

Figura 1: Soglie di intervento tensione e frequenza

I valori e i tempi di scatto dipendono dalle normative di allaccio alla rete dei diversi paesi. Altre misure, sia dirette che derivate, possono essere considerate ai fini della protezione di interfaccia.

La funzione di protezione di interfaccia può essere svolta da un dispositivo esterno all'inverter oppure implementata nel software di controllo dell'inverter. Le due funzioni possono anche coesistere e lavorare in parallelo.

Di seguito vengono descritte in dettaglio le soglie di intervento richieste dalle normative di allaccio alla rete dei diversi paesi ed i relativi parametri di riferimento. Per ulteriori dettagli vedere il Manuale di Programmazione dell'inverter.

2. LOCALIZZAZIONE GEOGRAFICA ITALIA

Il presente capitolo si riferisce alla localizzazione geografica per la commercializzazione del prodotto.

Il prodotto è configurato in base alle normative di allaccio alla rete del paese di destinazione. La configurazione del prodotto è indicata dal suffisso seguente:

Paese	Configurazione geografica
ITALIA	---

2.1. Soglie e tempi di intervento tensione e frequenza

Parametro	Funzione	Valore	Livello di accesso
P077	Intervento Massima Tensione di Rete	1.2 Vrated	ENGINEERING
P079	Tempo Intervento Massima Tensione	0.05 s	ENGINEERING
P080	Tempo Ripristino Massima Tensione	0.100 s	ENGINEERING
P081	Intevento Minima Tensione di Rete	0.8 Vrated	ENGINEERING
P083	Tempo Intervento Minima Tensione	0.05 s	ENGINEERING
P084	Tempo Ripristino Minima Tensione	0.100 s	ENGINEERING
P089	Intervento Massima Frequenza di rete	50 +0.3 Hz	ENGINEERING
P091	Tempo Intervento Massima Frequenza	0.05 s	ENGINEERING
P092	Tempo Ripristino Massima Frequenza	0.100 s	ENGINEERING
P093	Intervento Minima Frequenza di rete	50 -0.3 Hz	ENGINEERING
P095	Tempo Intervento Minima Frequenza	0.05 s	ENGINEERING
P096	Tempo Ripristino Minima Frequenza	0.100 s	ENGINEERING

2.1.1. Protezione di interfaccia esterna

Ove necessario, per motivi tecnici o normativi, viene installato un relè di Protezione di Interfaccia esterno. In tal caso i valori delle soglie e tempi di intervento sono affidati al dispositivo stesso. La protezione di interfaccia SW funziona comunque in parallelo, anche se con soglie di intervento allargate.

2.1.2. Protezione di interfaccia integrata nel SW

Parametro	Funzione	Valore	Livello di accesso
C020	Tensione Nominale Rete	400 Vac	BASIC
C021	Frequenza Nominale Rete	50 Hz	ENGINEERING
P090	Rapporto di Rilascio Massima Frequenza	0.998	ENGINEERING
P094	Rapporto di Rilascio Minima Frequenza	1002	ENGINEERING

2.1.3. Lingua display/keypad

Parametro	Funzione	Valore	Livello di accesso
P263	Lingua Display/keypad	Italiano	BASIC

2.2. Certificati di conformità



DICHIARAZIONE CE DI CONFORMITÀ

Elettronica Santerno S.p.A.

S.S. Selice, 47 - 40026 Imola (BO) - Italia

IN QUALITÀ DI COSTRUTTORE

DICHIARA

SOTTO LA PROPRIA RESPONSABILITÀ

CHE GLI INVERTER FOTOVOLTAICI DELLA LINEA **SUNWAY TG TE**
CON I RELATIVI ACCESSORI/OPZIONI:

SUNWAY TG 180 600V TE	SUNWAY TG 175 800V TE
SUNWAY TG 230 600V TE	SUNWAY TG 240 800V TE
SUNWAY TG 280 600V TE	SUNWAY TG 300 800V TE
SUNWAY TG 290 600V TE	SUNWAY TG 310 800V TE
SUNWAY TG 365 600V TE	SUNWAY TG 385 800V TE
SUNWAY TG 455 600V TE	SUNWAY TG 485 800V TE
SUNWAY TG 550 600V TE	SUNWAY TG 610 800V TE
	SUNWAY TG 730 800V TE
	SUNWAY TG 750 800V TE

AI QUALI LA PRESENTE DICHIARAZIONE SI RIFERISCE,

APPLICATI SECONDO LE INDICAZIONI FORNITE SUL MANUALE D'ISTRUZIONE,

RISULTANO CONFORMI CON QUANTO PREVISTO DAI SEGUENTI DOCUMENTI NORMATIVI:

CEI EN 61000-6-2 (2006)	Compatibilità elettromagnetica (EMC). Parte 6-2: Norme generiche – Immunità per gli ambienti industriali
CEI EN 61000-6-4 (2007)	Compatibilità elettromagnetica (EMC). Parte 6-3: Norme generiche – Emissioni per gli ambienti residenziali, commerciali e dell'industria leggera
CEI EN 61000-3-11 (2001)	Limitazione delle variazioni di tensione, delle fluttuazioni di tensione e del flicker in sistemi di alimentazione pubblici a bassa tensione - Apparecchiature con correnti nominali < 75 A e soggetti ad allacciamento su condizione
CEI EN 61000-3-12 (2006)	Limiti - Limiti per le correnti armoniche prodotte da apparecchiature collegate alla rete pubblica a bassa tensione aventi correnti di ingresso > 16 A e <= 75 A per fase
CEI EN 50178 (1999)	Apparecchiature elettroniche da utilizzare negli impianti di potenza
pr IEC 62109-1	Safety of power converters for use in photovoltaic power systems - Part 1: General requirements
IEC 61439-1 (2009)	Low-voltage switchgear and controlgear assemblies - Part 1: General rules
CEI 11-20 (2000)	Impianti di produzione di energia elettrica e gruppi di continuità collegati a reti di I e II categoria
CEI 0-16 (2008)	Regola tecnica di riferimento per la connessione di utenti attivi e passivi alle reti A1 ed M1 delle imprese distributrici di energia elettrica

SECONDO LE DISPOSIZIONI DELLA DIRETTIVA COMPATIBILITÀ
ELETTRONICA 2004/108/CE

E DELLA DIRETTIVA BASSA TENSIONE 2006/95/CE

(ULTIME DUE CIFRE DELL'ANNO IN CUI E' STATA AFFISSA LA MARCATURA CE:09)

LUOGO E DATA
Imola, 30/07/2009



Elettronica Santerno Spa
Società soggetta all'attività di
direzione e coordinamento di
Carraro Spa

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Codice Fiscale e Partita Iva
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R.E.A. PD 328951
Cod. Mecc. PD 054138
Cod. Ident. IVA Intracom.
IT03686440264

General Manager
BOMBARDI ING. GIORGIO

C E R T I F I C A T E

of Conformity



Registration No.: AK 60035883 0001

Report No.: 28104094 001

Holder: Elettronica Santerno S.p.A.
Strada Statale Selice 47
40026 Imola BO
Italia

Product: Electrical Equipment
Static Conversion Device for Photovoltaic Plants

Identification:

Trademark	: Santerno
Series	: SUNWAY TG xxx TE (see models below)
Models and	: TG 180 600V TE = 137,1 kW
nom. output power	: TG 175 800V TE = 136,4 kW
	: TG 240 800V TE = 182,7 kW
Max. input voltage	: 600 Vdc for "600V" models
	: 800 Vdc for "800V" models
Software version	: 1.7

Tested acc. to: RTC Ed 1 DIC:2008

The certificate of conformity refers to the above mentioned product. This is to certify that the specimen is in conformity with the assessment requirement mentioned above. This certificate does not imply assessment of the production of the product and does not permit the use of a TÜV Rheinland mark of conformity.

Date 26.11.2010



TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg

Certificazione TÜV per Enel

OGGETTO: Dichiarazione di conformità alla specifica ENEL Distribuzione S.p.A. "Guida per le connessioni alla rete elettrica di ENEL Distribuzione" Sezione F.14 (Ed. I, Dec. 2008).

SUBJECT: Declaration of Conformity to ENEL Distribuzione S.p.A. Specification "Guida per le connessioni alla rete elettrica di ENEL Distribuzione" Section F.14 (Ed. I, Dec. 2008).

Certificate No.: AK 60035883-0001

TIPOLOGIA DI APPARATO A CUI SI RIFERISCE LA DICHIARAZIONE:
TYPE OF APPARATUS WHICH THE DECLARATION IS REFERRED TO:

DISPOSITIVO DI INTERFACCIA Interface Device	PROTEZIONE DI INTERFACCIA Interface Protection Device	DISPOSITIVO DI CONVERSIONE STATICA Static Conversion Device	DISPOSITIVO DI GENERAZIONE ROTANTE Rotating Device
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Costruttore
Manufacturer

ELETTRONICA SANTERNO S.p.A.
Strada Statale-Selice, 47
I-40026 Imola (BO)

Modello/Tipo
Model/Type

Modello Model	Corrente nominale a.c. AC Nominal current [A]	Potenza nominale a.c. AC Nominal power [kW]
SUNWAY TG 180 600V TE	197,9	137,1
SUNWAY TG 175 800V TE	196,8	136,4
SUNWAY TG 240 800V TE	263,7	182,7

Firmware release 1.70

Numero di Fasi
Number of Phases Three-phase

Potenza Nominale
Nominal Power See the above table

Note
Remarks Il dispositivo non è equipaggiato con trasformatore di isolamento a bassa frequenza.
The device isn't equipped with low frequency insulation transformer.


Laboratorio di Prova
Test Laboratory EuroTest Laboratori S.r.l., Via G. Marconi, 23 – I-35020 Brugine (PD)
Accreditamento SINAL N. 0192

Esaminati i Fascicoli Prove n° CONBT 01 CdO 09C241001, EMC 01 CdO 05C241001, EMC 02 CdO 05C241001 emessi da EuroTest Laboratori S.r.l.
Having assessed the Test Files no. CONBT 01 CdO 09C241001, EMC 01 CdO 05C241001, EMC 02 CdO 05C241001 issued by EuroTest Laboratori S.r.l.

si dichiara che i prodotti indicati soddisfano i requisiti della specifica Enel Distribuzione S.p.A. "Guida per le connessioni alla rete elettrica di ENEL Distribuzione" Sezione F.14 (Ed. I, Dec. 2008).
we declare that the products indicated meet the requirements laid down by Enel Distribuzione S.p.A. Specification "Guida per le connessioni alla rete elettrica di ENEL Distribuzione" Section F.14 (Ed. I, Dec. 2008).

Validità della Dichiarazione
Validity of the Declaration Questa Dichiarazione è valida per i prodotti indicati, così come descritti nei Fascicoli citati. Nuovi requisiti o emendamenti a requisiti esistenti, così come modifiche ai prodotti, possono implicare nuove verifiche e certificazioni.
This Declaration is valid only for the products indicated herein, as described in the Files mentioned. New requirements or amendment to existing ones, or modifications to the product, may imply re-verification and re-certification.

Date: 26.11.2010

Signature: 
Dipl.-Ing. M. Leone

TÜV Rheinland LGA Products GmbH – Tillystraße 2 – 90431 Nürnberg
TÜV Rheinland LGA Products GmbH è accreditata EN 45011 con certificato n. ZLS-ZE-694/09A emesso il 27/10/2009 da ZLS – Monaco (D).
TÜV Rheinland LGA Products GmbH is accredited according to EN 45011 with Accreditation no. ZLS-ZE-694/09A issued on 27/10/2009 by ZLS – Munich (D).

Certificazione TÜV per Enel

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Stabilimento Produttivo
Via Concia 7
40023 Castel Guelfo
(BO) Italia



Imola, February 8, 2011

Elettronica Santerno S.p.A. declares, as the Manufacturer of the products below, that those products have equivalent hardware and software features:

Sunway TG 750 800V TE equals Sunway TG 750 900V TE

Uffici Milano
Via Giotto, 4
20040 Cambiago
(MI) Italia
t +39 02 95138126
f +39 02 95179256

The products above have been given different names exclusively for commercial and marketing purposes.

Declaration of Equivalence Sunway TG750TE 800-900V



DICHIARAZIONE CE DI CONFORMITÀ

Elettronica Santerno S.p.A.
S.S. Selice, 47 - 40026 Imola (BO) - Italia
in qualità di Costruttore

DICHIARA

Sotto la propria responsabilità
che le **Colonne di parallelo ingressi lato corrente continua** della serie
SUNWAY DC PARALLEL:

SUNWAY DC-PARALLEL 4/8-B6 (-S)	SUNWAY DC-PARALLEL 4/8 B(D) 600V	SUNWAY DC-PARALLEL 4/8 B(D) 800V
SUNWAY DC-PARALLEL 4/8-B8 (-S)	SUNWAY DC-PARALLEL 4/10 B(D) 600V	SUNWAY DC-PARALLEL 4/10 B(D) 800V
SUNWAY DC-PARALLEL 4/10-B8(-S)	SUNWAY DC-PARALLEL 5/10 B(D) 600V	SUNWAY DC-PARALLEL 5/10 B(D) 800V
SUNWAY DC-PARALLEL 8/16-B8(-S)	SUNWAY DC-PARALLEL 7/10 B(D) 600V	SUNWAY DC-PARALLEL 7/10 B(D) 800V
SUNWAY DC-PARALLEL 4/10-D8 (-S)	SUNWAY DC-PARALLEL 8/16 B(D) 600V	SUNWAY DC-PARALLEL 8/16 B(D) 800V
SUNWAY DC-PARALLEL 8/16-D8 (-S)	SUNWAY DC-PARALLEL 11/16 B(D) 600V	SUNWAY DC-PARALLEL 11/16 B(D) 800V
SUNWAY DC-PARALLEL 8/20-D8(-S)	SUNWAY DC-PARALLEL 8/20 B(D) 600V	SUNWAY DC-PARALLEL 8/20 B(D) 800V

Alle quali la presente dichiarazione si riferisce,
applicate agli inverter SUNWAY TG e SUNWAY TG TE
secondo le indicazioni fornite sul Manuale d'Istruzione,
risultano conformi con quanto previsto dai seguenti documenti normativi:

IEC 62109-1 (2010)	Safety of power converters for use in photovoltaic power systems
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Secondo le disposizioni della DIRETTIVA BASSA TENSIONE 2006/95/CE
(ultime due cifre dell'anno in cui è stata adottata)

Dichiarazione CE di conformità DC-Parallel



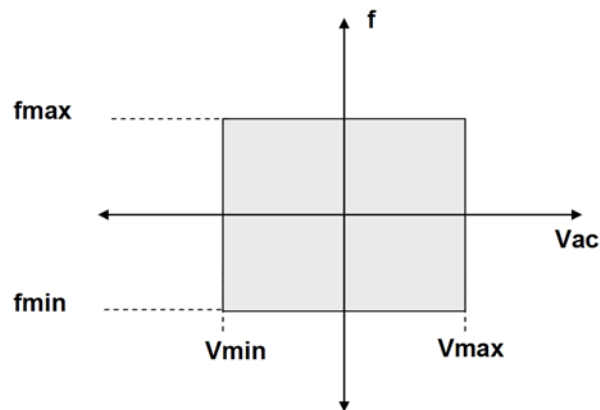
Elettronica Santerno S.p.A.

1. GÉNÉRALITÉS

L'interface réseau représente l'une des plus importantes fonctions de sécurité prévues par l'onduleur.

Toutes les valeurs relatives au réseau électrique sont mesurées et comparées par un masque spécial. Si les valeurs mesurées dépassent les seuils prévus, l'onduleur s'arrête en ouvrant le contacteur de parallèle.

Les fonctions de protection de base de l'interface réseau comprennent les seuils de surtension/minitension et les seuils de surfréquence/sous-fréquence.



S000063

Figure 1: Seuil de déclenchement tension et fréquence

Les valeurs et les temps de déclenchement dépendent des réglementations de connexion aux réseaux publics de distribution des différents pays. D'autres mesures, tant directes que dérivées, peuvent être prises en considération aux fins de la protection d'interface.

La fonction de protection d'interface peut être remplie par un dispositif externe à l'onduleur, par une fonction logicielle, ou même par les deux.

Les seuils de déclenchement requis par les réglementations de connexion aux réseaux publics de distribution des différents pays et leurs paramètres de référence sont donnés aux paragraphes suivants. Pour plus de détails, voir le Manuel de Programmation de l'onduleur.

2. LOCALISATION GÉOGRAPHIQUE FRANCE

Ce chapitre se rapporte à la localisation géographique pour la commercialisation du produit.

Le produit est configuré conformément aux réglementations de connexion au réseau public de distribution du pays de destination. La configuration du produit est indiquée par le suffixe suivant :

Pays	Configuration géographique
FRANCE	FR

2.1. Seuils et temps d'intervention tension et fréquence

Paramètre	Fonction	Valeur	Niveau d'accès
P077	Décl. tension max.	1.15 Vrated	ENGINEERING
P079	Temps décl. tension max.	0.20 s	ENGINEERING
P080	Temps restauration tension max.	0.100 s	ENGINEERING
P081	Décl. tension min. réseau	0.8 Vrated	ENGINEERING
P083	Temps décl. tension min.	0.20 s	ENGINEERING
P084	Temps décl. tension max.	0.100 s	ENGINEERING
P089	Décl. tension fréquence max.	50 +0.2 Hz	ENGINEERING
P091	Temps décl. fréquence max.	0.20 s	ENGINEERING
P092	Temps restauration fréq. max.	0.100 s	ENGINEERING
P093	Décl. fréquence min. réseau	50 -2.5 Hz	ENGINEERING
P095	Temps décl. fréquence min.	0.20 s	ENGINEERING
P096	Temps restauration fréq. min.	0.100 s	ENGINEERING

2.1.1. Protection d'interface externe

Un relais d'interface externe peut être installé pour des raisons techniques ou réglementaires. Dans ce cas, les valeurs des seuils et des temps de déclenchement dépendent du dispositif installé. La protection d'interface logicielle fonctionne même avec des seuils de déclenchement plus larges.

2.1.2. Protection d'interface intégrée dans le logiciel

Paramètre	Fonction	Valeur	Niveau d'accès
C020	Tension nominale de réseau	400 Vac	BASIC
C021	Fréquence nominale réseau	50 Hz	ENGINEERING
P090	Rapport de relâchement de fréquence max.	0.998	ENGINEERING
P094	Rapport de relâchement de fréquence min.	1002	ENGINEERING

2.1.3. Langue de l'afficheur/clavier

Paramètre	Fonction	Valeur	Niveau d'accès
P263	Langue afficheur/clavier	Français	BASIC

2.2. Déclarations de conformité

DÉCLARATION DE CONFORMITÉ CE

Elettronica Santerno S.p.A.
S.S. Selice, 47 - 40026 Imola (BO) – Italie

DÉCLARE

EN QUALITÉ DE FABRICANT ET SOUS SON ENTIÈRE RESPONSABILITÉ
QUE LES **ONDULEURS SOLAIRES DE LA LIGNE SUNWAY TG TE**
AVEC LEURS ACCESSOIRES/OPTIONS :

SUNWAY TG610 FR 1000-PQ TE
SUNWAY TG730 FR 1000-PQ TE

AUXQUELS CETTE DÉCLARATION SE RAPPORTE,
SONT CONFORMES AUX STANDARDS SUIVANTS LORSQU'ILS SONT UTILISÉS DANS LES
CONDITIONS DE FONCTIONNEMENT DÉCRITES DANS LE MANUEL D'UTILISATION :


Arrêté du 23 avril 2008 (NOR : DEVE0808815A)

LIEU ET DATE
Imola, le 20/01/2011

L'Administrateur Délégué

TBCCHIO ING. MARCO

 **Elettronica Santerno Spa**
Società soggetta all'attività di V

 **CE**

Stabilimento di Imola
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www.santerno-carraro.it

Cap. Soc. € 2.500.000 i.v.
Cassa di Risparmio di Bologna S.p.A.
S.p.A. IMOLA
Cod. Fiscale 01518410367
C.C.I.A.A. Bologna
Prestazioni di servizi

Page 1/2

Déclaration CE de conformité



DÉCLARATION CE DE CONFORMITÉ

Elettronica Santerno S.p.A.
S.S. Selice, 47 - 40026 Imola (BO) - Italie

DÉCLARE

En qualité de fabricant et sous son entière responsabilité,
que les **Colonnes de parallèle côté courant continu** de la série
SUNWAY DC PARALLEL :

SUNWAY DC-PARALLEL 4/8-B6 (-S)	SUNWAY DC-PARALLEL 4/8 B(D) 600V	SUNWAY DC-PARALLEL 4/8 B(D) 800V
SUNWAY DC-PARALLEL 4/8-B8 (-S)	SUNWAY DC-PARALLEL 4/10 B(D) 600V	SUNWAY DC-PARALLEL 4/10 B(D) 800V
SUNWAY DC-PARALLEL 4/10-B8(-S)	SUNWAY DC-PARALLEL 5/10 B(D) 600V	SUNWAY DC-PARALLEL 5/10 B(D) 800V
SUNWAY DC-PARALLEL 8/16-B8(-S)	SUNWAY DC-PARALLEL 7/10 B(D) 600V	SUNWAY DC-PARALLEL 7/10 B(D) 800V
SUNWAY DC-PARALLEL 4/10-D8 (-S)	SUNWAY DC-PARALLEL 8/16 B(D) 600V	SUNWAY DC-PARALLEL 8/16 B(D) 800V
SUNWAY DC-PARALLEL 8/16-D8 (-S)	SUNWAY DC-PARALLEL 11/16 B(D) 600V	SUNWAY DC-PARALLEL 11/16 B(D) 800V
SUNWAY DC-PARALLEL 8/20-D8(-S)	SUNWAY DC-PARALLEL 8/20 B(D) 600V	SUNWAY DC-PARALLEL 8/20 B(D) 800V

Auxquelles cette déclaration se rapporte,
sont conformes au standard suivant, si appliquées aux onduleurs solaires SUNWAY TG et
SUNWAY TG TE dans les conditions de fonctionnement décrites dans le
manuel d'utilisation :

IEC 62109-1 (2010)	Safety of power converters for use in photovoltaic power systems
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Selon la **DIRECTIVE BASSE TENSION 2006/95/CE**
(deux derniers chiffres de l'année de marquage CE : **08**).

LIEU ET DATE
Imola 15/10/2010 .

CHIEF EXECUTIVE OFFICER
TECCHIO ING. MARCO



Elettronica Santerno Spa
Società soggetta all'attività di
direzione e coordinamento di
Carraro Spa

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03686440284
R.E.A. PD 328951
Cod. Mecc. PD 054138
Cod. Ident. IVA Intracom.
IT03686440284

• 15F00EGD100 •

SUNWAY TG TE

DREIPHASEN-PHOTOVOLTAIK-WECHSELRICHTER MIT EXTERNEM TRANSFORMATOR

BROSCHÜRE ZERTIFIKATIONEN UND NETZSCHNITTSTELLE

Akt. 22/03/2011

Rev. 00

Deutschland

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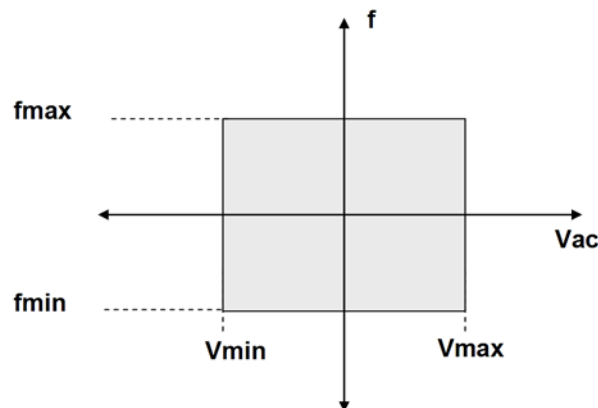
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1. ALLGEMEINE INFORMATIONEN

Die Netzschnittstelle stellt eine der Hauptsicherheitsfunktionen des Wechselrichters dar.

Alle Stromnetzwerke sind mit einer Annahemasken gemessen und verglichen. Wenn die gemessenen Werte überschreiten die vorgesehenen Schwellen, stoppt der Wechselrichter und das Parallelschaltungsschutz öffnet sich.

Unter den Grundsicherheitsfunktionen der Netzschnittstelle sind die Über- und Unterfrequenzschwellen und die Über- und Unterspannungsschwellen zu erwähnen.



S000063

Abbildung 1: Spannungs- und Frequenzansprechschwellen

Die Auslösewerte und –zeiten hängen von den Netzanschlussvorschriften der verschiedenen Länder ab. Andere direkten und abgeleiteten Messungen können für den Schnittstellenschutz berücksichtigt werden.

Die Schnittstellenschutzfunktion kann durch ein Gerät außerhalb des Wechselrichters ausgeübt oder in der Kontrollsoftware des Wechselrichters implementiert werden. Beide Funktionen können auch koexistieren und parallel geschaltet werden.

Im Nachfolgenden werden die Ansprechschwellen, die von den Netzanschlussvorschriften der verschiedenen Länder gefordert werden, und die entsprechenden Parameter detailliert beschrieben. Für weitere Details siehe das Programmierhandbuch des Wechselrichters.



2. LANDESKONFIGURATION DEUTSCHLAND

Dieses Kapitel bezieht sich auf den geographischen Standort für den Vertrieb der Produkte.

Das Produkt ist gemäß den Netzanschlussvorschriften des Gebrauchslands konfiguriert. Die Produktkonfiguration ist durch das folgende Suffix gekennzeichnet:

Land	Landeskonfiguration
DEUTSCHLAND	DE

DE

2.1. Auslöseschwellen und -zeiten für Spannung und Frequenz

Parameter	Funktion	Wert	Zugriffsebene
P077	Ansprechschwelle max. Spannung	1.15 Vrated	ENGINEERING
P079	Ansprechzeit max. Spannung	0.20 s	ENGINEERING
P080	Rückstellzeit max. Spannung	30 s	ENGINEERING
P081	Ansprechschwelle min. Spannung	0.8 Vrated	ENGINEERING
P083	Ansprechzeit min. Spannung	0.20 s	ENGINEERING
P084	Rückstellzeit min. Spannung	30 s	ENGINEERING
P089	Ansprechschwelle max. Frequenz	50 +0.2 Hz	ENGINEERING
P091	Ansprechzeit max. Frequenz	0.20 s	ENGINEERING
P092	Rückstellzeit max. Frequenz	30 s	ENGINEERING
P093	Ansprechschwelle min. Frequenz	50 -2.5 Hz	ENGINEERING
P095	Ansprechzeit min. Frequenz	0.20 s	ENGINEERING
P096	Rückstellzeit min. Frequenz	30 s	ENGINEERING

2.1.1. Externer Schnittstellenschutz

Wenn es aus technischen oder rechtlichen Gründen erforderlich ist, wird ein externes Schnittstellenschutzrelais installiert.

In diesem Fall sind die Werte der Ansprechschwellen und -zeiten vom Gerät kontrolliert. Auf jeden Fall funktioniert die SW-Schnittstelle auch bei erweiterten Ansprechschwellen parallel.

2.1.2. In SW integrierter Schnittstellenschutz

Parameter	Funktion	Wert	Zugriffsebene
C020	Netznominalspannung	400 Vac	BASIC
C021	Netznominalfrequenz	50 Hz	ENGINEERING
P090	Freigabeverhältnis max. Frequenz	0.998	ENGINEERING
P094	Freigabeverhältnis min. Frequenz	1002	ENGINEERING

2.1.3. Display-Sprache

Parameter	Funktion	Wert	Zugriffsebene
P263	Display-Sprache	Deutsch	BASIC



2.2. Konformitätszertifikate



DE

EG-KONFORMITÄTSERKLÄRUNG

Hiermit erklärt der Hersteller

Elettronica Santerno S.p.A.

S.S. Selice, 47 - 40026 Imola (BO) - Italien

IN ALLEINIGER VERANTWORTUNG,

DASS DER SOLAR-WECHSELRICHTER DER SERIE **SUNWAY TG DE TE**
MIT ALLEN ENTSPRECHENDEN ZUBEHÖREN/SONDERTEILEN:

SUNWAY TG 180DE 600V TE	SUNWAY TG 175DE 800V TE
SUNWAY TG 230DE 600V TE	SUNWAY TG 240DE 800V TE
SUNWAY TG 280DE 600V TE	SUNWAY TG 300DE 800V TE
SUNWAY TG 290DE 600V TE	SUNWAY TG 310DE 800V TE
SUNWAY TG 365DE 600V TE	SUNWAY TG 385DE 800V TE
SUNWAY TG 455DE 600V TE	SUNWAY TG 485DE 800V TE
SUNWAY TG 550DE 600V TE	SUNWAY TG 610DE 800V TE
	SUNWAY TG 730DE 800V TE
	SUNWAY TG 750DE 800V TE

AUF DEN SICH DIESE ERKLÄRUNG BEZIEHT,

UND WENN ER UNTER DEN IM BENUTZERHANDBUCH ANGEGEBENEN
BETRIEBSBEDINGUNGEN VERWENDET WIRD,

MIT DEN FOLGENDEN VORSCHRIFTEN:

DIN EN 61000-6-2 (2006)	Elektromagnetische Verträglichkeit (EMV) – Teil 6-2: Fachgrundnormen – Störfestigkeit für Industriebereiche
DIN EN 61000-6-4 (2007)	Elektromagnetische Verträglichkeit (EMV) – Teil 6-4: Fachgrundnormen – Störaussendung für Industriebereiche
DIN EN 50178 (1997)	Ausrüstung von Starkstromanlagen mit elektronischen Betriebsmitteln
IEC 61439-1 (2009)	Niederspannungs-Schaltgerätekombinationen – Teil 1: Allgemeine Festlegungen

GEMÄSS DER RICHTLINIE ÜBER ELEKTROMAGNETISCHE VERTRÄGLICHKEIT
2004/108/EG

UND DER NIEDERSPANNUNGSRICHTLINIE 2006/95/EG ÜBEREINSTIMMT
(LETZTE ZWEI ZIFFERN DES JAHRES BEIM ANBRINGEN DER CE-KENNZEICHNUNG: 09)

ORT UND DATUM
Imola, 30/09/2009

General Manager
BOMBARDA ING. GIORGIO



Elettronica Santerno Spa
Società soggetta all'attività di
direzione e coordinamento di
Carraro Spa

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Codice Fiscale e Partita Iva
03686440284
R.E.A. PD 328951
Cod. Mecc. PD 054138
Cod. Ident. IVA Intracom.
IT03686440284



EG-KONFORMITÄTSERKLÄRUNG

Electronica Santerno S.p.A.

S.S. Selice, 47 - 40026 Imola (BO) - Italien

ERKLÄRT

IN IHRER EIGENSCHAFT ALS HERSTELLERFIRMA AUF EIGENE VERANTWORTUNG,
DASS DIE PARALLELSÄULEN GLEICHSTROMSEITIGE EINGÄNGE
DER SERIE **SUNWAY DC PARALLEL**:

SUNWAY DC-PARALLEL 4/8-B6 (-S)	SUNWAY DC-PARALLEL 4/8 B(D) 600V	SUNWAY DC-PARALLEL 4/8 B(D) 800V
SUNWAY DC-PARALLEL 4/8-B8 (-S)	SUNWAY DC-PARALLEL 4/10 B(D) 600V	SUNWAY DC-PARALLEL 4/10 B(D) 800V
SUNWAY DC-PARALLEL 4/10-B8(-S)	SUNWAY DC-PARALLEL 5/10 B(D) 600V	SUNWAY DC-PARALLEL 5/10 B(D) 800V
SUNWAY DC-PARALLEL 8/16-B8(-S)	SUNWAY DC-PARALLEL 7/10 B(D) 600V	SUNWAY DC-PARALLEL 7/10 B(D) 800V
SUNWAY DC-PARALLEL 4/10-D8 (-S)	SUNWAY DC-PARALLEL 8/16 B(D) 600V	SUNWAY DC-PARALLEL 8/16 B(D) 800V
SUNWAY DC-PARALLEL 8/16-D8 (-S)	SUNWAY DC-PARALLEL 11/16 B(D) 600V	SUNWAY DC-PARALLEL 11/16 B(D) 800V
SUNWAY DC-PARALLEL 8/20-D8(-S)	SUNWAY DC-PARALLEL 8/20 B(D) 600V	SUNWAY DC-PARALLEL 8/20 B(D) 800V

DIE GEGENSTAND DIESER ERKLÄRUNG SIND
UND IN DEN WECHSELRICHTERN SUNWAY TG UND SUNWAY TG TE NACH DEN IN DER
BETRIEBSANLEITUNG GELIEFERTEN ANGABEN EINGESETZT SIND,
DEN ANFORDERUNGEN FOLGENDER NORMTEXTE ENTSPRECHEN:

IEC 62109-1 (2010)	Safety of power converters for use in photovoltaic power systems
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GEMÄSS DEN BESTIMMUNGEN DER
NIEDERSPANNUNGSRICHTLINIE 2006/95/EG.

(DIE LETZTEN BEIDEN ZIFFERN DES JAHR, IN DEM DIE CE-KENNZEICHNUNG
ANGEBRACHT WURDE: **08.**)

ORT UND DATUM
Imola, 15.10.2010

CHIEF EXECUTIVE OFFICER
ING. MARCO TECCHIO



Electronica Santerno Spa
Società soggetta all'attività di
direzione e coordinamento di
Carraro Spa

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I/1

EG-Konformitätserklärung für DC-Parallel

• 15F00EGF100 •

SUNWAY TG TE

INVERSOR FOTOVOLTAICO TRIFÁSICO CON TRANSFORMADOR EXTERNO

FASCÍCULO DE CERTIFICACIONES E INTERFAZ CON LA RED

Act. 22/03/2011

Rev. 00

España

- El presente manual es parte integrante y esencial del producto ilustrado. Leer atentamente las advertencias correspondientes, puesto que ofrecen importantes indicaciones sobre seguridad de uso y mantenimiento.
- Este producto deberá destinarse al único uso para el cual ha sido expresamente diseñada. Cualquier otro uso será considerado indebido y por consiguiente peligroso. El Fabricante no podrá considerarse responsable de eventuales daños causados por usos indebidos, erróneos e irracionales.
- Elettronica Santerno se hace responsable del producto en su configuración original.
- Cualquier intervención que altere la estructura o el ciclo de funcionamiento del producto deberá ser realizada o autorizada por el Departamento Técnico de Elettronica Santerno.
- Elettronica Santerno no se hace responsable de las consecuencias derivadas del uso de piezas de recambio no originales.
- Elettronica Santerno se reserva el derecho de aportar eventuales modificaciones técnicas al presente manual y al producto sin obligación de previo aviso. En el caso de que surgiera algún error tipográfico o de otro tipo, las correcciones serán incluidas en las nuevas versiones del manual.
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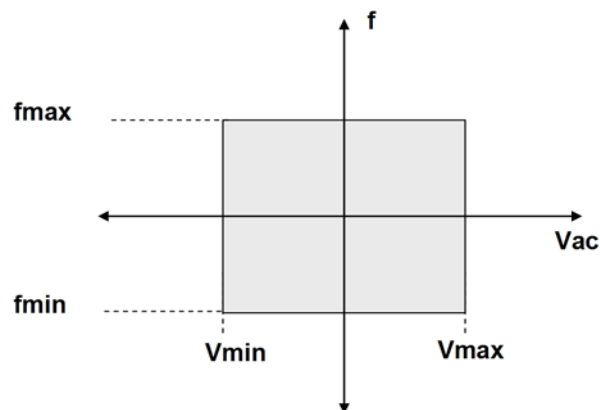
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1. INFORMACIÓN GENERAL

La interfaz de red representa una de las principales funcionalidades de seguridad que componen el inversor.

Todos los valores de la red eléctrica se miden y se comparan con una máscara de aceptación. Si los valores medidos superan los umbrales contemplados, el inversor se detiene y abre el contactor de paralelo.

Las funciones de protección básicas de la interfaz de red incluyen umbrales de sobre-/sub-frecuencia y sobre-/sub-tensión.



S000083

Figura 1: Umbrales de intervención tensión y frecuencia

Los valores y los tiempos de disparo dependen de las normativas de conexión a la red de los diferentes países. Otras medidas, tanto directas como derivadas, se pueden considerar para finalidades de la protección de la interfaz.

La función de protección de interfaz se puede efectuar mediante un dispositivo externo al inversor o bien se puede implementar en el software de control del inversor. Las dos funciones pueden incluso coexistir y operar en paralelo.

A continuación se describen de manera detallada los umbrales de intervención establecidos en las normativas de conexión a la red de los diferentes países y los relativos parámetros de referencia. Para más informaciones, véase el Manual de Programación del inversor.



2. LOCALIZACIÓN GEOGRÁFICA ESPAÑA

Este capítulo se refiere a la localización geográfica para la comercialización del producto.

El producto se configura según las normativas de conexión a la red del país de destino. La configuración del producto se indica mediante el siguiente sufijo:

País	Configuración geográfica
ESPAÑA	ES

2.1. Umbrales y tiempos de intervención de tensión y frecuencia

Parámetro	Función	Valor	Nivel de acceso
P077	Umbral Intervención Máxima Tensión	1.1 Vrated	ENGINEERING
P079	Tiempo Intervención Máxima Tensión	0.15 s	ENGINEERING
P080	Tiempo Restauración Máxima Tensión	0.100 s	ENGINEERING
P081	Umbral Intervención Mínima Tensión	0.85 Vrated	ENGINEERING
P083	Tiempo Intervención Mínima Tensión	0.15 s	ENGINEERING
P084	Tiempo Restauración Mínima Tensión	0.100 s	ENGINEERING
P089	Umbral Intervención Máxima Frecuencia	50 +1.0 Hz	ENGINEERING
P091	Tiempo Intervención Máxima Frecuencia	0.05 s	ENGINEERING
P092	Tiempo Restauración Máxima Frecuencia	0.100 s	ENGINEERING
P093	Umbral Intervención Mínima Frecuencia	50 -2 Hz	ENGINEERING
P095	Tiempo Intervención Mínima Frecuencia	3.00 s	ENGINEERING
P096	Tiempo Restauración Mínima Frecuencia	0.100 s	ENGINEERING

ES

2.1.1. Protección de interfaz exterior

Si fuera necesario, por razones técnicas o normativas, se instala un relé de Protección de Interfaz externo.

En este caso, los valores de los umbrales y los tiempos de intervención se entregan al dispositivo mismo. La protección de interfaz SW funciona en cualquier caso en paralelo, incluso si se han ampliado los umbrales de intervención.

2.1.2. Protección de interfaz integrada en el SW

Parámetro	Función	Valor	Nivel de acceso
C020	Tensión Nominal Red	400 Vac	BASIC
C021	Frecuencia Nominal de Red	50 Hz	ENGINEERING
P090	Relación de Liberación Máxima Frecuencia	0.998	ENGINEERING
P094	Relación de Liberación Mínima Frecuencia	1002	ENGINEERING

2.1.3. Idioma display

Parámetro	Función	Valor	Nivel de acceso
P263	Idioma Display	Español	BASIC



2.2. Certificados de conformidad



DECLARACION DE CONFORMIDAD DE LOS INVERSORES DE CONEXIÓN A RED

EL COSTRUCTOR

Elettronica Santerno S.p.A.
S.S. Selice, 47 - 40026 Imola (BO) - Italia

DECLARA

BAJO LA PROPIA RESPONSABILIDAD

QUE LOS **INVERSORES FOTOVOLTAICOS** DE LA LINEA **SUNWAY TG ES TE**
CON LOS LOS RELATIVOS ACCESORIOS/OPCIONES:

SUNWAY TG 200ES 600V TE	SUNWAY TG 200ES 800V TE
SUNWAY TG 250ES 600V TE	SUNWAY TG 238ES 800V TE
SUNWAY TG 400ES 600V TE	SUNWAY TG 250ES 800V TE
	SUNWAY TG 295ES 800V TE
	SUNWAY TG 500ES 800V TE
	SUNWAY TG 561ES 800V TE
	SUNWAY TG 665ES 800V TE

A LOS CUALES LA PRESENTE DECLARACIÓN SE REFIERE,

APLICADOS SEGÚN LAS INDICACIONES INTRODUCIDAS EN EL MANUAL DE INSTRUCCIÓN,
RESULTAN CONFORMES A CUANTO ESTÁ PREVISTO POR LOS SIGUIENTES DOCUMENTOS NORMATIVOS:

CEI EN 61000-6-2 (2006)	Electromagnetic compatibility. Part 6-2: Generic standards - Immunity for industrial environments
CEI EN 61000-6-4 (2007)	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments
CEI EN 61000-3-11 (2001)	Electromagnetic compatibility (EMC) - Part 3-11: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems - Equipment with rated current ≤ 75 A and subject to conditional connection
CEI EN 61000-3-12 (2006)	Electromagnetic compatibility (EMC) - Part 3-12: Limits - Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current > 16 A and ≤ 75 A per phase
CEI EN 50178 (1999)	Electronic equipment for use in power installations
pr IEC 62109-1	Safety of power converters for use in photovoltaic power systems - Part 1: General requirements
IEC 61439-1 (2009)	Low-voltage switchgear and controlgear assemblies - Part 1: General rules

SEGÚN LAS DISPOSICIONES DE LA DIRECTIVA COMPATIBILIDAD

ELECTROMAGNÉTICA 2004/108/CE Y DE LA **DIRECTIVA BAJA TENSIÓN 2006/95/CE**
(ÚLTIMAS DOS CÍFRAS DEL AÑO EN EL CUAL SE HAYA COLOCADO LA MARCATURA CE:05).

ADemás LOS INVERSORES DE LA SERIE **SUNWAY TG ES TE** GARANTIZAN LAS
FUNCIONES DE SEGURIDAD PARA LAS PERSONAS Y DE LA INSTALACIÓN MEDIANTE
TRASFORMADOR DE AISLAMIENTO GALVÁNICO EXTERNO DE BAJA FRECUENCIA DE
ACUERDO AL **REAL DECRETO 661/2007** Y AL **REAL DECRETO 1663/2000**.

LUGAR y FECHA
Imola, 20/02/2010

Chief Executive Officer

TECCHIO Ing. MARGO



Elettronica Santerno Spa
Società soggetta all'attività di
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IT03686440284



DECLARACIÓN CE DE CONFORMIDAD

Elettronica Santerno S.p.A.
S.S. Selice, 47 - 40026 Imola (BO) - Italia

En calidad de fabricante

DECLARA

Bajo su responsabilidad

que las **Columnas de paralelo entradas lado corriente continua** de la serie
SUNWAY DC PARALLEL:

SUNWAY DC-PARALLEL 4/8-B6 (-S)	SUNWAY DC-PARALLEL 4/8 B(D) 600V	SUNWAY DC-PARALLEL 4/8 B(D) 800V
SUNWAY DC-PARALLEL 4/8-B6 (-S)	SUNWAY DC-PARALLEL 4/8 B(D) 600V	SUNWAY DC-PARALLEL 4/8 B(D) 800V



Declaracion CE de conformidad DC-Parallel

• 15F00EGB100 •

SUNWAY TG TE

THREE-PHASE PHOTOVOLTAIC INVERTER WITH EXTERNAL TRANSFORMER

CERTIFICATION AND GRID INTERFACE FILE

Updated: 22/03/2011
Rev. 00

Continental Greece

- This manual is integrant and essential to the product. Carefully read the instructions contained herein as they provide important hints for use and maintenance safety.
- This product is to be used only for the purposes it has been designed to. Other uses should be considered improper and dangerous. The manufacturer is not responsible for possible damages caused by improper, erroneous and irrational uses.
- Elettronica Santerno is responsible for the product in its original setting.
- Any changes to the structure or operating cycle of the product must be performed or authorized by the Engineering Department of Elettronica Santerno.
- Elettronica Santerno assumes no responsibility for the consequences resulting by the use of non-original spare-parts.
- Elettronica Santerno reserves the right to make any technical changes to this manual and to the product without prior notice. If printing errors or similar are detected, the corrections will be included in the new releases of the manual.
- Elettronica Santerno is responsible for the information contained in the original version of the Italian manual.
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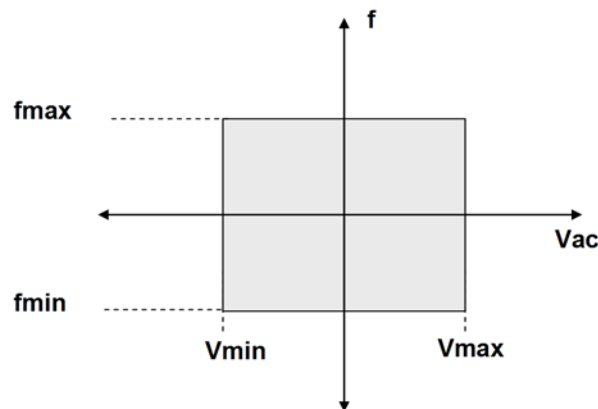
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santerno.com sales@santerno.com

1. GENERAL INFORMATION

The inverter features a grid interface protection as a safety measure.

The grid values are measured and compared with a special mask. If the measured values exceed the allowable thresholds, the inverter stops and the parallel contactor opens.

The main functions of the grid interface include underfrequency/overfrequency thresholds and undervoltage/overvoltage thresholds.



S000083

Figure 1: Voltage and frequency trip threshold

Trip thresholds and trip time depend on the regulations in force in each Country for the connection to the electricity grid. Other measures, both direct measures and derived measures, may be considered for interface protection.

The interface protection function may be performed by a device external to the inverter, may be implemented in the control software of the inverter, or both.

The trip thresholds required by the regulations in force in each Country are given below. Their respective parameters are also given. Please refer to the Programming Instructions manual of the inverter for any detail.

2. GEOGRAPHICAL LOCATION - CONTINENTAL GREECE

This chapter relates to the geographical localisation for the commercialization of the product.

The product is configured in accordance with the regulations in force for the connection to the grid in the country of destination. The product configuration is indicated by the following suffix:

Country	Geographical Configuration
CONTINENTAL GREECE	GR

2.1. Voltage and frequency trip times and thresholds

Parameter	Function	Rating	Access level
P077	Max. Voltage Trip Threshold	1.15 Vrated	ENGINEERING
P079	Max. Voltage Trip Time	0.20 s	ENGINEERING
P080	Max. Voltage Reset Time	180 s	ENGINEERING
P081	Min. Voltage Trip Threshold	0.8 Vrated	ENGINEERING
P083	Min. Voltage Trip Time	0.20 s	ENGINEERING
P084	Min. Voltage Reset Time	180 s	ENGINEERING
P089	Max. Frequency Trip Threshold	50 +0.5 Hz	ENGINEERING
P091	Max. Frequency Trip Time	0.50 s	ENGINEERING
P092	Max. Frequency Reset Time	180 s	ENGINEERING
P093	Min. Frequency Trip Threshold	50 -0.5 Hz	ENGINEERING
P095	Min. Frequency Trip Time	0.50 s	ENGINEERING
P096	Min. Frequency Reset Time	180 s	ENGINEERING

GR

2.1.1. External interface protection

An external safety relay may be installed not only as statutory compliance, but also for technical requirements.

In that case, the trip thresholds and trip times depend on the device installed. The software interface protection will trip in any case, even in the event of larger trip thresholds.

2.1.2. Interface protection integrated in the SW

Parameter	Function	Rating	Access level
C020	Rated Grid Voltage	400 Vac	BASIC
C021	Rated Grid Frequency	50 Hz	ENGINEERING
P090	Max. Frequency Release Ratio	0.998	ENGINEERING
P094	Min. Frequency Release Ratio	1002	ENGINEERING

2.1.3. Display/Keypad Language

Parameter	Function	Rating	Access level
P263	Display Language	English	BASIC

2.2. Certificates of Conformity

The Certificates of Conformity are available from the DOWNLOAD section on each product page at santerno.com.

• 15F00EGB100 •

SUNWAY TG TE

THREE-PHASE PHOTOVOLTAIC INVERTER WITH EXTERNAL TRANSFORMER

CERTIFICATION AND GRID INTERFACE FILE

Updated: 22/03/2011
Rev. 00

Greek Islands

- This manual is integrant and essential to the product. Carefully read the instructions contained herein as they provide important hints for use and maintenance safety.
- This product is to be used only for the purposes it has been designed to. Other uses should be considered improper and dangerous. The manufacturer is not responsible for possible damages caused by improper, erroneous and irrational uses.
- Elettronica Santerno is responsible for the product in its original setting.
- Any changes to the structure or operating cycle of the product must be performed or authorized by the Engineering Department of Elettronica Santerno.
- Elettronica Santerno assumes no responsibility for the consequences resulting by the use of non-original spare-parts.
- Elettronica Santerno reserves the right to make any technical changes to this manual and to the product without prior notice. If printing errors or similar are detected, the corrections will be included in the new releases of the manual.
- Elettronica Santerno is responsible for the information contained in the original version of the Italian manual.
- The information contained herein is the property of Elettronica Santerno and cannot be reproduced. Elettronica Santerno enforces its rights on the drawings and catalogues according to the law.



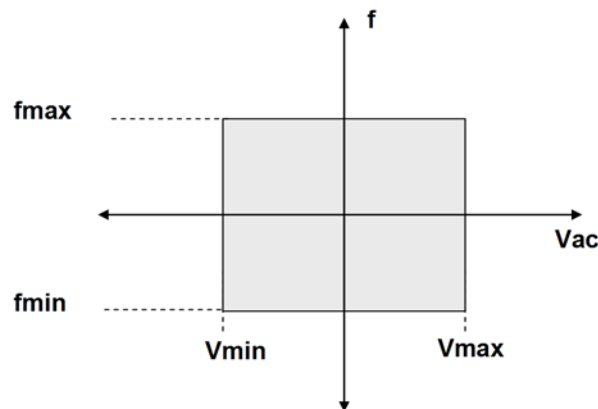
Elettronica Santerno S.p.A.
Strada Statale Selice, 47 - 40026 Imola (BO)
Tel. +39 0542 489711 - Fax +39 0542 489722
santerno.com sales@santerno.com

1. GENERAL INFORMATION

The inverter features a grid interface protection as a safety measure.

The grid values are measured and compared with a special mask. If the measured values exceed the allowable thresholds, the inverter stops and the parallel contactor opens.

The main functions of the grid interface include underfrequency/overfrequency thresholds and undervoltage/overvoltage thresholds.



S000083

Figure 1: Voltage and frequency trip threshold

Trip thresholds and trip time depend on the regulations in force in each Country for the connection to the electricity grid. Other measures, both direct measures and derived measures, may be considered for interface protection.

The interface protection function may be performed by a device external to the inverter, may be implemented in the control software of the inverter, or both.

The trip thresholds required by the regulations in force in each Country are given below. Their respective parameters are also given. Please refer to the Programming Instructions manual of the inverter for any detail.

2. GEOGRAPHICAL LOCATION - GREEK ISLANDS

This chapter relates to the geographical localisation for the commercialization of the product.

The product is configured in accordance with the regulations in force for the connection to the grid in the country of destination. The product configuration is indicated by the following suffix:

Country	Geographical Configuration
GREEK ISLANDS	GR

2.1. Voltage and frequency trip times and thresholds

Parameter	Function	Rating	Access level
P077	Max. Voltage Trip Threshold	1.15 Vrated	ENGINEERING
P079	Max. Voltage Trip Time	0.20 s	ENGINEERING
P080	Max. Voltage Reset Time	180 s	ENGINEERING
P081	Min. Voltage Trip Threshold	0.8 Vrated	ENGINEERING
P083	Min. Voltage Trip Time	0.20 s	ENGINEERING
P084	Min. Voltage Reset Time	180 s	ENGINEERING
P089	Max. Frequency Trip Threshold	50 +1 Hz	ENGINEERING
P091	Max. Frequency Trip Time	0.50 s	ENGINEERING
P092	Max. Frequency Reset Time	180 s	ENGINEERING
P093	Min. Frequency Trip Threshold	50 -2.5 Hz	ENGINEERING
P095	Min. Frequency Trip Time	0.50 s	ENGINEERING
P096	Min. Frequency Reset Time	180 s	ENGINEERING

2.1.1. External interface protection

An external safety relay may be installed not only as statutory compliance, but also for technical requirements.

In that case, the trip thresholds and trip times depend on the device installed. The software interface protection will trip in any case, even in the event of larger trip thresholds.

2.1.2. Interface protection integrated in the SW

Parameter	Function	Rating	Access level
C020	Rated Grid Voltage	400 Vac	BASIC
C021	Rated Grid Frequency	50 Hz	ENGINEERING
P090	Max. Frequency Release Ratio	0.998	ENGINEERING
P094	Min. Frequency Release Ratio	1002	ENGINEERING

2.1.3. Display/Keypad Language

Parameter	Function	Rating	Access level
P263	Display Language	English	BASIC



• 15F00EGB100 •

SUNWAY TG TE

THREE-PHASE PHOTOVOLTAIC INVERTER WITH EXTERNAL TRANSFORMER

CERTIFICATION AND GRID INTERFACE FILE

Updated: 22/03/2011
Rev. 00

Korea

- This manual is integrant and essential to the product. Carefully read the instructions contained herein as they provide important hints for use and maintenance safety.
- This product is to be used only for the purposes it has been designed to. Other uses should be considered improper and dangerous. The manufacturer is not responsible for possible damages caused by improper, erroneous and irrational uses.
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- Elettronica Santerno is responsible for the informa 0 TTw 2.n9(ino5(i7(h)1f theoe5(f)2rigual eltaliaonmanual.



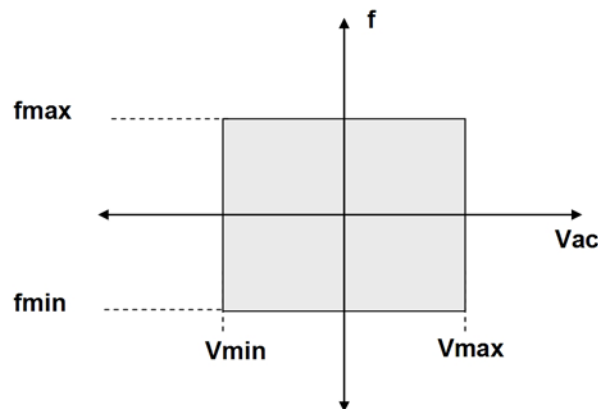
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santerno.com sales@santerno.com

1. GENERAL INFORMATION

The inverter features a grid interface protection as a safety measure.

The grid values are measured and compared with a special mask. If the measured values exceed the allowable thresholds, the inverter stops and the parallel contactor opens.

The main functions of the grid interface include underfrequency/overfrequency thresholds and undervoltage/overvoltage thresholds.



S000083

Figure 1: Voltage and frequency trip threshold

Trip thresholds and trip time depend on the regulations in force in each Country for the connection to the electricity grid. Other measures, both direct measures and derived measures, may be considered for interface protection.

The interface protection function may be performed by a device external to the inverter, may be implemented in the control software of the inverter, or both.

The trip thresholds required by the regulations in force in each Country are given below. Their respective parameters are also given. Please refer to the Programming Instructions manual of the inverter for any detail.

2. GEOGRAPHICAL LOCATION - KOREA

This chapter relates to the geographical localisation for the commercialization of the product.

The product is configured in accordance with the regulations in force for the connection to the grid in the country of destination. The product configuration is indicated by the following suffix:

Country	Geographical Configuration
KOREA	KR

2.1. Voltage and frequency trip times and thresholds

Parameter	Function	Rating	Access level
P077	Max. Voltage Trip Threshold	1.1 Vrated	Read only
P079	Max. Voltage Trip Time	1 s	Read only
P080	Max. Voltage Reset Time	0.100 s	Read only
P081	Min. Voltage Trip Threshold	0.9 Vrated	Read only
P083	Min. Voltage Trip Time	1.00 s	Read only
P084	Min. Voltage Reset Time	0.100 s	Read only
P089	Max. Frequency Trip Threshold	60 +0.3 Hz	Read only
P091	Max. Frequency Trip Time	0.10 s	ENGINEERING
P092	Max. Frequency Reset Time	0.100 s	ENGINEERING
P093	Min. Frequency Trip Threshold	60 -0.6 Hz	Read only
P095	Min. Frequency Trip Time	0.10 s	Read only
P096	Min. Frequency Reset Time	0.100 s	Read only

KR

2.1.1. External interface protection

An external safety relay may be installed not only as statutory compliance, but also for technical requirements.

In that case, the trip thresholds and trip times depend on the device installed. The software interface protection will trip in any case, even in the event of larger trip thresholds.

2.1.2. Interface protection integrated in the SW

Parameter	Function	Rating	Access level
C020	Rated Grid Voltage	380 Vac	BASIC
C021	Rated Grid Frequency	60 Hz	ENGINEERING
P090	Max. Frequency Release Ratio	0.998	Read only
P094	Min. Frequency Release Ratio	1002	Read only

2.1.3. Display/Keypad Language

Parameter	Function	Rating	Access level
P263	Display Language	English	BASIC

2.2. Certificates of Conformity



EC DECLARATION OF CONFORMITY

Elettronica Santerno S.p.A.

S.S. Selice, 47 - 40026 Imola (BO) - Italy

AS A MANUFACTURER

DECLARES

UNDER ITS SOLE RESPONSIBILITY

THAT THE PHOTOVOLTAIC INVERTER OF THE **SUNWAY TG KR TE** SERIES
WITH RELATED ACCESSORIES/OPTIONS:

SUNWAY TG 200KR 800V TE
SUNWAY TG 250KR 800V TE
SUNWAY TG 275KR 800V TE
SUNWAY TG 340KR 800V TE
SUNWAY TG 500KR 800V TE

WHICH THIS DECLARATION RELATES TO,

WHEN APPLIED UNDER THE OPERATING CONDITIONS GIVEN IN THE USER MANUAL

CONFORMS TO THE FOLLOWING STANDARDS:

CEI EN 61000-6-2 (2006)	Electromagnetic compatibility. Part 6-2: Generic standards - Immunity for industrial environments
CEI EN 61000-6-3 (2007)	Electromagnetic compatibility. Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
CEI EN 61000-3-11 (2001)	Electromagnetic compatibility (EMC) - Part 3-11: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems - Equipment with rated current ≤ 75 A and subject to conditional connection
CEI EN 61000-3-12 (2006)	Electromagnetic compatibility (EMC) - Part 3-12: Limits - Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current > 16 A and ≤ 75 A per phase
CEI EN 50178 (1999)	Electronic equipment for use in power installations
pr IEC 62109-1	Safety of power converters for use in photovoltaic power systems - Part 1: General requirements
IEC 61439-1 (2009)	Low-voltage switchgear and controlgear assemblies - Part 1: General rules

ACCORDING TO THE **ELECTROMAGNETIC COMPATIBILITY DIRECTIVE**
2004/108/CE

AND THE **LOW VOLTAGE DIRECTIVE** 2006/95/CE
(LAST TWO FIGURES OF THE YEAR WHEN THE CE MARKING WAS APPLIED: 09)

PLACE AND DATE
Imola, 30/09/2009

General Manager

BOMBARDA ING. GIORGIO



Elettronica Santerno Spa
Società soggetta all'attività di
direzione e coordinamento di
Carraro Spa

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Cap. Soc. € 2.500.000 i.v.
Codice Fiscale e Partita Iva
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R.E.A. PD 328951
Cod. Mecc. PD 054138
Cod. Ident. IVA Intracom.
IT03686440284

• 15F00EGB100 •

SUNWAY TG TE

THREE-PHASE PHOTOVOLTAIC INVERTER WITH EXTERNAL TRANSFORMER

CERTIFICATION AND GRID INTERFACE FILE

Updated: 22/03/2011
Rev. 00

China

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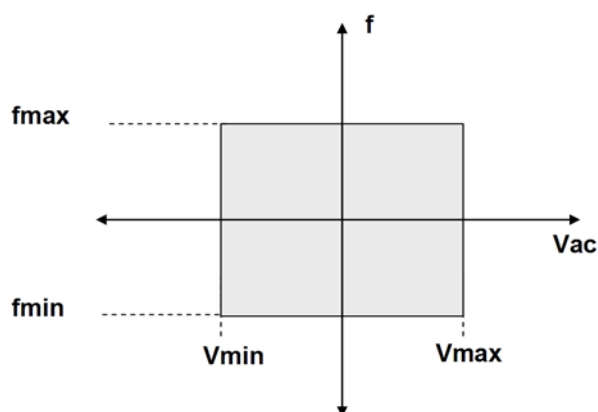
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1. GENERAL INFORMATION

The inverter features a grid interface protection as a safety measure.

The grid values are measured and compared with a special mask. If the measured values exceed the allowable thresholds, the inverter stops and the parallel contactor opens.

The main functions of the grid interface include underfrequency/overfrequency thresholds and undervoltage/overvoltage thresholds.



S000083

Figure 1: Voltage and frequency trip threshold

Trip thresholds and trip time depend on the regulations in force in each Country for the connection to the electricity grid. Other measures, both direct measures and derived measures, may be considered for interface protection.

The interface protection function may be performed by a device external to the inverter, may be implemented in the control software of the inverter, or both.

The trip thresholds required by the regulations in force in each Country are given below. Their respective parameters are also given. Please refer to the Programming Instructions manual of the inverter for any detail.

2. GEOGRAPHICAL LOCATION - CHINA

This chapter relates to the geographical localisation for the commercialization of the product.

The product is configured in accordance with the regulations in force for the connection to the grid in the country of destination. The product configuration is indicated by the following suffix:

Country	Geographical Configuration
CHINA	CN

2.1. Voltage and frequency trip times and thresholds

Parameter	Function	Rating	Access level
P077	Max. Voltage Trip Threshold	1.1 Vrated	ENGINEERING
P079	Max. Voltage Trip Time	2 s	ENGINEERING
P080	Max. Voltage Reset Time	20 s	ENGINEERING
P081	Min. Voltage Trip Threshold	0.85 Vrated	ENGINEERING
P083	Min. Voltage Trip Time	2 s	ENGINEERING
P084	Min. Voltage Reset Time	20 s	ENGINEERING
P089	Max. Frequency Trip Threshold	50 +0.5 Hz	ENGINEERING
P091	Max. Frequency Trip Time	0.2 s	ENGINEERING
P092	Max. Frequency Reset Time	20 s	ENGINEERING
P093	Min. Frequency Trip Threshold	50 -0.5 Hz	ENGINEERING
P095	Min. Frequency Trip Time	0.2 s	ENGINEERING
P096	Min. Frequency Reset Time	20 s	ENGINEERING

2.1.1. External interface protection

An external safety relay may be installed not only as statutory compliance, but also for technical requirements.

In that case, the trip thresholds and trip times depend on the device installed. The software interface protection will trip in any case, even in the event of larger trip thresholds.

2.1.2. Interface protection integrated in the SW

Parameter	Function	Rating	Access level
C020	Rated Grid Voltage	400 Vac	BASIC
C021	Rated Grid Frequency	50 Hz	ENGINEERING
P090	Max. Frequency Release Ratio	0.998	ENGINEERING
P094	Min. Frequency Release Ratio	1002	ENGINEERING

2.1.3. Display/Keypad Language

Parameter	Function	Rating	Access level
P263	Display Language	English	BASIC

2.2. Certificates of Conformity



EC DECLARATION OF CONFORMITY

Elettronica Santerno S.p.A.

S.S. Selice, 47 - 40026 Imola (BO) - Italy

AS A MANUFACTURER

DECLARES

UNDER ITS SOLE RESPONSIBILITY

THAT THE PHOTOVOLTAIC INVERTER OF THE **SUNWAY TG CN TE** SERIES
WITH RELATED ACCESSORIES/OPTIONS:

SUNWAY TG 180CN 600V TE	SUNWAY TG 175CN 800V TE
SUNWAY TG 230CN 600V TE	SUNWAY TG 240CN 800V TE
SUNWAY TG 280CN 600V TE	SUNWAY TG 300CN 800V TE
SUNWAY TG 290CN 600V TE	SUNWAY TG 310CN 800V TE
SUNWAY TG 365CN 600V TE	SUNWAY TG 385CN 800V TE
SUNWAY TG 455CN 600V TE	SUNWAY TG 485CN 800V TE
SUNWAY TG 550CN 600V TE	SUNWAY TG 610CN 800V TE
	SUNWAY TG 730CN 800V TE
	SUNWAY TG 750CN 900V TE
	SUNWAY TG 760CN 1000V TE

WHICH THIS DECLARATION RELATES TO,

WHEN APPLIED UNDER THE OPERATING CONDITIONS GIVEN IN THE USER MANUAL

CONFORMS TO THE FOLLOWING STANDARDS:

CEI EN 61000-6-2 (2006)	Electromagnetic compatibility. Part 6-2: Generic standards - Immunity for industrial environments
CEI EN 61000-6-4 (2007)	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments
CEI EN 61000-3-11 (2001)	Electromagnetic compatibility (EMC) - Part 3-11: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems - Equipment with rated current ≤ 75 A and subject to conditional connection
CEI EN 61000-3-12 (2006)	Electromagnetic compatibility (EMC) - Part 3-12: Limits - Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current > 16 A and ≤ 75 A per phase
CEI EN 50178 (1999)	Electronic equipment for use in power installations
IEC 62109-1	Safety of power converters for use in photovoltaic power systems - Part 1: General requirements
IEC 61439-1 (2009)	Low-voltage switchgear and controlgear assemblies - Part 1: General rules

ACCORDING TO THE **ELECTROMAGNETIC COMPATIBILITY DIRECTIVE 2004/108/CE**

AND THE **LOW VOLTAGE DIRECTIVE 2006/95/CE**

(LAST TWO FIGURES OF THE YEAR WHEN THE CE MARKING WAS APPLIED: 09)

PLACE AND DATE

Imola, 30/06/2010



Elettronica Santerno Spa
Società soggetta all'attività di
direzione e coordinamento di
Carraro Spa

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sales@elettronicasanterno.it

Cap. Soc. € 2.500.000 i.v.
Codice Fiscale e Partita Iva
03686440284
R.E.A. PD 328951
Cod. Mecc. PD 054138
Cod. Ident. IVA Intracom.
IT03686440284

Chief Executive Officer
TECCHIO Ing. MARCO



太阳能产品认证证书

证书编号: CQC11024056075

申请人名称及地址

Elettrocnic Santerno Spa
Santerno - Carraro Group Via della Concia, 7 40023 Castel Guelfo di
Bologna (BO)

制造商名称及地址

Elettrocnic Santerno Spa
Santerno - Carraro Group Via della Concia, 7 40023 Castel Guelfo di
Bologna (BO)

生产企业名称及地址

Elettrocnic Santerno Spa (V014311)
Via della Concia, 7;1-40023 Castel Guelfo (BO)-意大利.

产品名称和系列、规格、型号

并网光伏逆变器

SUNWAY TG 750CN 800V TE 输入:DC495-820V 1253.4A 输出:3~320V 50Hz





SOLAR PRODUCT CERTIFICATE

No.: CQC11024056075

NAME AND ADDRESS OF THE APPLICANT

Elettrocnica Santerno Spa
Santerno - Carraro Group Via della Concia, 7 40023 Castel Guelfo di Bologna (BO)

NAME AND ADDRESS OF THE MANUFACTURER

Elettrocnica Santerno Spa
Santerno - Carraro Group Via della Concia, 7 40023 Castel Guelfo di Bologna (BO)

NAME AND ADDRESS OF THE FACTORY

Elettrocnica Santerno Spa(V014311)
Via della Concia, 7;1-40023 Castel Guelfo (BO)-ITALY.

NAME, MODEL AND SPECIFICATION

Inverter
SUNWAY TG 750CN 800V TE Input:DC495-820V, 1253.4A Output:3~,320V,50Hz,
Max.1200A,665.1kW

THE STANDARDS AND TECHNICAL REQUIREMENTS FOR THE PRODUCTS

CNCA/CTS0004:2009

CERTIFICATION MODEL

Type Testing of Product + Initial Factory Inspection + Follow up Factory Inspection

This is to certify that the above mentioned products have met the requirements of certification
rules CQC33-461239-2010.

Date of issue: Feb.23,2011

Date of expiry: Feb.23,2015

Validity of this certificate is subject to positive result of the regular follow up inspection by
issuing certification body until the expiry date.



President:


Wang Kejiao



CHINA QUALITY CERTIFICATION CENTRE

Section 9, No.188, Nansihuan Xilu, Beijing 100070 P.R.China
<http://www.cqc.com.cn>

T 0000654



太阳能产品认证证书

证书编号: CQC11024056074

申请人名称及地址

Elettrocnic Santerno Spa
Santerno - Carraro Group Via della Concia, 7 40023 Castel Guelfo di
Bologna (BO)

制造商名称及地址

Elettrocnic Santerno Spa
Santerno - Carraro Group Via della Concia, 7 40023 Castel Guelfo di
Bologna (BO)

工厂名称及地址

Elettrocnic Santerno Spa (V014311)
Via della Concia, 7;1-40023 Castel Guelfo (BO)-意大利.

产品名称和系列、规格、型号

并网光伏逆变器

SUNWAY TG 750CN 800V TE 输入:DC495-820V, 1253.4A 输出:3~, 320V, 50Hz,
Max. 1200A, 665.1kW;

产品标准和技术要求

GB/T19939-2005; IEC62116-2008; IEC62109-1:2010

认证模式

产品型式试验+初次工厂检查+获证后监督

上述产品符合CQC33-461239-2010认证规则的要求, 特发此证

发证日期: 2011年02月23日

有效期至: 2015年02月23日

证书有效期内本证书的有效性依据发证机构的定期监督获得保持。



主任: _____



中国质量认证中心

中国·北京·南四环西路188号9区100070

<http://www.cqc.com.cn>

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SOLAR PRODUCT CERTIFICATE

No.: CQC11024056074

NAME AND ADDRESS OF THE APPLICANT

Elettrocnica Santerno Spa
Santerno - Carraro Group Via della Concia, 7 40023 Castel Guelfo di Bologna (BO)

NAME AND ADDRESS OF THE MANUFACTURER

Elettrocnica Santerno Spa
Santerno - Carraro Group Via della Concia, 7 40023 Castel Guelfo di Bologna (BO)

NAME AND ADDRESS OF THE FACTORY

Elettrocnica Santerno Spa(V014311)
Via della Concia, 7;1-40023 Castel Guelfo (BO)-ITALY.

NAME, MODEL AND SPECIFICATION

Inverter
SUNWAY TG750CN800V TE Input:DC495-820V, 1253.4A Output:3~,320V,50Hz,
Max.1200A,665.1kW;

THE STANDARDS AND TECHNICAL REQUIREMENTS FOR THE PRODUCTS

GB/T19939-2005; IEC62116-2008; IEC62109-1:2010

CERTIFICATION MODEL

Type Testing of Product + Initial Factory Inspection + Follow up Factory Inspection

This is to certify that the above mentioned products have met the requirements of certification
rules CQC33-461239-2010.

Date of issue: Feb.23,2011

Date of expiry: Feb.23,2015

Validity of this certificate is subject to positive result of the regular follow up inspection by
issuing certification body until the expiry date.



President:


Wang Kejiao



CHINA QUALITY CERTIFICATION CENTRE

Section 9, No.188, Nansihuan Xilu, Beijing 100070 P.R.China
<http://www.cqc.com.cn>

T 0000655

China quality certification

