

# Unit Certificate

Order number: 44 799 12 401807-001

**Manufacturer** **Power-One Italy S.p.A**  
Via San Giorgio, 642  
52028 Terranuova Bracciolini  
Arezzo, Italy

Type of unit Photovoltaic central inverter

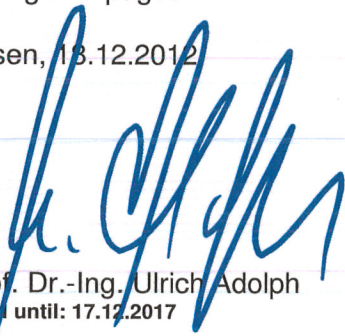
**Description of unit** **ULTRA-700.0-TL**

Technical data  
Nominal apparent power:  $S_{AC,n} = 780$  kVA  
Nominal active power:  $P_{AC,n} = 700$  kW  
Nominal voltage:  $U_{AC,n} = 690$  V  
Nominal current:  $I_{AC,n} = 590$  A  
Nominal frequency:  $f_n = 50$  Hz

Conformity assessment	BDEW guideline (June 2008)	Technical Guideline Generating Plants Connected to the Medium-Voltage Network
Additional standards	FGW TR 3 (Rev. 22)	Determination of electrical characteristics of power generating units and systems connected to MV, HV and EHV grids
	FGW TR 4 (Rev. 5)	Demands on Modelling and Validating Simulation Models of the Electrical Characteristics of Power Generating Units and Systems
	FGW TR 8 (Rev. 5)	Certification of the Electrical Characteristics of Power Generating Units and Farms in the Medium-, High and Highest-voltage Grids

The generating unit complies with the requirements of the BDEW Guideline „Generating units connected to the medium-voltage network“, issued June 2008. This certificate contains an annex, consisting of 2 pages.

Essen, 13.12.2012



Prof. Dr.-Ing. Ulrich Adolph  
Valid until: 17.12.2017



Dr. Ralf Kotte



Deutsche  
Akkreditierungsstelle  
D-ZE-12007-01-03

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# Annex 1 of Unit Certificate

Order number 44 799 12 401807-001

**General description**

See Unit Certificate

**Technical Data**

General			
Unit description	ULTRA-700.0-TL		
AC output			
Number of phases	three-phase		
Nominal voltage	690 V		
Nominal frequency	50 Hz		
Nominal apparent power	780 kVA		
Nominal active power	700 kW		
Nominal current	590 A		
Short-circuit current (Manufacturer declaration)	650 A		
DC input			
Min. MPP voltage	450 V		
Max. MPP voltage	950 V		
Max. PV input voltage	1100 V		
Max. PV input current	1440 A		
Max. peak power	1092 kW		
Converter power section			
Manufacturer	Power-One		
Nominal apparent power	2 x 390 kVA		
Trafo type (no, HF/LF-Trans.)	No transformer		
Switching frequency	9 kHz		
Type of power control (MPP)	Multisampling MPPT		
Software Version	DSP DC/DC AF10	DSP inverter BF92	Microprocessor CF2D
HW Revision	See technical report		



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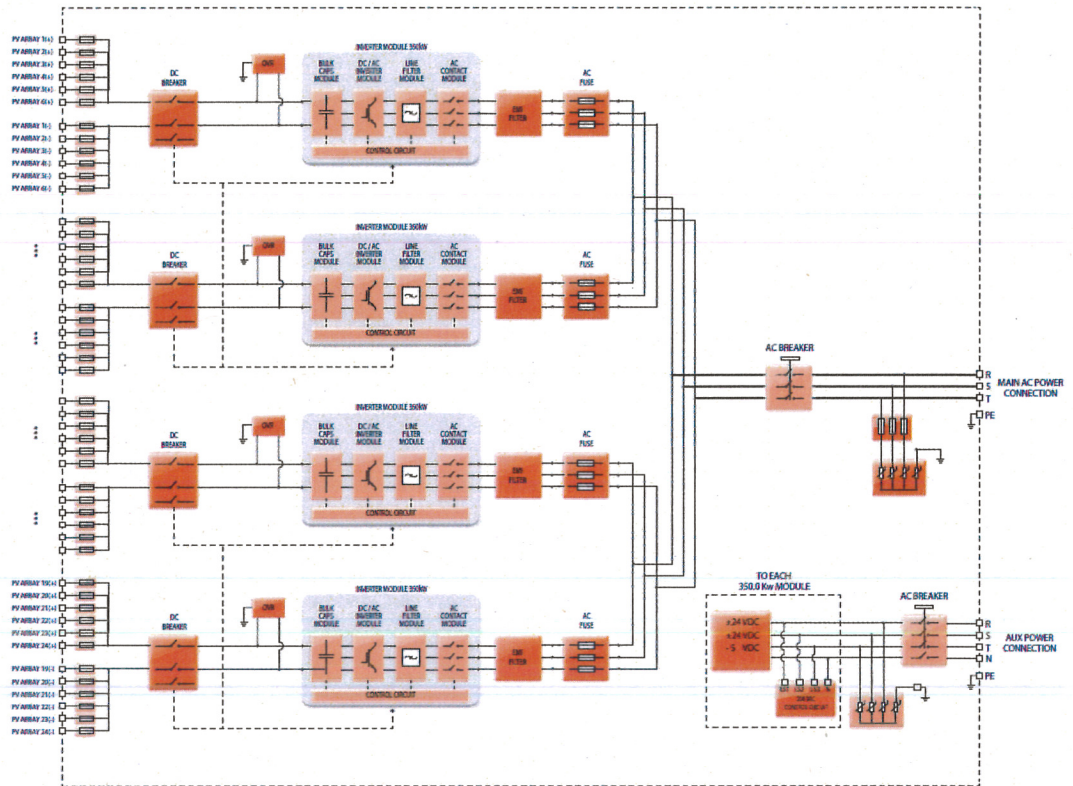




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## Block diagram of power generation unit



## Validated simulation model

The simulation model for symmetrical and unsymmetrical faults was validated using DigSilent Powerfactory 14.1.3. Restrictions documented in the relevant validation report have to be considered.

File name	Size	Checksum (MD5)
ULTRA-350-TL.dz	12 kB	5fa7d53dd016289e138538c6848f92e9

## Remarks

The manufacturer has proven certification of its quality management system according to ISO 9001.

The use of other firmware and software version numbers is allowed if the differences are proved and confirmed by TÜV NORD CERT GmbH beforehand. Validity of a new software version is attested by written confirmation and becomes part of the certificate.

Additional technical data, according to FGW TR 8 annex A, are given in technical report number 12 799 401807, version 1 or higher, and in validation report no. 12 799 401807, version 1 or higher.

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