Conergy IPG T series

Power³ – the three-phase string inverters for feeding grid-connected photovoltaics systems are the right choice for medium-sized systems. The Conergy IPG T series is available in performance classes of 8, 11 and 15 kW and can be used with all current module types and in combination with the Conergy IPG S series string inverters. Outstanding peak efficiency factors, patented technology and high-quality workmanship make them a reliable choice for permanently high system yields. This is ideally complemented by simple operation and comprehensive warranty and servicing options.

Extremely efficient operation:
- Peak efficiency factor of 98 % for highest possible yields
- Split second MPP tracking for variable light conditions
- Optimum energy yield even in low light

Safety over a long service life:
- Comprehensive five-year warranty
- Warranty extension possible for full investment security
- Efficient cooling with innovative PowerCool technology

Flexible planning:
- Extremely flexible for nearly all system configurations and module types
- Any desired combination of different performance classes
- Three-phase design rules out unbalanced grid loads

Easy to install:
- Minimal space requirements and short mounting times in comparison with several single-phase systems
- Internal and external mounting possible
- Unique, optional Conergy Service Tool for measuring and displaying the U/I characteristic curve

Photon – DAS SOLARSTROM-MAGAZIN – Conergy IPG 15 T – A + – 97.0 % at high irradiation – 06/2010 – www.photon.de

Photon – DAS SOLARSTROM-MAGAZIN – Conergy IPG 15 T – A + – 96.6 % at medium irradiation – 06/2010 – www.photon.de

reddot design award winner 2010

Power³
Conergy IPG T string inverters supply the same output in all three phases and therefore avoid unbalanced loads on the grid. This allows for flexible and simple planning and installation.

Made in Germany
Conergy develops and produces all inverters in Germany – according to uniform specifications, the highest standards and in certified processes.

PREMIUM CONERGY QUALITY

Top performance in the Conergy solar energy system
Optimally coordinated components for increased safety and permanently high yields:

- Conergy PowerPlus solar modules
- Conergy VisionBox – easy system monitoring
- Mounting system for roof and open areas

Recommended for solar energy systems of 100 kW or higher:

Conergy IPG 8 T

Conergy IPG 11 T

Conergy IPG 15 T

Conergy IPG T series

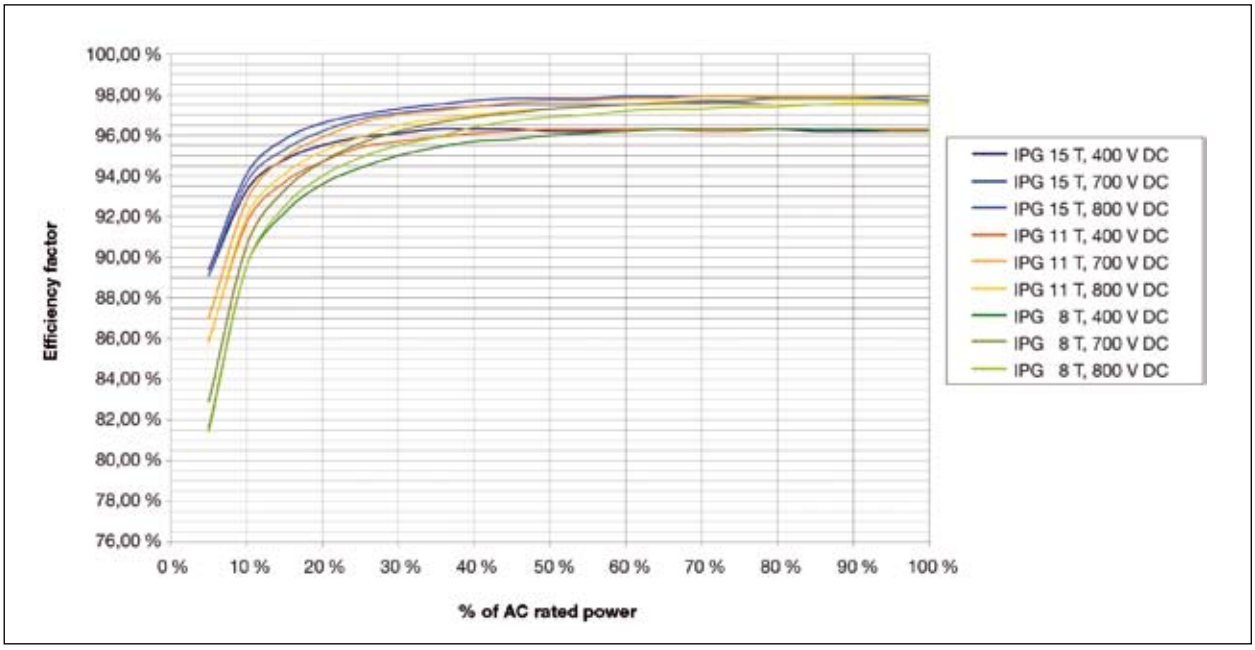
Conergy IPG T series	IPG 8 T	IPG 11 T	IPG 15 T
Input side (PV-Generator)			
Recommended solar generator connected load (STC)	8.7 kW	12 kW	16.3 kW
Maximum input voltage (V_{dcmax})	1000 V	1000 V	1000 V
Minimum input voltage (V_{dcmin})	350 V	400 V	450 V
Start-up input voltage ($V_{dcstart}$)	300 V	300 V	300 V
Rated input voltage ($V_{dc, r}$)	700 V	700 V	700 V
Maximum MPP voltage (V_{mppmax})	800 V	800 V	800 V
Minimum MPP voltage (V_{mppmin})	350 V	400 V	450 V
Maximum input current (I_{dcmax})	25 A	30 A	35 A
Start-up power	40 W_{dc}	40 W_{dc}	40 W_{dc}
MPP-tracker	1	1	1
DC input	Connector, MCIV-compatible (4 mm^2 and 6 mm^2 included in delivery, max. 10 mm^2 possible)		
Number of DC inputs	3	3	3
MPP accuracy	> 99 %	> 99 %	> 99 %
Output side (Grid connection)			
Rated grid voltage ($V_{ac, r}$)	400 V	400 V	400 V
Maximum grid voltage L-N (V_{acmax}) *	264.5 V	264.5 V	264.5 V
Minimum grid voltage L-N (V_{acmin}) *	184 V	184 V	184 V
Maximum output current (I_{acmax})	14.5 A	20 A	22 A
Rated power ($P_{ac, r}$)	8 kW	11 kW	15 kW
Maximum power (P_{acmax})	8 kW	11 kW	15 kW
Rated frequency (f_r)	50 Hz	50 Hz	50 Hz
Maximum frequency (f_{max}) *	50.2 Hz	50.2 Hz	50.2 Hz
Minimum frequency (f_{min}) *	47.5 Hz	47.5 Hz	47.5 Hz
Cos Phi	1	1	1
Required grid type	TN grid/TT grid	TN grid/TT grid	TN grid/TT grid
Output current distortion (at rated power)	≤ 3 %	≤ 3 %	≤ 3 %
Output terminals	Connector included in delivery (flexible cable with a maxium of 10 mm^2 in diameter)		
Feed in type	Three-phase	Three-phase	Three-phase
Displacement factor cos Phi adjustable from/to	0.7 under-excited to 0.7 over-excited	0.7 under-excited to 0.7 over-excited	0.7 under-excited to 0.7 over-excited
Stand-by consumption/nighttime consumption	0.6 W	0.6 W	0.6 W
Efficiency factor			
Maximum efficiency factor	98.0 %	98.0 %	98.0 %
European efficiency factor	96.4 %	97.0 %	97.4 %
Cooling			
Cooling type	Conergy PowerCool		

Conergy IPG T series	IPG 8 T	IPG 11 T	IPG 15 T
Environment requirements			
Ambient temperature	–20° C/+60° C	–20° C/+60° C	–20° C/+60° C
Maximum temperature for lasting rated power	+50° C	+50° C	+50° C
Relative humidity (not-condensing)	0 – 95 %	0 – 95 %	0 – 95 %
Installation altitude	≤ 2000 m	≤ 2000 m	≤ 2000 m
Site of installation	indoor/outdoor	indoor/outdoor	indoor/outdoor
Protection/Safety			
Protection type	IP 65		
Protection class	Class I, according to IEC 62103		
Ground fault monitoring	Yes (isolation measurement + RCD type B)		
Over load behaviour	Working point adjustment		
Over temperature behaviour	Derating		
Surge protection PV input	Varistors (Overload protection type 3)		
Surge protection AC output	Varistors (Overload protection type 3)		
Leakage current switch type B integrated	Yes		
DC switch disconnector	Yes		
Grid monitoring			
Delay time after grid failure *	60 seconds		
Trip time *	< 200 milliseconds		
Grid monitoring meets the requirements	VDE 0126-1-1 Germany, France, Greece, Benelux, Czech Republic, Bulgaria, Slovakia; RD 1663 Spain; DK 5940 Italy; EN 50438 Poland, Portugal, Netherlands; ÖNORM/ÖVE Austria; others on demand		
Dimensions/Weight			
Dimensions in mm (W x H x D)	510 x 790 x 245		
Installation weight	44 kg		
Conformity			
Transient emissions (EMC)	DIN EN 61000-6-3:2007-09		
Interference resistance (EMV)	DIN EN 61000-6-2:2006-03		
Grid quality	IEC 61000-3-2/-3-12 (harmonics); IEC 61000-3-3/-3-11 (flicker)		
Equipment reliability	IEC 62109-1:2003, IEC 62109-2:2005, IEC 62103:2003 and DIN EN 50178:1998		
CE conformity	Yes		
GS approval	Yes		
Conformity of EEG 2009 § 6,1	Yes		
Conformity of Medium Voltage Directive (BDEW) of June 2008 and appendix January 2009	Yes, from entry into force		
Other			
Display	LCD		
Communication interface	CAN		
Topology	Transformerless		
Warranty	5 Years, optional prolongable		

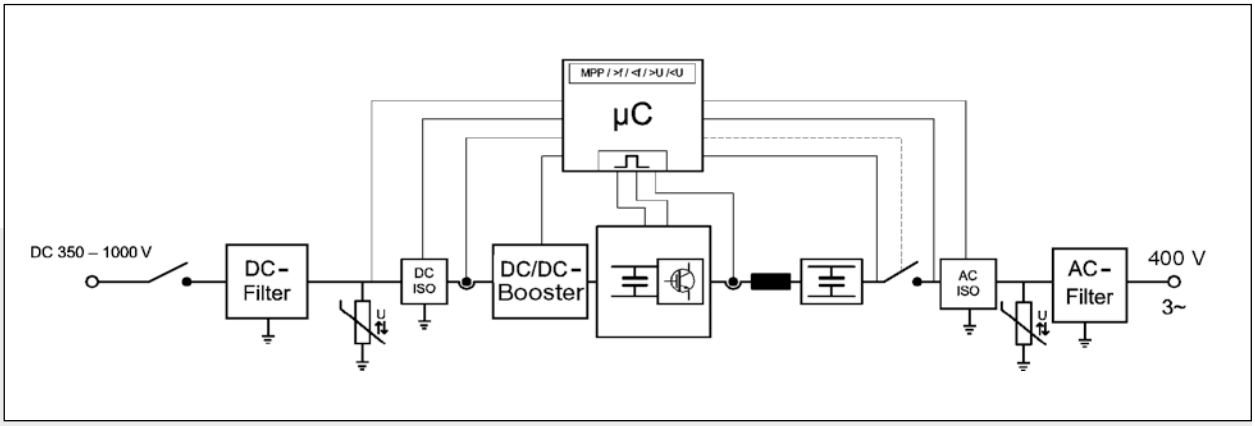
* Values for Germany; values vary according to country setting.

Conergy IPG T series

Efficiency curves with different input voltages



Internal layout



Comparison of solar generator terminal voltages at different input voltages

SG-voltage V_{SG}	V_{+SG}	V_{-SG}
350 V	+350 V	about 0 V
500 V	+350 V	–150 V
650 V	+350 V	–300 V
750 V	+375 V	–375 V
800 V	+400 V	–400 V

Supplier: