



# PV SOLAR PANEL

MONO & POLY Crystalline Cells

Deutsche Power

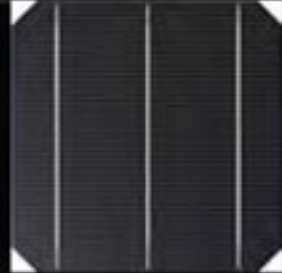
**High Efficiency  
Crystalline Solar Cells**



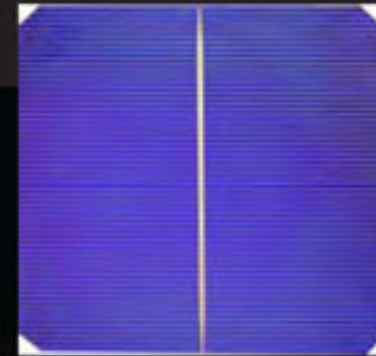
# SOLAR PANEL

## Crystalline Solar Cells

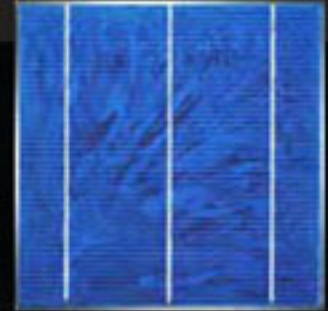
XM-125 (R165)  
125 x 125 mm Mono  
Crystalline Solar Cell



XM-156 (R200)  
156 x 156 mm Mono  
Crystalline Solar Cell



XP-156  
156 x 156 mm Poly/  
Quasi Mono  
Crystalline Solar Cell



TPSM5U  
185W-200W



TPSM6U  
240W-255W



TPSM6U  
285W-300W



TPSP6U  
235W-250W



TPSP6U  
280W-295W



## Mono Crystalline Modules

### Introduction

Topray Solar from "Deutsche Power" provides a complete product portfolio (mono & poly) with various power outputs.

Its modules are covered by special PV (PHOTOVOLTAIC) module insurances from Zurich Insurance and other international insurance company to guarantee the benefit of PV investors and PV module users.

All Deutsche Power (Topray) modules are plus power tolerance only to ensure the high reliability of power output.

Deutsche Power (Topray) proprietary PV glass design improves module's oblique irradiance performance and enhances module yield in low-light and medium-angle-light condition.

All Deutsche Power (Topray) modules can withstand high level of wind loads (2400 Pa) and snow loads (5400 Pa) certified by TÜV Rheinland.

### Key features:

- Plus power tolerance (0-3%) to ensure the high reliability of power output.
- Modules certified by TÜV to withstand high level of wind loads (2400 Pa) and snow loads (5400 Pa)\*.
- Anti-reflective, hydrophobic layer of module surface (proprietary 800°C online coating technology) improves light absorption and reduces surface dust.
- Easy installation and minimal maintenance with compatibility to industry standard inverters and mounting systems.
- Junction box and bypass diodes guarantee the modules free of overheating and "hot spot effect" Large LCD Display.
- Modules' excellent performance under low light environments (mornings, evenings, and cloudy days) create better kWh/kW ratio and produce average 2-3% more electricity in the field.



# SOLAR PANEL

## TECHNICAL SPECIFICATION

Cell Type	Number of cells	Dimensions (A-B-C)	Weights	Front Glass	Frame	Junction Box	Connector	Output Cables
<b>185W/190W/195W/200W Mono Crystalline Photovoltaic Module</b>								
Mono crystalline 125×125 mm (5 inches)	72 (6×12)	1581×809×35 mm	13kg	3.2 mm Low iron tempered glass	Anodized aluminum	IP 65, with bypass diodes	MC4 compatible	TÜV, length 900mm, 4.0mm <sup>2</sup>
<b>230W/235W/240W/245W/250W Poly Crystalline Photovoltaic Module</b>								
Poly crystalline 156×156 mm (6 inches)	60 (6×10)	1640×992×40 mm	18.6kg	3.2 mm Low iron tempered glass	Anodized aluminum	IP 65, with bypass diodes	MC4 compatible	TÜV, length 900mm, 4.0mm <sup>2</sup>
<b>285W/290W/295W/300W Mono Crystalline Photovoltaic Module</b>								
Poly crystalline 156×156 mm (6 inches)	72 (6×12)	1956×992×50 mm	23kg	3.2 mm Low iron tempered glass	Anodized aluminum	IP 65, with bypass diodes	MC4 compatible	TÜV, length 900mm, 4.0mm <sup>2</sup>

### Module

P/N		Maximum Power at STC (P <sub>max</sub> )													
100W	120W	185W	190W	195W	200W	230W	235W	240W	245W	250W	285W	290W	295W	300W	
<b>Short Circuit Current (I<sub>sc</sub>)</b>															
6.45	7.58	5.77A	5.71A	5.65A	5.61A	8.69A	8.62A	8.52A	8.39A	8.80A	285W	290W	295W	300W	
<b>Open Circuit Voltage (V<sub>oc</sub>)</b>															
22.30	21.60	45.40V	45.20V	44.90V	44.60V	36.60V	36.80V	36.90V	37.10V	37.20V	8.57A	8.61A	8.68A	8.71A	
<b>Maximum Power Current (I<sub>mpp</sub>)</b>															
5.81A	6.82A	5.41A	5.36A	5.28A	5.20A	7.80A	7.92A	8.06A	8.14A	8.6A	44.60V	44.70V	45.00V	45.20V	
<b>Maximum Power Voltage (V<sub>mpp</sub>)</b>															
17.2V	17.6V	37.00V	36.40V	36.00V	35.60V	29.50V	29.70V	29.80V	30.10V	30.30V	8.05A	8.15A	8.24A	8.30A	
<b>Encapsulated Cell Efficiency</b>															
18.90%	18.62%	18.10%	17.60%	17.20%	16.70%	15.75%	16.09%	16.44%	16.78%	17.12%	16.35%	16.64%	16.93%	17.21%	
<b>Module Efficiency</b>															
16.08%	15.80%	15.60%	15.20%	14.90%	14.50%	14.14%	14.44%	14.75%	15.06%	15.37%	14.66%	14.92%	15.17%	15.43%	
<b>Power Tolerance</b>															
0/+3%	0/+3%	0/+3%	0/+3%	0/+3%	0/+3%	0/+3%	0/+3%	0/+3%	0/+3%	0/+3%	0/+3%	0/+3%	0/+3%	0/+3%	



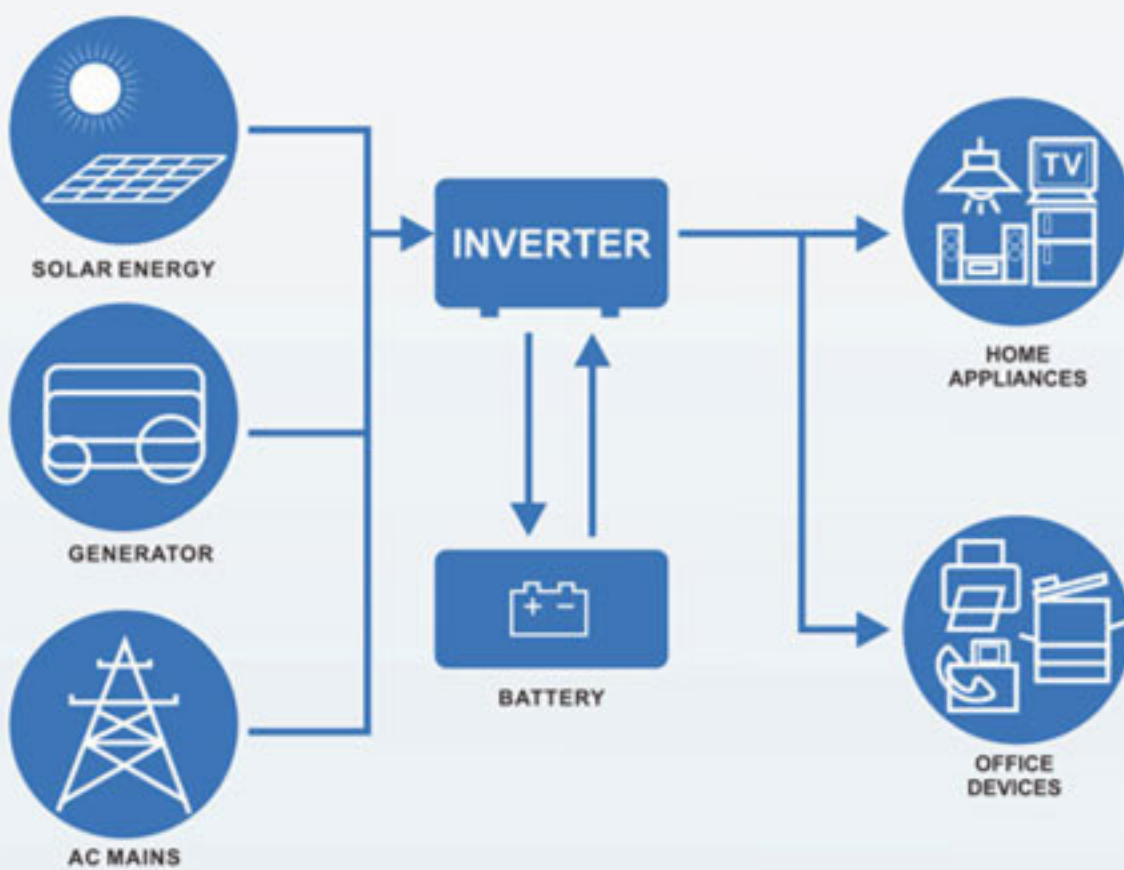


# ZON SERIES PV INVERTER HYBRID CHARGER INVERTER



**3KVA to 5KVA**

## Application:



Home



Office



Farm



Industrial



sinewave output



Solar/AC charger



LCD/LED display



96%  
Efficiency  
(ECO Mode)



Generator  
Restart  
MPPT  
Controller Inside

## Features

### ZON Series Hybrid Charger Inverter

- AC/Solar charge hybrid off grid inverter.
- LCD displays comprehensive operation status
- Built-in 40A/60A/80A MPPT solar charger controller.
- External remote display panel.
- Adjustable 5 stages AC charging current. AC charging also can be closed.
- AC/DC priority modes can be set.
- Generator restart signal (Dry contact).
- 3 times peak power, Strong loading capacity.
- Thorough protections: Input low voltage / Overload / Short circuit / Low battery alarm / Input over voltage / Over temperature
- Supports Home Appliances / Office Equipment / Lighting Equipment / Motor-based Equipment (such as Fan, Air-Conditioner, Washing Machines)



# ZON SERIES (HYBRID CHARGER INVERTER)

## TECHNICAL SPECIFICATION FOR ZON SERIES

Table 1 Line Mode Specifications

MODEL	OFG-3KVA-24	OFG-3KVA-48	OFG-4KVA-48	OFG-5KVA-48
Rating	3KW/3KVA-24VDC + 2*40A (80A) MPPT SCC	3KW/3KVA-48VDC + 60A MPPT SCC	4KW/4KVA-48VDC +60A MPPT SCC	5KW/5KVA-48VDC +80A MPPT SCC

Table 2 Inverter Mode Specifications

Input Voltage Waveform	Sinusoidal (utility or generator)		
Nominal Input Voltage	230Vac		
Voltage Range	170~280 (UPS) 90~280 (Appliances)	175~280 (UPS) 135~280 (Appliances)	
OUTPUT			
Output Short Circuit Protection	Circuit Breaker		
Efficiency (Line Mode)	>95% (Rated R load, battery full charged)		
Transfer Time	10ms typical (UPS) 20ms typical (Appliances)		

Table 2 Inverter Mode Specifications

OUTPUT			
Output Voltage Waveform	Pure Sine Wave		
Output Voltage Regulation	230Vac±5%		
Output Frequency	50Hz		
Peak Efficiency	93%		
Overload Protection	5s@>150% load; 10s@110%~150% load		
Surge Capacity	2* rated power for 5 seconds		
Nominal DC Input Voltage	24Vdc	48Vdc	

Table 3 charge Mode Specifications

### Utility Charging Mode

Charging Algorithm		3-Step		
AC Charging Current (Max) (@Vi/p=230Vac)		10/25Amp	8/15Amp	15/35Amp (@Vi/p=230Vac)
Bulk Charging Voltage	Flooded Battery	29.2Vdc	58.4Vdc	58.4Vdc
	AGM / Gel Battery	28.2Vdc	56.4Vdc	56.4Vdc
Floating Charging Voltage		27.4Vdc	54.0Vdc	54.8Vdc
MPPT Solar Charging Mode				
Charging Current		40Ampx2	60Amp	60 Amp      80Amp
PV Array MPPT Voltage Range		30Vdc-75Vdc	60Vdc-150Vdc	60 to 150Vdc
Max. PV Array Open Circuit Voltage		100Vdc	150Vdc	150Vdc
Max Charging Current (AC charger plus solar charger)		95Amp	75 Amp	95Amp      115Amp

Table 4 General Specifications

Operating Temperature Range	-10°C to 50°C			
Dimension (D*W*H)/ mm	126*300*485		486*330*130	
Net Weight ,kg (MPPT/PWM model)	8.6	8.2	11.6	12.4





# PV GRID-TIE CENTRAL & PV SOLAK INVERTER

GRID-TIE PV INVERTER  
(3 Phase)

**Maximum Efficiency**  
**Strong Compatibility**

## PV Grid-Tie Solak Inverter (Transformerless, 3 Phase)

- Good cooling and safety design system
- MPPT efficiency > 99.9%
- Maximum efficiency >98%
- Three MPPT optimal energy harvesting
- Low sensitivity to grid disturbances
- Strong system compatibility
- Wide range of input voltage and operation environment
- Wide DC input range from 250V upto 850V
- Wide operating temperature range -20C ~ 60C
- Support a variety of communication interfaces
- Perfect protection functions
- IP65 harshest industrial protection for indoors & outdoors.
- RS232 / RS485 wifi interface
- Easy to read LCD display with all operational status and monitored data



## PV Grid-Tie Central Inverter (With Transformer, 3 Phase)

- Excellent cooling and safety design system
- More then 25 years of life span
- MPPT efficiency > 99.9%
- Maximum efficiency >98%
- Euro. Efficiency >98%
- Standby (night time) losses < 10W
- System with strong compatibility, easy to extend
- Redundancy control circuits designed-in and oversize metalized film capacitors are used to guarantee its safe operation and system reliability
- Reactive power adjustable
- Unique Low Voltage Ride Through (LVRT) Function, anti-islanding and output abnormal voltage protection secures its safe
- Active power adjustable continuous full range (0-100%)
- Advanced DSP Control makes data more accurate
- Support a variety of communication interfaces
- Perfect protection functions
- Support SVG function, the realization of power reactive compensation at night





# PV GRID TIE SOLAK INVERTER (Transformerless, 3 Phase)

## TECHNICAL SPECIFICATION

MODEL	GT55	GT110
Maximum DC Power	33KW	60KW
Maximum DC Voltage	1000VDC	
MPPT Range	250VDC ~ 850VDC	
MPPT Tracking	3	
Maximum Input Current	26Ax3	36Ax3
<b>OUTPUT</b>		
Rated Output Power	30KW	50KW
Rated AC Output Power	30.5KW	51KW
Rated AC Output Voltage	400VAC	
Output Voltage Range	400±20% adjustable	
AC Output Topology	3PH+N+PE Transformer-less	
Grid Frequency Range	50/60Hz (±5Hz), (adjustable)	
Rated AC Output Current	44A	72A
Max. AC Output Current	48A	75A
Power Factor (cos)	0.9 leading~0.9 lagging	
THDi	<3%	
<b>SYSTEM FEATURES</b>		
Max. Efficiency	>98.3%	
Euro. Efficiency	>97.9%	
MPPT Efficiency	99.9%	
Standby (night time) losses	<0.2W	
Cooling	Natural cooling	Forced air cooling
DC Switch	Optional	
Communication Interface	RS485 standard, external WiFi or Ethernet (optional)	
<b>ENVIRONMENTAL</b>		
Operating Temperature	- 20 °C ~ 60 °C	
Humidity Range	0~95% (non-condensing)	
Altitude	2000m	
Noise Level	40db	60db
Protection Rating	IP65	
<b>PHYSICAL</b>		
Dimension WxHxD (mm)	630×235×1000	
Net Weight (kg)	70	75
Safety	IEC/EN62109-1, IEC/EN62109-2, VDE0126-1-1, VDE AR N4105, G83/59/EEG2012, AS3100/4777, CEI 0-21,, NB/T 32004-2013,	
EMC	EN61000-6-2, EN61000-6-3, EN61000-3-11, EN61000-3-12	

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# PV GRID-TIE CENTRAL INVERTER (with Transformer, 3 Phase)

## TECHNICAL SPECIFICATION

MODEL	GT55	GT110	GT275	GT550	GT690
Maximum DC Power					
Maximum DC Voltage	900VDC				
MPPT Range	450VDC ~ 850VDC (Rated Voltage 576VDC)				
MPPT Tracking	1				
Maximum Input Current	120A	240A	600A	1200A	1440A
<b>OUTPUT</b>					
Rated Output Power	55KW	110KW	275KW	550KW	690KW
Rated Output Voltage	400VAC				
AC Output Topology	3Ph+N+PE				
Output Voltage Range	(1±15%) x Normal AC Voltage (adjustable ±5%,±10%,±15%,±20%)				
Grid Frequency Range	50/ 60Hz (±4.5Hz), (adjustable)				
Rated AC Output Current	72A	144A	361A	722A	909A
Max. AC Output Current	79A	158A	397A	794A	1000A
Power Factor (cos)	1 ( 0.9 leading – 0.9 lagging) (adjustable)				
THDi	<3%				
<b>SYSTEM FEATURES</b>					
Max. Efficiency	>97%	>97.5%	>97.6%	>98.1%	>98.1%
Euro. Efficiency	>96.5%	>96.9%	>97.0%	>97.6%	>97.6%
MPPT Efficiency	>99%				
Standby (night time) losses	<10W				
Cooling	Forced Air Cooling				
Communication Interface	RS485, Ethernet (Optional)				
<b>ENVIRONMENTAL</b>					
Operating Temperature	-40C ~ 50C				
Humidity Range	0~95% (non-condensing)				
Altitude	3000m				
Noise Level	<58db	<58db	<60db	<60db	<60db
Protection Rating	IP20				
<b>DIMENSION</b>					
Dimension WxHxD (mm)	600x1600x945	835x1850x945	1200x1850x945	1600x1850x945	1600x1850x945
Net Weight (kg)	520	900	1470	2800	3150
<b>STANDARDS</b>					
Safety	IEC/EN62109-1,IEC/EN62109-2,CNCA/CTS0004 :2009A,CNCA/CTS0006-2010,LVRT,etc				
EMC	IEC/EN61000-6-2, IEC/EN61000-6-4,etc				

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