



PVKIT005
10 X 2 X SSP60C245 + STP5000TL-20

Grid-Connected System: Simulation parameters

Project : DENMARK KITS

Geographical Site Kobenhavn **Country** Denmark

Situation Latitude 55.4°N Longitude 12.4°E
 Time defined as Legal Time Time zone UT+1 Altitude 5 m
 Albedo 0.25

Meteo data : Kobenhavn, Synthetic Hourly data

Simulation variant : KIT005

Simulation date 04/02/13 13h04

Simulation parameters

Collector Plane Orientation Tilt 40° Azimuth 0°

Models used Transposition Hay Diffuse Measured

Horizon Free Horizon

Near Shadings No Shadings

PV Array Characteristics

PV module Si-poly Model **SSP60C-245**
 Manufacturer Senersun LTD.
 Number of PV modules In series 10 modules In parallel 2 strings
 Total number of PV modules Nb. modules 20 Unit Nom. Power 245 Wp
 Array global power Nominal (STC) **4900 Wp** At operating cond. 4323 Wp (50°C)
 Array operating characteristics (50°C) U mpp 268 V I m pp 16 A
 Total area Module area **32.5 m²** Cell area 28.2 m²

Inverter Model **Sunny Tripower STP 5000TL-20**
 Manufacturer SMA Solar Technology AG
 Characteristics Operating Voltage 245-800 V Unit Nom. Power 5.00 kW AC

PV Array loss factors

Thermal Loss factor U_c (const) 20.0 W/m²K U_v (wind) 0.0 W/m²K / m/s
 => Nominal Oper. Coll. Temp. (G=800 W/m², T_{amb}=20°C, Wind=1 m/s.) NOCT 56 °C
 Wiring Ohmic Loss Global array res. 288 mOhm Loss Fraction 1.5 % at STC
 Module Quality Loss Loss Fraction 0.0 %
 Module Mismatch Losses Loss Fraction 2.0 % at MPP
 Incidence effect, ASHRAE parametrization IAM = 1 - bo (1/cos i - 1) bo Parameter 0.05

User's needs : Unlimited load (grid)

PVKIT005
10 X 2 X SSP60C245 + STP5000TL-20

Grid-Connected System: Main results

Project : DENMARK KITS

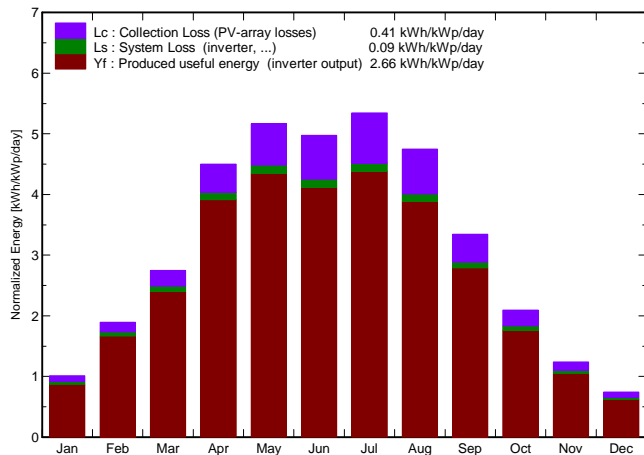
Simulation variant : KIT005

Main system parameters	System type	Grid-Connected
PV Field Orientation	tilt	40°
PV modules	Model	SSP60C-245
PV Array	Nb. of modules	20
Inverter	Model	Sunny Tripower STP 5000TL-20
User's needs	Unlimited load (grid)	
	azimuth	0°
	Pnom	245 Wp
	Pnom total	4900 Wp
	Pmax	5.00 kW ac

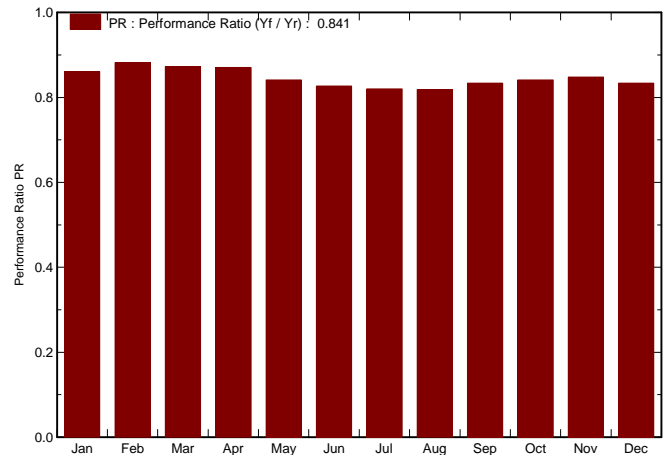
Main simulation results

System Production **Produced Energy 4751 kWh/year** Specific prod. 970 kWh/kWp/year
Performance Ratio PR 84.1 %

Normalized productions (per installed kWp): Nominal power 4900 Wp



Performance Ratio PR



KIT005

Balances and main results

	GlobHor	T Amb	GlobInc	GlobEff	EArray	E_Grid	EffArrR	EffSysR
	kWh/m ²	°C	kWh/m ²	kWh/m ²	kWh	kWh	%	%
January	16.0	2.30	31.4	30.5	139.5	132.4	13.66	12.96
February	32.0	1.00	53.0	51.4	238.3	229.0	13.82	13.28
March	63.0	2.50	85.3	82.5	378.5	364.7	13.64	13.14
April	115.0	5.10	135.0	130.8	593.1	575.9	13.51	13.11
May	156.0	10.40	160.2	155.1	680.9	660.5	13.06	12.67
June	154.0	13.30	149.3	144.2	625.2	605.0	12.87	12.46
July	165.0	15.20	165.6	160.3	686.3	665.4	12.73	12.35
August	132.0	15.90	147.2	142.7	609.1	590.4	12.72	12.33
September	80.0	13.80	100.4	97.3	424.6	410.4	12.99	12.56
October	44.0	10.50	65.0	63.0	278.7	267.8	13.18	12.67
November	20.0	6.50	37.2	36.1	162.5	154.6	13.42	12.77
December	11.0	4.00	23.1	22.5	100.0	94.5	13.28	12.56
Year	988.0	8.42	1152.7	1116.3	4916.8	4750.8	13.11	12.67

Legends: GlobHor Horizontal global irradiation EArray Effective energy at the output of the array
 T Amb Ambient Temperature E_Grid Energy injected into grid
 GlobInc Global incident in coll. plane EffArrR Effic. Eout array / rough area
 GlobEff Effective Global, corr. for IAM and shadings EffSysR Effic. Eout system / rough area

PVKIT005
10 X 2 X SSP60C245 + STP5000TL-20

Grid-Connected System: Loss diagram

Project : DENMARK KITS

Simulation variant : KIT005

Main system parameters	System type	Grid-Connected	
PV Field Orientation	tilt	40°	azimuth 0°
PV modules	Model	SSP60C-245	Pnom 245 Wp
PV Array	Nb. of modules	20	Pnom total 4900 Wp
Inverter	Model	Sunny Tripower STP 5000TL-20	5.00 kW ac
User's needs	Unlimited load (grid)		

Loss diagram over the whole year

