



PVsyst V8.0.18

# PVsyst - Simulation report

## Grid-Connected System

Project: My project

Variant: New simulation variant

No 3D scene defined, no shadings

System power: 24.00 kWp

Gurugodella - Sri Lanka

| Author



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Project summary			
<b>Geographical Site</b>	<b>Situation</b>		<b>Project settings</b>
Gurugodella	Latitude	7.42 °(N)	Albedo
Sri Lanka	Longitude	79.90 °(E)	0.20
	Altitude	15 m	
	Time zone	UTC+5.5	
<b>Weather data</b>			
Gurugodella			
Meteonorm 8.2, Sat=22% - Synthetic			

System summary			
<b>Grid-Connected System</b>	<b>No 3D scene defined, no shadings</b>		
<b>Orientation #1</b>	<b>Near Shadings</b>		<b>User's needs</b>
Fixed plane	no Shadings		Unlimited load (grid)
Tilt/Azimuth	12 / 0 °		
<b>System information</b>		<b>Inverters</b>	
<b>PV Array</b>		Nb. of units	1 unit
Nb. of modules	80 units	Total power	20 kWac
Pnom total	24.00 kWp	Pnom ratio	1.20

Results summary				
Produced Energy	38257 kWh/year	Specific production	1594 kWh/kWp/year	Perf. Ratio PR

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		General parameters	
<b>Grid-Connected System</b>		<b>No 3D scene defined, no shadings</b>	
<b>Orientation #1</b>		<b>Models used</b>	<b>Horizon</b>
<b>Fixed plane</b>		Transposition Perez	Free Horizon
Tilt/Azimuth	12 / 0 °	Diffuse Perez, Meteonorm	
		Circumsolar separate	
<b>Near Shadings</b>		<b>User's needs</b>	
no Shadings		Unlimited load (grid)	

PV Array Characteristics			
<b>PV module</b>		<b>Inverter</b>	
Manufacturer	Generic	Manufacturer	Generic
Model	TSM-DEG5-(II)-300 (Original PVsyst database)	Model	SUN2000-20KTL-M5-400V (Original PVsyst database)
Unit Nom. Power	300 Wp	Unit Nom. Power	20.0 kWac
Number of PV modules	80 units	Number of inverters	2 * MPPT 50% 1 unit
Nominal (STC)	24.00 kWp	Total power	20.0 kWac
Modules	4 string x 20 In series	Operating voltage	200-1000 V
<b>At operating cond. (50°C)</b>		Max. power ( $\Rightarrow 48^{\circ}\text{C}$ )	22.0 kWac
Pmpp	21.67 kWp	Pnom ratio (DC:AC)	1.20
U mpp	584 V	No power sharing between MPPTs	
I mpp	37 A		
<b>Total PV power</b>		<b>Total inverter power</b>	
Nominal (STC)	24 kWp	Total power	20 kWac
Total	80 modules	Number of inverters	1 unit
Module area	132 m²	Pnom ratio	1.20
Cell area	118 m²		

Array losses								
<b>Thermal Loss factor</b>			<b>DC wiring losses</b>			<b>Module Quality Loss</b>		
Module temperature according to irradiance			Global array res.	264 mΩ		Loss Fraction		-0.75 %
Uc (const)	20.0 W/m²K		Loss Fraction	1.50 % at STC				
Uv (wind)	0.0 W/m²K/m/s							
<b>Module mismatch losses</b>			<b>Strings Mismatch loss</b>					
Loss Fraction	2.00 % at MPP		Loss Fraction	0.05 %				
<b>IAM loss factor</b>								
Incidence effect (IAM): Fresnel, AR coating, n(glass)=1.526, n(AR)=1.290								
0°	30°	50°	60°	70°	75°	80°	85°	90°
1.000	0.999	0.987	0.963	0.892	0.814	0.679	0.438	0.000



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## Main results

### System Production

Produced Energy 38257 kWh/year

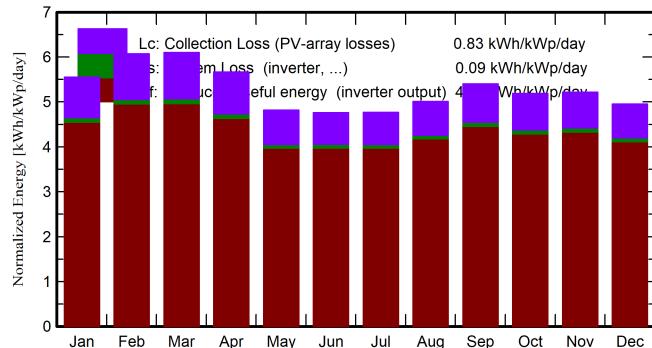
Specific production

1594 kWh/kWp/year

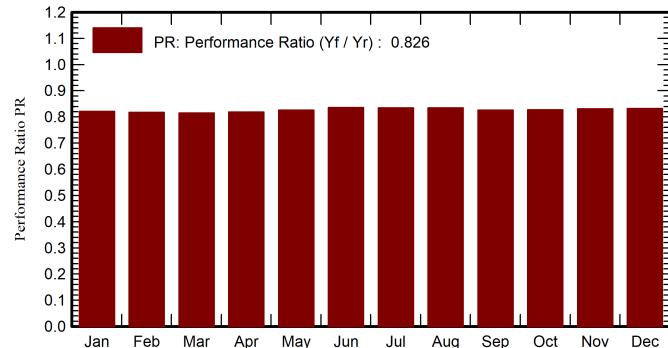
Perf. Ratio PR

82.61 %

### Normalized productions (per installed kWp)



### Performance Ratio PR



## Balances and main results

	GlobHor kWh/m <sup>2</sup>	DiffHor kWh/m <sup>2</sup>	T_Amb °C	GlobInc kWh/m <sup>2</sup>	GlobEff kWh/m <sup>2</sup>	EArray kWh	E_Grid kWh	PR ratio
<b>January</b>	157.2	62.27	26.46	172.1	168.4	3461	3391	0.821
<b>February</b>	160.0	66.89	27.22	170.0	166.6	3401	3333	0.817
<b>March</b>	186.1	81.43	28.12	189.2	185.3	3776	3698	0.815
<b>April</b>	174.1	77.02	27.75	170.0	166.4	3411	3341	0.819
<b>May</b>	158.4	83.05	28.73	149.3	145.1	3020	2960	0.826
<b>June</b>	153.6	84.59	27.88	142.9	138.8	2923	2866	0.836
<b>July</b>	157.7	86.50	28.20	147.8	143.7	3020	2961	0.835
<b>August</b>	161.3	91.33	27.90	155.4	151.5	3172	3110	0.834
<b>September</b>	162.1	76.06	27.27	162.2	158.6	3281	3214	0.826
<b>October</b>	156.0	80.77	27.24	160.8	157.7	3260	3194	0.827
<b>November</b>	146.0	70.04	26.21	156.5	153.5	3187	3123	0.831
<b>December</b>	140.9	71.04	26.37	153.5	150.4	3129	3066	0.832
<b>Year</b>	1913.4	931.00	27.45	1929.6	1885.9	39042	38257	0.826

### Legends

GlobHor	Global horizontal irradiation	EArray	Effective energy at the output of the array
DiffHor	Horizontal diffuse irradiation	E_Grid	Energy injected into grid
T_Amb	Ambient Temperature	PR	Performance Ratio
GlobInc	Global incident in coll. plane		
GlobEff	Effective Global, corr. for IAM and shadings		

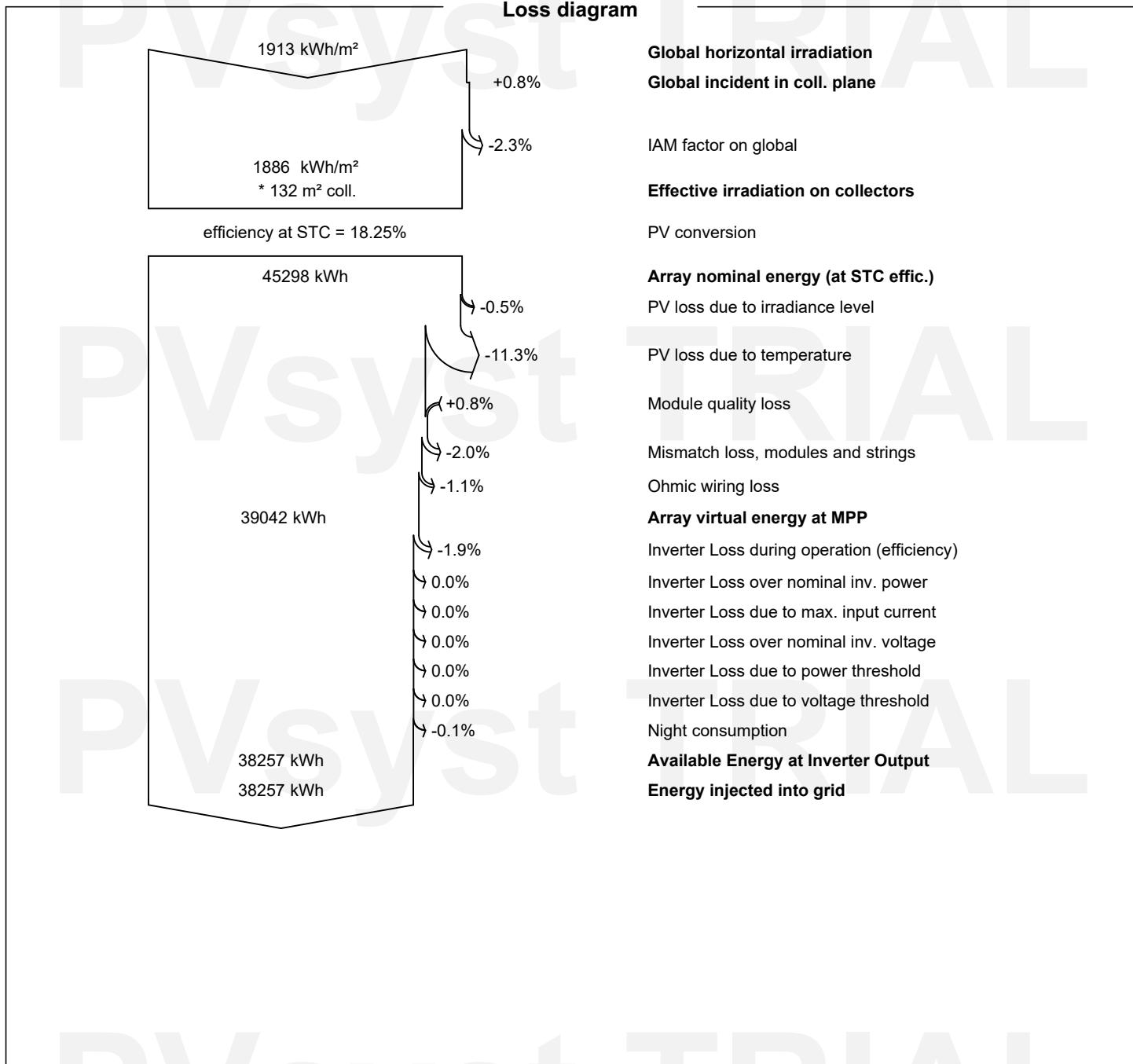


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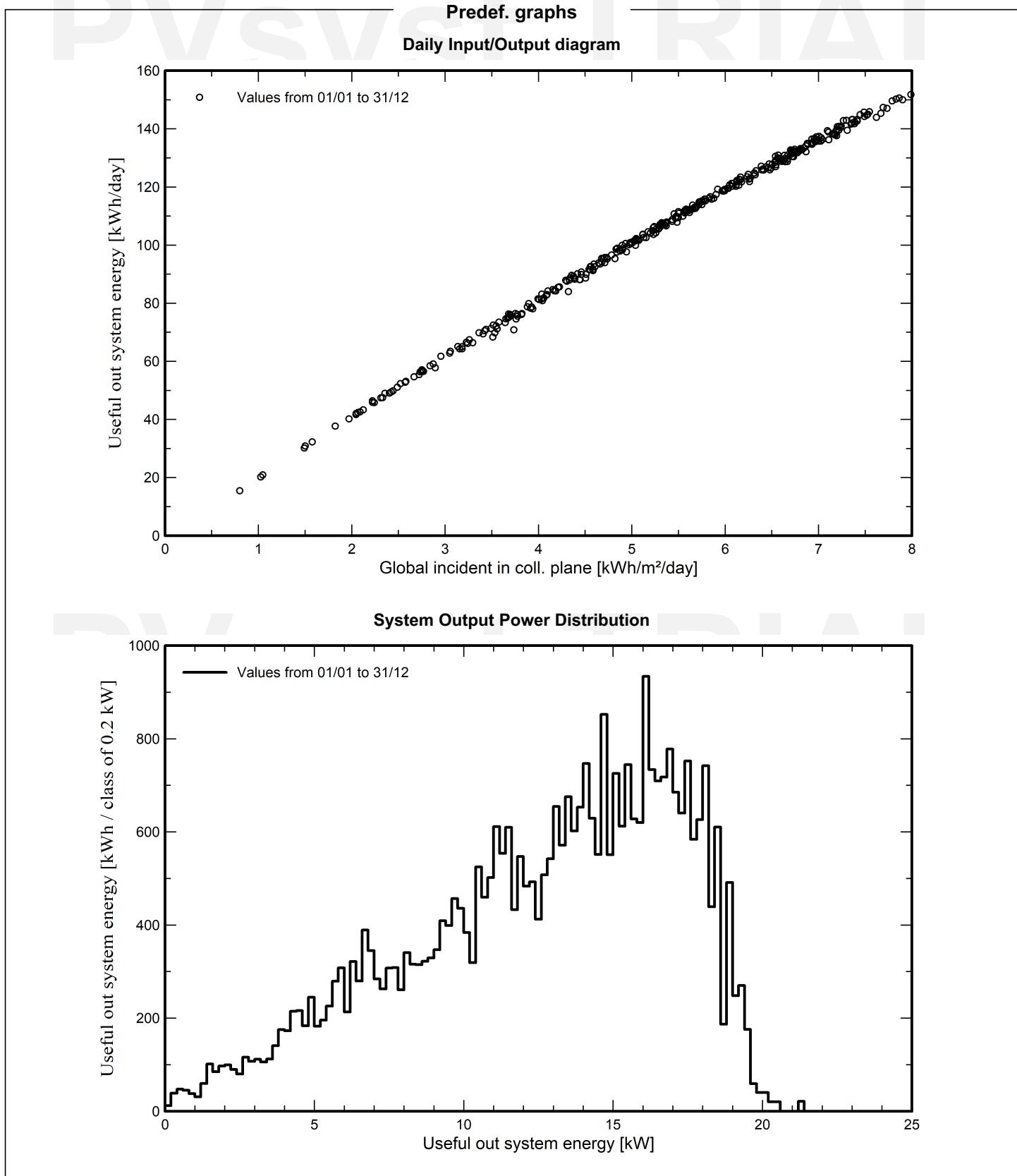
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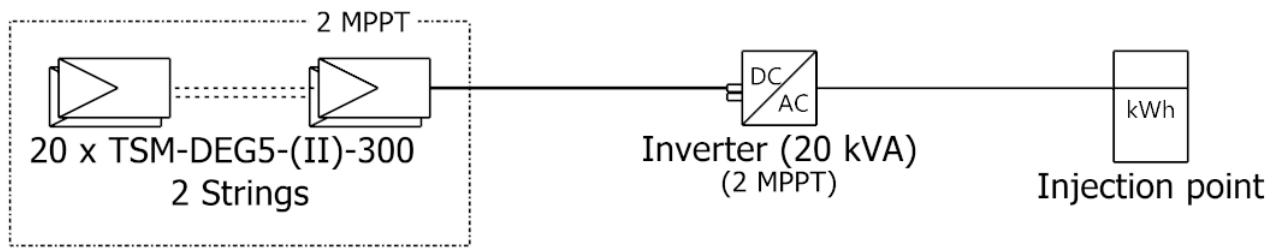
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# Single-line diagram



PV module	TSM-DEG5-(II)-300
Inverter	SUN2000-20KTL-M5-400V
String	20 x TSM-DEG5-(II)-300

My project

VC0 : New simulation variant

24/11/25