

# 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

**PVsyst V8.0.18**

VCO, Simulation date:  
24/11/25 23:22  
with V8.0.18

**Project summary****Geographical Site**

Gurugodella

Sri Lanka

**Situation**

Latitude 7.42 °(N)

Longitude 79.90 °(E)

Altitude 15 m

Time zone UTC+5.5

**Project settings**

Albedo 0.20

**Weather data**

Gurugodella

Meteonorm 8.2, Sat=22% - Synthetic

**System summary****Grid-Connected System**

No 3D scene defined, no shadings

**Orientation #1****Fixed plane**

Tilt/Azimuth 12 / 0 °

**Near Shadings**

no Shadings

**User's needs**

Unlimited load (grid)

**System information****PV Array**

Nb. of modules

80 units

Pnom total

24.00 kWp

**Inverters**

Nb. of units

1 unit

Total power

20 kWac

Pnom ratio

1.20

**Results summary**

Produced Energy	38257 kWh/year	Specific production	1594 kWh/kWp/year	Perf. Ratio PR	82.61 %
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## PVsyst V8.0.18

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## General parameters

## Grid-Connected System

## Orientation #1

## Fixed plane

Tilt/Azimuth 12 / 0 °

## Near Shadings

no Shadings

## No 3D scene defined, no shadings

## Models used

Transposition Perez  
Diffuse Perez, Meteonorm  
Circumsolar separate

## Horizon

Free Horizon

## User's needs

Unlimited load (grid)

## PV Array Characteristics

## PV module

Manufacturer Generic  
Model TSM-DEG5-(II)-300  
(Original PVsyst database)  
Unit Nom. Power 300 Wp  
Number of PV modules 80 units  
Nominal (STC) 24.00 kWp  
Modules 4 string x 20 In series  
**At operating cond. (50°C)**  
Pmpp 21.67 kWp  
U mpp 584 V  
I mpp 37 A

## Total PV power

Nominal (STC) 24 kWp  
Total 80 modules  
Module area 132 m<sup>2</sup>  
Cell area 118 m<sup>2</sup>

## Inverter

Manufacturer Generic  
Model SUN2000-20KTL-M5-400V  
(Original PVsyst database)  
Unit Nom. Power 20.0 kWac  
Number of inverters 2 \* MPPT 50% 1 unit  
Total power 20.0 kWac  
Operating voltage 200-1000 V  
Max. power (=>48°C) 22.0 kWac  
Pnom ratio (DC:AC) 1.20  
No power sharing between MPPTs

## Total inverter power

Total power 20 kWac  
Number of inverters 1 unit  
Pnom ratio 1.20

## Array losses

## Thermal Loss factor

Module temperature according to irradiance  
Uc (const) 20.0 W/m<sup>2</sup>K  
Uv (wind) 0.0 W/m<sup>2</sup>K/m/s

## DC wiring losses

Global array res. 264 mΩ  
Loss Fraction 1.50 % at STC

## Module Quality Loss

Loss Fraction -0.75 %

## Module mismatch losses

Loss Fraction 2.00 % at MPP

## Strings Mismatch loss

Loss Fraction 0.05 %

## IAM loss factor

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

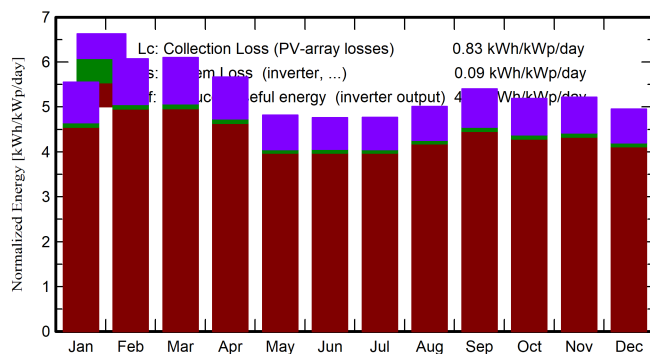
Specific production

1594 kWh/kWp/year

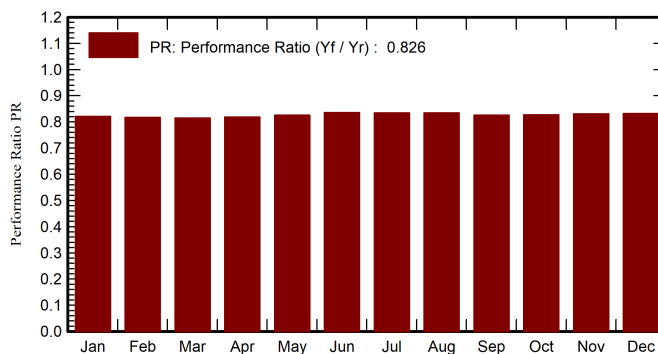
Perf. Ratio PR

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

## Legends

GlobHor Global horizontal irradiation

DiffHor Horizontal diffuse irradiation

T\_Amb Ambient Temperature

GlobInc Global incident in coll. plane

GlobEff Effective Global, corr. for IAM and shadings

EArray Effective energy at the output of the array

E\_Grid Energy injected into grid

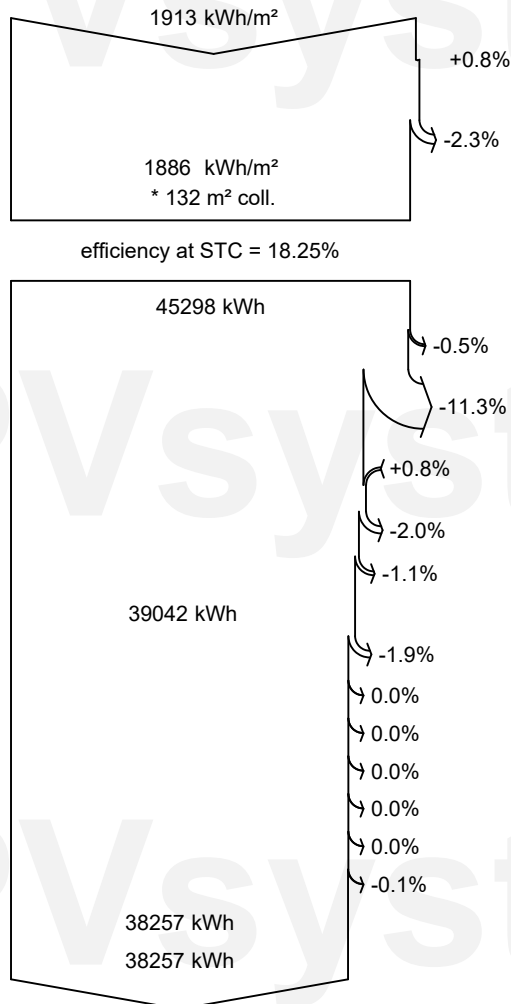
PR Performance Ratio



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**Loss diagram**



Global horizontal irradiation

Global incident in coll. plane

IAM factor on global

Effective irradiation on collectors

PV conversion

Array nominal energy (at STC effic.)

PV loss due to irradiance level

PV loss due to temperature

Module quality loss

Mismatch loss, modules and strings

Ohmic wiring loss

Array virtual energy at MPP

Inverter Loss during operation (efficiency)

Inverter Loss over nominal inv. power

Inverter Loss due to max. input current

Inverter Loss over nominal inv. voltage

Inverter Loss due to power threshold

Inverter Loss due to voltage threshold

Night consumption

Available Energy at Inverter Output

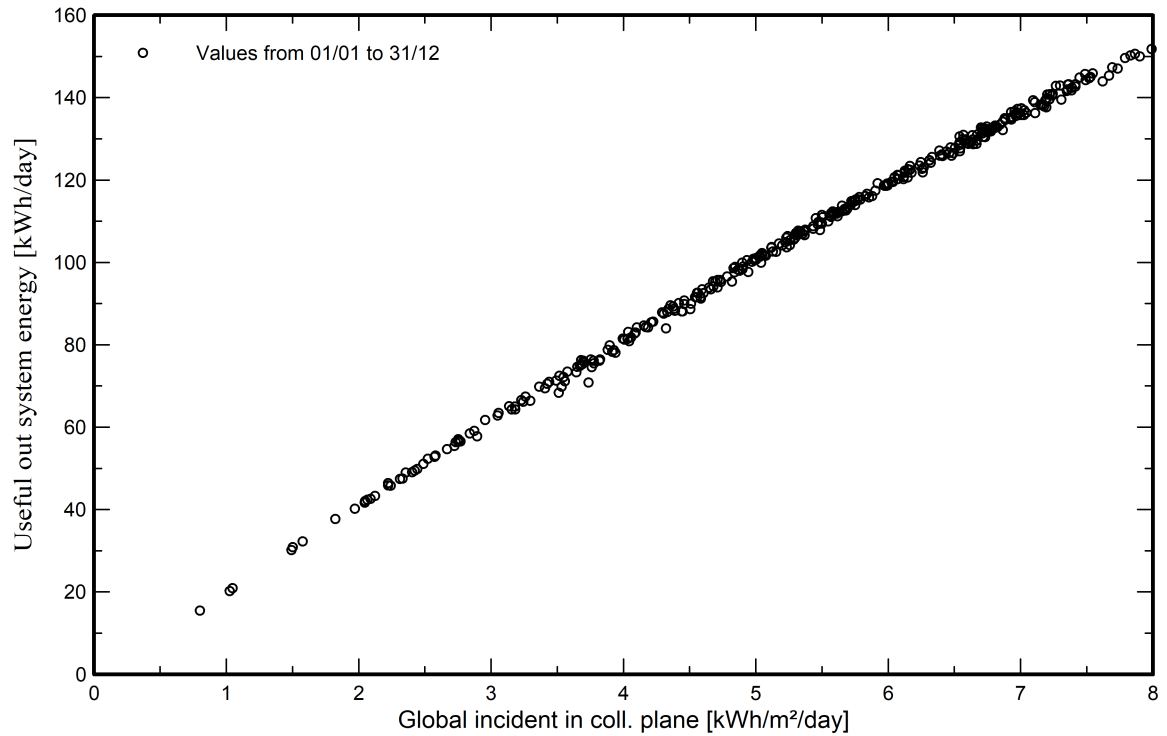
Energy injected into grid



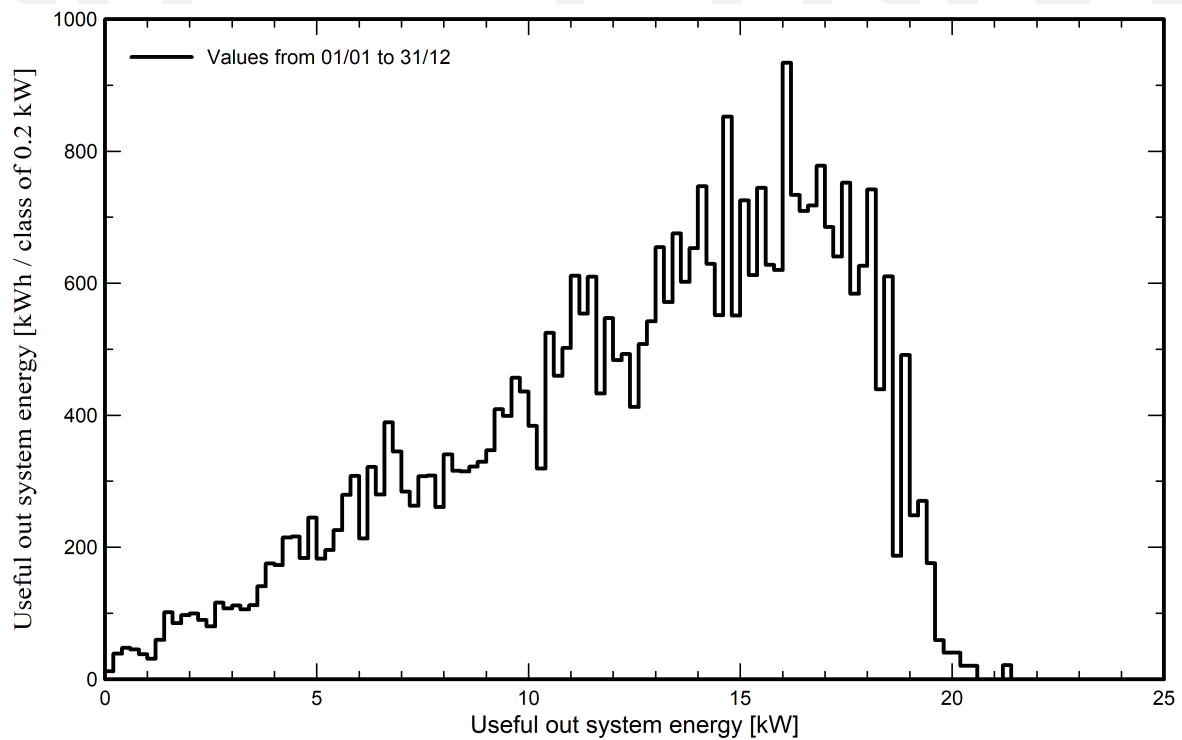
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Predef. graphs  
Daily Input/Output diagram



System Output Power Distribution

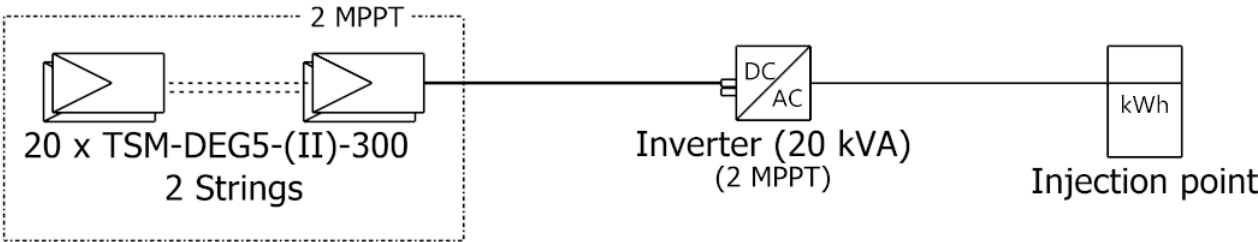




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# Single-line diagram



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