PVSYST
PHOTOVOLTAIC SOFTWARE

PVsyst TRIAL

PVsyst - Simulation report

Grid-Connected System

Project: 4KW_Residential_Solar_System

Variant: New simulation variant

Tables on a building

System power: 4440 Wp

House_Khamgaon_Maharashta - India

Author

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PVsyst V8.0.7
VC0, Simulation date:
09/03/25 16:59
with V8.0.7

Project summary

Geographical Site
House_Khamgaon_Maharashta
India

Situation

Latitude	20.72 °N
Longitude	76.54 °E
Altitude	303 m
Time zone	UTC+5.5

Project settings
Albedo 0.20

Weather data
House_Khamgaon_Maharashta
Meteonorm 8.2 (2001-2020), Sat=100% - Synthetic

System summary

Grid-Connected System

Tables on a building

Orientation #1
Fixed plane
Tilt/Azimuth 20 / 0 °

Near Shadings
Linear shadings : Fast (table)

User's needs
Unlimited load (grid)

System information

PV Array		Inverters	
Nb. of modules	12 units	Nb. of units	1 unit
Pnom total	4440 Wp	Pnom total	4000 W
		Pnom ratio	1.110

Results summary

Produced Energy	6758.8 kWh/year	Specific production	1522 kWh/kWp/year	Perf. Ratio PR	78.38 %

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General parameters

Grid-Connected System

Orientation #1

Fixed plane	
Tilt/Azimuth	20 / 0 °

Tables on a building

Sheds configuration		
Nb. of sheds	1 Unit	
Single table		
Shading limit angle		
Limit profile angle	°	

Sizes

Sheds spacing	0.00 m
Collector width	5.89 m
Average GCR	%
Top inactive band	0.01 m
Bottom inactive band	0.01 m

Models used

Transposition	Perez
Diffuse	Perez, Meteonorm
Circumsolar	separate

Horizon

Free Horizon

Near Shadings

Linear shadings : Fast (table)

User's needs

Unlimited load (grid)

PV Array Characteristics

PV module

Manufacturer	Generic
Model	Somera VSM.72.370.05
(Original PVsyst database)	
Unit Nom. Power	370 Wp
Number of PV modules	12 units
Nominal (STC)	4440 Wp
Modules	3 string x 4 In series
At operating cond. (50°C)	
Pmpp	4048 Wp
U mpp	143 V
I mpp	28 A

Inverter

Manufacturer	Generic
Model	PS 5000i-MV
(Original PVsyst database)	
Unit Nom. Power	4.00 kWac
Number of inverters	1 unit
Total power	4.0 kWac
Operating voltage	100-350 V
Pnom ratio (DC:AC)	1.11

Total PV power

Nominal (STC)	4.44 kWp
Total	12 modules
Module area	23.3 m²

Total inverter power

Total power	4 kWac
Number of inverters	1 unit
Pnom ratio	1.11

Array losses

Thermal Loss factor

Module temperature according to irradiance	
Uc (const)	20.0 W/m²K
Uv (wind)	0.0 W/m²K/m/s

DC wiring losses

Global array res.	84 mΩ
Loss Fraction	1.5 % at STC

Module Quality Loss

Loss Fraction	-0.8 %

Module mismatch losses

Loss Fraction	2.0 % at MPP

Strings Mismatch loss

Loss Fraction	0.1 %

IAM loss factor

Incidence effect (IAM): Fresnel smooth glass, n = 1.526

0°	30°	50°	60°	70°	75°	80°	85°	90°
1.000	0.998	0.981	0.948	0.862	0.776	0.636	0.402	0.000

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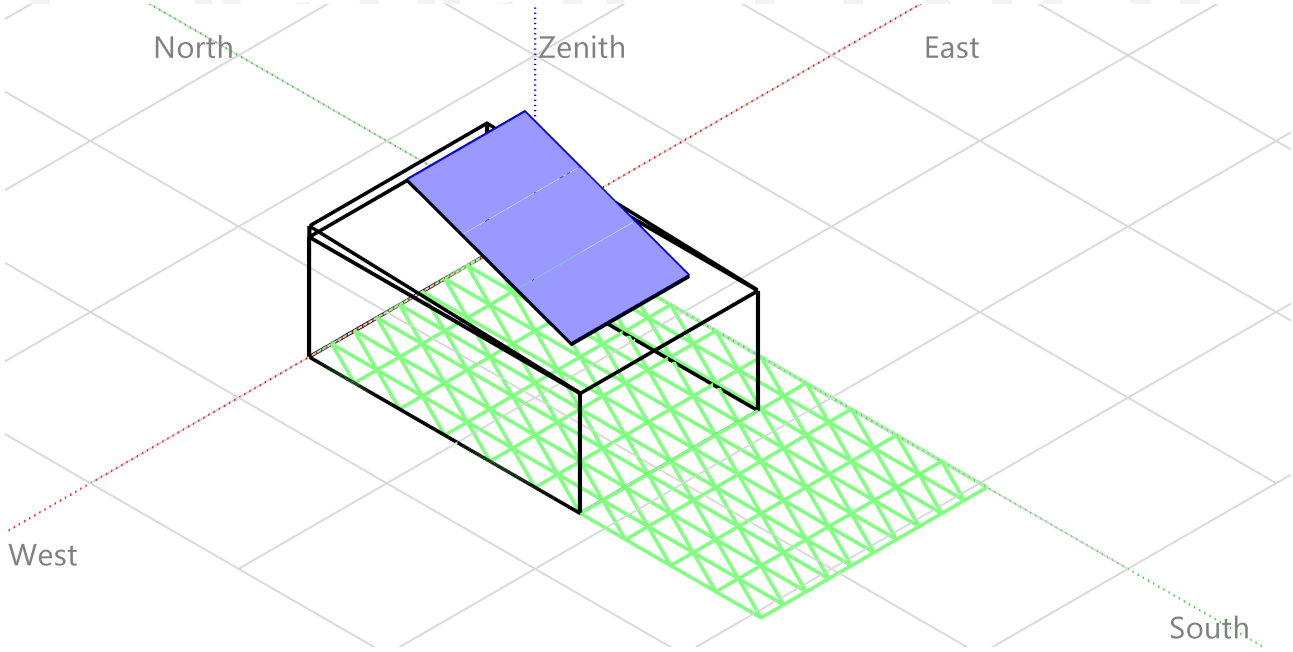
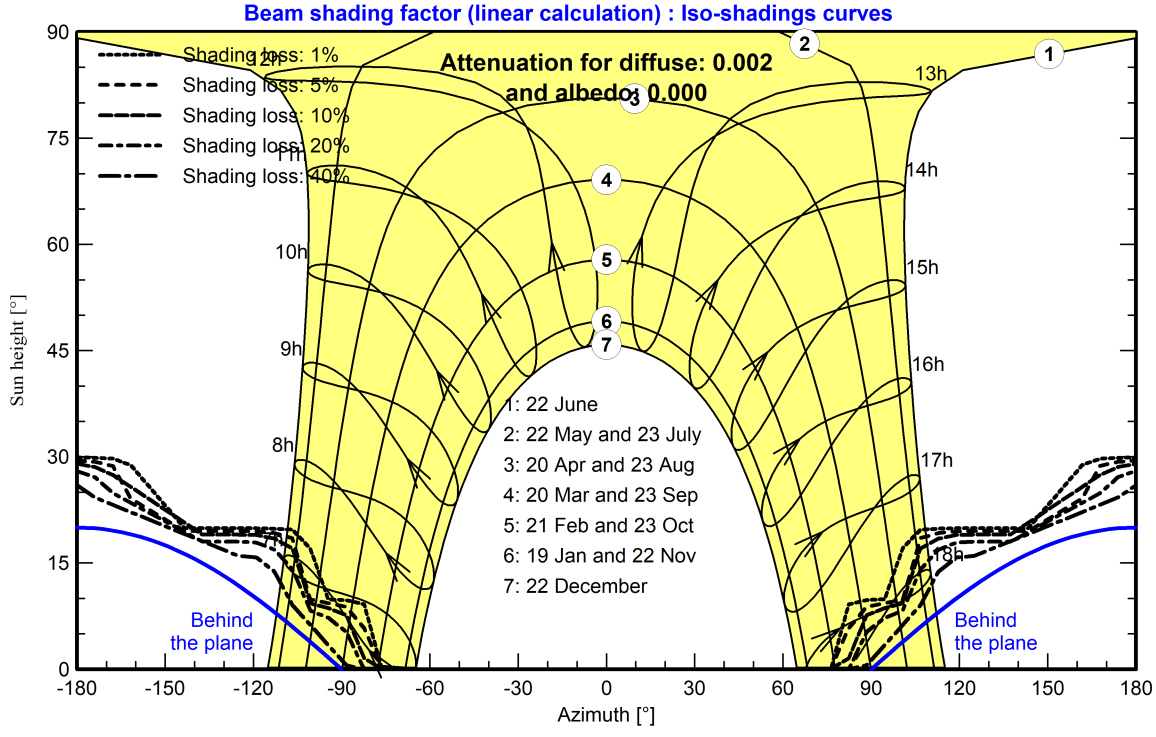
Near shadings parameter

Perspective of the PV-field and surrounding shading scene



Iso-shadings diagram

Orientation #1 - Fixed plane, Tilts/azimuths: 20°/ 0°



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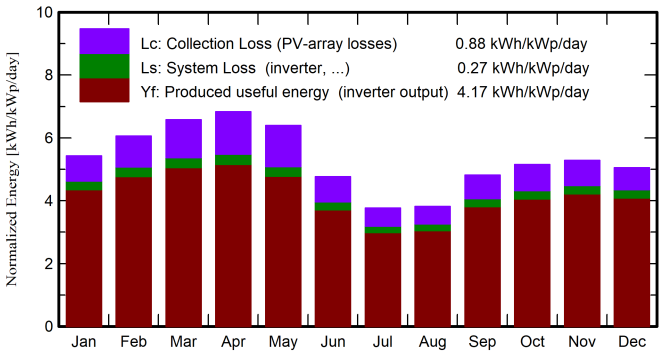
Main results

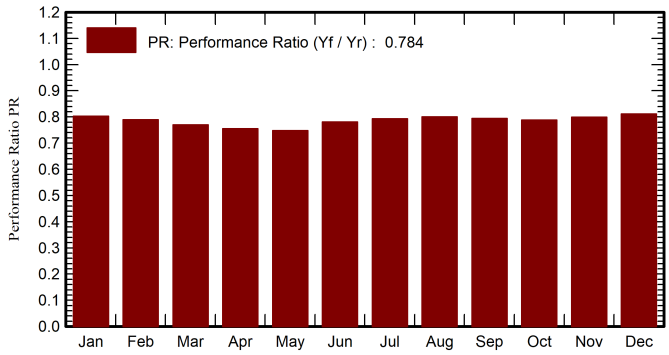
System Production

Produced Energy	6758.8 kWh/year	Specific production	1522 kWh/kWp/year
		Perf. Ratio PR	78.38 %

Normalized productions (per installed kWp)



Performance Ratio PR



Balances and main results

	GlobHor kWh/m²	DiffHor kWh/m²	T_Amb °C	GlobInc kWh/m²	GlobEff kWh/m²	EArray kWh	E_Grid kWh	PR ratio
January	135.5	46.18	21.73	168.2	164.7	637.9	599.4	0.803
February	145.0	56.92	25.45	169.5	165.8	631.7	594.2	0.789
March	188.1	71.60	29.62	203.8	199.0	740.0	696.4	0.770
April	204.4	75.95	32.66	205.0	200.0	731.3	687.3	0.755
May	210.5	87.29	36.06	198.4	192.7	701.3	659.0	0.748
June	154.6	93.10	31.54	143.0	138.2	528.6	495.7	0.781
July	125.3	81.52	28.38	116.8	112.6	440.9	411.7	0.794
August	122.3	82.64	27.24	118.3	114.3	449.5	420.3	0.801
September	140.7	78.30	27.37	144.4	140.1	542.4	509.2	0.794
October	143.5	69.78	27.22	159.8	155.7	595.4	559.3	0.789
November	130.9	52.84	24.26	158.5	154.7	598.2	562.5	0.800
December	124.4	50.05	21.76	156.6	152.9	599.7	563.9	0.811
Year	1825.1	846.18	27.78	1942.2	1890.7	7196.8	6758.8	0.784

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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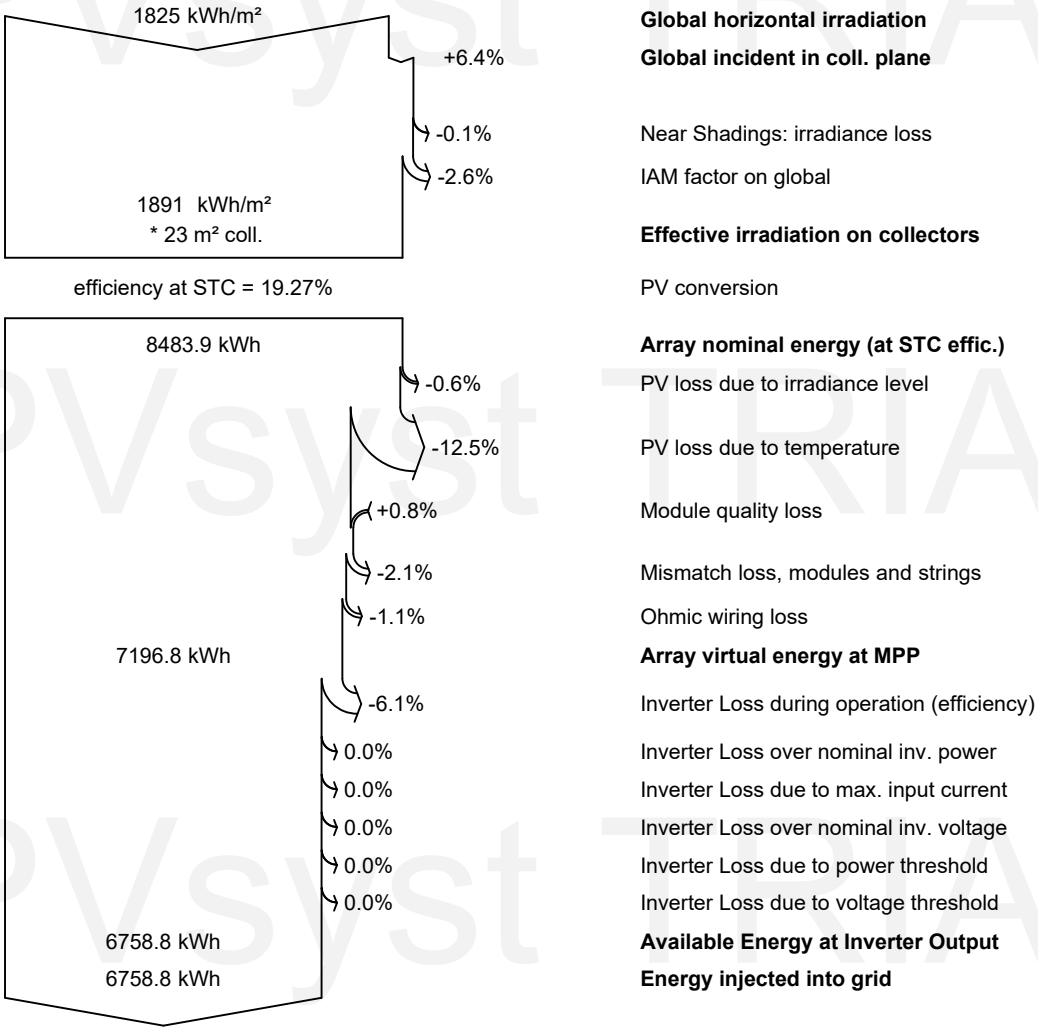
Loss diagram



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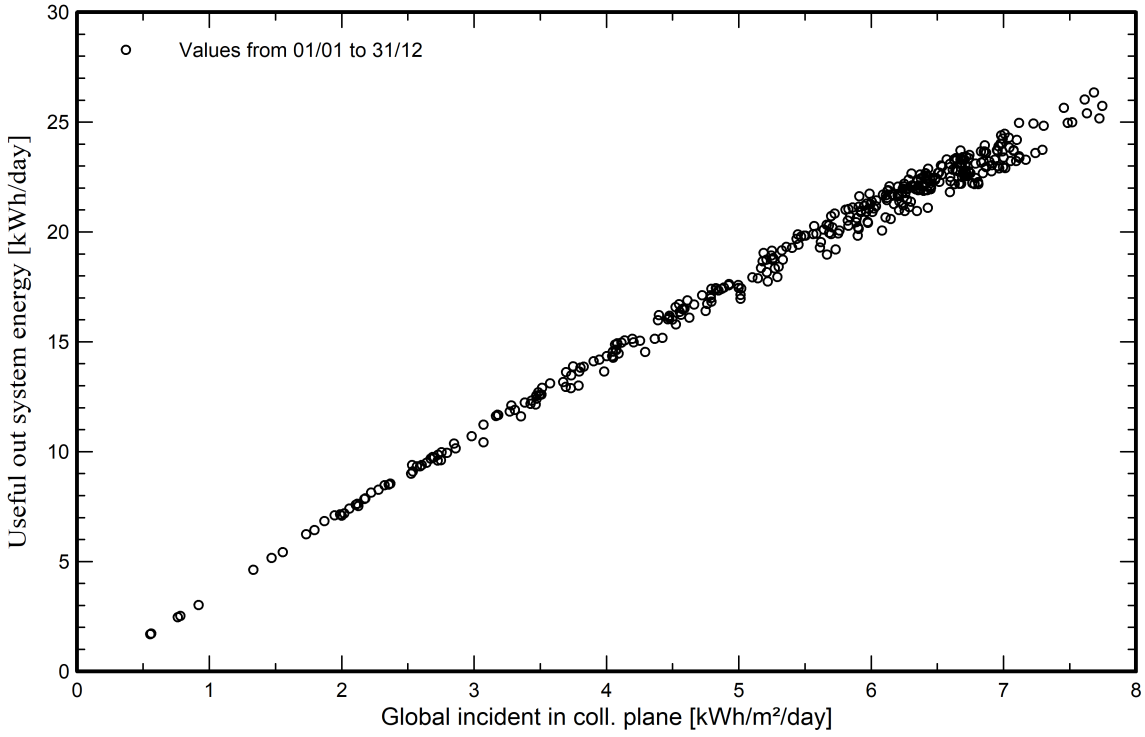
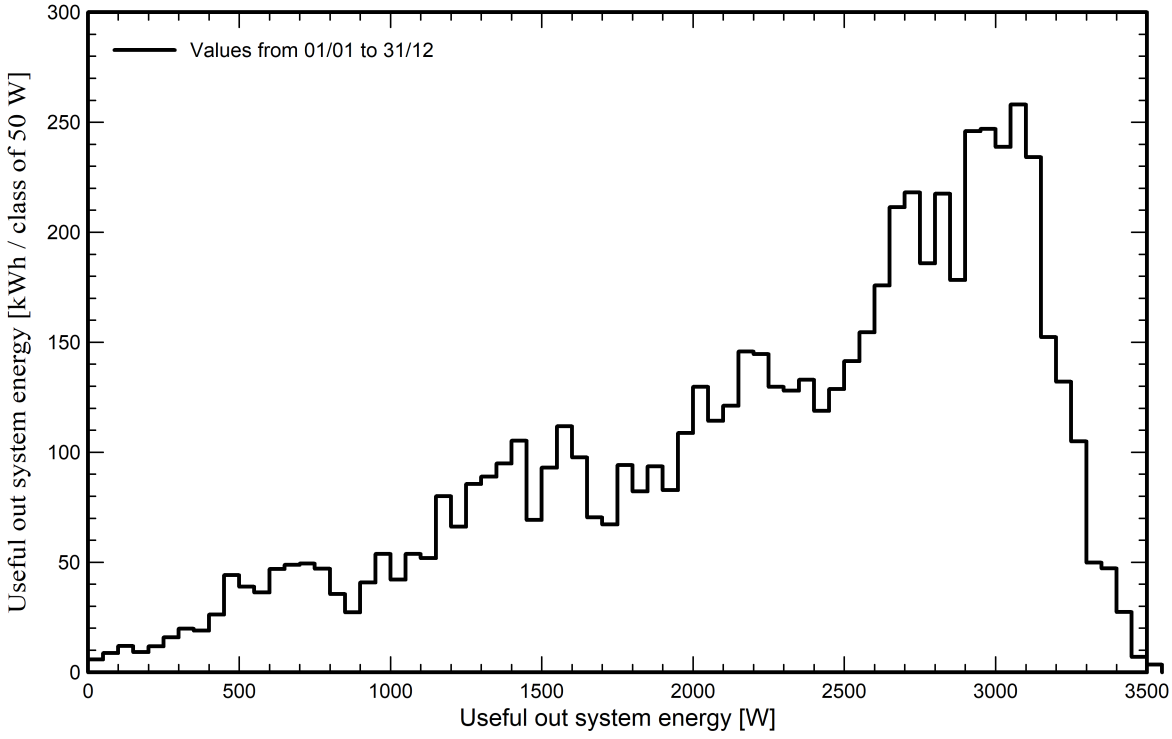
Predef. graphs

Daily Input/Output diagram



System Output Power Distribution



Single-line diagram

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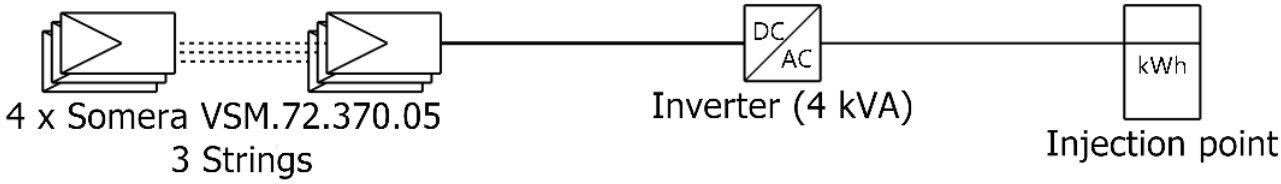

PV module	Somera VSM.72.370.05
Inverter	PS 5000i-MV
String	4 x Somera VSM.72.370.05

	4KW_Residential_Solar_System	
	VC0 : New simulation variant	09/03/25