PVSYST
PHOTOVOLTAIC SOFTWARE

PVsyst - Simulation report

Grid-Connected System

Project: 10KW_Grid_Tied_Hybrid_Solar_System

Variant: New simulation variant

No 3D scene defined, no shadings

System power: 9.99 kWp

Dalvi_Super_Mart - India

Author

PVsyst V8.0.7
VC0, Simulation date:
09/03/25 18:10
with V8.0.7

Project summary

Geographical Site
Dalvi_Super_Mart
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
Dalvi_Super_Mart
Meteonorm 8.2 (2001-2020), Sat=100% - Synthetic

System summary

Grid-Connected System
No 3D scene defined, no shadings

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

Near Shadings
no Shadings

User's needs
Unlimited load (grid)

System information

PV Array		Inverters	
Nb. of modules	27 units	Nb. of units	3 units
Pnom total	9.99 kWp	Pnom total	9.00 kWac
		Pnom ratio	1.110

Results summary

Produced Energy	15631 kWh/year	Specific production	1565 kWh/kWp/year	Perf. Ratio PR	80.56 %

Table of contents

Project and results summary 2
General parameters, PV Array Characteristics, System losses 3
Main results 4
Loss diagram 5
Predef. graphs 6
Single-line diagram 7

PVsyst V8.0.7
VC0, Simulation date:
09/03/25 18:10
with V8.0.7

General parameters

Grid-Connected System — No 3D scene defined, no shadings

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

Sheds configuration
No 3D scene defined

Models used
Transposition Perez
Diffuse Perez, Meteonorm
Circumsolar separate

Horizon
Free Horizon

Near Shadings
no Shadings

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	27 units
Nominal (STC)	9.99 kWp
Modules	3 string x 9 In series
At operating cond. (50°C)	
Pmpp	9.11 kWp
U mpp	321 V
I mpp	28 A

Inverter

Manufacturer	Generic
Model	3 kWac inverter
(Original PVsyst database)	
Unit Nom. Power	3.00 kWac
Number of inverters	3 units
Total power	9.0 kWac
Operating voltage	125-440 V
Pnom ratio (DC:AC)	1.11

Total PV power

Nominal (STC)	10 kWp
Total	27 modules
Module area	52.4 m²

Total inverter power

Total power	9 kWac
Number of inverters	3 units
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. 190 mΩ
Loss Fraction 1.5 % at STC

Module Quality Loss
Loss Fraction -0.8 %

Module mismatch losses
Loss Fraction 2.0 % at MPP

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

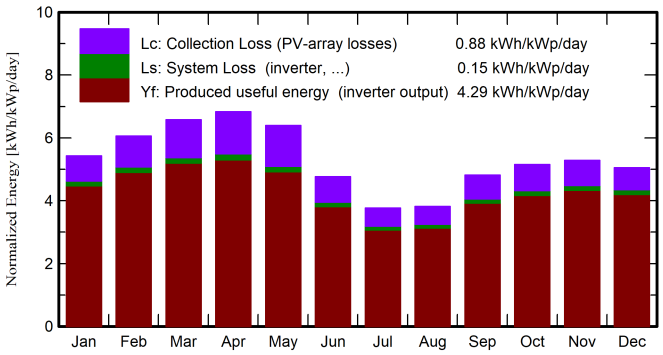
PVsyst V8.0.7
VC0, Simulation date:
09/03/25 18:10
with V8.0.7

Main results

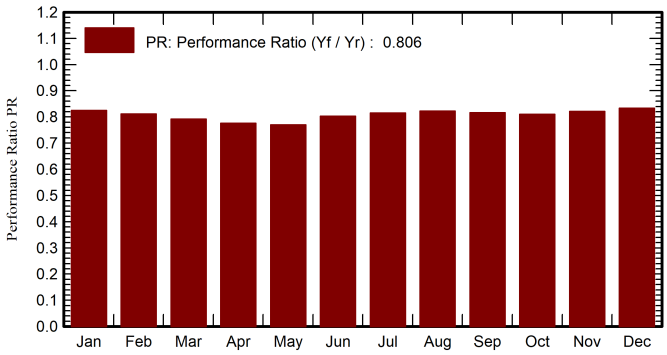
System Production

Produced Energy	15631 kWh/year	Specific production	1565 kWh/kWp/year
		Perf. Ratio PR	80.56 %

Normalized productions (per installed kWp)



Performance Ratio PR



Balances and main results

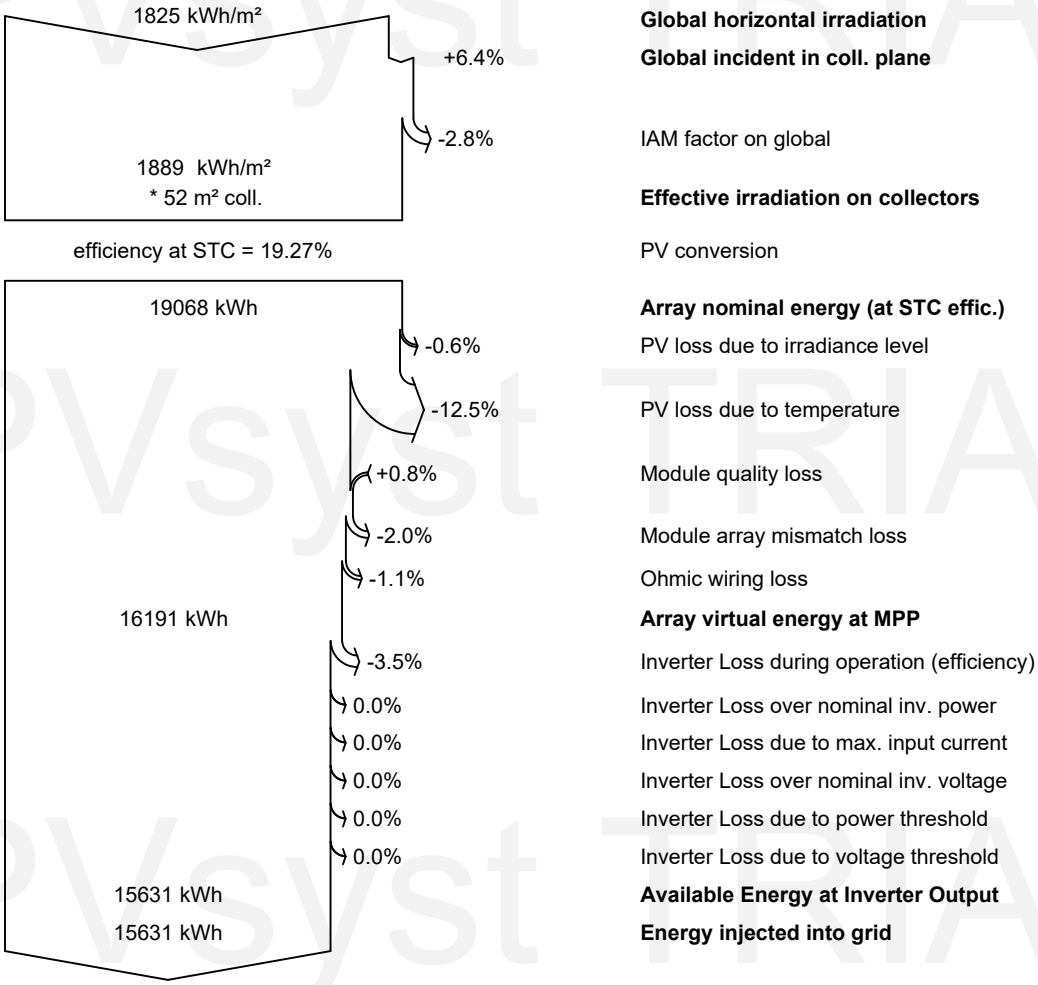
	GlobHor kWh/m²	DiffHor kWh/m²	T_Amb °C	GlobInc kWh/m²	GlobEff kWh/m²	EArray kWh	E_Grid kWh	PR ratio
January	135.5	46.19	21.73	168.2	164.6	1436	1386	0.825
February	145.0	56.92	25.45	169.6	165.7	1422	1374	0.811
March	188.1	71.59	29.62	203.8	198.9	1666	1611	0.791
April	204.4	75.95	32.66	205.0	199.9	1647	1590	0.776
May	210.5	87.27	36.06	198.4	192.7	1579	1525	0.770
June	154.6	93.10	31.54	143.0	137.9	1188	1146	0.802
July	125.3	81.52	28.38	116.8	112.3	990	952	0.816
August	122.3	82.64	27.24	118.3	113.9	1009	971	0.822
September	140.7	78.30	27.37	144.4	139.8	1219	1177	0.816
October	143.5	69.78	27.22	159.8	155.5	1339	1293	0.810
November	130.9	52.84	24.26	158.5	154.6	1346	1301	0.822
December	124.4	50.04	21.76	156.6	152.8	1350	1304	0.834
Year	1825.2	846.14	27.78	1942.2	1888.6	16191	15631	0.806

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		

PVsyst V8.0.7
VC0, Simulation date:
09/03/25 18:10
with V8.0.7

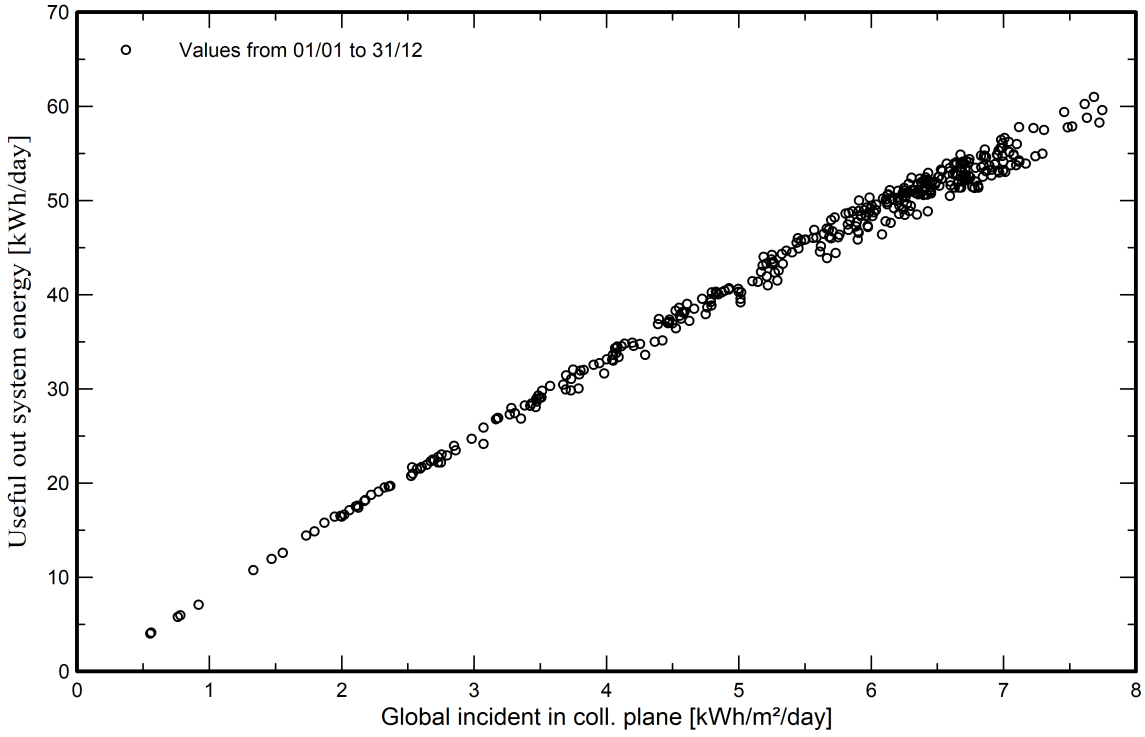
Loss diagram



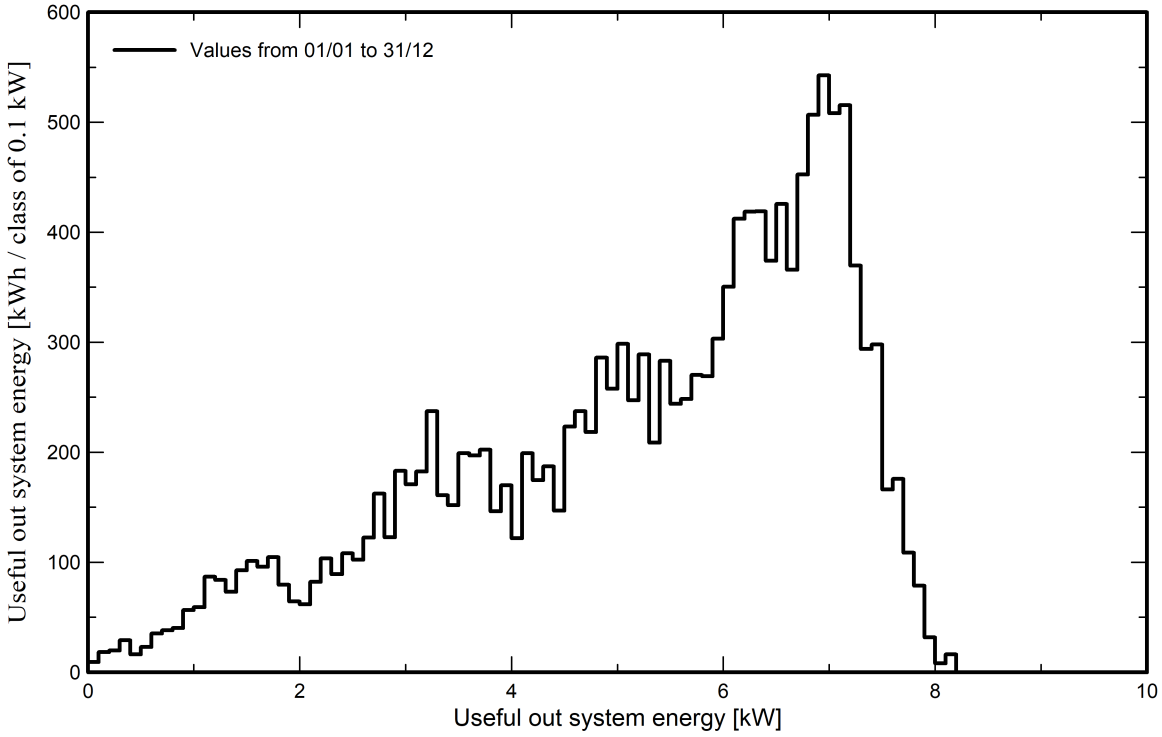
PVsyst V8.0.7
VC0, Simulation date:
09/03/25 18:10
with V8.0.7

Predef. graphs

Daily Input/Output diagram

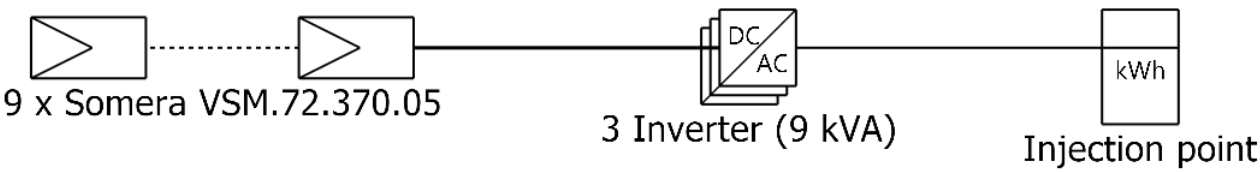


System Output Power Distribution



Single-line diagram

PVsyst V8.0.7
VC0, Simulation date:
09/03/25 18:10
with V8.0.7



PV module	Somera VSM.72.370.05
Inverter	3 kWac inverter
String	9 x Somera VSM.72.370.05

	10KW_Grid_Tied_Hybrid_Solar_System	
	VC0 : New simulation variant	09/03/25