GOODWE
YOUR SOLAR ENGINE

# COMMERCIAL, INDUSTRIAL & UTILITY

## SOLAR SYSTEM SOLUTIONS

www.goodwe.com


BOOST YOUR
POWER & PROFIT
12-80kW

50% oversizing

**50% DC Input Oversizing Ratio**

15% overloading

**15% AC Output Overloading Ratio**

**Max Efficiency 99%**

**Arc-Fault Circuit-Interrupter**

PLC

**Power Line Communication**

**String Level Monitoring**

**SDT-Series**
Dual-MPPT, Three-Phase

**SMT-Series**
Three-MPPT, Three-Phase

**MT-Series**
Four-MPPT, Three-Phase

# **100kWp** Solar Power Plant Solution

## Project Information

Project Location: Munich / GERMANY
PV Panel: 350 Wp Monocrystalline
Inverter: GW30K-MT GoodWe three phase commercial inverter
Installed DC Capacity: 288 pcs x 0.35 kWp = 100,8 kWp
Installed Rated AC Capacity: 3 pcs x 30 kW = 90 kW
DC / AC Ratio: 1.12

* The GoodWe SMT series inverter features a 30-50% DC oversizing capability. In that project 12% DC oversizing applied considering the strong level of irradiation of Germany.

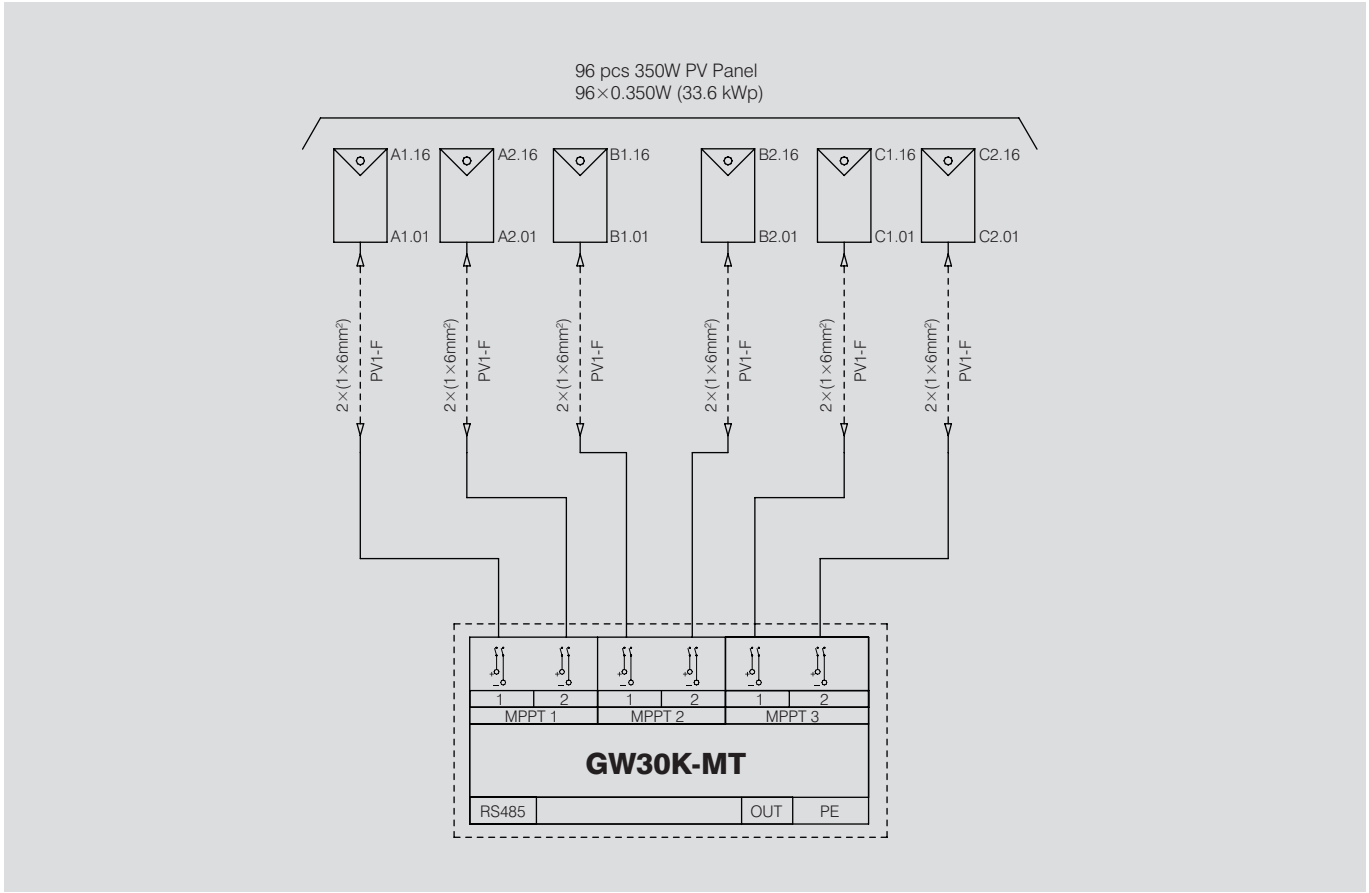
## Project Components

| No. | Material | Description | Quantity |
|---|---|---|---|
| 1 | PV Panel | 350 Wp Monocrystalline | 288 |
| 2 | Inverter | GoodWe GW30K-MT | 3 |
| 3 | Construction Material | Rooftop Supporting System, Preferably Aluminum | 1 Package |
| 4 | DC Cable | 1x6 $mm^2$ | 1.250 mt. |
| 5 | AC Cable | 5x16 $mm^2$ | 150 mt. |
| 6 | Comm. Cable | RS485 | 100 mt. |
| 7 | AC Board | 3 Leakage Current Protection, 3 Sub Breaker, 1 SPD, 1 Main Switch | 1 |
| 8 | Datalogger | EzLogger Pro (with RS485 com. Method) | 1 |

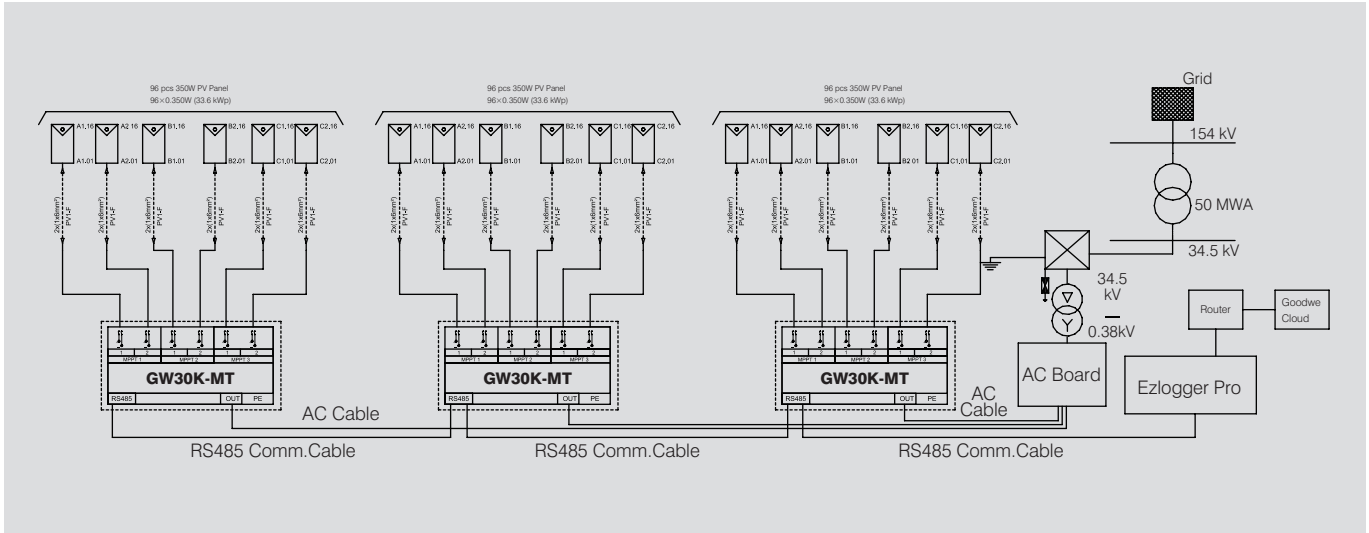
### PV Panel Main Features

| | |
|---|---|
| Maximum Power (Pmax) | 350Wp |
| Maximum Power Voltage (Vmp) | 39.1V |
| Maximum Power Current (Imp) | 8.94A |
| Open-circuit Voltage (Voc) | 47.5V |
| Size & Weight | 1956×992×40mm 26.5 kg |

# Cabling & Connections Diagram




* Connection diagram. Each string is connected with 16 PV Panels. The total capacity is 6 string x 16 = 96 pcs.




* The GoodWe Ezlogger Pro features 3 communication inputs per inverter. Each communication port can support up to 20 inverters. In total, 60 inverters can be connected. (The GoodWe monitoring box SCB1000 is also available).
* The Max. effective RS485 distance is 1000m for EzloggerPro.
* EzloggerPro is able to perform string level monitoring.

# PV System Efficiency Report

## Grid-Connected System: Main Results

**Project :** **100kW_Germany**

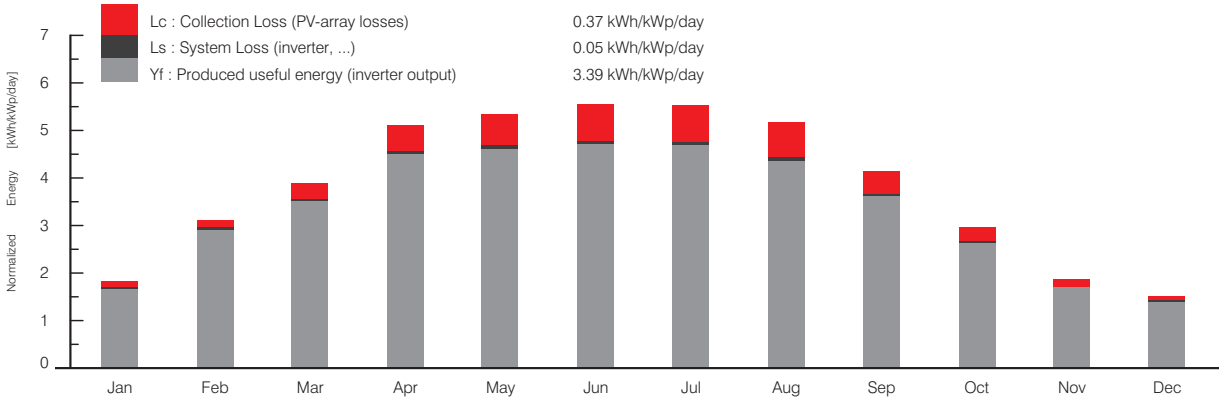
**Simulation Variant :** **100kW_Germany**

| **Main System Parameters** | | | | |
|---|---|---|---|---|
| System Type | | **No 3D Scene Defined, No Shadings** | | |
| PV Field Orientation | Tilt | 38° | Azimuth | 0° |
| PV Modules | Model | JKM 350M-72-V | Pnom | 350 Wp |
| PV Array | No. of Modules | 288 | Pnom Total | **101 kWp** |
| Inverter | Model | GW30K-MT | Pnom | 30.0 kW ac |
| Inverter Pack | No.of Units | 3.0 | Pnom Total | **90.0 kW ac** |
| User's Needs | Unlimited Load (Grid) | | | |

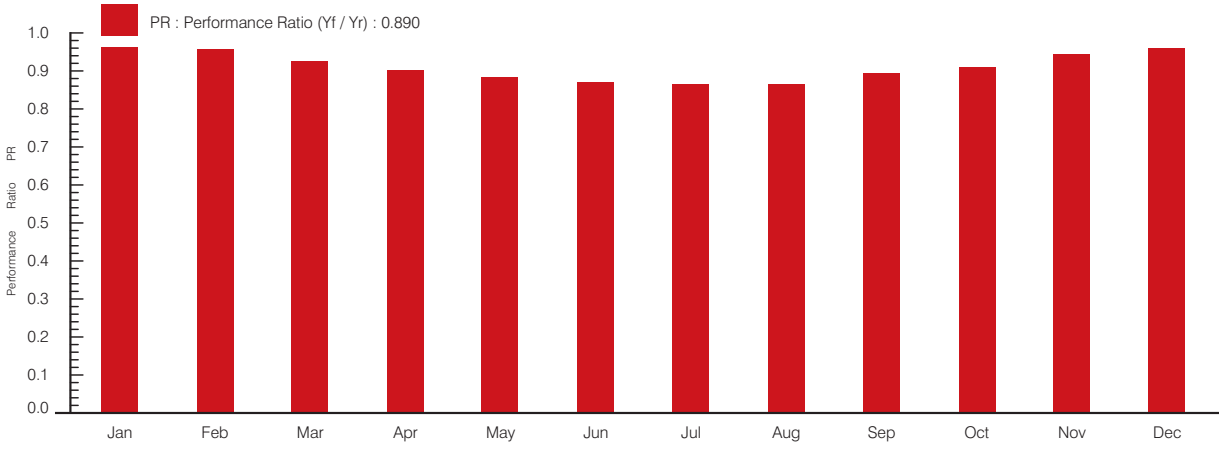
**Main Simulation Results**

| | | | | |
|---|---|---|---|---|
| System Production | **Produced Energy** | **124.9 MWh/year** | Specific Prod. | 1239 kWh/kWp/year |
| | Performance Ratio PR | 88.97% | | |

**Normalized productions (per installed kWp): Nominal power 101 kWp**




**Performance Ratio PR**




* This report illustrates how the DC oversizing of this installation contributes to increase the total production. If we had followed a 1:1 DC/AC ratio arrangement, the total production would have been 10% lower.

# **1MWp** Solar Power Plant Solution

## Project Information

Project Location: Munich / GERMANY
PV Panel: 350 Wp Monocrystalline
Inverter: GW80K-MT GoodWe three phase commercial inverter
Installed DC Capacity: 2880 pcs x 0.35 kWp = 1008 kWp
Installed Rated AC Capacity: 12 pcs x 80 kW = 960 kW
DC / AC Ratio: 1.05

* The GoodWe MT series inverter features a 30-50% DC oversizing capability. In that project 5% DC oversizing applied considering the strong level of irradiation of Germany.

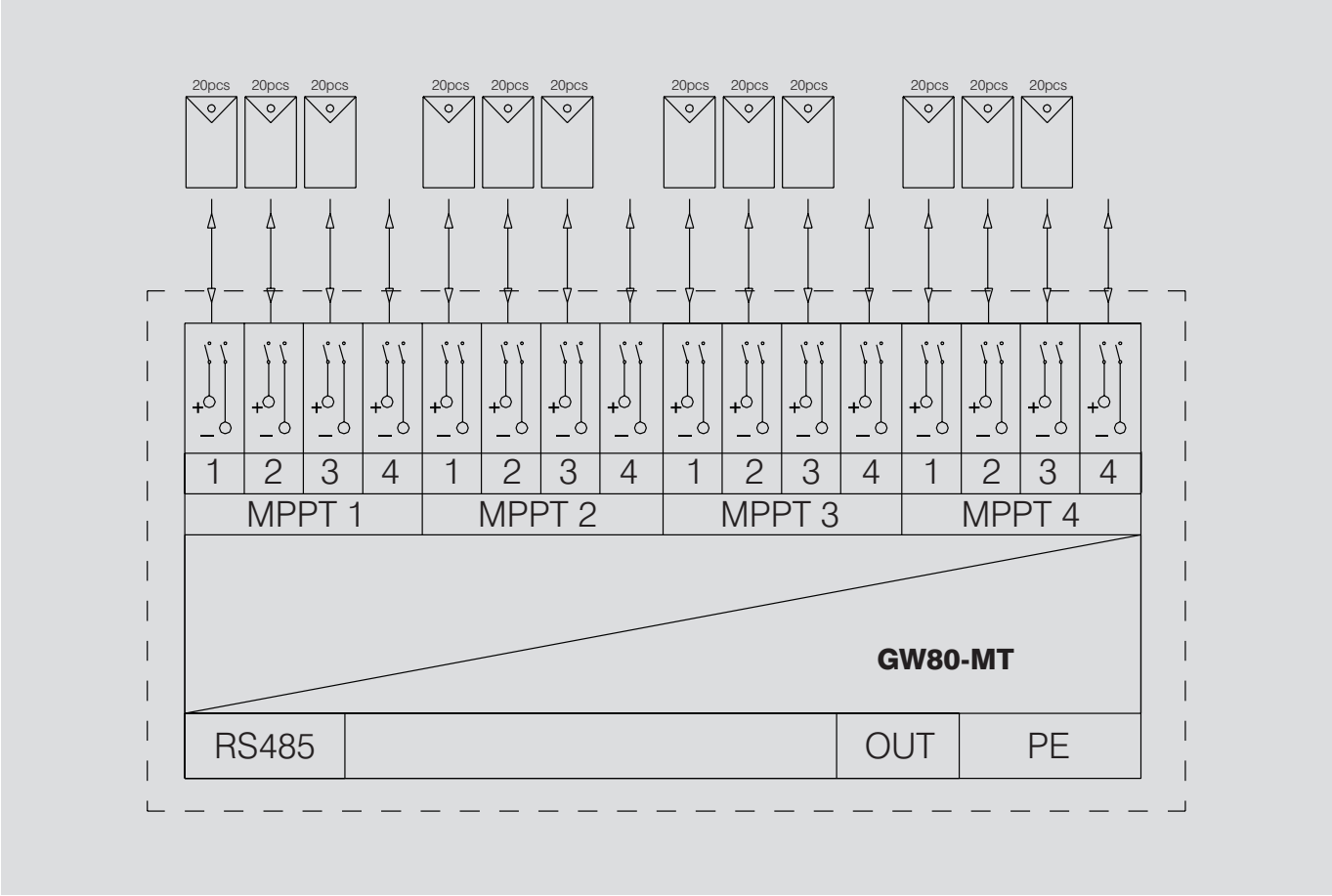
## Project Components

| No. | Material | Description | Quantity |
|---|---|---|---|
| 1 | PV Panel | 350 Wp Monocrystal | 2880 |
| 2 | Inverter | GoodWe GW80K-MT | 12 |
| 3 | Construction Material | Rooftop Supporting System, Preferably Aluminum | 1 Package |
| 4 | DC Cable | 1x6 $mm^2$ | 13.000 mt. |
| 5 | AC Cable | 5x35 $mm^2$ | 3.000 mt. |
| 6 | Comm. Cable | RS485 | 200 mt. |
| 7 | AC Board | 4 Leakage Current Protection, 4 Sub Breaker, 1 SPD, 1 Main Switch | 3 |
| 8 | HV Building | Transformer, AC Main Board, Protection Cells | 1 |
| 9 | Datalogger | EzLogger Pro (with RS485 com. Method) | 1 |

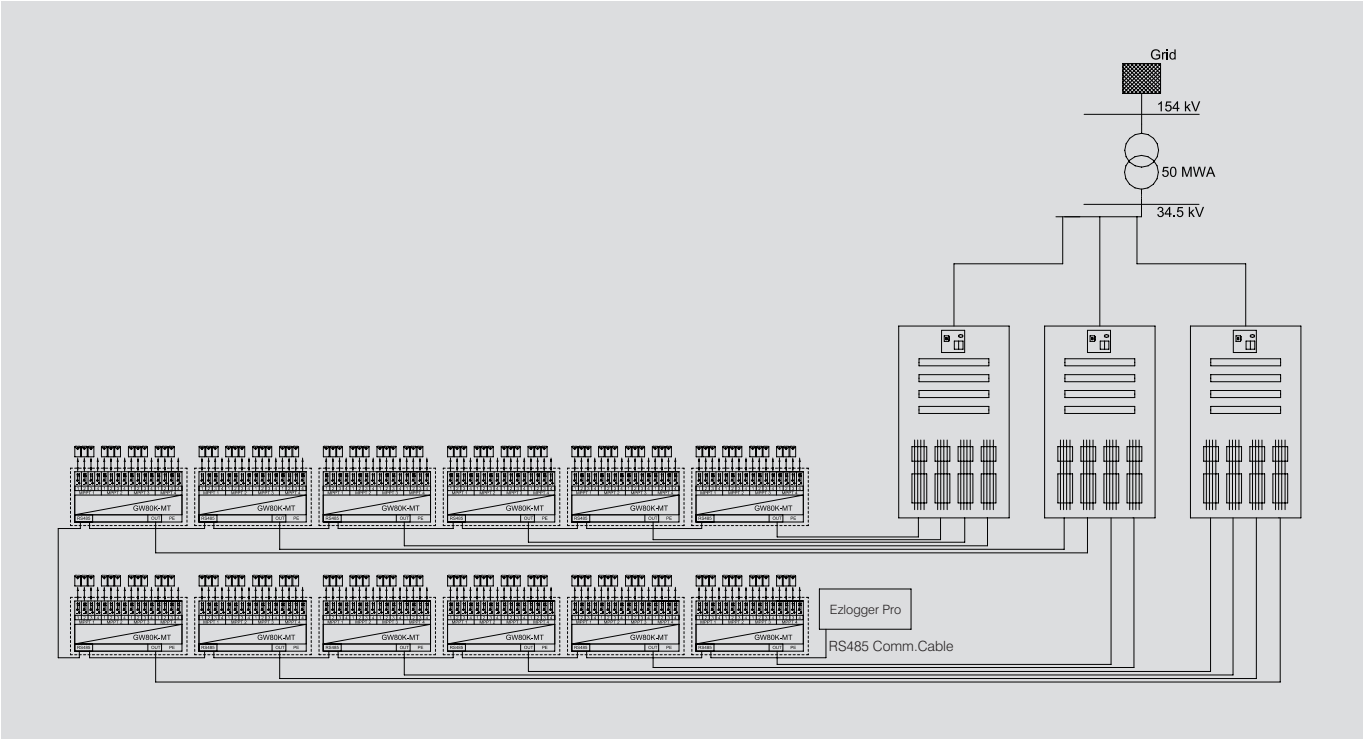
### PV Panel Main Features

| | |
|---|---|
| Maximum Power (Pmax) | 350Wp |
| Maximum Power Voltage (Vmp) | 39.1V |
| Maximum Power Current (Imp) | 8.94A |
| Open-circuit Voltage (Voc) | 47.5V |
| Size & Weight | 1956×992×40mm 26.5 kg |

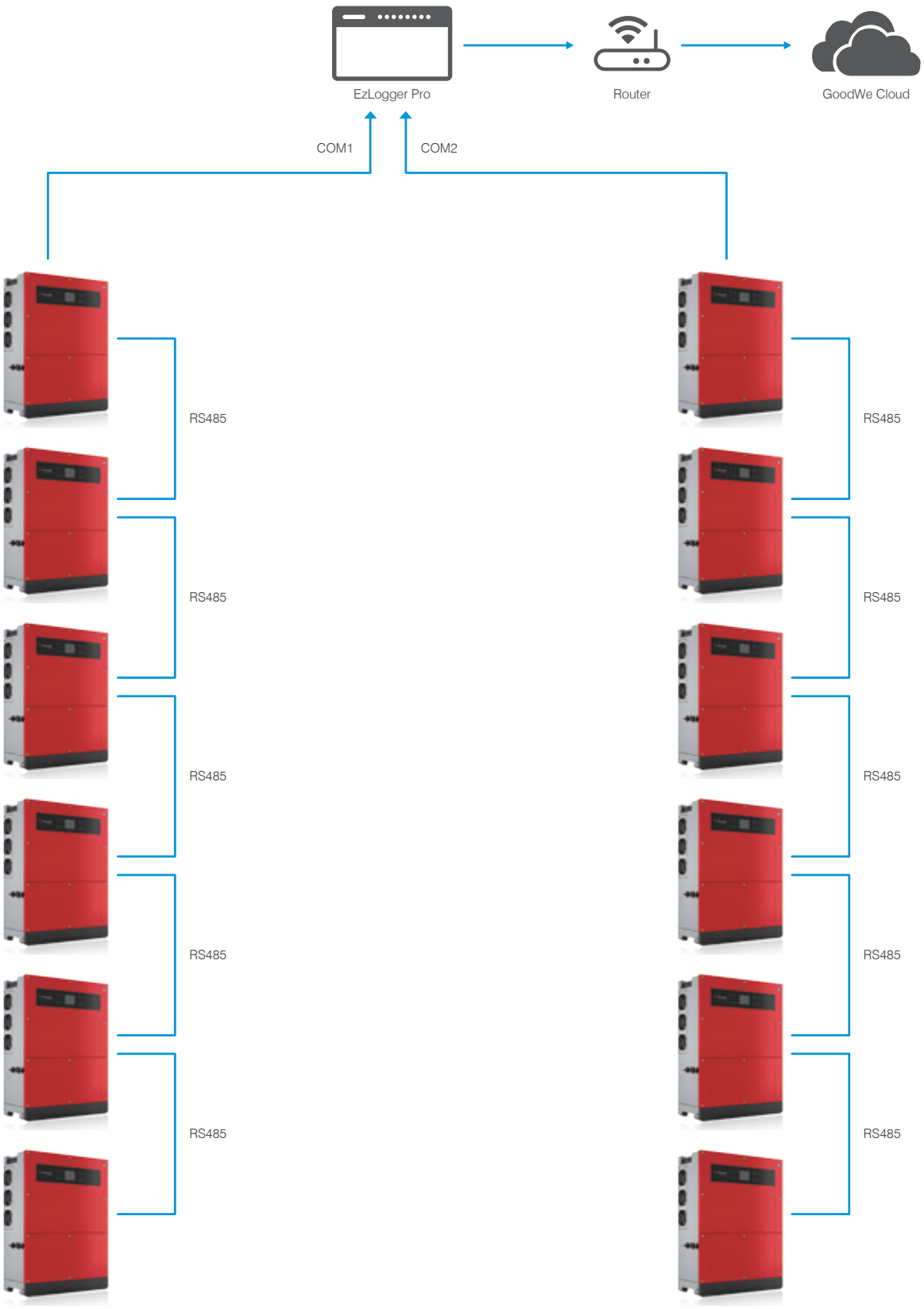
## Cabling & Connections Diagram




* Connection diagram. Each string is connected with 20 PV Panels. Total project size: 12 string x 20 = 240 pcs. To reach a higher voltage, we left one DC input on each MPPT unused, instead, more PV panels are connected to the remaining 3 DC inputs.




Communication (RS485) connection diagram.




* The GoodWe Ezlogger Pro features 3 communication inputs per inverter. Each communication port can support up to 20 inverters, achieving a total capacity of 60 inverters that can be connected. (There is also another monitoring box which is called SCB1000).
* The Max. effective RS485 distance is 1000m for EzloggerPro.
* EzloggerPro can perform string level monitoring.

# PV System Efficiency Report

## Grid-Connected System: Main Results

**Project :** **1MW_Germany**

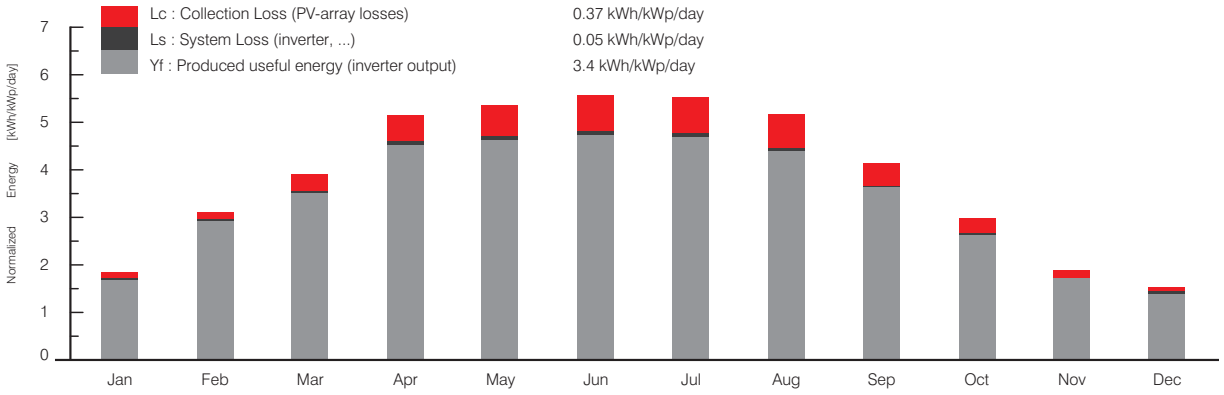
**Simulation Variant :** **1MW_Germany**

| **Main System Parameters** | System Type | **No 3D Scene Defined, No Shadings** | | |
|---|---|---|---|---|
| PV Field Orientation | Tilt | 38° | Azimuth | 0° |
| PV Modules | Model | JKM 350M-72-V | Pnom | 350 Wp |
| PV Array | No. of Modules | 2880 | Pnom Total | **1008 kWp** |
| Inverter | Model | GW80K-MT | Pnom | 80.0 kW ac |
| Inverter Pack | No.of Units | 12.0 | Pnom Total | **960 kW ac** |
| User's Needs | Unlimited Load (Grid) | | | |

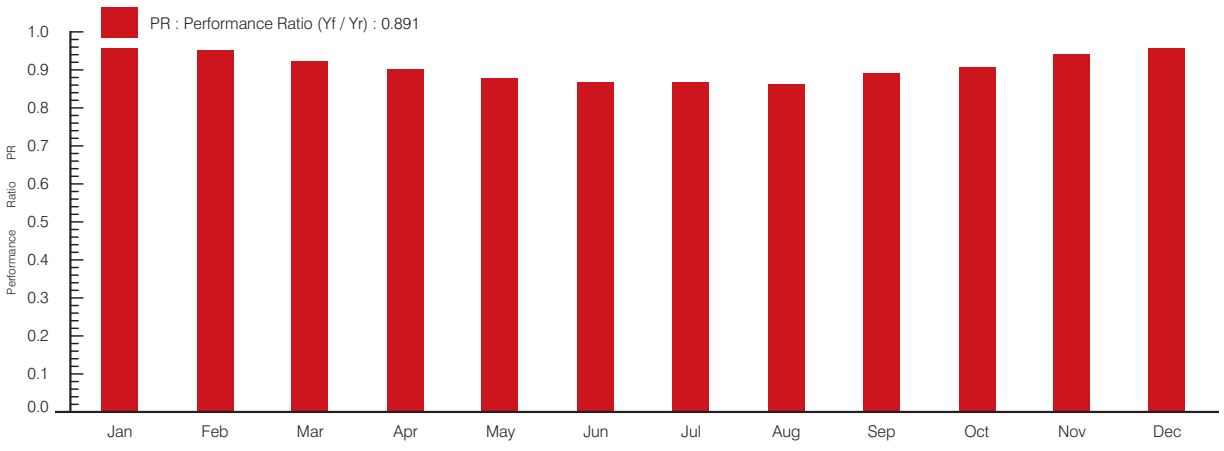
**Main Simulation Results**

| | | | | |
|---|---|---|---|---|
| System Production | **Produced Energy** | **1250 MWh/year** | Specific Prod. | 1240 kWh/kWp/year |
| | Performance Ratio PR | 89.07% | | |

**Normalized productions (per installed kWp): Nominal power 1008 kWp**




**Performance Ratio PR**




* This report shows the total energy produced less all cumulative losses. This project achieved 5% of DC oversizing.

* The GW80K-MT can support 50% DC oversizing.

# **5MWp** Solar Power Plant Solution

## Project Information

Project Location: Munich / GERMANY
PV Panel: 350 Wp Monocrystalline / Bifacial Panel
Inverter: GW80KHV-MT GoodWe three phase commercial inverter (540V Output)
Installed DC Capacity: 17.880 pcs x 0.35 kWp = 6258 kWp
Installed Rated AC Capacity: 60 pcs x 80 kW = 4800 kW
DC / AC Ratio: 1.30

* GoodWe MT series inverter has 30-50% DC oversizing ability. In that project 30% DC oversizing applied considering the strong level of irradiation of Germany.

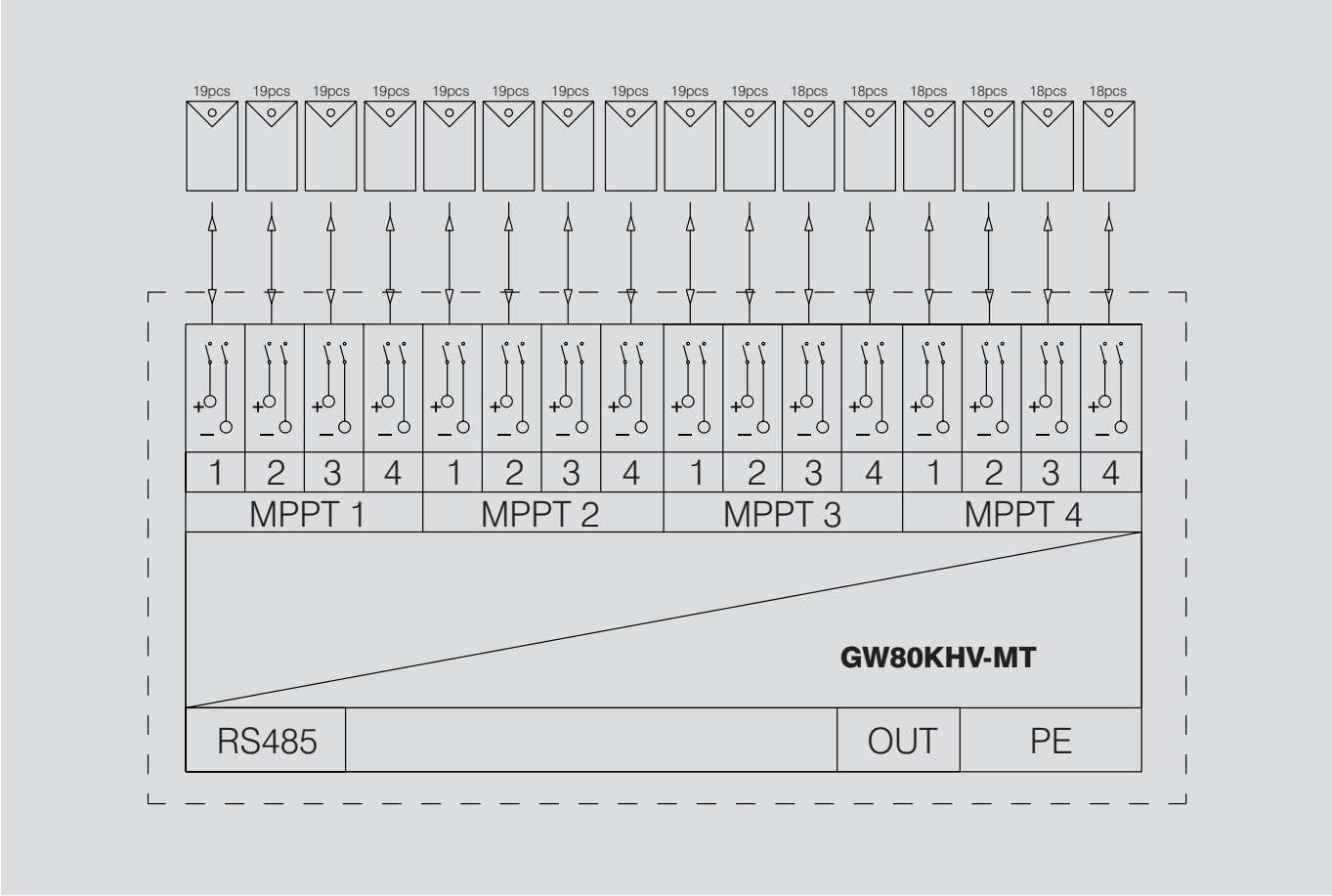
## Project Components

| No. | Material | Description | Quantity |
|---|---|---|---|
| 1 | PV Panel | 350 Wp Monocrystalline / Bifacial | 17880 |
| 2 | Inverter | GoodWe GW80KHV-MT | 60 |
| 3 | Construction Material | Rooftop Supporting System, Preferably Aluminum | 1 Package |
| 4 | DC Cable | 1x6 $mm^2$ | 65.000 mt. |
| 5 | AC Cable | 5x35 $mm^2$ | 15.000 mt. |
| 6 | AC Board | 5 Leakage Current Protection, 5 Sub Breaker, 1 SPD, 1 Main Switch | 12 |
| 7 | HV Building | Transformer, AC Main Board, Protection Cells | 1 |
| 8 | SCB2000 | PLC Communication | 1 |

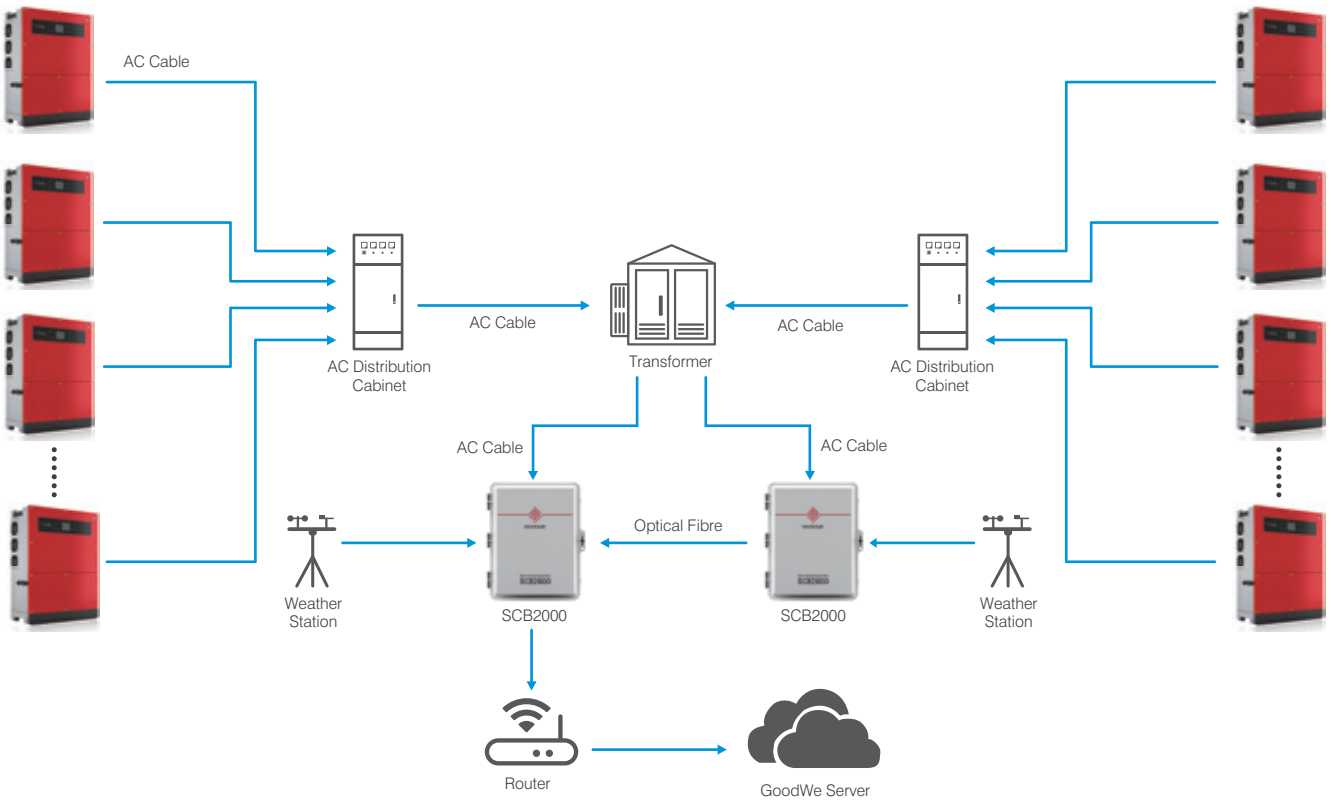
### PV Panel Main Features

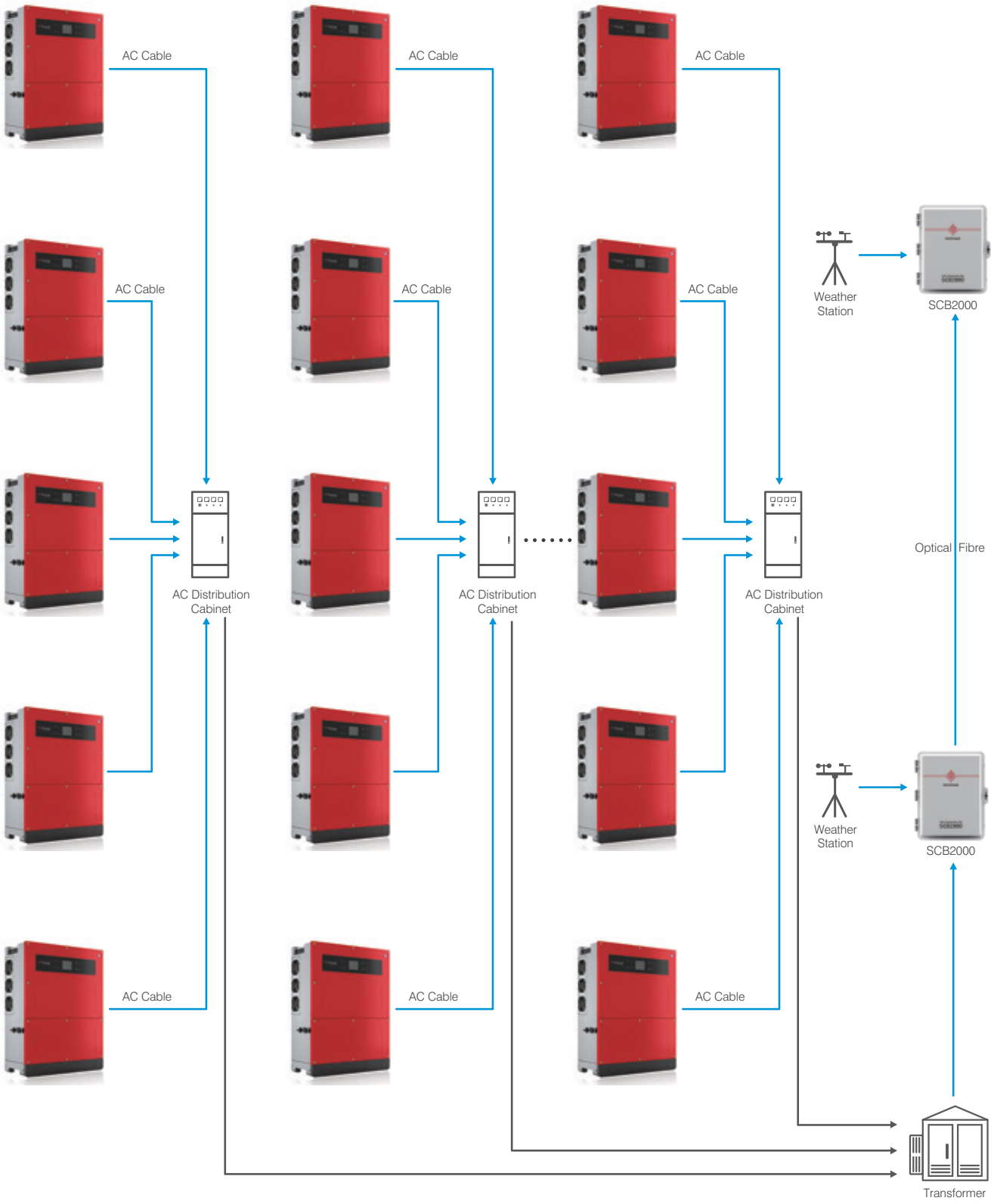
| | |
|---|---|
| Maximum Power (Pmax) | 350Wp |
| Maximum Power Voltage (Vmp) | 38.51V |
| Maximum Power Current (Imp) | 9.09A |
| Open-circuit Voltage (Voc) | 47.33V |
| Size & Weight | 1974×992×40mm 28.8 kg |

## Cabling & Connections Diagram




* Illustration of connection diagram. To achieve higher yield we implies 19 pcs of PV panels to first 10 strings, and 18 pcs of PV panels to the rest 8 strings. There are 298 PV panels installed in total per inverter. DC input power is 104.3 kWp. DC/AC ratio is 1.3.






* There are Ezlogger Pro and PLC board located inside of SCB2000 box. This communication box can support up to 30 inverters. For using more than 30 inverters, we can connect all SCB2000 boxes with Optical Fibre.

# PV System Efficiency Report

## Grid-Connected System: Main Results

**Project :** **5MW_Germany**

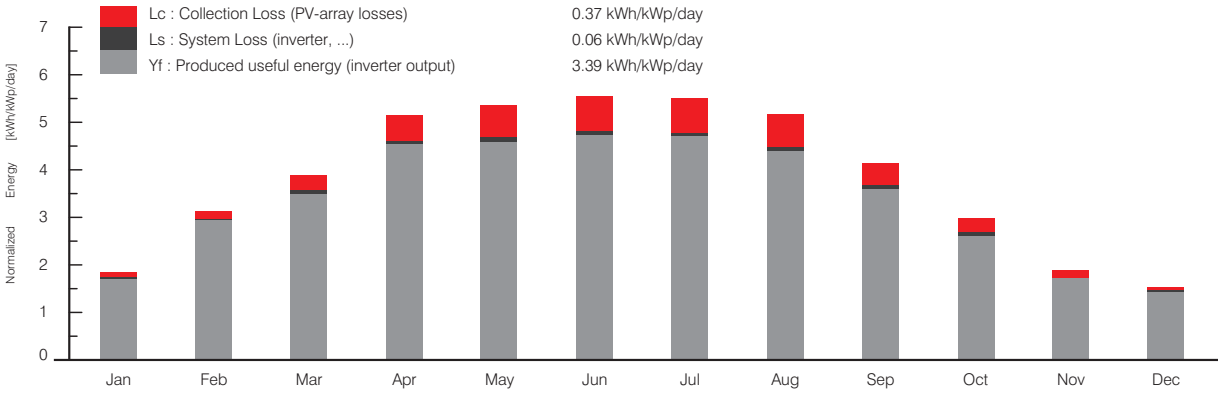
**Simulation Variant :** **5MW Project**

| **Main System Parameters** | | | | |
|---|---|---|---|---|
| System Type | | **No 3D Scene Defined, No Shadings** | | |
| PV Field Orientation | Tilt | 38° | Azimuth | 0° |
| PV Modules | Model | JKM 350M-72-V | Pnom | 350 Wp |
| PV Array | No. of Modules | 17880 | Pnom Total | **6258 kWp** |
| Inverter | Model | GW80KHV-MT | Pnom | 80.0 kW ac |
| Inverter Pack | No.of Units | 60.0 | Pnom Total | **4800 kW ac** |
| User's Needs | Unlimited Load (Grid) | | | |

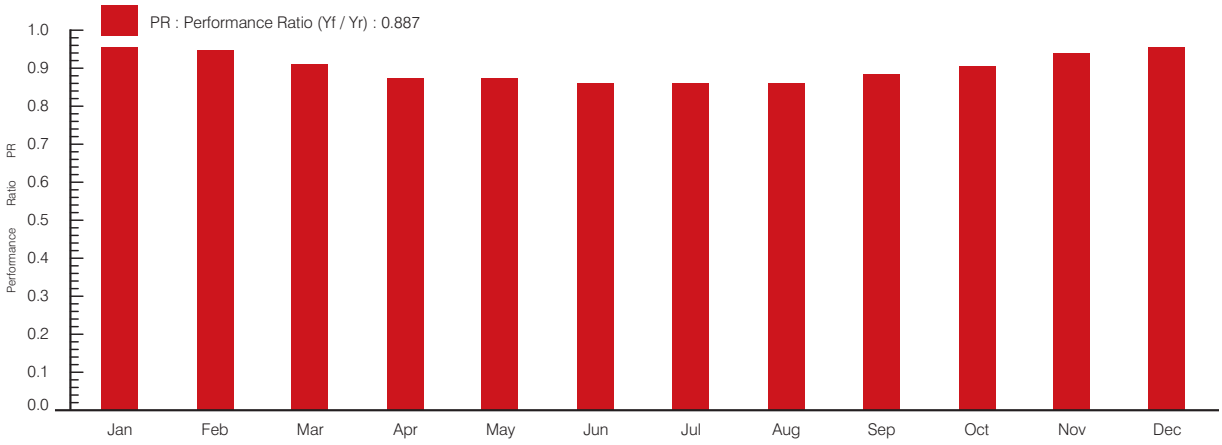
**Main Simulation Results**

| | | | | |
|---|---|---|---|---|
| System Production | **Produced Energy** | **7732 MWh/year** | Specific Prod. | 1236 kWh/kWp/year |
| | Performance Ratio PR | 88.72% | | |

**Normalized productions (per installed kWp): Nominal power 6258 kWp**




**Performance Ratio PR**



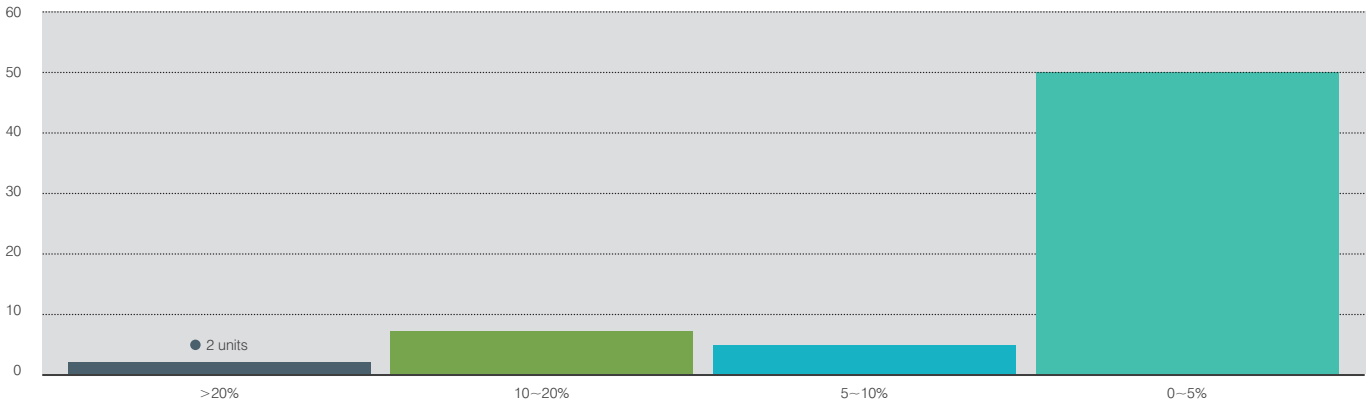

* This report shows that bifacial PV panels produce more energy under good irradiation, and has higher PR (Performance Ratio) than traditional systems.
* GW80KHV-MT can support 50% DC oversizing.

# Smart Energy Management System

The Smart Energy Management System (SEMS) of GoodWe is an open protocol monitoring platform. It is designed to help operators to monitor a diverse range of PV plants operating at different locations simultaneously. SEMS carries extensive data processing, including the production of customized charts. Its system of notifications and maintenance functions helps the operators of PV assets to manage the generation of energy efficiently and comfortably, contributing to higher system yields.


## String Level Monitoring

### Deviation Analysis of Inverters




The high deviation rate indicates problems of the PV system. SEMS is able to select inverters with high deviation rate. Then by diagnosing the current of each string, users can check the corresponding panels and related installation components to find the root cause of the deviation.

| >20% | 10~20% | 5~10% | 0~5% |
|---|---|---|---|

| Inverter | Deviation Rate (%) | String Power (W) | | | | | |
|---|---|---|---|---|---|---|---|
| | | String 1 | String 2 | String 3 | String 4 | String 5 | String 6 |
| 1NB26 | 57.74 | 3618.12 | 3626.51 | 4049.023 | 3579.04 | 3678.52 | 3961.61 |
| 1NB52 | 57.75 | 3599.15 | 3596.02 | 3865.846 | 3528.8 | 3594.32 | 4124.26 |

## Carousel Display of All Power Plants

Dynamic carousel display of all the plants under your account.

## Smart Report Generation

### Report Generation & Customized Data Analysis

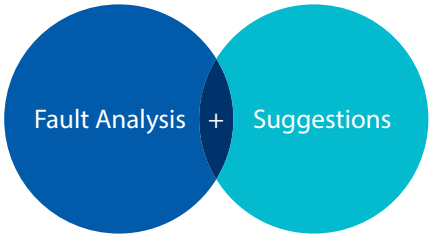
**Precise and comprehensive detection & evaluation of plant data**

The content and design of the reports can be adjusted to suit individual requirements. In addition to the standard report, a report generator is also available.

## Multilingual System

SEMS portal is a multilingual site. It offers as many as nine languages, including English, Germany, Dutch, Spanish, Portuguese, Czech, Turkish, Korean and Arabic. With the popularity of GoodWe inverters all around the world, more language versions of SEMS will be available.

## Intelligent Warning and Troubleshooting




**Lower O&M Cost:**

Full visibility of system performance & remote troubleshooting

# Optical Fiber Ring Solution

Maintaining a stable data transfer across long distances ranks high among the priorities. GoodWe has come up with a solution based on the integration of an optical fiber ring, in which the data transfer process and its speed remains undisrupted and reliable even when a communication node is broken. All these benefits make this an optimal solution for C&I scenarios.

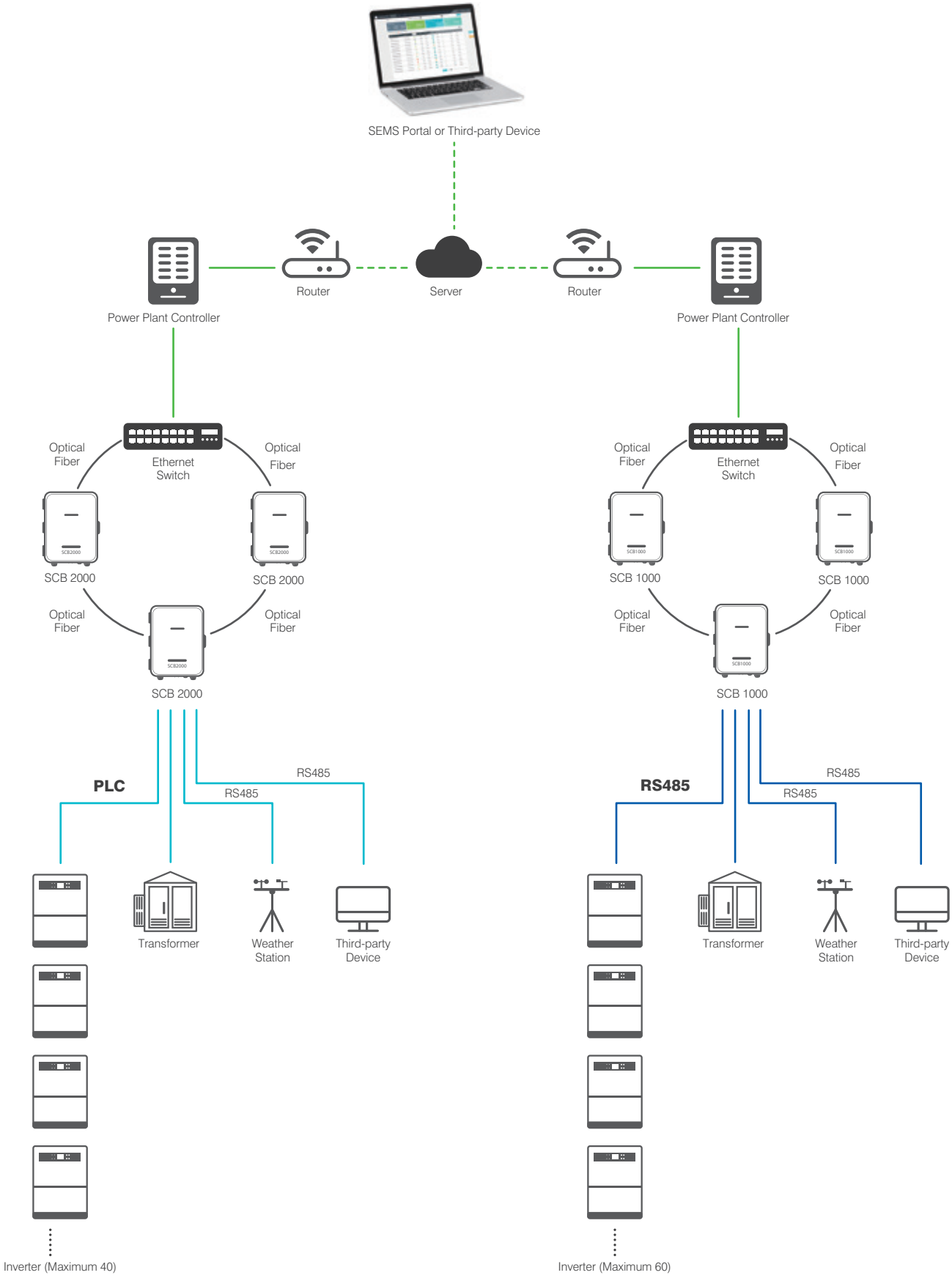
## Advantages

- Provides the most solid basis for a reliable communication
- Long distance data transfer
- Economical

## Solution Elements

The integration of the ring solution is possible only with inverters featuring RS485 or Power Line Communications (PLC). This solution is executed through the GoodWe Smart Communication Box 1000 (SCB1000) or Solar Communication Box 2000 (SCB 2000).

## Solution Design




The SCB1000 communicates with the inverter through RS485. Meanwhile, the SCB2000 establishes communication with the inverter through the PLC.

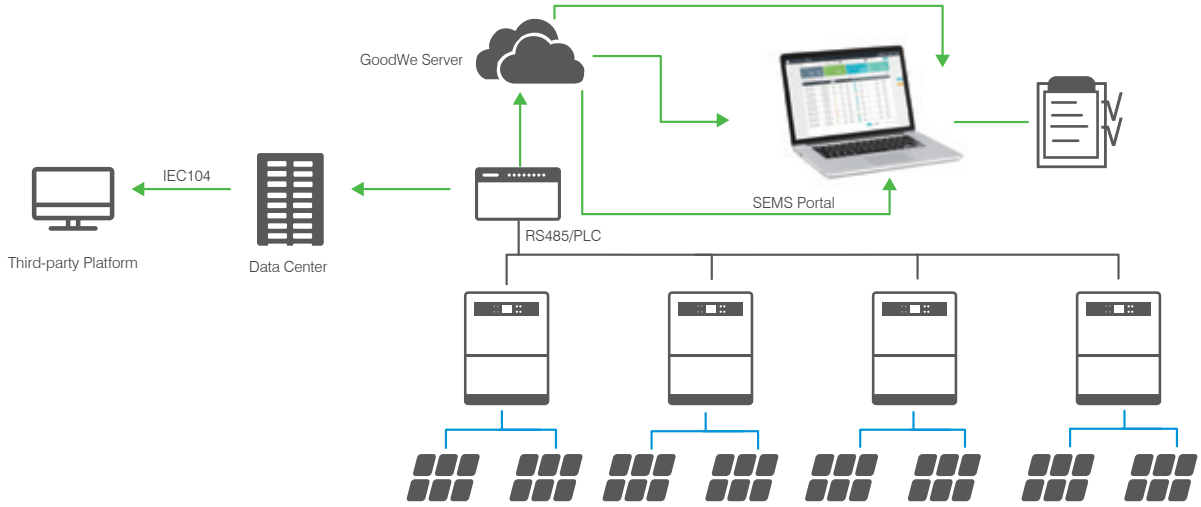
# Multi-scenario Monitoring Solution

There are many ways of monitoring a PV system and displaying the data generated. This kind of information helps users to gain a better understanding of the operation of their solar plants. The compatibility of the GoodWe inverters with multiple standard protocols such as SUNSPEC, IEC 104 and Modbus RTU and their adaptability to third-party monitoring and control platform such as SCADA, are one of the many reasons that make them a perfect fit for a great number of C&I scenarios.

## Advantages

- Stable data transfer
- Compatible with third party devices & platforms
- Enhanced data security

## Solution Design



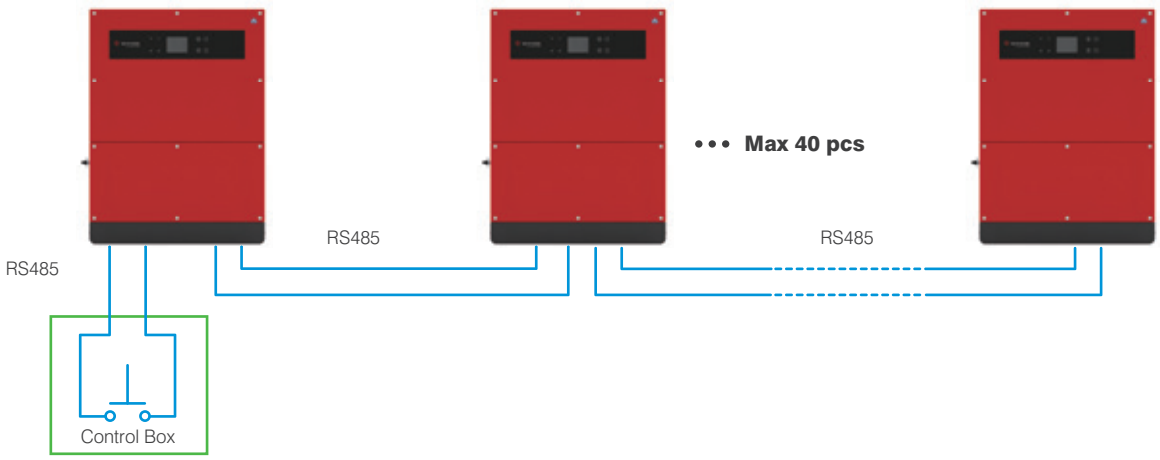

# Remote Shutdown Solution

The remote shutdown function is a critical protection primarily aimed at ensuring the integrity of the PV system under situations of extreme emergency, such as fire hazards. In Commercial & Industrial PV systems, it helps operators to enhance and consolidate the system control and maintain the comprehensive safety under challenging environments and conditions. GoodWe is pleased to introduce its Remote Shutdown Solution.

## Key Advantages

- Easy Installation
- 1km Range
- Swift Response (≤500ms)

## Solution Design



# Solar + Diesel Generator Solution

GoodWe is pleased to introduce the Solar + Diesel Generator Solution. In the occurrence of grid failure, a diesel generator can be utilized as an alternative source of energy, supplying the power missing from the public grid and allowing the grid-connected PV systems to keep powering the loads of the system. The addition of a diesel generator brings the extra benefit of maximizing the use of the solar energy, helping as well to effectively reduce the electricity costs. This is an optimal solution for environments characterized by an unreliable grid operation.

## Advantages

- Automatic Switch
- Quick Recovery
- Smooth Operation

## DEIF Controller Integration

For this kind of scenario, the C&I inverter of the GoodWe MT Series can be configured to coordinate with the DEIF Smart Power Controller Solution in order to automatically switch on/off the diesel generator according to the local circumstances and the user requirements.

## Solution Elements

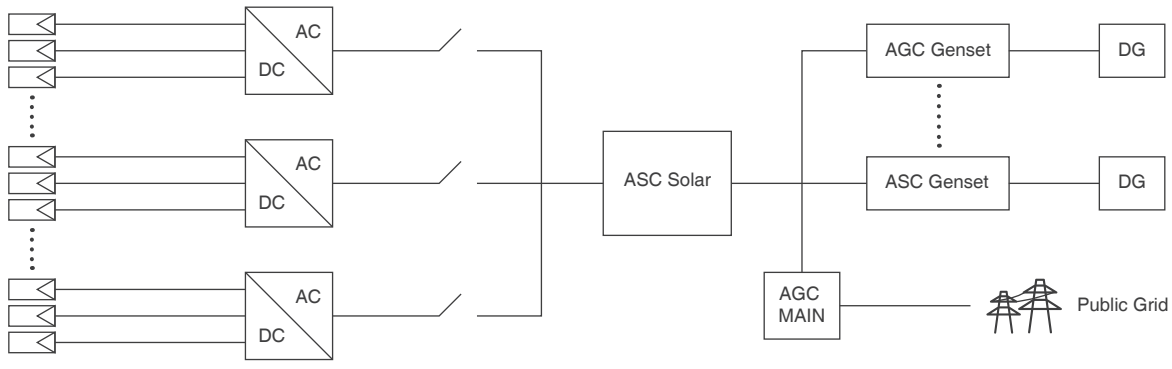
GoodWe MT Solar Inverter

Diesel Generator

Smart Controller

## Solar + DG Integration Scenario

**Diagram of " Solar + DG " System**




Please approach GoodWe for all questions related to the compatibility of this arrangement with other series of GoodWe inverters. For specific questions related to the controller integration on this scenario, please liaise directly with the manufacturer DEIF.

# Export Power Limit Solution

The Export Power Limit function is a critical tool of modern PV systems and its purpose is to help users to enhance and optimize self-consumption, helping them as well to comply with the local grid regulations. GoodWe has made an **Export Power Limit** Solution available to its customers, suitable for Commercial & Industrial projects of maximum capacity of 4.8MW.

## Key Advantages

- Convenient installation
- Easy configuration
- Customizable export power limit to either zero or designated value

## Solution Elements

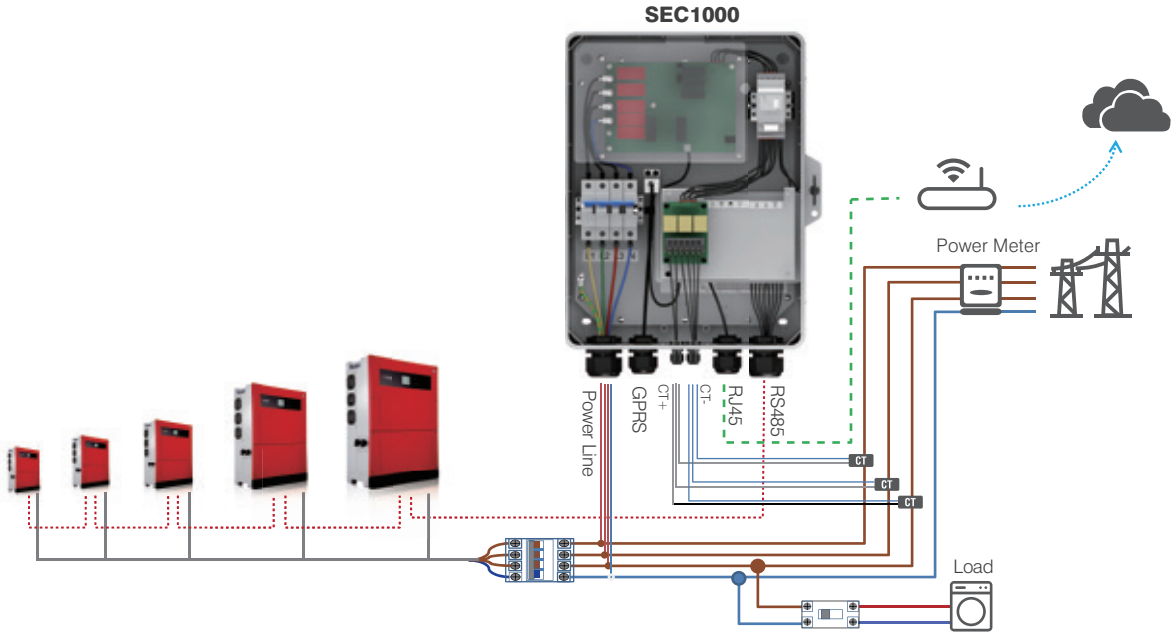
**SEC1000**

This solution requires the utilization of a GoodWe Smart Energy Controller 1000 (SEC1000). This device executes real-time data collection and analysis. In addition, it also helps to achieve an optimal allocation of the PV system resources.


## Additional Benefits

This solution supports the smooth operation of additional functions such as load consumption monitoring. The data generated by the system is accessible free of charge at the GoodWe Smart Energy Management System Portal (SEMS).

## Solution Design




A single SEC1000 device can perform the export power limit function of as many as 60 inverters. The maximum communication coverage reaches up to 1000 meters.

# SEC1000 On-grid / Hybrid

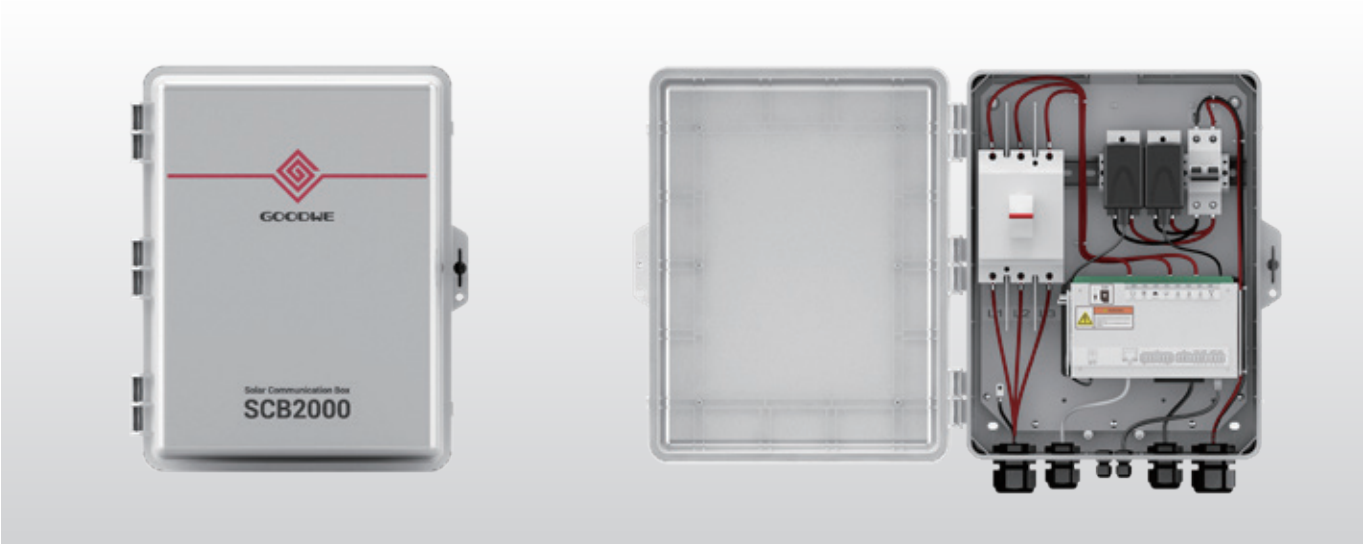
The SEC1000 (Smart Energy Controller) is composed of GoodWe's three phase meter and Ezlogger Pro. It can be connected with SEMS to control and manage the performance of inverters in each string. Small box, mighty functions!


| Technical Data | SEC1000 (Hybrid) | SEC1000 (On-grid) |
|---|---|---|
| Input Voltage Range (V) | Phase Voltage: AC 60V~280V | |
| | Line Voltage: AC 100V~480V | |
| AC Input | 3L/N/PE or 3L/PE | |
| Input Voltage Frequency | 50Hz/60Hz | |
| Input Current Range | 0~5A | |
| Rated Power Consumption | <10W | |
| Communication Mode with Inverter | RS485 | |
| Maximum Distance for Controlling Inverter | 1000m (Using the mode of shielded twisted pair) | |
| Maximum Number of Inverters in Controlling | 60 pcs | |
| Communication Mode with Terminals | LAN, GPRS | |
| Firmware* | Hybrid FW | On-grid FW |
| System Boot Time | 3s (Max) | |
| Operating Temperature Range (°C) | -25~60 | |
| Relative Humidity | 0~100% | |
| Level of Protection | IP65 | |
| Size (L*W*H mm) | 420×320×131mm | |
| Weight (Kg) | 4Kg | |

*SEC1000 has two versions. One is on-grid version, and the other is hybrid version. The on-grid version is for monitoring, export power control and reactive power compensation, while the storage version is for export power control and ET inverters parallel control (less than 10 pcs). These two versions look the same, but use different firmware.

# SCB2000

The SCB2000 (Solar Communication Box) is integrated by the following component sections: PLC communication board, data collector Ezlogger Pro board, GPRS module (optional), fiber ring network switch (optional) and three-phase/single-phase switch.




| Technical Data | With Optical | Without Optical |
|---|---|---|
| Power supply Input Voltage Range (V) | 110-240V 50Hz/60Hz | 110-240V 50Hz/60Hz |
| Rated Power Consumption | ≤18W | ≤16W |
| Communication Mode with Inverter | PLC | PLC |
| Voltage Range of Input AC Line | 342~690V | 342~690V |
| Max Length to Inverter | 1000m | 1000m |
| Max Quantity of Inverter Connected | 30 | 30 |
| Communication Mode with Server/Cloud | LAN/SC (can form optical fiber ring network) / GPRS | LAN/GPRS |
| Max Length to Server/Cloud | LAN: 100m; optical fiber: 20km | LAN: 100m |
| RS485 | It can be connected to third-party devices such as environmental monitors | |
| Other Interface | USB, SD Card | USB, SD Card |
| Operating Temperature Range (°C) | -25~60 | -25~60 |
| Relative Humidity | 0~100% | 0~100% |
| Protection Degree | IP65 | IP65 |
| Size (Width*Height*Depth mm) | 420*320*150 | 420*320*150 |
| Weight (Kg) | 10.5 | 10 |

# SDT/LV SDT Series Datasheet

| Technical Data | GW12KN-DT | GW15KN-DT | GW17KN-DT | GW20KN-DT | GW12KLN-DT |
|---|---|---|---|---|---|
| **PV String Input Data** | | | | | |
| Max. DC Input Power (W) | 16800 | 19500 | 22100 | 26000 | 21600 |
| Max. DC Input Voltage (V) | 1000 | 1000 | 1000 | 1000 | 800 |
| MPPT Range (V) | 200~850 | 200~850 | 200~950 | 200~950 | 200~650 |
| Start-up Voltage (V) | 180 | 180 | 180 | 180 | 200 |
| Nominal DC Input Voltage (V) | 620 | 620 | 620 | 620 | 370 |
| Max. Input Current (A) | 22/11 | 22/11 | 22/22 | 22/22 | 22/22 |
| Max. Short Current (A) | 27.6/13.8 | 27.6/13.8 | 27.5/27.5 | 27.5/27.5 | 27.5/27.5 |
| No. of MPP Trackers | 2 | 2 | 2 | 2 | 2 |
| No. of Input Strings per Tracker | 2/1 | 2/1 | 2/2 | 2/2 | 2/2 |
| **AC Output Data** | | | | | |
| Nominal Output Power (W) | 12000 | 15000 | 17000 | 20000 | 12000 |
| Max. Output Power (W) | 14000 | 16500 | 19000 | 22000 | 11300@208VAC<br>12000@220VAC<br>13200@240VAC |
| Max. Output Apparent Power (VA) | 14000 | 16500 | 19000 | 22000 | 13200 |
| Nominal Output Voltage (V) | 400, 3L/N/PE | 400, 3L/N/PE | 400, 3L/N/PE or 3L/PE | 400, 3L/N/PE or 3L/PE | 150-300 |
| Nominal Ouput Frequency (Hz) | 50/60 | 50/60 | 50/60 | 50/60 | 50/60 |
| Max. Output Current (A) | 21.5 | 24 | 28.8 | 31.9 | 31.9 |
| Output Power Factor | ~1 (Adjustable from 0.8 leading to 0.8 lagging) | | | | |
| Output THDi (@Nominal Output) | <2% | <2% | <3% | <3% | <3% |
| **Efficiency** | | | | | |
| Max. Efficiency | 98.3% | 98.3% | 98.6% | 98.6% | 98.5% |
| European Efficiency | >98.0% | >98.0% | >98.1% | >98.1% | 98.1% |
| **Protection** | | | | | |
| PV String current Monitoring | Integrated | Integrated | Integrated | Integrated | Integrated |
| Anti-Islanding Protection | Integrated | Integrated | Integrated | Integrated | Integrated |
| Input Reverse Polarity Protection | Integrated | Integrated | Integrated | Integrated | Integrated |
| Insulation Resistor Detection | Integrated | Integrated | Integrated | Integrated | Integrated |
| Residual Current Monitoring Unit | Integrated | Integrated | Integrated | Integrated | Integrated |
| Output Over Current Protection | Integrated | Integrated | Integrated | Integrated | Integrated |
| Output Short Protection | Integrated | Integrated | Integrated | Integrated | Integrated |
| Output Over Voltage Protection | Integrated | Integrated | Integrated | Integrated | Integrated |
| DC SPD Protection | Integrated (Type III) | Integrated (Type III) | Integrated (Type III) | Integrated (Type III) | Integrated |
| AC SPD Protection | Integrated (Type III) | Integrated (Type III) | Integrated (Type III) | Integrated (Type III) | Integrated |
| **General Data** | | | | | |
| Operating Temperature Range (°C) | -25~60 | -25~60 | -25~60 | -25~60 | -25~60 |
| Relative Humidity | 0~100% | 0~100% | 0~100% | 0~100% | 0~100% |
| Operating Altitude (m) | ≤4000 | ≤4000 | ≤4000 | ≤4000 | ≤4000 |
| Cooling | Natural Cooling | Natural Cooling | Fan Cooling | Fan Cooling | Fan Cooling |
| Noise (dB) | <40 | <40 | 45 | 45 | 45 |
| User Interface | LCD & LED | LCD & LED | LCD & LED | LCD & LED | LCD & LED |
| Communication | RS485 or WiFi | RS485 or WiFi | RS485 or WiFi | RS485 or WiFi | RS485 or WiFi |
| Weight (kg) | 26 | 26 | 26 | 26 | 26 |
| Size (Width*Height*Depth mm) | 516*455*192 | 516*455*192 | 516*455*220 | 516*455*220 | 516*455*220 |
| Protection Degree | IP65 | IP65 | IP65 | IP65 | IP65 |
| Night Self Consumption (W) | <1 | <1 | <1 | <1 | <2 |
| Topology | Transformerless | Transformerless | Transformerless | Transformerless | Transformerless |
| **Certifications & Standards** | | | | | |
| Grid Regulation | VDE0126-1-1, EN50438(PL),VDE-AR-N 4105, AS4777.2 | VDE0126-1-1, AS4777.2, G83, IEC61727, IEC62116, EN50438(SW), EN50438(IR), CEI 0-21 | | | - |
| Safety Regulation | IEC62109-1&-2 | | | | - |
| EMC | EN61000-6-1, EN61000-6-2,EN61000-6-3, EN61000-6-4, EN61000-4-16, EN61000-4-18, EN61000-4-29 | | | | - |

# LV SMT/SMT Series Datasheet

| Technical Data | GW12KLV-MT | GW15KLV-MT | GW20KLV-MT | GW25K-MT | GW30K-MT | GW36K-MT |
|---|---|---|---|---|---|---|
| **PV String Input Data** | | | | | | |
| Max. DC Input Power (Wp) | 15600 | 19500 | 26000 | 32500 | 39000 | 42900 |
| Max. DC Input Voltage (V) | 800 | 800 | 800 | 1100 | 1100 | 1100 |
| MPPT Range (V) | 200~650 | 200~650 | 200~650 | 200~950 | 200~950 | 200~950 |
| Start-up Voltage (V) | 180 | 180 | 180 | 180 | 180 | 180 |
| Nominal DC Input Voltage (V) | 370 | 370 | 370 | 600 | 600 | 600 |
| Max. Input Current (A) | 25/25/25 | 25/25/25 | 25/25/25 | 25/25/25 | 25/25/25 | 25/25/25 |
| Max. Short Current (A) | 31.3/31.3/31.3/31.3 | 31.3/31.3/31.3/31.3 | 31.3/31.3/31.3/31.3 | 31.3/31.3/31.3 | 31.3/31.3/31.3 | 31.3/31.3/31.3 |
| No. of MPP Trackers | 3 | 3 | 3 | 3 | 3 | 3 |
| No. of Input Strings per Tracker | 2/2/2 | 2/2/2 | 2/2/2 | 2/2/2 | 2/2/2 | 2/2/2 |
| **AC Output Data** | | | | | | |
| Nominal Output Power (W) | 12000 | 15000 | 20700 | 25000 | 30000 | 36000*[1] |
| Max. Output Power (W) | 11300@208VAC<br>12000@220VAC<br>13100@240VAC | 14400@208VAC<br>15000@220VAC<br>16600@240VAC | 19600@208VAC<br>20700@220VAC<br>22600@240VAC | 27500 | 33000 | 36000 |
| Max. Output Apparent Power (VA) | 13100 | 16600 | 22600 | 27500 | 33000 | 36000 |
| Nominal Output Voltage (V) | 150-300 | 150-300 | 150-300 | 400, 3L/N/PE or 3L/PE | | |
| Nominal Output Frequency (Hz) | 50/60 | 50/60 | 50/60 | 50/60 | 50/60 | 50/60 |
| Max. Output Current (A) | 31.5 | 40 | 54.5 | 40 | 48 | 53.3 |
| Output Power Factor | ~1 (Adjustable from 0.8 leading to 0.8 lagging) | | | | | |
| Output THDi (@Nominal Output) | <3% | <3% | <3% | <3% | <3% | <3% |
| **Efficiency** | | | | | | |
| Max. Efficiency | 98.7% | 98.7% | 98.8% | 98.7% | 98.8% | 98.8% |
| European Efficiency | >98.4% | >98.5% | >98.5% | >98.4% | >98.5% | >98.5% |
| **Protection** | | | | | | |
| Anti-islanding Protection | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| Input Reverse Polarity Protection | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| PV String Current Monitoring | - | - | - | Integrated | Integrated | Integrated |
| Anti-PID Function for Module | - | - | - | Optional | Optional | Optional |
| Insulation Resistor Detection | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| DC Surge Protection | Type III (Type II optional) | | | | | |
| AC Surge Protection | Type III (Type II optional) | | | | | |
| Residual Current Monitoring Unit | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| Output Over Current Protection | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| Output Short Protection | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| Output Over Voltage Protection | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| AFCI | Optional | Optional | Optional | Optional | Optional | Optional |
| Terminal Temperature Detection | Optional | Optional | Optional | Optional | Optional | Optional |
| **General Data** | | | | | | |
| Operating Temperature Range (°C) | -30~60 | -30~60 | -30~60 | -30~60 | -30~60 | -30~60 |
| Relative Humidity | 0~100% | 0~100% | 0~100% | 0~100% | 0~100% | 0~100% |
| Operating Altitude (m) | ≤3000 | ≤3000 | ≤3000 | ≤3000 | ≤3000 | ≤3000 |
| Cooling | Fan Cooling | Fan Cooling | Fan Cooling | Fan Cooling | Fan Cooling | Fan Cooling |
| User Interface | LCD & LED or APP & LED | | | | | |
| Communication | RS485 or WiFi or GPRS or PLC | | | | | |
| Weight (kg) | 40 | 40 | 40 | 40 | 40 | 40 |
| Size (Width*Height*Depth mm) | 480*590*200 | 480*590*200 | 480*590*200 | 480*590*200 | 480*590*200 | 480*590*200 |
| Protection Degree | IP65 | IP65 | IP65 | IP65 | IP65 | IP65 |
| Night Self Consumption (W) | <1 | <1 | <1 | <1 | <1 | <1 |
| Topology | Transformerless | | | | | |
| **Certifications & Standards** | | | | | | |
| Grid Regulation | VDE0126-1-1/VDE-AR-N 4105 | | | AS4777.2/<br>VDE0126-1-1/<br>VDE-AR-N 4105 | VDE0126-1-1/<br>VDE-AR-N 4105 | AS4777.2/<br>VDE0126-1-1/<br>VDE-AR-N 4105 |
| Safety Regulation | IEC62109-1&-2 | | | | | |
| EMC | EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4 | | | | | |

*[1]: 33kW for Italy,36kW for other country.

# MT Series Datasheet

| Technical Data | GW50KN-MT | GW60KN-MT | GW50KBF-MT | GW60KBF-MT | GW75KBF-MT | GW80KBF-MT |
|---|---|---|---|---|---|---|
| **DC Input Data** | | | | | | |
| Max. PV Power (W) | 65000 | 80000 | 65000 | 80000 | 97500 | 104000 |
| Max. DC Input Voltage (V) | 1100 | 1100 | 1100 | 1100 | 1100 | 1100 |
| MPPT Range (V) | 200~850 | 200~850 | 200~1000 | 200~1000 | 200~1000 | 200~1000 |
| Starting Voltage (V) | 200 | 200 | 200 | 200 | 200 | 200 |
| Min. Feed-in Voltage (V) | 210 | 210 | 210 | 210 | 210 | 210 |
| Nominal DC Input Voltage (V) | 620 | 620 | 620 | 620 | 750 | 800 |
| Max. Input Current (A) | 33/33/22/22 | 33/33/33/33 | 30/30/30/30 | 44/44/44/44 | 44/44/44/44 | 39/39/39/39 |
| Max. Short Current (A) | 41.5/41.5/27.5/27.5 | 41.5/41.5/41.5/41.5 | 37.5/37.5/37.5/37.5 | 55/55/55/55 | 55/55/55/55 | 54.8/54.8/54.8/54.8 |
| No. of MPP Trackers | 4 | 4 | 4 | 4 | 4 | 4 |
| No. of Input Strings per Tracker | 3/3/2/2 | 3/3/3/3 | 2/2/2/2 | 3/3/3/3 | 3/3/3/3 | 3/3/3/3 |
| **AC Output Data** | | | | | | |
| Nominal Output Power (W) | 50000 | 60000 | 50000 | 60000 | 75000 | 80000 |
| Max. Output Power (W) | 55000;57500 @415Vac | 66000;69000 @415Vac | 55000;57500 @415Vac | 66000;69000 @415Vac | 82500 | 88000 |
| Max. Output Apparent Power (VA) | 55000;57500 @415Vac | 66000;69000 @415Vac | 55000;57500 @415Vac | 66000;69000 @415Vac | 82500 | 88000 |
| Nominal Output Voltage (V) | 400, default 3L+N+PE , 3L+PE optional in settings | | | | 500, 3L/PE | 540, 3L/PE |
| Nominal Ouput Frequency (Hz) | 50/60 | 50/60 | 50/60 | 50/60 | 50/60 | 50/60 |
| Max. Output Current (A) | 80 | 96 | 80 | 96 | 95.3 | 94.1 |
| Output Power Factor | ~1 (Adjustable from 0.8 leading to 0.8 lagging) | | | | | |
| Output THDi (@Nominal Output) | <3% | <3% | <3% | <3% | <3% | <3% |
| **Efficiency** | | | | | | |
| Max. Efficiency | 98.7% | 98.8% | 98.8% | 98.8% | 99.0% | 99.0% |
| European Efficiency | 98.3% | 98.5% | 98.3% | 98.3% | 98.4% | 98.4% |
| **Protection** | | | | | | |
| PV String Current Monitoring | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| Anti-Islanding Protection | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| Input Reverse Polarity Protection | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| Insulation monitoring | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| DC fuse | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| Anti-PID Function for Module | Optional | Optional | Optional | Optional | Optional | Optional |
| DC SPD Protectioin | Integrated (Type II) | | | | | |
| AC SPD Protectioin | Integrated (Type II) | | | | | |
| Residual Current Monitoring Unit | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| AC Over Current Protection | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| AC Short Protection | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| AC Over Voltage Protection | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| **General Data** | | | | | | |
| Ambient Temperature Range (°C) | -30~60 | -30~60 | -30~60 | -30~60 | -30~60 | -30~60 |
| Relative Humidity | 0~100% | 0~100% | 0~100% | 0~100% | 0~100% | 0~100% |
| Operating Altitude (m) | ≤4000 | ≤4000 | ≤4000 | ≤4000 | ≤4000 | ≤4000 |
| Cooling | Fan Cooling | Fan Cooling | Fan Cooling | Fan Cooling | Fan Cooling | Fan Cooling |
| Display | LCD or WiFi+APP | | | | LED, WiFi+APP | |
| Communication | RS485 or WiFi or PLC | | | | | |
| Weight (kg) | 59 | 64 | 60 | 65 | 65 | 65 |
| Dimension (Width*Height*Depth mm) | 586*788*264 | 586*788*264 | 586*788*264 | 586*788*267 | 586*788*267 | 586*788*267 |
| Protection Degree | IP65 | IP65 | IP65 | IP65 | IP65 | IP65 |
| Night Self Consumption (W) | <1 | <1 | <1 | <1 | <1 | <1 |
| Topology | Transformerless | | | | | |
| **Certifications & Standards*** | | | | | | |
| Grid Regulation | IEC61727,IEC62116,VDE4105,VDE0126,RD1699,RD413,RD661,EN50438,AS/NZS 4777.2,NRS 097,CEI 0-21,ERDFNOI-RES_13E | IEC61727,IEC62116,VDE4105,VDE0126,RD1699,RD413,RD661,EN50438,AS/NZS 4777.2,NRS 097,CEI 0-21,ERDF-NOIRES_13E,MEA,PEA | IEC61727,IEC62116, VDE4105,VDE0126, RD1699,RD413, RD661,EN50438 | | | |
| Safety Regulation | IEC62109-1&-2 | | | | | |
| EMC Regulation | EN6100-6-4:2007+A1:2011, EN61000-6-2:2005, EN61000-3-11:2000, EN61000-3-12:2011+AC:2013 | | | | | |

*Not all certifications & standards listed, check the official website for details.

# MT/LV MT Series Datasheet

| Technical Data | GW70KHV-MT | GW80KHV-MT | GW80K-MT | GW30KLV-MT | GW35KLV-MT | GW50KLV-MT |
|---|---|---|---|---|---|---|
| **DC Input Data** | | | | | | |
| Max. PV Power (W) | 91000 | 120000 | 120000 | 54000 | 63000 | 90000 |
| Max. DC Input Voltage (V) | 1100 | 1100 | 1100 | 800 | 800 | 800 |
| MPPT Range (V) | 200~1000 | 200~1000 | 200~1000 | 200~650 | 200~650 | 200~650 |
| Starting Voltage (V) | 200 | 200 | 200 | 200 | 200 | 200 |
| Min. Feed-in Voltage (V) | 210 | 210 | | 210 | 210 | 210 |
| Nominal DC Input Voltage (V) | 750 | 800 | 620 | 370 | 370 | 370 |
| Max. Input Current (A) | 33/33/33/33 | 44/44/44/44 | 44/44/44/44 | 30/30/20/20 | 30/30/30/30 | 44/44/44/44 |
| Max. Short Current (A) | 41.5/41.5/41.5/41.5 | 55/55/55/55 | 55/55/55/55 | 38/38/25/25 | 38/38/38/38 | 55/55/55/55 |
| No. of MPP Trackers | 4 | 4 | 4 | 4 | 4 | 4 |
| No. of Input Strings per Tracker | 3/3/3/3 | 3/3/3/3 | 4/4/4/4(Standard) 3/3/3/3(Optional, Support bifacial module) | 3/3/2/2 | 3/3/3/3 | 4/4/4/4 |
| **AC Output Data** | | | | | | |
| Nominal Output Power (W) | 70000 | 80000 | 80000 | 30000 | 36000 | 50000 |
| Max. Output Power (W) | 77000 | 88000 | 80000 | 28800@208VAC<br>30000@220VAC<br>33000@240VAC | 34500@208VAC<br>36000@220VAC<br>39900@240VAC | 47300@208VAC<br>50000@220VAC<br>55000@240VAC |
| Max. Output Apparent Power (VA) | 77000 | 88000 | 80000 | 33000 | 39900 | 55000 |
| Nominal Output Voltage (V) | 540, 3L/PE | 500, 3L/PE | 400, default 3L +N+PE, 3L+PE optional in settings | 150-300 | 150-300 | 150-300 |
| Nominal Ouput Frequency (Hz) | 50/60 | 50/60 | 50/60 | 50/60 | 50/60 | 50/60 |
| Max. Output Current (A) | 89 | 94.1 | 133 | 80 | 96 | 133 |
| Output Power Factor | ~1 (Adjustable from 0.8 leading to 0.8 lagging) | | | | | |
| Output THDi (@Nominal Output) | <3% | <3% | <3% | <3% | <3% | <3% |
| **Efficiency** | | | | | | |
| Max. Efficiency | 99.0% | 99.0% | 98.8% | 98.7% | 98.8% | 98.7% |
| European Efficiency | 98.4% | 98.4% | 98.3% | 98.3% | 98.5% | 98.3% |
| **Protection** | | | | | | |
| PV String Current Monitoring | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| Anti-Islanding Protection | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| Input Reverse Polarity Protection | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| Insulation monitoring | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| DC fuse | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| Anti-PID Function for Module | Optional | Optional | Optional | Optional | Optional | Optional |
| DC SPD Protectioin | Integrated (Type II) | | | | | |
| AC SPD Protectioin | Integrated (Type II) | | | | | |
| Residual Current Monitoring Unit | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| AC Over Current Protection | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| AC Short Protection | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| AC Over Voltage Protection | Integrated | Integrated | Integrated | Integrated | Integrated | Integrated |
| Humidity Monitoring | NA | NA | Integrated | NA | NA | NA |
| **General Data** | | | | | | |
| Ambient Temperature Range (℃) | -30~60 | -30~60 | -30~60 | -30~60 | -30~60 | -30~60 |
| Relative Humidity | 0~100% | 0~100% | 0~100% | 0~100% | 0~100% | 0~100% |
| Operating Altitude (m) | ≤4000 | ≤4000 | ≤4000 | ≤4000 | ≤4000 | ≤4000 |
| Cooling | Fan Cooling | Fan Cooling | Fan Cooling | Fan Cooling | Fan Cooling | Fan Cooling |
| Display | LCD or WIFI+APP | LED, WIFI+APP | LED, WiFi+APP | LCD or WiFi+APP | | LED, WiFi+APP |
| Communication | RS485 or WIFI or PLC | | RS485 & WiFi, PLC(Optional) | RS485 or WiFi | | RS485 & WiFi, PLC(Optional) |
| Weight (kg) | 60 | 65 | 70 | 59 | 64 | 70 |
| Dimension (Width*Height*Depth mm) | 586*788*264 | 586*788*264 | 586*788*267 | 586*788*264 | 586*788*264 | 586*788*267 |
| Protection Degree | IP65 | IP65 | IP65 | IP65 | IP65 | IP65 |
| Night Self Consumption (W) | <1 | <1 | <1 | <1 | <1 | <1 |
| Topology | Transformerless | | | | | |
| **Certifications & Standards** | | | | | | |
| Grid Regulation | IEC61727, IEC62116, VDE4105, VDE0126, RD1699, RD413, RD661, EN50438 | | VDE-AR-N 4105, IEC61727, IEC62116 | - | - | - |
| Safety Regulation | IEC62109-1&-2 | | | - | - | - |
| EMC Regulation | EN 6100-6-4:2007+A1:2011, EN 61000-6-2:2005, EN 61000-3-11:2000, EN 61000-3-12:2011+AC:2013 | | EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4 | - | - | - |

*Not all certifications & standards listed, check the official website for details.

**18MW** **Konya | Turkey**

## 5MW Muan | South Korea

**11MW** De Munt Emmeloord | Holland

**2MW**

**Izmir | Turkey**

**2MW** Amsterdam | Netherlands

**200KW** Coventry | UK

**12MW** Rotterdam | Holland

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