

KP40G

Grid-connected Photovoltaic Inverter



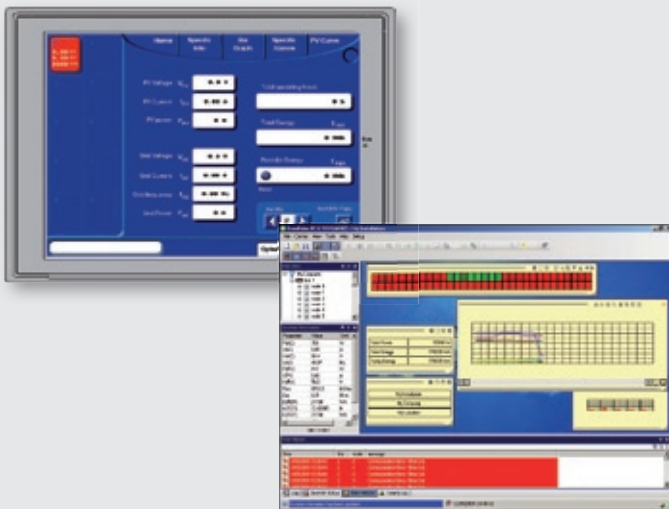
» Compact yet powerful

» High performance with high quality

» Flexible and scalable monitoring system options

High reliability and performance makes your PV system beneficial and profitable

Omron, more than several decades of experience in the field of automation controls technologies, world-wide sales network and well-localized support to customers, can make a fusion of automation solution and Photovoltaic (PV) technologies possible.



Turnkey solution

With the industrial automation controls components and technologies, Omron is a company that provides a turnkey solution to, for instance, a PV tracking system, by supplying not only PV inverters but also Programmable Logic Controllers and/ or Drive products, which can be used to control and monitor the movement of PV tracker.

Integration of controls and monitoring needs in a PV system, together with high reliability and durability at an industrial standard level, is an Omron's solution.

Omron contributes to a required PV cell/ module manufacturing process innovation by providing a solution technologies including process controls products for its equipments. As another face, Omron supplies key components built in PV inverters such as world-respectable relays or switches world-wide, while helping to make PV systems attractive and profitable by offering quality PV inverters.

Definitely, Omron is a brand to choose along the entire value chain in the PV industry from manufacturing to components.

Commitment to the society and environment

Commitment to environment protection is one of our corporate creed and Corporate Social Responsibility (CSR) as being a part of community members.

Omron is committed to contributing to protection of the environment by supplying state-of-the-art, quality products such as PV inverters to the renewable energy fields. Reduction in CO2 emission or greenhouse gases is promoted not only by doing so but also in Omron's own operation – offices and shop floors, to help stop global warming, being aware of importance to tackle the recently continuing oil and gas price hike partly due to the scarcity of fossil fuels.

Renewable energy is clean, and PV or solar energy is unlimited source of energy and electricity we can afford to depend on.

As so, photovoltaic is investment worth since many EU nations introduce market support mechanism - incentive program (so-called feed-in tariff) to encourage installation of PV systems and increasing use of PV energy and electricity.

Support mechanism or feed-in tariff enables a system owner or investor to pay off the investment on installation as soon as possible and to make even a profit.

Advertising carried in a Japanese nation-wide financial and economics newspaper Nikkei Shinbun, featuring in CSR theme, in December 2006



PV tracking systems

Require state-of-the-art controls technologies to follow the sun's astronomical movement to make the energy yield maximum

PV technologies

Since early 1990's, decades long research and development of PV inverter technologies, expertise and experience in the PV market, Omron has accumulated reputation over the quality and well-balanced performance of products and got a name recognition as a leading manufacturer of PV inverters and technologies in Japan.

Not less than a few hundreds mega watt (MW) installed in Japan, Omron started developing the businesses worldwide since years to help promoting renewable energy. Persistent efforts to keep the Maximum Power Point Tracking (MPPT) performance at the best to provide a high MPPT efficiency, high stability and high agility (quick response) to a change in irradiation. Omron KP40G, a new on-grid PV inverter, is ideal for both the European residential and commercial markets.

High reliability, high power density and ease of installation provide an ideal solution for PV system integrators, investors and owners as well. Fulfilling your energy, environment and financial objectives is our mission.



Model KP40G

Benefits of Omron KP40G:

Reliable

- Four kW output maximum
- Compact, light yet IP55
- State-of-the-art MPPT controls provide high stability and high agility (quick response) to any irradiation change, making the overall efficiency high
- Quality design provides high reliability and long life expectancy of 20 years
- Perfect thermal design -Air tunnel, realizes no power derating up to 40 degree C
- Wide input range, together with the excellent MPPT controls algorithm, is compatible with nearly all PV modules and makes the output yield better
- Large input current match large cell modules
- Standard warranty 5 years
- Ten year extended warranty available at a price

Easy

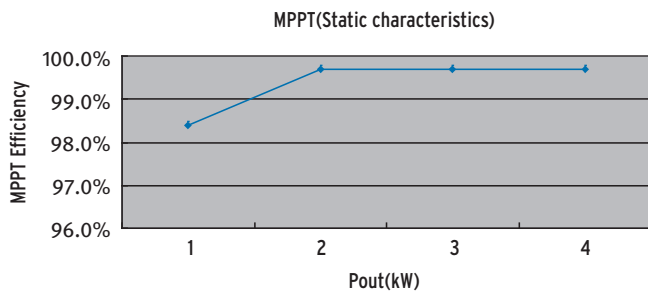
- Diagnostics function makes maintenance operation easy;
 - Error message and alarm appears on display window of product
 - In operation mode, power data shown
- Easy to install without opening the housing;
 - Three pairs of DC contacts
 - Removable AC socket
 - Two communication ports for cross wiring
- RS-232 & RS-485 comms ports
- All country setting in one; No parameter setting, simple to set an applicable country among Germany, Austria, Switzerland, Netherlands, Spain and Italy
- CE marking for safety and EMC standards
- VDE0126-1-1 (ENS) certified, conforms to Spanish Royal Decree 1663/ 2000 and Italy's ENEL DK5940/ Apr. 07
- Transformer-less, light and compact
- Various monitoring option available;
 - Dedicated display terminals
 - Monitoring software run on PC

KP40G

Specifications and Performance

Unique MPPT controls technology provides unparalleled tracking performance.

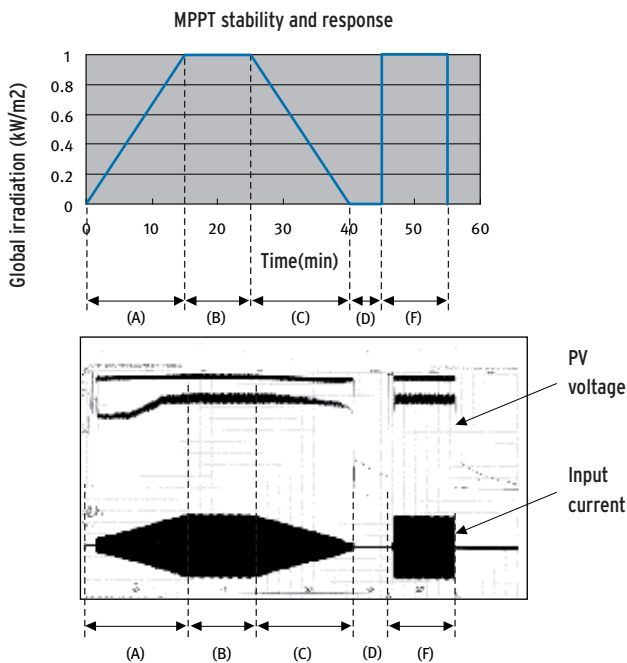
A | High MPPT efficiency



The KP40Gs MPPT controls work to get the output of PV modules maximum in order to yield as much energy from the KP40G as possible.

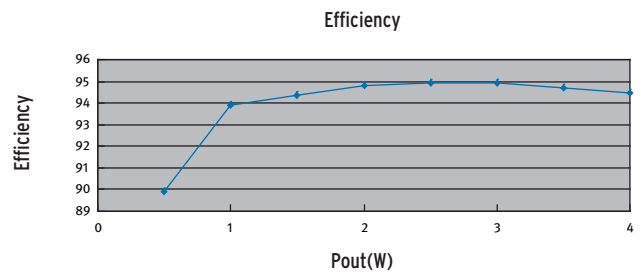


B | High MPPT stability and agility (to change in irradiation)



The KP40Gs MPPT controls provide a smooth, stable tracking performance (See the period (A) and (C) of the input current of the Omron KP40G in the figure) and also a quick response to a rapid change in irradiation without any critical delays in its response or disruptive operation (See the period (F) of the input current of the Omron KP40G in the figure), making the energy yield maximised on any conditions.

C | High efficiency



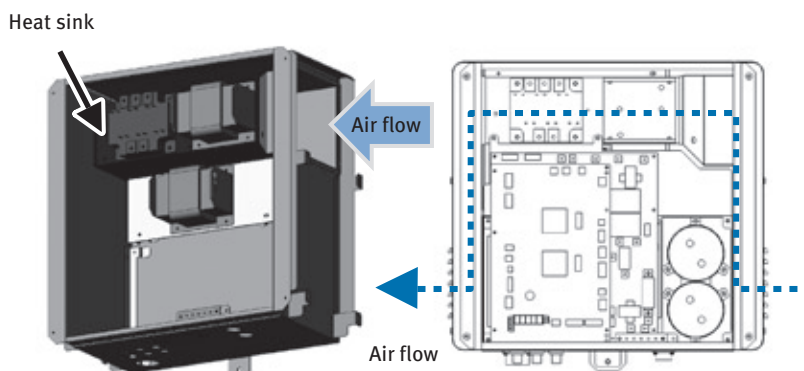
Note: All data in this document measured immediately after started

- Less than 1000 m above sea-level.
- Utility voltage: 230VAC+/-3% /50Hz
- Input voltage: 380VDC
- Ambient temperature: 25 °C
- Tolerances according to IEC 61683

Quality design provides maximum reliability

Designed with necessary and sufficient margin or leeway for usage of components, Omron KP40Gs obtains a reasonably and practically long enough lifetime to serve you profitably. Twenty years life expectancy is a central part of the product design policy to make sure it offers a 10 year chargeable warranty.

Omron develops an “air tunnel” mechanism to cool down the heat sink to indirectly dissipate the generated heat inside the enclosure, kind of which gets in popularity nowadays. Thus the KP40G fulfill the IP55 enclosure rating and realizes high output derating without any cost of product quality and reliability.



Characteristics

Model	KP40G-OD-1/ KP40G-OD-2
Rated output power	4kW (at 25 degree C)
Peak output power	4kW (at 25 degree C)
MPP voltage range	DC225V to 600V
Max. operation voltage	DC600V
Rated input voltage	DC380V
Max. Input current	19A max. and 10A max. per pair
Euro efficiency	94.00%
Max. efficiency	95.00%
MPPT efficiency	99.7% max.
Ambient temperature range	-20 to 55_
Relative humidity	100%
Cooling	Forced ventilation
ENS (applicable to Germany market)	Yes (with KP40G-OD-2)
Protection degree	IP55
Size HxWxD in mm	400x430x200 mm
Weight	Approx. 23kg
Standby consumption power	< 2W (at 230VAC/50Hz), from utility
Night time consumption power	< 0.15W (at 230VAC/50Hz), from utility
DC socket type	Multi-Contact
Standards	VDE0126-1-1 (ENS) CE marking; EN50178, EN61000-6-2, EN61000-6-3, EN61000-3-2 Conforms to Spanish Royal Decree 1663/ 2000 Conforms to Italy’s ENEL DK5940/ Apr. 07

Omron KP40G communications and monitoring options

Monitoring versatility from domestic/residential use to large installation

It is important to monitor the energy data of your PV system for interests and benefits, no matter whether it is domestic or commercial use, and also know if it operates well as expected. By means of Omron KP40G communications and monitoring options, your concerns are resolved with ease.

- Omron offers 4 types of options depending on your various needs;
- A** | “Plug and play” handy display terminal for residential application - The Omron KP-DP1-E
 - B** | PC monitoring software for small-mid sized applications
 - C** | Dedicated monitoring display for mid sizes application - The Omron NS-5 terminal
 - D** | System solution for a large PV system

Each solution has got an unique feature and benefit.

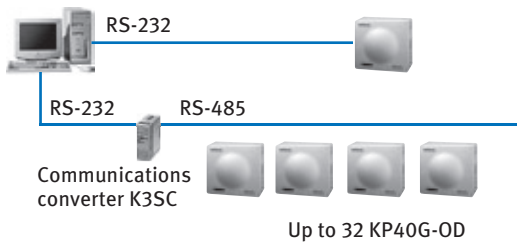
A | Easiest way to monitor your PV system data - The Omron KP-DP1-E Display terminal



Plug and play, suitable for residential applications. With the Omron KP-DP1-E, you are able to monitor what you want at a glance. Most importantly;

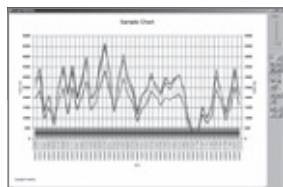
- Output power (kW)
- Total energy or watt-hour metre (kWh)
- Daily, monthly, periodic energy (kWh/ unit)
- Feed-in tariff billed (Euro)

B | PC software for small-medium sized system, mostly fit up to 100kW system



Powerful solution with minimum investment for monitoring your PV system. The PC software features advanced diagnosis functions with around-clock monitoring of your system.

Omron has developed powerful analysis tools, e.g. trend and bar graphs, screen viewer of different variables, alarms etc, so that you can be guaranteed a thorough management over your PV system.

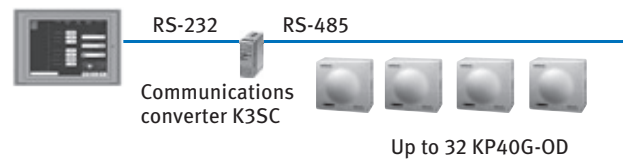


The Omron PC software includes a wizard for setting up your installation (including auto-detection of pre-installed equipment) to save your time in set-up of your applications.



C | Dedicated monitoring display

Easy quick viewing of the performance of your PV system - A highly reliable dedicated PV monitoring system based on the Omron touch screen monitor device NS-5 terminal with dedicated software. The compact and sleek “all in one” design of the touch screen makes it an ideal solution for a wall or on-panel mounting.



The robustness of touch screen monitor enables you to use it in an industrial area without problem, it can be used in the harshest conditions (protection degree IP65F) and its top quality TFT display provides a perfect viewing even in the worst light conditions.

This simple to use, highly functional terminal, capable of connecting up to 10 KP40G PV inverters at any given time, is a perfect tool for monitoring mid-scale PV systems.

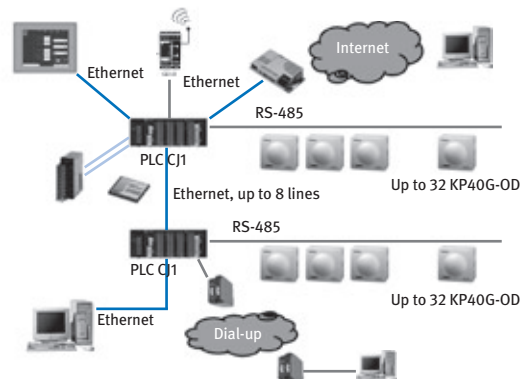


Overall performance of a PV system can be viewed at once in the multi-color display, all parameters are visualized with trend graphs, instant comparisons with bar graphs, and, of course, data logging in Compact Flash of all stored data.



D | Solution for a large PV system

A complete solution for a large scale PV system or Solar park. Omron provides, without a doubt, the definitive system solution based on scalable architecture with a multitude of options, its nucleus is an industrial Programmable Logic Controller (PLC) which guarantees a required system reliability and maintainability for large PV applications.



PLC works as the interface for communications and data collection, ensuring that information is gathered from up to 256 KP40G PV inverters and that data constantly and clearly flow to the monitoring devices – PC or the Omron touch screen monitor device.

This solution provides variety of advantages (as options) for its users, owners or investors. Any incident can be reported via GSM, and monitoring data can be browsed via internet, enabling a remote maintenance and management and saving transport time and expenses.



Ordering Information

Description	Model	Applicable country	Remarks
4000W PV inverter without ENS, outdoor	Omron KP40G-OD-1	Netherlands, Spain, Italy	
4000W PV inverter with ENS, outdoor	Omron KP40G-OD-2	Germany, Austria, Switzerland	
Display terminal for domestic use	Omron KP-DP1-E	...	Order needs for cable with 1.5m/15 m length
Maintenance parts	Ventilating fan, pair of dust filters	Available on demand	

Ordering Information

Feature	PC Software	Dedicated monitoring display	System solution
Max Number of Inverters	32	10	256
Inverters Auto detection	Yes	Yes	Yes
Communications	USB / RS-232 / RS-485 / Ether	RS-485	RS-485 / Ethernet
General Plant Overview	Yes	Yes	Yes
Real Time Trend Graphs	Yes	Yes	Yes
Historical Information	Yes	No	Yes
Real Time Bar Graphs	Yes	Yes	Yes
Data Logging	Yes	Yes (Compact Flash)	Yes (Compact Flash)
Export data to standard formats	Yes	Yes	Yes
Plant Information Summary (Reports)	Yes	Yes	Yes
Multilanguage	English / German / Spanish	English / German /Spanish	English / German / Spanish
Alarm & Error management	Yes	Yes	Yes
Alarms message via SMS	No	No	Yes
Information access via Internet	No	No	Yes
Weather sensors Input	No	No	Yes
Accessories requirement	Dedicated comms cables, Omron K3SC	Omron NS5, dedicated comms cables, Omron K3SC	Omron CJ1, dedicated comms cables, Omron K3SC and other

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